

Leica iCON Field v8.0

Software Release Notes

Product iCON site, iCON build
Date 16th November 2023
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icon
intelligent **CON**struction

Version 8.0

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

These Release Notes contain important information about

Software	Version	Maintenance Date
iCON build	8.0	01.11.2023
iCON site	8.0	01.11.2023

iCON Software is protected and can only be loaded onto instruments with a valid software maintenance date.

Please do take your time to read these Release Notes!

The release notes contain information about the new iCON Field software and application programs. Please read the release notes in conjunction with the User Manual delivered with every instrument.

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1. New version iCON Field software v8.0

We are pleased to announce the release of the new iCON Field software v8.0
This version of iCON Field software contains important new features and bug fixes.

1.1 Latest iCON firmware versions

It is recommended to always use the latest available firmware version for iCON Field software and sensors.

- iCON build v8.0.0.1820
- iCON site v8.0.0.1820
- iCON gps 60 v6.8.0
- iCON gps 70 v7.94.33
- iCON gps 160 v2.0.11
- iCON iCT 30 v8.0.0.1820
- iCON robot 70 v8.0.0.1820
- iCON robot 80/S v8.0.0.1820
- iCON builder 50/70 v8.0.0.1820
- Leica Builder v2.12
- iCON robot 50 v7.13
- iCON robot 60 v4.5.0
- iCON builder 60 v4.5.0

Captivate sensors

- TS16 / MS60 v8.10

On machine sensors (iCON site excavator)

- SJB21 v4.2.1
- iCON gps 100 v2.1.0
- CR50 v2.1.0

It is recommended to upgrade all iCON system components to the latest available software version.

1.2 Customer Care Product (CCP) date

The iCON Field software v8.0 can only be loaded onto iCON Field equipment which has a valid **CCP date of 1st of November 2023 or later.**

1.3 Download new versions

The latest version of iCON Field software can be downloaded from the iCON section within Leica world.

1.4 Training Material for iCON Field

Since iCON Field v1.5, many training videos have been introduced to demonstrate the usage of different applications but also to show how the software can be configured to the customer's needs.

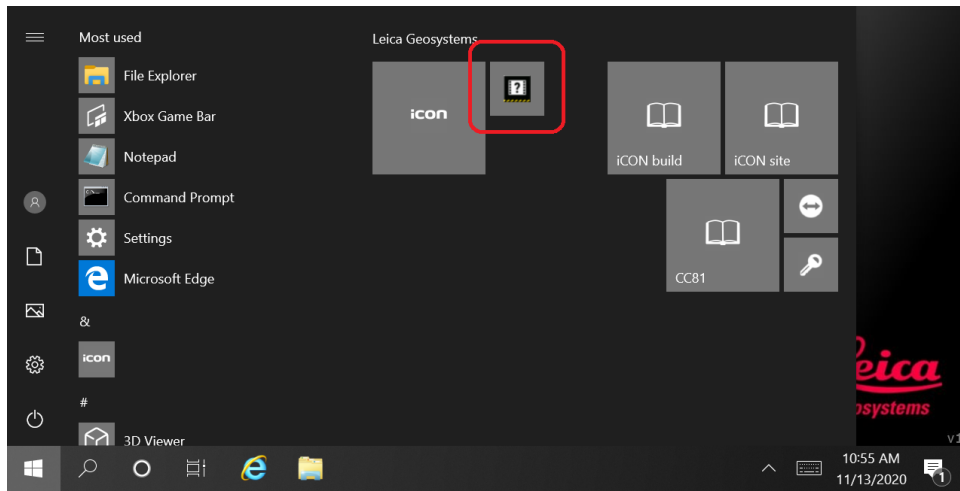
The videos can be downloaded from the iCON section within Leica world.

All videos are also available from the Leica YouTube channel.

http://www.youtube.com/playlist?list=PL0td7rOVk_IVTTMQZVWJn6t8qw-zPVwLF

New training videos have been created and are available from:
<https://leicageosystems.how/usingiconsite>

The new videos are accessible on iCON field controllers from the Windows start menu providing extra help to customers on the field.



Access to videos from iCON field controller

2. What is new for the iCON Field software v8.0

2.1 Use Interface Improvements

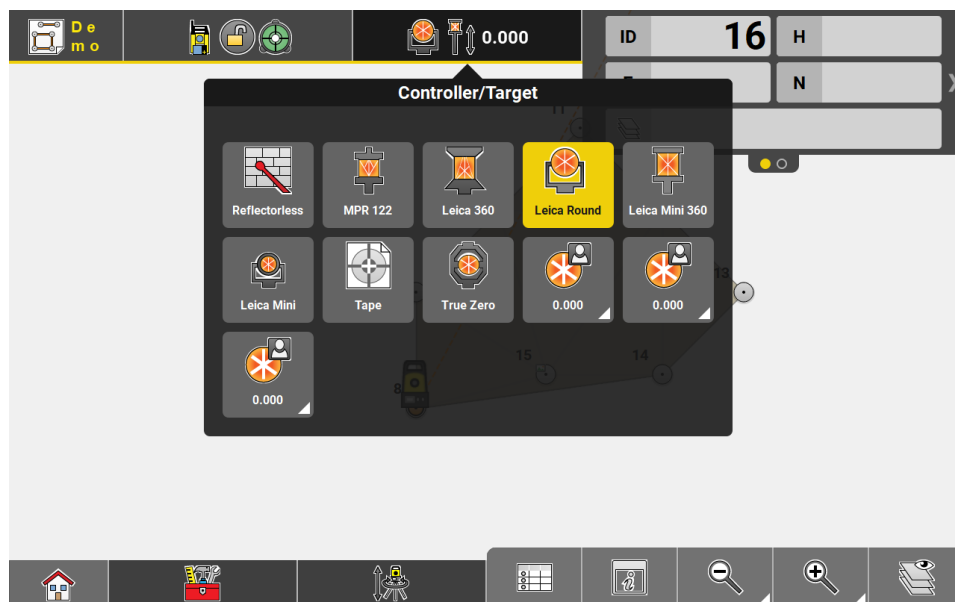
2.1.1 Tap&hold indicators

Some buttons in the iCON software offer additional functionality when the user does a long press on the button or item.

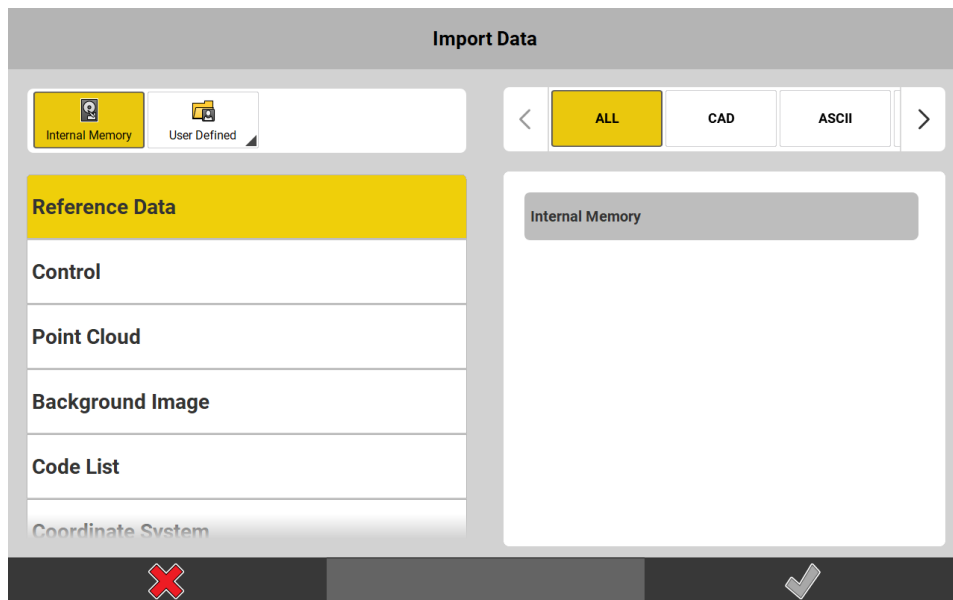
We now added an indicator so that it is easier for the user to see where tap&hold enhances the main functionality of the button.

The indicator is shown on the following buttons:

- Zoom out/in
- User defined prism type
- User defined prism height
- Hidden point tool
- User defined source/destination in import/export
- Manually added tools in Favourites (to remove the button)



Button indicators on the user defined prisms



Button indicator on the user defined folder path

Still the indicator is not shown for all options which would be possible to avoid showing it repeatedly on similar buttons.

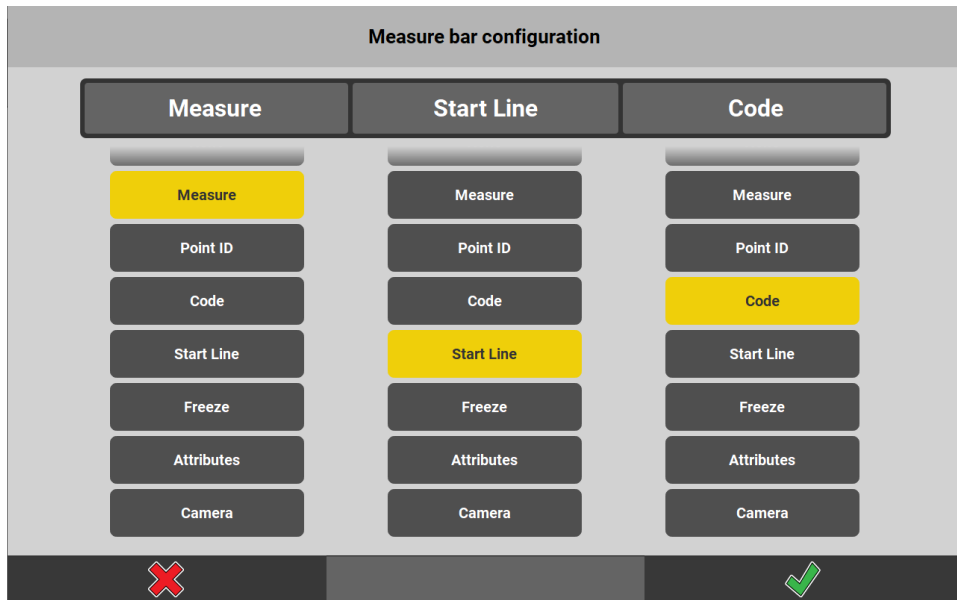
At the following tools and items, indicators have not been added to:

- Info bar to access the configuration screen
- Measure bar to access the configuration screen
- On buttons in Measure bar configuration screen
- On any point symbol on the map to access the point information screen
- On any point in the point list to access the point information screen
- On Project and job thumbnails to edit those items

2.1.2 Enhanced layout for measure bar and info panel config screen

Small changes in the measure bar config screen will bring a big benefit when customizing the measure bar. The preview of the measure bar is now at the top of the screen and always visible. In case the list of available options which can be configured has to be scrolled, the top options will hide behind the preview bar.

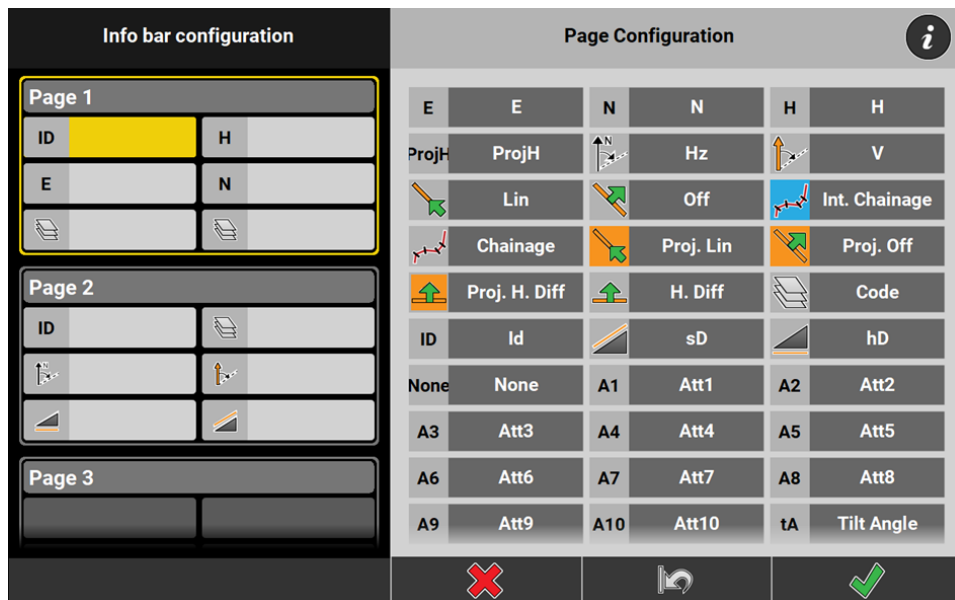
As a nice add-on, the lists of options for each button are centred below the appropriate button in the preview bar.



Measure bar configuration

For the info panel config page, the layout has been modernized and simplified. The preview is no longer available on top of the right part but now the different pages listed on the left can be configured directly. Furthermore, the page layout is changed for a cleaner appearance.

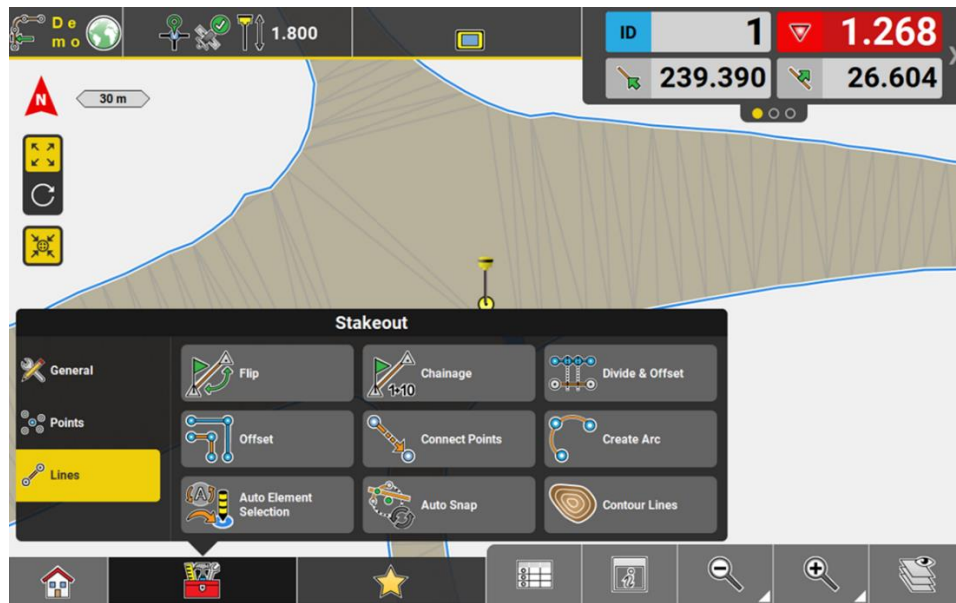
If a page cannot be configured like the first page of Stakeout applications, the frame and header bar is shown in a light grey colour.



Info panel configuration

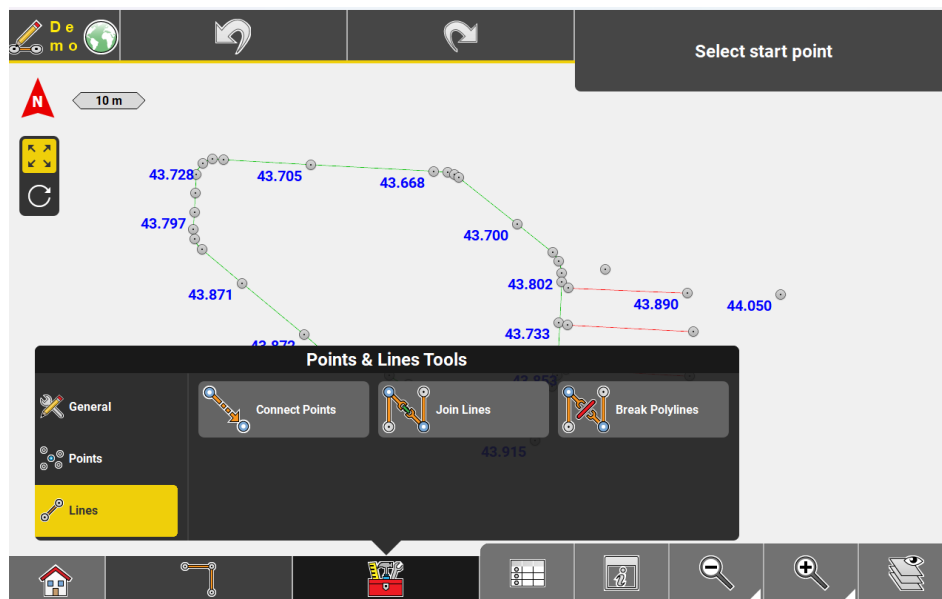
2.1.3 Toolboxes and Map View Config

Since more and more necessary tools are added to the toolboxes in the applications, categories are introduced in case of more than 9 tools in the toolbox. The categories help to easily find the needed tool. Different categories, such as Points, Lines, Objects, Road line etc. are introduced per app to support the used workflow best. On top of that, the size of the buttons has been considerably increased. Depending on the map selection (e.g., point, lines, objects) the relevant category will be active automatically. For example, when a line is selected for stakeout, the line related tools are displayed when tapping on the toolbox.



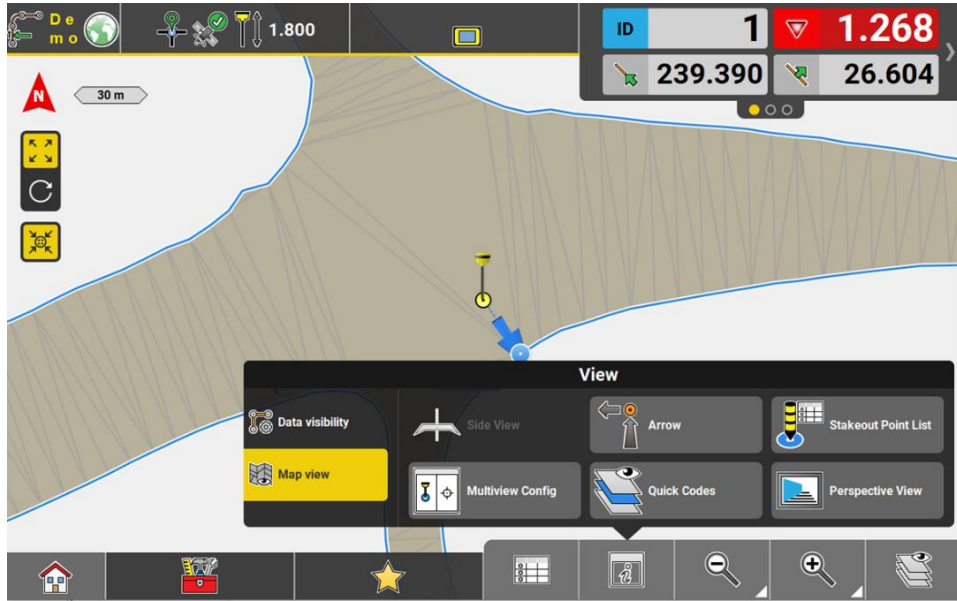
Grouped toolbox items

In this version, the Sketching app has also been updated to give a more consistent workflow. Previously users of the application would often select a function on the right and then a toolbox option on the left. By swapping the function and toolbox sections we now offer a more consistent left-to-right flow of the application.



