

Application Notes for Configuring Avaya Communication Server 1000E R7.0, Avaya Network Routing Server and Avaya Aura[®] Session Manager R6.1 to support Vodafone Germany SIP Trunk Service – Issue 1.0

Abstract

These Application Notes describe the steps to configure Session Initiation Protocol (SIP) Trunking between Vodafone Germany SIP Trunk Service and an Avaya SIP enabled Enterprise Solution. The Avaya solution consists of Avaya Aura[®] Session Manager. Avaya Network Routing Server and Avaya Communication Server 1000E.

Vodafone 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 lab.

1. Introduction

These Application Notes describe the steps to configure Session Initiation Protocol (SIP) trunking between Vodafone Germany SIP Trunk Service and an Avaya SIP enabled enterprise solution. The Avaya solution consists of Avaya Aura[®] Session Manager, Avaya Network Routing Server (NRS) and Avaya Communication Server 1000E (CS1000E) connected to Vodafone Germany SIP Trunk Service. Customers using this Avaya SIP-enabled enterprise solution with Vodafone Germany SIP Trunk Service are able to place and receive PSTN calls via a dedicated Internet connection and the SIP protocol. This converged network solution is an alternative to traditional PSTN trunks. This approach normally results in lower cost for the enterprise.

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, NRS and Session Manager. The enterprise site was configured to use the SIP Trunk Service provided by Vodafone Germany.

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 assigned by Vodafone Germany. Incoming PSTN calls were made to Unistim, SIP, Digital and analog telephones at the enterprise.
- Outgoing calls from the enterprise to the PSTN were made from Unistim, SIP, Digital and analog telephones.
- G.729 annex b (silence suppression) is not supported by Vodafone Germany SIP Trunk Service and thus was not tested.
- Calls using G.729 and G.711A codec's tested.
- T.38 for fax is not supported by Vodafone and thus was not tested.
- User features such as hold and resume, transfer, conference, call forwarding, etc.
- Caller ID Presentation and Caller ID Restriction.
- Call coverage and call forwarding for endpoints at the enterprise site.
- Mobile-X mid call features was not tested.

2.2. Test Results

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

- Inbound or outbound fax using T.38 was not tested. Vodafone does not support T.38 on their network.
- Incoming call to a SIP Client using DTMF RFC 2833 does not work. Vodafone uses payload type 106 for telephone event. The CS1000E agrees to use this but then sends out an INVITE to use payload type 101, Vodafone respond with 2000K but continues to use payload type 106 for DTMF. The DTMF tones are sent from Vodafone with an unrecognized payload type that the CS1000E does not recognize.

- Mobile-X handoff does not work from twinned desk phone. INVITE sent to PSTN mobile contains no SDP information so the call fails. Vodafone Germany does not support an INVITE that does not contain any SDP content. This behaviour of sending the INVITE with no SDP from the CS1000E is per design.
- DTMF tones incoming to a Call Pilot application do not work. Vodafone use payload type 106 for telephone event. The CS1000E agrees to use this but then sends out an INVITE to use payload type 101, Vodafone respond with 2000K but continue to use payload type 106 for DTMF. The DTMF tones are sent from Vodafone with an unrecognized payload type that the CS1000E/Call Pilot does not recognize.
- Blind transfers do not work between the CS1000E and Vodafone's SIP network.
- In the live environment it has been noticed that the Diversion to History-Info Header Adaptation is needed on the Session Manager (DiversionTypeAdapter). This was not configured during the Compliance testing. Vodafone require the use of the Diversion header, rather than the History-Info header to provide information related to how and why the call arrives to a specific application or user. This is relevant for Call Forward call scenarios.

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 DE products please visit the website at <u>www.vodafone.de</u> or contact an authorized Vodafone DE representative.

3. Reference Configuration

Figure 1 illustrates the test configuration. The test configuration shows an enterprise site connected to Vodafone Germany using SIP Trunks. Located at the enterprise site are Session Manager, NRS and a Communication Server 1000E. Endpoints are Avaya 1140 series IP telephones, Avaya 1200 series IP telephones, Avaya IP Soft phone SMC3456, Avaya Digital telephone, Analog 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.

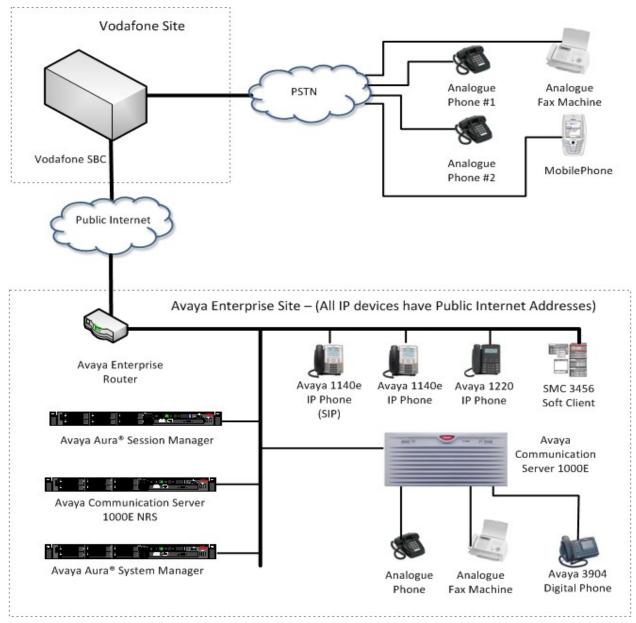


Figure 1: Network Topology of Vodafone Germany SIP Trunk with Avaya Communication Server 1000E

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|----------------|
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4. Equipment and Software Validated

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

| Equipment | Software |
|---|--|
| Avaya S8800 server | Avaya Aura® Session Manager R6.1 |
| | Build: 6.1.4.0.614005 |
| Avaya S8800 server | Avaya Aura® System Manager R6.1 |
| | Load: 6.1.8.1.1551Service Pack 4 |
| Avaya Communication Server 1000E | Avaya Communication Server 1000E R 7.0 |
| running on CP+PM server as co-resident | Service Pack 7.00.20 |
| configuration | Deplist: x21 07.00Q + |
| | All CS1000E patches listed in Appendix A |
| Avaya Communication Server 1000E Media | CSP Version: MGCC BD01 |
| Gateway | MSP Version: MGCM AB01 |
| | APP Version: MGCA BA07 |
| | FPGA Version: MGCF AA18 |
| | BOOT Version: MGCB BA07 |
| | DSP1 Version: DSP1 AB03 |
| Avaya 1140e and 1230 Unistim Telephones | FW: 0625C7J |
| Avaya 1140e and 1230 SIP Telephones | FW: 04.01.13.00.bin |
| Avaya SMC 3456 | Version 2.6 build 57666 |
| Avaya Analogue Telephone | N/A |
| Avaya M3904 Digital Telephone | N/A |
| Vodafone Germany SIP Trunk Service | Softswitch: iSSW - 20.50.34-olxi |
| | SBC: Acme Packet 4250 - 6.1.0 MR5 |
| | MG: Cisco MGX 8880 - 5.5(10.204)P4 |

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 (analog, SIP and IP phones). SIP trunks are established between Communication Server 1000E and NRS and also between the NRS and the Session Manager. These SIP trunks carry SIP Signaling associated with Vodafone Germany's SIP Trunk Service. For incoming calls, the Session Manager receives SIP messages from Vodafone's SBC. Once a SIP message arrives at the Session Manager incoming digit translation is performed before the SIP messages are directed to the NRS, the NRS will then direct the SIP messages to Communication Server 1000E (see Figure 1). Once a SIP message arrives at Communication Server 1000E, further incoming call treatment such as 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 NRS. The NRS directs the outbound SIP messages to the Session Manager and this then directs the traffic on to Vodafone Germany's network. Specific Communication Server 1000E configuration was performed using Element Manager and the system terminal interface. The general installation of the Communication

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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. Next 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 - Commun CPPM - Pentium M 1.4 GP | | n Servei | f 1000E | /CPPM Lir | nux | |
|--|---------|----------|---------|-----------|-----|--|
| IPMGs Registered: | | 1 | | | | |
| IPMGs Unregistered: | | 0 | | | | |
| IPMGs Configured/unreg | istered | : 0 | | | | |
| TRADITIONAL TELEPHONES | 32767 | LEFT | 32766 | USED | 1 | |
| DECT USERS | 32767 | LEFT | 32767 | USED | 0 | |
| IP USERS | 32767 | LEFT | 32744 | USED | 23 | |
| BASIC IP USERS | 32767 | LEFT | 32766 | USED | 1 | |
| TEMPORARY IP USERS | 32767 | LEFT | 32767 | USED | 0 | |
| DECT VISITOR USER | 10000 | LEFT | 10000 | USED | 0 | |
| ACD AGENTS | 32767 | LEFT | 32752 | USED | 15 | |
| MOBILE EXTENSIONS | 32767 | LEFT | 32767 | USED | 0 | |
| TELEPHONY SERVICES | 32767 | LEFT | 32767 | USED | 0 | |
| CONVERGED MOBILE USERS | 32767 | LEFT | 32767 | USED | 0 | |
| NORTEL SIP LINES | 32767 | LEFT | 32765 | USED | 2 | |
| THIRD PARTY SIP LINES | 32767 | LEFT | 32761 | USED | 6 | |
| SIP CONVERGED DESKTOPS | 32767 | LEFT | 32767 | USED | 0 | |
| SIP CTI TR87 | 32767 | LEFT | 32767 | USED | 0 | |
| SIP ACCESS PORTS 32 | 2767 | LEFT 327 | '52 U | ISED 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 Germany 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 **VGW and Codecs** property page and configure the Communication Server 1000E General codec settings as in the next screenshot. The values highlighted are required for correct operation.

| Node ID: 10 - 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 | | | | | |
| Voice Codecs | | | | | | |

Next, scroll down and configure the **G.711** and **G.729** codec settings. The relevant settings are highlighted in the following screenshot.

| Node ID: 10 - Voice Gatew | ay (VGW) and Codecs | |
|------------------------------|---|----------------|
| General Voice Codecs Fax | | |
| Voice Codecs | | ^ |
| | Codec G711: 🗹 Enabled (required) | |
| | Voice payload size: 20 💌 (milliseconds per frame) | |
| Va | ice playout (jitter buffer) delay: 40 💌 80 💌 (milliseconds) | |
| | Nominal Maximum | |
| | Maximum delay may be automatically adjusted ba settings. | sed on nominal |
| | Voice Activity Detection (VAD) | ≡ |
| | Codec G729: 🗹 Enabled | |
| | Voice payload size: 20 💌 (milliseconds per frame) | |
| Vo | ice playout (jitter buffer) delay: 40 💌 80 💌 (milliseconds) | |
| | Nominal Maximum | |
| | Maximum delay may be automatically adjusted ba settings. | sed on nominal |
| | Voice Activity Detection (VAD) | |

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 signalling server. The Node ip is the ip address that the IP phones use to register. This is also where the SIP trunk connection is made to the NRS. The system in the lab is a Co-Resident Call server and Signalling Server system which also acts as the NRS.

| Node Details (ID: 10 - SIP Line, LTPS, Gateway (SIPGw)) | | | | | | |
|---|------------------|--|---------------------------------|-----------|-----------------------|--|
| Node Details (ID: 10 - S | SIP Line, LIPS | S, Gateway (SIPGW)) | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| Node ID: 10 | * (0 | 0-9999) | | | | |
| Call server IP address: 19 | 2.168.0.2 * | TLAN address type | : IPv4 only | | | |
| | | | IPv4 and IPv6 | | = | |
| Embedded LAN (ELAN) | | Telephony LAN (TLAN) |) | | | |
| Gateway IP address: 19 | 2.168.0.1 * | Node IPv4 address | | ± | | |
| Subnet mask: 25 | \$.255.255.0 * | Subnet mask | : 255.255.255.128 | ż | | |
| | | | | | | |
| | | Node IPv6 address: | - | | ~ | |
| * Required Value. | | | | Save | Cancel | |
| Associated Signaling S | Servere & Car | de | | | | |
| Associated Signaling (| Servers & Car | us | | | | |
| | | | | | | |
| Select to add 🗸 Add | Remove | Make Leader | | Prir | nt Refresh | |
| | | Make Leader | | <u> </u> | it <u>itteireon</u> | |
| Hostname - | <u>Type</u> | | ELAN IP | TLAN IPv4 | Role | |
| cs1kpublic | Signaling_Server | SIP Line, LTPS, Gateway, PD, Presence Publisher, IP Media | 192.168.0.2 | 0.12.00.0 | 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 **silavaya.com**. The SIP Domain Name configured in the Signaling Server properties must match the Service Domain name configured in the Session Manager and on the NRS.
- 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 10

| Node ID: 10 - Virtual Trunk Gateway Configuration Details | | | | | |
|---|---------------------------|---|--|--|--|
| General SIP Gateway Settings | SIP Gateway Services | | | | |
| General | | Virtual Trunk Network Health Monitor | | | |
| Vtrk gateway application: | SIP Gateway (SIPGw) 💌 | Monitor IP addresses (listed below) | | | |
| SIP domain name: | silavaya.com | * Information will be captured for the IP addresses listed below. | | | |
| Local SIP port: | 5060 * (1 - 65535) | Monitor IP: | | | |
| Gateway endpoint name: | cs1kpublic | * Monitor addresses: | | | |
| Gateway password: | | * Remove | | | |
| Application node ID: | 10 * (0-9999) | | | | |
| Enable failsafe NRS: | | | | | |
| SIP ANAT: | IPv4 | | | | |
| | O IPv6 | | | | |

