

# OpenScape Business

Tutorial

Networking OpenScape Business - OpenScape Voice Configuration Guide

Version: 1.0

# Contents

1.1. GENERAL	4
1.1.1. Prerequisites	4
1.1.2. Features and Restrictions in Networking	4
1.2. CONFIGURATION FOR OPENSCAPE BUSINESS	5
1.2.1. Basic Settings configuration in OpenScape Business Assistant	5
1.2.2. Trunk configuration in OpenScape Business Assistant	8
1.2.2.1. Telephony Server -> Trunks/Routing -> Trunks -> Lan	8
1.2.2.2. Telephony Server -> Trunks/Routing -> Route (CO Route)	8
1.2.2.3. Telephony Server -> Trunks/Routing -> Route (SIP INT2 Route)	10
1.2.2.4. Telephony Server -> Trunks/Routing -> Route -> Routing Parameters (SIP INT2 Route)	12
1.2.3. Voice Gateway configuration in OpenScape Business Assistant	13
1.2.3.1. Expert Mode -> Telephony Server -> Voice Gateway -> Codec Parameters	13
1.2.3.2. Expert Mode -> Telephony Server -> Voice Gateway -> SIP Parameters	14
1.2.3.3. Voice Gateway -> SIP Interconnection -> OpenScape Voice (IP Address)	15
1.2.3.4. Voice Gateway -> SIP Interconnection -> OpenScape Voice (DNS-SRV)	17
1.2.3.5. "Voice Gateway -> SIP Interconnection -> OpenScape Voice (Digest Authentication)"	19
1.2.4. TLS Configuration	20
1.2.4.1. "Telephony Server -> Basic Settings -> Date and Time -> SNTP Settings"	20
1.2.4.2. "Telephony Server -> Basic Settings -> System -> System Flags"	21
1.2.4.3. "Telephony Server -> Security -> Signaling and Payload Encryption"	22
1.2.4.4. "Voice Gateway -> Station -> Station Payload Security"	24
1.2.4.5. "Voice Gateway -> SIP Interconnection -> OpenScape Voice (TLS)"	25
1.2.5. Least Cost Routing	28
1.2.5.1. Basic settings	28
1.2.5.2. Least cost routing to CO (Carrier)	29
1.2.5.3. Least cost routing to OpenScape Voice	37
1.3. CONFIGURATION OF OPENSCAPE VOICE	40
1.3.1. Settings in Common Management Portal	40
1.3.1.1. Administration of an new Gateway Private Numbering Plan	41
1.3.1.2. Administration of an Endpoint Profile for an OpenScape Business Endpoint	41
1.3.1.3. Creating and configuring an endpoint for OpenScape Business	45
1.3.1.4. Creating "Digest Authentication" access for OpenScape Business	49
1.3.1.5. Configuring a Gateway Numbering Plan for Incoming Calls	51
1.3.1.6. Configuring Outgoing Calls	53
1.3.1.7. Display Number Modification for OpenScape Voice V7 R1	62
1.3.2. Settings in StartCli	70
1.4. Configuration OpenBranch	71
1.4.1. Network Services	71
1.4.2. VOIP	77

# History

Issue	Date	Reason for Changes
1.0	04/12/2013	Initial creation of version 1.0

#### 1.1. General

This section describes the configuration of SIP-Q networking between OpenScape Business and OpenScape Voice. To do this, you will have to configure settings on OpenScape Business Assistant. On OpenScape Voice, settings are made in the Common Management Portal and in StartCli. The Common Management Portal is also used for OpenScape Branch.

#### Contents

This section covers the following topics:

Section 1.1.2, "Features and Restrictions in Networking"

Section 1.2, "Configuration of OpenScape Business"

Section 1.3, "Configuring OpenScape Voice"

Section 1.4, "Configuring OpenScape Branch"

#### 1.1.1. Prerequisites

- OpenScape Business Version 1
- OpenScape Voice Version 7 R1

#### 1.1.2. Features and Restrictions in Networking

- Only a star networking topology is supported. This means that OpenScape Voice is always the central switch.
- OpenScape Business supports DNS SRV for OpenScape Voice Interworking.
- OpenScape Business is released in a branch environment only with OpenScape Branch proxies and DNS-SRV configuration.
- OpenScape Business Survivability features are only released with DNS-SRV configuration.
- T.38 Fax protocol is supported.
- Two OpenScape Business endpoints cannot be networked directly via IP Network.
- Path replacement is not supported and must be deactivated.
- Path optimization is not supported and must be deactivated.
- Rerouting is not supported and must be deactivated.
- MoH is not available when proxy is in Limited Mode. The connection to OpenScape Business remains silent when on hold.
- SIP registration (dynamic endpoint) configuration is only possible in direct topology (no proxies) using IP address scheme configuration.
- In case of DNS-SRV configuration OpenScape Business must be configured as static endpoint from OpenScape Voice side. OpenScape Voice is configured only as SIP server and not as SIP registrar.

# 1.2. Configuration for OpenScape Business

#### Contents

This section covers the following topics:

Section 1.2.1, "Basic Settings configuration in OpenScape Business Assistant"

Section 1.2.2, "Trunk configuration in OpenScape Business Assistant"

Section 1.2.3, "Voice Gateway configuration in OpenScape Business Assistant"

Section 1.2.4, "TLS Configuration"

Section 1.2.5, "Least Cost Routing configuration in OpenScape Business Assistant"

#### 1.2.1. Basic Settings configuration in OpenScape Business Assistant

#### Procedure

1. Open OpenScape Business Assistant.

2. Expert Mode ->Telephony Server -> Basic Settings -> System -> System flags. The window "System Flags" is displayed.

3. In the "System Flags" area, make the following settings:

- Path optimization: Deactivate the checkbox.
- E.164 numbering scheme: Activate the checkbox (option available only in ManagerE).
- If TLS is available:
  - SPE support: Activate the checkbox.
  - SPE advisory tone: Activate the checkbox.

4. In the "Transit permission" area, make the following settings:

- External traffic transit: Activate the checkbox.
- 5. Click **Apply**. Your changes are saved.

Expert mode	
Maintenance	Expert mode
▼ Telephony Server	
Basic Settings	Expert Mode is intended for advanced configuration by trained technicians of your Service Provider. If you use Expert Mode to
Expert mode - Telephony Serv	er
Basic Settings	System Flags
▼System	Edit System Flags
System Flags	Conception mays
Time Parameters	
Display	System flags
DISA	Through-connection for external FWD on:
Intercept/Attendant/Hotline	Call forwarding to main station interface permitted:
LDAP	Hunting to external call forwarding destination:
Texts	
Flexible menu	Conference tone:
Speed Dials	Warning signal for call pickup groups: 🗹
Service Codes	Increase volume for optiPoint/OpenStage terminals:
Gateway	
DynDNS	Relocate allowed:
AF/EF Codepoints	More than 1 external conference member: 🗹
Quality of Service	Trunk reservation, automatic:
Date and Time	
Port Management	No. redial with a/c code:
Call Charges	Use only default number for MSN :
Voicemail / Announcement Player	Path optimization:
*Alarm Signaling	
*!Phone Parameter Deployment	DIMF automatic:

Automatic	: redial: 🔲
Voice mail Node call n	umber:
Call Pickup after automatic	: recall:
Configurable	e CLIP: 🔽
Caller list at destination in case of Forwar	rd Line: 🔲
Call forwarding after deflect call / single step to	ransfer:
Follow call management in case of deflect call / single step to	ransfer:
Calling number in pick-up groups / ringing groups / CFN	/RNA:
SPE s	upport:
SPE advisor	v tone:
SIP Prov. to SIP Prov.	transit:
Transparent dialing of * and # on trunk inte	erfaces:
pen numbering scheme	
	active:
Node calln	umber:
rappit permission	
Feature	transit: 🔽
Tie traffic	transit: 🔽
External traffic t	ransit : 🔽
	ranon . Eta
lestriction for UC calls	
Restriction for UC	C calls:

#### 1.2.2. Trunk configuration in OpenScape Business Assistant

OpenScape Business supports two SIP interconnection trunks. One SIP interface must be assigned to the Osbiz – OSV interconnection. Usage of "SIP Interconnection 2" trunk type is recommended.

#### Contents

In Expert Mode of OpenScape Business Assistant, changes will be made on the following screens:

Section 1.2.2.1, "Telephony Server -> Trunks/Routing -> Trunks -> Lan"

Section 1.2.2.2, "Telephony Server -> Trunks/Routing -> Route (CO Route)"

Section 1.2.2.3, "Telephony Server -> Trunks/Routing -> Route (SIP INT2 Route)"

Section 1.2.2.4, "Telephony Server -> Trunks/Routing -> Route -> Routing Parameters (SIP INT2 Route)"

#### 1.2.2.1. Telephony Server -> Trunks/Routing -> Trunks -> Lan

1. **Expert Mode** -> **Telephony Server** -> **Trunks/Routing** -> **Trunks** -> **LAN** -> select SIP Interconnection 2. Information about SIP Interconnection 2 trunk type will be displayed in "display all lines" tab.

2. Select "add line" tab and select the number of SIP Interconnection 2 trunks that will be created (i.e 10).

Trunks	
display all lines	add line
Number: 10	

#### 3. Click Apply. Your changes are saved.

4. Under "display all lines" tab, newly created trunks will be appeared and they will be automatically assigned to SIP INT 2 by default (Trunk Group 11).

display all lines			add line		
Trunk	Box-SI-Pt-Li	Code	Route	Status	Туре
Line 81	LAN 1-0-5-1	7881	SIP INT 2	active	SIP Interconnection 2
Line 82	LAN 1-0-5-2	7882	SIP INT 2	active	SIP Interconnection 2
Line 83	LAN 1-0-5-3	7883	SIP INT 2	active	SIP Interconnection 2
Line 84	LAN 1-0-5-4	7884	SIP INT 2	active	SIP Interconnection 2
Line 85	LAN 1-0-5-5	7885	SIP INT 2	active	SIP Interconnection 2
Line 86	LAN 1-0-5-6	7886	SIP INT 2	active	SIP Interconnection 2
Line 87	LAN 1-0-5-7	7887	SIP INT 2	active	SIP Interconnection 2
Line 88	LAN 1-0-5-8	7888	SIP INT 2	active	SIP Interconnection 2
Line 89	LAN 1-0-5-9	7889	SIP INT 2	active	SIP Interconnection 2
Line 90	LAN 1-0-5-10	7890	SIP INT 2	active	SIP Interconnection 2

#### 1.2.2.2. Telephony Server -> Trunks/Routing -> Route (CO Route)

One route to the Carrier must be configured. To do this, proceed as follows:

1. Expert Mode -> Telephony Server -> Trunks/Routing -> Trunks -> Route -> select Route 1. Configuration options for Route 1 are displayed.

2. For **Route 1**, make the following settings:

- Route Name: CO
- PABX number-incoming: Enter the location number in the E.164 format for the country

code, local area code and PABX number, for example:30, 210, 650.

- Location number: Activate the checkbox.
- 4. Click **Apply**. Your changes are saved.

Route		
Change Route	Change Routing Parameters	
	Route Name:	CO
	Seizure code:	0
	CO code (2nd trunk code):	
Gateway Location		
	Country code:	30
	Local area code:	210
	PABX number:	650
PABX number-incoming		
	Country code:	30
	Local area code:	210
	PABX number:	650
	Location number:	
PABX number-outgoing		
	Country code:	
	Local area code:	
	PABX number:	
	Suppress station number:	
Overflow route		
	Overflow route :	None -
Digit transmission		
	Digit transmission:	Digit-by-digit -

#### 1.2.2.3. Telephony Server -> Trunks/Routing -> Route (SIP INT2 Route)

SIP INT 2 route to OpenScape Voice must be configured. To do this, proceed as follows:

1. Expert Mode -> Telephony Server -> Trunks/Routing -> Trunks -> Route -> select SIP INT 2 route (route 11). Configuration options for Route SIP INT 2 are displayed.

2. For **SIP INT 2**, make the following settings:

- Route Name/Name: SIP INT2
- 2nd trunk code: Enter 0 for the local PSTN access code
- PABX number-incoming: Enter the location number in the E.164 format for the country

code, local area code and system number. This number is generally the same as the

number entered for route "CO" (see previous section), in this example: **30, 210, 650**.

- Digit transmission: en-bloc sending
- 4. Click **Apply**. Your changes are saved.

