



Gear up your PBX
Cut Costs, Boost Profits

SIP Trunks



Goal of this Module

- Successfully Implement PSTN Connectivity
 - Prerequisites
 - Provider Types
 - Concepts of
 - SIP Trunk (VoIP Provider)
 - Inbound Rules
 - Outbound Rules
 - Outbound Caller ID

Prerequisites for this Module

- Supported SIP Trunk (VoIP Provider)
<http://www.3cx.com/partners/sip-trunks/>
- Firewall check performed and passed (more information in module 1.3 - Configure the Firewall)

Info: SIP Trunk (VoIP Provider)

- Supported VoIP Provider
 - Passed IOT *
 - Templated → Easy Setup
 - Support from 3CX Support Team
- Generic VoIP Provider
 - Not Tested by 3CX
 - No Template → No Sip-Field-Mappings (req. advanced SIP & 3CX knowledge)
 - No 3CX Support Available

*T.38 support not a compulsory checkmark feature

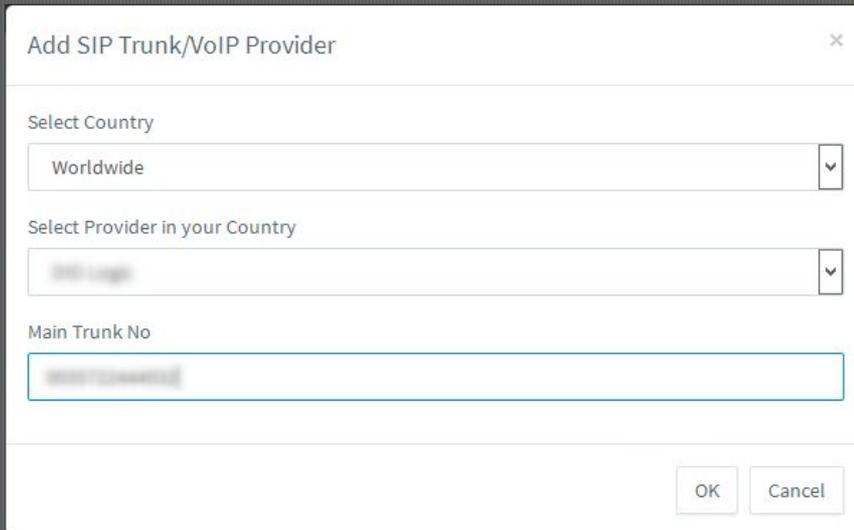
Concept: SIP Trunk (VoIP Provider)

- Provides **Public** Switched Telephone **Numbers** (PSTN)
- Transport via Existing Internet Lines (DSL)
- No additional local hardware required
- Get International Numbers:
 - Outbound: Pay Local Rates
 - Inbound: Show A Global Presence

Adding: SIP Trunk (VoIP Provider)

- Management Console → SIP Trunks
- Add SIP Trunk button
- Select Country and Supported Provider
- Set Main Trunk Number*

*Acts as “Catch All” for all non created DIDs for this Trunk



The screenshot shows a dialog box titled "Add SIP Trunk/VoIP Provider" with a close button (X) in the top right corner. The dialog contains three main sections:

- Select Country:** A dropdown menu with "Worldwide" selected.
- Select Provider in your Country:** A dropdown menu with "SIP Trunk" selected.
- Main Trunk No:** A text input field containing "00000000000000000000".

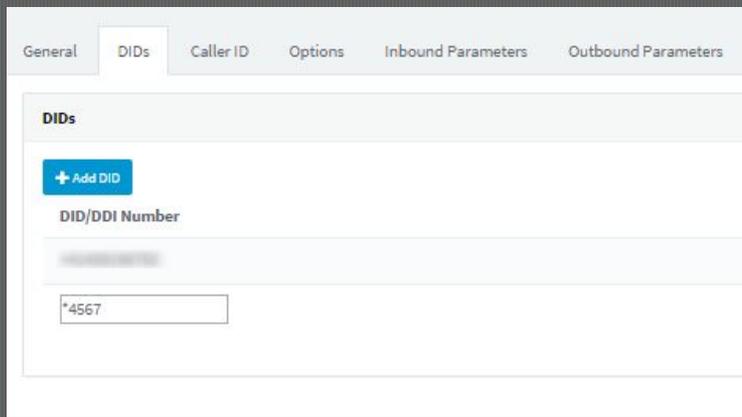
At the bottom right of the dialog, there are two buttons: "OK" and "Cancel".

