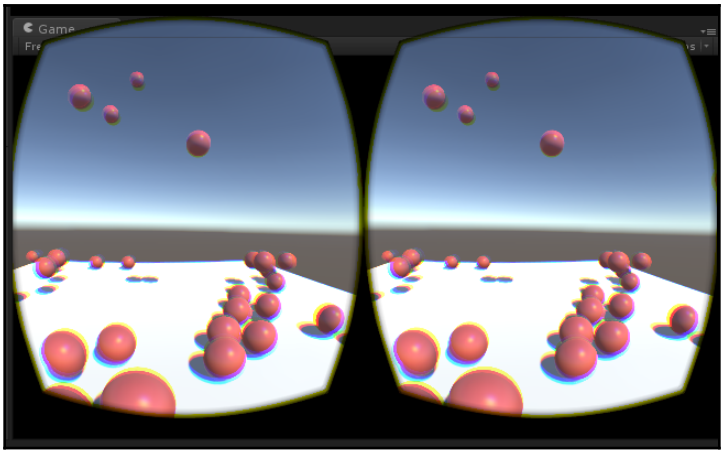
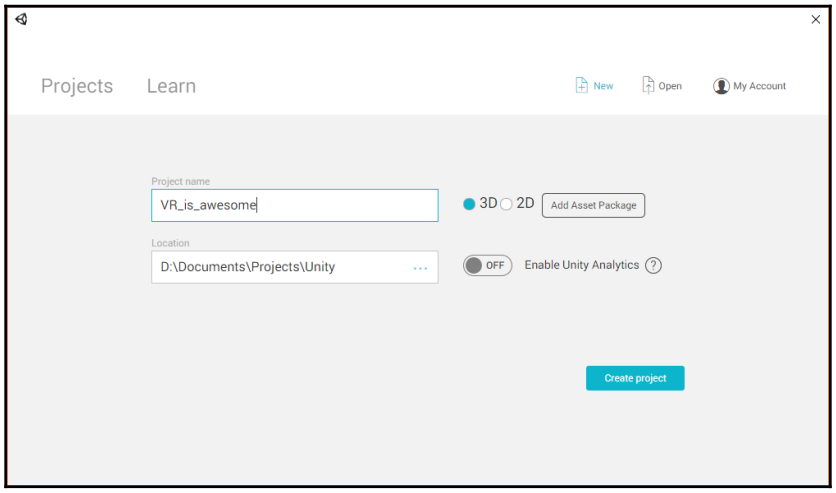
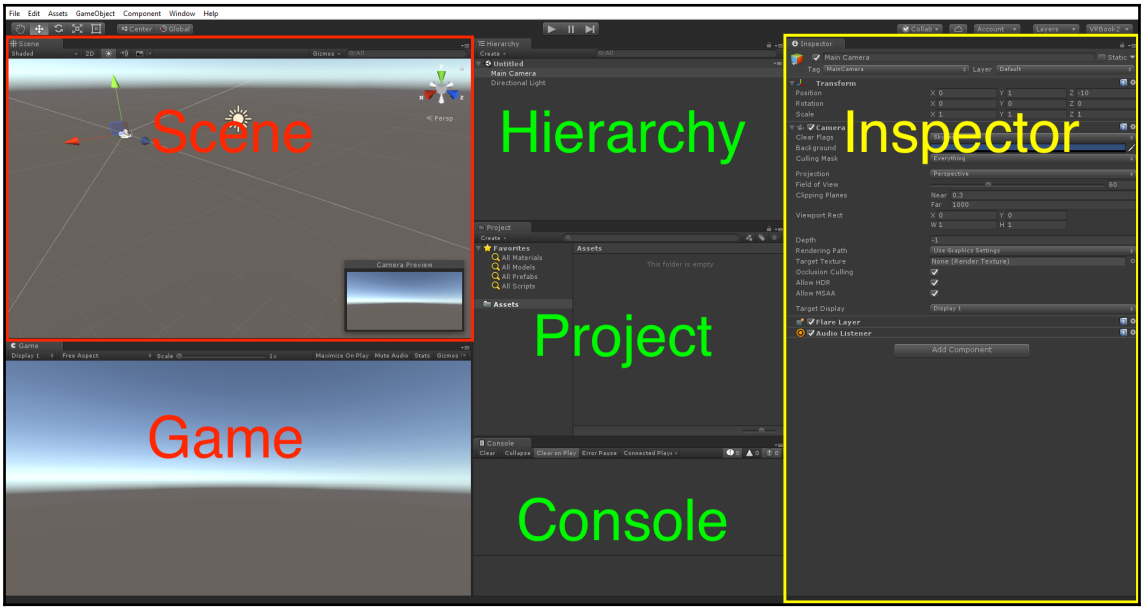
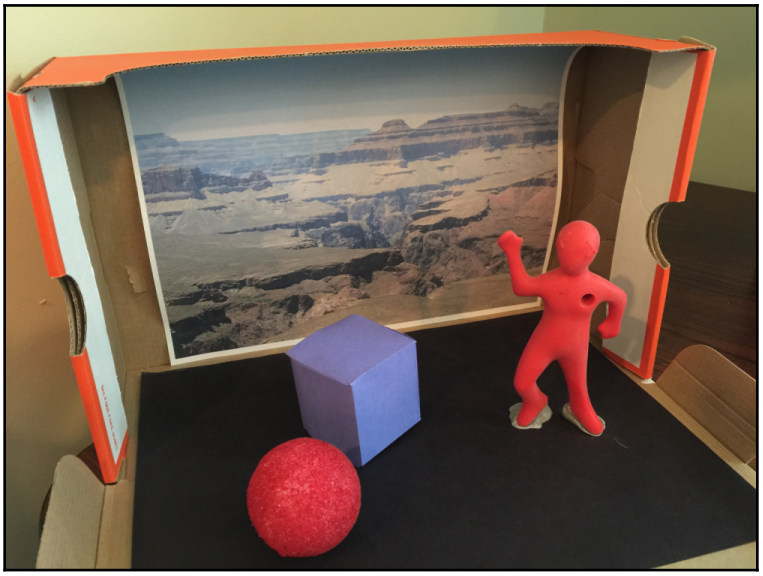
Chapter 01:
Virtually Everything for Everyone

