



How to Configure SIP Trunk for CompanyFlex (Telekom Deutschland GmbH)

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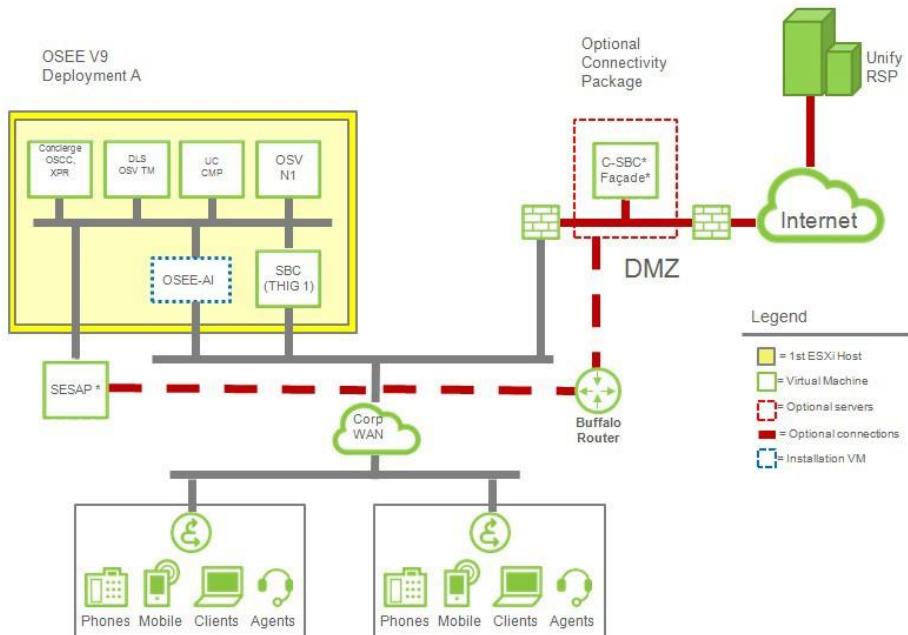
Date	Version	Changes
15.12.2020	0.1	First version

Overview

Telekom Deutschland GmbH launched the new CompanyFlex trunk in 2020. CompanyFlex is the successor of the DeutschlandLAN SIP Trunk. From configuration point of view, it has just a few deltas which were introduced on top with CompanyFlex. Therefor the old DeutschlandLAN SIP Trunk Configuration Guide was re-used in this document and the delta or the configuration screenshots from the CompanyFlex certification lab were simply added in the beginning of each chapter. This document is an extended version of the DeutschlandLAN SIP Trunk Configuration Guide with CompanyFlex deltas and configurations.

This document describes the configuration of the OpenScape Enterprise Express Deployment V10 to connect to Telekom Deutschland GmbH CompanyFlex SIP trunk as it was configured during a certification test in the Telekom Deutschland certification lab.

This document and the described configuration are valid also for OpenScape Voice with OpenScape SBC deployments. Telekom Deutschland GmbH is hereinafter referred to as Telekom.



Trunk Configuration Data provided by Telekom Deutschland GmbH

Trunk Name: CompanyFlex

Trunk connection: Registered Trunk.

Supported Connectivity: SBC with private IP behind NAT (Telekom CompanyFlex uses special NAT traversal to detect if SBC is located in a private Class A, B or C network; no need to configure external Firewall on SBC); SBC with public IP

Documentation: Installations- und Konfigurationshilfe CompanyFlex

<https://hilfe.companyflex.de/de/einrichtung/anschalteszenarien>

Bitte auch hier entsprechende Hinweise zum Thema Notruf-Routing beachten.

The configuration data needed to setup the SIP trunk will be provide from within the Telekom CompanyFlex administration and configuration portal, e. g.



OpenScape SBC Configuration

For the certification test SBC version V10 R0.5.1 (10.00.05.01-1) on the Central SBC and THIG SBC was used.

DNS

It must be configured a DNS server which can resolve the Telekom DNS records configured in the Remote Endpoints:

The screenshot shows the 'OpenScape SBC Management Portal' interface. The left sidebar has sections like System, Network/Net Services, VoIP, Features, Security, Diagnostics & logs, Alarms, and Maintenance. Under 'Network/Net Services', 'Settings' is expanded, and 'DNS' is selected (highlighted with a red box and arrow). The main content area is titled 'General - sbcbonn' and shows 'sbcbonn - Network/Net Services — Mozilla Firefox'. It displays a 'Network/Net Services' configuration page with tabs for Settings, DNS, NTP, Traffic Shaping, and QoS. The 'Client' section has a 'Refresh DNS' button and lists a 'DNS server IP address' (192.168.1.1) and an 'Alias' list containing 'bonn.telekom.de', 'sbcbonn.bonn.telekom.de', 'sbcbonn-sspcplan-01.bonn.telekom.', 'sbcbonn-sspcflex-01.bonn.telekom' (highlighted with a red box and arrow), and 'sbcbonn-sspcflex-02.bonn.telekom'. The 'Server' section includes checkboxes for 'Enable DNS server' and 'Enable customization'.

Quality of Service (QoS)

Telekom has specified in their 1TR114 document QoS requirements which must be applied on the SBC:

8.4.2 Traffic Classes in Layer 3

The UE uses the following traffic classes at Layer 3 (according to the Architecture of T-Home)

- Voice Control Class 6 (DSCP 110 000)
- Voice Bearer Class 5 (DSCP 101 110)

Network/Net Services

Select OK to temporarily store changes. Make your changes permanent by selecting 'Apply Changes' on the General page.

QoS Settings

Enable QoS Configuration

DSCP for SIP	48
DSCP for MGCP	48
DSCP for RTP (Audio)	46
DSCP for RTP (Video)	46

Row | Protocol | **In interface** | Out

Media Profile

CompanyFlex Config/Delta:

UNIFY OpenScape SBC Management Portal

User name: administrator | Help | Logout

General - sbcbonn

Administration

- System
- Network/Net Services
- VoIP**
 - Sip Server Set
 - Port and Signaling
 - Media**
 - QoS Monitoring
- Features
- Security
- Diagnostics & logs
- Alarms
- Maintenance

sbcbonn - VOIP — Mozilla Firefox

https://172.17.0.5/voip.html?tblid=media

Media Profile

Select OK to temporarily store changes. Make your changes permanent by selecting 'Apply Changes' on the General page.

General

Name	RTP
Media protocol	RTP only
<input type="checkbox"/> Support ICE	
<input type="checkbox"/> Enable TURN Client	
<input checked="" type="checkbox"/> RTP/RTCP Multiplex in offer	
<input type="checkbox"/> SDP Compatibility Mode	
<input type="checkbox"/> Support Mid Attribute	
<input type="checkbox"/> Do not set port to zero on session timer answer SDP	

SRTP configuration

SRTP crypto context negotiation	<input type="checkbox"/> MIKEY	<input type="checkbox"/> SDES	<input type="checkbox"/> DTLS
<input type="checkbox"/> Mark SRTP Call-leg as Secure			

Codec configuration

<input type="checkbox"/> Allow unconfigured codecs		
<input type="checkbox"/> Enforce codec priority in profile		
<input type="checkbox"/> Send Telephony Event in Invite without SDP		
<input type="checkbox"/> Use payload type 101 for telephony event/8000		
<input type="checkbox"/> Enforce Packetization Interval		
Codec	G711U 8 kHz - 64 kbps	Add

Media Profiles

Name	Codecs
default	G711A,G722,G729
webrtc_default	
WE_Phone_default	
SRTP	G711A
RTP	G711A
Cloud Support	

Priority

Priority	Codec	Packetization interval
1	G711A 8 kHz - 64 kbps	20

DeutschlandLAN SIP Trunk Config:

Depending on whether the SIP trunk is encrypted via TLS or not, two Media Profiles were prepared:

VOIP

Select OK to temporarily store changes. Make your changes permanent by selecting 'Apply Changes' on the General page.

Sip Server Settings Port and Signaling Settings Media QoS Monitoring

Media Profiles

Add Edit Delete

Name	Codecs	Media protocol	SRTP crypto context negotiation	Mark SRTP Call-leg as Secure	Single m-line SRTP
WE_Phone_default		Best Effort SRTP	mikey + sdes		
SRTP		SRTP only	sdes		<input checked="" type="checkbox"/>
RTP		RTP only	none		
SipRec_default		Best Effort SRTP	mikey + sdes		

For an unencrypted SIP trunk the Media Protocol **RTP** was used:

Media Profile

Select OK to temporarily store changes. Make your changes permanent by selecting 'Apply Changes' on the General page.

General

Name: RTP

Media protocol: RTP only

Direct Media Support

Suppress ICE Candidates

Support Trickle ICE

RTP/RTCP Multiplex in offer

SRTP configuration

SRTP crypto context negotiation: MIKEY SDES DTLS

Mark SRTP Call-leg as Secure

Codec configuration

Allow unconfigured codecs

Enforce codec priority in profile

Send Telephony Event in Invite without SDP

Use payload type 101 for telephony event/8000

Enforce Packetization Interval

Codec:

For an encrypted SIP trunk the Media Protocol **SRTP** and **SDES** to negotiate the cryptographic parameters was used. MIKEY may not be enabled because it's not supported by Telekom.

Media Profile

Select OK to temporarily store changes. Make your changes permanent by selecting 'Apply Changes' on the General page.

General

Name: SRTP

Media protocol: SRTP only Direct Media Support

Suppress ICE Candidates

Support Trickle ICE

RTP/RTCP Multiplex in offer

SRTP configuration

SRTP crypto context negotiation: MIKEY SDES DTLS

Mark SRTP Call-leg as Secure

Codec configuration

Allow unconfigured codecs

Enforce codec priority in profile

Send Telephony Event in Invite without SDP

Use payload type 101 for telephony event/8000

Enforce Packetization Interval

Codec:

The application of the Media Profile used for the SIP trunk is described in the section *Remote Endpoint* below.

Remote Endpoint

CompanyFlex - Central SBC – Config/Delta:

The screenshot shows the 'Features' section with several checkboxes selected, including 'Enable Remote Endpoints'. The 'Remote Endpoints' table lists two entries: 'DTAGNGLAN01' and 'SSPPCFLEX01'. The 'SSPPCFLEX01' entry is highlighted with a red circle and a pink arrow pointing to it from the left side of the screen.

Row	Name	Registration required	Registration interval (sec)
1	DTAGNGLAN01	<input checked="" type="checkbox"/>	480
2	SSPPCFLEX01	<input checked="" type="checkbox"/>	480

Row	Name	Access realm profile	Type	Profile / Circuit ID	Remote IP address / Logical-Endpoint-ID / Circuit URL	Remote port	Remote transport	Assoc. linked Endp. Endp.	Core realm profile	Core FQDN	Core realm port	Routing prefix	Default home DN
1	REP_SSPLAN-01	Main-Access-Realm - ipv4	SSP	DTAGNGLAN01	sp-trunk.tekom.de	0	TLS		Main-Core-Realm - ipv4	stuttgart-expedia-01.bonn.tekom.de	50000		+49221847030
2	REP_SSP-CFlex-01	Main-Access-Realm - ipv4	SSP	SSPPCFLEX01	tel-t-online.de	0	TCP		Main-Core-Realm - ipv4	stuttgart-expedia-01.bonn.tekom.de	50002		+49199296000000002330
3	REP_SSP-CFlex-02	Main-Access-Realm - ipv4	SSP	SSPPCFLEX01	tel-t-online.de	0	TCP		Main-Core-Realm - ipv4	stuttgart-expedia-02.bonn.tekom.de	50004		+49199296000000002310

SIP Service Provider Profile

Select OK to temporarily store changes. Make your changes permanent by selecting 'Apply Changes' on the General page.

General

Name SSPPCFLEX01 Default SSP profile DTAG/CompanyFlex

Use SIP Service Address for identity headers

SIP service address tel.t-online.de

Use SIP Service Address in Request-URI header

Use SIP Service Address in From header

Use SIP Service Address in To header

Use SIP Service Address in P-Asserted-Identity header

Use SIP Service Address in Diversion header

Use SIP Service Address in Contact header

Use SIP Service Address in Via header

SIP User Agent

SIP User Agent towards SSP Passthru SIP User Agent

Registration

Registration required

Registration interval (sec) 480

Business Identity

Business identity required

Business identity DN

Outgoing SIP manipulation

Insert anonymous caller ID for blocked Caller-ID

Manipulation

Incoming SIP manipulation

Calling Party Number From header user and display

Flags

FQDN in TO header to SSP

Use To DN to populate the RURI

Send Default Home DN in Contact for Call messages

Allow SDP changes from SSP without session version update

SIP Service Provider Profile

Manipulation

Incoming SIP manipulation

Calling Party Number: From header user and display

Flags

- FQDN in TO header to SSP
- Use To DN to populate the RURI
- Send Default Home DN in Contact for Call messages
- Allow SDP changes from SSP without session version update
- Do not send INVITE with sendonly media attribute
- Do not send INVITE with inactive media attribute
- Do not send INVITE with video media line
- Do not send Invite without SDP
- Do not send Re-Invite when no media type change
- Do not send Re-Invite
- Remove Silence Suppression parameter from SDP
- Enable pass-through of Optional parameters
- Force direction attribute to sendrcv
- Send default Home DN in PAI
- Send default Home DN in PPI
- Preserve To and From headers per RFC2543
- Disable FQDN pass-through in FROM header
- Keep Digest Authentication Header
- Send Contact header in OPTIONS

TLS

TLS Signaling: Endpoint Config

Sip Connect

- Use tel URI
- Send user=phone in SIP URI
- Registration mode
- 1TR118

Remote endpoint configuration

Select OK to temporarily store changes. Make your changes permanent by selecting 'Apply Changes' on the General page.

