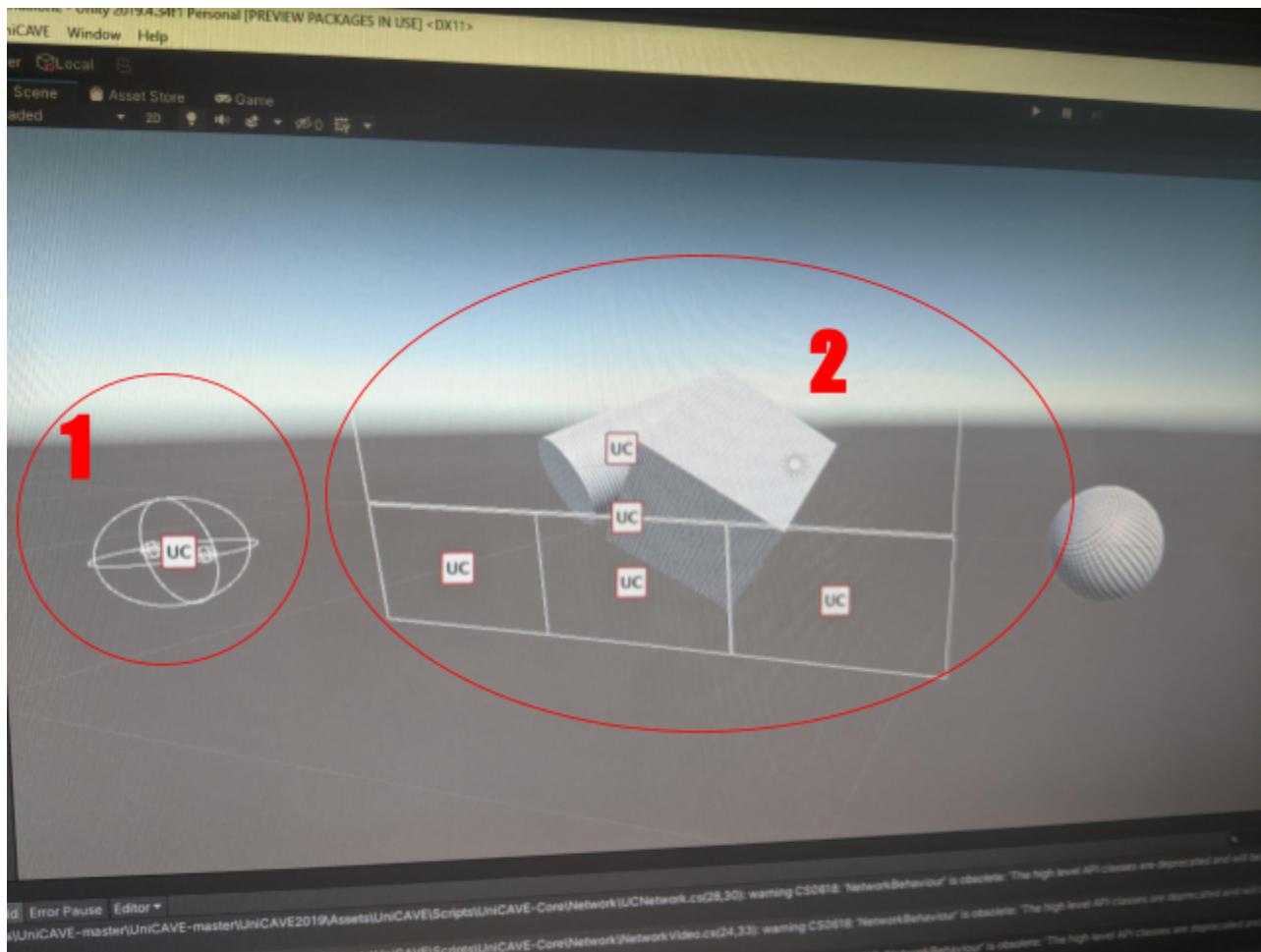


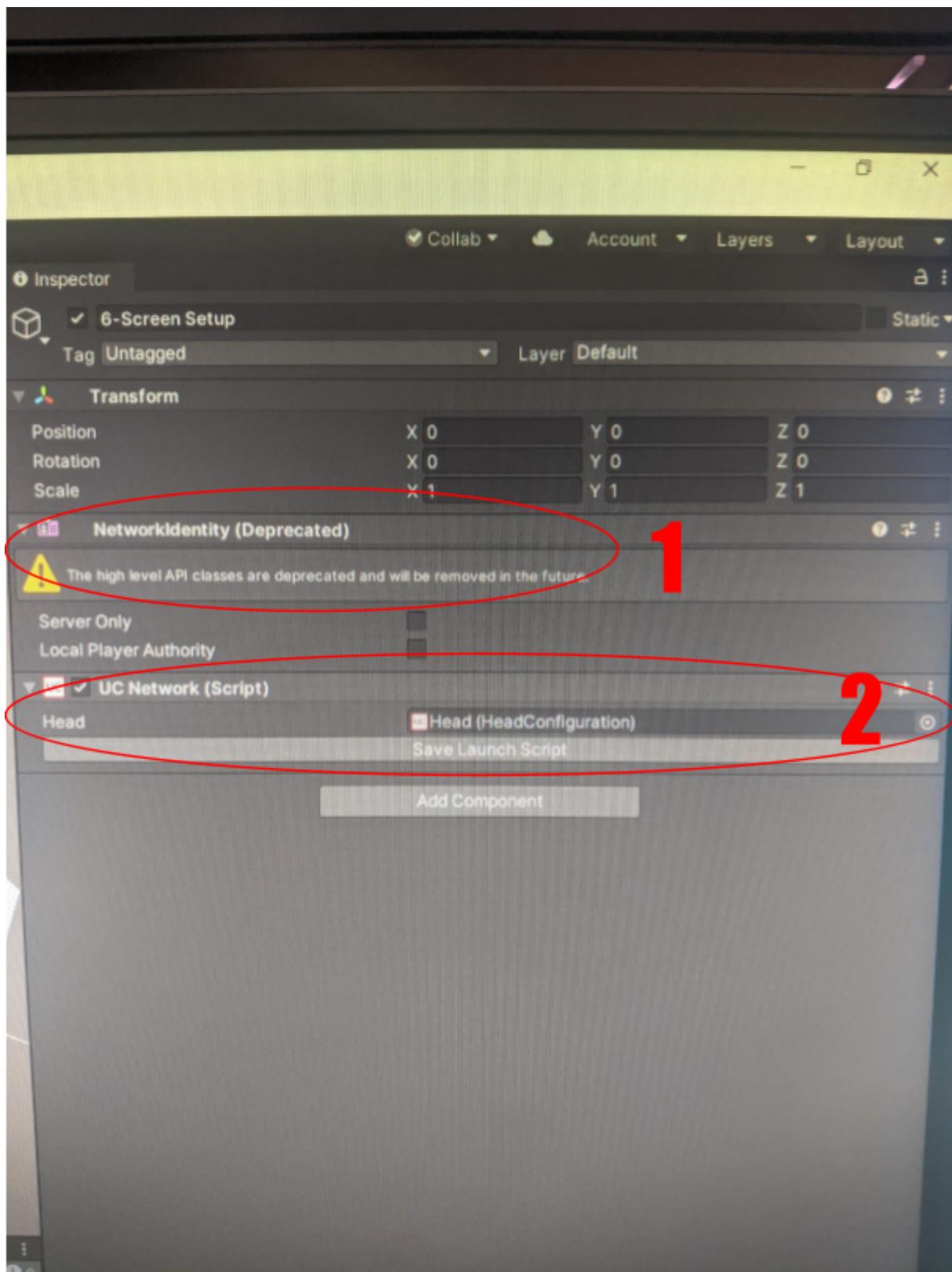
Full UniCAVE Documentation can be found here: <https://github.com/widVE/UniCAVE/wiki>

This is a document detailing how to get working and/or modify the UniCAVE systems in both NCS and CEWIT Silo. Images shown here will be using the NCS setup as an example, but what is explained here will work for both systems.



