PHOTOGRAMMETRY – AGISOFT METASHAPE

Building and Exporting an Orthomosaic Image (Professional Edition) (04.13)

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ABOUT AGISOFT METASHAPE

Agisoft Metashape is a stand-alone software product that performs photogrammetric processing of digital images and generates 3D spatial data to be used in GIS applications, cultural heritage documentation, and visual effects production as well as for indirect measurements of objects of various scales. This software provides a platform for cultural heritage specialists to create virtual reality scenes, textured 3D meshes, orthographic projections, geo-referenced maps and much more from images and/or laser scans completely automatically.

This **ASOR Tutorial (04.13)** will demonstrate how to build and export an orthomosaic image in Agisoft Metashape Professional on a Windows desktop.

ASOR's tutorials for Metashape are focused on creating 3D surfaces and orthophotos of objects, monuments, and architecture during cultural heritage surveys through the eastern Mediterranean and northern Africa. ASOR plans to expand the scope of its photogrammetry tutorials, however for any questions that aren't covered in these tutorials, please visit Agisoft's Community page, which includes video and written tutorials, the software's manual, and a community forum comprised of Metashape users.

BUILD AN ORTHOMOSAIC IMAGE

Metashape can construct an orthomosaic that is a combined image created by seamless merging of the original images projected on the object surface and transformed to the selected projection. A polygonal model (mesh) or a digital elevation model can be selected as a surface where the images will be projected to.

Metashape allows using one of the following projection types: Geographic, Planar or Cylindrical. Geographic projection serves for most typical task of creation an orthomosaic in a geographical coordinate system. Planar projection allows to select arbitrary orientation of projection plane which is useful for projects concerning facades or other non-horizontal surfaces. To minimize distortions for objects of a cylindrical shape, like tubes, round towers, tunnels, etc., a Cylindrical projection type can be used.