- **Proxy or Redirect Server:** Primary TLAN IP address is the NRS IP address. The **Transport protocol** used for **SIP**, in this case is **TCP**
- Proxy Or Redirect Server: Proxy Server Route 1: Primary TLAN IP address: 🛤 The IP address can have either IPv4 or IPv6 format based on the value of "TLAN address type Port: 5060 (1 - 65535)Transport protocol: TCP 🔽 Options: V Support registration Primary CDS proxy SIP URI Map: Public E.164 domain names Private domain names UDP: udp National: national Subscriber: subscriber CDP: cdp.udp Special number: PublicSpecial Special number: PrivateSpecial Unknown: PublicUnknown Vacant number: PrivateUnknown Unknown: UnknownUnknown
- **SIP URI Map:** All values are left as default

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. 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.

| avaya | C | S1000 Element Man | ager | | | | | H |
|--|--|--|-----------------------|---------------------|--------------------|---------------|-------------|-------------|
| - UCM Network Services - Home - Links - Virtual Terminals - System + Alarms - Maintenance | | 8.0.2 Username: admin ∍ IP Network > <u>Zones</u> > Bandwidth Z I H ZONES | iones | | | | | |
| + Core Equipment | Core Equipment Add Edit Import Export Maintenance Delete | | | | | | | |
| Peripheral Equipment IP Network | Zone + | Intrazone Bandwid | th Intrazone Strategy | Interzone Bandwidth | Interzone Strategy | Resource Type | Zone Intent | Description |
| - Nodes: Servers, Media Cards | 1 🔿 10 | 1000000 | BQ | 1000000 | BB | SHARED | MO | MAINOFFICE |
| - Maintenance and Reports - Media Gateways - Zones | 2 🔿 20 | 1000000 | BQ | 100000 | BB | SHARED | VTRK | VTRK |
| Host and Route Tables Network Address Translation | | | | | | | | |

5.6. Configure SIP Trunks

Communication Server 1000E virtual trunks will be used for all inbound and outbound PSTN calls to Vodafone Germany'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 |
| OVLR NO |
| OVLS NO |

Next, configure the SIP trunk Route Data Block (RDB) using the Communication Server 1000E system terminal and overlay 16. Load **Overlay 16**, enter **RDB** at the prompt, press return and commence configuration. The value for **DCH** is the same as previously entered in overlay 17. The value for **NODE** should match the node value in **Section 5.3**. 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 | MRT 21 |
| | SIGO STD | PANS YES |
| VTRK 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 10 | OGIS YES | FRL 2 0 |
| DTRK NO | TIMR ICF 1920 | FRL 2 0 FRL 3 0 |
| ISDN YES | OGF 1920 | FRL 4 0 |
| MODE ISLD | EOD 13952 LCT 256 | FRL 5 0 |
| DCH 10 | | FRL 5 0 FRL 6 0 |
| IFC SL1 | DSI 34944 | FRL 7 0 |
| PNI 00001 | NRD 10112 DDL 70 | OHQ NO |
| NCNA YES | ODT 4096 | OHOT 00 |
| NCRD YES | RGV 640 | CBQ NO |
| TRO NO | | AUTH NO |
| FALT NO | GTO 896 GTI 896 | TTBL 0 |
| CTYP UKWN | | ATAN NO |
| INAC NO | | OHTD NO |
| ISAR NO | PRPS 800 | PLEV 2 |
| DAPC NO | NBS 2048 | OPR NO |
| MBXR NO | NBL 4096 | |
| MBXOT NPA | IENB 5 | ALRM NO ART 0 |
| MBXT 0 | TFD 0 | |
| PTYP ATT | VSS 0 | PECL NO |
| CNDP UKWN | VGD 6 | DCTI 0 |
| AUTO NO | EESD 1024 | TIDY 1600 100 |
| DNIS NO | SST 5 0 | ATRR NO TRRL NO |
| DCDR NO | DTD 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 e.g. 1. **DMI 1** is used for international traffic because **CYTP** (Call type) is **INTL**. **DMI 2** is used for local traffic because **CYTP** is **CDP**. In both cases **DEL** (delete digits) is 1, this deletes the first digit dialed, in the same configuration that was access code 9 for an outside line.

| Overlay 87 | Overlay 87 |
|------------|------------|
| REQ new | REQ new |
| FEAT dgt | FEAT dgt |
| DMI 1 | DMI 2 |
| DEL 1 | DEL 1 |
| CTYP INTL | CTYP CDP |

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 | |

This example shows a RDB defined for local traffic and uses DMI 2 as previously entered in overlay 87.

| Overlay 86 | FCI 0 |
|-------------------------|----------|
| new | FSNI 0 |
| CUST 0 | BNE NO |
| FEAT rlb | DORG NO |
| RLI 67 | 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 2 | |
| 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 | 900 | TSC | 908 | TSC | 9118 | |
|------|-----|------|-----|------|------|--|
| FLEN | 15 | FLEN | 11 | FLEN | 15 | |
| ITOH | NO | ITOH | NO | ITOH | NO | |
| RLI | 66 | RLI | 67 | RLI | 67 | |