Concept: DID Inbound Rules

- Routes Incoming Calls to a destination based on Dialed Number
 - (System-) Extensions
 - Voice Mail of an Extension
 - Forward to Outside Number
 - Fax Service (req. T.38 Provider)
- Different Destinations based on
 - Time of Day
 - Holiday
- Only Add DIDs which shall **not** follow the “Catch All” destination

Add: Additional DIDs

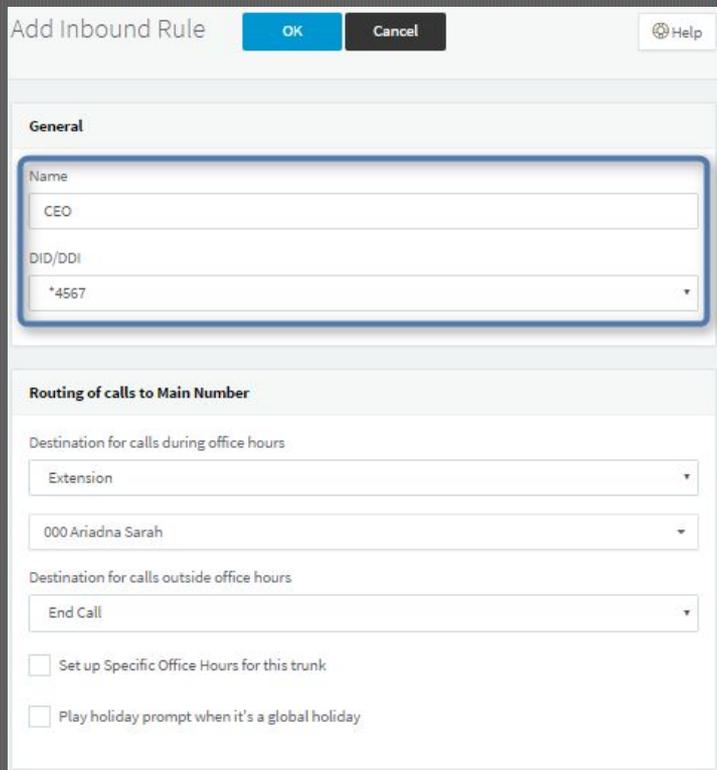
- For Trunks with Multiple Numbers associated
- Management Console → SIP Trunks → Your Trunk → Tab DIDs → Add DID button
- Enter * + Last 4 DID Numbers
 - Sample DID: 001 456 1234567
 - Added DID : *4567
 - Save DID with OK



The screenshot shows a web interface with a navigation bar at the top containing tabs: General, DIDs (selected), Caller ID, Options, Inbound Parameters, and Outbound Parameters. Below the navigation bar is a section titled 'DIDs'. Inside this section, there is a blue button with a plus sign and the text '+ Add DID'. Below the button is a label 'DID/DDI Number' followed by a text input field. The input field contains the text '*4567'.

Using: Inbound DIDs

- Management Console → Inbound Rules → **Add DID Rule**
- Set Name for DID (Prepended on Incoming Calls)
- Pick DID from DropDown
- Point to Destination



The screenshot shows the 'Add Inbound Rule' configuration window. At the top, there are 'OK' and 'Cancel' buttons, and a 'Help' icon. The form is divided into sections:

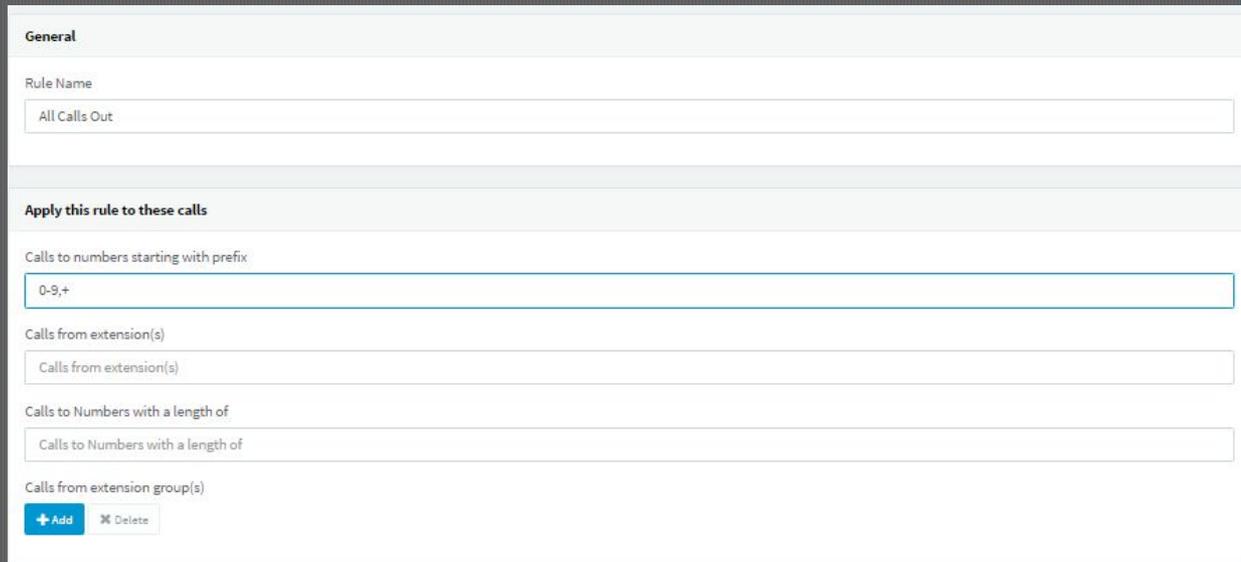
- General**:
 - Name**: A text input field containing 'CEO'.
 - DID/DDI**: A dropdown menu with '*4567' selected.
- Routing of calls to Main Number**:
 - Destination for calls during office hours**: A dropdown menu with 'Extension' selected.
 - 000 Ariadna Sarah**: A dropdown menu with '000 Ariadna Sarah' selected.
 - Destination for calls outside office hours**: A dropdown menu with 'End Call' selected.
 - Set up Specific Office Hours for this trunk
 - Play holiday prompt when it's a global holiday

