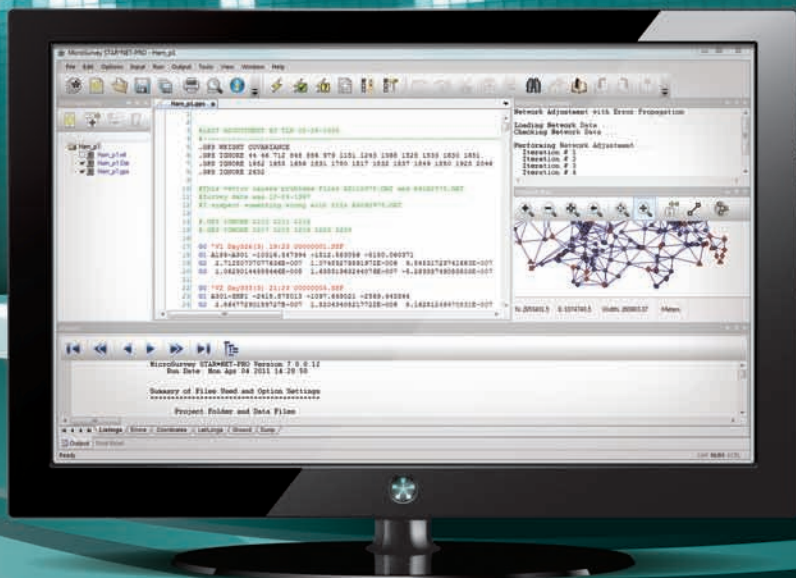


MicroSurvey[®] STAR[™]NET_{V7}



Introduction

Thank you for your interest in STAR*NET – helping you get the most out of least squares!

MicroSurvey STAR*NET is an easy-to-use application that adjusts 1D/2D/3D survey networks using rigorous least squares techniques. Collect your measurements & GPS vectors more efficiently AND build confidence by ensuring your field data is both accurate and correct.

If you have used STAR*NET before, you will recognize the same powerful network adjustment functionality that has been used by survey professionals for more than two decades. With the new Version 7, you will find better organization of the reports and plot windows, as well as a handful of workflow tools to ensure you can validate and correct your network as efficiently as possible.

Visit the MicroSurvey website to download a free 10-point demo version of STAR*NET, or call us to line up a free online demonstration.

About MicroSurvey

For over 25 years, MicroSurvey Software Inc. has developed a family of specialized computer software for land surveyors, civil engineers, mapping technologists, engineering technicians, drafting technologists, police officers, and accident reconstruction specialists. MicroSurvey supports what it builds, and the staff values and listens to its customers.

Our Mission Statement

The MicroSurvey Mission defines the way we do business and how we serve our customers. In 1985, we set out on a mission to create solutions that would offer our industry innovative technology and exceptional value.

The way we perceive and react to the ever-changing worldwide business climate continues the MicroSurvey tradition of innovation and value.

We engineer technology that is designed to work the way people think. We empower people – not machines.

Our solutions for surveying, construction, engineering and accident reconstruction are inspired by our uncompromising standards for integrity, quality, leading-edge technology, support and value.



Table of Contents

STAR*NET Features

Instruments and Integration.....	4
Input Files and Editing.....	5
Output Results.....	6
Customizable Interface.....	7
New in Version 7.....	8

Testimonials.....	10
--------------------------	-----------

Pricing.....	12
---------------------	-----------

Related Software

Data Collection Software.....	13
Desktop Survey & Design.....	14

Training and Support.....	15
----------------------------------	-----------

www.MicroSurvey.com
1-800-668-3312

® Registered in the U.S. Patent and Trademark Office
All other brand names, product names or trademarks are property of their respective owners.

