

Leica Captivate v11.00

Software Release Notes

Product	Leica Captivate Field Controllers: CS20, CS30, CS35, CC180, CC200 Total Stations: TS10, TS13, TS16, TS20, TS60, TM60, MS60 GNSS Sensors: GS18 T, GS18 I, GS18, GS05
Release date	11 th August 2026
Maintenance date	1 st November 2025
Available in myWorld	Week 33, 2026



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

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1 Leica Captivate v11.00 Release Notes - Introduction

These Release Notes contain important information about the new version.

General information	There is a Leica Captivate v11.00 release for the following hardware: • Field Controllers: CS20, CS30, CS35, CC180, CC200 • Total Stations: TS10, TS13, TS16, TS20, TS60, MS60, TM60 • GNSS Sensors: GS18 T, GS18 I, GS18, GS05																																																							
Customer Care Product (CCP) dates	Leica Captivate v11.00 can be loaded onto all CS Field Controllers, GS18 and GS05 GNSS Sensors and TS/MS Total Stations with a CCP valid until at least 01.11.2025.																																																							
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 v11.00.																																																							
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 11.x on a Leica Captivate GS Sensor or TS Total Station, the CS20 Controller or CS30/CS35/CC180/CC200 Tablet must also run an 11.x version to be compatible. For the new Leica Captivate v11.00, all Leica Captivate GS Sensors and TS/MS Total Stations must be updated to a version 11.x to be compatible with a CS20 Controller or CS30/CS35/CC200 Tablets running v11.00 and vice versa.																																																							
Compatibility between Leica Captivate and SmartWorx Viva versions	The table below shows the compatibility between Leica Captivate and SmartWorx Viva versions. <table><tr><th colspan="2"></th><th colspan="3">CS20, CS3x, CC180, CC200</th></tr><tr><th colspan="2"></th><th>Leica Captivate v1.x</th><th>...</th><th>Leica Captivate v10.x</th><th>Leica Captivate v11.x</th></tr><tr><td rowspan="3">TS</td><td>All versions prior to SmartWorx Viva v6.0 and higher than v5.60</td><td>Fully compatible</td><td></td><td>Not compatible</td><td>Not compatible</td></tr><tr><td>...</td><td></td><td></td><td></td><td></td></tr><tr><td>MS</td><td></td><td></td><td></td><td></td></tr><tr><td rowspan="3">GS</td><td>SmartWorx Viva v8.x</td><td>Not compatible</td><td></td><td>Not compatible</td><td>Not compatible</td></tr><tr><td>SmartWorx Viva v9.x</td><td>Not compatible</td><td></td><td>Compatible for Viva TS</td><td>Compatible for Viva TS</td></tr><tr><td>GS</td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>SmartWorx Viva v14.x</td><td>Not compatible</td><td></td><td>Fully compatible</td><td>Not compatible</td></tr><tr><td></td><td>SmartWorx Viva v15.x</td><td>Not compatible</td><td></td><td>Not compatible</td><td>Fully compatible</td></tr></table>			CS20, CS3x, CC180, CC200					Leica Captivate v1.x	...	Leica Captivate v10.x	Leica Captivate v11.x	TS	All versions prior to SmartWorx Viva v6.0 and higher than v5.60	Fully compatible		Not compatible	Not compatible	...					MS					GS	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 v14.x	Not compatible		Fully compatible	Not compatible		SmartWorx Viva v15.x	Not compatible		Not compatible	Fully compatible
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Downgrade protection

Due to a needed change in the method of storing of the Check & Adjust calibration values on the TS20, it is not possible to downgrade the TS20 to a lower version once Leica Captivate v10.02 or higher is loaded to the instrument.

Due to a major platform upgrade on the GS05, designed to ensure long-term product support and compatibility with future updates, it will not be possible to downgrade to a lower version once Leica Captivate v10.00 has been installed on the instrument.

Upgrade recommendations**TS20**

To ensure that the GMI01 module in the TS20 performs as expected, it is important that its firmware is up to date and compatible with Leica Captivate v11.00. The GMI01 is updated automatically over the air.

For a seamless remote update of the GMI01 module to the latest available version, it is highly recommended that, before upgrading to Leica Captivate v11.00, the TS20 remains powered on for at least half a day in an area with mobile network coverage. This will help ensure that the GMI01 backup battery is fully charged and capable of supporting the update process.

GS05

Due to the major platform upgrade introduced with Leica Captivate v10.00 on the GS05, it is required that all firmware updates from lower versions to later versions be performed sequentially. In practice, this means that devices should always be upgraded to Leica Captivate v10.00 before proceeding to any newer release.

For example, a GS05 sensor currently running Leica Captivate v9.12 should first be upgraded to v10.00, and only then upgraded to v11.00.

2 Captivate Improvements

Improved pairing security



Leica Captivate v11.00 introduces important changes to the connection process to enhance connection security and control.

