GSC FIELD APP – CREATING AND USING A TILE PACKAGE

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WHAT IS A TILE PACKAGE?

- Tile packages are also known as TPKs.
- A tile package is a single, easy-to-share file that is created in ArcMap.
- Tile packages can be used as a background map in the GSC Field App and can incorporate any standard GIS datasets.
- Tile package datasets are not editable in the GSC Field App nor can you query TPK data.
- TPKs are only used as background.
- TPK maps must be in the same projection as the projection used in the GSC Field App.
- TPK MXDs should only contain the layers needed as additional layers tend to inflate the size of the TPK.
- Even layers that are turned off in the GSC Field App can add to the TPK size.
- The goal is to keep the tile package as small as possible.

DATA THAT CAN BE USED IN TILE PACKAGE

- GanFeld data from previous years (as published and georeferenced raster maps)
- Other legacy geology data
- Digital elevation models and hillshades
- Topography (toporama rasters or symbolized vectors)
- Satellite imagery
- Geophysical data
- Any raster or vector dataset

TILE PACKAGE RECOMMENDATIONS

- Create one TPK per layer
  - For example, the symbolized vector topography can be one TPK, the legacy geology can be another.
  - You can display more than one TPK in the GSC Field App at the same time and can adjust the order in which they display.

- Adjust dataset transparency, if necessary, in ArcMap.

- Raster Datasets
  - Download Toporama geo-referenced raster topo data from:
    - http://atlas.gc.ca/toporama/en/index.html
  - Download Geophysical raster data from:
    - http://gdr.agg.nrcan.gc.ca

- Symbolized vector topography
  - Download CanVec vector topo data from:
    - http://maps.canada.ca/czs/index-en.html
  - Symbolize using the Symbology MXD (TopobaseSymbolizer_10_2.mxd)
    - https://gcdocs.gc.ca/nrcanrncan/llisapi.dll?func=ll&objaction=overview&objid=9306050

FOR MORE INFORMATION

- Check out these ESRI websites for more information:
  - About tile packages
  - Fundamentals for creating tile packages
  - How to create a tile package
  - Tips for creating tile packages

BEST PRACTICES

- Set data frame scale beforehand as it helps get the symbol size properly, if any are used.
- Set active view to set the proper extent around datasets, not too wide with a lot of white space around.
- Set projection to wgs84 as well as layers (maintain all datasets in the same projection as projection-on-the-fly is not always successful in the TPK file).
- Create the TPK within a brand new MXD file.

