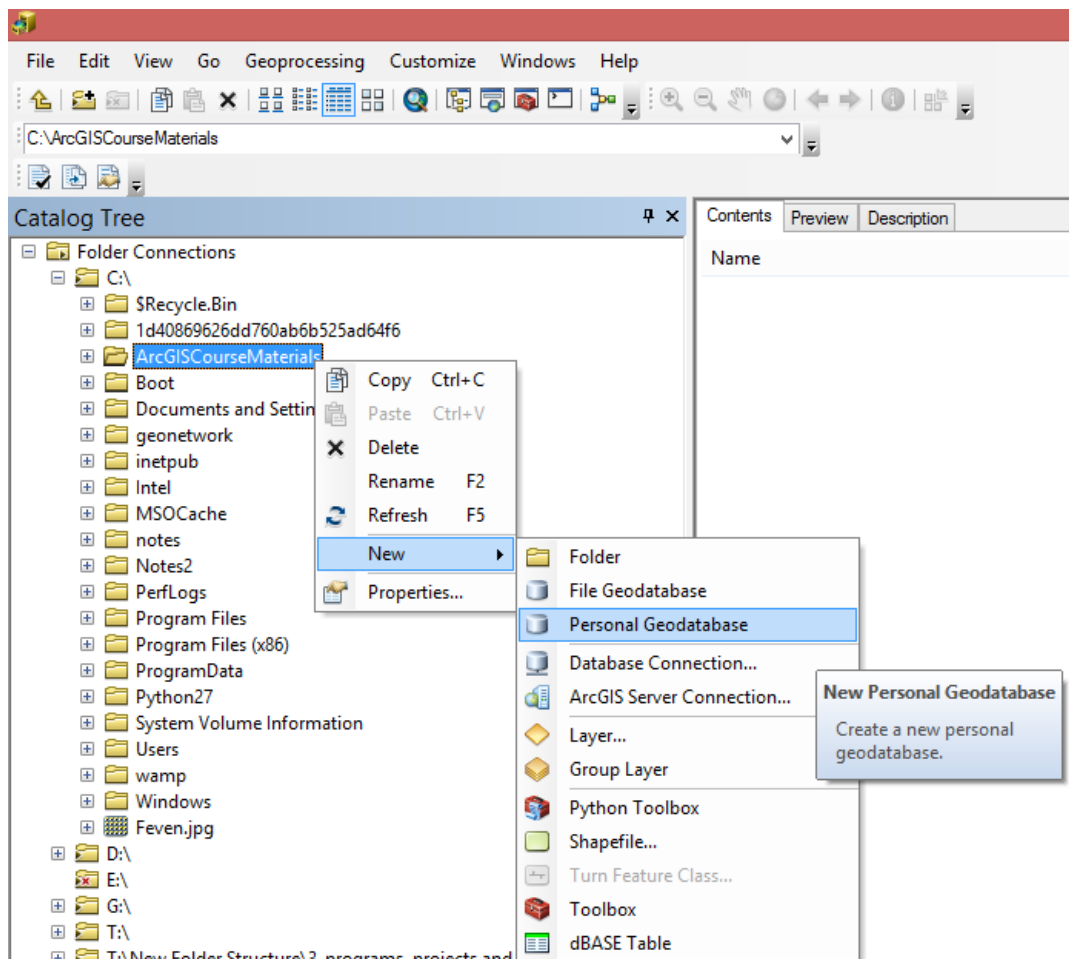


# Create a personal geodatabase

To create a personal geodatabase that corresponds to the same release as the ArcGIS for Desktop client you are using, follow these steps:

1. In ArcCatalog, right-click the file folder in the Catalog tree where you want to create the new personal geodatabase.
2. Point to **New**.
3. Click **Personal Geodatabase**.

A personal geodatabase is created in the location you selected.



4. Type a new name (My Personal GDB) for this personal geodatabase and press Enter.

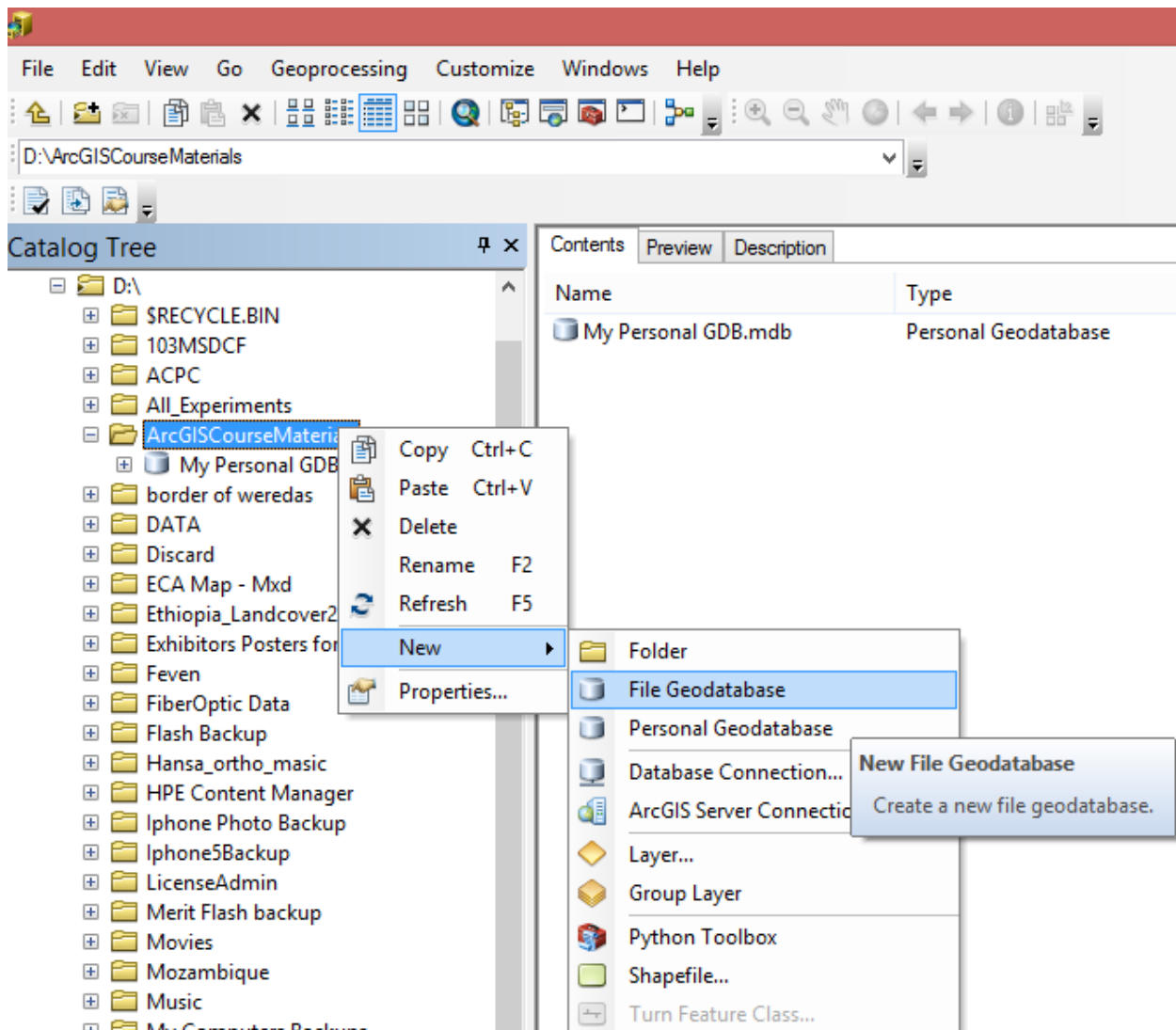
# Create a file geodatabase

## From a folder connection

Follow these steps to create a file geodatabase in a folder from ArcGIS for Desktop:

1. Right-click the folder where you want to create the file geodatabase, point to **New**, and click **File Geodatabase**.

A file geodatabase is created in the location you selected.



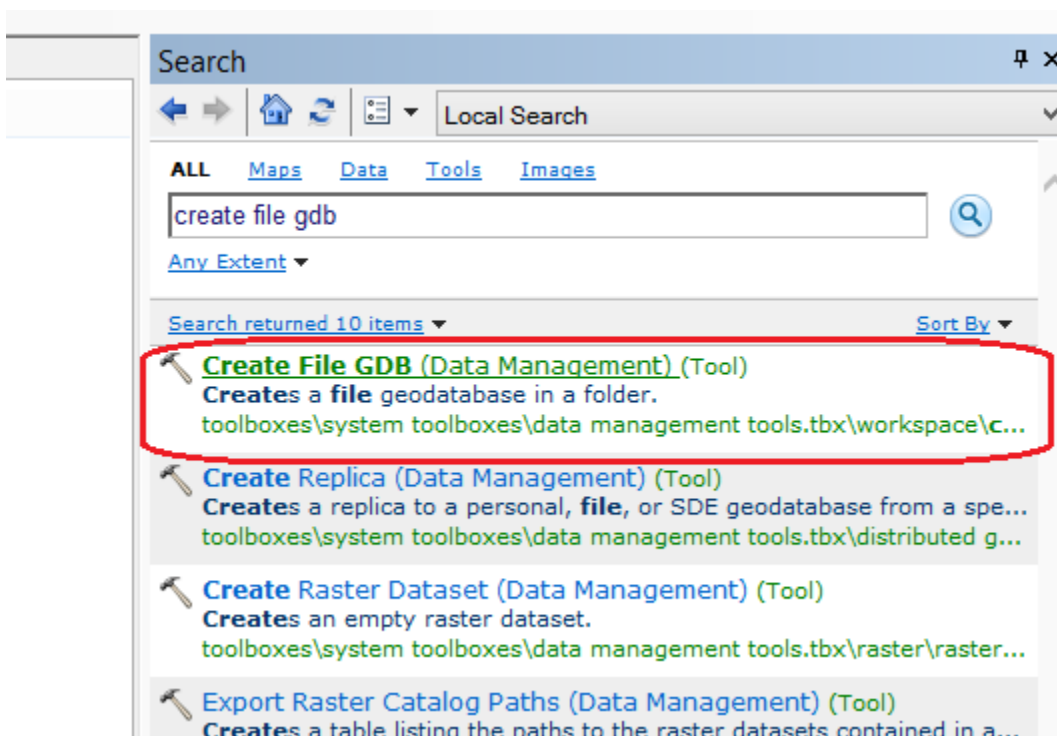
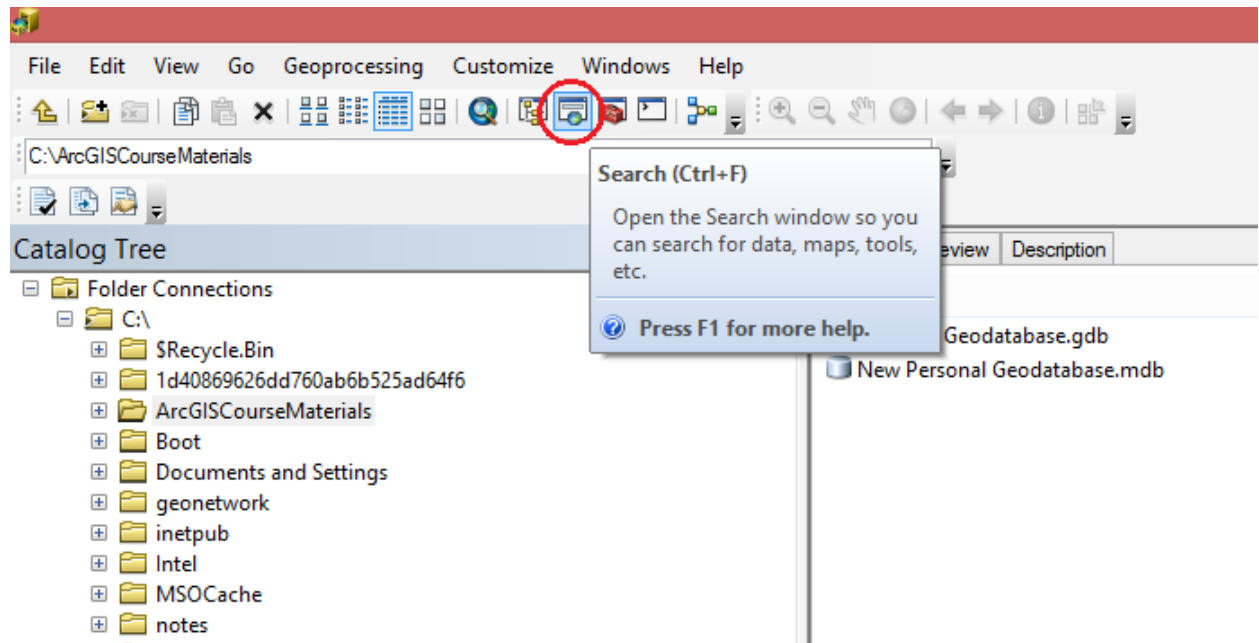
2. Type a new name (My File GDB) for this personal geodatabase and press Enter.

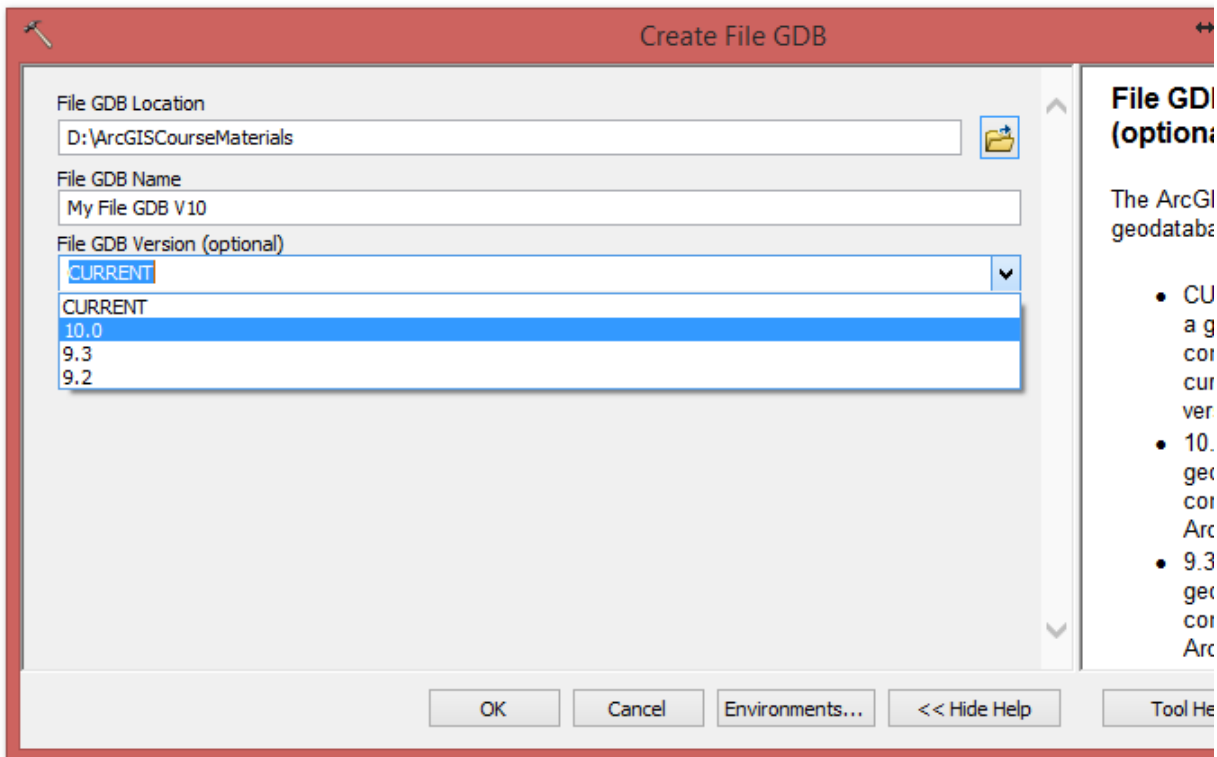
## Run the Create File GDB tool

The Create File GDB geoprocessing tool allows you to create a file geodatabase that corresponds to an older release of ArcGIS. This allows you to share data with people who have older releases of ArcGIS, which may not be able to open newer releases of the geodatabase.