5.7. Configure Analog, 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 5.4** 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
NUID
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 8101 0
                    MARP
        CPND
          CPND LANG ROMAN
            NAME IP1140
            XPLN 10
           DISPLAY_FMT FIRST, LAST
     01 MCR 8101 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 EXRO
     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 8102 0 MARP
       CPND
         CPND LANG ROMAN
           NAME Digital Set
           XPLN 10
           DISPLAY_FMT FIRST, LAST
     01 MCR 8102 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
```

Analog telephones are also configured using **Overlay 20**, the following example shows an analog port configured for Plain Ordinary Telephone Service (POTS) and also configured to allow T.38 Fax transmission. A unique value is entered for **DN**, this is the extension number. **DTN** is required if the telephone uses DTMF dialing. Values **FAXD** and **MPTA** configure the port for modem pass-through fax transmission. Vodafone do not support T.38 for fax.

| Overlay 20 - Analog Telephone Configuration DES 500 TN 100 0 0 00 03 TYPE 500 CDEN 4D CUST 0 MRT ERL 00000 WRLS NO DN 8104 AST NO IAPG 0 HUNT TGAR 0 LDN NO SGRP 0 RNFG 0 SCI 0 SCEPW SFLT NO CAC_MFC 0 CLS UNR DIN FED 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 LCN EHTD MCTD GPUD DPUD CFXD ARHD OVDD AGTD CLTD LDTD ASCD SDND MEXD CPFA CPTA UDI RCC HBTD IRGD DDGA NAMA MIND NRWD NRCD NROD SPKD CRD PRSD MCRD EXR0 SHL SMSD ABD CFHD DNOY DNO3 | | |
|--|------|--------|
| TN 100 0 00 03 TYPE 500 CDEN 4D CUST 0 MRT ERL 00000 WRLS NO DN 8104 AST NO IAPG 0 HUNT TGAR 0 LDN NO NCOS 0 SGRP 0 RNPG 0 XLST SCI 0 SCFW SFLT NO CAC_MFC 0 CLS UNR DIN FED 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 CLED AUTU ICDD CDMD LLCN EHTD MCTD GPUD DPUD CFXD ARHD OVDD AGTD CLTD LDTD ASCD SDND MRWD NRCD NROD SFKD CRD PRSD MCRD | | |
| TYPE 500 CDEN 4D CUST 0 MRT ERL 00000 WRLS NO DN 8104 AST NO IAPG 0 HUNT TGAR 0 LDN NO NCOS 0 SGRP 0 RNPG 0 XLST SCI 0 SCFW SFLT NO CAC MFC 0 CLS UNR DIN 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 CFFA CFTA UDI RCC HBTD IRGD DDGA NAMA MIND NRWD NRCD NROD SPKD CRD PRSD MCRD | DES | |
| CDEN 4D CUST 0 MRT ERL 00000 WRLS NO DN 8104 AST NO IAPG 0 HUNT TGAR 0 LDN NO NCOS 0 SGRP 0 RNPG 0 XLST SCI 0 SCPW SFLT NO CAC_MFC 0 CLS UNR DIN 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 CLITD LDTD ASCD SDND MBXD CFFA CFTA UDI RCC HBTD IRGD DDGA NAMA MIND NRWD NRCD NROD SFKD CRD FRSD MCRD | | |
| CUST 0 MRT ERL 00000 WRLS NO DN 8104 AST NO IAPG 0 HUNT TGAR 0 LDN NO NCOS 0 SGRP 0 RNPG 0 XLST SCI 0 SCEW SFLT NO CAC_MFC 0 CLS UNR DIN 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 CLED AUTU ICDD CDMD LLCN EHTD MCTD GPUD DPUD CFXD ARHD OVDD AGTD CLTD LDTD ASCD SDND MBXD CFFA CFTA UDI RCC HETD IRGD DDGA NAMA MIND NRWD NRCD NROD SPKD CRD PRSD MCRD | | |
| MRT ERL 00000 WRLS NO DN 8104 AST NO IAPG 0 HUNT TGAR 0 LDN NO NCOS 0 SGRP 0 RNPG 0 XLST SCI 0 SCFW SFLT NO CAC MFC 0 CLS UNR DIN 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 CFFA CFTA UDI RCC HBTD IRGD DDGA NAMA MIND NRWD NRCD NROD SPKD CRD PRSD MCRD | CDEN | 4D |
| ERL 00000 WRLS NO DN 8104 AST NO IAPG 0 HUNT TGAR 0 LDN NO NCOS 0 SGRP 0 RNPG 0 XLST SCI 0 SCFW SFLT NO CAC_MFC 0 CLS UNR DTN FBD XFD WTA THFD FND HTD ONS LPR XRD AGRD CWD SWD MWD RMMD SMWD LPD XHD SLKD CCSD LND TVD CFTD SFD MRD C6D CNID CLBD AUTU ICDD CDMD LLCN EHTD MCTD GPUD DPUD CFXD ARHD OVDD AGTD CLTD LDTD ASCD SDND MBXD CFFA CPTA UDI RCC HBTD IRGD DDGA NAMA MIND NRWD NRCD NROD SPKD CRD PRSD MCRD | CUST | 0 |
| WRLS NO DN 8104 AST NO IAPG 0 HUNT - TGAR 0 LDN NO NO NCOS 0 SGRP 0 RNPG 0 XLST - SCI 0 SCEW - SFLT NO - CAC_MFC 0 - CLS UNR DTN FBD XFD WTA THFD FND HTD ONS LFR 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 | MRT | |
| DN8104ASTNOIAPG0HUNTTGARTGAR0LDNNONCOS0SGRP0RNPG0XLSTSCI0SCPWSFLTNOCAC_MFC0CLSUNRLPR XRD AGRD CWD SWD MWD RMMD SMWD LPD XHD SLKD CCSD LND TVD CFTD SFD MRD C6D CNID CLBD AUTU ICDD CDMD LLCN EHTD MCTDGFUD 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 | ERL | 00000 |
| AST NO IAPG 0 HUNT TGAR 0 LDN NO NCOS 0 SGRP 0 RNPG 0 XLST SCI 0 SCFW SFLT NO CAC_MFC 0 CLS UNR DIN 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 | WRLS | NO |
| IAPG 0 HUNT TGAR 0 LDN NO NCOS 0 SGRP 0 RNPG 0 XLST SCI 0 SCPW SFLT NO CAC_MFC 0 CLS UNR DIN 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 | DN | 8104 |
| HUNT TGAR 0 LDN NO NCOS 0 SGRP 0 RNPG 0 XLST SCI 0 SCFW SFLT NO CAC_MFC 0 CLS UNR DIN 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 | AST | NO |
| TGAR 0 LDN NO NCOS 0 SGRP 0 RNPG 0 XLST SCI 0 SCPW SFLT NO CAC_MFC 0 CLS UNR DIN 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 | IAPG | 0 |
| LDN NO NCOS 0 SGRP 0 RNPG 0 XLST SCI 0 SCPW SFLT NO CAC_MFC 0 CLS UNR DIN 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 | HUNT | |
| NCOS 0 SGRP 0 RNPG 0 XLST SCI 0 SCPW SFLT NO CAC_MFC 0 CLS UNR DIN 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 | TGAR | 0 |
| SGRP 0 RNPG 0 XLST SCI 0 SCPW SFLT NO CAC_MFC 0 CLS UNR DIN 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 | | |
| RNPG 0 XLST SCI 0 SCPW SFLT NO CAC_MFC 0 CLS UNR DTN FBD XFD WTA THFD FND HTD ONS LPR XRD AGRD CWD SWD MWD RMMD SMWD LPD XHD SLKD CCSD LND TVD CFTD SFD MRD C6D CNID CLBD AUTU ICDD CDMD LLCN EHTD MCTD GPUD DPUD CFXD ARHD OVDD AGTD CLTD LDTD ASCD SDND MBXD CPFA CPTA UDI RCC HBTD IRGD DDGA NAMA MIND NRWD NRCD NROD SPKD CRD PRSD MCRD | | |
| XLST SCI 0 SCPW SFLT NO CAC_MFC 0 CLS UNR DTN FBD XFD WTA THFD FND HTD ONS LPR XRD AGRD CWD SWD MWD RMMD SMWD LPD XHD SLKD CCSD LND TVD CFTD SFD MRD C6D CNID CLBD AUTU ICDD CDMD LLCN EHTD MCTD GPUD DPUD CFXD ARHD OVDD AGTD CLTD LDTD ASCD SDND MBXD CPFA CPTA UDI RCC HBTD IRGD DDGA NAMA MIND NRWD NRCD NROD SPKD CRD PRSD MCRD | | |
| SCI 0 SCPW SFLT NO CAC_MFC 0 CLS UNR DTN FBD XFD WTA THFD FND HTD ONS LPR XRD AGRD CWD SWD MWD RMMD SMWD LPD XHD SLKD CCSD LND TVD CFTD SFD MRD C6D CNID CLBD AUTU ICDD CDMD LLCN EHTD MCTD GPUD DPUD CFXD ARHD OVDD AGTD CLTD LDTD ASCD SDND MBXD CPFA CPTA UDI RCC HBTD IRGD DDGA NAMA MIND NRWD NRCD NROD SPKD CRD PRSD MCRD | | |
| SCPW SFLT NO CAC_MFC 0 CLS UNR DTN FBD XFD WTA THFD FND HTD ONS LPR XRD AGRD CWD SWD MWD RMMD SMWD LPD XHD SLKD CCSD LND TVD CFTD SFD MRD C6D CNID CLBD AUTU ICDD CDMD LLCN EHTD MCTD GPUD DPUD CFXD ARHD OVDD AGTD CLTD LDTD ASCD SDND MBXD CPFA CPTA UDI RCC HBTD IRGD DDGA NAMA MIND NRWD NRCD NROD SPKD CRD PRSD MCRD | | |
| SFLT NO CAC_MFC 0 CLS UNR DTN FBD XFD WTA THFD FND HTD ONS LPR XRD AGRD CWD SWD MWD RMMD SMWD LPD XHD SLKD CCSD LND TVD CFTD SFD MRD C6D CNID CLBD AUTU ICDD CDMD LLCN EHTD MCTD GPUD DPUD CFXD ARHD OVDD AGTD CLTD LDTD ASCD SDND MBXD CPFA CPTA UDI RCC HBTD IRGD DDGA NAMA MIND NRWD NRCD NROD SPKD CRD PRSD MCRD | | |
| CAC_MFC 0 CLS UNR DTN FBD XFD WTA THFD FND HTD ONS LPR XRD AGRD CWD SWD MWD RMMD SMWD LPD XHD SLKD CCSD LND TVD CFTD SFD MRD C6D CNID CLBD AUTU ICDD CDMD LLCN EHTD MCTD GPUD DPUD CFXD ARHD OVDD AGTD CLTD LDTD ASCD SDND MBXD CPFA CPTA UDI RCC HBTD IRGD DDGA NAMA MIND NRWD NRCD NROD SPKD CRD PRSD MCRD | | |
| CLS UNR DTN FBD XFD WTA THFD FND HTD ONS LPR XRD AGRD CWD SWD MWD RMMD SMWD LPD XHD SLKD CCSD LND TVD CFTD SFD MRD C6D CNID CLBD AUTU ICDD CDMD LLCN EHTD MCTD GPUD DPUD CFXD ARHD OVDD AGTD CLTD LDTD ASCD SDND MBXD CPFA CPTA UDI RCC HBTD IRGD DDGA NAMA MIND NRWD NRCD NROD SPKD CRD PRSD MCRD | | |
| 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 | — | |
| 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 | CLS | |
| 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 | | |
| 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 | | |
| MBXD CPFA CPTA UDI RCC HBTD IRGD DDGA NAMA MIND NRWD NRCD NROD SPKD CRD PRSD MCRD | | |
| NRWD NRCD NROD SPKD CRD PRSD MCRD | | |
| | | |
| | | |
| CWND USMD USRD CCBD BNRD OCBD RTDD RBDD RBHD FAXD CNUD CNAD PGND FTTC | | |
| FDSD NOVD CDMR PRED MCDD T87D SBMD PKCH MPTA | | |
| PLEV 02 | PLEV | |
| PUID | | |
| AACS NO | | |
| MLWU LANG 0 | | |
| | FTR | DCFW 4 |

5.8. Configure the SIP Line Gateway Service

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

| SLS_DATA | | |
|-------------|--|--|
| SIPL_ON YES | | |
| UAPR 78 | | |
| NMME NO | | |

If a numerical value is entered against the UAPR setting, this number will be pre appended to all SIP Line configurations, and is used internally in the SIP Line server to track SIP terminals. Use Element Manager and navigate to the IP Network \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.

| – UCM Network Services | Managing: 192.168.0.2 Username: gerry | |
|--|---|--|
| - Home | System » IP Network » IP Telephony Nodes » Node Details | s » SIP Line Configuration |
| - Links | Node ID: 10 - SIP Line Configuration Details | |
| - Virtual Terminals | ······································ | |
| | | |
| - System | General SIP Line Gateway Settings SIP Line Gateway Se | rvice |
| + Alarms | | |
| - Maintenance | SIP Line Gateway Application: 🔽 E | nable gateway service on this node |
| + Core Equipment | | |
| Peripheral Equipment | | |
| - IP Network | General | Virtual Trunk Network Health Monitor |
| - Nodes: Servers, Media Cards | SIP domain name: silavaya.com * | Monitor IP addresses (listed below) |
| - Maintenance and Reports | Sill domain name. Silavaya.com | Information in addresses (instea below) |
| - Media Gateways | | Information will be captured for the IP addresses listed |
| -Zones | SLG endpoint name: | below. |
| - Host and Route Tables | | 5000 |
| - Network Address Translation | SLG Group ID: | Monitor IP: Add |
| - QoS Thresholds | | |
| - Personal Directories | | Monitor addresses: |
| | SLG Local Sip Port: 5070 (1 - 65535) | |
| - Unicode Name Directory | | |
| + Interfaces | SLG Local TIs Port: 5071 (1 - 65535) | Remove |
| Engineered Values | SEG EUCal HIS FUIL 50/1 (1-65535) | |
| + Emergency Services | | |

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 **SIPLINEZONE** 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
    096 0 01 15 VIRTUAL
TN
TYPE UEXT
CDEN 8D
CTYP XDLC
CUST 0
UXTY SIPL
MCCL YES
SIPN 1
SIP3 0
FMCL 0
TLSV 0
SIPU 8105
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
    UNR FBD WTA LPR MTD FNA HTA TDD HFD CRPD
CLS
     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---
```

| C | ontinued 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 LANG ENG 0 0 0 | |
| IAPG | 0 * | |
| MLNG DNDR | NO _LANG 0 ENG 0 | |
| KEY | 00 MCR 8105 0 MARP CPND CPND LANG ROMAN | |
| | NAME Sigma 1140 XPLN 11 | |
| | DISPLAY_FMT FIRST,LAST* 01 HOT U 788105 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 DND | |
| | 22 RNP 23 * 24 PRS | |
| | 25 CHG 26 CPN | |
| | 27 28 | |
| | 29 30 31 | |
| | | 1 |

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.

| Managing: <u>10.80.51.60</u> Username: admin Tools » Backup and Restore » <u>Call Server Backup and Restore</u> » Call Server Backup Call Server Backup |
|--|
| Call Server Backup |
| |
| Action Backup Submit Cancel |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |
| |

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

Configuration of Communication Server 1000E is complete.

6. Configure Avaya Network Routing Server

This section provides the procedure for configuring the NRS to receive and route calls over the SIP trunk between the Session Manager and the CS1000E. These instructions assume other administration activities have already been completed such as defining system wide settings. The following administration activities will be described.

- Define SIP Domain
- Define Endpoints
- Define Routes

Configuration is accomplished by accessing the browser-based GUI of the Unified Communications Manager (UCM), using the URL https://<ip-address>/network-login, where <ip-address> is the IP address of UCM. Once logged on click on the NRS Manager link on the UCM front page and log in with the appropriate credentials.

6.1. Define SIP Domain

Create a SIP Domain by clicking on Numbering Plans \rightarrow Domains, click Add (not shown). Enter a name for your Domain name and click on Save. In the test configuration silavaya.com was used and this is the same domain that is configured on the CS1000E as per Section 5.4 and on the Session Manager per Section 7.1.

| N@RTEL | NETWORK ROUTING SER | VICE MANAGER Help. 1 |
|--|---|--|
| «UCM Network Services - System NRS Server Database | Managing: O Active database Standby database | 192.168.0.2 Numbering Plans » Domains » Service Domains |
| System Wide Settings Numbering Plans Domains Endpoints Routes | Add Service Domain | Domain name: silavaya.com |
| Network Post-Translation Collaborative Servers - Tools SIP Phone Context - Routing Tests H.323 SIP | * Required value. | Domain description: |

Use the same procedure as above to add a **UDP** and a **CDP** domain for **silavaya.com**. These domains are sub-domains to silavaya.com. This is the UDP domain created for silavaya.com.

| NØRTEL | NETWORK R | OUTING SERV | ICE MANAGER | | | | Щ |
|--|-----------|---|-------------------------------|-----------------------------|--|----------------------|--------------------|
| «UCM Network Services - System NRS Server Database | Managing: | Active database Standby database | 192.168.0 Numbering | 2 <u>Plans »</u> Domains | | | |
| System Wide Settings Numbering Plans Domains Endpoints Routes | | ablish the basic structure of ce Domains (1) | f your converged network, det | | s, L1 (UDP) and L0 (CDF nains (CDP) (1) | ²) domains. | |
| Network Post-Translation Collaborative Servers - Tools SIP Phone Context | | ain : silavaya.com Delete | ~ | | | | |
| - Routing Tests | | <u>ID</u> ▲ | Description | # of L0 Domains | # of Gateway | Endpoints # of Routi | ing Entries Contex |
| H.323 SIP | | 2 | : | | 2 | <u>6</u> | silavaya.com |

This is the CDP domain created for silavaya.com/udp domain.

| NØRTEL | NETWORK RC | UTING SERVI | CE MANAGER | | | | н |
|--|----------------|---|-----------------------------------|--------------|----------------------|----------------------|--------------------------------------|
| «UCM Network Services - System NRS Server Database | Managing: | Active database Standby database | 192.168.0.2 Numbering Plans_» | Domains | | | |
| System Wide Settings - Numbering Plans Domains Endpoints | _ | lish the basic structure of y | our converged network, defined by | | (UDP) and L0 (CDP) d | lomains. | |
| Routes Network Post-Translation Collaborative Servers - Tools | Filter by Doma | | • / udp • | | | | |
| SIP Phone Context - Routing Tests H.323 SIP | 1 cdp | ⊡▲ | Description | # of Gateway | Endpoints 6 | # of Routing Entries | <u>Context</u> silavaya.com / udp |

6.2. Define Endpoints

For this test configuration two endpoints were configured on the NRS. A static endpoint was configured for the Session Manager and a dynamic endpoint for the CS1000E. Create an Endpoint by clicking on Numbering Plans \rightarrow Endpoints. Select the domain and sub-domains (e.g. silavaya.com/udp/cdp) where you want to create the endpoint and click Add.

| NØRTEL | NETWORK ROUTING SERVICE MANAGER | Ŀ | | | | | | |
|--|--|---------------------|--|--|--|--|--|--|
| «UCM Network Services - System NRS Server Database | Managing: O Active database 192.168.0.2 Standby database <u>Numbering Plans</u> » Endpoints | | | | | | | |
| System Wide Settings - Numbering Plans Domains | Search for Endpoints | earch for Endpoints | | | | | | |
| Endpoints Routes | Enter an endpoint ID (use * for all) and click Search.You may narrow the search by specifying a particular domain. | | | | | | | |
| Network Post-Translation Collaborative Servers - Tools | Endpoint ID: * | | | | | | | |
| SIP Phone Context - Routing Tests H.323 | Limit results to Domain: silavaya.com V / udp V / cdp Results per pa | age: 50 💌 | | | | | | |
| SIP Backup | Gateway Endpoints (2) User Endpoints (0) | | | | | | | |
| Restore GK/NRS Data upgrade | Add Delete SIP phone context | | | | | | | |

6.2.1. Configure Static Endpoint for Avaya Aura® Session Manager

This section shows how to add a static endpoint for the Session Manager. Enter the following values and use default values for remaining fields.

