

# Release Notes

CIVIL CONSTRUCTION

24 MAY 2023

## TRIMBLE SITEWORKS SOFTWARE VERSION 1.60



This document contains late-breaking product information, updates, and troubleshooting tips not covered in the Trimble® Siteworks Software documentation.

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### Introduction

Trimble Civil Construction is pleased to announce the release of version 1.60 of Trimble Siteworks Software. Version 1.60 is available, at no charge, to all users under an active software Trimble Protection Plan with an effective date of April 30, 2023 or later. It is a purchasable upgrade for all users without an active Trimble Protection Plan. Siteworks and its modules are loaded through Trimble Installation Manager (TIM), which can be downloaded at [install.trimble.com](https://install.trimble.com)

<https://community.trimble.com>

Siteworks and Trimble SCS900 Site Controller Software Licenses from controllers that have an active software Trimble Protection Plan are able to be relinquished and transferred onto new controllers via TIM (note that license transfer is not available from SiteMobile devices or for SCS900 v2.X). Please contact your SITECH® dealer for license transfers.

Siteworks version 1.60 is available for operation on the following Trimble site controllers running **Windows 10**:

- Trimble TSC7 Controller
- Trimble T7 Tablet
- Trimble T100 Tablet
- Trimble Site Tablet 10
- Trimble T10 Tablet
- Trimble Panasonic Toughpad FZ-M1

Siteworks Mobile v1.60 for Android™ is also supported on the following **Android** Tablets running Android 8.0 (Oreo) or above:

- Trimble TDC600 Controller
- Samsung Galaxy Tab Active Pro
- Samsung Galaxy Tab S4
- Samsung Galaxy S10+ Smartphone
- Trimble TSC5 Controller
- Samsung Galaxy Tab S3
- Samsung Galaxy Tab S7

Installation of Siteworks onto any devices not specifically listed above has not been tested for compatibility or performance and installation is at the user's own risk. Siteworks is not supported on the Trimble TSC3 Controller, Site Tablet, Site Mobile, Windows 7 or Windows CE devices.

## Trimble Siteworks installation

For supported devices, Trimble Installation Manager needs to be installed and run directly on a device connected to the internet. TIM checks which software options were purchased for the specific controller with this serial number and checks for the latest version of the software that the device is entitled to based on its current Software Protection Plan expiration date. Select the Siteworks Icon in TIM to install the latest available version. TIM is available for Windows and Android devices at: [install.trimble.com](https://install.trimble.com)

This release is available in the following Languages:

- English - UK English
- English - US English
- Chinese (Simplified)
- Czech
- Danish
- Dutch
- Finnish
- French
- German
- Italian
- Japanese
- Korean
- Norwegian
- Polish
- Portuguese
- Russian
- Spanish
- Swedish

Many of the improvements described here were requested by field users. Trimble appreciates this type of feedback and continually improves and evolves the product to meet the needs of contractors in the construction industry. If you have any feature enhancement requests please submit them to your SITECH distributor who will pass them on to Trimble for consideration.

The Siteworks User Guide and prior versions of release notes are available for further information on the Siteworks webpage at:

<https://heavyindustry.trimble.com/en/products/siteworks-positioning-system> under *Siteworks Positioning System Downloads > Siteworks Software Documentation*.

## New features and functions

**Features are available in both Siteworks Standard and Siteworks SE Starter Edition unless noted**

### Siteworks Machine Guidance

Siteworks v1.60 supports the new Siteworks Machine Guidance Module. This new purchasable module combined with a supplemental hardware kit and a tilt compensation enabled receiver such as the Trimble SPS986 or R780 GNSS Smart Antenna allows the use of Siteworks on an excavator for guidance to the attachment's cutting edge.

### New profile view

A new profile view has been added that is a "parallel" cross section to the direction of travel or receiver heading. This view is perpendicular to the existing cross section view. Select this new option in the side panel by choosing "Profile View". Note that this new cross section does not

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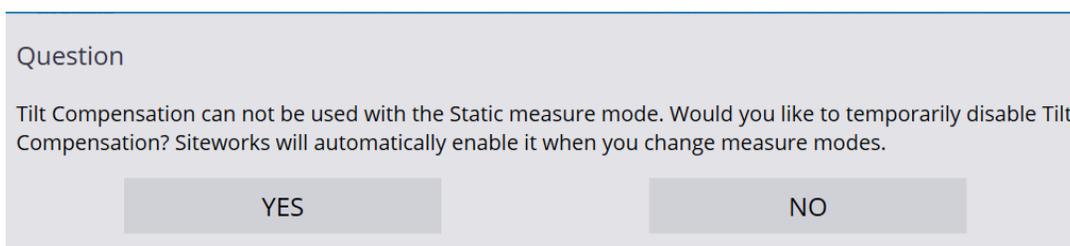
display corridor template surfaces in .VCL files or template surfaces from .PROs;; it only displays standard surfaces or corridor surfaces.

