



Avaya Solution & Interoperability Test Lab

Application Notes for Configuring Avaya Communication Server 1000E R7.5, Avaya Aura® Session Manager R6.1 and Avaya Session Border Controller Advanced for Enterprise to support KPN VoIP Connect Service – Issue 1.0

Abstract

These Application Notes describe the steps used to configure Session Initiation Protocol (SIP) trunking between the KPN VoIP Connect service and an Avaya SIP enabled Enterprise Solution. The Avaya solution consists of Avaya Session Border Controller Advanced for Enterprise, Avaya Aura® Session Manager and Avaya Communication Server 1000E. KPN is a member of the DevConnect Service Provider program.

Information in these Application Notes has been obtained through DevConnect compliance testing and additional technical discussions. Testing was conducted via the DevConnect Program at the Avaya Solution and Interoperability Test Lab.

1. Introduction

These Application Notes describe the steps used to configure Session Initiation Protocol (SIP) trunking between KPN VoIP Connect service and an Avaya SIP-enabled Enterprise Solution. The Avaya solution consists of Avaya Session Border Controller Advanced for Enterprise, Avaya Aura® Session Manager and Avaya Communication Server 1000E (CS1000E). Customers using this Avaya SIP-enabled enterprise solution with KPN VoIP Connect service are able to place and receive PSTN calls via a dedicated Internet connection and the SIP protocol. This converged network solution is an alternative to traditional PSTN trunks. This approach generally results in lower cost for the Enterprise customer.

2. General Test Approach and Test Results

The general test approach was to configure a simulated enterprise site using an Avaya SIP telephony solution consisting of CS1000E, Session Manager and Session Border Controller. The enterprise site was configured to use the VoIP Connect service provided by KPN.

2.1. Interoperability Compliance Testing

The interoperability test included the following:

- Incoming calls to the enterprise site from the PSTN routed to the DDI numbers assigned by KPN
- Incoming PSTN calls made to SIP, Unistim, Analogue and Digital telephones at the enterprise
- Outgoing calls from the enterprise site completed via KPN to PSTN destinations
- Outgoing calls from the enterprise to the PSTN made from SIP, Unistim, Analogue and Digital telephones
- Inbound and outbound PSTN calls to/from the Avaya one-X® Communicator soft phone.
- Calls using the G.711A codec supported by KPN
- Fax calls to/from a group 3 fax machine to a PSTN connected fax machine using T.38
- DTMF transmission using RFC 2833 with successful Voice Mail/Vector navigation for inbound and outbound calls
- User features such as hold and resume, transfer, conference, call forwarding, etc
- Caller ID Presentation and Caller ID Restriction
- Call coverage and call forwarding for endpoints at the enterprise site
- Transmission and response of SIP OPTIONS messages sent by KPN requiring Avaya response and sent by Avaya requiring KPN response
- Mobile-X mid call features were not tested

2.2. Test Results

Interoperability testing of the sample configuration was completed with successful results for the KPN VoIP Connect service with the following observations:

- No inbound toll free numbers were tested as none were available from the Service Provider
- No Emergency Services numbers tested as test calls to these numbers should be pre-arranged with the Operator
- Outbound blind transfer calls to the PSTN needs patch MPLR30253 applied in order to hear ring back tone at the calling party when the call is being transferred.

2.3. Support

For technical support on KPN products please visit the website at www.kpn.nl or contact an authorized KPN representative.

3. Reference Configuration

Figure 1 illustrates the test configuration. The test configuration shows an Enterprise site connected to the KPN VoIP Connect Service. Located at the Enterprise site is a Session Border Controller, Session Manager and CS1000E. Endpoints are Avaya 1140 series IP telephones, Avaya 1200 series (not shown in **Figure 1**) IP telephones (with Unistim and SIP firmware), Avaya IP Softphones (SMC3456, 2050 and Avaya one-X® Communicator), Avaya Digital telephone, Avaya Analogue telephone and fax machine. For security purposes, any public IP addresses or PSTN routable phone numbers used in the compliance test are not shown in these Application Notes.

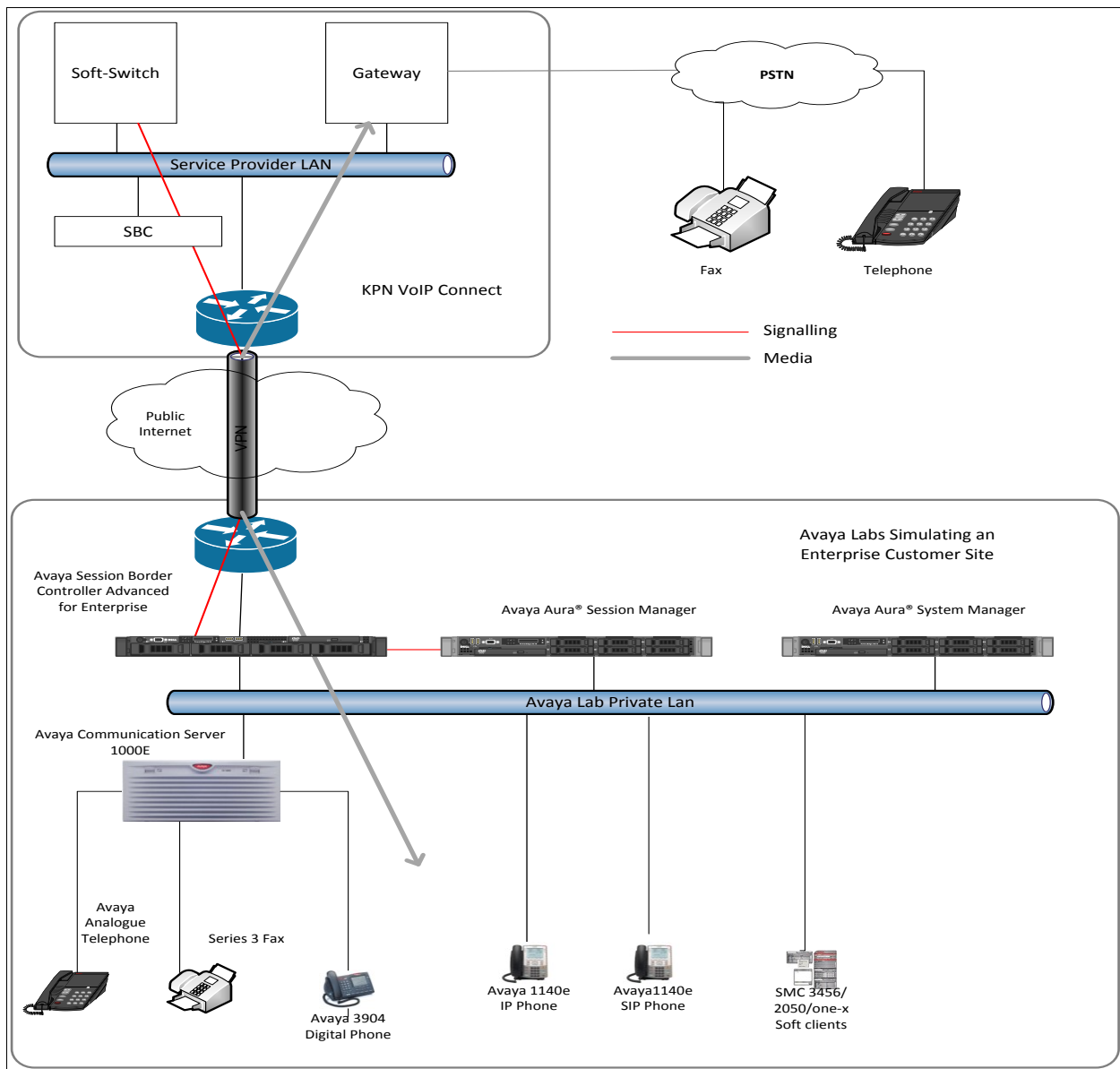


Figure 1: Test Setup KPN VoIP Connect to Avaya Enterprise

4. Equipment and Software Validated

The following equipment and software were used for the sample configuration provided:

Equipment	Software
Avaya S8800 Server	Avaya Aura® Session Manager R6.1 Service Pack 5 (6.1.4.0.614005)
Avaya S8800 Server	Avaya Aura® System Manager R6.1 Service Pack 5 (6.1.8.1.1551)
Dell R310 Server running Avaya Session Border Controller Advanced for Enterprise	Avaya Session Border Controller Advanced for Enterprise R4.0.5.Q02
Avaya Communication Server 1000E running on CP+PM server as co- resident configuration	Avaya Communication Server 1000E R7.5 Version 7.50.17 Deplst: CPL_X21_07_50Q All CS1000E patches listed in Appendix A
Avaya Communication Server 1000E Media Gateway	CSP Version: MGCC CD01 MSP Version: MGCM AB01 APP Version: MGCA BA07 FPGA Version: MGCF AA18 BOOT Version: MGCB BA07 DSP1 Version: DSP1 AB04
Avaya 1140e and 1230 Unistim Telephones	FW: 0625C8A
Avaya 1140e and 1230 SIP Telephones	FW: 04.01.13.00.bin
Avaya SMC 3456	Version 2.6 build 57666
Avaya Analogue Telephone	N/A
Avaya M3904 Digital Telephone	N/A
KPN Equipment	Software
IP Multimedia Subsystem	BroadSoft Broadworks version 17
SIP User Agent	Alcatel-Lucent HPSS v3.0.3
Session Border Controller	Acme Net-Net 4250 and 4500 Firmware SC6.2.0 MR-6 Patch 2 (Build 876) Build Date=06/14/11

5. Configure Avaya Communication Server 1000E

This section describes the steps for configuring Communication Server 1000E for SIP Trunking. SIP trunks are established between Communication Server 1000E and Session Manager. These SIP trunks will carry SIP signalling associated with the KPN VoIP Connect Service. For incoming calls, the Session Manager receives SIP messages from the SBC and directs the incoming SIP messages to Communication Server 1000E. Once the message arrives at Communication Server 1000E, further incoming call treatment, such as incoming digit translations and class of service restrictions may be performed. All outgoing calls to the PSTN are processed within Communication Server 1000E and may be first subject to outbound features such as automatic route selection, digit manipulation and class of service restrictions. Once Communication Server 1000E selects a SIP trunk, the SIP signalling is routed to the Session Manager. The Session Manager directs the outbound SIP messages to the Session Border Controller at the enterprise site that then sends the SIP messages to the KPN network. Specific Communication Server 1000E configuration was performed using Element Manager and the system terminal interface. The general installation of the Communication Server 1000E, System Manager and Session Manager is presumed to have been previously completed and is not discussed here. **Appendix A** has a list of all CS1000E patches, deplist and service packs loaded on the system.

5.1. Logging into the Avaya Communication Server 1000E

Log in using SSH to the ELAN ip address of the Call Server using a user with correct privileges. Once logged in, type **csconsole**, this will take the user into the vxworks shell of the call server. Next type **logi**, the user will then be asked to login with correct credentials. Once logged in the user can then progress to load any overlay.

5.2. Confirm System Features

The keycode installed on the Call Server controls the maximum values for these attributes. If a required feature is not enabled or there is insufficient capacity, contact an authorized Avaya sales representative to add additional capacity. Use the Communication Server 1000E system terminal and manually **load Overlay 22** to print the System Limits (the required command is **SLT**) and verify that the number of SIP Access Ports reported by the system is sufficient for the combination of trunks to KPN's network, and any other SIP trunks needed. See the following screenshot for a typical System Limits printout. The value of **SIP ACCESS PORTS** defines the maximum number of SIP trunks for the Communication Server 1000E.

```
Load Overlay 22
req: SLT

System type is - Communication Server 1000E/CPPM Linux
CPPM - Pentium M 1.4 GHz

IPMGs Registered:          1
IPMGs Unregistered:       0
IPMGs Configured/unregistered: 0

TRADITIONAL TELEPHONES 32767 LEFT 32766 USED 1
DECT USERS             32767 LEFT 32767 USED 0
IP USERS               32767 LEFT 32744 USED 23
BASIC IP USERS         32767 LEFT 32766 USED 1
TEMPORARY IP USERS     32767 LEFT 32767 USED 0
DECT VISITOR USER      10000 LEFT 10000 USED 0
ACD AGENTS             32767 LEFT 32752 USED 15
MOBILE EXTENSIONS      32767 LEFT 32767 USED 0
TELEPHONY SERVICES     32767 LEFT 32767 USED 0
CONVERGED MOBILE USERS 32767 LEFT 32767 USED 0
NORTEL SIP LINES       32767 LEFT 32765 USED 2
THIRD PARTY SIP LINES  32767 LEFT 32761 USED 6
SIP CONVERGED DESKTOPS 32767 LEFT 32767 USED 0
SIP CTI TR87           32767 LEFT 32767 USED 0
SIP ACCESS PORTS      32767 LEFT 32752 USED 15
```

Load Overlay 21 and confirm the customer is setup to use **ISDN** trunks by typing the **PRT** and **NET_DATA** commands as shown below.

```
Load Overlay 21
REQ: PRT
TYPE: net
TYPE NET_DATA
CUST 0

TYPE NET_DATA
CUST 00
OPT RTD
AC1 INTL NPA SPN NXX LOC
AC2
FNP YES
ISDN YES
```

5.3. Configure Codec's for Voice and FAX operation

KPN's SIP Trunk service supports G.711A voice codec and T.38 FAX transmissions. Using the Communication Server 1000E element manager sidebar, navigate to the **IP Network → IP Telephony Nodes → Node Details → Voice Gateway (VGW) and Codecs** property page and configure the Communication Server 1000E General codec settings as shown in the screenshot below. The values highlighted are required for correct operation; most of the options are turned on by default but its good practice to ensure that they are set as shown below.

Node ID: 5000 - Voice Gateway (VGW) and Codecs

General | Voice Codecs | Fax

General

Echo cancellation: ☒ Use canceller, with tail delay: 128
☒ Dynamic attenuation

Voice activity detection threshold: -17 (-20 - +10 DBM)
Idle noise level: -65 (-327 - +327 DBM)

Signaling options: ☒ DTMF tone detection
☐ Low latency mode
☒ Remove DTMF delay (squelch DTMF from TDM to IP)
☒ Modem/Fax pass-through
☒ V.21 Fax tone detection
☐ R factor calculation

Next, scroll down and configure the CS1000E to use **Codec G.711** only. Default values were configured. This aligns with what KPN support on their SIP network.

