Survey Pro to Origin

Transition Guide

Version 1.1

PRACTICAL ADVICE FOR A SUCCESSFUL MIGRATION – SURVEY PRO TO ORIGIN

This document outlines the primary workflows of Survey Pro and how the same workflows are designed in the new Android and Windows 10 based software called Origin. This is not intended to be a How-To guide or User-Manual. Only the most common workflows and features of the software will be covered.

CONTENTS

PROFILES VS SURVEY STYLES

One of the biggest differences between Survey Pro and Origin is the introduction of Survey Styles.

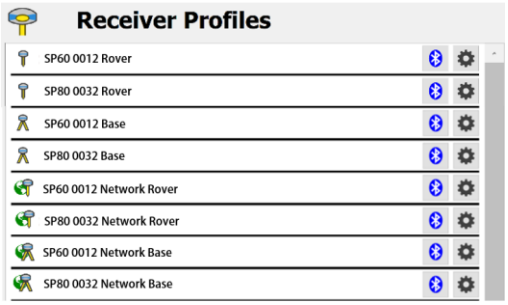
In Survey Pro, the user is required to set up a Receiver Profile for each different setup type they wish to use.
This could result in the following profiles for each different receiver:

UHF Rover	UHF Base	Network Rover	Network Base	RTX
				

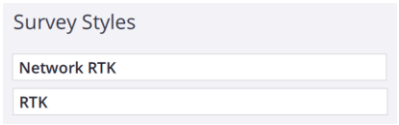
All surveys in Origin are controlled by a survey style. A survey style includes both a rover and base profile. The following survey styles would correspond to the Survey pro receiver profiles above:

UHF RTK Survey Style	Network RTK Survey Style	RTX Survey Style
		

In Survey Pro, Receiver profiles are tied to an individual receiver; if a user has multiple receivers this results in multiple profiles, one for each setup type and one for each receiver serial number e.g.



Survey styles are not receiver dependent. Origin checks the settings in the survey style to make sure they are appropriately configured for the equipment you are connected to. If Origin detects an incorrect setting, it prompts you to confirm or correct the settings. As a survey style also combines the Base/Rover combination, this means that the profiles shown above can be combined into the following two survey styles:



Survey styles define the parameters for configuring and communicating with your equipment, and for measuring and staking points. This whole set of information is stored as a template and used each time you start a survey.

Survey Pro allows the user to perform zero preparation for any Job. Receiver and instrument profiles can be built as part of the "Start Survey" process. Network connections can be configured directly from the "Start Survey" dialogue as well. Default job settings as decided by Survey Pro engineers are quite often adequate. By contrast, Origin requires some initial configuration. While this takes longer the first time a user interacts with the software, the repeated time savings day after day by using Styles and Templates probably adds up to weeks and months over the life of the product.

A single Origin Survey Style can cover the entire Spectra GNSS portfolio. Three GNSS Spectra Survey Styles would likely cover all use cases: RTK using a radio, RTK using the internet and post-processing. At the highest level, there are three types of Survey Styles: GNSS, Total Station (including robots) or an integration of both. Unlike Survey Pro Profiles, Origin GNSS Styles includes definitions for both base and rover plus data collection parameters, site calibrations, connected devices and NMEA outputs (if any). Although a specific receiver type is specified during the initial definition, Origin will still connect to other Spectra receivers and allow the Survey Style to be updated.

Origin uses Templates to define the Coordinate System, Units, Linked files and other parameters including Feature Library, Cogo settings, Job Description, Operator information and Notes.

Origin Survey Styles also contain the internet connection and Network configuration data for that survey style. When you are connecting to the Internet and using a Spectra GNSS receiver, on Android controllers the SIM card must go in the controller. On Windows controllers you can put the SIM card in the controller or in the Spectra receiver. When you connect to the Internet using the controller, the Controller Internet connection is available for other functions during the RTK survey, not just receiving RTK data. Other functions include downloading projects and jobs or sending email. If you use the SIM card in the receiver then you cannot use the Internet connection for other functions. If you want to use the SIM card in the receiver and have the Internet connection available for other functions, you must connect to the Internet through another device such as an SP85 receiver or a separate phone. For more information, see the Origin Help Portal.

COMPARISON TABLE

Functionality	Survey Pro	Origin
Instrument connection	Set Up a TS or Receiver Profile	Menu - Settings – Connections
Instrument collimation	Setting – Instrument Profile – Profile Settings	Menu – Instrument – Adjust
Station Setups	Survey – Station setup – Setup type	Menu – Measure –Survey Style – Setup type
Radial Sideshots	Survey – Radial Sideshots	Menu – Measure – Measure Rounds
Distance offsets	Survey – Distance offset	Menu – Measure Topo Method = Distance offset
Horizontal Angle offset	Survey – Horz Angle Offset	Menu – Measure Topo Method = H. Angle offset
Vertical Angle offset	Survey – Vert Angle Offset	Menu – Measure Topo Method = V. Angle offset
Plane & Vert Angle offset	Survey - Plane & Vert Angle offset	Menu – Measure – Measure points on plane
Auto Collect	Survey – Auto collect	Menu – Measure – Continuous Topo
Quick codes	Survey – Quick Codes	Menu – Measure – Measure Codes
Corner & 2 lines	Survey - Corner & 2 lines	Menu – Cogo – Compute Point
Corner & Plane	Survey – Corner & Plane	Menu – Measure – Measure points on a plane
Surface Scan	Survey – Surface scan	Menu – Measure - Surface Scan
Remote Elevation	Survey – Remote Elevation	Menu – Measure – Station elevation
Check Point	Survey – Check point	Menu – Measure Topo Check softkey
Angles Only Measure	Survey - Angles Only Measure	Menu – Measure Topo Method=Angles only
Dual Prism Offset	Survey – Dual Prism Offset	Menu – Measure Topo Method= Dual Prism Offset
Remote Control	Survey – Remote Control	Instrument Functions - Joystick
Stake Points	Stakeout – Stake points	Menu – Stakeout - Points
Manage design points	Stakeout – Manage Design Points	Menu – Stakeout – Points
Stake Lines	Stakeout – Stake to Line	Menu – Stakeout – Lines/Alignments/Polylines
Offset Staking	Stakeout – Offset Staking	Origin ROADS
Slope Staking	Stakeout – Slope Staking	Origin ROADS
Point Slope Staking	Stakeout - Point Slope Staking	Origin ROADS
Offset points	Stakeout – Store offset points	Cogo – Subdivide a line
Define a location	Stakeout – Define a Location	Cogo – Compute point Method = Bearing and distance
Where is next point	Stakeout – Where is Next Pt?	Menu – Instrument – Navigate to point
Favorites Menu	Toolbar – Edit Quick Pick	Menu – Favorites – Edit
Function Keys	Settings - Buttons	Menu – Favorites – Edit – Function Keys
GNSS & Total Station	Toolbar – Switch between modes (MAX+)	Menu – Settings Survey Style = Integrated Surveying
Adding a Network	Settings – Networks – Add Network	Settings – Connections – GNSS contacts
Base Radio Settings	Profile = Base Settings – Modem – Data Modem	Settings – Survey Styles – Base data link Connect Softkey
RTX configurations	Profiles	Settings – Survey Styles – Rover Options Broadcast Format = RTX
Connecting to Receivers Wi-Fi	Receiver Profile Settings – Modem – Data Modem – Internal Wi-Fi	Settings – Receiver Settings - Wi-Fi
Ebubble Settings	Quickpick Menu – eLevel Bubble	Menu – Instrument- Tilt Sensor Options
Receiver Data Download	Survey – File Management	Menu – Instrument – Receiver Files
Start GNSS survey	Choose GNSS Profile – Start survey	Menu – Measure – Choose GNSS survey Style – Measure points
Quick codes	Survey – Quick codes	Menu – Measure – Measure Codes
Collect Feature	Survey – Collect Feature	Menu – Measure – Continuous topo
Closing Survey	Survey – End Survey	Menu – Measure – End GNSS survey
Measure Control Points	Survey – Control Points	Menu – Measure - Measure Points Method = Calibration or Control Point
Calibration	Survey – Projection – solve Calibration	Menu – Measure – Site Calibration
Recording Static data	Survey – Start Recording Survey - Occupy	Create PP Survey style Base Options – Survey type = FastStatic Menu – Measure points – Method = FastStatic Point
DTM Creation	DTM – Manage DTM - Create	Select points in Map – Tap and Hold – Create Surface
Staking DTM	DTM – Stake DTM	Menu – Stakeout - DTMs

Software Installation and Licensing

Survey Pro allowed the end-user to download the program executable file and install directly to the data collector or PC. A license code or POPN was issued by email.

Origin relies on another applet called Spectra Geospatial Installation Manager. This software manages the licensing portion of Origin and is also used for installing and updating the software.

Typical RTK Rover workflow comparison

Typical GNSS rover workflow in Survey Pro - First time

Open Survey Pro
Open or create New Job
New job dialogue will define coordinate system selection, units and reference files
Select GNSS Mode from Power Bar
Add Receiver Profile
Create Receiver and Function specific profile
"SP60_0010 Internet Rover" for example
Other parameters of the receiver are also configured here including:
UHF, Modem and WiFi, NMEA Outputs and Elevation Mask
Start Survey
Select Receiver Profile
Manage Networks
Create NTRIP correction source with IP address, port, username and password
Select Network
Click on Connect
Click on Next
Click on Finish
Start measuring

Typical GNSS rover workflow in Survey Pro - Subsequent uses - last configuration

Open Survey Pro
Open or create New Job
Start Survey
Select Receiver Profile
Select Network
Select Connect
Select Next
Select Finish
Start measuring

Nearly all other user settings are controlled via the Job\Settings dialogues.

Typical GNSS rover workflow in Origin - First time

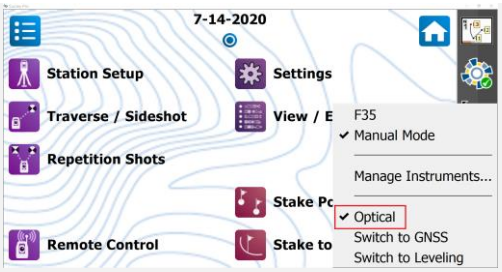
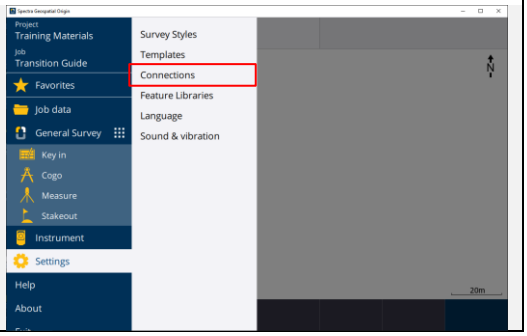
Open Origin
Select or create new Project
Select or create new Job
New job creation, select a Template for the job
Create a Spectra GNSS Survey Profile (See note above)
Create a Spectra Template (See note above)
Settings/Connections/Bluetooth settings
Use the interface to create a Bluetooth connection to the desired receiver
Other options in this dialogue include connections to total stations, TDL2.4 radio bridge and laser rangefinders
Measure\Select Survey Style\Measure Points
Start measuring

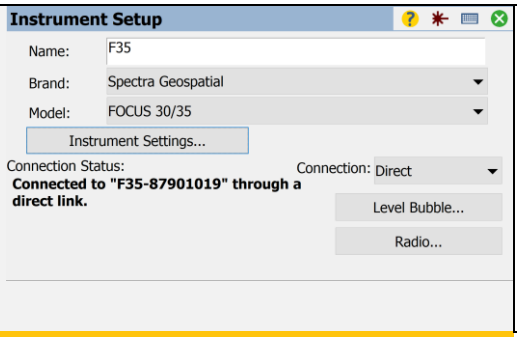
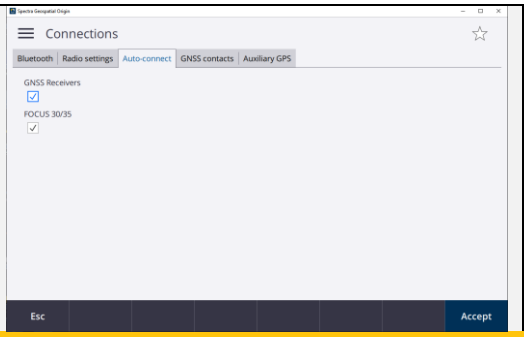
Typical GNSS rover workflow in Origin - Subsequent uses - last configuration

Open Origin
Select or create new Project
Select or create new Job
New job creation, select a Template for the job
Measure\Select Survey Style\Measure Points
Start measuring

Total Station

Instrument Connection

Survey Pro		Origin	
Switch to Optical mode first. Add an instrument profile then connect the total station. User can create multiple total stations profile.		Go to [Setting] - [Connections] Select the Radio or Bluetooth options to modify the radio or Bluetooth settings for connection to an instrument	

It supports cable, Bluetooth and radio for FOCUS35 Instrument settings – EDM, Lights, Search and Collimation		When you try to do anything that requires a connection, ie measure a point, then you will be asked to pick a survey style and a connection will be attempted	

INSTRUMENT SETTINGS/COLLIMATION

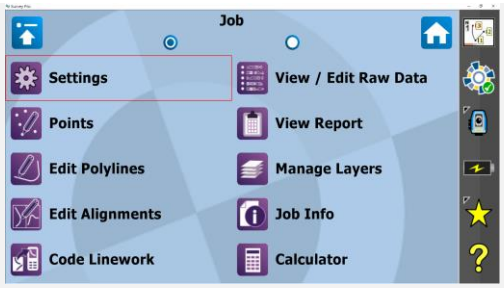
The Collimation Settings dialogue is used to launch several different workflows that guides the user through all the necessary collimations of the instrument. When a collimation workflow has been completed, the instrument firmware is updated with the collimation parameters. The instrument will apply collimation corrections to all measurements returned to the Field software

Attached link to the Collimation application note for Survey Pro:
http://trl.trimble.com/docushare/dsweb/Get/Document-808110/FOCUS%2035_30%20Field%20Calibration%20with%20Survey%20Pro%20Application%20Note.pdf
Attached link to the Collimation help file for Origin: https://survey.help.spectrageospatial.com/Origin/latest/en/instrument-adjustment-FOCUS.htm

Survey Pro

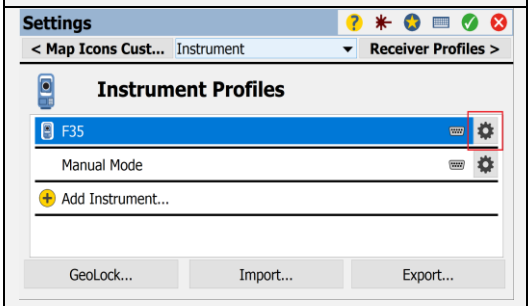
Go to settings > Instrument Profiles> Select the cog icon next to the instrument you would like to adjust.

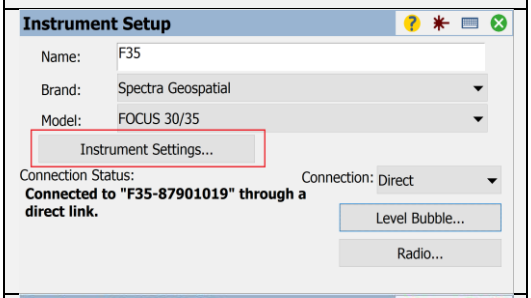
Ensure you are connected to the instrument.

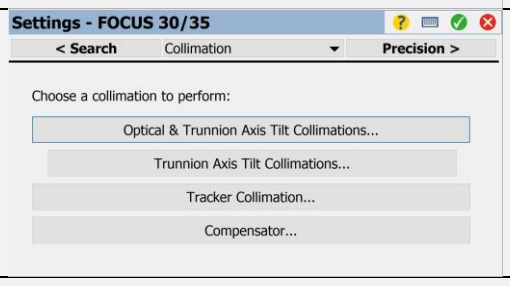


Run the following adjustments

Optical and Trunnion Axis Tilt Collimations: Opens a workflow to guide you through performing collimation of the optical axis and then of the trunnion axis.
Trunnion Axis Tilt Collimations: Opens a workflow to guide you through a collimation of the trunnion axis.
Tracker Collimation: Opens a workflow to guide you through a collimation of the tracker for prism lock.
Compensator: Opens a workflow to guide you through a collimation of the compensator.







Origin

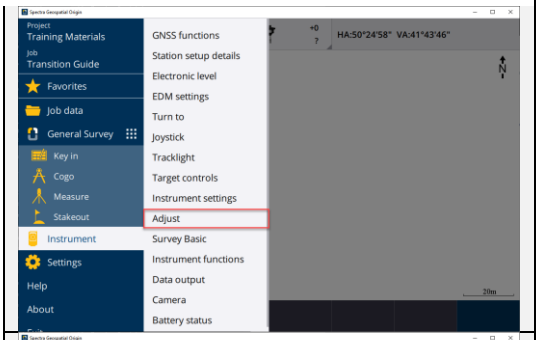
Tap ☰ and select Instrument / Adjust to perform instrument adjustments.

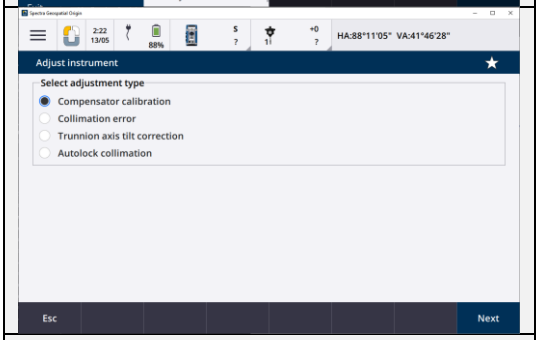
To adjust a FOCUS 30/35 total station Set up the instrument on a stable surface first. Make sure that the instrument is accurately leveled, and that the compensator is enabled.

Perform each adjustment in turn, using the steps below.
Collimation error
Trunnion axis tilt correction
Autolock collimation

Collimation error + Trunnion axis tilt correction = Optical and Trunnion Axis Tilt Collimations in Survey Pro

Note: Disable Autolock during collimation and trunnion axis tilt tests.





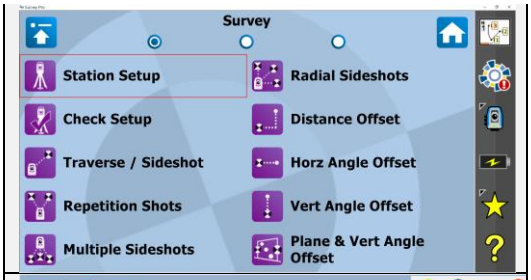
SURVEY/STATION SETUP

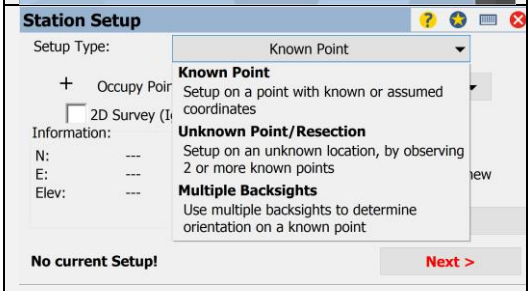
Survey Pro

Go to Survey/Station Setup. There are three ways of station setup.
1.Known Station
2.Resection
3.Multiple Backsights

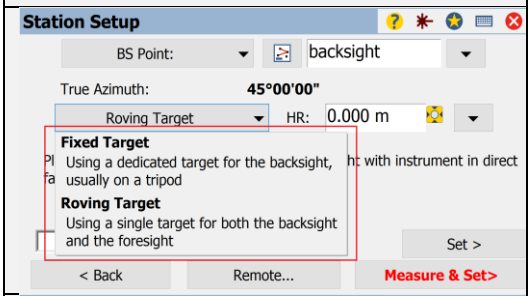
2D Survey and Remote Elevation are options

Multiple Backsights – Use multiple backsights to determine orientation on a known point.

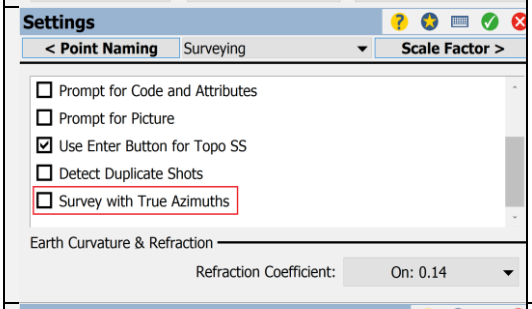




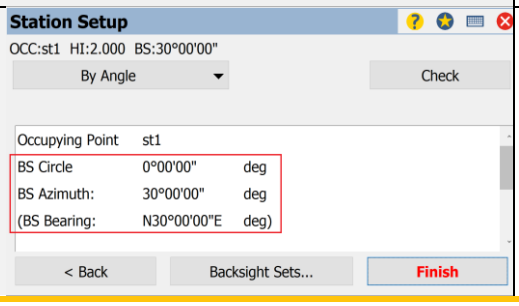
If wanting to do Radial Sideshots with robotic function, user must set up fixed target for backsight point.



Please notice there is an option in [Job] – [Settings] – [Surveying] which is:
Survey with True Azimuths:
Automates the process of adjusting the circle on the total station when traversing so that user can survey with azimuths rather than horizontal angles.



If this option is unchecked, the backsight circle and azimuth would be different after station setup.

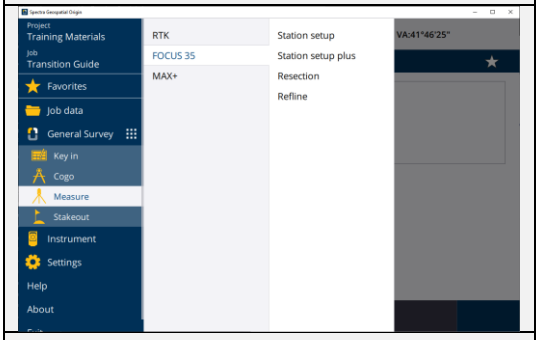


Origin

There are 5 methods for station setup. Please refer to the comparison table:

Origin	Survey Pro
Station setup	Know Station
Station setup plus	Multiple Backsights
Resection	Resection
Refline (Reference line)	N/A
Copy Last	N/A

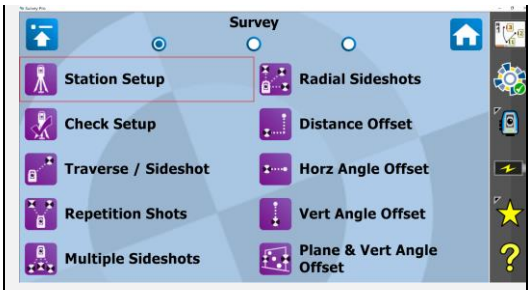
Access the station setup screen by going to Measure – choose your Instrument survey Style – then choose your style of station setup

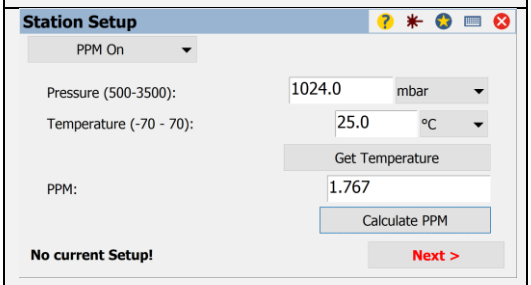


SURVEY/STATION SETUP/PPM

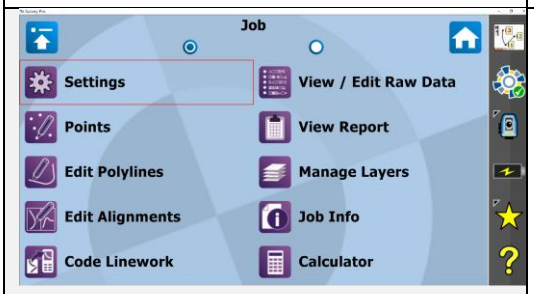
Survey Pro

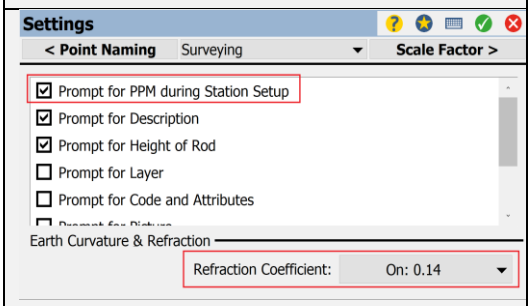
[PPM On]: Use this option to enable PPM correction of measured slope distances.
[Pressure]: Enter the atmospheric pressure and pressure units.
[Temperature]: Enter the temperature and temperature units.
[Get Temperature]: (if available) Gets the temperature from the thermometer built into the instrument.
[PPM]: Enter the parts per million correction factor for measured slope distances.
[Calculate PPM]: Triggers the instrument to calculate the PPM correction factor from the input values.





Prompt for PPM during Station Setup: When checked, you will be prompted to enter the PPM correction factor as part of your optical station setup.

