



OpenScape Business V1

Tutorial
Support of SIP Endpoints

Version 1.3

Definitions

HowTo

An OpenScape Business HowTo describes the configuration of an OpenScape Business feature within the OpenScape Office administration. It addresses primarily trained administrators of OpenScape Business.

Tutorial

Within the OpenScape Business tutorials procedures for installation, administration and operation of specific devices, applications or systems, which are connected to OpenScape Business, are described. The tutorial addresses primarily trained administrators of OpenScape Business.

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Table of History

Date	Version	Changes
2013-06-14	1.0	Initial Creation
2014-06-16	1.1	Update for V1R3
2014-07-08	1.2	Update for V1R3.1 (support of keypad procedures)
2014-09-03	1.3	Add hint for “Reason:” header field

1. SIP Endpoints

This document describes the necessary steps to configure SIP-Endpoints in OpenScape Business and gives a rough overview about the SIP features.

1.1. SIP Features

The following features are supported in OpenScape Business

- 1. Registration (Authentication)**
Before establishing or receiving calls an endpoint MUST register at the system. The system expects the configured call number for registration. For security reasons it is strongly recommended to use Authentication.
- 2. Basic call**
Incoming and outgoing as well as LateSDP Basic Call establishment is supported.
- 3. Name and Number presentation (CLIP)**
For each extension a name can be configured in the system. The number and name is presented during call establishment if no restriction is activated.
Note: Most SIP endpoints offer the capability to configure a terminal name which is transported in the display part of the From: header field. The terminal name is not used in the system. The name configured in the system is used instead.
- 4. Call Waiting / Call Offer**
Call Waiting/Call offer is deactivated in default, but can be activated for SIP endpoints too. (subscriber configuration)
- 5. Call Forwarding (CFU/CFB/CFNR)**
Most SIP endpoints offer the capability to configure call forwarding targets.
Note: It has to be checked that the call management rules of the system does not interfere with such an endpoint controlled forwarding. (e.g. if CFNR is configured in the system after 15 sec, endpoint controlled CF after 20 sec will not be performed)
- 6. Hold / Retrieve / Consultation / Alternate**
A call can be put on Hold. If a call is held a consultation call can be established or the call can be Retrieved. The system provides MOH (Music On Hold) for the held party. Alternate/Toggle is possible if two (or more) calls are maintained by an endpoint.
- 7. Transfer (Attended/SemiAttended/Blind)**
3 types of transfer are supported:
 - Attended Transfer: Before the call is transferred the transferor has an established consultation call.
 - SemiAttended Transfer: The Transferor goes in consultation and transfer as soon as the consulted party rings.
 - Blind Transfer: Transfer is invoked out of the original call without consultation call
- 8. Message Waiting**
Most SIP endpoints offer the capability to subscribe to a "Voicemail server". An endpoint which has subscribed to the MWI service receives notifications about a message left in OpenScape Business.
- 9. Distinctive ringing**
To allow distinctive ringing signals at SIP subscribers the alertinfo header field is included in outgoing Invite's:
e.g. `Alert-Info: <Bellcore-dr1>;info=alert-internal`
By using this header field different ringing signals can be used for:
 - "<Bellcore-dr1>;info=alert-internal" - normal (internal) alerting;
 - "<Bellcore-dr2>;info=alert-external" - external alerting;
 - "<Bellcore-dr3>;info=alert-recall" - recall alerting (e.g., following transfer)To make use of this feature the SIP endpoint has to be configured accordingly.

10. Video

Video connections are supported between SIP endpoints connected to the same system and in an OpenScape network. Video connections are not supported on ITSP connections.

11. Codec support

In an OpenScape environment the following codecs will be used:

For gateway calls (analog/ISDN): G711a, G711u and G729

For calls to the OpenStage HFA phones: G711a, G711u, G729 and G722

For Fax gateway calls (analog/ISDN): T.38 as well as G711-transparent (depending on the connected fax machine)

For Fax calls to UC-Suite application: T.38

Calls to other SIP devices device dependant

12. DTMF support

In an OpenScape environment the recommended DTMF transport standard is RFC2833/RFC4733.

