

MS-100

# Day 1: Directory Synchronization

Lab book

Learn In the Cloud  
7-5-2021

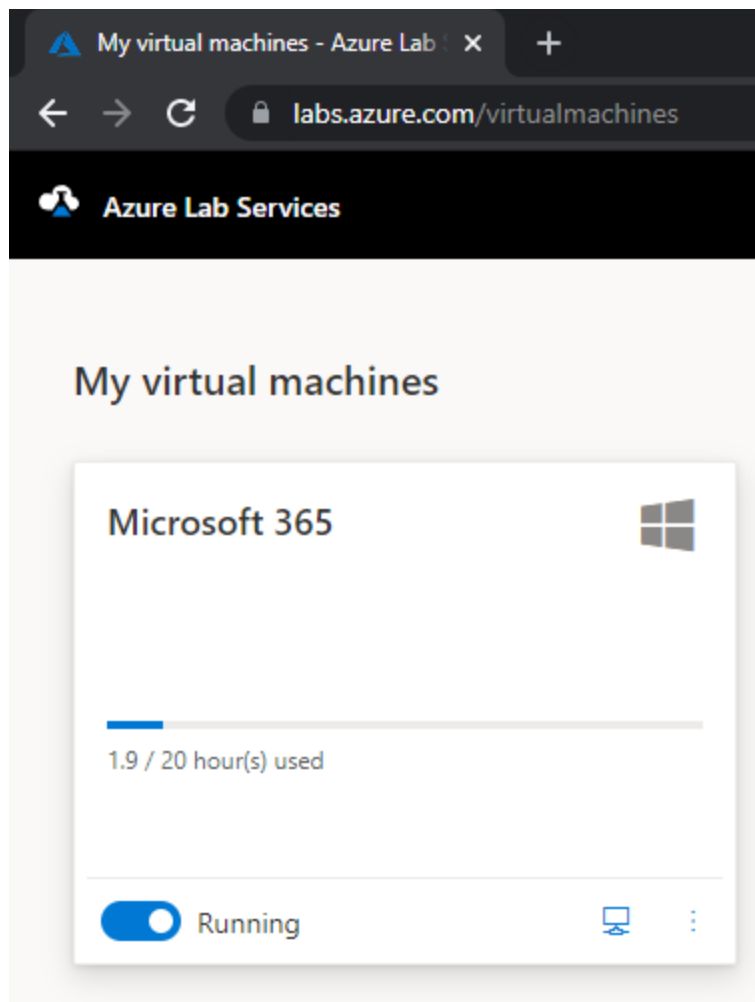
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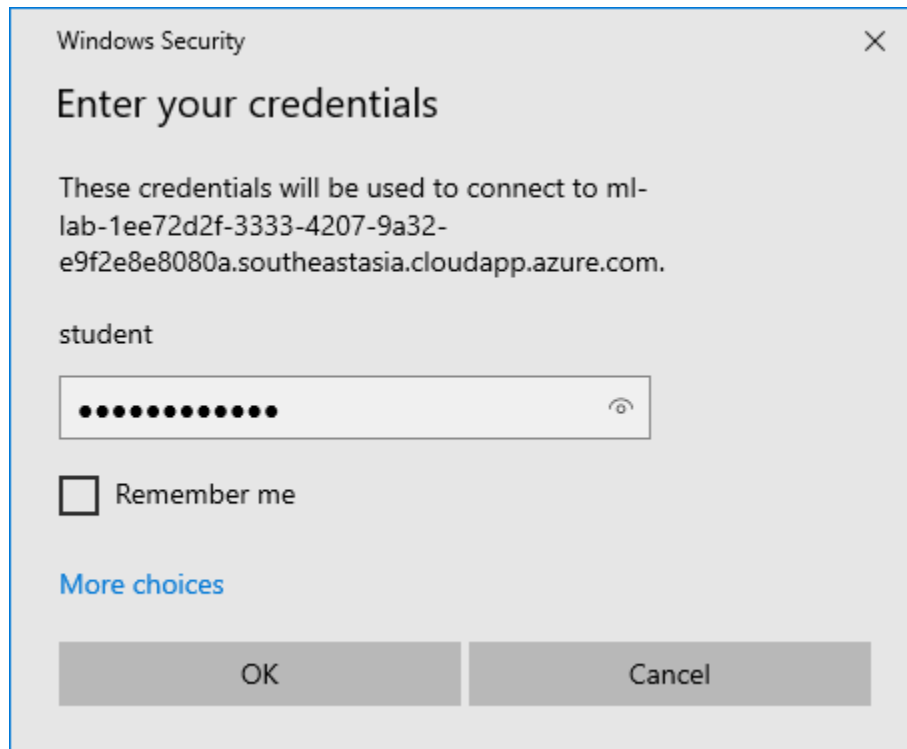
## 1 Start your lab VM

Sign in to <https://labs.azure.com>, and start your lab VM



Connect the VM as

- Username = student
- Password = Password1234



Windows Security

## Enter your credentials

These credentials will be used to connect to ml-lab-1ee72d2f-3333-4207-9a32-e9f2e8e8080a.southeastasia.cloudapp.azure.com.

student

●●●●●●●●●● 

☐ Remember me

[More choices](#)

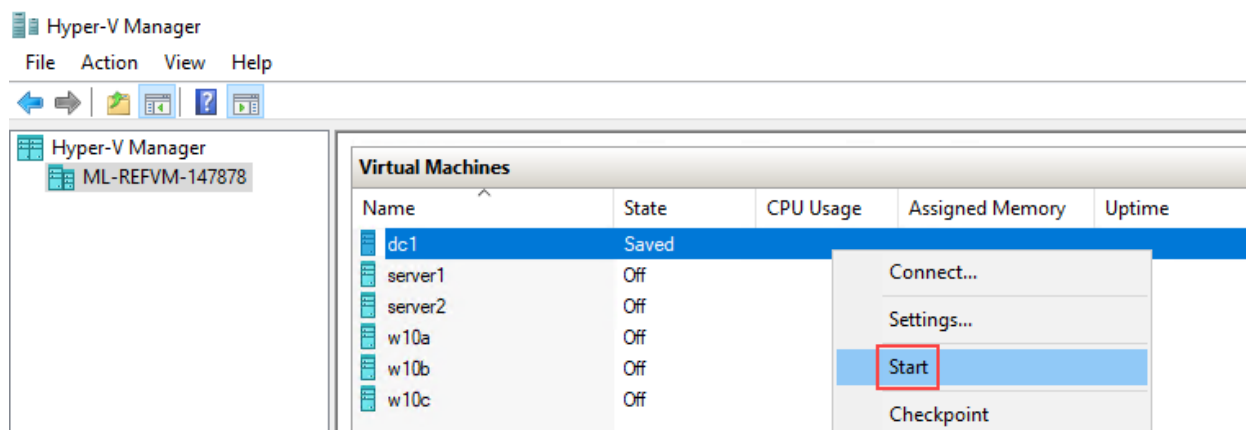
OK Cancel



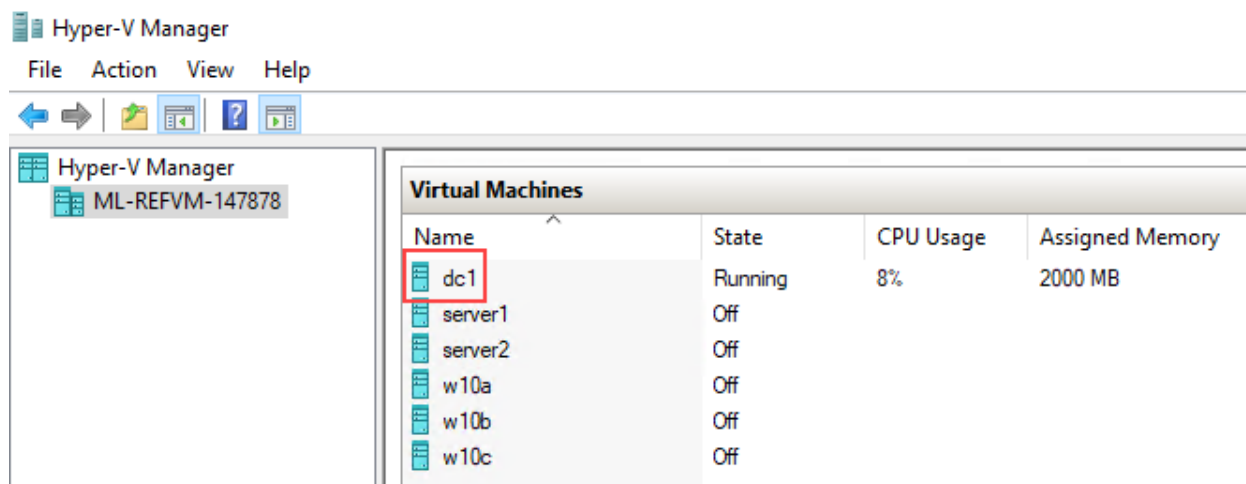
## 2 Directory synchronization

### 2.1 Run IdFix

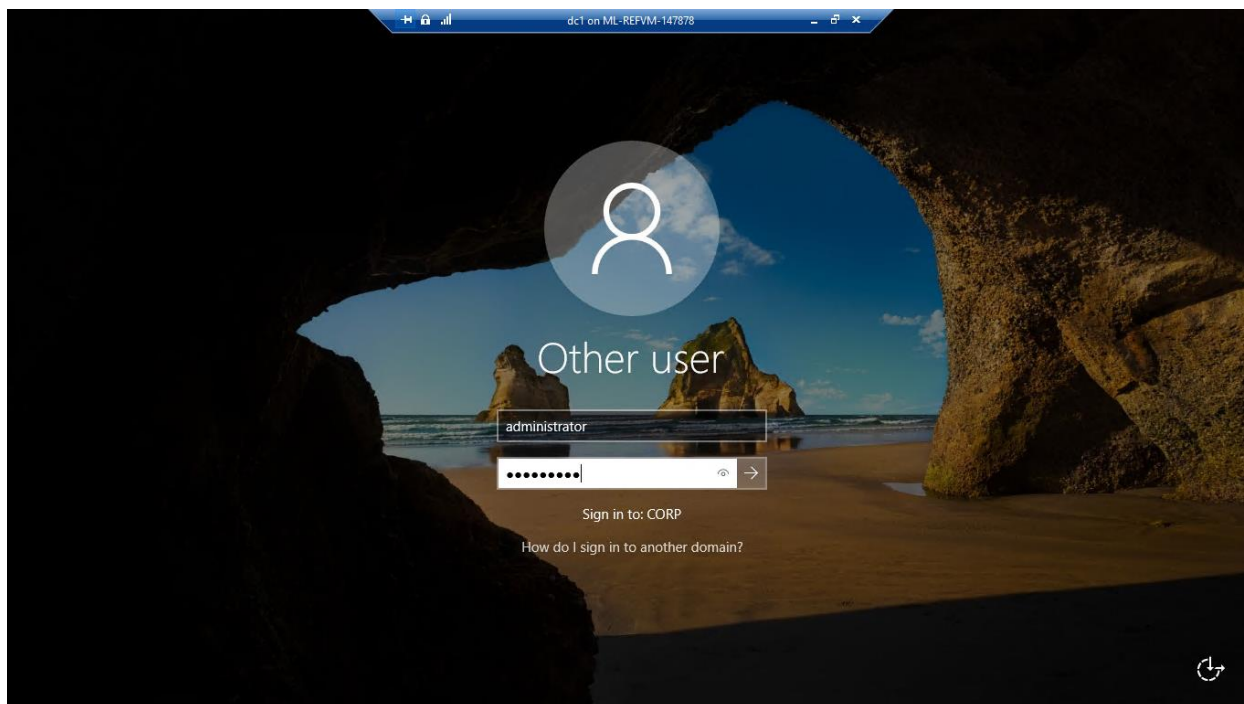
1. On Hyper-V host, start dc1 (if it's not running)



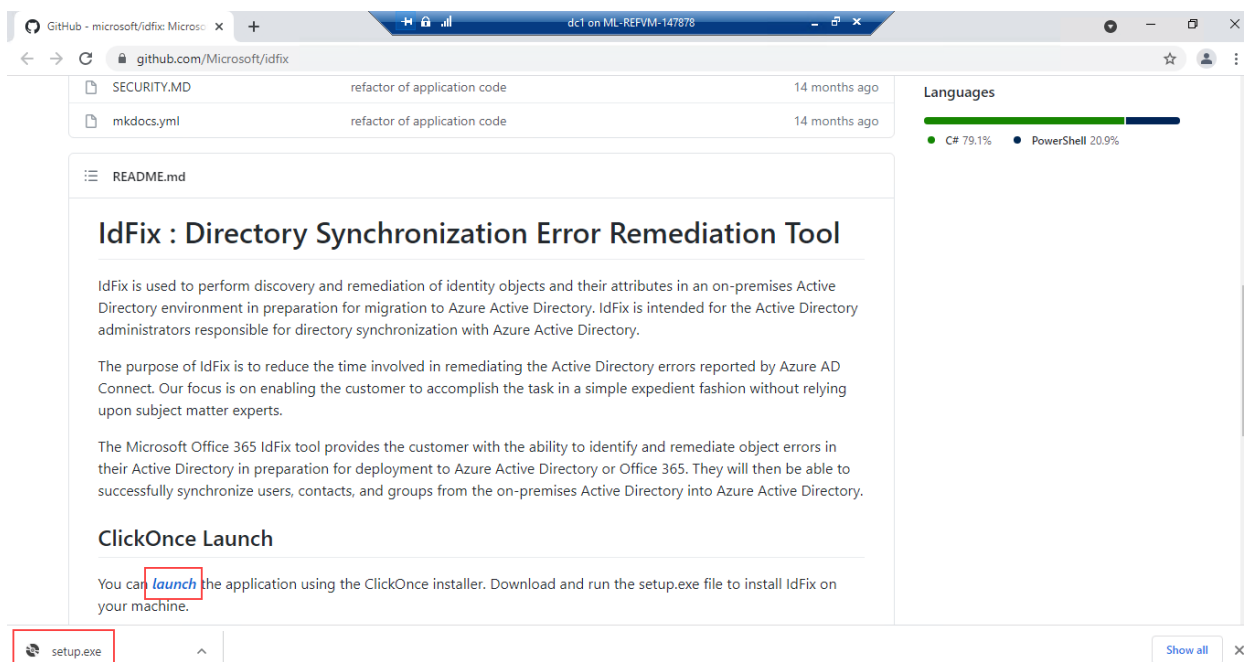
Connect dc1



2. On dc1, sign in as
  - Username = Administrator
  - Password = Password1

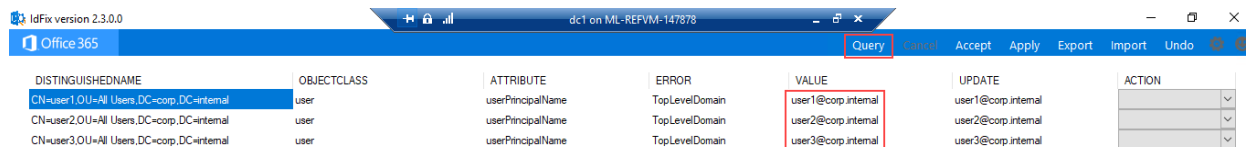


Install IdFix from <https://github.com/Microsoft/idxfix>



### 3. Click Query

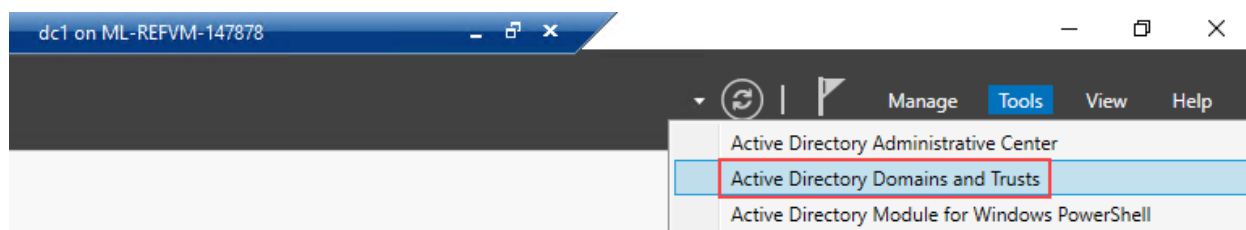
Verify that IdFix detects user accounts those have non-routeable UPN



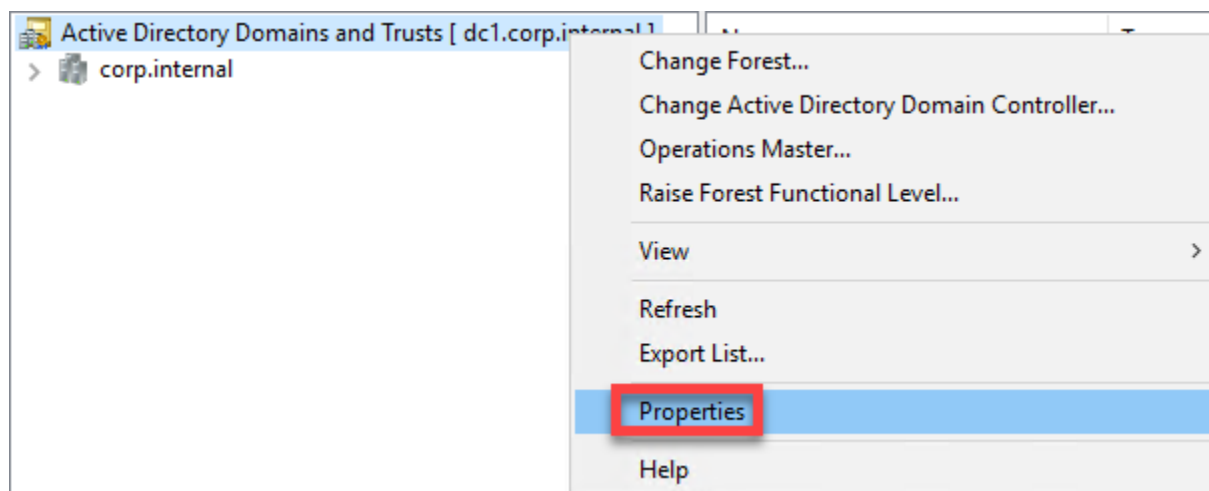
| DISTINGUISHEDNAME                         | OBJECTCLASS | ATTRIBUTE         | ERROR          | VALUE               | UPDATE              | ACTION |
|-------------------------------------------|-------------|-------------------|----------------|---------------------|---------------------|--------|
| CN=user1,OU=All Users,DC=corp,DC=internal | user        | userPrincipalName | TopLevelDomain | user1@corp.internal | user1@corp.internal |        |
| CN=user2,OU=All Users,DC=corp,DC=internal | user        | userPrincipalName | TopLevelDomain | user2@corp.internal | user2@corp.internal |        |
| CN=user3,OU=All Users,DC=corp,DC=internal | user        | userPrincipalName | TopLevelDomain | user3@corp.internal | user3@corp.internal |        |

