SIP Trunking using the Optimum Business Sip Trunk Adaptor and the 3CX PBX v12.5

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1 Overview

The purpose of this configuration guide is to describe the steps needed to configure the 3CX PBX for proper operation Optimum Business Sip Trunking.

2 Prerequisites

Please follow the instructions in the Optimum Business SIP Trunk Set-up Guide. The Set-up Guide was left by the Optimum Business technician at installation. If you do not have the Set-up Guide, go to optimumbusiness.com/sip to download a copy. The guide describes the steps needed to configure the LAN side of the Optimum Business SIP Trunk Adaptor.

This configuration guide provides the configuration steps for both PBX registration and static IP or non-registration modes of PBX operation.

PBX Information

Manufacturer:	3CX
Model:	Standard Edition
Software Version:	v12.5
Does the PBX send SIP Registration messages (Yes/No)?	Yes
Vendor Contact:	www.3cx.com

3 PBX Configuration

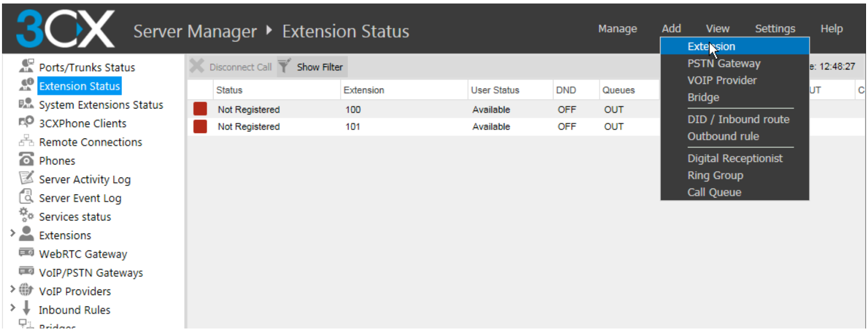
The steps below describe the minimum configuration required to enable the PBX to use Optimum Business Sip Trunking for inbound and outbound calling. Please refer to the 3CX product documentation for more information on advanced PBX features.

The configuration described here assumes that the PBX is already configured and operational with station side phones using assigned extensions or DIDs. This configuration is based on 3CX PBX version 12.5.

The 3CX Phone System is a software-based VoIP IP-PBX for Microsoft Windows. In this example, the PBX was set up by downloading the 3CX Phone System to a Windows7 PC which comes with one Ethernet port. The Optimum Sip Trunk Adaptor's (EdgeMarc) LAN port and the PBX's Ethernet port have been assigned with IP addresses of 192.168.1.200 /24 and 192.168.1.155 /24 respectively.

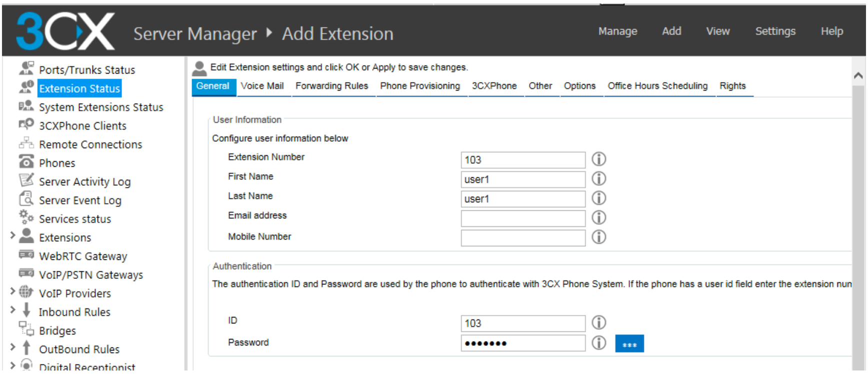
4 Creating Extensions

Start configuring the PBX by navigating to “**3CX Phone System**”→“**Extensions**”→ “**100**” and click “**100**” to start setting up extension 100 for the phone. When creating new extensions, “**Add Extension**” must be clicked from above.



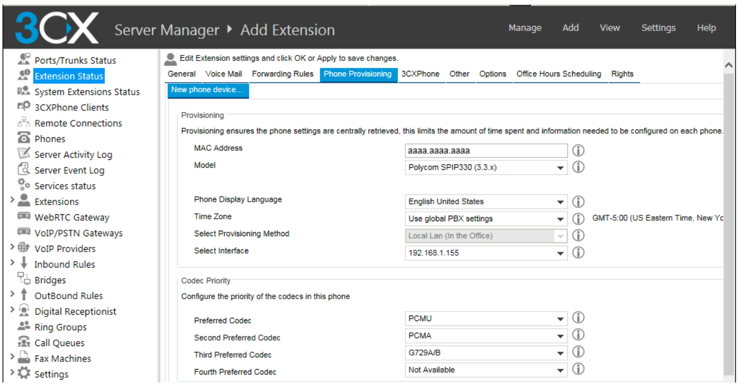
a) Select the “**General**” tab, enter the first name of the user in the “**First Name**” field, enter the last name of the user in the “**Last Name**” field, enter “**admin**” in the “**Password**” field, leave other fields as default and click the “OK” button at the bottom of the page.

