

Dual Write

Preview release, May 2019

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Overview

Customers use and monitor their sales processes with the strength of Dynamics 365 for Sales (uses the Common Data Service to store and secure data) while all aspects of fulfillment and invoicing take place using the rich functionality of Dynamics 365 for Finance and Operations. These applications do not share the same data. Ex: An account created in Dynamics 365 for Sales is not readily available for creating orders in Dynamics 365 for Finance and Operations – These are the challenges we aim to solve with Dual Write.

Dual Write provides a tightly coupled near-real time and bi-directional integration between the Dynamics 365 for Finance and Operations and the Dynamics 365 for Sales. Once an entity is enabled for Dual Write, any create, update change in Dynamics 365 for Finance and Operations results in writes, in near-real time, to the Common Data Service and vice versa. Ex: A change in the Customer entity in Dynamics 365 for Finance and Operations is reflected in near-real time in the Account entity in the Dynamics 365 for Sales and vice-versa. While all this happens with minimal setup, we also provide an advance user interface for all your customization needs.

Dual Write allows our customers to not think about these applications as different systems to write to independently; rather, the underlying infrastructure makes it seamless for these apps to write simultaneously.

Key features

- Near-real time and bi-directional integration
- Out of the box experience in Dynamics 365 for Finance and Operations
- Simple and intuitive user interface to enable and administer Dual Write
- Support for standard and custom entity (map)
- Ability to customize entity (map) and field mappings
- Ability to filter and do basic transformations
- Consolidated view to review entity (map) activities and errors

Preview restrictions apply

Dual Write is currently in preview -

- Preview features **aren't meant for production use** and may have restricted functionality. These features are available before an official release so that customers can get early access and provide feedback.
- We expect changes to this feature, so you shouldn't use it in production. **Use it only in test, demo or development environments.**
- Microsoft doesn't provide support for this preview feature. Microsoft Dynamics 365 Technical Support won't be able to help you with issues or questions
- Preview features aren't meant for production use and are subject to a separate supplemental term of use

Note:

Want to be amongst the first to test drive new features, give early feedback and stay up to date?

We welcome you to join our [internal preview program](#) which gives members of the program early access to features and improvements before it is made broadly available.

Please complete the following survey in order to obtain access to this preview. At the end of the survey you will be asked to join the Private Yammer Group where you will get support and provide feedback. <https://crmnamvoc1runtime.crm.dynamics.com/35d6dcc8-66e8-4245-935e-a82ad7a107bb/finops-dual-write>

System requirements:

Dynamics 365 for Finance and Operations, Platform Update 27 (App version 10.0.3)

Note: We have just started, so you should see it as we roll out gradually for all tenants. The Preview Early Access Program (PEAP) customers who have access to the Dynamics 365 for Finance and Operations Platform Update 27 (App version 10.0.3) can access it right away. Please be advised that we are following the Dynamics 365 for Finance and Operations ring based deployment schedule and it would take some time for this feature to be available in your environment.

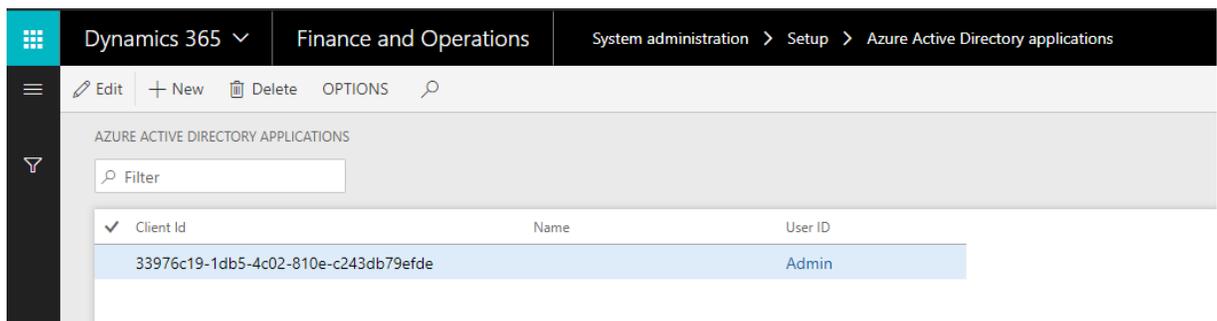
Pre-requisites for enabling Dual Write

Before you can enable Dual Write, please follow the steps below to grant access to the apps to connect to each other.

These steps are required for Preview phase only and will be soon be automated.

Please follow the steps below to grant access for the Dynamics 365 for Sales (uses the Common Data Service to store and secure data) to connect to the Dynamics 365 for Finance and Operations:

1. Please ensure that you are on Platform Update 27 (App version 10.0.3) or later
2. Launch your Dynamics 365 for Finance and Operations instance with this URL <https://<<BaseAXURL>>/?cmp=DAT&mi=SysAADClientTable> (substitute <BaseAXURL> with your instance)
3. Click New to add a new Client id record: **33976c19-1db5-4c02-810e-c243db79efde**
This is the Application ID for an app which would be used to connect from CDS to F&O.



4. From the left-hand pane, go to Data Management/Data entities and make sure the entity list is populated.
5. Connect to the VM where F&O is running and open SSMS. Run the below SQL and do ***iisreset***.

```
INSERT INTO SYSFLIGHTING ([FLIGHTNAME],[ENABLED],[FLIGHTSERVICEID]) VALUES ('EnableDualWrite', 1, 12719367)
```

The Dual Write feature is currently behind the flight, this will enable flighting for demo environments.

6. Providing App consent:

Launch URL below with your admin credentials which should prompt you for consent.

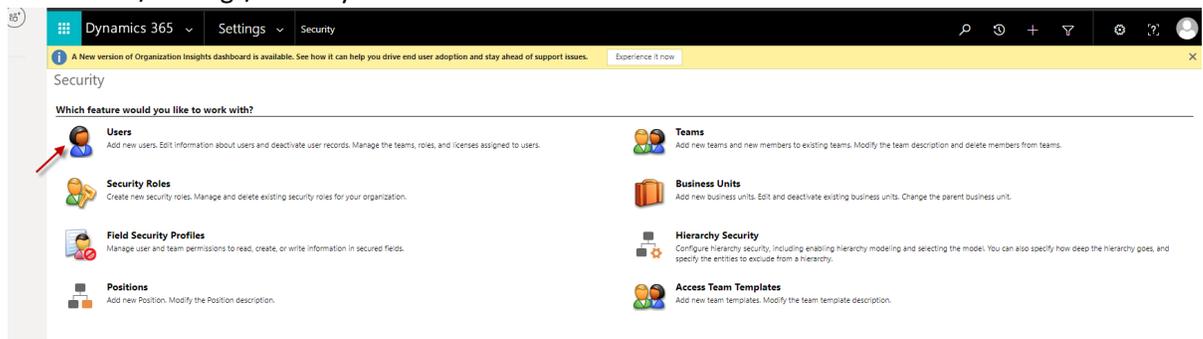
https://login.microsoftonline.com/common/oauth2/authorize?client_id=33976c19-1db5-4c02-810e-c243db79efde&response_type=code&prompt=admin_consent

Click 'Accept'

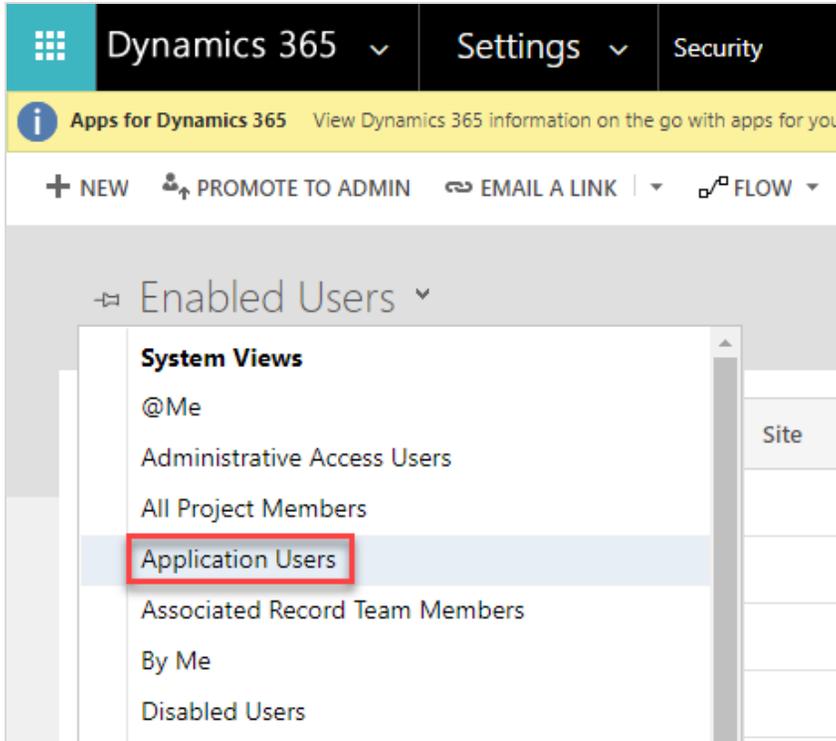
This would mean that you are providing the consent to install the app (with id =33976c19-1db5-4c02-810e-c243db79efde) in your tenant. This app is required for CDS to talk to F&O

Please follow steps below to grant access for the Dynamics 365 for Finance and Operations to connect to the Dynamics 365 for Sales:

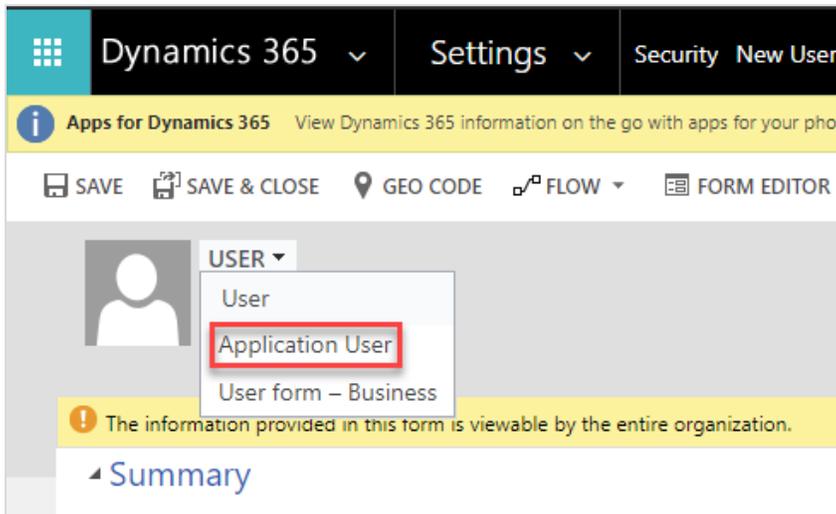
1. Install the [Prospect to Cash solution](#) from AppSource
2. Go to Sales/Settings/Security and click on Users



3. Switch to Application Users



4. Create a new user and select Application User in the drop down



5. Add Application id - 00000015-0000-0000-c000-000000000000 and follow prompts to fill additional fields and save user account
This Application Id is for F&O , this will allow F&O application to connect to Sales/CDS.



USER : APPLICATION USER ▾

New User ☰

! The information provided in this form is viewable by the entire organization.

