

UiPath Data Service

RPA and Data:

Data play a very large role in various enterprises for a variety of reasons like decision making or more insights or for understanding the Business in different Dimensions.

At the same time RPA helping Organization with easier handling of Data across multiple Business Applications and Systems.

With the Growth of more data and also evolution of RPA we see deeper relationship between Data and Automation.

In order to Accelerate Digital Transformation and Improve Operational Efficiency there is need to offer Data Management and Storage within the Automation.

Need for Data Service for Your RPA:

Automating real world business processes that transcend multiple systems often requires working with complex business data to be stored temporarily or permanently. In such situations, two common challenges faced by developers are to figure out a location to store and manipulate the data, and being able to consistently work with all the different variables (sometimes as many as 100) across your workflows.

In addition, centers of excellence (CoEs) face the challenge of understanding how and where all intermediary data is being stored/accessed to ensure that critical business data is not being left around on users' or robot machines, file shares, or cloud storage services.



Challenges today



Cumbersome to use external applications and services to store and persist data



Ensuring data security in your automations



Increasing data proliferation with end users trying to access data from multiple machines



The need for the common and up-to date data for your automations



Sharing of data with the right users

UiPath Data Service

Introduction to UiPath Data Service:

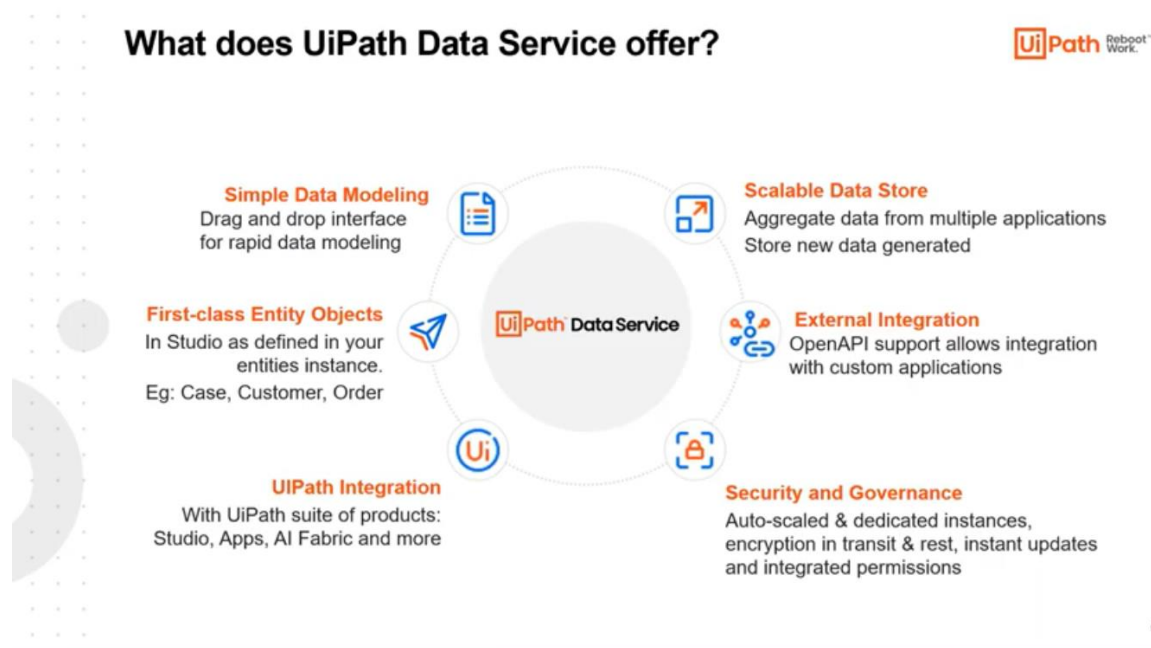
Data management and storage simplified for your automation.

UiPath Data Service is a persistent data storage service that brings powerful no-code data modelling and storage capabilities to your Robotic Process Automation (RPA) projects.

UiPath Data Service provides a business yet user-friendly service where you can securely store and manage your business data in centralized manner and seamlessly access it faster across multiple application within UiPath:

- Run unattended processes to aggregate data from multiple systems before processing it in other systems.
- Use the data for long-running business processes that need to transfer data across multiple attended and unattended processes.
- The integration with Studio and UiPath Robot allows you to build automations leveraging capabilities such as:
 - Rich relational data types;
 - Integrated security;
 - Instantaneous and adjustable provisioning and deployments.

What does UiPath Data Service Offer?



UiPath Data Service

Data Service Benefits:

Improve Employee Experience

- No-code: Rich drag and drop controls to model schematized data and store the business data
- Simplicity: Avoid tedious ways of accessing data from multiple systems and business applications every time in your workflow.
- Reusability: Seamlessly access and reuse data across multiple automations
- Easy Sharing: share data easily from studio and across UiPath suite of products.

Operational Resiliency & Risk Mitigation

- Security: Avoid data proliferation and bring data into a centralized repository with enterprise –grade security.
- Scalability: As your automations grow, easily scale your data needs.
- Efficiency: consolidate and manage all the enterprise data needed for automation from a single place

Data Types and Security:

Support multiple data type creation to suit your business needs:

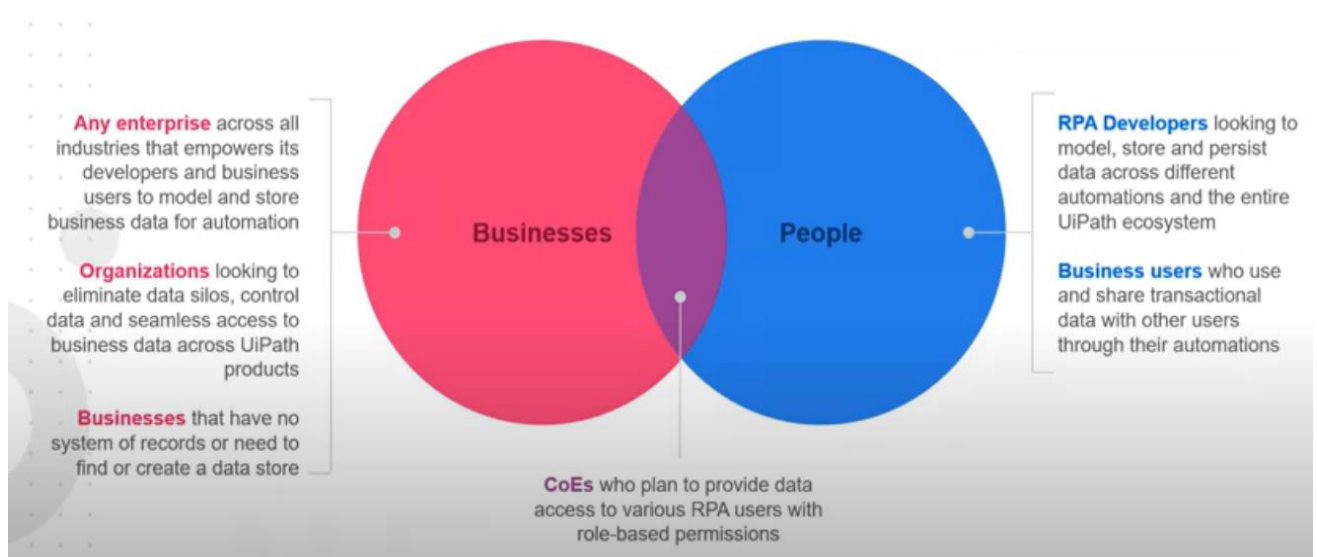
Type	Description
Text	String of letters, numbers, and some symbols
Number	+ve and –ve integer and decimal values
Yes/No	Offers a choice of Yes/No (Boolean) values
Date-Time	Stores date only, date-time values in UTC
Relationship	A relationship with an entity in the Data Service
Choice Set	An enumerated list from which one or more values can be selected
File	Attach a file of any type (up to 10 MB) to a record

Store data securely and allow only required users to access the data

- Role Based Access Control
 - Entity level controls
 - Row level controls
 - Field level controls

UiPath Data Service

Who needs the Data Services?



Enable the Data Service for Community Edition:

In **Admin**> **Tenants**> go to your specific Tenants > **Edit Tenant setting**> Mark the **Data service** checked > **save**

The screenshot shows the UiPath Administration web interface. On the left is a sidebar with navigation links: Home, Tenants, Users and Groups, External Applications, Licenses, Automation Ops, Audit Logs, Organization Settings, Data Service, and Admin. The main content area displays the "Tenants" page with a search bar and a table of tenants. A "Tenant Settings" modal is open on the right, showing the configuration for a specific tenant.

Tenant Settings

Tenant Name: DefaultTenant

Provision Services:

- ☒ Orchestrator
- ☒ Actions
- ☒ Processes
- ☒ Data Service

License Allocation for Services

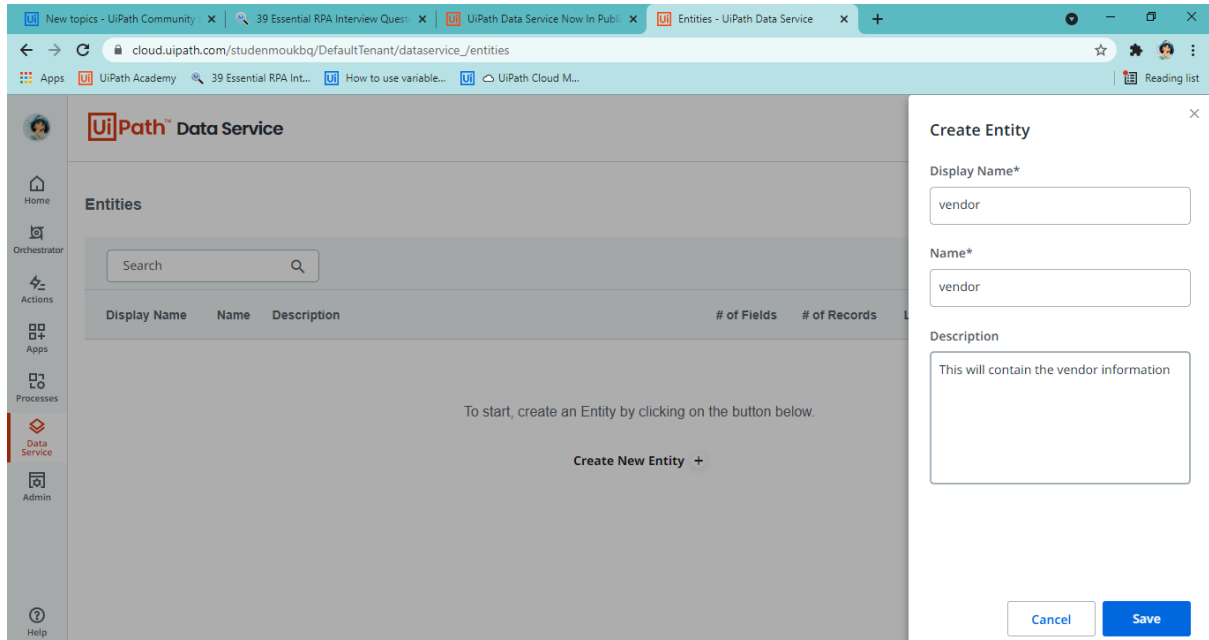
Available licenses will be allocated to the service(s) enabled for this tenant. You can change the default configuration from the "Allocate License" option in the tenants page.

