Release Notes

CIVIL CONSTRUCTION 11 SEPTEMBER 2024

TRIMBLE SITEWORKS SOFTWARE VERSION 1.73



This document contains late-breaking product information, updates, and troubleshooting tips additional to the Trimble[®] Siteworks Software documentation.

- Introduction
- <u>New features and functions</u>
- <u>General improvements</u>
- Firmware and operating system compatibility
- Legal Notices



Introduction

Trimble Civil Construction is pleased to announce the release of version 1.73 of Trimble Siteworks Software. Version 1.73 is available at no charge to all users under an active software Trimble Protection Plan with an effective date of August 31, 2024 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 <u>install.trimble.com</u>. 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[®] distributor for license transfers.

Siteworks version 1.73 is available for operation on the following Trimble site controllers running **Windows 10**:

- Trimble TSC7 Controller
- Trimble T7 Tablet
- Trimble T10 Tablet

- Trimble T100 Tablet
- Trimble Panasonic Toughpad FZ-M1

Siteworks Mobile v1.73 for Android[™] is also supported on the following **Android** tablets running Android 8.0 (Oreo) or above:

- Trimble TDC600 Handheld
- Trimble TSC5 Controller
- Trimble TDC6 Controller
- Samsung Galaxy Tab Active Pro
- Samsung Galaxy Tab S3
- Samsung Galaxy Tab S4
- Samsung Galaxy Tab S7
- Samsung Galaxy S10+ Smartphone

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 the target device while 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

For Android termed subscription licenses Siteworks must be run on the device immediately after the installation via TIM in order to ensure proper license download and activation. This must occur



prior to disconnecting the device from the internet. Termed subscription licenses require the launching of Siteworks while connected to the internet at least once every 30 days, or must be connected to the internet when starting if more than 30 days has elapsed since the last time Siteworks was launched without an internet connection.

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
- 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:

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

An online version of the user guide is also available at: <u>https://siteworkshelp.trimble.com/</u>



New features and functions

Features are available in both Siteworks Standard and Siteworks SE Starter Edition unless noted. Any total station features are not available in Siteworks SE.

Time Dependent Transformations when using Trimble CenterPoint RTX

The latest update to Trimble Siteworks simplifies workflows for Trimble CenterPoint[®] RTX users, aligning them with those traditionally used for single base RTK or network VRS GNSS corrections. Now, you can select a project's predefined published coordinate system, measure a new site calibration or use an existing calibration all without having to measure a datum offset, a step required in previous Siteworks versions. Siteworks v1.73 now automatically aligns CenterPoint RTX positions with your chosen site calibration or published coordinate system in real time through the use of Trimble's robust Time Dependent Transformation (TDT) coordinate engine.

This new TDT functionality is now automatically enabled in Siteworks when configuring a rover with either *CenterPoint RTX* (RTX corrections received over satellite) or *RTX over internet*. Siteworks will configure the rover to use a reference frame of ITRF2020 at the current Epoch for the raw measurements. To set the receiver's reference frame to a fixed value of ITRF2008 Epoch 2005.0 please contact your Trimble dealer to receive an option code to revert Siteworks' RTX behavior to match prior versions where measuring a datum shift will be required.

The TDTs rely on information stored in a *TimeDependentTransformationDatabase.xml* file located at *C:\Program Files\Trimble Siteworks* on Windows devices, and at *Internal Storage/TrimbleSync/Trimble GeoData* on Android devices. This XML file contains all the parameters for every type of TDT used by Siteworks. These and other necessary transformation files are now automatically installed into the *Trimble GeoData* folder during rover setup. If these files are deleted, they will be replaced with each startup of the rover.

The TDT parameters utilized by a RTX rover during a survey are exported to a *tdt.txt* file in the output folder of the current work order. This file contains the specific parameters used in the transformation and can serve as a source for auditing of the settings or any post processing calculations that may be undertaken outside of Siteworks.

It is possible to measure a site calibration using RTX with the TDTs. As in prior versions of Siteworks where a site calibration was measured with RTX, you will not be able to use an RTK rover on that site (i.e. will not be able to select Radio or Internet as correction options). Siteworks denotes a site calibration performed with RTX by adding a note into the DC file. To enable RTK corrections to be used on a site calibrated with RTX, a new site calibration using the RTK corrections must be performed over the same control points. On this RTK calibrated site, it will then be possible to use RTX without having to measure a datum offset. Therefore, if the workflow allows and the site is expected to have both RTK and RTX rovers on it, it is recommended that the RTK site calibration be performed first.

