

- when it has to be **right**



Leica Captivate v8.30

Software Release Notes

| | |
|-----------------------------|--|
| Product | Leica Captivate Field Controllers: CS20, CS35, CS30 Total Stations: TS16, TS60, TM60, MS60, TS13, TS10 GNSS Sensors: Do not get a new firmware version. |
| Release date | 5 th December 2023 |
| Maintenance date | 1 st December 2023 |
| Available in myWorld | Week 49, 2023 |



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

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1 Leica Captivate v8.30 Release Notes - Introduction

These Release Notes contain important information about new features and bugfixes.

| | |
|---|--|
| General information | There is a Leica Captivate v8.30 release for the following hardware: <ul style="list-style-type: none">• Field Controllers: CS20, CS30, CS35• Total Stations: TS10, TS13, TS16, TS60, MS60, TM60• <i>Note: GNSS Sensors do not have a new firmware version</i> |
| Customer Care Product (CCP) dates | The Leica Captivate software version 8.30 can be loaded onto all CS Field Controllers and TS/MS Total Stations with a CCP valid until at least 01.12.2023 |
| 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 in Leica Captivate v8.30 |

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 an 8.x version to be compatible.

For the new Leica Captivate v8.30, all Leica Captivate GS Sensors and TS/MS Total Stations must be updated to a version 8.x to be compatible with a CS20 Controller or CS30/CS35 Tablets running v8.30 and vice versa.

Note that there will be no firmware update for:

- GS18 T, GS18 I, GS18 GNSS sensors. The latest version remains v8.10.
- GS07 GNSS sensors. The latest version remains v7.813.

Compatibility between Leica Captivate and SmartWorx Viva versions

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

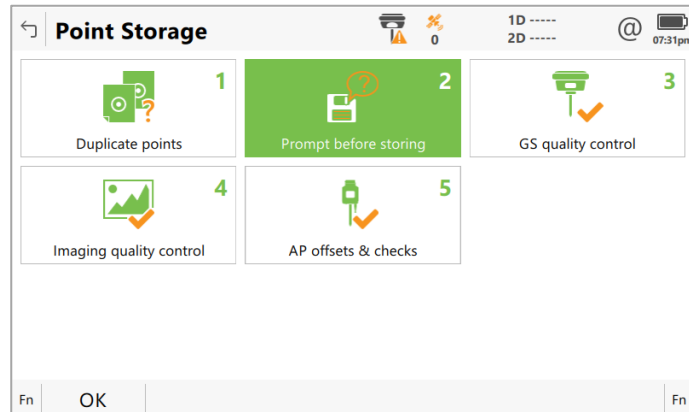
| | | CS20, CS3x | | | |
|-------------------------|---|----------------------|-----|------------------------|------------------------|
| | | Leica Captivate v1.x | ... | Leica Captivate v7.x | Leica Captivate v8.x |
| TS MS GS | All versions prior to SmartWorx Viva v6.0 and higher than v5.60 | Fully 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

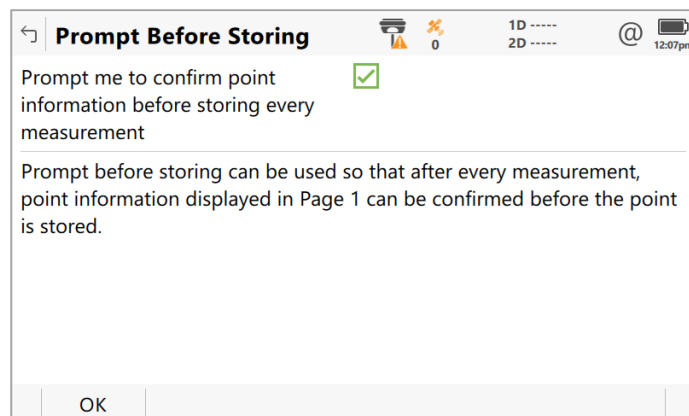
Coding – Prompt before storing – Define point code after measuring the point



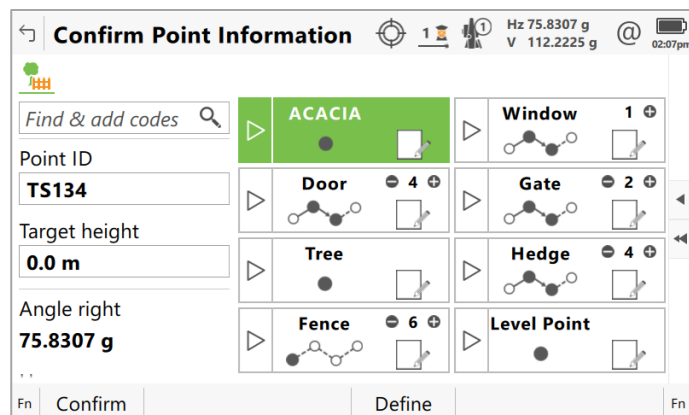
In previous versions of Leica Captivate, the **Prompt before storing** option allowed point information to be checked after the point was measured, but before it was stored. Only basic point information could be configured to be shown, and it was not possible to edit codes when used with linework.



