

Avaya Solution & Interoperability Test Lab

Configuring Avaya Communication Server 1000E, Avaya Aura® Session Manager and Avaya Session Border Controller for Enterprise to support Vodafone Netherlands Office Voice and Vodafone Netherlands OneVoice Corporate SIP Trunk Services - Issue 1.0

#### Abstract

These Application Notes describe the steps to configure Session Initiation Protocol (SIP) trunking between Vodafone Netherlands Office Voice, Vodafone Netherlands OneVoice Corporate SIP Trunk Services and an Avaya SIP enabled enterprise solution. The Vodafone Netherlands Office Voice trunk is used for calls to and from fixed line PSTN locations. The Vodafone Netherlands OneVoice Corporate trunk is used for calls to and from mobile telephone numbers as well as providing the ability for enterprise users to reach Vodafone mobile telephone numbers assigned to their account by dialing a four digit short code. The Avaya solution consists of Avaya Session Border Controller for Enterprise, Avaya Aura® Session Manager and Avaya Communication Server 1000E. Vodafone Netherlands 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 to configure Session Initiation Protocol (SIP) trunking between Vodafone Netherlands and an Avaya SIP enabled enterprise solution using Vodafone Netherlands Office Voice and Vodafone Netherlands OneVoice Corporate SIP Trunk Services. These services are offerred in conjunction with each other as a total solution, for clarity theses services will be collectivly refrered to in this document as Vodafone Netherlands SIP Trunk Solution. The Avaya solution consists of Avaya Session Border Controller for Enterprise (Avaya SBCE), Avaya Aura® Session Manager and Avaya Communication Server 1000E (CS1000E). Customers using this Avaya SIP enabled Enterprise solution with Vodafone Netherlands SIP Trunk Solution are able to place and receive calls via standards-based SIP trunks as an alternative to legacy analogue or digital trunks.

The Vodafone Netherlands SIP Trunk Solution referenced within these Application Notes is designed for business customers. The solution provides two connections to the enterprise, Vodafone Netherlands Office Voice is a fixed line SIP trunk and Vodafone Netherlands OneVoice Corporate is a mobile SIP trunk. The Vodafone Netherlands Office Voice trunk is used for calls to and from fixed line PSTN locations, Vodafone Netherlands OneVoice Corporate trunk is used for calls to and from mobile telephone numbers as well as providing the ability for enterprise users to reach Vodafone mobile telephone numbers assigned to their account by dialing a four digit short code.

## 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 Avaya SBCE. The enterprise site was configured to use the SIP Trunk Solution provided by Vodafone Netherlands.

DevConnect Compliance Testing is conducted jointly by Avaya and DevConnect members. The jointly-defined test plan focuses on exercising APIs and/or standards-based interfaces pertinent to the interoperability of the tested products and their functionalities. DevConnect Compliance Testing is not intended to substitute full product performance or feature testing performed by DevConnect members, nor is it to be construed as an endorsement by Avaya of the suitability or completeness of a DevConnect member's solution.

### 2.1. Interoperability Compliance Testing

The interoperability test included the following:

- Incoming calls to the enterprise site from the PSTN were routed to the DID numbers and Fixed short dial numbers assigned by Vodafone NL. All inbound PSTN calls were routed to the enterprise across the SIP trunk from the Service Provider.
- Outgoing calls from the enterprise site were completed via Vodafone NL to PSTN and Vodafone Mobile destinations using short dial and full number. Outgoing calls from the enterprise to the PSTN were made from SIP, Unistim and Digital telephones.
- Inbound and outbound PSTN calls to/from the Avaya one-X® Communicator soft phone.
- G.729 annex b (silence suppression) is not supported by Vodafone NL SIP IP Trunk Service and thus was not tested.

HD; Reviewed:	Solution & Interoperability Test Lab Application Notes	2 of 60
SPOC 1/28/2013	©2013 Avaya Inc. All Rights Reserved.	VFNLCS1K75ASBCE

- Calls using G.729, G.711A and G.711Mu codec's.
- Fax calls to/from a group 3 fax machine to a PSTN connected fax machine using T.38 mode.
- DTMF transmission using RFC 2833 with successful menu 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.
- Transmission and response of SIP OPTIONS messages sent by Vodafone Netherlands requiring Avaya response.

### 2.2. Test Results

Interoperability testing of the sample configuration was completed with successful results for the Vodafone Netherlands SIP Trunk Service with the following observations:

- No inbound toll free numbers were tested, however routing of inbound DID numbers and the relevant number translation was successfully tested
- Mobile-X handoff works from twinned desk phone with patch p30260\_1.ntl loaded on the CS1000E. An INVITE sent to PSTN mobile contains no SDP information without the patch loaded, Vodafone does not support an INVITE with no SDP.

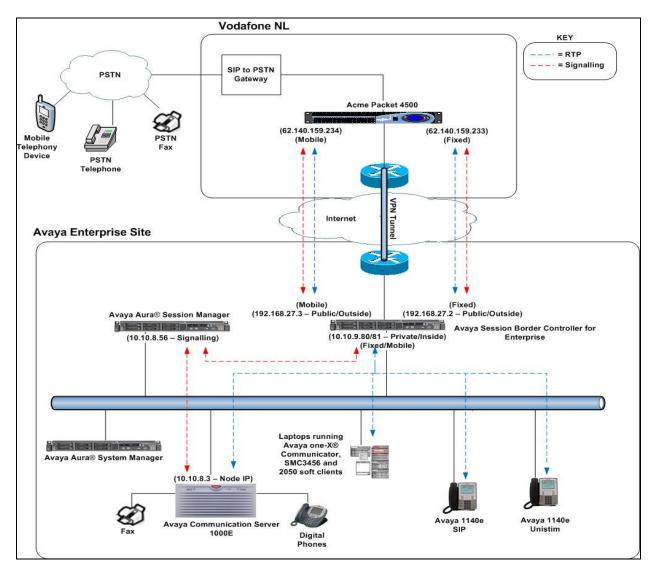
### 2.3. Support

For technical support on the Avaya products described in these Application Notes visit <u>http://support.avaya.com</u>.

For technical support on Vodafone Netherlands SIP trunk services, contact Vodafone Netherlands support at <u>http://www.vodafone.nl/zakelijk/totaal\_oplossingen/vast\_en\_mobiel/</u>.

# 3. Reference Configuration

**Figure 1** illustrates the test configuration. The test configuration shows an enterprise site connected to the Vodafone Netherlands SIP Trunk Solution. The Vodafone Netherlands Office Voice connection is represented in **Figure 1** as (Fixed) and the Vodafone Netherlands OneVoice Corporate connection is represented in **Figure 1** as (Mobile). Located at the enterprise site are Session Manager, Avaya SBCE and a Communication Server 1000E. 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, 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: Avaya SIP Telephony Solution using Vodafone Netherlands Office Voice and Vodafone Netherlands OneVoice Corporate services

HD; Reviewed:
SPOC 1/28/2013

Solution & Interoperability Test Lab Application Notes ©2013 Avaya Inc. All Rights Reserved.

# 4. Equipment and Software Validated

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

Equipment/Software	Release/Version
Avaya	
Avaya S8800 server running Avaya Aura®	6.1.6.0.616008
Session Manager	
Avaya S8800 server running Avaya Aura®	6.1.10.1.1806
System Manager	
Avaya Communication Server 1000E	V 7.50.17
running on CP+PM server as co-resident	Deplist: CPL_X21_07_50Q
configuration	All CS1000E patches listed in Appendix A
Avera Session Douden Controllen for	P4.0.5 Q10
Avaya Session Border Controller for	R4.0.5.Q19
Enterprise running on Dell R210 Server Avaya Communication Server 1000E	CSP Version: MGCC CD02
Media Gateway	MSP Version: MGCM AB01
Media Galeway	APP Version: MGCA BA07
	FPGA Version: MGCF AA18
	BOOT Version: MGCB BA15
	DSP1 Version: DSP1 AB04
Avaya 1140e and 1230 Unistim	FW 1140e: 0625C8G
Telephones	FW 1230e: 062AC8G
Avaya 1140e and 1230 SIP Telephones	FW: 04.03.09.00.bin
Avaya SMC 3456	Version 2.6 build 57666
Avaya one-X <sup>®</sup> Communicator	Version cs6.1.0.25
Avaya 2050 IP Soft phone	Version 4.02.0062
Avaya Analogue Telephone	N/A
Avaya M3904 Digital Telephone	N/A
Vodafone NL	
Vodafone Office Voice	1.0
Vodafone OneVoice Corporate	1.0
Cisco UBE	15.2.3
Acme Packet Net-Net 4500	SCX6.2.0 MR-6 Patch 2 (Build 876)

## 5. Configure Avaya Communication Server 1000E

This section describes the steps required to configure Communication Server 1000E for SIP Trunking and also the necessary configuration for terminals (Analogue, SIP and IP phones). SIP trunks are established between Communication Server 1000E and Session Manager. These SIP trunks carry SIP signaling associated with Vodafone Netherlands SIP Trunk Service. For incoming calls, the Session Manager receives SIP messages from the AVAYA SBCE, through which directs incoming SIP messages to Communication Server 1000E (see **Figure 1**). Once a SIP message arrives at Communication Server 1000E, further incoming call treatment, such as

HD; Reviewed:	Solution & Interoperability Test Lab Application Notes	5 of 60
SPOC 1/28/2013	©2013 Avaya Inc. All Rights Reserved.	VFNLCS1K75ASBCE

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 route selection, digit manipulation and class of service restrictions. Once Communication Server 1000E selects a SIP trunk, the SIP signaling is routed to the Session Manager. The Session Manager directs the outbound SIP messages to the SBC and on to Vodafone's network. Specific Communication Server 1000E configuration as 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** (not shown), this will take the user into the vxworks shell of the call server. Type **logi** (not shown). 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 Vodafone Germany'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.

```
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 USERS32767LEFT 32766IP USERS32767LEFT 32767IP USERS32767LEFT 32744BASIC IP USERS32767LEFT 32766
                                                      USED
                                                                 0
                                                      USED
                                                                23
                                                      USED
                                                                 1
TEMPORARY IP USERS 32767 LEFT 32767 USED
DECT VISITOR USER 10000 LEFT 10000 USED
                                                                0
                                                                0
                          32767 LEFT 32752 USED
                                                               15
ACD AGENTS
ACD AGENTS32767LEFT 32752MOBILE EXTENSIONS32767LEFT 32767TELEPHONY SERVICES32767LEFT 32767
                                                   USED
                                                                0
                                                   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 DESKTOPS32767LEFT32767SIP CTI TR8732767LEFT32767SIP ACCESS PORTS32767LEFT32752
                                                      USED
                                                                 0
                                                      USED
                                                                 0
                                                      USED
                                                               15
```

Load overlay 21, and confirm the customer is setup to use **ISDN** trunks (see below).

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

Vodafone Netherland SIP Trunk service supports G.711A/G.729A voice codec's transmissions. Using the Communication Server 1000E element manager sidebar, navigate to the **IP Network**  $\rightarrow$  **IP Telephony Nodes**  $\rightarrow$  **Node Details**  $\rightarrow$  **Voice Gateway VGW and Codecs** property page and configure the Communication Server 1000E General codec settings as in the next screenshot. The values highlighted below are system defaults but are required for correct operation.

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 (squeich DTMF from TDM to IP)				
Modem/Fax pass-through				
V.21 Fax tone detection				
R factor calculation				

Scrolling down the page, configure **G.711** and **G.729** codec settings. G.711 is enabled as default and cannot be disabled or enabled on the CS1000E. However, G.729 can be enabled or disabled, in this test G.729 was enabled and system defaults were used for payload size, jitter and delay. The relevant settings are highlighted in the following screenshot.

Node ID: 5000 - Voice Gateway (VGW) and Codecs	
General   Voice Codecs   Fax	
Codec G711: V 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 v (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: V Enabled	
Voice payload size: 30 🗸 (milliseconds per frame)	
Voice playout (jitter buffer) delay: 60 🔽 120 🔽 (milliseconds)	~
* Required Value. Note: Changes made on this page will NOT be transmitted until the Node is also saved. Save Can	cel

Finally configure **Fax** settings as highlighted in the screenshot below. System defaults were used. Please note T.38 cannot be disabled or enabled at the Node level and by default is enabled. Turning T.38 on or off is done at the endpoint level, by using different class of service as shown in **Section 5.7 Configure Analogue, Digital and IP Telephones**.