1. Open the Create File GDB in ArcGIS for Desktop.

You can use the search to find the tool or open it directly from the Workspace toolset of the Data Management toolbox.





2. Specify the folder location where you want the file geodatabase created.
3. Type a name (My File GDB V10) for the geodatabase.
4. Choose which ArcGIS version you want the file geodatabase to be.

The functionality available in the geodatabase will be limited to the release you choose.

5. Click **OK** to run the tool.

A file geodatabase is created in the location you specified.

# Create an enterprise geodatabase

You can create a database, geodatabase administrator, and enterprise geodatabase in a Microsoft SQL Server using the Create Enterprise Geodatabase geoprocessing tool.

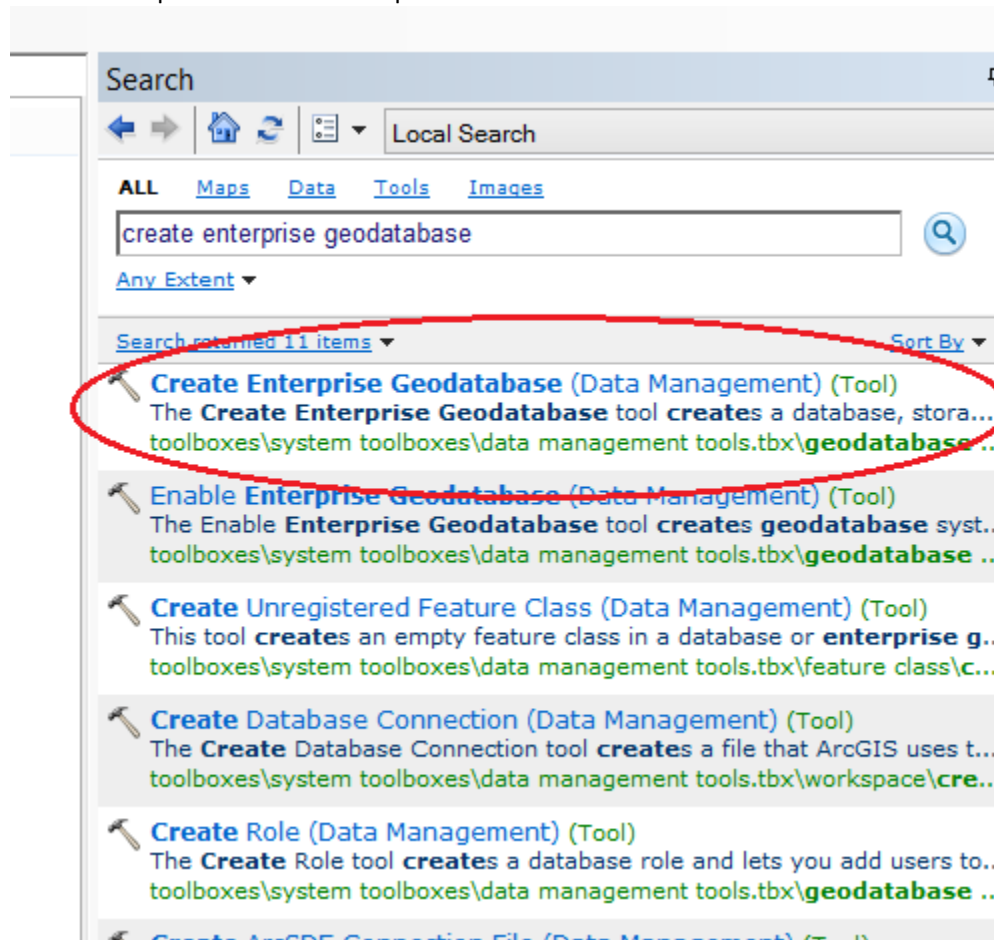
## Requirements

- You have SQL Server installed and the instance configured
- You perform the role of both the database administrator and geodatabase administrator and, therefore, know the password for both logins
- You need an ArcGIS Server keycodes file to authorize your geodatabase

## *Run the Create Enterprise Geodatabase tool*

If you have access to ArcGIS for Desktop, you can run a geoprocessing tool to create the geodatabase.

1. Start ArcCatalog.
2. Search and open the Create Enterprise Geodatabase tool.



3. Choose **SQL Server** from the **Database Platform** drop-down list.
4. Type the name of the SQL Server instance to which you will connect in the **Instance** text box.
5. In the **Database** text box, type the name of the database where you want to store your geodatabase.

If a database with that name does not already exist in the SQL Server instance, it will be created. If it already exists, the database you specify will be used to store the geodatabase.

6. Connect to SQL Server as a system administrator. This can be done with either an operating system-authenticated login that is a member of the sysadmin fixed server role in SQL Server or by typing a database user name and password for a sysadmin user.
  - To log in with a sysadmin operating system-authenticated login, check **Operating System Authentication**. You must be logged in to Windows with the correct login to use this option.
  - To log in as sysadmin, type the sysadmin user name in the **Database Administrator** text box and the corresponding password in the **Database Administrator Password** text box.
7. Choose the schema that will contain the geodatabase:
  - If you want the user named sde to be the geodatabase administrator and the geodatabase to be stored in the sde user's schema, check **Sde Owned Schema**.
  - If you want the dbo user to be the geodatabase administrator and the geodatabase to be stored in the dbo schema, uncheck **Sde Owned Schema**.

For more information on storing the geodatabase in either the sde or dbo schema, see [A comparison of geodatabase owners in SQL Server](#).

If you choose an sde-owned schema, the **Geodatabase Administrator** text box will be prepopulated with sde. If a user with that name does not already exist, the user and its corresponding schema will be created, and the user will be granted the privileges required to create a geodatabase.

If you are using database authentication and a dbo schema to store the geodatabase, type the name of a user who is dbo in the SQL Server instance in the **Geodatabase Administrator** text box.

If you are using operating system authentication to connect to the database, your current login must be in the SQL Server sysadmin fixed-server role to create a dbo-schema geodatabase.

8. Type a password for the geodatabase administrator in the **Geodatabase Administrator Password** text box.

If the geodatabase administrator you specified already exists in the database, be sure to type the correct password for the existing user; this tool will not change the password.

9. To specify an **Authorization File**, browse to and choose the keycodes file that was created when you authorized ArcGIS for Server Enterprise.

This file is written to the **\\Program Files\ESRI\License<release#>\sysgen** folder on Windows servers. If you have not already done so, authorize ArcGIS for Server now to create this file.

10. Click **OK** to run the tool.

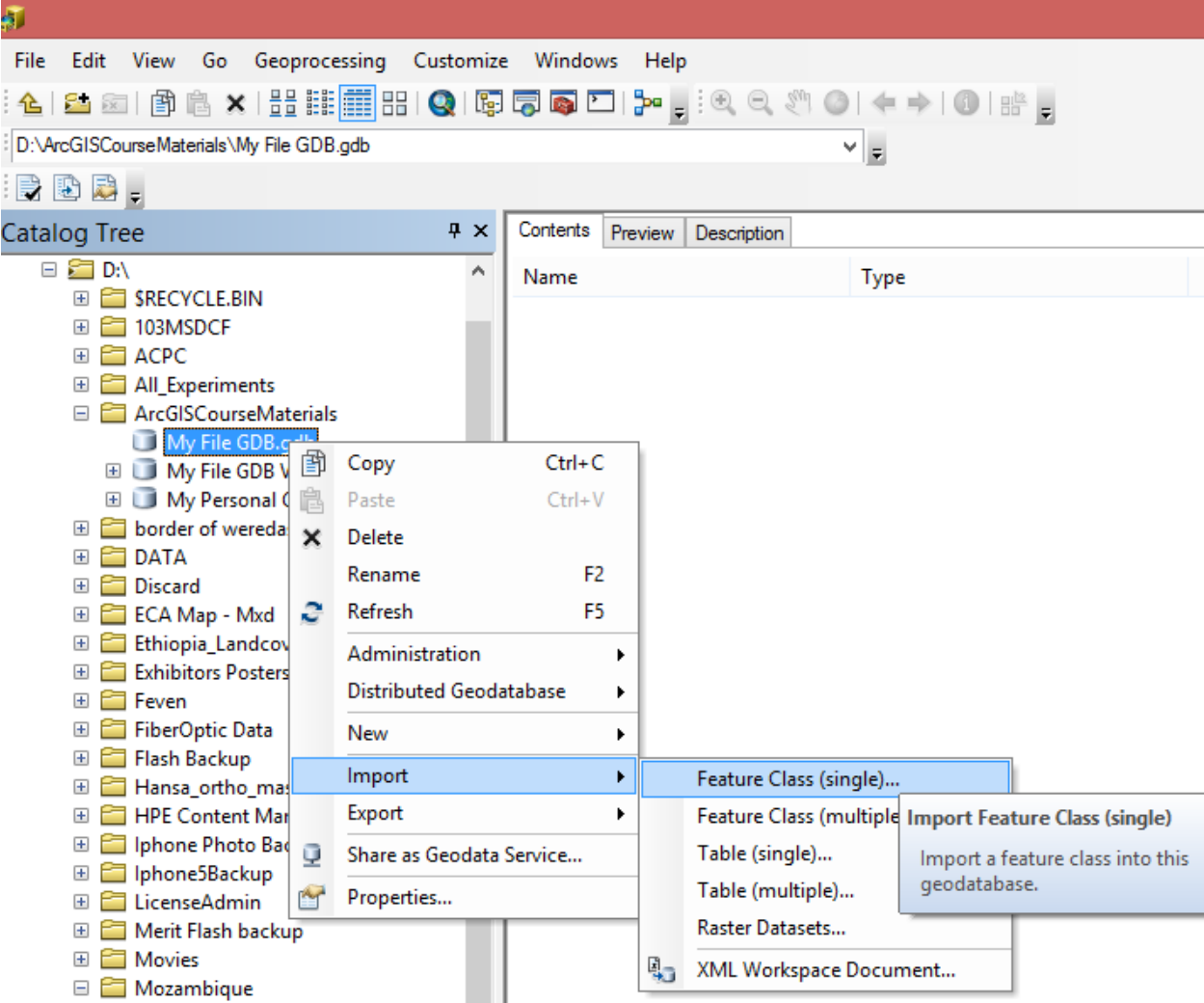
A database and log files are created in the default SQL Server location if you did not specify an existing database. A geodatabase is created in the database. If you chose an sde-schema geodatabase, a SQL Server-authenticated sde login, database user, and schema are created.

A log file for the geodatabase creation (GDBCreateGeodatabase<#>.log) is written to the directory specified for your %TEMP% variable on the computer where the tool is run. If you have any problems running the tool, check this log file to troubleshoot the problem.

# Importing feature classes

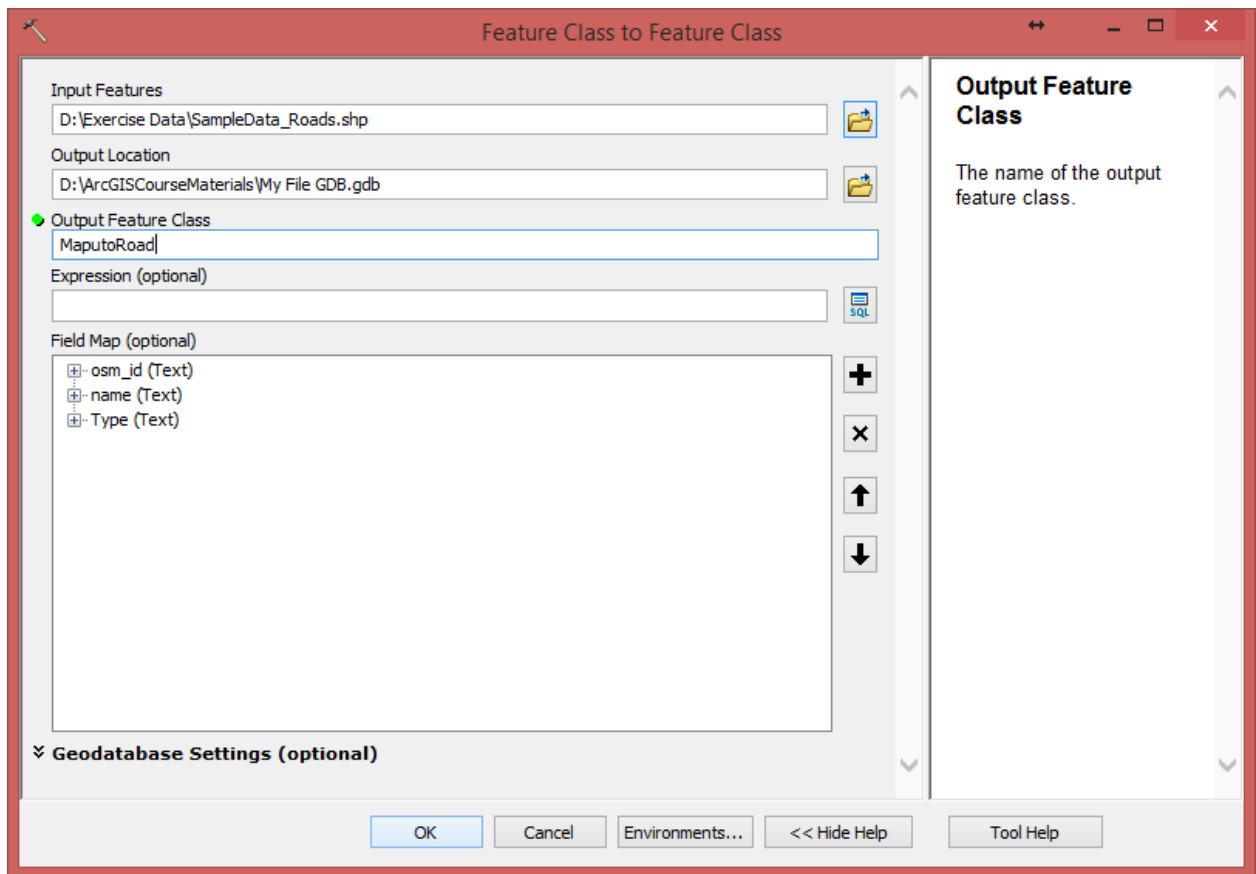
## Importing feature class (single)

1. In the Catalog tree, right-click the geodatabase or feature dataset to which you want to import a dataset. Click Import > Feature Class (single).