Siteworks will default to use a reference frame of ITRF2008 epoch of 2005.00 when measuring a Site calibration using RTX. It is possible to select the desired reference frame to be used during a



RTX site calibration in the calibration settings, entered by tapping the in the Project Calibration screen.

Calibration Settings		11	Hz: 0.026 Vt: 0.049	R	
Geoid file	(No geoid model)				\checkmark
Horizontal tolerance	0.082 ft				
Vertical tolerance	0.082 ft				
Number of points for computing inclined plane	5				\checkmark
Set Scale Factor to 1					
RTX global reference frame	ITRF2008 (epoch 2005)				
	ITRF2000 (epoch 1997)				
New pulldown to select Reference	ITRF2005 (epoch 2000)				
Frame to be used during Site Calibration	ITRF2008 (epoch 2005)				
	ITRF2014 (epoch 2010)				
	JGD2000 (epoch 1997)				
	MAGNA-SIRGAS (epoch 1995.400)				

Additionally, site calibrations performed on top of a published coordinate system will use the reference frame associated with that published coordinate system as defined in the Trimble Coordinate System Database. If a local base station may be brought onto the site in the future or a different reference frame than ITRF2008(2005.0) is preferred, it is suggested to select a published coordinate system first that contains the reference frame of your choice. For example, select a US State Plane coordinate system to get a NAD83(2011) datum and then perform a site calibration. Starting with a published coordinate system should be done if you wish to use a standard reference frame that is not ITRF2008(2005.0) in your project, even if using arbitrary control point coordinates that are not tied to a particular state plane system.

All Latitude Longitude and Height (LLH) values stored in the Work Order's SPJ and displayed in the info bar/panel will be ITRF 2020 at current epoch of measurement. There is currently no way to see the transformed LLH values of the Project's reference frame in Siteworks for measured points. The one exception to this is when performing a Site Calibration whereby LLH values stored in the .CAL file will be in the targeted transformed reference frame.

Tapping the Correction Satellite icon in the Info Bar will bring up a screen showing the Project's current Global Reference Frame being used in the project that the ITRF2020 current epoch LLHs are being transformed into, its fixed reference epoch, and any measured datum offset values. It is also possible to clear any existing datum shifts by tapping the *Clear Datum Shift* button:



RTX Transformation Info		21 1	lz: 0.157 /t: 0.389	e 🛔	\otimes
Global reference frame Name				ITRF20	08
Realization				ITRF20	08
Reference epoch				2005.	00
Displacement Model				ITRF20	20
Current datum shift					
Delta N				0.000	m
Delta E				0.000	m
Delta Elv				0.000	m
	Clear Datum Shift				

Note that if you currently have a project where a base station was set up with an autonomous HERE position then using a RTX rover with TDTs on the project may require the measurement of a datum shift to match the base station's coordinates. This is because the base station's reference HERE position was calculated autonomously, which is at a precision level lower than RTX. The user will still be able to measure a datum offset when using RTX as in prior versions of Siteworks to get RTX to better match the project's coordinates.

As technical background on RTX: coordinates measured in surveys using the Trimble CenterPoint RTX service are stored in the ITRF 2020 reference frame at the epoch of measurement. When you start an RTX survey, Trimble Siteworks uses the local displacement model, or if no local model is available for your location, the software selects a tectonic plate in the global tectonic plate model, to propagate the ITRF 2020 coordinate from the epoch of measurement to the Global reference epoch for the job. Siteworks then applies a datum transformation to transform the ITRF 2020 coordinate into the Global reference datum for the job.

In previous versions of Trimble Siteworks 1.72 and below, the receiver was set to propagate RTX coordinates in ITRF2008 at epoch 2005.0. A datum offset measurement was therefore required in Siteworks to transform these fixed ITRF2008(2005.0) ITRF reference frame coordinates to match the local coordinate system of the job.

The ITRF2020 reference frame is not commonly used on construction projects, where more standard reference frames like WGS84 (used worldwide) or NAD83(2011) (used in North America) are used. This can result in position differences between the ITRF reference frame processed in the receiver and the fixed reference frames used on construction projects and for GNSS survey control. The new TDT functionality here now automatically transforms the ITRF2020 current epoch values



from the GNSS receiver into the Project's fixed reference frame, thereby eliminating the need for a datum shift measurement to get the positions to match.

