



Trimble Access

Version 2022.00

May 2022

This release of the Trimble® Access™ software includes the following changes.

New hardware support

Improved support for Android 11

Trimble Access version 2022.00 improves support for Android 11. In particular:

- Improved handling of Android location permissions, required for Bluetooth, Wi-Fi, and internal GPS.
- Resolved issues when connecting to or using an SX10/SX12 scanning total station.

All users that upgrade their TSC5 controller to Maintenance Release 3 of the operating system (MR3) are strongly encouraged to upgrade to Trimble Access 2022.00.

Trimble Precise Active target


Trimble Access version 2022.00 supports the Trimble Precise Active target.

This target is designed to allow Trimble S Series active tracking to be used in high precision engineering applications. The target should be used at a vertical angle within +/- 15° from horizontal. If the vertical angle is greater, tilt the target toward the instrument.

For more information, refer to the [Trimble Track Surveying & Scanning product catalog](#).

New features

Automate data upload using the Sync scheduler

Use the **Sync scheduler** screen to automate synchronization to the cloud for the current project. To open the **Sync scheduler** screen, tap  in the **Projects** screen.

The settings in the **Sync scheduler** screen are saved to the controller and applied to any cloud project when it is the current project. This means you can configure these settings once and you don't need to configure them again for new projects.

For example, if you have three projects and you set the **Sync scheduler** to upload data to the cloud every hour, then only the current project will upload data to the cloud every hour. If you open a different project, then data in that project is now uploaded to the cloud every hour.

Choose whether to upload data at regular time intervals or after specific events, for example when closing a job or when signing in. You can choose whether to allow automated upload when connected to any network or only when connected to specific networks.

For more information, see the topic **Automating data upload using the Sync scheduler** in the [Trimble Access Help](#).

Support for web feature services (WFS)

You can now request geographical features as georeferenced vector data over the Internet using a web feature service (WFS), and then save the data as a WFS file so that you can use it in the field without an Internet connection.

Supported web feature services in Trimble Access are the Esri Feature Service and Open Geospatial Consortium (OGC) web feature services. Depending on the service, data is provided in GeoJSON or GML format.

Once you have created the WFS file, you can select lines or polylines from the WFS file in the map and stake them. You can also create points at the ends of lines and at all points along a polyline, by selecting the **Create nodes (DXF, Shape & LandXML)** check box in the **Map settings** screen. The created points can then be selected for stakeout or Cogo calculations.

For more information, see the topic **To manage web map & web feature services (WMS or WFS)** in the [Trimble Access Help](#).

DWG and NWD BIM model support

In addition to IFC and TrimBIM files, Trimble Access now supports two additional BIM model file formats:

- Drawing (.dwg) files created using Autodesk AutoCAD software
- NWD (.nwd) files created using Navisworks software

NOTE – Trimble Access supports the reading of standard AutoCAD entities from DWG files. Objects created by AutoCAD extensions may not be supported. In particular, Trimble Access is unable to read Civil 3D objects from DWG files. Visit Autodesk's Knowledge Network to learn [how to convert Civil 3D drawings to standard AutoCAD format](#).

We have renamed the **IFC** group box in the **Map options** screen and the **Video options** screen to the **BIM model (DWG, IFC, NWD, TRB)** group box. Use these options to change the transparency of objects in the map and video screen, and whether individual faces or whole objects are selected in the map.

You can use any supported BIM model file format in Trimble Access for surveying fieldwork including measuring points, stakeout, and cogo calculations including scan to surface inspections, and center point or centerline calculations.

For more information, see the topic **BIM models** in the [Trimble Access Help](#).

Download BIM models as TrimBIM files

The **Sync settings** screen now provides the **Download as TrimBIM** check box to download BIM or 3D models (including Industry Foundation Classes (IFC), Navisworks Drawing (NWD), AutoCAD Drawing (DWG) and SketchUp (SKP) files) from Trimble Connect as TrimBIM files. TrimBIM files are smaller, faster to download to the controller, and faster to load the first time you use them in Trimble Access. Alternatively, to use IFC, DWG and NWD files in their original format, **clear** the **Download as TrimBIM** check box.

NOTE – Conversion of NWD files to TrimBIM format using Trimble Connect is in BETA. It is only supported when you upload NWD files to Trimble Connect using Connect Desktop, not Connect Web.

For more information on assimilating BIM models as TrimBIM files in Trimble Connect, refer to the Trimble Connect documentation.

Staking an alignment from an IFC file

We now support the `IfcAlignment` element introduced in the Industry Standard IFC 4.1 schema. You can now stake out an alignment from an IFC file in the same way that you stake a single alignment from an DXF, RXL, or LandXML file.

Georeference map Cogo adjustment

The new **Georeference map** Cogo Adjust function allows you to match locations in a map file to points in the job. This is useful when, for example, an architect provides coordinates for a building foundation that needs to be positioned and transferred into a real coordinate system on site. You can use the **Georeference map** function to transform the model into the grid coordinate system used by your Trimble Access job.

The **Georeference map** function uses a combination of translation, rotation and scale to shift the map file so that the selected map file locations match the selected points. If you choose only one point, then the transformation uses a translation only.

Selected map file locations must be entities you can select in the map, such as vertices in a BIM model or points or nodes in a DXF file.

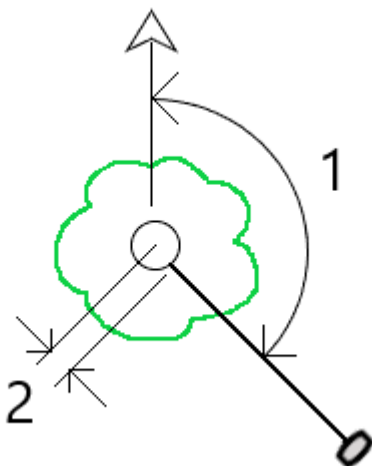
TIP – If the first map files you link to the job are BIM models or DXF files in a location coordinate system that are located far from existing job data, then the software now warns that the map file is far away from the job data and suggests georeferencing the file. Tap **Yes** to allow the software to perform an approximate georeference by relocating the center of the map file close to the existing job data, and then use the **Georeference map** function to fine-tune the georeferencing.

