Leica Captivate v8.00
Software Release Notes

Product	Leica Captivate Field Controllers: CS20, CS35, CS30 Total Stations: TS16, TS60, TM60, MS60, TS13, TS10 GNSS Sensors: GS18 T, GS18 I, GS18
Release date	27th June 2023
Maintenance date	1st June 2023
Available in myWorld	27th June, 2023

Available via : https://myworld.leica-geosystems.com/irj/portal

Contents

1 Leica Captivate v8.00 Release Notes - Introduction

Please do take your time to read these Release Notes. They contain information about new features and bugfixes.

General information	There is a Leica Captivate v8.00 release for the following hardware • Field Controllers: CS20, CS30, CS35 • Total Stations: TS10, TS13, TS16, TS60, MS60, TM60 • GNSS Sensors: GS18, GS18 T and GS18 I
Customer Care Product (CCP) dates	The Leica Captivate software version 8.00 can be loaded onto all CS Field Controllers, GS18 GNSS Sensors and TS Total Stations with a CCP license valid until at least 01.06.2023
Jobs, Coordinate Systems, Working Styles, RTK Profiles and other objects	All Leica Captivate "objects" (such as Jobs, Coordinate Systems, Working Styles, RTK profiles etc.) created or used within previous Leica Captivate versions can be used without problems in Leica Captivate v8.00

Compatibility between Leica Captivate versions

Compatibility between Leica Captivate versions is guaranteed if the instruments run the same major version.

This means, for example, when using a version 8.x on a Leica Captivate GS Sensor or TS Total Station, the CS20 Controller or CS30/CS35 Tablet must also run a v8.x to be compatible.

For the new Leica Captivate v8.00, all Leica Captivate GS Sensors and TS Total Stations must be updated to version 8.00 to be compatible with a CS20 Controller or CS30/CS35 Tablets running v8.00 and vice versa.

Note that there will be no firmware update for the GS07 GNSS sensor, and the latest version will remain v7.813.

Compatibility between Leica Captivate and SmartWorx Viva versions

The table below shows the compatibility between Leica Captivate and SmartWorx Viva versions.

The new GS related features released with Leica Captivate v8.00 can be used with a Leica Viva GS14, GS15, GS16, GS10 or GS25 sensor. SmartWorx Viva GS version 12.00 is needed on these GS sensors to use the new features.

		CS20, CS3x			
		Leica Captivate v1.x	…	Leica Captivate v7.x	Leica Captivate v8.x
TS MS GS	All versions prior to SmartWorx Viva v6.0 and higher than v5.60	Fully compatible		Not compatible	Not compatible
	…				
	SmartWorx Viva v8.x	Not compatible		Not compatible	Not compatible
	SmartWorx Viva v9.x	Not compatible		Compatible for Viva TS	Compatible for Viva TS
GS	SmartWorx Viva v11.x	Not compatible		Fully compatible	Not compatible
	SmartWorx Viva v12.x	Not compatible		Not compatible	Fully compatible

2 Leica Captivate - New Software Features

**Assign jobs to a site and filter by site**

When working on several different projects and needing to use or create a new job for each day or for each task, it can result with many jobs stored on the memory device. When there are many jobs, it may become difficult to find the needed job, especially when using the job carousel.

With Leica Captivate v8.00, jobs can now be better organised using **sites**. When creating or editing a job, a new field allows the job to be assigned to a **Site**.


Sites can be created, deleted, and edited. All existing sites are shown in a list from which they can be selected when editing or creating a job. Each job can be assigned to only one site.

Sites can be set to **Visible** or **Hidden**. A job assigned to a site which is set to **Visible** will be shown in the **Home** panel job carousel. A job assigned to a site set to **Hidden** will not visible in the job carousel.

A new filter icon in the left upper corner of the **Home** panel indicates the visibility of jobs in the job carousal. The job visibility can be filtered by site, by memory device or both. If any filter is active, the icon is shown green. The filter is active when the state of any site is set to hidden, or the jobs are filtered by storage device.
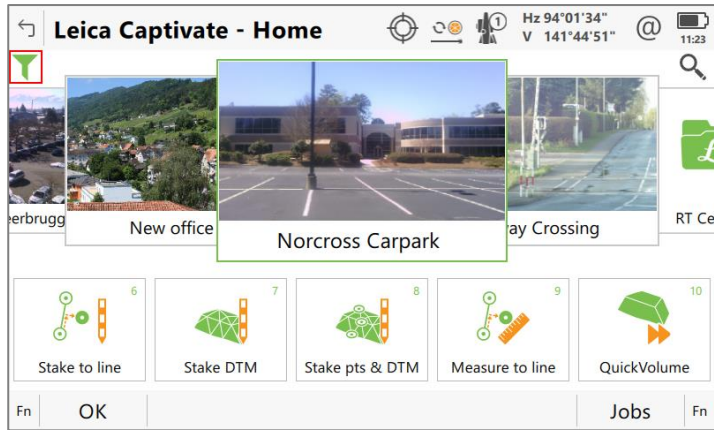
Clicking on the icon opens the **Filter** panel which allows defining which filters should be applied to the jobs shown in the **Home** panel.
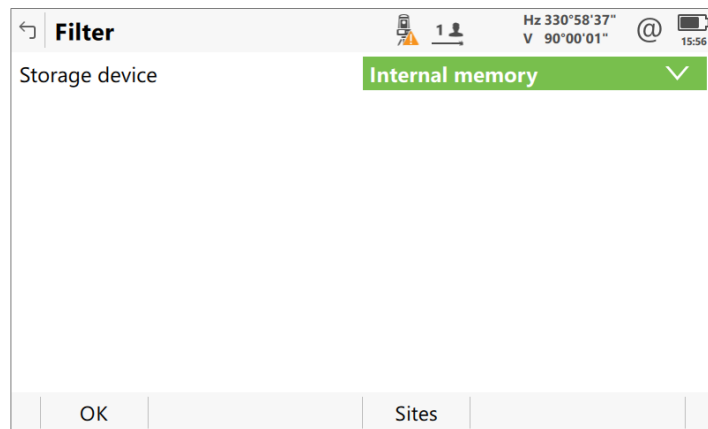
This new feature can make the job carousel in the **Home** panel much easier to work with, especially when needing to create new jobs daily while working on several large projects.

Store point with F1 or OK button when using continuous distance measurements

With previous versions of Leica Captivate, when continuous distance measurements were being used, **Stop** was assigned to the **F1** function key, and **Store** was assigned to the **F3** function key. The **OK** button on the keyboard is easy to find and use, however this button is always assigned to the **F1** function. This meant that the **OK** button on the keyboard could not be used for storing points when using continuous distance measurements.