NOTE: The SIP phone assigned for this extension must use the authentication info from this page in order to successfully register with the PBX.



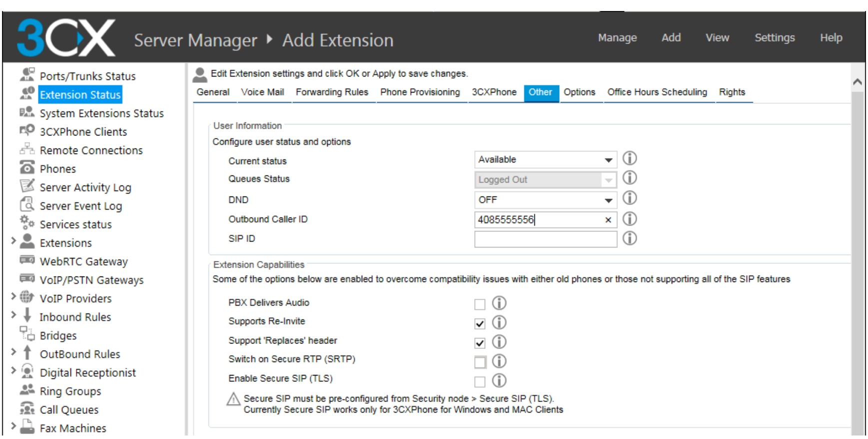
b) Select the “**Phone Provisioning**” tab, enter the SIP phone’s MAC address in the “**MAC Address**” field, select the phone’s model from the drop-down list of the “**Model**” field, enter the PBX’s IP address (“192.168.1.155” in this example) in the “**Select Interface**” field, leave other fields as default and then click the “**OK**” button at the bottom of the page.

NOTE: The PBX will only accept SIP registration for extension 100 from the phone with the specified MAC address.



c) Select the "**Other**" tab, enter the DID (pilot DID for the first extension in this example) assigned for the extension in the "**Outbound Caller ID**" field, leave other fields as default and then click the "**OK**" button at the bottom of the page.

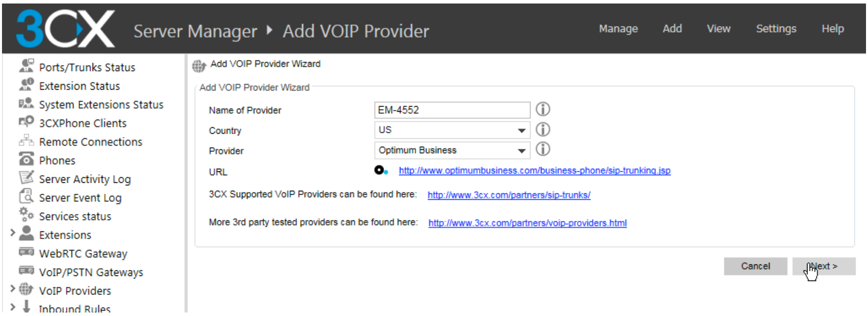
NOTE: This outbound caller ID will be used only when the PBX is configured for static IP mode. For SIP registration mode, the pilot DID will be used as Caller ID.



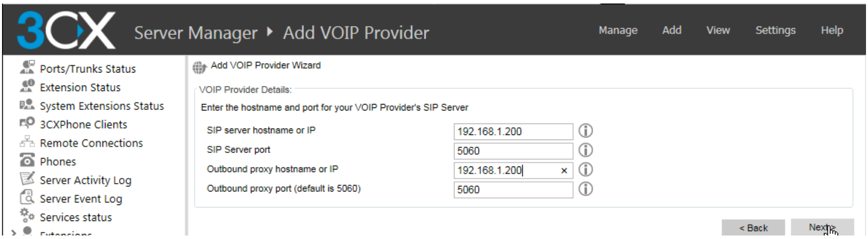
5 VoIP Provider Setup

Navigate to "**VOIP Providers**" to set up the Optimum Sip Trunk Adaptor (Edgemarc) as a VoIP provider for SIP registration mode. To add a new VoIP provider, click the "**Add Provider**" link under the VOIP Provider heading.

