

VR Tool Gun

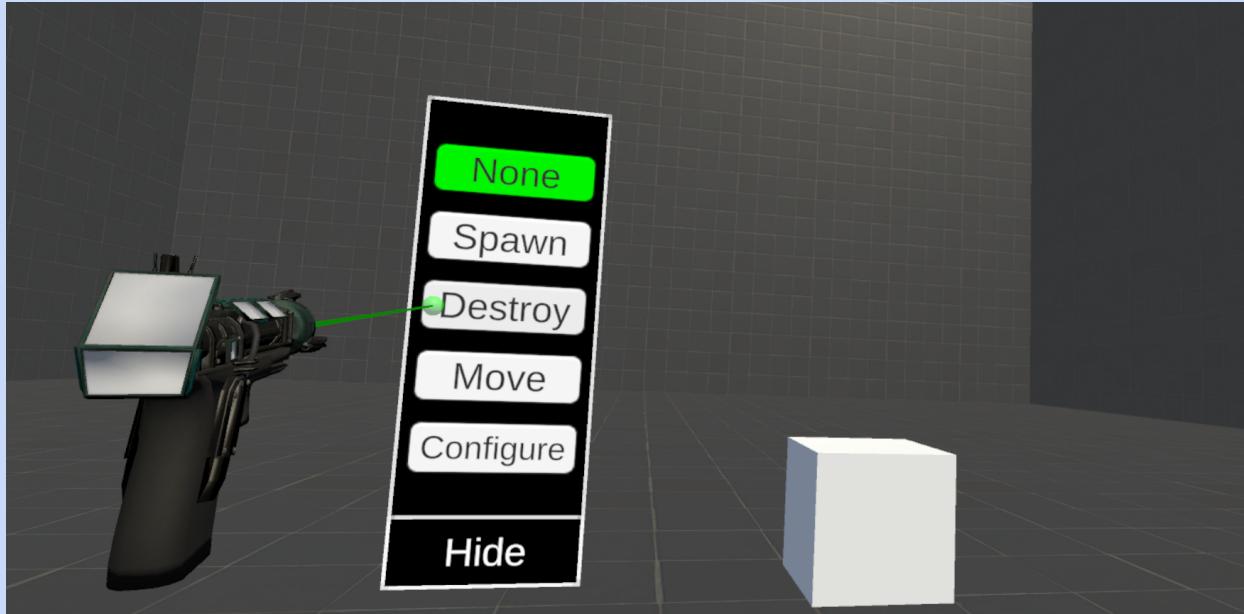
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The **VR Tool Gun** is a package intended for usage in virtual reality sandbox games. The tool is designed to be modular to the fullest extent possible, enabling developers with the ability to create their own functionalities. Please keep in mind that the asset package and this documentation are works-in-progress. Also note that the package was developed using the Oculus Quest 2 in Unity version 2021.3.4f1 with Unity's OpenXR plugin.

The tool gun is an in-game object that players can use to manipulate any **GameObject** with the **SelectableObject** component attached. In the demo package, the gun is a child of the right controller.