Summary

Account Information

User Name *  -----

Application ID * 00000015-0000-0000-c000-000000000000

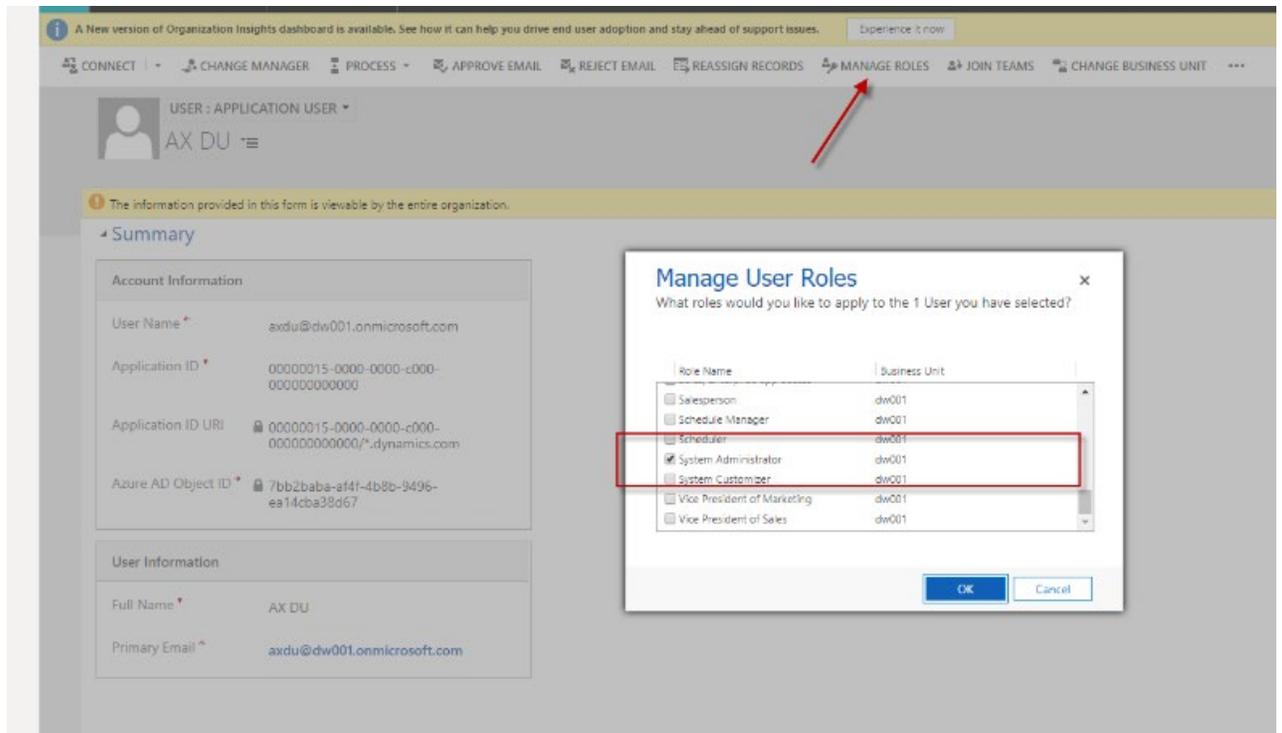
Application ID URI  -----

Azure AD Object ID *  -----

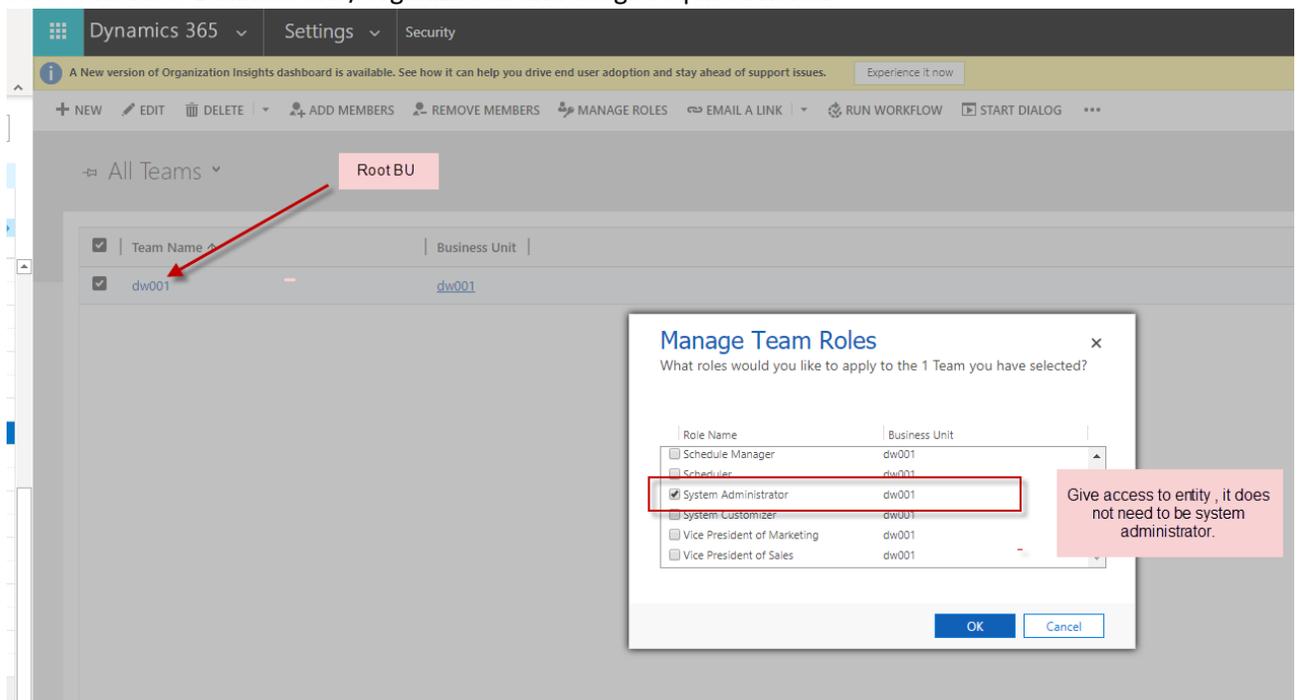
User Information

Full Name * -----

Primary Email * -----



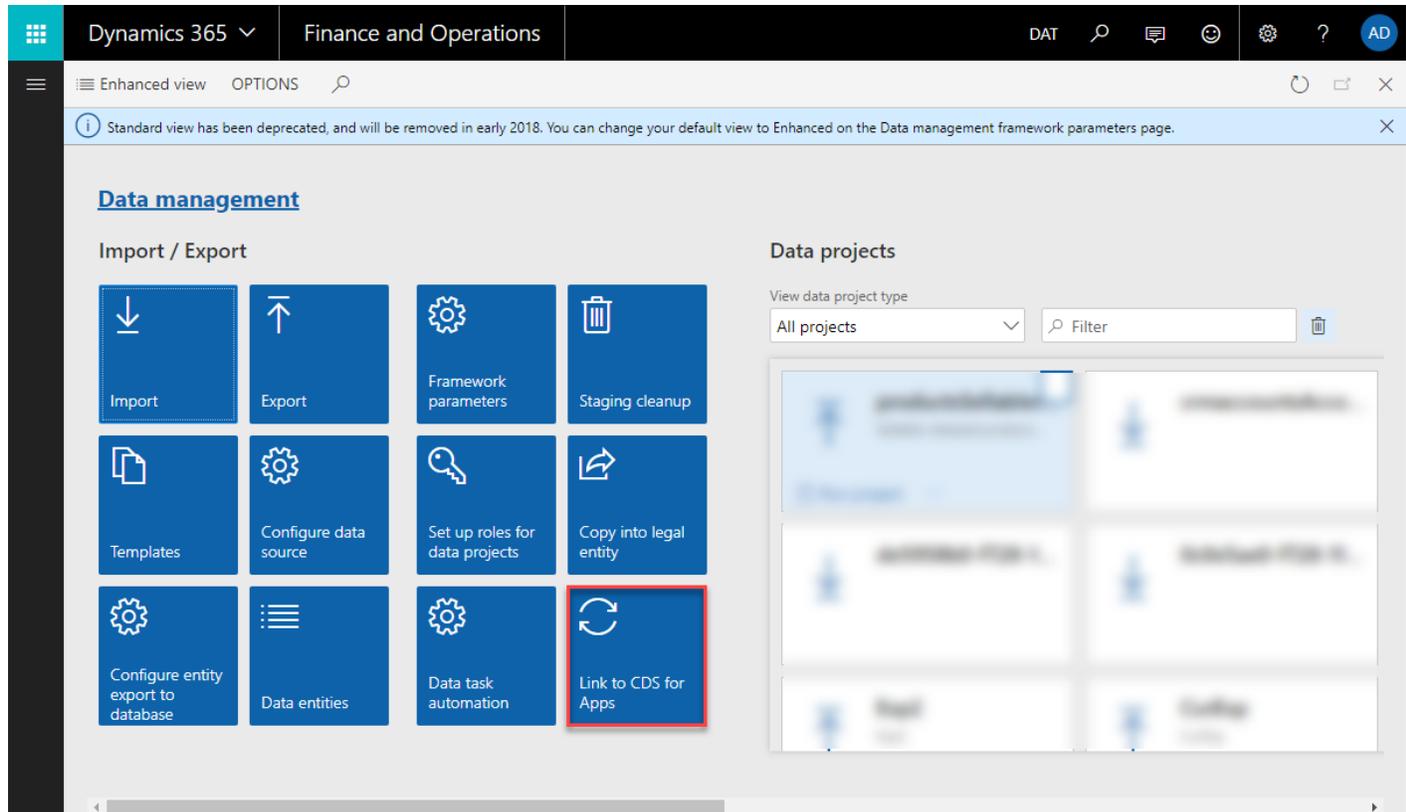
6. Provide 'System Administrator' rights to Application User via Manage Roles
7. Go to Sales/Settings/Security/Teams.
Change view to All teams.
Select the Root Business unit/Organization and assign required Roles.



