FieldGenius 2006 Version 2.0.0

General Features

New – You can now assign command shortcuts to keys on your data collector.

This has been added to support our new keyboard layout on the newer Trackers but it also works with any device that has a keyboard.

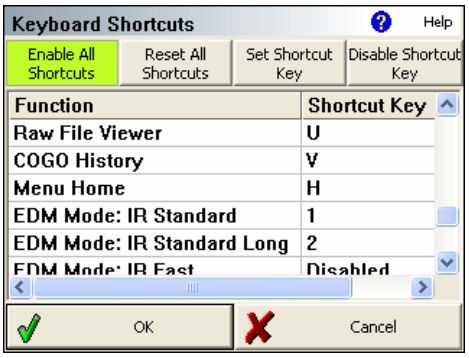
The defaults for the shortcut keys are based on our keyboard layout, but you can assign any key you want to the list of available commands.

The shortcut definitions are stored in the msurvey.ini file so they're portable to your other data collectors if you've defined a custom layout.

Another great feature is that the EDM mode for the currently selected instrument can have shortcut keys assigned to it.

For example if you refer to the list above, pressing the '1' key would set your EDM mode on the instrument to IR Standard.

The shortcut keys are only available from the MAP screen.



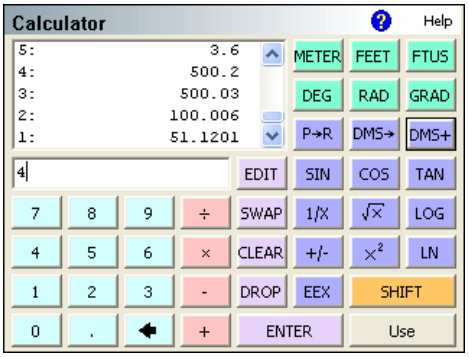
Tracker Keyboard

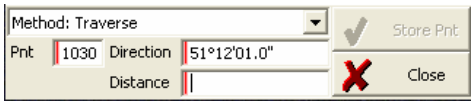
New – A RPN calculator is now built-in to FieldGenius.

The calculator is available from the calculations menu.

It is also available directly from input fields such as the Traverse Toolbar.

The red vertical bar on the right side of the input field indicates that if you double click it, the calculator will automatically appear. You can then make a calculation and press the **USE** button. This will automatically copy the value in the bottom of the stack back to your input field.





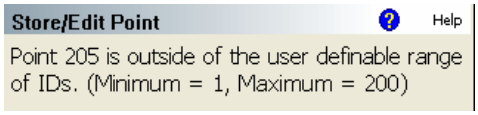
Note: you can adjust the double tap timing on your data collector if this calculator is appearing too often.

New - Allowable point ID ranges can now be defined in the settings. If the user tries to store a point outside of this range, a message will appear notifying them that the point number they are using falls outside the allowable range.

Default Values:

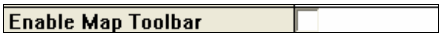
Point ID Range - Minimum	**1**
Point ID Range - Maximum	**999999**

Example of warning if outside range:



New – You can now delete the last 10 points that were saved. In the Survey Menu there is a new command called Delete Last Saved Point. Using this allows you to remove (delete) points from your map and database. Each point that is removed will be recorded in the raw file with a DP "Delete Point" record.

New – A new option is available to stop the map location toolbar from appearing when you select an empty part of the map screen.



New – A new option allows you to store user defined descriptions without any warning messages asking you if you want to do this. This greatly speeds up data collection because it saves you from having to press "Yes" to the warning message.

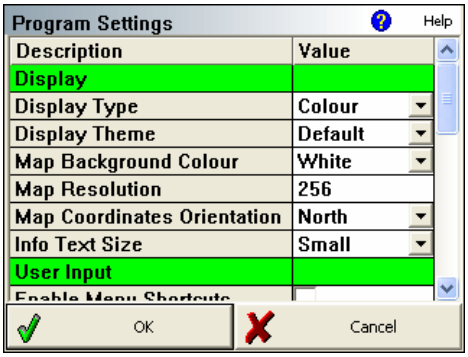
New - Any points that are imported or calculated now have a record in the raw file. The record is stored as an SP record. For example, points imported from an ASCII file will have an associated SP record in the raw file. This allows for better reprocessing of the raw file.

New - All deleted points now have a DP record written to the raw file. DP records are processed when importing an existing raw file.

Improved - Horizontal grid settings are now saved to the project INI file. An 'auto size' button has been added to the 3D settings dialog to make grids easier to use.

Improved – Program settings are now separated into groups for easier viewing.

The different groups are highlighted in green.



Improved – DXF Files: The user now has the option to include point descriptions in the exported DXF file.

Improved - Improved 3D planar and vertical grid settings for vertical plane mapping.

Improved – FieldGenius' normal data path is MicroSurvey FieldGenius\FG Projects. If for some reason this directory doesn't exist, FieldGenius will automatically create it.

Improved – Major Speed improvements to reduce the time to store new points in large projects.

Improved - Fixed resizing of buttons on the instrument toolbar, especially applicable to portrait data collectors.

