

Carlson SurvCE6

Version 6.03 Release Notes

Updated 5/3/2019

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Improvements and Resolved Issues By Release

Version 6.03

Release Date: May. 1, 2019

New Instruments Supported:

- Carlson NR3
- Geomax Zenith 40
- Nikon Xf/Xs
- Geomax Zoom70 Onboard Version

Other New Features and Improvements SurvCE:

- The “Extend Line” feature has been renamed to “Continue Line” for clarity.
- The software will now issue a warning when Codes are added to the FCL and the user attempts to use "space separator" generating an invalid code name (multiple code names are not allowed in the Feature Code List).
- If SurvCE gets an error during RTK configuration but still gets corrections, configuration will still be considered complete. This helps in areas of slow internet connection where the user may get a false failure.
- When configuring the settings for a Stop & Go raw data file inside the receiver, if the configured number of readings to take per point when not in logging mode is higher than the current Readings per Point in logging mode, the higher value will be used by default. Also, the user can now change the Readings per Point while in the Store Points/Stakeout screens by using the "C" for configure button.
- Slope Report cutsheets have been improved. The deliverable cutsheet will now include left/right Offset+Catch+Pivot, and grades in columnar form.
- In Volume routine comparison, Surface and Surface, Elements, etc. SurvCE now offers the option to report the import data (stockpile) or the export data (pit).
- SurvCE will automatically connect to onboard total stations on startup and not ask user whether or not to connect.
- In the Cogo/Inverse routine, if the user does not change the Point ID or source (Current/Control) and presses Enter, the routine will no longer cancel out back to the Main Menu. A resulting 0 distance, 0% slope will be displayed.
- The 0-4 meter rod height warning will now only apply to real instruments (not simulators).
- Dealer splash screens are now supported in SurvPC. Add file dealersplash1.bmp into the program folder to replace the standard splash screen.
- SurvCE will now display symbols properly when using the reverse mode (white on black) in the map.
- Use Virtual Joystick will now be on by default when SurvPC is installed for the first time to a tablet PC.
- Import LandXML to CRD/CRDB now allows only point ID, no description, nor code.
- TEXT/MTEXT now allows the reading from the import drawing routine, the alignment, top/center, and also it draws the data (text) in the CAD Basic MAP.
- Import Drawing allows scaling, detects the type of the units in the Drawings, and the scaling

units.

- Points from Esri SHP files with point ID defined will now save correctly to CRDB files.
- The NMEA message RMC is now added as an option for data collector nmea out.
- SurvCE now supports Pregeo data output even for receivers without vectors.
- When averaging only 1 reading or tagging only 1 epoch in a Stop&Go session, the software will no longer display statistical (min/max/stdev) data on the screen.
- When first entering the Export Ascii screen, the "Format Geodetic" button will be disabled if no Geodetic items have been selected for export.
- The option "Do not configure" is now available on the RTK tab. When selected, SurvCE will bypass RTK device configuration. This is useful when users want to configure their RTK device externally, or when a receiver auto-connects.
- SurvCE now allows direct access to layer management in all graphic/work screens, including store points, stake points, intersection, etc.
- Joystick Page has been improved, especially when using virtual Joystick buttons/touch screen.
- SurvCE will now force the total station to go into standby mode before setting the angle after resection. This eliminates a small chance for error if the prism is moved in the brief time the angle is being set.
- SurvCE will now display an out of level warning in the quick view dialog when the measurement fails due to being out of level.
- SurvCE now calculates better directions in stakeout when the method is set to Direction or Deflection L/R and the user is very close to the stakeout point.
- GPS Simulation -- When the left or right arrows are pressed and the speed is zero, the speed of the simulator will now increase incrementally so as to make the turn visible.
- The GIS inspector will no longer leave an artifact on the MAP screen after use.
- Hybrid+ -- SurvCE will skip the turn in GPS Search if it is already looking in the correct direction within 1 degree.

Bug Fixes in SurvCE:

- Voice prompting in stakeout will speak correct units ("meters") when Job is metric.
- When using the quick switch rod height feature within any routine, the newly selected rod height will now accurately be applied to the current reading.
- Labels have been corrected in the complex measurable screen for equation definition.
- When entering a routine for which communication should be stopped, SurvCE will no longer try to configure the instrument.
- SurvCE will go ahead and start the position stream if it has communication, even if part of configuration may have failed.
- RMS values will now be stored in metric within the .loc file. This corrects an issue that caused the RMS values to display incorrectly in the Localization screen and .HTM output file.
- Light Bar settings and the UI in Elev Diff are working correctly.
- The digital leveling screen no longer has a display glitch.
- Hybrid+ -- SurvCE will no longer perform two GPS Searches at the beginning of a cross check.
- Hybrid+ -- SurvCE will not attempt to measure in Cross Check if the GPS Search failed.
- Hybrid+ -- GPS status text will now update in hybrid resection. Previously when IMU was on, it was possible that the status did not update.
- Hybrid+ -- SurvCE will now hide and disable the "Ignore Elevation" option when performing a hybrid resection.
- The LLQ and LLK NMEA output will now work when the total station is tracking.
- The DC Phone option will no longer show as an option when it is not supported.

- GPS Rod height will now be updated appropriately in TXT mode and other non-graphic dialogs.
- Measurable buttons now apply the GPS Average number of readings setting appropriately.
- There is no longer a potential for failure when attempting to delete records from the RW5 editor.
- SurvCE will no longer report a connection error when using any of the three types of manual levels.
- NMEA output to file is now working correctly again.
- When creating a new single point localization during the base configuration process, the existing project scale factor will be maintained. Furthermore, if the base scale point method is set to "First Localization Point", the base scale point will also be updated to reflect the new localization point.
- Carlson CrewView now works in all quadrants.
- Import Profile from "inframodel" "fi" now works correctly.
- PERP and TANG OSnaps are now working correctly when coming from any dialog.
- The software will no longer block the user from storing a newly staked point when the description has not changed.
- LandXML export from a CRDB now works as designed, and the user interface has been improved.
- Base translation by rover is now working as designed.
- Fixed an issue which caused the VRES value of newly added localization points to be off by the amount of the rod height. This issue was in display only and did not affect the actual calculation of the localization.
- Modify GIS point data now works as designed.
- The errors record will once again be written to the RW5 file when a stakeout point is stored.
- Surface Inspector in Elevation difference will now revert to point data when cancelling the stakeout of the inspected point.

New Features and Improvements SurvPC:

**Note that all relevant features in SurvCE are included in SurvPC*

- SurvPC with Esri -- Esri OEM 10.6 serial numbers will now receive the 10.6.1 engine if they download via SurvPC.
- SurvPC with Esri -- The Join Lines feature now handles more than two entities to be joined and obey rules for 2D/3D feature class definitions.
- SurvPC with Esri -- Custom domain order and visibility are now supported.
- SurvPC with Esri -- the software now includes comprehensive Import ASCII from an ASCII file to CSCRD, or User's defined Feature Class. Newly inserted Features will also comply to the GNT (s) rules: defaults, date, time automatically filled-in requests.
- SurvPC with Esri -- Multiple selection dialog now has the capability to set(highlight) the most appropriate Feature Layer, versus Unique Range set, versus the actual default value set for a field (gets the best match). E.g. LP_RI, LP_AS, LP_LI, etc.
- SurvPC with Esri -- TS/RTS now are using the Carlson SurvPC-Esri set aliases for points. It allows the user to run the same points which are part of the Instrument Setup, Set Collection, etc.
- Photos taken from SurvPC will have files names prepended with point number if user selects that option from Helmet->Advanced Settings->Photo Settings. The date encoded in the file's name will follow the date format chosen in Job Settings.
- Audible Prompting will announce advanced fixes (Surefix, Verified Fix, etc.)
- SurvPC now gives user-friendly warnings when permissions on the tablet or computer block

- access to critical files and folders needed by SurvPC.
- The OSTN15.bin file is now included in the SurvPC installer.

