

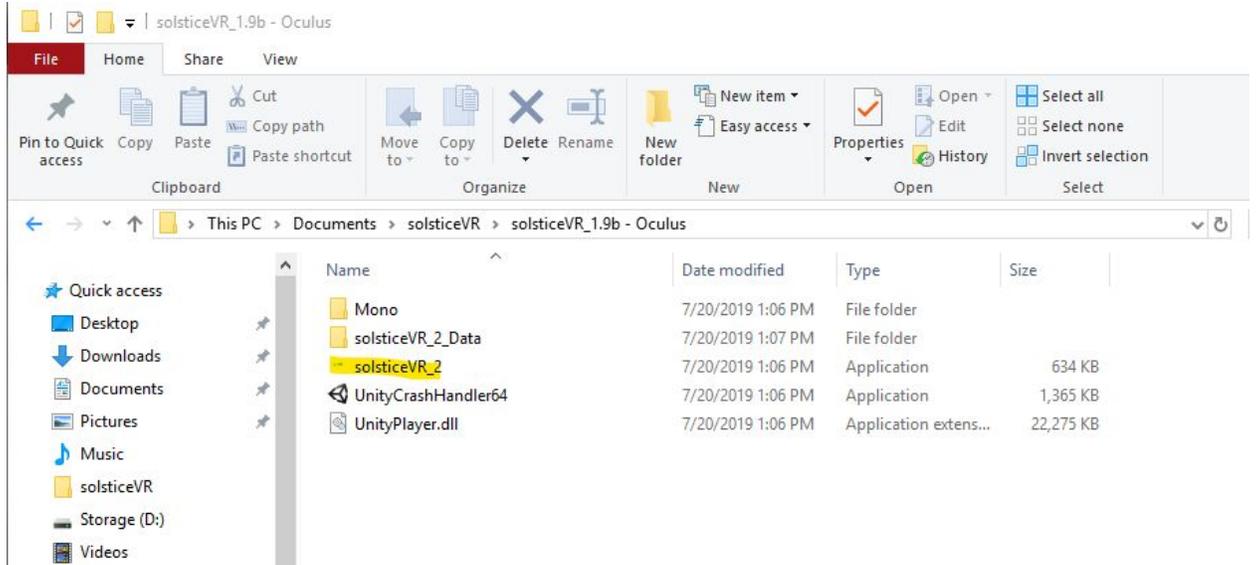
solsticeVR: Software and VR Setup

Getting Started:

Starting *solsticeVR*: Steps

1. Launch the Oculus software located on the taskbar (or by searching for “Oculus” in the search bar).
2. Put on the Rift-S to confirm that it is working properly. If it is not, shut down the Oculus software and confirm that all the connections are in place and reboot the Oculus software. Note: if there is ever a need to do a firmware update, just do it. These are unavoidable and necessary.
3. Confirm that the Leap Motion controller is attached and functioning. If all is well, you will see three red LED lights on the front of the controller, and a “green” status light on the top of the controller. Additionally, in the bottom right hand corner of the screen, you can click on the “up arrow” next to the networking icon. If all is well, then you should see a green Leap Motion icon indicated connection is successful.
4. Locate **your** install and double click on the .exe file (the name will have the same name as your specific user profile name) Double click on the .exe. **Note:** you **may** get a prompt asking to search for a program to run this in the Microsoft store. You do not need to do this, so simply say no.



