

urvey Pro to Origin

Transition Guide

Version 1.1



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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.

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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.

| Receiver Profiles | | |
|---|-------------------------|--|
|  | SP60 0012 Rover |   |
|  | SP80 0032 Rover |   |
|  | SP60 0012 Base |   |
|  | SP80 0032 Base |   |
|  | SP60 0012 Network Rover |   |
|  | SP80 0032 Network Rover |   |
|  | SP60 0012 Network Base |   |
|  | SP80 0032 Network Base |   |

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 |
|---------------|
| Network RTK |
| RTK |

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 |

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

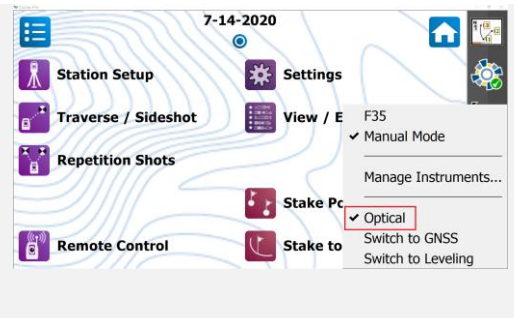
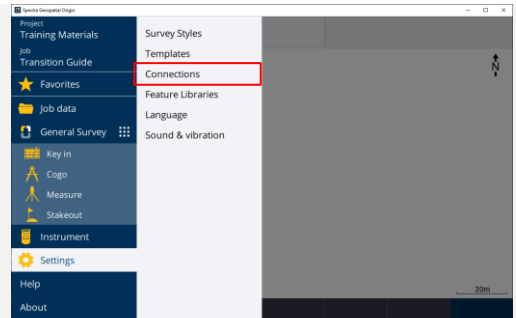
- Open Origin
- Select or create new Project
- Select or create new Job
- New job creation, select a Template for the job
- Create a Spectra GNSS Survey Profile (See note above)
- Create a Spectra Template (See note above)
- Settings/Connections/Bluetooth settings
- Use the interface to create a Bluetooth 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 |
|--|---|
| <div>Switch to Optical mode first.</div> <div>Add an instrument profile then connect the total station. User can create multiple total stations profile.</div>  | <div>Go to [Setting] - [Connections]</div> <div>Select the Radio or Bluetooth options to modify the radio or Bluetooth settings for connection to an instrument</div>  |

It supports cable, Bluetooth and radio for FOCUS35

Instrument settings – EDM, Lights, Search and Collimation

Instrument Setup

Name: F35

Brand: Spectra Geospatial

Model: FOCUS 30/35

Instrument Settings...

Connection Status: Connected to "F35-87901019" through a direct link.

Connection: Direct

Level Bubble...

Radio...

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

Connections

Bluetooth

Radio settings

Auto-connect

GNSS contacts

Auxiliary GPS

GNSS Receivers

☒

FOCUS 30/35

☒

Esc

Accept


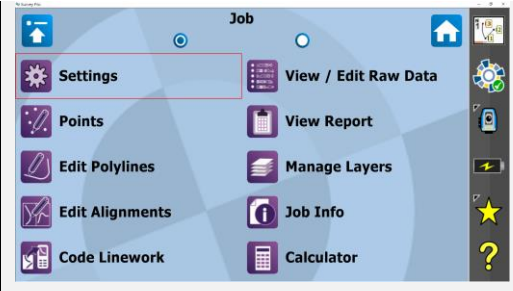
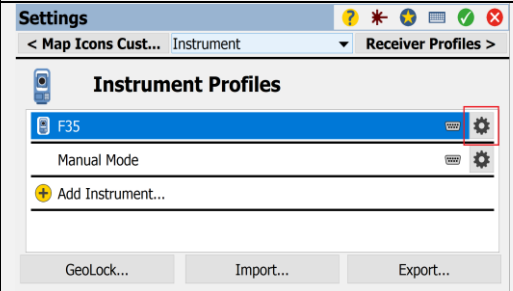
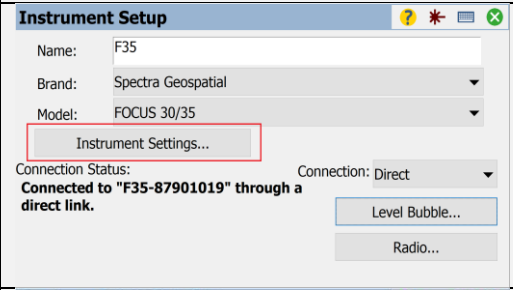
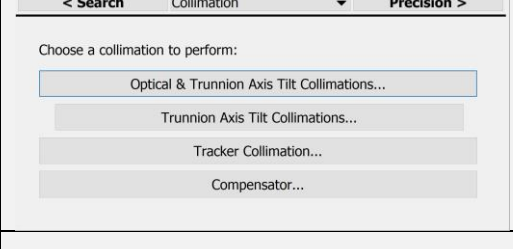
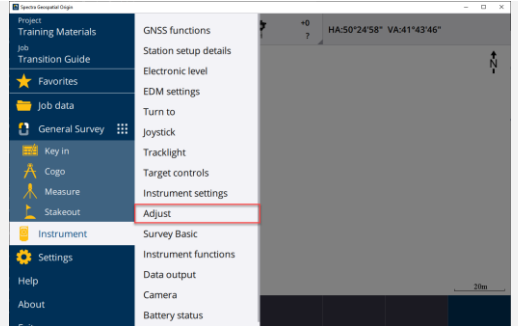
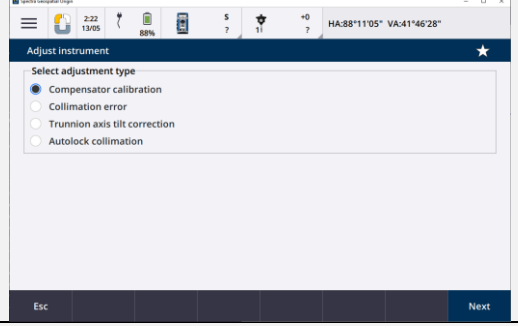
INSTRUMENT SETTINGS/COLLIMATION

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


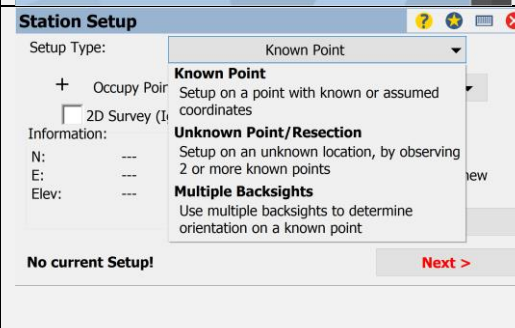
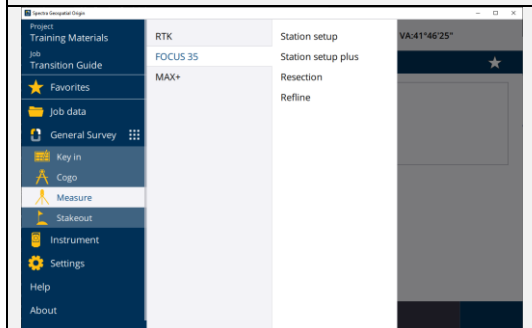
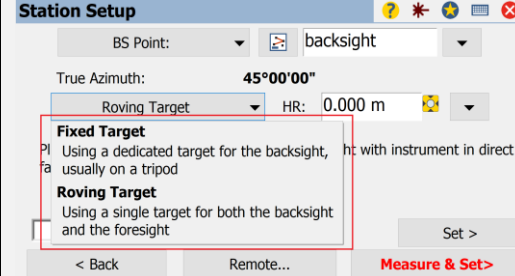
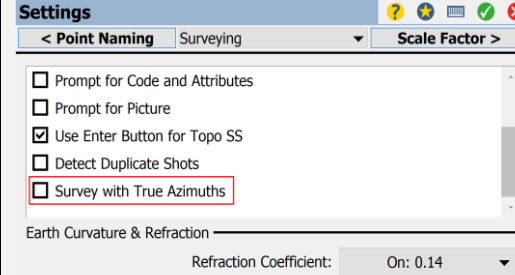
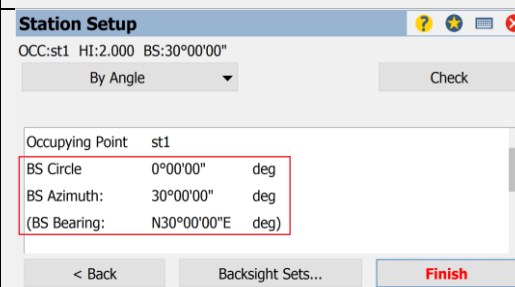
Attached link to the Collimation application note for Survey Pro:

http://trl.trimble.com/docushare/dsweb/Get/Document-808110/FOCUS%2035_30%20Field%20Calibration%20with%20Survey%20Pro%20Application%20Note.pdf

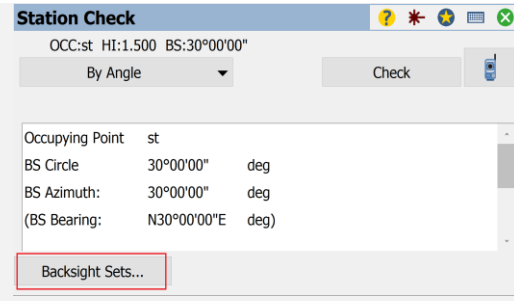
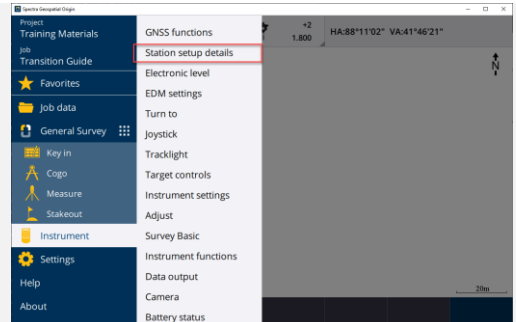
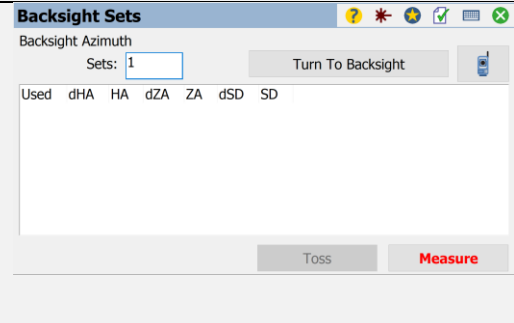
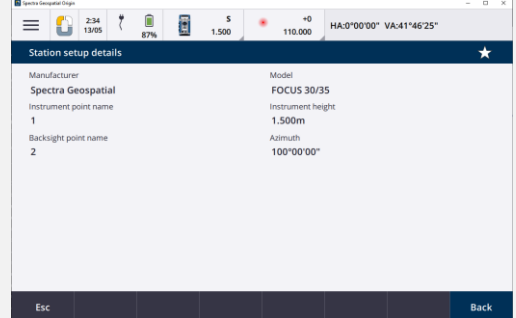
Attached link to the Collimation help file for Origin: <https://survey.help.spectrageospatial.com/Origin/latest/en/instrument-adjustment-FOCUS.htm>

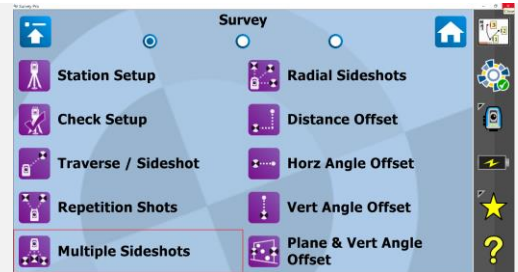
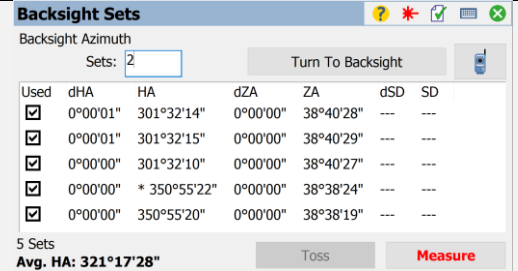
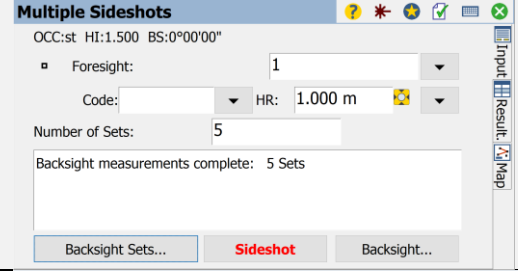
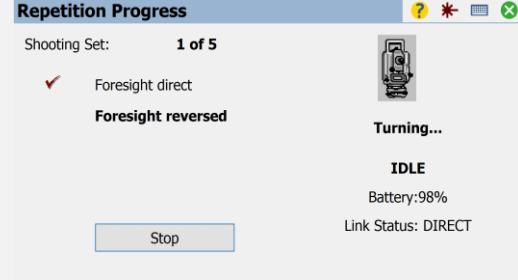
| Survey Pro | Origin | |
|--|--|--|
| <p>Go to settings > Instrument Profiles> Select the cog icon next to the instrument you would like to adjust.</p> <p>Ensure you are connected to the instrument.</p> <p>Run the following adjustments</p> <p>Optical and Trunnion Axis Tilt Collimations: Opens a workflow to guide you through performing collimation of the optical axis and then of the trunnion axis.</p> <p>Trunnion Axis Tilt Collimations: Opens a workflow to guide you through a collimation of the trunnion axis.</p> <p>Tracker Collimation: Opens a workflow to guide you through a collimation of the tracker for prism lock.</p> <p>Compensator: Opens a workflow to guide you through a collimation of the compensator.</p> | <p>Tap  and select Instrument / Adjust to perform instrument adjustments.</p> <p>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.</p> <p>Perform each adjustment in turn, using the steps below.</p> <p>Collimation error Trunnion axis tilt correction Autolock collimation</p> <p>Collimation error + Trunnion axis tilt correction = Optical and Trunnion Axis Tilt Collimations in Survey Pro</p> <p>Note: Disable Autolock during collimation and trunnion axis tilt tests.</p> |       |

SURVEY/STATION SETUP

| Survey Pro | | Origin | | | | | | | | | | | | | |
|--|---|--|--|--------|------------|---------------|--------------|--------------------|---------------------|-----------|-----------|--------------------------|-----|-----------|-----|
| <p>Go to Survey/Station Setup. There are three ways of station setup.</p> <p>1.Known Station</p> <p>2.Resection</p> <p>3.Multiple Backsights</p> |  | <table><tr><th>Origin</th><th>Survey Pro</th></tr><tr><td>Station setup</td><td>Know Station</td></tr><tr><td>Station setup plus</td><td>Multiple Backsights</td></tr><tr><td>Resection</td><td>Resection</td></tr><tr><td>Refline (Reference line)</td><td>N/A</td></tr><tr><td>Copy Last</td><td>N/A</td></tr></table> | | Origin | Survey Pro | Station setup | Know Station | Station setup plus | Multiple Backsights | Resection | Resection | Refline (Reference line) | N/A | Copy Last | N/A |
| Origin | Survey Pro | | | | | | | | | | | | | | |
| Station setup | Know Station | | | | | | | | | | | | | | |
| Station setup plus | Multiple Backsights | | | | | | | | | | | | | | |
| Resection | Resection | | | | | | | | | | | | | | |
| Refline (Reference line) | N/A | | | | | | | | | | | | | | |
| Copy Last | N/A | | | | | | | | | | | | | | |
| <p>2D Survey and Remote Elevation are options</p> | | <p>There are 5 methods for station setup. Please refer to the comparison table:</p> | | | | | | | | | | | | | |
| <p>Multiple Backsights – Use multiple backsights to determine orientation on a known point.</p> | | <p>Access the station setup screen by going to Measure – choose your Instrument survey Style – then choose your style of station setup</p> | | | | | | | | | | | | | |
| <p>If wanting to do Radial Sideshots with robotic function, user must set up fixed target for backsight point.</p> |  |  | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| <p>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.</p> |  | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| <p>If this option is unchecked, the backsight circle and azimuth would be different after station setup.</p> |  | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| |  | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | |

| | | | |
|---|---|--|---|
| <p>[PPM On]: Use this option to enable PPM correction of measured slope distances.</p> <p>[Pressure]: Enter the atmospheric pressure and pressure units.</p> <p>[Temperature]: Enter the temperature and temperature units.</p> <p>[Get Temperature]: (if available) Gets the temperature from the thermometer built into the instrument.</p> <p>[PPM]: Enter the parts per million correction factor for measured slope distances.</p> <p>[Calculate PPM]: Triggers the instrument to calculate the PPM correction factor from the input values.</p> | <div><div><div>Survey Pro</div><div><div>Survey</div><div><div>Station Setup</div><div>Check Setup</div><div>Traverse / Sideshot</div><div>Repetition Shots</div><div>Multiple Sideshots</div><div>Radial Sideshots</div><div>Distance Offset</div><div>Horz Angle Offset</div><div>Vert Angle Offset</div><div>Plane & Vert Angle Offset</div></div></div></div><div><div>Station Setup</div><div>PPM On</div><div>Pressure (500-3500): 1024.0 mbar</div><div>Temperature (-70 - 70): 25.0 °C</div><div>Get Temperature</div><div>PPM: 1.767</div><div>Calculate PPM</div><div>No current Setup!</div><div>Next ></div></div></div> | <p>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.</p> <p>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.</p> | <div><div>Origin</div><div><div>RTK</div><div>FOCUS 35</div><div>MAX+</div></div><div><div>Station setup</div><div>Station setup plus</div><div>Resection</div><div>Refine</div></div></div> <div><div>Corrections</div><div>Pressure 1013.00mbar</div><div>Temperature 20.0°C</div><div>PPM (Computed)</div><div>Curvature correction</div><div>Refraction const. 0.142</div><div>Show corrections on startup</div><div>Accept</div></div> |
|---|---|--|---|

| Survey Pro | | Origin | |
|---|---|---|---|
| <p>Station Check is used to display the details of the current backsight setup. You can check the current setup and reset the instrument circle.</p> <p>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.</p> |  | <p>[Instrument] – [Station setup details]</p> <p>Supports the ability to check station details.</p> <p>There is no concept of backsight sets in Origin.</p> <p>Survey Style definition allows F1/F2 measurements for station setup.</p> |  |
| |  | |  |

| Survey Pro | | Origin | |
|---|--|--|--|
| <p>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.</p> |  | <p>This function is available in Trimble Access monitoring</p> | |
| |  | | |
| |  | | |
| |  | | |

SURVEY/RADIAL SIDESHOTS

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.

