Ribbon Connect
Direct Routing as a Service

Teams Admin Setup Guide (one click)

4 SEPTEMBER 2020

Teams User Setup Guide

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1 Before You Begin

Before you begin the Teams admin setup you will need:

- A user/login to your Microsoft 365 account with Global Admin rights
- Microsoft Phone System licence add-ons (or E5 licences) for the end users of the service
- Access to the PBX to create/manage SIP credentials.
- Ideally, one or two spare Microsoft 365 user licenses such as Business Essentials/Premium or E1/E3/E5, for a few hours during the initial setup

2 Overview

To enable the Teams Calling service the following steps are required:

- Gather SIP Credentials from the PBX
- Purchase and assign Microsoft Phone System (or E5) licences
- Set up the PBX service
- Set up the Teams service
- Create users in the service portal and connect them to your PBX service.

2.1 Gathering SIP Credentials from the PBX

Note: All PBX systems are different, the example here is for illustration only. Contact the PBX administrator for accessing the settings relevant to the PBX being connected.

There are up to 5 pieces of information required to add a user:

1. User DiD (Phone Number)
2. SIP Username
3. SIP Password
4. SIP Realm (sometimes called Domain)
5. Registrar / Proxy

This information can typically be found in the user's PBX account settings on the existing PBX. We recommend setting up a new device for use by Ribbon Connect unless you are decommissioning the existing phone, or the PBX explicitly supports multiple registrations with a single username.

It's a good idea to compile a table for all users to be set up like this:

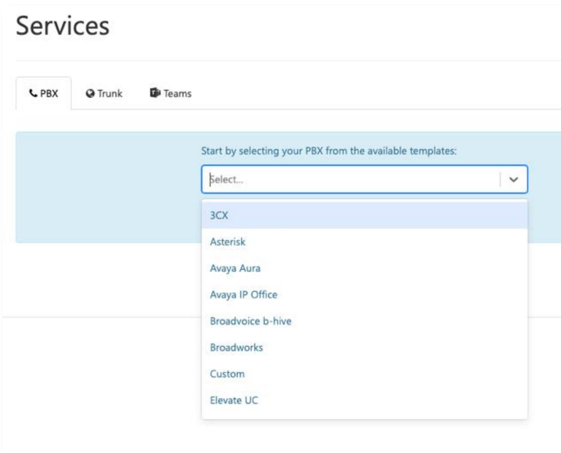
User Name	DiD	SIP Username	SIP Password	Realm	Proxy
Adele Vance	+19894561286	user_cb9z4fvkf	********	gadgetz.com	sip.gadgetz.com
Brian Johnson	+44122598764	user_kh34kjtbf	********	gadgetz.com	sip.gadgetz.com
Christie Cline	+35312378936	user_lkjsc82fwf	********	gadgetz.com	sip.gadgetz.com

Note that the Realm and Proxy setting is likely to be the same across each customer. If you are connecting two or more PBXs to one account on this service, be aware of storing the different Realm and Proxy settings for each group of users.