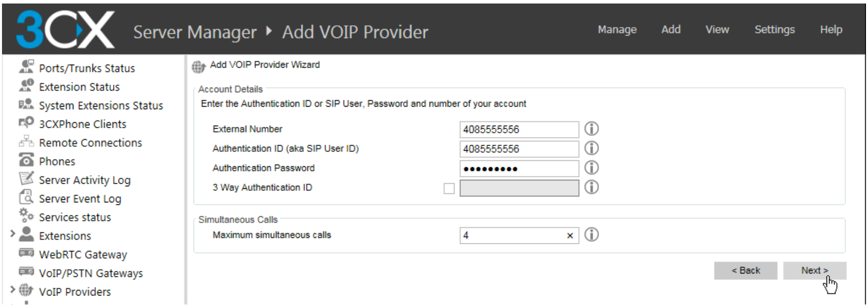
Enter a descriptive name in the "**Name of Provider**" field, **EM-4552** was used in this example. Select the US from the "**Country**" drop down and **Optimum Business** from the "**Provider**" drop down menu. When done click the "**Next**" button at the bottom of the page.



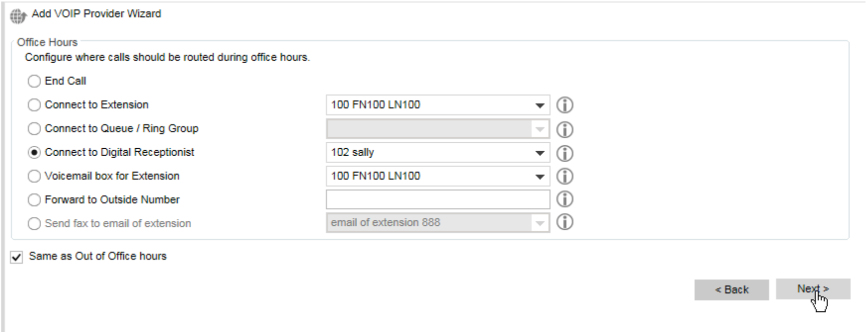
a) Enter the Optimum Business Sip Trunk Adaptor's (Edgemarc's) IP address in both the "**SIP server hostname or IP**" field and the "**Outbound proxy hostname or IP**" field, This is the IP Address you entered in Step 2 of the Optimum Business SIP Trunk Set-up Guide. Enter "**5060**" in both the "**SIP server port**" field and the "**Outbound proxy port** (default is 5060)" field and then click the "**Next**" button.



b) Enter the Pilot DID in the “**External Number**” field, enter the authentication ID (if needed) in the “**Authentication ID**” field, enter the authentication password in the “**Authentication Password**” field, enter the maximum number of simultaneous calls in the “**Maximum simultaneous calls**” field and then click the “**Next**” button.

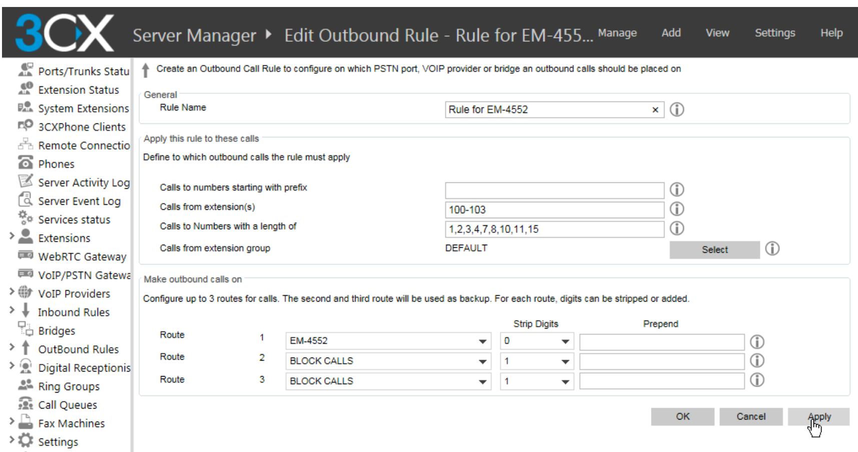


c) Leave all fields as default and then click the “**Next**” button.