Route		
Change Route	Change Routing Parameters	
	Route Name:	SIP INT 2
	Seizure code:	
	CO code (2nd trunk code):	0
ateway Location		
	Country code:	30
	Local area code:	210
	PABX number:	650
ABX number-incoming		
	Country code:	30
	Local area code:	210
	PABX number:	650
	Location number:	
ABX number-outgoing		
	Country code:	
	Local area code:	
	PABX number:	
	Suppress station number:	
verflow route		
	Overflow route :	None -
igit transmission		
	Digit transmission:	en-bloc sending $\bullet$

#### 1.2.2.4. Telephony Server -> Trunks/Routing -> Route -> Routing Parameters (SIP INT2 Route)

You must set routing parameters for the "Hp8k" route created in the previous section. To do this,

proceed as follows:

1. Expert Mode -> Telephony Server -> Trunks/Routing -> Trunks -> Route -> SIP INT2 -> select Routing parameters. The tab "Change Routing Parameters" for SIP INT 2 route is displayed.

2. For "SIP INT 2", make the following settings:

- Always use DSP: Activate the checkbox.
- •Route type: PABX
- No. and type, outgoing: Country code
- Call number type: Internal / DID
- Route optimize active: No
- 4. Click Apply. Your changes are saved.

Change Routing Parameters	
Digit repetition on:	
Analysis of second dial tone / Trunk monitoring:	
Intercept per direction:	
Over. service 3.1 kHz audio:	
Add direction prefix incoming:	
Add direction prefix outgoing:	
Ringback tone to CO:	
Segmentation:	yes
deactivate UUS per route:	
Always use DSP:	
Analog trunk seizure:	no pause 👻
Trunk call pause:	Pause 6 s 🔹
Type of seizure:	linear 👻
Route type:	PABX -
No. and type, outgoing:	Country code
Call number type:	Internal / DID
Change route allowed:	
statigs touto anonou.	
	Change routing Parameters Digit repetition on: Analysis of second dial tone / Trunk monitoring: Intercept per direction: Over. service 3.1 kHz audio: Add direction prefix incoming: Add direction prefix outgoing: Ringback tone to CO: Segmentation: deactivate UUS per route: Always use DSP: Analog trunk seizure: Trunk call pause: Type of seizure: Route type: Call number type:

#### 1.2.3. Voice Gateway configuration in OpenScape Business Assistant

This section covers the following topics:

Section 1.2.3.1, "Voice Gateway -> Codec Parameters"

Section 1.2.3.2, "Voice Gateway -> SIP Parameters"

Section 1.2.3.3, "Voice Gateway -> SIP Interconnection -> OpenScape Voice (IP Address)"

Section 1.2.3.4, "Voice Gateway -> SIP Interconnection -> OpenScape Voice (DNS-SRV)"

Section 1.2.3.5, "Voice Gateway -> SIP Interconnection -> OpenScape Voice (Digest Authentication)"

1.2.3.1. Expert Mode -> Telephony Server -> Voice Gateway -> Codec Parameters

Proceed as follows:

- 1. Go to Expert Mode -> Telephony Server -> Voice Gateway and select Codec Parameters.
- 2. Configure G711 A-law with Priority 1 and 20ms as Frame Size.
- 3. Configure G711 µ-law with Priority 2 and 20ms as Frame Size.
- 4. T.38 Fax: Activate the checkbox.
- 5. Use FillBitRemoval: Activate the checkbox.
- 6. Error Correction Used for T.38 Fax (UDP): Select t38UDPRedundancy
- 7. Transmission of Fax/Modem Tones according to RFC2833: Activate the checkbox
- 8. Transmission of DTMF Tones according to RFC2833: Activate the checkbox
- 9. Payload Type for RFC2833: Configure value 98
- 10. Click **Apply**. Your changes are saved.

Codec Parameters			
	Edit Codec Parameters		
Codec	Priority	Voice Activity Detection	Frame Size
G.711 A-law	Priority 1 🝷	VAD: 🗖	20 v msec
G.711 µ-law	Priority 2 🔻	VAD:	20 - msec
G.729A	Priority 4 🔻	VAD:	20 - msec
G.729AB	Priority 3 🔻	VAD: 🔽	20 - msec
Enhanced DSP Channels			
	Use G.711 only	/	
T.38 Fax			
	T.38 Fax:	$\overline{\mathbf{v}}$	
	Use FillBitRemoval:	V	
	Max. UDP Datagram Size for T.38 Fax (bytes):	1472	
	Error Correction Used for T.38 Fax (UDP)	t38UDPRedundancy -	
Misc.			
	ClearChannel		Frame Size: 20 - msec
RFC2833			
	Transmission of Fax/Modem Tones according to RFC2833:	: 🗹	
	Transmission of DTMF Tones according to RFC2833:	:	
	Payload Type for RFC2833:	: 98	
	Redundant Transmission of RFC2833 Tones according to RFC2198:		

1.2.3.2. Expert Mode -> Telephony Server -> Voice Gateway -> SIP Parameters

Proceed as follows:

#### 1. Go to Expert Mode -> Telephony Server -> Voice Gateway and select SIP Parameters.

- 2. Configure the SIP parameters to the default values. These are:
  - SIP transport protocol
    - SIP via TCP: Yes
      - SIP via UDP: Yes
      - SIP via TLS: Yes
  - SIP Registrar
    - Period of registration (sec): 120
  - RFC 3261 Timer Values
    - Transaction Timeout (msec): 32000
  - SIP session timer
    - RFC 4028 Support: Yes
    - Session Expires (sec): 1800

#### • Minimal SE (sec): 90

- Provider calls
  - Maximum possible Provider Calls: 0

#### 3. Click Apply. Your changes are saved.

SIP Parameters	
Edit SIP Parameters	
SIP Transport Protocol	
SIP via TCP:	Yes
SIP via UDP:	
SIP via TLS:	Yes
SIP Registrar	
Period of registration (sec):	120
RFC 3261 Timer Values	
Transaction Timeout (msec):	32000
SIP Session Timer	
RFC 4028 support:	
Session Expires (sec):	1800
Minimal SE (sec):	90
Provider Calls	
Maximum possible Provider Calls:	0

#### 1.2.3.3. Voice Gateway -> SIP Interconnection -> OpenScape Voice (IP Address)

Direct interconnection to OpenScape Voice via SIP Registration is only release with IP Address configuration. No survivability features are possible with this type of interconnection.

Parameters for the OpenScape Voice must be set. To do this, proceed as follows:

# 1. **Expert Mode** -> **Telephony Server** -> **Voice Gateway** -> **SIP Interconnection** and select **OpenScape Voice**. The tab "Edit SIP Interconnection" is displayed.

2. Make the following settings in the "Edit SIP Interconnection" tab:

- Enable Trunk: Activate the checkbox.
- Trunk Identifier in System: Select **SIP-Interconnection2**.
- Remote Domain Name: IP Address of sipsm1.
- SIP Server
  - IP Address / Host name: IP Address of sipsm1.
  - Port: 5060.
  - Secure Transport: Deactivate the check box.

- SIP Registrar
  - Use Registrar: Activate the checkbox.
  - IP Address / Host name: IP Address of sipsm1.
  - Port: **5060**.
  - Reregistration Interval (sec): 300.
- Outbound Proxy (Check box must be deactivated)
- Inbound Proxy (Check box must be deactivated
- 3. Click **Apply**. Your changes are saved.

/oice Gateway	SIP Interconnect	tion		
SIP Parameters	Edit SIP	Delete S	IP	Add SIP Interconnection
Codec Parameters	Interconnection	Interconne	ction User	
Destination Codec Parameters		Name:	OpenSca	peVoice
Internet Telephony Service Provider		Enable Trunk:	<b>V</b>	
Networking				
SIP Interconnection	Trunk Ide	ntifier in System:	SIP-Inter	rconnection2 -
Application Suite	Remot	e Domain Name:	192.168.	140.231
HiPath 4000	SIP Server			0
Native SIP Server trunk	ID Addr	se / Hest name:	102 169	140.001
▼Open Scape Voice		ess / most name.	132.100.	140.231
OpenScapeVoice-User		Port:	5060	
SIPQ Server trunk	S	ecure Transport:		
	SIP Registrar			
		Use Registrar:		
	IP Addre	ess / Host name:	192.168.	140.231
		Port:	5060	
	Reregistrat	tion Interval (sec)	300	
	Outbound Proxy			
	Use	Outbound Proxy:		
	IP Addre	ess / Host name:	0.0.0.0	
		Port:	r: 0	
	Inbound Proxy			
	Us	e Inbound Proxy:		
	IP Addre	ess / Host name:	0.0.0.0	
		Port:	5060	
	Apply	Undo	Ref	fresh

#### 1.2.3.4. Voice Gateway -> SIP Interconnection -> OpenScape Voice (DNS-SRV)

DNS SRV interconnection type assumes that: a) a DNS server has been installed and configured in the environment with the appropriate domains and SRV records, b) DNS SRV query for FQDN of OSV (sipsm1) is resolved from DNS server and c) the DNS server is configured in OpenScape Business.

Openscape Business generates the followed type of DNS SRV query: \_sip.\_tcp.domain\_name. In case of OpenScape Branch configuration, sipsm1 and openscape branch must share the same Fully Qualified Domain Name (i.e. sip.osv.net)

Survivability features are only available with DNS-SRV configuration.

Parameters for the DNS Server must be set. To do this, proceed as follows:

1. Expert Mode -> Telephony Server -> Routing -> IP Routing -> Mainboard and select DNS Server option. The tab "Edit DNS Settings" is displayed.

2. Make the following settings in the "Edit DNS Settings" tab:

- IP Address of Primary DNS Server: IP Address of Primary DNS Server.
- IP Address of Secondary DNS Server: IP Address of Secondary DNS Server (optional).
- 3. Click **Apply**. Your changes are saved.

▼IP Routing	Edit DNS Settings
▼Mainboard	
Static Routes	IP Address of primary DNS Server: 172.20.11.100
Default Router	
DNS Server	IP Address of secondary DNS Server: 172.20.1.10
Application Board	

Parameters for the OpenScape Voice must be set. To do this, proceed as follows:

1. Expert Mode -> Telephony Server -> Voice Gateway -> SIP Interconnection and select OpenScape Voice. The tab "Edit SIP Interconnection" is displayed.

2. Make the following settings in the "Edit SIP Interconnection" tab:

- Enable Trunk: Activate the checkbox.
- Trunk Identifier in System: Select SIP-Interconnection2.
- Remote Domain Name: Fully Qualified Domain Name (i.e. sip.osv.net).
- SIP Server
  - IP Address / Host name: Fully Qualified Domain Name (i.e. sip.osv.net).
  - Port: **0**.
  - Secure Transport: Deactivate the check box.
- SIP Registrar (Check box must be deactivated)
- Outbound Proxy (Check box must be activated in case of OpenScape Brach)
  - Use Outbound Proxy: Activate the checkbox.

- IP Address / Host name: Fully Qualified Domain Name (i.e. sip.osv.net).
- Port: **0**.
- Inbound Proxy (Check box must be deactivated
- 3. Click **Apply**. Your changes are saved.

SIP Interconnection		SIP Interconnection					
Edit SIP Interconnection	Delete SIP Interco	nnection	Add SIP Interconnection User	Edit SIP Interconnection	It SIP Interconnection Delete SIP Intercon		Add SIP Interconnection User
	Name:	OpenS	capeVoice		Name:	OpenS	capeVoice
	Enable Trunk:	<b>v</b>			Enable Trunk:	1	
Trunk Ider	ntifier in System:	SIP-In	terconnection2 👻	Trunk Iden	tifier in System:	SIP-In	terconnection2 👻
Remote	e Domain Name:	sip.os	v.net	Remote	Domain Name:	sip.os	v.net
SIP Server				SIP Server			
IP Addre	ess / Host name:	sip.os	v.net	IP Addre	ss / Host name:	sip.os	v.net
	Port:	0			Port:	0	
S	Secure Transport:			Secure Transport:			
SIP Registrar				SIP Registrar			
	Use Registrar:				Use Registrar:		
IP Addre	ess / Host name:	0.0.0.	0	IP Addre	ss / Host name:	0.0.0.	0
	Port:	5060			Port:	5060	
Reregistrat	ion Interval (sec)	300		Reregistrati	ion Interval (sec)	300	
Outbound Proxy				Outbound Proxy			
Use (	Outbound Proxy:			Use C	Outbound Proxy:	1	
IP Addre	ss / Host name:			IP Addre	ss / Host name:	sip.os	v.net
	Port:				Port:	0	
Inbound Proxy				Inbound Proxy			
Use	e Inbound Proxy:			Use	Inbound Proxy:		
IP Addre	ss / Host name:			IP Addre	ss / Host name:		
	Port:				Port:		

#### 1.2.3.5. "Voice Gateway -> SIP Interconnection -> OpenScape Voice (Digest Authentication)"

Parameters for the OpenScape Voice must be set. To do this, proceed as follows:

1. Expert Mode -> Telephony Server -> Voice Gateway -> SIP Interconnection -> OpenScape Voice and select OpenScape Voice-User. The tab "Edit SIP Interconnection User" is displayed.

