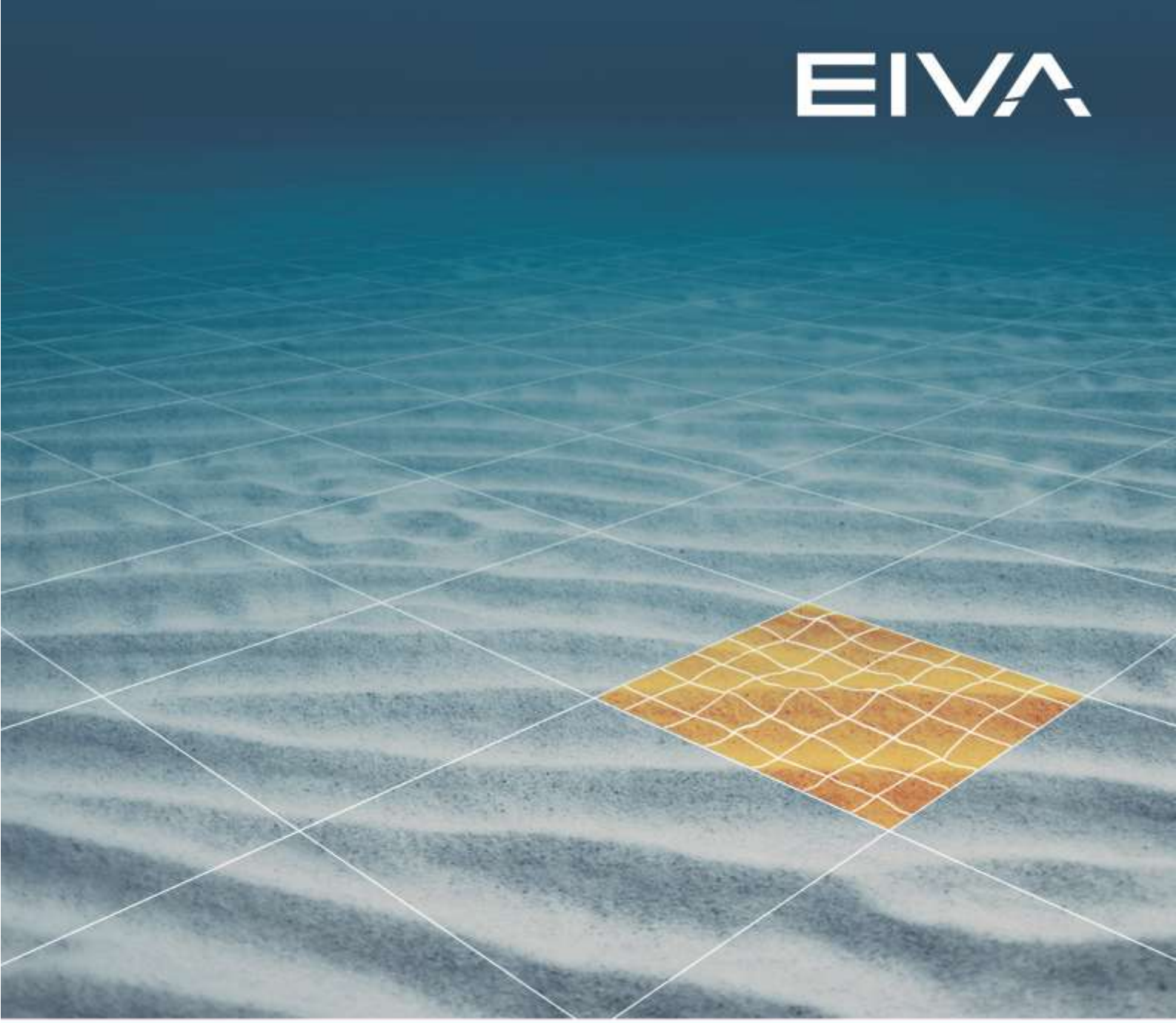

NAVIMODEL 4.8

RELEASE NOTES

Last update: 18/09/2023
Version: 4.8

Contents

1 Release notes NaviModel 4.8

Version 4.8 is a major release of NaviModel covering a series of new features focusing, among others, on Point Cloud handling improvements, as well as a series of enhancements, minor improvements, and bug fixes. Where noted, reference the EIVA Freshdesk (FD) or JIRA (J) ticket for details.

The release notes cover features for NaviModel Producer but is also used for NaviModel Analyser and NaviModel Viewer, so this may describe features that aren't available in your specific product.

1.1 Formatting conventions

Items formatted in **bold** are properties, buttons, or other elements in the NaviModel software.

2 NaviModel 4.8

2.1 Point Cloud (Database)

NaviModel 4.8 introduces faster point cloud handling with the **Point Cloud (Database) option**.

The previous **Point Cloud** option is renamed to **Point Cloud (Memory)** and the new option **Point Cloud (Database)** has been added. Both options are available when you drag-and-drop a supported point cloud file into the NaviModel 3D MapView (.XYZ, .LAS/LAZ, .PLY) or when you import point cloud information from other sources such as NaviEdit and NaviScan.

The option **Point Cloud (Database)** saves the points into an SQLite database during loading, while at the same time a proper octree structure within the database is created.
It handles live data coming from different sources (such as from NaviScan) and keeps pushing and rendering points for the whole survey. The previous **Point Cloud (Memory)** is not capable of doing that due to memory limitations.
Point clouds can be categorised as either **static** (based on files) or **dynamic** (based on live data). The new **Point Cloud (Database)** can handle both and improves the loading performance drastically.
The user will see that the rendering of the point cloud starts immediately (even with static files) as points are getting into the database, resembling live data. Measurements show that it can insert 300,000 – 500,000 points per second into the database.