Improved - Projects from MSCAD / inCAD often have an associated DXF file. The default was to not automatically load the DXF, but this has changed such that the "load DXF" toggle will automatically be turned on when opening the project for the first time.

Improved - Next point ID was being carried over from previous jobs when opening existing or creating new projects *if* FieldGenius wasn't closed first. On new projects it will now default to 1 and on existing projects we will scan the raw file looking for the last point number that was stored. If nothing is found in the raw file, we will default to the lowest next available point in the point database.

Improved – Previously it was possible for the user to continually press the three point arc toggle consecutively around a figure. This caused problems with the figures so this has been updated so once a shot is taken on the mid point, the three point arc toggle will not be available until a shot is taken on the end of the arc.

Improved – Adding new descriptions to the AutoMap library in FieldGenius would automatically set a draw line flag to turn on the line toggle when the description is selected. This has been changed to so the default is for lines to be off with new AutoMap entries.

Improved – The full screen desktop version of the emulator now displays the topo toolbar.

Improved – The Tape Measure program will now create SP records in the raw file.

Improved - New points can now be selected with the mouse while the point toolbar is visible.

Improved – Raw file viewer has been updated to be more user friendly and intuitive.

Two new options for inserting note (comments) are available.

Insert Note will insert a note above the current highlighted line. You can highlight any line in the raw file.

Append Note will append a note to the end of the raw file.

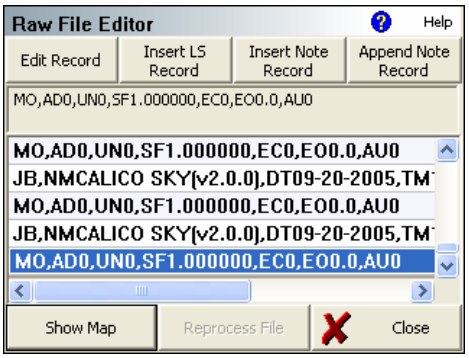
When you edit a record, the Save and Undo buttons will appear.

The auto note that is entered after editing a record will now say “Edited Next Line:” instead of “Edited.”

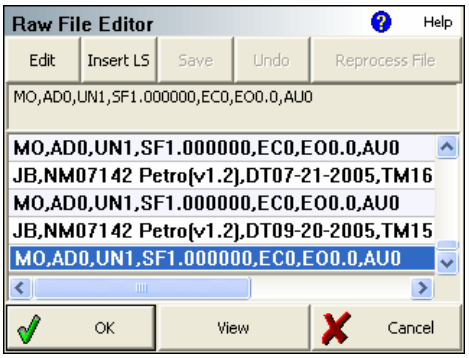
View button changed to Show Map.

Other minor changes to make scrolling more reliable.

New:



Old:



Improved - msurvey.ini is now automatically created if it is missing and will be built using hard coded system defaults. The FGEN group has been renamed to SETTINGS. New groups of DISPLAY and DEFAULTS have been created.

Improved - Direction input format is now synchronized with direction output format in the Units Settings screen.

Change - Licensing now creates and refers to the file 'Licence.txt'. If the license file 'FG2004.lic' still exists, it will be referenced instead.

Change – Raw File Viewer command moved to Data Management menu.

Change – Insert Comment command moved to the Raw File Viewer.

Fixed - The dashed line indicating the previous shot and the current instrument position symbol from a previous project would be displayed in new projects if the program wasn’t closed first.

Fixed – MSCAD Projects: FieldGenius will now use the default direction saved in the msurvey ini file when projects created by MSCAD or inCAD are imported.

Fixed - If you had a project open, and created a new project through the project manager, an MO record for the new project was being written into the previous project containing the new project’s settings.

Fixed – On the Emulator, Full screen version, the Cancel button on menus caused all menus to disappear.

Fixed – After storing an observation the map screen would redraw itself and “flicker” several times more than was needed.

Fixed – Editing a record with a lot of characters in the raw file would sometimes be saved and split between two records.

Fixed - FG could not always import a DXF file that was exported by FG. In previous versions you needed to open and save the DXF in AutoCAD or MSCAD first before opening it with FieldGenius.

Fixed - LOD button on the visibility toolbar wasn't working correctly.

Fixed - Older versions of FieldGenius used to set a registry value that informed our Activesync plug-in that FieldGenius was running on the data collector. This prevented the user from downloading a project that was currently in use. This behavior has been improved.

Figures

New - Splines are now fully 3D!

New – Arcs are now fully 3D!

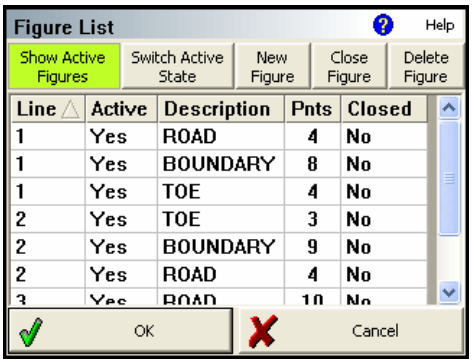
New – figures can consist of a mix of Lines, Arcs, and Splines – all in 3D!