Survey Pro

Survey

- Station Setup
- Check Setup
- Traverse / Sideshot
- Repetition Shots
- Multiple Sideshots
- Radial Sideshots
- Distance Offset
- Horz Angle Offset
- Vert Angle Offset
- Plane & Vert Angle Offset

R-SS BS Dir

OCC:st HI:1.500 BS:bs1, 0°00'00", BS HR:1.000
Option: Distance & Angle
Number of Sets:

Settings

< Surveying Radial SS Manage Context...

Horizontal Tolerance:
Zenith Tolerance:
Distance Tolerance:
☒ Shoot Distance to Backsight
☐ Do Not Shoot Reverse Distances
☒ Enable Automatic Repetition
Rep. Shoot Sequence: BS > FS ^ FS > BS
Radial Sideshot Seq.: B>F1>..>Fn^Fn>..>F1>B

Station Setup

BS Point:
True Azimuth:
 HR:
Please make sure you are pointed at the backsight with instrument in direct face.
☐ Perform Backsight Repetition Set

[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.

Origin

Station elevation
Measure topo
Measure codes
Measure rounds
Measure to surface
Measure points on plane
Measure 3D axes
Continuous topo
Surface scan
New station setup
End conv. survey
Integrated surveying

Options

Face order
F1... F2...
Sets per point
1
Automate rounds
☒
Monitoring
Time between rounds
0m3s
Measure dist on face 2
☒

Round - Face 1 (1/3)

Point name
Code
Method
Angles and distance
Target height
110.000m

Options

Observation order
123... 123
Number of rounds
3
Skip obstructed foresights
☐
Auto-measure passive targets
☐

SURVEY/DISTANCE OFFSET

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.

Survey Pro

Survey

- Station Setup
- Check Setup
- Traverse / Sideshot
- Repetition Shots
- Multiple Sideshots
- Radial Sideshots
- Distance Offset
- Horz Angle Offset
- Vert Angle Offset
- Plane & Vert Angle Offset

Distance Offset

OCC:st HI:1.500 BS:bs1, 0°00'00", BS HR:1.000

Foresight: fs1

Code: HR: 1.000 m

Left / Right direction: From instrument to ROD

Offset: 0.0 m

HD Offset: 0.0 m

Elev. Offset: 0.0 m

Topo SS Backsight... **Shoot Offset**

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.Distance offset.

Origin

Station elevation: +0 110.000

Measure topo

Point name: HA:45°51'21" VA:41°45'52"

Rounds - Face 1 (1/3)

Point name: 10

Code: ?

Method: Distance offset

Target height: 110.000m

L/R offset: 0.000m

In/Out offset: 0.000m

V.Distance offset: 0.000m

Esc Check Turn Options Measure

SURVEY/HORZ ANGLE OFFSET

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.

Survey Pro

Survey

- Station Setup
- Check Setup
- Traverse / Sideshot
- Repetition Shots
- Multiple Sideshots
- Radial Sideshots
- Distance Offset
- Horz Angle Offset
- Vert Angle Offset
- Plane & Vert Angle Offset

Horizontal Angle Offset

OCC:st HI:1.500 BS:bs1, 0°00'00", BS HR:1.000

Foresight: fs1

Code: HR: 1.000 m

Sideshot

Slope Dist: 10.000000 m

Horz Dist: 10.030883 m

Ground Horz Dist: 10.000000 m

Aim Center **Shoot Prism** Backsight...

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.

Origin

Station elevation: +0 110.000

Measure topo

Point name: HA:45°51'21" VA:41°45'52"

Rounds - Face 1 (1/3)

Point name: 10

Code: ?

Method: H. Angle offset

Target height: 110.000m

Esc Check Turn Options Measure

SURVEY/VERT ANGLE OFFSET

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.

Survey Pro

Survey

Station Setup

Check Setup

Traverse / Sideshot

Repetition Shots

Multiple Sideshots

Radial Sideshots

Distance Offset

Horz Angle Offset

Vert Angle Offset

Plane & Vert Angle Offset

Vertical Angle Offset

OCC:st HI:1.500 BS:bs1, 0°00'00", BS HR:1.000

Foresight: fs1

Code: HR: 1.000 m

Center Shot

Azimuth: 0°00'00" deg

Zenith: 90°00'00" deg

Slope Dist: 10.000000 m

Shoot Prism

Aim Zenith

Backsight...

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.

Origin

Station elevation

Measure topo

Measure codes

Measure rounds

Measure to surface

Measure points on plane

Measure 3D axes

Continuous topo

Surface scan

New station setup

End conv. survey

Integrated surveying

HA:45°51'21" VA:41°45'52"

Rounds - Face 1 (1/3)

Point name

Code

Method

Angles and distance

Target height

Measure topo

Point name

Code

Method

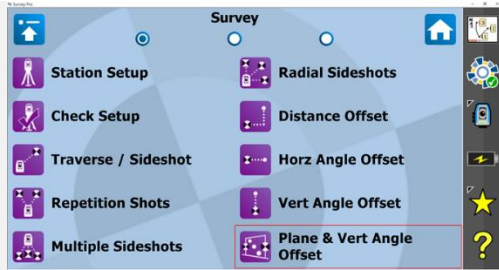
V. Angle offset

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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.



Plane + VA Offset

OCC:st HI:1.500 BS:bs1, 0°00'00", BS HR:1.000

Foresight: fs2

Code: HR: 1.000 m

Point 1 of Plane

Azimuth: 336°18'32" deg

Zenith: 73°02'45" deg

Slope Dist: 1.933600 m

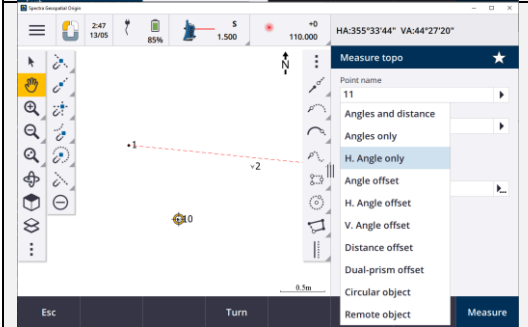
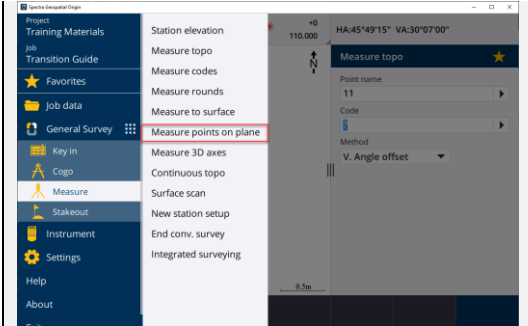
Backsight... Shoot Plane Aim & Store

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.

Origin



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.

Survey Pro

Survey

Auto Collect

Quick Codes

Corner & 2 Lines

Corner & Angle

Corner & Offset

Corner & Plane

Surface Scan

Shoot From 2 Ends

Record Mode

Remote Elev

Auto Collect

OCC:st HI:1.500 BS:0°00'00"

Foresight:

1

Code:

HR: 1.000 m

Collect by:

Method:

Time Interval

Interval:

10

sec

Backsight...

Next >

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.

Origin

Station elevation

Measure topo

Measure codes

Measure rounds

Measure to surface

Measure points on plane

Measure 3D axes

Continuous topo

Surface scan

New station setup

End conv. survey

Integrated surveying

Continuous topo

Start point name: cont1

Code: ?

Target height: 110.000m

Method

Fixed time

Fixed time

Fixed distance

Time and distance

Time or distance

Stop and go

Start

11

SURVEY/QUICK CODES

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

Survey Pro

Survey

Auto Collect

Quick Codes

Corner & 2 Lines

Corner & Angle

Corner & Offset

Corner & Plane

Surface Scan

Shoot From 2 Ends

Record Mode

Remote Elev

Quick Codes

OCC:st HI:1.500 BS:0°00'00"

Foresight: fs1

HR: 1.000 m

Page1

| | | |
|-----------|----------|----------|
| 7 | 3 | 9 |
| epmt enta | epmt end | epmt eta |
| 4 | 5 | 6 |
| epmt snta | epmt st | epmt sta |
| 1 | 2 | 3 |
| | epmt | 0 |

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.

Origin

Station elevation

Measure topo

Measure codes

Measure rounds

Measure to surface

Measure points on plane

Measure 3D axes

Continuous topo

Surface scan

New station setup

End conv. survey

Integrated surveying

HA:355°33'44" VA:44°27'20"

Continuous topo

Start point name cont1

Code ?

Target height 110.000m

Method Fixed time

Time interval 5s

Measure codes

Page1

| | | |
|-----------|----------|----------|
| 7 | 8 | 9 |
| EPMT | | |
| 4 | 5 | 6 |
| EMPT ENTA | EPMT END | EPMT STA |
| 1 | 2 | 3 |

SURVEY/CORNER & 2 LINES

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

Survey Pro

Survey

Auto Collect

Quick Codes

Corner & 2 Lines

Corner & Angle

Corner & Offset

Corner & Plane

Surface Scan

Shoot From 2 Ends

Record Mode

Remote Elev

Corner + 2 Lines

OCC:st HI:1.500 BS:0°00'00"

Foresight: fs1

Code:

HR: 1.000 m

Shoot Line 1

Shoot Line 2

Backsight...

[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

Origin

Compute point

Compute inverse

Compute distance

Compute volume

Compute azimuth

Compute average

Area calculations

Arc solutions

Triangle solutions

Subdivide a line

Subdivide an arc

Surface inspection

Adjust

Taped distances

Calculator

VA:44°22'38"

Bearing and distance

Turned angle and distance

Brng-dist intersect

Brng-brng intersect

Dist-dist intersect

Four point intersection

From a baseline

Project point to line

Project point to arc

Compensator in range

Compute point

Point name NewPT

Code ?

Method Four point intersection

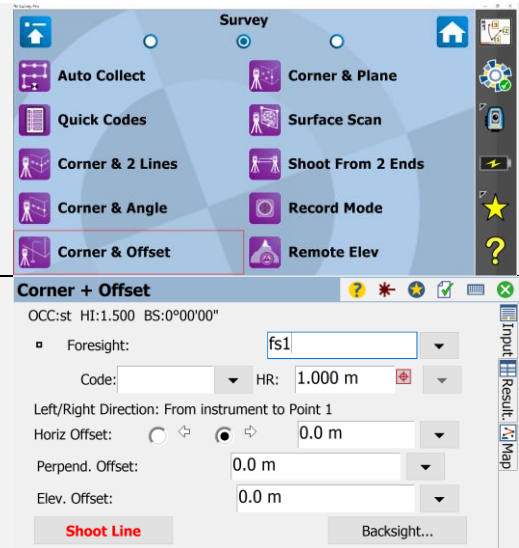
Start point (line 1) ?

End point (line 1) ?

Start point (line 2) ?

End point (line 2) ?

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| Survey Pro | | Origin | |
|--|---|--------|--|
| <p>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.</p> |  | N/A | |
| | | | |

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.

Survey Pro

Survey

Auto Collect

Quick Codes

Corner & 2 Lines

Corner & Angle

Corner & Offset

Corner & Plane

Surface Scan

Shoot From 2 Ends

Record Mode

Remote Elev

Corner + Plane

OCC:st HI:1.500 BS:0°00'00"

Foresight: fs1

Code: HR: 1.000 m

Point 1 of Plane

Azimuth: 311°50'52" deg

Zenith: 44°19'49" deg

Slope Dist: 2.409030 m

Shoot Plane

Aim at Corner

Backsight...

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.

Origin

Station elevation

Measure topo

Measure codes

Measure rounds

Measure to surface

Measure points on plane

Measure 3D axes

Continuous topo

Surface scan

New station setup

End conv. survey

Integrated surveying

Compensator in range

Compute point

NewPT

Code

Method

Four point intersection

Start point (line 1)

End point (line 1)

Start point (line 2)

End point (line 2)

Measure points on plane

Point name

11

Code

Target height

110.000m

Perpendicular delta

106.919m Above

HA

355°18'20"

VA

44°21'56"

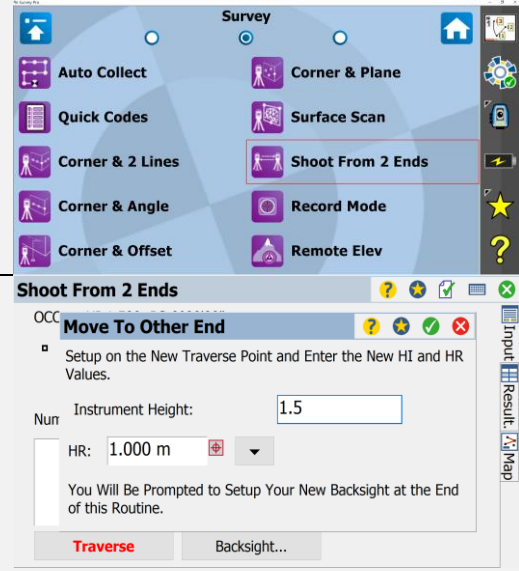
SD

2.212m

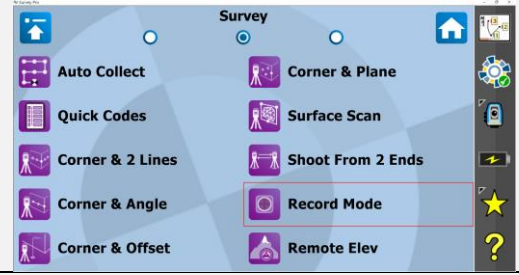
14

| | | | |
|---|--|--|---|
| <p>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.</p> | <div><div><div>Survey Pro</div><div><div>Survey</div><div><div>Auto Collect</div><div>Quick Codes</div><div>Corner & 2 Lines</div><div>Corner & Angle</div><div>Corner & Offset</div><div>Corner & Plane</div><div>Surface Scan</div><div>Shoot From 2 Ends</div><div>Record Mode</div><div>Remote Elev</div></div></div></div><div><div>Surface Scan Setup</div><div><div>Select Type of Surface Scan: Distance Grid</div><div><div>Point 1: S1</div><div>Point 2: S2</div><div>Point 3: S3</div></div><div><div>Horizontal Distance Interval: 0.1 m</div><div>Vertical Distance Interval: 0.1 m</div><div>HR: 1.000 m</div></div><div><div>Show Outline</div><div>Show Unit</div><div>Next ></div></div></div></div></div> <td><p>Use surface scanning to scan surfaces when connected to a total station that supports scanning.</p></td> <td><div><div>Origin</div><div><div>Station elevation</div><div>Measure topo</div><div>Measure codes</div><div>Measure rounds</div><div>Measure to surface</div><div>Measure points on plane</div><div>Measure 3D axes</div><div>Continuous topo</div><div>Surface scan</div><div>New station setup</div><div>End conv. survey</div><div>Integrated surveying</div></div></div><div><div>Surface scan</div><div><div>Start point name: ?</div><div>Code: ?</div><div>Scan method: HA VA interval</div><div><div>Top left: PS1</div><div>Bottom right: PS2</div></div><div><div>HA interval: 1'00'00"</div><div>VA interval: 1'00'00"</div></div><div><div>Total points to scan: 91 (91 X 1)</div><div>Estimated time: 12m26s</div></div></div></div></td> | <p>Use surface scanning to scan surfaces when connected to a total station that supports scanning.</p> | <div><div>Origin</div><div><div>Station elevation</div><div>Measure topo</div><div>Measure codes</div><div>Measure rounds</div><div>Measure to surface</div><div>Measure points on plane</div><div>Measure 3D axes</div><div>Continuous topo</div><div>Surface scan</div><div>New station setup</div><div>End conv. survey</div><div>Integrated surveying</div></div></div> <div><div>Surface scan</div><div><div>Start point name: ?</div><div>Code: ?</div><div>Scan method: HA VA interval</div><div><div>Top left: PS1</div><div>Bottom right: PS2</div></div><div><div>HA interval: 1'00'00"</div><div>VA interval: 1'00'00"</div></div><div><div>Total points to scan: 91 (91 X 1)</div><div>Estimated time: 12m26s</div></div></div></div> |
|---|--|--|---|

SURVEY/SHOOT FROM 2 ENDS

| Survey Pro | | Origin | |
|--|---|--------|--|
| <p>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</p> |  | N/A | |
| | | | |

SURVEY/RECORD MODE

| Survey Pro | | Origin | |
|---|--|--------|--|
| <p>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</p> |  | N/A | |
| | | | |

SURVEY/REMOTE ELEVATION

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.

Survey Pro

Survey

Auto Collect

Quick Codes

Corner & 2 Lines

Corner & Angle

Corner & Offset

Corner & Plane

Surface Scan

Shoot From 2 Ends

Record Mode

Remote Elev

Remote Elevation

Known Elevation Is...