For more information, see the topic **Georeference map** in the [Trimble Access Help](#).

Horizontal tilt offset point measurement method for GNSS survey

When using a GNSS receiver that has IMU tilt compensation enabled and a properly aligned IMU, you can use the **Horizontal tilt offset** method to measure locations that cannot be occupied by the tip of the pole, for example when measuring the center of a tree or post.

The **Horizontal tilt offset** method uses IMU tilt compensation to calculate the azimuth of the tilted pole between the Antenna Phase Center (APC) of the GNSS receiver and the pole tip, and then projects the reciprocal of the azimuth (1) forward from the tip at the specified offset distance (2) to compute the offset point:



When measuring, tilt the pole more than 15° and then sight down the pole so that the center of the receiver, the pole, the pole tip, and the offset point being measured (for example, the center of the tree) are in a straight line (on the same azimuth). The azimuth at the time of point storage is the azimuth used for the offset.

For more information, see the topic **To measure a horizontal tilt offset point** in the [Trimble Access Help](#).

Cadastral point tolerance checking

Trimble Access provides the ability to check measured or staked out points have been double-tied to ensure they meet the cadaster regulations for being within tolerance. To date, this feature has been developed to meet cadaster regulations in Switzerland. If your country uses the same cadastral tolerance checking rules you may be able to use this functionality in your own region.

To use this functionality in Trimble Access you will need to add an XML file to the **Trimble Data\System Files** folder. The XML file defines the cadastral codes and specifies the different tolerance requirements for the type of point being measured or staked.

Once you have enabled cadastral tolerance checking in the job, the Trimble Access software automatically checks the tolerances for cadastral points in the job when you stake a point or compute an average of two or more points. The status of each cadastral point is displayed on the map and is summarized in the job screen.

For more information, see the topic **Cadastral point tolerance checks** in the [Trimble Access Help](#).

Enhancements

Receiver Wi-Fi connections

Trimble Access now supports the set up and use of a receiver Wi-Fi connection in both rover and base surveys. This was previously only configurable using the Trimble GNSS receiver WebUI, and allows for easier configuration of Internet base station surveys when using an external device for Internet connectivity, such as a cell phone or MiFi device.

GNSS data logging to the controller


Logging GNSS data to the controller during a logging survey (Fast static, PPK, RTK and logging, RTK and Infill) now includes data from Galileo, QZSS and BeiDou satellites. Previously only data from GPS and GLONASS satellites could be logged to the controller. Logging GNSS data to the receiver already includes all GNSS constellations.

L5 GPS signal tracking in an RTX survey

You can now enable tracking of L5 GPS signals during an RTX (SV) or RTX (Internet) survey.

Prompt for sign out to release subscriptions on exiting the software

Trimble Access customers using subscriptions typically use the same controller and leave their subscription locked to the controller. You must sign out on the current controller before you can use your subscriptions on a different controller. We have now made this process easier to manage.

If you don't always use the same controller, you can now configure the software to release your subscription licenses automatically when exiting the software, or to prompt you to sign out and release your subscription on exit. To do this, tap  and select **About**, and then select the appropriate option from the **When exiting the software** field.

CSV format improvements when importing or linking CSV files

We have improved the handling of CSV files during import or when linking, including:

- Header lines are now ignored
- CR and LF characters at the end of each line are now ignored
- Files with ANSI, UTF8, and UTF16 characters are supported

Ordering points when exporting to CSV

When exporting points to a CSV file, if you have selected the points from the map or from a list you can now reorder the selected points by tapping the **Name** column in the **Points to export** list.

Adding measured points to a CSV file during a GNSS survey

You can now add points measured using the **Measure points** method during a GNSS survey to a CSV file. Previously, only points measured during a conventional survey could be added to a CSV file. This option allows you to add specific measured points to a CSV file, for example an observed control point.

To enable this option, in the **Job properties** screen tap **Additional settings** and then in the **Add to CSV file** group box, move the **Enable** switch to **Yes** and enter the **CSV file name** or browse to the file and select it.

When this option is enabled, an **Add to CSV file** check box appears in the **Measure points** form during a GNSS survey or the **Measure topo** and **Measure rounds** forms during a conventional survey. Select the check box to add the current point to the CSV file.

Code descriptions now included on Measure codes buttons

The code description is now included with the code on each button in the **Measure codes** form. This makes it much easier to know which code to use. To show only the code, tap **Options** and clear the **Descriptions** check box.

Last used attributes now remembered when coding with string numbers

When **Use attributes of base code** is enabled and you are using string numbers, Trimble Access now remembers the last used attributes for each string, not just the base code. For example, if the last used attribute for FENCE1 was Condition GOOD, and FENCE2 was Condition POOR, then you can jump between using FENCE1 and FENCE2 as you are measuring points along the fence and the appropriate last used attributes will be remembered. Previously, the software would have offered only the attributes for the last used fence, which meant attributes needed to be edited when jumping between two strings.

Attributes on linework

When storing a code with attributes on a line, arc, or polyline, you can now enter and store attributes.

Creating job from JXL file auto-populates job name

When creating a job from a JXL file, the **Job name** field now auto-populates with the name of the JXL file.

Polyline stakeout

You can now apply a side slope to the left of a polyline with a zero hinge offset. To do this enter 0.00m/ft and then tap **>** and select **Left**.

Include screen captures and snapshots in Survey reports

To create a screen capture of the current map view, tap . If required, annotate the screen capture using the **Draw** tools and tap **Store**. To save the screen capture to the job, tap **Store**.

