

# GSC FIELD APP – CREATING AND USING A TILE PACKAGE

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## WHAT IS A TILE PACKAGE?

- A tile package is a single, easy-to-share file that is created in ArcMap.
- Tile packages are used as a background map in the GSC Field App and can incorporate any standard 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 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
- layers from ARCGIS Online such as ESRI Basemaps including streets, imagery, hybrid imagery and many more.

## ***TILE PACKAGE RECOMMENDATIONS***

- Create one TPK per layer
  - E.g. 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.
  - Adjust dataset transparency if necessary in ArcMap.
- Layer Properties->Display tab
- Download Toporama geo-referenced raster topo data from:
  - <http://atlas.gc.ca/toporama/en/index.html>
- 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://gdocs.gc.ca/nrcanrncan/llisapi.dll?func=ll&objaction=overview&objid=9306050> • Geophysical raster data - <http://gdr.agg.nrcan.gc.ca>

## **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](#)

## **HOW TO PREPARE DATA FOR A TPK**

### Visibility Scale

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.

Layer Properties

General Source Key Metadata Extent Display Symbology

Layer Name:  ☐ Visible

Description:


Credits:


Scale Range

You can specify the range of scales at which this layer will be shown:

☐ Show layer at all scales

☒ Don't show layer when zoomed:

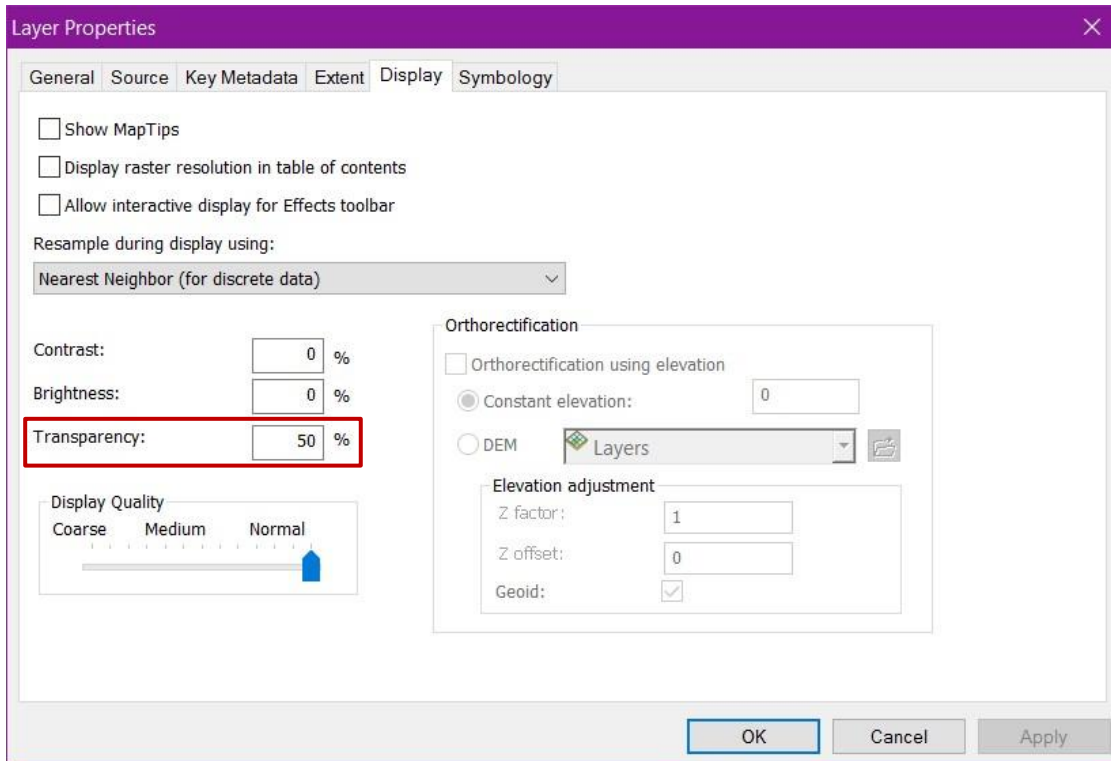
Out beyond:  (minimum scale) 

In beyond:  (maximum scale) 

