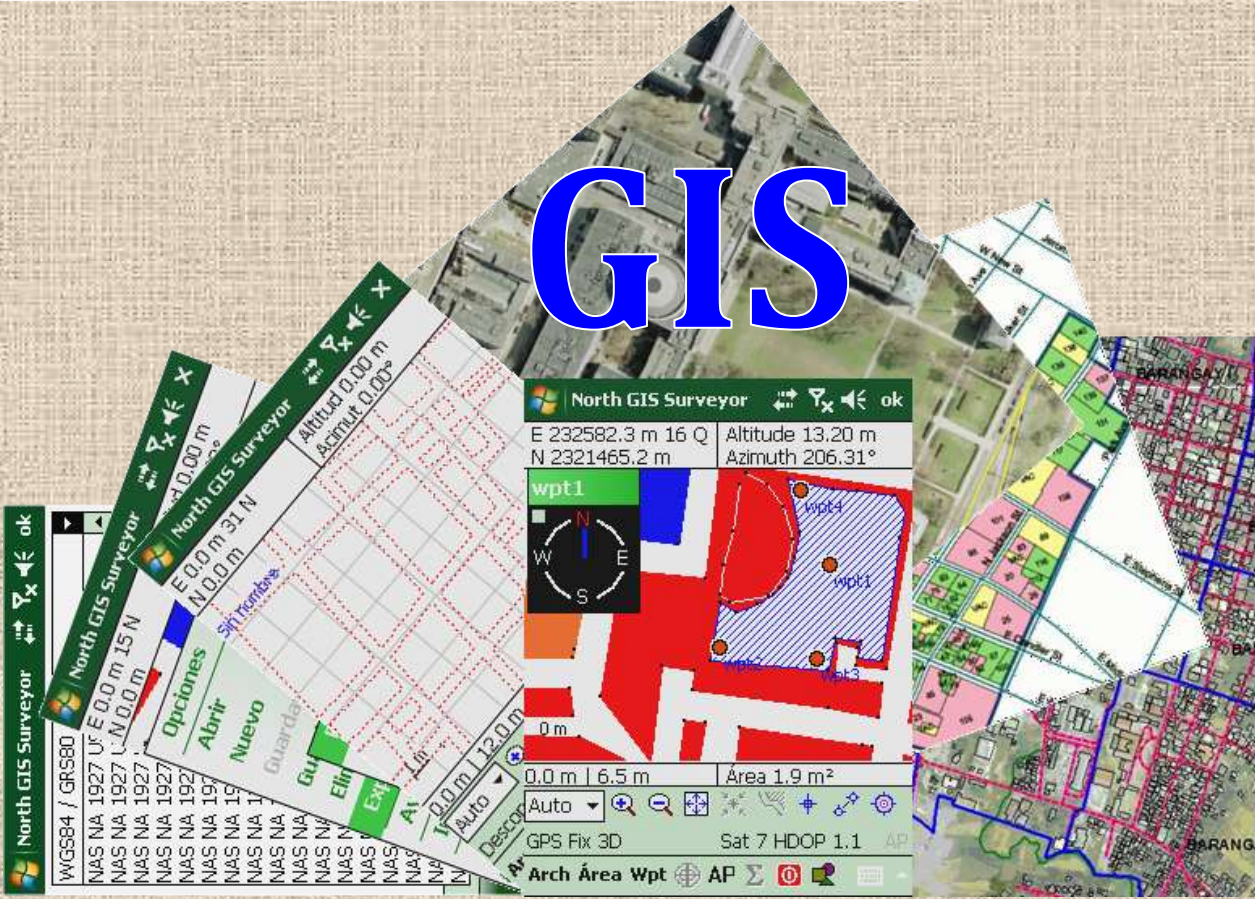


# North GIS Surveyor Quick Guide

# GIS



## Copyright

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## Trademarks

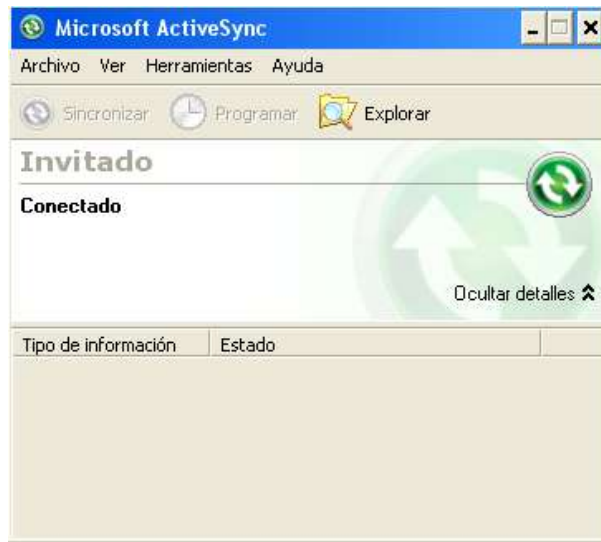
All product and brand names mentioned in this publication are trademarks of their respective holders.

The current document presents the main information about the use for NORTHN GIS SURVEYOR PROGRAM.

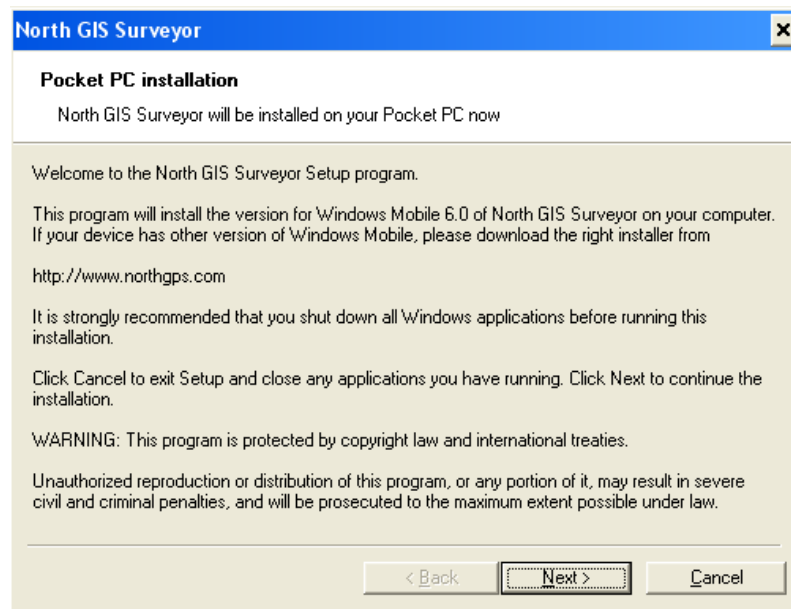
Some images would change according to the handheld device where it is installed.

## INSTALLING THE NORTH GIS PROGRAM.

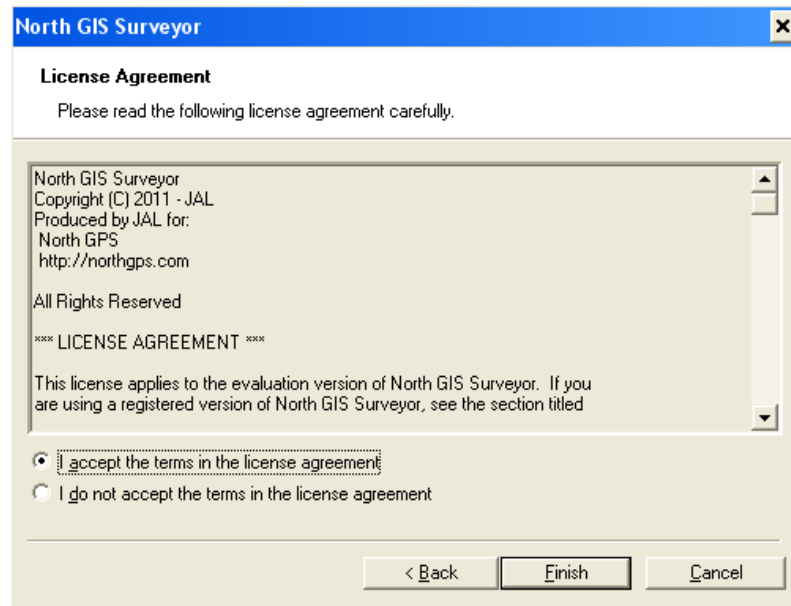
Before the installation, you need to synchronize your handheld device with your computer using the ActiveSync (for WIN XP OS) or Windows Mobile Device Center (for WIN VISTA & 7 OS).



