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Table of Contents

1. Health & Safety Warning	4
2. Introduction FARO® VR Viewer	4
3. Introduction FARO® VR Generator	5
4. Installation FARO® VR Generator	5
5. Usage FARO® VR Generator	6
5.1. Select scans for VR Export.....	8
5.2. Select scans for VR Export.....	9
6. Installation FARO® VR Viewer incl. exported SCENE project	12
7. Prepare Oculus Rift	12
8. Get started with the VR experience	13
8.1. Start the Application.....	13
8.2. Tutorial.....	14
8.3. Open a project.....	14
8.4. Navigation in the Point Cloud View	17
9. Technical Support	i
10. Software License Agreement	ii
11. Implementation Notes	iii
Unity 5.....	iii
Inno Setup	iii
Draco.....	iii
OVRPlugin for Unity 5.....	vi
12. Trademarks.....	xi

1. Health & Safety Warning

FARO® VR Viewer supports the Oculus Rift CV1 and Oculus Rift DK2 devices. If you use one of these devices together with FARO® VR Viewer you must consider the Health & Safety Warnings of the Oculus Rift.

<https://static.oculus.com/documents/health-and-safety-warnings.pdf>

2. Introduction FARO® VR Viewer

FARO® VR Viewer is an interactive viewer for point clouds supporting Oculus Rift. It allows the user to immerse into a point cloud and move freely through the environment. The viewer is a standalone application that can be distributed including Virtual Reality projects generated from SCENE® projects. To generate the VR projects visualized in FARO® VR Viewer FARO® VR Generator can be used.

An Oculus Rift device is needed to run the FARO® VR Viewer software.



- If you want to view your own FARO® SCENE projects with FARO® VR Viewer, you must use FARO® VR Generator. FARO® VR Generator creates an installer including FARO® VR Viewer and your selected SCENE® project data prepared for Virtual Reality view
- Please also consider the hardware requirements of Oculus Rift for optimal performance: NVIDIA GTX 970 / AMD 290 equivalent or greater, Intel i5-4590 equivalent or greater, 8GB+ RAM, Compatible HDMI 1.3 video output, 2x USB 3.0 ports, Windows 7 SP1 or newer
- Test your PC for compatibility with <https://ocul.us/compat-tool>

3. Introduction FARO® VR Generator

FARO® VR Generator is a stand-alone software tool used to create VR point clouds from FARO® Scene projects. FARO® VR Generator allows to open SCENE® Projects, select scans from the projects and export them to the FARO® VR Viewer format. During the export step the software automatically creates an installer that includes the stand-alone VR viewer FARO® VR Viewer and the project data. This installer package is freely distributable. It allows to watch and experience the exported SCENE® project in VR and does not require a separate SCENE® or FARO® VR Generator license.

4. Installation FARO® VR Generator

1. Run the FARO® VR Generator installation file
2. Follow the on-screen instructions



Fig. 4-1: FARO® VR Generator installer

5. Usage FARO® VR Generator

After FARO® VR Generator was successfully installed, start the software. If FARO® VR Generator is started for the first time the registration dialog will appear.

You must provide your personal license key in the field "License Key". Afterwards press "Activate Key". Please consider that there must be an **active internet connection** to complete the registration successfully. Fig. 5-1 shows the registration dialog.

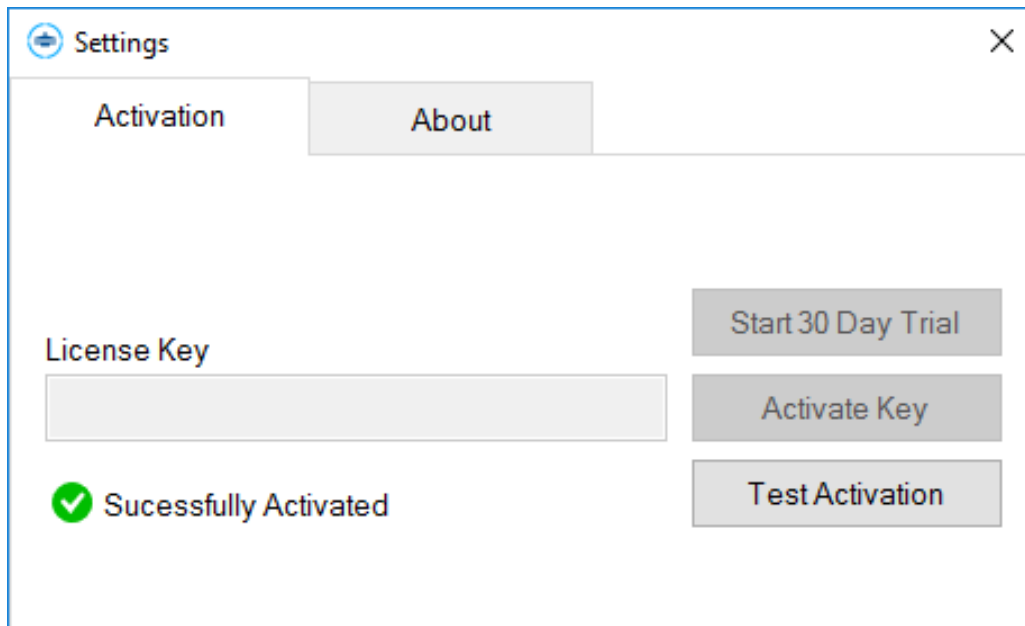


Fig. 5-1: Registration dialog



- An active internet connection is needed during the registration process to verify the license key. Please make sure that the machine is connected to the Internet.
- FARO® VR Generator has an auto update function. As soon as an update is available the system will inform you. There is the possibility to directly download and install the update.