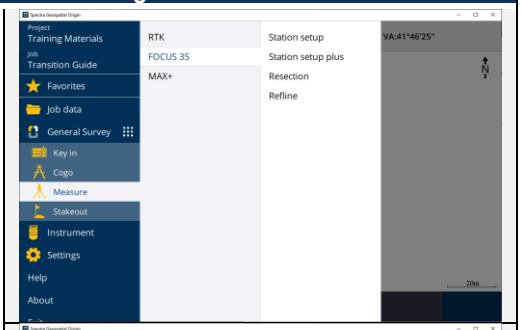


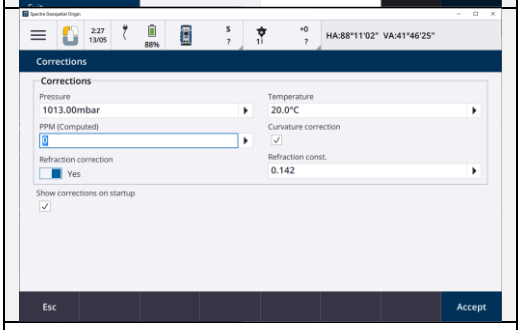


Origin

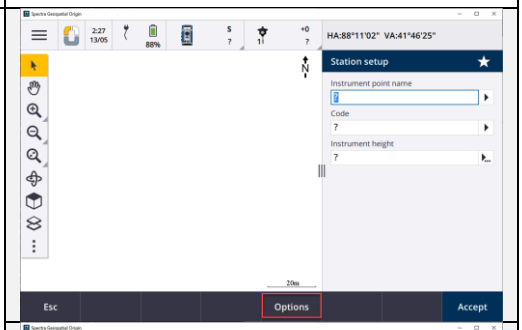
User can set the corrections associated with conventional observations. By default, the Corrections screen appears automatically after the Electronic level screen when you start a survey.

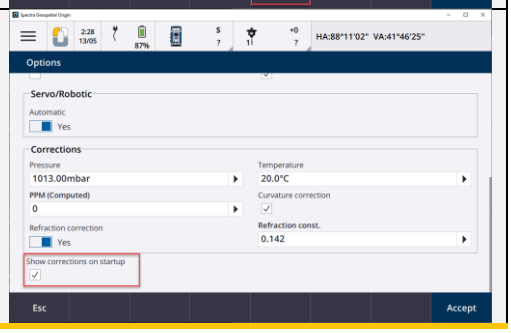
NOTE - If you intend to perform a network adjustment in the software using data from a conventional survey, make sure that you enter a pressure, temperature and, curvature and refraction correction.



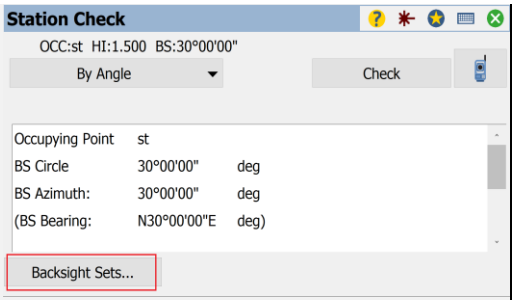
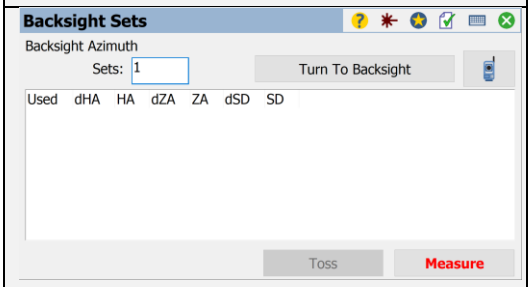
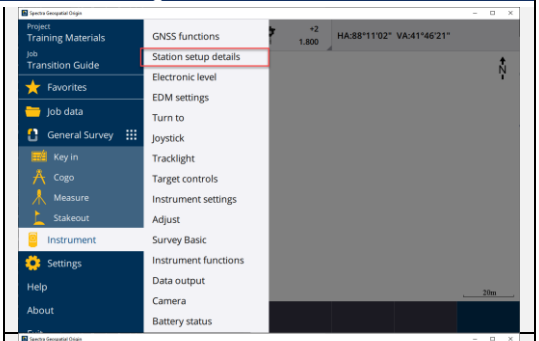
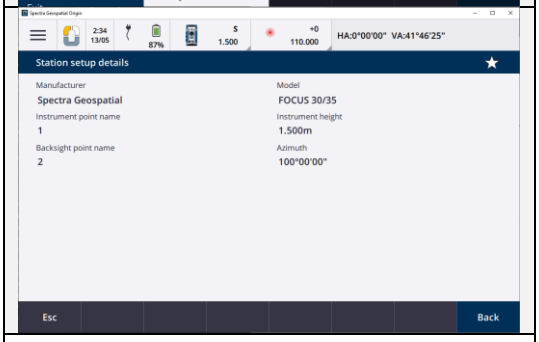


If the Corrections screen does not appear, tap Options and enter the correction information. To reset the default setting so that the Corrections screen appears automatically, tap Options and then select the Show corrections on startup check box.

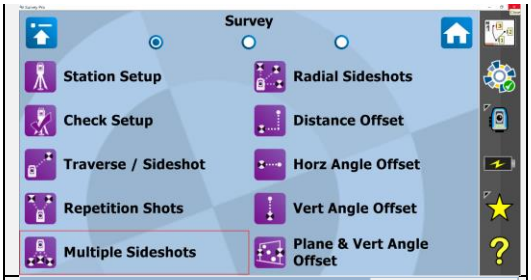
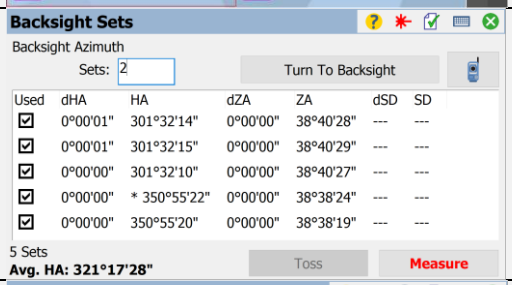
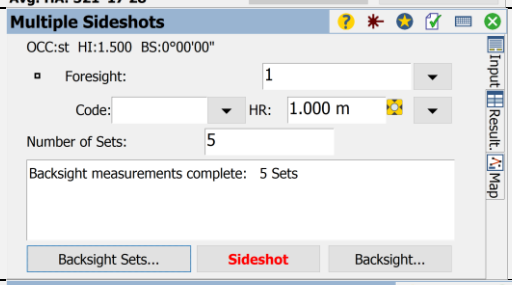
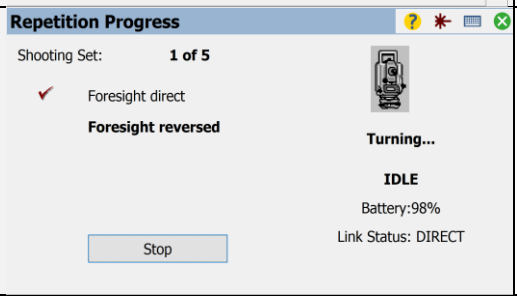




SURVEY/STATION SETUP/STATION CHECK

Survey Pro		Origin	
Station Check is used to display the details of the current backsight setup. You can check the current setup and reset the instrument circle. The Backsight Sets screen is used to view the list of backsight direct/reverse sets you have collected for the current station setup, and to add new observations to the collection. Backsight sets are used to calculate the mean angle for foresight observations you take using Multiple Sideshots, Angles Only, or any direct/reverse observation pair using Traverse/Sideshot.	 	[Instrument] – [Station setup details] Supports the ability to check station details. There is no concept of backsight sets in Origin. Survey Style definition allows F1/F2 measurements for station setup.	 

SURVEY/MULTIPLE SIDESHOTS

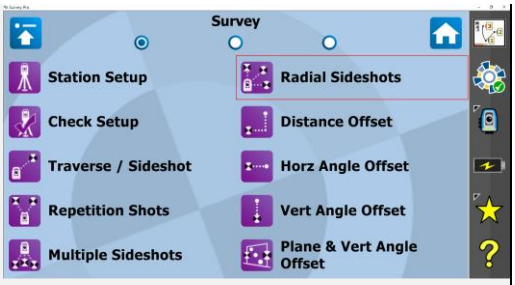
Survey Pro		Origin	
The Multiple Sideshots is used to perform multiple sideshots using any number of repetitions to each foresight without the need to re-shoot the backsight.		This function is available in Trimble Access monitoring	
			
			
			

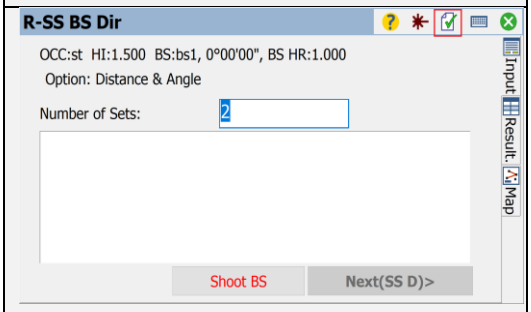
SURVEY/RADIAL SIDESHOTS

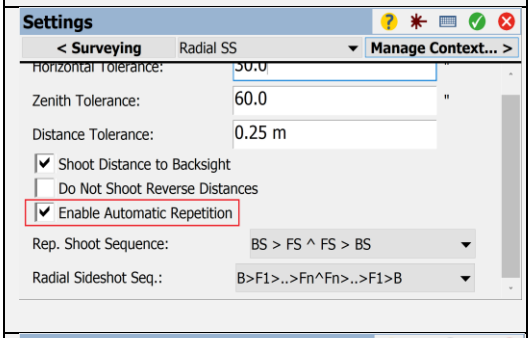
Survey Pro

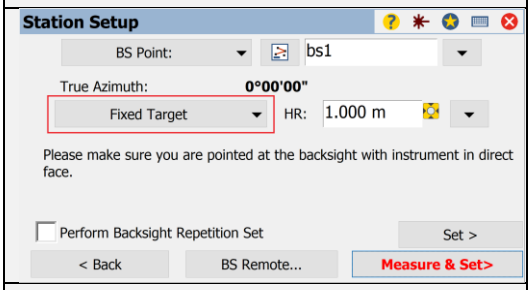
The Radial Sideshots routine combines the functionality of the multiple Sideshots routine with the accuracy of the Repetition Shots routine. It is used to perform repetition shots to a backsight and any number of foresights (sideshots) from the same occupy point.

Note: Must set Fixed Target as backsight in Station Setup if wanting to do automatic repetition and the target type must be prism.









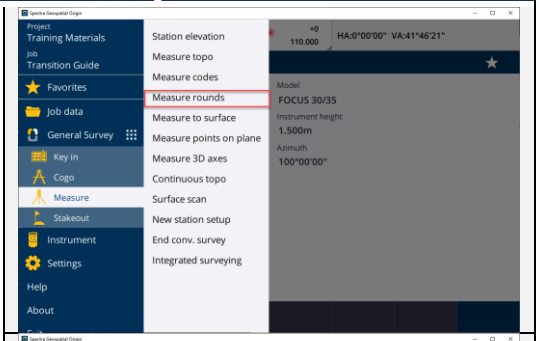
Origin

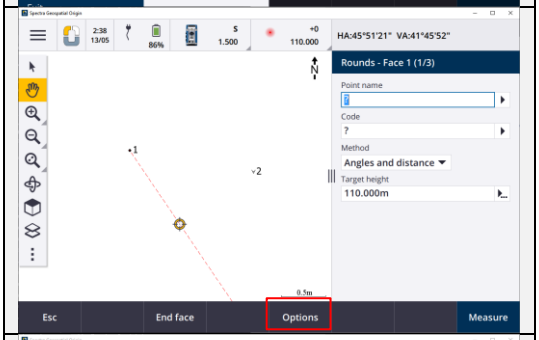
[Measure] – [Measure rounds]

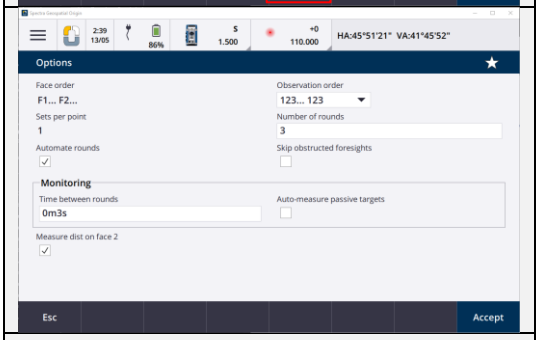
During a Station setup plus or Resection, or when using the Measure rounds measurement method, you can measure multiple sets (rounds) of observations.

A round is a set of either:
- Single face 1 observations
- Matched face 1 and face 2 observations

Rounds can be used in a number of different ways depending on your equipment, the accessibility of points, and the procedures to observe the points, such as the order in which the observations are made.
Use the Options button to control the measurement parameters.



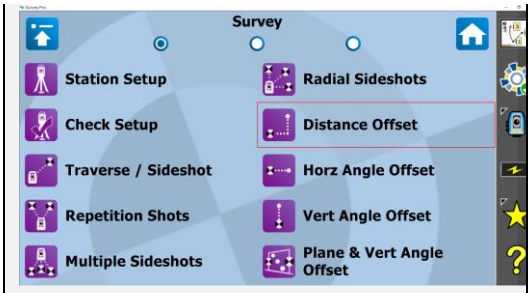


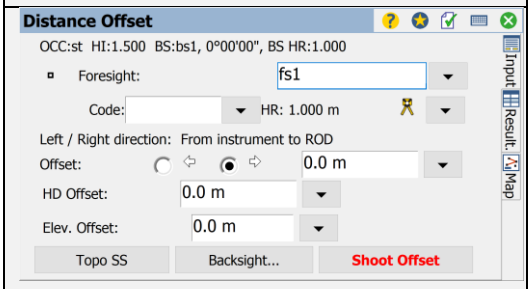


SURVEY/DISTANCE OFFSET

Survey Pro

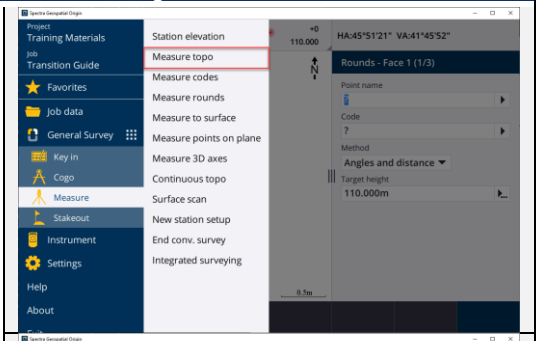
The Distance Offset screen is used to store a new point that is a known distance away from the rod location. This screen is useful when the rod cannot occupy the new point's location.

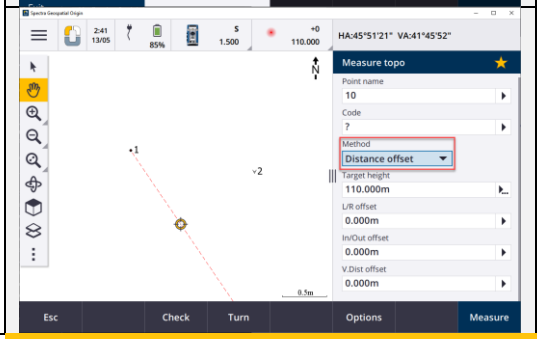




Origin

Use this observation method when a point is inaccessible but a horizontal distance from the target point to the object can be measured. Distance offset allows you to offset in one, two, or three directions in one step, i.e. L/R offset, In/Out offset and/or V.Dist offset.

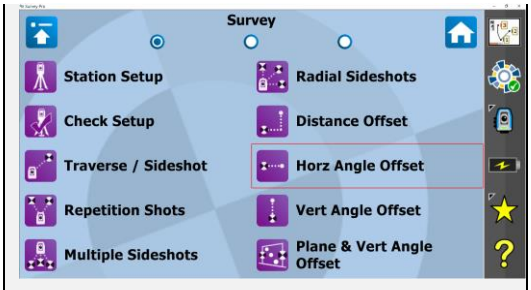


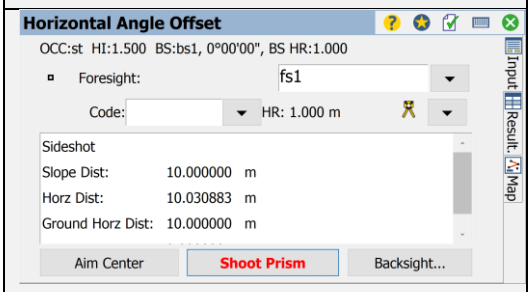


SURVEY/HORZ ANGLE OFFSET

Survey Pro

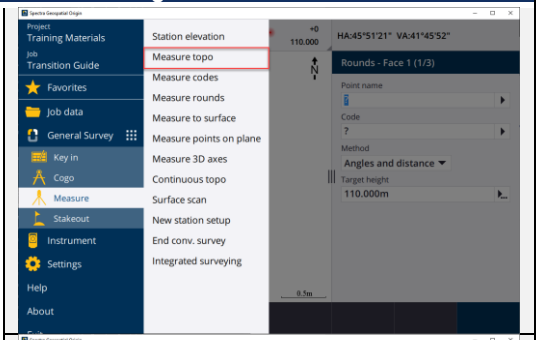
The Horizontal Angle Offset allows you to compute and store the location of a new point that cannot be occupied, such as at the center of large tree.
This same routine is also available in the Traverse/Sideshot dialogue. Measure, turn the angle, select Horizontal Angle Offset to store point.

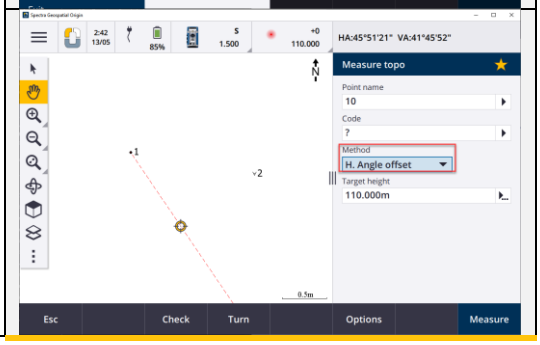




Origin

The H.Angle offset method holds the slope distance and vertical angle from the first observation, and combines this with the horizontal angle from the second observation to create an observation to the offset location.

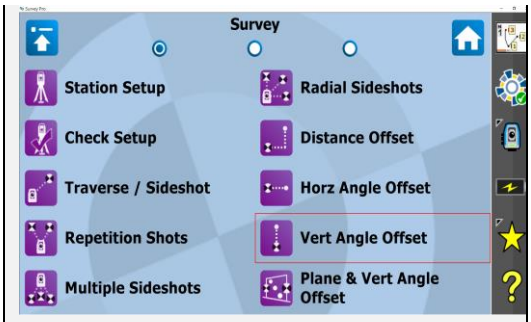


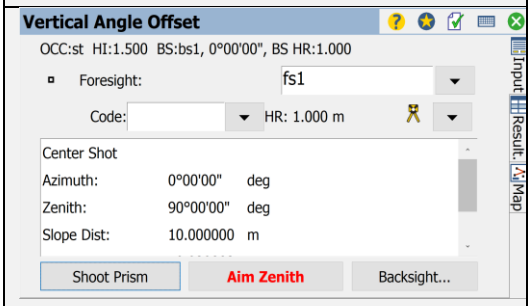


Survey/Vert Angle Offset

Survey Pro

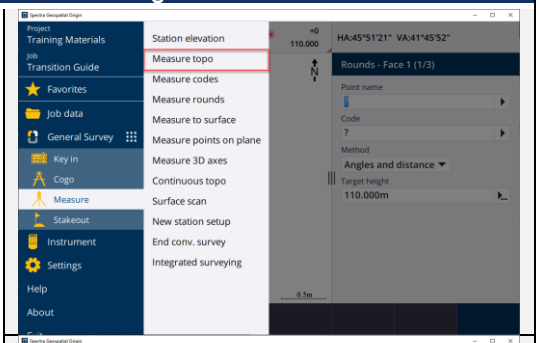
The Vertical Angle Offset allows you to compute and store the location of a new point that exists directly above or below the rod location, but cannot be occupied, such as the top of a utility pole.
This same routine is also available in the Traverse/Sideshot dialogue. Measure, turn the angle, select Vertical Angle Offset to store point.

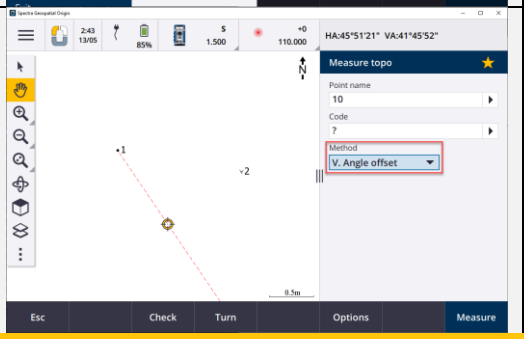




Origin

The V.Angle offset method holds the horizontal distance and horizontal angle from the first observation, and combines this with the vertical angle from the second observation to create an observation to the offset location.

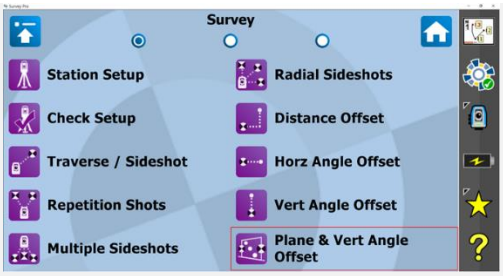


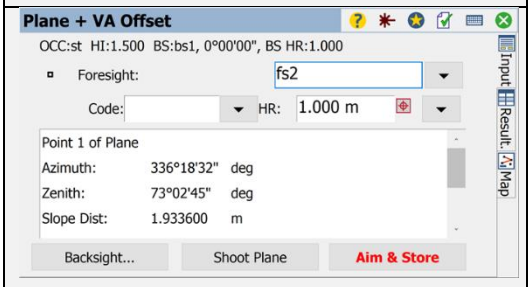


SURVEY/PLANE & VERT ANGLE OFFSET

Survey Pro

The Plane and Vertical Angle Offset screen allows you to define a vertical plane by measuring distance and angles to two points, and then store any number of points on that plane by measuring angles only to those points. A common usage of this routine would be to measure the location of two power poles with a prism or reflectorless observation, and then observe the power lines between the poles with angles only.



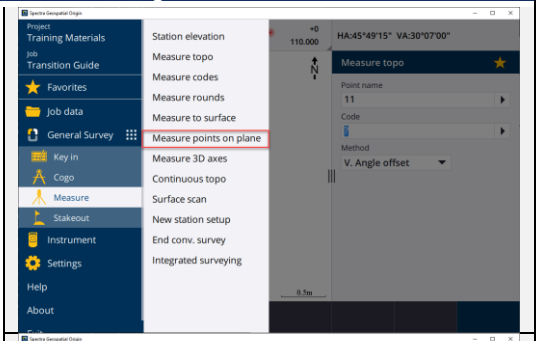


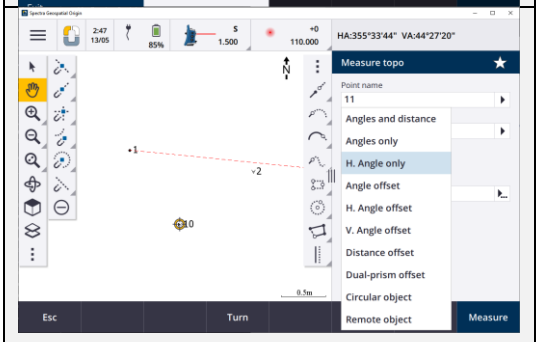
Origin

In a conventional survey, use the Measure points on a plane measurement method to define a plane and then measure points relative to the plane.

To define a horizontal plane, vertical plane, or tilted plane you can select points in the job or measure new points. After defining the plane, measure an:

- Angle only measurement to the plane to create an angle and computed distance observation onto the plane.
- Angles and distance measurement to the plane to compute the perpendicular offset to the plane.

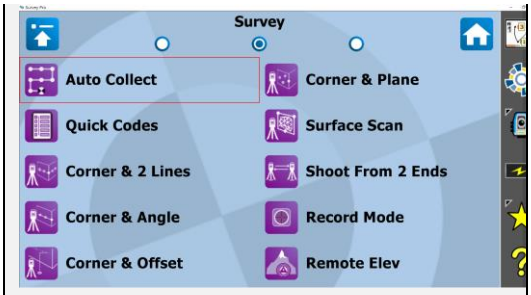


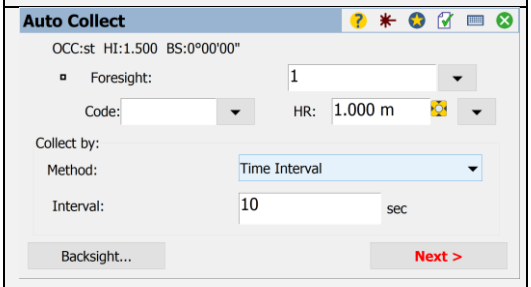


SURVEY/AUTO COLLECT

Survey Pro

The Auto Collect allows users with robotic total stations to automatically collect points either at a specified time interval or after the rod has moved a specified horizontal distance.

