

## Raster Normalizer

### Overview

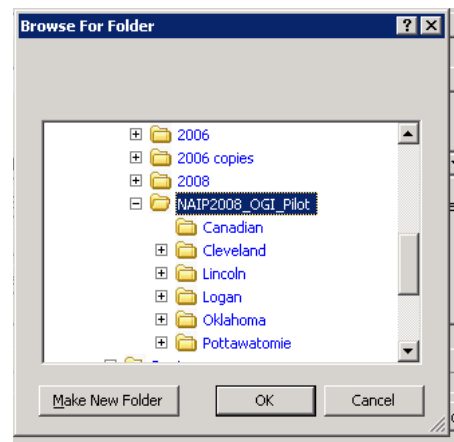
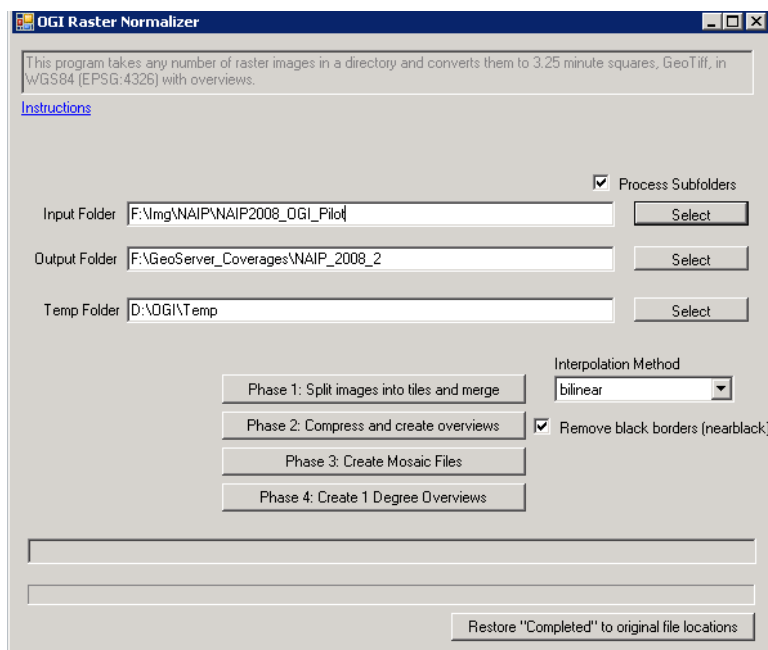
The Raster Normalizer is an application developed by Coordinate Solutions that reprojects large (typically county-wide) rasters into a series of 3.25 minute square GeoTiffs in Geographic Coordinate System WGS 1984 (EPSG: 4326). The application processes images in four consecutive phases, each of which requires user input.

The program was designed to run on a 64-bit Windows system. It is not supported on 32-bit machines.

### Setup Processing Environment

There are two ways to launch the program (OGIRasterNormalizer.exe): from the start menu or from the directory in which it resides (D:\OGI\Programs\OGIRasterNormalizer\bin\Debug).

Once the program is launched, the user will need to specify the input folder containing the images to convert, the output folder that will contain the processed images, and a temporary folder.



To specify an input, output and/or temporary directory:

- Click the Select button next to the appropriate dialog box
- Navigate to the directory in which the image files to process are located, the desired output location, and/or a temporary directory
- Select the folder (single click it), then click the OK button
- Optionally check the Process Subfolders box to process images in any subdirectories of the selected input folder

## Phase 1: Split and merge images

This phase of raster processing involves converting each image in a folder (including subfolders, if specified) into an uncompressed GeoTiff in geographic coordinate system WGS 1984 (EPSG:4326), splitting the image into 3.25 minute (approximately 6 km<sup>2</sup>) tiles, and merging the tiles with other 3.25 minute tiles.