Make the following settings in the "Edit SIP Interconnection User" window:

• UserId: i.e. OpenScapeVoice-User.

- Authorization name: i.e. **OpenScapeVoice-User**.
- Password: Enter the password.
- Confirm password: Re-enter the password to confirm.

Voice Gateway	SIP Interconnection User	
SIP Parameters Codec Parameters	Edit SIP Interconnection User	Delete SIP Interconnection User
Destination Codec Parameters	UserId:	OpenScapeVoice-User
Internet Telephony Service Provider	Authorization name:	OpenScapeVoice-User
Networking	Autionzation name.	Openiocape voice-osei
▼SIP Interconnection	Password:	•••••
Application Suite	Confirm Password	
HiPath 4000		Francisco I
Native SIP Server trunk		
▼OpenScapeVoice		
OpenScapeVoice-User		

#### 1.2.4. TLS Configuration

This section covers the following topics:

Section 1.2.4.1, "Telephony Server -> Basic Settings -> Date and Time -> SNTP Settings"

Section 1.2.4.2, "Telephony Server -> Basic Settings -> System -> System Flags"

Section 1.2.3.3, "Telephony Server -> Security -> Signaling and Payload Encryption"

Section 1.2.3.5, "Telephony Server -> Station -> Station Payload Security"

Section 1.2.3.6, "Voice Gateway -> SIP Interconnection -> OpenScape Voice (TLS)"

1.2.4.1. "Telephony Server -> Basic Settings -> Date and Time -> SNTP Settings"

Enter the NTP server address. To do this, proceed as follows:

1. Telephony Server -> Basic Settings -> Date and Time -> select SNTP Settings. The "Edit SNTP Settings" tab is displayed.

2. In the "Edit SNTP Settings" area, make the following settings:

- Administration Mode of SNTP Client: Select UP
- IP Address / DNS Name of External Time Server: Enter the IP address of SNTP Server
- Poll Interval for External Time Server: Configure "Continuous" Polling

**Attention:** For TLS connections, the same time must be set for all connections. This is achieved by all components using the same NTP server.

3. Click Apply. Your changes are saved.

Basic Settings	SNTP Settings	
▼System	Edit Settings	
System Flags	Loit Settings	
Time Parameters	SNTP Client	
Display	Administration Mode of SNTP	
DISA	Client:	dp
Intercept/Attendant/Hotline	IP Address / DNS Name of External	170 00 1 1
LDAP	Time Server:	172.20.1.1
Texts	Poll Interval for External Time	
Flexible menu	Server:	Continuous -
Speed Dials	-	
Service Codes		
Gateway		
DynDNS		
AF/EF Codepoints		
Quality of Service		
▼Date and Time		
Date and Time		
Timezone Settings		
SNTP Settings		
Port Management		
Call Charges		
Voicemail / Announcement Player		

#### 1.2.4.2. "Telephony Server -> Basic Settings -> System -> System Flags"

1. Go to **Expert Mode** ->**Telephony Server** -> **Basic Settings** -> **System and** select **System flags**. The window "System Flags" is displayed.

2. In the "System Flags" area, make the following settings:

- SPE support: **Activate** the checkbox.
- SPE advisory tone: Activate the checkbox.
- 3. Click **Apply**. Your changes are saved.
- 4. Changes are only applied after system restart.

Basic Settings	System Flags			
▼System	Edit Svetem Flags			
System Flags	Edit System hags			
Time Parameters	Configurable CLIP:			
Display				
DISA	Caller list at destination in case of			
Intercept/Attendant/Hotline	Forward Line.			
LDAP	Call forwarding after deflect call /			
Texts	single step transfer:			
Flexible menu	Follow call management in case of			
Speed Dials	deflect call / single step transfer:			
Service Codes	Calling number in pick-up groups /			
Gateway	ringing groups / CFN /RNA:			
DynDNS	SPE support:			
AF/EF Codepoints				
Quality of Service	SPE advisory tone:			
▼Date and Time	SIP Prov. to SIP Prov. transit:			
Date and Time	Transparent dialing of * and # on			
Timezone Settings	trunk interfaces			
SNTP Settings				

1.2.4.3. "Telephony Server -> Security -> Signaling and Payload Encryption"

#### <u>Overview</u>

For Signaling and Payload Encryption via TLS two Certificates must be imported to OpenScape Business (certificate with private key & CA certificate).

Certificates exported from OpenScape Voice must be used (rootcert.pem and client.pem).

client.pem is located in OpenScape Voice in the folder /usr/local/ssl/private

rootcert.pem must be created by using the root.pem.

Copy the file root.pem from OpenScape Voice /usr/local/ssl/certs and rename it to rootcert.pem. Use an editor to delete RSA-private-key (text from BEGIN RSA PRIVATE KEY to END RSA PRIVATE KEY).

Proceed as follows to configure Signaling and Payload Settings (SPE) and to import the certificates:

**1.** Go to **Expert Mode** ->**Telephony Server** -> **Security** and select **Signaling and Payload Encryption (SPE)**. The tab "Signaling and Payload Encryption (SPE)" is displayed.

2. In the "Edit Security Configuration" area, make the following settings:

- Minimal length of RSA Keys: Select **1024**.
- Certificate validation with CRL verification required: Deactivate the checkbox.
- Maximum Re-Keying interval [hours]: 24 hours (default value).
- •Subject name check: Deactivate the checkbox.

- •Salt Key Usage: Activate the checkbox.
- •SRTP authentication required: **Activate** the checkbox.
- •SRTCP encryption required: **Activate** the checkbox.
- •SRTP/SRTCP authentication tag length: 80 (default value).
- 3. Click **Apply**. Your changes are saved.

augth of RSA keys: 1024 h CRL verification
lgth of RSA keys: 1024 h CRL verification
h CRL verification
h CRL verification
required.
g interval [hours]: 24
ject name check: 🔲
Salt Key Usage:
ntication required: 🔽
cryption required:
cation tag length: 80

Proceed as follows to import the CA Certificate:

1. Go to **Expert Mode** ->**Telephony Server** -> **Security** -> **Signaling and Payload Encryption (SPE)** and select **SPE CA Certificate(s)**. The tab "Import trusted CA Certificate (X.509 file) for SPE" is displayed.

2. In the configuration area, make the following settings:

- •File with certificate (PEM or binary): Click "Browse" and select the **rootcert.pem** file.
- 3. Press button "View Fingerprint of Certificate". The fingerprint is displayed.
- 4. Press button "Import Certificate from File". Certificate is imported.

Security	SPE CA Certificate(s)
Application Firewall	Import trusted CA Cartificate (V 500 file) for SDE
Deployment and Licensing Client (DLSC)	Import dusted CA Certificate (A.Jos file) for set
Signaling and Payload Encryption (SPE)	File with certificate (PEM or
SPE Certificate	binary): Browse_ rootcert.pem
▼SPE CA Certificate(s)	CRI Distribution Point (CDP) @IDAP
1 1	Protocol: OHTTP
VPN	
SSL	CDP (without e.g. idap://):

Proceed as follows to import the CA Certificate:

1. Go to **Expert Mode** ->**Telephony Server** -> **Security** -> **Signaling and Payload Encryption (SPE)** and select **SPE Certificate**. The tab "Import SPE certificate plus private key (PKCS#12 file)" is displayed.

2. In the configuration area, make the following settings:

• Passphrase for decryption: No passphrase configuration.

•File with certificate and private key (PEM or PKCS#12 format): Click "Browse" and select the client.pem file.

3. Press button "View Fingerprint of Certificate". The fingerprint is displayed.

4. Press button "Import Certificate from File". Certificate is imported.

Security	SPE Certificate				
Application Firewall	Import SDE cartificate plus private key (DKCS#12 file)				
Deployment and Licensing Client (DLSC)	impore of electricate plus private key (rikes#ite/ite)				
▼Signaling and Payload Encryption (SPE)	Passphrase for decryption:				
▼SPE Certificate	The with an difference and address				
<u>1</u>	Key (PEM or PKCS#12 format): Browse client.pem				
SPE CA Certificate(s)	roy (i Ein of ricos i E format).				
VPN	Note: If your are installing a SPE certificate for the first time				
SSL	and SPE is active a reboot will be done automatically!				

1.2.4.4. "Voice Gateway -> Station -> Station Payload Security"

When SPE is activated, payload security option must be configured to "ON" for all supported station types.

1. Go to **Expert Mode** ->**Telephony Server** -> **Station** -> **Station and** select a specific station (e.g UP0 6000). The window "Edit Station Parameter" tab is displayed.

2. In the "Edit Station Parameter" area, make the following setting:

• Payload Security: Configure **ON**.

3. Click Apply. Your changes are saved.

4. Apply the same configuration to all **active supported** stations.

ition	Station
Station	Edit station parameters Edit station flags Edit Group/CFW
VP0 Stations	
0 6000 tdm_6000	Station - 0
1 6001 tdm_6001	Call number: 6000
2 6002 tdm_6002	Name: tdm 6000
3	
4	Direct inward dialing: 6000
5	Device Type: OpenStage 40
6	Clin/Lin:
7	Cilprun
250	Access: SLUC8 2-1 Master
251	Fax
252	≡ Call number: -
253	
254	Direct inward dialing: -
255	Parameter
256	Extension Type: Standard -
257	Languago: English
1649	Language. English
▼IP Clients	Call signaling internal: Ring type 1 -
▼System Clients	Call signaling external: Ring type 1 -
13 6100 hfa_6100	
14 6101 hfa_6101	Class of service (LCR): 15 -
15 6102 hfa_6102	Hotline Mode: Off
17 6103 hfa_6103	
18 6104 hfa_6103	Hotline: None 🔻
SIP Clients	Payload Security: On 👻
RASUser	
Deskshare User	Operating mode: 7 - SLNO, default template

1.2.4.5. "Voice Gateway -> SIP Interconnection -> OpenScape Voice (TLS)"

In order to configure TLS for the SIP interconnection trunk you have to follow the steps described in sections 1.2.3.3 and 1.2.3.4.

Voice Gateway -> SIP Interconnection -> OpenScape Voice (IP Address)

Parameters for the OpenScape Voice must be set. To do this, proceed as follows:

1. Expert Mode -> Telephony Server -> Voice Gateway -> SIP Interconnection and select OpenScape Voice. The tab "Edit SIP Interconnection" is displayed. 2. Make the following settings in the "Edit SIP Interconnection" tab:

- Enable Trunk: **Activate** the checkbox.
- Trunk Identifier in System: Select **SIP-Interconnection2**.
- Remote Domain Name: IP Address of sipsm3.
- SIP Server
  - IP Address / Host name: IP Address of sipsm3.
  - Port: 5061.
  - Secure Transport: Activate the check box.
- SIP Registrar
  - Use Registrar: Activate the checkbox.
  - IP Address / Host name: IP Address of sipsm3.
  - Port: 5061.
  - Reregistration Interval (sec): 300.
- Outbound Proxy (Check box must be deactivated)
- Inbound Proxy (Check box must be deactivated
- 3. Click **Apply**. Your changes are saved.

