Application Note

Siemens HiPath 4000 Rel 5.0 using SIP via Cisco Unified Communications Manager – Session Manager Edition 8.5 to Cisco Unified Communications Manager 8.5 and Cisco Unified Border Element (ASR1000 Rel. 3.3.1S) to Service Provider

July 13, 2011 - Initial Version

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Introduction

- This application note describes the necessary steps and configurations for connectivity between Siemens Hipath 4000 Release 5.0 and Cisco Unified Communications Manager (Cisco UCM) Release 8.5 via Cisco Unified Communications Manager-Session Manager Edition (Cisco UCM-SME) Release 8.5. The Cisco UCM-SME also manages a SIP connection to a Cisco Unified Border Element (Cisco UBE) ASR1000 running software version 3.3.1S. The network topology diagram (Figure 1) shows the test setup for end-to-end interoperability between the different leaf nodes (Siemens Hipath 4000, Cisco UCM and Cisco UBE/SP) via the Cisco UCM-SME.
- The network topology diagram (Figures 1) shows the test setup for end-to-end interoperability between Cisco Unified Communications Manager (Cisco UCM) connected to the Siemens HiPath 4000 PBX via a Cisco Session Management Edition (SME) using SIP trunks. Features tested are basic call, 3-way (ad-hoc) conference, call transfer (attended and unattended), call forward (all, busy and no answer), hold/resume, fax transmission, and DTMF interworking. This test setup also includes a connection to a Service Provider, using SIP trunks. Cisco Unified Border Element (Cisco UBE) is used as a session border controller (SBC), providing demarcation, security, and interworking services between the customer's private network and the service provider's SIP network.
- During testing, a Cisco ASR1002 voice gateway was used to run the Cisco Unified Border Element features set. However, other Cisco voice gateways can be used. The decision to choose the Cisco gateway model is left to the customer. The customer should choose a Cisco IOS gateway model based on the capabilities and the capacity that will be required based on the planned network deployment. Here is a list of Cisco IOS products capable of running Cisco UBE.
- Cisco 3900 Series Integrated Services Routers
- Cisco 2900 Series Integrated Services Routers
- Cisco 2800 Series Integrated Services Routers
- Cisco 3800 Series Integrated Services Routers
- Cisco AS5350XM Universal Gateway
- Cisco AS5400XM Universal Gateway
- Cisco ASR 1000 Series Aggregation Services Routers
- If additional guidance on the Cisco UBE is needed, please refer to the Cisco UBE section on the Cisco Interoperability Portal (www.cisco.com/go/interoperability).
- Results may vary based on Service Provider being used.

Network Topology

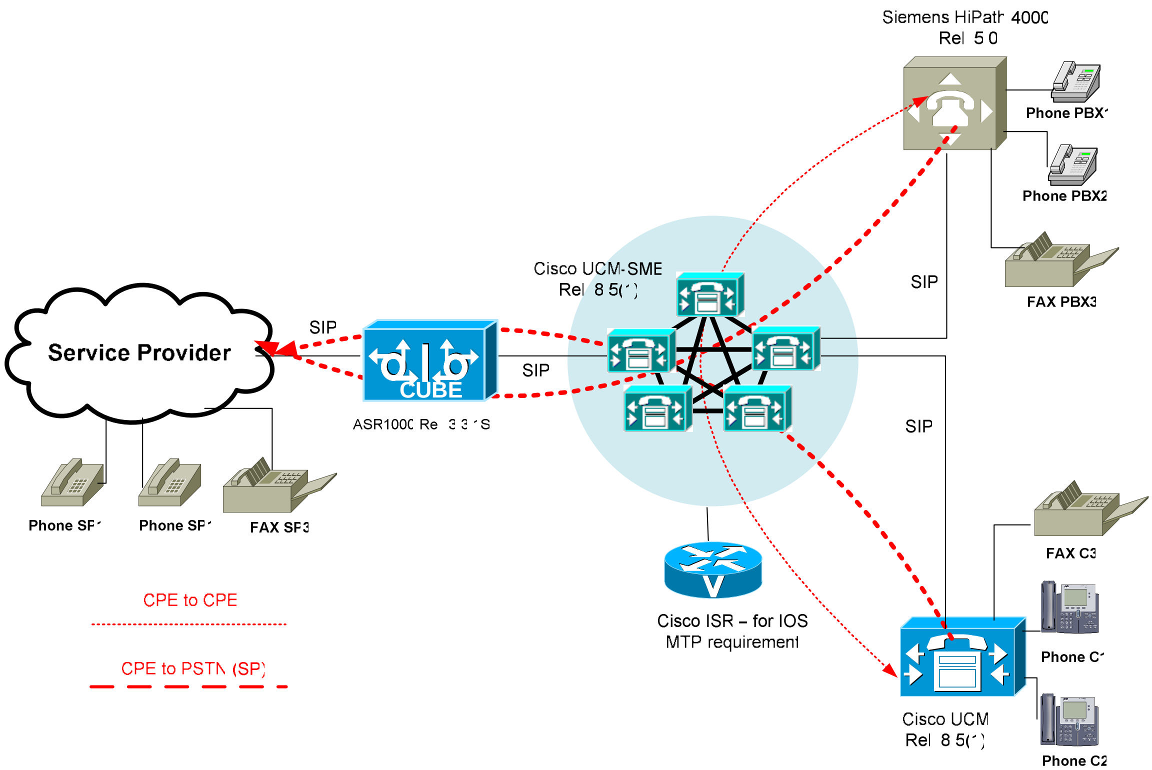


Figure 1. Basic Call Setup

Capabilities

- Voice/fax calls including supplementary services can be successfully established between endpoints controlled by the Siemens PBX and endpoints controlled by the Cisco Unified Communications Manager.
- Voice/fax calls including supplementary services can be successfully established between endpoints controlled by the Siemens PBX and the PSTN, using Cisco UBE as a session border controller.

Limitations

PBX

- Siemens PBX does not update phones' displays during call alerting. Once call is completed, however, phone displays are updated with connected party information.
- Siemens PBX does not update phones displays after calls to Cisco UCM and/or Service provider are transferred/conferenced. Cisco UCM/Cisco UBE send UPDATE message with updated connected party information, but it is not passed to the Siemens end point.
- Siemens PBX does not provide Diversion Header and/or History-Info header on forwarded calls over SIP trunk. This limitation prevents Cisco UCM end points from providing call forward information when used as call forwarding targets. This also prevents centralized voicemail deployments using Cisco voicemail platforms integrated to Cisco UCM-SME and/or Cisco UCM. Inbound SIP NOTIFY messages are also rejected with 404 Not Found.
- Siemens SIP phones do not support Early Attended call transfers.
- Although T.38 fax relay is supported with this software release, whenever calls are established using G.729 and fax tone is detected by the Siemens PBX, it first tries to re-establish the call using G.711. If the remote end rejects the re-negotiation to the higher bandwidth codec, the Siemens PBX will not attempt T.38. If call is first established using G.711, however, then the Siemens PBX will attempt switching to T.38 fax relay.

Cisco UBE

- ASR 1000 software currently does not support codec selection preference (Voice Class Codec command) on Early Offer-to-Early Offer call scenarios. This can potentially cause issues whenever calls require switching codecs mid-call (e.g. calls to fax machines that trigger G.711 pass-through). Because of this, it is recommended creating a different dial-peer to be used for G.711-only calls. An example of a dial-peer to be used for fax/modem calls is provided later in this document.

System Components

Hardware Components

The following hardware is required:

- Cisco MCS 7800 Unified Communications Manager Appliance
- Cisco ASR 1000 gateway
- 2 Cisco Unified IP phone 7960 configured as SCCP phones
- 2 Cisco Unified IP phone 7970 configured as SIP phones
- Siemens HiPath 4000 PBX
- 2 Siemens E Optiset advanced plus digital phones (Euro/US model)

Software Requirements

The following software is required:

- Cisco Unified Communications Manager Release 8.5
- Cisco IOS Release ASR1000 RP1 3.3.1S
- Siemens HiPath 4000 PBX Release 5.0

Features

This section lists supported and unsupported features.

Features Supported

- Basic calls (See Limitations section for details.)
- CLIP-Calling line (Number) identification presentation
- CLIR-Calling line (Number) identification restriction
- COLP-Connected line (Number) identification presentation
- COLR- Connected line (Number) identification restriction
- Consultation transfer – Local and Network/External
- Early Attended transfer – Local and Network/External
- Call forward Local – Unconditional, Busy and No reply (See Limitations section for details)
- Call forward Network/External – Unconditional, Busy and No reply (See Limitations section for details)
- DTMF interworking
- Fax transmissions using G.711 pass-through and T.38 fax relay (See Limitations section for details)

Features Not Supported (See limitations)

- Centralized Message center voicemail integration
- Message Waiting via SIP NOTIFY

Configuration

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

Configuring the Siemens HiPath 4000 PBX

1. Software release information
2. Add the new access code to Dialing Plans using WABE + LDPLN
3. Add the new trunk group access code using BUEND
4. Configure trunk using TDCSU
5. Configure Class of Trunk using COT
6. Configure Class of Parameter for device handler using COP
7. Configure Class of Service using COSSU
8. Configure Gateway using GKREG
9. Configure HG3500 board using CGWB
10. Configure Trunk Routing using RICHT
11. Configure LCR Out-dial Rules using LODR
12. Configure LCR Directions using LDAT
13. Configure stations using SBCSU
14. Enable In-Band DTMF signaling for the Digital Stations using SBCSU.
15. Web-Based Management for HG3500 V5 (Screen Captures)
    - Basic Settinngs – Gateway Properties
    - Voice Gateway – SIP Parameters
    - Voice Gateway – Codec Parameters
    - Voice Gateway – SIP Trunk Profile Parameters
    - Voice Gateway – SIP Trunk Profile

Configuration Menus and Commands for Hipath 4000

Siemens HiPath 4000 Software Release

```
DISP-DBC:N;
H500:  AMO DBC   STARTED
+------------------------------------------------------------------------------+
| SYSTEM CLASSIFICATION   : SYSTEM 600          (H600  )                       |
| HARDWARE ASSEMBLY       : COMPACT PCI         (CPCI   )                      |
| OPERATING MODE          : SIMPLEX                                            |
| RESTART TYPE            : SYM                                                |
| HW-ARCHITECTURE         : 4000                                               |
| HW-ARCHITECTURE TYPE    : 3                                                  |
|                                                                              |
| 'NO OF' HW VALUES                                                            |
|   LTG'S     :     1  LTU'S          : 15  LOG.LINES : 32000  MTS BD /GSN:   1 |
|   SIUP'S/LTU:     4  TMD24'S PER LTU:  4  PHYS.PORTS: 16000  HWY /MTS BD: 128 |
|   HDLC /DCL :    16  PBC /DCL       :  6  PBC'S     :    17                  |
| LOG. SIU LINES          :   81                                               |
| LOG. CONF LINES         :   90                                               |
| LOG. DCL LINES          :   91                                               |
| DB DIMENSIONING-NAME    : LARGE           CONF-TABLE VERSION:  26            |
| DB SUSY'S:                                                                   |
|   SWITCH NUMBER : L31910Z0291U00001                                          |
| LOCATION         : CUSTOMER                                                  |
| BAPPL            : BSMONO                                                    |
| DBAPPL           : DBLARGE                                                   |
| SYSTEM_ID        :                                                           |
|                                                                              |
| OVERLAY RESOURCES IN ADP:                                                    |
|   SLOTS       : 1000   MEMORY SPACE : 2000 KB                                |
| OVERLAY RESOURCES IN SWU:                                                    |
|   SLOTS       : 1000   MEMORY SPACE : 2000 KB                                |
| OVERLAY RESOURCES BEI MONO PROCESSING:                                       |
|   SLOTS       :  400   MEMORY SPACE : 3000 KB                                |
+------------------------------------------------------------------------------+

AMO-DBC  -111       DATABASE CONFIGURATION
DISPLAY COMPLETED;

DISP-VEGAS:LIST=LONG;
H500:  AMO VEGAS STARTED
     SYSTEM NO.        AMO   APS NO.           START           USER     STATUS
SWU: L31910Z0291U00001 REGEN P30252B4700B00101 10.02.11  13:26 MIKO     FINISHED
      AMO FINISHED    : 10.02.2011  13:27:30
      SWU RES CODE APS: P30252B4700S00101   (DIR FILE:  :PDS:APSI/PS/S0-E20SC)
      SWU AMO CODE APS: P30252B4700B00101   (DIR FILE:  :PDS:APSI/PS/B0-E20BC)
      SWU AMO TEXT APS: P30252B4700B00101   (DIR FILE:  :PDS:APSI/PS/B0-E20BC)
      BREAK MARK  : NO
      RESERVATION : NO
ADS: NO-ENTRY-IN-DBASE REGEN P30252B4700A00101 10.02.11  13:27 MIKO     FINISHED
      AMO FINISHED    : 10.02.2011  13:27:50
      ADS RES CODE APS: P30252B4700D00101   (DIR FILE:  :PDS:APSI/PS/D0-E20DC)
      ADS AMO CODE APS: P30252B4700A00101   (DIR FILE:  :PDS:APSI/PS/A0-E20AC)
      ADS AMO TEXT APS: P30252B4700A00101   (DIR FILE:  :PDS:APSI/PS/A0-E20AC)
      BREAK MARK  : NO
      RESERVATION : NO

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


DISP-APS:Y,PSALL,"Y0-E20YC",;
H500:  AMO APS   STARTED
ADINIT STARTED
PROGRAM SYSTEM           : Y0-E20YC
VERSION NUMBER           : 50
CORRECTION VERSION NUMBER : 001
PART NUMBER              : P30252N4701BH2502|V5 R1.2.25
PROGRAM SYSTEM WITH CODE SUBSYSTEMS
INTERFACE VERSION:
```

```
PROGRAM SYSTEM DOES NOT CONTAIN ANY INTERFACE VERSIONS

ADINIT COMPLETED
STATUS  =  H'0000
AMO-APS  -111       SOFTWARE LOAD UPGRADE
DISPLAY COMPLETED;
```

Dial Plans configuration, WABE

```
DISP-WABE:GEN,,;
H500:  AMO WABE  STARTED
  ------------------------------------------------------------------------------
  | DIGIT INTERPRETATION                  VALID FOR ALL DIAL PLANS             |
  ------------------------------------------------------------------------------
  |                 |    CALL PROGRESS STATE     |NODE/DIGIT| RESERVED/CONVERT |
  |      CODE       |            1 11111 11112 22| ANALYSIS | DNI/ADD-INFO     |
  |                 |0 12345 67890 12345 67890 12|  RESULT  | *=OWN NODE       |
  ------------------------------------------------------------------------------
  | 101             |* ..... ..... ..... ..... ..| NETRTE   |                  |
  | 102             |* ..... ..... ..... ..... ..| NETRTE   | R                |
  | 103             |* ..... ..... ..... ..... ..| NETRTE   |                  |
  | 150             |. .**** ***** **... ..... .*| TIE      |                  |
  | 199901 - 199902 |. .**** ***** **... ..... .*| TIE      |                  |
  | 200             |. .**** ***** **... ..... .*| TIE      | R                |
  | 201     - 202   |. .**** ***** **... ..... .*| TIE      |                  |
  | 26      - 27    |. .**** ***** **... ..... .*| TIE      | R                |
  | 4300    - 4310  |. .**** ***** **... ..... .*| STN      |                  |
  |                 |                            |          |DESTNO 103        |
  |                 |                            |          |DNNO    0-   0-103 |
  |                 |                            |          |PDNNO   0-   0-203 |
  | 4311    - 4320  |. .**** ***** **... ..... .*| STN      |                  |
  |                 |                            |          |DESTNO 111        |
  |                 |                            |          |DNNO    0-   0-111 |
  |                 |                            |          |PDNNO   0-   0-111 |
  ------------------------------------------------------------------------------
  | DIGIT INTERPRETATION                  VALID FOR ALL DIAL PLANS             |
  ------------------------------------------------------------------------------
  |                 |    CALL PROGRESS STATE     |NODE/DIGIT| RESERVED/CONVERT |
  |      CODE       |            1 11111 11112 22| ANALYSIS | DNI/ADD-INFO     |
  |                 |0 12345 67890 12345 67890 12|  RESULT  | *=OWN NODE       |
  ------------------------------------------------------------------------------
  | 5000    - 5015  |. .**** ***** **... ..... .*| STN      |                  |
  |                 |                            |          |DESTNO 103        |
  |                 |                            |          |DNNO    0-   0-103 |
  |                 |                            |          |PDNNO   0-   0-203 |
  | 5297            |. .**** ***** **... ..... .*| STN      |                  |
  |                 |                            |          |DESTNO   0        |
  |                 |                            |          |DNNO    0-   0-200*|
  | 6999            |. .**** ***** **... ..... .*| TIE      |                  |
  | 7020    - 7029  |. .**** ***** **... ..... .*| STN      |                  |
  |                 |                            |          |DESTNO   0        |
  |                 |                            |          |DNNO    0-   0-200*|
  | 7030    - 7039  |. .**** ***** **... ..... .*| STN      | R                |
  |                 |                            |          |DESTNO   0        |
  |                 |                            |          |DNNO    0-   0-200*|
  | 7040    - 7049  |. .**** ***** **... ..... .*| STN      |                  |
  |                 |                            |          |DESTNO   0        |
  |                 |                            |          |DNNO    0-   0-200*|
  ------------------------------------------------------------------------------
  | DIGIT INTERPRETATION                  VALID FOR ALL DIAL PLANS             |
  ------------------------------------------------------------------------------
  |                 |    CALL PROGRESS STATE     |NODE/DIGIT| RESERVED/CONVERT |
  |      CODE       |            1 11111 11112 22| ANALYSIS | DNI/ADD-INFO     |
  |                 |0 12345 67890 12345 67890 12|  RESULT  | *=OWN NODE       |
  ------------------------------------------------------------------------------
  | 7050    - 7059  |. .**** ***** **... ..... .*| STN      | R                |
  |                 |                            |          |DESTNO   0        |
  |                 |                            |          |DNNO    0-   0-200*|
  | 7060    - 7069  |. .**** ***** **... ..... .*| STN      |                  |
```

```
|                 |                            |          |DESTNO   0        |
|                 |                            |          |DNNO    0-  0-200*|
| 7070            |. .**** ***** **... ..... .*| STN      | R                |
|                 |                            |          |DESTNO   0        |
|                 |                            |          |DNNO    0-  0-200*|
| 9               |. .**** ***** **... ..... .*| TIE      |                  |
| *0              |. *...* ..**. ..... ..... .*| ACDWORK  |                  |
| *2              |. *...* ..**. ..... ..... .*| CDRACC   |                  |
| *3              |. .**** ..**. ..... ..... .*| PUDIR    |                  |
| *4              |. *...* ..*.. ..... ..... .*| CONF     |                  |
| *52             |. ....* ..... ..... ..... ..| MWCAN    |                  |
| *530            |. ....* ....* ..... ..... ..| MBOFF    |                  |
| *532            |. ....* ....* ..... ..... ..| MBON     |                  |
------------------------------------------------------------------------------
| DIGIT INTERPRETATION                   VALID FOR ALL DIAL PLANS            |
------------------------------------------------------------------------------
|                 |    CALL PROGRESS STATE     |NODE/DIGIT| RESERVED/CONVERT |
|      CODE       |            1 11111 11112 22| ANALYSIS | DNI/ADD-INFO     |
|                 |0 12345 67890 12345 67890 12|  RESULT  | *=OWN NODE       |
------------------------------------------------------------------------------
| *564            |. *...* ..**. ..... ..... .*| ACDLOGOF |                  |
| *565            |. *...* ..**. ..... ..... .*| ACDLOGON |                  |
| *570            |. *...* ..**. ..... ..... ..| ACDPQS   |                  |
| *571            |. *...* ..**. ..... ..... ..| ACDPGS   |                  |
| *580            |. *...* ..**. ..... ..... ..| ACDSQS   |                  |
| *581            |. *...* ..**. ..... ..... ..| ACDSGS   |                  |
| *590            |. ....* ..... ..... ..... .*| ACDEMMSG |                  |
| *591            |. ....* ..... ..... ..... .*| ACDSHMSG |                  |
| *61             |. .**.. ..**. ..... ..... ..| DCPA     |                  |
| *62             |. .**.. ..**. ..... ..... ..| SELFPA   |                  |
| *67             |. .**** *.*** **... ..... .*| DISUON   |                  |
| *68             |. .**** *.*** **... ..... .*| DISUOFF  |                  |
| *7              |. ..... ..... ..... ....* ..| CONSKY   |                  |
| *80    - *89    |. .**** ..**. ..... ..... ..| PARK     |                  |
| *9              |. ....* ..**. ..... ..... ..| HOLD     |                  |
| **1             |. *.... ..**. ..... ..... .*| SPLIT    |                  |
| **3             |. ....* ..... ..... ..... ..| PU       |                  |
------------------------------------------------------------------------------
| DIGIT INTERPRETATION                   VALID FOR ALL DIAL PLANS            |
------------------------------------------------------------------------------
|                 |    CALL PROGRESS STATE     |NODE/DIGIT| RESERVED/CONVERT |
|      CODE       |            1 11111 11112 22| ANALYSIS | DNI/ADD-INFO     |
|                 |0 12345 67890 12345 67890 12|  RESULT  | *=OWN NODE       |
------------------------------------------------------------------------------
| **41            |. ..... ..... ..... ..... .*| RMCONFP1 |                  |
| **42            |. ..... ..... ..... ..... .*| RMCONFP2 |                  |
| **43            |. ..... ..... ..... ..... .*| RMCONFP3 |                  |
| **44            |. ..... ..... ..... ..... .*| RMCONFP4 |                  |
| **45            |. ..... ..... ..... ..... .*| RMCONFP5 |                  |
| **46            |. ..... ..... ..... ..... .*| RMCONFP6 |                  |
| **47            |. ..... ..... ..... ..... .*| RMCONFP7 |                  |
| **48            |. ..... ..... ..... ..... .*| RMCONFP8 |                  |
| **50            |. *...* ..**. ..... ..... ..| CAFGRAV  |                  |
| **51            |. *...* ..**. ..... ..... ..| CAFGRNAV |                  |
| **6             |. ....* ..**. ..... ..... .*| COMSPK   |                  |
| **8             |. ....* ..... ..... ..... ..| MWANS    |                  |
| ***200          |. .**** ***** **... ..... .*| OWNNODE  |                  |
| ***4            |. ..... ..*.. ..... ..... .*| RMCONFLP |                  |
| ***5            |. ....* ..... ..... ..... ..| MONSLNT  |                  |
| **#65           |. *...* ..**. ..... ..... ..| CAFGROFF |                  |
| *#274           |. *...* ..... ..... ..... ..| WSS      |                  |
------------------------------------------------------------------------------
| DIGIT INTERPRETATION                   VALID FOR ALL DIAL PLANS            |
------------------------------------------------------------------------------
|                 |    CALL PROGRESS STATE     |NODE/DIGIT| RESERVED/CONVERT |
|      CODE       |            1 11111 11112 22| ANALYSIS | DNI/ADD-INFO     |
|                 |0 12345 67890 12345 67890 12|  RESULT  | *=OWN NODE       |
------------------------------------------------------------------------------
| *#50            |. *...* ..**. ..... ..... ..| CAFAV    |                  |
| *#51            |. *...* ..**. ..... ..... ..| CAFNAV   |                  |
| *#55            |. *...* ..**. ..... ..... ..| CAFAFWD  |                  |
```

```
| *#56            |. *...* ..**. ..... ..... ..| CAFDFWD  |                  |
| *#58            |. .**** ..**. ..... .*... .*| DPIN     |                  |
| *#590           |. ....* ..... ..... ..... ..| DCOSX    |                  |
| *#591           |. ....* ..... ..... ..... ..| ACOSX    |                  |
| *#65            |. *...* ..**. ..... ..... ..| CAFLOGOF |                  |
| *#736           |. ....* ..... ..... ..... ..| SIGNON   |                  |
| *#739           |. ....* ..... ..... ..... ..| SIGNOFF  |                  |
| *#99            |. ..*.. *.... ..... ..... ..| SAT      | R                |
| #0              |. *...* ..**. ..... ..... .*| ACDNAV   |                  |
| #1              |. *.... ..*.. ....* ..... .*| ACBK     |                  |
| #2              |. *...* ..**. ..... ..... .*| APRIV    |                  |
| #3              |. .**.* ..**. ..... ..... .*| SPDI     |                  |
| #4              |. ***.* ..**. ....* ..... .*| SNR      |                  |
| #5              |. ....* ..... ..... ..... ..| ADND     |                  |
------------------------------------------------------------------------------
| DIGIT INTERPRETATION                   VALID FOR ALL DIAL PLANS            |
------------------------------------------------------------------------------
|                 |    CALL PROGRESS STATE     |NODE/DIGIT| RESERVED/CONVERT |
|      CODE       |            1 11111 11112 22| ANALYSIS | DNI/ADD-INFO     |
|                 |0 12345 67890 12345 67890 12|  RESULT  | *=OWN NODE       |
------------------------------------------------------------------------------
| #61             |. .**** ..*** **... ..... .*| SPDC1    |                  |
| #62             |. .**** ..*** **... ..... .*| SPDC2    |                  |
| #80             |. *...* ..**. ..... ..... .*| BROADCST |                  |
| #81             |. *...* ..**. ..... ..... .*| SPKRCALL |                  |
| #8378           |. ..... ..... ....* ..... ..| HWTEST   |                  |
| #90             |. ....* ..... ....* ..... ..| ASYSFWD  |                  |
| #91             |. ....* ..... ....* ..... ..| AFWDEXIN |                  |
| #92             |. ....* ..... ....* ..... ..| AFWDEXT  |                  |
| #93             |. ....* ..... ....* ..... ..| AFWDINT  |                  |
| #94             |. ....* ..... ....* ..... ..| AFWDB    |                  |
| #95             |. ....* ..... ....* ..... ..| AFWDBNA  |                  |
| #99             |. .**** ***** **..* ..... ..| AFWDREM  |                  |
|                 |                            |          |CFREMVAR CFU      |
|                 |                            |          |CFREMSE  VOICE    |
| #*1             |. ***** ..**. ..... ..... ..| MWACT    |                  |
| #*2             |. *...* ..**. ..... ..... ..| BUZZ     |                  |
| #*329           |. .**.* *.*** **... ..... ..| FAX      |                  |
------------------------------------------------------------------------------
| DIGIT INTERPRETATION                   VALID FOR ALL DIAL PLANS            |
------------------------------------------------------------------------------
|                 |    CALL PROGRESS STATE     |NODE/DIGIT| RESERVED/CONVERT |
|      CODE       |            1 11111 11112 22| ANALYSIS | DNI/ADD-INFO     |
|                 |0 12345 67890 12345 67890 12|  RESULT  | *=OWN NODE       |
------------------------------------------------------------------------------
| #*75            |. ....* ..... ..... ..... ..| DIGIDAT  |                  |
| #*77            |. .**.* *...* **... ..... ..| DTE      |                  |
| #*8             |. ***** ****. ..*** .**** ..| MWCANORI |                  |
| #*92            |. ....* ..... ..... ..... ..| AHTVCE   |                  |
| #*93            |. ....* ..... ..... ..... ..| DHTVCE   |                  |
| #*94            |. ....* ..... ..... ..... ..| AHTDTE   |                  |
| #*95            |. ....* ..... ..... ..... ..| DHTDTE   |                  |
| #*96            |. ....* ..... ..... ..... ..| AHTFAX   |                  |
| #*97            |. ....* ..... ..... ..... ..| DHTFAX   |                  |
| ##0             |. *...* ..**. ..... ..... .*| ACDAV    |                  |
| ##1             |. ....* ..... ..... ..... ..| DCBK     |                  |
| ##2             |. *...* ..**. ..... ..... .*| DPRIV    |                  |
| ##3             |. ....* ..... ....* ..... ..| SPDIPROG |                  |
| ##4             |. *...* ..**. ..... ..... .*| LNR      |                  |
| ##5             |. ....* ..... ..... ..... ..| DDND     |                  |
| ##7             |. *.... ..... ..... ..... ..| KNOVR    |                  |
| ##90            |. ....* ..... ....* ..... ..| DSYSFWD  |                  |
------------------------------------------------------------------------------
| DIGIT INTERPRETATION                   VALID FOR ALL DIAL PLANS            |
------------------------------------------------------------------------------
|                 |    CALL PROGRESS STATE     |NODE/DIGIT| RESERVED/CONVERT |
|      CODE       |            1 11111 11112 22| ANALYSIS | DNI/ADD-INFO     |
|                 |0 12345 67890 12345 67890 12|  RESULT  | *=OWN NODE       |
------------------------------------------------------------------------------
| ##91            |. ....* ..... ..... ..... ..| DFWDVCE  |                  |
| ##92            |. ....* ..... ....* ..... ..| DFWDEXT  |                  |
```

```
| ##93            |. ....* ..... ....* ..... ..| DFWDINT  |                   |
| ##99            |. .**** ***** **..* ..... ..| DFWDREM  |                   |
|                 |                            |          |CFREMVAR CFU       |
|                 |                            |          |CFREMSE  VOICE     |
| ###1            |. *.... ..**. ..... ..... ..| TRACE    |                   |
| ###20           |. ..... **..* **... ..... ..| MILLWAT  |                   |
| ###21           |. ..... **..* **... ..... ..| LOOPBACK |                   |
| ###22           |. ..... **..* **... ..... ..| SILENCE  |                   |
| ###23           |. ..... **..* **... ..... ..| COMBO    |                   |
| ###6            |. ....* ..... ..... ..... ..| MONTONE  |                   |
------------------------------------------------------------------------------

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

LCR Dial Plan configuration, LDPLN

```
DISP-LDPLN:LDP,,,"91"-"XXX"-"XXX"-"XXXX",,,,,;
H500:  AMO LDPLN STARTED
   +--------------+--------------------------------------------------+
   |              |                                                  |
   | DIPLNUM:    0|                                                  |
   | LDPNO  :    5| LDP : 91-XXX-XXX-XXXX                            |
   |              | SPC : 22                                         |
   |              | FDSFIELD : 0   SDSFIELD : 0   PINDP : N          |
   +------+-------+--------------------------------------------------+
   | DPLN | LROUTE| LAUTH                                            |
   |------+-------+--------------------------------------------------+
   |   0  |   201 | 1                                                |
   +------+-------+--------------------------------------------------+

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

Note: The LCR Dialplan entry above is used for outbound 10-digit calls to the PSTN, using G.729 codec.

```
DISP-LDPLN:LDP,,,"81"-"XXX"-"XXX"-"XXXX",,,,,;
H500:  AMO LDPLN STARTED
   +--------------+--------------------------------------------------+
   |              |                                                  |
   | DIPLNUM:    0|                                                  |
   | LDPNO  :    5| LDP : 81-XXX-XXX-XXXX                            |
   |              | SPC : 22                                         |
   |              | FDSFIELD : 0   SDSFIELD : 0   PINDP : N          |
   +------+-------+--------------------------------------------------+
   | DPLN | LROUTE| LAUTH                                            |
   |------+-------+--------------------------------------------------+
   |   0  |   201 | 1                                                |
   +------+-------+--------------------------------------------------+
AMO-LDPLN-111       ADMINISTRATION LCR DIALPLAN
DISPLAY COMPLETED
```

Note: The LCR Dialplan entry above is used for outbound calls requiring G.711 codec (e.g. fax and/or modem calls). This dialplan string allows the Siemens PBX to outpulse 81+10 digits, which will casue it to match a dial-peer configured to support G.711-only calls. The dial-peer in question will use a translation rule to strip out the leading “8” and send the 1+10 digit number to the Service Provider for processing.

