

# Crash Course on Unity Programming



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# Game we are going to develop

- Immersive Virtual Reality
- Throw rocks in volcanos
- Different rock elements (Ice, Earth, Fire, Bolt)
- Gain points when appropriate rock element is thrown to a volcano
- Player does not need to move in the map

# Game we are going to develop

A faded, light blue background image of a person wearing a VR headset and holding a controller, with their other hand raised in a gesture.

**LIVE DEMO**

# What is Unity?

- Unity is a real-time development platform that permits to create and share 3D, 2D, VR and AR applications for various industries and platforms.

iOS

android



PS4

PS5

XBOX ONE



androidtv

tvOS



ARCore

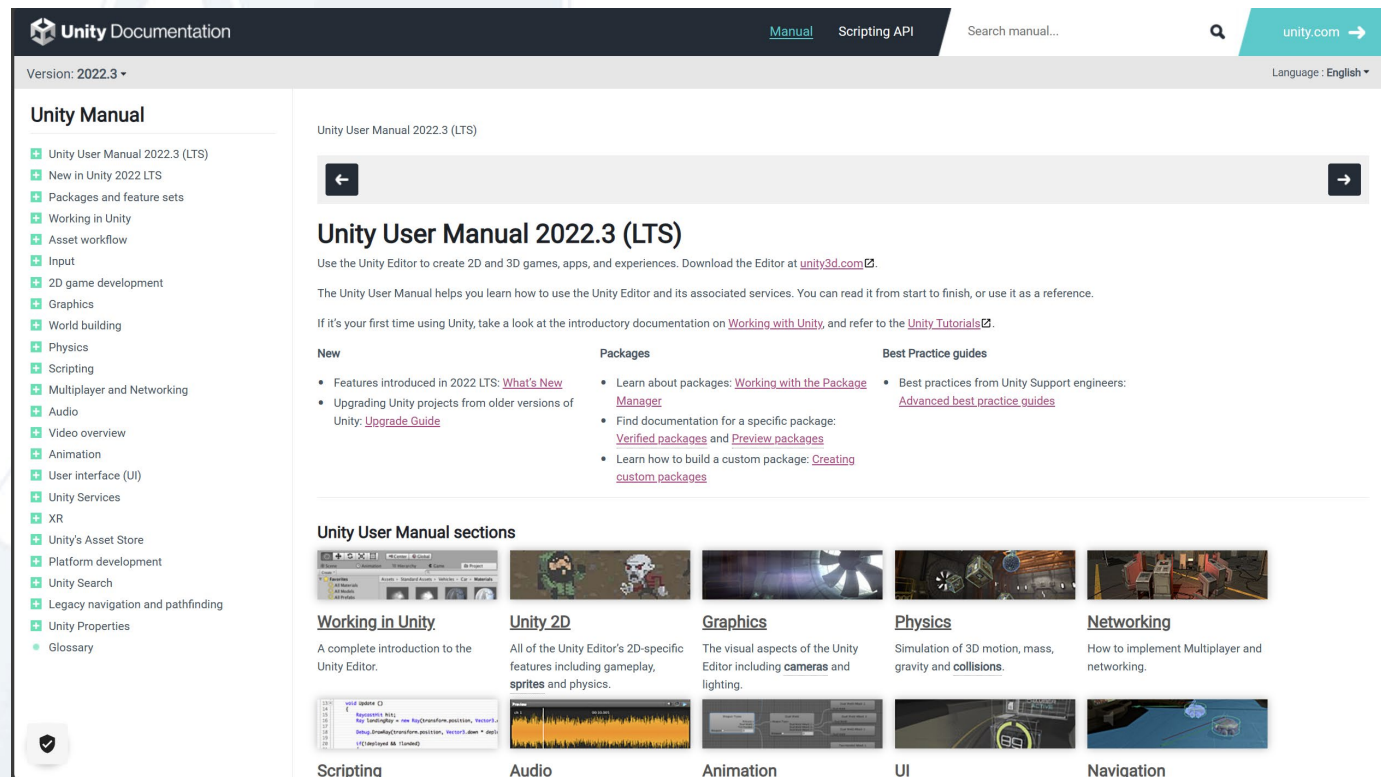


Microsoft HoloLens



# Unity Manual

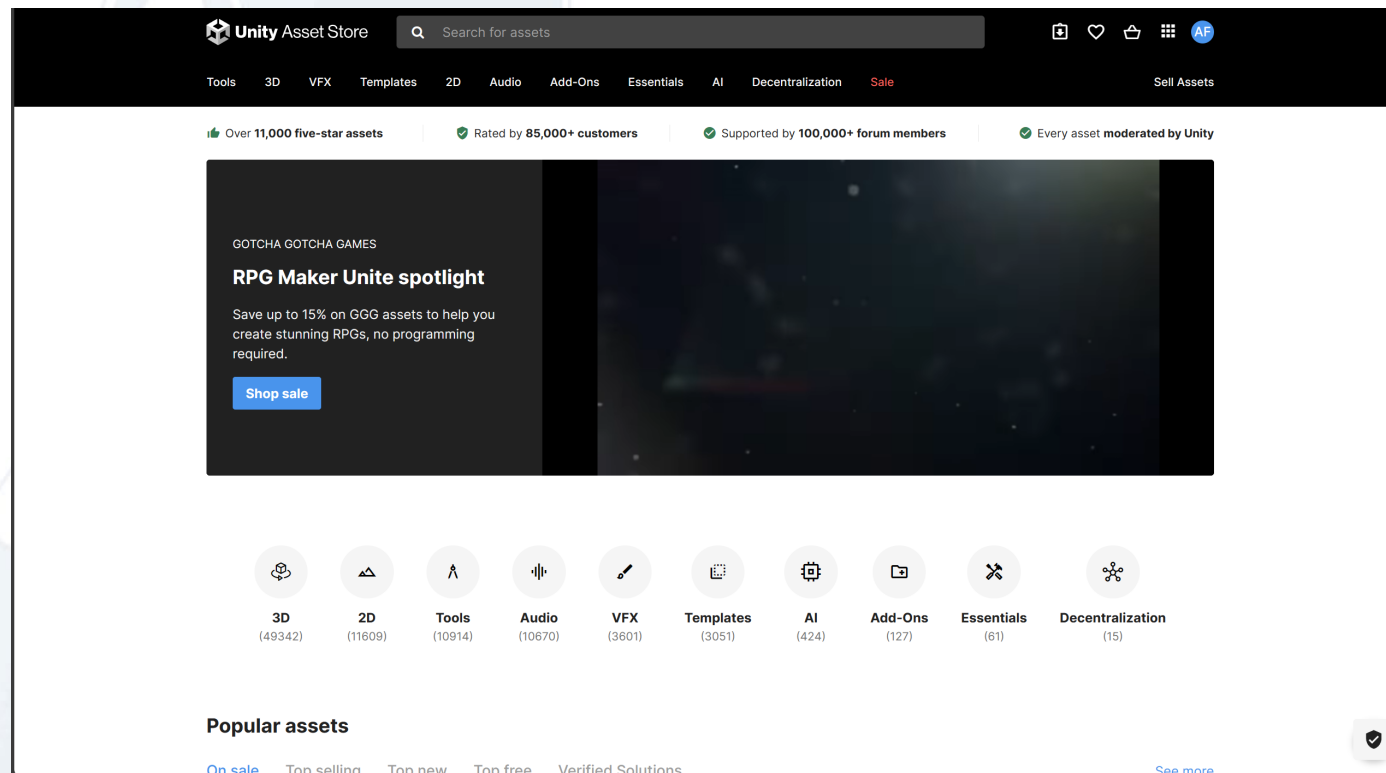
## Unity - Manual: Unity User Manual 2022.3 (LTS) (unity3d.com)



The screenshot displays the Unity Documentation website for the Unity User Manual 2022.3 (LTS). The page features a dark header with the Unity logo, navigation links for 'Manual' and 'Scripting API', a search bar, and a language selector set to 'English'. A left sidebar lists various manual sections, including 'Unity User Manual 2022.3 (LTS)', 'New in Unity 2022 LTS', 'Packages and feature sets', 'Working in Unity', 'Asset workflow', 'Input', '2D game development', 'Graphics', 'World building', 'Physics', 'Scripting', 'Multiplayer and Networking', 'Audio', 'Video overview', 'Animation', 'User interface (UI)', 'Unity Services', 'XR', 'Unity's Asset Store', 'Platform development', 'Unity Search', 'Legacy navigation and pathfinding', 'Unity Properties', and a 'Glossary'. The main content area is titled 'Unity User Manual 2022.3 (LTS)' and includes an introduction to the manual, a 'New' section with links to 'What's New' and 'Upgrade Guide', and a 'Packages' section with links to 'Working with the Package Manager', 'Verified packages', 'Preview packages', and 'Creating custom packages'. Below these are 'Best Practice guides' for Unity Support engineers. The bottom of the page features a grid of 'Unity User Manual sections' with thumbnail images and brief descriptions for 'Working in Unity', 'Unity 2D', 'Graphics', 'Physics', 'Networking', 'Scripting', 'Audio', 'Animation', 'UI', and 'Navigation'.

