



Release Notes
1.50.010 to 1.67 Changes and Enhancements

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Important Messages!

- **Sokkia GPS Users (1.65):** We updated the antenna offsets for the Sokkia GSP 2700 IS to match NGS published values. This could affect all previous jobs and localizations.
- **Topcon GPS Users (1.65):** We added additional support for the GR3 model including corrected antenna offsets and radio commands. This may affect all previous jobs and localizations.
- **Leica GPS Users (1.62):** For the Leica System 1200, SurvCE now sets the “Moving Height” value. If you localized in older versions of the software and had not set the “Moving Height” to 0.0 in the Leica controller, you will need to check a point surveyed with the old localization before continuing the job with the new software. If there is an elevation discrepancy, the localization will need to be modified or redone.
- **Leica GPS Users (1.62):** You must have firmware version 2.14 or higher.
- **South TS Users (1.62):** The new firmware is not supported due to the lack of remote commands. South is working on adding the commands, but until they do, customers must use V05.11.24.

General

- **General (1.65):** Added a utility to the install that will allow the user to search their device and find all coordinate files.
- **GPS Raw Data (1.64):** PDOP will now be recorded along with the GPS accuracies to the raw data file for instruments that report it.
- **Portuguese (1.63):** Made small text corrections.
- **Portuguese (1.63):** This is now available for Triton as well as SurvCE.
- **Spanish (1.63):** This is now available for SurvCE.
- **Windows Mobile 5 (1.62):** Added install for this OS.
- **Bluetooth (1.62):** Changes were made to better support Bluetooth devices with PINs on the AllegroCX.
- **Bluetooth (1.62):** Made corrections for the AllegroCX version was not using "powerex.exe". This was affecting reconnect attempts and re-bonding with Bluetooth after a power cycle. This affects all instrument connections with the AllegroCX.
- **Auto-Point Number (1.61.03):** For total stations, the next point to store will be reset when you start any data collection routine. Previously, if the user had entered points manually through other routines, it was possible for the next point to store to be wrong.
- **Raw Data - GPS Local Base Coordinate Note (1.61.03):** When writing the GS note record to the rw5 file for the base reference point, "LA" and "LN" were used in place of "N" and "E". Most raw processors take this record as a note only, so there will be no impact.
- **Prompted Feature Code List (1.61.03):** In the Store Point Dialog, if a description is found in the list of descriptions, that code is now in view rather than the first code in the list.
- **Raw Data Correction - Duplicate Setup (1.61.03):** Corrected an issue where the setup data could be written to the raw file twice.
- **GIS Data (1.61.01):** Fixed the issue where if SurvCE was running and the data collector was rebooted, the IDs for the polyline entities with GIS data attached were lost.
- **Hotkeys (1.61.01):** In the routines that have the TEXT/GRAPH modes, Alt+Y will switch the user between them.
- **Raw Data Correction - GPS (1.61.01):** A BP record will not be written to the rw5 file if the base coordinates read are invalid (0,0,0).

- **Raw Data Change - TS (1.61.01):** After Backsight Check, the note records in the rw5 file will now match the displayed distance units (e.g. feet & inches).
- **SurvStar Folder (1.61.01):** The program will protect the folder where SurvCE is installed (SurvStar folder) against any reading/writing attempts from within the software. The user will not be able to read/write user files to that folder to avoid the case where some of the files in that folder (program files) might have extensions that could conflict with the regular user files.
- **Windows Mobile 2003 (1.61.01):** Added support for Windows mobile 2003 Landscape devices.

MAP

- **ALL or TOTAL (1.63):** Either word can now be used to select all entities in the MAP screen.
- **Point at Interval Along Entity (1.63):** The Point ID label was hiding the text of the OK and Cancel buttons.
- **Slope Report (1.62):** Added Maximum/Minimum Elevations to the report.
- **Export SHP File - Projections (1.61.07):** Added option to select a projection when exporting a SHP file.
- **Export SHP File (1.61.07):** When exporting SHP files from the data collector, especially on an Allegro CE 3.0 OS, the date and time setting of the system could be lost. Point Names (9 characters) and automatically generated Linework IDs (based on the time and date also 9 characters) would get out of sync and would cause the Export routine to fail.
- **Layer Colors (1.61.03):** Added support for layer colors on the New Ranger.
- **Point Details (1.61.03):** Added a delete button to this dialog. This allows the user to touch a point graphically and delete it.
- **Area (1.61.01):** When using GPS coordinates (drawings that have polylines with vertices located at north and east values in millions), the Sliding and Hinged area routines in MAP were failing. Also added options to allow the user to input the target area using the following suffixes (1.61.01): SF (square feet), SY (square yards), SM (square meters), SMI (square miles), A (acres), H (hectares) SIF (square international feet).
- **Extend (1.61.01):** Added the option to extend lines.
- **List (1.61.01):** Added the 2D and 3D perimeter data to the listed data of a 3D polyline.
- **Offset Segment (1.61.01):** Added the option to offset a segment of a polyline.
- **Slope Report (Surface Area) (1.61.01):** Added a new feature that will report the surface area of the selected data. Point and 3D polyline data can be used or select an existing Carlson surface file. The user can also limit the reported area by using inclusion and/or exclusion boundaries.
- **MAP (1.61.01):** Corrected the issue where if the Layer Manager was initiated by clicking on the LAYER NAME, the MAP screen was closed.

File

- **Store GPS Accuracy in Raw File (1.63):** This Job Settings toggle will now be on by default.
- **Import/Export ASCII (1.62):** Decimal precision was defaulting to zero.
- **Configure Reading - Continuous Angles (1.62):** Corrected issues that would lock up the TEXT mode dialogs.
- **Import/Export ASCII (1.61.08):** Export ASCII now retains the last used settings.
- **Configure Reading - Average Direct and Reverse (1.61.07):** Added “(Vertical Only)” to the checkbox in Configure Reading for “Average Direct and Reverse”. Label change only.
- **Feature Code List - Special Codes (1.61.07):** Added support for Geopak (OH DOT) and InRoads (WA DOT) coding formats. For OH DOT the user must check on the Special Codes - Settings option “Store GIS Data to Vertices”. Export ASCII will format the appended attributes per the OH DOT standards if Geopak (OH DOT) is the current method of coding.
- **Stakeout - Set Cutsheet Format (1.61.03):** The slope stake description window did not scroll with the arrow keys.
- **Stakeout - Precision (1.61.03):** The precision setting was not working. Now all stakeout data will be rounder by the setting in Job Settings.
- **Configure Reading - GPS (1.61.01):** Added an option in Configure Reading to specify the action of the Enter key. The user can select “Store Only” to just store the last complete reading (past behavior) or “Read and Store” to store the next complete reading (now the default). The “Read and Store” option will eliminate any buffered readings from being stored.
- **Continuous Angles for TS (1.61.01):** Added an option in Configure to have SurvCE report continuous angle updates.
- **Data Transfer - C&G (1.61.01):** Changed “C&G/TDS Transfer” to “TDS Transfer” and changed “Carlson Transfer” to “Carlson/C&G Transfer”. The C&G PC software now supports the SurvCE download protocol. However, you must have the latest version of the C&G download software.
- **Feature Code List (1.61.01):** Added support for two GeoPak and the TMOSS coding methods.
- **Feature Code List (1.61.01):** Added the option for a user defined code separator. Carlson typically separates all codes by a space (e.g. TC1 TC2). Now the user can choose to separate them with a special character (e.g. TC1.TC2).

- **Feature Code List (1.61.01):** Added the option for a user defined string designator. Any number that immediately follows a line code is considered the string number since Carlson Software does not require a string separator (e.g. TC1). However, some products use a special character. Therefore, the string separator can be changed from None to any single character (e.g. TC.1).
- **Feature Code List (1.61.01):** Also added support for the RECT command to close a rectangle by three points.
- **Import ASCII (1.61.01):** The routine has been updated so it allows the user to import of range of points from a TEXT ASCII file. It also now has details about the points available for TEXT ASCII files and CRD files and reports the number of the points imported and the job name in which the points have been saved. The most recent settings will be retained upon returning to the routine.
- **Job Settings - GPS - Projections (1.61.01):** Corrected the Hungarian “Oblique_Mercator_EOV” transformation.
- **Job Settings - GPS - Projections (1.61.01):** For Transverse Mercator projections, the zone width was always set to 6, no matter what the user entered. The zone width will now set according to the user input.
- **Job Settings - GPS - Projections (1.61.01):** If the coordinate system was changed on the GPS tab, the settings were not being applied without selecting OK.
- **Job Settings - Options (1.61.01):** Added support for Easting - Northing coordinate order.
- **Job Settings - Units - Feet and Inches (1.61.01):** Added support for feet and inches. 10” can be entered as “.10” as well as “0.10”.
- **Job Settings - Units - Feet and Inches (1.61.01):** The results in the Backsight Check screen and the Remote Benchmark screen will now be displayed with feet and inches, not decimal feet.
- **List Points & MAP (1.61.01):** The routines Find Point in MAP and Find in the List Points dialog and Isolate Points in Map now have the capability to accept multiple descriptions and wildcards. The descriptions must be <;> separated, as in the next example (1.61.01): TREE*;MAN*.

Equipment

General

- **Monitor/SkyPlot - Ref - Store Point (1.65):** This routine now supports mixed GPS hardware.
- **Tolerances (1.64):** The stakeout tolerances were not being accepted when changed in 1.63.
- **Battery Icon (1.63):** This icon was not updating properly on the Allegro.
- **GPS General (1.63):** If the antenna radius is zero in the antenna list, the slant measurement option will be disabled.
- **Tolerances (1.62):** Angle Tolerances can now be entered as GONS if GONS is the selected angular format.
- **Depth Sounders (1.62):** The selection list for Depth Sounders was ordered incorrectly, such that Odom Digitrace and Innerspace were switched. For the Innerspace Depth sounder, the input was incorrectly being reported as -765432.1.
- **Localization (1.61.08):** When the LOC localization file format was used with a geoid and the projection used was not NAD83 or NAD27, the geoid was incorrectly applied twice.
- **Localization (1.61.08):** When the LOC localization file format was used, an incorrect warning of “Geoid file does not match localization file” would appear to the user when exiting the File/Job Settings screen. This false warning message did not affect any data.
- **Allegro CX Bluetooth (1.61.07):** Changes made to better support Bluetooth devices with PINs on the Allegro CX.
- **Monitor/SkyPlot (1.61.03):** When going to Monitor/SkyPlot with a geoid selected in Job Settings, if the geoid needed to be loaded, there was no “Loading Geoid” message displayed. Furthermore, it was possible for the geoid to be loaded twice unnecessarily.
- **Bluetooth (1.61.03):** Enhanced the Bluetooth interface to reconnect between sessions and power on/off.
- **Comm Setup (1.61.01):** The “Find Bluetooth Port” button will now be shown in Equip/Comm Setup for all instruments except GPS Simulation, Manual Total Station, Leica GS50 and Leica Wild Series.
- **GPS Simulation (1.61.01):** Modified GPS Simulation to get to “Fixed” faster.
- **GPS Simulation (1.61.01):** Text change in Receiver Utilities. The screen now points out that the input for starting lat/lon should be in decimal degrees.
- **Localization - Helmert (1.61.01):** Added the ability to define a Localization using the 7 parameter Helmert method. You must select this option in Job Settings → GPS →

Multi-Point Transformation for it to be used.

- **Localization (1.61.01):** Added a new file format (*.LOC) that now allows users to switch projections after the localization has been created. The former file format (*.DAT) is still supported and can still be created by selecting this extension from the file filter.

Geodetics

- **Geodetics (1.63):** Added support for using this product with Windows Mobile 5.