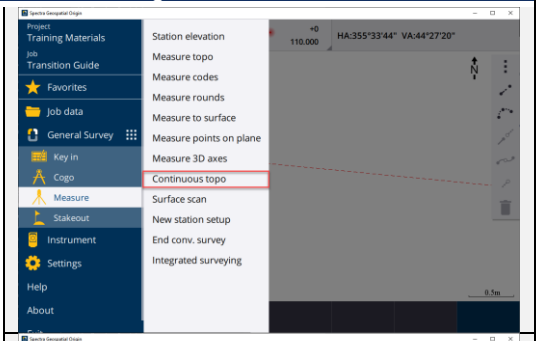


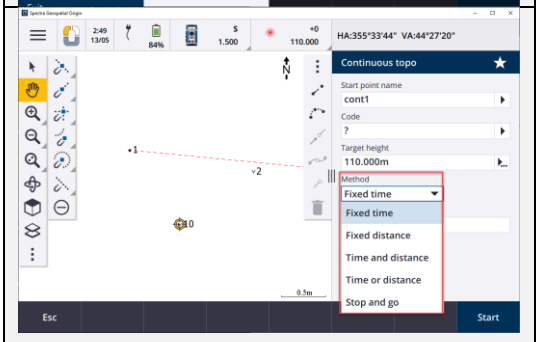


Origin

Following are the methods for auto collection in Origin
1.Fixed time
2.Fixed distance
3.Time and distance
4.Time or distance
5.Stop and Go

Stop and Go
In the Stop time field, enter the period of time the target must be stationary before the instrument starts to measure the point.
The target is deemed to be stationary when its velocity is less than 5 cm/sec.
Enter a value in the Distance field for the minimum distance between points.

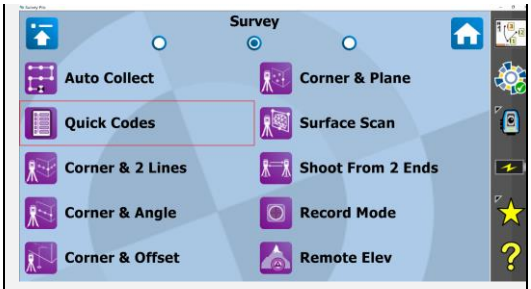


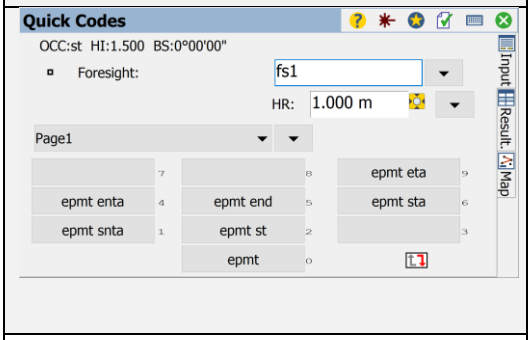


Survey/Quick Codes

Survey Pro

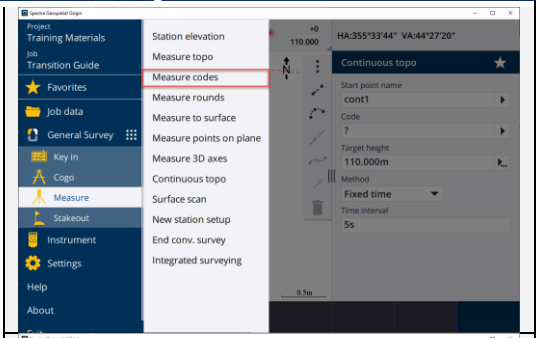
The Quick Codes is used to rapidly take shots with different descriptions or FXL feature and linework codes.

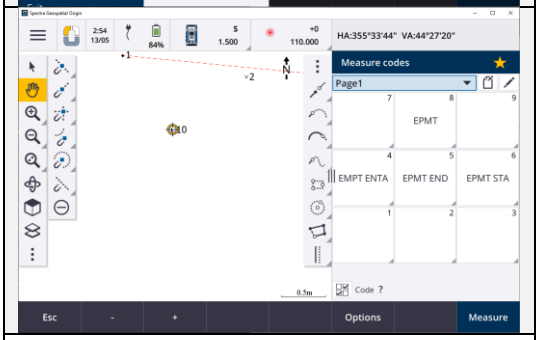




Origin

To measure and code conventional or GNSS observations in one step, select the feature code you want to measure and store from the Measure codes form. If you are using a feature library file that has groups defined, the groups and the codes within the group are automatically shown in the Measure codes form.

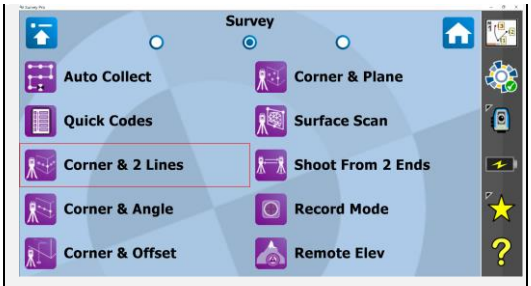


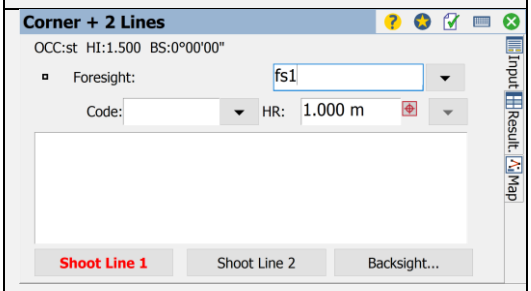


Survey/Corner & 2 Lines

Survey Pro

The Corner and 2 Lines screen is used to store a point at the corner of a reflectorless total station where a direct measurement to the point is not possible, but two points on two intersecting lines can be shot.

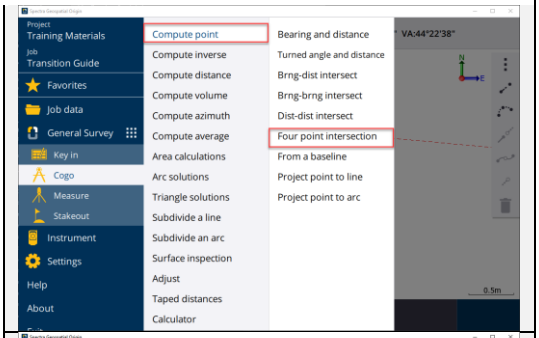


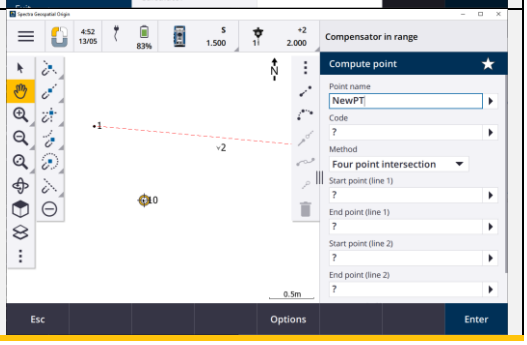


Origin

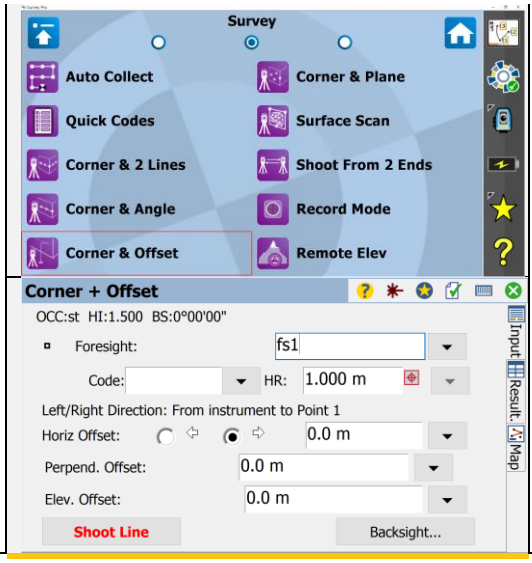
[Compute point] – Four point intersection

When selecting points, choose from points in the map or click the triangle at the end of the point field to measure a new point





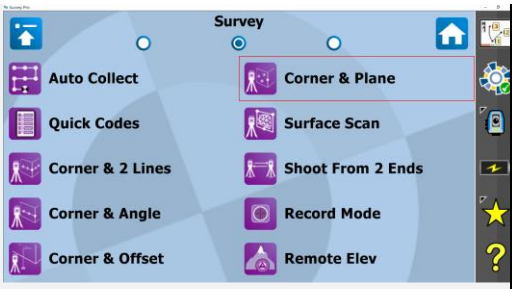
SURVEY/CORNER & OFFSET

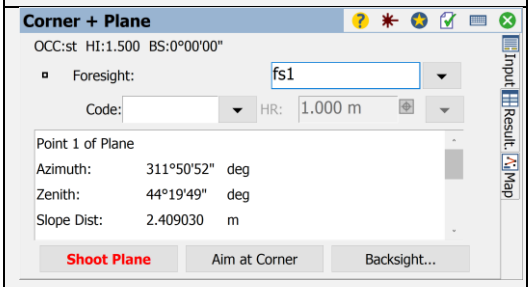
Survey Pro		Origin	
The Corner and Offset is used to store a point using a reflectorless total station for a point that cannot be shot directly, but the offset(s) to the point can be measured from a reference line that can be shot.		N/A	

SURVEY/CORNER & PLANE

Survey Pro

The Corner and Plane is used to store a point using a reflectorless total station for a point that cannot be shot, but three points on the same plane can be shot.



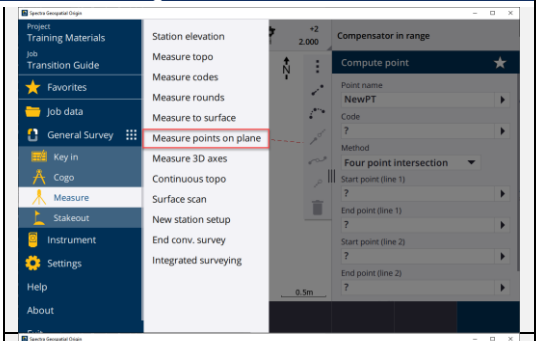


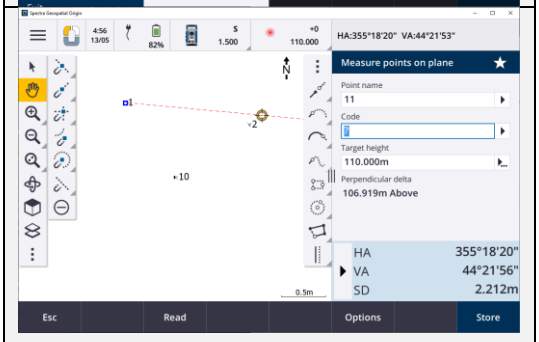
Origin

In a conventional survey, use the Measure points on a plane measurement method to define a plane and then measure points relative to the plane.

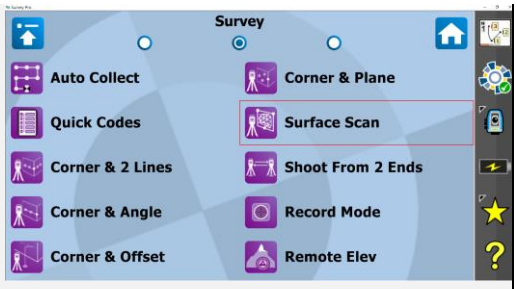
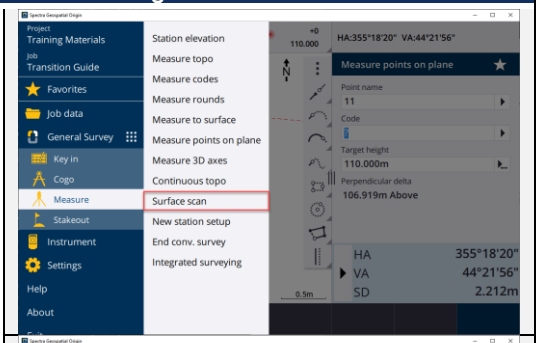
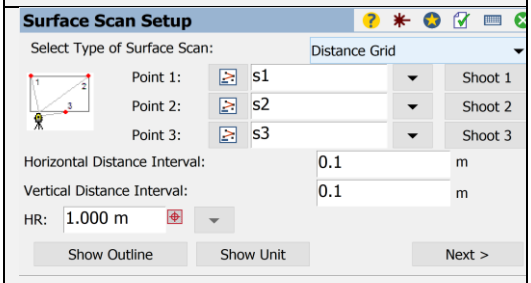
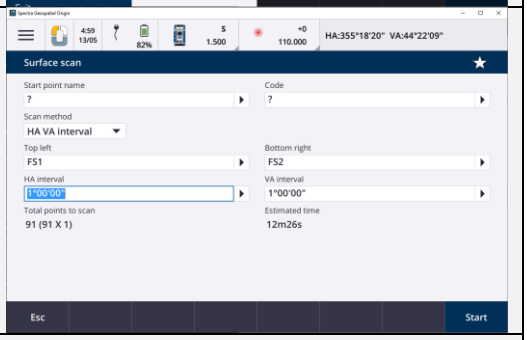
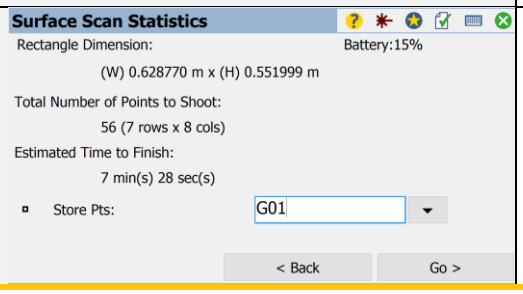
To define a horizontal plane, vertical plane, or tilted plane you can select points in the job or measure new points. After defining the plane, measure an:

Angle only measurement to the plane to create an angle and computed distance observation onto the plane.
Angles and distance measurement to the plane to compute the perpendicular offset to the plane.

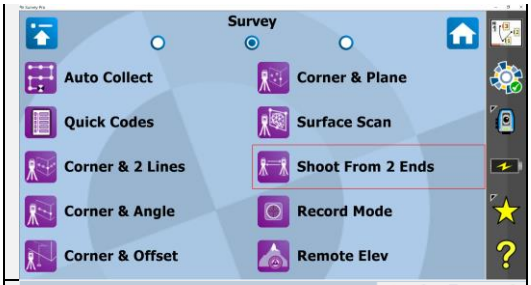
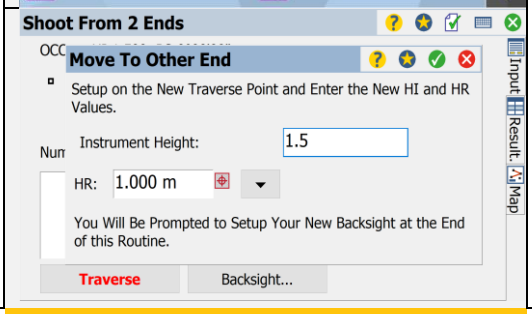




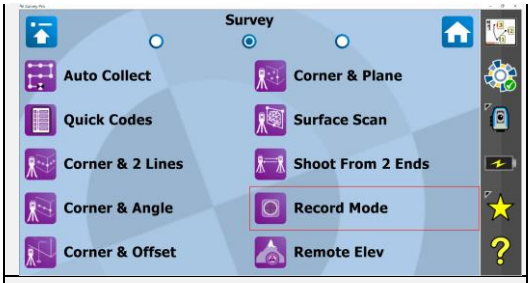
SURVEY/SURFACE SCAN

Survey Pro		Origin	
The Surface Scan takes advantage of a robotic, reflectorless total station to take a sequence of shots of a surface automatically. PC software can then use the data to generate a 3-D raster image of the surface or a DTM surface to compute volume information.		Use surface scanning to scan surfaces when connected to a total station that supports scanning.	
			
			

SURVEY/SHOOT FROM 2 ENDS

Survey Pro		Origin	
The Shoot From 2 Ends is used observe a traverse leg from both ends to eliminate the effects of curvature and refraction. The routine requires that a foresight point is shot, but it is not stored until after it is occupied and another shot is taken to the previous occupy point. The coordinates for the foresight point are computed from an average of data gathered at each occupy point	 	N/A	

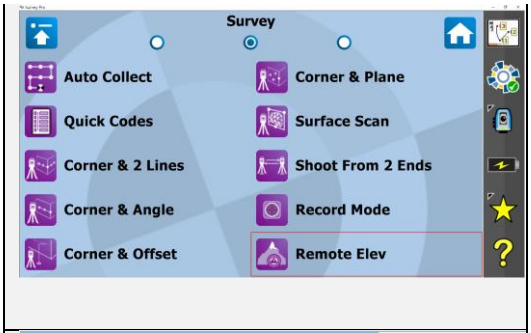
SURVEY/RECORD MODE

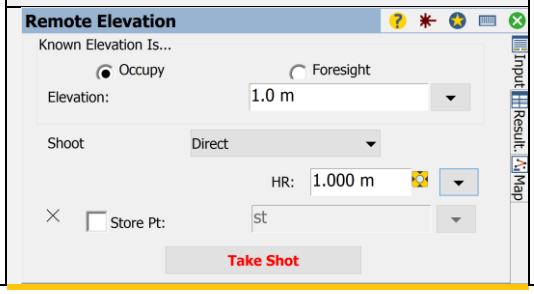
Survey Pro		Origin	
When running in Record Mode, all control of the total station is performed from the total station's keypad. The data collector will simply log each shot that is taken from the total station. This routine is typically used for topo work, where the total station remains over a single occupy point during all shots		N/A	

Survey/Remote Elevation

Survey Pro

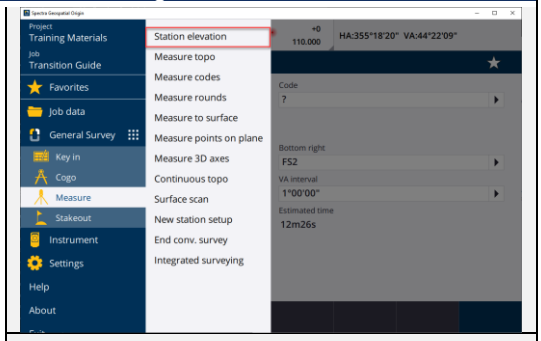
The Remote Elevation will compute the elevation for the occupy point by shooting a foresight with a known elevation, or it will compute the elevation for a foresight when the occupy elevation is known.





Origin

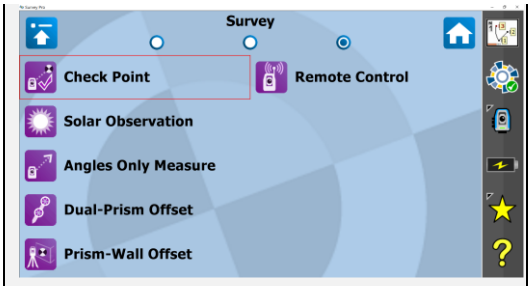
Station Elevation will compute the Elevation for the current station from one or multiple points with known elevations

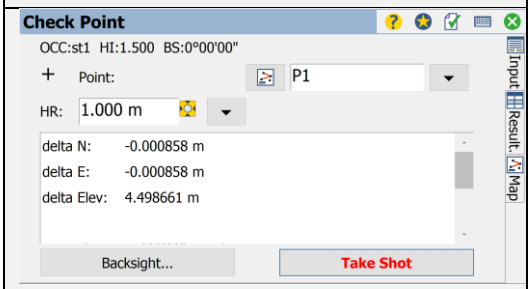


Survey/Check Point

Survey Pro

The Check Point compares the rod location with an existing point in the project. This routine is similar to the Check Setup routine and is used to verify that the rod and/or the total station is over the correct point. This routine does not store a new point.



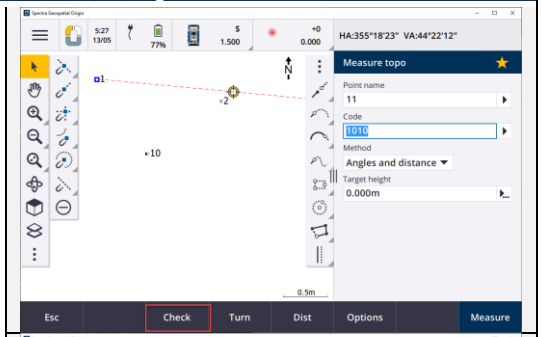


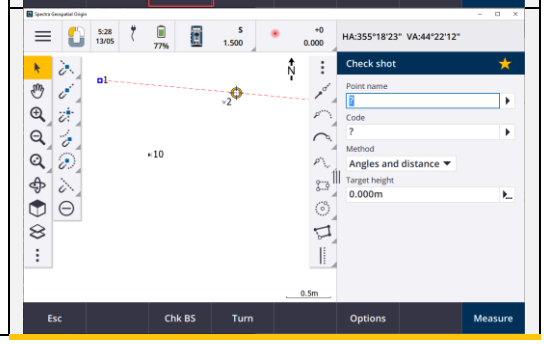
Origin

In the measure topo screen, select the check softkey to compare the rod location with that of an existing point.

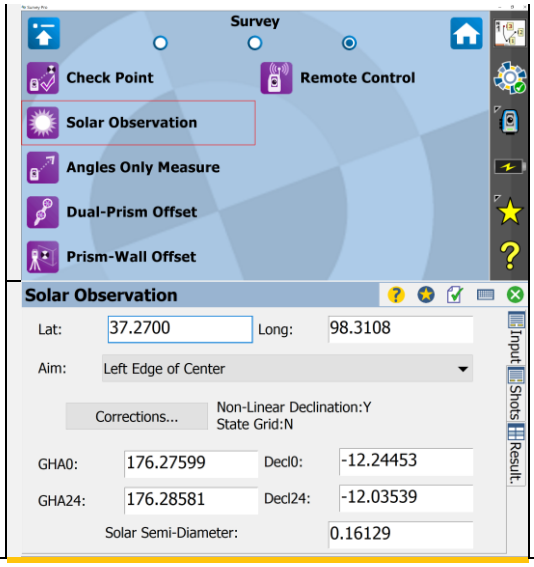
That measurement can then be stored as a check shot.

Use Ctrl + K to shortcut to the check shot screen.

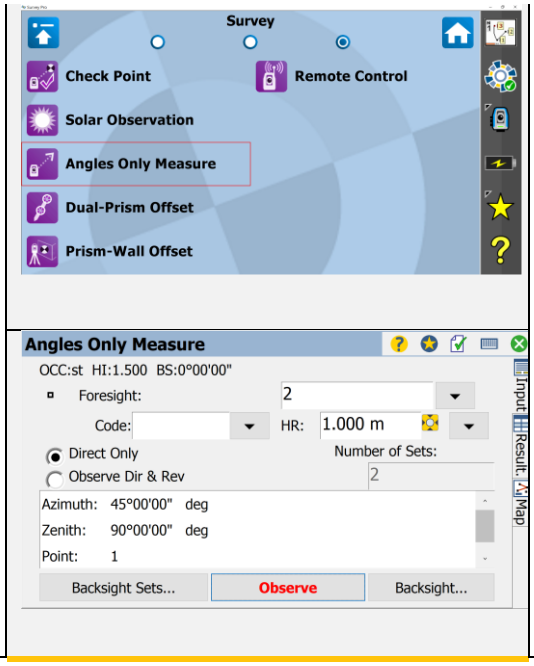
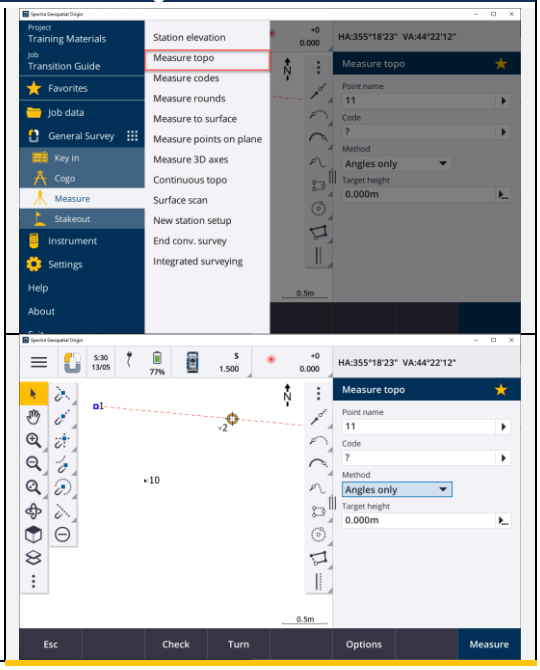




Survey/Solar Observation

Survey Pro		Origin	
The Solar Observation is used to compute the azimuth to an arbitrary backsight based on the position of a celestial body; typically the sun.		N/A	

Survey/Angles Only Measure

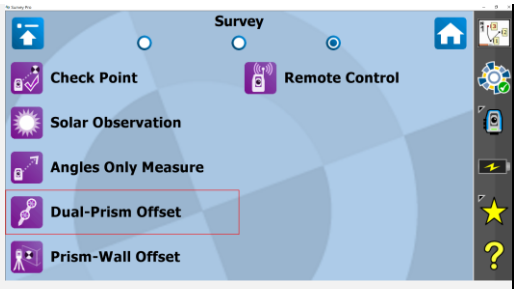
Survey Pro		Origin	
The Angles Only Measure is used to collect horizontal and vertical angle measurements to points. The coordinates of these points can be solved later from the raw observations using office software.		In the measure topo routine change the measurement type to angles only.	

