The Guide v2.0

poc

Codename: Janice

This guide is made to simulate a scenario where a company called “Jd0e Inc” in our case was acquired by “Agzsolt Inc). They both are using a hybrid Office365 environment, however in this guide we only deal with the mail service. Our goal is to merge Jd0e into the Agzsolt tenant while we maintain mail- and workflow the whole time.

To make the situation a little more complex, the source Jd0e tenant is using **ADFS** for single sign-on functionality.

Also the Jd0e users are still using the the 2010 version of Outlook so we stick with it here.

In our example **agzsolt.com** is used to be the destination tenant and **jd0e.com** is the organization to be moved the mailboxes from.

The starting setup

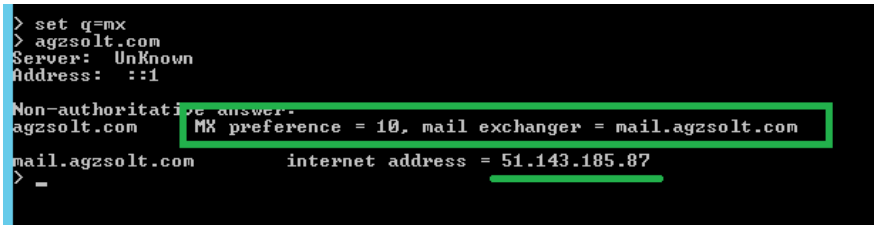
Destination:

agzsolt.com

Hybrid

O365: agzsolt.onmicrosoft.com tenant, agzsolt.com as the default domain

Onprem: **Exchange 2013 CU18** server: 51.143.185.87



Source:

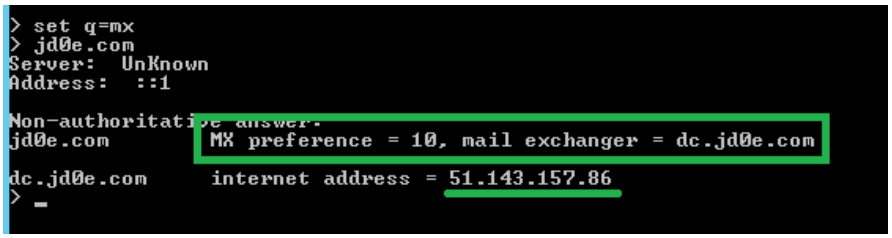
Jd0e.com

Hybrid and ADFS federated

O365: jdoe.onmicrosoft.com tenant; jd0e.com as the default domain

Onprem: **Exchange 2013 CU18** server+DC: 51.143.157.86

Adfs proxy: 51.143.188.208



Mailbox situation:

Destination – agzsolt.com:

mailboxes groups resources contacts shared migration

DISPLAY NAME	MAILBOX TYPE	EMAIL ADDRESS
Person 1	**Office 365**	**person1@agzsolt.com**
Person 10	Office 365	person10@agzsolt.com
Person 2	Office 365	person2@agzsolt.com
Person 3	Office 365	person3@agzsolt.com
Person 4	Office 365	person4@agzsolt.com
Person 5	Office 365	person5@agzsolt.com
Person 6	Office 365	person6@agzsolt.com
Person 7	Office 365	person7@agzsolt.com
Person 8	Office 365	person8@agzsolt.com
Person 9	Office 365	person9@agzsolt.com
za	User	za@agzsolt.com

Source – jd0e.com:

mailboxes groups resources contacts shared migration

DISPLAY NAME	MAILBOX TYPE	EMAIL ADDRESS
Chandler Bing	Office 365	Chandler@jd0e.com
Janice Hosenstein	Office 365	Janice@jd0e.com
Joey Tribbiani	Office 365	Joey@jd0e.com
Monica Geller	Office 365	Monica@jd0e.com
Phoebe Buffay	Office 365	Phoebe@jd0e.com
Rachel Green	Office 365	Rachel@jd0e.com
Ross Geller	Office 365	Ross@jd0e.com
za	User	za@jd0e.com

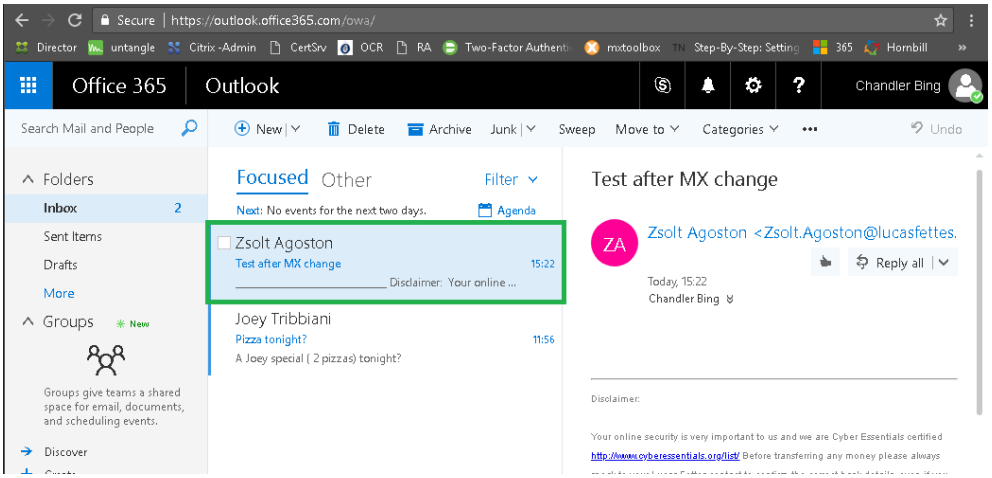
Ok, let's start!

Change the jd0e.com MX record to point to the agzsolt.com on-prem server

```
C:\Users\za>nslookup -q=mx jd0e.com 8.8.8.8
Server:  google-public-dns-a.google.com
Address:  8.8.8.8

Non-authoritative answer:
jd0e.com        MX preference = 10, mail exchanger = mail.agzsolt.com

C:\Users\za>_
```

Now test the mailflow to verify the emails are still arriving to the @jd0e.com mailboxes: we send an email from a Gmail address to a jd0e mailbox. Note that the jd0e MX record has already been directed to the destination on-prem server (mail.agzsolt.com). Also the SPF record is updated accordingly to prevent the sent emails to be put in the recipient's junk folder.

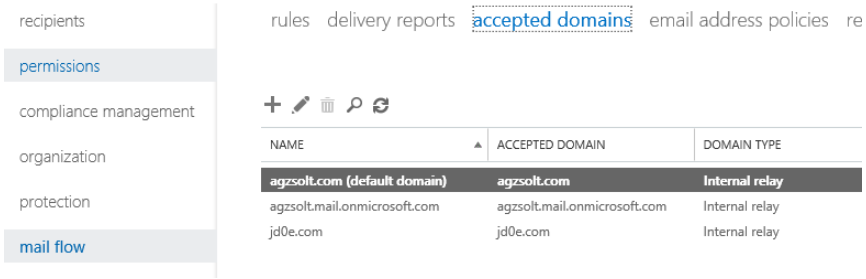
Spf for jd0e:
v=spf1 include:mail.agzsolt.com include:spf.protection.outlook.com -all



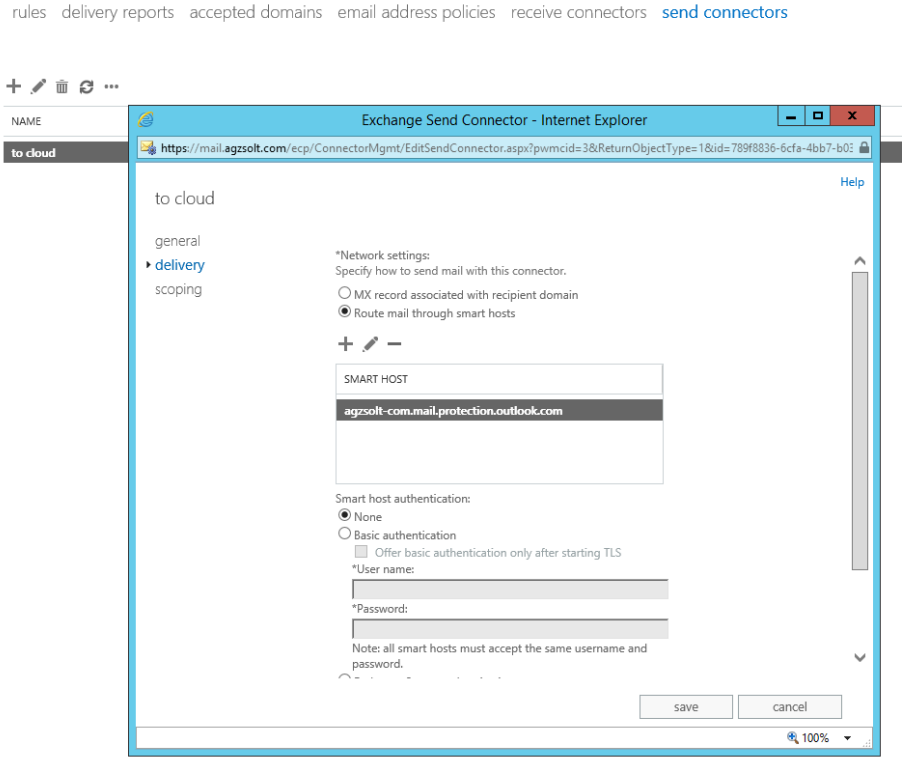
The email has arrived without an issue!

Prepare the destination on-prem server

1. Put jd0e.com in the accepted domain list



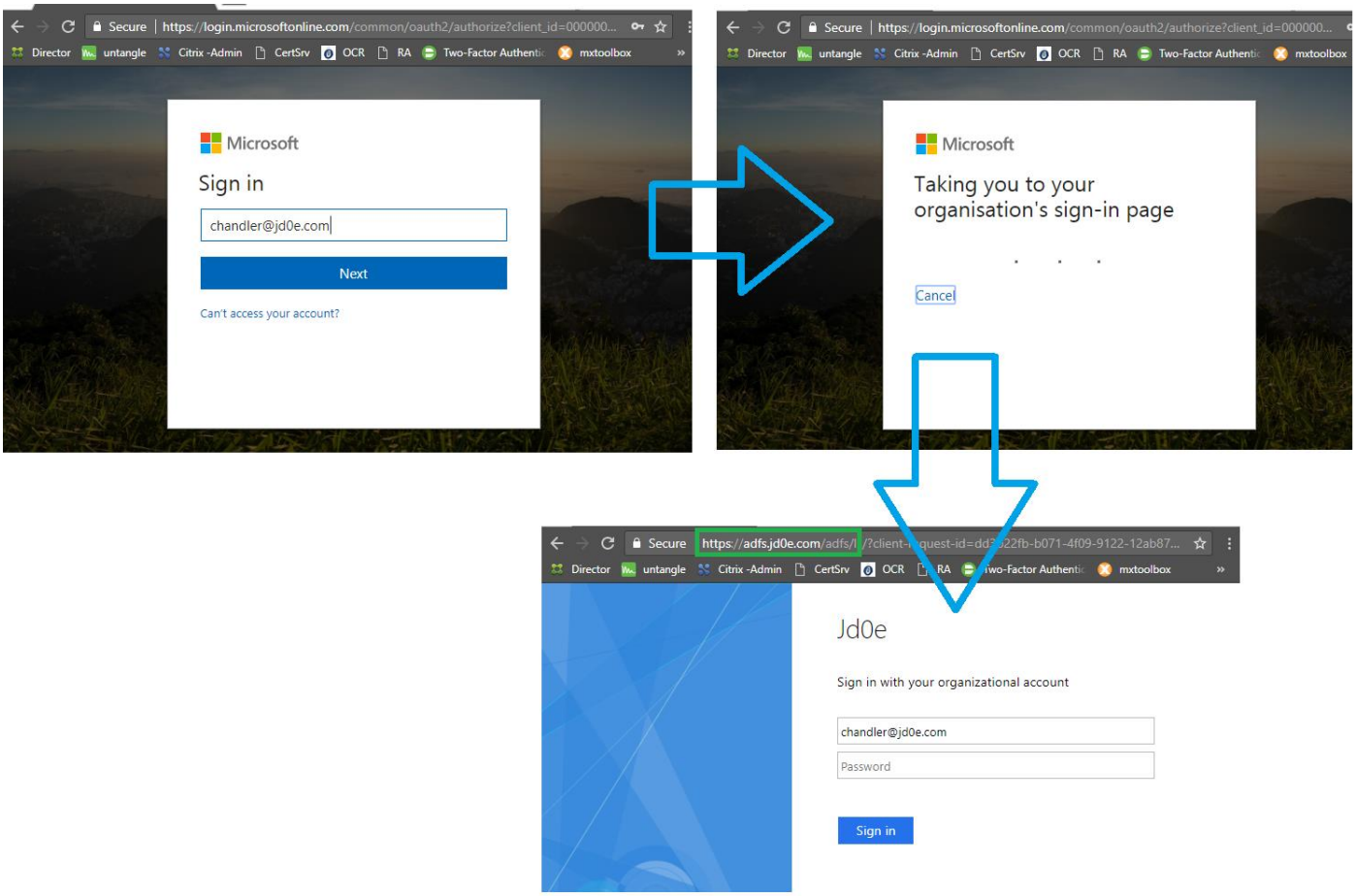
2. If not already done, create a send connector to the cloud