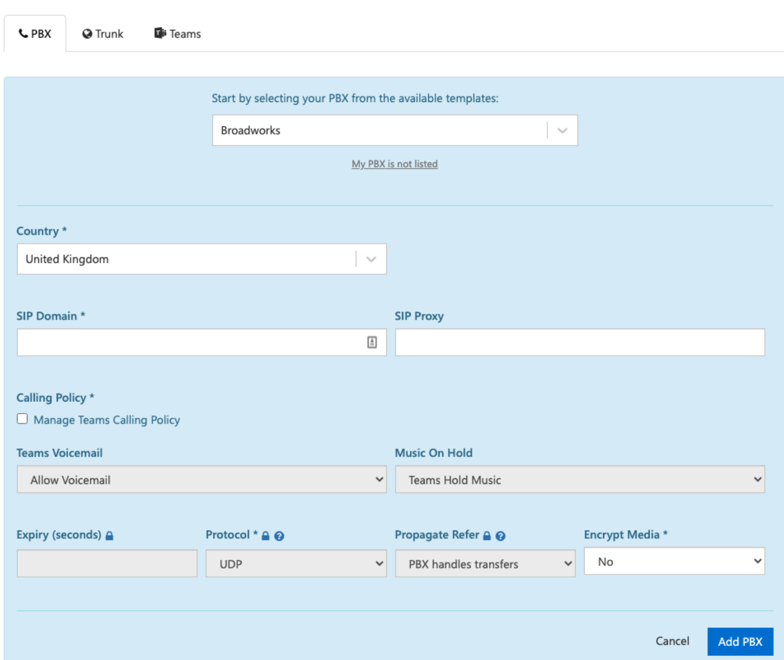
2.2 Setup the PBX Service

The set-up is split into two stages: **Services** and **Users**. Services are Customer-wide settings such as the set-up of the connection to the existing PBX and the set-up of the Microsoft 365 tenant.

In the **Ribbon Connect Portal**, select the **Services** tab. Choose the desired PBX from the list, or select 'Custom' if your PBX is not listed.



Settings appropriate to this PBX type are shown, for example:



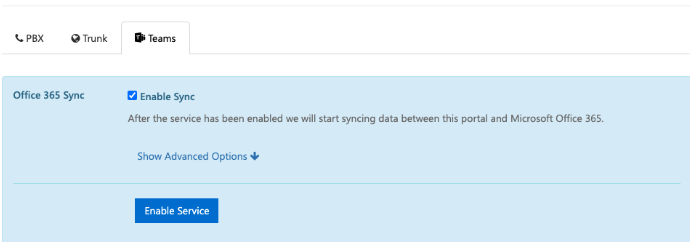
Enter the required information into the page. The information will be shown as will the option to add another PBX; an additional PBX entry would be used if you have more than one PBX.

2.3 Set Up the Teams Service

In the Services area, the **Teams** tab will allow the creation of the Teams configuration. The service automatically allocates endpoints based on the location of the PBXs or SIP trunks. The **Enable Sync** function allows the portal to automatically configure the service and set phone numbers directly into your Microsoft 365 tenant.

Customers wishing to configure their tenant manually should untick the **Enable Sync** option.

Setup of Microsoft 365 works best if you have two spare licenses such as Business Essentials/Premium or E1/E3/E5. These spare licenses are only required for a few hours during the setup process and can be removed or re-assigned afterwards. If you only have one spare license, then the set-up process also works but may take longer. If you don't have any spare licenses, then additional manual activation steps will be required.

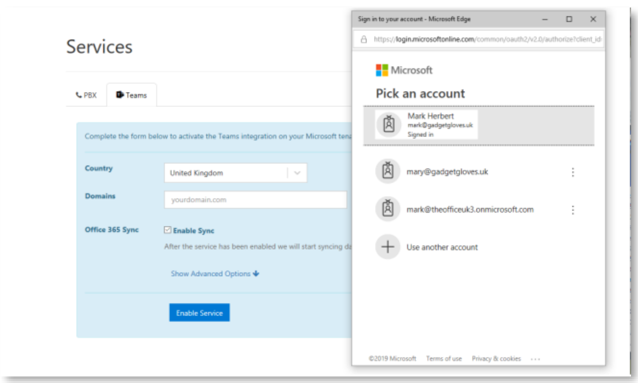


At the point the service is enabled, the portal will request permission to make changes to the voice configuration in Microsoft 365

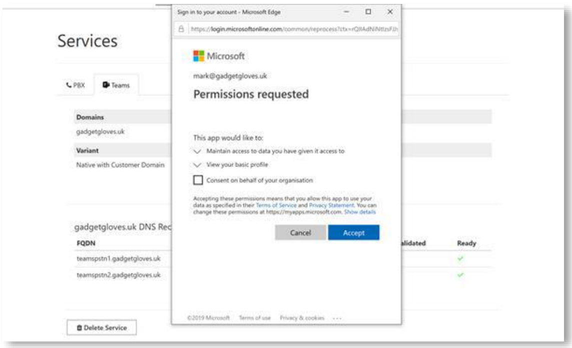
A request to log-in and two separate permissions windows will appear.