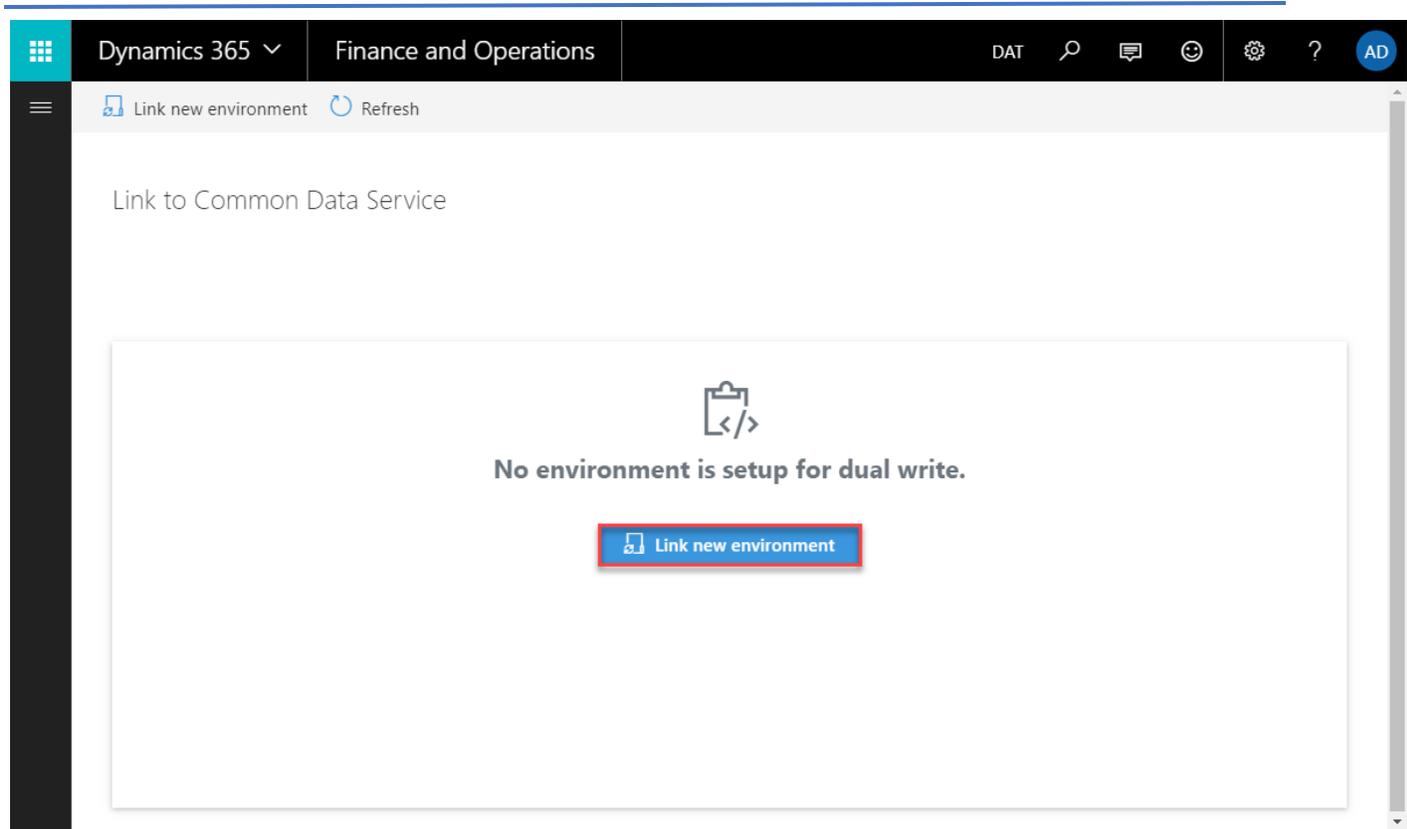
Step-by-step instructions to enable Dual Write

1. Log-in to the Dynamics 365 Finance and Operation environment that you wish to link to your Common Data Service environment

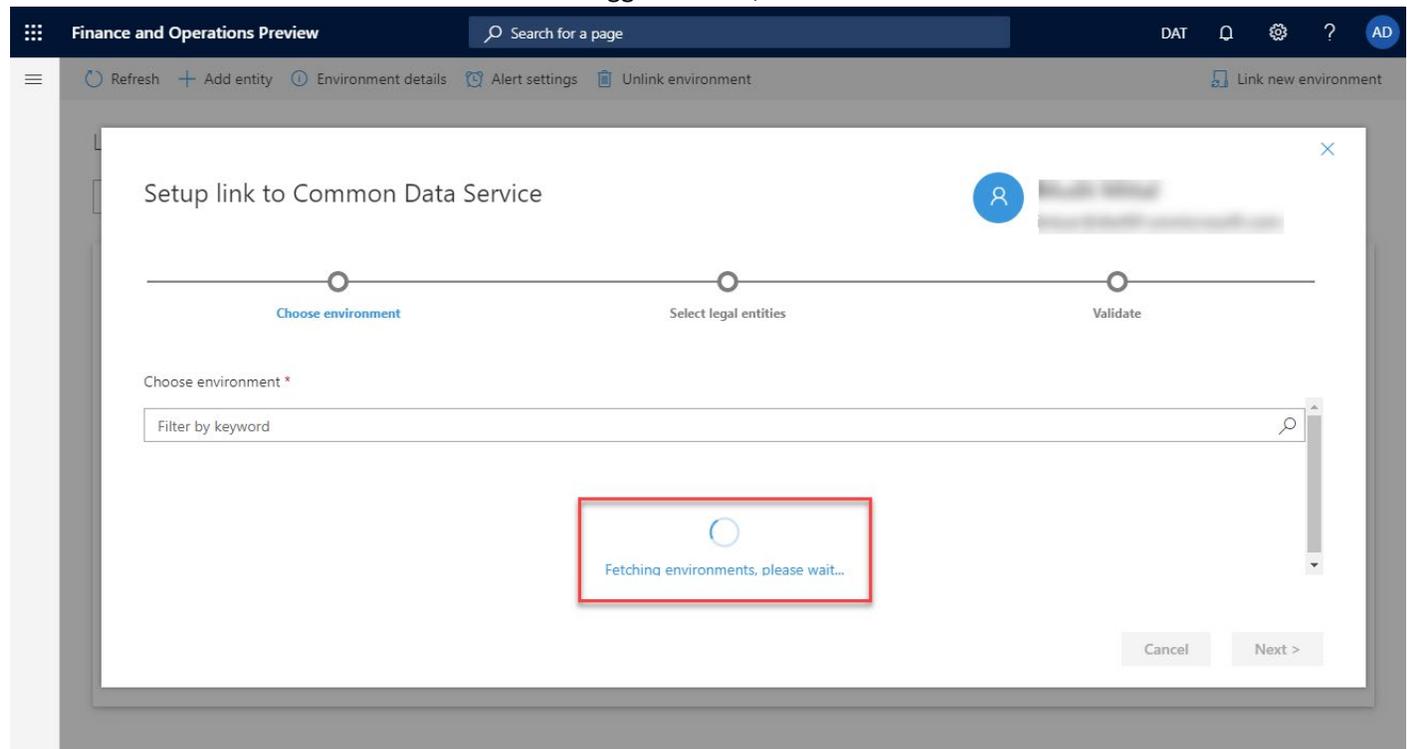
Under Data Management, click on the **Link to Common Data Service** tile



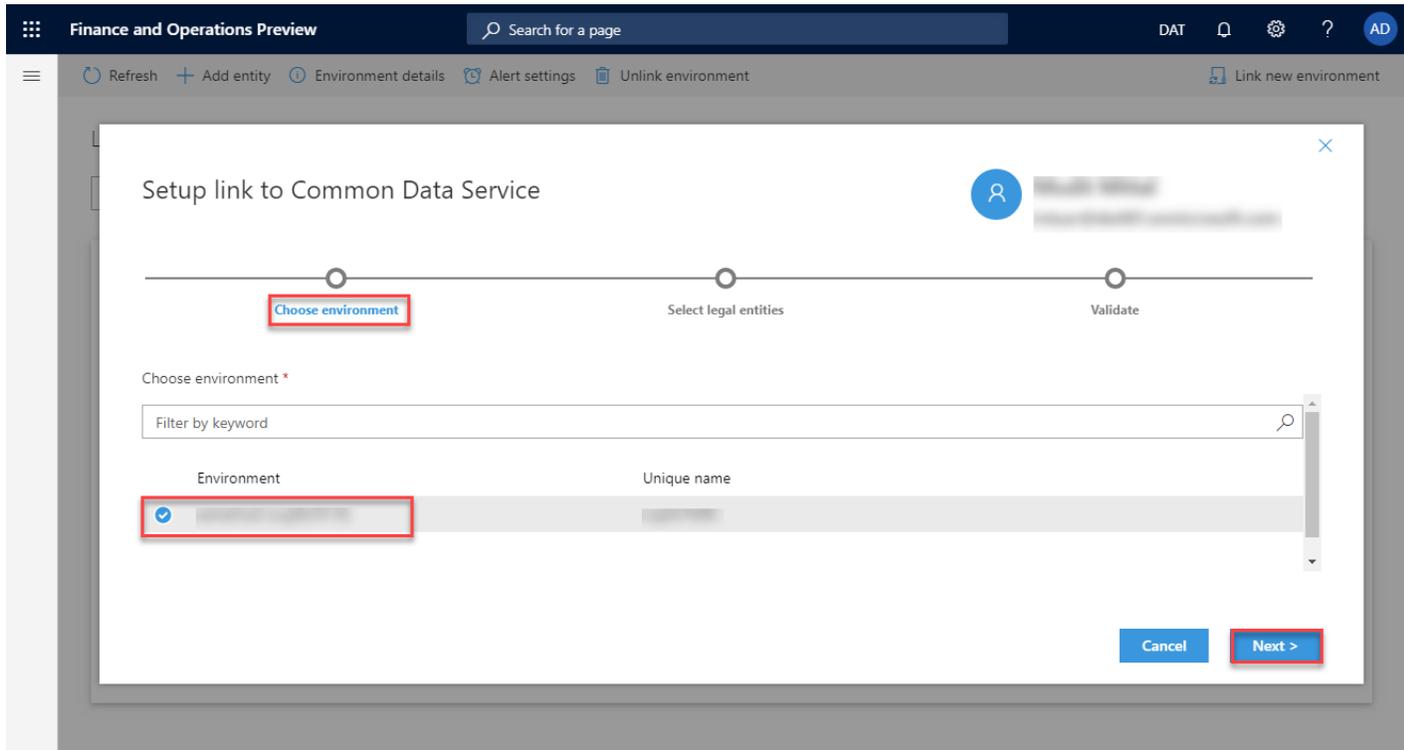
2. If this is the first time you are linking your Dynamics 365 Finance and Operations environment to the Common Data Service, you will see a message **No environment is setup for dual write**
Click on the **Link new environment** to enter the **Setup link to Common Data Service** wizard



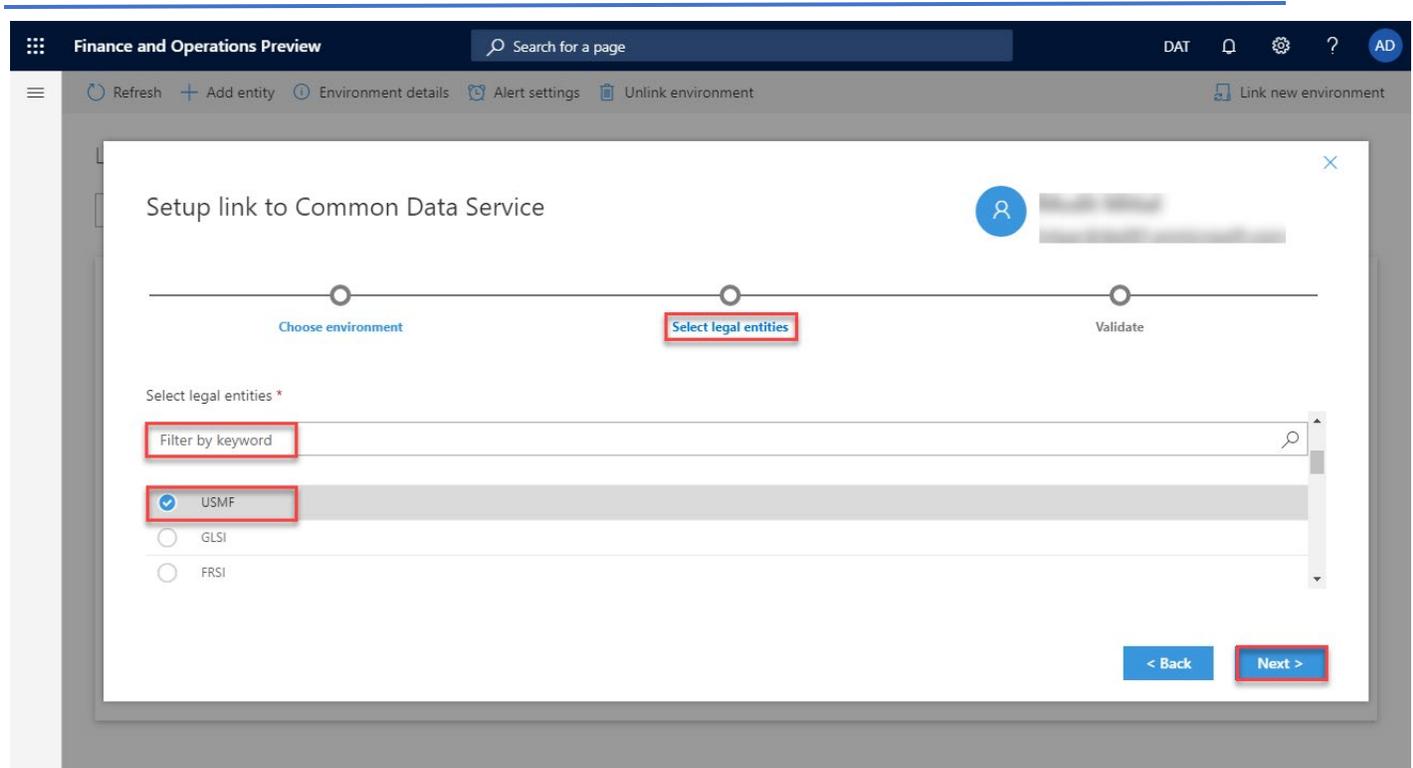
3. In the **Setup link to Common Data Service** wizard, as a first step, we will automatically fetch the Common Data Service environments for the logged-in user, where user is an environment admin