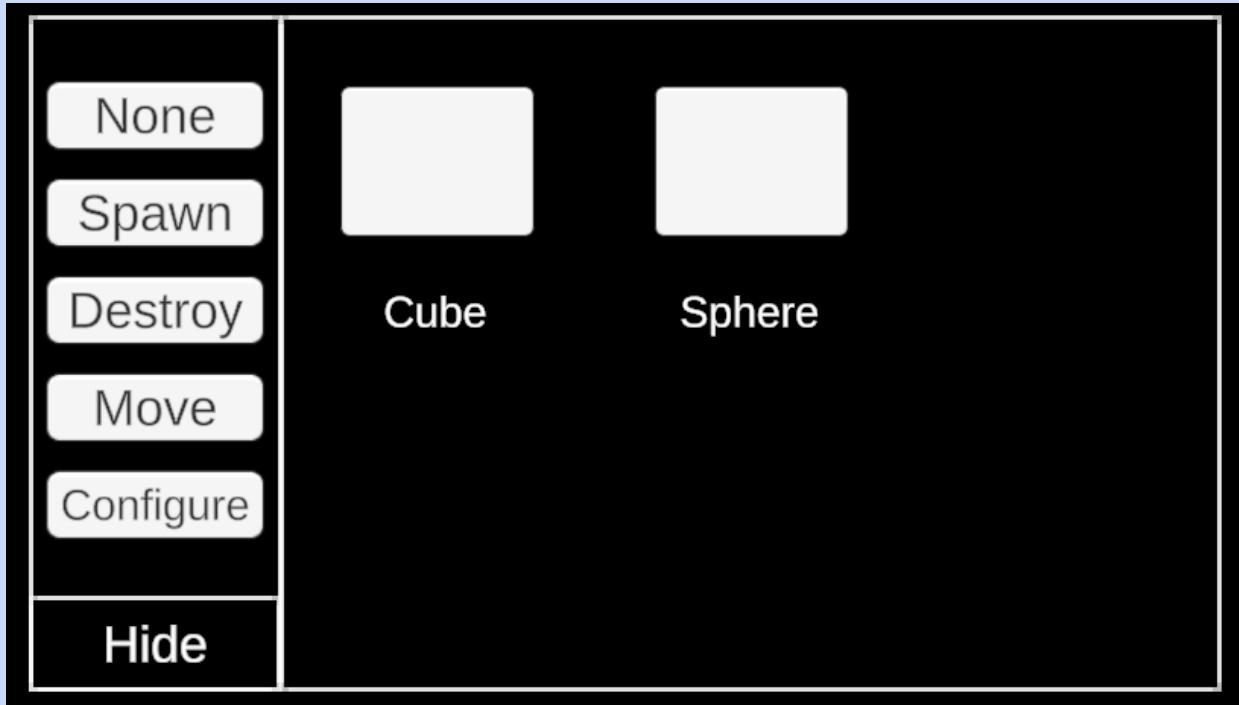


The tool gun has various modes that can be enabled through its user interface panel. Only one mode can be active at a time. The package currently includes the following modes: **Spawn**, **Destroy**, **Move**, **Configure**. A **VRPointer** is used to interact with world space UI elements, as well as **SelectableObjects**. The VR pointer visualizes a line in the gun's forward direction.



Spawn Mode

The **Spawn** mode allows players to instantiate various objects into the scene. A UI panel will appear once a user enters the spawn mode. This panel shows objects that can be spawned. A user can select one of these objects, then aim the gun toward a desirable spawn location, then spawn the object.

