VRisk
Project Handbook

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This document is designed to guide you through the fundamental steps of installing or building the project for the headset, as well as accessing it in the editor and spectating replays. We have adopted a step-by-step approach, beginning from the basics. This should make it accessible to anyone.

STEP 1: Enabling Developer Mode

To allow VRisk to be build or installed on the headset, the device will be required to have Developer Mode enabled.

Enabling developer mode can be a bit tricky, but Meta itself has a great tutorial that teaches every step needed for it to be enabled, it can be followed here:
https://developer.oculus.com/documentation/native/android/mobile-device-setup/

As a side note, please be aware that meta is not fussy about organisations inside the Oculus environment, they can have any name, for example an organization simply named VRiskUWE will be valid.

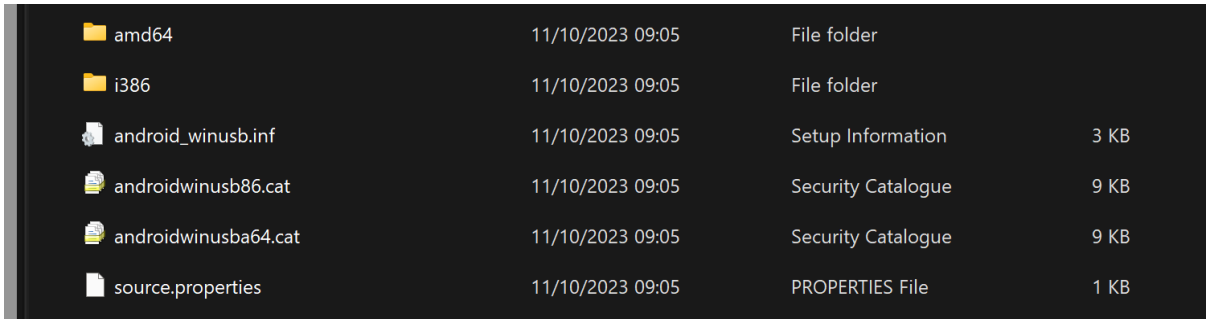
Once developer mode has been enabled, a computer can be configured to interface with the headset.

SETP 2: Install requirements on the PC

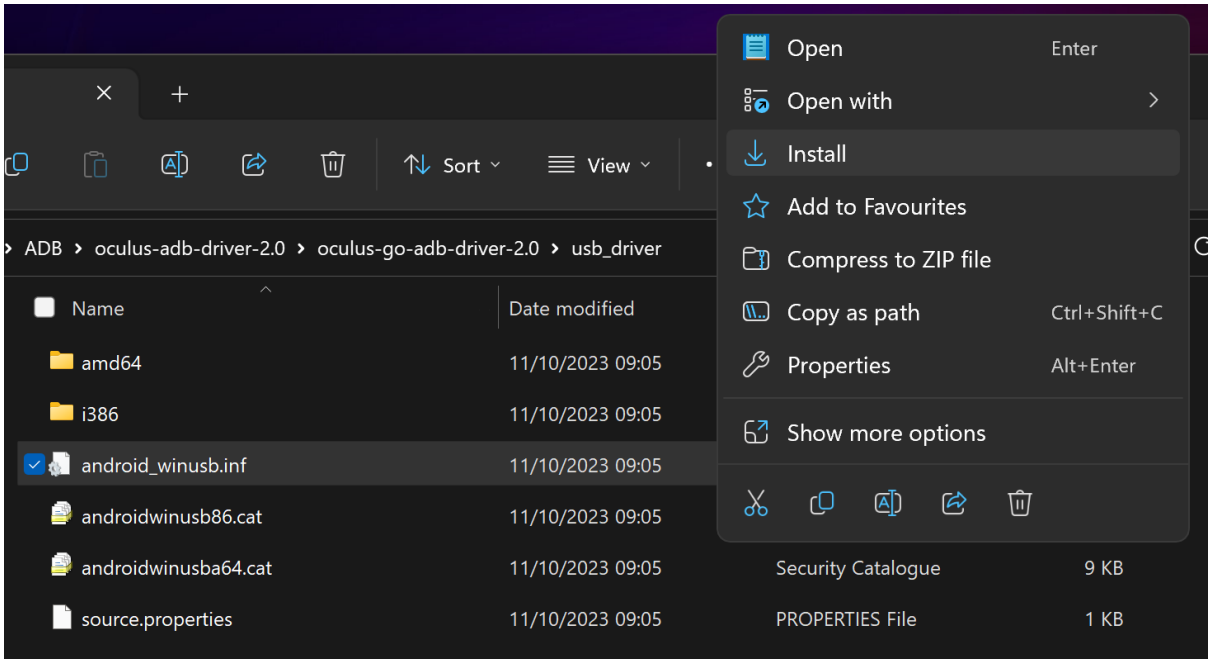
With developer mode enabled and out of the way, all the necessary drivers need to be installed to allow the PC to interface with the headset.

First, the ADB drivers need to be installed, they can be downloaded here:
https://developer.oculus.com/downloads/package/oculus-adb-drivers/

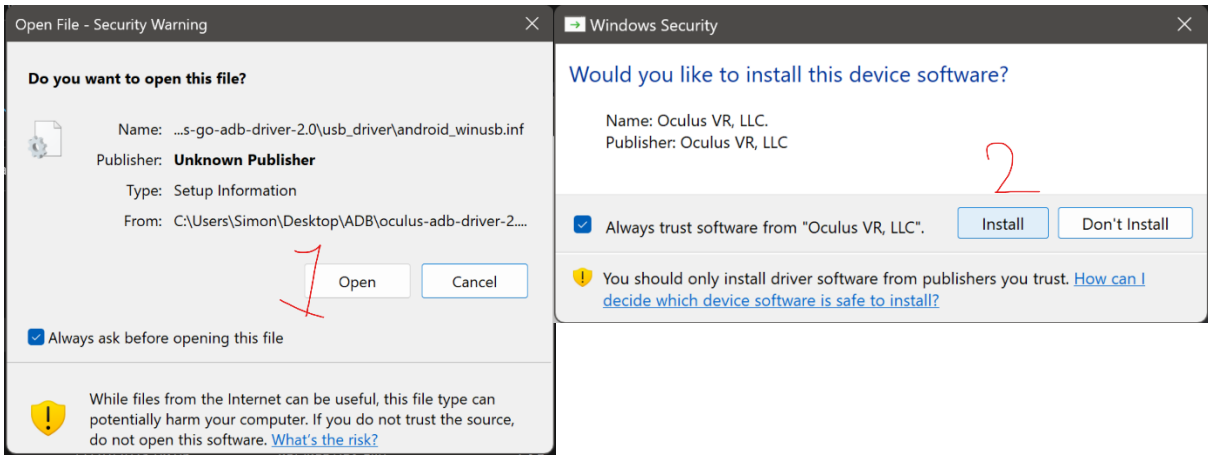
With the .zip file downloaded, extract the contents inside a folder and open it, you should see these files:



Right click on “android_winusb.inf” and click “install”.