Disable Federation

First we need to disable ADFS before we can proceed and cut dirsync to make the mailboxes fully cloud-managed.

Let's see how the OWA portal behaves. As soon as we try to log in on https://out.look.office365.com it redirects us the the local ADFS proxy server for authentication



We can see on dc.jd0e.com server that the domain is federated:

```
[PS] C:\>Get-MsolDomain | fl name,authentication

Name           : jd0e.com
Authentication : Federated

Name           : jd0e.onmicrosoft.com
Authentication : Managed

Name           : jd0e.mail.onmicrosoft.com
Authentication : Managed
```

Now we **make the domain standalone**. First we connect to the adfs server

```
Set-MsolADFSContext -Computer adfs.jd0e.com
```

And set the domain to standard:

```
Convert-MsolDomainToStandard -DomainName jd0e.com -SkipUserConversion:$true -PasswordFile c:\passwdfile.txt
```

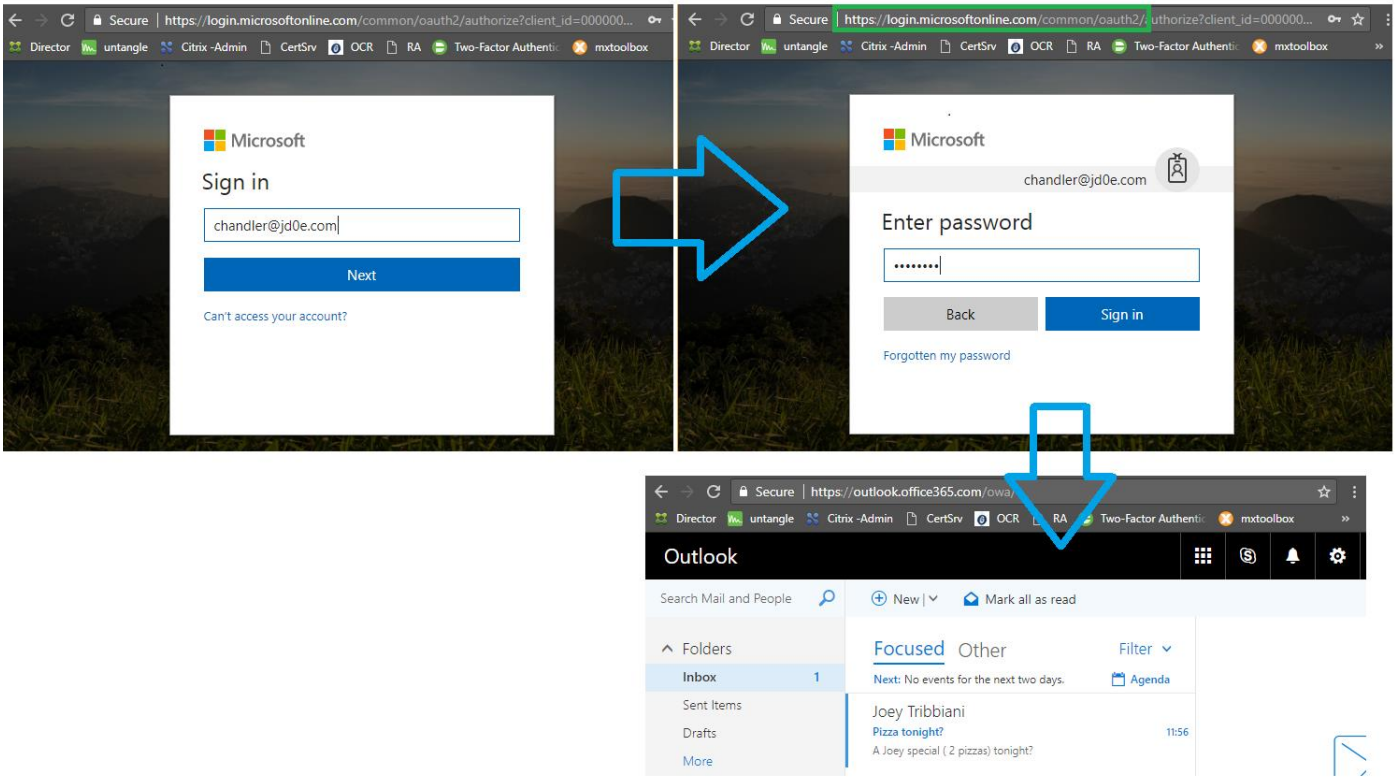
And set the authentication method as well:

```
Set-MsolDomainAuthentication -Authentication managed -DomainName jd0e.com
```

At this point the domain becomes cloud-managed again, that we will confirm

```
[PS] C:\>Convert-MsolDomainToStandard -DomainName jd0e.com -SkipUserConversion:$true -PasswordFile c:\passwdfile.txt
Successfully updated 'jd0e.com' domain.
[PS] C:\>
[PS] C:\>Get-MsolDomain | fl name,authentication

Name           : jd0e.com
Authentication : Managed

Name           : jd0e.onmicrosoft.com
Authentication : Managed

Name           : jd0e.mail.onmicrosoft.com
Authentication : Managed
```

To see if the authentication works we check the login interface again:

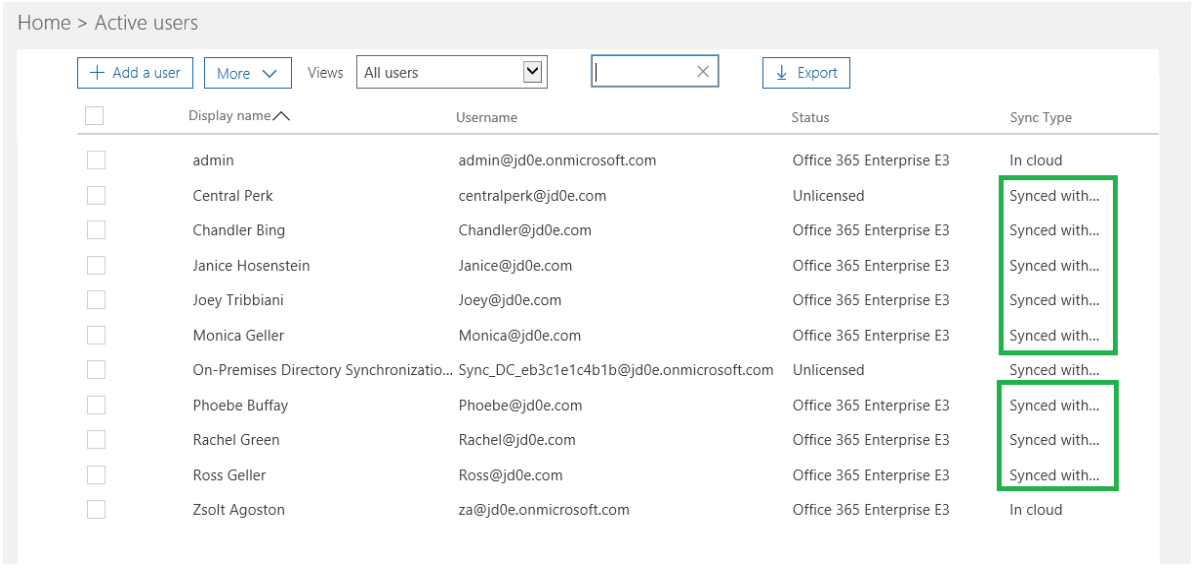


We are in, the authentication is happening in the cloud with the AD password that is synced with DirSync! Excellent!

Cut jd0e.com dirsync (can take up to 72 hours to complete), or…

In this step we convert accounts to purely cloud account while keeping their original password

Before:



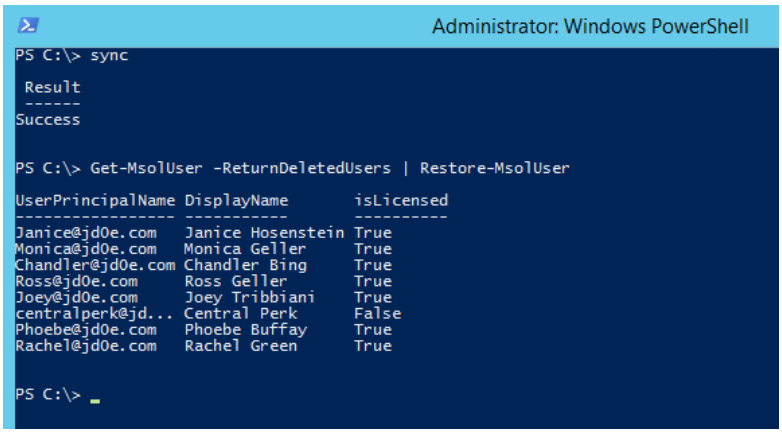

```
Set-MsolDirSyncEnabled -EnableDirSync:$false
```

Check if the process has run:

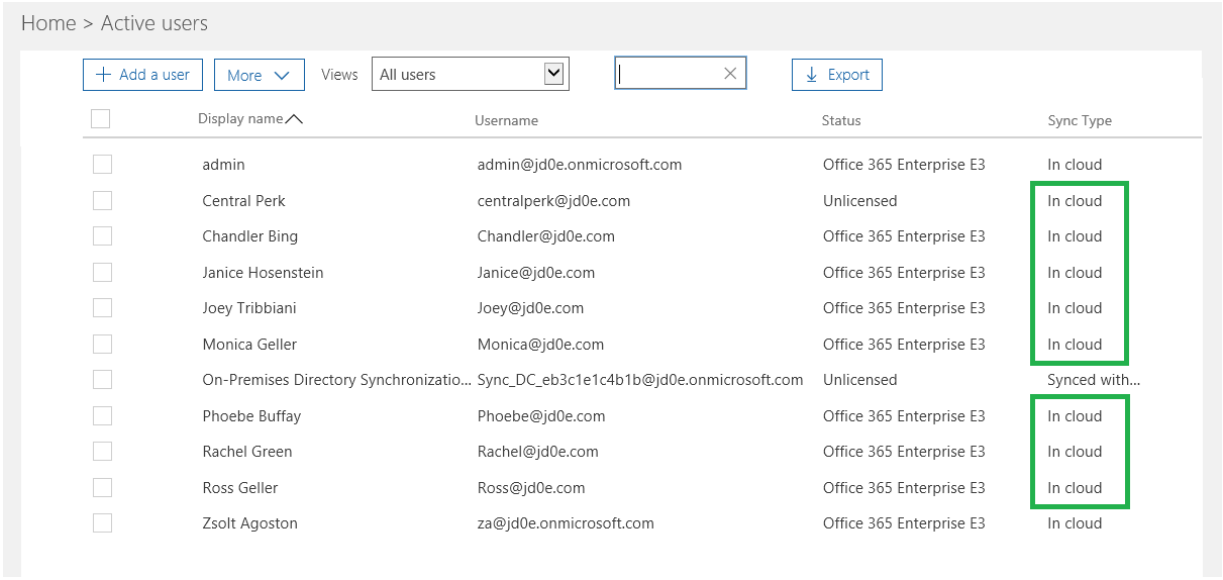
```
(Get-MSOLCompanyInformation).DirectorySynchronizationEnabled
```

