

Tools

Reproject/Shift LAS PCT in LP360

LP360, versions 2017.1



Summary: This workflow is for reprojecting or shifting, in x, y, and/or z direction, for LAS data. This is useful for converting:

- Geographic Spatial Reference System (SRS) to Projected SRS and vice versa.
- Projected SRS to another Projected SRS
- Different measurement units: US survey feet, international feet and meters.
- Removing vertical bias from LAS data

Note: While this note applies to the standalone version of LP360, an SRS can be transformed in the LP360 for ArcGIS® extension if the file has both horizontal and vertical SRS defined (usually the case for LAS version 1.4, Point Data Record Format 6 or above).

When a new project is created, LP360 attempts to set the SRS of the project using the first loaded file (i.e., LAS, raster, and/or feature files). If this cannot be done (for example, there are many LAS files with no defined SRS), the user should set one in 'Project Settings'. The following instructions, for defining the initial LAS SRS, apply to LP360 Standalone:

1. Click on File and Click on “Project Settings...” in the drop down menu (Fig. 1):

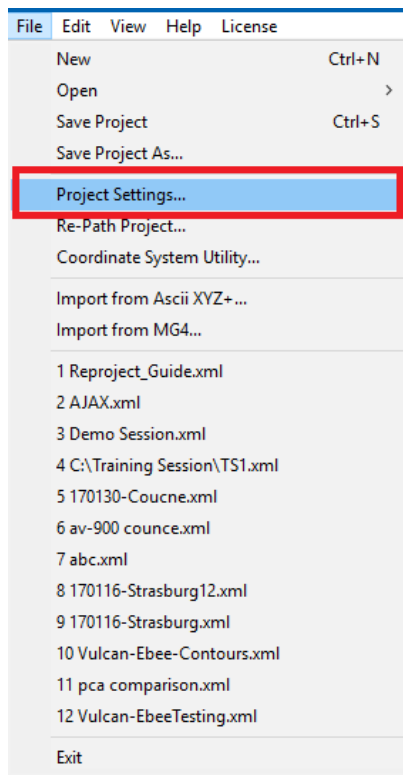


Figure 1

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2. Click on the browse button (ellipse) on the right side of the “Project Settings” window (Fig. 2):