- End point name:
- Description:
- Static endpoint address:
- SIP support:
- SIP mode:
- SIP TCP transport enabled:
- SIP UDP transport enabled:

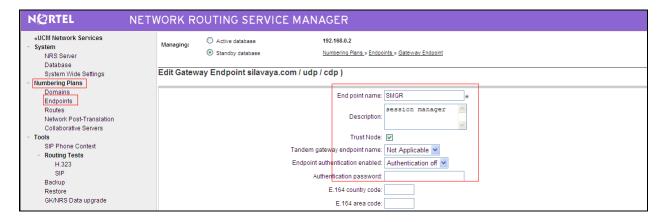
SMGR was used in this configuration **session manager** was used in this configuration

This is the ip address of Session Manager SM100.

This has been hidden for security purposes.

- Set this to Static SIP endpoint
- Set this to Proxy mode
- Click the box to enable
- ed: Click the box to enable

Click on **Save** (not shown). The two screenshots below show the Session Manager Endpoint configuration used for the testing.



| NØRTEL | NETWORK R | OUTING SERVI | CE MANAGER | |
|---|-----------|---|--|--|
| «UCM Network Services - System NRS Server Database | Managing: | Active database Standby database | 192.168.0.2 Numbering Plans_» Endoc | pints » Gateway Endopint |
| System Wide Settings - Numbering Plans | Edit Gate | vay Endpoint silavaya | a.com / udp / cdp) | |
| Domains Endpoints | | | Private Special number 2: | |
| Routes Network Post-Translation | | Private | Special number 2 dialing code length: Static endpoint address type: | |
| Collaborative Servers - Tools | | | Static endpoint address: | 86.47. |
| SIP Phone Context - Routing Tests | | | | H.323 not supported V Static SIP endpoint V |
| H.323 SIP | | | | Provy Mode |
| Backup Restore | | | SIP mode: | Redirect Mode |
| GK/NRS Data upgrade | | | SIP TCP transport enabled: SIP TCP port: | |
| | | | SIP UDP transport enabled: | |
| | | | SIP UDP port: | |
| | | | SIP TLS transport enabled: SIP TLS port: | |
| | | | Persistent TCP support enabled: | |
| | | | | |

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6.2.2. Configure Dynamic Endpoint for Avaya Communication Server 1000E

This section shows how to add a dynamic endpoint for the CS1000E, note that no IP address needs to be configured. Enter the following values and use default values for remaining fields.

- End point name:
- Description:
- SIP support:
- SIP mode:
- SIP TCP transport enabled:
- SIP UDP transport enabled:

cs1kpublic was used in this configuration
cs1k was used in this configuration
Set this to Dynamic SIP endpoint
Set this to Proxy mode
Click the box to enable
Click the box to enable

Click on **Save** (not shown). The two screenshots below show the CS1000E Endpoint configuration used for the testing.

| N@RTEL N | NETWORK ROUTING SERVICE MANAGER |
|--|---|
| «UCM Network Services - System NRS Server Database System Wide Settings - Numbering Plans | Managing: Active database 192.168.0.2 Standby database Numbering Plans, » Endpoints Gateway Endpoint Edit Gateway Endpoint silavaya.com / udp / cdp) |
| Domains Endpoints Routes Network Post-Translation Collaborative Servers | End point name: cs1kpublic * Description: |
| Tools SIP Phone Context Routing Tests H.323 SIP | Trust Node: Tandem gateway endpoint name: Not Applicable Endpoint authentication enabled: Authentication off |
| Backup Restore GK/NRS Data upgrade | E 164 country code: |

| NØRTEL | NETWOR | RK ROU | TING SERVICE MA | NAGER | |
|---|--------|---------|---|--|---|
| «UCM Network Services - System NRS Server Database | Mana | aging: | Active database Standby database | 192.168.0.2 Numbering Plans_» Endpo | points » Gateway Endpoint |
| System Wide Settings - Numbering Plans | Edit | Gateway | Endpoint silavaya.com / ud | lp / cdp) | |
| Domains Endpoints | | | | nber 2 dialing code length: itic endpoint address type: | |
| Routes Network Post-Translation Collaborative Servers | | | | Static endpoint address: | |
| - Tools SIP Phone Context | | | | | t H.323 not supported v t Dynamic SIP endpoint v |
| - Routing Tests H.323 SIP | | | | SIP mode: | e: ● Proxy Mode ○ Redirect Mode |
| Backup Restore | | | s | IP TCP transport enabled: SIP TCP port | |
| GK/NRS Data upgrade | | | s | P UDP transport enabled: | |
| | | | | SIP UDP port | |

6.3. Define Routes

Routes need to be defined for each endpoint. Routes are the same as a dial pattern on the Session Manager and it is how the NRS routes out calls to an endpoint based on digits it receives.

6.3.1. Configure Route to the Avaya Communication Server 1000E

This section shows how to add routes to the CS1000E. This is for incoming calls from the PSTN to the CS1000E. Create a Route by clicking on Numbering Plans \rightarrow Routes. Select the domain and sub-domains (e.g. silavaya.com/udp/cdp) and endpoint where you want to create the route (e.g. cs1kpublic) and click Add.

| N@RTEL | NETWORK ROUTING SERVICE MANAGER | Ľ |
|--|---|--------------|
| «UCM Network Services - System NRS Server Database | Managing: O Active database 192.168.0.2 Image: Standby database Numbering Plans » Routes | |
| System Wide Settings - Numbering Plans Domains | Search for Routing Entries | |
| Endpoints Routes | Enter a DnPrefix and Dn Type (use * for all) and click Search. You may narrow the search by specifying a particular domain. | |
| Network Post-Translation Collaborative Servers - Tools | DN Prefix: * DN Type: | |
| SIP Phone Context - Routing Tests | Limit results to Domain: silavaya.com v / udp v / cdp v | |
| H.323 SIP Backup | Endpoint Name: cs1kpublic Results per | r page: 50 💌 |
| Restore GK/NRS Data upgrade | Routing Entries (3) Default Routes (0) Emergency Fallback Routes (0) | |
| | Add Copy Move Import Export Routing test Delete | |

Enter the following values

- **DN type:** Select **Private level 0 regional (CDP steering code)**. Only CDP dialing works for calls between the Session Manager and the NRS.
- **DN prefix:** 810 prefix matches the DN extensions on the test sets on the CS1000E. This also matches the last 4 digits of the DDI range given for the test
- **Route cost:** 1 is used as this is the only route available

Click on Save.

| RTEL NE | TWORK R | OUTING SERVICE | E MANAGER | He |
|---|------------------|---|---|------|
| l Network Services m RS Server atabase | Managing: | Active database Standby database | 192.168.0.2 Numberina Plans » Routies.» Routina Entry | |
| <u>ystem Wide S</u> ettings pering Plans | Edit Routin | ng Entry (silavaya.com | n / udp / cdp / cs1kpublic) | |
| omains ndpoints | | | DN type: Private level 0 regional (CDP steering code) | |
| etwork Post-Translation ollaborative Servers | | | DN prefix [B10 * Route cost 1 * (1-255) | |
| IP Phone Context | | | | |
| H.323 | * Required value | lue. | | Save |
| atabase vstem Wide Settings vering Plans omains outes twork Post-Translation ollaborative Servers IP Phone Context outing Tests | | ng Entry (silavaya.com i | DN type: Private level 0 regional (CDP steering code) ♥ DN prefix: [810] ★ | |

6.3.2. Configure Route to the Avaya Aura® Session Manager

This section shows how to add routes to the Session Manager. This is outgoing calls from the CS1000E to the PSTN. Create a Route by clicking on Numbering Plans \rightarrow Routes. Select the domain and sub-domains (e.g. silavaya.com/udp/cdp) and endpoint where you want to create the route (e.g. SMGR) and click Add.

| NØRTEL | NETWORK ROUTING SERVICE MANAGER |
|--|--|
| «UCM Network Services - System NRS Server Database | Managing: O Active database 192.168.0.2 Standby database Numbering Plans + Routes |
| System Wide Settings - Numbering Plans Domains | Search for Routing Entries |
| Endpoints Routes Network Post-Translation | Enter a DnPrefix and Dn Type (use * for all) and click Search.You may narrow the search by specifying a particular domain. DN Prefix * DN Type: All DN Types |
| Collaborative Servers - Tools SIP Phone Context - Routing Tests | Limit results to Domain: silavaya.com 🖌 / udp 🖌 / cdp |
| H.323 SIP | Endpoint Name: SMGR Results per page: 50 |
| Backup Restore GK/NRS Data upgrade | |
| and ap y. and | Routing Entries (3) Default Routes (0) Emergency Fallback Routes (0) Add Copy Move Import Export Delete |

Enter the following values; this is an example of E.164 International call.

- DN type: Select E.164 international
- **DN prefix:** 00 prefix matches the digits going to be dialed for an international call
- **Route cost:** 1 is used as this is the only route available

Click on Save.

| N@RTEL | NETWORK ROUTI | ING SERVICE MANA | GER Ŀ | Help |
|--|-------------------|------------------|---|------|
| «UCM Network Services - System NRS Server Database System Wide Settings Numbering Plans Domains Endpoints Network Post-Translation Collaborative Servers - Tools | Managing: | | 92.168.0.2 lumbering Plans.» Routes.» Routing Entry / SMGR) DN type: E. 164 international DN prefix: 00 * Route cost: 1 * (1-255) | |
| SIP Phone Context - Routing Tests H.323 SIP | * Required value. | | Save | |

This is an example of a local call using CDP dial plan, only CDP dialing worked for local calls.

- DN type: Select Private level 0 regional (CDP steering code)
- DN prefix: 0800 prefix matches the digits going to be dialed for a local call
- **Route cost:** 1 is used as this is the only route available

Click on Save.

| NØRTEL | NETWORK R | OUTING SERVIC | E MANAGER | He |
|---|----------------|--------------------------------------|---|------|
| «UCM Network Services - System NRS Server Database | Managing: | Active database Standby database | 192.168.0.2 Numbering Plans.» Routes.» Routing Entry | |
| System Wide Settings - Numbering Plans Domains Endpoints | Edit Routi | ng Entry (silavaya.con | DN type: Private level 0 regional (CDP steering code) | |
| Routes Network Post-Translation Collaborative Servers | | | DN prefix: 0800 * Route cost 1 * (1-255) | |
| - Tools SIP Phone Context | | | | |
| - Routing Tests H.323 SIP | * Required val | ue. | | Save |

7. Configure Avaya Aura® Session Manager

This section provides the procedures for configuring Session Manager to receive and route calls over the SIP trunk between Network Routing Server and Session Manager. These instructions assume other administration activities have already been completed such as defining the SIP entity for Session Manager, defining the network connection between System Manager and Session Manager, and adding SIP endpoints. The following administration activities will be described.

- Define SIP Domain
- Define Location
- Configure the Adaptation Module
- Define SIP Entities
- Define Entity Links
- Define Routing Policies
- Define Dial Patterns

Configuration is accomplished by accessing the browser-based GUI of System Manager, using the URL http://<ip-address>/SMGR, where <ip-address> is the IP address of System Manager. Log in with the appropriate credentials. Some administration screens have been abbreviated for clarity.

7.1. Define SIP Domains

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 and 6.1. In the sample configuration, silavaya.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 Manager 6 | .1 | | |
|---|---|------|---------|-------|
| Routing | Home /Elements / Routing / Domains | | | |
| Domains Locations Adaptations SIP Entities Entity Links | Domain Management Edit New Duplicate Delete More Actions • | | | |
| Time Ranges Routing Policies | Name | Туре | Default | Notes |
| Dial Patterns | silavaya.com | sip | | |
| Regular Expressions Defaults | Select : All, None | | |] |

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7.2. 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. There were two locations defined in the sample configuration, one used by the NRS and one used by Vodafone's SBC.

7.2.1. Location for Avaya Network Routing Server

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 for the CS1K Network Routing Server.