Then, click on “open” and “install” once again.



Once it says “Operation Successful” restart the computer.

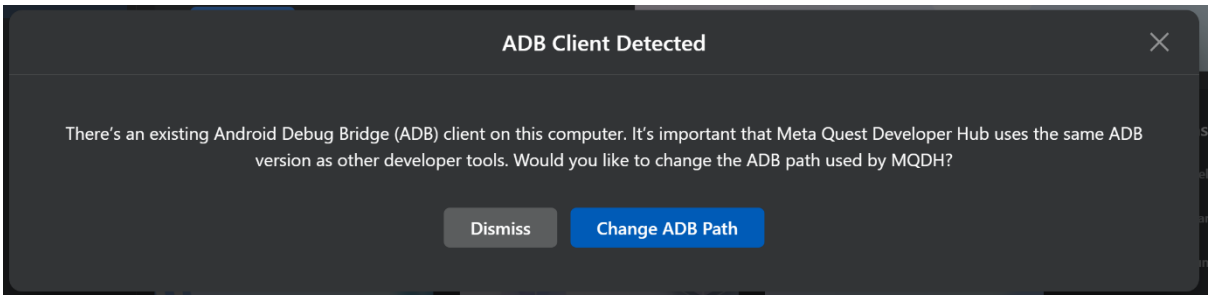
Now, you’ll need to install Meta Quest Developer HUB, this will allow to install the project directly to the headset via APK or built it using Unity.

It can be downloaded here: https://developer.oculus.com/downloads/package/oculus-developer-hub-win/

Install the application then open it, click “continue” and you will be asked to log in with a Meta account, it is **very** important to login in the Meta Developer HUB with the same account used on the headset, as it needs to have developer mode enabled to allow the app to be used.

Once logged-in, click “continue”.

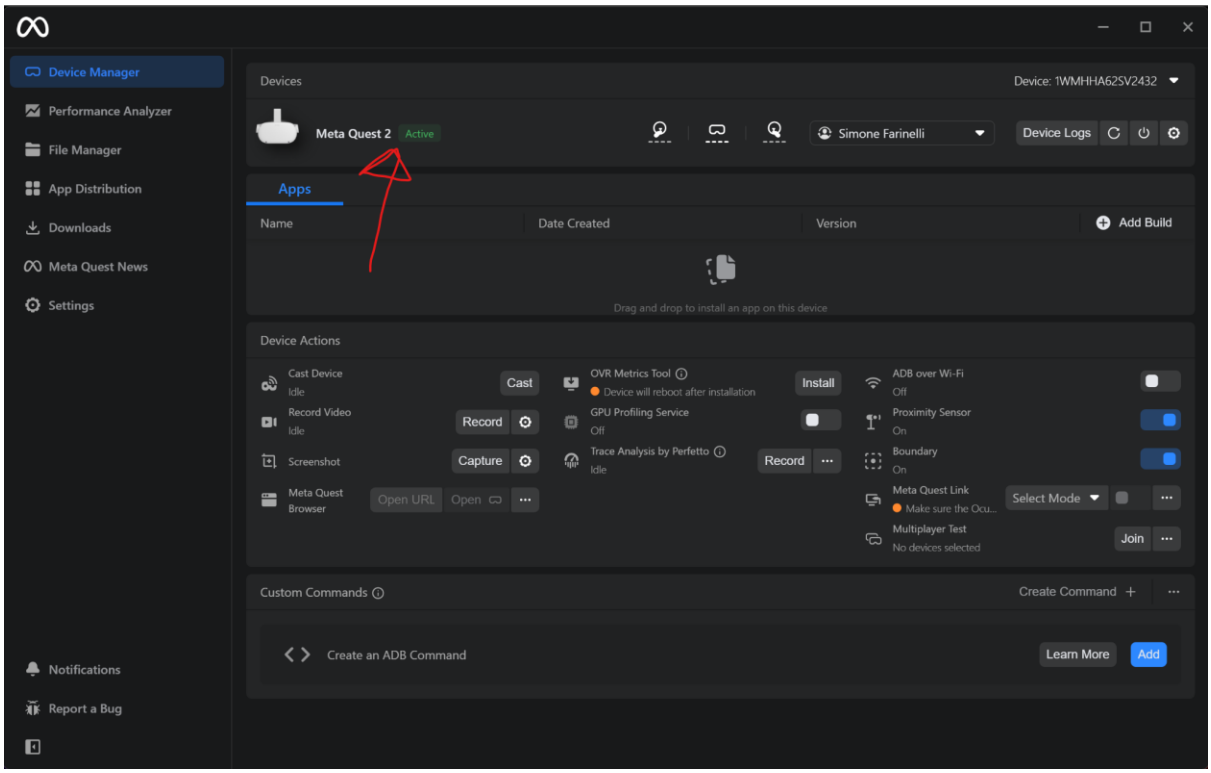
If you get prompted with this pop-up, click “Dismiss”.



Now, its time to connect the headset to the PC.

Once connected, the headset will ask to enable USB debugging, click “Allow” or “Always allow on this computer”, then click “Allow” when asked to allow connected devices to access files.

Now, after clicking on “Device Manager” you should see the Headset being connected.



IMPORTANT NOTICE

With the headset and PC set up, it is the moment to install VRisk on the headset.

This process can be done via .APK and via Unity

- STEP3A: Will breakdown how to install the application via .APK
- STEP3B: Will breakdown how to install the application via Unity and how to create a new .APK

The two processes are not dependent on each other therefore one can be done instead of the other, we advise to use the method described in STEP3A as it is quicker and easier, however you’ll need an

APK, we will provide one that will be updated with the last iteration of the project at the moment of handing in of this document.

