



*Version 2.50 Release Notes*

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*Topcon*

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# Improvements and Resolved Issues By Release

## Version 2.50

*Release Date: March 17, 2010*

### **New Instruments Supported:**

- Javad: Advanced support for Triumph-1; Added Alpha, Sigma, Delta
- Leica Total Station: TP0x Series, TS30
- Leica GPS: GS09
- GeoMax GPS and ZTS600 Total Station
- Spectra Precision Focus 10
- Ashtech: ProMark 500, ProFlex 500
- Sokkia Total Station: Set-X
- Sokkia GPS: GSR1700 CSX, GRX1
- Pentax W821NX
- CST Berger Total Station
- Hemisphere GPS: Crescent, Eclipse
- NavCom: 2110M, SF3050
- Stonex GPS: S9 GNSS, Orion S82, Orion S86
- Unistrong GPS
- Foif GPS: SGS828
- Foif Total Station: TS238/538, TS630, TS680, TS6800
- AD Navigation GPS: B2-RTKNet, B2-SBS

### **New Data Collectors Supported:**

- Psion CE 4.2
- Psion CE 5.0
- Psion WM6
- MB3000 (available in Korea only)
- Leica CS09
- WM6 Portraitview with VGA resolution (this includes the Nomad, Psion WM6, Topcon FC250, Getac)

*\*Note: SurvCE 2.5 no longer supports WinCE versions less than 4.1*

### **New Languages Added:**

- Korean
- French will be divided into International French and Canadian French

### **New Features:**

- MAP: Linework details (codes, line type, etc) may now be edited through the MAP screen.
- GPS: Advanced options added for averaging. Data may now be collected by time. User may choose to count only fixed positions towards average total. A text file may be logged containing information for each sample.
- Projections: SurvCE now supports the Finland KKJ coordinate system.

- Resection: After the first reading of a resection, the user can now robotically turn to the next points.
- Resection: The user now has the option to set the angle in the instrument to the backsight azimuth on the first reading.
- Projections: SurvCE now supports the Malaysian GDM 2000 coordinate system.
- For Ashtech ProMark 500 and ProFlex 500, a feature was added in the GPS Utilities section to perform a GPS calibration routine for Malaysia. This option will only appear when the Malaysian coordinate system is selected.
- Feature Code List: Symbols are now supported. Symbols may be assigned to Codes in the Edit and Add screens.
- MAP: Added support for the import and export of \*.dwg files. Windows Mobile 5.0 and higher data collectors support \*.dwg versions 2005-2009, 2004, 2000 and R14. All other data collectors support \*.dwg versions 2004, 2000 and R14.
- Stake Road: Longitudinal pipe data may now be used in Stake Road. Data may be loaded from an ascii file, which may contain description data.
- Import Ascii: From the preview window, the user may now select the last header line and click the "Set" button to establish the end of header lines for the file.
- GPS Monitor/Skyplot: Rising and Falling status of satellite elevation is now shown.
- GPS Monitor/Skyplot: Color is now used to differentiate satellite types.
- Resection/Backsight Check/Set Collection: The user may now switch from target to reflectorless for individual readings. This is done through the pull-down menu in the top left corner of the screen.
- Feature Code List: New option under Special Codes/Settings, "Auto-Detect Code Pattern". When activated, the program will automatically detect code patterns while storing and suggest the next proper code in the pattern.
- New Roading Files Supported: Geopak, LandXML horizontal/vertical alignments and section files.
- Ascii Import/Export: MMH360 file format is now supported.
- COGO/Calculator now offers the options to apply localization and geoid for the Lat/Lon/Hgt to Grid conversions.
- Projections: Added support for Hungarian VITEL 2009 grid projection.
- Projections: Implemented support for Krovak Oblique Conformal Conic projection. Added definition for the S-JTSK system for Czech and Slovakia.
- Projections: SurvCE now supports the Spain ETRS89 NTV2 Grid.
- Backsight: SurvCE now supports observations to multiple backsight points. From Equip/Configure, turn on "Show Advanced Backsight". With this feature activated, the user will now see an "Occupation" tab during backsight setup. This routine may also be used for performing a resection.
- Angle Only Sideshots: Through the Offset feature in Store Points, users may now store angle-only sideshots to the rw5 file.
- Leica and GeoMax Total Stations: From the Occupy/Backsight setup screen, the user can now go to "Confirm NEZ" and select the "Get from Inst" button. This will retrieve occupy and backsight information from the instrument.
- Equip/Localization/GPS: A new option for choosing the interpolation method for geoid files was added. Possible choices are Quadratic, Bilinear and Bi Cubic Spline. Default setting is Quadratic.
- For GPS instruments that support the gathering of necessary information, baseline vector data may now be recorded to the rw5 file for float and fixed positions. These instruments include Altus, Ashtech, Javad, Leica, Septentrio, Sokkia, Stonex, Topcon and Trimble.
- Projections: RDNAPTRANS2008 is now supported in SurvCE.
- Leica CS09/RX900 & GeoMax: Configure Rover now offers "Bluetooth" for CS09 modem connections. Improvements made for RX900 rover radio configuration. Set Radio Channel and Internet Connect/Disconnect now work properly. Antenna selection is offered for the Rover to ensure correct bonding to the right antenna. Direct Dial Connect/Disconnect now implemented.
- Leica CS09/RX900 & GeoMax: Configuring the base through SurvCE is now supported.

- Auto By Interval now has the option to stop recording after a user entered number of points have been recorded.
- Equip/Localization/Points now offers a button at the top of the screen to clear all points in the localization.
- Projections: Portuguese Transverse Mercator (TM06) definition added to list of predefined projections.
- Equip/GPS Base, GPS Rover: Users may now optionally select predefined or user defined antennas for GPS receivers that have internal antennas.
- A new prompt now exists when re-entering SurvCE or powering on a data collector that was suspended while SurvCE was running. If the last connected device was a Bluetooth device, SurvCE will ask the user if they wish to bond to that device or continue without bonding.
- Topcon Hiper GA and Topcon Hiper GB models were added to the selection list.
- Leica Total Stations: Powersearch now supports search left and search right from the joystick page.
- SurvCE now supports a "Generic NMEA" depth sounder option. This option supports the "DBT" and "DPT" messages regardless of the leading characters that precede these tags.
- Remote Elevation: A "B" button was added to allow the user to take a new base point reading from within the routine.
- GPS: Topcon, Sokkia, NovAtel, Septentrio, Altus, Javad - If the static logging status is known, SurvCE will prompt the user to close any open static files when exiting the software.
- The hotlist icon at the top left of the screen now contains a Reconnect item. Reconnect will allow the user to quickly regain communication after losing power or signal.
- Data Collector Internet for GPS RTK: Full Bluetooth support (cable-free!) is now available for Ashtech (ProMark 500 and ProFlex 500), Topcon, Sokkia (all models which support dual Bluetooth), Trimble and Javad. Some limitations may apply based on your data collector's Bluetooth capability.
- Reference (Master) Centerline: The user may now select a reference alignment to receive stake information in addition to their main alignment. This applies to Elevation Difference, Stake Line/Arc, Stake Offset, Stake Slope and Stake Road. Go to File/Job Settings/Stake/Alignment Settings to turn on "Allow Reference Centerline".

### **Feature Changes:**

- Road Network Files: Cross section subgrades from Carlson Road Network files are now automatically loaded.
- Set Collection now allows an unlimited number of foresight points.
- When a 2D job is loaded, the user will be prompted with a warning. Default for all new jobs will be 3D mode.
- Option for 6 decimals of precision for Stakeout added. This will only apply when architectural units are not selected.
- Stakeout precision setting will now apply in the COGO/Inverse feature.
- Data Collector Internet: For Ashtech ProMark and ProFlex 500, the Data Collector RTK port selection is now hidden.
- When reconnecting by Bluetooth, the user will have the option to cancel. There will be a longer delay before reconnecting to allow the Bluetooth stack to fully initialize. This will prevent reconnect failures.

### **Resolved Issues:**

- Stake Road: When a cross section contains the representation of a divided highway, the cross section is now drawn correctly.
- Audible alerts now work properly on the FC2500.
- Backsight: BR records will properly be recorded in the rw5 file when reciprocal calculations are turned on.
- Sokkia SRX: General improvements were made to communication and speed of communication.
- Equip/Localization/Points: Average residuals displayed now correctly use only points that are turned on

in the calculation.

- The rw5 file will now correctly record the transformation as "Rigid Body" or "Plane Similarity" for localizations containing 2 or more points.
- GPS Offset now uses averaged number of readings for "Read GPS" action and no longer attempts a new averaged reading during "Store" action.
- Configure GPS Base by Previously Surveyed Point: SurvCE will now use the last surveyed value for the point ID chosen. Previously, the software would recall the first position in the rw5 for the selected point.
- Projections: Fix for Latitude of Origin in MOROCCO/MERCHICH/Maroc zone 4.
- Sokkia GPS: OmniStar frequencies were updated for current values.
- When processing GPS values from the rw5 file, latitude and longitude values will correctly display in the degrees, minutes and seconds in the results screen.
- File/Job Settings/New Job - "Attach Last Control Data" feature was renamed to "Use Last Control Data" and properly implemented.
- NovAtel OEM4 and Sokkia GSR2700ISX - If an undulation value other than 0.0 is detected in the position message, SurvCE will send a command to the receiver to set it back to 0.0.
- Non-functioning ISP Configure button was removed from Data Collector Internet Configuration screen.
- Auto By Interval: SurvCE will now allow editing of description when storing is paused in by time mode.
- Using the pop-up keyboard when entering Caster information in the NTRIP configure screen will no longer reset the caster name back to <New>.
- Remote Elevation: User now has ability to enter a target height when taking the base point reading. User can now cancel this routine more effectively.
- Raw Processor now correctly accepts no localization for GPS. Previously, if a localization had been loaded for the job, when the user selected no localization for reprocessing, the last localization was used.
- MAP: Remove Arcs command in MAP now allows cut offset as low as 0.1 units.
- Sokkia SRX: SurvCE will now ensure next reading is current after storing a point in store points.
- Robotic/Motorized TS: The resection command will now obey the auto-turn/auto-read settings when taking Face 2 readings.
- GPS: The current NTRIP caster name is now shown in the RTK tab.
- Remote elevation will now measure the distance from the top of the object to the base point (instead of to the prism at the base point). Target height will no longer be set to zero when taking the angle reading of the remote elevation.
- GPS: After the user cancels the action of waiting for the software to "Store when Fixed", the readings from the GPS will continue to update.

#### **Known Issues:**

- For non-Windows Mobile data collectors, when Bluetooth is used and the instrument is not found for bonding, the software may start a loop searching at various baud rates. This loop may be cancelled by the user.
- For projections that use a datum transformation, the .loc localization file format should not be used. The .dat file format may be used successfully. This issue does not affect NAD83 or NAD27 projections.

## Version 2.51

*Release Date: August 31, 2010*

### **New Instruments Supported:**

- Carlson Surveyor+ GPS
- Stonex STS2RP and STS5RP
- Spectra Precision Focus 6, Focus 8
- Nikon Nivo-M and Nivo-C
- Horizon HTS 580
- Leica DNA digital level
- Topcon GRS-1 (Use SurvCE WM6 Portrait HDPI installation.)
- CHC X90 GPS

### **New Features:**

- Added NAD83 KY Single Zone.
- MDL Laser Ace: The MDL Laser Ace now supports auto-triggering.
- Total Stations: The most recent point either read or stored in store points will now carry into the offset routine, on all tabs, as the first distance reading.
- GPS Modems: The APN settings last entered are saved as "User".
- Projection: Belgium Lambert 2005 and Lambert 2008 are now predefined in SurvCE.
- Robotic Total Stations: A new option "Track After Reading" has been added in the configuration screen to allow users to opt out of auto-tracking after reading to save battery.

### **Feature Changes:**

- GPS: Changed default GPS tolerances to horizontal 0.1ft and vertical 0.2ft.
- GPS: When positions are lost, the old position data is removed from screen.
- GPS: Changed "Use SBAS" to "Use SBAS (WAAS,EGNOS,etc.)"

### **Resolved Issues:**

- GPS: Used sats now shown in RW5 file instead of total sats.
- Robotic Total Stations: SurvCE will not attempt to start tracking when entering a routine if in reflectorless/target sheet mode.
- GPS: Improved startup when not connecting to instrument.
- When using VOffset values in the Elevation Difference, option Road Design or Road Section, and the Profile was located at a different location than the Center of the road where the Centerline was placed, the elevation computed was not using the VOffset value.
- When using VOffset values in the Slope stake routine, and the Profile was located at a different location than the Center of the road where the Centerline was placed, the elevation computed was not using the VOffset value.



## Version 2.52

*Release Date: September 8, 2010*

### **New Features:**

- Laser range finders: Added ability to take an average of readings during Laser alignments.
- Satel/GeoMax Radio: Satel Sateline added support for TrimTalk and Pacific Crest. Now works when already receiving corrections. Use with Geomax radio.

### **Feature Changes:**

- Surveyor+ GPS: No longer showing Amber Surveyor+ LED while logging.
- Surveyor+ GPS: LED blinks every 2 seconds instead of every 3 seconds when receiving corrections.
- Surveyor+ GPS: User is now warned to close log file before changing jobs.

### **Resolved Issues:**

- Ashtech PM500 & ProFlex 500: The configuration screen for the GSM modem is now available again.
- Ashtech GPS: Monitor skyplot: Disconnect/Connect buttons no longer flash.
- All non-Surveyor+ GPS: During NTRIP Connection, the software no longer waits for an incoming correction before closing the progress window.
- Sokkia SRX: Increased timeout on command to change target type.
- Total Stations: Added more default comm options for parity, stop bits, and data len.
- GPS: Now showing Success after modem connects. Responds better to Cancel
- Stonex S9: Internal UHF more dependable

## Version 2.53

*Release Date: February 3, 2011*

### **New Instruments Supported:**

- Pentax SMT888-3G
- CHC GPS models X91E X91F,X91D,X90E,X90F,X90D
- Pentax G3100-R1
- Javad HPT435 Radio: New radio driver allows entering frequency instead of selecting channel.
- Sokkia SRX-X
- Topcon QS Total Station (also supported for Topcon Onboard)
- Topcon RC4 with built-in radio
- Sokkia Net
- Topcon MS (also supported for Topcon Onboard)
- Stonex S8
- Altus: Added APS-3 V2 model for Altus models using the new WaveCom G24L GSM modem.