Ability to change point type from Surface <-> Feature

It is now possible to change the point type of a measured point from Surface to Feature or Feature to Surface in order to include/exclude the point from the real-time surface creation. Note this feature is only available for measured points, and does not include Control of Stakeout points. To change the point type enter the Edit Point workflow via the Point Manager or by tapping and holding on the point. In that window there is a new pulldown for *Measure Type* where either Surface or Feature can be selected.

Edit Point					11	Hz: 0.008 Vt: 0.015	\bigcirc		\otimes
	Edit Point			Point In	format	ion			
Point type	New Pulldown option to choose Surface or					I	Measu	re poi	nt
Measure type	Feature for the selected point	Surface						\ \	_
Point name		Surface							
		Feature							
Point code		Line1							
Northing							41	4.833	m
Easting							38	9.695	m
Antenna / Target h	eight	2.000 m						\odot)
				SAVE					

New option to create a line from COGO Point at Distance & Bearing

It is now possible to create a line by connecting points created in the COGO Point at Distance &

Bearing command 🥙. There is a new checkbox for 'create line' after the Origin point is defined.





After checking the box the user will be prompted to name the line and to select the type of line, i.e. Breakline, Outer Boundary, Volume Boundary, or Feature Line. Siteworks will then create a new line point at the same location as the origin point to ensure proper line creation. After returning to the Point at Bearing & Distance Screen and entering the second point, a button for New Line will appear. A Close Line button will also appear when creating a third point. If an Outer boundary or Volume Boundary is the selected line type, and the user exits the command by tapping the cancel button in the upper right, then they will be prompted if they wish to close the line.

Note that there is no way to continue an existing line via the COGO commands, a new line segment starting from the endpoint has to be created. But the COGO line can be selected to extend by measuring additional points from the endpoint via the Extend line command available in the Advanced Measurement Module or by choosing the Existing line in the measure type, the same behavior as for all measured lines. FXL feature codes can be applied to the line after it is created by tapping and holding on the line through the Line Information window, but not at the time of the line creation in the COGO command.

PDF report format update

PDF reports have been modified to now center the photos on the page, and to move the name of the photo to below the picture. There is also a new option to display or hide the name of the photo on the PDF. The new option to display the photo name(s) is a checkbox on the PDF Report Tab to 'Include photo names'. When checked the photo names will be placed below the photo, when unchecked, no photo name will be listed.



Trimble Siteworks Report Sample_v1.73PDF



Trimble, Inc. SPS Team 10368 Westmoor Drive Westminster, Colorado 80021 United States Date: 8/28/2024 Time: 6:18 PM Project: TrimbleBuildingDemo Design: TrimbleBldgVCL Design Surface: TrimbleBldgVCL:FG_All Work order: v1.72 Release NPI

Comment

Sample PDF showing off the updates to the PDF report. Note the position of the photo, the image name below it and the format of the LLH.

Photo



It is also now possible to select the format of the Latitude and Longitude of measured points from DMS, Decimal Degrees, and Degrees Decimal minutes. This setting only affects the displayed format of the latitude & longitude in the PDF report, it does not change the format anywhere else in the software. This setting is accessed in the new *Position Format* row of the PDF Settings tab. Note that the 'PDF Settings' tab has been renamed from 'PDF Header' in prior versions of Siteworks. Also a bug was fixed where the company logo may have overprinted onto the Company information text, depending on the size of the logo image.



PDF Report		🐋 ¹ Hz: 0.026 厥 빌 💈 🗵
Report	Point Information	PDF Settings
Company logo		
Company name	Trimble, Inc. SPS Team 10368 Westmoor Drive Westminster, Colorado 80021 United States	ß
Position format	DD.MM.SS	\sim
	DD.MM.SS	
	DD.DDDDDD	
	DD.MM.mmmmm	
		SAVE

License agreement screen must be scrolled to bottom to accept offering terms

The user must now scroll the offering terms to the bottom of the window in order to activate the ACCEPT button when updating to a new version or installing Siteworks for the first time. A note has been added at the bottom of the screen stating "*By clicking ACCEPT I agree to the terms and conditions. Note: you must scroll the bottom of the terms before accepting them.*" It is recommended to uncheck the 'Show Every Time' checkbox in the upper left to avoid having to scroll through the agreement and tap ACCEPT every time Siteworks is started.

