

GSC FIELD APP – CREATING AND USING A TILE PACKAGE

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 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

RECOMMENDATIONS

PROJECTION

TPK maps must be in WGS84, which is the same projection used in the GSC Field App.

To achieve that, if you set the data frame to the WGS84 projection, any data in other projections will be projected to WGS84 on the fly.

LAYERS

- 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://gcdocs.gc.ca/nrcanrncan/llisapi.dll?func=ll&objaction=overview&objid=9306050>
 - Geophysical raster data - <http://gdr.agg.nrcan.gc.ca>

SOFTWARE

ArcGIS Pro is recommended for processing time which can be a take a quarter or even less time then compared to ArcMap. It is also easier to set up; geoprocessing tool vs buried extension with a bunch of mandatory questions.

Special Note: If you wish to include data from Google in your TPK file, you must have an NRCAN organizational account. If your account isn't already an NRCAN organizational account, please request one through Bruno Avard, who administers our ESRI accounts.

FOR MORE INFORMATION

- Check out these ESRI websites for more information:
 - [About tile packages](#)
 - [Fundamentals for creating tile packages](#)

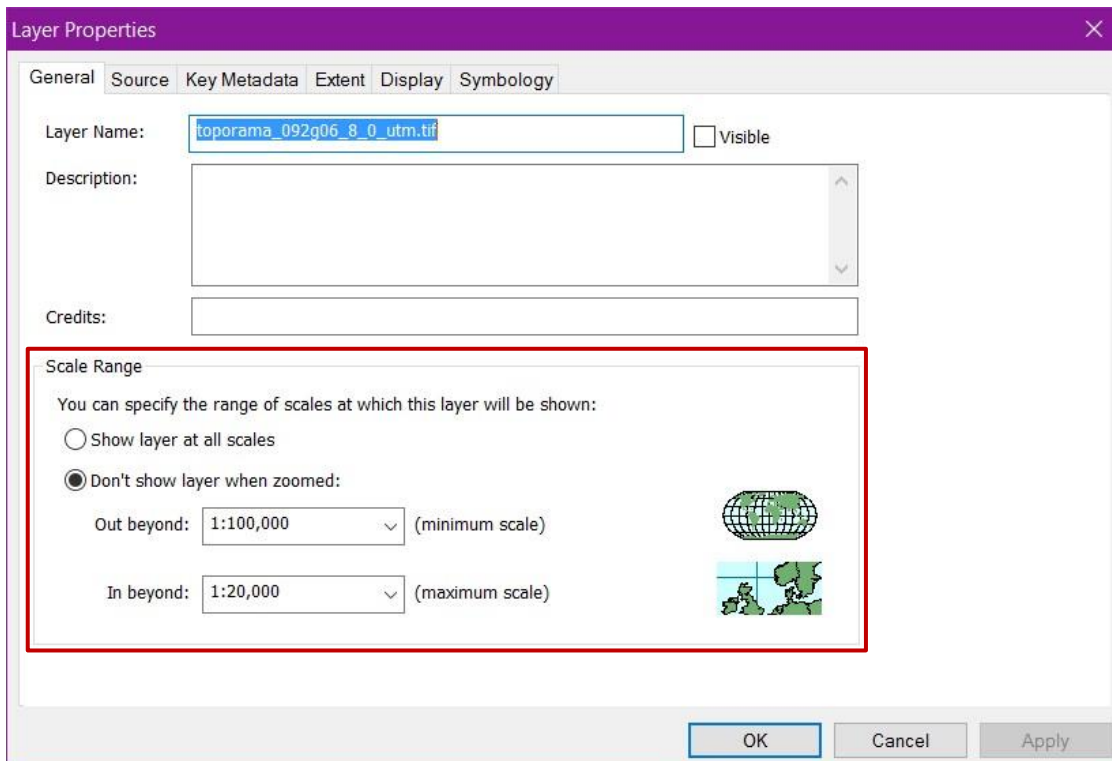
- [How to create a tile package](#)
- [Tips for creating tile packages](#)

HOW TO PREPARE DATA FOR A TPK

VISIBILITY SCALE

1. In Arc, 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.



The screenshot shows the 'Layer Properties' dialog box with the 'General' tab selected. The 'Layer Name' is 'toporama_092q06_8_0_utm.tif'. The 'Visible' checkbox is checked. The 'Scale Range' section is highlighted with a red box. It contains the following options:

- ☐ Show layer at all scales
- ☒ Don't show layer when zoomed:

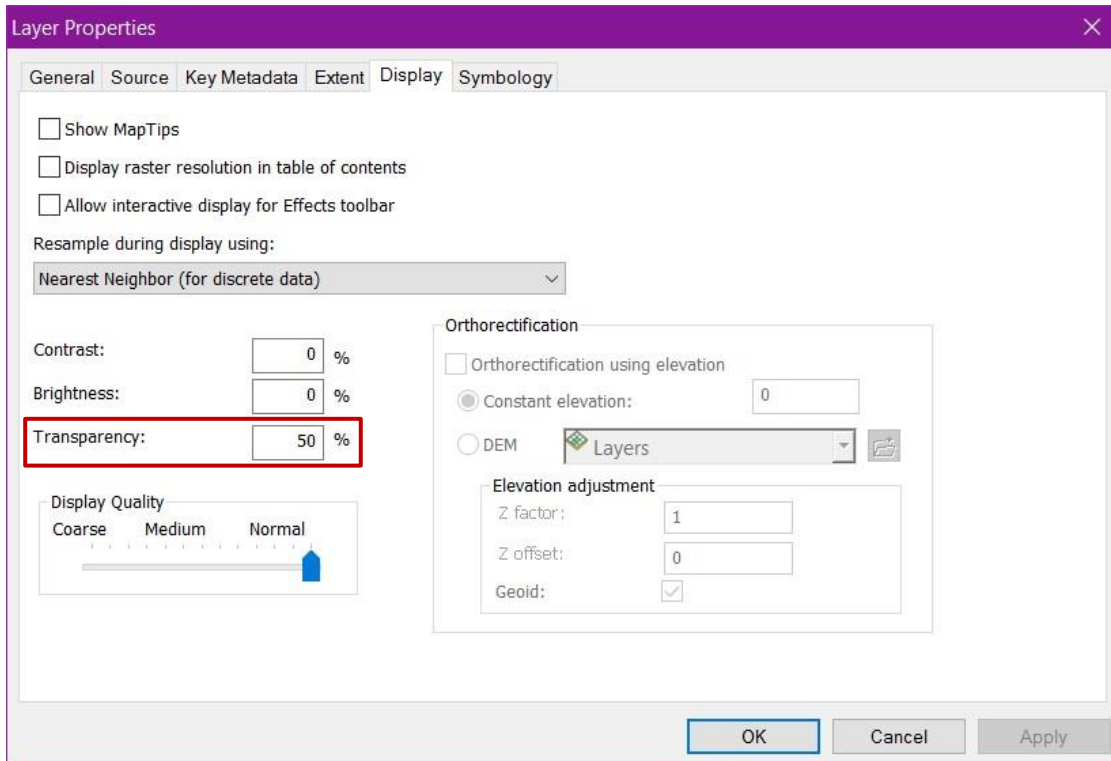
Under the 'Don't show layer when zoomed' option, there are two scale range settings:

- Out beyond:** 1:100,000 (minimum scale)
- In beyond:** 1:20,000 (maximum scale)

There are two small globe icons to the right of the scale range settings. The 'OK', 'Cancel', and 'Apply' buttons are at the bottom right.

TRANSPARENCY

1. In Arc, 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.

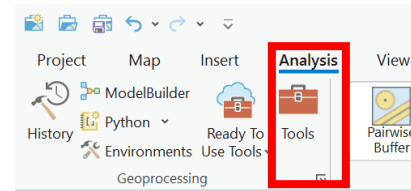
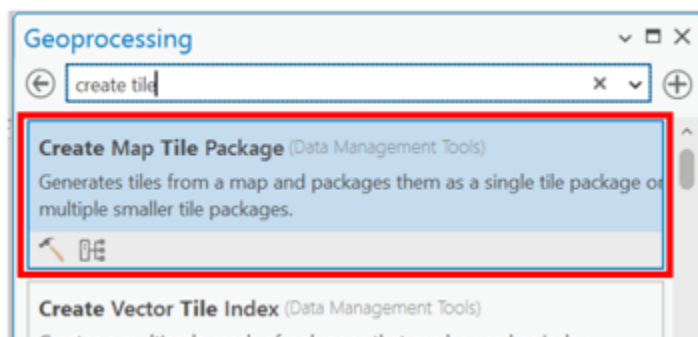