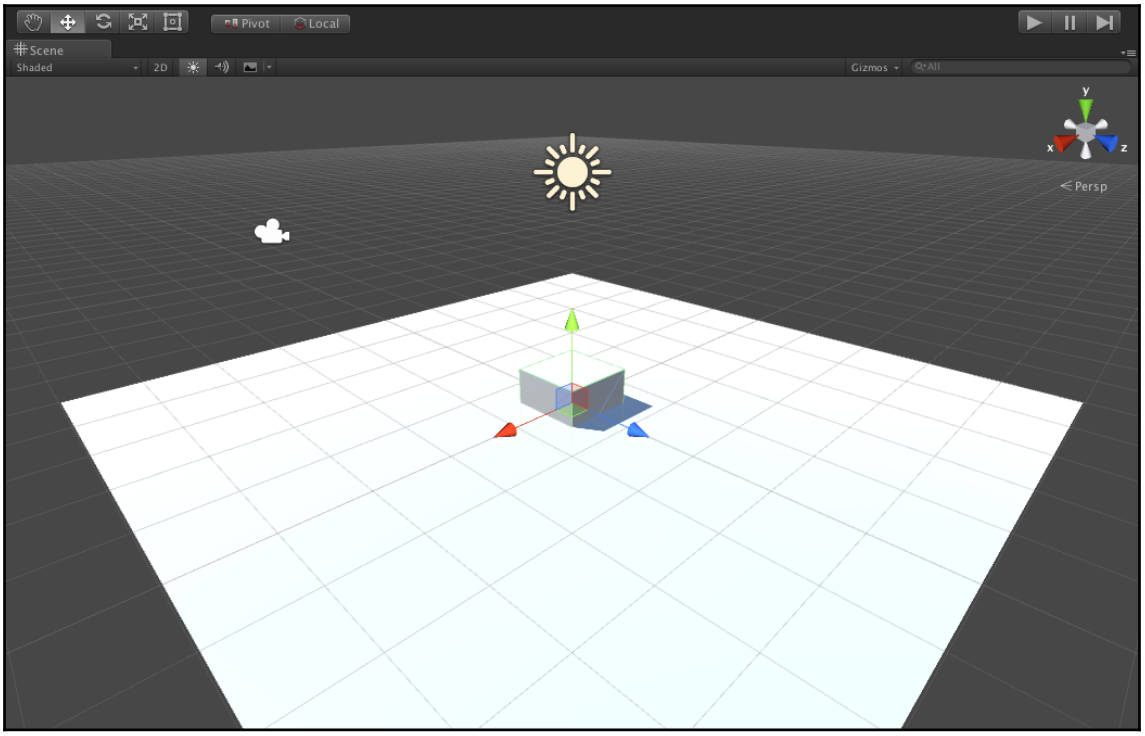

Game

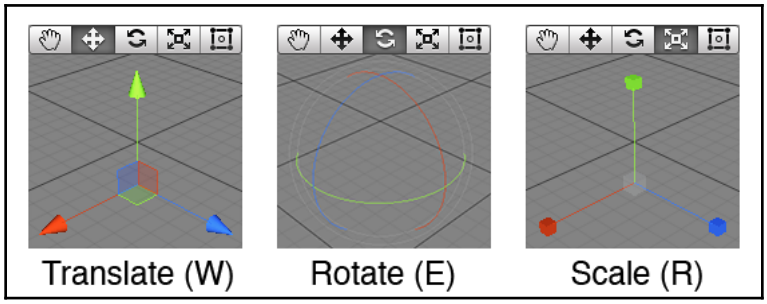
Chapter 02: Content, Objects, and Scale

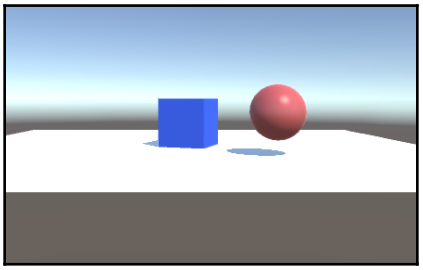


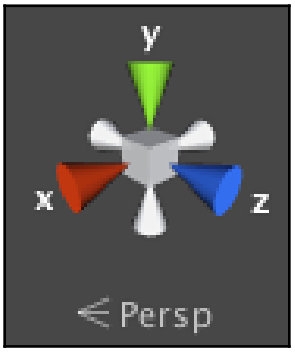


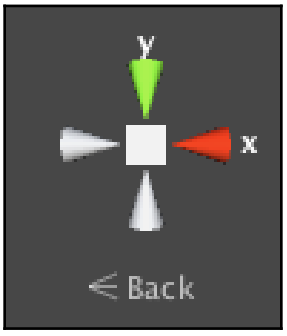


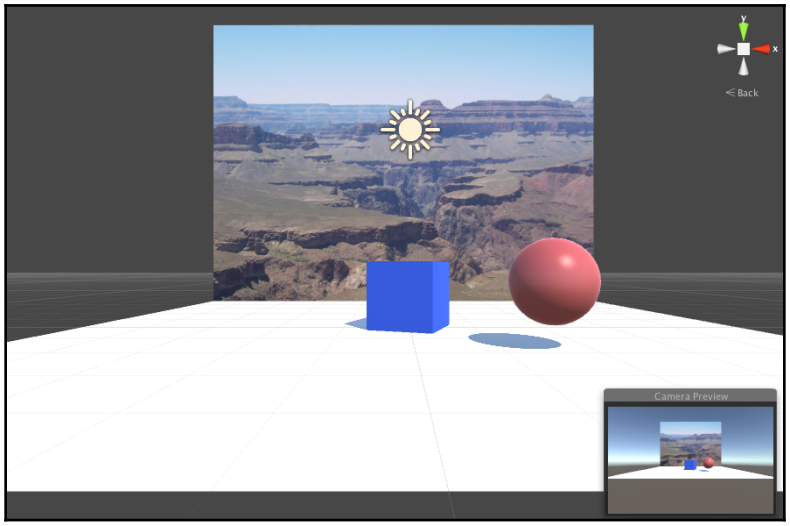

Pivot
Local
Scene
Shaded
2D
Gizmos
Persp

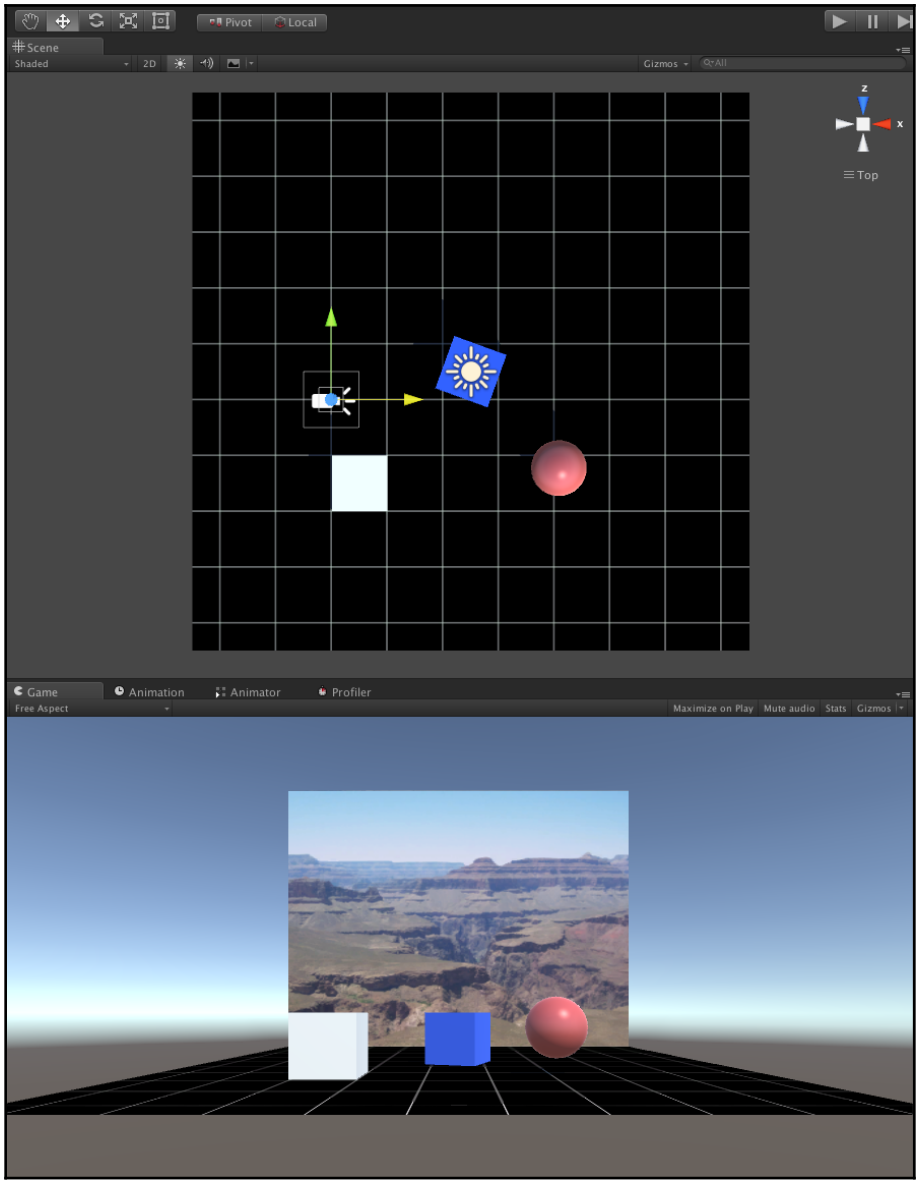

Translate (W)
Rotate (E)
Scale (R)