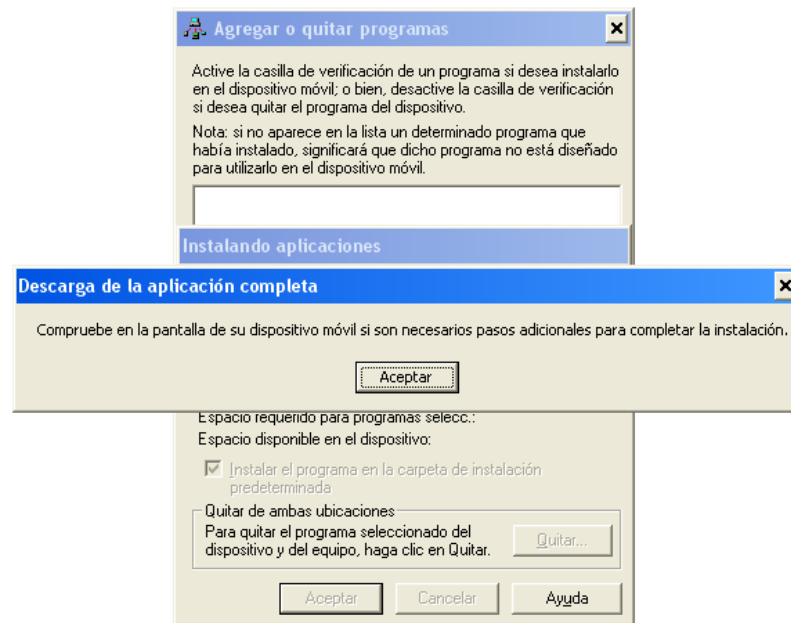
1. Find the installation file for NORTH GIS SURVEYOR and execute it. A window shall appear introducing you to the installation process. Please proceed with OK.



2. After that we recommend to read LICENSE AGREEMENT, if you want to continue the installation choose "Accept the terms" and Finish. Otherwise choose cancel.



3. As last step, the program will be installed on your Handheld device:



- Please continue the installation from your Handheld device:

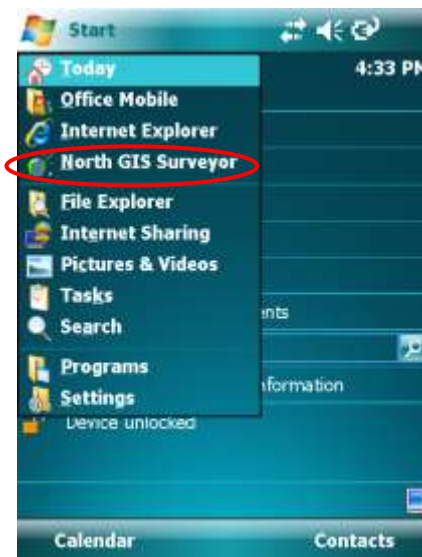


- Before you run the first time NORTH GIS SURVEYOR, you need to copy the **dict.txt** file and paste it on the DATA folder on the program installation directory. The dict.txt file contains information that we could add to measurement points like code, text information, point feature; all this information will be exported on \*.SHP format.

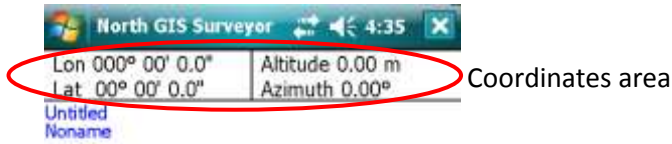


### USING THE NORTH GIS PROGRAM.

1. For execute the NORTH GIS go to Start button and press the quick access to the program.

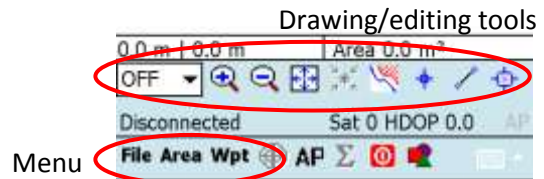
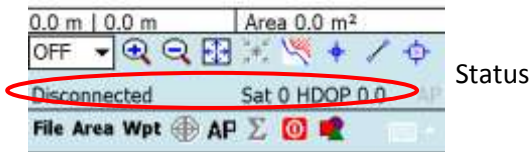


2. The program will start showing the main interface where we can see the main menu, editing and drawing tools, the map, coordinates area.



MAP

MAP



### LANGUAGES:

The NORTH GIS allow us to choose between different operating languages:

In order to change the language, follow the next path: **File->Language**

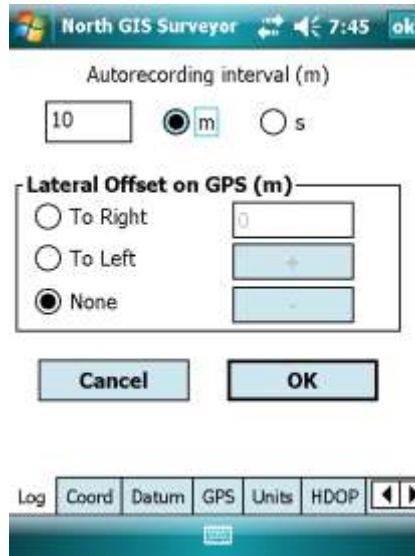


### SETTINGS.

This particular function allows you to configure the program operation, in order to make it able to work properly, according to requirements for surveying.

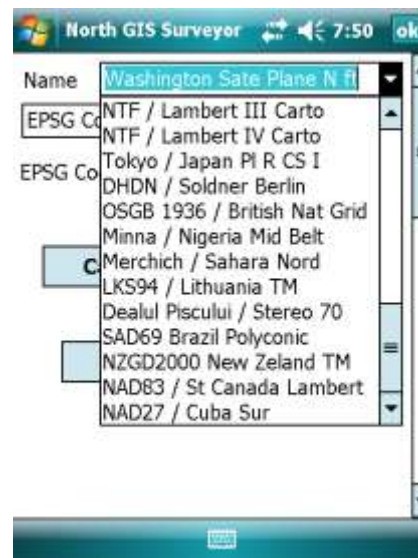
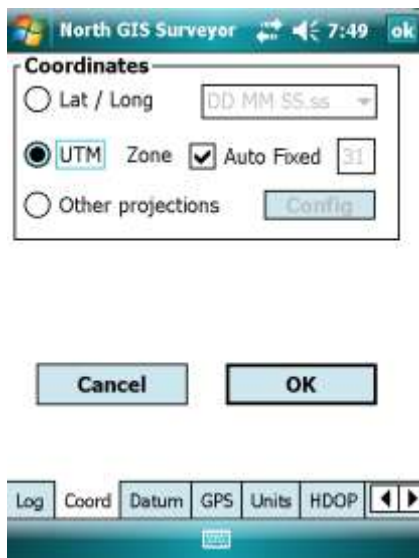
**SETTINGS ->LOG.**

This section is used to configure the program for auto-recording points (auto-recording points by time or distance with meter units), and if you need a lateral offset you can set here the value for left or right (meter units).



**SETTINGS -> COORDINATES.**

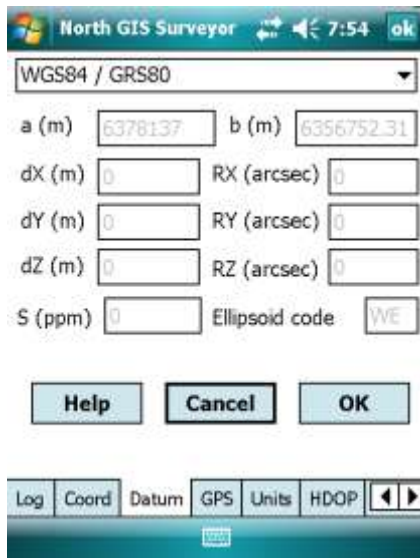
This section is used to determine the kind of projections which is needed for the job, the main options are: Lat/Long (using 3 formats), UTM projection (manual or auto-fixed) and Other projections (recommended for skilled people).