ARC GIS PRO

CREATING A TPK

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

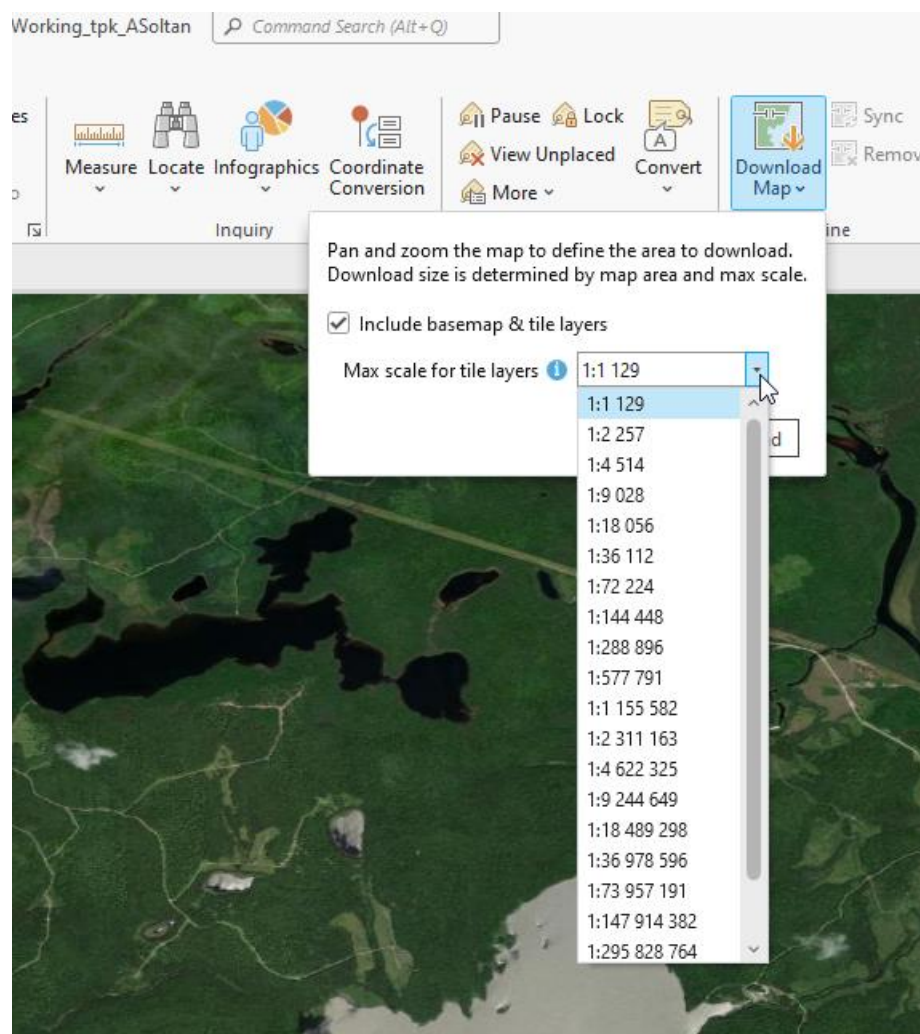
Run

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.
9. Summary and Tags are very useful to have in the file but are often considered to be optional metadata. We recommend adding them.
10. Make sure to set up the extent in this window, else if a clip has been conducted from the map properties, in the “Clip layers” section, it might end up in an empty tpk file.