### **New Data Collectors Supported:**

- Pideon
- Getac

### **New Features and Improvements:**

- GPS Simulation: Log Raw GPS will now show simulation screens.
- Stonex GPS: Added STX\_S9 antenna for Stonex S9.
- Stonex GPS: Added Internal UHF radio for Stonex S9 Base.
- Altus APS-3: Veripos now supported. Select zone in Instrument tab and Veripos in RTK tab.
- DGPS GPS: More subcategories of DGPS shown in display
- Topcon GPS: Added "Internal Satel" to Hiper Plus and GR-3
- All: When running Slope Stake and Stake Road routines, and using a horizontal alignment with angular corners, the software no longer reports OFF CL. A station and an offset are computed.
- Lasers: Laser range finders now support bluetooth setup inside of SurvCE.
- Lasers: Laser range finders now allow averaging of readings in offsets.
- GPS: In Log Static routines, the antenna part number will be displayed. Previously, the manufacturer and antenna description were displayed, which was too long.
- New Antennas: G3100-R1 and SMT888-3G added for new Pentax GPS models.
- In Advanced Occupation, if an observation is selected to not use the vertical position, SurvCE will now turn robots to the correct horizontal position and prompt the user to site to the vertical.
- Javad GPS: Added Spider Network support for Javad.
- CHC: Continued work on CHC driver and modem.
- All: SurvCE now allows the user to preserve the next Point ID to be stored from within Survey/Stakeout routines, even if a higher point number is stored in the job. Previously, SurvCE defaulted to the highest point ID stored in the current job plus the Point ID Increment. The setting to enable this feature is located under FILE/Points/Settings: check-box "Use

Highest Pt ID".

- All: A PLAN/XSCT button is now available in Stake Road for easy user access when switching views.
- All: Added the following option: define Road from Alignments (3D strings) to Elevation Difference. This option is similar to the option available in ROAD/Stake Road.
- All: Added the generic option to select a Horizontal Alignment to Elevation Difference. This allows the user to select any type of Horizontal Alignment. Previously, only a CL file was allowed.
- All Total Stations: All total stations will now show "FS Target" and "BS Target" options instead of "target type", "rl mode", etc.
- Surveyor+ GPS: Comms tab options for baud, parity and data bits are grayed out.
- All: CSI Mobile now has an option to store Carlson Point Blocks with attributes created on layer "0". In this way the software controls the point blocks similar to SurvCE.
- All: Added an option to load multiple localization points from a TXT/CSV file, as pairs of Lat/Lon, Local N/E or optional Local Z and Elevation. The TXT/CSV file can be user defined. The delimiter and the order of the fields to import are user-defined. If no Local Z/Elevation is provided, the V Res is automatically turned OFF for that point. A small report lets the user know how many points have been successfully loaded. The user can use N/S, W/E lat/lon format. The user also has the option to use DMS or decimal degrees for lat/lon.
- All: Improved automatic reconnect to instrument after data collector suspension.
- NMEA Depth Sounders: Added support for DBS depth below surface and DBK depth below keel from the NMEA string.
- South GPS: South models and antennae are now shown as "S82-T", "RTK S82-2008", "Star S86".
- All Radios: Radio frequency now shown to 4 places.
- CHC GPS: Added compatibility modes to Internal UHF.
- All TS: Targets can now be edited, added, and deleted, from within SurvCE.
- MDL Laser: Encoder on MDL Laser Ace Pole can now be zeroed from within SurvCE.
- Lasers: Lasers now support the ability to add a target height.
- Satel Satel: Added support for Channel Spacing .
- CHC GPS: Frequency setting supported for new firmware.
- Satel Radios: Added support for Channel Spacing.
- Javad UHF: Added support for Channel Spacing.
- ArWest UHF: Added support for Channel Spacing.
- All GPS: NMEA GGA output to port is now sent for every position instead of every second.
- All GPS: NMEA GGA output to port no longer shows current communication port as an option.
- Simulation: Now showing (Sim) when using Test Simulation.
- Lasers: SurvCE now supports applying laser offset readings from any known point, rather than only from current GPS reading.
- All: In Configure, View Point page, the label "Maximized Map" was renamed to "Collapsed Report" to be more clear.
- All: Mirror Catch Point option was added in Stake Road/Slope Stake, so the user can locate Catch Points mirrored to the Pivot Point. This is most useful in the case of divided roads.

- All: Collapsed Report option, currently available in Stakeout routines, was added to Elevation Difference. In this way the user can only see specific values at the bottom of the screen when in the routine, maximizing the MAP space.
- All: Elevation Difference now supports cross section view. The routine also allows inspect and locate (targeted stakeout), displays the current slope in cross section view and allows the setup of the direction from which the normal used to cut the cross section will be computed.
- Support File Addition: GPS: French RAF09 Geoid. France continentale -NGF-IGN69 dans RGF93 - version 2009. Added for French customers needing the RAF09 Geoid.
- Trimble GPS: Data Collector Internet RTK port combo has "Data" option to send RTK corrections to the communication port.
- Stonex GPS: For Trimble based models, Data Collector Internet RTK port combo has "Data" option to send RTK corrections to the communication port.
- South GPS: For Trimble based models, Data Collector Internet RTK port combo has "Data" option to send RTK corrections to the communication port.
- CHC GPS: For Trimble based models, Data Collector Internet RTK port combo has "Data" option to send RTK corrections to the communication port.
- Lasers: Lasers in SurvCE now support Laser Resection.
- Lasers: New "ignore vertical" options added to laser setup.
- Surveyor/Novatel GPS: When "Stored Verified Fix only" is on, ""Fix not verified!" warning message only comes up when Fixed. If autonomous, "Position is not fixed!" message is shown.
- GPS: NTRIP configure icon doesn't cause communication with the instrument now when using Data Collector Internet until after the NTRIP configure dialog is closed.
- CHC GPS: Continued work on CHC (Huace Nav) Novatel based models.
- Stonex/South S82: Stonex/South S82 now only searches for 115200 baud.
- Sokkia SRX: When tracking icon is pressed, SurvCE will now use "rapid repeat" mode if EDM mode Fine or Rapid is selected. SurvCE will use "tracking" mode only if EDM mode Tracking is selected. "Rapid Repeat" mode is more accurate, but slower. "Tracking" is faster but less accurate.
- All TS: The reconnect icon is now available in the resection screen under the helmet in the upper left hand corner.
- Sokkia TS: The default atmospheric parameters are now assigned correctly and are now set to produce a 0.00 ppm.
- All: Added the option in the new X-SCT view of Elev Difference to display the current position as: dot, plus sign, or "x".
- All: SurvPC now uses DXF 2000 only when loading DWG as a temporary container.
- All: Added a prompt to STK Points / By Direction to let the user know when switching from "By Direction - using Distance", or "By Direction - using Offset" calculation of the point to stakeout.
- Novatel V3 Supporting OmniStar: Added Base ID to OmniStar Position page.
- Geoid File: Romanian Grid coordinate system: new geoid file was added to support changes from the Romanian Government mapping agency. Transdat Document 1.02
- All: Added attribute name for a GIS feature based on a formula: value equal with remote elevation (EDIFF value).
- All: Added attribute name for a GIS feature as Point ID or Line ID, based on a formula.

- GPS: Configure APN in GSM dialog is now an icon instead of a button.
- CHC GPS: Some language versions showed incorrect CHC model names. This has been corrected.
- Sokkia SRX: If running Sokkia as a non-robotic ("Robotic Mode" disabled in total station setup), SurvCE will not attempt to lock or track after a reading if in standby mode.
- Sokkia SRX: If running Sokkia as a non-robotic, SurvCE will not attempt to start tracking when entering the store points or stake points routine.
- RTS: SurvCE will not try to lock or track after a reading if in target sheet or reflectorless mode.
- RTS: After first resection shot, SurvCE will prompt to lock on the prism and start tracking.
- Sokkia SRX: If running Sokkia as a non-robot, SurvCE will show the building-face survey routine.
- Sokkia SRX: Sokkia SRX now supports the laser pointer.
- Sokkia SRX: The "Use RC" and "Robotic Mode" settings are no longer linked. The user may choose these as independent settings.
- All: SurvPC can now load point features records in List Points from an ArcMap document.
- Trimble Stonex South GPS: Error estimates have been changed from SEP and CEP to HSIG and VSIG to match Trimble documentation. Error estimates from the receiver are "1 Sigma" meaning 68% of measurements will be within the given distance.
- All: Added "Custom" option to Export ASCII point data. Now the user can choose the number and the order of the data exported from the following point data list available: Point ID, Northing, Easting, Elevation, Point Description.
- All: In Export ASCII point data, renamed the following dialog text labels for clarity: Delimiter has now the same option as the type of the data the delimiter will be used for: Coordinate and Other; the extra point data: notes, info attributes has been grouped into "Export Other"; under the Settings button, the options will be hidden or shown based on the type of data selected for export: e.g. if Export Other - Attributes is ON, than in Settings: "Skip Attribute Names" will be show, etc.
- All: In Export ASCII point data, when exporting Latitude and Longitude for the GPS points only, we allow now to set the order of the Lat/Lon, and also we allow the formatting of the data if DMS, as "DD<space>MM<.>SS<space><sign +/->".
- GSM modems: Previously used APN settings are now shown in the list of Network Providers.
- Radios/modems: Fewer error dialogs are shown when cancelling communications while starting Radio/Modem Configure dialog.
- Septentrio/Altus: More responsive to cancel button now.
- Topcon RTS/Optical communication: The Topcon will now go into standby mode, dropping communication, when the standby button is pressed. The software will recover communication when tracking or search icons are pressed.
- All: Allow CSV, Partner Software data ASCII export for Points.
- Topcon/Sokkia/Javad Internal GSM: Modem APN settings are remembered even after a factory reset.
- Topcon RTS/Optical communication: SurvCE will now attempt to retry up to five times when the command to stop streaming is ignored, unless there is no response from the unit. This reduces error message for failed communication.
- Topcon RTS/Optical communication: Set Angle and Check Angle are now supported in

RC-only mode.

- Satel Radios: Added "Reset Factory Defaults" option to Satel Sateline Configuration options. Sets most other settings not set by user to default settings.

**Resolved Issues:**

- Topcon/Sokkia GRX-1: Ports in RTK tab are now shown correctly in Base Configuration.
- Javad: Now setting base antenna height for use in RTCM messages.
- Trimble/Stonex: Rover now shows Base ID and writes it RW5 file.
- Sokkia TS: The BS Search method parameter is now used in the backsight routine.
- Ashtech GPS: SurvCE will no longer take an additional reading from the GPS when the user presses "Store" for Offset points.
- Ashtech GPS: Connect and Disconnect buttons will be properly displayed in the Monitor screen when NTRIP connections are used.
- All: When starting a new job in SurvCE, defaults will be specific to the instrument, rather than generic
- GPS: RTK Page will now remember the cable or generic port setting.
- Lasers: Laser range finders now support ports greater than 9, and will populate the list based on availability.
- GPS: If the same point is attempted to be stored twice in Auto By Interval, the program will no longer pop up a message to the user. The program will simply ignore the point and sound a warning beep to the user.
- GPS: When storing an offset point, a GPS vector will not be recorded in the rw5 file.
- Ashtech GPS: Fixed a crash when starting Data Collector Internet. This crash was introduced with the 2.51 build.
- Ashtech GPS: Disconnecting from the internal modem in Direct Dial mode will now display "Disconnecting..." in the status screen.
- Ashtech GPS: When connecting to a modem in the monitor screen, an hour glass will no longer appear in front of the prompt asking the user if they wish to connect.
- All: Fixed an issue which could have allowed a prompt box to appear behind another screen. This would have made the software appear to be non responsive.
- GPS: When changing radio types, the default baud rate will be used.
- All: For Windows Mobile 6.x devices, the command bar will be hidden.
- GPS: RTCM ID range is now only checked when not using an RTK network.
- All: For exterior angles greater than 180 in Stakeout Line/Arc Bisector mode, correct offsets are now computed.
- Topcon/South: Topcon/South/Arise instruments will now work properly when instrument is in Feet/Inches mode.
- All: In the GPS Scale dialog under Localization for monochrome data collectors, the Read GPS/Calculate icon is now correctly displayed.
- SurvPC: Going into "Change Registration" will no longer disable all modules in SurvPC.
- GPS: Fixed size of Base ID edit box in Rover RTK tab.
- Geomax ZGP800: SurvCE now correctly bonds to the base and rover antennas by Bluetooth.
- Geomax ZGP800: Antenna selection list has been corrected.
- Javad GPS: Javad Sigma now uses modem "b" for successful use of internal UHF.
- CHC GPS: Improved CHC cable and bluetooth communications.

- All: When using the Virtual Keyboard in TEXT Mode, the software will now close the Feature Code List View only if the typed word matches exactly a feature from the FCL. Otherwise, the software allows the user to access the opened Feature Code List and pick a code using the arrow keys or by tapping the screen.
- Sokkia TS: SurvCE will now pause between setting the angle and taking the next reading. SurvCE will also properly report errors if an angle reading fails.
- All: In the Stake Line/Arc routine, the Confirm NEZ button will now work properly.
- GPS: Sun Position: display of sun symbol and calculation of sun azimuth and sun elevation corrected.
- All: Improved calculation of the image placement on the X axis in Image Set Manager.
- Leica SH4 Data Collectors: Resolved an issue that caused lock up of the software or report of "Unable to load Coordsys.dll" when using certain coordinate systems.
- All: In COGO/Calculator, convert Lat/Lon to N/E page, the software will now default the HGT entry boxes to "0" height.
- All: When changing descriptions for multiple points using COGO/Keyboard Input, the software now correctly updates the symbols associated with the descriptions changed.
- Leica 1100TS: The guidelights will now work properly on the Leica 1100 Robotic.
- Javad GPS: Internal GSM modem driver now waiting for confirmation of disconnect before continuing.
- All: Fixed a problem in the MAP menu which caused the Align Building Command to not work properly.
- All: MAP/Draw/Offset By Segment now draws the segments only if the check box "Draw Segments" is ON.
- Altus GPS: Antenna name now shown in RINEX files correctly.
- GPS: Continuous reading thread is now suspended during file transfer.
- Stonex GPS: Empty DNS entry now allowed in Configure Internal GSM.
- GPS: The GGA message will now only be sent from a data collector port when "Send Rover Position to Base" is enabled.
- Javad GPS: Javad HPT435/402 and ArWest AW435 now turns on scrambling with 255 instead of 1.
- CHC GPS: Firmware version now reported correctly.
- Digital Levels: Digital level settings will now be saved and recalled correctly from the settings file.
- Digital Levels: If the same port is selected for total station and for levels, the main port will be closed before attempting to use a level.
- All Instruments: Error dialog should be more dependable now.
- Most Instruments: Serial number is now written in the RW5 file next to the instrument type if driver supports it.
- CHC GPS: UHF configure dialog now works for cable.
- CHC GPS: Improved reliability of communications.
- Stonex GPS: Wait times for connecting internal modem have been increased.
- MDL Laser: Shots can now be auto-triggered on the MDL laser ace when attached to encoder pole.
- All GPS: HRMS and Fix status information is now written to the RW5 file in English, rather than being translated.
- All: For HDPI data collectors, or enlarged screen size display, the controls on the property

pages used in Search, Settings, etc for Instruments, were overlapping (Configure routine in Survey/Stakeout only). Now the display shows the controls using the correct size and the correct placement.