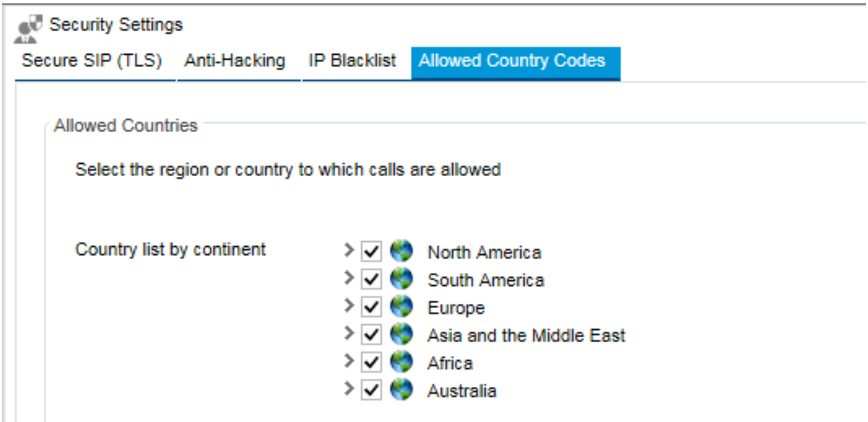


6 Dial Plan / Outbound Rules

Navigate to the “**Edit Outbound Rule**” section. If not here yet, click on “**Outbound Rules**” from menu then “**Rule for EM-4552**”. Enter “**9**” in the “ **Calls to numbers starting with prefix**” field (this allows dialing “9” first to access the SIP trunks), enter “**100-101**” in the “**Calls from extension(s)**” field (this allows extension 100,101 in this example to access the SIP trunks), enter “**4,8,11,16**” in the “**Calls to Numbers with a length of**” field (this allows “9+ 3-digit, 9+ 7-digit, 9+ 10-digit, 9+ 15-digit” dialing), leave other fields as default and then click the “**Finish**” button. Alternatively, type “0-16” & that will include all calls.



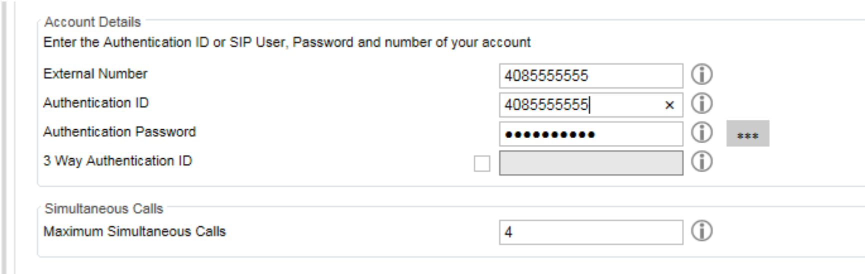
For International Calls, make sure the country code is checked within included country codes. To confirm this, Navigate to “**Settings**”→”**Security**”→”**Allowed Country Codes**”.



Note: The DTMF tone duration generated by the phones needs to be increased from the default value of 180ms–200ms to 600ms. The PBX does not have the capability to change the DTMF settings, the change must be done on the phones.

7 Registration Mode Parameters

Navigate to "**VOIP Providers → EM-4552**" and under General is where Authentication credentials should be entered. The Authentication credentials must match what is configured in the Optimum Business Sip Trunk Adaptor. This is step 3 of the Optimum Business Sip Trunk Set up Guide.



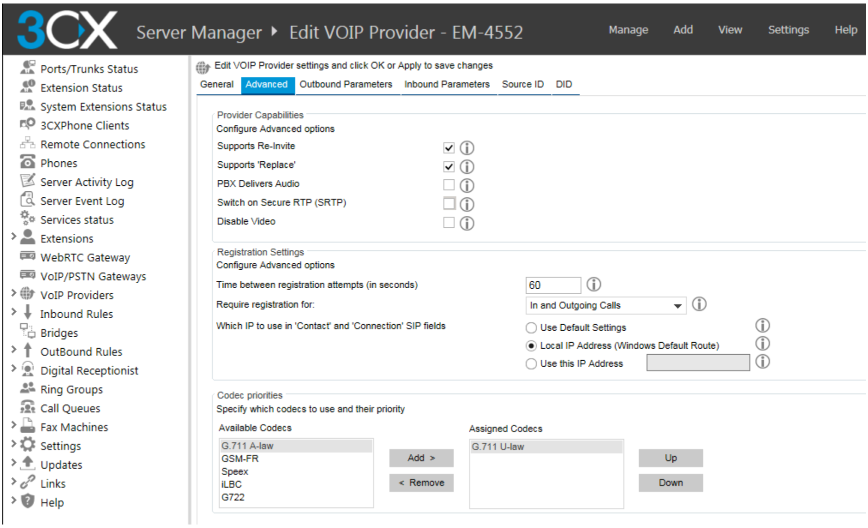
Thereafter click the "**Advanced**" tab to configure parameters for registration and codec priority. **SIP server hostname & Outbound proxy hostname** will be the IP address assigned to the Optimum Business Sip Trunk Adaptor. This was step 2 in the Optimum Business Sip Trunk Set up Guide.

a) For Provider Capabilities, check "**Supports Re-Invite**" & "**Supports Replace**". Then enter time between registration attempts in the "**Time between registration attempts (in seconds)**" field.

b) Select the radio button for "**Local IP Address**" for the "**Which IP to use in 'Contact' field for registration**" field.

c) Assign Codec G.711 U-law

d) Leave other fields as default and then click the "**OK**" button.