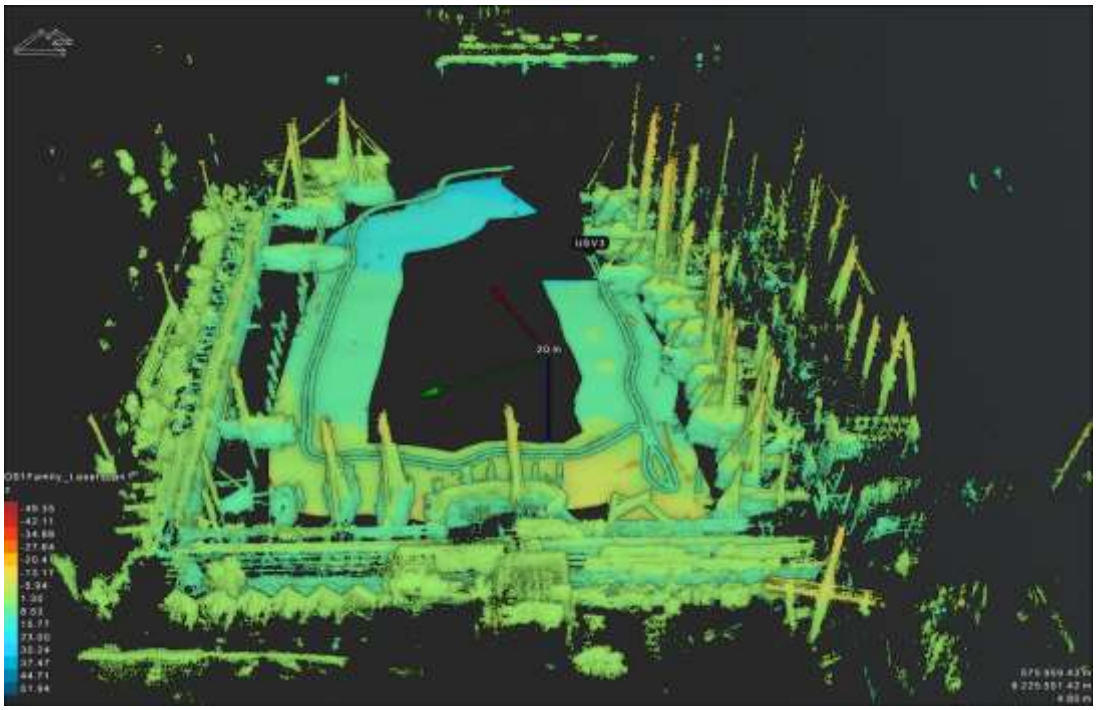

Figure 1 Example of the option Point Cloud (Database)

The new **Point Cloud (Database)** has been made to keep all possible attributes coming with the point cloud data, and it is possible to change the rendering colour of the point cloud according to a chosen attribute.

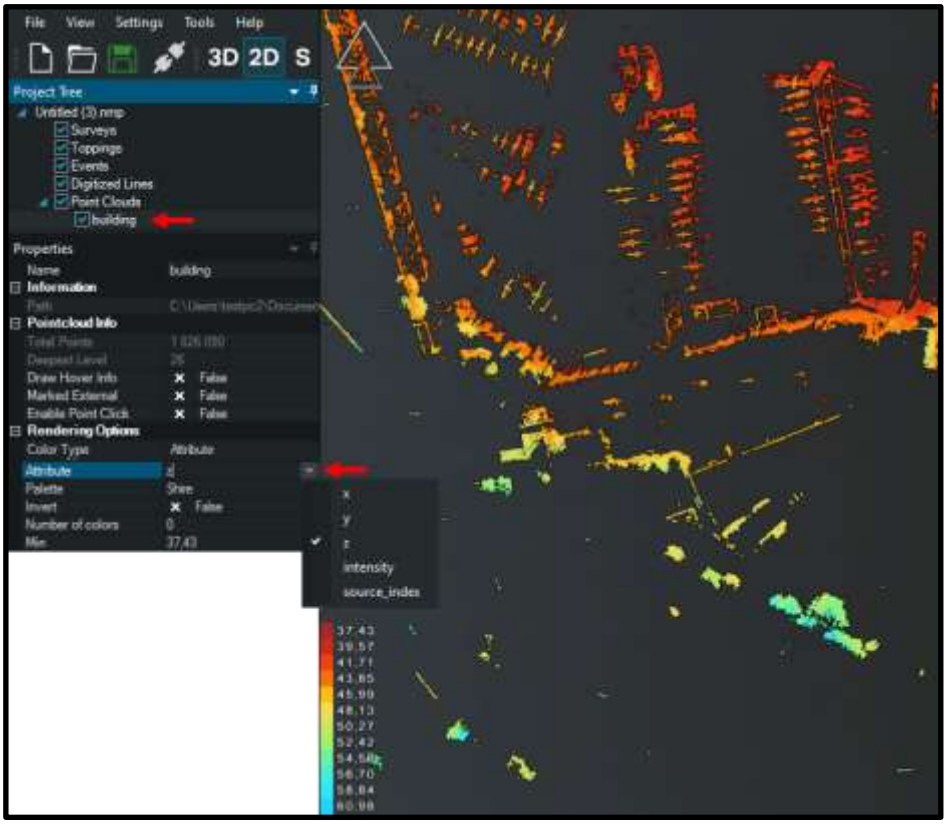

Figure 2 Colour point cloud by chosen attribute

It maintains the same features at the old **Point Cloud (Memory),** plus includes some extra features such as being able to select points by value of a chosen attribute.

Example on how to show the z attribute in a graph:

In the **Point Cloud Toolbar**, press the **Region Tool** option.

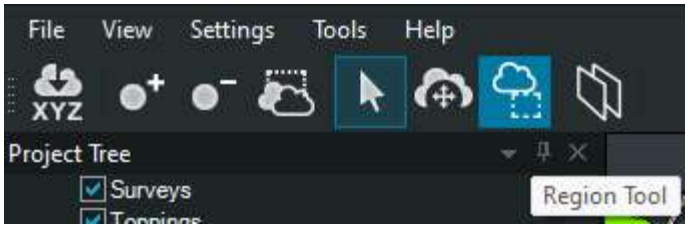

Figure 3 Point Cloud Toolbar with Region Tool option

Figure 4 Select points by chosen attribute

While the **Point Cloud (Database)** is being constructed, you are not able to modify the data (eg selection, deletion etc) as such an action could destroy the octree structure. For that reason, the **Stop Creation** option has been added to safely modify the data afterwards. However, while the point cloud is being constructed, you can still manipulate the transformation of the point cloud and the colouring options. By pressing the spacebar on your keyboard, you can also update the chosen palette colouring the same way as it works for online DTM creation.