OK Cancel Apply

## 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.



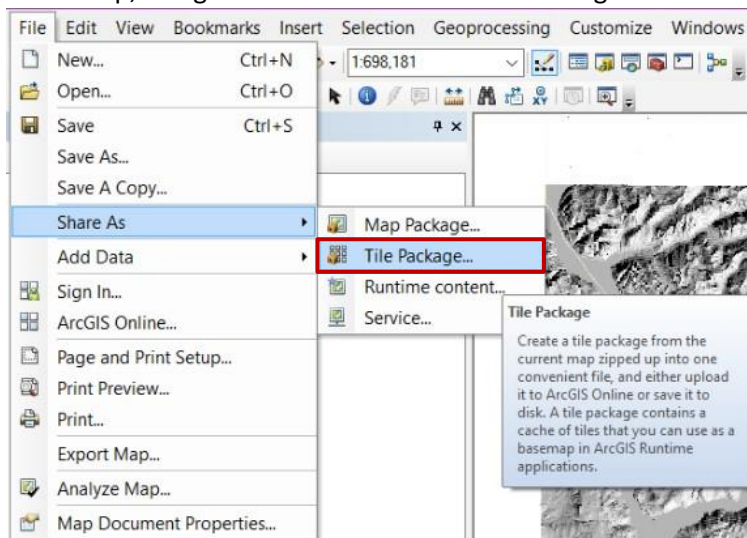
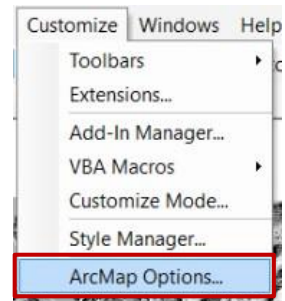
## HOW TO CREATE A TPK

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.

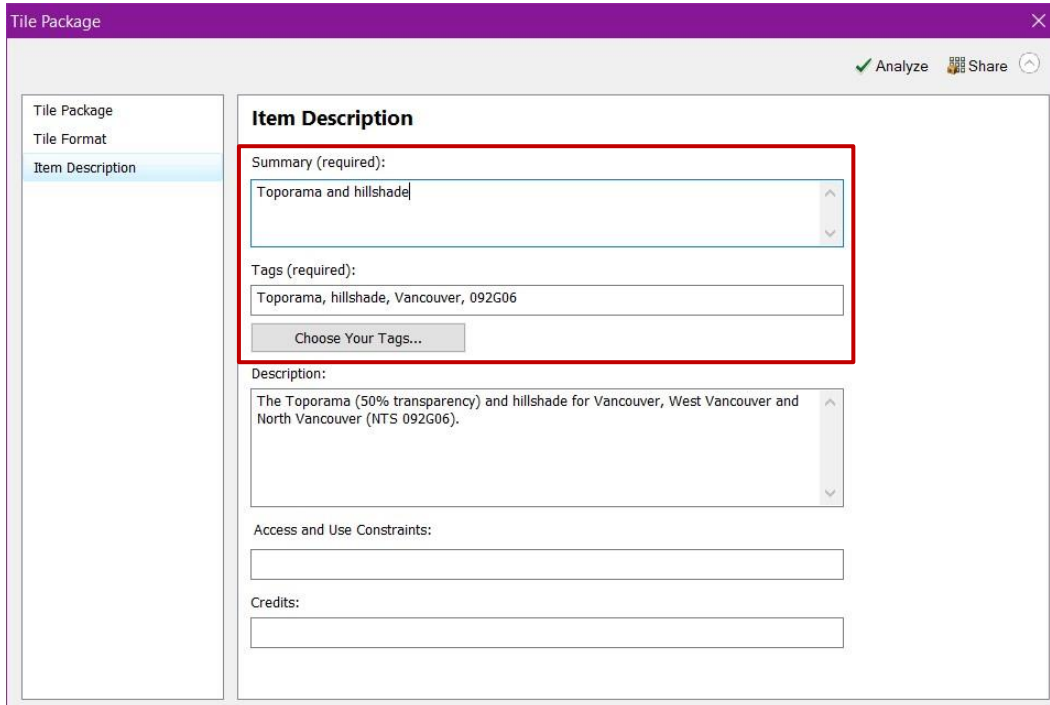
The screenshot shows the 'Tile Package' dialog box with the 'Tile Package' tab selected. The left sidebar contains 'Tile Package', 'Tile Format', and 'Item Description'. The main area has two radio buttons: 'Upload package to my ArcGIS Online account' (unselected) and 'Save package to file' (selected). Below the selected option is a text field containing 'C:\Data\DataCollections\TPK\Van\_Topo\_Hill\_LVL14.tpk' and a file icon. A red box highlights the 'Save package to file' option and its associated text field. At the top right are 'Analyze' and 'Share' buttons. A link 'About creating a tile package' is at the bottom.

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.