No other method is supported (e.g. SIP Info)

13. Group features

SIP endpoints can be members of Groups and/or Basic / Executive MULAP (restriction: No group call numbers are displayed, only the original caller number is presented to the endpoint)

If a group call is answered by a different group member, the SIP endpoint receives a CANCEL request containing the following reason header field.

Reason: SIP ;cause=200 ;text="Call completed elsewhere"

This indication can be used to avoid displaying the group call in the local caller list.

1.2. System features controlled by keypad procedures "*nn/#nn"

The following system features of OpenScape business can be invoked by dialing feature codes (keypad procedures):

Call related features:

1. Speed dialing (*7nnnn)

Dialing of the system speed dial numbers (KWZ) is supported at SIP phones. Only en bloc dialing is supported, entering additional digits manually is not possible -> only KWZ entries containing a complete call number can be used.

2. Group Call Pickup (*57)

If a SIP endpoint is a member of a pickup group, call pickup can be invoked using the corresponding feature code (default *57).

Non Call related features:

3. Reset services (#0)

The following features will be reset when dialing the respective code #0

- Leave Hunt group

- Suppress calling number

4. Rejoin Hunt Group / Leave Hunt Group (Stop Hunt) (*85/#85)

Join/Rejoin (*85): joining all groups and joining selected group is supported (as POT)

Leave (#85): leaving all groups and leaving selected group is supported (as POT)

5. Door opener (*61)

The door opener function is supported at SIP phones. Therefore an adapter box (TFE) is necessary and has to be configured in the system. Only en bloc dialing is supported, entering additional digits manually is not possible.

Door opener via DTMF (*89/#89) is not supported

6. Temporary suppressing the displaying of the calling number (*86/#86)

*86 to suppress, #86 to enable displaying of calling number.

Restrictions for non call related features:

A SIP endpoint can activate the keypad procedure in IDLE state only.

The system will release the "call" immediately with "487 Request terminated".

No confirmation (Displaytext or tone) will be available.

1.3. Local features provided by SIP endpoints

The following features may be supported locally in a SIP phone

- Caller list
- Consultation Call
- Conference
- DoNotDisturb (DND)
- Reject/Refuse Call
- Call Deflection (Forward ringing call to another destination)

Other SIP features are NOT supported in OpenScape Business.

1.4. 3PCC for SIP endpoints

3rd party Call control (3PCC, RFC3725) is supported for the following features:

- Basic Call establishment
- Hold
- Retrieve
- Consultation Call
- Toggle/Alternate
- Transfer Call
- Deflect Call (Forward to new destination)
- Release Call

!	If 3PCC is used, the controlled SIP endpoint MUST support call waiting and call waiting MUST be allowed in the endpoint.
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Outgoing Invites for 3PCC calls contain the Alert-Info header field allowing for automatic call acceptance by the endpoint and entering handsfree mode:

Alert-Info: <www.example.com/us.ringer.beep>; **info=alert-autoanswer**

The same Alert-Info header field is used in reINVITE's sent during 3PCC feature control.

1.5. Security considerations

With the increasing deployment of VoIP networks more and more attacks against VoIP equipment can be observed in such networks. SIP as an open and well-known protocol is implemented in various crack tools which are freely available in the internet. To avoid misuse of a SIP access careful configuration is crucial.

For a SIP subscriber access the following rules should be followed:

- **Activate authentication**
- **Use a non trivial password with**
 - a minimum of 8 and a maximum of 20 characters
 - at least one upper case letter. (A - Z)
 - at least one lower case letter. (a - z)
 - at least one number. (0 - 9)
 - at least one special character
 - no more than 3 repeated characters
- **Define a SIP user ID different from the Callno**