1. Begin building an orthomosaic image by selecting the **Workflow Menu** > **Build Orthomosaic**.
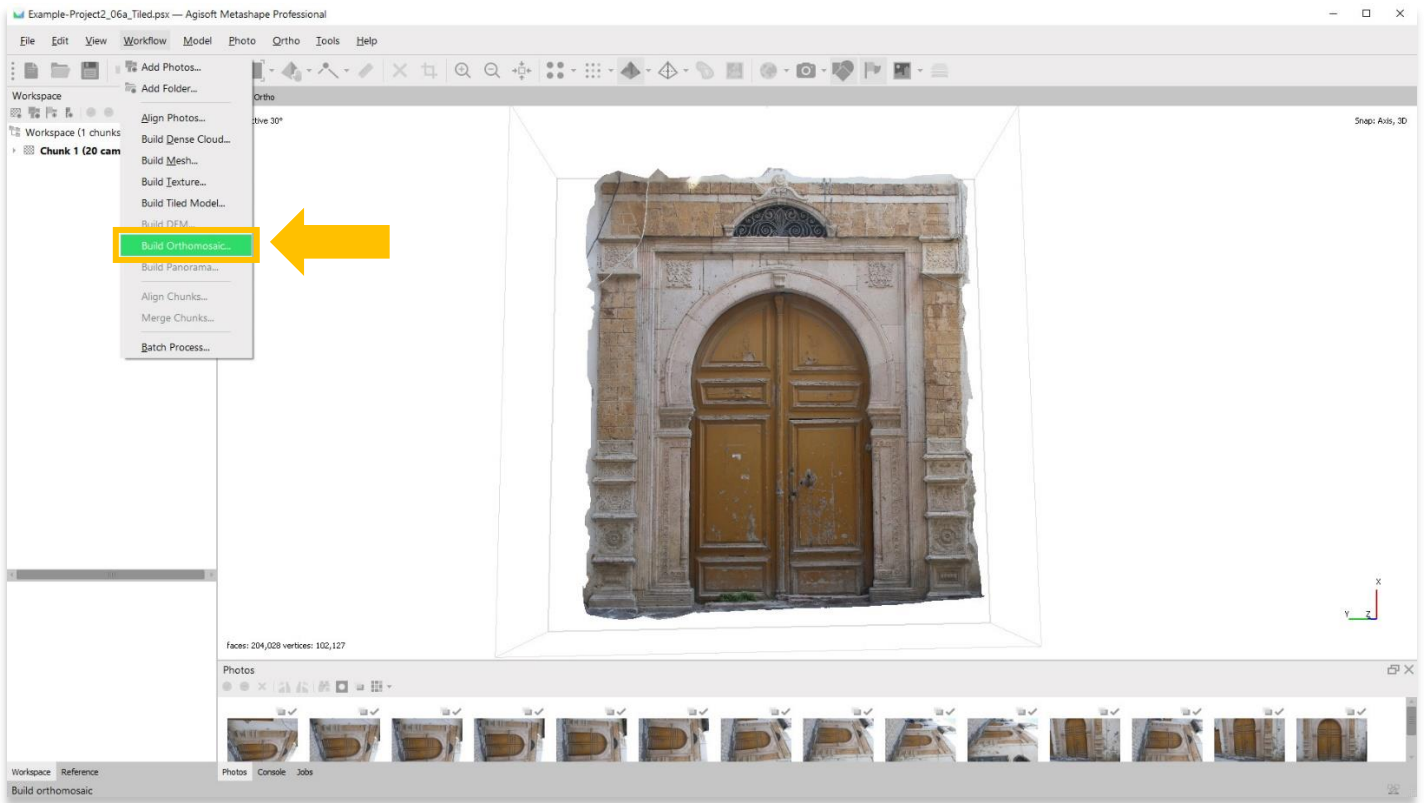
2. A pop-up will appear that provides setting options:
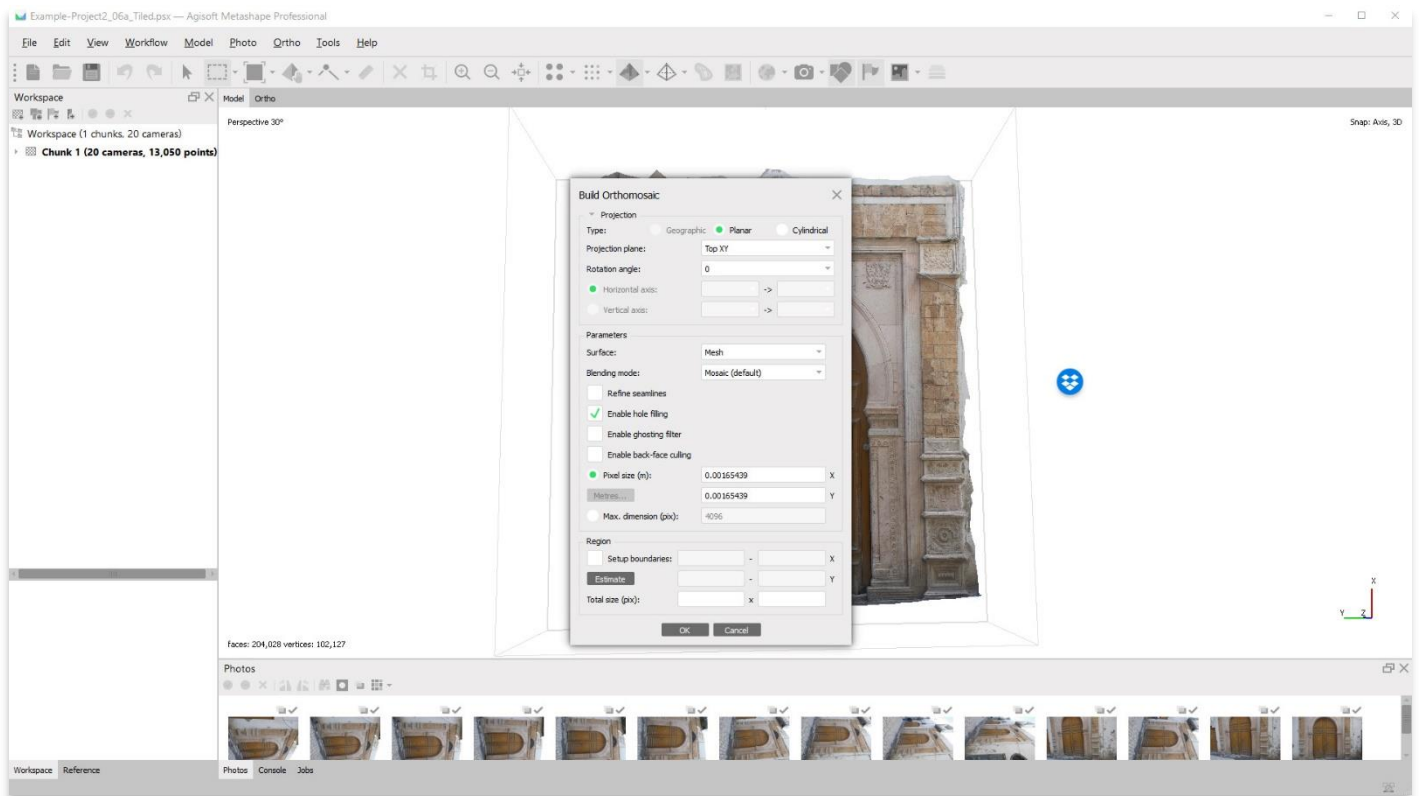
3. Projection Type:
   i. **Geographic** – **Best for aerial maps and landscapes**. This option allows users to choose a geographic coordinate system from the dropdown list or upload parameters of a customized geographical coordinate system. The coordinate system set by default is the coordinate system previously selected for the model itself. You can switch to a different one, providing that corresponding datum transformation parameters are available.
   ii. **Planar** - **Best for facades or other vertical surfaces**. Metashape allows users to project the orthomosaic onto a plane set by the user, providing that mesh is selected as the surface type. You can change the projection plane and orientation of the orthomosaic.
   iii. **Cylindrical** - **Best for portable objects or curved architecture**. This option allows users to project orthomosaic on a cylindrical or curved surface. It helps to avoid severe distortions while projecting cylindrical objects, like tubes, round towers, tunnels, etc.