**SETTINGS -> DATUM.**

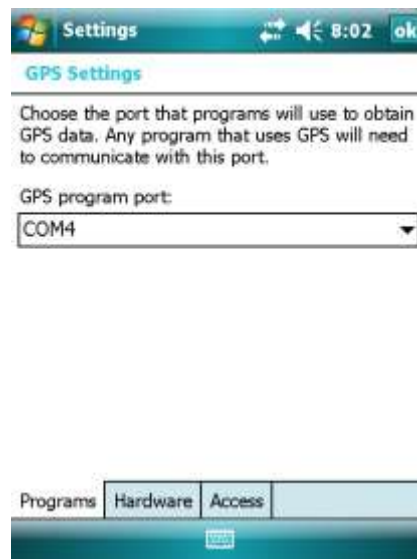
This section is used to choose the necessary DATUM which is needed for the job, it is highly recommended know the requirements for the job. By default the settled DATUM is WGS84/GRS80.

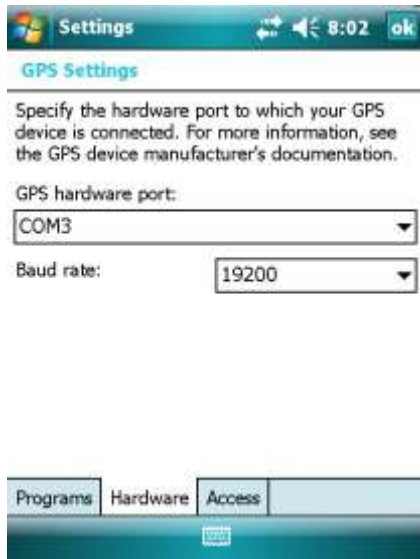


**SETTINGS -> GPS.**

This section is used to configure your GPS connection, there are two main options: Use GPS Windows Mobile and Use GPS by Serial Port.

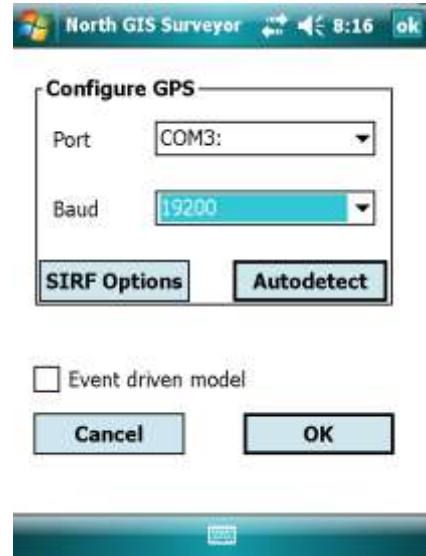
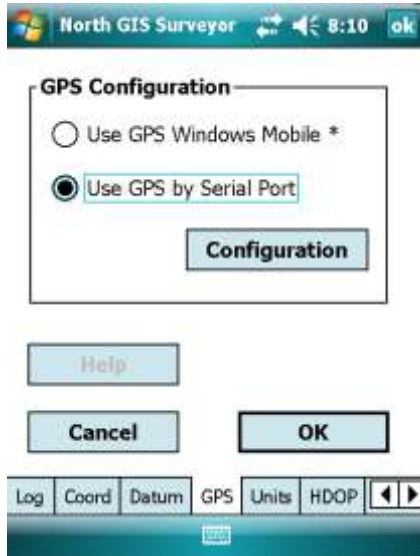
Use GPS Windows Mobile. In order to use this option you need first configure your GPS using the tool External GPS on your Windows Mobile Settings System. After that you can choose the correct option.





Use GPS by Serial Port. This options may change according the type of handheld you are using (if uses any physical serial port or has embedded GPS), otherwise if you are using only Bluetooth connection, first you need establish the connections ports and the service Serial Port on the settings device.





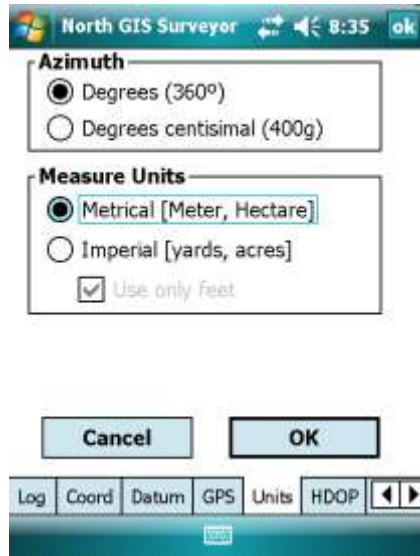
If you have an embedded GPS on your handheld device and you do not know the right port you can use the Autodetect function in order to test all available ports on your device and find the connection port.

In order to use the SIRF option you need to be sure your GPS are working under a SIRF Chip, the SIRF Option is recommended only for skilled people.



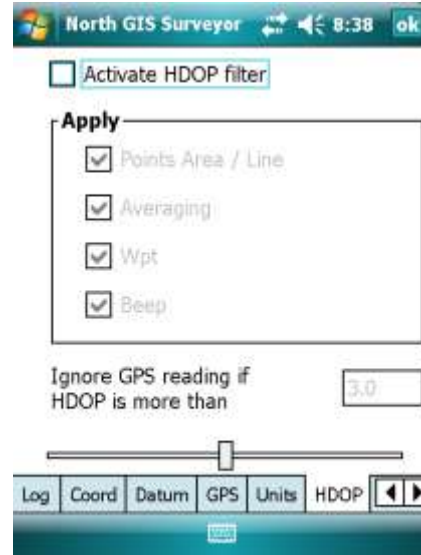
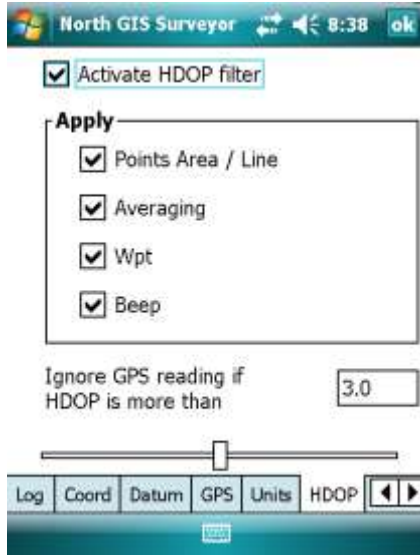
**SETTINGS -> UNITS.**

This section is used to choose the Azimuth and Measure Units (for lines and areas) units according to your needs.



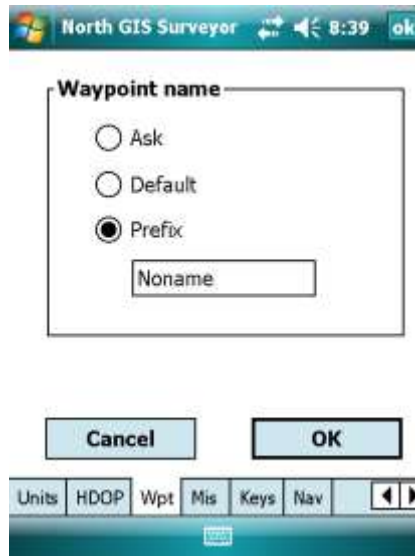
**SETTINGS -> HDOP.**

This section is used to active a HDOP Filter for measurements under variable conditions. You can apply that filter to all elements by choose them. Otherwise you can ignore it.



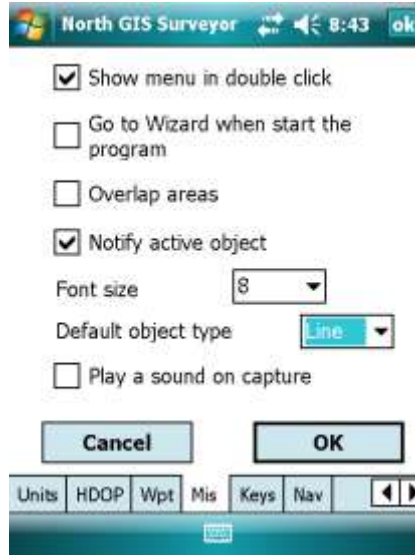
**SETTINGS -> WPT.**

This section is used to define the way to name the measurement Waypoints.