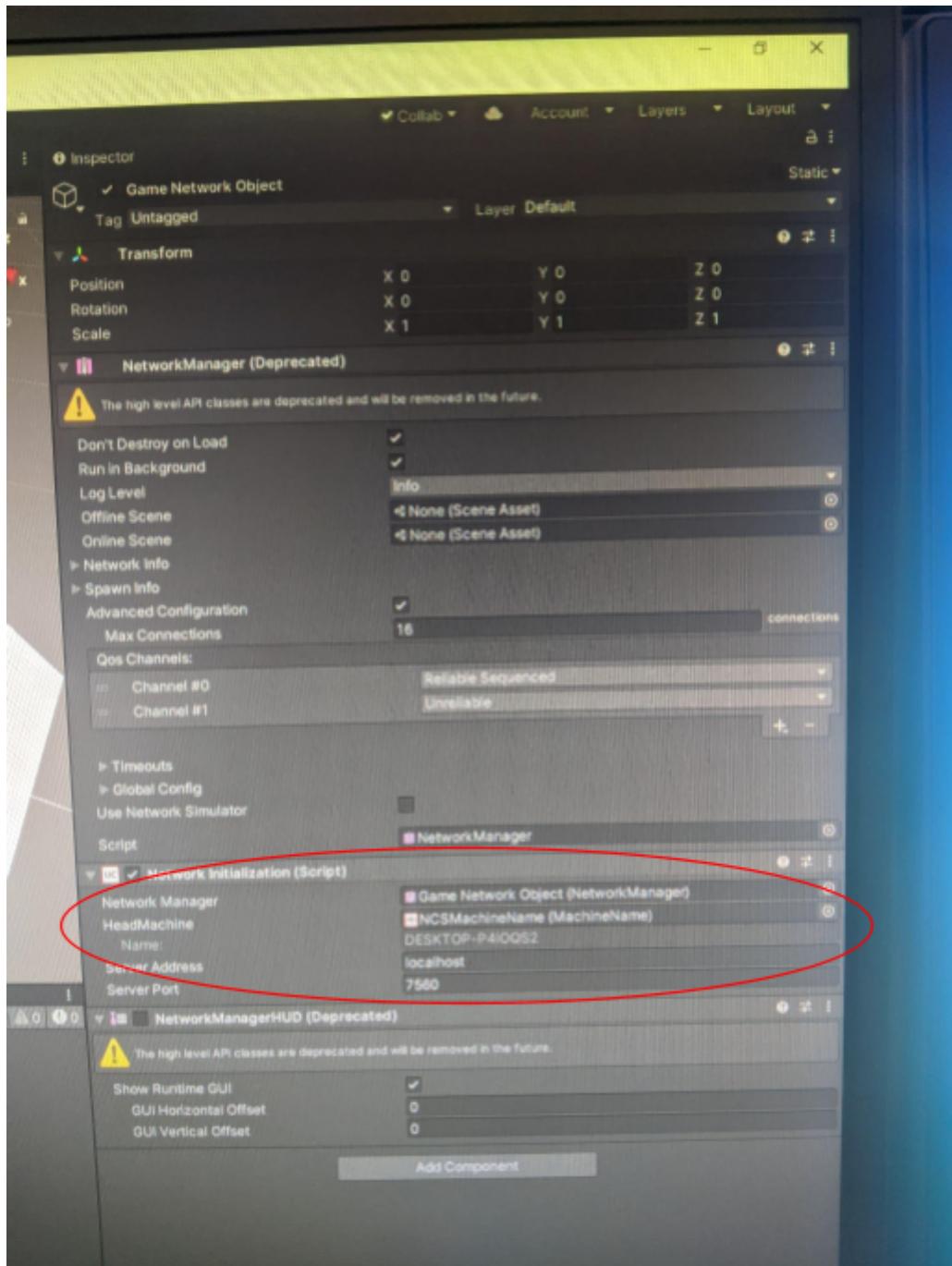
This is an example of how a scene would look like. The object in circle 1 is known as the “head”. This object is meant to represent the user’s physical head in the space (which direction/location the user will be observing the screens from). You can move this object around to change the perspective of objects on the screen. The objects in circle 2 (ignoring the cube and cylinder) are the physical displays. These are the layout of the physical screens being used to show the image on (typically a desktop computer and its monitors). The screens can be moved around the scene according to their relative location/ rotation to each other in the real world.

In the hierarchy, all these objects are wrapped within a Network Script and there is a separate Network Manager, the details of which are explained below.