Remote Endpoint Settings

Name	REP_SSP-CFlex-01	Edit
Type	SSP	
Profile	SSPPCFLEX01	
Access realm profile	Main-Access-Realm - ipv4	
Core realm profile	Main-Core-Realm - ipv4	
Associated Endpoint		
<input type="checkbox"/> Enable Call Limits		
Maximum Permitted Calls	0	
Reserved Calls	0	

Remote Location Information

<input type="checkbox"/> URI based routing	
<input type="checkbox"/> Enable access control	
Signaling address type	DNS SRV

Remote Location domain list

Row	Remote URL	Remote port	Remote transport	Media IP	Media profile	TLS mode	Certificate profile	TLS keep-alive	Keep-alive interval (seconds)
1	tel.t-online.de	0	TCP		RTP	Server authentication	Telekom	<input type="checkbox"/>	60

Remote Location Identification/Routing

Core FQDN	sbcbonn-sspcflex-01.bonn.telekom.de
Core realm port	50002
Default core realm location domain name	
Default home DN	+4919929600000002330
Incoming Routing prefix	

Add

OK Cancel

Remote endpoint configuration

(1) Select OK to temporarily store changes. Make your changes permanent by selecting 'Apply Changes' on the General page.

Default core realm location domain name	<input type="text"/>
Default home DN	<input type="text"/> +49199296000000002330
Incoming Routing prefix	<input type="text"/> +492284227657
<input type="button" value="Add"/> <input type="button" value="Delete"/>	
<p>Bei mehreren SIP-Trunk Verbindungen mit dem selben Provider, muss für die eingehende Telefonie zur Zuordnung der Anfang der Rufnummer als Routing-Prefix eingetragen werden.</p>	

Digest Authentication

Digest authentication supported

Digest authentication realm	<input type="text"/> tel.t-online.de
Digest authentication user ID	<input type="text"/> +49199296000000002330@tel.t-onlin
Digest authentication password	<input type="password"/> *****

Access Side Firewall Settings

Enable Firewall Settings

Emergency configuration

Emergency numbers

Emergency call routing

MSRP Data Configuration

Enable MSRP Relay Support **(not licensed)**

<input checked="" type="checkbox"/> use IP address in MSRP-path	<input type="checkbox"/> use FQDN in MSRP-path	<input type="text"/> FQDN
<input checked="" type="checkbox"/> Authentication required	<input type="text"/> Realm	<input type="text"/> Password <input type="button" value="Show"/>
<input type="checkbox"/> Access side only	<input type="text"/> Qop	<input type="text"/> Expire time/sec <input type="text"/> 300

Miscellaneous

Open external firewall pinhole

Remote Location Domain

Select OK to temporarily store changes. Make your changes permanent by selecting 'Apply Changes' on the General page.

General

Remote URL	tel.t-online.de	<input type="checkbox"/> Shared domain
Remote port	0	
Remote transport	TCP	

Signaling

INVITE No Answer timeout (msec)	360000
INVITE No Reply timeout (msec)	3000

TLS

TLS mode	Server authentication
Certificate profile	Telekom
<input type="checkbox"/> TLS keep-alive	
Keep-alive interval (seconds)	60
Keep-Alive timeout (sec)	10

Media Configuration

Media profile	RTP
Media realm subnet IP address	

Outbound Proxy Configuration

Outbound Proxy	551134276556.primary.companyflex.c
Outbound Proxy Port	0

Registrar Server Configuration

Registrar Server	tel.t-online.de
Registrar Server Port	0

Buttons: OK | Cancel

CompanyFlex – THIG – Config/Delta:

UNIFY OpenScape SBC THIG Management Portal

OpenScape SBC THIG

Administrative

- System
- Network/Net Service
- VoIP
- Features**
- Security
- Diagnostics & logs
- Alarms
- Maintenance

Features

Select OK to temporarily store changes. Make your changes permanent by selecting 'Apply Changes' on the General page.

<input checked="" type="checkbox"/> Enable Remote Subscribes	
<input checked="" type="checkbox"/> Enable Remote Endpoints	
<input type="checkbox"/> Enable Codec Support	
<input type="checkbox"/> Enable TURN Server	
<input type="checkbox"/> Enable Circuit Telephone	
<input type="checkbox"/> Enable Sip Load Balance	
<input type="checkbox"/> Enable Border Control	
<input type="checkbox"/> Enable Push Notifications	
<input type="checkbox"/> Enable Ganglia Monitoring	
<input type="checkbox"/> Enable Circuit Zookeepr	
<input checked="" type="checkbox"/> Enable THIG	
<input type="checkbox"/> Enable Standalone	

Remote Endpoints

Select OK to temporarily store changes. Make your changes permanent by selecting 'Apply Changes' on the General page.

Row	Name	Access realm profile	Type	Profile / Circuit ID	Remote IP address / Logical IP address / Circuit URL	Remote port	Remote transport	Associated Endpoint	Linked Endpoint	Core realm profile	Core PQN	Core realm port	Routing prefix	Default home DN
1	SBC_Bonn_OP	Main-Access-Realm - pv4	Proxy	Default Proxy	172.17.0.5	5060	TCP			Main-Core-Realm - pv4		50000		
2	SBC_Bonn_SSP-OLAN-01	Main-Access-Realm - pv4	SSP	SSPProfile	172.17.0.5	50001	TCP			Main-Core-Realm - pv4	01.bonn.telekom.de	50002		
3	OSB50-01	Main-Access-Realm - pv4	Proxy	Default Proxy	172.17.0.7	5060	TCP			Main-Core-Realm - pv4		50004		
4	OSB50-01-DSP	Main-Access-Realm - pv4	Gateway		172.17.0.7	5060	TCP			Main-Core-Realm - pv4	osb50-	50006		
5	MS-OSB50-01	Main-Access-Realm - pv4	MediaServer	OSB50-01-HSPProfile	172.17.0.7	2427	UDP	OSB50-01		MS-OSB50-01-Realm		2427		
6	SBC_Bonn_SSP-CFlex-01	Main-Access-Realm - pv4	SSP	SSPProfile	172.17.0.5	50002	TCP			Main-Core-Realm - pv4	dcbonn-spcflex-	50008		
7	SBC_Bonn_SSP-CFlex-02	Main-Access-Realm - pv4	SSP	SSPProfile	172.17.0.5	50004	TCP			Main-Core-Realm - pv4	dcbonn-spcflex-	50010		

Buttons: Add | Edit | Delete | OK | Cancel

Remote endpoint configuration

Select OK to temporarily store changes. Make your changes permanent by selecting 'Apply Changes' on the General page.

Remote Endpoint Settings

Name	SBC_Bonn_SSP-CFlex-01	Edit
Type	SSP	
Profile	SSPProfile	
Access realm profile	Main-Access-Realm - ipv4	
Core realm profile	Main-Core-Realm - ipv4	
Associated Endpoint		
<input type="checkbox"/> Enable Call Limits		
Maximum Permitted Calls	0	
Reserved Calls	0	

Remote Location Information

URI based routing
 Enable access control

Signaling address type: IP address or FQDN

Remote Location domain list

Row	Remote URL	Remote port	Remote transport	Media IP	Media profile	TLS mode	Certificate profile	TLS keep-alive	Keep-alive interval (seconds)	INVITE No Answer timeout (msec)	INVITE No Reply timeout (msec)	Outbound Proxy	Outbound Proxy Port	Registrar Server	Registrar Port	
1	172.17.0.5	50002	TCP		default	Server authentication	OSV Solution	<input type="checkbox"/>	120	10	360000	3000			0	

Remote Location Identification/Routing

Core FQDN: sbcbonn-sspcflex-01.bonn.telekom.de
 Core realm port: 50008
 Default core realm location domain name:
 Default home DN:
 Incoming Routing prefix: Add

OK Cancel

Remote endpoint configuration

Select OK to temporarily store changes. Make your changes permanent by selecting 'Apply Changes' on the General page.

Remote Endpoint Settings

Name	SBC_Bonn_SSP-CFlex-01	Edit
Type	SSP	
Profile	SSPProfile	
Access realm profile	Main-Access-Realm - ipv4	
Core realm profile	Main-Core-Realm - ipv4	
Associated Endpoint		
<input type="checkbox"/> Enable Call Limits		
Maximum Permitted Calls	0	
Reserved Calls	0	

Remote Location Information

URI based routing
 Enable access control

Signaling address type: IP address or FQDN

Remote Location domain list

Row	Remote URL	Remote port	Remote transport	Media IP	Media profile	TLS mode	Certificate profile	TLS keep-alive
1	172.17.0.5	50002	TCP		default	Server authentication	OSV Solution	<input type="checkbox"/>

Remote Location Identification/Routing

Core FQDN: sbcbonn-sspcflex-01.bonn.telekom.de
 Core realm port: 50008
 Default core realm location domain name:
 Default home DN:

Remote endpoint configuration

ⓘ Select OK to temporarily store changes. Make your changes permanent by selecting 'Apply Changes' on the General page.

Default core realm location domain name	<input type="text"/>	
Default home DN	<input type="text"/>	
Incoming Routing prefix	<input type="text"/> <input type="button" value="Add"/> <input type="button" value="Delete"/>	
<table border="1"> <tr> <td> </td> </tr> </table>		

Digest Authentication

Digest authentication supported

Digest authentication realm

Digest authentication user ID

Digest authentication password

Access Side Firewall Settings

Enable Firewall Settings

Emergency configuration

Emergency numbers

Emergency call routing

MSRP Data Configuration

Enable MSRP Relay Support **(not licensed)**

use IP address in MSRP-path use FQDN in MSRP-path FQDN

Authentication required Realm Password

Access side only Qop AUTH Expire time/sec 300

Miscellaneous

Open external firewall pinhole

Remote Location Domain

Select OK to temporarily store changes. Make your changes permanent by selecting 'Apply Changes' on the General page.

General

Remote URL: 172.17.0.5 Shared domain

Remote port: 50002

Remote transport: TCP

Signaling

INVITE No Answer timeout (msec): 360000

INVITE No Reply timeout (msec): 3000

TLS

TLS mode: Server authentication

Certificate profile: OSV Solution

TLS keep-alive

Keep-alive interval (seconds): 120

Keep-Alive timeout (sec): 10

Media Configuration

Media profile: default

Media realm subnet IP address:

Outbound Proxy Configuration

Outbound Proxy:

Outbound Proxy Port: 0

Registrar Server Configuration

Registrar Server:

Registrar Server Port: 0

Buttons

OK Cancel

DeutschlandLAN SIP Trunk:

On the Central SBC must be activated *Enable Remote Endpoints*:

Features

Select OK to temporarily store changes. Make your changes permanent b

Features configuration

- Enable Remote Subscribers
- Enable Remote Endpoints**
- Enable Codec Support for transcoding
- Enable TURN Server
- Enable Circuit Telephony Connector
- Enable Sip Load Balancer
- Enable Border Control Function (not licensed)
- Enable Push Notification Service
- Enable Ganglia Monitoring Daemon
- Enable Circuit Zookeeper Client
- Enable THIG

When opening the *Remote Endpoints* window the *SIP Service Provider Profile* and the *Remote Endpoint* has to be configured:

The screenshot shows the configuration interface for 'Remote Endpoints'. It consists of two main sections: 'SIP Service Provider Profile' and 'Remote endpoint configuration'.

SIP Service Provider Profile:

- Fields: Hostname, Remote directory, User name (administrator), Password (redacted).
- Buttons: Download New Profile List, Add, Edit, Delete.