Node ID: 5000 - Voice Gateway (VGW) and Codecs

[General](#) | [Voice Codecs](#) | [Fax](#)

Voice Codecs

Codec G711: ☒ Enabled (required)
 Voice payload size: 20 (milliseconds per frame)
 Voice playout (jitter buffer) delay: 40 80 (milliseconds)
 Nominal Maximum
 Maximum delay may be automatically adjusted based on nominal settings.
☐ Voice Activity Detection (VAD)

Codec G722: ☐ Enabled
 Voice payload size: 20 (milliseconds per frame)
 Voice playout (jitter buffer) delay: 40 80 (milliseconds)
 Nominal Maximum
 Maximum delay may be automatically adjusted based on nominal settings.

Codec G729: ☐ Enabled
 Voice payload size: 20 (milliseconds per frame)

* Required Value. Note: Changes made on this page will NOT be transmitted until the Node is also saved. Save Cancel

Finally, configure the **Fax** settings as in the highlighted section of the next screenshot with system defaults as shown below.

Node ID: 5000 - Voice Gateway (VGW) and Codecs

[General](#) | [Voice Codecs](#) | [Fax](#)

Codec G723.1: ☐ Enabled
 Voice payload size: 30 (milliseconds per frame)
 Voice playout (jitter buffer) delay: 60 120 (milliseconds)
 Nominal Maximum
 Maximum delay may be automatically adjusted based on nominal settings.
 Coding rate: 5.3 (kbps)

Fax

Codec name: T.38 FAX
 Maximum rate: 14400 (bps)
 Fax TCF method: 2
 Fax playout nominal delay: 100 (0 - 300 milliseconds)
 FAX no activity timeout: 20 (10 - 32000 milliseconds)
 Packet size: 20 (bps)

* Required Value. Note: Changes made on this page will NOT be transmitted until the Node is also saved. Save Cancel

5.4. Virtual Trunk Gateway Configuration

Use Communication Server 1000E Element Manager to configure the system node properties. Navigate to the **System → IP Networks → IP Telephony Nodes → Node Details** and verify the highlighted section is completed with the correct IP addresses and subnet masks of the Node. At this stage the call server has an ip address and so too does the signalling server. The Node IPv4 address is the ip address that the IP phones use to register. This is also where the SIP trunk connection is made to the Session Manager. When an entity link is added in Session Manager for the CS1000E it is the Node IPv4 address that is used (see **Section 6.5** – Define SIP Entities for more details).

CS1000 Element Manager

Managing: 192.168.0.2 Username: admin
System » IP Network » IP Telephony Nodes » Node Details

Node Details (ID: 5000 - SIP Line, LTPS, PD, Gateway (SIPGw))

Node ID: * (0-9999)

Call server IP address: * TLAN address type: ☒ IPv4 only
☐ IPv4 and IPv6

Embedded LAN (ELAN) Telephony LAN (TLAN)

Gateway IP address: * Node IPv4 address: *

Subnet mask: * Subnet mask: *

Node IPv6 address:

* Required Value.

Associated Signaling Servers & Cards

Select to add [Print](#) | [Refresh](#)

<input type="checkbox"/> Hostname	Type	Deployed Applications	ELAN IP	TLAN IPv4	Role
<input type="checkbox"/> spcs1k	Signaling_Server	SIP Line, LTPS, Gateway, PD, Presence Publisher, IP Media Services	192.168.0.2	10.10.8.2	Leader

The next two screenshots show the SIP Virtual Trunk Gateway configuration, navigate to **System → IP Networks → IP Telephony Nodes → Node Details → Gateway (SIPGW) Virtual Trunk Configuration Details** and fill in the highlighted areas with the relevant settings.

- **Vtrk gateway application:** Provides option to select Gateway applications. The three supported modes are **SIP Gateway (SIPGw)**, **H.323Gw**, and **SIPGw and H.323Gw**
- **SIP domain name:** The SIP Domain Name is the SIP Service Domain. The SIP Domain Name configured in the Signaling Server properties must match the Service Domain name configured in the Session Manager, in this case **avaya.com**
- **Local SIP port:** The Local SIP Port is the port to which the gateway listens. The default value is **5060**
- **Gateway endpoint name:** This field cannot be left blank so a value is needed here. This field is used when a Network Routing Server is used for registration of the endpoint. In this network a Session Manager is used so any value can be put in here and will not be used

- **Application node ID:** This is a unique value that can be alphanumeric and is for the new Node that is being created, in this case **5000**
- **Proxy or Redirect Server:** Primary TLAN ip address is the SM100 ip address of the Session Manager. The **Transport protocol** used for **SIP**, in this case is **TCP**
- **SIP URI Map: Public E.164 - National and Private - Unknown** are left blank. All other fields in the SIP URI Map are left with default values

Node ID: 5000 - Virtual Trunk Gateway Configuration Details

General | SIP Gateway Settings | SIP Gateway Services

Vtrk gateway application: ☒ Enable gateway service on this node

General

Vtrk gateway application: SIP Gateway (SIPGw)

SIP domain name: avaya.com *

Local SIP port: 5060 *(1 - 65535)

Gateway endpoint name: spcs1k *

Gateway password: *

Application node ID: 5000 *(0-9999)

Enable failsafe NRS: ☐

SIP ANAT: ☒ IPv4 ☐ IPv6

Virtual Trunk Network Health Monitor

☐ Monitor IP addresses (listed below)

Information will be captured for the IP addresses listed below.

Monitor IP:

Monitor addresses:

Proxy Or Redirect Server:

Proxy Server Route 1:

Primary TLAN IP address: 10.10.8.56

The IP address can have either IPv4 or IPv6 format based on the value of "TLAN address type"

Port: 5060 (1 - 65535)

Transport protocol: TCP

Options: ☐ Support registration ☐ Primary CDS proxy

SIP URI Map:

Public E.164 domain names	Private domain names
National: <input type="text"/>	UDP: <input type="text" value="udp"/>
Subscriber: <input type="text" value="subscriber"/>	CDP: <input type="text" value="cdp.udp"/>
Special number: <input type="text" value="PublicSpecial"/>	Special number: <input type="text" value="PrivateSpecial"/>
Unknown: <input type="text" value="PublicUnknown"/>	Vacant number: <input type="text" value="PrivateUnknown"/>
	Unknown: <input type="text"/>

5.5. Configure Bandwidth Zones

Bandwidth Zones are used for alternate call routing between IP stations and for Bandwidth Management. SIP trunks require a unique zone not shared with other resources and best practice dictates that IP telephones and Media Gateways are all placed in separate zones. Use Element Manager to define bandwidth zones as in the following highlighted example. Use Element Manager and navigate to **System → IP Network → Zones → Bandwidth Zones** and add new zones as required.

The screenshot shows the Avaya CS1000 Element Manager interface. The left sidebar contains a navigation tree with the following items: UCM Network Services, Home, Links, Virtual Terminals, System, Alarms, Maintenance, Core Equipment, Peripheral Equipment, IP Network, Zones, Host and Route Tables, and Network Address Translation. The 'Zones' item is highlighted. The main content area is titled 'Bandwidth Zones' and contains a table with the following data:

Zone	Intrazone Bandwidth	Intrazone Strategy	Interzone Bandwidth	Interzone Strategy	Resource Type	Zone Intent	Description
1 10	1000000	BQ	1000000	BB	SHARED	MO	MAINOFFICE
2 20	1000000	BQ	1000000	BB	SHARED	VTRK	VTRK

5.6. Configure SIP Trunks

Communication Server 1000E virtual trunks will be used for all inbound and outbound PSTN calls to KPN's SIP Trunk Service. Five separate steps are required to configure Communication Server 1000E virtual trunks:

- Configure a D-Channel Handler (DCH); configure using the Communication Server 1000E system terminal and overlay 17
- Configure a SIP trunk Route Data Block (RDB); configure using the Communication Server 1000E system terminal and overlay 16
- Configure SIP trunk members; configure using the Communication Server 1000E system terminal and overlay 14
- Configure a Route List Block (RLB); configure using the Communication Server 1000E system terminal and overlay 86
- Configure Special Prefix Numbers (SPN's); configure using the Communication Server 1000E system terminal and overlay 90

The following is an example DCH configuration for SIP trunks. **Load Overlay 17** at the Communication Server 1000E system terminal and enter the following values. The highlighted entries are required for correct SIP trunk operation. Exit overlay 17 when completed.

```
Load Overlay 17
ADAN      DCH 10
CTYP DCIP
DES  VIR_TRK
USR  ISLD
ISLM 4000
SSRC 1800
OTBF 32
NASA YES
IFC  SL1
CNEG 1
RLS  ID  5
RCAP ND2
MBGA NO
H323
OVLN NO
OVLS NO
```

Next, configure the SIP trunk Route Data Block (RDB) using the Communication Server 1000E system terminal and overlay 16. **Load Overlay 16**, enter **RDB** at the prompt, press return and commence configuration. The value for **DCH** is the same as previously entered in overlay 17. The value for **NODE** should match the node value in **Section 5.4**. The value for **ZONE** should match that used in **Section 5.5** for **SIP_VTRK**. The remaining highlighted values are important for correct SIP trunk operation.

Load Overlay 16 TYPE: RDB CUST 00 ROUT 100 TYPE RDB CUST 00 ROUT 100 DES VIR_TRK TKTP TIE NPID_TBL_NUM 0 ESN NO RPA NO CNVT NO SAT NO RCLS EXT VTRK YES ZONE 00020 PCID SIP CRID NO NODE 5000 DTRK NO ISDN YES MODE ISLD DCH 10 IFC SL1 PNI 00001 NCNA YES NCRD YES TRO NO FALT NO CTYP UKWN INAC NO ISAR NO DAPC NO MBXR NO MBXOT NPA MBXT 0 PTYP ATT CNDP UKWN AUTO NO DNIS NO DCDR NO ICOG IAO SRCH LIN TRMB YES STEP	ACOD 1600 TCPP NO PII NO AUXP NO TARG CLEN 1 BILN NO OABS INST IDC YES DCNO 0 NDNO 0 * DEXT NO DNAM NO SIGO STD STYP SDAT MFC NO ICIS YES OGIS YES TIMR ICF 1920 OGF 1920 EOD 13952 LCT 256 DSI 34944 NRD 10112 DDL 70 ODT 4096 RGV 640 GTO 896 GTI 896 SFB 3 PRPS 800 NBS 2048 NBL 4096 IENB 5 TFD 0 VSS 0 VGD 6 EESD 1024 SST 5 0 DTD NO SCDT NO 2 DT NO NEDC ORG FEDC ORG	CPDC NO DLTN NO HOLD 02 02 40 SEIZ 02 02 SVFL 02 02 DRNG NO CDR NO NATL YES SSL CFWR NO IDOP NO VRAT NO MUS YES MRT 21 PANS YES RACD NO MANO NO FRL 0 0 FRL 1 0 FRL 2 0 FRL 3 0 FRL 4 0 FRL 5 0 FRL 6 0 FRL 7 0 OHQ NO OHQT 00 CBQ NO AUTH NO TTBL 0 ATAN NO OHTD NO PLEV 2 OPR NO ALRM NO ART 0 PECL NO DCTI 0 TIDY 1600 100 ATRR NO TRRL NO SGRP 0 ARDN NO CTBL 0 AACR NO
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Next, configure virtual trunk members using the Communication Server 1000E system terminal and **Load Overlay 14**. Configure sufficient trunk members to carry both incoming and outgoing PSTN calls. The following example shows a single SIP trunk member configuration. **Load Overlay 14** at the system terminal and type **new X**, where **X** is the required number of trunks. Continue entering data until the overlay exits. The **RTMB** value is a combination of the **ROUT** value entered in the previous step and the first trunk member (usually 1). The remaining highlighted values are important for correct SIP trunk operation.

```
Load Overlay 14
new 30
TN 160 0 0 0
DATE
PAGE
DES VIR_TRK
TN 160 0 00 00 VIRTUAL
TYPE IPTI
CUST 0
XTRK VTRK
ZONE 0020
TIMP 600
BIMP 600
AUTO_BIMP NO
NMUS NO
TRK ANLG
NCOS 0
RTMB 100 1
CHID 1
TGAR 1
STRI/STRO WNK WNK
SUPN YES
AST NO
IAPG 0
CLS TLD DTN CND ECD WTA LPR APN THFD XREP SPCD MSBT
P10 NTC
TKID
AACR NO
```

Configure a Route List Block (RLB) in overlay 86. **Load Overlay 86** at the system terminal and type **new**. The following example shows the values used. The value for **ROUT** is the same as previously entered in overlay 16. The **RLI** value is unique to each RLB.

Load Overlay 86 new CUST 0 FEAT rlb RLI 24 ELC NO ENTR 0 LTER NO ROUT 100 TOD 0 ON 1 ON 2 ON 3 ON 4 ON 5 ON 6 ON 7 ON VNS NO SCNV NO CNV NO EXP NO FRL 0 DMI 0 CTBL 0 ISDM 0	FCI 0 FSNI 0 BNE NO DORG NO SBOC NRR PROU 1 IDBB DBD IOHQ NO OHQ NO CBQ NO ISET 0 NALT 5 MFRL 0 OVLL 0
--	---

Next, configure Special Prefix Number(s) (SPN) which users will dial to reach PSTN numbers. Use the Communication Server 1000E system terminal and overlay 90. The following are some example SPN entries used. The highlighted **RLI** value previously configured in overlay 86 is used as the Route List Index (**RLI**), this is the default PSTN route to the SIP Trunk service.

SPN 999 FLEN 3 ITOH NO CLTP NONE RLI 24 SDRR NONE ITEI NONE	SPN 90 FLEN 7 ITOH NO CLTP NONE RLI 24 SDRR NONE ITEI NONE	SPN 2 FLEN 7 ITOH NO CLTP NONE RLI 24 SDRR NONE ITEI NONE	SPN 15 FLEN 3 ITOH NO CLTP NONE RLI 24 SDRR NONE ITEI NONE
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5.7. Configure Analogue, Digital and IP Telephones

A variety of telephone types were used during the testing. The following is the configuration for the Avaya 1140e Unistim IP telephone. **Load Overlay 20** at the system terminal and enter the following values. A unique four digit number is entered for the **KEY 00** and **KEY 01** value. The value for **CFG_ZONE** is the same value used in **Section 5.5** for **MAINFOFFICE**.

