

How to Configure SIP Trunk for ecotel

Tested Scenario: Provider <-> OpenScape SBC <-> OpenScape Voice

Provider Topology: Registered Trunk

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Table of History

Date	Version	Changes
22.04.2020	0.1	First version
30.04.2020	0.9	Ready for review
25.05.2020	1.0	Released

Trunk Configuration Data provided by ecotel

Trunk Name: SipTrunk 2.0

Trunk connection: Registered Trunk.

Transport Protocol: UDP

Signaling IP: 62.144.211.128/26, 62.27.33.0/28, 62.27.33.112/28; **Signaling Port:** 5083

Media IP: 62.144.211.128/26, 62.27.33.0/28, 62.27.33.112/28; **Media Ports:** 10000 – 59999

Supported Connectivity: SBC with public IP, SBC with private IP behind NAT (static public internet IP is required)

Documentation: Installations- und Konfigurationshilfe sipTrunk 2.0/ Pro/ Jubiläumstarif

<https://www.ecotel.de/hilfe/nuetzliche-downloads>

The configuration data needed to setup the SIP trunk will be provide via email and post mail.

The email can look like this:

Leistungen		
Produkt	Laufzeit	Gelieferte Hardware
SIP 2.0	unbefrist	
Anschlussart		
SIP Trunk		

Rufnummer(n)		
Vorwahl: 03 224	Rufnummer(n): 500008-0	Block: 0-9

SIP-Zugangsdaten*		
Rufnummer	Benutzername	Passwort
03 224 500008	<user-name>	wird per Post versendet

Weitere Informationen zu Ihrem SIP-Produkt*
SIP-Registrar /Domain/ Realm:<user-name>.sip-ecotel.de
Proxy: trunk.sip-ecotel.de

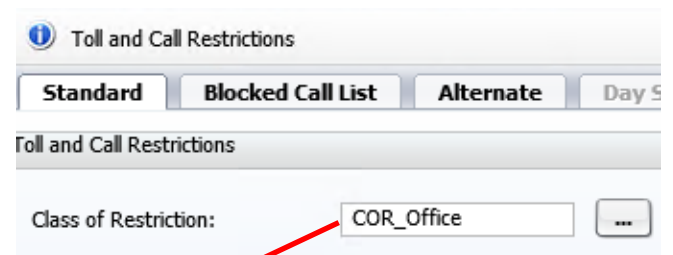
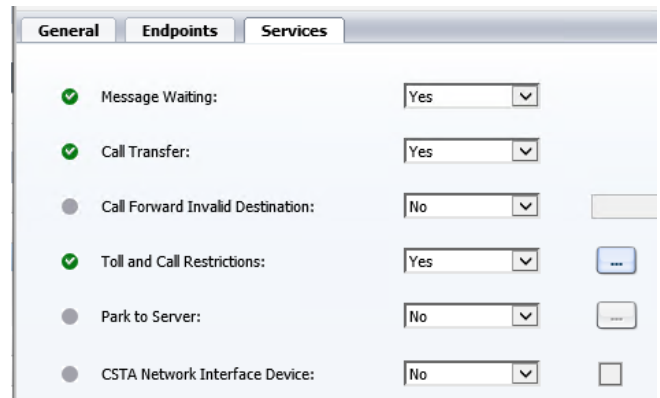
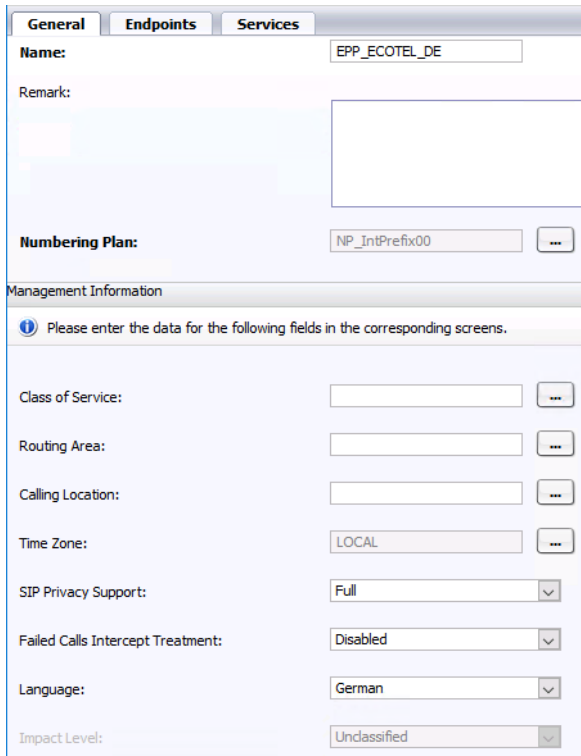
*nur bei Bestellung eines ecotel SIP-Produkts

