HI5_2 Vive Focus 基础+交互 使用文档

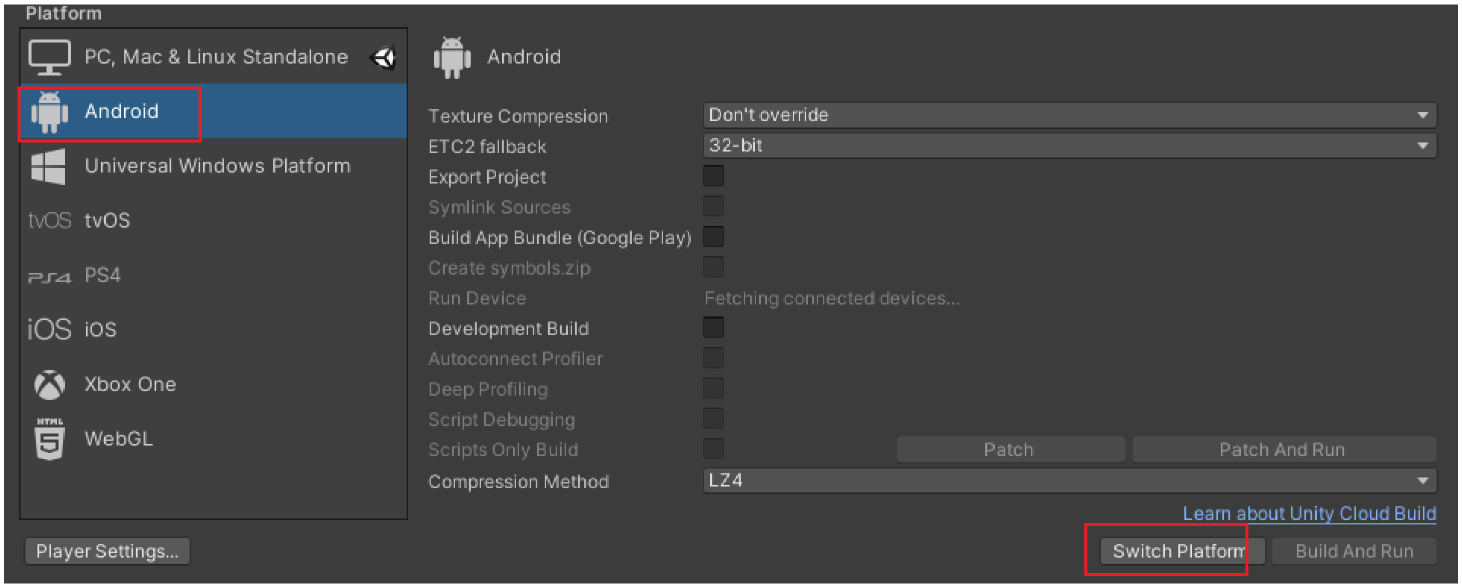
Unity version

Unity 2019.4.18f1c1 (64-bit)及以上Unity LTS版本

基础SDK

构建HTC Vive Focus开发环境

切换Android平台 File->Build Setting->Android->Switch Platform



Platform

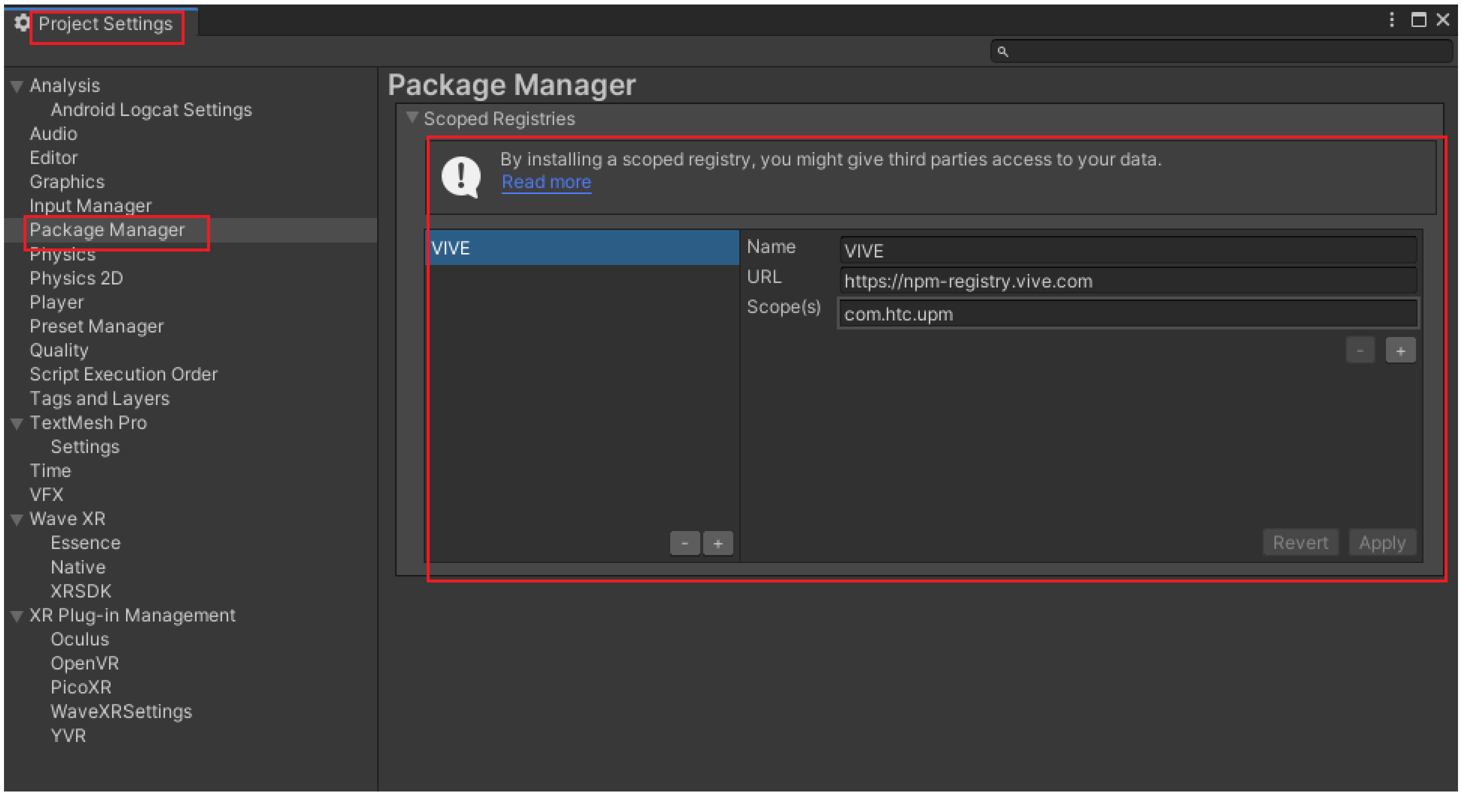
- PC, Mac & Linux Standalone
- Android
- Universal Windows Platform
- tvOS
- PS4
- iOS
- Xbox One
- WebGL

Android

Texture Compression	Don't override
ETC2 fallback	32-bit
Export Project	
Symlink Sources	
Build App Bundle (Google Play)	
Create symbols.zip	
Run Device	Fetching connected devices...
Development Build	
Autoconnect Profiler	
Deep Profiling	
Script Debugging	
Scripts Only Build	
Compression Method	LZ4

设置PackageManager Edit->Project Settings->Package Manager

设置PackageManager



By installing a scoped registry, you might give third parties access to your data.

Name: VIVE
URL: https://npm-registry.vive.com
Scope(s): com.htc.upm

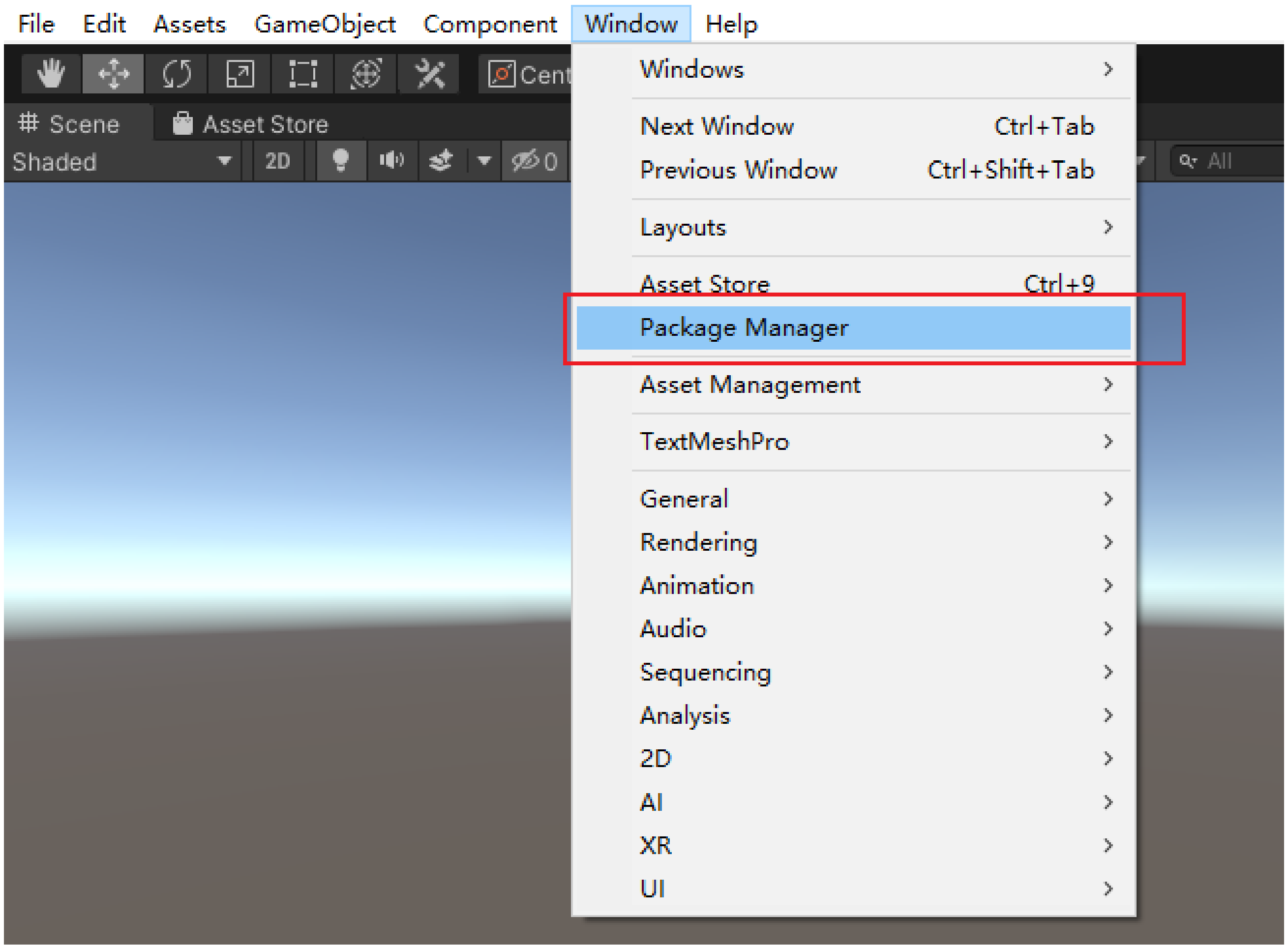
Name: VIVE

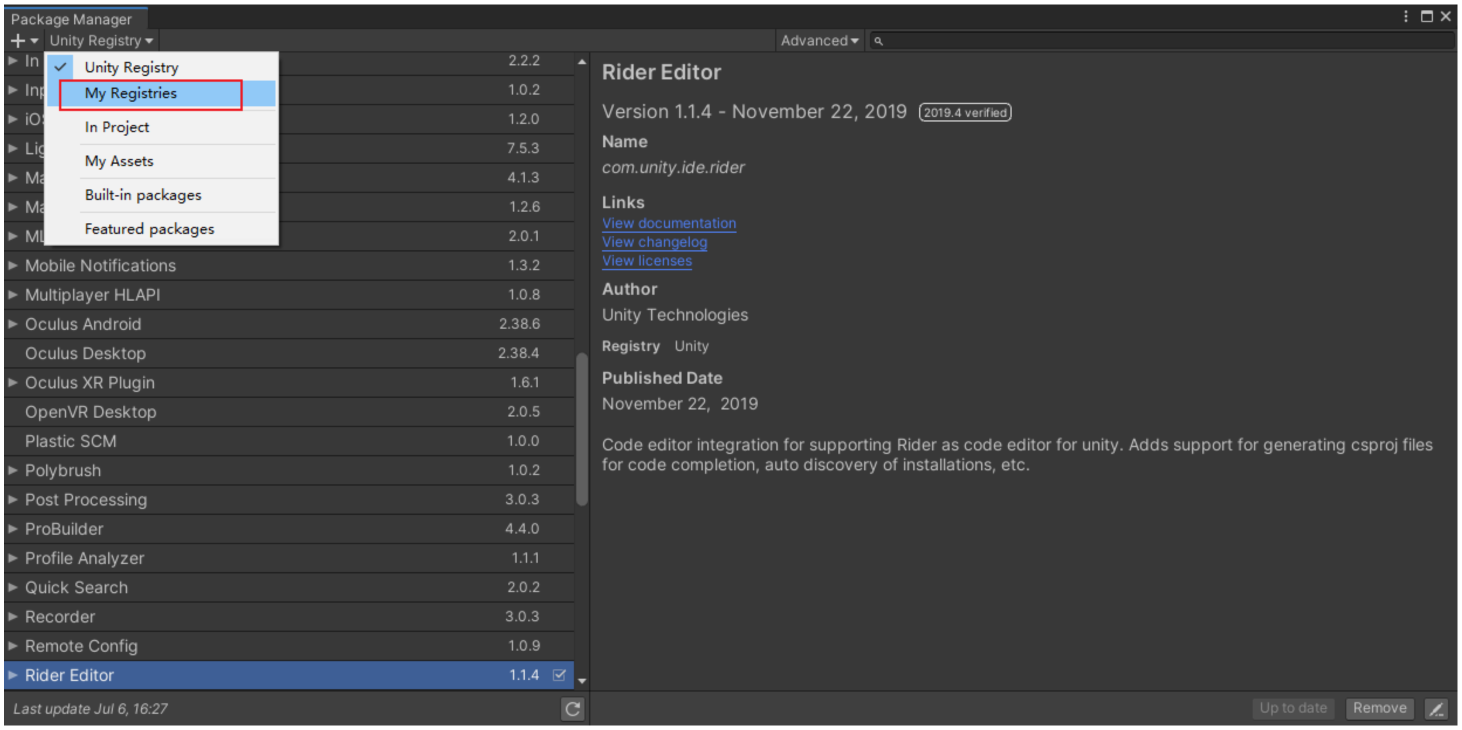
URL: https://npm-registry.vive.com

Scope(s): com.htc.upm

导入Vive-Wave Package

导入Vive-Wave Package





In	2.2.2
Inp	1.0.2
iO	1.2.0
Lig	7.5.3
Ma	4.1.3
Ma	1.2.6
Ml	2.0.1
Mobile Notifications	1.3.2
Multiplayer HLAPI	1.0.8
Oculus Android	2.38.6
Oculus Desktop	2.38.4
Oculus XR Plugin	1.6.1
OpenVR Desktop	2.0.5
Plastic SCM	1.0.0
Polybrush	1.0.2
Post Processing	3.0.3
ProBuilder	4.4.0
Profile Analyzer	1.1.1
Quick Search	2.0.2
Recorder	3.0.3
Remote Config	1.0.9
Rider Editor	1.1.4

Last update Jul 6, 16:27

Rider Editor

Version 1.1.4 - November 22, 2019 (2019.4 verified)

Name
com.unity.ide.rider

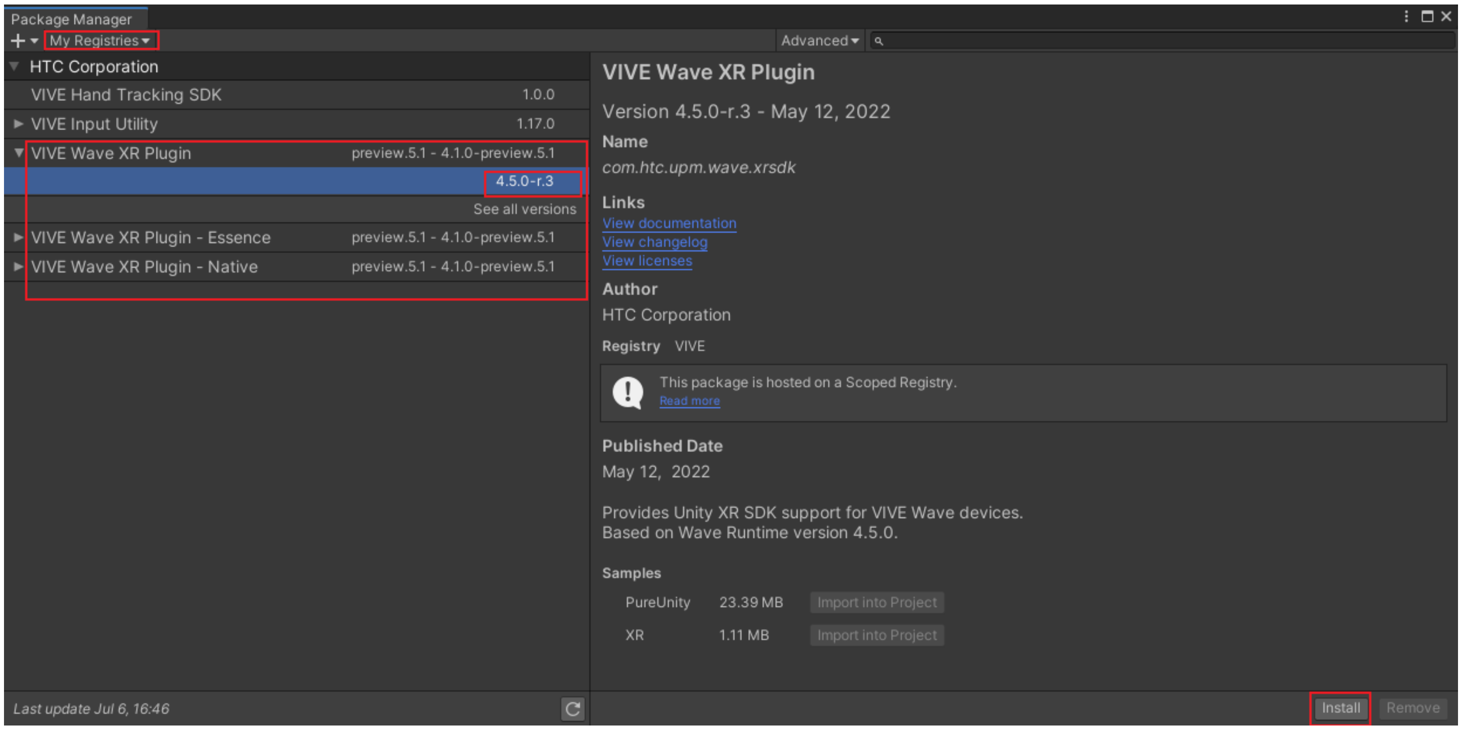
Links
View documentation
View changelog
View licenses

Author
Unity Technologies

Registry Unity

Published Date
November 22, 2019

Code editor integration for supporting Rider as code editor for unity. Adds support for generating csproj files for code completion, auto discovery of installations, etc.


Package Manager

My Registries

Advanced

HTC Corporation

VIVE Hand Tracking SDK	1.0.0
VIVE Input Utility	1.17.0
VIVE Wave XR Plugin	preview.5.1 - 4.1.0-preview.5.1
	4.5.0-r.3
	See all versions
VIVE Wave XR Plugin - Essence	preview.5.1 - 4.1.0-preview.5.1
VIVE Wave XR Plugin - Native	preview.5.1 - 4.1.0-preview.5.1

Last update Jul 6, 16:46

VIVE Wave XR Plugin

Version 4.5.0-r.3 - May 12, 2022

Name

com.htc.upm.wave.xrsdk

Links

View documentation
View changelog
View licenses

Author

HTC Corporation

Registry VIVE

This package is hosted on a Scoped Registry.
Read more

Published Date

May 12, 2022

Provides Unity XR SDK support for VIVE Wave devices.
Based on Wave Runtime version 4.5.0.