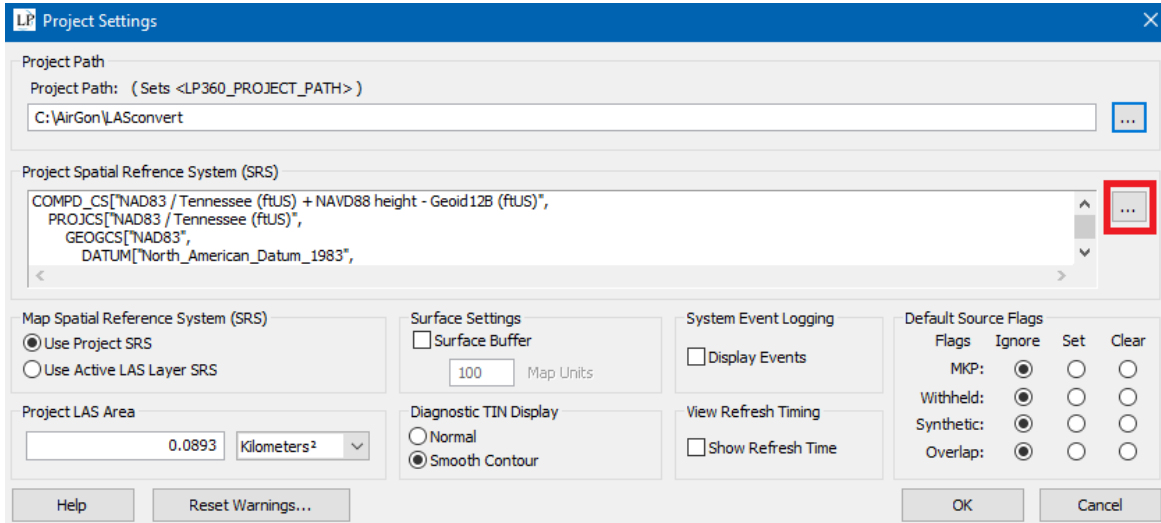


Figure 2

3. Choose the appropriate SRS for your particular LAS data and click OK (Fig. 3):

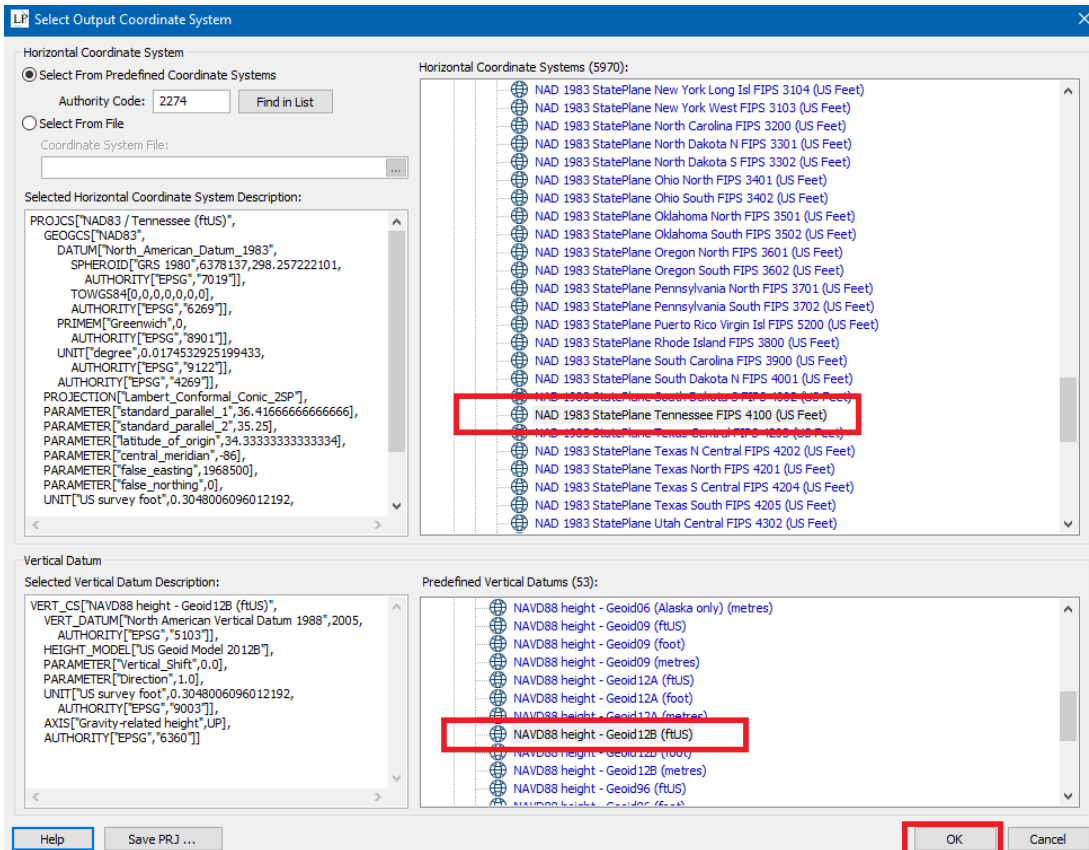


Figure 3

4. With the Project SRS set correctly, right click on the LAS Layer in the Table of Contents (TOC) and choose “Set Layer SRS to Project SRS...” (Fig. 4).