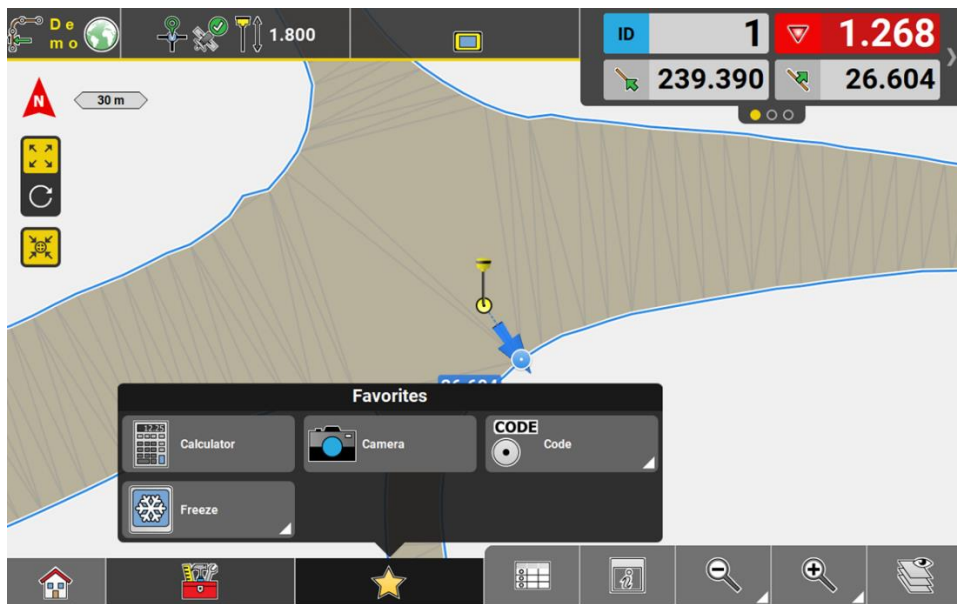
Sketch – new layout

The buttons size and grouping are applied also to “View” container items.



“View” container

When it comes to “Favorites” container, there are no new categories introduced.



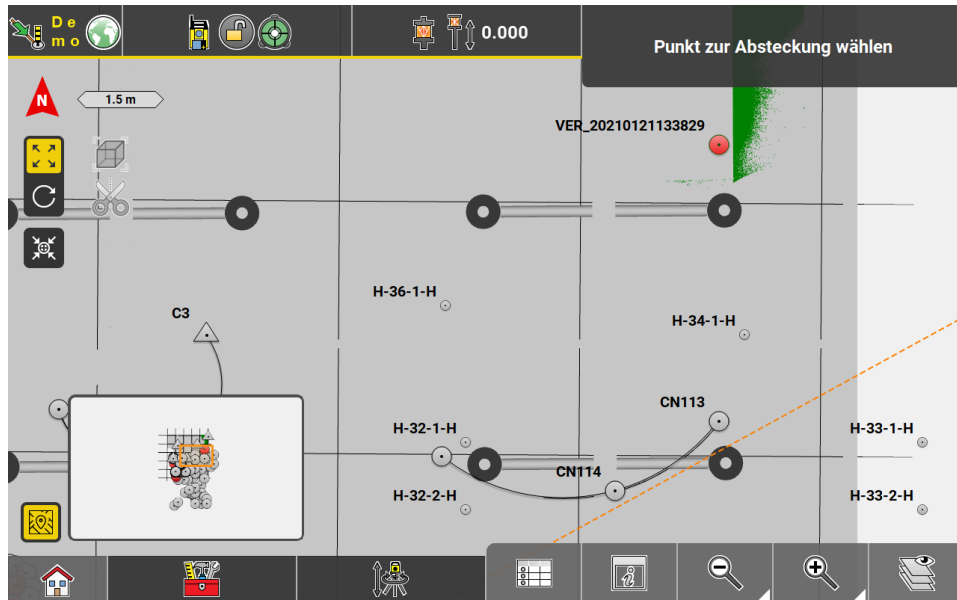
“Favorites” items

2.1.4 Mini Map

With 8.0 a new function for controllers called Mini Map will be introduced. The Mini Map feature allows to quickly jump on the map to a different view position while keeping the same zoom level.

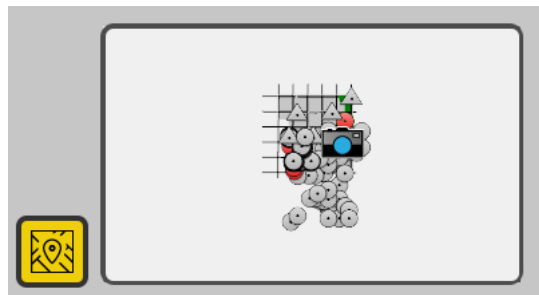
The Mini Map can be called by tapping on the button above the HOME button. By tapping somewhere in the Mini Map flyout the map view will move to the selected area. The currently visible map content is indicated by an orange frame in the flyout.

The North-East rotation will be kept however, the 3D map rotation will be turned back to 2D top view.



Mini Map - flyout

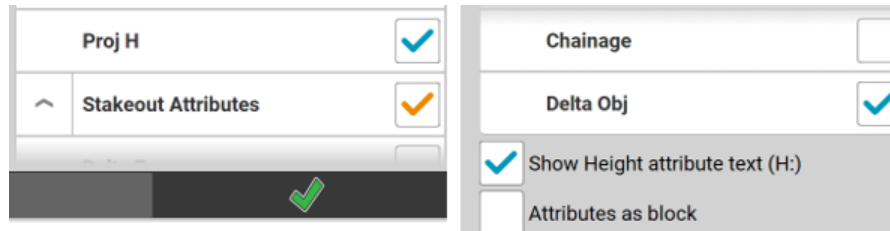
In case of a very deep zoom level, the orange frame wouldn't be visible in the flyout anymore, thus the current map position is indicated by a camera symbol then.



2.2 Improvements in CAD Import/Export

2.2.1 Verification Delta & Project Height Shift value for CSV/DXF export

It is now possible to export **Project Height** and **Delta to Object** values as DXF attributes. These can be configured in the DXF Options page.

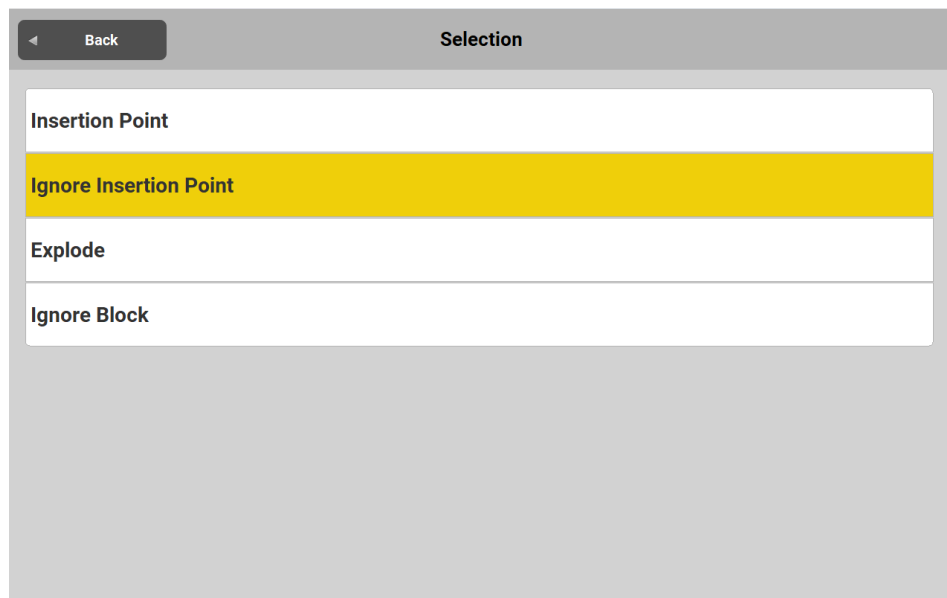


```
VER_20230721143305  
No Code  
E: 12.384 N: 14.132  
H: -1.120  
Delta Obj: -0.006  
Proj H: -6.120
```

DXF Export Options

2.2.2 New block option

With iCON Field v8.0 another setting on how to import block elements in CAD is available. So far, there are the options: "Insertion point", "Explode" and "Ignore".

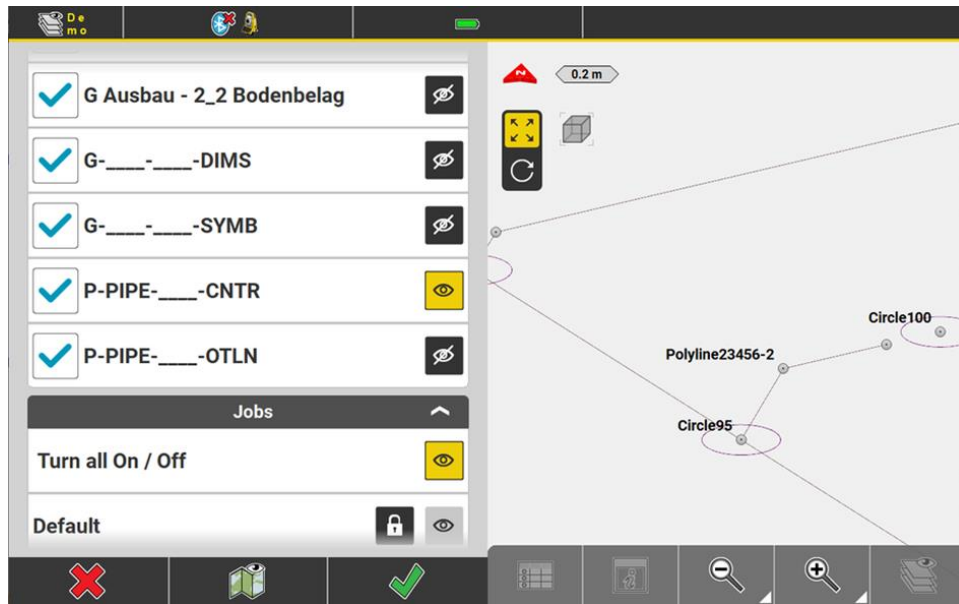


DXF Import - New block option

The new option "Ignore insertion point" allows to import a CAD file with blocks where the block is kept but its insertion point is not imported.

2.2.6 Circle center points stored on a separate layer

With the iCON Field v8.0 it is now possible to have the circle center points stored on a different layer with the naming “circle”.



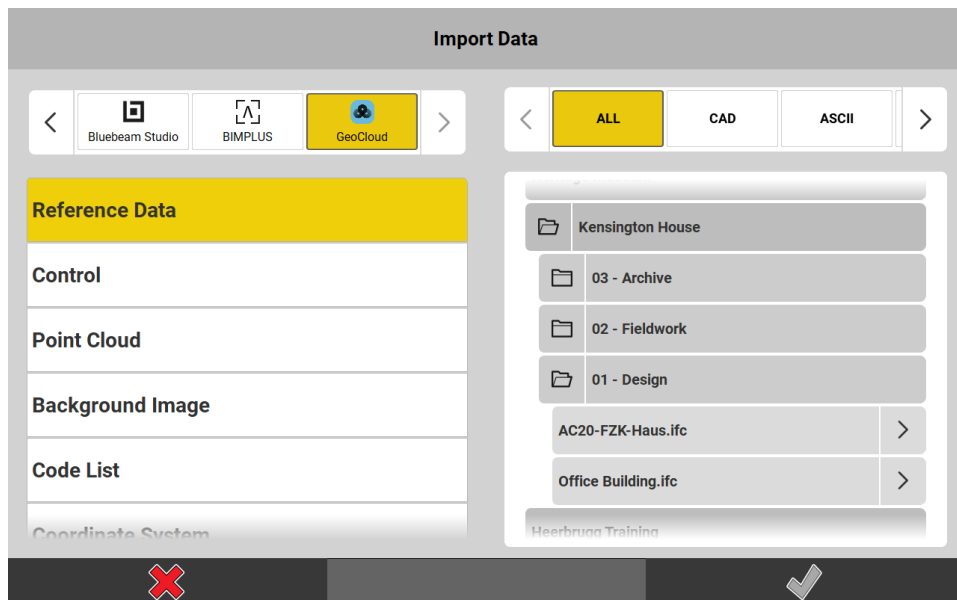
DXF - New layer added

2.3 Cloud improvements

2.3.1 Hexagon GeoCloud Drive

The all-new Hexagon GeoCloud Drive, powered by HxDR, is integrated into iCON field with version 8.0 for file exchange within the entire Hexagon product ecosystem and is available for any user without an additional field SW license.

In order to connect, a GeoCloud Drive license needs to be registered as a **Service** under **My Products** in **myWorld** and the required users to be assigned to this registered license. When this is set up correctly the assigned users can authenticate with their myWorld credentials via a browser pop-up and start navigating through their GeoCloud Drive folders and exchanging files in the same way as with any other cloud service.



Importing data to iCON via HxGN GeoCloud Drive

2.3.2 Autodesk

The iCON app that was available for BIM360 already has been added to the Autodesk Construction Cloud (ACC) app store as well. This will allow users in addition to also upload / download data to / from their ACC projects from iCON.

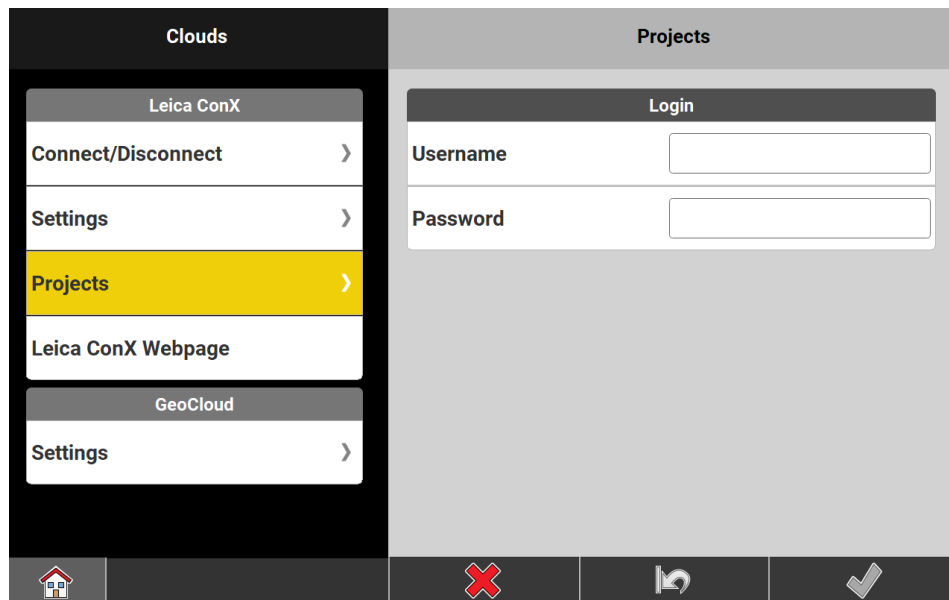
2.3.3 Bricsys 247

The authentication mechanism for Bricsys 247 has been updated to an OAuth2 authentication. Thus user credentials are no longer entered and stored in the cloud config section within iCON but handled via a web browser pop-up.

2.3.4 Leica ConX

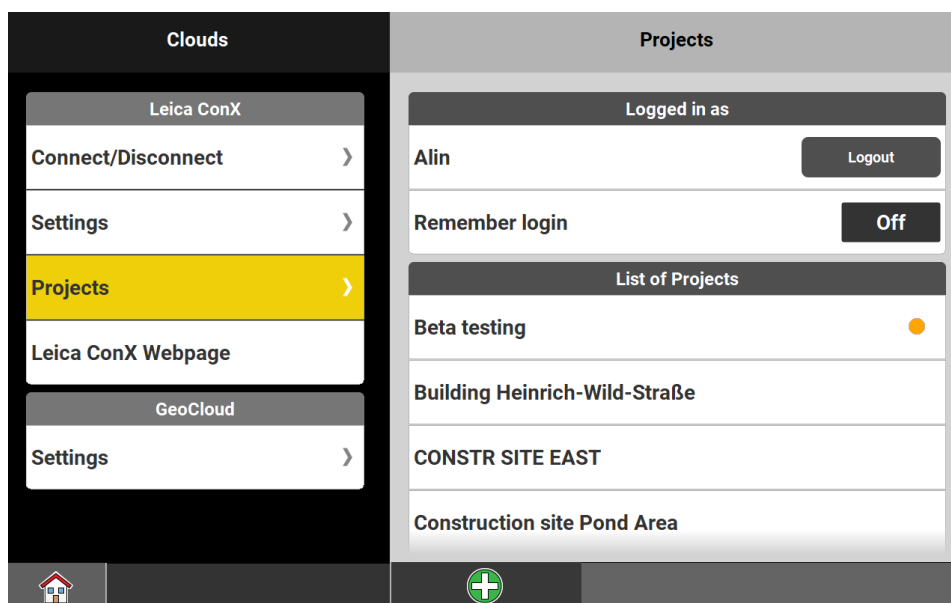
2.3.4.1 Create new project on Leica ConX

The user can now login from iCON field v8.0 to the cloud server by using the Leica ConX credentials. A new "Project" field has been added to the "Clouds" page, as per picture below:



Log in to ConX server

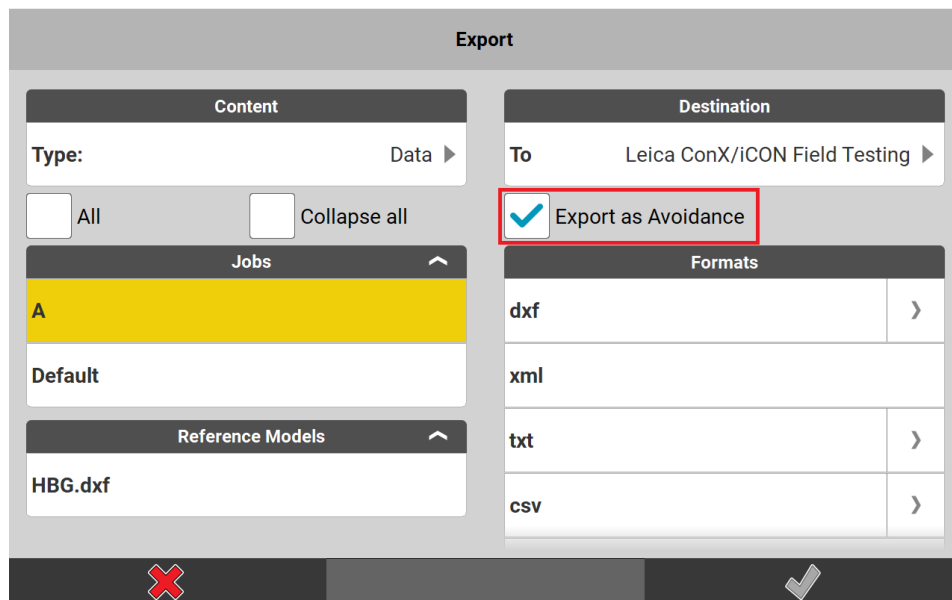
After the successful login, all the created projects on the Leica ConX server are listed. On top of that, the user can now directly create the project from iCON on the cloud server without accessing the web browser page. This will enhance the workflow of sending design data to another controller or a machine.