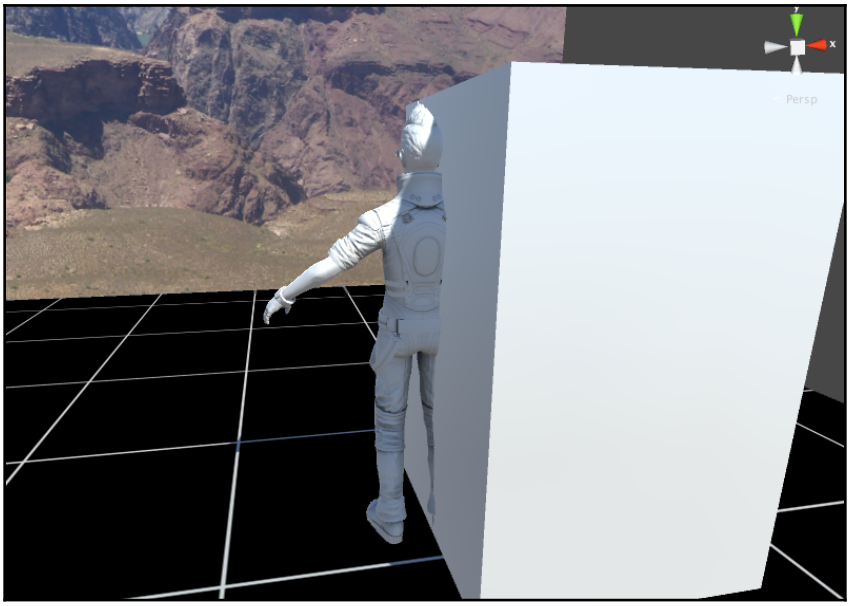


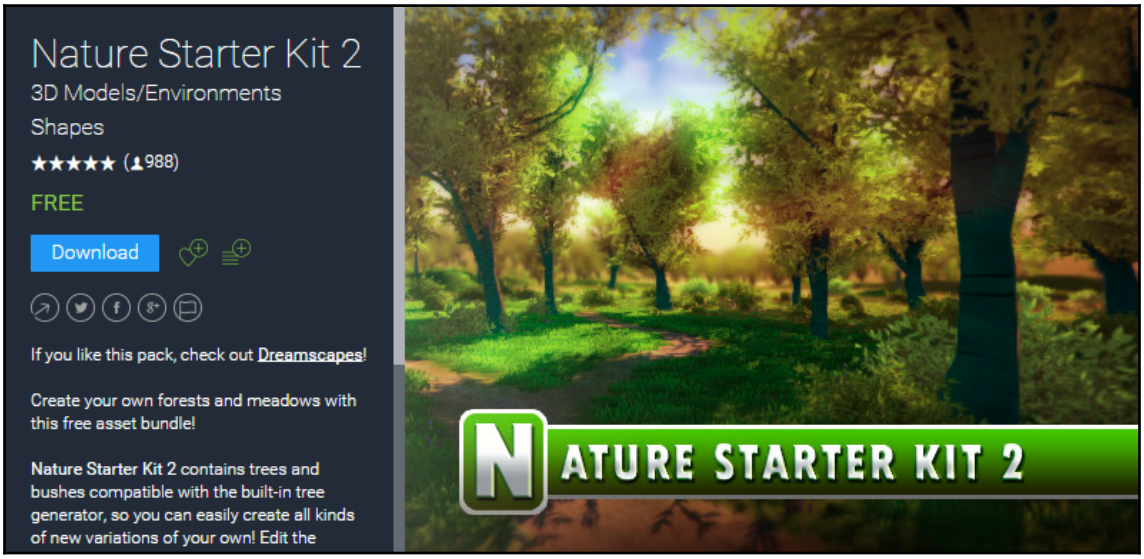

y
x
z
Persp

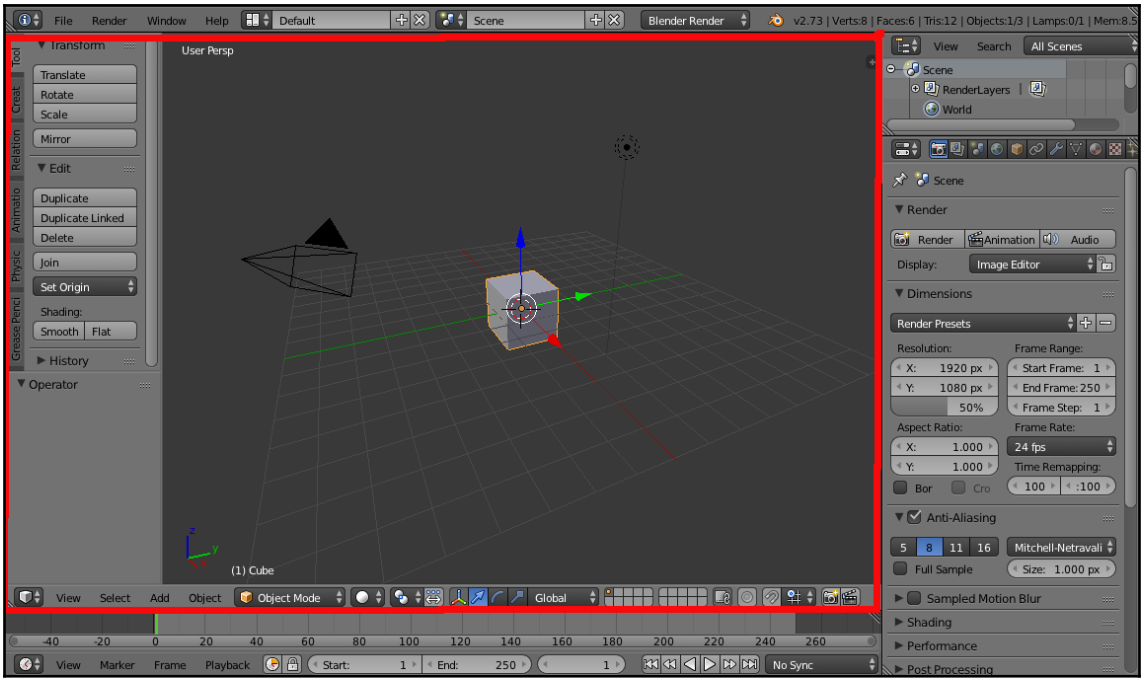

y
x
Back

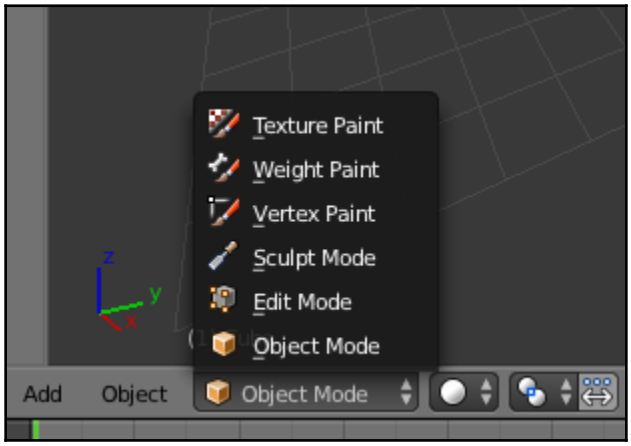

Y
X
Back
Camera Preview

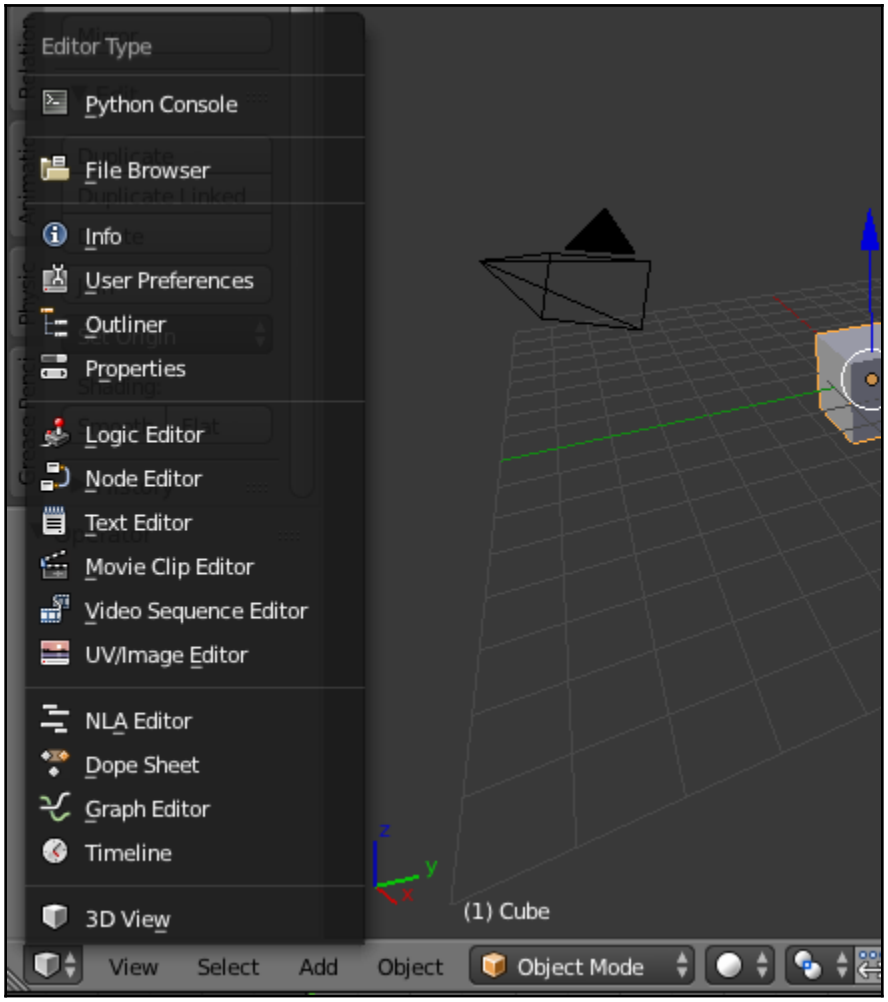

Pivot
Local
Scene
Shaded
2D
Gizmos
Top
Game
Animation
Animator
Profiler
Free Aspect
Maximize on Play
Mute audio
Stats
Gizmos