From Leica Captivate v8.00 onwards, the **Store** and **Stop** button position has been changed. Now, when continuous distance measurements are being used, **Store** is assigned to the **F1** function key, and **Stop** assigned to the **F2** function key. This means the **OK** button on the keyboard can also be used to store points, making measurements more intuitive and comfortable.
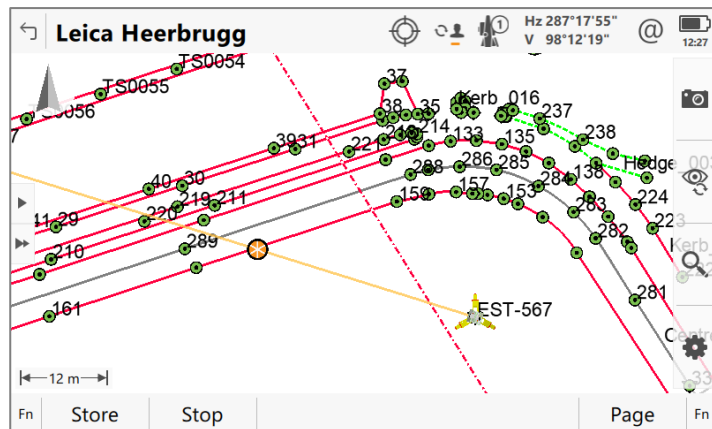

Note that when using other distance measurement modes, such as **Once** (single shot), the key assignment has not been changed. **Measure** remains on **F1** and **Store** remains on **F3**, meaning the **OK** button can still be used to make single measurements.

Use the full resolution of the tablet's cameras

In previous versions of Leica Captivate, when using a tablet to take images, the resulting images were not at the maximum resolution offered by the camera. This could be noticed when viewing the images zoomed in, especially when back in the office using a PC with a larger screen.

With Leica Captivate v8.00, it is possible to capture pictures by using the maximum resolution of the tablet's camera. When using a Leica branded or third-party tablet, in the **Capture Image** panel, the **Capture Image Settings** can be accessed by pressing **Fn F1(Settings)**. All cameras available on the device are listed with the naming convention from Windows. If there are multiple cameras, the camera can be chosen, and the resolution of the camera can also be selected.
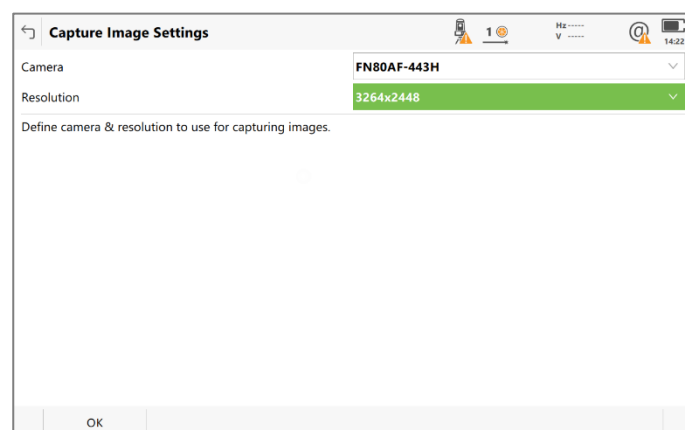
This brings the benefit that the images can be captured at a much higher quality, and ensures annotations and sketches made on the images can be read more easily.
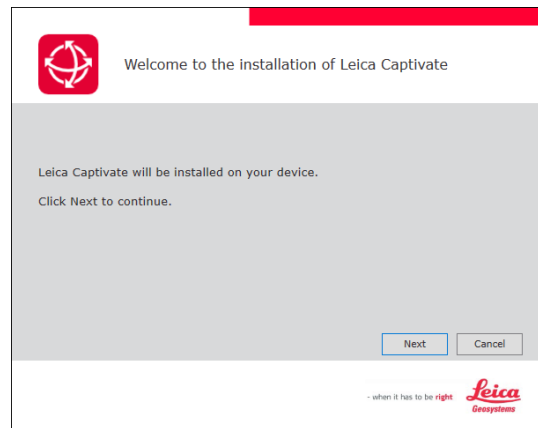
Leica Captivate x64 for tablets

Previous versions of the Leica Captivate software were only available in 32-bit, even if the tablet on which it was installed was a 64-bit device. For most applications this was not an issue, however it meant that certain components such as the 3D viewer could not utilise the full potential of the graphical performance.

From Leica Captivate v8.00, all installations of the software on tablets will be in 64-bit. With this change, the full performance of each tablet will be unlocked, allowing better graphical and data handling, especially in the 3D viewer when using large, data-heavy jobs and reference files, such as IFC or CAD files.

In addition to the improved tablet performance, Leica Captivate 64-bit has been updated with various computation libraries, such as the latest version of 3DReshaper. This library is used in Captivate to compute a mesh from scanned data and is used in volume and surface calculations such as in the QuickVolume and Check Tunnel apps. Note that when comparing results in these applications with 32-bit versions of Captivate, small differences may be encountered.

Together with these changes, the Leica Captivate CS installer has been modernised, in line with other Leica Geosystems software.

When manually upgrading the tablets from previous versions to Leica Captivate v8.00, a message will first ask you to manually un-install the former 32-bit version of Leica captivate. This step is not needed if the upgrade to Leica Captivate v8.00 is done using the **Online update** option from the **Update Software** panel.
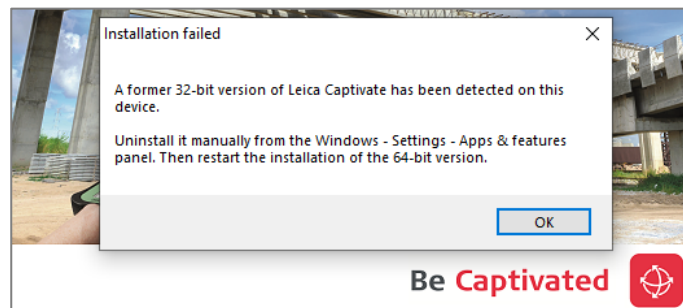
To un-install Leica Captivate go to Windows – Settings – Apps & features:
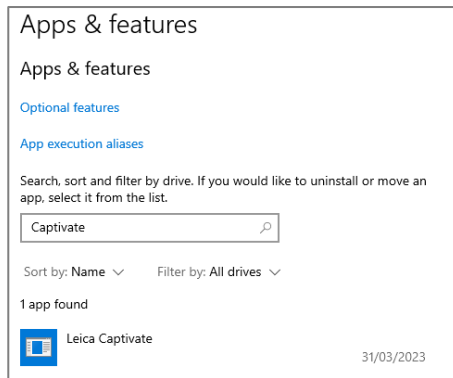
The **Sample data installer** and **Captivate Simulator App Provider** tools have been adapted to support the new Leica Captivate 64-bit version. Both are available and can be downloaded from myWorld.