Important: For both Registration and Static IP mode of operation

DTMF Configuration: Leave “**PBX Delivers Audio**” unchecked. This is important for outgoing DTMF calls to work. The Cablevision network only supports in-band DTMF tones.

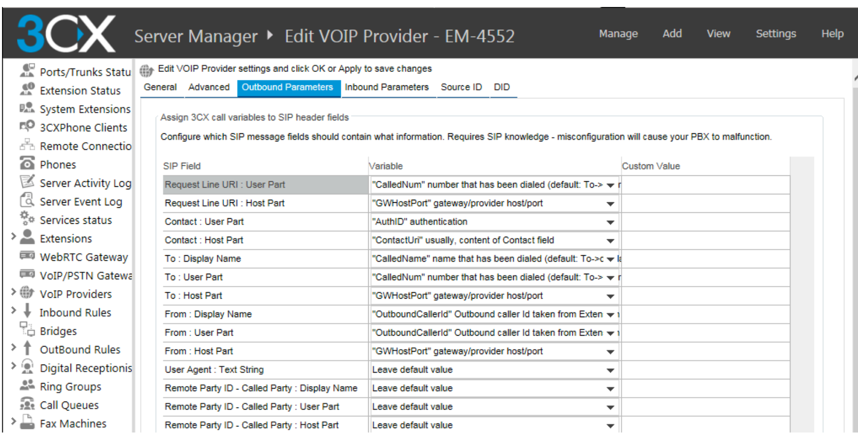
DTMF Tone Duration:
The DTMF tone duration must be modified on each phone. Some phones have a default setting between 180ms and 200ms. This setting is too low. The recommended setting is 600ms.

8 Static IP Mode Parameters

Navigate to “**VOIP Providers**” → “**EM-4552**” and then click the “**Outbound Parameters**” to control caller ID for outbound calls in static IP mode.

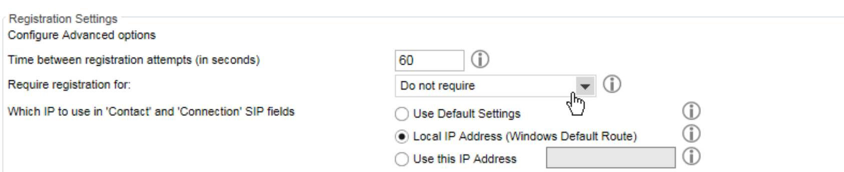
NOTE: This section is needed for static IP mode only. Also note that PBX would be considered “registered” (trusted) without the SIP registration process in static IP mode.

a) Select “**From: User Part**” from the drop-down list of the “**SIP Field**” and have it correspond to “**Outbound caller Id taken from Extension**” from the “**Variable**” list.



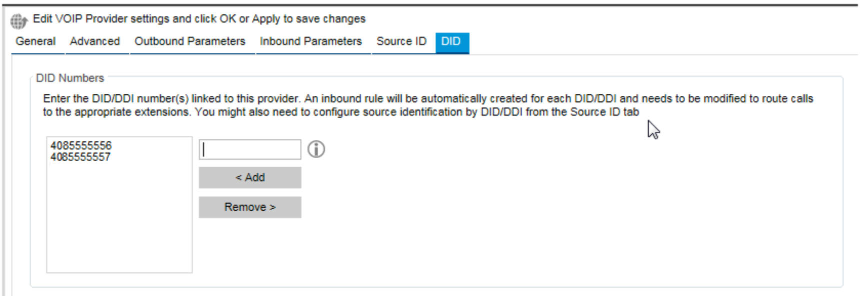
b) Leave other fields as default and click “**Apply**”.

Also when configuring Static mode, navigate to “**VoIP Providers**” → “**EM-4552**” and then next to “**Require registration for:**” change the Registration to “**Do not require**” to deliver calls without authentication.



9 Assigning DIDs

Navigate to “**VOIP Providers**”→ “**EM-4552**” and then click the “**DID**” tab to enter the DIDs assigned for the SIP trunk service. Enter each DID one at a time in the field next to the “**?**” icon and then click the “**← Add**” button. When done click “**OK**”.