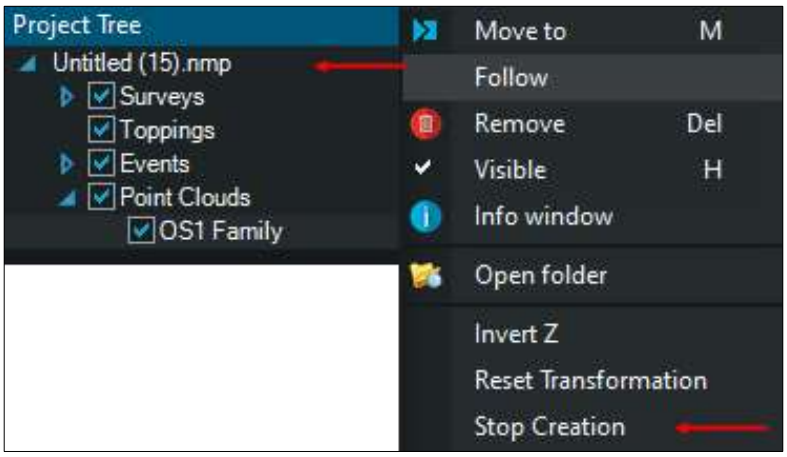

Figure 5 Stop Creation option

Lastly, the available options when the user right-clicks a new point cloud in the project tree have been kept to a bare minimum. Use the **Selection Tool** (see Figure 6) and select some

points, this way the additional options **Reject Selected**, **Copy Selected**, **Cut Out Selected** and **Accept All Points** are available.

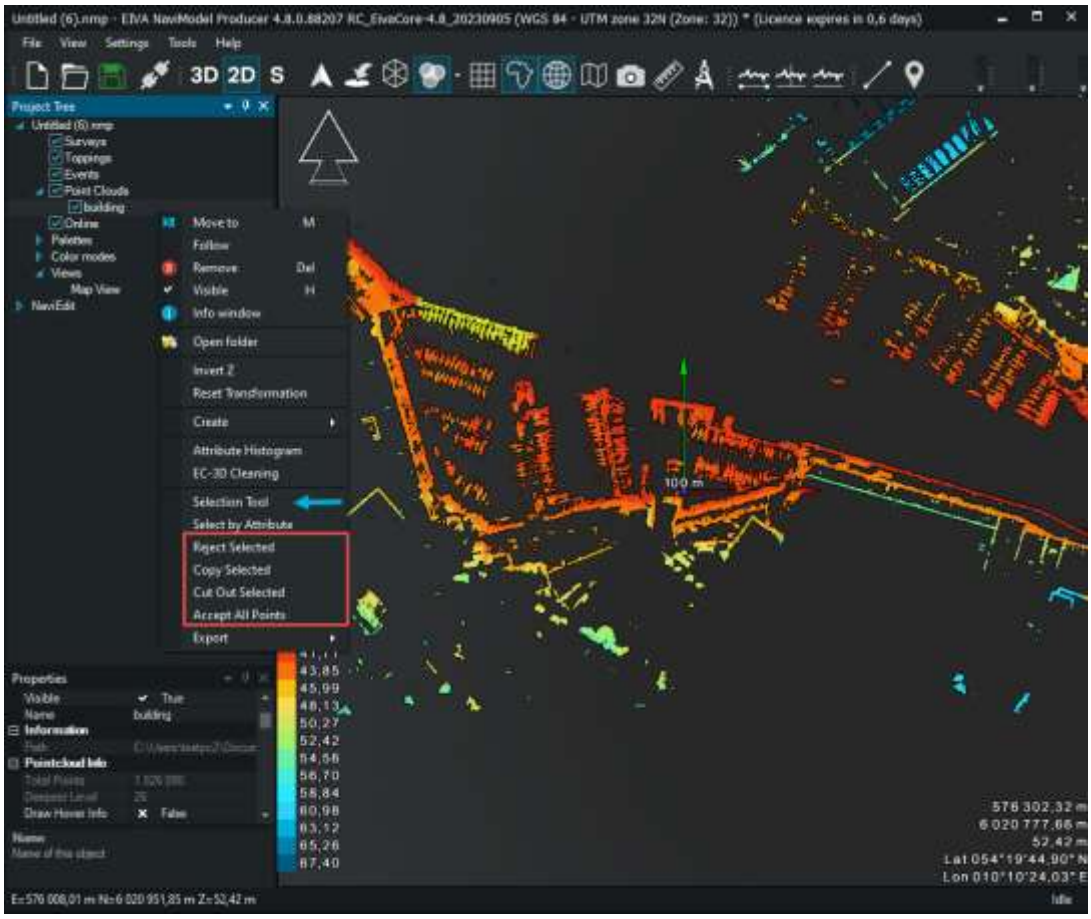

Figure 6 New options appearing when there are selected points.

2.2 Backscatter surface

The new **Backscatter** surface uses a backscatter method for displaying intensity data that includes an attribute on each point. It is a more efficient method when compared to the Intensity method which is expected to be discontinued due to poor performance.

You can see the backscatter attribute value when you display points in the DTM and hover the mouse over a point.

The backscatter surface can be added to an existing DTM, also online.

2.3 Camera Toolbar for IP cameras

NaviModel 4.8 comes with a new **Camera Toolbar** that simplifies adding and setting up a camera for video streaming.

It is enabled via the menu **View** > **Toolbars** > **Camera Toolbar.** You can **Start** and **Stop recording** and use the **Camera manager** option to set up cameras via the **Camera Controls** window.

