

Alcatel-Lucent OmniPCX Enterprise Public SIP Trunking BT WSIPT & One Voice SIP trunk UK

Introduction

The purpose of this document is to outline the configuration requirements for BT One Voice SIP Trunking

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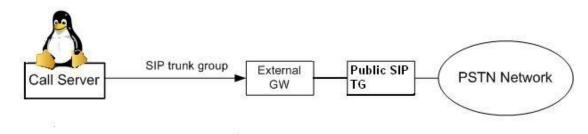
1. SIP Overview

ED	01	Alcatel-Lucent OmniPCX Enterprise SIP Trunks		
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SIP Trunking

Interworking with SIP, either devices or trunks, is achieved through a "Gateway" function that can be thought of as a separate PBX that you need to connect resources to and from :-



In addition, because SIP does not readily transit across a router in order to successfully connect to a SIP provider a Session Border Control element / Application Layer Gateway is required. Alcatel-Lucent have carried out successful tests using Neo-Gate and Ingate SBC products. Examples of the configuration required are given below.

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2. PCX Configuration

The steps required to connect to a public SIP operator:-

OXE Prelininary:-

Set PABX Address in DPNSS Diversion in GF (System/Other/External Signalling Parameters) set to *no*

1.Create a SIP Trunk Group

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-Review/Modify: Trunk Groups-

```
Node Number (reserved) : 101
          Trunk Group ID : 30
       Trunk Group Type + T2
       Trunk Group Name : SIP
  UTF-8 Trunk Group Name : -----
 Number Compatible With : -1
          Remote Network : 14
      Shared Trunk Group + False
        Special Services + Nothing
            Node number : 1
   Transcom Trunk Group + False
Auto.reserv.by Attendant + False
Overflow trunk group No. : -1
        Tone on seizure + False
     Private Trunk Group + False
     Q931 Signal variant + ISDN all countries
     SS7 Signal variant + No variant
Number Of Digits To Send : 0
  Channel selection type + Quantified
```

Remote Nwk used for Private SIP TG via routing number. TG Type ABC-F for local SIP devices.ISDN for external SIP TG

cont :-

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-Review/Modify: Trunk Groups-

```
Private Trunk Group + False
         Q931 Signal variant + ISDN all countries
          SS7 Signal variant + No variant
    Number Of Digits To Send : 0
      Channel selection type + Quantified
DTMF dialing on outgoing call + NO
            T2 Specification + SIP
genous network for direct RTP + NO
          Public Network COS : 31
             DID transcoding + True
    Can support UUS in SETUP + True
  Associated Ext SIP gateway : -1
                       Implicit Priority
             Activation mode : 0
              Priority Level : 0
                   Preempter + NO
ncoming calls Restriction COS : 10
```

TG Level 2

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<			X
	Node Number (reserved) :	101	x
<	Trunk Group Id :		x
<	Instance (reserved) :		x
(1.000.000,000,000,000,000,000,000,000,00		×
e	Trunk Group Type +	12	×
(Public Network Ref. :		×
	VG for non-existent No. +	YES	×
	Entity Number :		×
i i	Supervised by Routing +		×
	VPN Cost Limit for Incom.Calls :		×
	diat Trk Listening For VPNCall +		x
(VPN TS % :		x
ć	Csta Monitored +		×
(Max.% of trunks out CCD :		x
	Ratio analog.to ISDN tax :		×
L	TS Distribution on Accesses +	YES	x
, Q	uality Profile for Voice on IP +		x
	IP compression type +		x
(Use of volume in system +		x
	Announcement for Dialtone +		×
ć		10.7%	×