Leica

- **Leica TS (1.67):** Added mini-360 prism option.
- **Leica GPS (1.65):** Added a toggle in Configure Rover for “Send Rover Position to Network”. This will send the position in a GGA formatted message to the base once every 5 seconds.
- **Leica GPS (1.65):** Added support for both the Siemens MC45 (GFU17 housing) and MC75 (GFU24 housing).
- **Leica GPS (1.65):** After configuring the base, the name of the antenna used at the base was always written as "Unknown" for Leica GPS. It will now record the correct antenna name.
- **Leica TS (1.64):** The reflectorless icon will now turn off and on ATR if ATR is on.
- **Leica TS (1.64):** The reflectorless icon would interrupt continuous angles.
- **Leica TS (1.64):** If using Continuous Angles in Stakeout, the slope distance would continuously read 0 between readings.
- **Leica TS (1.64):** Tracking was not starting and stopping reliably in between routines.
- **Leica TS (1.63):** Dist icon now returns instrument to prism mode if it was previously in reflectorless mode.
- **Leica TS (1.63):** If the instrument was locked and the user entered Resection, tracking would start.
- **Leica TS (1.63):** If the instrument was tracking, the reflectorless icon would not respond.
- **Leica TS (1.63):** PowerSearch was not functioning properly in Resection.
- **Leica TS (1.63):** Returning from the Configure button in the Instrument Setup dialog would start tracking mode on the EDM.
- **Leica TS (1.63):** SurvCE displayed a slope distance of 0.0000 after exiting form the setup/joystick page when in locked mode. We no longer show slope distance when only locked and not tracking.
- **Leica TS (1.63):** The Dist icon did not start distances the first time it was pressed after exiting form the setup/joystick page.
- **Leica TS (1.63):** The prism offset value on the 700 series instruments would fail to reset to the previous prism offset when returning from reflectorless mode using the icon.
- **Leica GPS (1.62):** Added “Other” as an antenna type for the Leica GPS base and static logging routines.

- **Leica GPS (1.62):** For the Leica System 1200, SurvCE now sets the “Moving Height” value. IMPORTANT - If you localized in older versions of the software and had not set the “Moving Height” to 0.0 in the Leica controller, you will need to check a point surveyed with the old localization before continuing the job with the new software. If there is an elevation discrepancy, the localization will need to be modified or redone.
- **Leica GPS (1.61.07):** Using User Defined modem, if the IP address was a full 15 characters and the port a full 4, the software did not send the modem dial command properly. Also, it was possible for the IP port to be set to 0.
- **Leica GPS (1.61.03):** For the Leica 530 series GPS, when logging baseline ascii data is turned on and the job is not metric, the rover elevation was incorrectly converted from metric to feet twice.
- **Leica GPS (1.61.01):** For System 500/1200, the configuration will be properly set to the receiver when the user says OK in the Receiver Utilities screen for all non-modem RTK devices. Previously, the configuration was only set when the user changed the channel on the radio.
- **Leica GPS (1.61.01):** Replaced the text “Phone Number (1.61.01):” with “IP Address (1.61.01):”.
- **Leica GPS (1.61.01):** Added support for external User Defined modems (e.g. Airlink CDMA).
- **Leica GPS (1.61.01):** Disabled the option for “Slant Height” in log static data.
- **Leica GPS (1.61.01):** For System 1200 GPS, static files will be properly deleted from the storage card under the Log Static Data feature. It is recommended for the user to power down and power on the receiver after deleting files from the card.
- **Leica GPS (1.61.01):** For System 1200, added the ability to Log Baseline Data.
- **Leica GPS (1.61.01):** For System 1200, changed the way that antenna information is supplied to the receiver to ensure accurate “ARP” values.
- **Leica GPS (1.61.01):** For System 1200, if a static site is currently logging, Configure Rover will not close it. Previously, the site was closed with the name “ABC”.
- **Leica GPS (1.61.01):** For System 500/1200 GPS, the message type RTCM was renamed to RTCM 2.1 and RTCM 2.2 was added as an option. For the Leica System 1200 RTCM 2.3 and RTCM 3.0 are available as well.
- **Leica GPS (1.61.01):** For System 500/1200 GPS, the user can now get to the Log Static screen even if a position is not currently available.
- **Leica GPS (1.61.01):** For System1200, “Leica GSM Modem” was removed since this

option is not supported at this time. Added "Intuicom 1200 DL" in its place. This feature will now control the Intuicom DL radio. When setting channels 12 and higher (special channels) no confirmation will be given of success and the status will be unknown. For all other channels, the status will be reported to the user.

- **Leica GPS (1.61.01):** For the Leica GPS, added the ATX1230 antenna with options for Pillar, Pole, SmartStation and Tripod.
- **Leica GPS (1.61.01):** Replaced "MultiTech" modem selection with "Internet Connection" since this modem is not supported at this time. The user will be warned that connecting and disconnecting with this option must be done through the Leica controller software.
- **Leica GPS (1.61.01):** When powering on the receiver through Receiver Utilities, the program would incorrectly report that the unit was "Powered Down".
- **Leica GPS (1.61.01):** When the user hit OK from the Utilities tab of the Configure Reading screen, it was possible for re-initialization of the instrument to occur even if the modem was connected.
- **Leica TS (1.61.01):** Fixed the case where the reflectorless selection would disable the tangent screws.
- **Leica TS (1.61.01):** Fixed the cases where the software would report standby even though the instrument was locked.
- **Leica (1.61.01):** Bluetooth connections are now possible with Leica System 1200 Total Stations.

Magellan Professional

- **Magellan GPS (1.64):** The MobileMapperCE will now report RMS values as long as the "RRE" settings is turned on. Turn this feature on by going to Start/Programs/GPS Utilities/GPS Ports, Configuration/NMEA on the MobileMapperCE.

Navcom

- **Navcom GPS (1.64):** Fixed the 2D mode indication. When VRMS is 0, “N/A” is shown in the VRMS field. Starfire is sometimes abbreviated to SF because the status field in some of the other screens, like Point Store and Stakeout, is quite short. From now on the status will report RTK float when the 3D flag isn’t on, for those that don’t have the new firmware, which does this automatically. The possible Status lines for Starfire mode and their meanings are as follows:

DGPS(Starfire) - Starfire 3D Dual (best)
DGPS(SF L1) - Starfire Single frequency or WCT mode.
DGPS(SF 2D) - Starfire 2D Dual mode.

- **Navcom GPS (1.64):** Cancelling the QuickStart dialog could have resulted in a crash.
- **Navcom GPS (1.63):** Added scroll bars to the Log Static Data file manager window.
- **Navcom GPS (1.63):** Added support for Airlink CDMA modems and the option to send the Rover NMEA GGA position.
- **Navcom GPS (1.63):** Antenna type in Log Static Data was displayed incorrectly.
- **Navcom GPS (1.63):** Made changes that will allow SurvCE to download large log files.
- **Navcom GPS (1.63):** Starting or deleting log files would result in false errors.
- **Navcom GPS (1.63):** SurvCE now can connect to the TruBlu Bluetooth dongle using the Explorer 600+, however, the receiver will require a reset if the TruBlu connection is lost.
- **Navcom GPS (1.62):** Added a new message for the Factory Reset command that says “Drastic measure, will take 15 min to recover.”
- **Navcom GPS (1.62):** Added additional information to show why Configure RTK Device failed.
- **Navcom GPS (1.62):** Added support for 5 Hz updates.
- **Navcom GPS (1.62):** Changed the labels in Quickstart dialog to be clearer “ITRF 2000 Latitude”.
- **Navcom GPS (1.62):** Quickstart “Number of” field was too short.
- **Navcom GPS (1.62):** SurvCE was timing out too quickly while trying to communicate to the new Navcom 2100 unit.
- **Navcom GPS (1.61.07):** “ITRF 2000” will no longer be commented in raw data file if Starfire ITRF 2000 is converted to NAD83.
- **Navcom GPS (1.61.01):** Added support for Navcom GPS including StarFire and

QuickStart.

- **Navcom GPS (1.61.01):** Log Static Data is now showing free memory in the dialog.
- **Navcom GPS (1.61.01):** Updated and corrected several Log Static Data issues.
- **Navcom GPS (1.61.01):** When storing a GPS point in Starfire or RTK Extend mode, the comment "--ITRF2000" is inserted into the raw data file.

Nikon

- **Nikon TS (1.61.07):** Make sure we set prism constant to 0 when changing to reflectorless mode.
- **Nikon TS (1.61.01):** Added improved support for the Nikon NPL and DTM series instrument including reflectorless, multiple EDM modes, and prism constants.

NMEA

- **NMEA GPS (1.63):** SurvCE will no longer show the error message for VRMS and HRMS of 0.0 if the NMEA device is not reporting the GPRRE message. HRMS and VRMS will only be shown for devices that report the GPRRE message.

Pentax

- **Pentax TS (1.65):** Made a correction so that this model will be able to measure distances.
- **Pentax TS (1.63):** Added better support for meters and gons.
- **Pentax TS (1.62):** Added support for the R-300 series total station.
- **Pentax TS (1.62):** The number of readings control was always blank.
- **Pentax TS (1.61.01):** Updated the interface for Pentax instruments. It now can set the backsight circle and change the edm modes. Also added support for degrees or gons. Note older models may not support all commands.

Sokkia

- **Sokkia GPS (1.65):** Updated the antenna offsets for the Sokkia GSP 2700 IS to match NGS published values. This could affect all previous jobs and localizations.
- **Sokkia GPS (1.65):** The GSR 2700 IS will now correctly record the antenna model to the raw data file.
- **Sokkia TS (1.65):** Fixed several communication issues with 2-WAY that were created when the new SRX was added.
- **Sokkia TS (1.65):** The target type will now change properly with 2-WAY instruments.
- **Sokkia TS (1.65):** The 2-WAY instrument type will now be reliably detected.
- **Sokkia TS (1.65):** Resolved all known issues related to the new SRX robot.
- **Sokkia TS (1.64):** The new SRX robotic total station is now supported.
- **Sokkia GPS (1.63):** Added support for Log Static Data to the GSR 2700 IS.
- **Sokkia GPS (1.62):** Added support for the Airlink CDMA modem.
- **Sokkia TS (1.62):** Added support for SCT6.
- **Sokkia TS (1.62):** Zero Hz Angle to Target (Sokkia 2-Way Only) was failing because once the instrument was in "Turn Down" mode the reading would fail from the Stakeout Point screen. This problem is now resolved.
- **Sokkia TS (1.61.07):** The software now auto-detects the Sokkia Motorized instrument type.
- **Sokkia TS (1.61.07):** Added "EDM Mode" support to Set interface.
- **Sokkia TS (1.61.07):** Make sure we set prism constant to 0 when changing to reflectorless mode.
- **Sokkia TS (1.61.07):** Added support for new instrument models.
- **Sokkia TS (1.61.07):** Added timeout to search when using continuous distances for Sokkia Motorized.
- **Sokkia TS (1.61.07):** Updated Sokkia Motorized settings dialog.
- **Sokkia GPS (1.61.07):** Added support for showing all channels in dual band Satel radios.

- **Sokkia GPS (1.61.07):** Enhanced support for all Sokkia/Novatel GPS, especially the GSR 2700 IS.
- **Sokkia GPS (1.61.07):** Improved support for Pacific Crest and Satel radios for all models of Sokkia/Novatel GPS. Receiver Utilities now shows either Configure Base Radio or Configure Rover Radio depending on the current receiver.
- **Sokkia GPS (1.61.03):** All Sokkia drivers now show the “Cable or Generic Device” option in the Base and Rover Dialogs.
- **Sokkia GPS (1.61.03):** Corrected a display issue with the Radian IS antenna radius values.
- **Sokkia GPS (1.61.03):** Added changes for updated 2700 firmware.
- **Sokkia TS (1.61.03):** Corrected a registration issue with Sokkia Motorized Set.
- **Sokkia GPS (1.61.01):** Added CDGPS support for Sokkia and NovAtel OEM4 types.
- **Sokkia GPS (1.61.01):** Added comm. port recognition for NovAtel / Sokkia OEM4 models.
- **Sokkia GPS (1.61.01):** Added Static Initialization feature to Radian DGPS setup page.
- **Sokkia GPS (1.61.01):** Added support for the new GSR2700 IS. Log Static Data is not supported yet. Internal cellular modem is not supported yet.
- **Sokkia GPS (1.61.01):** For the Sokkia GSR2650LB and NovAtel OEM4 using Omnistar HP, the Static Initialization feature will now wait for the user to determine that initialization is complete.
- **Sokkia TS (1.61.01):** Changed “Sokkia Set 110M Series” to “Sokkia Motorized Set”. This selection will now cover both the 110M and 230RM series.
- **Sokkia TS (1.61.01):** For the Sokkia TS with Target Sheet capabilities, the prism offset default for Target Sheet was changed from –5.0mm to 0.0mm.
- **Sokkia TS (1.61.01):** Updated the Sokkia interface for smoother operation. Removed the problem that caused the screen to flash when entering a survey routine.