IP Address Pattern: Enter the logical pattern used to identify the location for example 86.47.xx.*. For the sample configuration the pattern is hidden for security purposes because it is a public routable IP address
 Notes: Add a brief description [Optional]

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

| Routing | Home /Elements / Routing / Locations- Location Details |
|-----------------------------|--|
| Domains Locations | Location Details |
| Adaptations SIP Entities | General |
| Entity Links | * Name: cs1k |
| Time Ranges | Notes: |
| Routing Policies | |
| Dial Patterns | Overall Managed Bandwidth |
| Regular Expressions | |
| Defaults | Managed Bandwidth Units: Kbit/sec 💌 |
| | Total Bandwidth: |
| | |
| | Location Pattern |
| | Add Remove |
| | 1 Item Refresh |
| | IP Address Pattern Notes |
| | |
| | Select : All, None |

7.2.2. Location for Vodafone SBC

Another location is defined for Vodafone SBC using the same process as outlined in **Section 7.2.1**. The screenshot below shows the Location defined in the sample configuration. The ip address pattern has been hidden for security purposes.

| ✓ Routing | Home /Elements / Routing / Locations- Location Details |
|---------------------|--|
| Domains | Location Details |
| Locations | |
| Adaptations | General |
| SIP Entities | |
| Entity Links | * Name: Vodafone Germany |
| Time Ranges | Notes: |
| Routing Policies | |
| Dial Patterns | Overall Managed Bandwidth |
| Regular Expressions | |
| Defaults | Managed Bandwidth Units: Kbit/sec 💌 |
| | Total Bandwidth: |
| | Location Pattern |
| | Add Remove |
| | 1 Item Refresh |
| | IP Address Pattern Notes |
| | |
| | Select : All, None |
| 1 | |

7.3. Configure Adaptation Module

Session Manager is installed with a module called DigitConversionAdapter, which can convert digit strings in various message headers as well as host names in the Request-URI (Uniform Resource Identifier). In this configuration the adaptation is used by the Session Manager to ensure ingress messages have the hostname **silavaya.com** when they are sent to the NRS. Also the adaptation was used to strip MIME messages before being sent on to Vodafone. Vodafone does not support MIME. The adaptation is also used to manipulate the CLID number in the FROM and PAI headers.

To add an adaptation, select **Adaptations** on the left panel menu and then click on the **New** button (not shown). Under **General:**

- Adaptation Name: Enter an informative name, in the sample configuration plus was used
- Module Parameter: Enter the modification parameters to be used. In this configuration the modification parameters used was odstd=silavaya.com 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)

Enter **MIME=no** to have Session Manager strip MIME message bodies on egress to Vodafone SBC, such that only SDP is present in the message body sent to Vodafone's SBC

The whole string in module parameter is odstd=silavaya.com fromto=true MIME=no

odstd (or OverrideDestinationDomain) replaces the domain in a Request-URI and Notify/message-summary body with the given value for ingress only. The reason why this was added was that incoming calls to the enterprise had Vodafone Germany domain name in the SIP messages. The domain on the enterprise is silavaya.com so this Adaption Module changed incoming SIP messages destined for the enterprise to a recognised domain.

| AVAYA | Avaya Aura® System Manager 6.1 | About Change Pa |
|---------------------|--|-------------------|
| • | | Replication * |
| ▼ Routing | Home /Elements / Routing / Adaptations- Adaptation Details | |
| Domains | | |
| Locations | Adaptation Details | |
| Adaptations | | |
| SIP Entities | General | |
| Entity Links | * Adaptation name: plus | |
| Time Ranges | Module name: DigitConversionAdapter 💙 | |
| Routing Policies | Module parameter: odstd=silavaya.com 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.

- Matching Pattern: Enter the digits for outbound calls to the PSTN. For international calls the NRS prefixes the dialled digits with a "+" before being sent on to the Session Manager as seen in row 1 of the screen shot below.
- Min: Enter minimum number of digits (e.g., 4)
- Max: Enter maximum number of digits (e.g., 4)
- **Phone Context:** Enter value if needed. For local calls CDP dialing is used on the CS1000E/NRS so **cdp.udp** is used, see **Section 6.3.2** for more information. This can be seen in rows 2 and 3 in the screen shot below.
- Delete Digits: Enter 0, unless digits should be removed from dialled number before routing on by Session Manager. For international calls the "+" needs removing before passing on to the PSTN so 1 digit is deleted
- Insert Digits: Enter digits that need to be inserted
- Address to modify: Select both

| Digit Conversion for Incoming Calls to SM | | | | | | | | | |
|---|--------------------|-----|------|---------------|---------------|---------------|-------------------|-------|---|
| 3 Items : Refresh Filter: En | | | | | | | | | |
| | Matching Pattern 🔺 | Min | Max | Phone Context | Delete Digits | Insert Digits | Address to modify | Notes | |
| | * + | * 1 | * 36 | | * 1 | | both 💌 | | |
| | * 0800 | * 4 | * 36 | cdp.udp | * 0 | | both 💌 | | |
| | * 118 | * 3 | * 5 | cdp.udp | * 0 | | both 💌 | | |
| Selec | t : All, None | | | | | | | |] |
| | | | | | | | | | |

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

| • | Matching Pattern: | Enter the digits received from the PSTN to the CS1000E. This is |
|---|--------------------------|---|
| | | the DDI range minus the last 4 digits. The last 4 digits are the DN |
| | | number of the test sets used during the testing; this is seen in row 1 |
| | | |
| | | of the screen shot below, starting 069xxxxxx . This functionality is |
| | | used instead of overlay 49 on the CS1000E that does incoming |
| | | digit conversion. |
| | | Row 2 however is concerned with CLID manipulation for |
| | | outbound calls to the PSTN. The test sets have a 4 digit DN |
| | | starting with 81xx . This adaptation manipulates the from and PAI |
| | | headers in the SIP INVITE and inserts the correct DDI number |
| | | using the Insert Digit field to the front of the 4 digit extension so a |
| | | valid DDI number is presented to Vodafone |
| • | Min: | Enter minimum number of digits (e.g., 9) |
| • | Max: | Enter maximum number of digits (e.g., 16) |
| ٠ | Phone Context: | Enter value if needed |
| • | Delete Digits: | Enter 9 for calls that are going to the CS1000E. This will delete the |
| | 0 | first 9 digits of the DDI number and leave the last 4 digits which |
| | | are equal to the DN of the test sets on the CS1000E |
| • | Insert Digits: | Enter digits that need to be inserted – the example on row 2, in |
| • | msert Digits. | order to send a correct CLID these digits need to be inserted before |
| | | the 4 digit DN of the test sets, in this case 069xxxxxx plus 81xx |
| | | |
| • | Address to modify: | Select both |
| | | |

Click **Commit** to save (not shown).

| Add | Remove | | | | | | | |
|-------|---------------------|-----|------|---------------|---------------|---------------|-------------------|-------|
| 2 Ite | ms Refresh | | | | | | | |
| | Matching Pattern 🔺 | Min | Max | Phone Context | Delete Digits | Insert Digits | Address to modify | Notes |
| | * 069 100060 | * 9 | * 16 | | * 9 | | both 💌 | |
| | * 81 | * 2 | * 16 | | * 0 | 069 | both 💌 | |

7.4. Define SIP Entities

A SIP Entity must be added for Network Routing Server and also for Vodafone SBC. Expand **Elements** \rightarrow **Routing** and select **SIP Entities** from the left navigation menu. 2 new SIP Entities will need to be added as noted above. Click **New** (not shown).

7.4.1. SIP Entity for Avaya Network Routing Server

In the General section enter the following values and use default values for remaining fields.

- Name: Enter an identifier for the SIP Entity
- FQDN or IP Address: Enter TLAN IP address of Communication Server 1000E Node identified in Section 5.4. This has been partially hidden for security purposes
- Type: Select gateway
- Notes: Enter a brief description [Optional]
- Adaptations: DigitConversionAdapter defined in Section 7.3
- Location: Select the Location defined for Communication Server 1000E in Section 7.2.1

In the SIP Link Monitoring section.

• SIP Link Monitoring: Select Use Session Manager Configuration

Click **Commit** to save the definition of the new SIP Entity. The following screenshot shows the SIP Entity defined for Network Routing Server in the sample configuration.

| Routing | Home /Elements / Routing / SIP Entities- SIP Ent | ty Details | |
|---------------------|--|---------------------------------------|--------|
| Domains | | | |
| Locations | SIP Entity Details | | Commit |
| Adaptations | General | | |
| SIP Entities | * Nam | : cs1kpublicnrs1 | |
| Entity Links | * FQDN or IP Addres | . 86.47 | |
| Time Ranges | | | |
| Routing Policies | Түр | Gateway | |
| Dial Patterns | Note | : | |
| Regular Expressions | | | |
| Defaults | Adaptatio | : plus 💌 | |
| | Locatio | cs1k | |
| | Time Zon | Europe/Dublin | |
| | Override Port & Transport with DNS SR | : 🗆 | |
| | * SIP Timer B/F (in seconds | : 4 | |
| | Credential name | : | |
| | Call Detail Recording | : none 💌 | |
| | SIP Link Monitoring SIP Link Monitorin | : Use Session Manager Configuration 💌 | |

7.4.2. SIP Entity for Vodafone SBC

In the General section enter the following values and use default values for remaining fields.

- Name: Enter an identifier for the SIP Entity
 FQDN or IP Address: Enter the public interface IP address of Vodafone's SBC. This has been partially hidden for security purposes
 Type: Select other
 Notes: Enter a brief description [Optional]
- Adaptations: DigitConversionAdapter defined in Section 7.3
- Location: Select the Location defined for Communication Server 1000E in Section 7.2.2

In the SIP Link Monitoring section.

• SIP Link Monitoring: Select Use Session Manager Configuration

Click **Commit** to save the definition of the new SIP Entity. The following screenshot shows the SIP Entity defined for Vodafone's SBC in the sample configuration.

| Routing | Home / Elements / Routing / SIP Entities- SIP Entity | y Details |
|---------------------|--|-------------------------------------|
| Domains | | |
| Locations | SIP Entity Details | Commit |
| Adaptations | General | |
| SIP Entities | * Name: | Vodafone Germany SBC |
| Entity Links | * FQDN or IP Address: | 212 |
| Time Ranges | | |
| Routing Policies | Туре: | Other 🗸 |
| Dial Patterns | Notes: | |
| Regular Expressions | | |
| Defaults | Adaptation: | plus 💌 |
| | Location: | cs1k 💌 |
| | Time Zone: | Europe/Berlin |
| | Override Port & Tr ansport 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 💌 |

A SIP Entity link must also be defined for your Session Manager but that is not shown in this document.

7.5. Define Entity links

The SIP trunk between the Session Manager and the Avaya Network Routing Server is described by an Entity link. The same is needed between the Session Manager and Vodafone's SBC. Expand **Elements** → **Routing** and select **Entity Links** from the left navigation menu. Click **New** (not shown). Enter the following values.

- Name Enter an identifier for the link to each telephony system
- SIP Entity 1 Select SIP Entity defined for Session Manager
- SIP Entity 2 Select the SIP Entity defined for Avaya Network Routing Server/Vodafone SBC in Section 7.4
- **Protocol** After selecting both SIP Entities, select **TCP or UDP** as the required protocol. The NRS uses TCP and Vodafone SBC uses UDP
- **Port** Verify **Port** for both SIP entities is the default listen port. For the sample configuration, default listen port is **5060**
- **Trusted** Enter a tick in the box
- Notes Enter a brief description [Optional]

Click **Commit** to save **Entity Link** definition. The following screen shows the entity link defined for the SIP trunk between Session Manager and Network Routing Server.

| Routing | Home / Elements / R | outing / Entity Links- En | tity Links | | | | | | |
|---------------------|---------------------|---------------------------|------------|--------|------------------|---|--------|--------------------------|----------------|
| Domains | | | | | | | | | |
| Locations | Entity Links | | | | | | | | Commit Ca |
| Adaptations | | | | | | | | | |
| SIP Entities | | | | | | | | | |
| Entity Links | | | | | | | | | |
| Time Ranges | 1 Item Refresh | | | | | | | | Filter: Ena |
| Routing Policies | Name | SIP Entity 1 | Protocol | Port | SIP Entity 2 | | Port | Connection Policy | Notes |
| Dial Patterns | * cs1kpublicnrs1 | * Session Manager ⊻ | TCP 🔽 | * 5060 | * cs1kpublicnrs1 | ~ | * 5060 | Trusted 🔽 | alternate cs1k |
| Regular Expressions | | | | | | | | | |
| Defaults | | | | | | | | | |

The following screen shows the entity link defined for the SIP trunk between Session Manager and Vodafone's SBC.

| Routing | Home / Elements / Rome | outing / Entity Links- En | tity Links | | | | | | |
|---------------------|------------------------|---------------------------|------------|--------|--------------------------|--------|-------------------|-------|------------|
| Domains | | | | | | | | | |
| Locations | Entity Links | | | | | | | Comn | nit Ca |
| Adaptations | | | | | | | | L | |
| SIP Entities | | | | | | | | | |
| Entity Links | | | | | | | | | |
| Time Ranges | 1 Item Refresh | | | | | | | F | ilter: Ena |
| Routing Policies | Name | SIP Entity 1 | Protocol | Port | SIP Entity 2 | Port | Connection Policy | Notes | |
| Dial Patterns | * Vodafone DE SBC | * Session Manager ⊻ | UDP 💌 | * 5060 | * Vodafone Germany SBC ⊻ | * 5060 | Trusted 💌 | | |
| Regular Expressions | | | | | | | | | |
| Defaults | | | | | | | | | |

7.6. Define Routing Policy

Routing policies describe the conditions under which calls will be routed to CS1000E from either SIP endpoint registered to Session Manager or from other telephony system. It also describers the routing polices for which calls will be routed to Vodafone's SIP network. To add a routing policy, expand **Elements** \rightarrow **Routing** and select **Routing Policies**. Click **New** (not shown). In the **General** section, enter the following values.