**SETTINGS -> MISCELLANEOUS.**

This section is used to customize some function on using the stylus on the map area, starting of program and recording data.



**SETTINGS -> KEYS.**

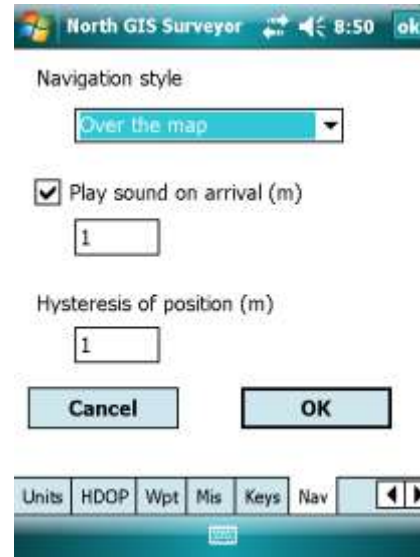
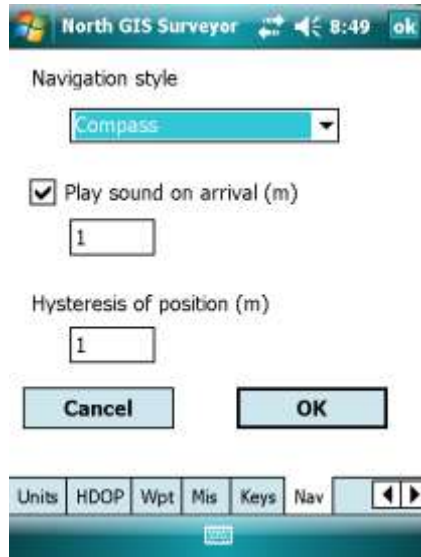
This section is used to customize the use of your keyboard on your handheld device to create fast access to some functions on the NORH GIS.

*Note: This option depends on every single handheld device.*



**SETTINGS -> NAVIGATION.**

This section is used to configure the Navigation Style, there are two options: Compass and Over the Map.



### CREATING, SAVING & OPENING A JOB.

For creating a new job first we need to go to *FILE-> NEW*, automatically the screen turn into a new job (If you already have a job opened the program will ask permission for saving any changes).

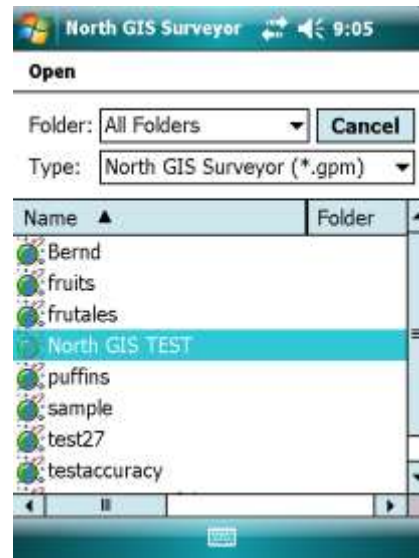


For saving an existent job, go to *FILE -> SAVE AS..* (for saving new job or saving existing job with different name), go to *FILE -> SAVE* for saving any changes.

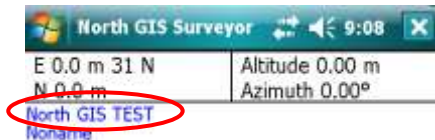
For saving a new job, you will have to save it with a NAME and in a determined directory or path.



If you need to open an existent job, go to FILE -> OPEN, then you need to choose the correct file with \*.GPM extension. If you did not save the file on the default path you will have to find it on the devices folders.




The name will appear on the map as follows,



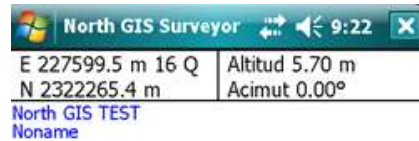
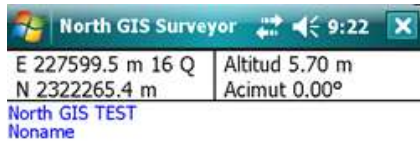
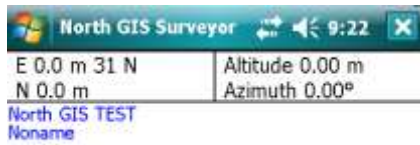


## CONNECTING THE GPS.

Before you start the measurement, first you need to connect the GPS to the program in order to obtain coordinates.

You can use the button  to connect-disconnect the program with the GPS.

Then you can see four main statuses, according to your type of GPS: Disconnected, No coverage, GPS FIX, DGPS FIX.



**START MEASURING ELEMENTS.**

Before start measuring points, we need to establish the type of elements we will identify on the program:

- A) Line
- B) Area
- C) Waypoint

**Line.** Each single line will be created in a different layer. Each line consists on a sequence of singles points measured manual, automatic by time, automatic by distance.





You can create a different layer by *Area -> Add New*, after that you can choose the type of element you want to measure: Line or Area.

**Area.** Each single area will be created in a different layer. Each area consists on a sequence of singles points measured manual, automatic by time, automatic by distance. This kind of element will be always a closed shape.

You can create a different layer by *Area -> Add New*, after that you can choose the type of element you want to measure: Line or Area.

**Waypoint.** This kind of element will be not saved on any layer; it will be saved on a waypoint-list.

The next table show the different ways that the elements can be created using commands on the NORTH GIS.

Object	Feature	Command
<b>Waypoint</b>	Single coordinate point	A) <i>Wpt -&gt; Add current position</i> B)  Manual add (not recommended)
<b>Line/Area</b>	Sequence of coordinate points building two different shapes: open line or closed shape.	A)  Add current position B)  by auto-recording C)  add point by average

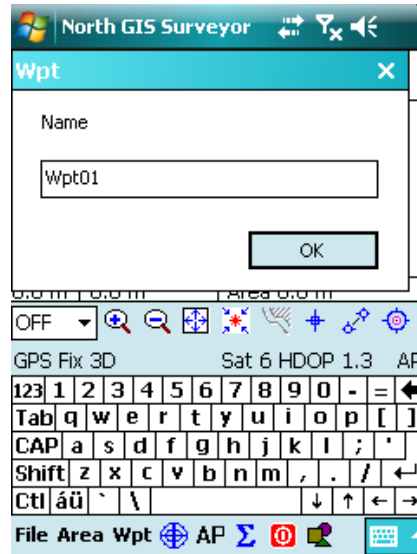
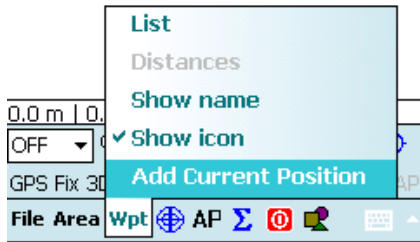
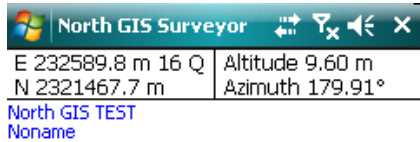
**Start measuring: Way point.**

As we saw before this kind of element will not be assigned to any layer, it will be saved on a specific waypoint list.

When you are creating a Waypoint, there will appear a window asking for features to add. This window it is named DICTIONARY (see last title), while the user is filling the information the program will be collecting measurements in order to make an average at the end and create the Waypoint.

The next example shows the two different ways to create a waypoint:

Using the command on the menu: *Wpt -> Add current position.*



North GIS Surveyor	
E 232582.9 m 16 Q	Altitude 10.80 m
N 2321461.7 m	Azimuth 137.87°
North GIS TEST Noname	

Wpt01

0.0 m   0.0 m	Area 0.0 m <sup>2</sup>
OFF	[Icons]
GPS Fix 3D	Sat 5 HDOP 1.4 AP
File Area Wpt [Icons]	

And by pressing the button and picking on the map with the stylus.