4. Projection Plane:
   i. The common types of project planes you will use are **Current View** or **X/Y/Z**. When you save your Metashape project, the orientation of your model may change. Whatever orientation appears after saving your project **will be the default view of your orthomosaic**.
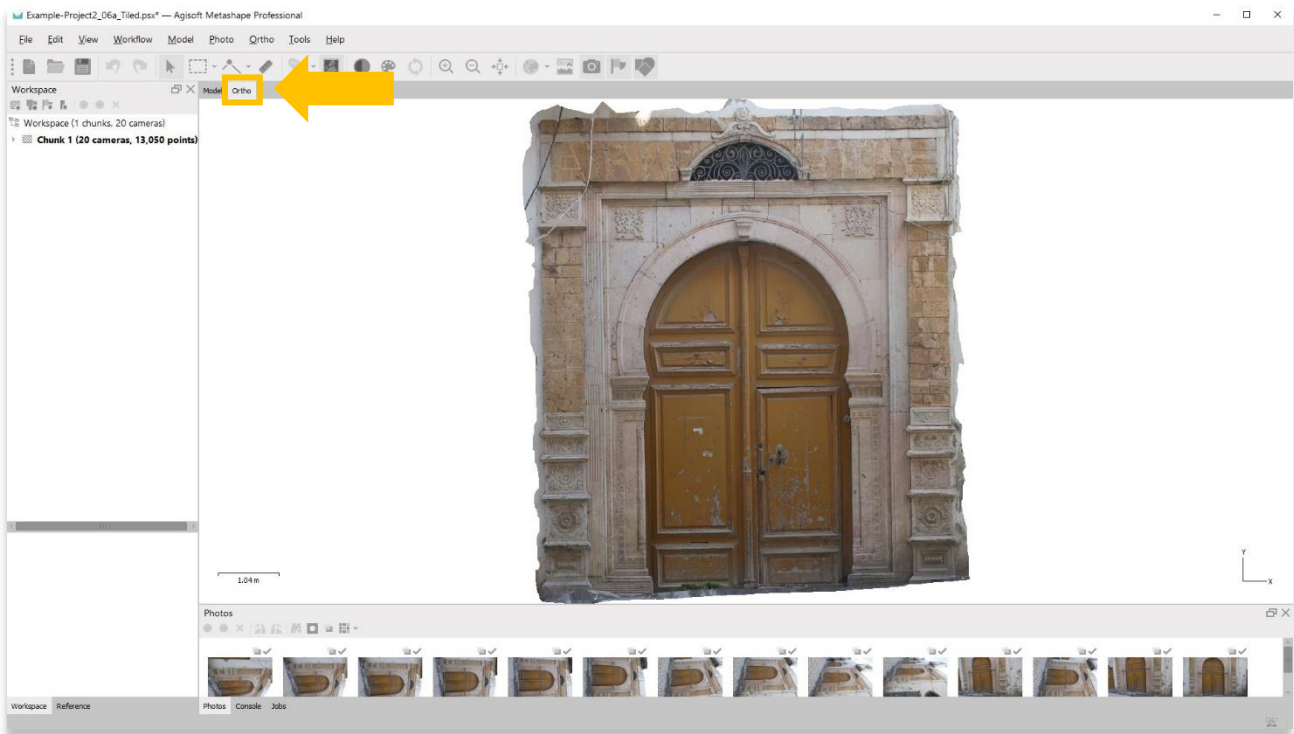
EXAMPLE DEFAULT ORIENTATION
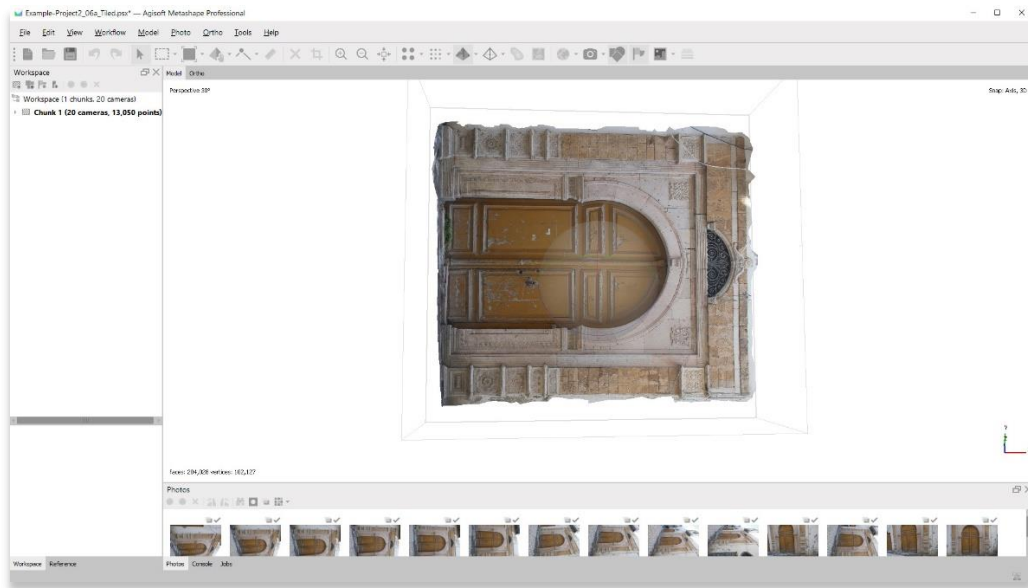
5. If the default orientation appears similar to the one above, users can (1) move the model to its upright position and select **Current View** or (2) select **Top XY** and rotate the angle (in this case 270 degrees).
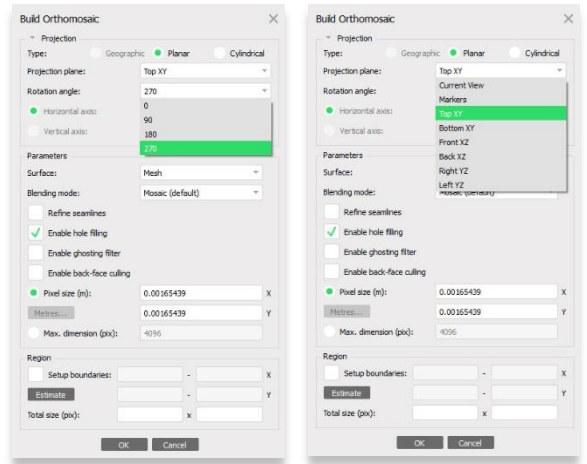