With Leica Captivate v8.30, **Prompt before storing** has been redesigned to be both more simplified and more powerful. There is now only one setting – to switch it on or off, and the display configuration is removed from the settings.



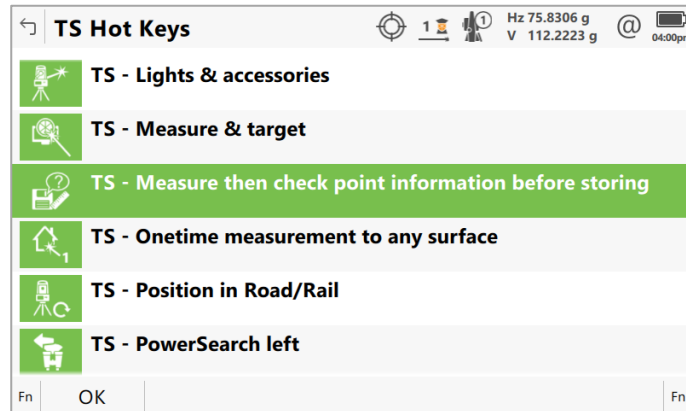
When the **Prompt before storing** setting is activated, after every point is measured in the **Measure** app, the **Confirm Point Information** panel will appear.



This will show all prompts that are configured to be displayed in **page 1** of the **Measure** app, plus code boxes if they are being used. This means all fields,

including **Point ID**, **Target height**, **Coding**, **Linework** and **Attributes** can be edited. By pressing **Confirm**, the information will be stored. The new Prompt before storing functionality makes it not only easier to check for mistakes, but also enables points to be coded after measurement.

In addition to the **Prompt before storing** setting, a new hot key can be used to trigger a one-time prompt before storing. Once configured, pressing the hot key will trigger a measurement, and then show the **Confirm Point Information** panel, for one point only.

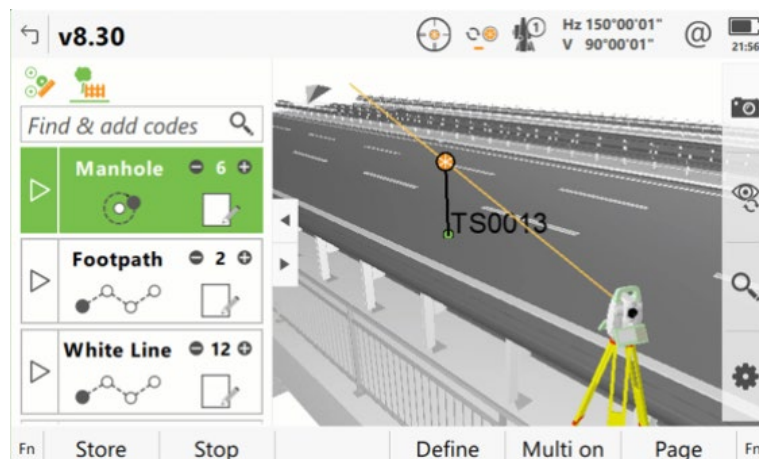


This hot key works independently of the **Prompt before storing** setting, allowing points without a code change to be stored with **F1** or **OK**, if the setting is turned off, but then points that do require a code change or check, can be measured with the hot key.

Coding & Linework – Perform a point measurement by tapping the code box



With previous versions of Leica Captivate, to select a new code and trigger a point measurement required at least two screen taps – one tap to select the codebox, and another to tap the **F1** key to measure or store.



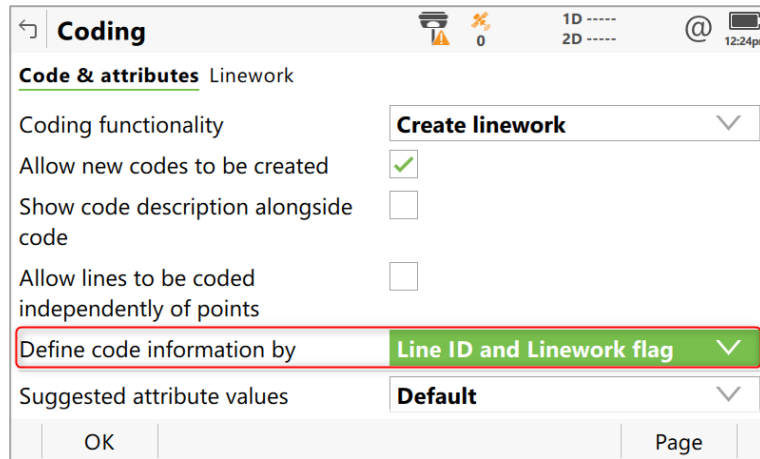
With Leica Captivate v8.30, a new play button on each code box gives a touchscreen user the ability to 'tap to measure'. A single screen tap on the code box will both select that code and trigger a point measurement. This reduces the number of screen taps that are needed for measuring points, allowing to be more productive in the field.