- Leica GPS: Log Static at the base is functioning properly.
- All Instruments: Instrument variables no longer get old settings from previous instruments.
- Stonex/South GPS: S82 no longer setting COM3 to serial mode. This was causing modem trouble.
- Sokkia SRX: The command to start tracking can now be cancelled.
- All: Loading Arcs which were not parallel with the current UCS from a DWG or from a DXF into SurvCE/SurvPC was failing. The Arcs were drawn using non-transformed coordinates. Now the import correctly transforms the coordinates and places the Arcs at the correct location in the drawing.
- OmniStar Novatel V3: Subscription Status and Expiration Date bug fix.
- Motorized total stations will now show the Robotic Sets and Auto-Turn Auto-Read options.
- SurvPC: Offset routines will now allow the user to switch between radio button states.
- Total Station: All references to rod/target heights and elevations are now hidden in the offset and resection routines when in 2D mode.
- All: Prevented crash when starting SurvCE, cancelling Bluetooth and going to Log GPS.
- Internal GSM w/ Satel: Topcon/Sokkia internal GSM w/ Satel now always uses 19200 baud. Internal radio should be configured for 19200 baud using Manufacturer's PC utilities.
- All GSM/Internet: Longer server names now allowed in NTRIP and other GPRS dialogs. Previous limit was 32 characters.
- TS/RTS: Fixed issue which could cause Remote Benchmark routine to crash.
- Leica TS: SurvCE will no longer reset the field of view and visibility settings to defaults.
- All: Stake Road dialog was not recalling the Design Offset value to be shown as set in the Offset List.
- All: SHP File export was not creating a correct PRJ file if the export was only saving one Feature at the time.
- All: Prevented similar Unit ID being retrieved from two different Windows Mobile 6.0 or higher data collectors (CHC, FC250, etc).
- All: CSIMobile: Damaged vehicle now colors correctly if the Color option is set to ON.
- All: CSIMobile: Damaged vehicle now shows the linework when in define damaged line view.
- All: Previously, a line width value of zero could not be set for an FCL 2D Polyline code if a width other than zero had already been set. Now the software allows the width to be reset to zero.
- Sokkia RTS: The "Run remotely" setting has been renamed to "Robotic Mode" and the functionality of that setting has been restored. When "Robotic Mode" is disabled, SurvCE will consider the SRX to be running in manual mode, with perspectives from the total station, and not the pole.
- RTS: The Turn to BS button in the backsight screen will remain hidden if one of the BS or OC points is unknown.
- Data Collector Internet: All IP addresses accessed over wireless networks are now supported.
- Juniper MESA: SurvCE now runs without any dialogs/views (UI) being obscured by the systems WM 6.5 icons. The software runs in Full Screen Mode.
- All: It is now possible to load and modify TPL files created in Carlson Office 2011 package through SurvCE and SurvPC. All data will be preserved, regardless of whether it is used by



SurvCE and SurvPC or not.

- All: List controls: points, codes, etc are auto-sized correctly per columns.
- All: Export ASCII Points in SurvPC now uses the correct delimiter setting for coordinates and extra point info.
- All: When a Feature Code List has a definition for a POINT GIS Code only and the code is non-point type code, the software will not prompt for the LINE GIS Code.
- All: Prevent the user from incorrectly setting Notes per non-Point Feature Code definition. Only Point Feature Code allows the option to define Notes per Code.
- Leica GPS: Saved Leica GPS configurations now load correctly.
- All: Pocket PC 2003 build, for which `_WIM32_WCE_` it is greater or equal with 400, now checks for the deprecated and current defines, specific to Pocket PC platforms: deprecated `_WIN32_WCE_PSPC`, current `WIN32_PLATFORM_PSPC`. This will fix the SurvCE PPC2003 build.
- All: Corrected the display info in the GIS Input Edit, dialog. Now the software shows the correct type of the GIS Feature, especially when a Point GIS Feature is used with a Feature Code that is a 2D or 3D line. This allows the user to enter Point GIS Feature data on a Join Point special code, JPN, only once per stored point.
- All: Storing multiple points per reading now clears the descriptions of the special codes as it does in the main store graphic screen or Text screens.
- Topcon RTS: The RC configure dialogs now show the correct defaults and options based on which RC is selected.
- Topcon RTS/Optical communication: SurvCE will not attempt to stop streaming before searching or establishing link if using optical communication. This eliminates communication errors.
- Topcon RTS/Optical communication: SurvCE will now cancel an RC search effectively.
- Topcon RTS/Optical communication: SurvCE will detect when the optical connection has been loss and limit commands sent to the instrument until connection has been reestablished.
- Sokkia RTS: If the user presses the "RC Search" button on the joystick page, and they are already locked on a prism, they will be prompted whether they want to force an RC search. This allows the user to force the instrument to move off of a reflective item that is not a true target.
- All: SurvPC, CoordSys.dll has been now updated to the June 23 2009 version; versionset.exe is also increasing the version number of the DLL so MSI install will re-install the new file.
- Modems: Timeouts reduced to allow for faster modem communication.
- All: Editing a point in MAP was resetting the next point to store ID. Now, the software preserves the next point to store ID according to specification.
- All: When using Increment Linework ID option, for MDOT style, which requires the additional store of the "Start Line" special code, now the software correctly maintains the same Line ID for allowing continuous lines. In the previous version, the incrementing was done automatically so linework could not be drawn.
- All: MDOT coding style allows the automatic description update for the case when the user stores a PT special code, to CODE + Start Line required by the DOT's coding style.
- All: DOT specific feature that allows the creation of the points automatically for Geopak field to finish processing now uses a different, more robust, method to create points in the case of 3D Polyline feature codes. The new method avoids the cases in which there are missing angular points on the Offsets linework.
- Socket and Atinav Bluetooth: Increased wait time for Bluetooth to start to ensure successful

connection.

- ArWest UHF Radios: No longer reporting error when setting power on receive only radios.
- UHF Radios: Fixed Radio Channel Spacing labels. 12.5 kHz was shown as 25 kHz and vice versa.
- Topcon RTS/Optical communication: Timeout for reading commands has been increased when communicating optically.
- Sokkia TS: The "old firmware detected" warning message now only applies to the SRX and newer. Older instruments will not report this message.
- Topcon RTS/Optical communication: SurvCE will now immediately attempt to stop streaming after establishing a link with the RC unit. This reduces error messages.
- Surveyor+ GPS: Using COM9 for RTK Bluetooth Port is more dependable now.
- Topcon RTS/Optical communication: If the software fails to start tracking, and optical communication is selected, the software will not attempt to stream angles.
- Topcon RTS/Optical communication: If the software stops receiving distances from the instrument, it will no longer auto-switch to angles only mode.
- Topcon RTS/Optical communication: The software now always stops streaming data after a quick lock.

## Version 2.54

*Release Date: February 22, 2011*

### **New Instruments Supported:**

- Topcon HiperII

### **Resolved Issues:**

- Topcon GPT (non-motorized): Prism icon in survey screens will now switch properly between IR/RL mode
- Leica 1100 Robotic: Prism offsets now set correctly
- Leica 1200 Direct: LeicaRobust and GRZ121 prisms removed from list. Not supported by this instrument.

## Version 2.55

*Release Date: June 22, 2011*

### **New Instruments Supported:**

- Pentax SMT888-3G V2
- SatLab SL500
- Geomax Zoom 20/30
- Leica Disto D8
- Topcon QS (Direct Mode)
- South GPS – Support added models S82-V and S86-T
- NavCOM SF3040 – Support added for the SF 3040, including internal radio
- SonarMite Depth Sounder – both older and newer protocols supported
- Spectra Precision Epoch 35
- C4M GMSS GPS
- Topcon Hiper II
- Stonex Direct Robotic – Stonex private label version only

### **New Data Collectors Supported:**

- SurvCE is now available to run in landscape mode on HDPI devices, including the Juniper Mesa.

### **New Features and Improvements:**

- Foif TS 630/TS650: The Foif total station models have been renamed and more clearly defined.
- Getac: The Stonex version of SurvCE will now work with the Stonex R9 from the Getac data collector.
- Nikon TS: A new “Sokkia Mode” options is now available under the model list for Nikon.
- Ashtech Zmax: Non-Ashtech radios may now be used on port D.
- All: SurvPC loads DXF files now 50% faster than in the previous version of the software.
- All: SurvPC allows the use of MXD point features from within the List Point Selection.
- All: ZOOM Window in MAP works when using in SurvPC an MXD document rather than the normal Carlson CRD container.
- All: ZOOM Previous in MAP works when using in SurvPC an MXD document rather than the normal Carlson CRD container.
- All: SurvPC can now acquire a valid license for an ESRI Engine, that it is version 10.0 or higher.
- All: In PortraitView version of SurvCE, when reporting point data in COGO/Inverse, the Elevation and the Description of the point are now displayed on a second line to ease visibility. Previously, all data was displayed on one line.
- All: Import LandXML SCT data allows now the import of DesignCrossSectSurf data, final type surface.
- Coordinate System: Krovak-JTSK coordinate system for the Czech Republic has been added. Requires Czech Grids.

- Depth Sounders: SurvCE will now write a quality record to the raw file after each reading on depth sounders that support it (Currently only Sonarmite).
- Depth Sounders: Depth sounder name will now be written to the raw file when active.
- Depth Sounders: New info button is now available for depth sounders, and will show battery status, if available (Currently only Sonarmite supports this).
- All: SurvPC, now when in Log Real Time Data, mode in Stake Line/Arc, can display/save the path traced by the user in the field.
- Depth Sounders: Depth sounders can now be connected with Bluetooth.
- Spectra Epoch 35: Added support for Spectra Epoch 35 internal Pacific Crest radio.
- All GPS: Correct GPS Error estimate type is now shown in displays and in the RW5 file.
- All GPS: GIS tags for GPS Error estimates are now HERR: and VERR:
- All GPS: Auto By Interval now shows correct value for vertical error estimate.
- Novatel OEMV, Sokkia GSR2700ISX: Novatel OEMV and Sokkia OEMV models now support the "Verified Fix" option.
- All: SurvPC now has full support for ZIP/UnZIP files.
- All: Added Buffer Offset command in MAP under Draw/Offset.
- All: Added WSDOT specific Raw file format under Edit RW5.
- Bluetooth Satel: Surveyor+ now supports Bluetooth Satel radio.
- Satel Radios: Added "Forward Error Correction" and improved support for Protocols.
- All GPS: Modified format of Average GPS comment in RW5 file.
- Javad GPS: Added new Javad antenna models.
- All TS: Remote benchmark now offers point-protect. This allows user to choose a new point rather than modifying their current occupied point.
- All GPS: Base Translation from Rover available in the GPS tab of Localization. When active GPS status is shown with a ^ symbol. Adjusted position shown in RW5 GPS record.
- All GPS: Localization Report for all GPS now in HTML format. Provides completed information of Localization for the current job.
- GPS Simulation: GPS Simulation will now simulate returning a base position from rover. This allows use of the Ref tab. The base position is relative to the rover seed position.
- All TS: SurvCE will now remember last reflectorless setting, and use it when the prism/non-prism icon is toggled.
- All: Added "Draw PLN" routine, in MAP FILE/Utilities Menu, to allow the user to load Carlson PLN vector files.
- All: Importing Esri MSC CAD data from a .DWG preserves the Layer of the feature imported from the .DWG drawing.
- All: For greater software flexibility there are now two settings which allow the user to control the Use of Point Symbols, and Line Details.
- All: When using Cut From Section Alignments, transitions in the 3D strings of the road definitions are presented in the station list.
- TS: The rw5 record for prism constant will now also display the target name.
- Navcom 3050: Support of DGPS Starfire GNSS. Starfire with Differential corrections for GLONASS.
- All: MAP/Triangulate & Contour has now more options to control the elements that could become a part of the triangulation process: Points, Contours, Breaklines have independent settings.
- Psion with CE 5.0: Windows Mobile Bluetooth is now available as an option. Has better

- performance than Generic Bluetooth, especially when resuming.
- Depth Sounders: Added the ability to use a fixed water elevation instead of GPS elevations as base to calculate bottom elevation.
- Coordinate System: New Coordinate system for Czech Republic JTSK/05.
- Coordinate System: Added changes to CSL File for State and County Regions USA. Ireland TM and Czech Coordinate System added.
- Novatel SPAN: Added "Send ZUPT" button to GPS Utilities.
- Topcon RTS/RC-Only: The RC2 now supports both 4800 and 9600 baud rates.
- Topcon 9000: The Topcon 9000 now supports both the RC3 and the RC4.
- All: Bluetooth radios are now supported.
- All: In MAP screen, added a new command to align a polyline/building based on two segments.
- Total Stations: Prism constants in raw file will now state whether it is a foresight or backsight prism constant.
- Total Stations: Temperature and pressure will now be written to the rw5 file when appropriate.

### **Resolved Issues:**

- All: Export SHP in FILE/MAP works without fail even if there are no ARCs in the DXF.
- All: Export ASCII, DD MM SS now concatenates the string correctly and does not replace a digit in the second's value with the "." character.
- All: The radio button settings for Importing TIN data from the LandXML, in SurvPC are working now correctly.
- Sokkia 2700 ISX: Internal GSM modem will now send GGA to NTRIP server.
- All: Various screen size issues fixed for SurvPC Export ASCII, MAP/Preferences.
- All: Storing GIS Data at the start of the line for the SHA coding style does not prompt twice for the same GIS Feature.
- All: Export ETRS89(data) now stores x/y in the correct order.
- Carlson Surveyor+ GPS: SHMP value for CSW\_702: GG antenna offset is now correct. This affect slant height measurements.
- VADOT SurvCE: When the button "Read" is pressed in the case of an RTS Instrument, the software now ensures that a valid VADOT database code is set and used in the process of storing the point to the database.
- All: Cutsheet data for Elevation Diff/Road Design writes the correct label in the file, and not OFF ROAD as it was doing in the previous version of the software, regardless of the fact that the measurement was taken on the active cross section of the road.
- All: Elev Diff stores cutsheet data in the case of Flat Elevation style: stakeout of points or using an alignment.
- All: VADOT version now stores the points correctly in the VADOT database file. The previous versions of 2.0 VADOT were failing sometimes with the error: "cannot store null point id" error.
- All: For HDPI versions of SurvCE, in Store Points and other Survey/Stakeout Screens, the measurements for the GPS, N/E/Z are now fitting correctly on the screen.
- All: The 'Cut From Section Alignments' method in Stake Road/Elev Diff now resets accordingly the direction of the grade alignments by using the station values rather than the direction of the 3D string. In this way, the software avoids problems when reverse loop curves are used in the design of the road.

