# TopSURV

## Versions 6.11 to 7
## Release Notes

January 18, 2008

# Table of Contents

# 7

## Important Notes!

- TopSURV 7 has a completely new job database. It is strongly recommended that all jobs created in 6.11.03 and before are exported to ASCII points and GC-3 files prior to upgrading.

- We've expanded the SS Wireless radio channels to 1-20. In order to use a channel above 10, you must update the instrument operating system. Channels 11-20 should be used when more than one robot is on the same site.

- Help, About and Activation options are all now located in the Topcon logo button.
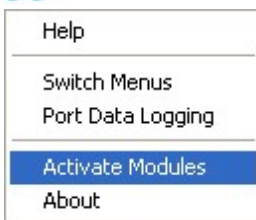


## Equipment

- Added support for the Digital UHF TRL-2 radio.

- Added the ability to change the protocol and modulation of any Digital UHF radio in the Config Radio screen.

- Added support for the GR3 with internal Satel radio.

- Added support for MapHP with HB_BULB f/w 1.5b0.

- Added support for the new FC-2200 field computer and RS-3 radio (SS Wireless).

- Added GSM support for the GR3 with internal Satel radio and internal GSM/GPRS modem.

- Added functionality to switch between internal UHF and GSM modems when the baud rates of the two modems are different.

- Added Beacon status for BR1.
- Added dialup networking support.

# Features and Changes

## General

- TopSURV now uses a SQLite Database. Jobs extension have been changed to (\*.tsj) and the same extension applies to jobs on the controller and the PC. The conversion from a (\*.tsv) file to a (\*.tslv) file is no longer required, therefore, jobs can now be transferred using a memory card or ActiveSync. TopSURV 7 will convert an old job to the new format and it will also make a copy of the old job and place it in an archive folder on the controller.

- TopSURV now has a new icon based menu interface. However, the ability to switch to the classic menu interface has been preserved using the Switch Menus item from the Topcon logo button (top left corner of the main menu).
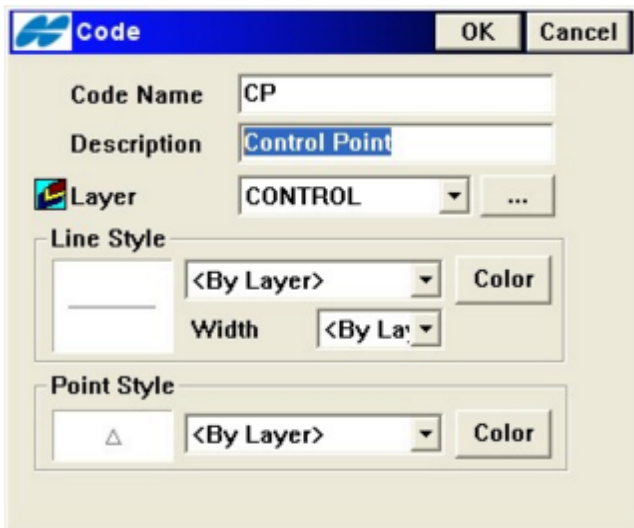




**New Menu Interface**                                    **Classic Menu Interface**

- A Port Data Logging feature was added to the Topcon logo button as well. This adds the ability to log data sent by the total station to a text file.

- TopSURV will now retain the last user specified file paths.

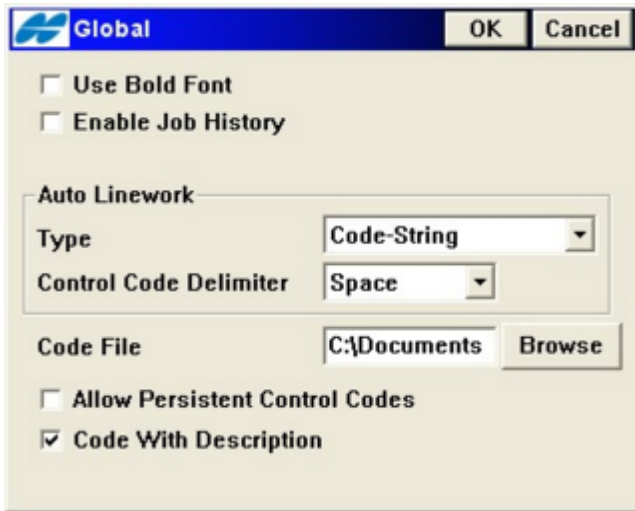- TopSURV will now retain the last settings in the dialogs.

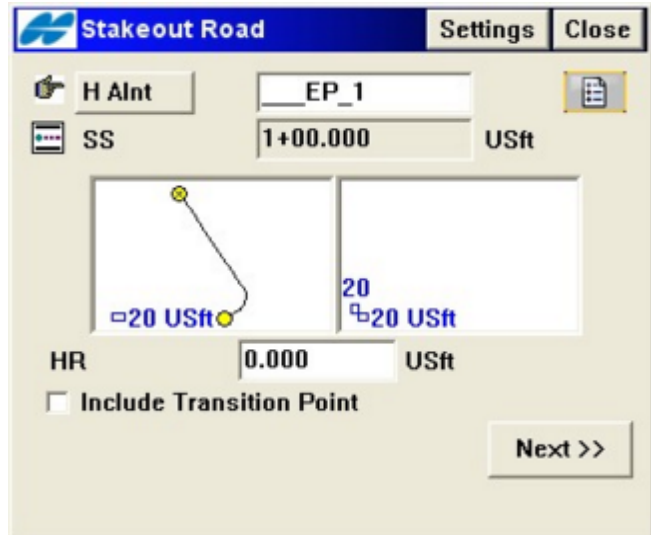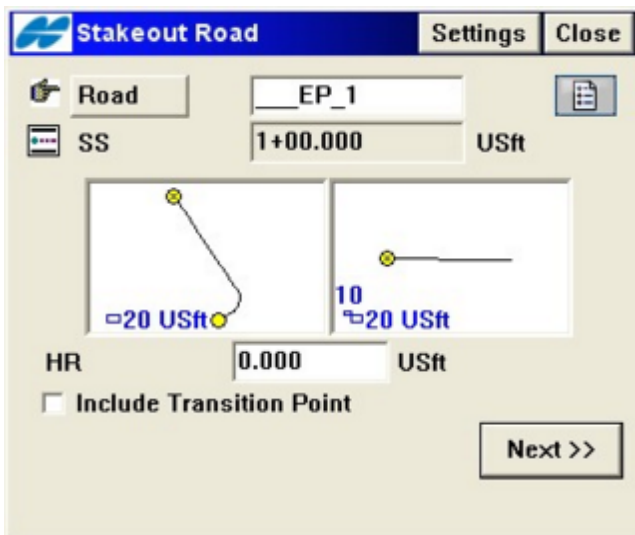- Add the ability to define the full description of a code.