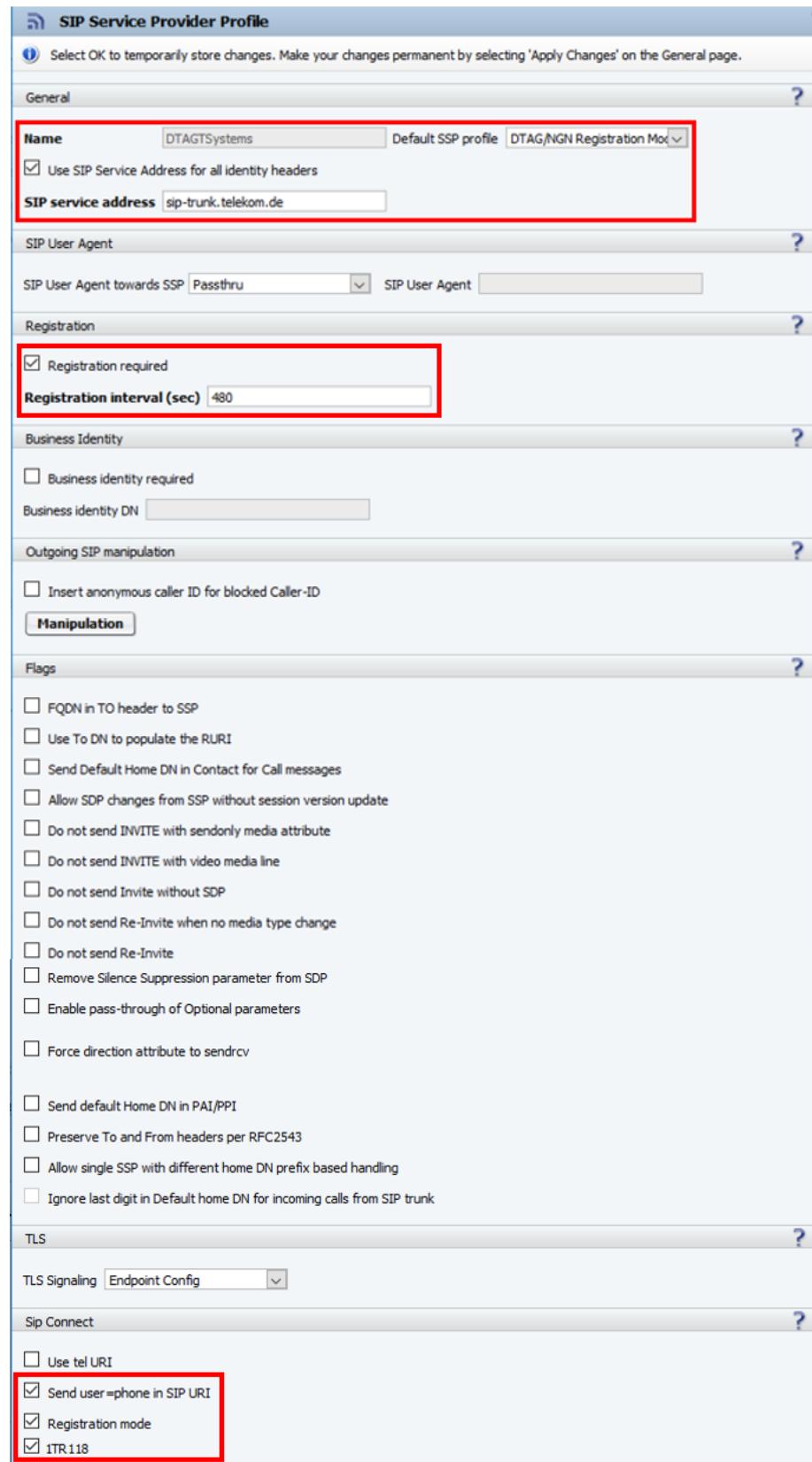
Row	Name	Registration required	Registration interval (sec)
1	DTAGTSystems	<input checked="" type="checkbox"/>	480

Remote endpoint configuration:

- Fields: Name, Access realm profile, Type, Profile / Circuit ID, Remote IP address / Logical-Endpoint-ID / Circuit ID, Remote port, Remote transport, Associated Endpoint, Core realm profile, Core FQDN, Core realm port, Routing prefix, Default home DN.
- Buttons: Add, Edit, Delete.

Row	Name	Access realm profile	Type	Profile / Circuit ID	Remote IP address / Logical-Endpoint-ID / Circuit ID	Remote port	Remote transport	Associated Endpoint	Core realm profile	Core FQDN	Core realm port	Routing prefix	Default home DN
1	DTAGTSystems	Main-Access-Realm - ipv4	SSP	DTAGTSystems	sip-trunk.telekom.de	0	TLS		Main-Core-Realm - ipv4		50000	+49	

In the *SIP Service Provider Profile* window must be selected as default SSP profile *DTAG/NGN Registration Mode*. The registration interval has to be set to 480 seconds:



In the *Remote Endpoint Configuration* window the *SIP Service Provider Profile* shown above has to be selected:

The screenshot shows the *Remote endpoint configuration* window with several sections highlighted by red boxes:

- Remote Endpoint Settings:** The **Name** field (DTAGTSystems), **Type** dropdown (SSP), and **Profile** dropdown (DTAGTSystems) are highlighted.
- Remote Location Information:** The **Signaling address type** dropdown (DNS SRV) is highlighted.
- Remote Location domain list:** A table showing a single entry for sip-trunk.telekom.de with port 0, TLS transport, SRTP media, Mutual authentication, and Telekom certificate profile.
- Remote Location Identification/Routing:**
 - Default home DN**: +49 [REDACTED] (highlighted with a red box and arrow pointing to a callout box).
 - Digest Authentication:** Fields for realm (sip-trunk.telekom.de), user ID (14), and password (*****).
- ZUGANGSDATEN** Callout Box (highlighted with a pink box):

Vertraulich, bitte aufbewahren!
 Datum 01. März 2018
 Ortsvorwahl 0228
 Durchwahlnr. 12345
 Abfragestelle 0
Registrierungsruftnummer
+49 228 123450
Rufnummernblock
 von 000 bis 299
- 2 Internet-Zugang einrichten** Callout Box (highlighted with a red box):

Anschlusskennung: 002529106948
 Zugangsnummer: 5511295012345
 (vormals T-Online Nummer)
 Mitbenutzernummer: 0001
 Persönliches Kennwort: 25170493
- Emergency call routing**
- MSRP Data Configuration:** The **Open external firewall pinhole** checkbox is highlighted.

If a NAT router is in between SBC and SIP Trunk *Open external firewall pinhole* must be enabled so the SBC will open the RTP port on the NAT router by sending UDP packets to let the NAT router pass RTP packets from a PSTN phone.

The figures below show the *Remote Location Domain* window for an unencrypted SIP trunk using TCP and RTP on the left and for an encrypted SIP trunk using TLS and SRTP on the right:

Remote Location Domain

Select OK to temporarily store changes. Make your changes permanent by

General

Remote URL: sip-trunk.telekom.de
Remote SIP/MGCP port: 0
Remote transport: TCP

Signaling

INVITE No Answer timeout (msec): 360000
INVITE No Reply timeout (msec): 3000

TLS

TLS mode: Mutual authentication
Certificate profile: Telekom
 TLS keep-alive
Keep-alive interval (seconds): 60
Keep-Alive timeout (sec): 10

Media Configuration

Media profile: RTP

Outbound Proxy Configuration

Outbound Proxy: reg.sip-trunk.telekom.de
Outbound Proxy Port: 0

Registrar Server Configuration

Registrar Server:
Registrar Server Port: 0

Remote Location Domain

Select OK to temporarily store changes. Make your changes permanent by selecting '

General

Remote URL: sip-trunk.telekom.de
Remote SIP/MGCP port: 0
Remote transport: TLS

Signaling

INVITE No Answer timeout (msec): 360000
INVITE No Reply timeout (msec): 3000

TLS

TLS mode: Mutual authentication
Certificate profile: Telekom
 TLS keep-alive
Keep-alive interval (seconds): 60
Keep-Alive timeout (sec): 10

Media Configuration

Media profile: SRTP
Media realm subnet IP address:

Outbound Proxy Configuration

Outbound Proxy: reg.sip-trunk.telekom.de
Outbound Proxy Port: 0

Registrar Server Configuration

Registrar Server:
Registrar Server Port: 0

Preparing and Installing TLS Certificates

For using TLS and SRTP over the SIP trunk, uploading and configuration of the Deutsche Telekom CA certificates on the SBC is required. The actual Telekom CA certificates can be downloaded here:

- Download the Telekom **Root-CA-Certificate T-TeleSec GlobalRoot Class 2** from URL
https://www.telesec.de/assets/downloads/PKI-Repository/T-TeleSec_GlobalRoot_Class_2.cer

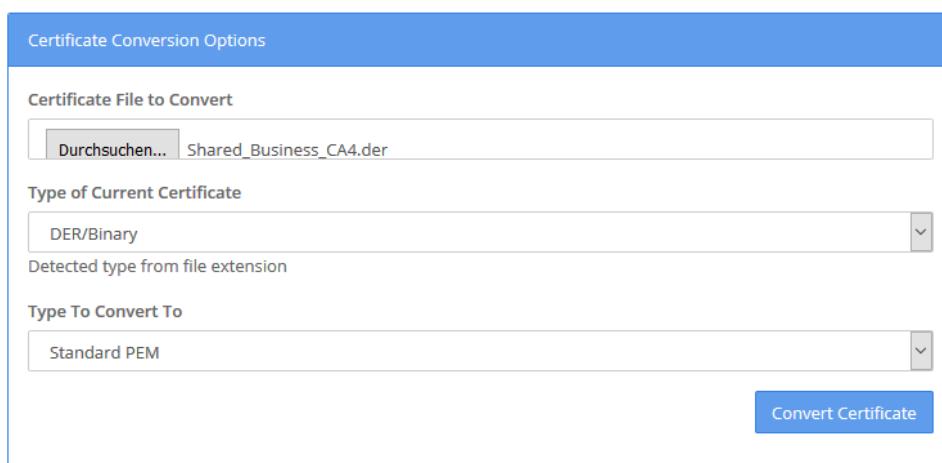
Important note:

Please make sure that the certificates are still valid. In case they are expired or not available anymore, please contact Telekom Deutschland GmbH or use the ones from the public websites, e. g.
<https://www.telesec.de/de/root-programm/informationen-zu-ca-zertifikaten/root-ca-zertifikate/>

Because the OpenScape SBC supports only certificates in pem format the Telekom , *Root-CA-Certificate*’ certificate T-TeleSec_GlobalRoot_Class_2.cer has to be converted

- via Linux shell e.g. on the OpenScape SBC via command

```
openssl x509 -inform der -in T-TeleSec_GlobalRoot_Class_2.cer -out T-TeleSec_GlobalRoot_Class_2.pem
```
- or via e.g. online converter <https://www.sslshopper.com/ssl-converter.html>



The screenshot shows a web-based certificate conversion tool. At the top, it says "Certificate Conversion Options". Below that, there's a section for "Certificate File to Convert" with a file input field containing "Shared_Business_CA4.der". Underneath is a dropdown for "Type of Current Certificate" set to "DER/Binary", with a note below saying "Detected type from file extension". Another dropdown for "Type To Convert To" is set to "Standard PEM". At the bottom right is a blue "Convert Certificate" button.

Click on *Convert Certificate* and save the converted certificate with file extension .pem.

Create in the next step a chained certificate based on the certificates *Root-CA-Certificate* named e.g. dt-chain-ca.pem and copy the content of this certificate files into it in the following order:

```
-----BEGIN CERTIFICATE-----  
<dt-root-ca-2.cer>  
-----END CERTIFICATE-----  
-----BEGIN CERTIFICATE-----  
< T-TeleSec_GlobalRoot_Class_2.cer>  
-----END CERTIFICATE-----
```

Then the chained certificate should look like as below:

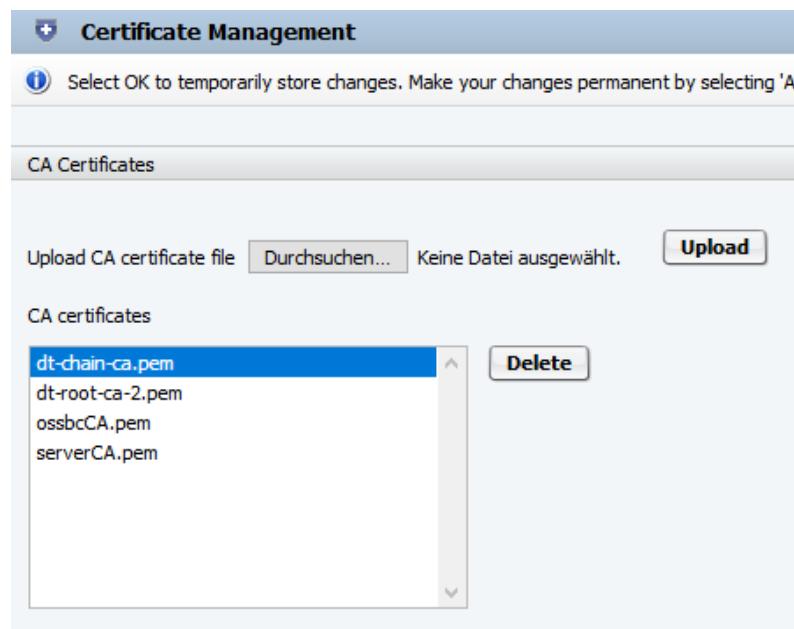
```
-----BEGIN CERTIFICATE-----
```

```

MIIGiTCCBXGgAwIBAgIIMBWLWM1WMfUwDQYJKoZIhvcNAQELBQAwcTELMAkGA1UE
...
nfKouiXc6eG1ojopwck0/uEu0JVEnyM0zGoIPU2/PhFvG6aAPsB4tvv/AHzR
-----END CERTIFICATE-----
-----BEGIN CERTIFICATE-----
MIIDnzCCAoegAwIBAgIBJjANBgkqhkiG9w0BAQUFADBxMQswCQYDVQQGEwJERTEc
...
Cm260WMohpLzGITY+9HPBVZkVw==
-----END CERTIFICATE-----

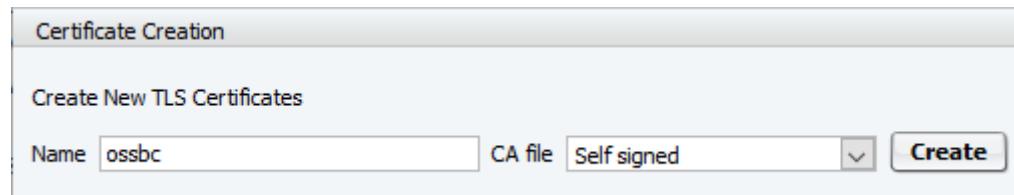
```