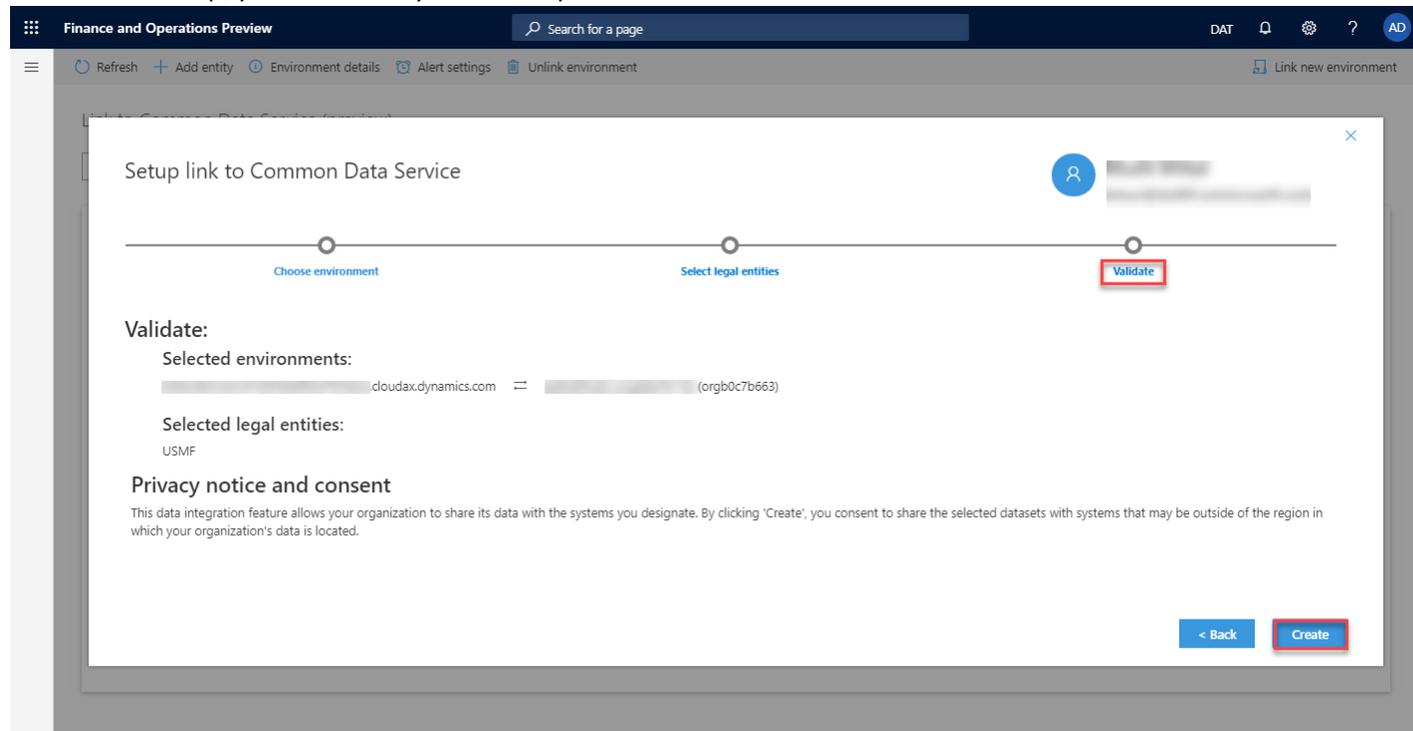
- Once the environments are discovered, under the **Choose environment** step, select the Common Data Service environment that you wish to link to and click **Next**
You can filter your list of environments by using the **filter by keyword** on the top



- In the **Setup link to Common Data Service** wizard, under **Select legal entities** select the legal entity Ex: USMF and click **Next**



6. **Validate** your selected environment and legal entity and click **Create** before exit the setup wizard – With this step, you successfully have set-up Dual Write!



Enable entity (map) for Dual Write

Once you complete the setup wizard, you will now see the list screen with all OOB (out of the box) entity (map) We provide OOB templates for these entities and will keep adding to the list. By default, the entities are in **Not Running** state and need to be explicitly enabled for Dual Write.

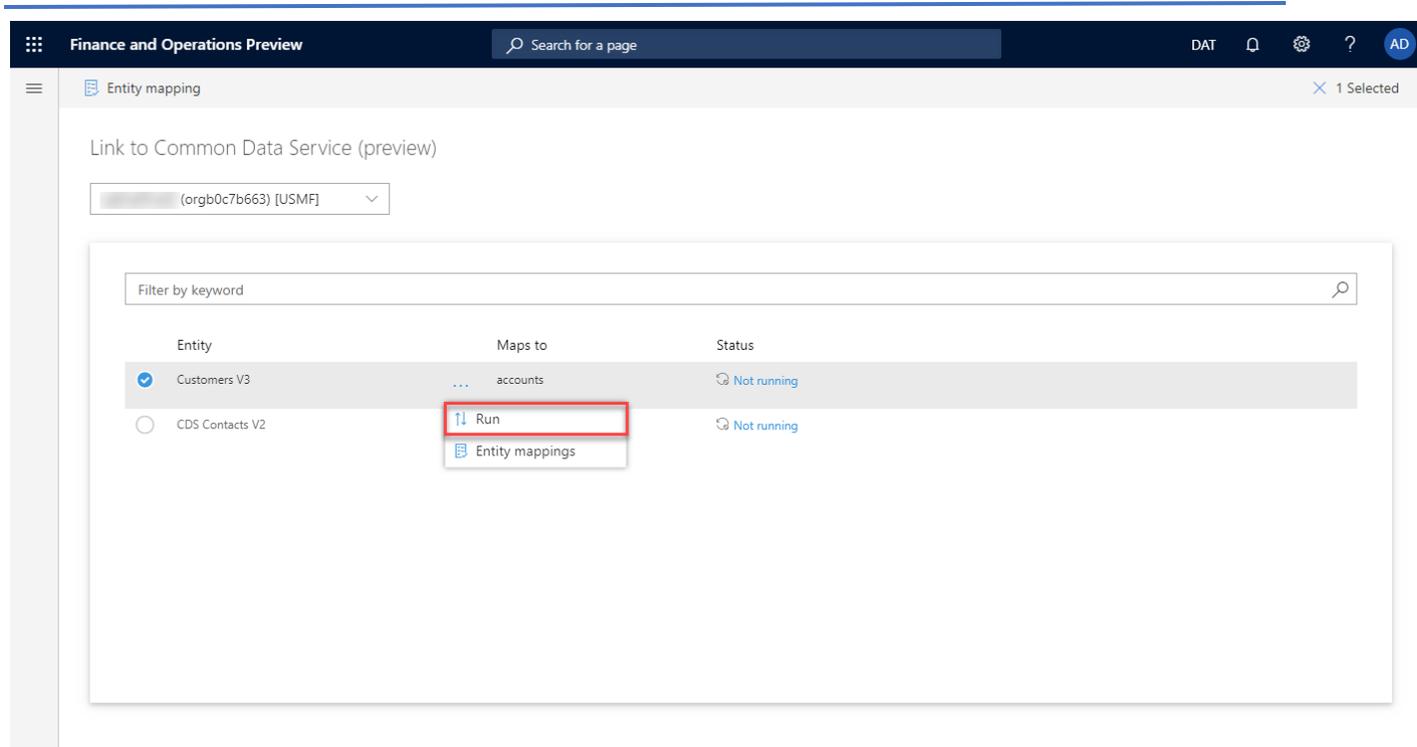
Here is the entity (map) list page that shows the standard Customers V3 entity (map), available out of the box, and a custom entity (map) named CDS Contacts V2. We support adding mappings for custom and standard entities and will talk about this, later in the doc.

Link to Common Data Service (preview)

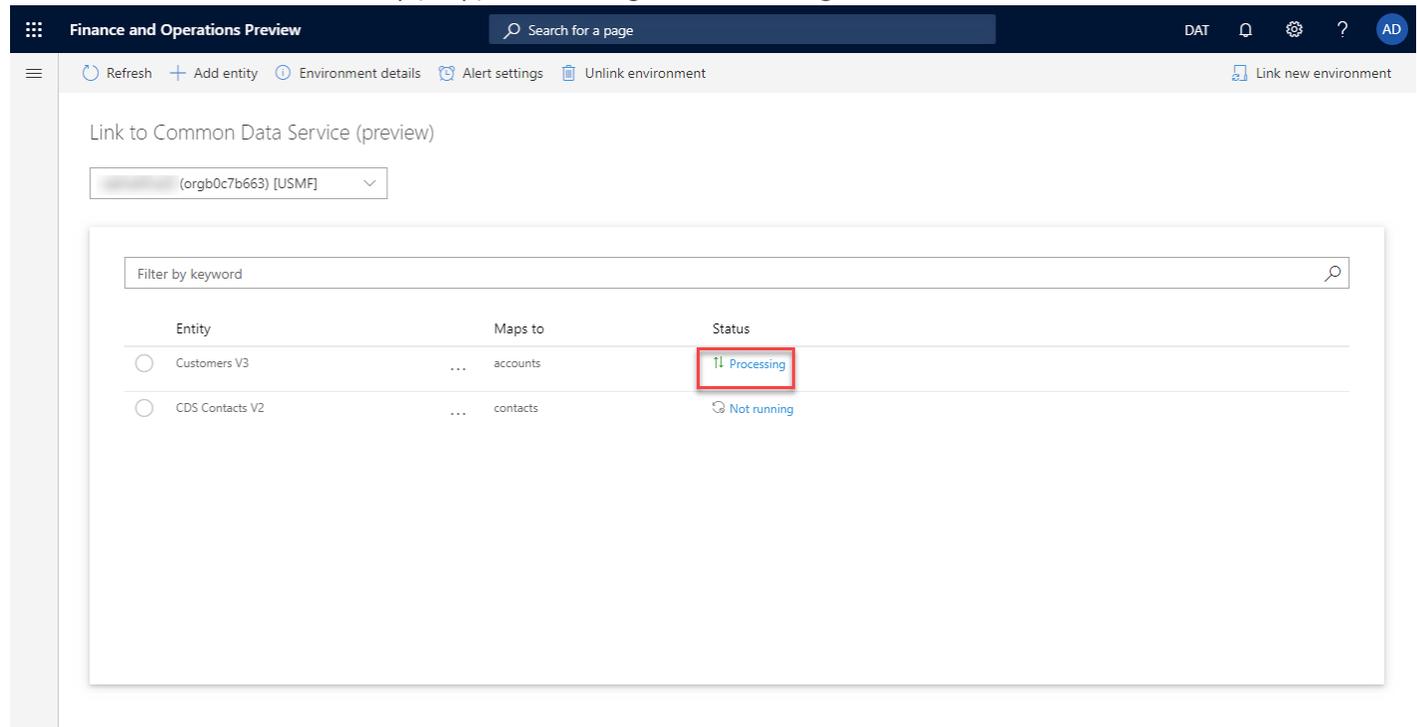
(orgb0c7b663) [USMF]