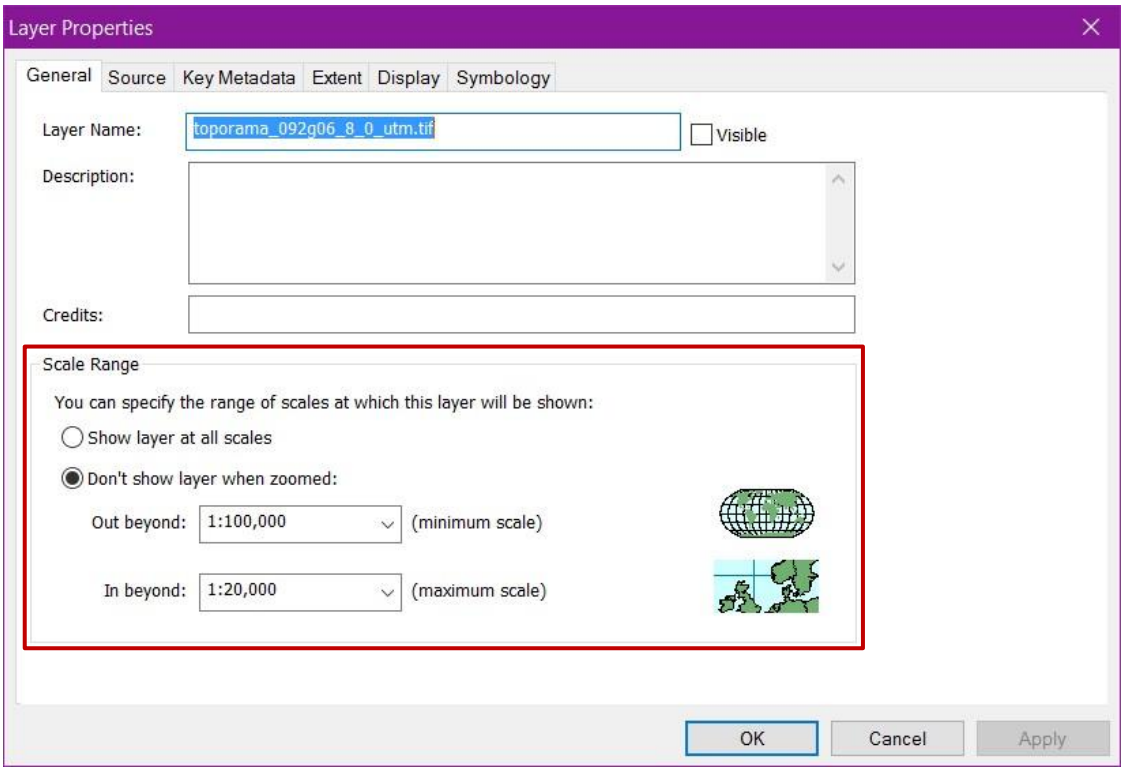
HOW TO PREPARE DATA FOR A TPK

Visibility Scale

Note: Setting the visibility scale is optional.

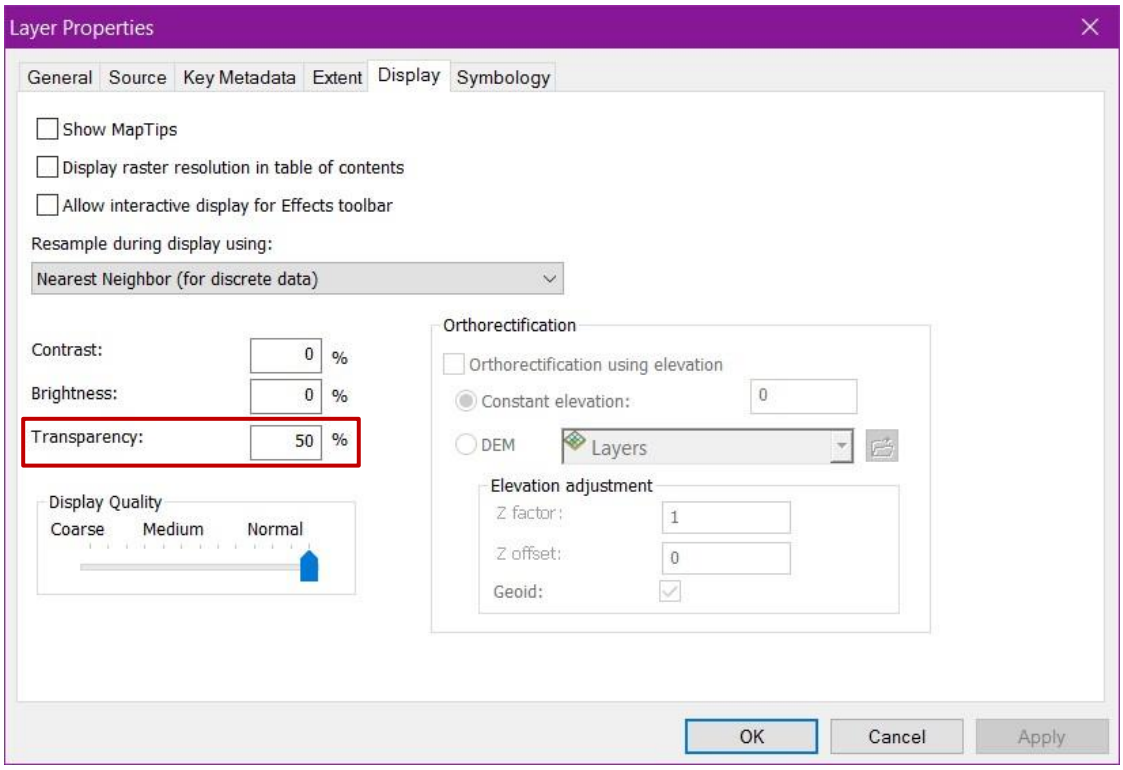
1. In ArcMap, load and symbolize the data sets you wish to use.
2. Open the properties of the layer for which you wish to set visibility scale.
3. Under the General tab, click on 'Don't show layer when zoomed:'
4. Set the Out beyond value to be the scale you wish to zoom in to make that layer appear.
5. Set the In beyond value to be the scale you wish to zoom in to make that layer disappear.