Voice Gateway	SIP Interconnection			
SIP Parameters	Edit STP Delete STP Add STP Intercom		Add SIP Interconnection	
Codec Parameters	Interconnection Inter	rconne	ction	User
Destination Codec Parameters	Na	ame:	OpenSo	capeVoice
Internet Telephony Service Provider	Enable Tr	nunk:		82 8
Networking		unk.		
▼SIP Interconnection	Trunk Identifier in Syst	tem:	SIP-Int	erconnection2 -
Application Suite	Remote Domain Na	ame:	192.16	8.140.232
HiPath 4000	SIP Server			
Native SIP Server trunk			100 10	0 440 020
▼OpenScapeVoice	IP Address / Host ha	ame:	192.16	0.140.232
OpenScapeVoice-User		Port:	5061	
SIPQ Server trunk	Secure Trans	port:	<b>V</b>	
	SIP Registrar			
	Use Regis	strar:	<b>V</b>	
	IP Address / Host na	ame:	192.16	8.140.232
	F	Port:	5061	
	Reregistration Interval (	(sec)	300	
	Outbound Proxy			
	Use Outbound Pr	roxy:		
	IP Address / Host na	ame:		
	F	Port:		
	Inbound Proxy			
	Use Inbound Pr	roxy:		
	IP Address / Host na	ame:		
	F	Port:		

#### Voice Gateway -> SIP Interconnection -> OpenScape Voice (DNS-SRV)

For enabling TLS in DNS-SRV interconnection, steps in 1.2.3.4 must be followed. The only difference is that "secure transport" checkbox must be activated and FQDN of sipsm3 must be used. No other configuration is necessary from OpenScape Business side.

Openscape Business generates the followed type of DNS SRV query for TLS: \_sips.\_tcp.domain\_name. In case of OpenScape Branch configuration, sipsm3 and openscape branch must share the same Fully Qualified Domain Name (i.e. sip.osvsec.net).

# 1.2.5. Least Cost Routing

#### 1.2.5.1. Basic settings

Proceed as follows:

#### 1. Expert Mode -> Telephony Server -> LCR and select LCR Flags. The "Edit LCR Flags" tab is displayed.

- 2. Make the following settings:
  - Activate LCR: Activate the checkbox.
- 3. Click **Apply**. Your changes are saved.

LCR	LCR		
LCR Flags		Edit I CP Flags	
Classes Of Service			
Dial Plan	LCR Flags		
Routing table		Activate LCR	
Dial rule			

4. Expert Mode -> Telephony Server -> LCR and select Classes of Service.

- 6. Make the following settings:
  - Class of Service: Configure Class of Service 14 to all endpoints.

LCR	Classes Of Service				
LCR Flags					
Classes Of Service					
Dial Plan	Classes	of service			
Routing table Dial rule	Index	Call number	Name	Class of service	
	1	6000	tdm_6000	14 🔻	
	2	6001	tdm_6001	14 👻	
	3	6002	tdm_6002	14 👻	

#### 1.2.5.2. Least cost routing to CO (Carrier)

#### <u>Overview</u>

The first route should lead to the CO. As an option, a second route can be configured for least cost routing to OpenScape Voice. This route is only used to bridge trunk failures. During a trunk failure, calls are routed to OpenScape Voice (with a transition to another OpenScape Voice gateway).

Local calls (Dialed digits 0CZ), national calls (Dialed digits 0C0-Z), and International calls (Dialed digits 0C00-Z), must be handled in 3 LCR rules.

ial Plan			
	C	hange Dial Plan	
Dial Plan	Name	Dialed digits	Routing Table
51	OSV Local	0CZ	20 <b>-</b> ->
52	OSV National	0C0-Z	30 <b>▼</b> →
53	OSVInternational	0C00-Z	40 ▼ →

#### Local calls

Dialed digits:	CO (name), 0CZ (Dialed digits), 20 (Routing table)
Routing table:	CO (Route), CO (Dial rule), 14 (min. COS), -, None (Warning)
	SIP INT 2 (Route), E.164 Local (Dial rule), 14 (min. COS), -, Display + tone

	Routing Table:2	0		en-bloc sending	
Route		Dial Rule	•	min. COS	Warning
CO	•	СО	•	14 👻	None -
SIP INT 2	•	E.164 Local	-	14 👻	Display + Tone 🔻

#### National calls:

Dialed digits:CO (name), 0C0-Z (Dialed digits), 30 (Routing table)Routing table:CO (Route), CO (Dial rule), 14 (min. COS), -, None (Warning)SIP INT 2 (Route), E.164 National. (Dial rule), 14 (min. COS), -, Display + tone

#### Routing Table: 30

en-bloc sending

Route		Dial Rule		min. COS	Warning
СО	•	СО	•	15 👻	None -
SIP INT 2	-	E.164 National	•	15 👻	Display + Tone 🔻

#### International calls:

Dialed digits:CO (name), 0C00-Z (Dialed digits), 40 (Routing table)Routing table:CO (Route), CO (Dial rule), 14 (min. COS), -, None (Warning)

SIP INT 2 (Route), I	E.164 Interatio.	. (Dial rule)	), <b>14</b> (min. COS),	-, Display	+ tone

Routing Table:40					en-bloc sending
Route		Dial Rule		min. COS	Warning
СО	•	CO	•	14 👻	None -
SIP INT 2	•	E.164 Internatio	•	14 👻	Display + Tone 🔻

**Dial Rule** Change Dial Rule **Rule Name** Dial rule format **Network access** Туре 26 E.164 Local D4969E2A Corporate Network Country code • • 27 E.164 National D49E3A Corporate Network Country code • • 28 E.164 Internatio E3A Corporate Network \* Country code -29 CO A Main network supplier 🔻 Unknown •

#### Warning!

All outdial rules for OpenScape Voice must be configurable in the international E.164 number format.

#### Step by step configuration

#### For local calls

Proceed as follows:

1. Expert Mode -> Telephony Server -> LCR -> select Dial plan. The tab "Change Dial plan" is displayed.

2. In a free row configure the dial plan for CO access, named OSV Local:

- •Name: OSV Local
- Dialed digits: **0CZ**
- Routing table: 20(will be configured in step 4).

3. Expert Mode -> Telephony Server -> LCR -> select Dial Rule. In the "Change Dial Rule" tab configure two new dial rules for CO called CO and E.164 Local. CO is the main CO rule and E.164 Local rule is used for rerouting via OSV in case of CO failure.

- Rule name: CO
- Dial rule format: **A**
- Network access: Main network supplier
- Type of Number (TON): Unknown
- Click Apply. The Dial rule wizard is saved.
- Rule name: E.164 Local
- Dial rule format: D4969E2A
- Network access: Corporate Network
- Type of Number (TON): Country Code
- Click Apply. The Dial rule wizard is saved.

4. Expert Mode -> Telephony Server -> LCR -> select Routing Table. Go to Routing Table 20:

#### First Route (CO route):

- Select the route CO in the column "Route".
- In the "Dial rule" column, select **CO** as dial rule.
- min. COS: 14
- Warning: none
- Dedicated Gateway: No
- Click Apply. The Routing Table configuration is saved.

Second Route (Rerouting via OSV):

- Select the route SIP INT 2 in the column "Route".
- In the "Dial rule" column, select **E.164 Local** as dial rule.
- min. COS: 14
- Warning: Display + Tone
- Dedicated Gateway: No
- Click Apply. The Routing Table configuration is saved.

#### 5. Click **Apply**. Your changes are saved.

Dial Plan	n							
		Cha	ange Dial Plan			Display Dial Plan		
Dial P	lan	Name		Dialed digits	Routing	Table Acc. code	Classes of serv	/ice
51	OSV L	ocal	0CZ		$20 \rightarrow$			
Dial Rul	e							
				Change Dial Rule				
	Rule Name Dial ru			Dial rule format		Network access		
26 E.16	64 Local		D4969E2A		Corporate Net	work 👻	Country code	•
29 CO			A		Main network	supplier 👻	Unknown	•
				Change Routing Table				
				Routin	ng Table:20	ei	n-bloc sending	
Index		Route		Dial Rule	min. COS	Warning	Dedicated	Gatewa
1	СО	•	CO	•	14 👻	None -	No 👻	
2	SIP INT 2	-	E.164 Local		14 -	Display + Tone -	No	

#### For National calls

Proceed as follows:

1. Expert Mode -> Telephony Server -> LCR -> select Dial plan. The tab "Change Dial plan" is displayed.

2. In a free row configure the dial plan for CO access, named OSV National:

- Name: OSV National
- Dialed digits: 0C0-Z
- Routing table: **30**(will be configured in step 4).

3. Expert Mode -> Telephony Server -> LCR -> select Dial Rule. In the "Change Dial Rule" tab configure two new dial rules for CO called CO and E.164 National. CO is the main CO rule and E.164 National rule is used for rerouting via OSV in case of CO failure.

- Rule name: CO
- Dial rule format: A
- Network access: Main network supplier
- Type of Number (TON): Unknown
- Click Apply. The Dial rule wizard is saved.
- Rule name: E.164 National
- Dial rule format: D49E3A
- Network access: Corporate Network
- Type of Number (TON): **Country Code**
- Click Apply. The Dial rule wizard is saved.

4. Expert Mode -> Telephony Server -> LCR -> select Routing Table. Go to Routing Table 30: First Route (CO route):

- Select the route CO in the column "Route".
- In the "Dial rule" column, select **CO** as dial rule.
- min. COS: 14
- Warning: none
- Dedicated Gateway: No
- Click Apply. The Routing Table configuration is saved.

#### Second Route (Rerouting via OSV):

• Select the route SIP INT 2 in the column "Route".

- In the "Dial rule" column, select **E.164 National** as dial rule.
- min. COS: 14
- Warning: Display + Tone
- Dedicated Gateway: No
- Click Apply. The Routing Table configuration is saved.

## 5. Click **Apply**. Your changes are saved.

Dia	Plan							
			Change Dial Plan			Display Dial Plan		
D	ial Plan	Name		Dialed digits	Routing Ta	able Acc. code	Classes of servic	e
	51	OSV Local	0CZ		20 -	→		
	52	OSV National	0C0-Z		30 👻 -	→ □		
	53	OSVInternational	0C00-Z		40 -	→ □		
				Change Dial Rule				
	Rule Name		Dial	rule format		Network access		Туре
26	E.164 Local		D4969E2A		Corporate Netwo	ork 👻	Country code	-
27	E.164 Na	ational	D49E3A		Corporate Netwo	ork 👻	Country code	-
28	E.164 Int	ernatio	E3A		Corporate Netwo	ork 👻	Country code	•
29	CO		A		Main network su	upplier 👻	Unknown	-
				Change Routing Table				
				Routing T	able: 30	en-blo	c sending	
Ind	lex	Route	Dia	al Rule	min. COS	Warning	Dedicated G	iateway
1	со	•	CO 👻		14 👻	None -	No 👻	
2	SIF	PINT 2 👻	E.164 National 👻		14 -	Display + Tone -	No 👻	

#### For international calls

Proceed as follows:

#### 1. Expert Mode -> Telephony Server -> LCR -> select Dial plan. The tab "Change Dial plan" is displayed.

2. In a free row configure the dial plan for CO access, named OSV National:

- •Name: OSV International
- Dialed digits: **0C00-Z**
- Routing table: 40(will be configured in step 4).

3. Expert Mode -> Telephony Server -> LCR -> select Dial Rule. In the "Change Dial Rule" tab configure two new dial rules for CO called CO and E.164 International. CO is the main CO rule and E.164 International rule is used for rerouting via OSV in case of CO failure.

- Rule name: CO
- Dial rule format: A
- Network access: Main network supplier
- Type of Number (TON): Unknown
- Click Apply. The Dial rule wizard is saved.
- Rule name: E.164 International
- Dial rule format: E3A
- Network access: Corporate Network
- Type of Number (TON): **Country Code**
- Click Apply. The Dial rule wizard is saved.

4. Expert Mode -> Telephony Server -> LCR -> select Routing Table. Go to Routing Table 30: First Route (CO route):

- •. Select the route CO in the column "Route".
- •. In the "Dial rule" column, select **CO** as dial rule.
- min. COS: 14
- Warning: none
- Dedicated Gateway: No
- Click Apply. The Routing Table configuration is saved.

#### Second Route (Rerouting via OSV):

• Select the route SIP INT 2 in the column "Route".

- In the "Dial rule" column, select **E.164 International** as dial rule.
- min. COS: 14
- Warning: Display + Tone
- Dedicated Gateway: No
- Click Apply. The Routing Table configuration is saved.