ConX – New project creation

2.3.4.2 Export data as Avoidance zone to Leica ConX

In iCON field v8.0 you can export the measured/design data as “avoidance” to the Leica ConX server, making it easier to directly assign it to different machines.

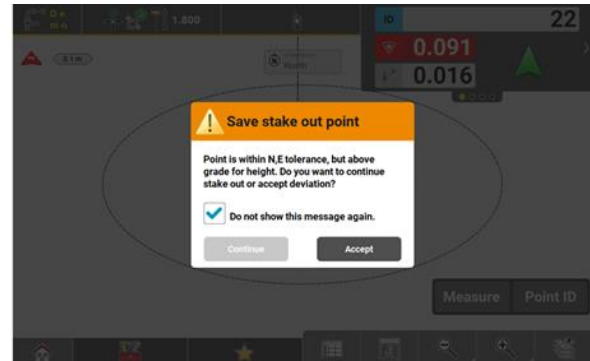


Leica ConX – New export option

2.4 Suppress warning message

Stakeout application

Points and lines elements can now be staked out ignoring the above/below Cut/Fill check. If the measured point is within N and E tolerance, an additional checkbox has been introduced with the option of not showing the warning message again, as it can be seen in the image below:

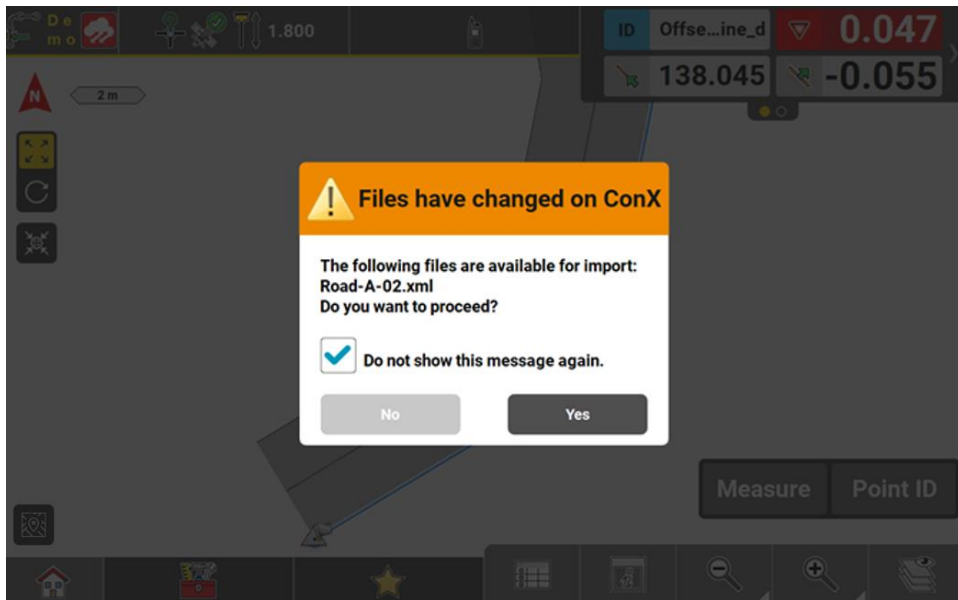


Stakeout – ignoring the height tolerance value

It must be mentioned that the setting has only temporary effects. As soon as we re-access the “Stakeout” application the warning message will reappear, and checkbox will be unticked.

Leica ConX

It is also possible now to ignore the warning message if the files have changed on the Leica ConX server. This requires having the “ConX Auto-Sync” functionality enabled. By ticking the checkbox and tapping on the “Yes” button, the files will automatically be imported at the specific set time interval from the “Clouds Settings” page.

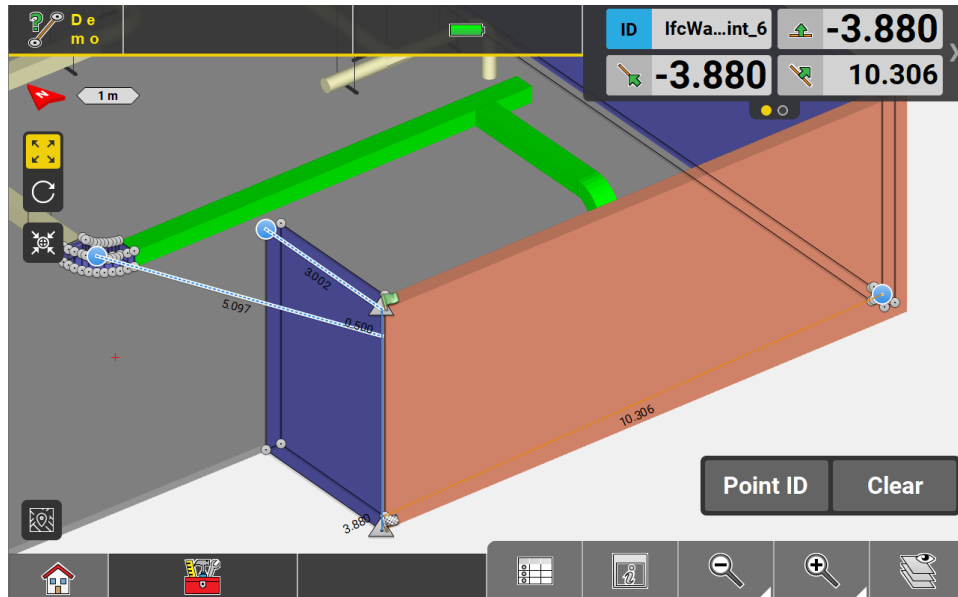


Conx – faster data transfer

However, this option will be applied only to files which do not require additional import settings. After the software restarts, the checkbox will be unticked again.

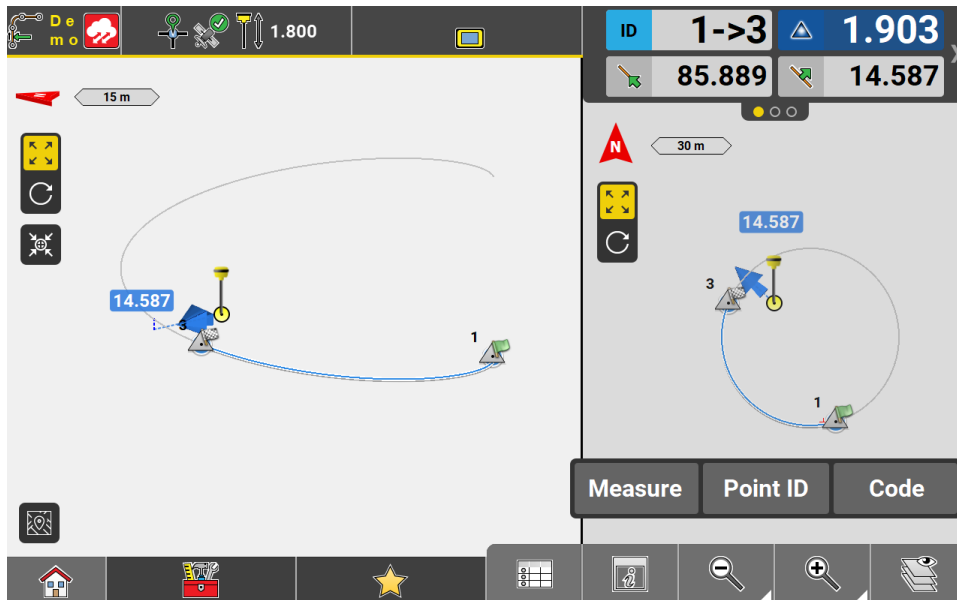
2.5 Vertical line, arc indicator and offset improvements

With iCON version 8.0 vertical lines can now be fully utilized for layout and checks with point to line. All necessary calculations will be shown in the info panel.



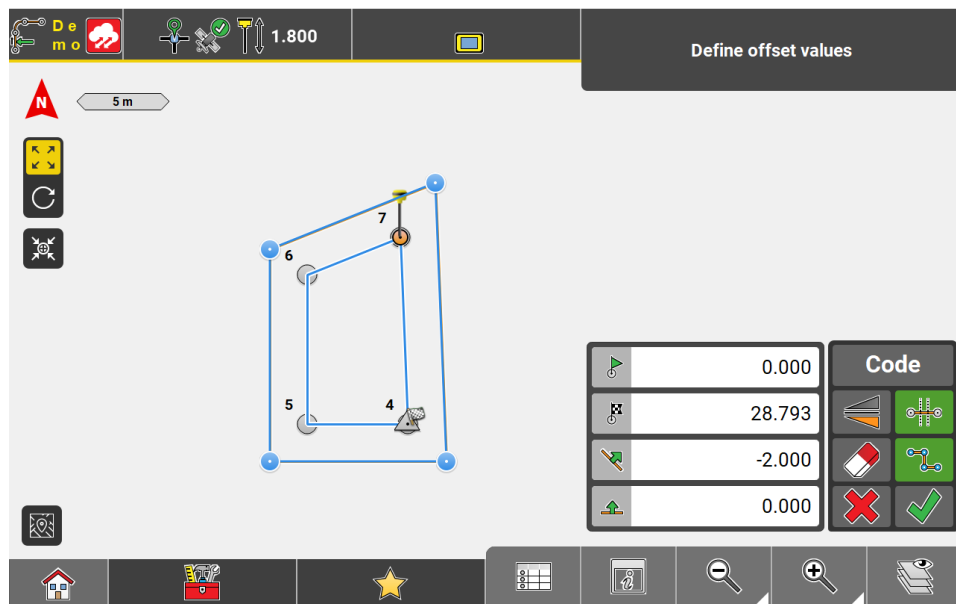
Vertical line used for "point to line"

It is now possible to layout beyond the end point of arcs where the extension indicator is changed to a spiral shape for arcs with different start/end heights.



Arc extension in a spiral

The Divide and Offset tool in stakeout/layout apps have been reworked so the offset points get connected with lines when the breakpoints button is enabled.

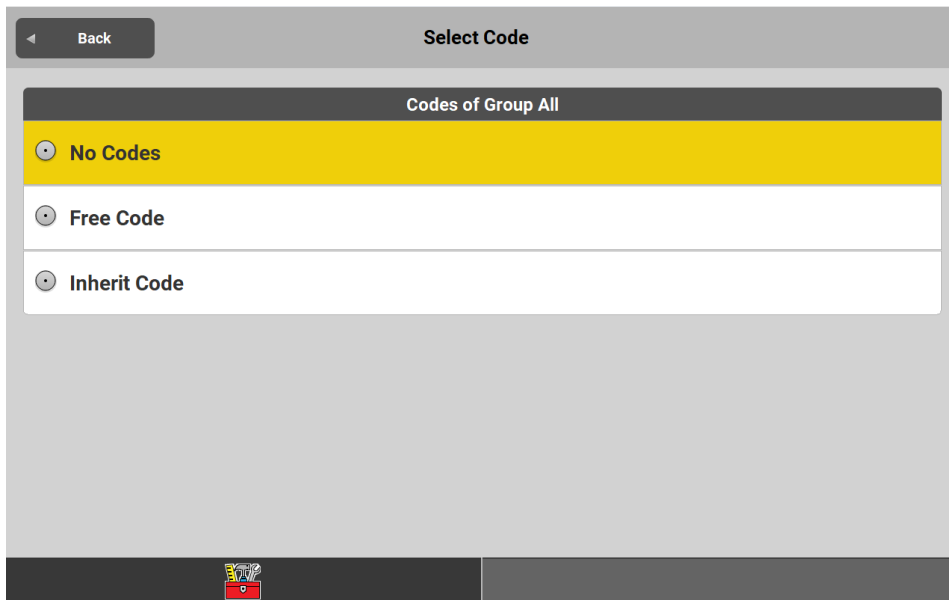


Offset with the possibility of breakpoints

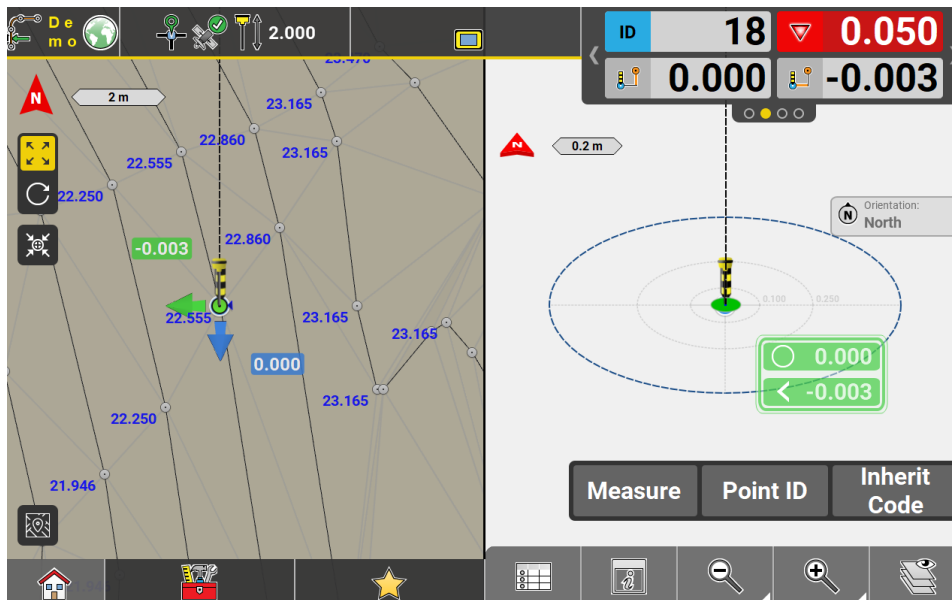
2.6 Inherit codes and attributes from reference points

So far, the process of assigning code & attributes to a stakeout reference point was a manual process. With iCON field v8.0 it is possible to automatically transfer the code and the attributes of the reference point to the stakeout point. This comes with a new function/ tool in “Stakeout”, “Layout points” and “Layout objects” applications and it is named “Inherit Code”.

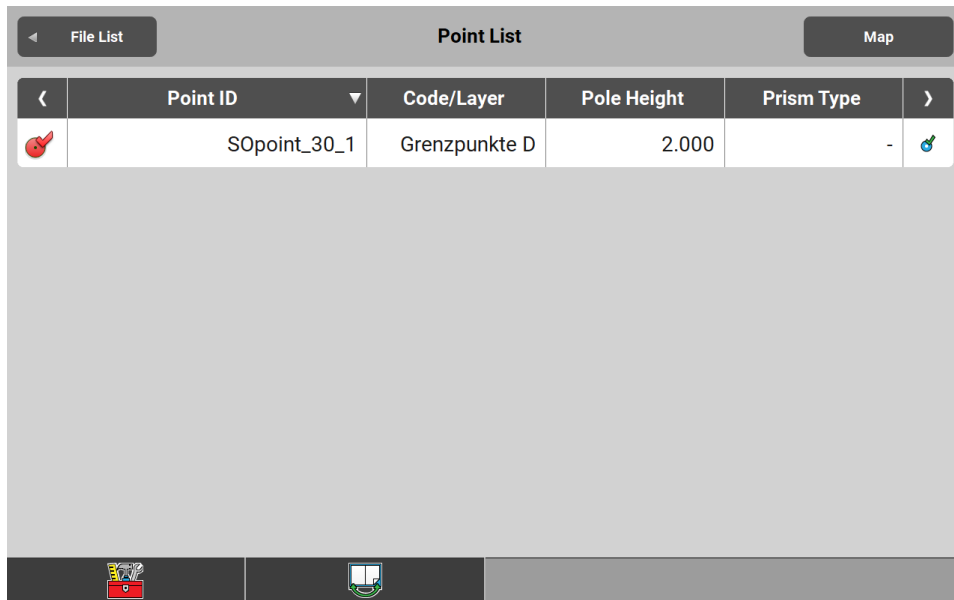
The “Inherit Code” is available from the active code screen.



Activate "Inherit Code"



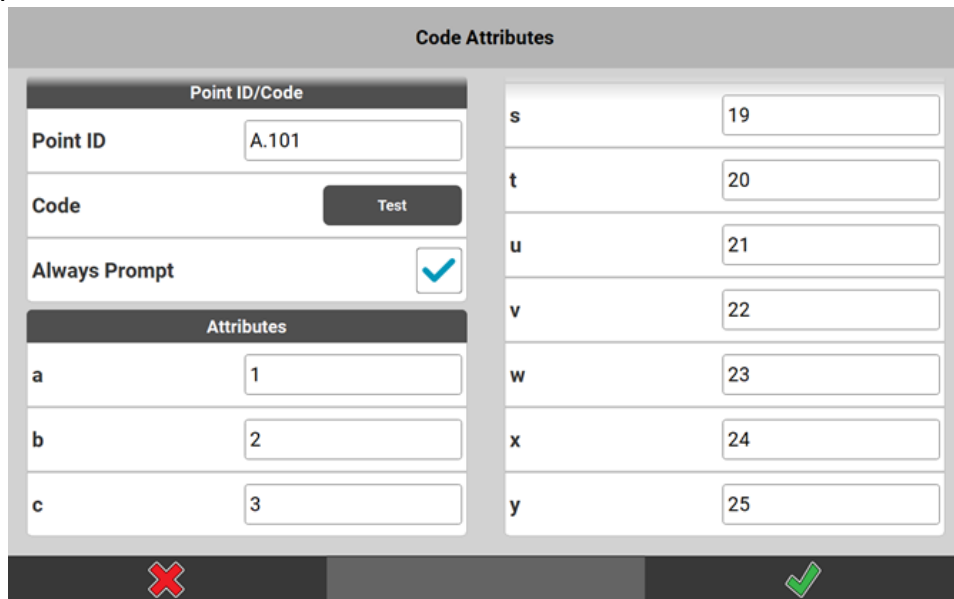
Stakeout a point



The stakeout point gets the code of the reference point

2.7 Amount of code attributes increase to 25

With iCON field v8.0 the number of supported attributes per code has been increased to 25. All the 25 attributes are displayed in the generated reports and available in the exported code list as “.xml” and “.csv” file formats.

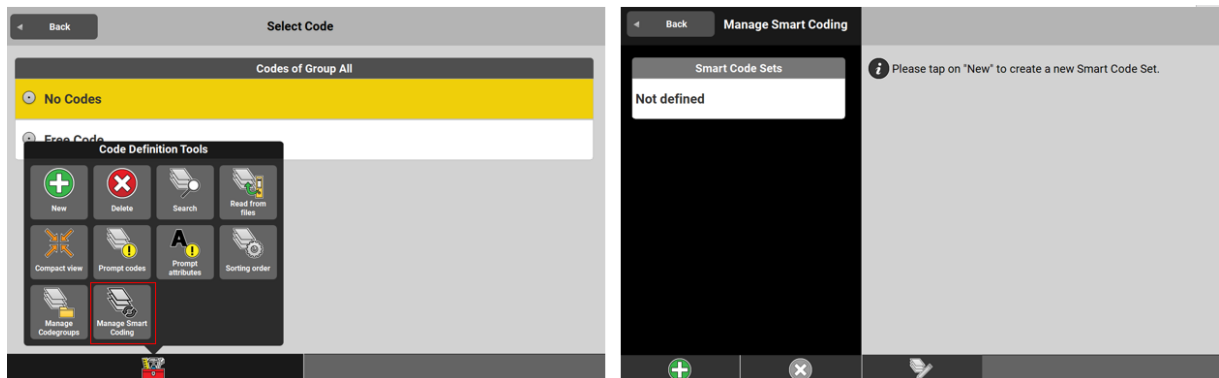


Storing a point with 25 attributes

Currently on the point list and info bar, only the first 10 attributes will be displayed.