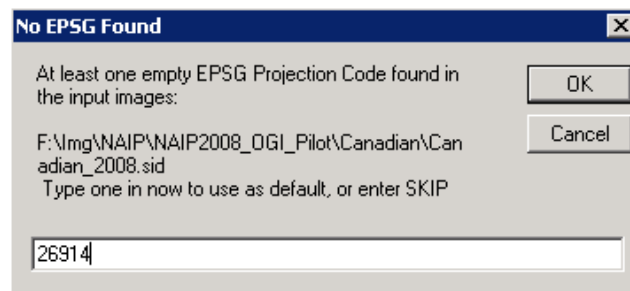
To begin the process:

- Click the Phase 1: Split images into tiles and merge button

If any of the input files are missing spatial reference information, the user will receive a prompt listing the image(s) lacking an EPSG Projection Code. The user will need to supply this information in order for the images to be properly processed. If all layers have a spatial reference defined, the following steps will be skipped.

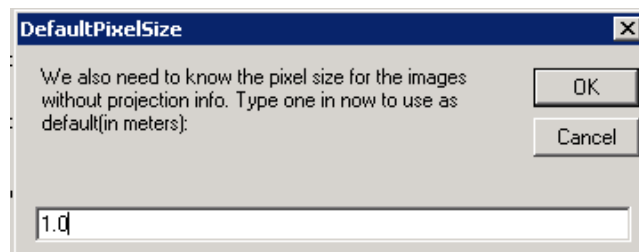
To find the EPSG code for a particular coordinate system, visit: [www.spatialreference.org](http://www.spatialreference.org)

- If prompted, enter the correct EPSG Code into the dialog box
- Click the OK button



When a layer is missing a spatial reference, it is also necessary to enter the pixel size (resolution) for the image. One meter is the default. **Note:** all images processed for a single coverage must have the same resolution.

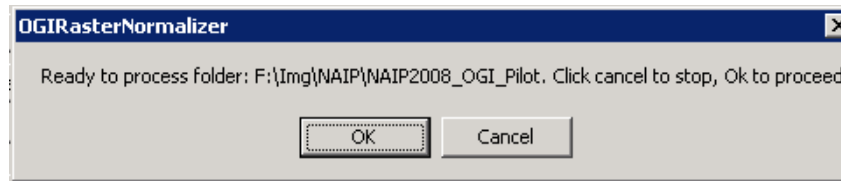
- Enter the image resolution
- Click the OK button



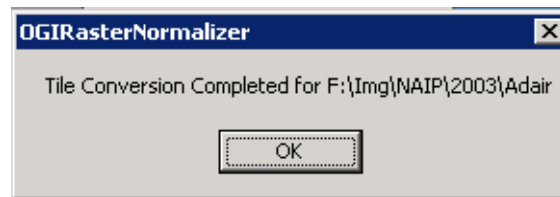
Lossy image compression such as Mr.SID and JPEG can result in a black border around images. If you have such raw images, you may want to select the “Remove black borders (nearblack) box” option.

- (Optionally) click the Remove black borders (nearblack) box

If you have specified your input, output, and temporary correctly, you will receive a prompt indicating that the application is ready to start processing the images in the specified directory.



Phase 1 processing will take a while, especially if there are numerous images in the directory to process. Once processing is complete, you will receive a message indicating that conversion is complete.



Prior to starting the next phase, all images in a coverage must be completed. For instance, if images for a single coverage are stored on separate drives, all these images will need to be complete before proceeding.

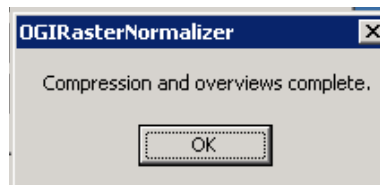
## Phase 2: Compress and create overviews

Once Phase 1 is complete, the user can begin Phase 2. This phase will create internal GeoTIFF overviews (pyramids) for each of the 3.25 minute raster tiles created in the first phase. It will then compress the GeoTIFFS to YCbCr JPEG images.

Transformation and clipping of large image files will often result in black borders around some of the image tiles. You may optionally “remove” these borders by checking the “Remove black borders (nearblack)” option. Technically, this utility sets the border to true black (RGB 0, 0, 0), which enables masking of the boundary during rendering in GeoServer.

- Click the Phase 2: Compress and create overviews button

Once processing is complete, you will receive a message indicating that the overviews have been created and the compression is complete.