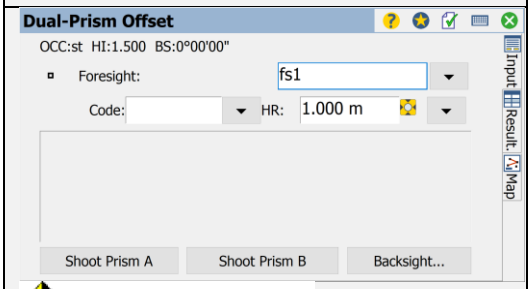
SURVEY/DUAL-PRISM OFFSET

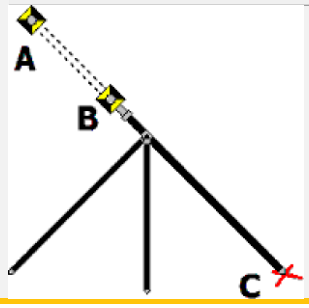
Survey Pro

The Dual-Prism Offset allows you to compute and store the location of a new point that can be occupied with the tip of the prism pole, but where the prism pole cannot be plumbed over the point and still remain visible to the total station.

The offset point will be calculated using the HR of the first observation (A or B).



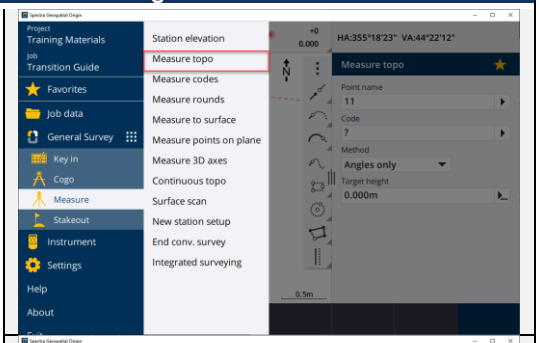


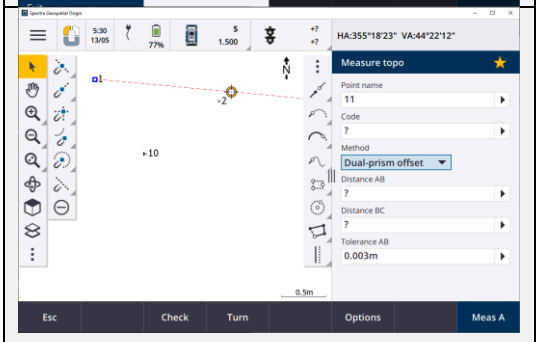


Origin

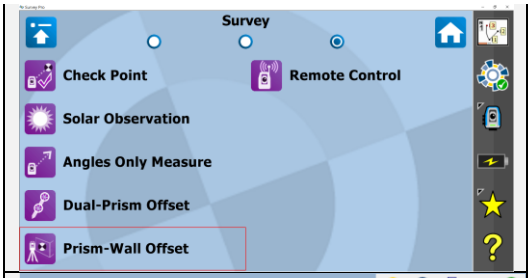
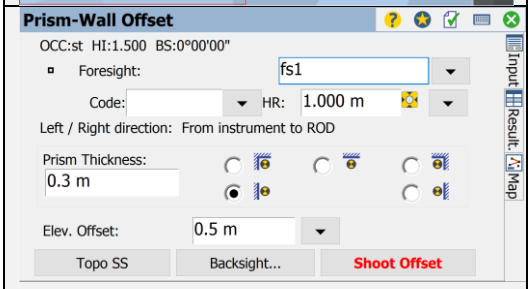
In a conventional survey, use this measurement method to coordinate a point that cannot be observed directly with a pole in a plumb position.

TIP - Enter a suitable Tolerance AB to generate a warning if there is a difference between the keyed-in distance AB between the two prisms and the measured distance AB between the two prisms. Exceeding the tolerance could indicate that the entered distance AB is incorrect, or it could indicate pole movement between the measurement to prism A and the measurement to prism B.





SURVEY/PRISM-WALL OFFSET

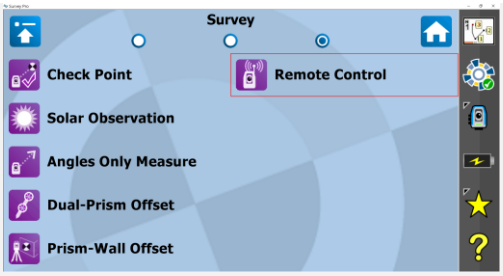
Survey Pro		Origin	
The Prism-Wall Offset screen allows you to place the prism adjacent to a wall or other vertical surface, observe the prism, and automatically calculate the location offset to the base of the wall, or at the intersection of two walls. Prism Thickness: Enter the thickness of the prism. If you have selected a known prism type, then this value is filled in for you and you do not need to set it. If you are using a generic prism, enter the distance between the center of the prism and the outside of the prism bracket. Elevation Offset: Enter an optional elevation offset to add to the rod height. This allows you to store the offset point at an elevation other than the tip of the rod.	 	N/A	

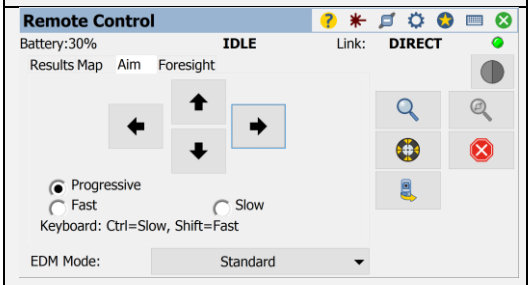
SURVEY/REMOTE CONTROL

Survey Pro

Remote control mode is a special mode that makes it easier for users to control fully robotic total stations from a remote data collector.

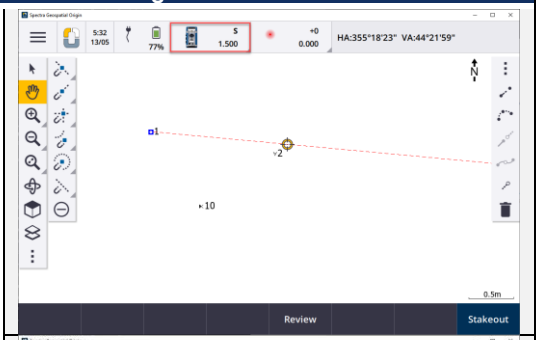
Note: The remote control functions are available only after a supported robotic total station is selected and enabled in the Instrument Settings screen.

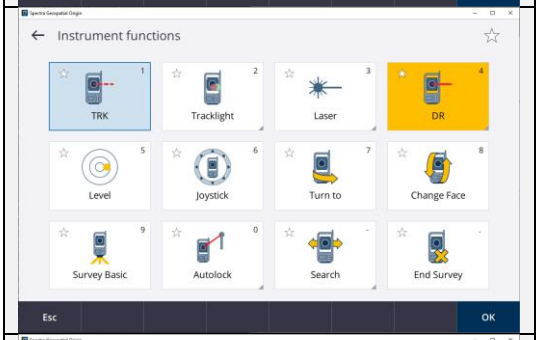


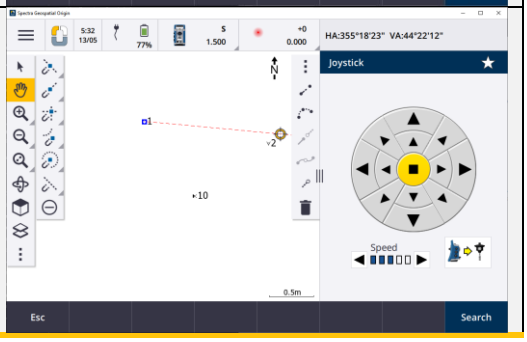


Origin

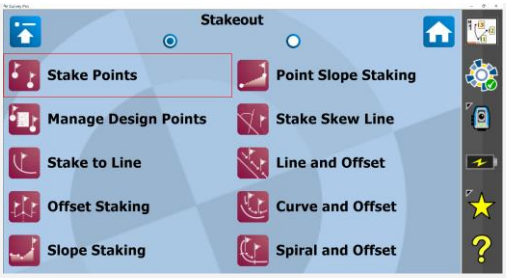
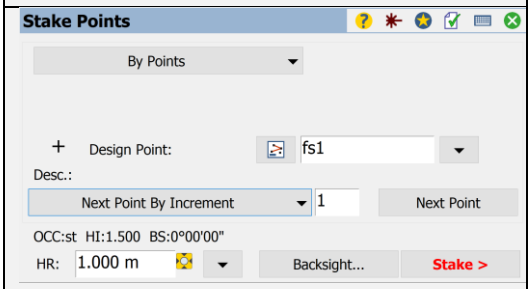
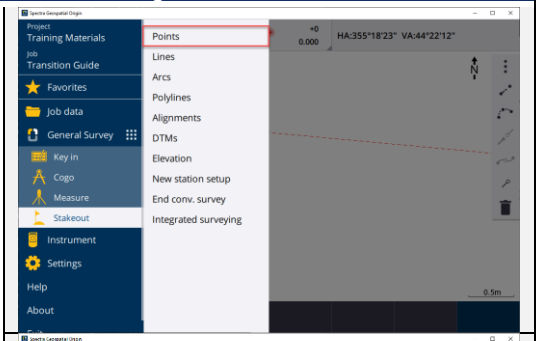
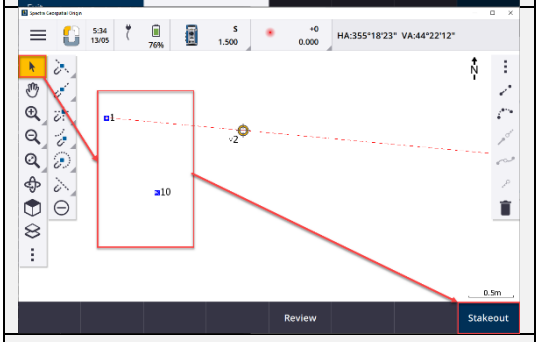
Robotic remote controls are available under the instrument setting panel which can be called by clicking the total station icon on the top tool bar.







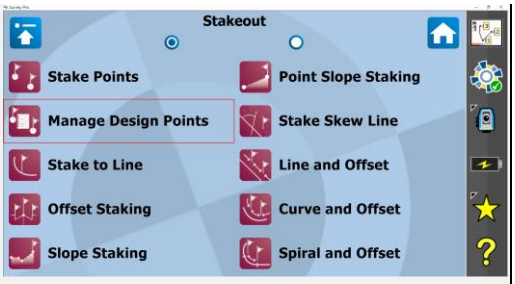
STAKEOUT/STAKE POINTS

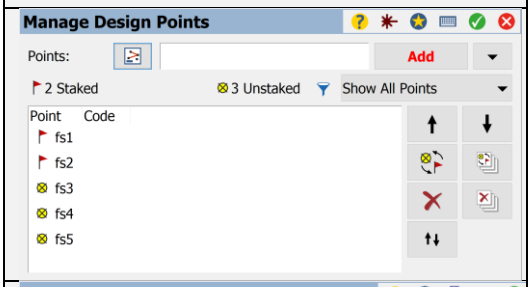
Survey Pro		Origin	
The Stake Points is used to select design points one by one then stake them out.	 	Origin supports the ability to stake out a single point and/or a group of points. Stake out can also be done though map selections. Select the desired points in the map, tap and hold on the map screen and select "Stakeout"	 

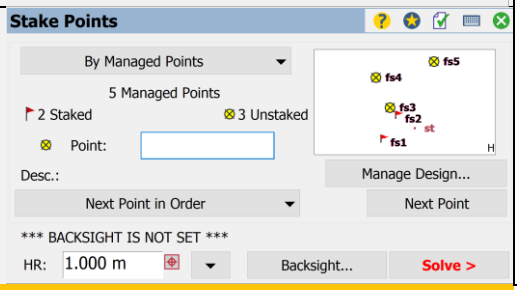
STAKEOUT/MANAGE DESIGN POINTS

Survey Pro

The Manage Design Points screen is used to select a set of job points to be staked out, and then to manage the collection as design points are staked and as staked points are stored.



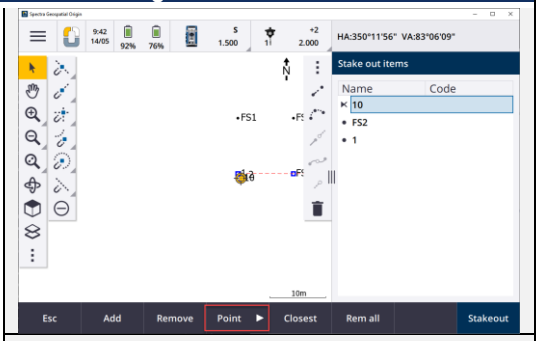




Origin

Stake out a group of point under the Stake Points dialogue.

Add or remove points from the list using the softkeys on the stakeout items form

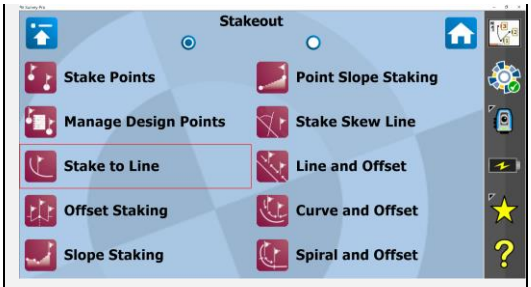


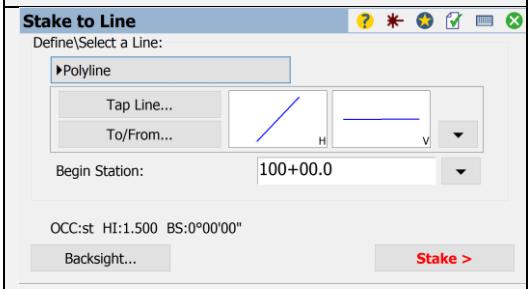
STAKEOUT/STAKE TO LINE

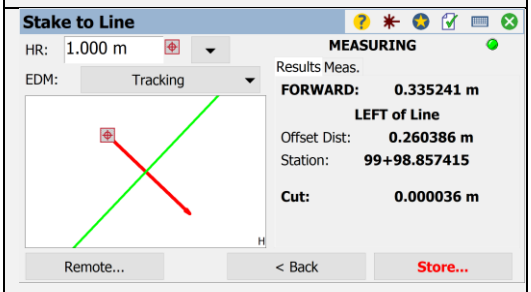
Survey Pro

The Stake to Line screen allows you to locate any location in relation to a predefined line. The line can be defined by two points, a point and direction, a polyline or the centerline of an alignment. Distance, direction and cut/fill information is provided so the rod can locate the line by traveling the shortest possible distance (a perpendicular offset to the line).

It also supports the ability to stake out an alignment in this function. (Note: Origin splits this into 2 functions - Stake Lines and Stake Alignments.)



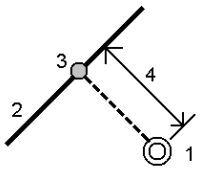




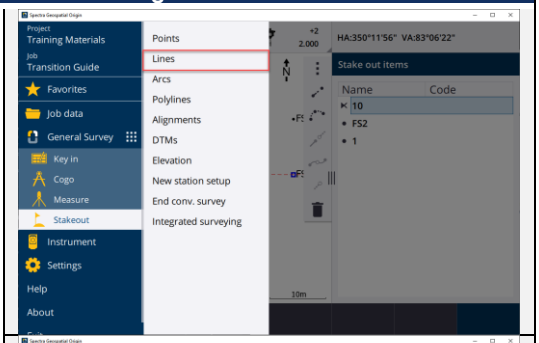
Origin

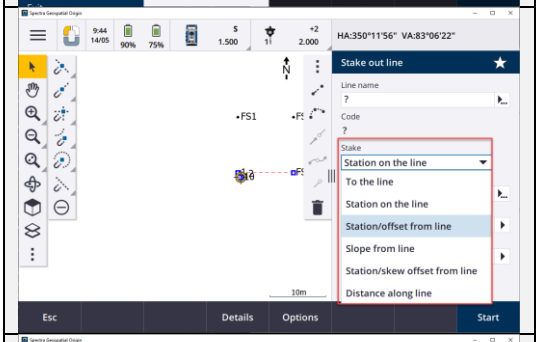
Stake Lines] - > Station/offset from line

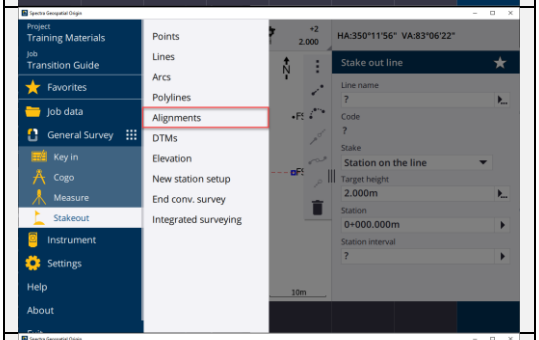
Stake out a location relative to a line is possible with six different methods as shown below. The design elevation of the stake point is the same as the elevation of the line at the selected station.

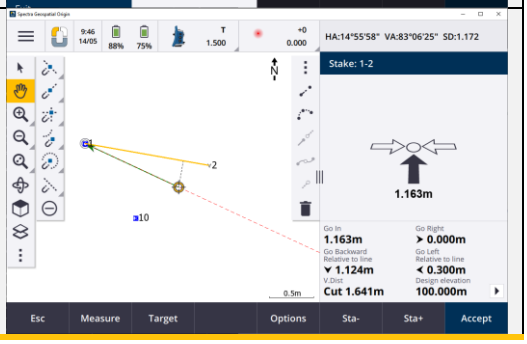


Alignments can be defined in the Origin Roads or Survey Office software.

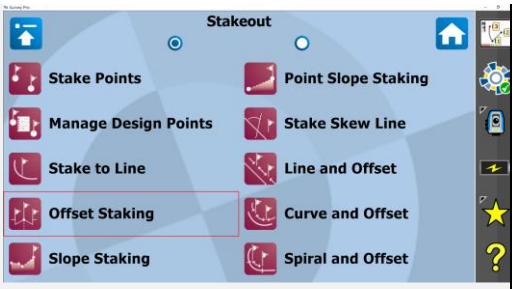
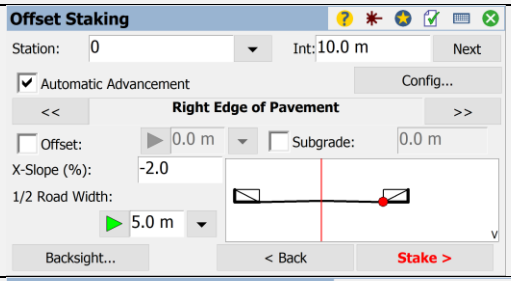
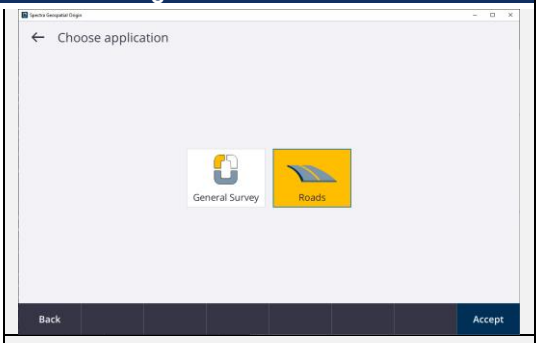
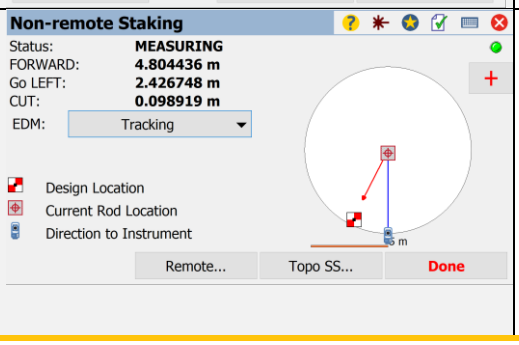
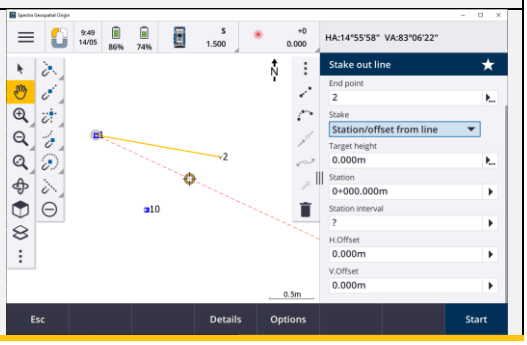




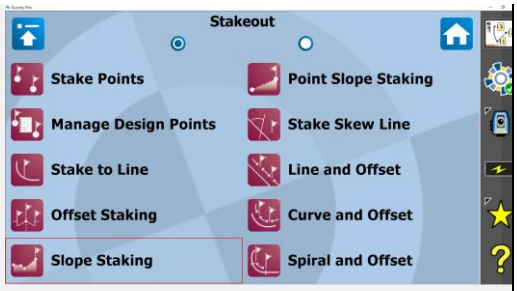
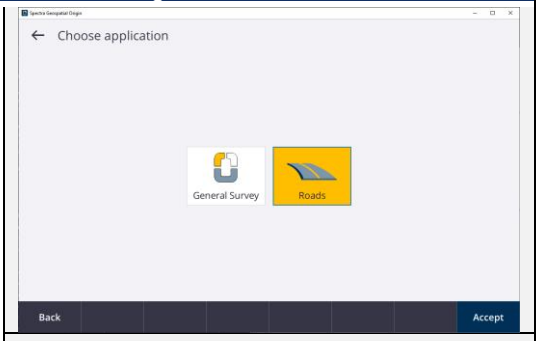
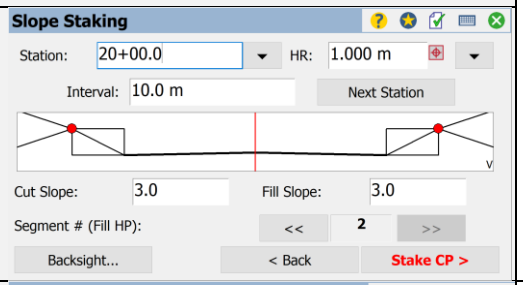
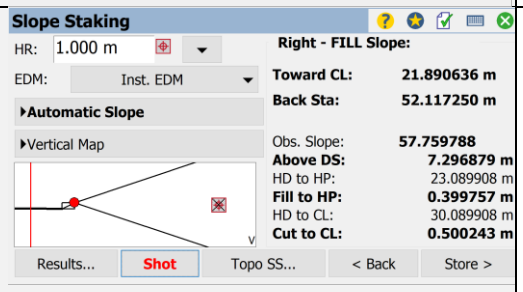
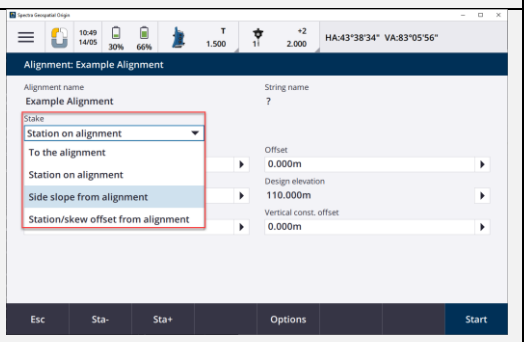




STAKEOUT/OFFSET STAKING

Survey Pro		Origin	
The Offset Staking is used to stake the center of a road, the road edge, the curb/ditch edge, or any offset at fixed intervals. An existing polyline, alignment, or a specified point range can define the centerline of the road. The first Offset Staking screen is used to define the centerline of the road that you want to offset stake.	 	N/A This function is in Road module	
		Similar functionality for staking individual offsets is available under Stake Lines] - > Station/offset from line	

STAKEOUT/SLOPE STAKING

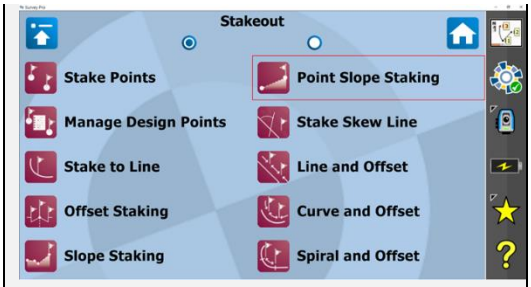
Survey Pro		Origin	
The Slope Staking routine determines the location of the catch point from a perpendicular offset to a known centerline at a specified station.		N/A This function is in Road module.	
			