Note, if the process takes very long there's another way: **simply move the user accounts to an OU that is not synced to the cloud, and wait for or force a sync cycle.** That will soft delete the cloud accounts, after which they can be restored using the following command (the cloud system will restore them as cloud accounts, preserving the original passwords, permission settings as well):

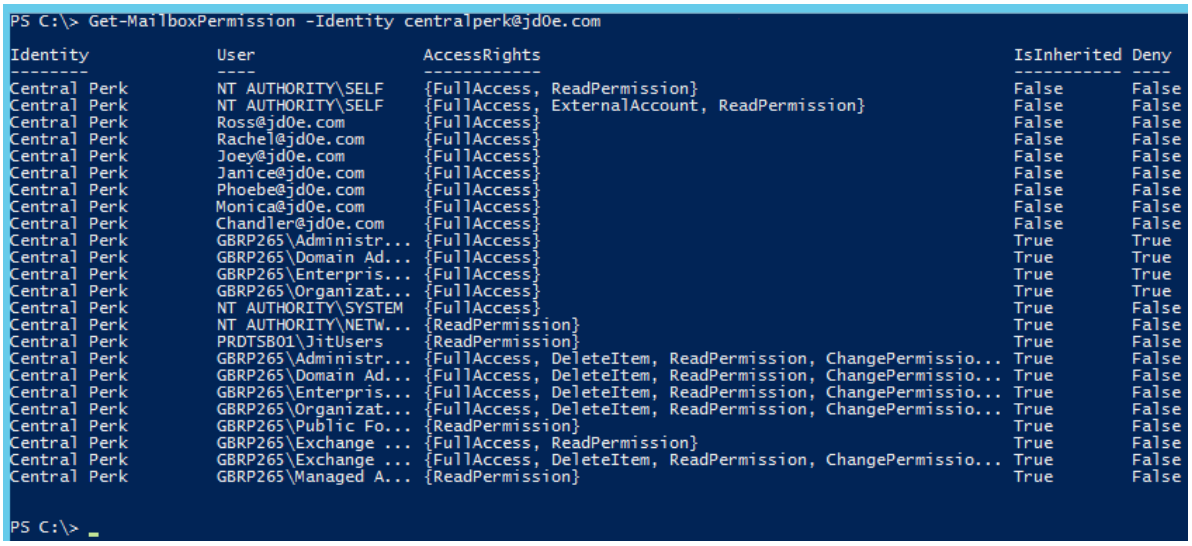
```
Get-MsolUser -ReturnDeletedUsers | Restore-MsolUser
```



After which:

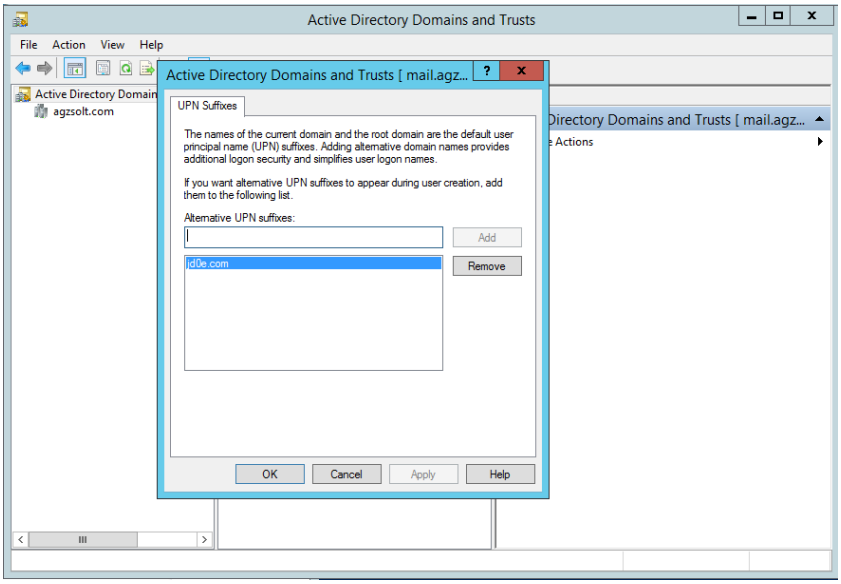


Now we check the permissions on the shared mailboxes to make sure they are not lost like after a license unassign-reassign scenario. As seen below the permission structure is preserved post-cloudization ☺



Create jd0e.com users in the agzsolt.com local AD in a non-synced OU

First, we add the jd0e.com domain to the Active Directory Domains and Trusts temporarily to make the transition simpler for the users. This way they will be able to log in using the underlying kerberos ticketing system – meaning no password prompts (at least while the mailboxes are sitting on the on-prem server) ☺



We run the following script to create the users, which will be created from users.csv

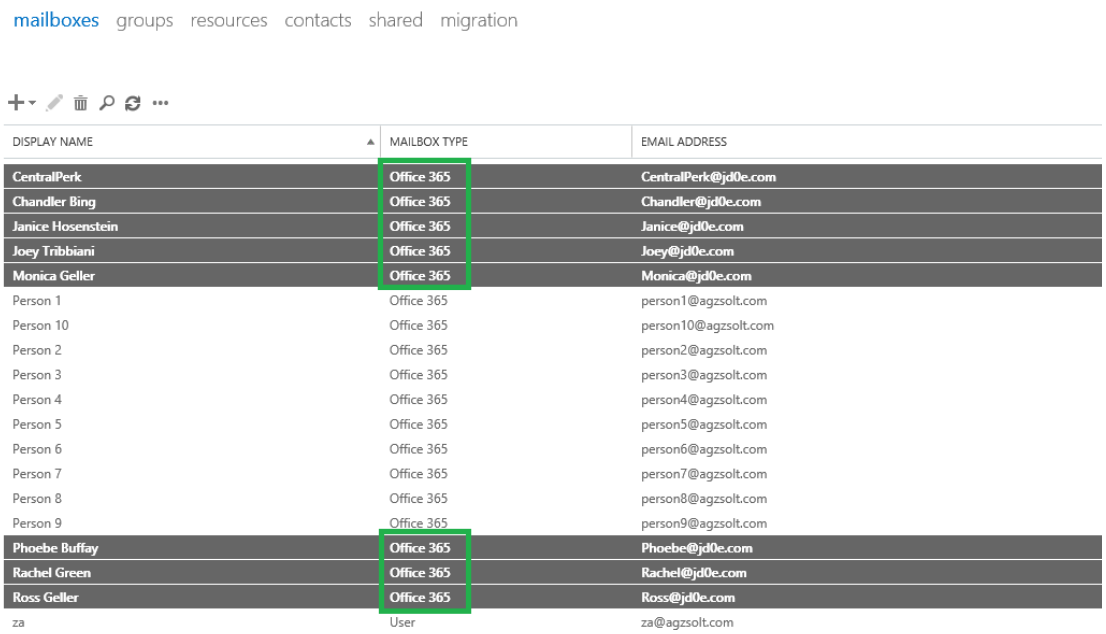
Users.csv

FirstName	LastName
Ross	Geller
Joey	Tribbiani
Monica	Geller
Rachel	Green
Chandler	Bing
Phoebe	Buffay
Janice	Hosenstein
CentralPerk	

Script:

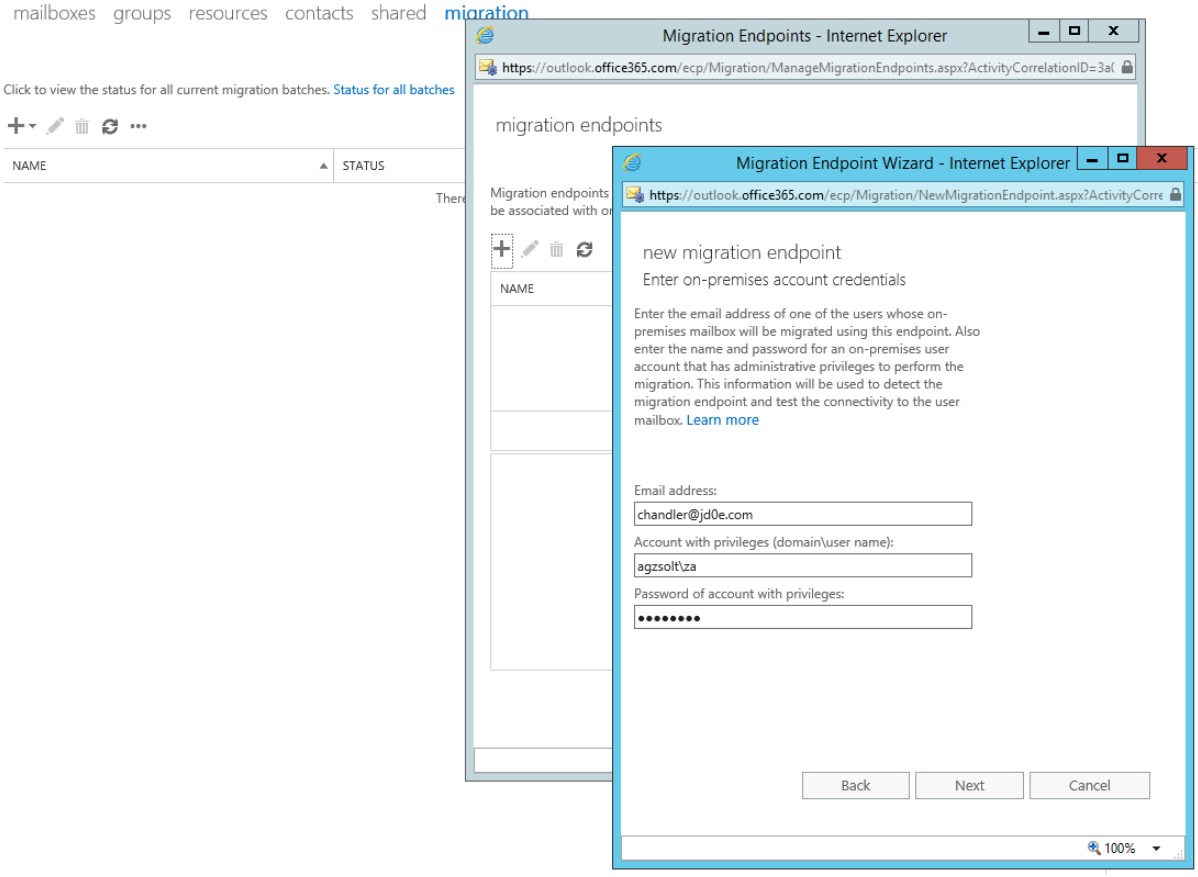
```
New-ADOrganizationalUnit -Name "jd0e" -Path "OU=My Business,DC=agzsolt,DC=com" –Verbose

import-csv users.csv | foreach {
$fn=$_.FirstName
$ln=$_.LastName
New-ADUser -Name "$fn $ln" -DisplayName "$fn $ln" -GivenName "$fn" -Surname "$ln" -UserPrincipalName
$fn@jd0e.com -Path "OU=jd0e,OU=My Business,DC=agzsolt,DC=com" -Enabled:$true -EmailAddress
"$fn@jd0e.com" -AccountPassword(ConvertTo-SecureString "Password12345!" -AsPlainText -Force)
Enable-RemoteMailbox -Identity $fn@jd0e.com -RemoteRoutingAddress $fn@jd0e.onmicrosoft.com
Set-RemoteMailbox -Identity $fn@jd0e.com -EmailAddressPolicyEnabled:$false
}
```