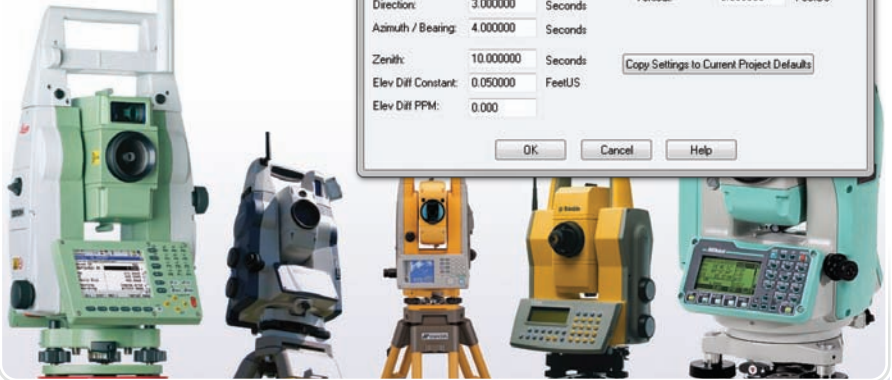
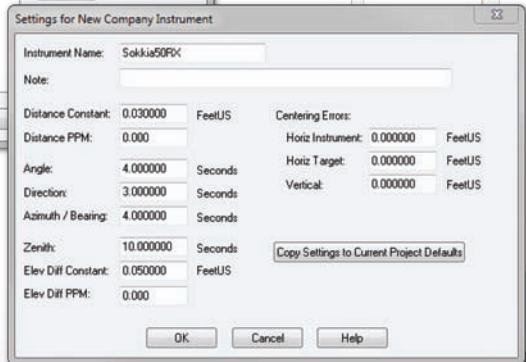
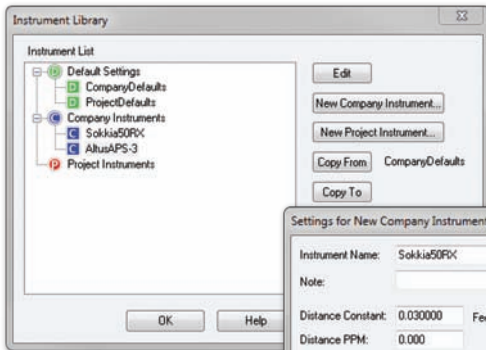


STAR*NET Features

Instruments and Integration

It integrates data easily.

- **Conventional** total station measurements can be combined with GPS vectors/leveling data.
- **Different** instruments can be mixed on the same job in a wide variety of atmospheric conditions. Do part of the job in the summer and part in the winter. Let STAR*NET compensate for the accuracy change.
- **Import** data from FieldGenius or almost any other format. Converters are available for most data formats including TDS, Carlson, TSC (Trimble), SMI, and a variety of levels including Topcon and Leica.
- **Create** schemes for your instrument library; adjust weighting and specifications in order to compensate for varying levels of equipment quality and standard errors for specific crews.



STAR*NET Features

Input Files and Editing

Input files are simple to work with and understand.