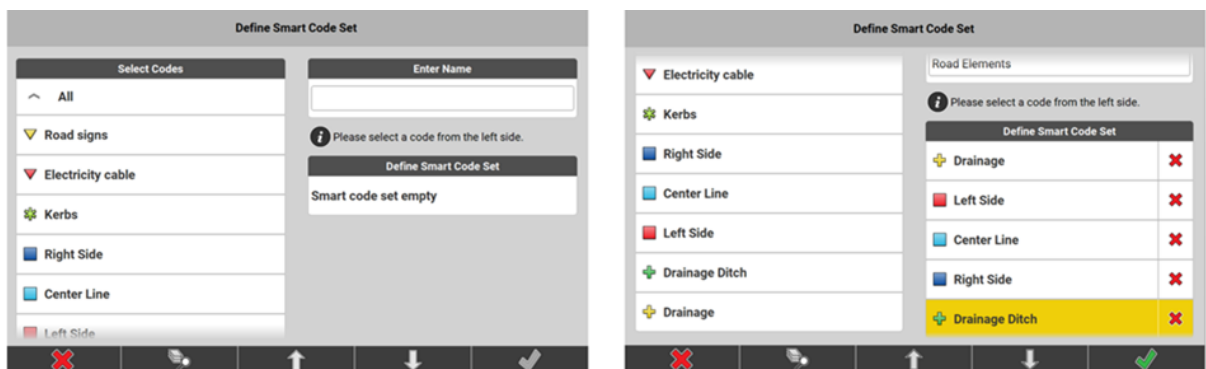
2.8 Smart coding

In the iCON Field v8.0 it is now easier to measure points with codes. The codes get automatically assigned to points in a sequential order, with the newly introduced “Smart coding” feature from the “Measure” application.



Smart coding definition

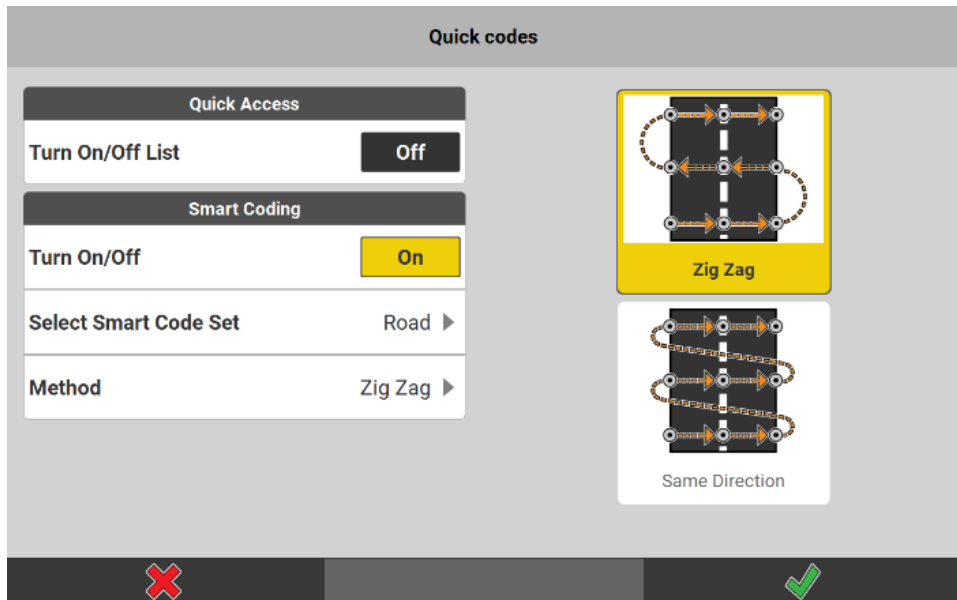
Multiple code sets with preferred codes can be generated.



Adding codes under one list set

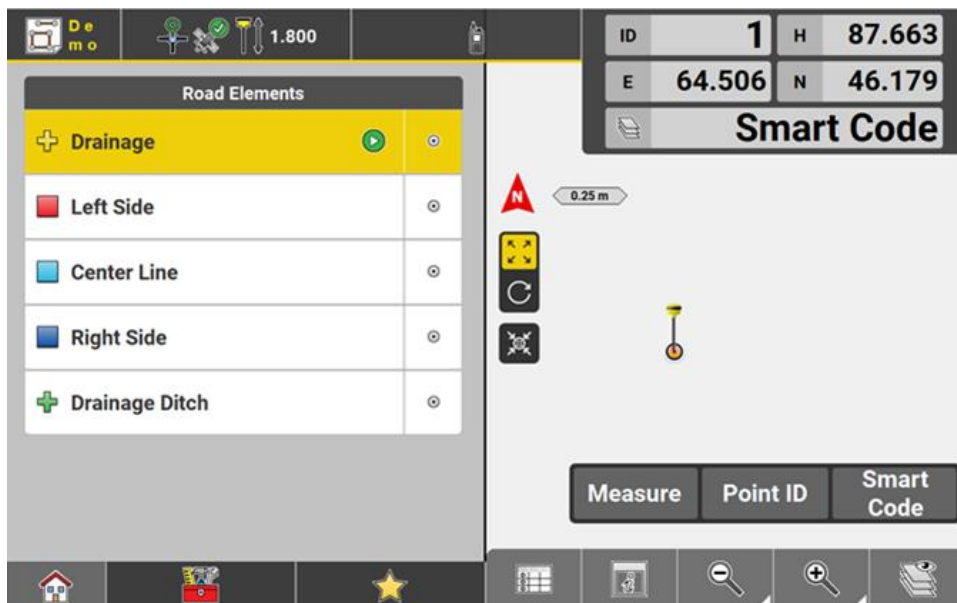
After the “Smart code sets” have been defined, the user would need to access the “Quick codes” page to activate the desired “Smart code set” and to choose one of the two available sequence methods:

- 1) **Zig zag** – points will be measured from the top to bottom of the list and backwards from bottom to top.
- 2) **Same direction** – points will always be measured from the top to bottom of the list.



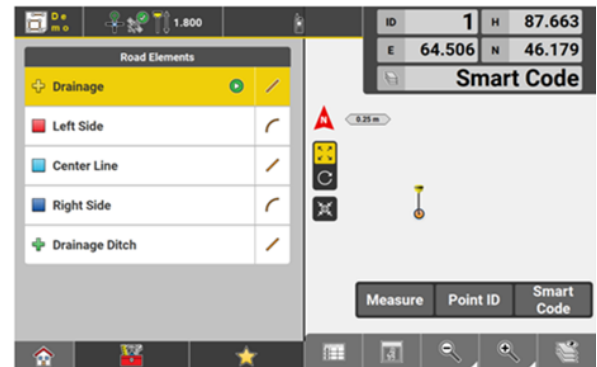
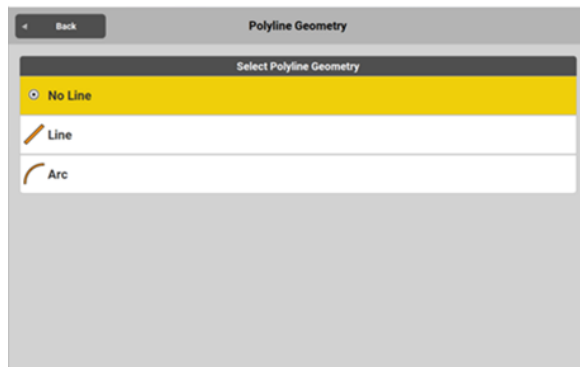
Smart coding – Configuration

After the configuration is accepted, the user is redirected to the application, where a split screen will pop up. On the left side the codes which are part of the smart set list are shown and on the right side the map elements, as it can be seen in the next image:



Zig zag method

Before storing the points, the user has the possibility to configure the polyline geometry which will influence on how the unique codes will be connected as you measure:



Polyline geometry

Of course, the polyline geometry can be changed at any time or even the sequence can be “paused” if a specific point needs to be measured with a code which is not part of the “smart code set”. As soon as the “Smart code” is configured again in the measure bar, the user can measure again from the point he stopped:



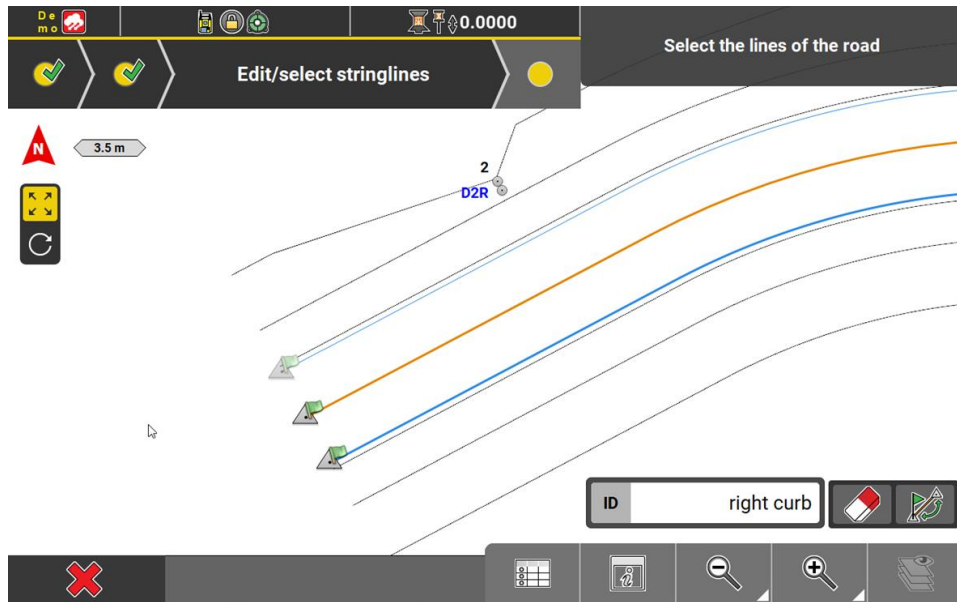
Dynamic point measurement

A new license has been introduced to enable the smart coding functionality on the controller:

996305 CSW292, iCON Smart Coding, for controller.

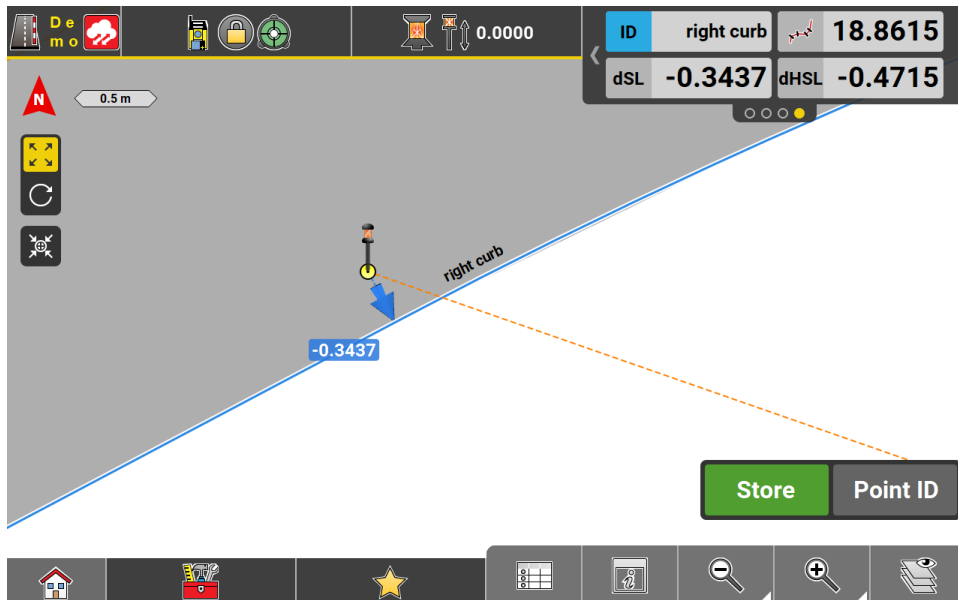
2.9 Create Road – Ability to enter line IDs for road lines

In the “Roading” application, with iCON field v8.0 it is added the possibility to enter line IDs to road lines while creating a new road model.



Road creation – line definition

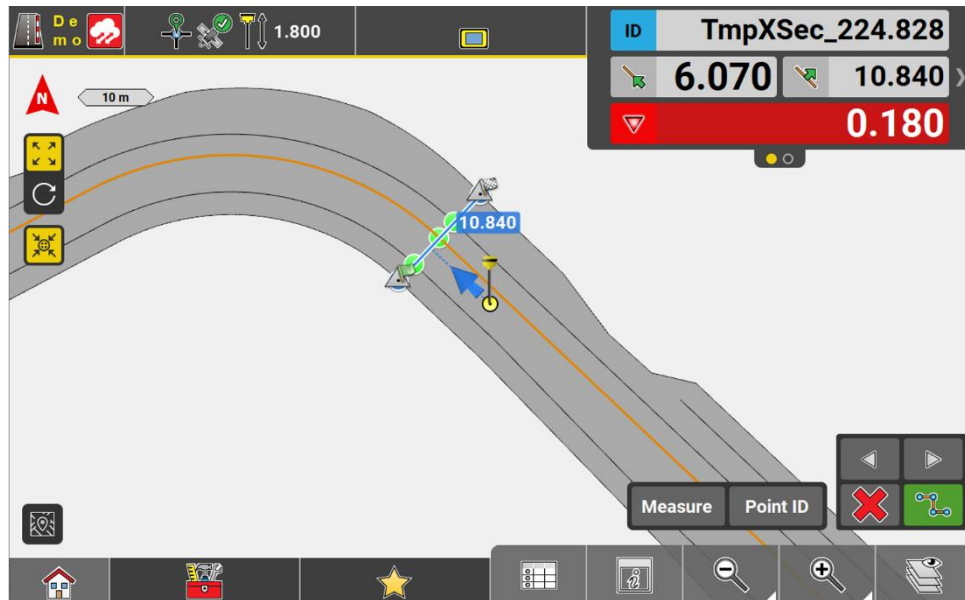
The entered ID is applied to the selected line, and it makes it easier to work with the file afterwards.



Staking a road line

2.10 Roading application - Temporary cross sections

In the iCON field v7.9 it was possible to create and stakeout temporary cross sections at desired interval along the loaded road model. However, with the iCON field v8.0 the workflow is enhanced with an option to enable the cross section on the center line breakpoints, as you may notice the photo below:



Break points on the center line

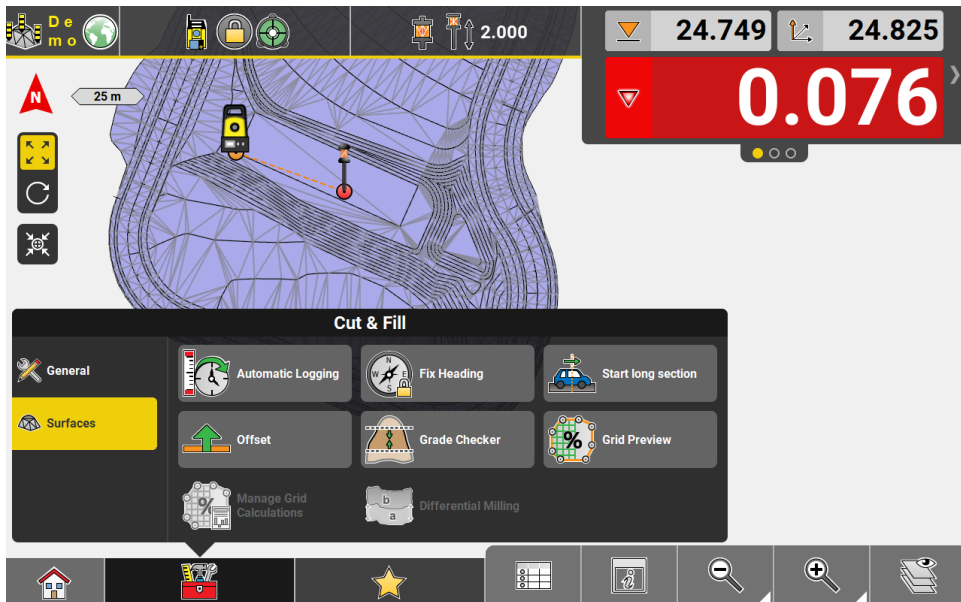
When the break points button is active, additional cross sections are created not only at the start/end of arcs, but also at the highest/lowest points of the vertical arcs/parabolas.



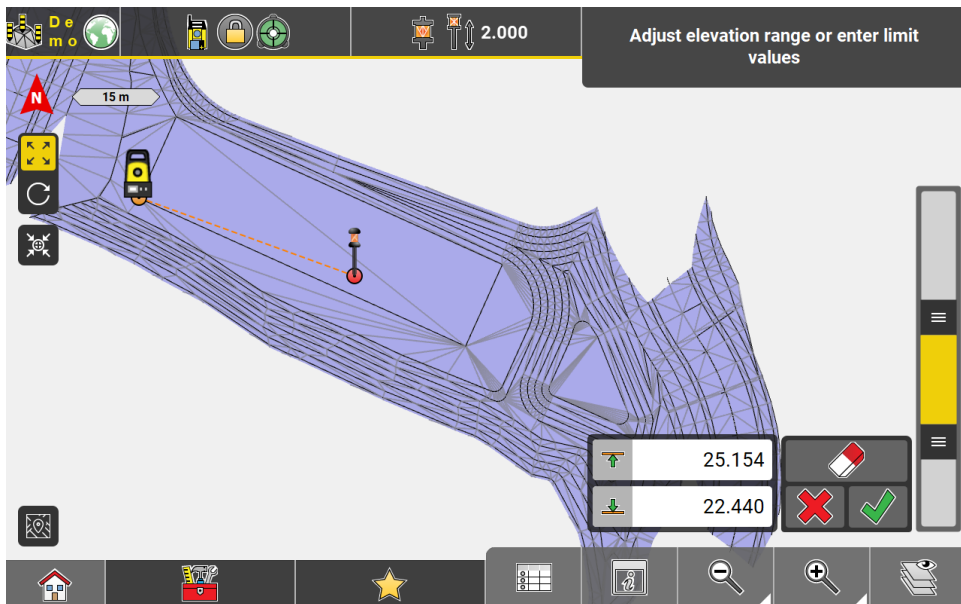
Break points – parabola example

2.11 Grade checker tool

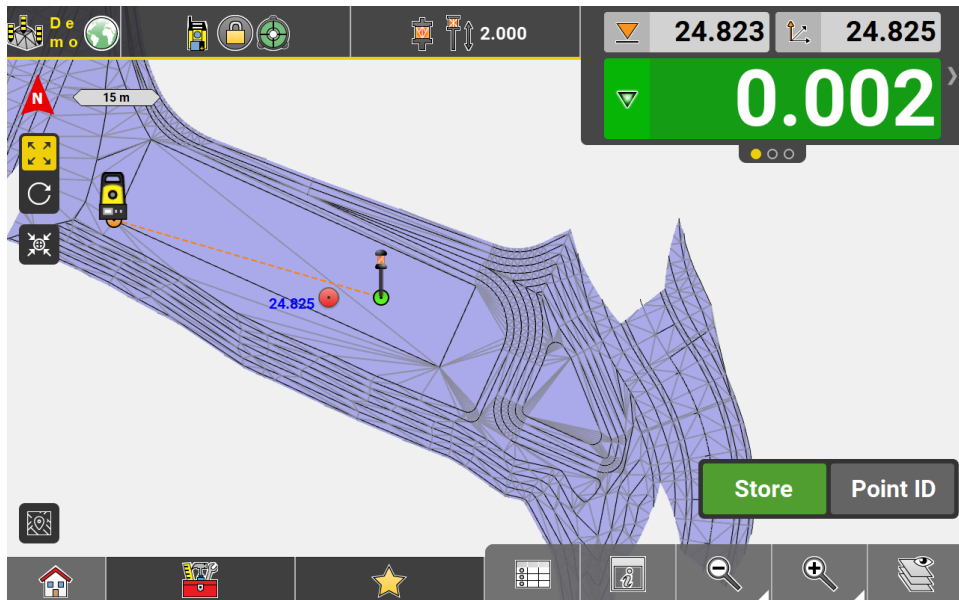
With iCON v8.0 a new tool has been introduced for both “Volumes” and “Cut&Fill” applications to visually check, for example, different surfaces for water drain or standing water areas. The grade checker tool allows the user to filter the map data by adjusting the minimum and maximum elevation.