## 5. Click **Apply**. Your changes are saved.

Dial	Plan								
		d	hange Dial Plan			1	Display Dial Plan		
D	ial Plan	Name		Dialed digits	Routin	g Table	Acc. code	Classes of servi	ce
	51	OSV Local	0CZ		20	$\cdot \rightarrow$			
	52	OSV National	0C0-Z		30	• ->			
	53	OSVInternational	0C00-Z		40	• ->			
				Change Dial Rule					
	Rule Name		Dia	I rule format		Network a	iccess		Туре
26	E.164 L	ocal	D4969E2A		Corporate N	Corporate Network -		Country code	•
27	E.164 N	lational	D49E3A		Corporate N	letwork 👻		Country code	-
28	E.164 In	ternatio	E3A		Corporate N	letwork -	- Country	Country code	-
29	CO		A		Main networ	rk supplier 👻		Unknown	-
				Routi	ng Table:40		en-blo	c sending	
Ind	ex	Route		Dial Rule	min. COS		Warning	Dedicated 0	Gateway
1	CC	0 🗸	co 🗸		14 👻	None	-	No 👻	
2	SI	PINT 2 -	E.164 Internatio -		14 -	None	•	No 👻	
## 1.2.5.3. Least cost routing to OpenScape Voice

## <u>Overview</u>

			Change Dial Plan				Display Dial Plan					
Dial Pl	lan	Name		Dialed digits	Roi	uting Table	Acc. code	Classes of serv	ice			
101	OSV_ir	ternal	-8XXXX		21	$21 \rightarrow \square$						
				Change Dial Rule								
	Ru	le Name	Dia	l rule format		Network	access		Тур			
			D 400070074		Corporat	Corporate Network -		Country code				
51 E.16	4_internal		D49697007A		Main network supplier							
1 E.16 2 Rero	4_internal outing_via_CO		D49697007A D00049697008E2A	Change Routing Tal	Main ne	twork supplier 👻		Unknown	•			
1 E.164 2 Rero	4_internal outing_via_CO		D00049697008E2A	Change Routing Tal Routing	Main ne	twork supplier 👻	en-blo	Unknown	•			
1 E.16 2 Rero	4_internal uting_via_CO	Route	D49697007A D00049697008E2A	Change Routing Tal Routing Dial Rule	Table:21	twork supplier +	en-blo Warning	Unknown c sending Dedicated	Gatewa			
1 E.16 2 Rero	4_internal uting_via_CO SIP INT 2	Route	D49697007A D00049697008E2A	Change Routing Tal Routing Dial Rule	Table: 21 14 v	twork supplier -	en-blo Warning	Unknown c sending Dedicated No	Gatew			

Dialed digits:OSV Internal (name), -8xxxx (Dialed digits), 21 (Routing table)Routing table:SIP INT 2 (Route), E.164\_internal (Dial rule), 14 (min. COS), -, None (Warning)CO (Route), Rerouting\_via\_CO (Dial rule), 14 (min. COS), -, Display + tone

## Warning!

All outdial rules for OpenScape Voice must be configurable in the international E.164 numbering format.

#### Step by step configuration

#### Dialing a short number in the same location in OpenScape Voice

The first route should lead to OpenScape Voice. As an option, a second route can be configured for least cost routing via the CO. The second route bridges the gap in the case of LAN failure. During LAN failure, calls are routed via the local CO to another OpenScape Voice gateway.

Proceed as follows:

Proceed as follows:

1. Expert Mode -> Telephony Server -> LCR -> select Dial plan. The tab "Change Dial plan" is displayed.

2. In a free row configure the dial plan for CO access, named OSV National:

- •Name: OSV\_internal
- Dialed digits: -8xxxx
- Routing table: **21**(will be configured in step 4).

3. **Expert Mode** -> **Telephony Server** -> **LCR** -> select **Dial Rule**. In the "Change Dial Rule" tab configure two new dial rules for CO called **Rerouting\_via\_CO** and **E.164\_internal**. CO is the main CO rule and E.164\_internal rule is used for outbound calls to OSV internal endpoints.

- Rule name: Rerouting\_via\_CO
- Dial rule format: D00049697008E2A
- Network access: Main network supplier
- Type of Number (TON): Unknown
- •. Click Apply. The Dial rule wizard is saved.
- Rule name: E.164\_internal
- Dial rule format: D49697007A
- Network access: Corporate Network
- Type of Number (TON): Country Code
- •. Click Apply. The Dial rule wizard is saved.

4. Expert Mode -> Telephony Server -> LCR -> select Routing Table. Go to Routing Table 21:

#### First Route (Internal):

- •. Select the route SIP INT 2 in the column "Route".
- •. In the "Dial rule" column, select **E.164\_internal** as dial rule.
- min. COS: 14
- Warning: none

- Dedicated Gateway: No
- Click Apply. The Routing Table configuration is saved.

### Second Route (Rerouting via CO):

- Select the route **CO** in the column "Route".
- In the "Dial rule" column, select E.164\_internal as dial rule.
- min. COS: 14
- Warning: Display + Tone
- Dedicated Gateway: No
- Click Apply. The Routing Table configuration is saved.

5. Click **Apply**. Your changes are saved.

## 1.3. Configuration of OpenScape Voice

#### Overview

OpenScape Business as a gateway (endpoint) and the OpenScape Voice subscribers shall be located in different Private Numbering Plans but in the same business group.

That means every location gets an own Private Numbering Plan for subscriber and an own Private Numbering Plan for gateways/endpoints (OpenScape Business).

### Contents

This section covers the following topics:

Section 1.3.1, "Settings in the Common Management Portal"

Section 1.3.2, "Settings in StartCli"

## 1.3.1. Settings in Common Management Portal

### Procedure

- 1. Start the Common Management Portal.
- 2. Follow the remaining steps in sequence.

## Contents

This section covers the following topics:

Section 1.3.1.1, "Administration of a new Gateway Private Numbering Plan"

- Section 1.3.1.2, "Creating and Configuring an Endpoint Profile for an OpenScape Business Endpoint"
- Section 1.3.1.3, "Creating and configuring an endpoint for OpenScape Business"
- Section 1.3.1.4, "Creating "Digest Authentication" access for OpenScape Business"
- Section 1.3.1.5, "Configuring a Gateway Numbering Plan for Incoming Calls"
- Section 1.3.1.6, "Configuring Outgoing Calls"
- Section 1.3.1.7, "Display Number Modification for OpenScape Voice V7.1"

## 1.3.1.1. Administration of an new Gateway Private Numbering Plan

Proceed as follows:

#### 1. OpenScape Voice -> select Business Group.

2. On the left side of the window, select the following:

• Available Switches: Select the OpenScape Voice

• Available Business Groups: Select the business group for which the endpoint profile is to be created, e.g. **bg\_sol**.

3. On the left side of the window, select **Private Numbering Plans**. On the right side of the window, a list of all Private Numbering Plans is displayed.

4. To create a new Private Numbering Plan, click the **Add** button. The configuration window is displayed.

5. Name: Enter a name for the Private Numbering Plan, e.g. NP\_br13\_gw.

6. Click Save.

#### 1.3.1.2. Administration of an Endpoint Profile for an OpenScape Business Endpoint

Proceed as follows:

#### 1. OpenScape Voice -> select Business Group.

2. On the left side of the window, select the following:

- Available Switches: Select the OpenScape Voice
- Available Business Groups: Select the business group for which the endpoint profile is to be created, e.g. **bg\_sol**.

3. On the left side of the window, select **Profiles** -> **Endpoint Profiles**. On the right side of the window, a list of endpoint profiles is displayed.

4. To create a new endpoint profile, click the **Add** button. The configuration window for this endpoint profile is displayed.

5. Make the following settings in the General tab

#### **Endpoint Profiles**

- Name: Enter a name for the endpoint profile, e.g. **EP\_hg1500.br13**.
- Numbering Plan: Select the numbering plan which was create before, e.g.

NP\_br13\_gw.

#### Management Information

- · Class of Service: No setting necessary.
- Routing Area: No setting necessary.
- Calling Location: No setting necessary.

- SIP Privacy Support: Basic
- Failed Calls Intercept: Disabled
- Language: e.g. German
- 6. Open the **Services** tab. Make the following settings in this tab:
  - Voice mail: Yes
  - Call Transfer: No
  - Call Forward Invalid Destination: Yes and enter station number.
  - Toll and Call Restrictions: No
- 8. Click **Save**. Your changes are saved.

Home Operation & Maintenance	UpenScape Branch	RG8700 OpenScape Voice	Users & Resources
General Administration (	Business Group Glo	bal Translation and Routing	Maintenance
Available Switches	[klara] - Endpoint Profil	es - bg_sol	C ?
klara 🔹	(1) List of Endpoint Profiles		
Quick Tasks	No Fitter	Advanced	Apply Filter
▼ Business Group Lists			
🛗 Business Groups	□ ▲ Name	Class of Routing Callin Service Area Location	<sup>g</sup> Remark <mark>Plan Name</mark>
Available Business Groups	🗖 🥰 EP_XPR	netz	No NP_XPR
bg_sol 🔹	🔲 🥞 EP_comdasys.br11		No NP_br11_gw
► BG Options	EP_comdasys.br12		No NP_br12_gw
▼ Profiles	EP comdasys.br13		No NP br13 gw
📲 Feature Profiles			
🥂 Endpoint Profiles			NO NP_COMMON
▶ Teams	🔲 🥰 EP_h8k_anton	international	No NP_h8k_anton
► Statistics	🗖 🥰 EP_h8k_lisa	international	No NP_h8k_lisa
► Branch Office	🔲 🥞 EP_h8k_mona	international	No NP_h8k_mona
Available Branch Offices	🗖 🥞 EP_h8k_nora	international	No NP_h8k_nora
Main Office	🔲 🥞 EP_hg1500.br12	international	No NP_br12_gw
Members	EP_hg1500.br13	international	No NP_br13_gw

## OpenScape Voice V7R1

🎒 https://10.22.13.10 - [	klara] - Endpoint Profile: bg_sol - " 💶 🗖 🗙	📔 🊰 https://10.22.13.10 - [klara] - Endpoint Profile: bg_sol - "E 💶 🗖 🗙
🙀 [klara] - Endpoint I	Profile: bg_sol - "EP_hg1500.  😋 3" ʔ	🙀 [klara] - Endpoint Profile: bg_sol - "EP_hg1500.bi 🥑 ' 💡
🕦 Enter the profile data. Ma	aximum number of allowed blocked number is 10.	() Enter the profile data. Maximum number of allowed blocked number is 10.
General Endpoints	Services Blocked Numbers	General Endpoints Services Blocked Numbers
Endpoint Profile		General
Please enter a unique name I	to identify this profile.	
Name:	EP_hg1500.br13	Name delivery Yes
Remark:		Voice mail Yes
		Called name delivery Yes
Numbering Plan:	NP_br13_gw	Called number Yes Ves
Management Informatio		Call Transfer No
Please enter the data for the	e following fields in the corresponding screens.	Call Forward Invalid Yes 49695113202
Class of Service:	international	Toll and Call Restrictions
Routing Area:		International World     Zone 1
Calling Location:		International     No
SIP Privacy Support:	Basic	National     No
Failed Calls Intercept	Disabled	Local     No
Treatment:		
Language:	German	
	OK Cancel	OK Cancel
🛃 Fertig	📄 😫 Internet 🏼	🗃 Fertig

OpenScape Voice V7R1

C [klara]	🖉 [klara] - [bg_sol] - Edit Endpoint Profile: EP_hg1500.br13 - Windows Intern 🔳 🗖 🔀								
🥰 [klara	a] - [bg_sol] - Edit Endpoint Profil	e : EP_hg1500.br1	3 ?						
🕕 Enter th	ne profile data. Maximum number of allowed l	blocked number is 10.							
General	Endpoints Services								
💙 Va	pice mail:	Yes	~						
• Ca	all Transfer:	No	~						
🗢 Ca	all Forward Invalid Destination:	Yes	✓ 49695113100						
• Το	oll and Call Restrictions:	No							

#### 1.3.1.3. Creating and configuring an endpoint for OpenScape Business

Proceed as follows:

1. OpenScape Voice -> select Business Group.

2. On the left side of the window, select the following:

- Available Switches: Select the OpenScape Voice
- Available Business Groups: Select the business group for which the endpoint profile is to be created, e.g. **bg\_sol**.

• Available Branch Offices: Select the branch office for which the endpoint is supposed to be created, e.g. **BR13**.