Load Overlay 20 IP Telephone configuration

```
DES 1140
TN 096 0 01 16 VIRTUAL
TYPE 1140
CDEN 8D
CTYP XDLC
CUST 0
NUID
NHTN
CFG_ZONE 00010
CUR_ZONE 00010
ERL 0
ECL 0
FDN 0
TGAR 0
LDN NO
NCOS 0
SGRP 0
RNPG 1
SCI 0
SSU
LNRS 16
XLST
SCPW
SFLT NO
CAC_MFC 0
CLS UNR FBA WTA LPR PUA MTD FNA HTA TDD HFA CRPD
    MWA LMPN RMMD SMWD AAD IMD XHD IRD NID OLD VCE DRG1
    POD SLKD CCSD SWD LNA CNDA
    CFTD SFD MRD DDV CNID CDCA MSID DAPA BFED RCBF
    ICDA CDMD LLCN MCTD CLBD AUTR
    GPUD DPUD DNDA CFXA ARHD FITD CLTD ASCD
    CPFA CPTA ABDD CFHD FICD NAID BUZZ AGRD MOAD
    UDI RCC HBTA AHD IPND DDGA NAMA MIND PRSD NRWD NRCD NROD
    DRDD EXR0
    USMD USRD ULAD CCBF RTDD RBDD RBHD PGND OCBF FLXD FTTC DNDY DNO3 MCBN
    FDSF NOVD VOLA VOUD CDMR PRED RECA MCDD T87D SBMD KEM3 MSNV FRA PKCH MUTA MWTD
---continued on next page---
```

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```
DVLD CROD CROD
CPND_LANG ENG
RCO 0
HUNT 0
LHK 0
PLEV 02
PUID
DANI NO
AST 00
IAPG 1
AACS NO
ITNA NO
DGRP
MLWU_LANG 0
MLNG ENG
DNDR 0
KEY 00 MCR 8000 0      MARP
      CPND
        CPND_LANG ROMAN
        NAME IP1140
        XPLN 10
        DISPLAY_FMT FIRST, LAST
01 MCR 8000 0
      CPND
        CPND_LANG ROMAN
        NAME IP1140
        XPLN 10
        DISPLAY_FMT FIRST, LAST
02
03 BSY
04 DSP
05
06
07
08
09
10
11
12
13
14
15
16
17 TRN
18 AO6
19 CFW 16
20 RGA
21 PRK
22 RNP
23
24 PRS
25 CHG
26 CPN
```

Digital telephones are also configured using **Load Overlay 20**, the following is a sample 3904 digital set configuration. Again, a unique number is entered for the **KEY 00** and **KEY 01** value.

Load Overlay 20 - Digital Set configuration

```

TYPE: 3904
DES 3904
TN 000 0 09 08 VIRTUAL
TYPE 3904
CDEN 8D
CTYP XDLC
CUST 0
MRT
ERL 0
FDN 0
TGAR 0
LDN NO
NCOS 0
SGRP 0
RNPG 1
SCI 0
SSU
LNRS 16
XLST
SCPW
SFLT NO
CAC_MFC 0
CLS UNR FBD WTA LPR PUA MTD FND HTD TDD HFA GRLD CRPA STSD
    MWA LMPN RMMD SMWD AAD IMD XHD IRD NID OLD VCE DRG1
    POD SLKD CCSD SWD LNA CNDA
    CFTD SFD MRD DDV CNID CDCA MSID DAPA BFED RCBF
    ICDA CDMA LLCN MCTD CLBD AUTU
    GPUD DPUD DNDA CFXA ARHD FITD CNTD CLTD ASCD
    CPFA CPTA ABDA CFHD FICD NAID BUZZ AGRD MOAD
    UDI RCC HBTB AHA IPND DDGA NAMA MIND PRSD NRWD NRCD NROD
    DRDD EXR0
    USMD USRD ULAD CCBD RTDD RBDD RBHD PGND OCBD FLXD FTTC DNDY DNO3 MCBN
    FDSD NOVD CDMR PRED RECA MCDD T87D SBMD PKCH CROD CROD
CPND_LANG ENG
RCO 0
HUNT
PLEV 02
PUID
DANI NO
SPID NONE
AST
IAPG 1
AACS
ACQ
ASID
SFNB
SFRB
USFB
CALB
FCTB
ITNA NO
DGRP
PRI 01
MLWU_LANG 0

```

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MLNG ENG

DNDR 0

KEY 00 MCR 8866 0 MARP

CPND

CPND_LANG ROMAN

NAME Digital Set

XPLN 10

DISPLAY_FMT FIRST, LAST

01 MCR 8866 0

CPND

CPND_LANG ROMAN

NAME Digital Set

XPLN 10

DISPLAY_FMT FIRST, LAST

02 DSP

03 MSB

04

05

06

07

08

09

10

11

12

13

14

15

16

17 TRN

18 AO6

19 CFW 16

20 RGA

21 PRK

22 RNP

23

24 PRS

25 CHG

26 CPN

27 CLT

28 RLT

29

30

31

Analogue telephones are also configured using **Load Overlay 20**. The following example shows an analog port configured for Plain Ordinary Telephone Service (POTS) and also configured to allow T.38 Fax transmission. A unique value is entered for **DN**, this is the extension number. **DTN** is required if the telephone uses DTMF dialing. Values **FAXA** and **MPTD** configure the port for T.38 Fax transmissions.

Load Overlay 20 - Analog Telephone Configuration

```
DES 500
TN 100 0 00 03
TYPE 500
CDEN 4D
CUST 0
MRT

ERL 00000
WRLS NO
DN 8888
AST NO
IAPG 0
HUNT
TGAR 0
LDN NO
NCOS 0
SGRP 0
RNPG 0
XLST
SCI 0
SCPW
SFLT NO
CAC_MFC 0
CLS UNR DTN FBD XFD WTA THFD FND HTD ONS
LPR XRD AGRD CWD SWD MWD RMMD SMWD LPD XHD SLKD CCSD LND TVD
CFTD SFD MRD C6D CNID CLBD AUTU
ICDD CDMD LLCN EHTD MCTD
GPUD DPUD CFXD ARHD OVDD AGTD CLTD LDTD ASCD SDND
MBXD CPFA CPTA UDI RCC HBTD IRGD DDGA NAMA MIND
NRWD NRCN NROD SPKD CRD PRSD MCRD
EXR0 SHL SMSD ABDD CFHD DNDY DNO3
CWND USMD USRD CCBF BNRD OCBF RTDD RBDD RBHD FAXA CNUD CNAD PGND FTTC
FDSD NOVD CDMR PRED MCDD T87D SBMD PKCH MPTD
PLEV 02
PUID
AACS NO
MLWU_LANG 0
FTR DCFW 4
```

5.8. Configure the SIP Line Gateway Service

SIP terminal operation requires the Communication Server node to be configured as a SIP Line Gateway (SLG) before SIP telephones can be configured. Prior to configuring the SIP Line node properties, the SIP Line service must be enabled in the customer data block. Use the Communication Server 1000E system terminal and overlay 15 to activate SIP Line services, as in the following example where **SIPL_ON** is set to **YES**.

```
SLS_DATA
SIPL_ON YES
UAPR 78
NMME NO
```

If a numerical value is entered against the **UAPR** setting, this number will be pre appended to all SIP Line configurations, and is used internally in the SIP Line server to track SIP terminals. Use Element Manager and navigate to the **IP Network → IP Telephony Nodes → Node Details → SIP Line Gateway Configuration** page. See the following screenshot for highlighted critical parameters. The value for **SIP Domain Name** must match that configured in **Section 6.2**.

- **SIP Line Gateway Application:** Enable the SIP line service on the node, check the box to enable
- **SIP domain name:** Enter the SIP domain, in this case **avaya.com**
- **SLG endpoint name:** The endpoint name is the same endpoint name as the SIP Line Gateway and will be used for SIP gateway registration
- **SLG Local Sip port:** Default value is **5070**
- **SLG Local TLS port:** Default value is **5071**

AVAYA CS1000 Element Manager

Managing: 192.168.0.2 Username: admin
System » IP Network » IP Telephony Nodes » Node Details » SIP Line Configuration

Node ID: 5000 - SIP Line Configuration Details

General | SIP Line Gateway Settings | SIP Line Gateway Service

SIP Line Gateway Application: ☒ Enable gateway service on this node

General

SIP domain name: *

SLG endpoint name:

SLG Group ID:

SLG Local Sip port: (1 - 65535)

SLG Local Tls port: (1 - 65535)

Virtual Trunk Network Health Monitor

☐ Monitor IP addresses (listed below)
Information will be captured for the IP addresses listed below.

Monitor IP: Add

Monitor addresses: Remove

SIP Line Gateway Settings

Security policy:

Number of byte re-negotiation:

Options: ☐ Client authentication

* Required Value. Note: Changes made on this page will NOT be transmitted until the Node is also saved.

Save Cancel

5.9. Configure SIP Line Telephones

When the SIP Line service configuration is completed, use the Communication Server 1000E system terminal and **Load Overlay 20** to add a Universal Extension (UEXT). See the following example of a SIP Line extension. The value for **UXTY** must be **SIPL**. This example is for an Avaya SIP telephone, so the value for **SIPN** is 1. The **SIPU** value is the username, **SCPW** is the logon password, and these values are required to register the SIP telephone to the SLG. The value for **CFG_ZONE** is the value set for **MAINFOFFICE** in **Section 5.4**. A unique telephone number is entered for value **KEY 00**. The value for **KEY 01** is comprised of the **UAPR** value (set to 78 at the beginning of this section) and the telephone number used in **KEY 00**.

```
Load Overlay 20 - SIP Telephone Configuration
DES  SIPD
TN    096 0 01 15  VIRTUAL
TYPE  UEXT
CDEN  8D
CTYP  XDLC
CUST  0
UXTY SIPL
MCCL  YES
SIPN 1
SIP3  0
FMCL  0
TLSV  0
SIPU 8889
NDID  5
SUPR  NO
SUBR  DFLT MWI RGA CWI MSB
UXID
NUID
NHTN
CFG_ZONE 00010
CUR_ZONE 00010
ERL   0
ECL   0
VSIT  NO
FDN
TGAR  0
LDN   NO
NCOS  0
SGRP  0
RNPG  0
SCI   0
SSU
XLST
SCPW 1234
SFLT  NO
CAC   MFC 0
CLS   UNR FBD WTA LPR MTD FNA HTA TDD HFD CRPD
      MWD LMPN RMMD SMWD AAD IMD XHD IRD NID OLD VCE DRG1
      POD SLKD CCSD SWD LND CNDA
      CFTD SFD MRD DDV CNID CDCA MSID DAPA BFED RCBF
      ICDD CDMD LLCN MCTD CLBD AUTU
      GPUD DPUD DNDA CFXA ARHD FITD CLTD ASCD
      CPFA CPTA ABDD CFHD FICD NAID BUZZ AGRD MOAD

---continued on next page---
```

---continued from previous page---

```

      UDI RCC HBTB AHA IPND DDGA NAMA MIND PRSD NRWD NRCD NROD
      DRDD EXRO
      USMD USRD ULAD CCBD RTDD RBDD RBHD PGND OCBF FLXD FTTC DNDY DNO3 MCBN
      FDSD NOVD VOLA VOUD CDMR PRED RECD MCDD T87D SBMD ELMD MSNV FRA  PKCH MWTD DVLD
CROD CROD
CPND_LANG ENG
RCO 0
HUNT
LHK 0
PLEV 02
PUID
DANI NO
AST
IAPG 0 *

AACS NO
ITNA NO
DGRP
MLWU_LANG 0
MLNG ENG
DNDR 0
KEY 00 MCR 8889 0      MARP
      CPND
      CPND_LANG ROMAN
      NAME Sigma 1140
      XPLN 11
      DISPLAY_FMT FIRST, LAST*
01 HOT U 788889 MARP 0
02
03
04
05
06
07
08
09
10
11
12
13
14
15
16
17 TRN
18 AO6
19 CFW 16
20 RGA
21 PRK
22 RNP
23 *
24 PRS
25 CHG
26 CPN
27
28
29
30
31
```


5.10. Save Configuration

Expand **Tools** → **Backup and Restore** on the left navigation panel and select **Call Server**. Select **Backup** (not shown) and click **Submit** to save configuration changes as shown below.

The screenshot shows the AVAYA CS1000 Element Manager web interface. On the left is a navigation tree with categories like UCM Network Services, System, Customers, Routes and Trunks, Dialing and Numbering Plans, Phones, and Tools. The 'Tools' category is expanded, showing 'Backup and Restore', 'Call Server', and 'Personal Directories'. The 'Call Server' option is selected. The main content area is titled 'Call Server Backup'. It shows the managed IP as 10.80.51.60 and the user as admin. Below the title, there is an 'Action' dropdown menu set to 'Backup', and two buttons: 'Submit' (highlighted with a red box) and 'Cancel'.

The backup process will take several minutes to complete. Scroll to the bottom of the page to verify the backup process completed successfully as shown below.

