NDT Reveal

Version 001

ORIGINAL INSTRUCTION IN ENGLISH LANGUAGE

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Table of Contents

1 INTRODUCTION

This document describes **NDT Reveal**, the **IDS GeoRadar** software that allows to visualize and post-process GPR surveys gathered with **C Thrue** and **C Thrue XS** that are GPR systems by IDS GeoRadar. For a full description of the **C Thrue** and **C Thrue XS** systems (including their parts description and set up), the Users should refer to the User's manual.

This document refers to the concepts the user should learn before initiating the utilization of these software. Therefore, it is mandatory to carefully reading the entire document before starting and operating the systems.

1.1 Estimated Reading Time

The estimated reading time of the entire document is 60 minutes.

1.2 Purpose

The purpose of this document is to drive the Reader to a list of step-by-step actions on the data post processing SW for **C Thrue** and **C Thrue XS**.
The structure of the manual is organized in a collection of "how-to" as well as descriptive chapters. Each chapter contains the illustration and basic description of the main operations and tools to be used, to run a full data visualization, post processing, export, and reporting.

1.3 Application field

NDT Reveal is the post processing SW designed to locating rebars, voids, post-tension cables, cavities, conduits, and any other object embedded into a concrete structure, assisting before cutting or drilling the structure itself. It can be used to analyse data collected with **C Thrue** and **C Thrue XS** for operations including building renovation, overpasses, bridges, and tunnels surveys, as well as for detailed analysis of the original engineering project and comparison with the as-built structure.

1.4 Intended readership

The intended reader of this manual should be the technician in charge of using the system that has undergone the IDS GeoRadar training for **C Thrue**.

2   HOW TO READ THE MANUAL

2.1   Manual Layout

It is strongly recommended to go through this manual thoroughly, and to read it carefully. However, as the document is divided into a first part that is descriptive, but also into procedures (*How to…*) that are self-consistent, and that can be read sparsely, it is not mandatory to read this document chapter after chapter, in case of need.

Please, note that images and pictures shown in the manual aims at supporting the Users in understanding the operation described. However, pictures and images portraited herein may, from time to time, slightly differ from the actual Hardware and Software they describe.

2.2   SYMBOLS

Warning messages are an essential part of the Safety Concept of the instrument. They appear wherever hazards or hazardous situations can occur.

Type	Description
⚠️ DANGER	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.
⚠️ WARNING	Indicates a potentially hazardous situation or an unintended use which, if not avoided, could result in death or serious injury.
⚠️ CAUTION	Indicates a potentially hazardous situation or an unintended use which, if not avoided, may result in minor or moderate injury.

Warning messages:
• make the user alert about direct and indirect hazards concerning the use of the product.
• contain general rules of behaviour.

For the user's safety, all safety instructions and safety messages shall be strictly observed and followed. Therefore, the manual must always be available to all persons performing any tasks described herein.

DANGER, **WARNING**, **CAUTION** and **NOTICE** are standardized signal words for identifying levels of hazards and risks related to personal injury and property damage.

For your safety it is important to read and fully understand the table below with the different signal words and their definitions. Supplementary safety information symbols may be placed within a warning message as well as supplementary text.

> **Note text/to keep in mind**

> **Tip information**

2.3   Acronyms and Glossary

CPU: Central Processing Unit

EID: Entitlement Identification Document

GPU: Graphic Processing Unit

GPR: Ground Penetrating Radar

HDD: Hard Drive Disk

OS: Operative System

RADAR: RAdio Detection and Ranging

RAM: Random Access Memory

SSD: Solid State Disk

Survey: the name given to a collection of acquisitions, which together cover all the areas of an investigation: typically, an entire job area.
Scan: a single movement of the system from the beginning to the end of a pre-established path.
Setup: initialization of a piece of equipment or a software process.
Transmitter: part of the antenna dedicated to emitting the radar signals.

3 SAFETY DIRECTIONS

The directions provided in this chapter enable the person responsible for the product, and the person who uses the equipment, to anticipate and avoid operational hazards. The person responsible for the product must ensure that all users understand these directions and adhere to them.

3.1 Intended Use

The intended use of **NDT Reveal** SW is:

- Concrete inspections,
- Rebars and void detection and mapping,
- Measuring horizontal and vertical position of rebars and void,
- Creation of concrete tomography imaging.

3.2 Reasonably Foreseeable Misuse

Below are listed a list of possible misuse of the system, to be avoided:

- Use of the product without instruction,
- Use outside of the intended use and limits,
- Disabling safety systems (where applicable),
- Modification or conversion of the product,
- Use after misappropriation,
- Use with accessories from other manufacturers without the prior explicit approval of IDS GeoRadar s.r.l.

3.3 Responsibilities

Manufacturer of the product: IDS GeoRadar s.r.l is responsible for supplying the product, including the user manual.

Person responsible for the product: the person responsible for the product has the following duties:

- to understand the safety instructions on the product and the instructions in the user manual,
- to ensure that it is used in accordance with the instructions,
- to be familiar with local regulations relating to safety and accident prevention,
- to inform IDS GeoRadar s.r.l. immediately if the product and the application becomes unsafe,
- to ensure that the national laws, regulations, and conditions for the operation of electromagnetics transmitters are respected.

3.4 Cautionary Notes

3.4.1 Training

For the safe and proper use of the system, it is essential that skilled users exclusively operate it. A skilled user is someone who has successfully completed appropriate training. It is strongly recommended that all users complete such training from IDS GeoRadar. IDS GeoRadar is not liable for any damages caused by unskilled and/or untrained users.

4   GENERAL ON NDT REVEAL

4.1   PC Requirements

The <u>recommended</u> technical specification of the PC where to install and run **NDT Reveal** are detailed below:

- **CPU**: 7th or later generation Intel Core-i3/5/7/9 CPU with at least 4 logical processors (e.g. 2 cores with 2 threads per core) at 2000 MHz or equivalent AMD CPU. Does not perform well on ARM based Windows computers (due to the SDK is native x86_64).

- **RAM**: at least 8 GB of RAM (16 GB recommended)

- **Operative System**: Windows 10 (64-bit only) or Windows 11. <u>Does not run on any earlier OS or on 32-bit OS.</u>

- **GPU**: medium performance **discrete** GPU, e.g. NVIDIA RTX-3060, RTX-4060 or faster GPU. Intel/AMD internal GPU, even the latest and greatest, gives poor performance.

- **SSD**: Should have at least 50 GB of free space. HDD not recommended.

- **A mouse**: The SW may not result "smooth" using with touchpad or touchscreen. It is suggested to use it with a mouse.

4.2   How to Install NDT Reveal

Prior starting the installation procedure, the User should know that it must be activated a valid license (EID) by using the *Leica Client License Manager* (CLM) software; to do this please, refer to **Leica Geosystems Software Licensing Introduction & Installation User Manual**.

> ✎ **Note;** Before starting the License Activation Procedure, make sure that CLM SW is installed into the PC.

Once the latest version of **NDT Reveal** has been downloaded from the *myDownload* area of *myWorld* (https://myworld-portal.leica-geosystems.com), User may proceed with the installation procedure as detailed below.

1. Select the **NDT Reveal** installer file being downloaded from *myWorld*, and right click on the mouse to "Run as Administrator" (Fig. 1),
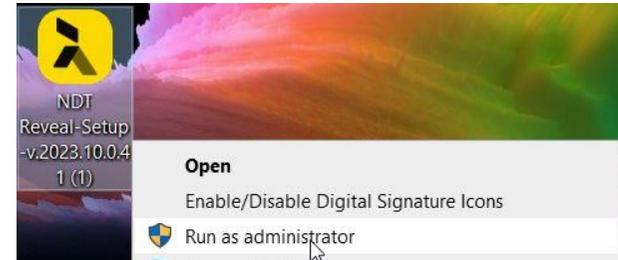
Fig. 1 NDT Reveal Install step 1

2. Accept the **Hexagon Geosystems License Agreement** and press NEXT (Fig. 2),
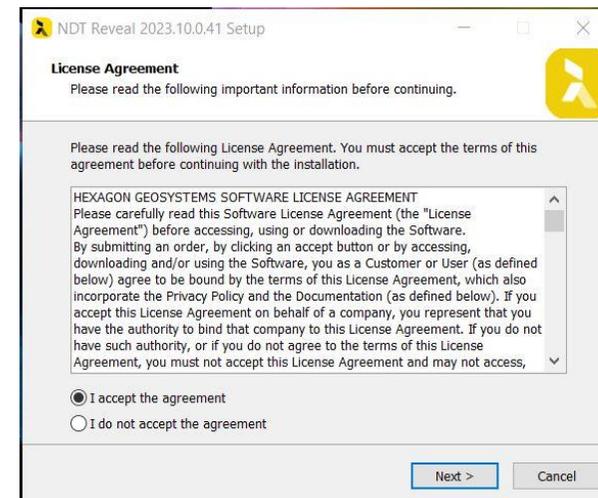
Fig. 2 Accept Hexagon Geosystems license Agreement