Note: the Out beyond value is always larger than the In beyond value.

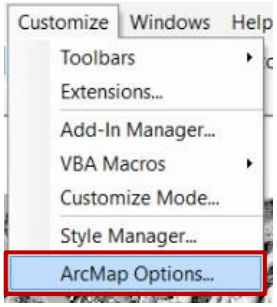


Transparency

1. In ArcMap, load and symbolize the data sets you wish to use.
2. Open the properties of the layer for which you wish to set transparency.
3. Under the Display tab, set the Transparency value. (100%=fully transparent — 0%=fully opaque)
4. Set the Out beyond value to be the scale you wish to zoom in to make that layer appear.
5. Set the In beyond value to be the scale you wish to zoom in to make that layer disappear.



HOW TO CREATE A TPK

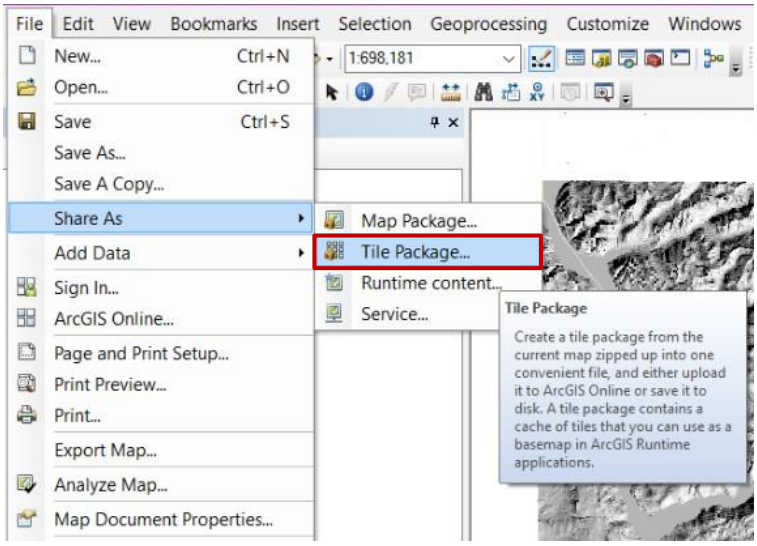


To create a TPK, I must first enable the use of the tile package tool.