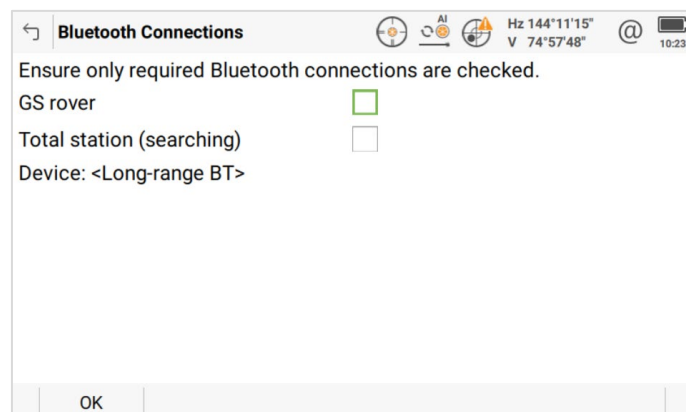
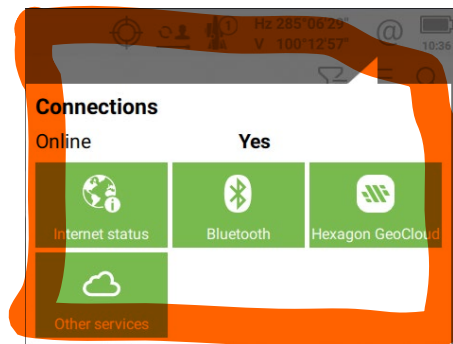
Key improvements include:

- Stronger protection of data through secure communication across all wireless connections
- Trusted device connectivity, with enhanced pairing and access control
- Improved resilience against unauthorized access and network risks

No change to core surveying workflows is required, although users will notice updated connection verification steps whilst connections are being established.

Important note before upgrading to Leica Captivate v11.00:

Before installing the new Leica Captivate v11.00 into the equipment, please make sure that the checkboxes for the existing connections are unticked in the Windows tablets and CS20 controllers. To access this panel, go to the connection bubble (@) shown in the status bar of the screen and enter the **Bluetooth** tile.



What has changed for total stations?

- When initiating a new Bluetooth pairing, the user must confirm the request before the pairing is created. Be aware that when pairing Windows tablets, a pop-up message will inform about a found device. Tap on this message and then confirm that the proposed device is the correct one. A final message will confirm then the pairing is successfully done.

- For total stations equipped with a Bluetooth Radio Handle, the instrument must be placed into pairing mode before a new Bluetooth connection can be created from a controller, Windows tablet, PC, or other external device.
- After updating to Leica Captivate v11.00, all previously connected Bluetooth devices must be paired again. Existing pairings created with earlier Leica Captivate versions are not remembered and cannot be reused after the update to version 11.00.

Additional Information

Enabling Pairing Mode

- For connections using a Bluetooth Radio Handle, pairing mode can be enabled in the following ways:
 - At the end of the connection wizard when creating a new connection.
 - By editing the corresponding CS Controller or GeoCOM interface and selecting **Pairing**.
 - When pairing mode is active a message box pops up.
 - The pairing mode is automatically closed once a Bluetooth connection has been established or **Cancel** is pressed
- For GeoCOM interfaces, pairing mode remains active until the first GeoCOM command is received. At that point, pairing mode is automatically closed and connection need to be reestablished again.

Deleting Existing Pairings

- Total stations:
 - Pairings that use a Bluetooth Radio Handle or are stored on a TS20 can be removed from the **All other connections** panel:
 - Edit the **CS Controller** or **GeoCOM** interface, select the corresponding way to connect and press **Fn + Remove**
 - Pairings created using the standard **Bluetooth** connection type are removed when the instrument operating system is reset.
- Field controller:
 - Pairings that use CTR devices or on CS20 Long-range BT can be removed from **All other connections** panel:
 - Edit the Total Station interface, select the corresponding way to connect and press **Fn+Reset**
 - Pairings created on CS20 using the standard **Bluetooth** connection type are removed when the instrument operating system is reset.
 - Pairings on Tablets using **Bluetooth** or **Long-range TS** option can be deleted in the same way as described above, removing current and previously configured pairings.

TS13 with Keyboard Unit (KU)

- For TS13 instruments equipped with a Keyboard Unit (KU), all Bluetooth configurations require the instrument to be placed into pairing mode before a new connection can be established:
 - To enable pairing mode press and hold the COM button for approximately 2 seconds.
 - While pairing mode is active, the COM LED blinks.
 - Pairing mode remains active for 2 minutes and can be terminated earlier by pressing the COM button again.
 - All Bluetooth pairings, including Bluetooth Radio Handle pairings when a Radio Handle is attached, are removed during a System Reset.

What has changed for GNSS sensors?

The Bluetooth pairing workflow for GS18 and GS05 sensors has been updated too.

Previous Behaviour (prior to v11.00)

- GS18 and GS05 sensors were continuously discoverable via Bluetooth.
- Devices could connect at any time using the default PIN 0000 (automatically done by Captivate).