cont:-

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	onsult/Modify: Trunk Groupqqqqqqq	qq	ladadadad	laaaaaaaaaaaaaaaaaaaaaaaaaaa	C
<	122127 22107 (* 1102 12107) 128			×	٢.
<	TS Distribution on Accesses			Χ	٢.
< -	Quality Profile for Voice on IP			#1 ×	<
< <	IP compression type			×	٢
<	Use of volume in system	+	YES	×	<
<	Announcement for Dialtone			×	٢
<	Announcement for Ringtone	+	NO	×	<
<	Private to Public Overflow	+	YES	×	
<	Dialling end to end			×	<
<	DTMF end to end signal.	+	NO	×	<
<	Trunk group used in DISA			×	
<	DISA Secret Code			×	<
<	Routing To Executive		NO	>	
<	Trunk Category Id			×	¢
<	Sending of Progress message			×	
< <	Nb of digits unused (ISDN)	0	7 ×	-For DDI Translator 🛛 🖌	
<	B Channel Choice	+	YES	×	
	Channels Reserved By Attend.		0	*	
< < < <	Dissuasion For ACD	+	NO	×	<
e la	DTO joining			×	è
6	Enquiry Call On B Channel	+	NO	X	
6	Liquity suit on 5 vitamet			×	
34	aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa	IUC	Inggangang		

Create a NPD entry for the TG.NPI may need to be configured as either National or International to meet the providers requirements. Installation number can be either NPD source or Entity source.

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lqConsult/Modify: Numbering Plan Description (NPD)qqqqqqqqqqqqqqqqqqqqqqqqqq х × Node Number (reserved) : 101 x х Instance (reserved) : 1 Instance (reserved) : 1 × x х х Description identifier : 33 х × х × Name : SIP Calling Numbering plan ident. + NPI/TON Isdn National × × х х Called numbering plan ident. + NPI/TON Isdn National x × x Authorize personal calling num use + False × Install. number source + NPD source × × Default number source + NPD source х х Called DID identifier : 0 x × Calling/Connected DID identifier : 0 x x Installation number : 163588 х × Default number(num. inst. sup.) : 1303 х х × ×

cont:-

Return to the TG and select the NPD:-

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lqConsult/Modify: Trunk Group NPD Selectorqqqqqqqqqq x х Node Number (reserved) : 101 Trunk Group Id : 30 Instance (reserved) : 1 x × × х x х x × Public NPD id : 33 Private NPD id : 0 Management Mode + Normal × х x × × х x ×

2. Modify the Network Routing Table

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	nsult/Modify: Network Routing Tal	
×	Note Note Common D	101 X
×	Node Number (reserved)	
x	Instance (reserved)	
×	Network Number	: 14 ×
×		X
×	Rank of First Digit to be Sent	:1 ×
×	Incoming identification prefix	: x
x	Protocol Type	+ ABC_F ×
×		. <u>33</u> ×
x	ARS Route list	x1) x
x	Schedule number	: -1 ×
x	ATM Address Id	: -1 ×
x	Network call prefix	: x
x	Town Name	: x
×	Send Town Name	+ False x
x	Associated SIP gateway	(1) ×
×	Unable_UTF8	+ False x
×		×
maaa	aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa	

3. Create an External Gateway

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x			×
×	Node Number (reserved)	: 101	×
x	Instance (reserved)	: 1	×
×	Instance	:1)	×
×		\bigcirc	
x	Remote domain	: 88.215.60.40	×
x	Port number		×
x	Transport type	+ UDP	×
×	RFC3262 forced use	+ False	
×	Authentication domain	: gw3.theiptele.com	×
×	Registration Id	: 0001001845824	×
×	Registration ID in P Asserted	+ True	×
×	Registration timer	: 32000	
×	Outbound Proxy	: 88.215.60.40	××××
×	Supervision timer	: 0	×
×	Trunk group number	(30)	×
×	Pool Number	: -1	×
×	Outgoing realm	: gw3.theiptele.com	×
κ .	Outgoing username	: 0001001845824	×
*			×
×	Outgoing Password	*****	×
×			×

Note:- if an External Gateway needs to be modified it is necessary to restart the SIP process with the command *killall sipmotor* or *dh3_init* -*R SIPMPTOR* dependent on release.

The TG and Gateway can be seen to come back into service via console.