Be aware that the play button will not be available in certain circumstances, such as when a position is not available, or when the multi-coding option is enabled.

Coding & Linework – Fill the Code information field with Line ID & linework flag



Leica Captivate v8.30 introduces a new setting to allow the Line ID and/or Linework flag to be stored as **Code information**. With this setting active, whenever a point is stored using linework, the **Line ID** and/or **Linework flag** will be automatically stored in the point's **Code information** field.



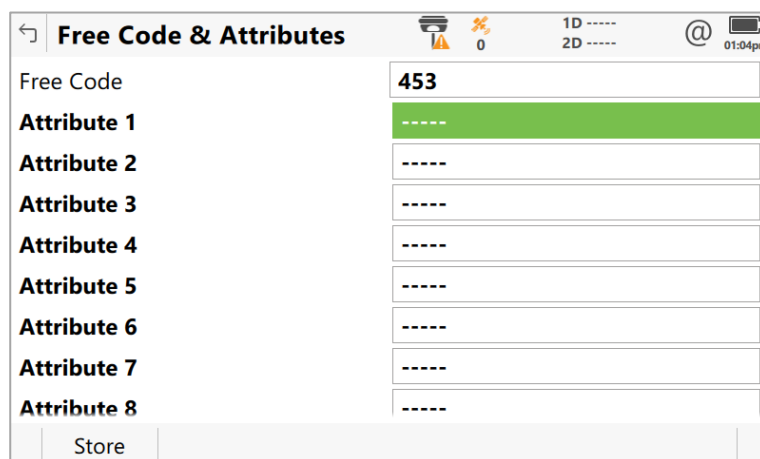
The default setting **Manually entering** still allows the **Code information** to be entered manually. Be aware that the setting will only apply to subsequently measured points and will not affect already stored points.

This new setting will make it easier for “point based” data exports to contain line information and allow 3rd party software to better interpret your captured data.

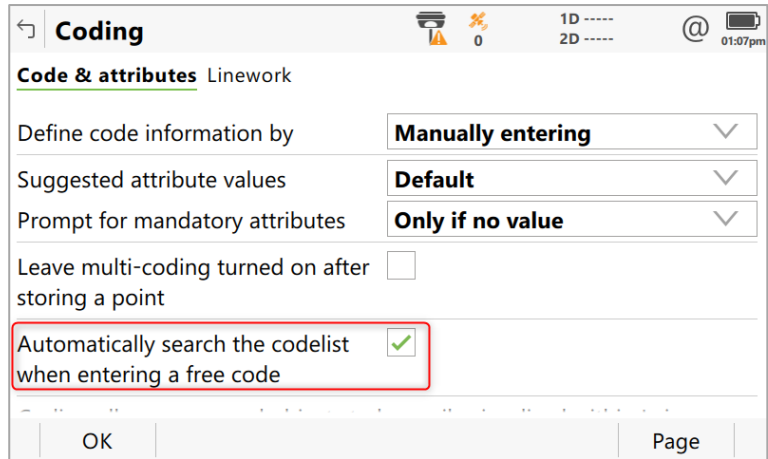
Coding & Linework – Disable searching for free codes



In previous versions of Leica Captivate, whenever a free code was entered, a search was triggered to find whether the free code already existed or not. This caused a momentary delay in being able to enter the attribute information, meaning that the typed in characters could overwrite the already entered Free code.



A new **Coding** setting is available in Leica Captivate v8.30, to disable the free code search and to allow entering all the attribute related information quickly. By default, the setting to perform the search is activated.



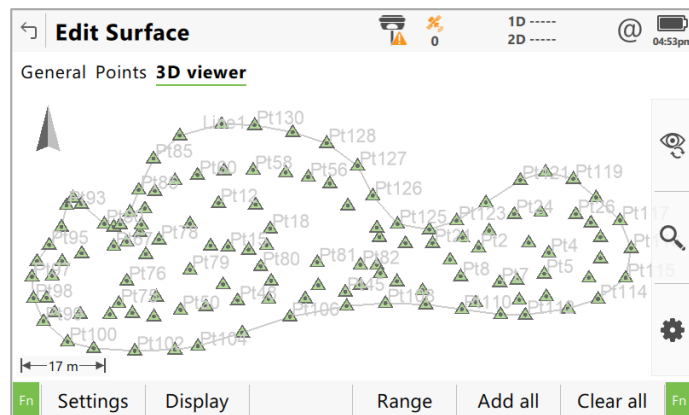
This will allow faster data entry for free coding users with large codelists.