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 v (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 Save Ca	ancel

HD; Reviewed: SPOC 1/28/2013 Solution & Interoperability Test Lab Application Notes ©2013 Avaya Inc. All Rights Reserved. 8 of 60 VFNLCS1K75ASBCE

### 5.4. Virtual Trunk Gateway Configuration

Use Communication Server 1000E Element Manager to configure the system node properties. Navigate to the **System**  $\rightarrow$  **IP Networks**  $\rightarrow$  **IP Telephony Nodes**  $\rightarrow$  **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 signaling server. The Node ip is the ip address that the IP phones use to register. 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					
_		rk » IP Telephony Nodes	» Node Details TPS, PD, Gateway ( SIPGw )	)		
Γ	Node ID:	5000 * (	0-9999)			_
	Call server IP address:	*	TLAN address type	<ul> <li>IPv4 only</li> <li>IPv4 and IPv6</li> </ul>		
	Embedded LAN (ELAN)		Telephony LAN (TLAN	)		
	Gateway IP address:	192.168.0.1 *	Node IPv4 address	: 10.10.8.3	÷	
	Subnet mask:	255.255.255.0 *	Subnet mask	255.255.255.0	*	
			Node IPv6 address	-		✓
	* Required Value.					Save Cancel
1	Associated Signaling Servers & Cards					
	Select to add 💌 🗛	d Remove	Make Leader			Print   Refresh
	<u>Hostname</u> ▲	<u>Type</u>	Deployed Applications	ELAN IP	TLAN IPv	4 Role
I	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  $\rightarrow$  IP Networks  $\rightarrow$  IP Telephony Nodes  $\rightarrow$  Node Details  $\rightarrow$  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, in this case **avaya.com**. The SIP Domain Name configured in the Signaling Server properties must match the Service Domain name configured in the Session Manager, see **Section 6.2**.
- 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**.

HD; Reviewed:	Solution & Interoperability Test Lab Application Notes	9 of 60
SPOC 1/28/2013	©2013 Avaya Inc. All Rights Reserved.	VFNLCS1K75ASBCE

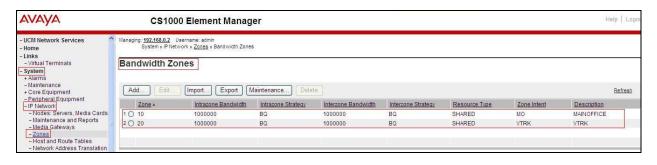
- **Proxy or Redirect Server: Primary TLAN IP** address is the SIP signaling interface ip address of the Session Manager. The **Transport protocol** used for SIP, in this case is **TCP**.
- **SIP URI Map: Public E.164 Private Unknown** is left blank. All other fields in the SIP URI Map are left with 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	General Virtual Trunk Network Health Monitor				
Vtrk gateway application	n: SIP Gateway (SIPGw) 💌	Monitor IP addresses (listed	below)		
SIP domain name	e: avaya.com *	Information will be captured below.	for the IP addresses listed		
Local SIP port	t: 5060 * (1 - 65535)	Monitor IP:	Add		
Gateway endpoint name	e: spcs1k *	Monitor addresses:			
Gateway password	l: *		Remove		
Application node ID	* (0-9999)				
Enable failsafe NRS	8: 🔲				
SIP ANAT	Г: ◉ IPv4				
Proxy Or Redirect Server:					
Proxy Server Route 1:					
F		0.8.56			
	The IP a addres	address can have either IPv4 or IPv6 forr s type"	mat based on the value of "TLAN		
	Port: 5060	(1 - 65535)			
	Transport protocol: TCP	*			
		pport registration			
Primary CDS proxy					
SIP URI Map:					
	34 domain names al: Inational	Private dor UDP:	nain names		
	er: subscriber er: PublicSpecial	CDP: Special number:	udp.cdp		
			· · · ·		
Unknow	n: PublicUnknown		PrivateUnknown		
	Unknown:				

### 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 that are not shared with other resources and best practice dictates that IP telephones and Media Gateways are all placed in a separate zone than SIP trunks. In the sample configuration SIP trunks use zone 20 and IP Telephones use zone 10, system defaults were used for each zone other than the parameter configured for **Zone Intent**. For SIP Trunks (zone 20), **VTRK** is configured for **Zone Intent**. For IP Telephones (zone 10), **MO** is configured for **Zone Intent**.

Use Element Manager to define bandwidth zones as in the following highlighted example. Use Element Manager and navigate to System  $\rightarrow$  IP Network  $\rightarrow$  Zones  $\rightarrow$  Bandwidth Zones and add new zones as required.



### 5.6. Configure SIP Trunks

Communication Server 1000E virtual trunks will be used for all inbound and outbound PSTN calls to Vodafone Netherland'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.

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			
Н323				
OVI	LR NO			
OVI	LS 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**, which is zone 20. The remaining highlighted values are important for correct SIP trunk operation.

Overlay 16		
TYPE: rdb	ACOD 1600	CPDC NO
CUST 00	TCPP NO	DLTN NO
ROUT 100	PII NO	HOLD 02 02 40
TYPE RDB	AUXP NO	SEIZ 02 02
CUST 00	TARG	SVFL 02 02
ROUT 100	CLEN 1	DRNG NO
DES VIR TRK	BILN NO	CDR NO
TKTP TIE	OABS	NATL YES
NPID TBL NUM 0	INST	SSL
ESN NO	IDC NO	CFWR NO
RPA NO	DCNO 0	IDOP NO
CNVT NO	NDNO 0	VRAT NO
SAT NO	DEXT NO	MUS YES
RCLS EXT	DEAT NO DNAM NO	MUS ILS MRT 21
VTRK YES	SIGO STD	PANS YES
-	SIGO SID STYP SDAT	RACD NO
ZONE 0020	MFC NO	MANO NO
PCID SIP	ICIS YES	FRL 0 0
CRID NO		FRL 1 0
NODE 11	OGIS YES	FRL 2 0
DTRK NO	TIMR ICF 1920	FRL 2 0 FRL 3 0
ISDN YES	OGF 1920	
MODE ISLD	EOD 13952	FRL 4 0 FRL 5 0
DCH 10	LCT 256	
IFC SL1	DSI 34944	
PNI 00001	NRD 10112	
NCNA YES	DDL 70	OHQ NO OHOT 00
NCRD YES	ODT 4096 RGV 640	CBO NO
TRO NO	RGV 640 GTO 896	AUTH NO
FALT NO		TTBL 0
CTYP UKWN		ATAN NO
INAC NO	SFB 3 PRPS 800	OHTD NO
ISAR NO	PRPS 800 NBS 2048	PLEV 2
DAPC NO	NBS 2048 NBL 4096	OPR NO
MBXR NO		ALRM NO
MBXOT NPA		
MBXT 0	TFD 0	
PTYP ATT	VSS 0 VGD 6	PECL NO DCTI 0
CNDP UKWN		
AUTO NO	EESD 1024	TIDY 1600 100
DNIS NO	SST 5 0	ATRR NO
DCDR NO	DTD NO	TRRL NO
ICOG IAO	SCDT NO	SGRP 0
SRCH LIN	2 DT NO	ARDN NO
TRMB YES	NEDC ORG	CTBL 0
STEP	FEDC ORG	AACR NO

Next, configure virtual trunk members using the Communication Server 1000E system terminal and **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.

```
Overlay 14
TN 160 0 0 0
DATE
PAGE
DES VIR TRK
TN 160 0 00 00 VIRTUAL
TYPE IPTI
CDEN 8D
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 Digit Manipulation Index (DMI) in overlay 87. Load **Overlay 87** at the system terminal and type **new**, at the **FEAT** prompt type **dgt** and at the **DMI** prompt set this to a unique **DMI** value. **DMI 1** is used for all traffic outgoing to the PSTN. No digits were deleted as the **DEL** prompt is set to **0**. Call type (**CTYP**) set to **NPA**.

Over	lay 87
REQ	new
FEAT	dgt
DMI	1
DEL	0
ISPN	NO
CTYP	NPA

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. This RLB was defined for international traffic and uses the **DMI 1** as previously entered in overlay 87.

Overlay 86	FCI 0
new	FSNI 0
CUST 0	BNE NO
FEAT rlb	DORG NO
RLI 66	SBOC NRR
ELC NO	PROU 1
ENTR 0	IDBB DBD
LTER NO	IOHQ NO
ROUT 100	OHQ NO
TOD 0 ON 1 ON 2 ON 3 ON	CBQ NO
4 ON 5 ON 6 ON 7 ON	
VNS NO	ISET 0
SCNV NO	NALT 5
CNV NO	MFRL 0
EXP NO	OVLL 0
FRL 0	
DMI 1	
CTBL 0	
ISDM 0	

Next, configure Trunk Steering Codes(s) (TSC) which users will dial to reach PSTN numbers. Use the Communication Server 1000E system terminal and overlay 87. The following are some example TSC 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.

TSC	00	TSC	06
FLEN	14	FLEN	10
ITOH	NO	ITOH	NO
RLI	66	RLI	66

### 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 five 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 **VIRTUALSETS**, which is zone 10.

```
Overlay 20 IP Telephone configuration
DES 1140
TN 096 0 01 16 VIRTUAL
TYPE 1140
CDEN 8D
CTYP XDLC
CUST 0
NUTD
NHTN
CFG ZONE 00010
CUR ZONE 00010
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 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 RCBD
    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 CCBD RTDD RBDD RBHD PGND OCBD FLXD FTTC DNDY DNO3 MCBN
     FDSD NOVD VOLA VOUD CDMR PRED RECA MCDD T87D SBMD KEM3 MSNV FRA PKCH MUTA MWTD
  -continued on next page----
```

```
---continued from previous page----
DVLD CROD CROD
CPND_LANG ENG
RCO 0
hunt 0
LHK O
PLEV 02
PUID
DANI NO
AST 00
IAPG 1
AACS NO
ITNA NO
DGRP
MLWU LANG 0
MLNG ENG
DNDR 0
KEY 00 MCR 9074 0
                       MARP
        CPND
          CPND LANG ROMAN
            NAME IP1140
            XPLN 10
           DISPLAY_FMT FIRST, LAST
     01 MCR 9074 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 configured using the **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.

```
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 RCBD
    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 HBTD 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
---continued on next page----
```

```
---continued from previous page----
MLNG ENG
DNDR 0
KEY 00 MCR 9072 0
                     MARP
       CPND
         CPND LANG ROMAN
           NAME Digital Set
           XPLN 10
          DISPLAY_FMT FIRST,LAST
     01 MCR 9072 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 **Overlay 20**, the following example shows an Analogue 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. In the class of service (**CLS**) field **DTN** is required if the telephone uses DTMF dialing. Values **FAXA** and **MPTD** configure the port for T.38 Fax transmissions.

_	
	lay 20 - Analogue Telephone Configuration
DES	500
TN	100 0 00 03
TYPE	
CDEN	
CUST	U
MRT	
ERL (	0000
WRLS	
DN	9071
AST	
IAPG	
HUNT	
TGAR	0
	NO
NCOS	0
SGRP	0
RNPG	0
XLST	
SCI	0
SCPW	
SFLT	NO
CAC_N	4FC 0
CLS	UNR <b>DTN</b> 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 NRCD NROD SPKD CRD PRSD MCRD
	EXRO SHL SMSD ABDD CFHD DNDY DNO3
	CWND USMD USRD CCBD BNRD OCBD 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	, I			
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**  $\rightarrow$  **IP Telephony Nodes**  $\rightarrow$  **Node Details**  $\rightarrow$  **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 7. 1**.

- **SIP line Gateway Application**: Enable the SIP line service on the Node, check the box to enable.
- **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.

Αναγα	CS1000 Element Manager	
- UCM Network Services     - Home     - Links     - Virtual Terminals     - System     + Alarms	Managing: 192.168.0.2 Username: admin System » IP Network » <u>IP Telephony Nodes</u> » <u>Node Details</u> » SIP Line Configuration Node ID: 5000 - SIP Line Configuration Details <u>General</u>   <u>SIP Line Gateway Settings</u>   <u>SIP Line Gateway Service</u>	_
- Maintenance + Core Equipment	SIP Line Gateway Application: I Enable gateway service on this node	^
- Peripheral Equipment     - IP Network	General Virtual Trunk Network Health Monitor	
<ul> <li><u>Nodes: Servers, Media Cards</u></li> <li><u>Maintenance and Reports</u></li> <li><u>Media Gateways</u></li> </ul>	SIP domain name: avaya.com   Monitor IP addresses (listed below)	
- Zones - Host and Route Tables	SLG endpoint name: spcs1k Information will be captured for the IP addresses listed below.	
<ul> <li>Network Address Translation</li> <li>QoS Thresholds</li> <li>Personal Directories</li> </ul>	SLG Group ID: Add	
- Personal Directories - Unicode Name Directory + Interfaces	SLG Local Sip port: 5070 (1 - 65535) Monitor addresses:	
- Engineered Values + Emergency Services	SLG Local TIs port: 5071 (1 - 65535)	
+ Software - Customers	SIP Line Gateway Settings	
- Routes and Trunks - Routes and Trunks	Security policy: Best Effort	
- D-Channels - Digital Trunk Interface	Options: Client authentication	~
- Dialing and Numbering Plans - Electronic Switched Network - Flexible Code Restriction	* Required Value. Note: Changes made on this page will NOT be Cance Cance	כ

### 5.9. Configure SIP Line Telephones

When SIP Line service configuration is completed, use the Communication Server 1000E system terminal and 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 **MAINOFFICE** in **Section 5.5** A unique telephone number is entered for value **KEY 00**. The value for **KEY 01** is comprised of the **UAPR** value (set to 78 previously in this section) and the telephone number used in **KEY 00**.