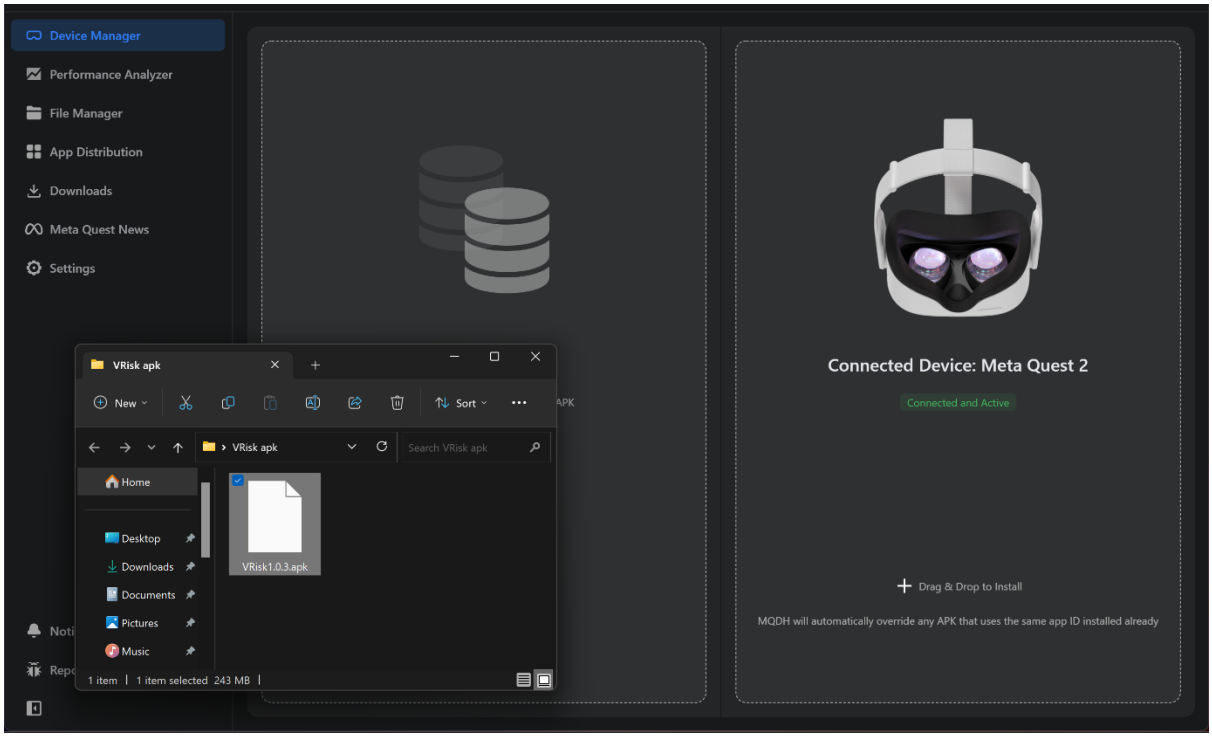
If you instead wish to modify the project and then create a new APK, you'll need to follow the process in STEP3B, as it will also explain how to open and set up the project in Unity.

Please note that once a new APK has been generated via Unity, it can be installed directly on any device following the steps in STEP3A.

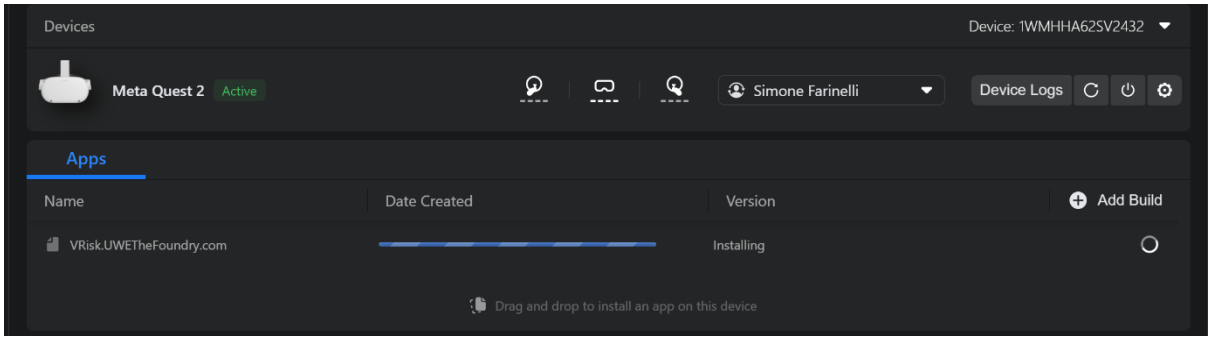
STEP3A: Installing VRisk via .APK

Alongside the handover content, we're providing an already built .APK of VRisk with all the latest features at the moment of writing this document. It can be downloaded here: https://drive.google.com/file/d/1FgdYB1biwAaJ3KGyVstrh4gtelk7_2AV/view?usp=sharing

Installing the APK can be done directly and easily from the Meta Quest Developer HUB, inside device manager, drag the APK on top of the window, the following will appear:



Drop the APK on top of the connected device and it will start the installation on that device.

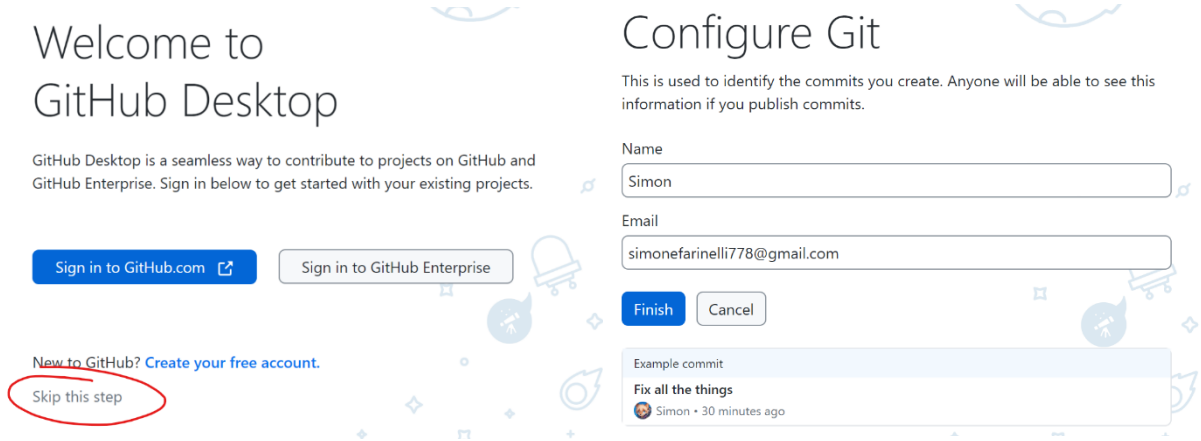


Once it is done, VRisk will be installed and present inside the headset. How to find and open the application on the headset is covered in STEP4.