If you select the **Survey report** file format when you export the job, any screen captures saved to the job are automatically included in the report. The report will also include any snapshots you have added to the job using the using **Snapshot** or **Snapshot on measure** functions when connected to an instrument that has Trimble VISION technology.

Instrument video enhancements

- The instrument **Turn** buttons are now easier to tap, as we have increased the size of the active area for each **Turn** button.
- The video feed now automatically resizes to avoid being covered by any toolbars.

Design elevation keypad shortcut

During stakeout, when you have an editable design elevation, you can now press the **Space** key on the controller keypad to edit the design elevation or to reload the original elevation without having to tap the screen.

DTM stakeout deltas

When staking a DTM, the perpendicular cut/fill delta to the surface can now be reported as well as the vertical delta. When staking an entity relative to a DTM, you can configure the software to show the **Perp. dist to DTM** stake out delta in the stakeout navigation screen. To change the deltas during stakeout, tap **Options** in the **Stakeout** screen and then tap **Edit** in the **Deltas** group box.

IFC file enhancements

- When an IFC object contains a GUID the GUID can now be reviewed, as well as stored along with the other attributes.
- When staking an IFC object, and you set the **As-staked code** to **Design file attributes**, a code is created for the as-staked point from the IFC attribute group names, and the attributes for each group are stored with the point. In Trimble Access 2022.00 you can store the IFC attributes as well as add additional codes with attributes, if needed.
- Points created from an IFC file (for example when you select a point in an IFC file and from the tap and hold menu select **Create point**) or points that are copied to the job automatically (for example when you compute an inverse between two points) now record the IFC attributes with the points stored to the job.

Surface inspections now supported on Android devices

You can now perform a surface inspection when running Trimble Access on a supported Android device.

The **Surface inspection** cogo function compares the scan point cloud of an as-built surface with a reference surface and calculates the distance to the reference surface for each scan point to create an inspection point cloud. Only scans created using a Trimble SX10 or SX12 scanning total station can be used in the surface inspection.

NOTE – Supported surface file types are DTM and TTM, and files that include selectable surfaces (DXF, RXL, TXL, 12da). BIM models are not supported when running Trimble Access on an Android device and you cannot perform a surface inspection to them.

For more information, see the topic **Surface inspection** in the [Trimble Access Help](#).

Object oriented setup enhancements

- When using the point, edge, plane station setup method, the software now saves the "virtual" points on the edge and plane as points in the job so that there is a record of the positions used in the station setup.
- Station residuals are now calculated for the known points method.
- Both Face 1 and Face 2 are now supported when performing an object oriented setup.

NOTE – The object oriented station setup is available only when the **Object Oriented Setup** Trimble Access software option is licensed to the controller. To purchase a license for the **Object Oriented Setup** option, contact your Trimble Distributor.

BIM model display enhancements

- When selecting a surface in a BIM model the Trimble Access software highlights the outside surface blue and now highlights the inside surface red. Sometimes BIM models are not oriented correctly and the surfaces are back to front. In many instances this does not matter, for example **Compute center point**, **Compute center line** and **Measure to surface** are not sensitive to which surface face is selected. However, **Surface inspection** and the **Point, edge, plane** method when performing an object oriented setup are both sensitive to the displayed surface orientation. To select the other face of the selected surface, tap and hold in the map and select **Reverse faces**.
- When viewing BIM models in the Map or the Video screen, you can now choose to display the model as **both** a wireframe **and** as a solid object. This enables you to view entities as solid objects and to see the edges of objects at the same time.

To change the **Display** setting, open the **Map settings** or **Video settings** screen, scroll to the **BIM model options** group, and select **Both** in the **Display** field.

Orbit data freely when using XYZ (CAD) coordinates

When the job **Coordinate order** is set to **XYZ (CAD)**, tap  to orbit data freely in the map, with no constraint.

When the job is **not** using XYZ (CAD) coordinates, the orbit function is constrained so that the Z axis remains upward.

Exporting to GNSS Vector Exchange (GVX) format

You can now export job data to the GNSS Vector Exchange (GVX) format.

GVX, developed by the US National Geodetic Survey (NGS), provides a standard file format for exchanging GNSS vectors derived from varying GNSS survey methods and manufacturer hardware. The file format includes all of the necessary data of a GNSS vector for inclusion in a survey network for least squares adjustment, as well as crucial metadata. For more information, go to <https://geodesy.noaa.gov/data/formats/GVX/>.

Using the Project height from a point or the GNSS receiver

When defining or editing the coordinate system, you can now automatically complete the **Project height** field using the **Here** or **Point** softkey when the **Coordinates** are **Ground (keyed in scale factor)** or **Ground (calculate scale factor)**. Previously these options were only available when the **Coordinates** were **Grid**.

Tap **Here** to use the current autonomous height derived by the GNSS receiver, or tap **Point** to use the height of a point in the job or in a linked file.

The **Point** softkey is not available when you are creating a new job. The **Here** softkey is available only when the software is connected to a GNSS receiver.

Negative Project height values

When defining or editing the coordinate system, you can now enter negative values in the **Project height** field, if required.

Take measurements using FOCUS 35 Power key

During a survey you can now take a measurement using a short press of the **Power** key on the FOCUS 35 total station.

Previous versions of the Trimble Access software already allow measurements using the **Power** key on the FOCUS 50 total station.

Trimble Access software now available in Indonesian

You can now view the Trimble Access software in Indonesian. To be able to select **Indonesian** in the **Select language** screen of the Trimble Access software, you must install the Indonesian language and help files using Trimble Installation Manager.