New Behaviour (from v11.00 onwards)

- To enable pairing, the sensor must be placed in pairing mode:
 - Press the ON/OFF button briefly (<1 second).
 - The connectivity LED flashes blue while in pairing mode.
 - Pairing mode remains active for 120 seconds.
- During this period, the sensor can be paired with a Field Controller. Be aware that when pairing Windows tablets, a pop-up message will inform about a found device. Tap on this message and then confirm that the proposed device is the correct one. A final message will confirm then the pairing is successfully done.
- Once paired, these steps are not required for subsequent reconnections.

Deleting Paired Bluetooth Profiles

To remove all previously paired Bluetooth devices:

- GS18: Press and hold the ON/OFF button + Function button for 10 seconds.
- GS05: Press and hold the ON/OFF button for 7 seconds.

After Profile Deletion, the sensor must be placed in pairing mode again to establish a new Bluetooth connection.

The WLAN pairing workflow for GS18 sensors has been updated as follows.

Previous Behaviour (prior to v11.00)

- GS18 WLAN access point was open.
- Devices could connect at any time without the use of a password.

New Behaviour (from v11.00 onwards)

- GS18 WLAN access point is protected with a password, different per each single unit.
- WLAN password is shared between GS18 and Leica Field Controller/Tablet during the first Bluetooth pairing connection. Once Bluetooth connection gets established, WLAN password gets shared and stored for future WLAN GS18 and Leica Field Controller/Tablet reconnections.

Deleting Paired WLAN Profiles

To remove all previously paired WLAN devices, user must press and hold the ON/OFF button + Function button for 10 seconds.

If third party field controller needs to connect to GS18 using WLAN, the needed password can be checked by accessing to the Webserver via cable (<http://192.168.254.2/>) or Bluetooth (<http://192.168.253.2/>).

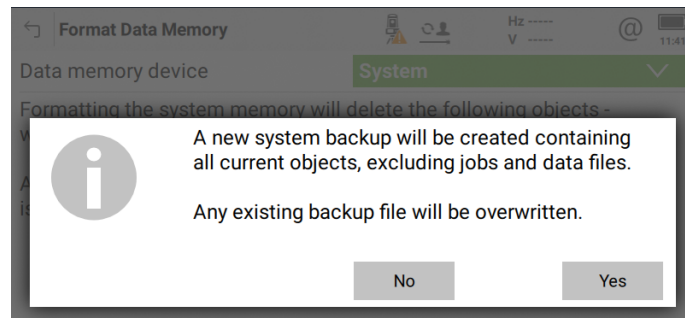
Instrument - Wireless settings

Bluetooth	
Enabled	☒
WLAN	
Enabled	☒
SSID	GS4909145
Password	Spray-People-Bust-Promises

Downgrade to previous Leica Captivate versions

Before downgrading from Leica Captivate v11.00 to an earlier version, create a backup of all configuration data. Leica Captivate v11.00 introduces enhanced security features, including the encryption of configuration files to support secure communications. Configuration data may therefore be unavailable or incompatible after a downgrade, potentially resulting in the loss of settings.

To create a backup go to **Settings > Tools > Format memory >** and press **Backup** (F4).



After the downgrade is complete, perform a **system format** to finalize the process. During the reset, the system will restore the previously saved configuration settings from the backup file.

Hexagon GeoCloud – TS20 authentication



Authentication to Hexagon GeoCloud in a TS20 required that user credentials are entered directly on the TS20, every time.

From Leica Captivate v11.00 onwards, the access to Hexagon GeoCloud on the TS20 now uses the same QR code authentication method as on CS20 and total stations, replacing the previous username/password entry that was difficult on the TS20's small screen and keyboard.

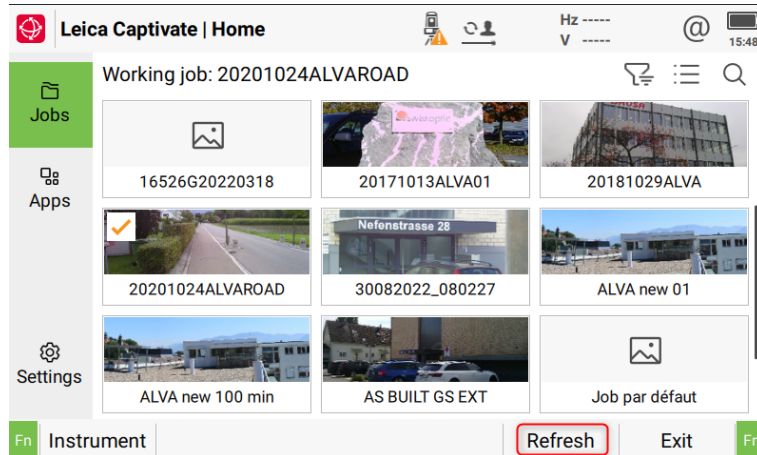


Home screen - Force a job refresh



Previously, in some circumstances such as transferring a job while the TS20 is connected via the USB cable, the jobs shown in the home screen were not refreshed.

In this new Leica Captivate version, when the focus is on the **Jobs** tile, pressing Fn+F5 (**Refresh**) now forces a job refresh.