Then upload this certificate via GUI at Security -> General -> Certificate Management into OpenScape SBC in the section *CA Certificates* by selecting this certificate and clicking on *Upload*. Then the certificate appears in the CA certificates list:



To replace the OpenScape SBC default certificates provided by installation execute the following steps:

The in *Certificate Creation* section enter e.g. ossbc in the *Name* field and click on *Create* leaving *Self signed* as *CA file* unchanged:



In the *CA certificates*, *X.509 Certificates* and *Key files* windows appears now the new certificates:

The screenshot shows two main sections: 'CA Certificates' and 'X.509 Certificates'.
CA Certificates:
 - 'Upload CA certificate file' button and 'Browse...' button.
 - 'No file selected.' message.
 - 'CA certificates' list:
 - dt-chain-ca.pem
 - osbca.pem (highlighted with a red box)
 - serverCA.pem
 - 'Delete' button.
X.509 Certificates:
 - 'Upload X.509 certificate file' button and 'Durchsuchen...' button.
 - 'Keine Datei ausgewählt.' message.
 - 'X.509 certificates' list:
 - osbccert.pem (highlighted with a red box)
 - servercert.pem
 - 'Delete' button.
Key Files:
 - 'Upload key file' button and 'Browse...' button.
 - 'No file selected.' message.
 - 'Key files' list:
 - ossbkey.pem (highlighted with a red box)
 - serverkey.pem
 - 'Delete' button.

In the *Certificate Profiles* section click on *Add*:

The screenshot shows the 'Certificate Management' interface with the 'Certificate Profiles' section highlighted.
Media DTLS certificate profile:
 - A dropdown menu with 'Select OK to temporarily store changes. Make your changes permanent by selecting 'Apply Changes' on the General page.' message.
Certificate Profiles:
 - 'Add' button (highlighted with a red box).
 - 'Edit' and 'Delete' buttons.
 - Table:
| Name | Certificate service | Client certificate file | Server certificate file | Local CA file | Remote CA f |
| --- | --- | --- | --- | --- | --- |
| OSV Solution | SIP-TLS | | servercert.pem | serverCA.pem | |
| HTTPS System Default | HTTPS | | server.crt | | |

Create a new Certificate Profile selecting the certificates created before:

Certificate Profile

Select OK to temporarily store changes. Make your changes permanent by selecting the General tab.

Certificate profile name	Telekom
Certificate service	SIP-TLS
Local client certificate file	
Local server certificate file	ossbccert.pem
Local CA file	ossbccA.pem
Remote CA file	dt-chain-ca.pem
Local key file	ossbckey.pem
EC param	secp256r1
Attach to Config file	<input type="checkbox"/>

Validation

Certificate Verification	Full
<input checked="" type="checkbox"/> Revocation status	
<input checked="" type="checkbox"/> Identity Check	

Renegotiation

<input type="checkbox"/> Enforce TLS session renegotiation	
TLS session renegotiation interval (minutes)	60

TLS version

Minimum TLS version	TLS V1.2
---------------------	----------

DTLS version

Minimum DTLS version	DTLS V1.0
----------------------	-----------

Cipher Suites

Perfect Forward Secrecy	Preferred PFS
Encryption	Preferred AES-128
Mode of Operation	Preferred GCM

Finally the created Certificate Profile has to be configured in the *Remote Location Domain* window:

Remote Location Domain

Select OK to temporarily store changes. Make your changes permanent by selecting **Apply**.

General

Remote URL: sip-trunk.telekom.de
Remote SIP/MGCP port: 0
Remote transport: TLS

Signaling

INVITE No Answer timeout (msec): 360000
INVITE No Reply timeout (msec): 3000

TLS

TLS mode: Mutual authentication
Certificate profile: Telekom (highlighted with a red box)

TLS keep-alive
Keep-alive interval (seconds): 60
Keep-Alive timeout (sec): 10

Media Configuration

Media profile: SRTP
Media realm subnet IP address: [empty]

Outbound Proxy Configuration

Outbound Proxy: reg.sip-trunk.telekom.de
Outbound Proxy Port: 0

Registrar Server Configuration

Registrar Server: [empty]
Registrar Server Port: 0

OpenScape Voice Configuration

CompanyFlex Config/Delta:

The screenshot shows the UNIFY Common Management Platform interface. The left sidebar navigation tree is expanded to show the 'Profiles' section, with the 'Endpoint' node highlighted. The main content area displays a table titled '[simpletelekom] - [telekom] - Endpoint Profiles' with the following data:

	Name	Numbering Plan	Class of Service	Routing Area	Calling Location	Remark
<input type="checkbox"/>	EPP_Bonn_CFlex	NP_Bonn-CFlex		RA_Bonn-CFlex		No
<input type="checkbox"/>	EPP_Bonn_DLan	NP_Bonn-DLAN		RA_Bonn-DLAN		No
<input type="checkbox"/>	EPP_Darm_CFlex	NP_Darm-CFlex		RA_Bonn-CFlex		No
<input type="checkbox"/>	EPP_CPS	NP_OSB50i-01		RA_Bonn-DLAN		No
<input type="checkbox"/>	EPP_Fallback	NP_Common				No
<input type="checkbox"/>	EPP_MediaSrv	NP_OSB50i-01		RA_Bonn-DLAN		No
<input type="checkbox"/>	EPP_OSB50i_01	NP_OSB50i-01		RA_OSB50i-01		No
<input type="checkbox"/>	EPP_SBC_Bonn	NP_Bonn-DLAN		RA_Bonn-DLAN		No
<input type="checkbox"/>	EPP_SBC_Bonn_SSP_CFLEX_01	NP_Bonn-CFlex		RA_Bonn-CFlex		No
<input type="checkbox"/>	EPP_SBC_Bonn_SSP_DLan_01	NP_Bonn-DLAN		RA_Bonn-DLAN		No
<input type="checkbox"/>	EPP_SBC_Darm_SSP_CFLEX_01	NP_Darm-CFlex		RA_Bonn-CFlex		No
<input type="checkbox"/>	EPP_SbcThig	NP_OSB50i-01		RA_Bonn-DLAN		No
<input type="checkbox"/>	EPP_Xpressions	NP_OSB50i-01		RA_Bonn-DLAN		No

[simpltelekom] - [telekom] - Edit Endpoint Profile : EPP_SBC_Bonn_SSP_CFLEX_01 ?

Please enter the profile data.

General Endpoints Services

Endpoint Profile

Please enter a unique name to identify this profile.

Name: EPP_SBC_Bonn_SSP_CFLEX_

Remark:

Numbering Plan: NP_Bonn-CFlex

Management Information

Please enter the data for the following fields in the corresponding screens.

Class of Service:

Routing Area: RA_Bonn-CFlex

Calling Location:

Time Zone: Europe/Berlin

SIP Privacy Support: Full Send

Failed Calls Intercept Treatment: Disabled

Language: SoftSwitch Default (German)

Impact Level: Undclassified

Save Cancel

[simpltelekom] - [telekom] - Edit Endpoint Profile : EPP_SBC_Bonn_SSP_CFLEX_01

Please enter the profile data.

General **Endpoints** **Services**

<input checked="" type="checkbox"/> Message Waiting:	Yes	
<input checked="" type="checkbox"/> Call Transfer:	Yes	
<input type="radio"/> Call Forward Invalid Destination:	No	
<input type="radio"/> Toll and Call Restrictions:	No	...
<input type="radio"/> Park to Server:	No	...
<input type="radio"/> CSTA Network Interface Device:	No	<input type="checkbox"/> Enable Name Provider and Limited Call Control

What to do if Application fails to handle inbound calls:

Allow call to proceed as normal

Save **Cancel**

UNIFY Common Management Platform Domain: system User: administrator@system | Settings | Help | Logout

Configuration Maintenance User Management Fault Management Performance Management Accounting 0 13 26

OpenScape Voice OpenScape Branch OpenScape SBC RG8700 Unified Communications CMP Device Management

simpentelekom Business Group

Quick Tasks Business Group List telekom General Profiles Teams Statistics Display Number Modification Branch Office List Main Office Members Subscribers Endpoints Private Numbering Plan List NP_Common (Default, Common) Translation Destinations and Routes

[simpentelekom] - [telekom] - [Main Office] - Endpoints

Endpoints represent Network to Network Interface connections.

Search for _____ in Endpoint Name

Add... Edit... Bulk Edit... Clone Delete Change Branch Office... Test Audit Set to Normal

Sel:0 | Items/Page: 200 | All:14

	Name	Numbering Plan Name	Registration Type	Registration State	Operational State	Primary	Remark
<input type="checkbox"/>	CPS	NP_OS850i-01	Dynamic	Not Registered	Normal		No
<input type="checkbox"/>	D_EP_Bonn	NP_Bonn-DLAN	Dynamic	Not Registered	Normal		No
<input type="checkbox"/>	D_EP_Bonn-CFlex	NP_Bonn-CFlex	Dynamic	Not Registered	Normal		No
<input type="checkbox"/>	D_EP_Darm-CFlex	NP_Bonn-CFlex	Dynamic	Not Registered	Normal		No
<input type="checkbox"/>	EP_MediaSrv1	NP_OS850i-01	Static	Registered	Normal	10.82.53.233	No
<input type="checkbox"/>	EP_OS850i-01	NP_OS850i-01	Static	Registered	Normal	10.82.53.227	Yes
<input type="checkbox"/>	EP_OS850i-01G	NP_OS850i-01	Static	Registered	Normal	osb50i-01.bonn.telekom.de	Yes
<input type="checkbox"/>	EP_Xpressions	NP_OS850i-01	Static	Registered	Normal	10.82.53.241	No
<input type="checkbox"/>	Fallback	NP_Common	Dynamic	Not Registered	Normal		No
<input type="checkbox"/>	SBC_Bonn-DLAN	NP_Bonn-DLAN	Static	Registered	Normal	sbcbonn-sspdlan-01.bonn.telekom.de	Yes
<input type="checkbox"/>	SBC_Bonn_CFlex1	NP_Bonn-CFlex	Static	Registered	Normal	sbcbonn-sspcflex-01.bonn.telekom.de	Yes
<input type="checkbox"/>	SBC_Bonn_CFlex2	NP_Darm-CFlex	Static	Registered	Normal	sbcbonn-sspcflex-02.bonn.telekom.de	Yes
<input type="checkbox"/>	SBC_Bonn_OP	NP_Bonn-DLAN	Static	Registered	Normal	10.82.53.227	Yes
<input type="checkbox"/>	SbcThig1	NP_OS850i-01	Static	Registered	Normal	10.82.53.227	No

UNIFY Common Management Platform

Domain: system User: administrator@system | Settings | Help | Logout

Configuration Maintenance User Management Fault Management Performance Management Accounting

OpenScape Voice OpenScape Branch OpenScape SBC

simpletelekom [simpletelekom] - [telekom] - [Main Office] - Edit Endpoint: SBC_Bonn_CFLEX1 — Mozilla Firefox

Endpoints represent Network to Network

Search for: All:14 Sel:0 Items/Page: 200

	Name	Number
<input type="checkbox"/>	CPS	NP_OSP
<input type="checkbox"/>	D_EP_Bonn	NP_Bon
<input type="checkbox"/>	D_EP_Bonn-CFlex	NP_Bon
<input type="checkbox"/>	D_EP_Darm-CFlex	NP_Bon
<input type="checkbox"/>	EP_MediaSrv1	NP_OSP
<input type="checkbox"/>	EP_OSB50-01	NP_OSP
<input type="checkbox"/>	EP_OSB50-01G	NP_OSP
<input type="checkbox"/>	EP_Xpressions	NP_OSP
<input type="checkbox"/>	Fallback	NP_Co
<input type="checkbox"/>	SBC_Bonn-DLAN	NP_Bon
<input type="checkbox"/>	SBC_Bonn_CFLEX1	NP_Bon
<input type="checkbox"/>	SBC_Bonn_CFLEX2	NP_Dan
<input type="checkbox"/>	SBC_Bonn_OP	NP_Bon
<input type="checkbox"/>	SbcThig1	NP_OSP

Endpoint

Define the connection data of an endpoint, e.g. you may use this to add a gateway to a switch.