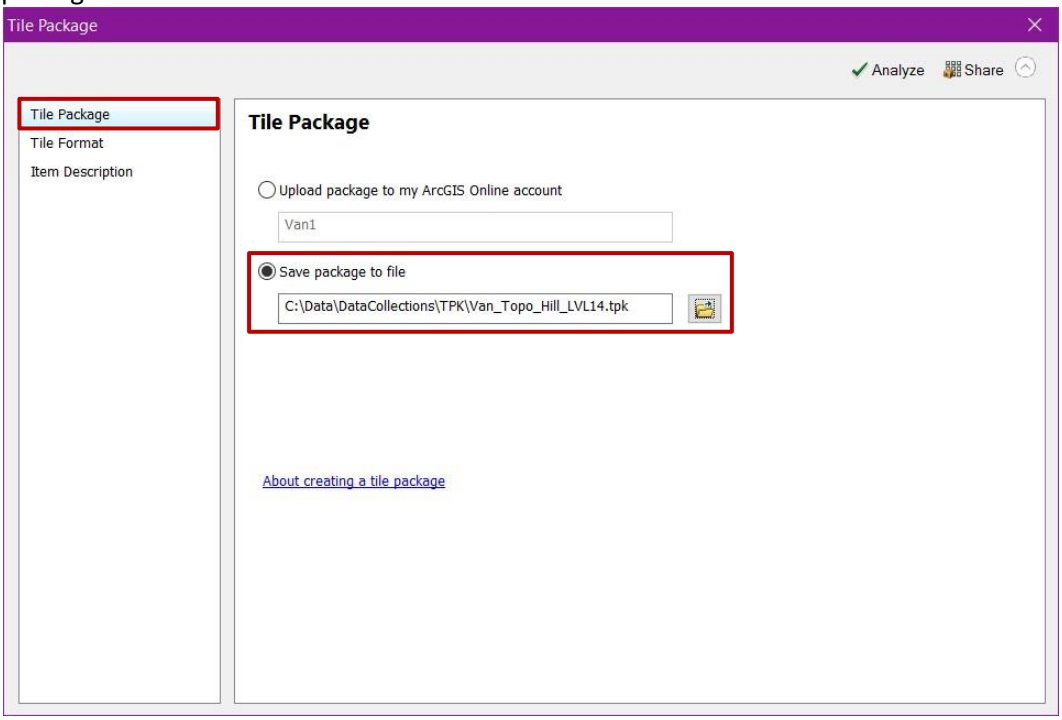
1. In ArcMap, navigate to Customize->ArcMap Options.
2. Click on the Sharing tab and ensure that the Enable ArcGIS Runtime Tools is checked.

To export data to a tile package:

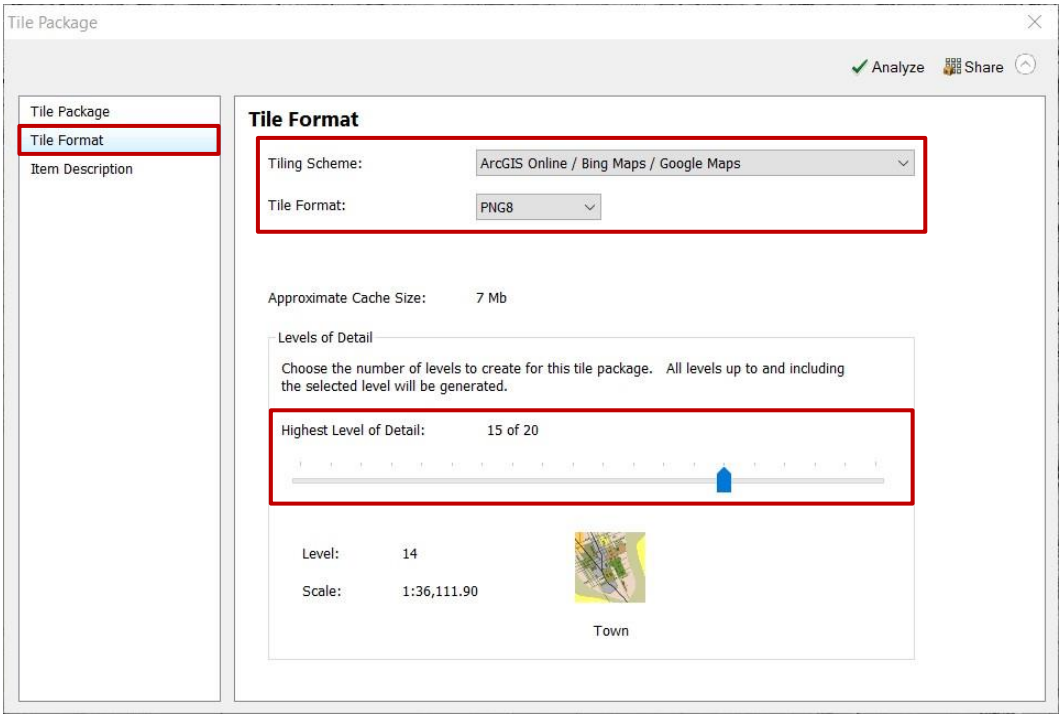
1. In ArcMap, navigate to File->Share As->Tile Package…