Several improvements in the volume calculation workflows

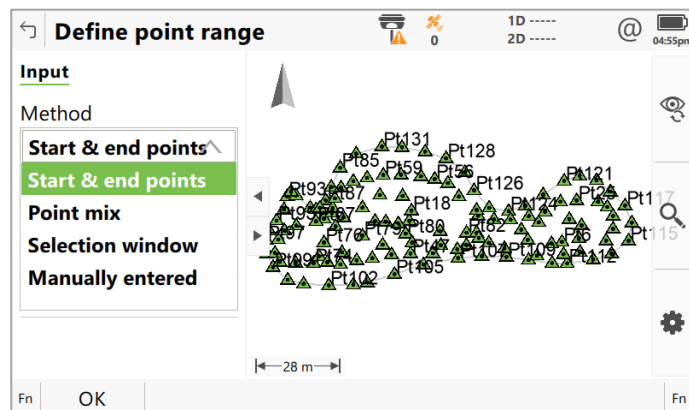


In previous versions of Leica Captivate, the **Volume calc** app provided tools to define and create surfaces from points, and to compute volumes between surfaces or reference heights. With Leica Captivate v8.30, the **Volume calc** app has been updated, delivering several new or improved features.

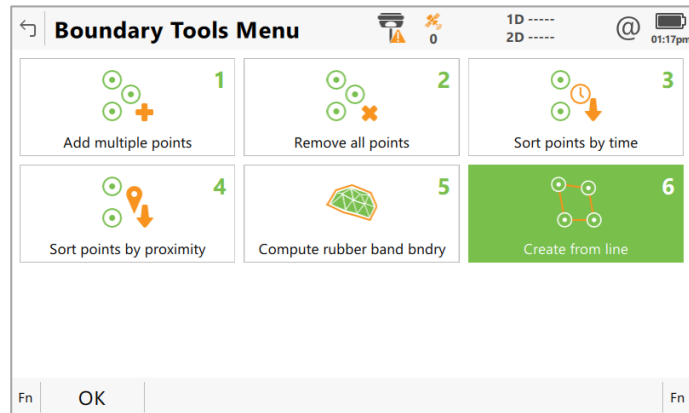
It is now easier to define a surface, using the new **Range** option to select the points to be added to the surface.



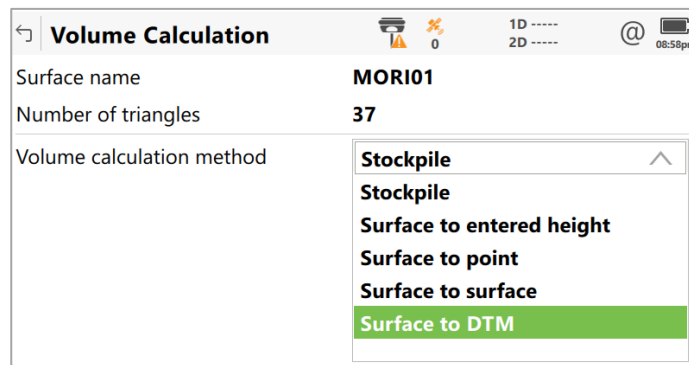
The **Range** option includes several methods to help when needing to select many points, including defining **Start and end points**, or using the 3D viewer to define a **Selection window**.



In addition to the surface point selection, within the **Boundary Tools Menu** a new method **Create from line** can be used to define the surface boundary from an existing closed line. This is particularly useful for example, when the base of the stockpile is already measured and defined using linework.

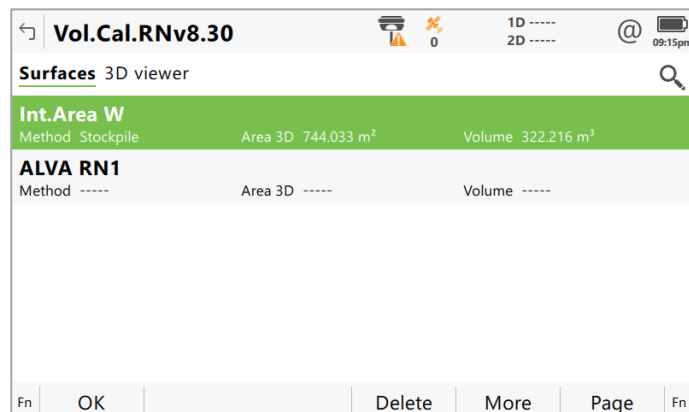


For volume calculation, a new calculation method **Surface to DTM** has been introduced. This allows the volume to be calculated between the defined surface, and an existing DTM.



The consistency between all the volume calculation methods has been improved, so that the “from” and “to” are always selected in the same order for every method. This means that the direction of the existing **Surface to surface** method has been reversed.

The **Volume calc** app also introduces a new **surface manager**, where all existing surfaces within the job are listed, giving an overview of the surface information, and allowing surfaces to be deleted.