As soon as FARO® VR Generator is started the following screen will show up (see Fig. 5-2):

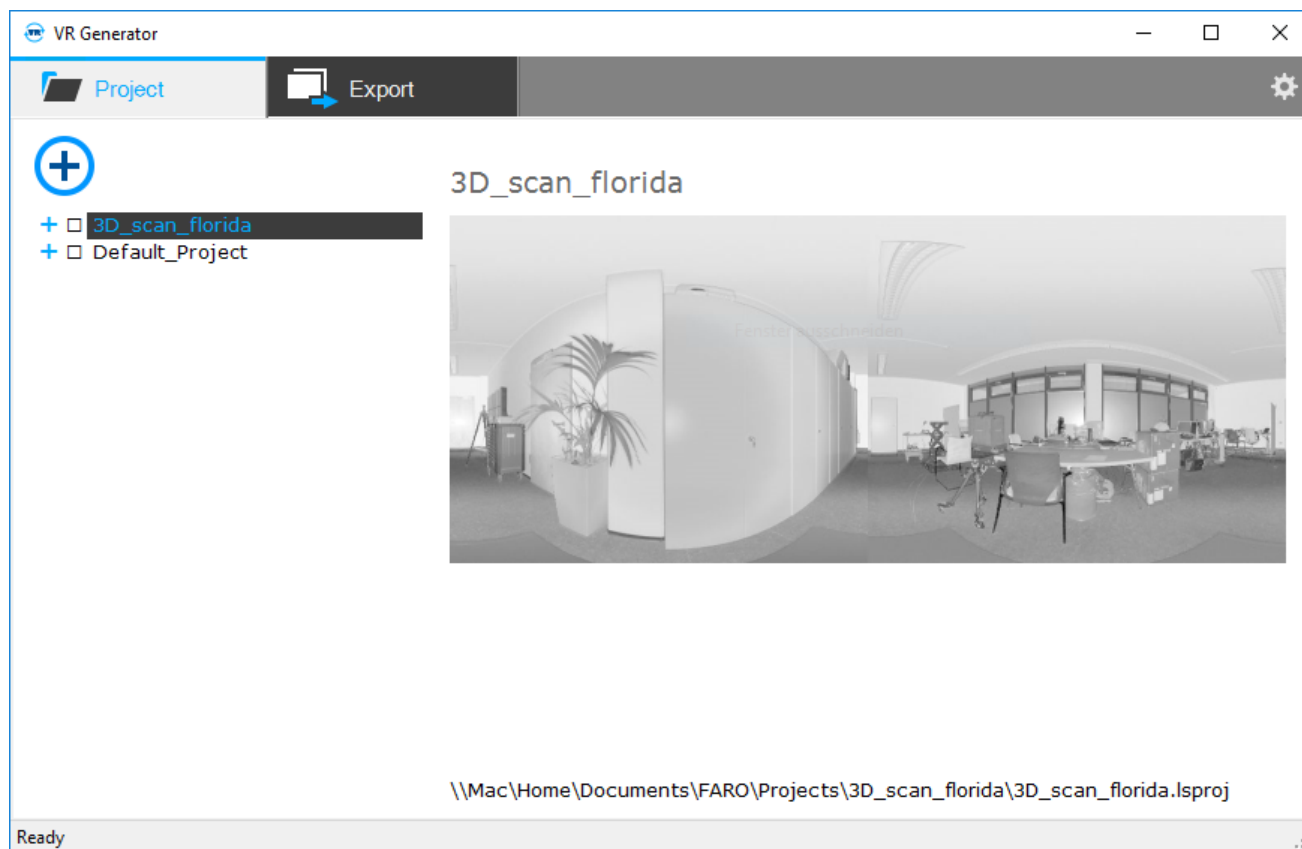



Fig. 5-2: Main screen FARO® VR Generator

On the left side, an overview off all available SCENE® projects is shown. FARO® VR Generator will automatically show all projects that are in the standard FARO® SCENE project folder.

Projects from other locations in the file system can be easily added by pressing the  button. FARO® VR Generator will create previews of all scans to make the selection as easy as possible. The load process of the previews can take some seconds. The software can still be used while the previews are loaded in the background. The preview is shown on the right side of the application

5.1. Select scans for VR Export

The user can select scans by checking the box next to the scan name. Only scans from one project can be selected in one export cycle. If all scans in a project should be exported simply check the box with the project name. All scans will be automatically selected. Fig. 5-3 shows the process.