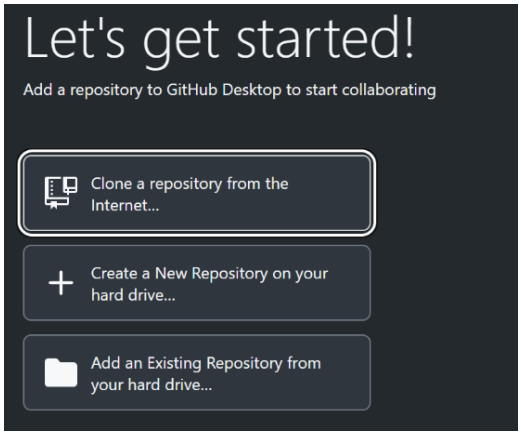
STEP3B: Setting up Git and Opening the project in Unity

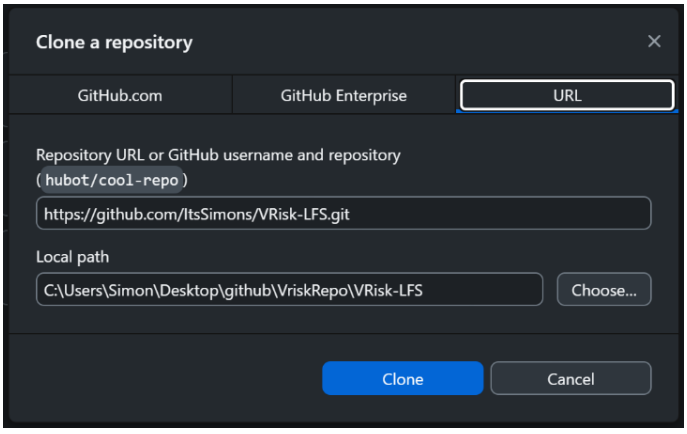
To access and download the latest version of the project's repo, we advise to use GitDesktop, it can be downloaded here: https://desktop.github.com/ (If you already have an alternative like GitKraken installed you can use that instead)

Once installed sign-in with your preferred GitHub account, if you do not own a GitHub account you can select "skip this step" and provide name and email.



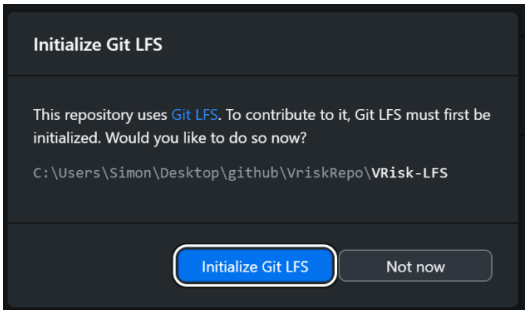
Next, you can proceed by cloning the repo, to do so, click on "Clone a repository from the internet" and select URL, then input the link to the repo, at the moment of writing it is the following, we'll email eventual changes: https://github.com/ItsSimons/VRisk-LFS.git





You can change the local path if you wish to locate the project more easily, the click "Clone".

If after the repo has been cloned this pop up shows, remember to select "Initialize git LFS" or the repo may not work correctly.



Once that is done, the repo should have been downloaded correctly.

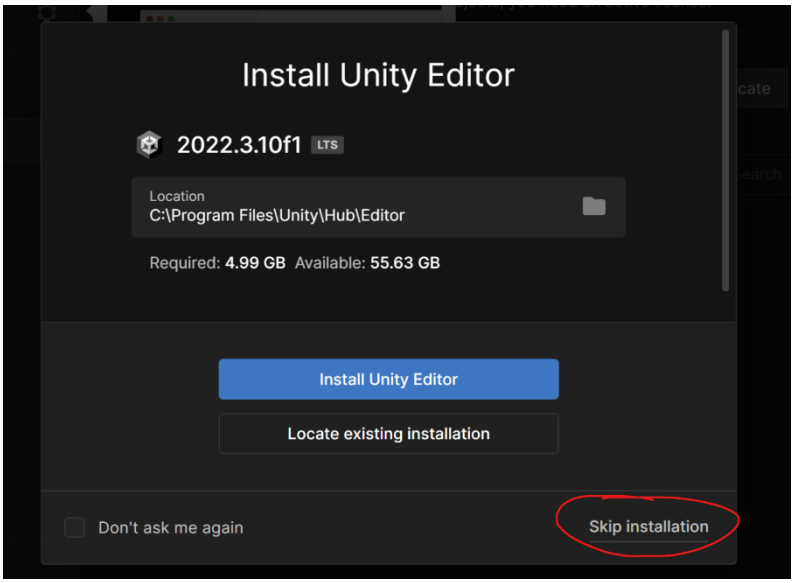
Now that the repo is ready, it's time to install Unity, but first make sure Blender is installed on the computer that will house the project, this is because many of the assets and models that we use need the blender libraries to work properly.

Blender can be downloaded here: https://www.blender.org/download/ (Restart PC after installing)

Downloading unity and opening the repository will be all done via the Unity Hub, if you do not already have it installed it can be downloaded here: https://public-cdn.cloud.unity3d.com/hub/prod/UnityHubSetup.exe

A Unity account is required to use Unity or the Unity Hub.