```
Backing up reten.bkp to "/var/opt/nortel/cs/fs/cf2/backup/single"
Database backup Complete!
TEMU207
Backup process to local Removable Media Device ended successfully.
```

Configuration of Communication Server 1000E is complete.

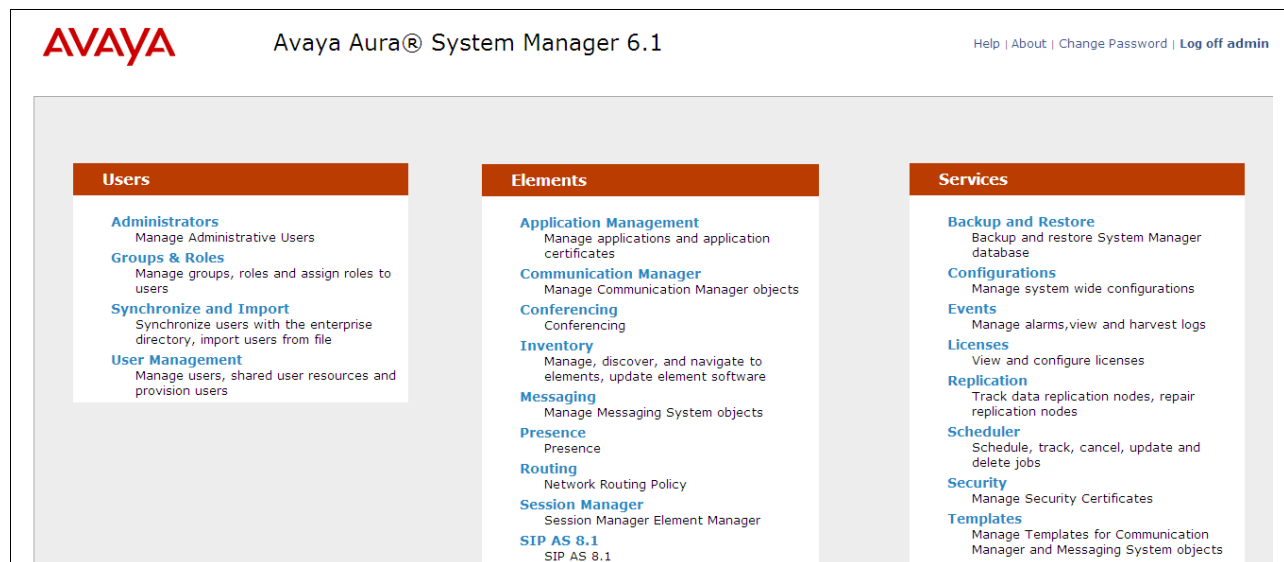
6. Configuring Avaya Aura® Session Manager

This section provides the procedures for configuring Session Manager. The Session Manager is configured via the System Manager. The procedures include the following areas:

- Log in to Avaya Aura® System Manager
- Define SIP Domain
- Define Location for Avaya Communication Server 1000E
- Configure Adaptation Module.
- Define SIP Entities
- Define Entity Links
- Define Routing Policies
- Define Dial Patterns

6.1. Log in to Avaya Aura® System Manager

Access the System Manager using a Web Browser by entering **http://<FQDN >/SMGR**, where **<FQDN>** is the fully qualified domain name of System Manager. Log in using appropriate credentials (not shown) and the **Home** tab will be presented with menu options shown below.



6.2. Define SIP Domain

Expand **Elements** → **Routing** and select **Domains** from the left navigation menu, click **New** (not shown). Enter the following values and use default values for remaining fields.

- **Name** Enter the Domain Name specified for the SIP Gateway in **Section 5.4**. In the sample configuration, **avaya.com** was used
- **Type** Verify **sip** is selected
- **Notes** Add a brief description [Optional]

Click **Commit** to save. The screen below shows the SIP Domain defined for the sample configuration.

The screenshot displays the Avaya Aura System Manager 6.1 interface. The top navigation bar includes the Avaya logo, the title 'Avaya Aura™ System Manager 6.1', and links for 'Help', 'About', 'Change Password', and 'Log off admin'. The left sidebar shows a navigation menu with 'Routing' expanded, and 'Domains' selected. The main content area is titled 'Domain Management' and shows a table with one item. The 'Name' field of the item is highlighted with a red box.

Name	Type	Default	Notes
* avaya.com	sip	<input type="checkbox"/>	

6.3. Define Location for Avaya Communication Server 1000E

Locations are used to identify logical and/or physical locations where SIP Entities reside, for purposes of bandwidth management or location-based routing. Expand **Elements** → **Routing** and select **Locations** from the left navigational menu. Click **New** (not shown). In the **General** section, enter the following values and use default values for remaining fields.

- **Name** Enter a descriptive name for the location
- **Notes** Add a brief description [Optional]

In the **Location Pattern** section, click **Add** and enter the following values.

- **IP Address Pattern** Enter the logical pattern used to identify the location. For the sample configuration, **10.10.8.*** was used
- **Notes** Add a brief description [Optional]

Click **Commit** (not shown) to save. The screenshot below shows the Location defined for Communication Server 1000E in the sample configuration.

The screenshot shows the configuration interface for defining a location. On the left is a navigation menu with options: Adaptations, SIP Entities, Entity Links, Time Ranges, Routing Policies, Dial Patterns, Regular Expressions, and Defaults. The main content area is titled 'General' and contains the following sections:

- General**: Includes a 'Name' field with the value 'SipLab8' and a 'Notes' field.
- Overall Managed Bandwidth**: Includes a 'Managed Bandwidth Units' dropdown set to 'Kbit/sec' and a 'Total Bandwidth' field.
- Per-Call Bandwidth Parameters**: Includes a 'Default Audio Bandwidth' field set to '80' and a 'Kbit/sec' dropdown.
- Location Pattern**: Includes an 'Add' button, a 'Remove' button, and a table with 2 items. The table has columns for 'IP Address Pattern' and 'Notes'. The first item is '10.10.2.*' and the second is '10.10.8.*'.

At the bottom right of the table, there is a 'Unit of Measurement' dropdown and a 'Filter: Enable' button.

6.4. Configure Adaptation Module

Adaptations can be used to modify the called party number to meet network requirements. The example shown was used in test to convert the called number to E.164 format. The module

DigitConversionAdapter is used to convert numbers in the following way:

- International Numbers – remove the international dialing prefix (00) and replace with a “+”
- National Numbers – remove the leading zero and replace with a “+” followed by the country code

These rules are applied to the **destination** addresses.

Adaptations

SIP Entities

Entity Links

Time Ranges

Routing Policies

Dial Patterns

Regular Expressions

Defaults

General

* Adaptation name:

Module name:

Module parameter:

Egress URI Parameters:

Notes:

Digit Conversion for Incoming Calls to SM

0 Items Refresh Filter: Enable

<input type="checkbox"/>	Matching Pattern	Min	Max	Phone Context	Delete Digits	Insert Digits	Address to modify	Notes
--------------------------	------------------	-----	-----	---------------	---------------	---------------	-------------------	-------

Digit Conversion for Outgoing Calls from SM

2 Items Refresh Filter: Enable

<input type="checkbox"/>	Matching Pattern	Min	Max	Phone Context	Delete Digits	Insert Digits	Address to modify	Notes
<input type="checkbox"/>	*00	2	36		2	+	destination	
<input type="checkbox"/>	*020	3	36		1	+31	destination	

6.5. Define SIP Entities

A SIP Entity must be added for each SIP-based telephony system, supported by a SIP connection to the Session Manager. To add a SIP Entity, select **SIP Entities** on the left panel menu and then click on the **New** button (not shown). The following will need to be entered for each SIP Entity.

Under **General**:

- In the **Name** field enter an informative name
- In the **FQDN or IP Address** field enter the IP address of Session Manager or the signalling interface on the connecting system
- In the **Type** field use **Session Manager** for a Session Manager SIP entity, **Other** for a Communication Server 1000E SIP entity and **Gateway** for the Session Border Controller SIP entity
- In the **Location** field select the appropriate location from the drop down menu
- In the **Time Zone** field enter the time zone for the SIP Entity

In this configuration there are three SIP Entities:

- Avaya Aura® Session Manager SIP Entity
- Avaya Communication Server 1000E SIP Entity
- Avaya Session Border Controller Advanced for Enterprise SIP Entity

6.5.1. Avaya Aura® Session Manager SIP Entity

The following screens show the SIP entity for Session Manager. The **FQDN or IP Address** field is set to the IP address of the Session Manager SIP signalling interface.

The screenshot shows the 'SIP Entity Details' configuration page for a Session Manager SIP Entity. The page is titled 'Home / Elements / Routing / SIP Entities- SIP Entity Details'. The left sidebar contains a menu with options: Routing, Domains, Locations, Adaptations, SIP Entities (selected), Entity Links, Time Ranges, Routing Policies, Dial Patterns, Regular Expressions, and Defaults. The main content area is titled 'SIP Entity Details' and has a 'General' tab selected. The form fields are as follows:

- Name:** Session Manager
- FQDN or IP Address:** 10.10.8.56
- Type:** Session Manager (dropdown menu)
- Notes:** (empty text field)
- Location:** SipLab8 (dropdown menu)
- Outbound Proxy:** (empty dropdown menu)
- Time Zone:** Europe/Dublin (dropdown menu)
- Credential name:** (empty text field)
- SIP Link Monitoring:** Use Session Manager Configuration (dropdown menu)

The Session Manager must be configured with the port numbers on the protocols that will be used by the other SIP entities. To configure these scroll to the bottom of the page and under **Port**, click **Add**, then edit the fields in the resulting new row.

- In the **Port** field enter the port number on which the system listens for SIP requests
- In the **Protocol** field enter the transport protocol to be used for SIP requests
- In the **Default Domain** field, from the drop down menu select **avaya.com** as the default domain

Port

3 Items | Refresh Filter: Enable

<input type="checkbox"/>	Port	Protocol	Default Domain	Notes
<input type="checkbox"/>	5060	TCP	avaya.com	
<input type="checkbox"/>	5060	UDP	avaya.com	
<input type="checkbox"/>	5061	TLS	avaya.com	

Select : All, None

*** Input Required**

6.5.2. Avaya Communication Server 1000E SIP Entity

The following screen shows the SIP entity for Communication Server 1000E. The **FQDN or IP Address** field is set to the Node IP address of the interface on CS1000E that will be providing SIP signalling, as shown in **Section 5.4**.

Routing / Home / Elements / Routing / SIP Entities- SIP Entity Details

SIP Entity Details

General

*** Name:** CS1K

*** FQDN or IP Address:** 10.10.8.3

Type: Other

Notes:

Adaptation:

Location: SipLab8

Time Zone: Etc/GMT

Override Port & Transport with DNS SRV: ☐

*** SIP Timer B/F (in seconds):** 4

Credential name:

Call Detail Recording: none

SIP Link Monitoring

SIP Link Monitoring: Use Session Manager Configuration

6.5.3. Avaya Session Border Controller Advanced for Enterprise SIP Entity

The following screen shows the SIP Entity for the Session Border Controller. The **FQDN or IP Address** field is set to the IP address of the Session Border Controller private network interface

Routing

- Domains
- Locations
- Adaptations
- SIP Entities**
- Entity Links
- Time Ranges
- Routing Policies
- Dial Patterns
- Regular Expressions
- Defaults

Home / Elements / Routing / SIP Entities- SIP Entity Details

SIP Entity Details

General

* Name: Sipera SBC

* FQDN or IP Address: 10.10.9.81

Type: Gateway

Notes:

Adaptation: International

Location: Galway

Time Zone: Europe/Dublin

Override Port & Transport with DNS SRV: ☐

* SIP Timer B/F (in seconds): 4

Credential name:

Call Detail Recording: none

SIP Link Monitoring

SIP Link Monitoring: Use Session Manager Configuration

6.6. Define Entity Links

A SIP trunk between a Session Manager and another system is described by an Entity Link. To add an Entity Link, select **Entity Links** on the left panel menu and click on the **New** button (not shown). Fill in the following fields in the new row that is displayed (not shown).

- In the **Name** field enter an informative name
- In the **SIP Entity 1** field select **Session Manager**
- In the **Port** field enter the port number to which the other system sends its SIP requests
- In the **SIP Entity 2** field enter the other SIP Entity for this link, created in **Section 6.5**
- In the **Port** field enter the port number to which the other system expects to receive SIP requests
- Select the **Trusted** tick box to make the other system trusted
- In the **Protocol** field enter the transport protocol to be used to send SIP requests

Click **Commit** to save changes. The following screen shows the Entity Links used in this configuration.

	Name	SIP Entity 1	Protocol	Port	SIP Entity 2	Port	Connection Policy	Notes
<input type="checkbox"/>	Sipera SBC	Session Manager	TCP	5060	Sipera SBC	5060	Trusted	toSIPERA
<input type="checkbox"/>	CS1K	Session Manager	TCP	5060	CS1K	5060	Trusted	toCS1K

6.7. Define Routing Policies

Routing policies must be created to direct how calls will be routed to a system. To add a routing policy, select **Routing Policies** on the left panel menu and then click on the **New** button (not shown).

Under **General**:

- Enter an informative name in the **Name** field
- Under **SIP Entity as Destination**, click **Select**, a new window appears (not shown) and select the appropriate SIP entity to which this routing policy applies
- Under **Time of Day**, click **Add**, and then select the time range

The following screen shows the routing policy for Communication Server 1000E.

The screenshot shows the 'Routing Policy Details' form. The left sidebar contains a menu with 'Routing Policies' highlighted. The main form area has a breadcrumb trail 'Home / Elements / Routing / Routing Policies- Routing Policy Details'. The 'General' section includes a 'Name' field with 'toCS1K', a 'Disabled' checkbox, and a 'Notes' field. The 'SIP Entity as Destination' section has a 'Select' button. Below this is a table with columns 'Name', 'FQDN or IP Address', 'Type', and 'Notes'. The table contains one row: 'CS1K', '10.10.8.3', 'Other'. The 'Time of Day' section has 'Add', 'Remove', and 'View Gaps/Overlaps' buttons. Below this is a table with columns: 'Ranking', 'Name', 'Mon', 'Tue', 'Wed', 'Thu', 'Fri', 'Sat', 'Sun', 'Start Time', 'End Time', and 'Notes'. The table contains one row: '0', '24/7', and checkboxes for Mon through Sun, with 'Start Time' 00:00, 'End Time' 23:59, and 'Notes' 'Time Range 24/7'.

Routing Policy Details

General

Name: toCS1K

Disabled: ☐

Notes:

SIP Entity as Destination

Select

Name	FQDN or IP Address	Type	Notes
CS1K	10.10.8.3	Other	

Time of Day

Add Remove View Gaps/Overlaps

1 Item Refresh Filter: Enabled

Ranking	Name	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Start Time	End Time	Notes
0	24/7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	00:00	23:59	Time Range 24/7

The following screen shows the routing policy for the Session Border Controller.

Routing

Domains

Locations

Adaptations

SIP Entities

Entity Links

Time Ranges

Routing Policies

Dial Patterns

Regular Expressions

Defaults

Home / Elements / Routing / Routing Policies- Routing Policy Details

Routing Policy Details

CommitCancel

He

General

Name: Sipera SBC

Disabled: ☐

Notes:

SIP Entity as Destination

Select

Name	FQDN or IP Address	Type	Notes
Sipera SBC	10.10.9.81	Gateway	

Time of Day

AddRemoveView Gaps/Overlaps

1 Item Refresh

Filter: Enabl

	Ranking	Name	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Start Time	End Time	Notes
<input type="checkbox"/>	0	24/7	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	00:00	23:59	Time Range 24/7

6.8. Define Dial Patterns

A dial pattern must be defined to direct calls to the appropriate entity. To configure a dial pattern select **Dial Patterns** on the left panel menu and then click on the **New** button (not shown).

Under **General**:

- In the **Pattern** field enter a dialed number or prefix to be matched
- In the **Min** field enter the minimum length of the dialled number
- In the **Max** field enter the maximum length of the dialled number
- In the **SIP Domain** field select **ALL** or alternatively one of those configured in **Section 6.2**