3. Select **NDT Reveal** destination folder for installation and press NEXT (Fig. 3),
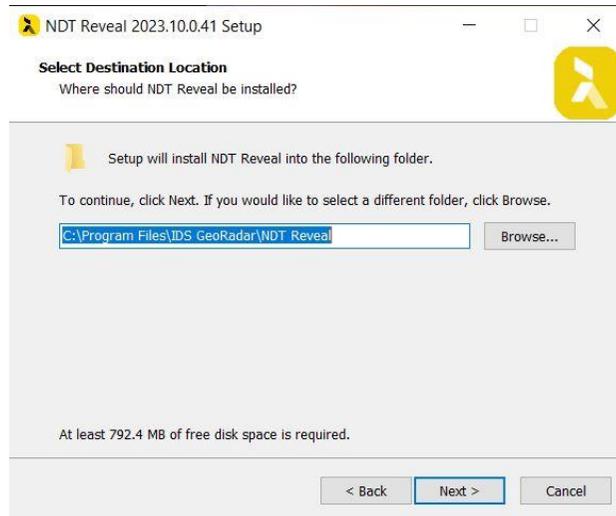
Fig. 3 Select Installation Directory

4. Select Start Menu folder location and press NEXT (Fig. 4),
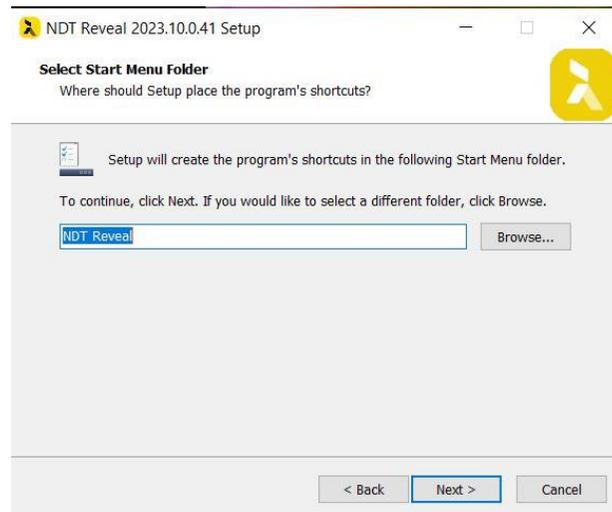
Fig. 4 Select Shortcut location

5. Accept previous selection and press NEXT (Fig. 5),
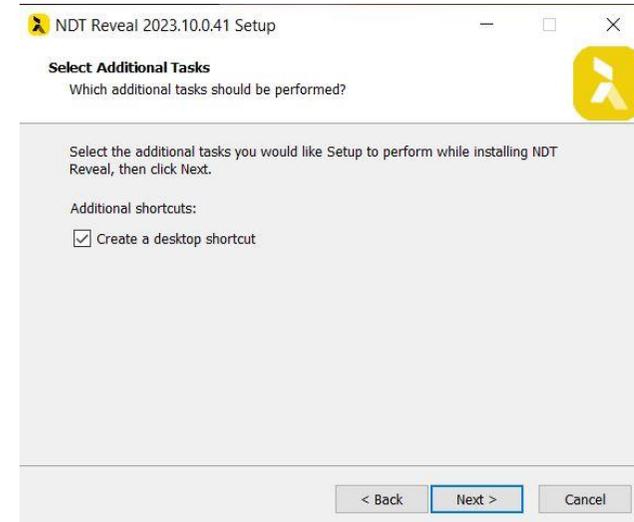
Fig. 5 Accept previous selection

6. Start Installation by pressing INSTALL (Fig. 6),
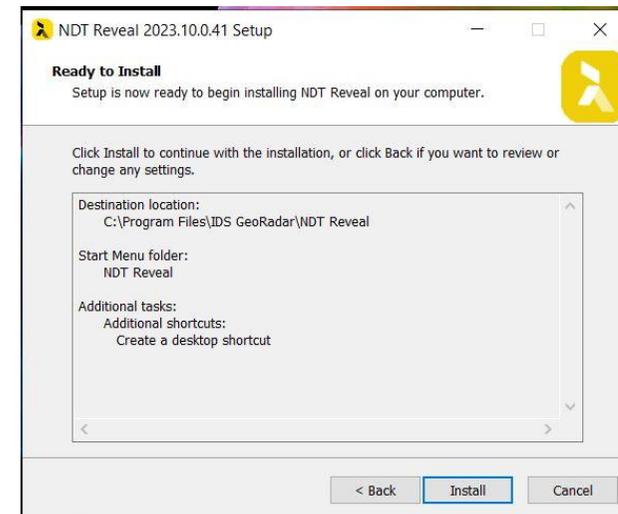

Fig. 6 Start Installation

7. Wait for the installation progress bar to complete (Fig. 7),
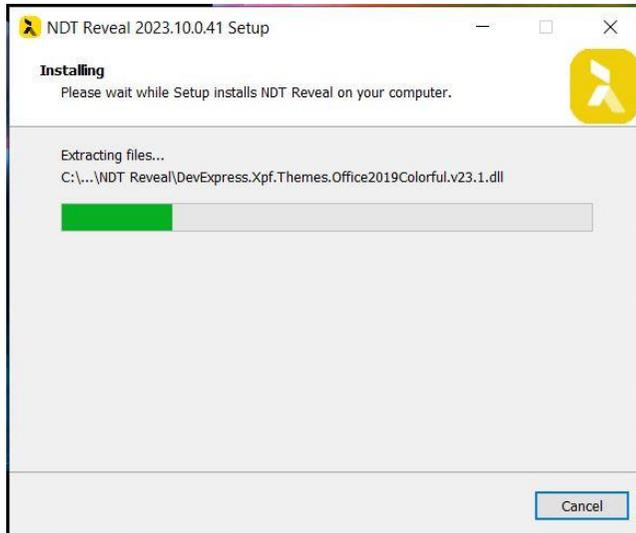
Fig. 7 Installation Progress bar

8. Press FINISH to complete the installation and run the SW (Fig. 8),
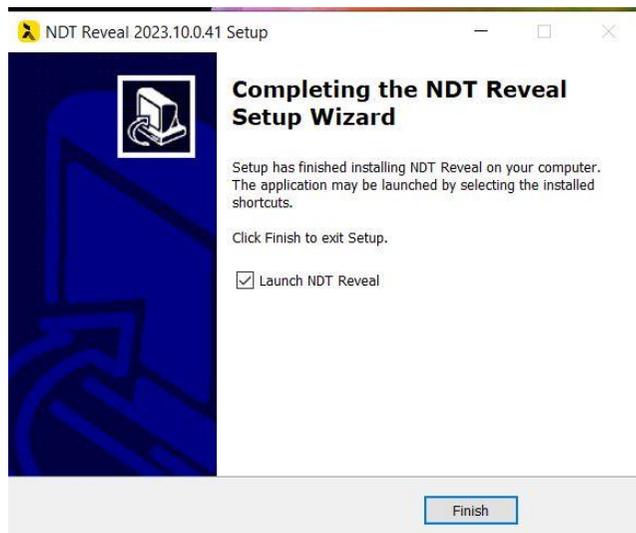
Fig. 8 NDT Reveal Final Installation step

9. After installation, **NDT Reveal** must be activated via EID (Fig. 9). Press NEXT,

Note; Before starting the License Activation Procedure, make sure that the computer is connected to internet.
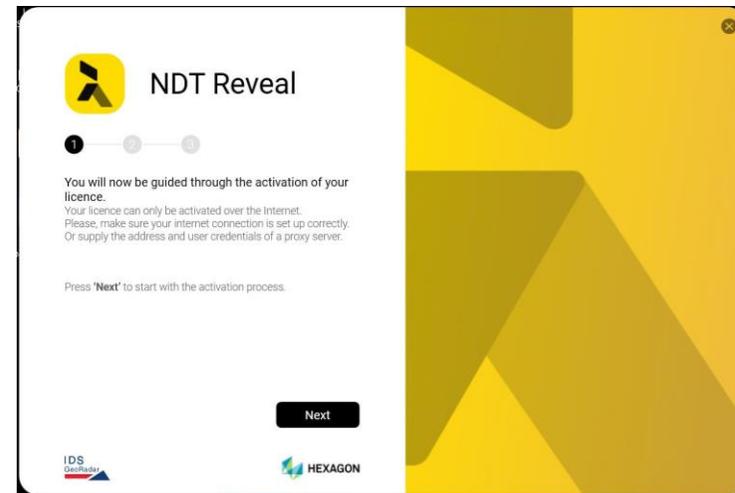
Fig. 9 NDT Reveal Activation Procedure step 1