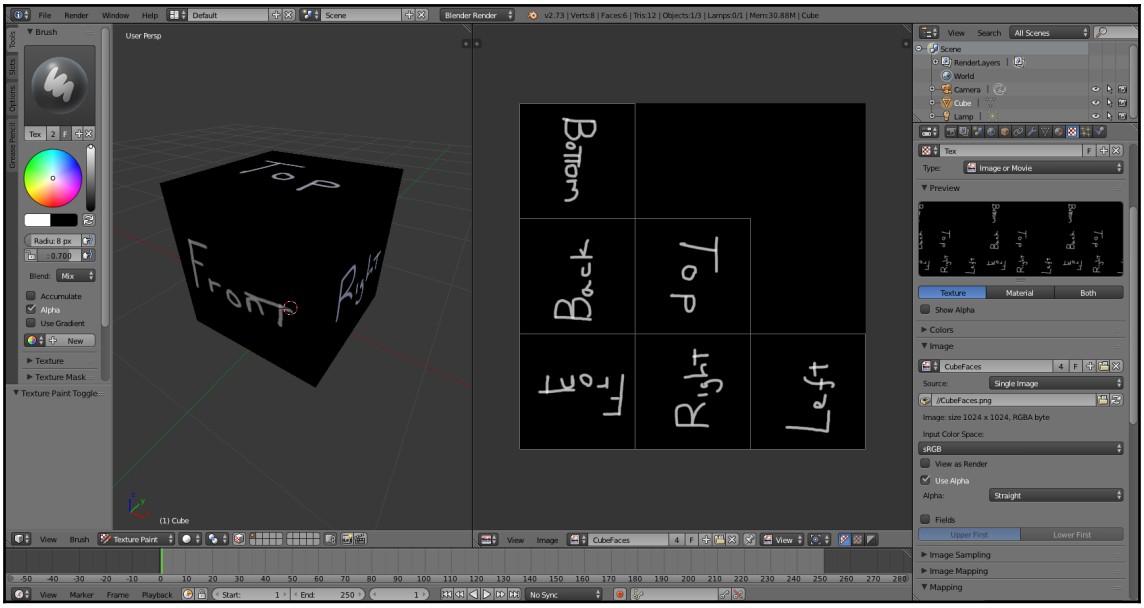

Persp

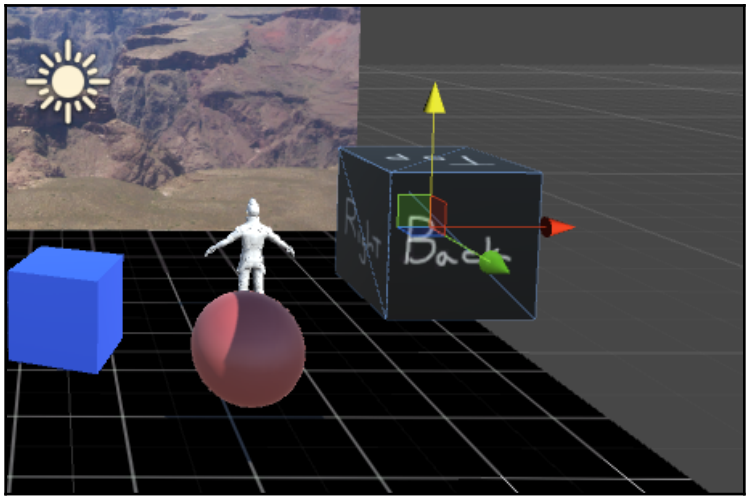

Nature Starter Kit 2
3D Models/Environments
Shapes
★★★★★ (1988)
FREE
Download
If you like this pack, check out Dreamscapes!
Create your own forests and meadows with this free asset bundle!
Nature Starter Kit 2 contains trees and bushes compatible with the built-in tree generator, so you can easily create all kinds of new variations of your own! Edit the
NATURE STARTER KIT 2

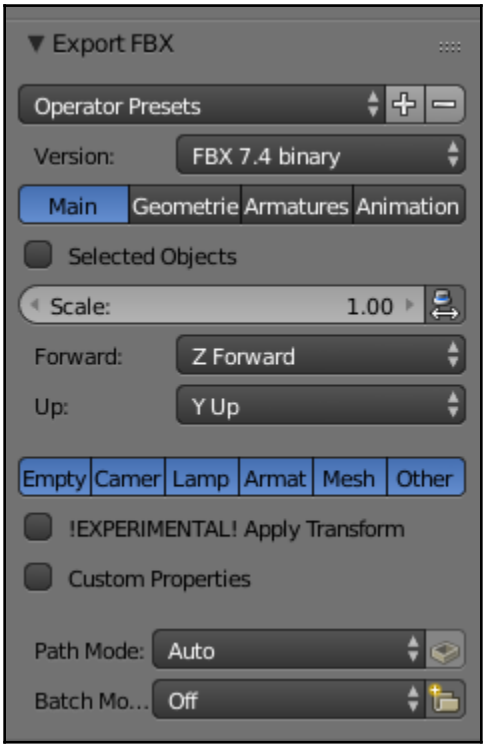

File
Render
Window
Help
Default
Scene
Blender Render
v2.73 | Verts:8 | Faces:6 | Tris:12 | Objects:1/3 | Lamps:0/1 | Mem:8.5
Transform
Translate
Rotate
Scale
Mirror
Edit
Duplicate
Duplicate Linked
Delete
Join
Set Origin
Shading:
Smooth
Flat
History
Operator
User Persp
(1) Cube
View
Search
All Scenes
Scene
RenderLayers
World
Render
Render
Animation
Audio
Display:
Image Editor
Dimensions
Render Presets
Resolution:
X: 1920 px
Y: 1080 px
50%
Frame Range:
Start Frame: 1
End Frame: 250
Frame Step: 1
Aspect Ratio:
X: 1.000
Y: 1.000
Frame Rate:
24 fps
Time Remapping:
100
:100
Anti-Aliasing
5
8
11
16
Mitchell-Netravali
Full Sample
Size: 1.000 px
Sampled Motion Blur
Shading
Performance
Post Processing
View
Select
Add
Object
Object Mode
Global
View
Marker
Frame
Playback
Start: 1
End: 250
No Sync

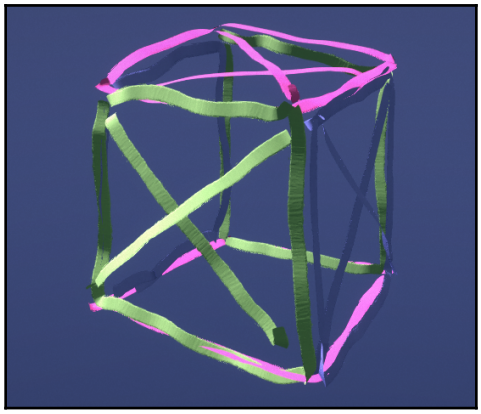

Texture Paint
Weight Paint
Vertex Paint
Sculpt Mode
Edit Mode
Object Mode
Add
Object
Object Mode

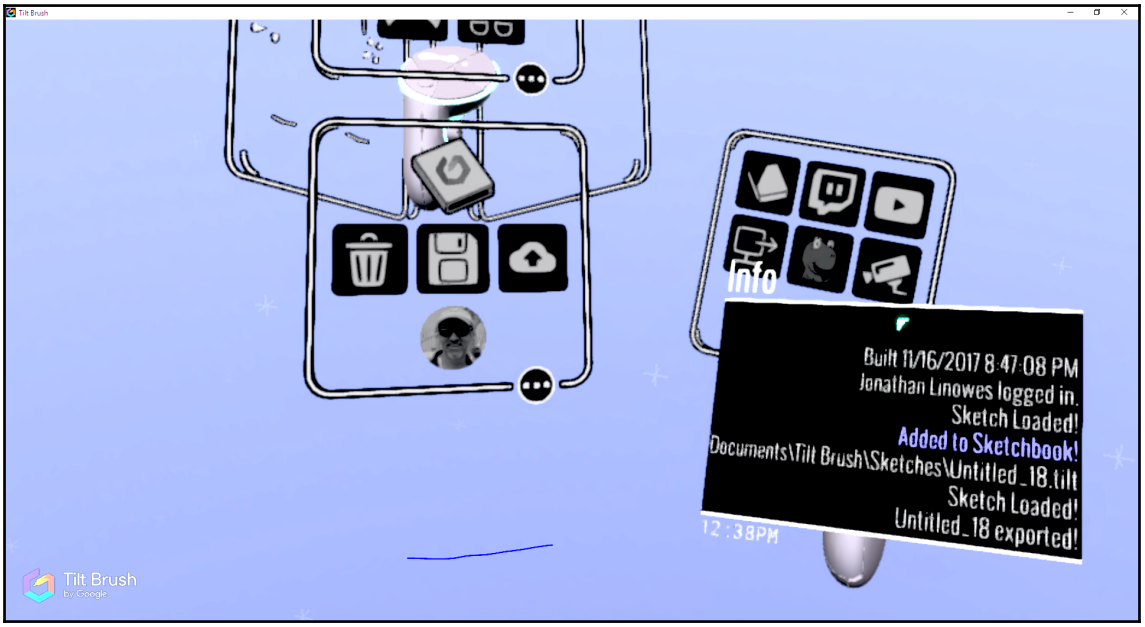

Editor Type
Python Console
File Browser
Info
User Preferences
Outliner
Properties
Logic Editor
Node Editor
Text Editor
Movie Clip Editor
Video Sequence Editor
UV/Image Editor
NLA Editor
Dope Sheet
Graph Editor
Timeline
3D View
(1) Cube
View
Select
Add
Object
Object Mode

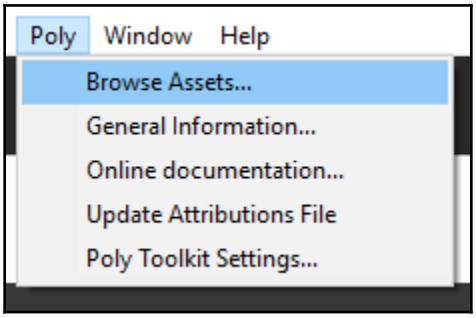

Top
Front
Right
Bottom
Back
Top
Front
Right
Left
Cube
Material
Tex
Image
New
Open
Browse Image to be linked

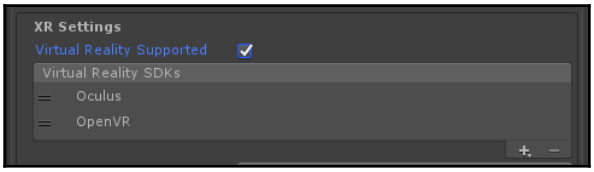

Right
Back

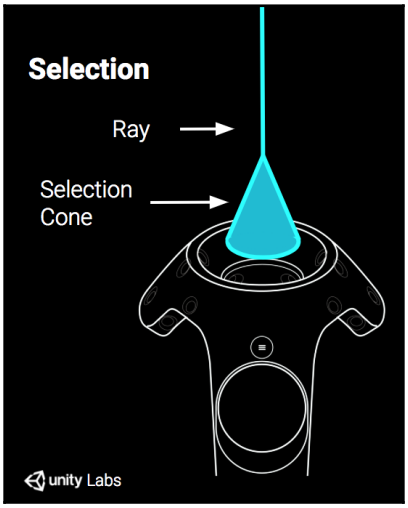

Export FBX
Operator Presets
Version:
FBX 7.4 binary
Main
Geometrie
Armatures
Animation
Selected Objects
Scale:
1.00
Forward:
Z Forward
Up:
Y Up
Empty
Camer
Lamp
Armat
Mesh
Other
!EXPERIMENTAL! Apply Transform
Custom Properties
Path Mode:
Auto
Batch Mo...
Off



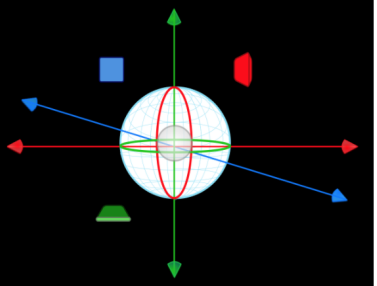

Tilt Brush
Info
Built 11/16/2017 8:47:08 PM
Jonathan Linowes logged in.
Sketch Loaded!
Added to Sketchbook!
Documents\Tilt Brush\Sketches\Untitled_18.tilt
Sketch Loaded!
Untitled_18 exported!
12:38PM
Tilt Brush
by Google


Poly
Window
Help
Browse Assets...
General Information...
Online documentation...
Update Attributions File
Poly Toolkit Settings...