Trunk Groups, BUEND

```
DISP-BUEND;
H500:  AMO BUEND STARTED
  TRUNK GROUPS (FORMAT=S)
  NO. NAME                 CHARCON
    1 T1 TGRP 1           (NEUTRAL)
    2 T1 TGRP 2           (NEUTRAL)
    3 E1 PRI TG 3         (NEUTRAL)
    4 E1 PRI TG 4         (NEUTRAL)
    5 E1 PRI TG 5         (NEUTRAL)
    6 E1 PRI TG 6         (NEUTRAL)
  150 150-SIP             (NEUTRAL)
```

```
  151 151-SIP Q          (NEUTRAL)

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

Trunk configuration, TDCSU

```
DIS-TDCSU:1-1-1-0;
H500:  AMO TDCSU STARTED
  +----------------------- DIGITAL TRUNK (FORMAT=L) ------------------------+
  | DEV      = HG3550IP      PEN      =  1-01-001-0   TGRP     = 150        |
  |-------------------------------------------------------------------------|
  | PROTVAR  = PSS1V2        INS      = Y             SRCHMODE = DSC        |
  | COTNO    = 59            COPNO    = 59            DPLN     = 0          |
  | ITR      = 0             COS      = 59            LCOSV    = 1          |
  | LCOSD    = 1             CCT      = SIP TRUNK     DESTNO   = 111        |
  | 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      = 111        |
  | ALARMNO  = 0             FIDX     = 1             CARRIER  = 1          |
  | ZONE     = EMPTY         COTX     = 59            FWDX     = 10         |
  | DOMTYPE  =               DOMAINNO =               TPROFNO  =            |
  | INIGHT   =                                        CCHDL    = SIDEA      |
  | UUSCCX   = 16            UUSCCY   = 8             FNIDX    = 1          |
  | CLASSMRK = EC      & G711    & G729AOPT           SRCGRP   = 1          |
  | TCCID    =                                        SECLEVEL = TRADITIO   |
  |-------------------------------------------------------------------------|
  | BCNEG    = N             BCGR     = 1             LWPAR    = 10         |
  | LWPP     = 0             LWLT     = 0             LWPS     = 0          |
  | LWR1     = 0             LWR2     = 0                                   |
  | DMCALLWD = Y             VNNO     =                                     |
  | SVCDOM   =                                                              |
  | BCHAN    =  1 && 10                                                     |
  |                                                                         |
  +-------------------------------------------------------------------------+
  AMOUNT OF B-CHANNELS IN THIS DISPLAY-OUTPUT: 10

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

Class of Trunk, COT

```
DISP-COT:COTNO=59;
H500:  AMO COT   STARTED

   COT:  59  INFO: SIP TRUNK
   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
        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
        REGISTRATION OF IMPLAUSIBLE EVENTS                            IEVT
        DON'T RELEASE CALL TO BUSY HUNT GROUP                         BSHT
        END-OF-DIAL FOR BLOCK IS SET                                  BLOC
        EMERGENCY OVERRIDE/DISCONNECT VIA S0/S2 LINE                  PROV
        SEND NO NODE NUMBER TO PARTNER                                LWNC
        ACTIVATE TRANSIT COUNTER ADMINISTRATION FOR S0/S2 LINE        ATRS
        CONNECTION TO ROUTE OPTIMIZATION NODE                         ROPT
        TSC-SIGNALING FOR NETWORKWIDE FEATURES (MANDATORY)            TSCS
```

```
        TRUNK SENDS CALL CHARGES TO ORIGINATING NODE NUMBER           TRSC
        USE DEFAULT NODE NUMBER OF LINE                               DFNN
        CALL FORWARDING PROGRAMING FOR OTHER SUBSCRIBERS              CFOS
        PIN NETWORKWIDE POSSIBLE                                      PINR
        AOC PER CALL (AUTOMATICAL OR ON REQUEST), MAND. CORNET-NQ     AOCC
        AUTOM.DTMF CONVERSION ON INCOM.CALL WHILE IN TALK STATE       AMFC
        SEND DIGITS VIA IN.BAND DTMF BEFORE ANSWER                    IBBA
        NO TONE                                                       NTON

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

Class of Parameter for Device Handler, COP

```
DISP-COP:COPNO=59;
H500:  AMO COP   STARTED

   COP:  59  INFO: SIP TRUNK
   DEVICE: INDEP        SOURCE: DB
   PARAMETER:
        REGISTRATION OF LAYER 3 ADVISORIES                            L3AR
        REFLECT RESTART INDICATOR AND B-CHANNEL BY RESTART            RRST

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

Trunk Class of Service, COSSU

```
DISP-COSSU:TYPE=COS,COS=59;
H500:  AMO COSSU STARTED
   +------+-----------------+---------------+-----------------+
   | COS  |       VOICE     |      FAX      |       DTE       |
   +------+-----------------+---------------+-----------------+
   |   59 |>SIP TRUNK                                         |
   |      |          TA     |      NOCO     |       NOCO      |
   |      |      TNOTCR     |     NOTIE     |      NOTIE      |
   |      |      COSXCD     |               |                 |
   |      |          MB     |               |                 |
   |      |         VCE     |               |                 |
   |      |      FWDNWK     |               |                 |
   |      |         TTT     |               |                 |
   |      |      FWDECA     |               |                 |
   +------+-----------------+---------------+-----------------+

AMO-COSSU-111       CLASSES OF SERVICE
DISPLAY COMPLETED;

DISP-COSSU:TYPE=LCOSV,LCOSV=15;
H500:  AMO COSSU STARTED
   +----+----------------------------------------------------------------+-----+
   |LCOS|                             LAUTH                              |COPIN|
   |  V |         1         2         3         4         5         6    |     |
   |    |1234567890123456789012345678901234567890123456789012345678901234|     |
   |    |>SERVICE INFORMATION                                            |     |
   +----+----+----|----+----|----+----|----+----|----+----|----+----|----+-----+
   |  15|XXXXXXXXXXXXXXX.................................................|  0  |
   |    |>15-STATE-WIDE                                                  |     |
   +----+----------------------------------------------------------------+-----+

AMO-COSSU-111       CLASSES OF SERVICE
DISPLAY COMPLETED;

DISP-COSSU:TYPE=LCOSD,LCOSD=15;
H500:  AMO COSSU STARTED
   +----+----------------------------------------------------------------+-----+
   |LCOS|                             LAUTH                              |COPIN|
   |  D |         1         2         3         4         5         6    |     |
   |    |1234567890123456789012345678901234567890123456789012345678901234|     |
```

```
   |    |>SERVICE INFORMATION                                              |     |
   +----+----+----|----+----|----+----|----+----|----+----|----+----|----+-----+
   |  15|XXXXXXXXXXXXXXX.................................................|  .  |
   |    |>15-USA                                                           |     |
   +----+-----------------------------------------------------------------+-----+

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

Gateway configuration, GKREG

```
DISP-GKREG:1;
H500:  AMO GKREG STARTED
+------------------------------------------------------------------------------+
| GWNO      1            GWATTR   INTGW    REGGW    HG3550V2 SIP               |
| GWIPADDR  172.20 .188.13         GWDIRNO  199901                             |
| DIPLNUM  0          DPLN 0                                                   |
| LAUTH     1                                                                  |
| GATEWAY REGISTERED: YES                                                      |
| IP GATEWAY IS CONFIGURED   BY  GKREG                                         |
| INFO:   1-SIP                                                                |
| SECLEVEL:  TRADITIO                                                         |
+------------------------------------------------------------------------------+

AMO-GKREG-111       GATEKEEPER REGISTRY
DISPLAY COMPLETED;
```

HG3500 Board configuration, CGWB

```
DISP-CGWB:1,1,;
H500:  AMO CGWB  STARTED
------------------------------------------------------------------------------
|  CGW BOARD DATA                                                            |
------------------------------------------------------------------------------
|   SIP        HG3550                                                        |
------------------------------------------------------------------------------
|  LTU = 1       SLOT = 1      SMODE = NORMAL           POOLNO: 0            |
------------------------------------------------------------------------------

  GLOBAL DATA AND ETHERNET INTERFACE DATA - CONFIGURABLE VALUES:
  -------------------------------------------------------------
  IPADR     = 172.20 .188.13         TCPP    =         (4060)
  NETMASK   = 255.255.255.0          VLAN    = NO      (NO)
  DEFRT     = 172.20 .188.1          (0.0.0.0 = NOT CONFIGURED)
  BITRATE   = 100MBFD (AUTONEG)      VLANID = 0        (0)
  PATTERN   = 255 (213)
  TRPRSIP   = 20  (0)
  TRPRSIPQ  = 0   (0)
  TRPRH323  = 0   (0)
  TPRH323A = 0   (0)
  DNSIPADR  = 0.0.0.0         TLSP   = 4061  (4061)

  GLOBAL DATA - CONSTANT VALUES:
  ------------------------------
  AMO INTERFACE VERSION: 0      OPMODE: 1   DATA_VALID: YES

  SERVICE INTERFACE
  -----------------
  LOGINTRM = "HICOM" (TRM)
  PASSW    = *****

  ASC DATA - CONFIGURABLE VALUES:
  -------------------------------
  TOSPL    = 184   (184)     TOSSIGNL = 104   (104)
  UDPPRTLO = 29100 (29100)  UDPPRTHI = 30100 (30099)
  T38FAX   = NO    (YES)    REDRFCTN = YES   (YES)
  RFCFMOIP = YES   (YES)    RFCDTMF  = YES   (YES)

  PRIO1 :  CODEC = G729A   VAD = NO     RTP-SIZE = 20
```

```
  PRIO2 :  CODEC = G711U   VAD = NO     RTP-SIZE = 20
  PRIO3 :  CODEC = G711A   VAD = NO     RTP-SIZE = 20
  PRIO4 :  CODEC = NONE    VAD = NO     RTP-SIZE = 20
  PRIO5 :  CODEC = NONE    VAD = NO     RTP-SIZE = 20
  PRIO6 :  CODEC = NONE    VAD = NO     RTP-SIZE = 20
  PRIO7 :  CODEC = NONE    VAD = YES    RTP-SIZE = 60

  DSP CONFIGURATION DATA
  ----------------------
  JITBUFD  = 60   (60)

  PRIMARY AND SECONDARY GATEKEEPER
  --------------------------------
  PRIGKIP   =  (0.0.0.0)
  PRIGKPN   = 1719 (1719)
  PRIGKID1  = PRIMARYRASMANAGERID
              (PRIMARYRASMANAGERID)
  PRIGKID2  =
  SECGKIP   =  (0.0.0.0)
  SECGKPN   = 1719 (1719)
  SECGKID1  = SECONDARYRASMANAGERID
              (SECONDARYRASMANAGERID)
  SECGKID2  =
  TIMTOLIVE = 120(120)

  MANAGEMENT STATION AND BACK-UP SERVER
  -------------------------------------
  MGNTIP    = 172.20.188.15 (0.0.0.0)
  MGNTPN    = 8000 (8000)
  BUSIP     = 172.20.188.15 (0.0.0.0)
  BUSPN     = 443 (443)

  DMC DATA
  --------
  DMCCONN   = 0 (0)

  WBM LOGIN DATA
  --------------
  LOGINWBM  = HP4K-DEVEL   ROLE  = ENGR (ADMIN)
  LOGINWBM  = HP4K-SU      ROLE  = SU (ADMIN)
  LOGINWBM  = HP4K-ADMIN   ROLE  = ADMIN (ADMIN)
  LOGINWBM  = HP4K-READER  ROLE  = READONLY (ADMIN)

  GATEWAY DATA
  ------------
  GWID1     = PRIMARYRASMANAGERID
  GWID2     =

  H.235 SECURITY DATA
  -------------------
  GLOBID1   = siemensGateway2003
              (siemensGateway2003)
  GLOBID2   =
  TIMEWIN   = 10  (100)
  SECSUBS   = NO   (NO)
  SECTRNK   = NO   (NO)
  GLOBPW    =
242-191-30-119-188-83-173-161-43-0-70-36-218-74-169-221-78-102-174-170

  LEGK DATA
  ------------------
  GWNO      = 1 (0)
  GWDIRNO   = 199901
  REGEXTGK  = NO (NO)

  SIP TRUNKING DATA FOR  ERH
  --------------------------
  GWAUTREQ    = NO (NO)
  GWSECRET    = *****
  GWUSERID    =
  GWREALM     =
```

```
  SIP TRUNKING DATA FOR  SSA
  ---------------------------
  SIPREG      = NO   (NO)
  REGIP1      = 0.0.0.0 (0.0.0.0)
  PORTTCP1    = 5060 (5060)
  PORTTLS1    = 5061  (5061)
  REGIP2      = 0.0.0.0 (0.0.0.0)
  PORTTCP2    = 5060 (5060)
  PORTTLS2    = 5061 (5061)
  REGTIME     = 120  (120)

  DLS DATA
  -------------------------------------
  DLSIPADR  =
  DLSPORT   = 4061
  DLSACPAS  = NO

  JB DATA - CONFIGURABLE VALUES:
  ------------------------------
  JBMODE    = 2
  AVGDLYV   = 40  (40)
  MAXDLYV   = 120 (120) MINDLYV = 20  (20)
  PACKLOSS  = 4   (4)
  AVGDLYD   = 60  (60)  MAXDLYD = 200 (200)

AMO-CGWB -111       CONFIGURATION OF HG3500 BOARD
DISPLAY COMPLETED;
```

Trunk Routing configuration, RICHT

```
DISP-RICHT:CD,103;
H500:  AMO RICHT STARTED
+-------------------------------------------------------------------------------+
| ROUTES FOR ALL DPLN                                                 SVC = VCE |
|                                                                               |
+-------+------------------+----+-+-------------------------------+-----+----+--+
|CODE   |NAME, CQMAX,      |TGRP|P|          DTMF                 | LRTE|CPAR| F|
|       |DESTNO AND CPS    |CCNO|L+---+---+----------------+-----+     |    | W|
|       |          1 111112|    |B|CNV|DSP|      TEXT      |PULS |     |    | D|
|       |12345 67890 123452|    | |   |   |                |PAUSE|     |    | B|
+-------+------------------+----+-+---+---+----------------+-----+-----+----+--+
|103    |..... ..... ......| 150| | F | W |                |PP300|  103|    |  |
|NEUTRAL|SIP TRUNK         |    | |   |   |                |     |     |    |  |
|       |DNNO:          103 |    | |   |   |                |     |     |    |  |
|       |PDNNO:         203 |    | |   |   |                |     |     |    |  |
|       |DESTNO   :103     |    | |   |   |                |     |     |    |  |
|       |REROUT   :YES     |    | |   |   |                |     |     |    |  |
+-------+------------------+----+-+---+---+----------------+-----+-----+----+--+
+-------------------------------------------------------------------------------+
| ROUTES FOR ALL DPLN                                                 SVC = FAX |
|                                                                               |
+-------+------------------+----+-+-------------------------------+-----+----+--+
|CODE   |NAME, CQMAX,      |TGRP|P|          DTMF                 | LRTE|CPAR| F|
|       |DESTNO AND CPS    |CCNO|L+---+---+----------------+-----+     |    | W|
|       |          1 111112|    |B|CNV|DSP|      TEXT      |PULS |     |    | D|
|       |12345 67890 123452|    | |   |   |                |PAUSE|     |    | B|
+-------+------------------+----+-+---+---+----------------+-----+-----+----+--+
|103    |..... ..... ......| 150| |   |   |                |     |  103|    |  |
|NEUTRAL|SIP TRUNK         |    | |   |   |                |     |     |    |  |
|       |DNNO:          103 |    | |   |   |                |     |     |    |  |
|       |PDNNO:         203 |    | |   |   |                |     |     |    |  |
|       |DESTNO   :103     |    | |   |   |                |     |     |    |  |
|       |REROUT   :YES     |    | |   |   |                |     |     |    |  |
+-------+------------------+----+-+---+---+----------------+-----+-----+----+--+
+-------------------------------------------------------------------------------+
| ROUTES FOR ALL DPLN                                                 SVC = DTE |
|                                                                               |
+-------+------------------+----+-+-------------------------------+-----+----+--+
|CODE   |NAME, CQMAX,      |TGRP|P|          DTMF                 | LRTE|CPAR| F|
|       |DESTNO AND CPS    |CCNO|L+---+---+----------------+-----+     |    | W|
|       |          1 111112|    |B|CNV|DSP|      TEXT      |PULS |     |    | D|
```

```
|       |12345 67890 123452|    | |   |   |                     |PAUSE|     |    | B|
+-------+------------------+----+-+---+---+---------------------+-----+-----+----+--+
|103    |..... ..... ......| 150| |   |   |                |     |  103|    |  |
|NEUTRAL|SIP TRUNK         |    | |   |   |                |     |     |    |  |
|       |DNNO:          103 |    | |   |   |                |     |     |    |  |
|       |PDNNO:         203 |    | |   |   |                |     |     |    |  |
|       |DESTNO   :103      |    | |   |   |                |     |     |    |  |
|       |REROUT   :YES      |    | |   |   |                |     |     |    |  |
+-------+------------------+----+-+---+---+----------------+-----+-----+----+--+

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

```
DISP-RICHT:LRTE,201;
H500:  AMO RICHT STARTED
+------------------------------------------------------------------+
| LRTE = 201    NAME = 201-OPEN # SIP   (NEUTRAL)  LSVC = ALL      |
| DNNO =       201 PDNNO =       301                               |
| ROUTOPT = NO     REROUT = YES   PLB = NO     FWDBL = NO          |
| DTMFCNV = FIX     DTMFDSP = WITHOUT DTMFTEXT =                   |
| DTMFPULS = PP80  BUGS = LIN  ROUTATT = NO       MAINGRP =     7  |
| EMCYRTT = NO       CONFTONE = NO   RERINGRP = NO   RTENO =     7  |
| INFO =                                                           |
| NOPRCFWD = NO                                                    |
| NITO = NO                                                        |
| CLNAMEDL = NO                                                    |
| FWDSWTCH = NO                                                    |
| LINFEMER = NO                                                    |
| NOINTRTE = NO                                                    |
+------------------------------------------------------------------+
| TGRP = 150  LDAT  150-SIP            (NEUTRAL)  SUBGROUP =    3 |
+------------------------------------------------------------------+

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

LCR Out-dial Rules, LODR

```
DISP-LODR:104;
H500:  AMO LODR  STARTED
   +-------------------------------------------------------+
   |  ODR     POSITION  CMD         PARAMETER              |
   +--------+----------------------------------------------+
   |  104   |      1    ECHO        1                      |
   |        |      2    END                                |
   +--------+----------------------------------------------+
H03: THE NEXT FREE ODR IS 3

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

```
DISP-LODR:202;
H500:  AMO LODR  STARTED
   +-------------------------------------------------------+
   |  ODR     POSITION  CMD         PARAMETER              |
   +--------+----------------------------------------------+
   |  202   |      1    ECHO        1                      |
   |        |      2    ECHO        2                      |
   |        |      3    ECHO        3                      |
   |        |      4    ECHO        4                      |
   |        |      5    END                                |
   +--------+----------------------------------------------+
H03: THE NEXT FREE ODR IS 3

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

LCR Directions, LDAT

```
DISP-LDAT:,103,;
```

```
H500:  AMO LDAT  STARTED
+-------------------------------------------------------------------------------+
| LROUTE = 103                NAME = SIP TRUNK                  SERVICE =  ALL |
| TYPE = NWLCR                                  DNNO OF ROUTE  =        103     |
| SERVICE INFO =                                                                |
+------+-----+-----+----+-----+----------+-----------+----------+------+-------+
|      |     |     |    |     | SCHEDULE | CARRIER   |          |      |       |
|LRTEL | LVAL|TGRP | ODR|LAUTH| ABCDEFGH |       ZONE|    LATTR | LDSRT|COTIDX |
+------+-----+-----+----+-----+----------+-----------+----------+------+-------+
|     1|    1|  150| 104| 1   | ******** | 1    EMPTY|     NONE |      | 0     |
|      | DNNO =        103                                                      |
|      +------------------------------------------------------------------------+
|      |        GW1 =    3-0      GW2 =            GW3 =                        |
|      |               GW4 =            GW5 =                                   |
+-------------------------------------------------------------------------------+

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

```
DISP-LDAT:LCR,201;
H500:  AMO LDAT  STARTED
+-------------------------------------------------------------------------------+
| LROUTE = 201   LDPLN        NAME = 201-OPEN # SIP             SERVICE =  ALL |
| TYPE = LCR                                    DNNO OF ROUTE  =        201     |
| SERVICE INFO =                                                                |
+------+-----+-----+----+-----+----------+-----------+----------+------+-------+
|      |     |     |    |     | SCHEDULE | CARRIER   |          |      |       |
|LRTEL | LVAL|TGRP | ODR|LAUTH| ABCDEFGH |       ZONE|    LATTR | LDSRT|COTIDX |
+------+-----+-----+----+-----+----------+-----------+----------+------+-------+
|     1|    1|  150| 202| 1   | ******** | 1    EMPTY|   PUBNUM |      | 150   |
|      | DNNO =        201                                                      |
|      +------------------------------------------------------------------------+
|      |        GW1 =    3-0      GW2 =            GW3 =                        |
|      |               GW4 =            GW5 =                                   |
+-------------------------------------------------------------------------------+

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

Stations configuration

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).

```
DISP-SBCSU:STNO=7020;
H500:  AMO SBCSU STARTED

----------------------------- USER DATA ---------------------------------------
 STNO    =7020          OPT     =OPTI      COS1    =5          DPLN    =0
 MAINO   =7020          CONN    =DIR       COS2    =5          ITR     =0
 PEN     =1- 2- 13-  0                     LCOSV1  =15         COSX    =0
 INS     =Y             ASYNCT  =500       LCOSV2  =15
 SSTNO   =N             PERMACT =          LCOSD1  =15         CBKBMAX =5
 TRACE   =N             EXTBUS  =          LCOSD2  =15         RCBKB   =N
 ALARMNO =0             DFSVCANA=          SPDI    =30         RCBKNA  =N
 HMUSIC  =0             FLASH   =          SPDC1   =1          CBKNAMB =N
 PMIDX   =1                                SPDC2   =1
 SECR    =N             DIGNODIS=N         DSSTNA  =N          COMGRP  =0
 STD     =5             CALLOG  =ALL       DSSTNB  =Y          TEXTSEL =AMERICAN
```

```
 REP     =0             OPTICOM =N         OPTIUSB :          VPI     =
 IDCR    =N             OPTICA  =1         OPTIS0A :0         VCI     =
 APPM    =              OPTIDA  =0         OPTISPA :0         PATTERN =
                        OPTIUP0E:0         OPTIABA :0

 DCFWBUSY=N             HEADSET =N         APMOBUSR=          APICLASS=
 DNIDSP  =N             HSKEY   =NORMAL    IPCODEC =          SECAPPL =
 DTMFBLK =N                                IPPASSW =
 DTMFCTRD=Y             BASICSVC=
 DVCFIG  =OPTISET       TSI     =1         SPROT   =          SOPTIDX =
                                           DPROT   =          DOPTIDX =
                                           FPROT   =          FOPTIDX =
 ------------------- ACTIVATION IDENTIFIERS FOR FEATURES ----------------------
                      HTOS    :N         DND     :N
                      HTOD    :N         VCP     :Y         TWLOGIN :N
                      HTOF    :N         CWT     :N
 ------------------- FEATURES AND GROUP MEMBERSHIPS --------------------------
  PUGR    :           ESSTN   :
  KEYSYS  :Y          NOPTNO  :
  SRCGRP  :(1 )       TCLASS  : 0
  HUNT CD :N
 ------------------- SUBSCRIBER ATTRIBUTES (AMO SDAT) -------------------------
  NONE
 ------------------------------------------------------------------------------

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


DISP-SBCSU:STNO=7040;
H500:  AMO SBCSU STARTED

----------------------------- USER DATA ---------------------------------------
 STNO    =7040          OPT     =FPP       COS1    =5         DPLN    =0
 MAINO   =7040          CONN    =SIP       COS2    =5         ITR     =0
 PEN     =1- 1-  1-  2                     LCOSV1  =15        COSX    =0
 INS     =Y             ASYNCT  =          LCOSV2  =15
 SSTNO   =N             PERMACT =Y         LCOSD1  =15        CBKBMAX =5
 TRACE   =N             EXTBUS  =          LCOSD2  =15        RCBKB   =N
 ALARMNO =0             DFSVCANA=          SPDI    =30        RCBKNA  =N
 HMUSIC  =0             FLASH   =          SPDC1   =          CBKNAMB =
 PMIDX   =1                                SPDC2   =
 DVCFIG  =S0PP         LWPAR   =          PROT    =SBDSS1    OPTIDX  =10
 SMGSUB  =N            IPCODEC =G711P     USERID  =""
 FIXEDIP =N            AUTHREQ =N         PASSWD  =
 IPADDR  =0.0.0.0                         SECZONE =""
 DTMFCTRD=Y
 ------------------- ACTIVATION IDENTIFIERS FOR FEATURES ----------------------
                      HTOS    :N         DND     :N
                      HTOD    :N         VCP     :N         TWLOGIN :
                      HTOF    :N         CWT     :N
 ------------------- FEATURES AND GROUP MEMBERSHIPS --------------------------
  PUGR    :           ESSTN   :
  KEYSYS  :           NOPTNO  :
  SRCGRP  :(1 )       TCLASS  : 0
  HUNT CD :N
 ------------------- SUBSCRIBER ATTRIBUTES (AMO SDAT) -------------------------
  NONE
 ------------------------------------------------------------------------------
H62: FOR SIP SUBSCRIBERS PARAMETER MBCHL (MULTIBLE BCHANNEL) MUST BE
     SET IN AMO-SDAT.
 ------------------------------------------------------------------------------

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

Stations COS configuration:

```
DISP-COSSU:TYPE=COS,COS=5;
H500:  AMO COSSU STARTED
   +------+-----------------+---------------+-----------------+
   | COS  |       VOICE     |      FAX      |       DTE       |
   +------+-----------------+---------------+-----------------+
   |    5 |>5-DIGITAL                                         |
   |      |            TA   |      NOCO     |       NOCO      |
   |      |         TSUID   |     NOTIE     |      NOTIE      |
   |      |        TNOTCR   |               |                 |
   |      |          CDRS   |               |                 |
   |      |        CDRSTN   |               |                 |
   |      |          CDRC   |               |                 |
   |      |        CDRIND   |               |                 |
   |      |        CDRINT   |               |                 |
   |      |        COSXCD   |               |                 |
   |      |            MB   |               |                 |
   |      |          DATA   |               |                 |
   |      |          CFNR   |               |                 |
   |      |           VCE   |               |                 |
   |      |          SPKR   |               |                 |
   |      |        FWDNWK   |               |                 |
   |      |        RERING   |               |                 |
   |      |           MSN   |               |                 |
   |      |           CFB   |               |                 |
   |      |        FWDDIR   |               |                 |
   |      |        FWDBAS   |               |                 |
   |      |        FWDECA   |               |                 |
   |      |        FWDEXT   |               |                 |
   |      |          CCBS   |               |                 |
   |      |            CW   |               |                 |
   |      |        GRPCAL   |               |                 |
   |      |         SUTVA   |               |                 |
   +------+-----------------+---------------+-----------------+

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

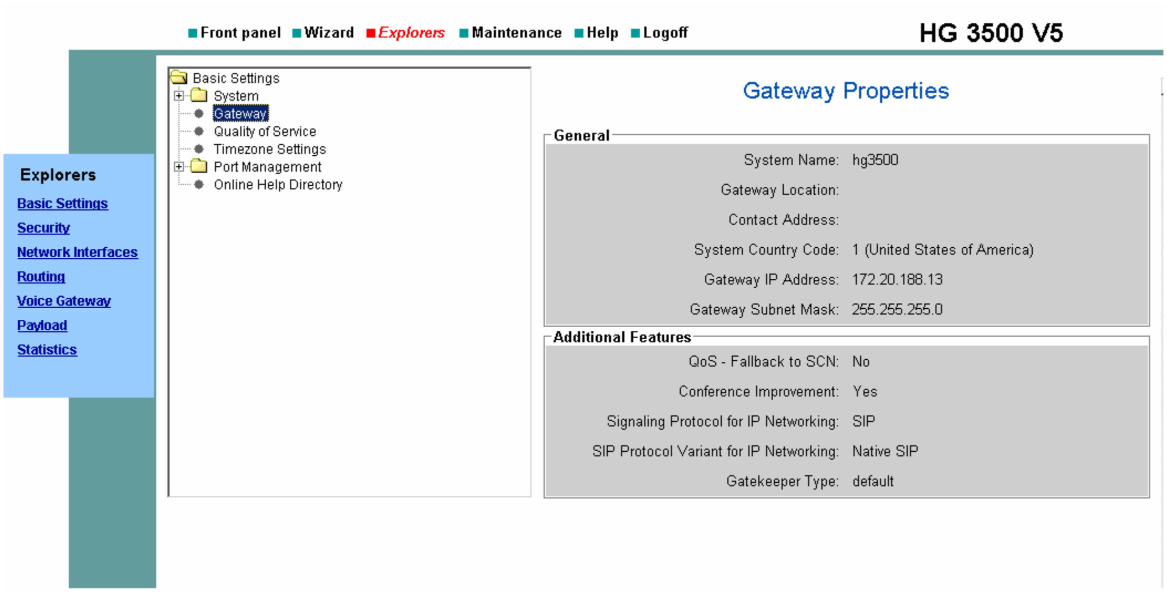
Stations Name configuration:

```
DISP-PERSI:NAME,7020;
H500:  AMO PERSI STARTED
+-------------+----------------------------------------+--------------------------+
|    STNO     |   CHRISTIAN AND SURNAME         CHARCON|  ORGANIZATIONAL UNIT     |
+-------------+----------------------------------------+--------------------------+
|             |                                        |                          |
|7020         |Hipath1 A1*                             |                          |
|             |                                        |                          |
+-------------+----------------------------------------+--------------------------+