The orientation of the Profile View is such that the direction of travel or receiver heading (for tilt compensation activated receivers) will be to the left of the panel. This is denoted by the arrow on the current position bullseye in the cross section window which always points towards the direction of travel or receiver heading.



## Tilt compensation toggle when measuring static points

Siteworks will now ask when Tilt Compensation is active and switching to measure a static point if you would like to temporarily disable Tilt Compensation and then re-enable it when changing measure modes. Selecting YES will disable Tilt Compensation while in static mode, and then turn it back on when changing measure modes out of static and back to standing, walking, or vehicle. Tapping NO will return the user back to the map screen.



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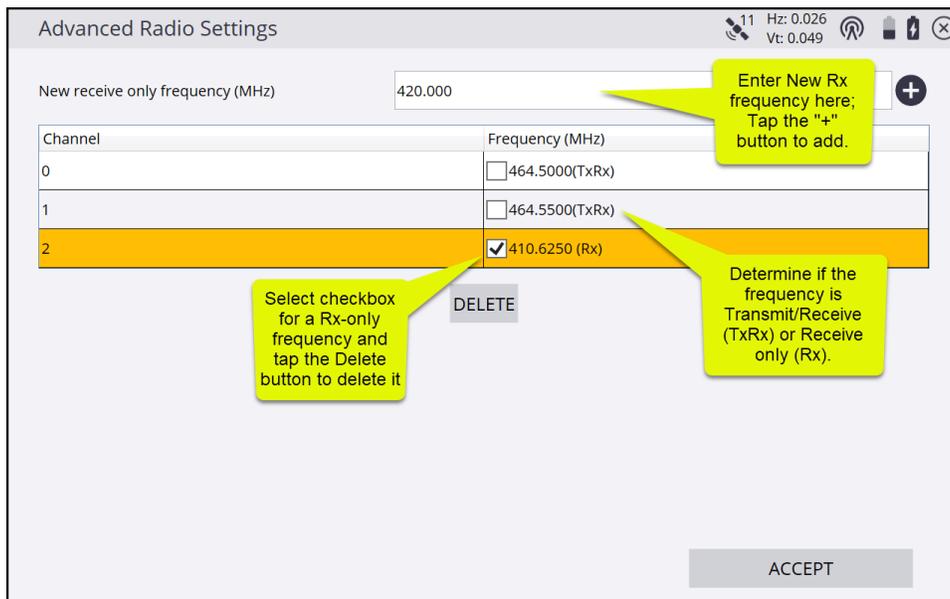
## Add and Delete 450MHz receive frequencies to GNSS receivers

Siteworks v1.60 has added the ability to add and delete receive-only frequencies to 450MHz GNSS receivers. This functionality is not available for the Trimble SPS785 GNSS Smart Antenna, Trimble MPS865 Marine GNSS Receiver or any Spectra SP model GNSS receivers. Note that receive-only frequencies can be added or deleted from within Siteworks. Transmit frequencies must be added via the Virtual Warehouse, WebUI or WinFlash.

On the Receiver Setup page tap the  button next to the radio channel to bring up the new Advanced Radio Setting Page. On this page it is possible to view the installed frequencies, and to add and delete receive-only frequencies to receivers with a 450MHz radio.

To add a frequency type in the value in the top bar and tap the  button to add it. Siteworks will only allow the addition of valid frequencies from 410 - 473MHz with a step size of 6.25kHz.

To delete a receive-only frequency select its checkbox and then tap the delete button.



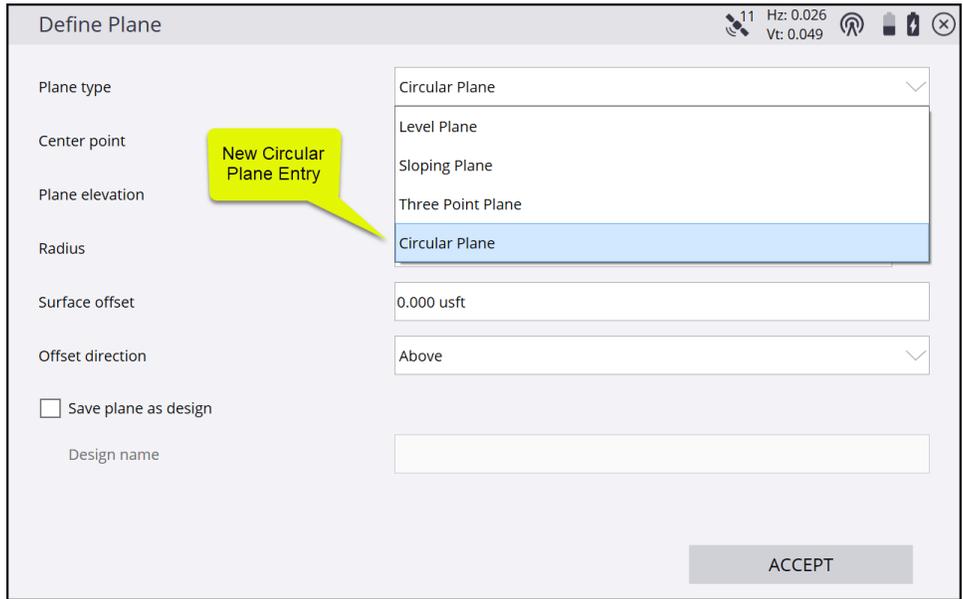
## Stakeout circular plane

It is now possible to create a circular stakeout plane and to save that plane as a design surface.