Samples

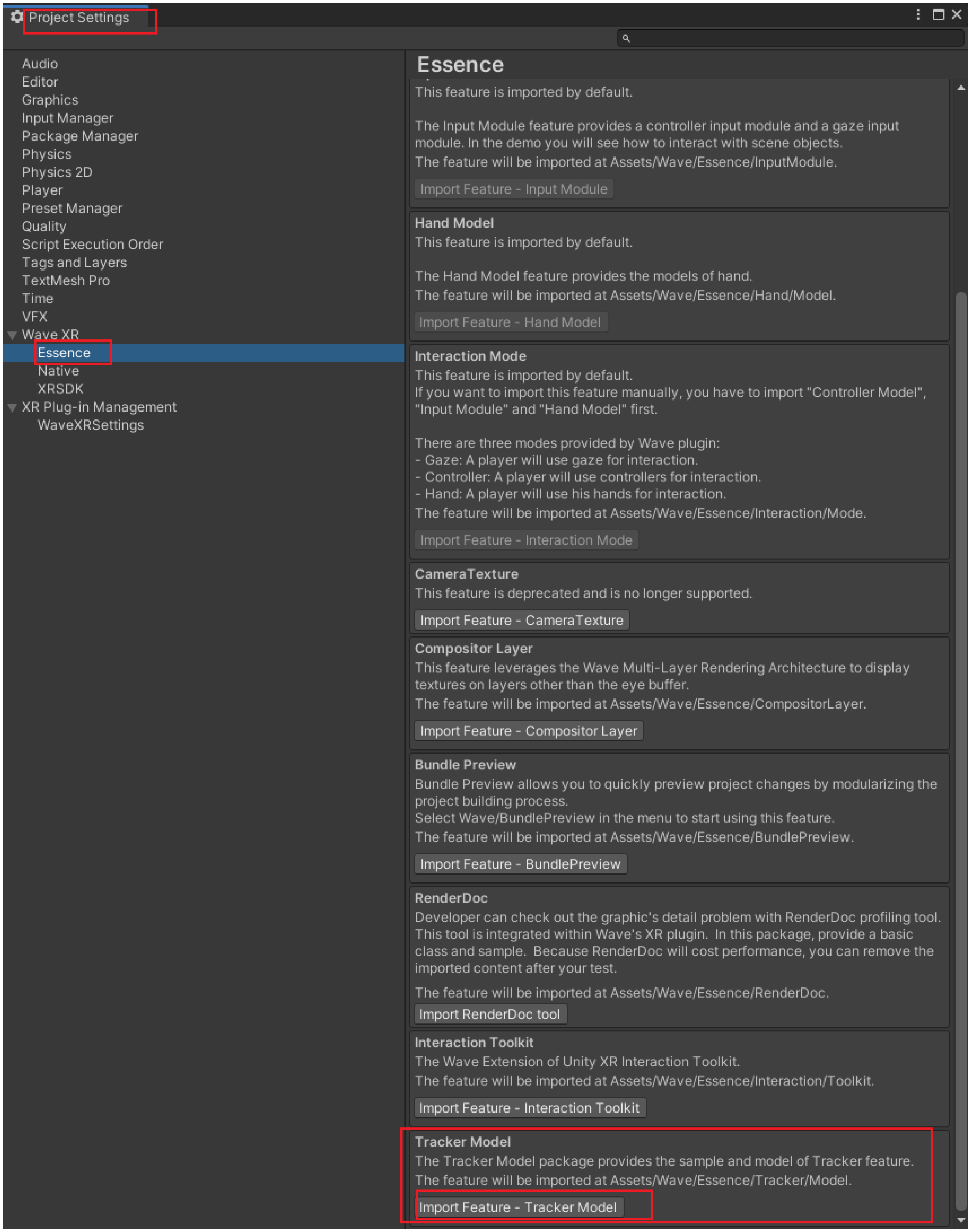
PureUnity	23.39 MB	Import into Project
XR	1.11 MB	Import into Project

Install Remove

说明：

1、当前使用版本均为4.5.0-r.3

2、如果只有手柄进行使用的时候只需要导入VIVE Wave XR Plugin即可，如果需要开发HTC Vive Focus Wrist的话需要三个都导入并且需要根据下图进行额外导入



Essence

This feature is imported by default.

The Input Module feature provides a controller input module and a gaze input module. In the demo you will see how to interact with scene objects.
The feature will be imported at Assets/Wave/Essence/InputModule.

Import Feature - Input Module

Hand Model
This feature is imported by default.

The Hand Model feature provides the models of hand.
The feature will be imported at Assets/Wave/Essence/Hand/Model.

Import Feature - Hand Model

Interaction Mode
This feature is imported by default.
If you want to import this feature manually, you have to import "Controller Model", "Input Module" and "Hand Model" first.

There are three modes provided by Wave plugin:
- Gaze: A player will use gaze for interaction.
- Controller: A player will use controllers for interaction.
- Hand: A player will use his hands for interaction.
The feature will be imported at Assets/Wave/Essence/Interaction/Mode.

Import Feature - Interaction Mode

CameraTexture
This feature is deprecated and is no longer supported.

Import Feature - CameraTexture

Compositor Layer
This feature leverages the Wave Multi-Layer Rendering Architecture to display textures on layers other than the eye buffer.
The feature will be imported at Assets/Wave/Essence/CompositorLayer.

Import Feature - Compositor Layer

Bundle Preview
Bundle Preview allows you to quickly preview project changes by modularizing the project building process.
Select Wave/BundlePreview in the menu to start using this feature.
The feature will be imported at Assets/Wave/Essence/BundlePreview.

Import Feature - BundlePreview

RenderDoc
Developer can check out the graphic's detail problem with RenderDoc profiling tool. This tool is integrated within Wave's XR plugin. In this package, provide a basic class and sample. Because RenderDoc will cost performance, you can remove the imported content after your test.

The feature will be imported at Assets/Wave/Essence/RenderDoc.

Import RenderDoc tool

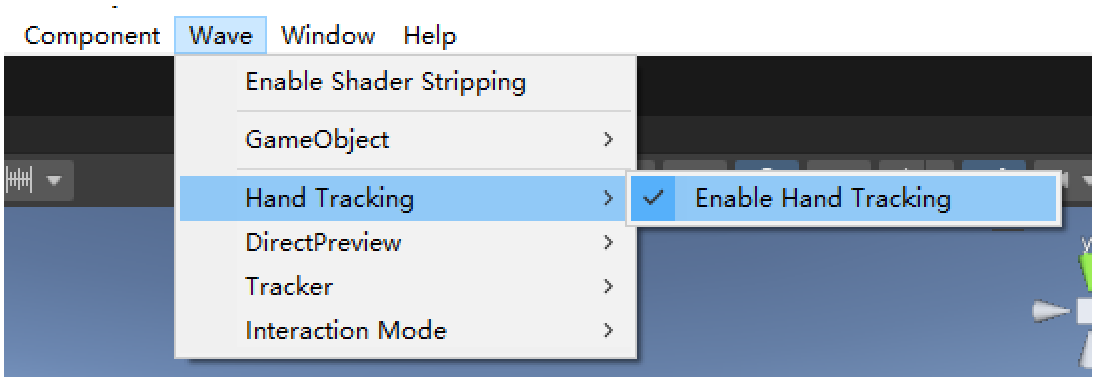
Interaction Toolkit
The Wave Extension of Unity XR Interaction Toolkit.
The feature will be imported at Assets/Wave/Essence/Interaction/Toolkit.

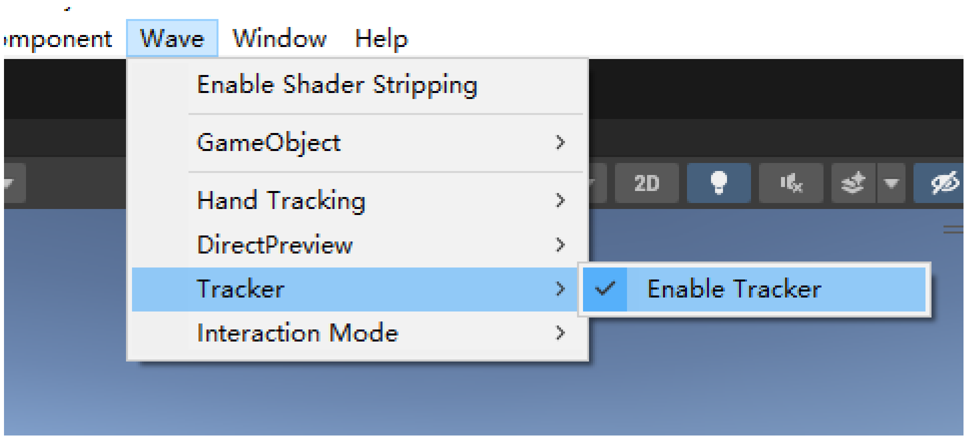
Import Feature - Interaction Toolkit

Tracker Model
The Tracker Model package provides the sample and model of Tracker feature.
The feature will be imported at Assets/Wave/Essence/Tracker/Model.

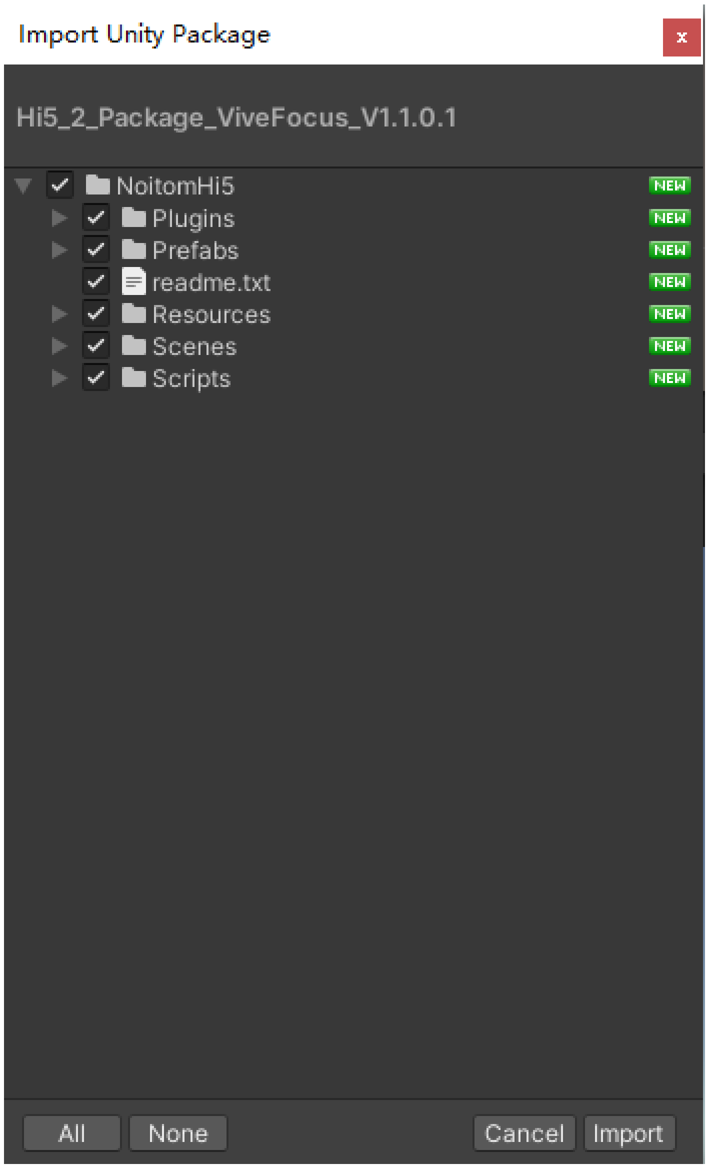
Import Feature - Tracker Model

修改wave手环定位追踪相关



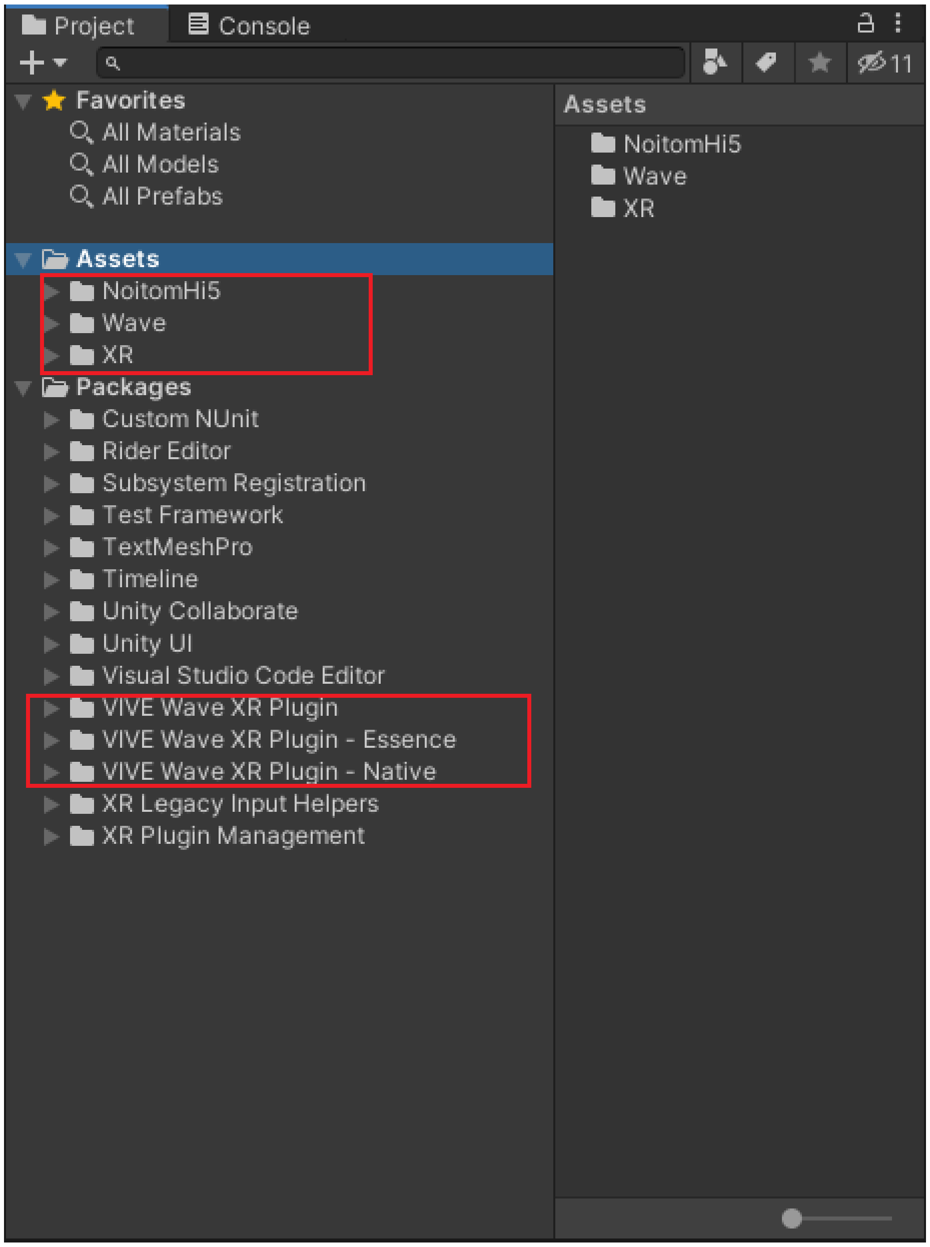


导入Hi5_2_Package_ViveFocus_V1.1.0.1.unitypackage

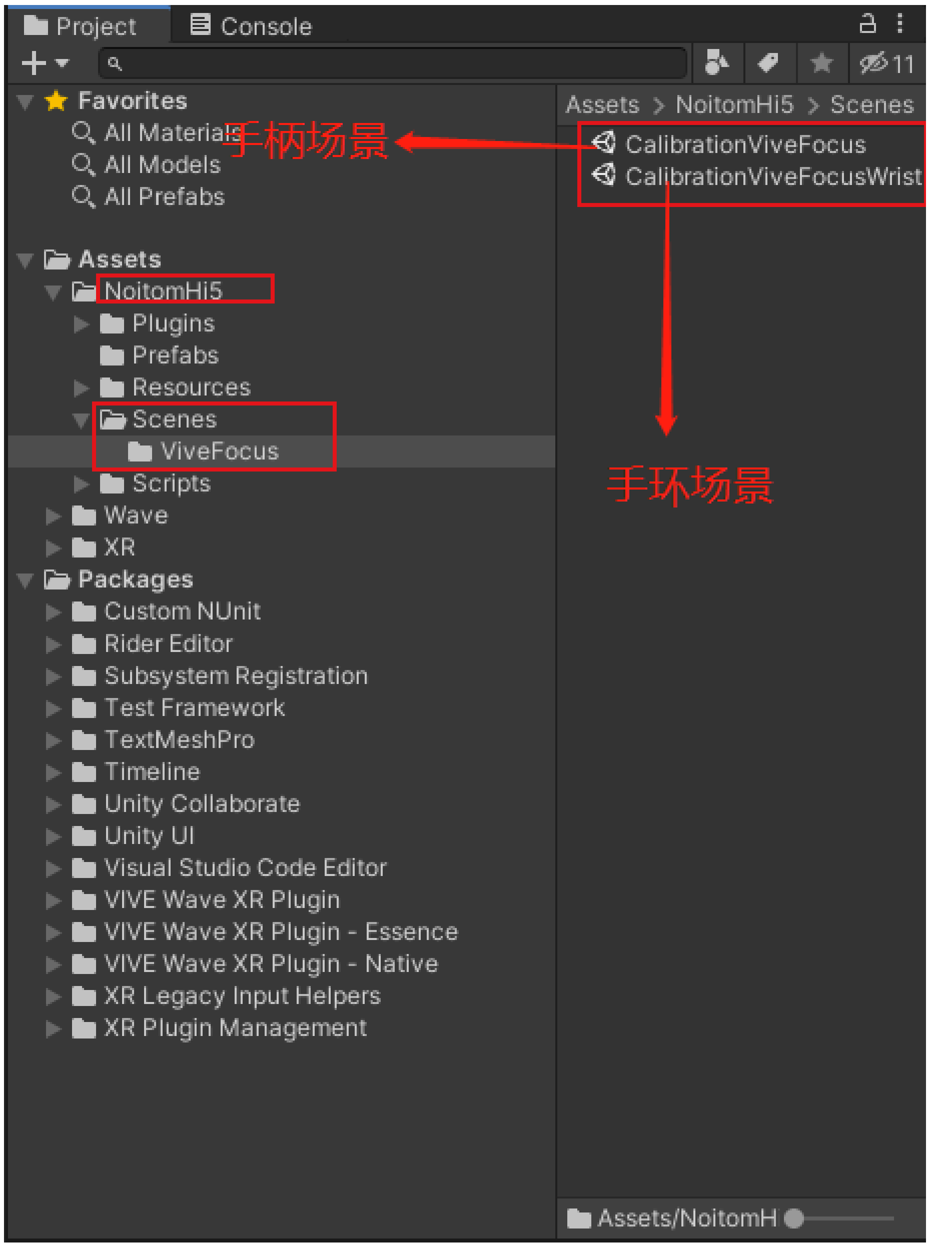

Import Unity Package

Hi5_2_Package_ViveFocus_V1.1.0.1

- ✓ NoitomHi5 NEW
  - ✓ Plugins NEW
  - ✓ Prefabs NEW
  - ✓ readme.txt NEW
  - ✓ Resources NEW
  - ✓ Scenes NEW
  - ✓ Scripts NEW