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

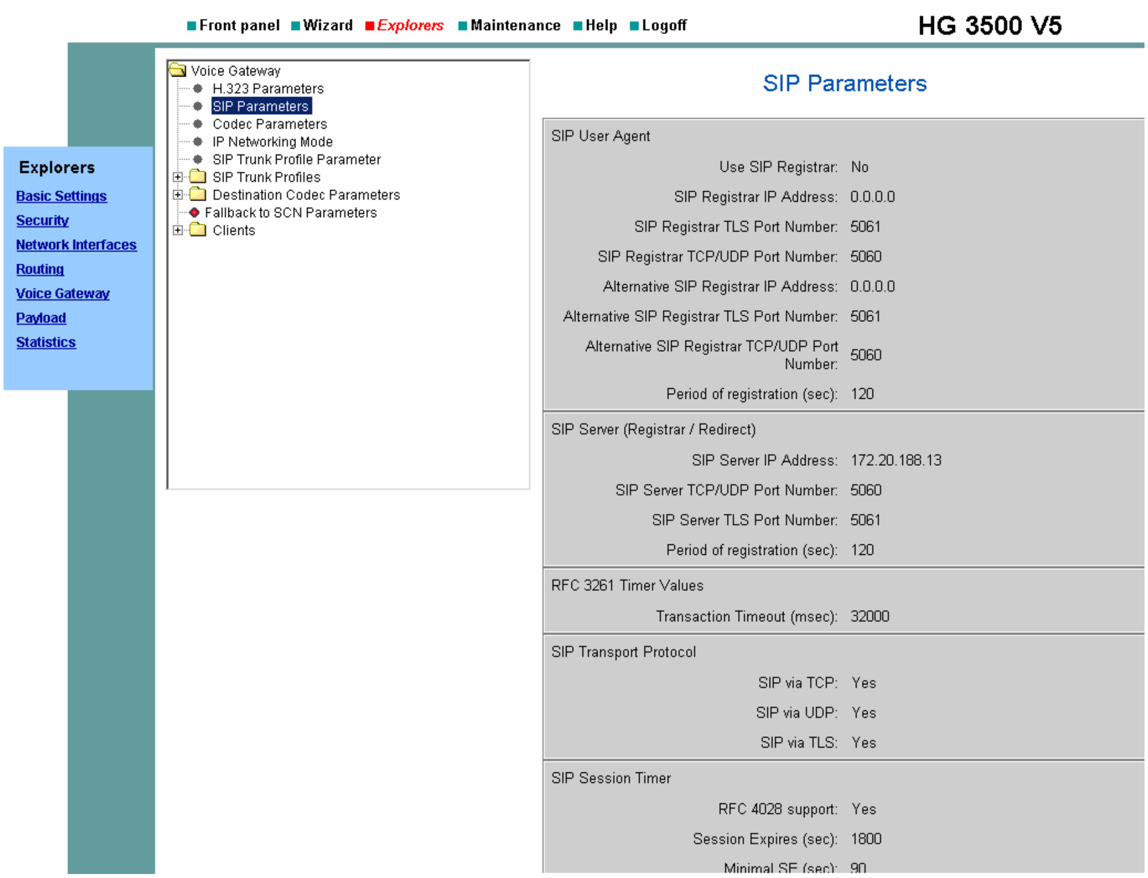
```
DISP-PERSI:NAME,7040;
H500:  AMO PERSI STARTED
+-------------+----------------------------------------+--------------------------+
|    STNO     |   CHRISTIAN AND SURNAME         CHARCON|  ORGANIZATIONAL UNIT     |
+-------------+----------------------------------------+--------------------------+
|             |                                        |                          |
|7040         |Hipath1 A2*                             |                          |
|             |                                        |                          |
+-------------+----------------------------------------+--------------------------+

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

Web-Based Management for HG 3500 V5

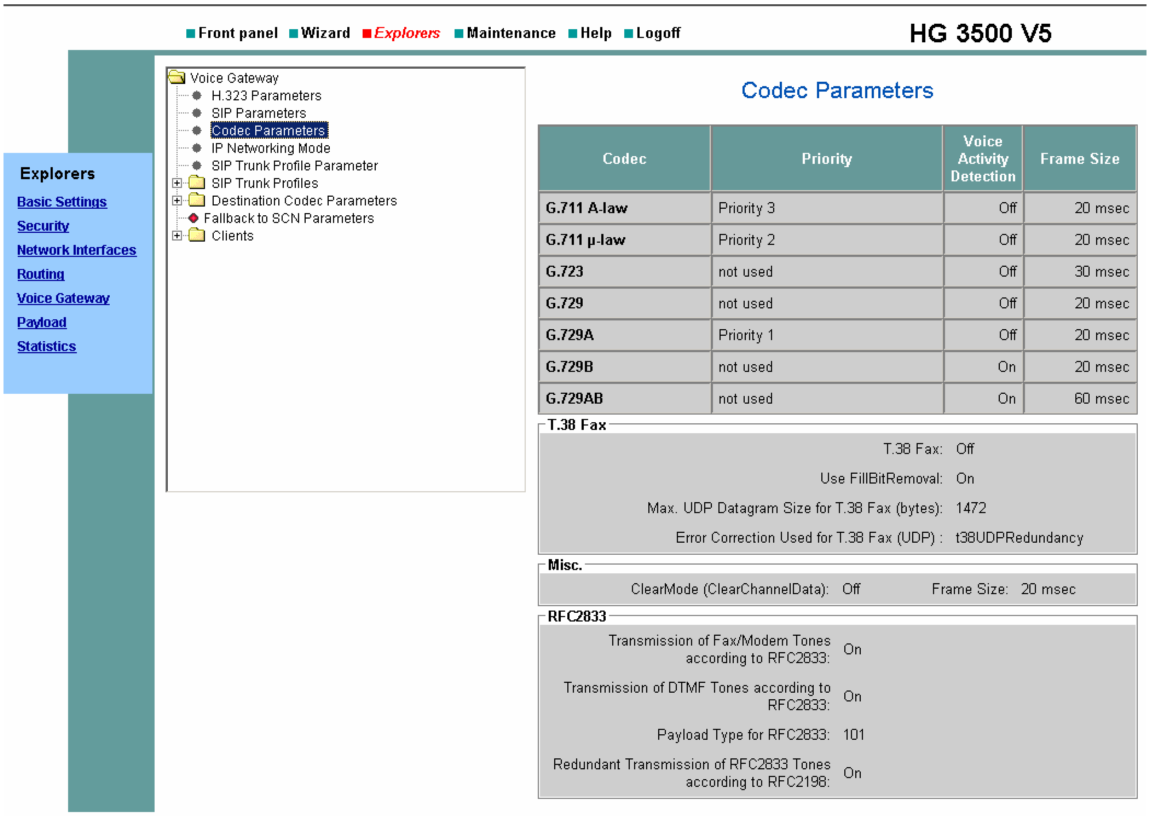
Basic Settings – Gateway Properties



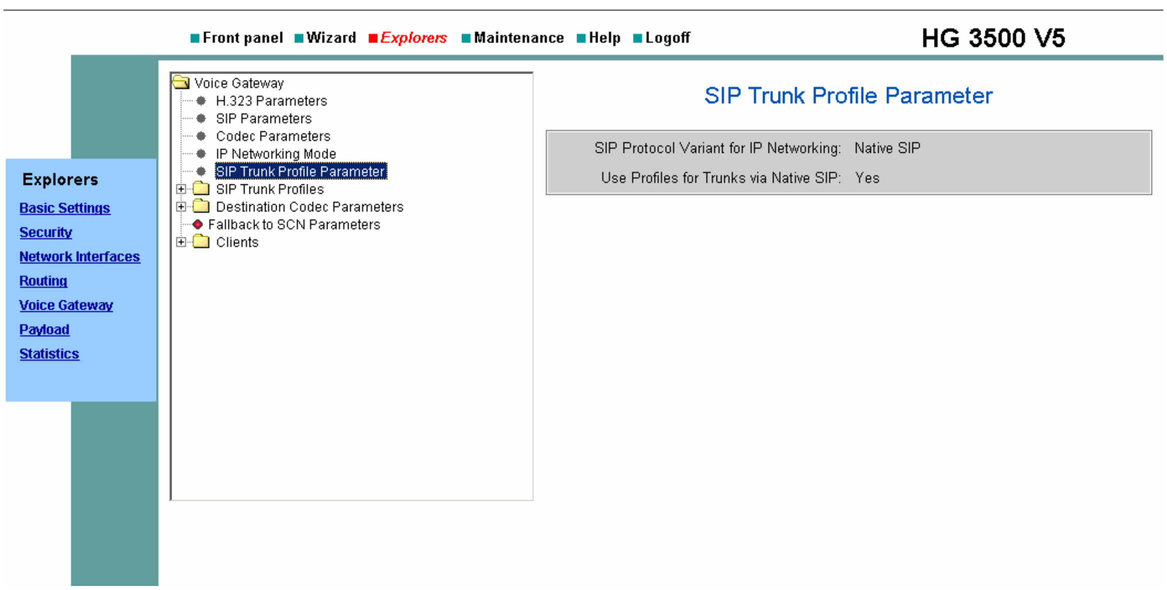
Voice Gateway - SIP Parameters



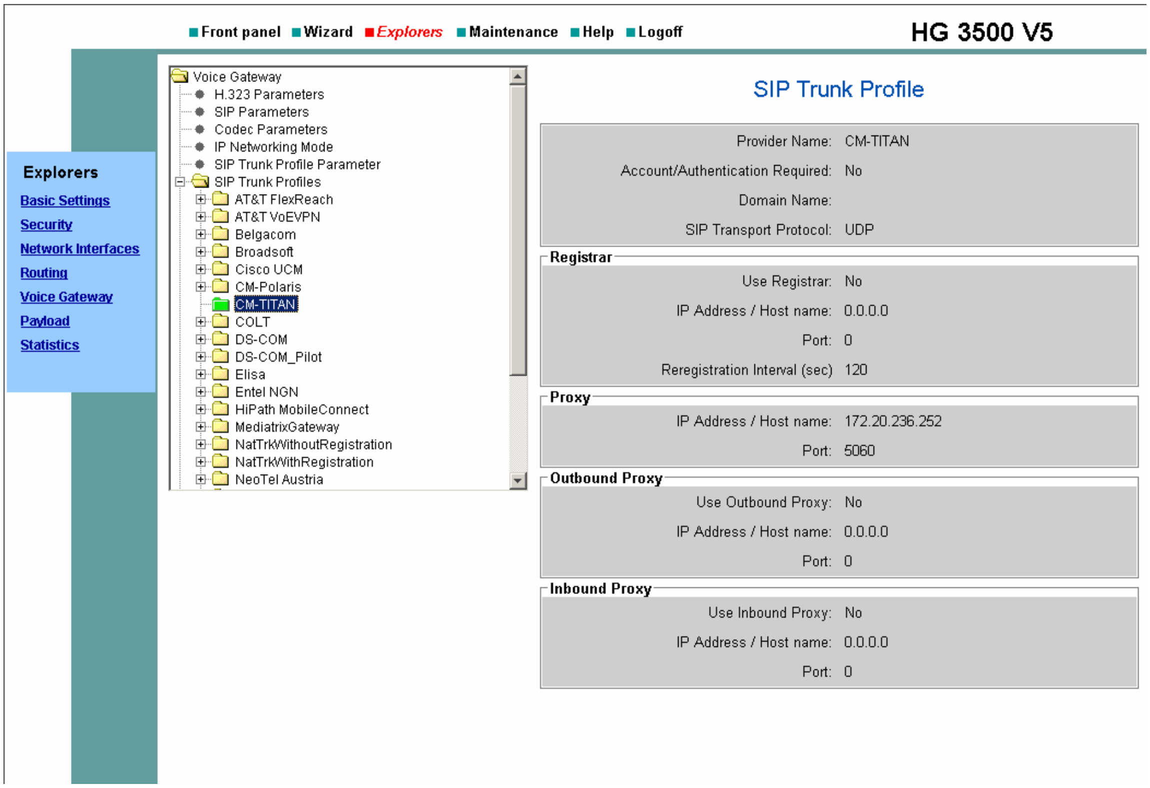
Voice Gateway – Codec Parameters



Voice Gateway – SIP Trunk Profile Parameters



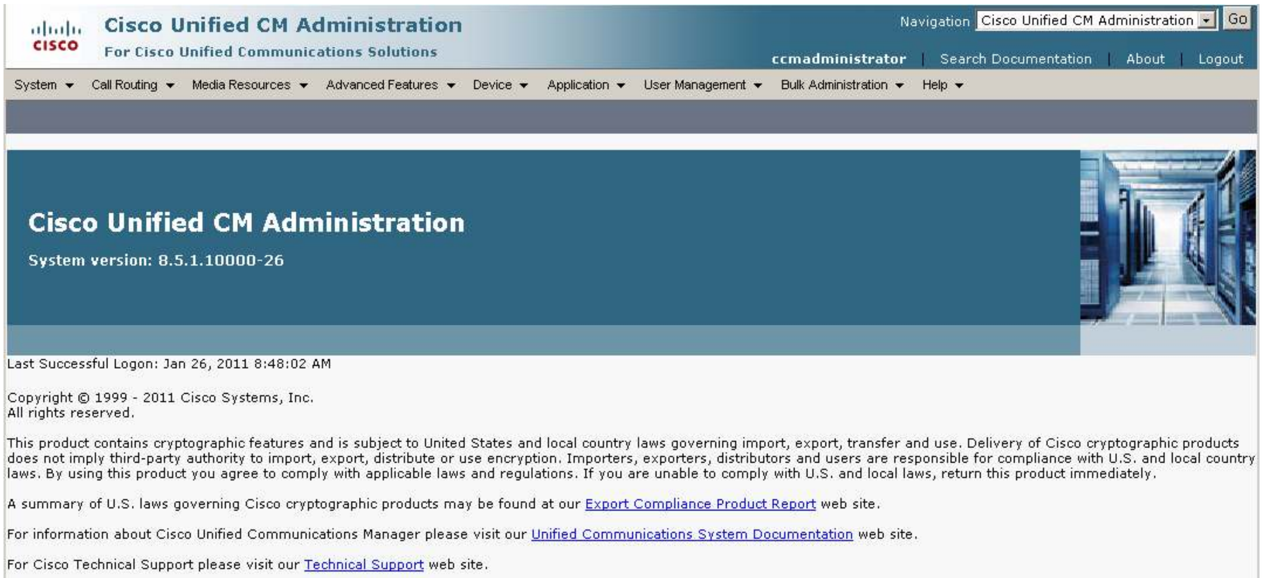
Voice Gateway – SIP Trunk Profile



Configuring the Cisco Unified Communications Manager – Session Manager Edition

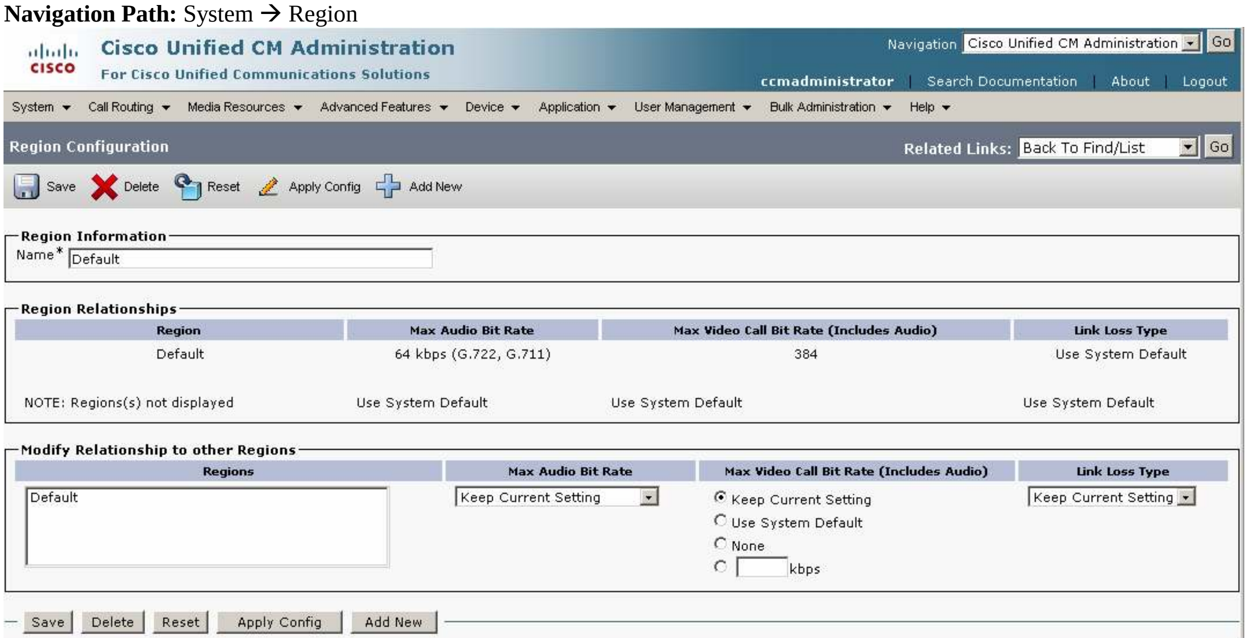
1. Cisco Session Manager Version
2. Device Pool and Region mapping configuration
3. SIP Profile (used by SIP trunks) configuration
4. SIP Trunk Security Profile (used by SIP trunks) configuration
5. SIP trunk configuration to Siemens PBX
6. SIP Trunk configuration to Cisco UCM
7. SIP Trunk to Cisco UBE
8. Route Pattern configuration to Siemens PBX
9. Route Pattern configuration to Cisco UCM
10. Route Pattern configuration to PSTN

Cisco Unified Communications Manager – Session Manager Edition software version



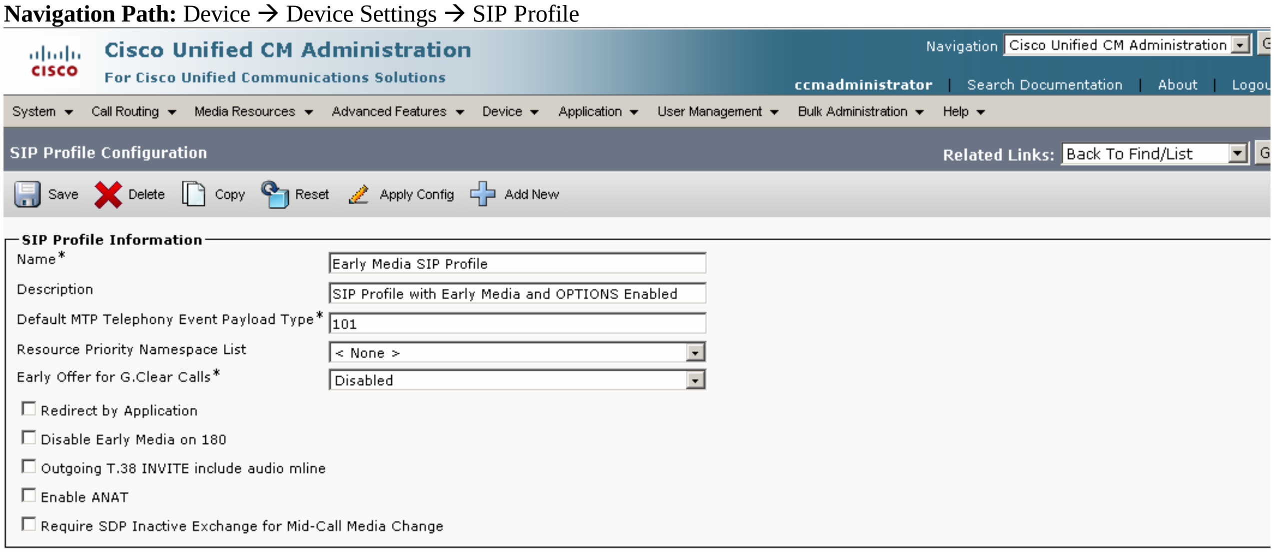
Configuration of Device Pool to Region mapping

Navigation Path: System → Region



Configuration of SIP Profile used by SIP trunks

Navigation Path: Device → Device Settings → SIP Profile



Parameters used in Phone

Timer Invite Expires (seconds)*	180
Timer Register Delta (seconds)*	5
Timer Register Expires (seconds)*	3600
Timer T1 (msec)*	500
Timer T2 (msec)*	4000
Retry INVITE*	6
Retry Non-INVITE*	10
Start Media Port*	16384
Stop Media Port*	32766
Call Pickup URI*	x-cisco-serviceuri-pickup
Call Pickup Group Other URI*	x-cisco-serviceuri-opickup
Call Pickup Group URI*	x-cisco-serviceuri-gpickup
Meet Me Service URI*	x-cisco-serviceuri-meetme
User Info*	None
DTMF DB Level*	Nominal
Call Hold Ring Back*	Off
Anonymous Call Block*	Off
Caller ID Blocking*	Off
Do Not Disturb Control*	User
Telnet Level for 7940 and 7960*	Disabled
Timer Keep Alive Expires (seconds)*	120
Timer Subscribe Expires (seconds)*	120
Timer Subscribe Delta (seconds)*	5
Maximum Redirections*	70
Off Hook To First Digit Timer (milliseconds)*	15000
Call Forward URI*	x-cisco-serviceuri-cfwdall
Speed Dial (Abbreviated Dial) URI*	x-cisco-serviceuri-abbrdial

☑ Conference Join Enabled
☐ RFC 2543 Hold
☑ Semi Attended Transfer
☐ Enable VAD
☐ Stutter Message Waiting

Trunk Specific Configuration

Reroute Incoming Request to new Trunk based on*	Never
RSVP Over SIP*	Local RSVP

☑ Fall back to local RSVP

SIP Rel1XX Options*	Send PRACK if 1xx Contains SDP

☐ Deliver Conference Bridge Identifier
☑ Early Offer support for voice and video calls (insert MTP if needed)
☐ Send send-receive SDP in mid-call INVITE

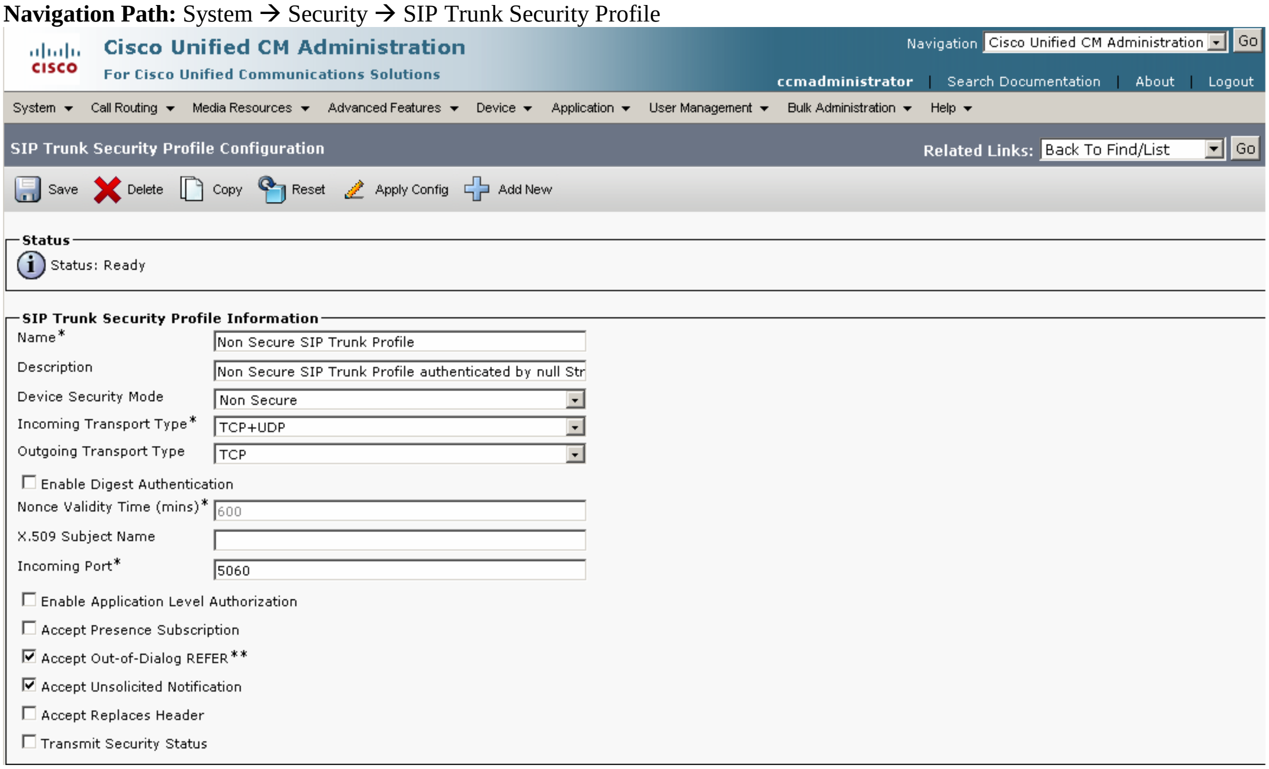
SIP OPTIONS Ping

☑ Enable OPTIONS Ping to monitor destination status for Trunks with Service Type "None (Default)"

Ping Interval for In-service and Partially In-service Trunks (seconds)*	60
Ping Interval for Out-of-service Trunks (seconds)*	120
Ping Retry Timer (milliseconds)*	500
Ping Retry Count*	6

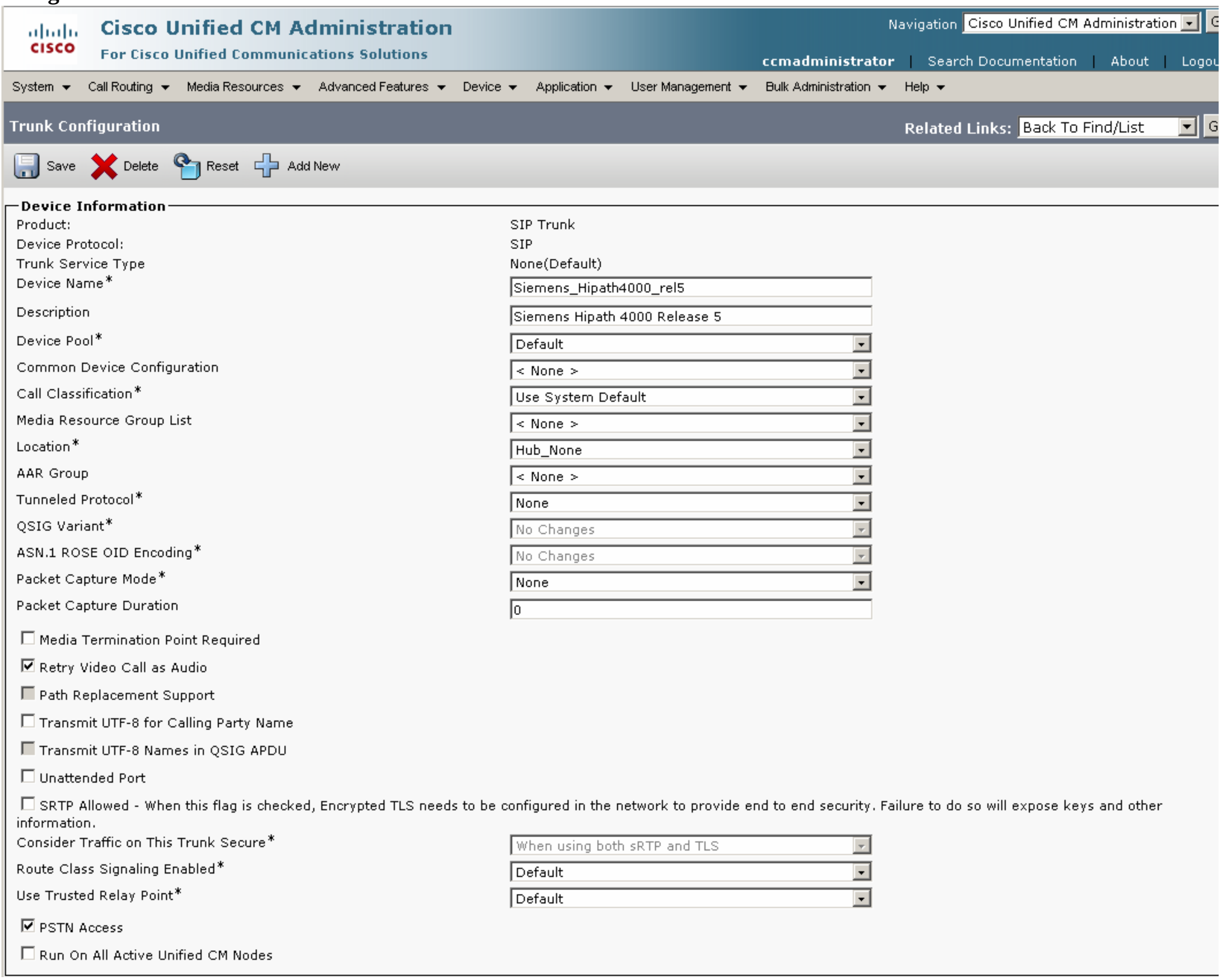
Configuration of SIP Trunk Security Profile used by SIP trunks

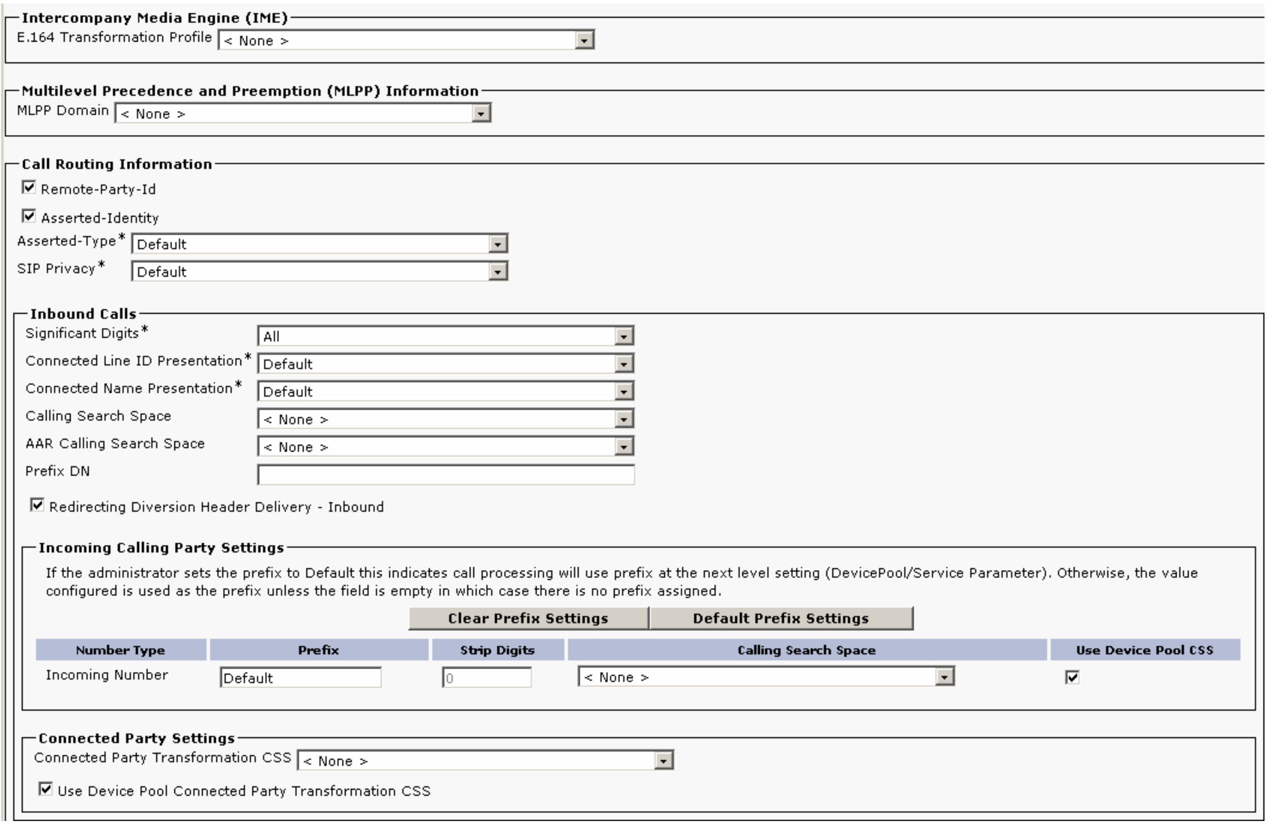
Navigation Path: System → Security → SIP Trunk Security Profile

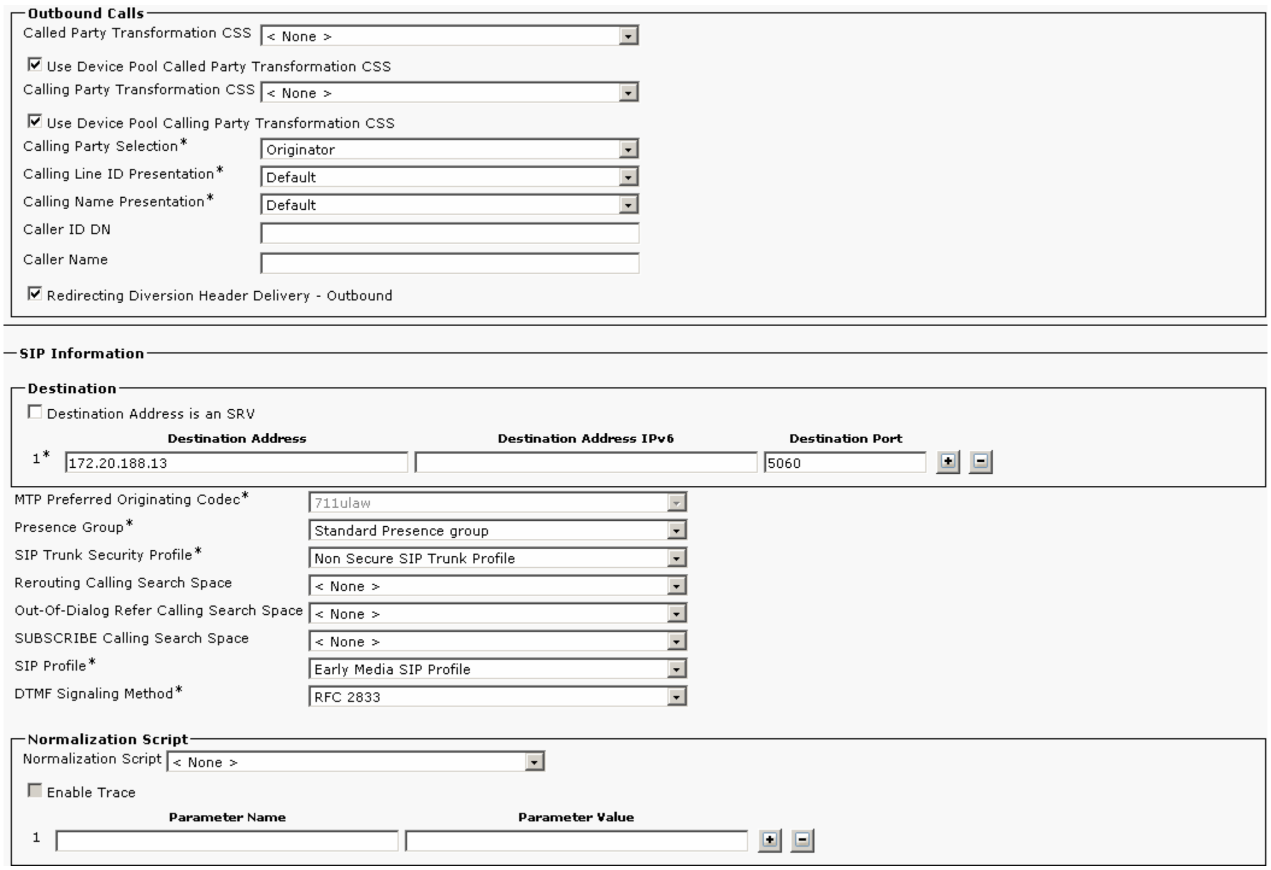


Configuration of SIP trunk to Siemens PBX

Navigation Path: Device → Trunk

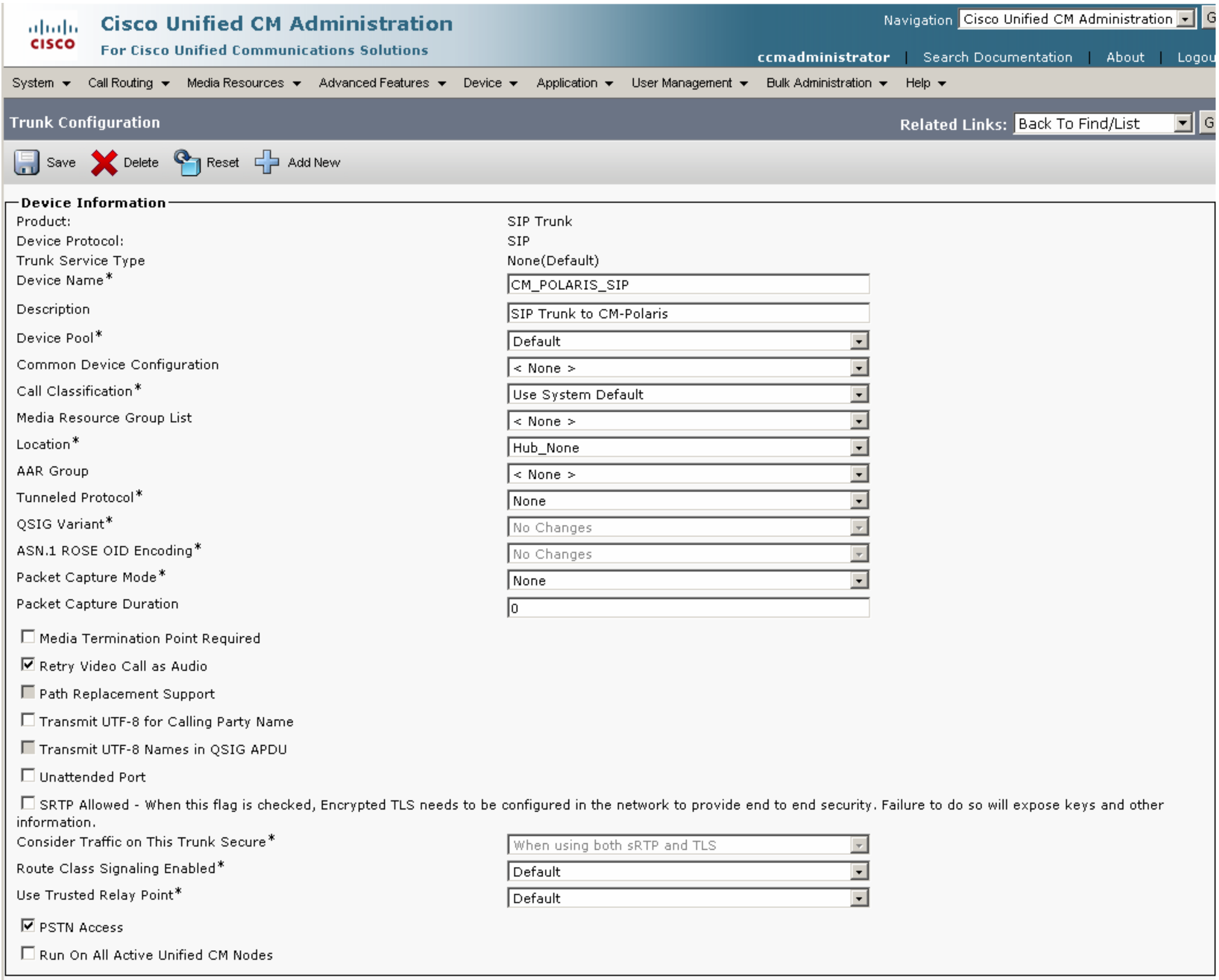


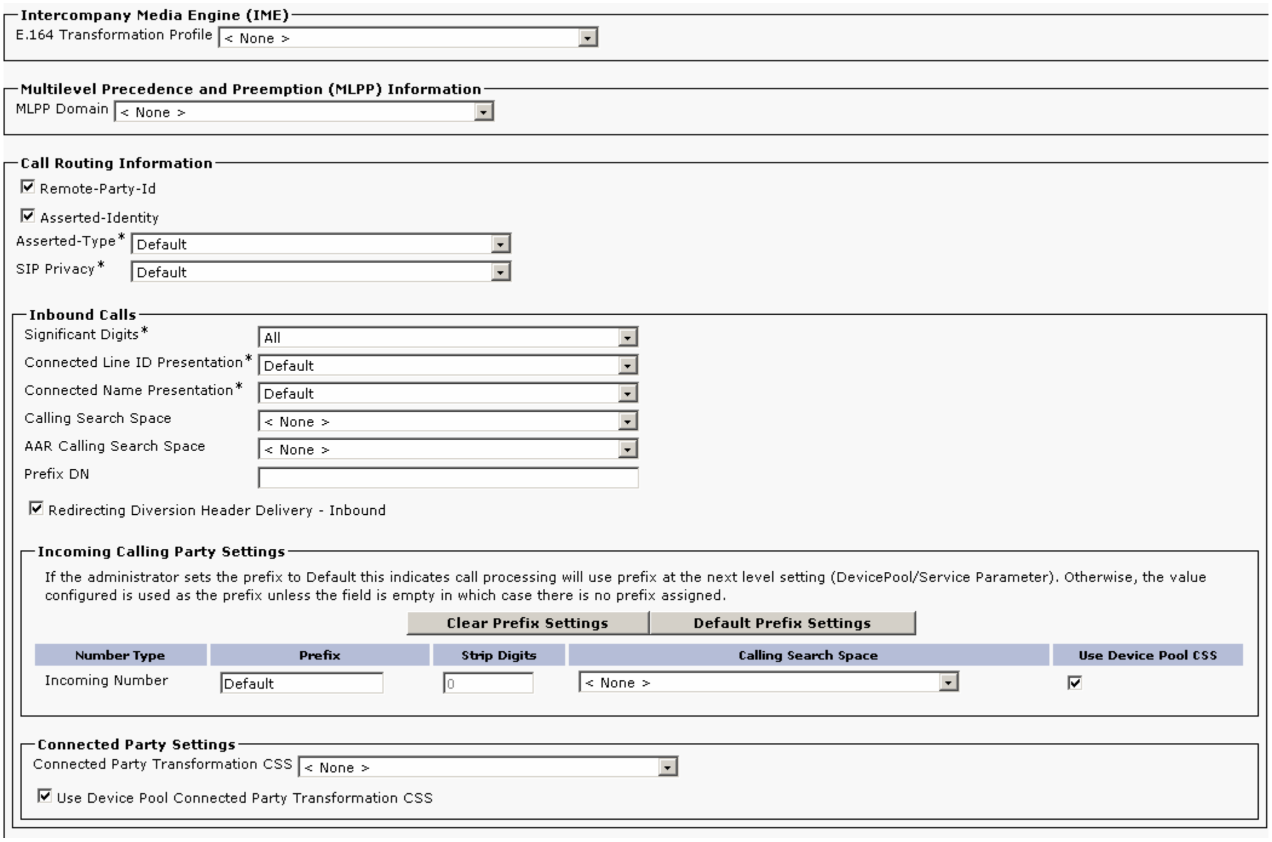

Intercompany Media Engine (IME)
E.164 Transformation Profile < None >
Multilevel Precedence and Preemption (MLPP) Information