Bug Fixes in SurvPC:

**Note that all relevant bug fixes in SurvCE are included in SurvPC*

- SurvPC with Esri -- The toolbox once again contains scripting.
- SurvPC with Esri -- Point style selection, works appropriately in the GPS Simulation Utilities; when picked points from the Feature Classes or ArcMap Documents.
- SurvPC with Esri -- SurvPC will now set the drive correctly when using direct access to add features to Esri.
- There is no longer a potential for error when features are deleted from the list selector and there are no remaining features after the deletion.

Version 6.02

Release Date: January. 31, 2019

New Instruments Supported:

- Topcon HiPer VR (OAF license may be required)
- Sokkia GRX3
- MarXact UNI
- HiTarget iRTK5
- Leica TS03
- Leica TS07
- Leica TS10
- Geomax Zoom70

Other New Features and Improvements SurvCE:

- The following translations have been updated: French, Hungarian, Dutch
- SurvCE now warns the user if a rod height outside of the range of 0-4 meters is entered.
- Hybrid+ Smart Lock will now take the GPS Receiver's solution into account before performing a GPS Search. Autonomous and float solutions on the receiver will prevent a GPS Search from being performed when the GPS Receiver is within 10 meters and 5 meters (respectively) of the Total Station.
- SurvCE will now alert the user when a 0,0 coordinate is calculated in Hybrid resection+. This is an indicator that the wrong projection is in use.
- The following projections are now supported:
 - GERMANY/ETRS89/UTM zone 31N_kurz
 - GERMANY/ETRS89/UTM zone 32N_kurz
 - GERMANY/ETRS89/UTM zone 33N_kurz
 - GUYANA/PSAD56/UTM zone 20N
 - GUYANA/PSAD56/UTM zone 21N
 - Barbados National Grid
- The SurvCE Instrument status icon is now visible in the GPS Offset dialog for both GPS Rover and Hybrid+ modes.
- The localization report button is now available in the top bar for all pages of the localization sheet.
- The option “Repeat Store” in the prompt for heights and description screen has been renamed to “Multi-Z Store.” The purpose of this option is to store the same X and Y coordinate several times with different rod heights (elevations).
- A job's cutsheets will now be included when copying files using File-Data Transfer.
- Display for import ascii has been changed to remove the X,Y, and Z legend. The old labeling was confusing in scenarios where the X and Y were reversed in a coordinate system.
- Photos added to a job after measurement by editing the point will now have the point's lat/lon/elevation inserted into the the photo EXIF data.
- Import ASCII now offers the option to skip the creation of the SP records in the RW5.
- The OSNAP_CEN command has been improved.
- The process of setting the total station orientation after a resection has been smoothed out for a better user experience.

- The default function of the search-icon in the top bar is now better adapted to the capabilities of the driver.
- A new GIS setting has been added to allow direct access to GIS features when a point is selected (instead of point details).
- The GDA2020 C+D coordinate systems (the version that required grid files) have been removed, leaving the 7 parameter coordinate systems. Removed the C out of the GDA2020 7 parameter coordinate system names.
- In stakeout, the software now includes a turn to “0” angular display, where the difference between the stakeout point and the current angle are displayed relative to 0.
- The localization dialog now asks to reprocess the raw file after changing the grid to ground scale factor.
- The L/R Quick Search directions in the search icon will now adapt to account for perspective.
- Check level is now accessible under the helmet inside the total station setup screen.
- The Robotics button will now be available in the BM- tab of the Leveling routine.
- SurvCE will now automatically calculate a Grid to Ground scale factor and scale point when toggling on Grid to Ground, when using one or two localization points. The automatically calculated Grid to Ground scale factor is calculated using the projected coordinates (from the geographic position and ellipsoid elevation) from first localization point that has Horizontal Control turned on. The automatically calculated scale point is set to the local coordinates of the same localization point.
- A new starter feature code list is now included in all installs (starter.fcl)
- After installing SurvCE to a Surveyor2 equipped with a barcode scanner, the user can change the helmet back to triggering the scanner by choosing the key labeled "Carlson SurvCE" and setting it to "Barcode Scan". Previously, the installer interfered with resetting the helmet to be the trigger key.
- SurvCE will no longer get an out of range error for geoids that straddle the prime meridian when using a position in the eastern hemisphere portion of the geoid.
- The Hgt/Desc checkbox in the one-touch storing screen is now directly tied to the "Prompt for Height and Desc" option in Equip->Configure.
- MAP/Polyline to Points when used on Data Collector now works more quickly.
- When using STK Points/Map and using OSNAPs the software now defaults on the edit box of the coordinate, not as before on the empty Point ID(Name).
- Reprocessing the raw file from within the Localization dialog, while having localization points (one or two with Rotate-Only on) will now use a scale point based on the local coordinates of the first localization point that is turned on.
- When setting the combined scale factor using the Read GPS method (either via clicking the button, or via the Read GPS method inside the calculator) while having localization points (one or two with Rotate-Only on), SurvCE will set the scale point to the first localization point that is turned on.
- Edit boxes now support scientific notation.
- The Import Drawing command now allows drawing-points to be saved to the coordinate job as points.
- Handling of RTCM3 projection messages has been improved. SurvCE will now wait for the messages before finalizing the instrument configuration.

Bug Fixes in SurvCE:

- The software will no longer incorrectly report an error tagging a point during store points when the receiver was not actually logging a raw data file. This could happen when the same data collector was used to set up a logging base and then immediately setup a not-logging

rover.

- Angles/Slopes Static controls (e.g. slope ahead/back in Stk Road) are now displayed correctly.
- SurvCE no longer has the potential to fail when moving a new feature code to an empty category.
- SurvCE no longer has the potential to fail when performing an average reading inside of 2-point offsets.
- Unregistered (demo) copies of SurvCE no longer has the potential to fail when configuring NMEA output while in TS mode.
- SurvCE no longer has the potential to fail in a list control when there are zero items in the list.
- HRMS and VRMS tags will now print in all upper case in the RW5 file. This fixes errors in the web-based raw file report tool.
- SurvCE will no longer show unwanted messages related to “Averaging with previous point IDs...” when GNSS Analysis is enabled on a new job.
- It is no longer possible to get a "reflectorless" tag in some dialogs when using drivers in which reflectorless is not supported.
- The HC1/HC3 data collector will now correctly save, recall, and reconnect to devices when using Long Range Bluetooth.
- GNSS with IMU -- For averaged readings calculated with tilted pole corrections, the IMU data will no longer be written in the rw5 file. Due to the GPS record for these readings being a result of the averaged tilt-corrected readings, the IMU data was no longer valuable for reprocessing and would lead to incorrect results after reprocessing. The following note will be recorded for these types of readings, "--Average result with Tilted Pole Correction".
- Simple parallel non 90 degrees polygons now compute slided areas more reliably.
- The New Job setting "Use Last Job Localization" will no longer apply when an existing job is opened.
- SurvCE running onboard CE 5.0 total stations will now offer color for layers.
- Hungarian Coordinate systems using grid files will no longer falsely display a Localization Error dialog.
- New jobs now write the correct MO/Raw RW5 value for the Azimuth Direction.
- STK Line/Arc by two points now works more reliably.
- Spiral curves are now more reliable when creating CL files.
- SurvCE can now switch correctly out of hybrid mode when GPS Simulation is being used.
- SurvCE will no longer show an incorrect 40 meter warning message when the user configures a GPS base and enters an orthometric height.
- Point entry for benchmark points has been improved to not overwrite while typing.
- The "Ignore Elev" checkbox no longer has the potential to get stuck (cannot check or uncheck) in Hybrid+ resection.
- Unregistered (demo) copies of SurvCE will now display the point list correctly when a CRDB file is in use.
- GPS point store, GPS fixed and GPS loss of fix now make the same sounds they did in Version 5.x.
- Robotic total stations will now return to Face 1 after a F2/F1 shot in benchmarks.
- When software orientation is set to Auto, SurvPC will now lock its orientation correctly.
- The FS and BS prism offset labels in the RW5 file are no longer switched. This was a cosmetic error only.