Improved – Optimized database access for figures which increases overall system performance on larger projects.

Improved - Switch figure to spline now has a warning message asking the user to confirm they want to do this.

Improved – We added more functionality to the Active Lines List screen.

- You can toggle between displaying your Active or Non Active figures.
- You can change the status of a figure as being active or not active directly from this screen.
- Two commands previously only available on the figure toolbar have been added: Close Figure, and Delete Figure.



Fixed – After deleting a figure, a redraw issues could occur such that the figure was removed from the figure database, but would remain visible on the screen. This is now fixed so the screen refreshes properly after a figure is deleted.

Fixed - Deleted figures would sometimes not automatically remove themselves from the Active Lines list.

Fixed - Line colors defined in the AutoMap library would not always draw correctly, this has now been resolved.

Fixed – Sometimes deleting individual segments in a figure wouldn't always delete themselves correctly.

Fixed - In XG2 when a figure was removed from the figure list and then subsequently made current again it was automatically added back to the figure list. FieldGenius2006 has been fixed to replicate this behavior.

Fixed - Drawing long arcs using the pencil tool would always draw the short arc. This has been corrected.

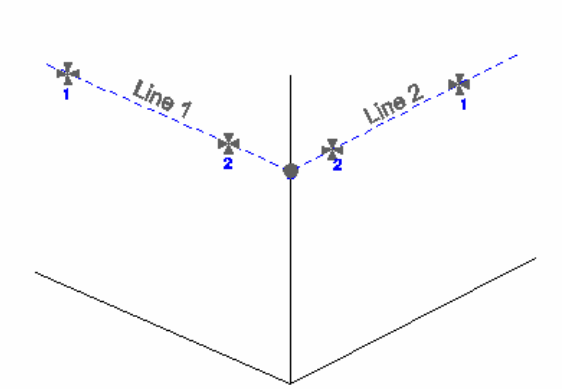
Fixed - Point/line selection option available on the visibility toolbar was not working. This has been corrected.

Fixed - Complex Figures - Mixed figures that have straight tangents, arcs and splines would not always display correctly when the project was closed and opened up. This is now fixed.

Fixed - Delete Segment button appeared to erase splines, but when the project is opened it appeared again.

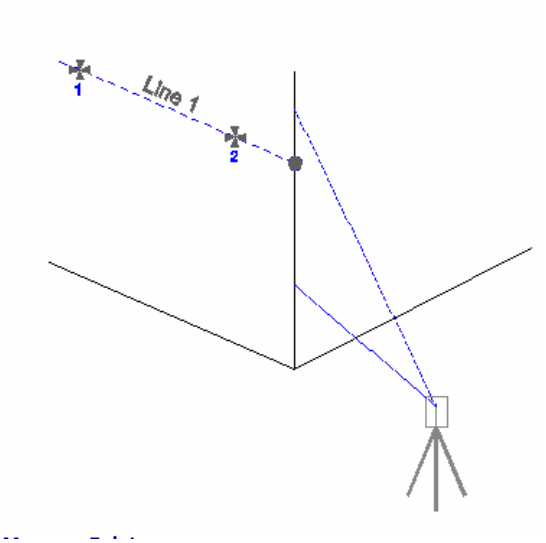
Measurement Methods

New – A Two Line Offset Intersection is now available for reflectorless instruments.



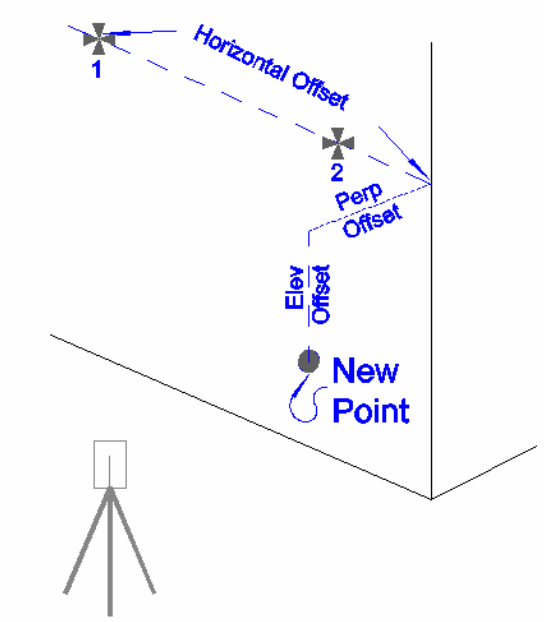
Define two points on two different reference lines and FieldGenius will compute a new point at the intersection of the two reference lines.

New – A Line and Angle Offset intersection routine is now available for reflectorless instruments.