Concept: Outbound Rules

- Allows or Restricts Called Numbers
- Selects SIP Trunks based on Criteria
 - Destination Number
 - Originating Internal Extension
 - Originating Extension based on Group Membership
 - Dialed Number Length

Adding: Outbound Rules

- Management Console → **Outbound Rules** → **Add**
 - Set **Name** and **Criteria** when to match
 - Start with Prefix: “0-9,+”



The screenshot shows a web interface for configuring an outbound rule. It is divided into two main sections: 'General' and 'Apply this rule to these calls'.

General

Rule Name
All Calls Out

Apply this rule to these calls

Calls to numbers starting with prefix
0-9,+

Calls from extension(s)
Calls from extension(s)

Calls to Numbers with a length of
Calls to Numbers with a length of

Calls from extension group(s)
+ Add ✕ Delete

Adding: Outbound Rules

- Set Route

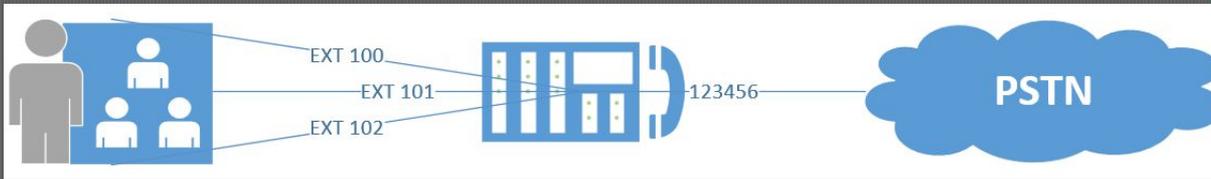
Make outbound calls on

Configure up to 5 routes for calls. The fourth and fifth route will be used as backup. For each route, digits can be stripped or added.

Route			Strip Digits	Prepend
Route	1	<input type="text" value="VoIP Provider"/>	<input type="text" value="0"/>	<input type="text"/>
Route	2	<input type="text" value="BLOCK CALLS"/>	<input type="text" value="0"/>	<input type="text"/>
Route	3	<input type="text" value="BLOCK CALLS"/>	<input type="text" value="0"/>	<input type="text"/>
Route	4	<input type="text" value="BLOCK CALLS"/>	<input type="text" value="0"/>	<input type="text"/>
Route	5	<input type="text" value="BLOCK CALLS"/>	<input type="text" value="0"/>	<input type="text"/>

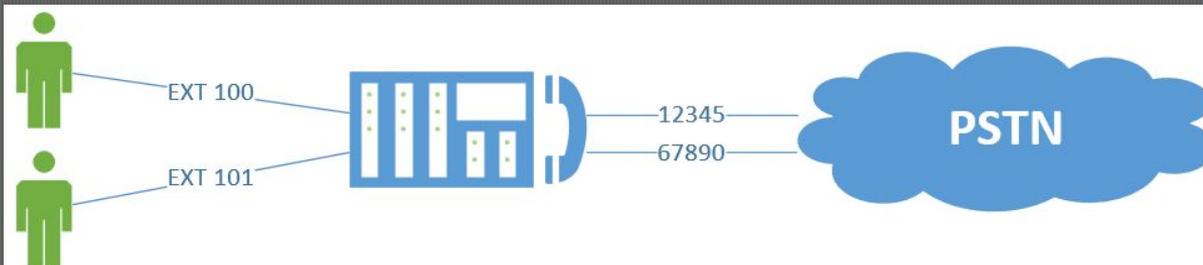
Concept: Outbound Caller ID

- Number to show when calling out
 - Default for all Extensions



(SIP Trunk → “Your Trunk” → Caller ID → Configure Outbound Caller ID)

- Per Extension



(Extensions → Extension → General → Outbound Caller ID)

Using: Outbound Caller ID

- Use Right Outbound Caller ID Format (Ask Your Provider)
 - Common Formats EU*
 - +49 211 6040200
 - 0049 211 6040200
 - 49 211 6040200
 - 0 211 6040200
 - 211 6040200
 - 6040200
 - Common Formats US*
 - +1 469 6040200
 - 001 469 6040200
 - 1 469 6040200
 - 469 6040200
 - 6040200

*to be used without spaces

Common Setup Error-Symptoms

- Outbound call drops after 32s
 - Firewall Check Not Passed
 - Wrong Public IP
 - Active SIP ALG
- OneWay Audio (you can not hear but speak)
 - Firewall Check Not Passed
 - Wrong Public IP



More Training Material at:
<http://www.3CX.com/3CXAcademy/>