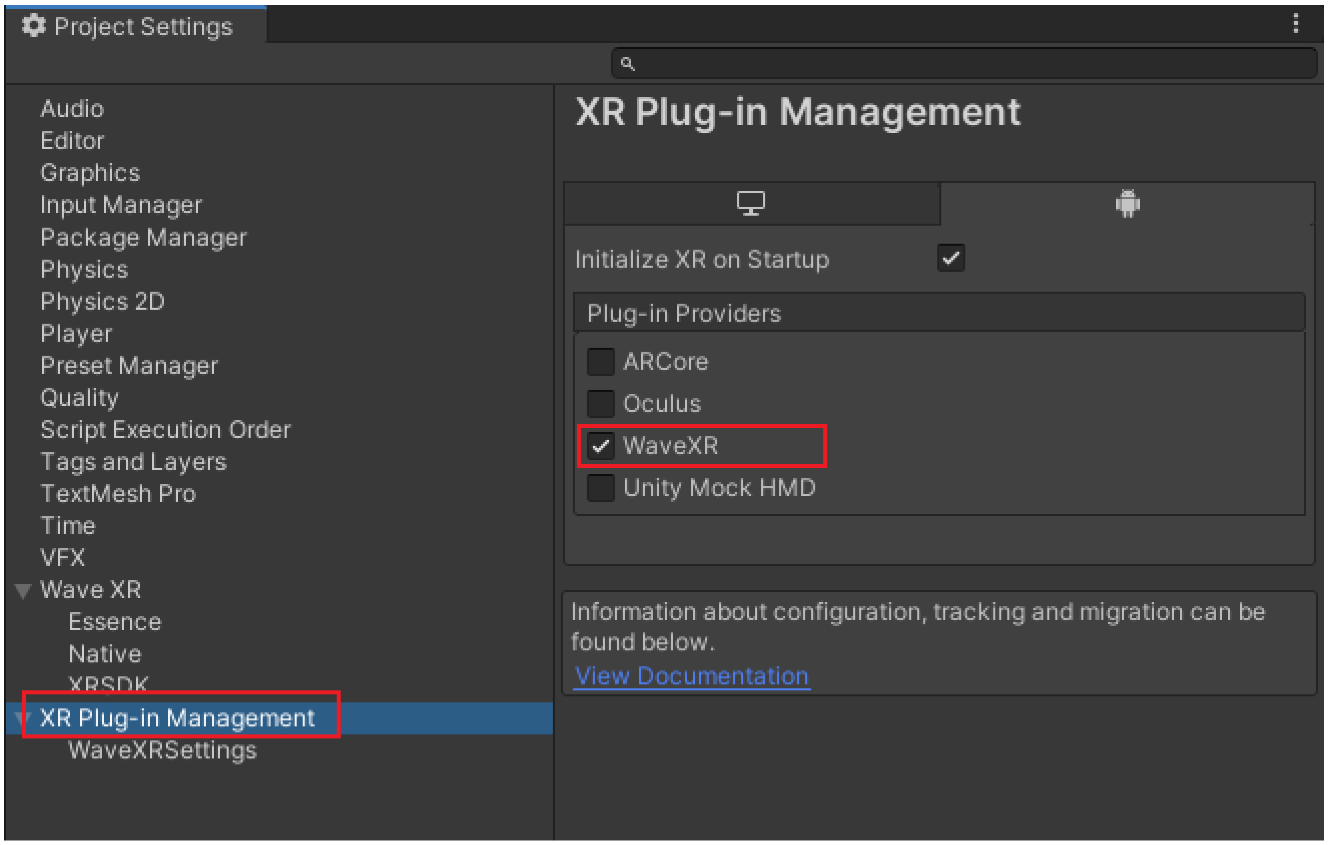

Project
Console
11
Favorites
All Materials
All Models
All Prefabs
Assets
NoitomHi5
Wave
XR
Packages
Custom NUnit
Rider Editor
Subsystem Registration
Test Framework
TextMeshPro
Timeline
Unity Collaborate
Unity UI
Visual Studio Code Editor
VIVE Wave XR Plugin
VIVE Wave XR Plugin - Essence
VIVE Wave XR Plugin - Native
XR Legacy Input Helpers
XR Plugin Management
Assets
NoitomHi5
Wave
XR

选择场景文件



Build

切换XR平台


Project Settings

Audio
Editor
Graphics
Input Manager
Package Manager
Physics
Physics 2D
Player
Preset Manager
Quality
Script Execution Order
Tags and Layers
TextMesh Pro
Time
VFX
Wave XR
Essence
Native
XRSDK
XR Plug-in Management
WaveXRSettings

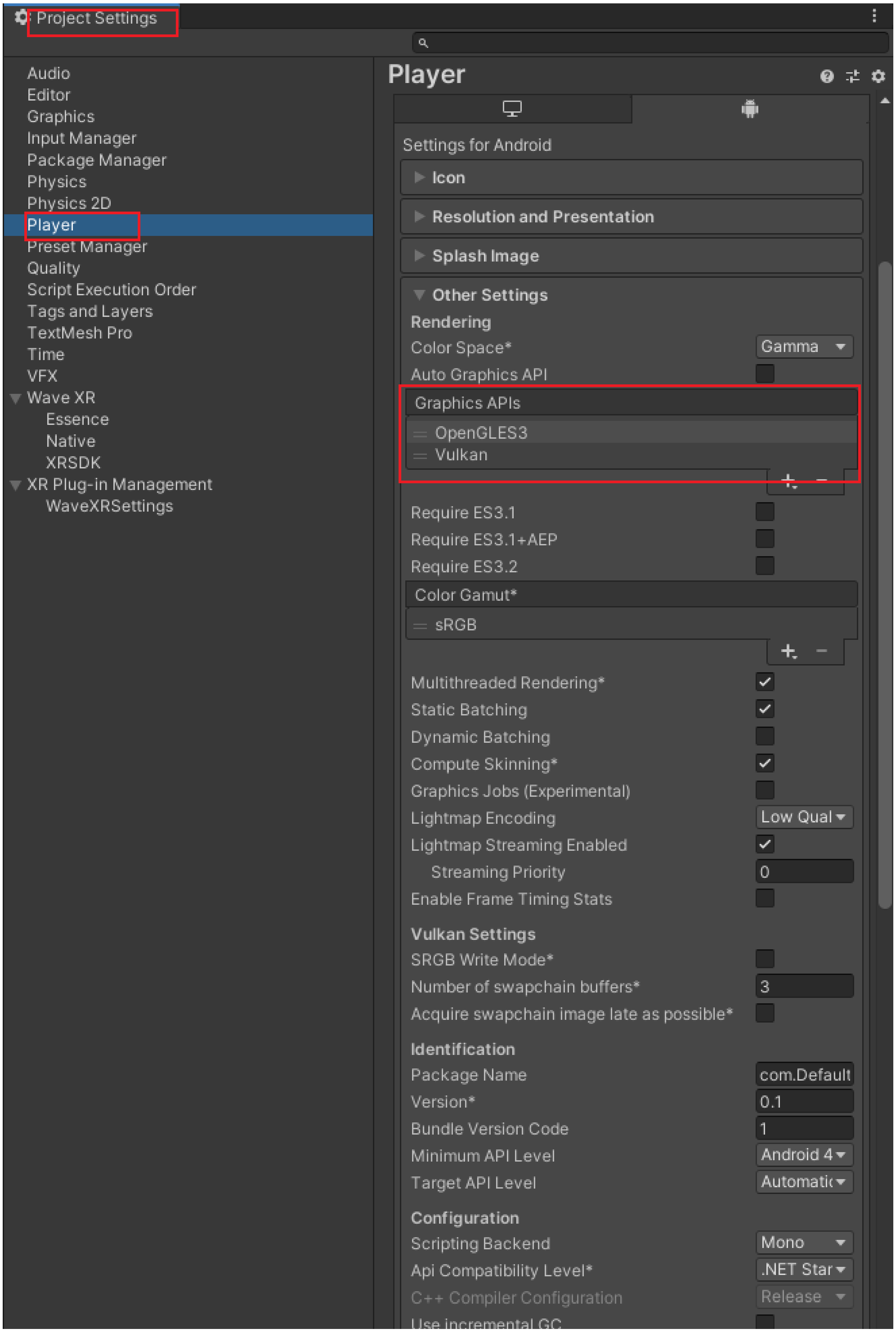
XR Plug-in Management

Initialize XR on Startup ✓

Plug-in Providers
- [ ] ARCore
- [ ] Oculus
- [x] WaveXR
- [ ] Unity Mock HMD

Information about configuration, tracking and migration can be found below.
View Documentation

Focus不支持Vulkan


Project Settings

Audio
Editor
Graphics
Input Manager
Package Manager
Physics
Physics 2D
Player
Preset Manager
Quality
Script Execution Order
Tags and Layers
TextMesh Pro
Time
VFX
Wave XR
Essence
Native
XRSDK
XR Plug-in Management
WaveXRSettings

Player

Settings for Android

Icon
Resolution and Presentation
Splash Image
Other Settings

Rendering

Color Space*	Gamma
Auto Graphics API	☐

Graphics APIs
- OpenGLES3
- Vulkan

Require ES3.1	☐
Require ES3.1+AEP	☐
Require ES3.2	☐

Color Gamut*
- sRGB

Multithreaded Rendering*	✓
Static Batching	✓
Dynamic Batching	☐
Compute Skinning*	✓
Graphics Jobs (Experimental)	☐
Lightmap Encoding	Low Qual
Lightmap Streaming Enabled	✓
Streaming Priority	0
Enable Frame Timing Stats	☐

Vulkan Settings

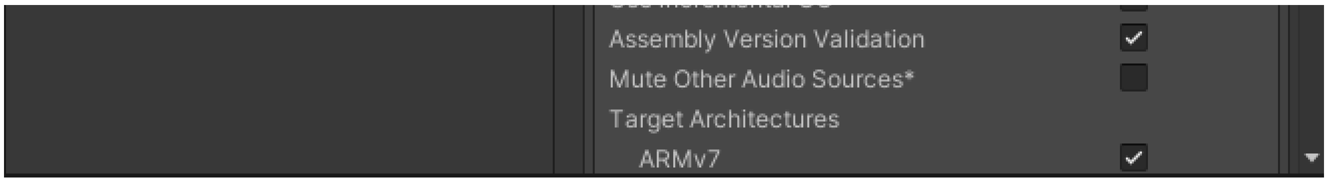
SRGB Write Mode*	☐
Number of swapchain buffers*	3
Acquire swapchain image late as possible*	☐

Identification

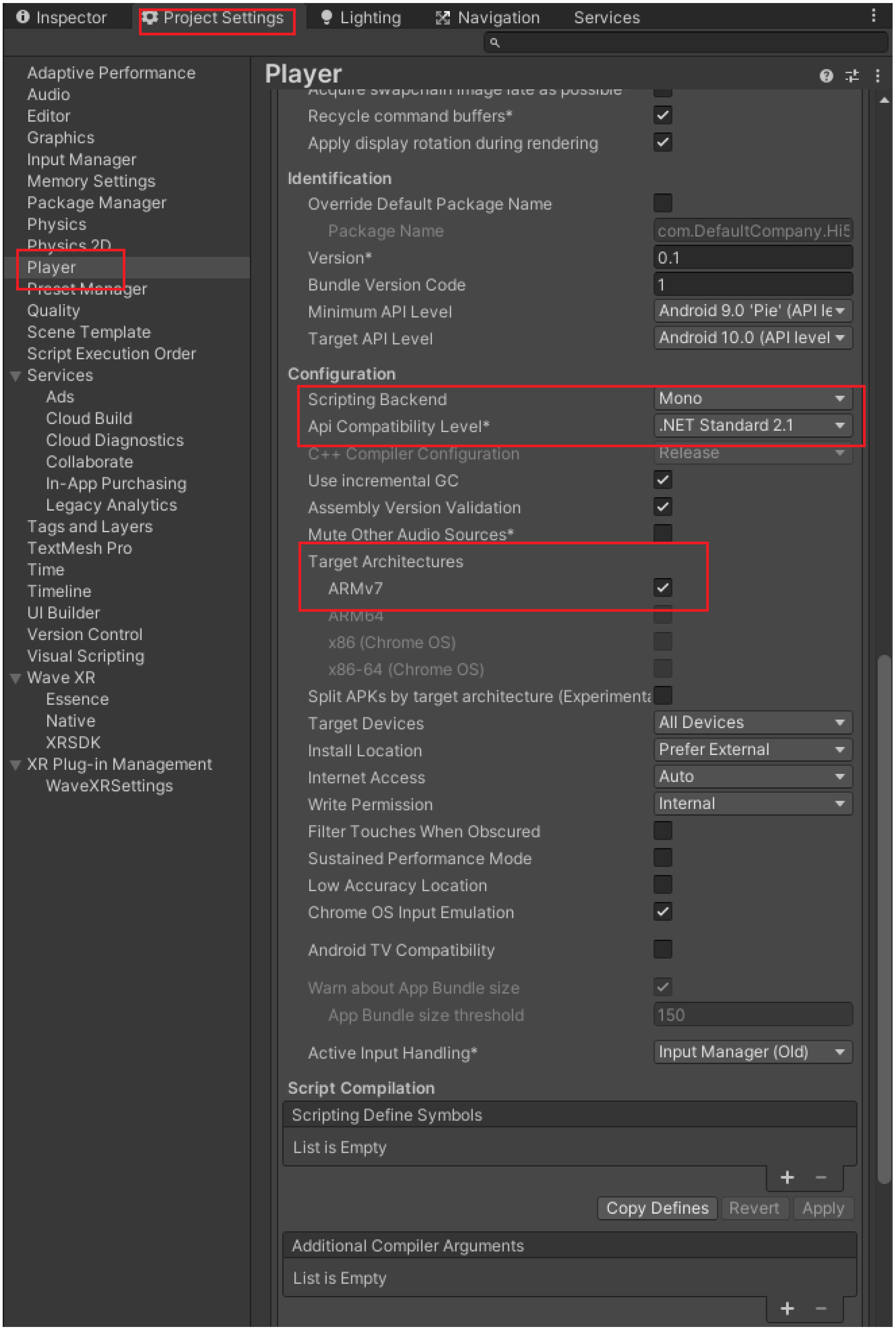
Package Name	com.Default
Version*	0.1
Bundle Version Code	1
Minimum API Level	Android 4
Target API Level	Automatic

Configuration

Scripting Backend	Mono
Api Compatibility Level*	.NET Star
C++ Compiler Configuration	Release
Use incremental GC	☐


Assembly Version Validation ✓
Mute Other Audio Sources*
Target Architectures
ARMv7 ✓

设置configuration



Inspector | Project Settings | Lighting | Navigation | Services

Adaptive Performance
Audio
Editor
Graphics
Input Manager
Memory Settings
Package Manager
Physics
Physics 2D
Player
Preset Manager
Quality
Scene Template
Script Execution Order
Services
  Ads
  Cloud Build
  Cloud Diagnostics
  Collaborate
  In-App Purchasing
  Legacy Analytics
Tags and Layers
TextMesh Pro
Time
Timeline
UI Builder
Version Control
Visual Scripting
Wave XR
  Essence
  Native
  XRSDK
XR Plug-in Management
  WaveXRSettings

Player

Acquire swapchain image late as possible	☐
Recycle command buffers*	✓
Apply display rotation during rendering	✓

Identification

Override Default Package Name	☐
Package Name	com.DefaultCompany.Hi5
Version*	0.1
Bundle Version Code	1
Minimum API Level	Android 9.0 'Pie' (API le
Target API Level	Android 10.0 (API level

Configuration

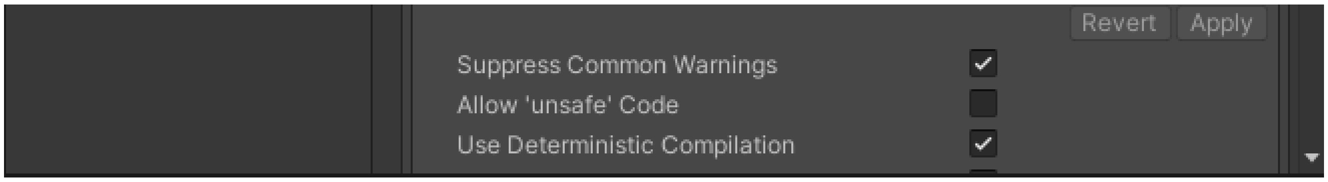
Scripting Backend	Mono
Api Compatibility Level*	.NET Standard 2.1
C++ Compiler Configuration	Release
Use incremental GC	✓
Assembly Version Validation	✓
Mute Other Audio Sources*	☐
Target Architectures	
ARMv7	✓
ARM64	☐
x86 (Chrome OS)	☐
x86-64 (Chrome OS)	☐
Split APKs by target architecture (Experimenta	☐
Target Devices	All Devices
Install Location	Prefer External
Internet Access	Auto
Write Permission	Internal
Filter Touches When Obscured	☐
Sustained Performance Mode	☐
Low Accuracy Location	☐
Chrome OS Input Emulation	✓
Android TV Compatibility	☐
Warn about App Bundle size	✓
App Bundle size threshold	150
Active Input Handling*	Input Manager (Old)

Script Compilation

Scripting Define Symbols
List is Empty

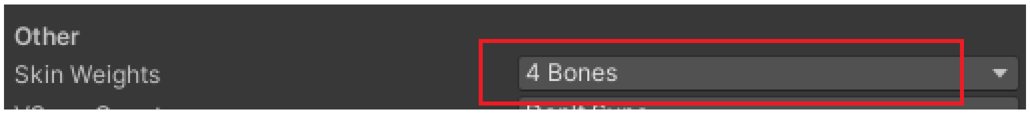
Copy Defines | Revert | Apply

Additional Compiler Arguments
List is Empty

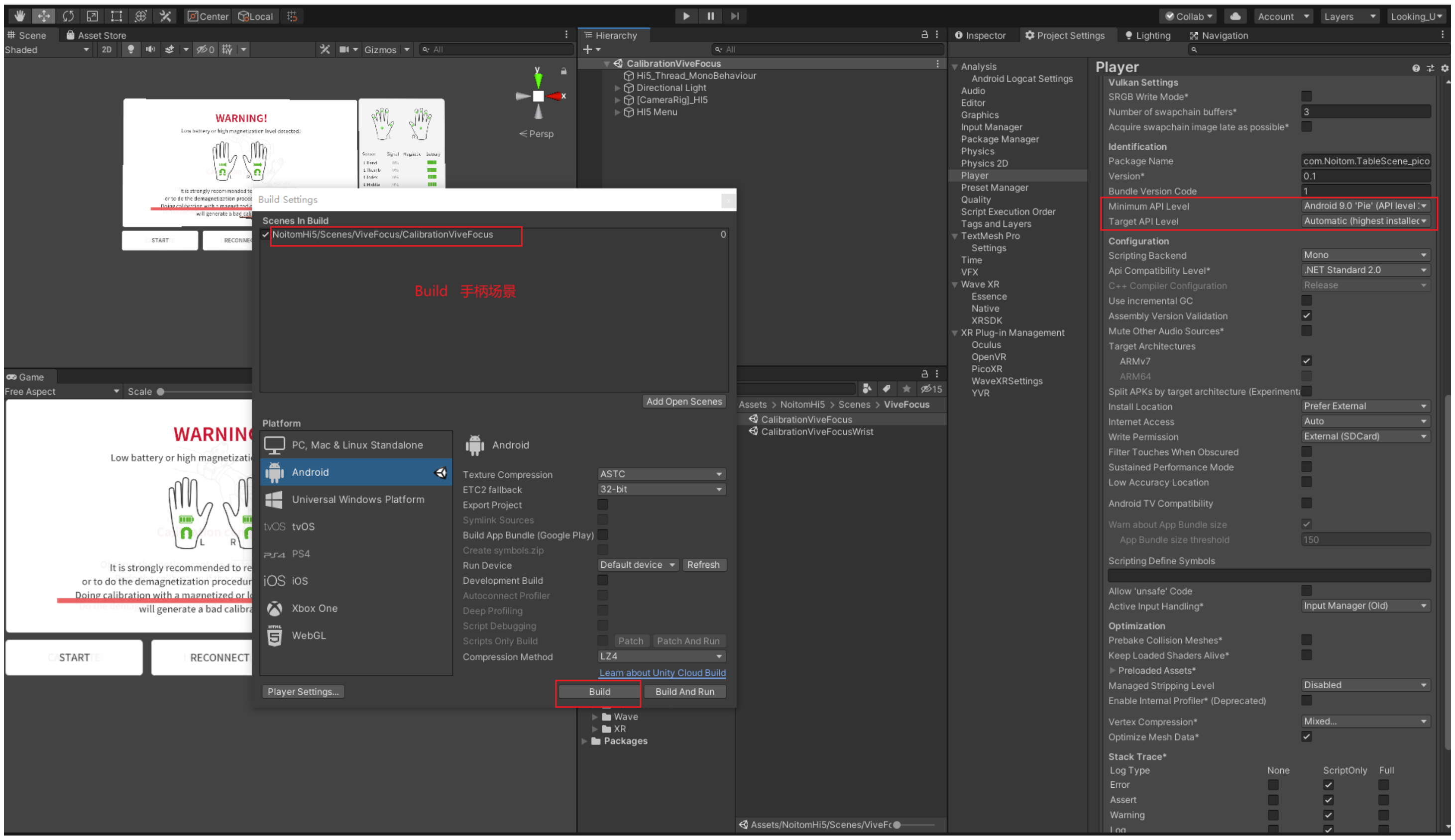

Revert Apply

Suppress Common Warnings ✓
Allow 'unsafe' Code
Use Deterministic Compilation ✓

设置Quality，Edit->Project Settings->Quality


Other
Skin Weights: 4 Bones

设置安卓版本 选择场景 进行build


Build Settings

Scenes In Build
✓ NoitomHi5/Scenes/ViveFocus/CalibrationViveFocus 0

Build 手柄场景

Add Open Scenes

Platform
- PC, Mac & Linux Standalone
- Android
- Universal Windows Platform
- tvOS
- PS4
- iOS
- Xbox One
- WebGL

