

SwyxWare configuration guide for BT SIP trunk

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				eral



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1 Introduction

1.1 General

This guide should be used when configuring the SwyxWare with the following BT SIP Services:

- BT Wholesale SIP Trunking (WSIPT)
- BT Global Services One Voice SIP trunk UK

1.2 Network considerations

When a SIP trunk is ordered from BT, it is necessary to specify a static, public IP address (and port) which will be used for communication. Since BT is offering a static SIP trunk without registration, authentication is based on that specific, public IP address.

The SwyxWare uses the listener port 65002 to receive SIP messages from an external SIP proxy.

1.2.1 Access through a NAT gateway

The usual customer environment uses private IP addresses. The SwyxWare server, too, runs with a private IP address, which cannot be accessed externally.

Connection to the internet is realized through a NAT gateway.

The static, public IP address has to be provided by the ISP. This IP address is automatically assigned to the NAT gateway.



Figure 1: NAT environment

Important: It is necessary to configure the correct portforwarding on the NAT gateway.

Example:

Private IP and port of SwyxWare server:	
Static, public IP address and port on NAT gateway:	

192.168.2.30:65002 87.126.98.234:5060

On the NAT gateway, portforwarding has to be configured from 87.126.98.234:5060 to 192.168.2.30:65002.

Firewall settings have to be checked to allow inbound traffic and forwarding.



1.2.2 Direct access to BT network

If the SwyxWare server has a public IP address or can directly be accessed from the BT SIP proxy by any other means, the SIP listener port 65002 of the SwyxWare has to be considered by the proxy.



2 Configuration guide

Configuration data:

SIP Proxy:192.65.221.26Number range:+44 55 11502000 - +44 55 11502009

2.1 Location

As a first step, a new location has to be created. Open the SwyxWare Admin tool, navigate to the locations folder, start the "Add Location" wizard, by opening the context menu in the right, larger area and selecting "Add Location ...".

IpPbx - [Console Root\SwyxWare Administration\SwyxServer TPP-HP6000\Locations] -					
Old File Action View Window Help					_ 8 ×
 Console Root SwyxWare Administration SwyxServer TPP-HP6000 Users Groups Groups Trunk Groups Trunk Groups Trunks Number Mappings Routing Table Calling Rights Calling Rights Calling Rights SwyxFax Phonebook Active Calls Services (Local) 	Name Add Loo Refresh Export L View Arrange Line up Help	ist kons	Country Code	Area Code	International Call Pr Lc
7 object(s)					

Figure 2: Start the "Add Location" wizard

The following screenshots are showing the configuration dialogs from the wizard.

Provide a meaningful name for the new location.

Add new Location				
Location Name Enter the name and description of the new Location.				
A Location defines a site and its specific parameters. In a multi site SwyxWare installation, the definition of several locations is required. SwyxWare Users and Trunk Groups are being assigned to Locations.				
Name: BTLocation				
Description:				
Set this Location as the default Location. All new users will be assigned to this Location unless explicitly changed.				
< <u>B</u> ack <u>N</u> ext >	Cancel			

Figure 3: Location name



Configure country code, etc.

Add new Location					
Location specific codes and prefixes Specify the codes and prefixes which are rel	ated to this Location.				
The prompted parameters determine how the destination number of a call, originated by a SwyxWare User or a Trunk, is interpreted by the system. This is in particular needed to identify calls that remain in the same area or county. A typical German Location in Berlin would have a Country Code set to '49', Area Code to '30', International Prefix to '00' and Long Distance Prefix to '0'.					
Own <u>C</u> ountry Code:	44				
Own <u>A</u> rea Code:	55				
Prefix for International Calls:	00				
Prefix for Long Distance Calls:	0				
	< <u>B</u> ack <u>N</u> ext > Cancel				

Figure 4: Country code, area code etc.

Provide public access number.

Add new Location	x			
Private Branch Exchange related properties Specify the PBX settings which are related to this Location.	۲ ۲ ۲ ۲			
The Public Line Access prefix defines which number has to be dialed to obtain access to the public network.				
It is possible to define multiple Public Access Prefixes, separated by a semicolon.				
The Internal Number for undeliverable calls defines where incoming calls will be transferred when the called public number is not assigned to a SwyxWare User or Group.				
Public Line Access Prefixes: 9				
Route undeliverable calls to Internal Number:]			
< <u>B</u> ack <u>N</u> ext > Can	ncel			

Figure 5: Public access number

Finally, set the correct time zone for the location

Add new Location	×
Time Zone Select a time zone for this Location.	K
Specify the time zone which is applicable for this Location. This information is used for instance to interprete Routing Records of a Trunk Grou which contain timely restrictions.	p
<u>T</u> ime Zone: [(UTC) Dublin, Edinburgh, Lisbon, London	•
< <u>B</u> ack Finish	Cancel

Figure 6: Time zone

2.2 SIP Trunk group

2.2.1 Creation

After creating the location, a new SIP trunk group must be created. In the SwyxWare Admin tool, navigate to the Trunk Groups folder, start the creation wizard by opening the context menu in the right, larger area and selecting "Add Trunk group ...".

