



Trimble Terramodel™ S/W: Overview & *Traverse Calculation*

(Designed only for GGE2012 students in 2009)

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Overview



(If you find some troubles or mistakes, just let me or Kaizer know to fix it)

(Traverse calculation part with RDE is the most important, but somewhat tricky)

Main Characteristics:

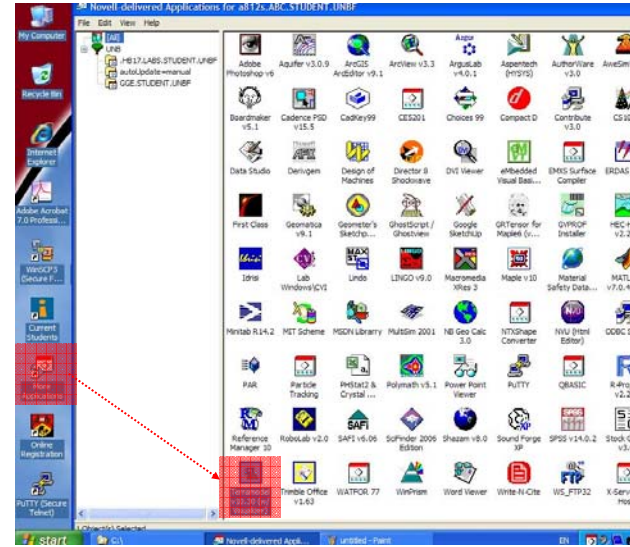
- Compute traverses within Terramodel
- Create boundaries, contour, generate topo maps
- Perform general COGO (coordinate geometry) calculations
- Compute volumes (with DTM)
- Design a simple road and compute material volumes
- Generate dynaviews and layer lists to produce final plots

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Installation



STEPS (GGE UNB):

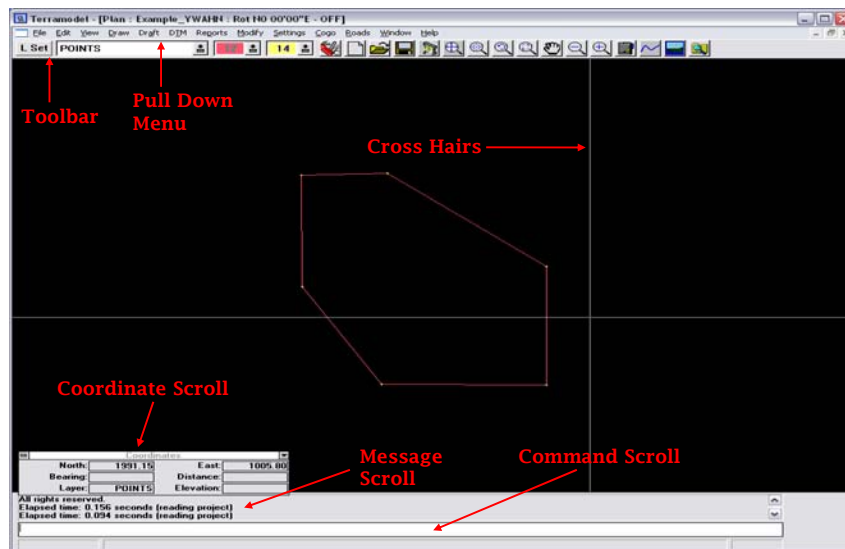
• Log on Novell App.

• Double click “More Application”