**New circle and rectangle linework options for coding points**

A common task for topographic surveyors is to measure circular and rectangular objects such as inspection covers and manholes. Many third-party processing software workflows allow simplified measurements of these shapes, requiring that only 2 or 3 points are required to be measured to automatically define the shape. Previous versions of Leica Captivate did not support these simplified workflows directly during the measurement process, meaning that although the measured points of the shape could be seen, the shape was either incorrectly drawn, or not visible in the 3D viewer.

From Leica Captivate v8.00 onwards, three new linework options have been added: **3 pt rectangle**, **2 pt circle (2D)** and **3 pt circle (2D)**. These options are available when the **Coding functionality** is set to **Create linework.** The new linework options are available in the **Select Linework** panel:
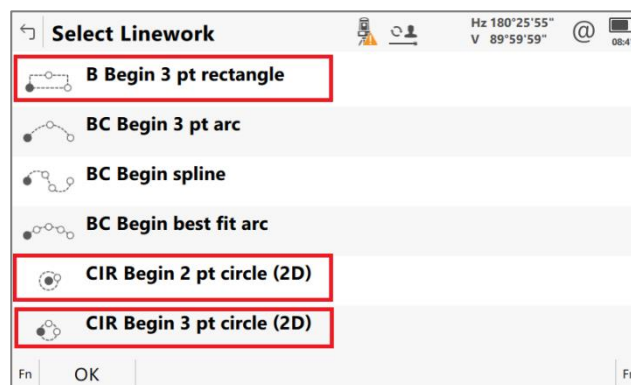
3 pt rectangle - to survey and draw a rectangle, it is no longer needed to measure four points to fully define the shape. Using the **3 pt rectangle** linework option, a perpendicular rectangle can be created by measuring only three points. The first two points from one side of the rectangle, and the third measured point defines the width of the rectangle. The rectangular shape will then be drawn in the 3D viewer. Only three points will be exported, and other auxiliary points used to construct the shape will be hidden from view.
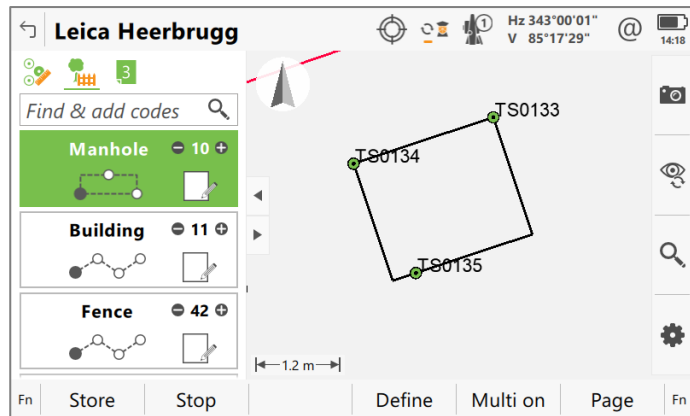
Previously, it was not possible to easily survey a circular shape, and have the circle drawn in the 3D viewer. Using the new **2 pt circle (2D)** and **3 pt circle (2D)** linework options, circles can now be created by measuring just two or three points.

2 pt circle (2D) - using this linework option, a circle can be created by measuring one point to define the centre of the circle, and a second point to define the radius of the circle. The first measured point will define the height of the circle. Only two points will be exported, and other auxiliary points used to construct the shape will be hidden from view.
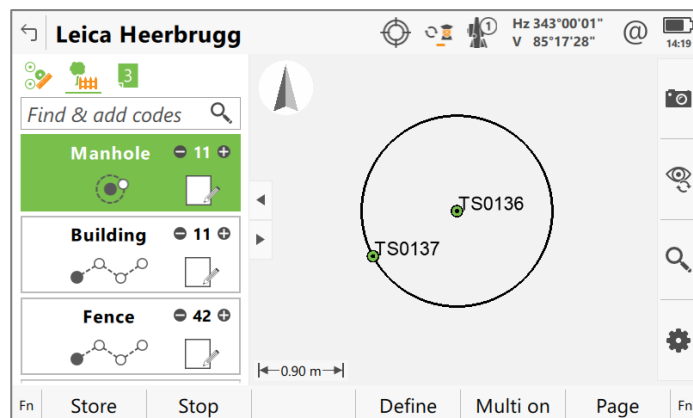
3 pt circle (2D) - using this linework option, a circle can be created by measuring three points on the circumference of the circle. The first measured point will define the height of the circle. Only three points will be exported, and other auxiliary points used to construct the shape will be hidden from view.

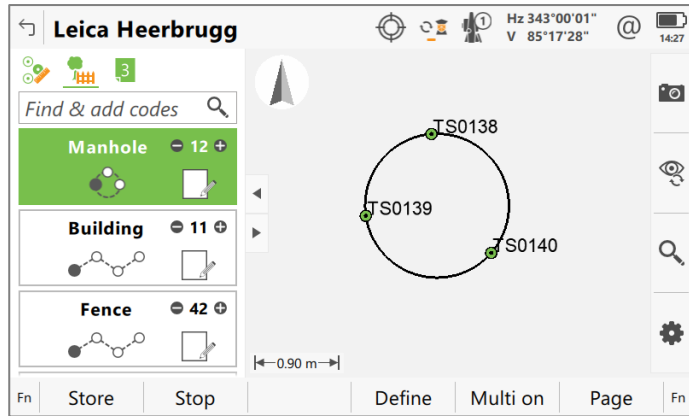Note that because auxiliary points are used to construct the 3 pt rectangle, 2 pt and 3 pt circles, the line used to represent the shape will not be linked to the measured points within the database. This means that the geometry of the line will not be editable once the shape is completed.

Within the **Coding** settings when using **Create linework**, Leica Captivate allows a linework flag to be defined for each linework option. This flag is stored with points that have been measured using linework and can be used by third-party processing software to interpret the linework in the office. The linework flag list has been extended in Leica Captivate v8.00 with the new rectangle and circle linework options:
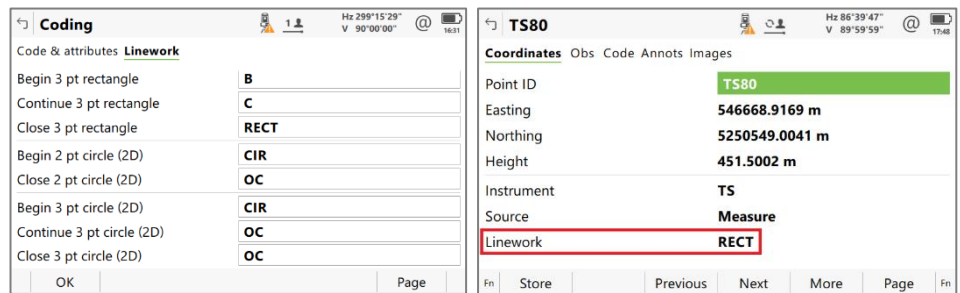
To provide more clarity about which linework flag is defined for which linework option, the defined flag can be seen at the beginning of each row in the **Select Linework** panel:
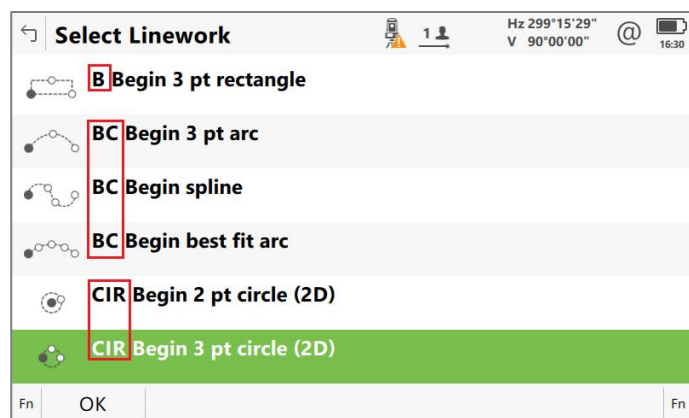
Easier linework panel access and selection