South

- **South TS (1.62): IMPORTANT** - The new firmware is not supported due to the lack of remote commands. South is working on adding the commands, but until they do, customers must use V05.11.24.

Thales

- **Thales GPS (1.63):** Added HRMS and VRMS for the Ashtech Z12.
- **Thales MobileMapper (1.62):** SurvCE now installs on this device. Use NMEA GPS. Communications Port Number: COM2. Baud Rate: 57600. Parity: None. Char Length: 8. Stop Bits: 1. Configure Reading: Make sure that you toggle off the option to Store Fixed Only.
- **Thales GPS (1.61.07):** For Thales ZMax, allow GSM APN connection with no username or password.
- **Thales GPS (1.61.07):** The software was not always waiting for the Hard Reset to start when the user pressed “Hard Reset” in “Receiver Utilities”. This would cause the user to think that the reset had not been done.
- **Thales GPS (1.61.07):** When using GSM or GPRS, an error message stating that “The GSM modem is not available” would be presented to the user even when the modem was available. This was due to a sequence error in the setup procedure.
- **Thales GPS (1.61.07):** When using GPRS and connecting by Direct IP, if the RTK correction mode is CMR/CMR+ or Thales DBEN, CPD will be set for the modem port.
- **Thales GPS (1.61.03):** For the ZMax, when the rover is using NTRIP or GPRS for Direct IP, the Base Radio/Modem configuration buttons will be disabled in the Receiver Utilities screen.
- **Thales GPS (1.61.03):** For the ZMax using GSM, the GSM signal strength was not properly displayed in the Monitor/REF tab.
- **Thales GPS (1.61.03):** For the ZMax base radio configuration, if the rover was last configured for NTRIP, the NTRIP parameters would be shown in the base GSM configuration screen when they should not have been.
- **Thales GPS (1.61.01):** Added a feature in Receiver Utilities to update the data collector clock from GPS time.
- **Thales GPS (1.61.01):** For Configure Base with the ZMax, if the base radio port was not the same as the rover radio port, changing the settings of the PDL or Satel radio would fail. Also made corrections for Satel radios.
- **Thales GPS (1.61.01):** For the ZMax receiver, “GPRS” is now in the list of possible RTK devices. At this time, the only GPRS modem supported is the internal modem on port “D”. When using a GPRS connection, the user can now specify their Access Point parameters for the internet. The user will not have access to the “Connect” button unless the status of the modem is “Ready”. The GPRS connection buttons will now say “Connect” and “Disconnect”, not “Dial” and “Hangup”.

- **Thales GPS (1.61.01):** For the ZMax rover configuration, the name of the pre-configured base to load can now be changed by using the “Edit” button.
- **Thales GPS (1.61.01):** For the ZMax, added a toggle to the GPRS configuration screen for “NTRIP”. Also added an “NTRIP Settings” button on this screen that will take the user to another screen for entering their NTRIP Caster IP and Port, Login and Password. The NTRIP login information will be sent to the receiver. When the user selects “Dial” from the GSM/GPRS screen, the caster will be contacted and the user will be prompted for a Mount Point ID. Commands will be sent to the ZMax to connect to the chosen Mount Point. When using GSM or GPRS, if the modem is currently on, the user will not be able to modify the settings. They will be available for modification once the user turns the modem Off.
- **Thales GPS (1.61.01):** For ZMax, added CMR Plus and RTCM 3.0 for base, added RTCM 3.0 and modified CMR to CMR/CMR+ for Rover.
- **Thales GPS (1.61.01):** For ZMax, modified the text in the Cancel option screen during initialization to let the user know more about what is happening (Reading Modem Settings, Initializing Modem, etc).
- **Thales GPS (1.61.01):** For ZMax, the configuration methods for PDL radios on port B (external) will be identical to the methods for port D (internal).
- **Thales GPS (1.61.01):** For ZMax, the user will be able to set the BT settings of their receiver even if they are connected with a cable.
- **Thales GPS (1.61.01):** The current data port will be automatically determined upon connection.
- **Thales/Ashtech GPS (1.61.01):** For Ashtech receivers other than the ZMax, during the base configuration process, the data collector port was reset to COM1.
- **Thales/Ashtech GPS (1.61.01):** For Thales/Ashtech GPS, removed the “Log Thales OBEN” and “Log User OBEN” options. These were unnecessary settings used to determine if OBEN point ID’s should be alphanumeric or numeric.

Topcon

- **Topcon TS (1.67):** GPT9000 Series - Reading from a data collector would often time out and give an "Error Reading Data" message.
- **Topcon FC200 (1.67):** Registration issues for this device are now corrected.
- **Topcon FC200 (1.65):** This device is now supported.
- **Topcon GPS (1.65):** Added additional support for the GR3 model including corrected antenna offsets and radio commands. This may affect all previous jobs and localizations.
- **Topcon TS (1.65):** Added support for the Carlson SS900 Radios with RC2 configuration.
- **Topcon TS (1.65):** Correction made to resolve a possible crash in Set Collection.
- **Topcon TS (1.65):** If the Cancel button on the "Setting Instrument to Tracking" message box was selected, the program would lock up.
- **Topcon GPS (1.63):** Added GR3 antenna type.
- **Topcon TS (1.63):** Made corrections to the 800/8000 series tracking speed setting to ensure that the "Survey" method is always used.
- **Topcon TS (1.63):** Topcon Direct was not formatting the angle measurement command correctly. The instrument still measured correctly, but this was a potential problem for newer instruments.
- **Trimble GPS (1.63):** Corrected the position quality formula for the R8/5800 series receivers. SurvCE now shows HQ (Horizontal Quality) and VQ (Vertical Quality). The receiver reports the +/- standard deviation for x, y & z so the SurvCE HQ value is the hypotenuse of the x & y values and VQ is the z value.
- **Topcon TS (1.62):** Added a drop list for reflectorless mode. This determines the mode the RL icon switches to.
- **Topcon TS (1.62):** Added better support for the 7000 series instrument. This should resolve all known issues relating to speed and stability.
- **Topcon TS (1.62):** Corrected issues that would cause instability running onboard the 7000 total station.
- **Topcon TS (1.62):** If set to GONS, setting the backsight at anything other than zero was not working.
- **Topcon TS (1.62):** Made corrections to the RC2 operations to better support RC2 Only and Quicklock. Bluetooth communication was failing when connected RC2 only

Bluetooth when pressing the update button from the first Topcon Settings tab.

- **Topcon TS (1.62):** The EDM mode was not recorded to the raw file to reflect the user changes.
- **Topcon TS (1.62):** The Search Range now allows for GONS if GONS if the selected angular format.
- **Topcon TS (1.62):** Using the 8000 with 2AS radios and the RC2 would present frequent Error 118/119 messages.
- **Topcon TS (1.62):** When set to meters the instrument outputs distances based on the EDM Mode. Tracking 10mm = 2 decimal places. Tracking 1mm = 3 decimal places. Fine 1mm = 3 decimal places. Fine .2mm = 4 decimal places.
- **Topcon TS (1.62):** When using the 8000 series instrument and Bluetooth RC2 only, the initialize button on the first tab of the settings dialog would fail the first time.
- **Topcon TS (1.62):** With the 7000 series instrument using GONS as the angular units, Hz angles entered in GONS(400) were interpreted as Deg(360).
- **Topcon TS (1.61.08):** Reflectorless button was not working for the Topcon 700/7000 onboard.
- **Topcon TS (1.61.07):** Added support for Topcon long range reflectorless.
- **Topcon TS (1.61.07):** Resolved some initialization and tracking issues with the Topcon Robot running RC2 Only. Also sped up initialization and getting into and out of the robotics screen (This affects all Topcon Robots).
- **Topcon GPS (1.61.07):** In Surv - Log Static Data, if there was only one static file in the receiver the software would incorrectly report "No Files" found when running the File Manager. Also, the default values for File Name and Recording Interval would appear as blank when first entering the Start File screen. Access to the File Manager screen is now available, even if no files are found.
- **Topcon GPS (1.61.07):** Both send and receive channels are now set on the Topcon HiPer XT internal radios.
- **Topcon FC100/1000 (1.61.03):** Corrected issues with these devices to eliminate lock-ups.
- **Topcon FC2000 (1.61.01):** Bluetooth was not working properly for the FC2000.
- **Topcon FC2000 (1.61.01):** The taskbar was not properly hidden at the start of SurvCE.
- **Topcon GPS (1.61.01):** Added support for the HiPer XT's with internal Topcon radios. Internal IP modem is not supported yet.

- **Topcon GPS (1.61.01):** Added “HiPer Pro” to the selection list for Topcon GPS+.
- **Topcon GPS (1.61.01):** Added support for external Airlink IP modems and added the ability to send NMEA positions to the server. This should allow users to work with TopNET.
- **Topcon GPS (1.61.01):** Fixed known point initialization buttons to allow getting points from point list and map.
- **Topcon GPS (1.61.01):** For Topcon GPS receivers, all radio options for type, port and baud will be available for all types of Topcon receivers. The default parameters for PDL are port D and 38200 baud, for Spread Spectrum (1.61.01): C and 38400 baud, for AirLink (1.61.01): D and 115200 baud.
- **Topcon GPS (1.61.01):** Made corrections to the Log Static routine.
- **Topcon GPS (1.61.01):** For Topcon GPS+, when selecting “Other” for an antenna type, the receiver will not be told that it is an external or internal antenna. The last used value in the receiver will be held. This will allow users with internal antennas to work with a zero phase center offset.
- **Topcon TS (1.61.01):** The units setting in the instrument will be queried before uploading an angle. This will ensure that the angle is set properly.
- **Topcon TS (1.61.01):** Added support for using radios and BT RC2W simultaneously.
- **Topcon TS (1.61.01):** For Topcon robots running RC2 Bluetooth with radios the problems initiating the Bluetooth connection with the RC2 and with the RC2 setup dialog are now resolved and this configuration is fully supported.

Trimble/Geodimeter

- **Trimble GPS (1.63):** Corrected the position quality formula for the R8/5800 series receivers. SurvCE now shows HQ (Horizontal Quality) and VQ (Vertical Quality). The receiver reports the +/- standard deviation for x, y & z so the SurvCE HQ value is the hypotenuse of the x & y values and VQ is the z value.
- **Trimble GPS (1.63):** Corrected an issue that could prevent the base from broadcasting corrections when setup by SurvCE.
- **Geodimeter/Trimble TS (1.62):** Corrected error reading data message when set to TRK and Search on Read is on.
- **Geodimeter/Trimble TS (1.62):** Corrected the issue that prevented re-initializing the robot after power down.
- **Geodimeter/Trimble TS (1.62):** Fixed the Tracklights so that they are set during initialization.
- **Trimble GPS (1.61.01):** For the Pathfinder, "DGPS" is reported when beacon corrections are in use. The user will now have the ability to cancel the connection immediately when the program starts. Before, the user had to wait several seconds with an hour glass if no Pathfinder was connected.