		Similar functionality for staking individual Slopes is available if you have an alignment in your job (you can create alignments in TBC or with the roads module) Stake Alignment > Side slope form alignment	

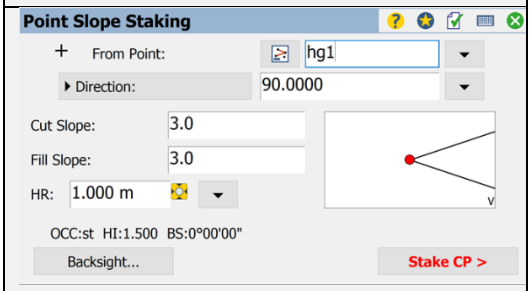
STAKEOUT/POINT SLOPE STAKING

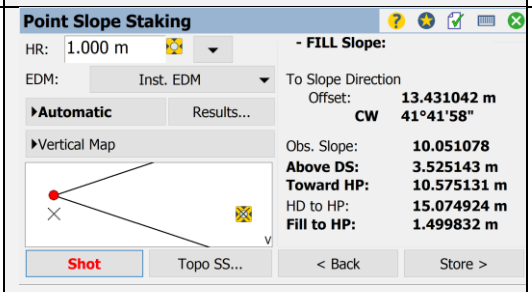
Survey Pro

The Point Slope Staking routine determines the location of the catch point from a known hinge point and a specified horizontal direction from the hinge point.

[From Point]: is the hinge point.

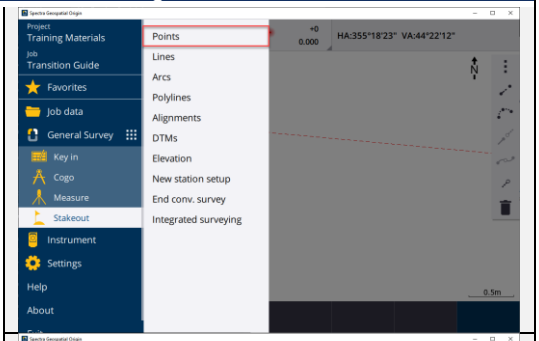


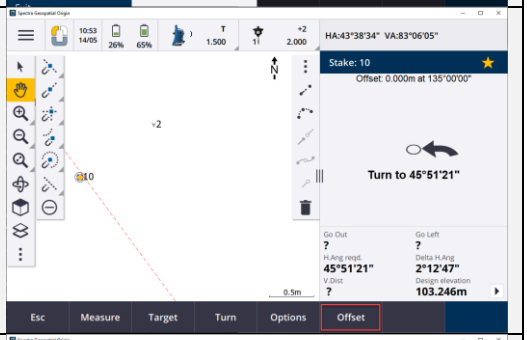


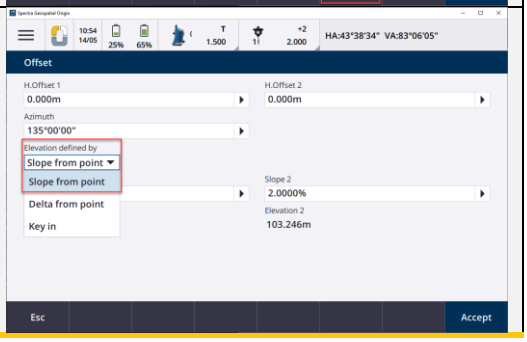


Origin

Select Stakeout > Points and press the Offset button to define Slopes, Offsets and direction



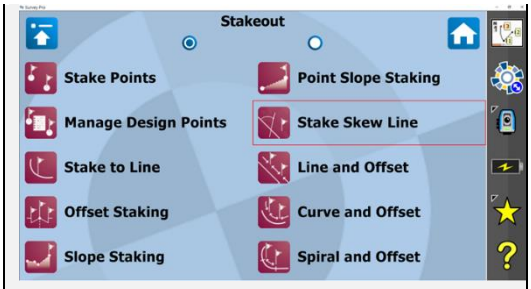


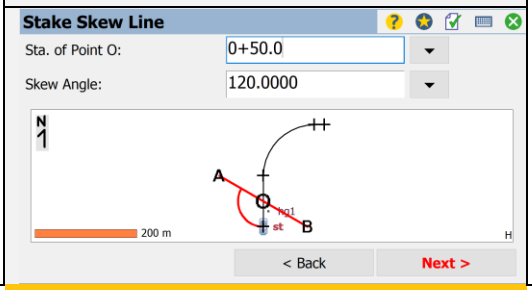


STAKEOUT/STAKE SKEW LINE

Survey Pro

The Stake Skew Line wizard is used to define a skew line that intersects an alignment or polyline, and then to stake stations along the skew line.

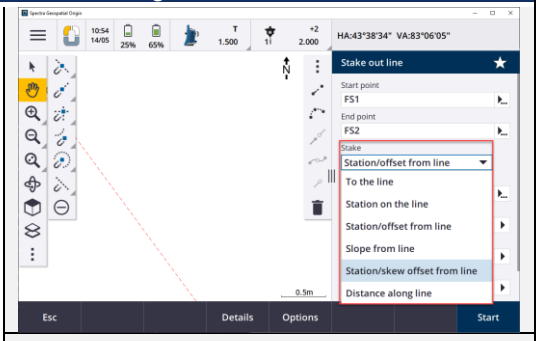




Origin

You can stake skew offsets from lines under the stake out line.

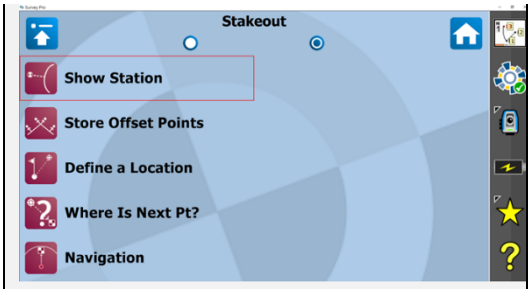
Stake Line> Station/Skew offset from line

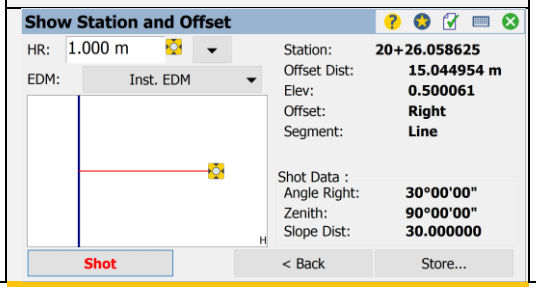


STAKEOUT/SHOW STATION

Survey Pro

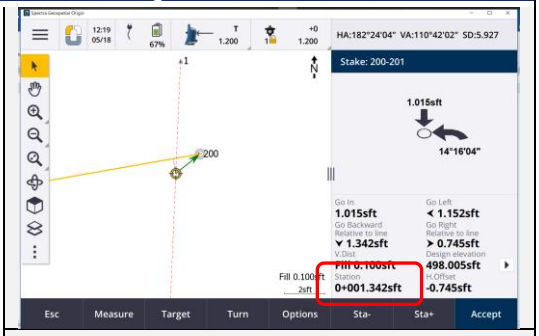
The Show Station routine allows you to take a shot to a prism that is positioned anywhere near a polyline, a range of points that define a line, or an alignment to see where the prism is located in relation to the line.





Origin

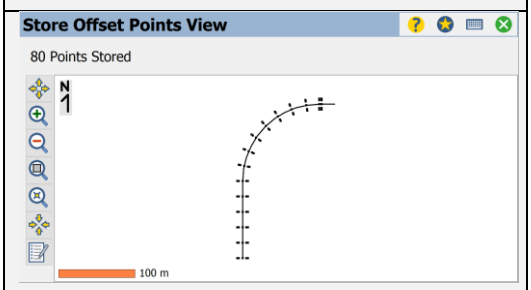
Origin can be configured to Show Station always and dynamically while in the Stake Line dialogue



STAKEOUT/STORE OFFSET POINTS

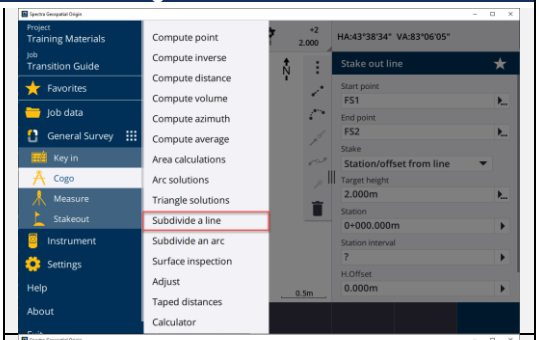
Survey Pro

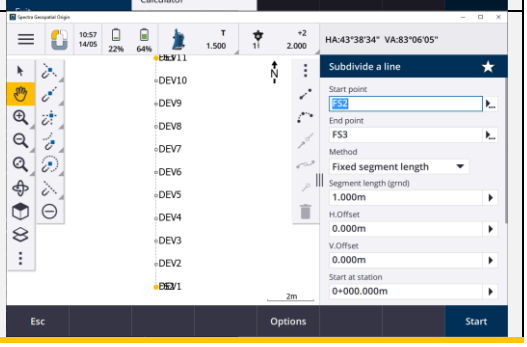
The Store Offset Points screen is used to store points in the current job at a specified offset from an existing polyline or alignment at a specified interval.



Origin

Use the Cogo Subdivide a line function

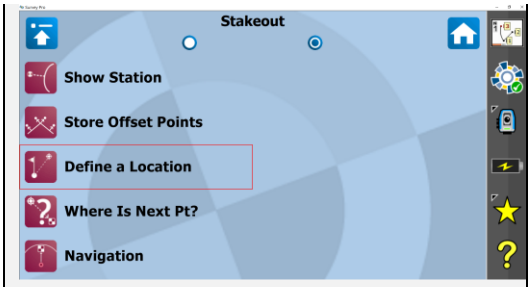




STAKEOUT/DEFINE A LOCATION

Survey Pro

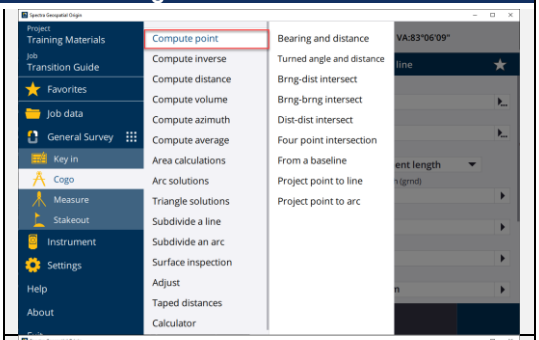
The Define a Location is used to manually enter the distance and direction to a new point from any existing reference point and then stakeout the new point.

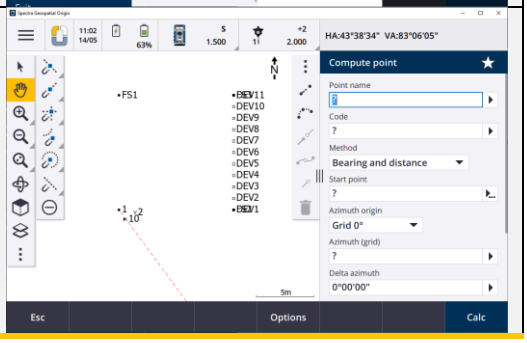


Origin

Use the Cogo – Compute point function to create a new point using the Bearing and distance method.

Stake out the new point though the stakeout menu or by selecting it in the map and using the tap and hold menu

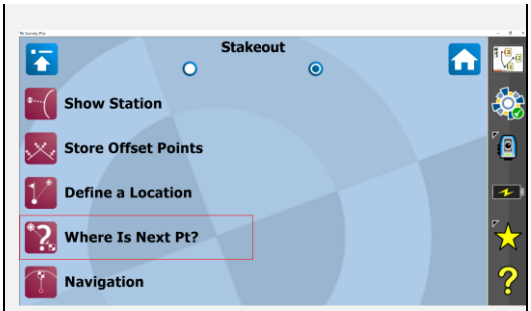


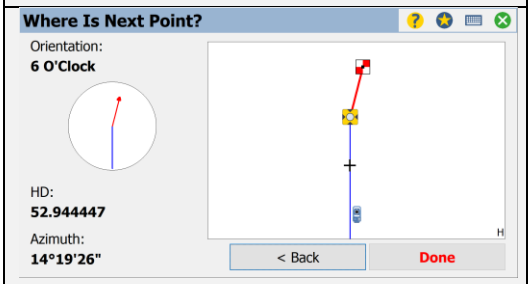


STAKEOUT/WHERE IS NEXT PT

Survey Pro

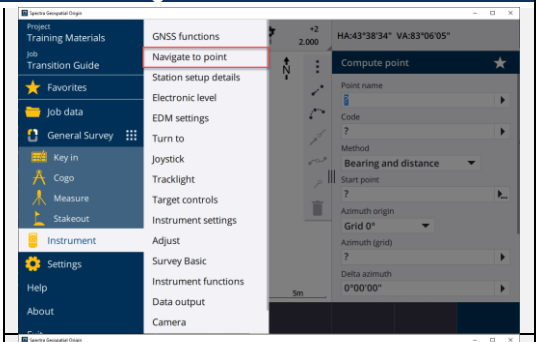
The "Where is Next Point" function is used to assist the rod person in locating another point, given the current rod point, a reference point, and the point to locate.

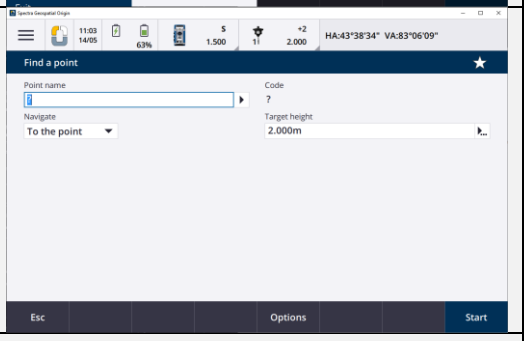




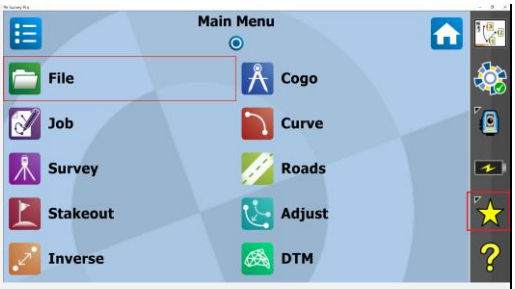
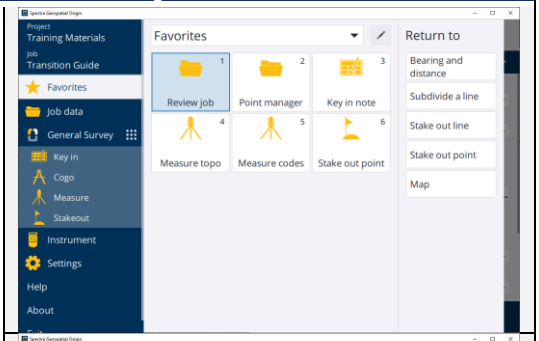
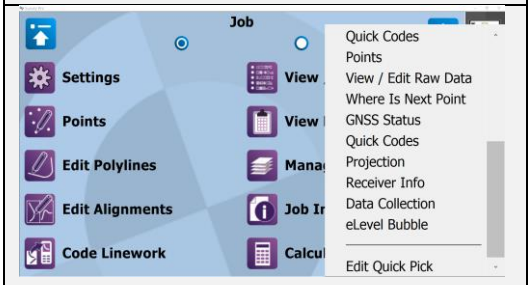
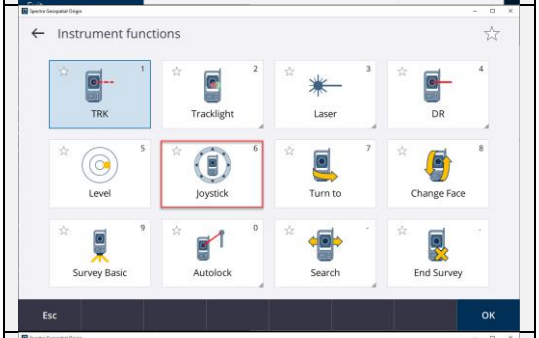
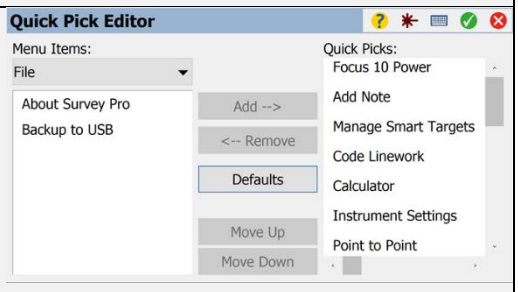
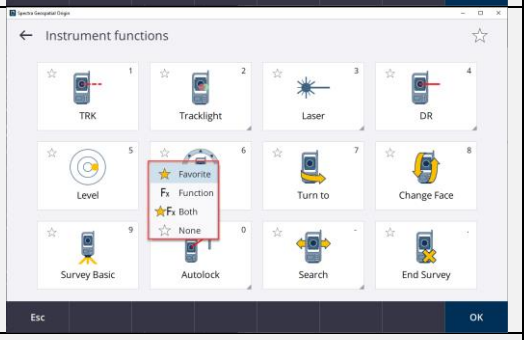
Origin

If the controller is connected to a GNSS receiver, or you are using a controller with internal GPS, you can navigate to a point during a conventional survey if you lose lock to the target or before you start a survey.

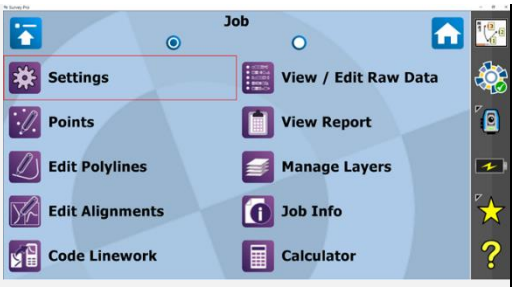
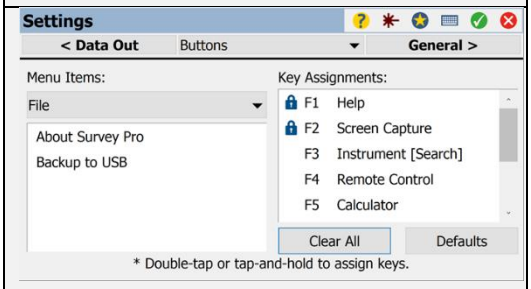
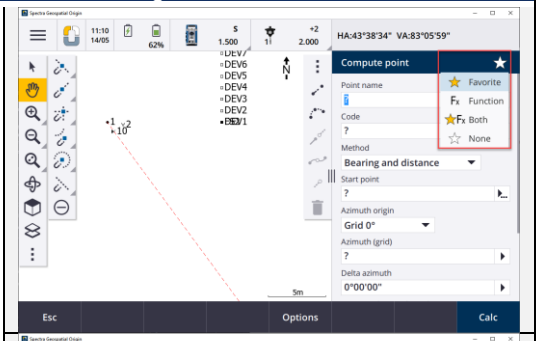
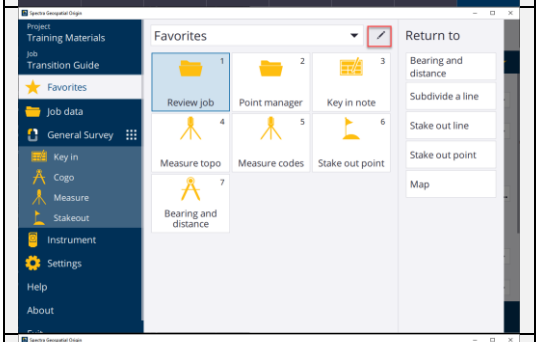
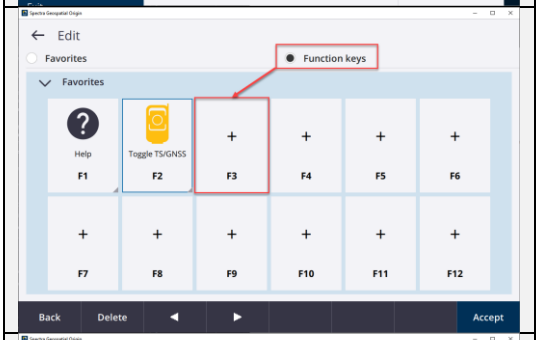
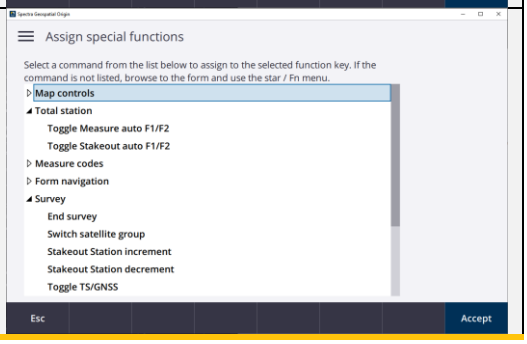




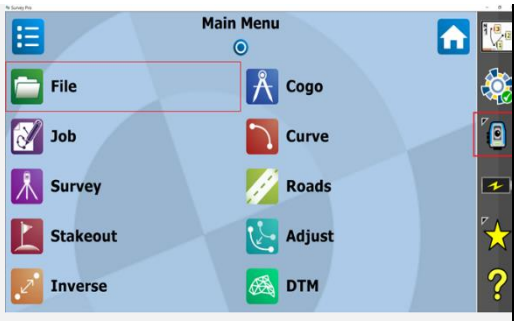
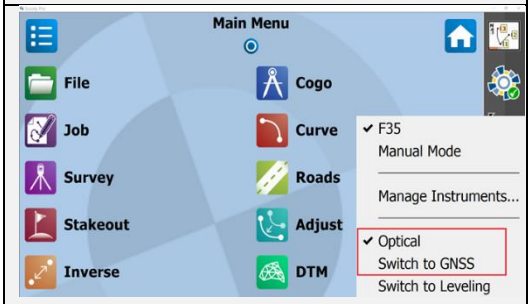
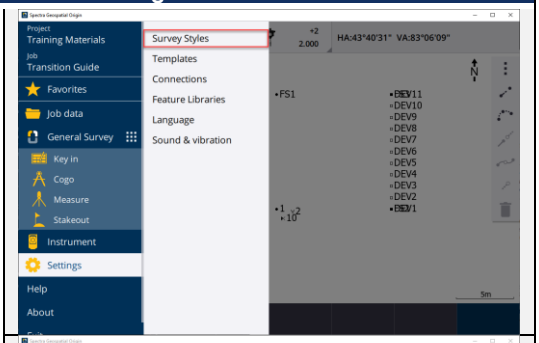
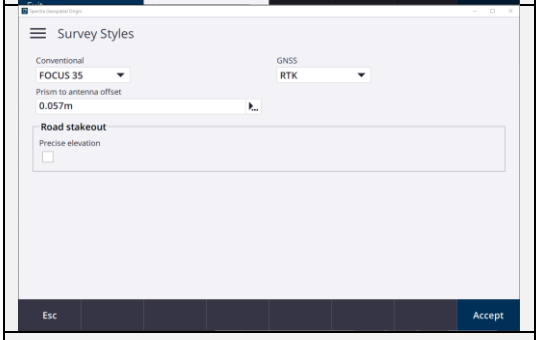
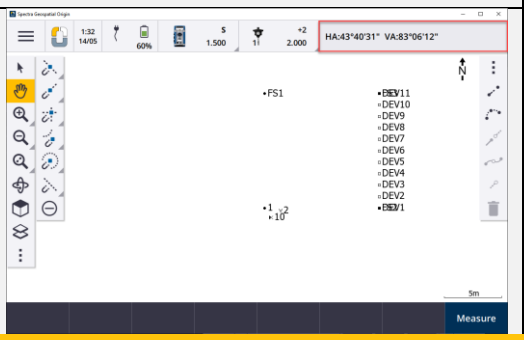
MAIN MENU/ FAVORITES MENU

Survey Pro		Origin	
Users can launch Favorite routines from the Quick Pick star which is located on the toolbar in virtually all Survey Pro pages. The Quick Pick Editor at the bottom of the Quick Pick menu is used to customize the list. 		Favorites enable user to create shortcuts to software screens, map controls, or to enable/disable an instrument or receiver function. User also can edit the Favorites on the "Favorites Edit" form. To add a shortcut to a screen you use often or an instrument function you frequently enable and disable, tap to quickly add it to the Favorites list or assign it to a function key on the controller.	
			