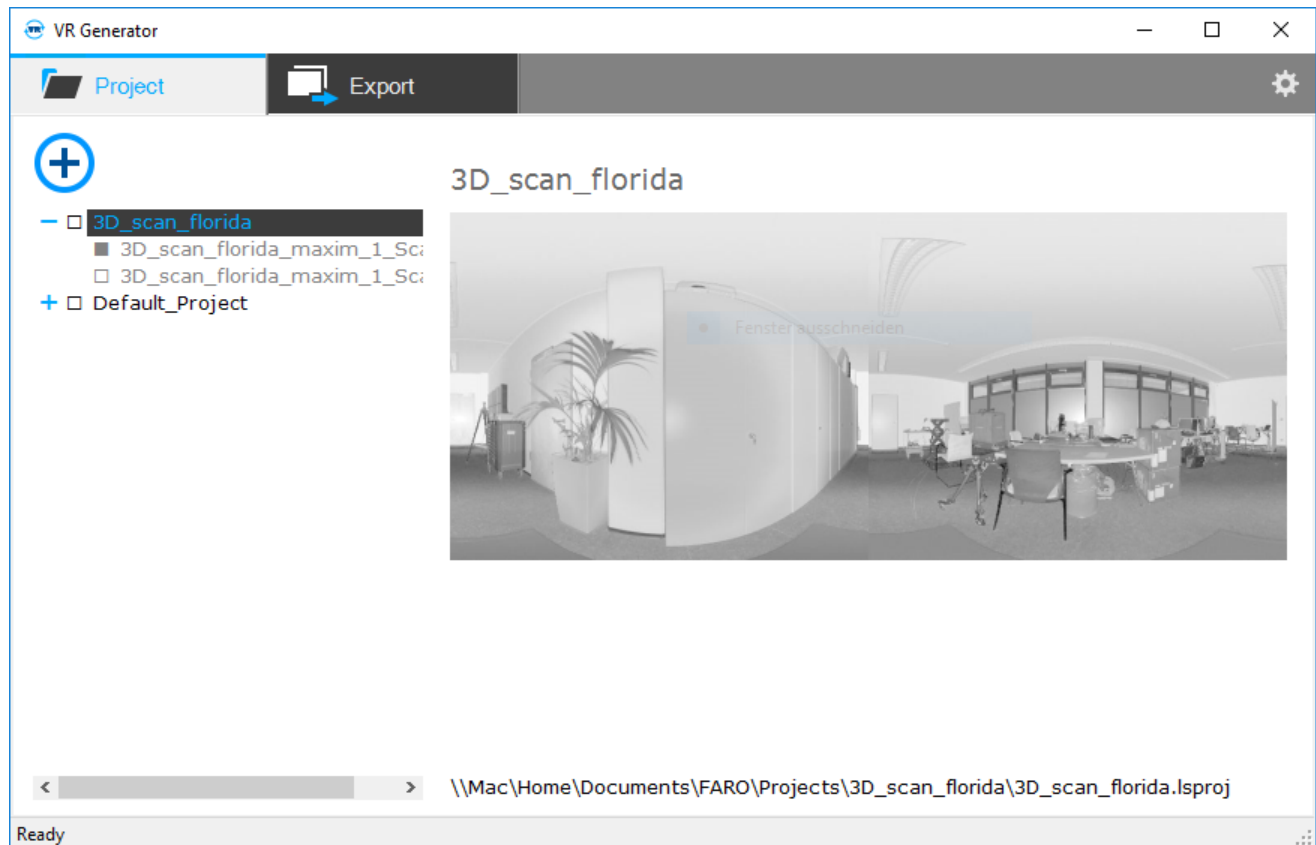


Fig. 5-3 – Select single scans or a complete project



- To achieve the best results when exporting VR point clouds the SCENE® project must to be completely registered. Additionally, the scans should be colored for optimal VR experience.

After all scans are selected click on the "Export" tab. The view will change to the "Export" tab.

5.2. Select scans for VR Export

Fig. 5-4 shows an overview of the export screen.