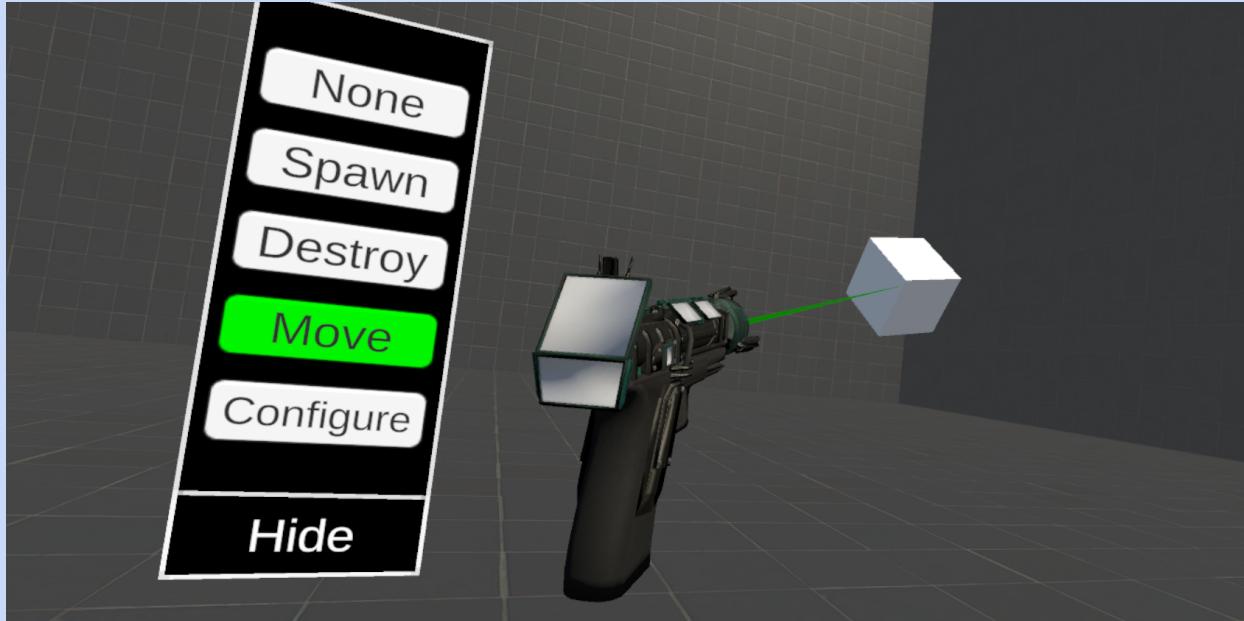


Destroy Mode

The **Destroy** mode allows players to delete objects that exist in the scene. When this mode is active, the user simply has to aim the tool gun toward any **SelectableObject**, then press the primary action button to destroy the object.