MLPP Domain < None >
Call Routing Information
Remote-Party-Id
Asserted-Identity
Asserted-Type* Default
SIP Privacy* Default
Inbound Calls
Significant Digits* All
Connected Line ID Presentation* Default
Connected Name Presentation* Default
Calling Search Space < None >
AAR Calling Search Space < None >
Prefix DN
Redirecting Diversion Header Delivery - Inbound
Incoming Calling Party Settings
If the administrator sets the prefix to Default this indicates call processing will use prefix at the next level setting (DevicePool/Service Parameter). Otherwise, the value configured is used as the prefix unless the field is empty in which case there is no prefix assigned.
Clear Prefix Settings
Default Prefix Settings
Number Type
Prefix
Strip Digits
Calling Search Space
Use Device Pool CSS
Incoming Number
Default
0
< None >
Connected Party Settings
Connected Party Transformation CSS < None >
Use Device Pool Connected Party Transformation CSS

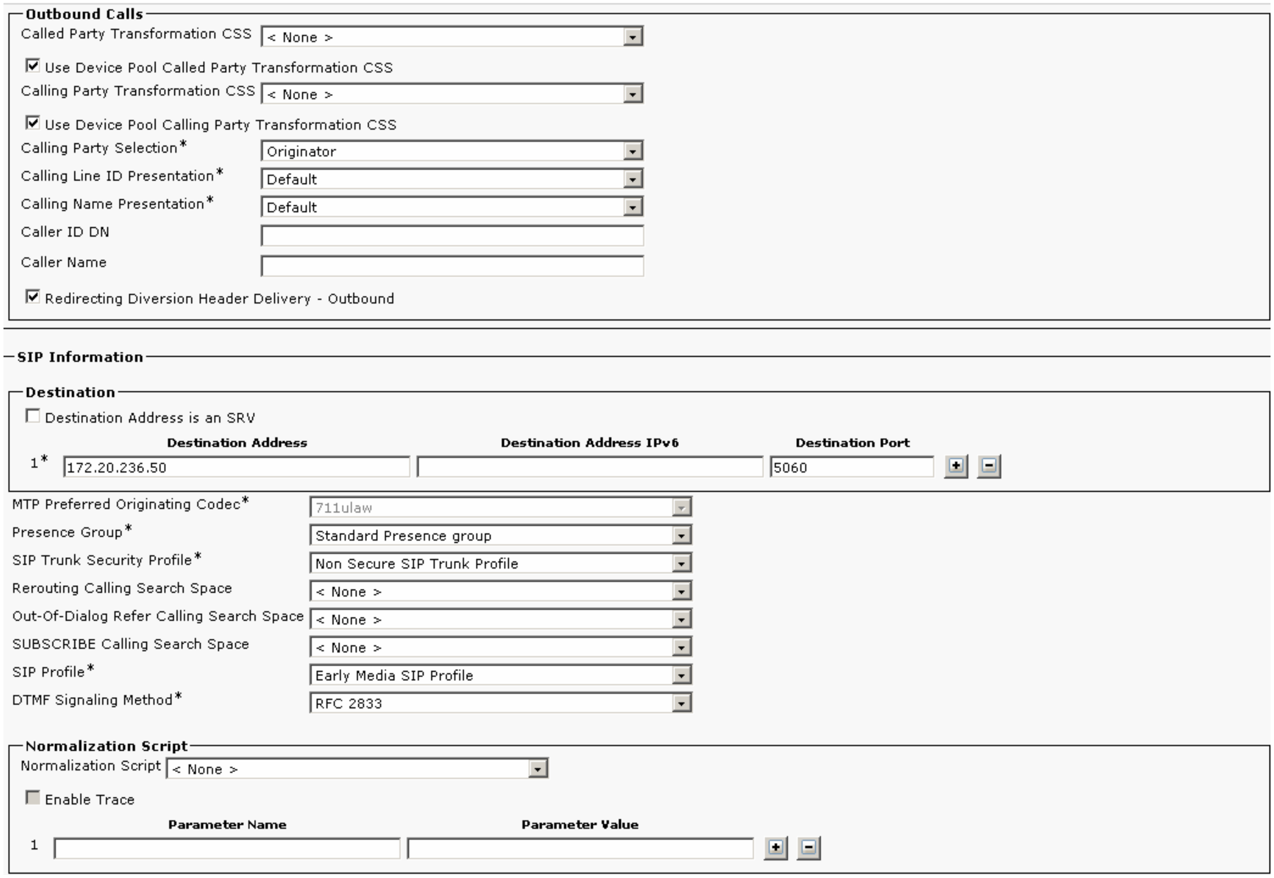

Outbound Calls
Called Party Transformation CSS < None >
Use Device Pool Called Party Transformation CSS
Calling Party Transformation CSS < None >
Use Device Pool Calling Party Transformation CSS
Calling Party Selection* Originator
Calling Line ID Presentation* Default
Calling Name Presentation* Default
Caller ID DN
Caller Name
Redirecting Diversion Header Delivery - Outbound
SIP Information
Destination
Destination Address is an SRV
Destination Address
Destination Address IPv6
Destination Port
1* 172.20.188.13
5060
MTP Preferred Originating Codec* 711ulaw
Presence Group* Standard Presence group
SIP Trunk Security Profile* Non Secure SIP Trunk Profile
Rerouting Calling Search Space < None >
Out-Of-Dialog Refer Calling Search Space < None >
SUBSCRIBE Calling Search Space < None >
SIP Profile* Early Media SIP Profile
DTMF Signaling Method* RFC 2833
Normalization Script
Normalization Script < None >
Enable Trace
Parameter Name
Parameter Value
1

Configuration of SIP trunk to Cisco UCM

Navigation Path: Device → Trunk




Intercompany Media Engine (IME)
E.164 Transformation Profile
< None >
Multilevel Precedence and Preemption (MLPP) Information
MLPP Domain
< None >
Call Routing Information
Remote-Party-Id
Asserted-Identity
Asserted-Type*
Default
SIP Privacy*
Default
Inbound Calls
Significant Digits*
All
Connected Line ID Presentation*
Default
Connected Name Presentation*
Default
Calling Search Space
< None >
AAR Calling Search Space
< None >
Prefix DN
Redirecting Diversion Header Delivery - Inbound
Incoming Calling Party Settings
If the administrator sets the prefix to Default this indicates call processing will use prefix at the next level setting (DevicePool/Service Parameter). Otherwise, the value configured is used as the prefix unless the field is empty in which case there is no prefix assigned.
Clear Prefix Settings
Default Prefix Settings
Number Type
Prefix
Strip Digits
Calling Search Space
Use Device Pool CSS
Incoming Number
Default
0
< None >
Connected Party Settings
Connected Party Transformation CSS
< None >
Use Device Pool Connected Party Transformation CSS



Outbound Calls

Called Party Transformation CSS	< None >
☑ Use Device Pool Called Party Transformation CSS	
Calling Party Transformation CSS	< None >
☑ Use Device Pool Calling Party Transformation CSS	
Calling Party Selection*	Originator
Calling Line ID Presentation*	Default
Calling Name Presentation*	Default
Caller ID DN	
Caller Name	
☑ Redirecting Diversion Header Delivery - Outbound	

SIP Information

Destination

☐ Destination Address is an SRV

	Destination Address	Destination Address IPv6	Destination Port
1*	172.20.236.50		5060

MTP Preferred Originating Codec*	711ulaw
Presence Group*	Standard Presence group
SIP Trunk Security Profile*	Non Secure SIP Trunk Profile
Rerouting Calling Search Space	< None >
Out-Of-Dialog Refer Calling Search Space	< None >
SUBSCRIBE Calling Search Space	< None >
SIP Profile*	Early Media SIP Profile
DTMF Signaling Method*	RFC 2833

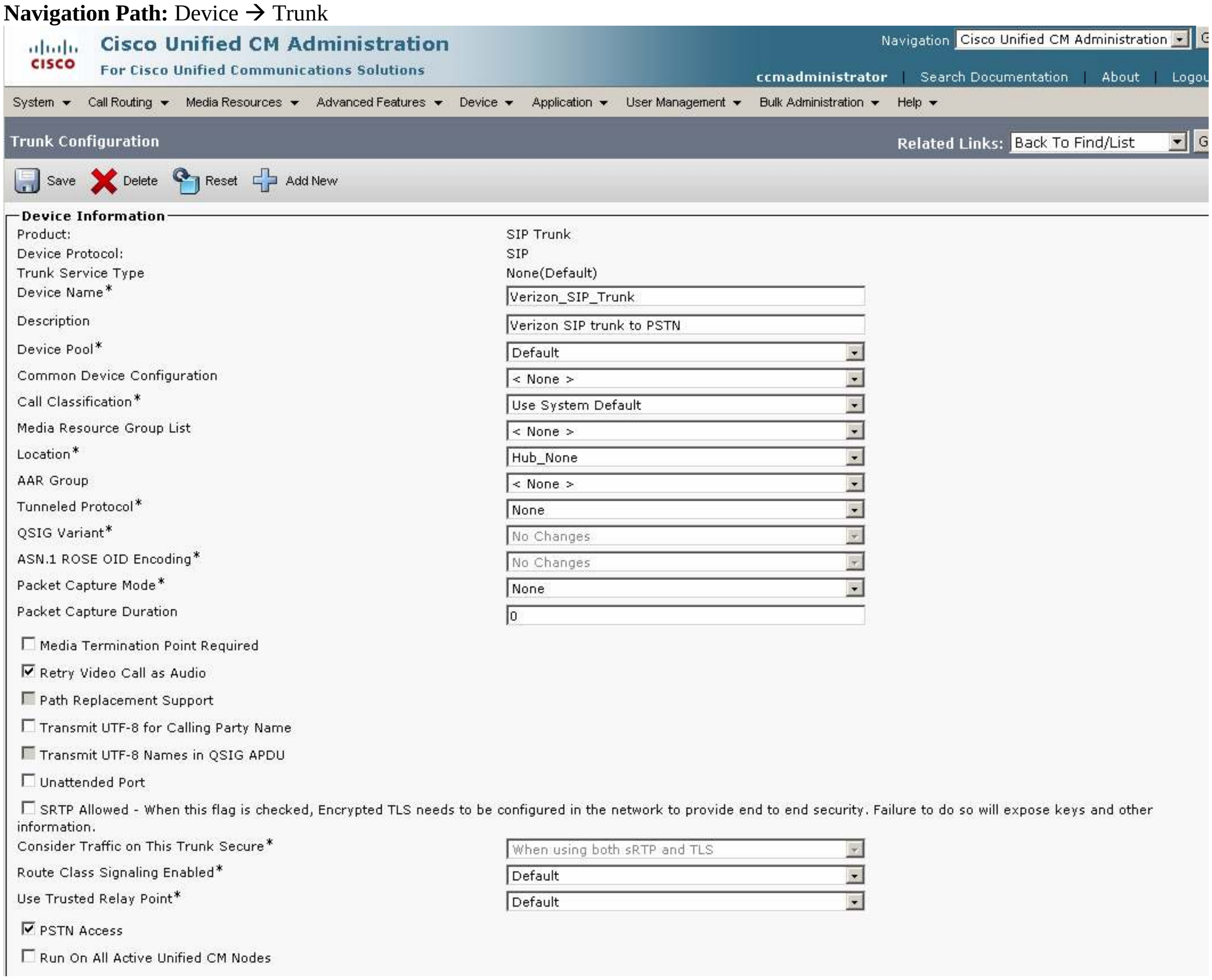
Normalization Script

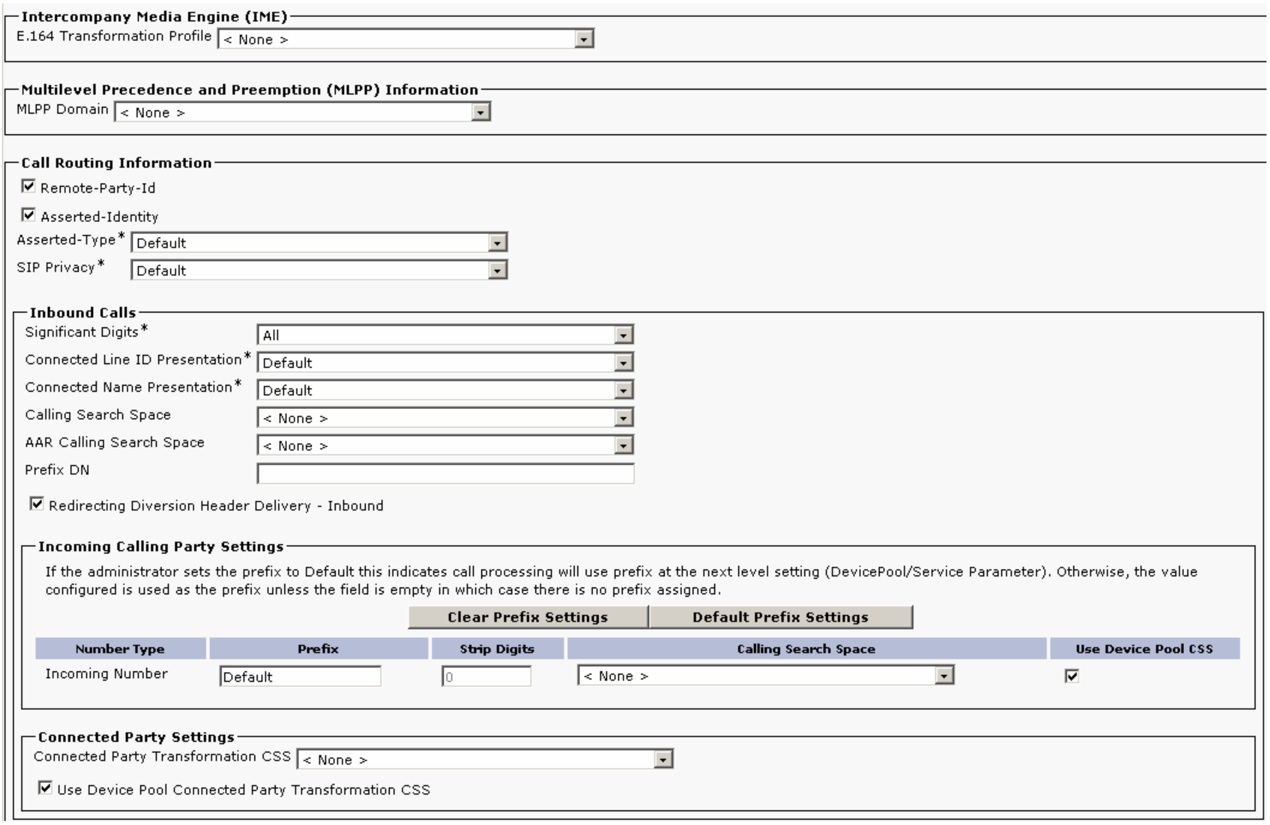
Normalization Script: < None >

☐ Enable Trace

	Parameter Name	Parameter Value
1		

Configuration of SIP trunk to Cisco UBE
Navigation Path: Device → Trunk





Intercompany Media Engine (IME)