Buttons: Save, Cancel

UiPath Data Service

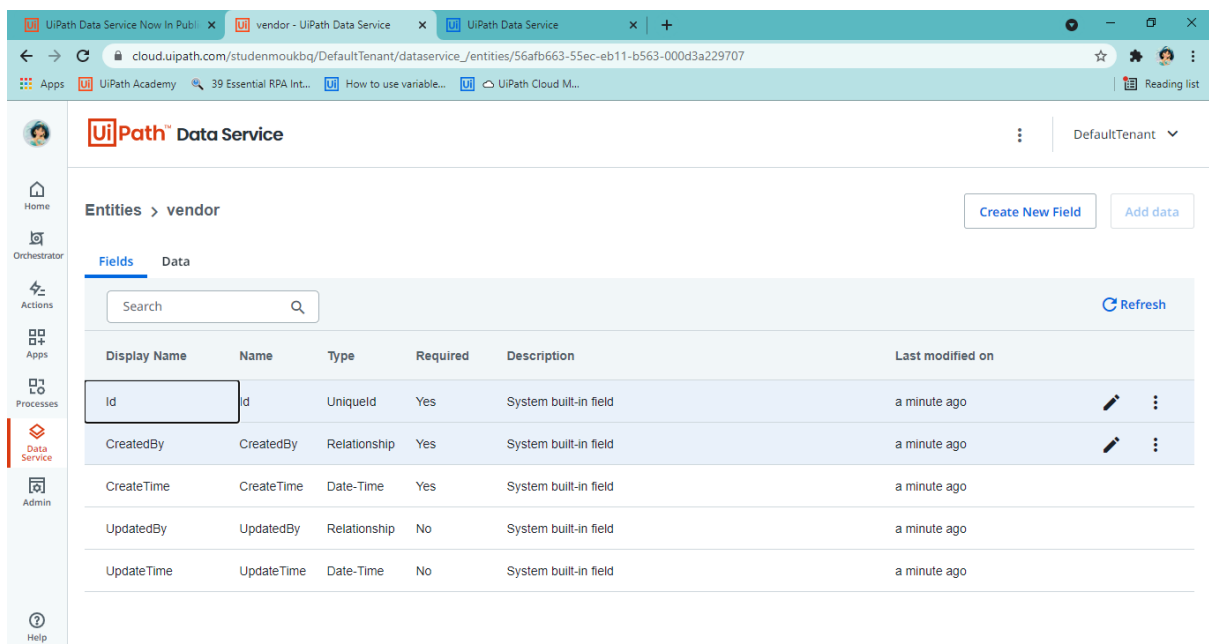
Creating New Entity:

Creating the new entity by providing the display name as Vendor and Description of that entity and saving the entity. After saving it will get displayed in Entities panel.



Entity creates the five different System generated fields

These Fields take care by the system themselves on each record Entry creates the perfect log trail for whatever we are doing with this particular Entity.



UiPath Data Service

Creating the New Field in Entity:

1. In the **Entities** list, select the entity for which you want to add a field. The **Fields** tab is displayed with the list of fields defined for the entity.
2. Click on **Create New Field**.
3. In the **Create Field** panel enter a display name for the field in the **Display Name** field.
4. Select the field **Type** using the drop-down list.
5. If the field must have a value, select the **required** checkbox.
6. Click **more details** to display the additional fields.
7. Enter a value for the available fields. The required fields are marked with an asterisk symbol.
8. Click on **Save**.

The screenshot shows the UiPath Data Service web application. The main interface displays the 'Entities > vendor' section with a 'Fields' tab selected. A table lists existing fields for the 'vendor' entity:

Display Name	Name	Type	Required	Description
Id	Id	Uniquelid	Yes	System built-in field
CreatedBy	CreatedBy	Relationship	Yes	System built-in field
CreateTime	CreateTime	Date-Time	Yes	System built-in field
UpdatedBy	UpdatedBy	Relationship	No	System built-in field
UpdateTime	UpdateTime	Date-Time	No	System built-in field

On the right, the 'Create Field' dialog is open. It contains the following fields and options:

- Display Name***: Vendor Code
- Name***: VendorCode
- Type***: Number (selected from a dropdown)
- Required**: ☒
- More details** (expanded):
 - Maximum Value***: 9999
 - Minimum Value***: (empty)
- Buttons**: Cancel, Save

Creating the Choice sets:

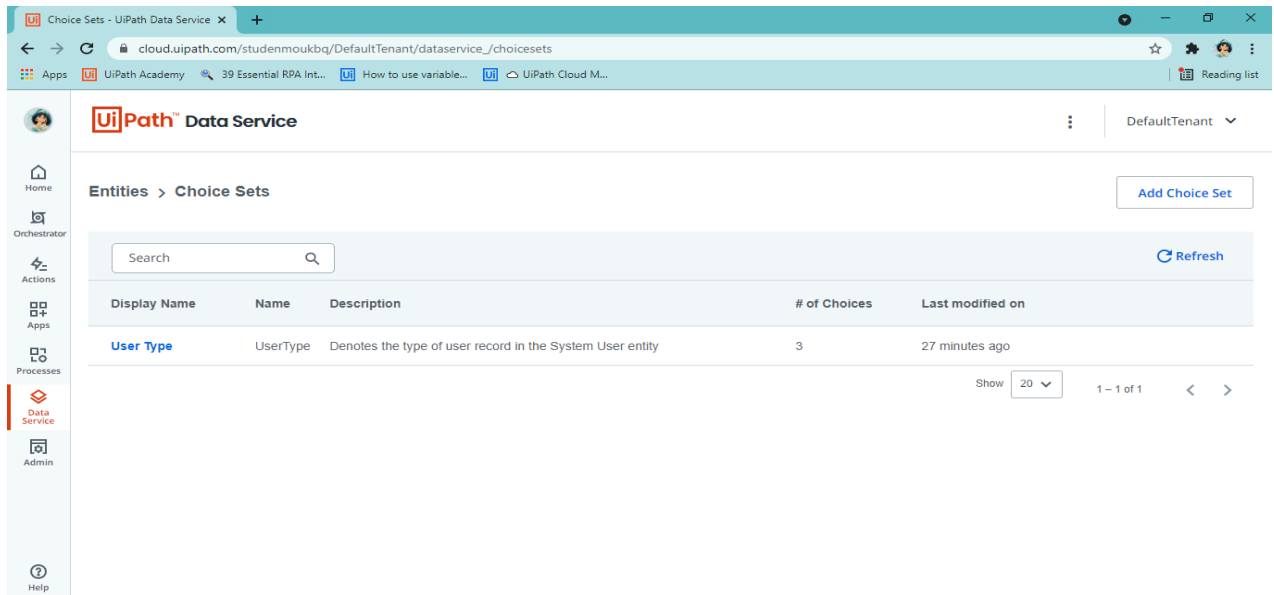
The **Choice Sets** module enables you to manage choice sets for a data service tenant. Choice Sets can be used as field types in an entity.