Coordinate System Database updates

The Trimble Coordinate System Database installed with Trimble Access includes the following enhancements:

- Added datum and zones for SIRGAS-Chile 2021 used in **Chile**
- Added displacement model, datum and zones for RDN2008 used in **Italy**
- Added datum and zones for BGS2005 used in **Bulgaria**
- Added datum and zones for MAGNA-SIRGAS(2018) used in **Colombia**

Independent installation of Trimble Coordinate System Database

The Trimble Coordinate System Database (CSD) contains definitions of datums, projections and geoids used in the transformation of Global coordinates to Grid. Past versions of Trimble Access have always included the latest version of the CSD at the time of release. Starting from Trimble Access version 2022.00, the Coordinate System Database appears as a separate item in Trimble Installation Manager. This will enable future updates of the database without requiring a new version of Trimble Access to be installed.

We're making word choices that support inclusion in our code, products and conversations

When it comes to creating an inclusive environment, we all know that words matter. Occasionally in our work we encounter words and technical jargon that can be considered offensive and non-inclusive due to their origins or associations.

In Roads, we now use the term **alignment** instead of **master string** in a GENIO file. This is also consistent with the use of the term alignment in other road types.

In Pipelines, we now use the term **primary tally file set** instead of **master tally file set**.

Resolved issues

- **Controller remains on during upload/download:** Trimble Access now prevents the controller going to sleep when uploading files to or downloading files from the cloud. This is useful when synchronizing large amounts of data.
- **Points added to CSV uploaded with job:** When the **Add to CSV file** option is enabled, the CSV file containing the points added during the survey is now uploaded to the cloud with the job.
- **Upload triggered by job status change:** We have fixed an occasional issue where the last records in a job file were not uploaded to the cloud when the job status field was used to trigger the upload.
- **.0 appended to project name:** We have fixed an occasional issue where a project on the controller loses the connection to the cloud project, resulting in two projects with the same name appearing on the controller, with .0 appended to one project name.
- **Filtering jobs:** The project details pane to the right of the **Projects** list now shows the same jobs as the **Jobs** screen when you are filtering jobs.
- **Upgraded job issues:** We have fixed an issue where a Trimble Access job upgraded from reference frame HTDP v3.2.9 to HTDP v3.4.0 could not be opened in Trimble Access or imported to Trimble Business Center.
- **Import ASCII file:** We have fixed an issue where imported points with null elevations had the elevation set to 0.
- **Import IXL:** We have fixed an issue when importing IXL files where the match command included leading or trailing spaces.
- **Export scan .tsf files to CSV:** We have fixed an issue when attempting to export scan .tsf files to CSV files where the software sometimes erroneously reported there were no scan files associated with the job.
- **Inverse between nodes:** You can now compute an inverse between nodes on a DXF file.
- **Extruded circles in DXF files:** Extruded circles can now be selected in the map.
- **Blocks in DXF files:** We have fixed an issue where occasionally symbols and lines in blocks appeared to be missing, but were in fact displaced in the map.
- **LandXML arc nodes:** We have fixed an issue when **Create nodes** is enabled for LandXML files, where the elevation of the end node of an arc was incorrect if the start and end elevations of the arc were not the same.
- **Pipe network LandXML files:** We have fixed an issue, introduced in Trimble Access 2021.20, where pipe networks in LandXML files were not shown correctly in the map.

- **Deleted control codes:** We have fixed an issue where if you deleted control codes from a feature library, the deleted control codes were still in the feature code library the next time you viewed the list of codes.
- **Alphanumeric feature codes:** Points with a feature code consisting of a single letter that matches a control code followed by a numeric value (for example, E10) are now processed as feature codes rather than control codes, and the points are displayed in the map.
- **Attributes on codes ending in a numeric value:** We have fixed an issue in **Measure codes** where you could not always enter attributes for a code ending in a numeric value.
- **Continuous topo:** We have fixed an issue where sound events would stop playing while storing Continuous topo points.
- **IMU Tilt Compensation with xFill-RTX:** Trimble R12i receiver firmware version 6.14 now supports xFill-RTX functionality with IMU tilt compensated measurements. However, Trimble Access does not yet support xFill-RTX tilt compensated measurements. For this reason, Trimble Access version 2022.00 disables xFill-RTX when using a survey style with **IMU tilt compensation** enabled. When using earlier versions of Trimble Access with R12i firmware version 6.13 or 6.14, to avoid storing incorrect coordinates you must disable **xFill** in the survey style when **IMU tilt compensation** is enabled.
- **Point storage in RTK & Logging, and Postprocessed Kinematic surveys:** We have fixed an issue where the **Observation stored** message was sometimes displayed and the sound event played before the point was stored to the postprocessed file when logging to the receiver memory. This issue could result in position errors during postprocessing if the receiver was moved before the point was stored in the receiver file. The fix means points may require slightly longer occupations in RTK & Logging and PPK surveys.
- **GNSS NTRIP connection:** We have fixed an issue where if **Connect directly to mountpoint** was selected in the GNSS contact then the **Opening connection** progress bar sometimes stalled at 20%.
- **Video screen:** We have fixed these issues with the **Video** screen:
 - When editing the form alongside the **Video** screen, pressing controller arrow keys to change the selection in a drop-down list now changes the selection without moving the instrument. Pressing arrow keys when the focus of the software is not in a drop-down field will move the instrument. To move between fields in a form, press the **Tab** key.
 - Point labels were not always shown when you first viewed the **Video** screen.
 - When a new station setup was started using a Favorite or function key shortcut, the data shown in the **Video** screen from the previous station setup was not updated.
- **Plummet camera view on TDC600:** We have improved the layout of the **Plummet camera calibration** screen when using the TDC600 controller in portrait mode.
- **Dual-prism offset target:** We have fixed an issue when using the **Dual-prism offset** measurement method, where opening another measure form such as **Continuous topo** resulted in the dual-prism offset target

being used with the other measurement method and could not be changed.

