Users, Groups and Contact Sync Set Up

Quick Start Guide

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Legend

! **CAUTION: A CAUTION icon indicates potential damage to hardware or loss of data if instructions are not followed.**

i **IMPORTANT**, **NOTE**, **TIP**, **MOBILE**, or **VIDEO:** An information icon indicates supporting information.

Users, Groups and Conctact Sync Set Up – Quick Start Guide
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Introduction

Directory Sync supports users, groups and contact synchronization between environments. The following describes the supported environments and deployment models.

- Local to Local – Covered in this guide. Support synchronization between two local Active Directory environments.
- Cloud to Cloud – Support synchronization between two Microsoft 365 tenant environments.
- Local to Cloud – Support synchronization between an Active Directory and a Microsoft 365 tenant environment when source is Active Directory and target is Microsoft 365 tenant.
- Cloud to Local – Support synchronization between a Microsoft 365 tenant and an Active Directory environment when source is Microsoft 365 tenant and target is Active Directory.

Goal

The goal of this guide is to provide a step-by-step walk through of how-to setup Users, Groups and Contacts Synchronization for between your On-Premises Active Directory environments.

To set up Directory Sync for Users, Groups and Contacts Synchronization, source objects must be either matched to existing objects or created as new objects in the target environment. To accomplish this, four (4) configurations must be completed prior to the first synchronization.

1. Set up Environments
2. Set up Local Agents
3. Set up Templates
4. Set up Workflows

The next section will provide the list of requirements needed to successfully Synchronization Users, Groups and Contacts between two Active Directory environments.

Requirements

In order to facilitate synchronization of Users, Groups and Contacts, the following is a list of minimum requirements to get set up using Directory Sync with your On-Premises Active Directory.

Account Permissions

- One (1) Local Administrator Account for each Microsoft Forest and/or Domain that has permissions to create, update or delete depending on the scope of your Directory Sync workflows.

The next section will provide a step-by-step guide on how to set up Users, Groups and Contacts Synchronization for Active Directory environments.

Setup

This section provides a step-by-step guide on how to set up Users, Groups and Contacts Synchronization for Microsoft Active Directory Environments.

Setup Environments

To begin at least two (2) Active Directory environments must be configured in Directory Sync. At the end of this section there will be two (2) Active Directory environments fully configured.

An environment is an end-point connection that can control the scope of objects read. This guide will walk through how to create the source and target active directory environments.

To create a local AD environment, the following are required

- One (1) Local Administrator Account for each Microsoft Forest and/or Domain that has permissions to create, update or delete depending on the scope of your Directory Sync workflows.
- One (1) Windows Server to install and host the Directory Sync Agent.

Follow these steps to setup the cloud environment endpoints.

1. Navigate to Environments
2. Click the New button
3. Click Local as the environment type, Click Next
4. Name the environment, Click Next
5. Name the local agent, Click Next
6. Note the agent registration URL and registration Key for later use, click Finish.
7. Install the agent in the Windows Server that is joined to the local AD domain.
    a. Launch the Directory Sync Agent installation in the target workstation or server
    b. Accept the license agreement and click on next.
    c. Enter the target active directory environment information by providing the following and click next.
    d. Domain Name

e. Global Catalog Server

f. Username

g. Password

h. Enter the Directory Sync Registration URL and Agent Registration Key information and click next.

i. In the sIDHistory Migration section, you may skip this step if sIDHistory Migration is not part of your project scope.

   Note, Refer to On Demand Migration Active Directory User Guide for detailed information about agent installation and set-up requirements.

8. Once the agent is installed and the environment is discovered, click on the Setting button to access the local AD environment setting page.
9. Click on the Organization Unit tab and define the OU filter based on your project scope.
10. Click on the Filters tab and define any LDAP filter based on your project scope.
11. Click Save.
12. Repeat steps 2 – 11 for the next local environment

Setup Templates

Before we can build our workflows, it is best to set up your template(s). Templates contain common mappings and settings used to sync Users, Contacts, Devices, Groups, Office 365 Groups and Microsoft Teams. A template can then be applied to any workflow with a Stage Data step.