Previously, the **Select Linework** panel could only be accessed by either tapping on the linework icon within the currently selected code box, or by pressing the function keys **F4(Define)** followed by **F4(Linework)**. For this, it was needed to either use the touch screen or press two keys. When needing to access this panel many times during data collection, the existing options could be cumbersome.

With Leica Captivate v8.00, a third way to access this panel is introduced. With a code box selected, pressing the **Space** key on a controller will open the **Select Linework** panel. This requires just one key press.

When selecting linework in the **Select Linework** panel, a search can be used by pressing an alphanumeric key on the keyboard, for example, pressing the B key would start a search for items beginning with "B". With the item found, the required option needs to be confirmed to be selected. Previously, this would require two button presses; one to confirm and select the search and one to close the panel.

With Leica Captivate v8.00, the search result within the **Select linework** panel can be confirmed, selected and the panel closed by pressing just one button, using either **Enter** or **OK**.
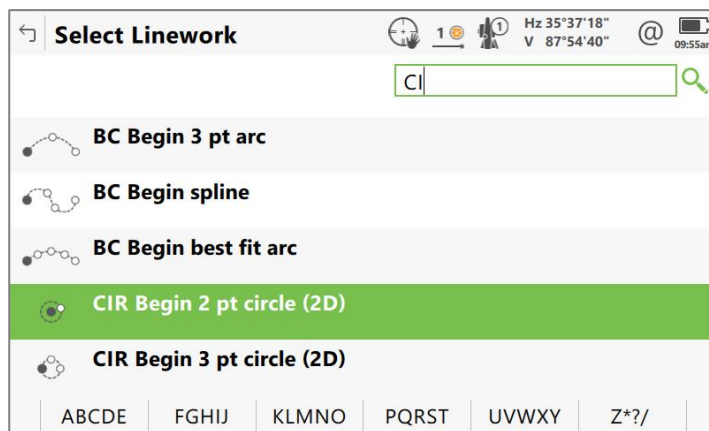
With the three new linework options, the new way to access the **Select Linework** panel and confirm the search result, a huge improvement in efficiency can be gained whilst measuring with linework. With these improvements, it is possible to save between 4 and 7 key presses per measured object, reducing the time to collect data in the field.

Extend the number of maximum attributes to use in a point code

With previous versions of Leica Captivate, the maximum number of attributes that could be defined for a point code was limited to 20. For some measurement workflows that require identifying and recording assets with more than 20 different fields of information per point, this limit meant that each information field could not be recorded separately.
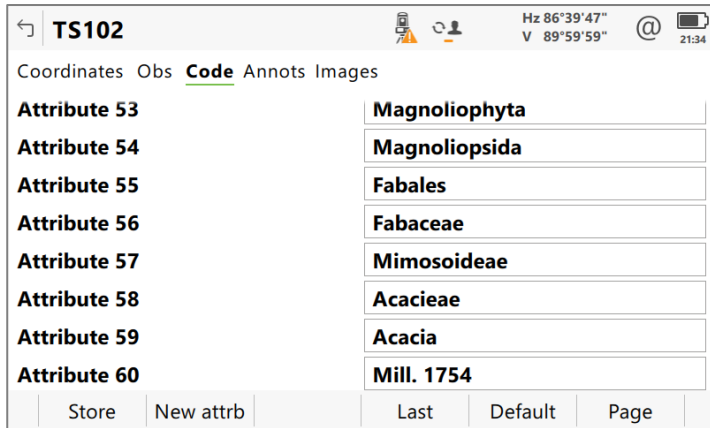
With Leica Captivate v8.00, it is now possible to define up to 60 attributes per point code. The attributes for each code in the codelist can be pre-defined in the Leica Infinity Code Manager or created on-the-fly when measuring in Leica Captivate. Import and export options that previously supported 20 attributes will now support 60 attributes.

Allow to run Captivate in tablets in a reduced window size

When Leica Captivate is used on a CS30 or CS35, it automatically runs in full screen mode to fully utilise the screen space for the most comfortable input, selection, and visualisation of measured data.

Some field workflows require using additional third-party software in parallel on the tablet, for example it might be required to run a country-specific cadastre program to check local mapping whilst measuring. In this scenario, it is required that Leica Captivate runs in a minimised window to be able to interact with the other software at the same time. Until now, this was not possible, and it was needed to keeping switching between the two programs to perform the task.
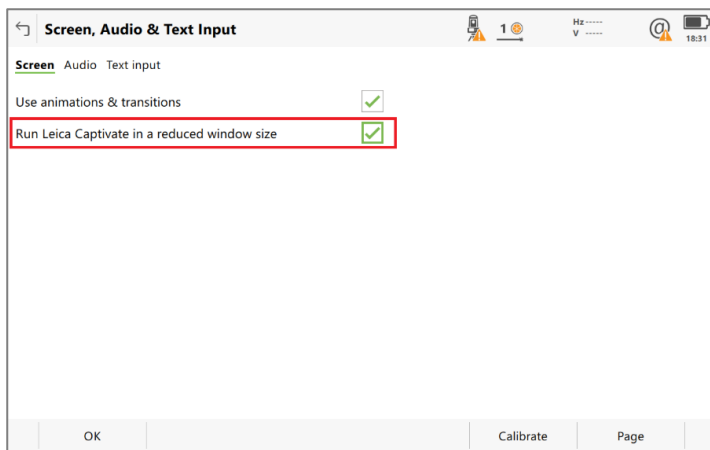
In Leica Captivate v8.00, a new setting has been added that allows Leica Captivate to run in a reduced window size. The **Run Leica Captivate in a reduced window size** setting can be found in the **Screen, Audio & Text Input** panel. After enabling the setting, a message requests that Leica Captivate needs to be restarted for the change to take effect.

This new display mode allows the possibility to run other third-party applications in parallel to Leica Captivate, and interact with both applications without the need to switch between them, increasing the efficiency of the workflow.