- **The** built-in data input file editor is easy to use, and will automatically color-coordinate your data and comments.
- **Utilize** data file templates to automatically add frequently used data.
- **Use** the bookmarking feature to mark specific lines in your data file for easy cross-referencing and lookup, or to simply segment your data file and quickly jump to specific sections.
- **Input** data can be entered in any order. Your crews can survey from both ends and meet in the middle. No data manipulation required.
- **Bad** measurements can be easily commented out of the input file so the adjustment can be run again and again.

```
1 | Traverse with Sideshots
2
3 C 1 1000.00 1000.00 1440.28 ! ! !
4 C 2 1725.18 1274.36 1467.94 ! ! !
5
6 # Begin Field Observations
7 #
8 TB 2
9 T 1 51-59-30 242.42 88-44-35
10 T 59 198-19-55 587.14 89-39-40
11 T 572 140-52-34 668.50 80-14-25
12 TE 828
13
14 # Begin Sideshots
15 #
16 SS 1-2-3 104-18-07 146.08 90-56-54 'TOE
17 SS 1-2-4 24-33-33 118.64 89-16-07 'TOE
18 SS 1-2-5 339-20-11 254.12 88-03-45 'FACE OF CURB
19 SS 1-2-14 339-35-31 383.90 88-33-17 'TOE
20 SS 1-2-23 340-29-50 404.02 88-12-23 'SHLD
21 SS 1-2-27 343-10-25 225.84 88-02-31 'SHLD
22 SS 1-2-31 46-45-03 118.92 88-30-15 'SHLD
23 SS 1-2-41 343-55-13 287.32 88-27-54 'SHLD
24 SS 1-2-51 339-11-32 631.04 88-36-05 'EDG RD
25 SS 59-1-61 307-18-50 138.30 91-52-46 'EDG CC
26 SS 59-1-70 12-01-08 70.40 98-18-38 'EDG CC
27 SS 59-1-76 357-46-48 104.44 91-20-56 'EDG CC
28 SS 59-1-84 346-51-51 109.52 91-30-30 'SHLD CC
29 SS 59-1-97 340-18-34 110.18 94-57-07 '2 RFRF
30 SS 59-1-112 311-33-41 171.48 92-34-45 'EDG RFRF
31 SS 59-1-118 334-01-07 96.78 93-31-44 'EDG CC
32 SS 59-1-124 312-21-32 172.66 92-42-52 'A TOE CHNL
33 SS 59-1-128 12-07-48 72.24 95-31-44 '2 TOE CHNL
34 SS 59-1-134 345-11-04 111.58 91-30-31 'A STEP
35 SS 59-1-139 345-43-06 108.30 90-05-33 'STEP
36 SS 59-1-145 327-49-58 78.34 93-28-07 'CAIWLK
37 SS 59-1-149 329-00-45 76.24 92-54-54 'STEP
38 SS 59-1-157 296-49-10 156.94 93-39-33 'A TOE
39 SS 59-1-164 214-59-53 101.72 91-56-56 'TOE
40 SS 59-1-172 202-00-46 228.44 89-46-04 'SHLD
41 SS 59-1-181 312-14-25 84.50 92-30-53 'SHLD
42 SS 59-1-190 196-33-38 117.40 89-53-56 'SHLD
43 SS 59-1-202 165-24-35 67.40 95-37-50 'TOE
44 SS 59-1-210 70-26-01 42.12 101-45-44 'TOP RVTHNT
45 SS 59-1-219 21-33-40 96.48 95-04-07 'TOE
46 SS 59-1-228 76-54-51 383.44 90-03-34 'TOE
47 SS 59-1-237 88-34-01 570.16 89-24-19 'TOE
```

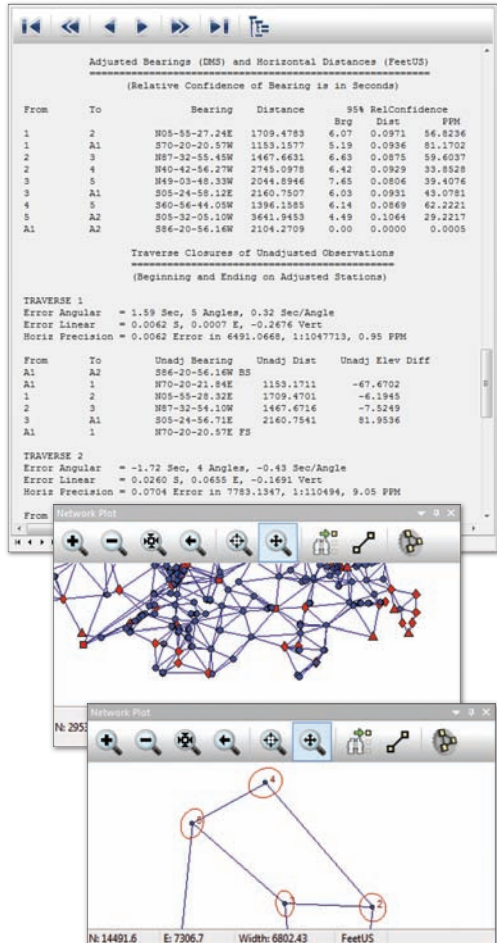
STAR*NET Features



Output Results

Results are clear and reliable.