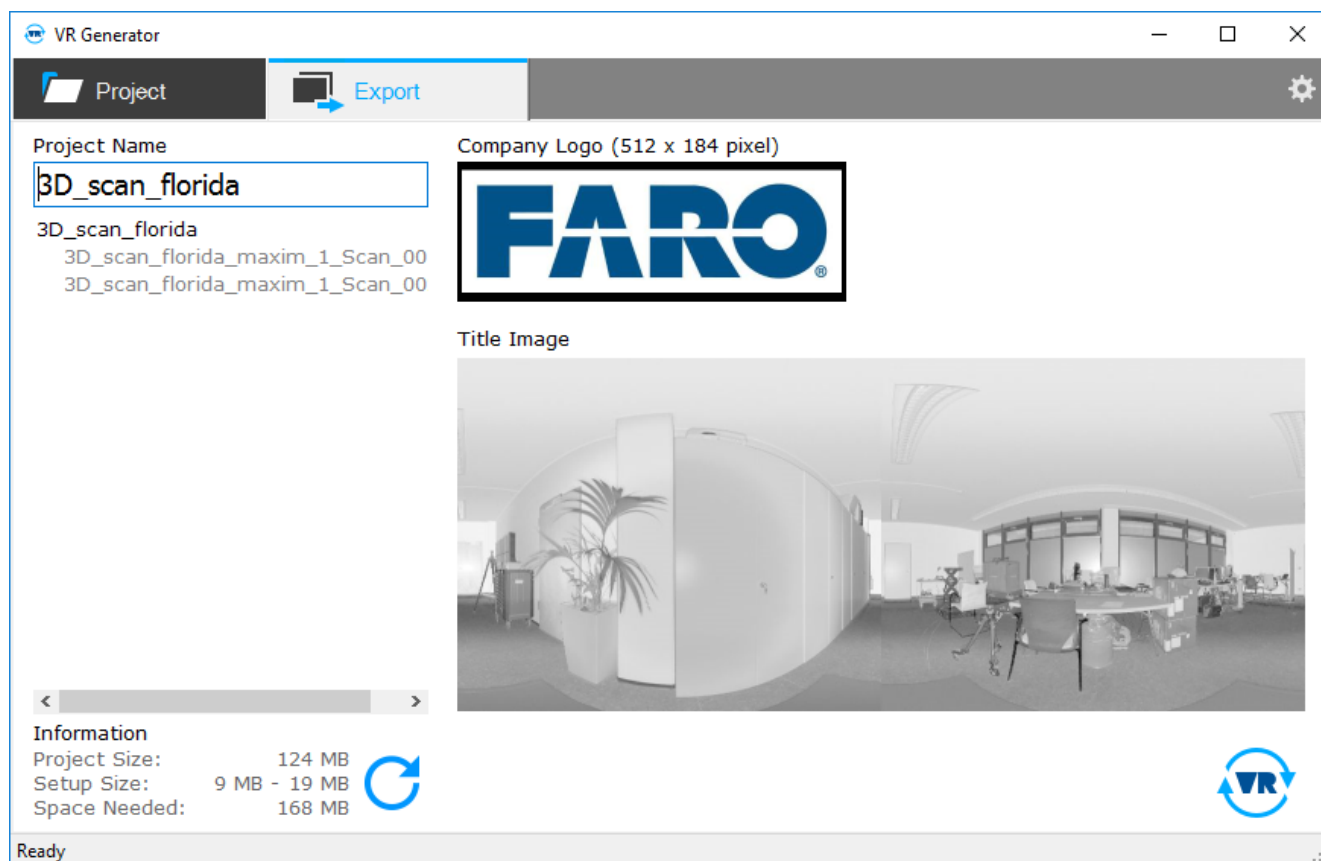



Fig. 5-4. Export screen. Select a project, a preview image and a (company) logo here

On the upper left side, there is the field "Project Name". It must be filled with a project name. This project name is shown in the VR Viewer FARO® VR Viewer to identify the project.

Furthermore, on the left side an overview of the scans to be exported as well as information about the project size is shown. You can select the preview image of the project shown in FARO® VR Viewer by selecting one of the scans or the project. If the project is selected the standard preview image from FARO® SCENE is chosen. On the right side, you can always see a preview of the selected image.

Furthermore, it is possible to select a logo, e.g. a company logo. This logo will be automatically shown in the project overview of the VR Viewer FARO® VR Viewer.

It is possible to go back to the "Project" tab anytime by pressing the "Back" button or selecting the "Project" tab

After all settings are correct, press the  button. A folder selection dialog will appear (see Fig. 5-5).

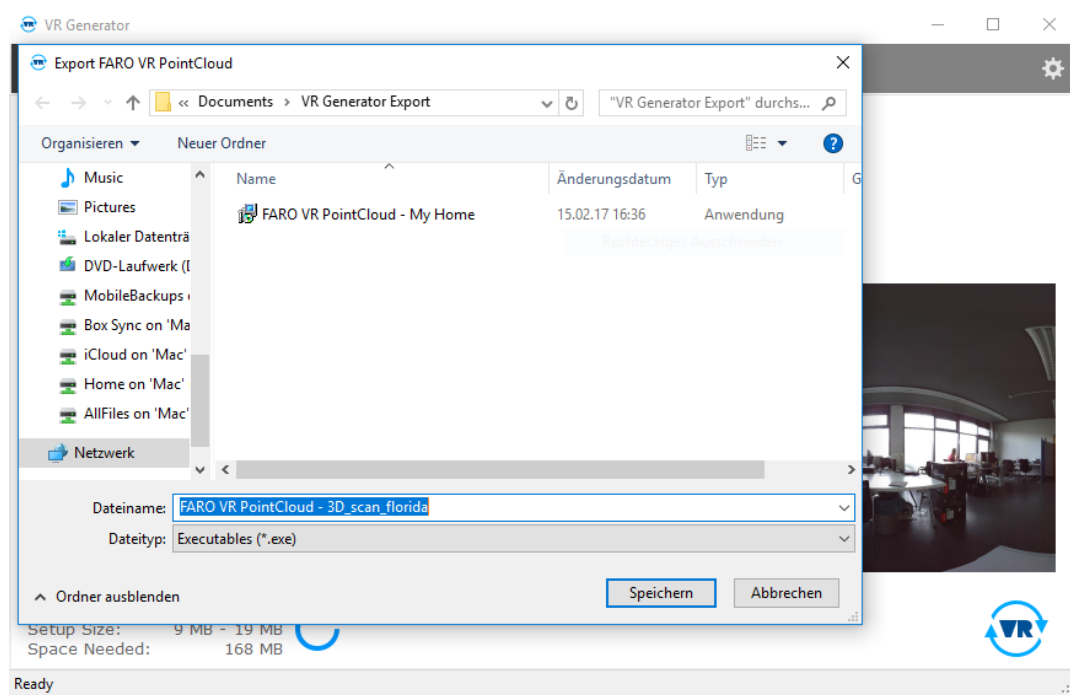


Fig. 5-5: Select the export folder for the installer of FARO® VR Viewer with data generated from a SCENE® project

Select the folder where the data should be exported to. After pressing the "Save" button FARO® VR Generator starts to generate the VR dataset of the selected SCENE project. Fig. 5-6 shows the export process. Depending on the number of scans this process can take some time.