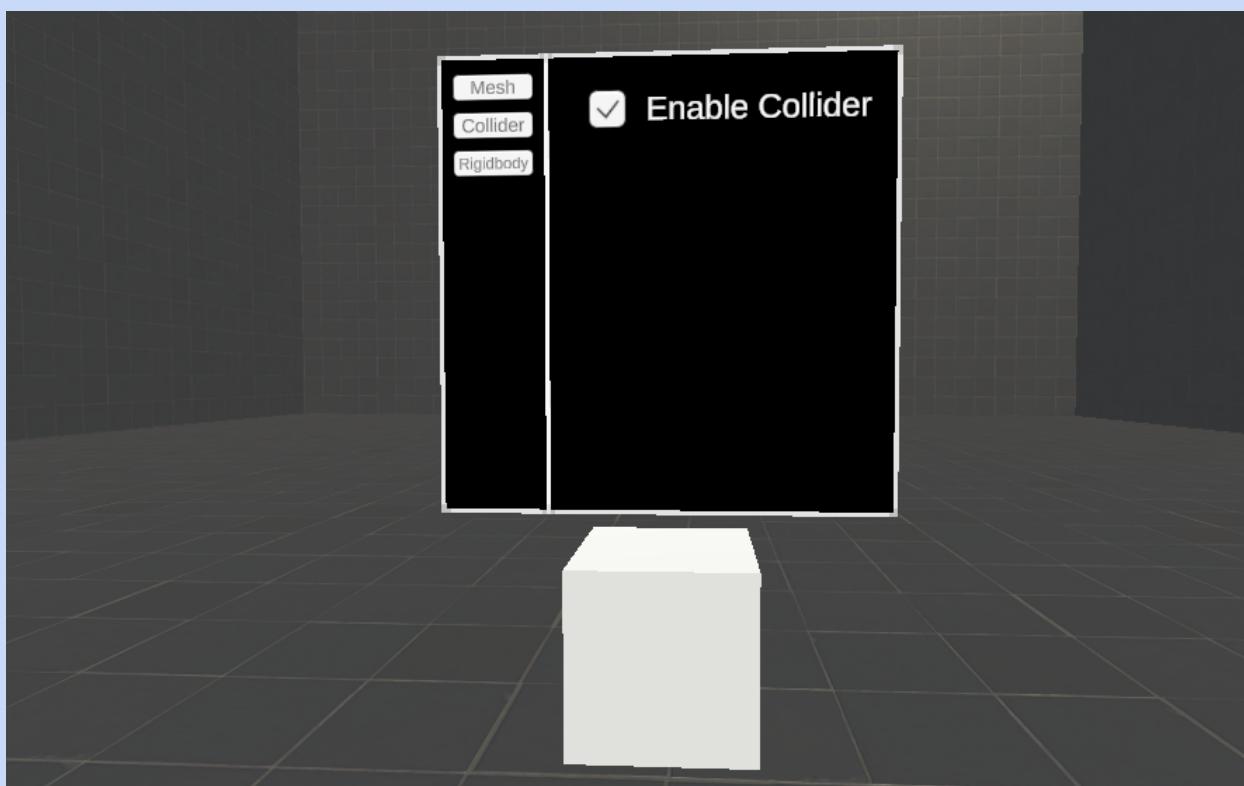
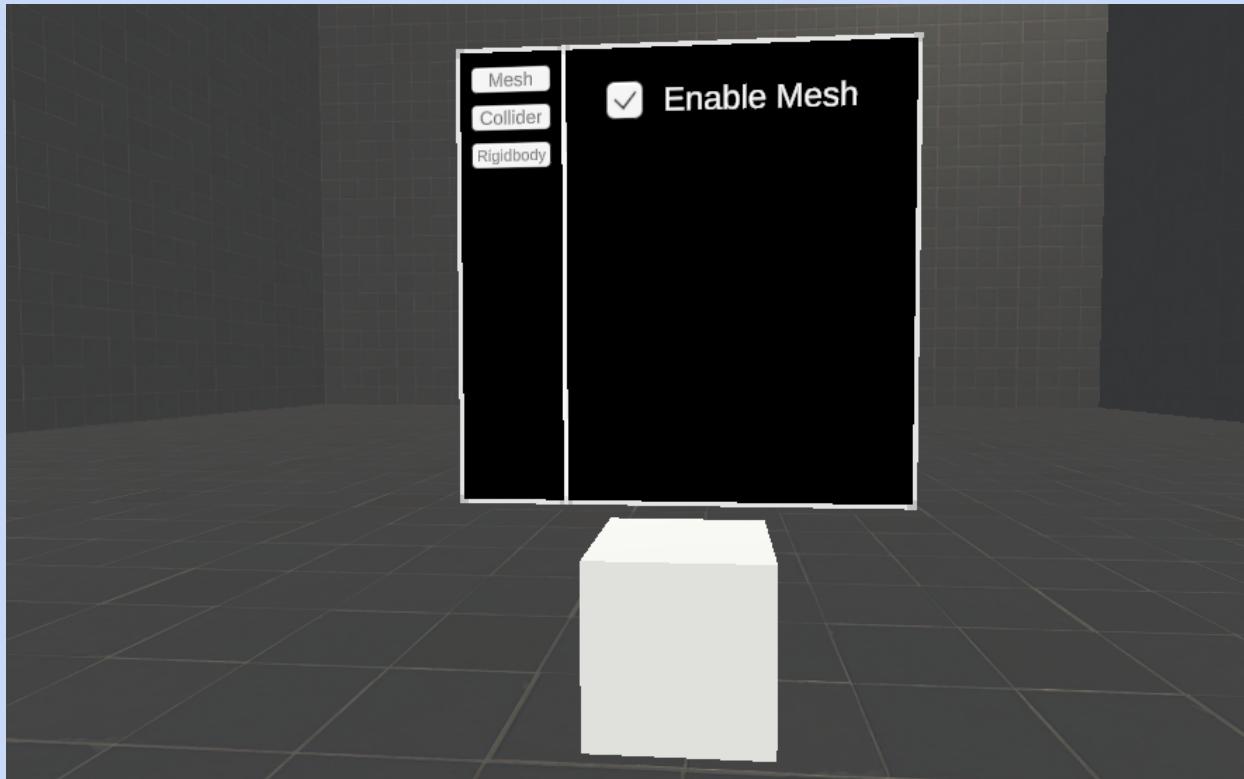
Move Mode