- **STAR*NET** results are well formatted for quick review.
- **The** Sum of Squares, Error Factors, and Chi-Square test are sensitive to the inputs and give excellent feedback on what needs to be done to improve your results.
- **Reports** offer tremendous flexibility, so they make sense and only include what you want.
- **Quick-jump** to specific headings or sections, or select the tree view of all headings and sections.
- **Blunders** and errors are quickly spotted.
- **The** network plotting visualization tool shows you the final corrected network, complete with error ellipsis. You can pan, zoom or locate specific points.



It gives you confidence in your work.

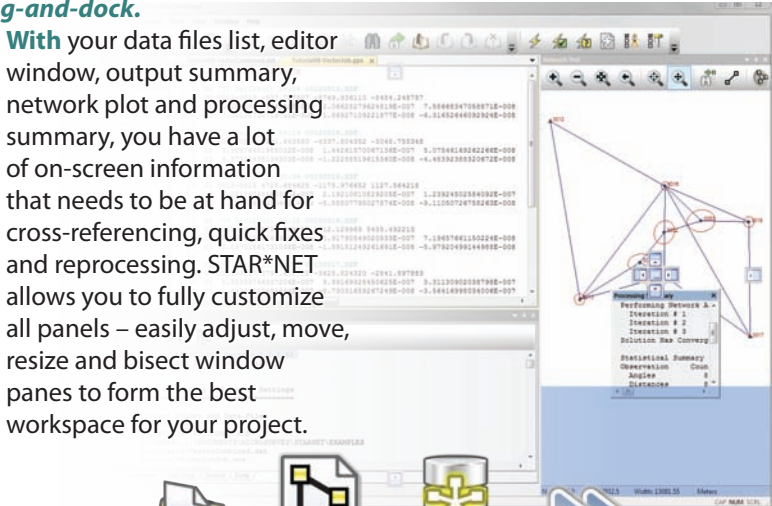
- **Geo-referencing** your surveys is much easier. Reports output both Geodetic and Ground coordinates with combined scale factors.
- **STAR*NET** produces the ALTA - NSPS results you need for your surveys.
- **"The** Positional Uncertainty of any physical point on a survey, whether the location of that point was established using GPS or conventional surveying methods, may be computed using a minimally constrained, correctly weighted least squares adjustment of the points on the survey." – from the *ALTA - NSPS Land Title Surveys 2011 requirements*.

STAR*NET Features

Customizable Interface

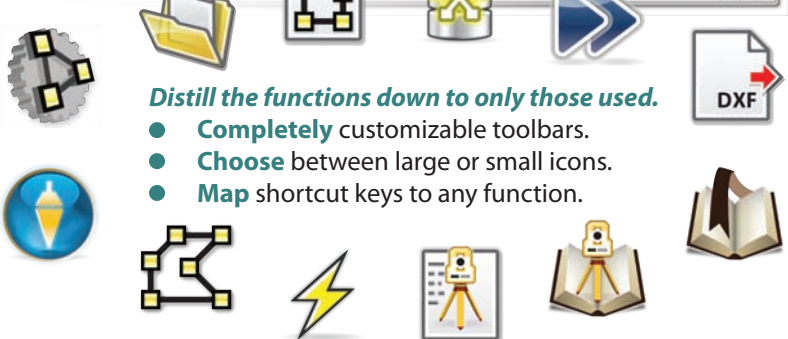
Drag-and-dock.

- **With** your data files list, editor window, output summary, network plot and processing summary, you have a lot of on-screen information that needs to be at hand for cross-referencing, quick fixes and reprocessing. STAR*NET allows you to fully customize all panels – easily adjust, move, resize and bisect window panes to form the best workspace for your project.



Distill the functions down to only those used.