## 2.2 Fix non-routeable UPN issues

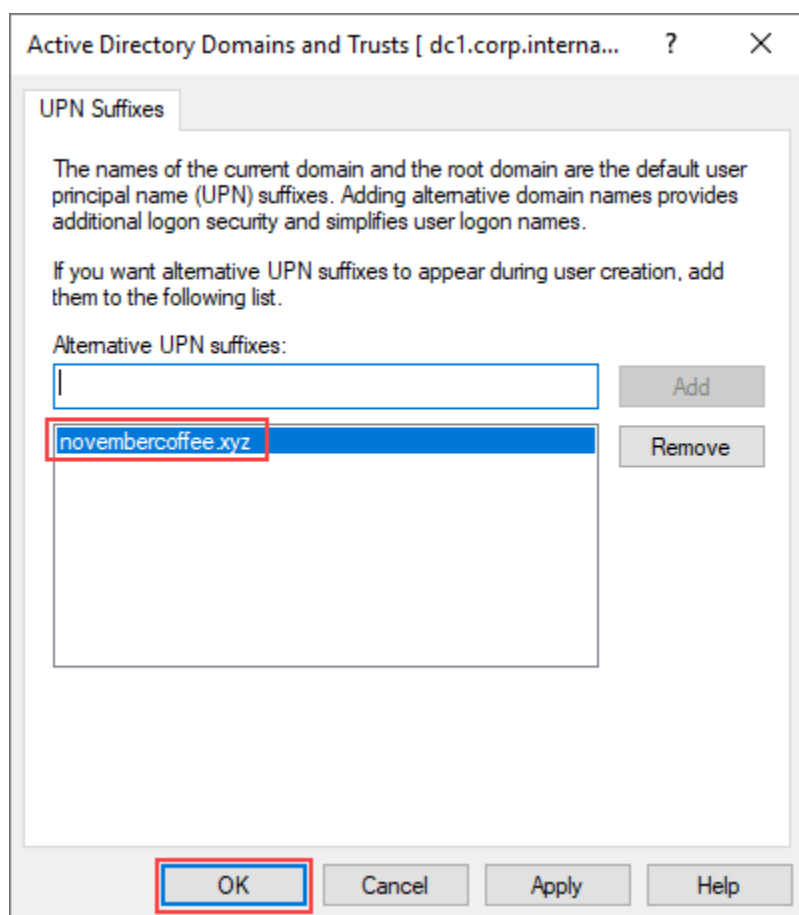
### 1. On dc1, open AD Domains and Trusts



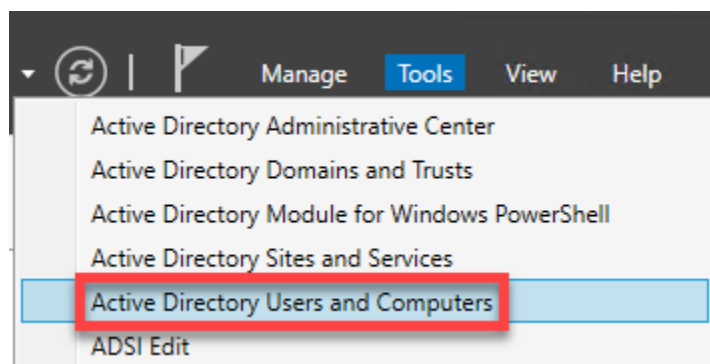
Right click Properties



Add yourdomain.xyz, and click OK



2. Open AD Users and Computers

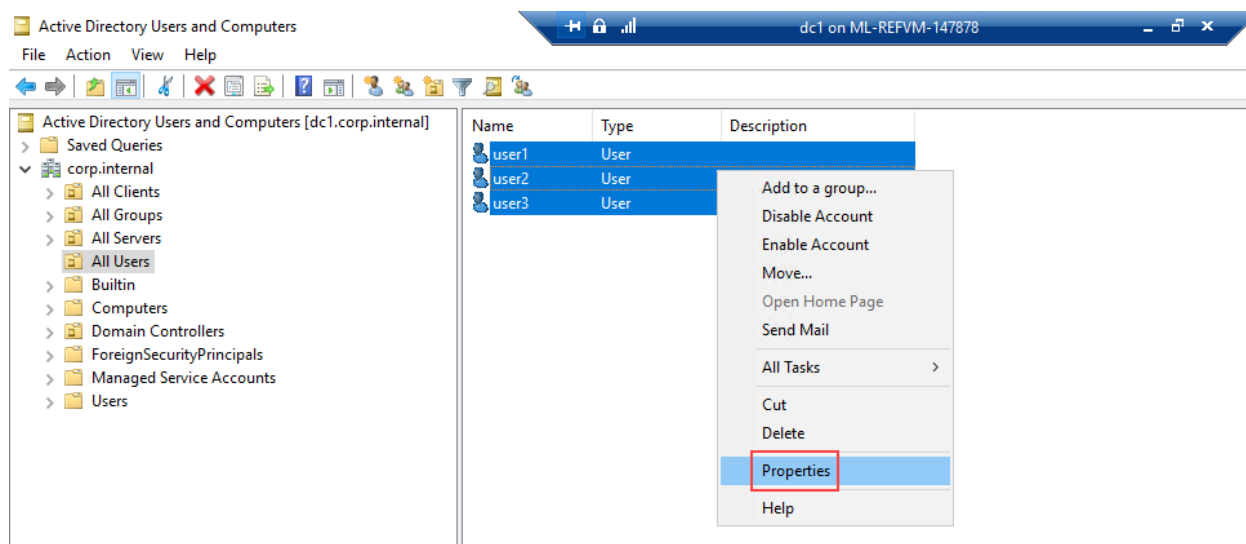




Select

- User1
- User2
- User3

And open Properties



Assign @yourdomain.xyz as the new UPN suffix

Properties for Multiple Items

General Account Address Profile Organization

To change a property for multiple objects, first select the checkbox to enable the change, and then select the change.

☒ UPN suffix: @novembercoffee.xyz

☐ Logon hours: Logon hours...

☐ Computer restrictions: Log On To...

Account options:

☐ ☐ User must change password at next logon

☐ ☐ User cannot change password

☐ ☐ Password never expires

☐ ☐ Store password using reversible encryption

☐ Account expires

☒ Never

☐ End of: Sunday, August 1, 2021

OK Cancel Apply

3. On IdFix, click Query again

Verify non-routable UPN issues were resolved

IdFix version 2.3.0.0

Office 365

Query Cancel Accept Apply Export Import Undo

| DISTINGUISHEDNAME | OBJECTCLASS | ATTRIBUTE | ERROR | VALUE | UPDATE | ACTION |
|-------------------|-------------|-----------|-------|-------|--------|--------|
|-------------------|-------------|-----------|-------|-------|--------|--------|



## 2.3 Directory Synchronization

### 2.3.1 Install and configure Azure AD Connect

#### 1. On dc1

Download and install Azure Active Directory Connect from <https://www.microsoft.com/en-us/download/details.aspx?id=47594>

*Note: It's not recommended to install Azure AD Connect on the DC !!!*

Microsoft Azure Active Directory Connect

Important! Selecting a language below will dynamically change the complete page content to that language.

Language: English

Download

#### 2. Agree the license terms, and click Next

Microsoft Azure Active Directory Connect

Welcome

Express Settings

## Welcome to Azure AD Connect

**Run this installation tool on the server where the synchronization service component will be installed.**

Azure Active Directory Connect integrates your on-premises and online directories.

This installation tool will:

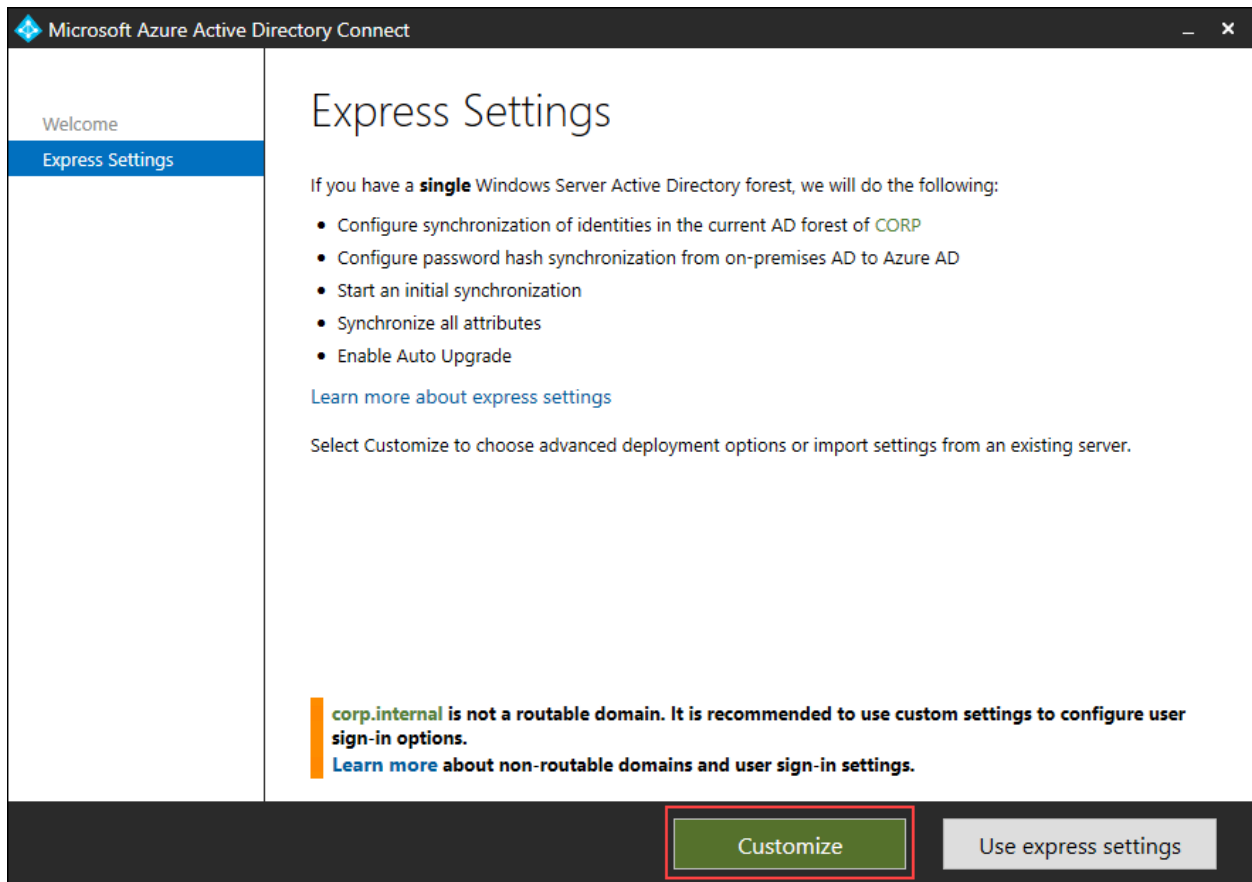
- Guide you in selecting a solution (for example, password hash synchronization or federation with AD FS)
- Install identity synchronization and other Microsoft software components required for deployment
- Enable application telemetry and component health data by default. You can change what data is shared with Microsoft by updating your [privacy settings](#).

[Learn more about hybrid identity](#)

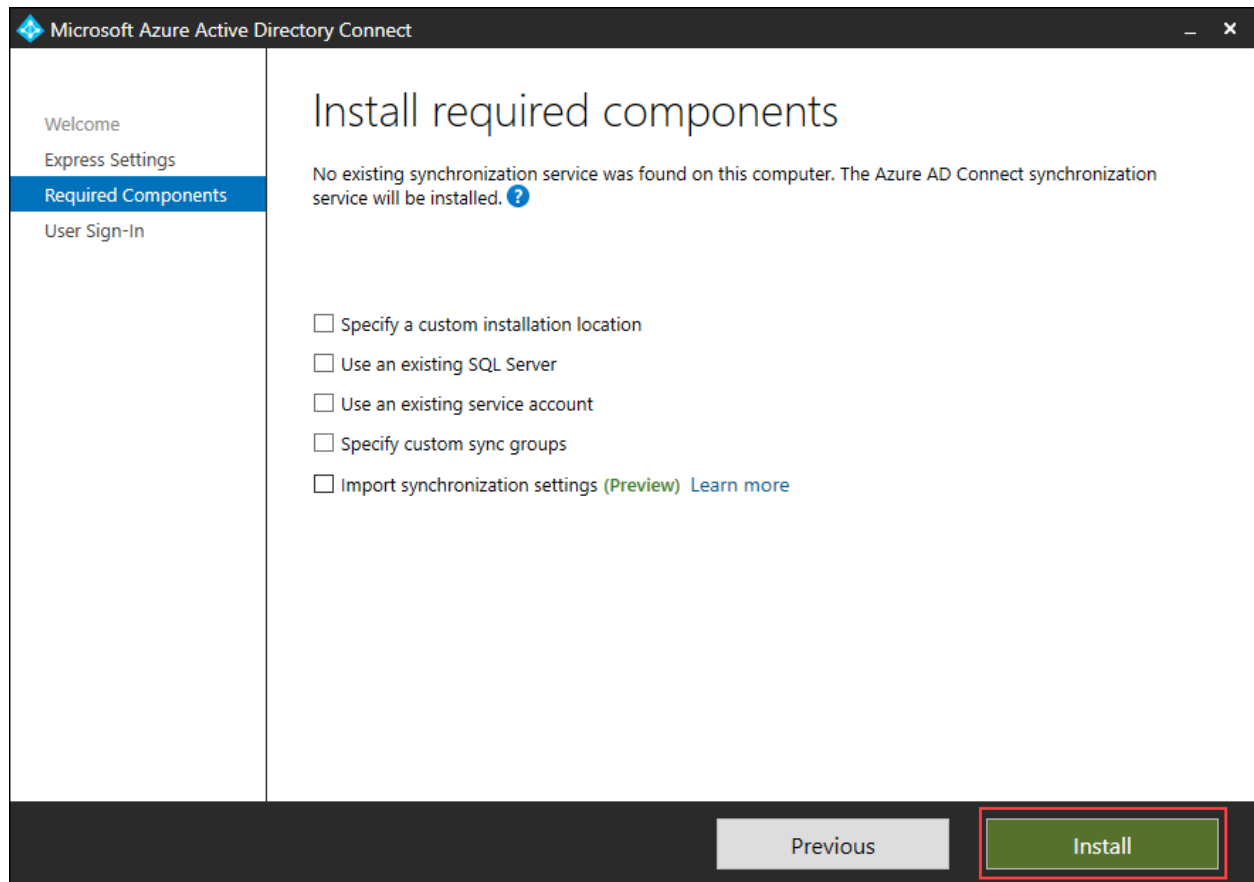
☒ I agree to the [license terms](#) and [privacy notice](#).



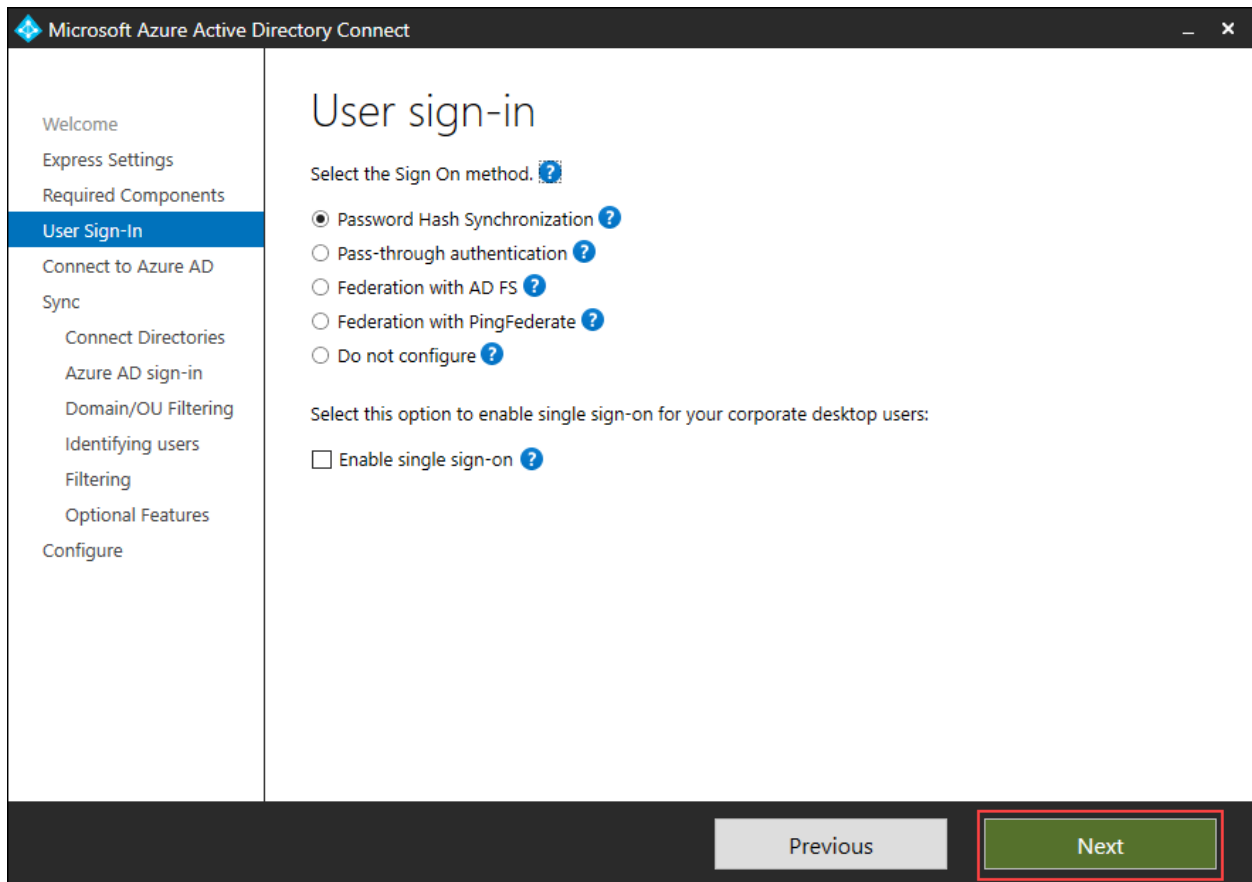
### 3. Click Customize



Click Next



4. Select Password Hash Synchronization, and click Next



Microsoft Azure Active Directory Connect

Welcome  
Express Settings  
Required Components  
**User Sign-In**  
Connect to Azure AD  
Sync  
Connect Directories  
Azure AD sign-in  
Domain/OU Filtering  
Identifying users  
Filtering  
Optional Features  
Configure

## User sign-in

Select the Sign On method. ?