- SurvCE will now correctly display all items when going through the Hybrid+ wizard on smaller portrait data collectors.
- The base translation by rover Base Info display has been fixed. Previous versions could display a date in the longitude field. This was a display only problem.
- Generic Bluetooth will now correctly connect to the selected com port, and will save/load the chosen com port setting correctly.
- Advanced Occupation now adds targets more reliably.
- When storing the base position to the coordinate file during a base setup by local coordinates, the elevation will now correctly be stored.
- Export Ascii to user-defined file other than XLS and CR5 will no longer unnecessarily prompt to replace an existing file.
- The localization report dialog now displays the correct title in the top bar.
- SurvCE no longer has the potential to retrieve the wrong rod height in text mode.
- The live display of total station measurements when not tracking (angle only) will now be closer to previous versions.
- SurvCE no longer has the potential to throw a projection backup validation message when connecting to the RTK network.
- The pick from point and pick from map options now work correctly in offsets.
- It is no longer possible to fail when using the calculator from within an edit box in graphic screens.
- SurvCE will no longer have the potential to store the wrong base position when setting up using local coordinates.
- Fix error in Equip / GPS Base / From Known Position / Use Local Coordinates localization calculation.
- SurvCE will no longer create an unneeded InstConfig folder.
- The "Send Rover Position To Network" option will no longer appear at the base.
- It is no longer possible to get duplicate RW5 records when editing points.
- When the backsight target is a prism and the FS is reflectorless, there is no longer a potential for the backsight rod height to be overwritten with the FS value.
- RNF (road network file) from Carlson Software/Office now works as designed when using SCT/Subgrades.
- On CRDB jobs, certain files will not be misnamed as <name>.crdb.xxx instead of <name>.xxx.
- Reprocessing the raw file from within the Localization dialog will now use the scale point of the current job.
- The Leica CS15 can once again use F11 together with letter keys to produce punctuation.
- There is no longer a possibility for a software failure in advanced occupation for non-English languages.
- Fix an error in height factor calculation when using both a geoid file and localization points.
- Vertical only localization now works correctly.
- The "Read GPS" Grid to Ground method will no longer erroneously apply the localization to the local coordinates it calculated.
- The Leveling routine will no longer attempt to access road files when "Use Road Files" is unselected.
- The GPS Grid to Ground scaling status screen now displays the combined scale factor instead of the combined inverse, displays the geoid offset as positive always, and displays the geoid

offset in job units instead of meters.

New Features and Improvements SurvPC:

**Note that all relevant features in SurvCE are included in SurvPC*

- SurvPC will now offer more clear error messages when windows permissions block access to required or selected files.
- SurvPC Esri now supports third-party plugins.
- SurvPC now supports the "YYYY/MM/DD" date format.
- A user with his own ArcGIS engine license can now use it when in demo mode.

Bug Fixes in SurvPC:

**Note that all relevant bug fixes in SurvCE are included in SurvPC*

- SurvPC no longer has the potential to highlight multiple objects on the screen when a “smart” stylus is used. These styluses are sold with the CS35 tablet, for example.
- UI improvements have been made for narrow screens to ensure that all options are visible.

Version 6.01

Release Date: Sept. 21, 2018

New Instruments Supported:

- Leica TS13 Total Station
- Stonex R35 Total Station (including onboard)

Other New Features and Improvements SurvCE:

- All sound related settings are now consolidated in the "Audible Settings" button from the Advanced Settings helmet item. Stakeout prompting settings remain accessible from the Stake tab of settings.
- The Stake Report dialog now includes the Point ID and Description of the point being staked out for Stake Points.
- Hybrid+: Resection now displays GPS receiver status and errors when "Use GPS" is enabled.
- Hybrid+: SurvCE now displays the levelling dialog when storing points from total station in Localization.
- Hybrid+: SurvCE now notes each Cross Check in the RW5 raw file as a comment, noting that a cross check was performed and listing the horizontal and vertical residuals.
- Hybrid+: The Cross Check report dialog now offers the option to retry the cross check. This will repeat the total station search and read, and get a new position from the GPS.
- Hybrid+: Users may now enter into Store Points, Stake Points, Auto by Interval, etc. in GPS mode without setting up their Total Station. Attempting to switch instruments with a TS that has not been setup will show the Backsight dialog and prompt users to setup their instrument.
- Hybrid+: GPS Search is now available in Resection after the second hybrid point is taken.
- Hybrid+: A new "silent" option is now available for Cross Check. This option will perform the cross check and note the error in the RW5 but suppress any errors.
- Hybrid+: GPS quality will now be noted in the RW5 raw file whenever a Cross-Check is performed.
- Hybrid+: It is now possible to switch jobs without restarting Hybrid+. Note that a crosscheck must be performed to validate setup on the new job.
- Some GIS options have been relocated to Advanced Settings->GIS Input Settings.
- Web Map Overlays WMTS option now supports WMTS servers that offer CRS of :3857 and WKSS of :GoogleMapsCompatible.
- Australia GDA2020 Coordinate Systems are now supported, including WA Project Grids.
- SurvCE will now warn the user if an RTCM3 projection is received and the 1021-1027 option is not enabled. This feature is limited to data collector internet.
- RW5 file reprocessing now supports GNSS tilt records.
- SurvPC now offers users the ability to increase the precision of their NMEA GGA messages by 1 decimal point when setting up their NMEA output.
- SurvCE now requires RTCM3 projection dialog to be displayed before finishing GPS configuration or connection when the 1021-1027 option is enabled.
- Robotic total stations will now rotate more accurately to the reverse face during set collection.
- Users may now change the date format used in the RW5 file under the System tab in Job Settings.
- The reconnect button in the helmet menu has been enhanced for reliability.
- SurvPC will now save valid WMS URLs in a drop down list to make for easier switching

between WMS servers.

- SurvCE will now warn the user when the backsight is accidentally measured in the reverse face.