Under **Originating Locations and Routing Policies**. Click **Add**, in the resulting screen (not shown), under **Originating Location** select **ALL** and under **Routing Policies** select one of the routing policies defined in **Section 6.7**. Click **Select** button to save. The following screen shows an example dial pattern configured for the Session Border Controller which will route the calls out to the KPN VoIP Connect service.

Routing

Home / Elements / Routing / Dial Patterns- Dial Pattern Details

Dial Pattern Details

Commit Cancel

General

* Pattern: 00353

* Min: 5

* Max: 16

Emergency Call: ☐

SIP Domain: -ALL-

Notes:

Originating Locations and Routing Policies

Add Remove

1 Item Refresh Filter: Enable

<input type="checkbox"/>	Originating Location Name 1 ▲	Originating Location Notes	Routing Policy Name	Rank 2 ▲	Routing Policy Disabled	Routing Policy Destination	Routing Policy Notes
<input type="checkbox"/>	-ALL-	Any Locations	Sipera SBC	0	<input type="checkbox"/>	Sipera SBC	

The following screen shows an example dial pattern configured for the CS1000E. This dial pattern will route the calls to the CS1000E endpoints e.g Unistim and SIP sets.

Routing

Domains

Locations

Adaptations

SIP Entities

Entity Links

Time Ranges

Routing Policies

Dial Patterns

Regular Expressions

Defaults

Home / Elements / Routing / Dial Patterns- Dial Pattern Details

Dial Pattern Details

Commit

Cancel

General

* Pattern: 020364

* Min: 6

* Max: 10

Emergency Call: ☐

SIP Domain: -ALL-

Notes:

Originating Locations and Routing Policies

Add Remove

1 Item Refresh

Filter: Enable

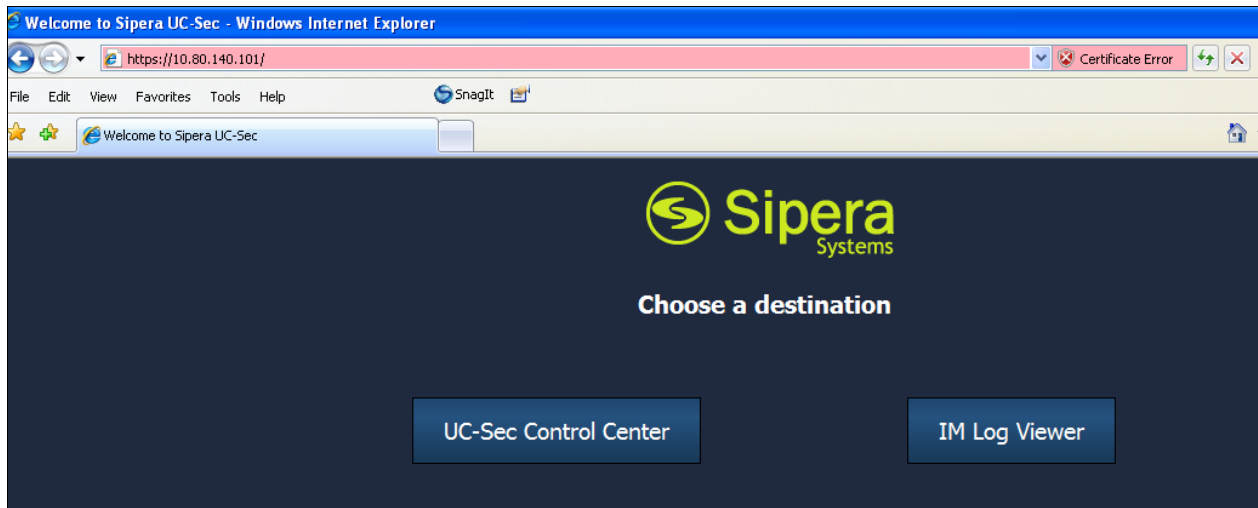
<input type="checkbox"/>	Originating Location Name 1	Originating Location Notes	Routing Policy Name	Rank 2	Routing Policy Disabled	Routing Policy Destination	Routing Policy Notes
<input type="checkbox"/>	-ALL-	Any Locations	toCS1K	0	<input type="checkbox"/>	CS1K	

7. Configure Avaya Session Border Controller Advanced for Enterprise

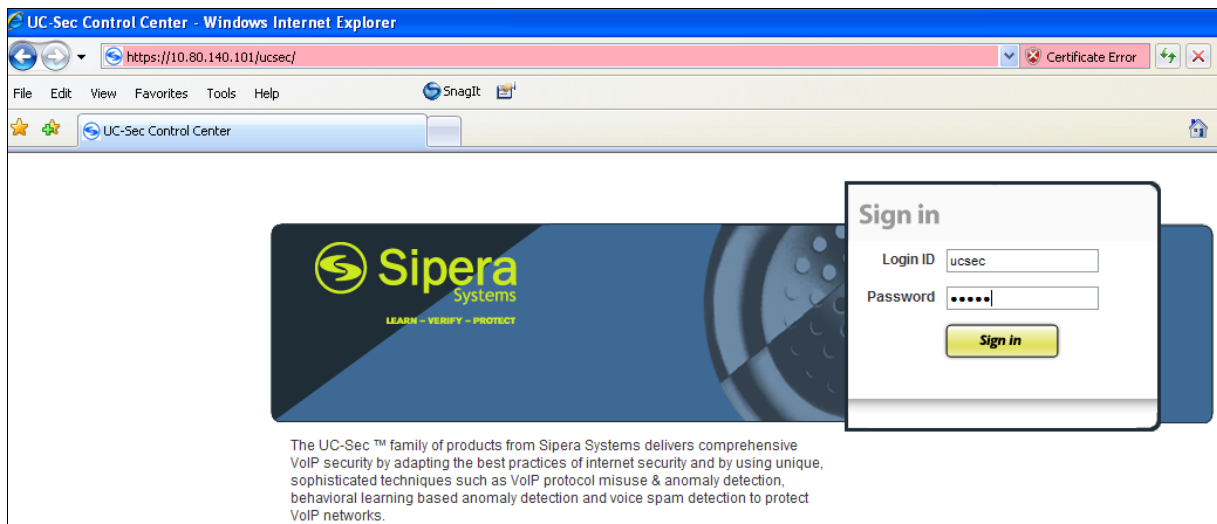
This section provides the procedures for configuring Session Border Controller Advanced or Enterprise.

7.1. Accessing UC-Sec Control Centre

Access the web interface by typing **https://x.x.x.x** (where x.x.x.x is the management IP of the E-SBC).



Select **UC-Sec Control Center** and enter the **Login ID** and **Password**.



7.2. Global Profiles

When selected, Global Profiles allows for configuration of parameters across all UC-Sec appliances.

7.2.1. Server Interworking - Avaya Side

Server Internetworking allows you to configure and manage various SIP call server specific capabilities such as call hold and T.38. From the lefthand menu select **Global Profiles → Server Interworking** and click on **Add Profile** (not shown).

- Enter profile name : **SM9_Call_Server** and click **Next** (not shown)
- Set **Hold Support** to **RFC2543**
- All other options on the General Tab can be left at default.

Click Next on the screen below and screens that follow (not shown) and then click Finish on the last screen (not shown).

Editing Profile: SM9_Call_Server	
General	
Hold Support	<input type="radio"/> None <input checked="" type="radio"/> RFC2543 - c=0.0.0.0 <input type="radio"/> RFC3264 - a=sendonly
180 Handling	<input checked="" type="radio"/> None <input type="radio"/> SDP <input type="radio"/> No SDP
181 Handling	<input checked="" type="radio"/> None <input type="radio"/> SDP <input type="radio"/> No SDP
182 Handling	<input checked="" type="radio"/> None <input type="radio"/> SDP <input type="radio"/> No SDP
183 Handling	<input checked="" type="radio"/> None <input type="radio"/> SDP <input type="radio"/> No SDP
Refer Handling	<input type="checkbox"/>
3xx Handling	<input type="checkbox"/>
Diversion Header Support	<input type="checkbox"/>
Delayed SDP Handling	<input type="checkbox"/>
T.38 Support	<input checked="" type="checkbox"/>
URI Scheme	<input checked="" type="radio"/> SIP <input type="radio"/> TEL <input type="radio"/> ANY
Via Header Format	<input checked="" type="radio"/> RFC3261 <input type="radio"/> RFC2543
<input type="button" value="Next"/>	

7.2.2. Server Interworking – KPN side

Server Interworking allows you to configure and manage various SIP call server specific capabilities such as call hold and T.38. From the lefthand menu select **Global Profiles → Server Interworking** and click on **Add Profile** (not shown).

- Enter profile name: **SP_Trunk** and click on **Next** (not shown)
- Check **Hold Support = RFC2543**
- All other options on the General Tab can be left at default.

Click Next on the screen below and screens that follow (not shown) and then click Finish on the last screen (not shown).

General	
Hold Support	<input type="radio"/> None <input checked="" type="radio"/> RFC2543 - c=0.0.0.0 <input type="radio"/> RFC3264 - a=sendonly
180 Handling	<input checked="" type="radio"/> None <input type="radio"/> SDP <input type="radio"/> No SDP
181 Handling	<input checked="" type="radio"/> None <input type="radio"/> SDP <input type="radio"/> No SDP
182 Handling	<input checked="" type="radio"/> None <input type="radio"/> SDP <input type="radio"/> No SDP
183 Handling	<input checked="" type="radio"/> None <input type="radio"/> SDP <input type="radio"/> No SDP
Refer Handling	<input type="checkbox"/>
3xx Handling	<input type="checkbox"/>
Diversion Header Support	<input type="checkbox"/>
Delayed SDP Handling	<input type="checkbox"/>
T.38 Support	<input checked="" type="checkbox"/>
URI Scheme	<input checked="" type="radio"/> SIP <input type="radio"/> TEL <input type="radio"/> ANY
Via Header Format	<input checked="" type="radio"/> RFC3261 <input type="radio"/> RFC2543

Next

7.2.3. Routing – Avaya side

The Routing Profile allows you to manage parameters related to routing SIP signaling messages. From the lefthand menu select **Global Profiles → Routing** and click on **Add Profile** (not shown).

- Enter Profile Name : **SM9_Call_Server** (not shown)
- Hit **Next** (not shown)
- **Next Hop Server 1 : 10.10.8.56** (Session Manager Security Module IP address)
- Check **Next Hop Priority**
- Check **Use Next Hop for in Dialog**
- **Outgoing Transport: TCP**

Click **Finish** (not shown).

The screenshot shows the 'Global Profiles > Routing: SM9_Call_Server' configuration page. On the left, a sidebar lists 'Routing Profiles' with 'default', 'SM9_Call_Server' (selected), and 'SP_Trunk_Server'. The main area has buttons for 'Add Profile', 'Rename Profile', 'Clone Profile', and 'Delete Profile'. Below these is a yellow bar with the text 'Click here to add a description.' and a 'Routing Profile' label. A table titled 'Add Routing Rule' contains the following data:

Priority	URI Group	Next Hop Server 1	Next Hop Server 2	Next Hop Priority	NAPTR	SRV	Next Hop in Dialog	Ignore Route Header	Outgoing Transport
1	*	10.10.8.56	---	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	TCP

7.2.4. Routing – KPN side

The Routing Profile allows you to manage parameters related to routing SIP signaling messages. From the lefthand menu select **Global Profiles → Routing** and click on **Add Profile** (not shown).

- Enter Profile Name: **SP_Trunk_Server** (not shown)
- Hit **Next** (not shown)
- **Next Hop Server 1 : 10.122.108.100** (IP Address provided by KPN)
- Check **Next Hop Priority**
- Check **Use Next Hop for in Dialog**
- **Outgoing Transport : UDP**
- Click **Finish** (not shown)

The screenshot shows the 'Global Profiles > Routing: SP_Trunk_Server' configuration page. On the left, a sidebar lists 'Routing Profiles' with 'default', 'SM9_Call_Server', and 'SP_Trunk_Server' (selected). The main area has buttons for 'Add Profile', 'Rename Profile', 'Clone Profile', and 'Delete Profile'. Below these is a yellow bar with the text 'Click here to add a description.' and a 'Routing Profile' label. A table titled 'Add Routing Rule' contains the following data:

Priority	URI Group	Next Hop Server 1	Next Hop Server 2	Next Hop Priority	NAPTR	SRV	Next Hop in Dialog	Ignore Route Header	Outgoing Transport
1	*	10.122.108.100	---	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	UDP

7.2.5. Server Configuration – Avaya CS1000E

The **Server Configuration** screen contains four tabs: **General**, **Authentication**, **Heartbeat**, and **Advanced**. Together, these tabs allow you to configure and manage various SIP call server specific parameters such as TCP and UDP port assignments, IP Server type, heartbeat signaling parameters and some advanced options. From the lefthand menu select **Global Profiles** → **Server Configuration** and click on **Add Profile** (not shown).

- Enter profile name : **SM9_Call_Server** (not shown)
- On the **Add Server Configuration Profile** tab:
- **Server Type** : **Call Server**
- **IP Address** : **10.10.8.56**
- **Supported Transports** : Check **UDP** and **TCP**
- **TCP Port** : **5060**
- **UDP Port** : **5060**
- Hit **Next**
- Click on **Next** for the **Authentication** and **Heartbeat** tabs (not shown).
- On the **Advanced** tab, select **SM9_Call_Server** for **Interworking Profile**
- Click **Finish**

The screenshot shows the 'Add Server Configuration Profile - General' window. The fields are as follows:

Field	Value
Server Type	Call Server
IP Addresses / Supported FQDNs <small>Comma seperated list</small>	10.10.8.56
Supported Transports	<input checked="" type="checkbox"/> TCP <input checked="" type="checkbox"/> UDP <input type="checkbox"/> TLS
TCP Port	5060
UDP Port	5060
TLS Port	(disabled)

Buttons: Back, Next

Enable DoS Protection	<input type="checkbox"/>
Enable Grooming	<input type="checkbox"/>
Interworking Profile	SM9_Call_Server
Signaling Manipulation Script	None
TCP Connection Type	<input checked="" type="radio"/> SUBID <input type="radio"/> PORTID <input type="radio"/> MAPPING
UDP Connection Type	<input checked="" type="radio"/> SUBID <input type="radio"/> PORTID <input type="radio"/> MAPPING

Finish

7.2.6. Server Configuration – KPN side

The **Server Configuration** screen contains four tabs: **General**, **Authentication**, **Heartbeat**, and **Advanced**. Together, these tabs allow to configure and manage various SIP call server specific parameters such as TCP and UDP port assignments, server type, heartbeat signaling parameters and some advanced options. From the left-hand menu select **Global Profiles → Server Configuration** and click on **Add Profile** (not shown).

- **Name** : **SP_Trunk_Server** (not shown)
- On the **Add Server Configuration Profile** Tab: (not shown)
- Click on **Edit** (not shown)
- Select Server Type: **Trunk Server**
- **IP Address** : **10.122.108.100** (KPN Trunk Server)
- **Supported Transports**: Check **UDP**
- **UDP Port** : **5060**
- Hit **Next**
- Click on **Next** for the **Authentication** and **Heartbeat** tabs (not shown)
- On the **Advanced** tab, select **SP_Trunk** for **Interworking Profile**
- Select **E164_Conversion** for **Signaling Manipulation Script**, this will be discussed in **Section 7.3**
- Click **Finish**

Add Server Configuration Profile - General

Server Type	Trunk Server
IP Addresses / Supported FQDNs <small>Comma seperated list</small>	10.122.108.100
Supported Transports	<input type="checkbox"/> TCP <input checked="" type="checkbox"/> UDP <input type="checkbox"/> TLS
TCP Port	
UDP Port	5060
TLS Port	

Back
Next

Edit Server Configuration Profile - Advanced

Enable DoS Protection	<input type="checkbox"/>
Enable Grooming	<input type="checkbox"/>
Interworking Profile	SP_Trunk
Signaling Manipulation Script	E164_Conversion
TCP Connection Type	<input checked="" type="radio"/> SUBID <input type="radio"/> PORTID <input type="radio"/> MAPPING
UDP Connection Type	<input checked="" type="radio"/> SUBID <input type="radio"/> PORTID <input type="radio"/> MAPPING

Finish

7.2.7. Topology Hiding – Avaya side

The **Topology Hiding** screen allows you to manage how various source, destination and routing information in SIP and SDP message headers are substituted or changed to maintain the integrity of the network. It hides the topology of the enterprise network from external networks. From the left-hand menu select **Global Profiles → Topology Hiding** (not shown).

- Click **default** profile and select **Clone Profile** (not shown)
- Enter Profile Name : **SM9_CS**
- Under the **Header** field for **To**, **From** and **Request Line**, select **IP/Domain** under **Criteria** and **Overwrite** under **Replace Action**. For **Override Value** type **avaya.com**
- Click **Finish** (not shown)

The screen below is a result of the details configured above

Header	Criteria	Replace Action	Override Value
Record-Route	IP/Domain	Auto	---
SDP	IP/Domain	Auto	---
To	IP/Domain	Overwrite	avaya.com
Via	IP/Domain	Auto	---
Request-Line	IP/Domain	Overwrite	avaya.com
From	IP/Domain	Overwrite	avaya.com

7.2.8. Topology Hiding – KPN side

The **Topology Hiding** screen allows you to manage how various source, destination and routing information in SIP and SDP message headers are substituted or changed to maintain the integrity of the network. It hides the topology of the enterprise network from external networks. From the left-hand menu select **Global Profiles → Topology Hiding** (not shown).

- Click **default** profile and select **Clone Profile** (not shown)
- Enter **Profile Name** : **SP_Trunk** (not shown)
- For the Header **To**, **From** and **Request Line** select **IP/Domain** under **Criteria** and **Next Hop** under **Replace Action**
- Click **Finish** (not shown)

The screen below is a result of the details configured above

Global Profiles > Topology Hiding: SP_Trunk

[Add Profile](#)
[Rename Profile](#)
[Clone Profile](#)
[Delete Profile](#)

Topology Hiding Profiles

default

cisco_th_profile

SP_Trunk

SM9_CS

Click here to add a description.

Topology Hiding

Header	Criteria	Replace Action	Overwrite Value
Record-Route	IP/Domain	Auto	---
SDP	IP/Domain	Auto	---
To	IP/Domain	Next Hop	---
Via	IP/Domain	Auto	---
Request-Line	IP/Domain	Next Hop	---
From	IP/Domain	Next Hop	---

[Edit](#)

7.3. Signaling Manipulation Scripts

This feature adds the ability to add, change and delete any of the headers and other information in a SIP message. During test, a script was written to change the user address in the “To” and “From” field to E.164 format for consistency. Test calls were made successfully without this, but it is shown here for information.. From the lefthand menu select **Global Profiles → Signaling Manipulation** and click on **Add Script**. The script shown below was used for this test:

Global Profiles > Signaling Manipulation: E164_Conversion

[Upload Script](#)
[Add Script](#)
[Download Script](#)
[Clone Script](#)
[Del](#)

Signaling Manipulation Scripts

E164_Conversion

Change international prefix 00 to +

Signaling Manipulation