• Double click “Terramodel v10.30” for installation

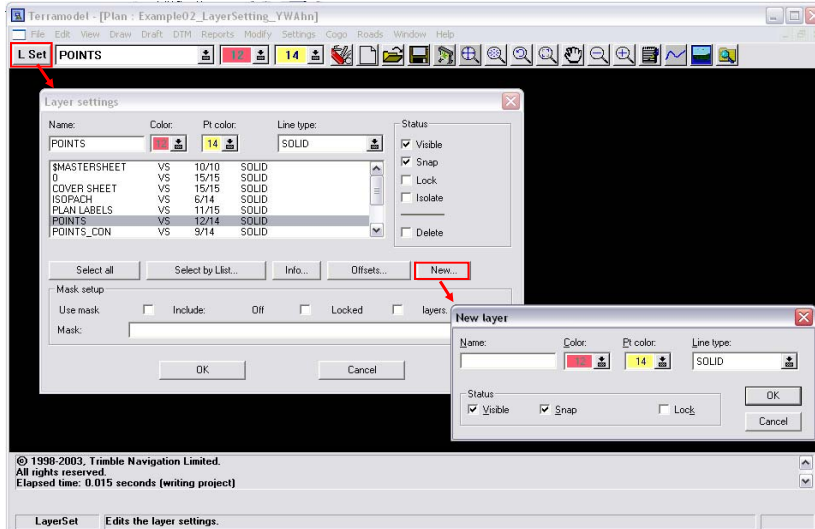


Outline





Overview



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Exercise 1



1. Draw a circle on layer CIRCLE and a box outside of the circle on layer BOX.

First, create new layers named BOX and CIRCLE

On the toolbar, [L Set] (This brings up the Layer Settings dialog box)

[New] (This will bring up the New Layer dialog box)

In the name window, **BOX**

Choose color 11 for the objects and color 14 for the points. The list of colors to choose from can be accessed by left-clicking on the down arrow next to the color. This brings up the Color Selection dialog box. Once the color has been chosen, [OK]. The user will then be returned to the New Layer dialog box.

Choose the solid line type. The list of line types to choose from can be accessed by left-clicking on the down arrow next to the Line type window.

[OK] (This will create the layer and turn off the New Layer dialog box)

[New] (This will turn on the New Layer dialog box again)

In the name window, **CIRCLE**

Choose color 12 for the objects and color 14 for the points.

Choose the solid line type.

[OK] (This will create the layer and turn off the New Layer dialog box)

[OK] (This will turn off the Layer Settings dialog box)

Draw a circle on layer CIRCLE.

The current layer and its properties are always shown in the toolbar at the top of the screen. If the current layer is not CIRCLE, change it by left-clicking on the down arrow just to the right of the layer name. This will bring up the Layer Selection dialog box. Left-click on the layer that is to be current (so it is highlighted), and then [OK].

[Draw]-[Circle] (This will bring up the circle command bar at the bottom of the screen)

Select a point near the center of the screen and []

In the radius window, 25

[OK]

The circle was stored on layer CIRCLE.

Draw a box around the circle on layer BOX.

Change the current layer to BOX by left-clicking on the down arrow next to current layer name in the toolbar. Left-click on the layer name BOX, and then [OK].

To draw the box:

[Draw]-[Line]-[Box]

[] select the location of the upper left corner

[] select the location of the lower right corner

[OK]

(Adapted & tested from: Ref. [1])

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Exercise 1



To move the circle:

[Modify]-[Move] (This will bring up the move command bar)

Leave the select control on Record

[] select the circle

Make sure the focus is in the From window (the user can either left-click on the window or **(Tab)** to move the focus into the From window) and [] select a point in or near the circle

[] select a point to the right of the box (The focus will have automatically moved into the To window)

The command bar will disappear without having to hit the OK button

To rotate the box:

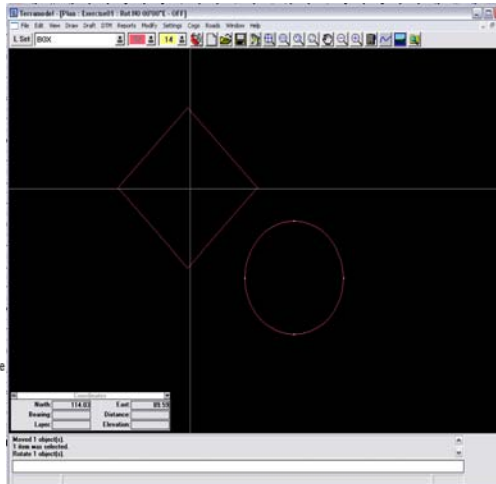
[Modify]-[Rotate] (This will bring up the rotate command bar)

Leave the select control on Record and [] select the box

Make sure the focus is in the Around window, and [] select a point near the center of the box

With the focus in the Angle window, **45**

↵ or [OK]