- Name: Enter an identifier to define the routing policy
- **Disabled:** Leave unchecked
- Notes: Enter a brief description [Optional]

In the **SIP Entity as Destination** section, click **Select.** The **SIP Entity List** page opens (not shown). For routing policy to the NRS, select the SIP Entity associated with the NRS defined in **Section 7.4** and click **Select.** The selected SIP Entity displays on the **Routing Policy Details** page. Use default values for remaining fields. Click **Commit** to save Routing Policy definition.

Note: The routing policy defined in this section is an example and was used in the sample configuration. Other routing policies may be appropriate for different customer networks.

The following screenshot shows the Routing Policy for the Network Routing Server:

| Routing | Home /Elements / Routing / Routing F | Policies- Routing Policy Details | | | |
|---------------------|--------------------------------------|----------------------------------|--------|-------|---------|
| Domains | | | | | н |
| Locations | Routing Policy Details | | | Con | nmit Ca |
| Adaptations | | | | | |
| SIP Entities | General | | | | |
| Entity Links | | * Name: cs1kpublic | | | |
| Time Ranges | | Disabled: 📃 | | | |
| Routing Policies | | Notes: | | | |
| Dial Patterns | | Notest | | | |
| Regular Expressions | | | | |] |
| Defaults | SIP Entity as Destination | | | | |
| | Select | | | | |
| | Name | FQDN or IP Address | Туре | Notes | |
| | cs1kpublicnrs1 | 86.47. | Gatewa | ау | |
| | | | | | |
| | | | | | |

For routing policy Vodafone's SIP network, select the SIP Entity associated with Vodafone's SBC defined in Section 7.4 and click Select. The selected SIP Entity displays on the Routing Policy Details page. Use default values for remaining fields. Click Commit to save Routing Policy definition.

| Routing | Home / Elements / Routing / Routing Poli | icies- Routing P | olicy Details | | | |
|---------------------|--|------------------|--------------------|---|-------|-----------|
| Domains | | | | | | |
| Locations | Routing Policy Details | | | | | Commit Ca |
| Adaptations | | | | | | |
| SIP Entities | General | | | | | |
| Entity Links | | * Name: Voda | afone Germany | | | |
| Time Ranges | | Disabled: 📃 | | | | |
| Routing Policies | | Notes: | | | | |
| Dial Patterns | | | | | | |
| Regular Expressions | SIP Entity as Destination | | | 1 | | |
| Defaults | | | | | | |
| | Select | | | | | |
| | Name | | FQDN or IP Address | | Туре | Notes |
| | Vodafone Germany SBC | | 212. | | Other | |
| | | | | | | |

7.7. Define Dial Pattern

Dial patterns are used to route calls to appropriate SIP Entities. In the sample configuration, since the DDI range given for the testing had numbers that start with **069xxxxxx**, these will be routed to the Network Routing Server and then on to the Communication Server 1000E where they would be terminated on test sets. Alternately calls that are originated on the Communication Server 1000E that start with digits **00** will be routed to Vodafone's SBC, there is a dialing pattern added for this as well. To define a dial pattern, expand **Elements** \rightarrow **Routing** and select **Dial Patterns** (not shown). Click **New** (not shown). In the **General** section, enter the following values and use default values for remaining fields.

- **Pattern:** Enter dial pattern for calls to Avaya Network Routing Server
- Min: Enter the minimum number digits that must to be dialed
- Max: Enter the maximum number digits that may be dialed
- SIP Domain: Select the SIP Domain from drop-down menu or select All if Session Manager should accept incoming calls from all SIP domains
- Notes: Enter a brief description.[Optional]

In the **Originating Locations and Routing Policies** section, click **Add.** The **Originating Locations and Routing Policy List** page opens (not shown).

- Originating Locations Select All
- **Routing Policies** Select the Routing Policy defined for Network Routing Server in Section 7.6

Click **Select** to save these changes and return to **Dial Pattern Details** page. Click **Commit** to save. The following screen shows the Dial Pattern defined for sample configuration. The following screenshot shows the Routing Policy for Network Routing Server.

| Routing | Home /Elements / Routing / Dial Patterns- Dial Pattern Details |
|---------------------|--|
| Domains | |
| Locations | Dial Pattern Details Commit |
| Adaptations | |
| SIP Entities | General |
| Entity Links | * Pattern: 069 |
| Time Ranges | * Min: 10 |
| Routing Policies | * Max: 36 |
| Regular Expressions | Emergency Call: |
| Defaults | SIP Domain: -ALL- 💌 |
| | Notes: |
| | Originating Locations and Routing Policies Add Remove |
| | _ 1.Item _ Refresh |
| | Originating Location Name 1 Originating Location Notes Notes Routing Policy Notes Routing Policy Disabled Routing Policy Disabled Routing Policy Disabled |
| | -ALL- Any Locations cs1kpublic 0 cs1kpublicnrs1 |
| | Calada All None |

Repeat the above steps to add the dial Pattern to Vodafone's SBC, select the routing policy defined for Vodafone's SBC in **Section 7.6**. The following screenshot shows the Routing Policy for Vodafone's SBC.

| Routing | Home /Elements / Routing / Dial Patterns- Dial Pattern Details |
|---------------------|--|
| Domains | |
| Locations | Dial Pattern Details |
| Adaptations | |
| SIP Entities | General |
| Entity Links | * Pattern: 00 |
| Time Ranges | * Min: 2 |
| Routing Policies | * Max: 36 |
| Dial Patterns | |
| Regular Expressions | Emergency Call: |
| Defaults | SIP Domain: -ALL- |
| | Notes: |
| | |
| | Originating Locations and Routing Policies |
| | Add Remove |
| | |
| | 1 Item Refresh Filter: Ena |
| | Originating Location Name 1 A Or |
| | -ALL- Any Locations Vodafone Germany 0 Vodafone Germany SBC |

8. Service Provider Configuration

The configuration of Vodafone Germany's equipment used to support the SIP trunk service is outside of the scope for these application notes and will not be covered. To obtain further information on Vodafone Germany's equipment and system configuration please contact an authorised Vodafone Germany representative.

9. Verification

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.

| Αναγα | CS1000 Element Manager | Help Log |
|---|---|--|
| - UCM Network Services - Home - Links - Virtual Terminals - System + Alarms | Managing: <u>10.80.51.60</u> Username: admin System » Maintenance Maintenance | |
| - <u>Maintenance</u> + Core Equipment - Peripheral Equipment | Select by Overlay | ○ Select by Functionality |
| + IP Network + Interfaces - Engineered Values + Emergency Services + Software - Customers - Routes and Trunks - Routes and Trunks - D-Channels - Digital Trunk Interface | <select by="" overlay=""> LD 30 - Network and Signaling LD 32 - Network and Peripheral Equipment LD 34 - Tone and Digit Switch LD 36 - Trunk LD 37 - Input/Output LD 38 - Conference Circuit LD 39 - Intergroup Switch and System Clock LD 45 - Background Signaling and Switching LD 46 - Multifrequency Sender</select> | Select Group> D-Channel Diagnostics |
| + Dialing and Numbering Plans + Phones - Tools + Backup and Restore - Date and Time + Logs and reports - Security + Passwords + Policies + Login Options | LD 48 - Link LD 54 - Multifrequency Signaling LD 60 - Digital Trunk Interface and Primary Rate Interface LD 75 - Digital Trunk LD 80 - Call Trace LD 96 - D-Channel LD 117 - Ethernet and Alarm Management LD 135 - Core Input/Output LD 137 - Core Input/Output LD 134 - Coentralized Software Upgrade | MSDL Diagnostics TMDI Diagnostics |

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 |
|--|-----------|--------------------|--------|
| tatus for D-Channel (STAT DCH) | * | | Submit |
| isable Automatic Recovery (DIS AUTO) | ~ | ALL | Submit |
| nable Automatic Recovery (ENL AUTO) | ~ | FDL | Submit |
| est Interrupt Generation (TEST 100) | ~ | | Submit |
| stablish D-Channel (EST DCH) | ~ | | Submit |
| DCH DES APPL_STATUS LINK_STATUS AUTO_REC | PDCH BDCH | | |
| | | | |
| TAT DCH 010 | | | |

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 Pass Security Module Service State | | Up Ac | | ew Servic | æ | | | | | |
|---|---|----------|------------|--|--------------------|-----------------------|----------------------|----------------------|---------------|-------------|
| Home /Element | s / Session Mana | iger- | Sessior | ı Manag | jer | | | | | |
| Session Manager | Home /Elements / Se | ssion M | anager- Se | ession Man | ager | | | | | |
| Dashboard Session Manager Administration Communication Profile Editor | Session Manager Session Manager Dashboard Administration This page provides the overall status and health summary of each administered Session Manager. | | | | | | F | | | |
| Network Configuration | Service State 🔹 | | Shutdown S | ystem 🔹 | As of 3:07 I | РМ | | | | |
| 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 > System Status | Session Manager | Core | 0/1/63 | Image: A second s | Up | Accept New Service | 0/2 | 0 | 0 | 6.1.4.0.61 |
| System Tools | Select : All, None | | | | | | 1 | | | |

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.

| 1 Item Refresh Show ALL 💙 Filter: Enal | | | | | | | | | | | |
|--|---------|--------------------|------|--------|-------------|------------|------|--------------------|-------------|-------------------------------------|---------------|
| | | | | | | | | | | | |
| | Details | Session Manager | Туре | Status | Connections | IP Address | VLAN | Default Gateway | NIC Bonding | Entity Links (expected / actual) | Certi Used |
| 0 | ►Show | Session Manager | SM | Up | 4 | 86.4 | | - | Disabled | 2/2 | SIP C |

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 Network Routing Server from the All Monitored SIP Entities table (not shown) to open the SIP Entity, Entity Link Connection Status page. In the All Entity Links to SIP Entity: cs1kpublicnrs1 table, verify the Conn. Status for the link is Up as shown below.

| | SIP Entity, Entity Link Connection Status This page displays detailed connection status for all entity links from all Session Manager instances to a single SIP entity. | | | | | | | |
|---|---|------------------------|------|--------|--------------|-------------|----------------|--|
| | All Entity Links to SIP Entity: cs1kpublicnrs1 Summary View | | | | | | | |
| 1 Item | Refresh | | | | | | Filter: Enable | |
| Details | Session Manager Name | SIP Entity Resolved IP | Port | Proto. | Conn. Status | Reason Code | Link Status | |
| ▶ Show Session Manager 86.47.122.91 5060 TCP Up 200 OK Up | | | | | | | | |

Verify the SIP link is up between the Session Manager and Vodafone's SBC by going through the same process as outlined above but selecting the SIP Entity for Vodafone SBC in the All Monitored SIP Entities table.

| | ntity, Entity Link Conr isplays detailed connection status for all | | er instances to | a single SIP e | ntity. | | | |
|------------|---|------------------------|-----------------|----------------|--------------|-------------|---------|-------|
| | ty Links to SIP Entity: Vodaf | one Germany SBC | | | | | | |
| 1 Item I | Refresh | | | | | | Filte | r: Ei |
| Details | Session Manager Name | SIP Entity Resolved IP | Port | Proto. | Conn. Status | Reason Code | Link St | atu |
| ►Show | ▶Show Session Manager 212.144.52.8 5060 UDP Up 200 OK Up | | | | | | | |
| | | | | | | | | |

10. Conclusion

These Application Notes describe the configuration necessary to connect the Avaya Communication Server 1000E, Avaya Network Routing Server and Avaya Aura® Session Manager to Vodafone Germany's SIP Service. The testing was successfully performed; refer to **Section 2.2** for more details.