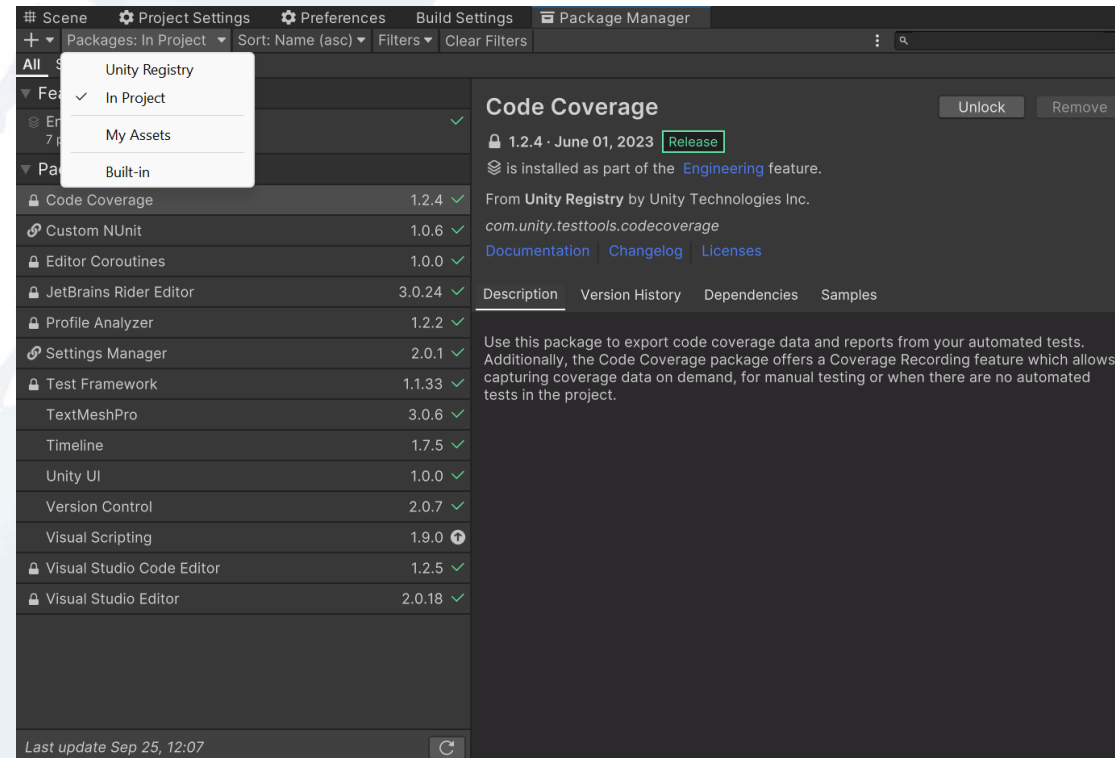
# Asset Store

## Unity Asset Store - The Best Assets for Game Making



# Unity Package Manager

A package is a container that holds any combination of Assets, Shaders, Textures, plug-ins, icons, and scripts.