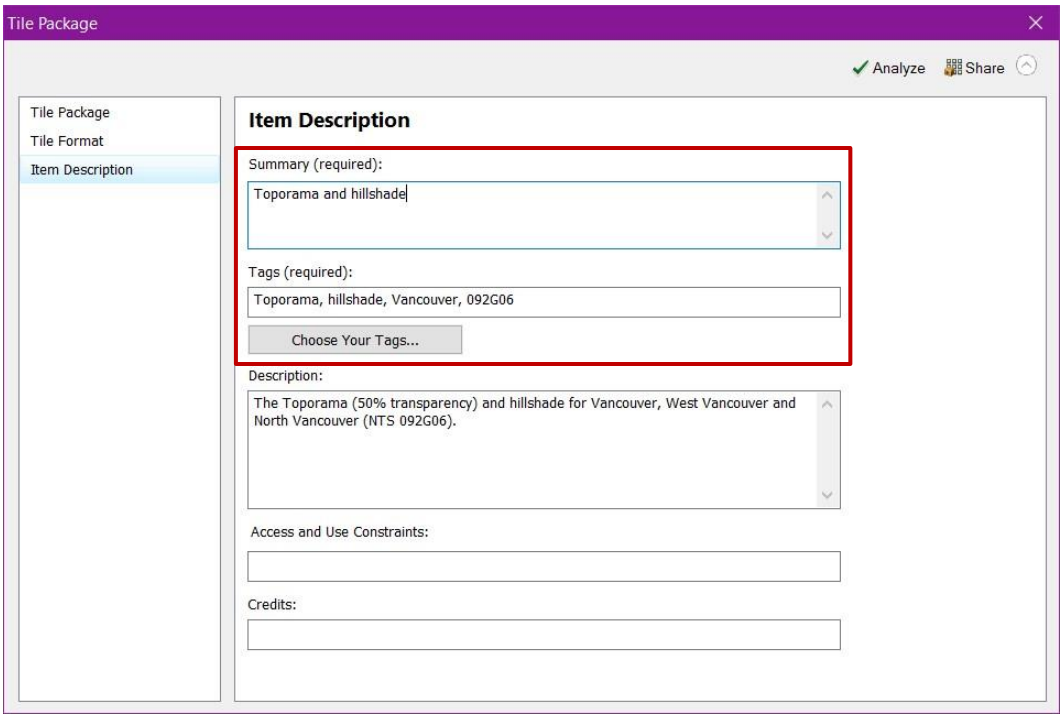
2. In the Tile Package tab, click on Save package to file and enter a descriptive name for the tile package.



3. Navigate to the Tile Format tab.
4. Use the default ArcGIS Online/Bing Maps/Google Maps Tiling Scheme option.
5. The tile format should match the bit sampling of the data you are using. In other words, if you are using an 8-bit raster, use PNG8.
6. The Levels of Detail relate directly to how long it takes the TPK to generate. We recommend you use a setting of 15 to get a relatively small file that has a good level of detail.



7. Navigate to the Item Description tab
8. Enter the basic <u>required</u> metadata for the TPK. Use commas to separate the tags from each other.



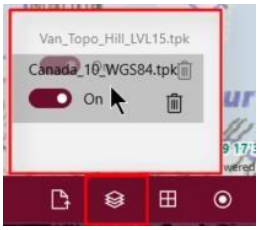
9. Click on the Analyze button in the upper right-hand corner to see if everything is looking good. We might find that a raster does not have pyramids built or that some of our layers are in the wrong projection. The issues are rated in terms of severity.

10. Once we are happy with the analysis, click on the Share button and let it process. You will see that the first 5 or 6 levels complete quickly, but the last few levels will take most of the processing time.