- Attributes can now be defined with additional features.
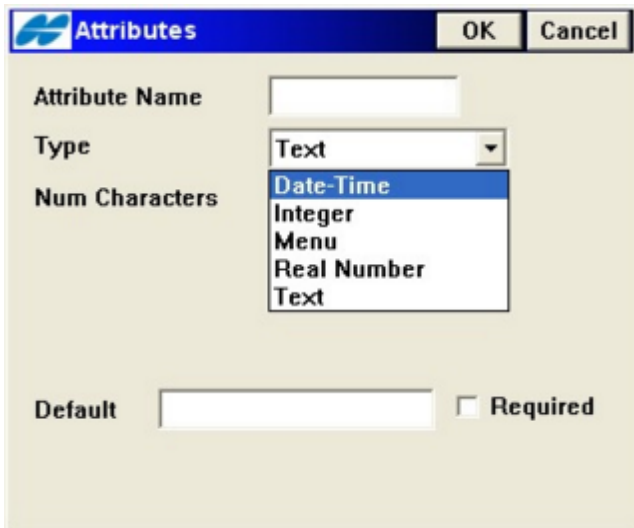
- Added an option to persist control codes between points to the Global Screen.



- Added the ability to select either Road or Horizontal Alignment in all Road routines.

# Configurations

- TopSURV will not attempt to reconnect after exiting the Styles dialog as long as the current style has not changed.

- TopSURV will not call up the Bluetooth dialog while editing styles if it is not connected to a receiver.

- If multiple Bluetooth COM ports are available and one is connected to a GPS receiver, TopSURV will use the other port to connect to the BR1 or a CSD devices and allow both connections simultaneously.

- Option to use relative antenna calibrations. Option is located in the Topcon logo button in the antenna selection dialog. This option should be used when it is known that the base antenna or network antennas use relative calibrations. By default, TopSURV 7 will use NGS absolute antenna calibrations.
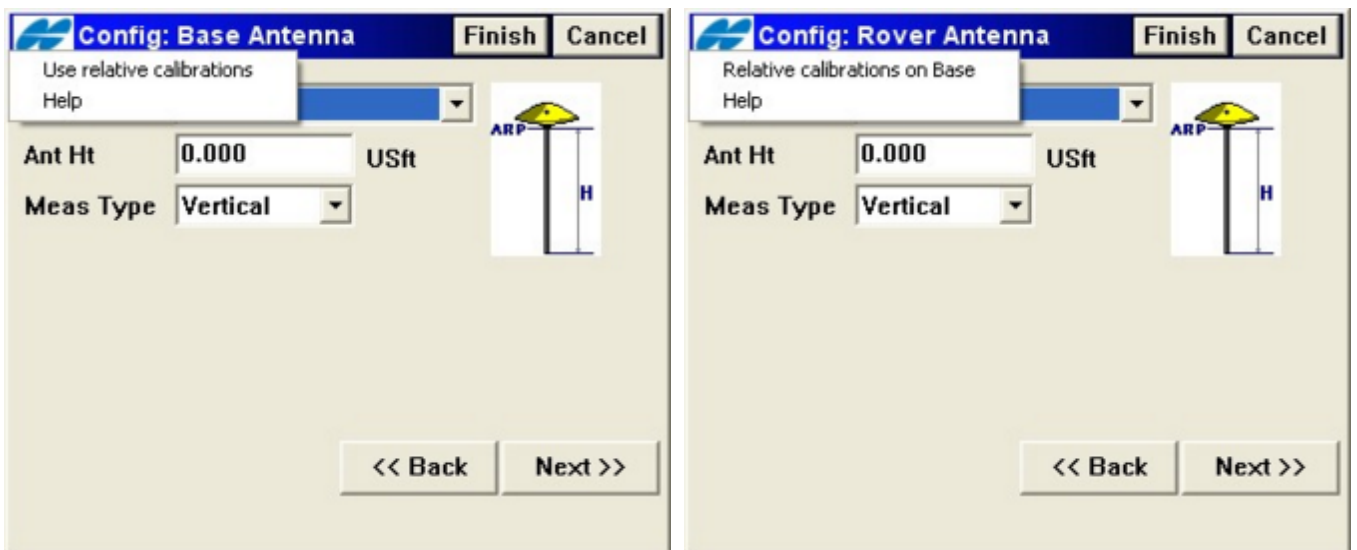