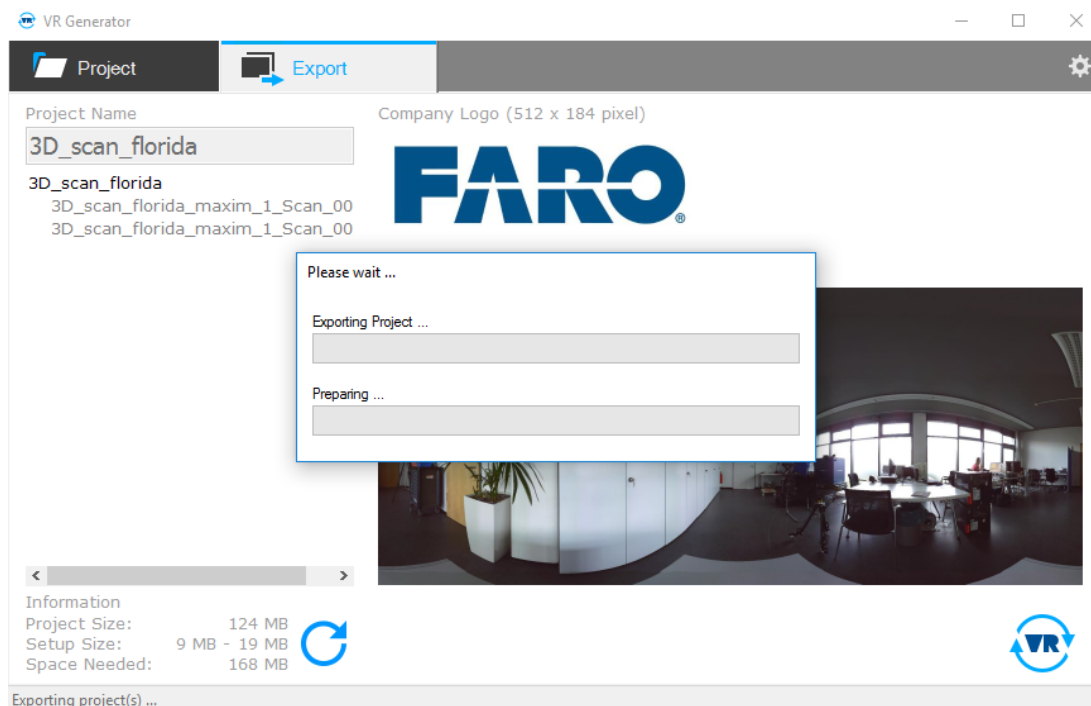


Fig. 5-6: Export of the SCENE® project

After the process is finished FARO® VR Generator has generated the installer file(s) in the output directory previously selected. Depending on the number of scans in the project and the resolution this can be one or multiple files and can take some time.



- FARO® VR Point Cloud is free and is automatically distributed with VR projects generated with FARO® VR Generator.
- The project files generated with FARO® VR Generator can be distributed. Everyone who receives VR projects generated with FARO® VR Generator can use them without purchasing additional software licenses.

6. Installation FARO® VR Viewer incl. exported SCENE project

1. Run the FARO® VR Viewer installation file(s) previously generated with the FARO® VR Generator
2. Follow the on-screen instructions

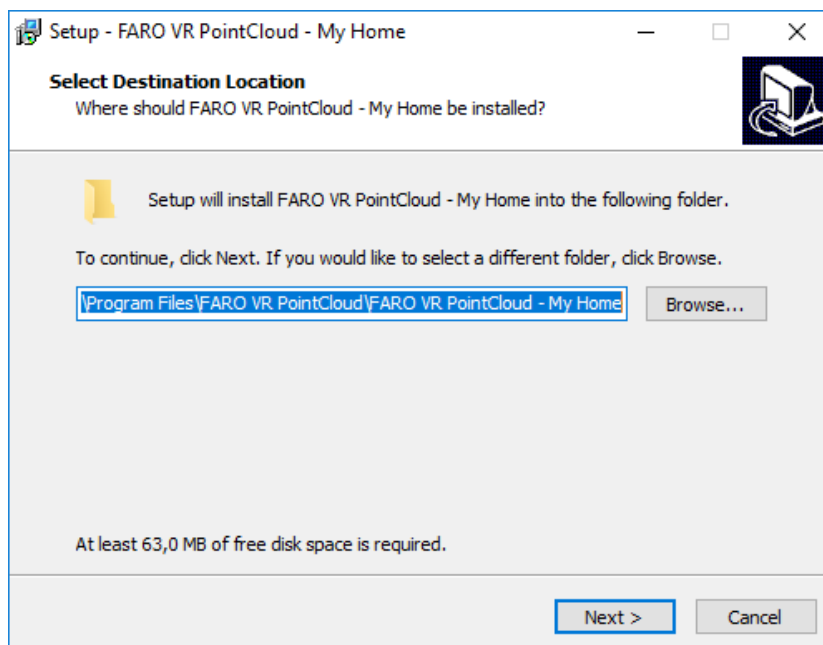


Fig. 6-1: FARO® VR Viewer installer

The installer will install the VR project files. If the viewer FARO® VR Viewer is already installed on the system, the new project will directly appear in the menu selection. If FARO VR Point Cloud is not installed the installer will download FARO® VR Point Cloud from the Internet and install it on the system.



- If the VR Viewer FARO® VR Viewer is not installed on the system, make sure that there is an Internet connection available during installation. FARO® VR Point Cloud will be automatically downloaded from the Internet.

7. Prepare Oculus Rift

The Oculus Rift must be properly connected to the system and all drivers (graphics driver, Oculus Rift driver, Xbox controller driver) must be installed. Please make sure that the Oculus Rift is running correctly by using the included test programs. If the device is properly installed FARO® VR Viewer can be started.



For more information, how to setup the Oculus Rift correctly please refer to <https://www3.oculus.com/en-us/setup/>.

8. Get started with the VR experience

8.1. Start the Application

After the application is started put on the Oculus Rift. You can only interact with FARO® VR if you have put on the Oculus Rift. First the Main Menu is shown. It includes the project selection and a tutorial. See Figure 8-1 for details. Navigation in the FARO® VR is done with the head. You see a white dot in front of you. Navigate the white dot to an element in the menu. The element will be highlighted. Interact with the **Confirmation button** on your Oculus Remote or Xbox controller.