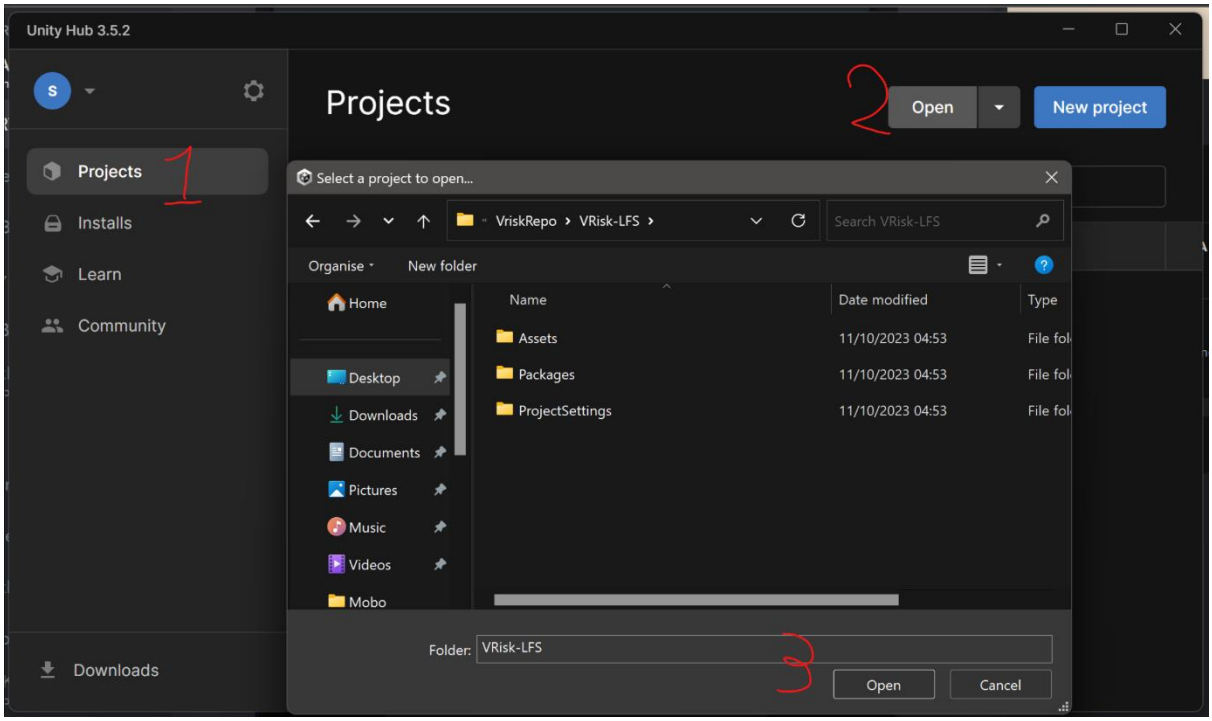
Once logged in, if it's the first time the Unity Hub has been installed, you will be asked to Install the Unity editor, make sure to select "Skip Installation" as the version going to be installed differs from the one used for the project.



Next click on "Agree and get personal edition license" and you should be good to go.

Now, you can open the project from the Unity Hub and the correct version of Unity should be downloaded, to do so click on the "Projects" tab and then "Open".

From the explorer window go up to the path where you downloaded the repo and open the folder "VRisk-LFS".

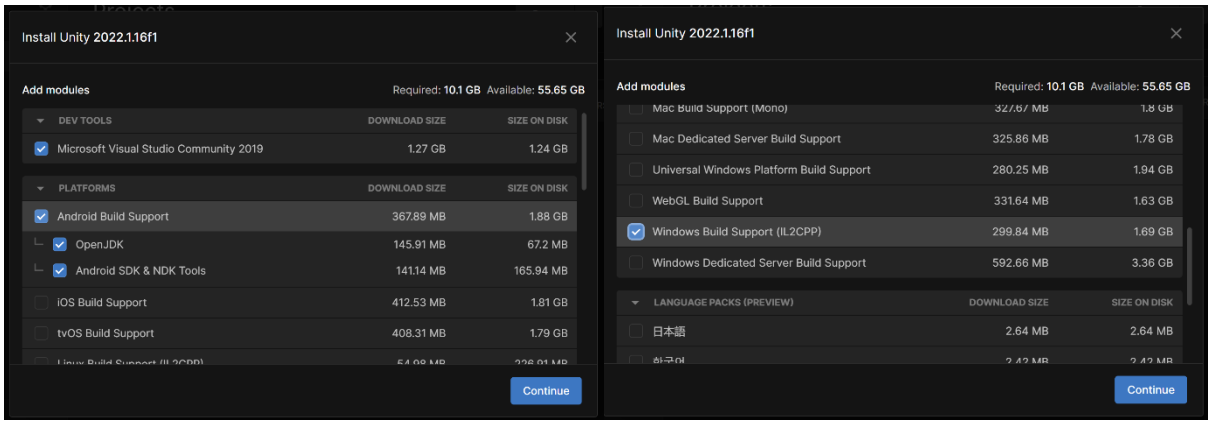


Once you open it, Unity Hub will ask to install the missing version of Unity, in this case that is the version that we need, install it by clicking on “install Version 2022.1.16f1”.

Now, you will be asked to select the modules that will be installed with Unity, this is very important as these modules are what allow Unity to build for Android.

Make sure that the following are selected:

- Microsoft Visual Studio Community 2019
- Android Build Support
- OpenJDK
- Android SDK & NDK Tools
- Windows Build Support (IL2CPP)



Then, click continue, agree to the terms and wait for the installation to finish, a pop up from the visual studio installer may appear, click on “install”.

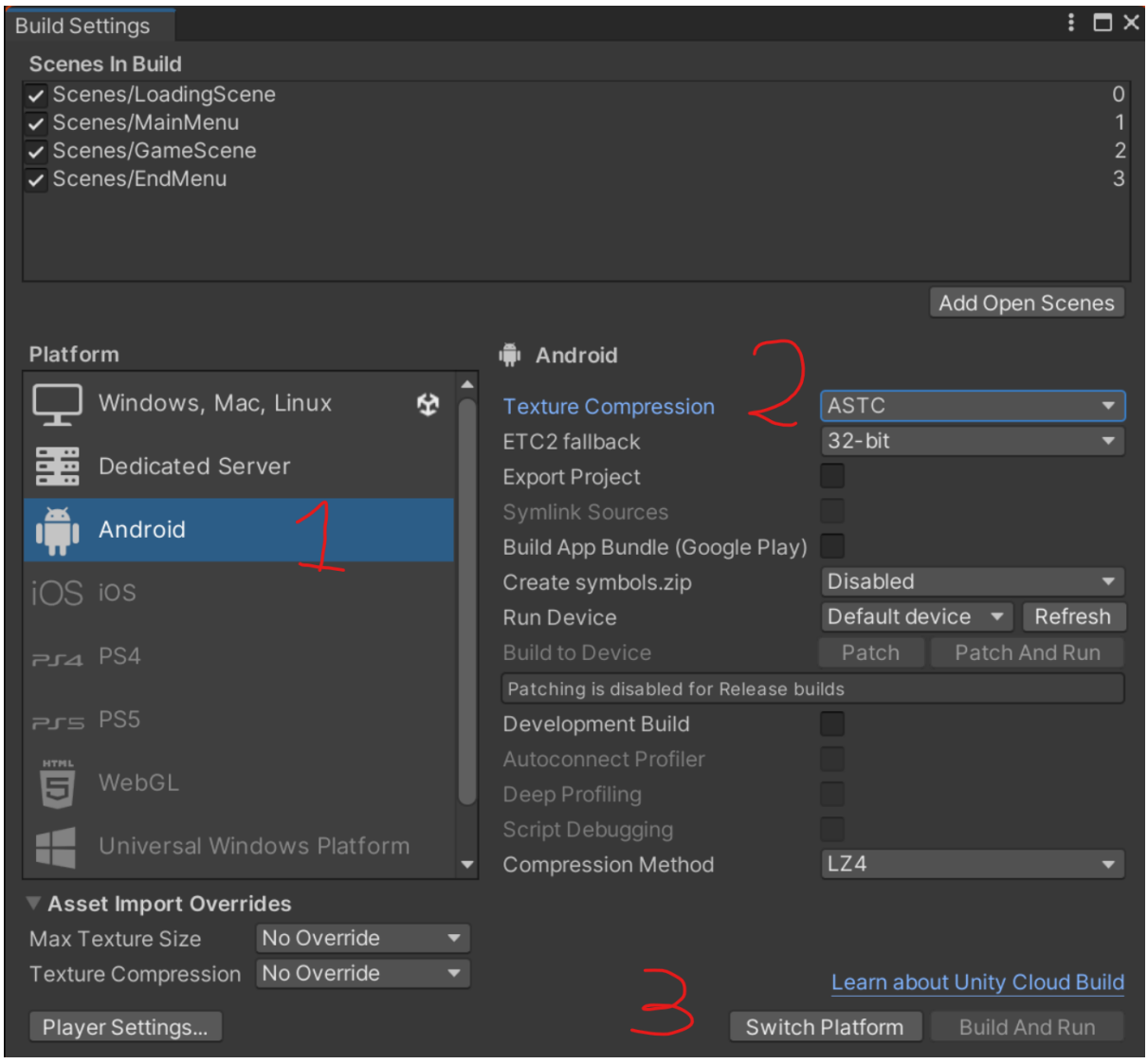
Once all of that has finished (It may take a while), you can finally open the project.