- Added "Existing Network Connection" when the user is using NTRIP or TCP/IP and has selected "Modem Connected to Controller".
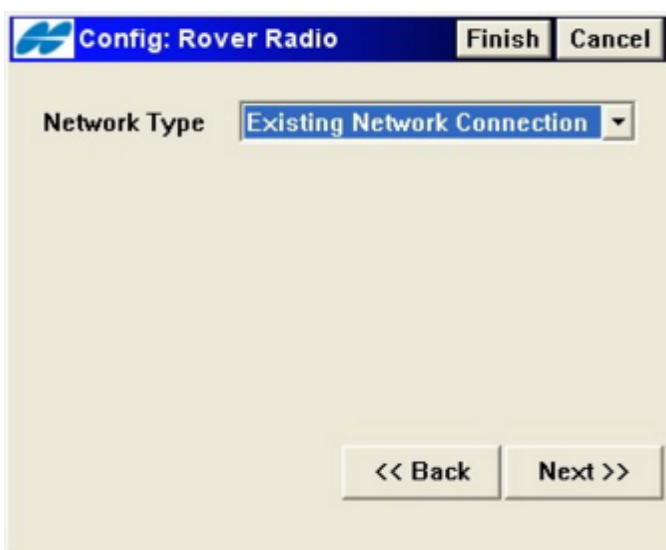
# Import/Export

- AutoDesk (*.DXF/*.DWG) - Updated to include options for 3D linework, Carlson blocks, and ACAD points with plain text. Also added the ability to import a drawing as a background image for faster imports.
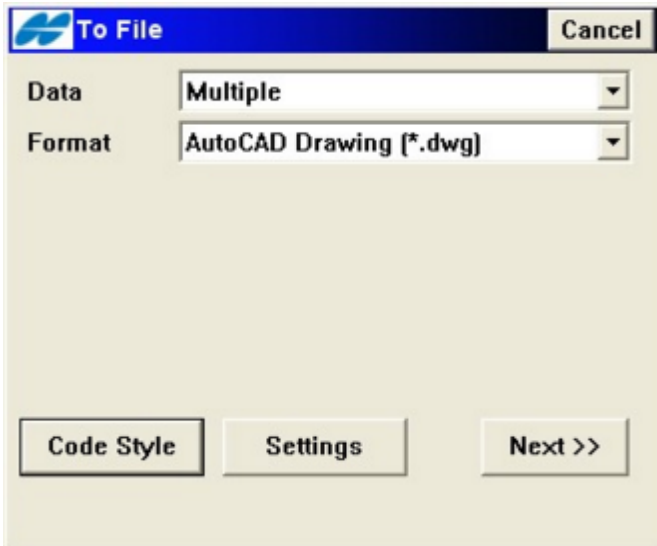


Export Multiple - DWG
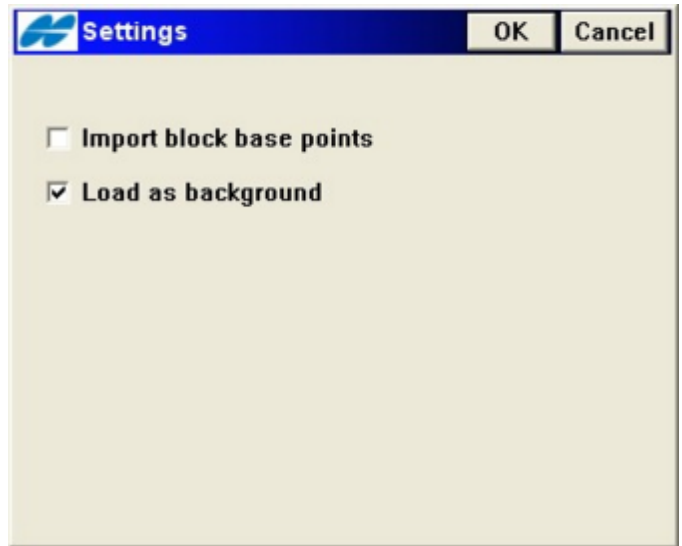


Import Multiple - DWG - Settings
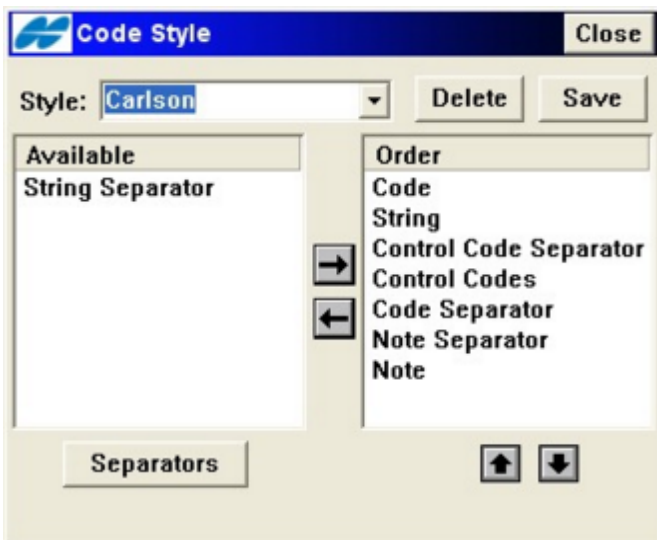


Export Multiple - DWG - Code Style
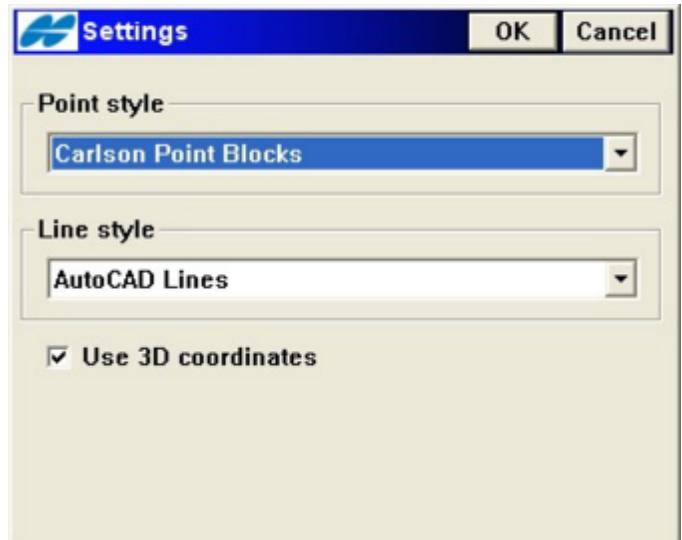


Export Multiple - DWG - Settings

- AutoDesk (*.FBK) - Added support for export of GPS points, offsets and linework.