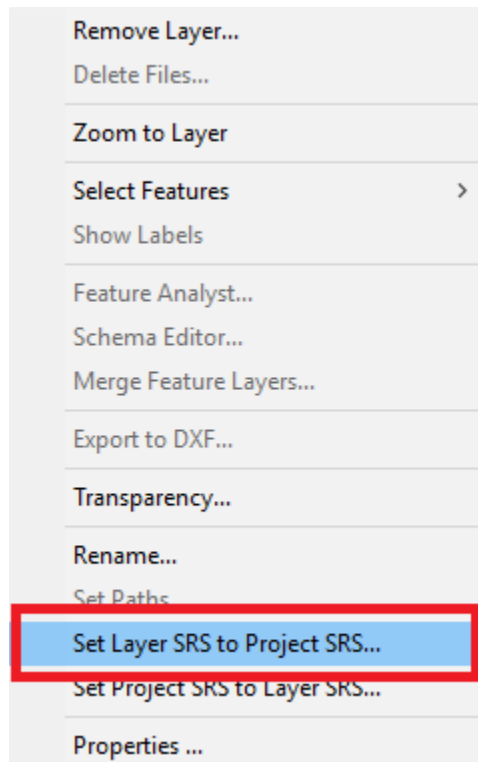


Figure 4

5. To create the “Reproject/Shift LAS” Point Cloud Task (PCT), Click on the drop down arrow to the right of “Point Cloud Tasks” in the PCT tab. Click on “Add Task...” in the dropdown menu (Fig. 5):

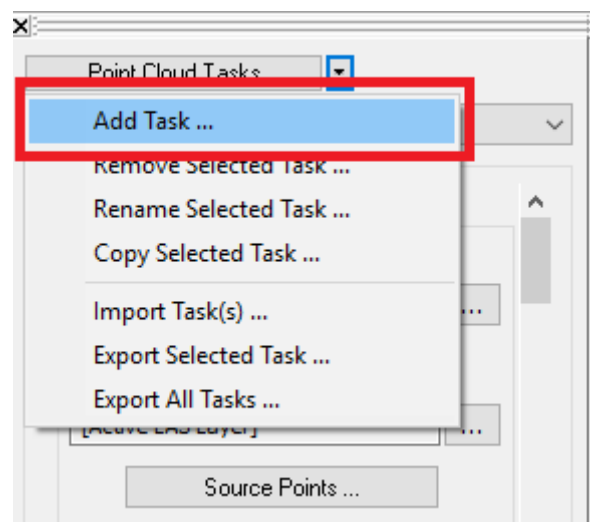


Figure 5

- 6. Select the “Reproject/Shift LAS” PCT from the dropdown menu (Fig. 6):

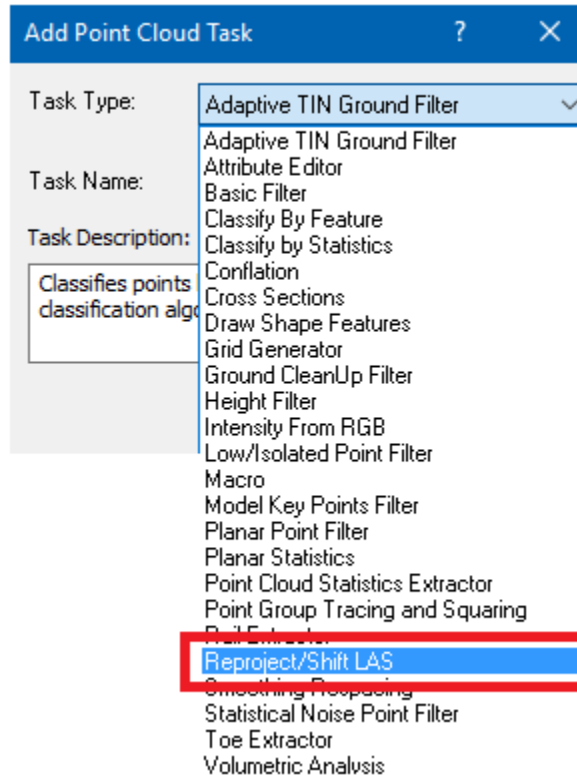


Figure 6

- 7. You can name the PCT whatever you would like, but for these instructions we will keep the default name (Fig. 7):