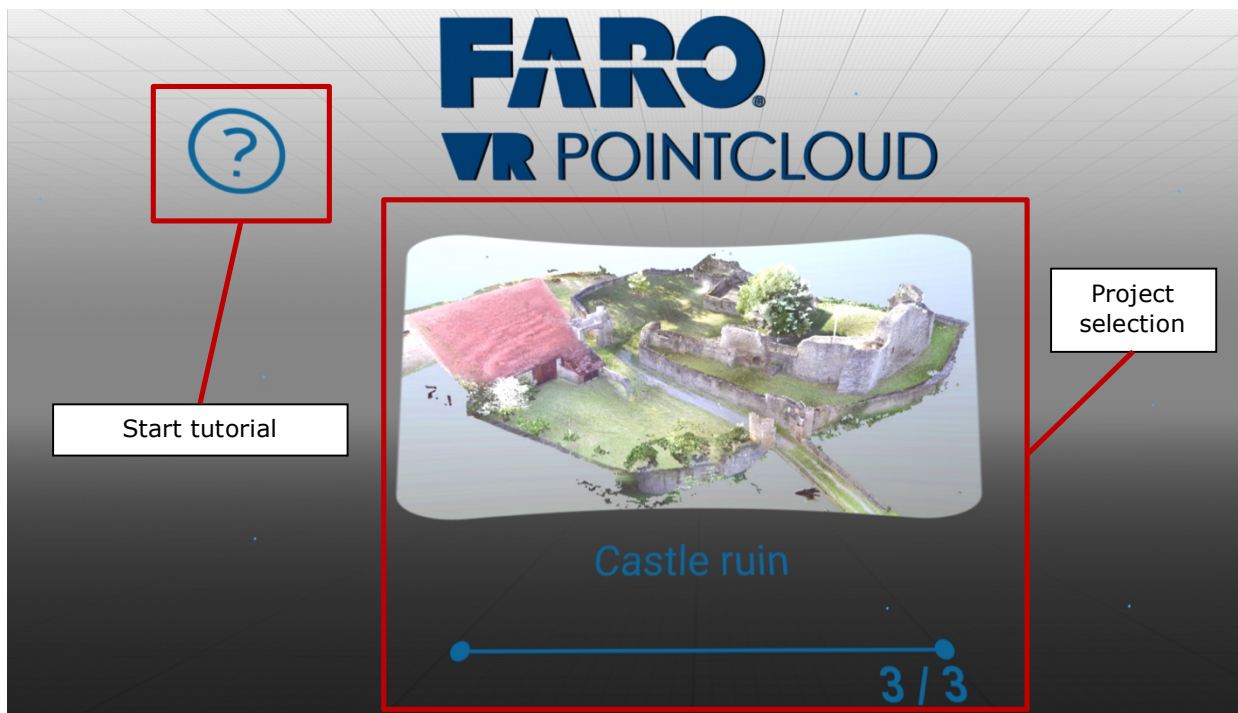


Figure 8-1: Main Menu

8.2. Tutorial

As a first step, it is recommended to start the tutorial. Move your head to the left side until the white dot is over the **Question Mark** symbol. The **Question Mark** symbol will now show **Start Tutorial** (see Figure 8-2). Press the **Confirmation button** and follow the instructions of the tutorial.