- Bentley (*.DGN) - Added the ability to import a V8 file.

- Carlson (*.RW5) - SurvCE format now supported.
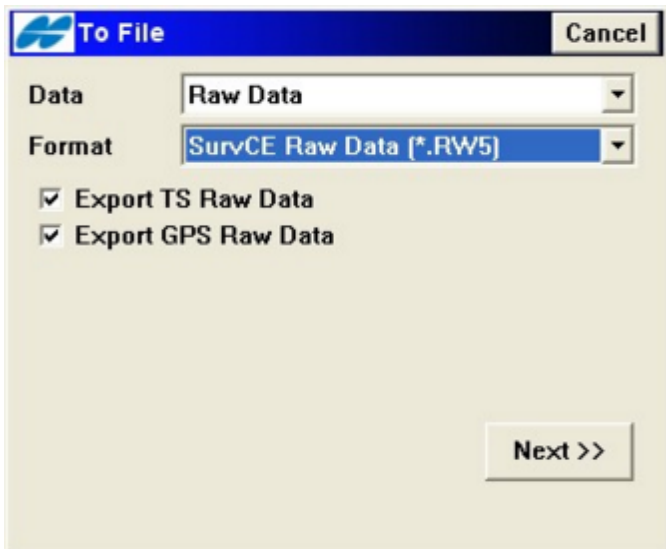


- ESRI (*.SHP) - Export of Code Description has been added to the format.

- TDS (*.RAW) - Added support for code styles, linework, control codes as notes and GPS offsets.
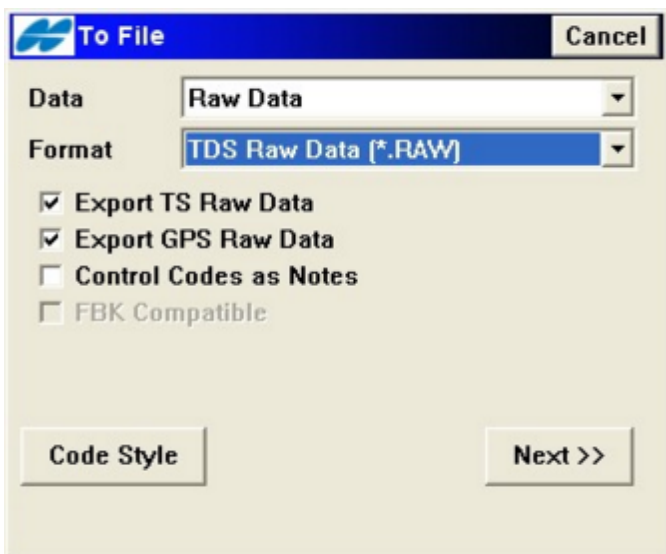


- Topcon (*.LN3) - Format now supported.

- Trimble (*.DC) - Added the ability to import the localization.
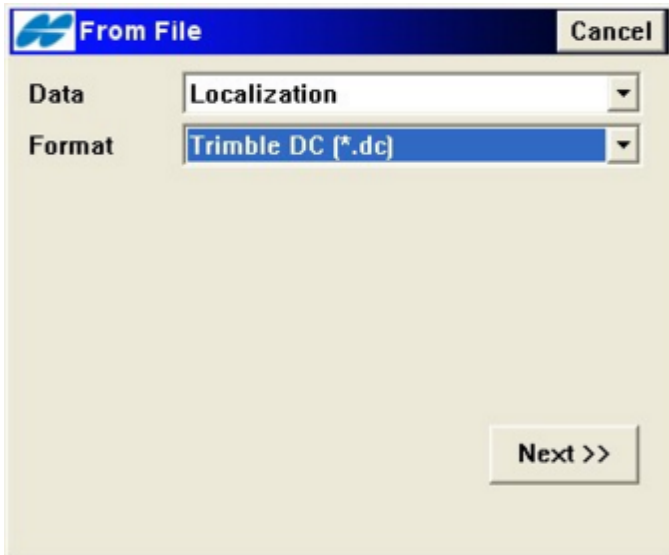


- Added the ability to export 3D arcs to all line formats which don't support 3D arcs by using piecewise-linear approximation.

- Added the ability to export reduced raw measurements to all formats that support it.

- Added the ability to export multiple shots for all formats that support it.

- Added the ability to save/delete format styles for Custom Text formats.

- Added the ability to define Code Styles - This provides the ability to define the order of the code, string, control code and their separators in Custom Text ASCII, Drawings and TDS raw data files.