HOW TO USE A TPK IN THE GSC FIELD APP

Loading a Tile Package

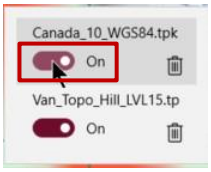
1. In the GSC Field App, click on the Add Layers button on the lower right corner of the footer bar and click on 'Yes' to add a TPK.
2. Navigate to the location of the .tpk file you wish to add. The App will automatically zoom in on you location.



Adjusting the draw order of Tile Packages

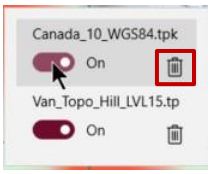
1. By default, the Topo TPK will draw on top of the Canada TPK since it is the most recently added. Change the draw order of the TPKs by clicking on the Layers button and dragging the Canada TPK to the top.

Turning off Tile Packages



2. Turn off a tile package by clicking on the Layers button and clicking on the switch for the layer you wish to turn off.

Removing Tile Packages



3. Remove a tile package by clicking on the Layers button and clicking on the trash can for the layer you wish to turn off. Click 'Yes' to confirm TPK removal.

CREATING A TPK FILE IN ARCGIS PRO

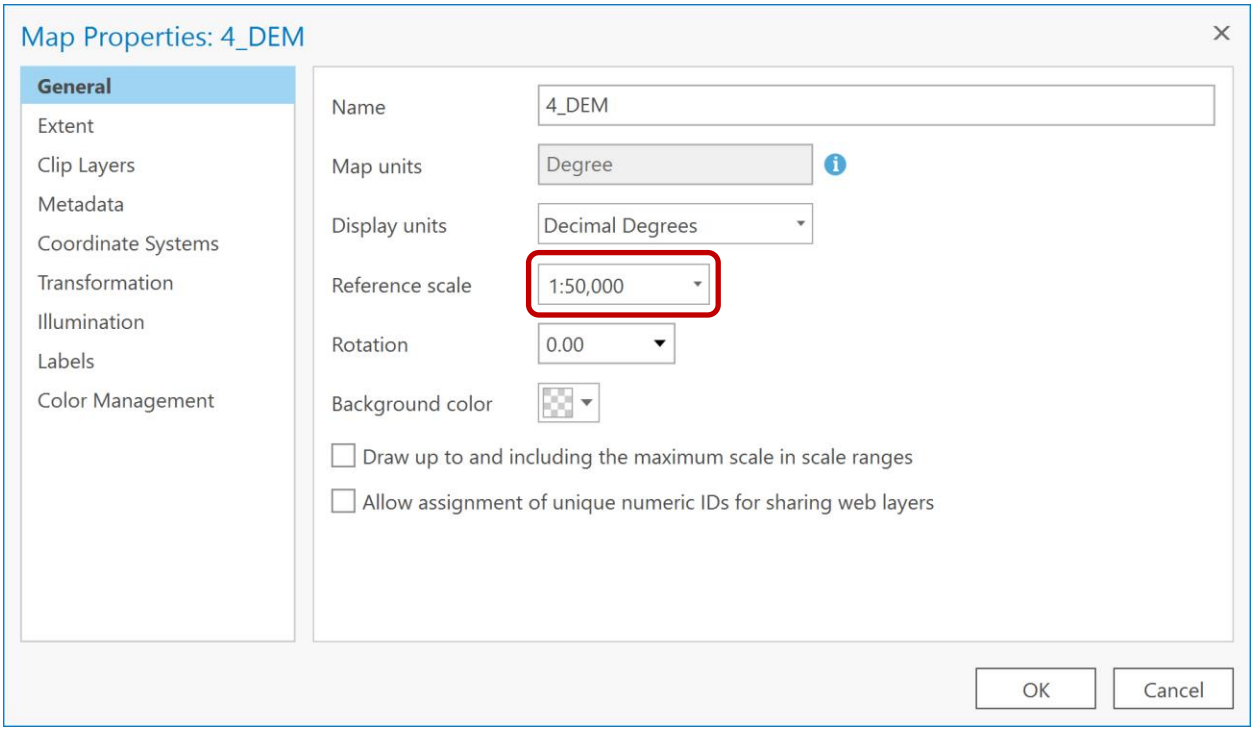
Introduction

Creating a TPK file in ArcGIS Pro is essentially the same process, but it will run much faster in ArcGIS Pro compared to ArcGIS desktop since Pro uses multi-threaded processing (it can use more or all of the computer's cores to process the data). This is important since TPK creation can be very processor intensive.