Create a circular plane by tapping the  icon on the map screen or the same icon in the

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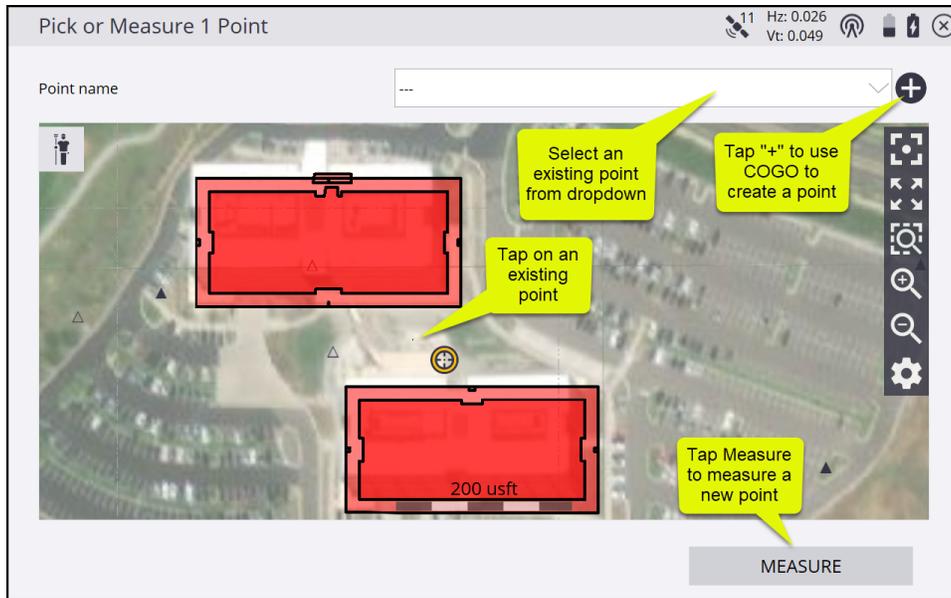
Stakeout Select Object Screen. There is a new entry for “Circular Plane” in the “Plane type” of the Define Plane window.



After selecting circular plane, choose the center point of the circle by either typing in an existing

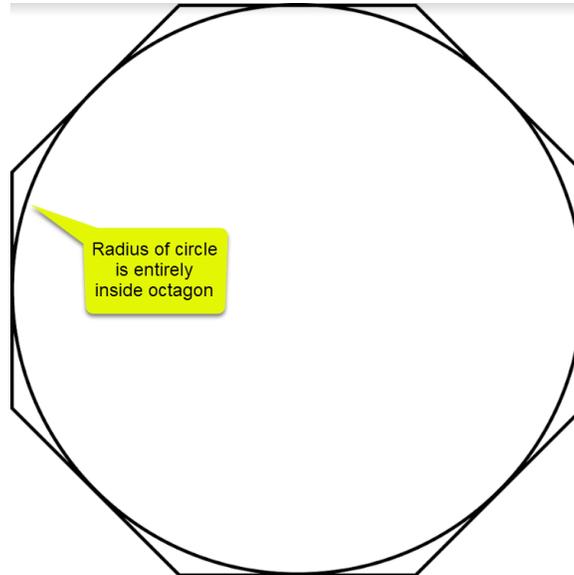
point name or tapping the  icon to bring up the select point screen. On the select point screen you can select from the drop down list of existing points, tap an existing point on the map

screen, tap the  button to use COGO to create a new point by, or measure a new point by tapping the measure button.



Once you have selected a center point, tap accept to return to the Define plane screen and define the circular plane's radius, elevation, and if a surface offset is desired. The circular plane cannot be tilted and will always be horizontal. Optionally check the checkbox to save the plane as a design file that can then be used as a proper design surface.

Note that if the circular plane is selected to be saved as a design, the circle will be converted into an octagon in the saved TTM file, where the diameter of the circle is inscribed entirely within the octagon. I.e. the octagon will be larger than the diameter at certain locations near the octagon's vertices (see diagram below). When the circular plane is used as a stakeout plane (and not a saved design) it is a true circle and not an octagon.