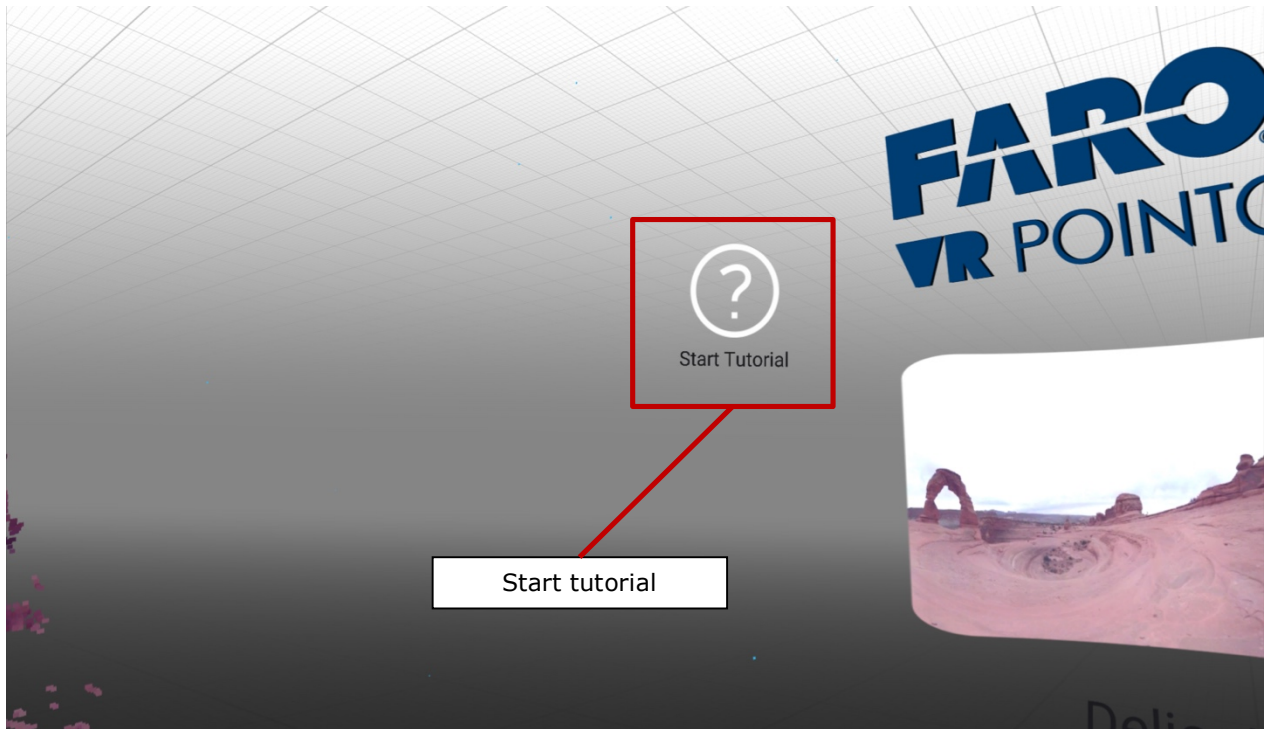


Figure 8-2: Start the tutorial

8.3. Open a project

After the tutorial was successfully finished, you can dive into the project point clouds. FARO® VR Point Cloud will show all installed projects that have been generated with FARO® VR Generator.

After a project was loaded you will see a miniaturized **Overview** of the project. You can move and rotate the **Overview** and you can select a scan to jump in. Figure 8-3 shows this overview. It is always possible to jump back to the **Overview** and the menu with the **Back button** of the control device.

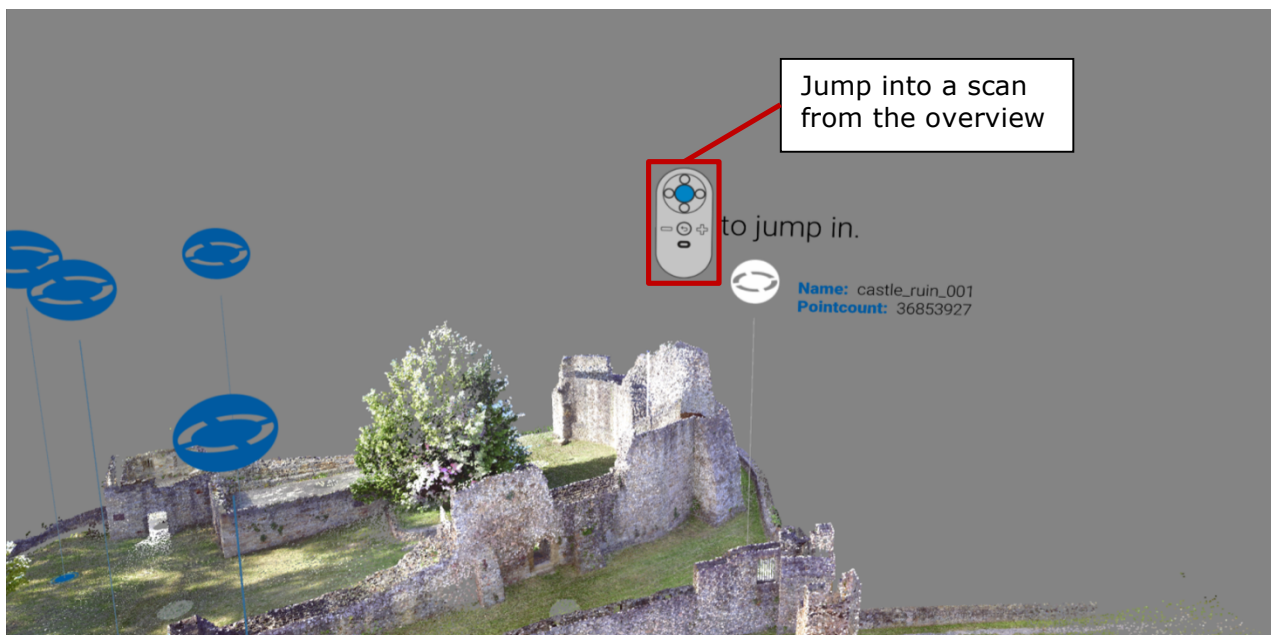


Figure 8-3: Project overview. Scan positions are marked

After a scan was highlighted and selected a 360° picture preview is shown. You can directly look around by moving the head. It is not possible to navigate with the Control Device in this view. In the meantime, the point cloud is loaded. You can abort loading the point cloud at any time during the load process by pressing the **Back button**. This is indicated by the Loading Icon (see Figure 8-4)