# COGO

- Added Corner Angle

**Corner Angle — Angle tab**

| | |
|---|---|
| Start Point | 1057 |
| Middle Point | 1059 |
| End Point | 1100 |

Calc

**Corner Angle — Results tab**

| | |
|---|---|
| Angle Left | 264.5315dms |
| Angle Right | 95.0645dms |
| 180 - left | 84.5315dms |
| StartPt Id | 1057 |
| Dist to StartPnt | 42.125USft |
| Az to St | 238.5715dms |
| EndPt Id | 1100 |
| Dist to EndPnt | 124.341USft |
| Az to End | 334.0400dms |

**Corner Angle — Map tab**
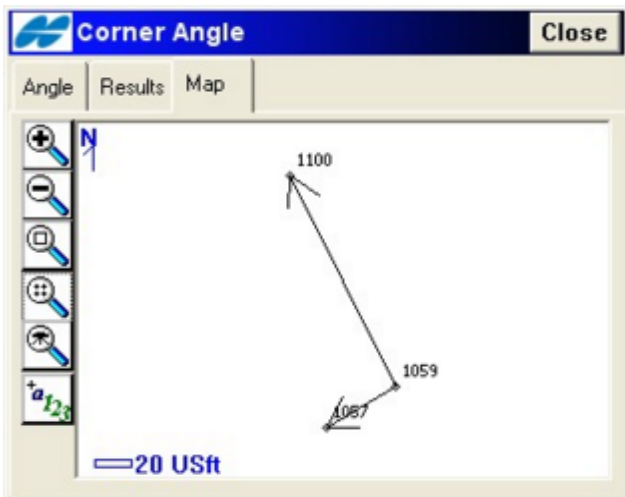
20 USft

- Added Line Offset. Added the ability to subdivide the line.

**Line & Offset**

| | |
|---|---|
| Start Point | 1110 |
| End Point | 1134 |
| Ht Comp | Interpolate Ht |
| SS | 0+00.000 USft |

☑ Num Subs  4

Length: 249.678  USft

20 USft

Next >>

**Station & Offsets**

| | |
|---|---|
| Station | 0+00.000 |
| Sta Interval | 62.420  USft |
| Right Offset | 0.000  USft |
| Up | 0.000  USft |
| COGO Point | 10000 |
| Code | |

<< Back   Calc

- Added Curve Offset. Added the ability to subdivide the arc.
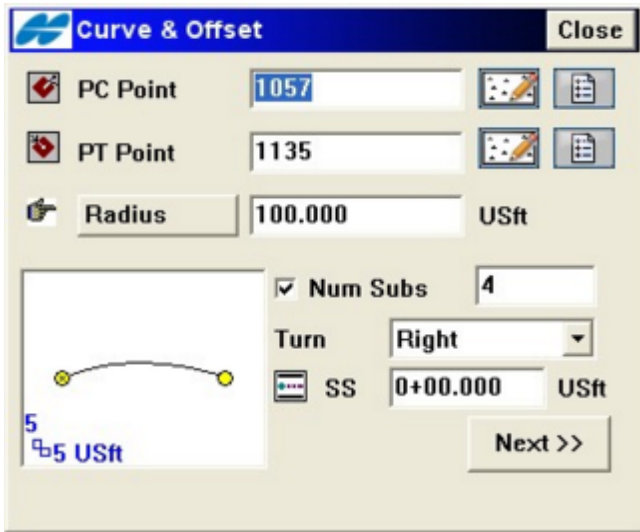


- Added Alignment Offset. User can now select Road, H Alnt or H & V Alnt.

# Survey

- Strings are now listed by code in a combo-box.
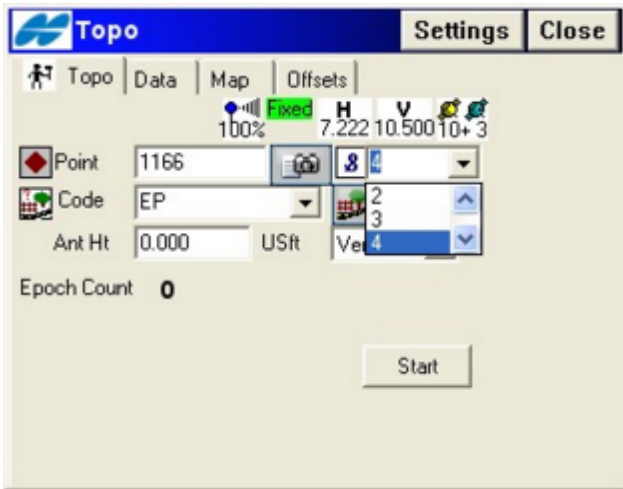