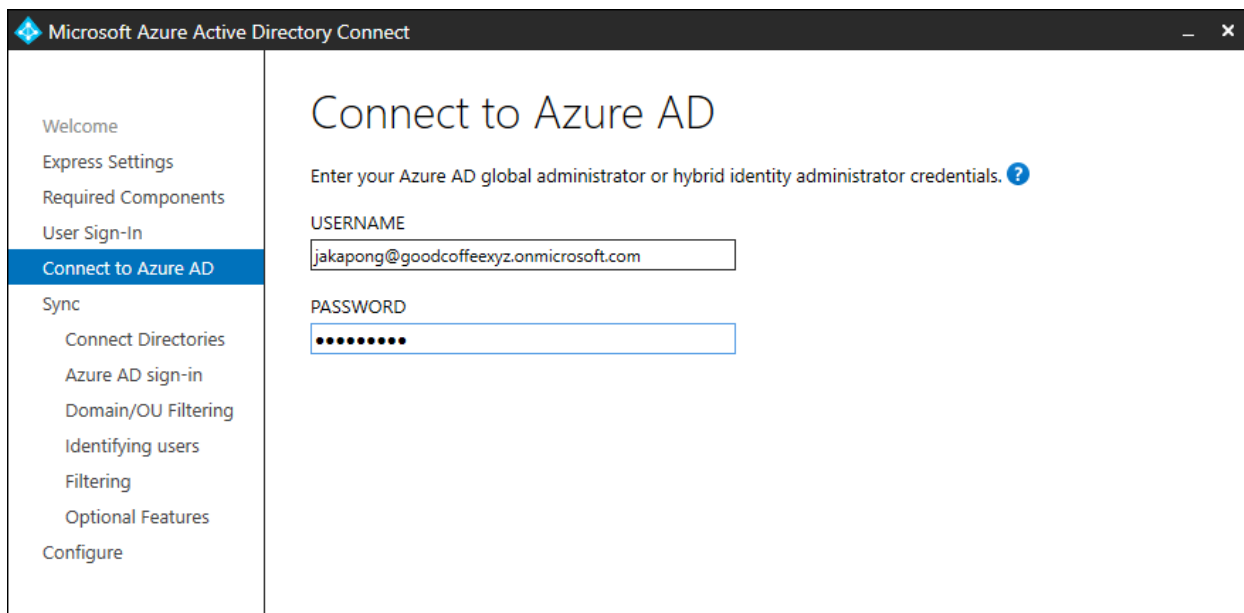
- ☒ Password Hash Synchronization ?
- ☐ Pass-through authentication ?
- ☐ Federation with AD FS ?
- ☐ Federation with PingFederate ?
- ☐ Do not configure ?

Select this option to enable single sign-on for your corporate desktop users:

☐ Enable single sign-on ?

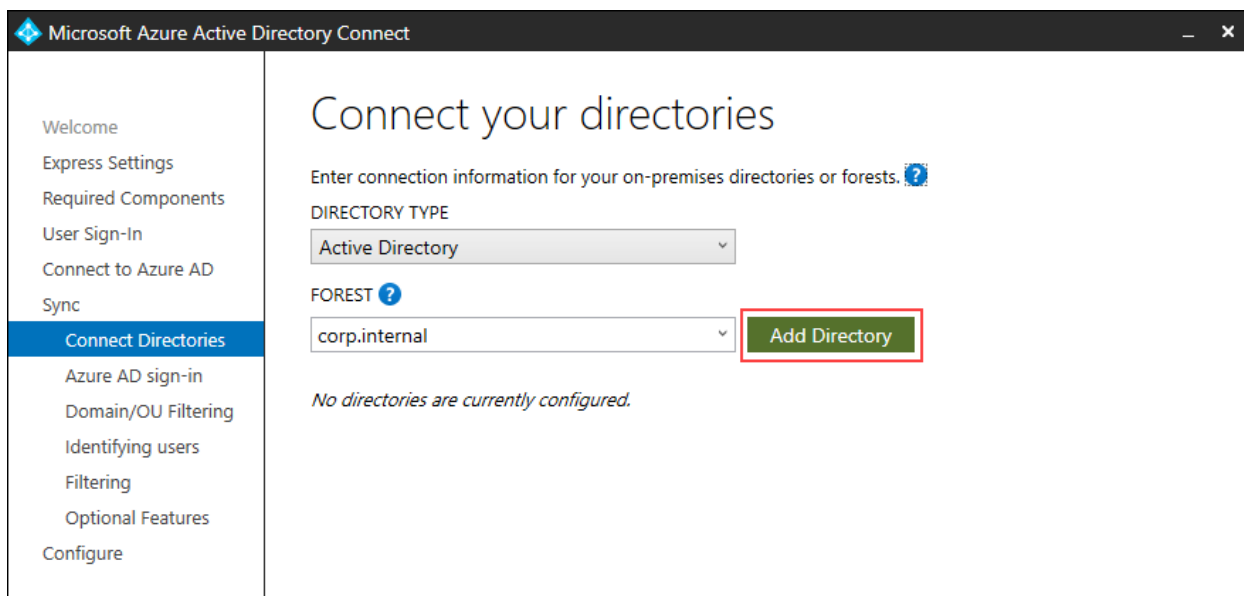
Previous Next

5. Enter your Azure AD global administrator (ex. yourname@yourdomainxyz.onmicrosoft.com)



The screenshot shows the 'Microsoft Azure Active Directory Connect' window. The left sidebar contains a navigation menu with the following items: Welcome, Express Settings, Required Components, User Sign-In, **Connect to Azure AD** (highlighted), Sync, Connect Directories, Azure AD sign-in, Domain/OU Filtering, Identifying users, Filtering, Optional Features, and Configure. The main content area is titled 'Connect to Azure AD' and contains the instruction: 'Enter your Azure AD global administrator or hybrid identity administrator credentials. ?'. Below this, there are two input fields: 'USERNAME' with the value 'jakapong@goodcoffeexyz.onmicrosoft.com' and 'PASSWORD' with masked characters '••••••••'.

6. Add Directory



The screenshot shows the 'Microsoft Azure Active Directory Connect' window. The left sidebar is identical to the previous screenshot, with 'Connect Directories' highlighted. The main content area is titled 'Connect your directories' and contains the instruction: 'Enter connection information for your on-premises directories or forests. ?'. Below this, there are two dropdown menus: 'DIRECTORY TYPE' with 'Active Directory' selected, and 'FOREST ?' with 'corp.internal' selected. To the right of the 'FOREST' dropdown is a green 'Add Directory' button, which is highlighted with a red rectangle. Below the dropdowns, the text 'No directories are currently configured.' is displayed.



Enter your Enterprise Admin credential (corp\administrator with Password1)

**AD forest account**

AD forest account

An AD account with sufficient permissions is required for periodic synchronization. Azure AD Connect can create the account for you. Alternatively, you may provide an existing account with the required permissions. [Learn more](#) about managing account permissions.

The first option is recommended and requires you to enter Enterprise Admin credentials.

Select account option.

☒ Create new AD account

☐ Use existing AD account

ENTERPRISE ADMIN USERNAME

CORP\administrator

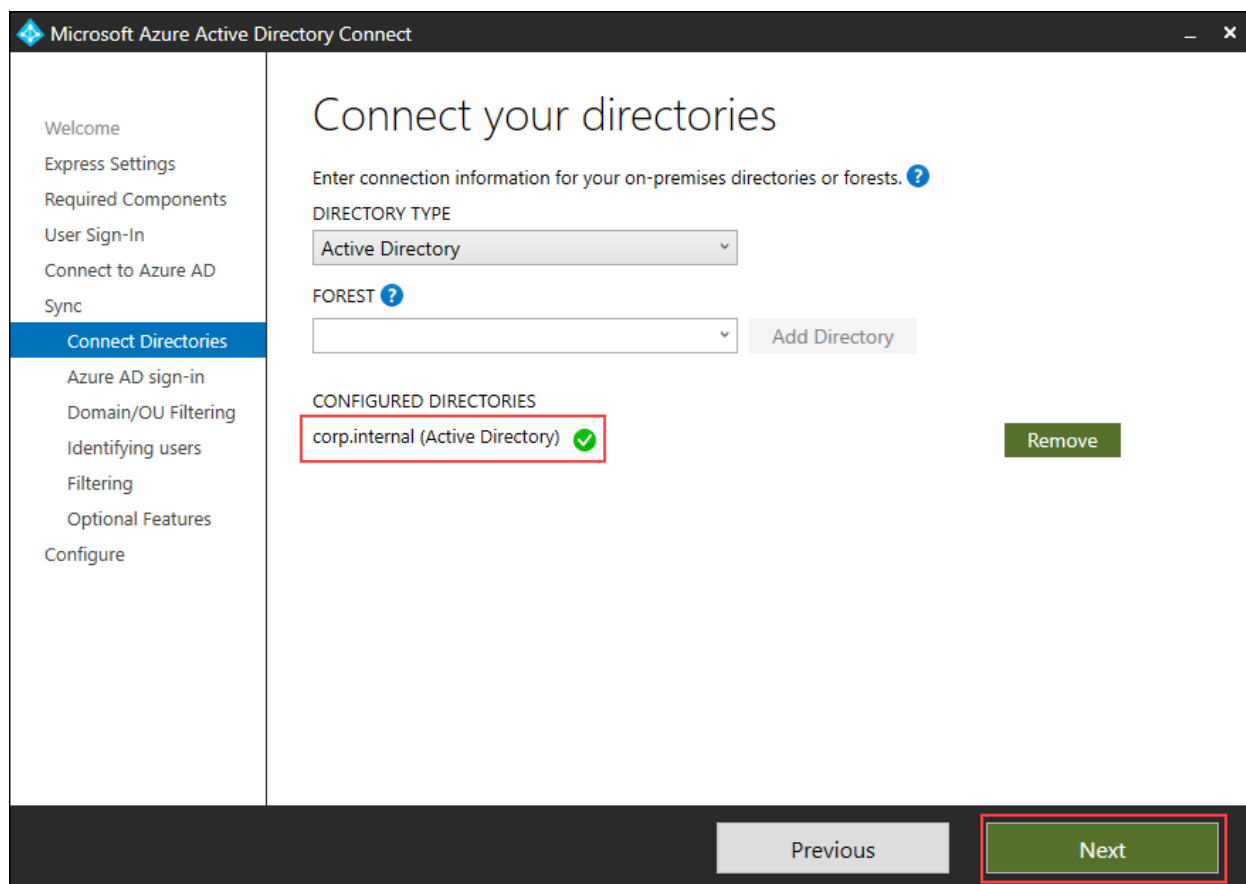
PASSWORD

.....

OK Cancel



Verify corp.internal has been added, and click Next



Microsoft Azure Active Directory Connect

Welcome

Express Settings

Required Components

User Sign-In

Connect to Azure AD

Sync

**Connect Directories**

Azure AD sign-in

Domain/OU Filtering

Identifying users

Filtering

Optional Features

Configure

## Connect your directories

Enter connection information for your on-premises directories or forests. ?

DIRECTORY TYPE

Active Directory

FOREST ?

Add Directory

CONFIGURED DIRECTORIES

corp.internal (Active Directory) ✓

Remove

Previous

**Next**

7. Verify yourdomain.xyz has been verified in Microsoft 365

Use UPN to be the username in Azure AD

Select "Continue without matching all UPN suffixes to verified domains", and click Next

Microsoft Azure Active Directory Connect

## Azure AD sign-in configuration

To sign-in to Azure with the same credentials as your on-premises directory, a matching Azure AD Domain is required. The following table lists the UPN suffixes for your on-premises environment and the status of the associated Azure AD Domain. ?

| Active Directory UPN Suffix | Azure AD Domain |
|-----------------------------|-----------------|
| corp.internal               | Not Added ?     |
| novembercoffee.xyz          | Verified        |

Select the on-premises attribute to use as the Azure AD username

USER PRINCIPAL NAME ?

userPrincipalName

☒ Continue without matching all UPN suffixes to verified domains

**Users will not be able to sign-in to Azure AD with on-premises credentials if the UPN suffix does not match a verified domain. [Learn more](#)**

Previous Next

8. Select the following OUs to be synchronized to Azure AD
- All Clients
  - All Groups
  - All Users

Microsoft Azure Active Directory Connect

Welcome

Express Settings

Required Components

User Sign-In

Connect to Azure AD

Sync

Connect Directories

Azure AD sign-in

**Domain/OU Filtering**

Identifying users

Filtering

Optional Features

Configure

## Domain and OU filtering

Directory: corp.internal Refresh Domains ?

☐ Sync all domains and OUs

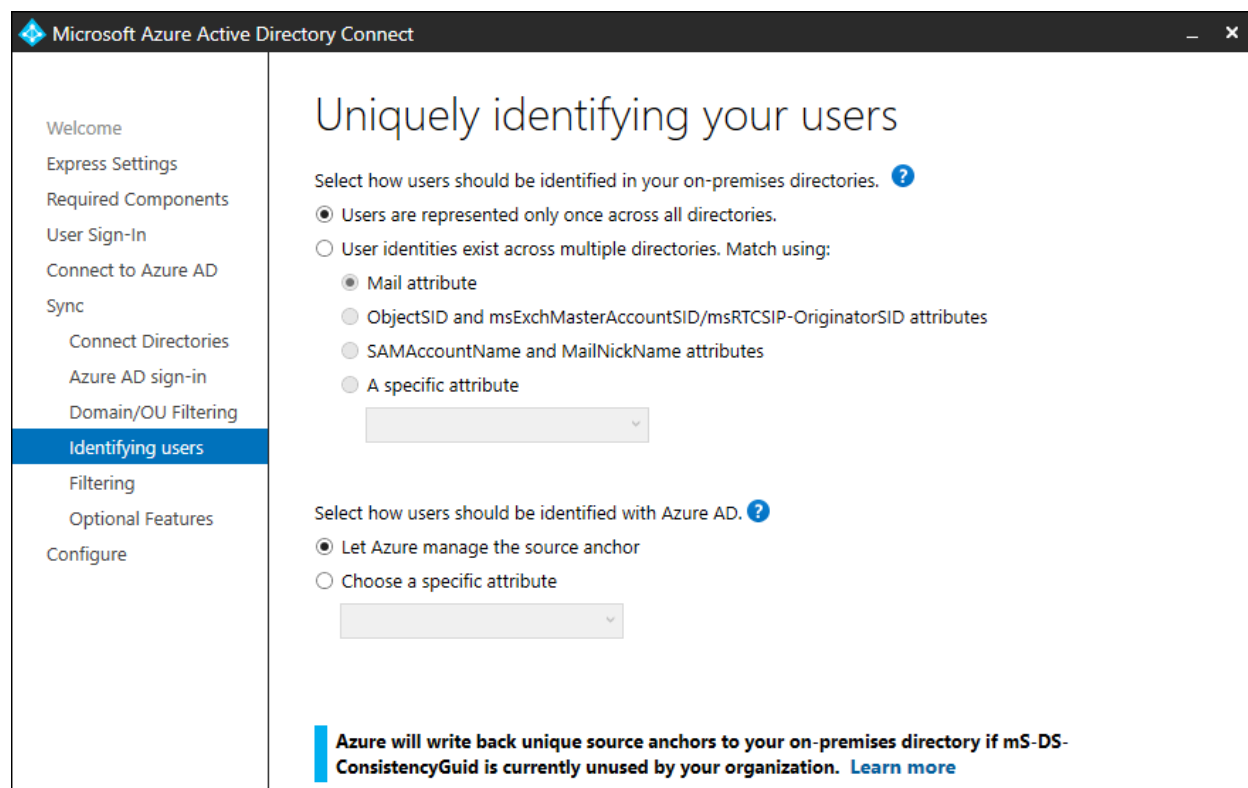
☒ Sync selected domains and OUs

corp.internal

- ☒ All Clients
- ☒ All Groups
- ☐ All Servers
- ☒ All Users
- ☐ Builtin
- ☐ Computers
- ☐ Domain Controllers
- ☐ ForeignSecurityPrincipals
- ☐ Infrastructure
- ☐ LostAndFound
- ☐ Managed Service Accounts
- ☐ Program Data
- ☐ System
- ☐ Users

Previous Next

Next



**Microsoft Azure Active Directory Connect**

Welcome

Express Settings

Required Components

User Sign-In

Connect to Azure AD

Sync

Connect Directories

Azure AD sign-in

Domain/OU Filtering

**Identifying users**

Filtering

Optional Features

Configure

## Uniquely identifying your users

Select how users should be identified in your on-premises directories. ?

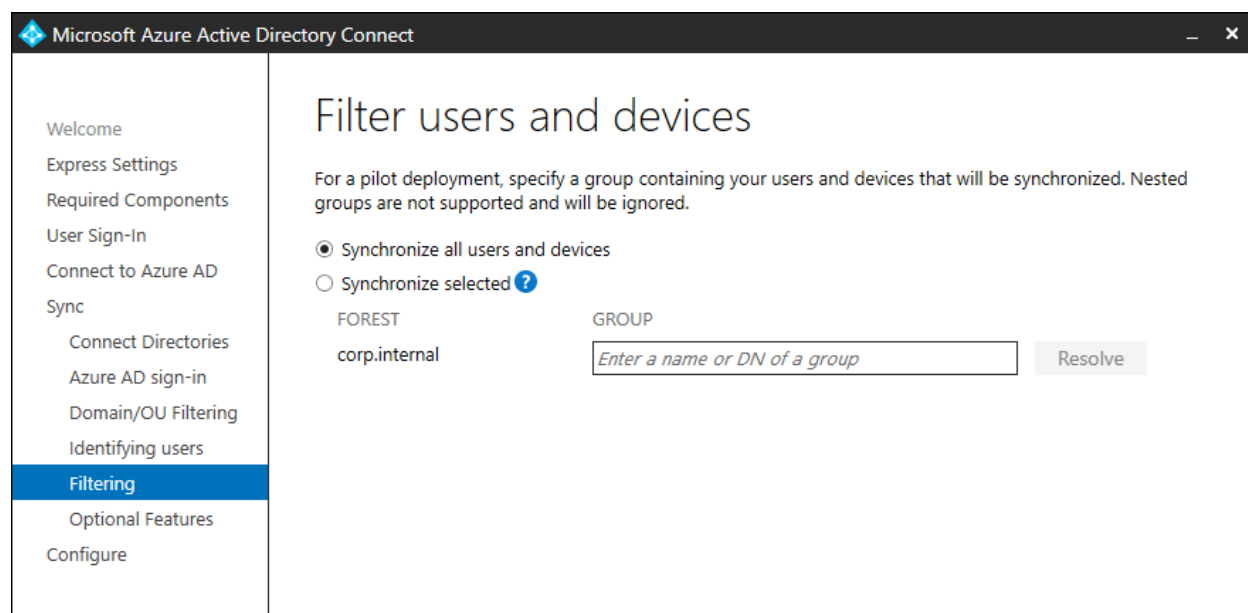
- ☒ Users are represented only once across all directories.
- ☐ User identities exist across multiple directories. Match using:
  - ☒ Mail attribute
  - ☐ ObjectSID and msExchMasterAccountSID/msRTCSIP-OriginatorSID attributes
  - ☐ SAMAccountName and MailNickName attributes
  - ☐ A specific attribute

Select how users should be identified with Azure AD. ?