```

within session "INVITE"
{
  act on request where $DIRECTION="OUTBOUND" and $ENTRY_POINT="POST_ROUTING"
  {
    $HEADERS["To"][1].URI.USER.regex_replace("^00","+");
  }
}
within session "INVITE"
{
  act on request where $DIRECTION="OUTBOUND" and $ENTRY_POINT="POST_ROUTING"
  {
    $HEADERS["From"][1].URI.USER.regex_replace("^0","+31");
  }
}

```

This script was then associated with **Server Configuration – KPN side** defined in **Section 7.2.6** under Signaling Manipulation Script.

7.4. Device Specific Settings

7.4.1. The **Network Management** feature allows the public and private interface addresses and state to be set. From the left-hand menu select **Device Specific Settings → Network Management**.

- Enter in the **IP Address** and **Gateway Address** for both the Inside and the Outside interfaces
- Select the physical interface used in the **Interface** column

ent: GSSCP-SBC1

Network Configuration **Interface Configuration**

Modifications or deletions of an IP address or its associated data require an application restart before taking effect. Application restarts can be issued from [System Management](#).

A1 Netmask: 255.255.255.0 A2 Netmask: B1 Netmask: 255.255.255.240 B2 Netmask:

Add IP **Save Changes** **Clear Changes**

IP Address	Public IP	Gateway	Interface	
10.10.9.81		10.10.9.1	A1	✕
192.168.27.3		192.168.27.1	B1	✕

Select the **Interface Configuration** tab and use the **Toggle State** button to enable the interfaces.

Network Configuration		Interface Configuration
Name	Administrative Status	
A1	Enabled	Toggle State
A2	Disabled	Toggle State
B1	Enabled	Toggle State
B2	Disabled	Toggle State

7.4.2. The **Media Interfaces** feature allows the IP Address and ports to be set for transporting Media over the SIP trunk. From the left-hand menu select **Device Specific Settings** → **Media Interface** (not shown).

- Select **Add Media Interface** (not shown)
- **Name : Int_Media**
- **Media IP : 10.10.9.81** (Internal Address for calls toward the Call Server)
- **Port Range: 35000-50000**
- Click **Finish**
- Select **Add Media Interface**
- **Name: Ext_Media**
- **Media IP : 192.168.27.3** (External Address for calls toward KPN trunk)
- **Port Range: 35000-50000**
- Click **Finish**

The screen below is a result of the details configured above.

SSCP-SBC1

Media Interface

Modifying or deleting an existing media interface will require an application restart before taking effect. Application restarts can be issued from System Management.





Add Media Interface

Name	Media IP	Port Range		
Int_Media	10.10.9.81	35000 - 40000		
Ext_Media	192.168.27.3	35000 - 40000		

7.4.3. The **Signalling Interfaces** feature allows the IP Address and ports to be set for transporting Media over the SIP trunk. From the left-hand menu select **Device Specific Settings → Signalling Interface** (not shown).

- Select **Add Signaling Interface** (not shown)
- **Name : Int_Sig**
- **Signaling IP : 10.10.9.81** (Internal Address for calls toward Call Server)
- **TCP Port : 5060**
- **UDP Port : 5060**
- Click **Finish** (not shown)
- Select **Add Signaling Interface**
- **Name : Ext_Sig**
- **Signaling IP : 192.168.27.3** (External Address for calls toward KPN)
- **TCP Port : 5060**
- **UDP Port : 5060**
- Click **Finish** (not shown)

The screen below is a result of the details configured above.

GSSCP-SBC1						
Signaling Interface						
						Add Signaling Interface
Name	Signaling IP	TCP Port	UDP Port	TLS Port	TLS Profile	
Int_Sig	10.10.9.81	5060	5060	---	None	 
Ext_Sig	192.168.27.3	5060	5060	---	None	 

7.4.4. The **End Point Flows** allow the Interfaces, Policies and Profiles administered to be used to transport the SIP traffic. From the left-hand menu select **Device Specific Settings** → **Endpoint Flows** (not shown).

- Select the **Server Flows** tab

To add the settings for call flow to CS1000E. Click on select **Add Flow**.

- **Name** : **SM9_Call_Server**
- **Server Configuration** : **SM9_Call_Server**
- **URI Group** : *
- **Transport** : *
- **Remote Subnet** : *
- **Received Interface** : **Ext_Sig**
- **Signaling Interface** : **Int_Sig**
- **Media Interface** : **Int_Media**
- **End Point Policy Group** : **default-low**
- **Routing Profile** : **SP_Trunk_Server**
- **Topology Hiding Profile** : **SM9_CS**
- **File Transfer Profile** : **None**
- Click **Finish** (not shown)

Device Specific Settings > End Point Flows: GSSCP-SBC1

UC-Sec Devices

GSSCP-SBC1

Subscriber Flows | **Server Flows**

Add Flow

Click here to add a row description.

Server Configuration: SM9_Call_Server

Priority	Flow Name	URI Group	Transport	Remote Subnet	Received Interface	Signaling Interface	Media Interface	End Point Policy Group	Routing Profile	Topology Hiding Profile	File Transfer Profile			
1	SM9_Call_Server	*	*	*	Ext_Sig	Int_Sig	Int_Media	default-low	SP_Trunk_Server	SM9_CS	None			

To add the settings for call flow to KPN select **Add Flow** (not shown).

- **Name** : **SP_Trunk_Server**
- **Server Configuration** : **SP_Trunk_Server**
- **URI Group** : *
- **Transport** : *
- **Remote Subnet** : *
- **Received Interface** : **Int_Sig**
- **Signaling Interface** : **Ext_Sig**
- **Media Interface** : **Ext_Media**
- **End Point Policy Group** : **default-low**
- **Routing Profile** : **SM9_Call_Server**
- **Topology Hiding Profile** : **SP_Trunk**

- **File Transfer Profile : None**
- Click **Finish** (not shown)

Device Specific Settings > End Point Flows: GSSCP-SBC1

UC-Sec Devices

GSSCP-SBC1

Subscriber Flows Server Flows

Add Flow

Hover over a row to see its description.

Server Configuration: SP_Trunk_Server

Priority	Flow Name	URI Group	Transport	Remote Subnet	Received Interface	Signaling Interface	Media Interface	End Point Policy Group	Routing Profile	Topology Hiding Profile	File Transfer Profile		
1	SP_Trunk_Server	*	*	*	Int_Sig	Ext_Sig	Ext_Media	SP_Trunk	SM9_Call_Server	SP_Trunk	None		

8. Service Provider Configuration

The configuration of the KPN equipment used to support the KPN VoIP Connect service is outside of the scope of these Application Notes and will not be covered. To obtain further information on KPN equipment and system configuration please contact an authorised KPN representative.

9. Verification Steps

9.1. Verify Avaya Communication Server 1000E Operational Status

Expand **System** on the left navigation panel and select **Maintenance**. Select **LD 96 - D-Channel** from the **Select by Overlay** table and the **D-Channel Diagnostics** function from the **Select Group** table as shown below.

AVAYA **CS1000 Element Manager** Help | Log

Managing: **10.80.51.60** Username: admin
System » Maintenance

Maintenance

☒ Select by Overlay ☐ Select by Functionality

<Select by Overlay>

LD 30 - Network and Signaling
LD 32 - Network and Peripheral Equipment
LD 34 - Tone and Digit Switch
LD 36 - Trunk
LD 37 - Input/Output
LD 38 - Conference Circuit
LD 39 - Intergroup Switching and System Clock
LD 45 - Background Signaling and Switching
LD 46 - Multifrequency Sender
LD 48 - Link
LD 54 - Multifrequency Signaling
LD 60 - Digital Trunk Interface and Primary Rate Interface
LD 75 - Digital Trunk
LD 80 - Call Trace
LD 96 - D-Channel
LD 117 - Ethernet and Alarm Management
LD 135 - Core Common Equipment
LD 137 - Core Input/Output
LD 143 - Centralized Software Upgrade

<Select Group>

D-Channel Diagnostics
MSDL Diagnostics
TMDI Diagnostics

- UCM Network Services
 - Home
 - Links
 - Virtual Terminals
 - System
 + Alarms
 - Maintenance
 + Core Equipment
 - Peripheral Equipment
 + IP Network
 + Interfaces
 - Engineered Values
 + Emergency Services
 + Software
 - Customers
 - Routes and Trunks
 - Routes and Trunks
 - D-Channels
 - Digital Trunk Interface
 + Dialing and Numbering Plans
 + Phones
 - Tools
 + Backup and Restore
 - Date and Time
 + Logs and reports
 - Security
 + Passwords
 + Policies
 + Login Options

Select **Status for D-Channel (STAT DCH)** command and click **Submit** to verify status of virtual D-Channel as shown below. Verify the status of the following fields:

- **Appl_Status** Verify status is **OPER**
- **Link_Status** Verify status is **EST ACTV**

D-Channel Diagnostics

Diagnostic Commands	Command Parameters	Action
Status for D-Channel (STAT DCH)		<input type="button" value="Submit"/>
Disable Automatic Recovery (DIS AUTO)	<input type="checkbox"/> ALL	<input type="button" value="Submit"/>
Enable Automatic Recovery (ENL AUTO)	<input type="checkbox"/> FDL	<input type="button" value="Submit"/>
Test Interrupt Generation (TEST 100)		<input type="button" value="Submit"/>
Establish D-Channel (EST DCH)		<input type="button" value="Submit"/>

DCH	DES	APPL_STATUS	LINK_STATUS	AUTO_RECV	PDCH	BDCH
<input type="radio"/> 010 Vtrk OPER EST ACTV AUTO						