- Survey X-Sect – Menu item added to the Topcon logo button to go to Topo directly from this routine.
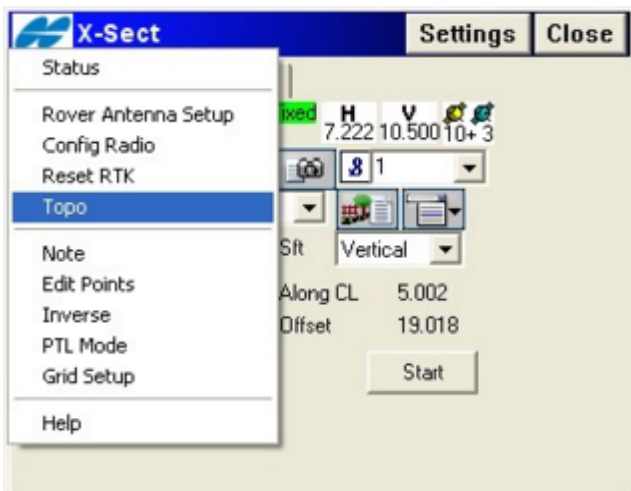
- Added option to enter elevation instead of point name for Remote BM (formerly Elevation).
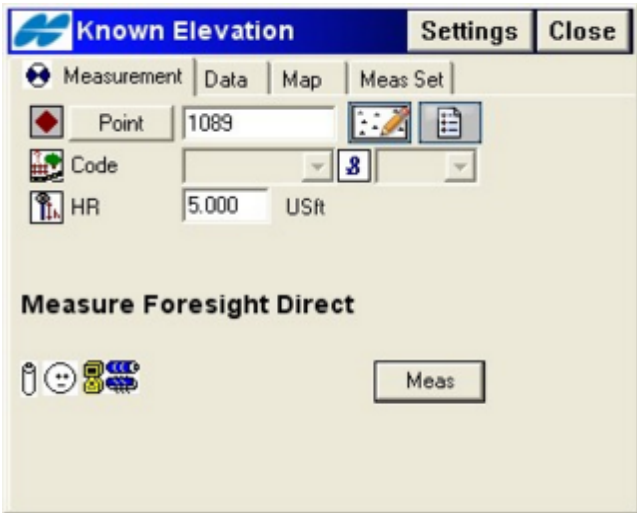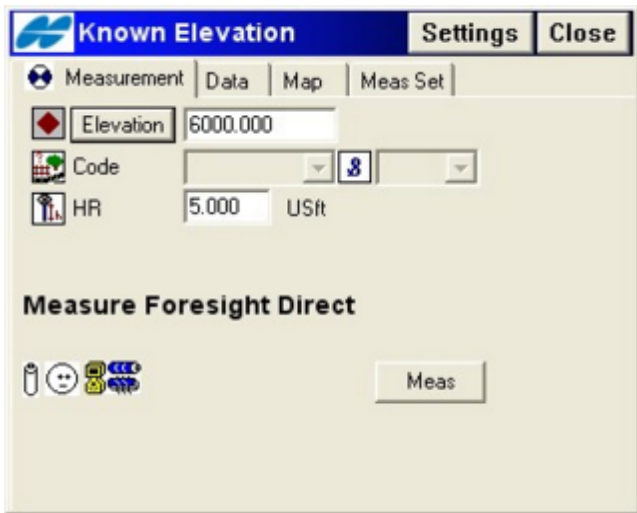


- 10Hz for AutoTopo now supported.

## Stakeout

- Added the ability to stakeout using autonomous measurements. Only allows navigation and will not store a point.

- Road/Slope/Realtime Roads. If road has a vertical alignment, cut/fill will not be displayed or stored when not on the vertical alignment.

- More Reference Direction types added to Stakeout.
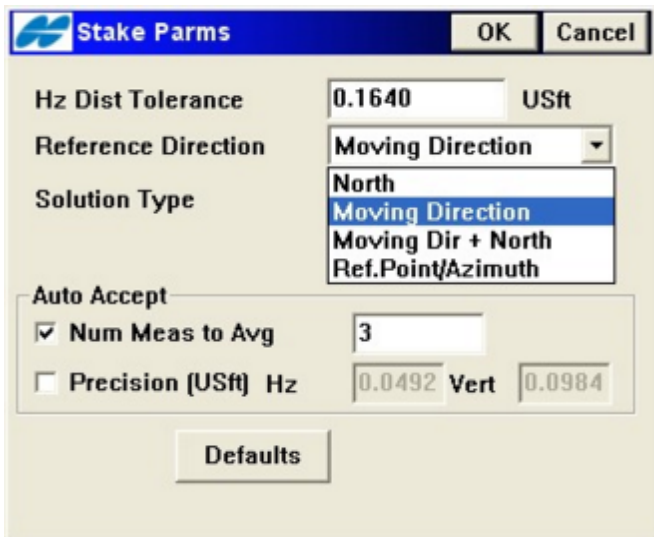


**GPS**                                                                                  **Total Station**

- Subdivision option added to Curve and Offsets.
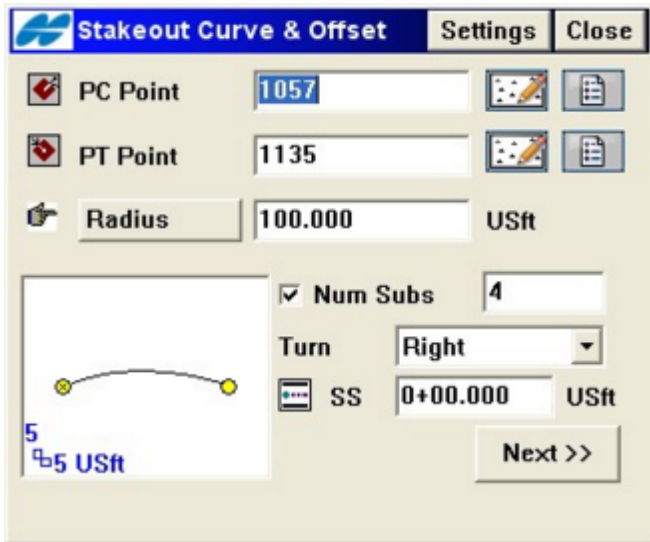


- Added menus to allow all staking functionality when we have DGPS survey styles selected if the GPS+ security is activated.

# Projections and Geoids

- KKJ Finland updated.

- Spain Geoids for Catalonia renamed and updated.

- Portugal projection and datums added.

- SPC27(Lambert) projection – Somoa zone updated.

- NAD27 NADCON support added.

- Indication of unsuccessful Geoid calculations in Points dialog was added.

# 6.11.03

## Important Notes!

- We fixed a problem related to GPS heights that occurred when a 6.11.01 job was opened in 6.11.02. It is strongly recommended that all jobs created in 6.11.02 and before are exported to ASCII points and GC-3 files prior to upgrading. Then import these files into new 6.11.03 jobs to avoid potential unwanted elevation changes in the job.

## Equipment

- Added support for new Bluetooth manager to GMS-2.

- Added support for the BR-1 with New Bluetooth manager for GMS-2 controller.

- Added support for DGPS VBS in Omnistar-HP mode on GMS-200.

- Added support for TruPulse 360 with Bluetooth.