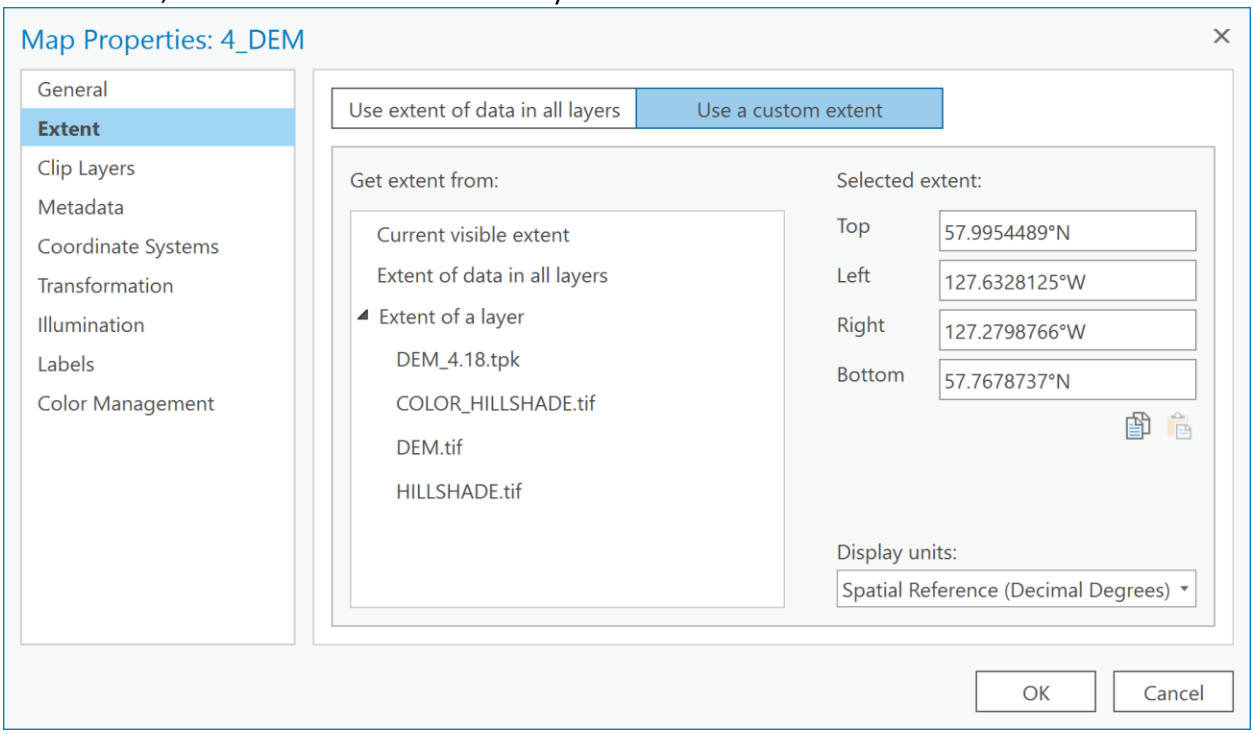
The ArcGIS Pro Method (Recommended)

1. Prepare the data as noted in previous section of this document
2. Go into the frame Properties (right-click on the frame and select Properties)

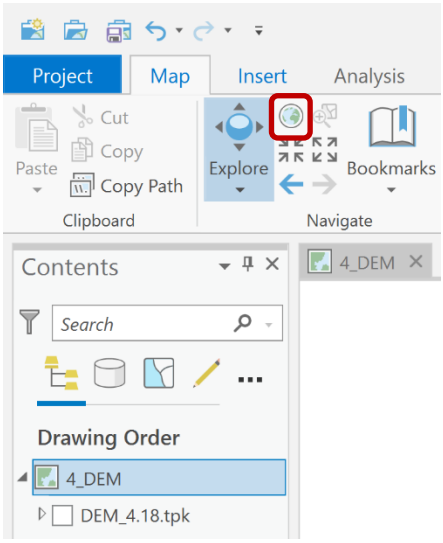
3. Under General, set the Reference scale