```

STAT DCH 010
-----
Command executed successfully.
  
```

9.2. Verify Avaya Aura® Session Manager Operational Status

9.2.1. Verify Avaya Aura® Session Manager is Operational

Navigate to **Elements** → **Session Manager** → **Dashboard** (not shown) to verify the overall system status for Session Manager. Specifically, verify the status of the following fields as shown below.

- **Tests Pass** 
- **Security Module** 
- **Service State** 

Home / Elements / Session Manager- Session Manager

Session Manager
Dashboard
Session Manager
Administration
Communication Profile Editor
Network Configuration
Device and Location Configuration
Application Configuration
System Status
System Tools

Session Manager Dashboard

This page provides the overall status and health summary of each administered Session Manager.

Session Manager Instances

Service State
Shutdown System
As of 9:22 AM

1 Item Refresh Show ALL
Filter: Enable

	Session Manager	Type	Alarms	Tests Pass	Security Module	Service State	Entity Monitoring	Active Call Count	Registrations	Version
<input type="checkbox"/>	Session Manager	Core	50/14/39	✓	Up	Accept New Service	0/5	0	0	6.1.0.0.610023

Select : All, None

Navigate to **Elements → Session Manager → System Status → Security Module Status** (not shown) to view more detailed status information on the status of Security Module for the specific Session Manager. Verify the **Status** column displays **Up** as shown below.

Reset

Synchronize

Certificate Management ▾

Connection Status

1 Item

Refresh

Show ALL ▾

Filter: Enable

	Details	Session Manager	Type	Status	Connections	IP Address	VLAN	Default Gateway	NIC Bonding	Entity Links (expected / actual)	Certificate Used
	► Show	Session Manager	SM	Up	14	10.10.8.56/24	---	10.10.8.1	Disabled	5/5	SIP CA

Select : None

9.2.2. Verify SIP Entity Link Status

Navigate to **Elements → Session Manager → System Status → SIP Entity Monitoring** (not shown) to view more detailed status information for one of the SIP Entity Links. Select the SIP Entity for Communication Server 1000E from the **All Monitored SIP Entities** table (not shown) to open the **SIP Entity, Entity Link Connection Status** page. In the **All Entity Links to SIP Entity: CS1000 Rel7.5** table, verify the **Conn. Status** for the link is **Up** as shown below.

SIP Entity, Entity Link Connection Status

This page displays detailed connection status for all entity links from all Session Manager instances to a single SIP entity.

All Entity Links to SIP Entity: CS1K

Summary View

1 Item

Refresh

Filter: Enabled

Details	Session Manager Name	SIP Entity Resolved IP	Port	Proto.	Conn. Status	Reason Code	Link Status
► Show	Session Manager	10.10.8.3	5060	TCP	Up	200 OK	Up

Verify the SIP link is up between the Session Manager and the SBC by going through the same process as outlined above but selecting the SIP Entity for the SBC in the **All Monitored SIP Entities** table (not shown).

10. Conclusion

These Application Notes describe the configuration necessary to connect Avaya Aura® Communication Server 1000E, Avaya Aura® Session Manager and Avaya Session Border Controller Advanced for Enterprise to KPN VoIP Connect Service. KPN VoIP Connect Service is a SIP-based Voice over IP solution providing businesses a flexible, cost-saving alternative to traditional hardwired telephony trunks. The service was successfully tested with a number of observations listed in **Section 2.2**.

11. References

This section references the documentation relevant to these Application Notes. Additional Avaya product documentation is available at <http://support.avaya.com>.

- [1] Avaya Aura® Session Manager Overview, Doc ID 03-603323, available at <http://support.avaya.com>.
- [2] Installing and Configuring Avaya Aura® Session Manager, available at <http://support.avaya.com>.
- [3] Avaya Aura® Session Manager Case Studies, available at <http://support.avaya.com>
- [4] Maintaining and Troubleshooting Avaya Aura® Session Manager, Doc ID 03-603325, available at <http://support.avaya.com>.
- [5] Administering Avaya Aura® Session Manager, Doc ID 03-603324, available at <http://support.avaya.com>
- [6] IP Peer Networking Installation and Commissioning, Release 7.5, Document Number NN43001-313, available at <http://support.avaya.com>
- [7] Unified Communications Management Common Services Fundamentals, Avaya Communication Server 1000E Release 7.5, Document Number NN43001-116, available at <http://support.avaya.com>
- [8] Network Routing Service Fundamentals, Release 7.5, Document Number NN43001-130, Issue 03.02, available at <http://support.avaya.com>
- [9] Co-resident Call Server and Signaling Server Fundamentals, Avaya Communication Server 1000E Release 7.5, Document Number NN43001-509, available at <http://support.avaya.com>
- [10] Signaling Server and IP Line Fundamentals, Avaya Communication Server 1000E Release 7.5, Document Number NN43001-125, available at <http://support.avaya.com>
- [11] E-SBC (Avaya Session Border Controller Advanced for Enterprise) Administration Guide, November 2011
- [12] RFC 3261 SIP: Session Initiation Protocol, <http://www.ietf.org/>

Appendix A

Avaya Communication Server 1000E Software

Communication Server 1000E call server patches and plug ins

17/01/12 13:16:37

TID: 46379

VERSION 4121

System type is - Communication Server 1000E/CPPM Linux
CPPM - Pentium M 1.4 GHz

IPMGs Registered: 1
IPMGs Unregistered: 0
IPMGs Configured/unregistered: 0

RELEASE 7

ISSUE 50 Q +

IDLE SET DISPLAY NORTEL

DepList 1: core Issue: 01 (created: 2012-01-10 16:47:54 (est))

MDP>LAST SUCCESSFUL MDP REFRESH :2012-01-17 13:01:58 (Local Time)

MDP>USING DEPLIST ZIP FILE DOWNLOADED :2012-01-11 11:07:13 (est)

SYSTEM HAS NO USER SELECTED PEPS IN-SERVICE

LOADWARE VERSION: PSWV 100+

INSTALLED LOADWARE PEPS : 1

PAT#	CR #	PATCH REF #	NAME	DATE	FILENAME
00	wi00832543	ISS1:10F1	DSP1AB04	24/05/2011	DSP1AB04.LW

ENABLED PLUGINS : 1

PLUGIN	STATUS	PRS/CR NUM	MPLR NUM	DESCRIPTION
501	ENABLED	Q02138637	MPLR30070	Enables blind transfer to a SIP endpoint even if SIP UPDATE is not supported by the far end

Communication Server 1000E call server deplists

VERSION 4121

RELEASE 7

ISSUE 50 Q +

DepList 1: core Issue: 01 (created: 2012-01-10 16:47:54 (est))

IN-SERVICE PEPS

PAT#	CR #	PATCH REF #	NAME	DATE	FILENAME	SPECINS
000	wi00832106	ISS1:10F1	p30550_1	17/01/2012	p30550_1.cpl	NO
001	wi00835294	ISS1:10F1	p30565_1	17/01/2012	p30565_1.cpl	NO
002	wi00897176	ISS1:10F1	p30418_1	17/01/2012	p30418_1.cpl	NO
003	wi00925218	ISS1:10F1	p30675_1	17/01/2012	p30675_1.cpl	NO
004	wi00839821	ISS1:10F1	p30619_1	17/01/2012	p30619_1.cpl	NO
005	wi00957141	ISS1:10F1	p31579_1	17/01/2012	p31579_1.cpl	NO
006	wi00842409	ISS1:10F1	p30621_1	17/01/2012	p30621_1.cpl	NO
007	wi00838073	ISS1:10F1	p30588_1	17/01/2012	p30588_1.cpl	NO
008	wi00937114	ISS1:10F1	p31310_1	17/01/2012	p31310_1.cpl	NO
009	wi00841980	ISS1:10F1	p30618_1	17/01/2012	p30618_1.cpl	NO
010	wi00836981	ISS1:10F1	p30613_1	17/01/2012	p30613_1.cpl	NO
011	wi00839255	ISS1:10F1	p30591_1	17/01/2012	p30591_1.cpl	NO
012	wi00843623	ISS1:10F1	p30731_1	17/01/2012	p30731_1.cpl	YES
013	WI00843571	ISS1:10F1	p30627_1	17/01/2012	p30627_1.cpl	NO
014	wi00871739	ISS1:10F1	p30856_1	17/01/2012	p30856_1.cpl	NO

HD; Reviewed:
SPOC 3/27/2012

Solution & Interoperability Test Lab Application Notes
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KPNCS1K75

015	wi00852365	ISS1:10F1	p30707_1	17/01/2012	p30707_1.cpl	NO
016	wi00852389	ISS1:10F1	p30641_1	17/01/2012	p30641_1.cpl	NO
017	wi00839134	ISS1:10F1	p30698_1	17/01/2012	p30698_1.cpl	YES
018	wi00856702	ISS1:10F1	p30573_1	17/01/2012	p30573_1.cpl	NO
019	wi00857566	ISS1:10F1	p30766_1	17/01/2012	p30766_1.cpl	NO
020	wi00850521	ISS1:10F1	p30709_1	17/01/2012	p30709_1.cpl	YES
021	wi00903381	ISS1:10F1	p30421_1	17/01/2012	p30421_1.cpl	NO
022	wi00863876	ISS1:10F1	p30787_1	17/01/2012	p30787_1.cpl	NO
023	WI00853473	ISS1:10F1	p30625_1	17/01/2012	p30625_1.cpl	NO
024	wi00854130	ISS1:10F1	p30443_1	17/01/2012	p30443_1.cpl	NO
025	wi00875425	ISS1:10F1	p30943_1	17/01/2012	p30943_1.cpl	NO
026	wi00927678	ISS1:10F1	p31399_1	17/01/2012	p31399_1.cpl	NO
027	wi00875701	ISS1:10F1	p30942_1	17/01/2012	p30942_1.cpl	NO
028	wi00853031	ISS1:10F1	p30531_1	17/01/2012	p30531_1.cpl	NO
029	wi00877367	ISS1:10F1	p30534_1	17/01/2012	p30534_1.cpl	NO
030	wi00871969	ISS1:10F1	p30768_1	17/01/2012	p30768_1.cpl	NO
031	wi00886321	ISS1:10F1	p31009_1	17/01/2012	p31009_1.cpl	NO
032	WI00836334	ISS1:10F1	p30481_1	17/01/2012	p30481_1.cpl	NO
033	wi00836182	ISS1:10F1	p30450_1	17/01/2012	p30450_1.cpl	NO
034	wi00858335	ISS1:10F1	p30819_1	17/01/2012	p30819_1.cpl	NO
035	wi00860279	ISS1:10F1	p30789_1	17/01/2012	p30789_1.cpl	NO
036	wi00953900	ISS1:10F1	p31494_1	17/01/2012	p31494_1.cpl	NO
037	wi00854415	ISS1:10F1	p30593_1	17/01/2012	p30593_1.cpl	NO
038	WI00836292	ISS1:10F1	p30554_1	17/01/2012	p30554_1.cpl	NO
039	WI00839794	ISS1:10F1	p28647_1	17/01/2012	p28647_1.cpl	NO
040	wi00824257	ISS1:10F1	p30447_1	17/01/2012	p30447_1.cpl	NO
041	wi00827950	ISS2:10F1	p30471_2	17/01/2012	p30471_2.cpl	NO
042	wi00949273	ISS1:10F1	p31411_1	17/01/2012	p31411_1.cpl	NO
043	WI00854150	ISS1:10F1	p30468_1	17/01/2012	p30468_1.cpl	NO
044	wi00873382	ISS1:10F1	p30832_1	17/01/2012	p30832_1.cpl	NO
045	wi00853178	ISS1:10F1	p30719_1	17/01/2012	p30719_1.cpl	NO
046	wi00869695	ISS1:10F1	p30654_1	17/01/2012	p30654_1.cpl	NO
047	wi00834382	ISS1:10F1	p30548_1	17/01/2012	p30548_1.cpl	NO
048	wi00951427	ISS1:10F1	p31478_1	17/01/2012	p31478_1.cpl	NO
049	wi00946558	ISS1:10F1	p31358_1	17/01/2012	p31358_1.cpl	NO