11. Lastly, if the file is to be used in the GSC Field App then ensure that you set the Package Type to .tpk.

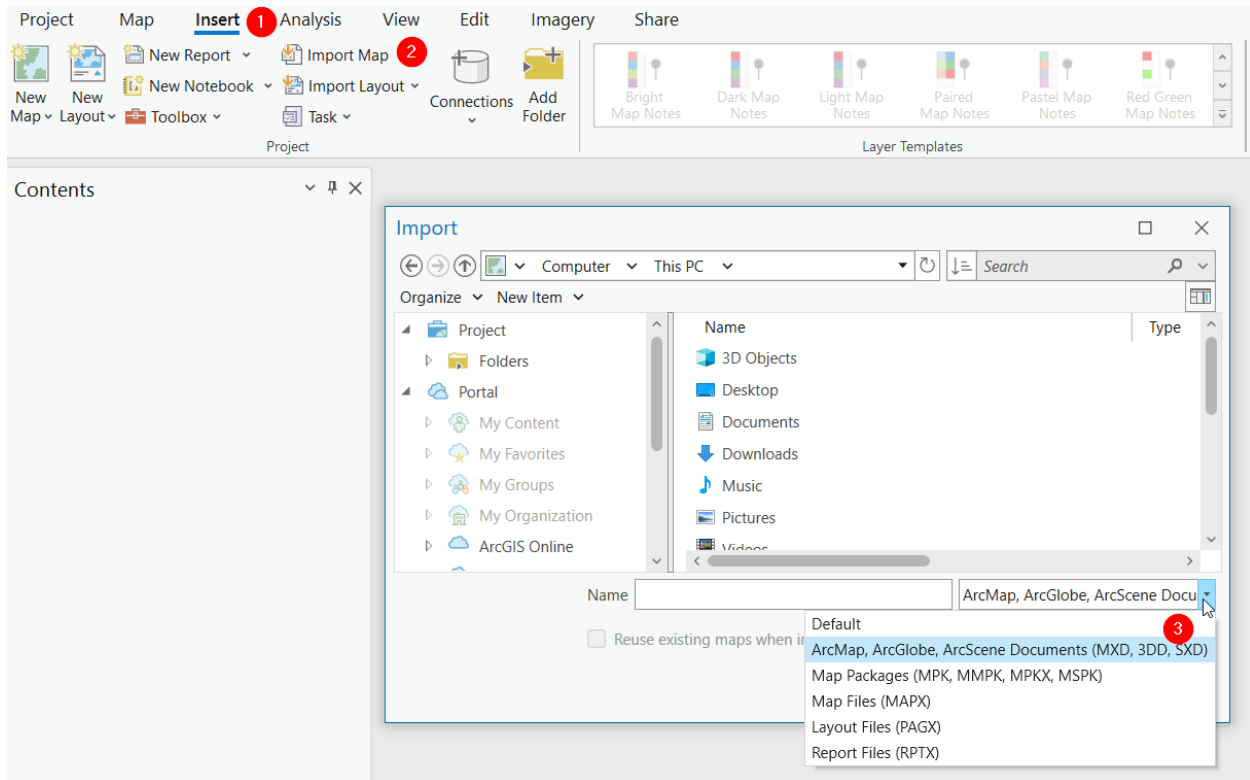
CREATING A TPK FROM ESRI IMAGERY

1. Start ArcGIS Pro and ensure you are logged into your ArcGIS Online organizational account.
2. Make sure you load up ESRI World Imagery basemap layer.
3. In the Map ribbon, find the “Download Map” button and click it. You’ll be presented with a series of different scales to which the TPK will be created. **Beware, those scales are based on the current screen extent. The more zoomed in the layout view is, the more level of details there will be in the resulting file and therefore a much larger file size. The more zoomed out will result in a less detailed output tiled layer package.**
4. Make sure to have checked the box to include basemap and tile layers and click download to finalize the process.
5. The output file will necessarily be a .tpkx file. Simply rename it to .tpk to convert it to the proper format, readable by the GSC Field App.



IMPORTING AN MXD INTO ARCGIS PRO

In order to import in ArcGIS Pro an old map document from ArcMap desktop suite, go in the Insert tab, click on import Map button then you'll be presented with a browse menu in which you can selected the .mxd to import.



ARC MAP

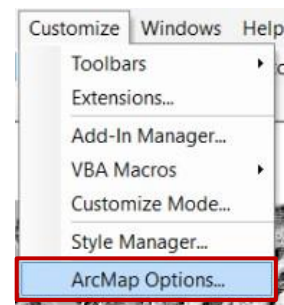
CREATING A TPK

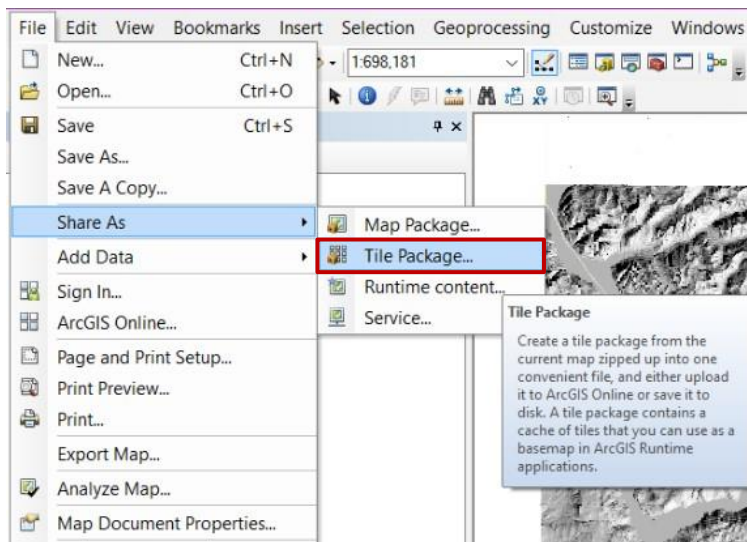
To create a TPK, I must first enable the use of the tile package tool.