Choice Sets basically imagine you have static list of items in a programming lexicon then this gives you the to bounce the fields whenever you choose this to be.

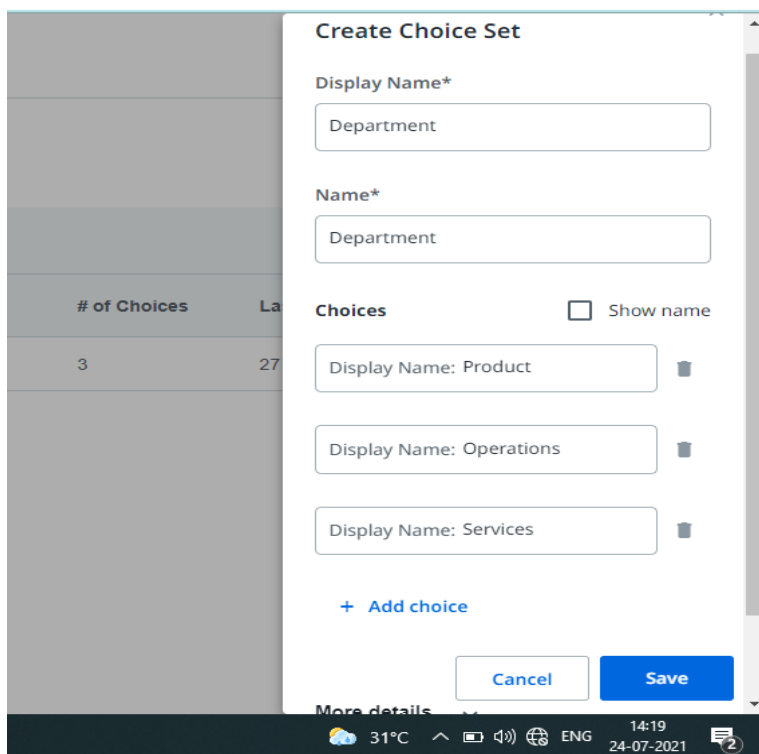
The following steps enable you to manage your Choice Sets.

UiPath Data Service

1. On the **Data Service** page>>**Entities**>> click the overlay menu in the upper right corner.
2. Select **Choice Sets**.



Example: Department Choice sets gives three Choices: 1) product 2) operations and 3) services in an organization for which purchase order can raised.



UiPath Data Service

Making use of choice set (**Department**) in another entity **Purchase Orders**

The screenshot shows the UiPath Data Service interface. On the left, a sidebar contains navigation icons for Home, Orchestrator, Actions, Apps, Processes, Data Service, Admin, and Help. The main area is titled 'Entities > Purchase Orders' and has two tabs: 'Fields' (selected) and 'Data'. Below the tabs is a search bar. A table lists fields for the 'Purchase Orders' entity:

Display Name ↑	Name	Type	Required	Description
CreateTime	CreateTime	Date-Time	Yes	System built-in field
CreatedBy	CreatedBy	Relationship	Yes	System built-in field
Id	Id	Uniqueld	Yes	System built-in field
UpdateTime	UpdateTime	Date-Time	No	System built-in field
UpdatedBy	UpdatedBy	Relationship	No	System built-in field

On the right, a 'Create Field' dialog is open. It contains the following fields:

- Display Name*: Department
- Name*: Department
- Type*: Choice Set (dropdown)
- Choice Set*: Department (dropdown)
- ☐ Allow multiple selections
- ☐ Required
- More details (dropdown)
- Buttons: Cancel, Save

Relationship Between the Entities

Example: Purchase order raised against based on each of the values they are the someone who is supplying orders.

Establishing the Relationship between the Purchase Order (Entity 1) and vendor (Entity 2)

The screenshot shows the UiPath Data Service interface. On the left, a sidebar contains navigation icons for Home, Orchestrator, Actions, Apps, Processes, Data Service, Admin, and Help. The main area is titled 'Entities > Purchase Orders' and has two tabs: 'Fields' (selected) and 'Data'. Below the tabs is a search bar. A table lists fields for the 'Purchase Orders' entity:

Display Name ↑	Name	Type	Required	Description
Id	Id	Uniqueld	Yes	System built-in field
Department	Department	Choice Set	No	
PO Number	PONumber	Text	No	
PO Raised Date	PORaisedDate	Date	No	
CreatedBy	CreatedBy	Relationship	Yes	System built-in field
CreateTime	CreateTime	Date-Time	Yes	System built-in field

On the right, a 'Create Field' dialog is open. It contains the following fields:

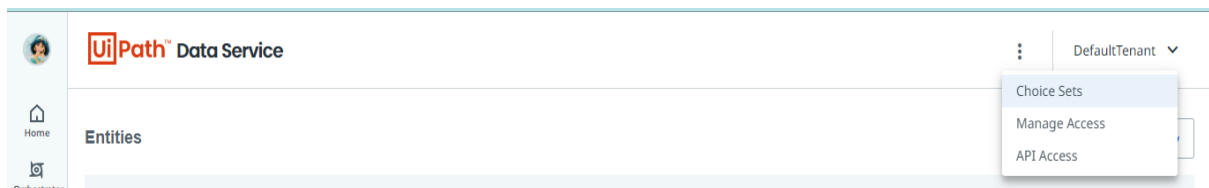
- Display Name*: Vendor Name
- Name*: VendorName
- Type*: Relationship (dropdown)
- Related Entity*: vendor (dropdown)
- Related Entity Display Field*: Vendor Name (dropdown)
- Buttons: Cancel, Save