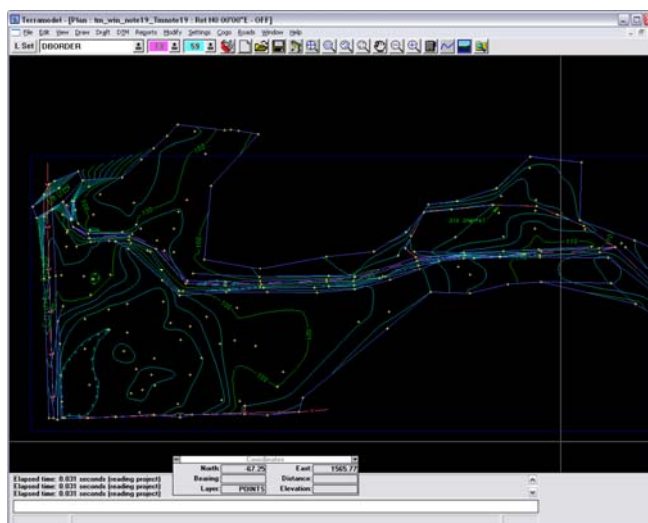
(Adapted & tested from: Ref. [1])

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Example 1



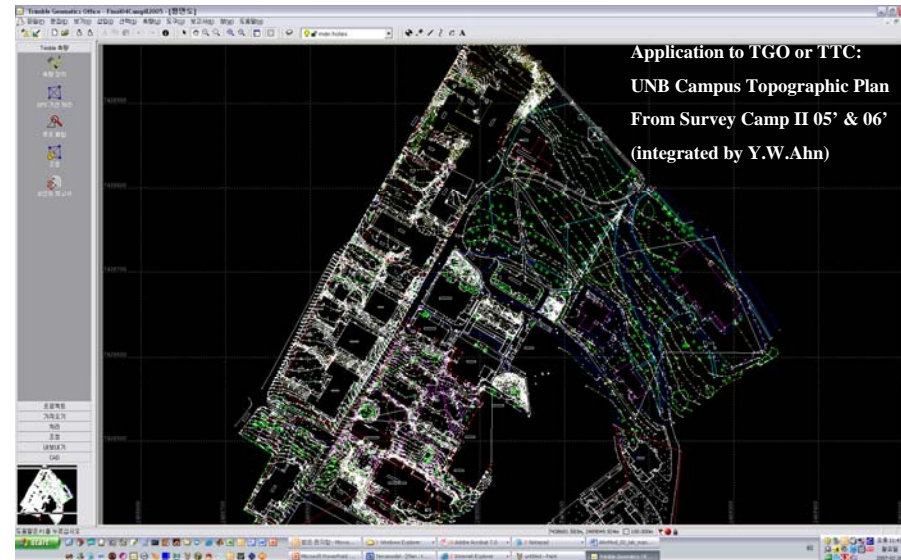
DTM with Profiles

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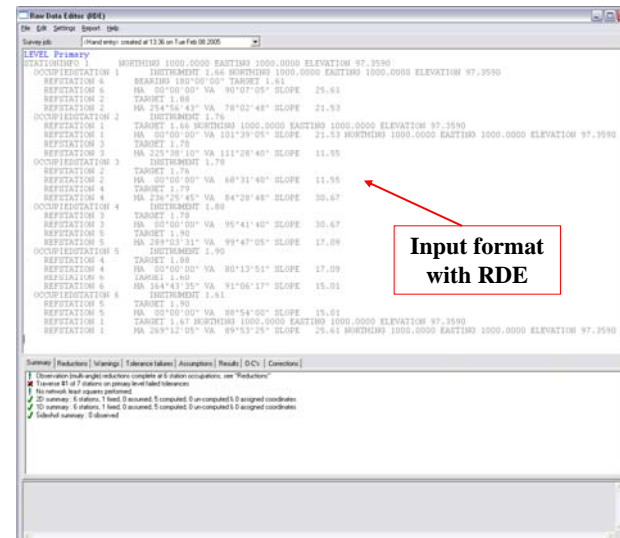
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Example 2



RDE Format



Traverses:

- Input the recordings from your field notes with RDE (raw data editor)
- Compare the result from Terramodel and your office calculation