Wichtiger Hinweis: Bitte beachten Sie, dass Passwörter ausschließlich per Post an Sie versendet werden. Dies gilt ebenfalls bei Verlust von Passwörtern. Die Zustellung des Passworts erfolgt immer an den für Ihr Unternehmen hinterlegten Ansprechpartner für Telekommunikation.

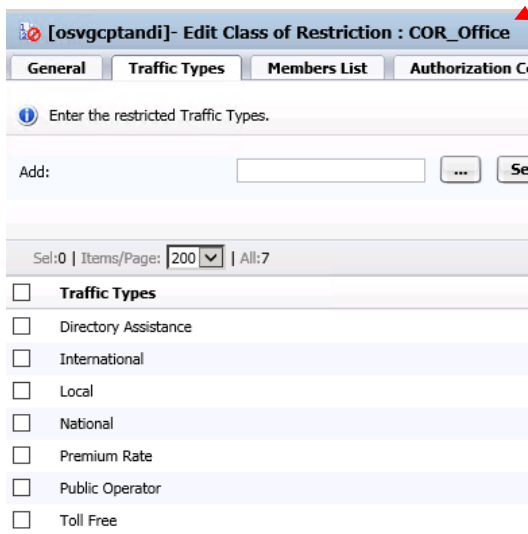
OpenScape Voice Configuration

Endpoint Profile

- **Numbering Plan:** create a specific gateway numbering plan. This helps you to be flexible for incoming routing and DNM rules based on the numbering plan.
- **SIP Privacy Support:** "Full"
- **Language:** select the country language
- **Toll and Call Restrictions:** use a COR which doesn't allow external to external transit calls.



COR_Office must have all external Traffic Types assigned



Endpoint

General Tab

- **Registered:** enable
- **Profile:** use the endpoint Profile configured before
- **Default Home DN:** use one number of the DID range

The screenshot shows the 'Endpoint' configuration page with the 'General' tab selected. The page title is 'Endpoint' and it includes a help icon and the instruction: 'Define the connection data of an endpoint, e.g. you may use this to add a gateway'. The form contains the following fields:

- Name:** E001SP50031
- Remark:** (empty)
- Registered:**
- Profile:** EPP_ECOTEL_DE
- Branch Office:** BO_Trunks
- Associated Endpoint:** D_EP_SharedTrks
- Default Home DN:** 4932215203080
- Location Domain:** (empty)
- Endpoint Template:** (empty)

SIP Tab

- **Endpoint Type:** "SIP Trunking"
- **Type:** "Static"
- **Endpoint Address:** enter SBC IP Address
- **Port:** enter the SBC RemoteEndpoint Core Port
- **Transport protocol:** select "TCP" or "TLS"

The screenshot shows the 'Endpoint Type' configuration page with the 'SIP' tab selected. The page title is 'Endpoint Type' and it includes a help icon and the instruction: 'For the static Endpoints the address of the SIP signaling interface can be static. Note that the address of the signaling interface cannot be modified unless it has first been removed.' The form contains the following fields:

- SIP Private Networking:**
- SIP Trunking:**
- SIP-Q Signaling:**
- SIP Signaling:** (Section header)
- Type:** Static
- Signaling Address Type:** IP Address or FQDN
- Endpoint Address:** 10.60.101.116
- Port:** 50031
- Transport protocol:** TLS
- Endpoint does not accept incoming TLS connections:**
- SRTP media mode:** Enabled

Attributes Tab

- **Public/Offnet Traffic:** enable
- **Send Redirect Number instead of calling number for redirected calls:** optional (enable this in case the feature ClipNoScreening was not ordered for this trunk)
- **Do not send Diversion header:** enable
- **Send International Numbers in Global Number Format (GNF):** enable
- **Send Authentication Number in P-Asserted-Identity header:** enable
- **Use Subscriber Home DN as Authentication Number:** enable
- **Enable Session Timer:** optional

Alias Tab

- Enter <SBC-IP>:<CorePort>

Digest Authentication

- Enter digest credentials

Security

Signaling Primary:

Signaling Port:

Trusted entity:

All Ports
 Port Range

Port Range:

Local Realm:

Local User Name:

Local Password:

Confirm Local Password:

Remote Realm:

Remote User Name:

Remote Password:

SIP-Zugangsdaten*		
Rufnummer	Benutzername	Passwort
030045000000	<user-name>	wird per Post versendet

weitere Informationen zu Ihrem SIP-Produkt*	
SIP-Registrar /Domain/ Realm:	<user-name>.sip-ecotel.de

Gateway Numbering Plan

PrefixAccessCodes

- **00**: delete 2, add +
- In this example all numbers will be routed in GNF format to the CNP

Code If the dialed digits match this code, the specified modification to

00

Prefix Access Code:

Remark:

Minimum Length:

Maximum Length:

Digit Position:

Digits to insert:

Settings

Specify additional parameters to determine how the call will be

Prefix Type:

Nature of Address:

Destination Type:

DNM Prefix

- **International Prefix:** enter "00"
- **National Prefix:** "0" (this Optional, as the provider always send international numbers)

Public Prefix Definition

Change settings for the public numbering scheme

	Public Network Access Code	Prefix
International	<input type="text"/>	00
National	<input type="text"/>	<input type="text"/>
Subscriber	<input type="text"/>	<input type="text"/>

Business Group

Numbering Plan

Terminating Context Setting

Selected numbering plan and/or endpoint.

Business Group

Numbering Plan

Endpoint

Modification Rule

Select Input Type of Number, Priority and define which number needs to be put out (Number format is (Output TON), how to optimize it (Optimize TON) and whether a prefix needs to presentation is restricted.

Input Type Of Number:

Priority:

Output Type Of Number:

Number Source:

Presentation Restricted:

Prefix Required:

Optimize Type Of Number:

DNM Modification

- **Input Type Of Number:** ANY
- **Priority:** 1
- **Output Type Of Number:** International
- **Number Source:** Input Number
- **Presentation Restricted:** none
- **Prefix Required:** none
- **Optimize Type Of Number:** select "None"

DNM Normalization

- **International rule:** Input Pattern= 00-Z , Normalized TON= International, NormalizedExpression= {2}

	Business Group	Numbering Plan	Endpoint	Input TON	Input Pattern	Normalized TON	Normalized Expression
<input type="checkbox"/>	Trunks	NP_IntPrefix00		Unknown	00-Z	International	{2}

Subscriber Numbering Plan

PrefixAccessCodes

- **+**: delete 0, don't add and route it to the Common Numbering Plan (CNP)
- **0**: delete 1, add +<CountryCode><AreaCode> and route it to the CNP
- **00**: delete 2, add +<CountryCode> and route it to the CNP
- **000**: delete 3, add + and route it to the CNP
- **Non E.164 numbers**: <PNAC><non E.164 numbers> e.g. emergency must be routed directly to the local DestinationCode

Code	Prefix Access Code	Prefix Access Code	Prefix Access Code	Prefix Access Code	Prefix Access Code	Prefix Access Code	Prefix Access Code
#	+	0	00	000	000	0112	
*001							
0	1	2	2	2	4		
0	30	30	30	30	4		
00	0	1	2	3	0		
0110		+493221	+49	+			
0112							
0115							
0116							
0118							
019222							
1							
1							
110							
112							

DestinationCodes

- **1-9**: NoA=International, TrafficType=BasedOnLocalToll, Destination= D_xxx_T

e.g.: 1 International BasedOnLocalToll Destination D_0015-123_T

- **Other numbers which need specific TrafficType**: enter International numbers and route to Destination D_xxx_T

e.g.: 49800 International Toll Free Destination D_0015-123_T

- **Non E.164 numbers**: <PNAC><non E.164 numbers> route it to Destination D_xxx_S

e.g.: 0112 Unknown Emergency Destination D_0015-123_S

Destination

D_xxx_T

- **Modification Type**: "None"

Destination Directory Number

Number of digits to delete: Leading digits are cut off from the beginning of the number
Digits to insert: the digit string is added to the beginning of the number

Modification Type:

D_xxx_S

- **Modification Type**: "Number Manipulation"
- **Number of digits to delete**: enter "1" (delete PNAC)
- **Digits to insert**: <CountryCode>
- **Nature of Address**: select "International"

Destination Directory Number

Number of digits to delete: Leading digits are cut off from the beginning of the number
Digits to insert: the digit string is added to the beginning of the number

Modification Type:

Number of digits to delete:

Digits to insert:

Nature of Address:

OpenScape SBC Configuration

Media Profile

- **Media protocol:** RTP only
- **RTP/ RTCP Multiplex in offer:** enable
- **SDP Compatibility Mode:** enable (This allow us to eliminate unsupported codec in the SDP)
- **Send Telephony Event in Invite without SDP:** enable
- **Codec List:** G.711A, G711U, G729 (Optional)

Media Profile

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

General

Name

Media protocol RTP only Direct Media Support

Support ICE

Enable TURN Client

RTP/ RTCP Multiplex in offer

SDP Compatibility Mode

Support Mid Attribute

SRTP configuration

SRTP crypto context negotiation MIKEY SDES DTLS

Mark SRTP Call-leg as Secure

Codec configuration

Allow unconfigured codecs

Enforce codec priority in profile

Send Telephony Event in Invite without SDP

Use payload type 101 for telephony event/8000

Enforce Packetization Interval

Codec: Add

Priority	Codec	Packetization Interval
1	G711A 8 kHz - 64 kbps	Auto

Enable Codec Support for transcoding

Enable all needed Codecs. At minimum G711

Codecs

Select OK to temporarily store changes. Make your c

Enable	Codecs
<input checked="" type="checkbox"/>	G711A 8 kHz - 64 kbps
<input checked="" type="checkbox"/>	G711U 8 kHz - 64 kbps

SIP Service Provider Profile

- **Default SSP profile:** empty
- **Registration required:** enable
- **Registration interval (sec):** 3600 or 60 for NAT scenarios to keep the NAT session open
- **Incoming SIP manipulation - Calling Party Number:** From header user and display name part
- **Flag - Send Default Home DN in Contact for Call messages:** enable
- **Flag - Do not send Invite without SDP:** enable

SIP Service Provider Profile

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

General

Name: ecotel Default SSP profile: [dropdown]

Use SIP Service Address for all identity headers

SIP service address: [text box]

SIP User Agent

SIP User Agent towards SSP: Passthru SIP User Agent: [text box]

Registration

Registration required

Registration interval (sec): 3600 3600 or 60 (SBC behind NAT)

Business Identity

Business identity required

Business identity DN: [text box]

Outgoing SIP manipulation

Insert anonymous caller ID for blocked Caller-ID

Manipulation

Incoming SIP manipulation

Calling Party Number: From header user and displ [dropdown]

Flags

FQDN in TO header to SSP

Use To DN to populate the RURI

Send Default Home DN in Contact for Call messages

Allow SDP changes from SSP without session version update

Do not send INVITE with sendonly media attribute

Do not send INVITE with inactive media attribute

Do not send INVITE with video media line

Do not send Invite without SDP

Do not send Re-Invite when no media type change

Do not send Re-Invite

Remove Silence Suppression parameter from SDP

Enable pass-through of Optional parameters

Force direction attribute to sendrcv

Send default Home DN in PAI

Send default Home DN in PPI

Preserve To and From headers per RFC2543

Disable FQDN pass-through in FROM header

TLS

TLS Signaling: Pass-Thru [dropdown]

Sip Connect

Use tel URI

Send user=phone in SIP URI

Registration mode

1TR118

Remote Endpoint Configuration

Fill all red marked fields.

Remote endpoint configuration

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

Remote Endpoint Settings

Name: ecotel_0015_50031 Edit

Type: SSP

Profile: ecotel

Access realm profile: Main-Access-Realm - ipv4

Core realm profile: Main-Core-Realm - ipv4

Associated Endpoint:

Enable Call Limits

Maximum Permitted Calls:

Reserved Calls:

Remote Location Information

URI based routing

Enable access control

Signaling address type: IP address or FQDN

Remote Location domain list

Row	Remote URL	Remote port	Remote transport	Media IP	Media profile
1	99891835.sip-ecotel.de	5083	UDP		ecotel

Remote Location Identification/Routing

Core FQDN:

Core realm port: 50031

Default core realm location domain name:

Default home DN: *****5

Incoming Routing prefix:

Digest Authentication

Digest authentication supported

Digest authentication realm: *****5.sip-ecotel.de

Digest authentication user ID: *****5

Digest authentication password: *****

Access Side Firewall Settings

Enable Firewall Settings Firewall Settings

Remote Location Domain

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

General

Remote URL: *****5.sip-ecotel.de Shared domain

Remote port: 5083

Remote transport: UDP

Signaling

INVITE No Answer timeout (msec): 360000

INVITE No Reply timeout (msec): 4000

TLS

TLS mode: TLS keep-alive

Keep-alive interval (seconds): 120

Keep-Alive timeout (sec): 10

Media Configuration

Media profile: ecotel

Media realm subnet IP address:

Outbound Proxy Configuration

Outbound Proxy: trunk.sip-ecotel.de

Outbound Proxy Port: 5083

Registrar Server Configuration

Registrar Server:

Registrar Server Port:

SIP-Zugangsdaten*

Rufnummer	Benutzername	Passwort
03*****	<user-name>	wird per Post versendet

Weitere Informationen zu Ihrem SIP-Produkt*

SIP-Registrar/Domain/ Realm:<user-name>.sip-ecotel.de

Emergency configuration

Emergency numbers: Add Delete

Emergency call routing

MSRP Data Configuration

Enable MSRP Relay Support (not licensed)

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

Authentication required

Access side only AUTH 300

Miscellaneous

Open external firewall pinhole

Enable it if the SBC is behind a NAT Firewall

Known limitations, restrictions and things to know:

- Sip host part is individual per customer: <number in GNF Format>@<TrunkID>.sip-ecotel.de
- CLIP no screening is a special offer
- Special numbers like emergency numbers must be send with +CC<number> (e.g. +49112)
- Provider recognized Billing number from: 1. PAI, 2. FROM
- Provider recognized CLI number from: FROM
- Open issue: SBC is not able to forward OSV generated OPTION to the provider. The SBC reply “480 Temporarily Unavailable”. Problem will be fixed in SBC-7455.

Appendix

Supported Numbering Formats

Incoming: Called Party (REQUEST, TO): International prefixed number (0049...)

Incoming: Calling Party (FROM, PAI, Diversion): International prefixed number (0049...)

Outgoing: Called Party (REQUEST, TO): GNF

Outgoing: Calling Party (FROM, PAI, Diversion): GNF

Outgoing Emergency Call - Called Party (REQUEST, TO): +49<emergency number>

Outgoing Emergency Call - Calling Party (FROM, PAI, Diversion): GNF

Outgoing OPTIONS: SBC doesn't forward OPTION to Provider by fault (SBC-7455).

Incoming OPTIONS: Provider doesn't monitor the trunk via OPTION

Call examples:

International Incoming Call:

```
> User Datagram Protocol, Src Port: 5083, Dst Port: 65060
< Session Initiation Protocol (INVITE)
  > Request-Line: INVITE sip:004932215203081@35.224.64.110:5134;transport=udp SIP/2.0
  < Message Header
    > Via: SIP/2.0/UDP 62.144.211.130:5083;rport;branch=z9hG4bKac336969895
    Max-Forwards: 51
    > From: <sip:00435061868534@c4.gw;user=phone>;tag=1c554292334
    > To: <sip:004932215203081@10.30.3.136>
    Call-ID: 7015e00011f5-5e9ea798-67b828b0-bd50d80-53603de-01-UASession-obt7VIqSwV-UASession-wxeJjMek1D
    [Generated Call-ID: 7015e00011f5-5e9ea798-67b828b0-bd50d80-53603de-01-UASession-obt7VIqSwV-UASession-wxeJjMek1D]
    > CSeq: 1 INVITE
    > Contact: <sip:62.144.211.130:5083>
    Supported: timer,sdp-anat
    Allow: INVITE,ACK,CANCEL,BYE,INFO,REGISTER,NOTIFY
    User-Agent: TELES-SBC
    Privacy: none
    History-Info: <sip:+4932215203081@c5ecotel.de>;index=1
    History-Info: <sip:+493221520308@99891835.99891835.sip-ecotel.de>;index=1.1
    Accept: application/sdp
    Unsupported: refer
    Allow-Events: talk
    Content-Type: application/sdp
    Content-Length: 237
  > X-IP-Info: 10.30.1.3
  < Message Body
    < Session Description Protocol
      Session Description Protocol Version (v): 0
      > Owner/Creator, Session Id (o): - 871526081 1693512583 IN IP4 62.144.211.130
      Session Name (s): TELES-SBC
      > Connection Information (c): IN IP4 62.144.211.130
      > Time Description, active time (t): 0 0
      > Media Description, name and address (m): audio 10070 RTP/AVP 8 99
      > Media Attribute (a): rtpmap:8 PCMA/8000
      > Media Attribute (a): rtpmap:99 telephone-event/8000
      > Media Attribute (a): fmtp:99 0-15
      > Media Attribute (a): silenceSupp:off - - - -
      Media Attribute (a): sendrecv
      [Generated Call-ID: 7015e00011f5-5e9ea798-67b828b0-bd50d80-53603de-01-UASession-obt7VIqSwV-UASession-wxeJjMek1D]
```