Select "Grade Checker" tool



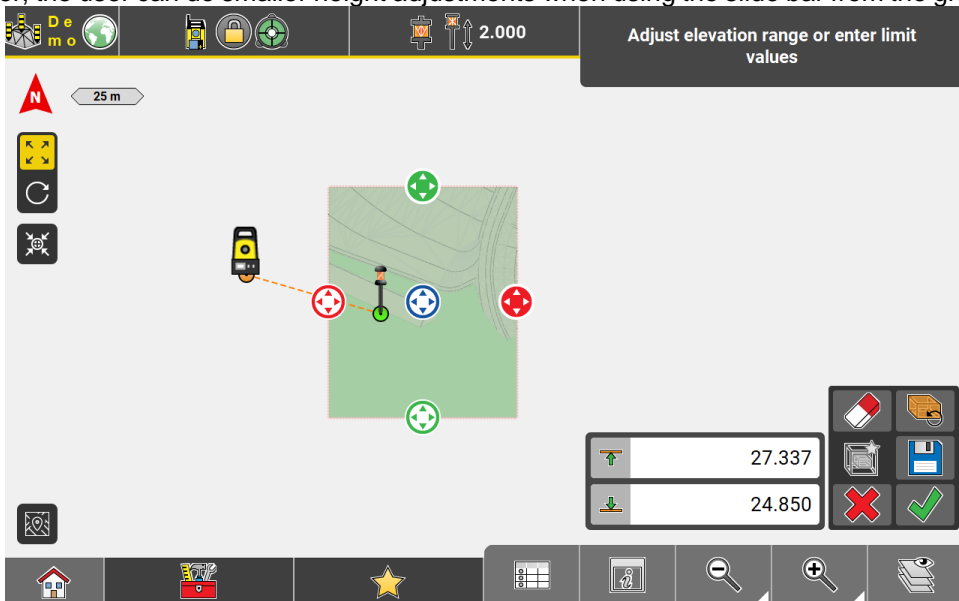
Apply minimum or maximum elevations to filter data



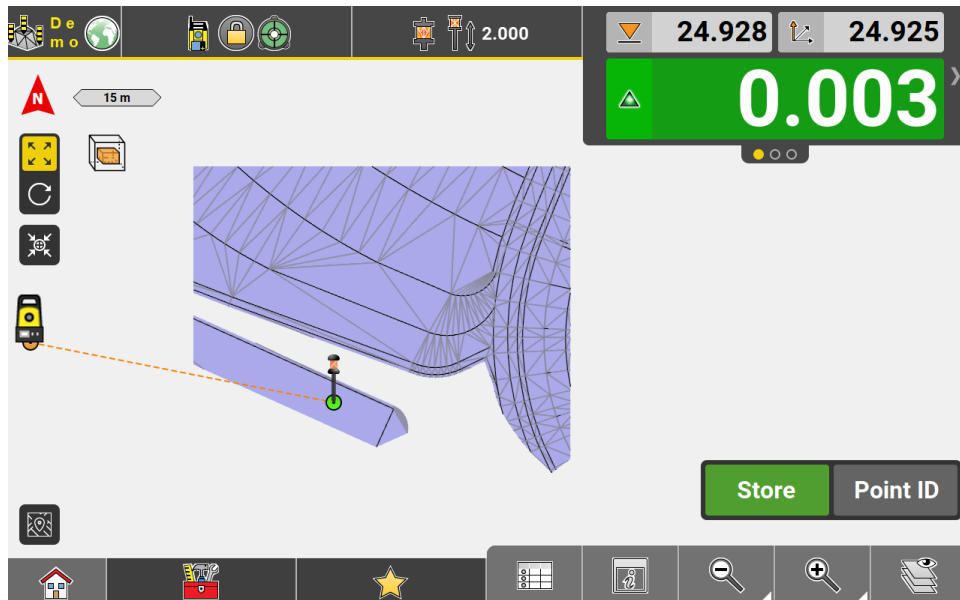
The filter is active whilst in the application

Once the application exits, the filter resets.

The tool can also be combined with the limit box filter functionality when available. Having applied first a limit box filter, the user can do smaller height adjustments when using the slide bar from the grade checker.



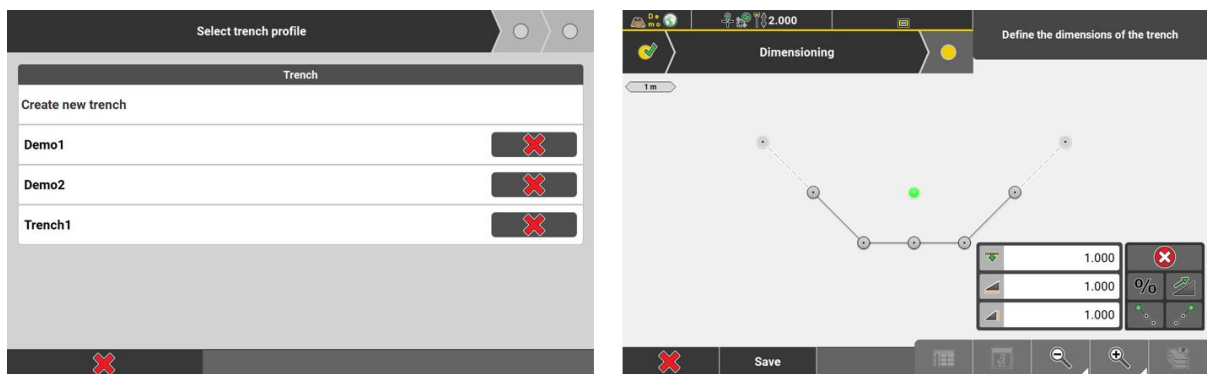
Example setting minimum and maximum elevations in limit box



Minimum and maximum elevations for grade checker adapted from limit box settings.

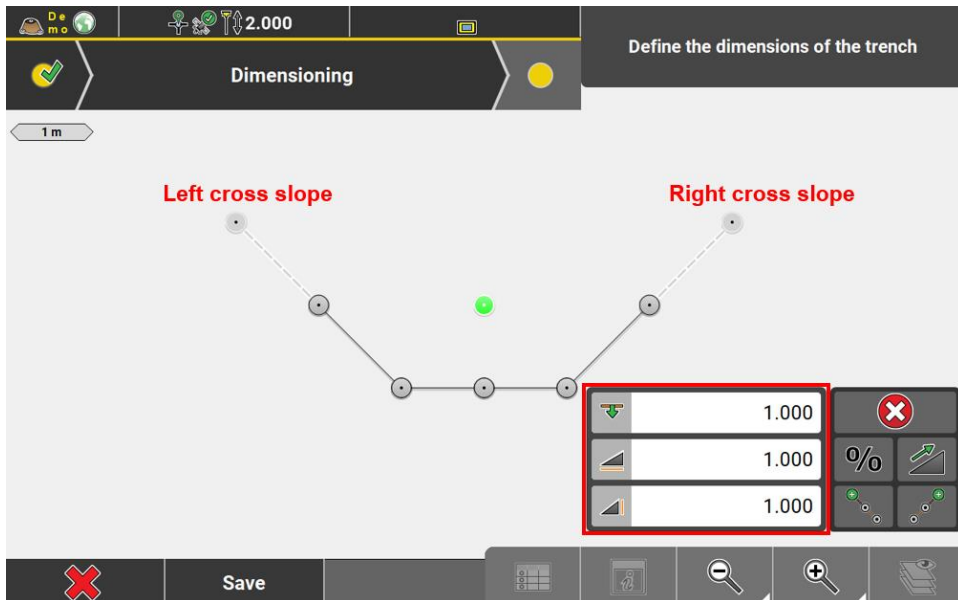
2.12 Trench surface creation

In iCON Field v8.0 it is now possible to create simple trench design models on the field. It is intended to create the trench surface together with the wireframes lines that will follow a road line or any other line/arc element. The user will be able to stakeout the surface, the wireframe lines, but also to calculate the excavation volume for the trench (using a Surface to Surface calculation method). Hence, by calling the “Trench creation” tool from the Volumes application, the user has now the option to define a new trench pattern or to directly work with existing ones, as you may see below:



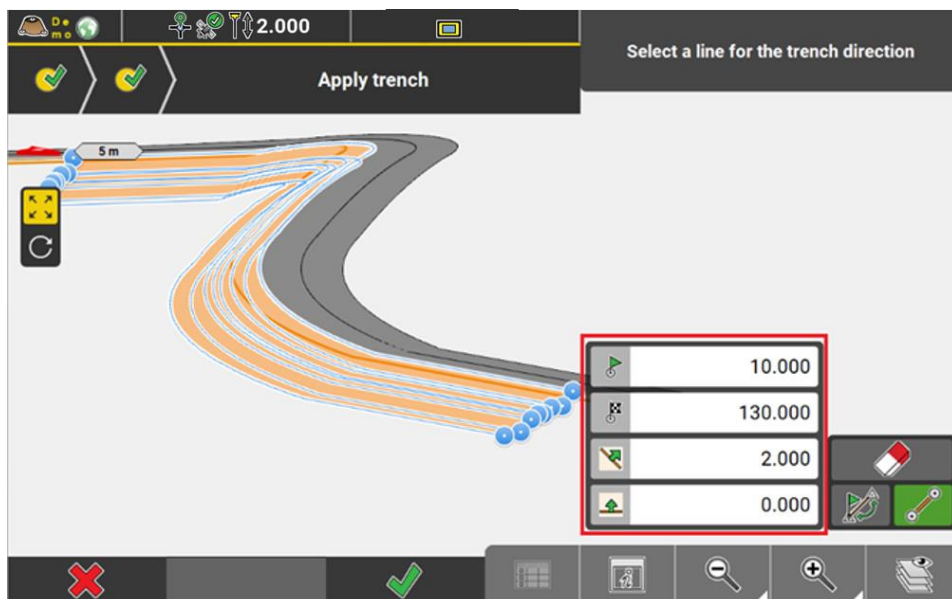
Default pattern

As soon as the user reaches the “Dimensioning” page, a default profile for the trench will be shown. At this point, the depth, length and height values can be modified by directly tapping on the available input fields. The changes will be immediately reflected, and the map preview will update accordingly, as it is shown next:




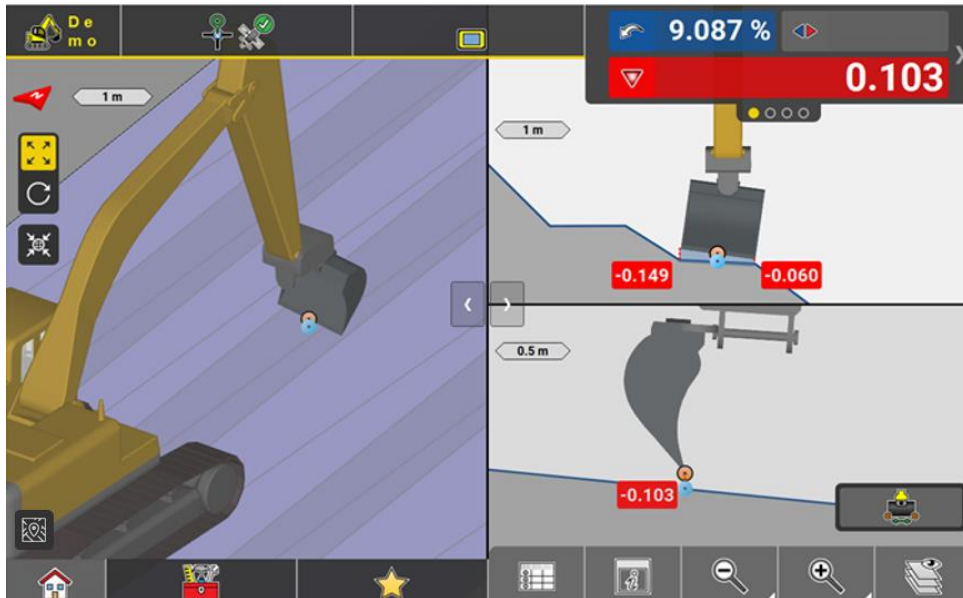
Trench definition

At this point the user sets the left cross, respectively right cross slopes to obtain a unique trench profile at a given depth. After the definition of the profile has been done it can be either saved for later use, or applied directly along a road line, arc or line element, as per the next image:



Trench pattern along a road line

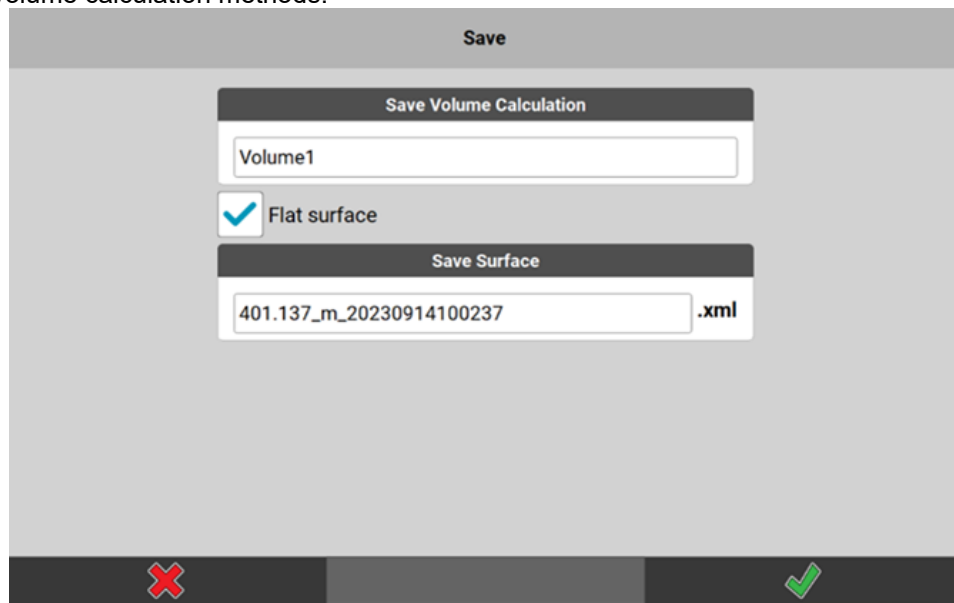
It must be mentioned that the start and end values can be adjusted, but it is also possible to add a horizontal/vertical offset. To create the wireframe lines, it is required to toggle on the next button: . By accepting the changes, a new "Save as" screen will pop up, and after the ".xml" file is stored, the user can afterwards directly work with the surface and lines in different applications.



Trench excavation

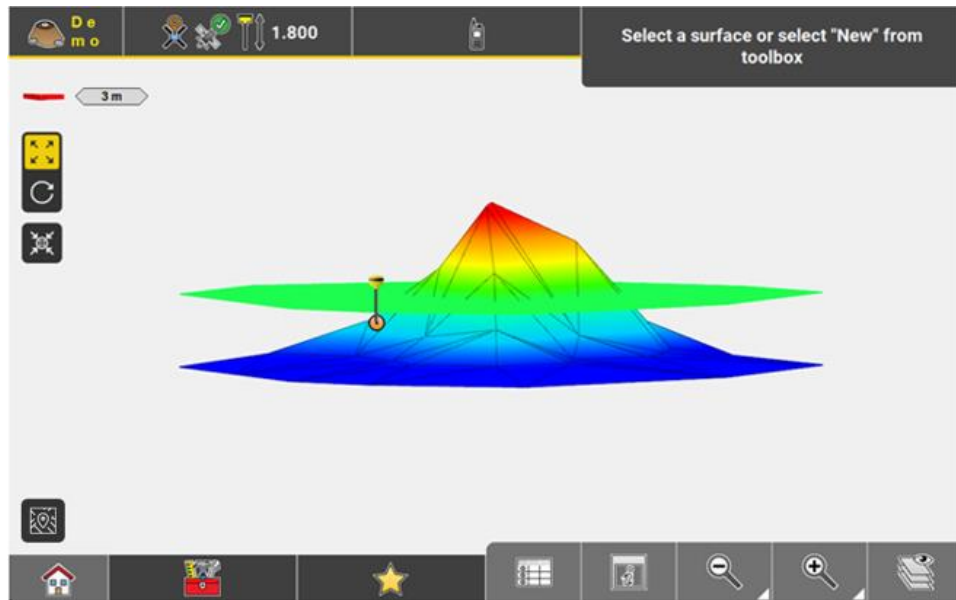
2.13 Flat surface

In the iCON field v8.0 the user has the option to create surfaces at the calculated balanced site elevation level or at any desired height value. This feature is available for both “Surface to Point” and “Surface to Elevation” volume calculation methods.



Save the desired surface

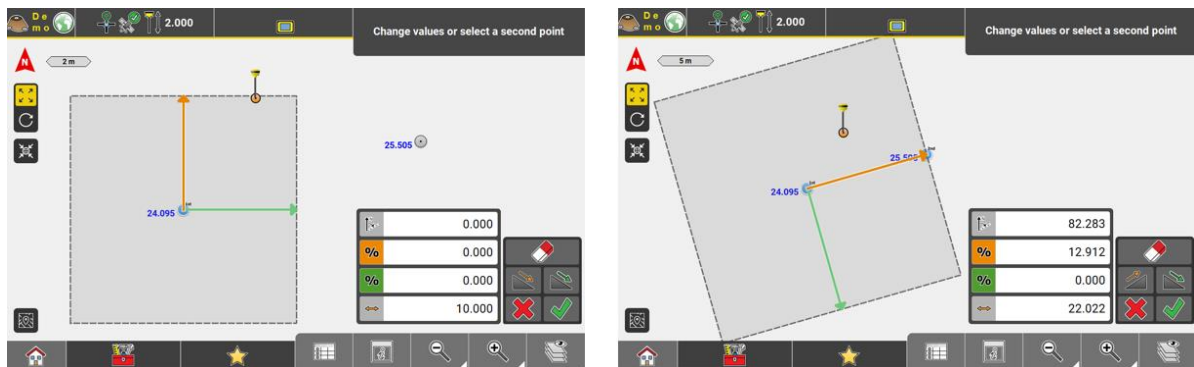
The surface can be exported or further used in iCON field software (e.g. check earthworks status using the grid logging functionality).