- Ashtech ZMax and older Ashtech GPS: Fixed passthrough baudrate issue for ZMax and older Ashtech GPS.
- All: When using older defined GIS Attribute Files, with the new system of uniquely defined on single GIS file storing attributes, in the newer version of SurvCE, for line type features, having set "Store GIS Attributes for all Vertices", the current version does no longer prompt unnecessarily for Attributes on each Vertex, if no Point GIS Feature has been set in the FCL file.
- Leica RX1250: The LeicaRX1250 can now connect by bluetooth to any instrument.
- All: The Leica Viva SurvCE builds, and SurvPC builds have now corrected the code that allows the display of "bold text" in Set Collection, and Traverse Prompt dialogs.
- Sokkia GPS: The "use sbas" option will now default to FALSE for all Sokkia GPS.
- Topcon GSM with Satel Modem: Topcon GSM with Satel Modem now supports baud rate 38400.
- The Sokkia onboard versions are now available in current release of SurvCE.
- All TS: Total stations that do not support changing target type, or do not support changing prism constant, will no longer write junk target type records.
- All GPS: For portrait-view data collectors, the Base ID range will no longer cover other text. Dialog redesign.
- NavCOM 3040/3050: Changes to QuickStart. Quickstart will send Lat/Long of selected position and converge to point. Queries the Quickstart every second until the quickstart succeeds or fails due to proximity.
- Leica RTS: Laser pointer will now stay on after reflectorless shots, and after EDM mode.
- All GPS: Now showing all available ports when configuring data collector internet. Previously capped at Com9.
- CHC Novatel: Basic communication improvements.
- CHC Trimble: RTK Latency now displayed correctly.
- All GPS: The reference tab is now more dependable.
- Topcon Onboard: SurvCE will now display the correct angles, regardless of how the units in the total station are configured.
- Topcon QS: When connected to RC4 radio, the "RC Search" button will always show on the joystick page.
- CHC Trimble GPS: Sat on/off feature has been disabled.
- CHC Trimble GPS: Sat info now more stable.
- All: When using an inclusion perimeter, Contours within the Triangulate and Contour Map routine are drawn now correctly, up to the borders of the inclusion perimeter.
- Leica Direct Models: Reflector-tape now works properly for all Leica models.
- Sokkia SRX-X: For the Sokkia SRX-X, SurvCE will check the distance units in the instrument each time a reading is taken and before starting the stream.
- Leica Viva GPS: SurvCE will now send the network solution type properly for Spidernet.
- All TS: Bluetooth radio now supports cable/generic radio.
- All: Levels elevation report now displays correctly in Wordpad.
- South S86-T: Correct Antenna is now used.
- Geodimeter RTS: SurvCE will now reinitialize the radio if it detects that it has been turned off.
- All TS: The set collection routine will no longer prompt for target height if SurvCE is in 2D mode.

- All: SurvPC interface has now been modified to respond significantly faster to any user inputs.
- Leica RX1250: Some translated versions of the Leica\_SH4 install were still using extinct "Leica SurvCE" splash screens and icons. This also caused the icon not to show properly on the screen. Now fixed for all languages.
- Foif TS680: Improvements to Foif TS680 . Removed features that are not supported, added Ping.
- All: ROAD/Stake Road will no longer allow the selection of a grade that it is not on an actual cross section surface: final, or subgrade type. In previous versions the software was incorrectly leaving the offset/elevation selection active when switching surfaces.
- All GPS: Now only requiring log rate to be same rate as position rate for Surveyor+ GPS.
- All: SurvPC will now correctly size and display the scroll bars in list control. Problem was evident when Windows Theme was used.
- All: Text Labels in Status dialogs in SurvPC, single and multi-line are now drawn correctly even when the height of the text font does not fit in the height of the text control.
- Sokkia RTS: SurvCE will now start tracking properly when entering elevation difference routine.
- All TS: For total stations that support temperature and pressure settings, SurvCE will now properly maintain these settings when exiting/relaunching SurvCE.
- Robotic/Motorized Total Station: In resection, SurvCE will now show the "turn to angle" option, even if orientation is not yet known. Will hide "turn to point" until calculate button as been pressed.
- CHC: Cable connection improved for DCI RTCM3.
- Greek Version: Previously, some menu items displayed "No Name" instead of the appropriate text. This is now resolved.
- All: COGO/Point Projection now shows the station and the Offset correctly in the "Store Point" screen.
- Topcon/Javad/Sokkia GPS: Base setup now supports use of RTCM 3.0 for firmware versions after 2.4.
- Topcon/Javad/Sokkia GPS: Larger memory cards are now supported in the file browser.
- Topcon/Javad/Sokkia GPS: Antenna slant heights now used in log file.
- Topcon/Javad/Sokkia GPS: Antenna record in log file now uses ground to ARP height instead of ground to APC height.
- All: Export ASCII, Custom mode, now saves all the selected fields: northing, easting, elevation, and not like in the previous version, only the description or the point name.
- All: Changed minimum time for Auto by Interval to 2 seconds.
- CHC GPS: Improved cable connections.
- All GPS: Correct GPS Error estimate type is now shown in displays and in the RW5 file.
- Trimble Error Type shown in RW5 file no longer changes between SEP/CEP and HSIG/VSIG.
- All: Elevation Difference now displays the current slope in Section View when the user selects any option related with Road Files surface definition. Previously, only TIN surface definition or flat elevation displayed the current slope.
- CHC GPS: SurvCE reconnects to Bluetooth automatically more often when receiver drops connection.
- CHC GPS: Removed Power On/Off button from GPS Utilities.
- All: In Portrait View versions of the software, when using the routine Stake Road with the Section Files, the button "Slope Stake" was in the previous version of SurvCE partially



hidden. Now the button is correctly placed and fully visible.

- Leica TS: The custom target dialog will now show the adjusted Leica offset in a static line at the bottom for more clarification.
- All TS: The last used IR target will now save to the configuration file so that it persists when exiting/restarting SurvCE.
- All: Importing a Carlson FLD into Feature Code List could sometimes miss the last line from the original FLD file during import. Now fixed so that all of the lines from the original FLD file are correctly imported.
- Satel Radios: Satel radios default settings are now only set when the “Set defaults” checkbox is on.
- All: Subgrade Sections are now presented correctly in Stake Road routines, Section View and Stake Road dialog, when the section data it is loaded from a Carlson Road Network file prepared in the office software.
- Topcon Onboard: The target switch icon will now effectively switch between prism and reflectorless.
- All: Import DXF/DWG now supports LINE entities, which have stored in the DXF/DWG an extrusion value (the OCS is not the same as the WCS for the Z axis).
- All: Join Plines in MAP now allows the use of entities that have the same flat elevation defined. A warning has been added to inform the user of how many entities the routine has joined.
- All: Trim Plines in MAP now allows the use of entities that have the same flat elevation defined.
- Navcom3050 GPS: Quickstart Convergence timeout has been increased to prevent periodic timeout failure. Status dialog has been updated to give more accurate status feedback.
- CHC GPS: CHC Trimble tries to re-open the bluetooth connection more often now. This makes NTRIP configure more reliable.
- All TS: The Define Target dialog now works more smoothly and allows for deleting targets.
- Leica TS: The target type will now switch correctly when changed via Store Poits->Instrument Setup->Robotics Tab->Settings method.
- All GPS: NGS button now applied to base antenna in Monitor Ref tab when storing Base point.
- All: Fix potential crash in instrument setup for TS/RTS. Problem could have arisen when hitting the button "Backsight" and either the OC or BK was not a valid point.
- All: Align/By Two Segments now works even if the two segments have a common intersection point.
- CHC GPS: Fixed CHC Trimble model communication problems introduced in 2.52.12.
- All: Previously used GIS files in SurvCE 2.52 version and earlier are automatically supported when upgrading to SurvCE 2.54, which uses the new single GIS file (adopted recently in the Carlson Office software, version 2011).
- All: Importing Esri MSC CAD data from a .DWG preserves Point DESC for the newly points stored.
- Leica TS: Prism records in raw file will now consistently write only the physical prism offset.
- All: Help Files are now working on Windows Mobile 5.0 (Archer unit). Also, when the user clicks on a link within the help file, to navigate to a new page the program does not receive any longer the message to reconnect to BT.
- All: SurvPC, on Windows Vista and Windows 7 OS, minimizes and maximizes correctly.

- TS: Prism constant now set correctly in set collection for bd-br-fd-fr set order.
- Robotic TS: SurvCE no longer fails when moving directly from setcollection to resection.
- All: Area routine in MAP has been improved to compute the correct value no matter the sign of the bulges of each arc.
- All: Cut From Section Alignments works now no matter if the 3D strings used to define the main road have the starting station something else than 0.0.
- All: Master CL when used in a combination with Stake Line Arc / Point on line reports now the correct STK Directions.
- All: Survey Offset by Direction IN/OUT and Offset Left/Right for TS/RTS puts the focus of the cursor in the Offset L/R edit box to prevent the user from typing in the wrong box.
- Septentrio PolarRx GPS: Fixed bug that caused Port configuration for Septentrio to Fail.
- Topcon GPT non-motorized: SurvCE will now properly switch from IR to RL using the prism icon from the store points screen.
- Leica 1100 Robotic: The Leica 1100 will now set the prism constant correctly.
- Topcon HiperII and Sokkia GRX1: These instruments now loading correctly.
- Altus APS-3: Internal GSM/CDMA modem is turned off when switching to internal UHF or external cable.
- Altus APS-3: COM2 RTS/CTS it turned on for Internal GSM/CMDA modem and Internal UHF modem. Turned off for all other devices.
- Altus APS-3: Longer timeouts for connection to internet and connection to mountpoint.
- Altus APS-3: RTK Reset improved.
- All: Selected Pline in MAP AREA command does not stay any longer selected after the command ends.
- All: For Data Collectors where the screen are regular DPI but larger number of pixels per cx and per cy, the status dialogs/ status progress bars in the software will display correctly the text messaged within the dialogs. In the previous version the software was incorrectly truncating the text message if the height of the total text was larger than the height of the control. Now the control gets correctly resized before CDialogTemplate (MFC) class gets called.
- All: SurvPC/ WM Settings Change message is now correctly processed, so no shifting unexpected will occur in the Main Menu and the loss of the TABs: FILE/EQUIP/SURV/COGO/ROAD when using SurvPC on a Windows Vista, Windows 7, PCs.
- All GPS: Average GPS now gets one measurement per second regardless of current update rate.
- Stonex S9, South S82+T: Bluetooth more dependable now when setting up the base.
- All GPS: Average GPS now reports correct error when tolerances exceeded.
- All GPS: "Send NMEA GGA to Port" option in Advanced Dialog now shows correct COM ports.
- Topcon TS: Switch X and Y axis for check level.
- All: When using Template Series in Stake Road, and one of the Template Series had an empty TPL definition, in the previous version of software the software would have leaked memory, which in the end would have decrease the speed the STK Road routine. Now this error has been corrected.
- All: MAP/Trim command was not working when the cutting edge segment was covering the end and beginning of a closed polyline.
- All: AREA in MAP now works properly when reverse-curves are used in a polyline. The user

will no longer see a message that the entity contains self-intersecting edges.

- Surveyor+ GPS: Fixed memory deallocation problem when exiting SurvCE after logging a GPS file.
- CHC GPS: Continued improvements to OEMV based CHC models.
- Novatel SPAN: INS now shown when INS is active even when fix not verified.
- Radios: Removed "Set other settings to defaults" from radio configurations that don't support it.
- All: OSNAPs now work with already "selected" entities from a drawing. In this way, Move, Scale, etc routines are now more powerful.
- All: OSNAP now works correctly when using endpoint mode on a closed polyline at the end of a closing vertex.
- All: Reconnect Button more reliable now.
- Topcon RTS/RC-Only - "Dip Switch" messages now only applies to the RC2.
- Topcon RTS: The total station setup pages now update appropriately when communication is changed from optical to standard.
- FC2500: Before performing an RC search, SurvCE will now PING to ensure the connection to the RC has not been dropped, and reconnect if the ping fails.
- Standard TS: SurvCE will no longer show the configure button beside BS and FS target setup if the total station doesn't support sending prism offset. Custom targets configuration will also be hidden in this case.
- All: Triangulate and Contour in MAP now does not erase the Contours if the user has the option Draw Contours OFF. In this way, the Contours can be re-used within the Triangulation routine for sequential volume computations.
- All TS: SurvCE will now properly set the prism constant for all backsight readings in Set Collection.

## Version 2.57

*Release Date: October 14, 2011*

### **New Instruments Supported:**

- Champion TKO GPS
- Champion nV3 GPS
- Geomax ZGP800 PC-Simulation Version

### **New Data Collectors Supported:**

- Qmini Data Collector with Windows CE 6.0
- Carlson Supervisor GNSS

### **New Features and Improvements:**

- All: Store GIS Data per point using the Multiple Store Method now also allows multiple features store.
- All: The list of values in SurvCE/SurvPC used for the storing of the GIS Features, per attributes, now have a TYPE associated with them [character, integer, real]. There is a mechanism of protection now within the code to prevent the user from adding the incompatible value to the list, based on the List Type. Same mechanism is now also available when Editing the GIS Feature, per point or non-point entity.
- All: In FILE/Job Settings/Options, the list of options now re-scales for easy visibility of the labels in the list control.
- All: In Survey/Stake Points there is now an option to set the point order of the user-defined point list via UP/DOWN buttons.
- All: In Survey/Stake Points, the user-defined point list is now saved per-job.
- All: Added Stake Nearest Point List in Survey/Stake Points. Points from the user-set list will be staked based on the closest distance to the most recent reading/or point stored, or if not available, the Instrument OC point.
- NMEA GPS: Parser now uses more information from NMEA messages for more complete GPS data.
- All: The option to format LAT/LON to DM (degrees, minutes) has been added to Export ASCII for GPS points.
- Total Station: In Advanced Occupation, solving the Orientation using Angles Only, for three or more targets is now fully supported.
- Total Station: Target settings have been redesigned for a simpler interface in Advanced Occupation.
- All: In Store GIS Data, Multiple Features Store Button: "Store+", now also recalls the last values stored from the previously stored feature. In this way the user can type less, and only change the Attribute Values specifically to the newly multiple features consecutively stored.
- Stonex S9: Internal UHF channel changing now more reliable.
- ArWest AW435: Radio now uses combo box to select channel. Those who prefer to enter frequency can use Javad HPT435 driver.
- All: Export Blocks from MAP, for Points, now allows customization related with the "block type = Carlson block point types used in the Carlson Office, and also scale, and row spacing.

- All: Wildcard Point Description Match allows now "negate" substring, or series of characters.
- All: Added warning to prevent accidental overwriting of the range of points in COGO/Transformation of SurvCE/SurvPC.

### **Resolved Issues:**

- All: If SurvCE attempt to display a system error via ShowSysError, and no error is present, it will no longer fail.
- All: Field to Finish has been corrected to prevent the routine from failing if the Action Code Aliases has been changed and there is on a line an Offset code that starts and ends on one single vertex (no segment).
- Total Station: For point protect, in remote benchmark, option to save-raw only has been removed. This option is not valid in this scenario.
- All: Exporting ASCII data from SurvCE/SurvPC, using a "Custom" list of fields, works now correctly when the user deletes (removes) the fields out of the initially set list of Fields: ID, EASTING, etc.
- All: The error-checking in the Advanced Occupation routine has been enhanced in order to prevent an unexpected error when the Occupation was completed using Targets with Angle Only Readings.
- Geodimeter/Trimble TS: SurvCE will no longer freeze when taking backsight readings, and tracking has been improved. Resolves reported error in RL models only.
- Total Station: Refreshing the display of the Advanced Occupation report has been enhanced so that residuals are now displayed after any change was done to the data sets, or a solution was computed.
- Total Station: Error import in Advanced Occupation has been improved for all data-collector versions of SurvCE. The error strings are now correctly formatted when presented to the viewer.
- Total Station: In Advanced Occupation, loading the previously used targets for the current job is now working when the Offset for the Prism is defined as a "-" (negative) value.
- Total Station: Target will now be set properly for each reading in Advanced Occupation.
- Total Station: In Advanced Occupation, target data will now be recalled with the restored occupation set.
- NMEA GPS: GPS Time now gets day from system clock if unavailable in NMEA messages.
- All: Loading an RNF file created in the Carlson Roads Office Software, that had intersections defined with the entry main road as a curve, were not loaded correctly in SurvCE. Now we do load and display correctly those portions of the Carlson Road Network.
- GPS: "Use any Base" setting from Radio configuration no longer used in NTRIP configuration.
- All: Int EDIT Profile using Station EQ, the software now updates the record-line of the PVI immediately after the Station gets changed in the Station EQ dialog. In this way the user sees the changes reflected within the record-line of the PVI immediately without waiting for the cursor to move to a different cell of the Input-Edit Profile dialog spreadsheet.
- Stonex S9: Network Disconnect improved.
- Qmini CE6: Bluetooth has been improved, including improvements to search after bonding.
- MB3000: The get unique ID function has been fixed so that the device registers successfully.
- All: For VADOT defined jobs, the locate features dialog now displays the Prism/NoPrism icons as in the regular store points dialog.