Allow sharing the link of an exported file via an email address

There is an increasing trend to exchange data between the field and the office using the internet. Although Leica Captivate offers online data exchange with Cloud services such as Leica Exchange, it did not offer an easy way to send data from the field to the office using email.

From Leica Captivate v8.00 onwards, the Export data tools include a new option to allow the exported data to be uploaded and shared via a link within an email.

Once the **Upload a copy and share a link via email** setting is checked, a single email address can be entered. When the data is exported in the selected format, the data is additionally uploaded to a Hexagon cloud service and an email is sent to the defined recipient containing a link to the data.
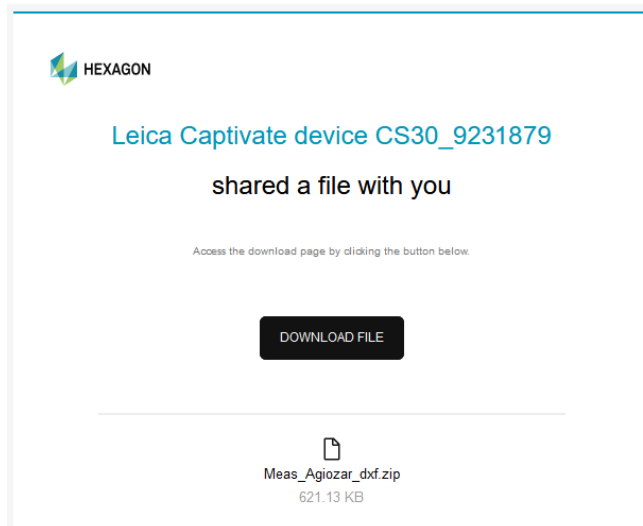
The email informs you that a Leica Captivate device has shared a file and contains a **Download file** button. Clicking it opens a Hexagon web page where the file can be downloaded. The file can be downloaded by anyone with the link and is valid for 7 days.

Stake/Check Tunnel – Use an IFC file as a tunnel design using a DTM

Tunnel designs are increasingly being provided in the IFC data format. Until now, it was not easily possible to use a Tunnel design created in this format with Leica Captivate.

In combination with Leica Infinity v4.1 and Leica Captivate v8.00, it is now possible to stake or check a tunnel design that was provided in the IFC format. Using Leica Infinity, the IFC tunnel design first needs to be converted to a mesh and saved as a Leica Captivate DTM job.

Using the **Stake & Check tunnel** applications, it is now possible to use a DTM job as a tunnel design. To be able to use this design, the DTM job needs to be linked as design data within the properties of the working job or selected as DTM design in the Design Data Panel.
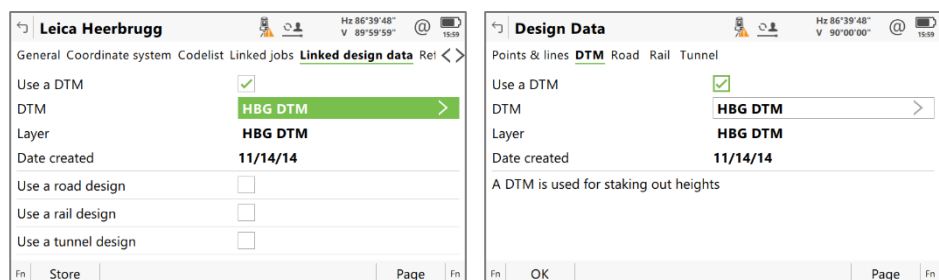
Once a DTM job is selected, the new setting **Use DTM for tunnel design** will be available in the **Define** panel of Stake or Check Tunnel.
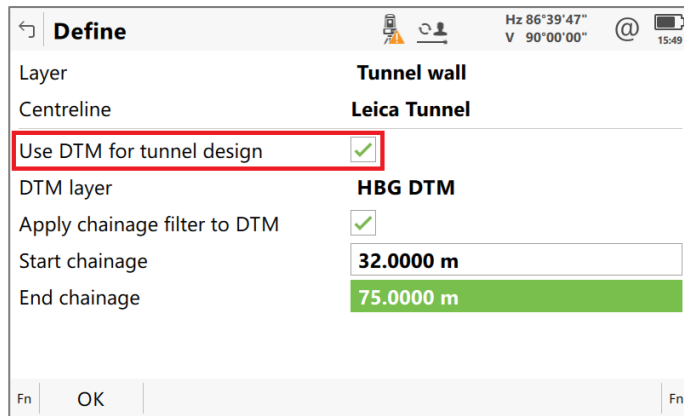
When **Use DTM for tunnel design** is checked, the DTM layer can be viewed or selected. The DTM data can be filtered by chainage, which reduces the amount of computation needed, which can help improve performance when using very large tunnel designs.
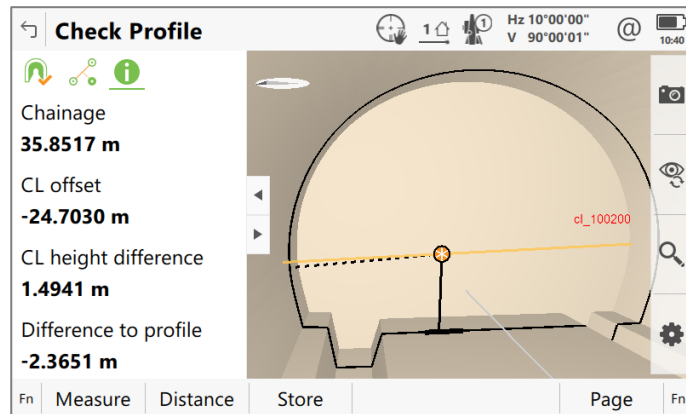
This new functionality provides an easier way to handle tunnel projects that are provided in IFC format, ensuring a smooth data workflow when working with tunnel design data.

Stake/Check Rail – New COGO Rail tool, Create points

Within the Stake/Check Rail application is a tool called COGO Rail. In previous versions of Leica Captivate, this tool offered the functionality to calculate chainages and offsets relative to the alignment, using the coordinates of existing points in the job.