Survey

- **Building Face Survey (1.65):** If the user set the BS circle set option to anything other than Set to Zero, the results were incorrect.
- **Stakeout Line/Arc (1.65):** Fixed a case where the "Failed to Find Station-Offset" message would display even though the attempted position was valid.
- **Offsets (1.64):** The cursor did not work in these routines using the arrow keys.
- **Reflectorless Icon (1.64):** This icon will now set the target height to zero whenever selected.
- **Set Collection (1.64):** Occasionally on the Juniper Allegro the foresight point in the set report would be displayed as a square.
- **Set Collection (1.64):** The set report would occasionally show large errors even though the readings were good. All coordinates and raw data were correct, only the error message was wrong.
- **Average GPS (1.63):** This routine will now record the average lat/lon in the raw file.
- **Backsight - Use Current (1.63):** The Check buttons in backsight were ignoring this option.
- **EL Icon (1.63):** When using the Modify or Next buttons in Stake Line/Arc or Offset Stakeout, the design elevation in the Change Elevation dialog did not reflect the value calculated at the new design station.
- **EL Icon (1.63):** The default for the check box to override the elevation is now ON when you select this icon.
- **Offset Stakeout (1.63):** The elevation icon will only override for the current station during the current session.
- **Reflectorless Target Heights (1.63):** If the user was in SS/Trav and had "prompt for height and description" toggled on and was configured to reflectorless mode, changes to the rod height in the height/desc dialog were not being applied.
- **Remote BM (1.63):** Manual mode was not prompting for the distance.
- **Remote BM (1.63):** When configured to a metric job, the elevation for the selected BM point was displayed rounded to two places past the decimal.
- **Use Backsight Height for Foresights (1.63):** With this toggle on, the backsight value entered was not updating the foresight.
- **Virtual Keyboard (1.63):** When editing the description in the GRAPH mode screens, the

focus will now be placed back into the Description field so that Enter will trigger a reading.

- **Stake Points (1.62):** If a point was entered that did not exist in the job, the routine would exit. Now the user is warned and they remain in the routine.
- **Remote BM (1.62):** Corrected the behavior for when a point ID without coordinates is entered to warn the user and allow them to proceed.
- **Remote BM (1.62):** Corrected the issue where the second reading was using the wrong target height.
- **Robotics Tab (1.62):** Angles will now be displayed in GONS if GONS is the angular format.
- **Foresight Target Height (1.62):** The foresight target height was being set to the backsight target height after the Remote Benchmark routine was used.
- **Offset by 2-Points (1.62):** Enabled the Read Inst. toggle that allows this routine to be used by points rather than readings.
- **Offset by Point (1.62):** Corrected the case that prevented the raw file records from recording.
- **Total Station Backsight Height (1.61.08):** When taking a reading for backsight check, the foresight rod height was being used.
- **Total Station Target Heights (1.61.08):** After taking a reading with a conventional (non robotic) total station, if you changed the rod height before storing, it was possible for the rod height change to be ignored.
- **TEXT Mode Target Heights (1.61.07):** Corrected the issue where the TEXT mode target height changes were not being written to the raw data file. All field computed coordinates were correct.
- **Extended Alignments (1.61.07):** If the Horizontal Alignment started with a curve, the station reporting routine would return stations based on the extension even if a real station could be found.
- **Off CL Stakeout (1.61.03):** When beyond the CL, the software will extend tangent lines to report projected station and offset values. The software will now warn the user prior to storing if this condition occurs.
- **Auto by Interval (1.61.03):** If the delta xy or delta z values to check were 0.0, the program would store continuously. Now, an entered value of 0.0 is ignored.
- **Remote Elevation (1.61.03):** For Remote Elevation using Manual Total Station, the zenith angle was incorrectly treated as the vertical angle for all angle only readings.

- **Stakeout Arc (1.61.03):** Corrected an issue where the last point of the arc was always set to an elevation of zero.
- **Store Stake Point (1.61.03):** Correction made so that the navigation data is displayed per the Stakeout Reference settings in Configure Reading.
- **Reflectorless Target Heights (1.61.01):** Now target heights will be allowed for reflectorless mode. This allows users to do vertical offsets while reflectorless without having to go to the offset routine. The reflectorless height will be set to zero by default.
- **Backsight/Foresight Heights (1.61.01):** Added a toggle to the instrument setup dialog called "Use Backsight HT for Foresights" to link the backsight and foresight target heights. This is for users that use the same prism pole for both the backsight and foresight readings.
- **Auto by Interval (1.61.01):** Removed the "TEXT" icon since there is not a TEXT version available in this routine.
- **Elevation Difference (1.61.01):** CL Station and Offsets will still be reported when off surface.
- **Log Static Data (1.61.01):** For all GPS that support Log Static Data, if the user exited the routine while logging a site and later returned to close the site, it was possible that an extra CRLF was appended to the end of the site name.
- **Point Projection (1.61.01):** Added all alignment selection methods and support for profiles and vertical difference reporting.
- **Set Collection (1.61.01):** If a reciprocal calculation was performed as the result of a set collection, but the rod height for the backsight was modified during set collection, the old backsight rod height was used.
- **Stakeout Points (1.61.01):** When adding points to stake out from the Stakeout Points List, the software now preserves the order in which the points are selected.
- **Store Points - Average (1.61.01):** Updated and made corrections to the averaging routine. When taking an averaged reading, the Store Fixed Only toggle will be used to determine whether or not to disregard Float or DGPS solutions.
- **Store Points - Offsets (1.61.01):** When in TEXT mode using GPS, the Offset routine did not work.
- **Store Points - Offsets (1.61.01):** If running GPS and the offset point was solved, if the user went to MAP and returned, they were forced to redo the offset calculation. The previous solution will now be maintained to avoid this issue.

COGO

- **Inverse (1.63):** On the Allegro, when the Angle format was set to Bearing in Job Settings, the displayed font was too large to read for HDist. It would require the use of the scroll bar to view the HDist value.
- **Transformation (1.62):** The Delta North was not being computed on the first attempt.
- **Process Raw Data (1.61.08):** Using the option "Use Last" under Redundancies was still averaging the elevation of the SP record points.
- **Triangle Calculator (1.61.08):** The View Triangle button was not showing the solved triangle on the MAP screen.
- **Transformation (1.61.08):** Rotate now allows a 0,0 base point.
- **Calculator (1.61.01):** The Conversion Page in calculator contains now a "Solve" button that will allow the user to run the conversion without hitting Enter. However when not using the Virtual Keyboard the conversion is done automatically. The Virtual Keyboard now works in the Scientific Calculator. A button is available to start the keyboard and the procedure works like you are in the actual Scientific Calculator screen. The OK acts as enter, the Cancel acts as Escape, the "\", "*", "-", "+" will execute the operation against the two terms and will exit.
- **Calculator (1.61.01):** When a keyboard is not present, the Scientific Calculator now has an icon that allows the user to access the Pop-Up Keyboard.
- **Point in Direction (1.61.01):** When the user changes the quadrant from NE to SW and the value of the angle is 0 degrees 0 minutes and 0 seconds the routine now updates correctly the horizontal angle edit box to S 0degrees 0 minutes 0 seconds W.
- **Station Store (1.61.01):** Added the ability to allow for stations that are before the beginning or beyond the end of the defined alignment. The alignment will be extended tangent to the first or last segment.
- **Station Store (1.61.01):** Added the standard interface and all alignment types.
- **Transformation (1.61.01):** The user can now select points from the Control Job when using Point List buttons.

Road

- **Input/Edit Profile (1.64):** If the user pressed enter on the last vertical curve value to advance to the next line, the value was being reset to zero requiring the user to enter it again.
- **Alignment Staking (1.63):** When the user selects a polyline or a series of points from the MAP screen to define the horizontal alignment, then chooses to overwrite the vertical alignment as well, the starting station for the vertical alignment will be updated to match the horizontal alignment.
- **Cross Section Survey - IGRDS Raw File (1.63):** Added support for the point codes.
- **Input-Edit CL (1.63):** Added an option to save as TXT for creating a CL report file.
- **Input-Edit CL (1.63):** Added the option to insert a segment before the first segment.
- **Input-Edit CL (1.63):** Make corrections to allow the use of the arrow keys.
- **Inroads LandXML (1.63):** SurvCE now supports LandXML 1.1 as created by Inroads.
- **Slope Staking (1.63):** The Store Stake Report - Select File button did not work.
- **Template Stakeout - Superelevation (1.61.07):** For a super elevation applied to a road that had the horizontal alignment defined as curve-spiral/only-curve, the super elevation was failing within the spiral/only portion of the road.
- **Stakeout by Negative Station (1.61.07):** Using a negative interval did not work when using Prev or Next buttons inside all stakeout routines.
- **Cross Section Survey (1.61.03):** The button "Continue Storing", used when storing odd stations, was not working.
- **Road Utilities - Input-Edit Section File (1.61.03):** Save as would display all offsets on the left. This was a display issue only.
- **Road Utilities - Section File Conversion (1.61.03):** Function failed if the LandXML file was one-single-line file with the size greater than 5MB.
- **Road Utilities - Section File Conversion (1.61.03):** The routine was not converting the IGRDS file correctly if the vertical difference between the lowest elevation of the current section and the current elevation where the vertical difference value was calculated generated a value greater than 10 meters.
- **Profile from Points (1.61.03):** If a profile was created by points and the "Use High-Low Points" options was on, SurvCE would display a blank screen during the loading of the profile.

- **Civil 3D (1.61.03):** Added support for LandXML files from Civil 3D.
- **Input/Edit Centerline (1.61.01):** When storing points for the newly created centerline, the program was failing to request all the point IDs from the user, when in Manual mode, for the entire centerline. Also, when using Automatic mode, the program was creating duplicate points at the connecting points of the Centerline.
- **Road Utilities - Input/Edit Template Series (1.61.01):** Added support for TDS templates. To convert the files, select the TDS file type from the Load dialog and have the RD5 and TP5 files in a single folder.
- **Road Utilities - Centerline Conversion (1.61.01):** Added support for LandXML 1.1 files. Previously Horizontal Alignment files were not supported properly if the new 1.1 format was used.
- **Road Utilities - Profile Conversion (1.61.01):** Import ISPOL Profile RAS file supports now Circular Curves.
- **Road Utilities - Profile Conversion (1.61.01):** Now the RLN to PRO conversion does not create duplicate PVC and PVT points for vertical curves.
- **Road Utilities - Section File Conversion (1.61.01):** Added the ability to import Terramodel/Geodimeter sections from *.RLN files to Carlson section files (*.SCT).
- **Road Utilities - Section File Conversion (1.61.01):** Added User Defined File Format (e.g. Sta,OS,EL).
- **Road Utilities - Section File Conversion (1.61.01):** Corrected the issue where the button name for Select New Section File disappeared when using the ISPOL conversion.
- **Road Utilities - Section File Conversion (1.61.01):** In the Import CLIP TRV Section Files to Carlson SCT File the routine now imports the correct descriptions from the new TRV file format.
- **Section File Interpolation by Profile (1.61.01):** Added the option to attach a profile for Section Interpolation. The Sections must have an Offset and Elev at 0.0 (center of the road) for the profile to be used in the interpolation process. The Elevation of the 0.0 Offset must match the elevation from the profile for the profile to be used in the interpolation process. This change is available for all routines where section files are in use.
- **Slope Staking (1.61.01):** Added the ability to hold either the stake offset or the stake elevation in the final report. This allows the user to set theoretical slope stakes in rocky environments where the catch location can be seen but not reached. The user will be given a cut/fill value to the catch elevation based on the staked offset and the design slope.
- **Template Stakeout (1.61.01):** Enhanced this routine to include multiple surfaces

defined by sections. Added a live section view for slope staking and the ability to reference an alternate section point for cut/fill.