- QMini: Pan, zoom, and refresh will now work correctly in the map screen for QMini CE 6.0 data collectors.
- All: Corrected Image scale display. The wrong resolution image was being used. In images with less than 1 unit/pixel the program displayed a coarser image resolution. The smaller the unit/pixel ratio the more coarse the resolution. The reverse was true for images with unit/pixel ratios greater than 1 finer image resolution images were displayed which would require more time and memory.
- All: Update install names of new data collectors (Viva, Getac, Qmini, Pideon); the strings are saved to the registries and used by the automatic update tool that runs on a PC, and does a patch install when new builds of SurvCE are released.
- All: DXF Import from AutoCAD R9,R10,R11,R12, has been adapted to support "single-layer" DXFOUT produced files.
- GPS: Average report does not get stored to AutoByInterval stored GPS points.
- Foif TS: SurvCE can now set the horizontal angle on all Foif models.
- Leica GPS: All models will now show the option for Glonass satellites. Previously, this was auto-detected, but detection sometimes failed.
- Nikon Nivo TS: The Nikon Nivo TS will now show correct options for prism and target type.
- Javad GPS: Base support of RTCM 3.0 is now working correctly.
- Sokkia Total Station: Sokkia total stations can now set user-defined prism constants correctly. There was a potential error for typed-in values.

**Known Issues:**

- NMEA GPS: Baud rate options were limited in 2.57 to 19200-115200. This will be expanded in the next patch to include lower baud rates.
- GPS: For Malaysian Calibration feature, currently SurvCE accepts float positions. In the next patch, the software will be changed to only accept fixed GPS positions.

## Version 2.56

*Release Date: August 23, 2011*

### **New Instruments Supported:**

- Topcon GR-5 GPS Receiver
- GS15 Leica Viva GPS
- TS15 Leica Viva TS

### **New Data Collectors Supported:**

- Qmini Data Collector
- Unistrong PDA
- CS15 Leica Viva

### **New Features and Improvements:**

- Motorized TS: The auto-read option has been added into the configuration for Set Collection. If this is enabled, SurvCE will auto-read reverse face set collection shots.
- Surveyor+ GPS: GPS log files are now saved in the Data folder.
- All: Lat/Lon input edit boxes in COGO/Calculator now allow the user to put decimal degrees values, as <value><d> (value plus the "d" character); the label of the Edit Boxes has changed to make clear that the default values are DMS.
- All: The GIS codes feature now allows default attributes which are automatically maintained by the software, specifically Coordinate System used and Geoid Used. Formulas added: \$EQN=\$CSY, and \$EQN=\$GSF.
- All: Added Coord Systems: FINLAND KKJ Zones0,1,2,4,5, ETRS89-TM35FIN,ETRS89-TMn (34,35,36), ETRS89-GKn(19FIN through 31FIN).
- All: Added Finnish NLS Survey Store Points which allows the user to optionally add the specific data associated with the NLS codes (visibility, setup, etc). Setting has been added to enable/disable this new feature.
- All: DIST button will now work for InRoads (MD SHA) coding style in SurvCE.
- All: Added a new option for numerical values put after the action codes that require a Point ID or a distance, to be preceded by the code separator: e.g. DIST<space>12.45, rather than DIST12.45, etc.
- All GPS: Get base from rover will now only be attempted on the first store point.
- CHC GPS: CHC now shows both used and total sats.
- CHS GPS: Added Power off command to GPS Utilities.

### **Resolved Issues:**

- Leica TS1000: Prism constants now work correctly for Leica TS1000 driver.
- Surveyor+ GPS: GPS Logging now works correctly.
- Leica TPS1200: The Leica 1200 will no longer get into a state where angles are frozen in SurvCE but will still store. New error message has been added to prevent such a problem should it happen in the future.
- All: SurvCE will no longer crash intermittently when exiting the map screen in offsets.

- All GPS: Increased NTRIP connection timeout from 10 seconds to 20 seconds.
- All: Input Edit TPL now saves the 0.0 cut/fill slopes, and also warns the user if he has no cut/fill slope already set; in this way we avoid unnecessary user errors when running Slope Stake and using TPL file with no cut/fill slopes defined.
- All: When running Slope Stake routine, in the "free station" mode after storing a location ("current catch") the software now stays in slope stake mode; recent versions of SurvCE were defaulting to "Stake Offset/Station" and were forcing the user to hit an extra button --"Modify"-- to get back into slope stake mode.
- All GPS: Position updates in store points are improved.
- Topcon TS: Topcon robotic total stations will now perform an RC search correctly when not connected to RC, and button is pressed manually.
- Topcon TS: Topcon total stations will now correctly set the angle when unit is set to gons and configured in direct mode.
- Topcon TS: Topcon total stations will no longer perform a search when user attempts to take a backsight shot in reflectorless mode.
- All: Added warnings for the out of Finnish grid boundaries, when attempting to convert between lat/lon and x/y.
- All: Correct Parity labels are shown now in TDS transfer.
- All: Added import/export MMLETRS to and from a Carlson Job (CRD); the routine works correctly, and adds the non-geometrical data (surveyed data, x, y, z, point name, point description), NLS setup, NLS visibility, NLS, RSK, etc to the newly added feature point, specific to Finnish NLS survey point store style.
- All: Applied the same correct fixes, as described for the Import/Export MMLETRS to the Import/Export of the MMH.360, already existing routine, which was partially working correctly.
- All: TPL files created prior to SurvCE version 2.0 which have ROW or CUT-L element entries will now be correctly resaved after editing.
- All: Imported CODES (Features) from DWG MSC Esri Data Format, are converted to accepted Names by the FCL standard (no spaces allowed in the name, replaced with the underscore characters).
- All: YKJ Finnish Coord System now works when the conversion requested is X/Y to LatLon.
- All GPS: GGA sent to NTRIP from Data Collector Internet and GGA sent out data collector port now use correct quality value.
- Sokkia 2700 GPS: Direct Dial for Sokkia internal Nokia modem now working.
- Stonex: The Stonex S6 model is now displayed when Stonex-Only license is used.
- All: <jobname>.sys file is now automatically saved for SurvCE with coordinate system and localization information. The user now also has the ability to store a localization file with their coordinate system definition in a user named .sys file.
- All: Fixed label in COGO/Point Projection, related with the side of the CL's point offset, in the dialog to match the correct description of the stored point.
- All: Sliding area now works correctly when the two sides of the polyline surrounding the "sliding edge" are very close to a 90 degree angle.
- All: The internal name saved to the registry for use by the automatic update software download program has been fixed for the Leica RX1250 builds; now the name has been changed to Leica\_SH4.
- SurvPC: Radio buttons in Offset Point TS/RTS routine will now operate correctly.



- All: Import ESRI MSC Data Format through DWG now checks and fixes incompatibilities in the layer names imported against the layer names used in the FCL file by SurvCE/SurvPC.
- All GPS: Smoother information threading in the REF tab of Monitor/Skyplot.
- CHC GPS: Improved communications, including communications with radios and GSM.
- CHC GPS: The “Use Glonass” checkbox has been removed.
- CHS GPS: Blue Sat LED now shown while using COM1 or UHF with RTCM 3.0.
- CHC GPS: Connect button now more dependable for all Trimble-based models.
- CHC GPS: Communication timeouts have been increased for all CHS Trimble models to prevent timeout failures.
- CHC GPS: The RTK tab is now more reliable.
- CHC GPS: CHC holds fix mode better when using UHF now.
- Total Station: The foresight prism constant will no longer revert to its previous setting when accessing the backsight prism settings, and vice-versa.
- GPS: Read GPS in Localization working for non-WGS84 datums.

## Version 2.58

*Release Date: November 2, 2011*

### **New Instruments Supported:**

- Kolida K9-T GNSS Receiver

### **Resolved Issues:**

- All: SurvCE no longer has the potential to fail when loading \*.ini files which contain incorrect or invalid paths.
- All: Point Info Export ASCII supports now spaces (characters) in Point name.
- All: COGO/Calculator will now observe the "Apply Geoid" setting properly for coordinate systems with special datum transformations.
- All: When using Create Points on Offset Lines, in F2F for Geopak style ASCII points export, if the Offset Style of the corners is set to "angular", points are now fully created on the entire linework.
- All: Win32 UNICODE versions of SurvPC can now use the automatic Attribute Values for Points, if used within a GIS Feature, specific to languages that have special characters in their Attribute Name.
- All: SurvCE will no longer fail when attempting to run a debug log file before the driver is created.
- All: A new report output format import for CL+PRO has been added, when exported out of SMI as chain files.
- SurvCE MESA: portrait view option now re-orient itself correctly after pressing the button rotate from Portraitview to Landscape and back to Portaitview.
- Surveyor+ GPS: Surveyor+ GPS now works correctly with external radios.
- NavCOM Sapphire: GPS Average for QuickStart now uses metric values for NORTH and EAST and calculates LAT/LON correctly.
- NavCOM Sapphire: Added Message Type START1B to log file. This message stores equipment information including Serial Number.
- NavCOM 3040: NAV\_ANT3001R Changed to SF-3040 and antenna values have been updated.
- NavCOM Sapphire: NavCOM StarFire now defaults on. Option to disable within in SurvCE has been removed. Starfire can now only be turned off with Send Command.
- NavCOM Sapphire: SurvCE will now Store Serial Number to RW5 file when storing points.
- NavCOM Sapphire: SurvCE will now display Solution Failure codes in Warning message when position is not fixed.
- NMEA GPS: NMEA driver now supports baud rates from 1200 to 119200.
- Hi-Target GPS: Radio channels and GPS Work Mode can now be set correctly.

## Version 2.59

*Release Date: March 29, 2012*

### **New Instruments Supported:**

- Geomax 10/20 GNSS Receiver
- Geomax ZGP 800 GNSS Receiver (PC version)
- Stonex S9III GNSS Receiver
- CHC X900 GNSS Receiver
- Carlson Supervisor+ (SuperG) GNSS Receiver
- Prexio G4/G5 GNSS Receiver
- Novatel Flex G2 GNSS Receiver
- Carlson Flex G2 GNSS Receiver
- Hemisphere Eclipse S320 GNSS Receiver
- Spectra Epoch 50 GNSS Receiver.
- Pentax Smart 8800S GNSS Receiver
- Linertec LGN200S GNSS Receiver
- North Thor GNSS Receiver
- North Scania GNSS Receiver
- Carlson CR2/CR5 Total Station
- Geomax Zoom 80 Total Station
- Topcon OS Series Total Station
- Topcon ES Total Station
- Sokkia FX Total Station
- Sokkia CX Total Station
- South NTS350 Onboard Total Station
- Stonex R9 Total Station
- Satel 35W Radio
- ArWest AW435/AW435B Radio
- Satel Bluetooth Radio

### **New Data Collectors Supported:**

- Catchwell CW30
- Geomax Zoom80C
- Stonex RC9
- Landscape HDPI Windows Mobile 6 Generic Version

### **New Features and Improvements:**

- Some portraitview dialogs have been rearranged to improve readability, particularly for translated versions.
- Antcom antenna is now supported for all GPS.
- In the Surface routine under MAPS/Tools, triangulate and contour now supports an option to erase previous Contour entities. This is used if the user does not want some entities to be re-used within the triangulation process.

- The reconnect icon in the helmet menu now verifies communication after reconnecting.
- SurvCE now supports GPS Assisted Search for all motorized total stations.
- The store points routine now offers a “Navigate To” feature. This feature guides the user to a point in order to assist in finding markers, etc. It is also possible to tap a feature on a background map and be guided to it.
- DHDN\_Grid Gauss\_Kruger, Bayern grid corrections are now supported in SurvCE/SurvPC.
- All Radios: Radio name in radio configuration dialog is now the same as shown in the RTK device combo box.
- The Satel Bluetooth Radio is now supported for the Surveyor data collector.
- Speed of SurvCE has been improved in the case of large job files with large FCL files and different descriptions for each point. Previously, this scenario had the potential to produce slowness in the height/description dialog.
- The Q-Mini version now has virtual keyboard and icon graphics on by default.
- A new user configuration has been added to allow a selective control of the positions/measurements values displayed on the bottom bar in the Survey/Stakeout routines. The new "autofit" option is available under File/Job Settings/Options.
- The data in the bottom bar for positions/measurements values now allows the user to avoid ">" added when the string does not fit in the rectangle box; SurvCE now also supports the option to use a smaller font than the regular one used by the software (for large x/y values the only solution to fit the strings within the display).
- Slope Stake Report now supports a new combination of the Progressive and Total types. The new option displays total H/V distances, and slopes from the Progressive type.
- Slope Stake Report now supports an option to use Catch/Offset for the fixed point that is used to calculate the values within the report.
- The “forward” button in Import .dxf/.dwg has been replaced with different icon to more clearly differentiate from the standard “OK” button.
- Import Esri GIS Data now enforces the GIS Point Feature Import to avoid the case when the user forgets to turn on by the Points import inside the Import .dwg routine.
- Import Geopak PROFILE data now allows non case-sensitive naming of the profile and the key codes used to describe the profile data features.
- All GPS: RTK Correction latency through the data collector is shown in Monitor with an asterisk when receiver is not yet using corrections. This may help in debugging Data Collector Internet and Satel Bluetooth, which route corrections through the data collector.
- The Turkish version of SurvCE has been updated.
- Carlson Surveyor: Now supports new option "Prevent Suspend On Battery Power". This setting defaults to OFF.
- Allegro MX: Now supports new option "Prevent Suspend On Battery Power." This setting defaults to ON.
- Establish CRM feature support has been expanded to include most GPS.
- MAP/Circle command has now 3P = 3 points option.
- LAT/LON in COGO Calculator and GPS Utilities for Simulation now displays the angles using the degree symbols, and allows the use of DD (decimal degrees input), e.g. -70.6645DD.
- Import LandXML Horizontal Alignment from 12D software now uses, in the case of "tangent+spiral only+curve+spiral only+tangent", same direction for the three elements, the more compact "spiral-curve-spiral" element. This change improves speed when STAKING out the Centerline on a data collector.