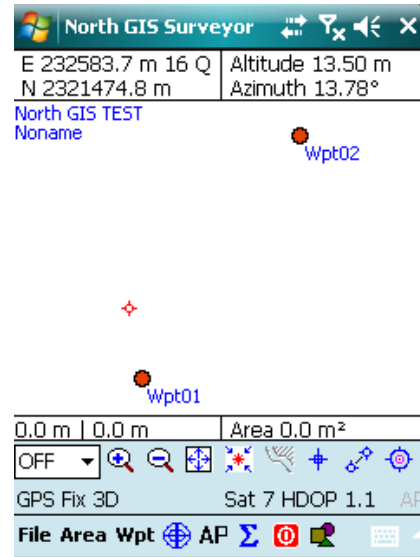
North GIS Surveyor	
E 232582.3 m 16 Q	Altitude 13.20 m
N 2321465.2 m	Azimuth 206.31°
North GIS TEST Noname	

North GIS Surveyor	
Point Type	Point

Wpt01

0.0 m   0.0 m	Area 0.0 m <sup>2</sup>
OFF	[Icons]
GPS Fix 3D	Sat 7 HDOP 1.1 AP
File Area Wpt [Icons]	

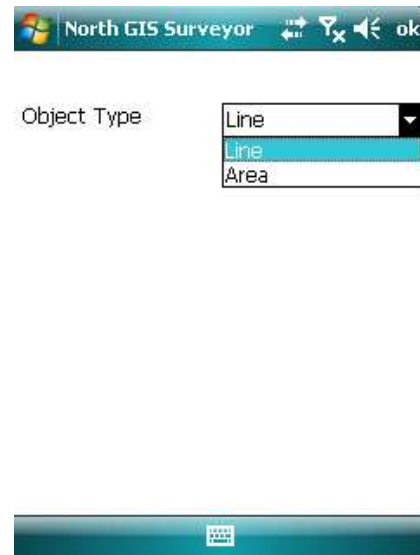
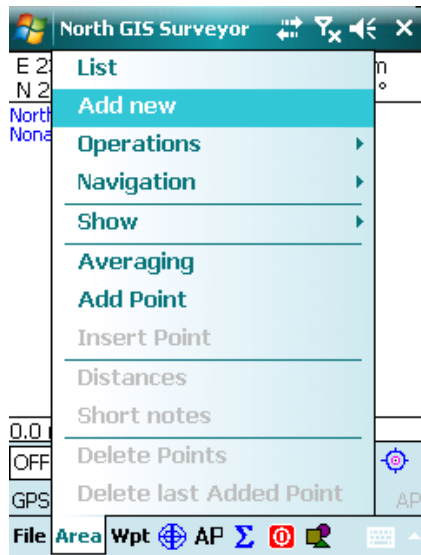
[Keyboard icon]
-----------------

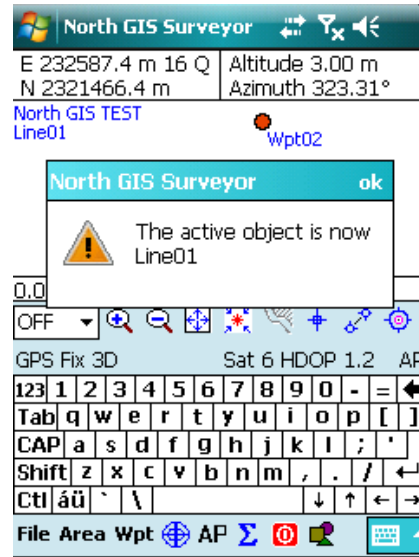
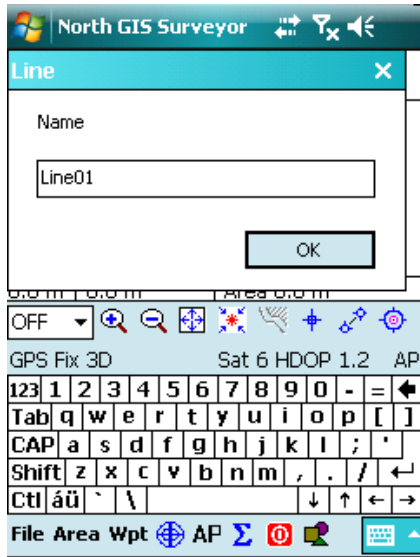


**Start measuring: Line.**






Before start measuring the line, we need to create the layer which will correspond to a unique element (line or area). After to create the layer, we can add points to object and if we want to verify/modify their feature, we can go to *Area -> List* to get into *Dictionary*.

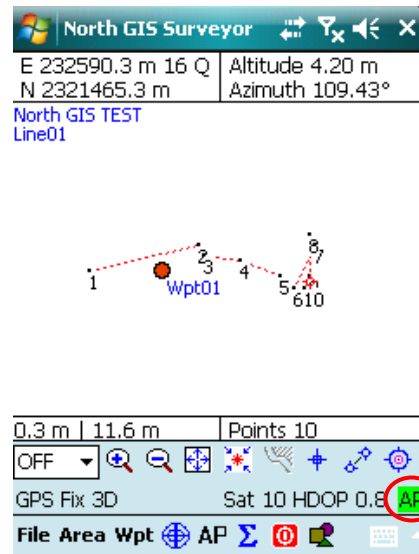
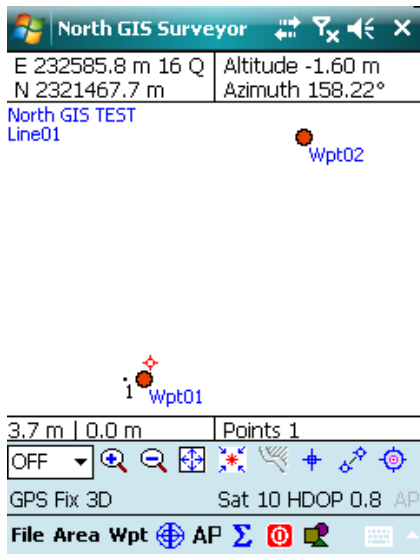
After you named the element, the name will appear under the Job name on the map.




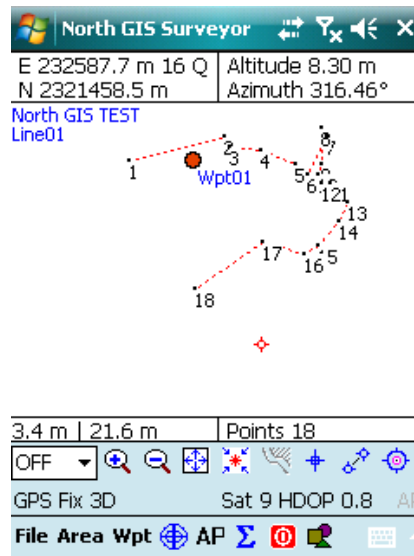
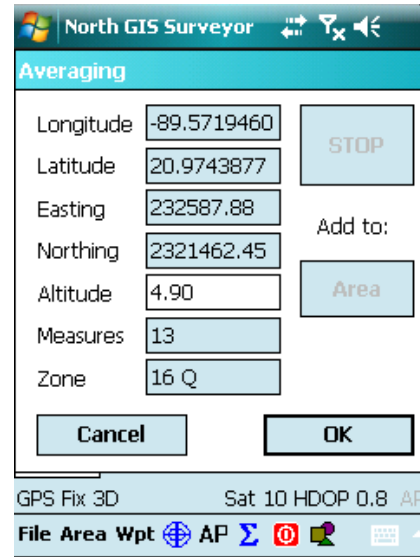


The name is already set; know you can add point to line using the different methods.

Add current position , by auto-recording points  or average . For each point you add it will be part of the object which is being creating. When you active the auto-recording function by pressing the  button; you will see the warning  while the function are working.