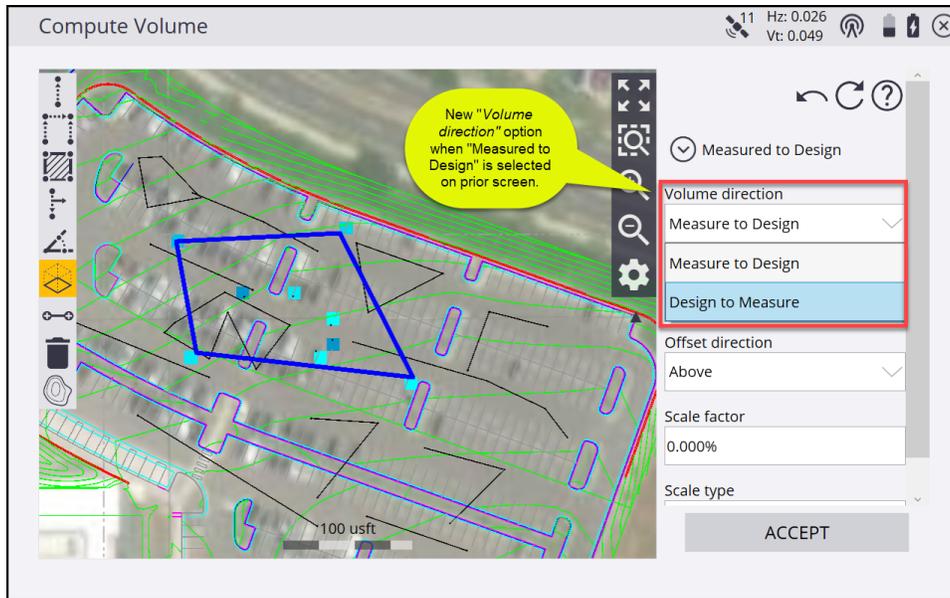


## Performance increase when loading large TTM designs

Performance of loading large and complex TTM files has been greatly improved by now converting the TTM to a VCL and creating a cache file. This greatly reduces the time to load the design after the TTM is first loaded and converted. A new "Trimble Cache" folder is created in the device's Trimble Synchronizer Data folder where the VCL cache files are stored and used each time the design is loaded.

## Additional "Design to Measured" surface in COGO volume calcs

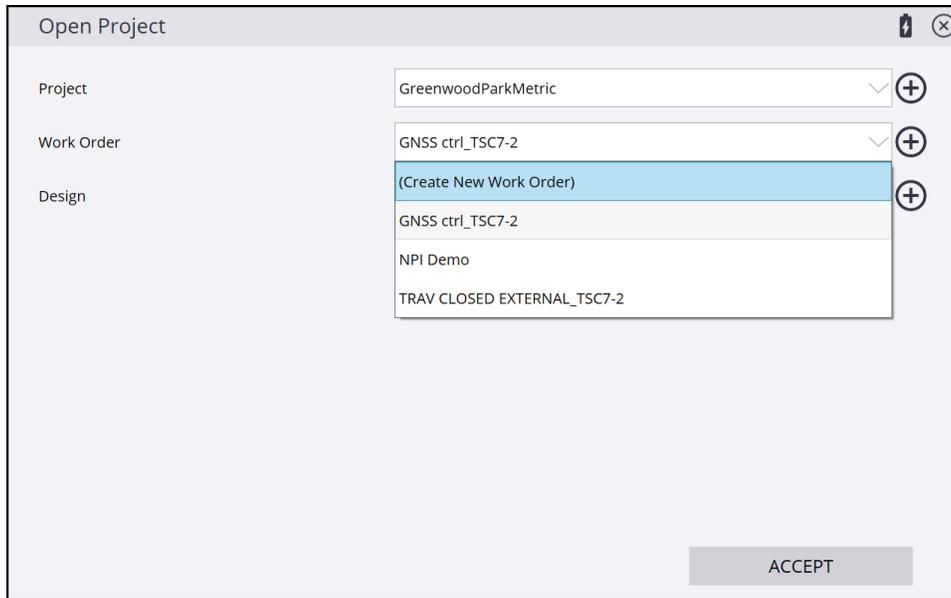
A new option has been added when performing COGO volume calculations and comparing the measured surface to a design surface for the "Volume Direction". Now it is possible to select either "Measure to Design" or "Design to Measure" to determine which direction the volume calculation will be performed. The original option in Siteworks versions 1.50 and below only included "Measure to Design". The new option of "Design to Measure" will effectively reverse the calculated cut/fill results in the volume calculation, whereby the measured surface is subtracted from the design surface. In the original "Measure to Design" subtracts the design surface from the measured surface. The results are identical between the two options, just the values of cut and fill will be swapped.



## Pulldown menu option for “Create New Project/Work Order/Design” added

A new option in the pulldown menus on the Open Project screen has been added for (*Create New Project*), (*Create New Work Order*), and (*Create New Design*) to allow users to select this option from the pulldown menu, instead of tapping the  button. Selecting either the “Create New” or tapping the  button will do the same thing. This new “Create” option will be present at the top of the pulldown list for existing projects, except for the Design option, where it will be below the “(No Design Needed)” option.

