



**ArcGIS®**

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# ArcGIS Maps for Microsoft Fabric Quick Start Guide

Essential tasks and best practices for using ArcGIS Maps  
for Microsoft Fabric



# Task checklist

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2. <a href="#">Requirements</a>	<input type="checkbox"/>
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4. <a href="#">Explore mapping styles available in ArcGIS Maps for Fabric</a>	<input type="checkbox"/>
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# 1. Introduction to ArcGIS Maps for Microsoft Fabric

ArcGIS Maps for Microsoft Fabric allows you to visualize spatial data by creating interactive, multiscale maps within the Microsoft Fabric environment. With ArcGIS Maps for Fabric, you can do the following:

- Harness insights from a variety of data unified in the Microsoft Fabric environment.
- Analyze trends with contextual layers such as demographics and imagery.
- Support organizational decision-making through interactive mapping.
- Facilitate real-time stakeholder collaboration.
- Integrate spatial intelligence into existing business workflows.

This guide provides an overview of the key terminology, requirements, and how to get started in ArcGIS Maps for Fabric.

## Terminology

### ArcGIS for Microsoft Fabric

This is an umbrella term for a suite of products that bring Esri's analysis and mapping capabilities to the Microsoft Fabric environment, providing location intelligence, visualization, and spatial analytics within the unified data and analytics environment provided by Fabric. These products include the following:

- ArcGIS for Power BI
- ArcGIS GeoAnalytics for Microsoft Fabric
- ArcGIS Maps for Fabric

Learn more about [ArcGIS for Microsoft Fabric](#).

### ArcGIS GeoAnalytics for Microsoft Fabric

An Apache Spark library providing spatial analytics inside the data science and data engineering workloads in Microsoft Fabric. The library allows users to apply spatial functions and tools to data in OneLake and then use the results in other Fabric workloads, Microsoft 365 apps, and ArcGIS.

## ArcGIS Maps for Microsoft Fabric

An interactive mapping and spatial data exploration workload within Microsoft Fabric. ArcGIS Maps for Fabric allows users to visualize data within the Microsoft Fabric environment using interactive maps to support spatially informed decisions.

Find the workload in [Microsoft Fabric's workload hub](#).

## ArcGIS for Power BI

A custom data visualization in Microsoft Power BI. This visualization allows users to add maps to their dashboards and reports in order to view the spatial distribution of their data while also understanding the relationships between relevant variables in the other graphical visualizations available in Power BI.

## Comma-separated values (CSV)

A type of delimited text file that uses commas or other characters to separate fields. CSV data can contain spatial data as numbers (for example, longitude and latitude).

## Data lake

A centralized data repository containing a variety of data. OneLake is the data lake for Microsoft Fabric. An organization's data lake contains the workspaces and lakehouses where ArcGIS Maps for Fabric accesses data layers.

## GeoJSON

An open standard geospatial data interchange format that represents simple geographic features and their nonspatial attributes. Based on JavaScript Object Notation (JSON), GeoJSON is a format for encoding a variety of geographic data structures. It uses a geographic coordinate reference system, World Geodetic System 1984, and units of decimal degrees. To learn more about GeoJSON, see the [GeoJSON specification](#).

## Lakehouse

A flexible data architecture platform for storing, managing, and analyzing structured and unstructured data in a single location. In Fabric, multiple lakehouses can connect to OneLake, each connecting a variety of data types from different sources using

unique data architecture rules and management tools that are customized to specific analysis workflows. ArcGIS Maps for Fabric reads data layers from lakehouses in Microsoft Fabric.

## Microsoft Fabric

A cloud-based analytics and data platform designed to unify an organization's many sources of data into one environment.

## OneLake

The proprietary data lake for Microsoft Fabric, unifying all organizational data in a single data storage architecture. OneLake includes multiple lakehouses. Workloads integrate with OneLake to read and store data on the platform so that other services can access it.

## Parquet

[Apache Parquet](#) is a standardized open-source columnar storage format. Parquet is highly structured, meaning it stores the schema and data type of each column with the data files. [GeoParquet](#) extends the Parquet format by defining how geospatial data should be stored, including the representation of geometries and the required additional metadata. GeoParquet's structure enables interoperability between any system that reads or writes spatial data in Parquet format.