From Leica Captivate v8.00, the tool has been extended to include the functionality of creating points from input chainages and offsets. This functionality was only previously available in the COGO Road tool and is now included in the COGO Rail tool. The tool can be found in the Toolbox panel:
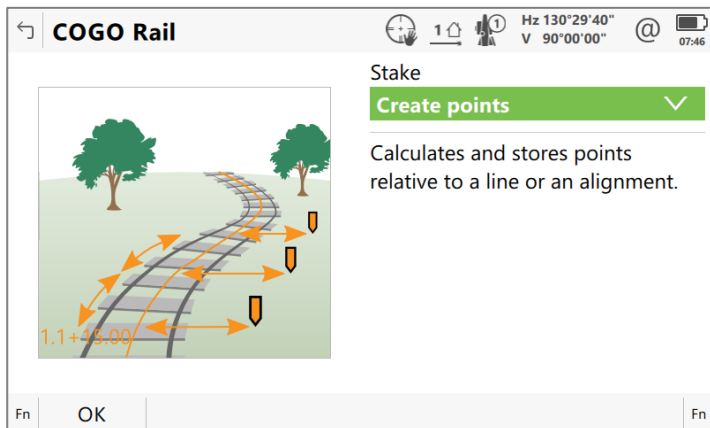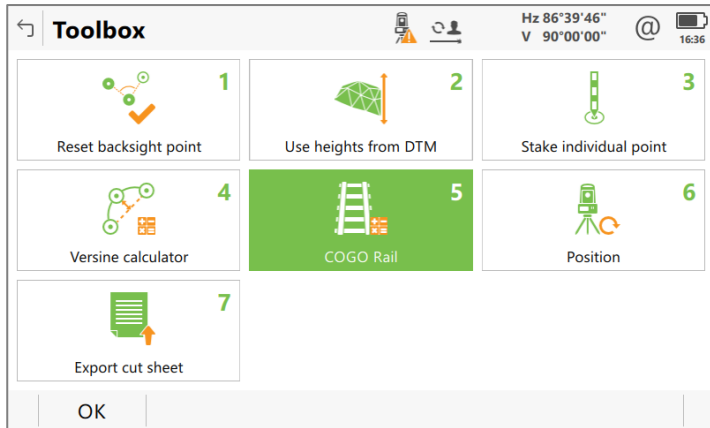
The tool offers similar calculation methods to the equivalent tool in COGO Road (**Number of points**, **Chainage increment** and **Single point**), however the COGO Rail tool offers a new calculation method called **Create points from ASCII.** An ASCII data file can include any number of 'points' which are defined by chainage, offset and height in a simple, delimited format. The file can be imported and a batch of COGO points calculated and created.
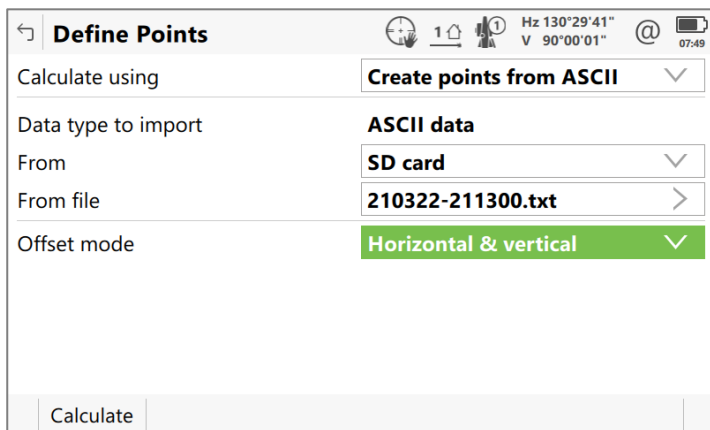
The COGO Rail tool also offers the possibility to select the offset mode, which defines in which plane the offsets should be applied. The offsets can be applied and calculated with respect to **Horizontal & vertical**, or with respect to the design cant of the track using the option **With super-elevation.**
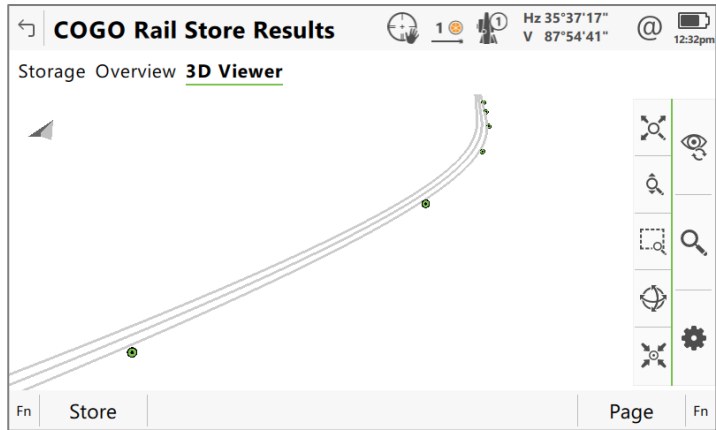
The improvements to the COGO Rail tool provide further possibilities for being able to perform coordinate geometry computations on site, allowing additional positions to be quickly and easily calculated, as well as a way of performing a verification of the imported rail design.

3 Leica Captivate New Features – TS specific

Allow using AP20 tilt compensation in Setup application

The **Leica AP20 Autopole** is the world's first total station pole solution, eliminating the need to hold the pole vertical when measuring points. Until now, the tilt compensation functionality of the AP20 was available in Leica Captivate measure and stake applications, however, was not available in the **Setup** application.

With Leica Captivate v8.00, it is now possible to perform a total station **setup** using the tilt compensation functionality of the AP20. In any setup method that uses multiple target points, the backsight or target points can be measured with a tilted pole, and the setup computed taking tilt compensation into account. Note that single target point setups do not support tilt compensated measurements, for example **Set orientation** and **Known backsight**. This new functionality allows the full benefits of the AP20 to be gained, increasing the speed and flexibility of the solution even further.

4 Leica Captivate New Features – GS specific

The new GS related feature released with Leica Captivate v8.00 can be used with a Leica GS18, GS18 I and GS18 T using Leica Captivate v8.00 and with Leica Viva GS10, GS14, GS15, GS16 and GS25 sensor using SmartWorx Viva v12.00.

Improved RTK performance over short baselines

With Leica Captivate v8.00, the GNSS positioning algorithms have been improved to provide higher RTK availability over short baselines of up to 5 km for single-baseline RTK and 10 km for network RTK. The expected improvement is particularly visible in challenging environments (e.g. near canopy and buildings) and under ionospheric conditions with increased disturbances.

To get the maximum performance from this improvement, both the GS Sensor and the CS20 Controller or CS30/CS35 Tablet need to be updated to the latest version.