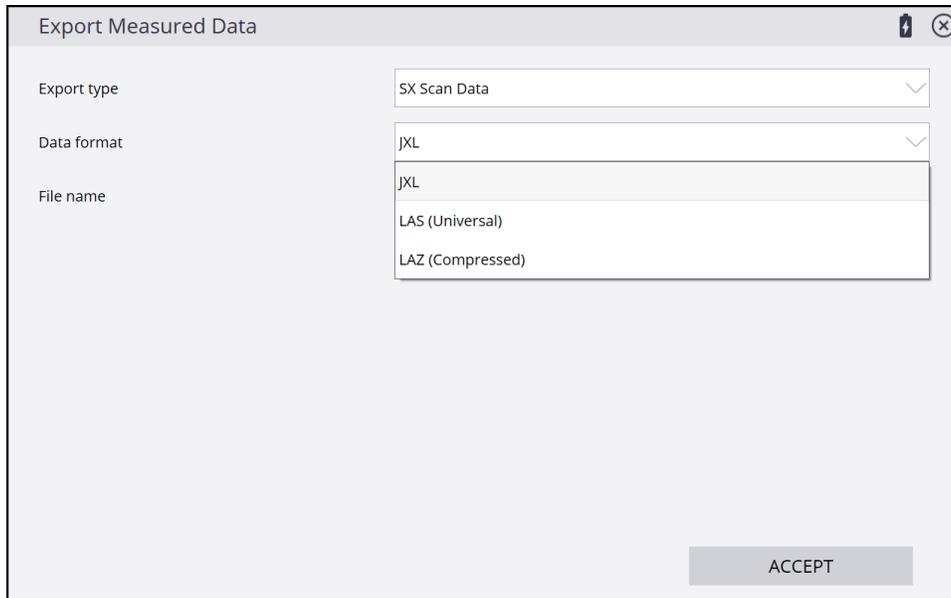
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## LAS/LAZ point cloud exports

It is now possible to export LAS or LAZ standard point cloud formats for point clouds collected with the Trimble SX12 or SX10 Scanning Total Station. This functionality is included in the Advanced Measurement Module that is already required for SX12 support.

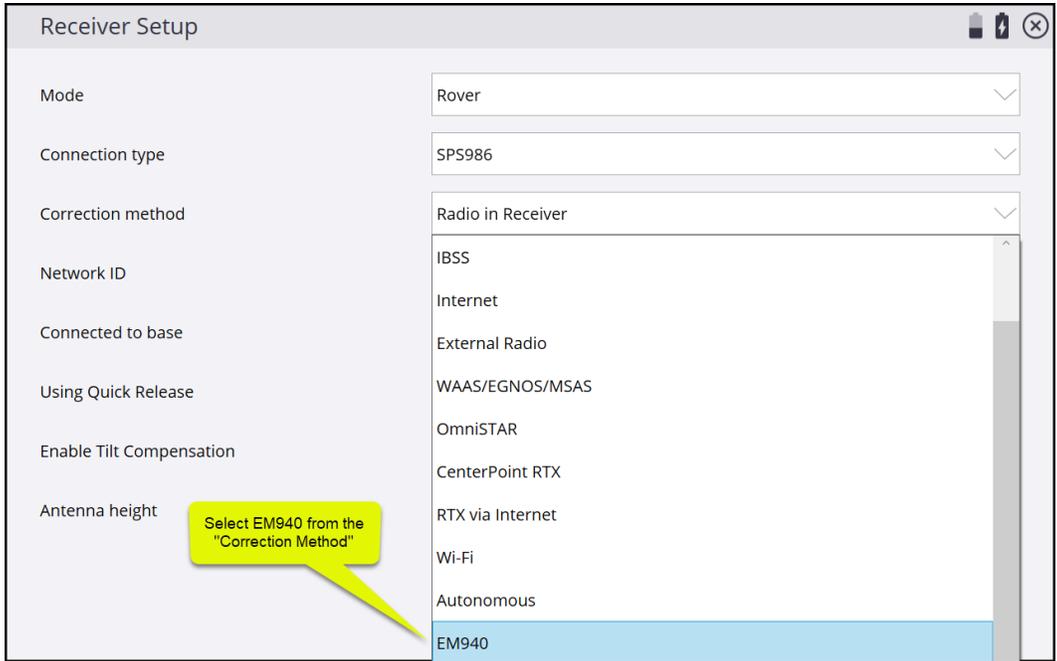
New menu options are available in the *Data Management > Export Measured Data > SX Scan Data* for *LAS (Universal)* and *LAZ (Compressed)*. Selecting either of the options will produce the corresponding file in the currently open Work Order's Scan Data folder. All scans in the open Work Order will be merged and placed into one LAS or LAZ file.