## Workload

Specialized applications that can be used to manage and analyze data in the Microsoft Fabric environment. Workloads can add capacity to Fabric by extending your ability to manage, analyze, and visualize your data. ArcGIS Maps for Fabric is an example of a workload in Microsoft Fabric.

## 2. Requirements

Access to Microsoft Fabric is required to use ArcGIS Maps for Fabric. Microsoft Fabric is a cloud-based platform, and it can be accessed using a web browser. To start using this workload, a tenant administrator may need to enable ArcGIS Maps for Fabric at the tenant level from the **Admin portal**. The **Admin portal** can be accessed from the **Settings** pane. Enable the ArcGIS Maps for Microsoft Fabric preview experience by clicking the toggle switch under **Tenant settings**. Additionally, your workspace capacity must be sufficient to save items from the workload.

You need the following API permissions to enable the workload:

### Azure Storage:

- user\_impersonation

### Microsoft Graph:

- offline\_access
- openid
- profile

### Power BI Service:

- Fabric.Extend
- Fabric.Extend.IframeSandbox
- Item.ReadWrite.All
- Workspace.Read.All

## Licensing and authentication

ArcGIS Maps for Fabric is available for public preview within Microsoft Fabric. General availability licensing information is not yet available for ArcGIS Maps for Fabric.

Fabric workloads must use Microsoft Entra authentication and authorization. To begin using ArcGIS Maps for Fabric, no additional authentication mechanisms are needed. While an ArcGIS account is not required, you can extend your ArcGIS Maps for Fabric experience by signing in to ArcGIS. Users who sign in to their ArcGIS account gain access to additional authoritative data managed in Esri's ArcGIS Online environment.

Learn more

For more information about how to set up Microsoft Fabric, check out the links below:

- [Understand Microsoft Fabric licenses](#)

- [Supported browsers for Power BI and Fabric](#)
- [Get started with Microsoft Fabric](#)

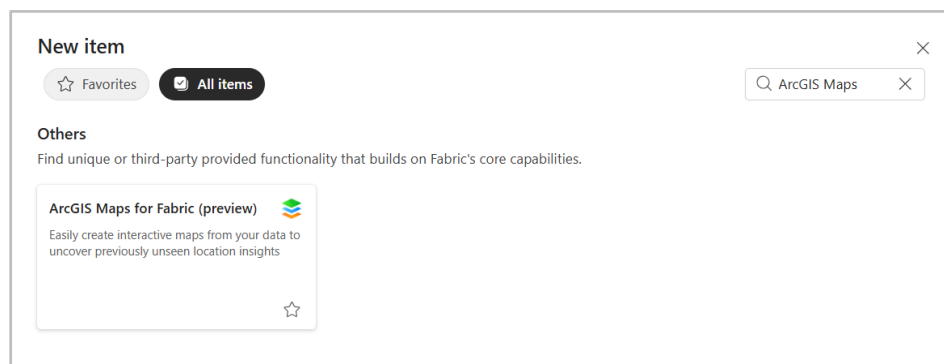
# 3. Make your first map in ArcGIS Maps for Microsoft Fabric

## Open ArcGIS Maps for Fabric

### Create a map

To access ArcGIS Maps for Fabric from your workspace, complete the following steps:

1. Sign in to Fabric with your Microsoft login.
2. From the **Home** page, select **Workspaces** from Fabric’s navigation bar. Click the workspace you want to work in.
3. Click the **+ New item** button.
4. Search for **ArcGIS Maps for Fabric** in the **Filter by item type** search box.

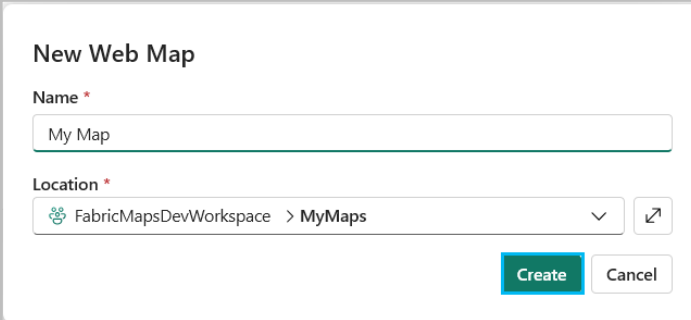


*Access the ArcGIS Maps for Microsoft Fabric workload from your workspace in Fabric.*

5. Click **ArcGIS Maps for Fabric (preview)**. The **New ArcGIS Web Map** window appears.

Note: You can add ArcGIS Maps for Fabric (preview) to your **Favorites** list by selecting the star on the workload button.

