

## Mosaic

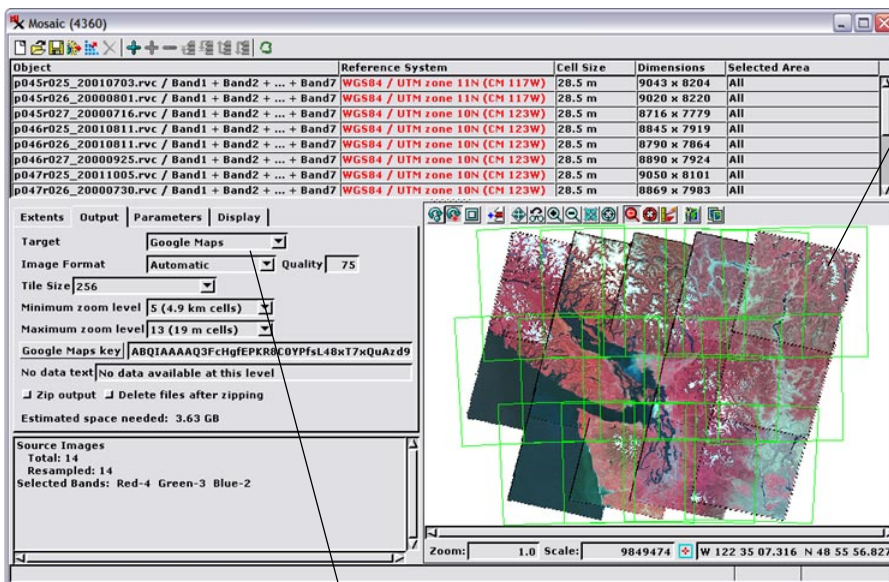
# RGB Mosaics from Multiband Inputs

The Auto Mosaic process in TNTmips can create color composite tilesets from any three bands you select from one or many multiband images. You can also easily make different color tilesets and mosaics from the same set of input images without reselecting the inputs. For example, you can choose bands to prepare tilesets or mosaics that are true color, color infrared, infragreen, or some other false-color combination of input bands including those that represent special ratios or other processing results.

Web map and image viewers (e.g. Google Maps and Google Earth) restrict the tiles in their tilesets to uniformly-sized color images or maps in a single projection and structure for maximum display performance. Auto Mosaic therefore automatically converts the 3 bands you choose to color composite tiles in the required projection and structure when you choose a Google Maps Tile Overlay or Google Earth Super-Overlay as your output tileset.

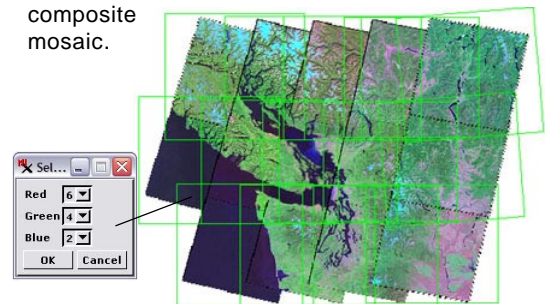
Auto Mosaic can convert multiband images to either color composite tiles or multiband tiles in a *TNT tileset raster*. You can create this tileset with lossy or lossless-compressed color composite tiles for use in web viewers or as multiband tiles in JPEG2000 format for your further TNT analysis or display activities. The *Standard TNT raster* option can also be selected to mosaic to a single, large color-composite raster or multiband set of raster objects in a TNT Project File.

The view pane in the Mosaic window always displays a color combination of 3 bands when your input multiband images have 3 or more bands per image. In the example illustrated below, 14 Landsat images with 6 bands each (bands 1 through 5 and 7) have been selected as inputs.