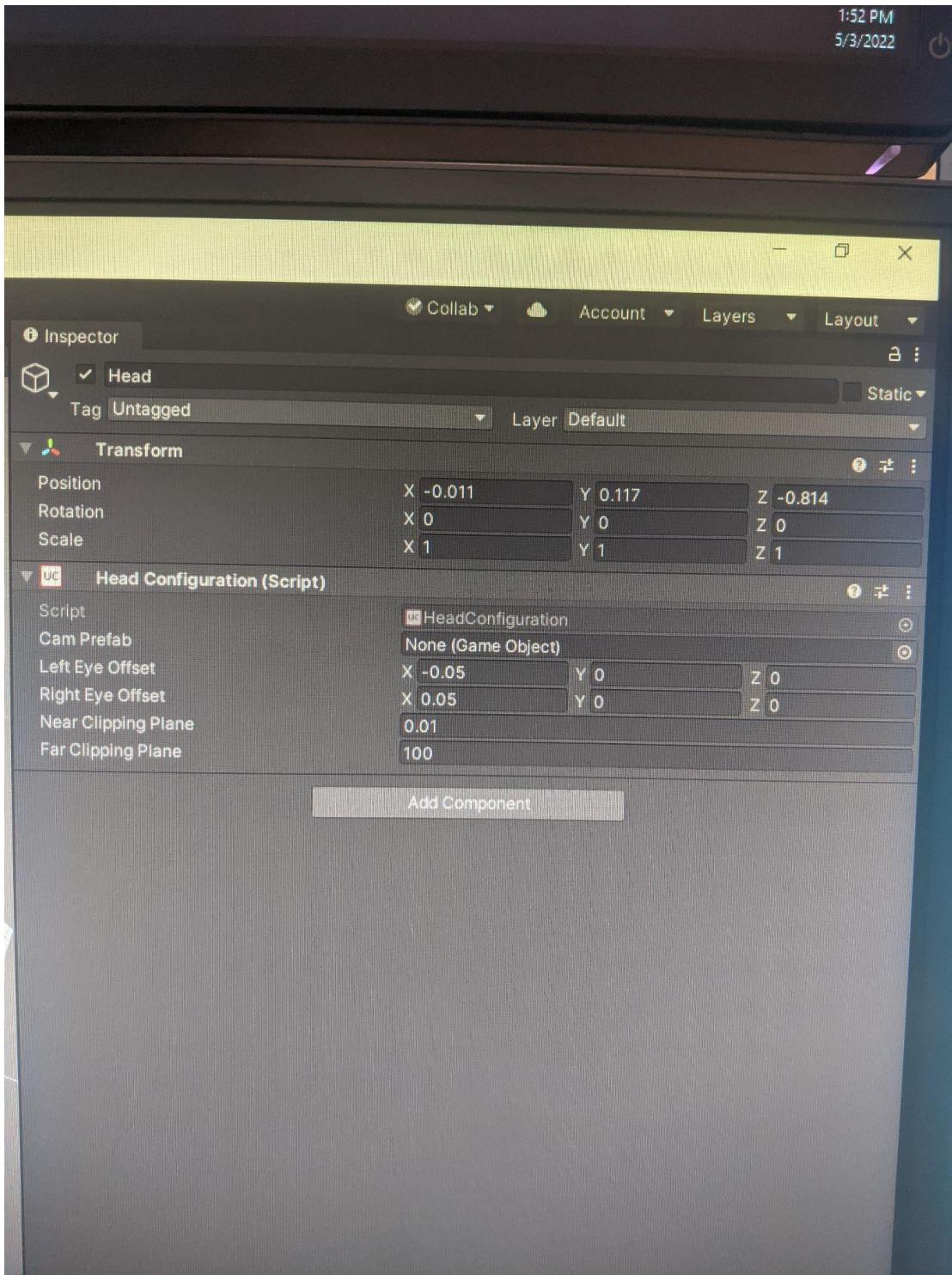


Line 1 is the Network Identity script. Even though it says it is deprecated, it is still needed to run UniCAVE. Depending on the version of Unity, you might need to install these scripts with the

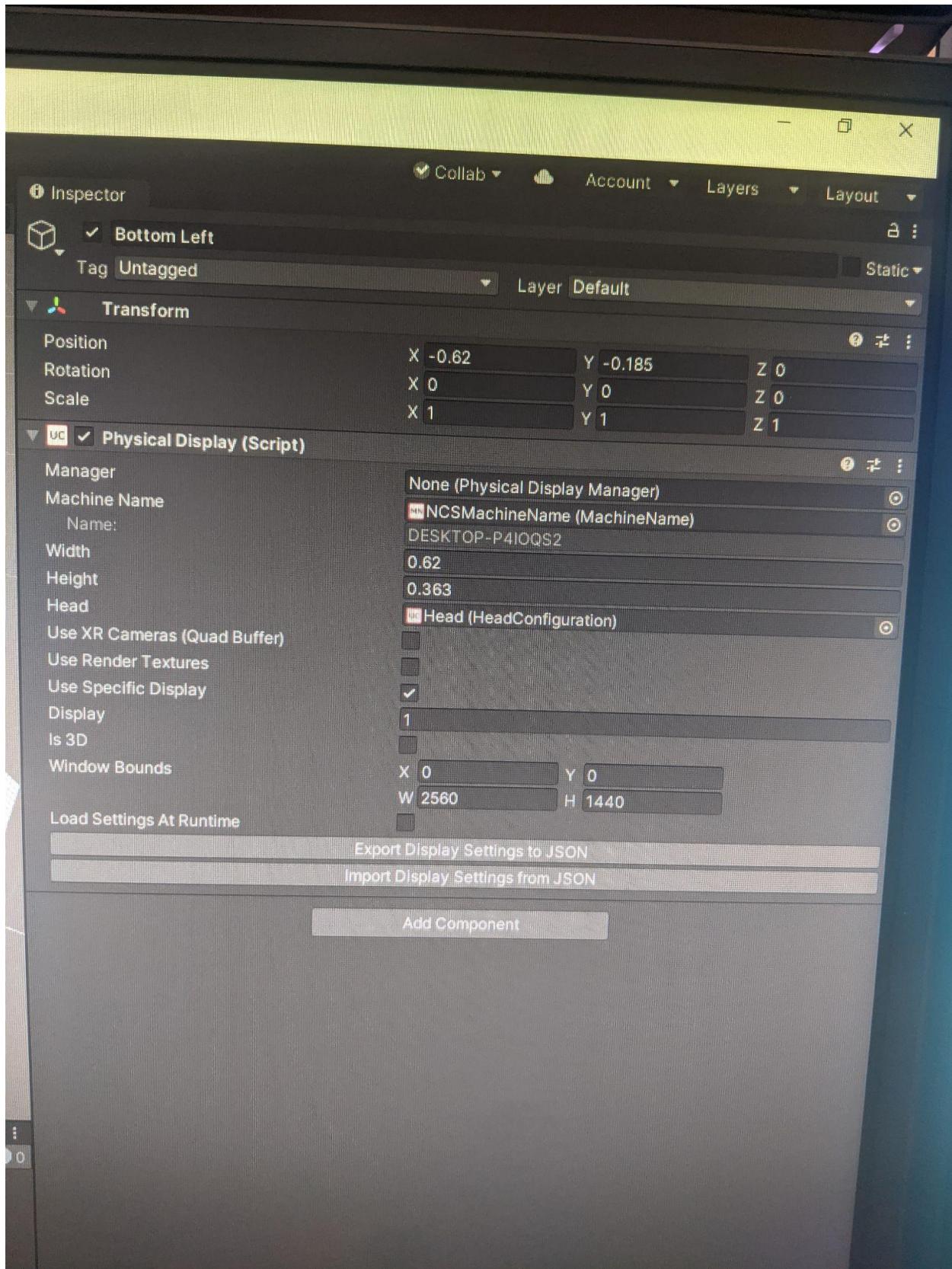
Multiplayer HLAPI package that comes with Unity. Line 2 is the UC Network script that comes with Unity. All this script needs is a reference to the head object. The head object should be a child of this object and its details are explained below.

