

Creating USNG Mapbooks

This is a basic guide for creating a map book based on the U.S. National Grid (USNG), using Map Series in ArcGIS Pro. These instructions are general in nature and assume a basic proficiency with ArcGIS Pro. Map Series is a standard feature of ArcGIS Pro. These instructions are based on specific USNG 1K polygon data and the associated field names and feature attributes and are designed to create 8 ½" x 11" maps with 1000 meter (1K) map extents at 1:6000 (1" = 500') scale.

Preparation

Download sample ArcGIS Pro project package and extract project to local environment:

- [NG1K.ppkx](#) - 1KM Maps use a letter (8.5" x 11") size layout ([ArcGIS Pro Project Package](#))

Extract the Project and associated data using the ArcGIS Pro "Extract Package" Tool. If necessary, review Esri documentation for extracting ArcGIS Pro Project packages:

- <https://pro.arcgis.com/en/pro-app/latest/tool-reference/data-management/extract-package.htm>
- <https://community.esri.com/t5/arcgis-pro-questions/what-is-the-best-way-to-import-project-packages-in/td-p/1641783>

Download 1K polygon shapefiles:

- 1KM polygon shapefiles for your area of interest. These can be obtained from the USNG Center Website GIS Data Page (<http://usngcenter.org/portfolio-item/usng-gis-data/>)

Open NG1K.aprx in ArcGIS Pro. This map document has two map frames; one for the map itself ("Layers"), and one for the map index ("Index"). The coordinate system on **both** data frames is set to UTM Zone 15N. The coordinate system of both must be changed to the UTM Zone corresponding to the USNG Grid Zone for the maps that are to be created. If your area of interest crosses UTM zones, additional work must be done to display the grid for both zones by copying and pasting the 1K Aerial Grid and setting the proper grid zones for each grid.

Change the data source for layer named "1K Polygons" in both maps to the shapefile you just downloaded. This polygon layer is required to create a Map Series and to create the map index for adjoining maps.

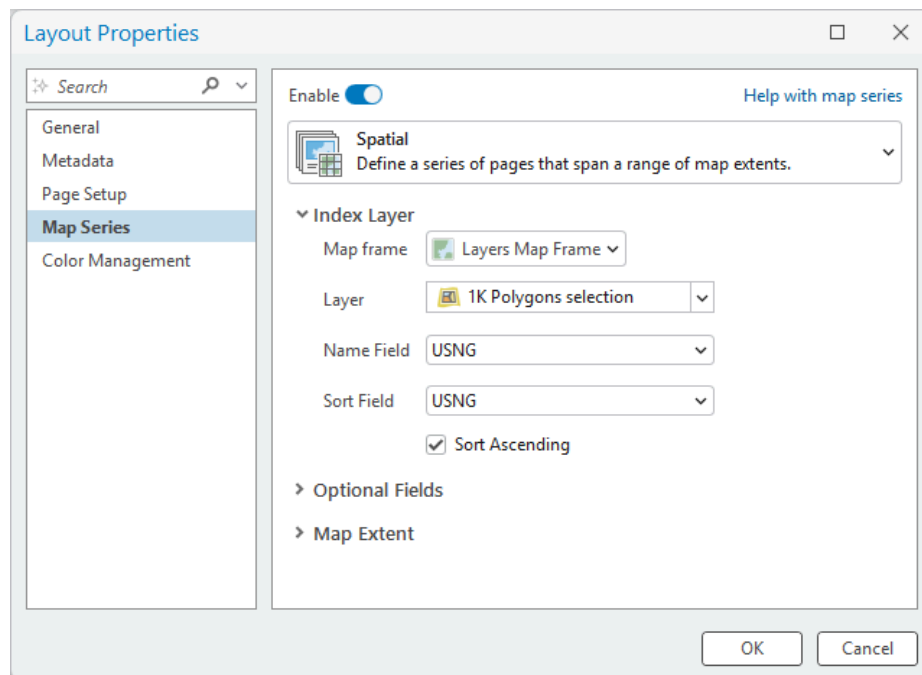
ArcGIS Pro Instructions For Making Maps

1. Open “Map”. The sample project includes a map series, using the “1K Polygons selection” layer. Remove this layer. This will also remove the existing map series.

- Select the polygons for which map pages are desired from the layer “1K Polygons”. Make a new layer from these selected features (named “1K Polygons selection” by default). Turn both layers off.

3. Open the layout “NG1K”. In the “Contents” pane, open the “Map Surround Group” and edit the “Prepared By Text” with appropriate contact information.

4. On the “Contents” pane, click on the “List Map Series Pages” icon  and right click on “NG1K”. Click “Properties” to open the “Layout Properties” dialog and define the new Map Series by clicking on the right side of that dialog and clicking on “Spatial” and setting the options shown below:



When you click “OK”, the pages are defined and ready for exporting.

5. Add other layers you wish to include in your maps

- Add detail data to the “Layers” map frame.
- Add overview data to the “Index” map frame to provide additional visual context.
- Adjust symbolization and labeling.

6. Review the maps and make final adjustments to the map layout.

- Use the navigation tools on the Map Series to move the first page, next page, previous page, or last page. Note various dynamic text, which is based on attributes of the USNG 1K polygon data set including; the map page number and the current page number centered in the map index (Eastings+Northings), the Grid Zone (GRID1MIL) and 100,000m (GRID100K) identifiers in the grid zone designation box and embedded in the corresponding USNG text.

7. Export the maps pages to PDF files.

- Use “Share” > “Output” > “Export Layout” to initiate the export process. Choose File Type “PDF”, set an appropriate output location. Click the “Map Series” tab and identify the pages for export.
- You can also choose to export all pages to a single file or multiple files. Exporting to a single PDF file is an easy option for creating map books. However, exporting to “Multiple Files (Page name as suffix)” provides greater flexibility by creating a library of map pages named using the full USNG designation as the filename. When using this option, the specified file name becomes the root file name (prefix), which is followed by the USNG page name.