Microsoft Learn

Microsoft DataVerse:

Microsoft Dataverse is a cloud-based, low-code data service and app platform, which allows you to leverage the security and connectivity of Microsoft services. Dataverse connects easily to all aspects of Microsoft Power Platform so that you can fully control, automate, and strengthen your business. With standard tables and columns, as well as the ability to easily define relationships between your data, Dataverse was built for powerful, scalable solutions.

Microsoft Dataverse offers a great deal of functionality. Below is a brief explanation of each category of features.

**Security**: Dataverse handles authentication with Azure Active Directory (Azure AD) to allow for conditional access and multi-factor authentication. It supports authorization down to the row and column level and provides rich auditing capabilities.

**Logic**: Dataverse allows you to easily apply business logic at the data level. Regardless of how a user is interacting with the data, the same rules apply. These rules could be related to duplicate detection, business rules, workflows, or more.

**Data**: Dataverse offers you the control to shape your data, allowing you to discover, model, validate, and report on your data. This control ensures your data looks the way you want regardless of how it is used.

**Storage**: Dataverse stores your physical data in the Azure cloud. This cloud-based storage removes the burden of worrying about where your data lives or how it scales. These concerns are all handled for you.

**Integration**: Dataverse connects in different ways to support your business needs. APIs, webhooks, eventing, and data exports give you flexibility to get data in and out.

The standard table design in a Microsoft Dataverse database is based upon an open data model standard called **Common Data Model**. Common Data Model is a logical design that includes a set of open-sourced, standardized, extensible data tables and relationships that Microsoft and its partners have published in an industry-wide initiative called the Open Data Initiative. This collection of predefined tables, columns, semantic metadata, and relationships form the basis of the Common Data Model.

As you can see, Microsoft Dataverse is a very powerful cloud-based solution for storing and working with your business data. In the following sections, you will look at Microsoft Dataverse from the lens of data storage for Microsoft Power Platform, where you will start your journey. Keep in mind the additional rich capabilities discussed above which you can explore further as your usage increases

Identify tables and columns in Dataverse:

The two types of tables are:

* **Standard** - The base set of tables that are created for every instance of a Microsoft Dataverse database. You can add more columns to any table, but you can only delete columns from a custom table.
* **Complex** - Tables that contain complex, server-side business logic, including real-time workflows or plug-ins. Some of the tables that are used in Dynamics 365 applications are complex. Care must be taken if you add server-side logic to ensure that users have the proper license to use the complex table. Additional information about complex tables can be accessed by following the link within the summary unit of this module
* **Columns**
* Columns are a way to store a discrete piece of information within a row in a table. You might think of them as a column in Excel. Columns have data types, meaning that you can store data of a certain type in a column that matches that data type. For example, if you have a solution that requires dates, then you would store the date in a column with the type of Date. Similarly, if you want to store a number, then you store the number in a column with the type of Number

Every database in Microsoft Dataverse starts with a standard set of tables and each standard table has a standard set of columns.

Tables that relate to one another have a relational connection. Relationships between tables exist in many forms, but the two most common are one-to-many and many-to-many, both of which are supported by Microsoft Dataverse.

One-to-many relationships are also known as parent-child relationships. In the previous invoice example, the invoice table would be the parent and the line items would be a child table. An invoice can have zero, one, or many line items (child rows), but the line item will always be related to just one invoice (parent row). Typically, the child rows will not exist without a parent row.

# Environments in Dataverse

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Environments are used to store, manage, and share your organization's business data, apps, and flows in Microsoft Power Platform. Each environment allows you to provision one Microsoft Dataverse database for use within that environment. Microsoft Dataverse environments allow you to manage user access, security settings, and the storage that is associated with that database.

Each environment is created under a Microsoft Azure Active Directory (Azure AD) tenant, and its resources can only be accessed by users within that tenant. An environment is also bound to a geographic location, like the United States. When you create a Microsoft Dataverse database in an environment, that database is created within datacenters in that geographic location. Any items that you create in that environment (including connections, gateways, flows that are using Power Automate, and more) are also bound to their environment's location. 

You can create more than one environment to manage solution development and data storage by setting up one environment for development, another for testing, and another for production use. Also, you can set up an environment based on a geographical location. For example, you might set up an environment for Europe and another for Asia. Each of these environments will have zero or only one instance of Microsoft Dataverse.