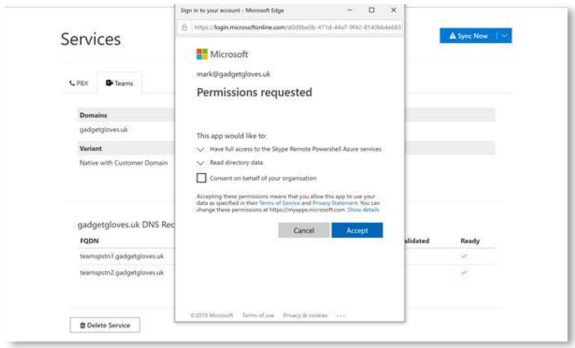
IT IS IMPORTANT TO LOGIN WITH THE CREDENTIALS FOR THE MICROSOFT 365 ACCOUNT BEING SET-UP. LOGGING IN WITH THE CREDENTIALS TO A DIFFERENT MICROSOFT 365 ACCOUNT WILL AUTHORIZE CHANGES TO AN MICROSOFT 365 TENANT OTHER THAN THE ONE THAT SHOULD BE CONFIGURED.

The user account used must have *Global Admin* rights to the Customer's Microsoft 365 tenant for the initial setup and any changes to regions, and at least *Skype for Business admin* rights for subsequent user provisioning.



There will be two or three pop ups requesting permission to enable the administration activities to configure the Microsoft 365 account.

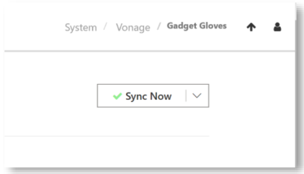




Part of the sync adds special domains to the Microsoft 365 account and activates them for voice. This requires that a licensed user has their sign-in address changed to each of these domains in turn for long enough for Microsoft to activate that domain in the voice subsystem. The sync will do this automatically using the first of these three methods that applies:

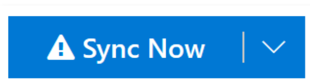
1. Use a spare license to create a user, then delete the user when done.
2. Change the sign-in address of the user whose credentials were specified for the sync if it has an appropriate license, changing it back once done.
3. Change the sign-in address of an arbitrary user who has an appropriate license, changing it back once done.

NOTE: the sync will wait up to 20 minutes for Microsoft to activate the domain before giving up and restoring the sign-in address. In most cases this is more than enough times, but occasionally the Microsoft subsystem that activates domains for voice seems to stop working and it may be necessary to wait for a day before trying again.



When the initial configuration is complete, the Sync button with show a green checkmark.

Note: the portal normally requires authorization to an Microsoft 365 account just once, and this access authority is stored in Microsoft 365. Access can be revoked at any time



Occasionally through the configuration process, the **Sync Now** button will change to the blue button, this means that there are updates pending to be applied to the Microsoft 365 tenant.

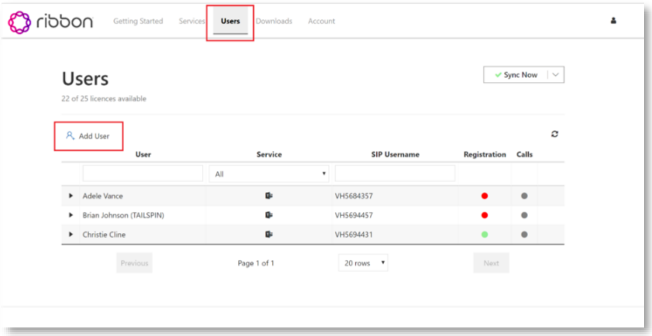
2.4 Completing the Setup If No Spare Licenses are Available

The sync will automatically detect if there are any spare licenses and will complete without any further steps.