Once the project has opened you may be prompted to update Unity, make sure to click on “skip new version” to stop it from updating.

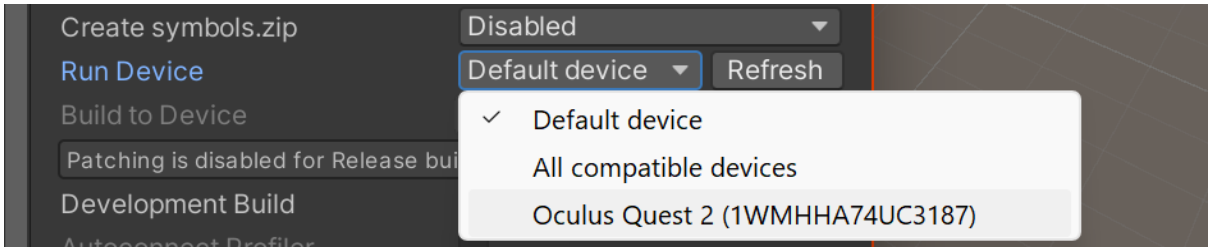
You should now be greeted with an empty Unity scene, that’s normal as Unity opens a default empty scene the first time it is opened.

To access some of the scene in the project, open the scenes folder and double click on one of them, this is however not needed to build or create an APK.

Now with the project loaded, it’s time to switch the platform to Android, to do so, on Unity go to File -> Build Settings… Then click on “Andorid”, set the texture compression to “ASTC” and then click on “Switch Platform”, this may take a while.



After that is done, connect the headset if it wasn’t already and select it in the “Run Device” field.



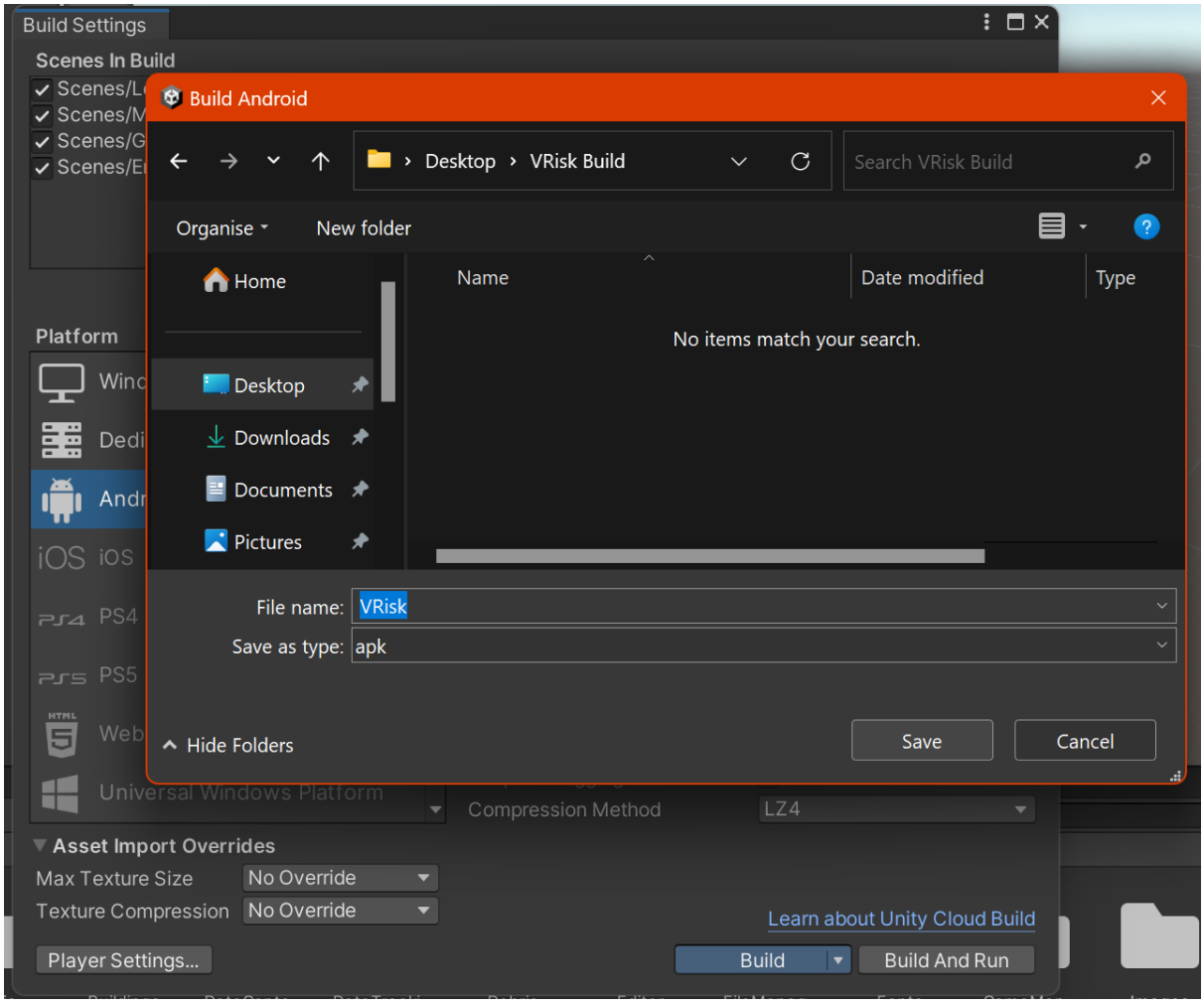
Now, everything is ready to create a build, Unity offers 2 options:

- Build: Which will create an APK in the desired folder
- Build And Run: Which will create and APK in the desired folder and install and run it on the headset.