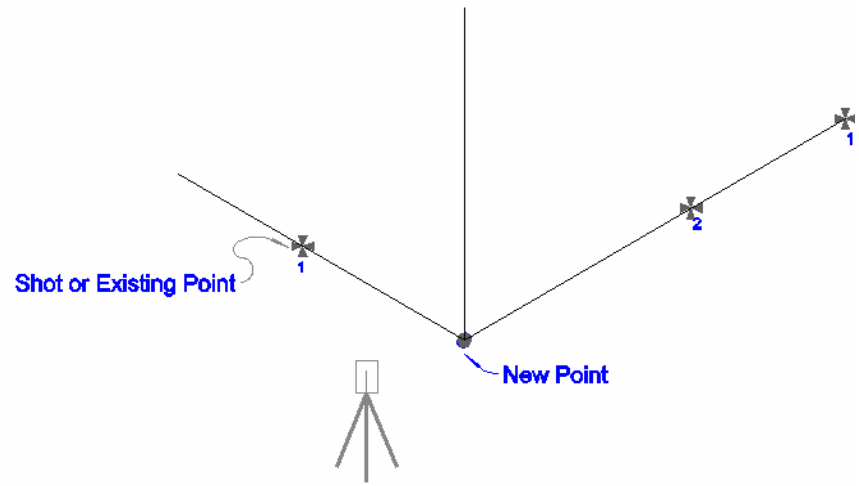
FieldGenius can compute the location of a hidden point by defining two points on a reference line and measuring an angle to that which defines where the point would intersect the reference line.

New – A line and Distance offset routine is now available for reflectorless instruments.



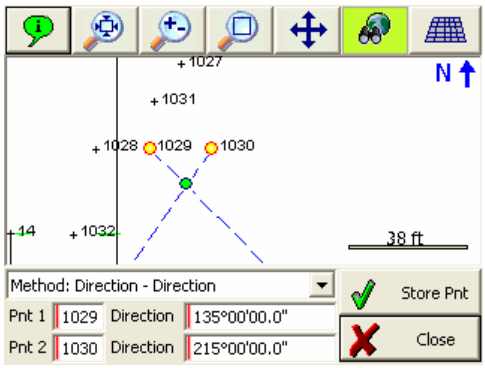
You can now shoot two points to define a reference line, and then specify offsets in three directions to compute the location of a hidden point. You can specify an offset along the reference line, right/left and up/down.

New – A line and Perpendicular Point offset routine is now available for reflectorless instruments.

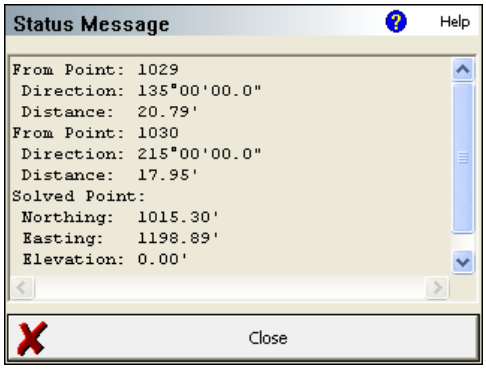


You can now shoot two points to define a reference line, and then specify an existing point or shot a location, and FieldGenius will compute the perpendicular intersection from this point to the reference line.

New - Traverse / Intersect – This has been completely redesigned. You now have to choose the solution type that you want to solve for. We also worked on this a lot to make sure focus is handled properly as the user presses enter to move between the fields. You can simply press enter to tab through each field and you should find the overall feel of the function to be much better.

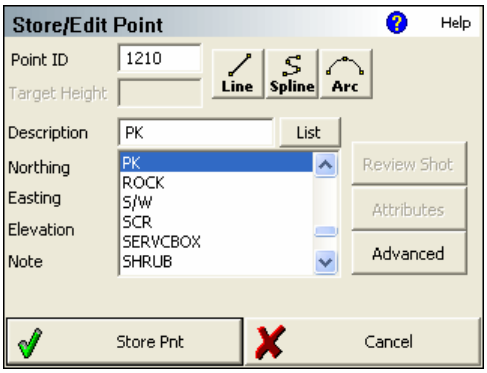


You can now preview the solution before pressing Store Pnt.



You can also press the shortcut key for COGO History which is usually the letter “V” to open the COGO History so you can review all your previous calculations without having to exit the routine. You can even copy and paste values from the COGO Results screen back into the traverse toolbar.

Improved - Improved storing descriptions when points are stored. Now available is an edit field that allows you to quickly enter your descriptions:

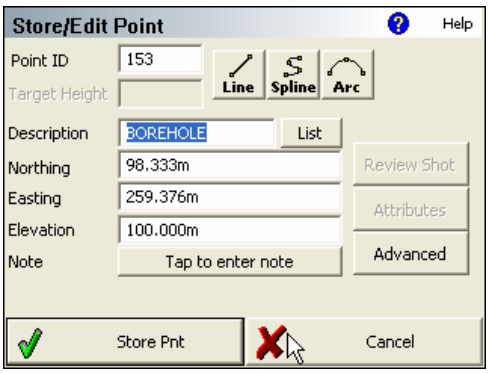


As soon as you start typing, a drop down list appears with the descriptions from your AutoMap library. When you find the description you need, simply press enter to use it.

While the list is open, you can use your arrow keys to scroll through the list.

Next to the field is a new button called List. Press this to open the AutoMap Library screen.