E.164 Transformation Profile: < None >

Multilevel Precedence and Preemption (MLPP) Information

MLPP Domain: < None >

Call Routing Information

- [x] Remote-Party-Id
- [x] Asserted-Identity

Asserted-Type*: Default

SIP Privacy*: Default

Inbound Calls

Significant Digits*: All

Connected Line ID Presentation*: Default

Connected Name Presentation*: Default

Calling Search Space: < None >

AAR Calling Search Space: < None >

Prefix DN:

- [x] Redirecting Diversion Header Delivery - Inbound

Incoming Calling Party Settings

If the administrator sets the prefix to Default this indicates call processing will use prefix at the next level setting (DevicePool/Service Parameter). Otherwise, the value configured is used as the prefix unless the field is empty in which case there is no prefix assigned.

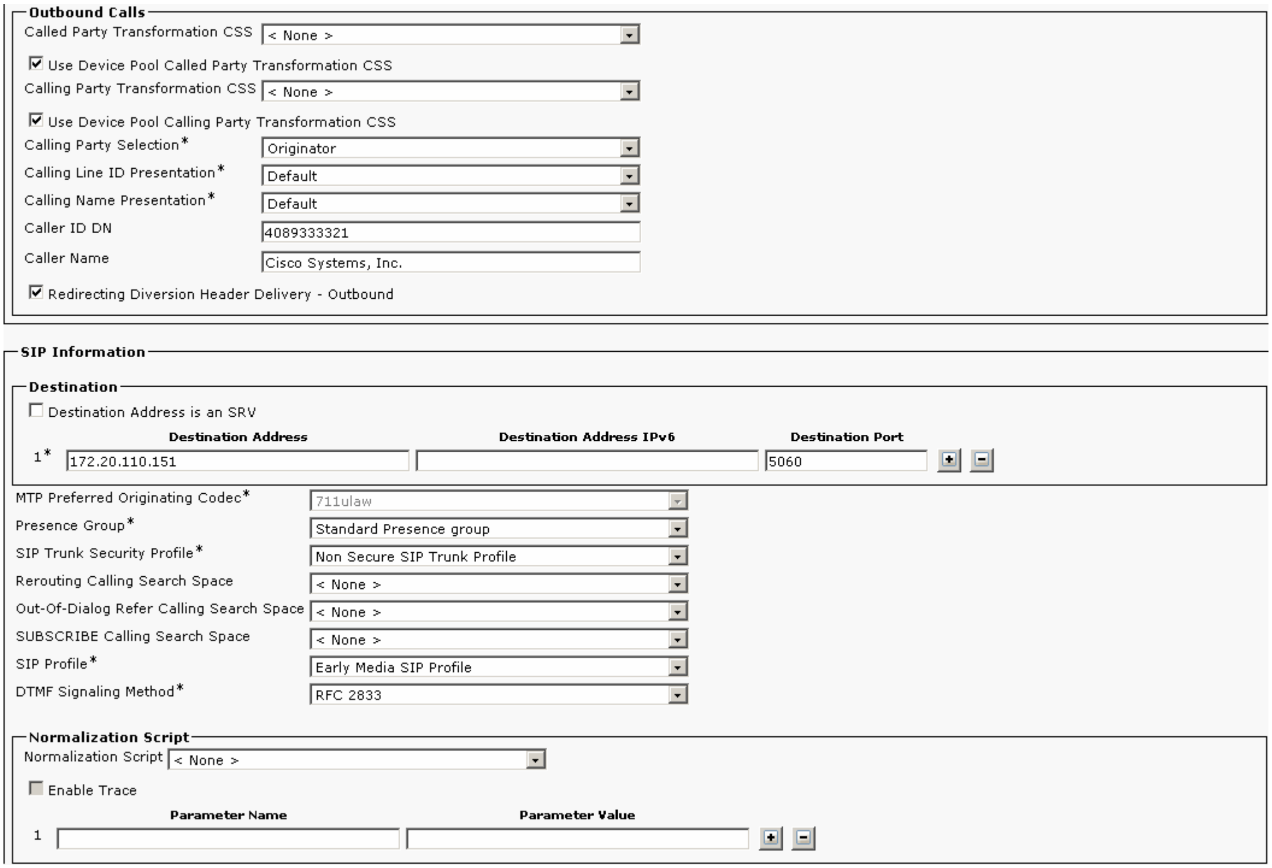
Clear Prefix Settings | Default Prefix Settings

Number Type	Prefix	Strip Digits	Calling Search Space	Use Device Pool CSS
Incoming Number	Default	0	< None >	[x]

Connected Party Settings

Connected Party Transformation CSS: < None >

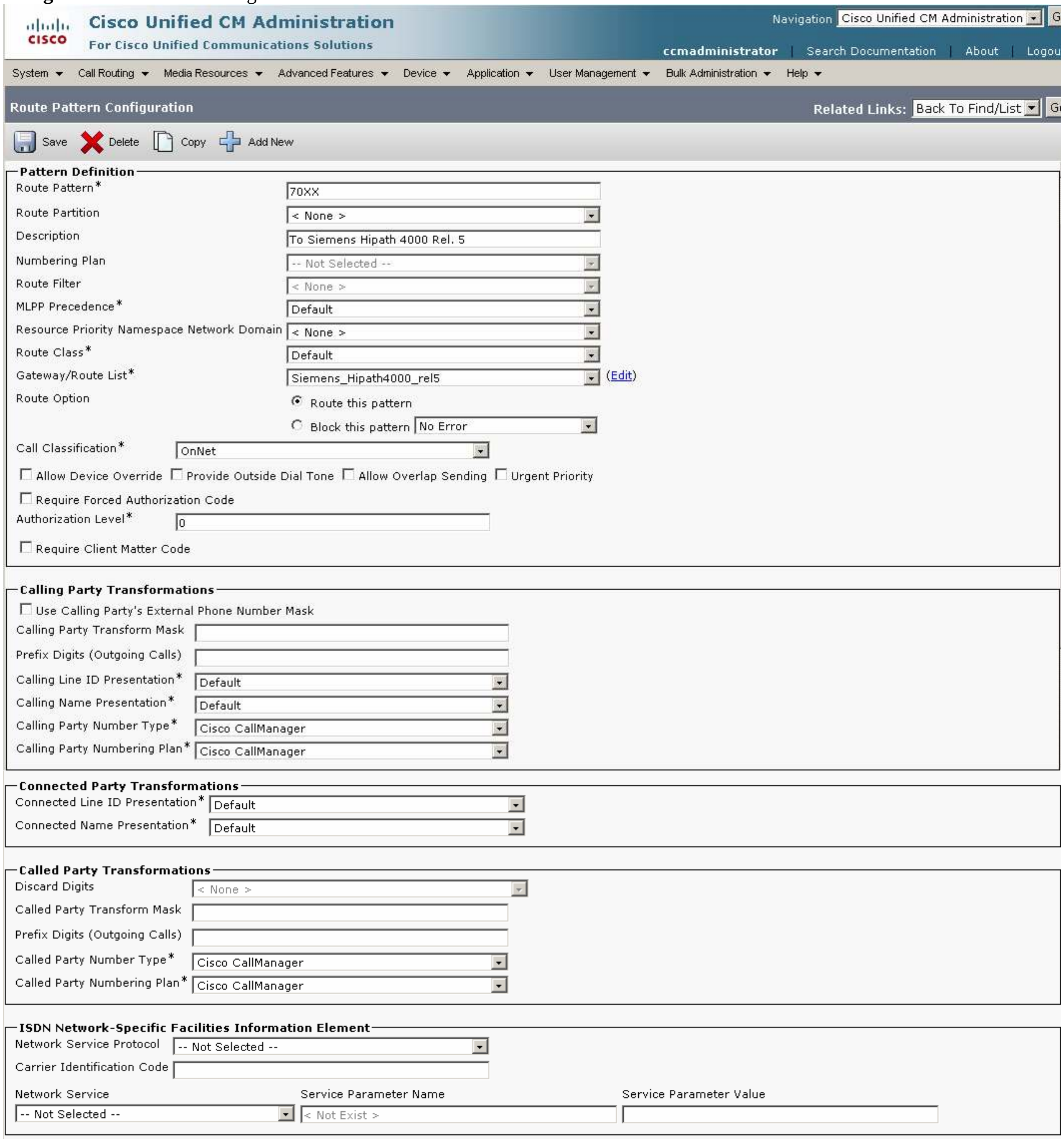
- [x] Use Device Pool Connected Party Transformation CSS



Note: Service Providers require caller ID to match a valid DID number assigned to customer in order to process calls. Entering the billing phone number assigned to SIP trunk by Service Provider within the Caller ID DN field ensures that all outbound calls to Service Provider are processed.

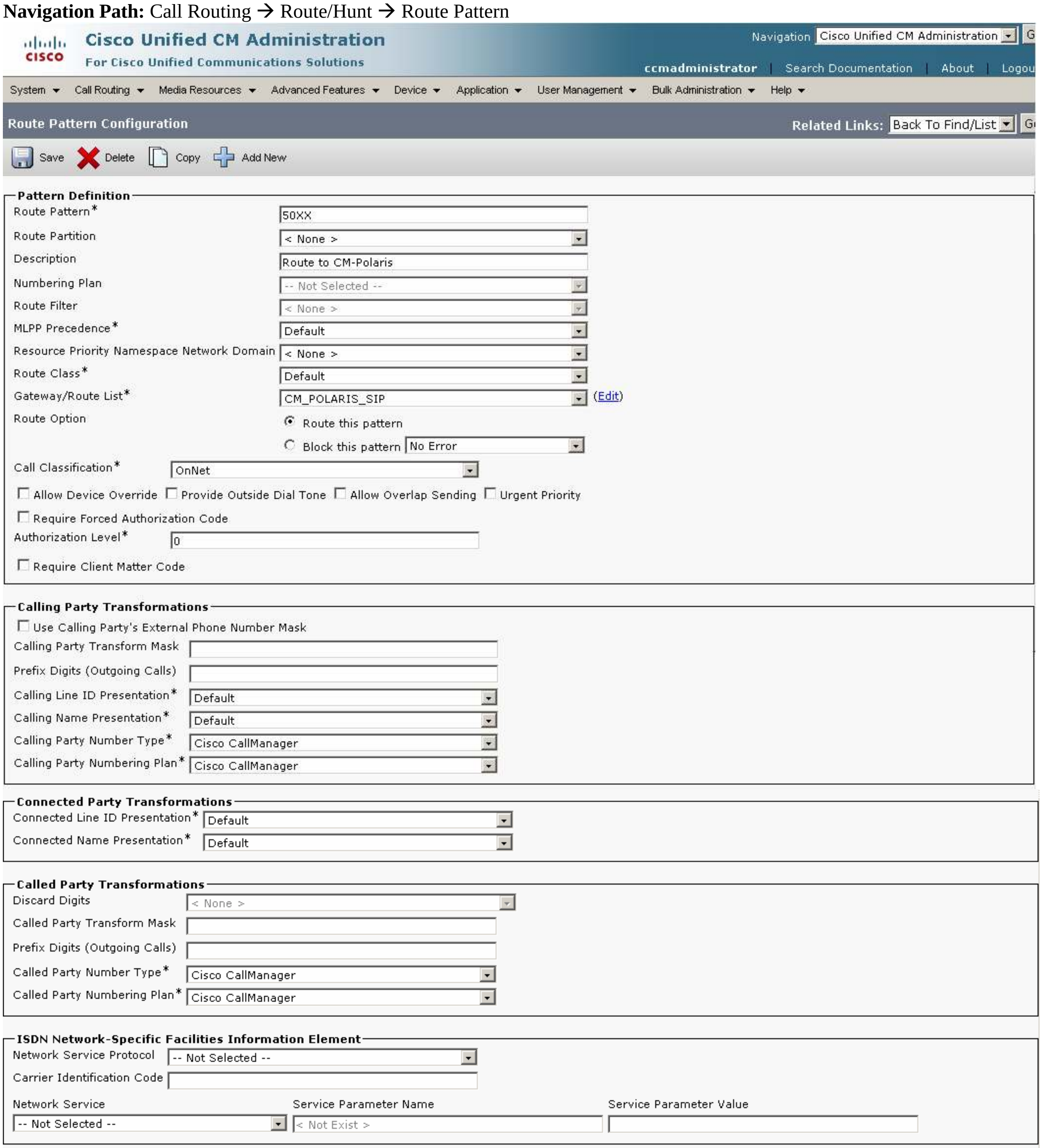
Configuration of Route Patterns – To Siemens PBX

Navigation Path: Call Routing → Route/Hunt → Route Pattern



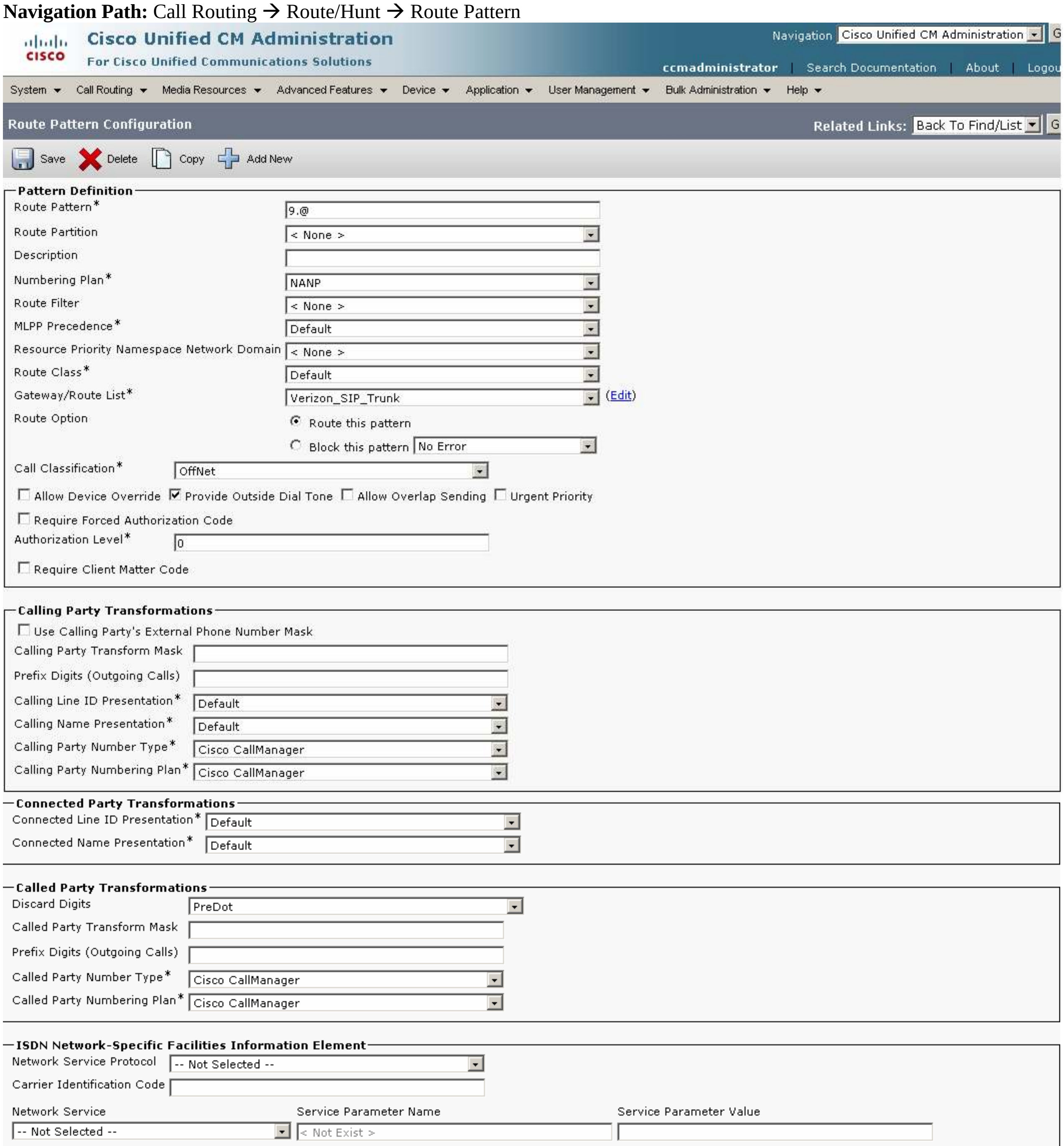
Configuration of Route Patterns – To Cisco UCM

Navigation Path: Call Routing → Route/Hunt → Route Pattern

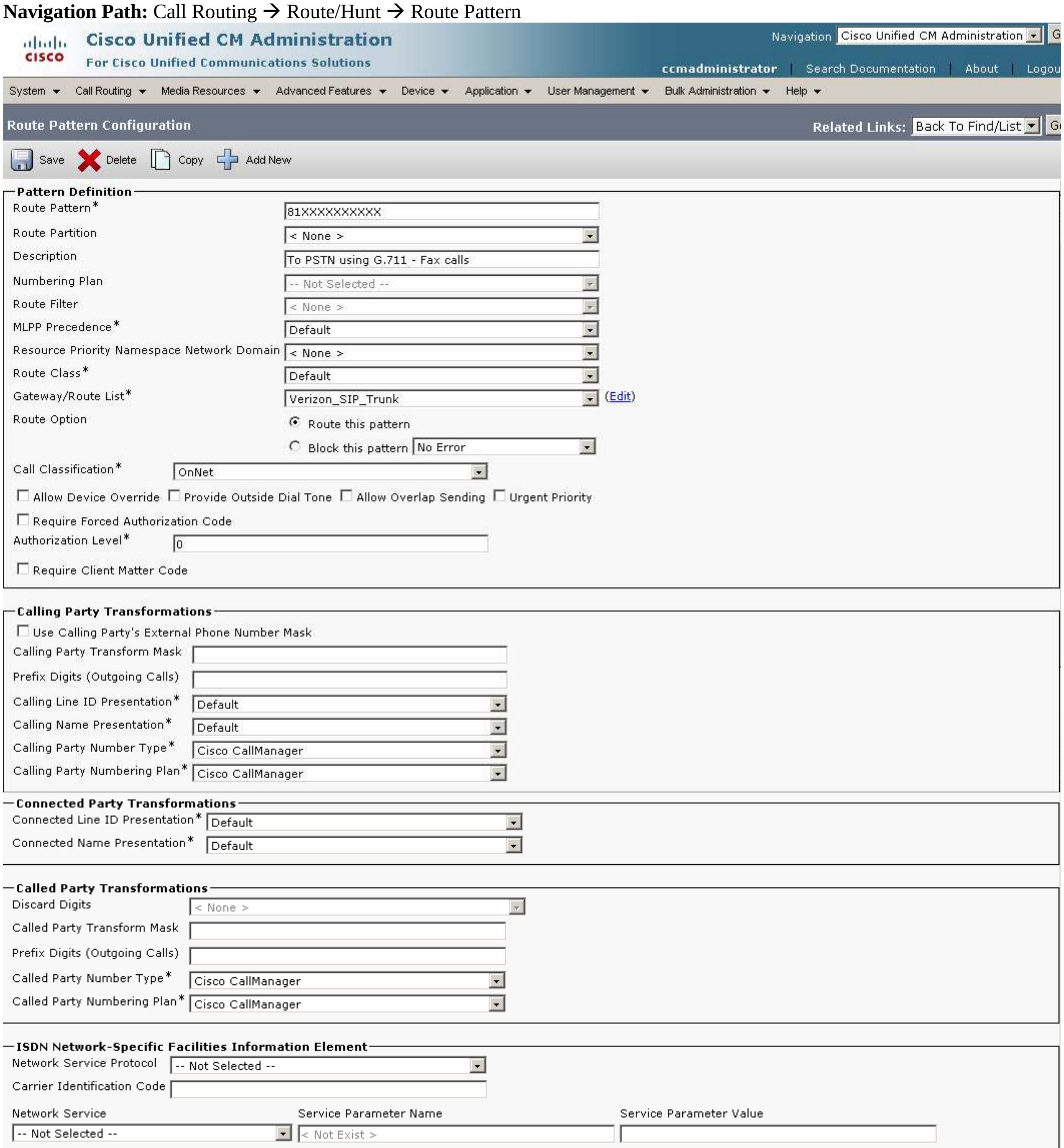


Configuration of Route Patterns – To PSTN

Navigation Path: Call Routing → Route/Hunt → Route Pattern



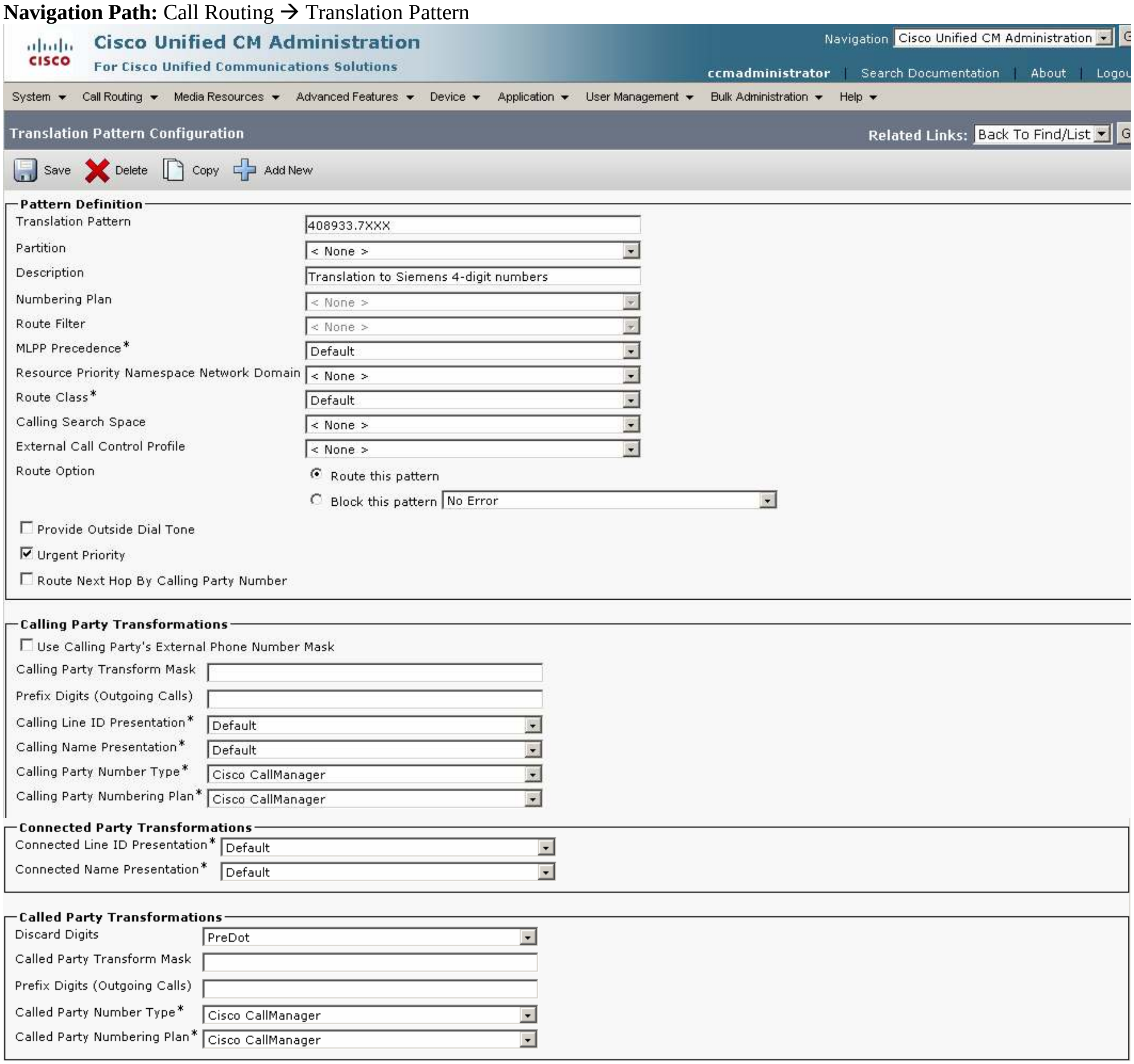
Configuration of Route Patterns – To PSTN (G.711 only calls)
Navigation Path: Call Routing → Route/Hunt → Route Pattern



Note: The Route Pattern above is used for outbound calls requiring G.711 codec (e.g. fax and/or modem calls). This Route Pattern allows the outpulsing of 8+1+10 digits, which will match a dial-peer configured to support G.711-only calls. The dial-peer in question will use a translation rule to strip out the leading "8" and send the 1+10 digit number to the Service Provider for processing.

Configuration of Translation Patterns – To Siemens PBX

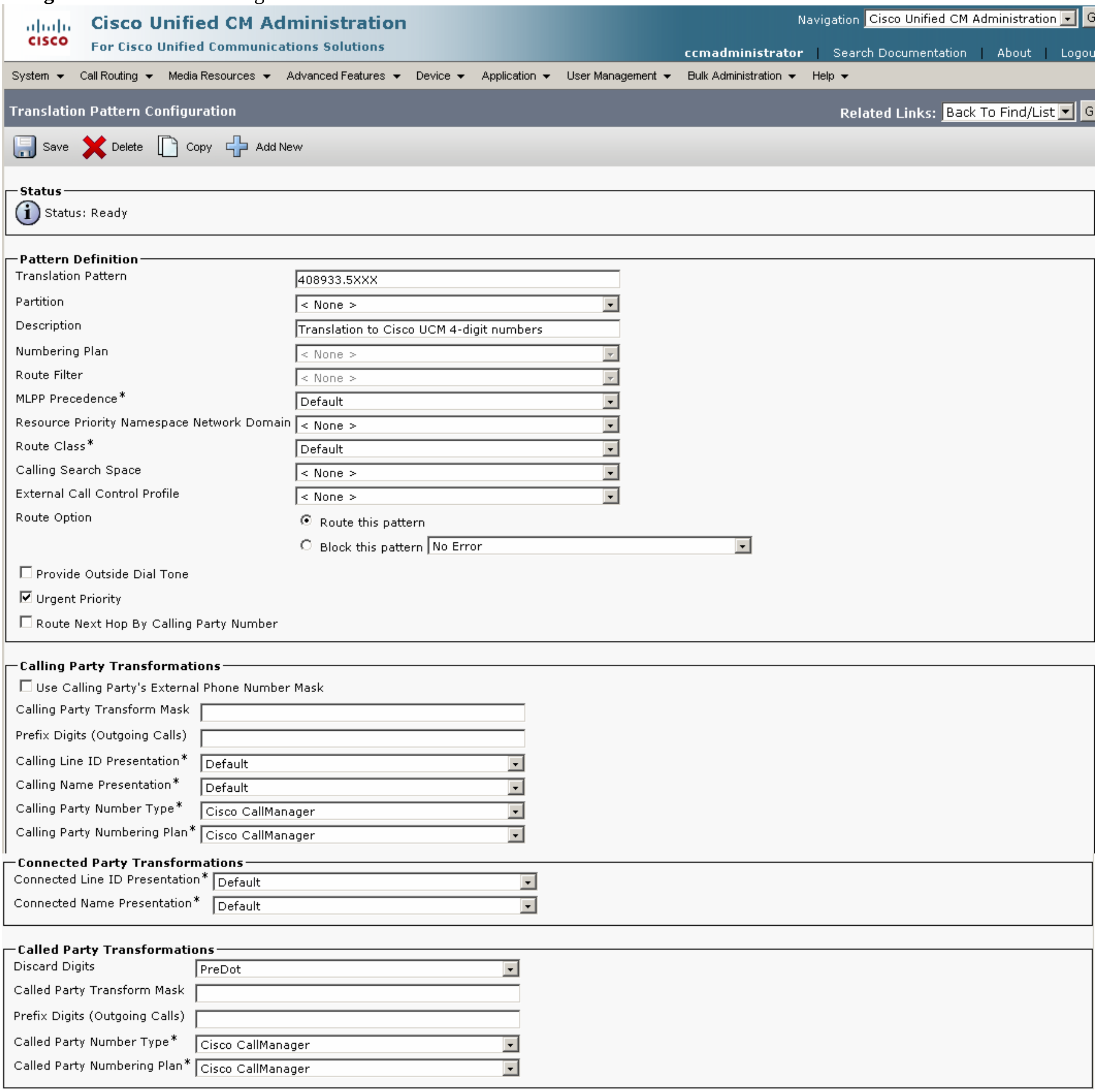
Navigation Path: Call Routing → Translation Pattern



Note: This Translation Pattern is used to convert 10-digit DID numbers to 4-digit extension assigned to Siemens stations.

Configuration of Translation Patterns – To Cisco UCM

Navigation Path: Call Routing → Translation Pattern



Note: This Translation Pattern is used to convert 10-digit DID numbers to 4-digit extension assigned to Cisco UCM stations.

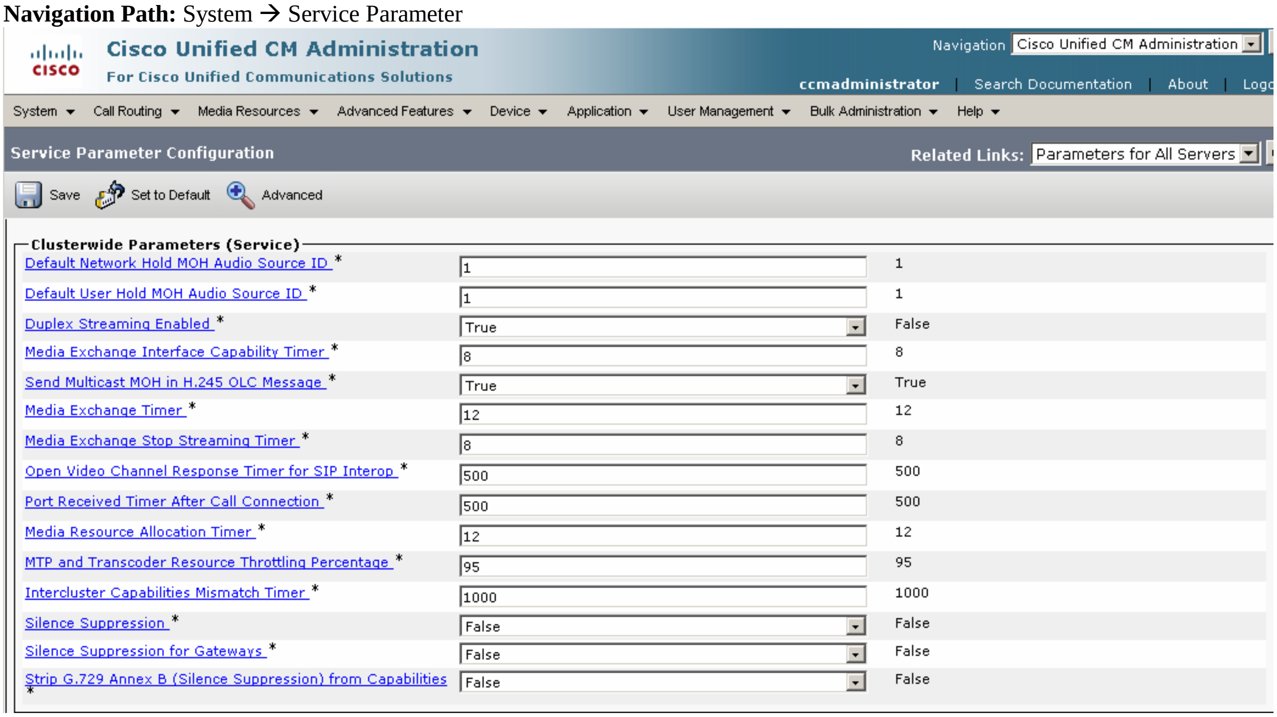
Configuring the Cisco Unified Communications Manager

1. Cisco Unified Communications Manager Version
2. Service Parameter configuration – Duplex Streaming of MoH
3. Device pool and Region mapping configuration
4. Conference Bridge configuration
5. Media Resource Group configuration
6. Media Resource Group List configuration
7. SIP Profile configuration
8. SIP Trunk to SME configuration
9. Route Pattern configuration to Siemens PBX
10. Route Pattern configuration to PSTN
11. Cisco IP Phone 7965 SCCP configuration
12. Cisco IP Phone 7965 SIP configuration
13. MGCP Fax gateway configuration

Cisco Unified Communications Manager software version

Configuration of Service Parameters – Duplex Streaming for MoH

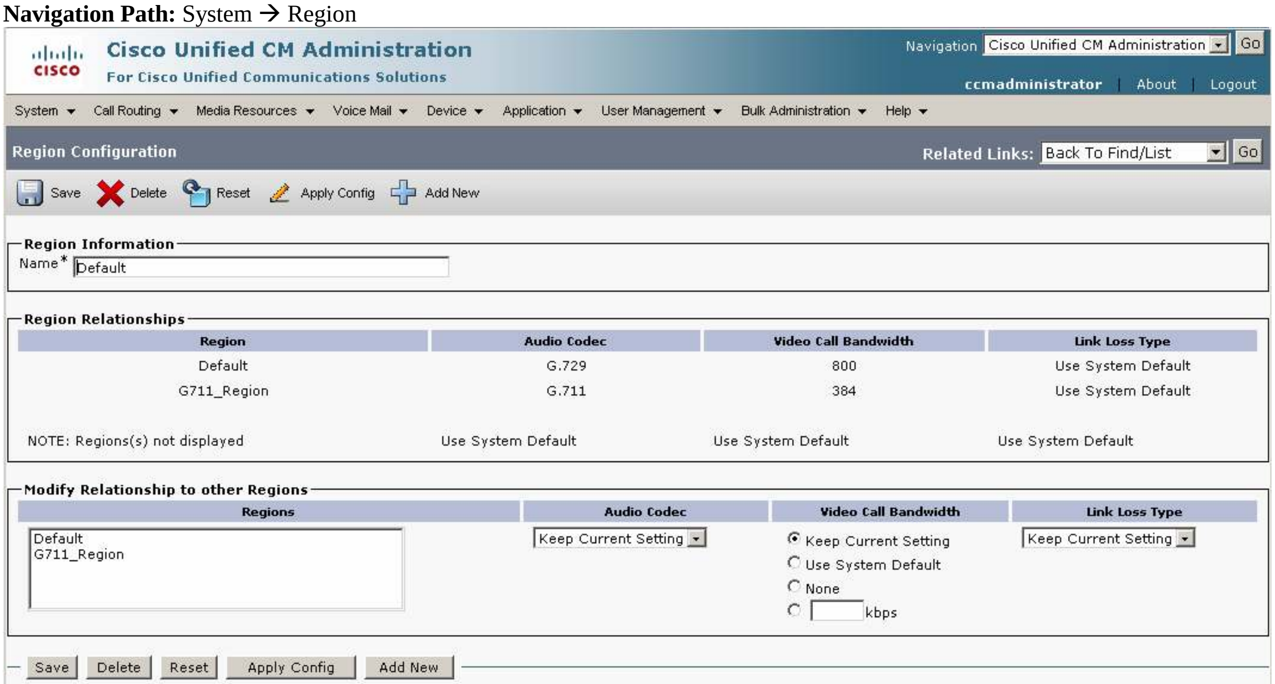
Navigation Path: System → Service Parameter

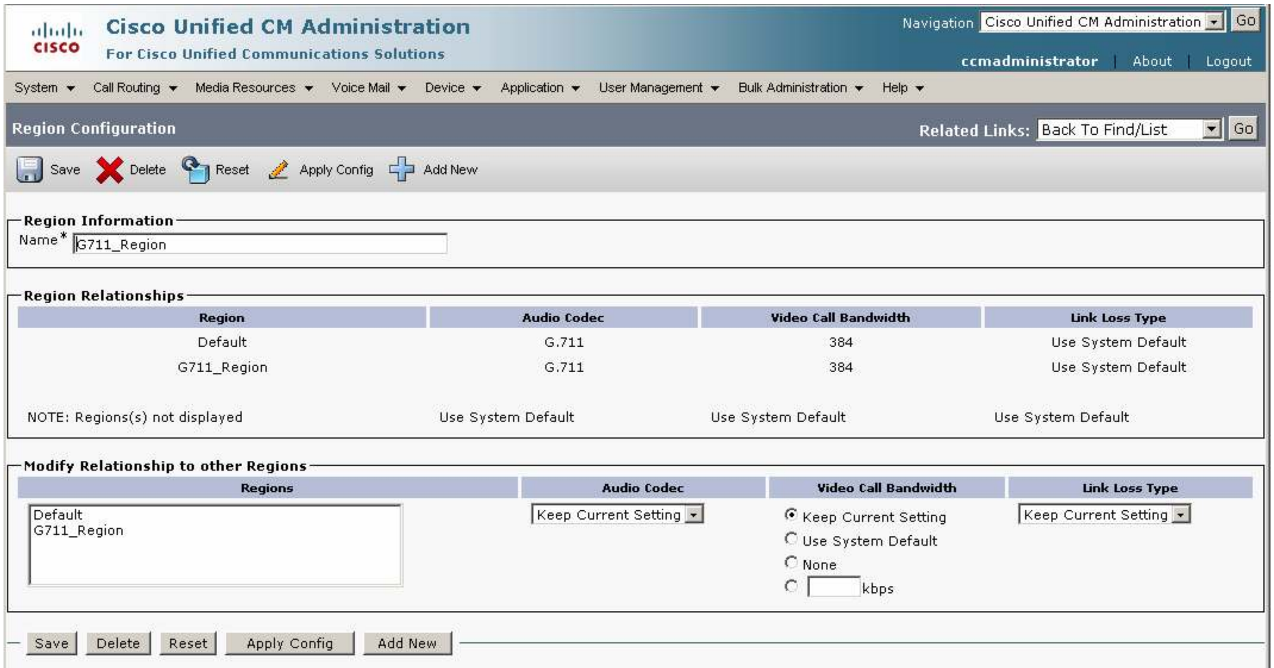


Note: In order for Music-on-hold to be heard by Siemens and/or PSTN end-points, service parameter "Duplex Streaming Enabled" must be set to "True".

Configuration of Device Pool to Region mapping

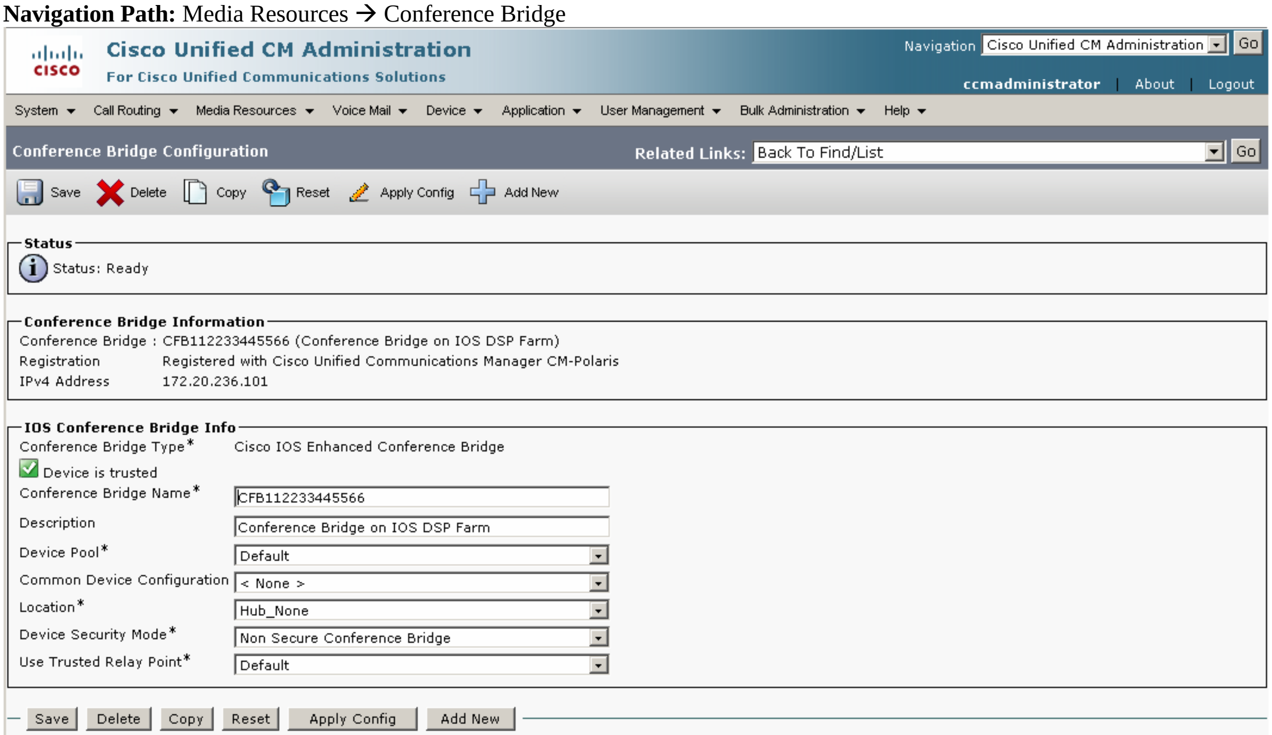
Navigation Path: System → Region





Configuration of Conference Bridge

Navigation Path: Media Resources → Conference Bridge

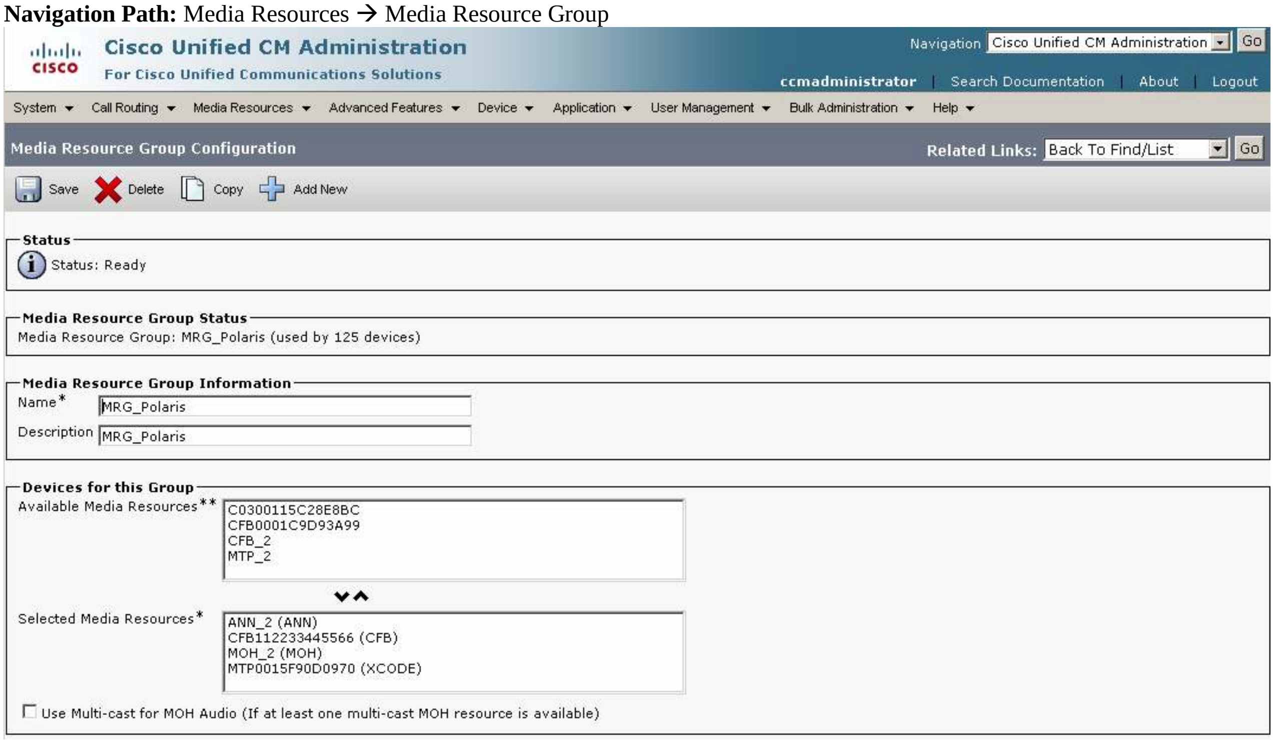


Conference Bridge IOS configuration:

```
sccp local GigabitEthernet0/0
sccp ccm 172.20.236.50 identifier 1 version 7.0
sccp
!
sccp ccm group 1
 bind interface GigabitEthernet0/0
 associate ccm 1
 priority 1
 associate profile 98 register cfb112233445566
!
dspfarm profile 98 conference
 codec g729r8
 codec g711ulaw
 maximum sessions 8
 associate application SCCP
```

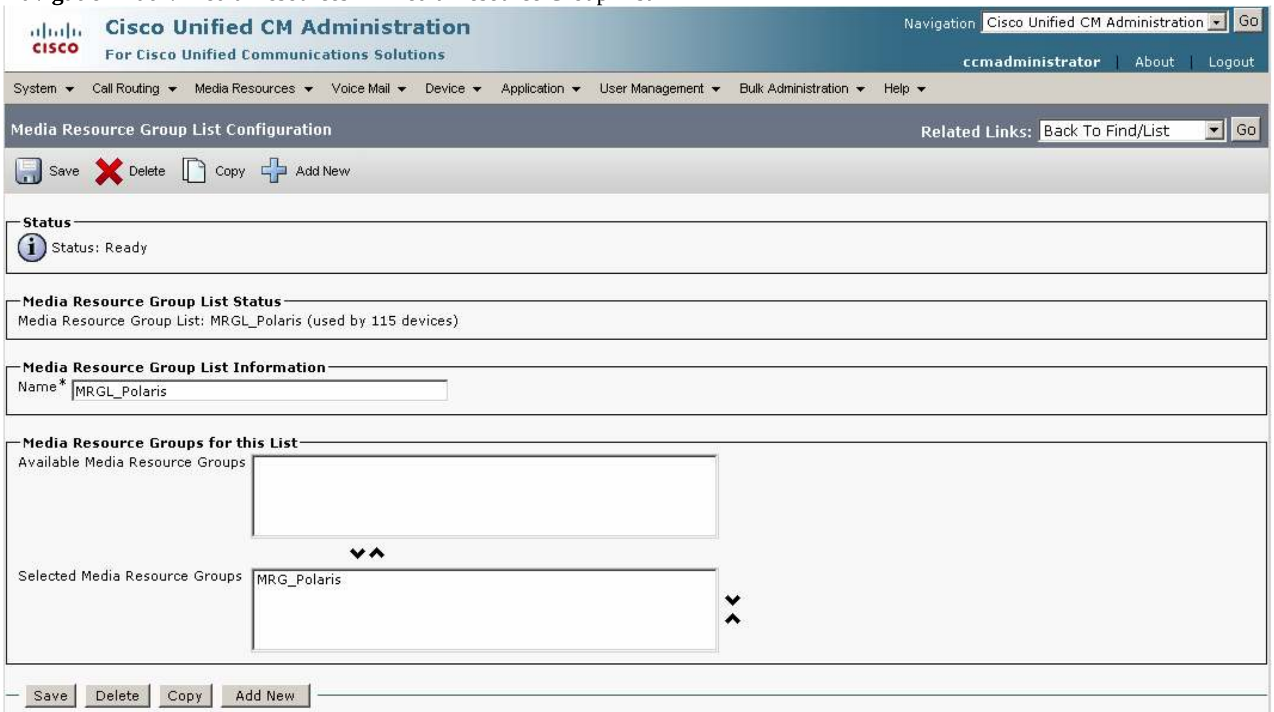
Configuration of Media Resource Group

Navigation Path: Media Resources → Media Resource Group



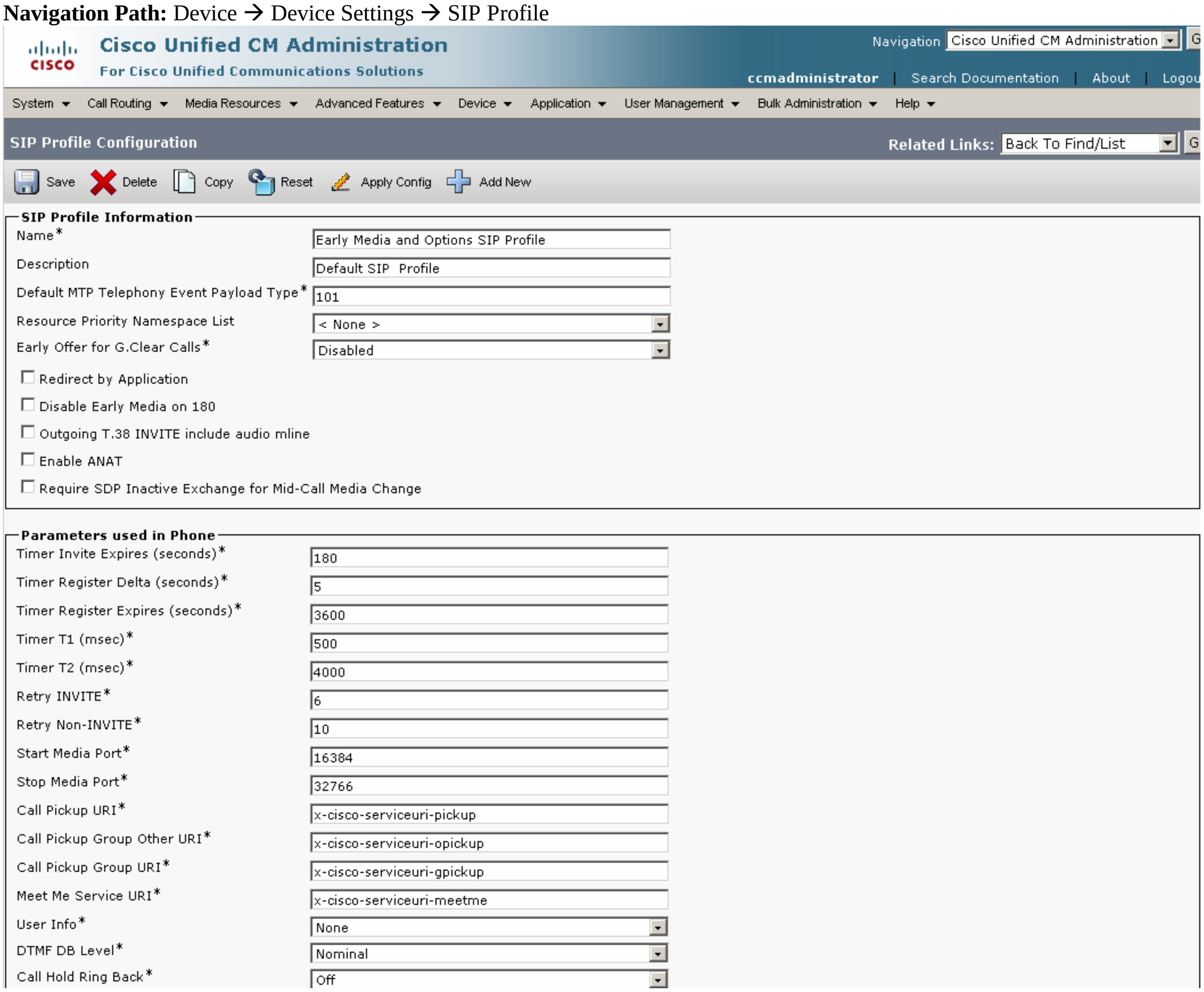
Configuration of Media Resource Group List

Navigation Path: Media Resources → Media Resource Group List



Configuration of SIP Profile

Navigation Path: Device → Device Settings → SIP Profile



Caller ID Blocking*	Off
Do Not Disturb Control*	User
Telnet Level for 7940 and 7960*	Disabled
Timer Keep Alive Expires (seconds)*	120
Timer Subscribe Expires (seconds)*	120
Timer Subscribe Delta (seconds)*	5
Maximum Redirections*	70
Off Hook To First Digit Timer (milliseconds)*	15000
Call Forward URI*	x-cisco-serviceuri-cfwdall
Speed Dial (Abbreviated Dial) URI*	x-cisco-serviceuri-abbrdial

- ☑ Conference Join Enabled
- ☐ RFC 2543 Hold
- ☑ Semi Attended Transfer
- ☐ Enable VAD
- ☐ Stutter Message Waiting

Trunk Specific Configuration

Reroute Incoming Request to new Trunk based on*	Never
RSVP Over SIP*	Local RSVP

- ☑ Fall back to local RSVP

SIP Rel1XX Options*	Send PRACK if 1xx Contains SDP

- ☐ Deliver Conference Bridge Identifier
- ☑ Early Offer support for voice and video calls (insert MTP if needed)
- ☐ Send send-receive SDP in mid-call INVITE

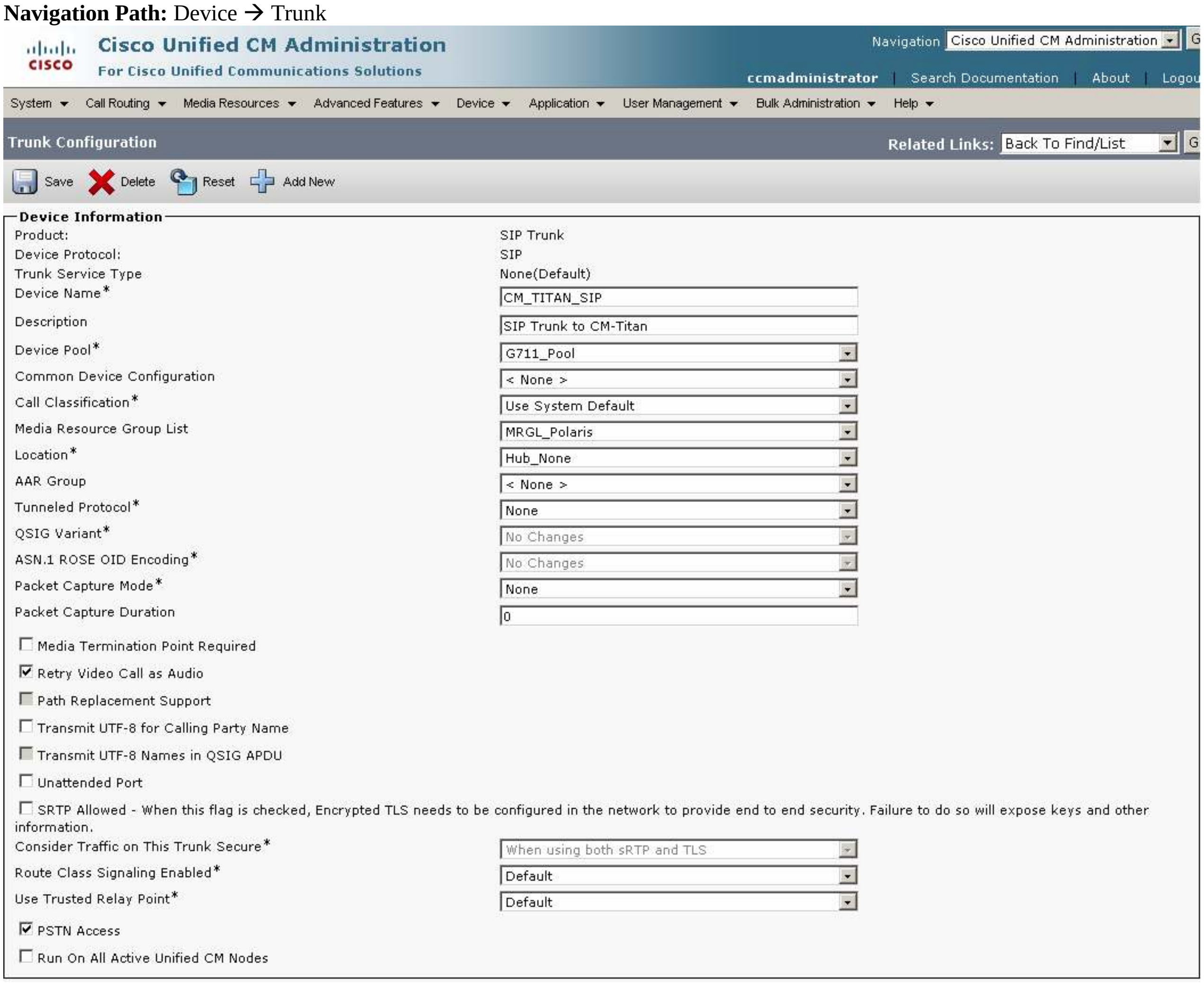
SIP OPTIONS Ping

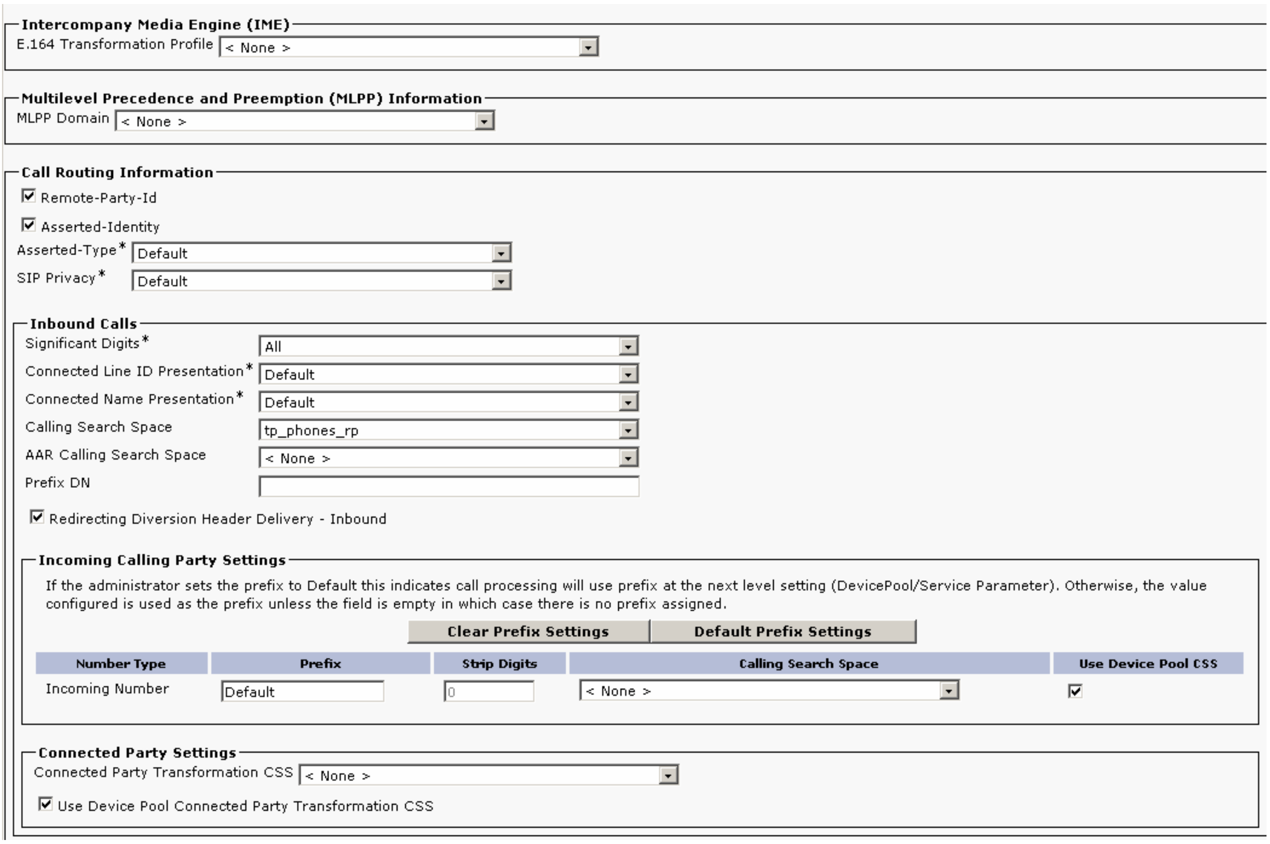
- ☑ Enable OPTIONS Ping to monitor destination status for Trunks with Service Type "None (Default)"

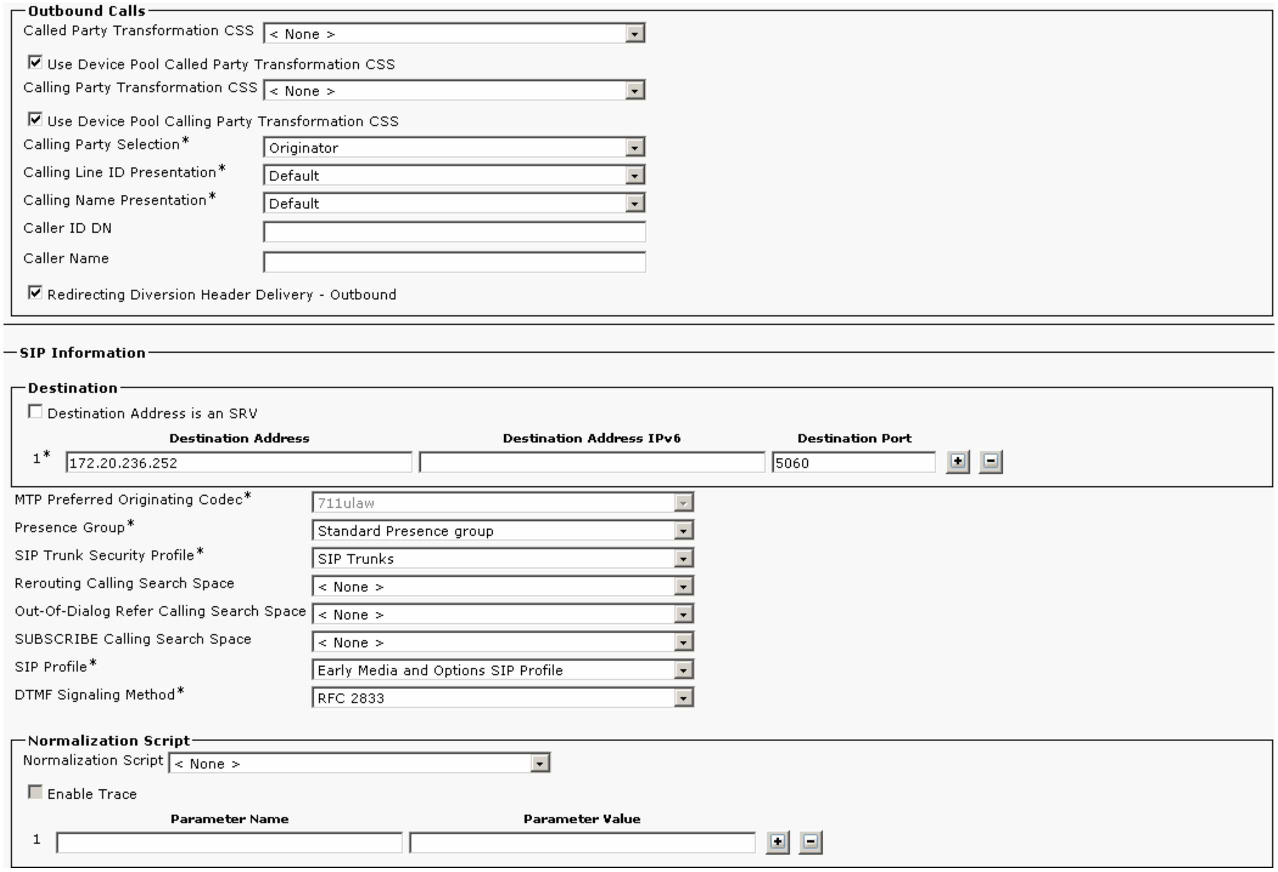
Ping Interval for In-service and Partially In-service Trunks (seconds)*	60
Ping Interval for Out-of-service Trunks (seconds)*	120
Ping Retry Timer (milliseconds)*	500
Ping Retry Count*	6

Configuration of SIP Trunk to Cisco UCM - SME

Navigation Path: Device → Trunk

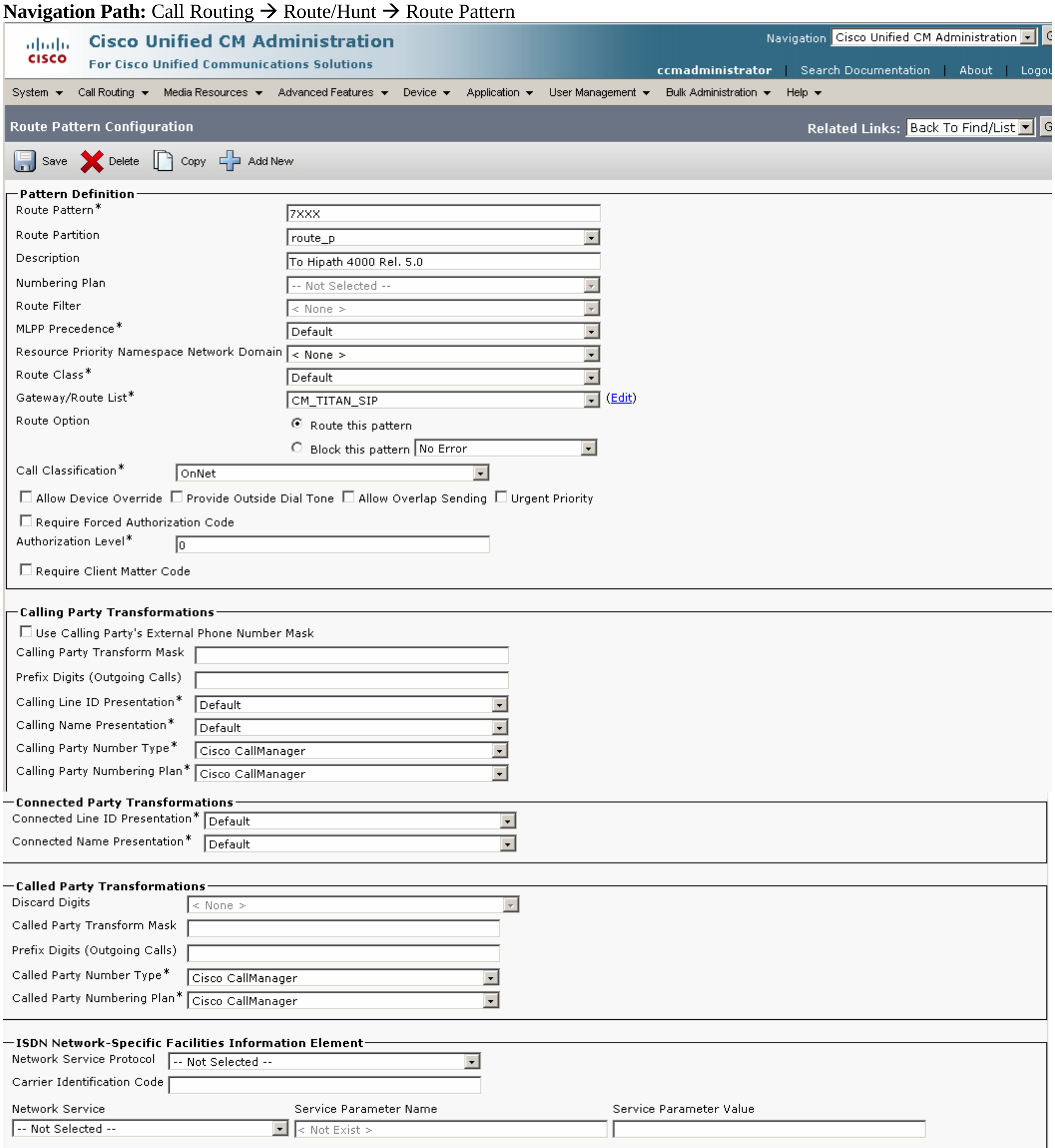



Intercompany Media Engine (IME)
E.164 Transformation Profile < None >
Multilevel Precedence and Preemption (MLPP) Information
MLPP Domain < None >
Call Routing Information
Remote-Party-Id
Asserted-Identity
Asserted-Type* Default
SIP Privacy* Default
Inbound Calls
Significant Digits* All
Connected Line ID Presentation* Default
Connected Name Presentation* Default
Calling Search Space tp_phones_rp
AAR Calling Search Space < None >
Prefix DN
Redirecting Diversion Header Delivery - Inbound
Incoming Calling Party Settings
If the administrator sets the prefix to Default this indicates call processing will use prefix at the next level setting (DevicePool/Service Parameter). Otherwise, the value configured is used as the prefix unless the field is empty in which case there is no prefix assigned.
Clear Prefix Settings
Default Prefix Settings
Number Type
Prefix
Strip Digits
Calling Search Space
Use Device Pool CSS
Incoming Number
Default
0
< None >
Connected Party Settings
Connected Party Transformation CSS < None >
Use Device Pool Connected Party Transformation CSS


Outbound Calls
Called Party Transformation CSS
< None >
Use Device Pool Called Party Transformation CSS
Calling Party Transformation CSS
< None >
Use Device Pool Calling Party Transformation CSS
Calling Party Selection*
Originator
Calling Line ID Presentation*
Default
Calling Name Presentation*
Default
Caller ID DN
Caller Name
Redirecting Diversion Header Delivery - Outbound
SIP Information
Destination
Destination Address is an SRV
Destination Address
Destination Address IPv6
Destination Port
1*
172.20.236.252
5060
MTP Preferred Originating Codec*
711ulaw
Presence Group*
Standard Presence group
SIP Trunk Security Profile*
SIP Trunks
Rerouting Calling Search Space
< None >
Out-Of-Dialog Refer Calling Search Space
< None >
SUBSCRIBE Calling Search Space
< None >
SIP Profile*
Early Media and Options SIP Profile
DTMF Signaling Method*
RFC 2833
Normalization Script
Normalization Script
< None >
Enable Trace
Parameter Name
Parameter Value
1

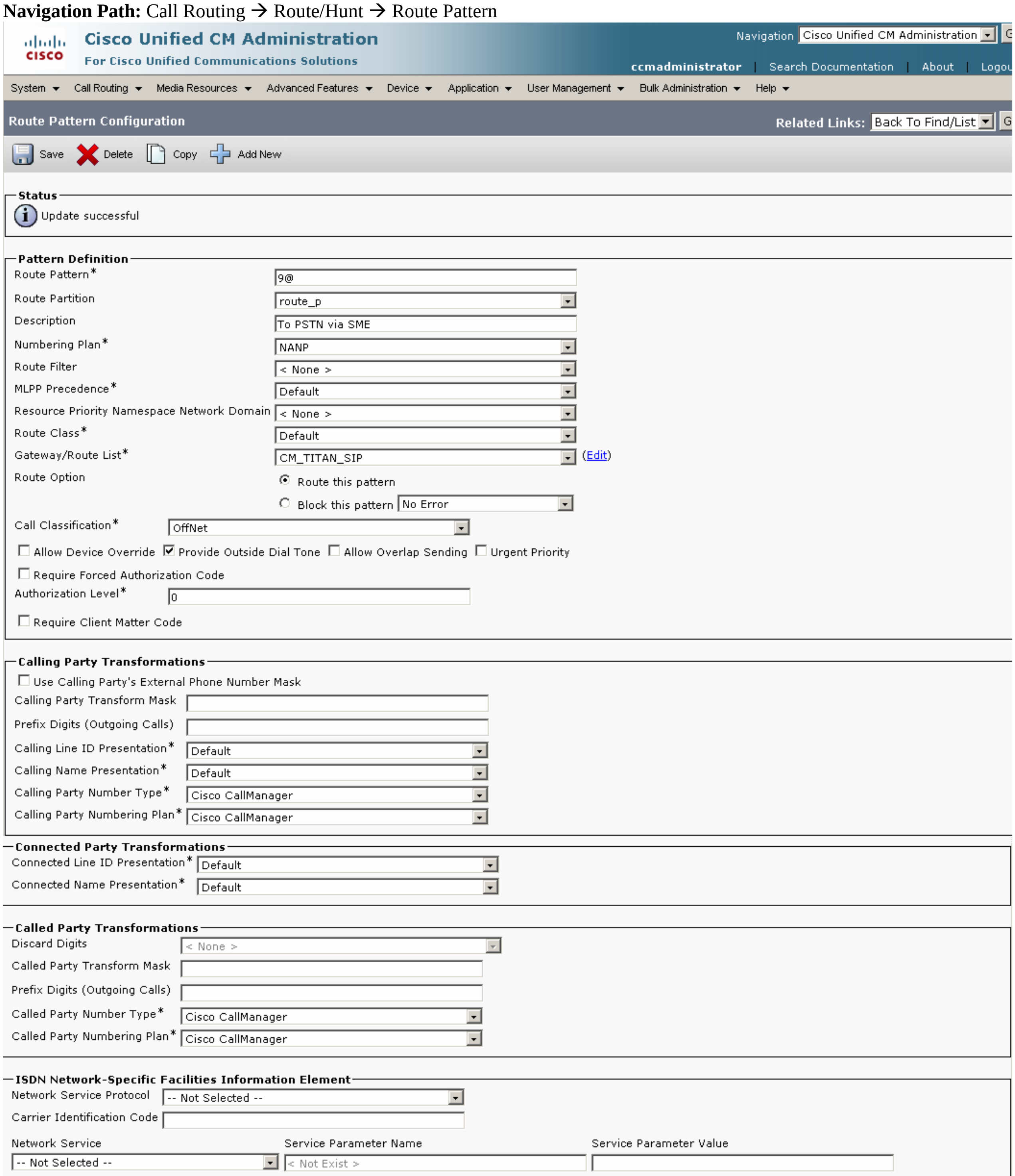
Configuration of Route Pattern to Siemens PBX via Cisco UCM – SME

Navigation Path: Call Routing → Route/Hunt → Route Pattern



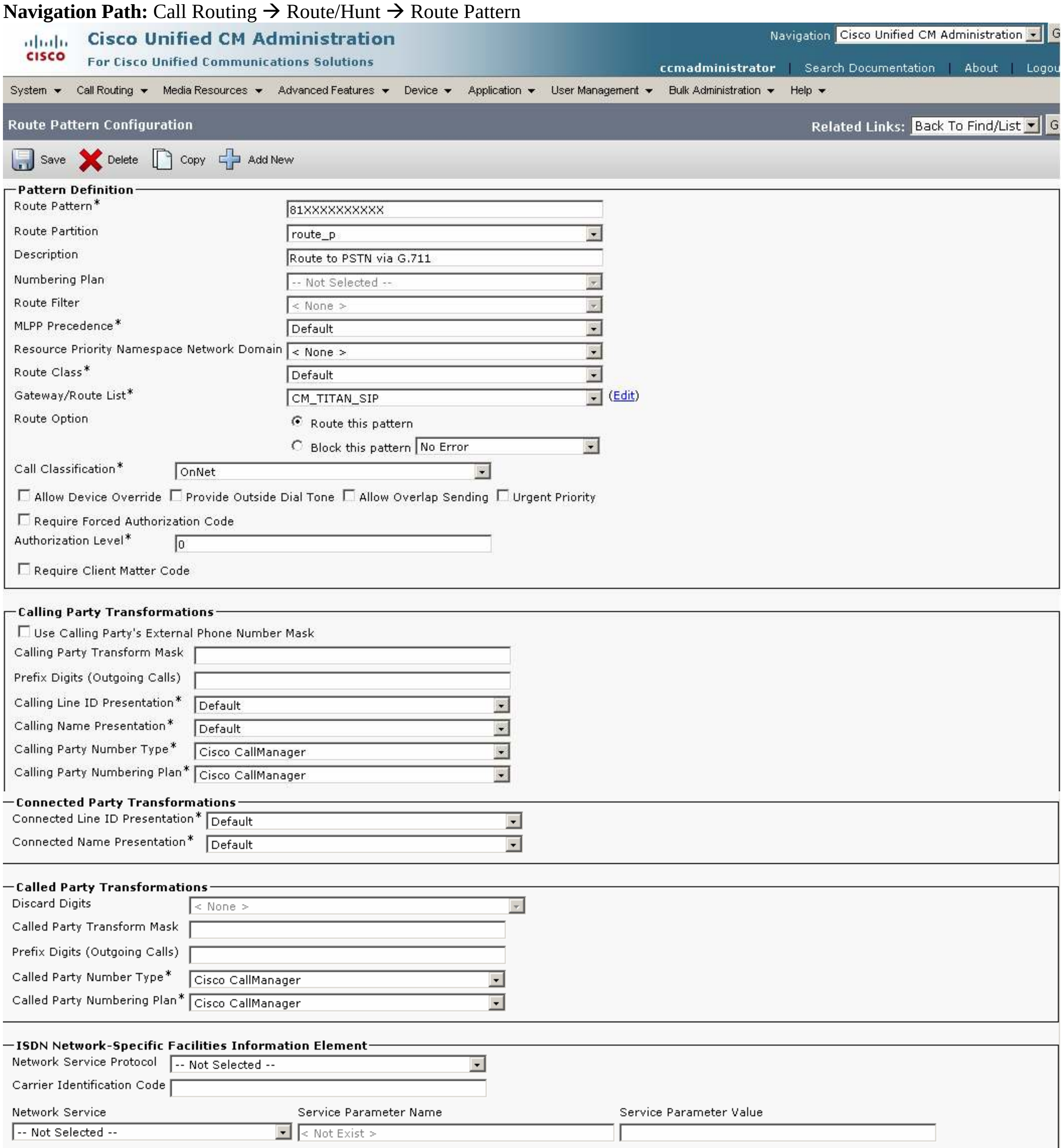
Configuration of Route Pattern to PSTN via Cisco UCM – SME

Navigation Path: Call Routing → Route/Hunt → Route Pattern



Configuration of Route Patterns – To PSTN via Cisco UCM - SME (G.711 only calls)

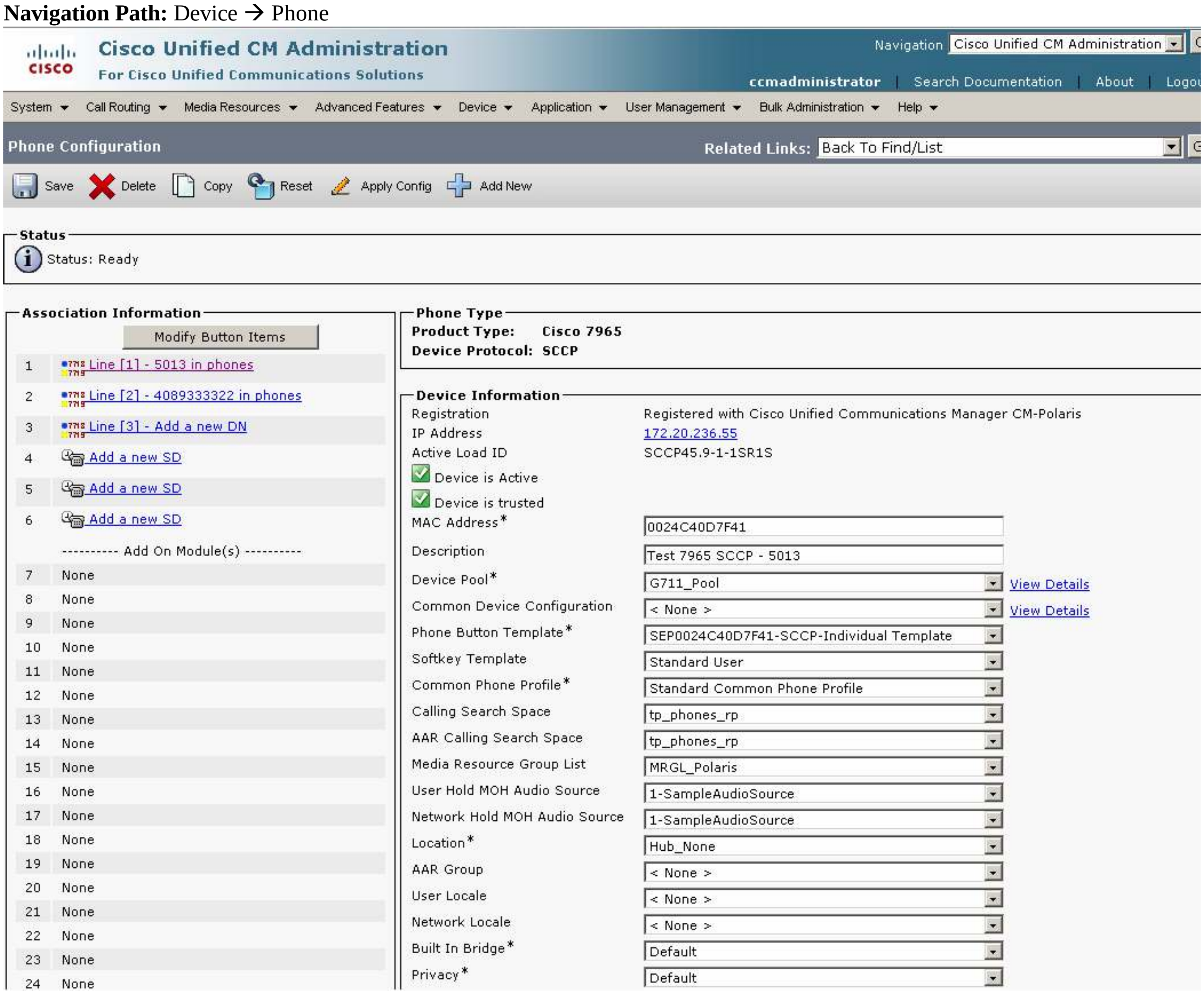
Navigation Path: Call Routing → Route/Hunt → Route Pattern

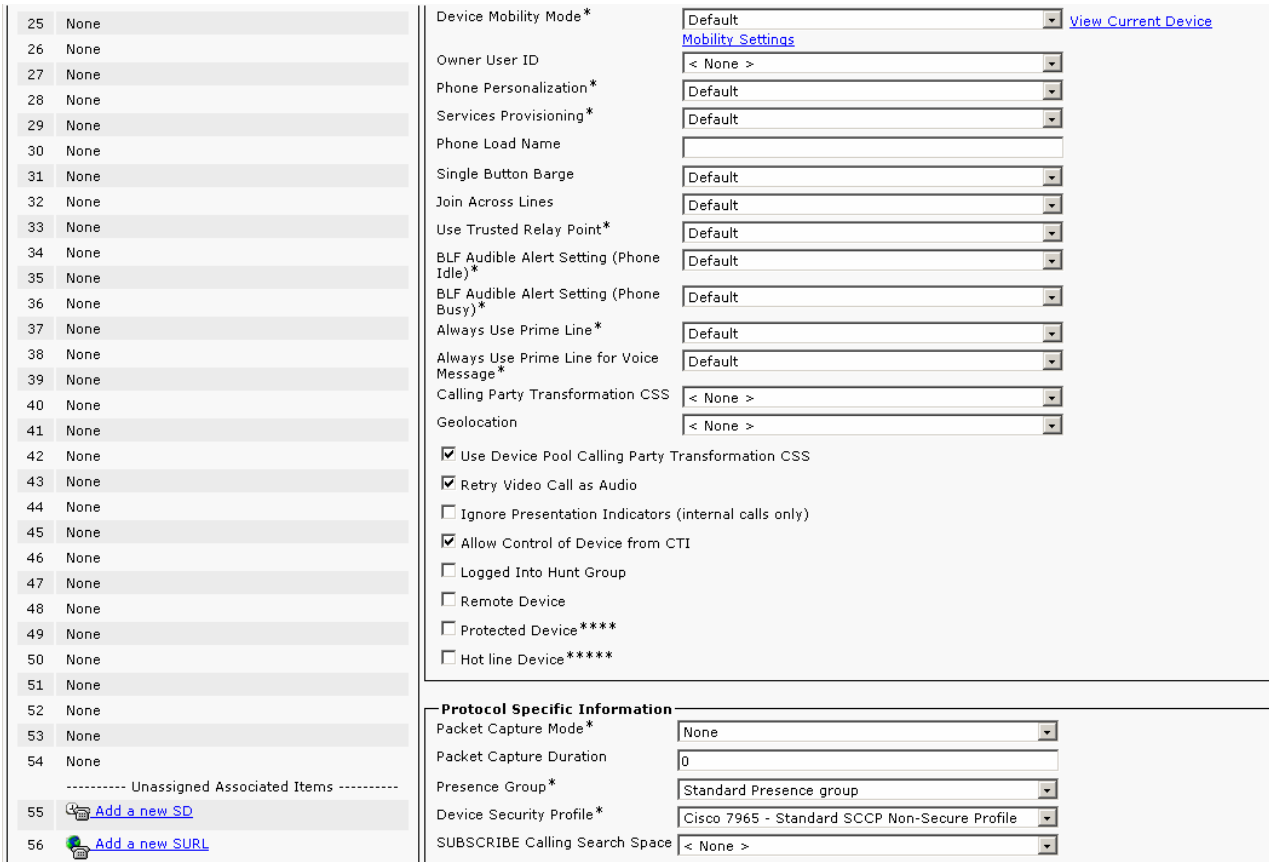


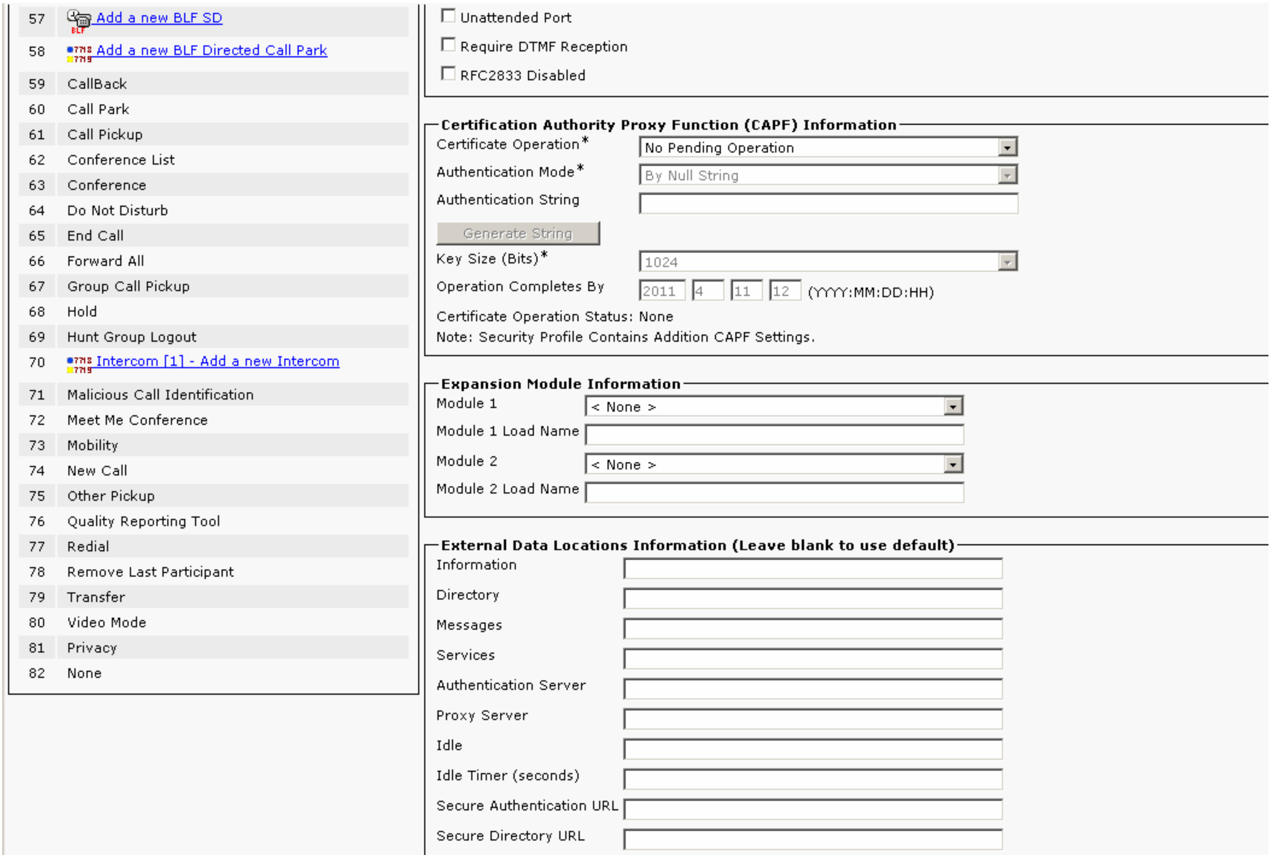
Note: The Route Pattern above is used for outbound calls requiring G.711 codec (e.g. fax and/or modem calls). This Route Pattern allows the outpulsing of 8+1+10 digits, which will match a dial-peer configured to support G.711-only calls. The dial-peer in question will use a translation rule to strip out the leading "8" and send the 1+10 digit number to the Service Provider for processing.

Configuration of Cisco SCCP 7965 Phone

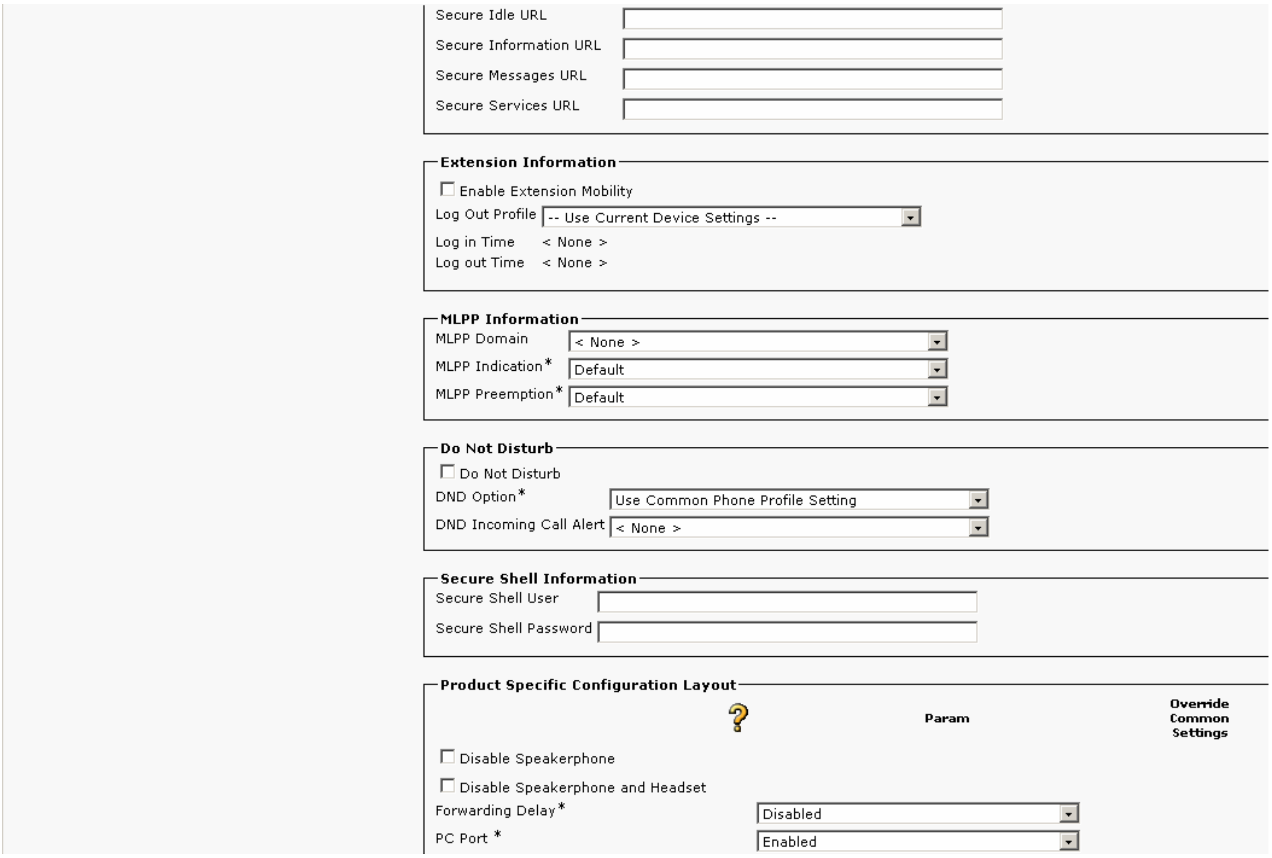
Navigation Path: Device → Phone




25 None
26 None
27 None
28 None
29 None
30 None
31 None
32 None
33 None
34 None
35 None
36 None
37 None
38 None
39 None
40 None
41 None
42 None
43 None
44 None
45 None
46 None
47 None
48 None
49 None
50 None
51 None
52 None
53 None
54 None
---------- Unassigned Associated Items ----------
55 Add a new SD
56 Add a new SURL
Device Mobility Mode* Default
View Current Device Mobility Settings
Owner User ID < None >
Phone Personalization* Default
Services Provisioning* Default
Phone Load Name
Single Button Barge Default
Join Across Lines Default
Use Trusted Relay Point* Default
BLF Audible Alert Setting (Phone Idle)* Default
BLF Audible Alert Setting (Phone Busy)* Default
Always Use Prime Line* Default
Always Use Prime Line for Voice Message* Default
Calling Party Transformation CSS < None >
Geolocation < None >
Use Device Pool Calling Party Transformation CSS
Retry Video Call as Audio
Ignore Presentation Indicators (internal calls only)
Allow Control of Device from CTI
Logged Into Hunt Group
Remote Device
Protected Device****
Hot line Device*****
Protocol Specific Information
Packet Capture Mode* None
Packet Capture Duration 0
Presence Group* Standard Presence group
Device Security Profile* Cisco 7965 - Standard SCCP Non-Secure Profile
SUBSCRIBE Calling Search Space < None >



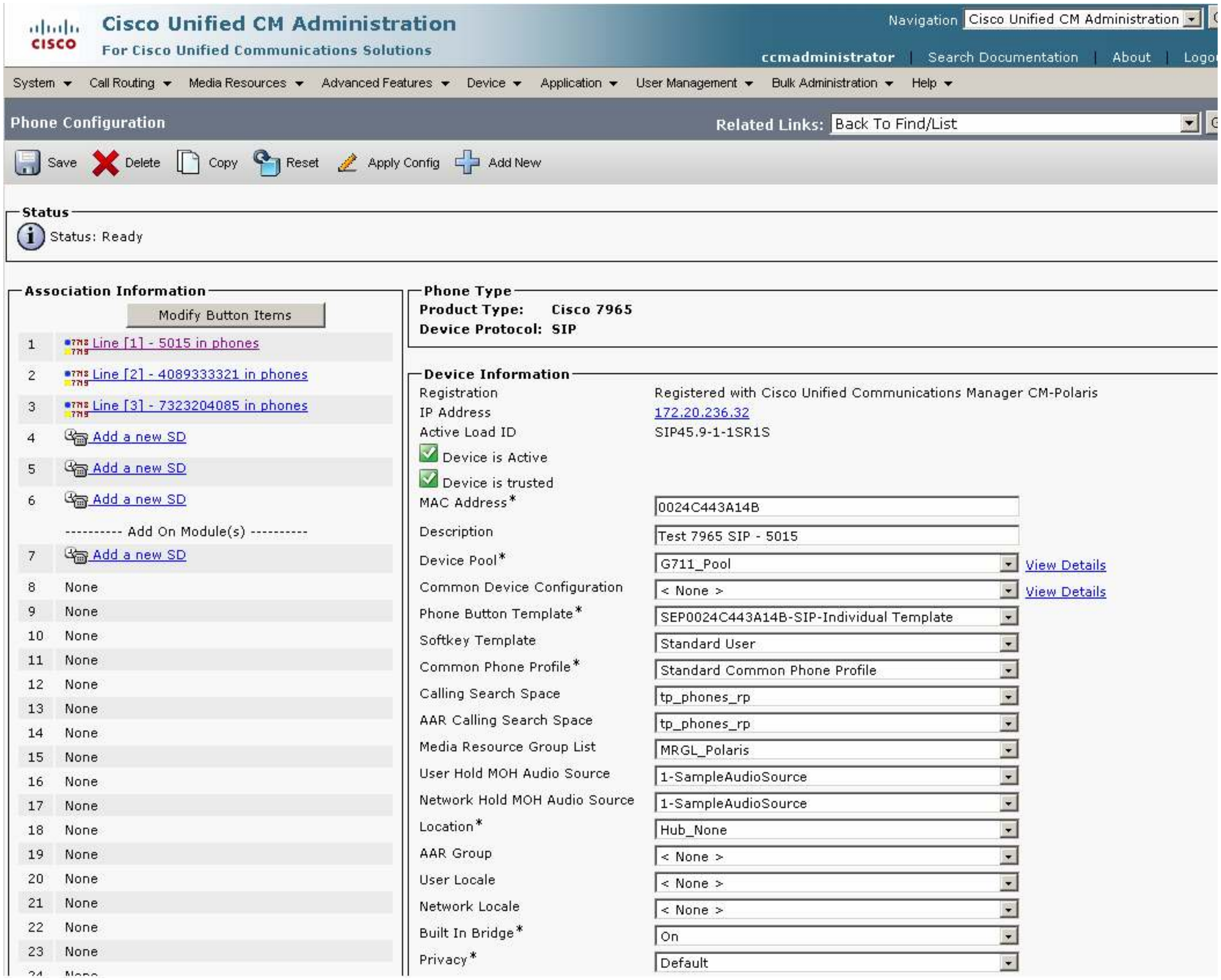
57 Add a new BLF SD
58 Add a new BLF Directed Call Park
59 CallBack
60 Call Park
61 Call Pickup
62 Conference List
63 Conference
64 Do Not Disturb
65 End Call
66 Forward All
67 Group Call Pickup
68 Hold
69 Hunt Group Logout
70 Intercom [1] - Add a new Intercom
71 Malicious Call Identification
72 Meet Me Conference
73 Mobility
74 New Call
75 Other Pickup
76 Quality Reporting Tool
77 Redial
78 Remove Last Participant
79 Transfer
80 Video Mode
81 Privacy
82 None
Unattended Port
Require DTMF Reception
RFC2833 Disabled
Certification Authority Proxy Function (CAPF) Information
Certificate Operation*
No Pending Operation
Authentication Mode*
By Null String
Authentication String
Generate String
Key Size (Bits)*
1024
Operation Completes By
2011 4 11 12 (YYYY:MM:DD:HH)
Certificate Operation Status: None
Note: Security Profile Contains Addition CAPF Settings.
Expansion Module Information
Module 1
< None >
Module 1 Load Name
Module 2