After the commands being run we check the results on the agzsolt.com server:

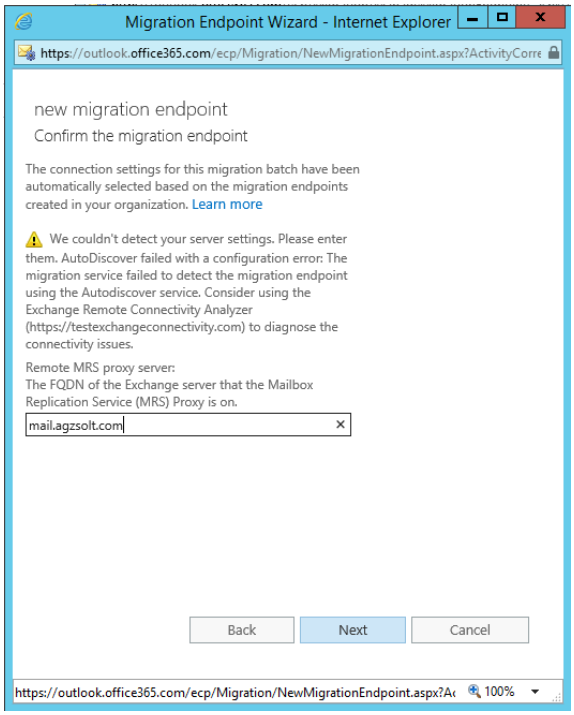


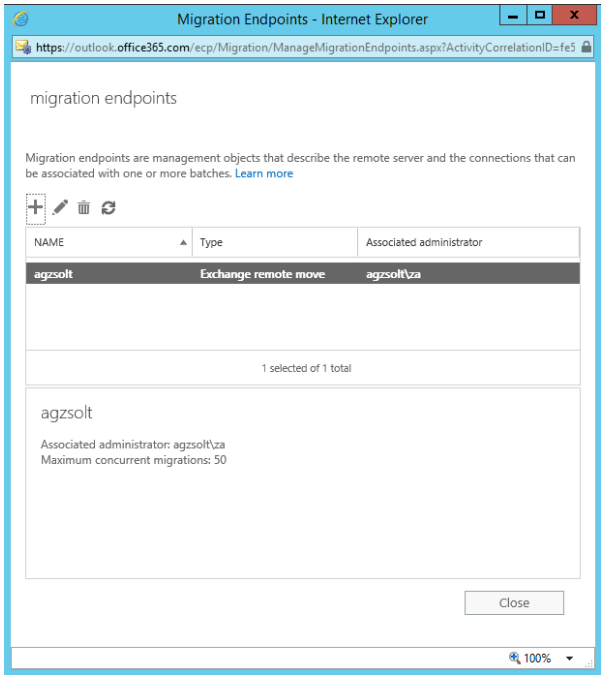
Configure the cross-forest hybrid environment

To make the servers able to move jd0e.com mailboxes to the agzsolt.com server we need to create a migration endpoint in the jd0e.com **cloud** server. It is done in **recipients/migration/migration endpoints**, as the new endpoint's type we use is **"exchange remote"**



It will fail because the server tries to determine the destination FQDN using autodiscover which points to the wrong location of course. We put the right server manually:





In our example we will call the connector "**agzsolt**"

Sync the MSOL attributes into the agzsolt.com local AD accounts

Here the most important thing is that the **ExchangeGUID** attribute of the accounts on the destination on-prem server must match the **ExchangeGUID, WindowsEmailAddress and PrimarySMTPAddress** attributes of the actual cloud mailboxes. We can sync it doing the following:

1. On the cloud server we run the following command that will create a file called **mailboxes.csv**, with all the mailboxes and with the attributes we need:

```
Get-Mailbox -ResultSize Unlimited | select userprincipalname,windowsemailaddress,alias,exchangeGUID |
Export-Csv mailboxes.csv
```

   Now we import the important attributes into the on-prem server for compliance:

```
import-csv mailboxes.csv | foreach {
$name=$_.userprincipalname
$winname=$_.windowsemailaddress
$alias=$_.alias
$guid=$_.exchangeGUID
Set-RemoteMailbox -Identity $name -ExchangeGuid $guid -WindowsEmailAddress $winname -EmailAddresses
@{add="$name"}
Set-RemoteMailbox -Identity $name -PrimarySmtpAddress $name
write-host "$name has given GUID: $guid"
}
```

2. To save the mailbox permission structure, we create a backup file that stores that information, called **perm.csv**

```
Get-Mailbox -ResultSize Unlimited | Get-MailboxPermission | where {$_.isinherited -like "FALSE"} | where
{$_.user -notlike "NT AUTHORITY\SELF"} | where {$_.user -notlike "Discovery Management"} | select
identity,user,accessrights | Export-Csv perm.csv
```

```
PS C:\> Get-Mailbox -ResultSize Unlimited | Get-MailboxPe
RITY\SELF"} | where {$_.user -notlike "Discovery Manageme

Identity          User                 AccessRights
--------          ----                 ------------
Central Perk      Ross@jd0e.com        {FullAccess}
Central Perk      Rachel@jd0e.com      {FullAccess}
Central Perk      Joey@jd0e.com        {FullAccess}
Central Perk      Janice@jd0e.com      {FullAccess}
Central Perk      Phoebe@jd0e.com      {FullAccess}
Central Perk      Monica@jd0e.com      {FullAccess}
Central Perk      Chandler@jd0e.com    {FullAccess}
Janice Hosenstein Ross@jd0e.com        {FullAccess}
Janice Hosenstein Rachel@jd0e.com      {FullAccess}
Janice Hosenstein Joey@jd0e.com        {FullAccess}
Janice Hosenstein Janice@jd0e.com      {FullAccess}
Janice Hosenstein Phoebe@jd0e.com      {FullAccess}
Janice Hosenstein Monica@jd0e.com      {FullAccess}
Janice Hosenstein Chandler@jd0e.com    {FullAccess}
Janice Hosenstein centralperk@jd0e.com {FullAccess}
```

We do the same with send-as permissions (**sendasperm.csv**):

```
Get-Mailbox -ResultSize Unlimited | Get-RecipientPermission | where {$_.isinherited -like "FALSE"} | where
{$_.trustee -notlike "NT AUTHORITY\SELF"} | select identity,trustee,accessrights | Export-Csv sendasperm.csv
```

```
PS C:\> Get-Mailbox -ResultSize Unlimited | Get-Recip
AUTHORITY\SELF"} | select identity,trustee,accessrigh

Identity          Trustee              AccessRights
--------          -------              ------------
Central Perk      Ross@jd0e.com        {SendAs}
Central Perk      Rachel@jd0e.com      {SendAs}
Central Perk      Joey@jd0e.com        {SendAs}
Central Perk      Janice@jd0e.com      {SendAs}
Central Perk      Phoebe@jd0e.com      {SendAs}
Central Perk      Monica@jd0e.com      {SendAs}
Central Perk      Chandler@jd0e.com    {SendAs}
Central Perk      centralperk@jd0e.com {SendAs}
Janice Hosenstein Ross@jd0e.com        {SendAs}
Janice Hosenstein Rachel@jd0e.com      {SendAs}
Janice Hosenstein Joey@jd0e.com        {SendAs}
Janice Hosenstein Janice@jd0e.com      {SendAs}
Janice Hosenstein Phoebe@jd0e.com      {SendAs}
Janice Hosenstein Monica@jd0e.com      {SendAs}
Janice Hosenstein Chandler@jd0e.com    {SendAs}
Janice Hosenstein centralperk@jd0e.com {SendAs}
```

3. Next, we save the distribution groups and members as well in a file called **distro.csv**

```
$distro = Get-DistributionGroup -ResultSize unlimited
$distro | select samaccountname,displayname,windowsemailaddress | Export-Csv distro-list.csv
$members = foreach ($m in $distro) { Get-DistributionGroupMember -Identity $m.Identity | Select
@{Name="Group";Expression={$m.name}},PrimarySMTPAddress}
$members | export-csv distro.csv
```

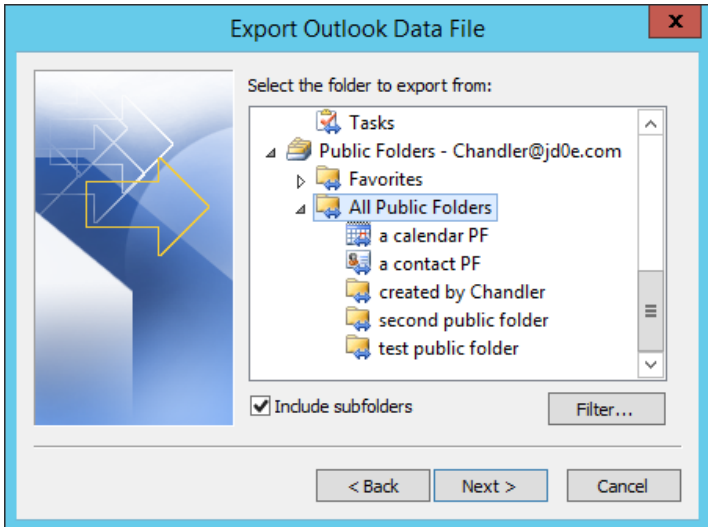
```
[PS] C:\>echo $members

Group  PrimarySmtpAddress
-----  ------------------
Cast   Ross@jd0e.com
Cast   Joey@jd0e.com
Cast   Monica@jd0e.com
Cast   Rachel@jd0e.com
Cast   Chandler@jd0e.com
Cast   Phoebe@jd0e.com
Cast   Janice@jd0e.com
Others Janice@jd0e.com
```

4. Let's export the contacts:

```
Get-Contact -ResultSize unlimited | select identity, name,displayname,firstname,lastname,windowsemailaddress | export-csv contacts.csv
```

```
DisplayName   WindowsEmailAddress
-----------   -------------------
Zsolt Agoston zsolt.agoston@lucasfettes.co.uk
Zsolt Gmail   zsolt@gmail.com
```

5. As the public folder migration is a little cumbersome between O365 and on-prem, even with modern public folder mailboxes, we simply **export all the public folders** from an Outlook client into a PST file for future ingestion



Migrate users to agzsolt.com on-prem

Now we create a migration batch that will synchronize and move the jd0e.com mailboxes to the on-prem endpoint. We create our first batch called "**First Ones**" from **first.csv**:

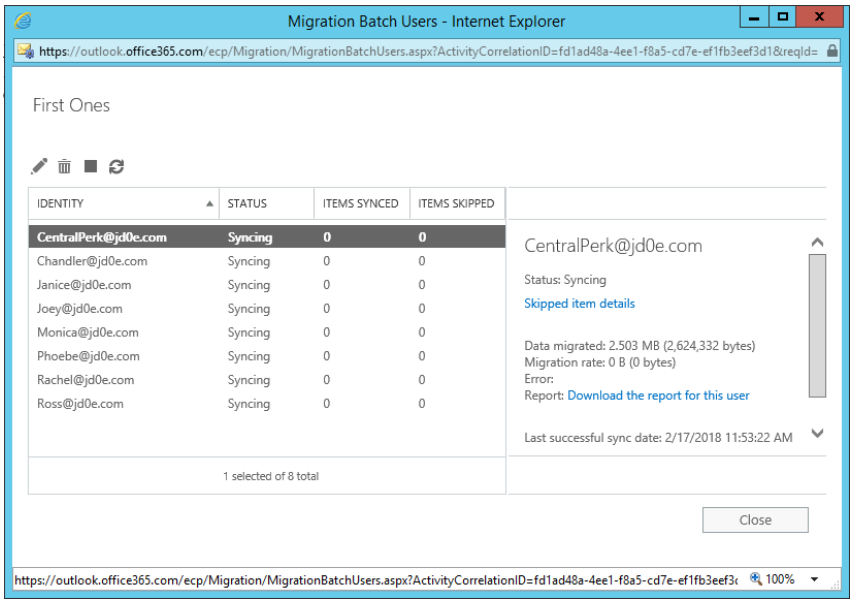
first.csv

```
EmailAddress
Ross@jd0e.com
Joey@jd0e.com
Monica@jd0e.com
Rachel@jd0e.com
Chandler@jd0e.com
Phoebe@jd0e.com
Janice@jd0e.com
CentralPerk@jd0e.com
```

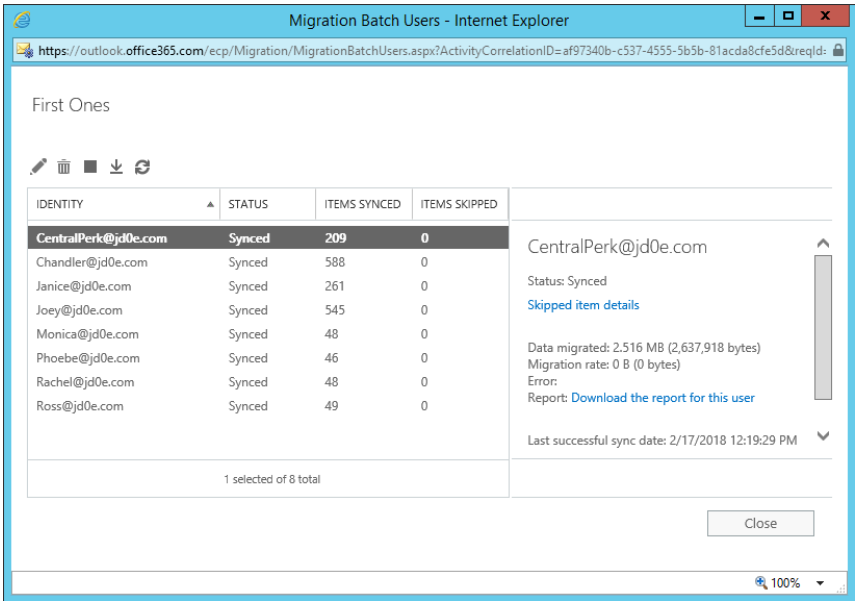
Script

```
New-MigrationBatch -Name "First Ones" -TargetEndpoint "agzsolt" -BadItemLimit unlimited -TargetDeliveryDomain agzsolt.com -CSVData
([System.IO.File]::ReadAllBytes("C:\first.csv")) -TargetDatabases "edebdf60-047b-4542-a36c-e923f9f14d9d" -Verbose
```

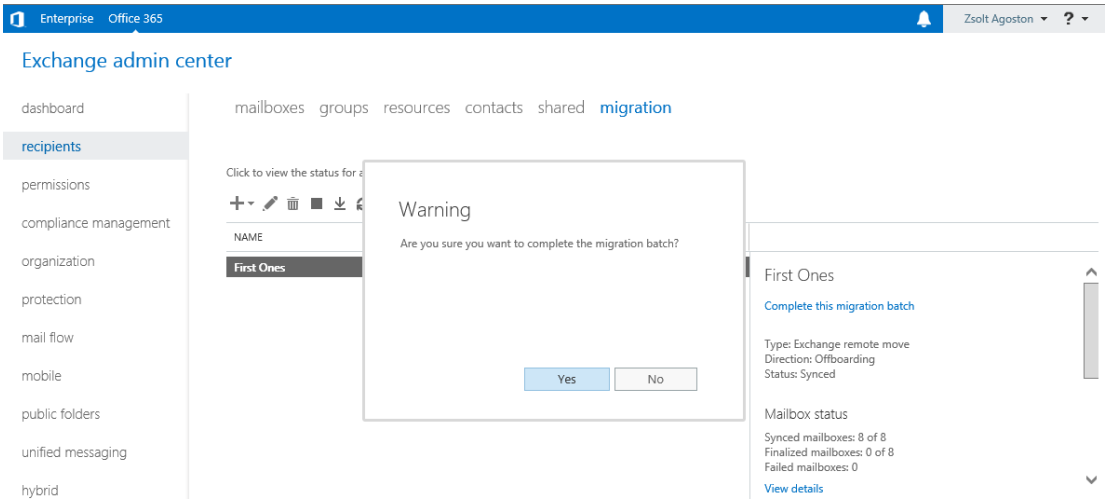
```
PS C:\> New-MigrationBatch -Name "First Ones" -TargetEndpoint "agzsolt" -BadItemLimit unlimited -TargetDeliveryDomain agzsolt.com -CSVData (
[System.IO.File]::ReadAllBytes("C:\first.csv")) -TargetDatabases "edebdf60-047b-4542-a36c-e923f9f14d9d" -Verbose
VERBOSE: Do you want to import the CSV file "First Ones" to migrate mailboxes for "jd0e.onmicrosoft.com"?

Identity   Status  Type               TotalCount
--------   ------  ----               ----------
First Ones Stopped ExchangeRemoteMove 8


PS C:\> _
```



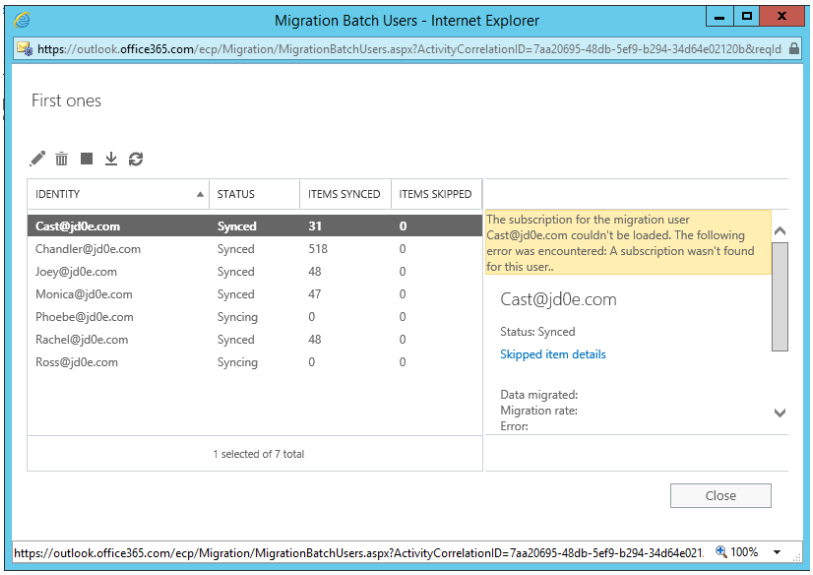
When it's done we are ready to finish the whole batch (or just specific mailboxes, it depends on our needs)



We **complete the migration batch** and make sure the users can access their mailboxes and they are functional



Just to mention: the shared mailboxes need a license assigned to them



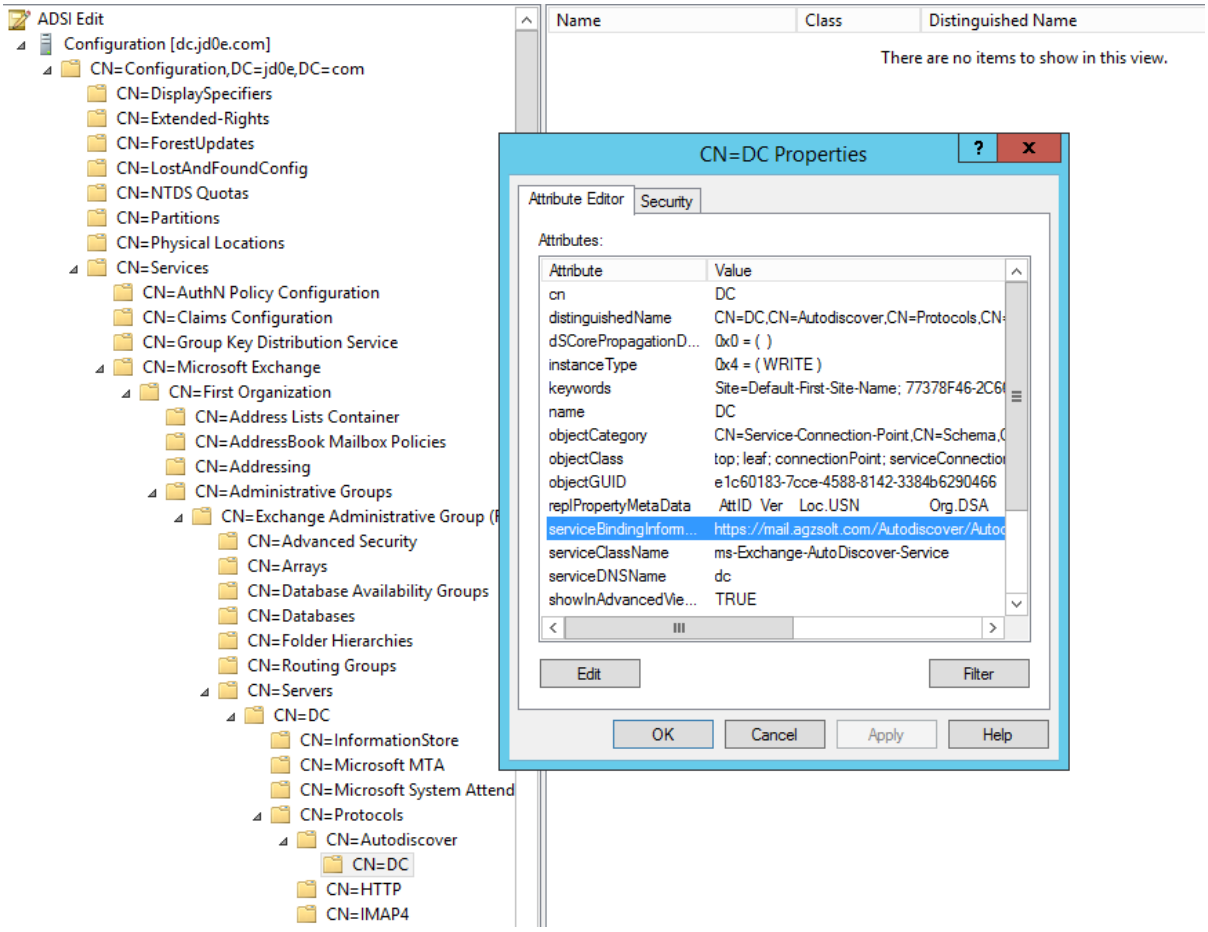
After the migration, we see that the on-prem server handles the mailboxes as local mailboxes:

mailboxes groups resources contacts shared migration

DISPLAY NAME	MAILBOX TYPE	EMAIL ADDRESS
Chandler Bing	User	Chandler@jd0e.com
Janice Hosenstein	User	Janice@jd0e.com
Joey Tribbiani	User	Joey@jd0e.com
Monica Geller	User	Monica@jd0e.com
Person 1	Office 365	person1@agzsolt.com
Person 10	Office 365	person10@agzsolt.com
Person 2	Office 365	person2@agzsolt.com
Person 3	Office 365	person3@agzsolt.com
Person 4	Office 365	person4@agzsolt.com
Person 5	Office 365	person5@agzsolt.com
Person 6	Office 365	person6@agzsolt.com
Person 7	Office 365	person7@agzsolt.com
Person 8	Office 365	person8@agzsolt.com
Person 9	Office 365	person9@agzsolt.com
Phoebe Buffay	User	Phoebe@jd0e.com
Rachel Green	User	Rachel@jd0e.com
Ross Geller	User	Ross@jd0e.com
za	User	za@agzsolt.com