Name: SBC_Bonn_CFLEX1
Remark: SIP-Trunk Verbindung zum zentralen OS SBC auf seinen Core SIP-Port 50002 (Der OSEE-THIG manipuliert die Ziel-SIP-Ports von 50008 auf 50002 und zurück.)

Registered:

Profile: EPP_SBC_Bonn_SSP_CFLEX_

Branch Office: Main Office

Associated Endpoint:

Default Home DN: 4922842276570

Location Domain:

Endpoint Template:

Endpoint Type:

Max number of users:

Last Update: 2020-12-08 11:17:00.0

CSTA Device ID:

Save **Cancel**

[simpltelekom] - [telekom] - [Main Office] - Edit Endpoint : SBC_Bonn_CFLEX1

General SIP Attributes Aliases Routes Accounting

Endpoint Type

SIP Private Networking:

SIP Trunking:

SIP-Q Signaling:

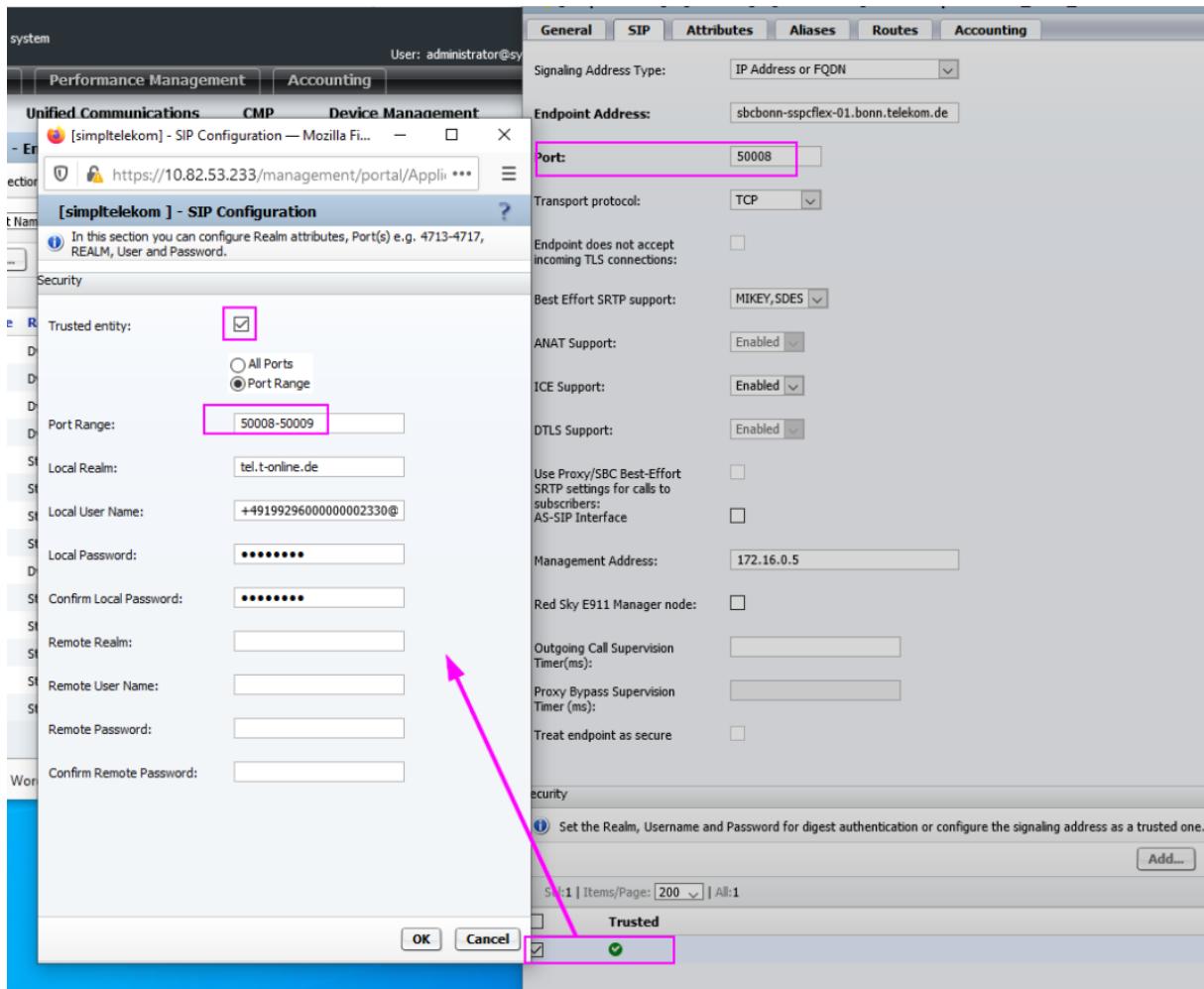
SIP Signaling

For the static Endpoints the address of the SIP signaling interface can be specified in IP or FQDN format.
 ⓘ Note that the address of the signaling interface cannot be modified unless the entry in the security section has first been removed.

Type:	Static
Signaling Address Type:	IP Address or FQDN
Endpoint Address:	sbcbonn-sspcflex-01.bonn.telekom.de
Port:	50008
Transport protocol:	TCP
Endpoint does not accept incoming TLS connections:	<input type="checkbox"/>
Best Effort SRTP support:	MIKEY,SDES
ANAT Support:	Enabled
ICE Support:	Enabled
DTLS Support:	Enabled
Use Proxy/SBC Best-Effort SRTP settings for calls to subscribers: AS-SIP Interface	<input type="checkbox"/>
Management Address:	172.16.0.5
Red Sky E911 Manager node:	<input type="checkbox"/>
Outgoing Call Supervision Timer(ms):	1000

Save Cancel

Spezieller FQDN für diesen SIP-Trunk, der in der OSV auf die IP-Adresse des OSEE-V9 THIG, bzw. auf den OS SBC verweist.



[simpletelekom] - [telekom] - [Main Office] - Edit Endpoint : SBC_Bonn_CFLEX1

General SIP Attributes Aliases Routes Accounting

Attributes

① Attributes available for this SIP endpoint

Supports SIP UPDATE Method for Display Updates	<input type="checkbox"/>
UPDATE for Confirmed Dialogs Supported	<input type="checkbox"/>
Survivable Endpoint	<input type="checkbox"/>
SIP Proxy	<input type="checkbox"/>
Central SBC	<input type="checkbox"/>
Route via Proxy	<input type="checkbox"/>
Allow Proxy Bypass	<input type="checkbox"/>
Public/Offnet Traffic	<input checked="" type="checkbox"/>
Accept Billing Number	<input type="checkbox"/>
Use Billing Number for Display Purposes	<input type="checkbox"/>
Allow Sending of Insecure Referred-By Header	<input type="checkbox"/>
Override IRM Codec Restriction	<input type="checkbox"/>
Transfer HandOff	<input type="checkbox"/>
Send P-Preferred-Identity rather than P-Asserted-Identity	<input type="checkbox"/>
Send domain name in From and P-Preferred-Identity headers	<input type="checkbox"/>
Send Redirect Number instead of calling number for redirected calls	<input type="checkbox"/>
Do not send Diversion header	<input checked="" type="checkbox"/>
Do not Send Invite without SDP	<input type="checkbox"/>
Send International Numbers in Global Number Format (GNF)	<input checked="" type="checkbox"/>
Rerouting Direct Incoming Calls	<input type="checkbox"/>
Redirection Forwarded Calls	<input type="checkbox"/>

Save Cancel

[simpletelekom] - [telekom] - [Main Office] - Edit Endpoint : SBC_Bonn_CFLEX1

General	SIP	Attributes	Aliases	Routes	Accounting
Rerouting Forwarded Calls	<input type="checkbox"/>				
Enhanced Subscriber Rerouting	<input type="checkbox"/>				
Automatic Collect Call Blocking supported	<input type="checkbox"/>				
Send Authentication Number in P-Asserted-Identity header	<input checked="" type="checkbox"/>				
Send Authentication Number in Diversion Header	<input type="checkbox"/>				
Send Authentication Number in From Header	<input type="checkbox"/>				
Use SIP Endpoint Default Home DN as Authentication Number	<input type="checkbox"/>				
Use Subscriber Home DN as Authentication Number	<input checked="" type="checkbox"/>				
Set NPI/TON to Unknown	<input type="checkbox"/>				
Include Restricted Numbers in From Header	<input type="checkbox"/>				
SIPQ Truncated MIME	<input type="checkbox"/>				
Enable Session Timer	<input checked="" type="checkbox"/>				
Ignore Answer for Announcement	<input type="checkbox"/>				
Enable TLS RFC5626 Ping	<input type="checkbox"/>				
Enable TLS Dual Path Method	<input type="checkbox"/>				
Ignore Receipt of 181 Call is Being Forwarded	<input type="checkbox"/>				
Use extended max. count for loop prevention	<input type="checkbox"/>				
Do Not Audit Endpoint	<input type="checkbox"/>				
Use Proxy/SBC ANAT settings for calls to subscribers	<input type="checkbox"/>				
Support for Callback Path Reservation	<input type="checkbox"/>				
Send Progress to Stop Call Proceeding Supervision Timer	<input type="checkbox"/>				
Limited PRACK Support	<input type="checkbox"/>				

Save **Cancel**

[simpltelekom] - [telekom] - [Main Office] - Edit Endpoint : SBC_Bonn_CFLEX1

General SIP Attributes Aliases Routes Accounting

Support Media Redirection

Voice Mail Server

Disable Long Call Audit

Send/Receive Impact Level

Do not send alphanumeric SIP URI

Send alphanumeric SIP URI when available

Support Peer Domains

Reserve 6

Allow endpoint to Unregister Stale Registrations

Enable Media Termination Point (MTP) Flow

Video call allowed

Trusted Subscriber

Enable Fast Connect

Circuit Connector Appliance

Add Route Header:

Disable SRTP

Include OSV SIP User-Agent header field

Do Not Allow URNs in R-URI/TO Header for NG911 Calls

Reserve 8

Accept x-channel header

Suppress SPE in SIPQ

Reserve 9

Save **Cancel**

[simpltelekom] - [telekom] - [Main Office] - Edit Endpoint : SBC_Bonn_CFLEX1

General SIP Attributes Aliases Routes Accounting

Aliases

Info: You can associate here aliases with a SIP Endpoint.

Add... **Delete**

Sel:0 | Items/Page: 200 | All:2

<input type="checkbox"/> Name
<input type="checkbox"/> 10.82.53.227:50008
<input type="checkbox"/> sbcbonn-sspcfex-01.bonn.telekom.de:50008

[simpltelekom] - [telekom] - [Main Office] - Edit Endpoint : SBC_Bonn_CFlex1

General SIP Attributes Aliases Routes Accounting

Routes

This list shows the routes pointing to destinations of this numbering plan.