National Incoming Call:

```
> User Datagram Protocol, Src Port: 5083, Dst Port: 65060
< Session Initiation Protocol (INVITE)
  > Request-Line: INVITE sip:004932215203081@35.224.64.110:5134;transport=udp SIP/2.0
  < Message Header
    > Via: SIP/2.0/UDP 62.144.211.130:5083;rport;branch=z9hG4bKac529966121
    Max-Forwards: 58
    > From: <sip:004989700731994@c4.gw;user=phone>;tag=1c1555886825
    > To: <sip:004932215203081@10.30.3.136;cause=404>
    Call-ID: 7015e00011f5-5e9ea693-3ff5585e-ae50060-535cd8f-01-UASession-uFnb_turkH-UASession-6nZNw5EREQ
    [Generated Call-ID: 7015e00011f5-5e9ea693-3ff5585e-ae50060-535cd8f-01-UASession-uFnb_turkH-UASession-6nZNw5EREQ]
    > CSeq: 1 INVITE
    > Contact: <sip:62.144.211.130:5083>
    Supported: timer,sdp-anat
    Allow: INVITE,ACK,CANCEL,BYE,INFO,REGISTER,NOTIFY
    User-Agent: TELES-SBC
    History-Info: <sip:+498970070@telekom.de?Reason=ISUP%3Btext%3D%22unknown%22>;index=1
    History-Info: <sip:+4932215203081@c5ecotel.de>;index=2
    History-Info: <sip:+493221520308@99891835.99891835.sip-ecotel.de>;index=2.1
    Accept: application/sdp
    Unsupported: refer
    Allow-Events: talk
    Content-Type: application/sdp
    Content-Length: 240
  > X-IP-Info: 10.30.1.3
  < Message Body
```

National Outgoing Call:

```
> User Datagram Protocol, Src Port: 65060, Dst Port: 5083
< Session Initiation Protocol (INVITE)
  > Request-Line: INVITE sip:+4989700731994@99891835.sip-ecotel.de:5083;transport=udp SIP/2.0
  < Message Header
    > Via: SIP/2.0/UDP 35.224.64.110:5134;branch=z9hG4bKf12c.84759a969a0c2af5458af76f6bb0d120.0;i=9487
    Max-Forwards: 69
    > Route: <sip:trunk.sip-ecotel.de:5083;transport=udp;lr>
    > Contact: <sip:99891835@35.224.64.110:5134;transport=udp>
    > To: <sip:+4989700731994@99891835.sip-ecotel.de:5083;transport=udp>
    > From: <sip:+4932215203081@35.224.64.110;transport=udp>;tag=snl_0dJ0bE8Tf2
    Call-ID: SEC11-1e653c0a-1f653d0a-1-0G8d61218rYQ
    [Generated Call-ID: SEC11-1e653c0a-1f653d0a-1-0G8d61218rYQ]
    > CSeq: 1235 INVITE
    Accept-Language: en;q=0.0
    Allow: REGISTER, INVITE, ACK, BYE, CANCEL, NOTIFY, REFER, INFO
    Content-Type: application/sdp
    Date: Tue, 21 Apr 2020 07:48:13 GMT
    Supported: resource-priority
    Privacy: none
    > P-Asserted-Identity: <sip:+4932215203081@35.224.64.110>
    > X-Siemens-Call-Type: Org-Nwid-external-public
    Content-Length: 319
    > X-Siemens-OSS: OpenScape SBC V9 R4.14.04-3
  < Message Body
    < Session Description Protocol
      Session Description Protocol Version (v): 0
      > Owner/Creator, Session Id (o): SBC-WebRTC 7028622119955291481 2 IN IP4 10.60.100.11
      Session Name (s): SBC-WebRTC
      > Connection Information (c): IN IP4 35.238.247.221
      > Time Description, active time (t): 0 0
      > Media Description, name and address (m): audio 13084 RTP/AVP 0 8 106 105 13 126
      > Media Attribute (a): rtpmap:0 PCMU/8000
      > Media Attribute (a): rtpmap:8 PCMA/8000
      > Media Attribute (a): rtpmap:106 CN/32000
      > Media Attribute (a): rtpmap:105 CN/16000
      > Media Attribute (a): rtpmap:13 CN/8000
      > Media Attribute (a): rtpmap:126 telephone-event/8000
      Media Attribute (a): sendrecv
      Media Attribute (a): rtcp-mux
      [Generated Call-ID: SEC11-1e653c0a-1f653d0a-1-0G8d61218rYQ]
```