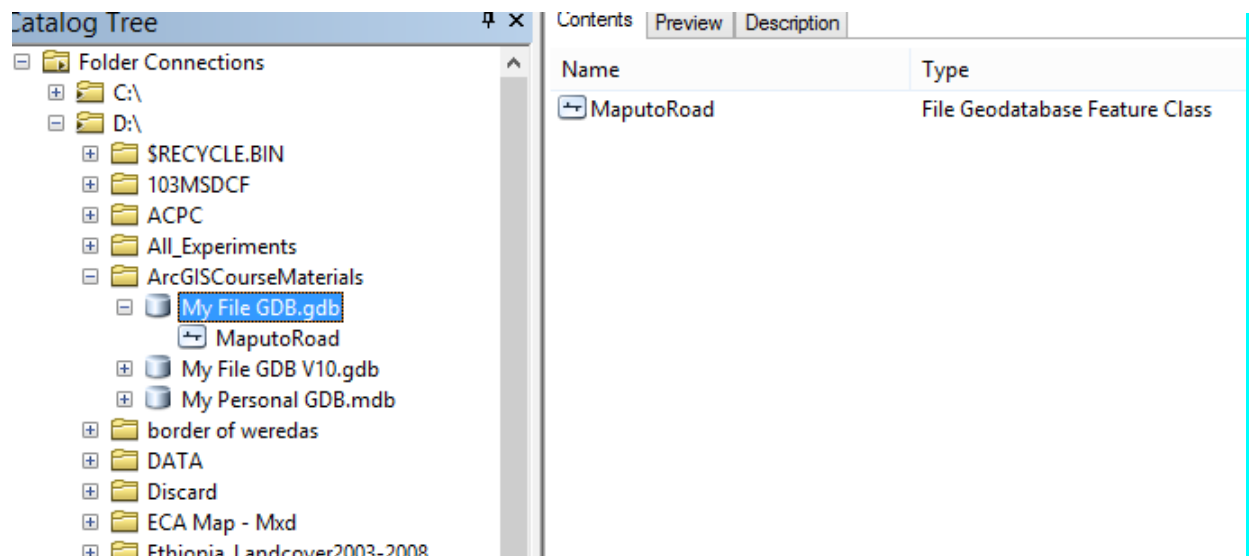


2. Set required parameters for Feature Class To Feature Class tool



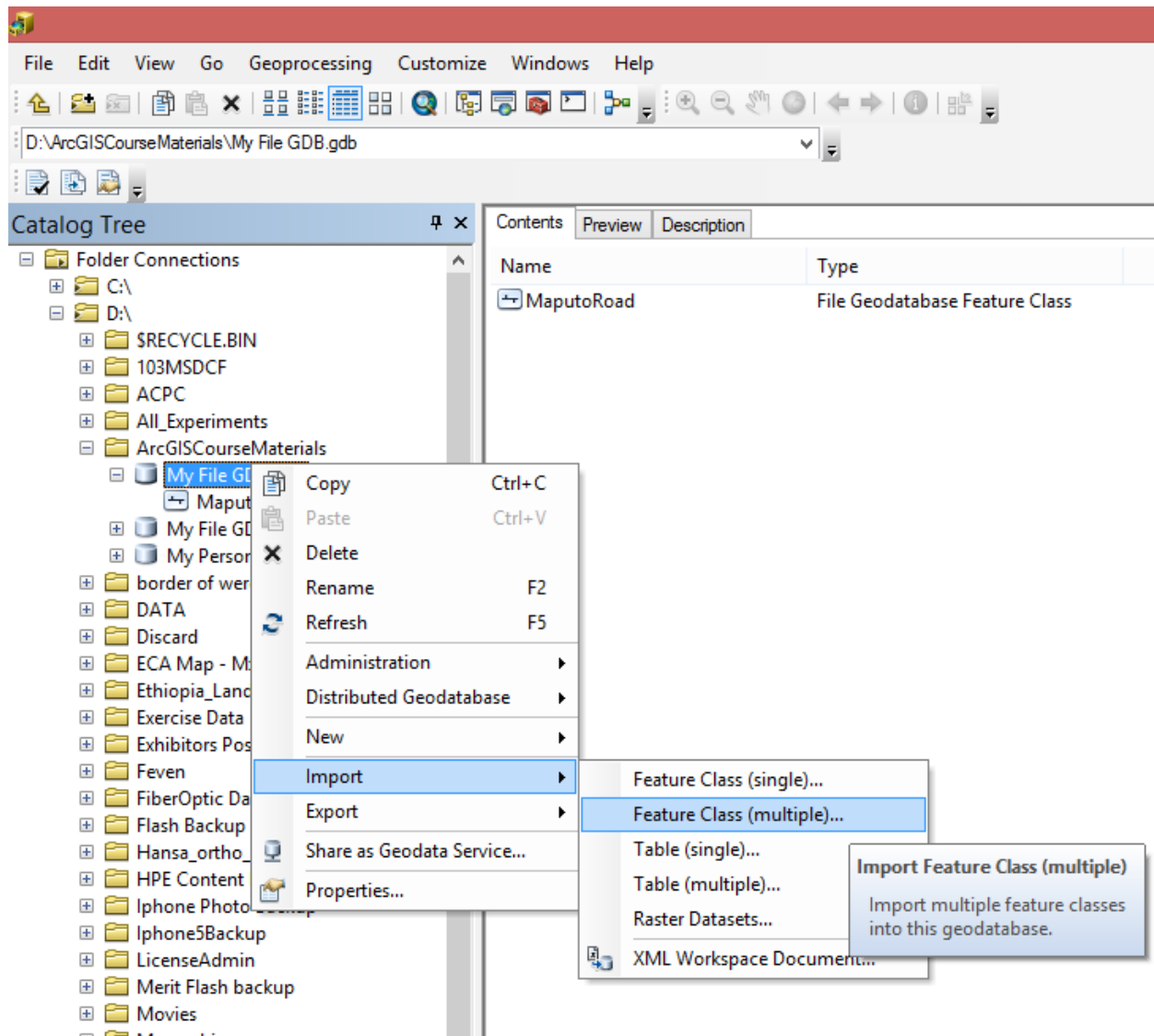
3. Click OK

This creates a new feature class in the file geodatabase.

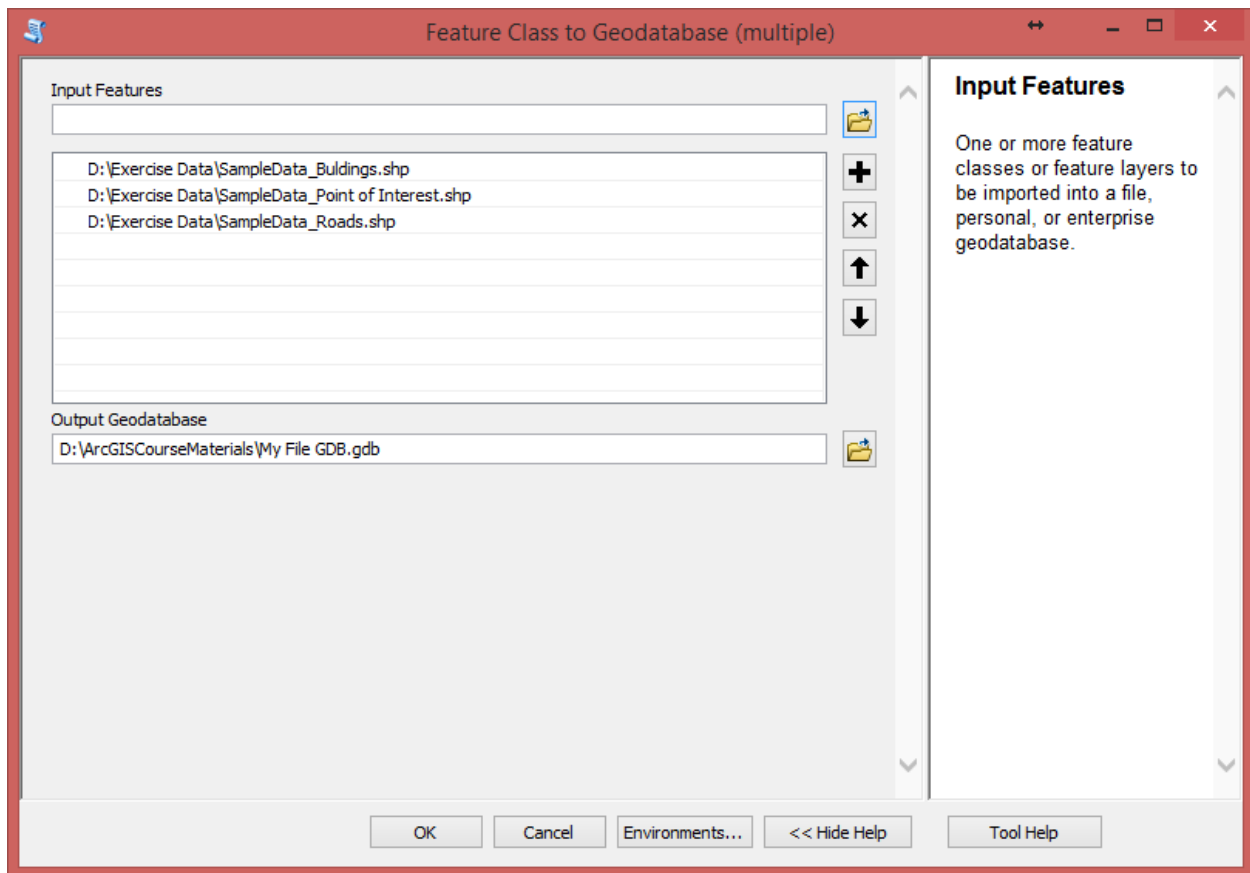


## Importing feature class (multiple)

1. In the Catalog tree, right-click the geodatabase or feature dataset to which you want to import a dataset. Click Import > Feature Class (multiple).