```
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 9079
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 RCBD
    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 HBTD 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 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 9079** 0 MARP CPND CPND LANG ROMAN NAME Sigma 1140 XPLN 11 DISPLAY FMT FIRST, LAST\* 01 HOT U 789079 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**  $\rightarrow$  **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. 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.

avaya	CS1000 Element Manager
- UCM Network Services - Home	Managing: <u>10.80.51.60</u> Username: admin Tools » Backup and Restore » <u>Call Server Backup and Restore</u> » Call Server Backup
- Links - Virtual Terminals - System	Call Server Backup
+ Alarms - Maintenance + Core Equipment - Peripheral Equipment + IP Network + Interfaces - Engineered Values + Emergency Services	Action Backup
+ Software - Customers	
• Routes and Trunks – Routes and Trunks – D-Channels – Digital Trunk Interface	
Dialing and Numbering Plans - Electronic Switched Network - Flexible Code Restriction - Incoming Digit Translation	
Phones - Templates - Reports - Views	
– Lists – Properties – Migration	
- Tools - Backup and Restore - <u>Call Server</u> - Personal Directories	

Backing up reten.bkp to "Narioptinortei/cs/ts/ct2/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
- 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.

Αναγα	Avaya Aura™	System Manager 6.1	Help   About   Change Password   Log off ad		
to users Subscribers Manage users a associated with LDAP/file import Synchronize an- Synchronize us directory, import UCM Roles Manage UCM Ro users User Managemut	roles and assign roles of Shared resources of Shared resources of Shared resources of Shared resources t users from file oles, assign roles to ent shared user resources	Elements Application Management Manage applications and application certificates Communication Manager objects Conferencing Conferencing Inventory Manage, discover, and navigate to elements, update element software Messaging Manage Messaging System objects Presence Routing Network Routing Policy SIP AS 8.1 SIP AS 8.1 Session Manager Element Manager	Services Backup and Restore Backup and restore System Manager database Configurations Manage system wide configurations Events Manage alarms,view and harvest logs Licenses View and configure licenses Cheduse Track data replication nodes, repair replication nodes Schedule Marage Security Certificates Security Manage Security Certificates Security Manage Templates for Communication Manager and Messaging System objects		
			Manage UCM applications and navigation such as CS1000 deployment, patching, ISSS and SNMP		

#### 6.2. Define SIP Domain

Expand **Elements**  $\rightarrow$  **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.

AVAYA	Avaya Aura® System Ma	nager 6.1		Help   About	Change Password   Log off admin
-					Routing * Home
* Routing	Home / Elements / Routing / Domains - Dor	nain Management			
Domains	Dennis Management				Help ?
Locations	Domain Management				
Adaptations	Edit New Duplicate Delete More Actions	1			
SIP Entities		-			
Entity Links	1 Item Refresh				Filter: Enable
Time Ranges	Name Name	Туре	Default	Notes	
Routing Policies	avaya.com	sip			
Dial Patterns	Select : All, None				
Regular Expressions					
Defaults					

#### 6.3. Define Location

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**  $\rightarrow$  **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** to save. The screenshot below shows the Location defined for Communication Server 1000E in the sample configuration.

Adaptations	Call Admission Control has been set to ignore SDP. All calls will be counted using the Default Audio Bandwidth.	
SIP Entities	Can Admission Control has been set to ignore SDF, and task with be control baing the behavior Addio Bandwidth. See Session Manager -> Session Manager Administration -> Global Setting	
Entity Links		
Time Ranges	General	
Routing Policies	* Name: SipLab8	
Dial Patterns	Notes:	
Regular Expressions		
Defaults	Overall Managed Bandwidth	
	Managed Bandwidth Units: Kbit/sec 💌	
	Total Bandwidth:	
	Per-Call Bandwidth Parameters  * Default Audio Bandwidth: 80 Kbit/sec	
	Location Pattern	
	Add Remove	
	2 Items Refresh	Filter: Enable
	IP Address Pattern     Notes	
	* 10.10.2.*	
	* 10.10.8.*	

### 6.4. Configure Adaptation Module

Session Manager can be configured to use an Adaptation Module designed for Avaya Communication Server 1000E to convert SIP headers in messages sent by Avaya Communication Server to the format used by other Avaya products and endpoints.

#### 6.4.1. Adaptation for Avaya Communication Server 1000E Entity

This adaptation is used to change incoming digits received from the PSTN (DDIs) to extensions on the CS1000E and conversely to match outgoing calls from extension on the CS1000E to DDI numbers that are going to be presented to the PSTN.

Select Adaptations from the left navigational menu. Click New (not shown). In the General section, enter the following values and use default values for remaining fields.

- Adaptation Name: Enter an identifier for the Adaptation Module (e.g., "CS1000")
- Module Name: Select "CS1000Adapter" from drop-down menu (or add an adapter with name "CS1000Adapter" if not previously defined)
- Module Parameter: Enter "fromto=true" to allow the From and To headers to be modified by Session Manager (i.e., in addition to other headers such as the P-Asserted-Identity and Request-URI headers).

Routing	Home / Elements / Rou	ıting / Adaptations- Adaptati	on Details	
Domains				
ocations	Adaptation Details			
daptations				
SIP Entities	General			
Entity Links		* Adaptation name:	CS1000	
Time Ranges		Module name:	CS1000Adapter	~
Routing Policies		Module parameter:	fromto=true	
Dial Patterns				
Regular Expressions		Egress URI Parameters:		
Defaults		Notes:		

Scrolling down, in the **Digit Conversion for Incoming Calls to SM** section, click **Add** to configure entries for calls from CS1000E users to Vodafone NL. The text below and the screen example that follows explain how to use Session Manager to convert between CS1000E directory numbers and the corresponding Vodafone NL DID numbers.

- Matching Pattern: Enter Avaya CS1000E extensions (or extension ranges via wildcard pattern matching)
- Min: Enter minimum number of digits (e.g., 4)
- Max: Enter maximum number of digits (e.g., 4)
- **Delete Digits:** Enter "4", unless digits should not be removed from dialed number before routing by Session Manager

**Insert Digits:** Enter the Vodafone NL DID corresponding to the matched extension. DID is masked for security

• Address to modify: Select "both"

dd	Remove							
5 Ite	ns Refresh							Filter: Enab
	Matching Pattern 🔺	Min	Max	Phone Context	Delete Digits	Insert Digits	Address to modify	Notes
	* 8000	* 4	* 4		* 4	038	both 💌	
	* 8021	* 4	* 4		* 4	0387	both 💌	
	* 8500	* 4	* 4		* 4	0381	both 💌	
	* 8877	* 4	* 4		* 4	0387	both 💌	
	* 8878	* 4	* 4		* 4	0387	both 🔽	
	* 8889	* 4	* 4		* 4	2051	both 🗸	

Scroll down and make corresponding changes in the **Digit Conversion for Outgoing Calls from SM** section for calls from Vodafone NL to CS1000E users. DID masked for security purposes.

dd	Remove							
i Ite	ms Refresh							Filter: Enab
	Matching Pattern 🔺	Min	Max	Phone Context	Delete Digits	Insert Digits	Address to modify	Notes
	* 0387	* 10	* 10		* 10	8000	both 🗸	
	* 038	* 10	* 10		* 10	8889	both 💌	
	* 038	* 10	* 10		* 10	8021	both 🖌	
	* 038	* 10	* 10		* 10	8877	both 💌	
	* 038	* 10	* 10		* 10	8878	both 😽	
	* 038	* 10	* 10		* 10	8500	both 💙	

Click **Commit** to save.

#### 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 fields will need to be populated 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 signaling interface on the connecting system.
- In the **Type** field use **Session Manager** for a Session Manager SIP entity, **Other** for CS1000E SIP entity and **Gateway** for the Avaya SBCE SIP entity.
- In the adaptation field select the created adapatation in **Section 6.4** for the CS1000E.
- 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.

- Session Manager SIP Entity
- Communication Server 1000E SIP Entity
- Session Border Controller SIP Entity

#### 6.5.1. Avaya Aura<sup>®</sup> 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 signaling interface.

Routing	Home / Elements / Routing / SIP Entities- SIP E	itity Details	
Domains			
Locations	SIP Entity Details		
Adaptations	General		
SIP Entities	* Nai	ne: Session Manager	
Entity Links			
Time Ranges	* FQDN or IP Addre	55: 10.10.8.50	
Routing Policies	Ту	e: Session Manager	
Dial Patterns	Not	es:	
Regular Expressions			
Defaults	Locati	on: SipLab8 🗸	
	Outbound Pro	xy:	
	Time Zo	ne: Europe/Dublin	*
	Credential na	ne:	
	SIP Link Monitoring		
	SIP Link Monitori	ng: Use Session Manager Configurat	ation 🔽

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	Protocol	Default Domain	Notes	
5060	TCP 🔽	avaya.com ⊻		
5060	UDP 💌	avaya.com ⊻		
5061	TLS 💌	avaya.com 💌		

#### 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 signaling, as shown in **Section 5.4**. Note the adaptation created in **Section 6.4** is applied to this entity link.

* Routing	Home / Elements / Routing / S	SIP Entities- SIP Entit	y Details	
Domains				Help ?
Locations	SIP Entity Details			Commit
Adaptations	General			
SIP Entities		* Name:	CS1K	
Entity Links				
Time Ranges		* FQDN or IP Address:		
Routing Policies		Type:	Other 🛛	
Dial Patterns		Notes:		
Regular Expressions				
Defaults		Adaptation:	CS1000	
		Location:	SipLab8 💙	
		Time Zone:		
	Override Port & Tra	ansport with DNS SRV:		
	* SIP T	imer 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 for Enterprise SIP Entities

The following screen shows the SIP entity for the Avaya Session Border Controller for Enterprise used for routing Fixed and Mobile calls. The **FQDN or IP Address** field is set to the IP address of the private interfaces administered in **Section 7** of this document.

Routing	Home / Elements / Rou	ıting / SIP Entities- SIP Entit	y Details
Domains			
Locations	SIP Entity Details		Commit
Adaptations	General		
SIP Entities		* Name:	VFL SIP Trunk Fixed
Entity Links		* FQDN or IP Address:	10 10 0 20
Time Ranges			
Routing Policies		Туре:	Gateway
Dial Patterns		Notes:	
Regular Expressions			
Defaults		Adaptation:	
		Location:	SipLab8 💌
		Time Zone:	Etc/GMT
	Override P	ort & Transport with DNS SRV:	
		* SIP Timer B/F (in seconds):	4
		Credential name:	
		Call Detail Recording:	none 💌
	SIP Link Monitoring		

* Routing	Home /Elements / Routing /	SIP Entities- SIP Entit	y Details	
Domains				Help ?
Locations	SIP Entity Details			Commit Cancel
Adaptations	General			
SIP Entities		* Name:	VFL SIP Trunk Mobile	
Entity Links		* FQDN or IP Address:	10 10 9 81	
Time Ranges				
Routing Policies		Туре:	Gateway	
Dial Patterns		Notes:		
Regular Expressions				
Defaults		Adaptation:		
		Location:	SipLab8 💌	
		Time Zone:	Etc/GMT	
	Override Port & T	ransport 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 and in the resulting screen fill in the following fields in the new row that is displayed.

- In the **Name** field enter an informative name.
- In the **SIP Entity 1** field select the SIP Entity for SessionManager i.e. **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 (not shown). The following screen shows the Entity Links used in this configuration.

Routing	<ul> <li>Home / Elements / Routi</li> </ul>	ng / Entity Links- Entity Link	2					
Domains	Catilas Links							Hel
Locations	Entity Links							
Adaptations	Edit New Duplicat	e Delete More Action	ns 🔹					
SIP Entities								
Entity Links	7 Items Refresh							Filter: Enabl
Time Ranges		I management		The second s		( Incompany)		FILLER: ENADI
Routing Policies	Name Name	SIP Entity 1	Protocol	Port	SIP Entity 2	Port	Connection Policy	Notes
Dial Patterns								
Regular Expressions	CS1K	Session Manager	TCP	5060	CS1K	5060	Trusted	toCS1K
Defaults	VFL SIP Trunk Fixe	ed Session Manager	TCP	5060	VFL SIP Trunk Fixed	5060	Trusted	toSipera
	VFL SIP Trunk Mot	bile Session Manager	TCP	5060	VFL SIP Trunk Mobile	5060	Trusted	toSipera

#### 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**, and then select the appropriate SIP entity to which this routing policy applies.