Beta testers reported that the improvements to FieldGenius increased productivity by 15%!

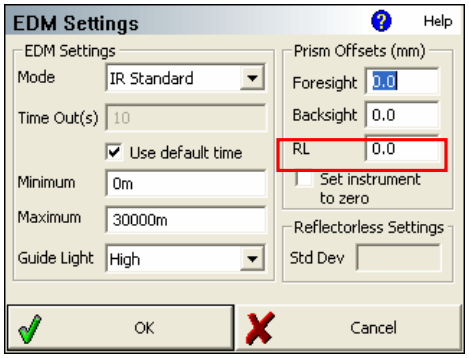


Instrument

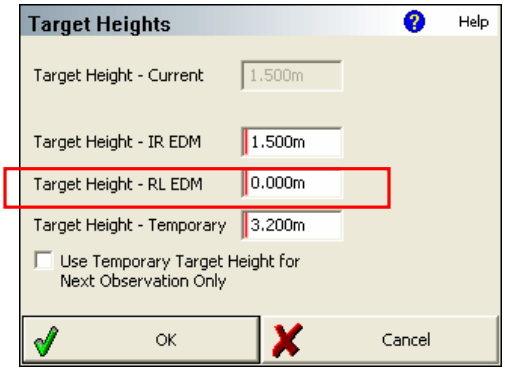
New - Added reflectorless EDM modes for Sokkia advanced instrument.

New – Added support for the Zeiss Elta R Series total station.

New - Added new prism offset for reflectorless EDM observations.



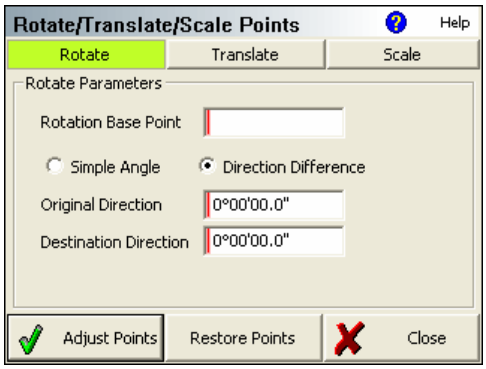
New – Added new reflectorless target height field.



New -  The cursor button when using a total station now controls re-centering the map onto newly observed points. This option is available on the instrument toolbar. If you connect to a robotic instrument, this still controls the cursor tracking.

New - RTS – Added an "Undo" feature. After you use the command you can restore your coordinates to their original location by using the Restore Points feature.

New – RTS – Updated user interface so it spans three pages which makes it easier and more intuitive to use:

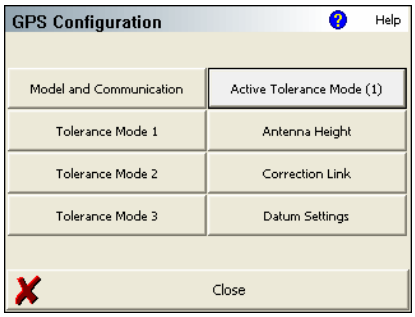


New – RTS – On the rotate page you can specify two directions (old and new) and FieldGenius will compute the angle for you.

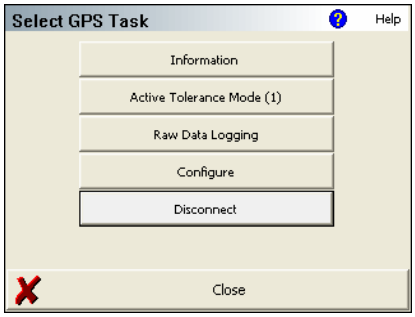
New - RTS – After the command has been used once, the next time the command is used you will be asked if all the fields should be reset back to their default values. If you choose no, then your previous entries will be retained.

New - FieldGenius does a memory check before memory intensive operations are started such as importing points, or viewing the raw file. A warning message will appear if you're running low on available memory.

New - GPS Rover – Rover sub profiles have been implemented. You can now specify three different tolerance sub profiles. Your sub profiles are then accessible during your RTK session. You can specify for example high tolerances for control measurements, and less strict tolerances for topographic measurements. To switch between them on the go, simply press the GPS Task button on your GPS toolbar, then select the tolerance mode you want to use. The important thing is that you don't have to disconnect from the receiver, simply select the tolerance mode you want to use.

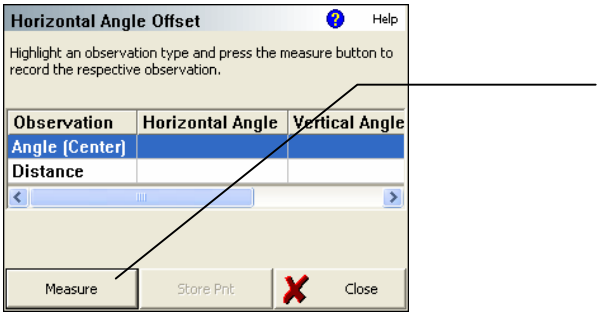


Press  to get:



New - GPS ProPak – Added RTK support for the Novatel ProPak LB receiver.