5 Leica Captivate Software Improvements

Improvements to WMS, WMTS and WFS	In previous versions of Leica Captivate, the CS20 or TS devices were not able to display some WMS services that contained certain security protocols, for example TLS v1.3. With Leica Captivate v8.00, the support of more security protocols means that many more WMS services will also be useable on the CS20 and TS devices.
	Several other small improvements further extended the support of WMS, WMTS and WFS services within Leica Captivate.
Line base point cannot be calculated when using certain coordinate systems	Within the COGO application is a tool to calculate a basepoint on a line. In previous versions of Leica Captivate, when using certain coordinate systems that use a geoid with certain parameters, it could happen that Captivate would not be able to create the baseline point.
	This issue is fixed in Leica Captivate v8.00.
GNSS baseline deltas displayed incorrectly in geodetic format	In previous versions of Leica Captivate, in the Baseline page of the Current GS position panel, the delta latitude and longitude between the base and rover were not being correctly displayed when using the geodetic format.
	This issue is now fixed in Captivate v8.00.
COGO Inverse does not display the grade value if it's steeper than +/-89°06'00"	In previous versions of Leica Captivate, when using the COGO Inverse application, the grade value would not be calculated and displayed if the elevation angle between the two points exceeded +/-89°06'00" or +/-0.016:1 h:v.
	With Captivate v8.00, the calculated grade limitation has been increased to +/-89°59'58" or +/- 0.0001:1 h:v.
Stake/Measure to line apps could not use lines defined by points with different height definitions	When using the Stake or Check line app in previous versions of Leica Captivate, and the selected line was defined by points with different height definition types (e.g. 2D point at start, 3D point at end) then a message appeared indicating that the line was not valid. It was then not possible to use the line in the app.
	This issue is now fixed in Captivate v8.00.
CAD circles within blocks that have a block scale <1 would not be displayed on CS20 and TS devices	When attaching a CAD file to a job in previous versions of Leica Captivate, it could happen that certain circles would not be displayed in the 3D viewer. This would occur if a circle was contained within a block, and the block had a scale of less than 1 applied.
	This issue is now fixed in Captivate v8.00.
Newly added jobs not recognised in Transfer User Objects when USB stick plugged back in	In previous versions of Leica Captivate, there was sometimes an issue with reading the jobs on a USB stick in the Transfer User Objects tool. This would happen if the USB stick had already been plugged into the device, and then it was removed and jobs were added or removed on a PC. When plugging the USB stick back into the device, the job list was not updated, and therefore could not be transferred.
	This issue is now fixed in Captivate v8.00.
Changing the language in the Working Style wizard does not take effect	In previous versions of Leica Captivate, it could happen that when a different language was selected in the Regional panel step of the Working style wizard, the language would not be applied once the wizard was finished.

This issue is now fixed in Captivate v8.00.

A change of target height in the Measure sets app would change other previously edited parameters	When using the Measure sets app, certain parameters need to be defined for each point such as the target height, target type and measurement and aiming modes. In previous versions of Leica Captivate, changing the target height would incorrectly reset the other defined parameters in this panel back to their default values.

This issue is now fixed in Captivate v8.00. |
| **Scan file (SDB) name contains timestamp without time zone offset** | When performing scans using an MS60, the SDB file which is used to store scan information is automatically named using a timestamp. In previous versions of Leica Captivate, this timestamp did not take the device's time zone setting into account, and therefore was always created with the GMT time zone.

In Leica Captivate v8.00, the time zone offset of the device is now used to name the file with the correct timestamp. |
| **Code information field was not cleared when switching from Stake to Measure app** | In Stake applications, a new setting introduced in v7.50 allowed the Code information field of the staked point to be automatically filled out with the design point code or its attributes. When switching to the Measure app, the Code information field retained the last used values from the Stake app, which was incorrect.

This issue is now fixed in Captivate v8.00. |
| **Issue exporting jobs using stylesheets when attached reference file name contains non-English characters** | When exporting a job from Leica Captivate using a stylesheet, and a reference file such as a DXF was attached to the job that contained non-English characters in the name, the export would fail if the HeXML 2.0 schema was used.

This issue has been fixed in Leica Captivate v8.00. |
| **Target prediction setting not remembered correctly after restarting device** | Within the Target Search settings, there is the option to set what the instrument should do "If no target found after prediction". In previous versions of Leica Captivate, if the option "Stop search" was chosen, then after restarting the device, this setting would be set back to the default value of "Wait & Lock". In

Leica Captivate v8.0, this issue has been fixed. |
| **Issue displaying file name in Bricsys 24/7 when using Chinese characters** | When certain files such as DXF files contained Chinese characters in the name, the file name would not be displayed correctly when listed in the Bricsys 24/7 cloud service within Leica Captivate.

This has now been fixed in Leica Captivate v8.0. |
| **Issue displaying code groups when importing a codelist from an XML file** | When importing a codelist to Leica Captivate, the codelist can include code groups, which may be set to visible or hidden. When the codelist is defined by an XML file, the group visibility is defined by the attribute "Activated on instrument". If this field was missing in the XML file, Captivate automatically set the group to "hidden".

In Leica Captivate v8.0, this has been changed so that if the definition is missing, the code group will be set to "visible". |
| **Missing Geoid and CSCS files when using certain Auto coordinate systems** | When using an auto coordinate system, the geoid and cscs files should be automatically downloaded from the server and applied to the coordinate system. In previous versions of Leica Captivate, when using certain mountpoints, it could happen that the geoid and cscs files were not downloaded and therefore could not be applied to the coordinate system. |

This issue is fixed in Leica Captivate v8.0.

6 Obtaining and loading the new software using the online update (CS Field Controller and TS/MS Total Stations)

It is strongly recommended to use the online update to load the new software to the CS Field Controller and TS/MS Total Stations. As a pre-requisite, your instrument must be registered in Leica myWorld.

The online update cannot be used to load the new software to the GS18 GNSS receivers.

Once your Controller or Total Station has been registered in myWorld, connect your instrument to the internet. It is recommended to use a WLAN connection.

Open Leica Captivate on the device and navigate to the **Settings – Tools – Update Software** panel. The field **Update software using** contains the option **Online update**. Note that this option is only available if a new version is available online. The instrument will do a check for new versions within the first minutes of being connected to the internet. An SD card needs to be inserted in the instrument for the firmware update to work.

When selecting this option and pressing **F1(OK),** the firmware update is triggered. Should the currently installed CCP license not be valid for the firmware to be installed, a check for new licenses is done first. If any new licenses, such as extended CCPs, are available in Leica myWorld, those new licenses will be downloaded and installed first.

Afterwards, the new firmware file and all additionally loaded apps will be downloaded and once successfully finished, the installation process is started automatically.

7 Obtaining and loading the new software using manual loading (CS20 Field Controller, TS/MS instruments and AP20 AutoPole)

If you prefer not to use the myWorld online update, it is also possible to "manually" load the new software – in this case, please carefully read the notes below.