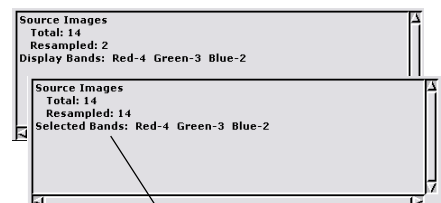
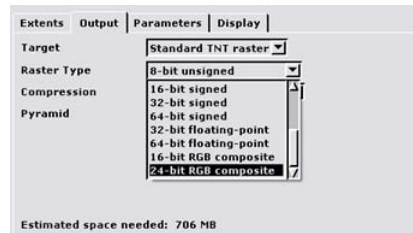
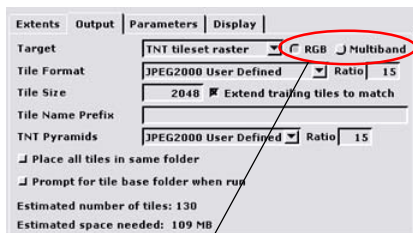


The 3-band RGB combination displayed in the view pane is also used to assemble the output mosaic when you mosaic to a color composite target. The Select Bands push-button on the Parameters tabbed panel opens a dialog for selecting the bands to assign to the Red, Green, and Blue colors. In the Select dialog shown above, Landsat bands 4, 3, and 2 are chosen to produce a color-infrared combination, as displayed in the Mosaic window to the left.

In the Select dialog below, Landsat bands 7 (the 6th band in the input set), 4, and 2 are chosen to produce an "infragreen" display and RGB composite mosaic.



Mosaic automatically sets the output to the mandatory color composite when you choose Google Maps or Google Earth as the target with multiband input images.



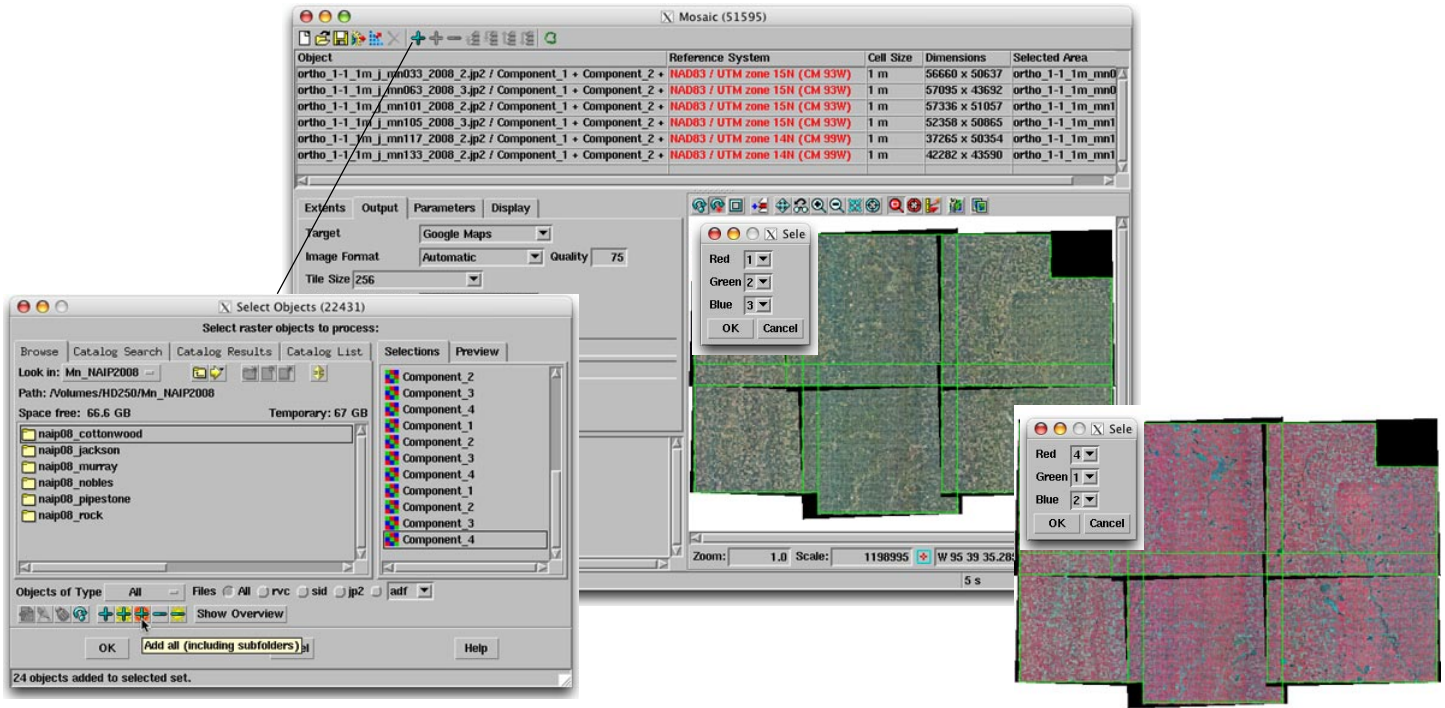
A pair of radiobuttons are provided next to the Target menu when you select *TNT tileset raster* as the mosaic target. These buttons allow you to toggle between RGB composite and multiband output.