11. Additional 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, available at http://support.avaya.com.
- [2] Installing and Configuring Avaya Aura® Session Manager, available at http://support.avaya.com.
- [3] Avaya Aura® Session Manager Case Studies, available at http://support.avaya.com
- [4] Maintaining and Troubleshooting Avaya Aura® Session Manager, Doc ID 03-603325, available at http://support.avaya.com.
- [5] Administering Avaya Aura® Session Manager, Doc ID 03-603324, available at http://support.avaya.com
- [6] IP Peer Networking Installation and Commissioning, Release 7.5, Document Number NN43001-313, available at http://support.avaya.com
- [7] Unified Communications Management Common Services Fundamentals, Avaya Communication Server 1000E Release 7.5, Document Number NN43001-116, available at http://support.avaya.com
- [8] Network Routing Service Fundamentals, Release 7.5, Document Number NN43001-130, Issue 03.02, available at http://support.avaya.com
- [9] Co-resident Call Server and Signaling Server Fundamentals, Avaya Communication Server 1000E Release 7.5, Document Number NN43001-509, available at http://support.avaya.com
- [10] Signaling Server and IP Line Fundamentals, Avaya Communication Server 1000E Release 7.5, Document Number NN43001-125, available at <u>http://support.avaya.com</u>

Appendix A – Avaya Communication Server 1000E Software

Communication Server 1000E call server patches and plug ins 11/11/11 15:44:22 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 00 Q + IDLE SET DISPLAY NORTEL DepList 1: core Issue: 01(created: 2011-08-16 16:46:54 (est)) MDP>LAST SUCCESSFUL MDP REFRESH :2011-10-10 13:56:09(Local Time) MDP>USING DEPLIST ZIP FILE DOWNLOADED :2011-09-02 08:33:26(est) SYSTEM HAS NO USER SELECTED PEPS IN-SERVICE LOADWARE VERSION: PSWV 100 INSTALLED LOADWARE PEPS : 0 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 | | | | | | | | |
| RELEA | ASE 7 | | | | | | | | |
| ISSU | E 00 Q + | | | | | | | | |
| DepL | ist 1: core Is | sue: 01 (created: | 2011-08-16 | 16:46:54 (e | est)) | | | | |
| | | | | | | | | | |
| | ERVICE PEPS | | | | | | | | |
| | CR # | PATCH REF # | NAME | DATE | FILENAME | SPECINS | | | |
| 000 | wi00855276 | ISS1:10F1 | p29903_1 | 07/11/2011 | · _ · | NO | | | |
| 001 | wi00687630 | ISS1:10F1 | p31017_1 | 07/11/2011 | · _ · | NO | | | |
| 002 | wi00855050 | ISS1:10F1 | p30731_1 | | p30731_1.cpl | YES | | | |
| 003 | wi00848801 | ISS1:10F1 | p30336 1 | 07/11/2011 | | YES | | | |
| 004 | WI00853745 | ISS1:10F1 | p29841_1 | | p29841_1.cpl | YES | | | |
| 005 | WI00844778 | ISS1:10F1 | p30641_1 | 07/11/2011 | · _ · | NO | | | |
| 006 | wi00890671 | ISS1:10F1 | p31051_1 | 07/11/2011 | p31051_1.cpl | YES | | | |
| 007 | wi00853769 | ISS1:10F1 | p30892 1 | 07/11/2011 | T T | YES | | | |
| 008 | WI00853186 | ISS1:10F1 | p30625_1 | 07/11/2011 | | NO | | | |
| 009 | wi00854255 | ISS1:10F1 | p30124 1 | | p30124 1.cpl | NO | | | |
| 010 | WI00853769 | ISS1:10F1 | p30894_1 | 07/11/2011 | | YES | | | |
| 011 | wi00883601 | ISS1:10F1 | p30973_1 | 07/11/2011 | p30973_1.cpl | NO | | | |
| 012 | wi00848515 | ISS1:10F1 | p30677_1 | 07/11/2011 | · _ · | NO | | | |
| 013 | wi00852689 | ISS1:10F1 | p29842_1 | 07/11/2011 | p29842_1.cpl | NO | | | |
| 014 | wi00641671 | ISS1:10F1 | p29744_1 | 07/11/2011 | · _ · | NO | | | |
| 015 | wi00869468 | ISS1:10F1 | p30856 1 | 07/11/2011 | p30856 1.cpl | NO | | | |
| 016 | Q02161860 | ISS2:10F1 | p30263_2 | 07/11/2011 | p30263_2.cpl | NO | | | |
| 017 | wi00868063 | ISS1:10F1 | p30848_1 | 07/11/2011 | · _ · | NO | | | |
| 018 019 | wi00825672 002159545 | ISS1:10F1 ISS1:10F1 | p30468_1 p30277_1 | 07/11/2011 07/11/2011 | p30468_1.cpl p30277 1.cpl | NO YES | | | |

HD; Reviewed: SPOC 1/16/2012

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| 020 | wi00891255 | ISS1:10F1 | p30399_1 | 07/11/2011 | p30399_1.cpl | NO |
|-----|--------------|------------------------|----------|------------|--------------------------|-----|
| 021 | wi00840589 | ISS2:10F1 | p30767_2 | 07/11/2011 | p30767 2.cpl | NO |
| 022 | wi00686980 | ISS1:10F1 | p30706 1 | 07/11/2011 | p30706 1.cpl | NO |
| 023 | wi00853798 | ISS1:10F1 | p30131 1 | | p30131 1.cpl | NO |
| | | | | | | |
| 024 | wi00862909 | ISS1:10F1 | p30809_1 | | p30809_1.cpl | NO |
| 025 | Q02165164 | ISS1:10F1 | p30304 1 | | p30304 1.cpl | NO |
| 026 | wi00874210 | ISS1:1 OF 1 | p30880 1 | 07/11/2011 | p30880 1.cpl | NO |
| 027 | WI00836290 | ISS1:10F1 | p30554_1 | 07/11/2011 | p30554 1.cpl | NO |
| 028 | wi00688204 | ISS1:10F1 | p30197 1 | | p30197 1.cpl | NO |
| 029 | wi00857960 | ISS1:10F1 | p30768 1 | | p30768 1.cpl | NO |
| | | | | | | |
| 030 | Q02156594 | ISS1:10F1 | p30276_1 | | p30276_1.cpl | YES |
| 031 | wi00853753 | ISS1:10F1 | p30064_1 | | p30064_1.cpl | NO |
| 032 | wi00847002 | ISS1:10F1 | p30656_1 | 07/11/2011 | p30656_1.cpl | NO |
| 033 | wi00891007 | ISS1:10F1 | p31058 1 | 07/11/2011 | p31058 1.cpl | NO |
| 034 | wi00816794 | ISS1:10F1 | p30443 1 | 07/11/2011 | p30443 1.cpl | NO |
| 035 | WI00853478 | ISS1:10F1 | p30306 1 | | p30306 1.cpl | NO |
| 036 | wi00853431 | | p29935 1 | | p29935 1.cpl | |
| | | ISS1:10F1 | | | | NO |
| 037 | wi00861414 | ISS1:10F1 | p30791_1 | | p30791_1.cpl | NO |
| 038 | wi00853769 | ISS1:10F1 | p30896 1 | 07/11/2011 | p30896 1.cpl | YES |
| 039 | wi00856984 | ISS1:10F1 | p17588 1 | 07/11/2011 | p17588 1.cpl | NO |
| 040 | wi00641909 | ISS1:10F1 | p30004 1 | 07/11/2011 | p30004 1.cpl | NO |
| 041 | wi00895312 | ISS1:10F1 | p31107 1 | | p31107 1.cpl | NO |
| 042 | wi00852510 | ISS1:10F1 | p30357 1 | | p30357 1.cpl | NO |
| | | | | | | |
| 043 | wi00862916 | ISS1:10F1 | p30807_1 | | p30807_1.cpl | NO |
| 044 | wi00884895 | ISS1:10F1 | p30942 1 | | p30942 1.cpl | NO |
| 045 | wi00877009 | ISS1:10F1 | p31115_1 | 07/11/2011 | p31115_1.cpl | NO |
| 046 | wi00688114 | ISS1:10F1 | p30319_1 | 07/11/2011 | p30319 1.cpl | NO |
| 047 | Q02149076-01 | ISS1:10F1 | p30206 1 | 07/11/2011 | p30206 1.cpl | NO |
| 048 | wi00893211 | ISS1:10F1 | p30867 1 | | p30867 1.cpl | NO |
| | | | | | | |
| 049 | Q02145107-02 | ISS1:10F1 | p30126_1 | | p30126_1.cpl | NO |
| 050 | wi00869293 | ISS1:10F1 | p30963 1 | | p30963 1.cpl | NO |
| 051 | wi00894262 | ISS1:10F1 | p31091 1 | 07/11/2011 | p31091 1.cpl | NO |
| 052 | WI00853769 | ISS1:10F1 | p30895_1 | 07/11/2011 | p30895 1.cpl | YES |
| 053 | wi00647104 | ISS2:1of1 | p29747_2 | | p29747 2.cpl | NO |
| 054 | wi00853750 | ISS1:10F1 | p29938 1 | | p29938 1.cpl | NO |
| | | | | | | |
| 055 | wi00878934 | ISS1:10F1 | p31077_1 | | p31077_1.cpl | NO |
| 056 | wi00853388 | ISS1:10F1 | p30065 1 | 07/11/2011 | p30065 1.cpl | NO |
| 057 | wi00876852 | ISS1:10F1 | p30952 1 | 07/11/2011 | p30952 1.cpl | NO |
| 058 | wi00876798 | iss2:1of1 | p31039_2 | 07/11/2011 | p31039 2.cpl | NO |
| 059 | Wi00687946 | ISS1:10F1 | p30123 1 | | p30123 1.cpl | NO |
| 060 | wi00839793 | ISS1:10F1 | p28647 1 | | p28647 1.cpl | NO |
| | | | | | | |
| 061 | wi00892074 | ISS1:10F1 | p29645 1 | | p29645 1.cpl | NO |
| 062 | wi00853769 | ISS1:10F1 | p30898_1 | | p30898_1.cpl | YES |
| 063 | wi00839916 | ISS1:10F1 | p30593 1 | | p30593 1.cpl | NO |
| 064 | wi00688477 | ISS1:10F1 | p29732 1 | 07/11/2011 | p29732 1.cpl | NO |
| 065 | Wi00623072 | ISS1:10F1 | p29992 1 | | p29992 1.cpl | NO |
| 066 | wi00826342 | ISS2:10F1 | p30471 2 | | p30471 2.cpl | NO |
| 067 | wi00879820 | | | | p30719 1.cpl | |
| | | ISS1:10F1 | p30719 1 | | | NO |
| 068 | wi00903367 | | | | p31165_1.cpl | NO |
| 069 | Q02152936-01 | ISS1:10F1 | p30249 1 | | p30249 1.cpl | NO |
| 070 | wi00886633 | ISS1:10F1 | p31012_1 | 07/11/2011 | p31012_1.cpl | NO |
| 071 | wi00845667 | ISS1:10F1 | p30676_1 | 07/11/2011 | p30676 ^{1.} cpl | NO |
| 072 | wi00881957 | ISS1:10F1 | p30982 1 | 07/11/2011 | | NO |
| 073 | wi00824288 | ISS1:10F1 | p30461 1 | 07/11/2011 | p30461 1.cpl | NO |
| | | | | | p30251 1.cpl | |
| 074 | Q02157114 | ISS1:10F1 | p30251_1 | 07/11/2011 | | NO |
| 075 | WI00851975 | ISS1:10F1 | p30312 1 | 07/11/2011 | p30312 1.cpl | NO |
| 076 | wi00887742 | ISS2:10F1 | p31026_2 | 07/11/2011 | p31026_2.cpl | NO |
| 077 | wi00894239 | ISS1:10F1 | p31087_1 | 07/11/2011 | p31087_1.cpl | NO |
| 078 | wi00827512 | ISS1:10F1 | p30479 1 | 07/11/2011 | p30479 1.cpl | NO |
| 079 | WI00853769 | ISS1:10F1 | p30890 1 | 07/11/2011 | p30890 1.cpl | YES |
| 080 | wi00828961 | ISS1:10F1 ISS2:10F1 | p30492 2 | 07/11/2011 | p30492 2.cpl | NO |
| | | | | | | |
| 081 | wi00865152 | ISS1:10F1 | p30826 1 | 07/11/2011 | p30826 1.cpl | NO |
| 082 | wi00604003 | ISS1:10F1 | p29726_1 | 07/11/2011 | p29726_1.cpl | NO |
| 083 | wi00853769 | ISS1:10F1 | p30893_1 | 07/11/2011 | p30893_1.cpl | YES |
| 084 | Q02159250-01 | ISS1:10F1 | p30280_1 | 07/11/2011 | p30280 1.cpl | NO |
| 085 | | ISS1:10F1 | p30210 1 | 07/11/2011 | p30210 1.cpl | NO |
| 086 | wi00860278 | ISS1:10F1 | p30789 1 | 07/11/2011 | p30789 1.cpl | NO |
| | | | - | | p30160 1.cpl | |
| 087 | Q02150073-01 | ISS1:10F1 | p30160_1 | 07/11/2011 | | NO |
| 088 | wi00686889 | ISS3:10F1 | p30074_3 | 07/11/2011 | p30074_3.cpl | NO |
| 089 | wi00836181 | ISS1:10F1 | p30450 l | 07/11/2011 | p30450 1.cpl | NO |