	1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -	/are Administration\SwyxServer			
File Action View Window Help					- 8
🖛 🔿 📶 🖸 🖬 🕼 🖬	a) 🐉				
Console Root	Name	Description	Туре	Profile	L
SwyxWare Administration					
⊿ SwyxServer TPP-HP6000 Supers		Add Trunk Group			
Groups		Refresh			
Locations		Export List			
Trunk Groups Trunks		View	•		
● Trunks ● * Number Mappings 資 Routing Table					
		Arrange Icons	•		
Calling Rights		Line up Icons			
Administration Profiles		Help			
SwyxFax		L			
Phonebook					
📫 Active Calls					
Services (Local)	<				
p 🐜 Services (Local)	<				

Figure 7: Start the "Add Trunk Group" wizard

The following screenshots are showing the configuration dialogs from the wizard.

Provide a meaningful	name for the new SIP	Trunk group.
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Add new Trunk Group					
Trunk Group Name and Description Specify Trunk Group name and description.					
Enter a unique Trunk Group name, i.e. not used otherwise as Trunk name, User name, Group name or Phonebook entry.					
Enter the optional description t	hat will later on help you identifying this Trunk Grou	ıp.			
<u>T</u> runk Group Name:	BTTrunkGroup	[
Description:					
	< <u>B</u> ack <u>N</u> ext >	Cancel			

Figure 8: Trunk Group Name

Select "SIP" as Trunk Group Type and select "British Telecom (UK)" from the dropdown list as Profile.

In case, that a SwyxWare2015R3 or older is used, the profile for "British Telecom (UK)" first has to be imported using the CustomProviderProfiles.config file. Please read chapter <u>Provider Profile</u> for the necessary instructions. Later SwyxWare versions have the profile integrated already.

Important note:

It is important to ensure that the BT SIP Trunk configuration aligns with the SwyxWare to reduce the risk of issues upon deployment. The table below shows the values for settings which need to be configured when ordering the BT SIP Trunking service.

SETTING	VALUE
Transport Protocol	UDP
Inbound Calling Party Format	Global
Inbound Called Party Format	Global
Network CLI	PAID
Presentation CLI	From

The provider profile "British Telecom (UK)" does exactly meet these requirements. Therefore, it is strictly recommended not to modify the default settings.



Ad	d new Trunk Group		x		
Trunk Group Type Specify the type of the Trunk Group and select the appropriate profile.					
applicable profile from the secon for your installation, consult the S If you want to add a Trunk Grou	to be added from the first list and choos Id list. If you are uncertain, which profile SwyxWare Administration documentation p for a non-listed SIP service provider, s enetering all required parameters in subs	is applicab n. select the			
<u>T</u> runk Group Type:	SIP	-			
<u>P</u> rofile:	British Telecom (UK) Vodafone CNoIP (NL)	•			
	Xpirio_sip03 (AT) SIPbase (DE) DTAGSIPTrunk (DE) SIPTrunkDTAG (DE)				
	BT (UK) Interoute DTAGSIPTrunk (TLS)		Cancel		
	DTAGSIPTrunkNoSIPConn	ect (C			

Figure 9: Choose provider profile

Accept the	e default	settinas	from	the	next	dialog.

Add new Trunk Group	x
Definition of Routing Specify for what calls this Trunk Group is supposed to be used.	Ś
Depending on your choice, initial Routing Records will be created. Public Numbers should be added in canonical format (e.g. "+4930123456"), "*" can used as a wildcard.	be
Use Trunks of this Trunk Group • for all external calls	
C for all external calls to the following Called Party Number or SIP URI only:	
○ for all external calls and all unassigned Internal Numbers	
C for Internal Numbers:	
Do not create initial Routing Records.	
< <u>B</u> ack <u>N</u> ext > (Cancel

Figure 10: Initial routing records



Assign the previously created location to the SIP Trunk Group.

	Add new Trunk Group	×
Location Profile Select the applicat	le Location Profile for this Trunk Group.	رکن ی:
required public acc	wyxWare defines all location specific settings like the time zone, ess code, the country and area codes. of the listed Locations which will be assigned to this Trunk Group	
Location:	BTLocation	•
Description	BTLocation DefaultLocation DTAGSIPTrunkLocation Interoute Interoute(DE) Interoute(UK) SIPTrunkDTAGBonn	
	< <u>B</u> ack <u>N</u> ext >	Cancel

Figure 11: Assign location

2.2.2 Additional configuration

After creating the SIP Trunk Group, a few settings need to be adjusted. Navigate to the Trunk Groups folder, select the created SIP Trunk Group. Open the Trunk Group properties through the context menu.