6. To create the map file, choose a new **Name** for your map and select a **Location** to save your web map.



The screenshot shows a dialog box titled "New Web Map". It has two main sections: "Name" and "Location". The "Name" section has a text input field with "My Map" entered. The "Location" section has a dropdown menu showing "FabricMapsDevWorkspace > MyMaps" and a small icon to the right. At the bottom right of the dialog are two buttons: "Create" (highlighted in green) and "Cancel".

*Create a name for your new web map.*

7. Click **Create**.

Note: You can also find ArcGIS Maps for Fabric in the **Workloads** hub.

## Open a saved map

To open a map you saved in an earlier session, browse to the web map location in your workspace. Select the saved map file to open it in ArcGIS Maps for Fabric.

## Upload and add data from your lakehouse

You can add your organization's data from your lakehouse to ArcGIS Maps for Fabric. If you don't have your own data, access fictional sample data from our [data repository](#).

## Add data to your lakehouse

You can add data to ArcGIS Maps for Fabric from an existing lakehouse, or you can upload data from your computer to a new lakehouse. To add local data to a lakehouse, complete the following steps:

1. Sign in to Microsoft Fabric using your Entra credentials.
2. Click **Workspaces** on Fabric's navigation bar. Choose the workspace where your lakehouse is located.
3. Select your lakehouse. Open the **Lakehouse Explorer**.
4. Click **Get data** on your lakehouse navigation bar and choose **Upload files** from the drop-down menu.
5. Browse to your local data.

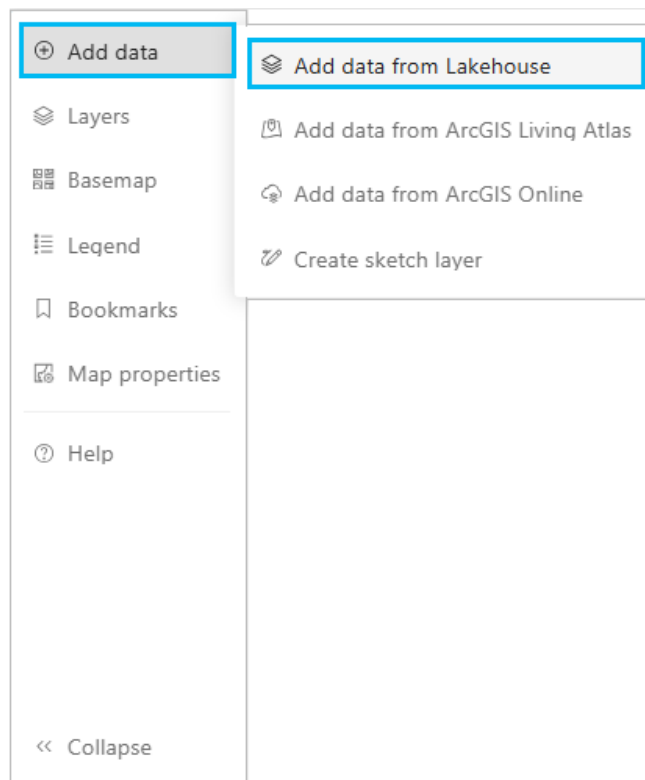
6. Click **Upload**.

## Add data from your lakehouse to your map

ArcGIS Maps for Fabric can accept GeoJSON, Parquet, and CSV data formats. Parquet data must be geographically enabled by including spatial variables to interpret feature geometry such as latitude and longitude. If you add a CSV layer to your map, you will be prompted to assign location fields for **Latitude** and **Longitude** values.

To add data from Microsoft Fabric, connect to your lakehouse in ArcGIS Maps for Fabric:

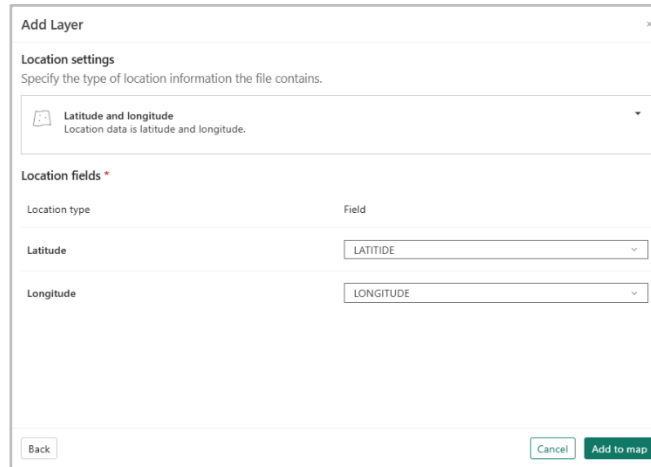
1. Within ArcGIS Maps for Fabric, click **+ Add data** on the **Contents** toolbar. A drop-down list of options appears.
2. From the **+ Add data** drop-down list, select **Add data from Lakehouse**. Your **OneLake catalog** opens prompting you to choose an option for the **Select a Lakehouse** parameter.



Select **Add data from Lakehouse** from the **Contents** toolbar.

- Expand the **Explorer** menu to see a list of workspaces and move between them.
- Choose the lakehouse you want to add your data from. Click **Add**.
- Once you connect to your lakehouse, the **Current lakehouse** file explorer will open. Choose the layers you want to add to your map. Click **Add to map**.

Note: If you are adding a CSV file you will be prompted to identify the location fields in the **Add Layer** window.



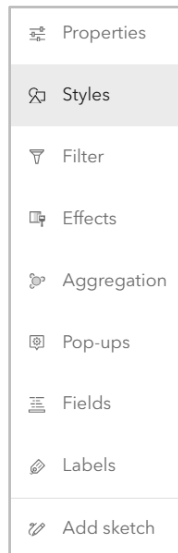
The screenshot shows a dialog box titled "Add Layer". Under "Location settings", it says "Specify the type of location information the file contains." and "Latitude and longitude" is selected. Below that, "Location fields" is expanded to show two rows: "Latitude" with a dropdown menu containing "LATITUDE", and "Longitude" with a dropdown menu containing "LONGITUDE". At the bottom, there are three buttons: "Back", "Cancel", and "Add to map".

Identify **Longitude** and **Latitude** fields in the **Add Layer** window when adding data from a CSV file.

- Click **Add to map**.  
The dataset appears on your map, and the map zooms to the dataset's extent.

Note: You can also add data in the **Layers** pane on the **Contents** toolbar.

Layers you add from your lakehouse can be configured using options in the **Properties**, **Styles**, **Filter**, **Effects**, **Aggregation**, **Pop-ups**, **Fields**, and **Labels** panes on the **Settings** toolbar.



The **Settings** toolbar.

## Add content from ArcGIS Online

All ArcGIS Maps for Fabric users have access to a selection of [ArcGIS Living Atlas of the World](#) layers and several basemaps with or without an ArcGIS Online account. However, users who sign in with their ArcGIS Online credentials will extend their experience with additional ArcGIS Living Atlas layers and basemaps, as well as content from their ArcGIS Online account. Signing in to ArcGIS Online provides you with the following:

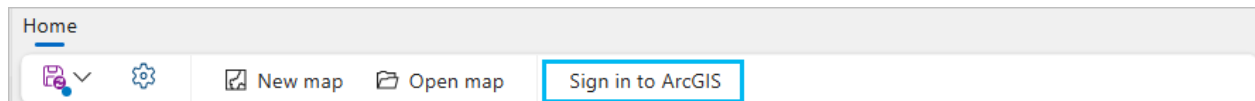
- Additional basemaps
- Additional ArcGIS Living Atlas layers
- Content from your ArcGIS Online account

Feature layers that you've added from your ArcGIS Online content can be configured using options in the **Properties**, **Styles**, **Filter**, **Effects**, **Aggregation**, **Pop-ups**, **Fields**, and **Labels** panes on the **Settings** toolbar. Limited configuration options are available for other content added from ArcGIS Online.

## Sign in to ArcGIS Online

To sign in to your ArcGIS Online account from ArcGIS Maps for Fabric, follow these steps:

1. Within ArcGIS Maps for Fabric, click **Sign in to ArcGIS** on the ribbon. A new browser window appears with the sign-in page for ArcGIS Online.