6. Users can view the default orthomosaic orientation by selecting the **Ortho** tab located in the top left of the main panel.
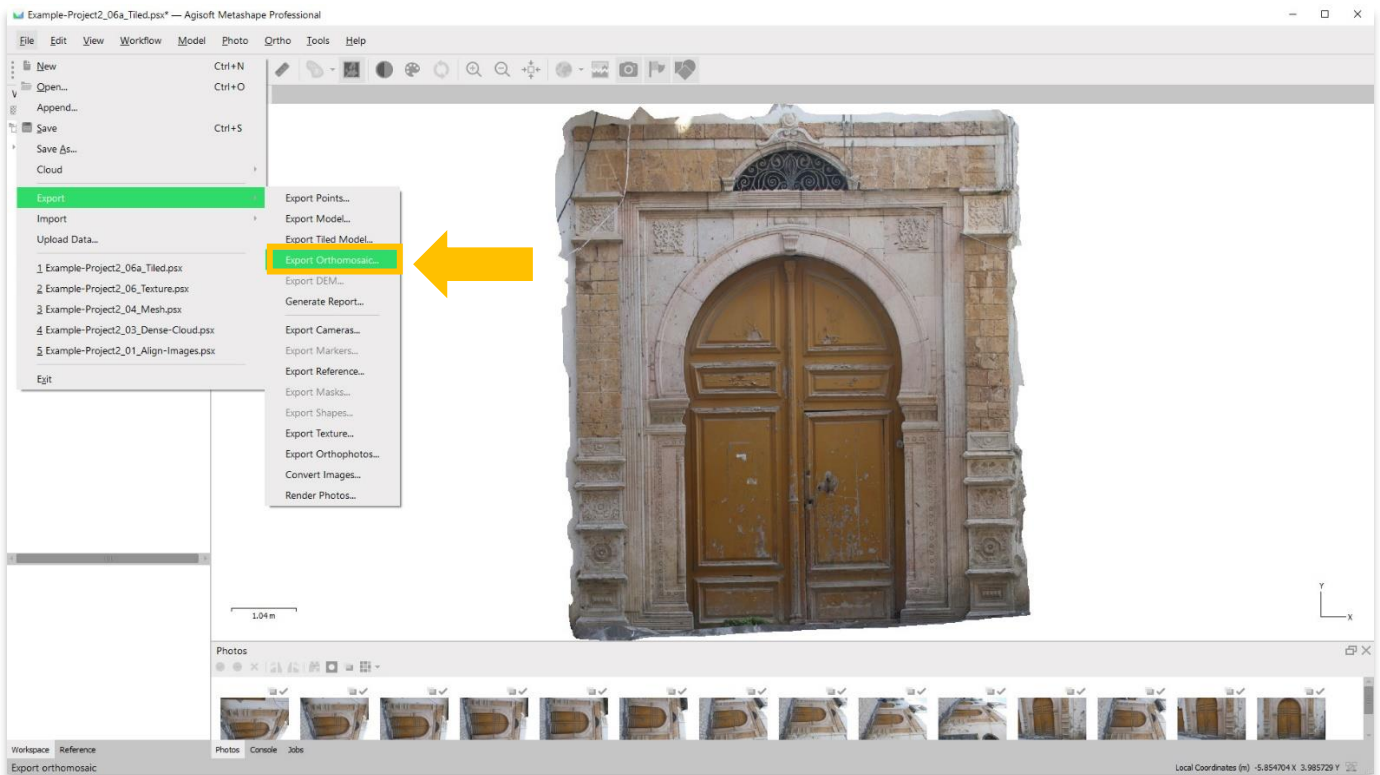