Occupy

Foresight

Elevation: 1.0 m

Shoot Direct

HR: 1.000 m

☐ Store Pt: st

Take Shot

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

Origin

Station elevation

Measure topo

Measure codes

Measure rounds

Measure to surface

Measure points on plane

Measure 3D axes

Continuous topo

Surface scan

New station setup

End conv. survey

Integrated surveying

HA-355°18'20" VA:44°22'09"

Code ?

Bottom right FS2

VA interval 1°00'00"

Estimated time 12m26s

SURVEY/CHECK POINT

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.

Survey Pro

Survey

Check Point

Solar Observation

Angles Only Measure

Dual-Prism Offset

Prism-Wall Offset

Remote Control

Check Point

OCC:st1 HI:1.500 BS:0°00'00"

+ Point: P1

HR: 1.000 m

delta N: -0.000858 m

delta E: -0.000858 m

delta Elev: 4.498661 m

Backsight...

Take Shot

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.

Origin

Measure topo

Point name 11

Code 1116

Method

Angles and distance

Target height 0.000m

Check

Turn

Dist

Options

Measure

Check shot

Point name

Code

Method

Angles and distance

Target height 0.000m

Chk BS

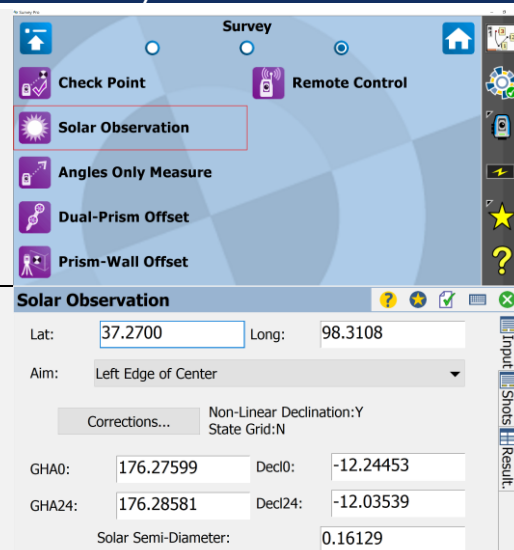

Turn

Options

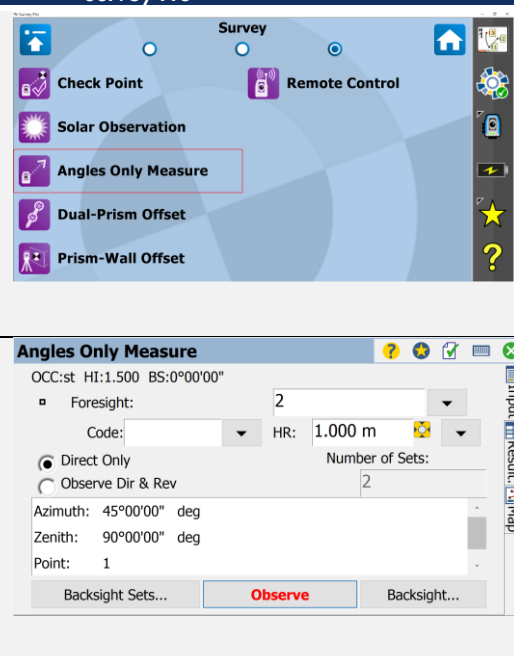
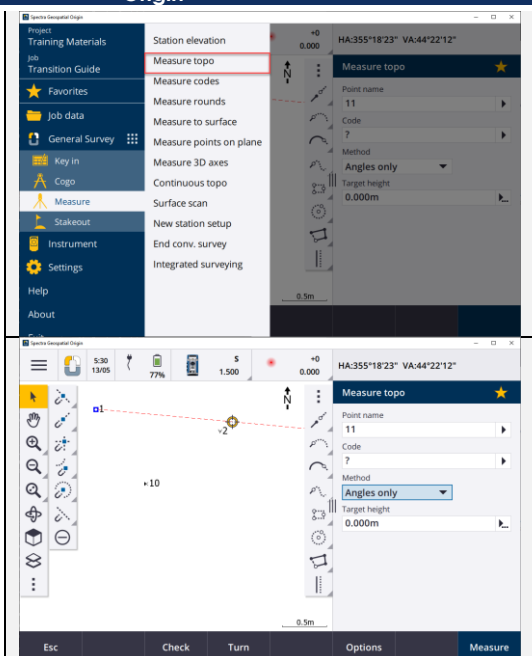
Measure

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SURVEY/SOLAR OBSERVATION

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

SURVEY/ANGLES ONLY MEASURE

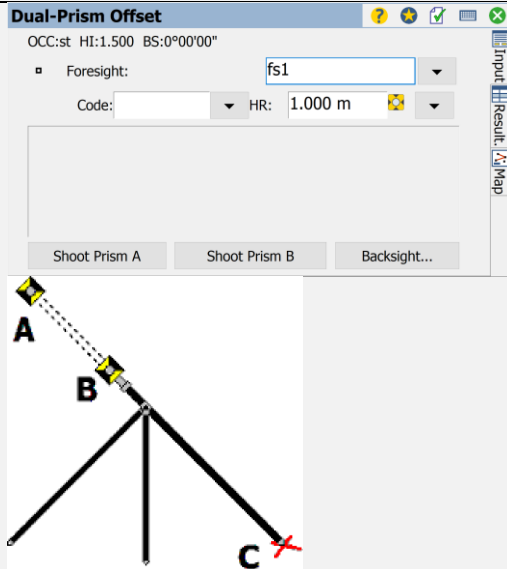
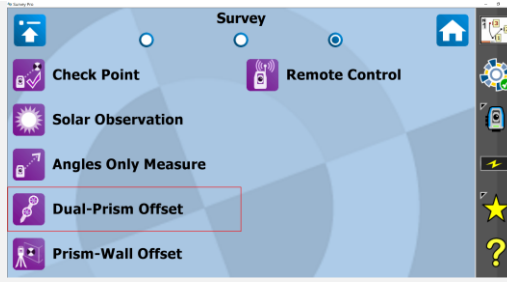
| Survey Pro | Origin |
|---|---|
| <p>The Angles Only Measure is used to collect horizontal and vertical angle measurements to points. The coordinates of these points can be solved later from the raw observations using office software.</p>  | <p>In the measure topo routine change the measurement type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

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.

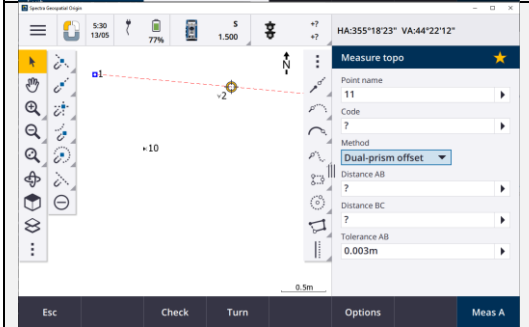
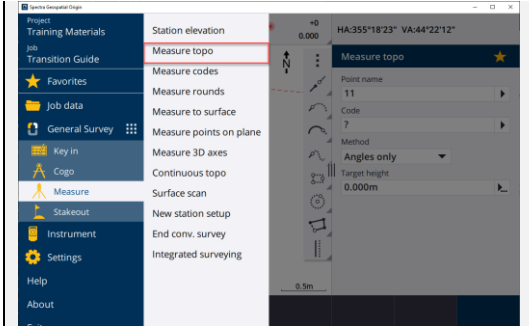
The offset point will be calculated using the HR of the first observation (A or B).

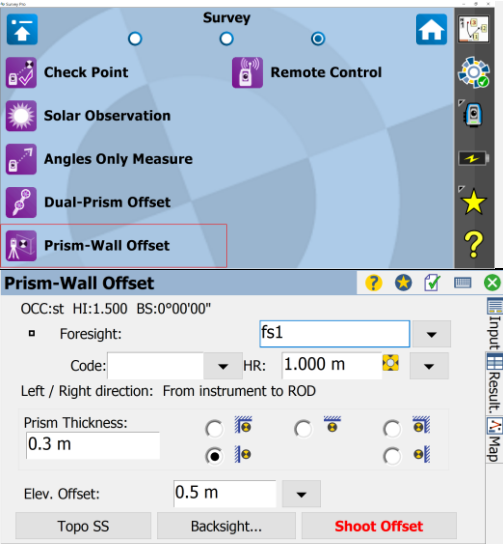


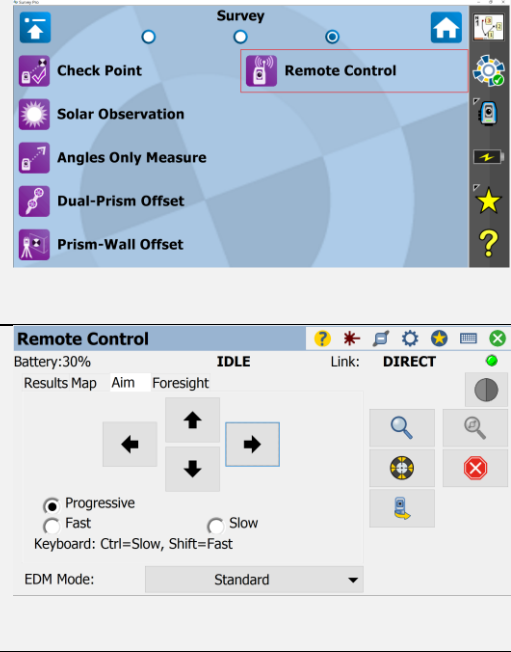
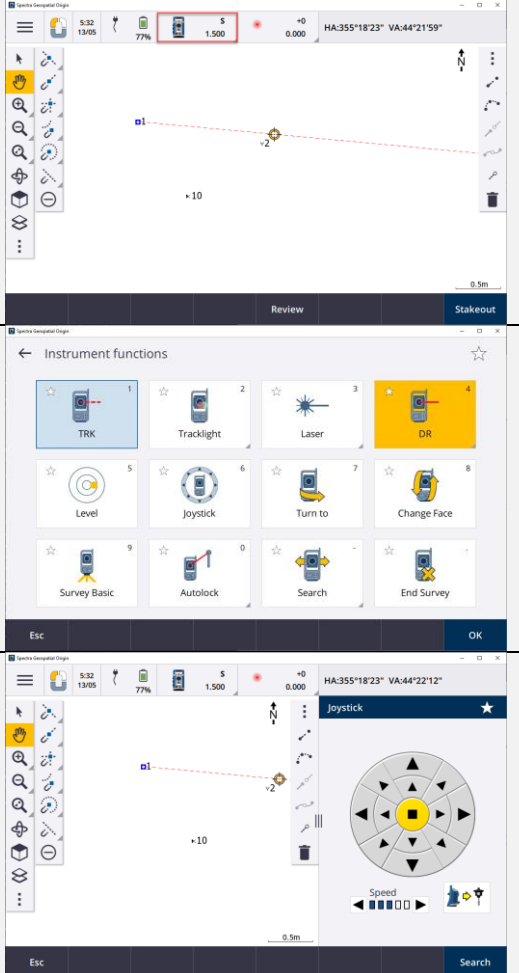
In a conventional survey, use this measurement method to coordinate a point that cannot be observed directly with a pole in a plumb position.

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.

Origin

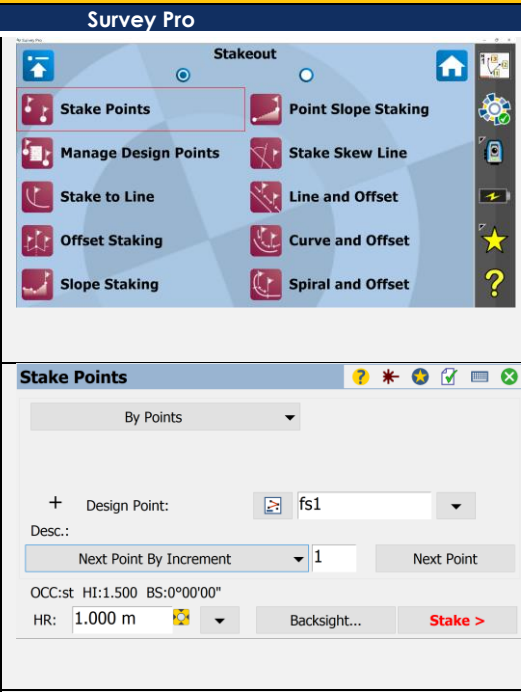


| Survey Pro | N/A | Origin |
|---|-----|--------|
| <div><p>The Prism-Wall Offset screen allows you to place the prism adjacent to a wall or other vertical surface, observe the prism, and automatically calculate the location offset to the base of the wall, or at the intersection of two walls.</p><p>Prism 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.</p><p>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.</p></div> <div></div> | | |

| Survey Pro | Origin |
|---|--|
| <div><p>Remote control mode is a special mode that makes it easier for users to control fully robotic total stations from a remote data collector.</p><p>Note: The remote control functions are available only after a supported robotic total station is selected and enabled in the Instrument Settings screen.</p></div> <div></div> | <div><p>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.</p></div> <div></div> |

STAKEOUT/STAKE POINTS

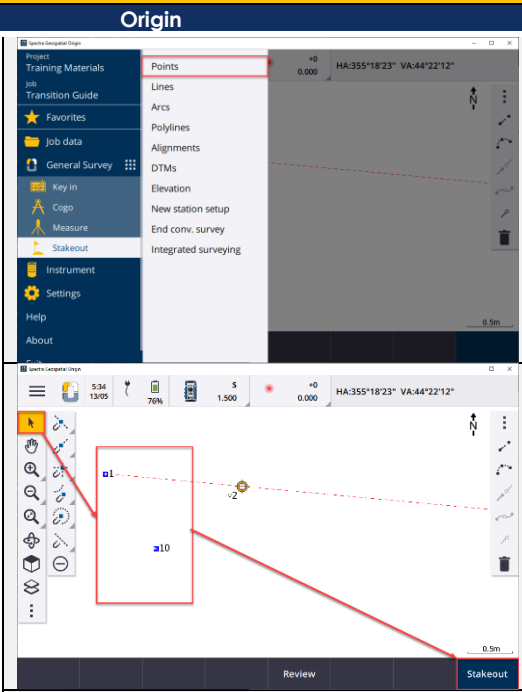
The Stake Points is used to select design points one by one then stake them out.



Origin supports the ability to stake out a single point and/or a group of points.

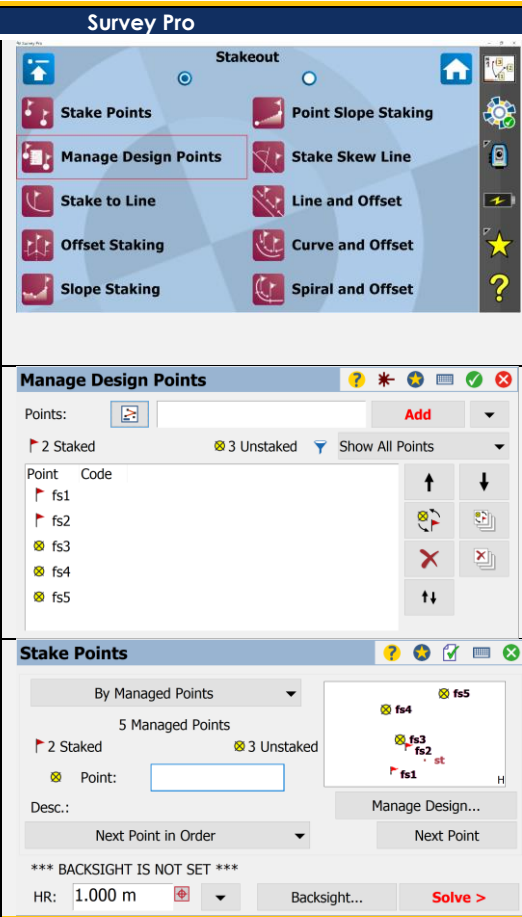
Stake out can also be done through map selections.

Select the desired points in the map, tap and hold on the map screen and select "Stakeout"



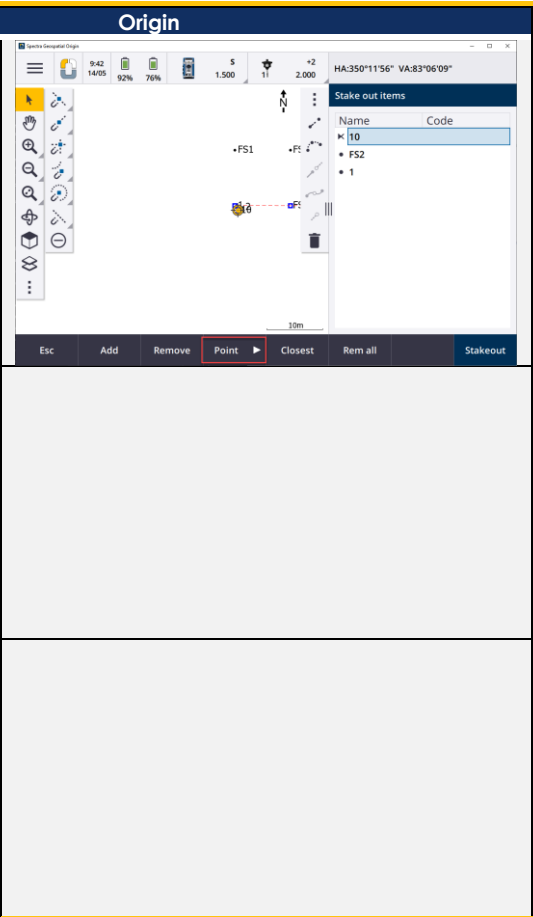
STAKEOUT/MANAGE DESIGN POINTS

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.



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

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.)

Survey Pro

Stakeout

- Stake Points
- Point Slope Staking
- Manage Design Points
- Stake Skew Line
- Stake to Line
- Line and Offset
- Offset Staking
- Curve and Offset
- Slope Staking
- Spiral and Offset

Stake to Line

Define/Select a Line:

Polyline

Tap Line...