- **Template Stakeout (1.61.01):** In the List of stations for Template Stakeout, if the user selects a Template Series File, the list will also contain the Template Series Stations.
- **Template Stakeout (1.61.01):** Section view was displaying the first and the second offset for the Slope Stake in the opposite direction. The calculation of the offset in the PLAN view was correct, only the graphic display was incorrect.
- **Template Stakeout (1.61.01):** The routine was not saving the Section Files to the RDF file using the command Save Roading Files.
- **Template Stakeout (1.61.01):** When using a Design Offset of 0.0, the routine will only allow a positive Stake Offset value and will use the Left/Right radio buttons to define the direction of the Stake Offset.

Changes by Release

Release Dates

- **1.67 - April 30, 2007**
- **1.65 - November 30, 2006**
- **1.64 - October 20, 2006**
- **1.63 - September 5, 2006**
- **1.62 - July 10, 2006**
- **1.61.08 - May 22, 2006**
- **1.61.07 - May 15, 2006**
- **1.61.03 - April 11, 2006**
- **1.61.01 - March 24, 2006**

1.67

- **Topcon FC200 (1.67):** Registration issues for this device are now corrected.
- **Topcon TS (1.67):** GPT9000 Series - Reading from a data collector would often time out and give an "Error Reading Data" message.
- **Leica TS (1.67):** Added mini-360 prism option.

1.65

- **Building Face Survey (1.65):** If the user set the BS circle set option to anything other than Set to Zero, the results were incorrect.
- **General (1.65):** Added a utility to the install that will allow the user to search their device and find all coordinate files.
- **Leica GPS (1.65):** Added a toggle in Configure Rover for "Send Rover Position to Network". This will send the position in a GGA formatted message to the base once every 5 seconds.
- **Leica GPS (1.65):** Added support for both the Siemens MC45 (GFU17 housing) and MC75 (GFU24 housing).
- **Leica GPS (1.65):** After configuring the base, the name of the antenna used at the base was always written as "Unknown" for Leica GPS. It will now record the correct antenna name.
- **Monitor/SkyPlot - Ref - Store Point (1.65):** This routine now supports mixed GPS hardware.
- **Pentax TS (1.65):** Made a correction so that this model will be able to measure distances.
- **Sokkia GPS (1.65):** Updated the antenna offsets for the Sokkia GSP 2700 IS to match NGS published values. This could affect all previous jobs and localizations.
- **Sokkia GPS (1.65):** The GSR 2700 IS will now correctly record the antenna model to the raw data file.
- **Sokkia TS (1.65):** Fixed several communication issues with 2-WAY that were created when the new SRX was added.
- **Sokkia TS (1.65):** The target type will now change properly with 2-WAY instruments.
- **Sokkia TS (1.65):** The 2-WAY instrument type will now be reliably detected.
- **Sokkia TS (1.65):** Resolved all known issues related to the new SRX robot.
- **Stakeout Line/Arc (1.65):** Fixed a case where the "Failed to Find Station-Offset" message would display even though the attempted position was valid.
- **Topcon FC200 (1.65):** This device is now supported.
- **Topcon GPS (1.65):** Added additional support for the GR3 model including corrected antenna offsets and radio commands. This may affect all previous jobs and localizations.

- **Topcon TS (1.65):** Added support for the Carlson SS900 Radios with RC2 configuration.
- **Topcon TS (1.65):** Correction made to resolve a possible crash in Set Collection.
- **Topcon TS (1.65):** If the Cancel button on the “Setting Instrument to Tracking” message box was selected, the program would lock up.

1.64

- **GPS Raw Data (1.64):** PDOP will now be recorded along with the GPS accuracies to the raw data file for instruments that report it.
- **Input/Edit Profile (1.64):** If the user pressed enter on the last vertical curve value to advance to the next line, the value was being reset to zero requiring the user to enter it again.
- **Leica TS (1.64):** Tracking was not starting and stopping reliably in between routines.
- **Leica TS (1.64):** If using Continuous Angles in Stakeout, the slope distance would continuously read 0 between readings.
- **Leica TS (1.64):** The reflectorless icon would interrupt continuous angles.
- **Leica TS (1.64):** The reflectorless icon will now turn off and on ATR if ATR is on.
- **Magellan GPS (1.64):** The MobileMapperCE will now report RMS values as long as the "RRE" settings is turned on. Turn this feature on by going to Start/Programs/GPS Utilities/GPS Ports, Configuration/NMEA on the MobileMapperCE.
- **Navcom GPS (1.64):** Cancelling the QuickStart dialog could have resulted in a crash.
- **Navcom GPS (1.64):** Fixed the 2D mode indication. When VRMS is 0, "N/A" is shown in the VRMS field. Starfire is sometimes abbreviated to SF because the status field in some of the other screens, like Point Store and Stakeout, is quite short. From now on the status will report RTK float when the 3D flag isn't on, for those that don't have the new firmware, which does this automatically. The possible Status lines for Starfire mode and their meanings are as follows:
 - DGPS(Starfire) - Starfire 3D Dual (best)
 - DGPS(SF L1) - Starfire Single frequency or WCT mode.
 - DGPS(SF 2D) - Starfire 2D Dual mode.
- **Offsets (1.64):** The cursor did not work in these routines using the arrow keys.
- **Reflectorless Icon (1.64):** This icon will now set the target height to zero whenever selected.
- **Set Collection (1.64):** The set report would occasionally show large errors even though the readings were good. All coordinates and raw data were correct, only the error message was wrong.
- **Set Collection (1.64):** Occasionally on the Juniper Allegro the foresight point in the set report would be displayed as a square.
- **Sokkia TS (1.64):** The new SRX robotic total station is now supported.

- **Tolerances (1.64):** The stakeout tolerances were not being accepted when changed in 1.63.

1.63

- **Alignment Staking (1.63):** When the user selects a polyline or a series of points from the MAP screen to define the horizontal alignment, then chooses to overwrite the vertical alignment as well, the starting station for the vertical alignment will be updated to match the horizontal alignment.
- **ALL or TOTAL (1.63):** Either word can now be used to select all entities in the MAP screen.
- **Average GPS (1.63):** This routine will now record the average lat/lon in the raw file.
- **Backsight - Use Current (1.63):** The Check buttons in backsight were ignoring this option.
- **Battery Icon (1.63):** This icon was not updating properly on the Allegro.
- **Cross Section Survey - IGRDS Raw File (1.63):** Added support for the point codes.
- **EL Icon (1.63):** When using the Modify or Next buttons in Stake Line/Arc or Offset Stakeout, the design elevation in the Change Elevation dialog did not reflect the value calculated at the new design station.
- **EL Icon (1.63):** The default for the check box to override the elevation is now ON when you select this icon.
- **Geodetics (1.63):** Added support for using this product with Windows Mobile 5.
- **GPS General (1.63):** If the antenna radius is zero in the antenna list, the slant measurement option will be disabled.
- **Input-Edit CL (1.63):** Added an option to save as TXT for creating a CL report file.
- **Input-Edit CL (1.63):** Added the option to insert a segment before the first segment.
- **Input-Edit CL (1.63):** Make corrections to allow the use of the arrow keys.
- **Inroads LandXML (1.63):** SurvCE now supports LandXML 1.1 as created by Inroads.
- **Inverse (1.63):** On the Allegro, when the Angle format was set to Bearing in Job Settings, the displayed font was too large to read for HDist. It would require the use of the scroll bar to view the HDist value.
- **Leica TS (1.63):** Dist icon now returns instrument to prism mode if it was previously in reflectorless mode.
- **Leica TS (1.63):** If the instrument was locked and the user entered Resection, tracking would start.
- **Leica TS (1.63):** If the instrument was tracking, the reflectorless icon would not respond.

- **Leica TS (1.63):** PowerSearch was not functioning properly in Resection.
- **Leica TS (1.63):** Returning from the Configure button in the Instrument Setup dialog would start tracking mode on the EDM.
- **Leica TS (1.63):** SurvCE displayed a slope distance of 0.0000 after exiting form the setup/joystick page when in locked mode. We no longer show slope distance when only locked and not tracking.
- **Leica TS (1.63):** The Dist icon did not start distances the first time it was pressed after exiting form the setup/joystick page.
- **Leica TS (1.63):** The prism offset value on the 700 series instruments would fail to reset to the previous prism offset when returning from reflectorless mode using the icon.
- **Navcom GPS (1.63):** Added scroll bars to the Log Static Data file manager window.
- **Navcom GPS (1.63):** Added support for Airlink CDMA modems and the option to send the Rover NMEA GGA position.
- **Navcom GPS (1.63):** Antenna type in Log Static Data was displayed incorrectly.
- **Navcom GPS (1.63):** Made changes that will allow SurvCE to download large log files.
- **Navcom GPS (1.63):** Starting or deleting log files would result in false errors.
- **Navcom GPS (1.63):** SurvCE now can connect to the TruBlu Bluetooth dongle using the Explorer 600+, however, the receiver will require a reset if the TruBlu connection is lost.
- **NMEA GPS (1.63):** SurvCE will no longer show the error message for VRMS and HRMS of 0.0 if the NMEA device is not reporting the GPRRE message. HRMS and VRMS will only be shown for devices that report the GPRRE message.
- **Offset Stakeout (1.63):** The elevation icon will only override for the current station during the current session.
- **Pentax TS (1.63):** Added better support for meters and gons.
- **Point at Interval Along Entity (1.63):** The Point ID label was hiding the text of the OK and Cancel buttons.
- **Portuguese (1.63):** Made small text corrections.
- **Portuguese (1.63):** This is now available for Triton as well as SurvCE.
- **Raw Data (1.63):** Made corrections so that the cutsheet records in the raw file do not exceed 80 characters.
- **Reflectorless Target Heights (1.63):** If the user was in SS/Trav and had "prompt for height and description" toggled on and was configured to reflectorless mode, changes to

the rod height in the height/desc dialog were not being applied.

- **Remote BM (1.63):** Manual mode was not prompting for the distance.
- **Remote BM (1.63):** When configured to a metric job, the elevation for the selected BM point was displayed rounded to two places past the decimal.
- **Slope Staking (1.63):** The Store Stake Report - Select File button did not work.
- **Sokkia GPS (1.63):** Added support for Log Static Data to the GSR 2700 IS.
- **Spanish (1.63):** This is now available for SurvCE.
- **Store GPS Accuracy in Raw File (1.63):** This Job Settings toggle will now be on by default.
- **Thales GPS (1.63):** Added HRMS and VRMS for the Ashtech Z12.
- **Topcon GPS (1.63):** Added GR3 antenna type.
- **Topcon TS (1.63):** Made corrections to the 800/8000 series tracking speed setting to ensure that the "Survey" method is always used.
- **Topcon TS (1.63):** Topcon Direct was not formatting the angle measurement command correctly. The instrument still measured correctly, but this was a potential problem for newer instruments.
- **Trimble GPS (1.63):** Corrected the position quality formula for the R8/5800 series receivers. SurvCE now shows HQ (Horizontal Quality) and VQ (Vertical Quality). The receiver reports the +/- standard deviation for x, y & z so the SurvCE HQ value is the hypotenuse of the x & y values and VQ is the z value.
- **Trimble GPS (1.63):** Corrected an issue that could prevent the base from broadcasting corrections when setup by SurvCE.
- **Use Backsight Height for Foresights (1.63):** With this toggle on, the backsight value entered was not updating the foresight.
- **Virtual Keyboard (1.63):** When editing the description in the GRAPH mode screens, the focus will now be placed back into the Description field so that Enter will trigger a reading.

