

Importing LiDAR Data into Eagle Point/Autodesk Map

Overview: Use the following processes for preparing and importing LiDAR georeferenced data into EaglePoint/Autodesk Map 2006. LiDAR source data is in X,Y,Z format. (This example is based on source = NAD 83 UTM Zone 15, Meters and target = NAD 83 UTM Zone, International feet .)

Software: Eagle Point 2006 Q4 6.4.0, Autodesk Map 2006 (NRCS/EP v2.00 menu), NRCS national CAD std v1.0, Corpscon 6.0.1

Notation Method Button to Press <i>Displayed Text</i> Icon <u>Action</u> {Text to Enter} <u>Menu Item</u> ...
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- A. Identify data files needed for the area being worked on.
- B. Use Corpscon software to convert data (X,Y,Z) to correct coordinate system
- C. Create the surface within Eagle Point using External Point files

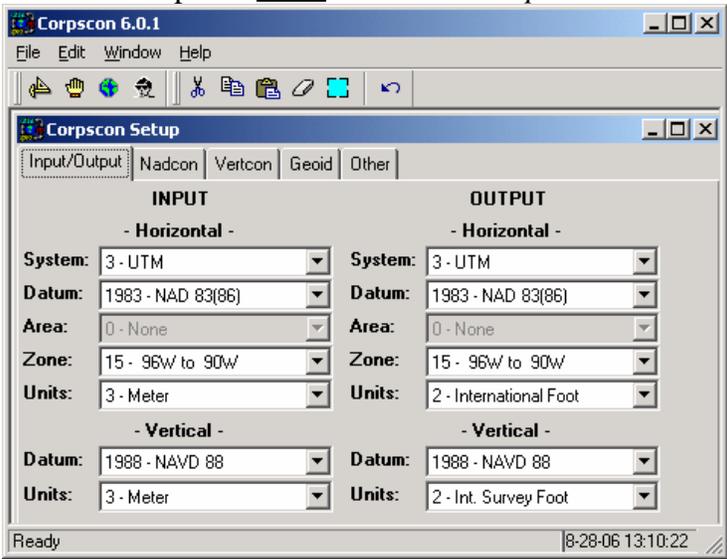
Note: Large files increase processing time significantly when working across the LAN rather than on the C: drive.

A. Identify data files

Use index maps provided with the LiDAR to determine the names of the data files needed for your project.