3. On the left side of the window, select **Members** -> **Endpoints**.

4. To create a new endpoint, click the **Add** button. The configuration window for this endpoint is displayed.

- 5. Make the following settings in the General tab:
  - Name: Enter a name for the endpoint, e.g. hg1500.br13.
  - Profile: Select the endpoint profile selected in the previous step, e.g.
  - EP\_hg1500.br13.
- 6. Open the SIP tab. Make the following settings in this tab:
  - SIP Configuration
  - 1. SIP-Q Signaling: Activate the checkbox.
  - 2. for: Select HiPath 4000/3000.
  - 3. Transport protocol:
    - Select TCP for traditional network.
    - Select MTLS for secure network.
- 7. Open the Attributes tab. Make the following setting in this tab:
  - Activate the "Rerouting Forwarded Calls" checkbox.
- 8. Open the Aliases tab. Make the following settings in this tab:
  - 1. Click the Add button and enter the OpenScape Business registration number, e.g. 13310.
  - 2. Click the Add button and enter the OpenScape Business IP address, e.g. 10.22.113.191.
- 9. Open the Aliases tab. Make the following setting in this tab:
  - Accounting Type: PSTN Gateway
- 10. Click **Save**. Your changes are saved.

The endpoint is created and configured.

## Note:

OpenScape Business supports OSV SIP interconnection with;

direct registration or TCP persistence retransmission.

- if set @ OpenScape Business SIP Interconnection "direct registration" then @ OpenScapeVoice the endpoint should be set as Dynamic
- if set @ OpenScape Business SIP Interconnection "TCP persistence retransmission" then @ OpenScapeVoice the endpoint should be set as Static

🏄 https://10.22.13.10 -	[klara] - Endpoint: bg_sol - hg1500 💻 🗖	X https://10.22.13.10 - [klara] - Endpoint: bg_sol - hg1500 💶 🕮 🗙
🚵 [klara] - Endpoint	: bg_sol - hg1500.br13 🛛 😋 🦓	🙀 [klara] - Endpoint: bg_sol - hg1500.br13 🛛 C 💡
General SIP A	Attributes Aliases Routes	General SIP Attributes Aliases Routes
Endnoint		SIP Configuration
Define the connection data gateway to a switch.	of an endpoint, e.g. you may use this to add a	For the static Endpoints the address of the SIP signaling interface can be specified or FQDN format. Note that the address of the signaling interface cannot be modified unless the entr the security section has first been removed.
Name		SIP Private Networking: O
Hame.	hg1500.br13	SIP-Q Signaling:
Remark:		for: hiPath4000/3000
		Registration Type: Dynamic
		IP Address or FQDN:
Registered:	П	Port: 5060 SIP
Profile:	EP_hg1500.br13	Transport protocol: TCP
		Security
Branch Office:	BR13	Set the Realm, Username and Password for digest authentication or configure the signaling address as a trusted one.
Associated Endpoint:	proxy.br13	A Trusted
		10.22.113.191 false
		Add Edit Deleti
	OK Cancel	IK (( )) H OK Cancel
😂 Fertig	📄 📄 💙 Internet	// 🙆 Fertig

Ger	neral	SIP A	ttributes	Aliases Routes
a lt -				
Alia	ses			
You d	an as	sociate here alias	ses with a SIF	P Endpoint.
You d	an as	sociate here alias	ses with a SIF	° Endpoint.
You d	an as	sociate here alias	es with a SIF	<sup>o</sup> Endpoint. <b>n Type</b>
You o	an as	Name	es with a SIF <b>Registratio</b> SIP URL	° Endpoint. n Type
	an as	sociate here alias Name 10.22.113.191 13310	Registratio SIP URL SIP URL	<sup>o</sup> Endpoint. <b>n Type</b>

🖉 [klara] - [bg_sol] - [bra	🤌 [klara] - [bg_sol] - [branch13] - Edit Endpoint: hg1500.br 💶 🗖 🔀							
📲 [klara] - [bg_sol] -	[branch1	3] - Edit En	dpoint : hg1	1500.br13 孝				
General SIP Att	ributes	Aliases	Routes	Accounting				
Endpoint								
Define Accounting Manage	ment setting	gs						
Accounting Type	PSTN Ga	teway 💌						
Endpoint Location Name:	[							
Endpoint Location Code:			]					
Endpoint Service Provider:								

[KLARA] - Endpoint: bg_sol - hg1500.br13         General       5IP         Attributes       Aliases         Routes         UPDATE for Confirmed Dialogs Supported         Send Provisional response during session undates	C T
General         SIP         Attributes         Aliases         Routes           Attribute         UPDATE for Confirmed Dialogs Supported         Send Provisional response during session updates         Image: Confirmed Dialogs Supported         Image: Confirmed	Enabled
Attribute UPDATE for Confirmed Dialogs Supported Send Provisional response during session updates	Enabled
UPDATE for Confirmed Dialogs Supported	
Send Provisional response during session undates	
Survivable Endpoint	
SIP Proxy	
Route via Proxy	
Public/Offnet Traffic	Π
Inaccessible	Π
Call Center Application	
Accept Billing Number	
Allow Sending of Insecure Referred-By Header	
Override IRM Codec Restriction	
Transfer HandOff	
Send P-Preferred-Identity rather than P-Asserted-Identity	
Send domain name in From and P-Preferred-Identity headers	
Send forwarding number rather than calling number for Rerouting Forwarded Calls	
Do not send Diversion header	
Do not Send Invite without SDP	
Send Uri in Telephone Subscriber Format	
Rerouting Direct Incoming Calls	
Rerouting Forwarded Calls	
Enhanced Subscriber Rerouting	
Support of Best Effort SRTP: Enabled	Y
и »» н)	OK Cancel

#### 1.3.1.4. Creating "Digest Authentication" access for OpenScape Business

- 1. OpenScape Voice -> select Administration.
- 2. On the left side of the window, select Signaling Management -> Digest Authentication.
- 3. Open the Realms tab:
- 4. To create "Digest Authentication" access, click Add.
- 5. Make the following settings:
  - Trusted entity: Deactivate the checkbox.
  - Signaling IP: Enter the OpenScape Business IP address, e.g. **10.22.113.191**.
  - All Ports: Optional field not activated.
  - Port Range: Optional field not activated.
  - Local Realm: Enter the realm, e.g. sol.
  - Local User Name: Enter the user name, e.g. hipath3000br13.
  - Local Password: Enter the password.
  - Confirm Local Password: Enter the password once more.
  - Remote Realm: Enter the realm, e.g. sol.
  - Remote User Name: Enter the user name, e.g. hipath3000br13.
  - Remote Password: Enter the password.
  - Confirm Remote Password: Enter the password once more.
- 6. Click **OK** and the Sip Configuration window is closed.
- 7. Click Save. Your changes are saved and the Digest Authentication window is closed.

- klara] - SIP Configura	ation ?
Security	
In this section you can confi 4717, REALM, User and Pas	gure Realm attributes, Port(s) e.g. 4713- sword.
Trusted entity:	
Signaling IP:	10.22.113.191
All Ports:	0
Port Range:	6
Local Realm:	sol
Local User Name:	hipath3000br13
Local Password:	•••••
Confirm Local Password:	•••••
Remote Realm:	sol
Remote User Name:	hipath3000br13
Remote Password:	•••••
Confirm Remote	•••••
assword:	
	OK Cancel

## 1.3.1.5. Configuring a Gateway Numbering Plan for Incoming Calls

This is only a short description how to route an incoming call. This is only a simplified example. A detailed description is available in the routing concept described in the reference architecture.

- 1. OpenScape Voice -> select Business Group.
- 2. On the left side of the window, select the following:
  - Available Switches: Select the OpenScape Voice
  - Available Business Groups: Select the business group for which the endpoint profile is to be created, e.g. **bg\_sol**.
  - Available Private Numbering Plan: Select the private numbering plan in which the endpoint was created.
- 3. On the left side of the window, select Translation -> Destination Codes.
- 4. To create new destination code click Add.
- 5. Make the following settings:
  - Destination Code: e.g. 49695113
  - Nature of Address: International
  - Destination Type: Home
  - Office Code: e.g. +49 (69) 5113
- 6. Click Save. Your changes are saved.

eral Extensions	
Destination Code:	49695113
Remark:	
Country Code:	
Nature Of Address:	International 🗸
Traffic Type:	
tor Attributes Optionally, an additional match	is required if the originator of the call belongs to
tor Attributes Optionally, an additional match pecified Class of Service and R	is required if the originator of the call belongs to Routing Area.
tor Attributes Optionally, an additional match pecified Class of Service and R Class Of Service: Routing Area:	is required if the originator of the call belongs to couting Area.
tor Attributes Optionally, an additional match specified Class of Service and R Class Of Service: Routing Area: NPA:	is required if the originator of the call belongs to Routing Area.
tor Attributes Optionally, an additional match specified Class of Service and R Class Of Service: Routing Area: NPA: tion	is required if the originator of the call belongs to couting Area.
tor Attributes Optionally, an additional match specified Class of Service and R Class Of Service: Routing Area: NPA: tion Specify additional parameters t Destination Type:	is required if the originator of the call belongs to couting Area.

## 1.3.1.6. Configuring Outgoing Calls

This is only a short description how to route an outgoing call. This is only a simplified example. A detailed description is available in the routing concept described in the reference architecture.

### Subscriber Numbering Plan - Prefix Access Codes

Proceed as follows:

1. OpenScape Voice -> select Business Group.

- 2. On the left side of the window, select the following:
  - Available Switches: Select the OpenScape Voice
  - Available Business Groups: Select the business group for which the endpoint profile is to be created, e.g. **bg\_sol**.
  - Available Private Numbering Plan: Select the private numbering plan in which the subscribers are in.
- 3. On the left side of the window, select **Translation** -> **Prefix Access Codes.**
- 4. To create new Prefix Access Codes click Add. The configuration window

for this prefix access code is displayed.

#### 5. Make the following settings:

- Prefix Access Codes: e.g. 0
- Minimum Length: 1
- Maximum Length: 30
- Digits Position: 1
- Digits to insert: 4969
- Prefix Type: On-net Access
- Nature of Address: International
- Destination Type: BG Common Destination
- 6. Click Save. Your changes are saved.

🤹 [klara] - [bg_sol]	- [NP_br13_eg] - Edit Prefix Access Code: 0 🥊
dentification	
If the dialed digits matched executed.	h this code, the specified modification to these dialed digits is
Prefix Access Code:	0
Remark:	
Minimum Length:	1
Maximum Length:	30
Digit Position:	1
Digits to insert:	4969
Settings	
Specify additional paran	neters to determine how the call will be routed.
Prefix Type:	On-net Access
Nature of Address:	International 💌
Destination Type:	BG Common Destination 👻
Destination Name:	NP_common

#### **Common Numbering Plan - Destination**

- 1. OpenScape Voice -> select Business Group.
- 2. On the left side of the window, select the following:
  - Available Switches: Select the OpenScape Voice
  - Available Business Groups: Select the business group for which the endpoint profile is to be created, e.g. **bg\_sol**.
  - Available Private Numbering Plan: Select the common numbering plan.
- 3. On the left side of the window, select **Destinations and Routes** -> **Destinations.**
- 4. To create a new Destination click **Add**.
- 5. Make the following setting in the **General** tab:
  - Name: e.g. **c.hg1500.br13**
- 6. Click Save. Your changes are saved.
- 7. Open the new Destination to edit.
- 8. Open the **Routes** tab.
- 9. To add an endpoint to this destination, click Add.
- 10. Make the following settings:
  - ID: e.g. 100
  - Type: SIP Endpoint
  - SIP Endpoint: e.g. hg1500.br13
  - Nature of Address: Undefined
- 11. Click Save.

12. Add an additional endpoint to have a fallback when OpenScape Business is not in service. Follow the instruction above.

- 13. Open the **Route Lists** tab.
- 14. Make the following settings:
  - Prioritized: Activate the checkbox.
  - Fallback to Local Numbering Plan: leave the checkbox unchecked.
- 15. Click Save. Your changes are saved.