10. Enter the EID in the field named "Entitlement" (Fig. 10),
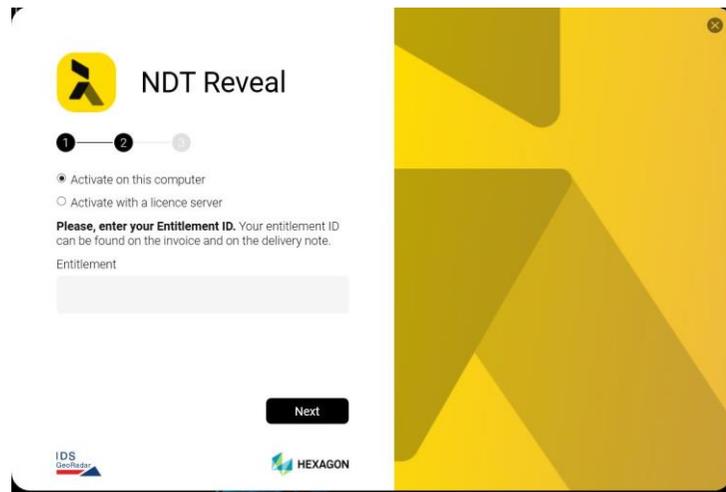
Fig. 10 Enter the EID

11. Select the location where the EID License is installed (enter "localhost", if the EID is installed in the same PC, enter the IP address of the Server, if the license is installed on a Server) (Fig. 11),
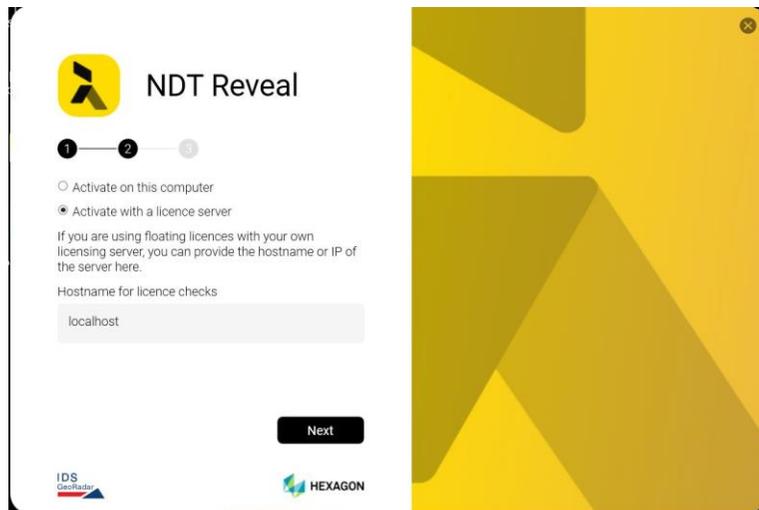

Fig. 11 Select the location for EID

12. Press NEXT to confirm the type of license linked to the EID (Fig. 12),
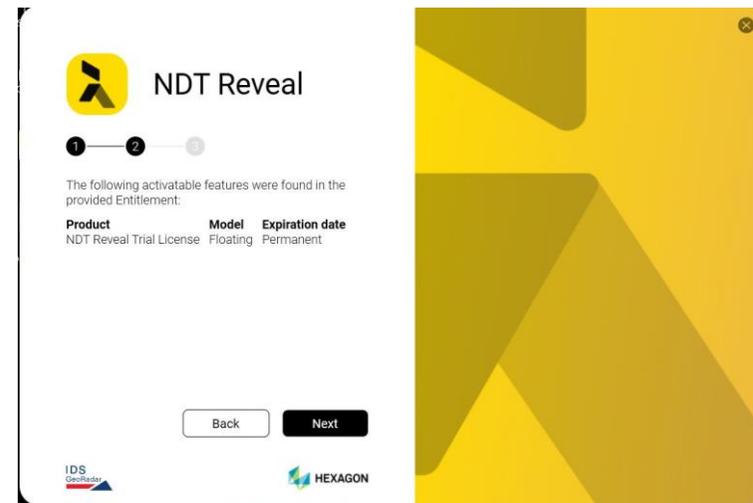
Fig. 12 Type of License linked to the EID

13. Wait for the license to be activated (Fig. 13),
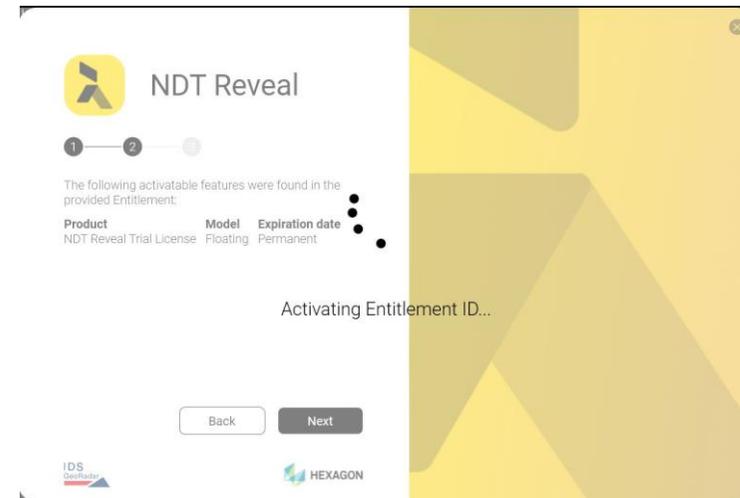
Fig. 13 Confirming Activation of NDT Reveal EID

14. The **NDT Reveal** is now active and ready to run (Fig. 14).
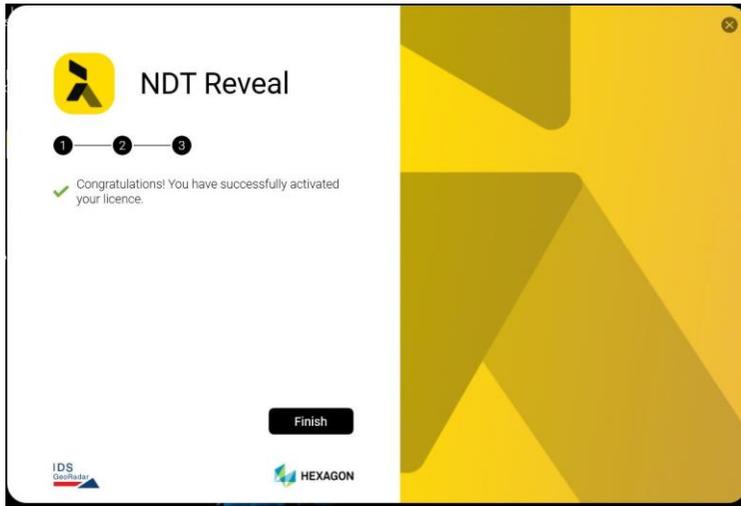
Fig. 14 NDT Reveal Activated License

5   HOW TO USE NDT REVEAL

As **NDT Reveal** is launched, the SW main page shall pop up (Fig. 15).
Starting from the main page, the complete workflow that can be performed
in **NDT Reveal**, includes the following (Table 1):

| PAR	DESCRIPTION	ICON
5.1	Customization of the Users **Settings**	⚙
5.2	Create a **New Project**	+ New project
5.2	Search/Select existing Project	🔍 Search (Ctrl+F)
5.3	**Add New Scan**(s) to a Project (either Grid or Single line)	Scans
5.4	**Add 2D Model**(s) to a Project (multiple import formats)	2D Models
5.5	**Add 3D Model**(s) to a Project (multiple import formats)	3D Models
5.6	**Add Image**(s) to a Project (multiple import formats)	Images
5.7	**Add Document**(s) to a Project (multiple import formats)	Documents
5.8	**Advanced Processing** of the Scan	Advanced Scan Analysis
5.9	**Adding Findings** to the Scan (Targets, Shapes, Drill Holes)	Findings
5.10	**Adding Annotations**	Annotations
5.11	**Adding Measurements**	Measurement
5.12	**Creating Report** (Multiple Export Format)	Report
5.13	**Exporting** Findings and data	DXF/DWG Export

Table 1 NDT Reveal Workflow
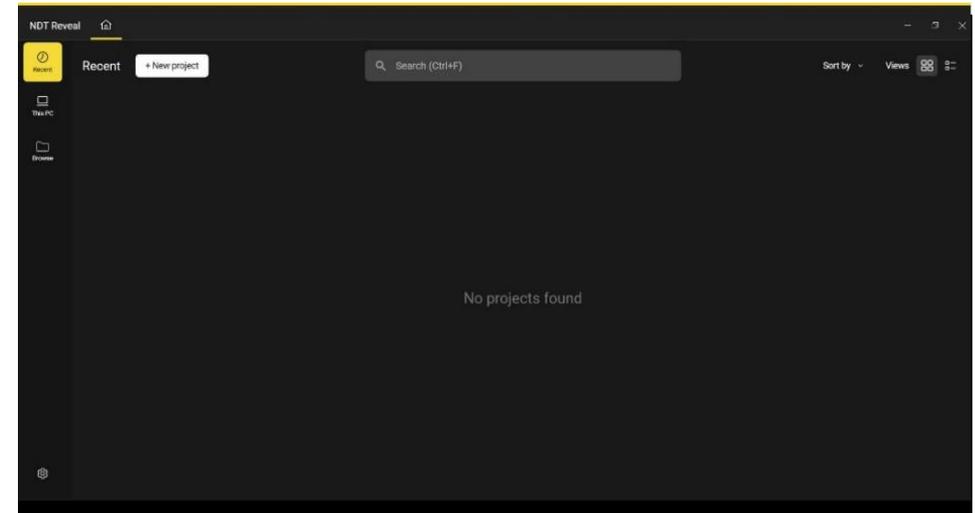
Fig. 15 NDT Reveal Main Page