- **Servo/Robotic settings:** Settings configured in the **Servo/Robotic** group box in the **Instrument** screen of the survey style or in the **Options** screens for station setup, measure, or stakeout, are now preserved throughout the software.
- **Object oriented setup:** We have fixed these issues with object oriented station setup:
 - When starting an object oriented setup, the status bar sometimes kept showing the previous instrument height.
 - When performing an object oriented setup the **Turn** softkey now turns to the correct location.
 - You can now save object oriented setup as a favorite or assign it to a function key. In the previous release, Resection was saved as the favorite or function.
- **FOCUS 35 radio connection using TSC5:** We have fixed an issue where the TSC5 controller could not connect to the FOCUS 35 total station using a radio connection. Bluetooth connections were not affected.
- **S series radio connection using TSC5:** We have fixed a number of issues when connecting a TSC5 controller with EM120 radio to a Trimble S Series total station. Specifically:
 - An issue where after turning off the total station and then turning it back on, the total station would not reconnect to the TSC5 controller.
 - An issue where turning off the TSC5 controller using the **Power** button when connected to the total station using an EM120 radio caused an application error.
- **Android controller issues:** We have fixed these issues that are specific to Android controllers:
 - **Linking photos to points or jobs:** We have fixed an issue where photos captured using the controller camera were not automatically linked to the point or job if you had opened the camera app using a quick double-press of the **Power** key.
 - **SX12 connection errors:** We have fixed an issue where the software occasionally showed connection errors when already connected to an SX12, and the instrument had to be reselected in the Wi-Fi connection screen.
 - **Date and time formats on Android:** All dates and times are now formatted and displayed in accordance with the device's selected language. Previously some dates and times were displayed using a format that did not match the preferred format for the operating system language settings.
 - **Export to USB drive on Android:** We have fixed an issue where once you had exported files to a USB drive it was not possible to reselect the inserted USB drive as an export location for subsequent exports.
 - **DC files:** When creating a job from a DC file on an Android device, an RXL file is now automatically created if the DC file contains a road. Previously the RXL file was not created.

- **Stakeout icons in Video screen:** The stakeout target icon is now shown in the **Video** screen on an Android device.
- **TCU5 performance:** We have fixed an issue that caused the TCU5 controller to slow down if Wi-Fi was disabled.
- **TDC600 function key:** We have fixed an issue where you could assign a favorite function to F4 (the function key on the side of the TDC600 controller), but subsequently pressing F4 did not activate the assigned function.
- **TDC600 scanning in portrait mode:** We have fixed an issue where the software showed a spurious **Feature not supported in portrait mode** message when you opened the **Scanning** screen when the controller was in portrait mode.
- **Station selection improvements:** You can now use the **Sta+** and **Sta-** softkeys to select another station when using the **Skew offset** and **Side slope from alignment** stake methods or when using the **Station on alignment** stake method with a nominal offset value.
- **Numeric keypad selection of codes:** You can now only use the numeric keypad keys to select codes when using a **Measure codes** button layout that has 3 columns.
- **Application errors:** We have fixed several issues that caused occasional application errors when using or closing the software. In particular:
 - When staking out with an R12i GNSS receiver.
 - When opening the **Layer manager** on an Android controller.
 - When changing the visibility of multiple JPG files in the **Layer manager** on an Android controller.
 - When changing the visibility of a DXF file that contains a polyline that ends with a zero-length arc.
 - When attempting to use a TIFF file encoded with a 4-bit-per-pixel format as a background map.
 - When viewing several large BIM models in the map.
 - When using the **Video** screen when connected to a Trimble VX spatial station or Trimble S Series total station.
 - When starting Trimble Access where you had previously started to enter the name of a Favorites group and then tapped elsewhere instead of tapping **Accept**.
 - When attempting to link a .12da file to a job where the file included a circle. This was an issue only for .12da files exported from Trimble Business Center.
 - When waking up a controller that had gone to sleep with Trimble Access running.
 - When tapping **OK** in the **Total station battery has turned off due to low battery** message if it appeared when using a TSC5 controller connected to an SX12 scanning total station.
 - When canceling a panorama during scanning.

Roads

New features

New stakeout methods for 12da roads

You can now stake out a 12da road using two new methods: **One string** and **Two strings**. Use the **One string** method to stake a string (or polyline) relative to a 12da alignment. Use the **Two strings** method to stake to a surface defined by two strings (or polylines) relative to a 12da alignment.

For more information, see the **Staking out a 12da road** section of the [Trimble Access Help](#).

Autodesk Civil 3D LandXML string road file support

Trimble Access Roads now supports the display of Autodesk Civil 3D LandXML string road files in the map.

Use the LandXML export function in Autodesk Civil 3D to export corridor baseline alignments, along with associated feature lines. You will need to extract feature lines from the corridor key point codes before you export the LandXML file from Autodesk Civil 3D.

For more information, see the topic **To export LandXML string roads from Autodesk Civil 3D** in the [Trimble Access Help](#).

Enhancements

RXL and LandXML stakeout enhancements

The work that was begun in version 2021.20 to consolidate the menu and map-based stakeout workflows is now complete. The workflow for staking a LandXML or RXL road is now the same, regardless of whether you start stakeout from the menu or the map. You can now select **To the road**, **To the string**, or **Station on the string** by interacting with the road on the map, or use the method fields on the form to select these methods or one of the additional stake methods available. The **String**, **Offset**, **Stations** and construction offsets can now be selected directly on the stakeout form, without having to tap additional buttons or use the tap and hold menu.

Construction offset enhancements

You can now key in construction offset values directly on the form. For more advanced features, an **Options** softkey enables you to access them all from the one screen. You can no longer access the construction offsets from the tap and hold menu.

In addition, you can now apply a station construction offset when staking an RXL road. Previously you could apply a station construction only to LandXML, 12da, or GENIO roads.

When the stake method is **To a string** with a calculated construction offset applied, a perpendicular cut/fill (**Perp. Dist**) delta is now reported in addition to the vertical cut/fill delta (**V.Dist**). This delta is available for RXL and LandXML roads.