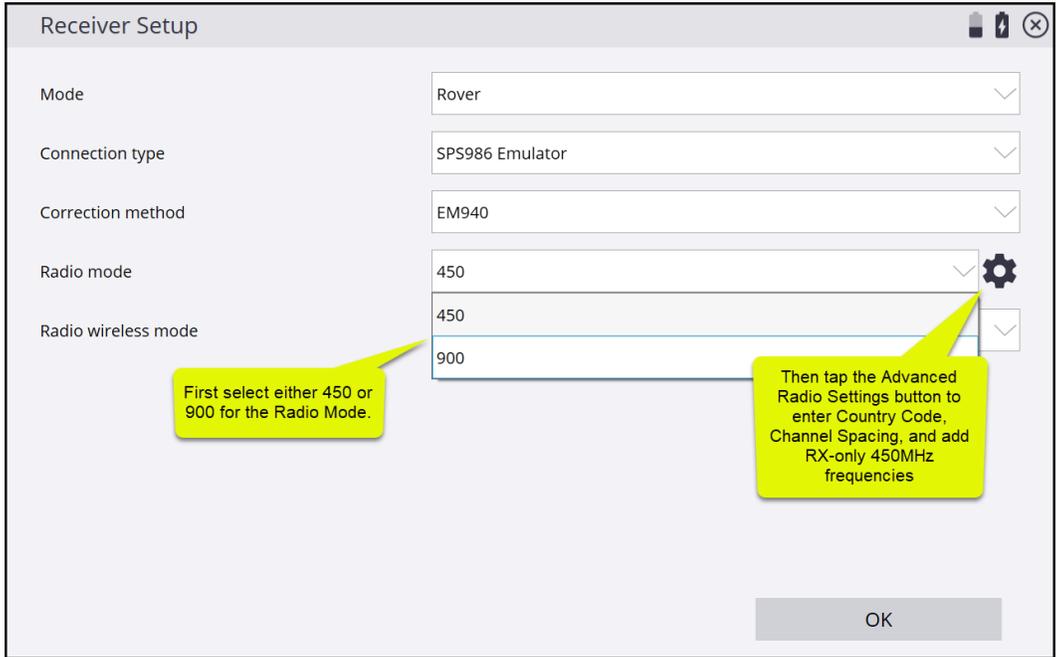
## Support for the new Trimble EM940 (450+900MHz) Empower Radio Module

Siteworks v1.60 adds support for the new Trimble EM940 Empower Radio Module. This is a receive-only dual band radio module that enables both 900MHz or 450MHz receive options for GNSS receivers that either do not have a radio, or contain the other frequency, i.e. a 450MHz receiver can now use this module to receive 900MHz corrections.

This new correction method is chosen in the Receiver Setup screen under Correction Method by selecting the "EM940" option.

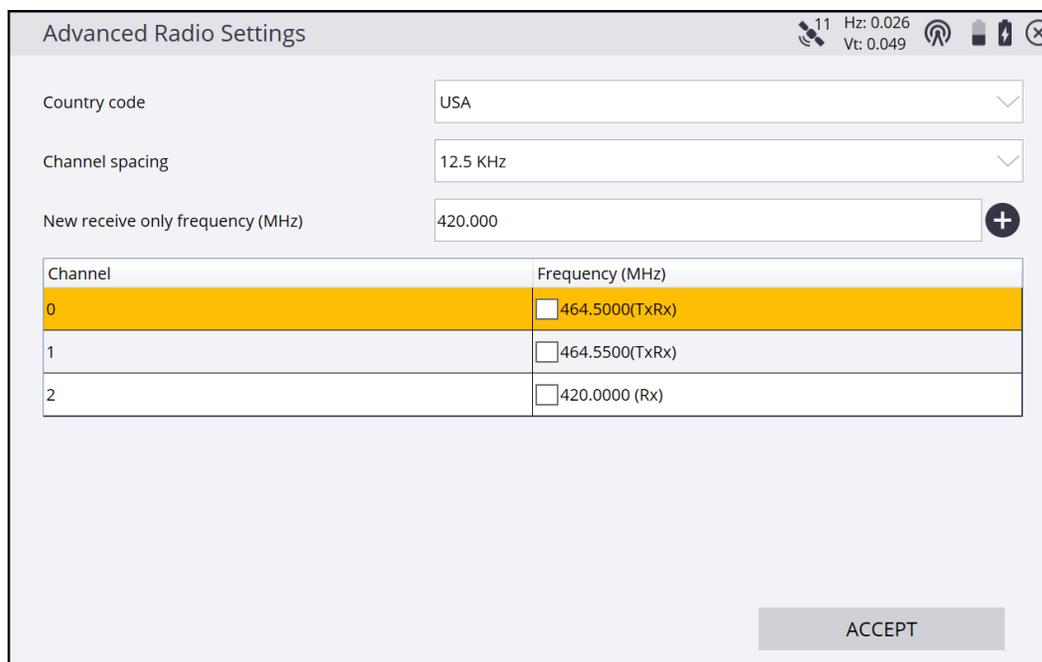


After selecting the EM940 the user must then select the Radio mode of either 450 or 900 and then use the settings icon to further configure the radio.



Selecting 900 and then tapping on the settings icon  will allow the user to select the country code, which will govern the internal radio settings for a given country.

Selecting 450 and then tapping the settings icon  will bring you to the Advanced Radio Settings screen where the Country Code, Channel Spacing and ability to add new receive-only frequencies are selected.