License Agreement	Ø
✓ Show every time	
Automatically send diagnostic and usage data to Trimble	
TRIMBLE OFFERING TERMS (For Software and Subscriptions) Version 3.1 (Last updated: October 7, 2023)	
These Trimble Offering Terms (the "Agreement") are entered into by and between Trimble and Customer. Certain capitalized terms are defined in Section 1 (Definitions), and others are defined contextually in the Agreement.	
I BY INDICATING ACCEPTANCE OF THE AGREEMENT OR INSTALLING, ACCESSING OR USING THE OFFERING, CUSTOMER AGREES TO BE LEGALLY BOUND BY THE TERMS AND CONDITIONS OF THE AGREEMENT. IF CUSTOMER DOES NOT AGREE TO THE AGREEMENT, CUSTOMER MUST NOT INSTALL, ACCESS OR USE THE OFFERINGS.	
Notwithstanding anything to the contrary herein, if Customer has executed a separate signed agreement with Trimble which	
By clicking ACCEPT I agree to the terms and conditions. Note: you must scroll to the bottom of the terms before accepting the	า.
EXIT APP ACCEPT button grayed out until terms are scrolled to bottom. ACCEPT	

Irimble

Option to enter Wifi password When connecting to SX10 or SX12

Now when connecting to a SX10 or SX12 Siteworks has a new option to enter in the wifi password of the SX. Siteworks is not able to change the password, only enter one. Currently the only means to change the password on the SX is when connecting with Trimble Access. Therefore, unless the SX was connected with Trimble Access, most Siteworks users will not need to enter a password and can use the 'Default' option. If the SX's password was changed in Trimble Access, then when connecting in Siteworks the user can now enter the password by selecting 'Entered' from the pulldown and then typing in the SX's password. If the user is still not able to connect to the SX via wifi or wishes to reset the password to the default, tapping the power button five times in rapid succession will reset the SX's password to the default.

Connect to Total Station			
Brand	Trimble		\checkmark
Model	SX10/SX12		\checkmark
Connection type	Wi-Fi		\checkmark
Device name	TRIMBLE-SX10-30599951	Y	(î•
Wi-Fi password	Entered		\sim
Password	Default		
	Entered		
		ACCEPT	

Sync behavior for background images from Trimble WorksManager

Siteworks supports the new functionality recently added to Trimble WorksManager Software that enables the uploading of background Images to WorksManager and subsequent downloading to the Siteworks device. Images will be downloaded to the Project's *Background Images* folder during a WorksManager sync. If the images are deleted or removed from WorksManager then Siteworks will prompt the user if they wish to retain the images locally on the next sync by unchecking them.



¢	WorksManager Sync			9	\otimes			
	he following data no longer exists on WorksManager and will	be deleted from the device.						
	Items with a check box may be kept locally by unchecking them.							
	Name	Туре						
	LeftHandOverview - Copy.jgw	File						
	LeftHandOverview - Copy.jpg	File						
			Ç₹					
			ACCEPT					

If this option to retain the images is selected the images will not be re-uploaded to WorksManager on future syncs and will only remain locally on the device. This is the same behavior with other types of files such as control points and DC files.

If the files are removed from the Siteworks device (by leaving them checked) an *Archive* folder will be created in WorksManager where any files deleted from the device will be uploaded to. Note this *Archive* folder is different from the *Archived* folder on WorksManager that will contain projects and files that are Archived from within WorksManager.