1.6. Known restriction for all SIP endpoints

1. **Keypad procedures**
Keypad procedures which are not listed in **Fehler! Verweisquelle konnte nicht gefunden werden.** are NOT supported for SIP Endpoints (like *1 or #1 for call forwarding)
2. **Ring back tone**
During Transfer a held SIP endpoint does not get ring back tone, MOH is played instead
3. **Direct Pickup**
SIP endpoints cannot activate call pickup (default *59).
4. **Call center**
SIP endpoints cannot be used as OpenScape Business contact center agent
5. **Forking**
SIP endpoints can be configured in groups (hunt group, ring group) and thus are able to participate in some group features offered by OpenScape Business. Forking as it is defined in the SIP protocol is not supported.
6. **Multiple registrations**
Multiple registrations from different devices for one number are not supported.
7. **MOH (Music on Hold)**
As the system provides MOH during features like Hold, the local MOH in the endpoint **MUST** be deactivated. If local MOH is enabled the phone user will hear a short burst of local MOH followed by the system MOH when a call is put on hold. In addition the phone user may hear a short burst of local MOH before a call is retrieved or released.
8. **System conference**
A SIP endpoint can be a "passive" member of a system controlled conference only. Even if a SIP endpoint offers features in this situation (e.g. Hold, Consultation,...) these are NOT supported by the system and the call will be released in the following.
9. **Group Pickup**
In case of multiple calls to a pick up group several calls may exist in parallel. When invoking group pickup the first call can be picked only.
Group Pickup signaling is based on proprietary information exchanged in the dialog info event package. SIP endpoints which do not subscribe to that specific dialog event package do not receive a notification about group pickup.

2. Open Scape Business configuration

2.1. Configuring a SIP Endpoint


For the configuration of SIP endpoints start the Setup Wizard “Telephones / Subscribers-> IP-Telephones”:

Callno	Name	DID	Type	Fax Callno	Fax DID	Class of service	Call pickup
140	-	140	System Client	-	-	International	-
141	-	141	System Client	-	-	International	-
142	-	142	System Client	-	-	International	-
143	-	143	System Client	-	-	International	-
144	-	144	System Client	-	-	International	-
145	-	145	System Client	-	-	International	-
146	-	146	System Client	-	-	International	-
147	-	147	System Client	-	-	International	-
148	-	148	System Client	-	-	International	-
149	-	149	System Client	-	-	International	-
170	SIP Client 170	170	SIP Client	-	-	International	-
171	SIP Client 171	171	SIP Client	-	-	International	-
172	SIP Client 172	172	SIP Client	-	-	International	-
173	SIP Client 173	173	SIP Client	-	-	International	-
174	-	174	No Port	-	-	International	-
175	-	175	No Port	-	-	International	-
176	-	176	No Port	-	-	International	-
177	-	177	SIP Client	-	-	International	-
178	-	178	SIP Client	-	-	International	-
179	-	179	SIP Client	-	-	International	-
-	-	-	No Port	-	-	International	-
-	-	-	No Port	-	-	International	-
-	-	-	No Port	-	-	International	-
-	-	-	No Port	-	-	International	-

For SIP endpoints the “Type” MUST be set to SIP Client. Add or change the following data to your needs: Callno and Name.



For safety reasons authentication is activated for SIP endpoints in default with a random password. Thus a new password MUST be assigned before a SIP endpoint is able to register.

Press “Edit”  to enter the “Change Station” page

Enter the password in the security section of the “Change Station” page

- Chose a non trivial password according to the rules defined in Fehler! Verweisquelle konnte nicht gefunden werden. above
Note: the password is NOT displayed the Password field. Thus an empty field does NOT mean that no password is assigned.

Setup - Wizards - Telephones / Subscribers - IP Telephones

Change Station

Station Fax

Name: SIP client 170
(for Subscriber):
Call number: 170
Direct inward dialing: 170
(Number for Direct Inward Dialing):

Mobility

Mobile Call number: -
Web Feature ID: None

Direct inward dialing for Internet Telephony

ITT_PROV_1: 0049230266713570
ITT_PROV_2: 0049230266723570
ITT_PROV_3: 0049230266733570
ITT_PROV_4: 0049230266743570

Parameter

Type: SIP Client
Device Type: SD Extension
Clip/Lin: -
Language: German
Call signaling internal: Ring type 1
(Ringer pitch for internal calls):
Call signaling external: Ring type 1
(Ringer pitch for external calls):

Security

Authentication active:
Password: *****
Confirm password: *****
SIP User ID / Username: SIP-10
Realm: SMO-SIP

Help Abort Back OK & Next

The following data MUST be present, but may be changed if your deployment needs to have a specific string here:


- Realm is predefined with a default string (e.g. SMO-SIP).
- SIP User ID is predefined with a default string (e.g. SIP-“callno”).