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

Routing	<ul> <li>Home /Elements / Routing /</li> </ul>	Routing Policies- Routing Policy Details		
Domains Locations	Routing Policy Details			Help Commit Cance
Adaptations				
SIP Entities	General			
Entity Links		* Name: toCS1K		
Time Ranges		Disabled:		
Routing Policies		Notes:		
Dial Patterns				
Regular Expressions	CID Estitutes Destination			
Defaults	SIP Entity as Destination			
	Select			
	Name	FQDN or IP Address	Туре	Notes
	CS1K	10.10.8.3	Other	

The following screen shows the routing policy for Avaya Session Border Controller for Enterprise Fixed:

Routing	Home / Elements / Routing / Routing	ng Policies- Routing Policy Details		
Domains	Routing Policy Details			Help Commit Cancel
Locations	Routing Policy Details			Commic
Adaptations				
SIP Entities	General			
Entity Links		* Name: VFL SIP Trunk Fixed		
Time Ranges		Disabled:		
Routing Policies		Notes:		
Dial Patterns				
Regular Expressions	SIP Entity as Destination			
Defaults	Select			
	Name	FQDN or IP Address	Туре	Notes
	VFL SIP Trunk Fixed	10.10.9.80	Gateway	

The following screen shows the routing policy for Avaya Session Border Controller for Enterprise Mobile:

Routing	Home / Elements / Routing / Routi	ng Policies- Routing Policy Details		
Domains Locations Adaptations SIP Entities Entity Links Time Ranges Routing Policies Dial Patterns	Routing Policy Details General	Name: VFL SIP Trunk Mobile  Disabled:  Notes:		He Commit Can
Regular Expressions				
Defaults	SIP Entity as Destination			
	Name	FQDN or IP Address	Туре	Notes
	VFL SIP Trunk Mobile	10.10.9.81	Gateway	

#### 6.8. Define Dial Patterns

A dial pattern must be defined to direct calls to the appropriate telephony system. 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 dialed number
- In the **Max** field enter the maximum length of the dialed number
- In the SIP Domain field select the domain configured in Section 6.2 or select ALL

Under Originating Locations and Routing Policies. Click Add, in the resulting screen (not shown) under Originating Location select Locations created in Section 6.3 and under Routing Policies select one of the routing policies defined in Section 6.7. Click Select button to save (not shown). The following screen shows an example dial pattern configured for Vodafone NL SIP Trunk Service Fixed.

* Routing	Home / Elements / Routing ,	/ Dial Patterns- Dial Pattern De	tails				
Domains							Help
Locations	Dial Pattern Details						Commit Cancel
Adaptations							
SIP Entities	General						
Entity Links		* Pattern: 00353					
Time Ranges		* Min: 5					
Routing Policies							
Dial Patterns		* Max: 16					
Regular Expressions		Emergency Call:					
Defaults		SIP Domain: -ALL-	~				
		Notes:					
	Originating Locations and Add Remove	Routing Policies					
	1 Item Refresh						Filter: Enable
	Originating Location Na	me 1 Originating Location Notes	Routing Policy Name	Rank 2 🛦	Routing Policy Disabled	Routing Policy Destination	Routing Policy Notes
	-ALL-	Any Locations	VFL SIP Trunk Fixed	0		VFL SIP Trunk Fixed	

HD; Reviewed: SPOC 1/28/2013

Solution & Interoperability Test Lab Application Notes ©2013 Avaya Inc. All Rights Reserved. 35 of 60 VFNLCS1K75ASBCE The following screen shows an example dial pattern configured for Vodafone NL SIP Trunk Service Mobile.

Routing	Home / Elements / Routing / Dia	l Patterns- Dial Pattern D	etails				
Domains							Hel
Locations	Dial Pattern Details						Commit Canc
Adaptations	A STATE OF A						
SIP Entities	General						
Entity Links		* Pattern: 06					
Time Ranges		* Min: 10	1				
Routing Policies		* Max: 10					
Dial Patterns			1				
Regular Expressions		Emergency Call:					
Defaults		SIP Domain: -ALL-	~				
		Notes:					
	Originating Locations and Rou Add Remove	iting Policies					
	1 Item   Refresh						Filter: Enab
	Originating Location Name 1	<ul> <li>Originating Location</li> <li>Notes</li> </ul>	Routing Policy Name	Rank 2 🛋	Routing Policy Disabled	Routing Policy Destination	Routing Policy Notes
	-ALL-	Any Locations	VFL SIP Trunk Mobile	0		VFL SIP Trunk Mobile	

The following screen shows an example dial pattern configured for Communication Server 1000E.

Routing	Home / Elements / Routi	ng / Dial Patterns- Dial Patte	ern Details				
Domains							Hel
Locations	Dial Pattern Details						Commit Canc
Adaptations							
SIP Entities	General						
Entity Links		* Pattern: 038xxxxxxx					
Time Ranges		* Min: 3	.0				
Routing Policies		* Max: 1	0				
Dial Patterns							
Regular Expressions		Emergency Call:					
Defaults		SIP Domain:	-ALL-				
	Notes:						
	Originating Locations and Routing Policies       Add     Remove						
	1 Item Refresh	Item   Refresh					Filter: Enab
	Originating Location	Name 1 A Originating Locat Notes	ion Routing Policy Name	Rank 2 🔺	Routing Policy Disabled	Routing Policy Destination	Routing Policy Notes
	-ALL-	Any Locations	toCS1K	0		CS1K	

# 7. Avaya Session Border Controller for Enterprise Configuration

This section provides the procedures for configuring Session Border Controller for 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.

Sipera Systems LLARN - VERIEY - PROTECT		Sign in Login ID Password Sign in	
The UC-Sec ™ family of products from Sipera Systems de VoIP security by adapting the best practices of internet sec sophisticated techniques such as VoIP protocol misuse & behavioral learning based anomaly detection and voice sp VoIP networks.	urity and by using unique, anomaly detection,		
Visit the Sipera Systems website to learn more.			
NOTICE TO USERS: This system is for authorized use only system is strictly prohibited. Unauthorized or improper use	e of this system may		
result in civil and/or criminal penalties. Use of this system	and the second sec		

# 7.2. Define Network Information

Network information is required on the Avaya SBCE to allocate IP addresses and masks to the interfaces. Note that only the **A1** and **B1** interfaces are used, typically the **A1** interface is used for the internal side and **B1** is used for external. Each side of the Avaya SBCE can have only one interface assigned. Two internal interface addresses and two external interface addresses are required for Vodafone NL fixed and mobile networks.

To define the network information, navigate to **Device Specific Settings**  $\rightarrow$  **Network Management** in the **UC-Sec Control Center** menu on the left hand side and click on **Add IP**. Enter details in the blank box that appears at the end of the list

- Define the internal IP addresses with screening mask and assign to interface A1
- Select **Save** (not shown) to save the information
- Click on Add IP
- Define the external IP addresses with screening mask and assign to interface **B1**
- Select Save (not shown) to save the information
- Select the **Network Configuration** tab and change the state of interfaces **A1** and **B1** to **Enabled** (not shown)
- Click on System Management in the main menu
- Select Restart Application indicated by an icon in the status bar

Note: Multiple IP addresses defined on a single interface must be in the same subnet.

UC-Sec Devices	Network Configuration Interfe	ace Configuration					
SCP-SBC1							
		of an IP address or its associa	ited data require an applicati	on restart before ta	aking effect. Applicatio	n restarts o	an be
	issued from System Mana	igement.		-			
	A1 Netmask 255.255.255.0	A2 Netmask	B1 Netmask	255.255.255.240	B2 Netmask		
	Add IP				Save Changes	Clear Ch	anges
	IP Address		Public IP		Gateway	Inter	ace
				10.10.9.1		A1	~
	10.10.9.81			10.10.9.1		A	
	10.10.9.81 192.168.27.2			192.168.27.1		B1	~
							~

Select the Interface Configuration tab and click on Toggle State to enable the interfaces.

UC-Sec Devices	Network Configuration Interface Configuration		
SSCP-SBC1	Name	Administrative Status	
	A1	Enabled	Toggle State
	A2	Disabled	Toggle State
	B1	Enabled	Toggle State
	B2	Disabled	Toggle State

# 7.3. Define Interfaces

When the IP addresses and masks are assigned to the interfaces, these are then configured as signaling and media interfaces.

### 7.3.1. Signaling Interfaces

To define the signaling interfaces on the Avaya SBCE, navigate to **Device Specific Settings**  $\rightarrow$  **Signaling Interface** in the **UC-Sec Control Center** menu on the left hand side. Details of transport protocol and ports for the internal and external SIP signaling are entered here

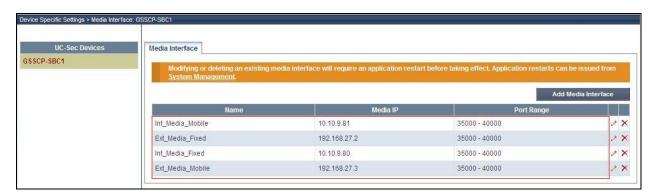
- Select Add Signaling Interface and enter details in the pop-up menu
- In the **Name** field enter a descriptive name for the internal signaling interface for the Vodafone NL fixed network
- Select an **internal** interface IP address defined in **Section 7.2**
- Select **UDP** and **TCP** port numbers, **5060** is used for Vodafone NL
- Select Add Signaling Interface and enter details in the pop-up menu
- In the **Name** field enter a descriptive name for the external signaling interface for the Vodafone NL fixed network
- Select an external interface IP address (not shown) defined in Section 7.2
- Select **UDP** numbers only, **5060** is used for Vodafone NL
- Repeat this process for the internal and external signaling interfaces for the Vodafone NL mobile network.

UC-Sec Devices	Signaling Interface						
SSCP-SBC1						A	dd Signaling Interface
	Name	Signaling IP	TCP Port	UDP Port	TLS Port	TL	S Profile
	Int_Sig_Mobile	10.10.9.81	5060	5060	-	None	2 3
	Ext_Sig_Fixed	192.168.27.2		5060		None	2
	Int_Sig_Fixed	10,10.9.80	5060	5060	1222	None	0
	Ext_Sig_Mobile	192.168.27.3		5060		None	23

#### 7.3.2. Media Interfaces

To define the media interfaces on the Avaya SBCE, navigate to **Device Specific Settings**  $\rightarrow$  **Signaling Interface** in the **UC-Sec Control Center** menu on the left hand side. Details of the RTP and SRTP port ranges for the internal and external media streams are entered here. The IP addresses for media can be the same as those used for signaling.

- Select Add Media Interface and enter details in the pop-up menu
- In the **Name** field enter a descriptive name for the internal media interface for the Vodafone NL fixed network
- Select an internal interface IP address defined in Section 7.2
- Select **RTP port** ranges for the media path with the enterprise end-points
- Select Add Media Interface and enter details in the pop-up menu
- In the **Name** field enter a descriptive name for the external media interface for the Vodafone NL fixed network
- Select an external interface IP address (not shown) defined in Section 7.2
- Select **RTP port** ranges for the media path with the Vodafone NL SBC
- Repeat this process for the internal and external signaling interfaces for the Vodafone NL mobile network.