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

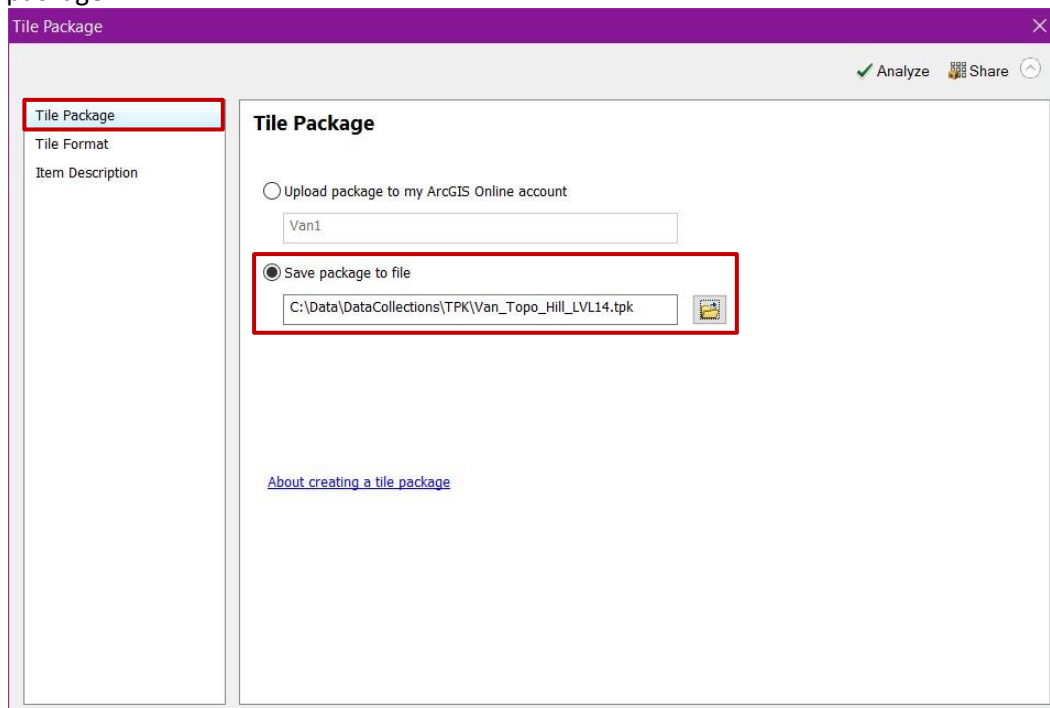
To export data to a tile package:

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.

Tile Package

Tile Format

Item Description

Tile Format

Tiling Scheme: ArcGIS Online / Bing Maps / Google Maps

Tile Format: PNG8

Approximate Cache Size: 7 Mb

Levels of Detail

Choose the number of levels to create for this tile package. All levels up to and including the selected level will be generated.

Highest Level of Detail: 15 of 20

Level: 14

Scale: 1:36,111.90

Town

Analyze Share

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.

Tile Package

Tile Format

Item Description

Item Description

Summary (required):

Toporama and hillshade

Tags (required):

Toporama, hillshade, Vancouver, 092G06

Choose Your Tags...

Description:

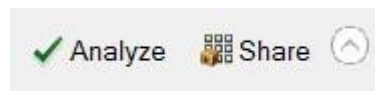
The Toporama (50% transparency) and hillshade for Vancouver, West Vancouver and North Vancouver (NTS 092G06).

Access and Use Constraints:

Credits:

Analyze Share

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.

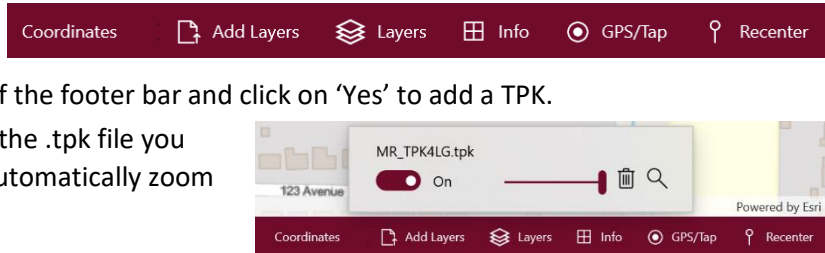


- Once we are happy with the analysis, click on the Share button and let it process. You will see that the first 5 or 6 levels complete quickly, but the last few levels will take the majority of the processing time.

HOW TO 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.