			

JOB/ SETTINGS/BUTTONS

Survey Pro		Origin	
The (Job) Settings dialogue is used to customize and control most aspects of the current job. Within this dialogue is the ability to customize the data collector's physical buttons. The features on this card will depend on the operating system of the data collector:	 	Origin allows the Function Keys to be programmed. Functions Keys enable you to create shortcuts to software screens, map controls, or to enable/disable an instrument or receiver function. Press and hold the star at the top right of any form to assign it to a function key User can also define the Function Keys through Favorites > Edit Extra functions can be added by pressing the + symbol on unassigned function keys	   

MAX+ (INTEGRATED SURVEY WORK MODE)

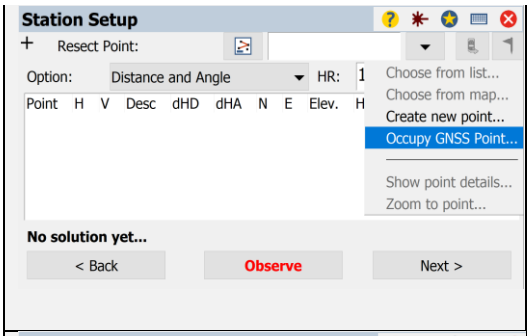
Survey Pro		Origin	
MAX+ means GNSS+ Robotics. Generally in Survey Pro, it will connect a GNSS receiver by Bluetooth and connect Robotic total station by radio. It relies on switching between Optical and GNSS mode by clicking the equipment icon to get the data from different sensor.	 	In an integrated survey, the controller is connected to both a conventional survey instrument and a GNSS receiver at the same time. The Origin software can quickly switch between the two instruments within the same job. To use an integrated survey, you must configure the conventional and RTK survey styles you will use, and then configure an integrated survey style which references the conventional survey style and the RTK survey style. The default integrated survey style is called IS Rover. Note – Default prism to bottom of mount antenna offset for new Spectra Geospatial prism PN: 58023002 is 34mm, and for the old model PN: 58128001-SPN this offset equals to 57mm.	 
		Tap the Status bar (where the precisions are displayed) to switch between optical and GNSS	

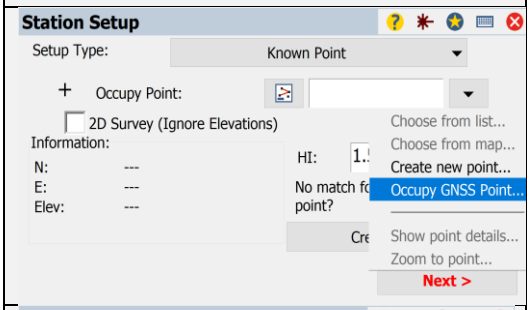
MAX+ CONTINUED

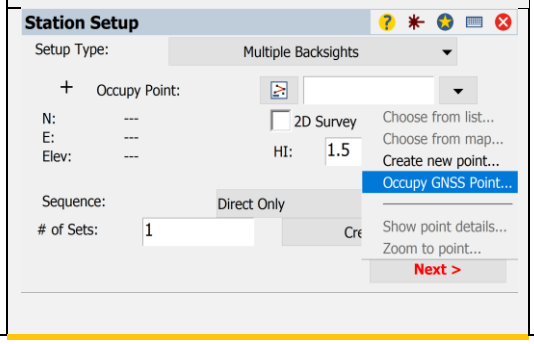
Survey Pro

In MAX+ configuration (GNSS + Robotics), the point may have been collected using a GNSS receiver just before setting the Known Point base.

In MAX+ configuration (GNSS + Robotics), you may use the Occupy GNSS Point option to collect the point on which your GNSS receiver is standing. Once the point has been logged and named, it can be used as a resection point.

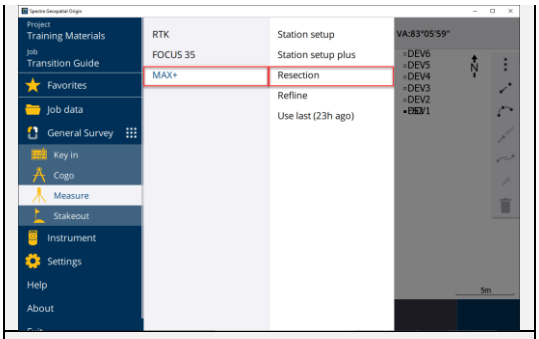


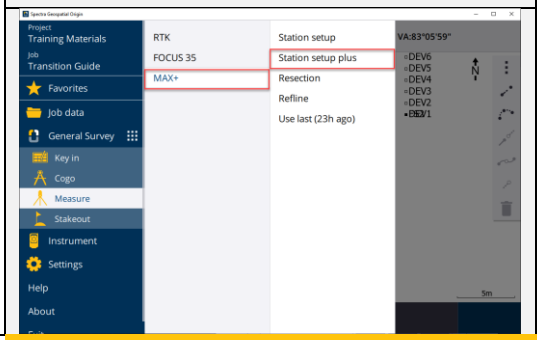




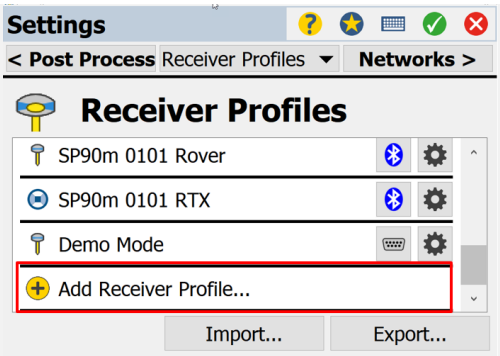
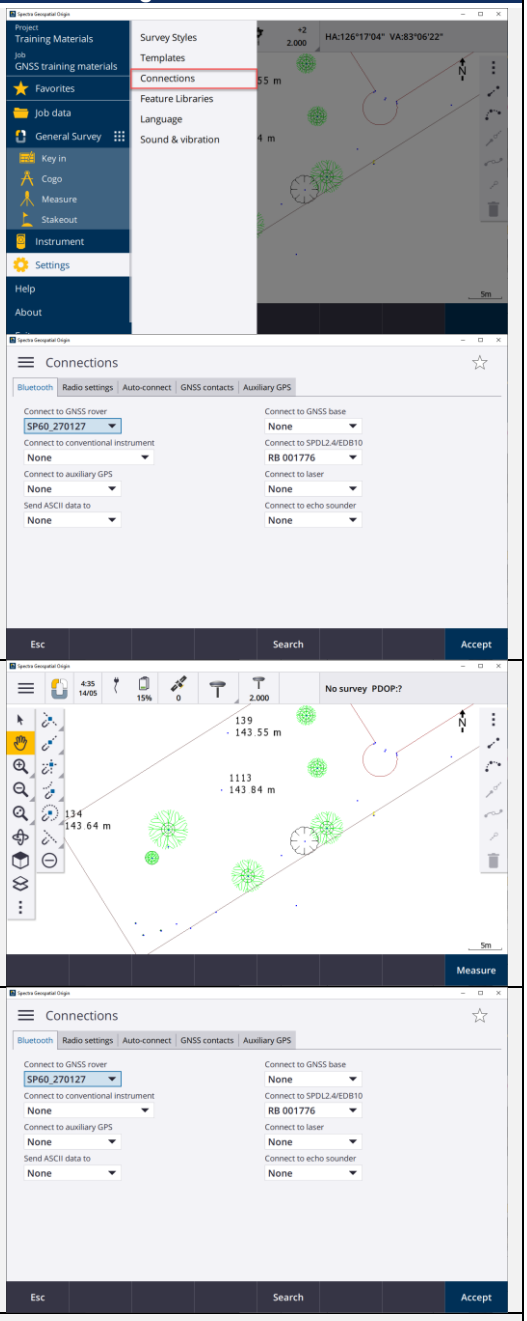
Origin

In Origin, use a new point name to get a prompt to measure a new point. (only available in Station setup plus and Resection)

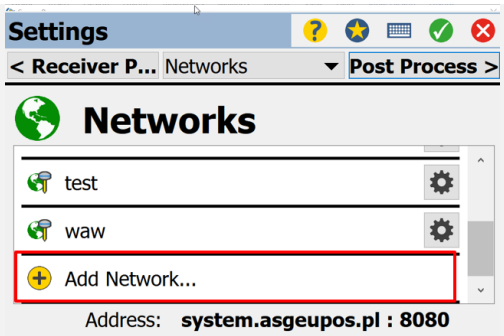
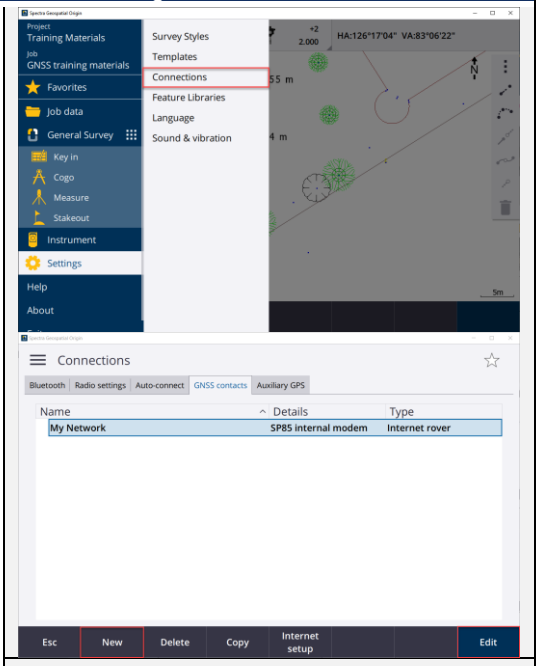
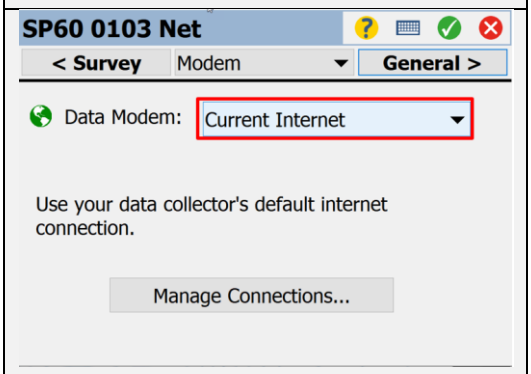
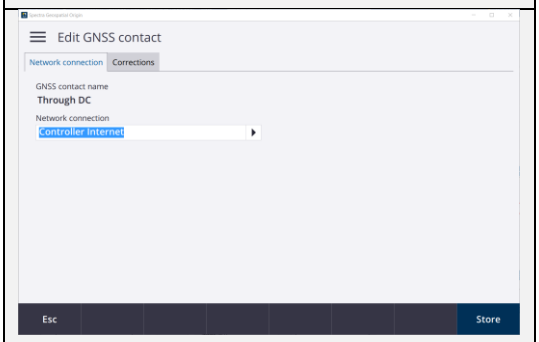
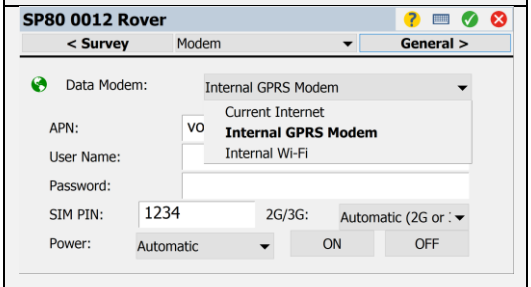
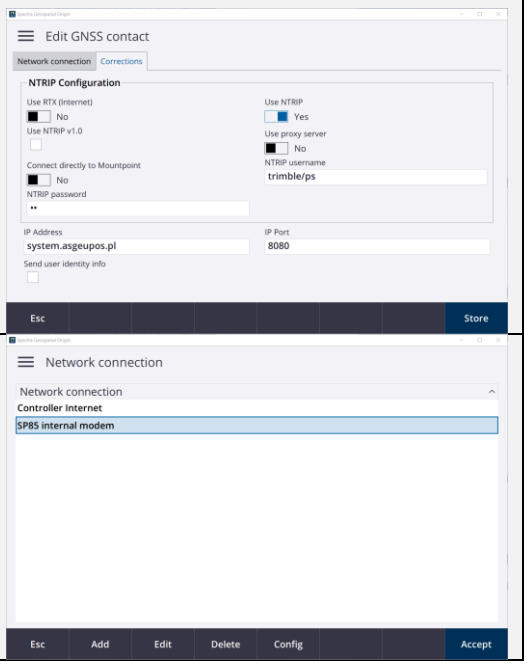


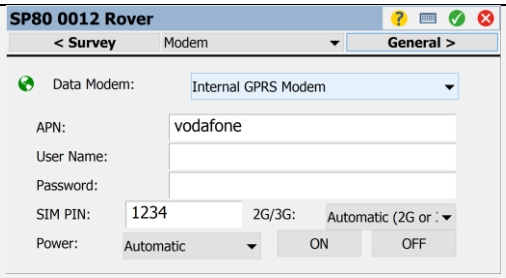


CONNECTING TO THE RECEIVER WITH BLUETOOTH

Survey Pro		Origin	
Adding new GNSS receiver: Settings > Add new Receiver Profile		NOTE: When running Origin on an Android controller paired to an SP60 receiver, turn off Auto-connect. Always power up the receiver, and wait until it is tracking satellites before attempting to connect Origin to the receiver. Failure to do this may result in the controller losing the pairing to the receiver. Select Settings > Connections > Bluetooth Or tap the flashing instrument icon and select the Bluetooth tab If Previously paired to the receiver select it under the GNSS rover or base setting (depending on your application) If it is not available under the drop down then search for and add a new receiver	

ADDING A GNSS CORRECTION AND DEFINING INTERNET CONNECTION

Survey Pro		Origin	
Configuring GNSS Network: Settings > Networks > Add Network		In Origin, the GNSS correction and internet connections are defined together within the GNSS contact. You can define a GNSS contact when setting up a Network RTK survey style or go to settings> Connections> GNSS contacts Press New or Edit existing connection. Suggestion: Use name which will indicate which Service is used, which mount point (if connecting directly and modem used).	
Definition of Internet connection for Network Corrections: use internet access in the data collector		Select the network connections field to set up your internet connection. Select either the controllers current internet or add if you would like to use the modem in the receiver	
		Name and configure your receiver's modem connection. The Bluetooth modem option should be available if you are connected to the correct receiver. It must be SP85 to use the internal modem.	

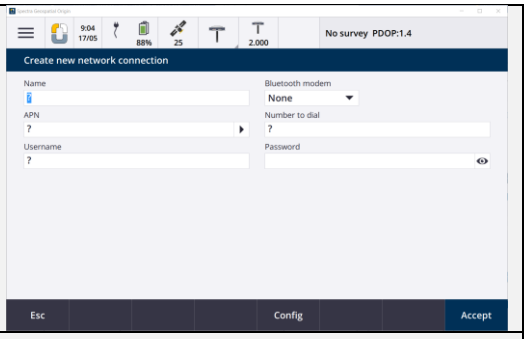


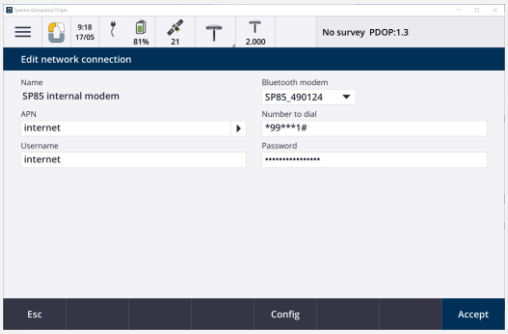
GSM Networks require three parameters which are usually published widely on the internet:

APN Server
APN Username
APN Password

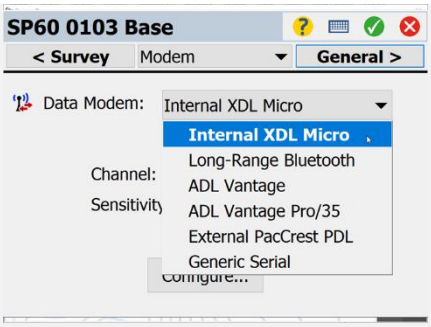
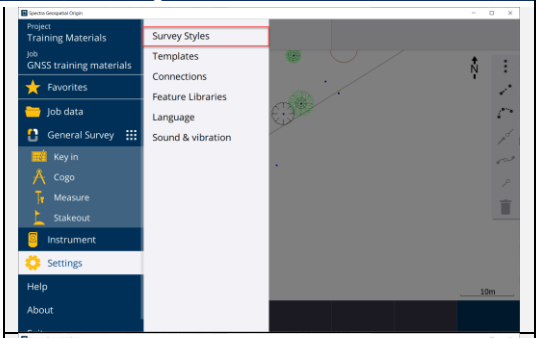
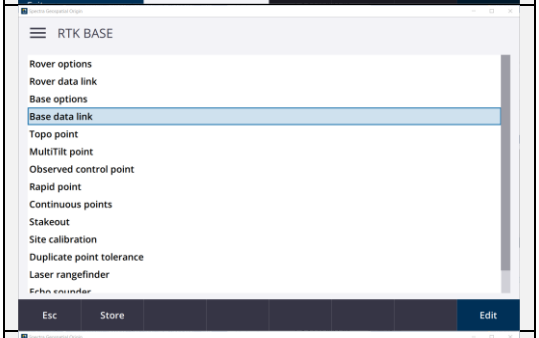
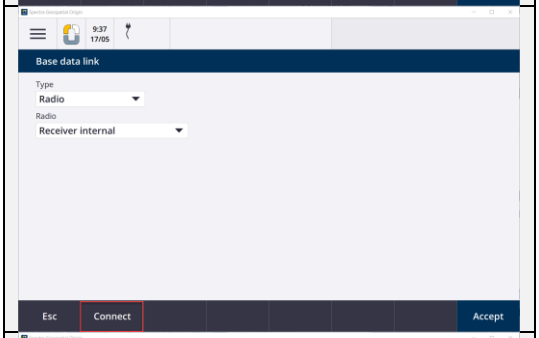
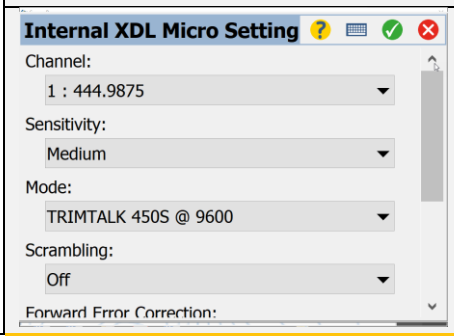
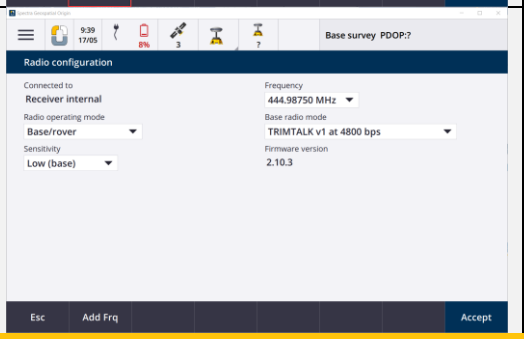
The *99***1# is a standard access code for mobile Internet (number to dial field). If you are unable to connect using *99***1#, contact your mobile Internet provider.

In comparison to Survey Pro, Origin requires a proper number to be entered.

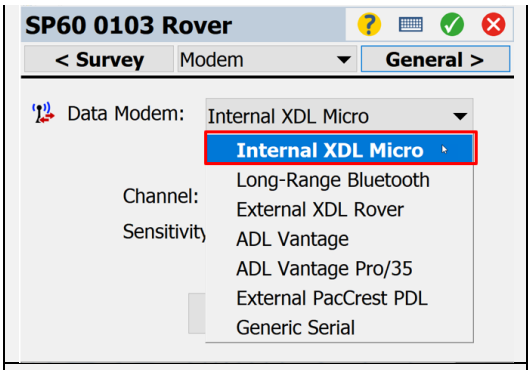
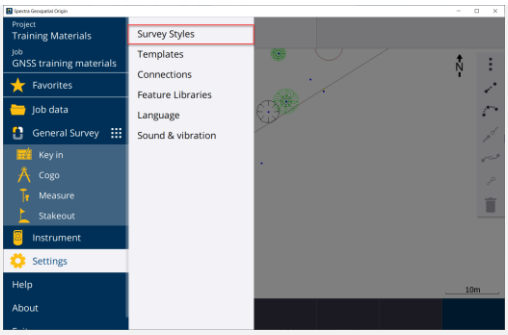
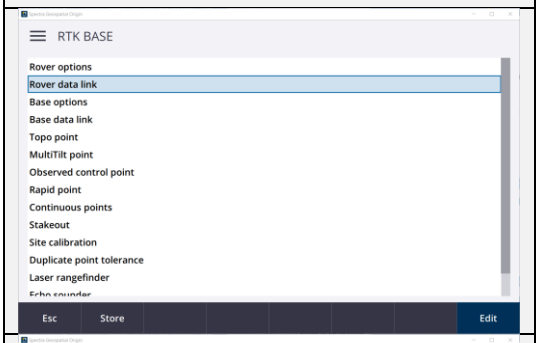
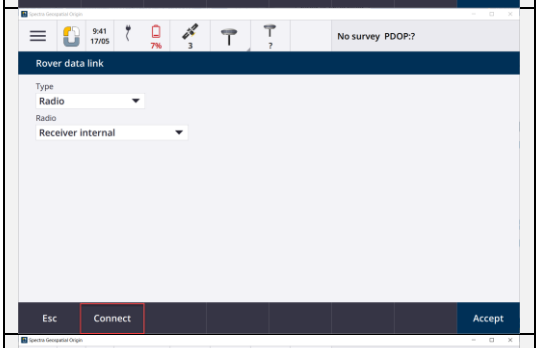
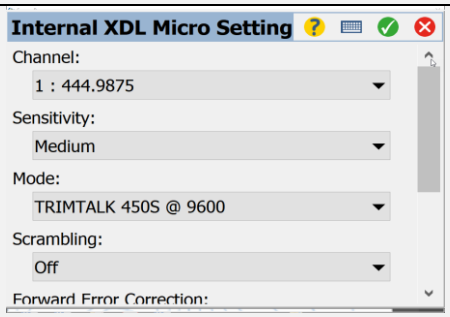
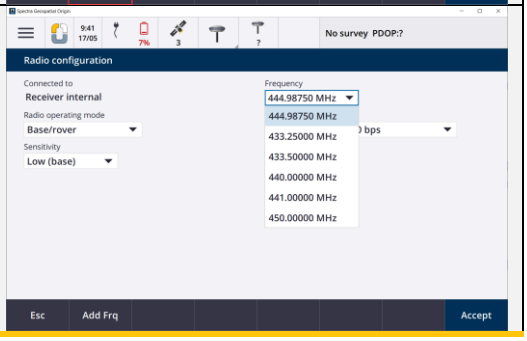




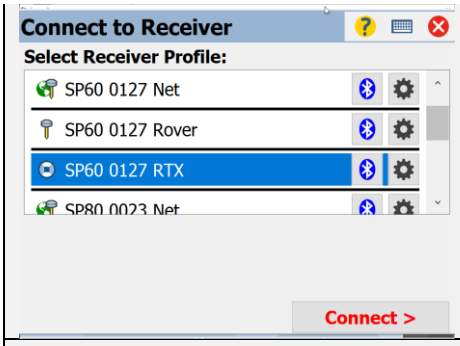
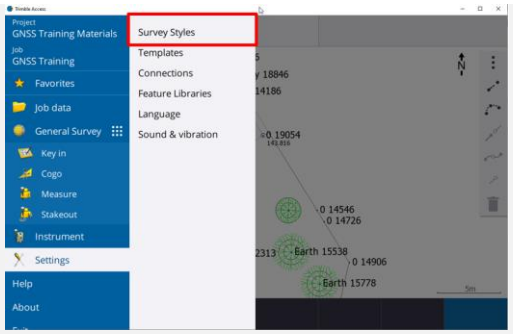
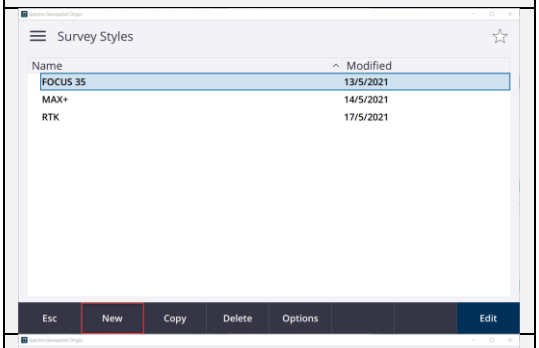
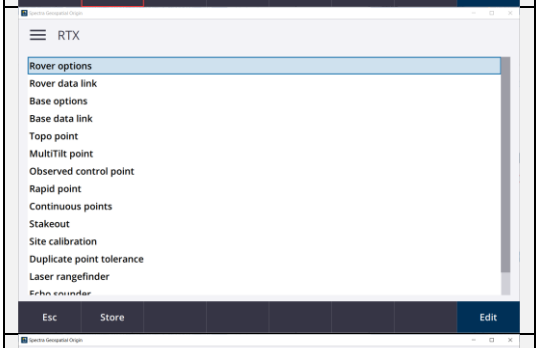
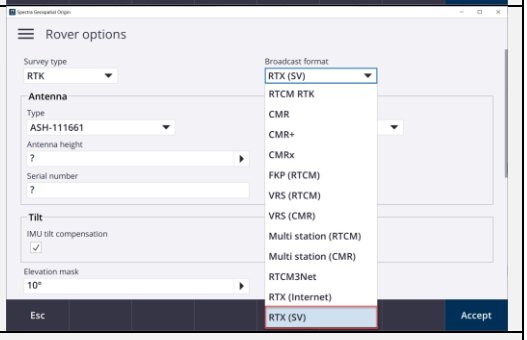
CONFIGURING INTERNAL UHF MODEM FOR BASE SETUP

Survey Pro		Origin	
Base: Internal UHF Setup: Receiver type Base > Settings > Modem tab > Internal XDL Micro		Set this up within an RTK Survey style. Go to setting > Survey Styles and create an RTK Survey Style	
		Within the survey style go to Base Data link	
		Choose Radio and select either the Receiver's internal radio or an external radio	
		When connected to the base receiver select the connect softkey to edit the radio configuration settings. Now when you need to enter base mode you can go measure, select your RTK survey style and select Start base Receiver.	