Cross slope and subgrade

You can now access the cross slope or subgrade functions using the **Cross slope** and **Subgrade** softkeys in the plan view and cross section view. On-screen prompts provide guidance on how to

define the cross slope or subgrade.

Skew offset enhancements

When defining a skew offset you can now select the station by tapping on the map. Previously when you did this the method changed to **Station on string**. To select another station, you can now use the **Sta+** and **Sta-** softkeys when using the **Skew offset** stake method.

Double-tap to clear map selection

To clear the current selection when staking a road, you must now double-tap an empty space in the map. This is consistent with how clearing the map selection works in General Survey. Previously, the map selection could be cleared in Roads and the method set to **To the road** with a single tap on empty space.

Improved warning messages for LandXML string roads

The software now warns when an invalid string is encountered when loading a LandXML file. Invalid strings are ignored, and the software continues to load the file. Previously the file would not load.

When selecting a LandXML file to display in the map that has multiple roads with strings that go back on themselves, the warning message now includes the road name, which is useful when the file contains multiple roads.

Tap **Skip further warnings** to prevent the software showing any further warnings for the road.

Spirals in LandXML string roads

When layering on a LandXML string road in the map, Trimble Access now warns if the spiral geometry is invalid. The horizontal alignment is then adjusted to fit.


For more information, see the topic **LandXML string roads** in the [Trimble Access Help](#).

Last used stake method

The last used stake method is now remembered when you begin road stakeout.


Switch between plan view and cross section view using a function key


You can now switch between the plan and cross section views when reviewing and staking a road or staking an alignment by pressing the function key you have assigned to this function on the controller keypad. This keypad shortcut replaces the **Tab** key shortcut in previous versions of the software. Pressing the **Tab** key now moves between fields in a form.

To assign the function key, tap  in the **Favorites** screen and select the **Function keys** option. Tap + on the function key you want to use and from the **Map controls** group, select **Toggle Plan / Cross section**.

For more information, see the topic **Favorite screens and functions** in the [Trimble Access Help](#).

Map toolbar enhancements

The Map toolbar in Roads now includes a **Video** button  when connected to an instrument that has video.

When connected to an instrument that has video and running Roads on a TSC5/TDC600 controller, tap the **More functions** button  on the Map toolbar to access the **Orbit** and **Predefined view** map tools.

Resolved issues

- **Keyed in roads defined as alignments:** We have fixed a workflow issue that resulted in a keyed in road being stored as an alignment.
- **Layer manager does not allow road layer display changes:** We have fixed an issue where if you attempted to hide or deselect a LandXML road in the **Layer manager**, the software erroneously warned that the road was being staked out and you were prevented from changing the display status of the layer.
- **RXL station interval:** If you edit the station interval for an RXL road the new value is now remembered when you restart the software.
- **12da files:** Improved support for 12da alignments where, depending on the geometry definition, some alignments could not be set to selectable in the **Layer manager**.
- **Road surface display:** We have fixed an issue where a road did not always display the surface despite having templates assigned.
- **Review using 3D drive:** To review a road using **3D drive**, the road must now have a vertical alignment.
- **Slow stakeout on Android:** We have fixed an issue where the software was slow to respond when staking an RXL or LandXML road on an Android device. This was an issue when the stake method was **To the string** and you had a calculated construction offset applied. It was particularly noticeable for large road files when using gesture support to zoom or pan.
- **Subgrade offset:** If you select a different subgrade position when staking a subgrade position, the offset value at the top of the navigation screen now updates to the new value.
- **Vertical construction offset:** We have fixed an issue where the offset was not being applied, resulting in an incorrect **V.Dist** value when the stake method was **Station on string**. This was an issue only at the navigation screen when the road consisted of a horizontal and vertical alignment with no templates assigned. The **V.Dist** value was correct at the **Confirm staked deltas** and **Review job** screens.
- **Flickering screen:** We have fixed an issue where the **Options** form would flicker if you opened it from the navigation screen when the stake method was **To a string** and a **Calculated horizontal construction offset** was applied.
- **Alignment stakeout:** When staking an alignment from the menu, you are now prompted to start a survey if you have not already started a survey.
- **Side slope staking:** Using the softkeys or the arrow keys to select a different station at the cross section navigation screen now shows the target in the correct position. Note that this was only a display issue – the navigation deltas were correct.
- **Staking a road with a gap in the template:** When staking **To the road**, you will no longer see the target in the cross section view when your position is over a template element defined as a gap. This is consistent with the software behavior when in the plan view.

- **Stakeout arrow pointing incorrectly:** We have fixed an issue when staking a station on a string where the string was a catch point and was some distance away, where the stakeout arrow sometimes pointed in the wrong direction.
- **Cross section view unavailable:** We have fixed an issue where occasionally you could not access the cross section view when the stake method was **To the string** and you were staking to an offset rather than a string.
- **LandXML string roads:** We have fixed an issue where strings that went back on themselves were occasionally not being flagged as such.
- **Application errors:** We have fixed several issues that caused occasional application errors when using or closing the software. In particular:
 - When selecting a station to stake after having previously staked a station with a keyed in elevation. This was an issue only when the road had no vertical alignment.
 - When selecting an additional string to stake. This was an issue only when the road had no templates assigned.
 - When selecting the **To an additional string** stake method from the menu when a calculated construction offset had previously been applied.
 - When attempting to view the cross section view when staking **To the string** with a computed construction offset.
 - When displaying a 12da file in the map where the file contains only the header lines.
 - When changing the **Display the road selection screen on escape** setting in the **Options** screen when selecting a road to stake from the menu.
 - When attempting to cancel out of the **Exclude** strings option when the map is updating.
 - When reviewing a road using 3D drive where some of the vertical alignment is vertical.