Android

Texture Compression	ASTC
ETC2 fallback	32-bit
Export Project	
Symlink Sources	
Build App Bundle (Google Play)	
Create symbols.zip	
Run Device	Default device / Refresh
Development Build	
Autoconnect Profiler	
Deep Profiling	
Script Debugging	
Scripts Only Build	Patch / Patch And Run
Compression Method	LZ4

Learn about Unity Cloud Build

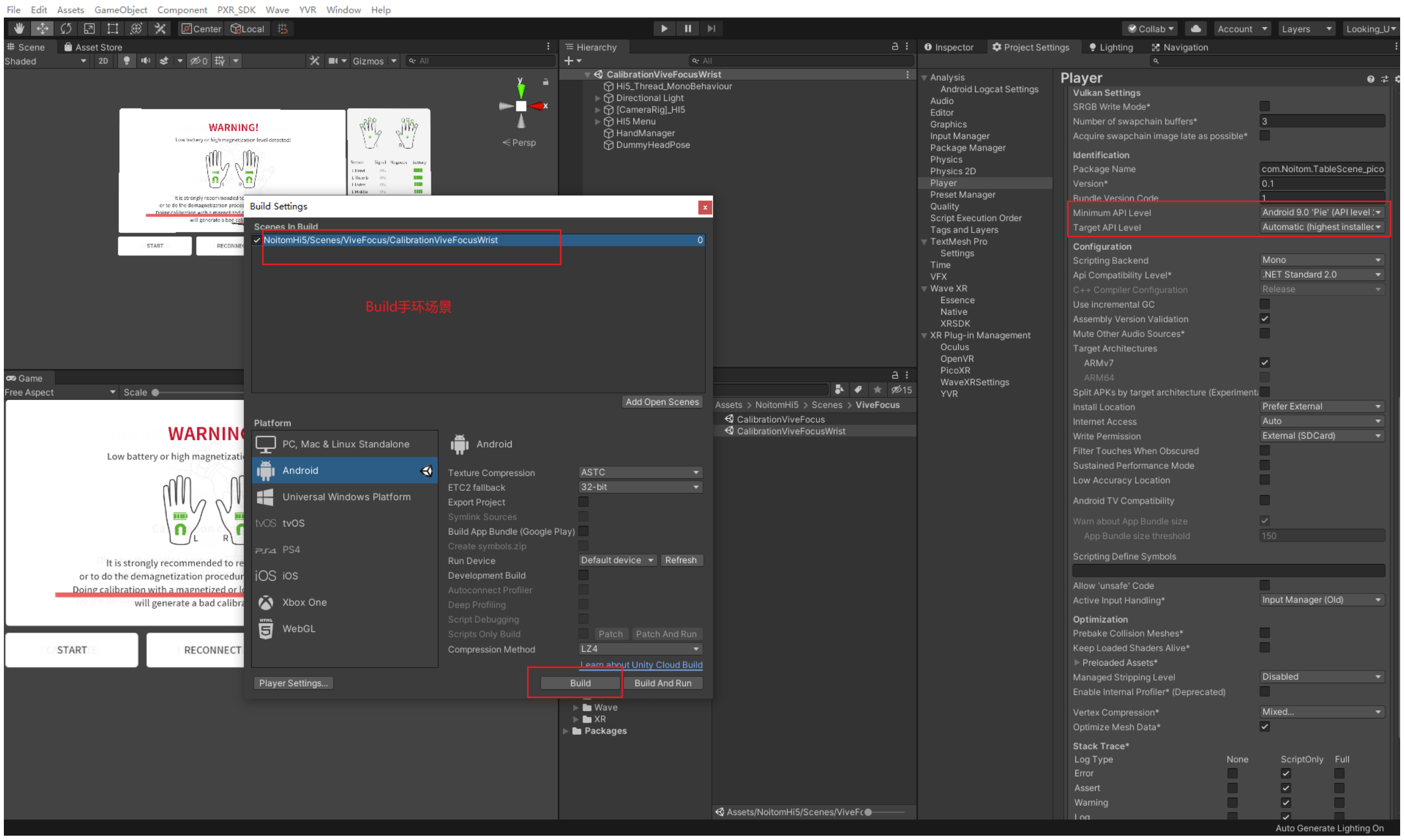
Player Settings... Build Build And Run

Player

Vulkan Settings	
SRGB Write Mode*	
Number of swapchain buffers*	3
Acquire swapchain image late as possible*	
Identification	
Package Name	com.Noitom.TableScene_pico
Version*	0.1
Bundle Version Code	1
Minimum API Level	Android 9.0 'Pie' (API level
Target API Level	Automatic (highest installec
Configuration	
Scripting Backend	Mono
Api Compatibility Level*	.NET Standard 2.0
C++ Compiler Configuration	Release
Use incremental GC	
Assembly Version Validation	✓
Mute Other Audio Sources*	
Target Architectures	
ARMv7	✓
ARM64	
Split APKs by target architecture (Experiment	
Install Location	Prefer External
Internet Access	Auto
Write Permission	External (SDCard)
Filter Touches When Obscured	
Sustained Performance Mode	
Low Accuracy Location	
Android TV Compatibility	
Warn about App Bundle size	✓
App Bundle size threshold	150
Scripting Define Symbols	
Allow 'unsafe' Code	
Active Input Handling*	Input Manager (Old)
Optimization	
Prebake Collision Meshes*	
Keep Loaded Shaders Alive*	
Preloaded Assets*	
Managed Stripping Level	Disabled
Enable Internal Profiler* (Deprecated)	
Vertex Compression*	Mixed...
Optimize Mesh Data*	✓

Stack Trace*

Log Type	None	ScriptOnly	Full
Error		✓	
Assert		✓	
Warning		✓	
Log		✓	



Build Settings

Scenes In Build

✓ NoitomHi5/Scenes/ViveFocus/CalibrationViveFocusWrist 0

Platform: Android

Texture Compression: ASTC
ETC2 fallback: 32-bit
Run Device: Default device
Compression Method: LZ4

Player

Identification
Package Name: com.Noitom.TableScene_pico
Version*: 0.1
Bundle Version Code: 1
Minimum API Level: Android 9.0 'Pie' (API level 28)
Target API Level: Automatic (highest installed)

Configuration
Scripting Backend: Mono
Api Compatibility Level*: .NET Standard 2.0
Install Location: Prefer External
Internet Access: Auto
Write Permission: External (SDCard)
Active Input Handling*: Input Manager (Old)
Managed Stripping Level: Disabled
Vertex Compression*: Mixed...

接口使用

获取关节节点数据

HI5_Glove_TransformData_Interface脚本

手每个关节骨节点数据

```
//获取左手关节骨节点数据
public Dictionary<EHi5_Glove_TransformData_Bones, Transform> GetLeftHandTransform()
{
    return LeftHandBones;
}

//获取右手关节骨节点数据
public Dictionary<EHi5_Glove_TransformData_Bones, Transform> GetRightHandTransform()
{
    return RightHandBones;
}

//手部关节点枚举
public enum EHi5_Glove_TransformData_Bones
{
    /// <summary>
    /// The hand joint.
    /// </summary>
    Hand = 0,
    /// <summary>
    /// The metacarpal joint of thumb finger.
    /// </summary>
    HandThumb1,
    /// <summary>
    /// The proximal joint of thumb finger.
    /// </summary>
    HandThumb2,
    /// <summary>
    /// The distal joint of thumb finger.
    /// </summary>
    HandThumb3,
    /// <summary>
    /// The metacarpal joint of index finger.
    /// </summary>
    InHandIndex,
    /// <summary>
    /// The proximal joint of index finger.
    /// </summary>
    HandIndex1,
    /// <summary>
    /// The middle joint of index finger.
    /// </summary>
    HandIndex2,
    /// <summary>
    /// The distal joint of index finger.
    /// </summary>
    HandIndex3,
    /// <summary>
    /// The metacarpal joint of middle finger.
    /// </summary>
    InHandMiddle,
    /// <summary>
    /// The proximal joint of middle finger.
    /// </summary>
    HandMiddle1,
    /// <summary>
    /// The middle joint of middle finger.
    /// </summary>
    HandMiddle2,
    /// <summary>
    /// The distal joint of middle finger.
    /// </summary>
    HandMiddle3,
    /// <summary>
    /// The metacarpal joint of ring finger.
    /// </summary>
    InHandRing,
    /// <summary>
    /// The proximal joint of ring finger.
    /// </summary>
    HandRing1,
    /// <summary>
    /// The middle joint of ring finger.
    /// </summary>
    HandRing2,
    /// <summary>
    /// The distal joint of ring finger.
    /// </summary>
    HandRing3,
    /// <summary>
    /// The metacarpal joint of pinky finger.
    /// </summary>
    InHandPinky,
    /// <summary>
    /// The proximal joint of pinky finger.
    /// </summary>
    HandPinky1,
    /// <summary>
    /// The middle joint of pinky finger.
    /// </summary>
    HandPinky2,
    /// <summary>
    /// The distal joint of pinky finger.
    /// </summary>
    HandPinky3,
    /// <summary>
    /// The number of joints of Hi5 bones.
    /// </summary>
    NumOfHI5Bones,
}
```

传感器数据

```
//传感器枚举
public enum EHi5_Glove_Sensor
{
    Hand = 1,
    HandThumb,
    HandIndex,
    HandMiddle,
    HandRing,
    HandPinky
}
//左手传感器信息
private Dictionary<EHi5_Glove_Sensor, HI5SensorInfor> LeftHandBonesSensorInfor;
//右手传感器信息
private Dictionary<EHi5_Glove_Sensor, HI5SensorInfor> RightHandBonesSensorInfor;

//HI5 Sensor 信息
public class HI5SensorInfor
{
    public HI5SensorInfor()
    {
        _magneticValue = 0;
        _energyValue = 0;
        _signalValue = 0;
    }
    //获取传感器磁状态
    public int MagneticValue { get { return _magneticValue; } set { _magneticValue = value; } }
    //获取传感器电量
    public int EnergyValue { get { return _energyValue; } set { _energyValue = value; } }
    //获取传感器信号
    public int SignalValue { get { return _signalValue; } set { _signalValue = value; } }
    internal int _magneticValue;
    internal int _energyValue;
    internal int _signalValue;
};
```

HI5_Glove_Calibration_Process_Interface脚本

调用校准命令接口

```
/// <summary>
/// HI5 calibration pose.
/// </summary>
public enum HI5_Pose
{
    /// <summary>
    /// Unknown pose.
    /// </summary>
    Unknown = -1,
    /// <summary>
    /// Buddha Pose
    /// </summary>
    BPose = 0,
    /// <summary>
    /// Pinch Pose.
    /// </summary>
    PPose,

    //APose,

    //TPose,
    VPose = 4,
}

/*调用顺序 Vpos ->Bpos->Ppose*/
/// <summary>
/// Start calibration.
/// </summary>
/// <param name="pose">
/// The type of calibration pose by <see cref="HI5.HI5_Pose"/>.
/// </param>
public static void StartCalibration(HI5_Pose pose)
{
    if (pose == HI5_Pose.BPose)
        isCalibratingBPose = true;

    if (pose == HI5_Pose.PPose)
        isCalibratingPPose = true;

    if (pose == HI5_Pose.VPose)
        HI5_Calibration.ResetCalibration();

    CalibrationPose tranferPose = TransferPoseEnum(pose);

    if (pose == HI5_Pose.BPose && HI5_Manager_Thread.Instance() != null)
        HI5_Manager_Thread.Instance().AddCalibrationCommand(HI5_Operate_Command.HI5_Calibration_Send_Data.ECalibr

    if (pose == HI5_Pose.PPose && HI5_Manager_Thread.Instance() != null)
        HI5_Manager_Thread.Instance().AddCalibrationCommand(HI5_Operate_Command.HI5_Calibration_Send_Data.ECalibr
    if (pose == HI5_Pose.VPose && HI5_Manager_Thread.Instance() != null)
        HI5_Manager_Thread.Instance().AddCalibrationCommand(HI5_Operate_Command.HI5_Calibration_Send_Data.ECalibr
    // HI5_Device.StartCalibration(tranferPose);
}
```

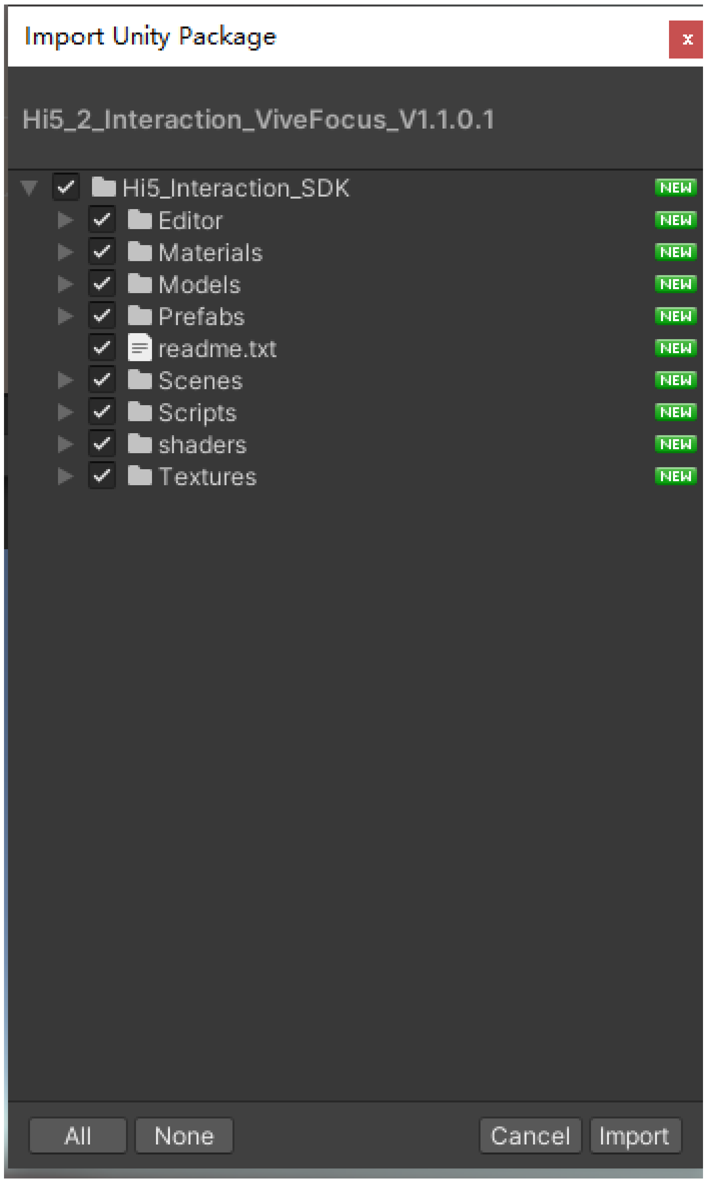
脚本

获取校准进度

```
/// <summary>
/// Get the percent calibration.
/// </summary>
/// <param name="pose">
/// The type of calibration pose by <see cref="HI5.HI5_Pose"/>.
/// </param>
/// <returns>
/// The progress of the related calibration. The value is provided by percent number.
/// </returns>
public static int GetCalibrationProgress(HI5_Pose pose)
{
    CalibrationPose tranferPose = TransferPoseEnum(pose);
    int percent = 0;
    if (HI5_Manager_Thread.Instance() != null)
    {
        percent = (int)HI5_Manager_Thread.Instance().Calibrationpercent;
    }
    if (pose == HI5_Pose.BPose && percent == 100)
    {
        //ruige 2018 11 5
        //SaveBindTrackedObjectInfo();
        isCalibratingBPose = false;
        //HI5_Manager.GetGloveStatus().IsBposComplete = true;
        //SetDefalutOffset();
    }
    if (pose == HI5_Pose.PPose && percent == 100)
    {
        //SaveCalibrationData();
        //ruige 2018 11 5
        //if (HI5_Log_Manager.Instance != null)
        //    HI5_Log_Manager.Instance.WriteLog();
        //Debug.Log("Save Calibration Data " + value);
        isCalibratingPPose = false;
    }
    if (pose == HI5_Pose.VPose && percent == 100)
    {
        //SaveCalibrationData();
        //ruige 2018 11 5
        //if (HI5_Log_Manager.Instance != null)
        //    HI5_Log_Manager.Instance.WriteLog();
        //Debug.Log("Save Calibration Data " + value);
        //isCalibratingPPose = false;
    }
    return percent;
    //return HI5_Device.GetCalibratingPercent(tranferPose);
}
```

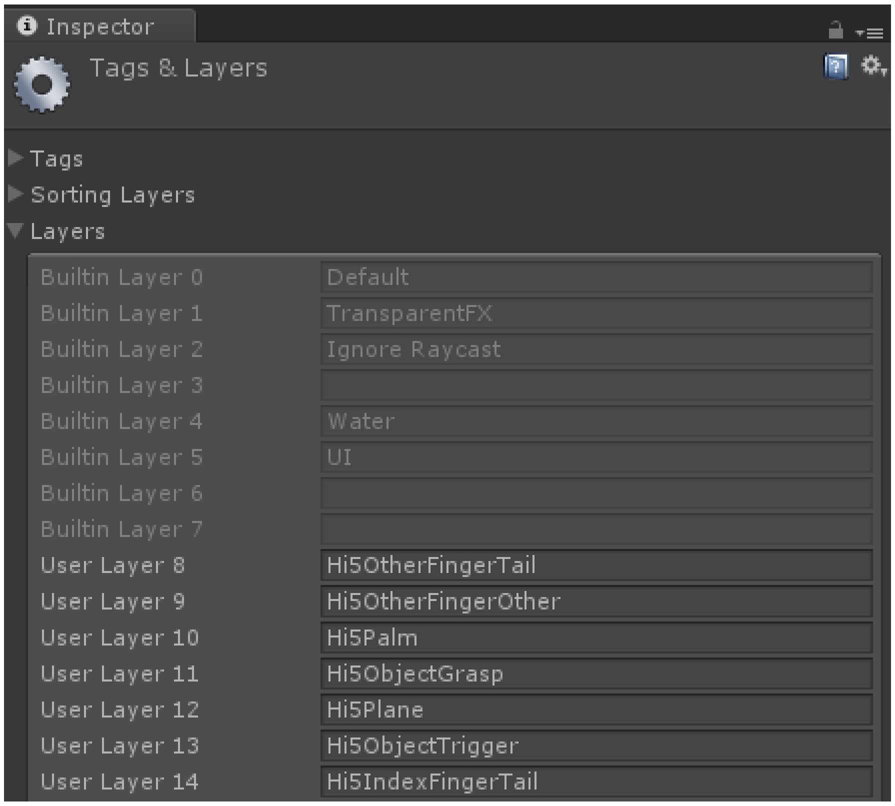
交互SDK

导入Hi5_2_Interaction_ViveFocus_V1.1.0.1.unitypackage



设置Layer和Physics (必须设置)

```
Layer 8         Hi5OtherFingerTail
Layer 9         Hi5OtherFingerOther
Layer 10        Hi5Palm
Layer 11        Hi5ObjectGrasp
Layer 12        Hi5Plane
Layer 13        Hi5ObjectTrigger
Layer 14        Hi5IndexFingerTail
```