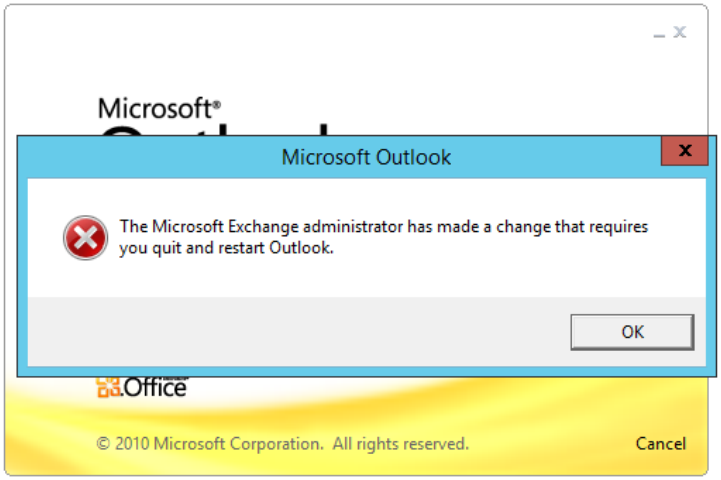
Now we change the local **SCP** record for **autodiscover** on the jd0e.com (source) **domain controller**, because this is the first place the server is looking for the autodiscover.xml data file which will not return the right values, we change that to point to the agzsolt.com (destination) autodiscover file:

```
https://mail.agzsolt.com/Autodiscover/Autodiscover.xml
```



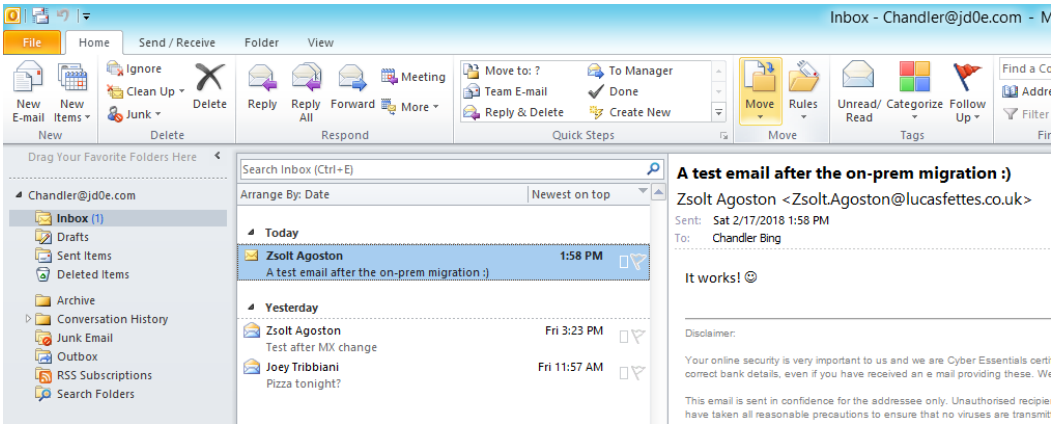
Note that the windows Outlook client is relying on the autodiscover record to locate public folders and it checks the SCP record first when it's opened. If we changed it before moving the publicfolder mailbox to the new server, it would give us an error message on the client side!

Once the users try to log in, Outlook notifies them of the changes in the background - the server name will be updated in the profile - and the users will be asked to close and open Outlook again, just like after a cloud migration:



Now another good news, from this point if a user needed to re-create his/her Outlook profile on a domain-joined client (even on the source-side in the jd0e.com domain), they won't be prompted for their password, as long as the passwords match on the original jd0e.com and the new agzsolt.com forest the Kerberos ticketing will work flawlessly

After logging in, we test the mail flow:



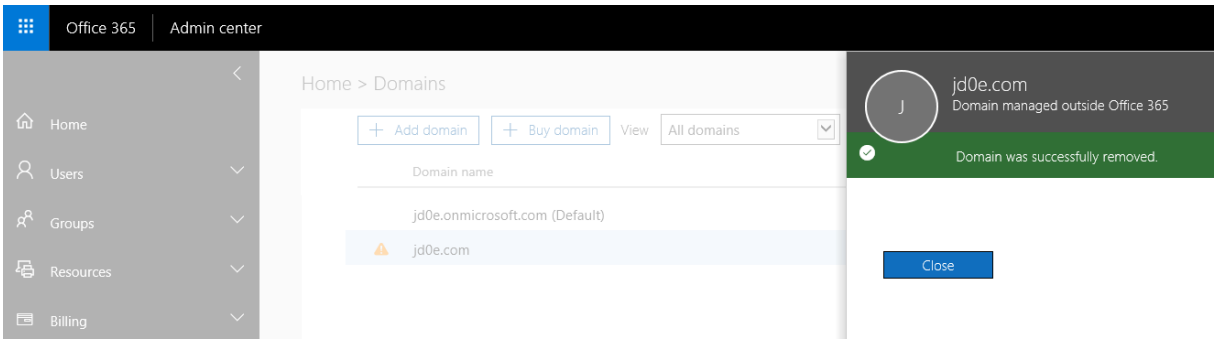
Excellent! The mail flow works in both directions!

Before we forget, we remove the old **jd0e.onmicrosoft.com STMP addresses** from the moved mailboxes.

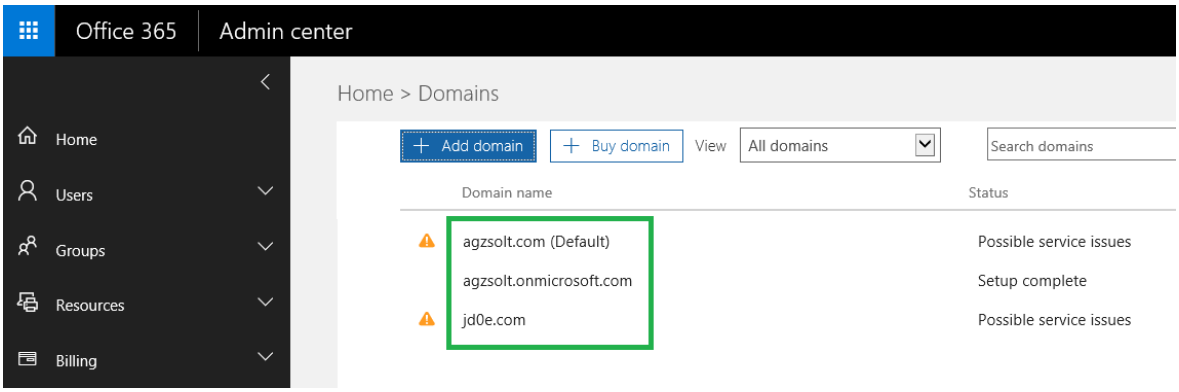
```
import-csv users.csv | foreach {
$name=$_.FirstName
Set-Mailbox -Identity $name -EmailAddresses @{remove="$name@jd0e.onmicrosoft.com" }
}
```

Strip down the old tenant

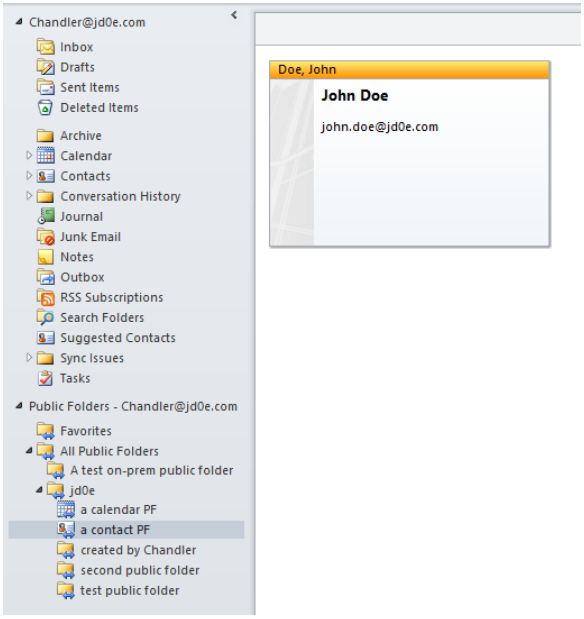
As a next step we remove of our business domains from the source tenant and add them to the target. In our example it is a single domain: **jd0e.com**



After removing jd0e.com domain from the jd0e.onmicrosoft.com tenant and **add that to agzsolt.onmicrosoft.com**



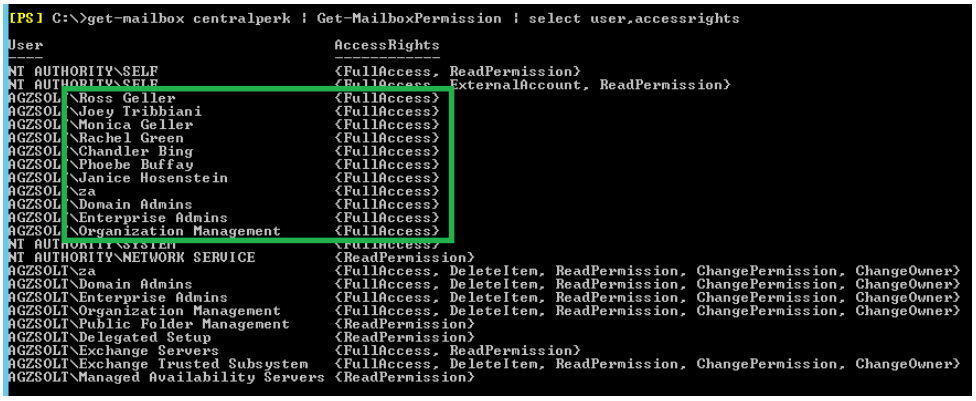
Now we simply create a jd0e subfolder in the local Public Folder system and import the PF.pst file there



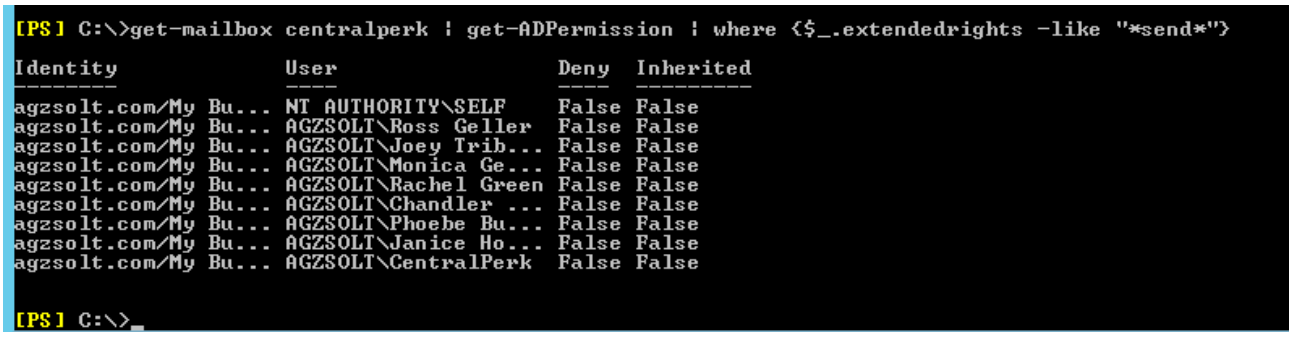
Perfect!