Creating User Management:

1. On the **Data Service** page>>**Entities**>> click the overlay menu in the upper right corner.

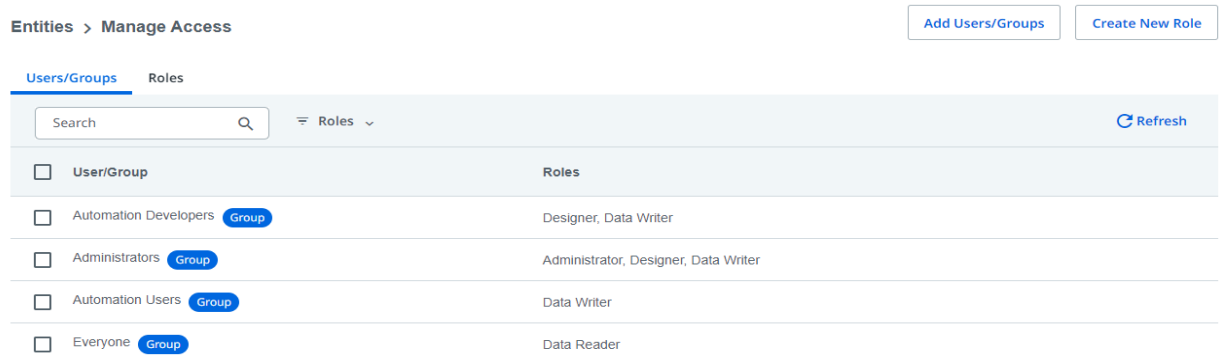
UiPath Data Service

2. Select **Manage Access**.

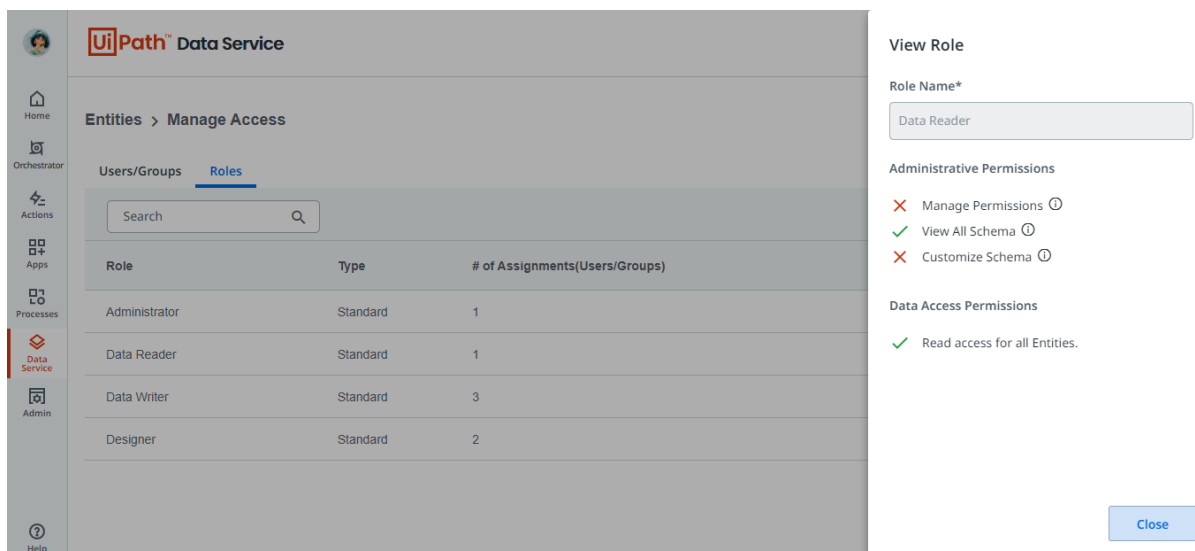


Default Roles Created by System:

Automation developer- Roles Designer, Data Writer



For Viewing Roles Select **Roles**>>Administrator Role>>Eye View symbol click on it



Creating the Custom Roles:

Custom Roles enable you to create custom sets of permissions that can be assigned to Users/Groups. If you have the **Manage Permissions** permission assigned you can create new custom Roles.

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Custom Role Permissions

For Custom Roles you can decide which permissions you want to assign the role. When defining a role, you can assign **Administrative Permissions** to the role as well as **Data Access Permissions** for selected **Entities**.

Example: somebody who is manages the Purchase Orders so we can assign the rights by creating role called as PO Manager. By using **Add Entity>>** Select **Purchase Order** and **Vendor**

Create Role

Role Name*

PO Manager

Administrative Permissions

- ☐ Manage Roles ⓘ
- ☐ View Schema ⓘ
- ☐ Customize Schema ⓘ

Data Access Permissions

	Record Access	Create	Read	Edit	Delete
Purchase Orders	All	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
vendor	All	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Certain fields require data access permissions. [Add them](#)

[+ Add Entity](#)

Cancel

Save

Assigning the Custom Role to User/Group

Add Users/Groups

Add Users/Groups

ashumogal42@gmail.com ✕

Search by typing username or email id

Users already part to the Organisation can be added from here.