# Business rules

In Microsoft Dataverse you can define business rules. Business rules allow you to apply and maintain business logic at the data layer instead of the app layer. Put more simply, if you create business rules in Microsoft Dataverse, they are in effect regardless of where you interact with the data

**Tip**

Business rules are usually defined for a table and apply to all forms, but you can define a business rule for a specific model-driven form. Canvas apps cannot have a business rule applied to a specific form, but they are still enforced when interacting with the data.

Business rules give you a powerful way to enforce rules, set values, or validate data regardless of the form that is used to input data. Additionally, business rules are effective in helping to increase the accuracy of data, simplify application development, and streamline the forms presented to end users.

The following business rule actions can be used by canvas and model-driven apps:

* Set column values
* Clear column values
* Validate data and show error messages

Model-driven apps can also use business rules to:

* Show or hide columns (model-driven apps only)
* Enable or disable columns (model-driven apps only)
* Create business recommendations based on business intelligence (model-driven apps only)

### **Microsoft Power Platform admin center**

Most of the administration settings that you will need are available in the Microsoft Power Platform admin center. You should always check for administration settings as your first step when looking to administer Microsoft Dataverse.

Settings are grouped into the following broad categories and are accessible by selecting the link on the left-hand side of the portal, as shown in the following figure.

* **Environments** - This section lists all instances of Microsoft Dataverse.
* **Data policies** - This section lets you set up policies to restrict which data connectors can be used with Microsoft Dataverse to limit what data can flow into or out of Microsoft Dataverse tables.
* **Data integration** - This section lets you create or add pre-defined connections and monitor these connections between Microsoft Dataverse and other data stores like Salesforce or SQL Server.
* **Tenant** - This section lets you monitor licenses and quotas.

# Summary and resources

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* 3 minutes

Microsoft Dataverse is a cloud-based data storage which allows you to leverage the security and connectivity of Microsoft programs. Microsoft Dataverse connects easily to all aspects of Microsoft Power Platform so that you can fully control, automate, and strengthen your business. With standard tables and columns, as well as the ability to easily define relationships between your data, Microsoft Dataverse was built for those who need powerful, scalable solutions.

Now that you have reviewed this module, you should be able to:

* Describe Microsoft Dataverse
* Describe the Common Data Model
* Identify tables, columns, and relationships
* Create environments
* Define business rules

| **TABLE 1** |
| --- |
|  |  |
| Icon of lightbulb | Here are the three key takeaways: |
|  | 1. Microsoft Dataverse uses standard tables, columns, and relationships to help you build powerful, scalable data solutions. |
|  | 2. Make your data work for you so that you can get the most of it by splitting it up into logical chunks. |
|  | 3. Using Dataverse, you can break your data into various environments to better manage and secure important information. |

## Resources

Use these resources to discover more.

**Tip**

To open a resource link, right-click and select "Open in a new tab or window". That way, you can check out the resource and easily return to the module tab to unlock your achievement when done.

### Microsoft Dataverse

* [Introduction to Microsoft Dataverse](https://docs.microsoft.com/en-us/learn/modules/intro-common-data-service/)
* [Microsoft Dataverse Documentation](https://docs.microsoft.com/en-us/powerapps/maker/common-data-service/data-platform-intro)
* [Common Data Model](https://docs.microsoft.com/en-us/business-applications-release-notes/april19/cdm-data-integration/common-data-model-cdm)
* [Licensing](https://download.microsoft.com/download/9/5/6/9568EFD0-403D-4AE4-95F0-7FACA2CCB2E4/Power%20Apps%20and%20Power%20Automate%20Licensing%20Guide%20-%20Nov%202019.pdf)

### Tables, columns, and relationships

* [Create and Manage Tables in Microsoft Dataverse](https://docs.microsoft.com/en-us/learn/modules/create-manage-entities/)
* [Complex tables](https://docs.microsoft.com/en-us/powerapps/maker/common-data-service/data-platform-complex-entities)
* [Restricted tables requiring Dynamics 365 licenses](https://docs.microsoft.com/en-us/powerapps/maker/common-data-service/data-platform-restricted-entities)
* [Create and manage columns within a table in Microsoft Dataverse](https://docs.microsoft.com/en-us/learn/modules/create-manage-fields-within-entity/)
* [Create a relationship between tables in Microsoft Dataverse](https://docs.microsoft.com/en-us/learn/modules/create-relationship-between-cds-entities/)

### Relationships and business rules

* [Create and manage environments in Microsoft Dataverse](https://docs.microsoft.com/en-us/learn/modules/create-manage-environments/1-intro)
* [Define and create business rules in Microsoft Dataverse](https://docs.microsoft.com/en-us/learn/modules/define-create-business-rules/)