5.1 How to…*Customize NDT Reveal Settings*

From the lower left corner of the Main Page, select the [⚙] icon, and customize the following fields of the Settings Menu:

1. **GENERAL**: select here the Language (Fig. 16),
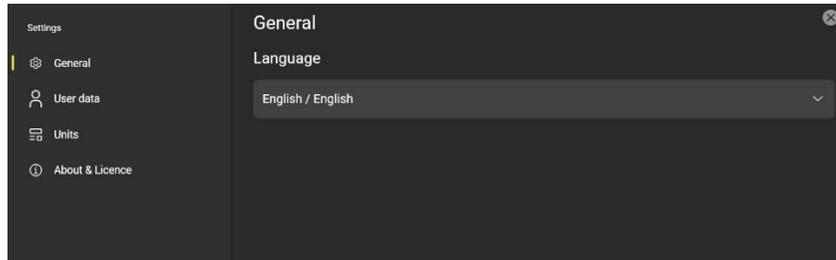
Fig. 16 Language Settings

2. **USERS DATA**: Edit Personal and Company information (Fig. 17),
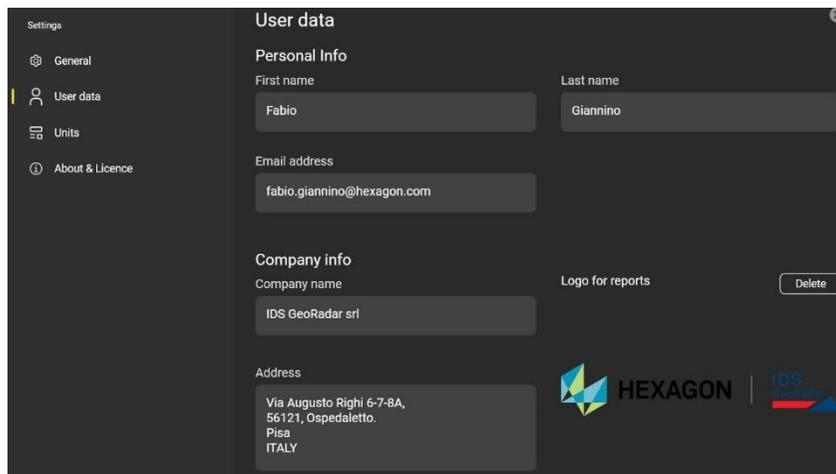
Fig. 17 Users Personal Information

3. **MEASUREMENTS UNITS**: Select Units information (Fig. 18),
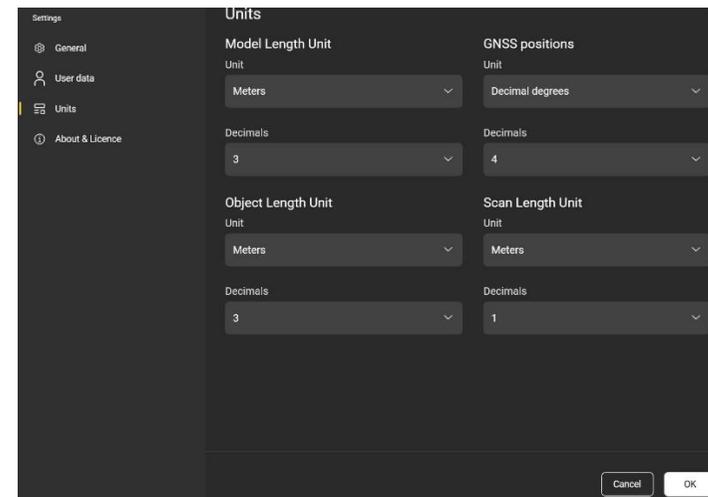
Fig. 18 Measurements Units

4. **ABOUT AND LICENSE**: Verify Information on the SW version and License (Fig. 19).
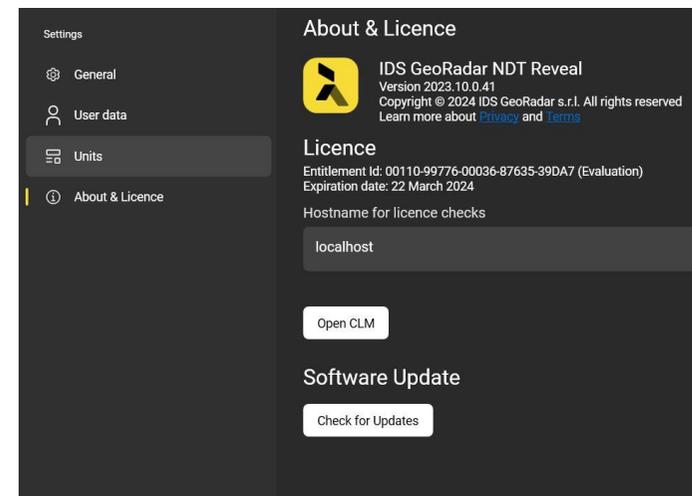
Fig. 19 About and License Information

5.2 How to…*Create a New Project*

To create a new project, follow the steps below:

1. Press the `+ New project` on the Main Page and the window of Fig. 20 shall pop up.


Fig. 20 New Project Window

2. Fill in the with the information required in the tab `Info`,

3. Fill in the with the information required in the tab `Location`,

4. Add Scans in the tab `Scans` by the "*Select*" or "*Drag and Drop*" option `Select or drop a scan`,

5. Add a cover image in the tab `Cover image` by the "*Select*" or "*Drag and Drop*" option `Select or drop a cover image`,

6. Press "Create" to save the New Project and this shall be visualized in the Main page as in Fig. 21.
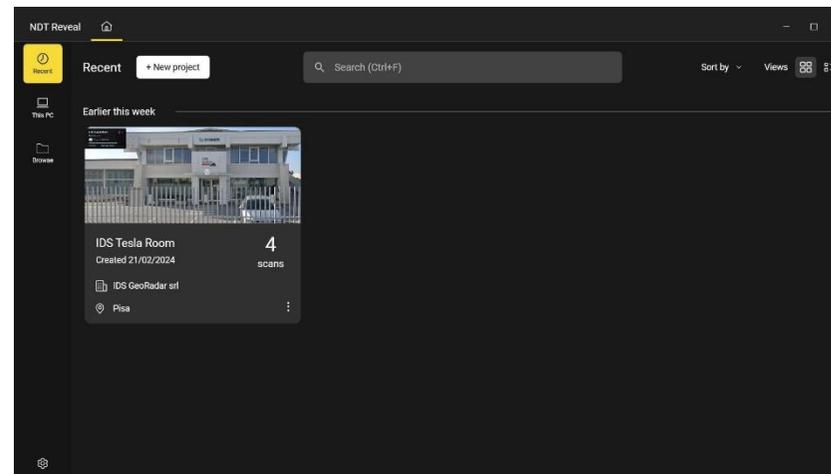
Fig. 21 Project List as visualized in Main Page

7. Press the `⋮` icon to Open, Edit, or Delete the Project

5.3 How to…*Add New Scan*

To add a new scan (Grid or line) to a Project, follow the steps below:

1. From the project list (Fig. 21), select and open the Project you want to work on,

2. Select the **Scans** icon `Scans` from the left column menu,

3. Press the `⊕` icon from the Scans list,

4. Browse through the folders location to select the Scan or Grid you want to add, and press "Add" (Fig. 22).
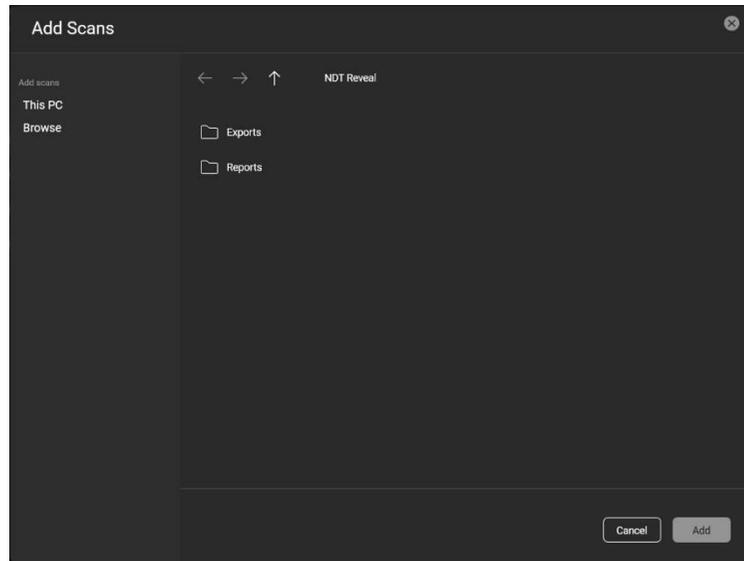
Fig. 22 Browsing through folders to Add Scans

