GradeMetrix File Management

Converting Topcon TP3 for use with GradeMetrix (Localisation version)

Dec 2020

Required components/software

- Topcon TP3 project file
- PC or Windows Tablet, running the following software
  - Topcon 3D-office (Demo Version)
  - Hemisphere GradeMetrix (PC Demo Version)
    - After installing, right click the desktop icon and go to properties, then remove "–fullscreen" from the target field and press ok. This will prevent GradeMetrix from taking up your entire screen.
  - Hemisphere SiteMetrix (PC Demo Version)
    - When installing, follow the install wizard carefully and untick the box that changes the desktop background, as well as the tick box to disable full screen mode to make switching between apps easier
- USB storage drive

Skip to Step 2 IF you already have the DXF/DWG linework, surface design files and .gc3 control file

Step 1 – Exporting Data from TP3 Project

1. Open 3D-Office on your PC
2. Import the TP3 file (File -> Open)
3. Press Ctrl+A to select all
4. Go to Project -> Export Control Pts -> 3D control file (gc3)
   - Save this on the root directory of a USB drive (required)
5. Go to Linework -> Export Selected Linework -> To autocad file
   - Export as DWG or DXF
   - Save to root directory of USB drive (ease of use only – not required)
   - Give it a unique name to differentiate it from the surface file, e.g. "PROJECT_NAME LW"
6. Go to TIN -> Export current TIN surface -> To autocad file
   - Ensure the desired TIN surface is the one currently selected
   - Export as DWG or DXF
   - Save to root directory of USB drive (ease of use only – not required)
   - Give it a unique name to differentiate it from the linework file, e.g. "PROJECT_NAME TIN"

Step 2 – Converting GC3 to LOC

1. Open Hemisphere SiteMetrix Demo version
2. Create a new project
3. Go to Coordinate system -> Localisation file
4. Switch the "Drive" to the external USB drive and select the GC3 file
   - This browser only allows navigation into root drive of directory, which is why the use of external USB storage drive is required
   - Once selected, the software will automatically create a .loc file from the .gc3
   - .LOC File will be saved in C:\Data
     - To make life easier, copy it into the same directory as the other files on the USB drive by doing the following;
     - Press OK to load the project, then press Tools -> File Utilities -> Copy
     - Find and select the .LOC file in this menu, press OK
     - Select the USB drive as the desired target folder and press OK
5. The USB drive should now have 1 x GC3, 1 x Linework file, 1 x TIN file, 1 x LOC file on the root directory

Step 3 – Create GradeMetrix Project

1. Open the current GradeMetrix PC demo version
2. Press the Menu button (top left corner) and enable Administrator mode (bottom left corner – person icon)
3. Press the "New Job" button, give the project a name and press Next
4. Upload desired files for project. Most commonly;
   - Localisation - choose recently converted .loc file
   - Linework - select the linework dxf/dwg exported earlier from 3D-Office
   - Geoid – upload geoid file if required. NOTE geoid file is not currently stored as part of project and will need to be manually added to each machine if geoid is required
5. Press Next and then press "Add" to load the surface dxf/dwg exported from 3D-Office

Step 3 – Create GradeMetrix Project

1. Press Next then choose desired mapping parameters
   - For example, press "Geo-reference/State Grid" to select GDA94 MGA project zones, etc.
2. Press Next and you will see your control pts and residuals from localisation. Note that previous selected projection will have a visual impact on expected residuals
3. When satisfied, press "Finish" to finalise the project
   - This will then automatically select and load the project

You can verify the project linework and TIN using the simulator, noting that by default the machine starting location will be at the first control point of the localisation, which may not be near the project itself. If it is nearby, you can steer the machine towards the project to verify using "W-A-S-D" keys

Step 4 – Export GradeMetrix Project to USB device

1. Enter the GradeMetrix main menu
2. Open the "Job Tools" app
3. On the "Export Job" Tab, select the desired job to export
4. Press the "Export to…" button and save it to the desired directory using the explorer window
   - The USB drive will be available on the side of this menu
   - Alternatively the project can be saved into a local directory or a cloud syncing directory
   - The job folder can also be located in C:\Data

Step 5 – Importing GradeMetrix Project from USB Device

1. Insert USB into IronOne display
2. Give the system a moment to read the USB device. It will pop up with a Windows explorer browser window when complete, close this browser window using the "x" in the top right corner as it is not required
3. Go to the main menu on GradeMetrix and enter "Open Job" app
4. Navigate to the directory the project is saved on and select the project file. You will know it is a project folder as the icon will look like this; 
   - The USB drive should be available to select on left hand side
5. Ensure that "Copy the selected job to the data folder" is ticked in the bottom left hand corner and press "Open"
6. The project will be copied from the external drive to the local directory and available for future use

Appendix A – Trimble Conversion

- If you are trying to convert a Trimble localisation file for use with GradeMetrix, LSS Toolkit is a free toolkit available that is able to convert Trimble .CAL files to Topcon .GC3 files
- When using LSS Toolkit, after importing the CAL file be sure to cross check the Hres and Vres results before converting to a GC3.
  - Bad data in = Bad data out!
- If you use this toolkit to convert the .CAL to a .GC3, provided you also have the linework and tin files, you can follow this guide from Step 2 onwards, with the following workflow
  - Trimble .CAL > LSS Toolkit > Topcon Gc3 > SiteMetrix > Grademetrix .LOC

The LSS Toolkit is available to download from
https://www.dtmsoftware.com/our_products/LSS-Toolkit
(Hemisphere GNSS is not affiliated with LSS Toolkit)