Sorting the post-migration tasks: permissions check, distribution lists and contacts creation

Amazing news that the **mailbox permissions are inherited**, they were mirrored during the migration so we don't need to worry about that



Send-as permissions are moved through as well:

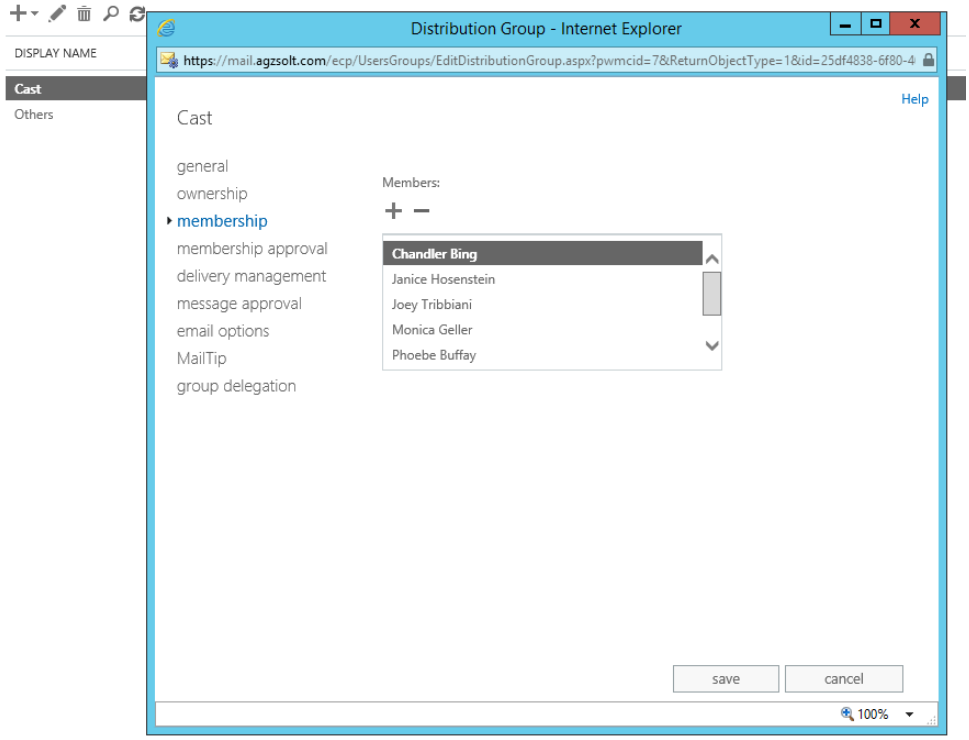


Now we **create the distribution groups** with the right users

```
import-csv distro-list.csv | foreach {
$SAM=$_.SamAccountName
$name=$_.DisplayName
$win=$_.WindowsEmailAddress
New-DistributionGroup -Name $name -DisplayName $name -PrimarySmtpAddress $win -Type distribution -
IgnoreNamingPolicy:$true -ModerationEnabled:$false -OrganizationalUnit "OU=DGs,OU=jd0e,OU=My
Business,DC=agzsolt,DC=com" -Confirm:$false
Set-DistributionGroup -Identity $win -RequireSenderAuthenticationEnabled:$false
}
```

Populate with the members:

```
import-csv distro.csv | foreach {
$group=$_.Group
$member=$_.PrimarySmtpAddress
Add-DistributionGroupMember -Identity $group -Member $member -Confirm:$false
}
```



And to finish the process, we create the **contacts**:

```
import-csv contacts.csv | foreach {
$name=$_.Name
$disp=$_.DisplayName
$fn=$_.FirstName
$ln=$_.LastName
$email=$_.WindowsEmailAddress
New-MailContact -Name $name -DisplayName $disp -FirstName $fn -LastName $ln -ExternalEmailAddress $email -
OrganizationalUnit "OU=Contacts,OU=jd0e,OU=My Business,DC=agzsolt,DC=com" -Confirm:$false
}
```

From this point it's a normal migration to the cloud scenario.

MIGRATE BACK TO THE CLOUD

That's the easy and well documented part of our job, first we create the migration endpoint in the cloud server just like we did the first time on the source tenant. This time we do the exact same steps, and we call this endpoint "**agzsolt**" as well.

An important thing is to move the OU that contains all the moved accounts to an **AD that is a synced OU** so the users will appear in the tenant

We create a file called **UpToTheCloud.csv** and start the migration batch:

UpToTheCloud.csv

```
EmailAddress
Ross@jd0e.com
Joey@jd0e.com
Monica@jd0e.com
Rachel@jd0e.com
Chandler@jd0e.com
Phoebe@jd0e.com
Janice@jd0e.com
```

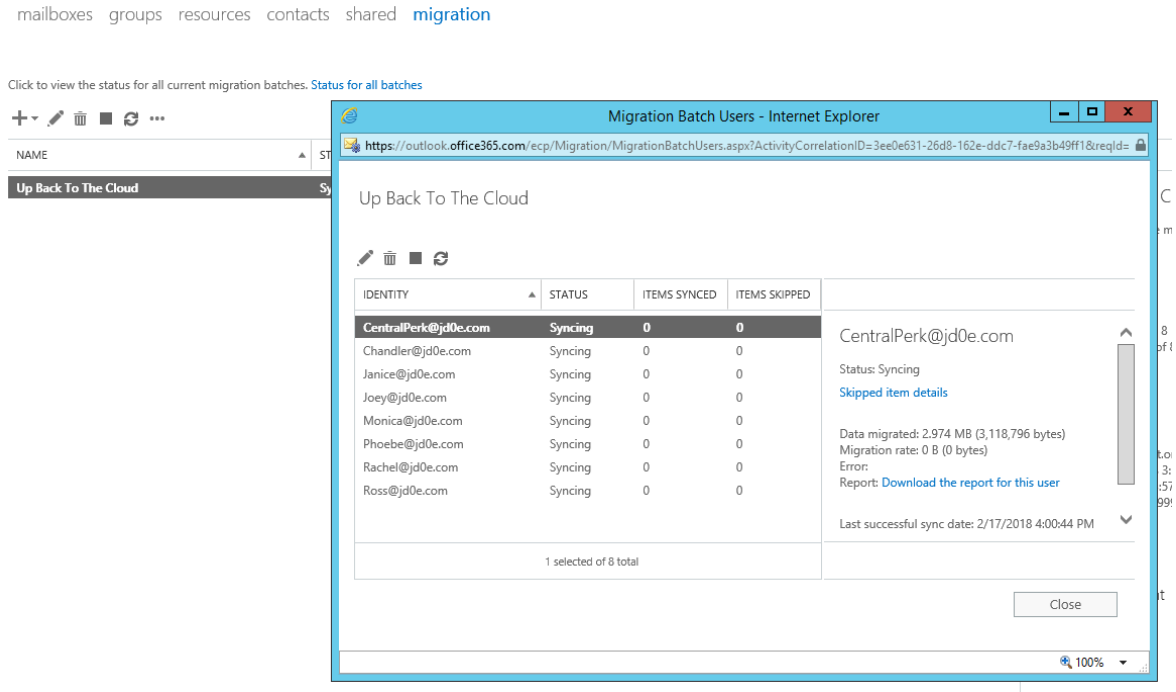
```
CentralPerk@jd0e.com
```

Script:

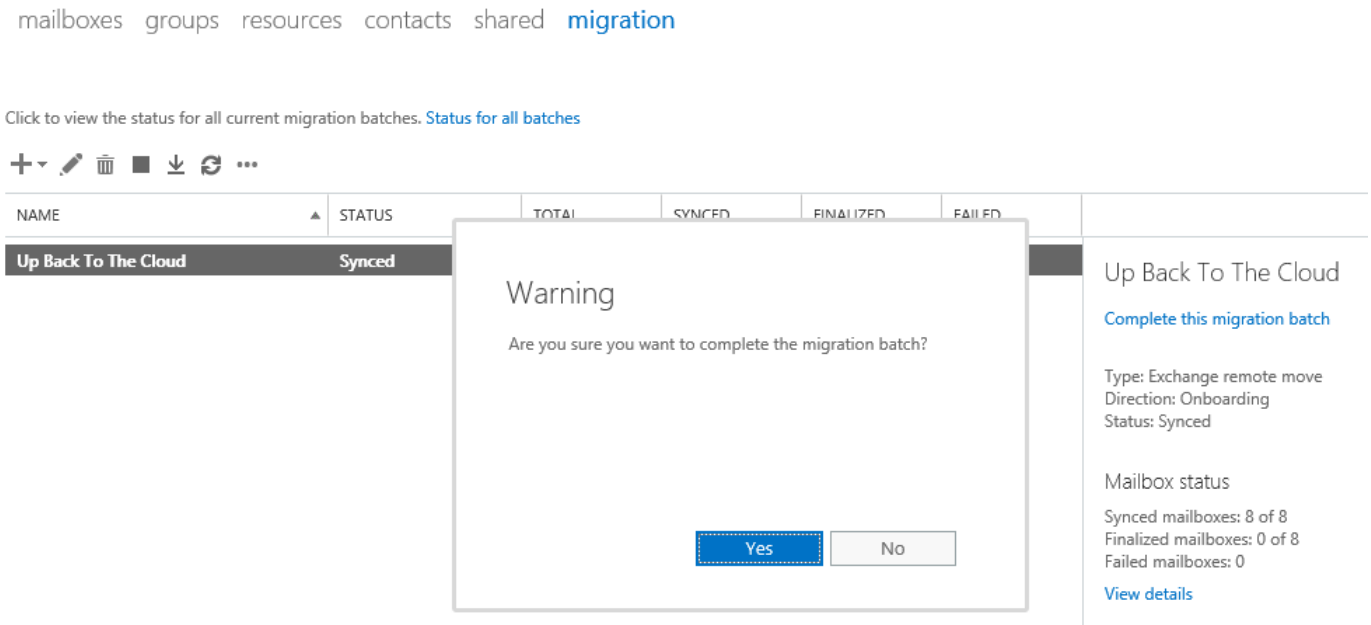
```
New-MigrationBatch -Name "Up Back To The Cloud" -SourceEndpoint "agzsolt" -BadItemLimit unlimited -
TargetDeliveryDomain agzsolt.mail.onmicrosoft.com -CSVData ([System.IO.File]::ReadAllBytes("C:\UpToTheCloud.csv"))
```

```
PS C:\> New-MigrationBatch -Name "Up Back To The Cloud" -SourceEndpoint "agzsolt" -BadItemLimit unlimited -TargetDeliveryDomain agzsolt.mail
.onmicrosoft.com -CSVData ([System.IO.File]::ReadAllBytes("C:\UpToTheCloud.csv"))

Identity             Status  Type               TotalCount
--------             ------  ----               ----------
Up Back To The Cloud Stopped ExchangeRemoteMove 8


PS C:\>
```