Status bar – Camera availability



Previous versions of Leica Captivate did not provide any visual indication when the camera of the controller, GS, or TS was in use.

To comply with privacy notification requirements, Leica Captivate v11.00 introduces a new camera activity indicator. A green dot is shown in the status bar whenever the controller's onboard camera is active or when video is being streamed to the controller from a connected sensor.



Connectivity - External Bluetooth devices on TS20

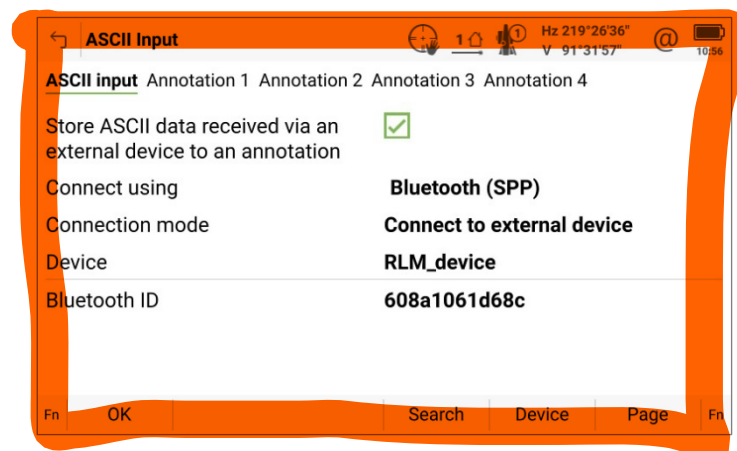


With Captivate v10.00 it was not possible to connect a TS20 to an external device via Bluetooth. This prevented data from an external device, such as a gauge device or an echosounder, being added to a measured point when using this connection type.

Leica Captivate v11.00 can now connect to external Bluetooth devices, enabling workflows that depend on an external Bluetooth device being connected to the total station.

In this new version 2 new interfaces are now available: **GSI Output** and **ASCII input**. These two options have been added under **Settings** → **Connections** → **All Other Connections**.

Bluetooth device search is available within both the ASCII Input and GeoCOM panels. Once a device is found and connected, the connection is held and remembered, and the device's Bluetooth ID is displayed on the ASCII Input page.

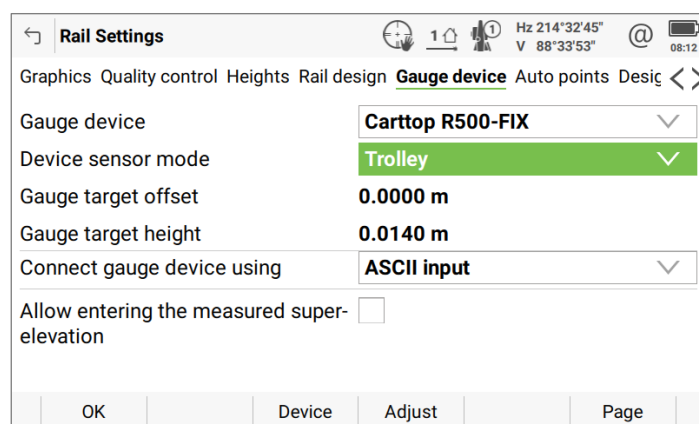


Stake/Check Rail – connect external devices via a configured interface



In Leica Captivate v11.00 connecting to external devices in the **Stake/Check Rail** app no longer requires selecting a specific device name. Instead, the app now connects via a pre-configured interface (e.g. ASCII input, GeoCom).

The external device needs to be connected on the chosen interface and then select the same interface inside the app. A new prompt in the **Stake/Check Rail** app settings selects the interface to use. The rest of the functionality remains unchanged.



Stake/Check Rail - Versine calculator – vertical and twist support



In Leica Captivate v11.00 the **Versine Calculator** has been reworked and now offers three pages: **Horizontal**, **Vertical** and **Twist**.

On the **Horizontal** page, the user can select which working line the calculation is based on (Both rails, Left rail, Right rail, Higher rail, Lower rail) and can simultaneously calculate the versine for a second chord length.

The new **Vertical** page brings the same functionality for vertical alignments.

The new **Twist** page calculates the twist value for the rails, with the option to compute two separate twist values based on two twist base lengths.

The **Versine Statistics** page has been adapted accordingly with corresponding **Horizontal**, **Vertical** and **Twist** pages.

The screenshot shows the 'Versine Calculator' app with the 'Twist' tab selected. It features two sections for calculating twist values. The first section has a checked box for 'Calculate twist value' and a text field for 'Twist base length' set to '10.0000 m'. The second section also has a checked box for 'Calculate 2nd twist value' and a text field for 'Twist base length' set to '6.0000 m'. At the bottom, there are 'Calculate' and 'Page' buttons.

Stake/Check Rail – Dynamic compensation length factor



Leica Captivate v11.00 adds a third method of computing the compensation to the **Dynamic compensation** tool in the **Stake/Check Rail** apps. Now the compensation factor directly can be entered as a ratio in the defined distance unit.