Proxy

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	Node Number (reserved) :	101	
	Instance (reserved) :	1	:
	Instance (reserved) :	1	
	Initial timeout :	500	
	timer T2 :		
	SIP connection duration :	180000	
	Recursive search +	False	
	Minimal authentication method +	None	
	Authentication realm :		
Or	nly authenticated incoming_calls +	True	
	Framework Period :	3	
	Framework Nb Message By Period :	25	
	Framework Quarantine Period :		

cont:-

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Alcatel- Lucent				12



4. Create ARS

Prefix Plan

х x Node Number (reserved) : 101 Instance (reserved) : 1 Number : 0 × x × x х x х х Prefix Meaning + ARS Prof.Trg Grp Seizure Discriminator Nr. : 3 × x × x × x

Entity Discriminator

x		×
x	Node Number (reserved) : 101	X
×	Entity Number : 1	X
* * *	Instance (reserved) : 1	×
κ.	\sim	×
ĸ	Discriminator 00 🤇 🔵	X
*	Discriminator 01 : 0	×
κ κ	Discriminator 02 : 0	×
<	Discriminator 03 : 0	×
<	Discriminator 04 : 0	X
K	Discriminator 05 : 0	×
< <	Discriminator 06 : 0	×
	Discriminator 07 : 0	×
<		×

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	lqConsult/Modify: Discriminator Ruleqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqqq	aaaaaaaaaaaaaaa
		×
	x Node Number (reserved) : 101	X
	x Instance (reserved) : 1	X
	x Instance (reserved) : 1	X
	x Discriminator Nr. 🤇 3	X
	x Call Number : 0	X
	×	X
	x Area Number : <u>1</u>	X
	x ARS Route List Number (1)	x
	x Schedule Number : -1	X
	x Number of Digits : 255	X
	X	X
Discriminator	waaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa	aaaaaaaaaaaaaaj

ARS Route

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	i/mourry. Has douleddddddddddd	aaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa	
x		101	×
×	Node Number (reserved)		×
x	Instance (reserved)		×
x	Instance (reserved)		×
x	ARS Route list	·	×
x	Route	: 1	X
x			×
x	Name	: SIP_	×
x	Trunk Group Source	+ Route	x
x	Trunk Group	30	x
x	Nb.Digits To Be Removed	: 0	×
x	Digits To Add	· <u>2</u>	x
×	Numbering Command Tabl.Id	(1)	x
x	VPN Cost Limit	: 0	x
x		+ Dependant on Bundle Type	×
x	NPD identifier	33	x
x	Route Type		x
x	ATM Address Id		x
x	Preempter	+ False	×
x	101010 WebedMAA • KG2K(26edAm)		×
×	0	ualitv	×
×			 ¥

cont:-

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Dialing command table

×		×
×	Node Number (reserved) : 101	×
<	Instance (reserved) : 1	×
(Instance (reserved) : 1	×
(Table Id : 1	×
(×
6	Carrier Reference : 🖉	×
(Command :(I)	×
(Associated SIP gateway :(1)	×
	\checkmark	×

5. Add an entry in the DDI Translator to route incoming calls

x	Modify: Default DDI Num. Translatorqqqqqqqqqqqqqqqq	×
x	Node Number (reserved) : 101	x
×	Instance (reserved) : 1	×
x	Instance (reserved) : 1	x
x	First External Number : 441563590906	x
x		х
×	First Internal Number : 2502	x
x	Range Size : 1	x
×	Unique Internal Number + NO	x
x		х

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6. Add the appropriate country code which will be added to the SIP messages. System/Other/

×		×
×	Node Number (reserved) : 101	×
×	Instance (reserved) : 1	×
×	Instance (reserved) : 1	X
×	String System Option + Country Code	×
×		×
<	Option max.len. (fixed) : 8	×
<	Country Code : 44	×
<		×

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-Review/Modify: Trunk group NPD selector-

Node Number (reserved) : 101 Trunk Group ID : 30 Instance (reserved) : 1

> Public NPD ID : 33 Private NPD ID : 0 Management Mode + Normal

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-Review/Modify: SIP Ext Gateway-Node Number (reserved) : 101 Instance (reserved) : 1 SIP External Gateway ID : 1 Gateway Name : VF SIP Remote domain : 146.101.248.200 PCS IP Address : -----SIP Port Number : 5060 SIP Transport Type + UDP RFC3262 Forced use + False Belonging Domain : sip.voiceflex.com Registration ID : 84414927 Registration ID P Asserted + True Registration timer : 900 SIP Outbound Proxy : -----Supervision timer : 0 Trunk group number : 30 Pool Number : -1 Outgoing realm : voiceflex Outgoing username : 84414927 Outgoing Password : ******** Confirm : ******* 6 Incoming username : ------Incoming Password : ------Confirm : ------RFC 3325 supported by the distant + True DNS type + DNS A SIP DNS1 IP Address : 8.8.8.8 SIP DNS2 IP Address : 8.8.4.4 E Alcatel-19 Lucent