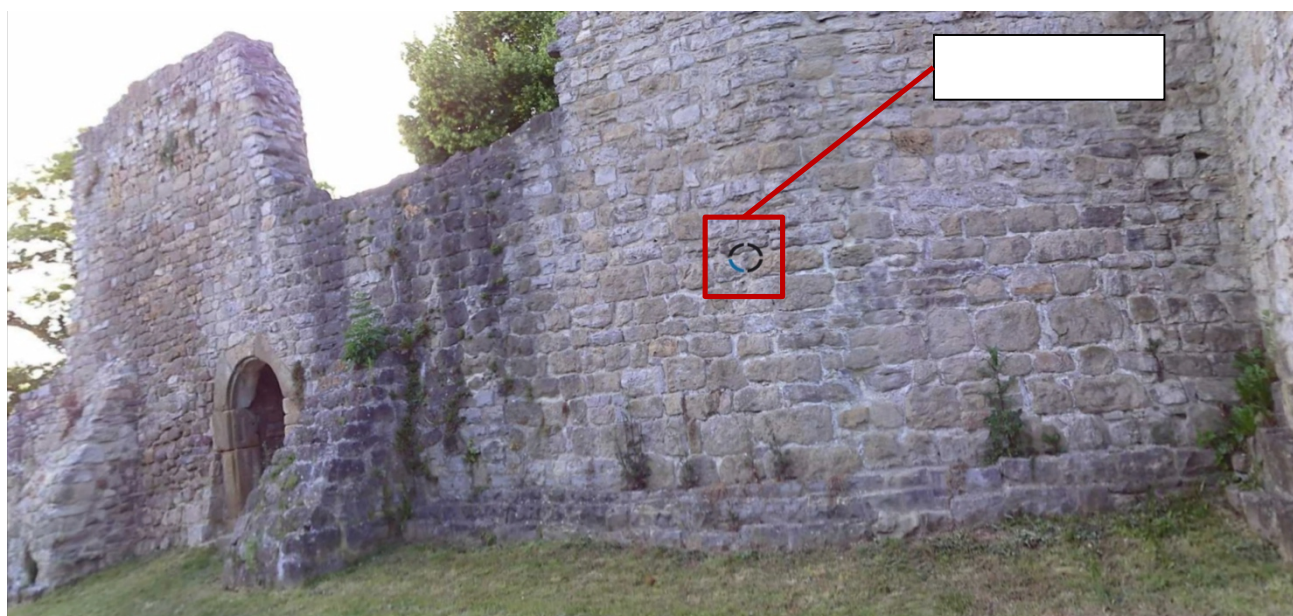


Figure 8-5: Loading symbol in the 360° view

As soon as the point cloud is loaded a short notice will appear on the screen (see Figure 8-6). You can use any button on the control device to hide the 360° preview picture and jump into the point cloud. The Point Cloud view is shown in Figure 8-7.



Figure 8-6: Message Point Cloud successfully loaded



Figure 8-7: Point Cloud View

8.4. Navigation in the Point Cloud View

FARO® VR Point Cloud supports both controllers delivered with Oculus Rift. The Oculus Remote and the Xbox One wireless controller. After you have pressed a button on the control device it will be automatically recognized. Figure 8-8 shows the button configuration of the Oculus Remote and the Xbox One wireless controller in the Point Cloud View.

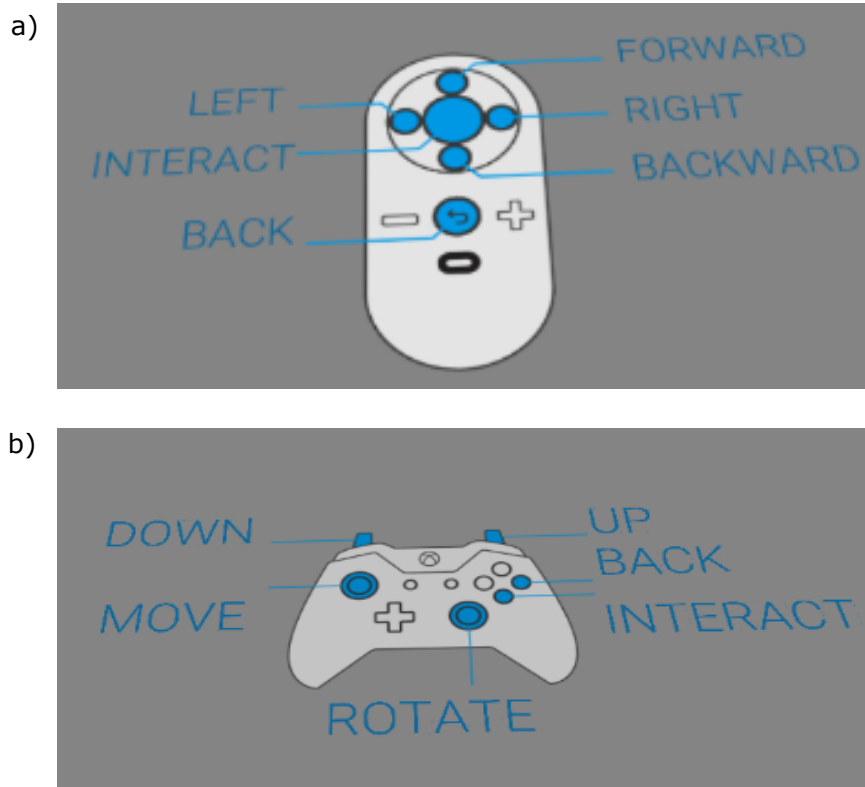


Figure 8-8: Button configuration of a) Remote Control b) Gamepad

9. Technical Support

This software is a FARO® LABS software release and is currently not supported by the common FARO® support channels.

Only direct Email support from the FARO® Labs team is available.

If you have any problem using one of our products, please follow these steps before contacting our Technical Support Team:

- Be sure to read the relevant sections of the documentation to find the help you need.
- Document the problem you are experiencing. Be as specific as possible. The more information we have, the easier it will be for us to solve the problem.
- If you still cannot resolve your problem, have your device's Serial Number available *before mailing*.
- **E-Mail**
faroeulabssoftware@faro.com

E-Mails will be answered within 48 hours if possible. Although we can't guarantee support within 48 hours in the "Technical Sneak Preview" Program.

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11. Implementation Notes

Unity 5

FARO® VR Viewer uses Unity5 Pro License. Copyright © 2016 Unity Technologies

Inno Setup

FARO® VR Viewer uses Inno Setup for the installer.

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Draco

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