To/From...

Begin Station: 100+00.0

OCC:st HI:1.500 BS:0°00'00"

Backsight...

Stake >

Stake to Line

HR: 1.000 m

EDM: Tracking

MEASURING

Results Meas.

FORWARD: 0.335241 m

LEFT of Line

Offset Dist: 0.260386 m

Station: 99+98.857415

Cut: 0.000036 m

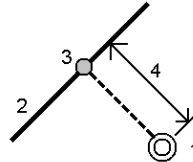
Remote...

< Back

Store...

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.

Origin

Project Training Materials

Job Transition Guide

Stakeout

Points

Lines

Arcs

Polylines

Alignments

DTMs

Elevation

New station setup

End conv. survey

Integrated surveying

Stake out line

Line name: 7

Code: 7

Stake

Station on the line

To the line

Station on the line

Station/offset from line

Slope from line

Station/skew offset from line

Distance along line

Stake: 1-2

Go In: 1.163m

Go Backward: 1.124m

Go Left: 0.300m

Go Right: > 0.000m

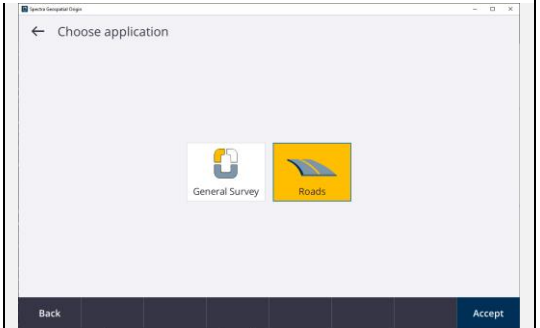
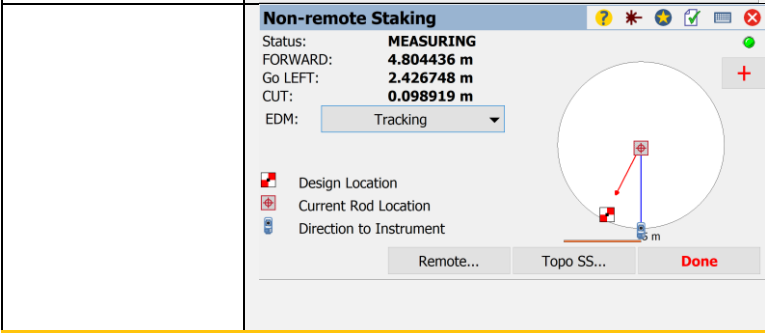
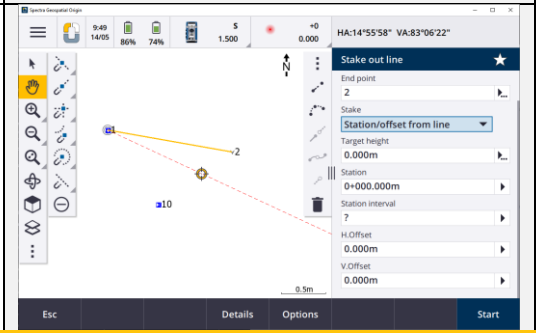
Station: 0+000.000m

Station interval: ?

Cut: 1.641m

Design elevation: 100.000m

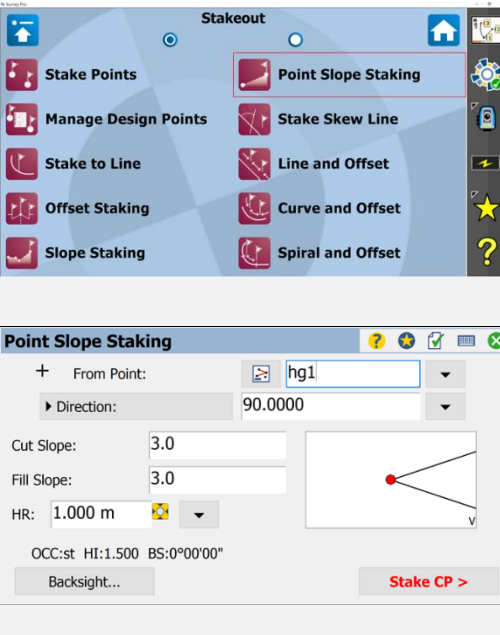
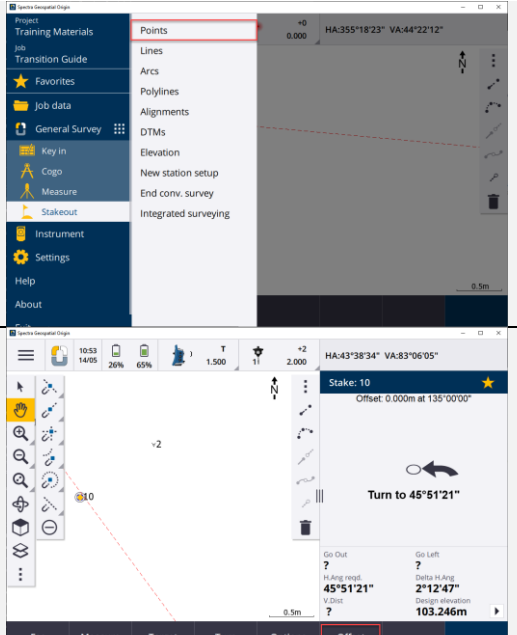
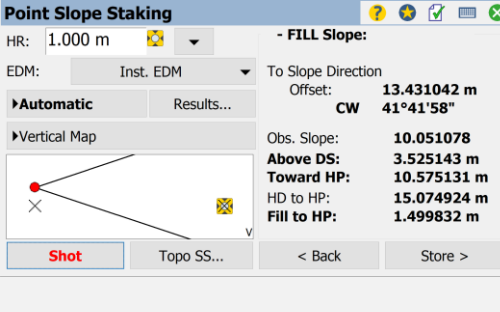
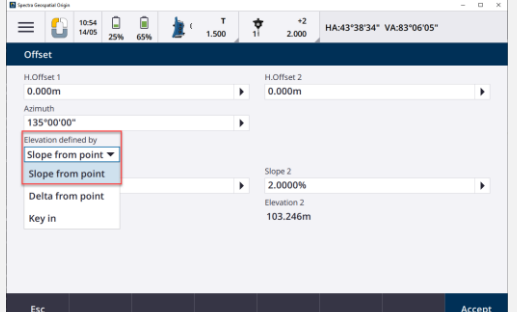
STAKEOUT/OFFSET STAKING

| Survey Pro | Origin | Origin |
|--|--|--|
| <p>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.</p> <p>The first Offset Staking screen is used to define the centerline of the road that you want to offset stake.</p> | <p>N/A</p> <p>This function is in Road module</p> |  |
|  | <p>Similar functionality for staking individual offsets is available under Stake Lines] -> Station/offset from line</p> |  |

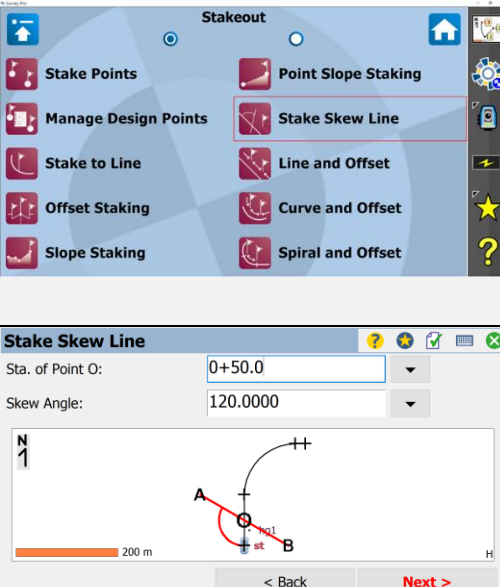
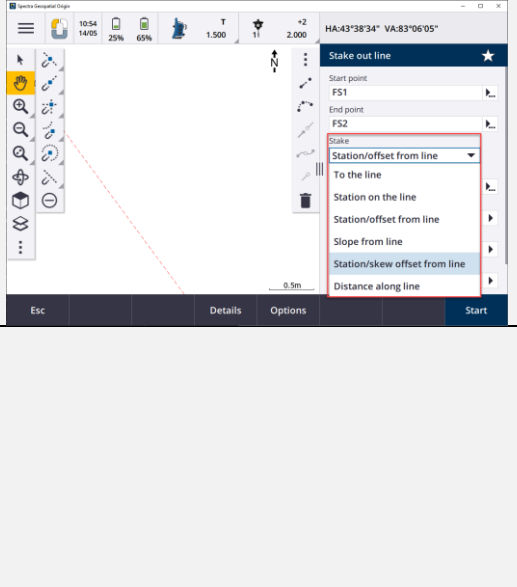
STAKEOUT/SLOPE STAKING

| | | | |
|---|---|--|---|
| <p>The Slope Staking routine determines the location of the catch point from a perpendicular offset to a known centerline at a specified station.</p> | <div><div>Survey Pro</div><div><div>Stakeout</div><div><div>Stake Points</div><div>Manage Design Points</div><div>Stake to Line</div><div>Offset Staking</div><div>Slope Staking</div><div>Point Slope Staking</div><div>Stake Skew Line</div><div>Line and Offset</div><div>Curve and Offset</div><div>Spiral and Offset</div></div></div><div><div>Slope Staking</div><div>Station: 20+00.0</div><div>HR: 1.000 m</div><div>Interval: 10.0 m</div><div>Next Station</div><div><div>Cut Slope: 3.0</div><div>Fill Slope: 3.0</div></div><div>Segment # (Fill HP): 2</div><div>Backsight... < Back Stake CP ></div></div></div> | <p>N/A</p> <p>This function is in Road module.</p> | <div><div>Origin</div><div>Choose application</div><div><div>General Survey</div><div>Roads</div></div><div>Back Accept</div></div> |
| | <div><div>Slope Staking</div><div>HR: 1.000 m</div><div>EDM: Inst. EDM</div><div><div>Automatic Slope</div><div>Vertical Map</div></div><div><div>Results...</div><div>Shot</div><div>Topo SS...</div><div>< Back</div><div>Store ></div></div><div><div>Right - FILL Slope:</div><div>Toward CL: 21.890636 m</div><div>Back Sta: 52.117250 m</div><div>Obs. Slope: 57.759788</div><div>Above DS: 7.296879 m</div><div>HD to HP: 23.089908 m</div><div>Fill to HP: 0.399757 m</div><div>HD to CL: 30.089908 m</div><div>Cut to CL: 0.500243 m</div></div></div> | <p>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)</p> <p>Stake Alignment > Side slope form alignment</p> | <div><div>Alignment: Example Alignment</div><div>Alignment name: Example Alignment</div><div>String name: ?</div><div><div>Stake</div><div>Station on alignment</div><div>To the alignment</div><div>Station on alignment</div><div>Side slope from alignment</div><div>Station/skew offset from alignment</div><div>Offset: 0.000m</div><div>Design elevation: 110.000m</div><div>Vertical const. offset: 0.000m</div></div><div>Esc Sta- Sta+ Options Start</div></div> |

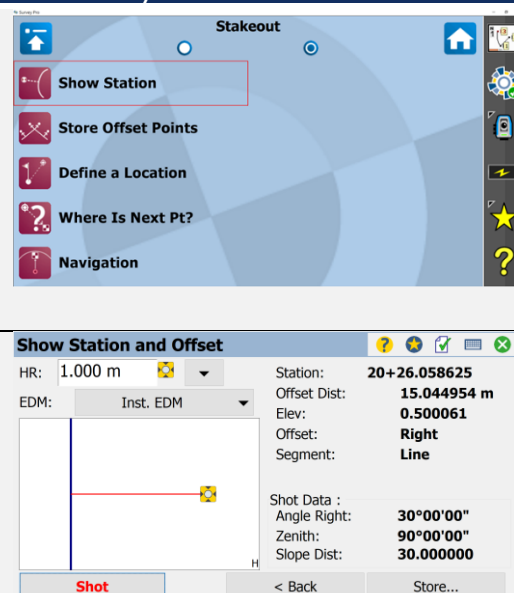
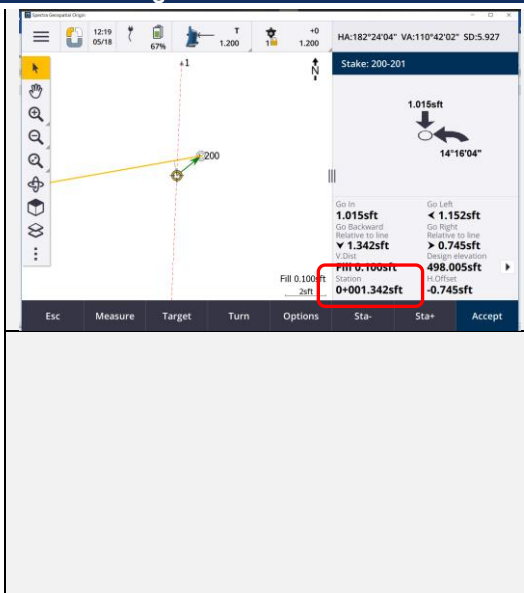
STAKEOUT/POINT SLOPE STAKING

| Survey Pro | Origin |
|---|--|
| <p>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.</p> <p>[From Point]: is the hinge point.</p>  <p>Point Slope Staking</p> <p>From Point: hg1</p> <p>Direction: 90.0000</p> <p>Cut Slope: 3.0</p> <p>Fill Slope: 3.0</p> <p>HR: 1.000 m</p> <p>OCC:st HI:1.500 BS:0°00'00"</p> <p>Backsight... Stake CP ></p> | <p>Select Stakeout > Points and press the Offset button to define Slopes, Offsets and direction</p>  <p>Origin</p> <p>Points</p> <p>Offset</p> <p>Turn to 45°51'21"</p> <p>Offset: 0.000m at 135°00'00"</p> <p>Go Out ?</p> <p>Go Left ?</p> <p>Offset: 45°51'21"</p> <p>Offset: 2°12'47"</p> <p>Offset: 103.246m</p> <p>Offset</p> |
|  <p>Point Slope Staking</p> <p>HR: 1.000 m</p> <p>EDM: Inst. EDM</p> <p>Automatic Results...</p> <p>Vertical Map</p> <p>Obs. Slope: 10.051078</p> <p>Above DS: 3.525143 m</p> <p>Toward HP: 10.575131 m</p> <p>HD to HP: 15.074924 m</p> <p>Fill to HP: 1.499832 m</p> <p>Shot Topo SS... < Back Store ></p> |  <p>Origin</p> <p>Offset</p> <p>H.Offset 1: 0.000m</p> <p>H.Offset 2: 0.000m</p> <p>Offset: 135°00'00"</p> <p>Elevation defined by: Slope from point</p> <p>Slope 2: 2.00000%</p> <p>Elevation 2: 103.246m</p> <p>Delta from point</p> <p>Key in</p> <p>Accept</p> |

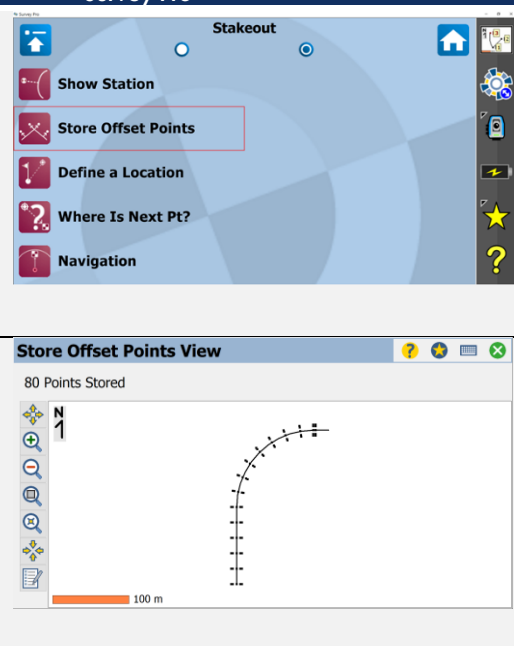
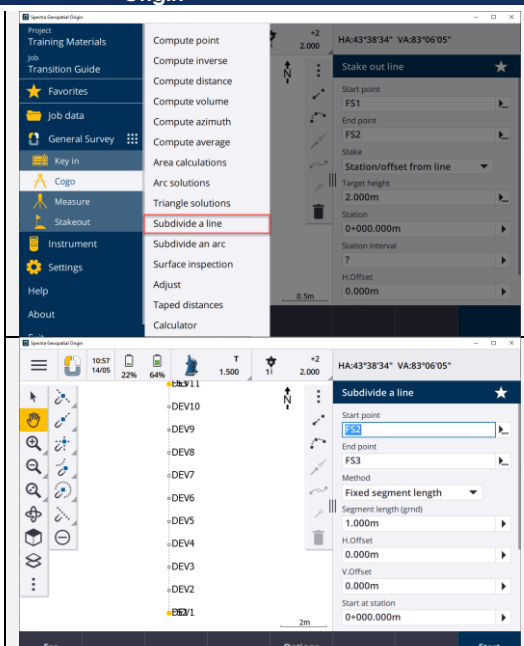
STAKEOUT/STAKE SKEW LINE

| Survey Pro | Origin |
|---|--|
| <p>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.</p>  <p>Stake Skew Line</p> <p>Sta. of Point O: 0+50.0</p> <p>Skew Angle: 120.0000</p> <p>Next ></p> | <p>You can stake skew offsets from lines under the stake out line.</p> <p>Stake Line> Station/Skew offset from line</p>  <p>Origin</p> <p>Stake out line</p> <p>Start point: FS1</p> <p>End point: FS2</p> <p>Stake: Station/offset from line</p> <p>To the line</p> <p>Station on the line</p> <p>Station/offset from line</p> <p>Slope from line</p> <p>Station/skew offset from line</p> <p>Distance along line</p> <p>Start</p> |


