

Georeference

Simple and Implied Georeference

Georeference information defines a coordinate transformation between the internal coordinates of a spatial object and a designated spatial reference system. Geospatial data that you acquire for use in your projects may come with georeference information in standard forms that can be automatically recognized and used by TNTmips. This georeference information might be embedded directly in the spatial data file or in a standard-format auxiliary file.

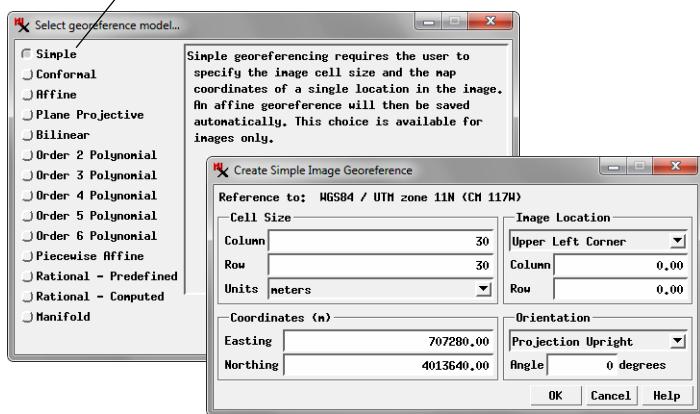
However, in some cases you may acquire geospatial data with georeference information only in a nonstandard metadata or other text file that cannot be automatically parsed or used by TNTmips during import. Most often such georeference information is in the form of *simple georeference* for raster data or *implied georeference* for geometric objects (see box at top right for definitions). In the Georeference process you can manually enter the necessary parameters that you have read from the metadata to set up simple or implied georeference for such objects. These operations are integrated into the normal georeference workflow, as described below.

Setting Up Simple Georeference

In the Georeference process, selecting a spatial object lacking georeference triggers the appearance of a sequence of dialog windows. The Coordinate Reference System window appears first, enabling you to designate the spatial referencing system (datum and coordinate system) to use to georeference the object. This is the standard dialog window used throughout TNTgis for this purpose (see the Technical Guide entitled *Coordinate Reference System Window*).

Once you have set the coordinate reference system, the *Select georeference model* window appears (see illustration below). When you have selected a raster object as the input for georeferencing, the first entry presented in the radiobutton list on this dialog is labeled *Simple*. When you select this option and press the OK button on the window, the *Create Simple Image Georeference* window opens (see illustration below). This dialog allows you to enter the column and row cell sizes for the raster and select the measurement unit associated with those sizes. You also set the location of

Choose *Simple* from the list in the *Select georeference model* window to set up simple georeferencing for a raster object.



Enter the simple georeference parameters you have read from your spatial object's metadata file in the Create Simple Image Georeference window.

Simple Georeference

Valid for raster objects. The coordinate transformation between raster coordinates (row and column) and a coordinate reference system is provided by specifying both internal and map coordinates for a single reference point, the row and column cell sizes (x and y scales), and the image orientation (rotation angle).

Implied Georeference

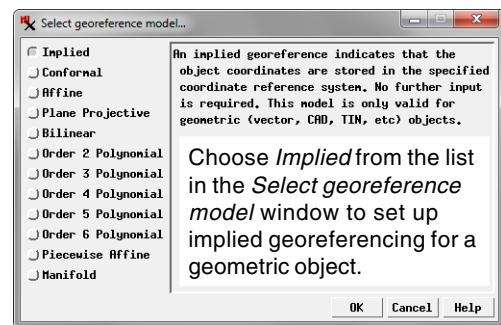
Valid for geometric objects (vector, CAD, shape, etc.) Indicates that the object coordinates are stored in the specified coordinate reference system, so no coordinate transformation is required.

the reference point in the image and enter the corresponding map coordinates of the reference point. The Image Location pane includes a menu from which you can select one of several predefined standard image locations for the reference point, such as the upper left corner of the image, the center of the upper left cell in the image, and the image center. Choosing an item from this menu automatically fills in the appropriate values in the Column and Row fields below the menu. If necessary, you can also specify one of several standard orientations for the image or set an exact rotation angle in decimal degrees. When all parameters have been set and you press OK, affine georeference parameters are computed and saved for the input object, completing the process.

Setting Up Implied Georeference

When you have selected a geometric object lacking georeference and specified the coordinate reference system, the first entry on the *Select georeference model* window is labeled *Implied*. Since implied georeference means that object coordinates equal map coordinates,

choosing this option and pressing OK on the dialog immediately saves an implied georeference subobject for the input object, completing the process.



Regeoreferencing Objects with Implied Georeference

Georeference information supplied with satellite images and other geospatial data may be only approximately accurate. Therefore the Georeference process allows you to select geometric objects with implied georeference and raster objects with affine georeference for regeoreferencing in order to improve their georeference accuracy if needed. After a warning message, the existing georeference information is converted to control points at the corners of the object. You can then add your own control points to improve the fit of the object to your reference data, then delete the corner points created from the original georeference. When you save the resulting control point georeference for a geometric object, a message window describes how you can use the Geometric / Reproject process to convert this control point georeference to implied georeference if desired.