For the purpose of this guide, the following template will need to be configured to perform Synchronization for User, Group and Contact Objects. This guide also assume objects will be created in the target Active Directory if there is no match found. Additional templates may be created based on your project requirements. Local to Local Password Sync

- Local to Local Sync

How to create a Local to Local template

1. Navigate to Templates
2. Click the New button
3. Name and Describe the template
4. In our example, we will name our template “Local to Local Sync”, Click Next
5. Click Local as the source environment type, Click Next
6. Click Local as the target environment type, Click Next
7. Set CREATE NEW USERS AS = AS-IS
8. Set UPDATE CREATED USERS= ENABLE
9. Set UPDATE MATCHED USERS= ENABLE
10. Set IF TARGET ADDRESS EXISTS setting as OVERWRITE ONCE.

11. Click Next
12. Set CREATE GROUPS AS = SKIP
13. Set UPDATE CREATED GROUPS = ENABLE
14. Set UPDATE MATCHED GROUPS = ENABLE
15. Set Convert Group Options with default settings: (See Pro Tip 17)
    a. DOMAIN LOCAL GROUPS = DOMAIN LOCAL
    b. GLOBAL GROUPS = GLOBAL
    c. UNIVERSAL GROUPS = UNIVERSAL
16. Click Next
17. Set CREATE NEW CONTACTS AS = AS-IS
18. Set UPDATE CREATED CONTACTS = ENABLE
19. Set UPDATE MATCHED CONTACTS = ENABLE
20. Click Next
21. Set CREATE NEW DEVICES AS = SKIP
22. Set UPDATE CREATED CONTACTS = DISABLE
23. Set UPDATE MATCHED CONTACTS = DISABLE
24. Click Next
25. Enter a default password, Click Next
26. Leave the SYNCHRONIZE SID HISTORY checkbox unchecked, Click Next
27. Under mappings, we can leave the settings as default or update them based on your project requirements. (See Pro Tip 16)
28. Click Next
29. Click Finish

Setup Workflows

Follow these steps to create two (2) new workflows for reading, matching, staging and writing data.

How to create a one-way sync workflow for Local to Local

1. Navigate to Workflows
2. Click the New button

3 Name and Describe the template, Click Next

4 Select the all two (2) local Active Directory environments created previously, Click Next

5 Select ONE-WAY SYNC, Click Next

6 The screen presented next will be a pre-configured set of workflow steps to facilitate the flow of object and attributes between your directories.

7 Start at the top of the steps, 1. Read From. Click the Select button

8 Select all two (2) environments created previously the click OK

9 Move to Match Objects

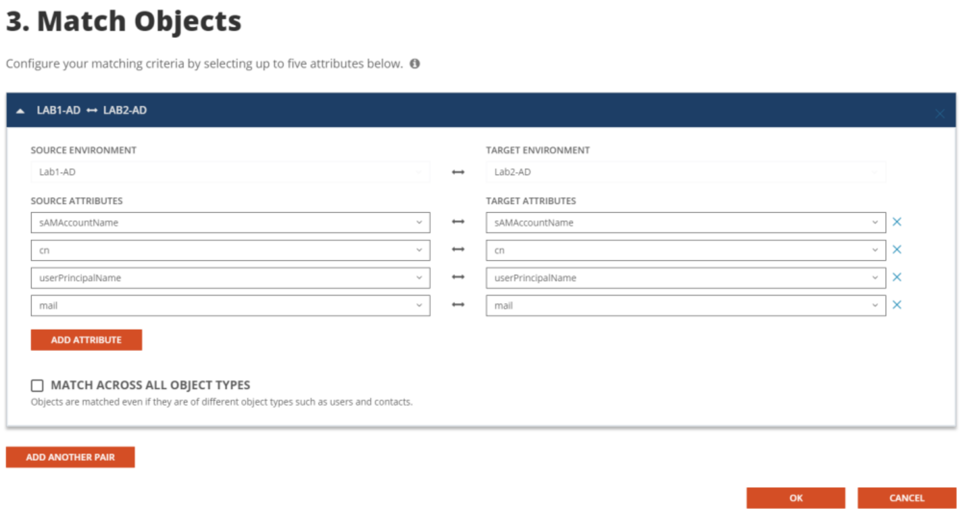
  a This is the step where you will decide on how to match existing objects across your local Active Directories

