

Loading a grid-coordinate file into Trimble Geomatics Office and transferring to a Trimble Survey Controller data collector

This Technical Tip provides instructions for using Trimble Geomatics Office (TGO) to send a grid-coordinate file (name, northing, easting, elevation, etc.) to a Trimble Survey Controller data collector. These instructions are intended for the often-encountered situation in which the coordinates are “local” grid coordinates (either from previous work with an optical surveying instrument, or else of unknown or uncertain origin) and it is desired to use the grid coordinates to do a site calibration and then perform additional GPS surveying using a coordinate system in which the projection surface is at an elevation representative of the project area.

(This first effort will include the information on getting the coordinate system right, it is possible that future revisions will go into great step-by-step detail on the other steps but much of that should be obvious to the user.)

It is important to realize that the positions of grid points in a TGO project can change if the coordinate-system definition of the project is changed after the grid points are imported into the project. Therefore, this procedure establishes the necessary coordinate-system-definition details before the grid points are imported into the project.

1. Create a new project in TGO, when the Project Properties window comes up click the Coordinate System tab and make certain the Coordinate-system settings are:

System:	Default	
Zone:	Default	
Datum:	WGS 1984	
Geoid model:	GEOIDXX (Conus)	(not necessary but it is strongly recommended you use the latest geoid model in most cases)

With the exception of the Geoid Model value, this is what you will most likely get unless the template you selected includes a specific coordinate system and zone that will be used in new projects made from that template. If your screen shows something else, make settings as described in Step 2 below. Otherwise, you can skip to Step 3 below.

2. If you need to correct any of the Coordinate-system details to the values specified in Step 1 above, click the Change button in the Coordinate-system settings (upper) part of the window. The Select Coordinate System window will appear, click the New System radio button, then the Next button. The Select Coordinate System Type window will appear, click the Default Projection (Transverse Mercator) radio button. The Default Projection (Transverse Mercator) screen will appear, make certain the Automatically calculate projection parameters box is checked and click the Next button. The Select Geoid Model screen will appear, click the Predefined Geoid model radio button, then select GEOIDXX (Conus), then click the Finish button. (Inland GPS has prepared detailed instructions on how to add GEOIDXX to your TGO installation. If GEOIDXX (Conus) is not available on your computer and you need those instructions, please go to the Inland GPS web site at www.inlandgps.com, then click on Support, then click on Survey Office Software. You will see the link on that page.
3. Now you need to tell the software that you want the projection surface to be at the project’s elevation. Click the Change button in the Local-site settings (lower) part of the window and the Local-site settings dialog will appear. Enter the appropriate value in the Elevation field of the Project location part of the window. (This will serve the same purpose as the Reference elevation value you enter in the Trimble Survey Controller software when starting a “No projection/no datum” job.) Check the Use ground coordinates box, then check the Compute scale factor from project location box. **DO NOT SET ANY OTHER PARAMETERS** – leave the northing and easting values as question marks. Click the OK button, and you will see the Coordinate System will have changed to Default (at ground) and the project height will be the elevation you entered earlier in this paragraph.
4. Import the ASCII file containing the grid coordinates into the TGO project, and export the points to the Survey Controller data collector. If you review the job in the Survey Controller you will notice that Projection is set to Scale Factor Only. When you do a calibration the projection will change to Transverse Mercator with a central-meridian scale factor as computed in TGO.

There are other ways to accomplish the same end result, but this method does as much as possible in the office computer rather than depending on the operator to remember to perform additional steps once the points have been exported to the Survey Controller data collector.

Important – Use different names for the geographic position you use to start the base receiver and for the GPS measurements to the control points having the grid coordinates entered above. Example- If you are taking to the field a few northing-easting-elevation coordinate sets to which you will calibrate, one suggested practice would be to indicate those grid points for the calibration with a suffix such as _NEE. Using that naming convention you could assume that if the point name does not have a suffix it can be assumed to be a measured (GPS) point and it will be easy to remember which is which. Then, if one of the grid points for the calibration is called 7_NEE, the corresponding name for the GPS point would be 7, which makes it easy to pair them up for calibration. Of course, any naming convention can be used if it makes sense to you in the situation at hand.