To make the methods easier to distinguish, the current **Calculate** method has been renamed to **Using length/comp factor**. The new method is called **Using comp/length factor**.

Therefore, three calculation methods are now available: **Manually enter**, **Using length/comp factor**, and **Using comp/length factor**.

The screenshot shows the 'Dynamic Compensation' app with the 'Horizontal' tab selected. It contains several input fields: 'Apply horizontal compensation' (checked), 'Compensation type' (set to 'Linear'), 'Start chainage' (725.3000 m), 'Start compensation' (0.0150 m), 'Compensation length' (set to 'Using comp/length factor'), 'Compensation factor / length' (0.4 mm / m), 'Length' (37.5000 m), and 'End compensation' (0.0000 m). At the bottom, there are 'OK' and 'Page' buttons.

Stake/Check Rail – support for cosinusoidal alignment geometry



Leica Geosystems' **Design to Field** software enables seamless transfer of engineering and design data into the field, allowing surveyors to stake out, measure, and verify construction elements with high accuracy. Previously, Design to Field did not support cosinusoidal geometries. Design data defined with this type of geometries, could not be prepared to be used in the field and first data conversion in the office was required.

Now, the **Design to Field** software supports the cosinusoidal curves so that customers do not need to adapt their office workflows to ensure rail data can be used in the field with Leica Captivate v11.00.

Check tunnel - Changes in Check Tunnel Axis



Seeking for consistency between Leica Captivate and Infinity outcomes, the new Leica Captivate v11.00 adapts its terminology in the **Check Tunnel** app.

The **Check Tunnel Axis** results have been aligned with the equivalent results in Infinity. On the **Results** page, the token **Chainage** is now displayed as **Tilted chainage** to reflect the value shown.

CL height difference and **Centre height difference** are now calculated as the distance along the plane perpendicular to the vertical alignment. **Tunnel centre vertical offset** is now the vertical offset along the perpendicular plane.

The order of the Easting/Northing prompts now follows the Leica Captivate **Regional Grid format** setting's configuration.

Stake tunnel - Improvements to Drilling rig orientation



The new Leica Captivate v11.00 has improved the **Drilling rig orientation** workflow, in the **Stake Tunnel** app, to make iterative orientation faster. Users can now re-measure the back of the drilling arm while the previously measured entry point is preserved until it is explicitly re-measured. This removes the need to re-measure the entry point when only the back of the arm has changed.

Jumbo Guidance		Hz 181°38'45"	V 88°45'54"	@	08:44
Point ID	Drill_pt_18				
Target height	0.1500 m				
Rotate left	0.1158 m [0.7 °]				
Rotate up	0.0819 m [0.5 °]				
Stake chainage	700.0000 m				
Offset	2.2000 m				
Height offset	1.8000 m				
Drill hz angle	16.0 °				
Drill vertical angle	0.0 °				
Fn	Store	Stop	Fn		

Stake Tunnel – sorting options for Stake face/profile auto



The **Stake Auto** settings now include a new option, **Sorting of points from working/design job**, that lets the user decide how points are ordered when staking tunnel face or profile points.

In Leica Captivate v11.00 two options are available: **Radial** (the previous behaviour) and **By Point ID** (standard alphanumeric Leica Captivate sorting). This allows following the order defined in the design file when marking out boreholes in a tunnel.

Stake Auto Settings	
Store staked points	☒
Wait time after staked point	
Sorting of points from job	By Point ID
Verify orientation	☐
OK	

Check Tunnel – improved Apply target radius



In previous Leica Captivate versions, when a prism with a set target radius was aimed, the centre of the measured prism was calculated.

In Leica Captivate v11.00, an **Apply target radius** checkbox is now available for the **Tunnel Axis** method of the **Check Tunnel** app.

When a prism with a set target radius is used in the **Check Tunnel** app, the measured position is now recalculated to the tip of the object holding the prism, and all reported values (not only **Difference to profile**) correspond accordingly.

Point: 1	
Point ID	TS0001
Target height	0.0000 m
Target radius	0.2500 m
Fn Store Stop Page Fn	

3 Leica Captivate New Features – TS specific

Remote video streaming with AP20 (BLE)

The TS20 can now run the remote video stream while the AP20 is connected via Bluetooth LE. The previous workaround that disabled remote video streaming when Bluetooth was active is no longer required.

New panoramic capture workflow

Leica Captivate can now configure and use the new Panoramic capture routine on TS20 devices, both onboard the instrument and on a connected controller or tablet.

The available methods of area definition are **Full dome** (new), **Multi-row** and **Rectangle**. Single row and Polygon area have been removed. The capture process can be stopped, paused and resumed. The panoramic image is intended for documentation purposes only.

TS20 eSIM configuration from Captivate

Captivate can now configure the eSIM in the TS20's GMI01 module. The user enters the eSIM activation data in Captivate; the entered data is validated, communicated to the TS20, and the eSIM profile is applied to the device.

eSIM profile status information is presented to the user, including error feedback for an invalid activation code or SM-DP+ address. This feature enables the user to have internet connection in the field without the need of a WLAN hotspot.