  b Matching is conducted by pairing sets of attributes to find corresponding objects

  c Your two (2) environments may already have some attributes that can be used to find similar objects between the different directories, or you may need to set some to ensure accurate matching

  d For the purpose of Password Synchronization, it is most important that existing objects are correctly matched to perform Password Synchronization.

10 Click the Select button to configure the Match Objects criteria for your source Cloud environment and target Cloud environment



3. Match Objects

Configure your matching criteria by selecting up to five attributes below.

LAB1-AD ↔ LAB2-AD

SOURCE ENVIRONMENT		TARGET ENVIRONMENT
Lab1-AD	↔	Lab2-AD
SOURCE ATTRIBUTES		TARGET ATTRIBUTES
sAMAccountName	↔	sAMAccountName
cn	↔	cn
userPrincipalName	↔	userPrincipalName
mail	↔	mail

ADD ATTRIBUTE

□ MATCH ACROSS ALL OBJECT TYPES

Objects are matched even if they are of different object types such as users and contacts.

ADD ANOTHER PAIR

OK CANCEL

Figure 1: Example Match Objects Criteria

  a Select your source local environment from the drop-down menu

  b Select your target local environment from the drop-down menu

  c Choose your first attribute pairings, we will use WindowsEmailAddress for our first match criteria

  d Choose the sAMAccountName attribute for the source and target fields

  e To add more attribute pairs, click the Add Attribute button

  f Additional pairings are evaluated as “OR” conditions. After the first match is found, the additional pairings are not assessed.

  g In our case we are adding three (3) additional attribute pairings to our criteria

  h cn – This attribute was added to ensure we can match existing objects based on CN.

  i UserPrincipalName – UPN was added to ensure uniqueness of the local part of the address string.

  j Mail – This attribute was added to ensure we can match existing objects based on Mail.

Note: Matching attributes should be reviewed and adjusted based on actual project scope, there isn't a set matching rule that will fit all scenarios.

k Ensure Match Across all object types is not checked in this case.

l There is no need in this guide to Add Another Pair, click OK to close this configuration

11 Drag a Stage Data workflow task from the left panel to the right under the Stage Data task mentioned above. Click the Select button to configure the fourth STAGE DATA workflow task for your target local to source local synchronization rule.

a Select the "Local to Local Sync" template, Click Next

b Select the source local environment as your source, Click Next

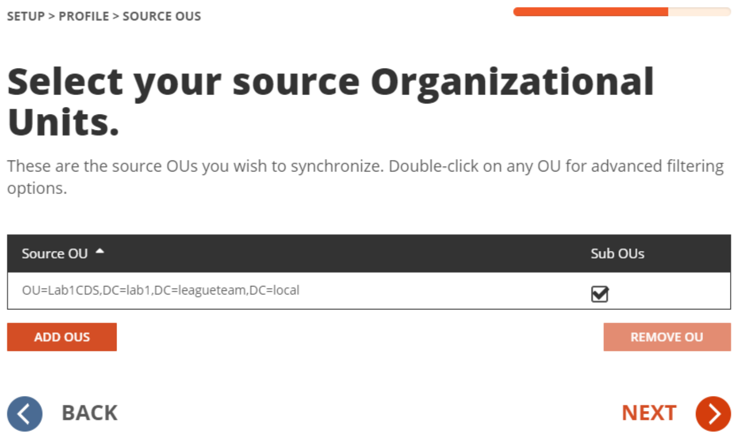
c Select the target local environment as your target, Click Next

d Select the default target domain name, Click Next

e Select the source Organizational Units that will be in scope of the project by click on the ADD OUS button,

f In the new OU pop-up window, select the OU that will be in-scope, check the INCLUDE ALL SUB OUS checkbox, click OK to close the pop-up.