Bug Fixes in SurvCE:

- Out of order calls to get crd points from alphanumeric and CRDB now works correctly. This corrects a problem when using JPN in field to finish.
- AUSTRIA/MGI-GIS Grid/Austria West Zone, AUSTRIA/MGI-GIS Grid/Austria Central Zone, AUSTRIA/MGI-GIS Grid/Austria East Zone have been improved.
- The SurvCE shortcut will now start SurvCE correctly when the user has chosen to install somewhere other than root.
- Processing RW5 files with depth sounder data now works correctly.
- The point list will no longer appear corrupted when the current Job is reselected in File/Job. Note that this was a display issue only.
- Hybrid+: Users will no longer receive IMU-level prompts when storing the calculated occupation point in Resection.
- Hybrid+: RTCM3 projection is preserved when configuring Hybrid instruments.
- Hybrid+: Performing a GPS Search with "Ignore GPS Verticals" enabled will no longer adjust the zenith angle.
- Hybrid+: The GPS Search icon will now appear in the drop down search list when GPS Search is available during a Hybrid Resection.
- Hybrid+: SurvCE will now ensure that both the TS and GPS equipment setup information is written to the RW5 file when Hybrid+ is used.
- Hybrid+: GPS Hrms/Vrms records will be added to the RW5 file whenever a Hybrid Resection point is taken.
- It is no longer possible to get into an endless data-validation loop when entering invalid data in some edit boxes.
- The "One Shot" icon will now work in GPS mode.
- When exiting SurvCE/PC, any received RTCM3 projection is now discarded. This prevents the old projection from being used when the job is reloaded.
- Storing a point now warns user if RTCM3 "Use 1021-1027" is on but there is no current RTCM3 projection.
- SurvCE will now wait for the RTCM3 projection to be received before finalizing configuration when the option is enabled.
- There is no longer a potential to fail when feature code groups are used and the group definition is no longer valid.
- The breakline dialog inside of Grid Scan will now appear correctly. Previously the topbar could appear corrupted.
- The "read" button in point projection is now working for total station.
- SurvCE will now find a user defined APN in the list if the *.apn file exists.
- ISPOL SC1 import has been improved to better handle identical offsets (vertical walls, for example).
- NGVD29 coordinate systems now work more quickly.
- Pressing the Defaults button for NMEA output port settings will now give the correct default values.
- SurvCE no longer has the potential to falsely display the localization error dialog when receiving RTCM3 projections.
- GeoPak Import now works correctly.

- Set collection will now use the user-entered description correctly. Previously there was a chance that an old description could be used.
- Export DXF/DWG now better handles the INSERTS/BLOCKS for Entities which have attributes. E.g. Carlson Block Points. Avoids issues when loading the data in AutoDesk products.
- Line stakeout is now more reliable when using average readings.
- GPS Average now applies the RMS tolerance correctly.
- Now showing last tolerance exceeded instead of reading count when tolerance fails in Average GPS dialog.
- SurvCE no longer has the potential to skip some direct face measurements in set collection.
- Stakeout in TEXT mode is now working correctly.
- TS Levelling dialog now uses correct default setting for leveling instrument and buttons for Read, Store, etc. are now shown correctly
- GPS Rod height now correctly transferred from Version 5 Rover and Base settings.
- When selecting a new/existing job on startup, the default filename will use the correct file extension. Previously, the default filename would use a .crd extension even if the last file used had a .crdb extension.
- Port settings from Version 5 files now imported correctly.
- The backsight height will no longer be erroneously written over the foresight height when going to the robotics tab from store points.
- The Check BS routine in the Robotics tab no longer has the potential to use the wrong target type.
- Export Drawing now relies on the setting used by customers which produce and deliver directly the drawing with no Office intervention on the data, setting> "Disable F2F descriptions when the user edits the polylines in Map"; in this case although the linework is no longer Carlson F2F qualified, the software will still export the Points (inserts) to the appropriate LAYER.
- SurvCE will now show the error values in the correct distance units during sensor calibration.
- Changing settings from the Single Setup, Remote BM, and Robotics tabs is now more reliable.
- SurvCE will no longer incorrectly add the label "EDM Mode" into the RW5 file.
- The stake points routine will now show the "Turn To AR" data even when no distance is available.
- When occupying an unknown point with the same point ID as the next expected foresight point ID, the next expected foresight point ID will be incremented automatically.
- Cancelling Configure Rover now makes sure previous rover is configured.
- When selecting a new job, if the last job used was a .crdb type and the new filename does not have an extension typed in by the user, .crdb will be the file type for the new file.
- SurvCE will resume updating angles in the joystick screen after a turn or search command.
- The Sonarmite Depth sounder is now working correctly.
- Leveling "Update Points in Job" dialog now shows correct Point Elevation for beginning benchmark point.
- Leveling "Update Points in Job" dialog now shows correct elevations for open loop traverses.
- GPS rod heights will be correctly written to the note file when the option is selected by the user.
- When staking out in locked mode, and the read button is pressed, the instrument will now use Stakeout review instead of attempting to store the point.
- There is no longer a potential for failure in stakeout when moving to next point or using the map from the stakeout screen when "Stake Review" is active.
- The localization report now correctly displays the Combined Scale Factor. Previously it

displayed the 1/CSF value.

- Grid to Ground manual entry is now working as designed.
- There is no longer the potential for total stations to fail to rotate during a traverse when D&R is enabled.

New Features and Improvements SurvPC:

**Note that all relevant features in SurvCE are included in SurvPC*

- Esri version 10.6 is now supported.
- A PRO or PRO set file will be saved whenever a complex or simple profile is displayed. SurvPC will also generate a PRO settings file.
- SurvPC will now only offer the “Force All Features To Be Selectable” option when an Esri job is being used.
- The Res folder will now be deleted by uninstall unless the user copied additional files to that location.
- Hybrid+: SurvPC will now do a voice prompt whenever a cross check has failed or passed when using "Silent" Cross Check Mode.
- Graphics for checkboxes, radio buttons, etc. have been updated for a crisper image.

Bug Fixes in SurvPC:

**Note that all relevant bug fixes in SurvCE are included in SurvPC*

- It is no longer possible to launch multiple simultaneous instances of the software on very fast tablets. This unusual situation could result in unexpected errors.

Version 6.0

Release Date: July 11, 2018

New Instruments Supported:

- Carlson BRx6+
- CHC M6
- CHC i70
- ComNav G200
- ComNav T300+
- geo-Fennel FGS100
- Geomax Zoom 90S
- iGage iG8
- HiTarget QBox8
- Hemisphere C321
- Hemisphere A326
- South G1+
- Stonex S800/S800A
- Stonex S900/S900T/S900A
- ** Support for the Focus 10 and Trimble 5600 have been removed*

New Data Collectors Supported:

- CHC LT35
- Trimble Juno 5
- Pentax PS9
- ** Support for Windows Mobile 5 data collectors has been removed in version 6.0.*

Major New Features and Improvements SurvCE:

- SurvCE now offers the Hybrid+ Survey module to survey with both GPS and Total Station at the same time. Visit www.survce.com/hybrid for more details.
- Log Raw GPS has been redesigned to allow static logging without configuring an RTK Rover or Base. The process has been streamlined for ease of use.
- SurvCE now offers an advanced total station search icon to allow selection of search type from inside of any live survey screen.
- GNSS Analysis has been updated to the 2017 version.
- SurvCE now supports a laser pointer icon in all live survey screens for any total station with a laser pointer.
- SurvCE now supports web map overlays from Google, Open Street Maps, ArcGIS REST, and user defined Web Map Servers (WMS/WMTS/TMS).
- SurvCE can now read and export PRJ projection files.
- SurvCE now includes a Robotic Total Station Simulation driver for demos and testing. Pressing F12 will switch modes between standby, locked, and tracking in the simulator.
- SurvCE now includes Snap options inside of store points to facilitate drawing in the field as part of the survey process. An UNDO option has also been included.
- Total station control icons Search, Lock/Track, Target, and Laser Pointer will now be available in more screens.