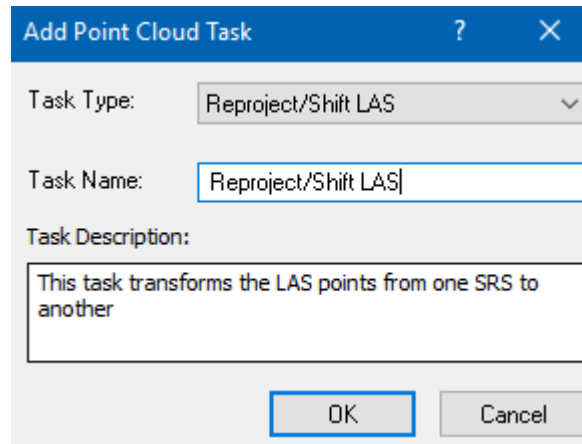


Figure 7

- To Export by subset or entire project area, choose <Tool Geometry> for the “Feature Geometry” field. Choose the LAS layer that you would like to reproject in the “Input LAS Layer” field (Fig. 8):

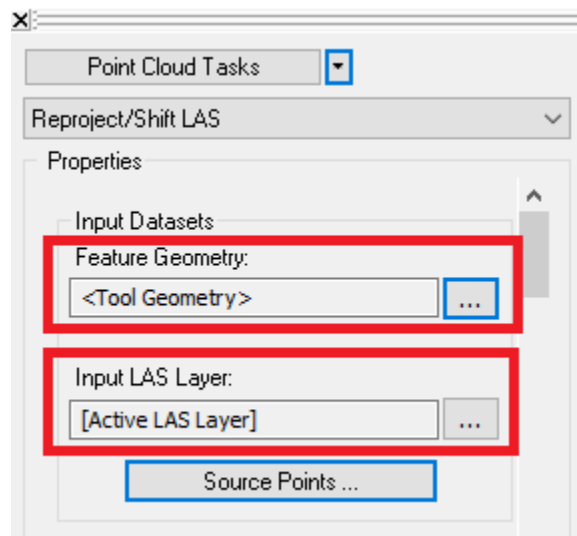


Figure 8

- To reproject to another SRS, check the “Convert SRS” box. Click the browse button (Fig. 9):

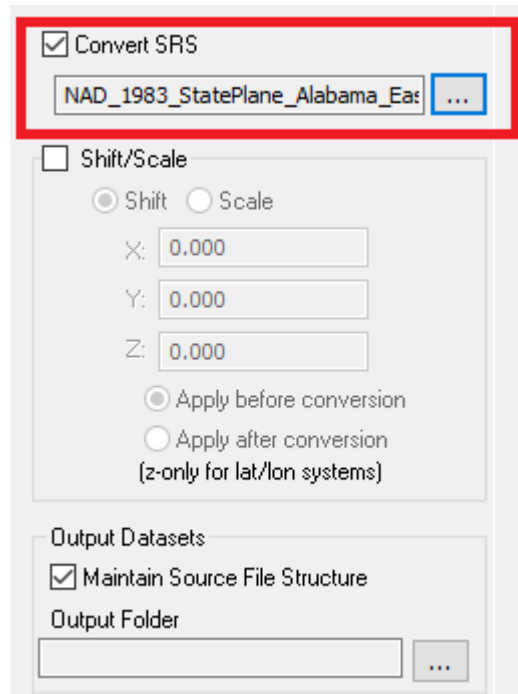


Figure 9

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10. Choose the appropriate SRS and click OK (Fig. 10):