View

Items/Page: 200 | All:8

Route ID	Destination	Delete	Insert	Nature of Address
10	D_BonnCFlex_I	0		NoaIntl
10	D_BonnCFlex_N	0		NoaIntl
10	D_BonnCFlex_SP	1		NoaIntl
10	D_BonnCFlex_S	0		NoaIntl
10	D_BonnCFlex_SE	1		NoaUnknown
10	D_BonnCFlex_SP2	2	49	NoaIntl
10	D_BonnCFlex_SP1	1	49	NoaIntl
10	D_BonnCFlex_SPU	1		NoaUnknown

UNIFY Common Management Platform Domain: system User: administrator@system | Settings | Help | Logout

Configuration Maintenance User Management Fault Management Performance Management Accounting 0 14 26

OpenScape Voice OpenScape Branch OpenScape SBC RG8700 Unified Communications CMP Device Management

simpltelekom [simpltelekom] - [telekom] - [NP_Bonn-CFlex] - Destination Codes

Business Group

Quick Tasks Business Group List telekom

General Profiles Teams Statistics Display Number Modification Branch Office List Main Office Members Private Numbering Plan List NP_Bonn-CFlex Translation Prefix Access Codes Destination Codes

Code Nature Of Address Class Of Service Routing Area Traffic Type Destination Type Destination Name Remark

0013 Unknown NONE Destination D_BonnCFlex_SP2 No

0018 Unknown NONE Destination D_BonnCFlex_SP2 No

0019 Unknown Premium Rate Destination D_BonnCFlex_SP2 No

00700 Unknown Premium Rate Destination D_BonnCFlex_SP2 No

00800 Unknown Toll Free Destination D_BonnCFlex_SP2 No

00900 Unknown Premium Rate Destination D_BonnCFlex_SP2 No

0110 Unknown Emergency Destination D_BonnCFlex_SE No

0112 Unknown Emergency Destination D_BonnCFlex_SE No

0115 Unknown Local Destination D_BonnCFlex_SPU No

0116 Unknown Local Destination D_BonnCFlex_SPU No

0118 Unknown Premium Rate Destination D_BonnCFlex_SPU No

0137 Unknown Premium Rate Destination D_BonnCFlex_SP1 No

019222 Unknown Emergency Destination D_BonnCFlex_SE No

049700 Unknown Premium Rate Destination D_BonnCFlex_SP No

049800 Unknown Toll Free Destination D_BonnCFlex_SP No

049900 Unknown Premium Rate Destination D_BonnCFlex_SP No

1 International International Destination D_BonnCFlex_I No

2 International International Destination D_BonnCFlex_I No

3 International International Destination D_BonnCFlex_I No

4 International National Destination D_BonnCFlex_N No

4915 International Mobile Destination D_BonnCFlex_N No

4916 International Mobile Destination D_BonnCFlex_N No

4917 International Mobile Destination D_BonnCFlex_N No

49228 International Local Destination D_BonnCFlex_S No

Find in page Highlight All Match Case Match Diacritics Whole Words

UNIFY Common Management Platform Domain: system User: administrator@system | Settings | Help | Logout

Configuration Maintenance User Management Fault Management Performance Management Accounting 0 13 26

OpenScape Voice OpenScape Branch OpenScape SBC RG8700 Unified Communications CMP Device Management

[simpletelekom] - [simpletelekom] - [telekom] - [NP_Bonn-CFlex] - Destination Codes

Destination Codes are used for routing decisions.

Business Group

Quick Tasks

Business Group List

telekom

- General
- Profiles
- Teams
- Statistics
- Display Number Modification
- Branch Office List
- Main Office
- Members
- Private Numbering Plan List
- NP_Bonn-CFlex
- Translation
- Prefix Access Codes
- Destination Codes**
- Domain Codes
- Code Indexes
- Location Codes
- Extensions
- Destinations and Routes

Search for in Search Show All Advanced...

Add Range... Bulk Edit... Clone... Add... Edit... Delete...

Code	Description	Premium Rate	Destination	U_puriunex_0P2	No
00800	Unknown	Toll Free	Destination	D_BonnCFlex_SP2	No
00900	Unknown	Premium Rate	Destination	D_BonnCFlex_SP2	No
0110	Unknown	Emergency	Destination	D_BonnCFlex_SE	No
0112	Unknown	Emergency	Destination	D_BonnCFlex_SE	No
0115	Unknown	Local	Destination	D_BonnCFlex_SPu	No
0116	Unknown	Local	Destination	D_BonnCFlex_SPu	No
0118	Unknown	Premium Rate	Destination	D_BonnCFlex_SPu	No
0137	Unknown	Premium Rate	Destination	D_BonnCFlex_SP1	No
019222	Unknown	Emergency	Destination	D_BonnCFlex_SE	No
049700	Unknown	Premium Rate	Destination	D_BonnCFlex_SP	No
049800	Unknown	Toll Free	Destination	D_BonnCFlex_SP	No
049900	Unknown	Premium Rate	Destination	D_BonnCFlex_SP	No
1	International	International	Destination	D_BonnCFlex_I	No
2	International	International	Destination	D_BonnCFlex_I	No
3	International	International	Destination	D_BonnCFlex_I	No
4	International	International	Destination	D_BonnCFlex_I	No
49	International	National	Destination	D_BonnCFlex_N	No
4915	International	Mobile	Destination	D_BonnCFlex_N	No
4916	International	Mobile	Destination	D_BonnCFlex_N	No
4917	International	Mobile	Destination	D_BonnCFlex_N	No
49228	International	Local	Destination	D_BonnCFlex_S	No
5	International	International	Destination	D_BonnCFlex_I	No
6	International	International	Destination	D_BonnCFlex_I	No
7	International	International	Destination	D_BonnCFlex_I	No
8	International	International	Destination	D_BonnCFlex_I	No
9	International	International	Destination	D_BonnCFlex_I	No

Find in page Highlight All Match Case Match Diacritics Whole Words

UNIFY Common Management Platform Domain: system User: administrator@system | Settings | Help | Logout

Configuration Maintenance User Management Fault Management Performance Management Accounting
 OpenScape Voice OpenScape Branch OpenScape SBC RG8700 Unified Communications CMP Device Management

[simpletelekom] - [telekom] - [NP_Bonn-CFlex] - Prefix Access Codes

The Prefix Access Code (PAC) is the code entered in the numbering plan. A call can only be routed if the dialed digits are matching a PAC.

Search for in Search Show All Advanced...

Add Edit Delete

Sel:0 Items/Page: 200 All: 46	Code	Min/Max Length	Prefix Type	Nature Of Address	Destination Type	Destination	Remark
	#	1 / 30	On-net Access	Unknown	BG Common Destination	NP_Common	No
	*	1 / 30	On-net Access	Unknown	BG Common Destination	NP_Common	No
	*001	4 / 30	Off-net Access	Unknown	None		No
	+	1 / 30	Off-net Access	Unknown	BG Common Destination	NP_Common	No
	0	4 / 30	Off-net Access	Unknown	BG Common Destination	NP_Common	No
	0	1 / 3	On-net Access	Unknown	BG Common Destination	NP_Common	No
	00	4 / 30	Off-net Access	Unknown	BG Common Destination	NP_Common	No
	000	4 / 30	Off-net Access	Unknown	BG Common Destination	NP_Common	No
	0010	5 / 30	Off-net Access	Unknown	None		No
	0013	4 / 30	Off-net Access	Unknown	None		No
	0018	4 / 30	Off-net Access	Unknown	None		No
	0019	4 / 30	Off-net Access	Unknown	None		No
	00700	5 / 30	Off-net Access	Unknown	None		No
	00800	5 / 30	Off-net Access	Unknown	None		No
	00900	5 / 30	Off-net Access	Unknown	None		No
	0110	4 / 4	Off-net Access	Unknown	None		No
	0112	4 / 4	Off-net Access	Unknown	None		No
	0115	4 / 4	Off-net Access	Unknown	None		No
	0116	4 / 7	Off-net Access	Unknown	None		No
	0118	4 / 7	Off-net Access	Unknown	None		No
	0137	5 / 5	Off-net Access	Unknown	None		No
	019222	6 / 6	Off-net Access	Unknown	None		No
	049700	6 / 30	Off-net Access	Unknown	None		No
	049800	6 / 30	Off-net Access	Unknown	None		No
	049900	6 / 30	Off-net Access	Unknown	None		No
	**	1-**	Off-net	**	**	**	**

Find in page Highlight All Match Case Match Diacritics Whole Words

UNIFY Common Management Platform Domain: system User: administrator@system | Settings | Help | Logout

Configuration Maintenance User Management Fault Management Performance Management Accounting 0 13 26

OpenScape Voice OpenScape Branch OpenScape SBC RG8700 Unified Communications CMP Device Management

[simpletelekom] - [telekom] - [NP_Bonn-CFlex] - Prefix Access Codes

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Business Group

Quick Tasks Business Group List

telekom

- General
- Profiles
- Teams
- Statistics
- Display Number Modification
- Branch Office List
- Main Office
- Members
- Private Numbering Plan List
- NP_Bonn-CFlex
- Translation
- Prefix Access Codes
- Destination Codes
- Domain Codes
- Code Indexes
- Location Codes
- Extensions
- Destinations and Routes

Set:0 Items/Page: 200 All:46	U110	OFF-NET ACCESS	UNKNOWN	ROUTE	
	0137	5 / 5	Off-net Access	Unknown	None
	019222	6 / 6	Off-net Access	Unknown	None
	049700	6 / 30	Off-net Access	Unknown	None
	049800	6 / 30	Off-net Access	Unknown	None
	049900	6 / 30	Off-net Access	Unknown	None
	1	4 / 30	Off-net Access	Unknown	BG Common Destination NP_Common No
	1	1 / 3	On-net Access	Unknown	BG Common Destination NP_Common No
	110	3 / 3	Off-net Access	Unknown	None
	112	3 / 3	Off-net Access	Unknown	None
	19222	5 / 5	Off-net Access	Unknown	None
	2	4 / 30	Off-net Access	Unknown	BG Common Destination NP_Common No
	2	1 / 3	On-net Access	Unknown	BG Common Destination NP_Common No
	3	4 / 30	Off-net Access	Unknown	BG Common Destination NP_Common No
	3	1 / 3	On-net Access	Unknown	BG Common Destination NP_Common No
	4	4 / 30	Off-net Access	Unknown	BG Common Destination NP_Common No
	4	1 / 3	On-net Access	Unknown	BG Common Destination NP_Common No
	5	4 / 30	Off-net Access	Unknown	BG Common Destination NP_Common No
	5	1 / 3	On-net Access	Unknown	BG Common Destination NP_Common No
	6	4 / 30	Off-net Access	Unknown	BG Common Destination NP_Common No
	6	1 / 3	On-net Access	Unknown	BG Common Destination NP_Common No
	7	4 / 30	Off-net Access	Unknown	BG Common Destination NP_Common No
	7	1 / 3	On-net Access	Unknown	BG Common Destination NP_Common No
	8	4 / 30	Off-net Access	Unknown	BG Common Destination NP_Common No
	8	1 / 3	On-net Access	Unknown	BG Common Destination NP_Common No
	9	4 / 30	Off-net Access	Unknown	BG Common Destination NP_Common No
	9	1 / 3	On-net Access	Unknown	BG Common Destination NP_Common No

Find in page ▾ Highlight All Match Case Match Diacritics Whole Words X

UNIFY Common Management Platform Domain: system User: administrator@system | Settings | Help | Logout

Configuration Maintenance User Management Fault Management Performance Management Accounting 0 13 26

OpenScape Voice OpenScape Branch OpenScape SBC RG8700 Unified Communications CMP Device Management

[simpletelekom] - [telekom] - [NP_Bonn-CFlex] - Destinations

Destinations are used to route a call to an endpoint representing a gateway.

Business Group

Quick Tasks Business Group List

telekom

- General
- Profiles
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- Branch Office List
- Main Office
- Members
- Private Numbering Plan List
- NP_Bonn-CFlex
- Translation
- Destinations and Routes
- Destinations
- Routes

Set:0 Items/Page: 200 All:8	Name	Media Server	Number of Routes
	D_BonnCFlex_I	False	1
	D_BonnCFlex_N	False	1
	D_BonnCFlex_S	False	1
	D_BonnCFlex_SE	False	1
	D_BonnCFlex_SP	False	1
	D_BonnCFlex_SP1	False	1
	D_BonnCFlex_SP2	False	1
	D_BonnCFlex_SPu	False	1

Management Platform

User Management | Fa...

OpenScape Branch OpenScape SBC

[simpitelerom] - [telekom]

Destinations are used to route a call to an endpoint.

General Routes Route Lists Destination Codes

Routes

Multiple routes can be used for prioritizing the routes to the gateways.

ID	Endpoint	Route Type	Delete	Insert	Nature of Address
10	SBC_Bonn_CFLEX1	SIP-Endpoint	0		International

Add... Edit... Delete

Search for

Sel:0 | Items/Page: 200 | All:8

Name

- D_BonnCFlex_I
- D_BonnCFlex_N
- D_BonnCFlex_S
- D_BonnCFlex_SE
- D_BonnCFlex_SP
- D_BonnCFlex_SP1
- D_BonnCFlex_SP2
- D_BonnCFlex_SPu

Management Platform

User Management | Fa...

OpenScape Branch OpenScape SBC

[simpitelerom] - [telekom]

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Add... Edit... Delete

Search for

Sel:0 | Items/Page: 200 | All:8

Name

- D_BonnCFlex_I
- D_BonnCFlex_N
- D_BonnCFlex_S
- D_BonnCFlex_SE
- D_BonnCFlex_SP
- D_BonnCFlex_SP1
- D_BonnCFlex_SP2
- D_BonnCFlex_SPu

Management Platform

User Management | Fa...

OpenScape Branch OpenScape SBC

[simpitelerom] - [telekom]

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General Routes Route Lists Destination Codes

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10	SBC_Bonn_CFLEX1	SIP-Endpoint	0		International

Add... Edit... Delete

Search for

Sel:0 | Items/Page: 200 | All:8

Name

- D_BonnCFlex_I
- D_BonnCFlex_N
- D_BonnCFlex_S
- D_BonnCFlex_SE
- D_BonnCFlex_SP
- D_BonnCFlex_SP1
- D_BonnCFlex_SP2
- D_BonnCFlex_SPu

The image displays three screenshots of the OpenScape Management Platform interface, specifically showing the configuration of SIP destinations for CompanyFlex.