- Equip/Configure/View allows the selection of a reference point the Instrument/Point for TS/RTS instruments and now prevents the user from selecting Base Station if the rover is not capable of retrieving the base position.
- Advance Occupation now correctly loads CTRL used targets readings from the RW5 file and from the LSM (previously defined list of targets).
- Advance Occupation now prompts with the already defined Occupied Point Description when point unknown and it needs to be stored by the Adv Occ routine.
- Reference Closing Angle in "Process Raw Edit/Compass" now displays the correct angle between two points, when the angle it is between 0-90 degrees.
- Prevent the user from using point ID 999999999 in SurvCE/SurvPC. Possible error after the point gets incremented due to exceeding the maximum of 9 characters per point ID.
- In Equip/About, SurvCE now correctly displays and loads the icon of the product.
- Import ASCII will show in the previous txt screen "spaces" instead of "TABS"; This is to enhance the appearance of the display.
- Allow ALT+T shortcut under the helmet in Advanced Occupation, Observation dialog, in the case of a non-keyboard device unit. This allows a recall of previously selected targets and readings.
- The capability has been added to allow selection of a Pline "elevated" style, same elevation at all vertices, to be used in STK Line/Arc, in order to define the horizontal and vertical alignment out of it.

#### **Resolved Issues:**

- Improved portraitview Omnistar Position dialog to remove potential for crash in GPS Utilities/Quick Start.
- Windows Mobile Bluetooth: Improved speed and reliability.
- All Depth Sounders: Messages regarding depth sounders in rw5 file are now more clear. Depth sounder readings of 0.00 will be treated as invalid.
- Added warning for the out of German/DHDN\_Grid boundaries.
- The Scepter data collector is now supported using new SurvCE executable SurvCE\_Scepter.exe. Previous users of this data collector may need to re-register when they upgrade.
- When using Vertical Offset only for the PRO file, within Stake Roads routine, the Slope Stake report was not reflecting the change in elevation. Only if the PRO was placed at a horizontal offset also, different then zero, then the Vertical Offset was used in the Slope Stake Report. This issue has been resolved.
- The backup CRD files created during import/export will now be deleted when these routines are canceled.
- Loading a centerline that starts with a curve (arc, etc.) is now more efficient.
- Slope Stake/Stake Road now displays the correct label for the PP User Defined Offset.
- Carlson Surveyor: This data collector will now delay when coming out of a suspension to allow the the Bluetooth connection to some receivers (GR5, GR3, SF3050, SF 3040) time to restart.
- The "Change Antenna" button is now available in Log Raw for all GPS, including those with internal antennas. This allows the antenna type, slant, and height to be modified during the routine.
- SurvPC now allows the use of Network or Removable Drives within the File/Data

Transfer/Set Folder. This routine can be used to copy the current job or a specific selected job to a defined storage (folder, or Drive).

- Importing TDS RD5/TP5 section templates now allows the user to pick the solution for the Station Equation if more than one solution is available based on the centerline.
- Calculations from grid to LLH in COGO/Calculator will now properly apply geoid separation.
- When storing GIS Code automatic value formula attributes in edit mode, SurvCE now checks to see if anything changed during the current value versus the original stored value. This prevents unnecessary prompts to “Save Changes.”
- The splash screen now scales correctly when displayed on large-screen HDPI data collectors (192 DPI, 640x480).
- All GPS: In Base setup using Method 4, Previously Surveyed Point, set point ID to be used as BP identifier.
- The localization report will now work as designed on STEREOGRAPHIC, OS\_RD2000, OS\_RD2004.
- MAP Zoom Window Command clears correctly after the zoom window has been defined and used.
- MAP, Aperture for Lines/Points are now saved in a file; in the previous version the two values were temporary and were used only during the current session of SurvCE.
- SurvCE will now retain the last IR target type after entering and exiting backsight screen.
- OSNAP intersection now works on multiple self-intersect entities.
- "PowerOn" option is no longer available in GPS Utilities when connection type is Bluetooth.
- QMini and SL50 Data Collectors: BT PIN authentication changed. Data Collector now works with all GPS receivers by Bluetooth connection.
- MODOT: Horizontal Offset: points are now created, at the corners where the offset routine creates colinear points, by using Reduce vertexes to eliminate all the un-necessary colinear points.
- Virtual Keyboard now defines the rectangle to be invalidated before any tap happens on the screen, so the keyboard refreshes correctly.
- SurvPC: Checkbox lists now correctly reflect the change of state ON/OFF.
- After Import ASCII the next point to be stored gets correctly incremented in order to avoid collision with existing stored points when the first next point will be stored by the user, through a Survey or Stakeout routine.
- SurvPC: The degree symbol will now display correctly when the virtual keyboard is used.
- Satel Sateline: Reliability has been improved.
- All TS: Total stations with only standard Prism/Reflectorless support will now show a properly formatted message in the raw file when changing targets.
- OSNAP nearest for 3D plines now uses the projected pixel to the line to determine the elevation of the newly acquired point done through nearest OSNAP; in this way the precision of the elevation calculated by the NEAREST OSNAP procedure is more accurate.
- All Portraitview Versions: When using the Virtual Keyboard, if the TAB labels were longer than the client screen size of the TAB control, the virtual keyboard keys were not drawn in the non-client TAB area. Now the redraw happens correctly, and the virtual keyboard it is drawn no matter the length of the TAB labels.
- Point order does not influence the localized heights in Localization nor Align Cogo routine.
- COGO/Station Store will now work even if the Offset Ahead or Offset Back is zero when an angular point it is used.

- SurvPC List Box controls now use the correct scale for the horizontal scroll bars (the user can see now the entire content of a long line in the list box control).
- SurvPC on Vista or 7 Machines uses color text for selected main menu buttons, for better visibility.
- XSECT view in Elevation Difference now shows the current slope when the MAP has the background set to color: BLACK.
- When using Survey/Offset GPS routine, and the job is set to Czech Krovak JTSK coordinate system, SurvCE will no longer incorrectly prompt with the warning, "coordinate of the offset point are outside the grid".
- Auto-By-Interval routine now works correctly in 30-point demo mode. Previous versions had potential for failure maximum number of points was exceeded.
- All GPS: The time allowed for downloading NTRIP source tables has been increased.
- All TS: SurvCE now allows the user to edit previously defined custom targets.
- Using angle-set type "Set to Current" in advanced occupation now works properly.
- Equip/Configure/View now allows the selection of a reference point the Instrument/Point for TS/RTS instruments and prevents the user from selecting Base Station if the rover is not capable of retrieving the base position.
- Advance Occupation now loads correctly the CTRL used targets readings from the RW5 file and from the LSM (previously defined list of targets).
- The advanced occupation routine will now properly store all target info to the LSM file for target recovery. Previous versions had potential for failure.
- When using a point to stake from a Control File, that has the same point ID as another point from the Current Job file the description visible in the MAP for the case of a picked Control File point is now correct, in the past it was always the DESC from the current job file of the same identical point id.
- Import ASCII works in translated languages, if the hard-coded "characters" used to define the separator values for the point data have been accidentally translated.
- Delete Files routine shows all the File Types allowed (one new extension for a newly supported file was added and the prompt associated with it was not added, making the lists unequal, and therefore the files types were replaced by one file type only: "All Files", versions 2.57, 2.58).
- It is now no longer possible to enter invalid Windows file names in Instrument Save/Rename Configuration file option.
- Going back from Input Edit CL, or Input Edit PRO routines could have set the main view screens of the five tabs to blank, if the tap on the back button was "double click" style. This bug was predominantly happening on a SurvPC, Windows 7 Ultimate (ALGIZ units).
- SurvCE now allows the import of TXT file, UTF-16, little endian, and UTF-16, big endian in Import ASCII routine.
- Repeat Store now does not apply twice for the last point only, from the multiple points stored, the RH to the "EL" rw5 value, if the "check box Repeat Store is off", when exiting the HGT/DESC dialog through the "Green Check Mark = OK" button and not "X = Escape".
- Using Station EQ, and RailRoad Curves, in Station store, defined within a Centerline now allows the user to safely type the station value in the edit box, when the station value is one of the CL defined points:PC, PT, etc. In the past the user could only pick the CL points from the List of station values.
- The advanced occupation routine now stores the new occupation point if the point ID does not exit in the current job.

- Import Geopak, and ASCII LDD correctly reads and imports only one CL/PRO from the output files, created by Geopak, or AutoDesk LDD/LDT.
- All GPS -- Base setup now always re-establishes communication with the receiver.
- When using Centerlines with Overlapped Station Equations in Combined mode, SurvCE will now limit prompting to user to select solution in cases where the solution is already known.



## Version 2.60

*Release Date: May 18, 2012*

### **New Instruments Supported:**

- South S82-T+ GPS
- Sokkia 50X/50RX TS

### **New Data Collectors Supported:**

- Ranger3

### **New Features and Improvements:**

- The Sonarmite depth sounder now supports setting minimum quality of accepted reading.
- Depth sounders now support the connect icon to test connection in setup screen.
- GPS Assisted Search is no longer supported by onboard versions of SurvCE.
- Import DXF/DWG now correctly reads the Extrusions applied on polylines that contain ARCs.
- Import DXF now correctly reads redux DXF files created by TBC (Trimble software).
- Import DXF now correctly reads colors from DXF created using Microstation DGN to DXF export when the entities have non-geometry data attached to them.
- UNIX DXF files created by similar software like Carlson Takeoff (PayDirt, etc), can now be loaded in SurvCE/SurvPC.
- When a localization is used that applies a geoid offset and a projection datum shift, the elevation will now be calculated correctly.
- Added Austria MGI-GIS Grid correction support within SurvCE/SurvPC projections available in the software.
- SurvCE now displays both Grid and Ground distance inverses in COGO Inverse dialog if GridToGround or GroundToGrid scale factors are active in the Localization tab.
- Average GPS Statistics are displayed or not in Average and Store routines (button press and hitting the Enter key), as per the new setting from EQUIP/Configure which also can be found under Average GPS Topo dialog.

### **Resolved Issues:**

- Satel Sateline: Frequency is now displayed correctly.
- Units in the Settings dialog for AdvOccupation routine are now visible on Windows CE devices.
- Import Section Template TDS file now prompts for the Station EQ, without interfering with the hourglass raised to signify a lengthy import of data. This change avoids the appearance of a crash that has been reported by some users.
- Decrementing the point ID name in SurvCE/SurvPC no longer has the potential to produce invalid point names, such as as negative numbers (dash character it is a reserved character used only for point ranges).
- The view style (using clock direction display) will be preserved when using "Navigate To Point" feature in Store points.
- Alphanumeric point ID's which contain the character "0" will now increment correctly, preserving the "0" character. e.g. N01, will be followed by N02, etc.
- The GPS Search button will now show up for all motorized total stations when GPS Assisted

Search is enabled.

- GPS Assisted search now defaults to "off" for all instruments.
- All Allegro MX data collectors now support the Geomax Zoom80 and the Carlson CR2/CR5.

## Version 2.61

*Release Date: June 06, 2012*

### **Resolved Issues:**

- During computation of localization parameters, SurvCE will now choose the best solution for the tilted plane based on the minimum vertical residuals.

## Version 2.62

*Release Date: January 2, 2013*

### **New Instruments Supported:**

- Stonex S8
- Stonex R2 Plus
- Ruide R90T
- Topcon HiPer SR (including LongLINK)

### **New Data Collectors Supported:**

- Stonex S3
- Stonex S7
- Odin
- CHC LT 400

### **New Features and Improvements:**

- The Sonarmite depth sounder now supports setting minimum quality of accepted reading.
- The Parani long range Bluetooth radio is now supported.
- VRMS and HRMS now display on HTML localization report.
- Leica Viva data collectors now support Windows Mobile Bluetooth driver (in addition to Microsoft driver).
- Slope Stake Report now supports customization and allows "story-stake" like (X-Sct), reports to be stored in the cutsheet assigned file.
- Story Stake option now available in Road/Stake Road, including cutsheet store.
- GPS Assisted Search now allows the user to lock the localization.
- SurvCE will now include the Czech grid files CzechJtskGrid\_dy.grd and CzechJtskGrid\_dx.grd in all Czech installations.
- Viva CS15 data collector: VK\_F7 can be used on Leica Viva Data collector as a substitute key for "ALT", and VK\_F11 now triggers "non-alpha" keyboard to be active (in order to allow, the user to type: ";", "#", etc.)
- When a depth sounder is active, SurvCE now allows the display of the depth in the Survey/Auto-by-interval live screens, instead of Z.

### **Resolved Issues:**

- RR+Sta Equations now work correctly within Station Store routine.
- SurvCE can now properly open an empty folder at start when a non-OS mounted (removable) storage device is used.
- Import ASCII now works when points are unsorted and the name of the points are zero padded at the start of the alphanumerical point name.
- SurvCE no longer has the potential to fail on some long text in dialogs for translated versions.
- Export/Import \*.dwg are no longer supported on older data collectors (Explorer, 600+, RX1250).
- When CLs are used from 3D polylines and the ending or starting point of the entities is on a radial segment, the Side is now properly determined for Start/End segments. An error

precision was added for safe retrieval of the side where the new CL is located.

- AutoDesk LandXML imported Horizontal Alignments using Station Equations are now imported using station back value instead of station internal. This method is compatible with the Horizontal Alignments created in AutoDesk products.
- SurvCE will no longer attempt to search after turning to a point in stakeout.
- GPS Assisted Search will now delete the least accurate point when two localization points are taken too close together.
- The degree symbol is now being converted to an HTML special char.
- SurvCE now forces the removal of any POWEREX notifications after the program Carlson SurvCE gets removed from a Windows Mobile CE Device.
- Import ASCII TXT files now allows missing fields X, Y, Z, D, etc from the format to be automatically skipped if there are not enough fields in the row of the ASCII file.
- SurvCE now supports converting the ISPOL RAS profile format to Carlson Profile PRO File. New and legacy versions of the files can be imported.
- S-JSK (Krovak) and S-JSK-05 (Krovak Modified) have been removed from Czech Predefined List. These older projections are obsolete.
- Rounding errors have been corrected when computing offsets perpendicular to a CL right at the end/start of the alignment. (SP CL coordinates, in millions).
- G2 record in RW5 file now contains variance values instead of standard deviation. (Trimble, Topcon, Javad, Septentrio, Novatel).
- When centerlines contain colinear segments are very close to each other (at the start and the end of the CL) and when Points used to defined setup vary in small amounts between CRD points and CL points (due to points import from ASCII files, with lower precision definition done during export), inexact erroneous results might have been possible when using STK Alignment procedures before the start of the CL and after the end of the CL. Now the issues have been solved, and more robust, numerical error checking have been put in place in the code.

## Improvements and Resolved Issues by Category

# GPS Instruments

## Altus

### *Version 2.50*

- If the static logging status is known, SurvCE will prompt the user to close any open static files when exiting the software.

### *Version 2.51*

- Changed “setFixReliability, RTK, 0.2, 3.00” to “setFixReliability, RTK, 0.2, 4.40”

### *Version 2.53*

- Added APS-3 V2 model using new WaveCom G24L GSM modem.
- APS-3: Veripos now supported. Select zone in instrument tab and Veripos in RTK tab.
- Improved responsiveness to cancel button.
- Antenna name now shown in RINEX files correctly.

### *Version 2.55*

- APS-3: Internal GSM/CDMA modem is turned off when switching to internal UHF or external cable.
- APS-3: COM2 RTS/CTS is turned on for Internal GSM/CMDA modem and Internal UHF modem. Turned off for all other devices.
- APS-3: Longer timeouts for connection to internet and connection to mountpoint.
- APS-3: RTK Reset improved.