g Configure any Stage Data filter you like by double click on the OU in the OUs list, it is highly recommended to setup filter to limit the scope to perform a test on the first sync as part of the validation. Click Next



SETUP > PROFILE > SOURCE OUS

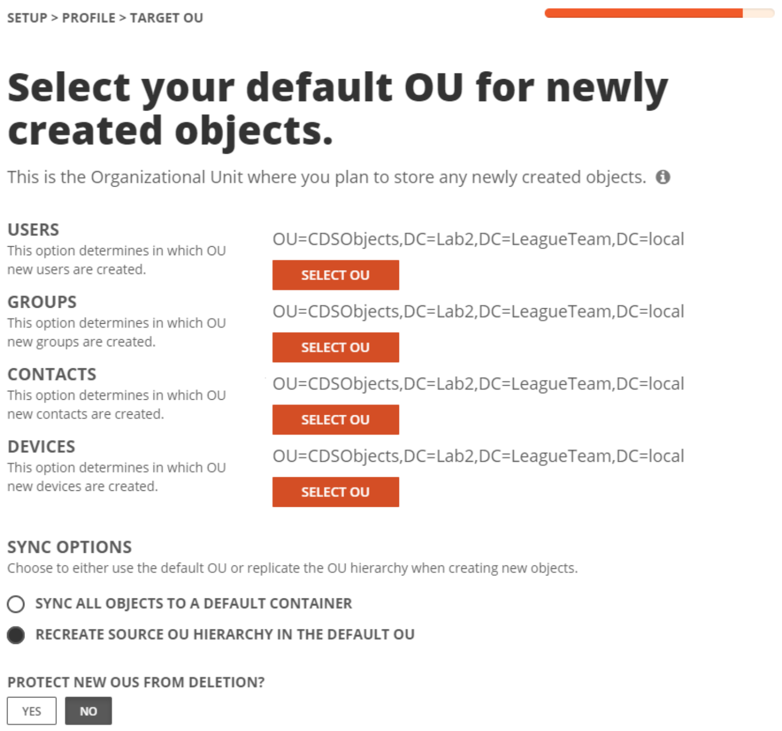
Select your source Organizational Units.

These are the source OUs you wish to synchronize. Double-click on any OU for advanced filtering options.

Source OU ▲	Sub OUs
OU=Lab1CDS,DC=lab1,DC=leagueteam,DC=local	☑

Figure 2: Example Source OU setup.

h Select the default OU for newly created objects for Users, Groups, Contacts, and Devices. In our case, we can select the same OU for all object types as we are only syncing user as contact.



SETUP > PROFILE > TARGET OU

Select your default OU for newly created objects.

This is the Organizational Unit where you plan to store any newly created objects.

USERS
This option determines in which OU new users are created.
OU=CDSObjects,DC=Lab2,DC=LeagueTeam,DC=local
SELECT OU

GROUPS
This option determines in which OU new groups are created.
OU=CDSObjects,DC=Lab2,DC=LeagueTeam,DC=local
SELECT OU

CONTACTS
This option determines in which OU new contacts are created.
OU=CDSObjects,DC=Lab2,DC=LeagueTeam,DC=local
SELECT OU

DEVICES
This option determines in which OU new devices are created.
OU=CDSObjects,DC=Lab2,DC=LeagueTeam,DC=local
SELECT OU

SYNC OPTIONS
Choose to either use the default OU or replicate the OU hierarchy when creating new objects.