Today's Goal



Adjustment type : Compass/Bowditch

Point ID	Bearing	Distance m	Angle	Northing m	Easting m	Elevation m
1				2000.000	1000.000	100.000
2	180°0'00"	20.557	270°29'34"	1979.442	999.998	102.950
3	270°29'35"	21.807	237°23'14"	1979.501	978.189	104.257
4	328°22'50"	20.031	211°25'11"	1996.496	967.585	99.997
5	359°28'02"	19.381	268°26'27"	2015.876	967.572	102.960
6	88°24'29"	11.373	218°21'33"	2016.125	978.940	104.267
1	127°26'03"	26.526	232°23'56"	2000.000	1000.000	100.000
	180°0'00"					

Provisional and Final Heights and Height Shifts

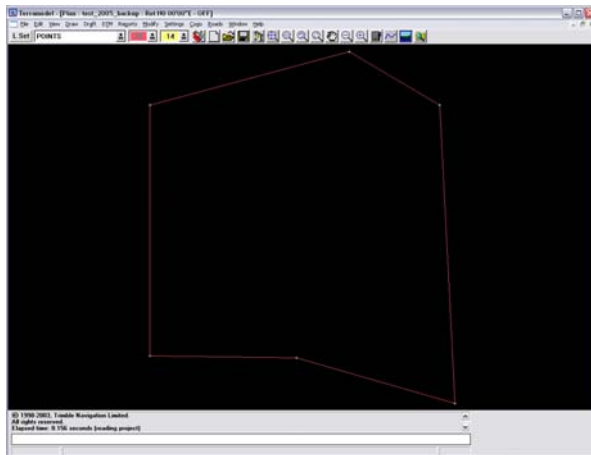
Point ID	Provisional	Final	Shift
2	102.951	102.950	-0.001
3	104.258	104.257	-0.001
4	99.998	99.997	-0.002
5	102.962	102.960	-0.002
6	104.270	104.267	-0.003

COMPUTED COORDINATE RESULTS

Point	North M	East M	Elev M	Description
1	2000.00000	1000.00000	100.000	
2	1979.44167	999.99759	102.950	
3	1979.50128	978.18855	104.257	
4	1996.49648	967.58518	99.997	
5	2015.87598	967.57178	102.960	
6	2016.12515	978.94022	104.267	



Today's Goals

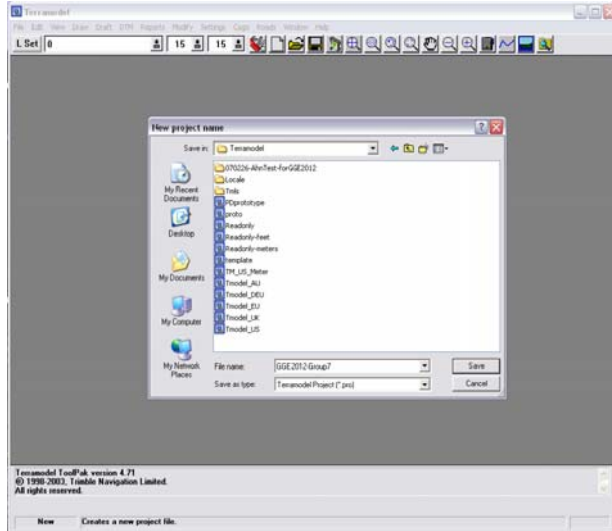


Final Goals:
Topographic depiction
of the gym

Left figure shows the
traverse points
calculated which will be
used as references. One
of the points will be
used as a reference
points of your
topographic plan.



Create a New Project



STEPS (GGE UNB):

- New project
- Select or type name
- Save
- Go to Edit → Raw Data Editor (RDE)

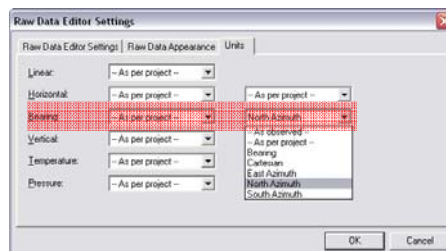


Setting 1



Section 1: Setup

- Edit → Raw Data Editor (RDE) → Settings → RDE Settings (*Bearing to North Azimuth*)