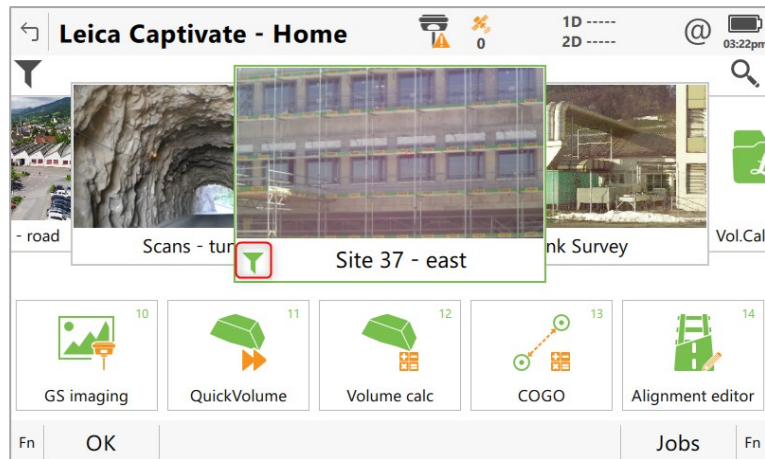


**Data management –
Data filter status
icon & hot key to
reset to default**



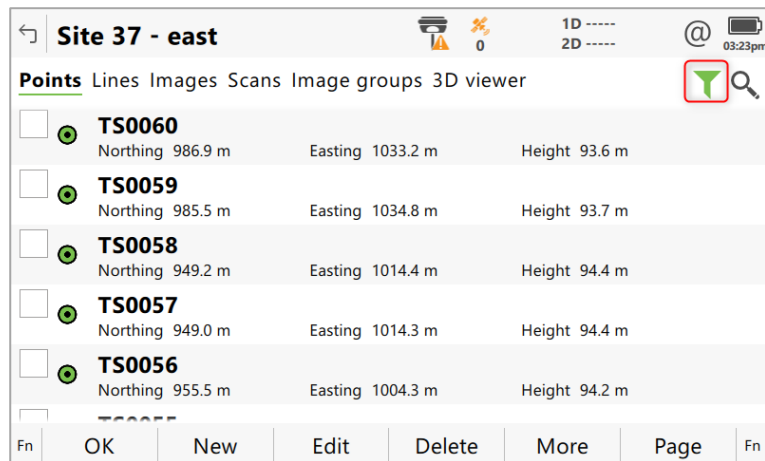
In previous versions of Leica Captivate, it was possible to apply a **point filter** to the job, to view only specific points based on criteria such as **point ID, time, code** etc. In Leica Captivate v8.30, the clarity of when the data filter is active has been increased with the introduction of a data filter status icon. The new icon allows clearly identifying the jobs or datasets that have a data filter active, and therefore may contain points that are filtered out and not visible.

In the job carousel, the new icon will be displayed in green on the bottom left of the job's tile whenever a data filter is active.

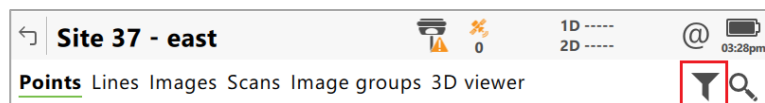


Within the **Points** page of data management, the new icon will indicate the data filter status. Tapping this icon will access the data **Sort & Filter** settings panel.

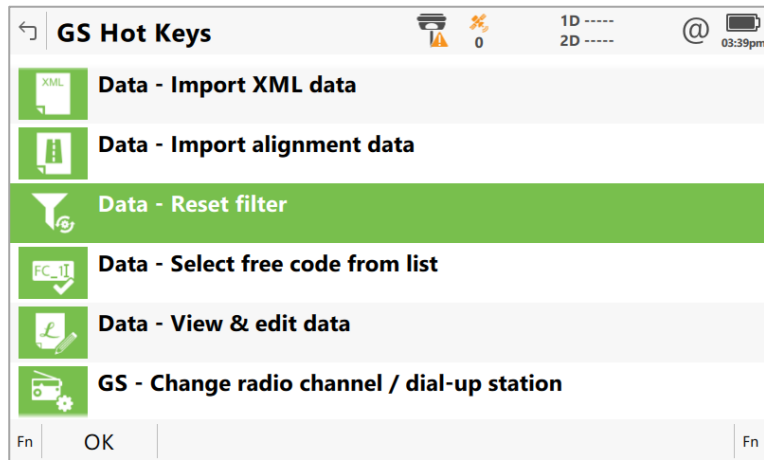
If the data filter is active, the icon will be displayed green.



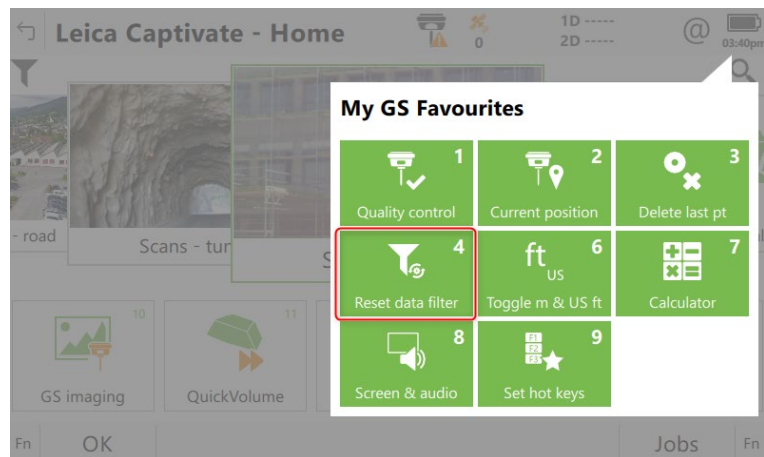
If the data filter is set as **All** or **Highest point class only**, the icon is displayed grey within this page.