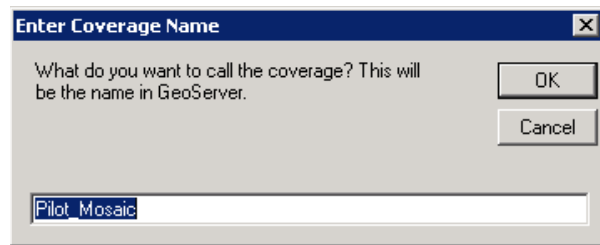


## Phase 3: Create Mosaic

This phase of the processing creates a shapefile and properties file to be used by GeoServer for mosaicing the images. The shapefile contains the enclosing polygons for each of the 3.25 raster tiles, while the properties file contains the image cell size, the number of raster for the image mosaic, the bounding box coordinates of the mosaic, and the number of raster files used by the mosaic.

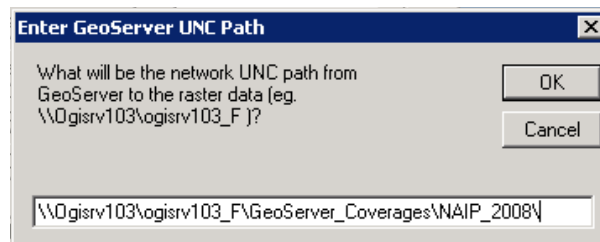
- Click the Phase 3: Create Mosaic Files button

You will be prompted to enter a name for GeoServer coverage.



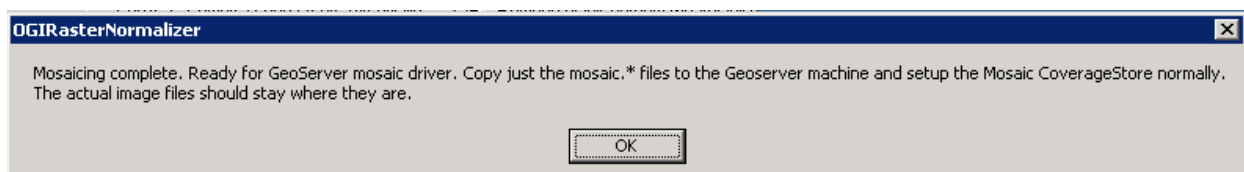
- Enter an appropriate coverage name
- Click the OK button

You will then be prompted to enter the network Universal Naming Convention (UNC) path. This is the path to the location of the tiled image files that will be used by GeoServer. The UNC path is needed because GeoServer runs as a service. Services cannot access network drive letters and must instead use UNC paths.



- Enter the UNC path (e.g. [\\Ogisrv103\ogisrv103\\_F](#))
- Click the OK

Once processing is complete, you will receive a message indicating that the mosaicing is complete.



The image tiles should remain on the machine on which they were processed (and in the directory specified by the UNC path in the above steps). However, the mosaic files (shapefile and properties file) must be transferred to the GeoServer machine. The UNC paths (specified above) to the 3.25 minute tiles are within the shapefile's .dbf file (attribute table). GeoServer uses this path to the images to render the images.

- Copy the mosaic.\* files (\*.dbf, \*.prj, \*.properties, \*.shp, and \*.shx) to the GeoServer machine
- Setup the GeoServer CoverageStore

#### Phase 4: Create 1 Degree Overviews

The final phase is optional and should be used when smaller scale overviews (pyramids) are required (e.g. for statewide views). This will create overviews and mosaic files in a subdirectory of your output directory called “DegreeOverviews.”

The degree overviews and mosaic files should be setup in GeoServer in a similar manner to the 3.25 minute mosaics. The degree mosaic coverage will be the same as the name specified for the 3.25 minute tiles (Phase 3), but will files will contain the words “\_DegreeOverviews” appended to file name.

- (Optional) click the Phase 4: Create 1 Degree Overviews button
- Once processing is complete, transfer the mosaic\_DegreeOverviews.\* files to the GeoServer machine and setup of the GeoServer coverage store

### **Additional Information**

During the processing, completed images are moved to a subdirectory in the input folder called “completed.” This enables restarting a process if it is interrupted without having to reprocess all images in a directory. Once all processing is completed, you can restore all of the input images to their original location by clicking the “Restore ‘Completed’ to original locations” button.

Concurrent instances of the Raster Normalizer can be run on the same machine under the following conditions:

- Each instance in run under separate user names
- Different input, output, and temporary folders are specified