5. Press the ⋮ icon to Analyse, Rename, Delete a Survey.

5.4   How to…*Add 2D Model*

To add a 2D Model to a Project, follow the steps below:

1. From the project list (Fig. 21), select and open the Project you want to work on,

2. Select the **2D Models** icon ⊡ from the left column menu,

3. Press the ⊕ icon from the Scans list,

4. Browse through the folders location to select the 2D Model you want to add, and press "Add" (Fig. 23).
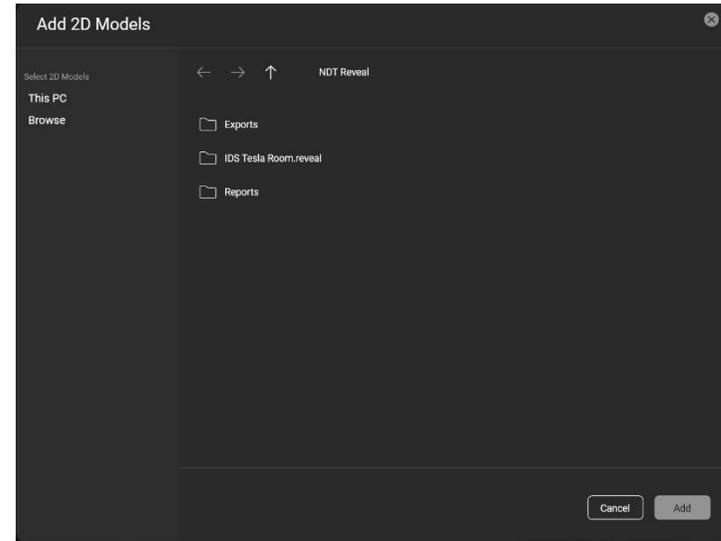

Fig. 23 Browsing through folders to Add 2D Models

5. Press the 🗁 icon to Add a New Group,

6. Press the ⋮ icon to Add Models, Edit, Delete Group and Models.

5.5   How to…*Add 3D Model*

To add a 3D Model to a Project, follow the steps below:

1. From the project list (Fig. 21), select and open the Project you want to work on,

2. Select the **3D Models** icon ⊛ from the left column menu,

3. Press the ⊕ icon from the Scans list,

4. Browse through the folders location to select the 3D Model you want to add, and press "Add" (Fig. 24).
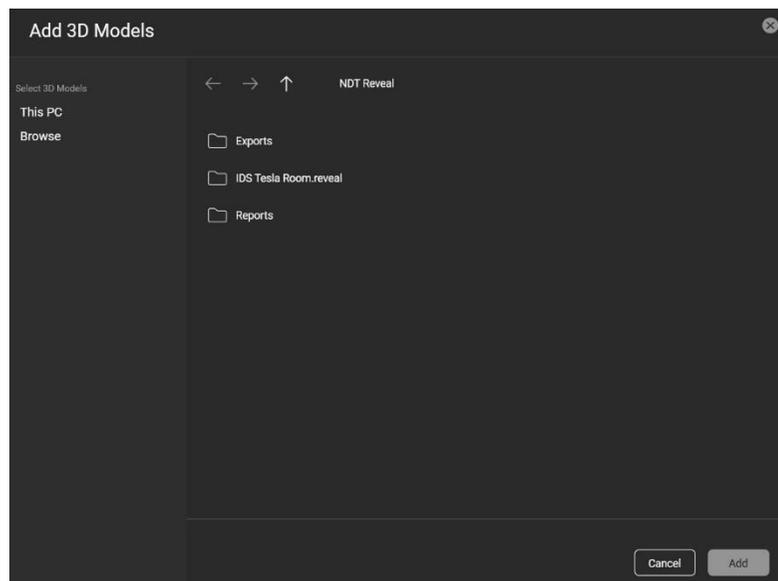
Fig. 24 Browsing through folders to Add 3D Models

5. Press the ⬚ icon to Add a New Group

6. Press the ⋮ icon to Add Models, Edit, Delete Group and Models.

5.6 How to…*Add Images*

To add **Images** to a Project, follow the steps below:

1. From the project list (Fig. 21), select and open the Project you want to work on,

2. Select the **Images** icon 🖼 from the left column menu,

3. Press the ⊕ icon from the Images list,

4. Browse through the folders location (or drag and drop) to select the Images you want to add (Fig. 25),
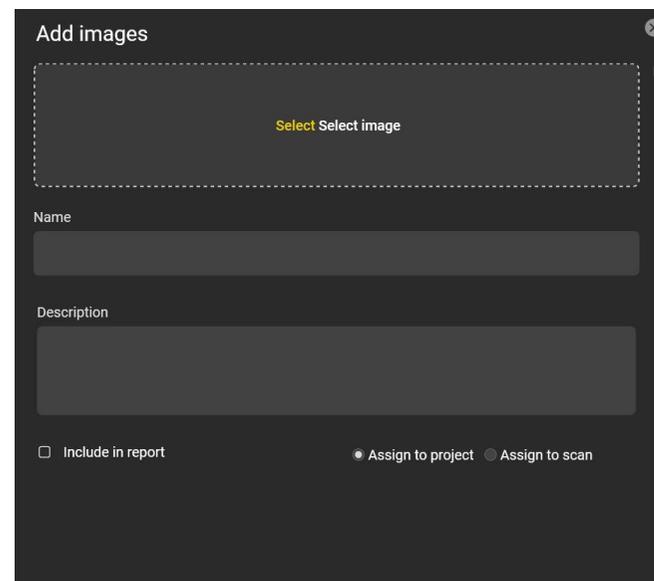

Fig. 25 Browsing through folders to Add Images

5. Enter the Image name (Fig. 25),

6. Enter a Description of the image (Fig. 25),

7. Select the Option to Include in Report, if Image should be included in the final Report (Fig. 25),

8. Select if the Image should be included in a Specific Scan or in the Project (Fig. 25).

9. Press the ⋮ icon to Open or Delete Images.

5.7 How to…*Add Documents*

To add **Documents** to a Project, follow the steps below:

1. From the project list (Fig. 21), select and open the Project you want to work on,

2. Select the **Documents** icon from the left column menu,

3. Press the icon from the Scans list,

4. Browse through the folders location to select the Images you want to add, and press "Add" (Fig. 26).
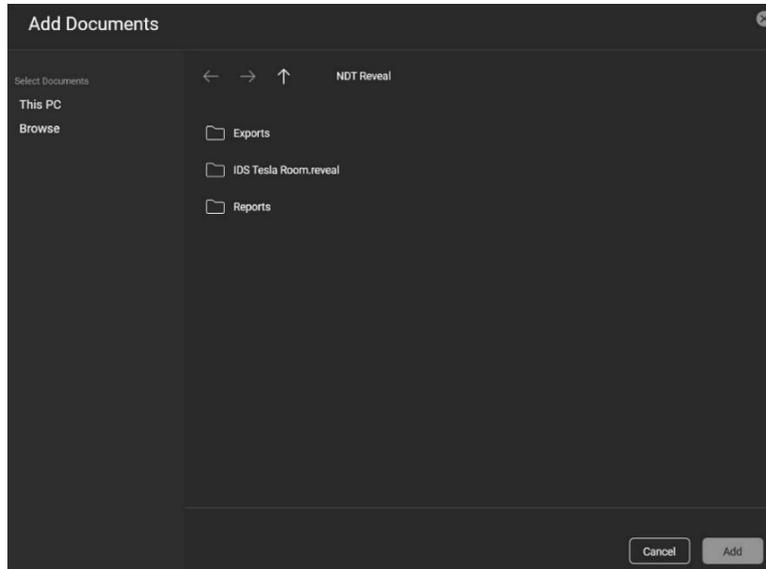
Fig. 26 Browsing through folders to Add Documents

5. Press the icon to Add a New Group

6. Press the icon to Edit and Delete Groups and Documents.

5.8　How to…*Perform Advanced Processing*

Once the Project is created and populated with all the available information, images, documents, and models listed above (Paragraphs 5.1, 5.2, 5.3, 5.4, 5.5, 5.6, 5.7), GRP data visualization and processing can be enhanced through the following steps:

1. Select the Survey to be Advanced Analyzed from the Scans list on the left column. And that Survey shall now be visualized together with the acquisition information shown in the right column (Fig. 27). The "Scan Info" can be customized with **Operators**, **Client**, and **Location** information,
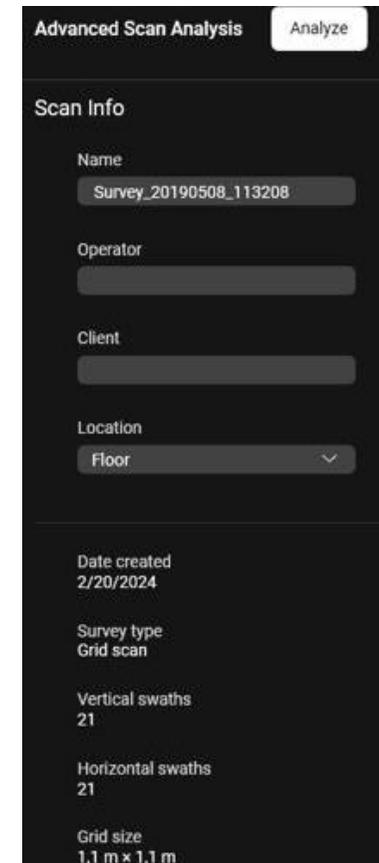

Fig. 27 Advanced Scan Analysis tab

2. Press the icon, and this enables the customization of:

a. **Cross Section** (Fig. 28),
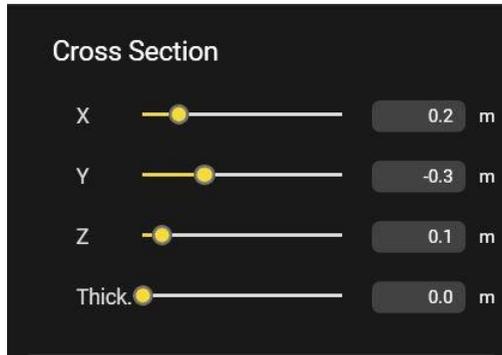
Fig. 28 Cross Section Customization Menu

b. **Parameters**: including Propagation Velocity adjustment by pressing the ⚙ (default is 10cm/*nsec*), and Channel (HH or VV). Also, User is enabled to perform hyperbola fitting to customize the EM Propagation velocity (Fig. 29, Fig. 30),
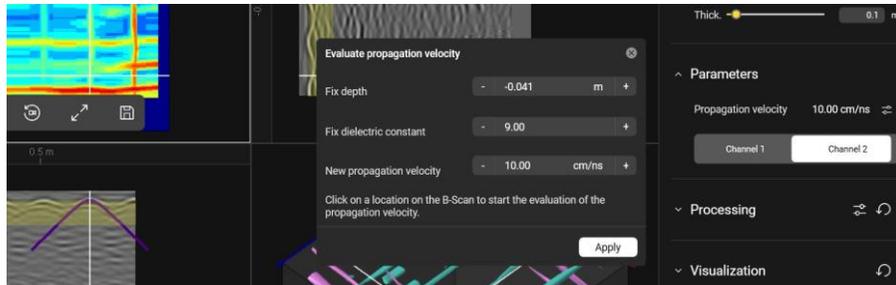
Fig. 29 Hyperbola fitting for Velocity Adjustment
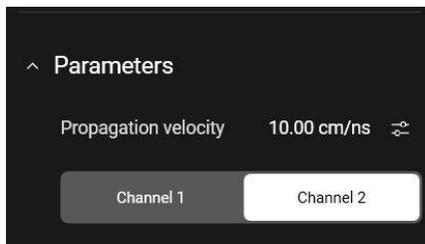
Fig. 30 Parameter Customization Menu

c. **Processing**: Including change of default filter value, enabling/disabling a filter from standard processing macro (Manage profiles), or Saving a Macro (Save profile), (Fig. 31),
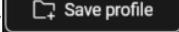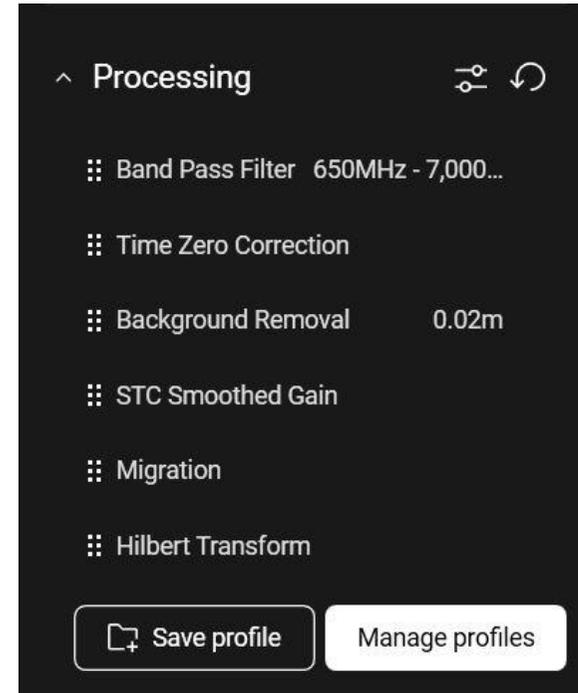
Fig. 31 Processing Customization Menu

d. **Visualization**: Including Contrast, cross section, colour bars, vertical scaling, A-Scan Display, Application of Migration to B Scans, (Fig. 32).
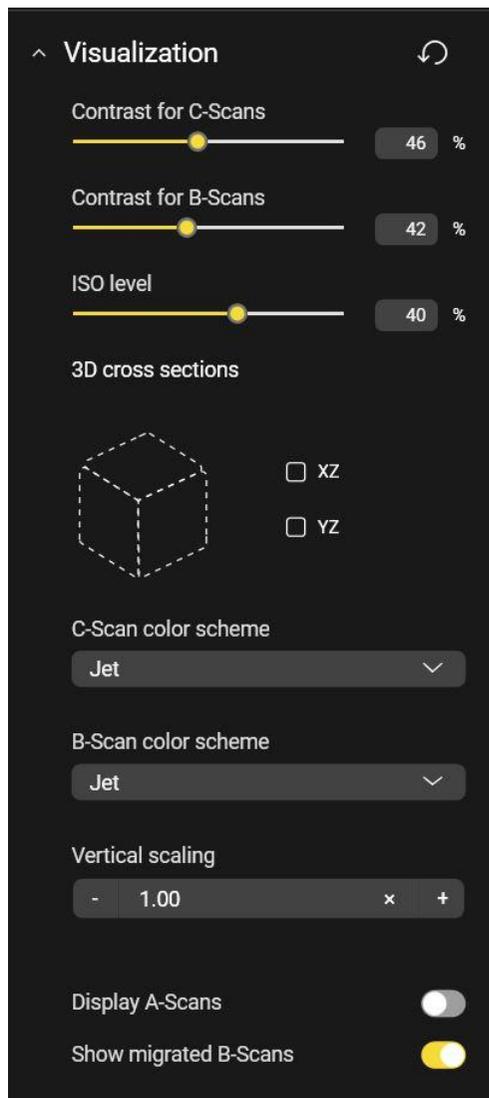
Fig. 32 Visualization Customization Menu

5.9   How to…*Add Findings*

To add **Finding** on a specific survey, follow the steps below:

1. Select the survey to work on (Fig. 33), and toggle the [Findings] icon,
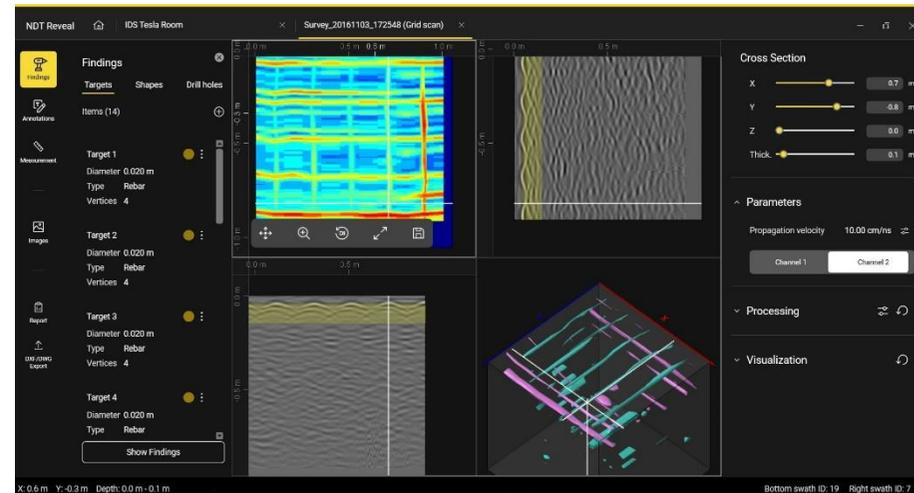
Fig. 33 Survey Analysis