Depute the second secon	oot\SwyxW	are Administra	tion\SwyxServe	r TPP-HP6000	\Trunk Groups\BT	[runkGroup]	- - X
Eile Action View Window Help							_ 8 ×
🗢 🔿 🖄 📰 🖼 🗟 🗟							
 Console Root SwyxWare Administration SwyxServer TPP-HP6000 Users Groups Locations Trunk Groups Trunk Groups Routing Table Calling Rights Calling Rights Momentation Profiles SwyxFax Phonebook Active Calls Revice Scloses Services (Local) 	∧ Name	Add Tr Refrest View Arrang Line ur Proper Help	unk	ere are no items	Type to show in this view.	Host	Trunk Group
	× <		III			1	>
0 object(s)							

Figure 12: Properties of the Trunk Group

Select the tab "SIP" of the properties dialog.

BTTrunkGroup Properties	C
General Profile SIP Routing Records Rights Location	
Specify the SIP settings which are applicable for this Trunk Group.	
The settings are prefilled with the default values of the Profile, defined on the "Profile" tab of the Trunk Group.	
Profile: British Telecom (UK)	
Enable SIP Registration <u>R</u> egistrar: Port: 5060	
Re-registration Interval: 120 💼 Seconds	
Enable STUN Support	
STUN Server: Port: 3478	
Proxy: Edit proxy IP Port: 5060	
Realm:	
DTMF Mode: RFC 2833 Event	
OK Cancel Apply Help	

Figure 13: The "SIP" tab of the properties dialog



In the field "Proxy" the IP address or FQDN of the BT Proxyserver must be entered. If the SwyxWare is installed in a private network behind a NAT gateway as described in <u>Chapter 2.1</u>, it is necessary to configure a STUN server in order to detect public IP addresses and ports for the SIP messages. Mark the "Enable STUN Support" checkbox and enter an IP address or FQDN of a STUN server. A list of publically available STUN servers can be found <u>here</u>.

Usually, it is not necessary to configure any additional parameter in the other tabs.

2.3 SIP trunk

After creating and configuring the SIP Trunk Group, the actual SIP Trunk can be created. Navigate to the Trunk Groups folder, select the created SIP Trunk Group. Open the Trunk Group properties through the context menu and chose "Add Trunk ..." to start the SIP Trunk creation wizard.



Figure 14: Adding a SIP Trunk to the SIP Trunk Group

The following screenshots are showing the configuration dialogs from the wizard.

Provide a meaningful name for the new SIP Trunk. It is useful to choose a name which reflects the dependency to the Trunk Group.



Add new Trunk	x
Trunk Name Choose an unique name for the new Trunk.	$\tilde{\mathbf{x}}$
Enter a unique Trunk name, i.e. not used otherwise as Trunk Group name, User na Group name or Phonebook entry.	me,
Enter the optional description that will later on help you identifying this Trunk.	
Trunk Name: BTSIPTrunk	
Description:	
< <u>B</u> ack <u>N</u> ext > (Cancel

Figure 15: Trunk name

Since BT is offereing a static trunk, no user credentials for registration have to be configured.

	Add new Trunk	x
SIP Trunk Provider / User Data Specify your account data.		رې ې
	as provided by your SIP service provider. The user ID address while user name and password will be used	
<u>S</u> IP Provider:	British Telecom (UK)	
<u>U</u> ser ID:		
User <u>N</u> ame:		
<u>P</u> assword:		
Repeat Password:		
	< <u>B</u> ack <u>N</u> ext > Car	ncel

Figure 16: User credentials



In the next dialog, the available number range is specified. Use the number range that BT has assigned.

		Add new Trunk	X
Subscriber Nu Specify Sub	umbers oscriber Number	8.	<u>دې</u>
Trunk. If your set o and add the If this Trunk click 'Next'.	f subscriber nun e other subscribe : does not add a	er part of the Public Numbers to nbers is incoherent enter only er numbers later via the Trunk any Public Numbers to the sys ea Code have been pre-deter First Subscriber Number	the first subscriber number c's properties. stem, leave all fields empty and
44	55	11502000	- 11502009
		< <u>B</u> ack	Next > Cancel

Figure 17: Number range

There is no	need to	configure a	SIP	URI in	the next	dialog.