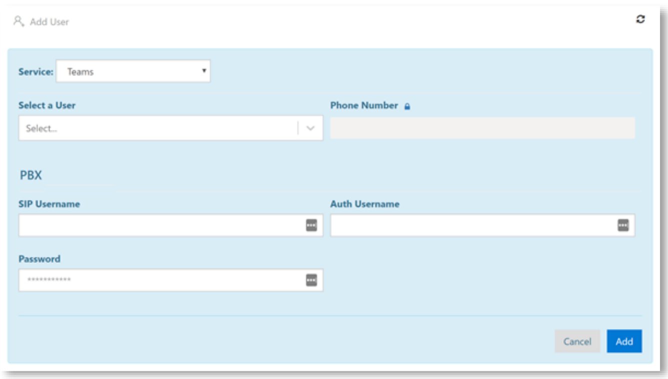
However, if you do not have a spare license then it will prompt for manual intervention to complete activating the domains for voice.

2.5 Create Users in the Ribbon Connect Portal

Selecting the **Users** tab will display the list of configured users along with their Registration status.



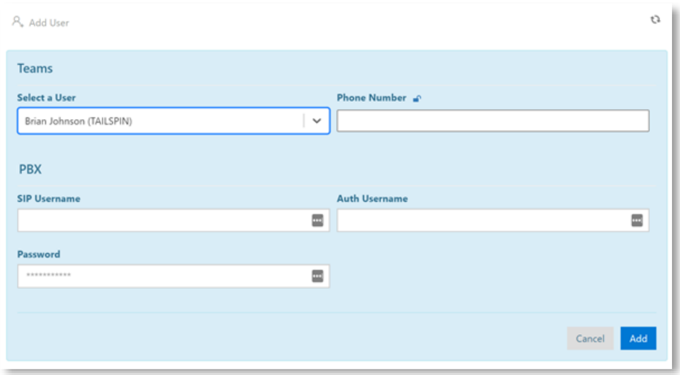
In this section, new users can be created using the Add User function.



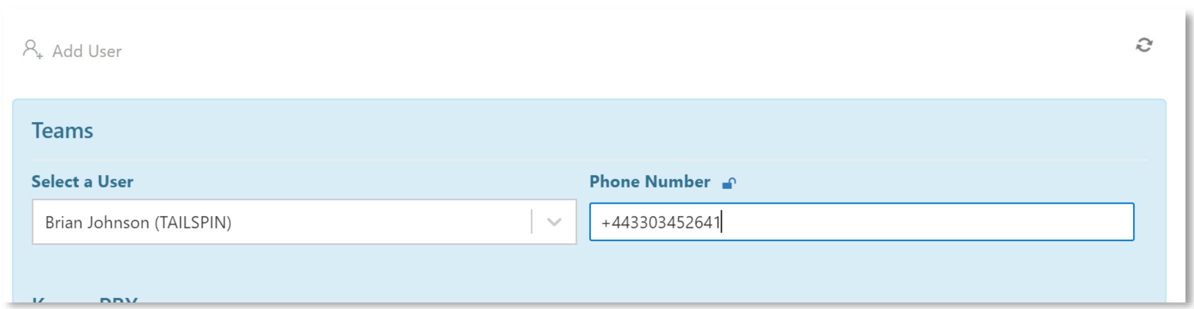
There are some important features of the Add User function to note:
A list of users will be displayed that are applicable for PBX Voice calls that will have at least one of the following:

- A phone system license
- An E5 license

If a user has a phone number assigned in Microsoft 365, this will show when the user is selected:



Note: The padlock symbol above the phone number. If a user has a number already assigned in Microsoft 365 then the number will be sown here with the padlock closed. If it is necessary to change the user's phone number, then click the padlock to unlock the field to enter a new phone number.

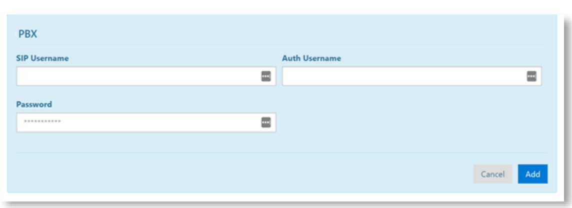


When this is unlocked, a new phone number can be added or edited for the user.