7. All other default settings that appear in the pop-up are sufficient to create an accurate orthomosaic image. For further information about these categories, please refer to the Agisoft Metashape User Manuals.

Select **OK** when ready. Processing may take a few minutes to a few hours.
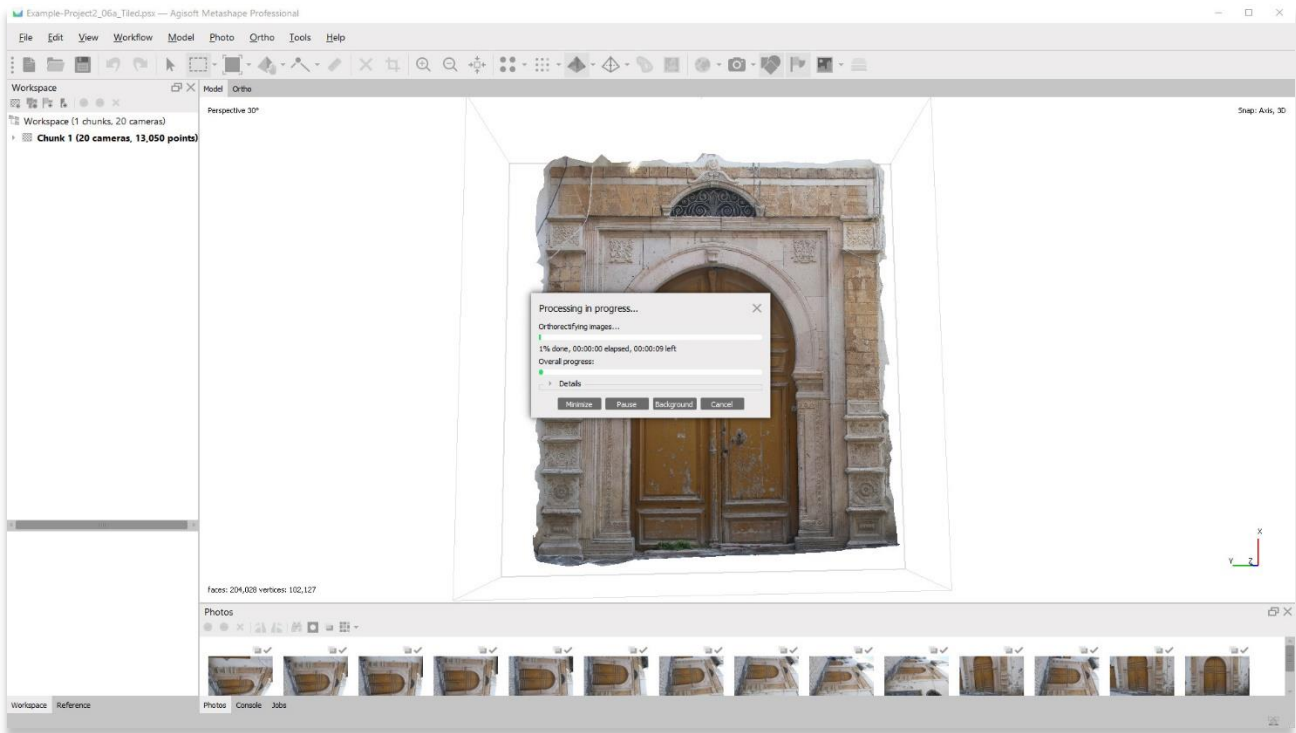
EXPORTING AN ORTHOMOSAIC IMAGE