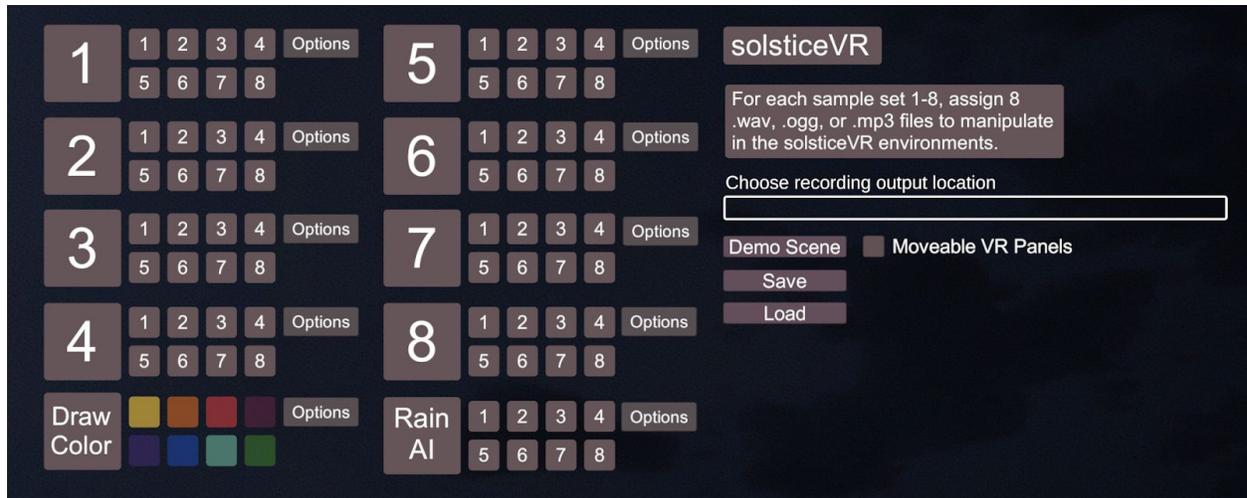


5. While the software is booting, put the Oculus on once again. If all is well, you should be in the “Void” of *solsticeVR*, and should be able to see the Rain, Cave, and Snow areas, as well as the “Welcome to solsticeVR” message. If this is **not** the case, close the software and repeat the boot process again.
6. Gently lift the Rift-S off and rest it on the top of your head, kinda like you are flipping up sunglasses. The reasoning here is that in order to keep the menu 2D (non-VR) menu system working properly, you must keep the Rift-S engaged, and in order to keep it engaged, it needs to be at least partially on your head. You will get the hang of balancing it (and you will want to do it often as you can control lots of parameters for your sounds outside of VR!)

Congratulations! At this point, if the above all worked fine, you should be set to click in some custom audio.

Importing Custom Audio Samples¹:

solsticeVR allows you to import up to 86 samples to manipulate in the various VR environments. To do so, simply startup the software. If all is well, you should find yourself looking at the Splash Screen. If you click to begin, you should be looking at the Main Menu:



Note: in *solsticeVR* *everything* is tooltiped. If you are not sure what a button does, in the menu system *or* in VR, simply hover your mouse (or right hand) over the object. In the menu system, you will see a popup explaining exactly what the field does, and in VR you will get a similar pop up on your left hand menu. (This took *a LONG* time to implement, so please use it!)

Because there is tooltiping for everything in the menu system, I will not explain it all here. However, generally speaking, the numbers above correspond to the different sample banks that you can load with sounds. Each bank, 1-8, can be loaded with 8 different samples (mp3, ogg, or wave), 1-8.

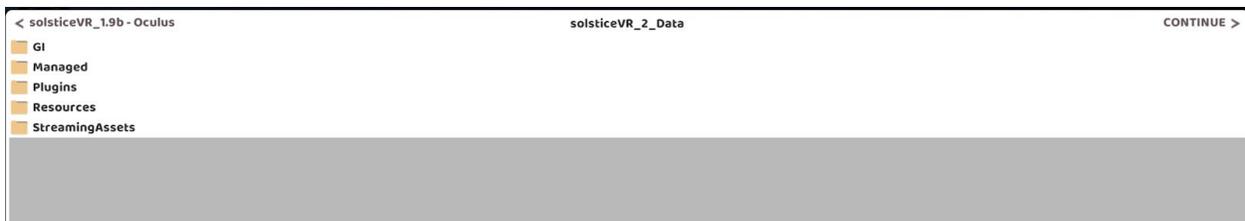
¹ Note - your menu system may look slightly different depending on the release version you are using. The functionality will remain generally the same.

Each of these individual sample banks can be customized in the “Options” menu:

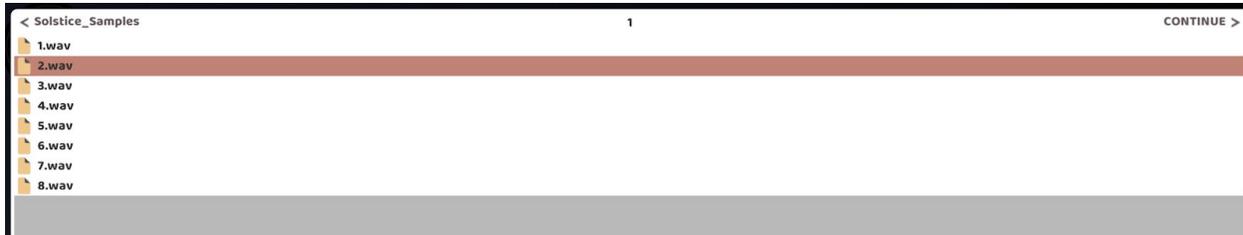


Spend some time going through each option, reading the tooltips. If these are not clear or sufficiently explained in the software, please let me know!