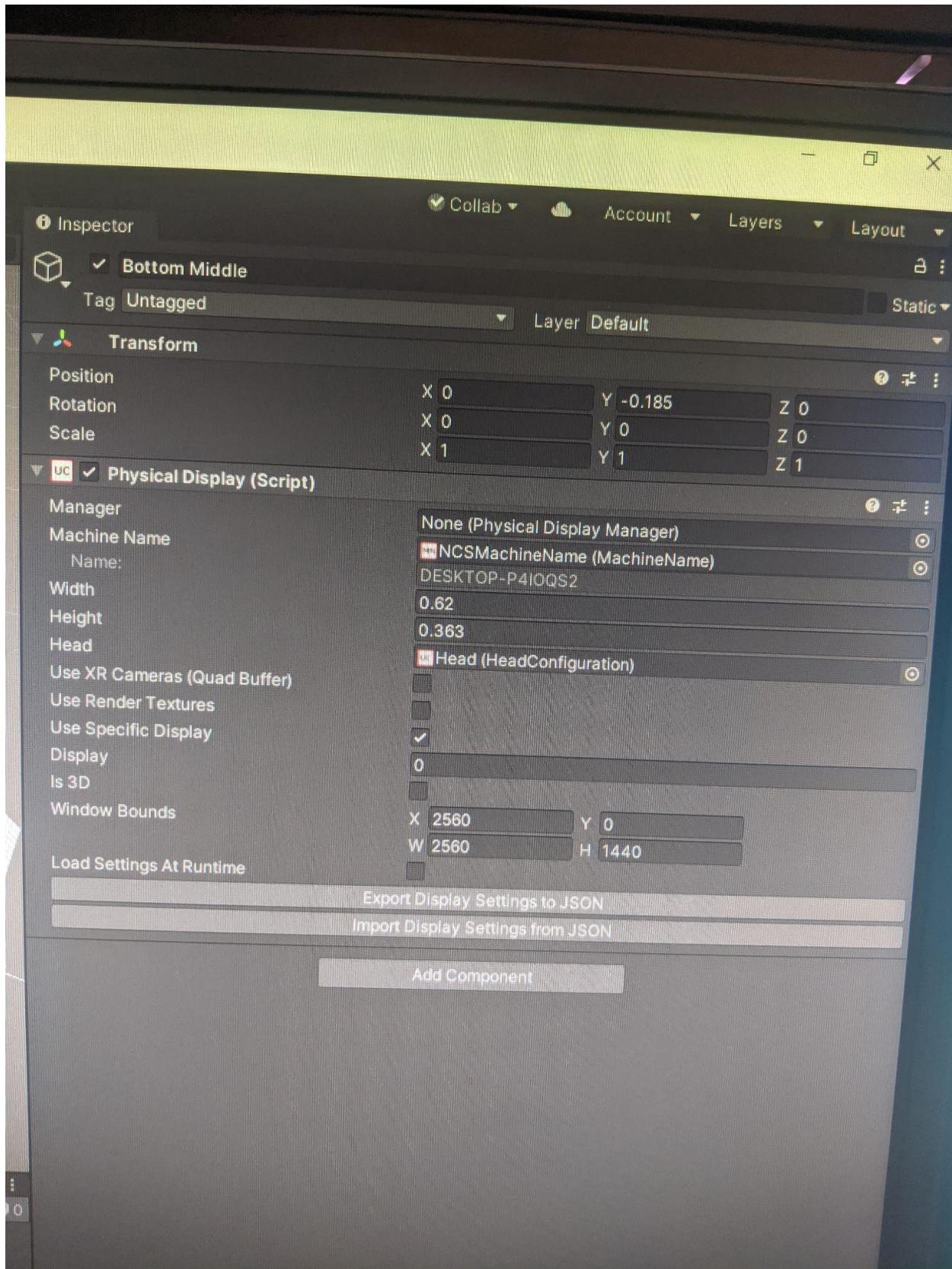


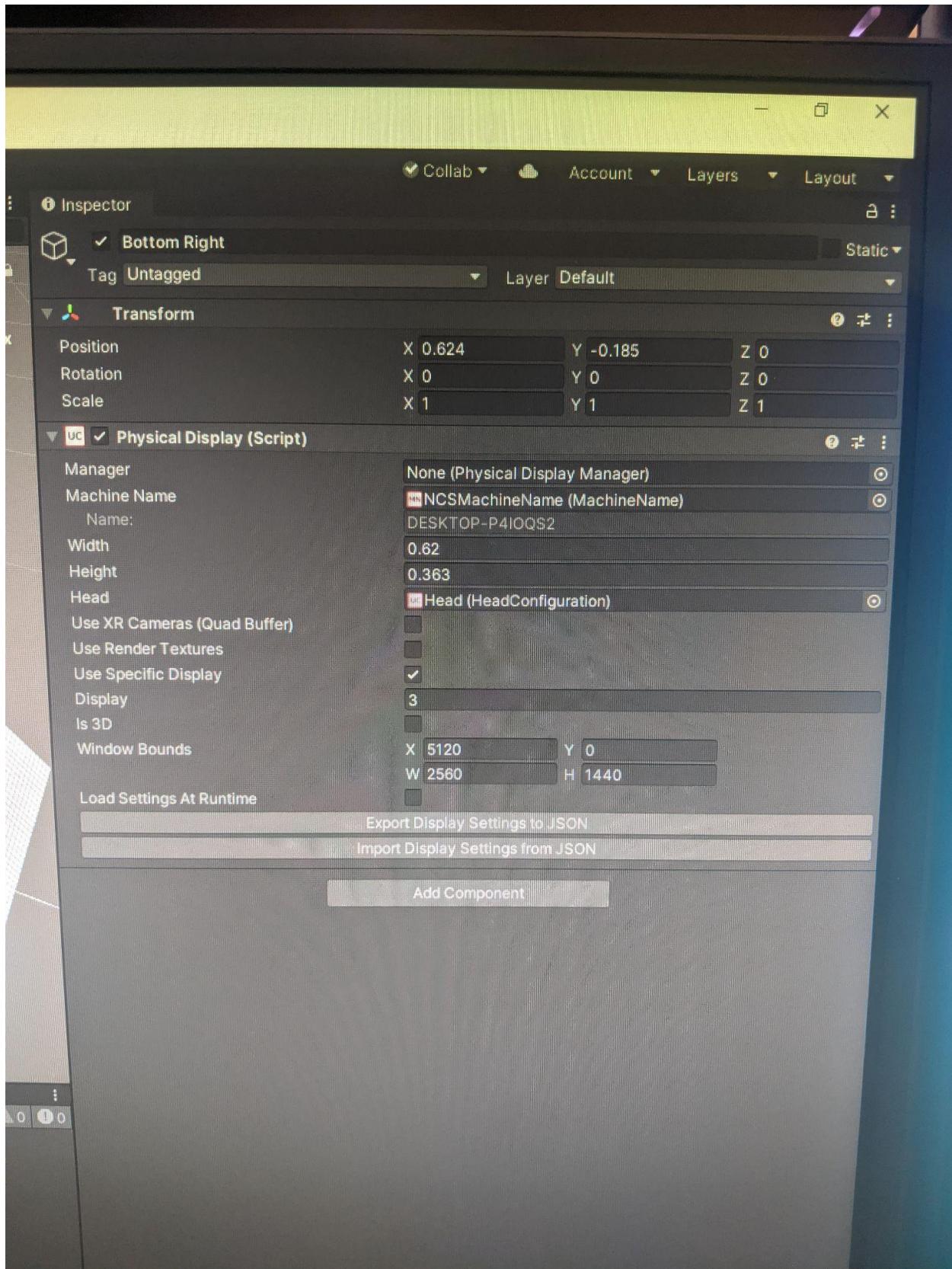
The Network Game Object is the same, in that it uses many deprecated scripts. Important to note here is the Network Initialization Script (circled in red) which requires a Machine Name. Depending on the version, you either need to type this in manually or create a Machine Name object. Details here: <https://github.com/widVE/UniCAVE/wiki/Machine-Name> It is also important to correctly set up the network. Make sure that your server address is "localhost", or the program will crash. IP addresses do not work. Any port number should be fine.