In this example I will use “Build”:

Once clicked, select the folder where you wish the APK to be located and click “Save”, this will start the building process, it may take some time.

Make sure this folder however is only dedicated to the build as Unity will create other files inside.

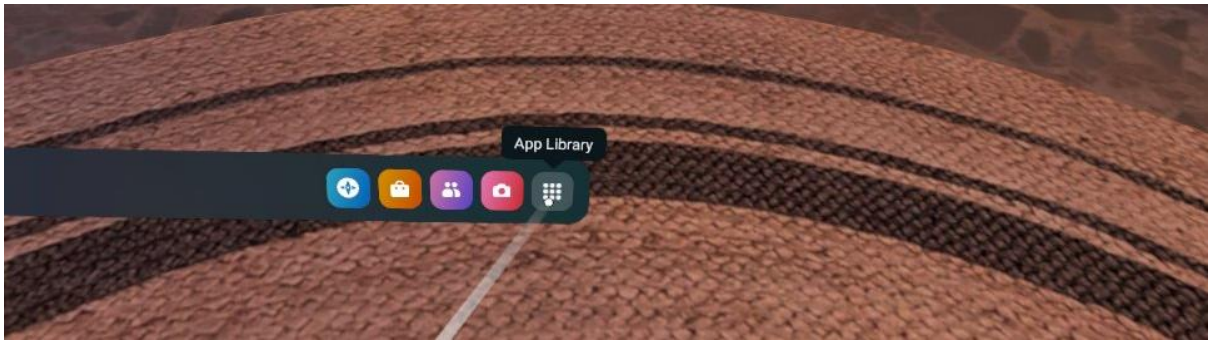


When finished, you will have the .APK! This can then be installed on the headset via STEP3A without the need to use Unity.

If you selected “Build and Run” the application will already be installed and started on the headset.

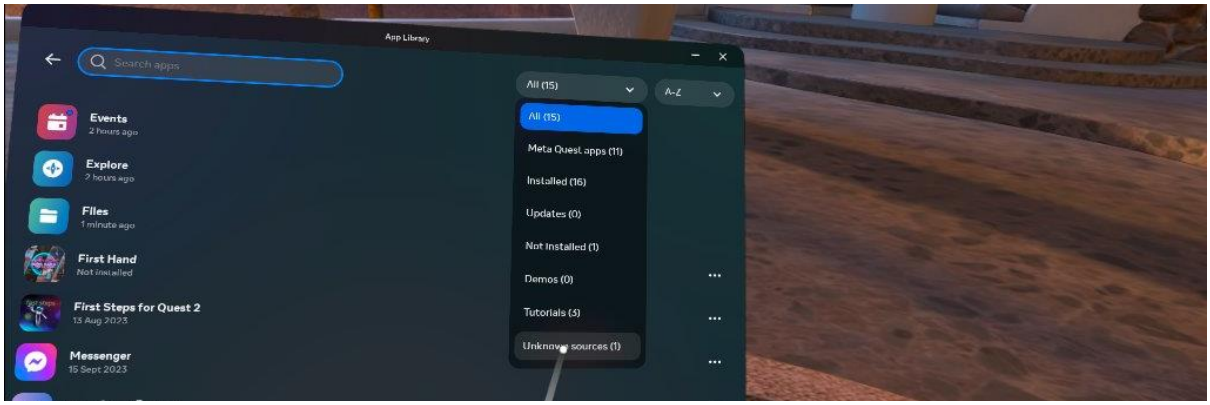
STEP4: Opening the application already installed on the headset

To open VRisk after installing it on the headset you'll need to open the Apps Library

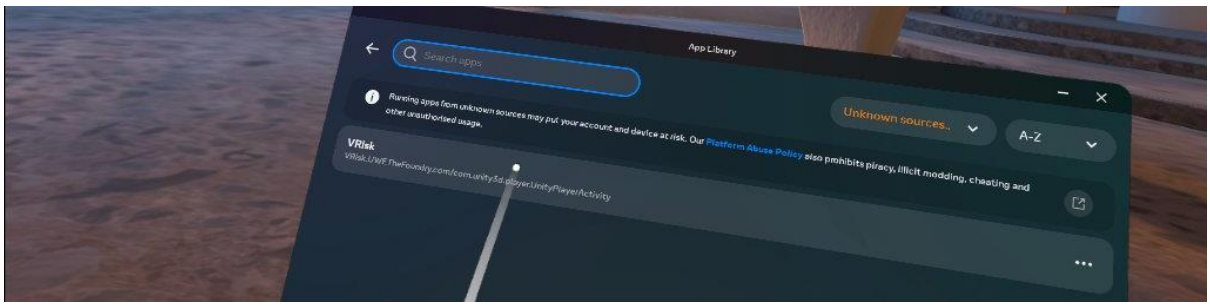


Then click on the search bar in the top

In the drop-down menu select "Unknown sources"



And you should be able to find VRisk right there!

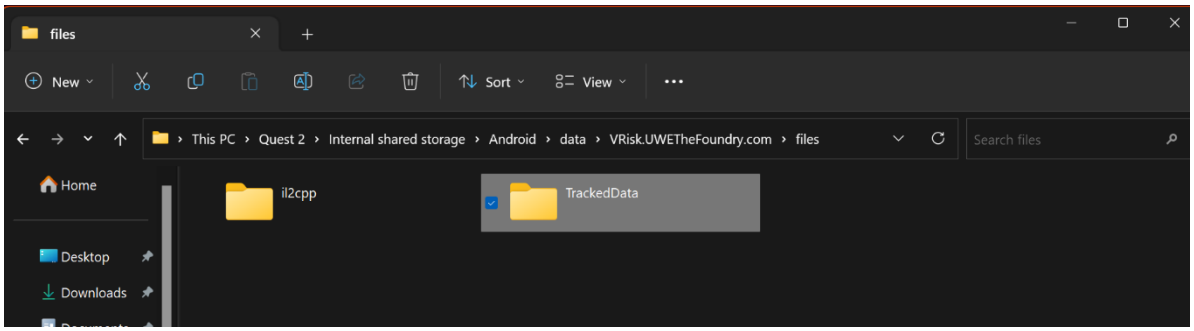


STEP5: Visualizing the Replay Data

For each run though the simulation, VRisk will save a replay that can then be observed though the Scrub through, a separate application that runs on Windows which we developed for this purpose.