2. Select the type of Findings to be add (**Targets**, **Shape**, **Drill hole)** from the specific tab,

3. Press on the [⊕] icon and place the finding on the B Scan or on the tomography view,

4. Then, edit the finding, including Title, Diameter, Target Type, and Colour (Fig. 34).

5. Press the [⋮] icon to Edit and Delete Findings.
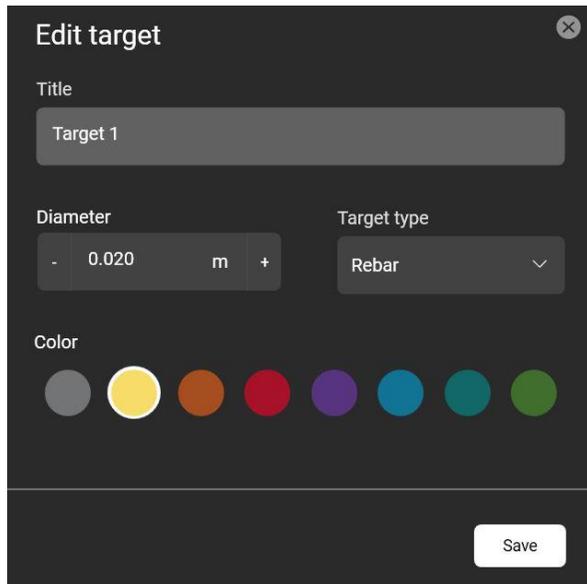
Fig. 34 Edit Findings

5.10 How to…*Add Annotations*

To add **Annotations** on a specific survey, follow the steps below:

1. Select the survey to work on (Fig. 33), and toggle the ![Annotations] icon,

2. Press on the ![+] icon and the window Fig. 35 shall pop up asking to place the annotation on a specific point. Then, write down the note and press "ADD".
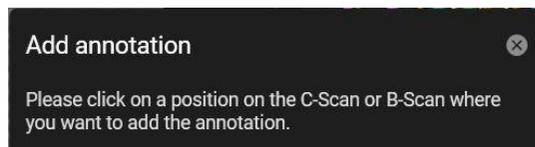
Fig. 35 Add Annotation pop up

3. Press the ![⋮] icon to Edit and Delete Annotations.

5.11 How to…*Add Measurements*

To add **Measurements** on a specific survey, follow the steps below:

1. Select the survey to work on (Fig. 33), and toggle the ![Measurement] icon,

2. Press on the ![+] icon and the window Fig. 36 shall pop up asking to place the mouse on a specific point to start and end the measurement.
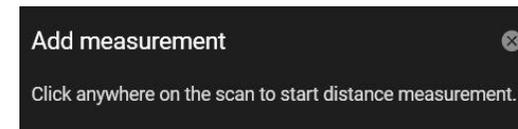
Fig. 36 Add Measurements pop up

3. Once finished, the measurements shall be listed in the measurements list (Fig. 37). Each measurement of the list can be edited and deleted by the ![⋮] button.
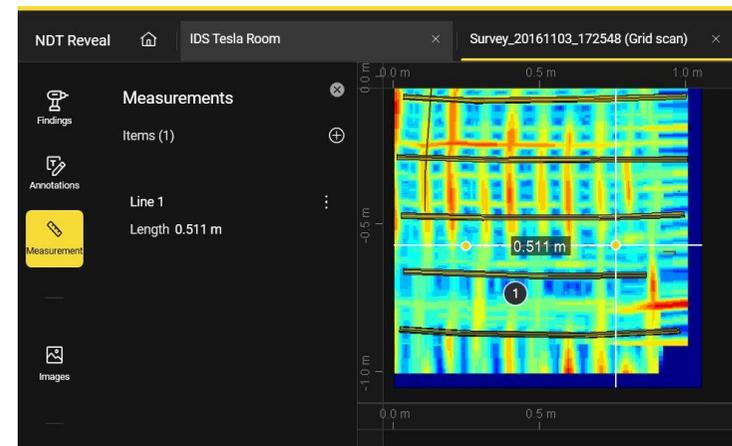
Fig. 37 Measurement list menu

5.12 How to…*Create Reports*

Project report in multiple files formats (including *.pdf, *.xls, *.docx, *.HTML, etc…) may be generated in **NDT Reveal**, and exported. To do this, follow the steps below:

1. From the project list (Fig. 21), select and open the Project you want to work on,

2. From the right panel (Fig. 27) press the [Analyze] icon,

3. Then toggle the [Report] icon, and the Report Preview shall pop up (Fig. 38),
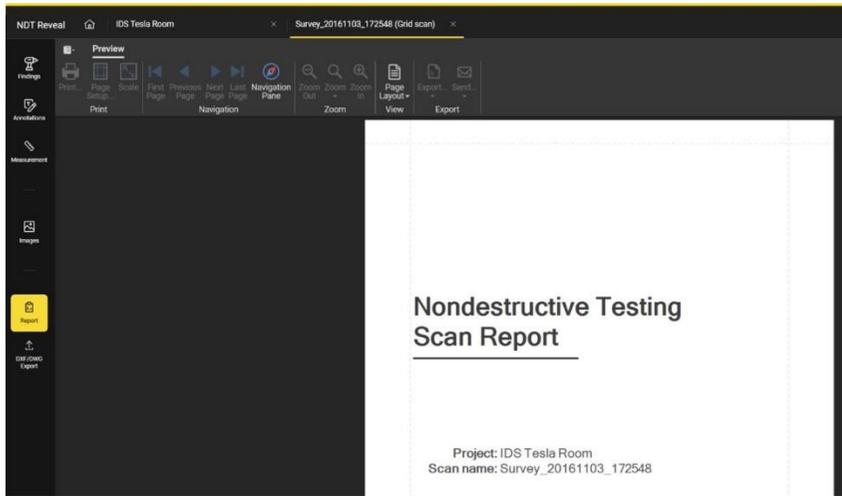
Fig. 38 Report Preview

4. Adjust the preview parameters set up including:

    a. *Print* set up,
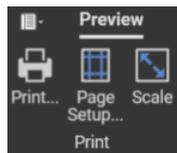
    b. *Navigation* set up,

    c. *Zoom* set up,
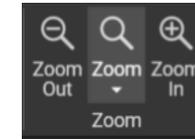
    d. *View* set up,

    e. Finally, select the export format from the "Export" type list (Fig. 39).

Fig. 39 Report Type list

5.13 How to…*Export Findings and Data*

The findings and data may be exported into *.*dxf* or *.*dwg* file formats. To do this, follow the steps below:

1. From the project list (Fig. 21), select and open the Project you want to work on,

2. From the right panel (Fig. 27) press the [Analyze] icon,

3. Then toggle the [DXF/DWG Export] icon, and the "*Export survey as DXF/DWG*" window shall pop up (Fig. 40),
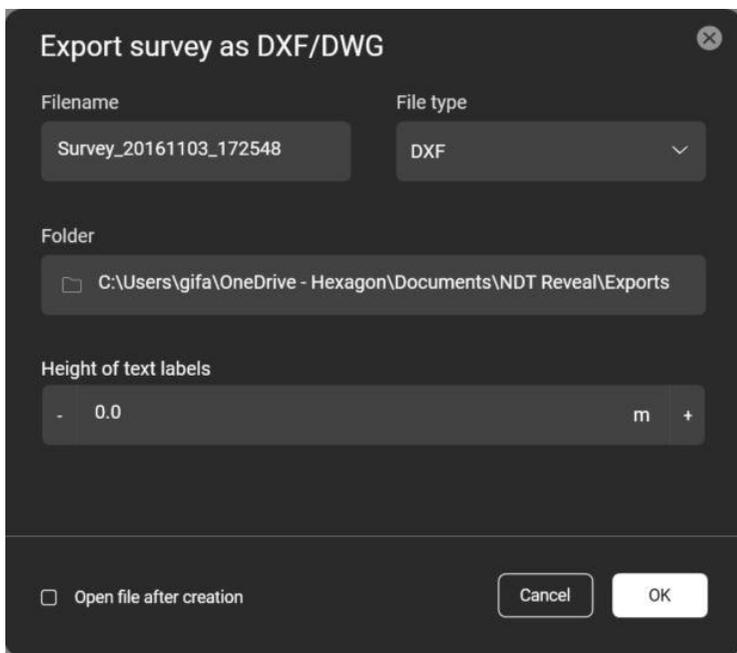
*Fig. 40 Export survey window*

5. Edit the fields:

   a. Filename,

   b. File type,

   c. Folder,

   d. Height of text labes

6. Press OK to proceed with the export.

6   IDS GEORADAR SUPPORT

6.1 myWorld

myWorld platform of Leica Geosystems offers a wide range of services, information, and training material. With direct access to *myWorld*, the User can access all relevant services. The availability of services depends on the instrument model.