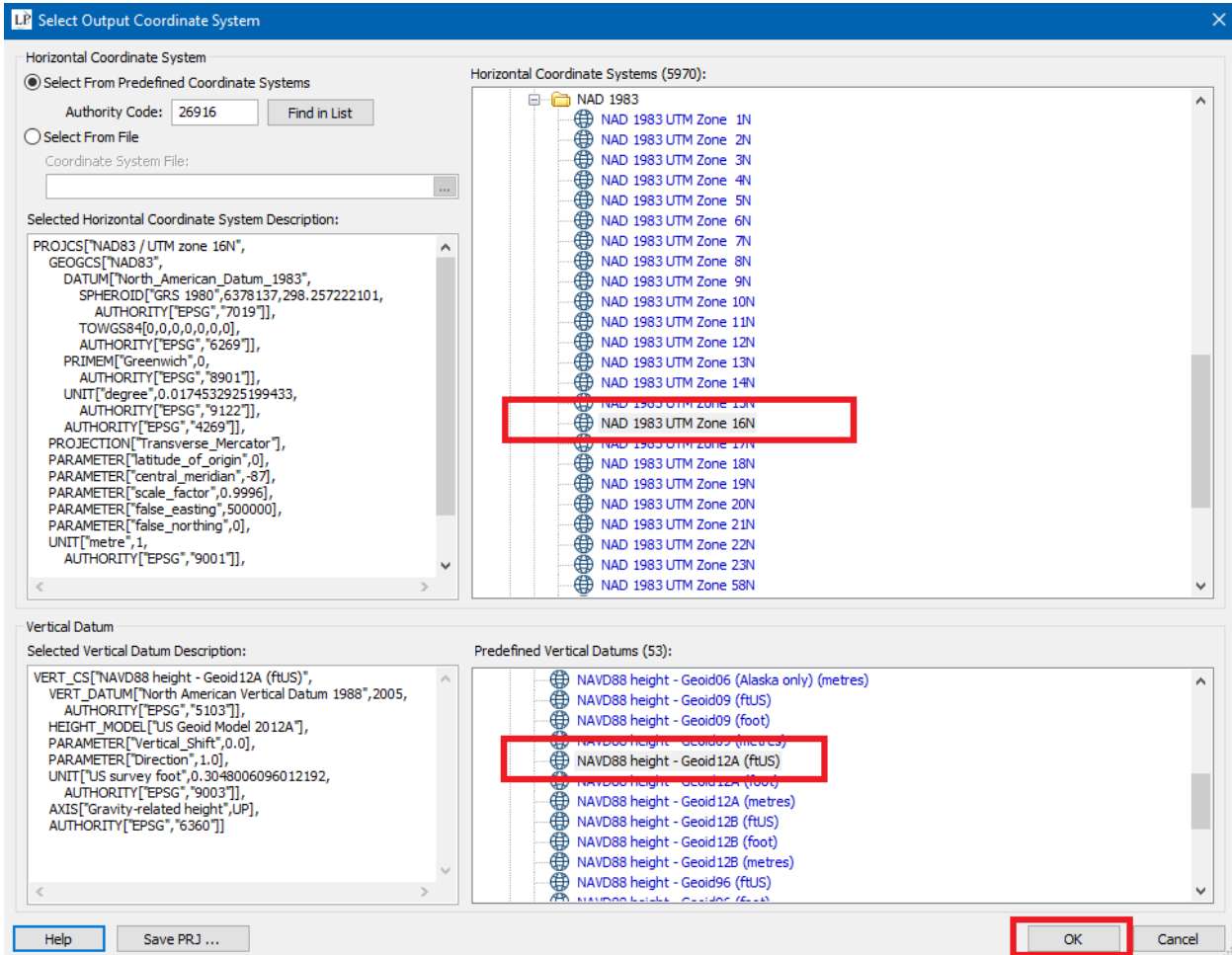
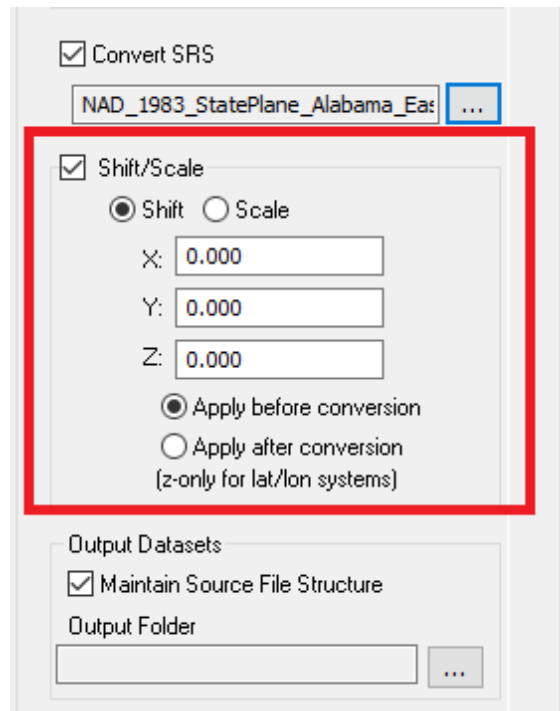