Emergency Call:

```
> User Datagram Protocol, Src Port: 5134, Dst Port: 5083
v Session Initiation Protocol (INVITE)
  > Request-Line: INVITE sip:+49112@99891835.sip-ecotel.de:5083;transport=udp SIP/2.0
  v Message Header
    > Via: SIP/2.0/UDP 5.10.65.38:5134;branch=z9hG4bK9d66.aadf7b0da232907d496a725273fece.0;i=1619
      Max-Forwards: 69
    > Route: <sip:trunk.sip-ecotel.de:5083;transport=udp;lr>
    > Contact: <sip:+4932215203085@5.10.65.38:5134;transport=udp>
    > To: <sip:+49112@99891835.sip-ecotel.de;transport=udp>
    > From: <sip:+4932215203085@5.10.65.38;transport=udp>;tag=sn1_lz0188Q49R
      Call-ID: SEC11-471a440a-481a440a-1-q5F9cV3oT0mb
      [Generated Call-ID: SEC11-471a440a-481a440a-1-q5F9cV3oT0mb]
    > CSeq: 1235 INVITE
      Accept-Language: en;q=0.0
      Allow: REGISTER, INVITE, ACK, BYE, CANCEL, NOTIFY, REFER, INFO
      Content-Type: application/sdp
      Date: Tue, 05 Mar 2019 08:30:54 GMT
      Privacy: none
    > P-Asserted-Identity: <sip:+4932215203081@5.10.65.38>
    > X-Siemens-Call-Type: Org-Nwid-external-public
      Content-Length: 666
    > X-Siemens-OSS: OpenScape SBC V9 R4.07.01-3
  > Message Body
```

Registration:

SBC -> Provider (Register)

```
> Internet Protocol Version 4, Src: 35.224.64.110, Dst: 62.144.211.130
> User Datagram Protocol, Src Port: 5116, Dst Port: 5083
> Session Initiation Protocol (REGISTER)
  > Request-Line: REGISTER sip:99891835.sip-ecotel.de:5083;transport=udp SIP/2.0
  > Message Header
    > Via: SIP/2.0/UDP 35.224.64.110:5134;branch=z9hG4bK1c0a.4414cd00897bb18f6af026a6b7a45a63.0;i=1
      Expires: 3600
    > Route: <sip:trunk.sip-ecotel.de:5083;transport=udp;lr>
      User-Agent: SIP alive check
      Call-ID: 344690fc
      [Generated Call-ID: 344690fc]
    > From: <sip:99891835@99891835.sip-ecotel.de>;tag=f212203c
    > CSeq: 279 REGISTER
      Max-Forwards: 70
    > To: <sip:99891835@99891835.sip-ecotel.de>
    > Contact: <sip:99891835@35.224.64.110:5134;transport=udp>;expires=3600
      Content-Length: 0
```

Provider -> SBC (401 Unauthorized)

```
> Internet Protocol Version 4, Src: 62.144.211.130, Dst: 35.224.64.110
> User Datagram Protocol, Src Port: 5083, Dst Port: 5116
> Session Initiation Protocol (401)
  > Status-Line: SIP/2.0 401 Unauthorized
  > Message Header
    > Via: SIP/2.0/UDP 35.224.64.110:5134;received=35.224.64.110;rport=5116;i=1;branch=z9hG4bK1c0a.4414cd00897bb18f6af026a6b7a45a63.0
      Max-Forwards: 69
    > From: <sip:99891835@99891835.sip-ecotel.de>;tag=f212203c
      > SIP from address: sip:99891835@99891835.sip-ecotel.de
      SIP from tag: f212203c
    > To: <sip:99891835@99891835.sip-ecotel.de>;tag=1c1948355635
      > SIP to address: sip:99891835@99891835.sip-ecotel.de
      SIP to tag: 1c1948355635
    Call-ID: 344690fc
    [Generated Call-ID: 344690fc]
  > CSeq: 279 REGISTER
    Allow: REGISTER,OPTIONS,INVITE,ACK,CANCEL,BYE,NOTIFY,PRACK,REFER,INFO,SUBSCRIBE,UPDATE
  > WWW-Authenticate: Digest realm="99891835.sip-ecotel.de",nonce="79eee134e3d0ce11eabc94fef1b71ab6",opaque="0a2c20877f9a338e44825e4d2e81eb76"
    Authentication Scheme: Digest
    Realm: "99891835.sip-ecotel.de"
    Nonce Value: "79eee134e3d0ce11eabc94fef1b71ab6"
    Opaque Value: "0a2c20877f9a338e44825e4d2e81eb76"
    Algorithm: MD5
    QOP: "auth"
    Content-Length: 0
```