However, first you need to import the replay data from the headset.

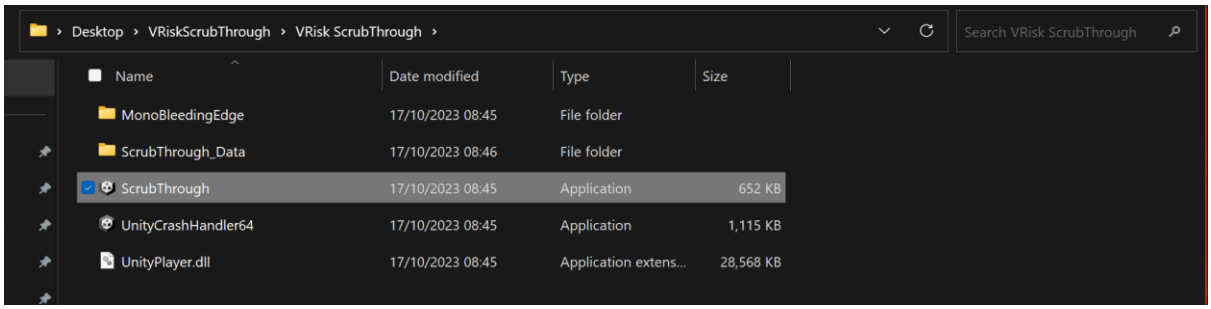
To do so, connect the headset to the PC and make sure to click “Allow” when prompted with “Allow connected devices to access files”, then go to “Quest 2” -> “Internal Shared Storage” -> “Andorid” -> “data” -> “VRisk.UWETheFoundry.com” -> “files” and copy the folder “TrackedData” where you wish to store the data, in this example I copied it on the desktop.



Then you can download the ScrubThrough and open the data.

You can download it here:
https://drive.google.com/file/d/1d4cAMA-X3uyK4yOUskzFdwJzXE4ROq6a/view?usp=sharing

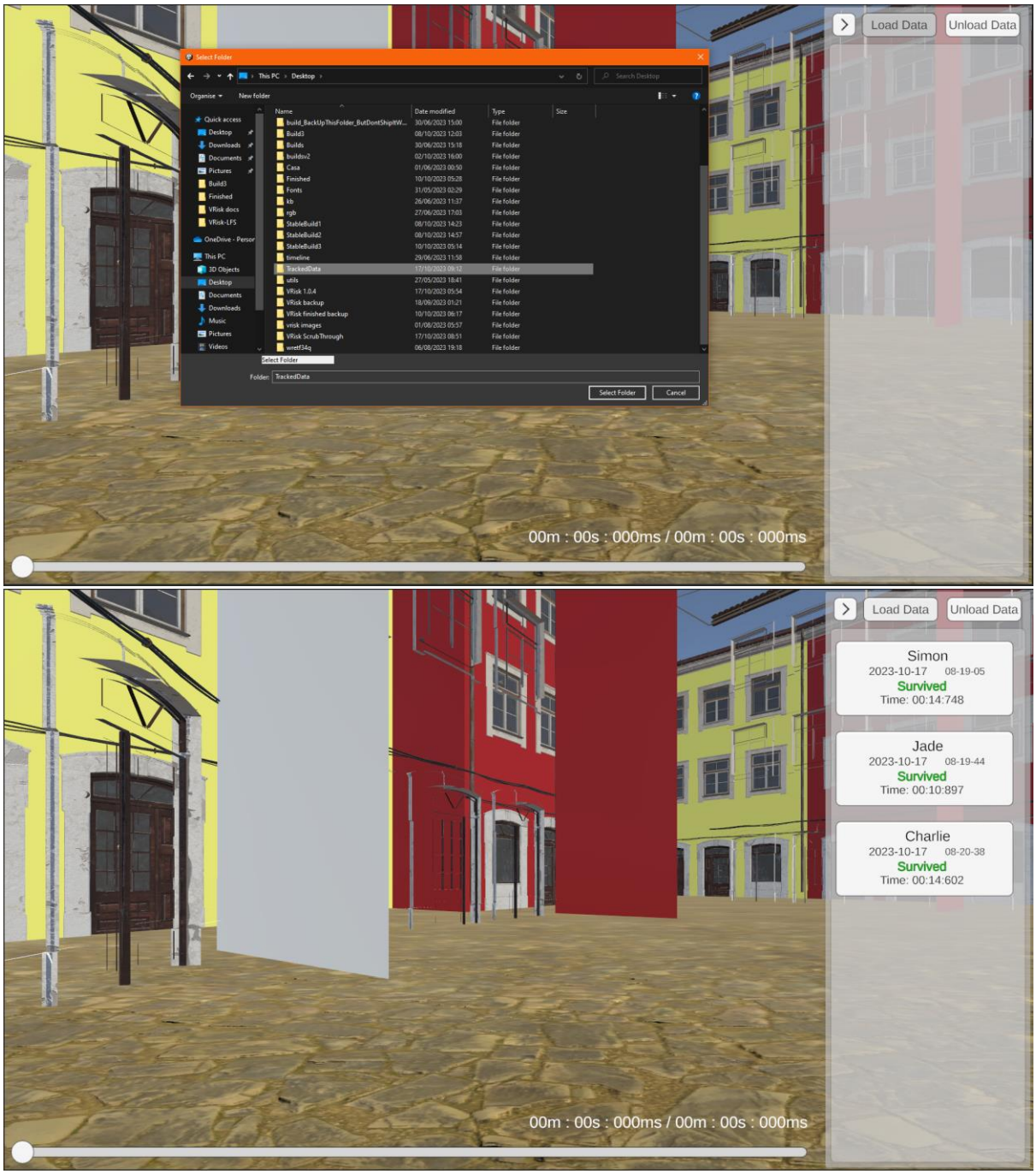
Once downloaded, unzip it and run “ScrubThrough”, it doesn’t need to be installed.



Windows may flag it as insecure, you can ignore this and run it anyway.

Once opened, it will look just like the map in VRisk, but with each building Colour coded with its danger level.

To load in the replay data, click on “Load Data” and open the folder “TrackedData” from where you previously saved it.



With all the data loaded in, clicking on one of the runs on the right will display nicely the path taken in that route.