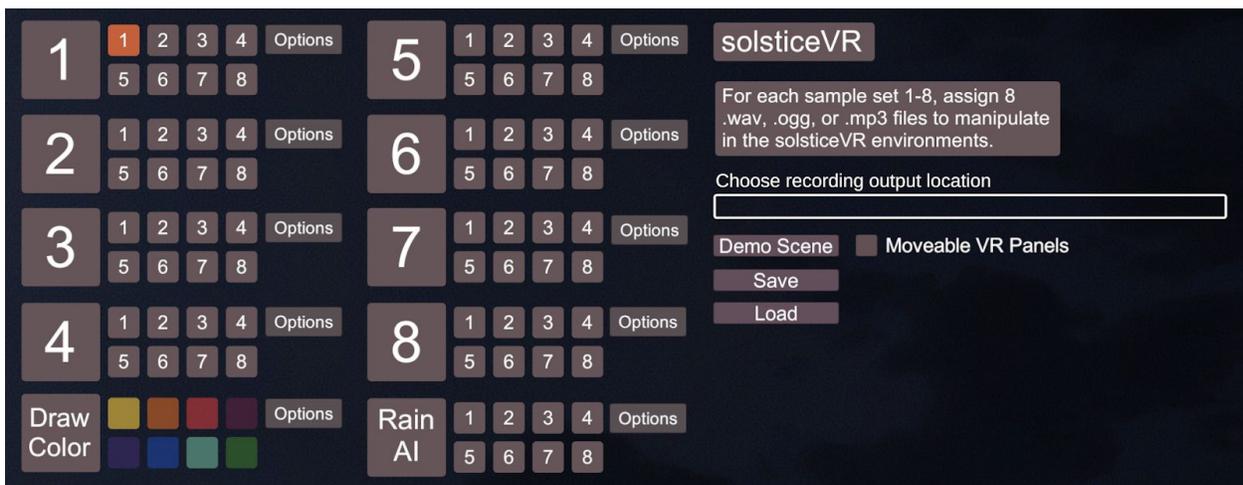
To assign samples, click on the corresponding sample number (smaller number) in the sample bank (larger number) you want to populate with audio. This will bring up a file system dialog.



Navigate to your sample you wish to assign and click on it. *solsticeVR* will automatically preview the audio for you. If you want to assign the sample, click “continue” in the upper right hand corner of the file system dialog.



If it was assigned correctly, your sample slot should be highlighted orange, such as this Sample Bank 1, sample 1:



Click **save** to save this loadout for future use. You have **one** sample loadout per user, so if you wish to change samples later, you will lose your previous loadout.

Simply complete this process for each of your samples you wish to import. If you leave a sample empty, it will just spawn an object with no sound in VR (so, you don't need to populate all of the slots if you don't want to). **Save often during this process just in case there is a crash.**

If you click on the “Choose recording output location” you can assign a custom location for your in-app recorded audio. If you do not assign a custom location your in-app recorded audio will default to your installation location.

Note: all “options” for each sample bank WILL NOT be saved and MUST be entered again each time you load your samples (this is not a bug, but having the save functionality save all the parameters of each sound is something I am working to implement in the future!)

Recording Audio in *solsticeVR*:

There are two ways to record your audio in *solsticeVR*:

On your left hand menu, you have “start recording” and “stop recording” buttons. This is the in-app recording option discussed above (i.e., where you can assign a location for audio in the menu system). Beginning recording will start writing a stereo .wav file to your hard drive. This is fast, easy, and effective for getting a sample captured, but it is compressing the 360 audio effect down to two channel stereo.

A superior way, that requires a bit more setup, is to screen capture your entire play session using the Nvidia capture software. I will go over the startup process for this later, as well as the process for extracting the audio. This technique, though more time consuming, will capture *exactly* what you are hearing in VR, giving the listener the illusion of true, 360 degree mixing.²

Bug Reporting/Suggestion Reporting:

Please use this spreadsheet for reporting bugs:

https://docs.google.com/spreadsheets/d/1dMCDiA7B_9DBCvXcurYs3lFwdGHUXAj12NaVzhZC3uU/edit?usp=sharing

Please use this spreadsheet for general suggestions for improvement:

<https://docs.google.com/spreadsheets/d/1cnl2wNzbxmuZ9YGyaTGWOjc3rGijWpvGdvTdiINlHOo/edit?usp=sharing>

For both of these, please err on the side of **too much** information. Don’t be afraid to type **a lot** of description. This will help me track down the bug, or wrap my head around your suggestion so that I can start trying to fix or implement it asap!