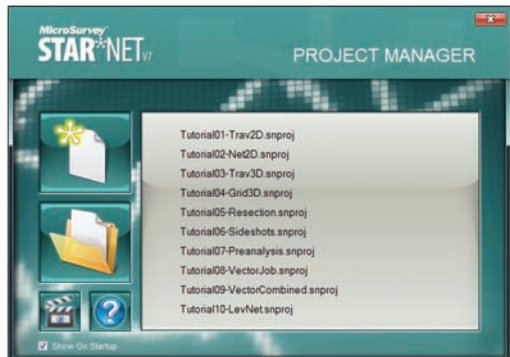
- **Completely** customizable toolbars.
- **Choose** between large or small icons.
- **Map** shortcut keys to any function.



- **The** project manager window stores your most recent or commonly used files.

Plus more!

- Contact us or download the demo to see what else STAR*NET can do for you.



MicroSurvey STAR*NET 17 PROJECT MANAGER

- Tutorial01-Trav2D.snproj
- Tutorial02-Net2D.snproj
- Tutorial03-Trav3D.snproj
- Tutorial04-Grid3D.snproj
- Tutorial05-Resection.snproj
- Tutorial06-Sideshots.snproj
- Tutorial07-Preanalysis.snproj
- Tutorial08-Vector.Job.snproj
- Tutorial09-VectorCombine.d.snproj
- Tutorial10-LevNet.snproj

Show On Startup

STAR*NET Features



New in Version 7

- **Integrated Data Editor** – STAR*NET 7 has a fully integrated data editor, which offers customizable syntax highlighting (colors/fonts), bookmarking and jumping to bookmarked lines, and no more need for an external text editor like notepad (although that's still an available option).
- **Customizable Interface** – STAR*NET 7 has a brand-new interface which is highly customizable to suit your specific workflow or preferences – move and resize panels, collapse and expand panels, stack panels into a tabbed interface, dock panels into the main interface or leave them floating, customize the toolbars and menus, use small or large toolbar icons, and more!
- **Find Point** – An advanced Find Point tool allows you to quickly locate and jump to any references to a specific point ID in any of your input data files by simply double-clicking a point name in any of your output files (Listing, Coordinates, Ground, Lat/Long, Error Log, Dump, etc). No more poring through thousands of lines of data codes looking for references to a specific point, a simple double-click now does all this eye-straining work for you!
- **Differential Levelling Loop Closure Check** – Quickly detect loop closure errors in your level networks using the new Level Loop Check command found in the Run menu. This is a powerful blunder detection tool for leveling data!
- **GPS Vector Loop Closure Check** – Quickly detect loop closure errors in your GPS vector networks using the new GPS Loop Check command found in the Run menu. This is a powerful blunder detection tool for GPS data!
- **Point Aliasing** – A new “ALIAS” inline option is available which you can use to define point aliases by explicitly naming the aliases, or by specifying a prefix, suffix, or additive number to define an aliasing scheme that corresponds with your field procedures. A point can then be aliased by one or more points with non-unique point names that get translated to another point name. Note, aliased points are not currently identified by the new Find Point tool.
- **Lost Stations** – A new “LOSTSTATIONS” inline option is available to identify points which are no longer physically available. Lost stations will be included in the network processing but can be left off of the resulting plot if desired.
- **GPS Sideshots** – Two new “.GPS NETWORK” and “.GPS SIDESHOT” inline options can be inserted prior to any G1 vector records to define the following vectors either as part of the network or as sideshot type records that are processed after the network has been adjusted so they do not affect the network solution.



STAR*NET Features

New in Version 7 (cont.)