Add new Trunk	x
SIP URI Specify SIP URI.	بېنې
If this Trunk is supposed to handle non-numeric SIP URIs (e.g. assigned by your SIP service provider) you can enter one of these bellow and add other URIs later via the Trunk's properties. SIP URIs have the following format: sip: <name1>@<name2> with <name1> reflecting the user's name and <name2> the realm. For convenient input ^{***} can be used as wildcard so that *@company.com would address all users in the realm "company.com". The realm field shown below is pre-filled with the configured realm in the SIP properties but may be overwritten case by case.</name2></name1></name2></name1>	j
URI: sip:	
< <u>B</u> ack <u>N</u> ext > Car	ncel

Figure 18: SIP URI



The codecs are configured in the next dialog. The default settings can be accepted.

Add new Trunk	x
Codecs Select the codecs to be used for data transmission.	Ś
The selected codec preference and filter defines the type of compression for calls using this Trunk. Therefore the selected codec has an impact on the used bandwid and the quality of the call.	th
Prefer Quality Image: G.722 (approx. 84 kBit/s per call) Image: G.711a (approx. 84 kBit/s per call) Image: G.711µ (approx. 84 kBit/s per call) Image: G.729 (approx. 24 kBit/s per call) Image: G.729 (approx. 24 kBit/s per call) Image: Fax over IP (T.38, approx. 20 kBit/s per call)	
< <u>B</u> ack <u>N</u> ext >	Cancel

Figure 19: Codec settings

The last parameter is the number of parallel calls. This parameter depends on the installed channel licenses, the available bandwidth and possibly a specification from BT.

Add new Trunk	¢
Number of Channels Select number of Channels to be used by this Trunk.	200
The number of concurrent calls via a specific Trunk is usually limited by the Trunk's physics, the available bandwidth or by a provider limitation. Furthermore the number of simultaneous calls can artificially be limited to reserve (e.g. ISDN) channels or bandwidth for other applications.	
Usually ISDN BRI interfaces would allow to make up to 2 simultaneous calls, while ISDN PRI interfaces allow up to 30 calls.	
Number of <u>s</u> imultaneous calls on this Trunk:	
< <u>B</u> ack <u>N</u> ext > Cancel]

Figure 20: Number of parallel calls

Finish the creation of the SIP trunk with the next dialog.

Afterwards, the trunk should be presented as active. This may take some seconds. Pressing F5 will update the window.

<u>File Action View Window H</u> elp										- 5
• 🔿 🙍 🖬 🔒 👔 🖬										
Console Root	^	Name [▲]	Description	Туре	Host	Trunk Group	Remote	Enabled	Logged on	Max C
😰 SwyxWare Administration		SIP BTSIPTrunk		SIP	TPP-HP6000	BTTrunkGroup		Yes	Yes	5
⊿ 📋 SwyxServer TPP-HP6000										
🜆 Users										
Groups										
Locations										
🔺 🚞 Trunk Groups										
St BTTG										
St BTTrunkGroup										
SH DTAGSIPTG										
Star InterouteTG	≡									
Star QSCExtCTG										
SIPGWTG										
Starte TSTR_TG										
St VD2727TG										
St VD9131TG										
St VD9132TG										
\$ <mark>8</mark> VD9899TG										
zzł Trunks										
* Number Mappings										
Routing Table										
Calling Rights										
Administration Profiles										
⊳ 🎯 SwyxFax	\sim	<								

Figure 21: Active SIP trunk

2.3.1 Session Timer

British Telcom expects a Session interval of 600 (seconds) on outbound calls, whereas the SwyxWare default Session Interval of the SwyxWare is 90. In order to prevent reINVITES which would slow down the call establishment, underneath the registry key HKLM\Software\Wow6432Node\Swyx\LinkMgr\CurrentVersion\Options the following registry DWORD values can be created with a values of 600 (decimal)

SipMinSessionTimerIntervalSeconds

SipSessionTimerIntervalSeconds

After creating these values, the LinkMgr service must be restarted. **Important**: This setting will affect all SIP Trunks.

2.4 User

Finally, the public numbers can be assigned to existing or new SwyxWare users, enabling them to make outbound, public calls and receiving public calls.

Please consult the SwyxWare manual for further details if necessary.



3 Provider profile

If the SwyxWare installation does not contain the provider profile for BT, as with SwyxWare2015R3 or newer, it is necessary to import the profile through the CustomProviderProfile.config.

Please follow these installation steps:

- 1. Close the SwyxWare Administration (if opened)
- 2. Copy the file CustomProviderProfiles.config into the SwyxWare installation folder e.g. C:\Program Files\SwyxWare
- 3. Open the SwyxWare Administration.
- 4. The newly added SIP Provider profile should appear in the list of available profiles for SIP trunks.

Further information about the CustomProviderProfiles.config file can be taken from the following Knowledgebase article: <u>http://www.swyx.com/support/ssdb.html?kbid=kb3436</u>