### 7.4. Define Server Interworking

Server interworking is defined for each server connected to the Avaya SBCE. In this case, the Vodafone NL SBC is connected as the Trunk Server and the Session Manager is connected as the Call Server. To define server interworking on the Avaya SBCE, navigate to **Global Profiles** 

→ Server interworking in the UC-Sec Control Center menu on the left hand side. To define Server Interworking for the Session Manager, highlight the **avaya-ru** profile which is a factory setting appropriate for Avaya equipment and select Clone Profile. A pop-up menu is generated headed Clone Profile (not shown)

- In the Clone Name field enter a descriptive name for the Session Manager and click Finish in test SM9\_Call\_Server was used
- Select **Edit** and enter details in the pop-up menu.
- Check the **T.38** box

Change the Hold Support RFC to RFC2543 then click Next and Finish

Inter	working Profile
	General
Hold Support	C None RFC2543 - c=0.0.0.0 O RFC3264 - a=sendonly
180 Handling	⊙ None ○ SDP ○ No SDP
181 Handling	⊙ None ○ SDP ○ No SDP
182 Handling	⊙ None ○ SDP ○ No SDP
183 Handling	⊙ None ○ SDP ○ No SDP
Refer Handling	
3xx Handling	
Diversion Header Support	
Delayed SDP Handling	
T.38 Support	
URI Scheme	⊙ SIP O TEL O ANY
Via Header Format	<ul> <li>RFC3261</li> <li>RFC2543</li> </ul>
В	ack Next

To define Server Interworking for the Vodafone Netherlands SBC, highlight the previously defined profile for the Session Manager and select **Clone Profile**. A pop-up menu is generated headed **Clone Profile** 

- In the **Clone Name** field enter a descriptive name for server interworking profile for the Vodafone SBC and click **Finish** in test **SP\_Trunk** was used
- Select **Edit** and enter details in the pop-up menu
- Check the **T.38** box
- Select **Next** three times and **Finish**

# 7.5. Define Servers

Servers are defined for each server connected to the Avaya SBCE. In this case, the Vodafone NL SBC is connected as the Trunk Server and the Session Manager is connected as the Call Server. To define the Session Manager, navigate to **Global Profiles**  $\rightarrow$  Server Configuration in the **UC-Sec Control Center** menu on the left hand side. Click on Add Profile and enter details in the pop-up menu

- In the **Profile Name** field enter a descriptive name for the Session Manager and click **Next**
- In the Server Type drop down menu, select Call Server
- In the **IP Addresses / Supported FQDNs** box, type the Session Manager SIP interface address which is the same as that defined on the Communication Manager in **Section 5.2**
- Check **TCP** and **UDP** in **Supported Transports**
- Define the **TCP** and **UDP** ports for SIP signaling, **5060** is used for Vodafone NL
- Click **Next** three times then select the **Interworking Profile** for the Session Manager defined in **Section 7.4** from the drop down menu

Edit Server Co	nfiguration Profile - General	×	Edit Server Con	figuration Profile - Advanced
Server Type	Call Server 💌	Enable DoS F	Protection	
	10.10.8.56	Enable Groon	ning	
IP Addresses / Supported FQDNs Comma seperated list		Interworking F	Profile	SM9_Call_Server
		Signaling Mar	nipulation Script	None
	TCP	TCP Connect	ion Type	SUBID C PORTID C MAPPING
Supported Transports	UDP T TLS	UDP Connect	tion Type	C SUBID C PORTID C MAPPING
TCP Port	5060			
UDP Port	5060			Finish
TLS Port				

To define the Vodafone NL SBC as two separate Trunk Servers for the fixed and mobile networks, navigate to **Global Profiles**  $\rightarrow$  Server Configuration in the UC-Sec Control Center menu on the left hand side. Click on Add Profile and enter details in the pop-up menu

- In the **Profile Name** field enter a descriptive name for the Vodafone NL SBC and click Next
- In the Server Type drop down menu, select Trunk Server
- In the **IP Addresses / Supported FQDNs** box, type the IP address of the Vodafone NL SBC that's to be used for the fixed network
- Check UDP in Supported Transports
- Define the **UDP** port for SIP signaling, **5060** is used for Vodafone NL
- Click **Next** three times then select the **Interworking Profile** for the Vodafone NL SBC defined in **Section 7.4** from the drop down menu

Edit Server Co	nfiguration Profile - General	Edit Ser	ver Configuration Profile - Advanced
Server Type	Trunk Server	Enable DoS Protection	
	62,140,159,233	Enable Grooming	
IP Addresses / Supported FQDNs		Interworking Profile	SP_Trunk
Comma seperated list		Signaling Manipulation Script	t None 💌
		TCP Connection Type	SUBID C PORTID C MAPPING
Supported Transports		UDP Connection Type	SUBID C PORTID C MAPPING
TCP Port			Finish
UDP Port	5060		
TLS Port	11		
	Finish		

Repeat the process for the mobile Trunk Server and in the **IP Addresses / Supported FQDNs** box, type the IP address of the Vodafone NL SBC that's to be used for the mobile network

Edit Server Co	nfiguration Profile - General	×	Edit Server C	onfiguration Profile - Advanced
Server Type	Trunk Server		Enable DoS Protection	
	62.140.159.234		Enable Grooming	E .
IP Addresses / Supported FQDNs Comma seperated list			Interworking Profile	SP_Trunk
comina seperated list	~		Signaling Manipulation Script	None
	T TCP		TCP Connection Type	SUBID C PORTID C MAPPING
Supported Transports	UDP T TLS		UDP Connection Type	SUBID C PORTID C MAPPING
TCP Port				Finish
UDP Port	5060			cillisti
TLS Port				
	Finish			

# 7.6. Define Routing

Routing information is required for routing to the Session Manager on the internal side and the Vodafone NL SBC fixed and mobile addresses on the external side. The IP addresses and ports defined here will be used as the destination addresses for signaling. If no port is specified in the **Next Hop IP Address**, default 5060 is used. To define routing to the Communication Manager, navigate to **Global Profiles**  $\rightarrow$  **Routing** in the **UC-Sec Control Center** menu on the left hand side. Click on **Add Profile** and enter details in the **Routing Profile** pop-up menu.

- In the **Profile Name** field enter a descriptive name for the Session Manager and click **Next**
- Enter the Session Manager SIP interface address and port in the Next Hop Server 1 field
- Select **TCP** for the **Outgoing Transport**
- Click **Finish**

Note: Unless default port 5060 is used, this must be included in the next hop IP address.

Add Profile					Rename F	rofile	С	lone Prof	file	Delete Pro
Routing Profiles			Clic	k here to add a description.						
efault	Routing Profile									
SM9_Call_Server		la.						3		
Frunk_Server_Fixed									Add Ro	outing Rule
Trunk_Server_Mobile	Priority	URI Group	Next Hop Server 1	Next Hop Server 2	Next Hop Priority	NAPTR	SRV		lgnore Route Header	Outgoing Transport
	*		10.10.8.56		<b>N</b>	Г	Г	Г	Г	TCP

To define routing to the Vodafone NL SBC for the fixed network, navigate to **Global Profiles Routing** in the **UC-Sec Control Center** menu on the left hand side. Click on **Add Profile** and enter details in the **Routing Profile** pop-up menu.

- In the **Profile Name** field enter a descriptive name for the Vodafone NL SBC fixed address and click **Next**
- Enter the SBC IP address for the fixed network and port in the Next Hop Server 1 field
- Select **UDP** for the **Outgoing Transport**
- Click Finish

Add Profile					Rename P	rofile	С	Ione Prot	ile	Delete Pro
Routing Profiles			Clic	k here to add a description.						
lefault	Routing Profile									
SM9_Call_Server								1	III Charles Sta	
Frunk_Server_Fixed									Add Ro	outing Rule
Frunk_Server_Mobile	Priority	URI Group	Next Hop Server 1	Next Hop Server 2	Next Hop Priority	NAPTR			lgnore Route Header	Outgoing Transport
			62,140,159,233		2	Г	F	Г	Г	UDP

To define routing to the Vodafone NL SBC for the mobile network, navigate to **Global Profiles Routing** in the **UC-Sec Control Center** menu on the left hand side. Click on **Add Profile** and enter details in the **Routing Profile** pop-up menu.

- In the **Profile Name** field enter a descriptive name for the Vodafone NL SBC mobile address and click **Next**
- Enter the SBC IP address for the fixed network and port in the Next Hop Server 1 field
- Select **UDP** for the **Outgoing Transport**
- Click **Finish**

Add Profile	1				Rename F	rofile	C	lone Pro	file	Delete Pro	ofile
Routing Profiles			Clic	k here to add a description.							
default	Routing Profile										
SM9_Call_Server										Charles and showing	_
Trunk_Server_Fixed									Add Ro	outing Rule	
Trunk_Server_Mobile	Priority	URI Group	Next Hop Server 1	Next Hop Server 2	Next Hop Priority	NAPTR			lgnore Route Header	Outgoing Transport	
	1 *		62.140.159.234		V	Г	Г	Г	Г	UDP	0

# 7.7. Topology Hiding

Topology hiding is used to hide local information such as private IP addresses and local domain names. The local information can be overwritten or next hop IP addresses can be used. As IP addressing was used in test instead of domain names, there was little requirement for topology hiding. IP addresses are translated to the Avaya SBCE external addresses using NAT. To define Topology Hiding for the Session Manager, navigate to **Global Profiles**  $\rightarrow$  **Topology Hiding** in the **UC-Sec Control Center** menu on the left hand side. Click on **Add Profile** and enter details in the **Topology Hiding Profile** pop-up menu.

- In the **Profile Name** field enter a descriptive name for the Session Manager and click **Next**
- If the required Header is not shown, click on Add Header
- Select Request-Line as the required header from the Header drop down menu
- Select the required action from the **Required Action** drop down menu, **Next Hop** was used for test

**Note:** The use of **Next Hop** results in the IP address being inserted in the host portion of the Request-URI as opposed to a domain name. If a domain name is required, the action **Overwrite** must be used for the **Request-Line** header with the required domain names entered in the **Overwrite Value** field. Different domain names could be used for the enterprise and the Vodafone NL network.

ology Hiding Header	Click h	ere to add a description.	
155 5.0	Criteria		
Header	Criteria		
A REAL PROPERTY AND A REAL	Cilicita	Replace Action	Overwrite Value
equest-Line	IP/Domain	Next Hop	-
)	IP/Domain	Next Hop	
DP	IP/Domain	Auto	
ecord-Route	IP/Domain	Auto	
om	IP/Domain	Auto	
a	IP/Domain	Auto	
	DP ecord-Route om	PP IP/Domain ecord-Route IP/Domain om IP/Domain	PP IP/Domain Auto ecord-Route IP/Domain Auto om IP/Domain Auto

To define Topology Hiding for the Vodafone NL SBC, navigate to **Global Profiles**  $\rightarrow$  **Topology Hiding** in the **UC-Sec Control Center** menu on the left hand side. Click on **Add Profile** and enter details in the **Topology Hiding Profile** pop-up menu.

- In the **Profile Name** field enter a descriptive name for the Vodafone NL SBC and click **Next**
- If the required Header is not shown, click on Add Header
- Select **Request-Line** as the required header from the **Header** drop down menu
- Select the required action from the **Required Action** drop down menu, **Next Hop** was used for test

Add Profile			Rename Profile	Clone Profile Delete Profile
Topology Hiding Profiles		Click h	ere to add a description.	
lefault	Topology Hiding			
cisco_th_profile	Header	Criteria	Replace Action	Overwrite Value
P_Trunk	Request-Line	IP/Domain	Next Hop	
M9_CS	То	IP/Domain	Next Hop	
	SDP	IP/Domain	Auto	
	Record-Route	IP/Domain	Auto	
	From	IP/Domain	Auto	-
	Via	IP/Domain	Auto	
			Edit	

# 7.8. Server Flows

Server Flows combine the previously defined profiles into outgoing flows from the Session Manager to the Vodafone NL SBC and incoming flows from the Vodafone NL SBC to the Session Manager. This configuration ties all the previously entered information together so that calls can be routed from the Session Manager to the Vodafone NL SBC for both fixed and mobile calls and vice versa. The following screenshot shows all flows:

Server Configuration: SM9_Call_Server       UR1       Transport       Remote Subnet       Received Interface       Signaling Interface       Media Interface       End Point Poi						С	Click here to	add a row des	cription.					
Priority       Flow Name       URI Group       Transport       Remote Subnet       Received Interface       Signaling Interface       Media Interface       Point Policy Interface       Routing Profile       Hoggy Hiding Profile         1       SM9_Call_Server_Fixed       *       *       Ext_Sig_Fixed       Int_Sig_Fixed       Int_Media_Fixed       default- Iow       Trunk_Server_Fixed       SM9_CS       None       a         2       SM9_Call_Server_Mobile       *       *       Ext_Sig_Mobile       Int_Sig_Mobile       Int_Media_Mobile       default- Iow       Trunk_Server_Fixed       SM9_CS       None       a         2       SM9_Call_Server_Mobile       *       *       Ext_Sig_Mobile       Int_Sig_Mobile       Int_Media_Mobile       default- Iow       Trunk_Server_Mobile       SM9_CS       None       a         Server Configuration: Trunk_Server_Fixed        *       Ext_Sig_Indepice       Signaling Interface       Media Interface       End Point Policy Group       Routing Profile       Topology Transfer Profile       File Transfer Profile         4       *       *       Interface       Signaling Interface       Media Interface       End Policy Group       Routing Profile       Topology Transfer Profile       File Profile         5       File       *       Int	Server C	onfiguration: SM9_Call_Ser	ver										Update O	rde
Image: Server_Mobile     Image: Server_Mobile <th>Priority</th> <th>Flow Name</th> <th></th> <th>Transpo</th> <th></th> <th></th> <th></th> <th></th> <th>Media Interface</th> <th>Point Policy</th> <th>Routing Profile.</th> <th>Hiding</th> <th>Transfer</th> <th></th>	Priority	Flow Name		Transpo					Media Interface	Point Policy	Routing Profile.	Hiding	Transfer	
Image: Server_Mobile     URI Group     Transport     Remote Subset     Signaling Interface     Media Interface     End Point Point Policy     Routing Profile     Topology Hiding Profile     File Transfer Profile       8     Server_Fixed     *     *     *     *     Interface     Signaling Interface     Media Interface     End Point Policy     Routing Profile     Topology Hiding Profile     File Profile	1	SM9_Call_Server_Fixed	*	*	×	Ext_Si	ig_Fixed Ir	nt_Sig_Fixed	Int_Media_Fixed		Trunk_Server_Fixed	SM9_CS	None	
Server Configuration: Trunk_Server_Fixed           View         Vi	2	SM9 Call Server Mobile	*	*	*	Ext Si	ig Mobile Ir	nt Sig Mobile	Int Media Mobile		Trunk Server Mobile	SM9 CS	None	
			_Fixed	URI -		Remote	Received	Signaling		Doir	a mo on concerne			
										e Poir Polic	t y Routing Profile	Hiding	Transfer	
	Priority	Flow Name		Group		Subnet	Interface	Interface	weula interna	ce Poir Polic Grou ed defau low	t y Routing Profile p Routing Profile	Hiding Profile SP_Trunk	Transfer Profile None	-
Priority Flow Name URI Group Transport Subnet Subnet Received Signaling Interface Subnet Interface Signaling Interface Signali	Priority 1 erver Co	Flow Name SP_Trunk_Server_Fixed onfiguration: Trunk_Server_	_Mobile	Group	enort Ren	Subnet *	Interface Int_Sig_Fixe Received	Interface ed Ext_Sig_Fix Signaling	ed Ext_Media_Fix	e Point Polic Grou defau Iow Point Polic	t y Routing Profile p It SM9_Call_Server	Hiding Profile SP_Trunk Topology Hiding	Transfer Profile None File Transfer	

To define an outgoing Server Flow for the fixed network, navigate to **Device Specific Settings**  $\rightarrow$  End Point Flows.

- Click on the **Server Flows** tab
- Select Add Flow and enter details in the pop-up menu
- In the **Name** field enter a descriptive name for the outgoing server flow to the Vodafone NL SBC for the fixed network
- In the **Received Interface** drop-down menu, select the internal SIP signaling interface defined in **Section 7.3**
- In the **Signaling Interface** drop-down menu, select the external SIP signaling interface defined in **Section 7.3**
- In the **Media Interface** drop-down menu, select the external media interface defined in **Section 7.3**
- In the **Routing Profile** drop-down menu, select the routing profile of the Session Manager defined in **Section 7.6**
- In the **Topology Hiding Profile** drop-down menu, select the topology hiding profile of the Vodafone NL SBC defined in **Section 7.7** and click **Finish**

Server Co	onfiguration: Trunk_Server_Fi	xed												
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_Fixed	×	*	*	Int_Sig_Fixed	Ext_Sig_Fixed	Ext_Media_Fixed	default- low	SM9_Call_Server	SP_Trunk	None	0	×	Ę

Repeat the process for an outgoing Server Flow for the mobile network. In the **Name** field enter a descriptive name for the outgoing server flow to the Vodafone NL SBC for the mobile network.

			No. of the Island		-	No.	No.	1000			-			in.
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_Mobile	*	*	*	Int_Sig_Mobile	Ext_Sig_Mobile	Ext_Media_Mobile	default- low	SM9_Call_Server	SP_Trunk	None	0	×	1

The incoming Server Flows are defined as a reversal of the outgoing Server Flows

- Click on the Server Flows tab
- Select Add Flow and enter details in the pop-up menu
- In the **Name** field enter a descriptive name for the incoming server flow to the Session Manager
- In the **Received Interface** drop-down menu, select the external SIP signaling interface defined in **Section 7.3**
- In the **Signaling Interface** drop-down menu, select the internal SIP signaling defined in **Section 7.3**
- In the **Media Interface** drop-down menu, select the internal media interface defined in **Section 7.3**
- In the **Routing Profile** drop-down menu, select the routing profile of the Vodafone NL SBC defined in **Section 7.6**
- In the **Topology Hiding Profile** drop-down menu, select the topology hiding profile of the Session Manager defined in **Section 7.7** and click **Finish**

Server Cu	onfiguration: SM9_Call_Ser	YCI									Update Or	de		
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_Fixed	*	*.	*	Ext_Sig_Fixed	Int_Sig_Fixed	Int_Media_Fixed	default- Iow	Trunk_Server_Fixed	SM9_CS	None		×	ł
2	SM9_Call_Server_Mobile	*	*	*	Ext_Sig_Mobile	Int_Sig_Mobile	Int_Media_Mobile	default- low	Trunk_Server_Mobile	SM9_CS	None	2	×	c

# 8. Vodafone NL Configuration

The configuration required by Vodafone NL to allow the tests to be carried out are not covered in this document and any further information required should be obtained through the local Vodafone NL 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
- UCM Network Services - Home - Links	Managing: <u>10.80.51.60</u> Username: admin System » Maintenance	
- Virtual Terminals	Maintenance	
- <b>System</b> + Alarms - <u>Maintenance</u> + Core Equipment	<ul> <li>Select by Overlay</li> </ul>	Select by Functionality
Peripheral Equipment     PP Network     Interfaces     Engineered Values     Emergency Services     Software     Customers     Routes and Trunks	<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</select>	
Routes and Trunks     D-Channels     Digital Trunk Interface     Hialing and Numbering Plans	LD 39 - Intergroup Switch and System Clock LD 45 - Background Signaling and Switching LD 46 - Multifrequency Sender LD 48 - Link	< <u>Select Group&gt;</u> D-Channel Diagnostics MSDL Diagnostics
+ Phones	LD 54 - Multifrequency Signaling	TMDI Diagnostics
Tools     Fackup and Restore     Date and Time     Logs and reports     Security     Passwords	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	
+ Policies + Login Options	LD 137 - Core Input/Output LD 143 - Centralized Software Upgrade	

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

Diagnostic Commands		Command Parameters	Action
Status for D-Channel (STAT DCH)	*		Submit
Disable Automatic Recovery (DIS AUTO)	*	ALL	Submit
Enable Automatic Recovery (ENL AUTO)	*	FDL	Submit
Test Interrupt Generation (TEST 100)	*		Submit
Establish D-Channel (EST DCH)	*		Submit
			Cubint
DCHDESAPPL_STATUSLINK_STATUSAUTO_RECV	PDCHBDCH		
	PDCHBDCH	<u>~</u>	

### 9.2. Verify Avaya Aura® Session Manager Operational Status

#### 9.2.1. Verify Avaya Aura® Session Manager is Operational

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

Tests P	ass		~							
Securit	y Module		Up	)						
Service	•		Ac	cept Ne	w Servic	e				
4 Home / Element	s / Session Mana	ger- :	Sessior	n Manag	er					
▼ Session Manager	Home /Elements / Se	ssion M	anager- Se	ession Man	ager					
Dashboard										H
Session Manager	Session Manage	er Da	shboar	d						
Administration	This page provides the overa	ill status a	ind health su	mmary of eac	h administered Ses	sion Manager.				
Communication Profile	Session Manager I	nstanc	es							
Editor		_								
Network Configuration	Service State 🔹		Shutdown S	ystem 🔹	As of 3:07 Pl	м				
Device and Location										
Configuration	1 Item   Refresh   Show	ALL 🚩								Filter: Ena
Application	Session Manager	Туре	Alarms	Tests Pass	Security Module	Service State	Entity Monitoring	Active Call Count	Registrations	Version
Configuration	- Session	_				Accept New			-	
System Status	Manager	Core	0/1/63	×	Up	Service	0/2	0	0	6.1.4.0.61
System Tools	Select : All, None									

Navigate to **Elements**  $\rightarrow$  **Session Manager**  $\rightarrow$  **System Status**  $\rightarrow$  **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	Syr	Reset Synchronize Certificate Management  Connection Status													
1 Item	1 Item   Refresh   Show ALL 🗹														
											Certificate Used				
0	►Show	Session Manager	SM	Up	14	10.10.8.56/24		10.10.8.1	Disabled	5/5	SIP CA				

### 9.2.2. Verify SIP Entity Link Status

Navigate to **Elements**  $\rightarrow$  **Session Manager**  $\rightarrow$  **System Status**  $\rightarrow$  **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 1000Efrom 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.

All Ent	ity Links to SIP Entity: CS	1K					
Sumr	mary View						
1 Item	Refresh						Filter: Ena
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 Avaya SBCE by going through the same process as outlined above but selecting the SIP Entity for the Avaya SBCE in the All Monitored SIP Entities table (not shown).

# 10. Conclusion

These Application Notes describe the configuration necessary to connect Avaya Communication Server 1000E, Avaya Aura® Session Manager and Avaya Session Border Controller for Enterprise to Vodafone Netherlands SIP Trunk Solution comprised of Vodafone Office Voice and Vodafone OneVoice Corporate. Vodafone Netherlands SIP Trunk Solution is a SIP-based Voice over IP solution providing businesses a flexible, cost-saving alternative to traditional hardwired telephony trunks. Vodafone Netherlands SIP Trunk Solution comprising of Vodafone Office Voice and Vodafone OneVoice Corporate passed compliance testing successfully. Please refer to **Section 2.2** for any observations or workarounds relating the testing covered by these Application Notes.

# 11. References

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

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

Additional Vodafone product documentation is available at

http://www.vodafone.nl/zakelijk/totaal\_oplossingen/vast\_en\_mobiel/

### Appendix A – Avaya Communication Server 1000E Software

Communication Server 1000E call server patches and plug ins 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: 2011-09-13 15:12:45 (est)) MDP>LAST SUCCESSFUL MDP REFRESH :2011-10-11 13:28:54 (Local Time) MDP>USING DEPLIST ZIP FILE DOWNLOADED :2011-09-21 10:45:48(est) SYSTEM HAS NO USER SELECTED PEPS IN-SERVICE LOADWARE VERSION: PSWV 100+ INSTALLED LOADWARE PEPS : 3 
 PAT#
 CR #
 PATCH REF #
 NAME
 DATE
 FILENAME

 00
 wi00890367
 ISS1:10F1
 MGCCCD02
 24/04/2012
 MGCCCD02.LW

 01
 wi00832543
 ISS1:10F1
 DSP1AB04
 24/04/2012
 DSP1AB04.LW

 02
 wi00946113
 ISS1:10F1
 MGCBBA15
 24/04/2012
 MGCBBA15.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**

VERS	ION 4121					
RELE	ASE 7					
ISSU	E 50 Q +					
DepL	ist 1: core I	ssue: 01 (created:	2012-05-16	12:51:18 (e	st))	
IN-S	ERVICE PEPS					
PAT#	CR #	PATCH REF #	NAME	DATE	FILENAME	SPECINS
000	wi00832106	ISS1:10F1			p30550 1.cpl	NO
001	wi00835294	ISS1:10F1			p30565_1.cpl	NO
002	wi00897176	ISS1:10F1	p30418_1	18/06/2012	p30418_1.cpl	NO
003	wi00925218	ISS1:10F1		18/06/2012		NO
004	wi00839821	ISS1:10F1		18/06/2012		NO
005	wi00937672	ISS1:10F1			p31276_1.cpl	NO
006	wi00842409	ISS1:10F1			p30621 1.cpl	NO
007	wi00838073	ISS1:10F1			p30588_1.cpl	NO
008	wi00937114	ISS1:10F1		18/06/2012		NO
009	wi00841980	ISS1:10F1		18/06/2012	p30618_1.cpl	NO
010	wi00955753	ISS1:10F1		18/06/2012		NO
011	wi00839255	ISS1:10F1		18/06/2012		NO
012	wi00843623	ISS1:10F1		18/06/2012		YES
013	WI00843571	ISS1:10F1		18/06/2012		NO
014	wi00871739	ISS1:10F1		18/06/2012		NO
015	wi00852365	ISS1:10F1		18/06/2012		NO
016	wi00852389	ISS1:10F1	- <u> </u>	18/06/2012	÷ _ ÷	NO
017	wi00839134	ISS1:10F1	p30698_1	18/06/2012	p30698_1.cpl	YES

HD; Reviewed: SPOC 1/28/2013

Solution & Interoperability Test Lab Application Notes ©2013 Avaya Inc. All Rights Reserved.