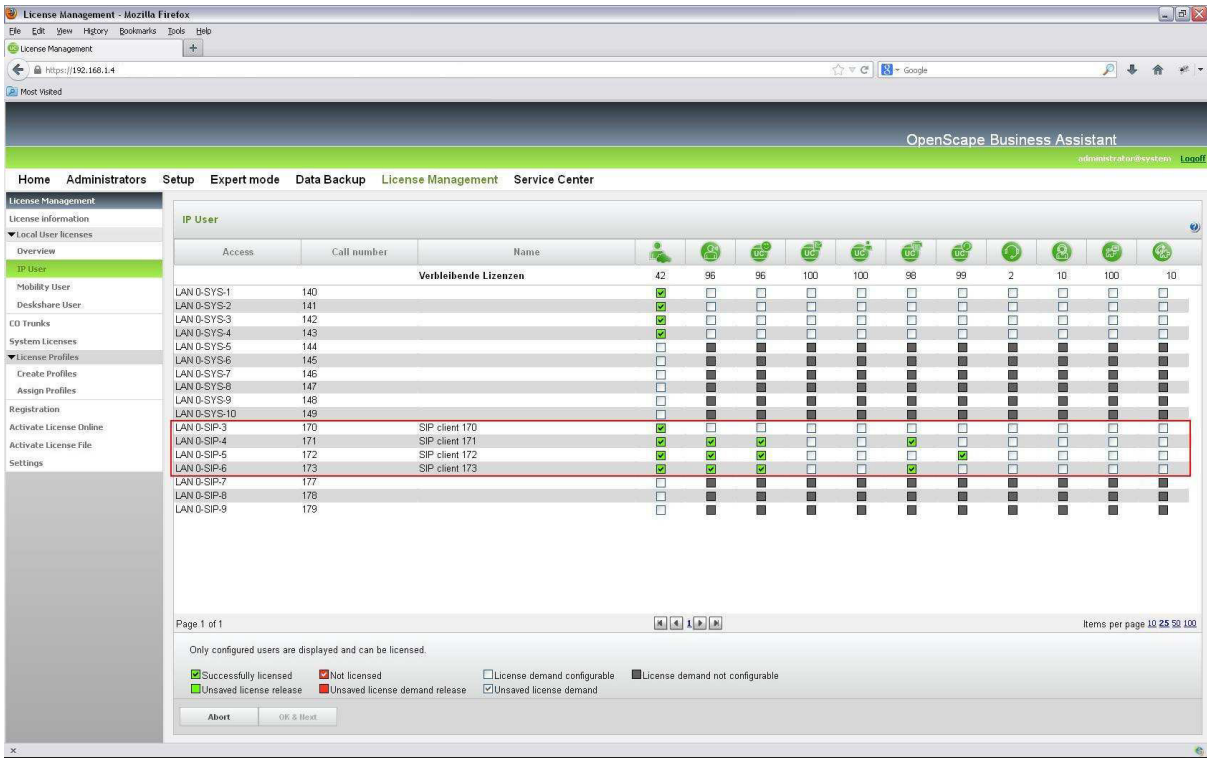
!	You may deactivate authentication for a specific endpoint. As this is a potential risk for misuse of the system (e.g. tollfraud), this is logged as MAJOR issue in the systems event log file. Authentication should NEVER be deactivated if your system has access to the internet.
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Please note the configuration data for each endpoint, as you will need them to configure the SIP endpoints.







2.2. Assign License to a SIP Endpoint

SIP Endpoints needs to be licensed before they are able to make use of the system.

Open “License Management / IP-User” and activate the station license “IP User”  for each configured SIP endpoint.



If SIP endpoints should use additional features the following licenses may be set:

-  “Voicemail”
-  “Groupware User”
-  “UC User”
-  “Fax”
-  “Conference”
-  “Application Launcher”

All other features are NOT supported for SIP endpoint.

3. SIP Endpoint configuration

Several SIP endpoints are tested to verify the interoperability with the OpenScape Business system. For each of these endpoints a document providing a list of necessary configuration steps can be downloaded.

It is assumed that a device comes with default factory settings. Thus only the necessary configuration steps are described. Changes of default values are NOT recommended and thus NOT mentioned in this document.

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.

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