Incoming username	:	
Incoming Password Confirm		
	-	
RFC 3325 supported by the distant	+	True
DNS type	+	DNS A
SIP DNS1 IP Address	:	8.8.8
SIP DNS2 IP Address	:	8.8.4.4
SDP in 18x	+	False
Minimal authentication method	+	SIP Digest
INFO method for remote extension	+	False
Send only trunk group algo	+	False
To EMS	+	False
ExtGateway Force Forward	+	False
Dynamic Payload type for DTMF	:	101

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Review/Modify: Numbering Plan Description (NPD) Node Number (reserved) : 101 Instance (reserved) : 1 Instance (reserved) : 1 Description identifier : 33 Name : SIP Calling Numbering plan ident. + NPI/TON: ISDN Unknown Called numbering plan ident. + NPI/TON: ISDN Unknown Authorize personal calling num use + True Install. number source + None used Default number source + None used Called DID identifier : 0 Calling/Connected DID identifier : 0

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-Review/Modify: SIP Gateway-

```
Node Number (reserved) : 101
          Instance (reserved) : 1
          Instance (reserved) : 1
              SIP Subnetwork : 10
             SIP Trunk Group : 30
                  IP Address : 217.34.71.217
          Machine name - Host : node000000
         SIP Proxv Port Number : 5060
    SIP Subscribe Min Duration : 1800
    SIP Subscribe Max Duration : 86400
               Session Timer : 3600
            Min Session Timer : 1800
         Session Timer Method + RE INVITE
         DNS local domain name : -----
                   DNS type + DNS A
          SIP DNS1 IP Address : ------
          SIP DNS2 IP Address : ------
                  SDP in 18x + False
                 Cac SIP-SIP + False
INFO method for remote extension + False
  Dynamic Payload type for DTMF : 97
```

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-Review/Modify: Trunk Group-

```
Node Number (reserved) : 101
                       Trunk Group ID : 30
                  Instance (reserved) : 1
                     Trunk Group Type + T2
                     T2 Specification + SIP
                  Public Network Ref. : -----
              VG for non-existent No. + YES
                        Entity Number : 1
                Supervised by Routing + NO
       VPN Cost Limit for Incom.Calls : 0
   Immediate Trk Listening if VPNCall + YES
                             VPN TS % : 50
                       CSTA-Monitored + NO
              Max.% of trunks out CCD : 0
            Ratio analog.to ISDN cost : -----
          TS Distribution on Accesses + YES
    Quality profile for voice over IP + Profile #1
                  IP Compression Type + G 711
              Use of volume in system + YES
           Announcement for dial tone + NO
           Announcement for Ring tone + NO
           Private to Public Overflow + YES
                  End-to-end dialing + NO
              DTMF end-to-end signal. + NO
             Trunk group used in DISA + YES
                     DISA Secret Code : ----
                   Routing To Manager + NO
                            Trunk COS : 31
          Sending of Progress message + YES
          No. of digits unused (ISDN) : 0
                     B Channel Choice + YES
   Channels: Attendant Control (Rsvd) : 0
E
Alcatel-
                                                                               23
Lucent
```



-Review/Modify: Trunk Groups-

	Node Number (reser Trunk Grou	•		
	Trunk Group Trunk Group UTF-8 Trunk Group Number Compatible Remote Net Shared Trunk G	ame : SIP ame : ith : -1 ork : 14 oup + False		
	Special Serv Node nu Transcom Trunk G	ber : 1 oup + False	ıg	
		No. : -1 ure + False		
	Private Trunk G Q931 Signal var SS7 Signal var Number Of Digits To	ant + ISDN a ant + No var		
	Auto.DTMF dialing on outgoing T2 Specifica	ype + Quant: all + NO	ified	
	Homogenous network for direct Public Network DID transco	RTP + NO OS : 31		
	Can support UUS in S		rity	
	Activation Priority L			
E	Preem	ter + NO		
	ratel- cent			24



Maintenance Commands

Verify ARS management with lookars I and NPD with looknpd

trkstat to see the status of the SIP TG

represent shows the in call status

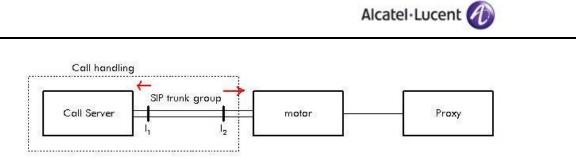
sipextgw shows the configuration of the SIP Extl Gateway

Incidents 5800/5801 show a SIP TG out-ot-service. Incidents 5812/5813 show the TG returning to service.