Obtaining the new software	The new software, language files and apps can be obtained from the following sources: - the myWorld web site - your local Leica Selling Unit or Dealer
Files which need to be obtained for upgrading a CS20 Field Controller	**The following file needs to be obtained to update a CS20 Field Controller - CS20LeicaCaptivate_v8_00.fw** This file contains all Leica Captivate and WinEC languages and apps

Files which need to be obtained for upgrading a TS/MS instrument	**The following file needs to be obtained to update a TS/MS instrument -** **TSxxMS60LeicaCaptivate_ v8_00.fw** **TS10LeicaCaptivate_ v8_00.fw** These files contain all Leica Captivate and WinEC languages and apps
Files which need to be obtained for upgrading an AP20 AutoPole	**The following files need to be obtained to update an AP20 AutoPole -** **AP20H_ID_Firmware.swu** - for AP20 H and AP20 ID **AP20_T_Firmware.swu** - for AP20 T and AP20 Note that for the Captivate v8.00 release, there are no firmware updates for the AP20.
How to load the Leica Captivate files to a CS20 Field Controller or TS/MS instrument	1. Insert your SD card or USB flash drive into your PC or card reader and copy the necessary file to be uploaded to the instrument to the **System** directory of the used memory device. This can be done with Windows Explorer or any other suitable PC software. 2. Insert the SD card or USB flash drive into the CS20 Field Controller or TS/MS instrument and turn on. Ensure the battery is fully charged. 3. From the main menu, choose **Settings** and then choose menu item **Tools** and then choose **Update software**. The **Update software** screen is now visible. 4. In the **File to load** list box ensure the correct file name is visible. If the file name is not visible, then check you have correctly copied the firmware file to the **System** directory of the SD card USB flash drive. 5. Press **F1(OK)** – a message will appear to remind you that the CS20 Controller or TS Total Station will turn off and on during the process. Press **F6(Yes)** to begin the loading process. 6. The loading process will take a few minutes and the CS20 Controller or TS Total Station will turn off and on several times during the process.
How to load the Firmware on an AP20 AutoPole	1. Download the suitable firmware file from https://myworld.leica-geosystems.com to your local PC. 2. Turn on the AP20. 3. Connect the AP20 to the PC using a GEV284 cable. 4. Copy the firmware file onto the root directory of the AP20 memory device. 5. Disconnect GEV284 cable from the AP20. 6. Switch the AP20 off. 7. Switch the AP20 on. 8. The upload starts automatically. During the upload, all three LEDs are flashing consecutively. 9. The update is complete when the Power LED on AP20 is constantly on.
How to load the Leica Captivate files to a TS13 Total Station with a 4-button keyboard	1. Insert your SD card into your PC or card reader and copy the necessary file to be uploaded to the instrument to the System directory of the Sd card. This can be done with Windows Explorer or any other suitable PC software. 2. Insert the SD card into the TS13 Total Station 3. Ensure the battery is fully charged 4. Turn on the instrument, the firmware update starts automatically. 5. Check the power LED. If it shows permanent green, the firmware update is finished

8 Obtaining and loading the new software using manual loading (GS18, GS18 T and I GNSS sensors)

The GS18, GS18 T and I GNSS sensors can only be updated manually. Follow the instructions below.

Obtaining the new software	The new software, language files and apps can be obtained from the following sources: - the myWorld web site (it is also possible to manually download the files from the myWorld web site as well as automatically upgrading your controllers and sensors with myWorld) - your local Leica Selling Unit or Dealer
Files which need to be obtained for upgrading a GS18, GS18 T and I GNSS sensor	The following file must be downloaded to update the GS18, GS18 T and I GNSS sensors **GSxxLeicaCaptivate_v8_00.fw**
How to load the Leica Captivate files to the GS18, GS18 T and I GNSS sensors	1. Insert the SD card into your PC or card reader and copy the firmware file to be uploaded to the instrument to the **System** directory of the card. This can be done with Windows Explorer or any other suitable PC software. (it is NOT possible to use a USB stick to update your GS18 T or GS18 I GNSS sensor) Or Download the firmware file to the PC from which you will update the GS18 T or I GNSS sensor 2. Insert the SD card into the GS18 T or GS18 I GNSS sensor. Ensure the battery is fully charged. 3. Connect the GS18 T or GS18 I GNSS sensor to your PC via a USB cable. Open the web interface by typing **192.168.254.2** into the browser window. 4. Go to **User – Load firmware** to start the firmware update. You can now either browse to the firmware file on your PC or check the box that says the firmware file is on the SD card. 5. Start the firmware update and follow the instructions in the web interface.

9 Obtaining and loading the new software using manual loading (CS30 and CS35 Tablet)

The CS30 and CS35 Tablet can also be updated manually. Follow the instructions below.

Obtaining the new software	The new software, language files and apps can be obtained from the following sources: - the myWorld web site (it is also possible to manually download the files from the myWorld web site as well as automatically upgrading your controllers and sensors with myWorld) - your local Leica Selling Unit or Dealer
Files which need to be obtained for upgrading a CS30/CS35 Tablet	The following file must be downloaded to update the CS35 Tablet **LeicaCaptivate_CS3x_v8_00.zip** The file contains Leica Captivate languages and apps.

How to load the Leica Captivate files to the CS30/CS35 Tablet

1. If the tablet already has Leica Captivate installed with a version prior to v8.00, it will first need to be uninstalled manually within Windows. This can be done by going to **Apps & features**, finding the Leica Captivate application and then selecting **Uninstall**
2. Extract the downloaded .zip file and run the **Leica_Captivate_Setup_v8.00.exe** file on the tablet
3. Follow the installation wizard instructions

Note that when first upgrading Leica Captivate from a version prior to v8.00, all existing jobs, data files and setting files that existed in the "Leica Captivate" folder will be automatically copied into a new folder called "Leica Captivate_x64". The folder location can be modified during the installation, by changing the Loadable Application path.

Obtaining sample data

Leica Geosystems provides sample data that can be used with the simulator or the instruments to help you explore the features and apps of Leica Captivate. The sample data needs to be installed using a separate installer. Before using it on a CS20 Controller or a TS Total Station, the data needs to be installed on a simulator first.

During the installation, it is possible to select for which simulators the sample data can be installed (SmartWorx Viva CS simulator, SmartWorx Viva TS simulator, Leica Captivate TS/MS simulator, Leica Captivate CS simulator and Leica Captivate CS x64 simulator).

The sample data installer can be downloaded from myWorld. An installation guide is provided along with the sample data installer, though the installation process is very easy to follow.

10 Summary of Leica Captivate Software Files

Listed below is a summary of the files available relating to the new Leica Captivate software. The version number for all files is v8.00, except for the AP20 and the GS07 for which version numbers are listed below in the Build no. column. Note that for the Captivate v8.00 release, there are no specific updates to the AP20 and the GS07.

File name	Description	Build no.	Maintenance date
CS20LeicaCaptivate_v8_00.fw	CS20 Field Controller Leica Captivate software file	70	01.06.2023
TSxxMS60LeicaCaptivate_ v8_00.fw	TS/MS/TM Total Station Leica Captivate software file	70	01.06.2023
AP20H_ID_Firmware_v1.01.swu AP20_T_Firmware_v1.01.swu	AP20 AutoPole firmware files	1.01	-
TS10_LeicaCaptivate_ v8_00.fw	TS10 Total Station Leica Captivate software file	70	01.06.2023
LeicaCaptivate_CS3x_ v8_00.fw	CS35 Tablet Leica Captivate software file	135	01.06.2023
GSxxLeicaCaptivate_ v8_00.fw	GS18 T/I smart antenna Leica Captivate software file	59	01.06.2023
OEM7.813.fw	GS07 ME firmware file	7.813	-