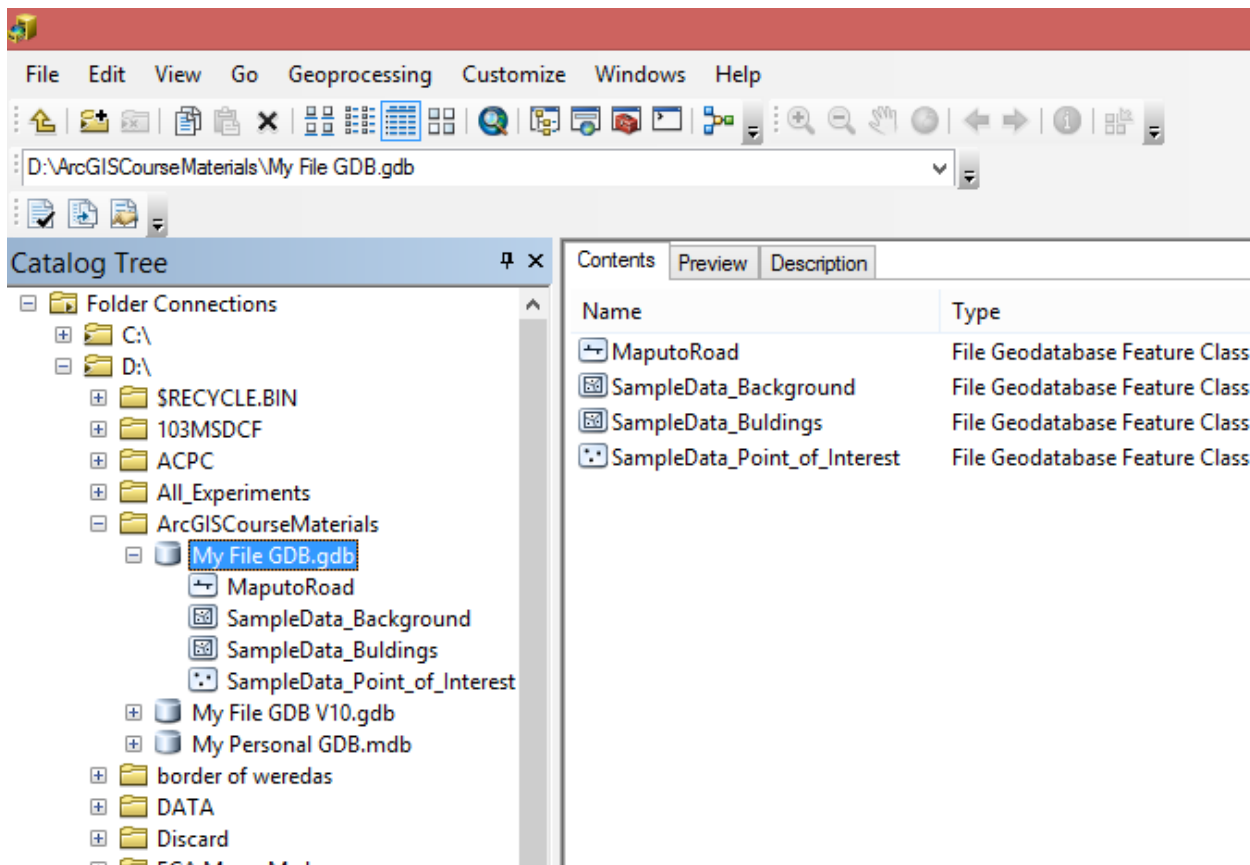


2. Set required parameters for Feature Class To Feature Class tool



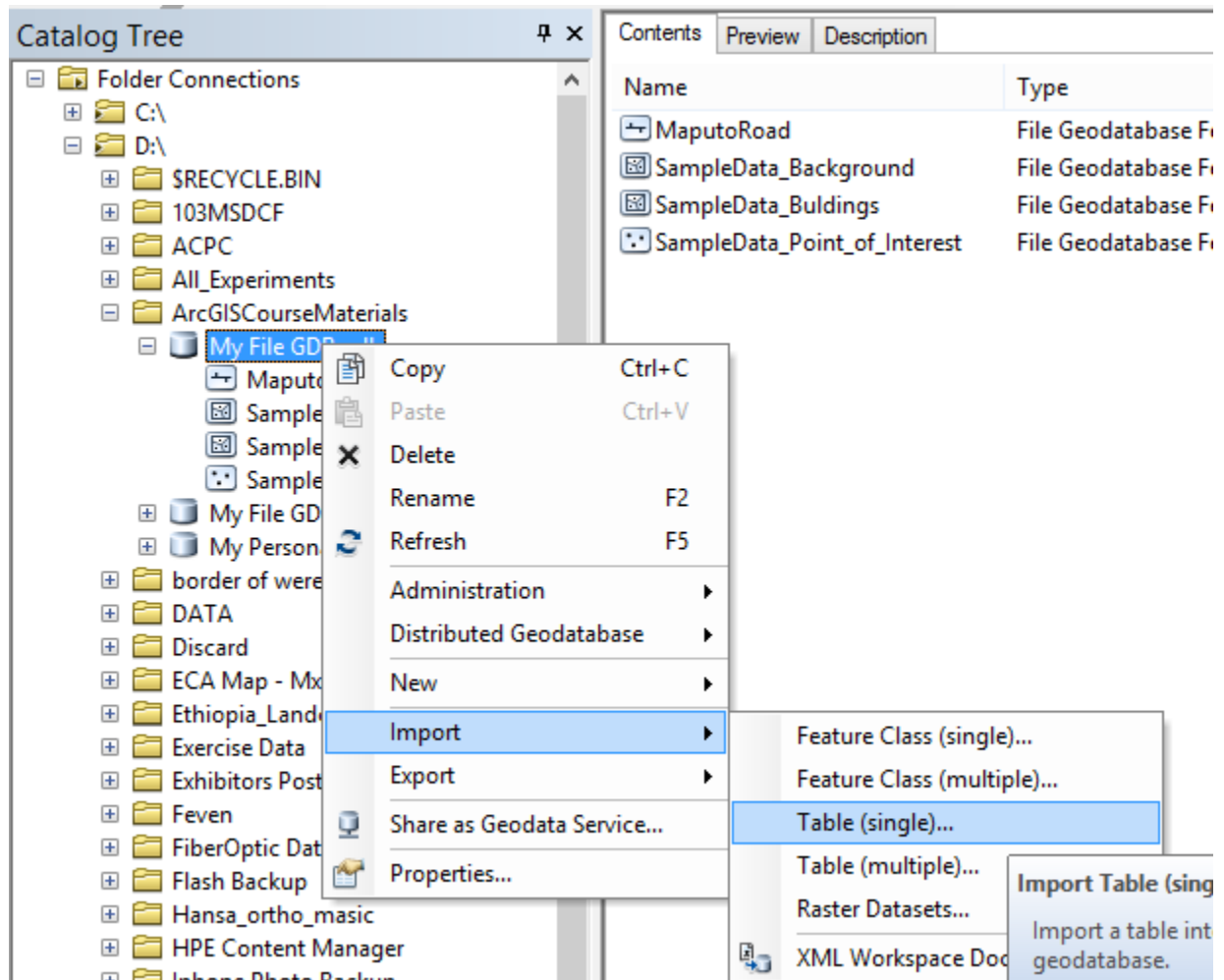
3. Click OK

This creates a new feature classes in the file geodatabase.

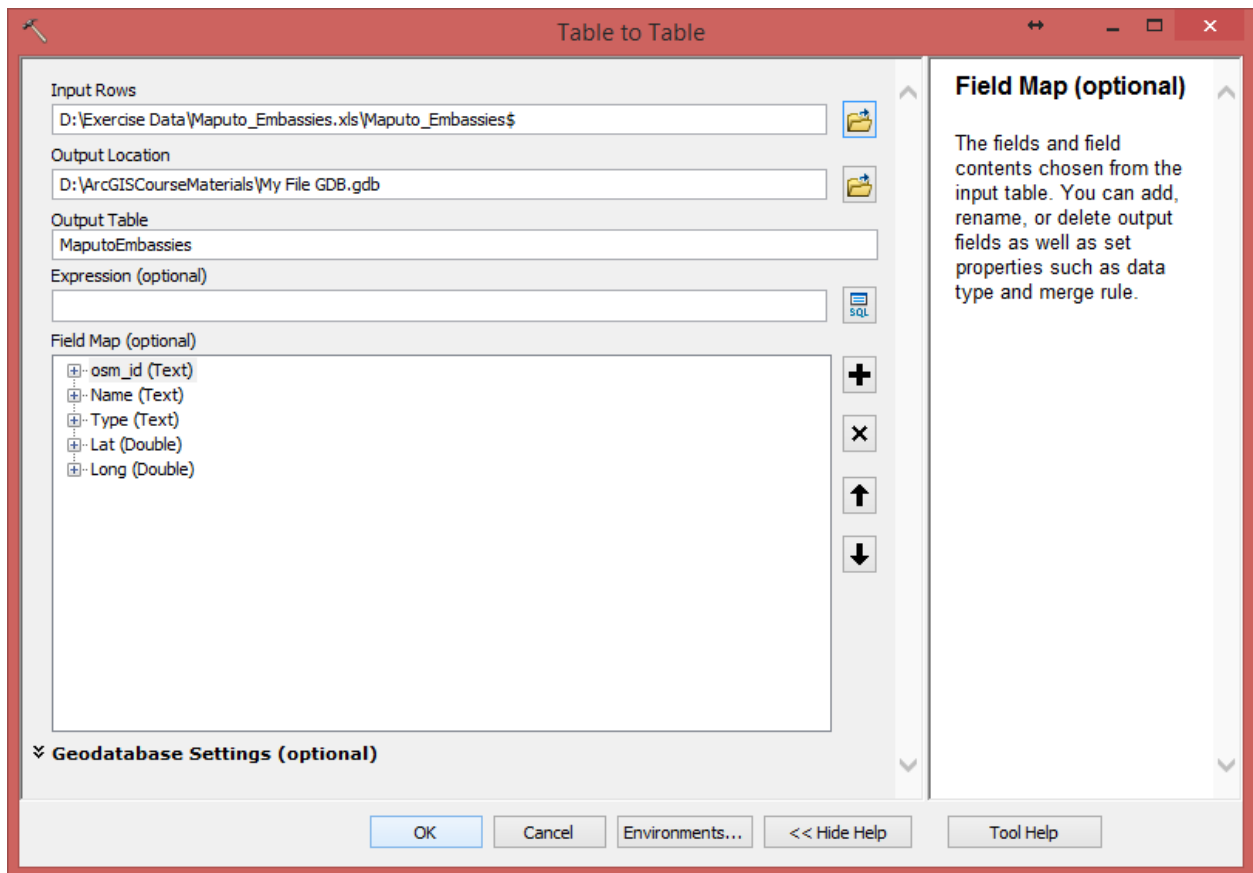


## Importing table (single)

1. In the Catalog tree, right-click the geodatabase or feature dataset to which you want to import a dataset. Click Import > Table (single).

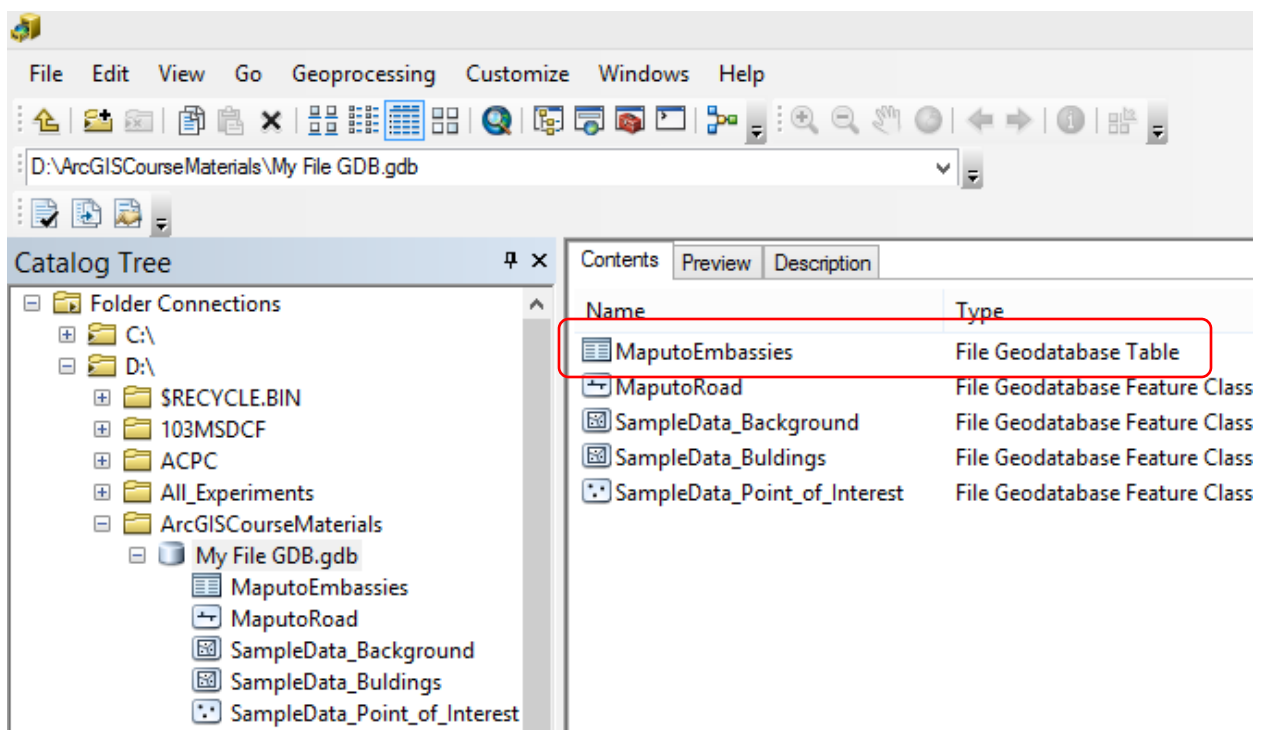


2. Set required parameters for Table to Table tool



3. Click OK

This creates a new table in the file geodatabase.

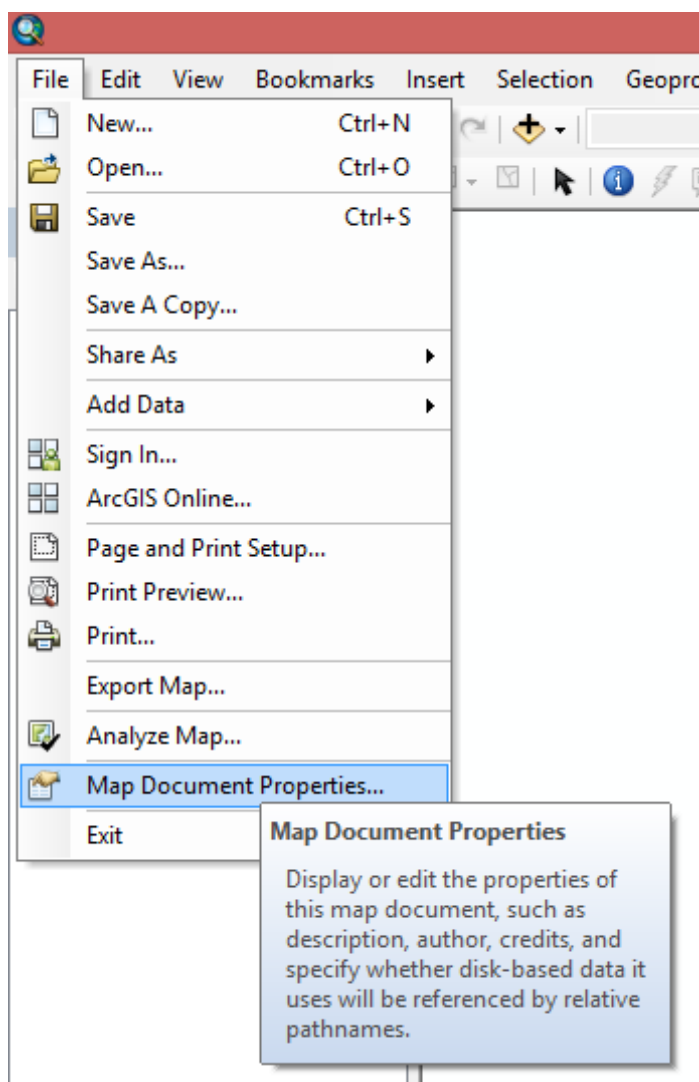


# Designing Maps in ArcMap

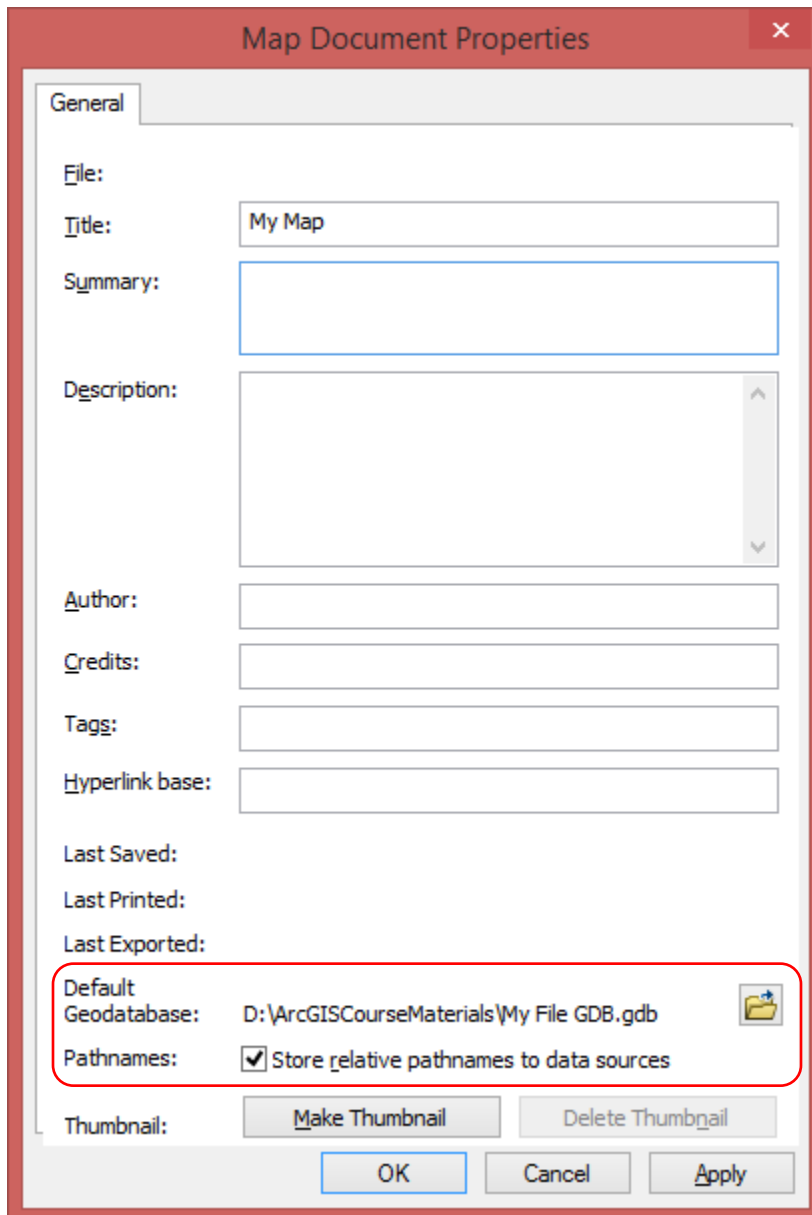
## *Setting map document properties*

You can define how path references are maintained in your document by checking or unchecking **Store relative pathnames to data source**. If this box is checked, paths are stored as incomplete paths that are relative to the current location of this document on disk. Using relative paths makes the map document more easily portable because ArcGIS will resolve the paths to the document's data sources relative to the document's current location in the file system rather than by full paths that include a drive letter or machine name.

