

Adding grids and graticules

(Reference systems to include UTM, MGRS, and USNG)

Related topics

About adding grids and graticules

ArcMap contains several types of grids and graticules—also called reference systems—that can be added to a map in layout view (they don't appear in data view). You can:

- Place a grid that expresses location in geographic coordinates (degrees of latitude and longitude) by selecting the graticule type.
- Place a grid that expresses location using projected coordinates by selecting the measured grid type. Use a measured grid to place UTM grids and state plane grids. ArcMap allows you to select a coordinate system for the grid that is different from the underlying coordinate system for the data frame.
- Place a grid that divides a map into a specified number of rows and columns by selecting the reference grid type. Often, the row and column labels of a reference grid identify locations listed in a map index.
- Create a custom overlay reference grid. Custom overlay reference grids use the geometry of a polygon data source to define the grid lines and an attribute column in this same layer to specify the labels.

A custom overlay allows you to superimpose an irregular or specialized reference system including:

- Boundaries of SPCS (state plane) zones
- Boundaries of a World Geographic Reference (GEOREF) system
- **Military grids** (MGRS can serve as US National Grid surrogate when referenced to NAD-83.)
- Boundaries of world time zones

Military Grid Reference System (MGRS) grids render the grid zones and 100,000 meter boundaries necessary to refer to a location using the MGRS. ArcMap's MGRS grids can also be used in map layouts requiring the US National Grid reference system.

[View a diagram of key MGRS Grid components](#)

How to add grids and graticules

Accessing the grid/graticule wizard

1. Click the View menu and click Data Frame Properties.
2. Click the Grids tab.
3. Click the New Grid button.

Tips

- ArcMap may be configured not to show wizards. If this is the case, you can enable the grid/graticule wizard. Click the Tools menu, click Options, click the General tab, then check the Wizard Mode option.
- At each step in the wizard, a preview appears in the leftmost part of the dialog box.

Adding a graticule

1. Access the grid/graticule wizard (see steps in 'Accessing the grid/graticule wizard').
2. Click the Graticule option in the grid/graticule wizard.
3. Type a name for the resulting grid.
This name will appear in the list of grids in the Data Frame Properties dialog box.
4. Follow the steps in the wizard and click Next as you complete each panel.
5. Click Finish.

Tips

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Adding a measured grid

1. Access the grid/graticule wizard (see steps in 'Accessing the grid/graticule wizard').
2. Click the Measured Grid option in the grid/graticule wizard.
3. Type a name for the resulting grid.
This name will appear in the list of grids in the Data Frame Properties dialog box.
4. Follow the steps in the wizard and click Next as you complete each panel.
5. Click Finish.

Tips

- ArcMap may be configured not to show wizards. If this is the case, you can enable the grid/graticule wizard. Click the Tools menu, click Options, click the General tab, then check the Wizard Mode option.
- At each step in the wizard, a preview appears in the leftmost part of the dialog box.

Adding a reference grid

1. Access the grid/graticule wizard (see steps in 'Accessing the grid/graticule wizard').
2. Click the Reference Grid option in the grid/graticule wizard.
3. Type a name for the resulting grid.
This name will appear in the list of grids in the Data Frame Properties dialog box.
4. Follow the steps in the wizard and click Next as you complete each panel.
5. Click Finish.

Tips

- ArcMap may be configured not to show wizards. If this is the case, you can enable the grid/graticule wizard. Click the Tools menu, click Options, click the General tab, then check the Wizard Mode option.
- At each step in the wizard, a preview appears in the leftmost part of the dialog box.

Setting up ArcMap to use custom overlay reference grids

1. Run the ArcMap Advanced Settings utility, which can be found in the Utilities folder where you installed ArcGIS (the default install location is C:\Program Files\ArcGIS\Utilities).

2. Navigate to the folder under the System Paths tab containing the reference systems you wish to use to render the custom overlay grids.
A folder containing precreated reference systems is installed as part of the ArcGIS setup.
3. Click the Tools menu, point to Styles, then click Style Manager to add a blank custom overlay grid to your personal style.
4. Choose your personal style on the left side of the dialog box.
5. Right-click the Reference Systems folder, point to New, and click Custom Overlay.

A custom overlay grid is added to your reference systems folder.

Tip

- ArcMap may be configured to show the Grids and Graticules Wizard. This must be disabled before creating a custom overlay grid. To disable the Grids and Graticules Wizard, click the Tools menu, click Options, click the General tab, and uncheck Wizard Mode.

Creating a custom overlay grid

1. Click the View menu and click Data Frame Properties.
2. Click the Grids tab.
3. Click New Grid.
4. Click the custom overlay from the list of grids.
5. Click Properties.
6. Click the Custom Overlay tab.
7. Click the System dropdown arrow and click the data source that will define the grid lines.
8. Click the Label field dropdown arrow and click the field that will specify the values for the grid labels.
9. Adjust axis, label, and lines properties as appropriate.
10. Click OK to close all dialog boxes.

Adding an MGRS Grid to your list of personal styles

1. Click the Tools menu, point to Styles, then click Style Manager.
2. Click the name of the style file in the Styles tree view to the left into which you would like to add an MGRS Grid style.
3. Right-click Reference Systems in the style folders on the right, choose New, then choose MGRS Grid.
4. Click OK to close the Reference Systems dialog box.
5. Click Close.

Creating an MGRS Grid

1. Click the View menu and click Data Frame Properties.
2. Click Properties.
3. Click the Coordinate System tab and make sure the data frame is set to a UTM projected coordinate system.
4. Click the Grids tab.
5. Click New Grid.
6. From the list of grids, choose the MGRS Grid that you added into your list of personal styles (see the previous procedure, 'Adding an MGRS Grid to your list of personal styles').
7. On the MGRS tab, select options for enabling/disabling ladder labels and 100,000-meter grid zones.

If your map scale is 1:1,000,000 or smaller, you can also specify interior tick marks that fall along the grid lines.
8. Click Additional Properties to specify the font style and size of the secondary (base) digits.

The Labels tab allows you to specify labeling options for the axis labels. The font style, size, and color affect the principal digits. The Corner Labels tab allows you to choose which corners of the map will be labeled with full coordinate values.

Tips View a diagram of key MGRS components.

- ArcMap may be configured to show the Grids and Graticules Wizard. This must be disabled before creating an MGRS Grid. To disable the Grids and Graticules Wizard, click the Tools menu, click Options, click the Application tab, then uncheck Wizard Mode.
- MGRS Grids, like other map grids, only appear in layout view.

- MGRS Grids will only appear correctly when your data frame is set to a UTM projected coordination system appropriate for your area of interest.