- A new status icon will now show the status of the instrument connection from all screens.
- SurvCE now includes a "GIS Inspector" feature in the Map screen that allows viewing and editing GIS attributes as linework is created and edited.
- SurvCE now supports obstructed view stakeout mode.
- SurvCE now includes a "Surface Inspector" for elevation difference which allows storing and staking points from the surface as well as viewing cut/fill to the surface using Snaps.
- SurvCE now displays a red tolerance bar to indicate that a measurement is currently outside of a user defined tolerance.
- SurvCE now supports an automatic backsight check in the joystick screen.
- Auto by Interval when level now stores the most level reading which was recorded during the required level tolerance period.
- SurvCE now supports continuous reflectorless measurement for total stations which support the feature.
- SurvCE now offers the ability to demo the roading module on an already registered copy of the software.
- SurvCE now supports a two-prism pole in the 2-Point offset routine.

Other New Features and Improvements SurvCE:

- Labels related to scaling in the scaling dialogs have been updated to more accurately match the value being displayed.
- On the Process Raw dialog, a GPS button has been added next to the scale setting. Clicking this will auto-fill either the Combined Scale Factor (Ground to Grid) or the localization scale from the current job.
- On the Edit/View System dialog, a GPS button has been added next to scale setting. This button will take a GPS measurement and auto-fill a combined scale factor.
- Map screen redrawing has been improved to increase speed.
- SurvCE now supports coordinate System "UNITED ARAB EMIRATES/WGS 84/Dubai Local TM".
- The Czech grid files have been updated to add support for 1710.
- Projection type Hotine_Oblique_Mercator_Azimuth_Center is now supported.
- Coordinate system CANADA/NAD83/MTM Zone 11 is now supported.
- Coordinate system "USA COUNTY KS/KRCS" (20 zones) is now supported.
- Transverse_Mercator_South_Orientated is now supported. South African projections have been updated to use this option and scale factors have been switched for -1 to 1.
- In CarlsonCloud, a file is now sent immediately if the user confirms it. It is no longer necessary to hit the send button.
- The Pause/Break button will now switch the GPS Simulation between states (autonomous/float/fixed).
- The Convert WGS84 to NAD83 checkbox has been removed from the localization dialog.
- The Coordinate System Report (HTML) now writes scale factor and latitude of origin with more precision.
- In MAP/CAD Basic when background is set to dark color, SurvCE now displays the UCS icon correctly.
- SurvCE will now always prompt before connecting to an instrument, allowing the user to bypass connection more easily when necessary.
- When running F2F in Carlson CAD, points created when drawing polylines will now be part of the feature class.
- When exporting drawing data in CAD, the user can now decide whether to export nodes or skip in the export.

- SurvCE now offers options for Optimal Proximity STK Distances, Australia/Europe. E.g. km/m/mm, km/m/cm. This option is available under helmet->Advanced.
- SurvCE now supports export format PRGEO .dat for Italian Cadaster support.
- GIS CAD Basic now automatically stores points for Centroids, F2F creation using MAP commands.
- SurvCE now allows associating attributes with multiple fields.
- SurvCE now supports Start and End during GIS prompting.
- The Input/Edit Attributes option is now more visible. This options allows the user to show and remove attribute types.
- The "Point stored" message is changed to "SIMULATION point stored" for simulation, and lengthened to 800 ms.
- Nautiz Z4, Zenius -- SurvCE will use allow internal compass use on Nautiz X4 and Zenius data collectors.
- SurvCE will now show status "Turning" when the joystick is being moved in the robotics screen.
- SurvCE now offers the user all orientation options (Set zero, set to current, set azi, set to:) from the Configure button of the Resection screen. The prompt to set zero on the first resection point has been removed, as final orientation of the instrument now happens at the end of resection.
- In 2 point offset, a selected point's coordinates will populate immediately after a point is selected. Previously, an enter was needed to cause the update.
- MAP/Polyline and 3DPoly allows: +/-Len (Right or Left or Length segments added to the entity).
- For all polyline commands in the map when Len = Extend by Brg+Dist is used, the software will now allow escape without going back to the main menu.
- CAD Basic Polyline Commands (2D, 3D, 2D (Road), 2D Free Sketch) now support Direction and Distance.
- The resection routine now includes a point count in the header bar.
- If "Average with Prior Measurements" is selected when storing a point with an existing ID in GPS mode, the software will check the distance between the new coordinates and the existing coordinates. If this distance is greater than 10cm, the user will be prompted to confirm that they wish to continue with the average. This should prevent errors of incorrectly averaging to the wrong point ID.
- Constellation checkboxes have been moved from the Advanced dialog under the Receiver tab to their own dialog "Configure Constellations".
- Proximity Radius setting has been moved from the JobSettings-Stake tab to the Equip-Tolerances page.
- SurvCE now includes a line in the raw file to report the min, max and average latency when averaging.
- SurvCE will no longer show the laser tab in offsets when the laser is not active.
- In demo mode, if the software blocks the user from storing because the point limit is exceeded, SurvCE will no longer increment the point ID, giving the false impression that the point was stored.
- Configuration and coding style options for the "One Touch" feature have been moved to a more convenient location.
- Manual Transfer is now available as an option in the SurvCE desktop demo to allow the demonstration of the CE File Transfer Tool from a Windows device.
- SurvCE now supports Cutsheet options Design North/and East for STK Points.
- Users can now choose a point from their current job to seed the GPS Simulator. This new

- option is available in GPS Utilities or in point details within the map and live survey screens.
- GPS Simulation options for rotation increment, acceleration rate, and jitter have been added to GPS Utilities to allow for more user control.
- SurvCE can now run the command “View 3D Profile” using a 3D Polyline.
- ComNav AllStar -- The F2 key will now function as the enter key.
- The option "Increment number or time on valid Readings" in advanced GPS average has been renamed to "Ignore Invalid Readings". SurvCE will now show the correct status when readings are rejected with this option enabled. The setting will now be retained between sessions.
- The option “Use Point Symbols” has been renamed to “Use Symbols from FCL” and moved to Point Settings->View Settings for convenience.
- Point protect now works more intuitively when importing ASCII text files without point names.
- GNSS Analysis now allows turning on/off Vertical Blunders in the User Interface.
- SurvCE now includes a new option to allow use of Section Typical Templates; interpolation of cross sections when there is an equal number of angular points left/right will use now the string's contiguity.
- Export Ascii Custom now includes options for exporting: DEPTH - Raw depth sounder reading. SEAFLOOR Z - Always elevation adjusted for depth sounder (Excludes Water Elevation). DEPTH_QUALITY - Raw depth sounder quality.
- SurvCE now exports the coordinate system information as part of a LandXML export.
- SurvCE now supports TDS Ascii Export. Infrared, SDR and TDS transfer have been removed.
- SurvCE now has increased protection against the creation of an invalid localization by introducing logic to automatically turn off horizontal or vertical control on newly added invalid points.
- When an existing localization file is loaded, the geoid separation information will be compared against current user settings. Current user settings for geoid separation will override geoid separation data in the localization file. A note regarding the change will be recorded in the rw5 file.
- The One point sensor test dialog now grays out the errors when the receiver is not fixed, noise is detected, or tilt is more than 30 degrees.
- The NMEA GGA messages generated by SurvCE will now always includes the correct geoid separation, latency, and RTK Base ID when available. Digits of precision for lat and lon in all NMEA messages generated by SurvCE/SurvPC has been increased from 6 to 8.
- The internal compass of the Nautiz X8 can now be used for guidance in proximity stakeout. Caution: Hold the data collector near level. Too much pitch/roll will cause X8 hardware not to provide compass reading.
- RW5 file will now note the breakdown of satellite count by constellation type. Example: --HRMS:0.065, VRMS:0.066, STATUS:FIXED, SATS:16[G10,R6], PDOP:2.371, HDOP:1.100, VDOP:2.100, TDOP:1.997, GDOP:3.100, NRMS:0.043, ERMS:0.049. This is supported on limited drivers at this time.
- The Quickview dialog for onboard total stations now includes total station battery status.
- The Monitor Skyplot routine can now display S/N ratios for more than 24 satellites. Press the large arrow icon to scroll to a new set of data.
- SurvCE now offers the option "Use Previous File" in elevation difference. This allows speedier access to the elevation difference routine by skipping file selection and auto-loading the last used surface.
- When a geoid is specified, only the name will show on the monitor skyplot screen, instead of the entire path.