Tunnels

New features

Split screen Video or Map view when measuring or scanning

During auto-scan, set out, machine positioning or when measuring a position in the tunnel, the plan view or cross section view of the tunnel now appears alongside the map or, if available, the instrument video view is shown so that you can see where the instrument is pointing.

In split screen view:

- To fine-tune the position of the instrument, use the **Zoom level** tool in the **Video** screen to zoom in and then press the up, down, left or right arrow keys on the controller keypad to move the instrument. The arrow keys do not move the instrument during scanning.
- When the map is shown, use the left or right arrow keys to increment points and the up or down arrow keys to increment stations.
- To switch to the map view, tap  in the video toolbar. To switch to the video view, tap  in the map toolbar.
- To view more softkeys, tap  or swipe right to left (or left to right) along the row of softkeys.
- To make the map/video view or the plan/cross section view larger, tap  and swipe across the screen.

Enhancements

User-configurable delta information

Trimble Access 2022.00 allows you to customize the delta information shown for the current position and, if applicable, its relationship to the selected setout position shown at the bottom of the plan and cross section screens.

To show or hide deltas so that only the information you are interested in is shown, tap and hold the information panel at the bottom of the screen. You can also reorder the displayed delta information.

Map softkeys

We have improved the softkeys that appear below the map in the Tunnels software. Select the tunnel in the map and then:

- Tap the new **Edit** softkey to edit the tunnel definition.
- Tap the **Review** softkey to display the tunnel review screen.

Tunnel surface display in map

To control the appearance of the tunnel surface in the map, users should now use the **Display** drop-down list in the **Surface** group box rather than the **Roads surface** group box in the **Map settings** screen. In addition to the **Color gradient**, **Shaded**, and **Outline** options, the **Surface** group box **Display** drop-down list provides the additional **Triangles** and **Color gradient + triangles** options, which allow you to view the tunnel surface as a mesh.

In Trimble Access 2022.00, the **Road surface** setting no longer has any affect on TXL files.

Resolved issues

- **LandXML to TunnelXML:** We have fixed an issue when using the LandXML to TunnelXML stylesheet, where radius values were not correctly converted from the LandXML file, resulting in an incorrect tunnel definition.

- **Application errors:** We have fixed several issues that caused occasional application errors when using or closing the software. In particular:
 - After defining a tunnel with a single horizontal element. Now the tunnel is created but not shown in the map until another element is added.

Pipelines

Resolved issues

- **Application errors:** We have fixed several issues that caused occasional application errors when using or closing the software. In particular:
 - When changing the **Display the alignment selection screen on escape** setting in the **Options** screen when selecting an alignment to stake from the menu.
 - When attempting to view a job that references linked jobs.

Supported equipment

Trimble Access software version 2022.00 communicates best with the software and hardware products listed below.

***NOTE** – For best performance, hardware should always have the latest available firmware installed.*

For more information on recent software and firmware versions, refer to the [Trimble Geospatial Software and Firmware Latest Releases document](#).

Supported controllers

Windows devices

The Trimble Access software runs on the following Windows® 64-bit devices:

- Trimble TSC7 controller
- Trimble T7, T10, or T100 tablet
- Supported third-party tablets

For more information on supported third-party tablets, go to [Trimble Access Downloads](#) and click **Support Bulletins – Trimble Access** to download the **Trimble Access 2021 on 64-bit Windows 10** bulletin.

Android devices

The Trimble Access software runs on the following Android™ devices:

- Trimble TSC5 controller
- Trimble TDC600 handheld

- Trimble TCU5 controller

A small number of features are not supported when running Trimble Access on an Android device. For more information, see the section **Tips for Android devices** in the [Trimble Access Help](#).

Supported conventional instruments

Conventional instruments that can be connected to the controller running Trimble Access are:

- Trimble scanning total stations: SX12, SX10
- Trimble VX™ spatial station
- Trimble S Series total stations: S8/S6/S3 and S9/S7/S5
- Trimble mechanical total stations: C5, C3, M3, M1
- Trimble SPS Series total stations
- Spectra® Geospatial total stations: FOCUS® 50/35/30
- Supported third-party total stations

The functionality available in the Trimble Access software depends on the model and firmware version of the connected instrument. Trimble recommends updating the instrument to the latest available firmware to use this version of Trimble Access.

NOTE – *Connections to the SX10 or SX12 are not supported when using the TCU5 controller or the TDC600 model 1 handheld.*

Supported GNSS receivers

GNSS receivers that can be connected to the controller running Trimble Access are:

- Trimble integrated GNSS surveying systems: R12i, R12, R10, R8s, R8, R6, R4, R2
- Trimble modular GNSS surveying systems: R750, R9s, NetR9 Geospatial, R7, R5
- Trimble SPS Series GNSS Smart Antennas: SPS986, SPS985, SPS985L, SPS785, SPS585
- Trimble SPS Series GNSS modular receivers: SPS85x
- Trimble Alloy GNSS Reference Receiver
- Spectra Geospatial integrated GNSS receivers: SP85, SP80, SP60
- Spectra Geospatial modular GNSS receivers: SP90m
- FAZA2 GNSS receiver
- S-Max GEO receiver

NOTE – *Because Spectra Geospatial receivers use different GNSS firmware to other supported receivers, not all functionality in the Trimble Access software is available when a Spectra Geospatial receiver is in use. For more information, refer to the support bulletin [Spectra Geospatial receiver support in Trimble Access](#).*

Installation information

License requirements

You can install Trimble Access 2022.00 using a perpetual license that is licensed to the controller or as a subscription license that is assigned to an individual user. Licenses are required for the General Survey app as well as for each Trimble Access app you want to use.

Perpetual license

To install Trimble Access 2022.00 onto a supported controller that has a *perpetual license*, the controller must have a Trimble Access Software Maintenance Agreement valid up to **1 May 2022**.

