



Documentation

Teams Direct Routing / Office 365 Phone System

Recipient

TwinCap First Customers

General	
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Version Control			
Version	Datum	Autor	Beschreibung
1.0	December 2020	TwinCap First AG	Creation

1 – Version Control

Linked Documents			
Titel	Autor	Version	Abgelegt

2 – Linked Documents

Abbreviations	
Abbreviation	Explanation
TCF	TwinCap First AG
Teams DR	Teams Direct Routing
VoIP	Voice over IP
SBC	Session Border Controller
UPN	User Principal Name
ISE	Intergrated Scripting Environment (PowerShell)
SfB	Skype for Business
PSTN	Publicly Switched Telephone Network

3 – Abbreviations

1 Introduction

1.1 General

This document describes the process on how enable new users for Office 365 Phone System / Microsoft Teams Direct Routing and how to assign them a phone number and a voice routing policy. This document is intended to be used by IT System Administrators. If PowerShell code is executed wrongly or without caution, it can potentially break some or all telephony functionality of specific user accounts.

→ If you wish to fully automate user provisioning without manual execution of each step below, do not hesitate to contact TwinCap First for more information or a quote.

2 General Prerequisites

2.1 Skype for Business Online Connector

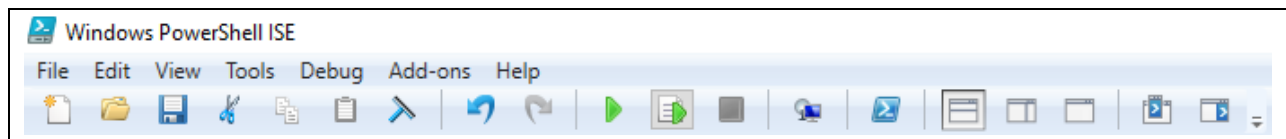
Enabling users for Enterprise Voice is currently only possible via PowerShell. New users need to be provisioned via PowerShell and the Skype for Business Online Connector Module.

The module can be downloaded from here:

<https://www.microsoft.com/en-us/download/details.aspx?id=39366>

2.2 PowerShell ISE

The easiest way to run PowerShell cmdlets is via the PowerShell ISE (Integrated Scripting Environment) which comes preinstalled with every Windows 10 computer.



→ It is highly recommended that each line or multiple lines which are displayed in boxes in this document are ran independently, in the order in which they are listed in this document! Selected lines only can be run by clicking the highlighted icon (small green arrow) as shown in the screenshot above or by pressing F8.

2.3 Office 365 User Object

To enable a new user for Direct Routing, the user object needs to be created in Office 365 and assigned the correct licenses first.

2.3.1 Licenses

Valid licensing possibilities:

- E1 + Phone System
- E3 + Phone System
- E5 (Phone System ist integriert)
- Business Standard + Business Voice
- Business Basic + Business Voice

Active users

 Add a user  User templates  Add multiple users  Multi-factor authentication  Refresh  Export Users ...

Display name ↑	Username	Licenses
Bill Stearn	: bill@mozzism.ch	Microsoft 365 Phone System , Office 365 E1

Account Devices Licenses and Apps Mail OneDrive

Select location *

→ Make sure that the user's Usage Location is set to Switzerland (or the Country from where the user will be working from). Otherwise dialed numbers might not be correctly translated. E.g. A user which has the Usage Location set to CH will automatically translate 0 to +41.

3 User provisioning with Powershell

3.1 Import Module

To connect to Skype for Business Online, open PowerShell ISE and run the following lines. Replace the username with your O365 admin account and put it in double quotes.

```
Import-Module SkypeOnlineConnector
$sfbsession = New-CsOnlineSession -UserName "admin@datacenter3.ch.ch"
Import-PSSession $sfbsession -AllowClobber
```

→ It's recommended to always separate user accounts and admin accounts. Granting your user account admin rights is serious security risk.

3.2 Check if user is ready

To check whether or not the Skype for Business Online User Object is ready, run the following code:

```
Get-CsOnlineUser -Identity "bill@datacenter3.ch" | Format-Table
UserPrincipalName, HostingProvider, RegistrarPool
```

The Output from HostingProvider must be "sipfed.online.lync.com" and RegistrarPool must not be empty:

```
UserPrincipalName  HostingProvider      RegistrarPool
-----
bill@datacenter3.ch sipfed.online.lync.com sippoolDB42E07.infra.lync.com
```

If this is the case, you can continue and assign the phone number. If not you may need to wait a few minutes and check again.

3.3 Enable User & Assign Phone Number

Change the username to the newly created user's UPN and enter the user's phone number at the end.

```
Set-CsUser -Identity "bill@datacenter3.ch.ch" -EnterpriseVoiceEnabled $true -
HostedVoiceMail $true -OnPremLineURI tel:+41445084714
```

→ Make sure that you enter the number in full E.164 format without spaces: E.g. +41445084714. Don't remove the prefix "tel:". Every number can only be assigned once, and a user can only have one number assigned!