*Sign in to ArcGIS.*

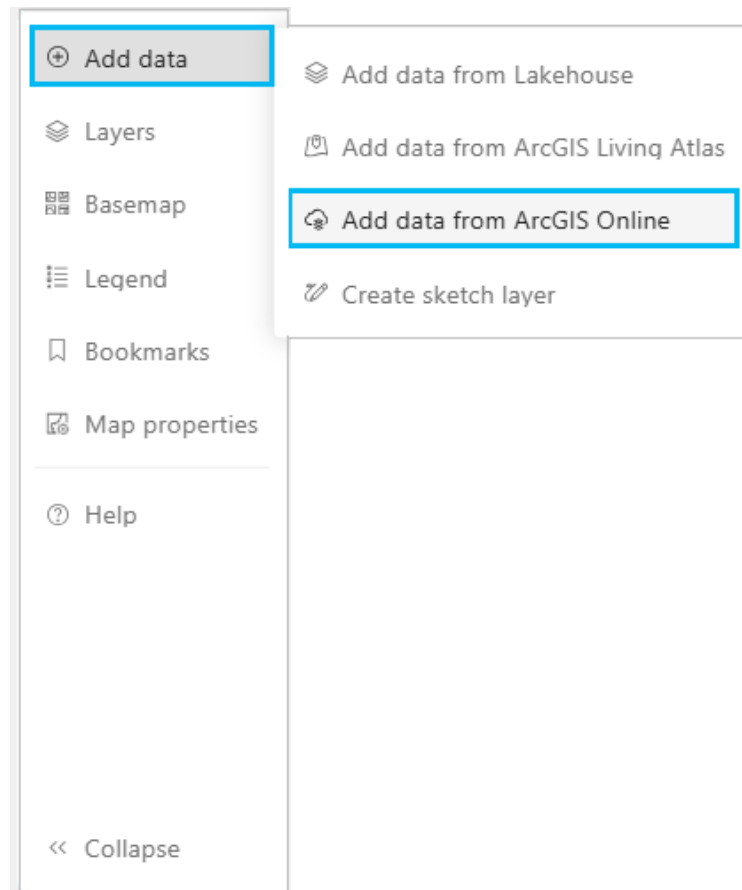
2. Enter the credentials for your ArcGIS Online account. Check the box next to **Keep me signed in** if you want to stay signed in.
3. Click **Sign In**.

## Browse and add content from your ArcGIS Online account

You can add data from your ArcGIS Online account on the **Contents** toolbar in ArcGIS Maps for Fabric.

1. Sign in to your ArcGIS Online account from ArcGIS Maps for Fabric as directed above.
2. Within ArcGIS Maps for Fabric, click **+ Add data** on the **Contents** toolbar. A drop-down list of options appears.

3. From the **+ Add data** drop-down list, select **Add data from ArcGIS Online**. This option will not appear if you're not signed in to ArcGIS Online.



Select **Add data from ArcGIS Online** from the **Contents** toolbar.

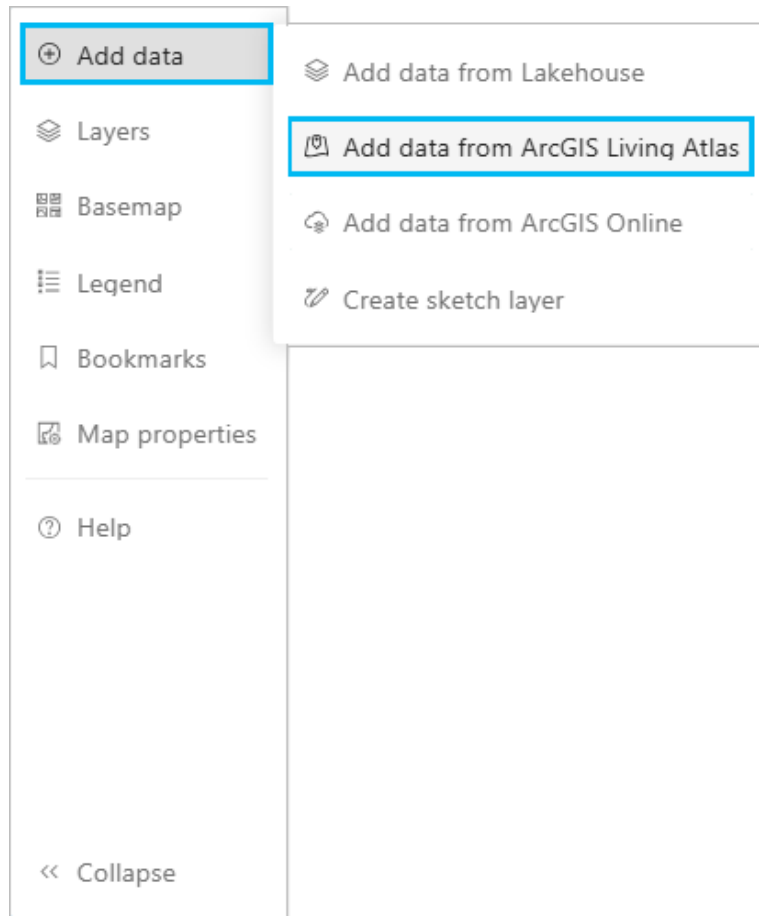
4. From the **My content** drop-down menu in the **Browse layers** pane, filter your content to find data to add to your map. You can add data from your personal content, favorites, groups, organization, or ArcGIS Online.
5. Once you find your data, you can view layer details by clicking the layer in the **Browse Layers** pane.
6. You can add the data to your map by clicking **Add to map** in the layer details window or by clicking **+ Add** in the **Browse Layers** pane.