### *Version 2.59*

- APS3V2: Internal UHF flow control now set to RTS/CTS.
- APS3V3: Internal GSM (WaveCom G24L) -- Network Disconnect now verifies disconnecting from IP and also disconnects from network.
- Highest available L1 S/N ratio now shown in satellite information.
- Antenna height is now sent to the receiver (All Trimble based GPS).

### *Version 2.62*

- Set Smoothing Interval has been removed.
- Improved communications.
- Eliminated error message when using non-LBand Septentrio.

## Ashtech

### *Version 2.50*

- For Ashtech ProMark 500 and ProFlex 500, a feature was added in the GPS Utilities section to perform a GPS calibration routine for Malaysia. This option will only appear when the Malaysian coordinate system is selected.
- Data Collector Internet: For Ashtech ProMark and ProFlex 500, the Data Collector RTK port selection is now hidden.
- Data Collector Internet for GPS RTK: Full Bluetooth support (cable-free!) is now available.

### *Version 2.52*

- Ashtech PM500 & ProFlex 500: The configuration screen for the GSM modem is now available again.
- Ashtech GPS: Monitor skyplot: Disconnect/Connect buttons no longer flash.

### *Version 2.53*

- SurvCE will no longer take an additional reading from the GPS when the user presses "Store" for Offset points.
- Connect and Disconnect buttons will be properly displayed in the Monitor screen when NTRIP connections are used.
- SurvCE will now start Data Collector Internet correctly (problem with this feature introduced in 2.51 build).
- Disconnecting from the internal modem in Direct Dial mode will now display "Disconnecting..." in the status screen.
- When connecting to a modem in the monitor screen, an hour glass will no longer appear in front of the prompt asking the user if they wish to connect.

### *Version 2.55*

- Zmax: Non-Ashtech radios may now be used on port D.

### *Version 2.59*

- MMCX: The internal GPS now works correctly.
- Promark, Proflex: Remove potential for unnecessary warning message: "Site ID repeated with separation of more than 300m".

### *Version 2.62*

- Zxtreme: Base and Rover are now connecting for RTK. Configuration of radio is successful.



## Carlson

### *Version 2.51*

- Fixed repeated popup of automatic DCI connection when network type is None.
- Connection to RTK networks not declared successful until first RTK message received.
- Now switches to Autonomous mode after 15 seconds of no RTK messages.
- When satellites are no longer being tracked, they are marked as unused.
- New checkbox in configure to only store verified positions.
- SurvCE will now reduce the position rate to match the logging rate to prevent creating points that cannot be processed.
- Added Connect and Disconnect buttons in Monitor along with Internet connection status.
- "Use SBAS" option defaults to off.
- Fix mode changes to Float after 10 seconds instead of default 60 seconds.
- SurvCE now automatically connects to RTK Network after 20 seconds of no corrections. If that attempt fails, user can connect using the Connect button in Monitor, GPS Utilities, or GPS Rover.
- Fixed problem with DCI baud rate.

### *Version 2.52*

- Surveyor+ GPS: No longer showing Amber Surveyor+ LED while logging.
- Surveyor+ GPS: LED blinks every 2 seconds instead of every 3 seconds when receiving corrections.
- Surveyor+ GPS: User is now warned to close log file before changing jobs.

### *Version 2.53*

- Comms tab options for baud, parity and data bits are grayed out.
- When "Stored Verified Fix only" is on, ""Fix not verified!" warning message only comes up when Fixed. If autonomous, "Position is not fixed!" message is shown.
- Using COM9 for RTK Bluetooth Port is more dependable now.

### *Version 2.55*

- Fixed memory deallocation problem when exiting SurvCE after logging a GPS file.
- Support added for Bluetooth Satel radio.

### *Version 2.56*

- GPS log files are now saved in the Data folder.
- GPS Logging now works correctly.

### *Version 2.58*

- Surveyor+ GPS now works correctly with external radios.

### *Version 2.59*

- Advanced dialog now has option to output NMEA on a data collector port (All Novatel or Sokkia based GPS).
- Advanced dialog now has option to output NMEA on a receiver port (All Novatel or Sokkia based GPS).

*Version 2.60*

- Super-G: Sat-view is now working.
- Super-G: The AntCom antenna is now shown in the list of antennae.

*Version 2.62*

- Super-G: A warning is now displayed for unregistered receivers.
- Super-G: The model name is now displayed with serial number.
- Super-G: The Skyplot and Satview are now displaying correctly.
- Surveyor+ GPS: COM1 through COM9 now shown for NMEA ports in Advanced dialog.
- Surveyor+ GPS: Log raw now works for a second file in the same job.

## CHC

### *Version 2.51*

- X90: Bluetooth communication was improved.
- X90: Glonass is now supported for this receiver. The user will need to turn the option on or off under the Advanced button from the Receiver tab.
- X90: Data Collector Internet is now supported over Bluetooth.

### *Version 2.53*

- New Models: X91E X91F,X91D,X90E,X90F,X90D
- X90: Bluetooth communication was improved.
- Added compatibility modes to Internal UHF.
- Frequency setting supported for new firmware.
- For Trimble based models, Data Collector Internet RTK port combo has "Data" option to send RTK corrections to the communication port.
- Continued work on CHC (Huace Nav) Novatel based models.
- Some language versions showed incorrect CHC model names. This has been corrected.
- Improved CHC cable and bluetooth communications.
- Firmware version now reported correctly.
- UHF configure dialog now works for cable.

### *Version 2.55*

- CHC/Novatel: Basic communication improvements.
- CHC/Trimble: RTK Latency now displayed correctly.
- CHC/Trimble: Sat on/off feature has been disabled.
- CHC/Trimble: Sat info now more stable.
- CHC/Trimble: Fixed communication problems introduced in 2.52.12.
- Cable connection improved for DCI RTCM3.
- SurvCE reconnects to Bluetooth automatically more often when receiver drops connection.
- Removed Power On/Off button from GPS Utilities.
- CHC Trimble tries to re-open the bluetooth connection more often now. This makes NTRIP configure more reliable.
- Continued improvements to OEMV based CHC models.

### *Version 2.56*

- Both used and total sats are now displayed in sat. view.
- Added Power off command to GPS Utilities.
- Improved communications, including communications with radios and GSM.
- The “Use Glonass” checkbox has been removed.
- Blue Sat LED now shown while using COM1 or UHF with RTCM 3.0.
- Connect button now more dependable for all Trimble-based models.
- Communication timeouts have been increased for all CHS Trimble models to prevent timeout failures.
- The RTK tab is now more reliable.

- SurvCE will now hold a fix better when using a UHF radio.

*Version 2.59*

- CHC 1918 -- Base setup has been improved.

## Geomax

### *Version 2.53*

- Antenna selection list has been corrected.
- SurvCE now correctly bonds to the base and rover antennas by Bluetooth.

### *Version 2.59*

- ZGP800: The correct antenna options will now be shown at the rover and base.

## Hemisphere

### *Version 2.61*

- S320 GPS: SurvCE will now successfully configure the receiver when mode is changed.

### *Version 2.62*

- R320 GPS: Data logging is now working.
- NTRIP mountpoints with long descriptions are now supported.

## Geomax

### *Version 2.58*

- Radio channels and GPS Work Mode can now be set correctly.

### *Version 2.59*

- V30: The antenna height has been adjusted with shmp offset of 0.0357 M. or 35.7 mm.

## Javad

### *Version 2.50*

- If the static logging status is known, SurvCE will prompt the user to close any open static files when exiting the software.
- Data Collector Internet for GPS RTK: Full Bluetooth support (cable-free!) is now available.

### *Version 2.51*

- Improved support for internal Javad GSM direct TCP/IP
- Internal GSM now working correctly.
- Latency now shown correctly.

### *Version 2.53*

- Added Spider Network support.
- Added support for Channel Spacing.
- Modem APN settings are remembered even after a factory reset.
- Now setting base antenna height for use in RTCM messages.
- Javad Sigma now uses modem "b" for successful use of internal UHF.
- Internal GSM modem driver now waiting for confirmation of disconnect before continuing.
- Javad HPT435/402 and ArWest AW435 now turns on scrambling with 255 instead of 1.

### *Version 2.55*

- Added new Javad antenna models.

### *Version 2.57*

- Base support of RTCM 3.0 is now working correctly.

### *Version 2.59*

- GSM modem driver now updated to support firmware 3.4.1.

### *Version 2.60*

- The UHF base radio setup now supports the Simplex Repeater option.



## Leica

### *Version 2.50*

- Leica CS09/RX900 & GeoMax: Configure Rover now offers "Bluetooth" for CS09 modem connections. Improvements made for RX900 rover radio configuration. Set Radio Channel and Internet Connect/Disconnect now work properly. Antenna selection is offered for the Rover to ensure correct bonding to the right antenna. Direct Dial Connect/Disconnect now implemented.
- Leica CS09/RX900 & GeoMax: Configuring the base through SurvCE is now supported.

### *Version 2.51*

- AG (Antenna to Ground) values in BP record will now be exactly as the user entered. PA (Phase center offset) record will be 0.0. Previously, PA value was L1 offset and AG value was user entered valued minus L1 offset.
- G1 vector record not reflects APC to APC vector. Previously, the vectors for Leica GPS only were relative to ground mark positions.
- G2 and G3 vector records now properly convert to correct covariance matrix values.

### *Version 2.53*

- Saved Leica GPS configurations now load correctly.
- Leica GPS: Log Static at the base is functioning properly.

### *Version 2.56*

- Support Added for GS15 GPS Receiver.

### *Version 2.57*

- Leica GPS will now always allow the use of Glonass. Previously this support was detected by querying the GPS.

### *Version 2.59*

- Viva: The modem and radio configuration dialogs have been rearranged. Communication specific setup has been moved into a second dialog to allow support for smaller screens.
- Viva: The "use external RTK antenna" option is now supported for all modems on port 3.
- Viva: Caster addresses are now limited to IP addresses for this driver. Entry of a URL will cause a warning.
- Viva: This driver is now available in the SurvCE PC emulator version of SurvCE.
- Viva: Prompt for power off when exiting SurvCE now works as designed. PowerOn/Off in GPS Utilities also working.
- Viva: SurvCE will now wait longer to establish an NTRIP connection, and properly report the error when connection fails.
- Viva: Added workaround that fixes the double buffer of the display driver inconsistency deployed with Leica Viva 4.0 Firmware, which was making the complete refresh of the

SurvCE MAP incomplete. Now the MAP completes the refresh.

- Viva: SurvCE will no longer have a delay when storing points with vectors.

*Version 2.61*

- Viva: GPS will now configure as a base properly, with no errors.

## Navcom

### *Version 2.55*

- Support added for SF3040, including internal radio.
- SF3040: Support of DGPS Starfire GNSS. Starfire with Differential corrections for GLONASS.
- SF 3040/3050: Changes to QuickStart. Quickstart will send Lat/Long of selected position and converge to point. Queries the Quickstart every second until the quickstart succeeds or fails due to proximity.
- SF 3050: Quickstart Convergence timeout has been increased to prevent periodic timeout failure. Status dialog has been updated to give more accurate status feedback.

### *Version 2.58*

- GPS Average for QuickStart now uses metric values for NORTH and EAST and calculates LAT/LON correctly.
- Added Message Type START1B to log file. This message stores equipment information including Serial Number.
- NAV\_ANT3001R Changed to SF-3040 and antenna values have been updated.
- NavCOM StarFire now defaults on. Option to disable within in SurvCE has been removed. Starfire can now only be turned off with Send Command.
- SurvCE will now Store Serial Number to RW5 file when storing points.
- SurvCE will now display Solution Failure codes in Warning message when position is not fixed.

### *Version 2.59*

- 2050/Older Models: Fix for Data logging. Fixes 'Port Not Found' bug.
- Starfire: Ortho elevation now correctly converted for QuickStart with UserDefined and Dane Projections.
- Starfire: In Quick Start with Map Selection of point, the pop up dialog will now close as expected.

### *Version 2.62*

- 3040/3050: SurvCE will now get a correct position in Survey Offsets.
- 3040/3050: SurvCE will now show base reference information.
- Sapphire: GPS offsets now working. Get single position has been repaired.

## NMEA GPS

### *Version 2.57*

- GPS Time now gets day from system clock if unavailable in NMEA messages.
- More information is now parsed out of the NMEA messages in order to provide more complete information.

### *Version 2.58*

- NMEA driver now supports baud rates from 1200 to 119200.

### *Version 2.59*

- Parsing of satellite information has been improved.
- GSA record no longer used to create a GDOP value.

## NovAtel

### *Version 2.50*

- NovAtel OEM4 and Sokkia GSR2700ISX - If an undulation value other than 0.0 is detected in the position message, SurvCE will send a command to the receiver to set it back to 0.0.
- If the static logging status is known, SurvCE will prompt the user to close any open static files when exiting the software.

### *Version 2.51*

- SurvCE will now reduce the position rate to match the logging rate to prevent creating points that cannot be processed.

### *Version 2.53*

- When "Stored Verified Fix only" is on, ""Fix not verified!" warning message only comes up when Fixed. If autonomous, "Position is not fixed!" message is shown.
- OmniStar Novatel V3: Added Base ID to OmniStar Position page.
- OmniStar Novatel V3: Subscription Status and Expiration Date bug fix.

### *Version 2.55*

- SPAN: INS now shown when INS is active even when fix not verified.

### *Version 2.59*

- Base configuration now sets broadcast ID.

### *Version 2.60*

- Base configuration
- The satellite view now shows the satellites in use more accurately.

## Pentax

### *Version 2.53*

- Support added for SMT888-3G GPS
- Support added for G3100-R1 GPS
- Support added for antennas 3100-R1 and SMT888-3G.

### *Version 2.55*

- Support added for SMT888-3G V2 GPS

## Spectra Precision

### *Version 2.62*

- Epoch 50: Speed is improved when storing points and navigating between menus.
- Epoch 50: Antenna information has been updated.
- Epoch 50: Now retrieves battery status.
- Epoch 50: Data collector internet is now supported.

## Septentrio

### *Version 2.50*

- If the static logging status is known, SurvCE will prompt the user to close any open static files when exiting the software.

### *Version 2.51*

- Changed “setFixReliability, RTK, 0.2, 3.00” to “setFixReliability, RTK, 0.2, 4.40”

### *Version 2.55*

- PolarRx GPS: Fixed bug that caused Port configuration for Septentrio to Fail.

### *Version 2.62*

- Septentrio Antenna offset now correct with or without the receiver having an antenna definition file.



## Sokkia

### *Version 2.50*

- OmniStar frequencies were updated for current values.
- NovAtel OEM4 and Sokkia GSR2700ISX - If an undulation value other than 0.0 is detected in the position message, SurvCE will send a command to the receiver to set it back to 0.0.
- If the static logging status is known, SurvCE will prompt the user to close any open static files when exiting the software.
- Data Collector Internet for GPS RTK: Full Bluetooth support (cable-free!) is now available. Some limitations may apply based on your data collector's Bluetooth capability.

### *Version 2.51*

- 2700 internal Satel radio fixed and improved.

### *Version 2.55*

- Support added for GRX1.
- The "use sbas" option will now default to FALSE for all Sokkia GPS.