New - Quick Measure Mode – in the program settings you can turn on a "Quick Measure Mode". On screens such as resections, horizontal angle offsets etc.., when this feature is turned on, pressing the measure button will immediately trigger your instrument to take a shot.



This new feature affects this measure button. All screens that have this button will be affected by this change.

Improved – Topcon APL-1A: Removed Topcon robotic setting of tracking speed (survey) which now forces the user to control this on the instrument instead.

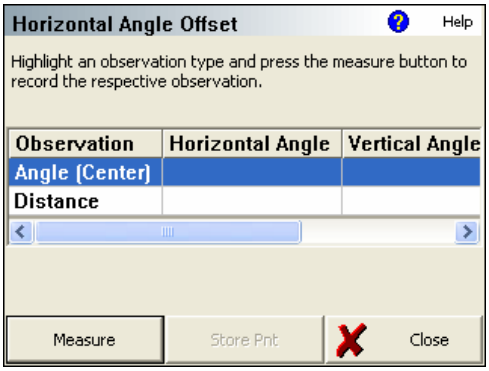
Improved - Target heights are now written to the msurvey.ini file so the last used target height is available for subsequent projects.

Improved – Leica TPS driver: a new EDM mode called Manual Setting is now available. When this mode is used, it stops FieldGenius from changing the EDM mode on the instrument. This allows the user to change the EDM modes manually on the instrument.

Improved – The Horizontal and Vertical Angle Offset routines have been updated to be more flexible.

If you make a mistake, simply highlight the shot and redo the measurement.

After you store the point, the program will remain in the routine allowing you to continue measuring more offsets.



Improved – When you complete a resection, more notes are written to the raw file indicating what was constrained by the user and the computed standard deviation of the measurements:

--Resection
SP,PN1,N 3.7945,E -3.6397,EL2.5615,--BUILDING
SP,PN6,N 6.3975,E 3.0272,EL2.5703,--BUILDING
SP,PN14,N 0.8493,E 5.1913,EL2.5591,--BUILDING
--Resection Obs: Horz-Yes Vert-Yes
LS,HI1.300,HR0.000
RS,PN1,CR104.23350,ZE77.34320,SD4.9370
--Resection Obs: Horz-Yes Vert-Yes
RS,PN6,CR190.04380,ZE79.14300,SD5.7590
--Resection Obs: Horz-Yes Vert-Yes
RS,PN14,CR259.35390,ZE77.17540,SD4.8340
--Resection Pnt: StdDevN=0.001m StdDevE=0.003m
SP,PN101,N 1.3298,E 0.5166,EL0.1969,--RP

Improved - GPS Stake Points – When connected to a GPS receiver, any point you stake will go through the same tolerances and masks as it does when you measure a point.

Improved - Project Loading – Improved speed when opening existing projects. There is a huge speed improvement on larger projects.

Improved - Raw File Viewer – Increased the speed of loading the raw file into the raw file viewer.

Improved - Memory – Older versions of FieldGenius would test the available memory available on the data collector. If not enough memory was available, FieldGenius would not start. This has been modified so only a warning message appears, but FieldGenius is allowed to start.

Improved Tracker Skin – Updated the emulator build so it has the current Tracker skin with custom MicroSurvey keyboard.

Change – In EDM Settings, the "Set Instrument" check box was changed to "Force Instrument to 0" so it is more intuitive to the user what this option does.

Change - Transformation Parameters - Rotation angle is now displayed in DMS, not degrees.

Change - RTS – Changed labels on rotate screen from azimuth to direction.

Change - Occupy Point – Changed labels so they are more generic; azimuth replaced with direction.

Fixed – Sokkia GPS– Fixed a problem that would prevent FieldGenius from connecting at baud rates greater than 9600 baud.

Fixed - GPS Topcon – Fixed bug that would display GPS/Glonass satellite skyplot information incorrectly.

Fixed – When connected to the Leica TCR 702, if the user had “user” prism offsets set on the instrument, FieldGenius would force the instrument to use the IR or RL prism offset defaults. The user can now specify the offsets in FieldGenius instead of on the instrument and FieldGenius will upload the “user” offset to the instrument prior to the measurement being taken.

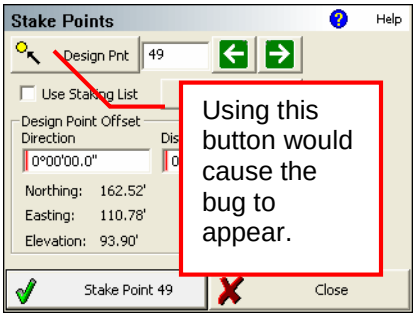
FieldGenius 2006 Version 2.0.1

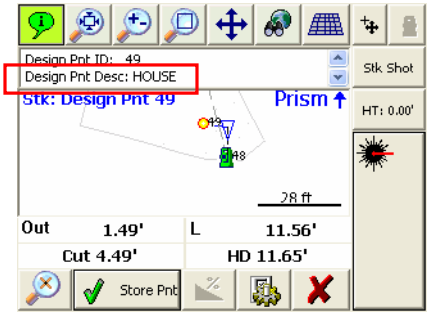
Leica GPS – Fixed a connection problem with the Leica drivers that would cause an “Invalid GPS Position” error message to appear.