In addition to the data filter icon, Leica Captivate v8.30 also introduces an easy way to reset the data filter back to the default value using a new hot key or favourite called **Reset data filter**.



Once configured, pressing this hot key or favourite will reset the point data filter of the working job or dataset back to **Highest point class only**.

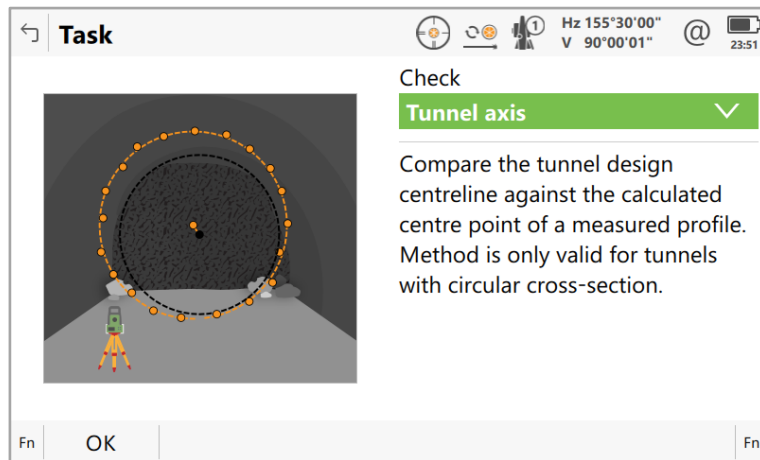


The combination of the new data filter status icon and the hot key bring more transparency to Captivate data handling and offers a quicker and easier way to restore hidden points within a job.

Check tunnel – New bored tunnelling features



In previous versions of Leica Captivate, the **Tunnel axis** method within the **Check tunnel** app allowed measurements to be made around an as-built tunnel ring to determine the best-fit centre of the ring and calculate its displacement from the design tunnel axis.

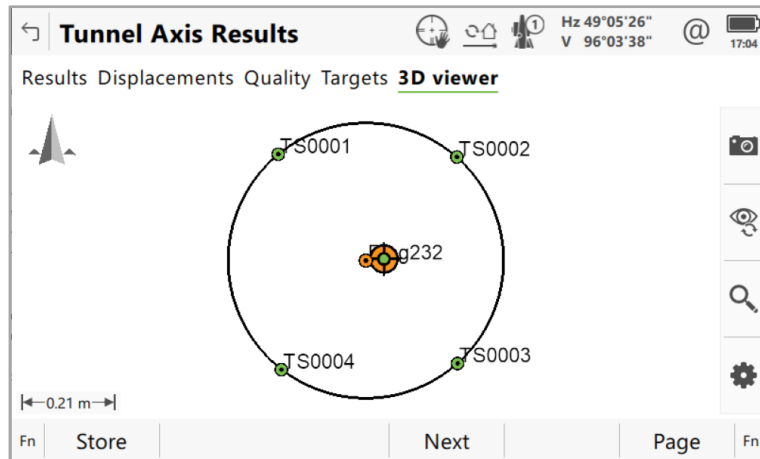


In Leica Captivate v8.30 this method has been enhanced with two additional features. The relationship of the design tunnel axis can now be determined with rotation & shift values from an alignment.

| Tunnel Axis Results | |
|----------------------|------------|
| Point ID | Ring232 |
| Chainage | 699.999 m |
| CL offset | -0.079 m |
| CL height difference | -0.009 m |
| Radius | 0.301 m |
| Rotation | -11°25'05" |
| Easting | 4829.032 m |

In addition, the as-built attitude (orientation and pitch) of rings can now be calculated relative to the design trajectory (to deliver “lead” and “look up” values).

| Tunnel Axis Results | |
|--------------------------|----------|
| Centre offset | -0.039 m |
| Centre height difference | -0.004 m |
| Overhang | 0.016 m |
| Right lead | 0.008 m |



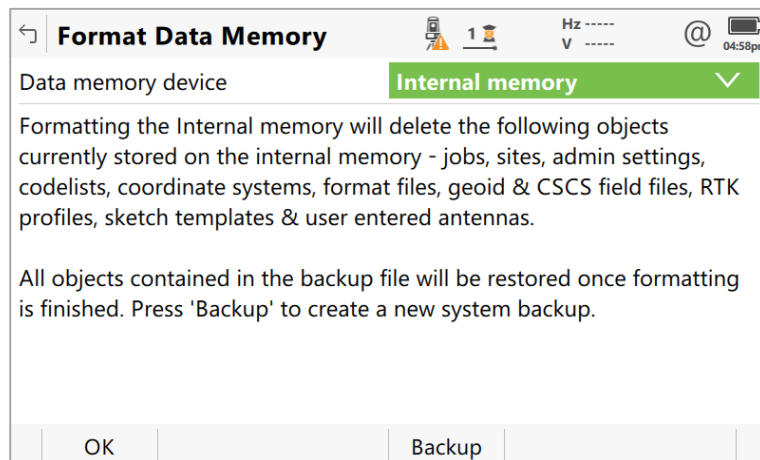
These new features further enhance the support of tunnelling operations in real time.