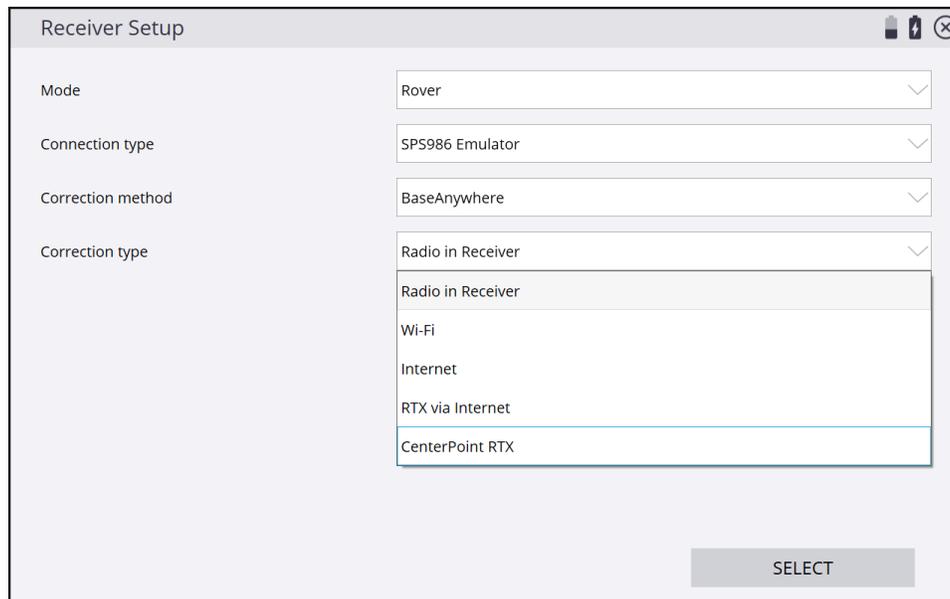
Please see the section above for more information on how to add or delete receive-only frequencies for 450MHz. After entering the Radio mode and selecting the relevant option in the settings screen, proceed to configure the correction method as for any other receiver by selecting the Network ID for 900MHz or the Radio Wireless mode and Radio Channel for 450MHz applications.

## Internet and RTX correction types added to BaseAnywhere

It is now possible to select VRS and RTX as correction methods when using BaseAnywhere as a rover correction method. Previously only Radio in Receiver and Wifi were allowed correction types when using BaseAnywhere. Now after completing the receiver setup the Bench My Rover workflow

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will allow for benching the rover with these additional correction methods. At the end of the Bench My Rover routine, unlike when using a Radio or Wifi as the correction method, there will be no prompt to update the base position. Please see the Siteworks user guide for more information on using BaseAnywhere and Bench My Rover.



## General improvements

- Now when connecting to GNSS receivers and selecting RTX as the correction method Siteworks will set the Datum to ITRF2020 with a 2005 Epoch. This should not impact most existing projects that have been started or have been using RTX. However Trimble recommends checking in on a known control point, and if a difference is found then to remeasure the datum shift. This change has not been made for the SPS785 or MPS865 receivers, which remain in the Datum/Epoch has been configured in the receiver.
- “File Transfer Complete” message on Android devices now appears only after all data has been transferred to an external USB drive. This will lead to fewer instances of users removing the USB drive after seeing the File Transfer Complete message and the data not being present on the drive.
- When using an emulated SPS986 the heading will now change based on the direction from the prior point tapped. I.e., the heading will now be in line with the direction of the last two points tapped.

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- HDOP and VDOP values for GNSS measured points are now exported in a Work Order's CSV of measured data export with "Include QA data" checked. The HDOP and VDOP values are also now included in the Record.txt file.
- Performance improvements when selecting linestrings such that vertical elements are only calculated when necessary, and a progress bar will be displayed when computations are being performed.
- Improved connection times when connecting to a total station on both Windows and Android devices. Note the connection time may be slightly longer the first time a new Trimble EM120 Empower Module is used, but should be shorter for all subsequent connections.
- Siteworks will now save the last used antenna when using a modular GNSS receiver. Also the default antenna when configuring a modular base station has been changed to Zephyr 3 Geodetic, and to Zephyr 3 for a modular rover setup.
- Siteworks now checks if the SX instrument is out of level after completing a scan. If it is, Siteworks will give the user the option to save the scan data or scan the area again.
- Improvements to 3D view camera controls when zoomed in to fix halting panning behavior.
- Improved keypad behavior when turning the SX12 for smaller step size when "bumping" the keypad.
- Added Korean as a supported language.
- Radio wireless modes for 450MHz radio are now alphabetized.
- Fixed a bug where pressing the controller's Enter key was not triggering the manual measurement button for Walking and Vehicle measurement modes.
- Fixed an issue with scan data files containing certain non-English language characters not importing properly into Trimble Business Center.
- Fixed an issue with importing data from USB drives on Android in non-English languages.
- Fixed an issue where measurement offsets were still applied after being disabled in the "Measurement Settings" screen.
- Fixed an issue with CSV exports on Android introduced in v1.50 where all data was placed onto one line in the CSV. Exports are now properly formatted on Android.
- Fixed broken toolbar in Create Template in Key-in-Corridor workflow.
- Fixed a formatting issue in first line of DC file so now DC files can be read properly into VisionLink.
- Fixed issue where the DXF text was incorrectly positioned when using a Siteworks project with a coordinate order setting of "P,E,N,Z,D"