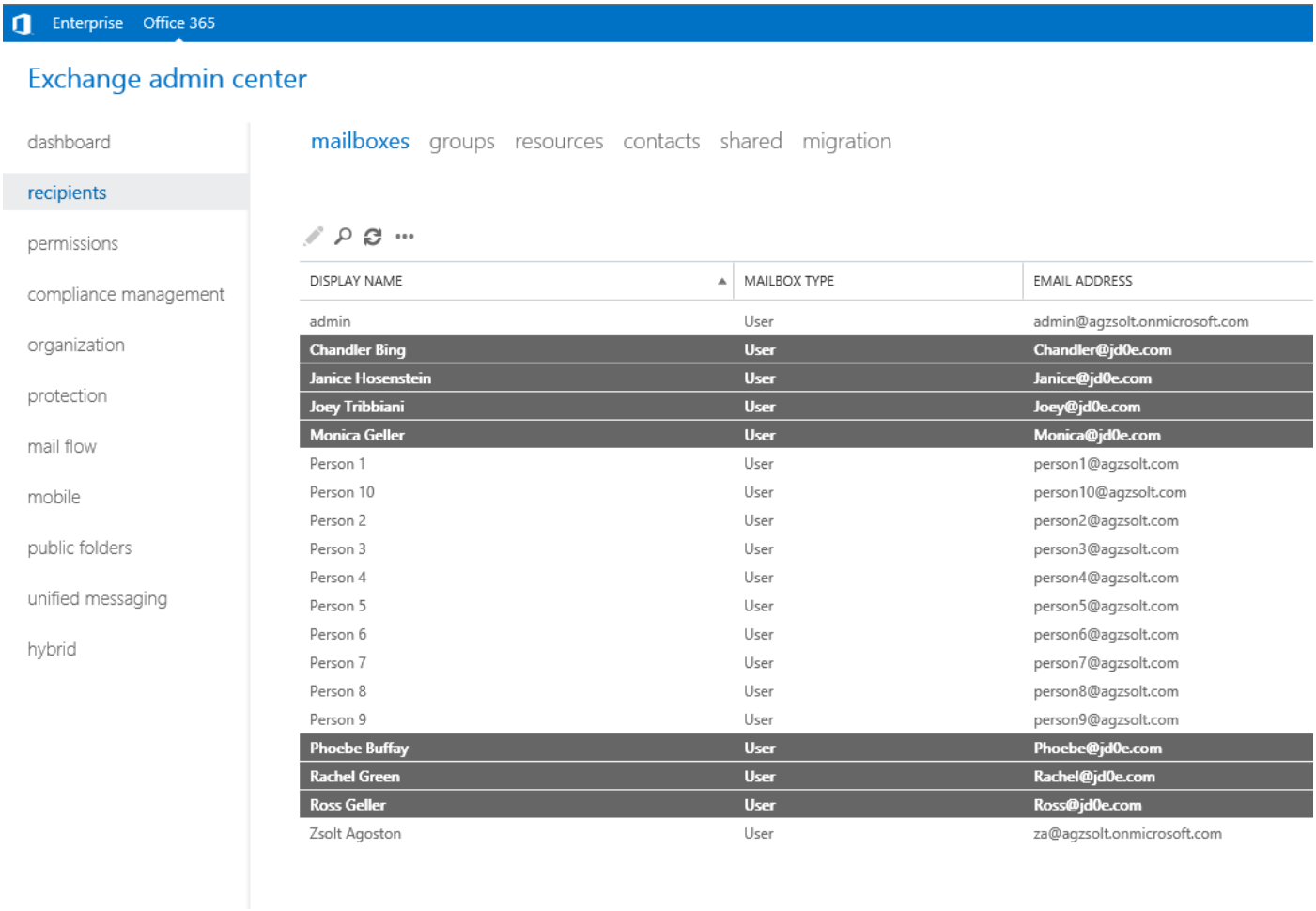
Start the migration



Now it's time to complete the batch

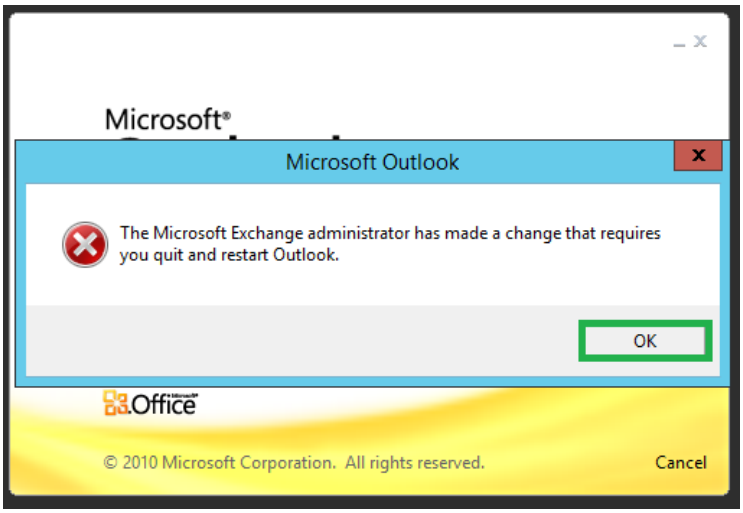


After the batch is done we can see the mailboxes finally appearing in the cloud



I personally like to **change the SCP domain for autodiscover** in the jd0e domain to https://autodiscover-s.outlook.com/Autodiscover/Autodiscover.xml which makes faster discovery at later profile creations, but this step can be omitted.

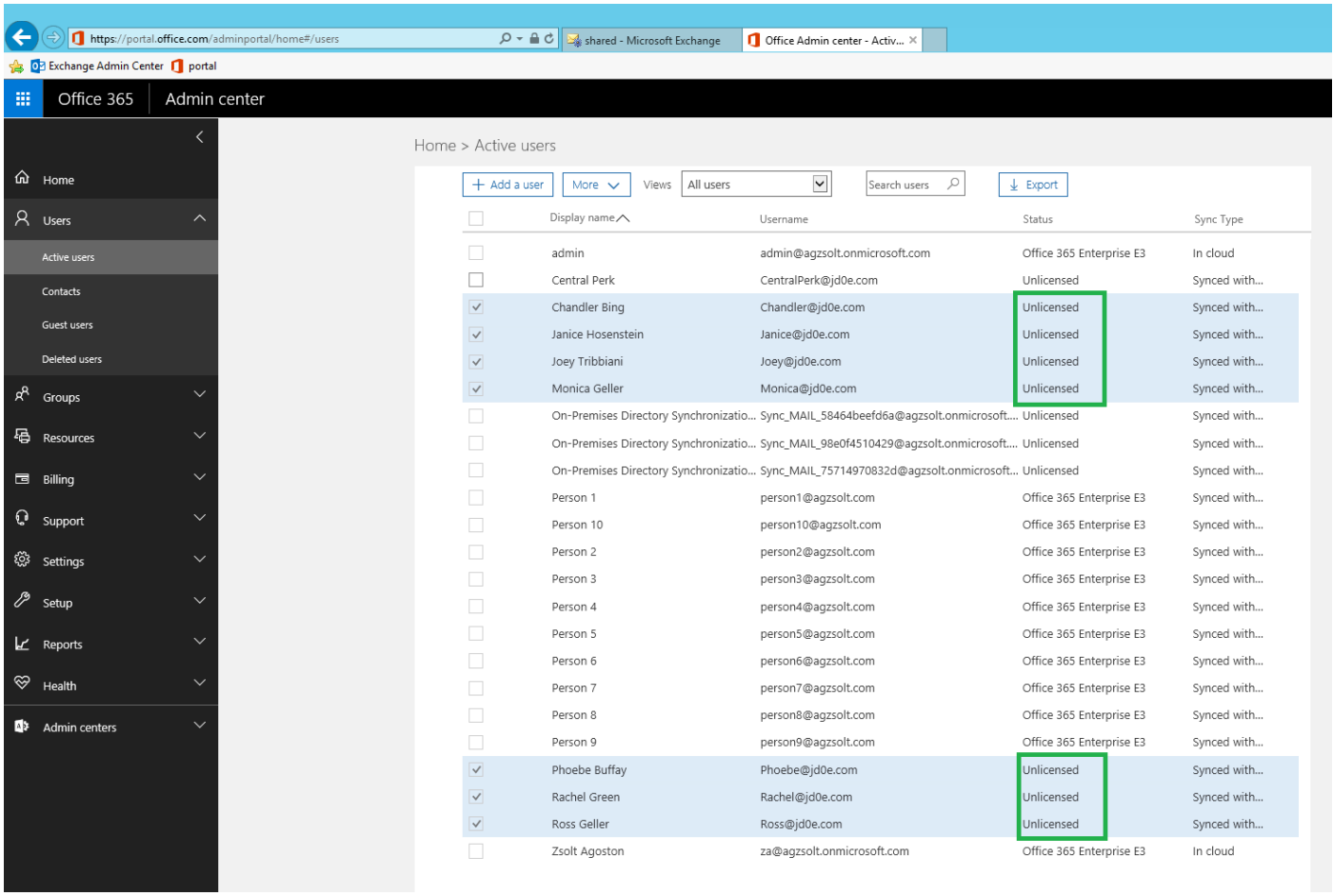
The clients will receive another notification of the background changes after which they need to restart Outlook again and we are done!



Tidying up

We still have a few things to sort:

1. We **assign the appropriate licenses** to the migrated accounts

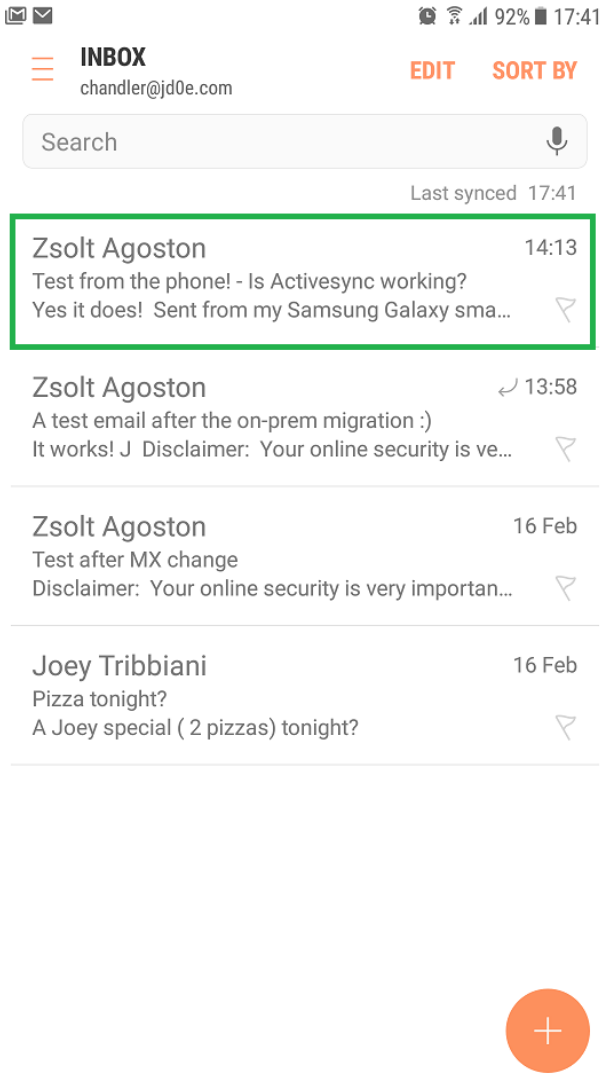



```
import-csv users.csv | foreach {
$fn=$_.FirstName
Set-MsolUser -UserPrincipalName "$fn@jd0e.com" -UsageLocation "GB"
Set-MsolUserLicense -UserPrincipalName "$fn@jd0e.com" -AddLicenses "agzsolt:ENTERPRISEPACK"
}
```

2. The **public folders need to be moved to the cloud**. Again, Microsoft's solution is a pretty cumbersome way, since the mailbox database is pretty small I use a simple client to export them in a PST file and import it back to a cloud managed PF mailbox.

After migrating back to the cloud, the **mobile phones will start working again**. In few cases users are prompted for their passwords by the device after which the connection goes back to normal.

Samsung S7 phone



We are done!

Z.