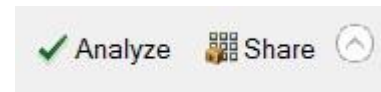
The screenshot shows the 'Tile Package' dialog box with the 'Tile Format' tab selected. The left sidebar contains 'Tile Package', 'Tile Format', and 'Item Description'. The main area has two dropdown menus: 'Tiling Scheme' (set to 'ArcGIS Online / Bing Maps / Google Maps') and 'Tile Format' (set to 'PNG8'). A red box highlights these two dropdowns. Below them, 'Approximate Cache Size' is 7 Mb. The 'Levels of Detail' section has a text box stating 'Choose the number of levels to create for this tile package. All levels up to and including the selected level will be generated.' Below this is a slider for 'Highest Level of Detail' set to '15 of 20', with a red box highlighting the slider. At the bottom, 'Level' is 14, 'Scale' is 1:36,111.90, and there is a map thumbnail labeled 'Town'.

7. Navigate to the Item Description tab

8. Enter the basic required metadata for the TPK. Use commas to separate the tags from each other.



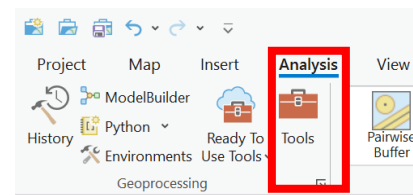
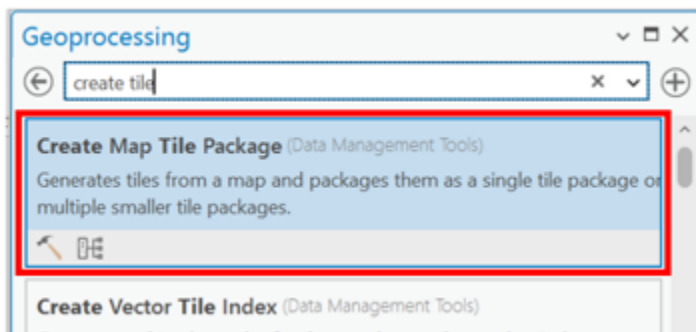
9. Click on the Analyze button in the upper right-hand corner to see if everything is looking good. We might find that a raster does not have pyramids built or that some of our layers are in the wrong projection. The issues are rated in terms of severity.
10. Once we are happy with the analysis, click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



## HOW TO CREATE A TPK IN ARCGIS PRO

To export data to a tile package:

1. In ArcGIS Pro, navigate to Analysis->Tools... to bring up the Geoprocessing menu.



2. Once you see the Geoprocessing menu, use the search field to search for 'create tile'. The Create Map Tile Package should appear at the top of the list. Please select it.

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

**Geoprocessing** Create Map Tile Package

**Parameters** Environments

Input Map  
Map

☒ Package for ArcGIS Online | Bing Maps | Google Maps

Output File  
C:\Data\DataCollection\Canadian Imagery Hybrid PNG8.tpk

Tiling Format  
PNG 8 bit

Minimum Level Of Detail  
12 ( 144447.638572 )

Maximum Level Of Detail  
23 ( 70.531074 )

Summary  
Canadian Imagery Hybrid PNG8

Tags  
Maple Ridge, 123 Ave, 92G/2

Extent  
Default

Package type  
tpk

Area of Interest

Run

4. For "Input Map", select the map that you have already set up, in our case, using the Canadian Imagery Hybrid provided by ESRI.
5. Ensure that "Package for ArcGIS Online | Bing Maps | Google Maps" is checked.
6. Set an Output File name using the .tpk extension.
7. The Tiling format should match the format of the imagery. Canadian Imagery Hybrid is 8-bit, so that is appropriate for this task.
8. Set the min and max level of detail based on the resulting scale. Including unneeded levels of detail will result in the dramatic expansion of the TPK file size. Fewer levels will result in a smaller file and run faster but may not have the high resolution required for the work.

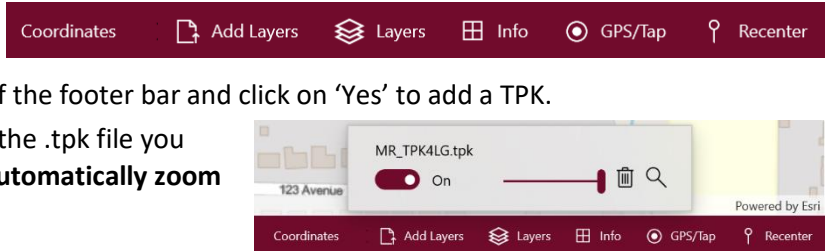


- Summary and Tags are very useful to have in the file but are often considered to be optional metadata. We recommend adding them.
- Lastly, if the file is to be used in the GSC Field App then ensure that you set the Package Type to .tpk,

## HOW TO USE A TPK IN THE GSC FIELD APP

### Loading a Tile Package

- 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.
- 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

- 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

- 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

- 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.