XR Settings
Virtual Reality Supported
Virtual Reality SDKs
Oculus
OpenVR


Selection
Ray
Selection Cone
unity Labs

The Manipulator Gizmo

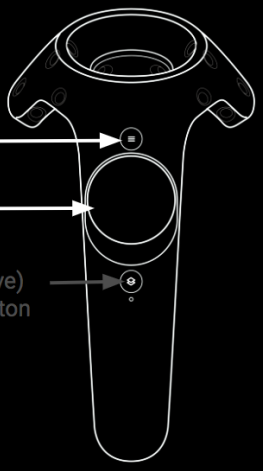


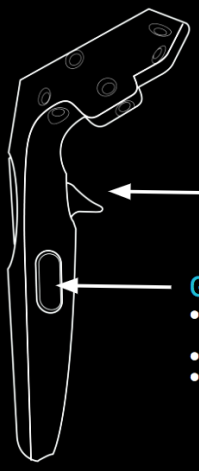
VIVE: EVR Controls

Menu button
- Locomotion:
  - Blink / Fly

Touchpad
- Radial menu interactions
- Reset scale (while scaling)

(Vive) button

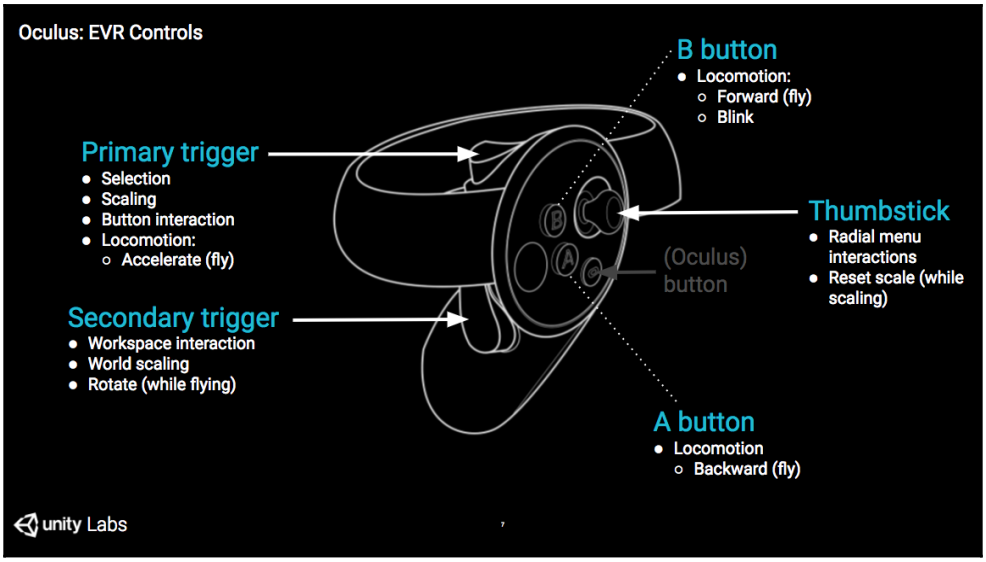




Trigger
- Selection
- Scaling
- Button interaction
- Locomotion:
  - Accelerate (fly)

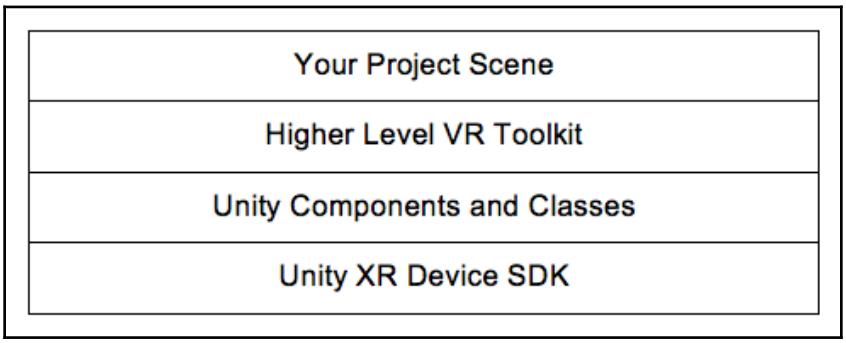
Grip button
- Workspace interaction
- World scaling
- Rotate (while flying)

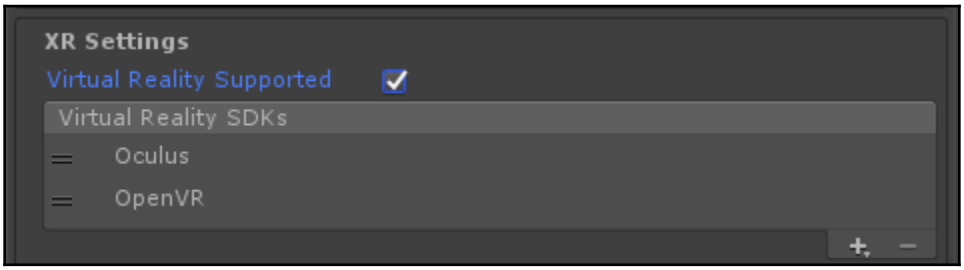
unity Labs

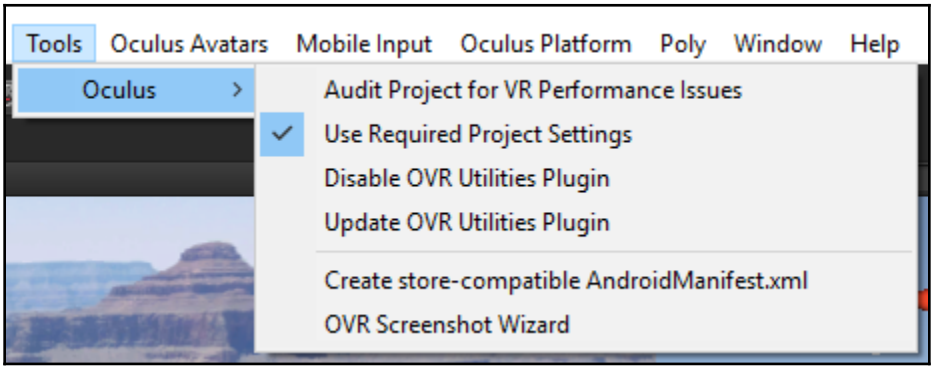

Oculus: EVR Controls
B button
Locomotion:
Forward (fly)
Blink
Primary trigger
Selection
Scaling
Button interaction
Locomotion:
Accelerate (fly)
Thumbstick
Radial menu interactions
Reset scale (while scaling)
(Oculus) button
Secondary trigger
Workspace interaction
World scaling
Rotate (while flying)
A button
Locomotion
Backward (fly)
unity Labs