Surface inspection

2.14 Dual slope surface

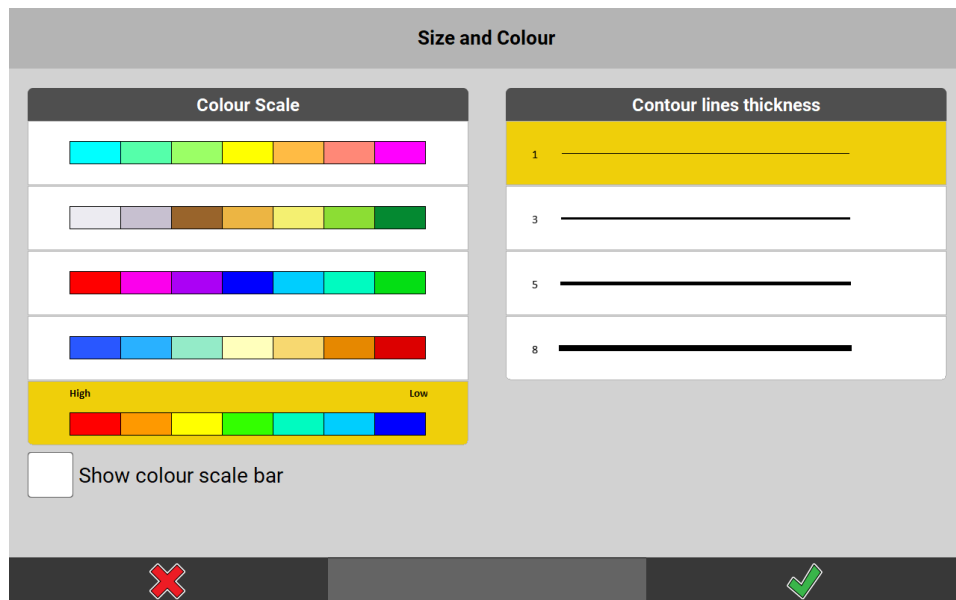
In the iCON field v8.0 a new tool has been introduced in the well-known “Volumes” application to create a surface by defining slopes along the X and/or Y axis of a line. With the new “Dual slopes” tool the user can create a surface by simply picking just one point from the map to position the surface. In case two points are selected from the map, the slope along Y axis, azimuth, and surface side width values are automatically calculated. Furthermore, a slope along an X axis (perpendicular to Y axis) can be given. The newly created surface can be further used or exported.



Dual slope tool – surface definition

2.15 Elevation shading: new colour pallet

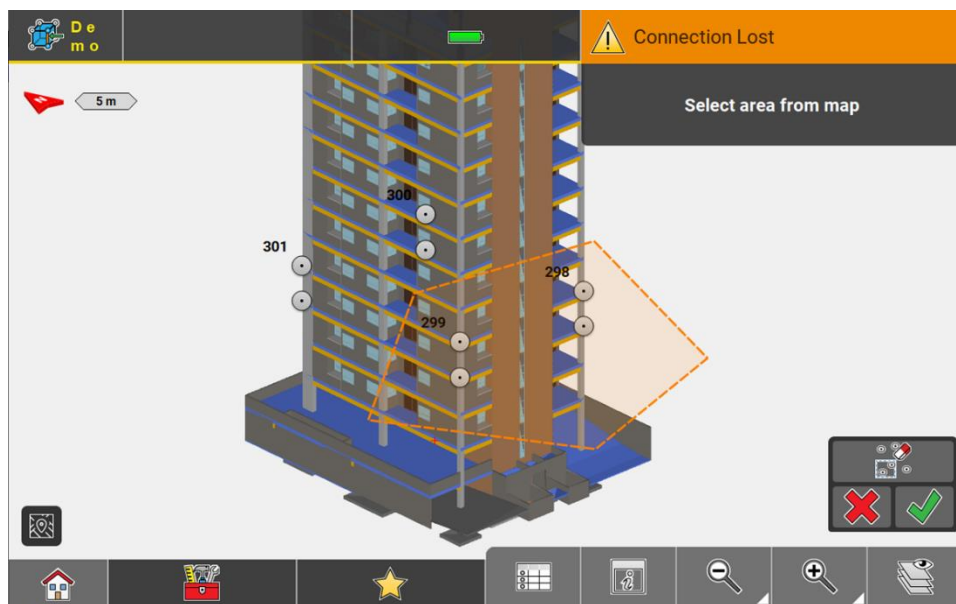
A new colour pallet has been introduced with the iCON field v8.0 to better visualize the surface cut/fill values. On top of that, two new indicators were added to directly highlight the colours for High and Low surface areas.



Elevation shading – new colour pallet

2.16 3D view in Window selection

In the previous iCON version, the map rotation was reset back to top view when trying to delete points/lines using the area selection. With the iCON field v8.0, the map rotation is kept making the area selection easier for the user.

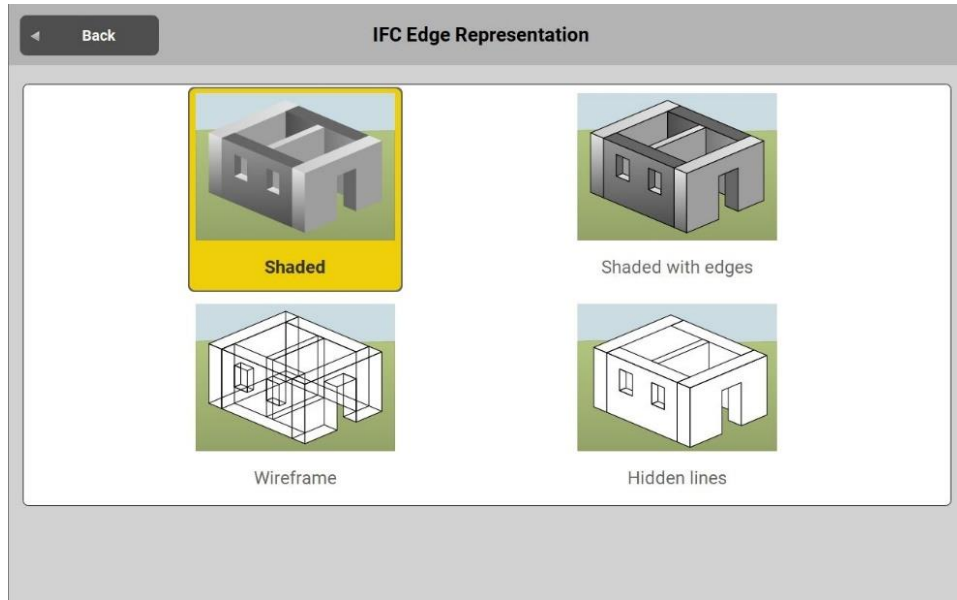


3D view – window selection

2.17 IFC Visualization

Three new visualisation styles are now available, along with the default shaded style, to give the user more ways to view and check their IFC data.

To change the styles, there is a new option in the view panel, in the map view group, called Edge Style.



New IFC view modes

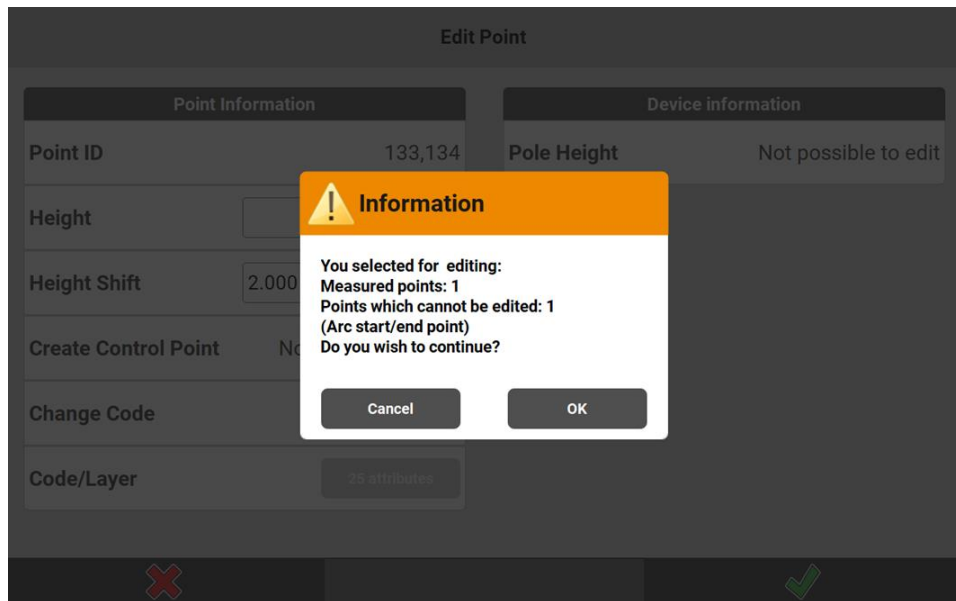
This feature is available when either Layout Objects or Verification licenses are loaded. These new styles are not available for total stations onboard.



IFC Hidden lines view mode

2.18 Edit points improvements

In iCON field v8.0 the height of the points measured with iCON GPS 70T, iCON GPS 160T (tilt variants) or AP20 can now be adjusted. The same logic is applied to multiple points selection and a warning will pop up stating which type of point cannot be edited, as per image below:



Edit heights – multiple points selection

Height changes to measured points are also stored in “Reports” as a “Height shift” value.

DATA COLLECTION REPORT

Report created by SampleReporter
Report created on the 09.11.2023 – 08:59:11

DATA COLLECTION INFO

POINT

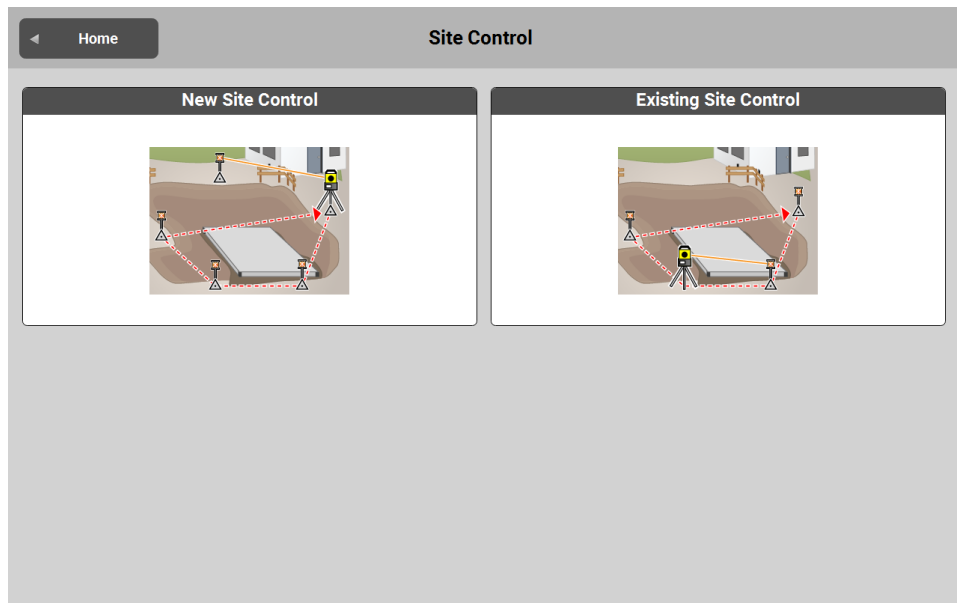
#	Point Name	Easting	Northing	Height	Height Shift	Latitude	Longitude
1	1	-21.000	21.000	20.500	-0.500	00° 02' 26.04041''	04° 24' 57.39957''

#	Point Name	Ell H ¹	Ant H ²	Ctrl Pt ³	Tilt Status	Quick Snap	Wheel Pole
1	1	121.137	1.800	No	Off	Off	Off

Data collection report – height shift value

2.19 Site control App

Site Control is a new application that allows a user to measure and control a simple closed loop when using a total station to check installed primary control or to help establish secondary control on projects.



The workflow is wizard based, info panel text plus pop-up messages that will direct the user to measure and move the total station to complete a loop.

The loop must be a closed polygon. Adjustments can be made to intermediate points once the loop has been closed. Adjustments are made using the compass rule.

Site Control Adjustment				
<	PointID	DeltaY	DeltaX	>
△	STN			
△	3	0.004	-0.001	
△	4	0.007	-0.001	
△	5	0.009	-0.002	

✖
Adjust
✔

The user can export the raw data including details on the adjustment in a Data Collection report.

New licenses have been introduced for the Site Control Application:

992271 CSW290, iCON app Site Control, for controller.

992272 CSW291, iCON app Site Control Time Limited, for controller.

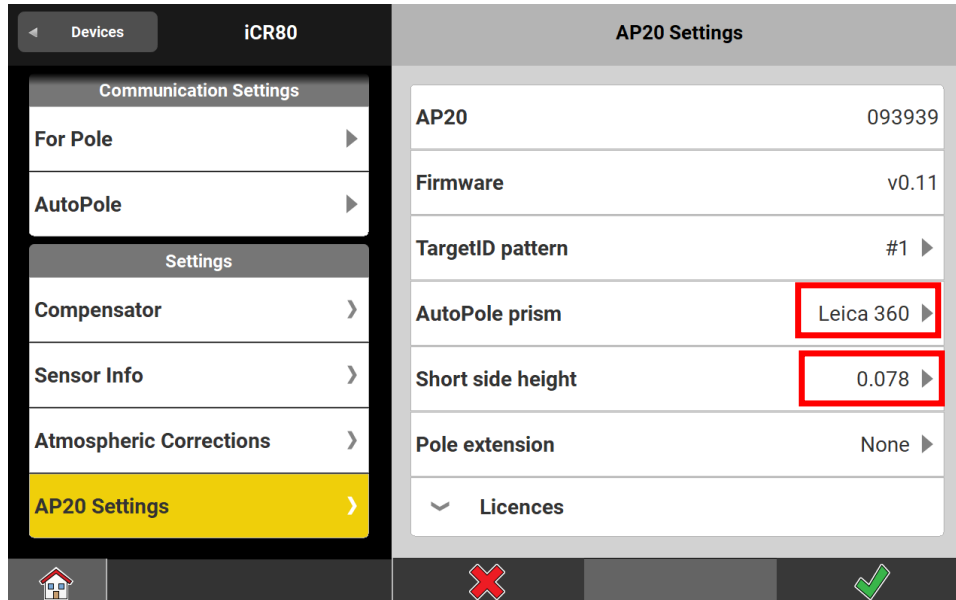
992274 CSW855, iCON app Site Control, for iCR80.

2.20 AP20

When using AP20, there are two newly implemented features – GRZ usage and Tilt functionality in setups.

2.20.1 GRZ usage

With iCON field 8.0 the usage of the GRZ122 (as Leica360 Prism) with the AP20 has been improved to allow for all use cases when using the short side of the pole. This can be set as Prism height (0.078m) or with attached Tip (0.228m) with CRP4. For CRP 5 the values are 0.26ft and with the imperial Tip 1.1ft.



2.20.2 Tilt in setups

AP20 tilt functionality can be used now for selected setup methods.

- The coordinate version of setup: “**Anywhere**”, for the usage of not fixed control points and “**Over known point**”.
- Methods without any coordinates: “**Control Line – Anywhere**” and “**Control Line – As Build Walls**”.
- The height version: “**Transfer height anywhere**”.

The usage of the AP20 is just as simple as in other applications. As soon as the AP20 is initialized, the user can measure all points for setup.

2.20.3 Enhanced Prism Tracking

In previous versions, when measuring in continuous mode the measurements were stopped when changing apps. Especially when using an AP20 or AP20T with tilt functionality, this required users to re-initialize the AP20 each time this change was made.

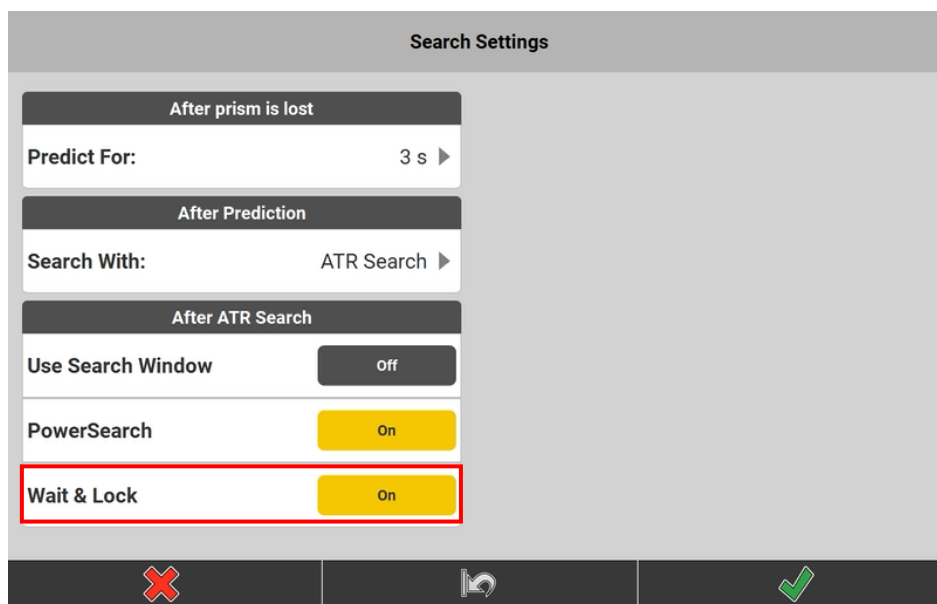
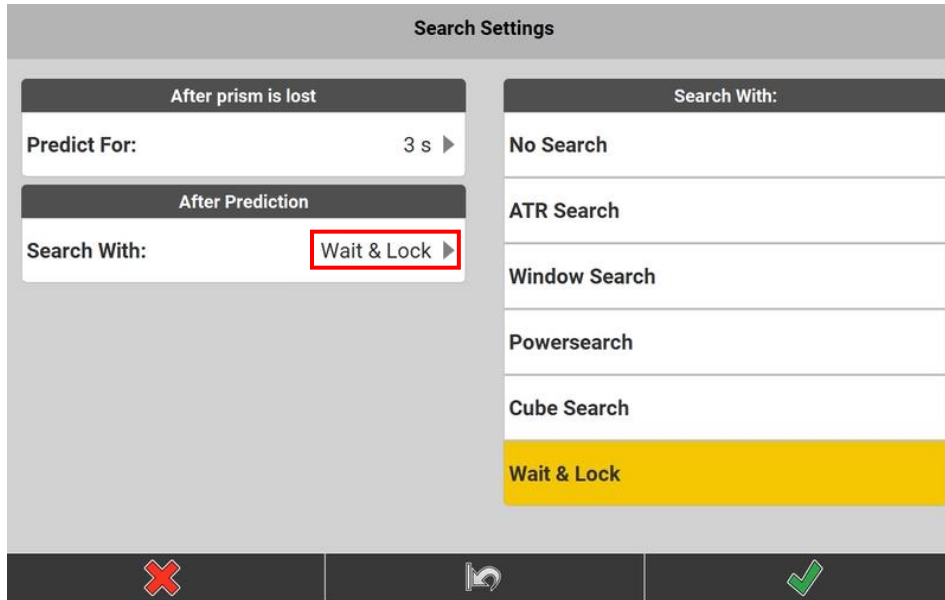
With iCON field v8.0 onwards, the measurements will continue when changing apps and functions reducing the need to re-initialize the AP20 tilt functionality during the day. This enhances the workflow with the AP20 and improves the overall stability of the tilt functionality for customers.