- ☒ Let Azure manage the source anchor
- ☐ Choose a specific attribute

**Azure will write back unique source anchors to your on-premises directory if mS-DS-ConsistencyGuid is currently unused by your organization. [Learn more](#)**

Next



**Microsoft Azure Active Directory Connect**

Welcome

Express Settings

Required Components

User Sign-In

Connect to Azure AD

Sync

Connect Directories

Azure AD sign-in

Domain/OU Filtering

Identifying users

**Filtering**

Optional Features

Configure

## Filter users and devices

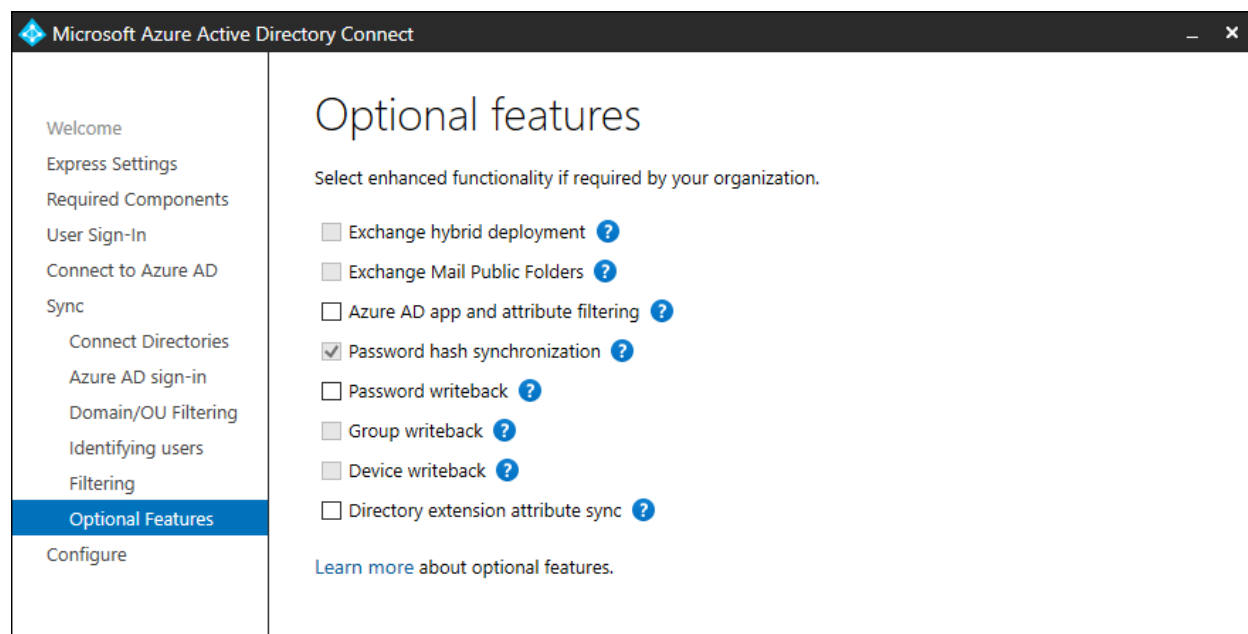
For a pilot deployment, specify a group containing your users and devices that will be synchronized. Nested groups are not supported and will be ignored.

- ☒ Synchronize all users and devices
- ☐ Synchronize selected ?

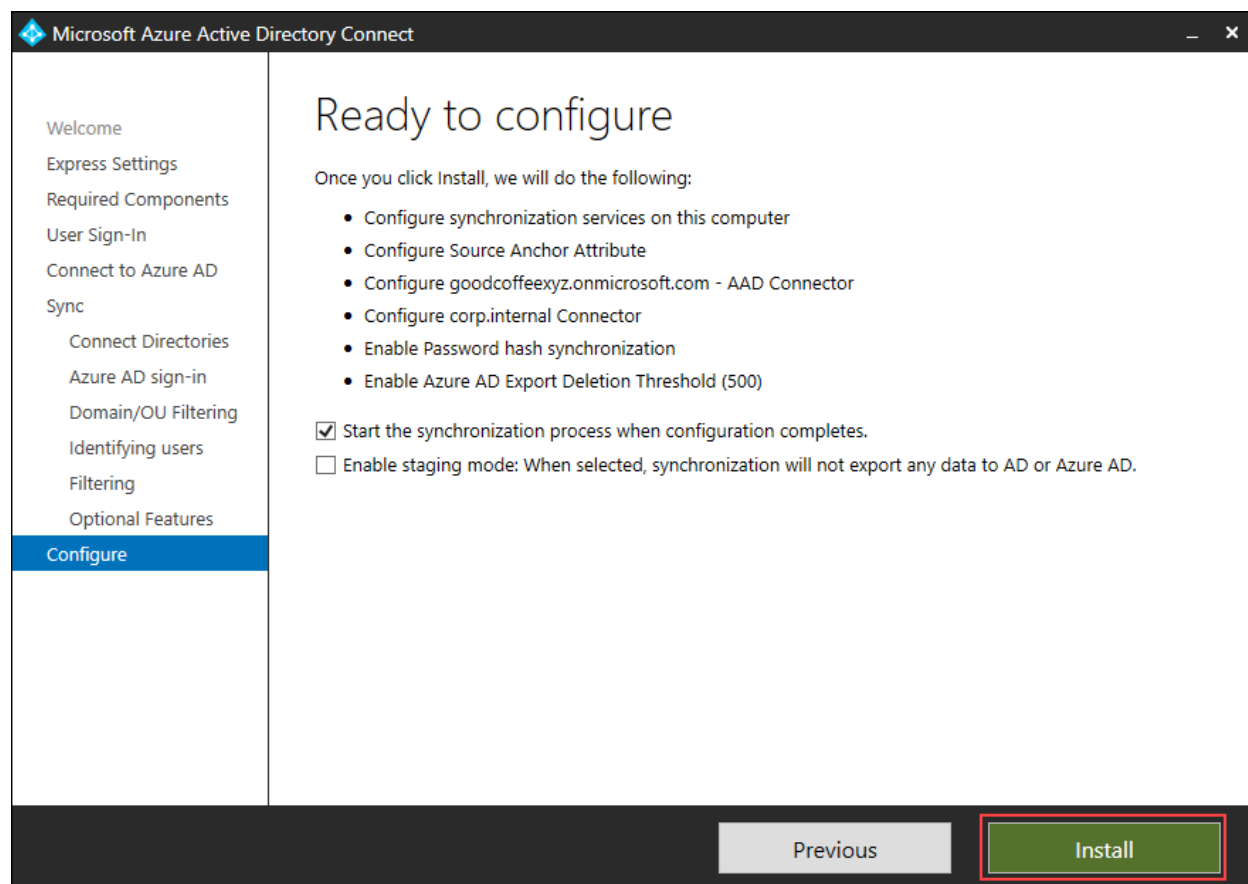
| FOREST        | GROUP                                                      |                                        |
|---------------|------------------------------------------------------------|----------------------------------------|
| corp.internal | <input type="text" value="Enter a name or DN of a group"/> | <input type="button" value="Resolve"/> |



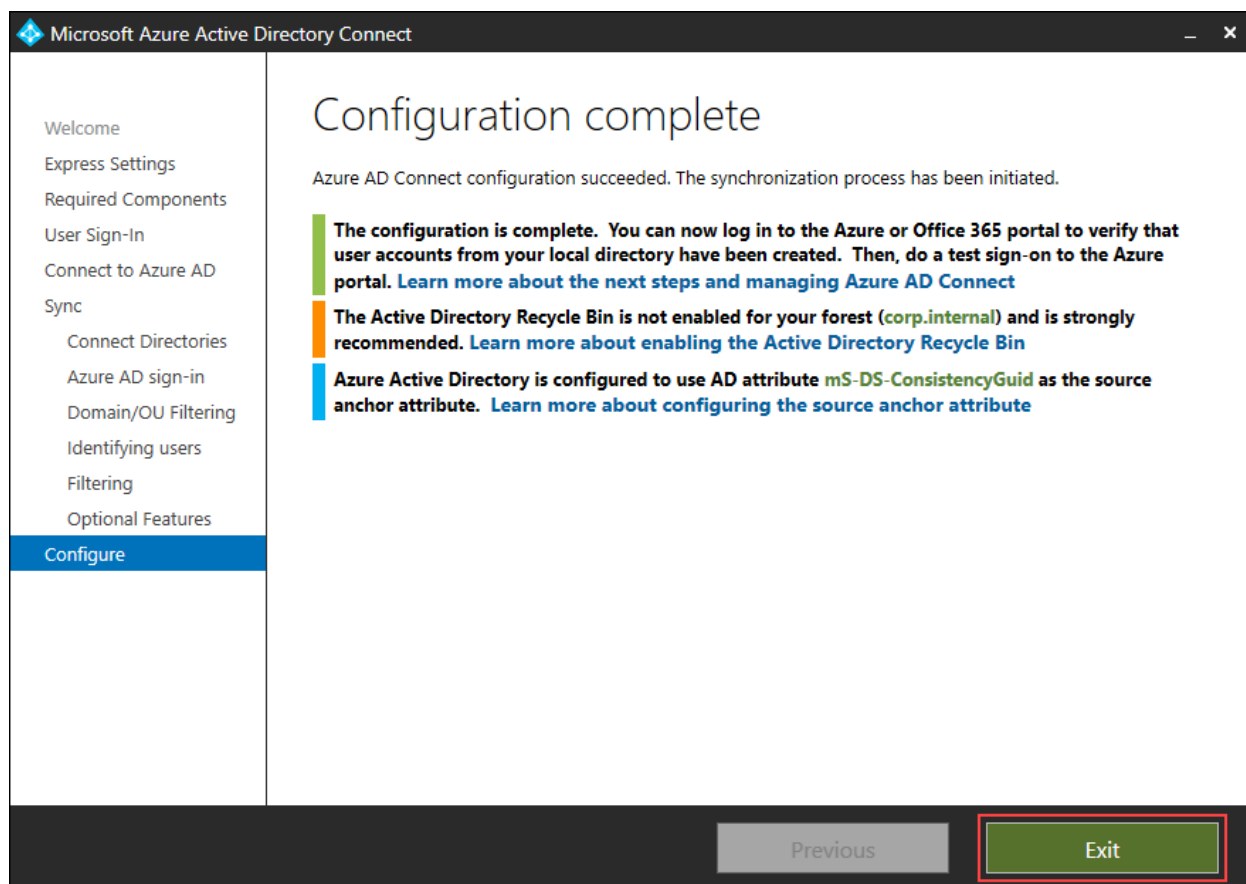
Next



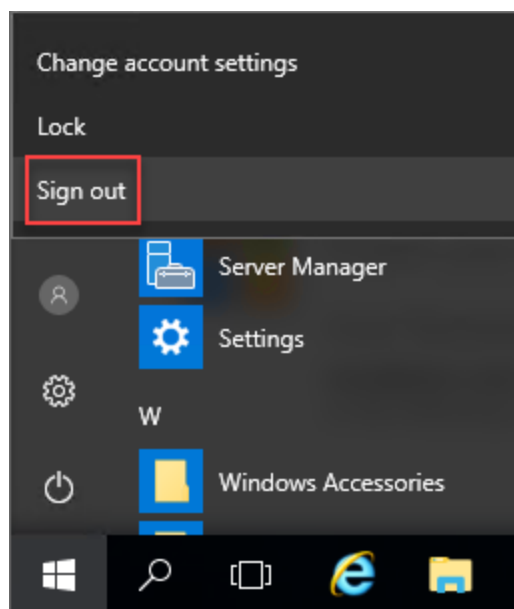
9. Click Install



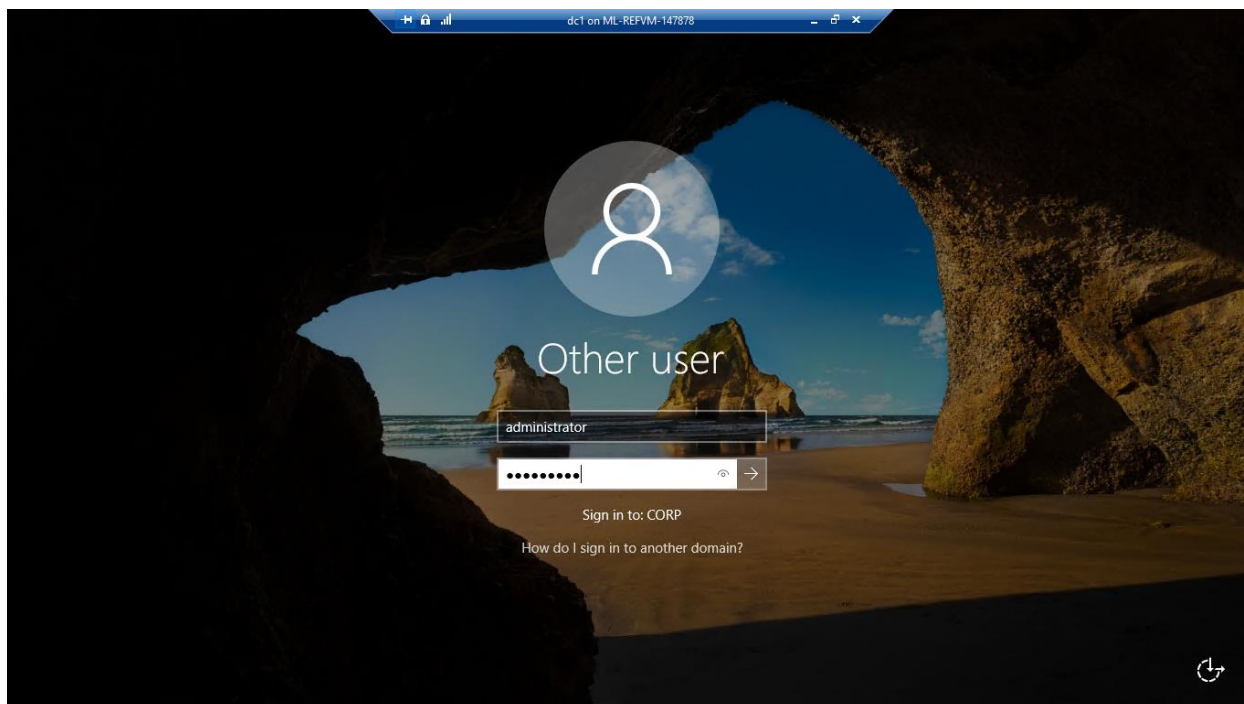
Click Exit



10. Sign out dc1

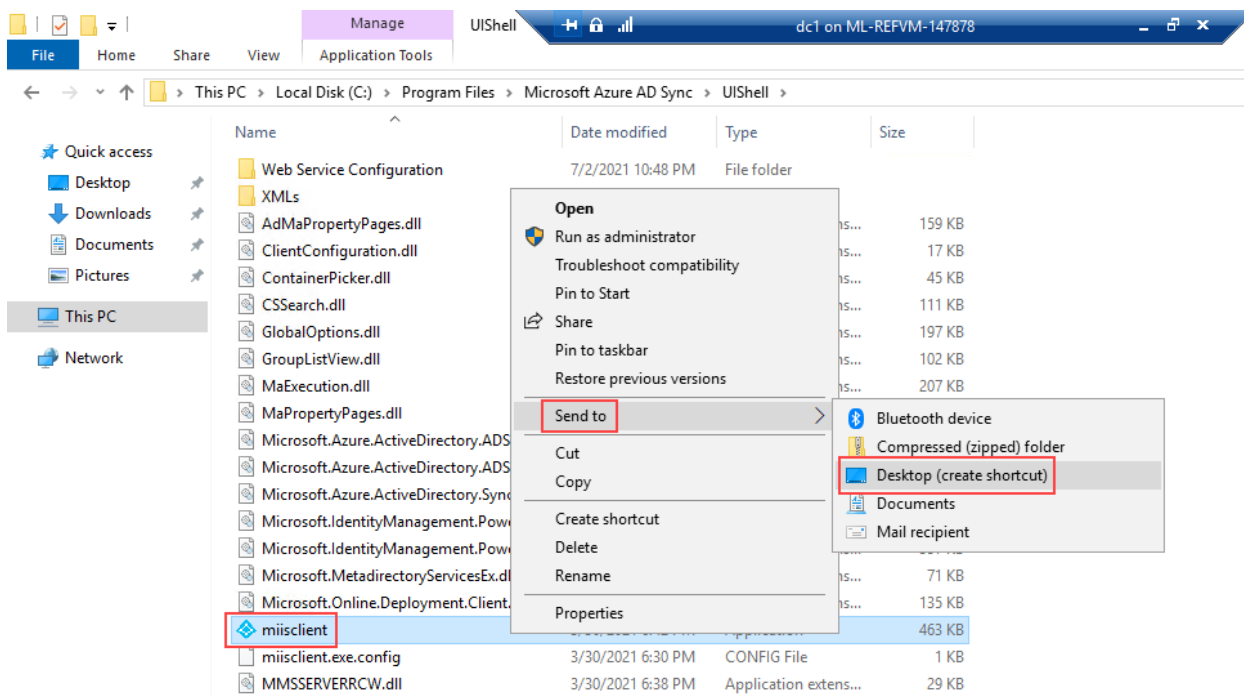


11. And sign in dc1 again

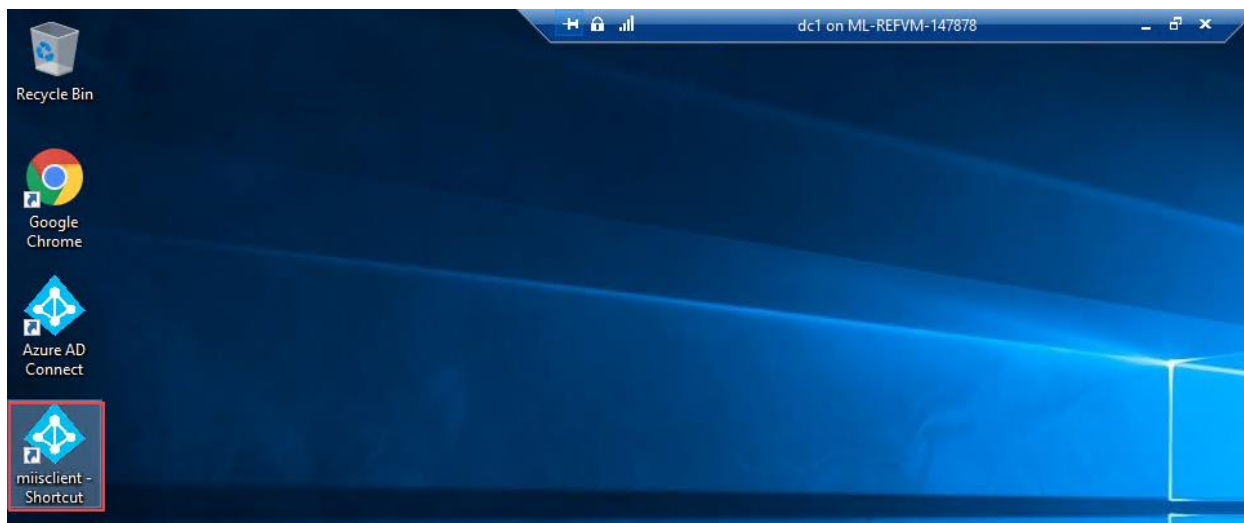


12. Open "C:\Program Files\Microsoft Azure AD Sync\UIShell" folder

And crete a shortcut for miisclient



### 13. Open miisclient



### 14. Review there are 6 synchronization events were logged

Click Corp.internal > Full Import > Adds > 10

Verify objects those have been synchronized to Azure AD

 A screenshot of the 'Synchronization Service Manager on DC1' application window. The window has a menu bar (File, Tools, Actions, Help) and a toolbar with icons for Operations, Connectors, Metaverse Designer, and Metaverse Search. The main area displays a table of 'Connector Operations'. Below this, there's a section for 'Synchronization Statistics' and a 'Partially Synchronized' button. A red arrow points from the 'Adds' value of 10 in the statistics table to the 'Partially Synchronized' button. To the right, an 'Object Details' dialog box is open, showing a list of distinguished names for 10 objects. The 'Close' button in the dialog is also highlighted with a red box.
 