Note: You can also add data from the **Layers** pane on the **Contents** toolbar.

## Add ArcGIS Living Atlas layers

You can add data from ArcGIS Living Atlas from the **Contents** toolbar in ArcGIS Maps for Fabric.

1. Optionally, to access additional ArcGIS Living Atlas layers, sign in to your ArcGIS Online account from ArcGIS Maps for Fabric as directed above.
2. Within ArcGIS Maps for Fabric, click **+ Add data** on the **Contents** toolbar. A drop-down list of options appears.
3. From the **+ Add data** drop-down menu, select **Add data from ArcGIS Living Atlas**.



Select **Add data from ArcGIS Living Atlas** from the **Contents** toolbar.

4. In the **ArcGIS Living Atlas** pane, search or browse the available layers to find data to add to your map.
5. Once you find your data, you can view layer details by clicking the layer in the **ArcGIS Living Atlas** pane.
6. You can add the data to your map by clicking **Add to map** in the layer details window or by clicking **+ Add** in the **ArcGIS Living Atlas** pane.

Note: You can also add data from the **Layers** pane on the **Contents** toolbar.

# Save your map

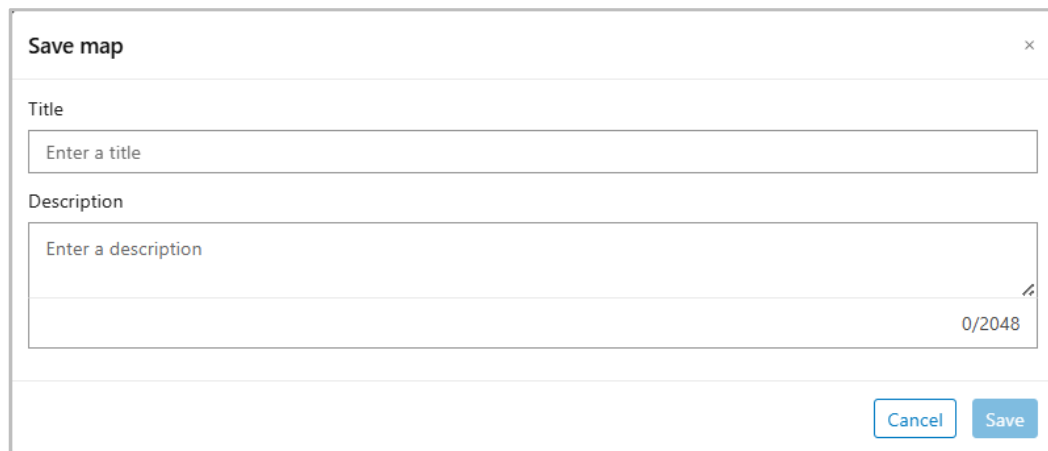
To save changes to your map, complete the following steps:

1. On the ribbon, click the **Save** button and choose either **Save** or **Save as**.
  - a. Click **Save** to save your changes to your current web map.
  - b. Click **Save as** to open the **Save map** window and save your web map with a new name.



*Click **Save** on the ribbon.*

2. If you have not saved your map yet, select **Save as** on the ribbon to open the **Save map** window.
3. Choose a **Title** for your map and, optionally, craft a short **Description**.
4. Click **Save**.