General improvements

- WorksManager syncing issue fixed with files and folders containing diacritical characters (e.g., å, æ, ø, ö).
- Quick release option for R980, R12 & R12i during rover setup has been removed, since those receivers will always have the integrated quick release present.
- The minimum rod height for running the plumb pole routine has been reduced from 1.3m to 0.5m.
- Background images will now not be loaded into memory if they are not set to display. This will result in faster Project map screen loading when Background Images are off.
- .NOD files for Somero concrete screeds will now be exported in project units. Previously .NODs were always exported in metric units. .NOD exports are enabled through the Ctrl+O menu.
- The number of decimal places in exported points will now match the number of decimal places in the vertices of line objects in exported DXFs.
- Now when exporting a CSV of measured data containing FXL attributes, the attributes will be properly delimited according to the device's regional settings.
- When exporting measured data to a CSV, the date format will now respect the device's regional date format settings.
- Performance increase when displaying dashed lines for the cross section location and original cross section surface.
- Removed support for Intel processors for Android versions of Siteworks. This is not expected to impact any current known Android devices in use.
- Issue fixed that may have led to background images not being placed correctly.
- Fixed an issue where VCL points that had a label associated were not appearing.
- Removed Russian as a supported language. Users still requiring Russian language support can use the Language Tool Kit.
- Fixed an issue on Android devices where after the screen shuts off or the device was rotated that large characters would appear in the infobar.
- Fixed the issue of when a point is updated from Surface to Feature or vise versa, that the 3D or 2D maps would not update until the project was re-loaded or the map refreshed. Now when a point type is changed the maps will update to correctly reflect the point type.
- Fixed an issue where after a WorksManager sync when a design name changed the design's linework would not be displayed. If linework still does not appear correctly, toggle the layers off/on via the layer manager or reload the design.
- Bug fixed that could lead to incorrect elevations on points extracted from a surface in COGO offset points from a line when the original line had an arc.

For more information

For more information contact your local Trimble regional account manager.



Firmware and operating system compatibility

Version 1.73 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 or firmware version that is not specifically listed in the table below. Please see earlier version release notes for details on Siteworks prior to v1.44. Note TPP expiry dates listed are for the last day of the month listed.

TSC7, T7, T10, T100, Panasonic Toughpad

TDC600, TDC6, TSC5, Samsung Galaxy Active Tab, S7, S4, S3, S10+ Smartphone

	v1.44	v1.50	v1.60	v1.70	v1.71	v1.72	v1.73
Trimble Protection Plan Expiry	JUN 2022	ОСТ 2022	APR 2023	JUL 2023	NOV 2023	MAR 2024	AUG 2024
SNPCOM Server	R5.0.31.46	N/A	N/A	N/A	N/A	N/A	N/A
Minimum Controller OS	Win10 Pro v1709+ Android v8.0						
R780	v6.13	v6.16	v6.20	v6.21	v6.23	v6.25	v6.26
R780-2	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported	v6.25	v6.27
R750	v6.13	v6.16	v6.20	v6.21	v6.23	v6.25	v6.26
R580	Not Supported	Not Supported	Not Supported	Not Supported	v6.23	v6.25	v6.26
R980	Not Supported	Not Supported	Not Supported	Not Supported	Not Supported	v6.25	v6.27
SPS855	v5.53	v5.56	v5.60	v5.61	v5.63	v5.65	v5.66
SPS986	v6.13	v6.16	v6.20	v6.21	v6.23	v6.25	v6.26
SPS785	v4.20	v4.31	v4.31	v4.31	v4.31	v4.31	v4.31
SPS985	v5.53	v5.56	v5.56	v5.56	Not Supported	Not Supported	Not Supported
SPS985L	v5.53	v5.56	v5.56	v5.56	Not Supported	Not Supported	Not Supported
SPS585	v5.48	v5.56	v5.56	v5.56	Not Supported	Not Supported	Not Supported
MPS865	v4.20	v5.21	v5.21	v5.21	v5.21	v5.21	v5.21



	v1.44	v1.50	v1.60	v1.70	v1.71	v1.72	v1.73
Trimble Protection Plan Expiry	JUN 2022	ОСТ 2022	APR 2023	JUL 2023	NOV 2023	MAR 2024	AUG 2024
DA2	Not Supported	Not Supported	Not Supported	v1.55	v1.55	v1.55	v1.55
SPSx20	M3.11.1	M3.11.1	M3.12.8	M3.12.8	M3.12.8	M3.12.8	M3.13.3
SPSx30	C10.11.1	C10.11.1	C10.12.8	C10.12.8	C10.12.8	C10.12.8	C10.13.3
SX12	Not Supported	S2.16.14	S2.7.8	S2.7.8	S2.7.8	S2.7.8	S2.8.5
SX10	Not Supported	S2.6.5	S2.6.5	S2.6.5	S2.6.5	S2.6.5	S2.7.1
EM100	v5.47	v5.47	v5.47	v5.47	v5.47	v5.47	v5.47



Legal Notices

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Release Notice

This is the **September 2024** release of the Trimble Siteworks Site Controller Software Release Notes. It applies to Version 1.73 of the Trimble Siteworks Site Controller software.