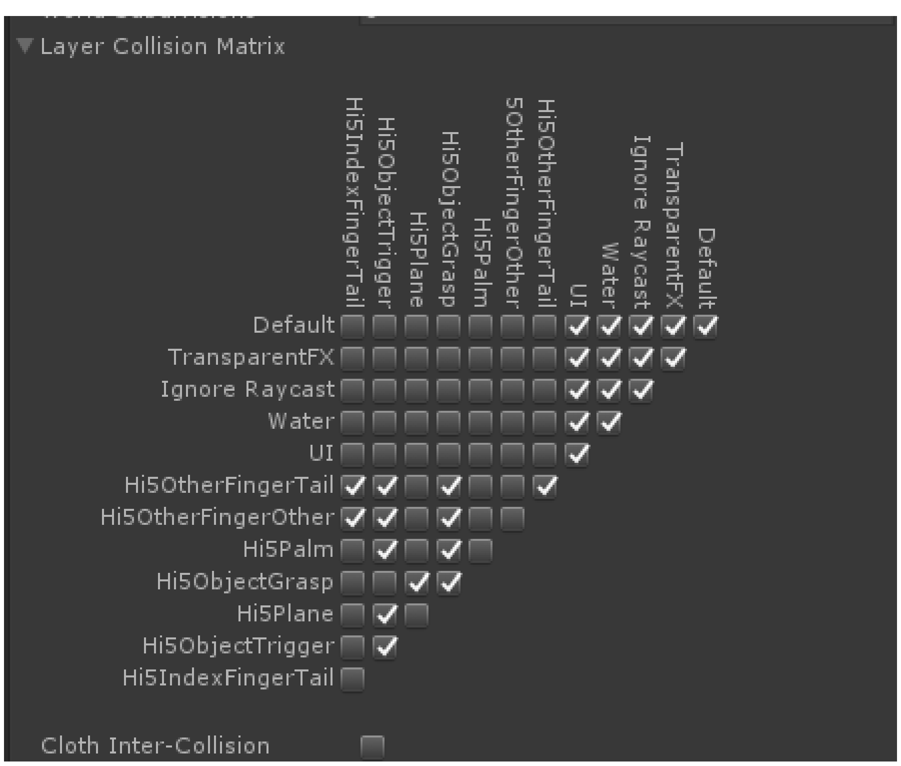

Inspector

Tags & Layers

Tags
Sorting Layers
Layers

Builtin Layer 0	Default
Builtin Layer 1	TransparentFX
Builtin Layer 2	Ignore Raycast
Builtin Layer 3	
Builtin Layer 4	Water
Builtin Layer 5	UI
Builtin Layer 6	
Builtin Layer 7	
User Layer 8	Hi5OtherFingerTail
User Layer 9	Hi5OtherFingerOther
User Layer 10	Hi5Palm
User Layer 11	Hi5ObjectGrasp
User Layer 12	Hi5Plane
User Layer 13	Hi5ObjectTrigger
User Layer 14	Hi5IndexFingerTail

设置Physics Editor-> Project Setting->Physics

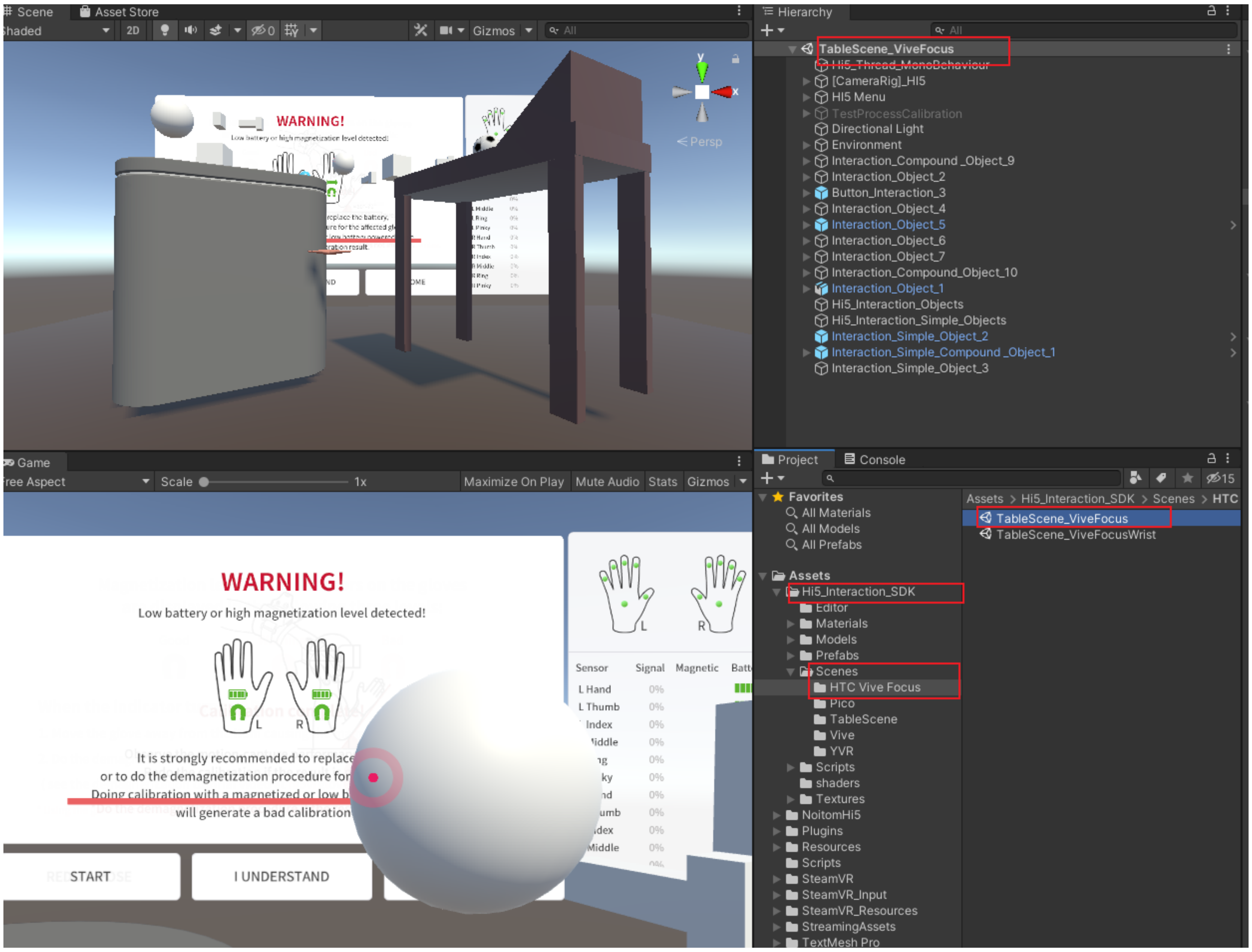

Layer Collision Matrix

	Hi5IndexFingerTail	Hi5ObjectTrigger	Hi5Plane	Hi5ObjectGrasp	Hi5Palm	5OtherFingerOther	Hi5OtherFingerTail	UI	Water	Ignore Raycast	TransparentFX	Default
Default	☐	☐	☐	☐	☐	☐	☐	✓	✓	✓	✓	✓
TransparentFX	☐	☐	☐	☐	☐	☐	☐	✓	✓	✓	✓	
Ignore Raycast	☐	☐	☐	☐	☐	☐	☐	✓	✓	✓		
Water	☐	☐	☐	☐	☐	☐	☐	✓	✓			
UI	☐	☐	☐	☐	☐	☐	☐	✓				
Hi5OtherFingerTail	✓	✓	☐	✓	☐	☐	✓					
Hi5OtherFingerOther	✓	✓	☐	✓	☐	☐						
Hi5Palm	☐	✓	☐	✓	☐							
Hi5ObjectGrasp	☐	☐	✓	✓								
Hi5Plane	☐	✓	☐									
Hi5ObjectTrigger	☐	✓										
Hi5IndexFingerTail	☐											

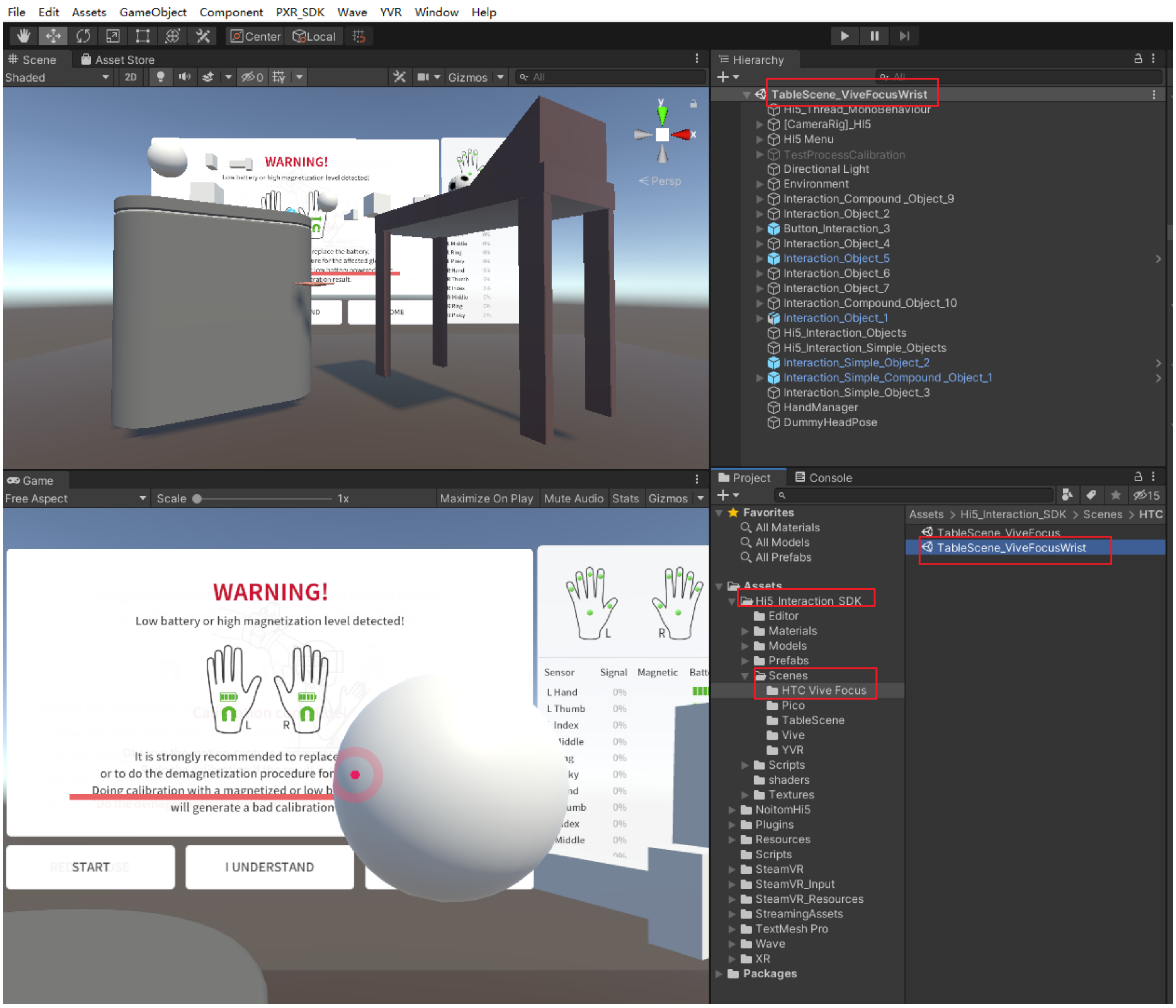
Cloth Inter-Collision ☐

演示场景

手柄交互场景


Scene
Asset Store
Shaded
2D
Gizmos
Persp
Hierarchy
TableScene_ViveFocus
Hi5_Thread_MonoBehaviour
[CameraRig]_HI5
HI5 Menu
TestProcessCalibration
Directional Light
Environment
Interaction_Compound _Object_9
Interaction_Object_2
Button_Interaction_3
Interaction_Object_4
Interaction_Object_5
Interaction_Object_6
Interaction_Object_7
Interaction_Compound_Object_10
Interaction_Object_1
Hi5_Interaction_Objects
Hi5_Interaction_Simple_Objects
Interaction_Simple_Object_2
Interaction_Simple_Compound _Object_1
Interaction_Simple_Object_3
Game
Free Aspect
Scale
1x
Maximize On Play
Mute Audio
Stats
Gizmos
WARNING!
Low battery or high magnetization level detected!
It is strongly recommended to replace
or to do the demagnetization procedure for
Doing calibration with a magnetized or low b
will generate a bad calibration
START
I UNDERSTAND
Sensor
Signal
Magnetic
L Hand
L Thumb
Index
Project
Console
Favorites
All Materials
All Models
All Prefabs
Assets
Hi5_Interaction_SDK
Editor
Materials
Models
Prefabs
Scenes
HTC Vive Focus
Pico
TableScene
Vive
YVR
Scripts
shaders
Textures
NoitomHi5
Plugins
Resources
Scripts
SteamVR
SteamVR_Input
SteamVR_Resources
StreamingAssets
TextMesh Pro
Assets > Hi5_Interaction_SDK > Scenes > HTC
TableScene_ViveFocus
TableScene_ViveFocusWrist