Figure 7 Camera Toolbar

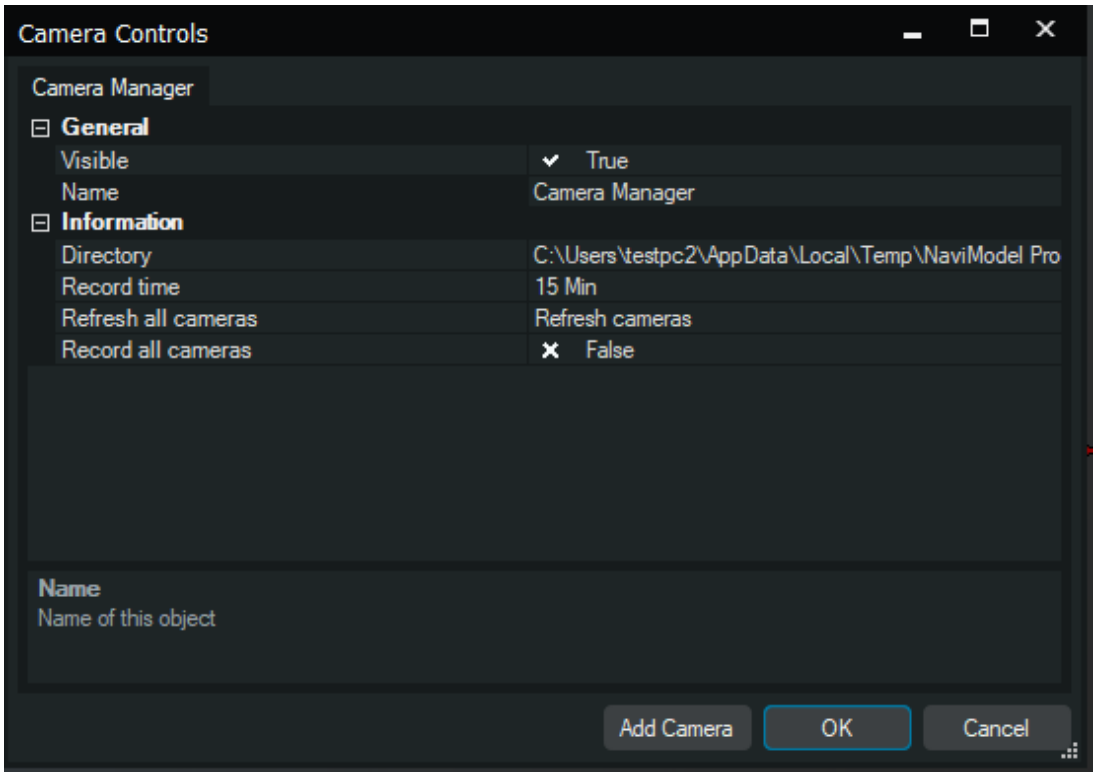

Figure 8 Camera manager with the Add Camera option

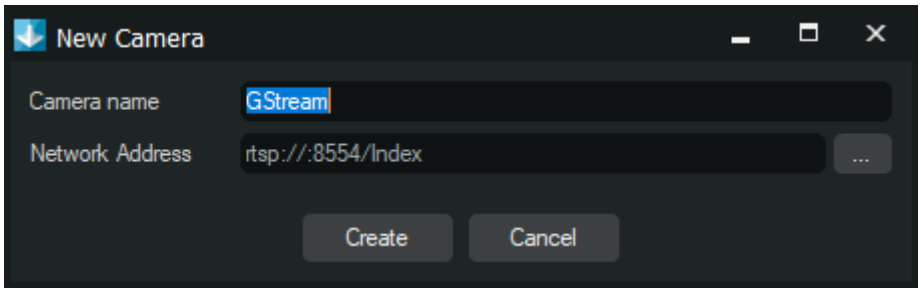

Figure 9 Adding a new camera

The **Add Camera** button will create a new window asking for the basics information for creating a camera. Once a new camera has been created, a new tab for this camera is made in the **Camera Controls** window. All the different properties that you can change are in the **Camera** tab. Additionally, instead of VLC, GStreamer is used.

Note: There is an option to make a custom pipeline to solve specific needs. This is recommended if you have experience with GStreamer pipeline building.

Once a camera has been created the **Camera Manager** button will turn green to show a camera has connection to a source.

2.4 PLY file support

NaviModel now supports basic PLY file format, both as point cloud and as 3D model with attributes. PLY files now display colour attributes, and EMesh is capable of holding 3 new colour arrays (ie diffuse, ambient, specular), which can be pushed into GPU as vertex buffers instead of using 1 material as uniform for the whole mesh.

When drag-and-dropping a .PLY file, the import window allows these options:

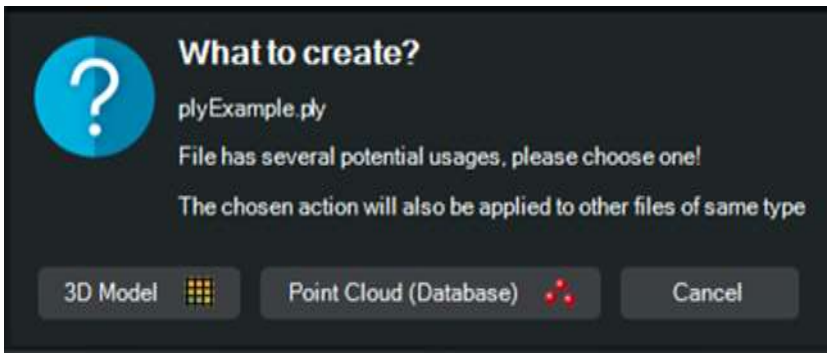

Figure 10 Options for a .PLY file

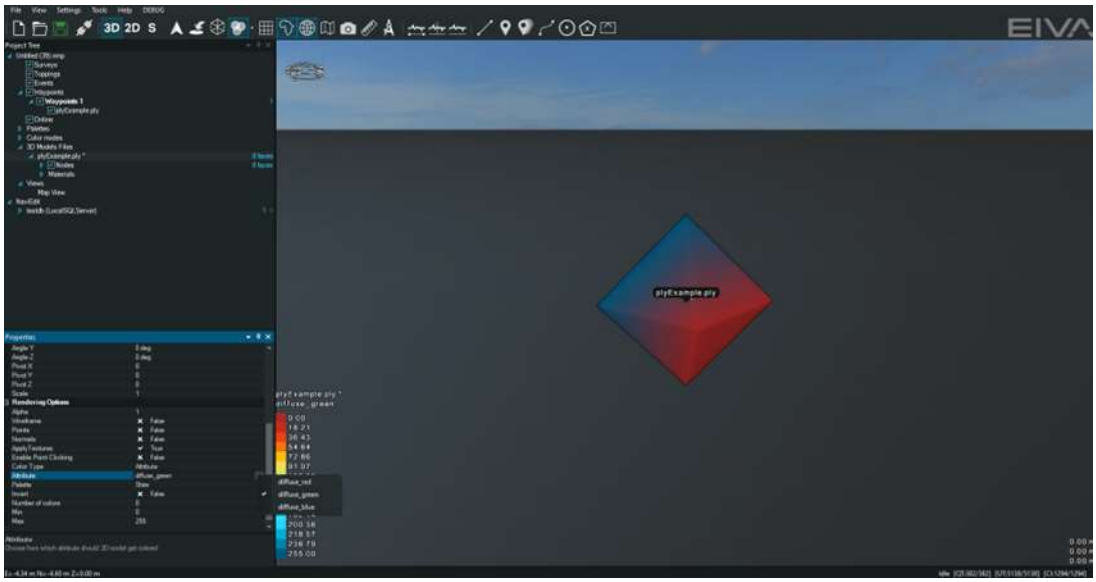

Figure 11 Support for PLY format 3D model

2.5 Screen overlays and Hover information

We have added two options in the menu bar. **Screen overlays** hides all additional information shown in the 3D MapView, and **Hover information** will show information that can be turned on in the DTM's Properties view.