Select Roles

- ☐ Administrator
- ☐ Data Reader
- ☐ Data Writer
- ☐ Designer
- ☒ PO Manager

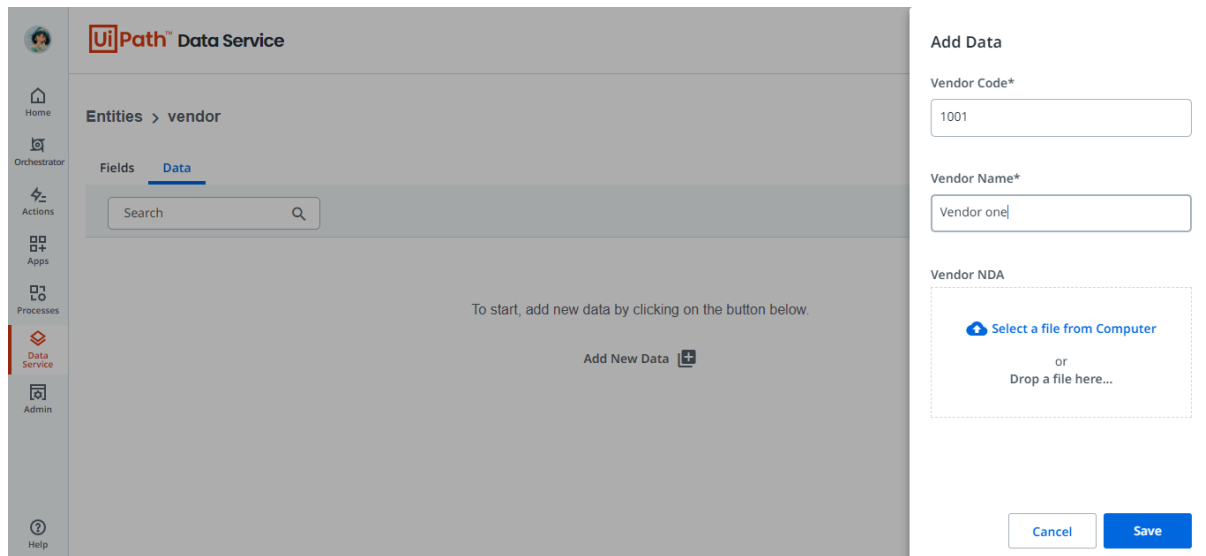
Close

Save

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Adding Data to the Entity Fields

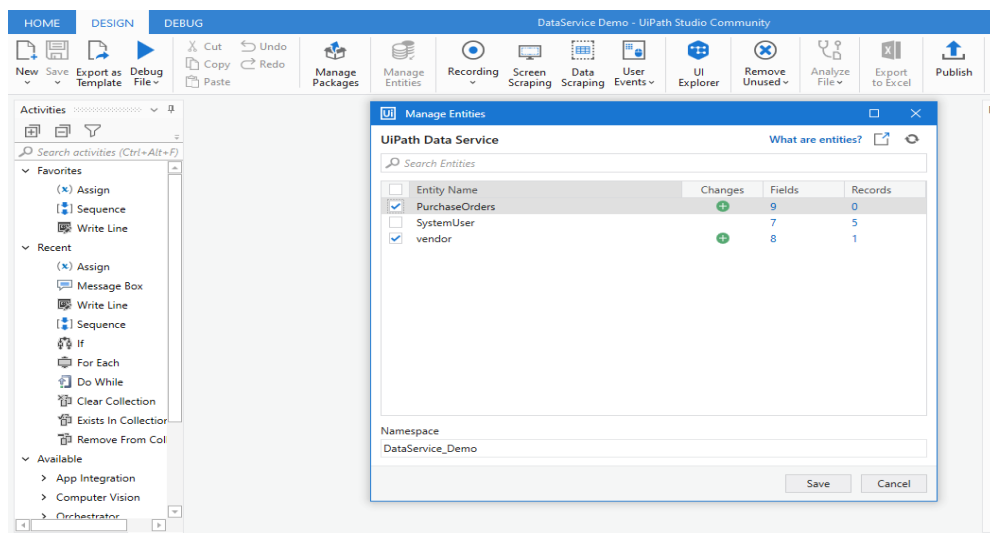
1. Click on the entity for which you want to add more data.
2. Access the **Data** tab.
3. Click **Add New Data**.
4. In the **Add Data** panel add a value for each field that you have defined for the entity.
5. Click **Save**.



Demo: Using the Created Data service in UiPath Studio Project

Click the **Manage Entities** ribbon button or drag an entity from the **Resources** panel and drop it on the **Project** panel. The **Manage Entities** window opens:

Select the Entity Name which you needed and then click on save.

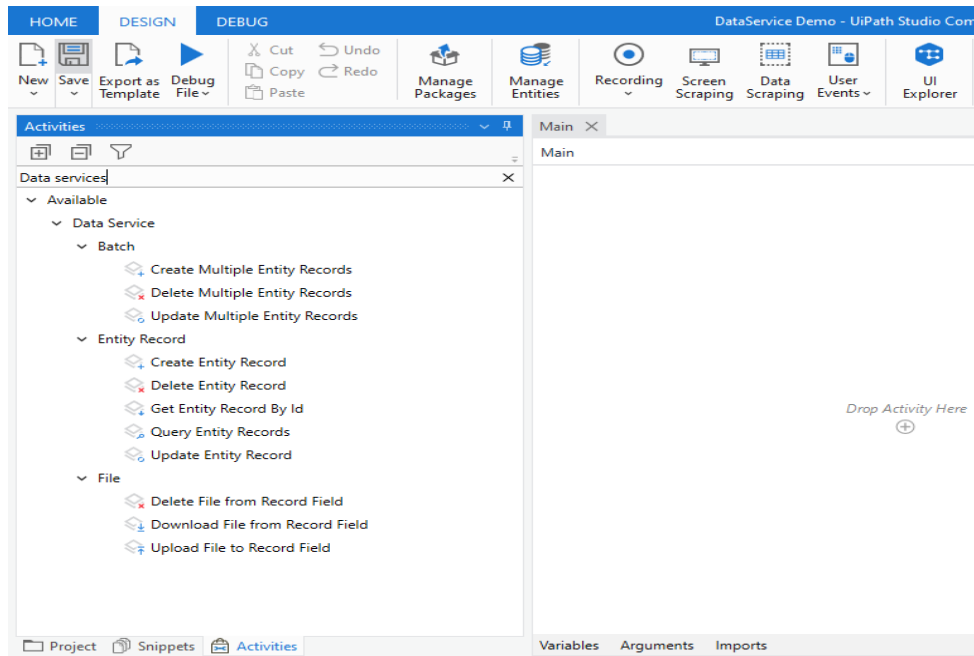


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Before using the Data service activities Install the Package from manage package>>