- Edit → Raw Data Editor (RDE)

: *Input your data, or review your recorded data*



Input Data



```

REM "OPTIONAL MANUAL ENTRY OF BEGINNING COORDS
STA 1 N 5000 E 5000 Z 1000
OCC 1 INST 5.25
REF 4 TAR 5.00
REF 2 HA 287.5925 SLOPE 181.260 VA 88.4120 BEAR N20.30E
OCC 2 INST 5.13
REF 1
REF 3 HA 254.0335 SLOPE 211.235 VA 91.5405
OCC 3 INST 5.28
REF 2
REF 4 HA 265.1715
OCC 4 INST 5.17
REF 3
REF 1 HA 272.3945

```

- RDE example (LEFT): automatically changed, follow the example.
- Once you are familiar with the example, *input your own data from your hand calculated ones.*

```

REMARK "OPTIONAL MANUAL ENTRY OF BEGINNING COORDS"
STATIONINFO 1 NORTHING 5000.0000 EASTING 5000.0000 ELEVATION 1000.0000
OCCUPIEDSTATION 1 NORTHING 5000.0000 EASTING 5000.0000 ELEVATION 1000.0000
INSTRUMENT 5.25ft
REFSTATION 4 TARGET 5.00ft
REFSTATION 2 HA 287°9'25" BEARING N20°0'00"E VA 88°1'20" SLOPE 181.26ft DESCRIPTION TP
OCCUPIEDSTATION 2 INSTRUMENT 5.13ft DESCRIPTION TP
REFSTATION 1 NORTHING 5000.0000 EASTING 5000.0000 ELEVATION 1000.0000
REFSTATION 3 HA 254°3'35" VA 91°7'05" SLOPE 211.24ft DESCRIPTION TP3
OCCUPIEDSTATION 3 INSTRUMENT 5.28ft DESCRIPTION TP3
REFSTATION 2 DESCRIPTION TP
REFSTATION 4 HA 265°7'15" VA 86°2'05" SLOPE 165.28ft
OCCUPIEDSTATION 4 INSTRUMENT 5.17ft
REFSTATION 3 DESCRIPTION TP3

```

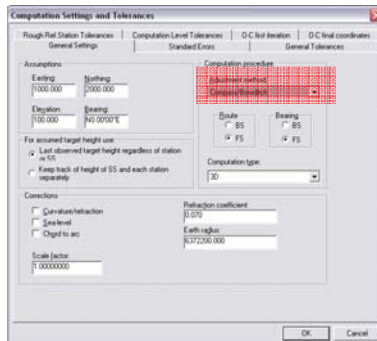


Setting 2



Section 2: Process the raw data

- Edit → Raw Data Editor (RDE) → Settings → Computation Settings (*Adjustment Method: Compass/Bowditch*)



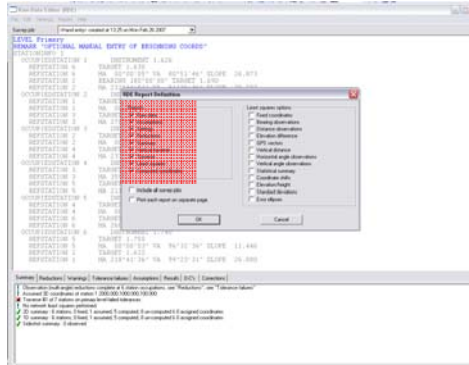


Setting 3



Section 3: Process the raw data

- Edit → Raw Data Editor (RDE) → Report (Check them all)



Setting 3



Note:

- 1) If you find that some points are repeated in the editor, carefully delete that row to avoid any mistake.
- 2) Add the coordinates of the control points that your total station and prism are referenced (This step may be neglected if you have entered the value in the surveying process)
- 3) Click the report → check all the tabs. (See next page)



Results



Results:

- Refer to the report generated.
- Compare your hand calculation and terramodel's result.
- Close raw data editor and return to the Terramodel itself!
- View → All
- Edit → Edit Object (if you would like to edit)

End (Be sure to save your file for Topo. Plan)



Reference



[2] Trimble Manual

[1] NRCS Nebraska,
<http://www.ne.nrcs.usda.gov>,