Figure 12 Screen overlays and Hover information buttons

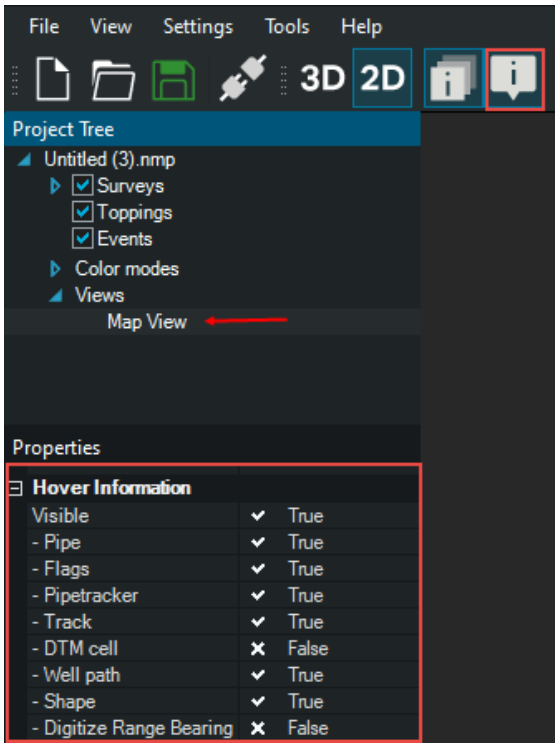

Figure 13 Hover information properties

2.6 Measure tool

A new quick measure tool is added to the **Toolbar**. It shows a triangle in **3D mode**, and range and bearing in **2D view** mode. Press the spacebar to toggle between geographic and grid measures.