TIP – To upgrade from an older controller to a new controller, you can relinquish your Trimble Access software license from an older controller that has a current Software Maintenance Agreement using the appropriate Trimble Installation Manager. Once your distributor has reassigned the licenses to your new controller, you can install Trimble Access to the new controller using Trimble Installation Manager.

Subscriptions

If you are using a Trimble Access *subscription* rather than a perpetual license, you can install Trimble Access 2022.00 onto any supported controller.

To use the software subscription:

1. The License Administrator in your organization must assign a subscription to you using the [Trimble License Manager webapp](#).
2. The first time you start the Trimble Access software, you must sign in using your Trimble ID to download your Trimble Access subscription license to the controller. Otherwise you are prompted to sign in only if you have previously signed out.

Subscriptions are locked to that controller until you sign out. Once signed out, you can run Trimble Access on a different controller and sign in to lock the subscription to that controller and use the software.

Don't have a current license? You can still try out the software

You can use Trimble Installation Manager to create a limited demonstration license and then install Trimble Access 2022.00 onto any Windows 10 computer or a supported Trimble controller running Android.



Demonstration licenses are limited to adding 30 points per job, however large jobs created elsewhere can be opened and reviewed. Demonstration licenses allow connections to GNSS receivers and total stations for the first 30 days. After 30 days you can emulate a total station survey using a manual instrument (Windows and Android), and emulate a GNSS survey (Windows only).

NOTE – You can only create a demonstration license for Trimble Access on devices that do not already have a Trimble Access license.


For more information, refer to the topic **To try out software** in the *Trimble Installation Manager Help* for your controller operating system.


Installation and upgrades using Trimble Installation Manager

To install the software to your controller, use the appropriate Trimble Installation Manager for your controller operating system:

- Trimble Installation Manager for Windows 
- Trimble Installation Manager for Android 

To install the software to a Windows controller

To download and install Trimble Installation Manager for Windows , connect the controller to the internet, and then go to install.trimble.com and select the **TIM for Windows** tab.

To run Trimble Installation Manager on the controller, tap the **Search** icon in the Windows task bar and enter **Install**. Tap Trimble Installation Manager , in the search results to open the Trimble Installation Manager. When you run the software, it updates itself automatically with the latest changes and software releases.

Jobs that were last used in Trimble Access version 2017.xx and later are automatically converted to the latest version of the software when you open them in Trimble Access. There are a number of tools for converting older jobs. For more information, refer to the **Trimble Access: Converting jobs to a newer version** document, available from forms.trimble.com/globalTRLTAB.asp?nav=Collection-62098.


Trimble Installation Manager for Windows can be installed and uninstalled as required, without affecting the Trimble Access software.

For more information refer to the *Trimble Installation Manager for Windows Help*.

To install the software to an Android controller

Trimble Installation Manager for Android is **often preinstalled** on Trimble Android devices.

To download and install Trimble Installation Manager for Android , connect the controller to the internet, and then go to install.trimble.com and select the **TIM for Android** tab.

To run Trimble Installation Manager on the controller, go to the Android **Apps** screen and tap the Trimble Installation Manager for Android  icon. When you run the software, it updates itself automatically with the latest changes and software releases.

NOTE – *Trimble Installation Manager for Android must remain installed on the controller for the Trimble Access software to run.*

Jobs that were last used in Trimble Access version 2019.xx are automatically converted to the latest version of the software when you open them in Trimble Access. There are a number of tools for converting older jobs. For more information, refer to the **Trimble Access: Converting jobs to a newer version** document, available from forms.trimble.com/globalTRLTAB.asp?nav=Collection-62098.

For more information refer to the *Trimble Installation Manager for Android Help*.


Updating office software

You may need to update your office software, so that you can import your Trimble Access version 2022.00 jobs. All required updates to Trimble Business Center are handled using the **Check for updates** utility provided with Trimble Business Center.

TIP – If you are using other office software such as Trimble Link™ to convert job files to other file formats, install the Trimble Installation Manager onto the computer where Trimble Link is installed and then run Trimble Installation Manager to install office updates.

Solution Improvement Program

The Trimble Solution Improvement Program collects information about how you use Trimble programs and about some of the problems you may encounter. Trimble uses this information to improve the products and features you use most often, to help you to solve problems, and to better meet your needs.

Participation in the program is strictly voluntary. At any time, you can choose to participate, or not to participate in the Solution Improvement Program. To do this, in Trimble Access tap  and select **About**. Tap **Legal** and select **Solution Improvement Program**. Select or clear the **I would like to participate in the Solution Improvement Program** check box.

Trimble Access Apps

The Trimble Access software suite offers surveyors and geospatial professionals a range of specialized field applications designed to make fieldwork easier. With an easy-to-use interface, optimized workflows, and real-time data synchronization, the Trimble Access software suite enables you to accomplish more every day. Improve your competitive edge by selecting the applications that best suit the work that you do.

Trimble Access apps supported on Windows devices

The following Trimble Access apps are supported when running this version of Trimble Access on a [supported Windows device](#):

- Roads
- Tunnels
- Mines
- Land Seismic
- Pipelines
- Power Line
- Katastermodul Deutschland
- Monitoring
- AutoResection
- BathySurvey

NOTE – Changes to the Trimble Access apps that are supported can change after release. For up to date details, or details on apps supported with previous versions of Trimble Access, see [Trimble Access App availability](#).

Trimble Access apps supported on Android devices

The following Trimble apps are supported when running this version of Trimble Access on a [supported Android device](#):

- Roads
- Tunnels
- Mines
- Pipelines
- Power Line
- Katastermodul Deutschland
- Monitoring
- AutoResection
- AllNAV Rounds

NOTE – Changes to the Trimble Access apps that are supported can change after release. For up to date details, or details on apps supported with previous versions of Trimble Access, see [Trimble Access App availability](#).

Legal information

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