WLAN split out from TS/CS Internet configuration

WLAN configuration has been separated from the previous combined **TS internet** and **CS internet** entries. **WLAN** has now its own entry point under Connection settings; the remaining option is renamed **Mobile Internet** and is only shown when the device contains a modem.

The **Mobile Internet** panel exposes the modem device, the SIM type in use (SIM or eSIM, selectable when both exist), and a SIM configuration panel that covers eSIM, APN, SIM codes and Advanced settings. The **Internet Connection Status** panel has been updated to show WLAN and Mobile Internet at the same time, with renamed pages.

GMI01 "Find my device" beeper alarm

The TS20 can now be located within the last 10 metres inside a building by triggering a beeper alarm via the cloud. When the instrument is powered, the TS speaker plays an alarm sound; if the TS is turned off, the GMI01 speaker is used instead.

4 Leica Captivate New Features – GS specific

HTTP Secure connections by default

All newly manufactured and delivered GS sensors now establish secure HTTP (HTTPS) connections by default.

When a GS sensor is configured as a server (for example, an NTRIP Caster with NTRIP v2 support or a TCP/IP Server), SSL/TLS encryption is enabled by default. Clients that do not support SSL/TLS will not be able to connect. In such cases, SSL/TLS must be manually disabled in the GS sensor communication settings.

When a GS sensor is configured as a client (for example, connecting to an NTRIP Caster or TCP/IP Server), SSL/TLS is also enabled by default. If the remote server does not support secure communication, the connection attempt will fail and an information message will be displayed. To establish the connection, SSL/TLS must be manually disabled for that connection.

For existing units updated to Leica Captivate v11.00, the previously configured connection settings are preserved.

This behavior can be configured by the user within Leica Captivate.

The screenshot shows the 'New Server' configuration window. At the top, there's a title bar with a back arrow, 'New Server', and various status icons. Below the title bar, the 'General' tab is selected for an 'NTRIP' server. The configuration fields are: 'Server name' with the value 'Example', 'Address' with '10.10.10.10', 'Port' with '1234', and 'Use SSL/TLS' which is checked with a green checkmark. At the bottom of the form, there are two buttons: 'Store' and 'Page'.

New compatibility between GS Base with Satel TR4+ UHF radio and GS05 UHF Rover

Leica Captivate v11.00 introduces support for the new SATEL 3AS modulation on all SATEL TR4+ UHF radios (GFU30, SLR6-1, GS16 and GS18). This enhancement enables UHF compatibility with GS05 UHF rovers, significantly improving interoperability within mixed sensor setups.

- A new software option (Article 1037722 – Radio Compatibility option for GS05 UHF) has been introduced. When activated, it enables the SATEL 3AS modulation on GS05, required for compatibility with TR4+ radios.
- GS18 units will include the updated UHF radio firmware supporting SATEL 3AS by default. For existing GS16, GFU30 and SLR6-1 units in the field, a manual UHF radio firmware upgrade is required. Newly delivered units will include this firmware by default. Upgrade instructions are available on myWorld.

- To maintain compatibility between GS05 base and rover configurations, the 2-GFSK modulation must be selected.
- The new modulation improves UHF rover performance, increasing the achievable communication range by up to a factor of three, depending on conditions.

GS05 CCP Validation During Firmware Installation

Leica Captivate v11.00 introduces a new validation mechanism for the GS05 CCP End Date (Software Maintenance expiry date) during the firmware installation process.

If the GS05 CCP End Date is earlier than the minimum Software Maintenance date required by the Captivate version being installed (for example, 01 November 2025 for Captivate v11.00), the following scenarios apply:

- Upgrading from Captivate versions earlier than v11.00
The firmware upgrade will be completed successfully; however, GS05 functionality will be restricted. The receiver can still be connected and configured, but no positioning functionality will be available. To restore full functionality, customers must either:
 - Purchase a valid CCP/Software Maintenance extension, or
 - Downgrade to the previously installed Captivate version.
- Upgrading from Captivate v11.00 or later
The firmware installation will be blocked if the CCP End Date does not meet the Software Maintenance requirement of the target firmware version.

Important: Attention should be paid when upgrading GS05 units from Captivate v9.12. As described in the Upgrade Recommendation section, it is recommended to upgrade first to Captivate v10.00 and subsequently to v11.00. However, if the CCP End Date is not valid, the customer may need to downgrade the unit. Due to the downgrade protection described in Section 1, a downgrade will only be possible to Captivate v10.00; reverting to Captivate v9.12 is not permitted.

Secure Access to GS Web Server via Cellular Connectivity

Starting with Leica Captivate v11.00, access to the GS Web Server over a cellular connection is protected by password authentication.

Before logging in for the first time, a password must be configured while connected to the GS device via USB, Bluetooth, or WLAN.



Once a password has been set, the GS Web Server can be accessed over the cellular connection by entering the configured credentials.