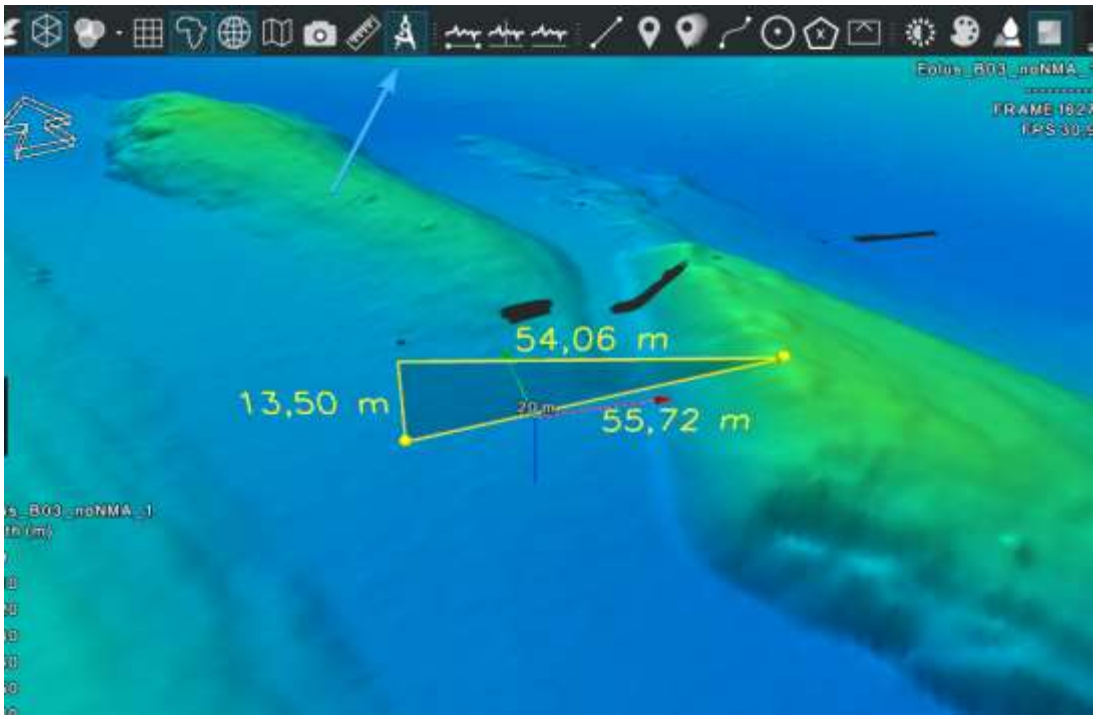

Figure 14 New Measure tool in 3D with the triangle

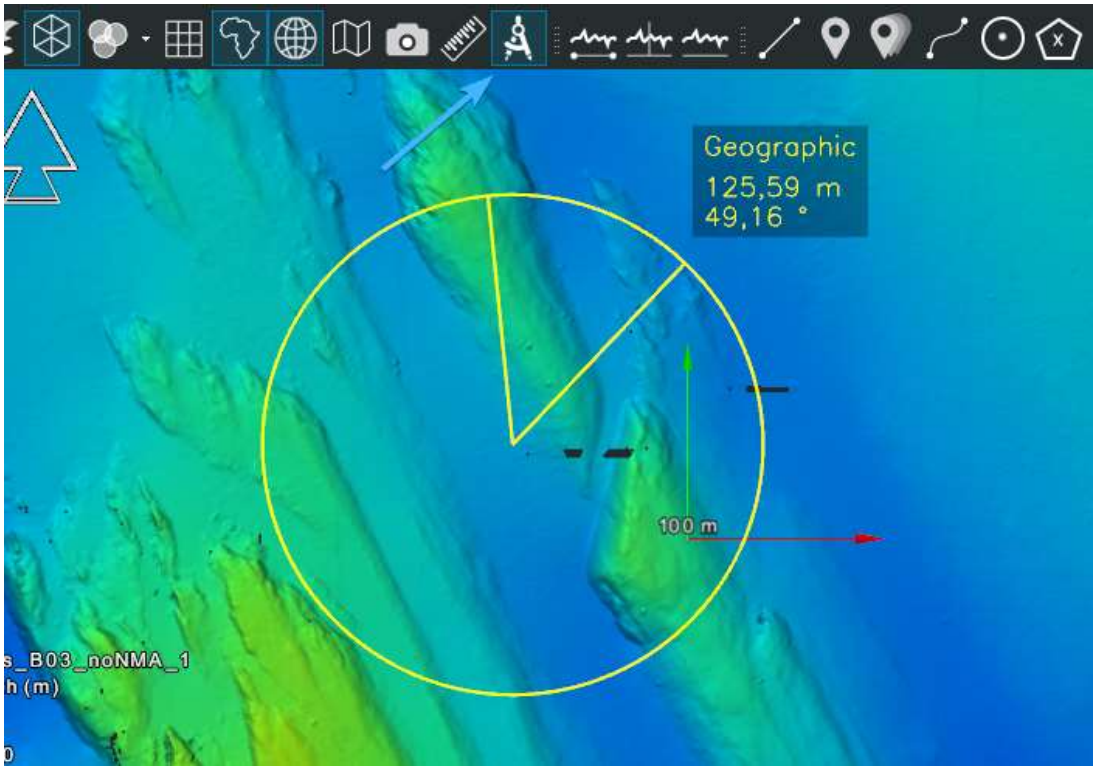

Figure 15 New Measure tool in 2D with range and bearing

2.7 Create Online data

There is a new option named **Create Online** that is accessible by right-clicking the online connection selectable in the project.

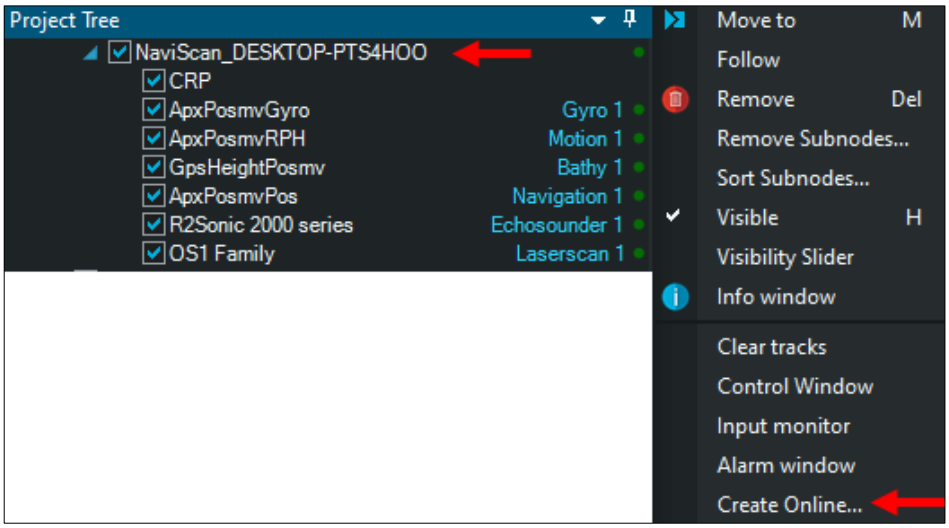

Figure 16 Create Online option – the online connection and the Create Online option

This new option allows users to be able to select from all possible instruments what kind of online creation tool they would like to use. Users can select one or multiple choices.

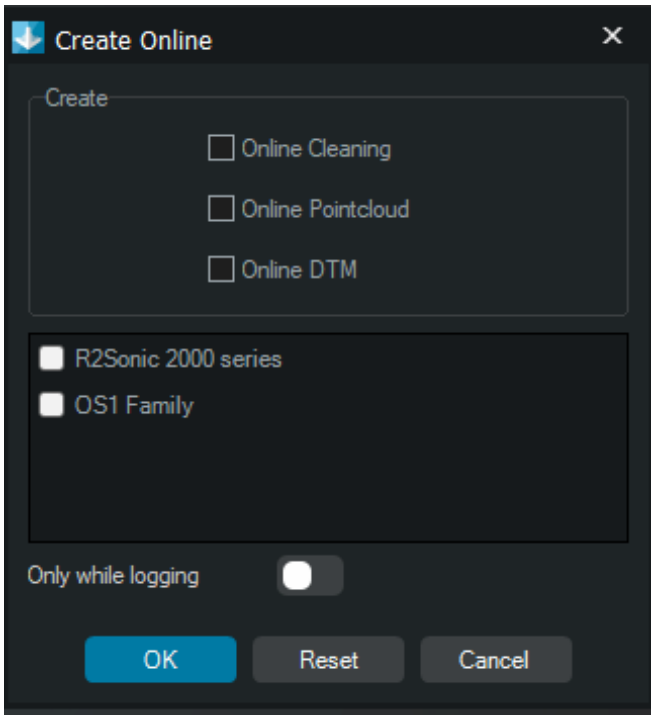

Figure 17 Create Online DTM option

The old way of right-clicking individual instruments and select one by one the online creations has been removed.

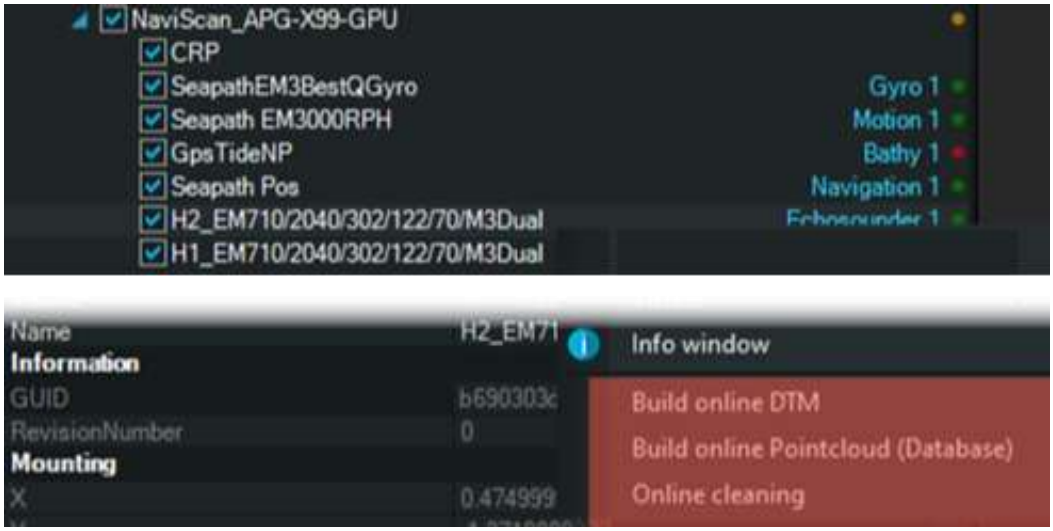

Figure 18 Old way of selecting online creation has been removed

3 Major changes

3.1 CAD improvements

- CAD files now load in the background
- CAD files load faster
- Minor improvement on memory usage when loading a CAD file
- The final size of the DRW file closely matches the size of the original CAD file
- Fixed an important issue on rendering point entities
- Fixed text rendering so texts can be drawn more correctly into their location
- Introduced a sphere in the center of the drawing to highlight an object even if user is zoomed out a lot.
- Introduced a new z axis order priority drawing feature for entities like text and wipeouts that must always be rendered above all other entities.
- A new LOD system for individual entities has been introduced which further optimize rendering performance
- DRW files are not being re-written with every press of **Save project**, improving performance
- New option under **Drawing Selectable** where you can enable / disable the individual touch of entities within a layer.