- **GPS Antenna Height Corrections** – A new “.GPS AddHiHt [HI] [HT]” inline option is available to specify or correct GPS base and rover antenna height blunders.
- **Project Manager** – A new Project Manager is now available for quickly opening and creating projects.
- **Template Data File** – A new template mechanism allows you to customize a template data file that is automatically added to new projects. For example you can now automatically include coordinate records for your local control network, etc.
- **2D GPS Adjustments** – 2D Adjustment of GPS Data is now possible.
- **EGM2008 Geoid Support** – The STAR*Geoid extraction utility can now extract data from the EGM2008 geoid for creating STAR*NET-compatible geoid and vertical deflection model files.
- **NGS OPUS Report Support** – An importer for reading station data (adjusted coordinates with full covariance matrices) from NGS OPUS reports into STAR*NET .gps data files is now available in the GPS Importer.
- **MicroSurvey FieldGenius Support** – A conversion utility for converting MicroSurvey FieldGenius data collection software .raw files to STAR*NET .dat files.
- **MicroSurvey FieldGenius Support** – An importer for reading vector data from MicroSurvey FieldGenius data collection software .raw files into STAR*NET .dat data files is now available in the GPS Vector Importer.
- **Long Point Name support** – A new “Full Point Names” option in the Listing File Options screen prevents long point names from being cut off at 10 characters. This replaces the previously undocumented .LNAMES inline option available in STAR*NET 6.
- **Quick File References** – A new “Quick File References” option in the Listing File Options screen allows you to display references to the first occurrence of a file and line number referencing each point. This replaces the undocumented .QFILEREf inline option available in STAR*NET 6.
- **Redefinable Fixed StdErr Constants** – A new “Fixed StdErr” option group in the General Options screen allows you to to redefine the StdErr used when something is defined as “Fixed” – previously it was hard coded to 1E-7m or 1.0001E-3 seconds, but on rare occasions this had to be loosened to allow certain networks to process. This replaces the undocumented .QFIX inline option available in STAR*NET 6.

Testimonials



See what STAR*NET Users Have to Say

“Over the past ten years I’ve found STAR*NET software to be very consistent in handling raw data files for input to GPS, traversing or leveling adjustments. The least squares adjustment algorithms produce reports that are easy to scan and identify network problems that need to be fixed.

I look forward to using STAR*NET for many years to come on transportation control projects.”

**–James E. Kovas PE, PS
WadeTrim**

“I have been using STAR*NET almost every day for the last 5 years. It is the perfect tool for combining conventional, GPS and leveling data into a control network and checking the validity in a rigorous manner. The data input and interface elements make it quite simple to perform a Least-Squares adjustment on any type of survey, large or small. It is simply the best adjustment program that I have used.”

**–Peter Haas, BCLS
FCS Land Services Limited Partnership**

“STAR*NET adjustments are taught as standard practice at Renton Technical College. No field control project, whether conducted by total station, GNSS, or both, is considered done unless it is properly weighted and adjusted using STAR*NET. This has been our practice since we first got STAR*NET in the early 1990s, and it has loaded and run flawlessly on every computer we’ve ever put it on. Students have had the ease of learning the program and running small networks at home using the demo package.”

–Martin Paquette, WA, PLS

“I was considering writing an adjustment program for OIT Geomatics student use when STAR*NET became available in the late 1980s. I was impressed with the software, it was a full-featured, flexible adjustment program without the limitations of other adjustment programs. It is easy to use, and the manual is a good adjustment primer in itself. StarPlus donated the software to OIT for academic use in 1989, and provided updates at no cost, an appreciated level of industry support. Generations of OIT Geomatics graduates have learned to use STAR*NET since that time.”

**–Jack Walker, PLS
Department of Geomatics, Oregon Institute of Technology**



Testimonials

“STAR*NET is an essential tool for anyone combining conventional survey measurements with GPS measurements. It is extremely simple to use and is completely reliable. Its ability to flag inconsistencies in a survey network gives me a great deal of confidence.

I am pleased to see that STAR*NET will be well supported for many years to come.”

**–Ted Eaton, BCLS, CLS
Eaton Land Surveying Ltd.**

“I first started using STAR*NET in about 1993, shortly after completing my Least Squares class at BCIT, where we were taught that least squares adjustments were simply the best way to resolve traverses and control networks. I’m sure STAR*NET paid for itself on the first major survey we did as we rarely had any mis-closure issues from that point forward. We immediately benefited from being able to process traverse data collected in any order and being able to include redundant check shots in the processing.

Now I’m in practice for myself, and I wouldn’t process my control any other way. What other program allows you to geo-reference your survey, compute grid and ground level coordinates, scale factors, convergence, standard deviations and error ellipses with one click... and provides a concise report providing confidence in the results?”