FieldGenius 2006 Version 2.0.2

South Instrument – A driver for the South NTS – 320 instrument was added to this version.

Staking Design Description – Corrected a bug that would occur when using the point chooser button on the stake point screen.





If the user stored a stake position and continued on with staking, a problem would occur if they selected the next point to stake using point chooser button. Instead of displaying the description for the new point that was selected, the previous staked point’s description would be displayed. It is important to note that this bug was only in the display of the description, staked position stored would be stored with the correct description.

FieldGenius 2006 Version 2.0.3

GPS Auto Store – This update corrects a problem with the GPS auto record points function. There was a bug that would cause the same point number to be used for each point that was being stored by FieldGenius.

FieldGenius 2006 Version 2.0.4

Topcon RC2 – Corrected a problem with the Topcon Robotic driver that prevented the "Turn To" function from working correctly during point stakeouts.

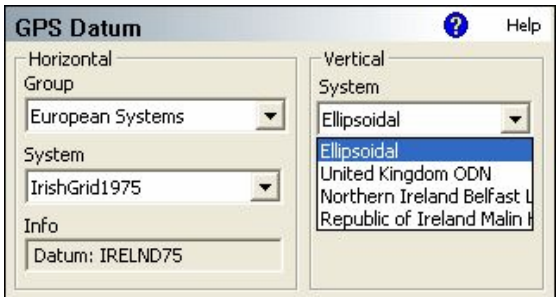
Zoom to Stake Point – This function on the staking toolbar would not always zoom correctly to the extents of the current prism location relative to the stakeout point. This has been fixed.

GPS Communication – Functions such as the DXF manager, GPS Transformation Settings screen, and the exporting / importing ASCII screens would terminate the GPS connection.

GPS Slope Staking – Communication with GPS receivers would occasionally terminate when storing stakeout points derived from slope staking.

OmniStar – The elevation of the seed point was ignored when the seed point function was used. This is now fixed.

Ireland Geoid – Added the Northern and Republic of Ireland Geoid definitions.



Button Images for the Ranger – Fixed the button images for the zoom extents, zoom +/-, zoom window, pan and the road buttons. Previous to this update, these buttons would appear to have a cyan background color when the buttons had focus.

Shortcut Keys on the Ranger – Disabled shortcut keys would be triggered when the power button was pressed. This is now fixed.

RTS Scale - When you tried to use the scale command, it would only work if you specified the same point id for both the rotation and scale base point fields. This has been corrected.

Map Button – On the main menu, the map button now has a spinning globe icon.

Menu Home Button – Added an icon to this button that will appear when you are in a sub menu of the main menu.

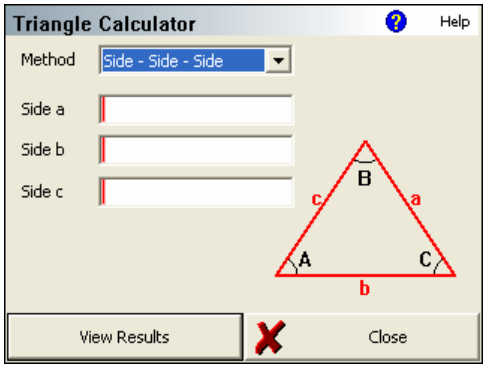
Spiral Stakeout – The HUD text that was displayed on the map screen during spiral stakeouts would not always match the actual station and offset being staked. This was a text display issue; correct coordinate values were being computed for the station and offset specified by the user.

Template Zone Modifiers – Alignment files that had zone modifiers across spiral sections would sometimes cause problems and could lock up the program. This is now fixed.

RTS – Sometime after doing a rotation or a shift, the linework connected to the points would not move with the points. If the project was closed and opened again then the line work would appear in the correct location. This is now fixed so the linework updates when the RTS command is finished.

New - Triangle Solution (Available in Advanced Module)

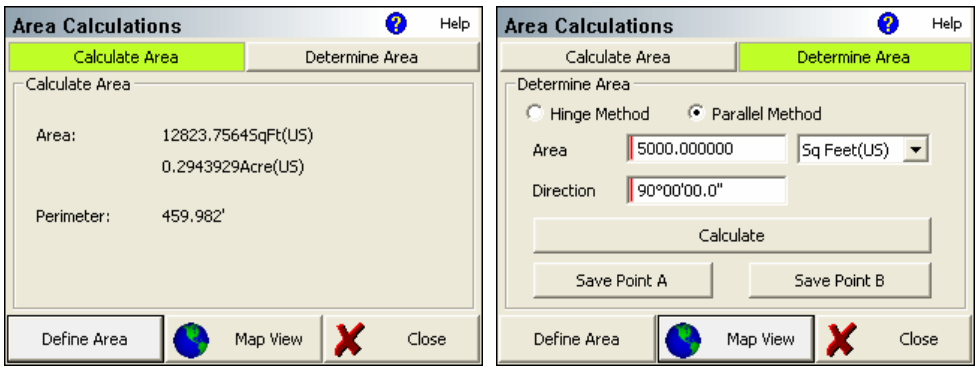
In the calculation menu there is now a new Triangle Calculator.