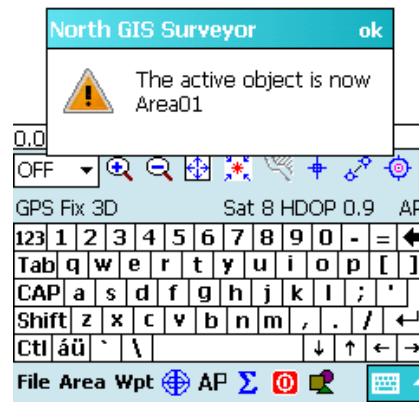
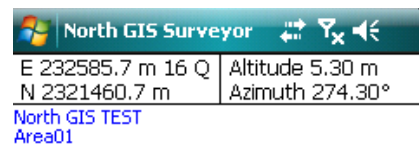
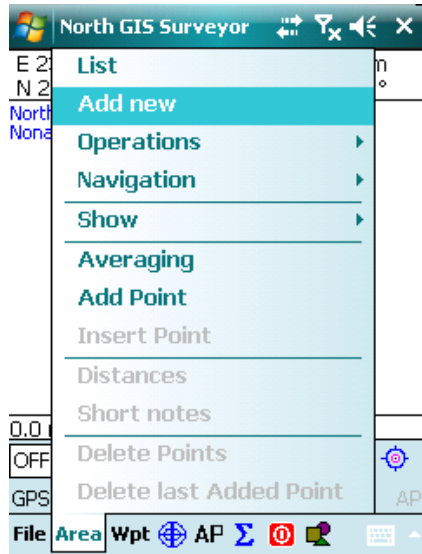
For using the average  function, first press the button, after that the program will start collecting points it will show the number of points, lat-long information, coordinates; when the user decide to end the average, press the *STOP* button, after that choose the *AREA* button to add the point to the sequence for line/area, and finally confirm with *OK*.








**Start measuring: Area.**


Before start measuring the area, we need to create the layer which will correspond to a unique element (line or area). After to create the layer, we can add points to object and if we want to verify/modify their feature, we can go to *Area -> List* to get into *Dictionary*.

After you named the element, the name will appear under the Job name on the map.



The name is already set; know you can add point to line using the different methods.

Add current position , by auto-recording points  or average . For each point you add it will be part of the object which is being creating. When you active the auto-recording function by pressing the  button; you will see the warning  while the function are working.

For using the average  function, first press the button, after that the program will start collecting points it will show the number of points, lat-long information, coordinates; when the user decide to end the average, press the *STOP* button, after that choose the *AREA* button to add the point to the sequence for line/area, and finally confirm with *OK*.

On other words the measurement of point is the same procedure with lines.



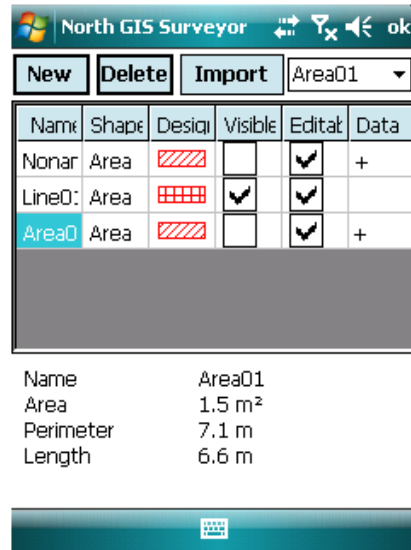
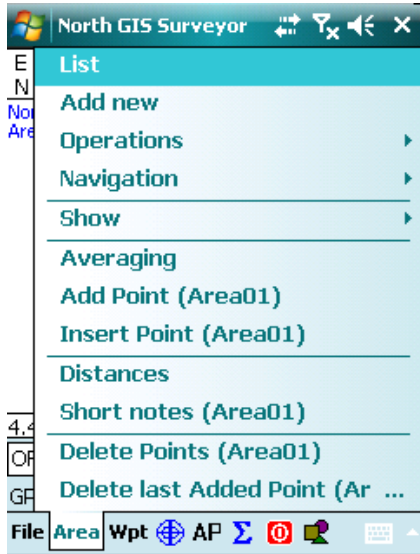
## EDITING FEATURES.

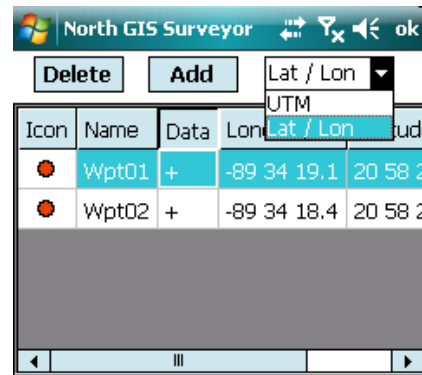
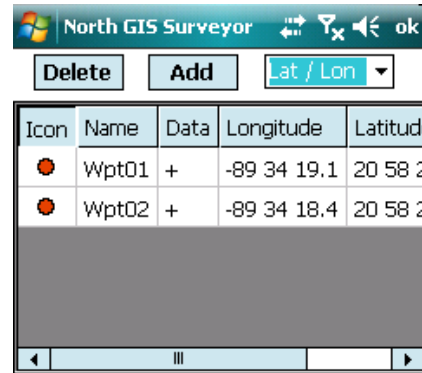
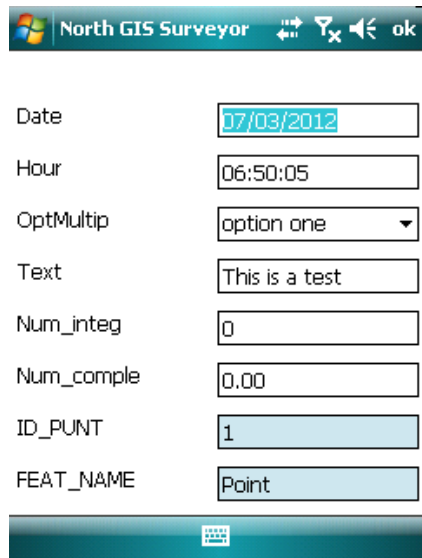
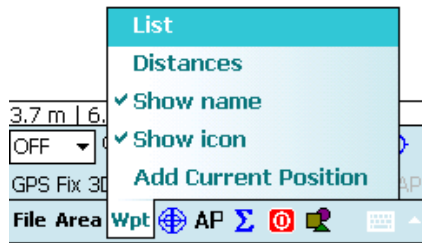
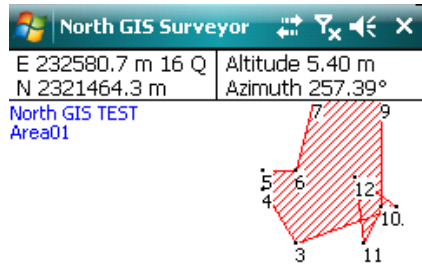
For each element already created, you can access to their dictionary to add/modify the information of register. There are two different paths for accessing:

Line/Area: *Area -> List*

Waypoint: *Wpt -> List*

For each list of element, the way to access to enter on editing mode is pressing the option “+” on the *Data* column.



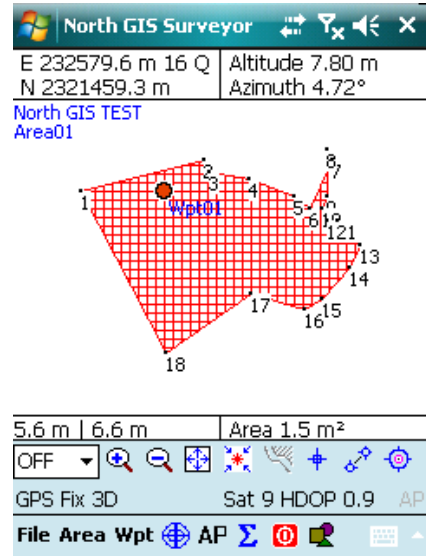
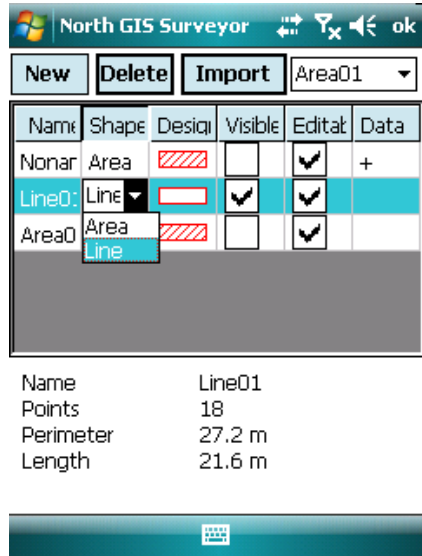
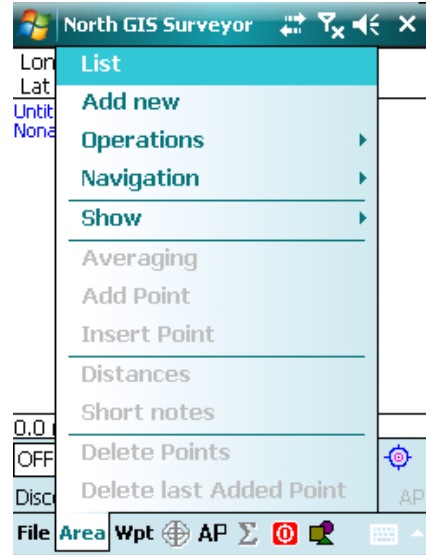
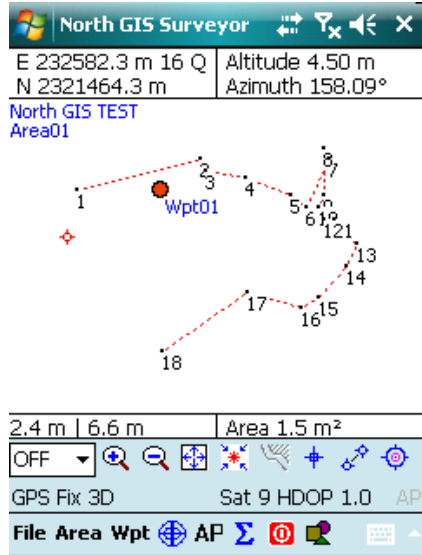