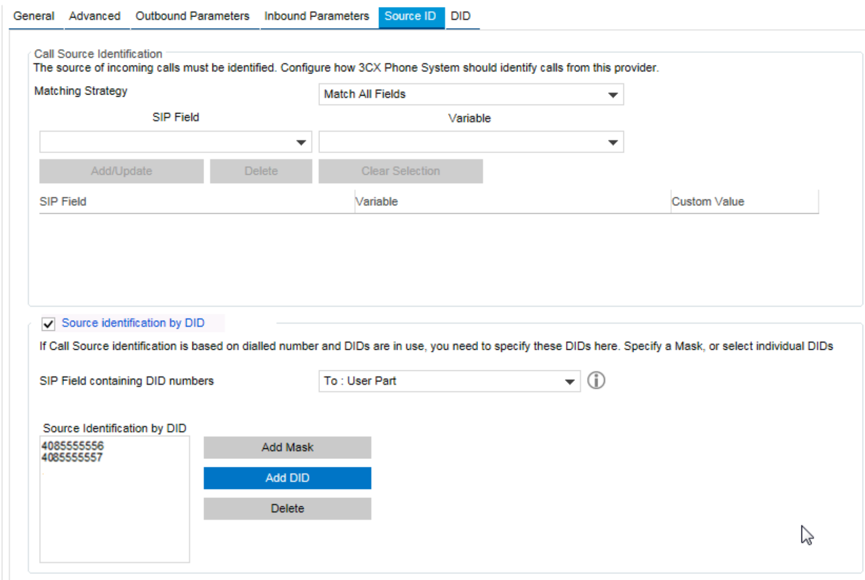


Navigate to “**VOIP Providers**” →”**EM-4552**” and then click the “**Source ID**” tab and then check the “**Source identification by DID**” checkbox to specify which dialed numbers from incoming calls may be routed to the extensions.

a) Click “**Add DID**”.

b) From the pop-up box, check the “**Select all**” checkbox and then click the “**OK**” button.

c) After the DIDs are added, leave other fields as default and then click the “**OK**” button.

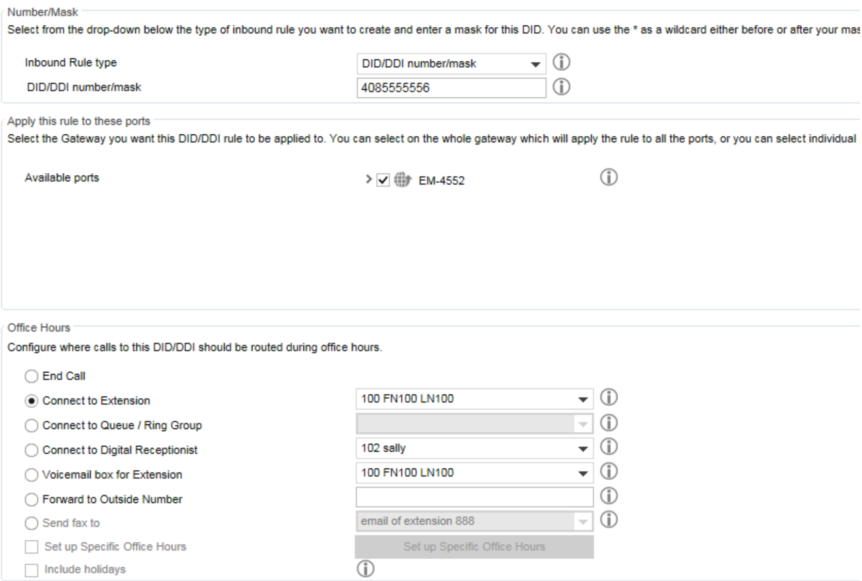


Navigate to “**VOIP Providers**” →”**EM-4552**”. Find the trunk and then click on each DID (one at a time) to map to its assigned extension. In this example, extension 100 is assigned to “4085555556”.

a) Select the radio button next to “**Connect to Extension**”.

b) Select the extension from the extension drop-down list.