- Added the ability to detect what the RS-1 radio baud is set to.

- Added support for the TRL-2 – external digital UHF modem.

- Fixed the issues with the PP-logging-to-controller.

- Fixed the issue with Start Base where the CMR short ID is being changed to a large value. Typical acceptable range is from 1-33.

- Fixed the issue with the comm. settings for the Nikon total stations.

- Fixed a problem with losing the antenna type when upgrading the software.

- Fixed a problem with using Nokia, Siemens, Sony-Ericson cell phones with the GMS-2.

- Fixed a crash for GMS-2 + PP (crash was happening during reconnection when you leave Start Base dialog).

- CMR/CMR+ format added to the configuration for GMS2 when connected to an external receiver.

- Default virtual radio port set to port A.

# Features and Changes

## General

- Occ/Bs Setup updated (The height edit controls commit the value to the variable when the control loses focus).

- Occ/Bs Setup updated (changed options for BS Circle drop-down).

- Duplicate Point – The next available point to use will searched for all available points with gaps as well. Earlier it would display the last available point.

- The Rod Height value is now used even for Reflectorless measurements.

- Now when a job is deleted, the job history file, images, etc., are also deleted.

- Fixed increment of stake line.

- Fixed issue with station past end of line not being remembered.

- Fixed the bug with large numbers in point names.

- Fixed the issue with Arcs not showing up in MAP.

- Fixed the issue where when the String option was toggled off it was still recording strings for points.

- For Stakeout Road/Slope/Realtime Roads. If road has a vertical alignment, cut/fill will not be displayed or stored when not on the vertical alignment.

- Negative HA values displayed in Raw data and Export is fixed.

- Creating roads from lines – the start station is now carried over to the horiz and vert alignments.

- Corrected the issue in Stake DTM that prevented the routine from reporting positions in the local system.

- Fix to not display the Vertical offsets screen on DTM Stake since they are not used there.

# Job - Import/Export

- Fixed FBK/RAW bugs with linework.

- Fixed bug with CMM format.

- Fixed the issue with export layers assigned to codes to DXF/DWG.

- Fixed issue with loading vertical profile of a road from xml file.

# Projections and Geoids

- Correct the issue with configuration where only WGS84 was able to be used.

- Custom projection names can now only be created with limited subset of characters (only [0-9a-zA-Z] is allowed).

- Spain Catalonia Geoids updated.

- Portugal datum and projections added.

- Swiss Geoid support updated.

# 6.11.02

## Equipment

- New BT manager for FC-200 CE.NET. The new Bluetooth manager resolves connection and pairing issues and also supports multiple Bluetooth communication ports.

- GMS2

    o Support serial connections using a pipe through Port A of GPS for connecting to Total Stations.

- External Airlink modem support for NTRIP.

- Antennas – TopSURV now uses the NGS absolute antenna models. Note that some antennas names were changed to match NGS names.

- BR1 configuration dialog now disables the parity, data, and stop options as these settings are not optional with this device.

- External Satel - The error: Wrong Frequency, when connected to a GPS receiver has been fixed.

- HiPer Ga & Gb - Added support for the new HiPer Ga and Gb receivers that use the new internal Digital UHF radio.

- GR-3 with Digital UHF and Internal CDMA.

## Features and Changes

## General

- GPS Simulation

- Alarms now has an option for sounding when you lose/gain tracking with Robotic TS.

- GIS Only Mode: If TopSURV only has the GIS module activated, the following menu item name changes have been made for display purposes to accommodate GIS terminology:

    | Old Name | New Name |
    |---|---|
    | Survey (Srv) | Collect (Col) |
    | Stake (Stk) | Navigate (Nav) |
    | Topo | Collect Features |
    | Auto Topo | Auto Collect |

- Resection

    o Resection results Cancel is now working. Previously, if you add a shot after the cancel, all previous measurements were removed.

    o Meas Set Tab: Re-Measure was adding the reading to the list rather than updating the selected reading. Also, after doing this, if you switched between the measure and set tab, the reading was removed.

    o The 2D/3D option is now retained between sessions. The next time that you do a resection it should default start up with the previous used setting.

- o The ability to delete a point from the measured set has been corrected.

- o Removed the option to solve a resection for scale and related setting from the UI.

- Start Base - In the Start Base menu there is now a link to the Ground to Grid (GG) system (in the defined system) for the Origin Point option. This provides a faster method for setting the calc'd value of the Scale Factor that will be applied to the job.

- Localization - TopSURV will now ask user if he wants to re-compute when the localization changes.

- Stakeout Settings – TopSURV now has separated settings for Stakeout where the user will be able to specify auto-accept settings separate from the Survey auto-accept settings.

- Stakeout – The user entered data in the different stakeout screens will now be remembered between sessions.

- NMEA Output now supports rates higher than 1Hz.

- Point Numbering - Added the ability to increment/decrement the point number by a user defined value. This only applies to survey point numbers.

- Stakeout Curve

  - o It is now possible to compute locations along a horizontal curve for stakeout.

  - o TopSURV now shows the rod position by reporting the distance along the curve (station) and offset values.

  - o The rod position is also shown graphically by drawing a real time radial line from the rod to the curve.

  - o After you select "Stakeout Curve", the user now sees a screen where he can select 2 points.

- Base Jumping - If the receiver switches base stations when recording data, TopSURV will now warn the user.

- Interpolate Along Line - Added an option to COGO for computing points along a line.

- Known Area: Revised and improved this routine.

- 2D Transform - Added the ability to do a 2D COGO transformation of points.

# Job - Import/Export

- Import/Export

  - o KOF - Extend the format. Now we support only points nothing more. We need to support lines.

  - o TDS - Corrected the raw data export of total station angle sets and offset shots.