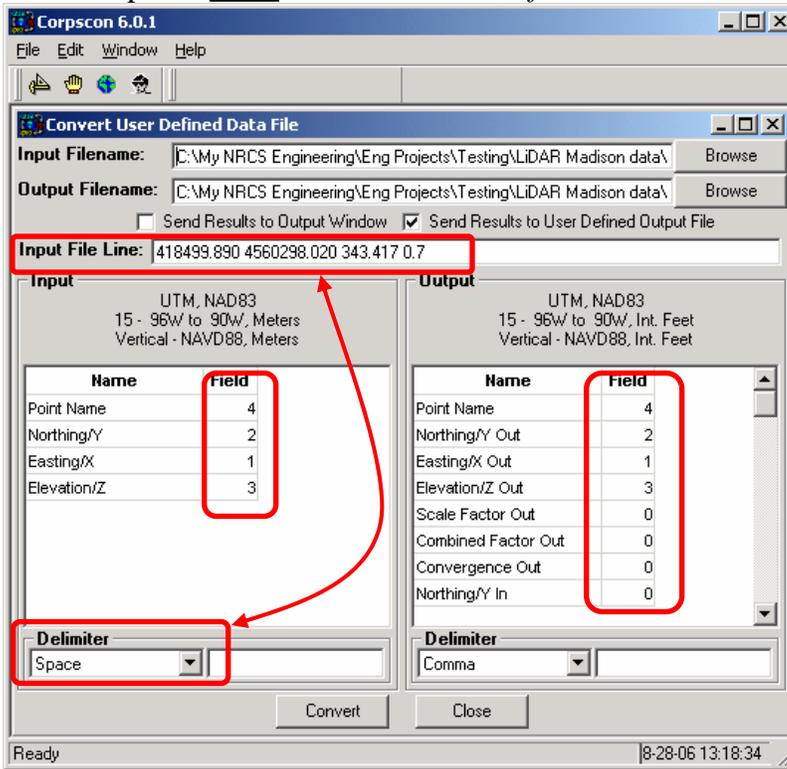
B. Corpscon data conversion

- 1. From Corpscon Click *Convert... Setup...*



- 2. Set the input and output coordinate systems
- 3. Click **Ok**

4. From Corpscon Click *Convert... User Defined Data File...*



5. Browse to find the Input filename (The file does not need to have a header but can have one.)
6. Browse to set up the Output filename E.g. {Pt000250 Converted.xyz} (Saving to the workstation's hard drive will be the fastest)
7. Uncheck *Send Results to Output Window*
8. Check *Send Results to Defined Output File*
9. Set the correct order to the names in the Input & Output by entering the numeric order in the Field. 0 would mean that that item will not get created in the output file.
10. In the **Input** section, select the proper delimiter. (usually either *Space* or *Comma*)
Inspect the **Input File Line** data to view the existing file format.
11. In the **Output** section, select the to *Comma*
12. Click Convert

C. Eagle Point Surface Modeling:

Eagle Point Steps Using the NRCS/EP Customized Menu

Note: Sections marked with * must be done in model space.



Preparing Surface Model settings for Original Ground

1. From AutoCAD Click *NRCS/EP... Create Contours... Manage Surface Model...*
2. Click the **New Surface Model Icon**. This brings up New Surface Model box.
3. Click on the **Library icon** and select the Original Ground surface model.
4. Click Load Prototype. Click Yes. Click Close.

5. Input a Description name. E.g { Og LiDAR }, which would represent original ground based on LiDAR data.
6. Verify any settings, then Click **OK**.
7. Click **Close** to close out Manage Surface Models

Draw a boundary for the Surface model*

If you want a limited area for the DEM surface model to be created, create a boundary. You will probably need to have placed images or other geo-referenced lines into CAD in order to help you place the boundary correctly.

8. From the NRCS Tool Palettes (**Ctrl** + **3** to toggle on/off) select **Breaklines**
9. Click *Boundary Line* 
10. Click to draw a border around the area being planned. To close the line cleanly, type {C} and press Enter.



Creating a Surface model for the Original Ground using LiDAR data*

11. From AutoCAD Click *NRCS/EP... Create Contours... Triangulate Surface Model...* .
12. Pulldown the name - for example *Og LiDAR*.
13. Pulldown Boundary to *Select* if you are using a boundary to limit the area used from the LiDAR data.
14. You will probably not want to *Display Model* or *Place Triangles* because of the large area of the LiDAR.
15. Checkmark Use External Point Files.
16. Click **Build File List**
17. Click **New External File** 
18. Browse to the file name: E.g. *Pt000250 Converted.xyz*.
19. Pulldown *X,Y,Z, Description*.
20. Click **OK**
21. (Multiple files can be used. Repeat the previous 4 steps as needed.)
22. Click **Close**
23. Click **Apply**.
24. CAD will ask you to Select Objects. The external data points will be used so usually no CAD objects will need to be selected. Press enter.
25. If you have chosen to use a boundary, the command line should now ask you to select boundary. Click on that boundary with your mouse.
26. Click **Close** on the Triangulate Surface Model.

Placing the Contour lines into CAD*

27. From AutoCAD Click *NRCS/EP... Create Contours... Make Intermediate & Index...* .
28. Click **Settings** and verify or change the contour interval. Recommended settings: Smoothing {0}, Polynomial {0}, Intermediate {4}, Index {20}, Construction Method *LWpolylines*. Changing these can increase processing time excessively. Click **OK**.
29. Usually no checkmarks are placed in any of the boxes. If you would like to limit the area where contours are placed you can either:
 - a. Checkmark *Use Screen Display*, **or**
 - b. Draw a boundary and checkmark *User-defined Boundary*.
30. Click **Apply** Contours will appear in CAD. (If you are using a *User-defined Boundary* you will be asked to click on it.)
31. Click **Close**
32. Review the contours.



Verifying Elevations of a Surface Model*

Inspect the elevations for a surface to verify that it is valid.

33. From AutoCAD Click *NRCS/EP... Create Contours... Track Coordinates...* .
34. Pulldown the correct surface model. E.g {Ognd}
35. Click **Apply**
36. Move cursor around in CAD and elevations will be displayed.
37. Click **Close**



Locking a Surface Model to Protect it
(Highly Recommended)

Lock the EP data for the surface model once you are satisfied with it.

1. From AutoCAD Click *NRCS/EP... Create Contours... Manage Surface Models...* .
2. Highlight the correct surface model name. E.g. *Ognd*
3. Click the **Properties for Surface Model Icon**.  Min/Max elevation & area is displayed. Use it for verifying whether the surface is good.
4. Click **Close**.
5. Click the **Lock Icon**.  This will protect the EP surface model.
6. Click **Close**.