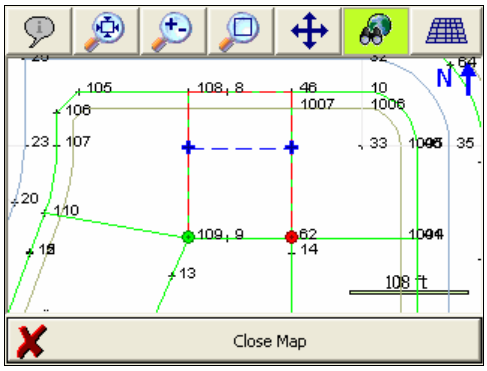


New - Area Calculator (Available in Advanced Module)

FieldGenius now includes a new Area Calculator. This function allows you to do two things:

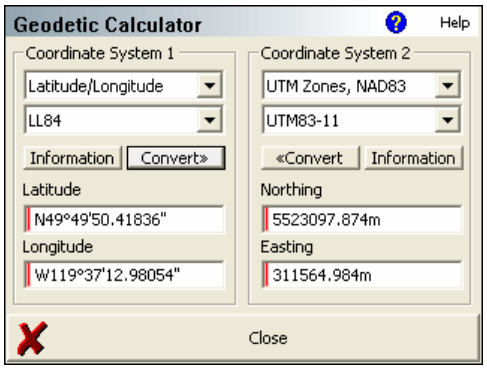
1) Compute enclosed areas using existing points or lines.
2) Compute predetermined areas.





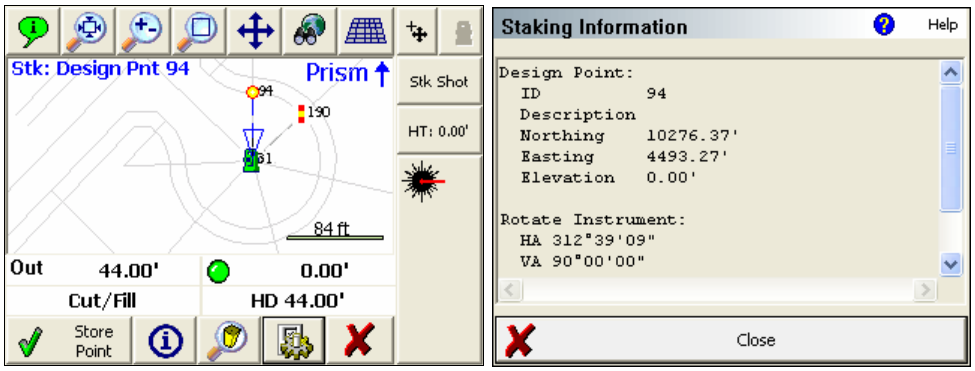
New - Coordinate Calculator (Available in Advanced Module)

FieldGenius now has the ability to convert manually entered values between Geodetic and Cartesian coordinates.



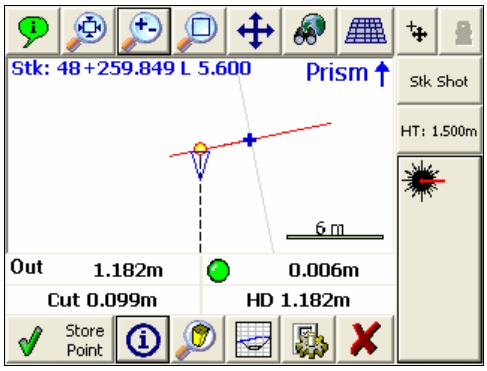
New - Updated Staking Toolbar

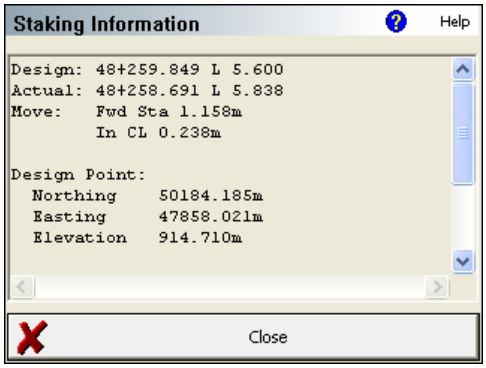
The staking toolbar has been updated and now includes an Information button.



When the information button is pressed it will display the stake point coordinate information as well as other important stakeout information.

During road stakeout, the current rod position relative to the centerline is still displayed as HUD text on the screen, plus in the new stake information screen.





New - Updated Inverse Toolbar

Several changes have been made to the inverse toolbar to make inversing as simple as possible.

1. Point Chooser no longer needed to pick a point from the map.
2. Inverse information now displayed on the inverse toolbar.
3. Total distance inversed can be viewed in the information toolbar.