  - o GEO - Added support for Geo file formats.

  - o FBK - Corrected the raw data export of total station angle sets and offset shots.

  - o GC3 - Added the ability to export the Pocket 3D GC3 format from Localization screen. The name of localization in the GC3 format will now be set to the current job name.

# Projections and Geoids

- Catalonia Geoids

- SPC83-KY1Z (SPC 83 - Kentucky Zone 1)

- African Projections

# 6.11.01

## Equipment

- GR-3 - Enhanced support for Digital UHF/GSM radios.

- GMS-2 – Post processing logging now works with f/w version 3.0 and later.

- RE-S1 – Now supported as an external modem.

- Modems:

  o External Wavecom GSM connected to HiPer Pro now handles swapping between internal radio and external radio better.

  o External Wavecom GSM connected to HiPer Pro now handles swapping from Pocket 3D (Radio) to TopSURV (GSM) so that the settings of serial port C are available.

  o Corrected an issue that could result in not getting a fixed position after swapping from GR3 NTRIP to GSM and UHF.

  o Improved GSM connection.

- BR-1:

  o Added support for connecting to the GMS-2.

  o Added support for connecting to controller or receiver.

  o Added requested command changes for Automatic Scan.

## Features and Changes

## General

- Edit Points - Point sorting algorithm fixed.

- BS Check Screen - Set Circle to AZ did not display the angle correctly (when AZ = North).

- Stake Slope – Corrected the issue that prevented the selection of the left slope.

- TS Observation Screen – Selecting Offsets when configured to angle sets was causing a hard crash.

- Localization – Selecting Add → Start measurement now allows the user to stop the measurement without having to cancel the dialog.

- Averaged Measurements - Corrected an issue with the reported RMS values.

- Stakeout Line – Interpolated Heights now available.

- Ground to Grid - The Combine Scale factor will now be displayed instead of the Map Scale Factor.

- Global Data Dictionary - Selected code with attribute values were not getting saved.

# Job - Import/Export

- Custom Text - Corrected the issue that forced exported elevations to zero.

- Roads:

  - Roads between jobs on vertical screen devices now import and export properly.

  - Corrected an issue with copying roads between jobs.

  - Roads created in previous versions will now display properly.

- LandXML:

  - Azimuth of the starting point was not computed.

  - Missing vertical elements.

  - Multiple vertical alignments we not imported.

  - Now support gaps in horizontal alignments (a.k.a. irregular lines).

  - Improved error checking.

  - Fixed an issue with synchronizing start stations from h.alignmnet/v.alignments/x-section sets.

  - Now support the generation of multiple h.alignmnet/v.alignments/x-section sets for roads with gaps.

- DXF/DWG:

  - Now support circles.

  - Fixed an issue with importing the arc height.

  - Exporting 3D lines to DXF format now works correctly.

- FBK – Prism height changes will now be exported correctly.

- GC3 - Importing a Localization from a GC3 file into TopSURV will now allow unused local horizontal or vertical values.

- MMH360_Z000 – Corrected an issue relating to incorrect heights in this format.

# Projections and Geoids

- German Geoid (BKG) - Has been removed from our installation setup on request.

- Finland Projections (KKJ) – Support added, however, we will not distribute the tables for the projections in the installation since the size of these data files compressed will be close to 10 mb.  They will be handled separately.

# 6.11

## Equipment

## GPS

- WAAS support for PanAm and Anik satellites.

- L2C s/n has been added and can be seen with the SVs.

- Added the option to be prompted for the feature code in GPS mode. In Topo the prompt will occur after the point is collected. In AutoTopo the prompt will occur before collecting a series of points.

- Now report true PDOP values as epoch PDOP instead of weighted average.

- Added support for G24 and Digital UHF in the GR-3 receivers.

- Added support for external Digital UHF modem.

- Antennas G3-A1 and G3-A1 w/GP have been added.

- Added support for using internal NTRIP with external Airlink modems.

## Total Stations

- In the Robotic mode, the current position is taken as the potential FS location when doing sets. The software will then be able to auto-turn and location the prism when using BS-FS/FS-BS set order.

- Added the ability to connect to a total station using the GMS-2 using an external Socket Bluetooth SD card.

## Levels

- Support has been added for DL-103

- Support has been added for DL-101C

# Features and Changes

## General

- If the user puts in an "oem_splash.bmp" in the topsurv folder, the splash screen will display this image instead of what is normally shown. This allows the dealer/user to put in their own image.

- From this version on, TopSURV will not support FC1000

- From this version on, TopSURV will not support the old TDS Rangers.

- Added support for the FC200 with Windows Mobile 5 and CE.NET.

- Added Norway projections.

- Added Northern Ireland geoid.

- Added the Vertical / Y scale bar on the maps.

## Job - Import/Export

- Speed has been improved overall. Support has been improved or added for the following formats:

- Clip/Ispol

- DGN-ISFF

- Text

    Custon x-section format.

- MXGenio

    Added support for alignments and lines.

- LandXML

    DesignCrossSectSurf element.

    Vertical Curves (arcs).

    Ability to import breaklines as lines.

    Ability to import x-sections as CrossSectSurf elements.

- DXF/DWG

    Added the abilty to import central point of the blocks.

- TopSURV Road

    Support for verical curves (arcs) and compound spirals.

Import and Export alignments between jobs.

- FBK

    Support for arcs and averaging for multiple shots.

# Edit - Roads

- UI for the Roads has been updated to allow for selection and editing separate alignments, profiles and cross section sets.

# Stakeout

- Overview Map added to stakeout with bmps for design pt, current pt, etc. This toggles between the existing Stakeout plot view and the regular "map" view.
- Cross Section View has been added.