Screenshot 1: Edit Destination: D_BonnCFlex_SE

This screenshot shows the configuration of the destination D_BonnCFlex_SE. The routes table contains one entry:

ID	Endpoint	Route Type	Delete	Insert	Nature of Address
10	SBC_Bonn_CFLEX1	SIP-Endpoint	1		Unknown

Screenshot 2: Edit Destination: D_BonnCFlex_SP

This screenshot shows the configuration of the destination D_BonnCFlex_SP. The routes table contains one entry:

ID	Endpoint	Route Type	Delete	Insert	Nature of Address
10	SBC_Bonn_CFLEX1	SIP-Endpoint	1		International

Screenshot 3: Edit Destination: D_BonnCFlex_SP1

This screenshot shows the configuration of the destination D_BonnCFlex_SP1. The routes table contains one entry:

ID	Endpoint	Route Type	Delete	Insert	Nature of Address
10	SBC_Bonn_CFLEX1	SIP-Endpoint	1	49	International

The image displays three screenshots of a web-based management interface for OpenScape SBC, showing the configuration of SIP destinations and a terminal session.

Screenshot 1: Edit Destination: D_BonnCFlex_SP2

This screenshot shows the 'Routes' tab of the destination configuration page. It lists a single route entry:

ID	Endpoint	Route Type	Delete	Insert	Nature of Address
10	SBC_Bonn_CFLEX1	SIP-Endpoint	2	49	International

Screenshot 2: Edit Destination: D_BonnCFlex_SPu

This screenshot shows the 'Routes' tab of the destination configuration page for D_BonnCFlex_SPu. It lists a single route entry:

ID	Endpoint	Route Type	Delete	Insert	Nature of Address
10	SBC_Bonn_CFLEX1	SIP-Endpoint	1		Unknown

Terminal Session Log

```

login as: root
Pre-authentication banner message from server:
| Authorized uses only. All activity may be monitored and reported.
| End of banner message from server
| Keyboard-interactive authentication prompts from server:
| Password:
| End of keyboard-interactive prompts from server
Last login: Wed Dec  9 19:13:28 2020 from 10.82.53.117
Authorized uses only. All activity may be monitored and reported.
root@osvn1:[~] #611
# cd /etc/hiq8000/
root@osvn1:[/etc/hiq8000] #612
# vi fqdn.cfg

```

```

Internal: 10.82.53.0/24
# A records
A sip.siparv.osv.telekom.de 172.17.0.4 10.82.53.231
A sipsrv.osv.telekom.de 172.17.0.4 10.82.53.231
A sip.sipmtlssrv.osv.telekom.de 172.17.0.4 10.82.53.231
A sipmtlssrv.osv.telekom.de 172.17.0.4 10.82.53.231
A vm.xpr.telekom.de 172.17.0.4 10.82.53.241
A xpr.telekom.de 172.17.0.4 10.82.53.241
A dls.telekom.de 172.17.0.4 10.82.53.249
A cmpn.telekom.de 172.17.0.4 10.82.53.233
A ms.osv.telekom.de 172.17.0.4 10.82.53.233
A conf.uc.telekom.de 172.17.0.4 10.82.53.233
A webconf.uc.telekom.de 172.17.0.4 10.82.53.233
A dns1.osv.telekom.de 172.17.0.4 10.82.53.231
A xternlclia.telekom.de 172.17.0.4 10.82.53.233
A tm.telekom.de 172.17.0.4 10.82.53.249
A tracefileserver.telekom.de 172.17.0.4 10.82.53.249
A cc.telekom.de 172.17.0.4 10.82.53.241
A cce.telekom.de 172.17.0.4 10.82.53.241
A openfire.telekom.de 172.17.0.4 10.82.53.233
A sip.osv.telekom.de 172.17.0.4 10.82.53.231
A sipmtls.osv.telekom.de 172.17.0.4 10.82.53.231
A https.telekom.de 172.17.0.4 10.82.53.233
A osvnl.osv.telekom.de 172.17.0.4 10.82.53.229
A sig.osv.telekom.de 172.17.0.4 10.82.53.231
A csta.osv.telekom.de 172.17.0.4 10.82.53.231
A mgcp.osv.telekom.de 172.17.0.4 10.82.53.231
A sbc.telekom.de 172.17.0.4 10.82.53.227
A SbcThig1.telekom.de 172.17.0.4 10.82.53.227
A ms2.telekom.de 172.17.0.4 10.82.53.234
A ms3.telekom.de 172.17.0.4 10.82.53.235
A sbcbonn-sspcflex-01.bonn.telekom.de 172.17.0.5 10.82.53.227
A sbcbonn-sspcflex-01.bonn.telekom.de 172.17.0.5 10.82.53.227 ←
A sbcbonn-sspcflex-02.bonn.telekom.de 172.17.0.5 10.82.53.227
B sbcbonn.bonn.telekom.de 172.17.0.5 10.82.53.227
B osb50i-01.bonn.telekom.de 172.17.0.7 10.82.53.227

# SRV records: two associated A records, each with priority, weight and port
SRV sipsrv.osv.telekom.de sbc.telekom.de 1 10 5060
SRV sipmtlssrv.osv.telekom.de sbc.telekom.de 1 10 5060
SRV _sip._tcp.bonn.telekom.de sbc.telekom.de 1 10 5060

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"fqdn.cfg" 43L, 1880C

```

```

login as: root
Pre-authentication banner message from server:
|
|
| Authorized uses only. All activity may be monitored and reported.
| End of banner message from server
| Keyboard-interactive authentication prompts from server:
| Password:
| End of keyboard-interactive prompts from server
Last login: Wed Dec  9 19:13:28 2020 from 10.82.53.117
Authorized uses only. All activity may be monitored and reported.
root@osvnl:[~] #611
# cd /etc/hiq8000/
root@osvnl:[/etc/hiq8000] #612
# vi fqdn.cfg
root@osvnl:[/etc/hiq8000] #613
# /unisphere/srx3000/callp/bin/buildDNSconfig
root@osvnl:[/etc/hiq8000] #614
# ping SbcThig1.telekom.de
PING SbcThig1.telekom.de (10.82.53.227) 56(84) bytes of data.
64 bytes from SbcThig1.telekom.de (10.82.53.227): icmp_seq=1 ttl=64 time=0.267 ms
64 bytes from SbcThig1.telekom.de (10.82.53.227): icmp_seq=2 ttl=64 time=0.164 ms
64 bytes from SbcThig1.telekom.de (10.82.53.227): icmp_seq=3 ttl=64 time=0.131 ms
64 bytes from SbcThig1.telekom.de (10.82.53.227): icmp_seq=4 ttl=64 time=0.217 ms
^C
--- SbcThig1.telekom.de ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3000ms
rtt min/avg/max/mdev = 0.131/0.194/0.267/0.054 ms
root@osvnl:[/etc/hiq8000] #615
#

```

DeutschlandLAN SIP Trunk:

The following configurations are done via Voice Assistant.

Central SBC Endpoint

The following figure shows the general settings:

ZUGANGSDATEN
Vertraulich, bitte aufbewahren!
Datum 01. März 2018
Ortsvorwahl 0228
Durchwahlnr. 12345
Abfragestelle 0
Registrierungsruftnummer
+49 228 123450
Rufnummernblock
von 000 bis 299

Name:	SBC_BonnSP1
Remark:	Central SBC connection to Telekom SIP Trunk - port 50000 (mapped from THIGsbc from 50002 to 50000)
Registered:	<input checked="" type="checkbox"/>
Profile:	EPP_cSbc
Branch Office:	[REDACTED]
Associated Endpoint:	[REDACTED]
Default Home DN:	49 [REDACTED]
Location Domain:	[REDACTED]
Endpoint Template:	[REDACTED]
Endpoint Type:	Central SBC
Max number of users:	[REDACTED]

Telekom specifies in INVITEs received over the SIP trunk in the P-Asserted-Identity SIP header the SIP trunk ID which has not to be displayed on the called phone. Therefore *SIP Privacy Support* has to be set to **Full Send** in the SBC Endpoint Profile. This causes the P-Asserted-Identity header to be ignored for incoming calls but supported for outgoing calls.

Name: EPP_cSbc

Numbering Plan: NP_Bonn

Management Information

- Class of Service:** [dropdown]
- Routing Area:** RA_Bonn
- Calling Location:** [dropdown]
- Time Zone:** Europe/Berlin
- SIP Privacy Support:** Full Send (highlighted)
- Failed Calls Intercept Treatment:** Disabled
- Language:** SoftSwitch Default (German)

In the SBC endpoint on tab *SIP* in section *Security* has be configured the telephony authentication credentials to enable Voice to reply to Digest Authentication challenges from Telekom:

Security

Local User Name: 5511295012345
Local Password: Yni2FiB4
Confirm Local Password: Yni2FiB4

Outbound-Proxy: reg.sip-trunk.telekom.de
Registrar: sip-trunk.telekom.de

The following figures show the SBC endpoint attributes used:

[simpletelekom] - [telekom] - [Main Office] - Edit Endpoint : SBC_BonnSP1	
	General SIP Attributes Aliases Routes Accounting
Attributes	
<p>i Attributes available for this SIP endpoint</p>	
Supports SIP UPDATE Method for Display Updates	<input type="checkbox"/>
UPDATE for Confirmed Dialogs Supported	<input type="checkbox"/>
Survivable Endpoint	<input type="checkbox"/>
SIP Proxy	<input type="checkbox"/>
Central SBC	<input type="checkbox"/>
Route via Proxy	<input type="checkbox"/>
Allow Proxy Bypass	<input type="checkbox"/>
Public/Offnet Traffic	<input checked="" type="checkbox"/>
Accept Billing Number	<input type="checkbox"/>
Use Billing Number for Display Purposes	<input type="checkbox"/>
Allow Sending of Insecure Referred-By Header	<input type="checkbox"/>
Override IRM Codec Restriction	<input type="checkbox"/>
Transfer HandOff	<input type="checkbox"/>
Use Subscriber Home DN as Authentication Number	<input type="checkbox"/>
Set NPI/TON to Unknown	<input type="checkbox"/>
Include Restricted Numbers in From Header	<input type="checkbox"/>
SIPQ Truncated MIME	<input type="checkbox"/>
Enable Session Timer	<input checked="" type="checkbox"/>
Ignore Answer for Announcement	<input type="checkbox"/>
Enable TLS RFC5626 Ping	<input type="checkbox"/>
Enable TLS Dual Path Method	<input type="checkbox"/>
Ignore Receipt of 181 Call is Being Forwarded	<input type="checkbox"/>
Use extended max. count for loop prevention	<input type="checkbox"/>
Do Not Audit Endpoint	<input type="checkbox"/>
Use Proxy/SBC ANAT settings for calls to subscribers	<input type="checkbox"/>
Support for Callback Path Reservation	<input type="checkbox"/>
Send Progress to Stop Call Proceeding Supervision Timer	<input type="checkbox"/>

Send P-Preferred-Identity rather than P-Asserted-Identity	<input type="checkbox"/>
Send domain name in From and P-Preferred-Identity headers	<input type="checkbox"/>
Send Redirect Number instead of calling number for redirected calls	<input type="checkbox"/>
Do not send Diversion header	<input checked="" type="checkbox"/>
Do not Send Invite without SDP	<input type="checkbox"/>
Send International Numbers in Global Number Format (GNF)	<input checked="" type="checkbox"/>
Rerouting Direct Incoming Calls	<input type="checkbox"/>
Rerouting Forwarded Calls	<input type="checkbox"/>
Enhanced Subscriber Rerouting	<input type="checkbox"/>
Automatic Collect Call Blocking supported	<input type="checkbox"/>
Send Authentication Number in P-Asserted-Identity header	<input checked="" type="checkbox"/>
Send Authentication Number in Diversion Header	<input type="checkbox"/>
Send Authentication Number in From Header	<input type="checkbox"/>
Use SIP Endpoint Default Home DN as Authentication Number	<input type="checkbox"/>
Limited PRACK Support	<input type="checkbox"/>
Support Media Redirection	<input type="checkbox"/>
Voice Mail Server	<input type="checkbox"/>
Disable Long Call Audit	<input type="checkbox"/>
Send/Receive Impact Level	<input type="checkbox"/>
Do not send alphanumeric SIP URI	<input type="checkbox"/>
Send alphanumeric SIP URI when available	<input type="checkbox"/>
Support Peer Domains	<input type="checkbox"/>
Reserve 6	<input type="checkbox"/>
Allow endpoint to Unregister Stale Registrations	<input type="checkbox"/>
Enable Media Termination Point (MTP) Flow	<input type="checkbox"/>
Video call allowed	<input type="checkbox"/>
Trusted Subscriber	<input type="checkbox"/>
Enable Fast Connect	<input type="checkbox"/>
Circuit Connector Appliance	<input type="checkbox"/>
Add Route Header:	<input type="checkbox"/>
Disable SRTP	<input type="checkbox"/>
Include OSV SIP User-Agent header field	<input type="checkbox"/>
Do Not Allow URNs in R-URI/TO Header for NG911 Calls	<input type="checkbox"/>
Reserve 8	<input type="checkbox"/>
Accept x-channel header	<input type="checkbox"/>
Suppress SPE in SIPQ	<input type="checkbox"/>
Reserve 9	<input type="checkbox"/>

Avoiding Re-Invite during Session Refresh

When in a long duration call Voice usually send regularly INVITEs to refresh the session. If the SDP online version info is different between INVITE and the related 200 OK then Voice detects a change for the session so Voice needs to inform the peer by sending a re-INVITE. To avoid this Voice will send SIP UPDATE messages instead of re-INVITEs by setting the parameter Srx/Sip/UpdateMethodSessionTimingEnable to RtpTrue, as shown below:

The screenshot shows the UNIFY Common Management Platform interface. The top navigation bar includes Configuration, Maintenance, User Management, Fault Management, Performance Management, Accounting, and Device Management. The Configuration tab is selected and highlighted with a red box. Below the navigation bar, there are tabs for OpenScape Voice, OpenScape Branch, OpenScape SBC, RG8700, Unified Communications, CMP, and Device Management. The OpenScape Voice tab is also highlighted with a red box. On the left, a sidebar titled 'Administration' shows various settings like General Settings, Accounting Management, Endpoint Templates, Routing Gateways RG2700, CDR, SOAP/XML Client, Operation Mode, CLLI, Database, OSB synchronization, Report, and RTP. The RTP section is highlighted with a red box. The main content area is titled '[simpentelekom] - RTP Management' and contains a table of RTP parameters. One row, 'Srx/Sip/UpdateMethodSessionTimingEnable', is selected and highlighted with a red box. The table columns include Name, Value, and Description.