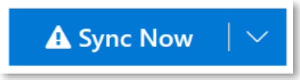
This will also be the behavior for users being set-up that do not have phone numbers set in Microsoft 365.

A phone number entered for a user will be pushed into the customer's Microsoft 365 configuration by the next Sync Now activity.

The remaining information to be entered for each user is the SIP Username and Password as set in the PBX portal for the user's device.

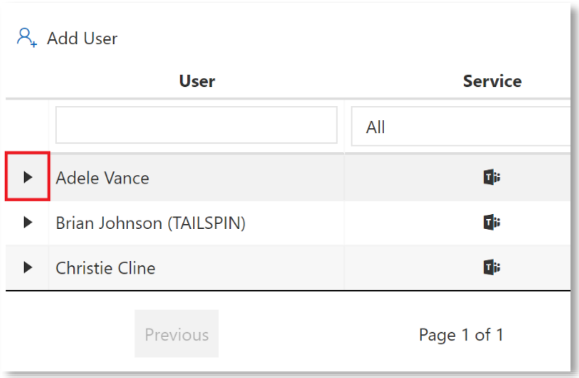


Remember to start a Sync Now activity after updating users, the Sync Now button will show blue to alert that a sync is required.

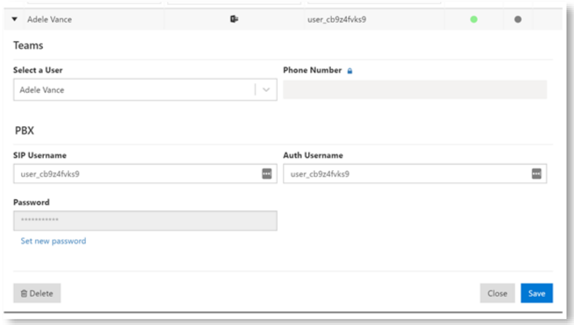


2.6 Editing Users

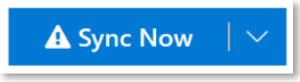
In the user list, the user detail can be expanded using the small arrowhead next to the username:



Click this element to expand the user detail:



At this stage the user information can be amended, or the user deleted. After changes to a user, a Sync Now activity is required.



This completes the set-up process.

3 Configuration Delays

Some elements of the configuration within Microsoft Office365 can be subject to delays as information propagates between different parts of the Microsoft system. This can vary from day to day, so we recommend that you aim to carry out these steps at least 48 hours prior to your go-live date to allow for this. If you get an unexpected error on any step, then we suggest waiting 24 hours and trying again before reporting a problem to Microsoft.

4 Troubleshooting

If you encounter problems with these set-up steps for DNS or Teams dial-pad, please refer to the separate Troubleshooting guide in the Downloads area of the portal.

5 Configuring Microsoft 365 without the Sync Now Feature

The Sync Now feature automates a complex setup process into a single click. Some customers prefer not to delegate access rights to the Ribbon Connect portal to do this for them, even though it only uses a temporary token that expires after each sync, and wish to undertake the setup process manually.

This manual setup process should be undertaken by a competent Microsoft 365 administrator who has good PowerShell experience. If there is already some PSTN integration set up on the tenant, then these instructions will need to be modified by an Microsoft 365 PSTN voice expert to ensure they do not impact the existing configuration.

The configuration is split into two sections: Tenant Configuration, which is performed once on initial setup and again whenever a new region is required, and User Configuration, which is performed for each user as they need to be enabled for voice.

5.1 Tenant Configuration

Setting up the Microsoft 365 tenant requires several actions to be performed:

- Add 2 or more domains to the Microsoft 365 tenant and validate them
- Activate those domains for voice
- Set up Teams Direct Routing using PowerShell

5.1.1 Add the Domains and Validate Them

Make sure you have at least one PBX or Trunk created in the portal as this is used to determine which region to allocate for the Teams service. Enable the teams service, without the Enable Sync option.