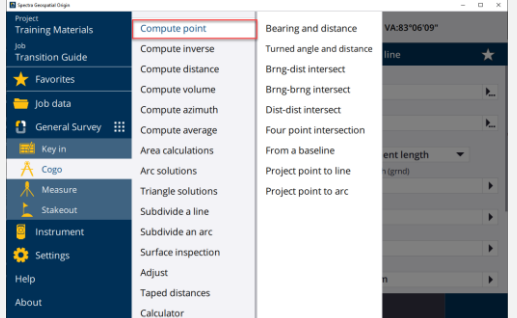
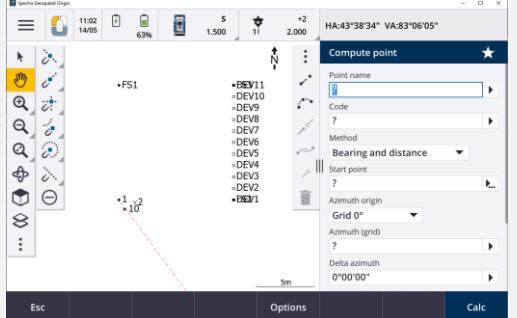
STAKEOUT/SHOW STATION

| Survey Pro | | Origin |
|--|---|---|
| <p>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.</p> |  | <p>Origin can be configured to Show Station always and dynamically while in the Stake Line dialogue</p>  |


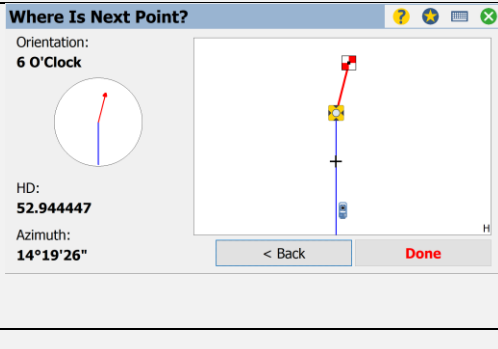
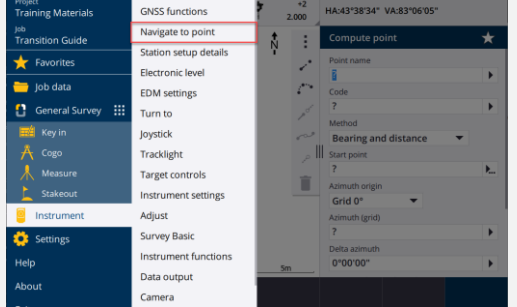
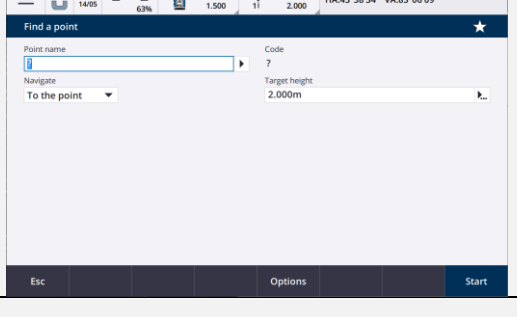
STAKEOUT/STORE OFFSET POINTS


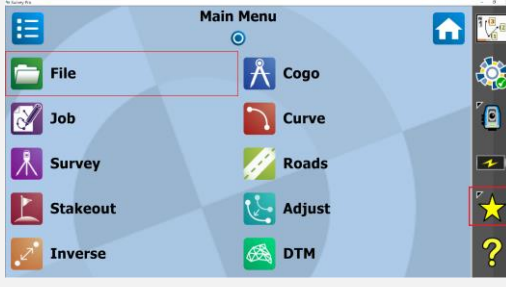
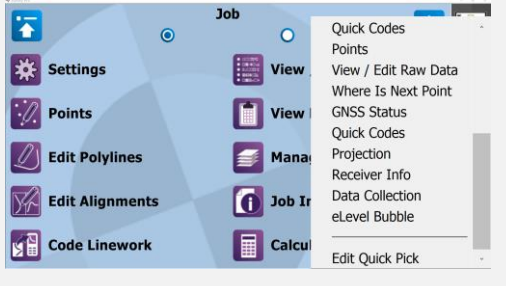
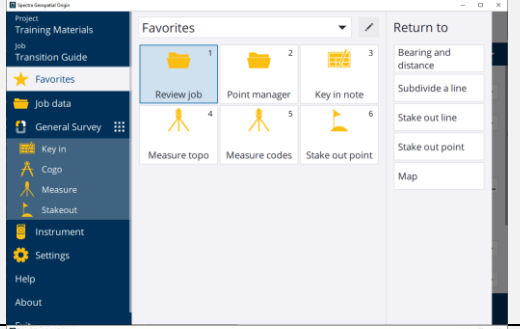
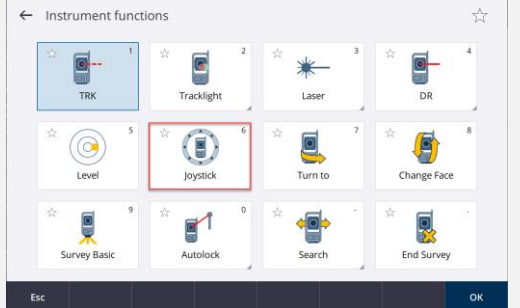
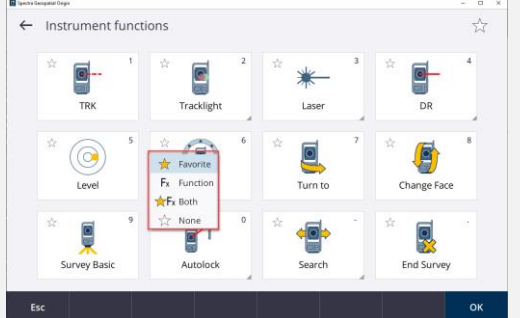
| Survey Pro | | Origin |
|--|--|--|
| <p>The Store Offset Points screen is used to store points in the current job at a specified offset from an existing polyline or alignment at a specified interval.</p> |  | <p>Use the Cogo Subdivide a line function</p>  |

STAKEOUT/DEFINE A LOCATION

| | | | |
|---|--|---|--|
| <p>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.</p> | <div><div>Survey Pro</div><div></div></div> | <p>Use the Cogo – Compute point function to create a new point using the Bearing and distance method.</p> <p>Stake out the new point though the stakeout menu or by selecting it in the map and using the tap and hold menu</p> | <div><div>Origin</div><div></div><div></div></div> |
|---|--|---|--|

STAKEOUT/WHERE IS NEXT Pt

| | | | |
|--|---|--|---|
| <p>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.</p> | <div><div>Survey Pro</div><div></div><div></div></div> | <p>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.</p> | <div><div>Origin</div><div></div><div></div></div> |
|--|---|--|---|

| | | | |
|---|--|--|--|
| <p>Users can launch Favorite routines from the Quick Pick star which is located on the toolbar in virtually all Survey Pro pages.</p> <p>The Quick Pick Editor at the bottom of the Quick Pick menu is used to customize the list.</p>  | <div><div><p>Survey Pro</p></div><div><p>Job</p></div><div><p>Quick Pick Editor</p></div></div> | <p>Favorites enable user to create shortcuts to software screens, map controls, or to enable/disable an instrument or receiver function.</p> <p>User also can edit the Favorites on the "Favorites Edit" form.</p> <p>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.</p> | <div><div><p>Origin</p></div><div><p>Instrument functions</p></div><div><p>Instrument functions</p></div></div> |
|---|--|--|--|

| | | | |
|---|--|---|--|
| <p>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:</p> | <div> <div> </div> <div> </div> </div> | <p>Origin allows the Function Keys to be programmed.</p> <p>Functions Keys enable you to create shortcuts to software screens, map controls, or to enable/disable an instrument or receiver function.</p> <p>Press and hold the star at the top right of any form to assign it to a function key</p> <p>User can also define the Function Keys through Favorites > Edit</p> <p>Extra functions can be added by pressing the + symbol on unassigned function keys</p> | <div> <div> </div> <div> </div> <div> </div> <div> </div> </div> |
| | | | |
| | | | |

MAX+ (INTEGRATED SURVEY WORK MODE)

| | | | |
|---|---|---|--|
| <p>MAX+ means GNSS+ Robotics. Generally in Survey Pro, it will connect a GNSS receiver by Bluetooth and connect Robotic total station by radio.</p> <p>It relies on switching between Optical and GNSS mode by clicking the equipment icon to get the data from different sensor.</p> | <div><div><div>Survey Pro</div><div><div><div>File</div><div>Job</div><div>Survey</div><div>Stakeout</div><div>Inverse</div></div><div><div>Cogo</div><div>Curve</div><div>Roads</div><div>Adjust</div><div>DTM</div></div></div><div><div>Equipment icon</div><div>Optical</div><div>GNSS</div></div></div><div><div><div>File</div><div>Job</div><div>Survey</div><div>Stakeout</div><div>Inverse</div></div><div><div>Cogo</div><div>Curve</div><div>Roads</div><div>Adjust</div><div>DTM</div></div><div><div>✓ F35</div><div>Manual Mode</div><div>Manage Instruments...</div><div>✓ Optical</div><div>Switch to GNSS</div><div>Switch to Leveling</div></div></div></div> | <p>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.</p> <p>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.</p> <p>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.</p> <p>Tap the Status bar (where the precisions are displayed) to switch between optical and GNSS</p> | <div><div><div>Survey Styles</div><div>Templates</div><div>Connections</div><div>Feature Libraries</div><div>Language</div><div>Sound & vibration</div></div><div><div>Conventional</div><div>FOCUS 35</div><div>Prism to antenna offset</div><div>0.057m</div><div>Road stakeout</div><div>Precise elevation</div></div><div><div>GNSS</div><div>RTK</div></div><div><div>Accept</div></div></div> <div><div><div>1:32</div><div>14/05</div><div>60%</div><div>5</div><div>1.500</div><div>11</div><div>2.000</div><div>HA:43°40'31" VA:83°06'12"</div></div><div><div>FS1</div><div>PREV11</div><div>DEV10</div><div>DEV9</div><div>DEV8</div><div>DEV7</div><div>DEV6</div><div>DEV5</div><div>DEV4</div><div>DEV3</div><div>DEV2</div><div>DEV1</div></div><div><div>Measure</div></div></div> |
|---|---|---|--|

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.

Station Setup

+ Resect Point:

Option: Distance and Angle

HR: 1

Point H V Desc dHD dHA N E Elev. H

Choose from list...

Choose from map...

Create new point...

Occupy GNSS Point...

Show point details...

Zoom to point...

No solution yet...

< Back

Observe

Next >

Station Setup

Setup Type: Known Point

+ Occupy Point:

2D Survey (Ignore Elevations)

Information:

N: ---

E: ---

Elev: ---

HI: 1.1

Choose from list...

Choose from map...

Create new point...

Occupy GNSS Point...

Show point details...

Zoom to point...

Next >

Station Setup

Setup Type: Multiple Backsights

+ Occupy Point:

2D Survey

N: ---

E: ---

Elev: ---

HI: 1.5

Choose from list...

Choose from map...

Create new point...

Occupy GNSS Point...

Sequence: Direct Only

of Sets: 1

Show point details...

Zoom to point...

Next >

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

Station setup

RTK

FOCUS 35

MAX+

Station setup plus

Resection

Refine

Use last (23h ago)

VA83°05'59"

DEV6

DEV5

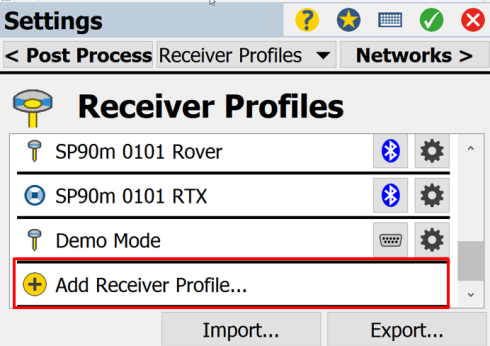
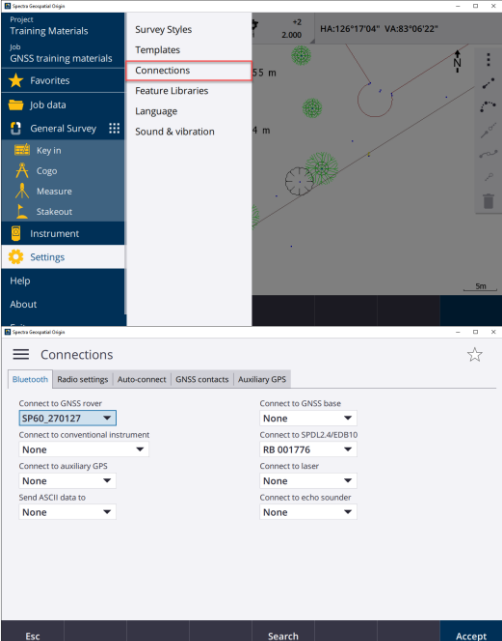
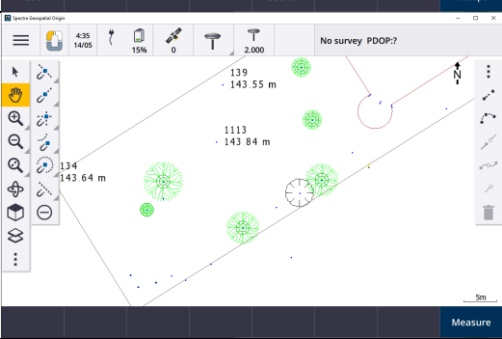
DEV4

DEV3

DEV2

BBV/1

CONNECTING TO THE RECEIVER WITH BLUETOOTH

| | | | |
|---|---|---|---|
| <p>Adding new GNSS receiver: Settings > Add new Receiver Profile</p> |  <p>Settings Receiver Profiles</p> <ul style="list-style-type: none"> SP90m 0101 Rover SP90m 0101 RTX Demo Mode Add Receiver Profile... <p>Import... Export...</p> | <p>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.</p> <p>Select Settings > Connections > Bluetooth</p> <p>Or tap the flashing instrument icon and select the Bluetooth tab</p> |  <p>Origin Connections</p> <p>Bluetooth settings:</p> <ul style="list-style-type: none"> Connect to GNSS rover: SP60_270127 Connect to conventional instrument: None Connect to auxiliary GPS: None Send ASCII data to: None Connect to GNSS base: None Connect to SPDL2.4/EDB10: RB 001776 Connect to laser: None Connect to echo sounder: None |
| | | <p>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</p> |  <p>Origin Connections</p> <p>Bluetooth settings:</p> <ul style="list-style-type: none"> Connect to GNSS rover: SP60_270127 Connect to conventional instrument: None Connect to auxiliary GPS: None Send ASCII data to: None Connect to GNSS base: None Connect to SPDL2.4/EDB10: RB 001776 Connect to laser: None Connect to echo sounder: None |

Configuring GNSS Network:
Settings > Networks
> Add Network

Survey Pro

Settings

< Receiver P... Networks Post Process >

Networks

test

waw

+ Add Network...

Address: **system.asgeupos.pl : 8080**

SP60 0103 Net

< Survey Modem General >

Data Modem: **Current Internet**

Use your data collector's default internet connection.

Manage Connections...

Definition of Internet connection for Network Corrections: use internet access in the data collector

SP80 0012 Rover

< Survey Modem General >

Data Modem: **Internal GPRS Modem**

APN: VO

User Name:

Password:

SIM PIN: 1234 2G/3G: Automatic (2G or :)

Power: Automatic ON OFF

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).

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.