C [k	(lara] ·	[bg_sc	l] - [NP_cor	nmon] - Edit	Destin	ation: o	c.hg 📕	
-4	[klara Edit [	] - [bg )estina	_sol] - [NP_ tion: c.hg1!	_common] - 500.br13				?
0	Destinat	tions are (	used for routing	a call to an en	dpoint.			
Ge	neral	Rou	tes Rou	te Lists	Destina	tion Coo	les	
Route	s							
0	Multiple	routes ca	an be used for p	prioritizing the r	outes to t	he gatev	vays.	
Ele	Elements Per Page: 200 V							
		ID 🔺	Endpoint	Route Type	Delete	Insert	Nature of	Address
	4	100	hg1500.br13	SIP-Endpoint	0		Undefined	
	*	150	hg3540.hq10	SIP-Endpoint	0		Undefined	
2 Iten	ns				Add.		dit	Delete

Ø	klara] - [bg_sc	ol] - [NP_com	mon] - Edit	Destination:	c.hg (	_ 🗆 🛛				
-4	[klara] - [bg Edit Destina	_sol] - [NP_c tion: c.hg15(	ommon] - )0.br13			?				
0	① Destinations are used for routing a call to an endpoint.									
Ge	eneral Rou	ites Route	e Lists 🛛 🛛	Destination Co	odes					
Route	Lists									
0	This list provides bearer capability	an overview of a . Prioritization is p	Il routes with t	he same origina	ting signalir	ng type and				
	Originating Signaling Type	Originating Bearer Capability	Prioritized	Fallback to Local Numbering Plan	Prefix Area Code	Preface Country Code				
<b>1</b>	Unassigned	Unassigned								
1 Iter	m									

#### Common Numbering Plan - Prefix Access Codes

- 1. OpenScape Voice -> select Business Group.
- 2. On the left side of the window, select the following:
  - Available Switches: Select the OpenScape Voice
  - Available Business Groups: Select the business group for which the endpoint profile is to be created, e.g. **bg\_sol**.
  - Available Private Numbering Plan: Select the common numbering plan.
- 3. On the left side of the window, select **Translation** -> **Prefix Access Codes.**
- 4. To create a new Prefix Access Codes click Add. The configuration window
- for this prefix access code is displayed.
- 5. Make the following settings:
  - Prefix Access Codes: e.g. 4
  - Minimum Length: 1

- Maximum Length: 30
- Digits Position: 0
- Digits to insert: leave empty
- Prefix Type: On-net Access
- Nature of Address: International
- Destination Type: None
- 6. Click Save. Your changes are saved.

🖉 [klara] - [bg_sol] - [NP	_common] - Edit Prefix Access Code 💶 🗖 🔀
🤹 [klara] - [bg_sol] -	[NP_common] - Edit Prefix Access Code: 4 孝
Identification	
If the dialed digits match the executed.	nis code, the specified modification to these dialed digits is
Prefix Access Code:	4
Remark:	
Minimum Length:	5
Maximum Length:	30
Digit Position:	0
Digits to insert:	
Settings	
Specify additional parameter	ers to determine how the call will be routed.
Prefix Type:	On-net Access
Nature of Address:	International 💌
Destination Type:	None
Destination Name:	

**Common Numbering Plan - Destination Codes** 

- 1. OpenScape Voice -> select Business Group.
- 2. On the left side of the window, select the following:
  - Available Switches: Select the OpenScape Voice
  - Available Business Groups: Select the business group for which the endpoint profile is to be created, e.g. **bg\_sol**.
  - Available Private Numbering Plan: Select the common numbering plan.
- 3. On the left side of the window, select **Translation** -> **Destination Codes**.
- 4. To create a new Destination Code click **Add**.
- 5. Make the following settings:
  - Destination Code: e.g. 4969
  - Nature Of Address: International
  - Destination Type: Destination
  - Destination Name: select the destination which was created before e.g.
  - c.hg1500.br13
- 6. Click Save. Your changes are saved.

[klara] - [bg_sol] - [NP_co	mmon] - Edit Destination Code: 😑 🗖	JP
[klara] - [bg_sol] - [NP_ # Edit Destination Code:	_common] - 4969	?
General Extensions		
Destination Code:	4969	
Remark:		
Country Code:		
Nature Of Address:	International	
Traffic Type:		
iginator Attributes		-
Class Of Service: Routing Area:		
NPA:		
estination		
Specify additional parameters to	o determine how the call will be routed.	
	Destruction	
Destination Type:	Destination	
Destination Type: Destination Name:	c.hg1500.br13	
Destination Type: Destination Name:	c.hg1500.br13	el

### 1.3.1.7. Display Number Modification for OpenScape Voice V7 R1

#### Definitions

- 1. OpenScape Voice -> select Business Group.
- 2. On the left side of the window, select the following:
  - Available Switches: Select the OpenScape Voice
  - Available Business Groups: Select the business group for which the endpoint profile is to be created, e.g. **bg\_sol**.
- 3. On the left side of the window, select **Display Number Modification** -> **Definitions.**
- 4. To enter a new Number definition click Add.
- 5. Make the following settings:
  - Business Group: Select the used business group e.g. **bg\_sol**
  - Numbering Plan: ANY
  - Numbering plan indication: Public
  - Country/L2 Code: 49
  - Area/L1 Code: 69
  - Local Office/L0 Code: 5113
  - Number of digits to skip: enter the number length of the Local Office Code e.g. 4
  - Min. Digits: 8
  - Max. Digits: 30
- 6. Click Save. Your changes are saved.

🖉 [klara] - Display Numb	per Definition - Windows Internet Explorer	
🛃 [klara]- Display Nur	nber Definition	?
<ol> <li>Select a business group and</li> </ol>	nd/or numbering plan from the list	^
Business Group:	bg_sol	
Numbering Plan:	ANY	
Number Definition		
To define a public number skip position that defines extension. To define a pri possibly a skip position the extension. If known, also qualified number definition	, enter country code, area code, local office code and poss the numbers of digits to skip in the Local Office Code to cre vate number, enter the L2 code, the L1 code, the L0 code at defines the number of digits to skip in the L0 code to creat enter the minimum and maximum number of digits in the ful n.	ibly a ate an and ate an Iy
Numbering plan indicator	Public 💌	
Country/L2 Code:	49	_
Area/L1 Code:	69	=
Local Office/L0 Code:	5113	
Number of digits to skip:	4	
Min. Digits:	8	
Max. Digits:	30	
Local Toll		
A Local Toll table may defit that match this office code	ine the format of public network numbers as seen by subsc e.	ribers
Local Toll:	Clea	ar 🗸
	Save	Cancel

## Prefixes

Proceed as follows:

- 1. OpenScape Voice -> select Business Group.
- 2. On the left side of the window, select the following:
  - Available Switches: Select the OpenScape Voice
  - Available Business Groups: Select the business group for which the endpoint profile is to be created, e.g. **bg\_sol**.
- 3. On the left side of the window, select **Display Number Modification** -> **Prefixes**.
- 4. To enter a global prefix definition click **Add**.
- 5. Make the following settings:

	Public Network Access Code	Prefix		
International	0	00		
National	0	0		
Subscriber	0			

6. Click Save. Your changes are saved.

🖉 [klara] - Edit Displa	y Number Prefix for:ANY - Wi	indows Internet 🔳 🗖 🔀							
📲 [klara]-Edit Displ	ay Number Prefix for:ANY	?							
Create/Edit display number prefixes and the associated numbering plan, numbering plan indicator, type of number and PNAC									
Numbering Plan									
<ol> <li>Select a numbering pla</li> </ol>	n from the list.								
Business Group	ANY								
Numbering plan	ANY								
Public Prefix Definition	<u> </u>								
(1) Change settings for th	e public numbering plan								
	Public Network Access Code	Prefix							
International	þ	00							
National	o	0							
Subscriber	þ								

#### Modifications - Gateway Numbering Plan

- 1. OpenScape Voice -> select Business Group.
- 2. On the left side of the window, select the following:
  - Available Switches: Select the OpenScape Voice
  - Available Business Groups: Select the business group for which the endpoint profile is to be created, e.g. **bg\_sol**.
- 3. On the left side of the window, select **Display Number Modification** -> **Modifications**.
- 4. To enter a new Modification for the Gateway Numbering plan, click Add.
- 5. Make the following settings in Origination Context Setting:
  - Business Group: ANY
  - Numbering Plan: ANY
- 6. Make the following settings in Terminating Context Setting:
  - Business Group: Select the used business group e.g. **bg\_sol**
  - Numbering Plan: Select the numbering plan of the endpoint e.g. NP\_br13GW
  - Endpoint: NONE
- 7. Make the following settings in Modification Rule:
  - Input Type Of Number: ANY
  - Priority: 1
  - Output Type Of Number: International
  - Number Source: Input Number
  - Presentation Restricted: unselected
  - Prefix Required: unselected
  - Optimize Type Of Number: None
- 8. Click Save. Your changes are saved.

🖉 [klara] - Display Numb	er Modification - Windows Intern	
뛐 [klara]-Display Num	ber Modification	?
() Create/Edit the 'calling part	ty display number' to a specific format	
Originating Context Setting		
<ol> <li>Select a business group an</li> </ol>	d/or numbering plan from the list.	
	[sec.]	
Business Group	ANY	
Numbering Plan	ANY	
Terminating Context Setting		
<ol> <li>Select a business group, ni</li> </ol>	umbering plan and/or endpoint from the list.	
Business Group	ha sol	
business droup	9 <u>9</u> _001	
Numbering Plan	NP_br13_gw	
Endpoint	NONE	
Modification Rule		
Select Input Type of Numb define if Optimized possible	er, Output Type of number, Number Transmiss e.	ion and
Input Type Of Number	ANY	
input type of Number.		
Priority:	1	
Output Type Of Number:	International 🗸	
Number Source:	Input Number 💌	
Presentation Restricted:		
Prefix Required:		
Optimize Type Of Number:	None	
	Save	Cancel

#### Modifications - Subscriber Numbering Plan

- 1. OpenScape Voice -> select Business Group.
- 2. On the left side of the window, select the following:
  - Available Switches: Select the OpenScape Voice
  - Available Business Groups: Select the business group for which the endpoint profile is to be created, e.g. **bg\_sol**.
- 3. On the left side of the window, select **Display Number Modification** -> **Modifications**.
- 4. To enter a new Modification for the Subscriber Numbering plan, click Add.
- 5. Make the following settings in Origination Context Setting:
  - Business Group: ANY
  - Numbering Plan: ANY
- 6. Make the following settings in Terminating Context Setting:
  - Business Group: Select the used business group e.g. **bg\_sol**
  - Numbering Plan: Select the numbering plan of the subscriber e.g. NP\_br13eg
  - Endpoint: NONE
- 7. Make the following settings in Modification Rule:
  - Input Type Of Number: ANY
  - Priority: 4
  - Output Type Of Number: ANY
  - Number Source: Input Number
  - Presentation Restricted: unselected
  - Prefix Required: Activate the checkbox.
  - Optimize Type Of Number: Extension
- 8. Click Save. Your changes are saved.

🖉 [klara] - Display Numb	er Modification - Windows Inte	ernet 🔳 🗖 🔀
😫 [klara]-Display Num	ber Modification	?
Create/Edit the 'calling part	y display number' to a specific format	
Originating Context Setting		
Select a business group an	d/or numbering plan from the list.	
Business Group	ANY	
business droup		
Numbering Plan	ANY	
Terminating Context Setting		
<ol> <li>Select a business group, no</li> </ol>	umbering plan and/or endpoint from th	e list.
Business Group	bg_sol	
Numbering Plan	NP_br13_eg	
Endpoint	NONE	
Modification Rule		
Select Input Type of Numb if Optimized possible.	er, Output Type of number, Number T	ransmission and define
Input Type Of Number:	ANY	~
Priority:	4	~
Output Type Of Number:	ANY	~
Number Source:	Input Number	~
Presentation Restricted:		
Prefix Required:		
Optimize Type Of Number:	Extension	~
		Save Cancel

## 1.3.2. Settings in StartCli

In Openscape Voice V4R1 and earlier: the follow CLI parameter must be set **Srx/Main/OutGoingCallingPartyNumberType** to Value=**0** This needs to send the Calling Party Number with Typ of Number International.

In Openscape Voice V5 and newer: The Parameter above is not more available. Calling Party Number definitions will be made in the Display Number Modification.

# 1.4. Configuration OpenBranch

Only some OpenScape Business specific information is covert in this guidline. For more detailed information about OpenScape Branch refer to official guide "Administrator Documentation", which is available in SEN E-Docu.

#### Contents

This section covers the following topics:

Section 1.4.1, "Network Services"

Section 1.4.2, "VoIP"

### 1.4.1. Network Services

Proceed as follows:

1. OpenScape Branch -> select Network Services.

- 2. Make the following settings:
  - Interface 1

- IP address, Subnet mask: Enter the IP address and subnet mask of the OpenScape Branch proxy server, e.g. **10.22.113.10** and **255.255.255.0**.

OpenScape Branch									_
Maintenance & Diagnostic	s Backup/Restore	Alarms	Logging	Media Server	Network Services	Security	Survivability	System	VOIP
<ol> <li>Network services provisioning.</li> </ol>									
Interface 1									?
Туре	LAN								
IP address	10.22.113.10	Subnet mask	255.255.255.0						
VLAN configuration									

#### Routing

- Default gateway IP address: Enter the IP address of the default gateway, e.g. 10.22.113.254.