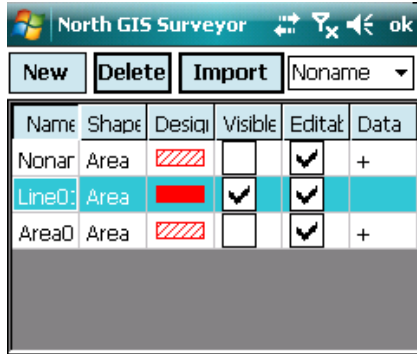
### LINE/AREA SHIFTING VIEW.

The list has a tool which allows us to change the mode between *line to area* and *area to line*.

Go to *Area -> List*, the next step is choose the element to change, select it and change the SHAPE feature from *line to area* or *area to line*. If you want to change it more, you can customize the element with the *Design* tool.

If you want to make it disappear on the map you can select or not the *Visible* option.





After the change of type, the program will show the features as area, when it was recorded as line.

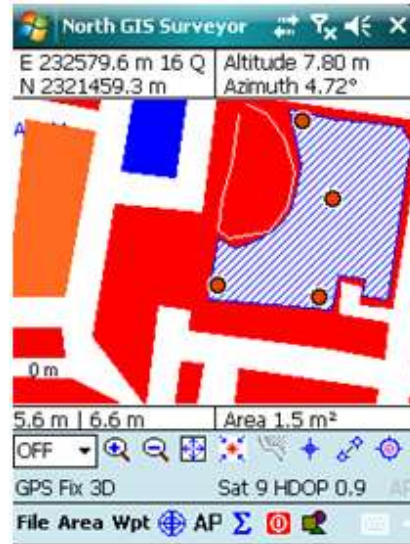
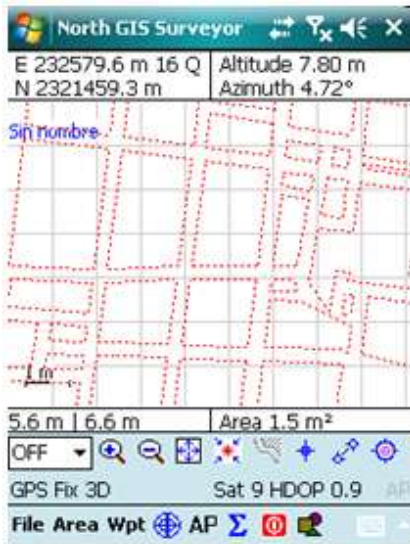
Name Line01  
 Area 29.2 m<sup>2</sup>  
 Perimeter 27.2 m  
 Length 21.6 m



### IMPORTING DATA.

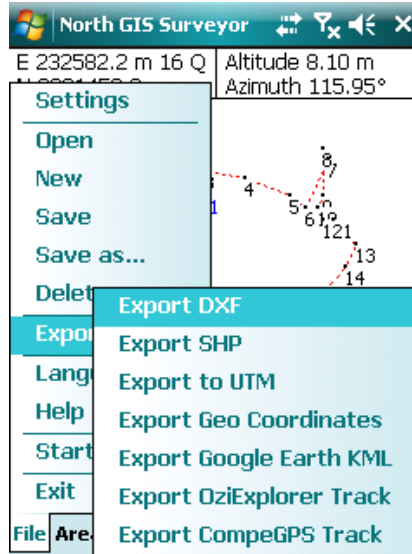
The NORTH GIS allows loading waypoint, lines and areas to map.

For importing data first make sure that all files must have the \*.SHP extension. For importing lines/areas go to Area -> List -> Import, and then find the file to load. For importing waypoint go to Wpt -> List -> Import, and then find the file to load.



## EXPORTING DATA.

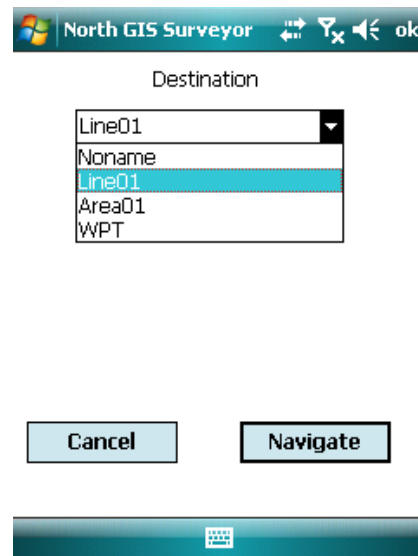
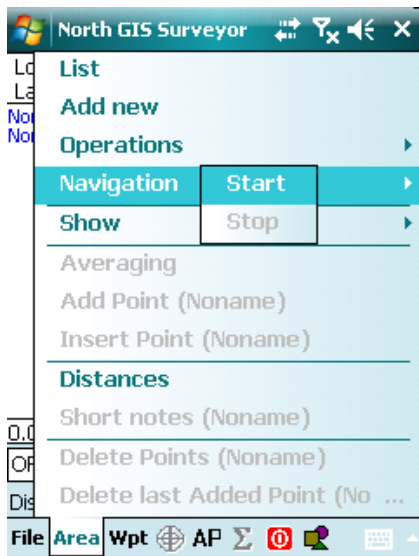
For export the result of the measurement, The NORTH GIS export the data on different formats, the next image show all option to export:

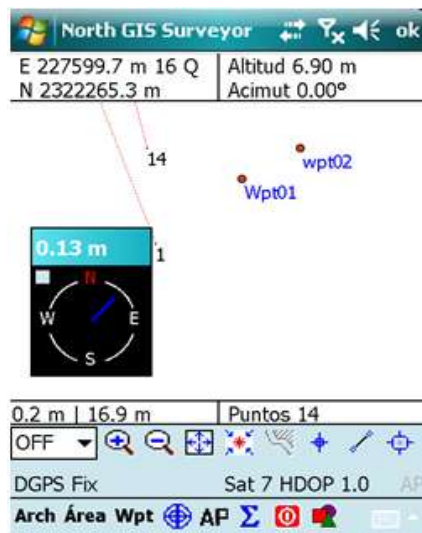
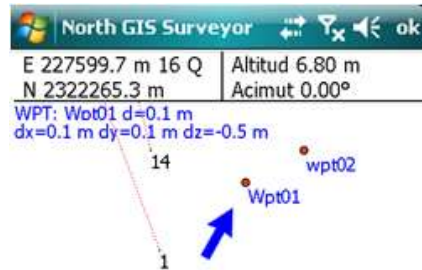
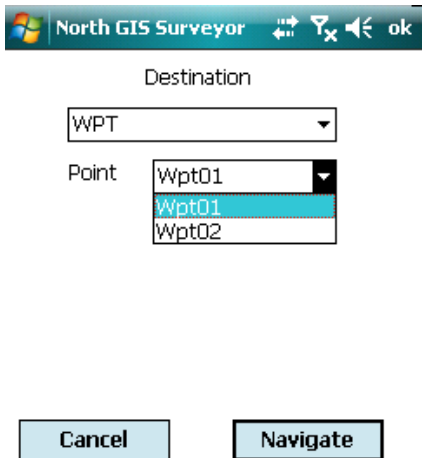
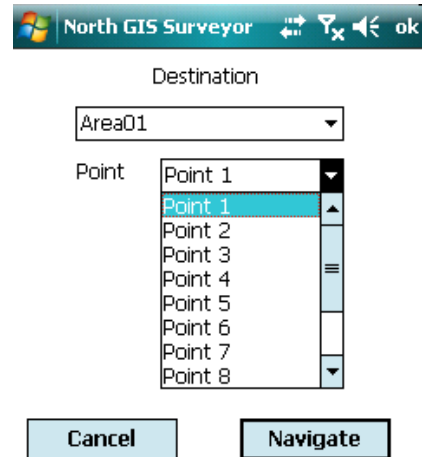
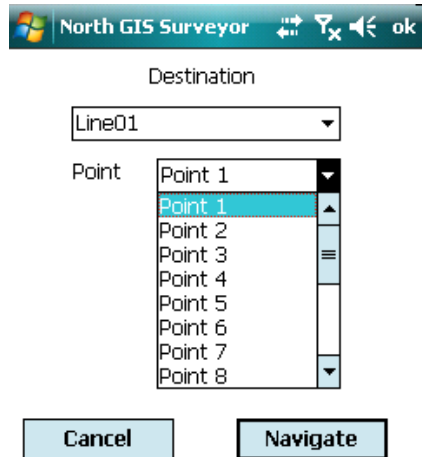