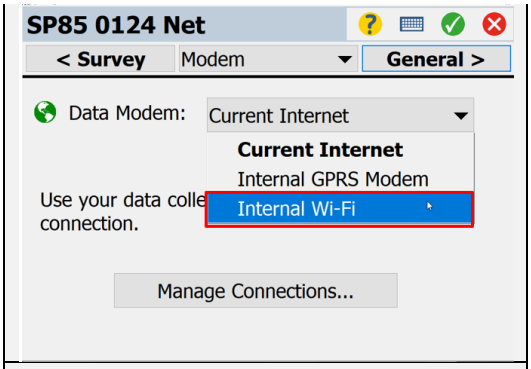
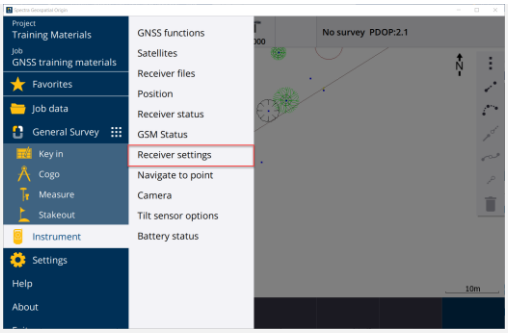
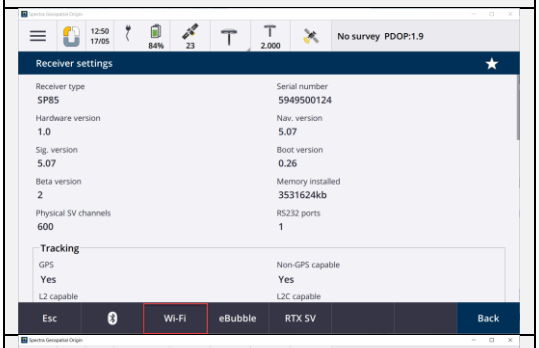
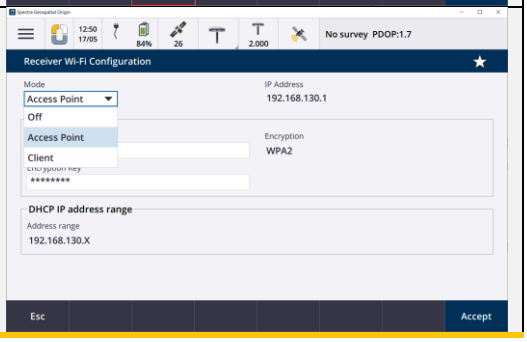
CONFIGURING INTERNAL UHF MODE FOR ROVER SETUP

Survey Pro		Origin	
Rover: Internal UHF Setup: Receiver type Rover > Settings > Modem tab > Internal XDL Micro		Set this up within the same RTK Survey style as the base. Go to setting > Survey Styles and edit your RTK Survey Style	
		Within the survey style go to Rover Data link	
		Choose Radio and select either the Receiver's internal radio or an external radio	
		When connected to the rover receiver, select the connect softkey to edit the radio configuration settings Now when you need to enter rover mode, you can go to measure and select your RTK survey style and then measure points	

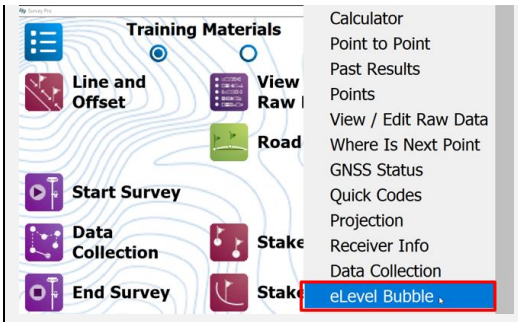
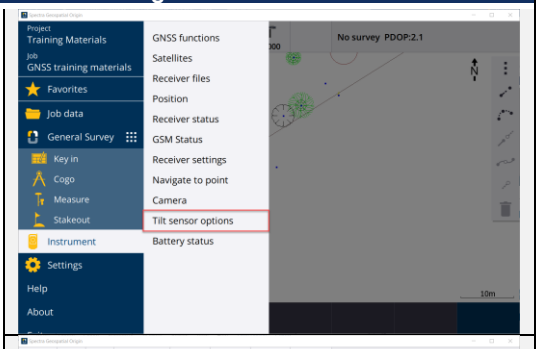
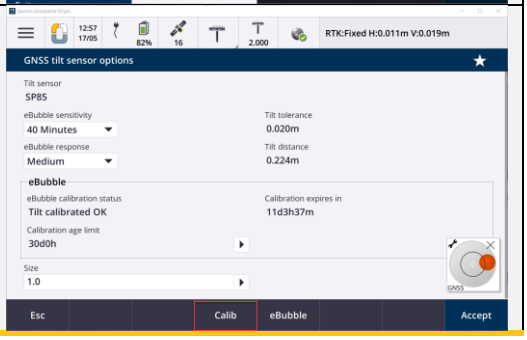
CONFIGURING RTX (L-BAND AND IP BASED CONNECTION)

Survey Pro		Origin	
In Survey Pro, user Adds a new Receiver Profile and if RTX option in the receiver is activated, the RTX profile becomes available. Just select RTX receiver profile in the Start Survey.		In Origin, user needs to create or edit a pre-defined RTK Survey Style to configure a receiver to receive RTX corrections	
		Go to Settings > Survey Styles	
		Rover Options	
		And select RTX (SV) for L-Band reception or RTX (internet) for online RTX solution delivery. Make sure you have defined an internet connection under Rover data link.	

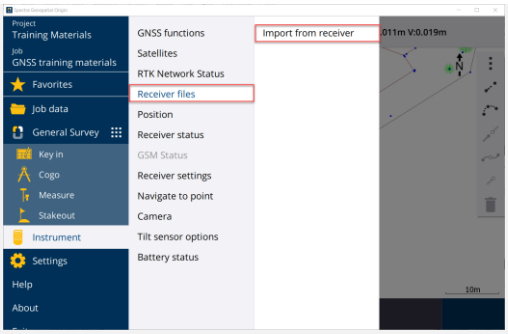
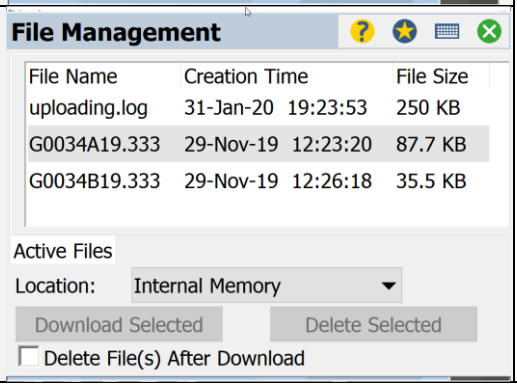
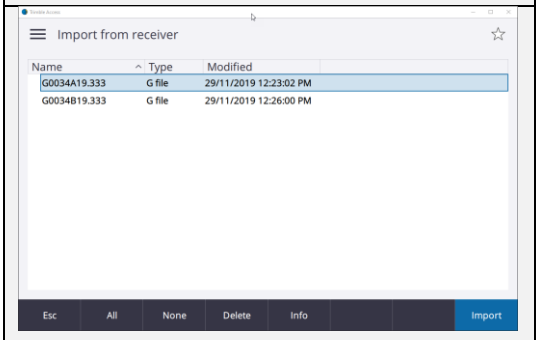
CONNECTING TO RECEIVERS INTERNAL WI-FI

Survey Pro		Origin	
Setting up Wi-Fi modem in Survey Pro: receiver profile Settings > Modem tab > Internal Wi-Fi.		To setup Wi-Fi connection in Origin, select Instrument > Receiver Settings	
		Select Wi-Fi	
		Define Wi-Fi connection parameters	

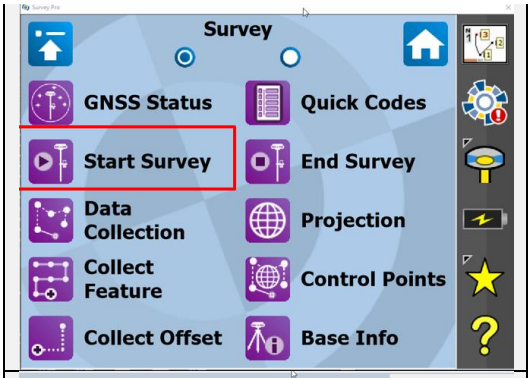
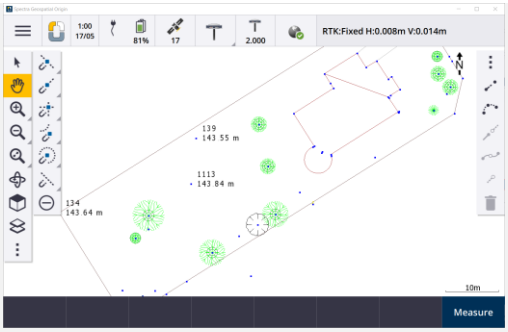
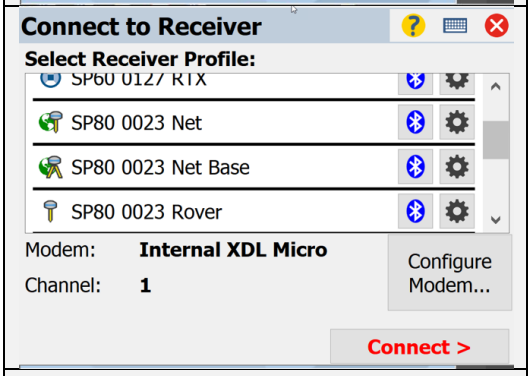
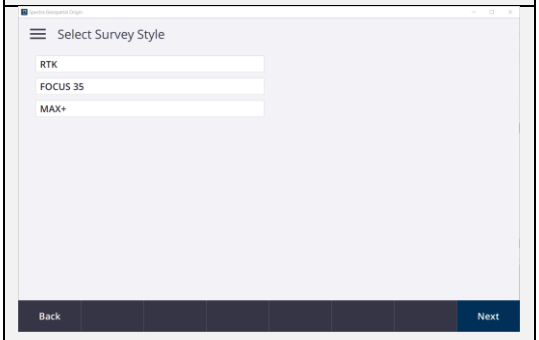
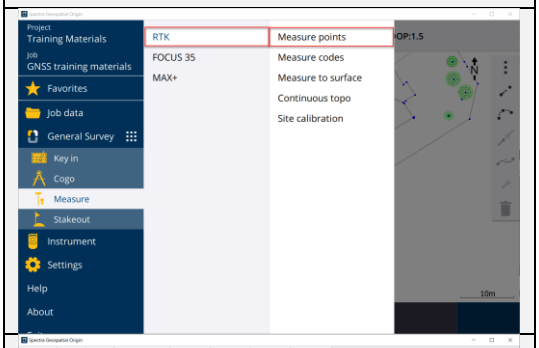
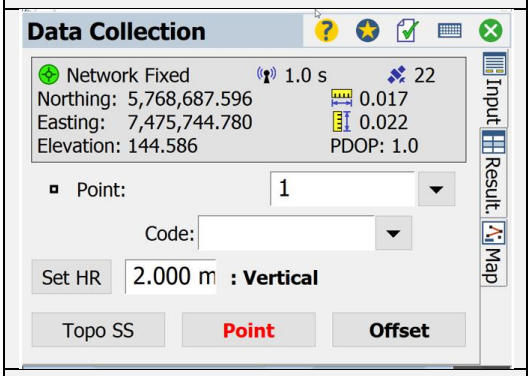
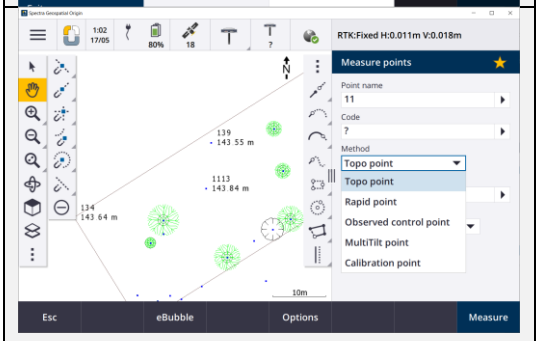
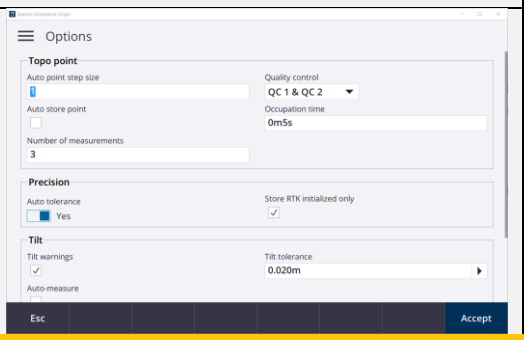
eBubble Settings and Calibration

Survey Pro		Origin	
Quick Pick menu > eLevel Bubble		To setup eBubble parameters and calibrate it, select Instrument > Tilt sensor options Note: If the eBubble is out of calibration and eBubble has been selected in the Survey Style, a warning message will be displayed. Calibration routine can be accessed via the warning message or the Instrument>Tilt Sensor options menu	 

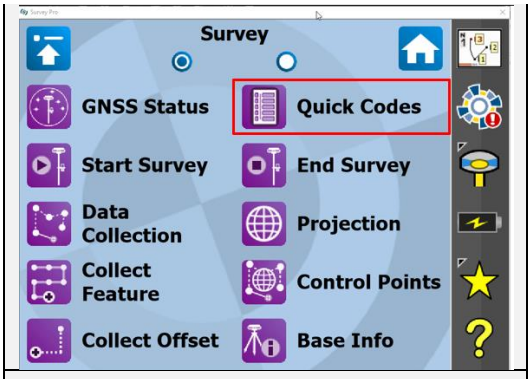
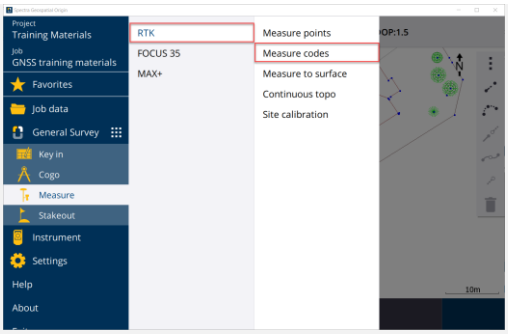
Receiver's Data Download

Survey Pro		Origin	
Survey > (second page) > File Mangement		Connect the data collector to the GNSS receiver Select: Instrument > Receiver files > Import from receiver	
		Select file(s) that should be imported to the Data Collector and press Import.	

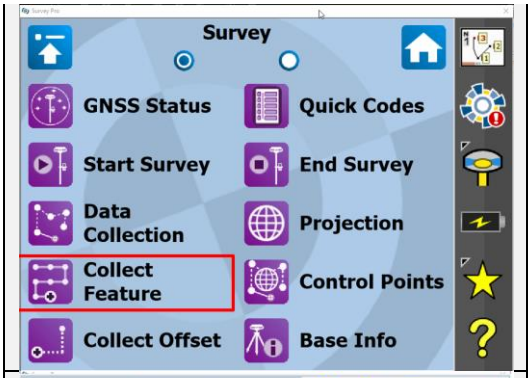
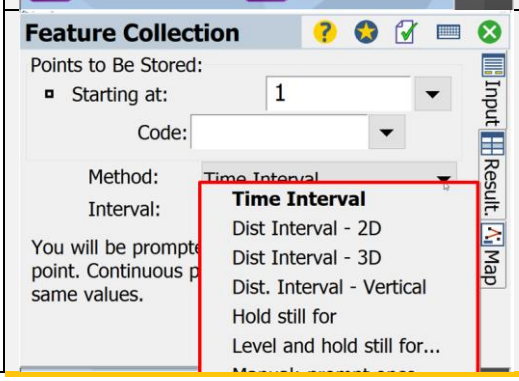
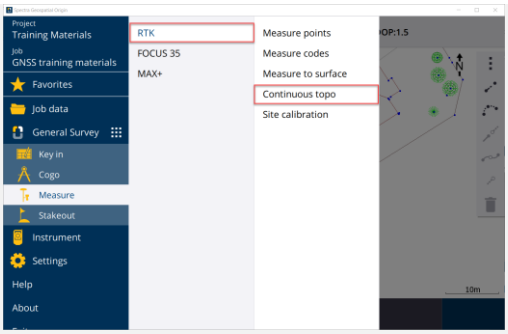
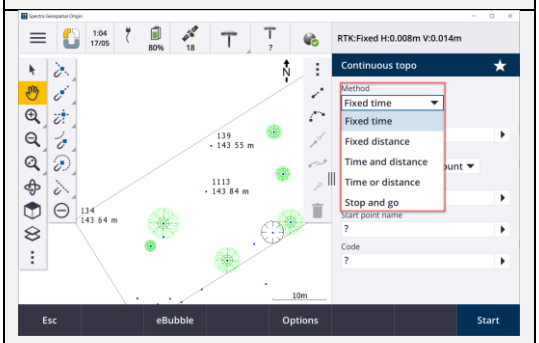
SURVEY START SURVEY/DATA COLLECTION

Survey Pro		Origin	
Survey > Start Survey		From the Map screen select Measure	
		Choose Survey Style which should be used for this.	
		Alternatively select Measure > Survey Style (SP85 Network Rover as example here) > Measure feature	
		Select Method to measure Topo point or Rapid Point. Origin has these related Survey Pro 2 modes combined into one Map measure mode.	
		Select Options to temporarily modify the measurement criteria. (For permanent changes, edit the RTK Survey Style.)	

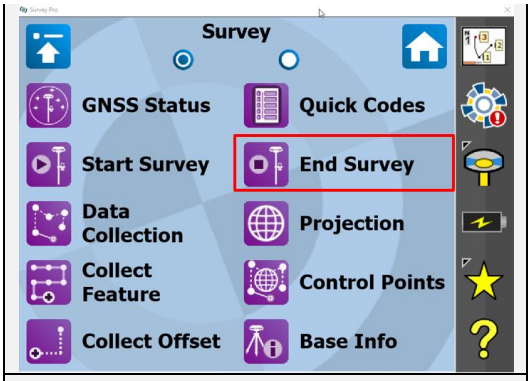
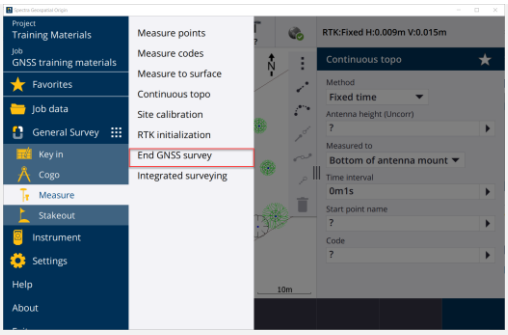
Quick Codes and Measure with codes

Survey Pro		Origin	
Survey > Quick Codes		Main Menu > Measure > Measure Codes	

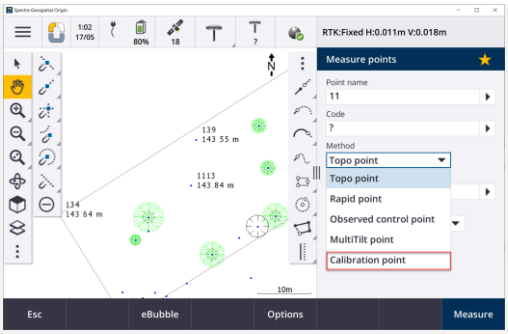
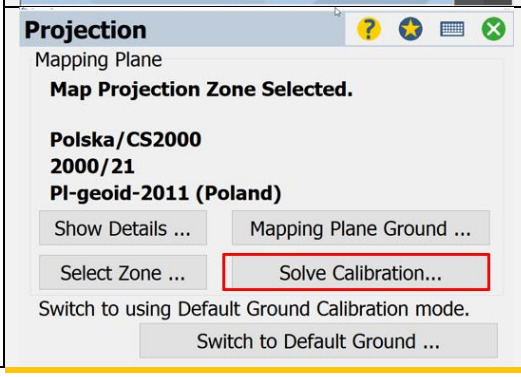
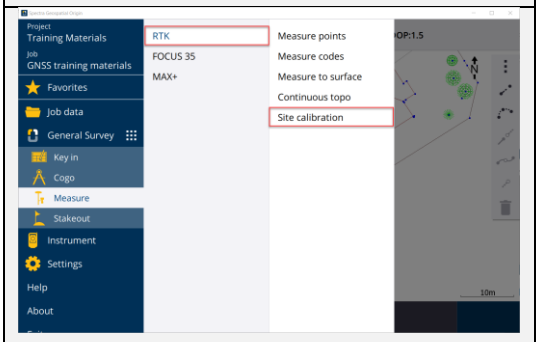
Survey > Collect Feature

Survey Pro		Origin	
Survey > Collect Feature	 	Main Menu > Measure > Continues topo	 

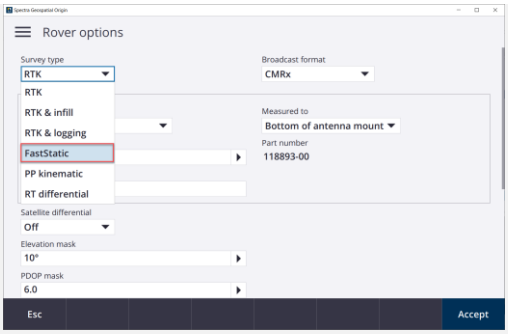
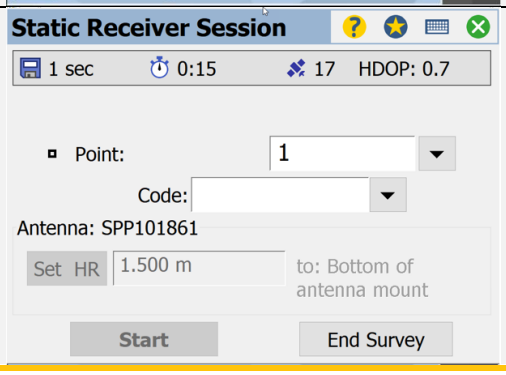
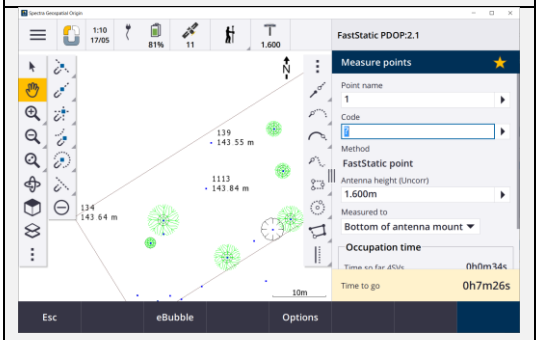
Closing Survey

Survey Pro		Origin	
Survey > End Survey		Main Menu > Measure > End Survey Or: Main Menu > Stakeout> End Survey Or: Instrument Functions > End Survey	