A screenshot of the 'Save map' dialog box. The dialog has a title bar with 'Save map' and a close button (X). Below the title bar, there are two text input fields. The first is labeled 'Title' and contains the placeholder text 'Enter a title'. The second is labeled 'Description' and contains the placeholder text 'Enter a description'. To the right of the description field, there is a character count '0/2048'. At the bottom right of the dialog, there are two buttons: 'Cancel' and 'Save'.

*Save your map with a **Title** and **Description**.*

Your map will be saved in the workspace or folder you were in when you opened your ArcGIS Maps for Fabric item.

If you want to open a saved map in ArcGIS Maps for Fabric, browse to the map file location in your workspace. Click the saved map file to open it.

Note: You can also open a saved map from within the ArcGIS Maps for Fabric interface by clicking the **Open map** button on the ribbon.

## 4. Explore mapping styles available in ArcGIS Maps for Fabric

ArcGIS Maps for Fabric provides a wide range of mapping techniques and options to help you create customized maps while following best practices for mapping data in different formats.

When you select a layer and attribute field to map, ArcGIS Maps for Fabric suggests data-driven styles and provides default settings that match the data type and the specific nature of that variable. You can add multiple layers to maps and manage their groupings and display order in the **Layers** pane. From there, you can also turn layers on and off, apply symbology styles, and adjust layer blending and effects. It is recommended that you limit the number of layers on a map to three or fewer to ensure that your map is easily interpretable.

Here is an overview of some of the mapping styles available in ArcGIS Maps for Fabric.

### Supported mapping styles (selected)

ArcGIS Maps for Fabric allows you to customize the appearance of your map through a variety of smart mapping styles. The available style options logically apply to the data in your map based on the type of layer (points, lines, polygons), and whether data are categorical or numeric. For example, mapping styles that apply to polygon layers may not be available to point layers. You can experiment with color ramps, line weights, transparency, symbols, and other graphic elements, and see your choices reflected immediately on the map. Some of the available mapping styles are described below.

#### Heat map

You can use heat maps when mapping the location of point features. Heat maps are useful when displaying a layer with many points or where points on the map are close together or overlapping, making it difficult to distinguish between features.

Heat maps use the points in the layer to calculate and display the relative density of points on the map as smoothly varying sets of colors. To weight the heat map, you can select an attribute containing numeric data in the heat map options pane. Strings

and other non-numeric data are not weighted. Avoid heat maps if you have only a few point features; instead, map the actual points.

See an example of [styling using a heat map](#).

For recommendations on applying heat maps to high-density datasets, see [Best practices for visualizing high-density data](#).

Learn more about how to create a [heat map](#).

## Counts and amounts (color and size)

If you have numeric data, you can distinguish features using graduated colors to reflect a count or an amount. You can customize the map using different types of color ramps. You can also represent numeric data or ranked categories using an ordinal sequence of feature sizes. These proportional symbol maps use an intuitive logic in which larger symbols equate to larger numbers. You can adjust the size of the symbols to reveal spatial trends. Color ramps are better for displaying counts and amounts data showing normalized percentages or rates, while size gradients are better for representing unbounded continuous data representing a specific unit of measure.

See an [example of styling counts and amounts using color](#).

See an [example of styling counts and amounts by size](#).

Learn more about how to [style numbers](#) and explore other [counts and amounts considerations](#).

## Unique symbols

Use unique symbols to show various types of discrete or categorical data, not continuous counts or numeric measurements. These include different colors or symbol types by category. You can also highlight specific categories so they stand out on your map.

See an example of [styling by type using unique symbols](#).

Learn more about [types \(unique symbols\)](#).

## Compare A to B

If you are trying to map the relationship between two attributes, you can use the Compare A to B style. This style allows you to map the ratio between two numbers and express that relationship as a percentage, simple ratio, or overall percentage.

See an [example of styling ratios](#).

Learn more about how to use the [Compare A to B](#) function.

## Dot Density

The Dot Density style can be used to represent the distribution of numeric attributes. When you apply this style to a layer, you select the quantity represented by each dot. For example, one dot represents 20 trees. You can customize the style by selecting a color ramp or modifying other settings. This style works well for layers with polygon features associated with counts or totals that share a common unit of measurement.

See an [example of dot density styling](#).

Learn more about using the [Dot Density](#) layer style.

## Additional options:

### Feature aggregation

Spatial aggregation is one method for visualizing high-density data. Aggregation allows you to summarize point features within designated areas by calculating the total number of points within each bounding area, as well as any specified statistics for the points within the bounding areas.