SERVICE	DESCRIPTION
myProducts	Add all IDS GeoRadar products that you and your company own and explore your world of Leica Geosystems. View detailed information on your products and update your products with the latest software and keep up to date with the latest documentation.
myService	View the current service status and full-service history of your products in IDS GeoRadar service centres including detailed information on the services performed on your system.
mySupport	Create new support requests for your products that will be answered by your local Support Team. View the complete history of your support requests and view detailed information on each request in case you want to refer to previous support requests.
myLearning	Welcome to the home of Leica Geosystems online learning! There are numerous online courses – available to all customers with products that have valid CCPs (Customer Care Packages).
myTrustedServices	Add your subscriptions and manage users for Leica Geosystems Trusted Services, the secure software services, that assist you to optimise your workflow and increase your efficiency.
mySmartNet	HxGN SmartNet is the GNSS correction service built on the world's largest reference station network, enabling GNSS-capable devices to quickly determine precise positions in the range of one-to-two-centimetre accuracy. The service is provided 24/7 by a highly available infrastructure and professional support team with more than 10 years of experience reliably delivering the service.
myDownloads	Downloads of software, manuals, tools, training material and news for IDS GeoRadar products.

6.2 How to manage return for Service

On occasions, your GPR may need to be returned to factory for repairs. These events, depending on circumstances, may be handled under maintenance or warranty conditions.

IDS GeoRadar, implements an internal ticket system to handle the repair of its Products worldwide. In this respect, for the global IDS Customer Support to be able to troubleshoot in case of need, it is necessary identifying the GPR system first hence, it is mandatory providing information including Serial number and Product Number of the system or part of it that need repair.

This information may be found on a label placed on top of the system (e.g.: inside the battery housing, on top of the antenna, on the side of the rudder, on top of the SCU, etc.…). An example of this label is illustrated in Fig. 41.

Fig. 41 Example of IDS GPR system label

In any event, the workflow to follow up on a support request is:

1. Contact, by using the local Support mailing list, your local representative of IDS Customer Support, or enter a support case into the *mySupport* page of *myWorld*, Indicating the following:

   a. Type of System or part of it (defined by Product Number or Article number, that is PN 859224 in Fig. 41)

   b. Serial Number (SN 020-23-000543, in Fig. 41)

   c. Type of issue

2. The local Representative of IDS Customer Support or the Central IDS Customer Support shall follow up on the case by a first level, remote troubleshooting to assess the system and the possible issue.

3. If a further, direct assessment of the system is necessary, the system shall be returned for analysis. Based on this, a repair under warranty or maintenance conditions, may be carried out. Depending on cases and the type of possible repair, return may be towards the local Representative of IDS or to the IDS GeoRadar main factory.

4. Prior return of the goods, wait for the IDS logistic office to provide a reference number for the return case and shipping instructions.

5. As the system reaches IDS repair premises, this is analyzed to find the root cause of the issue, and repaired ONLY after signed approval of the quotation, in case where the warranty does not apply. The status of the repair may be checked onto the *mySupport* page of *myWorld*.

6. At the end of the repair, the system is shipped back to the shipping address indicated at the beginning of the procedure, and this is conducted based on contractual agreements.

> **NOTICE**: The above, is meant solely as a broad indication of the workflow for the return of a system for repair.
> **Precautions:**
> Please, refer to the Contractual Terms and Conditions for more detailed information.

APPENDIX A   DISCLAIMER

1.   General

i.   The present Disclaimer applies to all products designed, produced and distributed by IDS GeoRadar S.r.l., its Subsidiaries, Affiliated and authorized Distributors (the "Products"). IDS GeoRadar S.r.l. reserves full ownership and intellectual property rights of any "Information" contained in this Disclaimer including Trade Marks and Graphics. No part of this Disclaimer may be used or reproduced in any forms without the prior written agreement of IDS GeoRadar S.r.l.

ii.   In the event that any provision of this Disclaimer may be invalid, unlawful or incapable of being enforced by a rule of law, all other provisions shall, nonetheless, remain in full force and effect. Failure to either enforce or exercise any right, privilege, or legal remedy at any time, any provision contained in this Disclaimer, shall not be deemed a waiver of such provisions or right, remedy, or privilege.

iii.   This Disclaimer shall be interpreted, governed, construed and enforced in accordance with the laws of Italy. User/Buyer hereby consents to the exclusive jurisdiction of Pisa.

2.   Initial Precautions for Setting-up and Use of the Products.

i.   The User/Buyer, for setting-up and using the Products, shall consult the official documentation provided by IDS GeoRadar S.r.l. for the Products ("Reference Documentation") and carefully ascertain the compliance with national laws and requirements, which may limit or even forbid their use.

ii.   For Products which shall operate by circulation in Public Areas/Roads, with or without moving traffic, Buyer/User shall verify the approval of local authority and/or site's owner according to their specific procedures. IDS GeoRadar S.r.l. shall not be liable for any direct, indirect, special, incidental or consequential damages or injuries, including without limitation, lost revenues or lost profits, resulting by un-authorized use of the Products in Public Areas/Roads.

iii.   Buyer/User further warrants:

- that these Products are not being used, in the design, development, production or use of chemical, biological, nuclear ballistic weapons. Buyer/ User will defend, indemnify and hold IDS GeoRadar S.r.l. harmless against any liability (including attorney's fees) for non-compliance with the terms of this article.

- That, if IDS GeoRadar S.r.l. requires that Buyer/User shall carry out a training with reference to some Product categories, no operation or use of the Products shall be started before its designated Operator/s has got the User Certificate, as defined by IDS GeoRadar S.r.l. specific procedure which the Buyer confirms to know and accept.

iv.   For Products which include specific "Operational" software with automatic data processing and analysis "Tools", e.g. the IBIS Products and Hydra Products, User shall be aware that the results provided by these "Tools" may be not error free. User that completely relies on the outcomes provided by these Tools only, does it at his own risk.

v.   In no event IDS GeoRadar S.r.l. shall be liable for special, direct, indirect, incidental, exemplary, punitive or consequential damages including, but not limited to, loss of profits or revenue, caused by the use of the Products, either separately or in combination with other products or relied upon the results provided by the above "Tools".

3.   Disclaimer for the "Use" of the Products.

i.   The User shall follow the instructions provided by IDS GeoRadar S.r.l. in its official "Reference Documentation" for the Product, in particular the User's Technical Manual which contains all the specific steps and recommendations for a correct setting-up and use of the Product.

ii.   In no event IDS GeoRadar S.r.l. shall be liable for special, direct, indirect, incidental, exemplary, punitive or consequential damages including, but not limited to, loss of profits or revenue, caused by the missed or incomplete observance of the instructions and prescriptions for the use of the Products, either separately or in combination with other products, including but not limited to the following main aspects:

a. Use of IDS GeoRadar S.r.l. Products outside its limitation of use, without proper and adequate scientific/technical knowledge or without specific training.

b. Use of results/outcomes of the measurements performed by the Product aimed to safety aspects without using adequate control procedures and assessment by skilled personnel.

c. Opening of the Equipment (for HW Products) without express written authorization of IDS GeoRadar S.r.l.;

d. Unauthorized changes and additions to the Products.

e. Use of the Products connected to suspected non-working equipment or with equipment (mainly PC) having characteristics not in compliance with the required specifications of IDS GeoRadar S.r.l. not expressly authorized by IDS GeoRadar S.r.l.;

f. Poor or faulty operation of the electrical and telecommunication networks not directly managed by IDS GeoRadar S.r.l. or its delegates.

g. Poor or faulty operation Software/Hardware of the third parties connected with IDS GeoRadar S.r.l. Equipment.

h. Poor or faulty operation of the Products due to Software Virus which infected the Products after their delivery.

i. Use of the Products which have encountered suspected manumissions, accidents, electrostatic shocks, flashes, fire, earthquake, flooding or other natural disasters or unexpected events.

j. Use or storage of the Products outside the limits of the "Operational Temperature Range" specified by IDS GeoRadar S.r.l.

APPENDIX B OPENSOURCE LIBRARY

NDT Reveal SW makes use of the following Open Source libraries.

- *Dragablz 0.0.3.223*
- *Google APIs Auth 1.57.0*
- *Google APIs Drive v3 1.5.7.0.2684*
- *Google Maps API 1.2.0*
- *MahApps.Metro 2.4.9*
- *Material Design Colors 2.0.6*
- *Prism.Unity 8.1.97*
- *Prism.Wpf 8.1.97*
- *UnitsNET 5.7.0*

Source codes are available at the following web page https://idsgeoradar.com/about-us/compliance-standards/open%20source%20data . If User wishes to amend the above-mentioned libraries, User has to produce new binary files and copy them in the installation software path.

APPENDIX C   CONTACTS AND TECHNICAL SUPPORT

The IDS GeoRadar Technical Support team is available to answer any question about:

•   general enquiries

•   request of advertising material

•   technical issues

•   any other business

•   As well as listening to your suggestions too.

Please, feel free to contact us sending an e-mail to:
support.geo@idsgeoradar.com

Or call the Number: +39 050 8934 200 - Customer Care Office

Address:

 IDS GeoRadar srl

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