### *Version 2.56*

- The "use sbas" option will now default to FALSE for all Sokkia GPS.
- 2700: Direct Dial for Sokkia internal Nokia modem now working.

### *Version 2.59*

- GRX1: Now supports GSM with FH915+.

## South

### *Version 2.53*

- South models and antennae are now shown as “S82-T”, “RTK S82-2008”, “Star S86”.
- For Trimble based models, Data Collector Internet RTK port combo has "Data" option to send RTK corrections to the communication port.
- S82: Stonex/South S82 now only searches for 115200 baud.
- Error estimates have been changed from SEP and CEP to HSIG and VSIG to match Trimble documentation. Error estimates from the receiver are "1 Sigma" meaning 68% of measurements will be within the given distance.
- S82 no longer setting COM3 to serial mode. This was causing modem trouble.

### *Version 2.55*

- Support added for S82-V and S86-T GPS receivers.
- S86-T: Correct antenna is now used.
- S82+T: Bluetooth more dependable now when setting up the base.

## Stonex

### *Version 2.51*

- S82: Query of current channel for internal UHF radio now works properly.

### *Version 2.52*

- S9: Internal UHF more dependable

### *Version 2.53*

- S9: Added STX\_S9 antenna.
- S9: Added Internal UHF radio for base.
- Support added for new S8 model.
- For Trimble based models, Data Collector Internet RTK port combo has "Data" option to send RTK corrections to the communication port.
- S82: Stonex/South S82 now only searches for 115200 baud.
- Error estimates have been changed from SEP and CEP to HSIG and VSIG to match Trimble documentation. Error estimates from the receiver are "1 Sigma" meaning 68% of measurements will be within the given distance.
- Rover now shows Base ID and writes it RW5 file.
- Empty DNS entry now allowed in Configure Internal GSM.
- Wait times for connecting internal modem have been increased.
- S82 no longer setting COM3 to serial mode. This was causing modem trouble.

### *Version 2.55*

- S9: Bluetooth more dependable now when setting up the base.

### *Version 2.56*

- The S6 GPS Receiver is now supported for (Stonex special label version only).

### *Version 2.57*

- S9: Internal UHF channel changing now more reliable.
- S9: Network disconnect improved.

### *Version 2.60*

- S9III: SurvCE will no longer attempt to send unsupported antenna commands to receiver.

### *Version 2.62*

- S9III: The antenna information for L1/L2 has been corrected.
- S9III: SurvCE has been updated to support new firmware by removing old commands.
- S9III: Now supports logging raw vectors.
- S9III: SurvCE will no longer override auto-connect if configured by the user.
- S9III: SurvCE will now properly compute the baseline for logging raw vectors.
- S9III: Data collector internet is now supported over the data port.



## Topcon

### *Version 2.50*

- Topcon Hiper GA and Topcon Hiper GB models were added to the selection list.
- If the static logging status is known, SurvCE will prompt the user to close any open static files when exiting the software.
- Data Collector Internet for GPS RTK: Full Bluetooth support (cable-free!) is now available.

### *Version 2.51*

- Topcon Log GPS now enabled and writing correct log file header.

### *Version 2.53*

- Topcon Log GPS now enabled and writing correct log file header.
- Added “Internal Satel” to Hiper Plus and GR-3
- Topcon/Sokkia GRX-1: Ports in RTK tab are now shown correctly in Base Configuration.

### *Version 2.55*

- Support added for Topcon Hiper II.

### *Version 2.56*

- Support added for Topcon GR-5 GPS Receiver.

### *Version 2.59*

- Hiper II: Now supports GSM with FH915+.

### *Version 2.60*

- GRS1: Support added for both COM6 and COM7 on Topcon GRS1. Radio ports A, B, and C now available.

### *Version 2.62*

- Added support for Topcon Digital UHF || internal radios. Both original and version II are supported by the “Internal Digital UHF” option.
- Topcon Firmware greater than 3.5 now shows better RMS values for VRS mountpoints.

## Trimble

### *Version 2.50*

- Data Collector Internet for GPS RTK: Full Bluetooth support (cable-free!) is now available. Some limitations may apply based on your data collector's Bluetooth capability.

### *Version 2.53*

- Rover now shows Base ID and writes it RW5 file.
- Trimble GPS: Data Collector Internet RTK port combo has "Data" option to send RTK corrections to the communication port.

### *Version 2.59*

- Trimble based drivers now support sending NMEA from receiver port.

# Total Station Instruments

## Carlson

*Version 2.62*

- CR2/CR5: Now supported by the Carlson Surveyor

## CST

*Version 2.62*

- Set angle now working correctly.



## Foif

### *Version 2.55*

- Foif TS 630/TS650: The Foif total station models have been renamed and more clearly defined.

### *Version 2.57*

- SurvCE can now set the horizontal angle on all Foif models.

## Geodimeter/Trimble

### *Version 2.55*

- SurvCE will now reinitialize the radio if it detects that it has been turned off.

### *Version 2.57*

- SurvCE will no longer freeze when taking backsight readings, and will track better. There was potential for problems in the reflectorless models.

## Leica

### *Version 2.50*

- Leica Total Stations: Powersearch now supports search left and search right from the joystick page.

### *Version 2.53*

- SurvCE will no longer reset the field of view and visibility settings to defaults.
- Leica 1100TS: The guidelights will now work properly on the Leica 1100 Robotic.

### *Version 2.54*

- Leica 1100 Robotic: Prism offsets now set correctly.
- Leica 1200 Direct: LeicaRobust and GRZ121 prisms removed from list. Not supported by this instrument.

### *Version 2.55*

- Laser pointer will now stay on after reflectorless shots, and after EDM mode.
- Reflector-tape now works properly for all Leica models.
- The custom target dialog will now show the adjusted Leica offset in a static line at the bottom for more clarification.
- The Leica 1100 will now set the prism constant correctly.

### *Version 2.56*

- Support added for TS15 Leica Viva Total Station.
- The target type will now switch correctly when changed via Store Points->Instrument Setup->Robotics Tab->Settings method.
- Prism records in raw file will now consistently write only the physical prism offset (as opposed to the Leica offset).
- TS1100: Prism constants now work correctly (broken in 2.53).
- TPS1200 will no longer get into a state where angles are frozen in SurvCE but will still store. New error message has been added to prevent such a problem should it happen in the future.

### *Version 2.59*

- Leica total stations now support the connect icon in equip->total station. This allows for a quick communication test.
- TPS 100: SurvCE will now set prism constants correctly on the Leica TPS 100.
- SurvCE can now create user-defined prisms on the Leica total station with type "TAPE".
- Leica RTS will no longer attempt to use ATR, lock or tracking on a user-defined target sheet target.

### *Version 2.60*

- Leica power search Left/Right directions have been reversed. Labels have been shorted to

improve spacing of dialog.

*Version 2.62*

- Viva TS: CTR16 bluetooth radio is now supported (on 4.50 firmware)
- Leica 1200/Leica Viva: The total station no longer has the potential to get into a state where the horizontal angle does not update.
- Leica 1000: The total station will now lock correctly after a search.
- SurvCE now supports using the internal modem of the CS15 (data collector internet) to receive corrections.

## Nikon

### *Version 2.55*

- A new “Sokkia Mode” options is now available under the model list for Nikon.

### *Version 2.57*

- Nivo models will now show correct options for prism and target type.

### *Version 2.62*

- The timeout for communication has been increased accommodate to older models.

## Sokkia

### *Version 2.50*

- Sokkia SRX: General improvements were made to communication and speed of communication.
- Sokkia SRX: SurvCE will now ensure next reading is current after storing a point in store points.

### *Version 2.52*

- Increased timeout on command to change target type.

### *Version 2.53*

- Support added for SRX-X Total Station.
- Support added for Sokkia NET Total Station.
- The "old firmware detected" warning message now only applies to the SRX and newer. Older instruments will not report this message.
- Sokkia RTS: If the user presses the "RC Search" button on the joystick page, and they are already locked on a prism, they will be prompted whether they want to force an RC search. This allows the user to force the instrument to move off of a reflective item that is not a true target.
- The "Run remotely" setting has been renamed to "Robotic Mode" and the functionality of that setting has been restored. When "Robotic Mode" is disabled, SurvCE will consider the SRX to be running in manual mode, with perspectives from the total station, and not the pole.
- Sokkia SRX: The command to start tracking can now be canceled.
- Sokkia SRX: The "Use RC" and "Robotic Mode" settings are no longer linked. The user may choose these as independent settings.
- Sokkia SRX: Sokkia SRX now supports the laser pointer.
- Sokkia SRX: If running Sokkia as a non-robot, SurvCE will show the building-face survey routine.
- Sokkia SRX: If running Sokkia as a non-robotic, SurvCE will not attempt to start tracking when entering the store points or stake points routine.
- Sokkia SRX: If running Sokkia as a non-robotic ("Robotic Mode" disabled in total station setup), SurvCE will not attempt to lock or track after a reading if in standby mode.
- Sokkia SRX: When tracking icon is pressed, SurvCE will now use "rapid repeat" mode if EDM mode Fine or Rapid is selected. SurvCE will use "tracking" mode only if EDM mode Tracking is selected. "Rapid Repeat" mode is more accurate, but slower. "Tracking" is faster but less accurate.
- Sokkia TS: The BS Search method parameter is now used in the backsight routine.
- Sokkia TS: SurvCE will now pause between setting the angle and taking the next reading. SurvCE will also properly report errors if an angle reading fails.
- Sokkia TS: The default atmospheric parameters are now assigned correctly and are now set to produce a 0.00 ppm.
- For the Sokkia SRX-X, SurvCE will check the distance units in the instrument each time a reading is taken and before starting the stream.

### *Version 2.55*

- SRX-X: SurvCE will check the distance units in the instrument each time a reading is taken and before starting the stream, to account for potential firmware problem where units on instrument change spontaneously.
- SurvCE will now start tracking properly when entering elevation difference routine.

#### *Version 2.57*

- SRX: A user-defined prism constant can now be set. There was a potential error for typed-in values in previous versions.

#### *Version 2.59*

- SRX: The RTS will no longer fail on first reading after tracking is lost. This happened when the reading triggered an automatic search.
- All: Sokkia total stations now properly send the angle in GONS when in gons mode and using "turn to hz in stakeout".
- The Sokkia total station will no longer have the propensity to get a bad prism constant when switching target types via complete profile switch.

#### *Version 2.60*

- SRX Onboard Version: The SRX Autopoint driver is no longer available.
- Set-X Onboard Version: Driver improvements.
- SRX: SurvCE now offers the ability to change the A.T. Setting of the total station.

#### *Version 2.62*

- SRX Onboard Version: SurvCE will no longer show an error when exiting if continuous angle updates is enabled.
- SRX: SurvCE will now send the new prism type when changing between the Sokkia 360 and Sokkia standard prisms.
- All: The timeouts for setting backsight have been increased due to customer reports of timeout when using Bluetooth.
- SRXX: SurvCE will no longer fail with "unable to turn" error when performing robotic sets on the Sokkia SRXX total station.
- SRXX and newer: The "old firmware detected" message will not be posted for models SRXX and newer.

## South

### *Version 2.60*

- NTS350: The South NTS350 can now set the horizontal angle, and will take shots without failure.



## Stonex

### *Version 2.55*

- Support added for Stonex R9 total station, for Stonex private label version only

## Topcon

### *Version 2.53*

- Support added for Topcon QS Total Station.
- Support added for Topcon MS Total Station (including onboard support).
- Topcon QS: Support added for RC-4 with build in radio.
- Topcon RTS/Optical communication: Timeout for reading commands has been increased when communicating optically.
- Topcon RTS/Optical communication: SurvCE will now immediately attempt to stop streaming after establishing a link with the RC unit. This reduces error messages.
- Topcon RTS/Optical communication: If the software fails to start tracking, and optical communication is selected, the software will not attempt to stream angles.
- Topcon RTS/Optical communication: If the software stops receiving distances from the instrument, it will no longer auto-switch to angles only mode.
- Topcon RTS/Optical communication: The software now always stops streaming data after a quick lock.
- Topcon RTS/Optical communication: SurvCE will detect when the optical connection has been lost and limit commands sent to the instrument until connection has been reestablished.
- Topcon RTS/Optical communication: SurvCE will now cancel an RC search effectively
- Topcon RTS/Optical communication: SurvCE will not attempt to stop streaming before searching or establishing link if using optical communication. This eliminates communication errors.
- Topcon RTS/Optical communication: Set Angle and Check Angle are now supported in RC-only mode.
- Topcon RTS/Optical communication: SurvCE will now attempt to retry up to five times when the command to stop streaming is ignored, unless there is no response from the unit. This reduces error message for failed communication.
- Topcon RTS/Optical communication: The Topcon will now go into standby mode, dropping communication, when the standby button is pressed. The software will recover communication when tracking or search icons are pressed.
- Topcon RTS: The RC configure dialogs now show the correct defaults and options based on which RC is selected.
- Topcon/South: Topcon/South/Arise instruments will now work properly when instrument is in Feet/Inches mode.

### *Version 2.54*

- Topcon GPT (non-motorized): Prism icon in survey screens will now switch properly between IR/RL mode

### *Version 2.55*

- Support added for Topcon QS running in direct mode.
- Topcon 9000: The Topcon 9000 now supports both the RC3 and the RC4.
- Topcon RTS/Optical communication: The RC2 now supports both 4800 and 9600 baud rates.
- Onboard versions: SurvCE will now display the correct angles, regardless of how the units in the total station are configured.

- Topcon QS: When connected to RC4 radio, the "RC Search" button will always show on the joystick page.
- Onboard versions: The target switch icon will now effectively switch between prism and reflectorless.
- Topcon GPT non-motorized: SurvCE will now properly switch from IR to RL using the prism icon from the store points screen.
- The X and Y labels on the check-level dialog now display correctly.
- "Dip Switch" messages now only applies to the RC2.
- The total station setup pages now update appropriately when communication is changed from optical to standard.
- Before performing an RC search, SurvCE will now PING to ensure the connection to the RC has not been dropped, and reconnect if the ping fails.

#### *Version 2.56*

- Topcon robotic total stations will now perform an RC search correctly when not connected to RC, and button is pressed manually.
- Topcon robotic total stations will no longer perform a search when user attempts to take a backsight shot in reflectorless mode.
- Topcon total stations will now correctly set the angle when unit is set to gons and configured in direct mode.

#### *Version 2.59*

- 800/8000/900/9000: The RC search will now trigger and complete properly when not connected to the RC.
- The Topcon RC2/RC3/RC4 unit now allows a connection by y-cable. This was not working properly in some previous versions.
- RC4: Fix misalignment between radio enumerations and strings.
- Topcon total stations will now support the ETX\_CR terminator when selected in the total station.
- The Topcon TS will now properly turn to points in advanced occupation regardless of target type.
- SurvCE will no longer attempt to perform an auto-search when target is reflectorless in Advanced occupation.

#### *Version 2.60*

- 800/8000/900/9000: The RC search will now trigger and complete properly when not connected to the RC.
- All Topcon RTS: The FC200 internal radio is now available for all Topcon robotic instruments.

#### *Version 2.62*

- Topcon PS/ES/MS: The "old firmware detected" message has been removed.