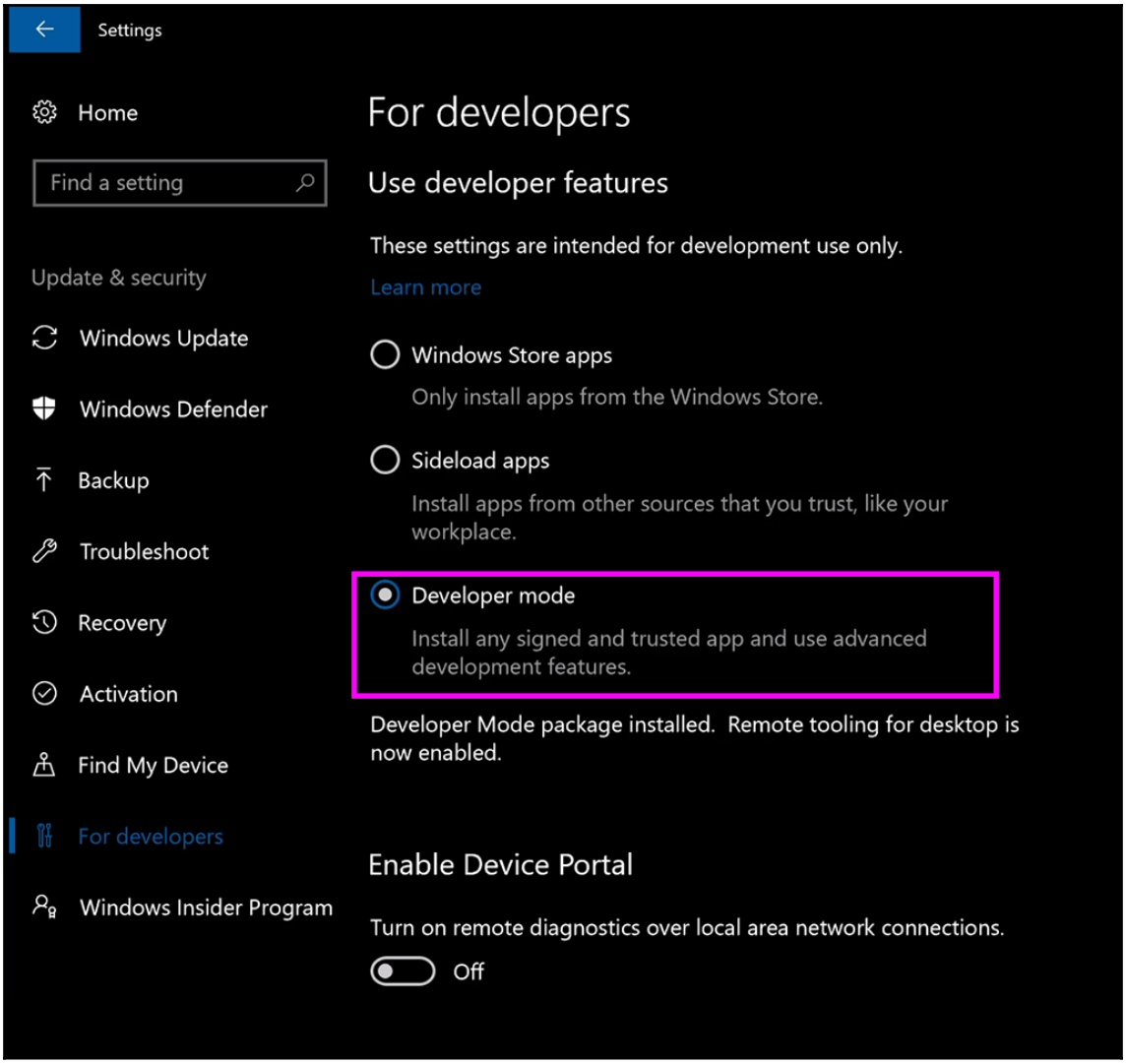
All

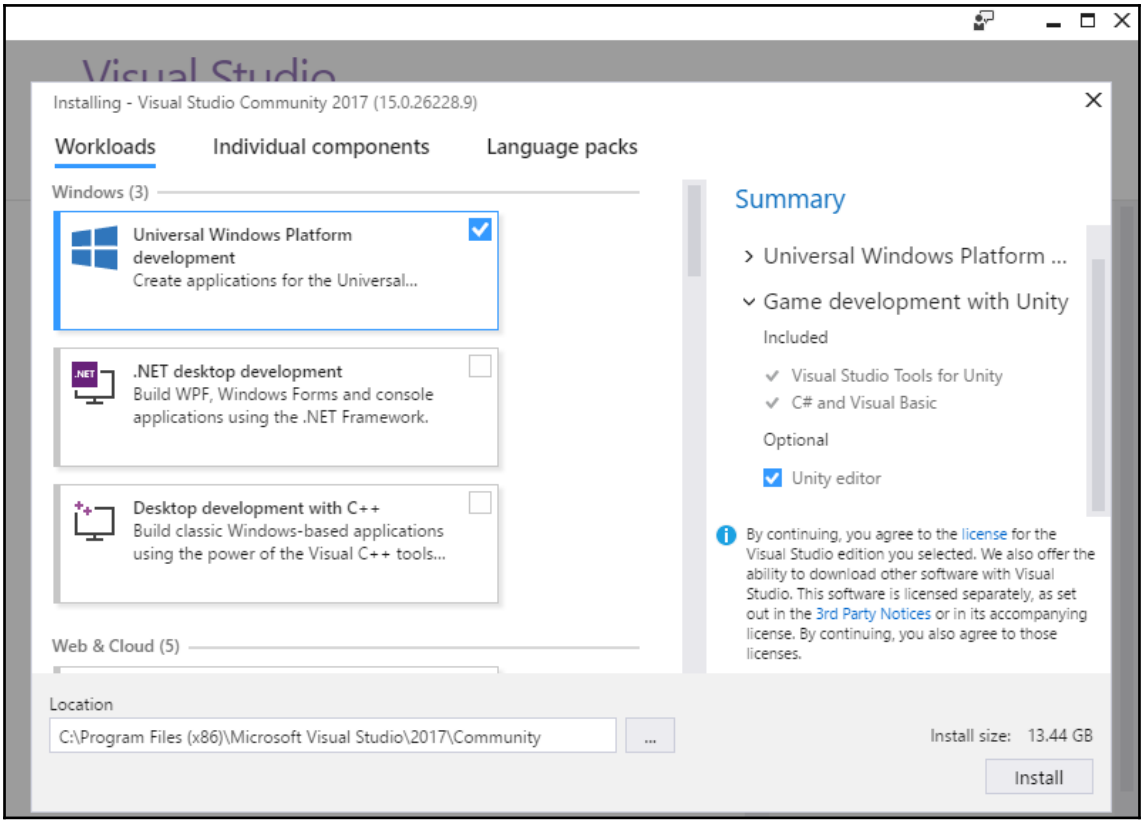
Chapter 03: VR Build and Run

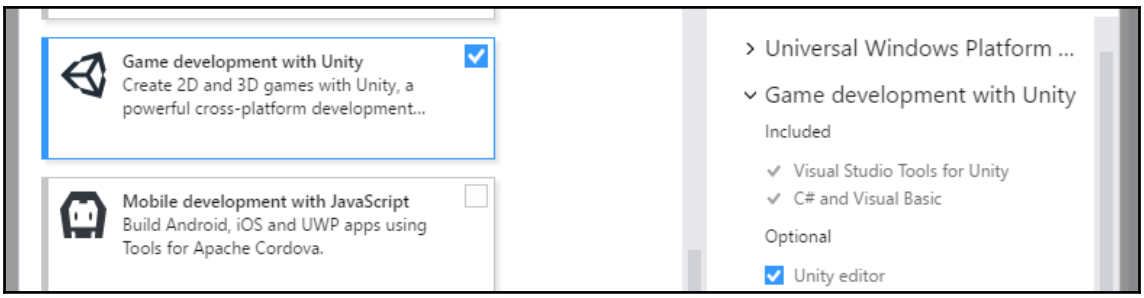


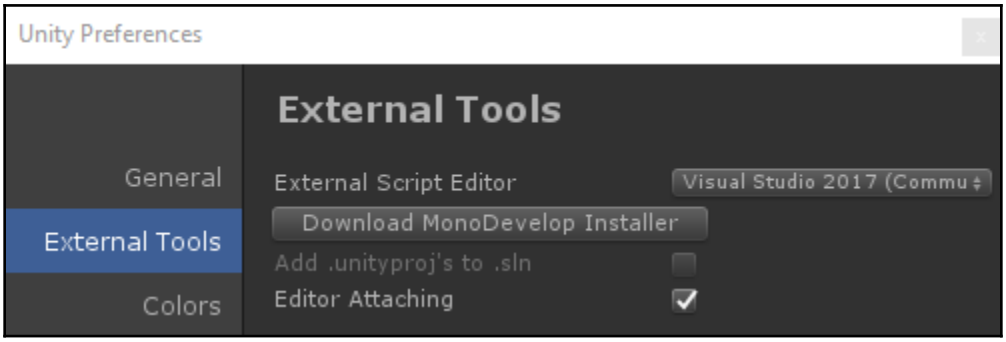


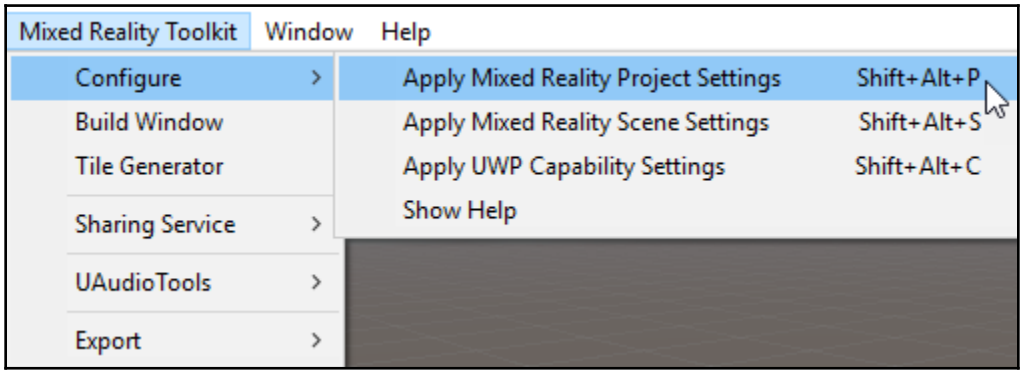


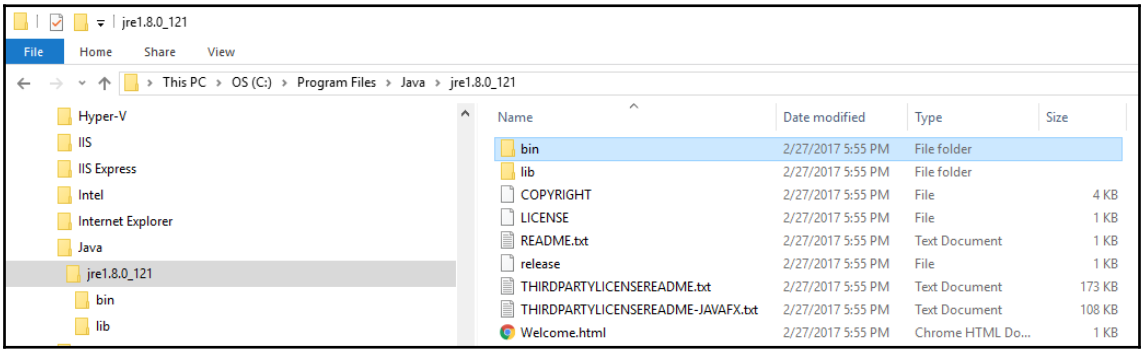

Settings
Home
Find a setting
Update & security
Windows Update
Windows Defender
Backup
Troubleshoot
Recovery
Activation
Find My Device
For developers
Windows Insider Program
For developers
Use developer features
These settings are intended for development use only.
Learn more
Windows Store apps
Only install apps from the Windows Store.
Sideload apps
Install apps from other sources that you trust, like your workplace.
Developer mode
Install any signed and trusted app and use advanced development features.
Developer Mode package installed. Remote tooling for desktop is now enabled.
Enable Device Portal
Turn on remote diagnostics over local area network connections.
Off


Visual Studio
Installing - Visual Studio Community 2017 (15.0.26228.9)
Workloads
Individual components
Language packs
Windows (3)
Universal Windows Platform development
Create applications for the Universal...
.NET desktop development
Build WPF, Windows Forms and console applications using the .NET Framework.
Desktop development with C++
Build classic Windows-based applications using the power of the Visual C++ tools...
Web & Cloud (5)
Summary
Universal Windows Platform ...
Game development with Unity
Included
Visual Studio Tools for Unity
C# and Visual Basic
Optional
Unity editor
By continuing, you agree to the license for the Visual Studio edition you selected. We also offer the ability to download other software with Visual Studio. This software is licensed separately, as set out in the 3rd Party Notices or in its accompanying license. By continuing, you also agree to those licenses.