< None >
Module 2 Load Name
External Data Locations Information (Leave blank to use default)
Information
Directory
Messages
Services
Authentication Server
Proxy Server
Idle
Idle Timer (seconds)
Secure Authentication URL
Secure Directory URL

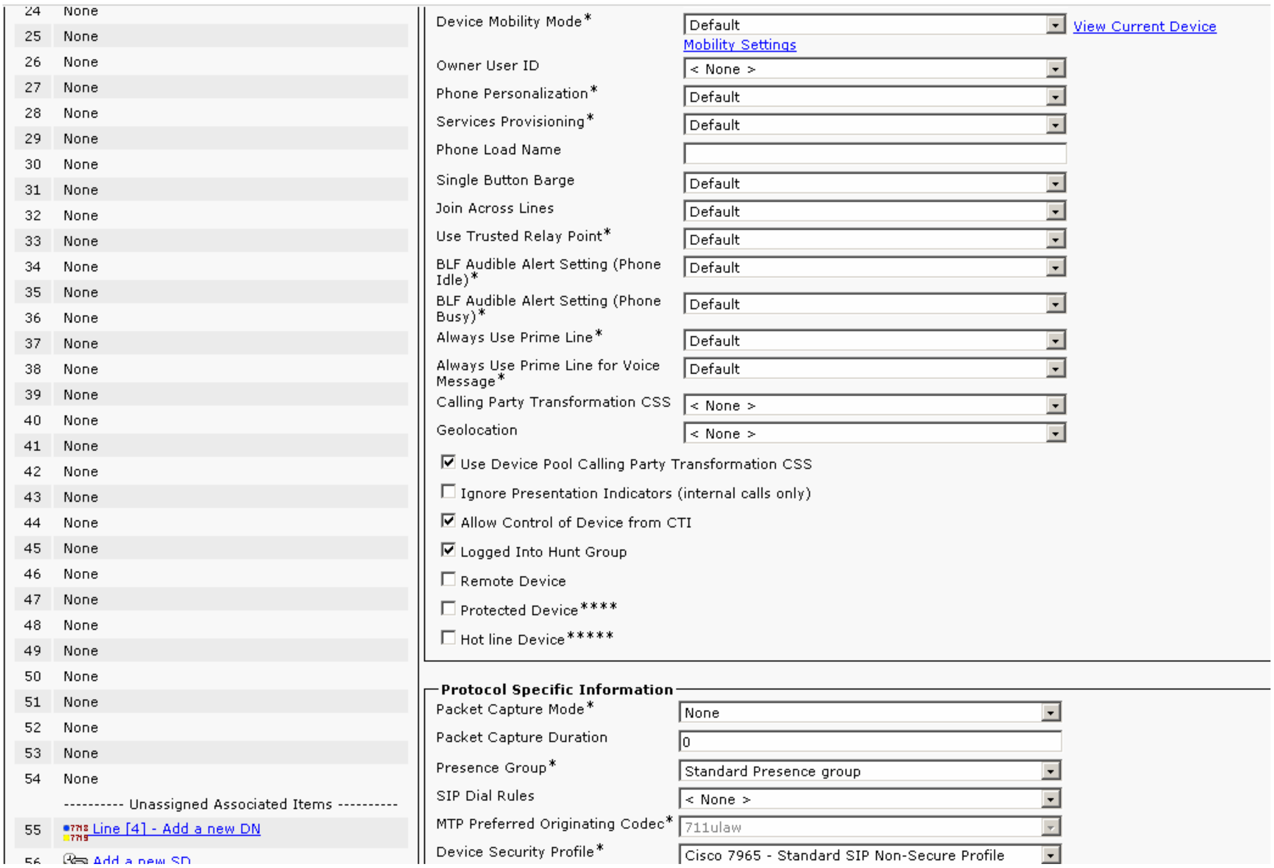

Secure Idle URL
Secure Information URL
Secure Messages URL
Secure Services URL
Extension Information
Enable Extension Mobility
Log Out Profile
-- Use Current Device Settings --
Log in Time
< None >
Log out Time
< None >
MLPP Information
MLPP Domain
< None >
MLPP Indication*
Default
MLPP Preemption*
Default
Do Not Disturb
Do Not Disturb
DND Option*
Use Common Phone Profile Setting
DND Incoming Call Alert
< None >
Secure Shell Information
Secure Shell User
Secure Shell Password
Product Specific Configuration Layout
Param
Override Common Settings
Disable Speakerphone
Disable Speakerphone and Headset
Forwarding Delay*
Disabled
PC Port *
Enabled

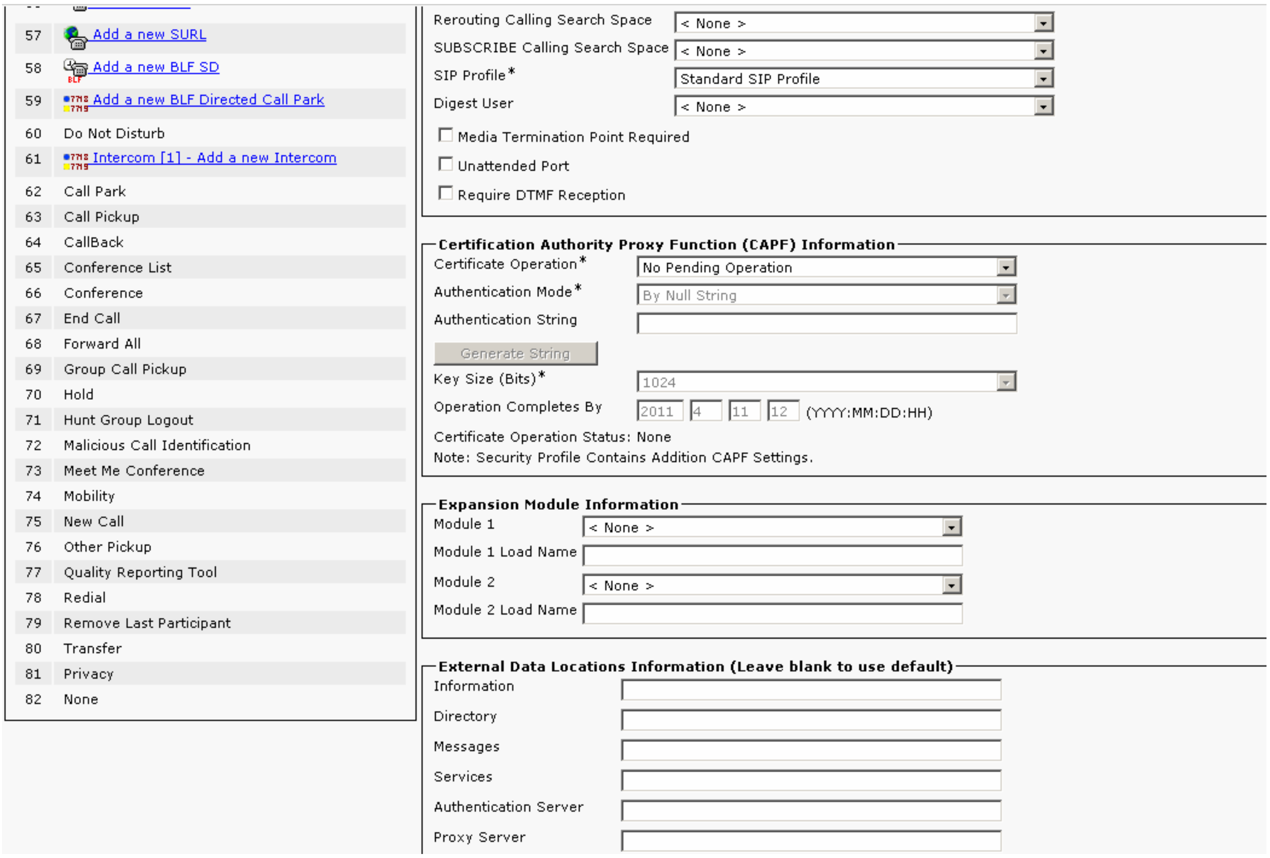
Settings Access*	Enabled	☐
Gratuitous ARP*	Disabled	
PC Voice VLAN Access*	Enabled	
Video Capabilities*	Disabled	☐
Auto Line Select*	Disabled	
Web Access*	Disabled	☐
Days Display Not Active	Sunday Monday Tuesday	☐
Display On Time	07:30	☐
Display On Duration	10:30	☐
Display Idle Timeout	01:00	☐
Span to PC Port*	Disabled	
Logging Display*	PC Controlled	
Load Server		☐
Recording Tone*	Disabled	
Recording Tone Local Volume*	100	
Recording Tone Remote Volume*	50	
Recording Tone Duration		
Display On When Incoming Call*	Disabled	
RTCP*	Disabled	☐
"more" Soft Key Timer	5	
Auto Call Select*	Enabled	
Log Server		
Advertise G.722 Codec*	Use System Default	
Wideband Headset UI Control*	Enabled	
Wideband Headset*	Enabled	
Peer Firmware Sharing*	Enabled	☐
Cisco Discovery Protocol (CDP): Switch Port*	Enabled	☐
Cisco Discovery Protocol (CDP): PC Port*	Enabled	☐
Link Layer Discovery Protocol - Media Endpoint Discover (LLDP-MED): Switch Port*	Enabled	☐
Link Layer Discovery Protocol (LLDP): PC Port*	Enabled	☐
LLDP Asset ID		
LLDP Power Priority*	Unknown	
Wireless Headset Hookswitch Control*	Disabled	
IPv6 Load Server		☐
IPv6 Log Server		
802.1x Authentication*	User Controlled	☐
Detect Unified CM Connection Failure*	Normal	
Minimum Ring Volume*	0-Silent	
HTTPS Server*	http and https Enabled	
Handset/Headset Monitor*	Enabled	
Enbloc Dialing*	Enabled	
Switch Port Remote Configuration*	Disabled	☐
PC Port Remote Configuration*	Disabled	☐
Automatic Port Synchronization*	Disabled	☐

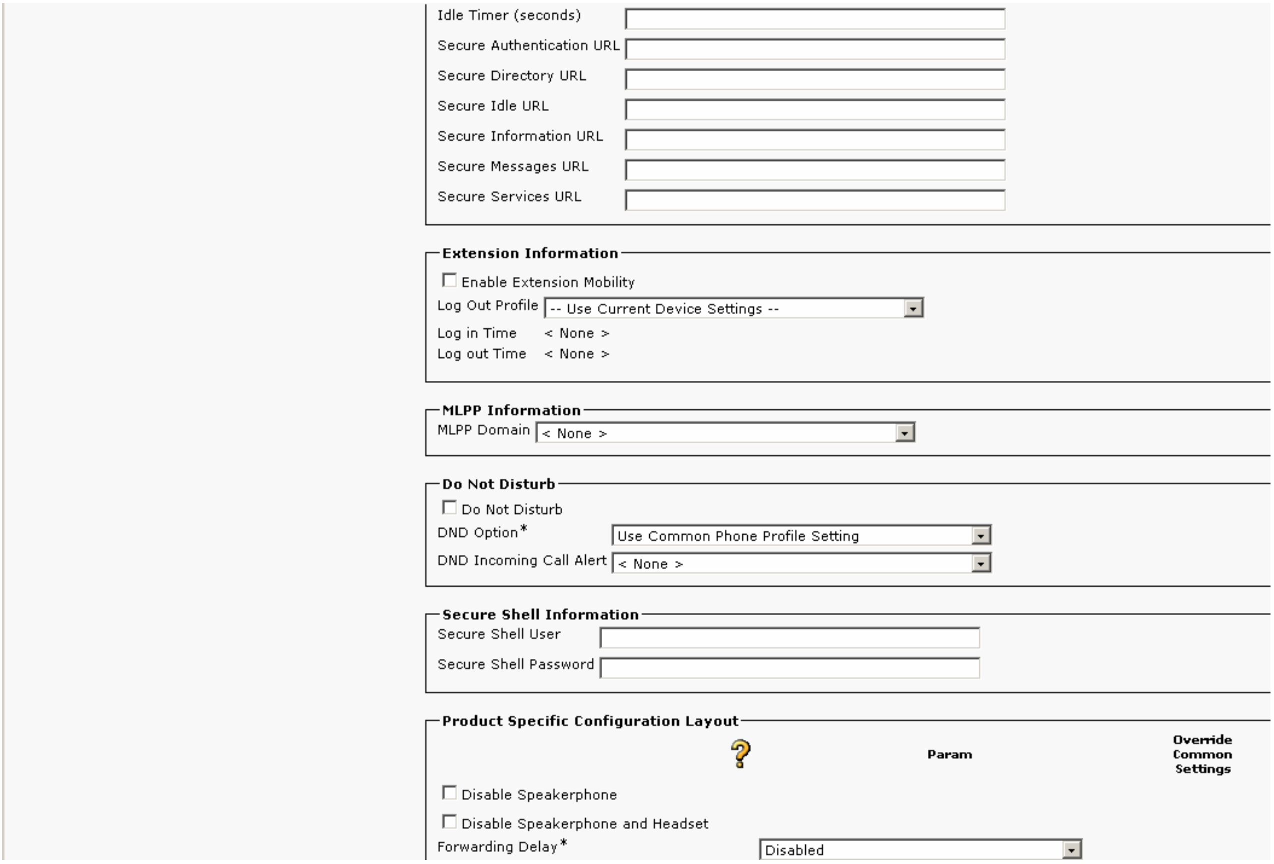
Configuration of Cisco SIP 7965 Phone

Navigation Path: Device → Phone




24 None
25 None
26 None
27 None
28 None
29 None
30 None
31 None
32 None
33 None
34 None
35 None
36 None
37 None
38 None
39 None
40 None
41 None
42 None
43 None
44 None
45 None
46 None
47 None
48 None
49 None
50 None
51 None
52 None
53 None
54 None
---------- Unassigned Associated Items ----------
55 Line [4] - Add a new DN
56 Add a new SD
Device Mobility Mode* Default
View Current Device Mobility Settings
Owner User ID < None >
Phone Personalization* Default
Services Provisioning* Default
Phone Load Name
Single Button Barge Default
Join Across Lines Default
Use Trusted Relay Point* Default
BLF Audible Alert Setting (Phone Idle)* Default
BLF Audible Alert Setting (Phone Busy)* Default
Always Use Prime Line* Default
Always Use Prime Line for Voice Message* Default
Calling Party Transformation CSS < None >
Geolocation < None >
Use Device Pool Calling Party Transformation CSS
Ignore Presentation Indicators (internal calls only)
Allow Control of Device from CTI
Logged Into Hunt Group
Remote Device
Protected Device****
Hot line Device*****
Protocol Specific Information
Packet Capture Mode* None
Packet Capture Duration 0
Presence Group* Standard Presence group
SIP Dial Rules < None >
MTP Preferred Originating Codec* 711ulaw
Device Security Profile* Cisco 7965 - Standard SIP Non-Secure Profile

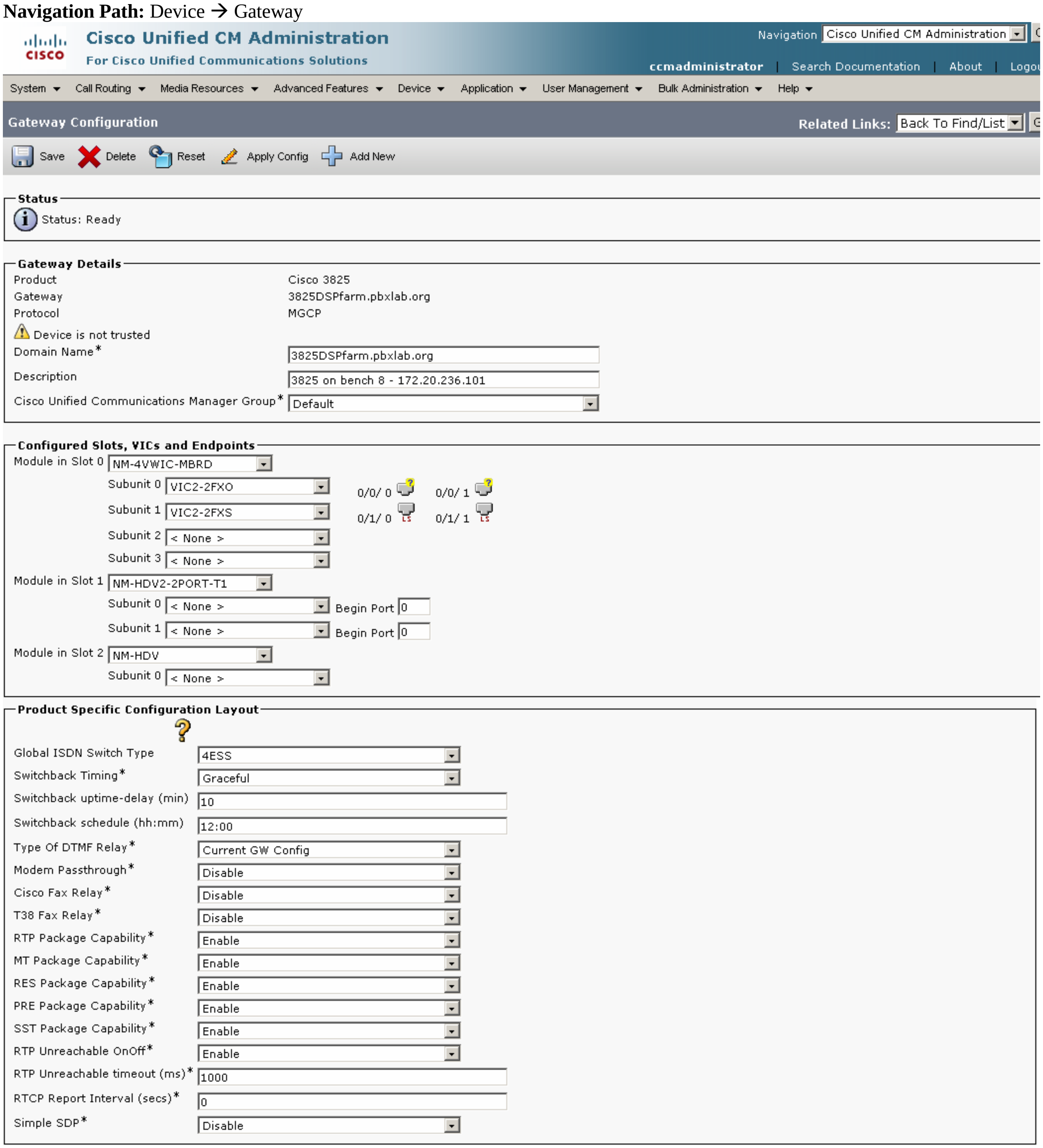

57 Add a new SURL
58 Add a new BLF SD
59 Add a new BLF Directed Call Park
60 Do Not Disturb
61 Intercom [1] - Add a new Intercom
62 Call Park
63 Call Pickup
64 CallBack
65 Conference List
66 Conference
67 End Call
68 Forward All
69 Group Call Pickup
70 Hold
71 Hunt Group Logout
72 Malicious Call Identification
73 Meet Me Conference
74 Mobility
75 New Call
76 Other Pickup
77 Quality Reporting Tool
78 Redial
79 Remove Last Participant
80 Transfer
81 Privacy
82 None
Rerouting Calling Search Space < None >
SUBSCRIBE Calling Search Space < None >
SIP Profile* Standard SIP Profile
Digest User < None >
Media Termination Point Required
Unattended Port
Require DTMF Reception
Certification Authority Proxy Function (CAPF) Information
Certificate Operation* No Pending Operation
Authentication Mode* By Null String
Authentication String
Generate String
Key Size (Bits)* 1024
Operation Completes By 2011 4 11 12 (YYYY:MM:DD:HH)
Certificate Operation Status: None
Note: Security Profile Contains Addition CAPF Settings.
Expansion Module Information
Module 1 < None >
Module 1 Load Name
Module 2 < None >
Module 2 Load Name
External Data Locations Information (Leave blank to use default)
Information
Directory
Messages
Services
Authentication Server
Proxy Server


Idle Timer (seconds)
Secure Authentication URL
Secure Directory URL
Secure Idle URL
Secure Information URL
Secure Messages URL
Secure Services URL
Extension Information
Enable Extension Mobility
Log Out Profile
-- Use Current Device Settings --
Log in Time
< None >
Log out Time
< None >
MLPP Information
MLPP Domain
< None >
Do Not Disturb
Do Not Disturb
DND Option*
Use Common Phone Profile Setting
DND Incoming Call Alert
< None >
Secure Shell Information
Secure Shell User
Secure Shell Password
Product Specific Configuration Layout
Param
Override Common Settings
Disable Speakerphone
Disable Speakerphone and Headset
Forwarding Delay*
Disabled

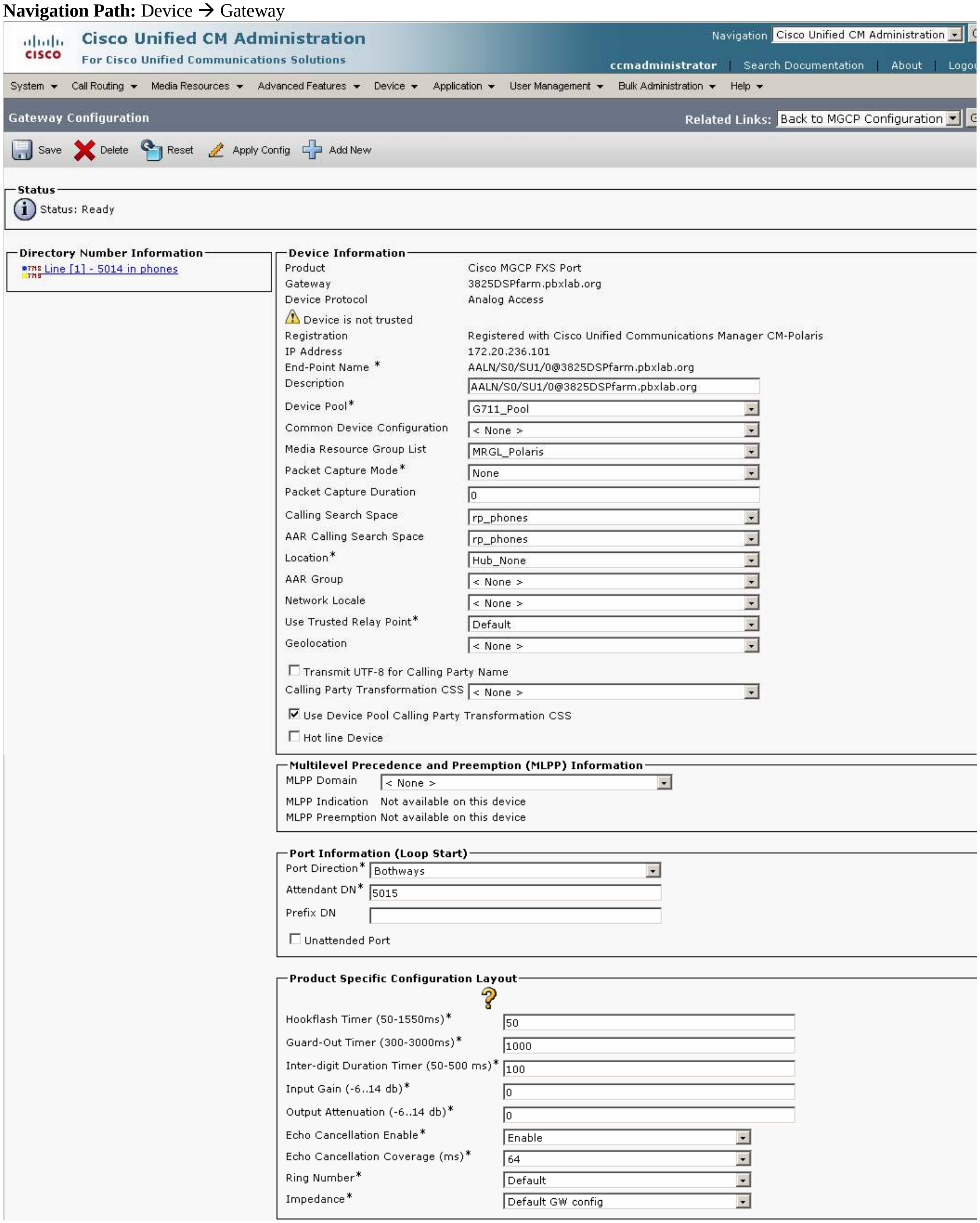
PC Port *	Enabled	
Settings Access*	Enabled	☐
Gratuitous ARP*	Disabled	
PC Voice VLAN Access*	Enabled	
Auto Line Select*	Disabled	
Web Access*	Disabled	☐
Days Display Not Active	Sunday Monday Tuesday	☐
Display On Time	07:30	☐
Display On Duration	10:30	☐
Display Idle Timeout	01:00	☐
Span to PC Port*	Disabled	
Logging Display*	PC Controlled	
Load Server		☐
Recording Tone*	Disabled	
Recording Tone Local Volume*	100	
Recording Tone Remote Volume*	50	
Recording Tone Duration		
Display On When Incoming Call*	Disabled	
RTCP*	Disabled	☐
"more" Soft Key Timer	5	
Auto Call Select*	Enabled	
Log Server		
Advertise G.722 Codec*	Use System Default	
Wideband Headset UI Control*	Enabled	
Wideband Headset*	Enabled	
Peer Firmware Sharing*	Enabled	☐
Cisco Discovery Protocol (CDP): Switch Port*	Enabled	☐
Cisco Discovery Protocol (CDP): PC Port*	Enabled	☐
Link Layer Discovery Protocol - Media Endpoint Discover (LLDP-MED): Switch Port*	Enabled	☐
Link Layer Discovery Protocol (LLDP): PC Port*	Enabled	☐
LLDP Asset ID		
LLDP Power Priority*	Unknown	
Wireless Headset Hookswitch Control*	Disabled	
IPv6 Load Server		☐
IPv6 Log Server		
802.1x Authentication*	User Controlled	☐
Detect Unified CM Connection Failure*	Normal	
Minimum Ring Volume*	0-Silent	
HTTPS Server*	http and https Enabled	
Handset/Headset Monitor*	Disabled	
Enbloc Dialing*	Enabled	
Switch Port Remote Configuration*	Disabled	☐
PC Port Remote Configuration*	Disabled	☐
Automatic Port Synchronization*	Disabled	☐

Configuration of MGCP FAX Gateway

Navigation Path: Device → Gateway



Configuration of MGCP FAX Gateway Analog Endpoint
Navigation Path: Device → Gateway



Configuring Cisco UBE