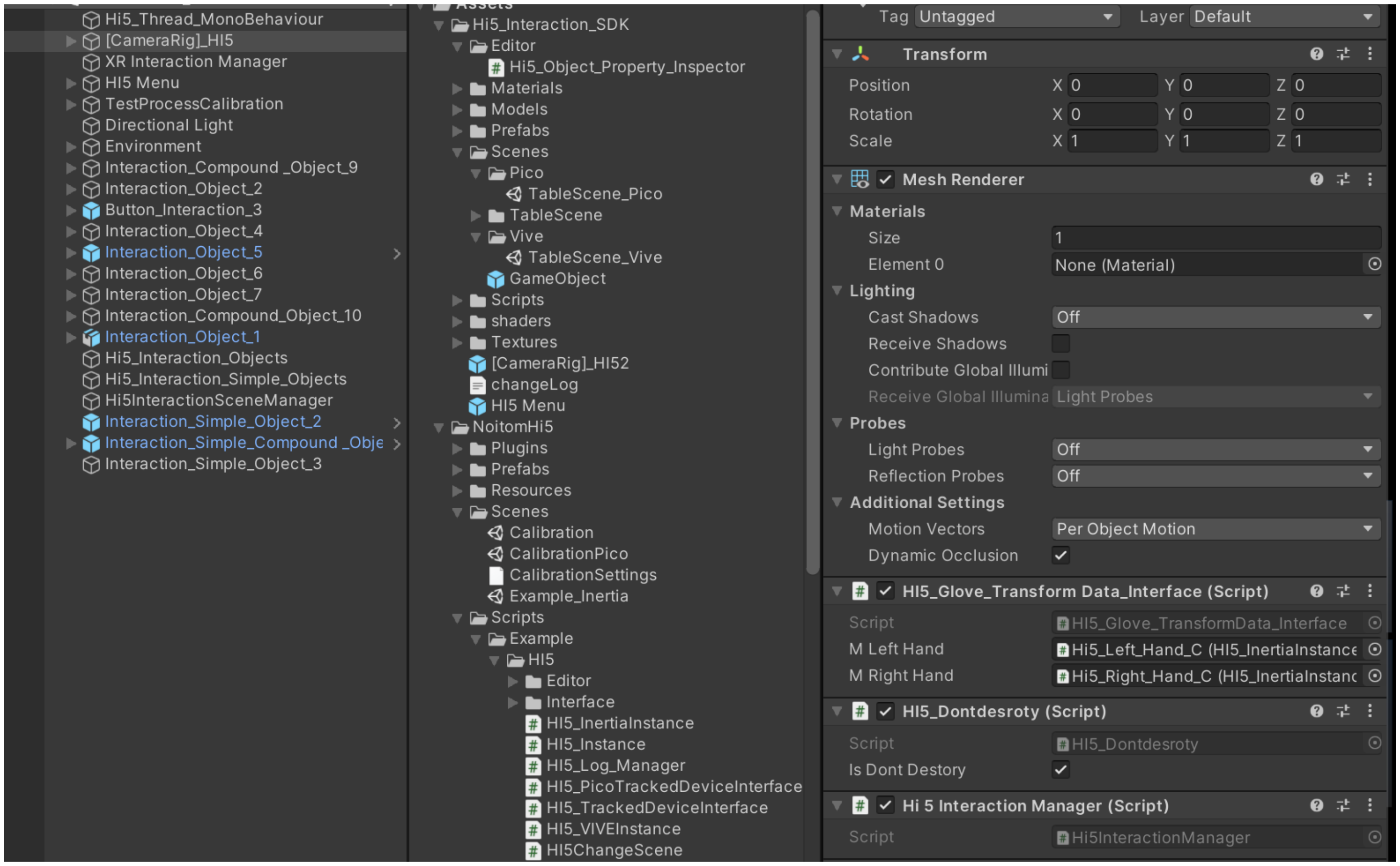
手环交互场景



使用方法

场景必备内容

1、Hi5InteractionManager

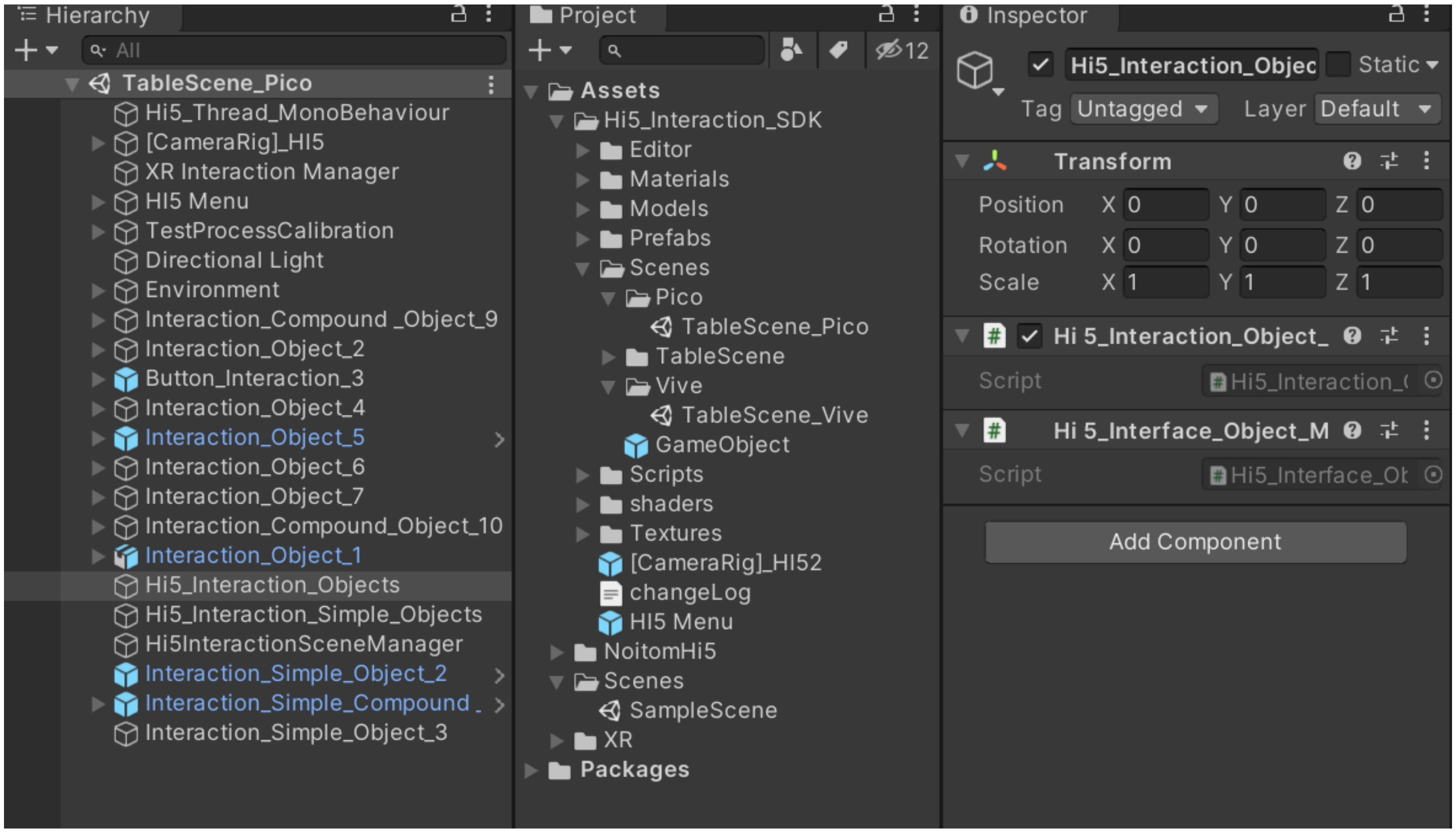


```
Hi5_Thread_MonoBehaviour
[CameraRig]_HI5
XR Interaction Manager
HI5 Menu
TestProcessCalibration
Directional Light
Environment
Interaction_Compound _Object_9
Interaction_Object_2
Button_Interaction_3
Interaction_Object_4
Interaction_Object_5
Interaction_Object_6
Interaction_Object_7
Interaction_Compound_Object_10
Interaction_Object_1
Hi5_Interaction_Objects
Hi5_Interaction_Simple_Objects
Hi5InteractionSceneManager
Interaction_Simple_Object_2
Interaction_Simple_Compound _Obje
Interaction_Simple_Object_3
```

```
Hi5_Interaction_SDK
  Editor
    Hi5_Object_Property_Inspector
  Materials
  Models
  Prefabs
  Scenes
    Pico
      TableScene_Pico
    TableScene
    Vive
      TableScene_Vive
    GameObject
  Scripts
  shaders
  Textures
  [CameraRig]_HI52
  changeLog
  HI5 Menu
NoitomHi5
  Plugins
  Prefabs
  Resources
  Scenes
    Calibration
    CalibrationPico
    CalibrationSettings
    Example_Inertia
  Scripts
    Example
      HI5
        Editor
        Interface
        HI5_InertiaInstance
        HI5_Instance
        HI5_Log_Manager
        HI5_PicoTrackedDeviceInterface
        HI5_TrackedDeviceInterface
        HI5_VIVEInstance
        HI5ChangeScene
```

```
Tag Untagged          Layer Default
Transform
  Position   X 0   Y 0   Z 0
  Rotation   X 0   Y 0   Z 0
  Scale      X 1   Y 1   Z 1
Mesh Renderer
  Materials
    Size                        1
    Element 0                   None (Material)
  Lighting
    Cast Shadows                Off
    Receive Shadows
    Contribute Global Illumi
    Receive Global Illumina     Light Probes
  Probes
    Light Probes                Off
    Reflection Probes           Off
  Additional Settings
    Motion Vectors              Per Object Motion
    Dynamic Occlusion           ✓
HI5_Glove_Transform Data_Interface (Script)
  Script                        HI5_Glove_TransformData_Interface
  M Left Hand                   Hi5_Left_Hand_C (HI5_InertialInstance
  M Right Hand                  Hi5_Right_Hand_C (HI5_InertialInstanc
HI5_Dontdesroty (Script)
  Script                        HI5_Dontdesroty
  Is Dont Destory               ✓
Hi 5 Interaction Manager (Script)
  Script                        Hi5InteractionManager
```

2、Hi5_Interaction_Objects

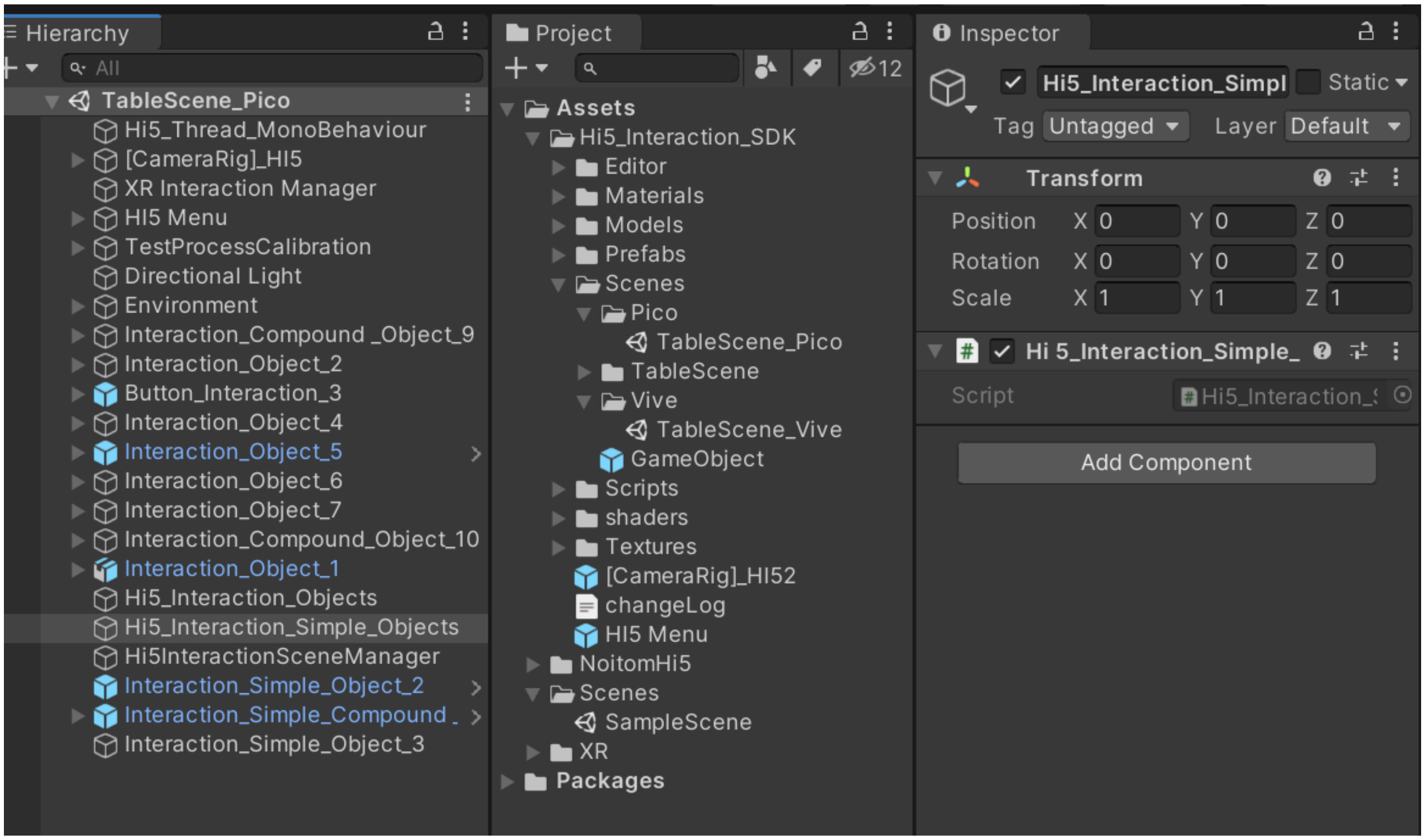


```
Hierarchy
TableScene_Pico
  Hi5_Thread_MonoBehaviour
  [CameraRig]_HI5
  XR Interaction Manager
  HI5 Menu
  TestProcessCalibration
  Directional Light
  Environment
  Interaction_Compound _Object_9
  Interaction_Object_2
  Button_Interaction_3
  Interaction_Object_4
  Interaction_Object_5
  Interaction_Object_6
  Interaction_Object_7
  Interaction_Compound_Object_10
  Interaction_Object_1
  Hi5_Interaction_Objects
  Hi5_Interaction_Simple_Objects
  Hi5InteractionSceneManager
  Interaction_Simple_Object_2
  Interaction_Simple_Compound _
  Interaction_Simple_Object_3
```

```
Project
Assets
  Hi5_Interaction_SDK
    Editor
    Materials
    Models
    Prefabs
    Scenes
      Pico
        TableScene_Pico
      TableScene
      Vive
        TableScene_Vive
      GameObject
    Scripts
    shaders
    Textures
    [CameraRig]_HI52
    changeLog
    HI5 Menu
  NoitomHi5
  Scenes
    SampleScene
  XR
Packages
```

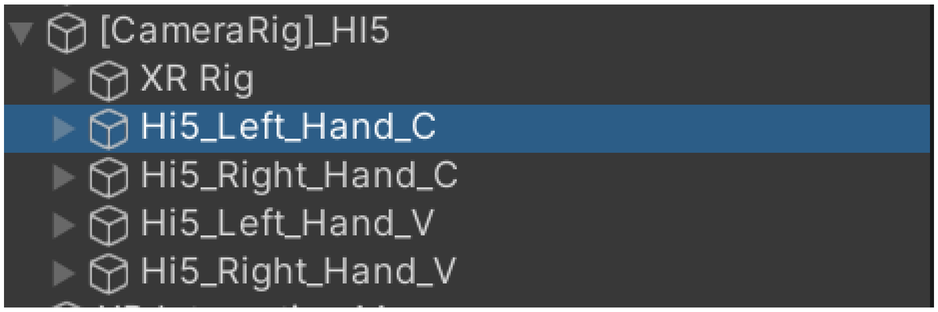
```
Inspector
✓ Hi5_Interaction_Objec      Static
Tag Untagged          Layer Default
Transform
  Position   X 0   Y 0   Z 0
  Rotation   X 0   Y 0   Z 0
  Scale      X 1   Y 1   Z 1
✓ Hi 5_Interaction_Object_
  Script     Hi5_Interaction_(
Hi 5_Interface_Object_M
  Script     Hi5_Interface_Ol
Add Component
```

3、Hi5_Interaction_Simple_Objects



Hi5_Interaction_Simpl Static
Tag Untagged Layer Default
Transform
Position X 0 Y 0 Z 0
Rotation X 0 Y 0 Z 0
Scale X 1 Y 1 Z 1
Hi 5_Interaction_Simple_
Script Hi5_Interaction_

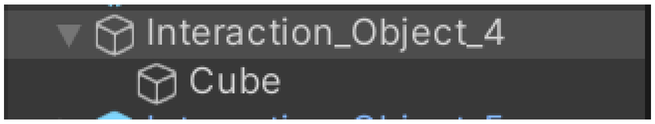
4、Hi5_Left_Hand_C、Hi5_Right_Hand_C、Hi5_Left_Hand_V、Hi5_Right_Hand_V



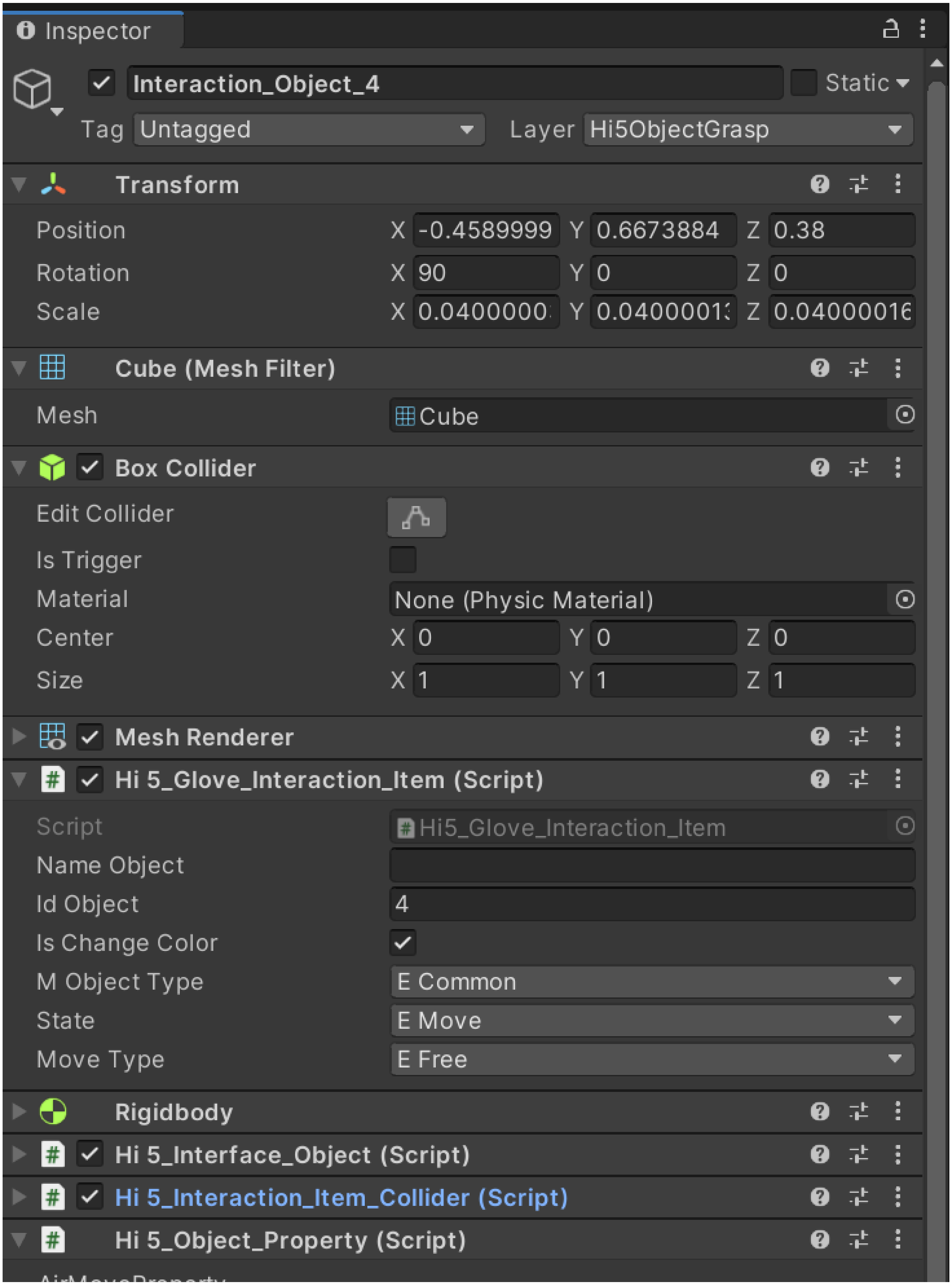
场景物体设置

1、普通交互物体设置

物体设置分物体本身及子物体



主物体设置
注意Layer 设置为 Hi5ObjectGrasp



Inspector

✓ Interaction_Object_4 Static

Tag Untagged Layer Hi5ObjectGrasp

Transform

Position	X -0.4589999	Y 0.6673884	Z 0.38
Rotation	X 90	Y 0	Z 0
Scale	X 0.0400000	Y 0.0400001	Z 0.0400001

Cube (Mesh Filter)

Mesh: Cube

✓ **Box Collider**

Edit Collider			
Is Trigger	☐		
Material	None (Physic Material)		
Center	X 0	Y 0	Z 0
Size	X 1	Y 1	Z 1

✓ **Mesh Renderer**

✓ **Hi 5_Glove_Interaction_Item (Script)**

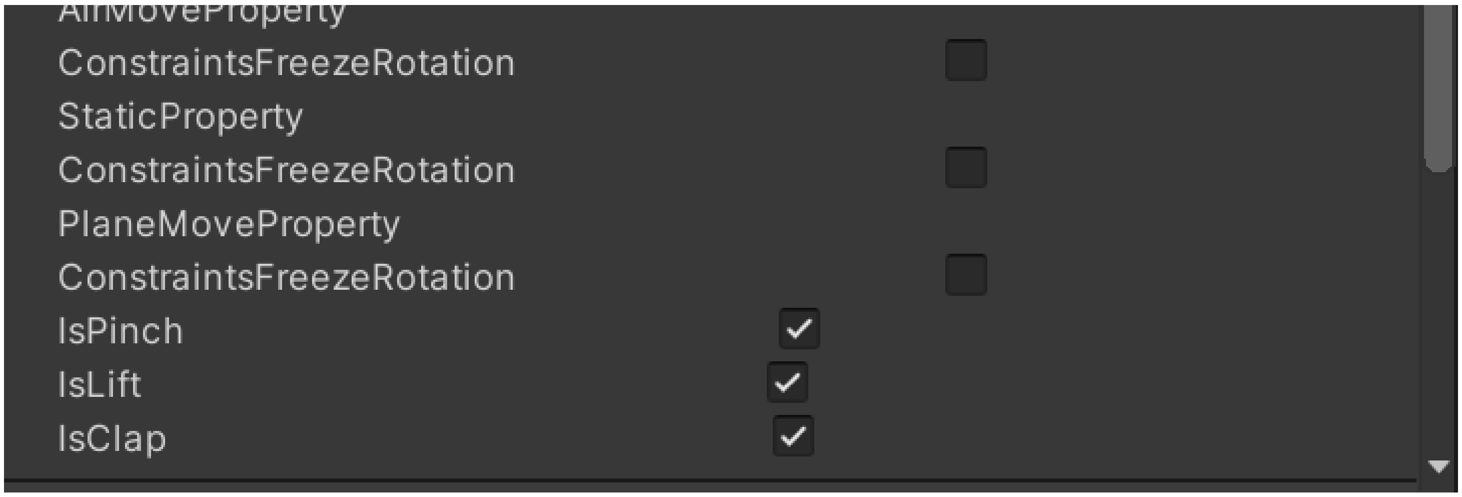
Script	Hi5_Glove_Interaction_Item
Name Object	
Id Object	4
Is Change Color	✓
M Object Type	E Common
State	E Move
Move Type	E Free