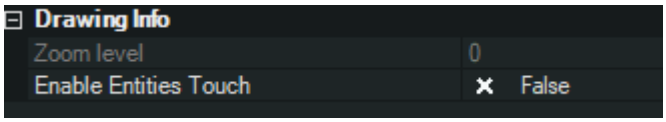

Figure 19 Toggle Enable Entities Touch

4 Minor improvements

The software release includes a series of minor improvements and fixes.
See module release notes available via the software for a full list of bug fixes and details.

- Photogrammetry – drag and drop .YML
- New View added – The Newest Image View
- Ability to import *.ply file format as a Point Cloud or a Mesh.
- Ability to colourise Point Cloud XYZ values by CP values (via ASCII importer).
- Ability to colourise Point Cloud XYZ values by methane values (via ASCII importer).
- Sulmara: Allow for different kinds of export – GeoJson and GPRTX (for iXblue Drix USV)
- Added two NOAA WMS servers that deliver background maps

- Pangeo: Palette can be set with the lower value at the bottom for a more intuitive distance from bottom representation
- Export form has a cell size selection (**Chart**, **DTM** or **Custom**)

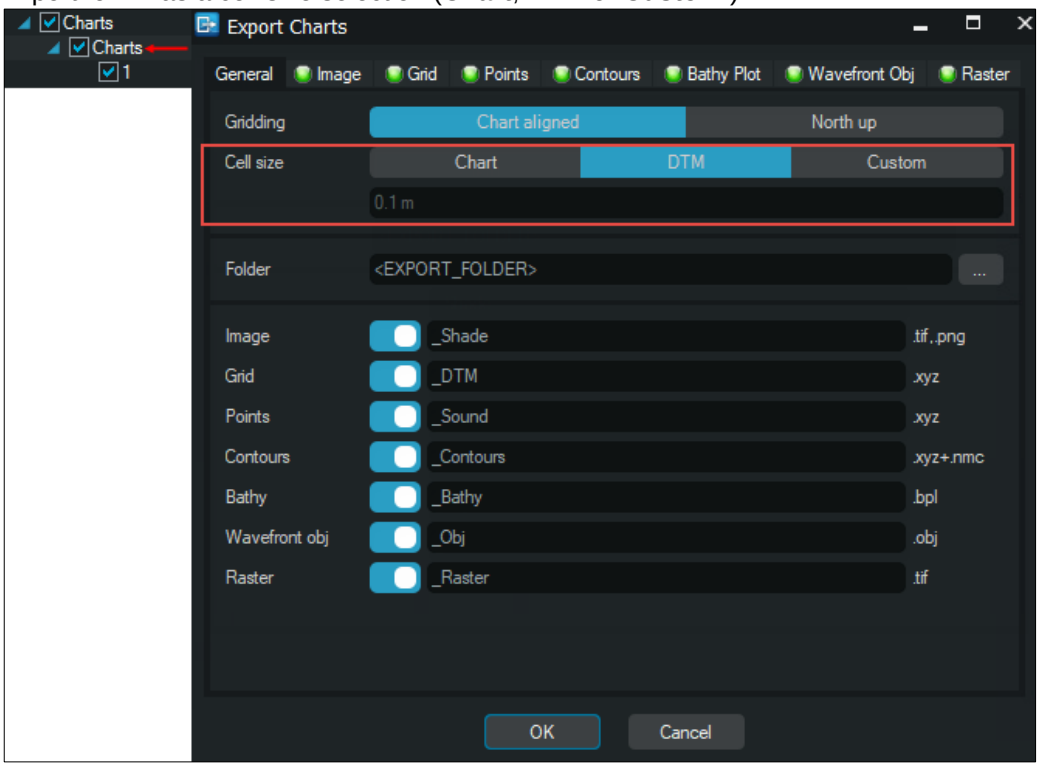

Figure 20 Improved Export options

- 3D objects sorted properly with transparent DTM
- Difference Model – **DTM calculation** function supports both DTM and TIN models
- Improved the performance of editing point cloud using **Point Editor**
- Improved the performance of getting points back from DTM within a spatial area (**recalculating surface**, **live dtm**, **reject** / **accept points**)
- Update .net runtime 6.0 (.net runtime 5.0 has reached end of life)
- Gstreamer replaces VLC 2.2.8 for streaming
- GDAL upgraded to version 3.6.3
- Point cloud have las export with proper intensity
- Deleted Cube from program data
- Improved **Raw Points** view

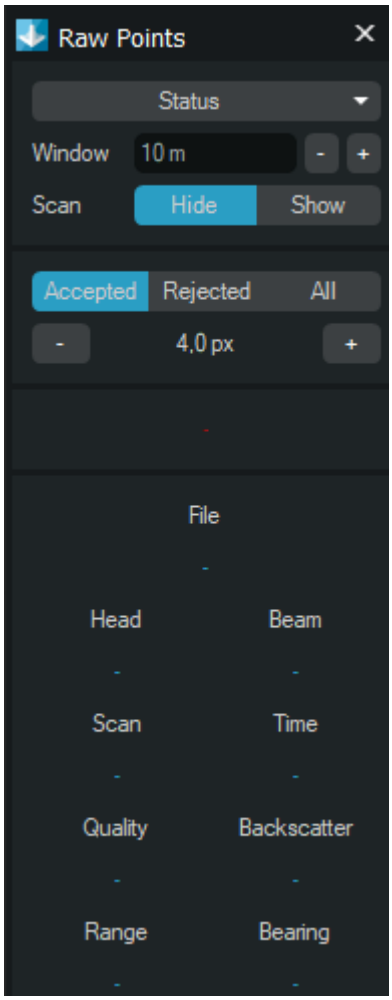

Figure 21 Raw Points view

Rock finder

Rock finder is improved to provide visual feedback of parameters given to the rock finding algorithm. You are given a preview area to see what rocks are found with the current parameters.