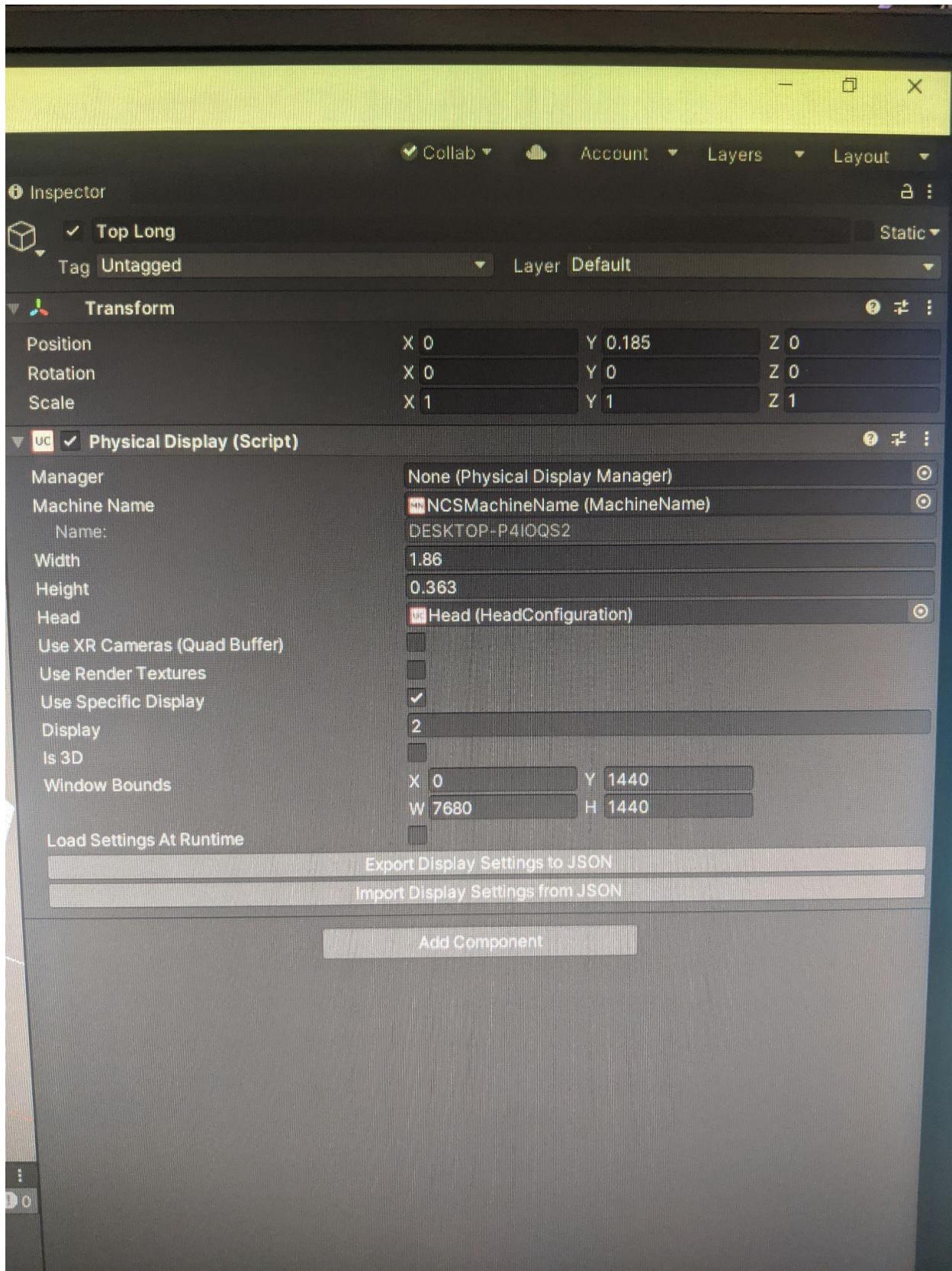


The head object only requires a Head Configuration script. Depending on the version, a Cam Prefab may be required. The Left Eye and Right Eye offset control the location of the cameras on the head. This will most likely need to be adjusted if the stereo 3D appears incorrectly, but these default values should be fine. The Near and Far Clipping Planes determine how close and how far from the head objects need to be before they are no longer rendered. These values should be fine as well but can be changed if needed.









These previous four images showcase the Physical displays of the NCS setup. A Physical Display Manager should not be needed for our cases. Machine Name is needed here. The width and height are the physical dimensions of the screen(s). If multiple monitors are combined into one using Nvidia Mosaic, the dimensions need to combine the size of all the monitors (see Top Long for an example). Make sure to set a specific display and make sure each display is unique. “Is 3D” will **need to be checked on** before doing any stereo 3D, so make sure the setting is on before doing so. In the “Windows Bounds” settings determine the resolution and location of the screen. The W and H settings are the resolution X and Y axis. The X and Y settings determine the physical offset of the screen from the bottom left corner of the setup (note that the “Bottom Left” and 0 X, the “Bottom Middle” has 2560 X due to being shifted to the right 1 screen, and “Bottom Right” has 5120 X due to be shifted over 2 screens.) These settings will need to be adjusted appropriately if any change are made to the real world screen setup.