**–Mark Cahill, BCLS
AllTerra Land Surveying & Geomatics**

“STAR*NET has been used at Newcastle University for the teaching of least squares and the analysis of observations since around 1990. I find it an excellent teaching aid, as I use it to demonstrate that the answers students obtain when doing ‘hand/spreadsheet’ computations using the theory and principles I teach them are identical to those with STAR*NET if done correctly. This instills confidence in the students’ learning and provides a valuable check on their answers. The simple, user-friendly interface means there is almost no time wasted in having to teach students how to use the software, plus it is not memory intensive and has negligible run-time for computations. I find STAR*NET useful since it can be used for the simplest of least squares problems and computations to illustrate principles and enhance learning, but can also be used for the analysis of larger, practical networks.”

**–Dr. Nigel Penna
Newcastle University**

Pricing



The Most Competitive Pricing in the Industry

Options: **PRO**, **PLUS**, **Standard** and **LEV**

MicroSurvey STAR*NET comes with four different options to suit your budget and needs:

	PRO	PLUS	STD	LEV
All observations adjusted simultaneously	•	•	•	•
Includes USB Key for portability of program	•	•	•	•
Adjusts 1D differential leveling networks	•	•		•
Graphical display of your entire survey	•	•	•	
User defined instrument library	•	•	•	
Supports Deg/Min/Sec or Gons	•	•	•	
Custom Transverse Mercator and Lambert grids	•	•	•	
Reduces observations to NAD27, NAD83, UTM	•	•	•	
Adjusts 2D/3D survey networks using least squares	•	•	•	
GPS vectors & conventional measurements combined	•			

STAR*NET Product License	Full	Upgrade*
LEV	\$495	\$149
STANDARD	\$795	\$239
PLUS	\$995	\$299
PRO	\$1,595	\$479

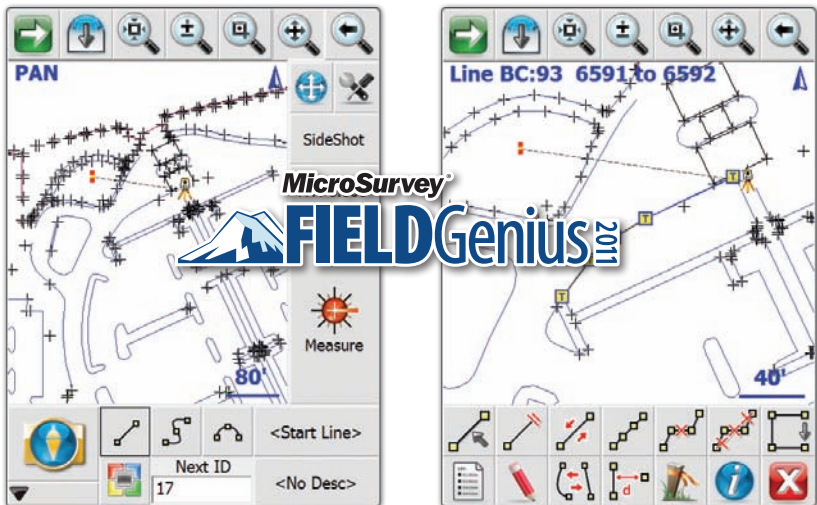
*Upgrades include 1 year of maintenance

Maintenance Subscription and Support	
Standard support, 90 days from purchase	FREE
LEV maintenance subscription	\$99
STANDARD maintenance subscription	\$159
PLUS maintenance subscription	\$199
PRO maintenance subscription	\$319