| Name                    | Profile Name         | Status               | Start Time           | End Time             |
|-------------------------|----------------------|----------------------|----------------------|----------------------|
| corp.internal           | Export               | success              | 7/2/2021 11:04:43 PM | 7/2/2021 11:04:43 PM |
| goodcoffeexyz.onmicr... | Export               | success              | 7/2/2021 11:04:17 PM | 7/2/2021 11:04:40 PM |
| goodcoffeexyz.onmicr... | Full Synchronization | success              | 7/2/2021 11:04:13 PM | 7/2/2021 11:04:17 PM |
| corp.internal           | Full Synchronization | success              | 7/2/2021 11:04:07 PM | 7/2/2021 11:04:13 PM |
| goodcoffeexyz.onmicr... | Full Import          | completed-no-objects | 7/2/2021 11:03:56 PM | 7/2/2021 11:04:06 PM |
| corp.internal           | Full Import          | success              | 7/2/2021 11:03:50 PM | 7/2/2021 11:03:54 PM |

| Synchronization Statistics |     |
|----------------------------|-----|
| <b>Staging</b>             |     |
| Unchanged                  | 0   |
| <b>Adds</b>                | 10  |
| Updates                    | 0   |
| Renames                    | 0   |
| Deletes                    | 0   |
| <b>Discovery</b>           |     |
| Filtered Objects           | 183 |

Profile Name: Full Import User Name: CORP\ADSyncMSA\_9030f\$

Step Type: Full Import (Stage Only)

Start Time: 7/2/2021 11:03:50 PM

Partially Synchronized

Object Details

Total objects retrieved: 10

Distinguished Name

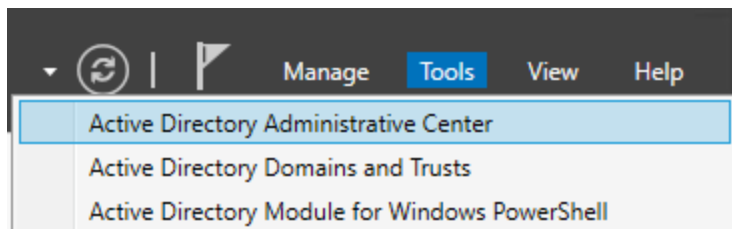
- DC=corp,DC=internal
- OU=All Users,DC=corp,DC=internal
- OU=All Groups,DC=corp,DC=internal
- CN=W10C,OU=All Clients,DC=corp,DC=internal
- CN=W10B,OU=All Clients,DC=corp,DC=internal
- CN=W10A,OU=All Clients,DC=corp,DC=internal
- OU=All Clients,DC=corp,DC=internal
- CN=user1,OU=All Users,DC=corp,DC=internal
- CN=user2,OU=All Users,DC=corp,DC=internal
- CN=user3,OU=All Users,DC=corp,DC=internal

Properties... Refresh Close

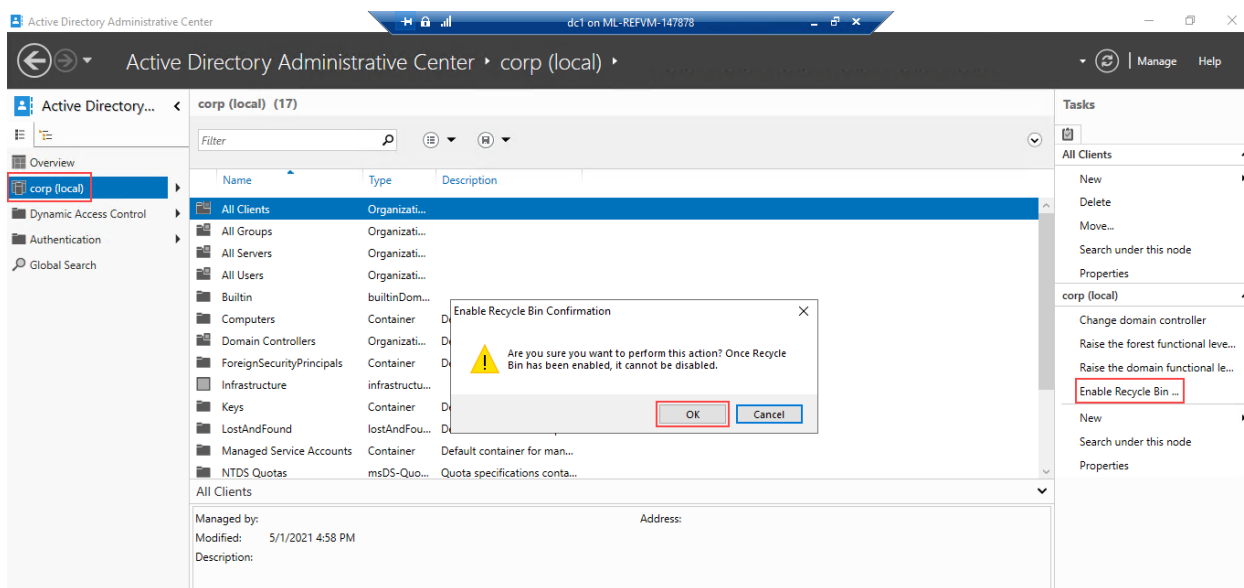


### 2.3.2 Enable AD Recycle Bin

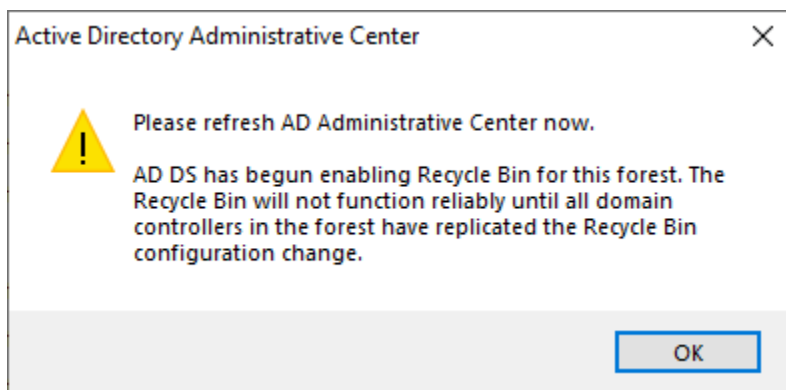
1. On dc1, open AD Administrative Center



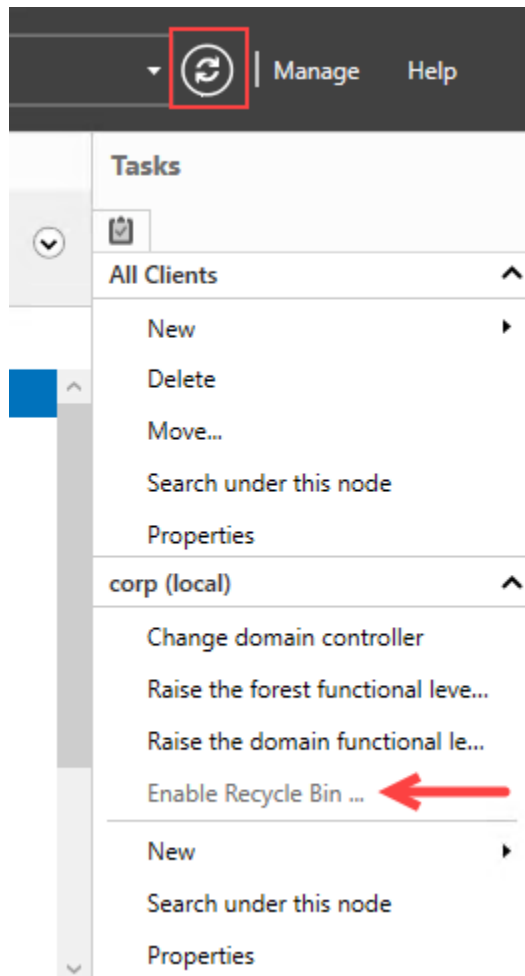
#### Enable Recycle Bin



Click OK



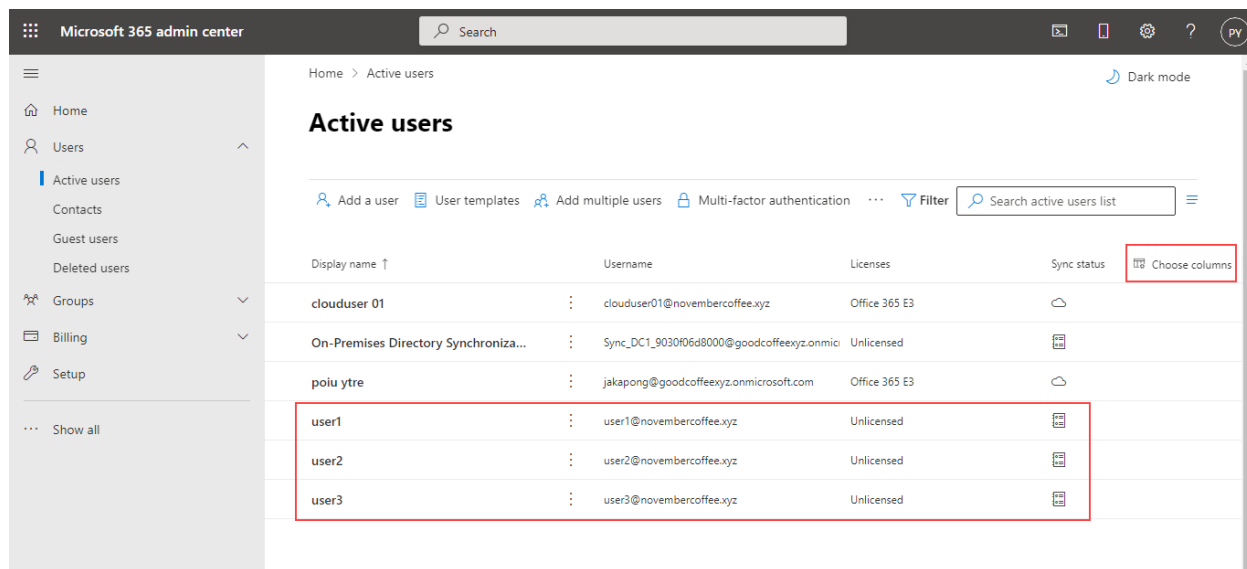
2. Refresh and verify “Enable Recycle bin” is gray color



### 2.3.3 Verify directory synchronization

In Microsoft 365 admin center, verify on-premises users have been synchronized to Office 365

**Note:** click Choose columns to see view more columns you need



Microsoft 365 admin center

Home > Active users

## Active users

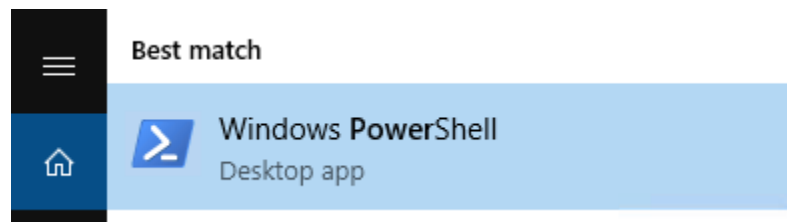
[Add a user](#)
[User templates](#)
[Add multiple users](#)
[Multi-factor authentication](#)
[Filter](#)

| Display name ↑                       | Username                                     | Licenses      | Sync status | Choose columns |
|--------------------------------------|----------------------------------------------|---------------|-------------|----------------|
| clouduser 01                         | clouduser01@novembercoffee.xyz               | Office 365 E3 | ☁           |                |
| On-Premises Directory Synchroniza... | Sync_DC1_9030f06d8000@goodcoffeexyz.onmic... | Unlicensed    | ☰           |                |
| polu ytre                            | jakapong@goodcoffeexyz.onmicrosoft.com       | Office 365 E3 | ☁           |                |
| user1                                | user1@novembercoffee.xyz                     | Unlicensed    | ☰           |                |
| user2                                | user2@novembercoffee.xyz                     | Unlicensed    | ☰           |                |
| user3                                | user3@novembercoffee.xyz                     | Unlicensed    | ☰           |                |

## 2.4 Work with the synchronization schedule

### 2.4.1 View synchronization schedule

On dc1, open Windows PowerShell



Run

Get-ADSyncScheduler



Verify the synced scheduler is every 30 minutes

```
PS C:\> Get-ADSyncScheduler

AllowedSyncCycleInterval           : 00:30:00
CurrentlyEffectiveSyncCycleInterval : 00:30:00
CustomizedSyncCycleInterval        :
NextSyncCyclePolicyType             : Delta
NextSyncCycleStartTimeInUTC         : 7/2/2021 4:33:47 PM
PurgeRunHistoryInterval            : 7.00:00:00
SyncCycleEnabled                    : True
MaintenanceEnabled                  : True
StagingModeEnabled                  : False
SchedulerSuspended                  : False
SyncCycleInProgress                 : False

PS C:\> █
```

#### 2.4.2 Force full synchronization

On dc1, run

```
Start-ADSyncSyncCycle -PolicyType Initial
```

```
PS C:\> Start-ADSyncSyncCycle -PolicyType Initial

Result
-----
Success
```



Verify there are 6 events were logged for FULL SYNC

Synchronization Service Manager on DC1

File Tools Actions Help

Operations Connectors Metaverse Designer Metaverse Search

Connector Operations

| Name                                | Profile Name         | Status               | Start Time           | End Time             |
|-------------------------------------|----------------------|----------------------|----------------------|----------------------|
| corp.internal                       | Export               | success              | 7/2/2021 11:16:44 PM | 7/2/2021 11:16:44 PM |
| goodcoffeexyz.onmicrosoft.com - AAD | Export               | success              | 7/2/2021 11:16:33 PM | 7/2/2021 11:16:43 PM |
| goodcoffeexyz.onmicrosoft.com - AAD | Full Synchronization | success              | 7/2/2021 11:16:32 PM | 7/2/2021 11:16:32 PM |
| corp.internal                       | Full Synchronization | success              | 7/2/2021 11:16:31 PM | 7/2/2021 11:16:32 PM |
| goodcoffeexyz.onmicrosoft.com - AAD | Full Import          | success              | 7/2/2021 11:16:23 PM | 7/2/2021 11:16:30 PM |
| corp.internal                       | Full Import          | success              | 7/2/2021 11:16:22 PM | 7/2/2021 11:16:23 PM |
| corp.internal                       | Export               | success              | 7/2/2021 11:04:43 PM | 7/2/2021 11:04:43 PM |
| goodcoffeexyz.onmicrosoft.com - AAD | Export               | success              | 7/2/2021 11:04:17 PM | 7/2/2021 11:04:40 PM |
| goodcoffeexyz.onmicrosoft.com - AAD | Full Synchronization | success              | 7/2/2021 11:04:13 PM | 7/2/2021 11:04:17 PM |
| corp.internal                       | Full Synchronization | success              | 7/2/2021 11:04:07 PM | 7/2/2021 11:04:13 PM |
| goodcoffeexyz.onmicrosoft.com - AAD | Full Import          | completed-no-objects | 7/2/2021 11:03:56 PM | 7/2/2021 11:04:06 PM |
| corp.internal                       | Full Import          | success              | 7/2/2021 11:03:50 PM | 7/2/2021 11:03:54 PM |

### 2.4.3 Force incremental synchronization

On dc1, run

```
Start-adsyncsyncycle
```

```
PS C:\> Start-adsyncsyncycle
```

```
Result
```

```
-----
```

```
Success
```

```
PS C:\> █
```



Verify there are 6 events were logged for DELTA SYNC

Synchronization Service Manager on DC1 dc1 on ML-REFVM-147878

File Tools Actions Help

Operations Connectors Metaverse Designer Metaverse Search

### Connector Operations

| Name                                | Profile Name          | Status               | Start Time           | End Time             |
|-------------------------------------|-----------------------|----------------------|----------------------|----------------------|
| corp.internal                       | Export                | success              | 7/2/2021 11:17:45 PM | 7/2/2021 11:17:45 PM |
| goodcoffeexyz.onmicrosoft.com - AAD | Export                | success              | 7/2/2021 11:17:36 PM | 7/2/2021 11:17:45 PM |
| goodcoffeexyz.onmicrosoft.com - AAD | Delta Synchronization | success              | 7/2/2021 11:17:36 PM | 7/2/2021 11:17:36 PM |
| corp.internal                       | Delta Synchronization | success              | 7/2/2021 11:17:35 PM | 7/2/2021 11:17:35 PM |
| goodcoffeexyz.onmicrosoft.com - AAD | Delta Import          | success              | 7/2/2021 11:17:30 PM | 7/2/2021 11:17:35 PM |
| corp.internal                       | Delta Import          | success              | 7/2/2021 11:17:29 PM | 7/2/2021 11:17:29 PM |
| corp.internal                       | Export                | success              | 7/2/2021 11:16:44 PM | 7/2/2021 11:16:44 PM |
| goodcoffeexyz.onmicrosoft.com - AAD | Export                | success              | 7/2/2021 11:16:33 PM | 7/2/2021 11:16:43 PM |
| goodcoffeexyz.onmicrosoft.com - AAD | Full Synchronization  | success              | 7/2/2021 11:16:32 PM | 7/2/2021 11:16:32 PM |
| corp.internal                       | Full Synchronization  | success              | 7/2/2021 11:16:31 PM | 7/2/2021 11:16:32 PM |
| goodcoffeexyz.onmicrosoft.com - AAD | Full Import           | success              | 7/2/2021 11:16:23 PM | 7/2/2021 11:16:30 PM |
| corp.internal                       | Full Import           | success              | 7/2/2021 11:16:22 PM | 7/2/2021 11:16:23 PM |
| corp.internal                       | Export                | success              | 7/2/2021 11:04:43 PM | 7/2/2021 11:04:43 PM |
| goodcoffeexyz.onmicrosoft.com - AAD | Export                | success              | 7/2/2021 11:04:17 PM | 7/2/2021 11:04:40 PM |
| goodcoffeexyz.onmicrosoft.com - AAD | Full Synchronization  | success              | 7/2/2021 11:04:13 PM | 7/2/2021 11:04:17 PM |
| corp.internal                       | Full Synchronization  | success              | 7/2/2021 11:04:07 PM | 7/2/2021 11:04:13 PM |
| goodcoffeexyz.onmicrosoft.com - AAD | Full Import           | completed-no-objects | 7/2/2021 11:03:56 PM | 7/2/2021 11:04:06 PM |
| corp.internal                       | Full Import           | success              | 7/2/2021 11:03:50 PM | 7/2/2021 11:03:54 PM |