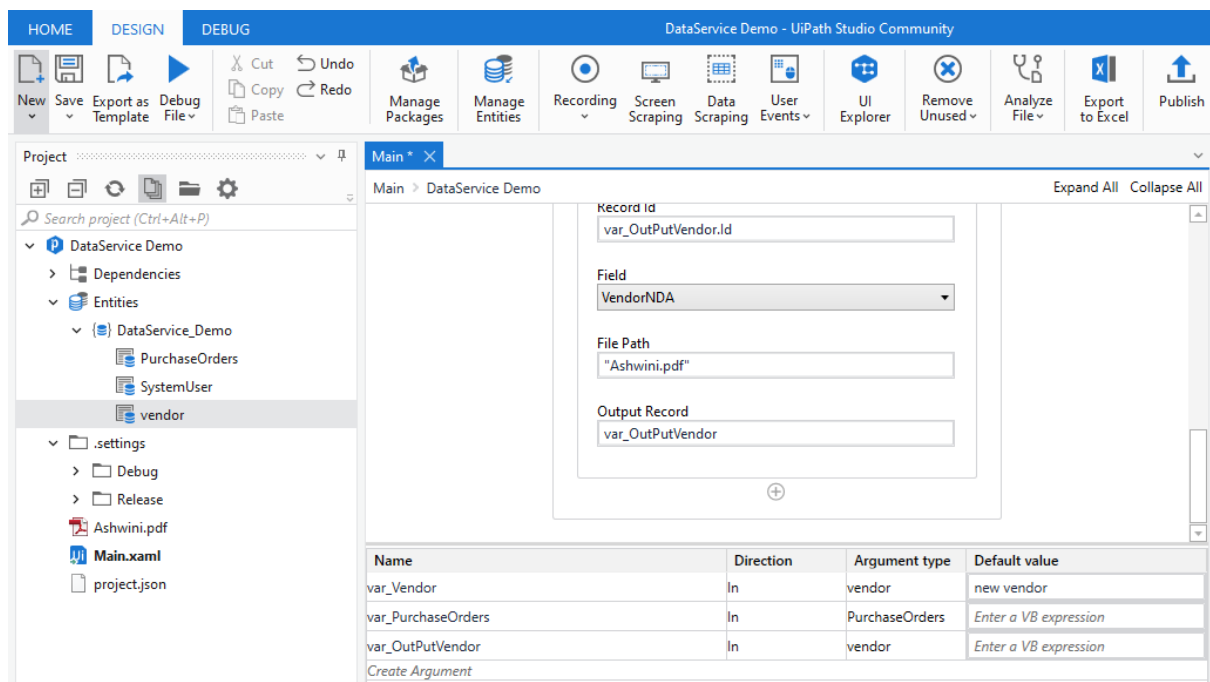
UiPath.DataService.Activities

Uipath Studio Data Service Activities :



Entities which you install will show you in studio in **Project panel** which is converted in to the dot net Entities .Entities will have their own data types.

Simply drag and drop the (vendor) entity in Arguments panel and it has become the argument that can be directly used.

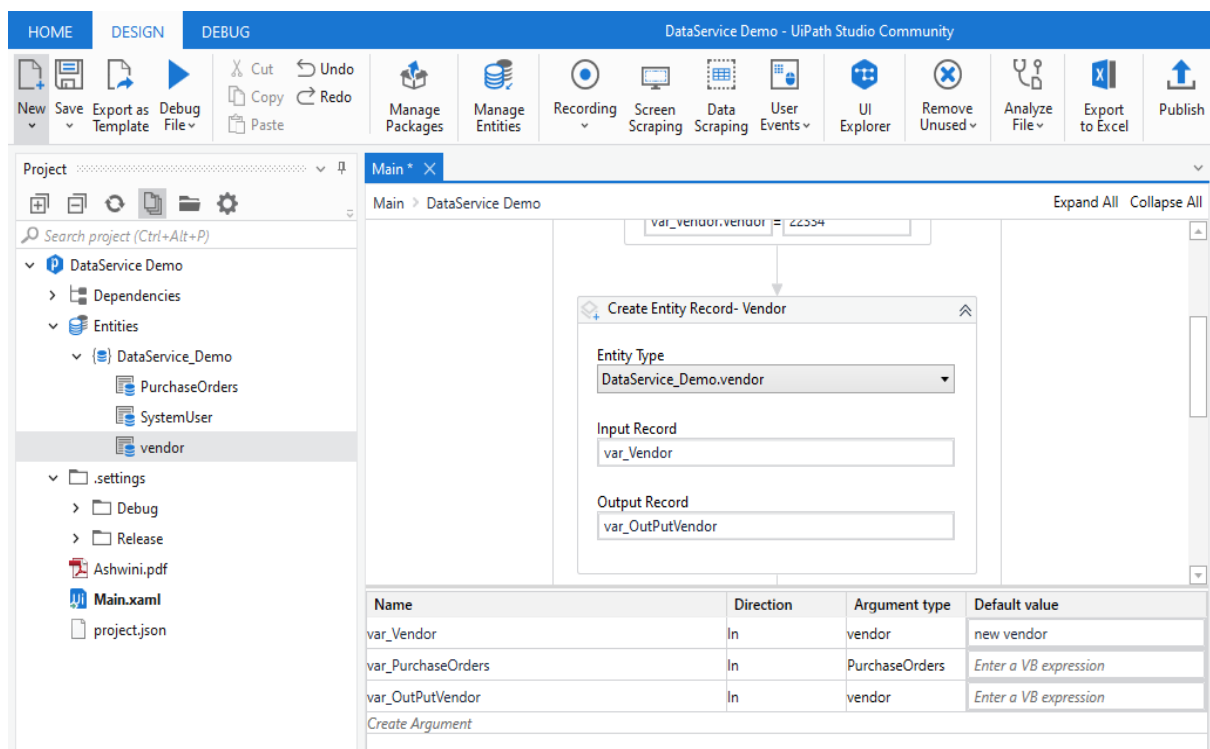


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Create Entity Record Activity –Single Record Created

Creates a new record for the selected Entity in UiPath Data Service.