3.4 Determine the Configured Voice Routing Policy

Run the following cmdlet to see the name of the configured Voice Routing Policy.

```
Get-CsOnlineVoiceRoutingPolicy
```

The output will look something like this. You're looking for the second policy which is not the Global one and starts with "Tag:". You only need to copy the part afterwards which is marked in yellow.

```
Identity       : Global
OnlinePstnUsages : {}
Description    :
RouteType     : BYOT

Identity       : Tag:FirstTrunk Routing Policy
OnlinePstnUsages : {Netvoip}
Description    :
RouteType     : BYOT
```

3.5 Assign the Voice Routing Policy

Replace the identity of the user with your newly created user and replace the policy name with the name of your policy which was determined in the previous step.

```
Grant-CsOnlineVoiceRoutingPolicy -Identity "bill@datacenter3.ch.ch" -PolicyName "FirstTrunk RoutingPolicy"
```

3.6 Verify the Configuration

To verify the previous steps, run the following line after changing the identity to your newly created user.

```
Get-CsOnlineUser -Identity "bill@datacenter3.ch.ch" | ft UserPrincipalName,OnPremLineURI,OnlineVoiceRoutingPolicy,EnterpriseVoiceEnabled
```

You should now see the number (OnPremLineURI), Online Voice Routing Policy and Enterprise Voice Status: Enabled for the user.

```
UserPrincipalName OnPremLineURI OnlineVoiceRoutingPolicy EnterpriseVoiceEnabled
-----
bill@datacenter3.ch.ch tel:+41445084714 FirstTrunk Routing Policy
True
```

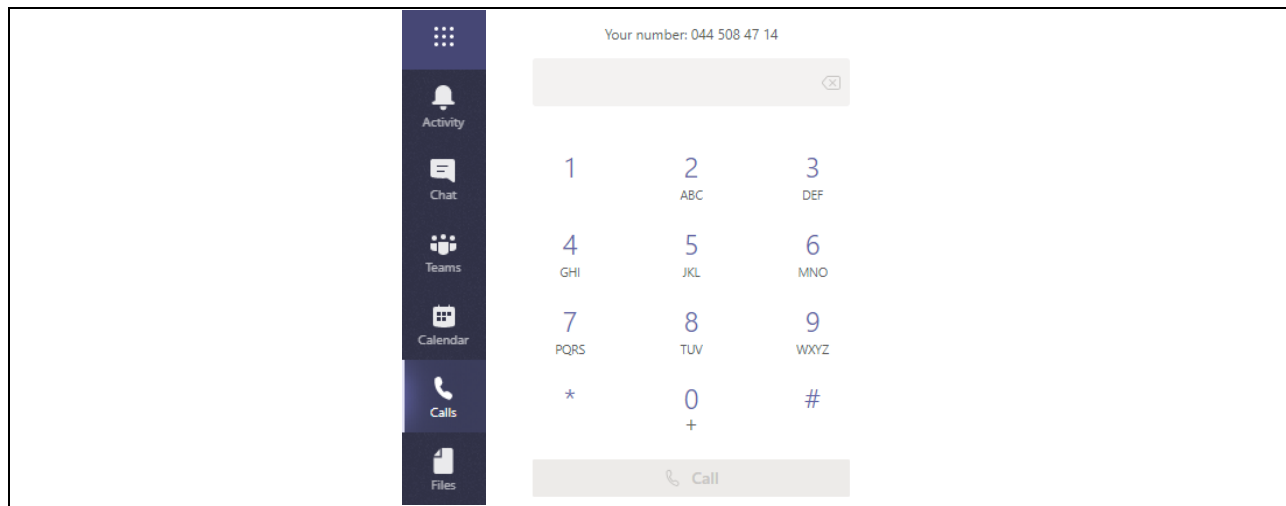
→ It can take some time until these settings become active, even if the above table shows everything correctly. This is entirely dependent on Office 365 Replication, unfortunately the status or progress of the back end provisioning can't be seen anywhere.

4 Check the User's Teams Client

4.1 Check if the DialPad is Available

Ask the user to open his Teams Client, go to the Calls Tab and check if the DialPad and the user's number are visible.

→ If the DialPad and number are visible, it means that the user is fully provisioned and is now able to make and receive PSTN calls using Microsoft Teams.



5 Optional Configuration for AudioCodes C450HD Phones

5.1 General Information

If you bought AudioCodes C450HD Desk Phones from TwinCap First AG and the user which you just provisioned plans to use such a phone, you also need to assign a Tenant Dial Plan to this user. Otherwise the user might not be able to dial national numbers with a leading 0 from the Desk Phone. This applies only to Phones which will run in Skype for Business Mode.

5.2 Assign the DialPlan

Replace the identity with the newly created user's UPN and run the following line.

```
Grant-CsTenantDialPlan -Identity "bill@datacenter3.ch.ch" -PolicyName TCFDeskPhoneOptimization
```

5.3 Verify the DialPlan

Replace the identity with the newly created user's UPN and run the following line in order to see if it was successful.

```
Get-CsOnlineUser -Identity "bill@datacenter3.ch.ch" | ft  
UserPrincipalName,DialPlan,TenantDialPlan
```

The output should look something like this.

```
UserPrincipalName DialPlan TenantDialPlan  
-----  
bill@datacenter3.ch.ch CH TCFDeskPhoneOptimization
```

→ This command only works if the Tenant Dial Plan has been previously configured by TwinCap First during the setup of Teams Direct Routing.