Rigidbody

✓ **Hi 5_Interface_Object (Script)**

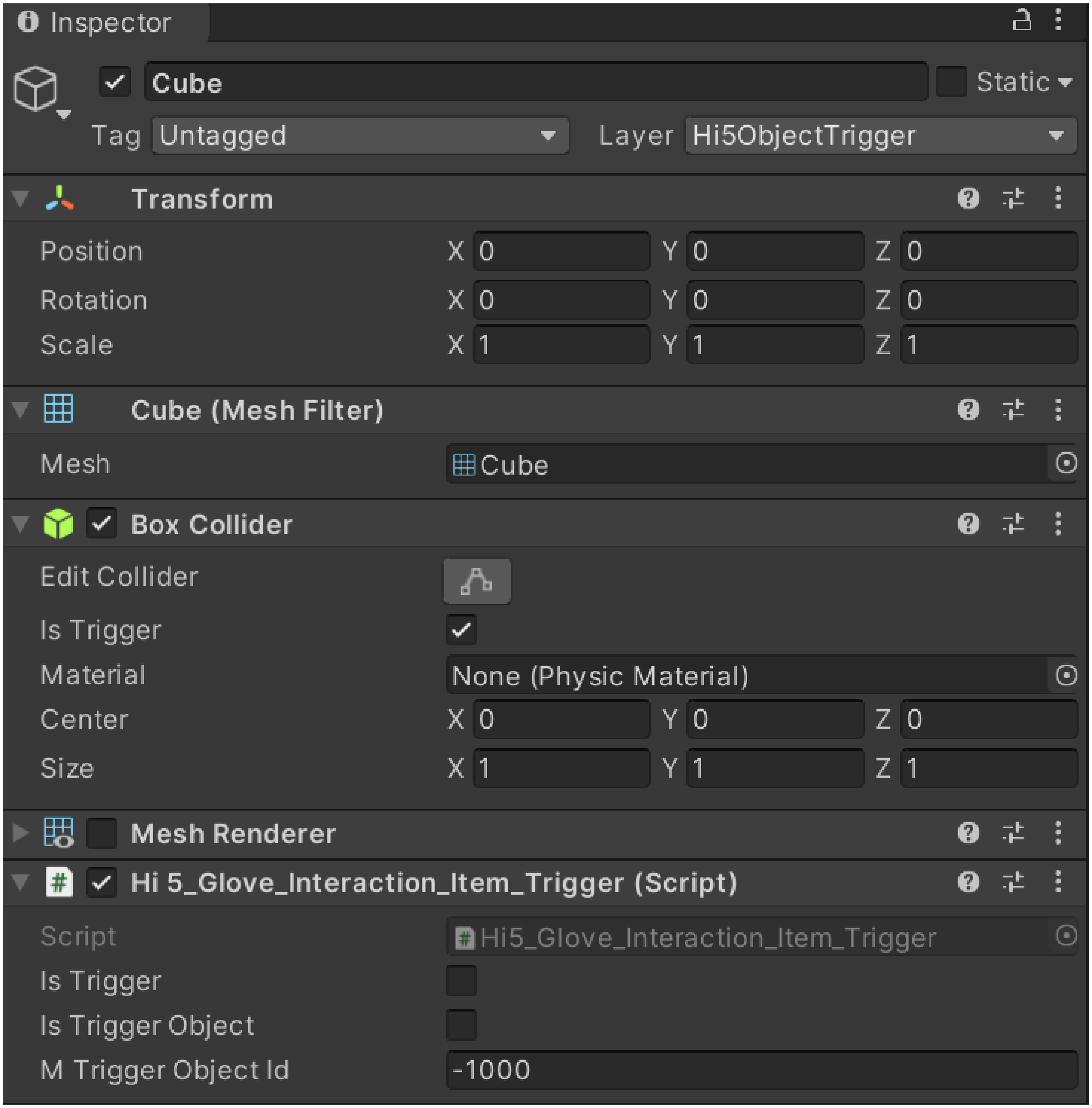
✓ **Hi 5_Interaction_Item_Collider (Script)**

Hi 5_Object_Property (Script)


AirMoveProperty
ConstraintsFreezeRotation ☐
StaticProperty
ConstraintsFreezeRotation ☐
PlaneMoveProperty
ConstraintsFreezeRotation ☐
IsPinch ✓
IsLift ✓
IsClap ✓

子物体设置

注意layer层设置为 Hi5ObejctTrigger



Inspector

✓ Cube Static

Tag Untagged Layer Hi5ObjectTrigger

Transform

Position	X 0	Y 0	Z 0
Rotation	X 0	Y 0	Z 0
Scale	X 1	Y 1	Z 1

Cube (Mesh Filter)

Mesh: Cube

✓ Box Collider

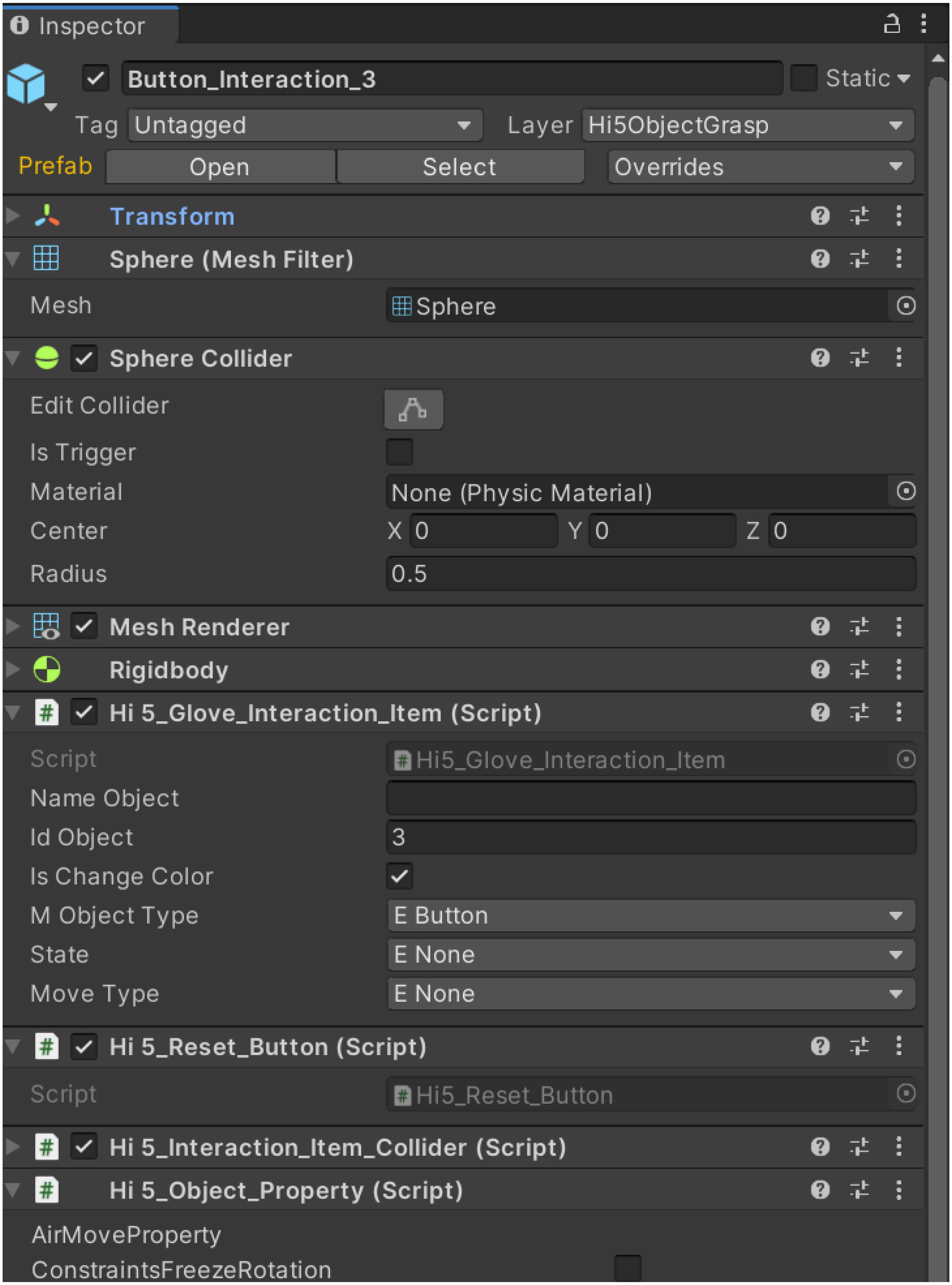
Edit Collider			
Is Trigger	✓		
Material	None (Physic Material)		
Center	X 0	Y 0	Z 0
Size	X 1	Y 1	Z 1

Mesh Renderer

✓ Hi 5_Glove_Interaction_Item_Trigger (Script)

Script	Hi5_Glove_Interaction_Item_Trigger
Is Trigger	
Is Trigger Object	
M Trigger Object Id	-1000

2、button 设置



Inspector

[✓] Button_Interaction_3 [ ] Static

Tag: Untagged | Layer: Hi5ObjectGrasp

Prefab: Open | Select | Overrides

Transform

Sphere (Mesh Filter)

Mesh	Sphere

[✓] **Sphere Collider**

Edit Collider	
Is Trigger	[ ]
Material	None (Physic Material)
Center	X 0 Y 0 Z 0
Radius	0.5

[✓] **Mesh Renderer**

Rigidbody

[✓] **Hi 5_Glove_Interaction_Item (Script)**

Script	Hi5_Glove_Interaction_Item
Name Object	
Id Object	3
Is Change Color	✓
M Object Type	E Button
State	E None
Move Type	E None

[✓] **Hi 5_Reset_Button (Script)**

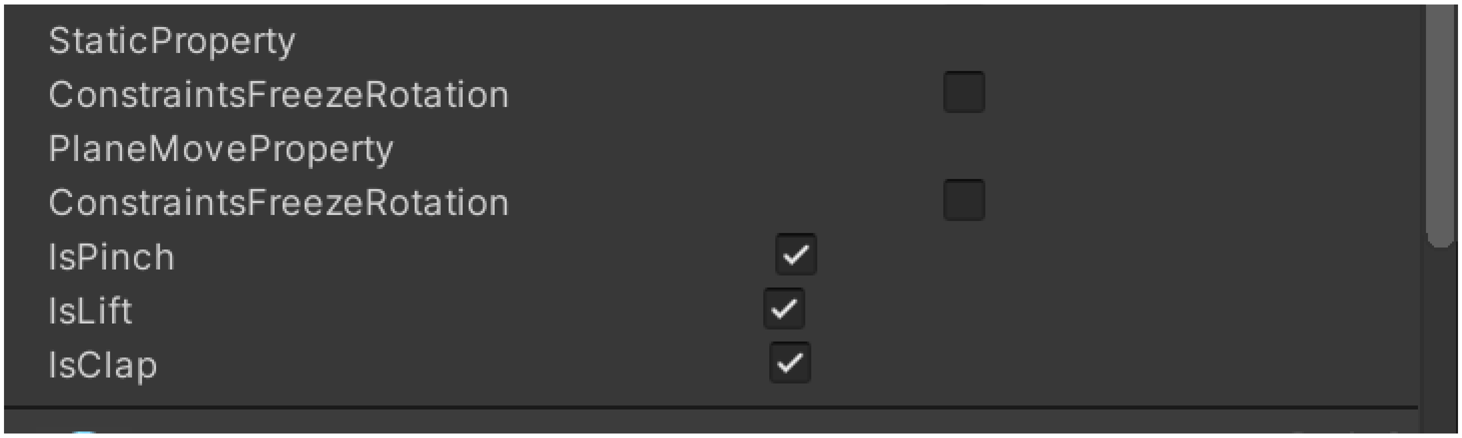
Script	Hi5_Reset_Button

[✓] **Hi 5_Interaction_Item_Collider (Script)**

Hi 5_Object_Property (Script)

AirMoveProperty

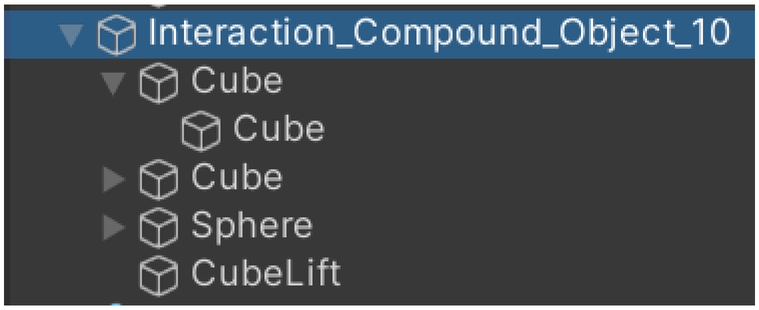
ConstraintsFreezeRotation [ ]



StaticProperty
ConstraintsFreezeRotation ☐
PlaneMoveProperty
ConstraintsFreezeRotation ☐
IsPinch ✓
IsLift ✓
IsClap ✓

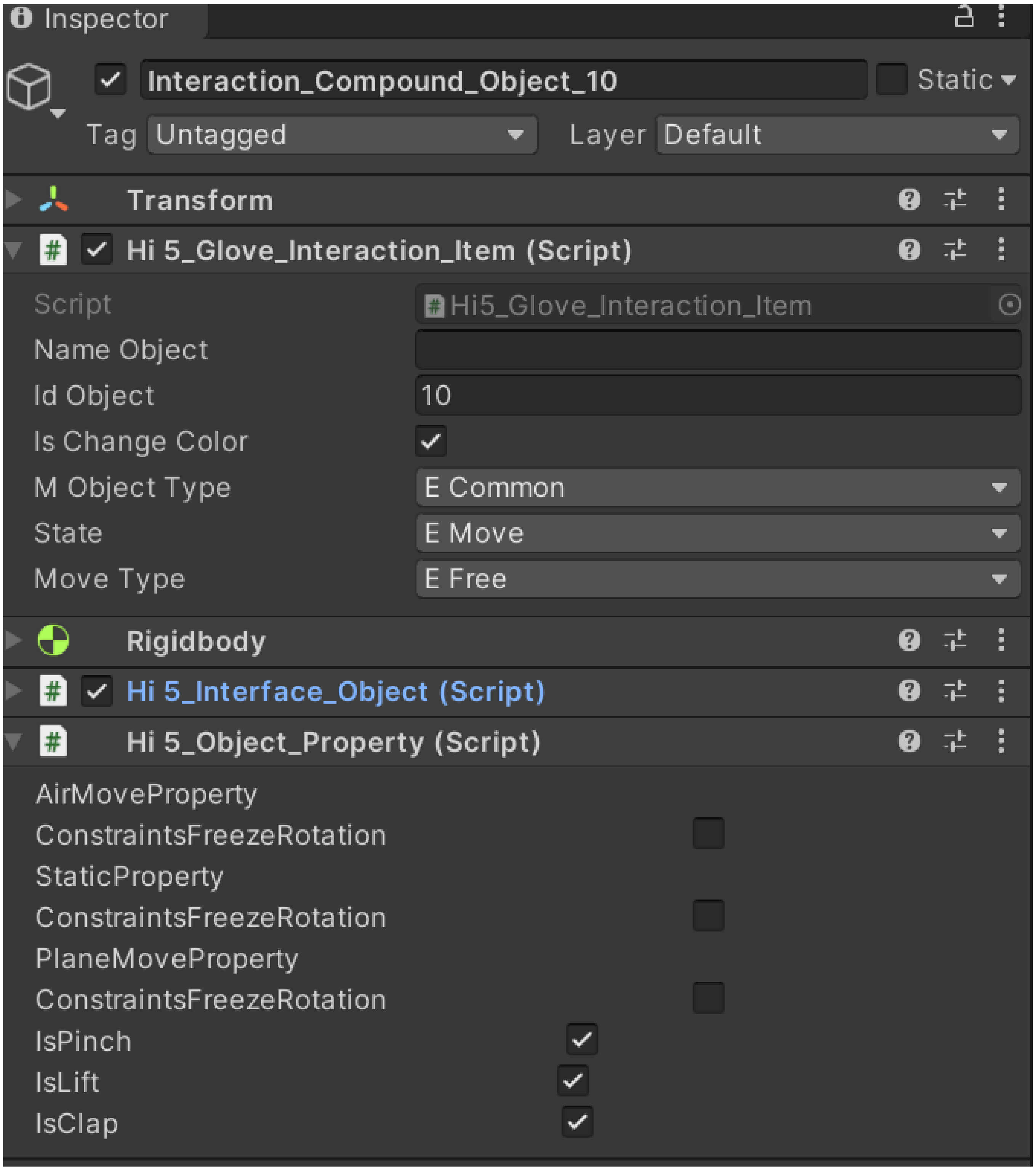
3、组合物体设置

组合物体分为三层



```
▼ Interaction_Compound_Object_10
    ▼ Cube
        Cube
    ▶ Cube
    ▶ Sphere
      CubeLift
```

物体最外层物体本身设置


Inspector

Interaction_Compound_Object_10 ✓ Static ☐

Tag Untagged | Layer Default

Transform

Hi 5_Glove_Interaction_Item (Script) ✓

Script	Hi5_Glove_Interaction_Item
Name Object	
Id Object	10
Is Change Color	✓
M Object Type	E Common
State	E Move
Move Type	E Free

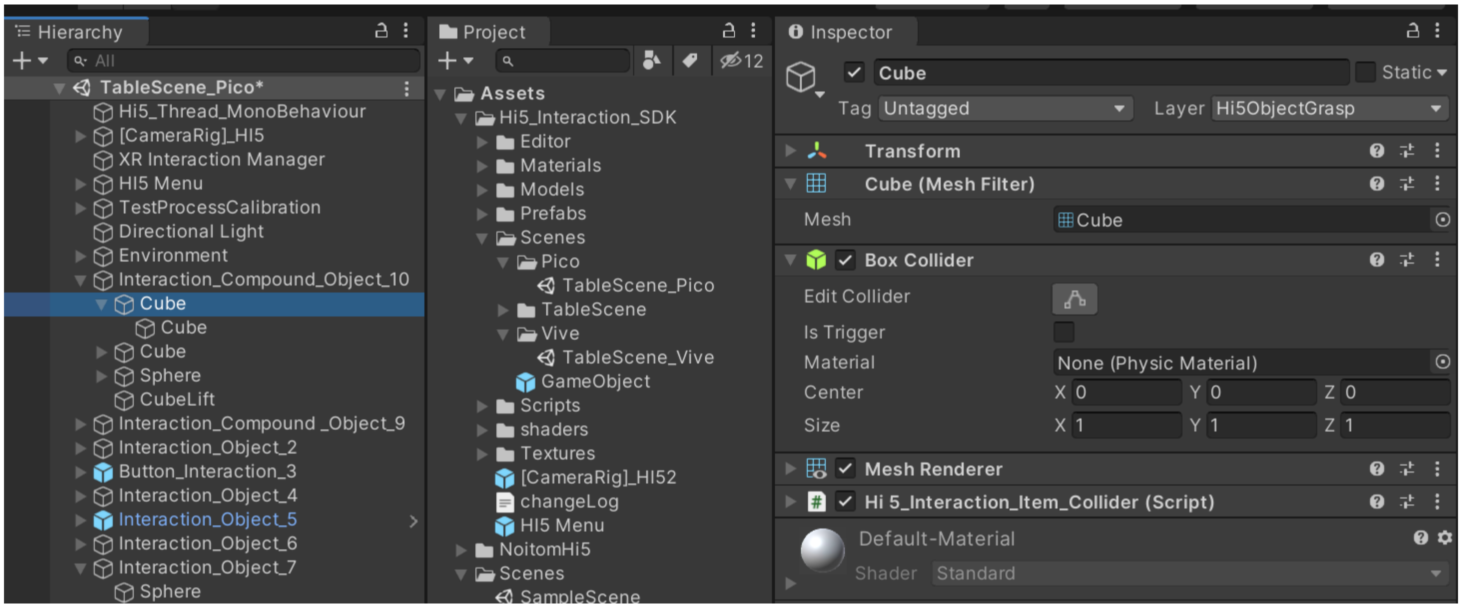
Rigidbody

Hi 5_Interface_Object (Script) ✓

Hi 5_Object_Property (Script)

AirMoveProperty	
ConstraintsFreezeRotation	☐
StaticProperty	
ConstraintsFreezeRotation	☐
PlaneMoveProperty	
ConstraintsFreezeRotation	☐
IsPinch	✓
IsLift	✓
IsClap	✓