Format memory – Create a customised system backup file



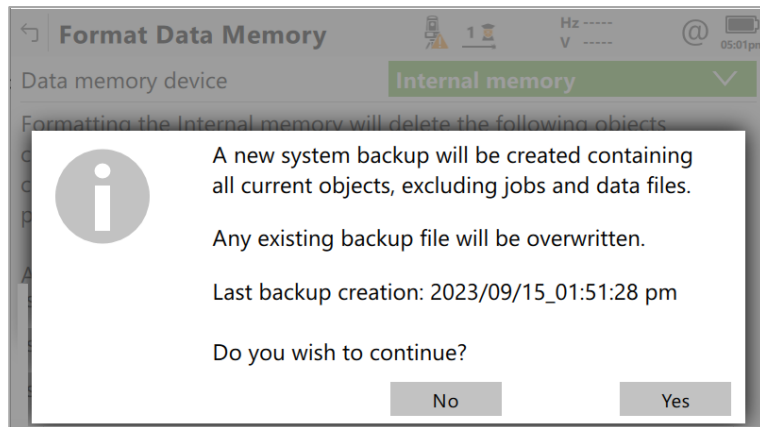
Prior to Leica Captivate v8.30, it was possible to create a system backup by transferring an AllObject.zip file and then manually placing it into the correct Windows folder. Once the system was formatted, Leica Captivate would be restored to those settings.

From Leica Captivate v8.30, a new **Backup** option has been added into the **Format Data Memory** panel. This automatically creates a system backup file, and hence a customised system recovery point.



The backup includes all system settings and Leica objects but excludes jobs and data files that are stored in the internal memory.

When creating a system backup, a confirmation message will be shown. If an older system backup already exists, Leica Captivate will inform when it was created and ask if it should be overwritten.



Once a system backup has been created, it acts as a system restore point. When Leica Captivate is formatted, it will return to the state of the created backup.

This functionality ensures that your settings are stored safely, so you do not need to worry about losing them if someone else changes or resets your device.

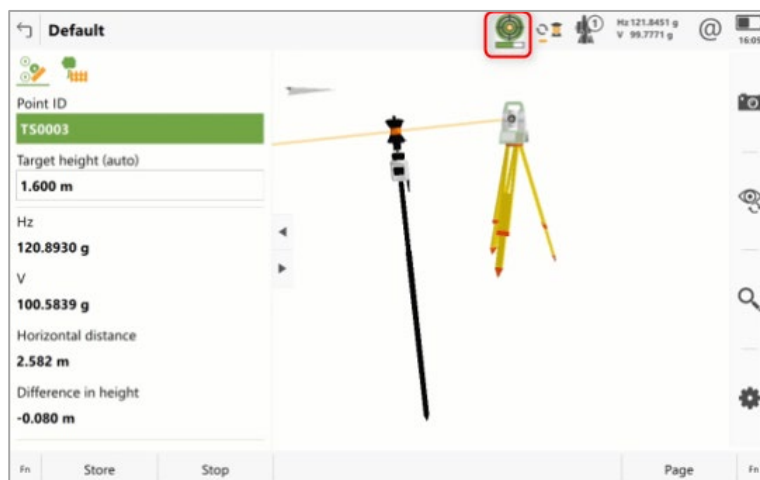
3 Leica Captivate New Features – TS specific

AP20 – Tilt strength indicator bar



When working with the Leica AP20 Autopole, tilt compensation needs to be initialised and maintained by movements and accelerations of the pole. This is usually achieved by walking towards the survey or stakeout point. Once at the point, there might be requirements for less movements or static pole positions which, if extended over a longer period of time, will cause the system to lose initialisation.

With Captivate v8.30 a tilt initialisation meter icon is introduced which continuously monitors the strength of the tilt initialisation. A decreasing or weak meter bar raises the awareness to start further pole movements in order to maintain the tilt compensation status and to continue with tilt compensated measurements.



AP20 – Continuous distance measurements

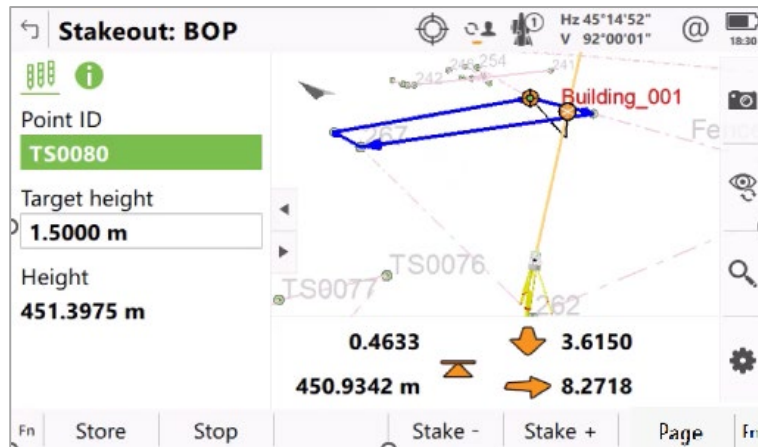


In previous Leica Captivate versions, when using continuous distance measurements, certain menus and functions within some apps were blocked or hidden. This meant accessing the settings or performing certain functions was not allowed, unless the measurement was stopped.