OpenScape Branch									
Maintenance & Diagnostics	Backup/Restore	Alarms	Logging	Media Server	Network Services	Security	Survivability	System	VOIP
Routing									?
Default gateway address	10.22.113.254								
Routes configuration									

• NTP

- Timezone: e.g. GMT+1:00
- Synchronize with NTP server: activate this field.
- NTP server: Enter the NTP server IP address, e.g. 10.21.255.7.
- Synchronize now: Click this button.

OpenScape Branch							_		_	
Maintenance & Diagr	nostics	Backup/Restore	Alarms	Logging	Media Server	Network Services	Security	Survivability	System	VOIP
NTP										?
Timezone (GMT +1:00) Amst	erdam, E 💌		Enable local NTP ser	ver						
O Manual configuration										
Date (mm.dd.yyyy)	07.30.2010	Time (	(hh:mm)	15:0	)5					
Synchronize with NTP server	/er									
NTP server	10.21.255.7		Synchronize no	w						

## DNS Server

- OpenScape Branch domain name: Enter the "DNS-SRV" name of the external office (Domain Name System SERVICE), e.g. br13.sol.de.
- Enable DNS server: Activate the checkbox.
- DNS configuration: Click this button for additional configuartion

l	OpenScape Branch									
	Maintenance & Diagnostics	Backup/Restore	Alarms	Logging	Media Server	Network Services	Security	Survivability	System	VOIP
	DNS Server									?
)	OpenScape Branch domain name	br 13. sol. de								
	Enable DNS server	DNS configuration								
L										

• DNS configuration

Zone configuration

To do this proceed as follows:

- 1. Click Add, to add a row to the table.
- 2. In the "Type" column, select the **slave** type.
- 3. In the "Zone name" column, enter the name of the DNS zone, e.g. **sol.de**.
- 4. In the "IP Master/Forward" column, enter the IP address of the customer DNS server.
- 5. In the "File name" column, enter the file name where the DNS zone data should be saved.

Forward IP
In the "Forward IP Address list", the IP address of the customer DNS server must be entered. The customer DNS server is required for queries outside of the transmitted zone. To do this proceed as follows:

1. Enter the customer DNS server IP address in the input field, e.g. **10.22.100.100**, and click **Add**. The IP address is added to the "Forward IP Address list".

2. Click Save. Your changes are saved.

Server provis					
o berver provis	sioning.				
e configuratio	on				
Row	Type	Zone name	IP Masters/Forwards	File name	
1	slave	sol.de	10.22.100.100	sol.de	1
					2
٢					>
<				Add Delete	2
ard IP				Add Delete	2
ard IP ard IP Address	, list	Add		Add Delete	2
ard IP ard IP Address	; list	Add		Add Delete	2
ard IP ard IP Address	i list	Add Delete		Add Delete	2
ard IP ard IP Address	s list	Add Delete		Add Delete	2 2

- DNS Client
  - Enter the customer DNS server IP address in the input field "DNS server list", e.g. 10.22.100.100, and click Add. The IP address is added to the "DNS server list.

OpenScape Branch	-		_	_			_		_	_
Maintenance & Diag	nostics	Backup/Restore	Alarms	Logging	Media Server	Network Services	Security	Survivability	System	VOIP
DNE Client										
DNS Client										f (
Refresh DNS										
DNS server list		Add	Alias list		Ac	bl				
Ĩ	10.22.100.100	Delete			D	elete				

• DHCP

- Enable DHCP server: Activate the checkbox.Enable DNS server: Activate the checkbox.
- DHCP configuration: Click the button to configure the DHCP Server.

OpenScape Branch	Backup/Bestore	Alarms	Logging	Media Server	Network Services	Security	Survivability	System	VOTP
Maintenance & Diagnostics	backup/ Restore	Adding	Logging	Media Server	Incework Services	occurrcy	Survivability	System	101
DHCP									?
Enable DHCP server     DHCP co	onfiguration								

• DHCP configuration

#### Most important setting

In the "DNS server list" of the "DHCP Server" window, the OpenScape Branch proxy server and customer DNS server IP addresses must be specified. To do this proceed as follows:

1. Enter the OpenScape Branch proxy server IP address in the input field, e.g. **10.22.113.10**, and click **Add**. The IP address is added to the "DNS server list.

2. Enter the customer DNS server IP address in the input field, e.g. **10.22.100.100**, and click **Add**. The IP address is added to the "DNS server list.

#### Additional settings

In the "DHCP Server" window, make the following settings:

- Subnet: e.g. 10.22.113.0
- Netmask: e.g. 255.255.255.0
- IP address from: e.g. 10.22.113.100 to: e.g. 10.22.113.129
- Static IP address list configuration: Do not click.
- Lease time: **86400**
- Max. lease time: 604800
- Interface: Interface 1
- Update style: None
- Broadcast address: e.g. 10.22.113.255

• Domain name: "DNS-SRV" name of the external office (Domain Name System SERVICE) e.g. br13.sol.de

- DLS server: IP of the DLS Server e.g. 10.22.100.101
- DLS Port: 18443
- Routers: e.g. 10.22.113.254

C DHCP Server - Wind	dows Internet Explorer			
🕒 🗸 🕞 https:/	/10.22.113.10, 🗙 😵 Certificati	e 😽 🗙 🗔 God	ogle	<b>P</b> -
<u>File E</u> dit <u>V</u> iew F <u>a</u> vor	rites <u>T</u> ools <u>H</u> elp			Links »
🚖 🏟 🔚 DHCP Serv	er	📄 🙆 • (	📓 🔹 🖶 🔹 🔂 Page ୟ	r 🍈 T <u>o</u> ols 🔹 🎇
DHCP Server				? 🗅
OHCP Server provision	ing.			
Subnet	10.22.113.0	Netmask	255.255.255.0	
IP address from	10.22.113.100	to	10.22.113.129	
Except IP address from		to		
Static IP a	address list configuration			
Lease time	86400	Max lease time	604800	
Interface	Interface 1	Update style	None	*
DNS server list		Add		
	10.22.113.10	Delete		
Wins server		Print server		
Broadcast address	10.22.113.255	Domain name	br 13.sol.de	
DLS server	10.22.100.101	DLS port	18443	
Routers	10.22.113.254			
			Save	Cancel
Done		- U Sto	cal intranet	💐 100% 🔻 🛒

### 1.4.2. VOIP

Proceed as follows:

- 1. OpenScape Branch -> select VOIP.
- 2. Make the following settings:
  - SIP configuration

SIP connectivity to OpenScape Voice will not be described here.

 For more information see the official Openscape Branch Administrator documentation chapter "How to Configure the Communication System".

OpenScape Branch		_	_		_		_	_	_	_		_	
Maintenance & Diag	gnostics	Backup/Res	store	Alarms	Logging	Me	dia Server	Networ	k Services	Security	Survivability	System	VOIP
SIP configuration													
						SIP lis	tening ports						
OpenScape Branch mode	Proxy	*				тср	5060						
OpenScape Voice mode	Simplex	~				UDP	5060						
Options destination port	5060					TLS	5061						
Node 1													
Target type	SRV Record	*											
Primary server			Transport	ТСР	Y	Port	0						
Backup server			Transport	TCP	Y	Port	0						
SRV record	node 1.klara.s	ol.de	Transport	TCP	~	]							
Node 2													
Target type	Binding	~											
Primary server			Transport	TCP	~	Port							
Backup server			Transport	TCP	~	Port							
SRV record			Transport	TCP	~								
Outbound SIP Server	Node 1	~											
Cookle Sou Soulawa													
Enable Far End NAT													
Other Trusted Se	ervers	Error co	des										
SIP Manipulation		SIP rout	ting										
· · · · ·													

• SIP Manipulation: Click the button to configure SIP headers.

## SIP Manipulation

The settings in this table are required for emergency handling. Complete the table as follows:

Row	Match digits	Match position	Header	Delete/ insert position	Number of digits to delete	Insert digits	Add prefix	Replace all with
1	4	0	From				+	
2	+	0	R-URI		1			
3	1	0	R-URI				e.g. <b>49695113</b>	
4	2	0	R-URI				e.g. 49695113	
5	3	0	R-URI			0	e.g. 49695113	

Explanations:

First row: The phone number must have a plus "+" at the beginning so HiPath 3000 can recognize this as an international phone number.

Second row: The plus "+" in the Request-URI (R-URI) must be deleted, as telephones are not registered with a plus "+".

Third to fifth rows: These settings enable phones to dial a short internal number and not international dialing.

Row	Match digits	Match position	Header	Delete/insert position	Number of digits to delete	Insert digits	Add prefix	Replace all with	Call type
1	4	0	From				+		All
2	+	0	R-URI		1				All
3	1	0	R-URI				49695113		All
4	2	0	R-URI				49695113		All
5	3	0	R-URI				49695113		All

- Gateway/Trunks
  - Enable Gateways/Trunks: Activate the checkbox.
  - Gateways/Trunks configuration: Click this button for adding a gateway

OpenScape Branch									
Maintenance & Diagnostics	Backup/Restore	Alarms	Logging	Media Server	Network Services	Security	Survivability	System	VOIP
Gateways/Trunks									٢.
SIP Service Providers Profile	5								
Enable Integrated Gateway		Integrated Gate	way configurat	tion					
Enable Gateways/Trunks		ateways/Trunk	s configuration	n )					

- HG 1500 should be added as a gateway.
- Use the screenshot below as an example. For more information see the official Openscape Branch Administrator documentation chapter "Configuration of Gateways".

Gatew	ays/Trunks provisioning.										
Row	IP Address or FQDN	Port	Interface	Transpor	Routing prefix/FQDN	Gateway/Trunk type	Functional type	Trunk Profile	Output digit strip	Output digit add	Priority
1	10.22.113.191	5060	LAN	тср	%	3k/4k	All Modes Egress/Ingress	Gateway	0		1

• QoS

- Enable QoS: Activate the checkbox.
- QoS configuration: Click this button to setup the Layer 3 priority.

OpenScape Branch									
Maintenance & Diagnostics	Backup/Restore	Alarms	Logging	Media Server	Network Services	Security	Survivability	System	VOIP
QoS									?
Enable QoS     QoS configura	tion								

The DSCP priority must be entered as decimal value.

- DSCP for SIP: enter **26** for L3 QoS priority Diffserv AF31.
- DSCP for SIP: enter **46** for L3 QoS priority Diffserv EF.

QoS							?
QoS provision	oning.						
DSCP for SIP DSCP for RTP	26 46						
Row	Protocol	In Interface	Out Interface	Port	DSCP	Mark	
<							×
							Add Delete
0 Items							Save Cancel

### • Codec

– Set the codec priority as in HG 1500, i.e.:

Priority	Codec
1	G711A
2	G711U

OpenScape Branch								
Maintenance & Diagnostics	Backup/Restore	Alarms Loggi	ng Media Server	Network Services	Security	Survivability	System	VOIP
OpenScape Voice								? ^
Failure threshold (pings)	2	OPTIONS interval (sec)	60	]				
Success threshold (pings)	1	OPTIONS timeout (sec)	4	]				
Transition Mode threshold (pings)	1	Notification Rate	50	]				
Codecs								?
Priority	Codec							
1	G711A							
2	G711U							
<	>							
Add	Delete							-

#### **About Unify**

Unify is one of the world's leading communications software and services firms, providing integrated communications solutions for approximately 75 percent of the Fortune Global 500. Our solutions unify multiple networks, devices and applications into one easy-to-use platform that allows teams to engage in rich and meaningful conversations. The result is a transformation of how the enterprise communicates and collaborates that amplifies collective effort, energizes the business, and enhances business performance. Unify has a strong heritage of product reliability, innovation, open standards and security.

Unify.com

# UNFY Harmonize your enterprise

Copyright © Unify Software and Solutions GmbH & Co. KG 2015 Mies-van-der-Rohe-Str. 6, 80807 Munich/Germany All rights reserved.

The information provided in this document contains merely general descriptions or characteristics of performance which in case of actual use do not always apply as described or which may change as a result of further development of the products. An obligation to provide the respective characteristics shall only exist if expressly agreed in the terms of contract.

Availability and technical specifications are subject to change without notice.

Unify, OpenScape, OpenStage and HiPath are registered trademarks of Unify Software and Solutions GmbH & Co. KG. All other company, brand, product and service names are trademarks or registered trademarks of their respective holders.