Entity	Maps to	Status
<input type="radio"/> Customers V3	... accounts	<input type="button" value="Not running"/>
<input type="radio"/> CDS Contacts V2	... contacts	<input type="button" value="Not running"/>

1. To enable an entity (map) for Dual Write, click on the ellipsis and select **Run**. In this example, we will enable the **Customers V3** entity (map) for dual write



2. You will notice that the entity (map) status changes to **Processing**, which is a transient state



3. Once it is ready and past the transient state, the entity status is set to **Running**

Finance and Operations Preview

Search for a page

DAT

Refresh + Add entity Environment details Alert settings Unlink environment Link new environment

Link to Common Data Service (preview)

Filter by keyword

Entity	Maps to	Status
<input type="radio"/> Customers V3	... accounts	▶ Running
<input type="radio"/> CDS Contacts V2	... contacts	⌂ Not running

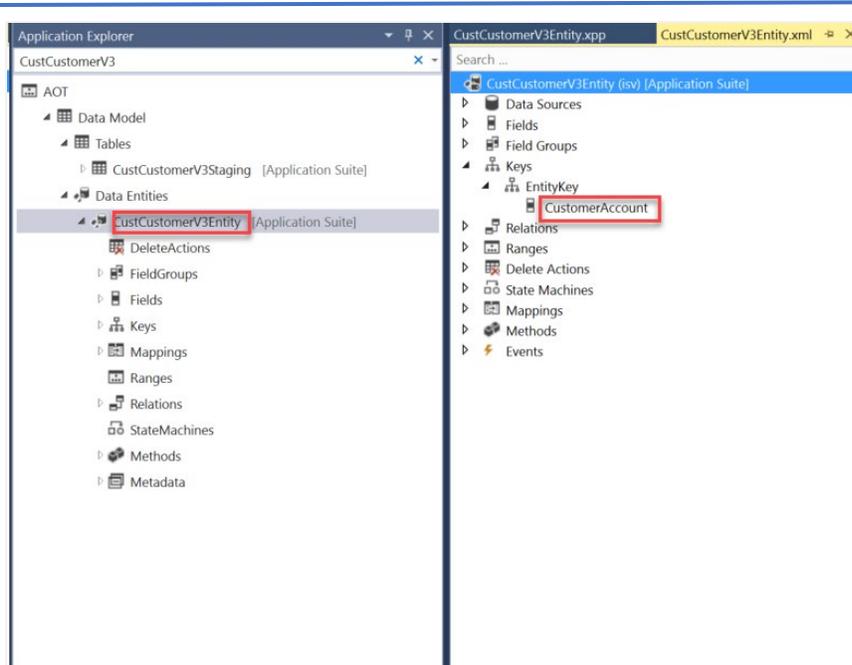
With this step, you have successfully enabled the **Customers V3** entity (map) for Dual Write. You could do a quick test by creating a customer entry in Dynamics 365 for Customer Engagement and see it automatically write to Dynamics 365 Finance and Operations. Similarly, you could update the attributes for the customer you just created Ex: Address in Dynamics 365 for Finance and Operations and see it automatically write to Dynamics 365 for Customer Engagement.

Note: Please review important criteria which is a prerequisite for linking entities

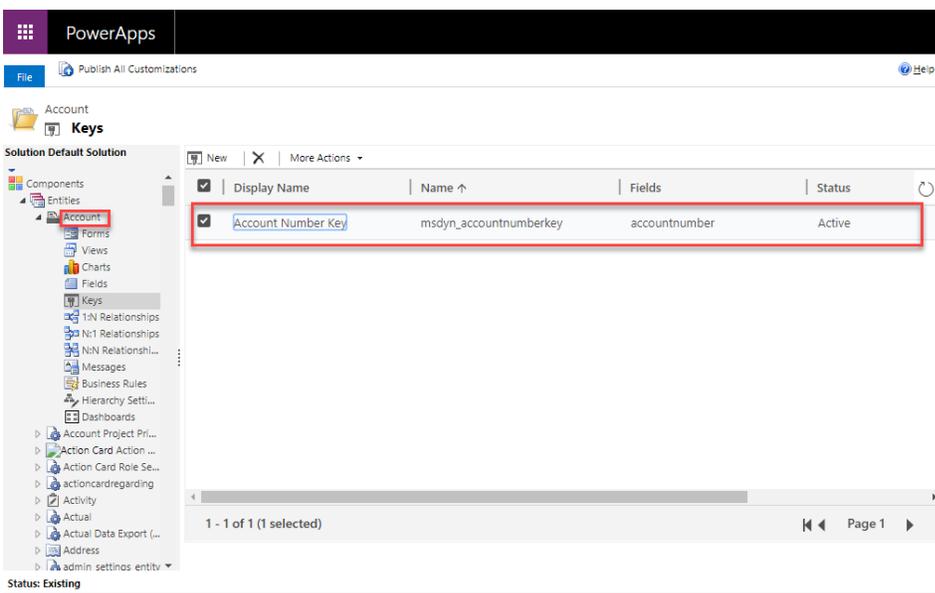
Criteria for linking entities

To enable Dual Write, an alternate key must be defined in the Common Data Service. The alternate key value in Common Data Service must match with key defined in Dynamics 365 for Finance and Operations

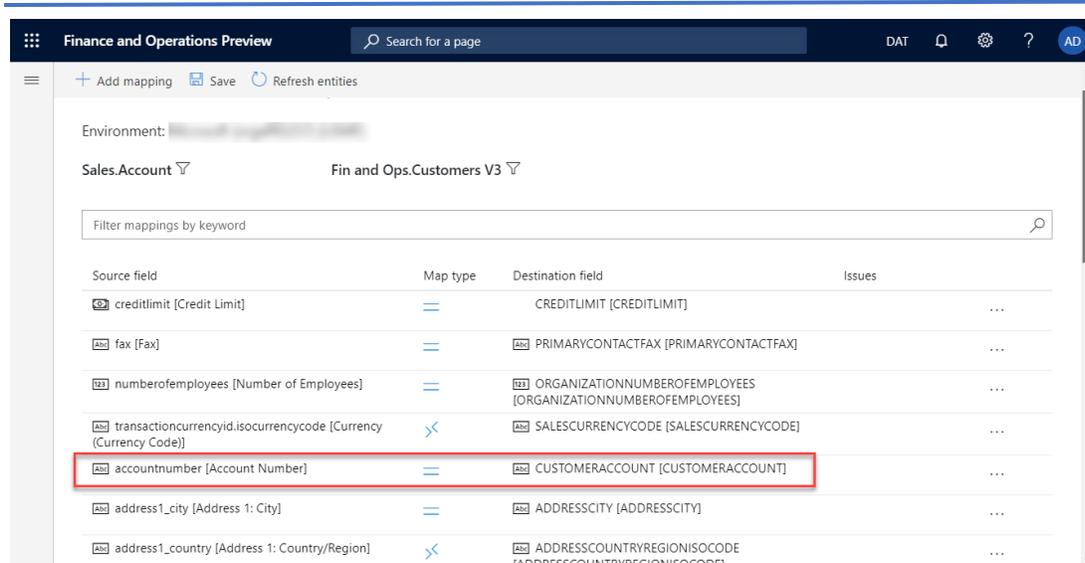
Ex: In Dynamics 365 for Finance and Operations, **CustomerAccount** is the key for the **Account** entity



In the Common Data Service, we defined **accountnumber** as the key for **Account** entity



We also make sure that **accountnumber** is mapped to **CustomerAccount** in the Customers V3 entity map



Entity (map) status and actions

An entity set up for Dual Write may go through various status depending on the actions you take.

Following is a description of various entity status and available actions:

Status	Description	Available actions
Not Running	Every entity begins from the 'Not Running' status. Prior to enabling an entity for Dual Write, it is in the 'Not Running' status	Run
Processing	When you enable an entity for Dual Write, it enters the Processing status where we set the appropriate configuration and mappings in the applications before it reaches Running status	NA (transient state)
Running	Entity is enabled for Dual Write and near-real writes are ON	Stop

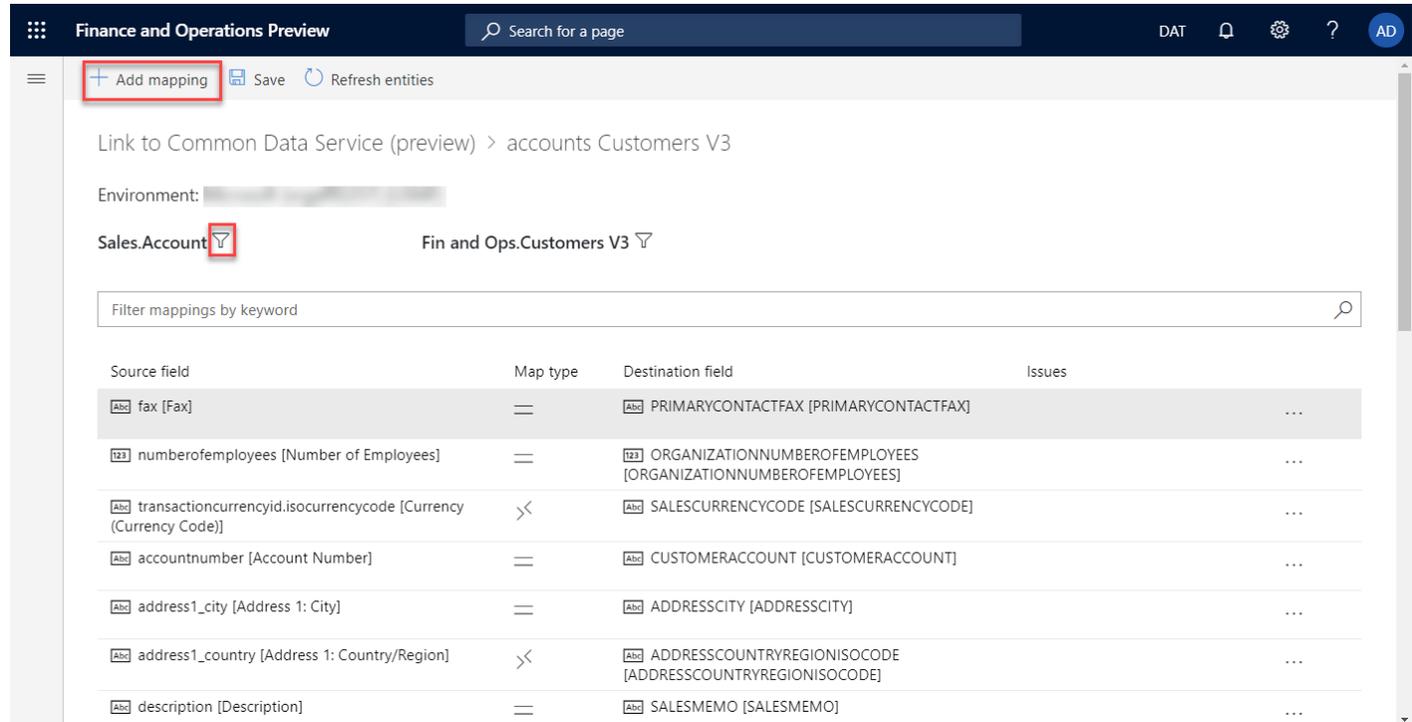
Following is a description of the set of operations that happen when you move from one status to another:

Action	Status (from)	Status (to)	Operations when switching status
Start	Not Running	Running	<ul style="list-style-type: none"> Sets configuration, mappings and events Turns on near-real time writes
Stop	Running	Not Running	<ul style="list-style-type: none"> Turns off near-real time writes

How-to customize entity and field mappings

The out of the box (OOB) entities we provide also come with predefined entity field mappings referred to as templates. Dual Write templates serve as a blueprint with predefined entities and field mappings to enable flow of data between two apps. We also understand every business is different, so we provide you a way to modify and customize entities and field mappings.