GS18 UHF Radio Firmware – Downgrade Considerations

With the release of Captivate v10.06, a new GS18 UHF radio firmware was introduced (see Sales News 21-2026).

Captivate v11.00 introduces an additional GS18 UHF radio firmware update to support the new compatibility between GS Base with SATEL TR4+ UHF radio and GS05 UHF Rover.

Impact of Downgrading

If a GS18 is downgraded to a Captivate version earlier than v10.06, a mismatch between the hardware and the installed radio firmware may occur. This results in the UHF radio not functioning correctly.

The issue can be resolved by reinstalling a compatible GS18 radio firmware version.

Note: This issue only affects GS18. It does not affect GS16, as the GS16 UHF radio firmware is always installed and maintained separately from the GNSS firmware package and is therefore not modified during a Captivate upgrade or downgrade.

Recovery Procedure

After downgrading a GS18 to a Captivate version earlier than v10.06, reinstall a compatible GS18 UHF radio firmware version using the firmware package available on myWorld.

Additional requirements depend on the software version from which the downgrade was performed:

- Downgrade from Captivate v10.06: Prior to reinstalling the GS18 UHF radio firmware, the radio serial communication settings in Captivate (radio profile) must be modified by setting the GS radio connection parity mode to *Even*. Afterward, a compatible GS18 UHF radio firmware can be

loaded via the GS18 web server. For detailed recovery instructions, please contact the Surveying Support Team.

- Downgrade from Captivate v11.00 or later: Only reinstallation of a compatible GS18 UHF radio firmware via the GS18 web server is required. No changes to the serial communication settings are necessary.

5 Leica Captivate Software Improvements

GeoCloud – Captivate could crash after enabling "Stay logged in"	After enabling "Stay logged in" in the GeoCloud app, Captivate could crash when restarted. This affected both x64 Windows tablets and Linux platforms (TS20). The issue has been fixed.
IFC objects could not be hidden when two IFC files were attached	When two IFC files were attached to a job, IFC objects from one of the files could not be hidden using the context menu, although hiding from the tree view still worked. The context-menu hide action now works correctly with multiple IFC files attached.
WMTS not shown at some locations	A WMTS layer that was displayed correctly in QGIS at a given location could fail to display in Captivate at the same location. The map is now rendered correctly in this scenario.
TS20 – physical camera button could hang Captivate in the measure app with animations disabled	When animations and transitions were disabled, pressing the physical camera button while in the measure app could leave the camera in an unusable state with the wrong Fn bar, or in rare cases crash the application. The camera now works as expected in this scenario.
TS20 – No prism or foreign reflection detected during PowerSearch scan	In previous versions of Captivate, under certain circumstances, the TS20 was unable to detect prisms during a PowerSearch scan or would stop on foreign reflection. This has now been further improved, making the PowerSearch scan more reliable.
TS20 – Unstable ATR Lock	In previous Captivate versions, the TS20 had issues when locked to a prism and e.g. a reflective safety vest was close to the prism. The ATR Lock is now more robust and reliable when tracking a prism.
TS20 – Connectivity issues	Previously, interrupted remote connections could require noticeable time to reconnect and were more sensitive to temporary communication disruptions. This release improves connectivity with faster reconnection after connection loss and enhanced connection robustness for more reliable remote operation.
Slow job loading from SD on the new Home panel	Loading jobs from an SD card was significantly slower on the new Home panel than on the previous job carousel. Performance on the new Home panel is now comparable to the previous behaviour.
TS20 target list overwritten by Controller	When a controller was remotely connected to the TS20, the target list on the TS20 was completely overwritten by the controller's list, deleting custom targets that only existed on the TS20. The target list on the TS20 is now only updated when the target currently set on the controller does not yet exist on the TS20; existing TS20 targets are no longer deleted.
Wrong TS scale when Atmospheric Corrections is opened via hotkey after a new job	After creating a new job and opening "TS – Atmospheric corrections" via a hotkey, the TS scale was inherited from the previously created job instead of the current one. The TS scale is now correctly taken from the active job.
Radio handle could not be re-enabled after cancelling WLAN setup with ESC	On a TS with a radio handle, cancelling the WLAN search with ESC left WLAN improperly configured in Captivate, which then blocked the radio handle from being configured as CS connection. The previous workaround of properly configuring and later disabling WLAN is no longer necessary.