The Ribbon Connect portal will show a list of domains. This is usually two but may be more if you have PBXs or Trunks in many global regions. You need to add these domains to your Microsoft 365 tenant in the Microsoft 365 admin portal.

As each domain is added, Microsoft will prompt you to validate it:

- If given a choice of methods to validate the domains, pick the DNS TXT method
- Copy the code provided by Microsoft into the Ribbon Connect portal for each domain and click Save
- In the Microsoft 365 admin portal click to validate each domain.

5.1.2 Activate the Domain for Voice

For each domain that is added you need to trigger Microsoft 365 to activate it for voice. Microsoft's documented method for achieving this is to set up a user a sign in address using the new domain and wait a while. For each domain you need:

- A user with a sign-in address in that domain
- A license assigned which includes Skype for Business Online Plan 2 (e.g. Business Essentials, E1, etc)

If you have spare licenses then you can create new users, otherwise you will need to pick existing users to disrupt for the duration of the activation.

It usually takes 5 minutes for the activation to occur but can occasionally take several hours or days. See the next step for how to determine when activation has completed.

Once the domain is activated for voice you can release the users; if you created them using spare licenses then they can be deleted.

5.1.3 Setup Teams Direct Routing Using PowerShell

Make sure you have the latest Skype for Business PowerShell module installed.

Start a PowerShell session and sign in with a user who has the *Global Admin* or *Skype for Business Admin* role:

```
# If the main domain doesn't have the 'lyncdiscover' DNS record then use
# -OverrideAdminDomain and pass in the xxx.onmicrosoft.com domain, as this does
$session = New-CsOnlineSession
Import-PSSession -Session $session -AllowClobber
```

Check that the domains have been activated for voice. Run this command and they will appear in the list of domains once they are activated:

```
Get-CsTenant | Select-Object -ExpandProperty DomainUrlMap
```

Do not proceed until all the necessary domains are showing as activated.

Note: If you are familiar with Teams Direct Routing then you might expect to be configuring PSTN Gateways. However, this is not necessary as these are defined in the Ribbon Connect carrier tenant.

Edit the following PowerShell to replace the highlighted yellow parts with the real domain names.

```
Set-CsOnlinePstnUsage `
    -Identity Global `
    -Usage @{add='PBX'} `
New-CsOnlineVoiceRoutingPolicy `
    -Identity PBX `
    -OnlinePstnUsages PBX `
New-CsOnlineVoiceRoute `
    -Name Domain1 `
    -Description PBX `
    -Priority 0 `
    -OnlinePstnGatewayList Domain1 `
    -OnlinePstnUsages PBX `
    -NumberPattern .* `
New-CsOnlineVoiceRoute `
    -Name Domain2 `
    -Description PBX `
    -Priority 1 `
    -OnlinePstnGatewayList Domain2 `
    -OnlinePstnUsages PBX `
    -NumberPattern .* `
$rule = New-CsVoiceNormalizationRule `
    -Parent Global `
    -Name PBX `
    -Description PBX `
    -InMemory `
    -Pattern '^(\*[\*\d]+|[1-9]\d{0,5})$' `
    -Translation '$1' `
    -IsInternalExtension $false `
Set-CsTenantDialPlan `
    -Identity Global `
    -NormalizationRules @{ "add" = $rule }
```