018	wi00856702	ISS1:10F1	p30573 1	18/06/2012	p30573 1.cpl	NO
019	wi00857566	ISS1:10F1	p30766 1	18/06/2012	p30766 1.cpl	NO
020	wi00850521	ISS1:10F1	p30709 1	18/06/2012	p30709 1.cpl	YES
021	wi00903381	ISS1:10F1	p30421 1		p30421 1.cpl	NO
022	wi00863876		p30787 1			
		ISS1:10F1			p30787_1.cpl	NO
023	WI00853473	ISS1:10F1	p30625 1		p30625 1.cpl	NO
024	wi00854130	ISS1:10F1	p30443_1	18/06/2012	p30443_1.cpl	NO
025	wi00875425	ISS1:10F1	p30943 1	18/06/2012	p30943 1.cpl	NO
026	wi00978883	ISS1:10F1	p31770 1	18/06/2012	p31770 1.cpl	NO
027	wi00875701	ISS1:10F1	p30942 1		p30942 1.cpl	NO
028			p31362 1		p31362 1.cpl	
	wi00936935	ISS1:10F1				NO
029	wi00877367	ISS1:10F1	p30534_1		p30534_1.cpl	NO
030	wi00871969	ISS1:10F1	p30768_1	18/06/2012	p30768_1.cpl	NO
031	wi00886321	ISS1:10F1	p31009 1	18/06/2012	p31009 1.cpl	NO
032	WI00836334	ISS1:10F1	p30481 1	18/06/2012	p30481 1.cpl	NO
033	wi00836182	ISS1:10F1	p30450 1		p30450 1.cpl	NO
034	wi00858335	ISS1:10F1	p30819 1		p30819 1.cpl	NO
035	wi00860279	ISS1:10F1	p30789_1		p30789_1.cpl	NO
036	wi00953900	ISS1:10F1	p31494 1	18/06/2012	p31494 1.cpl	NO
037	wi00854415	ISS1:10F1	p30593 1	18/06/2012	p30593 1.cpl	NO
038	WI00836292	ISS1:10F1	p30554 1		p30554 1.cpl	NO
039	WI00839794	ISS1:10F1	p28647 1		p28647 1.cpl	NO
		ISS1:10F1 ISS1:10F1			p30447 1.cpl	
040	wi00824257		p30447_1			NO
041	wi00827950	ISS2:10F1	p30471_2		p30471_2.cpl	NO
042	wi00949273	ISS1:10F1	p31411 1	18/06/2012	p31411 1.cpl	NO
043	WI00854150	ISS1:10F1	p30468 1	18/06/2012	p30468 1.cpl	NO
044	wi00873382	ISS1:10F1	p30832 1		p30832 1.cpl	NO
045	wi00853178	ISS1:10F1	p30719 1		p30719 1.cpl	NO
046	wi00869695	ISS1:10F1	p30654 1		p30654 1.cpl	NO
047	wi00834382	ISS1:10F1	p30548_1		p30548_1.cpl	NO
048	wi00951427	ISS1:10F1	p31478 1		p31478 1.cpl	NO
049	wi00946558	ISS1:10F1	p31358 1	18/06/2012	p31358 1.cpl	NO
050	wi00903369	ISS1:10F1	p31165 1		p31165 1.cpl	NO
051	wi00927321	ISS1:10F1	p31286 1		p31286 1.cpl	YES
052	wi00923899	ISS1:10F1	p31270_1		p31270_1.cpl	NO
053	wi00949627	ISS1:10F1	p31462_1		p31462_1.cpl	NO
054	wi00990993	ISS1:10F1	p31825 1	18/06/2012	p31825 1.cpl	NO
055	wi00865477	ISS1:10F1	p30894 1	18/06/2012	p30894 1.cpl	YES
056	wi00962211	ISS1:10F1	p31580_1	18/06/2012	p31580 1.cpl	NO
057	wi00883604	ISS1:10F1	p30973 1		p30973 1.cpl	NO
058	wi00898327	ISS1:10F1	p31136_1	18/06/2012		NO
059	wi00856410	ISS1:10F1	p30749 1		p30749 1.cpl	NO
060	wi00932948	ISS1:10F1	p31077 1	18/06/2012	p31077 1.cpl	NO
061	wi00905600	ISS1:10F1	p31201 1	18/06/2012	p31201 1.cpl	NO
062	wi00979591	ISS1:10F1	p31746 1		p31746 1.cpl	NO
063	wi00879526	ISS1:10F1	p31007 1		p31007 1.cpl	NO
064	wi00962955	ISS1:10F1	p31585_1	18/06/2012	p31585_1.cpl	NO
065	wi00984178	ISS1:10F1	p31786 1		p31786 1.cpl	NO
066	wi00907707	ISS1:10F1	p31228 1	18/06/2012	p31228_1.cpl	NO
067	wi00857362	ISS1:10F1	p30782_1	18/06/2012	p30782_1.cpl	NO
068	wi00974635	ISS1:10F1	p31695 1	18/06/2012	p31695 1.cpl	YES
069	wi00894443	ISS1:10F1	p31093 1	18/06/2012	p31093 1.cpl	NO
		ISS1:10F1 ISS1:10F1	p31409 1		p31409 1.cpl	
070	wi00942734			18/06/2012		NO
071	wi00841273	ISS1:10F1	p30713 1	18/06/2012	p30713 1.cpl	NO
072	wi00974272	ISS1:10F1	p31690_1	18/06/2012	p31690_1.cpl	YES
073	wi00948931	ISS1:10F1	p31407 <sup>-</sup> 1	18/06/2012	p31407 <sup>1</sup> .cpl	NO
074	wi00891626	ISS1:10F1	p31051 1	18/06/2012	p31051 1.cpl	YES
075	wi00929140	ISS1:10F1	p31284 1	18/06/2012	p31284 1.cpl	NO
			p31204_1 p30986 1		p30986 1.cpl	
076	wi00925208	ISS1:10F1		18/06/2012		NO
077	wi00958776	ISS1:10F1	p31542 1	18/06/2012	p31542 1.cpl	YES
078	wi00880836	ISS1:10F1	p30976_1	18/06/2012	p30976_1.cpl	NO
079	WI00927300	ISS1:10F1	p30999_1	18/06/2012	p30999 1.cpl	NO
080	wi00943172	ISS1:10F1	p31402 1	18/06/2012	p31402 1.cpl	NO
081	wi00826075	ISS1:10F1	p30452 1	18/06/2012	p30452 1.cpl	NO
			p30432_1 p25747 1		p25747 1.cpl	
082	wi00881777	ISS1:10F1	-	18/06/2012		NO
083	wi00948274	ISS1:10F1	p31365_1	18/06/2012	p31365_1.cpl	NO
084	wi00908933	ISS1:10F1	p31239 1	18/06/2012	p31239 1.cpl	NO
085	wi00865477	ISS1:10F1	p30892 1	18/06/2012	p30892 1.cpl	YES
086	wi00968531	ISS1:10F1	p31645 1	18/06/2012	p31645 1.cpl	NO
087	wi00961267	ISS1:10F1	p30288 1	18/06/2012	p30288 1.cpl	NO
088	wi00930864		p31325 1	18/06/2012	p31325 1.cpl	
000	W100930004	ISS1:10F1	P21222 1	10/00/2012	barasa r.cbr	NO

Solution & Interoperability Test Lab Application Notes ©2013 Avaya Inc. All Rights Reserved.

089	wi00898200	ISS1:1of1	p31274 1		p31274 1.cpl	NO
090	wi00946876	ISS1:10F1	p31430 1	18/06/2012	p31430 1.cpl	NO
091	wi00936714	ISS1:10F1	p31379 1	18/06/2012	p31379 1.cpl	NO
092	wi00959457	ISS1:10F1	p31551 1		p31551 1.cpl	NO
093	wi00969581	ISS1:10F1	p31661 1		p31661 1.cpl	YES
094	wi00956885	ISS1:10F1	p31489 1		p31489 1.cpl	NO
095	wi00973241	ISS1:10F1	p31715_1		p31715_1.cpl	NO
096	wi00946282	ISS1:10F1	p31204 1	18/06/2012	p31204 1.cpl	NO
097	wi00840590	ISS1:10F1	p30767 1	18/06/2012	p30767 1.cpl	NO
098	wi00897082	ISS1:10F1	p31124 1		p31124 1.cpl	NO
099	wi00896394	ISS1:10F1	p30807 1		p30807 1.cpl	NO
100	wi00909476	ISS1:10F1	p31340_1		p31340_1.cpl	NO
101	wi00887744	ISS2:10F1	p31026_2		p31026_2.cpl	NO
102	wi00865477	ISS1:10F1	p30896 1	18/06/2012	p30896 1.cpl	YES
103	wi00957252	ISS1:10F1	p31530 1	18/06/2012	p31530 1.cpl	NO
104	wi00859123	ISS1:10F1	p30648_1		p30648 1.cpl	NO
105	wi00895181	ISS1:10F1	p31106 1		p31106 1.cpl	NO
106	wi00938555	ISS1:10F1	p30881_1		p30881_1.cpl	YES
107	wi00993648	ISS1:10F1	p31867 1		p31867 1.cpl	NO
108	wi00931028	ISS1:10F1	p31354 1	18/06/2012	p31354 1.cpl	YES
109	wi00907697	ISS1:10F1	p31227 1	18/06/2012	p31227 1.cpl	NO
110	wi00905660	ISS1:10F1	p27968 1		p27968 1.cpl	NO
111	wi00900096	ISS1:10F1	p31006 1		p31006 1.cpl	NO
112	wi00900766	ISS1:10F1	p31159_1		p31159_1.cpl	NO
113	wi00865477	ISS1:10F1	p30898 1	18/06/2012		YES
114	wi00906022	ISS1:10F1	p31202 1	18/06/2012	p31202 1.cpl	NO
115	wi00856991	ISS1:10F1	p17588_1	18/06/2012	p17588 1.cpl	NO
116	wi00880386	ISS1:10F1	p30977 1		p30977 1.cpl	NO
117	wi00688381	ISS1:10F1	p30104 1		p30104 1.cpl	NO
			÷			
118	wi00908598	ISS1:10F1	p31235_1		p31235_1.cpl	NO
119	wi00890475	p30952	p31048 1	18/06/2012	p31048 1.cpl	NO
120	wi00868729	ISS1:10F1	p31163 1	18/06/2012	p31163 1.cpl	NO
121	wi00956788	ISS1:10F1	p31638 1	18/06/2012	p31638 1.cpl	NO
122	wi00859499	ISS1:10F1	p30694 1		p30694 1.cpl	NO
123			p31105 1			
	wi00895090	ISS1:10F1			p31105_1.cpl	NO
124	wi00869243	ISS1:10F1	p30848_1		p30848_1.cpl	NO
125	wi00930649	ISS1:10F1	p31570 1	18/06/2012	p31570 1.cpl	NO
126	wi00899584	ISS1:10F1	p30809 1	18/06/2012	p30809 1.cpl	NO
127	wi00932204	ISS2:10F1	p31305_2	18/06/2012	p31305 2.cpl	NO
128	wi00951837	ISS1:10F1	p31485 1		p31485 1.cpl	NO
129						
	wi00865477	ISS1:10F1	p30893_1	18/06/2012	p30893_1.cpl	YES
130	wi00946477	ISS1:10F1	p31426 1		p31426 1.cpl	NO
131	wi00959284	ISS1:10F1	p31531_1	18/06/2012	p31531_1.cpl	NO
132	wi00855423	ISS1:10F1	p31328_1	18/06/2012	p31328 1.cpl	YES
133	wi00900668	ISS1:10F1	p30456 1	18/06/2012	p30456 1.cpl	NO
134	wi00862574	iss1:1of1	p30870 1		p30870 1.cpl	NO
135	wi00894243	ISS1:10F1	p31087_1	18/06/2012	p31087_1.cpl	NO
136	wi00959820	ISS1:10F1	p31562 1	18/06/2012	p31562 1.cpl	NO
137	WI00889786	ISS1:10F1	p30750 1	18/06/2012	p30750_1.cpl	NO
138	wi00943748	ISS1:10F1	p31516 1	18/06/2012	p31516 1.cpl	NO
139	wi00959463	ISS1:10F1	p31528 1	18/06/2012	p31528 1.cpl	NO
140	WI00928455	ISS1:10F1	p31297 1	18/06/2012	p31297 1.cpl	NO
141	wi00896680	ISS1:10F1	p30357_1	18/06/2012	p30357_1.cpl	NO
142	wi00925141	ISS1:10F1	p30802 1	18/06/2012	p30802 1.cpl	NO
143	wi00968157	ISS1:10F1	p31637_1	18/06/2012	p31637_1.cpl	NO
144	wi00884699	ISS1:10F1	p31000 1	18/06/2012	p31000 1.cpl	YES
145	wi00932958	ISS1:10F1	p31115 1	18/06/2012	p31115 1.cpl	NO
146	wi00921295	ISS1:10F1	p31265 1	18/06/2012	p31265 1.cpl	NO
147	wi00906163	ISS1:10F1	p31205_1	18/06/2012	p31205_1.cpl	NO
148	wi00903437	ISS1:10F1	p31167 1	18/06/2012	p31167 1.cpl	NO
149	wi00960133	ISS2:10F1	p31557 2	18/06/2012	p31557 2.cpl	NO
150	wi00879322	ISS1:10F1	p30954 1	18/06/2012	p30954 1.cpl	NO
151	wi00896420	ISS1:10F1	p30867 1	18/06/2012	p30867 1.cpl	NO
152	wi00924886	ISS1:10F1	p31062_1	18/06/2012	p31062_1.cpl	YES
153	wi00877592	ISS1:10F1	p30880 1	18/06/2012	p30880 1.cpl	NO
154	wi00981711	ISS1:10F1	p31766_1	18/06/2012	p31766_1.cpl	NO
155	wi00882293	ISS1:10F1	p31010 <sup>-</sup> 1	18/06/2012	p31010_1.cpl	NO
156	wi00905297	ISS1:10F1	p31195 1	18/06/2012	p31195 1.cpl	NO
157	wi00968353	ISS1:10F1	p31412 1	18/06/2012	p31412 1.cpl	NO
158	wi00975133			18/06/2012	p31731 1.cpl	
		ISS1:10F1	p31731_1			NO
159	wi00897096	ISS1:10F1	p30676 1	18/06/2012	p30676 1.cpl	NO

Solution & Interoperability Test Lab Application Notes ©2013 Avaya Inc. All Rights Reserved.