If you're mapping a large dataset with many points, you can aggregate your data to extract meaningful information. When you click **Enable aggregation** in the **Aggregation pane** on the **Settings** toolbar, ArcGIS Maps for Fabric groups point features that are within a certain distance of one another on the map into one symbol. Aggregation allows you to see patterns in the data that are difficult to visualize when there are many overlapping points.

There are two main choices to aggregate point features: **Clustering** and **Binning**. Clustering represents data with symbols that are proportionate in size to the number of point features in each cluster. Adjust the size range applied to the cluster symbols to create smaller or larger symbols and modify the cluster radius to adjust the number of point features grouped into clusters. Clustering is applied dynamically at multiple scales, which means that as you zoom out, more points are aggregated into fewer groups, and as you zoom in, more cluster groups are created.

If you've created a map using the **Types (unique symbols)**, **Types and Size**, or **Counts and Amounts (color)** styles, you will also see the **Clustering (chart) option**. This clustering method represents categorical data with charts showing the proportion of represented dots in each category. Adjust the **Shape** slider to change the chart appearance from pie to donut.

Binning displays the count of points using cells in a grid. This is the only method available to aggregate line and polygon features. You can modify the bin size and scale threshold to adjust the size of the cells in the grid and the number of features represented. Binning is also applied dynamically based on scale, resulting in more points aggregated into fewer bins as you zoom out, and fewer points aggregated into more bins as you zoom in.

For more information, as well as an overview of other methods, see [Best practices for visualizing high-density data](#).

Learn more about how to [aggregate points](#), see an [example of clustering](#), and learn more about how to [configure clustering](#).

## Blending

Layers displayed in ArcGIS Maps for Fabric draw in order, with the top layer covering layers below. Sometimes it is important to display more than one layer on a map. For example, you may want to understand how multiple variables interact or demonstrate more complex patterns and insights from the data. To display multiple layers as one, you can apply blend modes. Applying blend modes changes the style of layers in your map, but there is no change to the underlying data. Blend modes will be saved when you save your map.

See an [example of blend modes](#).

Learn more about how to [use blend modes](#).

See an [example of effects and blend modes](#) in a map.

## Effects

Effects allow you to add design elements to your map to emphasize a layer, feature, or label. These modifications create visual interest by adjusting the relative focus, color contrast, shadow, and depth of field between the elements of your map. Map effects include **Bloom**, **Drop shadow**, **Blur**, **Brightness & contrast**, **Grayscale**, **Hue rotate**, **Saturate**, **Invert**, and **Sepia**. You can adjust the appearance of the **Whole layer** or create **Feature-specific** effects by selecting a subset of your data. Applying effects changes the style of layers in your map, but there is no change to the underlying data. Effects will be saved when you save your map.

To learn more about using effects in Map Viewer, see the [Get Started with Map Viewer Effects](#) playlist.

## 5. Learn more

### Esri's support resources

This guide is part of a suite of support resources to get you started using ArcGIS Maps for Fabric. To engage with our community, access up-to-date information, or provide feedback on this product, see the information below:

- Access fictional sample data from our [data repository](#) to make your first map.
- Join the ArcGIS Maps for Fabric community on [Esri Community](#). Here, you can join discussions with other ArcGIS Maps for Fabric users and Esri staff, ask questions, or submit ideas for features you want to see in the future.
- For news and updates from the ArcGIS Maps for Fabric team, follow them in the [ArcGIS Blog](#).
- Request to join our [Early Adopter Community](#) or check out our early adopter community resources.
- View this product's [certification](#) document.
- Contact our team to provide [feedback](#).

### Esri's products and services

For more information about Esri's related product offerings, check out these other resources:

- Access more detailed documentation about workflows that are shared between ArcGIS Maps for Fabric and [Map Viewer](#) for ArcGIS Online. For example, learn how to [organize layers](#), [set transparency and visible range](#), or [apply filters](#).
- Learn more about Esri's partnerships with Microsoft:
  - [ArcGIS for Microsoft](#)
  - [ArcGIS for Microsoft Fabric](#)
  - [ArcGIS GeoAnalytics for Microsoft Fabric](#)
  - [ArcGIS for Power BI](#)
- Contact [Esri Technical Support](#) for technical issues or [Esri Sales](#) for licensing questions.