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| 090 | Q02158718-01 | ISS1:10F1 | p30311_1 | 07/11/2011 | p30311_1.cpl | NO |
|------------|-----------------------------------|----------------------------|----------------------|--------------------------|------------------------------|-------------------------|
| 091 | wi00852325 | ISS1:10F1 | p30167 1 | 07/11/2011 | p30167 1.cpl | NO |
| 092 | wi00869693 | ISS1:10F1 | p30654_1 | 07/11/2011 | p30654_1.cpl | NO |
| 093 094 | wi00837793 wi00898326 | ISS1:10F1 ISS1:10F1 | p30573_1 p31136_1 | 07/11/2011 | p30573_1.cpl p31136 1.cpl | NO NO |
| 095 | Q02152254 | ISS1:10F1 | p30271 1 | | p30271 1.cpl | YES |
| 096 | wi00852317 | ISS1:10F1 | p30176 1 | 07/11/2011 | | NO |
| 097 | wi00826074 | ISS1:10F1 | p30452 1 | | p30452 1.cpl | NO |
| 098 | Q02143641-01 | ISS1:10F1 | p30159 1 | 07/11/2011 | p30159 1.cpl | NO |
| 099 | Q02162391 | ISS1:10F1 | p30272_1 | | p30272_1.cpl | NO |
| 100 | wi00853837 | ISS1:10F1 | p30172_1 | 07/11/2011 | | NO |
| 101 | wi00848697 | ISS1:10F1 | p30621_1 | | p30621_1.cpl | NO |
| 102 103 | WI00836333 wi00686977 | ISS1:10F1 ISS1:10F1 | p30481_1 p30223 1 | 07/11/2011 | p30481_1.cpl p30223 1.cpl | NO NO |
| 103 | wi00688037 | ISS2:10F1 | p29376 2 | | p29376 2.cpl | NO |
| 105 | wi00843569 | ISS1:10F1 | p30627 1 | 07/11/2011 | | NO |
| 106 | wi00861072 | ISS1:10F1 | p30787_1 | | p30787 1.cpl | NO |
| 107 | wi00880384 | ISS1:10F1 | p30977_1 | 07/11/2011 | p30977_1.cpl | NO |
| 108 | wi00856261 | ISS1:10F1 | p30751 1 | | p30751 1.cpl | NO |
| 109 | wi00843647 | ISS1:10F1 | p30186_1 | 07/11/2011 | | NO |
| 110 | wi00856244 | ISS1:10F1 | p30418_1 | | p30418_1.cpl | NO |
| 111 112 | wi00853769 wi00834114 | ISS1:10F1 ISS1:10F1 | p30891_1 p30456_1 | 07/11/2011 | p30891_1.cpl p30456 1.cpl | YES NO |
| 112 | wi00686928 | ISSI:10F1 ISS2:10f1 | p29899 2 | 07/11/2011 | | NO NO |
| 114 | wi00883810 | ISS1:10F1 | p30997 1 | | p30997 1.cpl | NO |
| 115 | wi00869471 | ISS1:10F1 | p30999 1 | 07/11/2011 | | NO |
| 116 | wi00853453 | ISS1:10F1 | p30282_1 | 07/11/2011 | p30282_1.cpl | NO |
| 117 | wi00833760 | ISS1:10F1 | p30541_1 | 07/11/2011 | | NO |
| 118 | Q02152968-01 | ISS1:10F1 | p30168_1 | | p30168_1.cpl | NO |
| 119 | Q02154023 | ISS1:10F1 | p30157_1 | 07/11/2011 | | NO |
| 120 121 | Q02143605-02 wi00688225 | ISS1:10F1 ISS1:10F1 | p30089 1 p30295 1 | 07/11/2011 | p30089 1.cpl p30295 1.cpl | NO NO |
| 121 | wi00000220 | ISS1:10F1 | p30381 2 | | p30381 2.cpl | NO |
| 123 | wi00839645 | ISS1:10F1 | p30596 1 | 07/11/2011 | | NO |
| 124 | wi00856160 | ISS1:10F1 | p30750_1 | 07/11/2011 | p30750_1.cpl | NO |
| 125 | Q02150582-02 | ISS2:10F1 | p30144_2 | 07/11/2011 | | NO |
| 126 | WI00865566 | ISS1:10F1 | p30709 1 | | p30709 1.cpl | YES |
| 127 128 | wi00687324 wi00862159 | ISS1:10F1 ISS1:10F1 | p16376_1 p30802_1 | 07/11/2011 | p16376_1.cpl p30802 1.cpl | NO NO |
| 120 | wi00688048 | ISS1:10F1 ISS1:10F1 | p25747 1 | 07/11/2011 | | NO |
| 130 | wi00824249 | ISS1:10F1 | p30447 1 | | p30447 1.cpl | NO |
| 131 | WI00877440 | ISS1:10F1 | p30844 1 | 07/11/2011 | | NO |
| 132 | wi00857493 | ISS1:10F1 | p30766_1 | 07/11/2011 | p30766_1.cpl | NO |
| 133 | Q02154408 | ISS1:10F1 | p30162 1 | 07/11/2011 | | NO |
| 134 | Q02162037 | ISS1:10F1 | p30266_1 | | p30266_1.cpl | YES |
| 135 136 | wi00688110 wi00853769 | ISS1:10F1 ISS1:10F1 | p30305_1 p30897_1 | 07/11/2011 07/11/2011 | p30305_1.cpl p30897 1.cpl | NO YES |
| 137 | wi00853781 | ISS1:10F1 | p30897_1 p30416 1 | 07/11/2011 | p30416 1.cpl | NO |
| | wi00834381 | ISS1:10F1 | | | p30548 1.cpl | NO |
| 139 | | ISS1:10F1 | | | p30749 1.cpl | NO |
| | wi00865953 | ISS1:10F1 | p30832_1 | 07/11/2011 | p30832_1.cpl | NO |
| | | MDP REFRESH :20 | | | | |
| MDP> | USING DEPLIST Z | IP FILE DOWNLOAD | ED :2011-09 | -02 08:33:26 | (est) | |
| | | | | | | |
| | C | ····· | 1000 | E aime - lie | • | a un datas |
| | Cor | nmunication So | erver 1000 | E signaling | server service | eupdates |
| Drevi | nat Dolarss 7 | 00 20 00 | | | | |
| | uct Release: 7. ystem patches: | | | | | |
| | | L IN SERVICE DAT | E SPEC | INS TYPE | RPM | |
| 29 | | — | 10/11 NO | FRU | | OS-1.00.00.00-00.noarch |
| 30 | | | 10/11 NO | FRU | | OS-1.00.00.00-00.noarch |
| | | | | | | |
| | ystem service u | | | _ | | |
| PATCI 0 | H# IN_SERVICE Yes | DATE SPECIN 03/10/11 NO | S REMOVABI YES | | s1000-lipuwhaca | -7.00.20.10-02.i386.000 |
| 1 | Yes | 04/10/11 NO | YES | | | .00.20.10-1.i386.000 |
| 2 | Yes | 04/10/11 NO | YES | | | 7.00.20.10-3.i386.000 |
| 3 | No | 04/10/11 YES | YES | | | 20.01-00.i386.000 |
| | | | | | | |
| | | | | | | |

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| ĺ | 4 | No | 04/10/11 | YES | YES | nortel-cs1000-shared-tpselect-7.00.20.01- |
|---|---------|------|----------|-----|-----|---|
| | 00.i386 | .000 | | | | |
| | 5 | No | 04/10/11 | NO | YES | nortel-cs1000-mscConf-7.00.20-01.i386.000 |
| | 6 | No | 04/10/11 | NO | yes | nortel-cs1000-cppmUtil-7.00.20.01-00.i686.000 |
| | 7 | No | 04/10/11 | NO | YES | nortel-cs1000-cs1000WebService 6-0-7.00.20.03- |
| | 00.i386 | .000 | | | | |
| | 8 | No | 04/10/11 | NO | YES | nortel-cs1000-sm-7.00.20.00-01.i386.001 |
| | 9 | No | 04/10/11 | NO | YES | nortel-cs1000-dbcom-7.00.20.10-1.i386.000 |
| | 10 | No | 04/10/11 | NO | YES | nortel-cs1000-nrsm-7.00.20.10-1.i386.000 |
| | 11 | No | 04/10/11 | NO | YES | nortel-cs1000-shared-pbx-7.00.20.10-1.i386.000 |
| | 12 | No | 04/10/11 | NO | YES | nortel-cs1000-shared-xmsg-7.00.20.10-1.i386.000 |
| | 13 | No | 04/10/11 | NO | YES | nortel-cs1000-kcv-7.00.20.10-1.i386.000 |
| | 14 | No | 04/10/11 | NO | YES | ipsec-tools-0.6.5-14.el5.3.i386.000 |
| | 15 | No | 04/10/11 | NO | YES | nortel-cs1000-emWeb_6-0-7.00.20.10-3.i386.000 |
| | 16 | No | 04/10/11 | NO | YES | nortel-cs1000-sps-7.00.20.10-3.i386.000 |
| | 17 | No | 04/10/11 | NO | YES | nortel-cs1000-mscAttn-7.00.20.10-2.i386.000 |
| | 18 | No | 04/10/11 | NO | YES | nortel-cs1000-dmWeb-7.00.20.10-2.i386.000 |
| | 19 | No | 04/10/11 | NO | YES | nortel-cs1000-mscAnnc-7.00.20.10-2.i386.000 |
| | 20 | No | 04/10/11 | NO | YES | nortel-cs1000-mscMusc-7.00.20.10-2.i386.000 |
| | 21 | No | 04/10/11 | NO | YES | nortel-cs1000-mscTone-7.00.20.10-2.i386.000 |
| | 22 | No | 04/10/11 | NO | YES | nortel-cs1000-csmWeb-7.00.20.10-1.i386.000 |
| | 23 | No | 04/10/11 | NO | YES | nortel-cs1000-ftrpkg-7.00.20.10-3.i386.000 |
| | 24 | No | 04/10/11 | NO | YES | nortel-cs1000-Jboss-Quantum-7.00.20.10-8.i386.000 |
| | 25 | No | 04/10/11 | NO | no | nortel-cs1000-cnd-3.2.24-00.i386.000 |
| | 26 | No | 04/10/11 | NO | YES | nortel-cs1000-tps-7.00.20.10-11.i386.000 |
| | 27 | No | 04/10/11 | NO | YES | nortel-cs1000-bcc-7.00.20.10-20.i386.000 |
| | 28 | No | 04/10/11 | NO | YES | nortel-cs1000-vtrk-7.00.20.10-33.i386.000 |
| | | | | | | |

Communication Server 1000E system software

| Product Release: 7.00.20.0 | 0 | |
|----------------------------|--------------|-----------|
| Base Applications | | |
| base | 7.00.20 | [patched] |
| NTAFS | 7.00.20 | |
| sm | 7.00.20 | |
| nortel-Auth | 7.00.20 | |
| Jboss-Quantum | 7.00.20 | |
| lhmonitor | 7.00.20 | |
| baseAppUtils | 7.00.20 | |
| dfoTools | 7.00.20 | |
| nnnm | 7.00.20 | |
| cppmUtil | 7.00.20 | |
| oam-logging | 7.00.20 | |
| dmWeb | 7.00.20 | |
| baseWeb | n/a | [patched] |
| ipsec | 7.00.20 | |
| Snmp-Daemon-TrapLib | 7.00.20 | |
| ISECSH | 7.00.20 | |
| patchWeb | n/a | [patched] |
| EmCentralLogic | 7.00.20 | |
| Application configuration: | CS+SS+NRS+EM | |
| Packages: | | |
| CS+SS+NRS+EM | | |
| Configuration version: | 7.00.20-00 | |
| CS | 7.00.20 | |
| dbcom | 7.00.20 | |
| cslogin | 7.00.20 | |
| sigServerShare | 7.00.20 | |
| CSV | 7.00.20 | |
| tps | 7.00.20 | |
| vtrk | 7.00.20 | |
| pd | 7.00.20 | |
| sps | 7.00.20 | |
| ncs | 7.00.20 | |
| gk | 7.00.20 | |
| nrsm | 7.00.20 | |
| nrsmWebService | 7.00.20 | |
| managedElementWebServic | | |
| EmConfig | 7.00.20 | |

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| emWeb 6-0 | 7.00.20 |
|----------------------|---------|
| emWebLocal 6-0 | 7.00.20 |
| csmWeb | 7.00.20 |
| bcc | 7.00.20 |
| ftrpkg | 7.00.20 |
| cs1000WebService 6-0 | 7.00.20 |
| mscAnnc | 7.00.20 |
| mscAttn | 7.00.20 |
| mscConf | 7.00.20 |
| mscMusc | 7.00.20 |
| mscTone | 7.00.20 |

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