1.62

- **Windows Mobile 5 (1.62):** Added install for this OS.
- **Bluetooth (1.62):** Changes were made to better support Bluetooth devices with PINs on the AllegroCX.
- **Bluetooth (1.62):** Made corrections for the AllegroCX version was not using "powerex.exe". This was affecting reconnect attempts and re-bonding with Bluetooth after a power cycle. This affects all instrument connections with the AllegroCX.
- **Slope Report (1.62):** Added Maximum/Minimum Elevations to the report.
- **Import/Export ASCII (1.62):** Decimal precision was defaulting to zero.
- **Configure Reading - Continuous Angles (1.62):** Corrected issues that would lock up the TEXT mode dialogs.
- **Tolerances (1.62):** Angle Tolerances can now be entered as GONS if GONS is the selected angular format.
- **Depth Sounders (1.62):** The selection list for Depth Sounders was ordered incorrectly, such that Odom Digitrace and Innerspace were switched. For the Innerspace Depth sounder, the input was incorrectly being reported as -765432.1.
- **Leica GPS (1.62):** Added "Other" as an antenna type for the Leica GPS base and static logging routines.
- **Leica GPS (1.62):** For the Leica System 1200, SurvCE now sets the "Moving Height" value. IMPORTANT - If you localized in older versions of the software and had not set the "Moving Height" to 0.0 in the Leica controller, you will need to check a point surveyed with the old localization before continuing the job with the new software. If there is an elevation discrepancy, the localization will need to be modified or redone.
- **Navcom GPS (1.62):** Added a new message for the Factory Reset command that says "Drastic measure, will take 15 min to recover."
- **Navcom GPS (1.62):** Added additional information to show why Configure RTK Device failed.
- **Navcom GPS (1.62):** Added support for 5 Hz updates.
- **Navcom GPS (1.62):** Changed the labels in Quickstart dialog to be clearer "ITRF 2000 Latitude".
- **Navcom GPS (1.62):** Quickstart "Number of" field was too short.

- **Navcom GPS (1.62):** SurvCE was timing out too quickly while trying to communicate to the new Navcom 2100 unit.
- **Pentax TS (1.62):** Added support for the R-300 series total station.
- **Pentax TS (1.62):** The number of readings control was always blank.
- **Sokkia GPS (1.62):** Added support for the Airlink CDMA modem.
- **Sokkia TS (1.62):** Added support for SCT6.
- **Sokkia TS (1.62):** Zero Hz Angle to Target (Sokkia 2-Way Only) was failing because once the instrument was in "Turn Down" mode the reading would fail from the Stakeout Point screen. This problem is now resolved.
- **South TS (1.62): IMPORTANT** - The new firmware is not supported due to the lack of remote commands. South is working on adding the commands, but until they do, customers must use V05.11.24.
- **Thales MobileMapper (1.62):** SurvCE now installs on this device. Use NMEA GPS. Communications Port Number: COM2. Baud Rate: 57600. Parity: None. Char Length: 8. Stop Bits: 1. Configure Reading: Make sure that you toggle off the option to Store Fixed Only.
- **Topcon TS (1.62):** Added a drop list for reflectorless mode. This determines the mode the RL icon switches to.
- **Topcon TS (1.62):** Added better support for the 7000 series instrument. This should resolve all known issues relating to speed and stability.
- **Topcon TS (1.62):** Corrected issues that would cause instability running onboard the 7000 total station.
- **Topcon TS (1.62):** If set to GONS, setting the backsight at anything other than zero was not working.
- **Topcon TS (1.62):** Made corrections to the RC2 operations to better support RC2 Only and Quicklock. Bluetooth communication was failing when connected RC2 only Bluetooth when pressing the update button from the first Topcon Settings tab.
- **Topcon TS (1.62):** The EDM mode was not recorded to the raw file to reflect the user changes.
- **Topcon TS (1.62):** The Search Range now allows for GONS if GONS if the selected angular format.
- **Topcon TS (1.62):** Using the 8000 with 2AS radios and the RC2 would present frequent Error 118/119 messages.

- **Topcon TS (1.62):** When set to meters the instrument outputs distances based on the EDM Mode. Tracking 10mm = 2 decimal places. Tracking 1mm = 3 decimal places. Fine 1mm = 3 decimal places. Fine .2mm = 4 decimal places.
- **Topcon TS (1.62):** When using the 8000 series instrument and Bluetooth RC2 only, the initialize button on the first tab of the settings dialog would fail the first time.
- **Topcon TS (1.62):** With the 7000 series instrument using GONS as the angular units, Hz angles entered in GONS(400) were interpreted as Deg(360).
- **Geodimeter/Trimble TS (1.62):** Corrected error reading data message when set to TRK and Search on Read is on.
- **Geodimeter/Trimble TS (1.62):** Corrected the issue that prevented re-initializing the robot after power down.
- **Geodimeter/Trimble TS (1.62):** Fixed the Tracklights so that they are set during initialization.
- **Stake Points (1.62):** If a point was entered that did not exist in the job, the routine would exit. Now the user is warned and they remain in the routine.
- **Remote BM (1.62):** Corrected the behavior for when a point ID without coordinates is entered to warn the user and allow them to proceed.
- **Remote BM (1.62):** Corrected the issue where the second reading was using the wrong target height.
- **Robotics Tab (1.62):** Angles will now be displayed in GONS if GONS is the angular format.
- **Foresight Target Height (1.62):** The foresight target height was being set to the backsight target height after the Remote Benchmark routine was used.
- **Offset by 2-Points (1.62):** Enabled the Read Inst. toggle that allows this routine to be used by points rather than readings.
- **Offset by Point (1.62):** Corrected the case that prevented the raw file records from recording.
- **Transformation (1.62):** The Delta North was not being computed on the first attempt.

1.61.08

- **Import/Export ASCII (1.61.08):** Export ASCII now retains the last used settings.
- **Localization (1.61.08):** When the LOC localization file format was used with a geoid and the projection used was not NAD83 or NAD27, the geoid was incorrectly applied twice.
- **Localization (1.61.08):** When the LOC localization file format was used, an incorrect warning of “Geoid file does not match localization file” would appear to the user when exiting the File/Job Settings screen. This false warning message did not affect any data.
- **Topcon TS (1.61.08):** Reflectorless button was not working for the Topcon 700/7000 onboard.
- **Total Station Backsight Height (1.61.08):** When taking a reading for backsight check, the foresight rod height was being used.
- **Total Station Target Heights (1.61.08):** After taking a reading with a conventional (non robotic) total station, if you changed the rod height before storing, it was possible for the rod height change to be ignored.
- **Process Raw Data (1.61.08):** Using the option “Use Last” under Redundancies was still averaging the elevation of the SP record points.
- **Triangle Calculator (1.61.08):** The View Triangle button was not showing the solved triangle on the MAP screen.
- **Transformation (1.61.08):** Rotate now allows a 0,0 base point.

1.61.07

- **Export SHP File - Projections (1.61.07):** Added option to select a projection when exporting a SHP file.
- **Export SHP File (1.61.07):** When exporting SHP files from the data collector, especially on an Allegro CE 3.0 OS, the date and time setting of the system could be lost. Point Names (9 characters) and automatically generated Linework IDs (based on the time and date also 9 characters) would get out of sync and would cause the Export routine to fail.
- **Feature Code List - Special Codes (1.61.07):** Added support for Geopak (OH DOT) and InRoads (WA DOT) coding formats. For OH DOT the user must check on the Special Codes - Settings option "Store GIS Data to Vertices". Export ASCII will format the appended attributes per the OH DOT standards if Geopak (OH DOT) is the current method of coding.
- **Allegro CX Bluetooth (1.61.07):** Changes made to better support Bluetooth devices with PINs on the Allegro CX.
- **Leica GPS (1.61.07):** Using User Defined modem, if the IP address was a full 15 characters and the port a full 4, the software did not send the modem dial command properly. Also, it was possible for the IP port to be set to 0.
- **Navcom GPS (1.61.07):** "ITRF 2000" will no longer be commented in raw data file if Starfire ITRF 2000 is converted to NAD83.
- **Nikon TS (1.61.07):** Make sure we set prism constant to 0 when changing to reflectorless mode.
- **Sokkia TS (1.61.07):** The software now auto-detects the Sokkia Motorized instrument type.
- **Sokkia TS (1.61.07):** Added "EDM Mode" support to Set interface.
- **Sokkia TS (1.61.07):** Make sure we set prism constant to 0 when changing to reflectorless mode.
- **Sokkia TS (1.61.07):** Added support for new instrument models.
- **Sokkia TS (1.61.07):** Added timeout to search when using continuous distances for Sokkia Motorized.
- **Sokkia TS (1.61.07):** Updated Sokkia Motorized settings dialog.
- **Sokkia GPS (1.61.07):** Added support for showing all channels in dual band Satel radios.
- **Sokkia GPS (1.61.07):** Enhanced support for all Sokkia/Novaltel GPS, especially the

GSR 2700 IS.

- **Sokkia GPS (1.61.07):** Improved support for Pacific Crest and Satel radios for all models of Sokkia/Novatel GPS. Receiver Utilities now shows either Configure Base Radio or Configure Rover Radio depending on the current receiver.
- **Thales GPS (1.61.07):** For Thales ZMax, allow GSM APN connection with no username or password.
- **Thales GPS (1.61.07):** The software was not always waiting for the Hard Reset to start when the user pressed “Hard Reset” in “Receiver Utilities”. This would cause the user to think that the reset had not been done.
- **Thales GPS (1.61.07):** When using GSM or GPRS, an error message stating that “The GSM modem is not available” would be presented to the user even when the modem was available. This was due to a sequence error in the setup procedure.
- **Thales GPS (1.61.07):** When using GPRS and connecting by Direct IP, if the RTK correction mode is CMR/CMR+ or Thales DBEN, CPD will be set for the modem port.
- **Topcon TS (1.61.07):** Added support for Topcon long range reflectorless.
- **Topcon TS (1.61.07):** Resolved some initialization and tracking issues with the Topcon Robot running RC2 Only. Also sped up initialization and getting into and out of the robotics screen (This affects all Topcon Robots).
- **Topcon GPS (1.61.07):** In Surv - Log Static Data, if there was only one static file in the receiver the software would incorrectly report “No Files” found when running the File Manager. Also, the default values for File Name and Recording Interval would appear as blank when first entering the Start File screen. Access to the File Manager screen is now available, even if no files are found.
- **Topcon GPS (1.61.07):** Both send and receive channels are now set on the Topcon HiPer XT internal radios.
- **TEXT Mode Target Heights (1.61.07):** Corrected the issue where the TEXT mode target height changes were not being written to the raw data file. All field computed coordinates were correct.
- **Extended Alignments (1.61.07):** If the Horizontal Alignment started with a curve, the station reporting routine would return stations based on the extension even if a real station could be found.
- **Template Stakeout - Superelevation (1.61.07):** For a super elevation applied to a road that had the horizontal alignment defined as curve-spiral/only-curve, the super elevation was failing within the spiral/only portion of the road.
- **Stakeout by Negative Station (1.61.07):** Using a negative interval did not work when

using Prev or Next buttons inside all stakeout routines.

