

Using TiltBrush with Unity

How to import DICOM data into TiltBrush for immersive editing and art-making with the TiltBrush VR controllers within Unity

Scripts required: KTVR TiltBrush Extension, GenericLoader

GitHub link: <https://github.com/Know-Thymself-as-a-Virtual-Reality/KTVR-DICOM-Tools>

VIMEO link: <https://vimeo.com/735183720>

Note:

- Requires use of [Unity version 2018.4.11](#) (found in [Unity Download Archive](#)).

Step by step (initial setup):

1. If you don't already have [SteamVR](#) installed, use the link to visit the [Steam website](#) or search for Steam. Make an account if you don't already have one.
2. Download and install [Steam](#) and follow their instructions to set it up. Then open the program and ensure Store is selected at the top left of the screen.
3. Search for [SteamVR](#) and install the extension by the same name (fig. 1).
4. If you don't already have the [Oculus Integration](#) package installed, download it from the [Oculus website](#) (full instructions for this step can be found [here](#)).
5. Acquire the [project file](#) from [GitHub](#):

6. If using [Git Bash](#): Copy the code from GitHub (fig. 2). Then open Git Bash and enter the text "git clone" then hit shift and paste the GitHub link (fig. 3). You can then skip step 7.
7. If not using Git Bash: Skip step 6. Download the [ZIP file](#) from GitHub (fig. 4) and unzip it. Then open [Unity Hub](#) and click [Open](#) to access the project file (it'll be in your computer's downloads folder unless you saved it elsewhere).

Step by step (link [TiltBrush and Unity](#)):

8. With TiltBrush and Unity open, ensure the [KTVR Tiltbrush Extension](#) from the project file is in the Unity Hierarchy.
9. To import your DICOM data, find the [cube](#) within the DICOM loader in the KTVR Tiltbrush Extension in the hierarchy (fig. 5) (this is within the TiltBrush Main Canvas, meaning you'll be able to edit (resize, reposition, etc) the DICOM dataset in TiltBrush).
10. With the cube selected, go to the project folders at the bottom of the Unity window and navigate to [Assets](#), then [KTVR-tiltbrush-Extension](#), [Resources](#), [3D](#), then [Chest](#) (fig. 6). Right click the bottom [T04](#) file in the Chest folder and select "show in explorer" (or "show in finder" on Mac).
11. The [Chest](#) folder should open on your computer. This is where the [.mhd](#) and [.raw](#) files for your DICOM data should be placed for importing (meta files will be created for you).
12. In Unity, with the cube still highlighted in the hierarchy, go to the inspector window and under [GenericLoader](#) update the [Image Dir](#) (image directory)



field to match the location of the dataset you'd like to import (fig. 7).

13. Hit the [Play](#) button and TiltBrush should start up in Unity with your dataset automatically in the scene.

Step by step (working in TiltBrush):

14. Using your VR headset and controllers, the left hand holds the palette and the right hand operates the main controls and cursor.
15. Use the right-hand cursor to select [New Sketch](#) from the palette (fig. 8).
16. Moving left/right on the right-hand joystick changes brush size (fig. 9).
17. Use the bottom grips to allow moving/resizing objects.
18. Exporting from TiltBrush will export everything you've drawn in the scene but not the DICOM dataset you loaded in. Don't worry though, it can be re-imported alongside the drawings afterwards using the [KTVR DICOM tools](#).
19. Save works in progress within TiltBrush using the [Sketchbook](#) function in the left-hand menu. They should be listed next to New Sketch when reopening Tiltbrush so you can continue working.





Fig. 1
Install SteamVR (center)