Profile Name: Full Import User Name: CORP\ADSyncMSA\_9030f\$

**Step Type:** Full Import (Stage Only) **Partition:** DC=corp,DC=internal

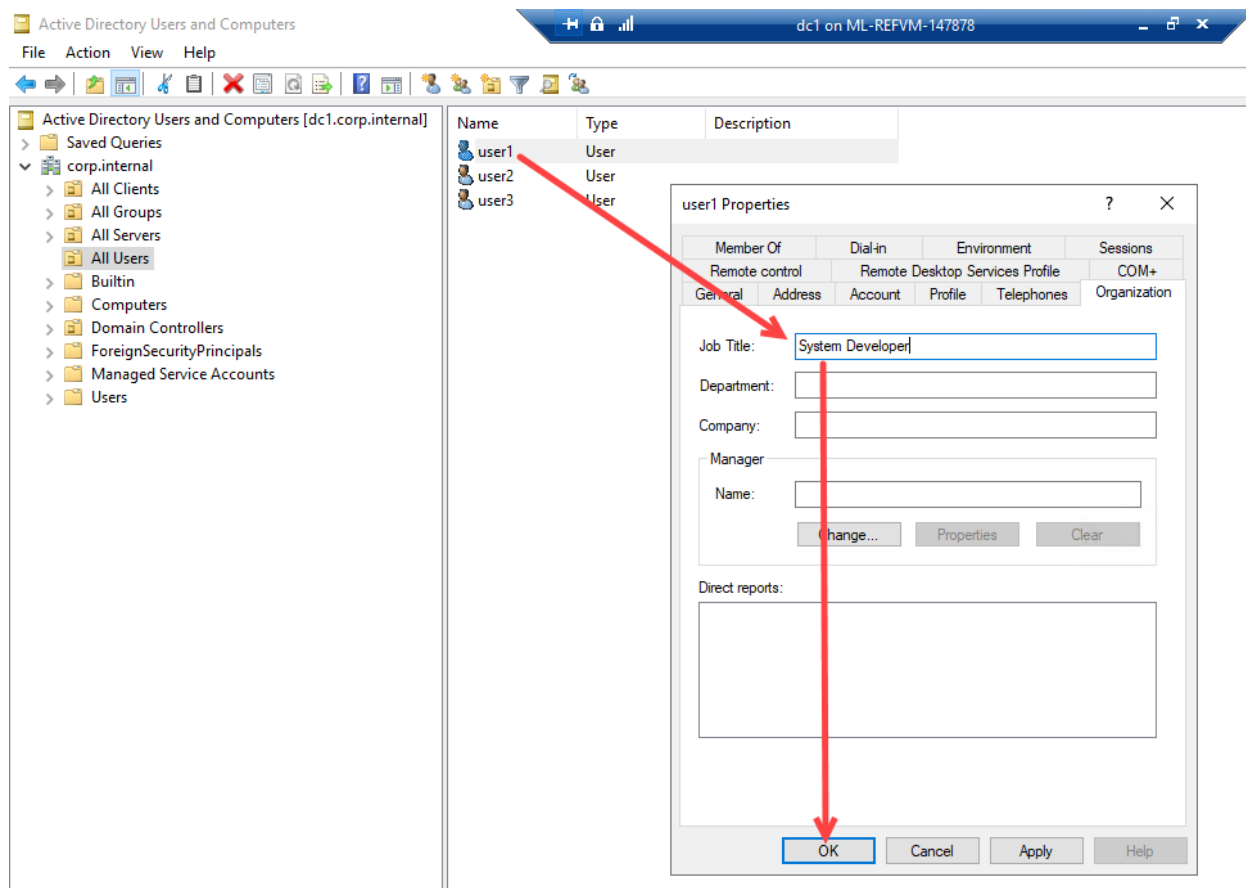
**Start Time:** 7/2/2021 11:03:50 PM **End Time:** 7/2/2021 11:03:54 PM **Status:** success

| Synchronization Statistics |     | Connection Status      |         |
|----------------------------|-----|------------------------|---------|
| <b>Staging</b>             |     | dc1.corp.internal:389  | success |
| Unchanged                  | 0   |                        |         |
| Adds                       | 10  |                        |         |
| Updates                    | 0   |                        |         |
| Renames                    | 0   |                        |         |
| Deletes                    | 0   |                        |         |
| <b>Discovery</b>           |     |                        |         |
| Filtered Objects           | 183 |                        |         |
|                            |     | Synchronization Errors |         |
|                            |     |                        |         |
|                            |     |                        |         |
|                            |     |                        |         |
|                            |     |                        |         |
|                            |     |                        |         |



## 2.5 Test synchronization

### 1. On dc1, add Job title to User1



### 2. Run

```
Start-adsyncsyncycle
```

```
PS C:\> Start-adsyncsyncycle

Result
-----
Success

PS C:\>
```



### 3. Verify user1's job title is DELTA synced to Azure AD

#### User1's job title has been imported to the connector space

Synchronization Service Manager on DC1

File Tools Actions Help

Operations Connectors Metaverse Designer Metaverse Search

Connector Operations

| Name                                | Profile Name          | Status  | Start Time           | End Time             |
|-------------------------------------|-----------------------|---------|----------------------|----------------------|
| corp.internal                       | Export                | success | 7/2/2021 11:20:34 PM | 7/2/2021 11:20:34 PM |
| goodcoffeexyz.onmicrosoft.com - AAD | Export                | success | 7/2/2021 11:20:24 PM | 7/2/2021 11:20:34 PM |
| goodcoffeexyz.onmicrosoft.com - AAD | Delta Synchronization | success | 7/2/2021 11:20:23 PM | 7/2/2021 11:20:34 PM |
| corp.internal                       | Delta Synchronization | success | 7/2/2021 11:20:20 PM | 7/2/2021 11:20:34 PM |
| goodcoffeexyz.onmicrosoft.com - AAD | Delta Import          | success | 7/2/2021 11:20:15 PM | 7/2/2021 11:20:23 PM |
| corp.internal                       | Delta Import          | success | 7/2/2021 11:20:14 PM | 7/2/2021 11:20:23 PM |
| corp.internal                       | Export                | success | 7/2/2021 11:17:45 PM |                      |

Connector Space Object Properties

Properties | Lineage

**Distinguished Name:** CN=user1,OU=All Users,DC=corp,DC=internal

**Modification type:** none

**Object type:** user

Attribute information:

| Changes | Attribute Name     | Type   | Value                                                          |
|---------|--------------------|--------|----------------------------------------------------------------|
| none    | cn                 | string | user1                                                          |
| none    | countryCode        | number | 0                                                              |
| none    | displayName        | string | user1                                                          |
| none    | givenName          | string | user1                                                          |
| none    | mS-DS-Consisten... | binary | B4 6B 7E 4B 3B 00 D2 4E BB 23 D0 21 99 C6 50 8B                |
| none    | objectGUID         | binary | B4 6B 7E 4B 3B 00 D2 4E BB 23 D0 21 99 C6 50 8B                |
| none    | objectSid          | binary | 01 05 00 00 00 00 05 15 00 00 00 74 37 0C DA AE 33 3A 0C 6E 49 |
| none    | pwdLastSet         | number | 132643365868267769                                             |
| none    | sAMAccountName     | string | user1                                                          |
| none    | title              | string | System Developer                                               |
| none    | userAccountControl | number | 66048                                                          |
| none    | userPrincipalName  | string | user1@novembercoffee.xyz                                       |

Profile Name: Delta Import User Name: CORP\ADSync\SA\_90

Step Type: Delta Import (Stage Only)

Start Time: 7/2/2021 11:20:14 PM

Synchronization Statistics

| Staging   | Value |
|-----------|-------|
| Unchanged | 0     |
| Adds      | 0     |
| Updates   | 1     |
| Renames   | 0     |
| Deletes   | 0     |

Discovery

| Filtered Objects | Value |
|------------------|-------|
| Filtered Objects | 0     |

Object Details

Total objects retrieved: 1

Distinguished Name: CN=user1,OU=All Users,DC=corp,DC=internal

Properties...

Preview... Log... Close



## And be exported to Azure AD

Synchronization Service Manager on DC1

File Tools Actions Help

Operations Connectors Metaverse Designer Metaverse Search

Connector Operations

| Name                                | Profile Name          | Status  | Start Time           | End Time             |
|-------------------------------------|-----------------------|---------|----------------------|----------------------|
| corp.internal                       | Export                | success | 7/2/2021 11:20:34 PM | 7/2/2021 11:20:34 PM |
| goodcoffeexyz.onmicrosoft.com - AAD | Export                | success | 7/2/2021 11:20:24 PM | 7/2/2021 11:20:34 PM |
| goodcoffeexyz.onmicrosoft.com - AAD | Delta Synchronization | success | 7/2/2021 11:20:23 PM | 7/2/2021 11:20:23 PM |
| corp.internal                       | Delta Synchronization | success | 7/2/2021 11:20:20 PM | 7/2/2021 11:20:20 PM |
| goodcoffeexyz.onmicrosoft.com - AAD | Delta Import          | success | 7/2/2021 11:20:15 PM | 7/2/2021 11:20:15 PM |
| corp.internal                       | Delta Import          | success |                      |                      |
| corp.internal                       | Export                | success |                      |                      |
| goodcoffeexyz.onmicrosoft.com - AAD | Export                | success |                      |                      |
| goodcoffeexyz.onmicrosoft.com - AAD | Delta Synchronization | success |                      |                      |
| corp.internal                       | Delta Synchronization | success |                      |                      |
| corp.internal                       | Delta Import          | success |                      |                      |
| corp.internal                       | Export                | success |                      |                      |
| goodcoffeexyz.onmicrosoft.com - AAD | Export                | success |                      |                      |
| goodcoffeexyz.onmicrosoft.com - AAD | Full Synchronization  | success |                      |                      |
| corp.internal                       | Full Synchronization  | success |                      |                      |
| goodcoffeexyz.onmicrosoft.com - AAD | Full Import           | success |                      |                      |

Profile Name: Export User Name: CORP\ADSyncMSA\_9000\$

Step Type: Export Start Time: 7/2/2021 11:20:24 PM

Export Statistics

| Adds | Updates | Deletes | Delete Adds |
|------|---------|---------|-------------|
| 0    | 1       | 0       | 0           |

Object Details

Total objects retrieved: 1

Distinguished Name: CN=(7447742B537A7341306B3637493941686D635A5169773D3D)

Modification type: update

Object type: user

Attribute information:

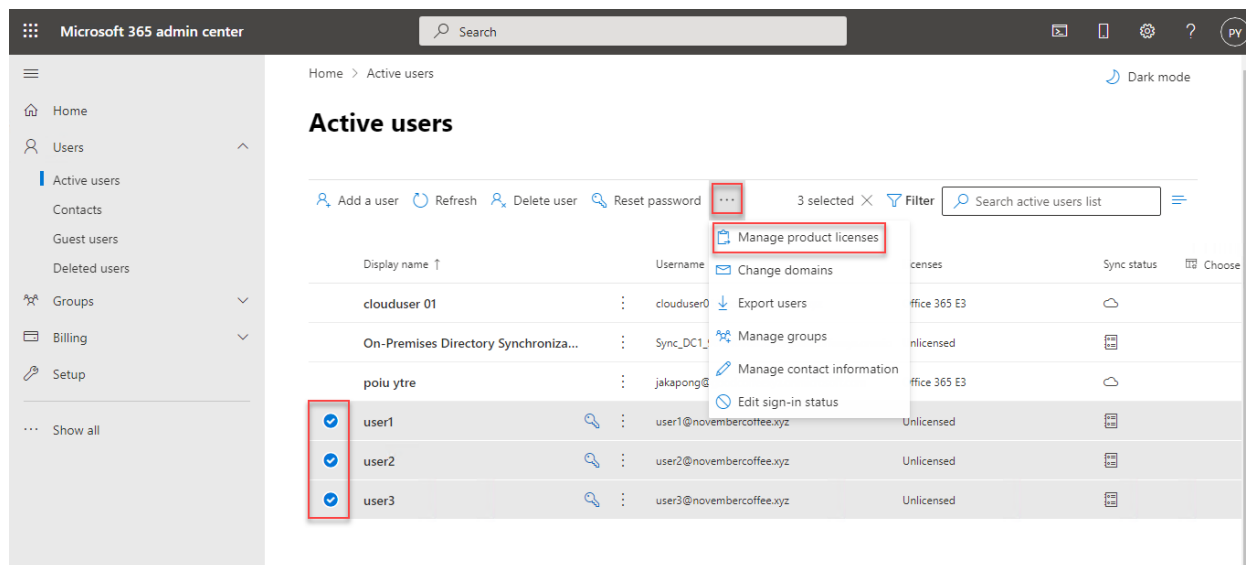
| Changes | Attribute Name     | Type    | Old Value                                   | New Value                                   |
|---------|--------------------|---------|---------------------------------------------|---------------------------------------------|
| none    | accountEnabled     | boolean | true                                        | true                                        |
| none    | cloudAnchor        | string  | User_bf19cf48f94a-40c6-9401-bdf1599b8...    | User_bf19cf48f94a-40c6-9401-bdf1599b8...    |
| none    | cloudMastered      | boolean | false                                       | false                                       |
| none    | commonName         | string  | user1                                       | user1                                       |
| none    | countryCode        | number  | 0                                           | 0                                           |
| none    | displayName        | string  | user1                                       | user1                                       |
| none    | dnsDomainName      | string  | corp.internal                               | corp.internal                               |
| none    | givenName          | string  | user1                                       | user1                                       |
| none    | lastPasswordCha... | string  | 20210501095626.0Z                           | 20210501095626.0Z                           |
| none    | netBiosName        | string  | CORP                                        | CORP                                        |
| none    | onPremiseSecur...  | binary  | 01 05 00 00 00 00 00 05 15 00 00 00 74 3... | 01 05 00 00 00 00 00 05 15 00 00 00 74 3... |
| none    | onPremisesDisti... | string  | CN=user1,OU=All Users,DC=corp,DC=inter...   | CN=user1,OU=All Users,DC=corp,DC=inter...   |
| none    | onPremisesSamA...  | string  | user1                                       | user1                                       |
| none    | sourceAnchor       | string  | IGt+SzsA0k67i9AhmcZQiw==                    | IGt+SzsA0k67i9AhmcZQiw==                    |
| add     | title              | string  |                                             | System Developer                            |
| none    | userPrincipalName  | string  | user1@novembercoffee.xyz                    | user1@novembercoffee.xyz                    |

Preview... Log... Close Help

### 3 Assign licenses

1. In Microsoft 365 admin enter, assign licenses to

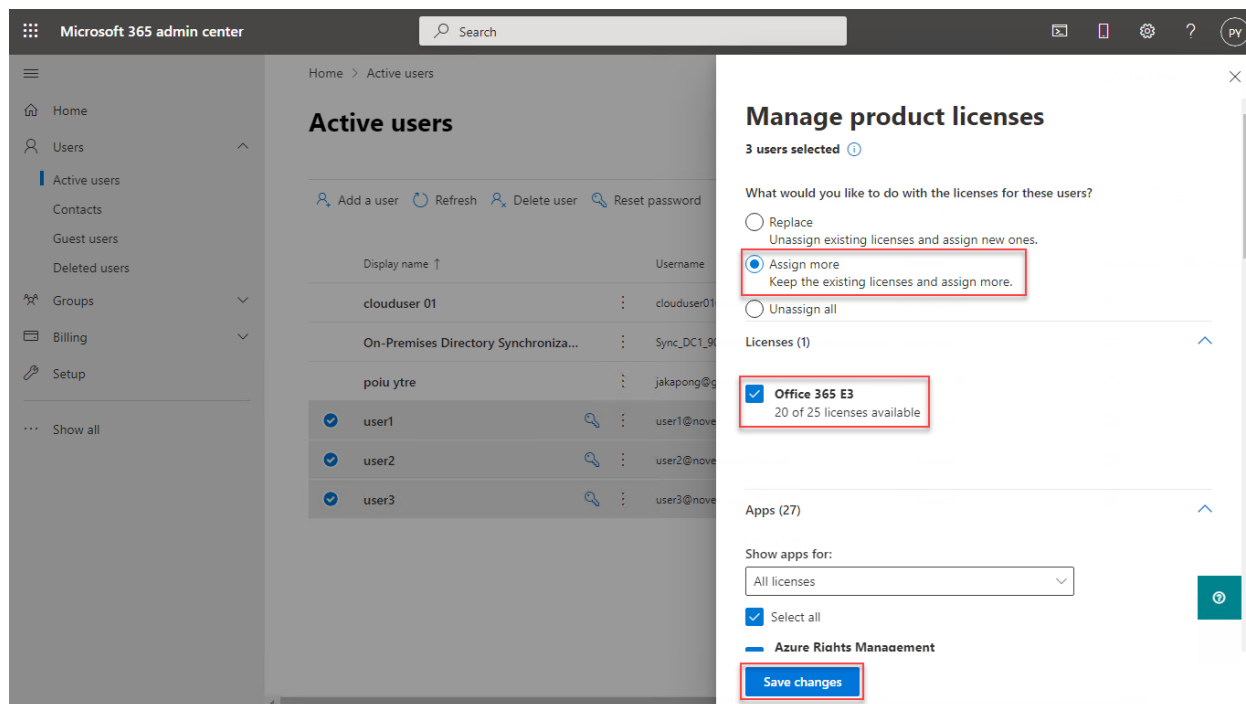
- User1
- User2
- User3



The screenshot shows the Microsoft 365 admin center interface. On the left is a navigation pane with options like Home, Users, Active users, Contacts, Guest users, Deleted users, Groups, Billing, and Setup. The main area is titled 'Active users' and shows a table of users. Three users are selected: user1, user2, and user3. A context menu is open over the selected users, with 'Manage product licenses' highlighted. The table columns include Display name, Username, Licenses, and Sync status.

| Display name                         | Username                 | Licenses      | Sync status |
|--------------------------------------|--------------------------|---------------|-------------|
| clouduser 01                         | clouduser01              | Office 365 E3 | Cloud       |
| On-Premises Directory Synchroniza... | Sync_DC1_9               | Unlicensed    | Cloud       |
| polu ytre                            | jakapong@                | Office 365 E3 | Cloud       |
| user1                                | user1@novembercoffee.xyz | Unlicensed    | Cloud       |
| user2                                | user2@novembercoffee.xyz | Unlicensed    | Cloud       |
| user3                                | user3@novembercoffee.xyz | Unlicensed    | Cloud       |

Select appropriate license, and Save changes



The screenshot shows the 'Manage product licenses' dialog box. It indicates that 3 users are selected. The dialog asks 'What would you like to do with the licenses for these users?' and provides three options: 'Replace' (Unassign existing licenses and assign new ones), 'Assign more' (Keep the existing licenses and assign more), and 'Unassign all'. The 'Assign more' option is selected. Below this, a list of licenses is shown, with 'Office 365 E3' (20 of 25 licenses available) selected. At the bottom, there is a 'Save changes' button.