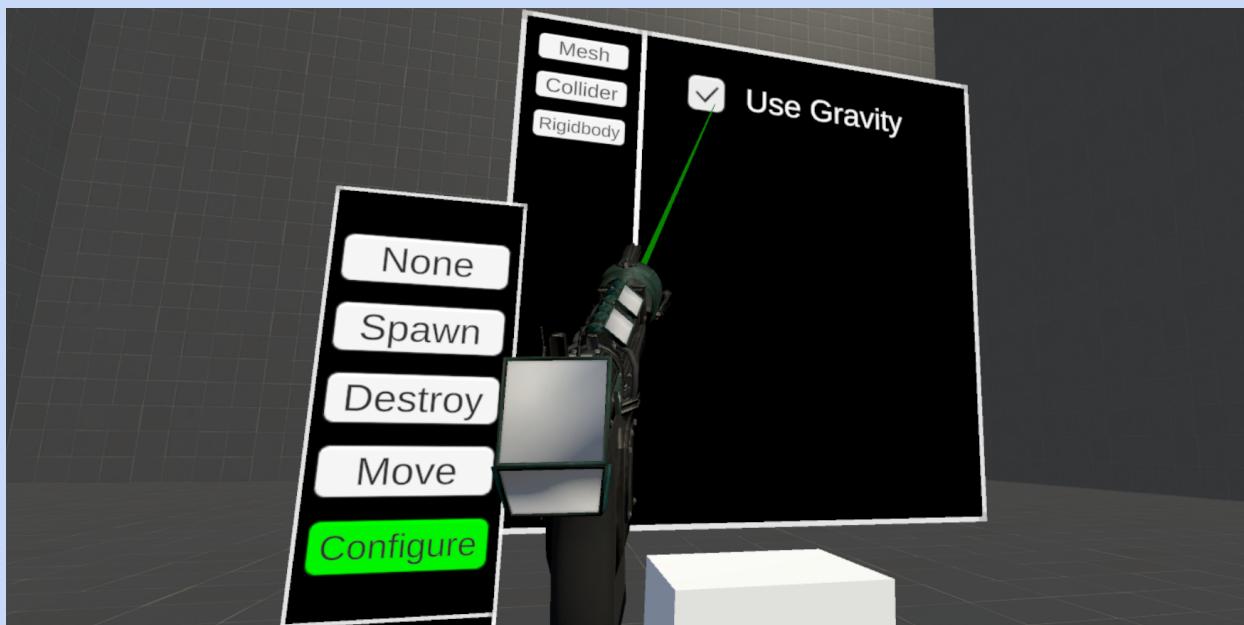
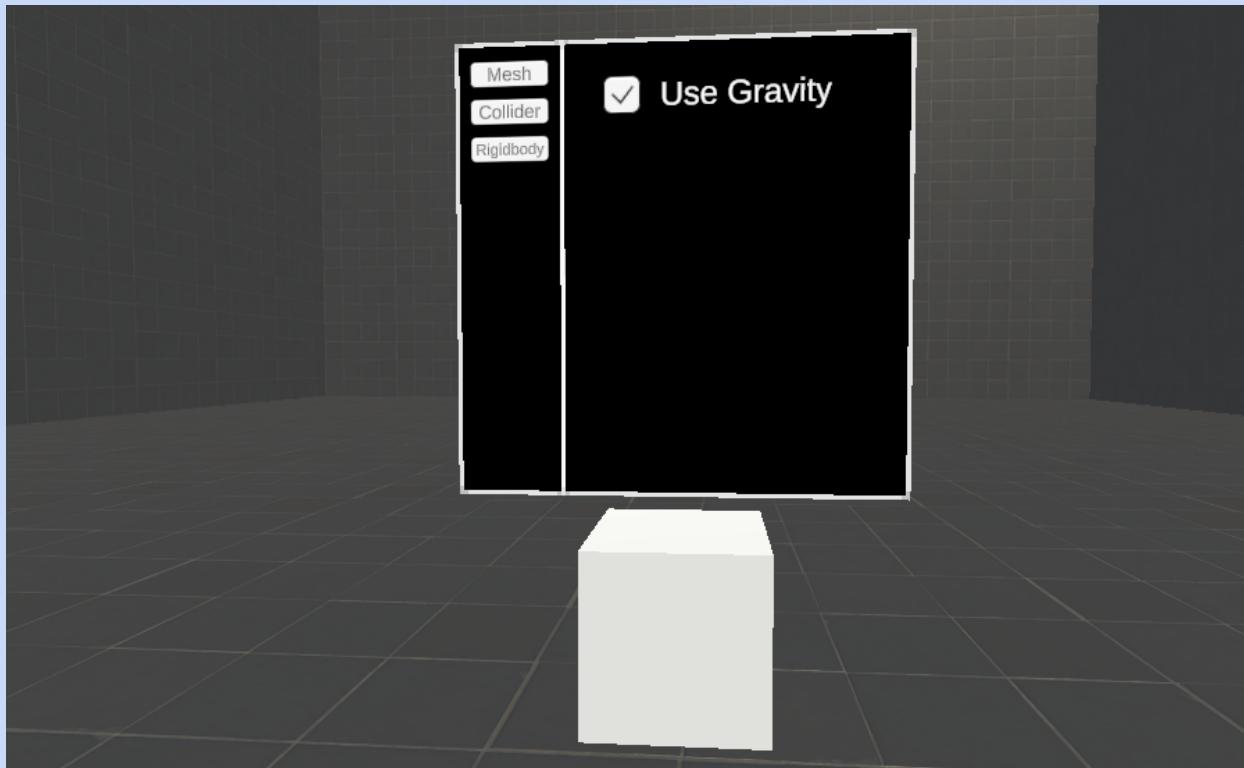
The **Move** mode allows players to move objects around in the scene. A user must select an object with the primary action button in order to begin moving it. Pressing the primary action button again will stop moving the object, and also deselect it.