- SurvCE will now turn to the correct point in stakeout when using reflectorless with a target height.
- JPEG format is now supported for map backgrounds, and decoding PNG/JPEG is now significantly faster.
- CRDB filenames now support Latin characters.
- Antenna calibration values have been updated to NGS14.
- The warning threshold for low disk space in raw data logging has been increased from 100KB to 1MB to better warn the user.
- When exiting the software, or switching instruments, SurvCE will now disable the Total Station laser pointer if it is on.
- Users will now be prompted with "Operation Completed Successfully" when exporting DXF files or SHP files.
- SurvCE now displays "Vrms" and "Hrms" instead of "VRMS" and "HRMS" to save space in the bottom bar and in other displays.
- Import Ascii now assumes destination is the current job. The option to choose another job has been removed.

Bug Fixes in SurvCE:

- SurvCE will no longer fail in some cases when attempting to use the leveling routine.
- The wait cursor will no longer appear on top of the success dialog in cloud account creation.
- SurvCE will try to determine whether internet is available before attempting connect to NTRIP using data collector internet.
- When using Data Collector Internet registration on a data collector, the OK button on notification of successful registration will once again work and the top bar will not be scrambled and unselectable.
- The base name is now fully displayed in GPS Monitor.
- It is now possible to cancel from the "checking internet status" dialog.
- Legacy geoids with 0-360 longitudes are now working correctly.
- Entering Configure Rover, Base or Total Station no longer tries to make a connection.
- The user will no longer be warned that the base position is unavailable when the software has not yet obtained a valid position.
- Text on the "Configure NMEA Output" button will no longer run off the screen when logging.
- The degree symbol will appear correctly when SurvCE runs on an onboard TS with a Chinese/Korean code page.
- SurvCE will display the complete prompt for reading including Reading # in the Resection dialog.
- When using feature codes via the button next to the description box, all icons for the codes will be displayed. Previously icons could be hidden the first time a job was loaded.
- When recording an average position the timestamp for the start of the average in the rw5 will come from the first actual reading of the average. Previously, it was possible for this timestamp to be from the reading prior to the start of the average.
- When Job Settings/ Auto Store Pick Points from MAP is disabled, SurvCE will still create a BK point in resection if needed.
- SurvCE will now hide the 1021-1027 option when the network type is not NTRIP.
- SurvCE now hides "send NMEA to network" when Listen-Listen is selected.
- Newly created rw5 files for crd or crdb files created during the import ascii process will now contain the correct job name in the header line.

- When a user selects Local Coordinates for Base configuration and those coordinates match grid coordinates for the current autonomous position within 5" of latitude and longitude, and the selected localization file is empty, the base will be configured with the latitude, longitude and elevation that have been calculated from the grid coordinate entered.
- Survey sets will now be considered incomplete sets if either FD or FR Sdist == 0. This eliminates invalid records in rw5 files when the reverse face is canceled during a survey set.
- SurvCE will display a better message when cloud login fails with error code that probably means collector date is off by more than six months.
- SurvCE no longer has the potential to fail when the com settings button is pressed for GPS Search.
- SurvCE now hides the Windows keyboard icon and the Windows taskbar when capturing photos for points.
- SurvCE will now block out of level measurements for the fixed (level) point in the one point test.
- The eLevel is now visible in reverse graphics mode.
- Removed Data Collector Internet from Base Configuration of GPS that don't support it.

New Features and Improvements SurvPC:

**Note that all features in SurvCE are included in SurvPC*

- Bluetooth now connects better in Windows 10 for most devices.
- Audible prompting in stakeout is now supported. This feature can also prompt on instrument status changes.
- SurvPC now supports SQL query of the MXD in SurvCE.
- SurvPC now supports Esri version 10.5 and Esri related features have been enhanced.
- SurvPC now allows creation and use of virtual serial ports in the data collector Nmea out routine. This makes it possible to send positions for use by another program running on the tablet.
- The Join feature has been improved to detect and remove identical features if they become part of a new entity.
- The EDIT/ADD option now allows a user to connect two feature classes.
- MAP commands dedicated to manipulate the vertexes, break, etc. will now display the vertexes using symbols from the pgn (s) / markers.
- The process for filling in gaps of unused points for numeric crd files has been improved.
- The Esri registration dialog has been updated and redesigned for clarity.
- SurvPC running on a tablet will better control the OS keyboard while more reliably allowing it to appear when a different application becomes active.

Improvements And Resolved Issues By Manufacturer

GNSS Receivers

Carlson

Version 6.03

- Carlson BRx6 -- The SureFix feature will be disabled for receivers running firmware versions 5.9Aa06 and 5.9Aa07. These 2 versions of firmware contained a bug that impacted the performance of SureFix.
- Carlson BRx6/6+ -- For receivers with firmware version 5.9Aa07 and higher, SN2 and SN5 values will be displayed in the Skyplot screen.

Version 6.02

- Carlson BRx6 -- If the connection type is set to cable, the IMU option will be disabled. Tilt sensor data is not available over cable connection.

Version 6.01

- BRx6 -- Port baud rate options for NMEA output from the receiver will be determined based on the hardware version. Hardware version 1.0 only supports 115200 baud rate from the 7-pin port (USB tail on the cable). Hardware versions 1.1 and up support baud rates from 9600 to 115200 on the 5-pin port (no USB tail on the cable).
- BRx6 -- NMEA output that is configured from the Receiver/Advanced section will now correctly stream from the Bluetooth and Cable ports of the receiver.

Version 6.0

- BRx6 -- "Auto Start Base" feature is now supported for the base station. When this option is enabled, the receiver will restart in base mode with last used settings every time it is powered on.
- BRx6 -- RTK reset command will be sent after the datalink parameter is changed to use LBand (Atlas) only, when the user has selected Atlas-only RTK. Previously, the RTK reset command was sent before the datalink parameter was set.
- BRx6 -- When Atlas LBand is selected as the radio type for RTK, the REF tab will not be visible in Monitor/Skyplot.
- 10Hz will no longer be shown as a "Subscription". This is a permanent activation on all BRx6/S321 models.
- BRx6 -- When the position status is Atlas (Converging) or Atlas (Converged), the program will no longer warn the user that the base position cannot be stored. Base Position does not apply in this situation.
- BRx6 -- When Atlas LBand is selected as the radio type for RTK, all unnecessary options will be hidden.
- BRx5 -- SurvCE now supports downloading the GPS/GLONASS almanacs. This is used for mission planning.