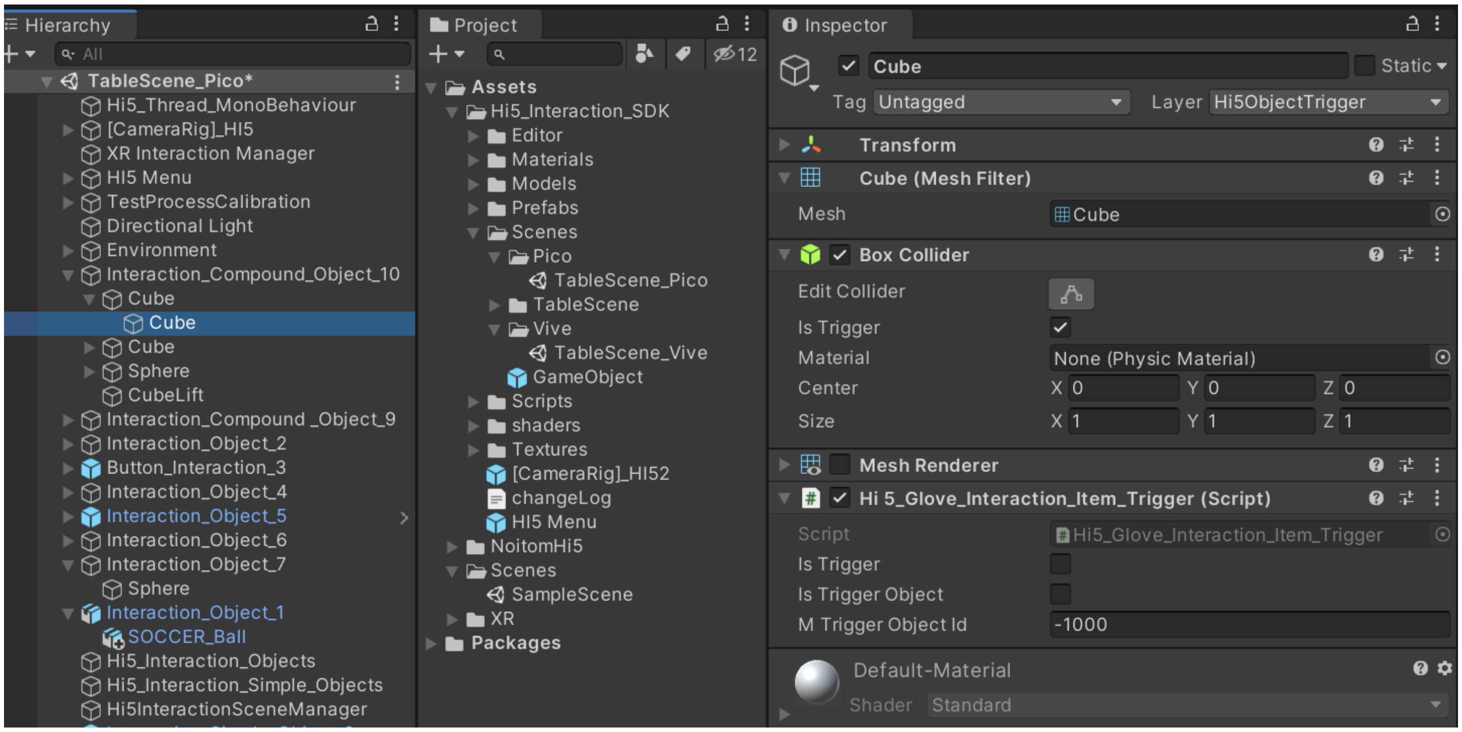
子组合体设置
子组合体外层设置
注意Layer 设置为 Hi5ObjectGrasp



Cube　Static
Tag Untagged　Layer Hi5ObjectGrasp
Transform
Cube (Mesh Filter)
Mesh　Cube
Box Collider
Edit Collider
Is Trigger
Material　None (Physic Material)
Center　X 0　Y 0　Z 0
Size　X 1　Y 1　Z 1
Mesh Renderer
Hi 5_Interaction_Item_Collider (Script)
Default-Material
Shader　Standard

子组合体内层设置

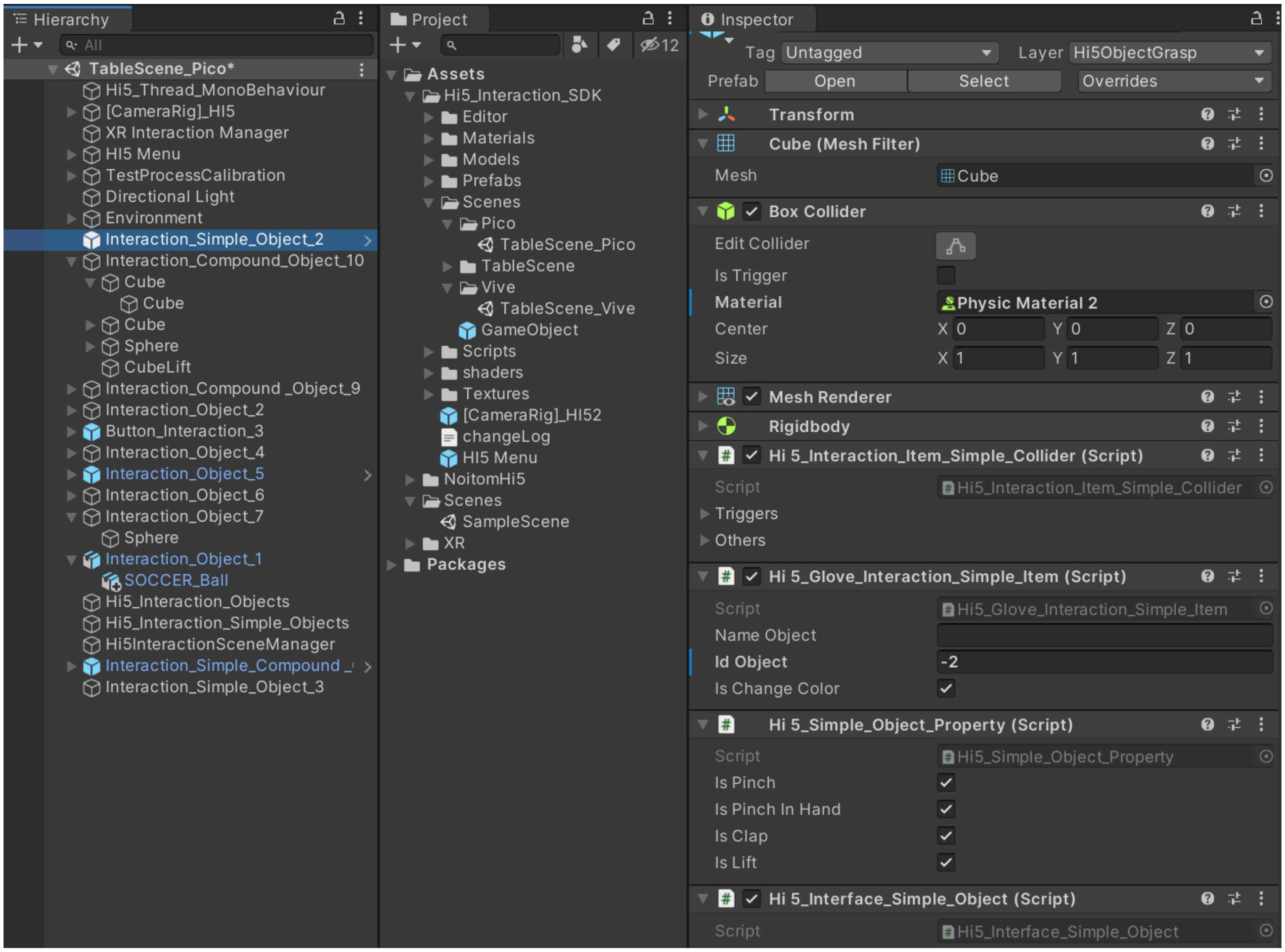
注意layer层设置为 Hi5ObejctTrigger



Cube　Static
Tag Untagged　Layer Hi5ObjectTrigger
Transform
Cube (Mesh Filter)
Mesh　Cube
Box Collider
Edit Collider
Is Trigger　✓
Material　None (Physic Material)
Center　X 0　Y 0　Z 0
Size　X 1　Y 1　Z 1
Mesh Renderer
Hi 5_Glove_Interaction_Item_Trigger (Script)
Script　Hi5_Glove_Interaction_Item_Trigger
Is Trigger
Is Trigger Object
M Trigger Object Id　-1000
Default-Material
Shader　Standard

4、简单物体设置 简单物体只有抓握等功能，自身不会产生运动，当抓住释放后会停留在原位置

注意Layer设置为Hi5ObjectGrasp


Hierarchy

All

TableScene_Pico*
- Hi5_Thread_MonoBehaviour
- [CameraRig]_HI5
- XR Interaction Manager
- HI5 Menu
- TestProcessCalibration
- Directional Light
- Environment
- Interaction_Simple_Object_2
- Interaction_Compound_Object_10
  - Cube
    - Cube
  - Cube
  - Sphere
  - CubeLift
- Interaction_Compound _Object_9
- Interaction_Object_2
- Button_Interaction_3
- Interaction_Object_4
- Interaction_Object_5
- Interaction_Object_6
- Interaction_Object_7
  - Sphere
- Interaction_Object_1
  - SOCCER_Ball
- Hi5_Interaction_Objects
- Hi5_Interaction_Simple_Objects
- Hi5InteractionSceneManager
- Interaction_Simple_Compound_
- Interaction_Simple_Object_3

Project

12

- Assets
  - Hi5_Interaction_SDK
    - Editor
    - Materials
    - Models
    - Prefabs
    - Scenes
      - Pico
        - TableScene_Pico
      - TableScene
      - Vive
        - TableScene_Vive
      - GameObject
    - Scripts
    - shaders
    - Textures
    - [CameraRig]_HI52
    - changeLog
    - HI5 Menu
  - NoitomHi5
  - Scenes
    - SampleScene
  - XR
- Packages

Inspector

Tag Untagged   Layer Hi5ObjectGrasp

Prefab   Open   Select   Overrides

Transform

Cube (Mesh Filter)

Mesh	Cube

Box Collider ✓

Edit Collider	
Is Trigger	
Material	Physic Material 2
Center	X 0 Y 0 Z 0
Size	X 1 Y 1 Z 1

Mesh Renderer ✓

Rigidbody

Hi 5_Interaction_Item_Simple_Collider (Script) ✓

Script	Hi5_Interaction_Item_Simple_Collider

Triggers

Others

Hi 5_Glove_Interaction_Simple_Item (Script) ✓

Script	Hi5_Glove_Interaction_Simple_Item
Name Object	
Id Object	-2
Is Change Color	✓

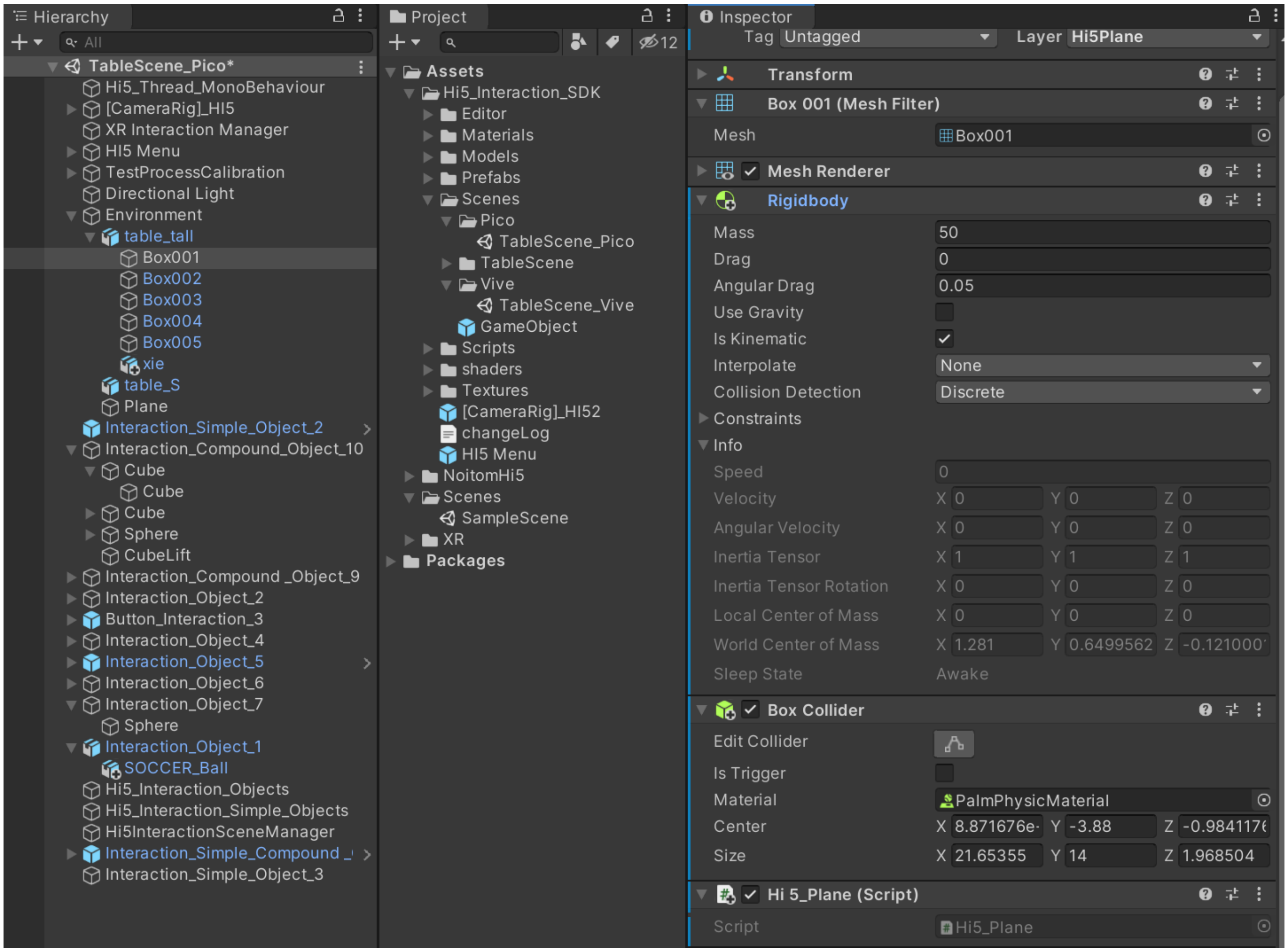
Hi 5_Simple_Object_Property (Script)

Script	Hi5_Simple_Object_Property
Is Pinch	✓
Is Pinch In Hand	✓
Is Clap	✓
Is Lift	✓

Hi 5_Interface_Simple_Object (Script) ✓

Script	Hi5_Interface_Simple_Object

桌面设置场景中可以放置物体地方需要设置Hi5_Plane脚本例如地面桌子等



```
Hierarchy
All
TableScene_Pico*
  Hi5_Thread_MonoBehaviour
  [CameraRig]_HI5
  XR Interaction Manager
  HI5 Menu
  TestProcessCalibration
  Directional Light
  Environment
    table_tall
      Box001
      Box002
      Box003
      Box004
      Box005
      xie
    table_S
    Plane
  Interaction_Simple_Object_2
  Interaction_Compound_Object_10
    Cube
      Cube
    Cube
    Sphere
    CubeLift
  Interaction_Compound _Object_9
  Interaction_Object_2
  Button_Interaction_3
  Interaction_Object_4
  Interaction_Object_5
  Interaction_Object_6
  Interaction_Object_7
    Sphere
  Interaction_Object_1
    SOCCER_Ball
  Hi5_Interaction_Objects
  Hi5_Interaction_Simple_Objects
  Hi5InteractionSceneManager
  Interaction_Simple_Compound_
  Interaction_Simple_Object_3
```

```
Project
Assets
  Hi5_Interaction_SDK
    Editor
    Materials
    Models
    Prefabs
    Scenes
      Pico
        TableScene_Pico
      TableScene
      Vive
        TableScene_Vive
      GameObject
    Scripts
    shaders
    Textures
    [CameraRig]_HI52
    changeLog
    HI5 Menu
  NoitomHi5
  Scenes
    SampleScene
  XR
Packages
```

Inspector

Tag Untagged Layer Hi5Plane

Transform

Box 001 (Mesh Filter)

Mesh	Box001

Mesh Renderer ✓

Rigidbody

Mass	50		
Drag	0		
Angular Drag	0.05		
Use Gravity	☐		
Is Kinematic	✓		
Interpolate	None		
Collision Detection	Discrete		
Constraints			
Info			
Speed	0		
Velocity	X 0	Y 0	Z 0
Angular Velocity	X 0	Y 0	Z 0
Inertia Tensor	X 1	Y 1	Z 1
Inertia Tensor Rotation	X 0	Y 0	Z 0
Local Center of Mass	X 0	Y 0	Z 0
World Center of Mass	X 1.281	Y 0.6499562	Z -0.121000
Sleep State	Awake		

Box Collider ✓

Edit Collider			
Is Trigger	☐		
Material	PalmPhysicMaterial		
Center	X 8.871676e-	Y -3.88	Z -0.984117
Size	X 21.65355	Y 14	Z 1.968504

Hi 5_Plane (Script) ✓

Script	Hi5_Plane

相关接口

1、手相关接口

Hi5_Interface_Hand 脚本

手状态

```
enum E_Interface_Hand_State
{
    ERelease = -1,
    EPinch = 2,
    ELift = 4,
}
E_Interface_Hand_State GetHandState(out int interactionObjectId)
```

E_Interface_Hand_State 返回手部状态，interactionObjectId返回交互物体Id索引

手姿态识别状态

```
enum Hi5_Glove_Gesture_Recognition_State
{
    ENone = 0,
    EOk,
    EFist,
    EIndexPoint,
    EHandPlane
}
Hi5_Glove_Gesture_Recognition_State GetRecognitionState()
```

Hi5_Glove_Gesture_Recognition_State返回手当前状态

2、手事件接口

```
public void MessageFun(string messageKey, object param1, object param2)
{
    if (messageKey.CompareTo(Hi5_Glove_Interaction_Message.Hi5_MessageMessageKey.messageHandEvent) == 0)
    {
        Hi5_Glove_Interaction_Hand_Event_Data data = param1 as Hi5_Glove_Interaction_Hand_Event_Data;

        switch (data.mEventType)
        {
            case EEventHandType.EClap:
                {
                    //拍击事件
                }
                break;
            case EEventHandType.EPoke:
                {
                    //戳事件
                }
                break;
            case EEventHandType.EPinch:
                {
                    //抓取事件
                }
                break;
            case EEventHandType.EThrow:
                {
                    //抛出事件
                }
                break;
            case EEventHandType.ELift:
                {
                    //托举事件
                }
                break;
            case EEventHandType.ERelease:
                {
                    //释放事件
                }
                break;
        }
    }
}
```

3、交互物体接口

Hi5_Interface_Object

交互物体状态

```
enum E_Object_State
{
    ENone = -1,
    EStatic = 1,
    EPinch = 3,
    EMove = 2,
    EClap = 4,
    EFlyLift = 5,
    EPoke = 6,
}
```

E_Object_State GetObjectItemState(); 获取交互物体状态

int GetObjectId()；返回交互物体Id

交互物体事件

```
public void MessageFun(string messageKey, object param1, object param2)
{
    if (messageKey.CompareTo(Hi5_Glove_Interaction_Message.Hi5_MessageMessageKey.messageObjectEvent) == 0)
    {
        Hi5_Glove_Interaction_Object_Event_Data data = param1 as Hi5_Glove_Interaction_Object_Event_Data;
        if (data.mObjectId == ObjectItem.idObject)
        {
            switch (data.mEventType)
            {
                case EEventObjectType.EClap:
                    {
                    }
                    break;
                case EEventObjectType.EPoke:
                    break;
                case EEventObjectType.EPinch:
                    break;
                case EEventObjectType.EMove:
                    break;
                case EEventObjectType.ELift:
                    break;
                case EEventObjectType.EStatic:
                    if (mItem != null)
                    {

                        mItem.ResetCorlor();
                    }
                    break;
            }
        }

    }
}
```

4、按钮接口

```
Hi5_Interface_Button
virtual public void MessageFun(string messageKey, object param1, object param2)
{
    if (messageKey.CompareTo(Hi5_Glove_Interaction_Message.Hi5_MessageMessageKey.messageObjectEvent) == 0)
    {
        Hi5_Glove_Interaction_Object_Event_Data data = param1 as Hi5_Glove_Interaction_Object_Event_Data;
        if (data.mObjectId == ObjectItem.idObject)
        {
            if (data.mEventType == EEventObjectType.EClap)
            {

            }
            else if (data.mEventType == EEventObjectType.EPoke)
            {

            }
            else if (data.mEventType == EEventObjectType.EStatic)
            {

            }
        }
    }
}
```