050	wi00903369	ISS1:10F1	p31165_1	17/01/2012	p31165_1.cpl	NO
051	wi00927321	ISS1:10F1	p31286_1	17/01/2012	p31286_1.cpl	YES
052	wi00923899	ISS1:10F1	p31270_1	17/01/2012	p31270_1.cpl	NO
053	wi00949627	ISS1:10F1	p31462_1	17/01/2012	p31462_1.cpl	NO
054	wi00962557	ISS1:10F1	p31581_1	17/01/2012	p31581_1.cpl	NO
055	wi00865477	ISS1:10F1	p30894_1	17/01/2012	p30894_1.cpl	YES
056	wi00962211	ISS1:10F1	p31580_1	17/01/2012	p31580_1.cpl	NO
057	wi00883604	ISS1:10F1	p30973_1	17/01/2012	p30973_1.cpl	NO
058	wi00898327	ISS1:10F1	p31136_1	17/01/2012	p31136_1.cpl	NO
059	wi00856410	ISS1:10F1	p30749_1	17/01/2012	p30749_1.cpl	NO
060	wi00932948	ISS1:10F1	p31077_1	17/01/2012	p31077_1.cpl	NO
061	wi00905600	ISS1:10F1	p31201_1	17/01/2012	p31201_1.cpl	NO
062	wi00865477	ISS1:10F1	p30897_1	17/01/2012	p30897_1.cpl	YES
063	wi00879526	ISS1:10F1	p31007_1	17/01/2012	p31007_1.cpl	NO
064	wi00962955	ISS1:10F1	p31585_1	17/01/2012	p31585_1.cpl	NO
065	wi00865477	ISS1:10F1	p30890_1	17/01/2012	p30890_1.cpl	YES
066	wi00907707	ISS1:10F1	p31228_1	17/01/2012	p31228_1.cpl	NO
067	wi00857362	ISS1:10F1	p30782_1	17/01/2012	p30782_1.cpl	NO
068	wi00877442	ISS1:10F1	p30844_1	17/01/2012	p30844_1.cpl	NO
069	wi00894443	ISS1:10F1	p31093_1	17/01/2012	p31093_1.cpl	NO
070	wi00942734	ISS1:10F1	p31409_1	17/01/2012	p31409_1.cpl	NO
071	wi00841273	ISS1:10F1	p30713_1	17/01/2012	p30713_1.cpl	NO
072	WI00900213	ISS1:10F1	p30656_1	17/01/2012	p30656_1.cpl	NO
073	wi00948931	ISS1:10F1	p31407_1	17/01/2012	p31407_1.cpl	NO
074	wi00891626	ISS1:10F1	p31051_1	17/01/2012	p31051_1.cpl	YES
075	wi00929140	ISS1:10F1	p31284_1	17/01/2012	p31284_1.cpl	NO
076	wi00925208	ISS1:10F1	p30986_1	17/01/2012	p30986_1.cpl	NO
077	wi00958776	ISS1:10F1	p31542_1	17/01/2012	p31542_1.cpl	YES
078	wi00880836	ISS1:10F1	p30976_1	17/01/2012	p30976_1.cpl	NO
079	WI00927300	ISS1:10F1	p30999_1	17/01/2012	p30999_1.cpl	NO
080	wi00943172	ISS1:10F1	p31402_1	17/01/2012	p31402_1.cpl	NO
081	wi00826075	ISS1:10F1	p30452_1	17/01/2012	p30452_1.cpl	NO
082	wi00881777	ISS1:10F1	p25747_1	17/01/2012	p25747_1.cpl	NO
083	wi00948274	ISS1:10F1	p31365_1	17/01/2012	p31365_1.cpl	NO
084	wi00908933	ISS1:10F1	p31239_1	17/01/2012	p31239_1.cpl	NO

085	wi00865477	ISS1:10F1	p30892_1	17/01/2012	p30892_1.cpl	YES
086	wi00867905	ISS1:10F1	p30640_1	17/01/2012	p30640_1.cpl	NO
087	wi00961267	ISS1:10F1	p30288_1	17/01/2012	p30288_1.cpl	NO
088	wi00930864	ISS1:10F1	p31325_1	17/01/2012	p31325_1.cpl	NO
089	wi00898200	ISS1:10F1	p31274_1	17/01/2012	p31274_1.cpl	NO
090	wi00946876	ISS1:10F1	p31430_1	17/01/2012	p31430_1.cpl	NO
091	wi00936714	ISS1:10F1	p31379_1	17/01/2012	p31379_1.cpl	NO
092	wi00951925	ISS1:10F1	p31486_1	17/01/2012	p31486_1.cpl	NO
093	wi00921340	ISS1:10F1	p31266_1	17/01/2012	p31266_1.cpl	NO
094	wi00956885	ISS1:10F1	p31489_1	20/02/2012	p31489_1.cpl	NO
095	wi00959854	ISS1:10F1	p31556_1	17/01/2012	p31556_1.cpl	NO
096	wi00946282	ISS1:10F1	p31204_1	17/01/2012	p31204_1.cpl	NO
097	wi00840590	ISS1:10F1	p30767_1	17/01/2012	p30767_1.cpl	NO
098	wi00897082	ISS1:10F1	p31124_1	17/01/2012	p31124_1.cpl	NO
099	wi00896394	ISS1:10F1	p30807_1	17/01/2012	p30807_1.cpl	NO
100	wi00909476	ISS1:10F1	p31340_1	17/01/2012	p31340_1.cpl	NO
101	wi00887744	ISS2:10F1	p31026_2	17/01/2012	p31026_2.cpl	NO
102	wi00865477	ISS1:10F1	p30896_1	17/01/2012	p30896_1.cpl	YES
103	wi00957252	ISS1:10F1	p31530_1	17/01/2012	p31530_1.cpl	NO
104	wi00859123	ISS1:10F1	p30648_1	17/01/2012	p30648_1.cpl	NO
105	wi00895181	ISS1:10F1	p31106_1	17/01/2012	p31106_1.cpl	NO
106	wi00938555	ISS1:10F1	p30881_1	17/01/2012	p30881_1.cpl	YES
107	wi00941500	ISS1:10F1	p31394_1	17/01/2012	p31394_1.cpl	NO
108	wi00931028	ISS1:10F1	p31354_1	17/01/2012	p31354_1.cpl	YES
109	wi00907697	ISS1:10F1	p31227_1	17/01/2012	p31227_1.cpl	NO
110	wi00905660	ISS1:10F1	p27968_1	17/01/2012	p27968_1.cpl	NO
111	wi00900096	ISS1:10F1	p31006_1	17/01/2012	p31006_1.cpl	NO
112	wi00900766	ISS1:10F1	p31159_1	17/01/2012	p31159_1.cpl	NO
113	wi00865477	ISS1:10F1	p30898_1	17/01/2012	p30898_1.cpl	YES
114	wi00906022	ISS1:10F1	p31202_1	17/01/2012	p31202_1.cpl	NO
115	wi00856991	ISS1:10F1	p17588_1	17/01/2012	p17588_1.cpl	NO
116	wi00880386	ISS1:10F1	p30977_1	17/01/2012	p30977_1.cpl	NO
117	wi00688381	ISS1:10F1	p30104_1	17/01/2012	p30104_1.cpl	NO
118	wi00908598	ISS1:10F1	p31235_1	17/01/2012	p31235_1.cpl	NO
119	wi00890475	p30952	p31048_1	17/01/2012	p31048_1.cpl	NO
120	wi00868729	ISS1:10F1	p31163_1	17/01/2012	p31163_1.cpl	NO
121	wi00952381	ISS1:10F1	p31410_1	17/01/2012	p31410_1.cpl	NO
122	wi00859499	ISS1:10F1	p30694_1	17/01/2012	p30694_1.cpl	NO
123	wi00895090	ISS1:10F1	p31105_1	17/01/2012	p31105_1.cpl	NO
124	wi00869243	ISS1:10F1	p30848_1	17/01/2012	p30848_1.cpl	NO
125	wi00937119	ISS1:10F1	p28005_1	17/01/2012	p28005_1.cpl	NO
126	wi00899584	ISS1:10F1	p30809_1	17/01/2012	p30809_1.cpl	NO
127	wi00932204	ISS2:10F1	p31305_2	17/01/2012	p31305_2.cpl	NO
128	wi00951837	ISS1:10F1	p31485_1	17/01/2012	p31485_1.cpl	NO
129	wi00865477	ISS1:10F1	p30893_1	17/01/2012	p30893_1.cpl	YES
130	wi00946477	ISS1:10F1	p31426_1	17/01/2012	p31426_1.cpl	NO
131	wi00946681	ISS1:10F1	p31428_1	17/01/2012	p31428_1.cpl	NO
132	wi00855423	ISS1:10F1	p31328_1	17/01/2012	p31328_1.cpl	YES
133	wi00900668	ISS1:10F1	p30456_1	17/01/2012	p30456_1.cpl	NO
134	wi00862574	iss1:10f1	p30870_1	17/01/2012	p30870_1.cpl	NO
135	wi00894243	ISS1:10F1	p31087_1	17/01/2012	p31087_1.cpl	NO
136	wi00959820	ISS1:10F1	p31562_1	17/01/2012	p31562_1.cpl	NO
137	WI00889786	ISS1:10F1	p30750_1	17/01/2012	p30750_1.cpl	NO
138	wi00943748	ISS1:10F1	p31516_1	17/01/2012	p31516_1.cpl	NO
139	wi00950592	ISS1:10F1	p31499_1	17/01/2012	p31499_1.cpl	NO
140	WI00928455	ISS1:10F1	p31297_1	17/01/2012	p31297_1.cpl	NO
141	wi00896680	ISS1:10F1	p30357_1	17/01/2012	p30357_1.cpl	NO
142	wi00925141	ISS1:10F1	p30802_1	17/01/2012	p30802_1.cpl	NO
143	wi00865477	ISS1:10F1	p30891_1	17/01/2012	p30891_1.cpl	YES
144	wi00884699	ISS1:10F1	p31000_1	17/01/2012	p31000_1.cpl	YES
145	wi00932958	ISS1:10F1	p31115_1	17/01/2012	p31115_1.cpl	NO
146	wi00921295	ISS1:10F1	p31265_1	17/01/2012	p31265_1.cpl	NO
147	wi00906163	ISS1:10F1	p31205_1	17/01/2012	p31205_1.cpl	NO
148	wi00903437	ISS1:10F1	p31167_1	17/01/2012	p31167_1.cpl	NO
149	wi00960133	ISS2:10F1	p31557_2	17/01/2012	p31557_2.cpl	NO
150	wi00879322	ISS1:10F1	p30954_1	17/01/2012	p30954_1.cpl	NO
151	wi00896420	ISS1:10F1	p30867_1	17/01/2012	p30867_1.cpl	NO
152	wi00903085	ISS1:10F1	p31164_1	17/01/2012	p31164_1.cpl	NO
153	wi00877592	ISS1:10F1	p30880_1	17/01/2012	p30880_1.cpl	NO
154	wi00958682	ISS1:10F1	p31540_1	17/01/2012	p31540_1.cpl	NO

155	wi00882293	ISS1:10F1	p31010_1	17/01/2012	p31010_1.cpl	NO
156	wi00905297	ISS1:10F1	p31195_1	17/01/2012	p31195_1.cpl	NO
157	wi00833910	ISS2:10F1	p30492_2	17/01/2012	p30492_2.cpl	NO
158	wi00865477	ISS1:10F1	p30895_1	17/01/2012	p30895_1.cpl	YES
159	wi00897096	ISS1:10F1	p30676_1	17/01/2012	p30676_1.cpl	NO
160	wi00945533	ISS1:10F1	p31421_1	17/01/2012	p31421_1.cpl	YES

MDP>LAST SUCCESSFUL MDP REFRESH :2012-01-17 13:01:58(Local Time)

MDP>USING DEPLIST ZIP FILE DOWNLOADED :2012-01-11 11:07:13(est)

Communication Server 1000E signaling server service updates

Product Release: 7.50.17.00

In system patches: 1

PATCH#	NAME	IN SERVICE	DATE	SPECINS	TYPE	RPM
0	p30253 1	Yes	17/01/12	NO	FRU	cs1000-pi-control-1.00.00.00-00.noarch

In System service updates: 19

PATCH#	IN SERVICE	DATE	SPECINS	REMOVABLE	NAME
4	Yes	18/04/11	NO	YES	cs1000-dbcom-7.50.17-02.i386.000
9	Yes	17/01/12	NO	YES	cs1000-patchWeb-7.50.17.16-2.i386.000
10	Yes	17/01/12	NO	yes	cs1000-sps-7.50.17.16-01.i386.000
11	Yes	17/01/12	NO	YES	cs1000-baseWeb-7.50.17.16-1.i386.001
12	Yes	17/01/12	NO	YES	cs1000-shared-pbx-7.50.17.16-1.i386.000
13	Yes	17/01/12	NO	YES	cs1000-kcv-7.50.17.16-1.i386.000
14	Yes	17/01/12	NO	YES	cs1000-dmWeb-7.50.17.16-1.i386.000
15	Yes	17/01/12	NO	YES	cs1000-ipsec-7.50.17.16-1.i386.000
16	Yes	17/01/12	NO	YES	cs1000-ftrpkg-7.50.17.16-5.i386.000
17	Yes	17/01/12	NO	YES	cs1000-tps-7.50.17.16-8.i386.000
18	Yes	17/01/12	NO	YES	cs1000-csmWeb-7.50.17.16-2.i386.000
19	Yes	17/01/12	NO	YES	ipsec-tools-0.6.5-14.el5.3_avaya_1.i386.000
20	Yes	17/01/12	NO	YES	spiritAgent-6.1-1.0.0.108.208.i386.000
21	Yes	17/01/12	NO	YES	cs1000-EmCentralLogic-7.50.17.16-1.i386.000
22	Yes	17/01/12	NO	YES	cs1000-Jboss-Quantum-7.50.17.16-8.i386.000
23	Yes	17/01/12	NO	YES	cs1000-bcc-7.50.17.16-31.i386.000
24	Yes	17/01/12	NO	YES	cs1000-emWeb_6-0-7.50.17.16-9.i386.000
25	Yes	17/01/12	NO	YES	cs1000-linuxbase-7.50.17.16-5.i386.000
26	Yes	17/01/12	NO	YES	cs1000-vtrk-7.50.17.16-26.i386.000

Communication Server 1000E system software

Product Release: 7.50.17.00

Base Applications

base	7.50.17	[patched]
NTAFS	7.50.17	
sm	7.50.17	
cs1000-Auth	7.50.17	
Jboss-Quantum	7.50.17	[patched]
lhmonitor	7.50.17	
baseAppUtils	7.50.17	[patched]
dfoTools	7.50.17	
nnnm	7.50.17	
cppmUtil	7.50.17	
oam-logging	7.50.17	[patched]
dmWeb	n/a	[patched]
baseWeb	n/a	[patched]
ipsec	n/a	[patched]
Snmp-Daemon-TrapLib	7.50.17	
ISECSH	7.50.17	
patchWeb	n/a	[patched]
EmCentralLogic	n/a	[patched]

Application configuration: CS+SS+EM

Packages:

CS+SS+EM

Configuration version:	7.50.17-00
cs	7.50.17
dbcom	7.50.17 [patched]
cslogin	7.50.17
sigServerShare	7.50.17 [patched]

csv	7.50.17	
tps	7.50.17.16	[patched]
vtrk	7.50.17.16	[patched]
pd	7.50.17	
sps	7.50.17.16	[patched]
ncs	7.50.17	
gk	7.50.17	
EmConfig	7.50.17	
emWeb_6-0	7.50.17	[patched]
emWebLocal_6-0	7.50.17	
csmWeb	7.50.17	[patched]
bcc	7.50.17	[patched]
ftrpkg	7.50.17	[patched]
cs1000WebService_6-0	7.50.17	
managedElementWebService	7.50.17	
mscAnnc	7.50.17	
mscAttn	7.50.17	
mscConf	7.50.17	
mscMusc	7.50.17	
mscTone	7.50.17	

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