CHC

Version 6.03

- CHC x91+-- The internal radio will now configure correctly.

Version 6.02

- x91+ -- The X91+ will no longer stop broadcasting at the base when the "base configuration successful" OK button is pressed.
- CHC i80 -- Base elevation will now be properly detected as APC.

Version 6.0

- i80 -- SurvCE is updated to CHC SDK 1.6.1.2566. This new SDK is best compatible with firmware 1.6.31.
- i80 -- The base position can now be queried from the rover.
- i80 -- Vectors are now supported.
- i80 -- Disabled radio channels will no longer be offered as an option in the configuration.
- i80 -- The software will no longer show an invalid base position on the REF tab when none is available.
- i80 -- The connection method has been improved for reliability.

Geomax

Version 6.01

- Zenith35 -- Extra safe mode is now supported.

Version 6.0

- Zenith35 Pro -- Sensor calibration is now supported.
- Geomax model names have been improved to match official Geomax names (removed spaces).
- The Zenith35 no longer supports relative antenna offsets.

HiTarget

Version 6.03

- iRTK5 -- ELevel is now supported.

Version 6.01

- V10 -- Radio baud has been changed to default 115200
- QBox8 -- The HiTarget QBox8 driver has been reverted to driver used in version 5.07. The Simple NMEA only driver has been added as a separate option.

Version 6.0

- V90+ -- SurvCE will now retrieve more device information, including the expiration date.
- V90+ -- SurvCE will now default to baud rate 115200 when configuring the internal UHF radio.
- V90+ -- SurvCE will now offer the correct ports for all RTK options for base and rover.
- V100 -- The SD card will no longer be listed as an option for storing raw data.

Javad

Version 6.02

- Triumph2 -- The check for expired maintenance has been removed. It was not reliable on all units.

Version 6.0

- Antenna definitions are now updated to include radius and shmp values.
- SurvCE will now send the correct "internal" command for the Javad when an internal antenna is selected.
- SurvCE will send the correction station ID for Javad receivers.
- SurvCE will now set all antennas to "auto" mode instead of internal or external.
- Triumph2 -- SurvCE now checks and reports expired maintenance.

Juniper

Version 6.03

- Juniper Geode -- The Juniper Geode will now give an error when used for log raw static, as it has no internal memory.

Leica

Version 6.03

- Leica GPS sat parsing has been improved so that Galileo and Beidou sats will show used/not used appropriately.
- SurvCE will now allow more time for radio configuration.

Version 6.02

- All -- The Leica internal modems will now connect more reliably.
- All -- The APN Username and password are now being recalled correctly.

Version 6.01

- Base elevation will now be broadcasted correctly.
- GS14: Modem connection is now more reliable. Auto-connect has been disabled.
- Tripod antennas models are now included in the antenna list.
- The RTK tab port now recalls the Bluetooth setting properly.

Version 6.0

- All Leica GPS drivers have been modernized and updated to be consistent with other SurvCE drivers.
- Leica receivers will now support more radio settings when the firmware supports it.
- The Leica GPS driver will now warn the user if extended OWI is not detected.
- SurvCE will no longer show unused radios in the radio list..
- Domain name NTRIP servers are now supported.
- APN Username and Password are now supported.
- Direct IP connection is now supported.
- SurvCE will now report a missing SIM card to the user.
- Data collector internet is now supported on the GS14, GS15, and GS16 from all data collectors using a secondary Bluetooth port.
- The GX1230 driver is no longer actively maintained but is still available under Manufacturer: Legacy GPS

Navcom

Version 6.0

- Removed prompt from Localization asking for StarFire or RTK localization. Use 14 parameter method instead.
- Navcom RTK check no longer allows DGPS positions.

Satlab

Version 6.03

- Open log file now works correctly.

Version 6.01

- SL800 -- SurvCE will no longer post an error when an unnecessary command fails in configure rover.
- SL800 -- The SL800 now fixes more reliably.

South

Version 6.0

- SurvCE will now display the correct base elevation for South receivers in the ref tab.

Septentrio/Altus/Altus

Version 6.03

- APS3G -- SurvCE will now assume that each full battery has a max capacity of 6 hours.

Version 6.02

- NR3 -- SurvCE will no longer send commands which are not supported in recent firmware.
- APS3G -- When logging Stop and Go (Log Raw Data) to receiver, the software will now wait for receiver confirmation of command instead of timing out too early.

Version 6.0

- APS3 -- Satel Radio configuration now grays out the Forward Error Correction (FEC) if the current protocol does not support it being changed. Satel Protocol is the only protocol that is allowed to change the FEC.

Spectra Precision

Version 6.03

- SP80 -- The SP80 will no longer send a radio power value at the rover.
- SP80 -- The internal radio options will now be appropriately limited based on channel spacing and modulation settings.
- SP80 -- The SP80 will now offer log file interval options.
- SP80 -- The static file manager will now work properly on the SP80 when used from a Windows CE device.

Version 6.02

- All -- SurvCE will no longer program the wrong channel into the radio in the scenario where there are channels with 0.000 frequency in the channel table.
- All -- Logging intervals will now be set correctly.
- All -- SurvCE will now connect to NTRIP networks using the internal modem. Previously it was possible that the GGA message wouldn't be sent back to the server.
- All -- SurvCE will now display the correct squelch value in radio configuration.
- SP90M -- SurvCE now uses a better default antenna.
- SP90M -- SurvCE can now retrieve the static file list correctly. This was failing on some data collectors.
- SP500 -- SurvCE will now display the correct internal antenna.
- SP80 -- Internal modem RTCM3 projection messages are now supported.
- SP80 -- When a non-supported language is used, the screen language of the SP80 will now default to English.

Version 6.01

- SP80: Receiver Wifi is now working correctly.
- Large source tables will now download more reliably.

Stonex

Version 6.01

- S900A/S800A -- SurvCE will now set the aRTK Timeout correctly.
- All -- RTCM3 projection messages via internal modem are now working again.

Version 6.01

- S900A: Surefix, Atlas, and aRTK are now available for the S900A.
- S10 and newer: Reset RTK is now supported.
- S9i: The S9i radio driver is now identical the S800.
- Stonex receivers will no longer disconnect from the NTRIP server when going through configuration for a second time without changes.

Topcon/Sokkia

Version 6.03

- GR5 -- SurvCE will no use the correct antenna.
- GRX3/Hiper VR -- Base configuration over the serial port (generic radio) now works correctly.
- GRX3/Hiper VR -- SurvCE can now change the channel spacing as necessary.
- All -- SAT count will now be correct in monitor skyplot.
- All -- Correction type RTCM_MSM has been renamed to RTCM_MSM3 for clarity.
- All -- SurvCE will no longer change the status icon to yellow when on the sat tab in the monitor skyplot screen.
- GRX3/Hiper VR -- The Trintalk protocol is now supported for the internal radio.

Version 6.02

- Sokkia GPS -- SurvCE will now correctly save/load XCOM com ports in the RTK tab.
- Glonass Sats will now display in the sat view correctly.
- GCX3 Long link radios are now supported.
- The check for expired maintenance has been removed. This was not reliable on all models.
- For logging raw data files in the receiver, the following logging rates will be available for the user to select from: 20Hz, 10Hz, 5Hz, 2Hz, 1Hz, 2s, 5s, 10s, 30s, 60s.