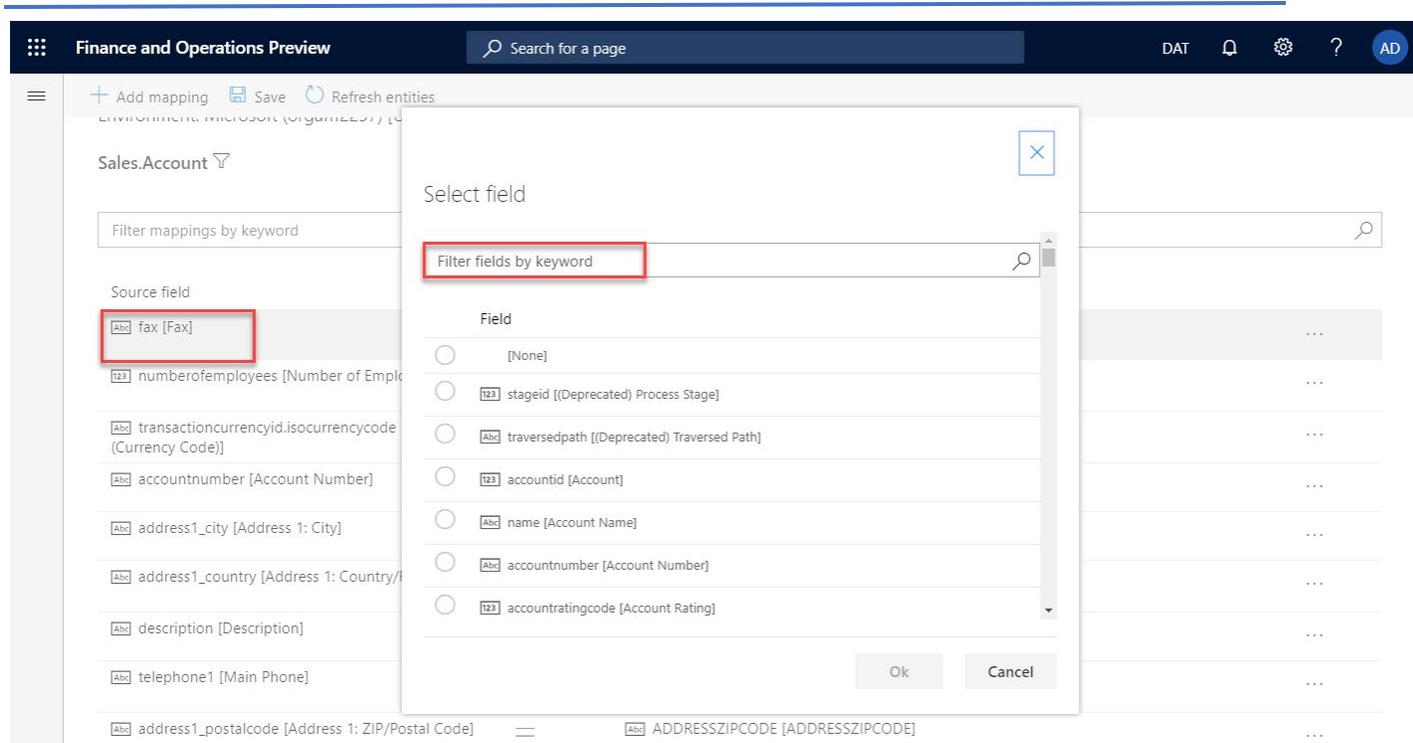
Under the ellipsis for each entity, you can click on Entity mappings to view it. Here is an example of a Dual Write template for Customers v3 entity (map). You can add your own mappings via **Add mapping** button and define filters by clicking on the filter icon.



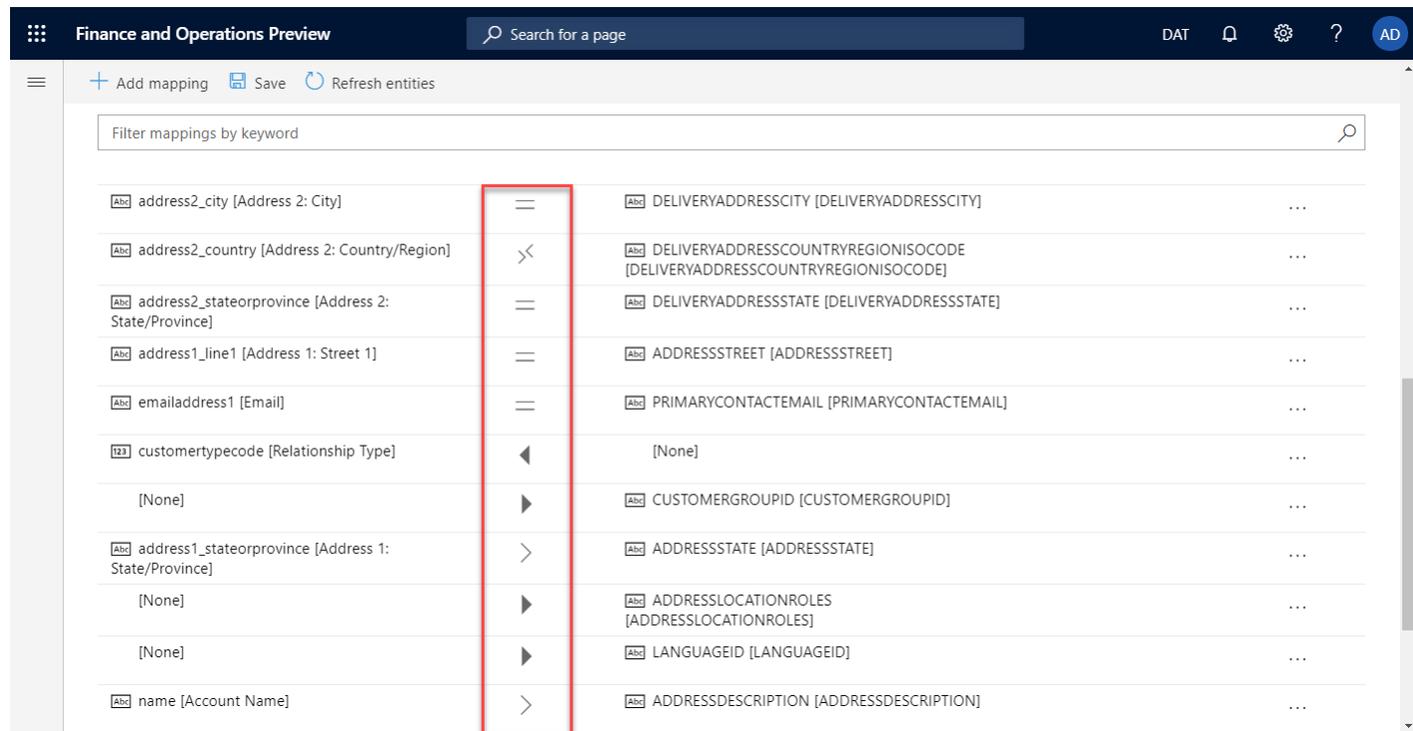
The screenshot shows the 'Finance and Operations Preview' interface. At the top, there is a search bar and navigation icons. Below the search bar, there is a menu with 'Add mapping' (highlighted with a red box), 'Save', and 'Refresh entities'. The main content area shows a breadcrumb trail: 'Link to Common Data Service (preview) > accounts Customers V3'. Below this, there is an 'Environment:' field and a dropdown menu for 'Sales.Account' (highlighted with a red box) and 'Fin and Ops.Customers V3'. A search bar for 'Filter mappings by keyword' is present. Below the search bar is a table of field mappings.

Source field	Map type	Destination field	Issues
fax [Fax]	=	PRIMARYCONTACTFAX [PRIMARYCONTACTFAX]	...
numberofemployees [Number of Employees]	=	ORGANIZATIONNUMBEROFEMPLOYEES [ORGANIZATIONNUMBEROFEMPLOYEES]	...
transactioncurrencyid.isocurrencycode [Currency (Currency Code)]	<	SALESCURRENCYCODE [SALESCURRENCYCODE]	...
accountnumber [Account Number]	=	CUSTOMERACCOUNT [CUSTOMERACCOUNT]	...
address1_city [Address 1: City]	=	ADDRESSCITY [ADDRESSCITY]	...
address1_country [Address 1: Country/Region]	>	ADDRESSCOUNTRYREGIONISOCODE [ADDRESSCOUNTRYREGIONISOCODE]	...
description [Description]	=	SALESMEMO [SALESMEMO]	...

You can customize the fields by clicking on it and selecting from the list of available fields



You can also customize the direction of flow of data (unidirectional or bi-directional) by clicking on the Map type for each field



Additionally, define your own value transforms (default, truncate, valuemap) by specifying the **Transform type** and its value

The screenshot shows the 'Finance and Operations Preview' interface. On the left, a table lists field mappings between 'Sales.Account' and 'Fin and Ops.Customers V3'. The mapping for 'transactioncurrencyid.isocurrencycode [Currency (Currency Code)]' is highlighted with a red box, showing a right-pointing arrow symbol (>) indicating a uni-directional assignment from source to destination. On the right, a configuration panel for this mapping is shown. The 'Sync direction' dropdown is set to 'Bidirectional' and is also highlighted with a red box. Below it, the 'Transform' dropdown is set to 'Default' and is also highlighted with a red box. The 'Default value' field contains 'USD'. At the bottom of the panel, there are 'Save' and 'Cancel' buttons.