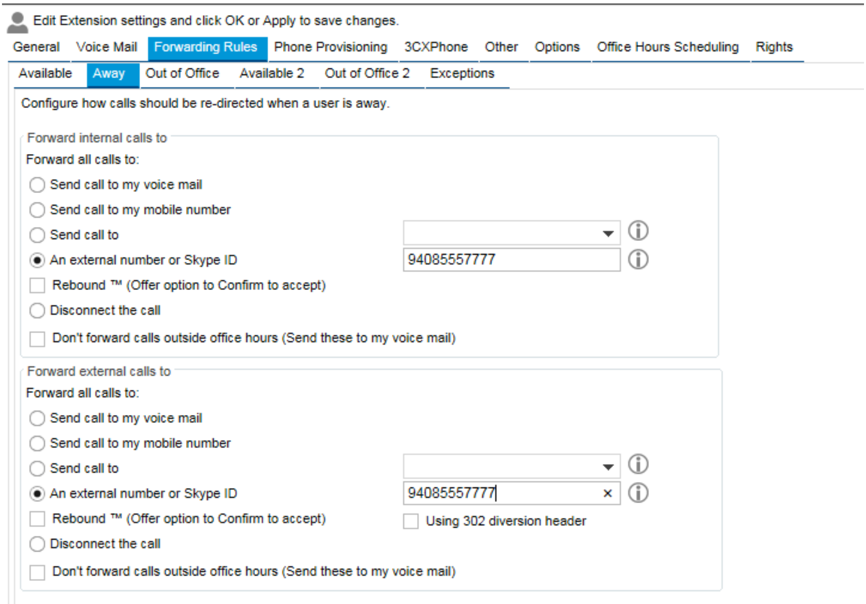
c) Leave other fields as default and then click the “**OK**” button



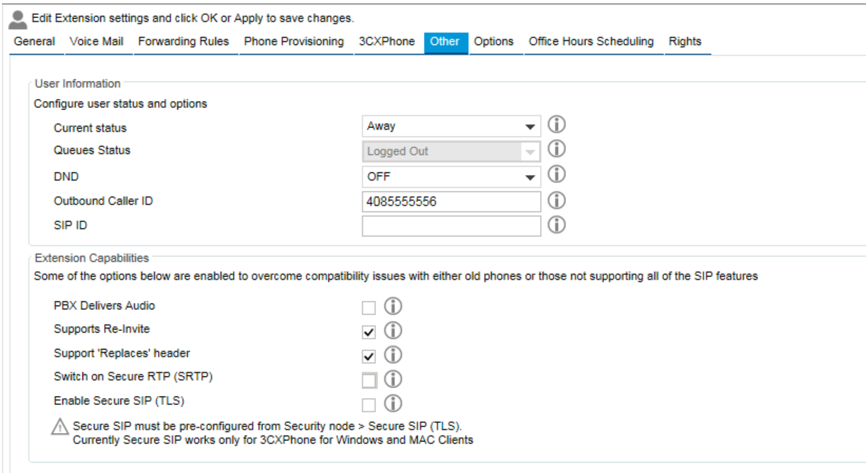
Number/Mask
Select from the drop-down below the type of inbound rule you want to create and enter a mask for this DID. You can use the * as a wildcard either before or after your mas
Inbound Rule type
DID/DDI number/mask
DID/DDI number/mask
4085555556
Apply this rule to these ports
Select the Gateway you want this DID/DDI rule to be applied to. You can select on the whole gateway which will apply the rule to all the ports, or you can select individual
Available ports
EM-4552
Office Hours
Configure where calls to this DID/DDI should be routed during office hours.
End Call
Connect to Extension
100 FN100 LN100
Connect to Queue / Ring Group
Connect to Digital Receptionist
102 sally
Voicemail box for Extension
100 FN100 LN100
Forward to Outside Number
Send fax to
email of extension 888
Set up Specific Office Hours
Set up Specific Office Hours
Include holidays

10 Call Forward

From main menu, navigate to “**Extensions**” and select the extension for Call Forwarding. Upon selecting the extension, click on “**Forwarding Rules**” on top and from here configure the forwarding preference according to the different statuses shown. For example to configure call forwarding when away, click on “**Away**” and click on “**An external number or Skype ID**” from either the internal or external option and enter desired forwarding number. When finished click “**OK**”.

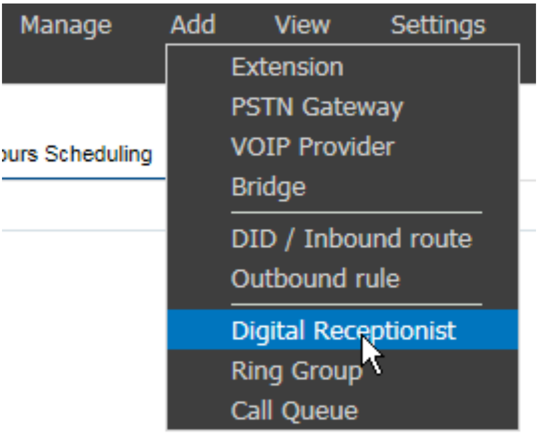


Make sure that the Call Forwarding configuration corresponds to its current status. To change current status of the extension, from the “**Edit Extension**” section after clicking on “**Extensions**”, go to “**Other**” and change “**Current status**” to preference.