Location
C:\Program Files (x86)\Microsoft Visual Studio\2017\Community
...
Install size: 13.44 GB
Install


Game development with Unity
Create 2D and 3D games with Unity, a powerful cross-platform development...
Mobile development with JavaScript
Build Android, iOS and UWP apps using Tools for Apache Cordova.
Universal Windows Platform ...
Game development with Unity
Included
Visual Studio Tools for Unity
C# and Visual Basic
Optional
Unity editor


Unity Preferences
General
External Tools
Colors
External Tools
External Script Editor
Visual Studio 2017 (Commu
Download MonoDevelop Installer
Add .unityproj's to .sln
Editor Attaching


Mixed Reality Toolkit
Window
Help
Configure
Build Window
Tile Generator
Sharing Service
UAudioTools
Export
Apply Mixed Reality Project Settings
Shift+Alt+P
Apply Mixed Reality Scene Settings
Shift+Alt+S
Apply UWP Capability Settings
Shift+Alt+C
Show Help


jre1.8.0_121
File
Home
Share
View
This PC
OS (C:)
Program Files
Java
jre1.8.0_121
Hyper-V
IIS
IIS Express
Intel
Internet Explorer
Java
jre1.8.0_121
bin
lib
Name
Date modified
Type
Size
bin
2/27/2017 5:55 PM
File folder
lib
2/27/2017 5:55 PM
File folder
COPYRIGHT
2/27/2017 5:55 PM
File
4 KB
LICENSE
2/27/2017 5:55 PM
File
1 KB
README.txt
2/27/2017 5:55 PM
Text Document
1 KB
release
2/27/2017 5:55 PM
File
1 KB
THIRDPARTYLICENSEREADME.txt
2/27/2017 5:55 PM
Text Document
173 KB
THIRDPARTYLICENSEREADME-JAVAFX.txt
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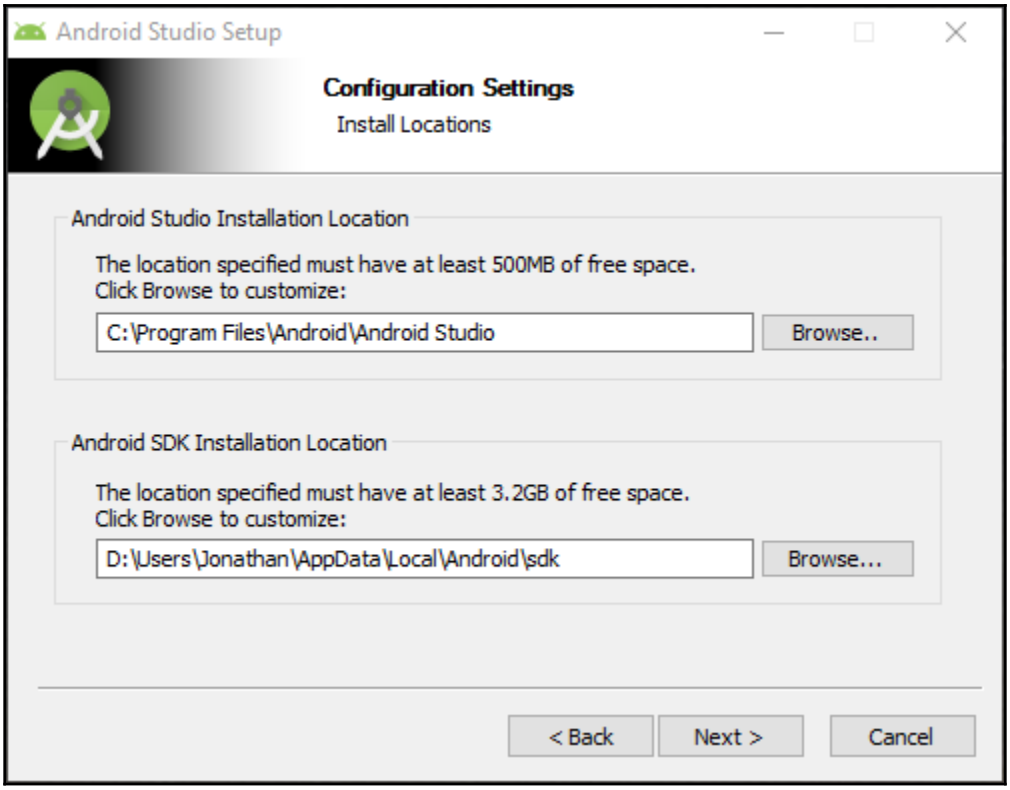
108 KB
Welcome.html
2/27/2017 5:55 PM
Chrome HTML Do...
1 KB