Name	Description	Value	Update_Session_Timing_Enable
Srx/Sip/enable_security_notification_3rd_party_devices	RtpFalse	RtpFalse	Yes
Srx/Sip/WildcardedResponsibleDomains	**	**	Yes
Srx/Sip/UpdateMethodSessionTimingEnable	RtpTrue	Update_Session_Timing_Enable	No
Srx/Sip/Trunk_Context	**	**	Yes
Srx/Sip/SuppressDTLS	RtpFalse	RtpFalse	Yes
Srx/Sip/SipQMaxTransitCount	5	5	Yes
Srx/Sip/Session_Timer	YES	YES	Yes
Srx/Sip/ResponseCodeForCauseValue18	408	408	Yes
Srx/Sip/ReleaseAckTimer	5000	5000	Yes
CrashDumper	**	**	Yes

Disabling to send Diversion SIP Header

Because Telekom doesn't support the Diversion header in SIP messages, sending this header should be prevented in the SIP attributes of the SBC endpoint by enabling *Do not send Diversion header*:

The screenshot shows the 'Edit Endpoint' screen for 'SBC_BonnSP1'. On the left, the navigation tree is expanded to show 'Business Group' and 'telekom' under 'Main Office', with 'Endpoints' selected. In the center, a table lists endpoints with columns 'Name' and 'Numbering Plan'. The row for 'SBC_BonnSP1' is highlighted with a red box. On the right, the 'SIP' tab is active, displaying various SIP attribute checkboxes. The checkbox for 'Do not send Diversion header' is checked and highlighted with a red box.

Sending External Numbers with leading +

In Voice Assistant can be configured any phone number for a subscriber in the *External Caller ID* field to be displayed on a called phone using feature CLIP:

The screenshot shows the 'Edit Subscriber' screen for subscriber '492284220436101'. The 'General' tab is selected. Under the 'Extension' section, the 'Displayed Extension Number' is set to '101'. In the 'Special Identities' section, the 'External Caller ID' field is highlighted with a red box and contains the value '49800123456789'.

To enable Voice to send this number with a leading + via Central SBC to Telekom two preconditions must be met:

1. In the SBC endpoint must be enabled the attribute *Send International Numbers in Global Number Format (GNF)*:



This cause Voice to send a number in international number format with a leading + sign.

2. To recognize an *External Caller ID* as a number in international format the country code used must be configured as a *Display Number Modification Definition*, as shown for the German country code below:

Business Group	Numbering Plan	NPI	Country/L2 Code
telekom	NP_Bonn	Public	49
telekom	NP_OSMO	Private	
telekom	NP_Bonn	Private	
telekom	ANY	Public	49

Sending Special Numbers without leading 0

Unless not already fixed in WebCDC in the Destinations D_xxx_SP for traffic type *Premium Rate* and D_xxx_SE for traffic type *Emergency* in the phone numbering plan in each route must be deleted the leading 0:

ID	Endpoint	Route Type	Delete	Insert	Nature of Ad
10	SBC_BonnGPI	SIP-Endpoint	<input type="button" value="Delete"/>	<input type="button" value="Insert"/>	Unknown

Caller ID Suppression

To allow subscribers to use the feature *Caller ID Suppression* the subscribers must be assigned the feature *Outgoing CID suppression and Delivery per Call* by, which is activated by using the prefix *51 by default. This assignment can be done on subscriber level or via Feature Profile.

UNIFY Common Management Platform

Configuration Maintenance User Management

OpenScape Voice OpenScape Branch OpenScape

simpletelekom [simpletelekom] - [telekom]

Business Group

Quick Tasks Business Group List

telekom General Profiles Teams Statistics Display Number Modification Branch Office List BO_Bonn Members Subscribers Endpoints Media Servers Private Numbering Plan List NP_Common (Default, Common)

Translation Destinations and Routes

Search for Sel:0 | Items/Page: 200 All

Directory Number

Name	Active	Assignment
Call Completion on No Reply	✓	Inherited
Call Completion to Busy Subscriber	✓	Inherited
Call Forwarding Dependable	✓	Assigned
Call Forwarding Internal/External	✓	Inherited
Call Forwarding No Reply	●	Inherited
Call Forwarding on Busy	●	Inherited
Call Forwarding to Voice Mail	●	Inherited
Call Forwarding Unconditional	✓	Inherited with Local Data
Call Pickup Directed	✓	Inherited
Call Transfer	✓	Inherited
CSTA Access	✓	Inherited
Do Not Disturb	●	Inherited
Enhanced Forwarded-Call Info	✓	Inherited
Large Conference	✓	Inherited
Last Incoming Number Redial	✓	Inherited
Last Outgoing Number Redial	✓	Inherited
Malicious Call Trace	✓	Switch-wide
Music On Hold	✓	Inherited
Name Permanent Presentation Status	✓	Inherited
Number Permanent Presentation Status	✓	Inherited
One Number Service	✓	Inherited
Outgoing CID Suppression	●	Inherited
Outgoing CID Suppression and Delivery Per Call	✓	Inherited
Park to Server	✓	Inherited

SIP Phones

Packet Size

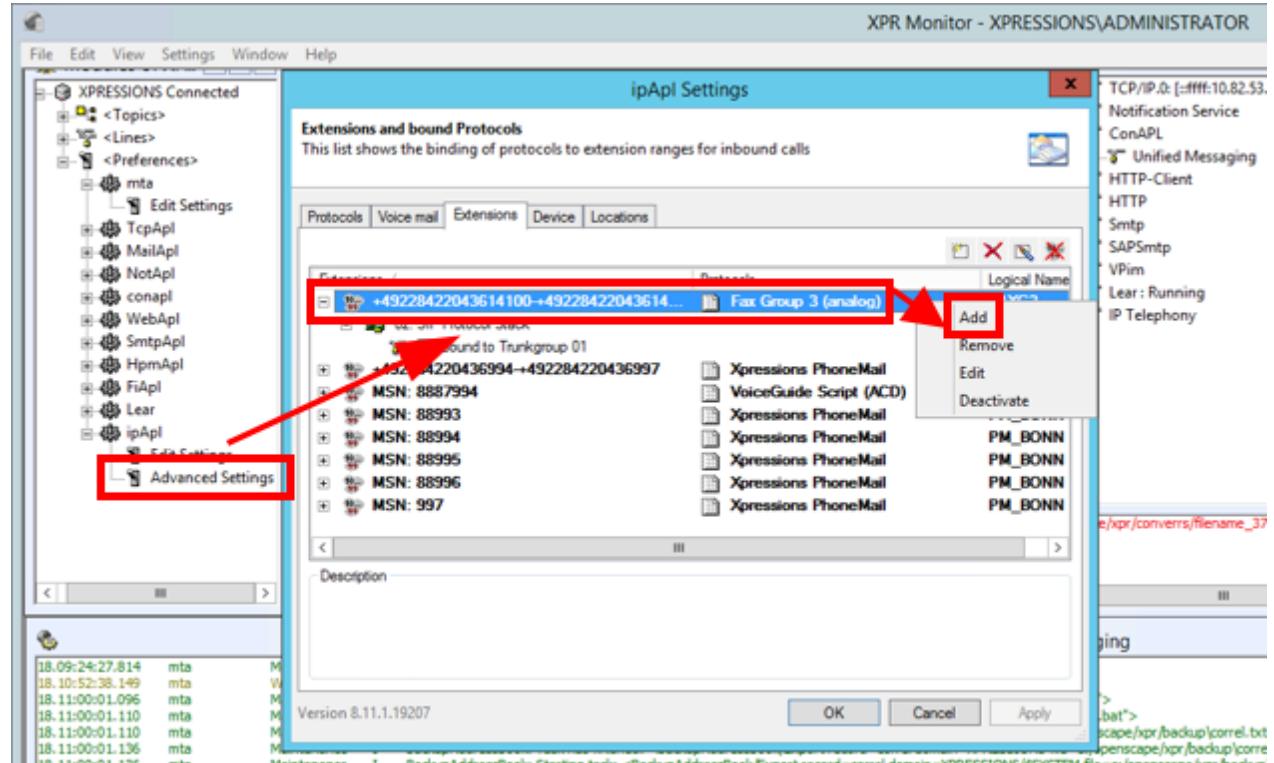
It has to make sure that the Packet Size has to be set to 20 ms on the SIP phones:

The screenshot shows the UNIFY OpenScape Desk Phone IP 35G Eco web interface. At the top, it displays the phone's details: Telefonnummer 492284220436101, IPv4-Adresse des Telefons 172.17.0.11, and DNS-Name 492284220436101. Below this is a navigation bar with three tabs: Administratorseiten (Admin) (highlighted), Benutzerseiten, and Abmeldung. The left sidebar contains various configuration links under categories like Network, System, Features, Security, File transfer, Local functions, Date and time, Speech, and Maintenance. Under the Speech category, 'Codec preferences' is highlighted. A red box highlights the 'Packet size' dropdown menu in the 'Codec preferences' dialog, which is set to '20ms'. The dialog also includes options for Silence suppression (unchecked), Allow "HD" icon (checked), and ranking for G.722, G.711, and G.729 codecs.

OpenScape Xpressions

Adding Extension Range

The Xpressions Extension Range to be added manually:



Known limitations, restrictions and things to know:

Release Note from CompanyFlex Testcenter:

- Das Leistungsmerkmal Call Routing von CompanyFlex wird nur unterstützt, wenn für jede Verbindung ein eigener OpenScape SBC installiert wird. Unify arbeitet derzeit an einer Weiterentwicklung des SBC damit mehrere unabhängige WAN Verbindung mit unterschiedlichen Gateways unterstützt werden. Erst dann kann ein OpenScape SBC mehrere Verbindungen für Call Routing über unterschiedliche Internetzugänge realisieren.

Bekannte Limitierungen:

- Bei Unterbrechung der VoIP Verbindung kann es bis zu 480 Sekunden dauern bis Telefonie wieder funktioniert. Der vorgesetzte NAT Router muss einen hohen NAT Timeout für TCP haben (mehr als 300 Sekunden). Grund dafür ist das TCP Session Verhalten des OSSBC. Voraussichtlich stellt Unify hier noch einen Hotfix im Dezember bereit.
- Jegliche Telefonie mit der OSV / OSEE erfolgt über den „Gatekeeper“ da bestimmte SIP Header und Funktionen nicht unterstützt werden. Unify muss hier die in der 1TR114 geforderte Unterstützung für Early-Media noch integrieren.
- T.38 Faxübertragungen mit einem Mediatrix 4102S waren nicht erfolgreich. Die Analyse ist hier noch offen.
- In bestimmten Callszenarien erfolgt innerhalb von 3 Sekunden kein non-100 Response von der OSV /OSEE. Die CompanyFlex Plattform bricht dann den Call ab, da z.B. ein Fehler vorliegen könnte. Derzeit muss als Workaround im CompanyFlex Portal der Timeoutwert von 3 Sekunden auf bis zu 10 Sekunden erhöht werden. Problem tritt in der Regel bei Rufweiterleitungen zu Mobilfunk auf.