For some scenarios it is still required that the tracking/measuring to the prism is stopped, such scenarios are:

- Any setup routine
- Changing the prism type
- Calling the level bubble

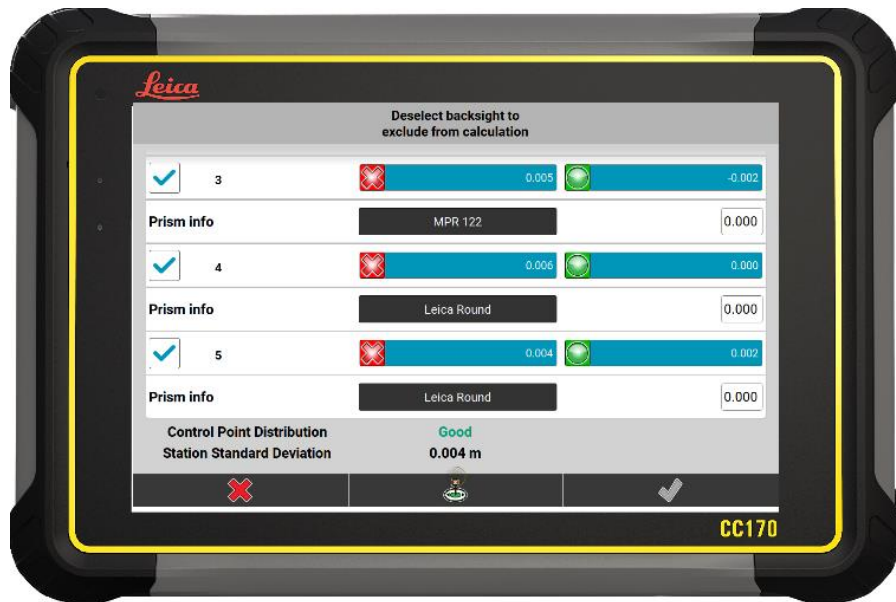
2.21 Wait and lock as search setting

When using a Robotic TPS (iCR80/iCR80s) with an active dynamic lock license, it is possible to select **Wait & Lock** as one of the After Prediction options under **Search Settings**. For each type of search, it is now possible to turn on "Wait&Lock" after the search (e.g. after ATR search, after window search...). This option is turned off by default, which means users have to turn it on manually. When the AP20 with ID functionality is used, Wait&Lock is not available.

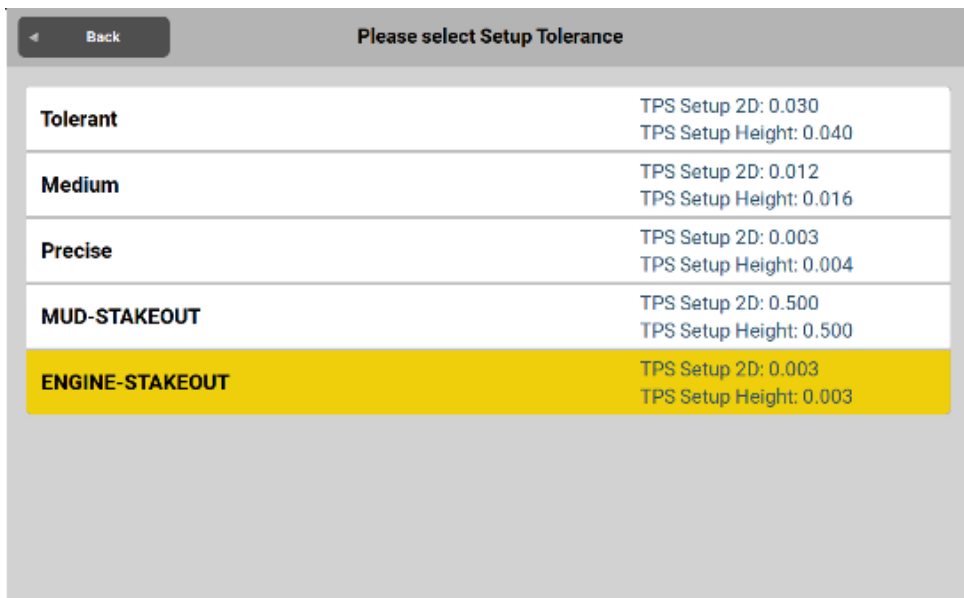


2.22 Tolerance config on the fly & standard deviation in Setup

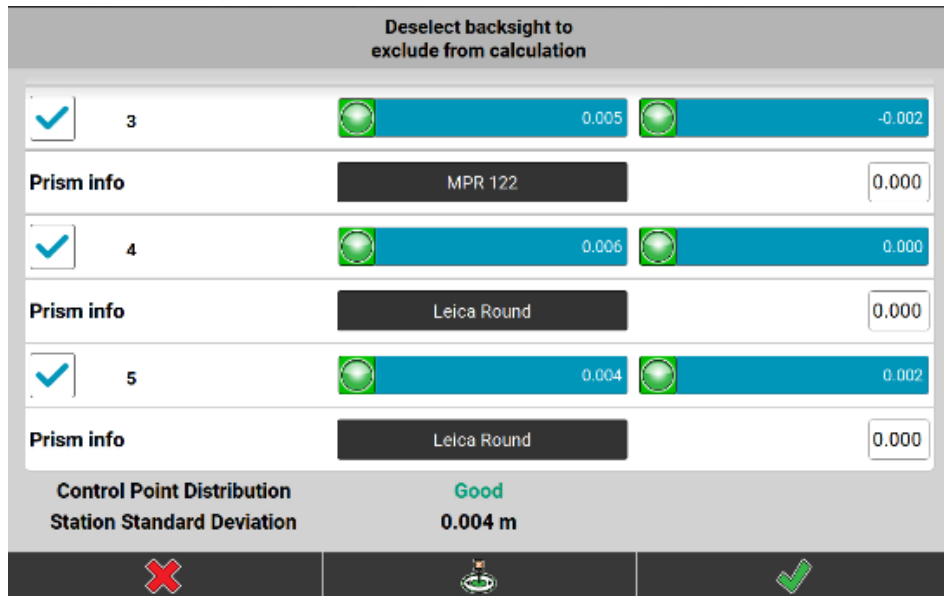
Sometimes it might be needed to change the tolerance settings for Setup within the setup routine. For Setup Anywhere, Setup Over Known Point and Setup Pilot this is now supported with v8.0. For Setup Anywhere and Setup Pilot a new button is introduced in the residual screen between cancel and accept. For Setup Over Known Point a similar button will be shown between cancel and accept as soon as station coordinates can be calculated.



Tapping on this button will allow to change to any pre-defined tolerance or any existing user defined tolerance.



Changing the tolerance for setup here, will have a direct effect on this specific setup. However, the tolerance will be only changed for this specific setup and not for any setup that will be done afterwards. The used tolerance will be shown in total station setup report and any report where the total station information is shown.



After changing the tolerances to medium, the residuals are in tolerance.

In the residual screen is also the new **standard deviation for the station coordinate** visible. This value comes with 3D and 2D setups. This is the third quality indicator for a setup beside the residuals and the Control point distribution.

2.23 Prism info for Setups in Point List

With iCON field 8.0 it is now possible to configure the point list to show the setup pole height and the setup prism type without the need to edit the point. This allows for quicker validation of used control points or sharing of setup information with on-site colleagues.

File List		Point List				Map
<	Point ID	Prism Type	Setup Pole Height	Setup Prism Type	>	
	1	-		-		
	1	-		-		
	1	-		-		
	1	Reflectorless	1.829	MPR 122		
	2	Reflectorless	1.829	MPR 122		
	2	-		-		
	2	-		-		
	2	-		-		

Point list with Setup Pole Height and Type

2.24 Report updates

- With iCON 8.0 the following information has been added to the reports: Project Height Shift, Delta to Object and TPS setup standard deviation.
- With iCON 8.0 it is possible to export the report directly to Leica ConX or any other cloud without saving to internal memory. This is another step to have a seamless digital data transfer.

TOTAL STATION SETUP REPORT

Report created by SampleReporter
Report created on the 06.11.2023 – 08:48:12

PROJECT DETAILS

<i>Project Name</i>	Default	<i>Distance Units</i>	Meter
<i>Description</i>	Default project	<i>Angle Units</i>	Deg Min Sec
<i>Job</i>	Default	<i>Slope Units</i>	V:H
<i>First Access</i>	06.11.2023 – 08:22:50	<i>Total Station Scale Factor</i>	1.0000000
<i>Last Access</i>	06.11.2023 – 08:47:06	<i>Total Station ppm or mm/km</i>	0.0

TOTAL STATION DETAILS

<i>Setup Name</i>	STN2	<i>Easting</i>	3.481	<i>Instrument Height</i>	0.000	Standard Deviation STN	0.005
<i>Method</i>	Coordinates Anywhere	<i>Northing</i>	6.470	<i>Set Tol 2D¹</i>	0.012		
<i>Updated Time</i>	06.11.2023 – 08:47:06	<i>Height</i>	1.658	<i>Set Tol H²</i>	0.016		

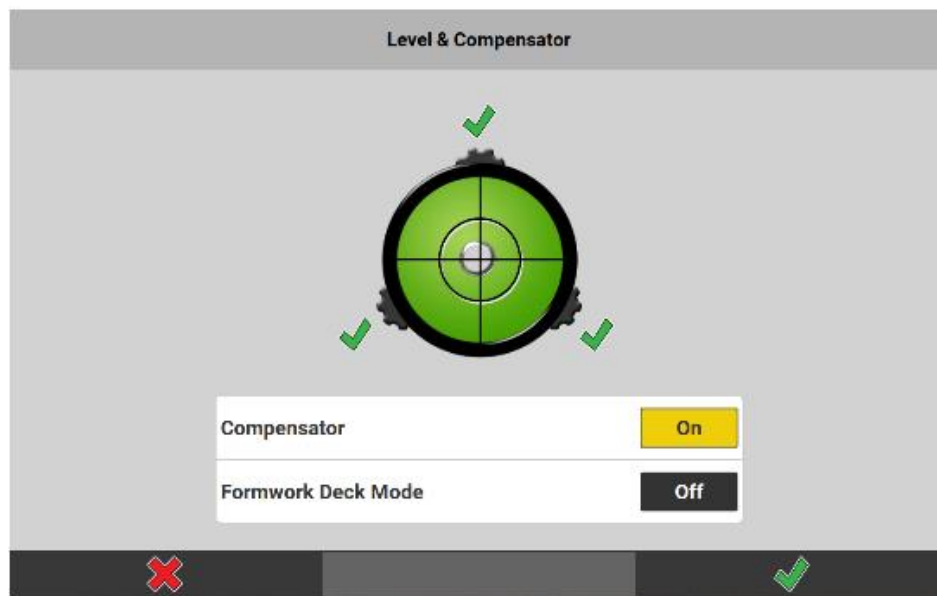
CONTROL POINT DETAILS

#	Point Name	Easting	Northing	Height	Auto Height	Tilt Status	Hz Dist ³
---	------------	---------	----------	--------	-------------	-------------	----------------------

Standard deviation for setup report

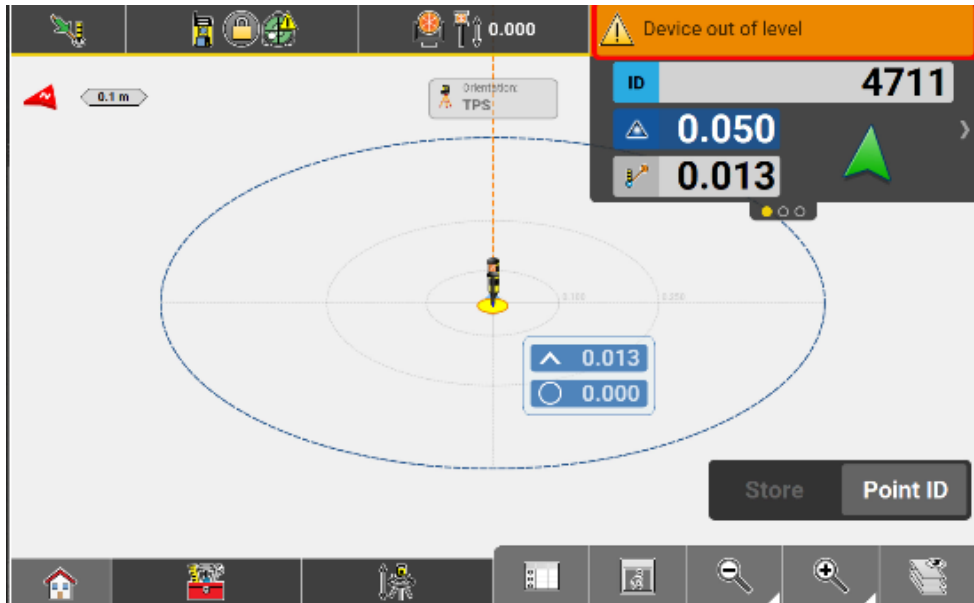
2.25 Formwork deck mode

This completely new function for the level bubble is created for users working on wooden formwork decks or other unstable grounds. In these situations where the level bubble is moving out and back in level often because of the moving deck. Every time the level bubble is out of range the user needs to level and start the layout again and again. For this specific working environment, the “Formwork Deck Mode” is implemented and can be activated within the level screen.



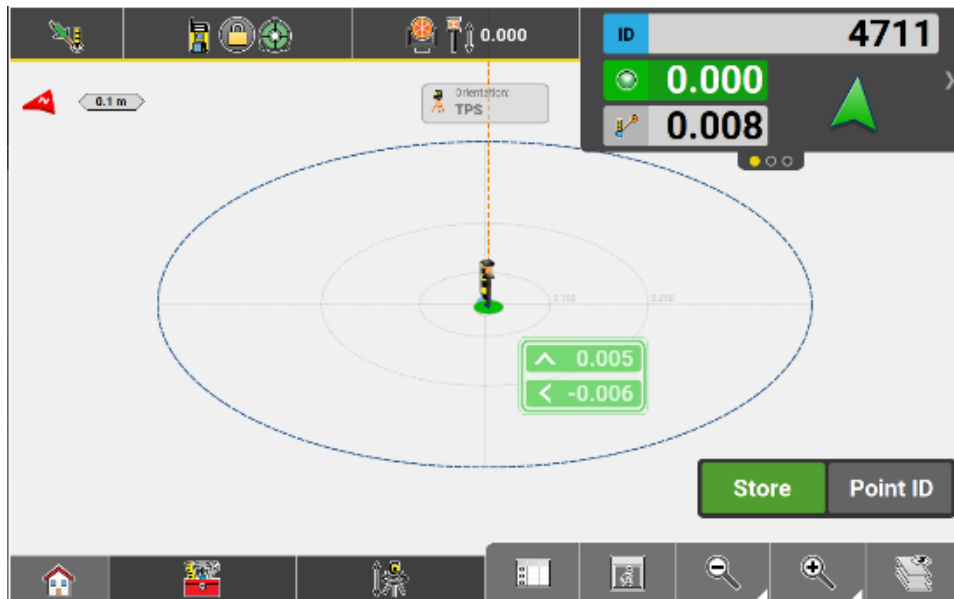
New option in level bubble screen

Now, when the level goes out of range the user will be informed and the Store button will be greyed out, but the instrument will still measure to the target in the background.



New out of level screen without overlaying warning

When the movement is over and the level is back in range, the Store button will be made available again without the need for the user to restart the measurement process.



Direct measure screen after back in level

This function is best suited for the MEP/HVAC layout crews or where a tight critical tolerance is not required as deviations to the results can occur due to the instrument not retuning exactly to the previous levelled position.

2.26 Onboard welcome screen

With Version 8.0 the onboard welcome screen is introduced. This appears only once when a fresh installation of a new firmware or a reset is done on the TPS.

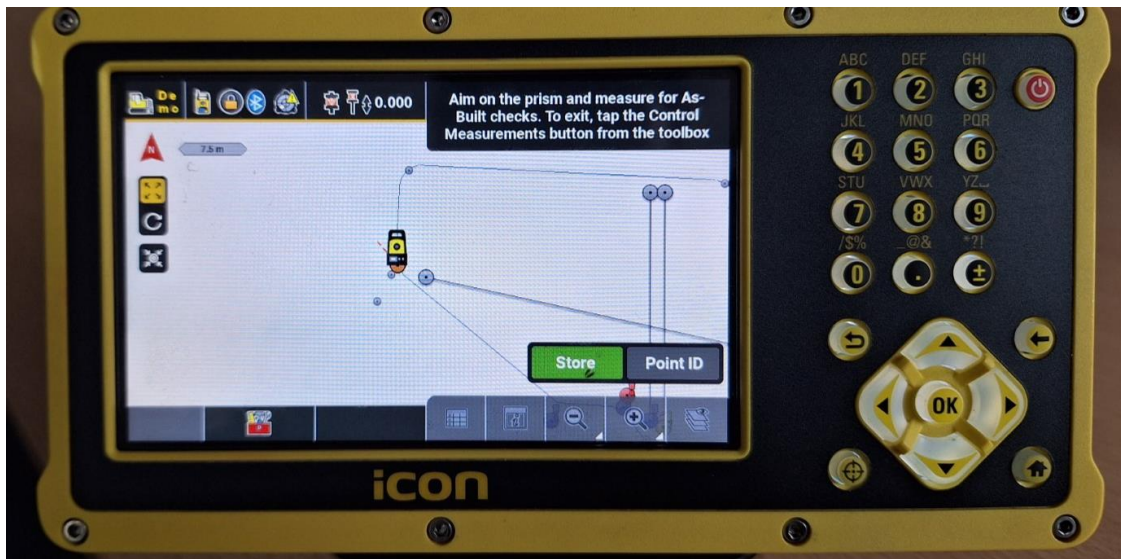
The customization country settings will be set as default, but the user can change the country and as well single units as he wishes. If stored the units still can be changed in the unit section.

2.27 UI freeze onboard iCB & iCR

The iCON version 8.0 will be the last version onboard with new software features. Maintenance and service versions will be still produced.

2.28 iCR80 MC App - Lock on the prism for control measurements (MC1 Paving machines)

Whilst connected to an MC1 paving machine, it is now possible to lock and continuously measure to the prism when performing control/as-built measurements. The status bar is accessible now and it is still possible to configure the total station measurements (measuring mode, prism type, prism height etc.)



iCR80 – status bar accessibility

2.29 Controller improvements

2.29.1 CC170: Touch Screen Modes

Currently on the CC170 it is only one mode available for all weather conditions and no multi-touch is supported.

iCON field v8.0 supports a new touch firmware version which introduces two touch screen modes:

- Normal mode: multi-touch supported
- Rain mode: limited to single-touch

The switch between the touch modes is possible by changing the relevant setting in the software or via the hard button.

2.29.2 Hibernate mode

In iCON field v8.0 to increase the efficiency and productivity of the day-to-day work, the hibernate mode is introduced for all controllers. By pressing the power button, the controller goes in hibernate mode. While in this mode, the controller battery can be replaced without the need for a shutdown. To start the controller again, you would need to press the power button again.

The controller will start up at the same state as it was before hibernation.

There are some differences on how to go in hibernate mode depending on the hardware type:

- CC80/CC70 goes in Hibernate mode by a single press of the power button and wait until all LED lights turn off.
- CC170 goes in Hibernate mode by a single press of the power button and wait until all LED lights turn off.
- CC200 goes in Hibernate mode by tap & hold the power button for 2 seconds and wait until all LED lights turn off.