*Note:* all features filled on the *Dictionary* will be exported only on the \*.SHP data.

## NAVIGATION TOOL.

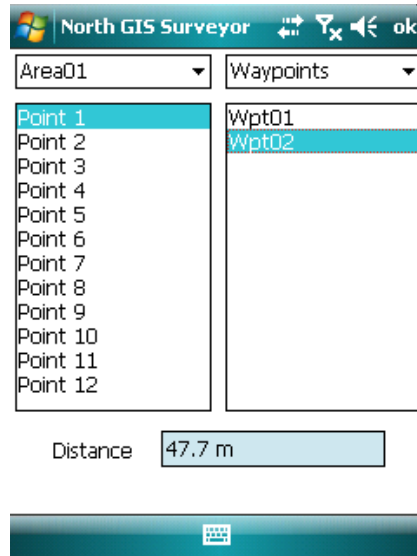
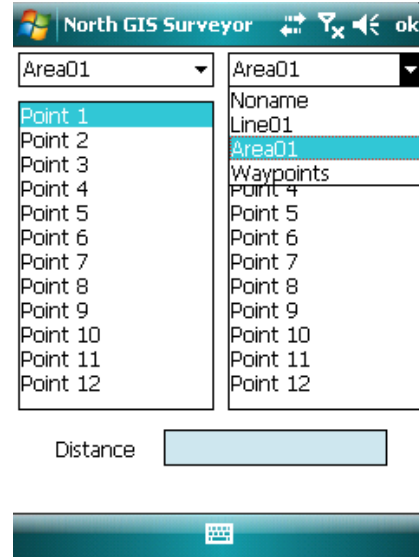
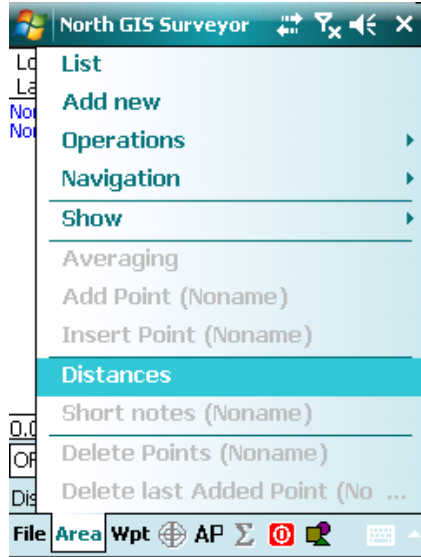
The NORTH GIS Navigation tool allows to navigate to any point (waypoint, single point of line/area) previously recorded. To start navigate go to Area -> Navigation -> Start, and then choose the point to navigate. To modify the kind of navigation, make reference to Settings.




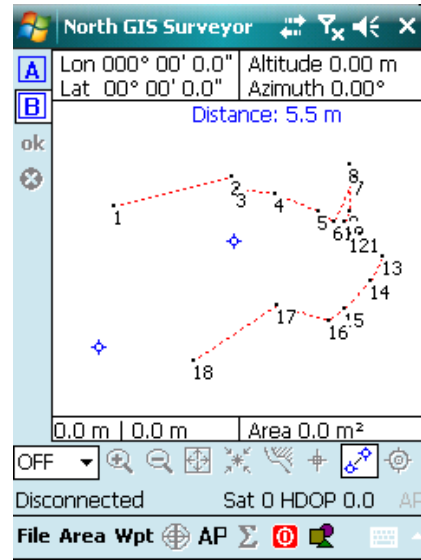
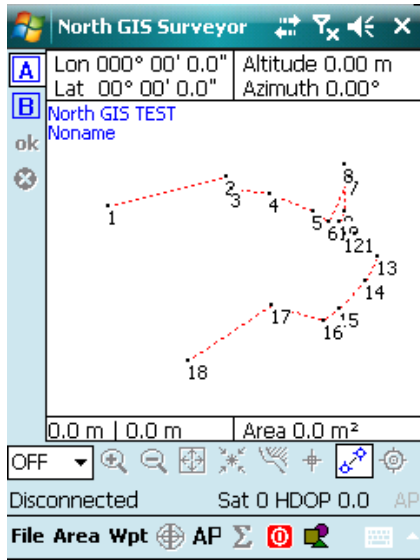


## DISTANCE TOOL.

For accessing Distance tool go to *Area -> Distance*, and then choose the two points which you want to calculate the distance.



The another Distance tool is a manual tool, you can find it with the button , when it is activated will calculate the distance between 2 points A and B.





## DICTIONARY.

**NOTE:** All features included on the Dictionary only can be seeing on \*.SHP viewer or ArcGIS.

The dictionary consists on a sequence of structures called objects. Each object has a name, a linked geometry and some features.

The first line on the dictionary will be assigned like the name of the dictionary.

The definition starts with the word “O”, followed by the kind of geometry (P-point, L-line, A-area) and finally the name of the object; i.e.:

*O,P,Corner*

It defines one object linked to a point called Corner.

### Features.

Text. Defines a text attribute with long; i.e.:

*T,Comment,100*

It defines a text attribute named “Comment” with a long of 100 words.

Integer. Defines an integer number attribute with range; i.e.:

*I,Age (years),3,1,999*

It defines an integer number named “Age (years)”, with width of 3 numbers, minimum value: 1, maximum value: 999.

Double. Defines a double number attribute with range; i.e.:

*D,Height (m),5,2,00.00,99.00*

It defines a double number named “Height (m)”, with width of 5 parts (2 integer + decimal point + decimal number), minimum value: 00.00, maximum value: 99.00.

Menu. Defines a sequence of predefined options to choose; i.e.:

*M,Type GPS,RTK,SBAS,RTD,ETC*

It defines a several choices linked to a one main description named “Type GPS”, the options to choose are: “RTK”, “SBAS”, “RTD”, “ETC”.

Date. Defines the date of measurement:

*F,Date*

Hour. Defines the time of measurement:

*F, Hour*

Separator. Defines a blank line:

*S*

There is a full example of dictionary:

*Dict. North GIS*

*O,P,Point*

*F,Date*

*H,Hour*

*M,OptMultip,option 1,option 2*

*T,Text,100*

*I,Num\_integ,9,0,0*

*D,Num\_comple,5,2,0.00,99.00*

*S*

*O,L,Line*

*F,Date*

*H,Hour*

*M,OptMultip,option 1,option 2*

*T,Text,100*

*I,Num\_integ,9,0,0*

*D,Num\_comple,5,2,0.00,99.00*

*S*

*O,A,Area*

*F,Date*

*H,Hour*

*M,OptMultip,option 1,option 2*

*T,Text,100*

*I,Num\_integ,9,0,0*

*D,Num\_comple,5,2,0.00,99.00*

*S*

# NORTH

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