Traces

Traces can be activated at three levels:-

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I1 faces towards the Call Handling I2 faces towards the SIP Motor. The motor creates the SIP messages from the data sent from I2.

To trace between I1 and I2:-

```
tuner +cpl +cpu
tuner hybrid=on
mtracer -a
```

More usefully you can trace the actual sip messages between the motor and proxy:-

```
cd /usr2/servers
motortrace x (select 2 or 3 as directed by R&D)
traced
```

Traces using Wireshark

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Method: INVITE [Resent Packet: False]	
Record-Route: <sip:88.215.60.40;ftag=2a605e288b4ad972;lr=on></sip:88.215.60.40;ftag=2a605e288b4ad972;lr=on>	
⊞ Via: SIP/2.0/UDP 88.215.60.40;branch=z9hG4bK818a.ec2cce67.0	
⊞ via: SIP/2.0/UDP 88.215.60.41:5061;branch=z9hG4bk-d8754z-17ee3f011298171b-1d8754z-;rport=5061	
Max-Forwards: 16	
⊞ Contact: <sip:1628777906@88.215.60.41:5061> ⊞ To: <sip:441563590906@88.215.60.40></sip:441563590906@88.215.60.40></sip:1628777906@88.215.60.41:5061>	
B From: <sip:1628777906@w3.thelptele.com:5061>;tag=2a605e288b4ad972</sip:1628777906@w3.thelptele.com:5061>	
Call-ID: YmUzNmQxZTYWNDg4NzUOMbhkMTE1NDg1MmE4MjM3MjE.	
Content-Type: application/sdp P-Asserted-Identity: <sip:1628777906@gw1.man1.theiptele.com></sip:1628777906@gw1.man1.theiptele.com>	
<pre>P-Asserted=ruent(ry, csp.ide/779060quatimal:.thelptete.cum); RemoteParty=Dt(sip1628779060quatimal:.thelptele.cum);party=calling;id=type=subscriber;screen=yes;privacy=off</pre>	
Content-Length: 263	
Red-Pront/: 0001001845824	
Method: INVITE	
[Resent Packet: False]	
🖻 Message Header	
Record-Route: <sip:88.215.60.40;ftaq=2a605e288b4ad972;lr=on></sip:88.215.60.40;ftaq=2a605e288b4ad972;lr=on>	
⊡ via: SIP/2.0/UDP 88.215.60.40;branch=z9hG4bK818a.ec2cce67.0	
	061
에는 것에서 있는 것에서 해외에서 정말하는 것을 알았는데? 이렇게 가지 않는 것을 것을 것을 가지 않는다. 이렇게 가지 않는 것이 없는 것이 없는 것이 없는 것을 것을 것을 하는 것을	00T
Max-Forwards: 16	
To: <sip:441563590906@88.215.60.40></sip:441563590906@88.215.60.40>	
⊞ From: <sip:1628777906@gw3.theiptele.com:5061>;tag=2a605e288b4ad972</sip:1628777906@gw3.theiptele.com:5061>	
Call-ID: YmUzNmQxZTYWNDg4NzUOMDhkMTE1NDg1MmE4MjM3MjE.	
Content-Type: application/sdp	
P-Asserted-Identity: <sip:1628777906@gw1.man1.theiptele.com></sip:1628777906@gw1.man1.theiptele.com>	
Remote-Party-ID: <sip:1628777906@gw1.man1.theiptele.com>;party=calling;id-type=subscriber;scr</sip:1628777906@gw1.man1.theiptele.com>	een=yes;privacy=o
Content-Length: 263	
Reg-Provy 0001001845824	

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