SBC -> Provider (Register)

```
> Internet Protocol Version 4, Src: 35.224.64.110, Dst: 62.144.211.130
> User Datagram Protocol, Src Port: 5116, Dst Port: 5083
▼ Session Initiation Protocol (REGISTER)
  > Request-Line: REGISTER sip:99891835.sip-ecotel.de:5083;transport=udp SIP/2.0
  ▼ Message Header
    > Via: SIP/2.0/UDP 35.224.64.110:5134;branch=z9hG4bKb1ea.01a1aaa2e7640483d83f3d723d929200.0;i=1
      Expires: 3600
    > Route: <sip:trunk.sip-ecotel.de:5083;transport=udp;lr>
      User-Agent: SIP alive check
      Call-ID: 344690fc
      [Generated Call-ID: 344690fc]
    ▼ From: <sip:99891835@99891835.sip-ecotel.de>;tag=189cae69
      > SIP from address: sip:99891835@99891835.sip-ecotel.de
      SIP from tag: 189cae69
    > CSeq: 280 REGISTER
      Max-Forwards: 70
    ▼ To: <sip:99891835@99891835.sip-ecotel.de>
      > SIP to address: sip:99891835@99891835.sip-ecotel.de
    ▼ Contact: <sip:99891835@35.224.64.110:5134;transport=udp>;expires=3600
      > Contact URI: sip:99891835@35.224.64.110:5134;transport=udp
      Contact parameter: expires=3600
    Content-Length: 0
    ▼ [truncated]Authorization: Digest username="99891835", realm="99891835.sip-ecotel.de", nonce="79e
      Authentication Scheme: Digest
      Username: "99891835"
      Realm: "99891835.sip-ecotel.de"
      Nonce Value: "79eee134e3d0ce11eabc94fef1b71ab6"
      Authentication URI: "sip:99891835.sip-ecotel.de:5083;transport=udp"
      Digest Authentication Response: "35479d7258dd58b630b19625147ac1ce"
      Algorithm: MD5
      CNonce Value: "2be60b77a86ec251b9ad69f174bc0da3"
      QOP: auth
      Nonce Count: 00000001
      Opaque Value: "0a2c20877f9a338e44825e4d2e81eb76"
```

Provider -> SBC (OK)

```
> Internet Protocol Version 4, Src: 62.144.211.130, Dst: 35.224.64.110
> User Datagram Protocol, Src Port: 5083, Dst Port: 5116
▼ Session Initiation Protocol (200)
  > Status-Line: SIP/2.0 200 OK
  ▼ Message Header
    > Via: SIP/2.0/UDP 35.224.64.110:5134;received=35.224.64.110;rport=5116;i=1;branch=z9hG4bKb1ea.01a1aaa2e7640483d83f3d723d929200.0
      Max-Forwards: 69
    ▼ From: <sip:99891835@99891835.sip-ecotel.de>;tag=189cae69
      > SIP from address: sip:99891835@99891835.sip-ecotel.de
      SIP from tag: 189cae69
    ▼ To: <sip:99891835@99891835.sip-ecotel.de>;tag=1c1948355635
      > SIP to address: sip:99891835@99891835.sip-ecotel.de
      SIP to tag: 1c1948355635
      Call-ID: 344690fc
      [Generated Call-ID: 344690fc]
    > CSeq: 280 REGISTER
    ▼ Contact: <sip:99891835@35.224.64.110:5134;transport=udp>;expires=600
      > Contact URI: sip:99891835@35.224.64.110:5134;transport=udp
      Contact parameter: expires=600
    Allow: REGISTER,OPTIONS,INVITE,ACK,CANCEL,BYE,NOTIFY,PRACK,REFER,INFO,SUBSCRIBE,UPDATE
    Expires: 600
    Content-Length: 0
```