Configure Mode

The **Configure** mode allows players to modify certain settings for various components associated with a given **SelectableObject**. Configurable objects have a **ConfigurableUI** panel. The left side of the panel shows a column filled with buttons. Each button is associated with a **ConfigurableComponent**. Each component's respective UI enables/disables after selecting its corresponding button (on the right side of the panel shown below). In these component panels, various settings can be modified.





Controls

The current control scheme is as follows:

- **Right Trigger - Mode Primary Action**
 - Fires the primary action for the current mode. Also selects world-space UI.
- **Right Primary Button (Oculus A) - Cycle Mode Down**
 - Cycles to the previous mode
- **Right Secondary Button (Oculus B) - Cycle Mode Up**
 - Cycles to the next mode
- **Right Joystick Click - VR Pointer Raycast Mod Toggle**
 - Toggles the VR pointer's raycast modification functionality. When toggled on, the raycast distance can be increased/decreased.
- **Right Joystick Y - VR Pointer Raycast Distance Increase/Decrease**
 - Increases/Decreases the VR pointer's raycast distance when the raycast mod toggle is on.

Future Features

Here is a list of features I plan to implement soon:

- Rotation mode
 - Will allow a user to rotate a selected object.
- Scale mode
 - Will allow a user to scale a selected object.
- Configurable presets
 - Will allow a user to save/load presets for all configurable components on an object.
- Batch configurable preset loading
 - Will allow a user to load a configurable preset onto numerous objects at once.
- More configurable components