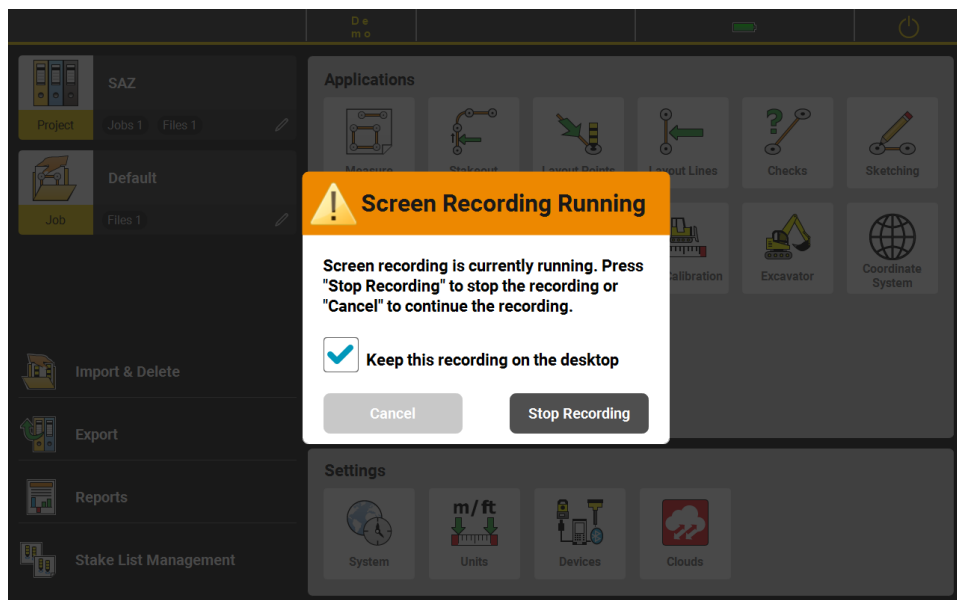
2.29.3 Screen recording

With all the older iCON field versions, to stop the screen recording – started using the hard button – you had to exit iCON.

If you have activated the screen recording tool in the new iCON field v8.0, it is now possible to stop the current recording and start another one without the need to exit the software.

The same hard button is used to start and stop the screen recording. By stopping the recording when the warning message pops up, the checkmark allows the user to keep the current recording on the desktop without overwriting it with any other newer recordings.

In case the user taps on cancel and exits iCON, the recording will also be stopped and will overwrite the available one.



Screen recording – warning message

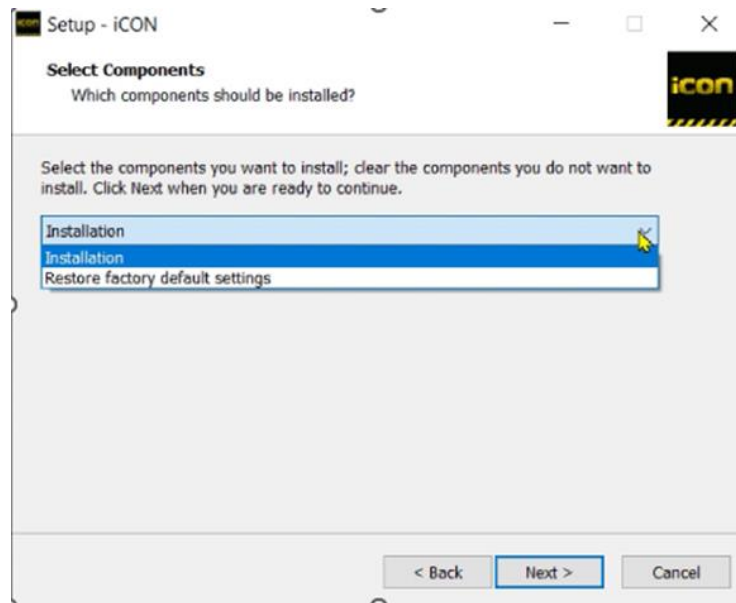
Note: For controllers upgraded from an older version to v8.0, it is required to download and install from myWorld the new Screen Recording driver.

The driver can be found in tools section under the relevant controller.

Controllers delivered with v8.0 have already the newer driver installed.

2.30 Coordinate systems improvements

The iCON field v8.0 introduces a mechanism to be able to remove old coordinate systems from the global “CoordinateSystems” folder. This can be done by selecting “Restore factory default setting” when running the installer.



iCON installer

When selecting the “Installation” option, the coordinate systems available from the previous iCON version are kept and the new coordinate systems are added.

When choosing the “Restore factory default settings” setting, the old coordinate systems can be removed when requested. Nevertheless, a backup for the old “CoordinateSystems” folder from the previous version is created in:

C:\Users\Public\Documents\Leica Geosystems\iCON\Legacy\CoordinateSystems

Coordinate systems for the following regions have been updated in v8.0:

- Denmark

When upgrading to v8.0, using “installation” option the new coordinate systems are added to the global CoordinateSystem folder.

*When upgrading to v8.0, using “Restore factory default settings” option the old coordinate systems are removed and replaced with the new.

- Sweden

New coordinate systems are added (for example coordinate systems for UTM 32 - 35 zones).

- Australia

New coordinate systems are added for MGA2020 48-56 zones.

2.31 Project information in a “.txt” file

If a project is newly created with the iCON field v8.0 the timestamp, version and the controller serial number are stored in a “.txt” file, as you may see below:

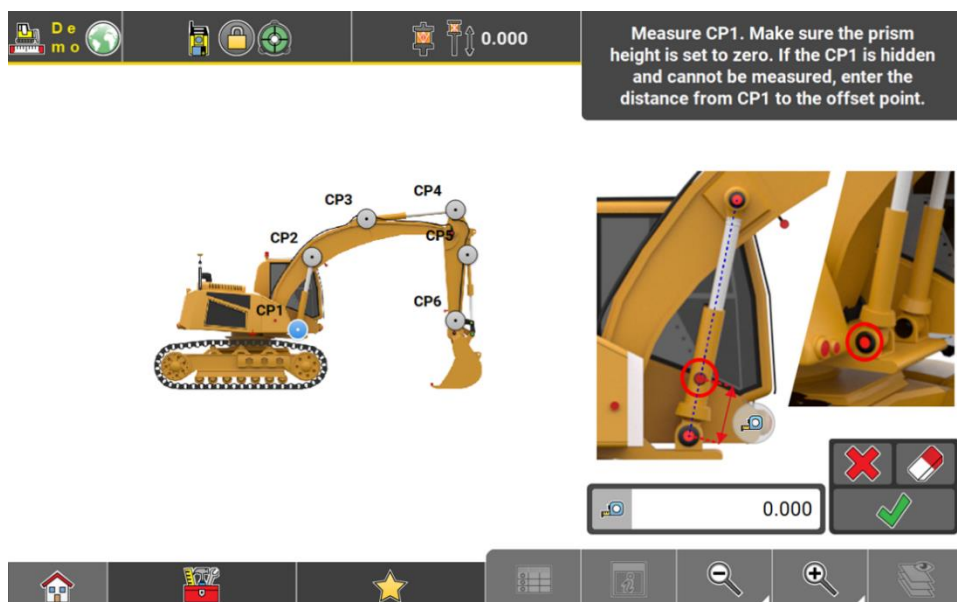
Name	Date modified	Type	Size
BackgroundImages	13.11.2023 15:26	File folder	
CapturedImages	13.11.2023 15:26	File folder	
CodeList	13.11.2023 15:26	File folder	
ControlPoints	13.11.2023 15:26	File folder	
CoordinateSystems	13.11.2023 15:26	File folder	
MachineCalibration	13.11.2023 15:26	File folder	
References	13.11.2023 15:26	File folder	
Reports	13.11.2023 15:26	File folder	
Thumbnails	13.11.2023 15:26	File folder	
CALIBRATION	13.11.2023 12:44	Data Base File	105 KB
info	13.11.2023 12:43	Text Document	1 KB
project	13.11.2023 12:43	XML File	4 KB

Project folder – additional information

This allows users to have a better project overview when performing different checks after a certain period.

2.32 Excavator calibration: Cylinder dimensions

With the iCON field v8.0 the installers have now the possibility to measure with the total station the Cylinder points of the machine to calibrate the MC1 semi-auto excavators in an easy way. The functionality is available for both single and dual-boom excavators.



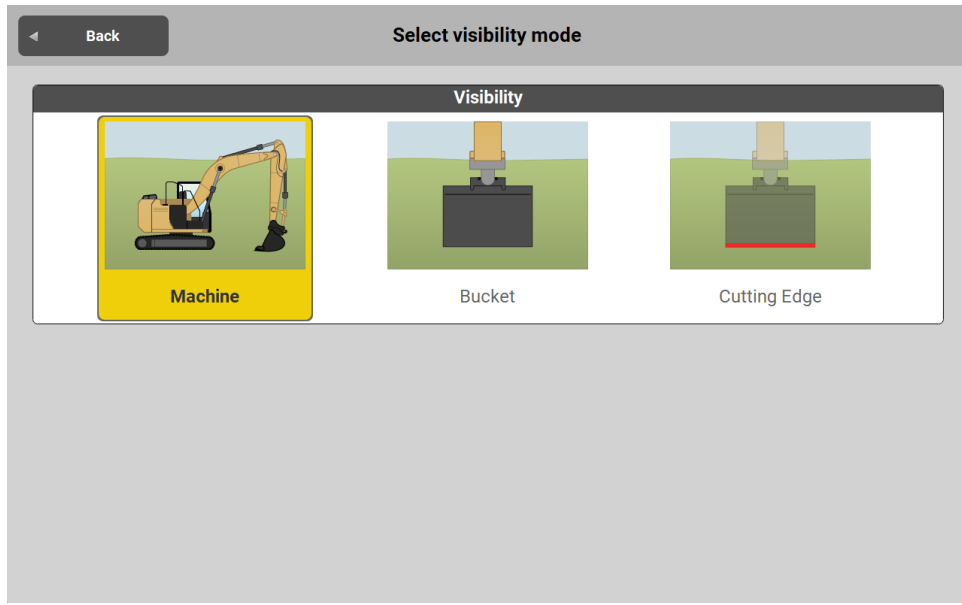
Excavator calibration – cylinder points

In case the boom cylinder point (CP1) is hidden, an offset can be applied, and the position of the visible offset point can be measured.

At the end of the calibration routine the results are stored in the ".calibration" file in order to be transferred to MC1, allowing a faster and more precise calibration of the MC1 semi-auto excavators.

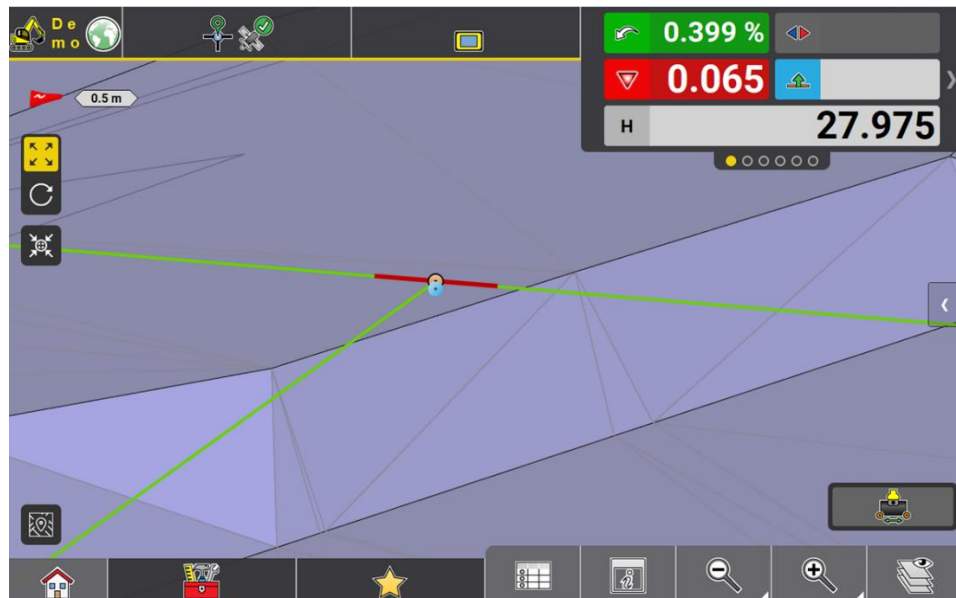
2.33 iCON site Excavator: Visibility options

The excavator machine might overlap part of the data shown on the map. To get a clearer view of the data, a new "Visibility" option has been introduced with the iCON Field v8.0 for hiding the machine and to display the bucket or even hiding the bucket as well.



Excavator – visibility options

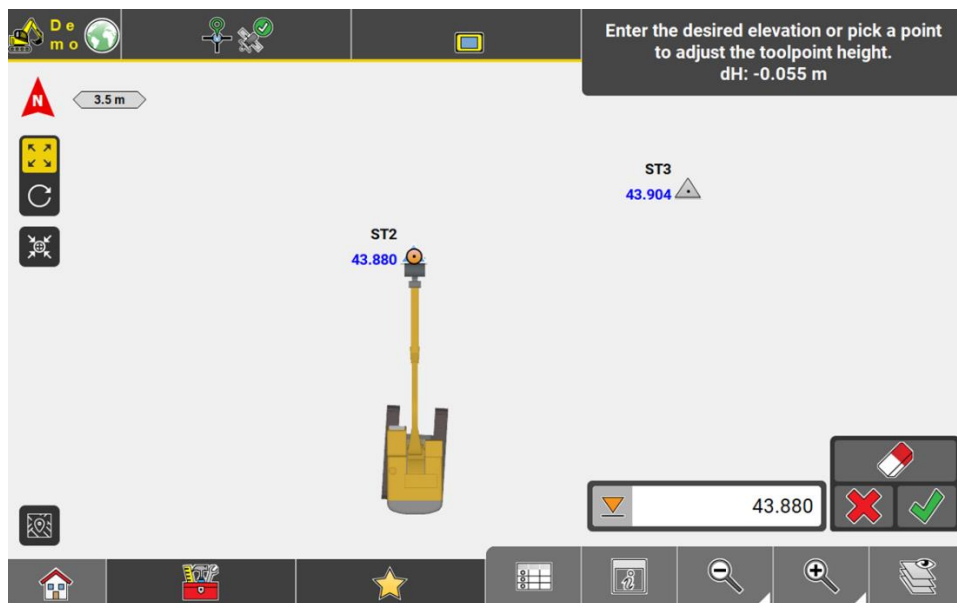
As you may see in the picture above it is possible to display the machine itself or show only the bucket/cutting edge elements.



Excavator – Cutting edge view

2.34 iCON site Excavator: Tool height adjustment

In the iCON field v8.0 the excavator operators can now adjust the tool height by placing the bucket over an accurate control point or a known height benchmark when needed. The function applies a height transformation to the bucket, so height discrepancies are eliminated if the control points are accurate.



Excavator – Tool height adjustment

A warning message is shown when the tool is active to avoid misuse and ending up with wrong heights.

Before using the height adjustment tool, it is important to ensure any height error is not caused by:

- a) incorrect machine calibration.
- b) incorrect coordinate system used.
- c) incorrect control point used.

3. iCON Field software improvements and bug fixes

3.1 Using Nearest or Nearest in list with 2d layout reference data

Previously it was possible that the Nearest and Nearest in list auto point selections would not recognize additional reference data when using 2d data with a 2d setup. This is now fixed in iCON 8.0

3.2 Stakeout app - Islp calculation for polylines

In iCON field v7.9 the Islp (long slope value of the line segment) was calculated wrong when the start/end points of a polyline were flipped. This is corrected in v8.0.

3.3 DXF Export – Code symbols exported to separate code layer

In iCON field v7.9, the code symbols of the points were exported on a separate layer other than the code layer. In v8.0 this is corrected so the symbols are exported to the code layer.

3.4 *Line creation maintained after prism is lost*

In iCON field v7.9, the line creation was stopped after loss of prism/prism search. This is fixed in v8.0.

3.5 *Used code resets after prism is lost*

In iCON field v7.9 it could happen that the selected code (when using Quick codes function) was reset to NoCode after loss of prism/prism search. This is fixed in v8.0.

3.6 *Draw/Sketching app – Database error message fix*

In iCON field v7.9 it could happen that a database error message was appearing trying to store a new line or point. This happened after the use of undo or delete functions. The issue has been fixed in v8.0.

3.7 *Controller incorrectly detected as unofficial during installation*

In iCON field v7.9 it could happen that an official iCON controller was not properly detected, and installation was failing. This is now fixed in v8.0.

3.8 *Windows keyboard incorrectly comes up after tapping on input fields*

In iCON field v7.9 it could happen that the windows keyboard comes up on top of the iCON keyboard. This is now fixed in v8.0.

3.9 *Volumes application – Editing surface boundaries corrected*

In iCON field v7.9 it could happen that for some surfaces, the surface boundaries were not matching with the surface area when editing a surface. This is now corrected in v8.0.

3.10 *Export reports to ConX – Images not exported correctly*

In iCON field v7.9 it could happen that when exporting the report to ConX, the links to the images got lost. This is now fixed in v8.0.

3.11 *Automatic Reconnection to iCG30 after restart*

In iCON field v7.9, automatic reconnection to iCG30 did not work after restart. This is now fixed in v8.0.

3.12 *iCON site Excavator – Base line length for secondary antenna changed*

In iCON field v7.9, the baseline length for the secondary antenna displayed the distance of the primary antenna to the base source. In v8.0, it is changed to display the slope distance to the primary antenna.

3.13 *Roading app – Reading station equations from road file corrections*

In iCON field v7.9, it could happen that the station equations from some road files were not correctly detected. This is now fixed in v8.0.

3.14 AP20 connection improvements

During the last implementation phase several connection issues were identified and fixed. The connection with version 8.0 is more stable now.

4. General information & recommendations

4.1 How to update manuals on the CC70/CC80/CC170/CC200

A new English HowTo-Guide for iCON field v8.0 has been introduced. To get the updated document on the controller follow the steps:

- Download the manual from myWorld / myDownloads / iCON / iCON Field / Manuals / ... download the "iCON field HowTo Guide" v8.0 and ensure to keep the naming of the downloaded PDF file.
- Copy the downloaded PDF file to your controller in the folder D:\iCON-Manuals.
- Delete/remove the old versions of the manuals from the same folder.
- Check that the update was OK, by tapping on one of the manual icons from the Start screen or Windows desktop.

The translations of the manual for v8.0 will be released and published as soon as the manuals are ready.

4.2 Crash reporting function

In order to improve the robustness of iCON Field even further, and to ensure good customer support, a function to report software crashes was introduced with iCON Field v2.5. This common tool to improve worldwide used software products is implemented for iCON Field controllers.

In case the software detects a malfunction, the report containing important information about the event is sent automatically to the server – if an internet connection is established or after this is established. Only information related to the malfunction is sent and NO personal customer data is collected.

4.3 Connectivity to cloud services

Due to security updates on the ConX server, the connection from iCON Field software version 4.5 or older is not possible for technical reasons anymore.

To be able to connect to the ConX server, please upgrade iCON Field software to the latest version.

4.4 Projects compatibility after upgrading from older version than v3.5 to v6.7/6.8

Direct upgrade from very old iCON Field version (e.g v3.0 or older) to versions 6.7/6.8 causes a compatibility issue to the active project.

To avoid the issue from happening, please follow the steps:

- a) When using an older version, install the intermediate v3.5
- b) Start iCON and activate each project, one after the other, so they all get updated to v3.5
- c) Exit icon and install desired version (up to v6.7/6.8). After installation all the projects work as normal.