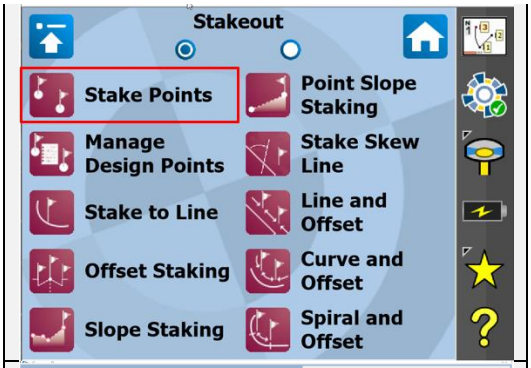
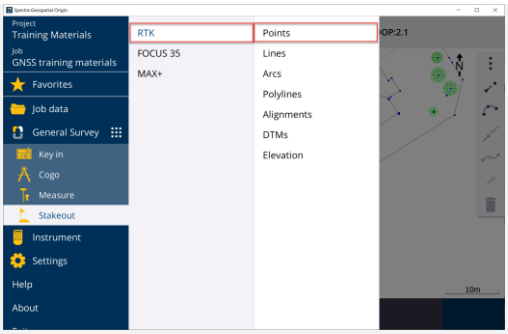
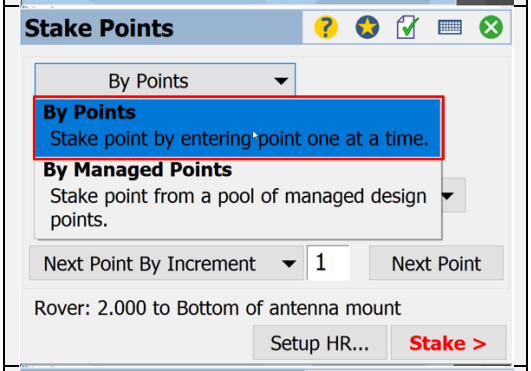
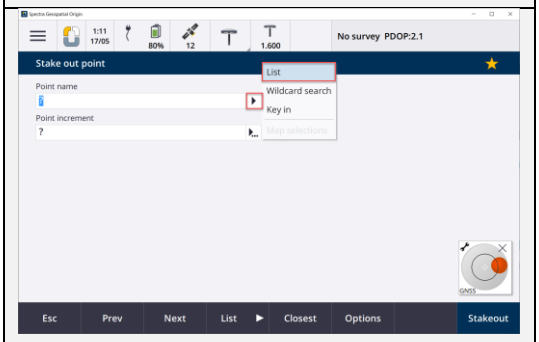
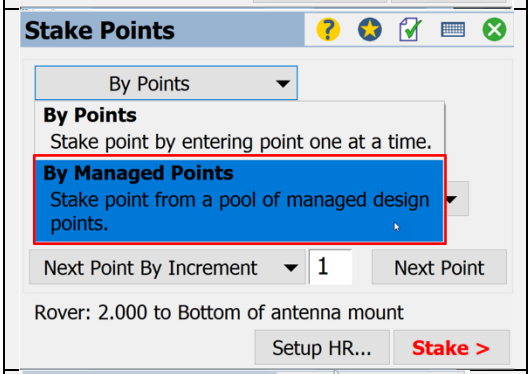
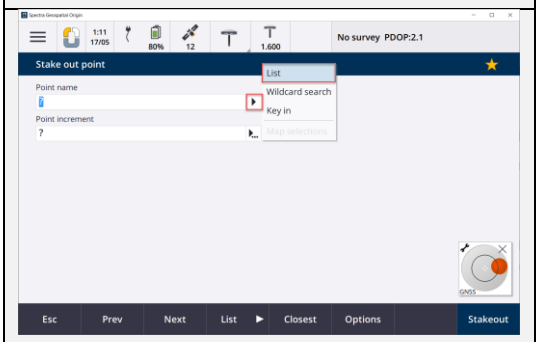
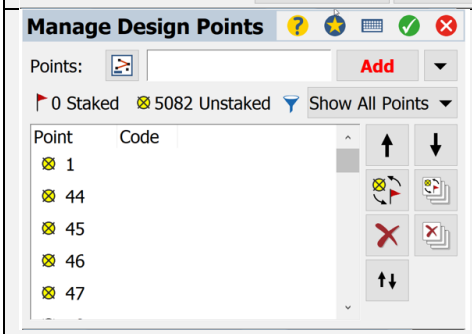
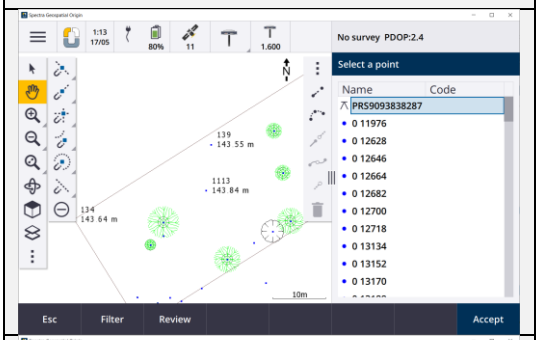
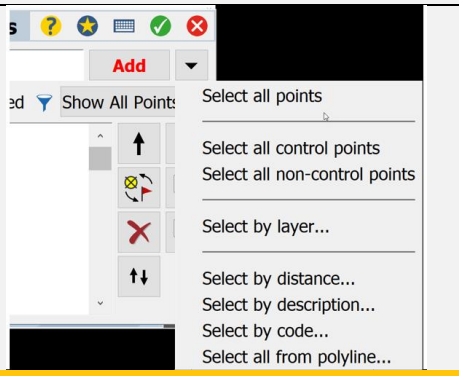
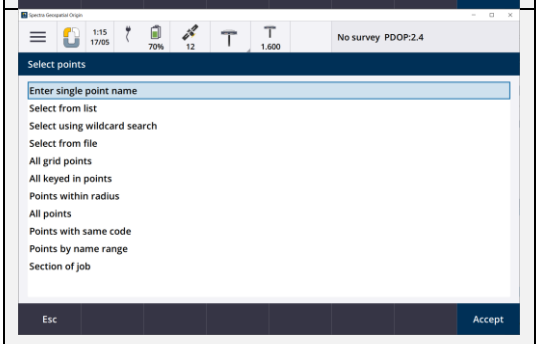
Measure Control Points

Survey Pro		Origin	
Survey > Control Points'		Within Measure points feature select Calibration point from the drop-down menu. Or alternatively measure a calibration point from within the Site calibration screen by pressing the Tringle to the right of the field	
Projection > Solve Calibration		Select Measure > Site Calibration	

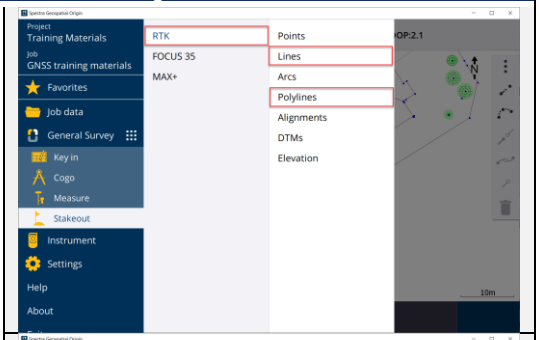
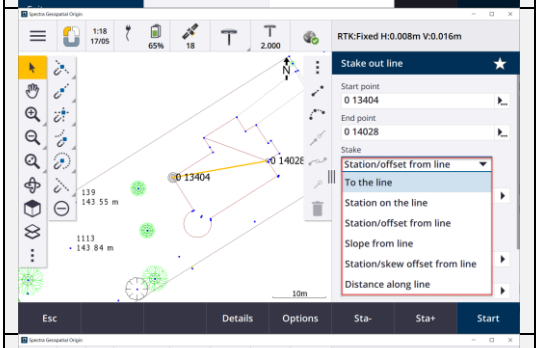
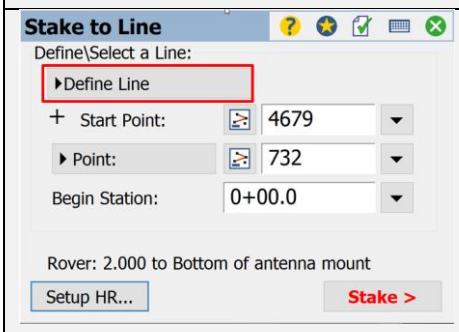
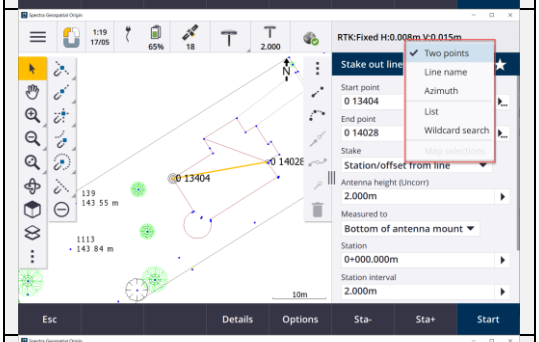
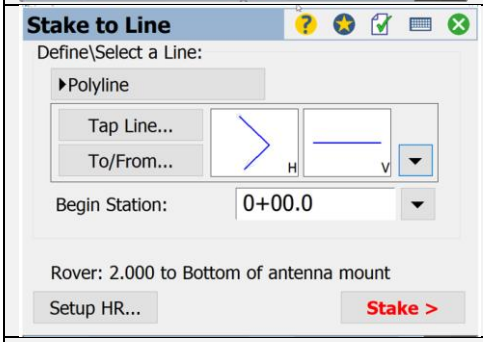
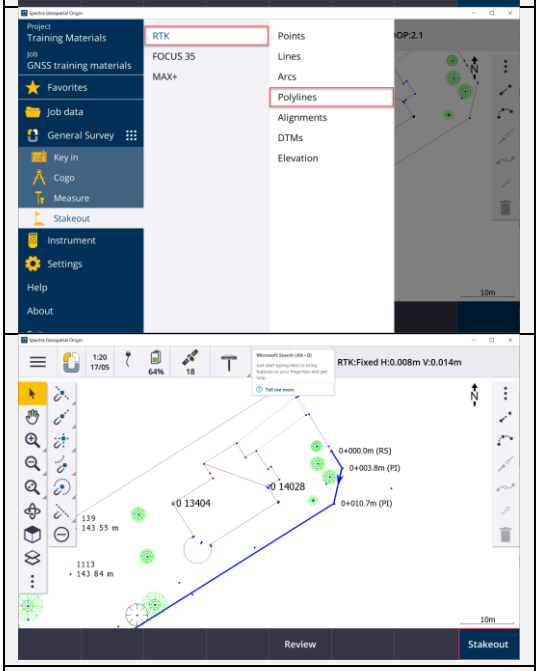
POST-PROCESSING DATA RECORDING

Survey Pro		Origin	
Survey > (second page) > Start Recording		Survey Style needs to be created for PP option. Create a new Survey Style first. For Base or Rover options, select Survey Type: Fast Static. Configure the antenna parameters, logging interval, etc.	
Collecting PP data > Occupy		Select Measure > defined PP Survey Style	
Occupying PP point.		Define point parameters.	

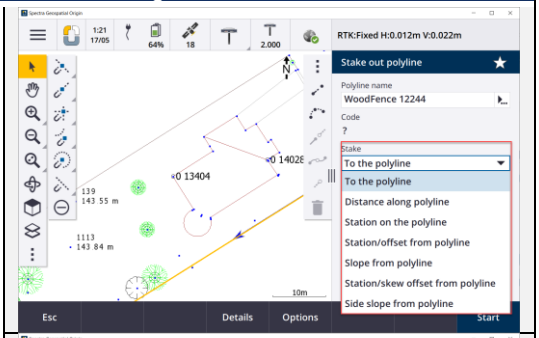
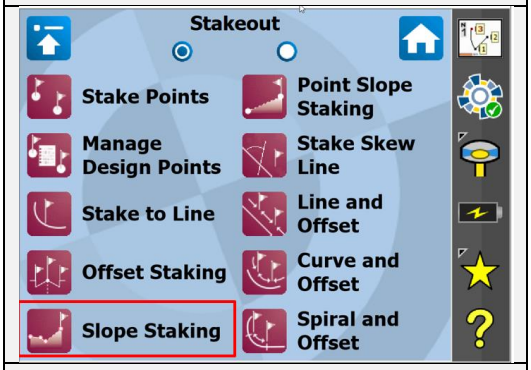
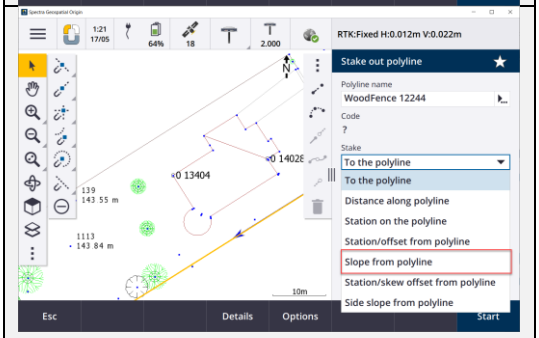
STAKEOUT POINTS

Survey Pro		Origin	
Stakeout > Stake Points		Stakeout > Stake Points	
Selecting single point for Stakeout.		For Single Point Stakeout type point name or extend the menu to select point from List, search it or use Key in (select from Map)	
Creating list of stakeout points.		To create a list of points for stakeout select List.	
Create list of Stakeout Points Stakeout > Manage Design Points		Tap points on Map to create a list.	
For advanced point selection extend the drop-down menu.		Select Add from the Point List (previous screen) for advanced point selection.	

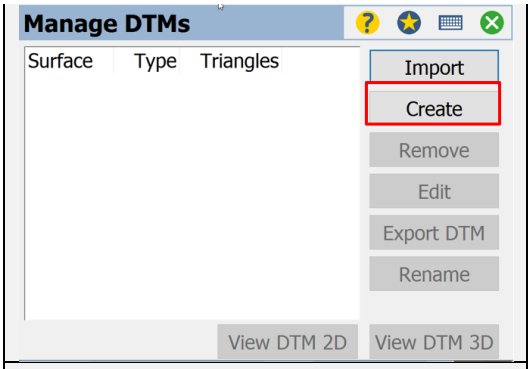
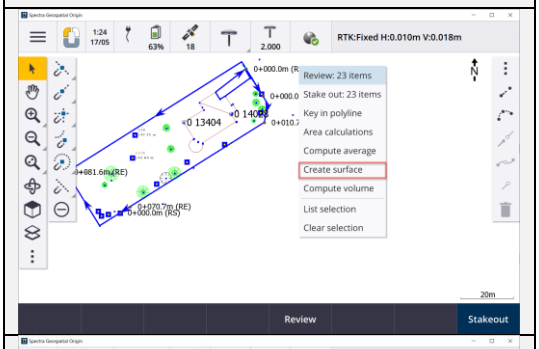
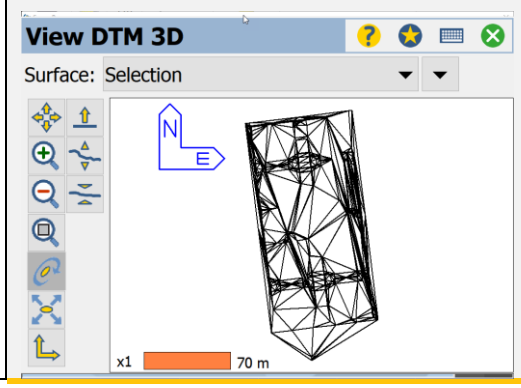
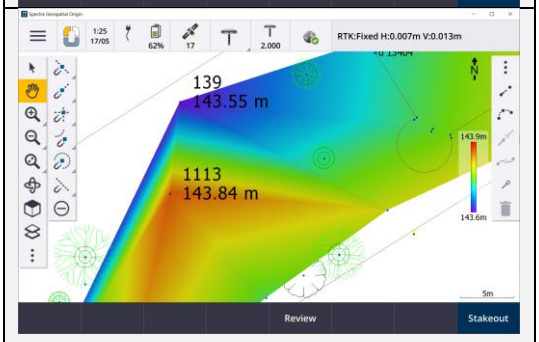
STAKEOUT LINES

Survey Pro		Origin	
Survey Pro has most of the line and polyline stakeout features separated. Whereas in Origin, most of them are combined into Stakeout > Line or Stakeout > Polyline.			
Stake to Line and Line and Offset stakeout.		During Stakeout > Lines or Polylines select the desired stakeout routine from the Stake drop-down menu.	
Line defined by 2 points.		Extend the menu of Line name and select line definition option.	
Choose Stake to Line or Line and Offset		Select Stakeout > Polyline	
Select the Polyline option.		To select polyline for stakeout, select List, then arrow icon from the Map screen and select the polyline object to Stakeout Alternatively select the line in the map, tap and hold and select stakeout	

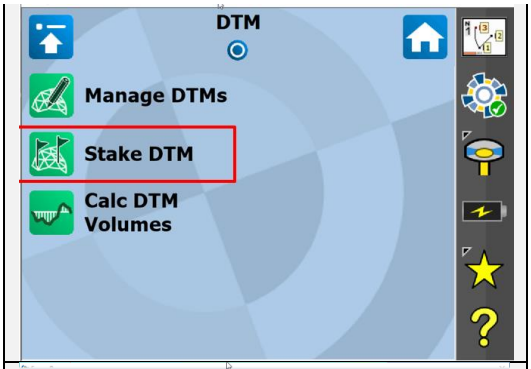
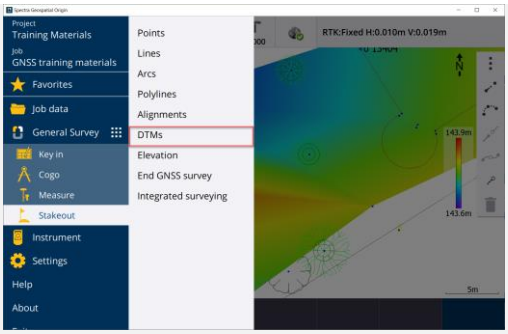
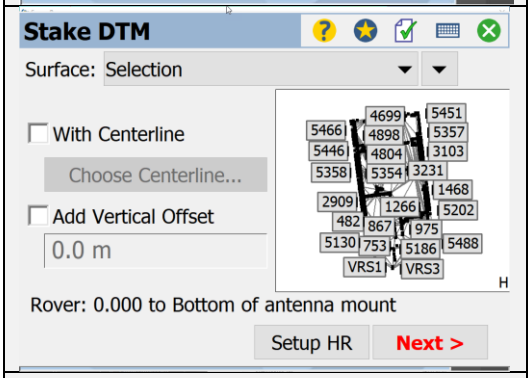
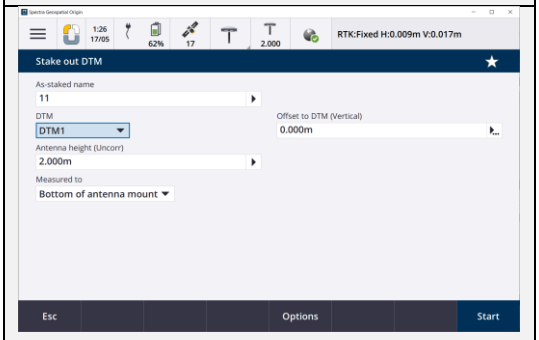
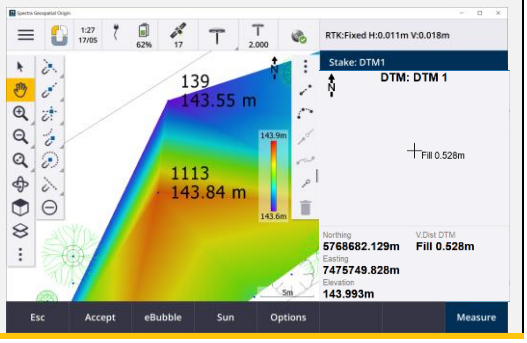
STAKEOUT SLOPES

Survey Pro		Origin	
Survey Pro has most of the slope stakeout features separated. Whereas in Origin most of them are combined into Stakeout > Line or Stakeout > Polyline.		During Stakeout > Lines or Polylines select the desired stakeout routine from the Stake drop-down menu.	
Slope Staking		From Stakeout setup screen extend Stake drop-down menu and select Slope from Line (Polyline)	

DTM CREATION

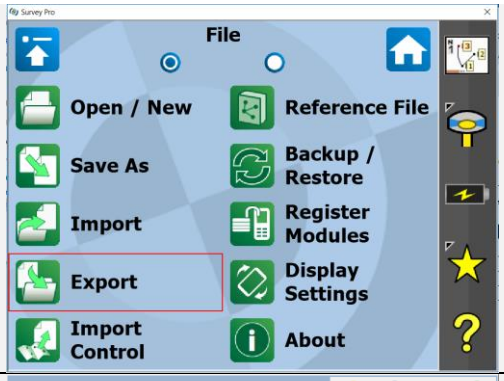
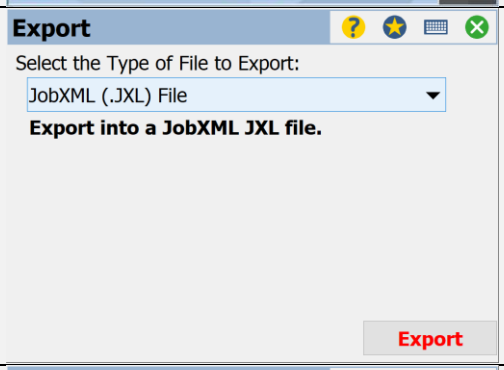
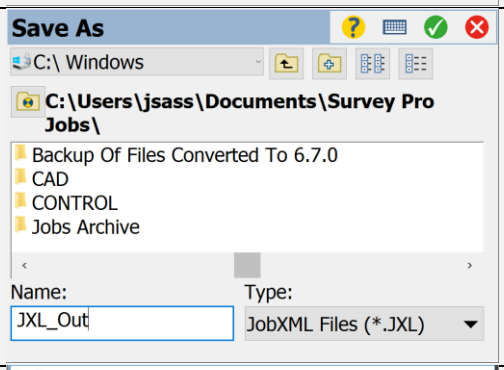
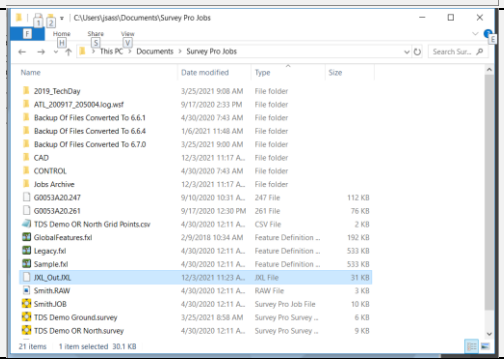
Survey Pro		Origin	
Go to DTM > Manage DTM > Create		Go to Map, choose selection icon (yellow arrow) and select objects that would be included into the DTM.	
		Press and hold the screen and select Create surface	
DTM preview		Give name and Accept. DTM created and visible on Map.	

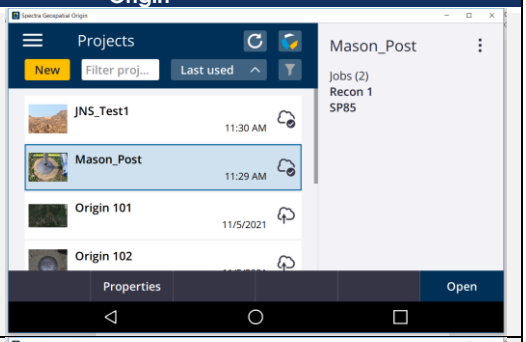
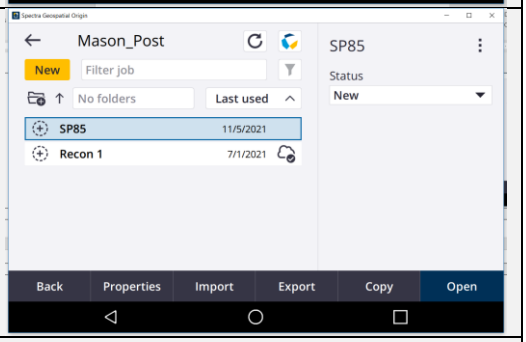
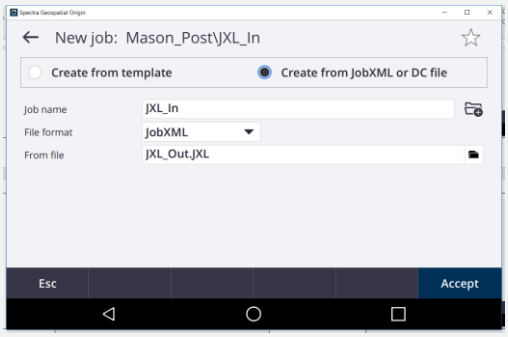
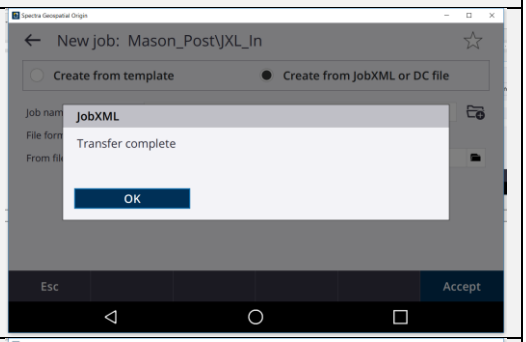
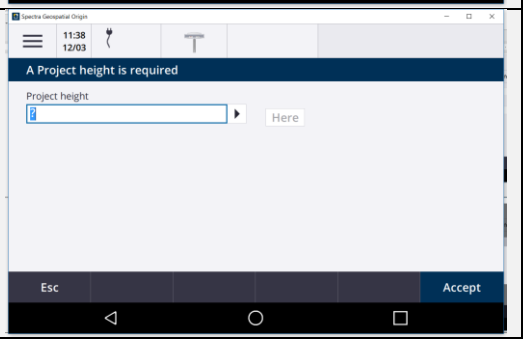
DTM STAKEOUT

Survey Pro		Origin	
Go to DTM > Stake DTM		Stakeout > DTMs	
Select DTM for Stakeout		Select DTM to Stakeout to and Start	
		DTM Stakeout screen.	

JXL JOB TRANSFER – SURVEY PRO TO ORIGIN

The Trimble proprietary *.JXL file format allows coordinate system information and points to be exchanged between Survey Pro and Origin. This example will demonstrate transferring a GNSS job with local coordinates to the Origin field software.
When creating a new job from a JXL file, the new jobs coordinate system settings will be adopted from the JXL, and all points will be created using their reduced coordinates - observation records are not converted from the JXL into the new job.

Survey Pro		Origin	
Open the job that will be exported to Origin From the File menu page, tap **Export**			
Choose the JobXML (.JXL) File option from the Dropdown menu Tap **Export**			
Select a destination directory for the JXL file to be saved Name the JXL file that will be saved			
JXL file has been saved to the local hard drive			

Survey Pro		Origin	
		Open the target Project in the Spectra Origin field software	
		Tap **New** to create a new job	
		Select **Create from JobXML or DC file** Name the new job Define the file format as **JobXML** Browse to and select the JXL file exported from Survey Pro Tap **Accept**	
		JXL file has been transferred into the newly created job in Origin	
		Enter the **Project height** If a GNSS receiver is connected to the data collector, the "Here" button can be used to determine current elevation	

Survey Pro		Origin	
		Tap **Local site** to view coordinate system properties Tap **Accept** to complete the import