When using the AP20, stopping the continuous measurements meant that the tilt compensation was lost, resulting in needing to reinitialise the AP20 after using the function or menu.

In Leica Captivate v8.30, these restrictions have been removed. The settings and tools can now be accessed, and most functions applied while keeping the continuous distance measurement on.

Be aware that continuous distance measurements will need to be stopped if the target type needs to be changed, or if the app in use is switched.



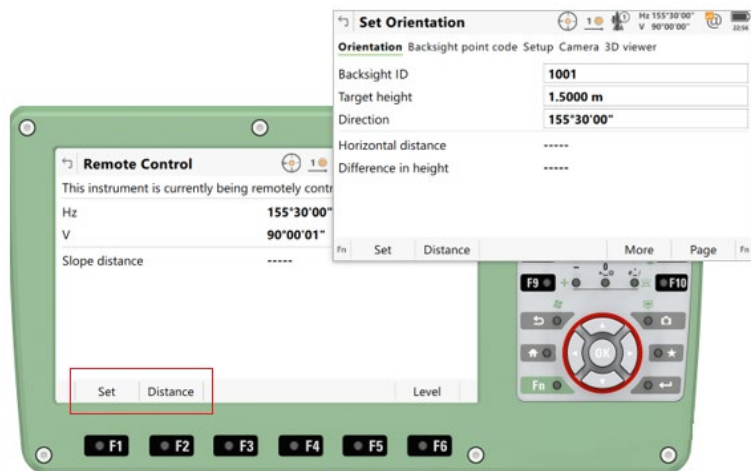
This improvement maintains productivity when using continuous distance measurements, avoids losing tilt initialisation and allows staying focused on the measurement workflow.

Setup – Trigger measurements from within the total station when remotely controlled



In previous versions of Leica Captivate, when doing a setup, if the total station was remotely connected to a controller, it was not possible to trigger a **Distance** or press **Set** to finish the setup on the total station.

In Leica Captivate v8.30, the **Set** and **Distance** buttons are now shown in the total station's **Remote Control** panel, allowing to start a setup on the controller but trigger the distance measurements from the total station.



This will save time when performing a setup using a controller and ensures the consistency between the behaviour shown in the **Setup** and **Measure** apps.

4 Leica Captivate Software Improvements

Connectivity issue between CS20 & GS07 after update to Captivate v8.00

After an update to Captivate v8.00, it could happen that the connectivity of the CS20 to the GS07 shows some issues. Sometimes, after the controller was restarted the automatic re-connection to the GS07 was not achieved. Restarting the CS20 a second time would solve the issue and both devices were connecting successfully.

This issue is fixed in Leica Captivate v8.30.

Crash when removing a reference file from a job

It could happen in previous versions that Leica Captivate would crash when a reference file was removed from a job. This was only triggered if a different job was used, and its data accessed and viewed, before proceeding with the reference file removal.

This issue is fixed in Leica Captivate v8.30.

Connectivity issues between Windows 11 tablets and GS & TS sensors

When using a tablet running Windows 11, the Bluetooth connectivity configured from within Leica Captivate did not work. The connectivity from the tablet to the GS or TS sensor could only be established in Windows, before going to Leica Captivate.

This issue is fixed in Leica Captivate v8.30.

Wrong definition of an arc geometry in Captivate XML exporter

When an arc geometry was exported to XML format in previous Leica Captivate versions, the *COGOArcRadius* attribute was wrongly defined as an angular unit, rather than as a linear unit. This led to a wrong value for this attribute when exporting the geometries to XML or using a stylesheet.

This issue is fixed in Leica Captivate v8.30.

Stakeout tools not accessible in some situations

In previous Leica Captivate versions, the stakeout app tools could not be triggered a second time, after having used one of them. It was possible to see the tools but the focus could not be moved. When pressing OK, only the previously used tool was accessed again.

This issue is fixed in Leica Captivate v8.30.

5 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.

6 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 - CS20LeicaCaptive_v8_30.fw

This file contains all Leica Captivate and WinCE 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 - TSxxMS60LeicaCaptive_v8_30.fw
TS10LeicaCaptive_v8_30.fw**

These files contain all Leica Captivate and WinCE 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 v8.30 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.

7 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:

GSxxLeicaCaptive_v8_10.fw

Note that for the Captivate v8.30 release, there are no firmware updates for the GS18.

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.

8 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 CS30/35 and the third party Windows Tablets.

LeicaCaptive_CS3x_v8_30.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_v8.30.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.