```
CUBE-ASR1K_Vz_151#show version
Cisco IOS Software, IOS-XE Software (PPC_LINUX_IOSD-ADVENTERPRISEK9-M), Version
15.1(2)S1, RELEASE SOFTWARE (fc2)
Technical Support: http://www.cisco.com/techsupport
Copyright (c) 1986-2011 by Cisco Systems, Inc.
Compiled Wed 01-Jun-11 04:09 by mcpre


ROM: IOS-XE ROMMON

CUBE-ASR1K_Vz_151 uptime is 4 weeks, 3 days, 3 hours, 29 minutes
Uptime for this control processor is 4 weeks, 3 days, 3 hours, 32 minutes
System returned to ROM by reload
System image file is "bootflash:asr1000rp1-adventerprisek9.03.03.01.S.151-2.S1.b
in"
Last reload reason: Reload Command

cisco ASR1002 (2RU) processor with 1703423K/6147K bytes of memory.
4 Gigabit Ethernet interfaces
32768K bytes of non-volatile configuration memory.
4194304K bytes of physical memory.
7798783K bytes of eUSB flash at bootflash:.

Configuration register is 0x2102


CUBE-ASR1K_Vz_151#sho run
Building configuration...

Current configuration : 5705 bytes
!
! Last configuration change at 12:52:18 UTC Mon Jul 11 2011
!
version 15.1
service timestamps debug datetime msec
service timestamps log datetime msec
no platform punt-keepalive disable-kernel-core
!
hostname CUBE-ASR1K_Vz_151
!
boot-start-marker
boot system bootflash:asr1000rp1-adventerprisek9.03.03.01.S.151-2.S1.bin
boot-end-marker
!
!
vrf definition Mgmt-intf
 !
 address-family ipv4
 exit-address-family
 !
 address-family ipv6
 exit-address-family
!
logging buffered 20000000
```

```
logging console errors
enable password cisco
!
no aaa new-model
!
ipc zone default
 association 1
  no shutdown
!
ip source-route
!
!
ip domain name ciscolab.globalipcom.com
ip name-server 172.30.218.36
!
!
multilink bundle-name authenticated
!
!
voice service voip
 allow-connections sip to sip
 no supplementary-service sip refer
 redirect ip2ip
 sip
  header-passing error-passthru
  asserted-id pai[1]
  localhost dns:gw1.ciscolab.globalipcom.com
  no update-callerid
  early-offer forced
  midcall-signaling passthru
  privacy-policy passthru[2]
  g729 annexb-all
!
!
voice translation-rule 1[3]
 rule 1 /81/ /1\1/
!
!
voice translation-profile Outgoing-Fax-G711[4]
 translate called 1
!
redundancy
 mode none
!
```

[1] This command enables router to send P-Asserted ID within the SIP Message Header. Alternatively, this command can also be applied to individual dial-peers (voice-class sip asserted-id pai)
[2] This command enables router to transparently pass through all received Privacy values. Alternatively, this command can also be applied to individual dial-peers (voice-class sip privacy-policy passthru)
[3] This translation rule is used on dial-peer 9003 (outgoing G.711-only calls) to strip the prefix “8” (sent by CUCM/Siemens PBX to match a different dial-peer whenever G.711-only calls are placed) from the telephone number
[4] This translation profile, containing the previously-defined translation rule, is assigned to the dial-peer used to place outbound G.711-only calls (dial-peer 9003 in this configuration example)

```
interface GigabitEthernet0/0/0
 ip address 172.20.110.151 255.255.255.0
 negotiation auto
!
interface GigabitEthernet0/0/1
 no ip address
 standby delay minimum 30 reload 60
 standby version 2
 standby 1 priority 50
 standby 1 track 1 decrement 10
 shutdown
 negotiation auto
 bfd interval 500 min_rx 500 multiplier 3
!
interface GigabitEthernet0/0/2
 no ip address
 shutdown
 negotiation auto
!
interface GigabitEthernet0/0/3
 no ip address
 shutdown
 negotiation auto
!
interface GigabitEthernet0
 vrf forwarding Mgmt-intf
 no ip address
 shutdown
 negotiation auto
!
ip default-gateway 172.20.110.1
ip forward-protocol nd
!
no ip http server
no ip http secure-server
ip route 172.20.0.0 255.255.0.0 172.20.110.1
ip route 172.30.218.0 255.255.255.0 172.20.110.150
!
logging esm config
!
tftp-server flash:
!
control-plane
!
dial-peer voice 9000 voip
 description To Service Provider network – SP facing
 destination-pattern ..........
 session protocol sipv2
 session target sip-server
 session transport udp
 voice-class sip asserted-id pai
 dtmf-relay rtp-nte
 fax protocol pass-through g711ulaw
!
dial-peer voice 9900 voip
 description To Service Provider network – SME facing
 session protocol sipv2
```

```
 session transport udp
 incoming called-number ..........
 voice-class sip asserted-id pai
 dtmf-relay rtp-nte
 fax protocol pass-through g711ulaw
!
dial-peer voice 9001 voip
 description Incoming DIDs to SME – SME facing
 destination-pattern 408933....
 session protocol sipv2
 session target ipv4:172.20.236.252
 session transport tcp
 dtmf-relay rtp-nte
 fax protocol pass-through g711ulaw
!
dial-peer voice 9901 voip
 description Incoming DIDs to SME – SP facing
 session protocol sipv2
 session target sip-server
 session transport tcp
 incoming called-number 408933....
 dtmf-relay rtp-nte
 fax protocol pass-through g711ulaw
!
dial-peer voice 9004 voip
 description To Service Provider International calls – SP facing
 destination-pattern 011T
 session protocol sipv2
 session target sip-server
 session transport udp
 voice-class sip early-offer forced
 dtmf-relay rtp-nte
 fax protocol pass-through g711ulaw
!
dial-peer voice 9904 voip
 description To Service Provider International calls – SME facing
 session protocol sipv2
 session target sip-server
 session transport udp
 incoming called-number 011T
 dtmf-relay rtp-nte
 fax protocol pass-through g711ulaw
!
dial-peer voice 408 voip
 description To Service Provider using 7-digit calling – SP facing
 destination-pattern .......
 session protocol sipv2
 session target sip-server
 session transport udp
 voice-class sip asserted-id pai
 dtmf-relay rtp-nte
 fax protocol pass-through g711ulaw
!
dial-peer voice 4408 voip
 description To Service Provider using 7-digit dialing – SME facing
 session protocol sipv2
 session transport udp
```

```
 voice-class sip asserted-id pai
 incoming called-number .......
 dtmf-relay rtp-nte
 fax protocol pass-through g711ulaw
!
dial-peer voice 9003 voip[5]
 description Fax calls using G.711 – SP facing
 translation-profile outgoing Outgoing-Fax-G711
 destination-pattern 81..........
 session protocol sipv2
 session target sip-server
 voice-class sip early-offer forced
 dtmf-relay rtp-nte
 codec g711ulaw
 fax protocol pass-through g711ulaw
!
dial-peer voice 9903 voip
 description Fax calls using G.711 – SME facing
 session protocol sipv2
 incoming called-number 81..........
 voice-class sip early-offer forced
 dtmf-relay rtp-nte
 codec g711ulaw
 fax protocol pass-through g711ulaw
!
sip-ua
 set pstn-cause 1 sip-status 503
 set pstn-cause 102 sip-status 503
 retry invite 2
 retry bye 2
 retry cancel 2
 timers trying 1000
 sip-server ipv4:xxx.xxx.xxx.xxx:xxxx[6]
 g729-annexb override
!
!
line con 0
 password cisco
 login
 stopbits 1
line aux 0
 stopbits 1
line vty 0 4
 password cisco
 login
!
end
```

[5] This dial-peer (optional) is used for outbound G.711-only calls. Typically used for fax/modem transmissions. It matches a Route Pattern configured in CUCM/SME, which sends a prefix (in this example "8") along with the telephone number string

[6] This parameter defines the IP address of the Service Provider's SIP Proxy

Acronyms

Acronym	Definitions
CUCM	Cisco Unified Communications Manager
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
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
SIP	Session Initiation Protocol
SP	Service Provider
SME	Session Manager Edition

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