1. Click **File > Map Document Properties**.




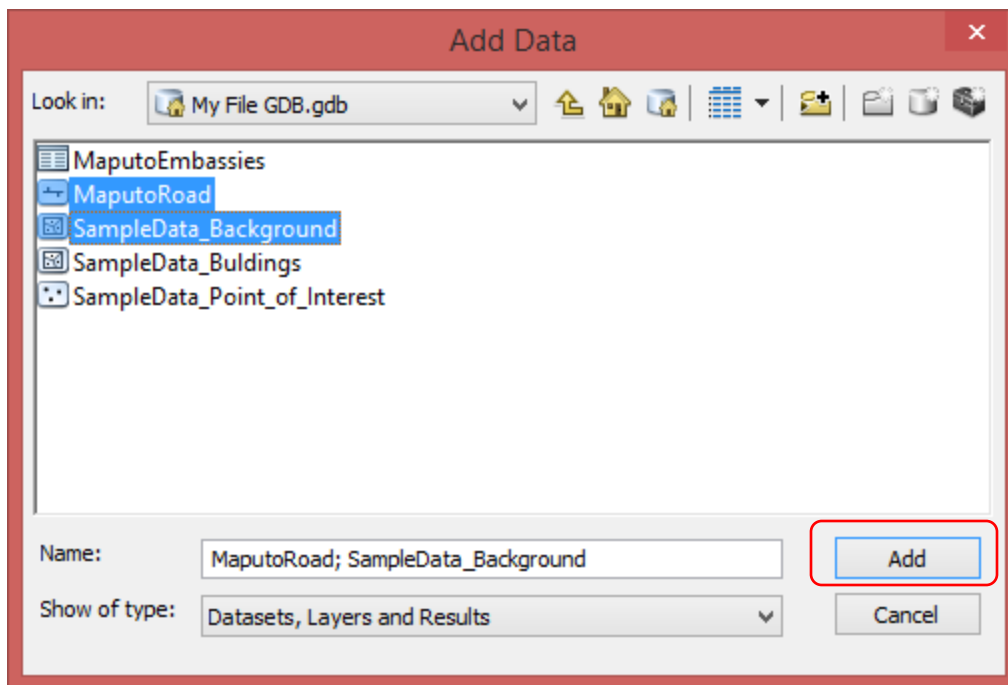
4. Set required parameters for Map Document Properties window. Setting default geodatabase and checking the 'Store relative pathnames to data sources' are very important.



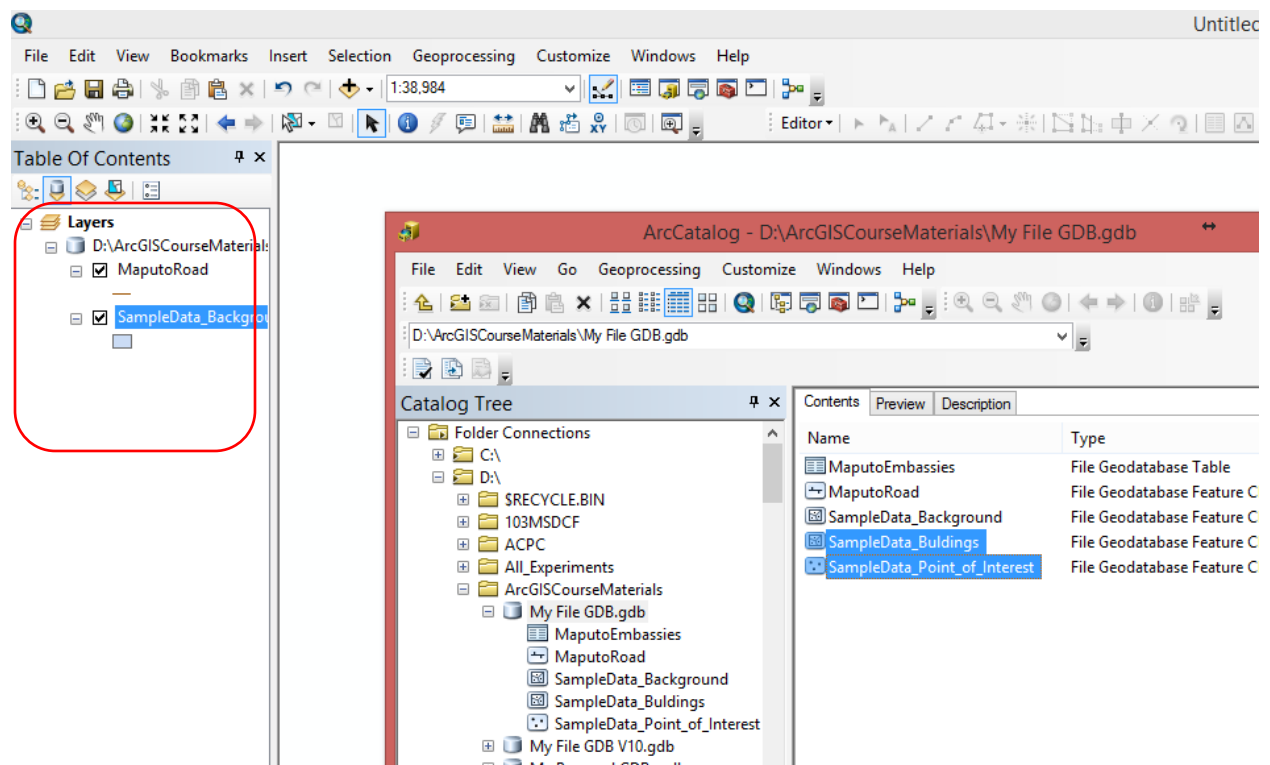
## Adding map layers

### Adding a dataset

**Using the Add Data button**—Click the **Add Data** button  and navigate to the desired dataset. Then select and add it to your map.



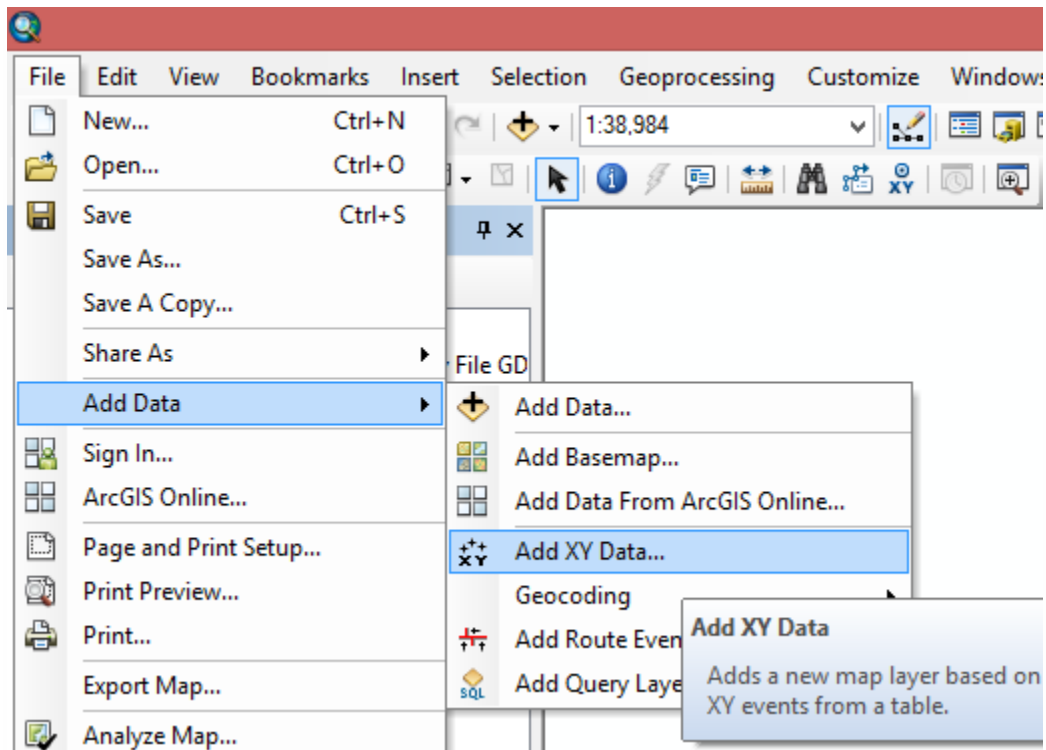
**Dragging a dataset from ArcCatalog**—You can add data to your map from the ArcCatalog application. In ArcCatalog, navigate to the desired dataset. Then select and drag it onto the ArcMap data frame.



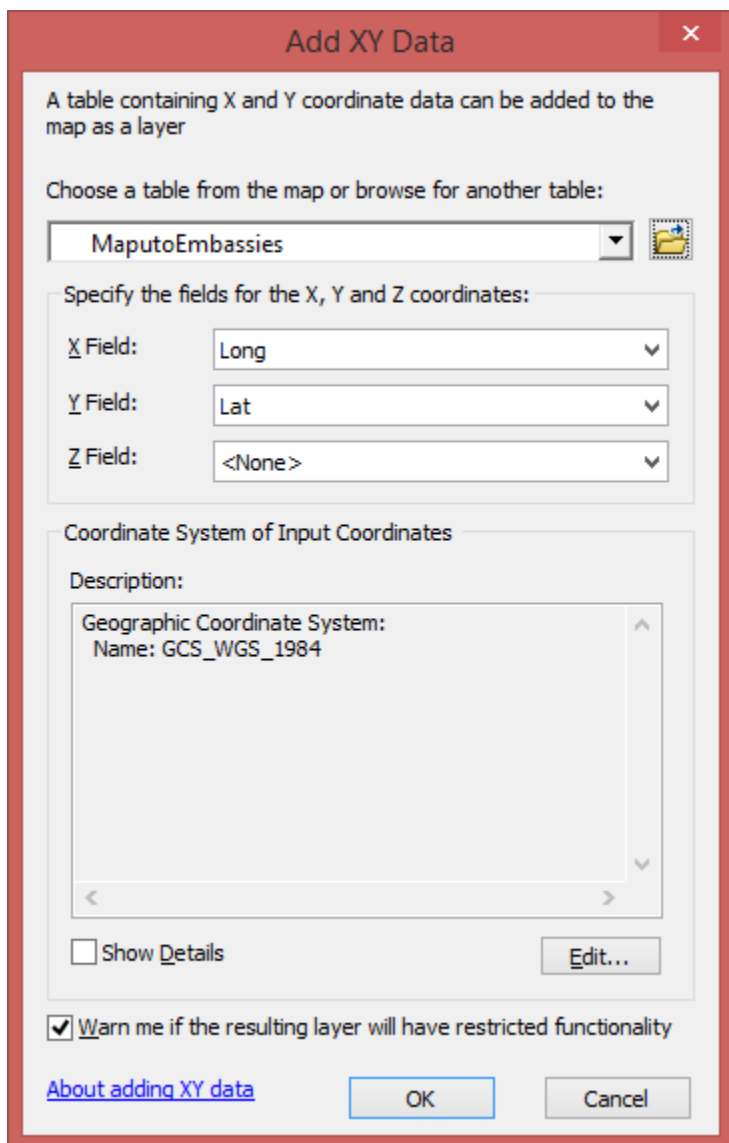


## Adding x,y coordinate data as a layer

1. Click **File > Add Data > Add XY Data**.



2. Select the table that contains x,y coordinate data.
3. Identify the columns that hold the x- and y-coordinates (and, optionally, the z-coordinate).
4. Specify the coordinate system.

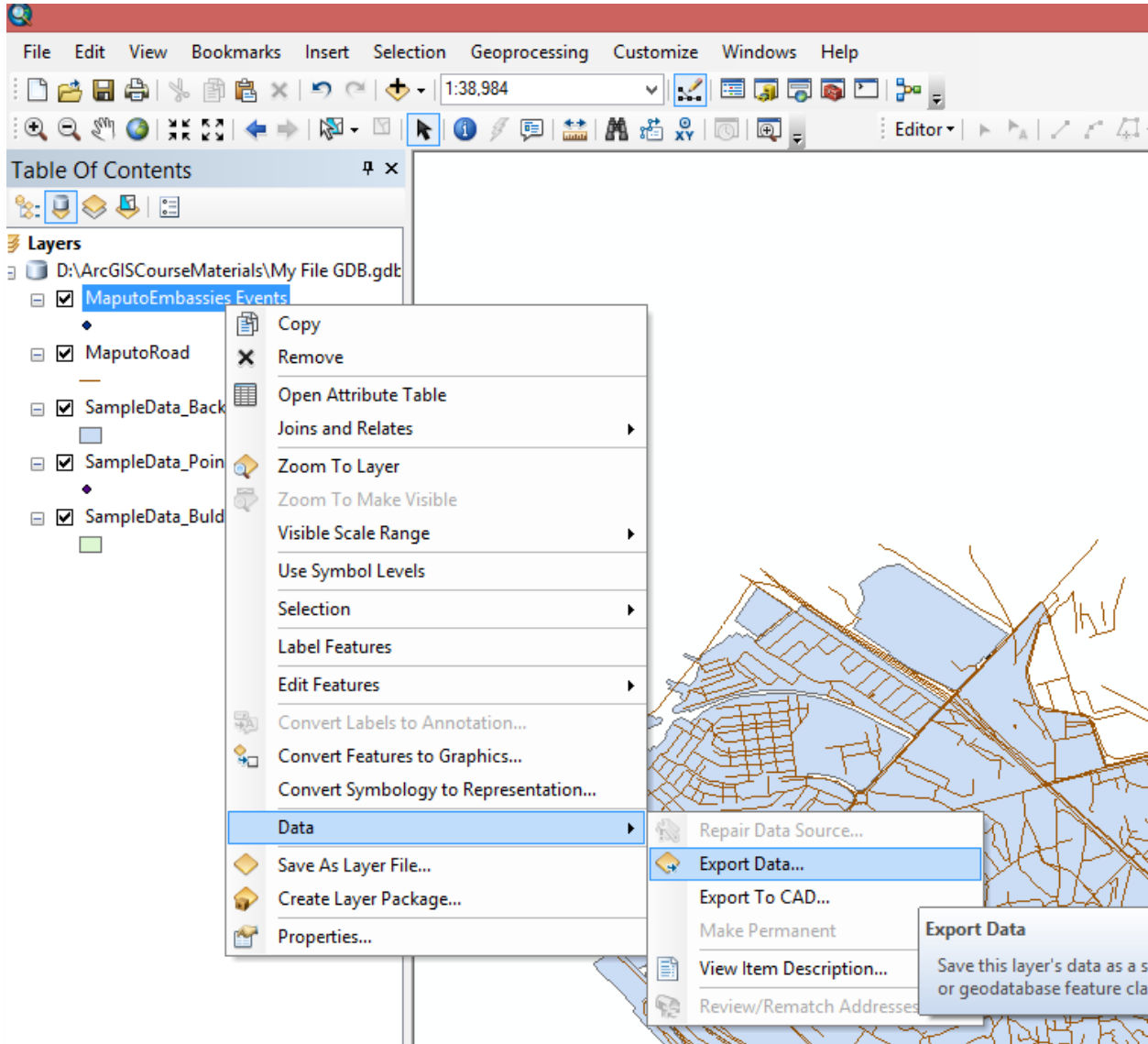


5. Click OK.

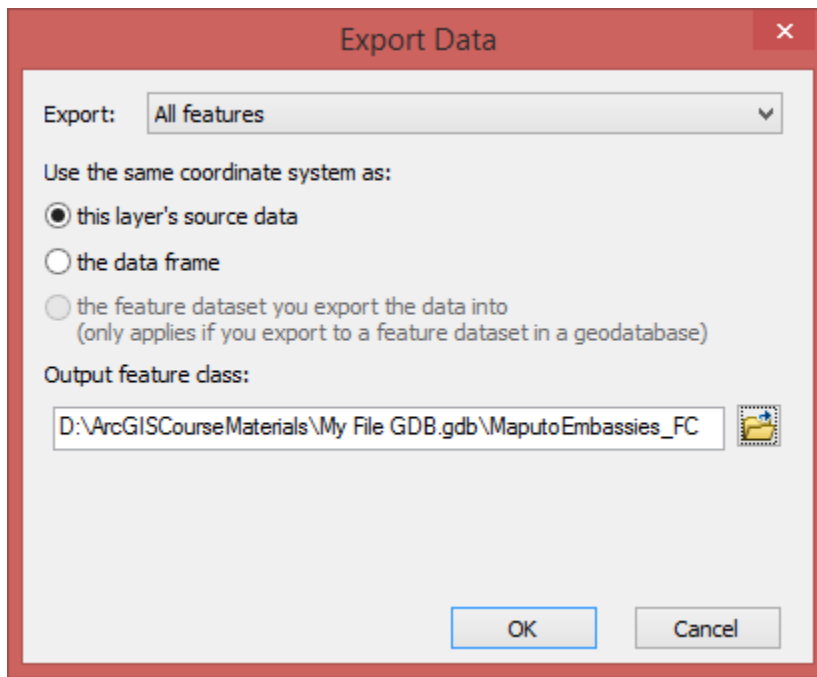
## Saving an x,y layer as a feature class