8. After building an orthomosaic image, users can export that image into many formats. TIFF is the most commonly used file type. Export by choosing the **File** menu option, then **Export** > **Export Orthomosiac**.

9. Adjust any settings as needed. The default settings displayed to the right are sufficient for the model used in this tutorial.

   For further information about these categories, please refer to the Agisoft Metashape User Manuals.
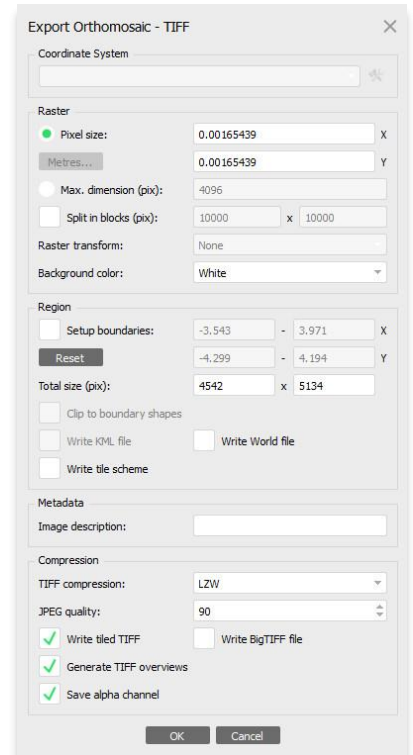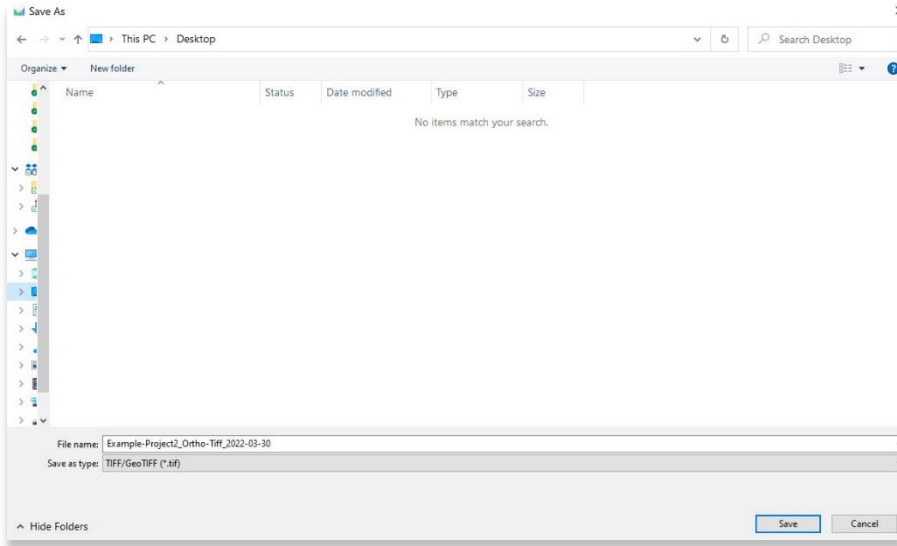
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