Version 6.01

- Topcon and Sokkia GPS Bases will now broadcast correctly when configured to broadcast over internal radio.

Version 6.0

- GR5 -- RTCM MSM is now supported.
- GR5 -- Beidou, Galileo, and SBAS are now supported. The method of parsing available sats is improved.
- GR5 -- SurvCE will now alert the user if the “_GPS” option is not available, as a strong indicator that the OAF file is not sufficient.
- GCX3 -- RTCM MSM is now supported.
- GCX3 -- Beidou and Galileo are now supported. The method of parsing available sats is improved.
- Sokkia GSR1700CSX -- This driver has been moved to legacy drivers and will no longer be actively supported.

Total Stations

Carlson

Version 6.02

- All -- The Carlson 7mm prism is now listed in the prism list.
- CR2/CR5/CR+ -- The ATR Visibility and ATR Field of View options have been restored.
- CR+/CS15-- Installs of SurvCE to CS15 or CR+/Zoom90 on board no longer hang when no valid sqlite3 file previously exists.
- CR+ -- Define Window in Advanced search settings will once again work.

Version 6.01

- CR+: SurvCE will no longer block changing the target when the connection is lost on the total station. This can cause unnecessary errors.
- CR+: SurvCE will no longer periodically fail to read distance on reflectorless shots in direct mode.
- SuperG: The SuperG tablet will now connect to its internal GPS correctly.

Version 6.0

- SurvCE now offers the ability to ignore the backsight on a power search. This option can be found under power search settings.
- CR2/CR5/CR+: SurvCE will now query the device serial number and write it in the RW5 file.
- CR2/CR5/CR+: Continuous reflectorless measurement is now supported.
- CR2/CR5/CR+: SurvCE will now warn earlier if the instrument is out of level.

Geomax

Version 6.02

- Zoom 90 Onboard -- SurvCE can again detect that it is running on a Zoom90. Recently manufactured units had an internal change that prevented proper identification.
- Zipp20/Zoom40 -- The Zipp20/Zoom40 instrument will no longer have errors reading after performing set angle.

Version 6.01

- Zoom90 Onboard: The international CAB to install the Zoom90 has been corrected to include a missing file that prevented SurvCE from starting.
- SurvCE will now show all the tabs it should on the Total Station instrument setup page when Zipp20 or Zoom40 is selected running onboard.
- Zoom40 will remain selected in onboard version. About SurvCE moves to File tab as in the rest of 6.0. Check Level and Show continuous angle updates both work correctly now.

Version 6.0

- The installer for Zipp20 Onboard is renamed to Zipp20_Zoom40_Onboard to indicate support for the Zoom40.

Leica

Version 6.03

- SurvCE will no longer report a false out-of-level message periodically when storing points.
- Leica direct total stations can now stream angles and check level.
- Leica TS06 will now time out faster when the measurement fails.
- New ATR options are now available in all Leica RTS drivers.

Version 6.02

- Leica TS16 -- SurvCE will no longer switch to prism mode after stopping reflectorless tracking.
- The delay before the power search when search-on-read is used has been reduced.
- Continuous angle updates will now work on Leica models running the GSI protocol.

Version 6.01

- The "Leica Adjusted Offset" is once again displayed in the define target dialog.
- Leica total stations will now measure the reverse face correctly in backsight.
- SurvCE will now more reliably warn the user when search is used and the total station is already pointing to a prism.
- Check level streaming rate has been increased.

Version 6.0

- All MTS/RTS -- SurvCE will no longer set the ATR Field of View and Visibility settings to "normal", but will instead ignore these and leave what the user has selected on the total station.
- SurvCE now offers the ability to ignore the backsight on a power search. This option can be found under power search settings.
- All Models -- SurvCE will now query the device serial number and write it in the RW5 file.
- All Models -- SurvCE will now warn earlier if the instrument is out of level.
- The TPS 100/1000/2000/5000 drivers are no longer actively maintained but is still available under Manufacturer: Legacy TS.

Spectra Precision

Version 6.03

- When SurvPC connects Ranger7 to Focus30/35, the correct comport will be used for radio communications and saved in settings.
- Focus 30/35 -- The first measurement after check level no longer has the potential to fail.
- Focus 30/35 -- SurvPC will inform the user if Trimble Product Activation has not been installed. This is required for use of the Focus 30/35 driver.
- When configuring Comms for the Focus30/35, the com port can now be selected when type is Radio. This should allow the internal radio on the SP Ranger 7.
- Focus 30/35 -- License retrieval for a new PC data collector is more reliable.
- Focus 30/35 -- SurvCE will now better report a mysterious error from the instrument that is found to indicate “mildly out of level.”

Version 6.01

- Focus 30/35: SurvCE toggle between RL and prism no longer has the opportunity to fail due to unexpected default value.
- Focus 30/35: Change of status from tracking to standby is now correctly reported.

Topcon/Sokkia

Version 6.03

- Topcon 9000 - SurvCE no longer has the potential to fail when connecting to an RC unit.
- Sokkia TS -- Zero_hz_to_target mode now works as designed, putting the TS in zero hz mode. Note that the angles will not display on the screen of SurvCE in this mode.
- Sokkia TS -- Sokkia instruments will no longer go into modes of operation where they beep continuously. This was most noticeable when leaving offsets. The heartbeat command has also been removed. This prevents the beep every 5 seconds.
- Sokkia RTS -- SurvCE no longer has the potential to get stuck in a "lost connection" state inside the joystick page, even though we have communication.
- GRX3 -- The default antenna is now correct.

Version 6.02

- Older sokkia drivers will no longer attempt to stream data. This caused communication errors.
- The set backsight function now uses the backsight search setting as part of its method. Previously it was checking the foresight search method.
- The Sokkia RTS will now start tracking correctly when the RC unit is in use.
- Topcon ES100 -- Continuous angle updates now works.
- Topcon ES100 -- SurvCE will no longer fail periodically when setting the backsight.
- All -- Check level will now stream more fluidly on Sokkia models.

Version 6.01

- Non-Robotic topcon total stations will no longer have a 5 second heartbeat. The heartbeat causes unnecessary beeping on the total station.
- Sokkia IX: The Sokkia IX will now set angle and read more accurately.
- Topcon 9000: Set Angle and Read is now working again.
- IX: The Sokkia iX will now correctly lock on to the prism after a smart lock when using Smart Staking in Hybrid+.
- Sokkia IX with RC: The Sokkia IX will now find the prism when pressing the search icon in the joystick screen and already locked on a prism.
- Sokkia IX with RC: Measurements no longer have the potential to time out when the RC is used and the search before the read takes a long time.
- Sokkia IX with RC: The Sokkia IX will no longer search twice when starting tracking when the RC is in use.
- The Check level routine no longer lags for Sokkia robotics.
- SokkiaIX: The robot will no longer periodically fail to rotate after a fine edm mode measurement.

Version 6.0

- Sokkia RTS -- The Auto-Tracking setting has been removed from the user interface. That setting will be changed automatically as the software is used.
- Topcon GM Top Basic -- SurvCE will now be able to cancel measurements and will no longer show the false "lost connection" error message.
- The Set 1Way/30R drivers are no longer actively maintained but is still available under Manufacturer: Legacy TS.