You can save the contents of an x,y layer as a feature class using the following steps:

1. Right-click the x,y layer name and click **Data > Export Data**. The **Export Data** dialog box opens.



2. Set the output coordinate system and specify the location and name of the new feature class.




3. Click **OK** to save the new feature class.

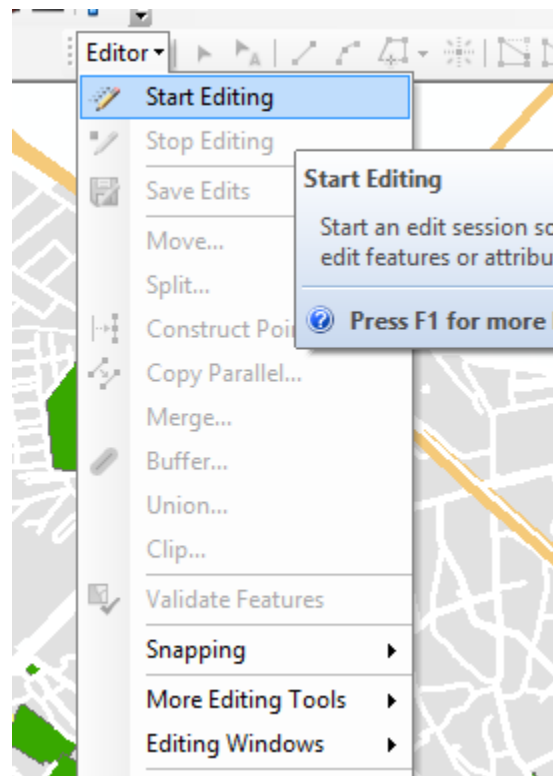
# Editing existing features

## *Adding new features*

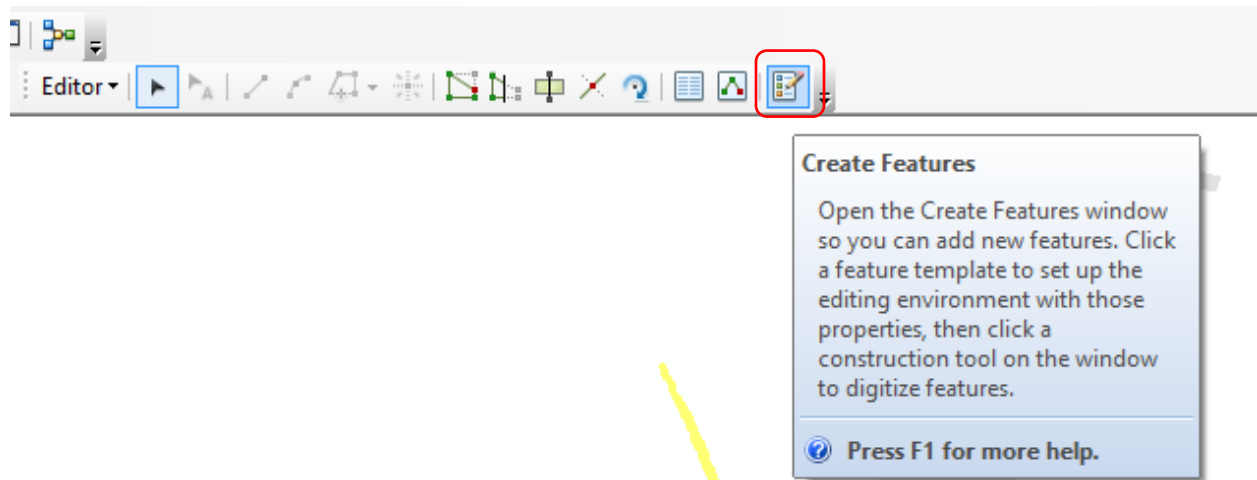
### *Adding new feature*

**Task: create new cafés in the map.**

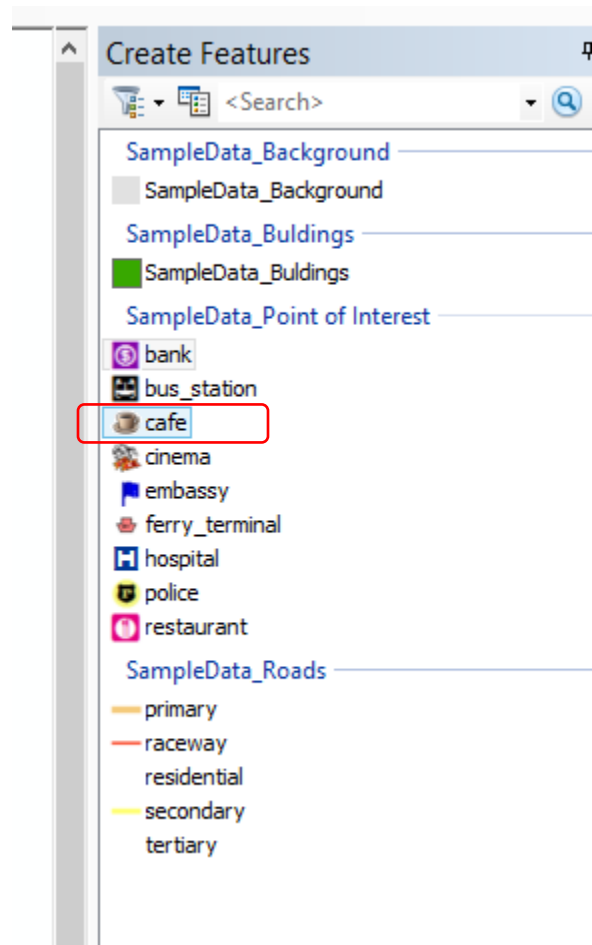
1. In ArcMap, activate the **Editor** toolbar by clicking on  icon on standard toolbar.
2. Select Start Editing from the list in the 'Editor' drop-down menu.



3. Click on Create Features icon on Editor toolbar to open the Create Features window.

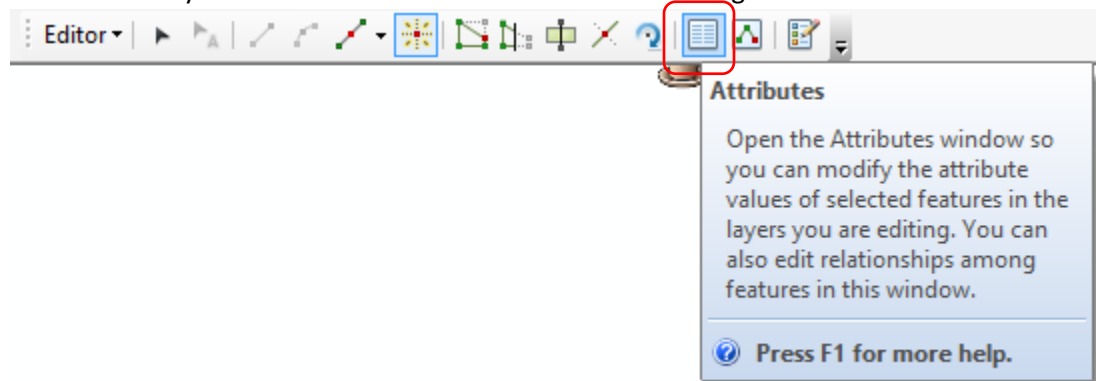


4. Select 'Café' from the list on the Create Features window.

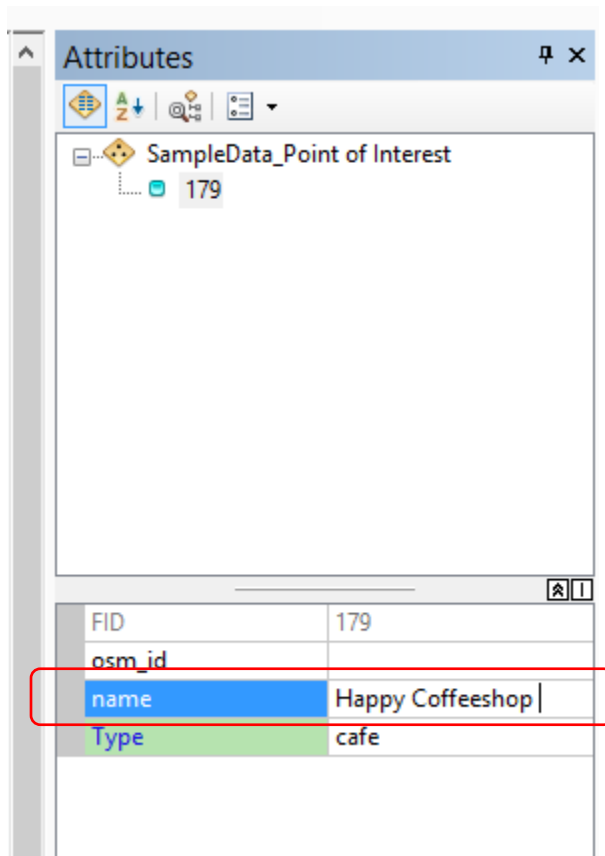


5. Click on the map to add new Café.
6. Click on Attributes icon on Editor toolbar to open the Attributes window.

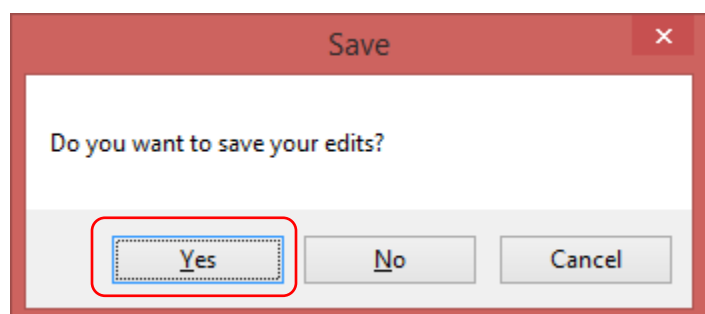
This will allow you to edit attributes of the café while creating it.



7. Type name for the newly created Café.



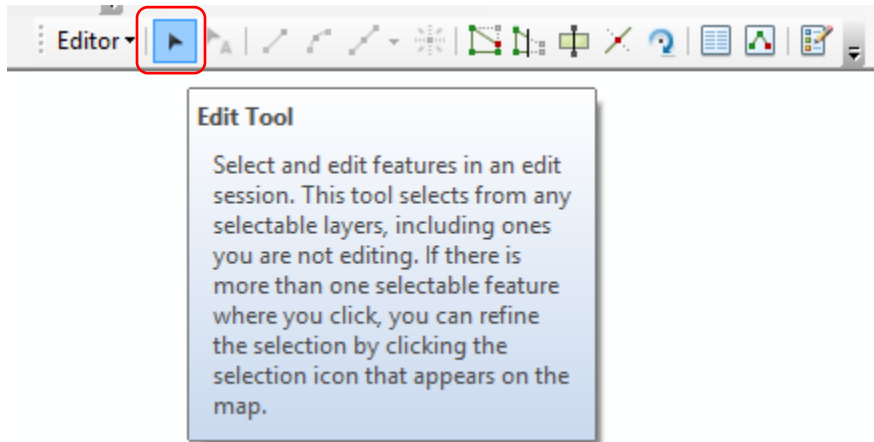
8. Select Stop Editing from the list in the 'Editor' drop-down menu.
9. Click Yes on the Save dialog box.