4. Under Extent, set the extent to the relevant layers

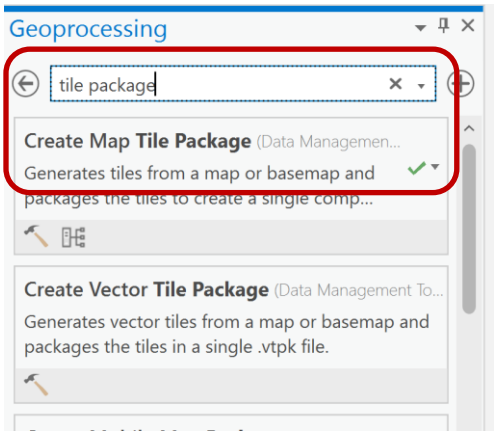


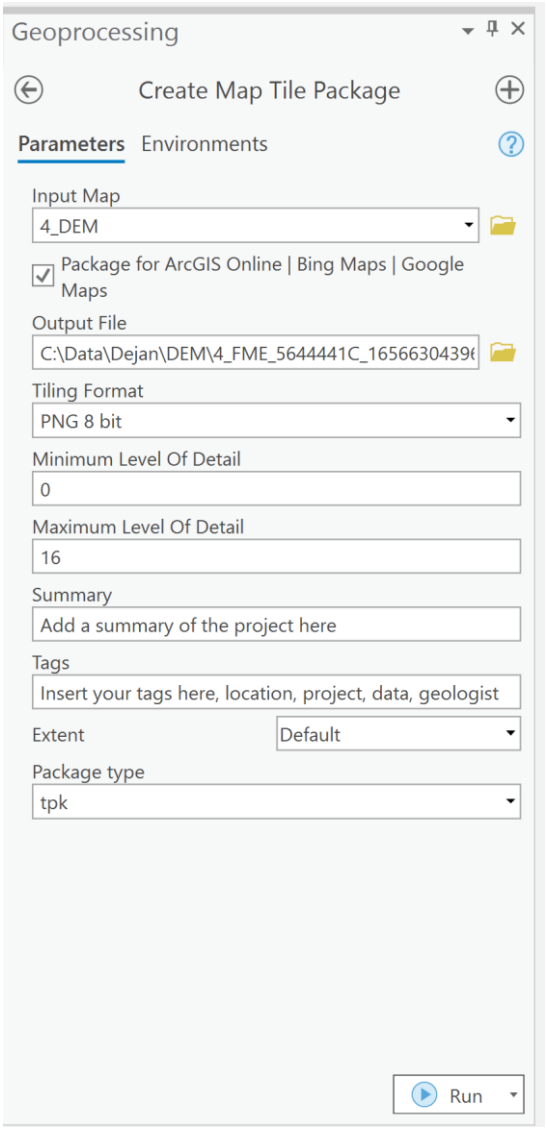
5. This allows you to click on the Full Extent button to ensure the TPK contains the full extent of the dataset.



6. Click on View>Geoprocessing 

7. Search for 'Tile Package'





8. Click on Create Map Tile Package
9. Fill in the menu as needed.

a. We recommend setting

- Tiling Format to be 'PNG 8 bit'
- Maximum Level of Detail to '16'

b. Summary and Tags MUST be populated, or the tool will not run

c. Note that the Package Type **MUST** be 'tpk', not 'tpkx'

10. Click on 'Run' to start processing the TPK file. Note: depending on the density and extent of the data this process could be running for hours, particularly for raster data. Consider breaking larger datasets up into smaller ones if they are too large.

11. Once the TPK has been created, drag & drop the TPK file into the Table of Contents and view it in ArcMap Pro to ensure that it is suitable for use on a tablet.