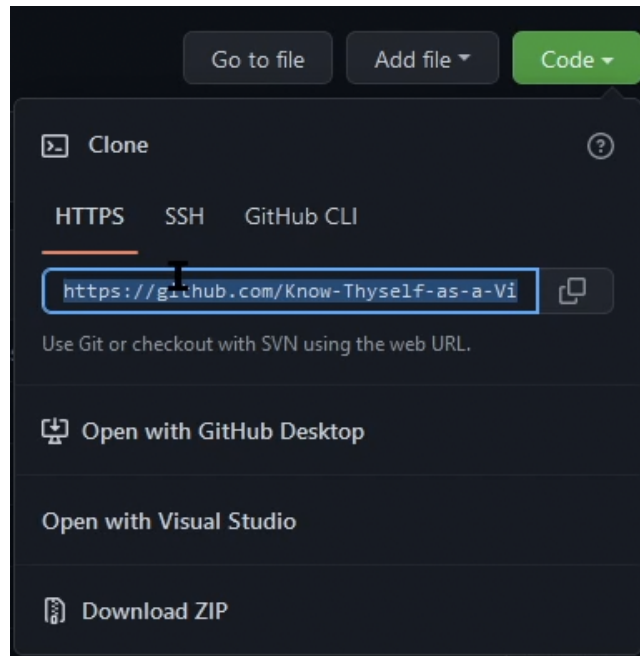


Fig. 2
Copy the GitHub link if using Git Bash

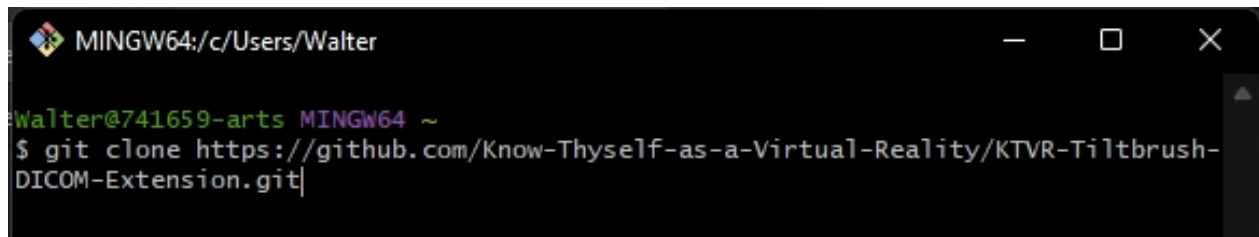


Fig. 3
Type 'git clone' and paste link if using Git Bash



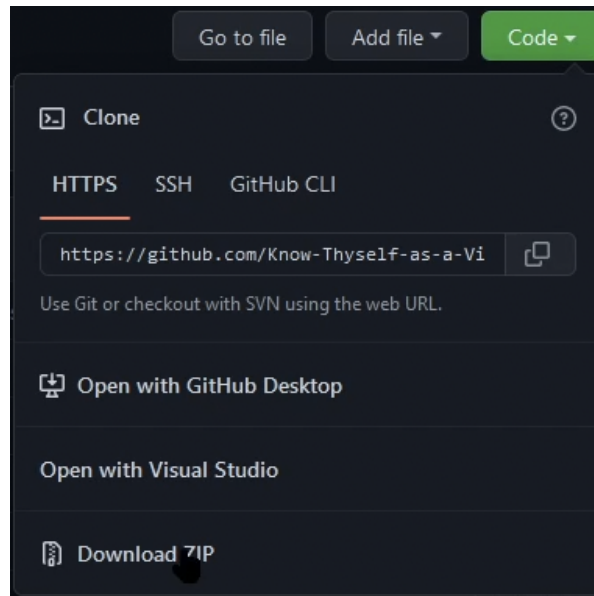


Fig. 4

If not using Git Bash, download and open the ZIP folder

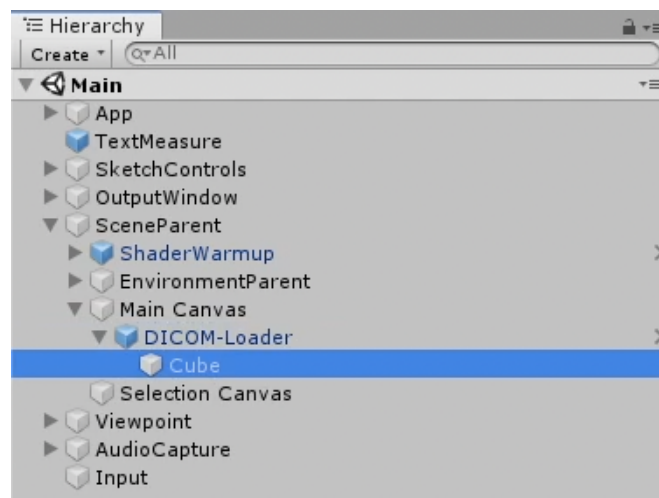


Fig. 5

Location of Cube within DICOM loader

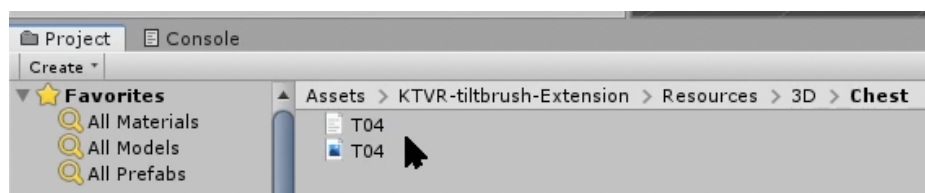


Fig. 6

Navigate to Assets, then KTVR-tiltbrush-Extension, Resources, 3D, then Chest



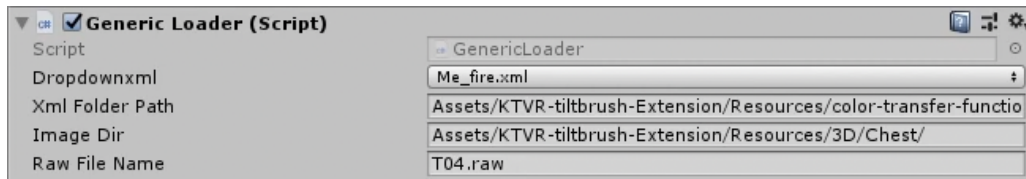


Fig. 7

Under Generic Loader, change the Image Dir field to the location of the files to be imported



Fig. 8

Open a new sketch (left), or if you have saved sketches they'd be found on the right side

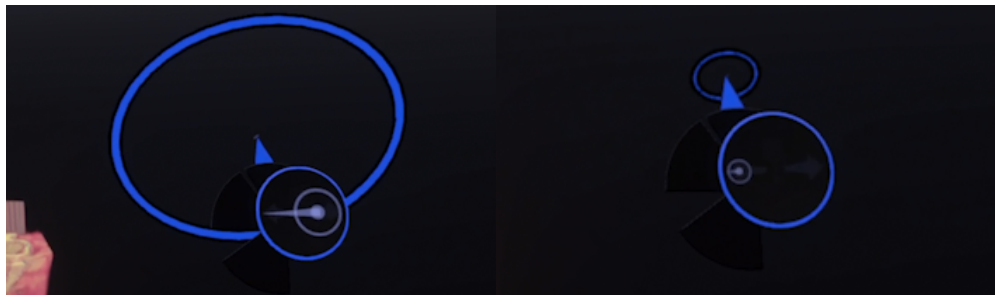


Fig. 9

Use right-hand joystick to make the brush larger or smaller