Origin

Project Training Materials

GNSS training materials

Survey Styles

Templates

Connections

Feature Libraries

Language

Sound & vibration

Connections

| Name | Details | Type |
|------------|---------------------|----------------|
| My Network | SP85 internal modem | Internet rover |

Esc New Delete Copy Internet setup Edit

Edit GNSS contact

Network connection Corrections

GNSS contact name

Through DC

Network connection **Controller Internet**

Esc Store

Edit GNSS contact

Network connection Corrections

NTRIP Configuration

Use RTK (Internet) ☐ No ☐ Yes

Use NTRIP v1.0 ☐ No ☐ Yes

Connect directly to Mountpoint ☐ No ☐ Yes

NTRIP username: trimble/ps

IP Address: system.asgeupos.pl IP Port: 8080

Send user identity info ☐

Esc Store

Network connection

Network connection

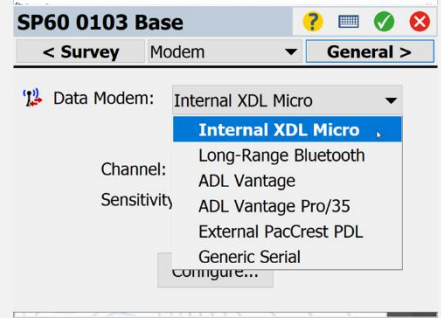
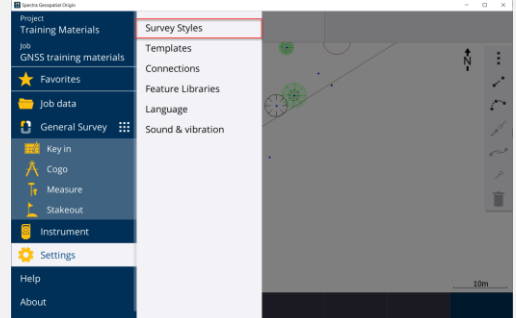
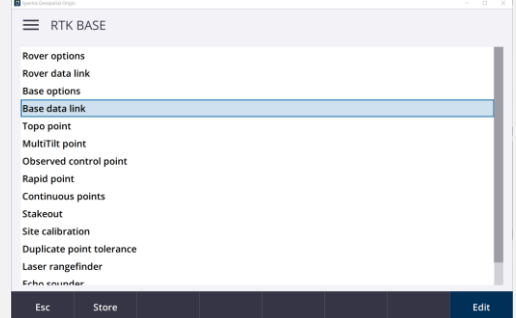
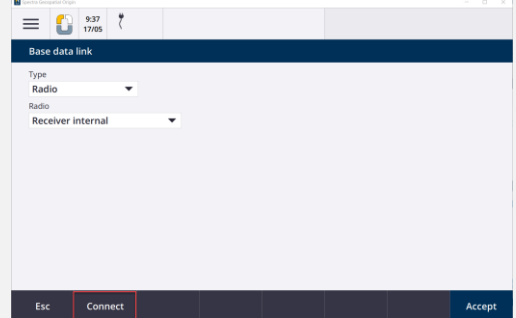
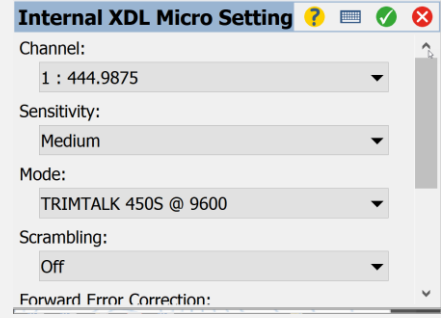
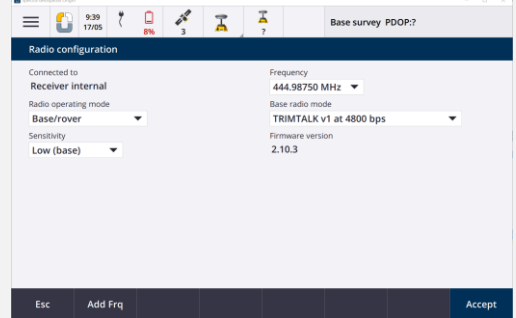
Controller Internet

SP85 internal modem

Esc Add Edit Delete Config Accept

| | | | |
|--|---|---|--|
| | <div><p>SP80 0012 Rover</p><p>< Survey Modem General ></p><p>Data Modem: Internal GPRS Modem</p><p>APN: vodafone</p><p>User Name:</p><p>Password:</p><p>SIM PIN: 1234 2G/3G: Automatic (2G or 3G) Power: Automatic ON OFF</p></div> | <p>GSM Networks require three parameters which are usually published widely on the internet:</p> <p>APN Server APN Username APN Password</p> <p>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.</p> <p>In comparison to Survey Pro, Origin requires a proper number to be entered.</p> | <div><p>Create new network connection</p><p>Name: Bluetooth modem</p><p>APN: Number to dial</p><p>Username: Password</p><p>Esc Config Accept</p></div> <div><p>Edit network connection</p><p>Name: SP85 internal modem</p><p>APN: Internet</p><p>Username: Internet</p><p>Esc Config Accept</p></div> |
|--|---|---|--|

CONFIGURING INTERNAL UHF MODEM FOR BASE SETUP

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

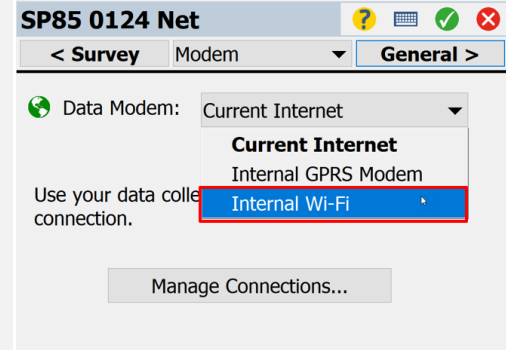
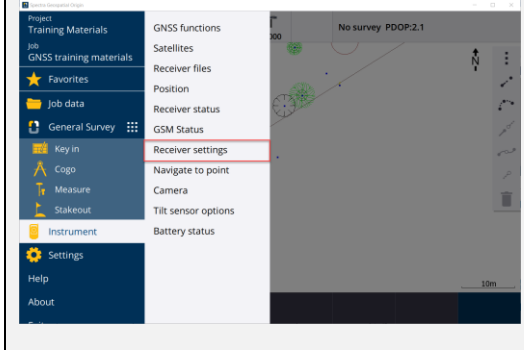
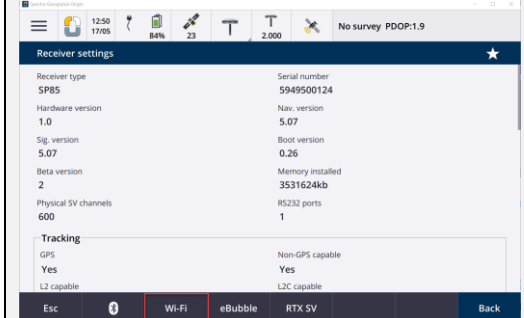
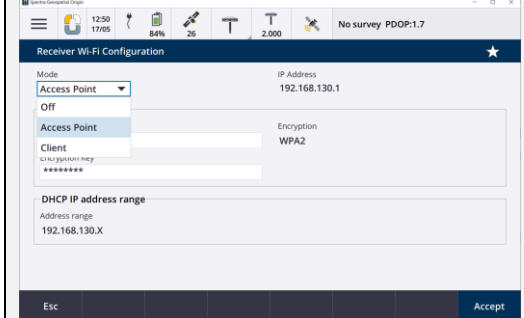
CONFIGURING INTERNAL UHF MODE FOR ROVER SETUP

| | | | |
|--|--|---|--|
| <p>Rover: Internal UHF Setup: Receiver type Rover > Settings > Modem tab > Internal XDL Micro</p> | <div><div>Survey Pro</div><div>SP60 0103 Rover</div><div><div>< Survey</div><div>Modem</div><div>General ></div></div><div><div>Data Modem:</div><div>Internal XDL Micro</div><div>Internal XDL Micro</div></div><div><div>Channel:</div><div>Long-Range Bluetooth</div></div><div><div>Sensitivity</div><div>External XDL Rover</div></div><div><div></div><div>ADL Vantage</div></div><div><div></div><div>ADL Vantage Pro/35</div></div><div><div></div><div>External PacCrest PDL</div></div><div><div></div><div>Generic Serial</div></div></div> | <p>Set this up within the same RTK Survey style as the base.</p> <p>Go to setting > Survey Styles and edit your RTK Survey Style</p> <p>Within the survey style go to Rover Data link</p> | <div><div>Origin</div><div><div>Project</div><div>Training Materials</div><div>GNSS training materials</div><div>Favorites</div><div>Job data</div><div>General Survey</div><div>Key in</div><div>Cogo</div><div>Measure</div><div>Stakeout</div><div>Instrument</div><div>Settings</div><div>Help</div><div>About</div></div><div><div>Survey Styles</div><div>Templates</div><div>Connections</div><div>Feature Libraries</div><div>Language</div><div>Sound & vibration</div></div><div></div></div> |
| | | <p>Choose Radio and select either the Receiver's internal radio or an external radio</p> | <div><div>RTK BASE</div><div><div>Rover options</div><div>Rover data link</div><div>Base options</div><div>Base data link</div><div>Topo point</div><div>MultiTilt point</div><div>Observed control point</div><div>Rapid point</div><div>Continuous points</div><div>Stakeout</div><div>Site calibration</div><div>Duplicate point tolerance</div><div>Laser rangefinder</div></div><div><div>Esc</div><div>Store</div><div>Edit</div></div></div> |
| | <div><div>Internal XDL Micro Setting</div><div><div>Channel:</div><div>1 : 444.9875</div></div><div><div>Sensitivity:</div><div>Medium</div></div><div><div>Mode:</div><div>TRIMTALK 450S @ 9600</div></div><div><div>Scrambling:</div><div>Off</div></div><div><div>Forward Error Correction:</div></div></div> | <p>When connected to the rover receiver, select the connect softkey to edit the radio configuration settings</p> <p>Now when you need to enter rover mode, you can go to measure and select your RTK survey style and then measure points</p> | <div><div>Rover data link</div><div><div>Type</div><div>Radio</div><div>Radio</div><div>Receiver internal</div></div><div><div>Esc</div><div>Connect</div><div>Accept</div></div></div> <div><div>Radio configuration</div><div><div>Connected to</div><div>Receiver internal</div><div>Radio operating mode</div><div>Base/rover</div><div>Sensitivity</div><div>Low (base)</div></div><div><div>Frequency</div><div>444.98750 MHz</div><div>433.25000 MHz</div><div>433.50000 MHz</div><div>440.00000 MHz</div><div>441.00000 MHz</div><div>450.00000 MHz</div></div><div><div>bps</div></div><div><div>Esc</div><div>Add Frq</div><div>Accept</div></div></div> |

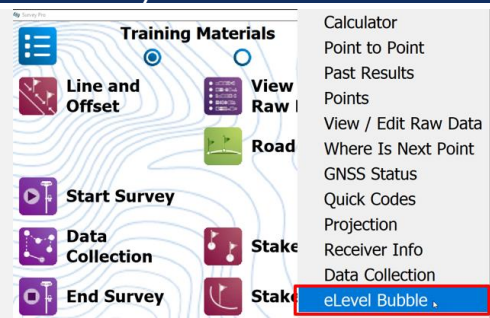
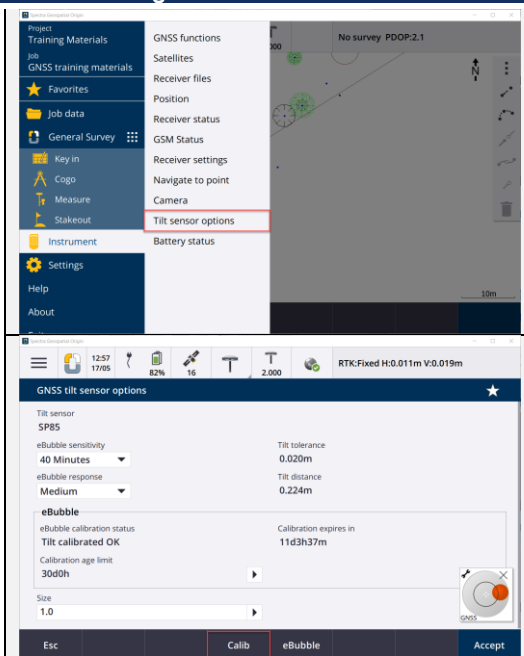
CONFIGURING RTX (L-BAND AND IP BASED CONNECTION)

| <p>In Survey Pro, user Adds a new Receiver Profile and if RTX option in the receiver is activated, the RTX profile becomes available.</p> <p>Just select RTX receiver profile in the Start Survey.</p> | <div><div><div>Survey Pro</div><div>Connect to Receiver</div><div>Select Receiver Profile:</div><div><div>SP60 0127 Net</div><div>SP60 0127 Rover</div><div>SP60 0127 RTX</div><div>SP80 0023 Net</div></div><div>Connect ></div></div></div> | <p>In Origin, user needs to create or edit a pre-defined RTK Survey Style to configure a receiver to receive RTX corrections</p> | <div><div><div>Origin</div><div>Survey Styles</div><div>Templates</div><div>Connections</div><div>Feature Libraries</div><div>Language</div><div>Sound & vibration</div></div><div><div>Survey Styles</div><div><table><tr><th>Name</th><th>Modified</th></tr><tr><td>FOCUS 35</td><td>13/5/2021</td></tr><tr><td>MAX+</td><td>14/5/2021</td></tr><tr><td>RTK</td><td>17/5/2021</td></tr></table></div><div>New</div></div></div> | Name | Modified | FOCUS 35 | 13/5/2021 | MAX+ | 14/5/2021 | RTK | 17/5/2021 |
|--|--|--|--|------|----------|----------|-----------|------|-----------|-----|-----------|
| Name | Modified | | | | | | | | | | |
| FOCUS 35 | 13/5/2021 | | | | | | | | | | |
| MAX+ | 14/5/2021 | | | | | | | | | | |
| RTK | 17/5/2021 | | | | | | | | | | |
| | | <p>Go to Settings > Survey Styles</p> | | | | | | | | | |
| | | <p>Rover Options</p> | | | | | | | | | |
| | | <p>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.</p> | <div><div><div>RTX</div><div><div>Rover options</div><div>Rover data link</div><div>Base options</div><div>Base data link</div><div>Topo point</div><div>MultiTilt point</div><div>Observed control point</div><div>Rapid point</div><div>Continuous points</div><div>Stakeout</div><div>Site calibration</div><div>Duplicate point tolerance</div><div>Laser rangefinder</div></div><div>Store</div></div><div><div>Rover options</div><div>Survey type: RTK</div><div>Antenna: Type ASH-111661</div><div>Antenna height: ?</div><div>Serial number: ?</div><div>Tilt: IMU tilt compensation</div><div>Elevation mask: 10°</div><div>Broadcast format: RTX (SV)</div><div>RTCM RTK</div><div>CMR</div><div>CMR+</div><div>CMRx</div><div>FKP (RTCM)</div><div>VRS (RTCM)</div><div>VRS (CMR)</div><div>Multi station (RTCM)</div><div>Multi station (CMR)</div><div>RTCM3Net</div><div>RTK (Internet)</div><div>RTX (SV)</div><div>Accept</div></div></div> | | | | | | | | |

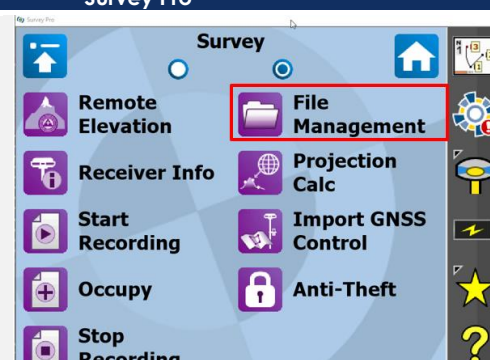
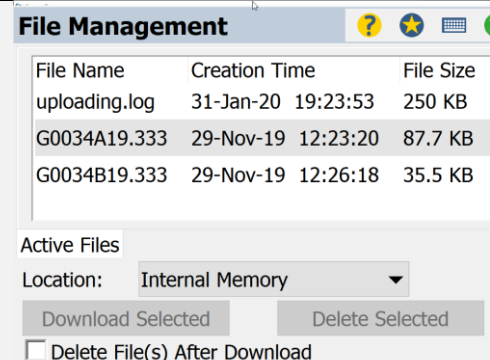
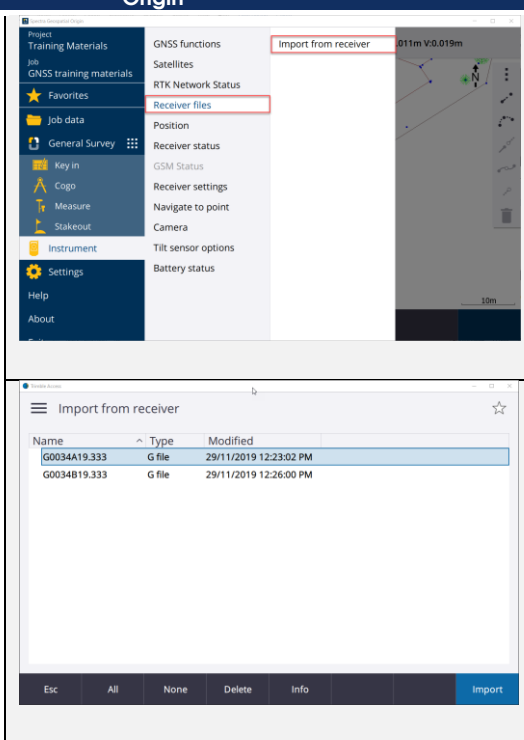
CONNECTING TO RECEIVERS INTERNAL Wi-Fi