Following is a description of each of the symbols that indicate sync direction:

Symbol	Description
==	Bi-directional field assignment
><	Bi-directional field assignment with transforms
>	Uni directional field assignment (left to right)
<	Uni directional field assignment (right to left)
▶	Uni directional field assignment with transforms (left to right)
◀	Uni directional field assignment with transforms (right to left)

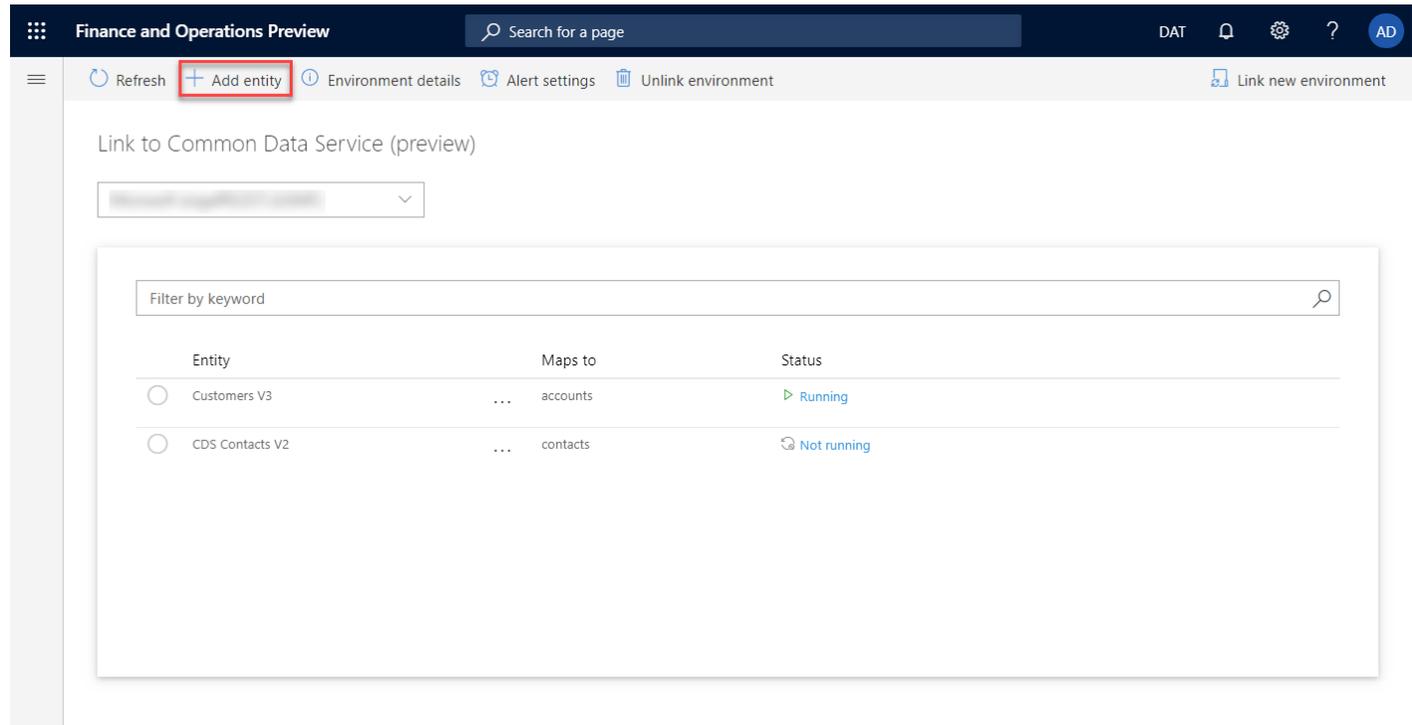
Following is a description of each of the transform type:

Transform type	Description
Default	Default values are values that are applied to destination field when no source field value is available. Use default values for fields that are required on the destination entity when you have no corresponding source field.
Value map	Value maps define how values that are present in one entity should be mapped to values in the other entity.

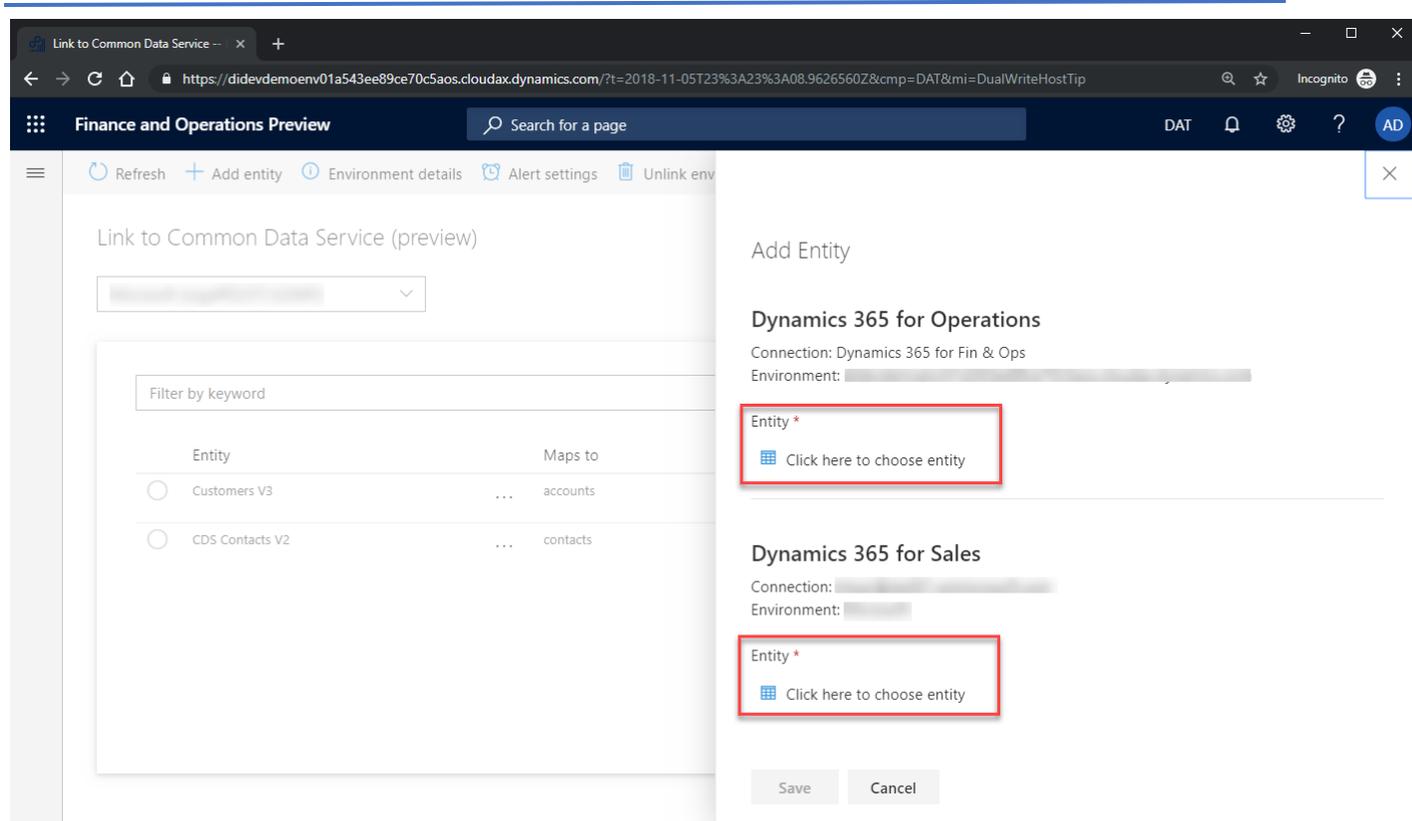
How-to add(map) a new standard or custom entity

We closely work with our app teams, Dynamics 365 for Finance and Operation, to provide out of the box (OOB) entities for Dual Write. While we continue to add new entities, we also provide you the ability to add standard or your own custom entities.

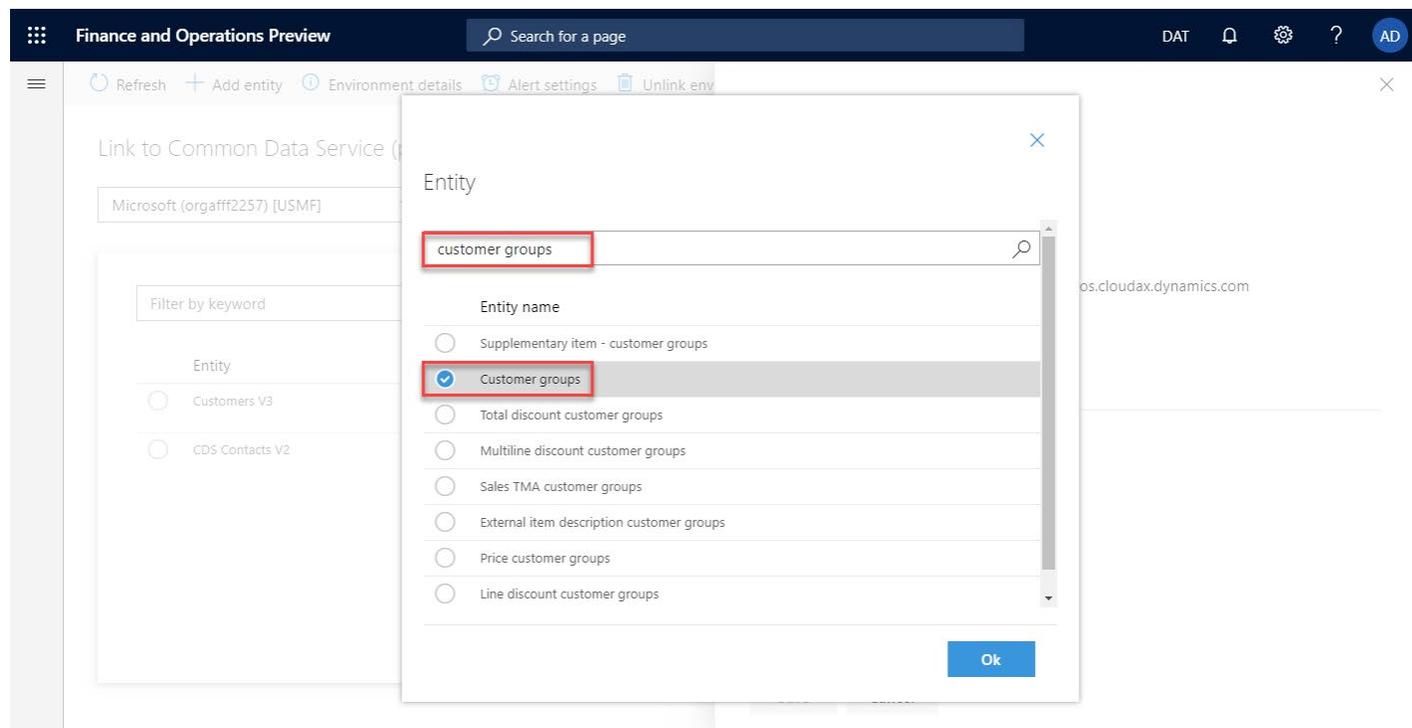
1. Click on the **Add entity** button to launch the Add entity wizard



2. Select a standard or custom entity from each of the apps



3. In this example, we will select the **Customer groups**



4. After you click Ok and Save, you will see your new entity (map) **Customer groups** in the entity list page. Follow the instructions to customize your field mappings

Finance and Operations Preview

Search for a page

DAT

Refresh Add entity Environment details Alert settings Unlink environment Link new environment

Link to Common Data Service (preview)

Filter by keyword

Entity	Maps to	Status
<input type="radio"/> Customers V3	... accounts	▶ Running
<input type="radio"/> Customer groups	... msdyn_customergroups	⌛ Not running
<input type="radio"/> CDS Contacts V2	... contacts	⌛ Not running

Enabling filtering

With Dual Write, we are providing you the ability to filter data using OData filter expression for Common Data Service. For Dynamics 365 for Finance and Operations, filtering is like range expressions used in query range.

Click the filter icon from the entity mapping screen

Finance and Operations Preview Search for a page DAT ?