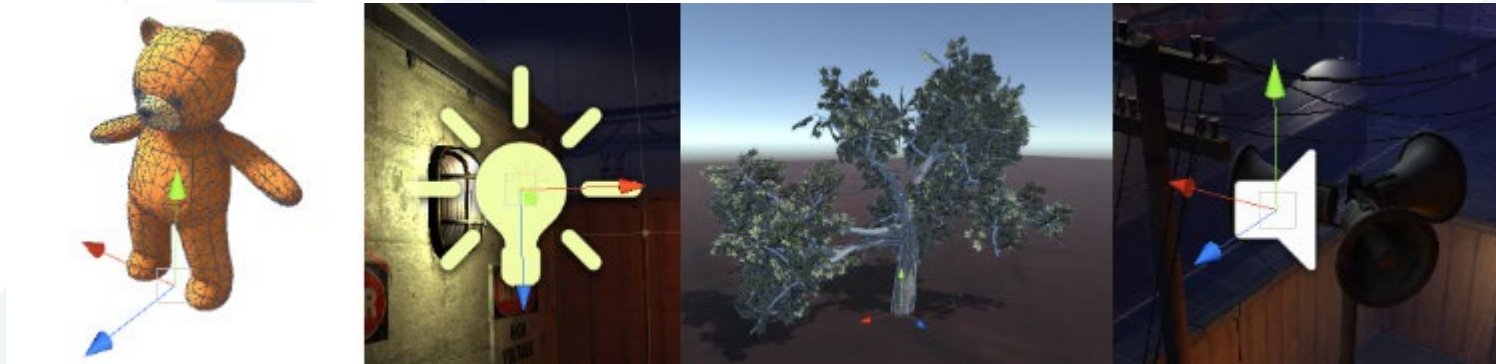




# Game Object

GameObjects are the fundamental objects in Unity that represent characters, props and scenery.

They act as containers for Components, which implement the functionalities.



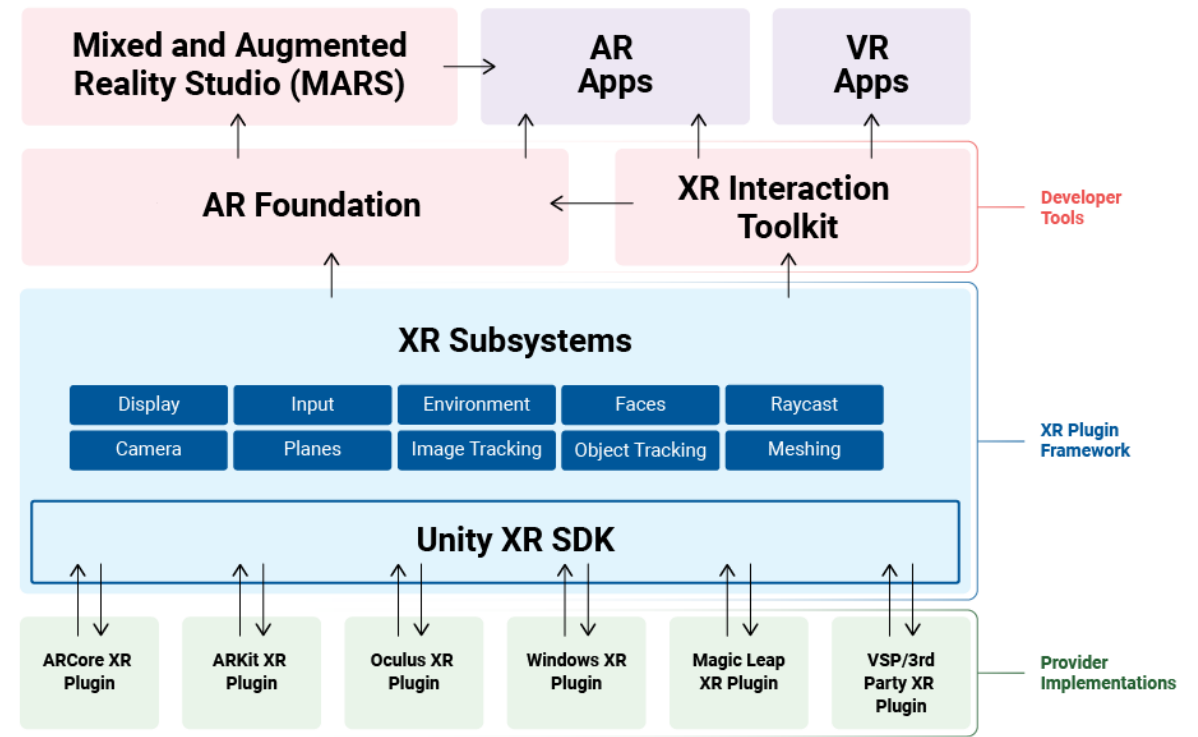


# XR in Unity

Unity support VR game programming in different ways:

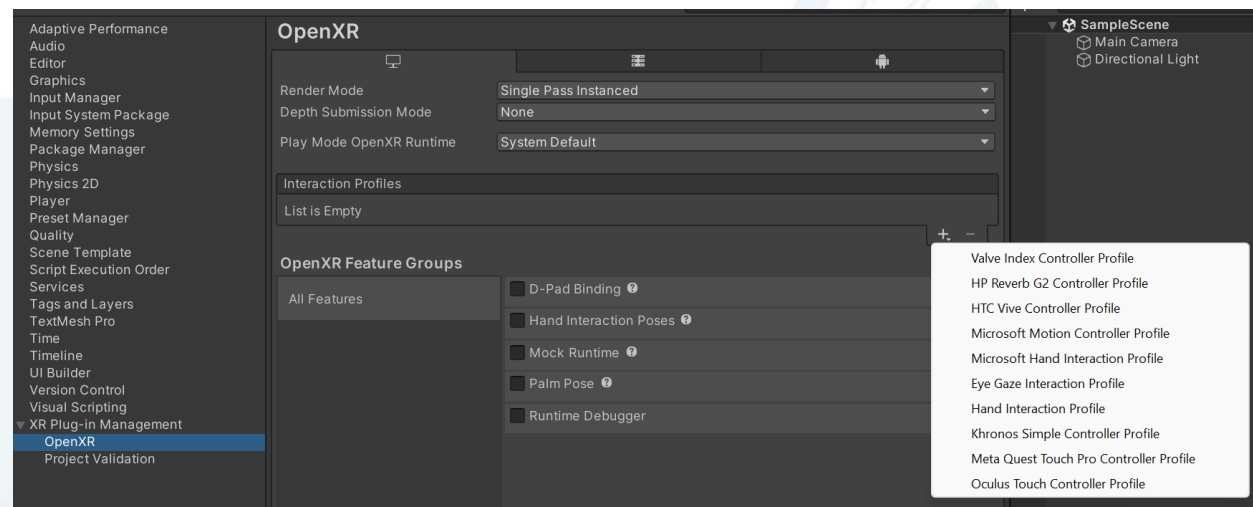
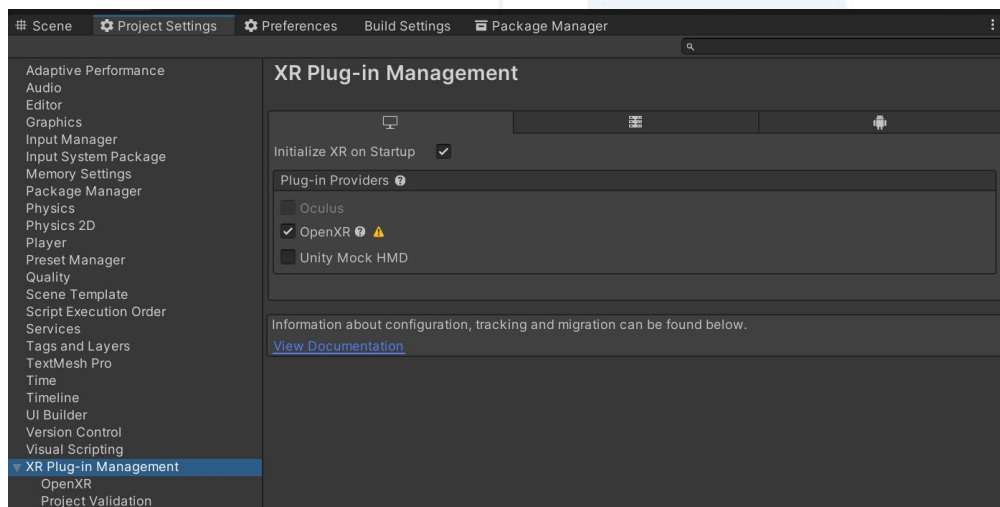
- Using built-in stereoscopic rendering and tracking build option with old specific packages (up to 2019.4)
- Using third-party plugins (e.g., Oculus and SteamVR ones)
- Using the new XR Tech Stack (in fig.) with 1st- and 3rd-party plugins for specific devices and OpenXR (from 2019.3)