**Manage product licenses**  
3 users selected

What would you like to do with the licenses for these users?

- ☐ Replace  
Unassign existing licenses and assign new ones.
- ☒ Assign more  
Keep the existing licenses and assign more.
- ☐ Unassign all

Licenses (1)

- ☒ Office 365 E3  
20 of 25 licenses available

Apps (27)

Show apps for:  
All licenses

☒ Select all

Azure Rights Management

**Save changes**

Click Done

The screenshot shows the Microsoft 365 admin center interface. On the left is a navigation pane with options like Home, Users, Active users, Contacts, Guest users, Deleted users, Groups, Billing, and Setup. The main area is titled 'Active users' and contains a table of users. A modal window titled 'Licenses assigned' is open on the right, showing a green checkmark and the text 'You've assigned licenses for 3 of 3 users.' Below this is a 'Download' button and a table of assigned licenses. The table has columns for 'Username' and 'Licenses'. The data rows are: user2 (Office 365 E3), user3 (Office 365 E3), and user1 (Office 365 E3). Below the table is a 'Next Steps' section with a link to 'Review your license count in Subscriptions'. At the bottom of the modal is a blue 'Done' button, which is highlighted with a red rectangle.

**Licenses assigned**

You've assigned licenses for 3 of 3 users.

[Download](#)

| Username | Licenses      |
|----------|---------------|
| user2    | Office 365 E3 |
| user3    | Office 365 E3 |
| user1    | Office 365 E3 |

Next Steps  
You may have unused product licenses. [Review your license count in Subscriptions](#)

**Done**

2. Verify the licenses have been assigned to User1, User2, and User3 successfully

The screenshot shows the Microsoft 365 admin center interface. On the left is a navigation pane with options like Home, Users, Active users, Contacts, Guest users, Deleted users, Groups, Billing, and Setup. The main area is titled 'Active users' and contains a table of users. The table has columns for 'Display name', 'Username', 'Licenses', 'Sync status', and 'Choose'. The data rows are: clouduser 01 (clouduser01@novembercoffee.xyz, Office 365 E3), On-Premises Directory Synchroniza... (Sync\_DC1\_9030f06d8000@goodcoffeexyz.onmic, Unlicensed), polu ytre (jakapong@goodcoffeexyz.onmicrosoft.com, Office 365 E3), user1 (user1@novembercoffee.xyz, Office 365 E3), user2 (user2@novembercoffee.xyz, Office 365 E3), and user3 (user3@novembercoffee.xyz, Office 365 E3). The 'Licenses' column for user1, user2, and user3 is highlighted with a red rectangle.

| Display name                         | Username                                  | Licenses      | Sync status | Choose |
|--------------------------------------|-------------------------------------------|---------------|-------------|--------|
| clouduser 01                         | clouduser01@novembercoffee.xyz            | Office 365 E3 |             |        |
| On-Premises Directory Synchroniza... | Sync_DC1_9030f06d8000@goodcoffeexyz.onmic | Unlicensed    |             |        |
| polu ytre                            | jakapong@goodcoffeexyz.onmicrosoft.com    | Office 365 E3 |             |        |
| user1                                | user1@novembercoffee.xyz                  | Office 365 E3 |             |        |
| user2                                | user2@novembercoffee.xyz                  | Office 365 E3 |             |        |
| user3                                | user3@novembercoffee.xyz                  | Office 365 E3 |             |        |



## 4 Test access to Exchange Online

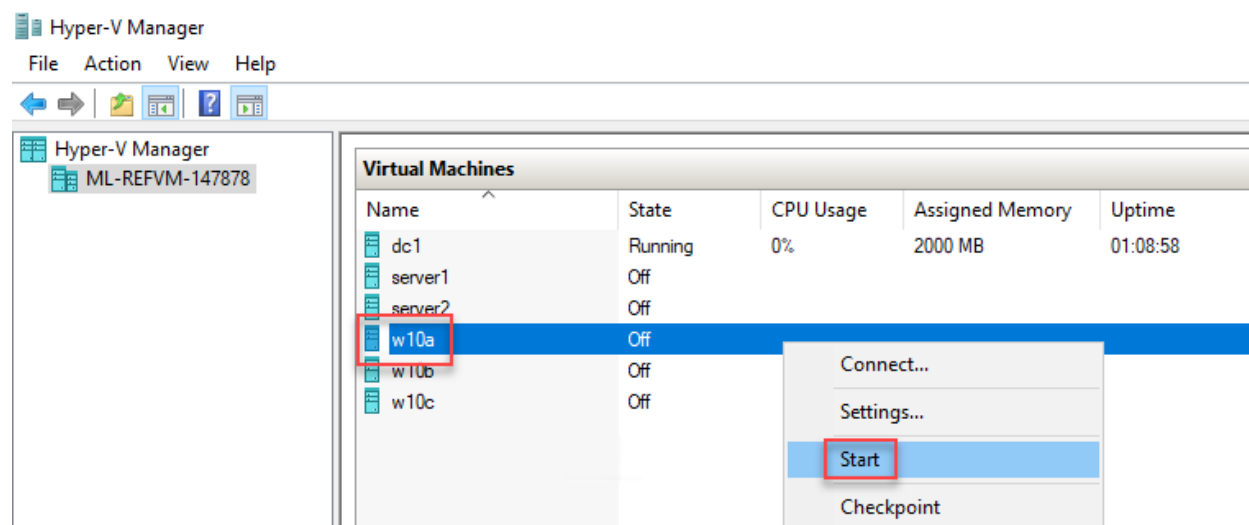
### 4.1 Start Windows 10 client

1. On Hyper-V host, run

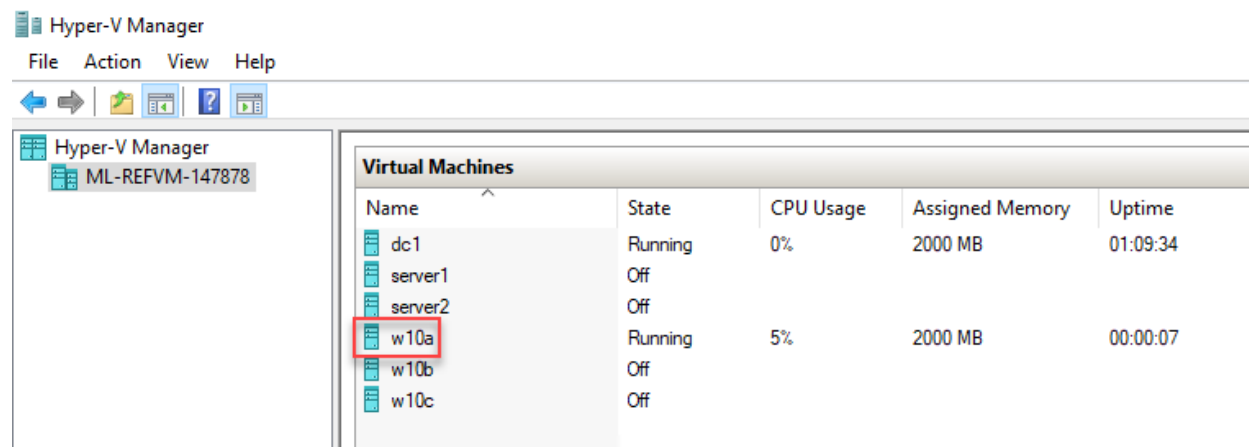
```
Set-VMProcessor w10a -Count 2
```

```
PS C:\> Set-VMProcessor w10a -Count 2
PS C:\> █
```

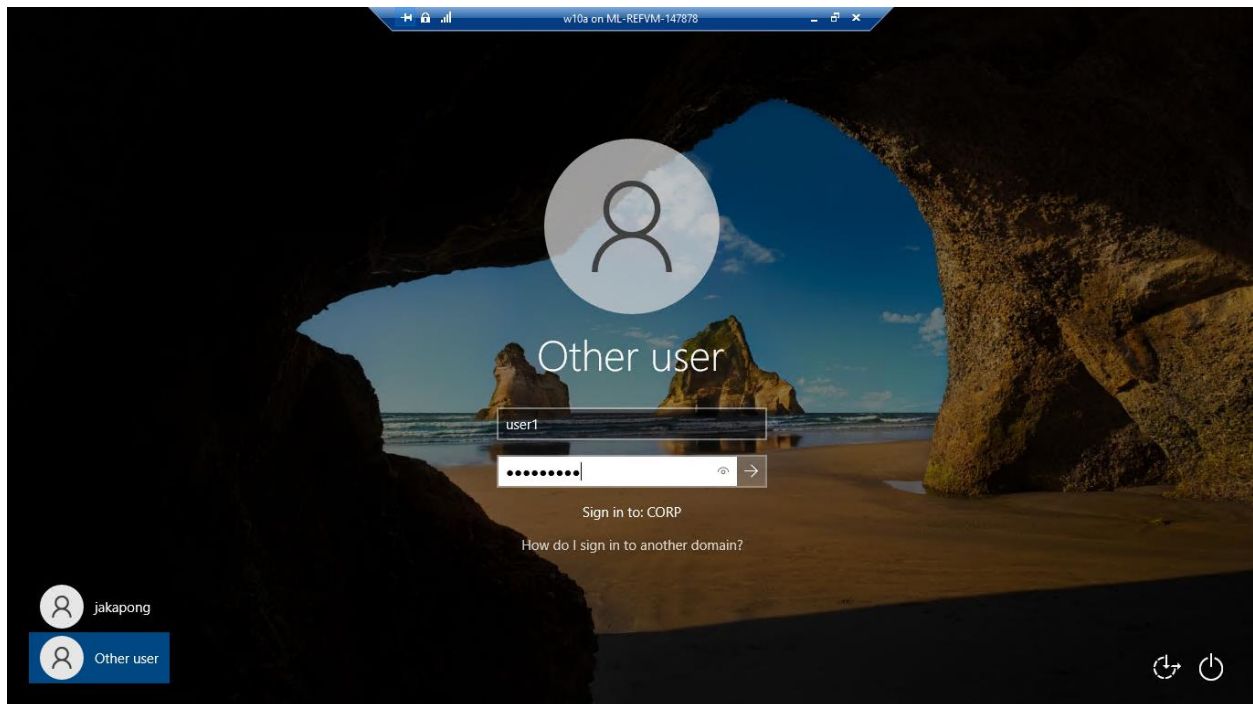
2. Start
  - w10a



Connect w10a



3. On w10a, sign is as
- Username = user1
  - Password = Password1

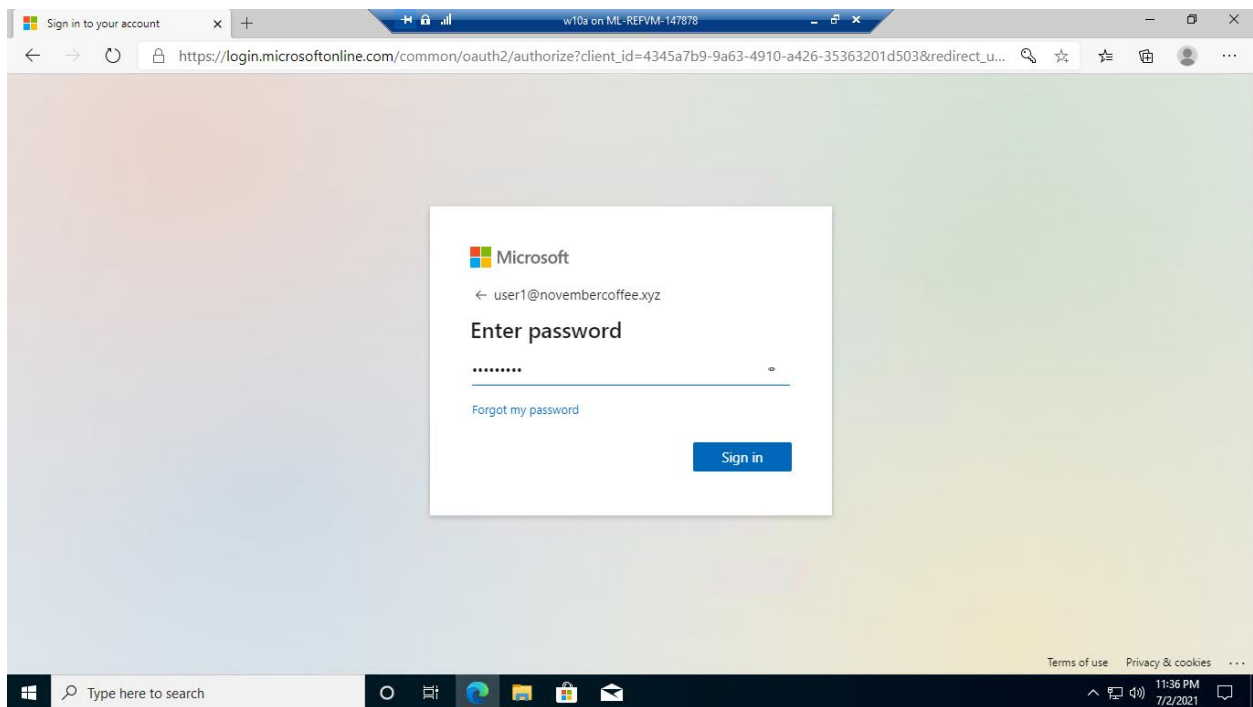
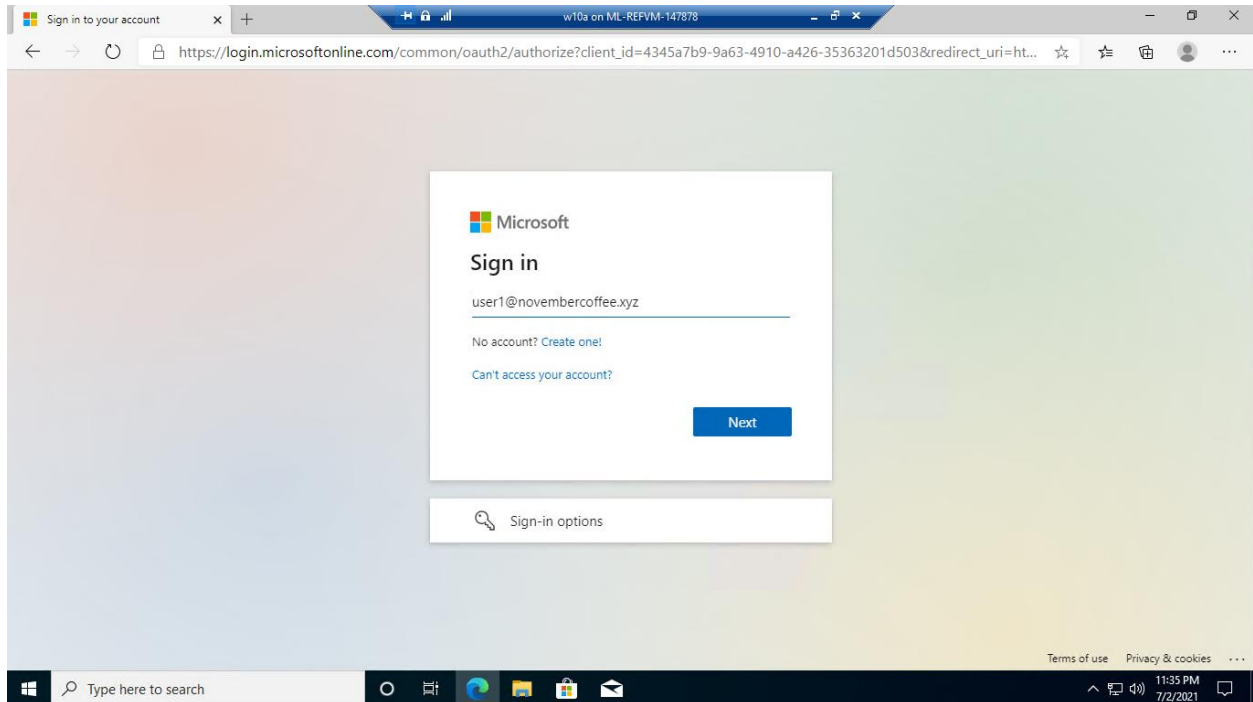


## 4.2 Install Office 365 apps

### 1. On w10a

Open <https://portal.office.com>, and sign in as

- Username = [user1@yourdomain.xyz](#)
- Password = Password1



## 2. Install Office 365 apps

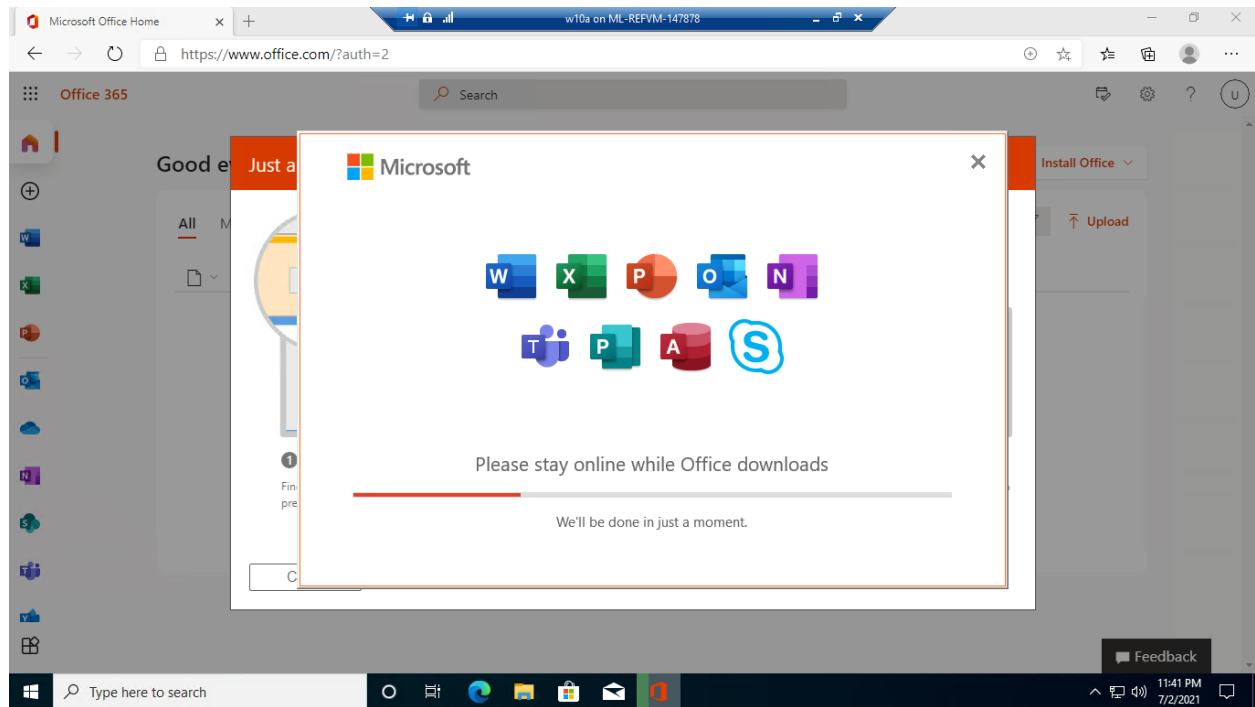
The first screenshot shows the Microsoft Office Home page in a web browser. The address bar displays `https://www.office.com/?auth=2`. The page features a "Good evening" greeting and a navigation bar with "All", "My recent", "Shared", and "Favorites". A red box highlights the "Install Office" button in the top right corner. A dropdown menu is open, showing "Office 365 apps" (which includes Outlook, OneDrive for Business, Word, Excel, PowerPoint, and more) and "Other install options" (which allows selecting a different language or installing other apps available with the subscription). The main content area shows "No content activity" and prompts the user to "Share and collaborate with others. Create a new document or upload and open one to get started." with buttons for "Upload and open..." and "New".