## Deleting features

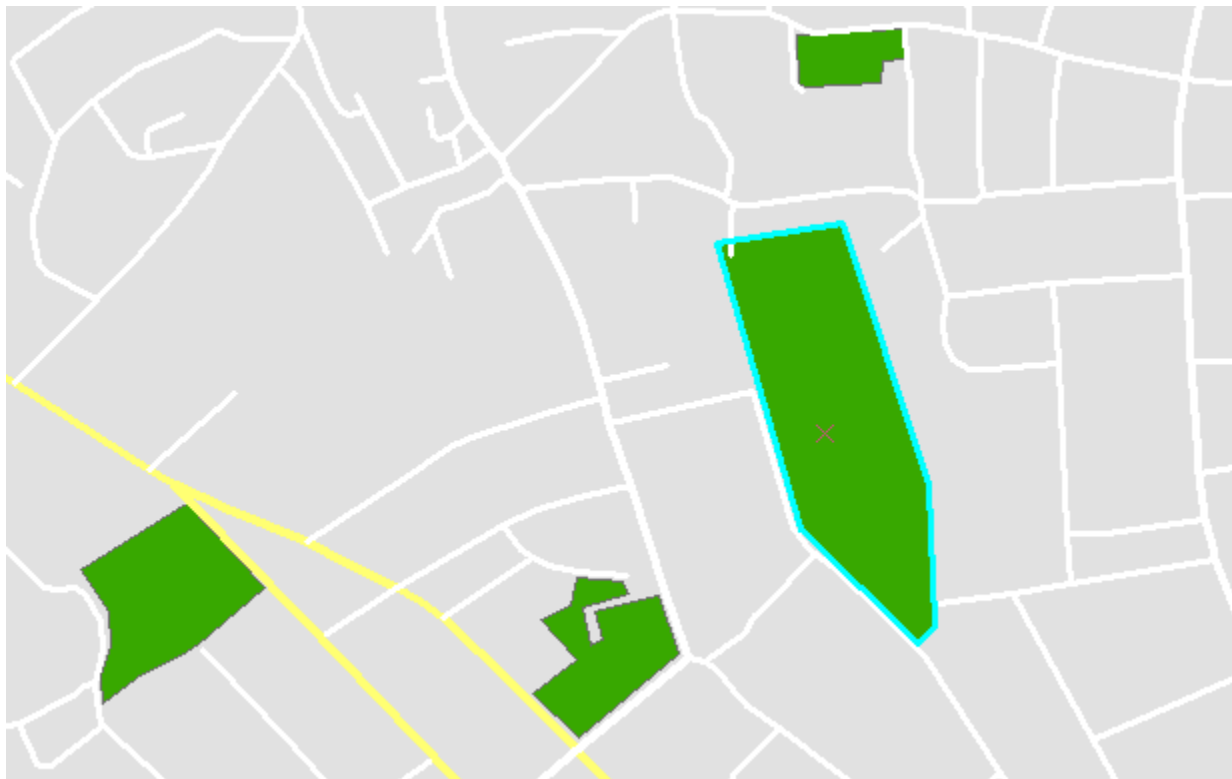
**Task: delete few buildings from the map.**

1. Select Start Editing from the list in the 'Editor' drop-down menu.
2. Click on Edit Tool icon on Editor toolbar, which allows you to select features.



3. Click on a building feature to select it.

The selected feature will be highlighted in light blue color as well as marked with 'X' .



4. Right click on the selected feature or select Delete under the Edit menu to delete the feature.



## ***Splitting and merging polygon and line features***

### ***Splitting a line feature***

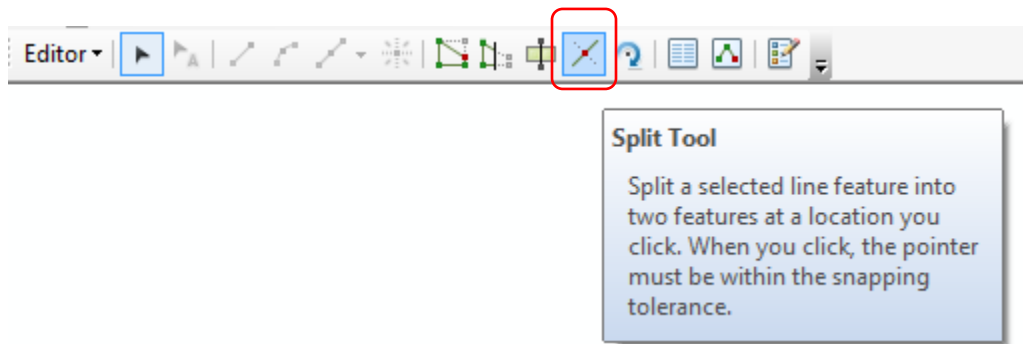
1. Select Start Editing from the list in the 'Editor' drop-down menu.
2. Click on Edit Tool icon on Editor toolbar, which allows you to select features.
3. Select the line that you want to split.

The selected feature will be highlighted in light blue color as well as marked with 'X' .



4. Click on Split Tool icon on Editor toolbar

The cursor changed to '+' .

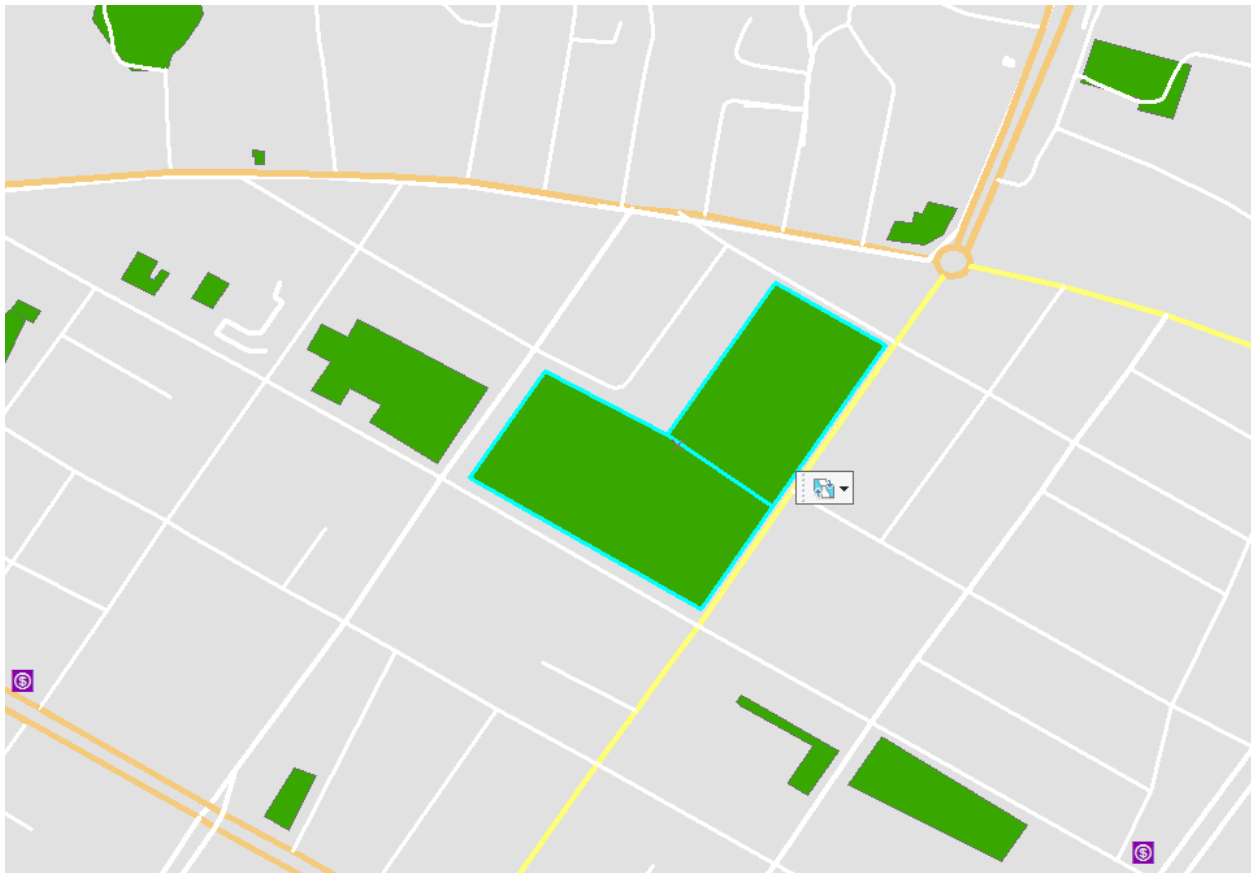


5. Click on the selected line where you want to split.

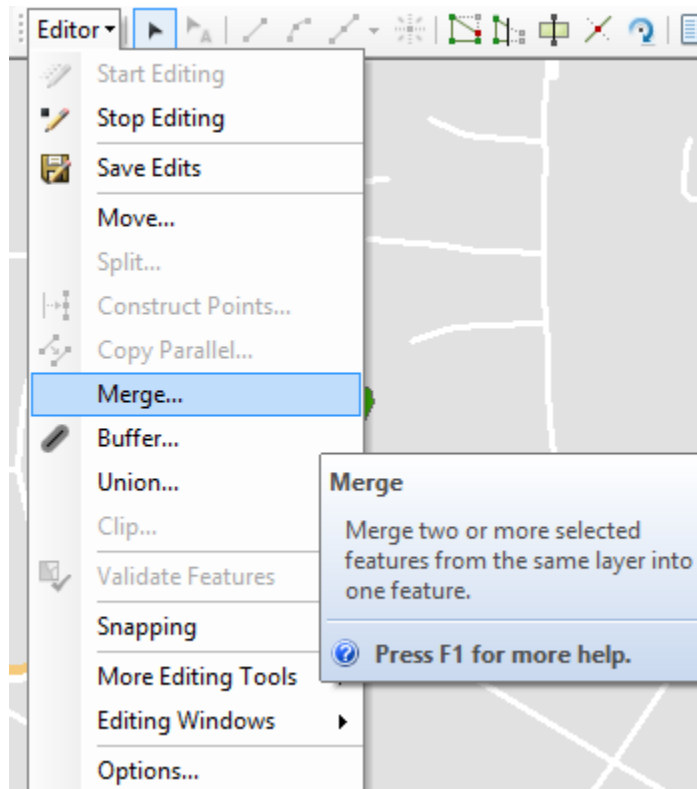
### ***Merging polygon features***

1. Select Start Editing from the list in the 'Editor' drop-down menu.
2. Click on Edit Tool icon on Editor toolbar, which allows you to select features.
3. Select more than one polygon features that you want to merge using the Edit Tool while holding Shift key on the keyboard.

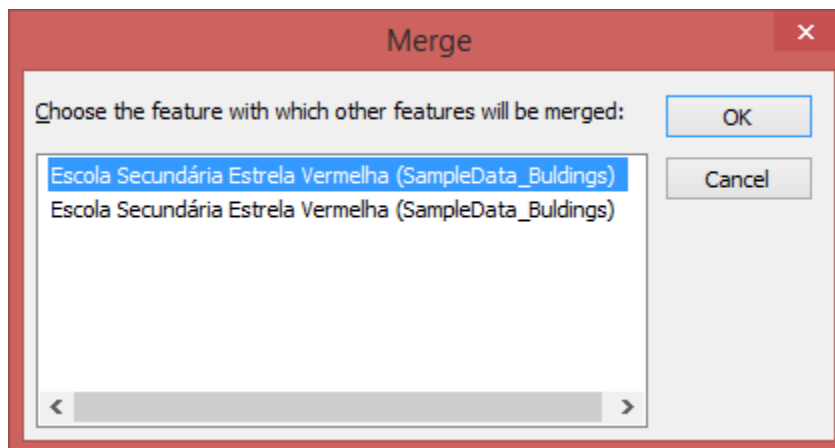
The selected feature will be highlighted in light blue color as well as marked with 'X' .



2. Select Merge... from the list in the 'Editor' drop-down menu.



3. Choose the feature with which other feature will be merged on the 'Merge' dialog box.



4. Click OK

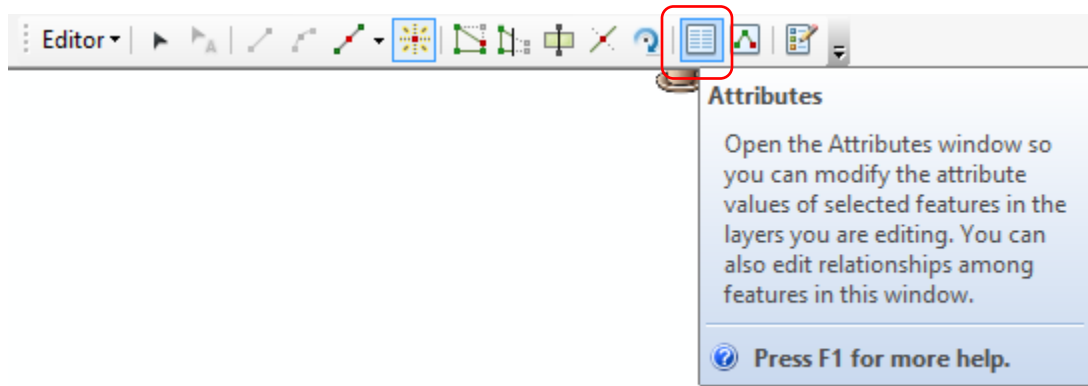
## Editing attributes


### Editing attributes in the Attributes window

The **Attributes** window allows you to view and edit attributes of features you have selected.

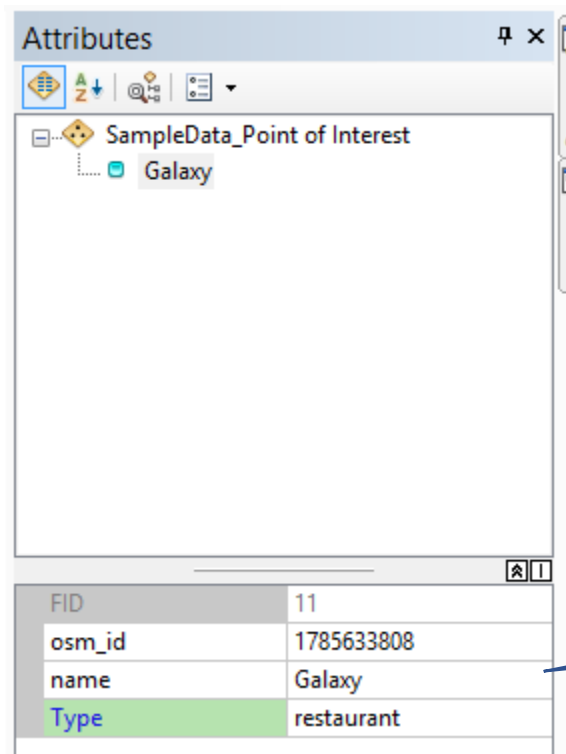
Note: You must turn off Start Editing to be able to edit attributes of a feature.