## Unity XR Tech Stack



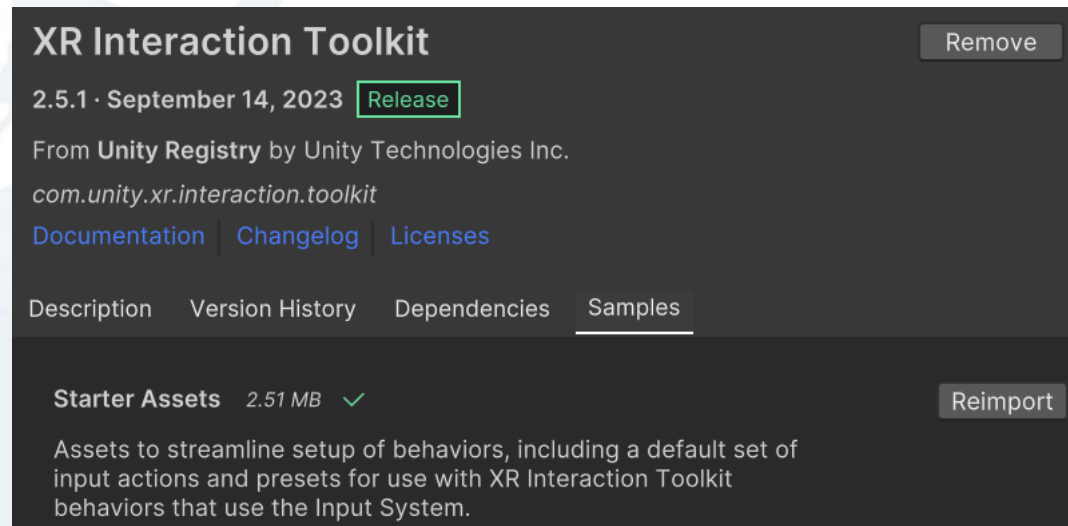
# Setting up the project

- Create a new Project with 3D core template and call it “FantasyBasket”
- Under Edit > Project Settings > XR Plugin Management install “XR Plugin Management” and then Open XR by checking the box
- Say “Yes” when ask to update to the New Input System backend



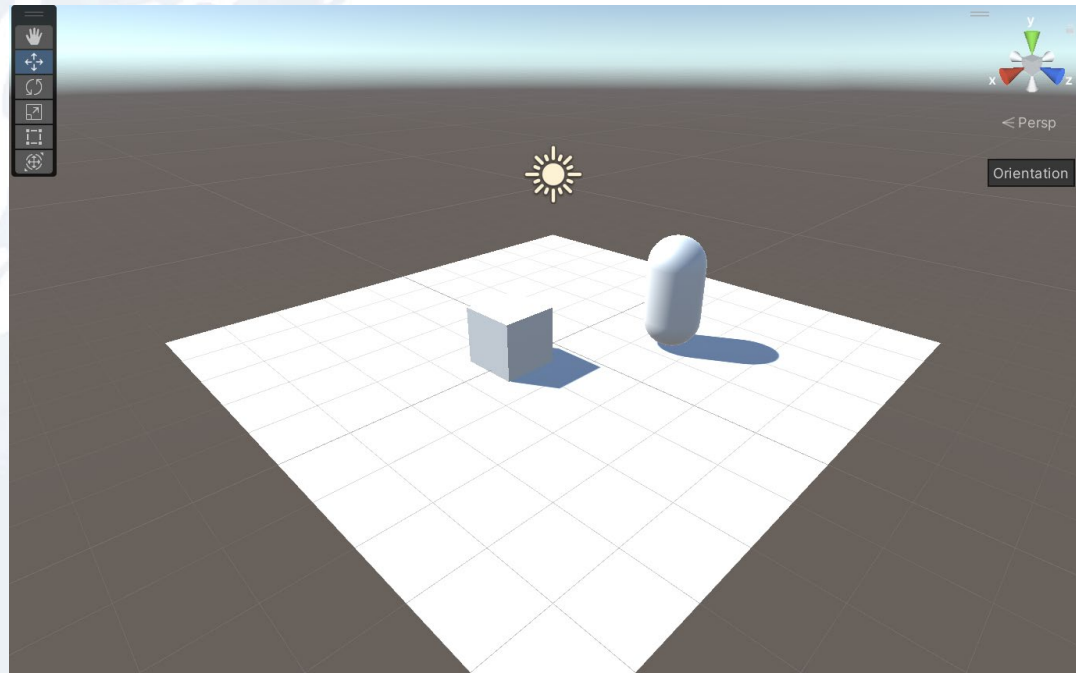
# Setting up the project

- Download the last available version of the XR Interaction Toolkit from the unity package manager under «Unity Packages: Unity Registry»
- From the samples download the “Starter Assets”



# Let's create a VR scene

- Create a new Scene and call it «VR Test»
- Add Some Game Objects like a plane, a cube and a capsule



# Let's create a VR scene

- Add the XR Origin VR game object
- Link default actions to left and right hands