1.61.03

- **Auto-Point Number (1.61.03):** For total stations, the next point to store will be reset when you start any data collection routine. Previously, if the user had entered points manually through other routines, it was possible for the next point to store to be wrong.
- **Raw Data - GPS Local Base Coordinate Note (1.61.03):** When writing the GS note record to the rw5 file for the base reference point, “LA” and “LN” were used in place of “N” and “E”. Most raw processors take this record as a note only, so there will be no impact.
- **Prompted Feature Code List (1.61.03):** In the Store Point Dialog, if a description is found in the list of descriptions, that code is now in view rather than the first code in the list.
- **Raw Data Correction - Duplicate Setup (1.61.03):** Corrected an issue where the setup data could be written to the raw file twice.
- **Layer Colors (1.61.03):** Added support for layer colors on the New Ranger.
- **Point Details (1.61.03):** Added a delete button to this dialog. This allows the user to touch a point graphically and delete it.
- **Stakeout - Precision (1.61.03):** The precision setting was not working. Now all stakeout data will be rounder by the setting in Job Settings.
- **Monitor/SkyPlot (1.61.03):** When going to Monitor/SkyPlot with a geoid selected in Job Settings, if the geoid needed to be loaded, there was no “Loading Geoid” message displayed. Furthermore, it was possible for the geoid to be loaded twice unnecessarily.
- **Bluetooth (1.61.03):** Enhanced the Bluetooth interface to reconnect between sessions and power on/off.
- **Leica GPS (1.61.03):** For the Leica 530 series GPS, when logging baseline ascii data is turned on and the job is not metric, the rover elevation was incorrectly converted from metric to feet twice.
- **Sokkia GPS (1.61.03):** All Sokkia drivers now show the “Cable or Generic Device” option in the Base and Rover Dialogs.
- **Sokkia GPS (1.61.03):** Corrected a display issue with the Radian IS antenna radius values.
- **Sokkia GPS (1.61.03):** Added changes for updated 2700 firmware.
- **Sokkia TS (1.61.03):** Corrected a registration issue with Sokkia Motorized Set.
- **Thales GPS (1.61.03):** For the ZMax, when the rover is using NTRIP or GPRS for Direct

IP, the Base Radio/Modem configuration buttons will be disabled in the Receiver Utilities screen.

- **Thales GPS (1.61.03):** For the ZMax using GSM, the GSM signal strength was not properly displayed in the Monitor/REF tab.
- **Thales GPS (1.61.03):** For the ZMax base radio configuration, if the rover was last configured for NTRIP, the NTRIP parameters would be shown in the base GSM configuration screen when they should not have been.
- **Topcon FC100/1000 (1.61.03):** Corrected issues with these devices to eliminate lock-ups.
- **Off CL Stakeout (1.61.03):** When beyond the CL, the software will extend tangent lines to report projected station and offset values. The software will now warn the user prior to storing if this condition occurs.
- **Auto by Interval (1.61.03):** If the delta xy or delta z values to check were 0.0, the program would store continuously. Now, an entered value of 0.0 is ignored.
- **Remote Elevation (1.61.03):** For Remote Elevation using Manual Total Station, the zenith angle was incorrectly treated as the vertical angle for all angle only readings.
- **Stakeout Arc (1.61.03):** Corrected an issue where the last point of the arc was always set to an elevation of zero.
- **Store Stake Point (1.61.03):** Correction made so that the navigation data is displayed per the Stakeout Reference settings in Configure Reading.
- **Cross Section Survey (1.61.03):** The button “Continue Storing”, used when storing odd stations, was not working.
- **Road Utilities - Input-Edit Section File (1.61.03):** Save as would display all offsets on the left. This was a display issue only.
- **Road Utilities - Section File Conversion (1.61.03):** Function failed if the LandXML file was one-single-line file with the size greater than 5MB.
- **Road Utilities - Section File Conversion (1.61.03):** The routine was not converting the IGRDS file correctly if the vertical difference between the lowest elevation of the current section and the current elevation where the vertical difference value was calculated generated a value greater than 10 meters.
- **Profile from Points (1.61.03):** If a profile was created by points and the “Use High-Low Points” options was on, SurvCE would display a blank screen during the loading of the profile.
- **Civil 3D (1.61.03):** Added support for LandXML files from Civil 3D.

1.61.01

- **GIS Data (1.61.01):** Fixed the issue where if SurvCE was running and the data collector was rebooted, the IDs for the polyline entities with GIS data attached were lost.
- **Hotkeys (1.61.01):** In the routines that have the TEXT/GRAPH modes, Alt+Y will switch the user between them.
- **Raw Data Correction - GPS (1.61.01):** A BP record will not be written to the rw5 file if the base coordinates read are invalid (0,0,0).
- **Raw Data Change - TS (1.61.01):** After Backsight Check, the note records in the rw5 file will now match the displayed distance units (e.g. feet & inches).
- **SurvStar Folder (1.61.01):** The program will protect the folder where SurvCE is installed (SurvStar folder) against any reading/writing attempts from within the software. The user will not be able to read/write user files to that folder to avoid the case where some of the files in that folder (program files) might have extensions that could conflict with the regular user files.
- **Windows Mobile 2003 (1.61.01):** Added support for Windows mobile 2003 Landscape devices.
- **Area (1.61.01):** When using GPS coordinates (drawings that have polylines with vertices located at north and east values in millions), the Sliding and Hinged area routines in MAP were failing. Also added options to allow the user to input the target area using the following suffixes (1.61.01): SF (square feet), SY (square yards), SM (square meters), SMI (square miles), A (acres), H (hectares) SIF (square international feet).
- **Extend (1.61.01):** Added the option to extend lines.
- **List (1.61.01):** Added the 2D and 3D perimeter data to the listed data of a 3D polyline.
- **Offset Segment (1.61.01):** Added the option to offset a segment of a polyline.
- **Slope Report (Surface Area) (1.61.01):** Added a new feature that will report the surface area of the selected data. Point and 3D polyline data can be used or select an existing Carlson surface file. The user can also limit the reported area by using inclusion and/or exclusion boundaries.
- **MAP (1.61.01):** Corrected the issue where if the Layer Manager was initiated by clicking on the LAYER NAME, the MAP screen was closed.
- **Configure Reading - GPS (1.61.01):** Added an option in Configure Reading to specify the action of the Enter key. The user can select "Store Only" to just store the last complete reading (past behavior) or "Read and Store" to store the next complete reading (now the default). The "Read and Store" option will eliminate any buffered readings from being stored.

- **Continuous Angles for TS (1.61.01):** Added an option in Configure to have SurvCE report continuous angle updates.
- **Data Transfer - C&G (1.61.01):** Changed “C&G/TDS Transfer” to “TDS Transfer” and changed “Carlson Transfer” to “Carlson/C&G Transfer”. The C&G PC software now supports the SurvCE download protocol. However, you must have the latest version of the C&G download software.
- **Feature Code List (1.61.01):** Added support for two GeoPak and the TMOSS coding methods.
- **Feature Code List (1.61.01):** Added the option for a user defined code separator. Carlson typically separates all codes by a space (e.g. TC1 TC2). Now the user can choose to separate them with a special character (e.g. TC1.TC2).
- **Feature Code List (1.61.01):** Added the option for a user defined string designator. Any number that immediately follows a line code is considered the string number since Carlson Software does not require a string separator (e.g. TC1). However, some products use a special character. Therefore, the string separator can be changed from None to any single character (e.g. TC.1).
- **Feature Code List (1.61.01):** Also added support for the RECT command to close a rectangle by three points.
- **Import ASCII (1.61.01):** The routine has been updated so it allows the user to import of range of points from a TEXT ASCII file. It also now has details about the points available for TEXT ASCII files and CRD files and reports the number of the points imported and the job name in which the points have been saved. The most recent settings will be retained upon returning to the routine.
- **Job Settings - GPS - Projections (1.61.01):** Corrected the Hungarian “Oblique_Mercator_EOV” transformation.
- **Job Settings - GPS - Projections (1.61.01):** For Transverse Mercator projections, the zone width was always set to 6, no matter what the user entered. The zone with will now set according to the user input.
- **Job Settings - GPS - Projections (1.61.01):** If the coordinate system was changed on the GPS tab, the settings were not being applied without selecting OK.
- **Job Settings - Options (1.61.01):** Added support for Easting - Northing coordinate order.
- **Job Settings - Units - Feet and Inches (1.61.01):** Added support for feet and inches. 10” can be entered as “.10” as well as “0.10”.
- **Job Settings - Units - Feet and Inches (1.61.01):** The results in the Backsight Check

screen and the Remote Benchmark screen will now be displayed with feet and inches, not decimal feet.

- **List Points & MAP (1.61.01):** The routines Find Point in MAP and Find in the List Points dialog and Isolate Points in Map now have the capability to accept multiple descriptions and wildcards. The descriptions must be <;> separated, as in the next example (1.61.01): TREE*;MAN*.
- **Comm Setup (1.61.01):** The “Find Bluetooth Port” button will now be shown in Equip/Comm Setup for all instruments except GPS Simulation, Manual Total Station, Leica GS50 and Leica Wild Series.
- **GPS Simulation (1.61.01):** Modified GPS Simulation to get to “Fixed” faster.
- **GPS Simulation (1.61.01):** Text change in Receiver Utilities. The screen now points out that the input for starting lat/lon should be in decimal degrees.
- **Localization - Helmert (1.61.01):** Added the ability to define a Localization using the 7 parameter Helmert method. You must select this option in Job Settings → GPS → Multi-Point Transformation for it to be used.
- **Localization (1.61.01):** Added a new file format (*.LOC) that now allows users to switch projections after the localization has been created if necessary. The former file format (*.DAT) is still supported and can still be created by selecting this extension from the file filter.
- **Leica GPS (1.61.01):** For System 500/1200, the configuration will be properly set to the receiver when the user says OK in the Receiver Utilities screen for all non-modem RTK devices. Previously, the configuration was only set when the user changed the channel on the radio.
- **Leica GPS (1.61.01):** Replaced the text “Phone Number (1.61.01):” with “IP Address (1.61.01):”.
- **Leica GPS (1.61.01):** Added support for external User Defined modems (e.g. Airlink CDMA).
- **Leica GPS (1.61.01):** Disabled the option for “Slant Height” in log static data.
- **Leica GPS (1.61.01):** For System 1200 GPS, static files will be properly deleted from the storage card under the Log Static Data feature. It is recommended for the user to power down and power on the receiver after deleting files from the card.
- **Leica GPS (1.61.01):** For System 1200, added the ability to Log Baseline Data.
- **Leica GPS (1.61.01):** For System 1200, changed the way that antenna information is supplied to the receiver to ensure accurate “ARP” values.

- **Leica GPS (1.61.01):** For System 1200, if a static site is currently logging, Configure Rover will not close it. Previously, the site was closed with the name "ABC".
- **Leica GPS (1.61.01):** For System 500/1200 GPS, the message type RTCM was renamed to RTCM 2.1 and RTCM 2.2 was added as an option. For the Leica System 1200 RTCM 2.3 and RTCM 3.0 are available as well.
- **Leica GPS (1.61.01):** For System 500/1200 GPS, the user can now get to the Log Static screen even if a position is not currently available.
- **Leica GPS (1.61.01):** For System1200, "Leica GSM Modem" was removed since this option is not supported at this time. Added "Intuicom 1200 DL" in its place. This feature will now control the Intuicom DL radio. When setting channels 12 and higher (special channels) no confirmation will be given of success and the status will be unknown. For all other channels, the status will be reported to the user.
- **Leica GPS (1.61.01):** For the Leica GPS, added the ATX1230 antenna with options for Pillar, Pole, SmartStation and Tripod.
- **Leica GPS (1.61.01):** Replaced "MultiTech" modem selection with "Internet Connection" since this modem is not supported at this time. The user will be warned that connecting and disconnecting with this option must be done through the Leica controller software.
- **Leica GPS (1.61.01):** When powering on the receiver through Receiver Utilities, the program would incorrectly report that the unit was "Powered Down".
- **Leica GPS (1.61.01):** When the user hit OK from the Utilities tab of the Configure Reading screen, it was possible for re-initialization of the instrument to occur even if the modem was connected.
- **Leica TS (1.61.01):** Fixed the case where the reflectorless selection would disable the tangent screws.
- **Leica TS (1.61.01):** Fixed the cases where the software would report standby even though the instrument was locked.
- **Leica (1.61.01):** Bluetooth connections are now possible with Leica System 1200 Total Stations.
- **Navcom GPS (1.61.01):** Added support for Navcom GPS including StarFire and QuickStart.
- **Navcom GPS (1.61.01):** Log Static Data is now showing free memory in the dialog.
- **Navcom GPS (1.61.01):** Updated and corrected several Log Static Data issues.
- **Navcom GPS (1.61.01):** When storing a GPS point in Starfire or RTK Extend mode, the comment "--ITRF2000" is inserted into the raw data file.