Figure 10

11. You can perform a data shift before or after the conversion. If the data has a Geographic SRS, you can only perform a vertical shift of the data. If you are shifting from a Geographic to Projected SRS then you can shift the data horizontally after the conversion. Likewise, if you are shifting from a Projected to Geographic SRS then you can shift the data horizontally before the conversion. The data must be in a Projected SRS in order to perform a horizontal shift of the data (Fig. 11):



The screenshot shows a software dialog box with the following elements:

- Convert SRS
- Text field: NAD_1983_StatePlane_Alabama_Eas ...
- Shift/Scale
 - Shift Scale
 - X:
 - Y:
 - Z:
 - Apply before conversion
 - Apply after conversion (z-only for lat/lon systems)
- Output Datasets
 - Maintain Source File Structure
 - Output Folder: ...

Figure 11

12. Scale is reprojected in the same way as a shift. This is useful for Grid-to-ground projections. This is a conversion from a projected SRS to a local SRS. You will need to know the ground-to-grid scale factor in order to input the required scale values. Here is a link with more information about ground coordinate systems: <http://support.geocue.com/ground-coordinate-systems/>.

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13. Set your Output destination. You can also choose to keep the original file structure. Keeping the original file structure keeps the original names and number of files the same. If you leave this unchecked, all of the input files are combined into one numbered output file (Example: 1.las). Click Apply (Fig. 12):

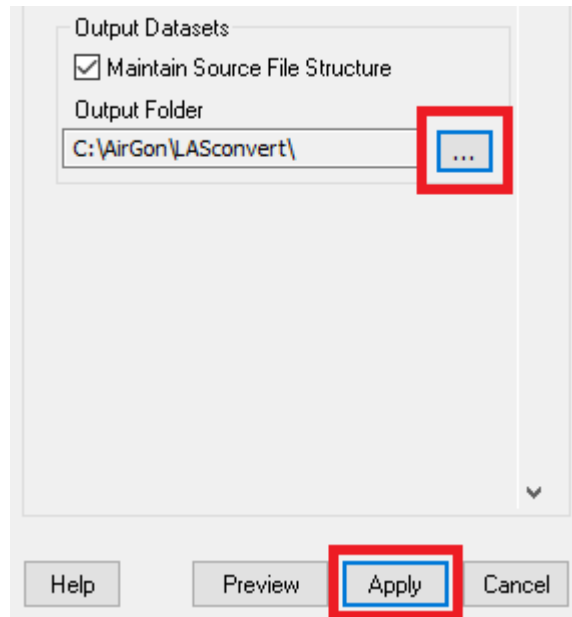


Figure 12

14. Click the "Execute Point Cloud Tasks for a Project" button to perform the conversion for the entire project area (Fig. 13).



Figure 13