For a Standard TNT raster target the output Raster Type setting automatically determines the output. Choose one of the two RGB composite raster types to create a color composite raster from multiband inputs. Choosing any other data type results in multiband output.

The message in the Mosaic window's information pane indicates which bands are currently selected for the RGB display. In addition, the beginning of this message line changes from "Display Bands:" to "Selected Bands" when the output mosaic is an RGB composite.

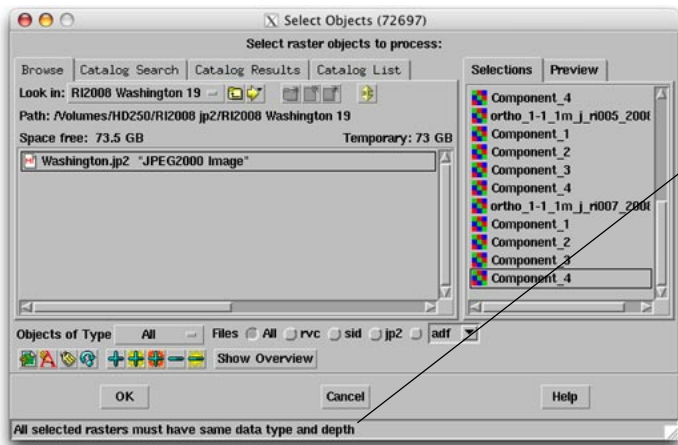
(over)

You can select a large collection of similar multiband images all at once or select each multiband image separately. After your inputs have been selected your assignment of any 3 bands to red, green, and blue requires only a few mouse clicks. You can also select as input a single, large, multiband image; single TNT raster; or TNT tileset. For example, the input can be a single large multiband TNT orthoimage, created in the TNT Manual Mosaic process, which you can then convert to a Google Maps, Google Earth, or TNT tileset in Auto Mosaic.



In the example shown above, the Mosaic window's Add button was pressed to open the Select Objects window and use the *Add all (including subfolders)* icon button in it to select, in 1 step, 6 JP2 files (one per subfolder) each containing 4 bands of an NAIP 2008 orthoimage mosaic for a Minnesota county. (If all of the image files are in the same directory, you can use the *Add All* icon button instead.) These 4 bands can be used to make natural color (R-G-B = bands 1-2-3) and/or color-infrared (R-G-B = bands 4-1-2) Google Maps, Google Earth, or TNT tilesets or Standard TNT raster mosaics.

All input bands must have the same raster data type and bit-depth when you select a collection of multiband images all at once. Otherwise the Select Objects dialog notifies you with an error message as in the illustration to the left. In this example the selected orthoimage JPEG2000 files include 4 component bands (each one an 8-bit unsigned grayscale raster) and a 24-bit color-composite raster produced from 3 of the component bands.



You can still use the efficient all-at-once selection options with files that include mixed raster types if consistent names are used for the desired component bands (e.g., Component\_1, Component\_2, ... in the illustration to the left). Simply select the bands for the first image individually and press OK on the Select Objects window. The bands you have selected are now used as a filter when you use the *Add All* or *Add all (including subfolders)* to select a large number of images in one step. The mass selection procedure ignores the bands that do not match your model set and selects only the matching bands from all of the selected files. The file you manually selected to produce your model set is also automatically ignored in these procedures to avoid duplication.

The multiband images you select as inputs to Auto Mosaic can be in TNT Project Files as individual raster objects or TNT multiband tilesets. They can also be in other georeferenced image formats that support the use of multiband images (GeoJP2, GeoTIFF, MrSID, ...). These options make it easy to produce and publish your tilesets from multiband orthoimages such as the 4-band GeoJP2 imagery distributed by the National Agricultural Imagery Program (NAIP) of the U.S. Department of Agriculture (USDA), orthorectified Landsat Thematic Mapper 7-band imagery, or any other multiband orthoimages.