- **Nikon TS (1.61.01):** Added improved support for the Nikon NPL and DTM series instrument including reflectorless, multiple EDM modes, and prism constants.
- **Pentax TS (1.61.01):** Updated the interface for Pentax instruments. It now can set the backsight circle and change the edm modes. Also added support for degrees or gons. Note older models may not support all commands.
- **Sokkia GPS (1.61.01):** Added CDGPS support for Sokkia and NovAtel OEM4 types.
- **Sokkia GPS (1.61.01):** Added comm. port recognition for NovAtel / Sokkia OEM4 models.
- **Sokkia GPS (1.61.01):** Added Static Initialization feature to Radian DGPS setup page.
- **Sokkia GPS (1.61.01):** Added support for the new GSR2700 IS. Log Static Data is not supported yet. Internal cellular modem is not supported yet.
- **Sokkia GPS (1.61.01):** For the Sokkia GSR2650LB and NovAtel OEM4 using Omnistar HP, the Static Initialization feature will now wait for the user to determine that initialization is complete.
- **Sokkia TS (1.61.01):** Changed “Sokkia Set 110M Series” to “Sokkia Motorized Set”. This selection will now cover both the 110M and 230RM series.
- **Sokkia TS (1.61.01):** For the Sokkia TS with Target Sheet capabilities, the prism offset default for Target Sheet was changed from –5.0mm to 0.0mm.
- **Sokkia TS (1.61.01):** Updated the Sokkia interface for smoother operation. Removed the problem that caused the screen to flash when entering a survey routine.
- **Thales GPS (1.61.01):** Added a feature in Receiver Utilities to update the data collector clock from GPS time.
- **Thales GPS (1.61.01):** For Configure Base with the ZMax, if the base radio port was not the same as the rover radio port, changing the settings of the PDL or Satel radio would fail. Also made corrections for Satel radios.
- **Thales GPS (1.61.01):** For the ZMax receiver, “GPRS” is now in the list of possible RTK devices. At this time, the only GPRS modem supported is the internal modem on port “D”. When using a GPRS connection, the user can now specify their Access Point parameters for the internet. The user will not have access to the “Connect” button unless the status of the modem is “Ready”. The GPRS connection buttons will now say “Connect” and “Disconnect”, not “Dial” and “Hangup”.
- **Thales GPS (1.61.01):** For the ZMax rover configuration, the name of the pre-configured base to load can now be changed by using the “Edit” button.

- **Thales GPS (1.61.01):** For the ZMax, added a toggle to the GPRS configuration screen for “NTRIP”. Also added an “NTRIP Settings” button on this screen that will take the user to another screen for entering their NTRIP Caster IP and Port, Login and Password. The NTRIP login information will be sent to the receiver. When the user selects “Dial” from the GSM/GPRS screen, the caster will be contacted and the user will be prompted for a Mount Point ID. Commands will be sent to the ZMax to connect to the chosen Mount Point. When using GSM or GPRS, if the modem is currently on, the user will not be able to modify the settings. They will be available for modification once the user turns the modem Off.
- **Thales GPS (1.61.01):** For ZMax, added CMR Plus and RTCM 3.0 for base, added RTCM 3.0 and modified CMR to CMR/CMR+ for Rover.
- **Thales GPS (1.61.01):** For ZMax, modified the text in the Cancel option screen during initialization to let the user know more about what is happening (Reading Modem Settings, Initializing Modem, etc).
- **Thales GPS (1.61.01):** For ZMax, the configuration methods for PDL radios on port B (external) will be identical to the methods for port D (internal).
- **Thales GPS (1.61.01):** For ZMax, the user will be able to set the BT settings of their receiver even if they are connected with a cable.
- **Thales GPS (1.61.01):** The current data port will be automatically determined upon connection.
- **Thales/Ashtech GPS (1.61.01):** For Ashtech receivers other than the ZMax, during the base configuration process, the data collector port was reset to COM1.
- **Thales/Ashtech GPS (1.61.01):** For Thales/Ashtech GPS, removed the “Log Thales OBEN” and “Log User OBEN” options. These were unnecessary settings used to determine if OBEN point ID’s should be alphanumeric or numeric.
- **Topcon FC2000 (1.61.01):** Bluetooth was not working properly for the FC2000.
- **Topcon FC2000 (1.61.01):** The taskbar was not properly hidden at the start of SurvCE.
- **Topcon GPS (1.61.01):** Added support for the HiPer XT’s with internal Topcon radios. Internal IP modem is not supported yet.
- **Topcon GPS (1.61.01):** Added “HiPer Pro” to the selection list for Topcon GPS+.
- **Topcon GPS (1.61.01):** Added support for external Airlink IP modems and added the ability to send NMEA positions to the server. This should allow users to work with TopNET.
- **Topcon GPS (1.61.01):** Fixed known point initialization buttons to allow getting points from point list and map.

- **Topcon GPS (1.61.01):** For Topcon GPS receivers, all radio options for type, port and baud will be available for all types of Topcon receivers. The default parameters for PDL are port D and 38200 baud, for Spread Spectrum (1.61.01): C and 38400 baud, for AirLink (1.61.01): D and 115200 baud.
- **Topcon GPS (1.61.01):** Made corrections to the Log Static routine.
- **Topcon GPS (1.61.01):** For Topcon GPS+, when selecting “Other” for an antenna type, the receiver will not be told that it is an external or internal antenna. The last used value in the receiver will be held. This will allow users with internal antennas to work with a zero phase center offset.
- **Topcon TS (1.61.01):** The units setting in the instrument will be queried before uploading an angle. This will ensure that the angle is set properly.
- **Topcon TS (1.61.01):** Added support for using radios and BT RC2W simultaneously.
- **Topcon TS (1.61.01):** For Topcon robots running RC2 Bluetooth with radios the problems initiating the Bluetooth connection with the RC2 and with the RC2 setup dialog are now resolved and this configuration is fully supported.
- **Trimble GPS (1.61.01):** For the Pathfinder, “DGPS” is reported when beacon corrections are in use. The user will now have the ability to cancel the connection immediately when the program starts. Before, the user had to wait several seconds with an hour glass if no Pathfinder was connected.
- **Reflectorless Target Heights (1.61.01):** Now target heights will be allowed for reflectorless mode. This allows users to do vertical offsets while reflectorless without having to go to the offset routine. The reflectorless height will be set to zero by default.
- **Backsight/Foresight Heights (1.61.01):** Added a toggle to the instrument setup dialog called “Use Backsight HT for Foresights” to link the backsight and foresight target heights. This is for users that use the same prism pole for both the backsight and foresight readings.
- **Auto by Interval (1.61.01):** Removed the “TEXT” icon since there is not a TEXT version available in this routine.
- **Elevation Difference (1.61.01):** CL Station and Offsets will still be reported when off surface.
- **Log Static Data (1.61.01):** For all GPS that support Log Static Data, if the user exited the routine while logging a site and later returned to close the site, it was possible that an extra CRLF was appended to the end of the site name.
- **Point Projection (1.61.01):** Added all alignment selection methods and support for profiles and vertical difference reporting.

- **Set Collection (1.61.01):** If a reciprocal calculation was performed as the result of a set collection, but the rod height for the backsight was modified during set collection, the old backsight rod height was used.
- **Stakeout Points (1.61.01):** When adding points to stake out from the Stakeout Points List, the software now preserves the order in which the points are selected.
- **Store Points - Average (1.61.01):** Updated and made corrections to the averaging routine. When taking an averaged reading, the Store Fixed Only toggle will be used to determine whether or not to disregard Float or DGPS solutions.
- **Store Points - Offsets (1.61.01):** When in TEXT mode using GPS, the Offset routine did not work.
- **Store Points - Offsets (1.61.01):** If running GPS and the offset point was solved, if the user went to MAP and returned, they were forced to redo the offset calculation. The previous solution will now be maintained to avoid this issue.
- **Calculator (1.61.01):** The Conversion Page in calculator contains now a "Solve" button that will allow the user to run the conversion without hitting Enter. However when not using the Virtual Keyboard the conversion is done automatically. The Virtual Keyboard now works in the Scientific Calculator. A button is available to start the keyboard and the procedure works like you are in the actual Scientific Calculator screen. The OK acts as enter, the Cancel acts as Escape, the "\", "*", "-", "+" will execute the operation against the two terms and will exit.
- **Calculator (1.61.01):** When a keyboard is not present, the Scientific Calculator now has an icon that allows the user to access the Pop-Up Keyboard.
- **Point in Direction (1.61.01):** When the user changes the quadrant from NE to SW and the value of the angle is 0 degrees 0 minutes and 0 seconds the routine now updates correctly the horizontal angle edit box to S 0degrees 0 minutes 0 seconds W.
- **Station Store (1.61.01):** Added the ability to allow for stations that are before the beginning or beyond the end of the defined alignment. The alignment will be extended tangent to the first or last segment.
- **Station Store (1.61.01):** Added the standard interface and all alignment types.
- **Transformation (1.61.01):** The user can now select points from the Control Job when using Point List buttons.
- **Input/Edit Centerline (1.61.01):** When storing points for the newly created centerline, the program was failing to request all the point IDs from the user, when in Manual mode, for the entire centerline. Also, when using Automatic mode, the program was creating duplicate points at the connecting points of the Centerline.

- **Road Utilities - Input/Edit Template Series (1.61.01):** Added support for TDS templates. To convert the files, select the TDS file type from the Load dialog and have the RD5 and TP5 files in a single folder.
- **Road Utilities - Centerline Conversion (1.61.01):** Added support for LandXML 1.1 files. Previously Horizontal Alignment files were not supported properly if the new 1.1 format was used.
- **Road Utilities - Profile Conversion (1.61.01):** Import ISPOL Profile RAS file supports now Circular Curves.
- **Road Utilities - Profile Conversion (1.61.01):** Now the RLN to PRO conversion does not create duplicate PVC and PVT points for vertical curves.
- **Road Utilities - Section File Conversion (1.61.01):** Added the ability to import Terramodel/Geodimeter sections from *.RLN files to Carlson section files (*.SCT).
- **Road Utilities - Section File Conversion (1.61.01):** Added User Defined File Format (e.g. Sta,OS,EL).
- **Road Utilities - Section File Conversion (1.61.01):** Corrected the issue where the button name for Select New Section File disappeared when using the ISPOL conversion.
- **Road Utilities - Section File Conversion (1.61.01):** In the Import CLIP TRV Section Files to Carlson SCT File the routine now imports the correct descriptions from the new TRV file format.
- **Section File Interpolation by Profile (1.61.01):** Added the option to attach a profile for Section Interpolation. The Sections must have an Offset and Elev at 0.0 (center of the road) for the profile to be used in the interpolation process. The Elevation of the 0.0 Offset must match the elevation from the profile for the profile to be used in the interpolation process. This change is available for all routines where section files are in use.
- **Slope Staking (1.61.01):** Added the ability to hold either the stake offset or the stake elevation in the final report. This allows the user to set theoretical slope stakes in rocky environments where the catch location can be seen but not reached. The user will be given a cut/fill value to the catch elevation based on the staked offset and the design slope.
- **Template Stakeout (1.61.01):** Enhanced this routine to include multiple surfaces defined by sections. Added a live section view for slope staking and the ability to reference an alternate section point for cut/fill.
- **Template Stakeout (1.61.01):** In the List of stations for Template Stakeout, if the user selects a Template Series File, the list will also contain the Template Series Stations.
- **Template Stakeout (1.61.01):** Section view was displaying the first and the second

offset for the Slope Stake in the opposite direction. The calculation of the offset in the PLAN view was correct, only the graphic display was incorrect.

- **Template Stakeout (1.61.01):** The routine was not saving the Section Files to the RDF file using the command Save Roding Files.
- **Template Stakeout (1.61.01):** When using a Design Offset of 0.0, the routine will only allow a positive Stake Offset value and will use the Left/Right radio buttons to define the direction of the Stake Offset.