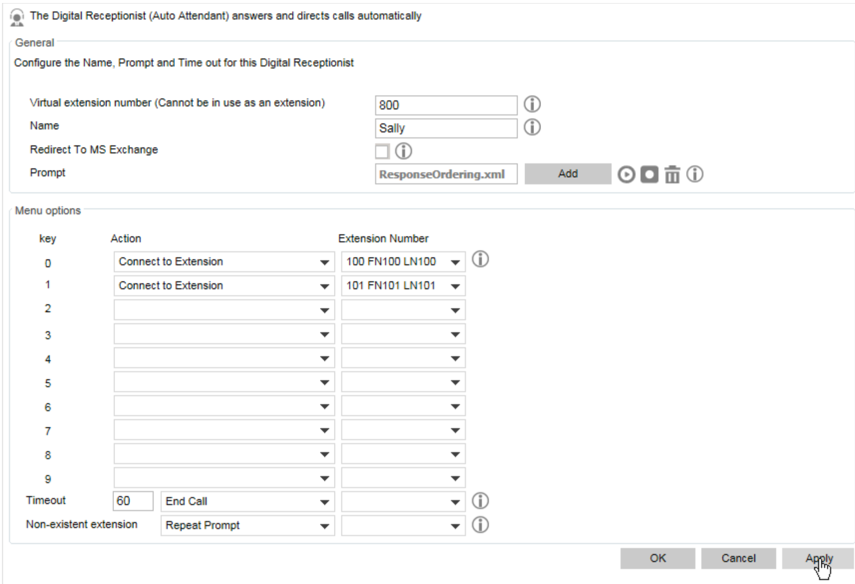


11 Auto-attendant

From “**Add**” button on very top select “**Digital Receptionist**”,

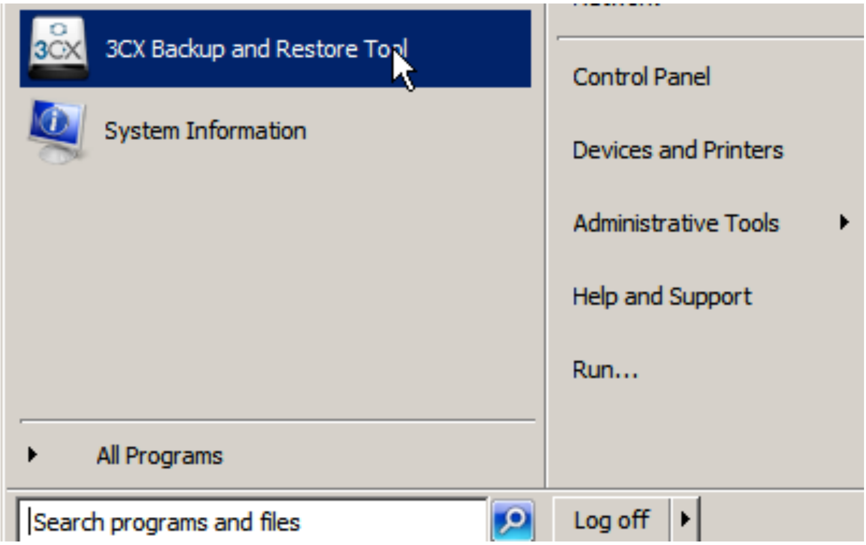


Upon clicking Digital Receptionist, give the auto-attendant an extension, name and select the desired prompt. Under “**Menu options**”, select how the auto-attendant should behave in accordance with each key. For example both 0 & 1 below direct the auto-attendant to extensions 100 & 101. When finished click “**OK**”.


The Digital Receptionist (Auto Attendant) answers and directs calls automatically
General
Configure the Name, Prompt and Time out for this Digital Receptionist
Virtual extension number (Cannot be in use as an extension)
800
Name
Sally
Redirect To MS Exchange
Prompt
ResponseOrdering.xml
Add
Menu options
key
Action
Extension Number
0
Connect to Extension
100 FN100 LN100
1
Connect to Extension
101 FN101 LN101
2
3
4
5
6
7
8
9
Timeout
60
End Call
Non-existent extension
Repeat Prompt
OK
Cancel
Apply

12 Backup/Restore

To Backup/Restore, from Program Groups select “**Backup and Restore Tool**”.



The tool will do a walkthrough for either a backup or a restore of the configuration file.