Related Software

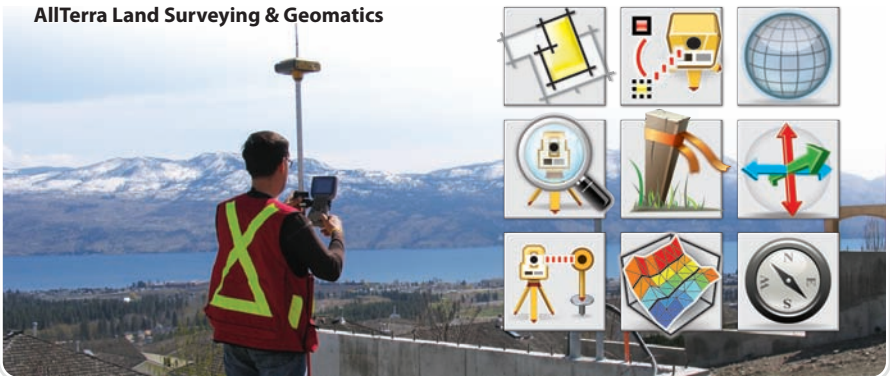
FieldGenius – Powerful Field Data Collection Software

FieldGenius has evolved into the most powerful and productive data collection software in the world. Advanced roading, surfacing, slope staking, code-free linework, smart points, full robotic and GPS support, and live graphics make FieldGenius the choice of organizations that value productivity. FieldGenius is compatible with all major brands of total stations and Windows Mobile/CE hardware.



"The combination of FieldGenius and MicroSurvey CAD gives me a complete software solution for surveying. The integration of the field and office software is unbeatable. Data processing is a breeze. From small stakeout jobs to large developments, MicroSurvey has me covered!"

Mark Cahill, BCLS
AllTerra Land Surveying & Geomatics



Related Software



MicroSurvey CAD – Complete Desktop Survey & Design

When you need a fully featured desktop survey software package, you now have two options for one competitive price. Every license key includes a copy of MicroSurvey CAD and MicroSurvey inCAD. You can run on the included IntelliCAD 6.6 engine or run on the latest versions of AutoCAD® (2009-2011). You can have both versions installed on your machine, or you can move the key between machines with different versions installed. Our USB licensing system enables us to provide you with maximum flexibility.

Either way you choose to use it, you get complete survey drafting, COGO, DTM, traversing, volumes, contouring and data collection interfacing. MicroSurvey desktop solutions are compatible with field data from all major total stations and data collectors.



"The combination of FieldGenius and MicroSurvey CAD gives me a complete software solution for surveying. The integration of the field and office software is unbeatable. Data processing is a breeze. From small stakeout jobs to large developments, MicroSurvey has me covered!"

Mark Cahill, BCLS
Land Surveying & Geomatics

Or, if you prefer AutoCAD®, try:



An AutoCAD® plug-in with all MicroSurvey tools



Stand-alone CAD application, built with Autodesk technology™



Training and Support

All MicroSurvey products come with 90 days of FREE support, which includes email and phone support. While on a support plan, you also receive free service packs and upgrades as they become available. Here are some other useful support resources:

Training Material (www.microsurvey.com/helpdesk)

Available for free on the MicroSurvey Helpdesk are hundreds of training videos and articles. No access fees, no limitations. Search the knowledge base for answers to your questions – basic or advanced!

User Forums (www.microsurvey.com/forum)

The user forum is an excellent community in which to bounce questions off other professional users, like you.

Feedback Forum (feedback.microsurvey.com)

The Feedback Forum is a revolutionary tool that allows YOU to direct the development of the MicroSurvey products you buy. It collects your suggestions and allows you to vote on suggestions submitted by the other professionals using the software. Use your votes wisely!

Classroom Training (www.microsurvey.com/training)

Want something a little more hands-on? MicroSurvey has opened a state-of-the-art training facility located in its corporate headquarters in Kelowna, BC. The center is designed to accommodate 16 trainees, each with their own workstation and copies of all software used in the course. Call for booking.



Theater-style seating, projector & podium, dual-core machines with 19" monitors, break room – you name it!

Thank You

Please call us or visit our website for more information on how this, or other MicroSurvey products, can help you improve your productivity!

www.MicroSurvey.com

1-800-668-3312



 **MicroSurvey**[®]

®MicroSurvey and FieldGenius are registered in the USA Patent and Trademark Office.