5.2 User Configuration

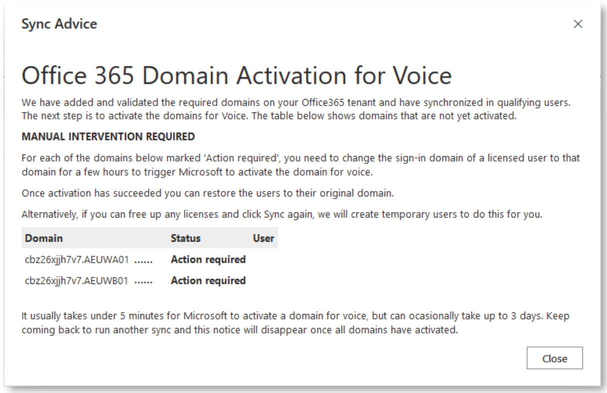
Connect to Skype for Business PowerShell as per the tenant setup, then run the following for each user, editing the highlighted yellow parts to match the user's UPN and telephone number. The telephone number must be in E164 format and begin with a '+', and the country code must match the country that is specified on the license screen in the Office 365 admin portal.

```
Grant-CsOnlineVoiceRoutingPolicy `
    -Identity mary@gadgetgloves.uk `
    -PolicyName PBX
Set-CsUserPstnSettings `
    -Identity mary@gadgetgloves.uk `
    -AllowInternationalCalls $true
Set-CsUser `
    -Identity mary@gadgetgloves.uk `
    -OnPremLineURI 'tel:+441234567890' `
    -EnterpriseVoiceEnabled $true `
    -AudioVideoDisabled $false
```

6 Activating Domains for Voice When Spare Licenses are Unavailable

If you do not have a spare license, then the sync process will prompt for manual intervention to complete activating the domains for voice:

Clicking on View Advice shows this:



Sync Advice

Office 365 Domain Activation for Voice

We have added and validated the required domains on your Office365 tenant and have synchronized in qualifying users. The next step is to activate the domains for Voice. The table below shows domains that are not yet activated.

MANUAL INTERVENTION REQUIRED

For each of the domains below marked 'Action required', you need to change the sign-in domain of a licensed user to that domain for a few hours to trigger Microsoft to activate the domain for voice.

Once activation has succeeded you can restore the users to their original domain.

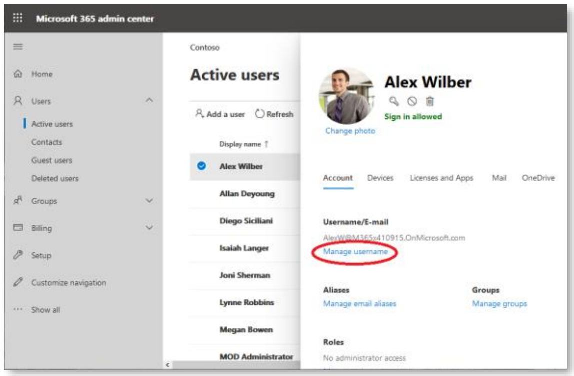
Alternatively, if you can free up any licenses and click Sync again, we will create temporary users to do this for you.

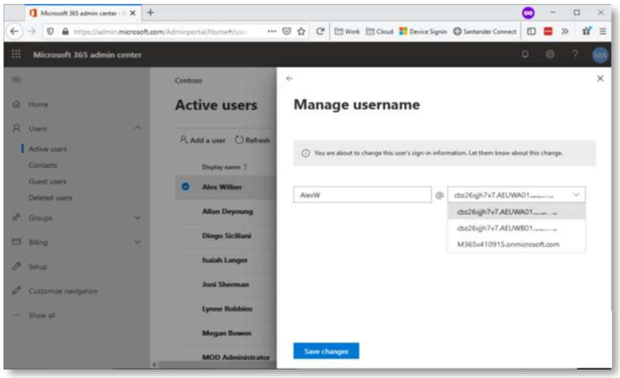
Domain	Status	User
cbz26xjjh7v7.AEUWA01	Action required	
cbz26xjjh7v7.AEUWB01	Action required	

It usually takes under 5 minutes for Microsoft to activate a domain for voice, but can ocasionally take up to 3 days. Keep coming back to run another sync and this notice will disappear once all domains have activated.

Close

Go to the Microsoft 365 admin portal. The new domains have already been added and validated automatically, so the only manual step is to assign each domain to a licensed user to trigger Office365 to activate it for voice. This can either be done by assigning each domain to a different user, or by using one user to activate each domain in sequence.





After a few minutes click sync again, and once the sync completes successfully the users can be changed back to their original domain in the Office365 admin portal.

If activating in sequence using a single Office 365 user, then keep checking the View Advice link and when the current domain disappears move on to the next until all are done.