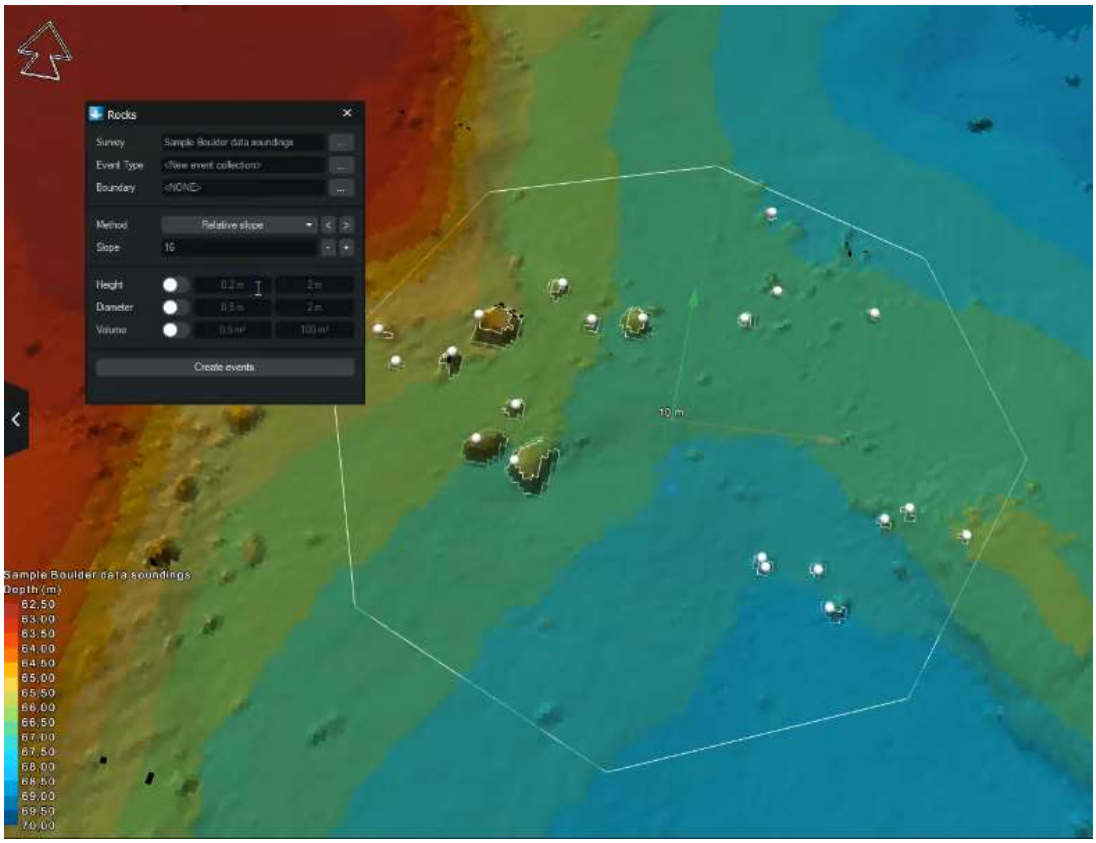

Figure 22 Rock finder improvement

4.1 Bug fixes

- Fixed Automatic fieldjoint numbering for the fieldjoint events (FD-670)(J-18260)
- Fixed Allow import of events, even if no type is present (FD-51951)(J-22781)
- Fixed Offline background map not visible (FD-48363)(J-22362)
- Fixed Allow a fixed scale size for a 2D shape (attached to a waypoint under the **Properties** window and the option appears ONLY when there is a 2D shape attached) in the new Helmsman (FD-51904)(J-22683)
- Fixed Multiple background maps at the same time in NaviModel Producer 4.6 (FD-50197)(J-22522)
- Fixed Need to export Pipe with local and WGS84 geodesy (FD-52189)(J-22730)
- Fixed Vehicle tracks line styles can now be shown as unconnected dots (FD-52185)(J-22728)
- Fixed Project Tree Focus scroll to selected item (FD-51968)(J-22699)
- Fixed CAD entities that have attributes info set to be invisible, they are not going to be loaded (J-23043)
- Fixed HMD 4.6 Online DTM - Density color mode not updating in real time (FD-50701)(J-22576)

- Fixed Kuda Core installation: Have the DK Geoid in the Kuda Core installation (gkgeoid13b.gri (EPSG term is: Geoid (height correction) model files)(J-22590)
- Fixed Play a sound when the coverage assist is complete (J-22581)
- Fixed NaviModel - AutoCAD Move to (J-23120)
- Fixed NaviModel 4.6.1 problem with video (FD-53336)(J-22839)
- Fixed Crash and importing of NaviModel eventing (FD-52561)(J-22760)
- Fixed Drape drawing to DTM (FD- 52328)(J-22737)
- Fixed NaviModel EC-3D Relative Method crash (FD-52470)(J-22753)
- Fixed LandXML to TIN (FD-53538)(J-22868)
- Fixed Legend unit name should update (FD-53982)(J-22912)
- Fixed Display Point Clouds based on Beam Quality (FD-36649)(J-21672)
- Fixed Cable planner turn radius 150 meters works
- Fixed JSF channels are now imported as 0, 1 and 2 (20=LF, 21=HF and 22=UHF)
- Crash Analyser fixes: [1036292161][1063930695][1314364520][1986278748][2245060369][2308560953][2437932562][2456712084][2640812181][2691186859][3142533565][3195728297][3349380388][3433481266][3453916508][3551355163][3565615409][3681918183][3789650887][3934996202][4254591193][4260038558][4267509226]

5 Workflow Manager improvements

- Made it possible to use <SqlServer> and <DatabaseName> as properties in workflow (as {SqlServer} and {DatabaseName})
- Task NewNaviModelProject can include etr and rlx
- Added LasImportTask and ResonImportTask (S7K) to the WFM
- Allow *Yes* and *No* as input to Workflow Manager boolean attributes
- Use *;* as separator in MergeFileTask for multiple files
- Fixed WFM Task CreateDTM now support custom cell size for intensity <CellSizeIntensity>0.5 m</CellSizeIntensity> (FD- 47179)(J-22291)
- Fixed STD surface export (FD-49264)(J-22448)

6 Known limitations

There are no known major limitations to this release.