² This is the recommended way to capture high quality audio.

Oculus Rift-S Support:

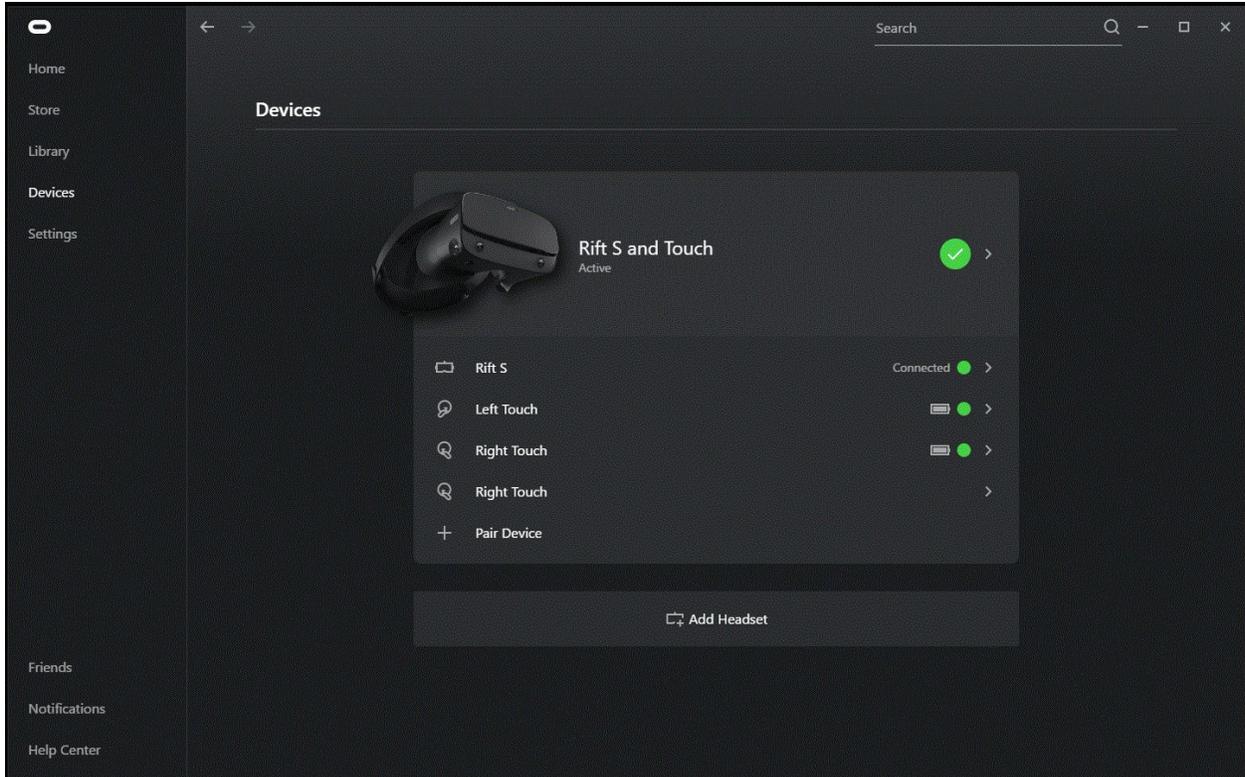
The Rift-S is a *very* user friendly device, but there are some quirky, not-so-intuitive things that can come up from time to time. Some things to remember/try if you have issues connecting/initializing the Rift-S:

First: just a word of warning re: VR headsets: DO NOT touch the lenses with **anything** ever. It is VERY easy to damage the fresnel lenses and cause permanent distortion to the image.

Second: NEVER allow direct sunlight to make contact with the lenses. This is simply because the fresnel-style lenses will magnify the sunlight and, within a few seconds, burn the LCD screen.

Alrighty, a couple of general issues with the Rift-S/*solsticeVR* that I have discovered:

1. Make sure you start the Oculus software **before** you start up *solsticeVR*. This is not **absolutely** necessary, but I have had a few issues pop up that seem to not happen when you go in this order each time.
2. Before you start using *solsticeVR*, in the Oculus software, check to make sure your Rift-S is connected and that it, and the controllers, do not require any firmware updates (**Note:** Oculus seems to update the firmware *a lot*. There is a good chance that if you are having connection issues it is simply because you need to go in and do an update) To check and see that everything is all good, go to your Oculus software, click devices on the left hand side. You should get a screen like this with lots of green if all is good to go:



3. If your Rift-S is not found/not connected/something else, first check to see that it is indeed connected to the PC (DisplayPort cable to the GPU on the back, USB to a USB port). If it is connected, and still not visible, shut down the Oculus software and reboot the computer entirely.
 - a. If it is *still* not connected after this, please document what you are seeing and send me a note ASAP.
4. Even though you do not need to use the controllers for *solsticeVR*, they **must** be present and full of battery for the Rift-S to function. If you are out of battery power in one of the controllers, replace them ASAP (we will have some batteries in the lab for this purpose). Generally, you will get about 2-3 weeks on a set of batteries, even at idle, so this may happen frequently. To replace the batteries, simply pop off the protective cover on the controllers (backside - it is magnetic) and swap them out.
5. Additionally, feel free to troubleshoot on the Oculus forums:
<https://support.oculus.com/rift-s/>

Leap Motion Support:

The Leap Motion Controller is the small camera-like module attached to the front of your Rift-S. This allows the Rift-S to track your hand positions in *solsticeVR*, but is also responsible for determining all of the collisions you are making in VR (e.g., when you hit a button, touch an object, etc).

1. Mount your Leap Motion controller on the front of your Rift-S using the Leap Motion bracket (pictured below), or similar method of attachment (3M velcro such as <https://amzn.to/2sxm1ax> works well).



2. Download and install the Leap Motion configuration software, Orion SDK, from Leap Motion: <https://developer.leapmotion.com/get-started>.
3. Often, you get a pop up in the corner telling you there is a smudge on the controller and that it will not track properly. This is because you (or me, or someone!) may have touched the front of the controller. Try not to do this! But, if you are getting the warning, simply wipe off the front of the controller with a lint-free material (I will try to get lens cleaners in the lab, but you can probably get away with using your shirt...if it is clean).
4. **Occasionally**, you will start up *solsticeVR* and your hands will be upside down. I have **no** idea why this happens, but it appears to be an unfixable bug with the Leap Motion software. Thankfully, there is an easy fix: **simply unplug the cable going into the controller (on the headset, not on the back of the PC) and**

plug it back in. This will force a reboot of the controller and, at least for me, has always cleared up the problem. If this happens to you, and the above does **not** fix the issue, try a complete reboot of your PC. If that does not fix the issue, please document it and send me a note ASAP.

solsticeVR: Audio Sandbox

Leveraging the power of virtual reality and Unity, *solsticeVR* is a unique electronic music composition sandbox where amateurs and professionals alike can freely compose music based on their own original, custom samples. Designed to supplement and not replace traditional 2D audio environments such as Logic or Pro Tools, *solsticeVR* is an easy to use yet powerful, and deep experience. Artists are able to load up to 86 mp3, .wav, or .ogg files into custom arrays, and then instantiate and manipulate these samples in a truly 3D audio environment. Multiple acoustic, immersive spaces are available, ranging from a dark, reverberant cave, to a dry, bright snowy day, each with their own custom acoustic profiles.

At any point throughout the experience users can begin to record their mix directly to their PC in .wav format, capturing their creation as either a finished piece of improvisational art, or simply as a custom sample to be manipulated in another audio environment. The process of creating in *solsticeVR* is childish, fun, freeing, and truly different than other traditional methods of electronic composition.

Required Hardware:

Minimum System Requirements:

- **Windows PC** (there is currently no Mac support for *solsticeVR*)
- **GPU:** Nvidia GeForce GTX 970, AMD Radeon R9 290 equivalent or better
- **CPU:** Intel i5-4590, AMD FX 8350 equivalent or better
- **RAM:** 8 GB or more
- **Video Output:** HDMI 1.4, DisplayPort 1.2 or newer
- **USB Port:** 2x USB 2.0 or better port
- **Operating System:** Windows 10

Recommended System Requirements:

- **Windows PC** (there is currently no Apple OS support for *solsticeVR*)
- **GPU:** Nvidia GeForce GTX 1060, AMD RX 580 or better
- **CPU:** Intel i7-7700, AMD Ryzen 1700 or better
- **RAM:** 16 GB or more
- **Video Output:** HDMI 1.4, DisplayPort 1.2 or newer
- **USB Port:** 2x USB 2.0 or better port
- **Operating System:** Windows 10

VR Head Mounted Display (HMD) Requirements:

- **HTC Vive:** <https://www.vive.com/us/>
- **Oculus Rift:** <https://www.oculus.com/rift/> (unavailable for purchase directly from Oculus - superseded by Rift-S)

Recommended VR Head Mounted Display (HMD):

- **Oculus Rift-S:** <https://www.oculus.com/rift-s/>

Leap Motion Controller: <https://www.leapmotion.com/>

- A **Leap Motion Controller** is required for hand tracking.