- Fixed an issue where Siteworks was incorrectly setting an elevation value when creating 2D Circles and Arcs in the COGO feature. Issue was only seen when using a project that used feet as the units.
- Fixed Bluetooth issue on Android where Siteworks did not always fully disconnect from the GNSS receiver. This could sometimes lead to issues when trying to reconnect to the receiver.
- Fixed issue where pressing the controller's "Enter" key incorrectly took the user to the Information bar settings window instead of triggering a measurement, when the Information bar view was moved to the main view.
- Crash fixed when syncing projects to WorksManager that contained periods or spaces in file names.
- Fixed crashes when connecting to a certain S-series and VX total stations.
- Numerous crashes have been fixed and stability improvements made based on reports received through the Support channel.
- Language and translation updates based on customer and dealer feedback.
- Update to Coordinate System Database Version 106.

## Known issues

- SX12 users using firmware version S2.8.4 that have connected to the SX12 with Trimble Access version 2023.00 and were forced to change the SX12's wifi password will have to press the power button of the SX12 five (5) times quickly in order to reset the wifi password to be able to connect to the SX12 in Siteworks.
- Siteworks Mobile for Android will crash in the COGO Key In Point feature if "Cancel" is pressed while entering a value. This crash is not present on Windows 10 devices. This crash is not present in v1.50, therefore users can continue to use v1.50 if they need to cancel out of the key in point workflow on Android devices.

## For more information

For more information contact your local Trimble regional account manager.

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## Firmware and operating system compatibility

Version 1.60 of the Siteworks software supports the following firmware versions in total stations, GNSS receivers, radios, and operating system versions for handheld computers. Trimble cannot guarantee compatibility or support for a device that is not specifically listed in the table below. Please see prior release notes for details on Siteworks prior to v1.40. Note TPP expiry dates are for the end of the month listed.

### TSC7, T7, Site Tablet 10, T10, T100, Panasonic Toughpad TDC600, TSC5, Samsung Galaxy Active Tab, S7, S4, S3, S10+ Smartphone

	v1.40	v1.41	v1.42	v1.43	v1.44	v1.50	v1.60
Trimble Protection Plan Expiry	FEB 2021	JUN 2021	OCT 2021	JAN 2022	JUN 2022	OCT 2022	APR 2023
SNPCOM Server	R5.0.31.46	R5.0.31.46	R5.0.31.46	R5.0.31.46	R5.0.31.46	N/A	N/A
Minimum Controller OS	Win10 Pro v1709+ Android v8.0	Win10 Pro v1709+ Android v8.0	Win10 Pro v1709 + Android v8.0	Win10 Pro v1709+ Android v8.0			
R780	Not Supported	Not Supported	Not Supported	Not Supported	v6.13	v6.16	v6.20
R750	Not Supported	Not Supported	v6.12	v6.13	v6.13	v6.16	v6.20
SPS855	v5.48	v5.50	v5.52	v5.53	v5.53	v5.56	v5.60
SPS986	v6.08	v6.10	v6.12	v6.13	v6.13	v6.16	v6.20
SPS785	v4.20	v4.20	v4.20	v4.20	v4.20	v4.31	v4.31
SPS985	v5.48	v5.50	v5.52	v5.53	v5.53	v5.56	v5.56
SPS985L	v5.48	v5.50	v5.52	v5.53	v5.53	v5.56	v5.56
SPS585	v5.48	v5.48	v5.48	v5.48	v5.48	v5.56	v5.56
MPS865	v4.20	v4.20	v4.20	v4.20	v4.20	v5.21	v5.21
SPSx20	M3.8.16	M3.9.9	M3.9.9	M3.9.9	M3.11.1	M3.11.1	M3.12.8
SPSx30	C10.8.16	C10.9.8	C10.9.8	C10.9.8	C10.11.1	C10.11.1	C10.12.8

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SX12	Not Supported	S2.16.14	S2.7.8				
SX10	Not Supported	S2.6.5	S2.6.5				
EM100	v5.46	v5.47	v5.47	v5.47	v5.47	v5.47	v5.47

# Legal Notices

## Contact Information

Trimble Inc., Civil Engineering and Construction Division  
 10368 Westmoor Drive  
 Westminster, Colorado 80021 USA  
 800-361-1249 (toll free in USA)  
 +1-937-245-5154 Phone  
 +1-937-233-9441 Fax  
[www.trimble.com](http://www.trimble.com)

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## Release Notice

This is the May 2023 release of the Trimble Siteworks Site Controller Software Release Notes. It applies to Version 1.60 of the Trimble Siteworks Site Controller software.

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