160	wi00969890	ISS1:10F1	-		p31664 1.cpl	YES
161	wi00967510	ISS1:10F1	p31147 1		p31147 1.cpl	NO
162	wi00891621	ISS1:10F1	p31037_1		p31037_1.cpl	NO
163	wi00968448	ISS1:10F1	p31648_1		p31648_1.cpl	YES
164	wi00945997	ISS1:10F1	p31641_1		p31641_1.cpl	NO
165	wi00967509	ISS1:10F1	p31294 1		p31294 1.cpl	NO
166	wi00969208	ISS1:10F1	p31656_1		p31656_1.cpl	NO
167	wi00976209	ISS1:10F1	p31717 1		p31717 1.cpl	YES
168	wi00969039	ISS1:10F1	p31643_1		p31643_1.cpl	NO
169 170	wi00977436 wi00950575	ISS1:10F1 ISS1:10F1	p31834_1 p31724_1		p31834_1.cpl p31724 1.cpl	NO NO
171	wi00975659	ISS1:10F1	p31707 1		p31707 1.cpl	NO
172	wi00949410	ISS1:10F1	p31248 1		p31248 1.cpl	NO
173	wi00977978	ISS1:10F1	p31831 1		p31831 1.cpl	NO
174	wi00965285	ISS1:10F1	p31476 1		p31476 1.cpl	NO
175	wi00979414	ISS1:10F1	p31748 1		p31748 1.cpl	YES
176	wi00982243	ISS1:10F1	p31797 1		p31797 1.cpl	NO
177	wi00960809	ISS1:10F1	p31564 1		p31564 1.cpl	NO
178	wi00964006	ISS1:10F1	p31595 1		p31595 1.cpl	YES
179	wi00965838	ISS1:10F1	p31623 1		p31623 1.cpl	NO
180	wi00977393	ISS1:10F1	p31744 1		p31744 1.cpl	YES
181	wi00994044	ISS1:10F1	p31871 1		p31871 1.cpl	NO
182	wi00988285	ISS1:10F1	p31824 1		p31824 1.cpl	NO
183	wi00982566	ISS1:10F1	p31774 1		p31774 1.cpl	NO
184	wi00906350	ISS1:10F1	p31219 1		p31219 1.cpl	NO
185	wi00983007	ISS1:10F1	p31778 1	18/06/2012	p31778 1.cpl	YES
186	wi00998121	ISS1:10F1	p31897_1	18/06/2012	p31897 1.cpl	NO
187	wi01003999	ISS1:10F1	p31946 <sup>-</sup> 1	18/06/2012	p31946 1.cpl	YES
188	wi00973270	ISS1:10F1	p31751_1	18/06/2012	p31751_1.cpl	NO
189	wi00992974	ISS1:10F1	p31889_1		p31889_1.cpl	NO
190	wi00989828	ISS1:10F1	p31836 1	18/06/2012	p31836 1.cpl	NO
191	wi00985153	ISS1:10F1	p31859_1		p31859_1.cpl	NO
192	wi00996639	ISS1:10F1	p31886_1		p31886_1.cpl	NO
193	wi00944019	ISS1:10F1	p31874_1		p31874_1.cpl	NO
194	wi00971029	ISS1:10F1	p31794_1		p31794_1.cpl	NO
195	wi00971209	ISS1:10F1	p31750_1		p31750_1.cpl	NO
196	wi00986337	ISS1:10F1	p31803 1		p31803 1.cpl	NO
197	wi00991892	ISS1:10F1	p31853_1		p31853_1.cpl	NO
198	wi00983505	ISS1:10F1	p31758 1		p31758 1.cpl	NO
199 200	wi00996630 wi00984652	ISS1:10F1 ISS1:10F1	p31789_1 p31792_1		p31789_1.cpl p31792 1.cpl	NO NO
200	wi00974856	ISS1:10F1 ISS1:10F1	p31823 1		p31823 1.cpl	NO
201	wi00967512	ISS1:10F1	p31384 1		p31384 1.cpl	NO
202	wi00957235	ISS1:10F1	p31798 1		p31798 1.cpl	NO
203	wi00991523	ISS1:10F1	p31603 1		p31603 1.cpl	NO
205	wi00984888	ISS1:10F1	p31795 1		p31795 1.cpl	NO
206	wi00997559	ISS1:10F1	p31898 1		p31898 1.cpl	NO
207	wi00980476	ISS1:10F1	p31387 1		p31387 1.cpl	NO
	wi00987089				p31809_1.cpl	NO
	wi00985760	ISS1:10F1			p31913 1.cpl	NO
		ISS1:10F1	p31869 1	18/06/2012	p31869 1.cpl	NO
211	wi00987424 wi00992921	ISS1:10F1	p31815_1	18/06/2012	p31815_1.cpl p31878_1.cpl	NO
212	wi00992921	ISS1:10F1	p31878_1	18/06/2012	p31878_1.cpl	NO
213	wi00993377	ISS1:10F1	p31860 1	18/06/2012	p31860 1.cpl	NO
	wi00978064	ISS1:10F1	p31760_1	18/06/2012	p31760_1.cpl	NO
	LAST SUCCESSFUL			•	· ·	
MDP>USING DEPLIST ZIP FILE DOWNLOADED :2012-06-06 11:11:47(est)						
Communication Server 1000E signaling server service updates						
Prod	uct Release: 7.5	0.17.00				
Tro or	and the second s					

In syst PATCH#	NAME p30260 1	1 IN_SERVICE Yes	DATE 15/06/12	SPECINS NO	TYPE FRU	RPM cs1000-pi-control-1.00.00.00-00.noarch
In Syst PATCH# 0 1 3	em service u IN_SERVICE No Yes Yes	updates: 26	SPECINS NO NO NO	REMOVABI YES YES YES	E NA CS CS	•

Solution & Interoperability Test Lab Application Notes ©2013 Avaya Inc. All Rights Reserved.

4		3/04/11		YES	cs1000-dbcom-7.50.17-02.i386.000		
5		/03/12		YES	cs1000-mscAnnc-7.50.17.16-1.i386.000		
6		/03/12		YES	cs1000-mscTone-7.50.17.16-1.i386.000		
7 9		2/03/12		YES	cs1000-mscMusc-7.50.17.16-2.i386.000		
9 11		3/05/12 7/01/12		YES YES	cs1000-vtrk-7.50.17.16-64.i386.000 cs1000-baseWeb-7.50.17.16-1.i386.001		
12		//01/12		ils Yes	cs1000-baseweb-7.50.17.16-1.1386.001 cs1000-shared-pbx-7.50.17.16-1.i386.000		
13		/01/12		YES	cs1000-kcv-7.50.17.16-1.1386.000		
14		/03/12		YES	cs1000-sps-7.50.17.16-4.i386.000		
15		/01/12		YES	cs1000-ipsec-7.50.17.16-1.i386.000		
19		/01/12		YES	ipsec-tools-0.6.5-14.el5.3 avaya 1.i386.000		
20		/01/12	NO	YES	spiritAgent-6.1-1.0.0.108.208.i386.000		
23	No 06	5/06/12	NO	YES	cs1000-pd-7.50.17.16-1.i386.000		
24	Yes 06	5/06/12	NO	YES	cs1000-patchWeb-7.50.17.16-6.i386.000		
25	No 06	5/06/12	NO	YES	cs1000-csmWeb-7.50.17.16-4.i386.000		
26		5/06/12		YES	cs1000-linuxbase-7.50.17.16-10.i386.000		
27		5/06/12		YES	cs1000-ncs-7.50.17.16-1.i386.000		
28		5/06/12		YES	cs1000-bcc-7.50.17.16-62.i386.000		
29		5/06/12		YES	cs1000-dmWeb-7.50.17.16-3.i386.000		
30		5/06/12		YES	cs1000-Jboss-Quantum-7.50.17.16-24.i386.000		
31 32		5/06/12 5/06/12		YES YES	cs1000-EmCentralLogic-7.50.17.16-2.i386.000 cs1000-emWeb 6-0-7.50.17.16-27.i386.000		
32		5/06/12		YES	cs1000-emweb_6-0-7.50.17.16-27.1386.000 cs1000-emWebLocal 6-0-7.50.17.16-1.i386.000		
55	100 00	,,00/12	110	120	01100 CHINEDHOCUL_0 0 7.50.17.10-1.1500.000		
		Comm	unication S	Server 100	0E system software		
D. I	- D.l	7 00					
	t Release: 7.50.1	.7.00					
	pplications		7 60 17	[mat - ] ]]			
bas NTA			7.50.17 7.50.17	[patched]			
	15		7.50.17				
sm csl	000-Auth		7.50.17				
	ss-Quantum		7.50.17	[patched]			
	onitor		7.50.17	[pacened]			
	eAppUtils		7.50.17	[patched]			
	Tools		7.50.17				
nnni			7.50.17				
	mUtil		7.50.17				
	-logging		7.50.17	[patched]			
dmW			n/a	[patched]			
	eWeb		n/a	[patched]			
ips			n/a	[patched]			
	p-Daemon-TrapLib		7.50.17				
ISECSH		7.50.17					
-	chWeb		n/a	[patched]			
EmCentralLogic n/a Application configuration: CS+SS+EM		[patched]					
Packag		Lon: CS+S	S+EM				
CS+SS+1							
	uration version:	7 50	.17-00				
CONTIN		,	7.50.17				
dbc	om		7.50.17	[patched]			
	ogin		7.50.17				
	ServerShare		7.50.17	[patched]			
csv			7.50.17				
tps			7.50.17.16				
vtr	k		7.50.17.16	[patched]			
pd			7.50.17.16				
sps			7.50.17.16				
ncs			7.50.17.16	[patched]			
gk Rug			7.50.17				
	onfig		7.50.17	In the state			
	eb 6-0		7.50.17	[patched]			
emw	ebLocal 6-0 Web		7.50.17 n/a	[patched] [patched]			
bcc			7.50.17	[patched]			
ftr			7.50.17	[patched]			
-	000WebService 6-0	)	7.50.17	[pacened]			
	agedElementWebSer		7.50.17				
	mscAnnc 7.50.17.16 [patched]						

Solution & Interoperability Test Lab Application Notes ©2013 Avaya Inc. All Rights Reserved.

mscAttn	7.50.17	
mscConf	7.50.17	
mscMusc	7.50.17.16	[patched]
mscTone	7.50.17.16	[patched]

#### ©2013 Avaya Inc. All Rights Reserved.

Avaya and the Avaya Logo are trademarks of Avaya Inc. All trademarks identified by ® and <sup>TM</sup> are registered trademarks or trademarks, respectively, of Avaya Inc. All other trademarks are the property of their respective owners. The information provided in these Application Notes is subject to change without notice. The configurations, technical data, and recommendations provided in these Application Notes are believed to be accurate and dependable, but are presented without express or implied warranty. Users are responsible for their application of any products specified in these Application Notes.

Please e-mail any questions or comments pertaining to these Application Notes along with the full title name and filename, located in the lower right corner, directly to the Avaya DevConnect Program at <u>devconnect@avaya.com</u>.