ASCII export incomplete when format file contained non-ASCII characters	When exporting an ASCII file with a format file that contained a non-ASCII character (e.g. ž), the export stopped at the header and no points were written. ASCII export now handles non-ASCII characters in the format file correctly.
DGN files could not be added to a job in x64 Captivate	Specific DGN files that opened correctly in Infinity and in 32-bit Captivate could not be added to a job in x64 Captivate. Such files can now be added on x64.
Some older code lists could not be used on TS20	Certain older code lists (such as Gemini and GISLine) could not be set on the TS20, even though the same lists could be re-exported successfully from Infinity. These code lists can now be used on the TS20 directly.
Help line missing in Measure to line app	The perpendicular offset "help line" was not displayed in the Measure to line app, although it appeared correctly in Stake to line, Check Road and similar apps. The help line is now shown in Measure to line as expected.
Mobile Phone Style input could not be used in the Home search bar	With "Mobile phone style" text input enabled, selecting the Home screen search bar did not show the expected Insert/Overwrite and Num/Alpha buttons, so only digits could be entered. The search bar now offers the full set of Mobile phone style input controls.
XML export – wrong values when a TPS offset was used	When a TPS offset was used, exported XML versions contained inconsistent values because the raw measurement data was exported instead of the offset-corrected data, and internal measurement structures were being overwritten while reading the tilt values. The exported XML now reflects the offset-corrected values correctly.
Set orientation could not be confirmed after Transfer User Objects	After transferring a job to internal memory via Transfer User Objects (for example from USB, or after downloading from GeoCloud Drive without first activating the job), the F1 (Set) action could not be applied when confirming the setup. Set orientation can now be confirmed normally in this scenario.
Stylesheet export parameters were not remembered	When exporting a job using a stylesheet that supports export parameters, the user-defined parameter values were not retained between exports on x64. The parameters are now remembered across exports.
CC180 – stored camera image was unsharp	On the CC180, the live camera view was sharp but the captured image was stored unsharp. Stored images now match the sharpness of the live view.
Measure Sets – Captivate UI froze when measuring many sets	When a large number of sets was measured in the Measure Sets app, the screen could freeze with only the top bar responding to touch, requiring a manual restart. The application now remains responsive for large measurement runs.
TS20 – Demo licence not active alongside base licence	When a demo licence and a permanent base licence were loaded on a TS20 at the same time, the demo licence was not activated: no demo end date was shown and demo-licensed apps could not be started. The demo licence is now correctly activated in this scenario.
Missing checkboxes in IFC Layer Management	On CS20 devices, the checkboxes in the IFC tree view of the Layer Management panel were missing in all Captivate versions after 8.10. The checkboxes are now displayed correctly.
Hot Key table could not be scrolled with the keyboard	In certain situations, especially when changing an existing hotkey while connected to a TS20, the Hot Key table could no longer be scrolled up or down with the keyboard. Scrolling now works reliably for both new and existing hotkeys.

**DXF export wrote
coordinates as
fractions for ft/inch
units**

When the distance unit was set to "US ft/inch (ft)" or "Intl ft/inch (fi)", coordinates exported to DXF were written using fractions, which caused CAD software (AutoCAD, BricsCAD, Infinity) to read only the foot part and ignore the rest. DXF export now writes coordinates as floating-point numbers regardless of the regional fraction setting.

6 Obtaining and loading the new software using the online update (CS20 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 and GS05 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 (CS20 and TS1x, TS/TM/MS60) 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.

- ❖ For windows tablets, from Leica Captivate v9.00 onwards the following Microsoft® Windows™ operating system editions are supported:

- ◆ Windows 10
- ◆ Windows 11

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 portal
- 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_v11.00.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_v11.00.fw
TS10LeicaCaptive_v11.00.fw
TS20LeicaCaptive_v11.00.fw

These files contain all Leica Captivate and WinCE/Linux 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 v11.00 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 and language files can be obtained from the following sources:

- the myWorld portal
- 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:

GS18LeicaCaptive_v11.00.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 (GS05 GNSS sensors)

The GS05 GNSS sensors can only be updated manually. Follow the instructions below.

Obtaining the new software

The new software can be obtained from the following sources:

- the myWorld portal
- your local Leica Selling Unit or Dealer

Files which need to be obtained for upgrading a GS05 GNSS sensor

The following file must be downloaded to update the GS05 GNSS sensors:

GS05_Captive_Installer_v11.00.exe

How to load the Leica Captivate files to the GS05 GNSS sensors

1. Connect the GS05 GNSS sensor to your PC via a USB cable.
2. Download the GS05 firmware installer and execute it.
3. Once followed all the steps required during the installation, the GS05 starts the update process automatically. LEDs indicate the process.
4. Once the update process is complete, the GS05 instrument reboots automatically.

10 Obtaining and loading the new software using manual loading (CS3x and CC180/CC200 Tablets)

The CS3x and CC180/CC200 Tablets can also be updated manually. Follow the instructions below.

- ❖ For windows tablets, from Leica Captivate v9.00 onwards the following Microsoft® Windows™ operating system editions are supported:
 - ◆ Windows 10
 - ◆ Windows 11

Obtaining the new software

The new software, language files and apps can be obtained from the following sources:

- the myWorld portal (it is possible to manually download the files from the myWorld portal 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 CS3x/CC200 Tablets

The following file must be downloaded to update the CS3x, CC180, CC200 and the third-party Windows Tablets.

LeicaCaptivate_CS3x-CC180-CC200_v11.00.zip

The file contains Leica Captivate languages and apps.

How to load the Leica Captivate files to the CS3x/CC200 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 **Setup_x64.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.