+ Add mapping Save Refresh entities

Link to Common Data Service (preview) > accounts Customers V3

Environment: XXXXXXXXXX

Sales.Account ▼ Fin and Ops.Customers V3 ▼

Filter mappings by keyword 🔍

Source field	Map type	Destination field	Issues
fax [Fax]	=	PRIMARYCONTACTFAX [PRIMARYCONTACTFAX]	...
numberofemployees [Number of Employees]	=	ORGANIZATIONNUMBEROFEMPLOYEES [ORGANIZATIONNUMBEROFEMPLOYEES]	...
transactioncurrencyid.isocurrencycode [Currency (Currency Code)]	<	SALESCURRENCYCODE [SALESCURRENCYCODE]	...
accountnumber [Account Number]	=	CUSTOMERACCOUNT [CUSTOMERACCOUNT]	...
address1_city [Address 1: City]	=	ADDRESSCITY [ADDRESSCITY]	...
address1_country [Address 1: Country/Region]	<	ADDRESSCOUNTRYREGIONISOCODE [ADDRESSCOUNTRYREGIONISOCODE]	...
description [Description]	=	SALESMEMO [SALESMEMO]	...

Specify your filters in the Edit query box. In this example I specified a filter to return only accounttype equal to '3'

Finance and Operations Preview Search for a page DAT ?

+ Add mapping Save Refresh entities

Link to Common Data Service (preview) > accounts Customers V3

Environment: XXXXXXXXXX

Sales.Account ▼

Filter mappings by keyword 🔍

Enter query below

(accounttype == '3')

Accept Cancel

Source field	Map type	Destination field	Issues
fax [Fax]	=	CUSTOMERACCOUNT [CUSTOMERACCOUNT]	...
numberofemployees [Number of Employees]	=	ADDRESSCITY [ADDRESSCITY]	...
transactioncurrencyid.isocurrencycode [Currency (Currency Code)]	<	ADDRESSCOUNTRYREGIONISOCODE [ADDRESSCOUNTRYREGIONISOCODE]	...
accountnumber [Account Number]	=	ADDRESSCITY [ADDRESSCITY]	...
address1_city [Address 1: City]	=	ADDRESSCOUNTRYREGIONISOCODE [ADDRESSCOUNTRYREGIONISOCODE]	...
address1_country [Address 1: Country/Region]	<	ADDRESSCITY [ADDRESSCITY]	...

Here are some more examples of filter expressions:

Common Data Service	Dynamics 365 for Finance and Operations
Accounttype eq '3'	(accounttype == '3')
numberofemployees gt 1000 and numberofemployees le 2000	((numberofemployees > 1000) && (numberofemployees <= 2000))

[Click here](#) for more examples on using expressions in query ranges

Environment details

Click on Environment details to view details of your environments, connections and organizations mappings that you specified while setting-up Dual Write.

The screenshot shows the 'Finance and Operations Preview' interface. The top navigation bar includes 'Search for a page', 'DAT', and user initials 'AD'. Below the navigation bar, there are several action buttons: 'Refresh', 'Add entity', 'Environment details' (highlighted with a red box), 'Alert settings', and 'Unlink environment'. On the right side, there is a 'Link new environment' button. The main content area is titled 'Link to Common Data Service (preview)' and contains a dropdown menu. Below this, there is a table with the following columns: 'Entity', 'Maps to', and 'Status'. The table contains two rows:

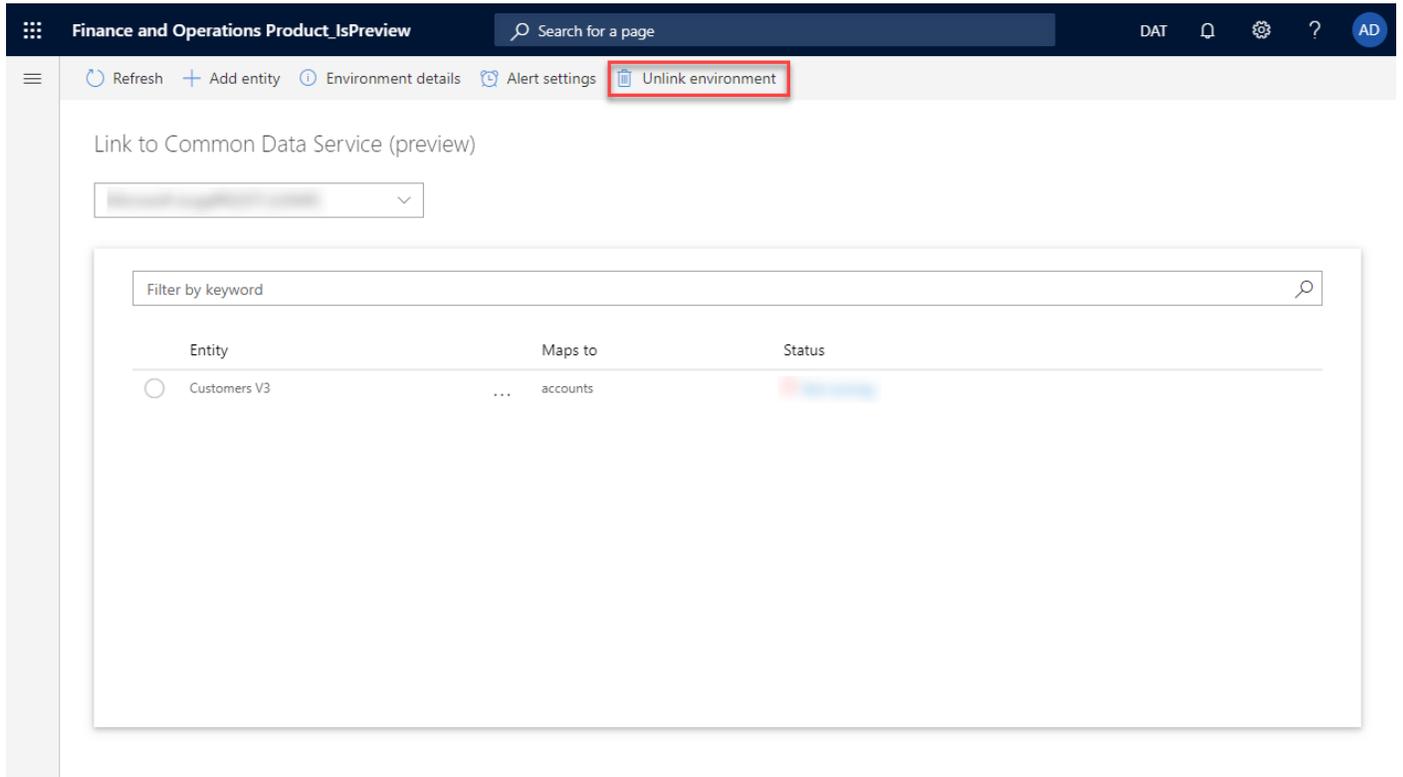
Entity	Maps to	Status
Customers V3	accounts	Running
CDS Contacts V2	contacts	Not running

Let's take an ex: In the case of the Dynamics 365 for Sales entity that we want to synchronize with the Dynamics 365 for Finance and Operations entity, we use the Account.Account Number field in Dynamics 365 for Sales, and make it both required and unique. You are responsible for making sure that there is a valid customer identification value in the Account.Account Number field in Dynamics 365 for Sales. If there is no value in this field, we won't write the records from Dynamics 365 for Sales to Dynamics 365 for Finance and Operations.

How-to link and unlink environments

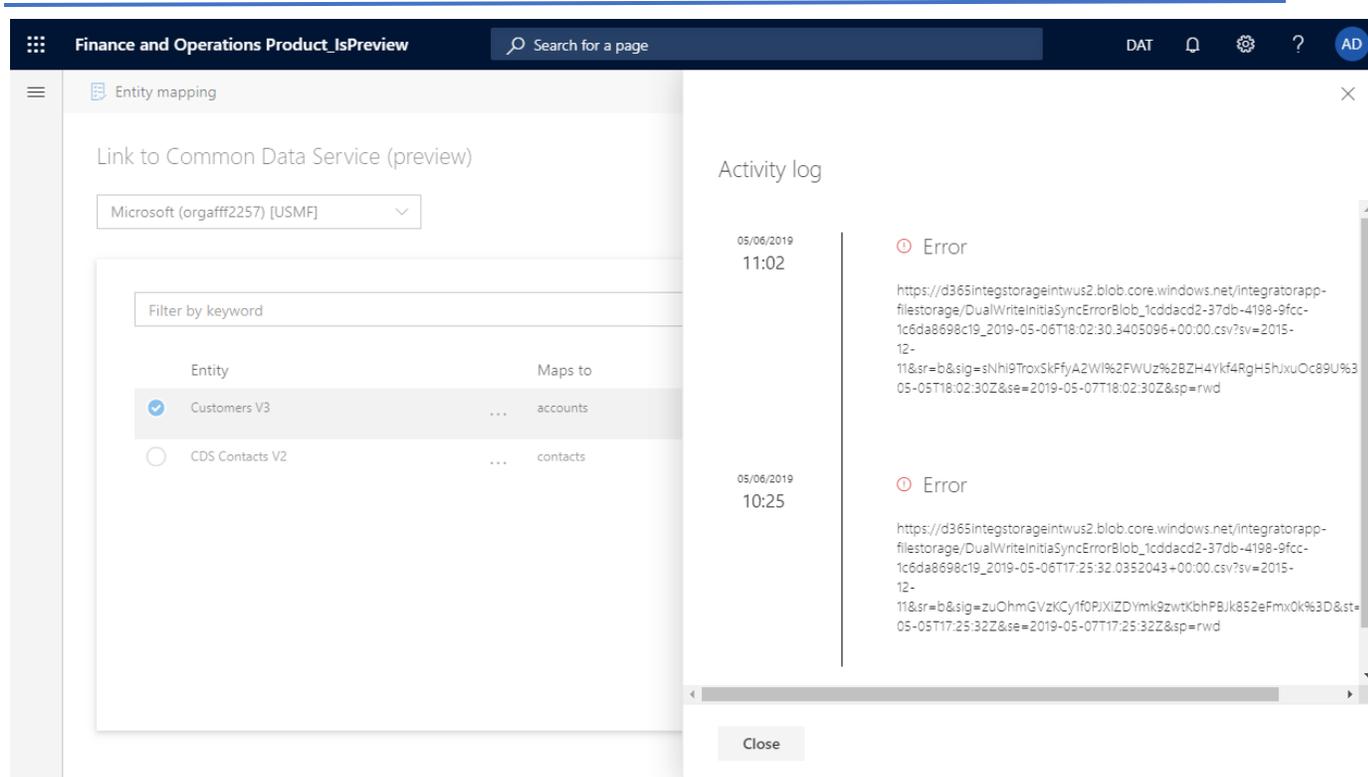
We currently support a 1:1 link, wherein, you can link one Dynamics 365 for Finance and Operations environment to one Common Data Service environment. **Unlink environment**, disconnects or removes the link between Dynamics 365 for Finance and Operations and the common Data Service. Once you

unlink, you will get the option to Link new environment which in turn launches the wizard to enable Dual Write



Consolidated view for entity map activities and errors

In the event you run into an issue during or after enabling entity maps for Dual Write, you can click on the entity status for a consolidated view of all the activities for that entity map, including error logs. Our goal is to provide you a single view of activities on an entity map which would aid you during your troubleshooting.



This is one of the areas where we are constantly innovating and adding more details and knobs and would be great to get your feedback.

Feedback

We would love to learn about your experience and improve based on your feedback

Once again, we appreciate your time and thank you for previewing our new features. As always, we would love to hear more from you, learn from your experience and improve based on your feedback. It would be great if you could please drop a line regarding your experience and any issues you may have encountered at CSDDataIntegrationPreview@service.microsoft.com