- **Entity Type** - The Entity type you want to use with the activity. The property only supports types imported from Data Service. By default, UiPath.DataService.Definition.IEntity is selected.
- **Input Record** - The record that is to be created for the selected Entity type. Must be of the same type as the selected Entity Type.
- **Output Record** - The record created from the Data Service, stored in an Entity type object. This field only supports objects of types imported from Data Service and must be of the same type as the selected Entity Type.



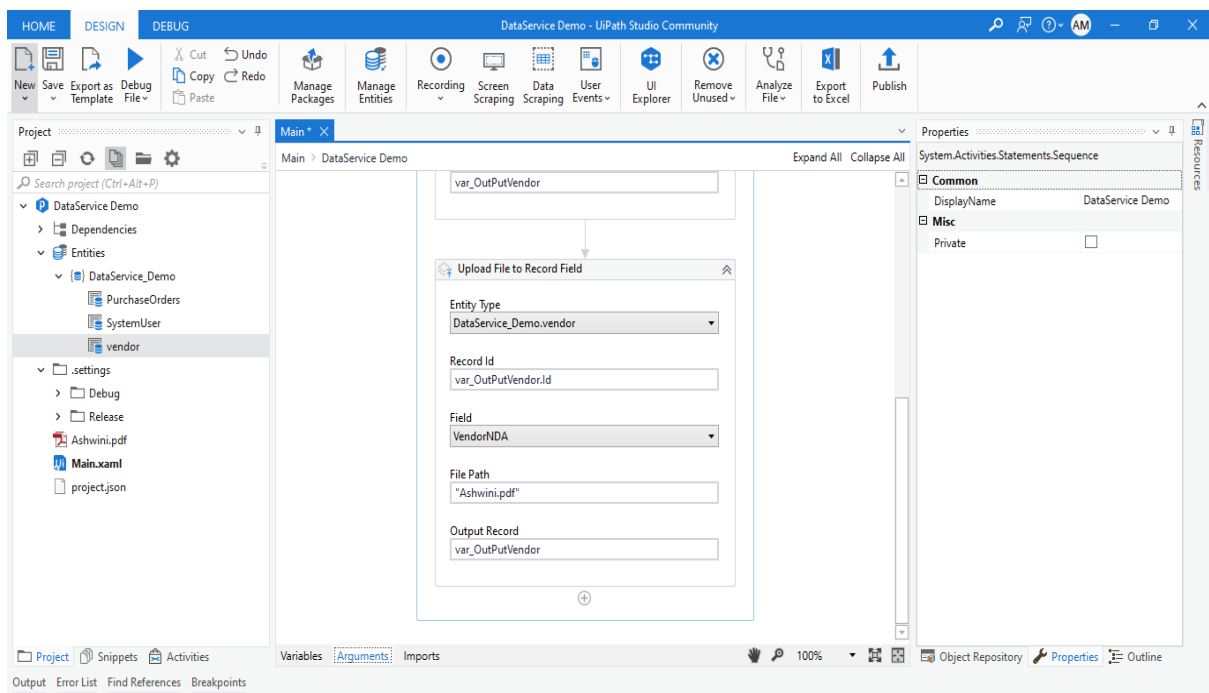
Upload File to Record Field Activity

Uploads a file to a specified field of an entity record.

- **Entity Type** - The Entity type you want to use with the activity. The property only supports types imported from Data Service. By default, UiPath.DataService.Definition.IEntity is selected.
- **Record Id** - Id for the record from Data Service for the selected Entity type to upload the file.

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- **Field** - The field where you want to upload the file for the specified record. This property only supports fields of type File from Data Service.
- **File Path** -The full local path to the file you want to upload. Relative paths are resolved based on the runtime execution directory. File size cannot exceed 10 MB.
- **Output Record** - The updated record from the Data Service, stored in an Entity type object. This field only supports objects of types imported from Data Service and must be of the same type as the selected Entity Type.



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1. Run the file.
2. Go and Then check the data in **Data service >>Entities >> Vendor >> Data**

The screenshot shows the UiPath Data Service web interface. The browser address bar displays the URL: `cloud.uipath.com/studenmoukbq/DefaultTenant/dataservice_/entities/56afb663-55ec-eb11-b563-000d3a229707`. The page title is "UiPath Data Service". The left sidebar contains navigation links: Home, Orchestrator, Actions, Apps, Processes, Data Service (highlighted), and Admin. The main content area shows the breadcrumb "Entities > vendor" and two buttons: "Create New Field" and "Add data". Below this, there are tabs for "Fields" and "Data" (selected). A search bar and a "Refresh" button are present. A table lists data entries with columns: Id, Vendor Code, Vendor Name, Vendor NDA, Created By, Create Time, Updated By, and Update Time. Two entries are visible, each with a checkbox in the Id column and an "Upload" button in the Vendor NDA column.

<input type="checkbox"/> Id	Vendor Code	Vendor Name	Vendor NDA	Created By	Create Time	Updated By	Update Time
<input type="checkbox"/> DFF7CB0C-67EC-EB11-B563-28187832A548	1001	Vendor one	Upload	ash mogal	24/07/2021, 15:38:11	ash mogal	24/07/2021, 15:38:11
<input type="checkbox"/> 2F7FC193-71EC-EB11-B563-28187832A548	223	vendor_Ashwini	Ashwini.pdf	ash mogal	24/07/2021, 16:53:32	ash mogal	24/07/2021, 16:53:34

At the bottom right, there is a "Show" dropdown set to "20" and a pagination indicator "1 - 2 of 2" with navigation arrows.

That's how we can deal the different kinds of entities using the Data Service Feature and UiPath Studio

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