The second screenshot shows the same page with a modal window titled "Just a few more steps..." overlaid. The modal contains three steps for installation:

- 1 Click Run**: Find it at the bottom of the screen or press Alt+N.
- 2 Say "yes"**: Click Yes to start installing.
- 3 Stay online**: After installation, start Office and sign in with the account you use for Office 365: `user1@novembercoffee.xyz`.

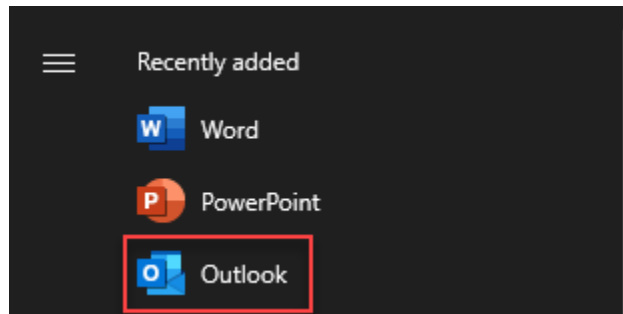
At the bottom of the modal, there are "Close" and "Need help installing?" buttons. In the bottom left corner of the browser window, a taskbar shows "OfficeSetup.exe" with an "Open file" link highlighted by a red box.

Wait until finish



#### 4.3 Access user1's mailbox via MS Outlook

1. On w10a, open Outlook





Click Connect

✕



Email address

Advanced options ▼

Connect

No account? [Create an Outlook.com email address to get started.](#)



Password = Password1

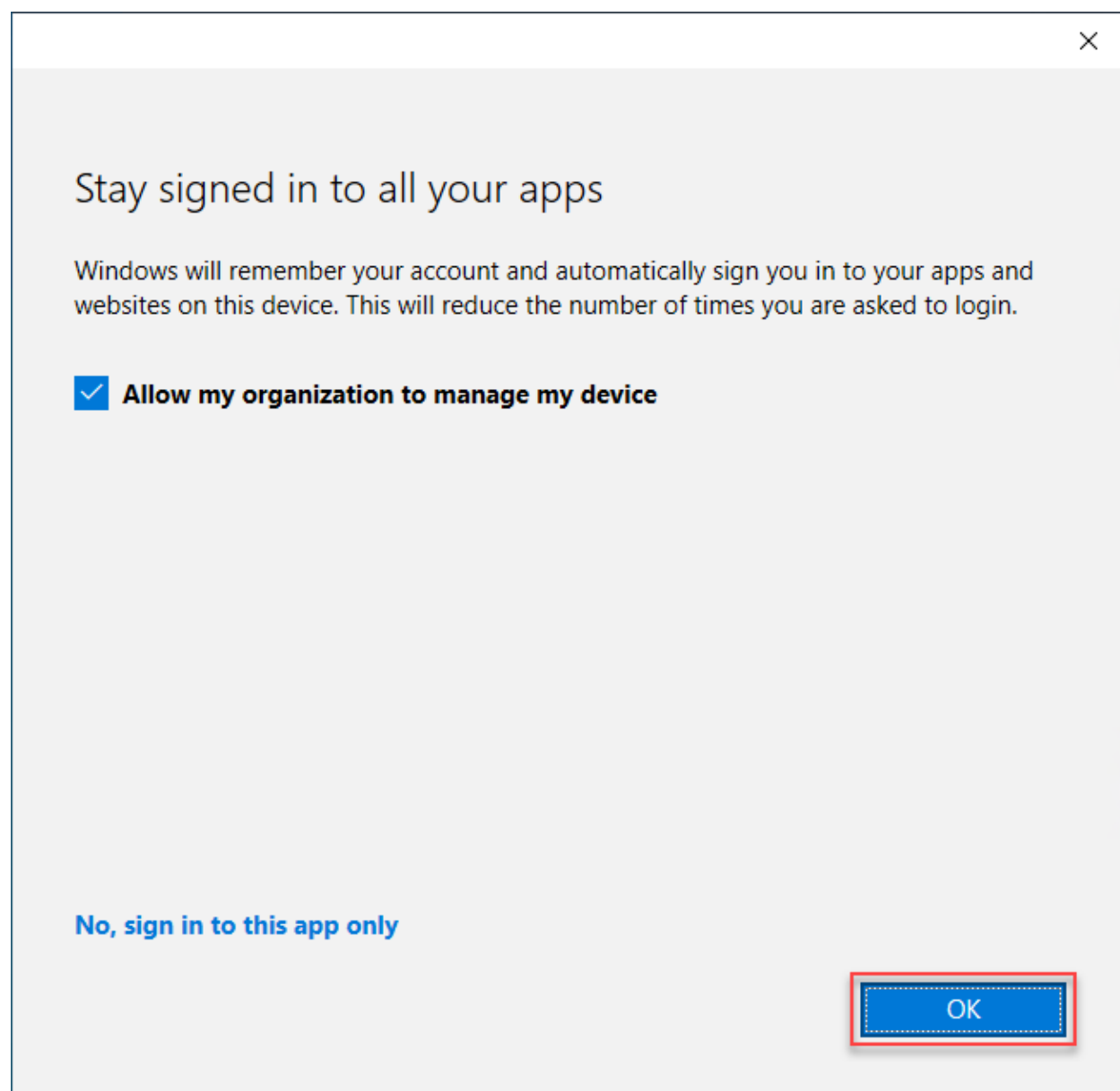
×

  
user1@novembercoffee.xyz  
**Enter password**  
.....|   
[Forgot my password](#)  
[Sign in with another account](#)  
[Sign in](#)

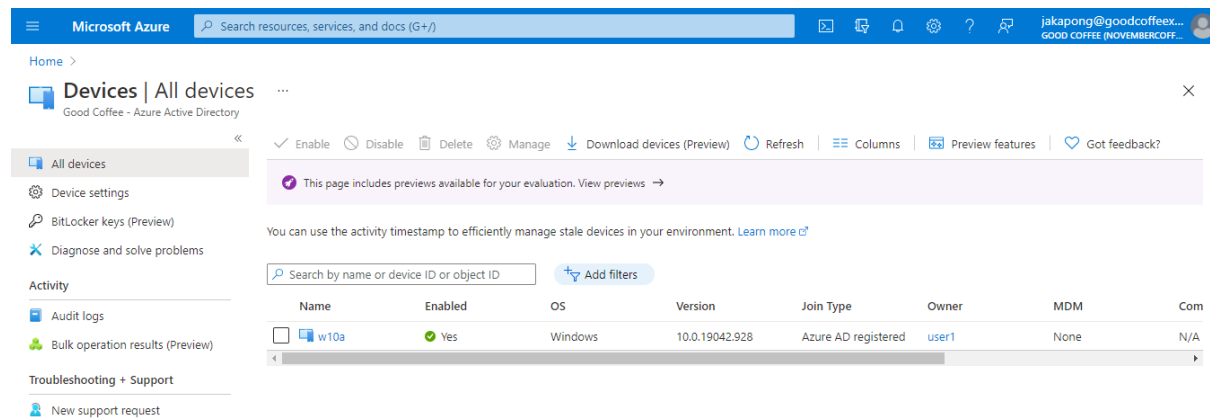
[Terms of use](#) [Privacy & cookies](#) ...



Click OK



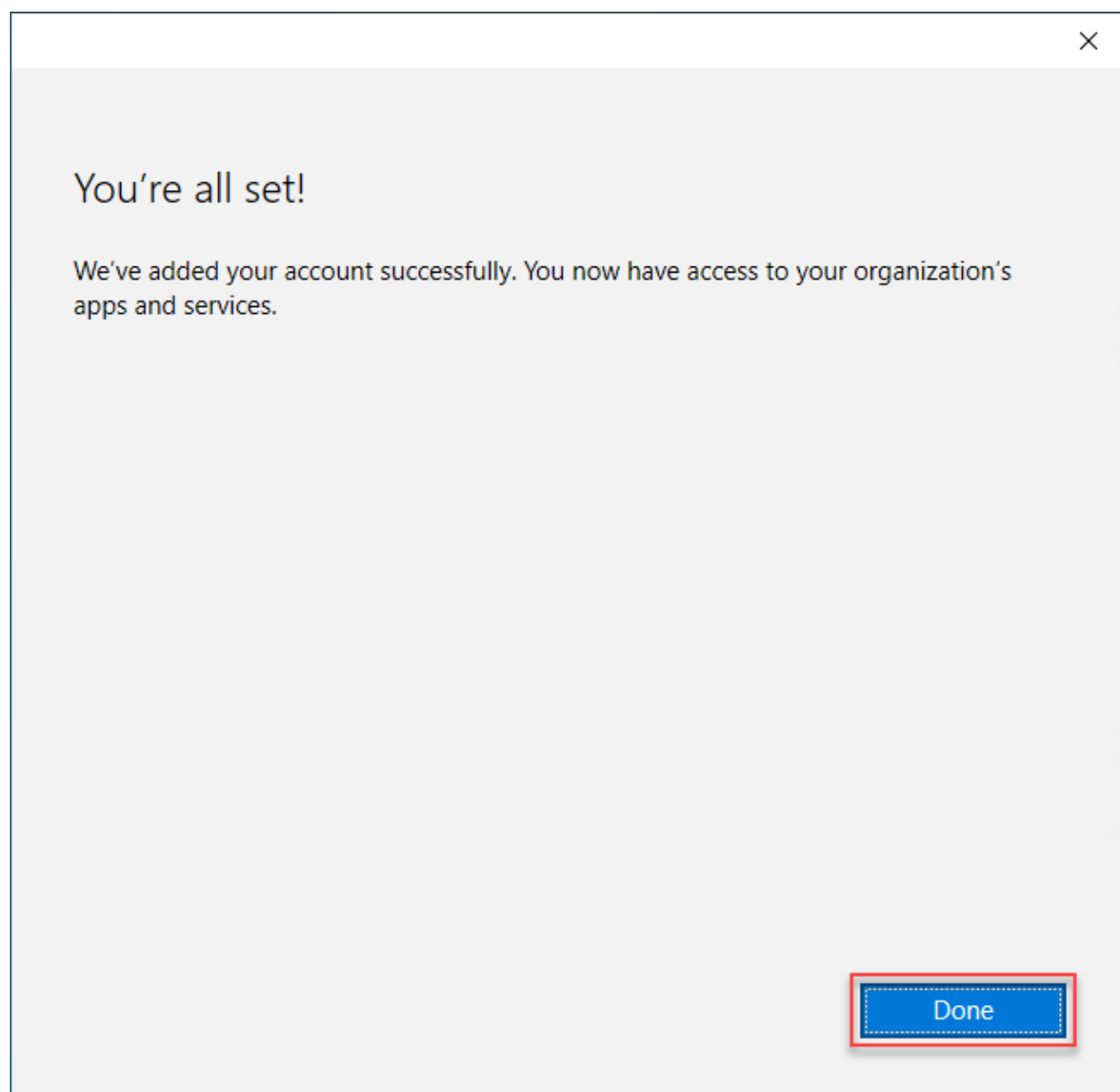
**Note:** “Allow my organization to manage my device” will perform Azure AD registration for the device in Azure AD



The screenshot shows the Microsoft Azure portal interface. At the top, there's a navigation bar with the Microsoft Azure logo and a search bar. Below the navigation bar, the page title is "Devices | All devices". The left sidebar contains a list of navigation options: "All devices", "Device settings", "BitLocker keys (Preview)", "Diagnose and solve problems", "Activity", "Audit logs", "Bulk operation results (Preview)", "Troubleshooting + Support", and "New support request". The main content area shows a table of devices. The table has columns for Name, Enabled, OS, Version, Join Type, Owner, MDM, and Com. There is one device listed: "w10a", which is enabled (Yes), has OS "Windows", Version "10.0.19042.928", Join Type "Azure AD registered", Owner "user1", and MDM "None".

| Name | Enabled | OS      | Version        | Join Type           | Owner | MDM  | Com |
|------|---------|---------|----------------|---------------------|-------|------|-----|
| w10a | Yes     | Windows | 10.0.19042.928 | Azure AD registered | user1 | None | N/A |

Click Done



Click Done

 Outlook

Account successfully added

 **Microsoft 365**  
user1@novembercoffee.xyz

Add another email address

Next

Advanced options ▼

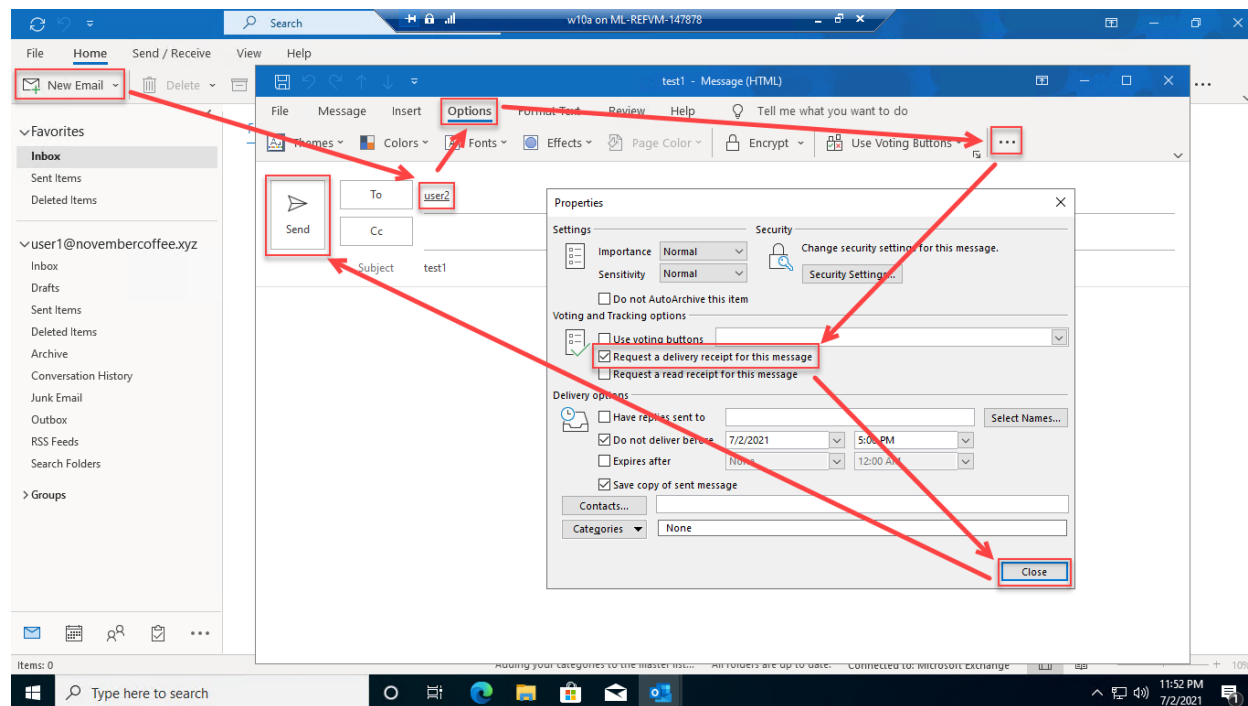
☒ Set up Outlook Mobile on my phone, too

Done

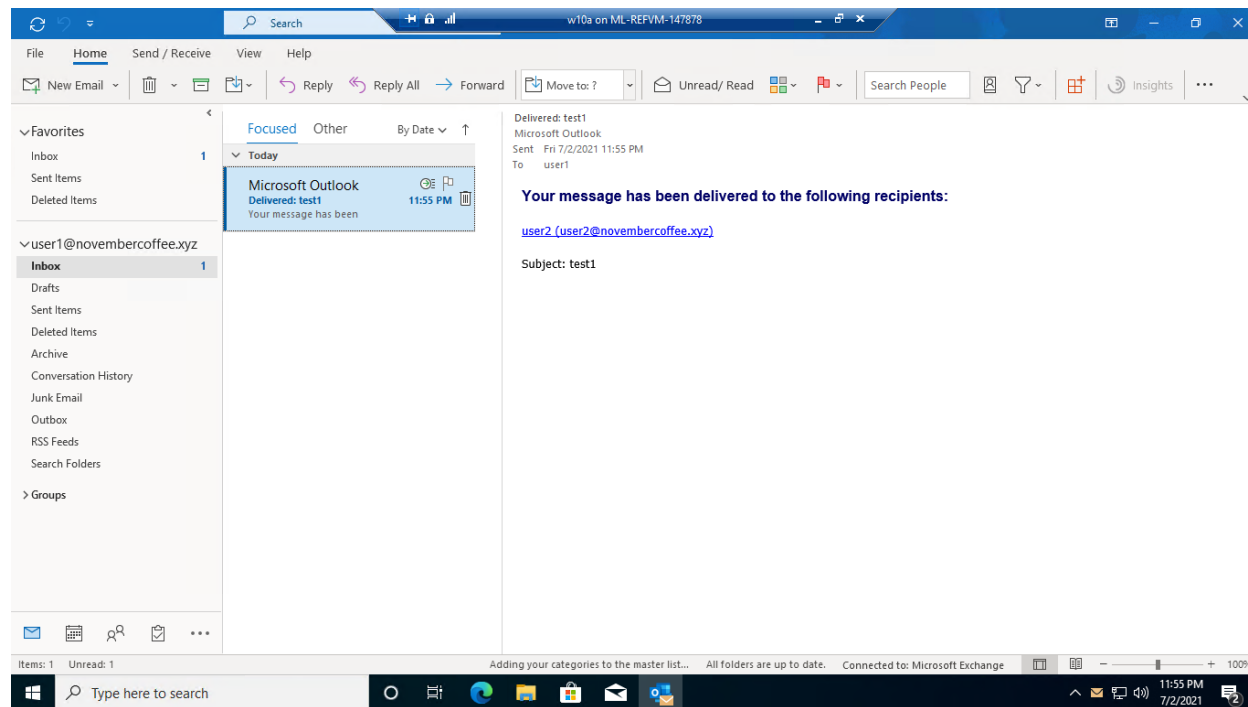


2. Send a tested email to user2

Also enable “Request a delivery request for this message”



Verify user1 got a delivery receipt from the system



## 5 Stop your lab VM

In <https://labs.azure.com>, stop your lab VM to save hours