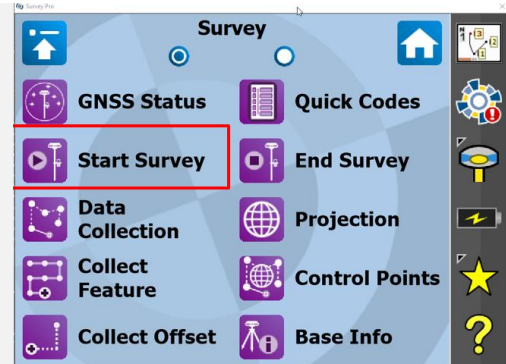
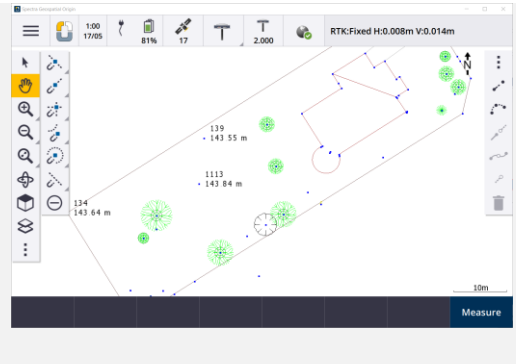
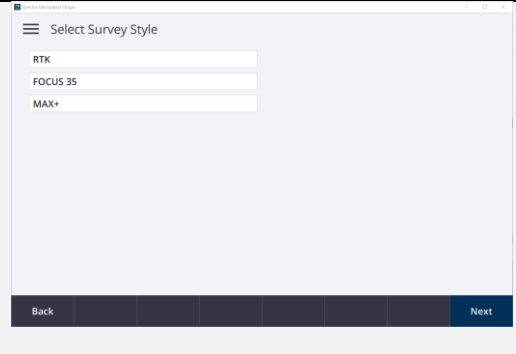
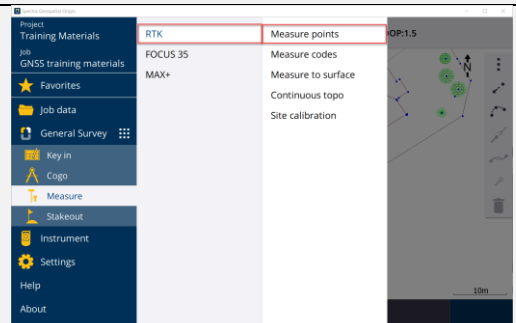
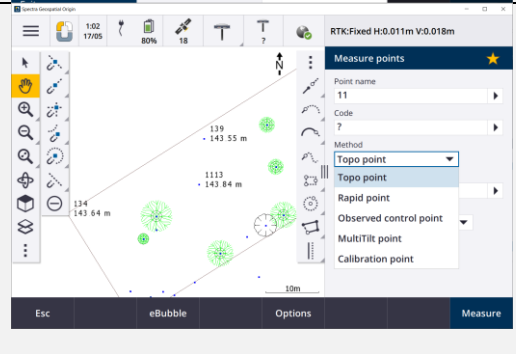
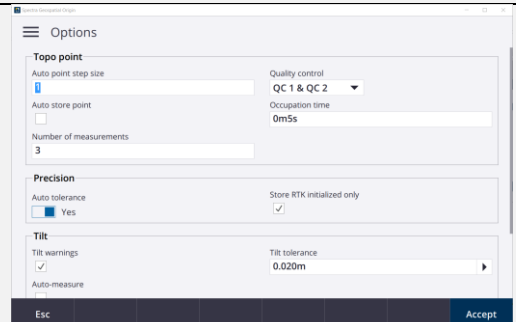
| Survey Pro | | Origin | |
|---|---|--|--|
| Setting up Wi-Fi modem in Survey Pro: receiver profile Settings > Modem tab > Internal Wi-Fi. |  | To setup Wi-Fi connection in Origin, select Instrument > Receiver Settings |  |
| | | | |
| | | | |
| | | Select Wi-Fi |  |
| | | Define Wi-Fi connection parameters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

eBUBBLE SETTINGS AND CALIBRATION

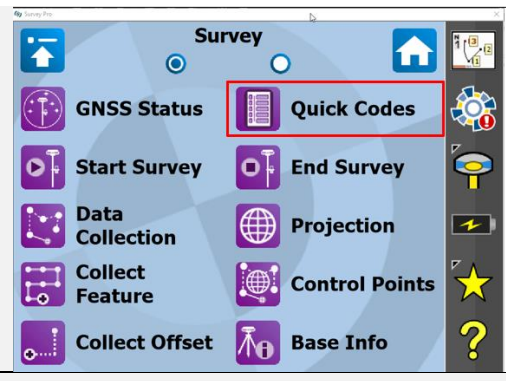
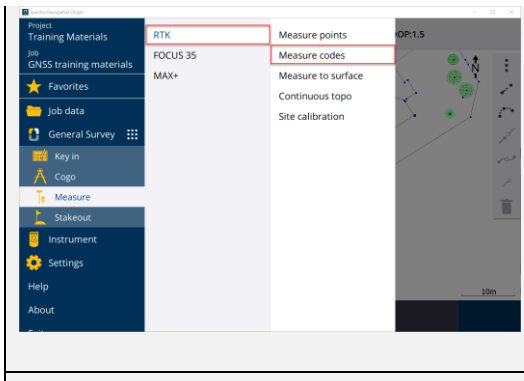
| Survey Pro | | Origin | |
|---------------------------------|---|---|---|
| Quick Pick menu > eLevel Bubble |  | <p>To setup eBubble parameters and calibrate it, select Instrument > Tilt sensor options</p> <p>Note: If the eBubble is out of calibration and eBubble has been selected in the Survey Style,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

RECEIVER'S DATA DOWNLOAD

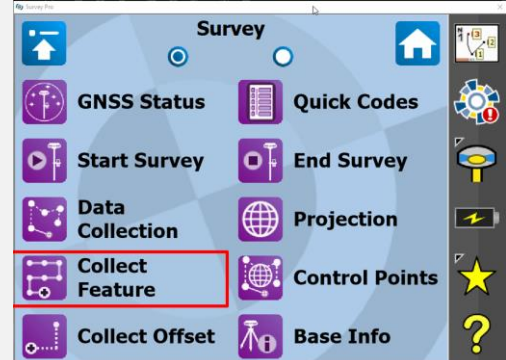
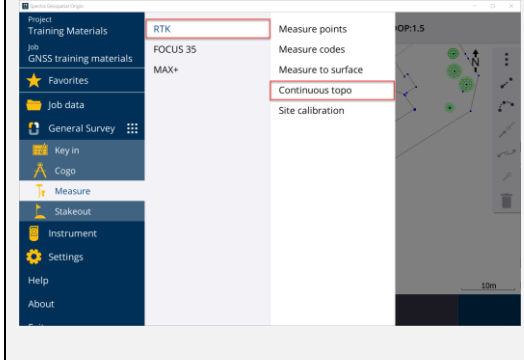
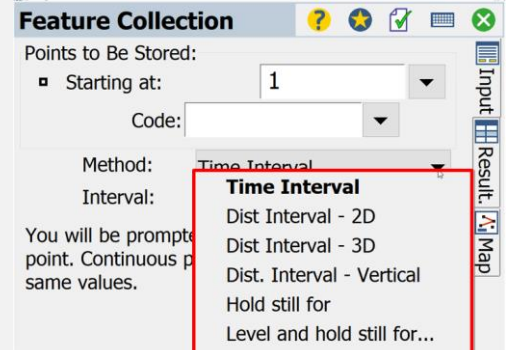
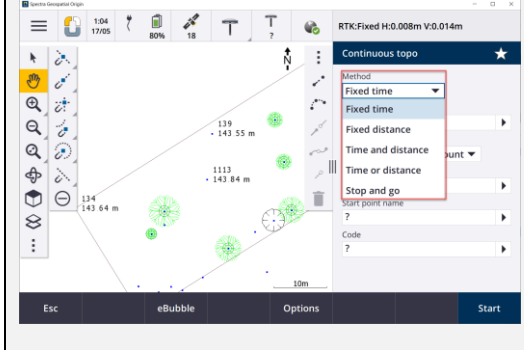
| Survey Pro | | Origin | | | | | | | | | | | | | |
|--|---|-----------|---------------|-----------|---------------|--------------------|--------|--------------|--------------------|---------|--------------|--------------------|---------|--|--|
| Survey > (second page) > File Management |   <table border="1"> <thead> <tr> <th>File Name</th> <th>Creation Time</th> <th>File Size</th> </tr> </thead> <tbody> <tr> <td>uploading.log</td> <td>31-Jan-20 19:23:53</td> <td>250 KB</td> </tr> <tr> <td>G0034A19.333</td> <td>29-Nov-19 12:23:20</td> <td>87.7 KB</td> </tr> <tr> <td>G0034B19.333</td> <td>29-Nov-19 12:26:18</td> <td>35.5 KB</td> </tr> </tbody> </table> <p>Active Files Location: Internal Memory Download Selected Delete Selected <input type="checkbox"/> Delete File(s) After Download</p> | File Name | Creation Time | File Size | uploading.log | 31-Jan-20 19:23:53 | 250 KB | G0034A19.333 | 29-Nov-19 12:23:20 | 87.7 KB | G0034B19.333 | 29-Nov-19 12:26:18 | 35.5 KB | <p>Connect the data collector to the GNSS receiver</p> <p>Select: Instrument > Receiver files > Import from receiver</p> <p>Select file(s) that should be imported to the Data Collector and press Import.</p> |  |
| File Name | Creation Time | File Size | | | | | | | | | | | | | |
| uploading.log | 31-Jan-20 19:23:53 | 250 KB | | | | | | | | | | | | | |
| G0034A19.333 | 29-Nov-19 12:23:20 | 87.7 KB | | | | | | | | | | | | | |
| G0034B19.333 | 29-Nov-19 12:26:18 | 35.5 KB | | | | | | | | | | | | | |

| Survey Pro | Origin |
|---|--|
| <p>Survey > Start Survey</p>  <p>The 'Start Survey' button is highlighted with a red box.</p> | <p>From the Map screen select Measure</p>  <p>The 'Measure' button is visible at the bottom right of the map screen.</p> |
| <p>Connect to Receiver</p> <p>Select Receiver Profile:</p> <ul style="list-style-type: none"> SP60 012/ R1X SP80 0023 Net SP80 0023 Net Base SP80 0023 Rover <p>Modem: Internal XDL Micro</p> <p>Channel: 1</p> <p>Connect ></p> | <p>Choose Survey Style which should be used for this.</p>  <p>The 'Select Survey Style' screen shows options like RTK, FOCUS 35, and MAX+.</p> |
| <p>Data Collection</p> <p>Network Fixed 1.0 s 22</p> <p>Northing: 5,768,687.596 0.017</p> <p>Easting: 7,475,744.780 0.022</p> <p>Elevation: 144.586 PDOP: 1.0</p> <p>Point: 1</p> <p>Code: </p> <p>Set HR 2.000 m : Vertical</p> <p>Topo SS Point Offset</p> | <p>Alternatively select Measure > Survey Style (SP85 Network Rover as example here) > Measure feature</p>  <p>The 'Measure' screen shows a list of methods including Topo point, Rapid point, and Observed control point.</p> |
| <p>Data Collection</p> <p>Network Fixed 1.0 s 22</p> <p>Northing: 5,768,687.596 0.017</p> <p>Easting: 7,475,744.780 0.022</p> <p>Elevation: 144.586 PDOP: 1.0</p> <p>Point: 1</p> <p>Code: </p> <p>Set HR 2.000 m : Vertical</p> <p>Topo SS Point Offset</p> | <p>Select Method to measure Topo point or Rapid Point.</p>  <p>The 'Measure' screen shows a list of methods including Topo point, Rapid point, and Observed control point.</p> |
| <p>Data Collection</p> <p>Network Fixed 1.0 s 22</p> <p>Northing: 5,768,687.596 0.017</p> <p>Easting: 7,475,744.780 0.022</p> <p>Elevation: 144.586 PDOP: 1.0</p> <p>Point: 1</p> <p>Code: </p> <p>Set HR 2.000 m : Vertical</p> <p>Topo SS Point Offset</p> | <p>Origin has these related Survey Pro 2 modes combined into one Map measure mode.</p> <p>Select Options to temporarily modify the measurement criteria. (For permanent changes, edit the RTK Survey Style.)</p>  <p>The 'Options' screen shows settings for Topo point, Precision, and Tilt.</p> |

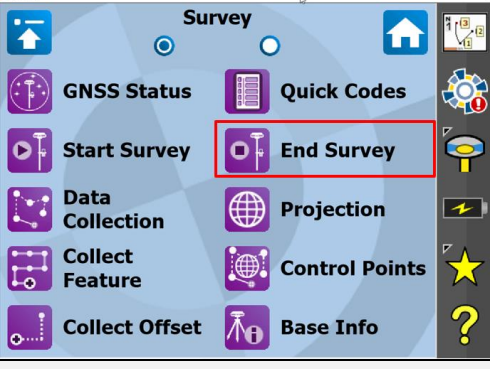
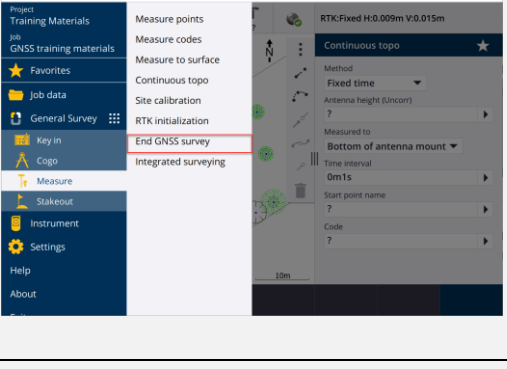
QUICK CODES AND MEASURE WITH CODES

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

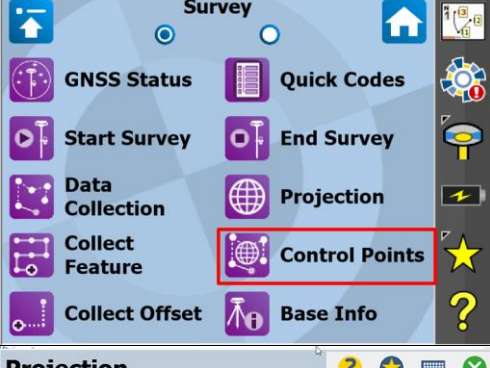
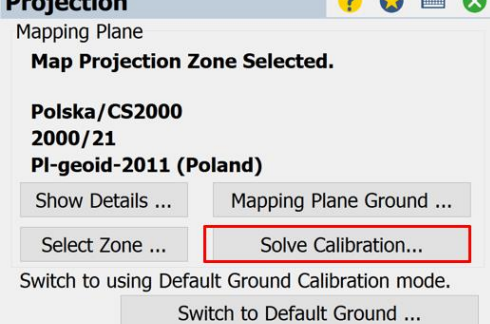
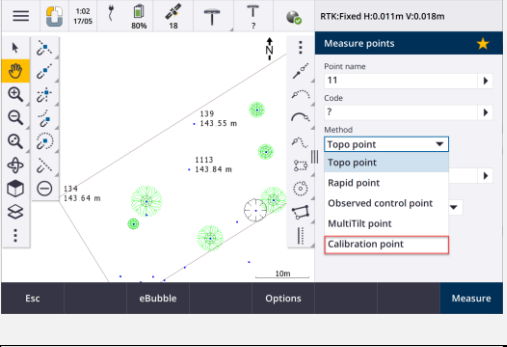
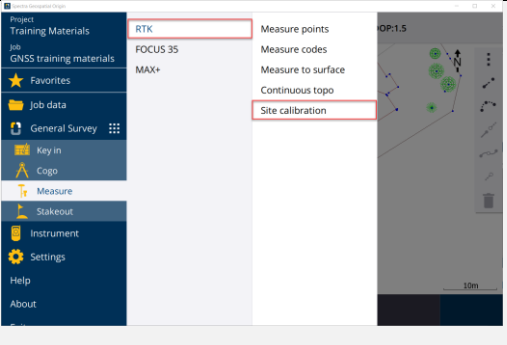
SURVEY > COLLECT FEATURE

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

CLOSING SURVEY

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

MEASURE CONTROL POINTS

| Survey Pro | Survey | Origin |
|---|---|---|
| Survey > Control Points Projection > Solve Calibration |   | 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 Select Measure > Site Calibration |
| Origin | |   |

POST-PROCESSING DATA RECORDING

Survey > (second page) > Start Recording

Collecting PP data > Occupy

Occupying PP point.

Survey Pro

Survey

Remote Elevation

Receiver Info

Start Recording

Occupy

Stop Recording

File Management

Projection Calc

Import GNSS Control

Anti-Theft

Home

Help

Star

Question

Static Receiver Session

1 sec

0:15

17

HDOP: 0.7

Point: 1

Code:

Antenna: SPP101861

Set HR 1.500 m to: Bottom of antenna mount

Start

End Survey

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.

Select Measure > defined PP Survey Style

Define point parameters.

Origin

Rover options

Survey type: RTK

RTK & logging: FastStatic

PP kinematic

RT differential

Satellite differential: Off

Elevation mask: 10°

PDOP mask: 6.0

Broadcast format: CMRx

Measured to: Bottom of antenna mount

Part number: 118893-00

Esc

Accept

Project Training Materials

GNSS training materials

Favorites

Job data

General Survey

Key in

Cogo

Measure

Stakeout

Instrument

Settings

Help

About

PP Collection

RTK

FOCUS 35

MAX+

No survey PDOP:1.3

FastStatic PDOP:2.1

Measure points

Point name: 1

Code:

Method: FastStatic point

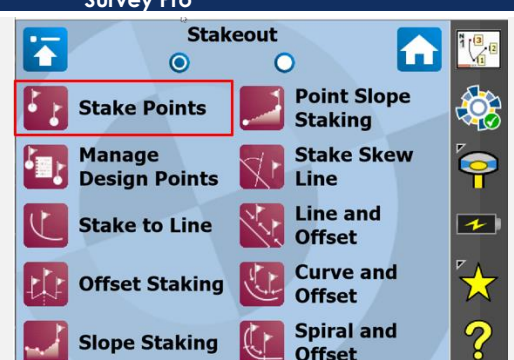
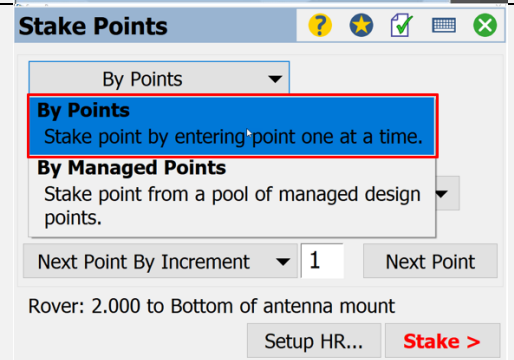
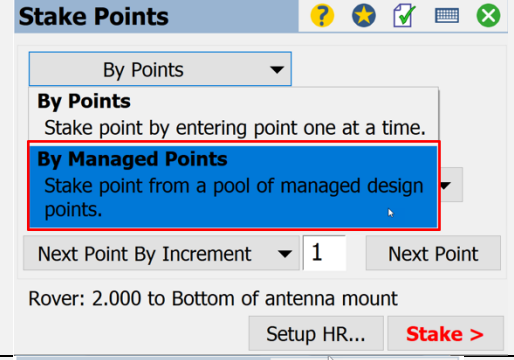
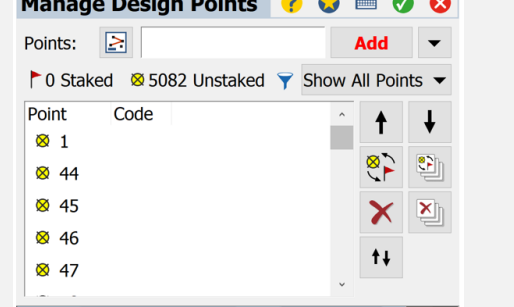
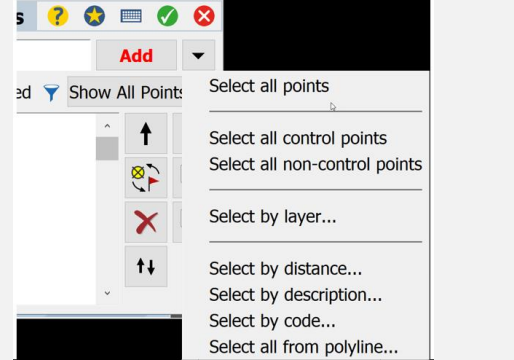
Antenna height (Uncorr): 1.600m