○ SYNC ALL OBJECTS TO A DEFAULT CONTAINER

● RECREATE SOURCE OU HIERARCHY IN THE DEFAULT OU

PROTECT NEW OUS FROM DELETION?
YES [✓ NO]

Figure 3: Example Target OU setup.

i Click Finish

12 Click the Select button to configure the WRITE TO workflow task. Ensure the target environment is selected, Click OK

13 Click Next

14 Configure the workflow sync interval, select Manual for now and we can setup a sync schedule once the test sync has completed. Click Next

15 Setup any workflow alert you may wish to configure, for now, Click SKIP

16 Click Finish

Set up Test Objects

Follow these steps to create test objects in the source environment to validate the Users, Groups, Contacts Sync workflow.

1 Setup the user object in the source local environment and ensure it is part of the OU filter setup for the Local Environment.

a User Object - DisplayName: Lab1User1

2 Setup the group object in the source local environment and ensure it is part of the OU filter setup for the Local Environment.

   a. Global Group Object - DisplayName: Lab1Grp1
   b. Universal Group Object – DisplayName: Lab1Grp2
   c. Domain Local Group Object - DisplayName: Lab1Grp3

3. Setup the contact object in the source local environment and ensure it is part of the OU filter setup for the Local Environment.
   a. Contact Object - DisplayName: Lab1Contact1

Validating the Workflow

Follow the below steps to perform Real Time Users, Groups, Contacts Sync workflow and validation.

1. Select the workflow configured and click on RUN.
2. Allow the workflow execution to complete.
3. Validate Lab1User1 from source local Active Directory will be created in the correct target OU defined in the workflow.
4. Validate Lab1Grp1 from source local Active Directory will be created as Global Group in the correct target OU defined in the workflow.
5. Validate Lab1Grp2 from source local Active Directory will be created as Universal Group in the correct target OU defined in the workflow.
6. Validate Lab1Grp3 from source local Active Directory will be created as Domain Local Group in the correct target OU defined in the workflow.
7. Validate Lab1Contact1 from source local Active Directory will be created in the correct target OU defined in the workflow.

Best Practices & Tips

This list of best practices and tips has been assembled to further the understanding and assist with implementation questions that may arise during setup and testing.

1. Mappings have no impact on the matching attributes.
2. Mappings do not modify the Read Step; all object metadata is read.
3. If creating an object, such as Unified Groups in the destination the default mappings such as “GroupType” or “ObjectType” are not required because they will be auto generated by Exchange Online during creation.
4. If only synchronizing Group Membership, then all User attributes can be removed from the default mappings related to your group workflow and template.

5 Matching by “UserPrincipalName” will only match on the local part value, not the domain part.

6 Matching by “WindowsEmailAddress” will match on the entire string, not just the local part.

7 For membership/ownership to sync, within the template option, "If Users are matched" must be set to “Update”, not Skip. Skip will prevent membership from synchronizing.

8 During testing/piloting you may create a filter under Stage Data step to isolate a subset of test Groups to create and sync membership. This will provide a method to validate a few examples before proceeding onto creating all groups.

9 The Test Mode option in the workflow prevents the write data step from occurring in a workflow.

10 If the RecipientTypeDetails attribute mapping is missing, you will receive this error during the Stage Step. “No mapping found for RecipientTypeDetails.”

11 If the Name attribute mapping is missing, you will receive this error during the Write Step. “Missing required attribute: Name”.

12 The default mappings for Proxy Addresses (i.e. EmailAddresses) may prevent the creation of Unified Groups. The following error is received during the Write Step, “There should be at least one MOERA in Email Addresses.”.

13 When we create a group in the cloud environment, we grant our account Owner access. This can be removed once Sync services are no longer required.

14 The “ONLY EVALUATE OBJECTS WHICH HAVE CHANGED SINCE THE LAST READ” option only affects the Stage Step. Enable this option after the initial data has been read. Do not set that setting on read and write only workflows.

15 By default, the “ReplaceDomain” function is used by the “WindowEmailAddress” attribute to set your default email address to the Target Domain selected within the Stage Data step. This can be changed if required.

16 The default template contains the most commonly used mapping configuration between two environments, depends on the project requirements and scopes, mapping template can be modified to suite your project specific requirements.

17 Target Group Scope can be configured using these settings if you wish to convert the group scope as new groups created in target Active Directory.

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