

## Processing Data from a Digital Level in Liscad

To complete this tutorial you will require the **Input/Output** and **Computations** modules.

### Aim

The aim of this tutorial is to show you how to import data from various systems into LISCAD. You will learn how to:

- Import the observations from the digital level;
- Process the data;
- Store the new point elevations in the database.

### Typical Scenario

A number of points were surveyed earlier using GPS. The point elevations did not have sufficient accuracy for use by subsequent traversing and adjustment; therefore these points were measured using a Leica DNA03 digital level.

The data of the DNA03 was transferred to disk into file: "Tutorial DNA.raw".

*Note that:*

*The procedure for processing data from Leica DNA03 or DNA10 as described below can also be applied to data from the Leica/Wild NA2000/3000 series instruments.*

### Before you begin

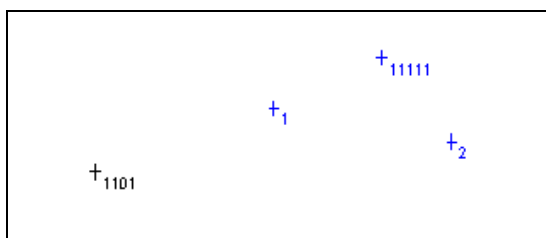
Select this button to install the required data files.

{button Install Tutorial Files, execfile(Seedatauk.exe,Tutorial.ctb;Tutorial DNA.see;Leica DNA.raw)}

Now proceed with the steps below.

1. Select **File/Open** and open the file called "Tutorial DNA.see" in the Tutorial folder.

Use **Display/Features – Points** to enable the display of *Crosses* and *Identifiers* for all points. None of the points shown, except for point 1101, have an elevation. The points without an elevation are shown in blue below.



2. Select **Task/Field Transfer**
3. Select **Resolve/Create Field File** and process the "Tutorial DNA.raw" file. A warning will pop up because of formatting errors in the raw file. The formatting errors are caused by data lines resulting from the adjustment of the data onboard the DNA. These errors can be ignored. The Field file will now look as follows:

```

1 010 Leica DNA Level Tutorial DNA.raw
2 011 Saturday 26 February 2005
3 053 M
4 021 XY
5 330          1101          111.11100
6 331          1101          0.93500      8.6900
7 332          1          1.42600      8.5630
8 331          1          1.43300      8.0000
9 333          11111         1.27100      6.3800
10 330          3333         111.14800
11 ; Reformatting error... 505.00+000000006 506.00+000000001 507.00+000
12 ; Reformatting error... 515...+00011111
13 ; Reformatting error... 515...+00003333
14 332          2          0.93600      8.6420

```

- Next process the field file; select **Resolve/Process Digital Level**.  
Select the field file we just created above:
- The Level Sheet Report is shown on screen giving the particulars of this level operation.  
The level sheet only shows the actual data and does not attempt to make any adjustments.  
The DNA03 and DNA10 can perform such adjustments in the field; Liscad will use the resulting elevations.

LISCAD Report							
File Edit Help							
LISCAD Report: Level Sheet Report							
Saturday 26 February 2005 18:10							
File: Tutorial DNA							
Projection: Plane grid							
File Date: Saturday 26 February 2005							
Units							
=====							
Distance: Metres							
BS	IS	FS	Rise	Fall	Elevation	Point ID	
0.935					111.111	1101	
1.433		1.426		0.491	110.620	1	
	1.271		0.162		110.782	11111	
		0.936	0.335		111.117	2	
*****							

The report can be saved to a file or printed for future reference.

- At this stage we must indicate which points we want to update. Normally we will always update the points that have no elevations and leave alone the points that do.  
This is reflected by the default settings of the dialog below.

Update Elevations

☒ Add elevation to points without elevation
 ☐ Update elevation of points with existing elevation

OK

Cancel

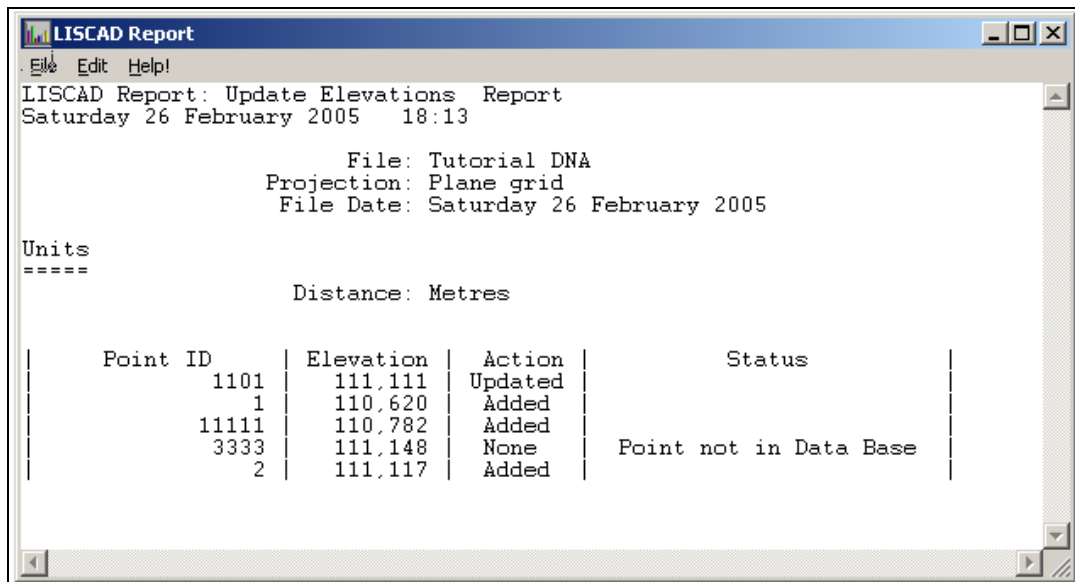
Help

+<sub>1101</sub>

+<sub>11111</sub>

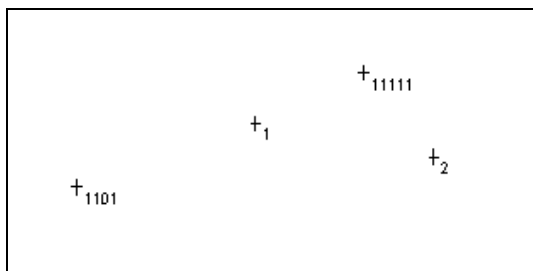
+<sub>2</sub>

- After selecting **OK** a short report is displayed telling which points have been updated and to which elevations.



It can be seen that point 3333, which was used to verify the field operation by staking it out near point 2, did not exist in the database and so is ignored by this action.

After the report window is closed, the screen will be updated and now all points will be shown in black indicating that an elevation is available.



## Conclusion

You have now completed this tutorial and should have a good understanding of how to import data from digital levels and how to process it. Your data should appear as shown above.

You have also learnt how to:

- Control the display of point attributes.
- Store results into the database by updating the elevation of existing points.