1. Open it by clicking the **Attributes** button  on the **Editor** toolbar.



2. Using the Edit Tool  click on the feature that you want to edit its attribute.

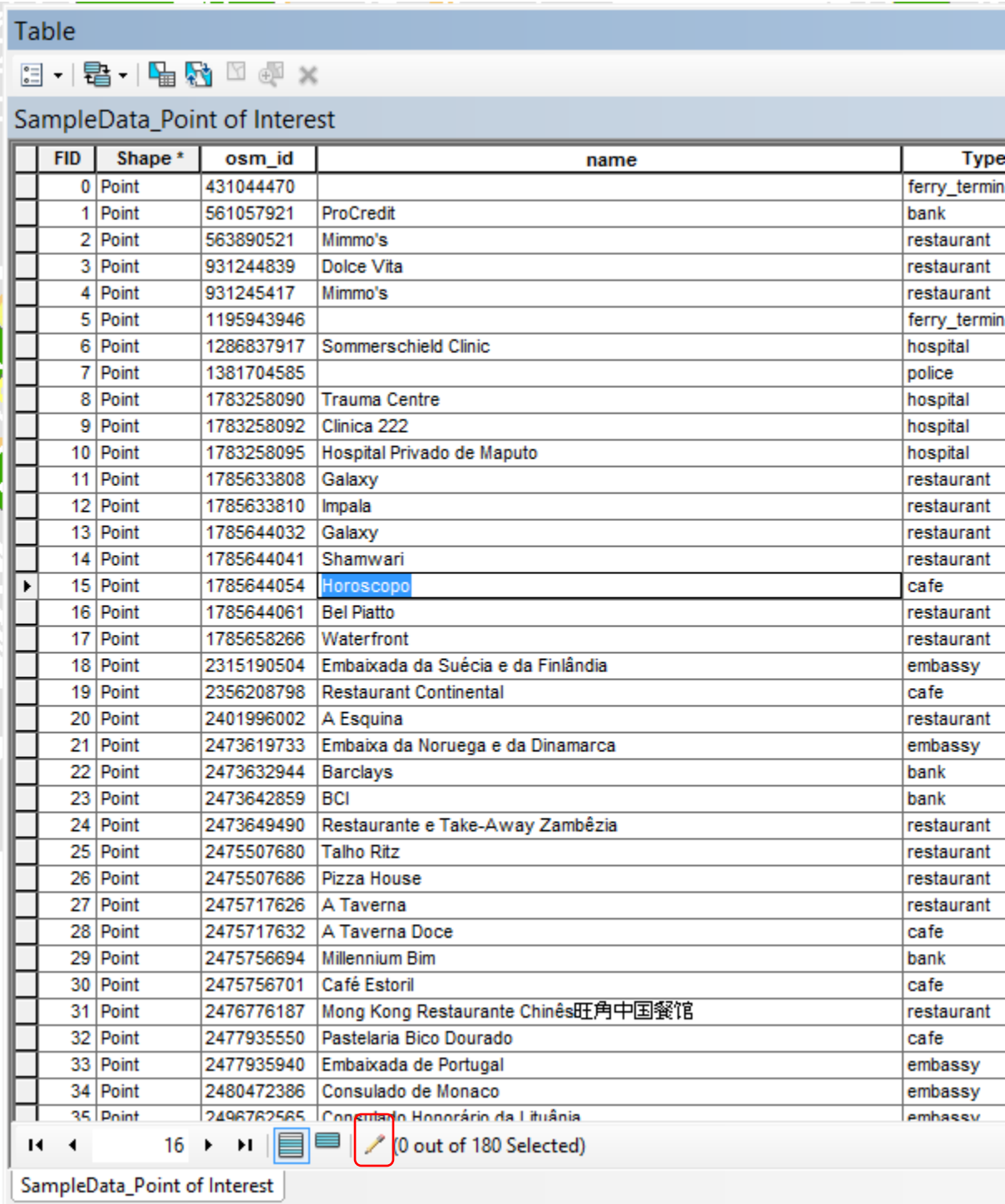
This selects a feature and loads all attribute information in the Attributes window.



All attribute values can be modified except the FID.

## Editing attributes in the table window

Once you begin an edit session, you'll notice a pencil icon next to the **Show Selected Records icon** on the Table window, indicating that the table can be edited. In addition, those fields that you can edit will have a white background in the field heading. You can make any of the attribute changes you need by clicking a cell and typing a new attribute value.



Table

SampleData\_Point of Interest

	FID	Shape *	osm_id	name	Type
	0	Point	431044470		ferry_termin
	1	Point	561057921	ProCredit	bank
	2	Point	563890521	Mimmo's	restaurant
	3	Point	931244839	Dolce Vita	restaurant
	4	Point	931245417	Mimmo's	restaurant
	5	Point	1195943946		ferry_termin
	6	Point	1286837917	Sommerschild Clinic	hospital
	7	Point	1381704585		police
	8	Point	1783258090	Trauma Centre	hospital
	9	Point	1783258092	Clinica 222	hospital
	10	Point	1783258095	Hospital Privado de Maputo	hospital
	11	Point	1785633808	Galaxy	restaurant
	12	Point	1785633810	Impala	restaurant
	13	Point	1785644032	Galaxy	restaurant
	14	Point	1785644041	Shamwari	restaurant
▶	15	Point	1785644054	Horoscopo	cafe
	16	Point	1785644061	Bel Piatto	restaurant
	17	Point	1785658266	Waterfront	restaurant
	18	Point	2315190504	Embaixada da Suécia e da Finlândia	embassy
	19	Point	2356208798	Restaurant Continental	cafe
	20	Point	2401996002	A Esquina	restaurant
	21	Point	2473619733	Embaixa da Noruega e da Dinamarca	embassy
	22	Point	2473632944	Barclays	bank
	23	Point	2473642859	BCI	bank
	24	Point	2473649490	Restaurante e Take-Away Zambêzia	restaurant
	25	Point	2475507680	Talho Ritz	restaurant
	26	Point	2475507686	Pizza House	restaurant
	27	Point	2475717626	A Taverna	restaurant
	28	Point	2475717632	A Taverna Doce	cafe
	29	Point	2475756694	Millennium Bim	bank
	30	Point	2475756701	Café Estoril	cafe
	31	Point	2476776187	Mong Kong Restaurante Chinês 旺角中国餐馆	restaurant
	32	Point	2477935550	Pastelaria Bico Dourado	cafe
	33	Point	2477935940	Embaixada de Portugal	embassy
	34	Point	2480472386	Consulado de Monaco	embassy
	35	Point	2496762565	Consulato Honorário da Lituânia	embassy

16 (0 out of 180 Selected)

SampleData\_Point of Interest

## Table join

### Joining the attributes from a table

Join appends the attributes from one table onto the other based on a field common to both.

Typically, you'll join a table of data to a layer based on the value of a field that can be found in both tables. The name of the field does not have to be the same, but the data type has to be the same; you join numbers to numbers, strings to strings, and so on.

**Task: add an attribute of area in meter square for buildings in the 'SampleData\_Buildings' feature class.**

1. Add the table that you want to join to the layer to ArcMap.

Add MaputoBuildings\_Data worksheet of the MaputoBuildings\_Area.xls into ArcMap.

2. Right click on **SampleData\_Buildings** layer.
3. Select **Joins and Relates > Join...** from the drop down menu
4. Set required parameters for the Join Data tool

Join Data

Join lets you append additional data to this layer's attribute table so you can, for example, symbolize the layer's features using this data.

What do you want to join to this layer?

Join attributes from a table

1. Choose the field in this layer that the join will be based on:

osm\_id

2. Choose the table to join to this layer, or load the table from disk:

MaputoBuildings\_Data

Show the attribute tables of layers in this list

3. Choose the field in the table to base the join on:

osm\_id

Join Options

Keep all records  
All records in the target table are shown in the resulting table. Unmatched records will contain null values for all fields being appended into the target table from the join table.

Keep only matching records  
If a record in the target table doesn't have a match in the join table, that record is removed from the resulting target table.

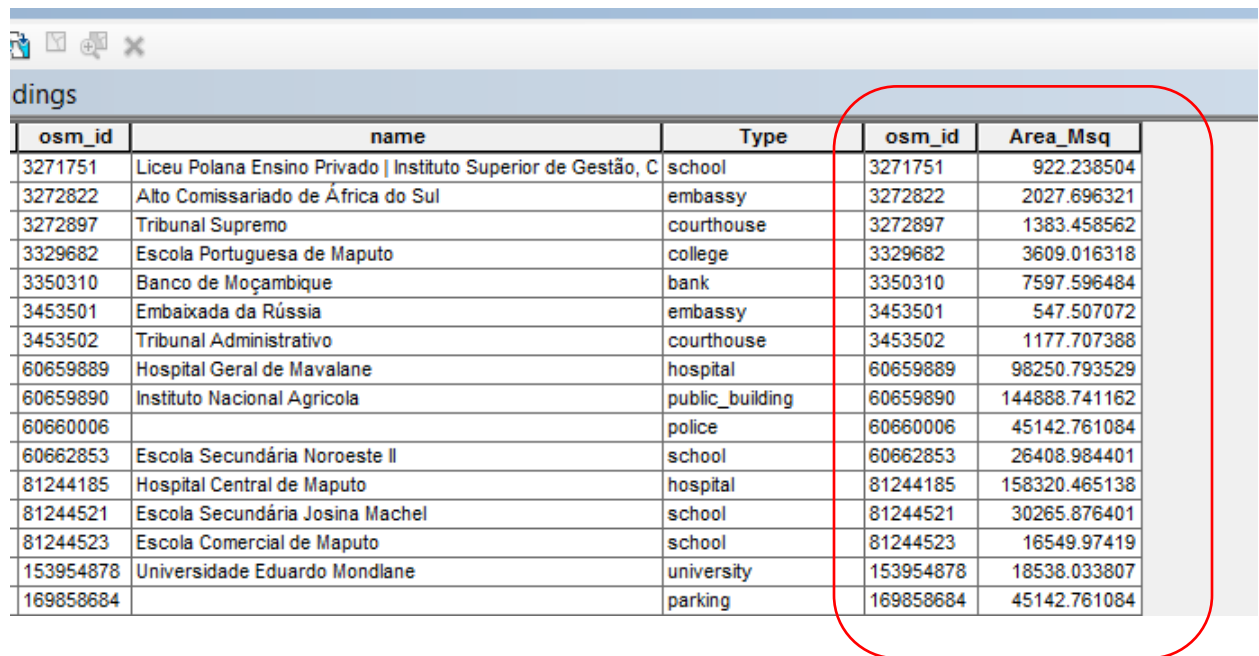
Validate Join

[About joining data](#)

OK Cancel

5. Click OK

All attribute fields of the joined table will be added to the table of this layer.



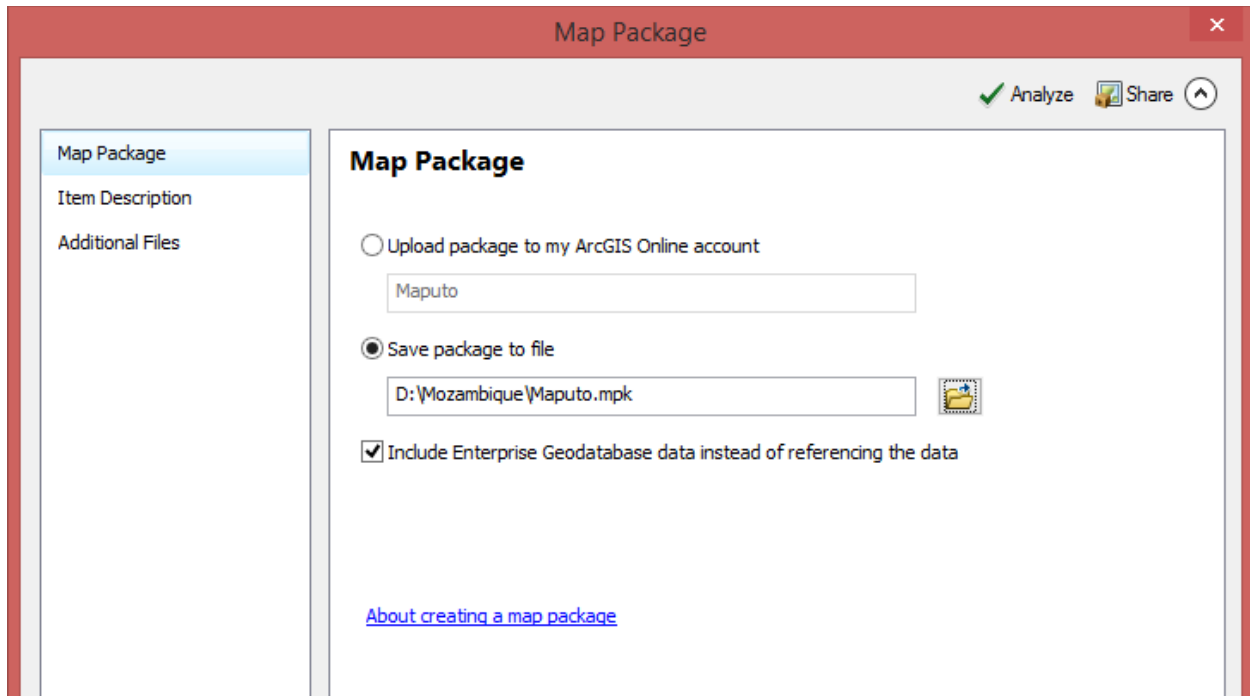
The screenshot shows a window titled "dings" containing a table with the following data:

osm_id	name	Type	osm_id	Area_Msq
3271751	Liceu Polana Ensino Privado   Instituto Superior de Gestão, C	school	3271751	922.238504
3272822	Alto Comissariado de África do Sul	embassy	3272822	2027.696321
3272897	Tribunal Supremo	courthouse	3272897	1383.458562
3329682	Escola Portuguesa de Maputo	college	3329682	3609.016318
3350310	Banco de Moçambique	bank	3350310	7597.596484
3453501	Embaixada da Rússia	embassy	3453501	547.507072
3453502	Tribunal Administrativo	courthouse	3453502	1177.707388
60659889	Hospital Geral de Mavalane	hospital	60659889	98250.793529
60659890	Instituto Nacional Agrícola	public_building	60659890	144888.741162
60660006		police	60660006	45142.761084
60662853	Escola Secundária Noroeste II	school	60662853	26408.984401
81244185	Hospital Central de Maputo	hospital	81244185	158320.465138
81244521	Escola Secundária Josina Machel	school	81244521	30265.876401
81244523	Escola Comercial de Maputo	school	81244523	16549.97419
153954878	Universidade Eduardo Mondlane	university	153954878	18538.033807
169858684		parking	169858684	45142.761084

# Creating a map package

Map packages (.mpk) make it easy to share complete map documents with others. A map package contains a map document (.mxd) and the data referenced by the layers it contains, packaged into one convenient, portable file. Map packages can be used for easy sharing of maps between colleagues in a work group, across departments in an organization, or with any other ArcGIS users via ArcGIS Online.

1. Click **File > Share As > Map Package** on the main menu. The **Map Package** dialog box appears:



2. Name your new map package.
3. Specify where to save your map package.



4. Fill in the required fields for **Item Description**.

Map Package

Item Description

Summary (required):  
A tourist map of Maputo.

Tags (required):  
Maputo, Mozambique, Tourist map  
Choose Your Tags...

Description:  
A map of Maputo with roads, some buildings and key POIs.

Access and Use Constraints:  
No access and use constraint.

Credits:

Update missing metadata in document based on item description.

Analyze Share

5. Click **Analyze**  to validate your map for any errors or issues.

You must validate and resolve all errors before you can save it to disk or share it to ArcGIS Online.

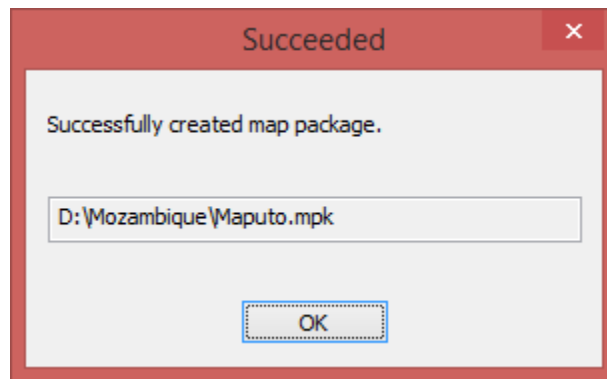
Prepare

0 Errors | 0 Warnings | 0 Messages | Search Analyze Results

Severity	Status	Code	Description
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Status: Complete

6. Once validated, click **Share**  **Share** to create your map package.



7. Click OK

# Publishing data for web GIS?