Measured to: Bottom of antenna mount

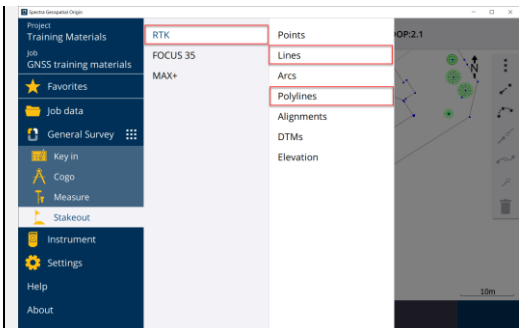
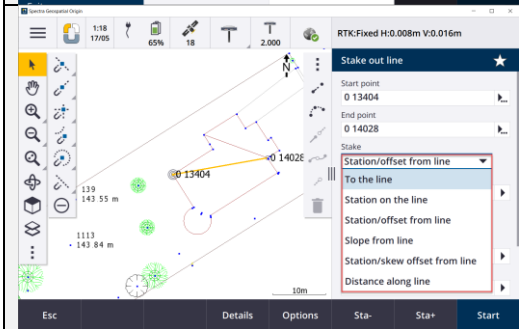
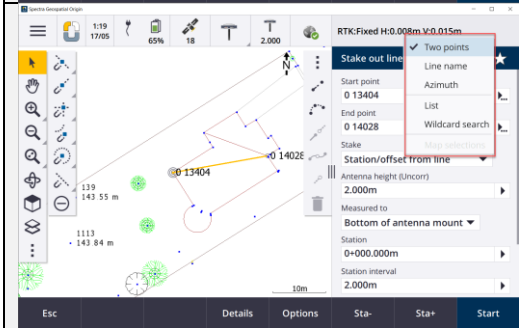
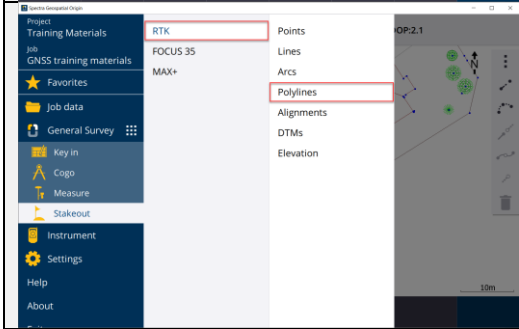
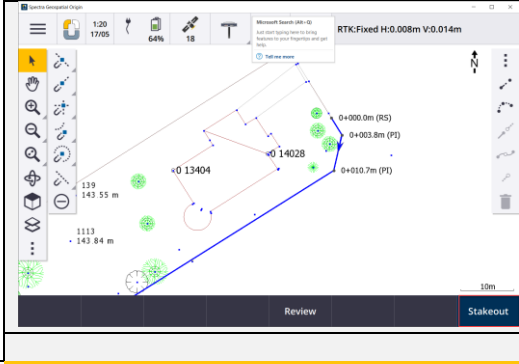
Occupation time: 0h7m26s

45

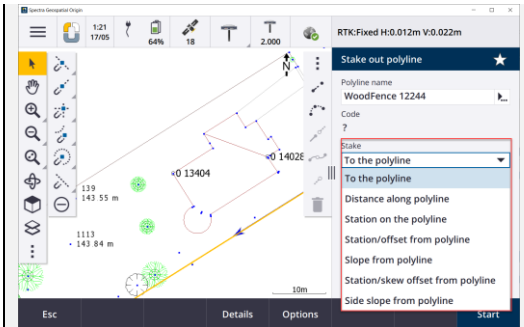
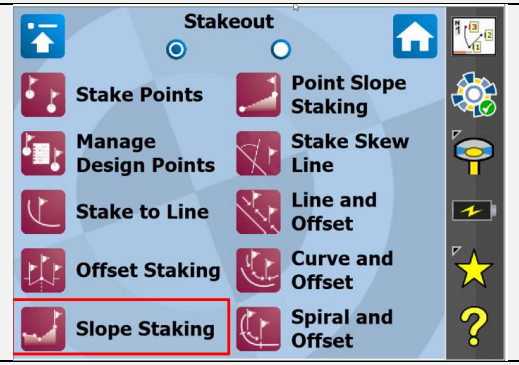
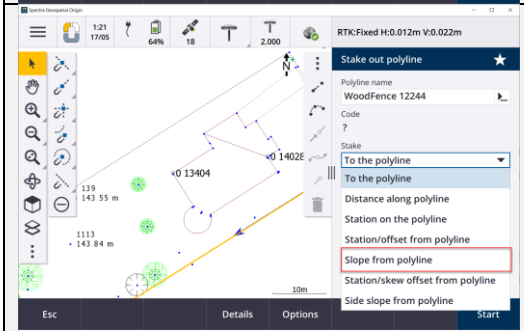
STAKEOUT POINTS

| | Survey Pro | Origin |
|---|--|---|
| Stakeout > Stake Points |  <p>The Survey Pro Stakeout menu is located at the top of the application. It contains several options: Stake Points (highlighted with a red box), Manage Design Points, Stake to Line, Offset Staking, Slope Staking, Point Slope Staking, Stake Skew Line, Line and Offset, Curve and Offset, and Spiral and Offset.</p> | Stakeout > Stake Points |
| Selecting single point for Stakeout. |  <p>The Stake Points dialog in Survey Pro has a 'By Points' dropdown menu. A red box highlights the 'By Points' option, and a blue box highlights the text 'Stake point by entering point one at a time.' Below this, there is a 'By Managed Points' option with the description 'Stake point from a pool of managed design points.' At the bottom, there are fields for 'Next Point By Increment' (set to 1) and 'Next Point', a 'Rover: 2.000 to Bottom of antenna mount' note, and buttons for 'Setup HR...' and 'Stake >'.</p> | 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. |  <p>This is another view of the Stake Points dialog in Survey Pro, identical to the previous one, showing the 'By Points' and 'By Managed Points' options.</p> | To create a list of points for stakeout select List. |
| Create list of Stakeout Points Stakeout > Manage Design Points |  <p>The Manage Design Points dialog in Survey Pro shows a list of points. At the top, there is an 'Add' button (highlighted with a red box) and a dropdown menu. Below the list, there are several selection options: 'Select all points', 'Select all control points', 'Select all non-control points', 'Select by layer...', 'Select by distance...', 'Select by description...', 'Select by code...', and 'Select all from polyline...'.</p> | Tap points on Map to create a list. |
| For advanced point selection extend the drop-down menu. |  <p>This is another view of the Manage Design Points dialog in Survey Pro, showing the 'Add' button and the dropdown menu.</p> | Select Add from the Point List (previous screen) for advanced point selection. |

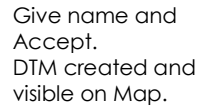
STAKEOUT LINES

| Survey Pro | Origin |
|--|---|
| <p>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.</p> |  |
| <p>Stake to Line and Line and Offset stakeout.</p> | <p>During Stakeout > Lines or Polyline select the desired stakeout routine from the Stake drop-down menu.</p>  |
| <p>Line defined by 2 points.</p> | <p>Extend the menu of Line name and select line definition option.</p>  |
| <p>Choose Stake to Line or Line and Offset</p> | <p>Select Stakeout > Polyline</p>  |
| <p>Select the Polyline option.</p> | <p>To select polyline for stakeout, select List, then arrow icon from the Map screen and select the polyline object to Stakeout</p> <p>Alternatively select the line in the map, tap and hold and select stakeout</p>  |

STAKEOUT SLOPES

| Survey Pro | | Origin | |
|---------------|---|--|---|
| Slope Staking | | During Stakeout > Lines or Polyline select the desired stakeout routine from the Stake drop-down menu. |  |
| |  | From Stakeout setup screen extend Stake drop-down menu and select Slope from Line (Polyline) |  |

49

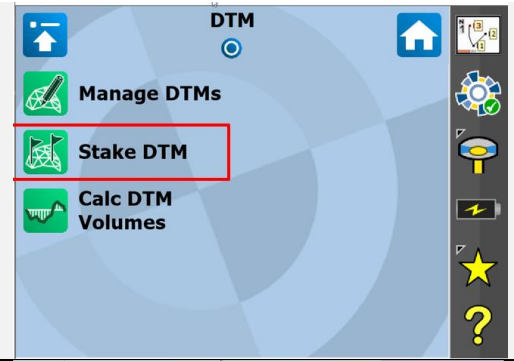


DTM STAKEOUT

Go to DTM > Stake DTM

Select DTM for Stakeout

Survey Pro



DTM

Manage DTMs

Stake DTM

Calc DTM Volumes

Stake DTM

Surface: Selection

☐ With Centerline

Choose Centerline...

☐ Add Vertical Offset

0.0 m

Rover: 0.000 to Bottom of antenna mount

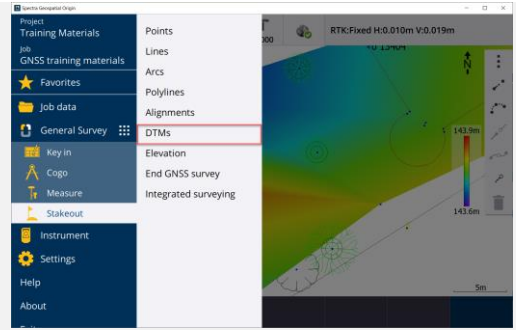
Setup HR Next >

Origin

Stakeout > DTMs

Select DTM to Stakeout to and Start

DTM Stakeout screen.



Points

Lines

Arcs

Polylines

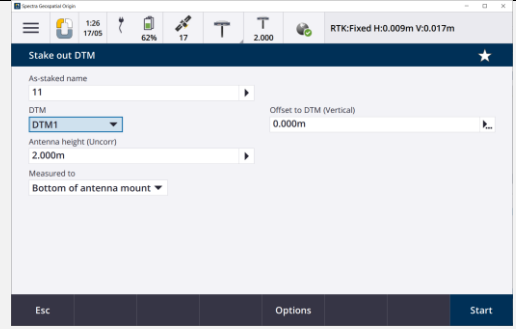
Alignments

DTMs

Elevation

End GNSS survey

Integrated surveying



Stake out DTM

As-staked name: 11

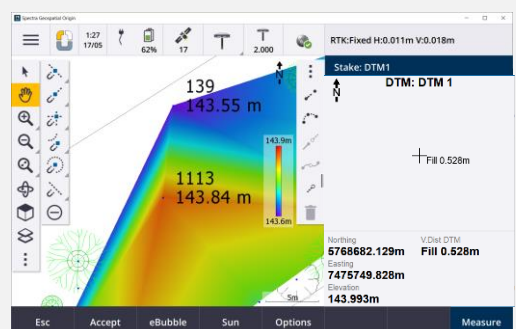
DTM: DTM1

Offset to DTM (Vertical): 0.000m

Antenna height (Uncorr): 2.000m

Measured to: Bottom of antenna mount

Esc Options Start



Stake: DTM1

DTM: DTM 1

Fill 0.528m

Nothing V/Dist DTM

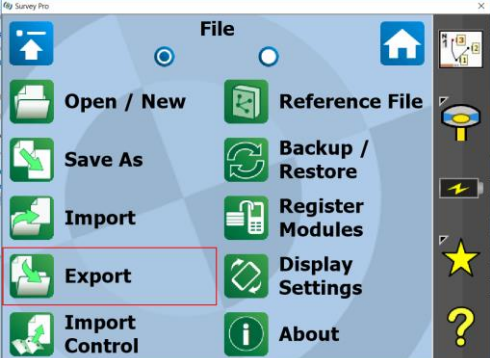
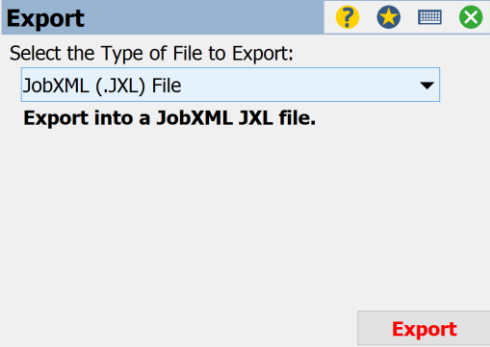
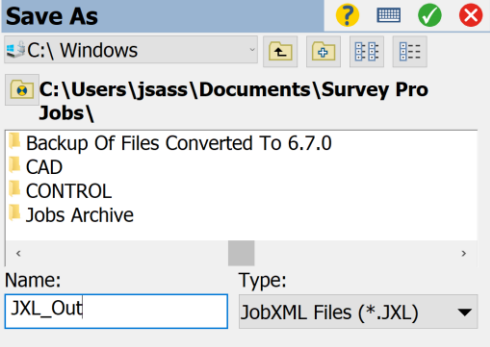
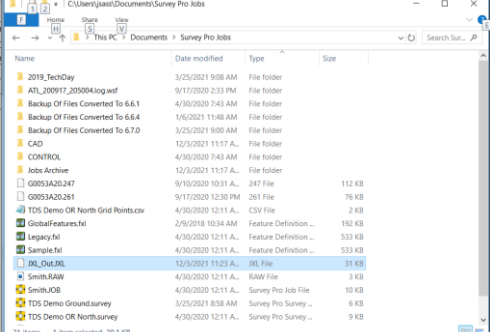
Easting 7475749.828m

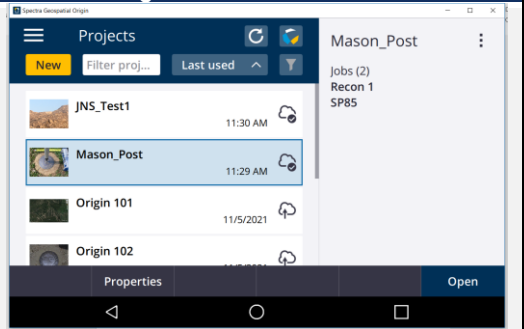
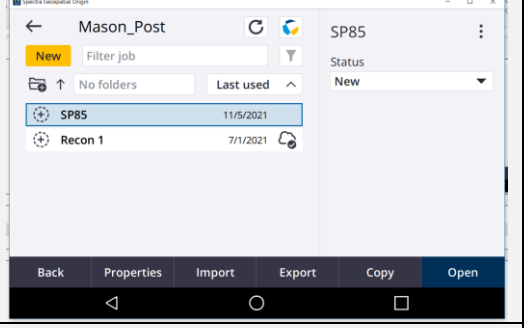
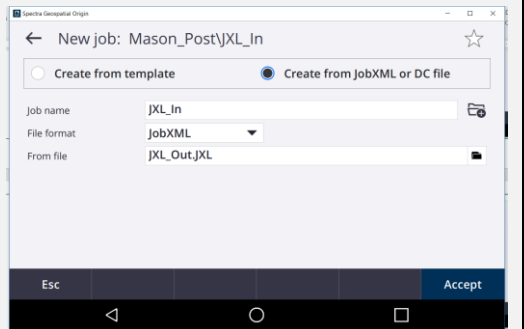
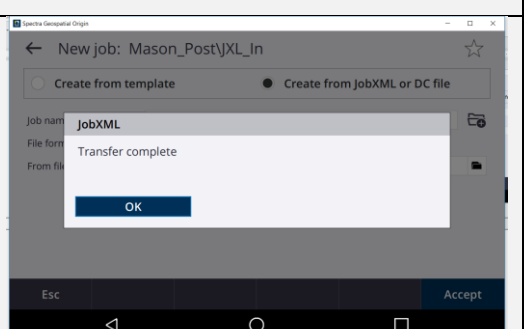
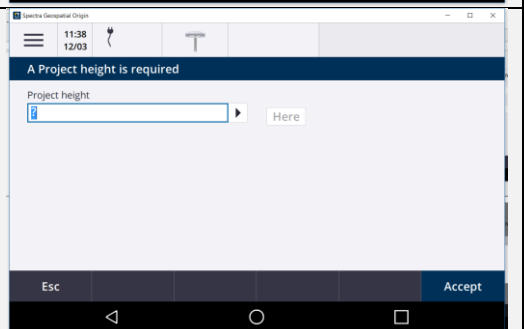
Elevation 143.993m

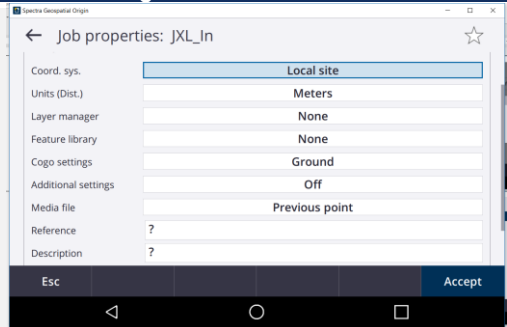
Esc Accept eBubble Sun Options Measure

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

| 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 |
|------------|--|--|
| | | <p>Tap Local site to view coordinate system properties</p> <p>Tap Accept to complete the import</p>  |

Need More Help? Contact Precision Laser & Instrument, Inc.!

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