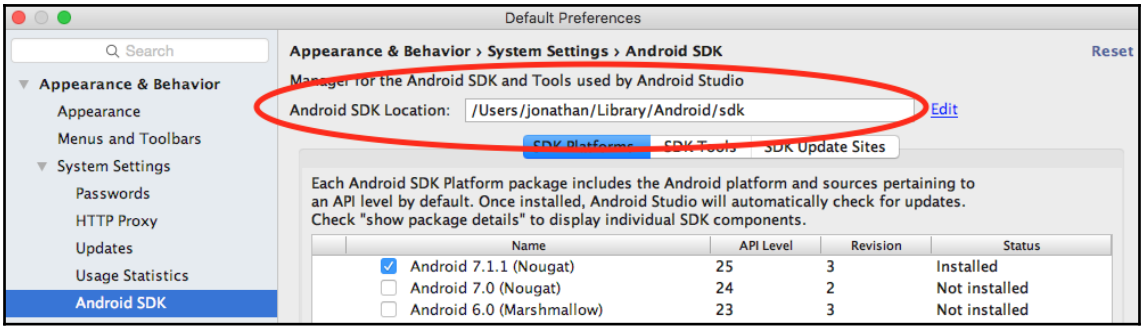
Get just the command line tools

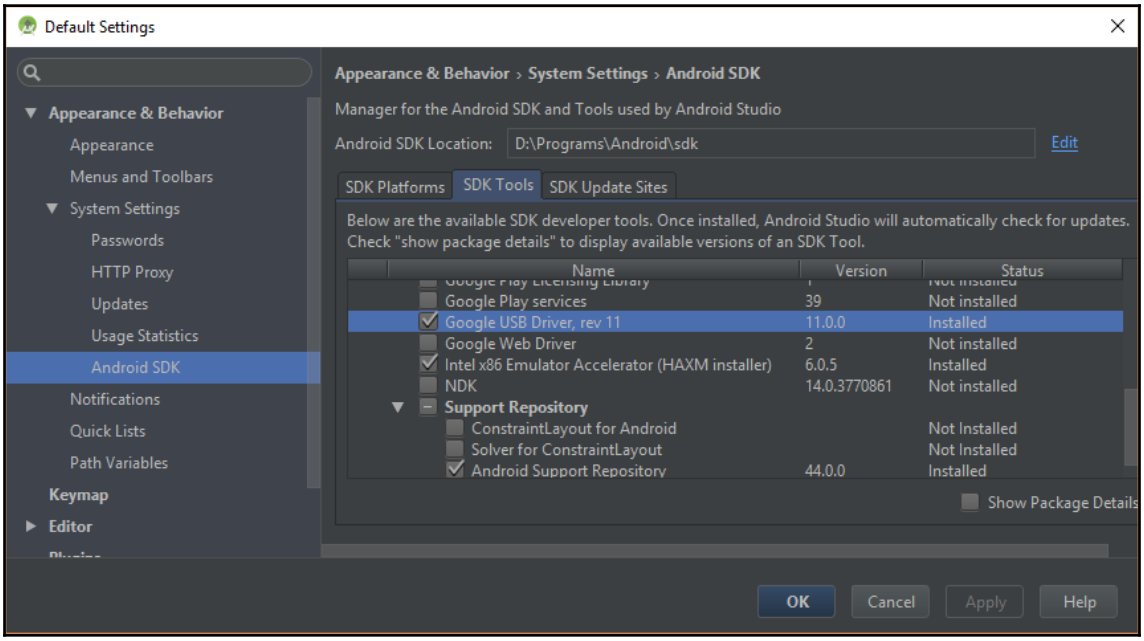
If you do not need Android Studio, you can download the basic Android command line tools below. You can use the included `sdkmanager` to download other SDK packages.

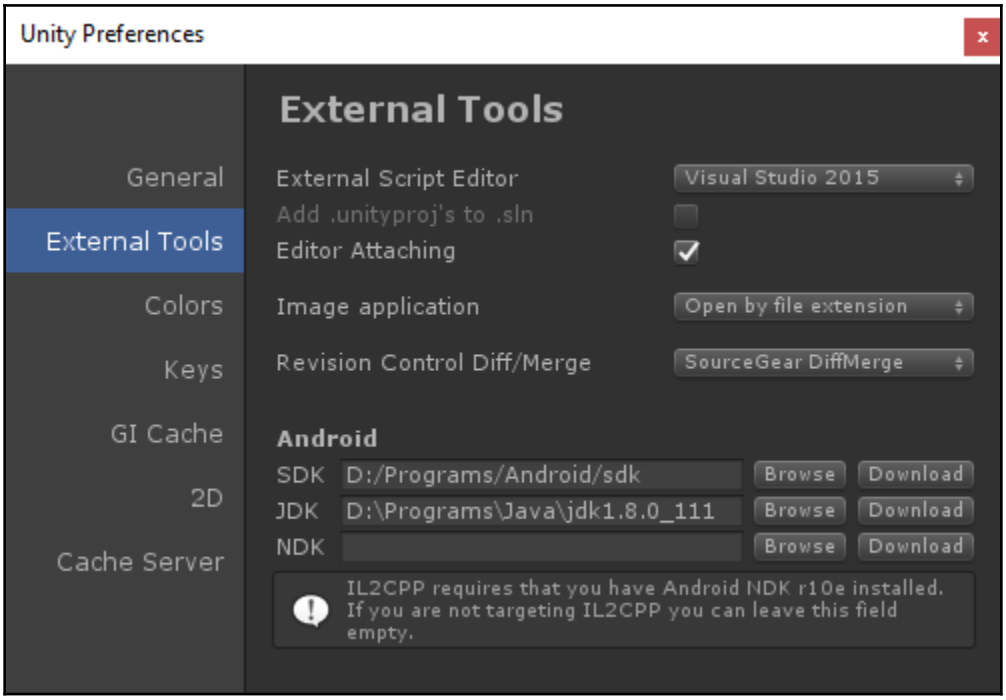
These tools are included in Android Studio.

Platform	SDK tools package	Size	SHA-1 checksum
Windows	tools_r25.2.3-windows.zip	292 MB (306,745,639 bytes)	b965decb234ed793eb9574bad8791c50ca574173
Mac	tools_r25.2.3-macosx.zip	191 MB (200,496,727 bytes)	0e88c0bdb8f8ee85cce248580173e033a1bbc9cb
Linux	tools_r25.2.3-linux.zip	264 MB (277,861,433 bytes)	aafe7f28ac51549784efc2f3bdfc620be8a08213

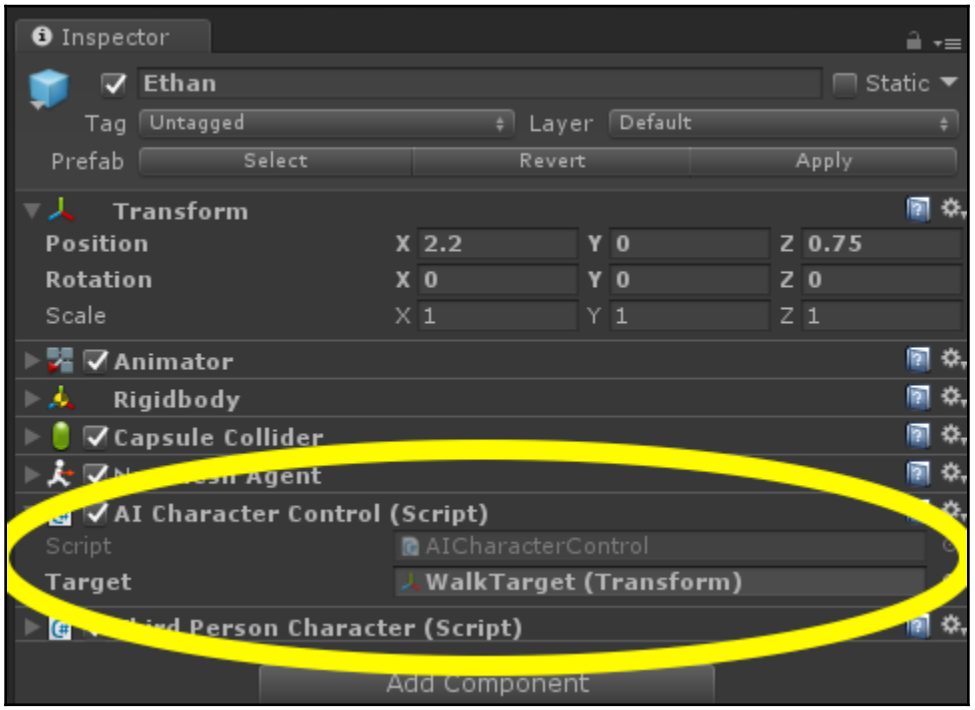
See the SDK tools release notes.

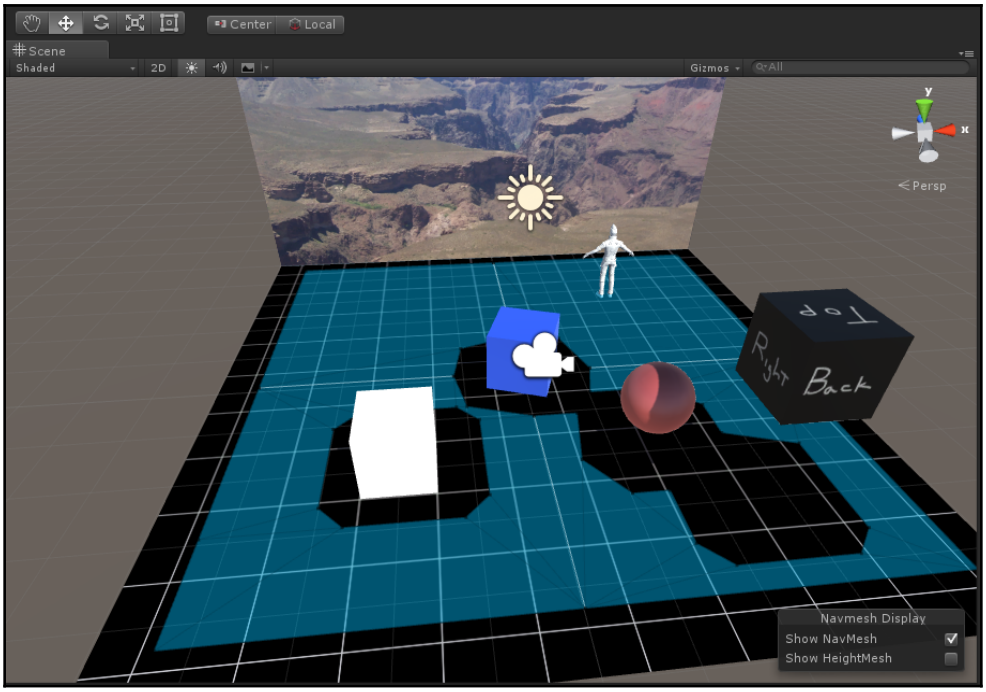

Default Preferences
Search
Appearance & Behavior
Appearance
Menus and Toolbars
System Settings
Passwords
HTTP Proxy
Updates
Usage Statistics
Android SDK
Appearance & Behavior › System Settings › Android SDK
Reset
Manager for the Android SDK and Tools used by Android Studio
Android SDK Location: /Users/jonathan/Library/Android/sdk
Edit
SDK Platforms
SDK Tools
SDK Update Sites
Each Android SDK Platform package includes the Android platform and sources pertaining to an API level by default. Once installed, Android Studio will automatically check for updates. Check "show package details" to display individual SDK components.
Name
API Level
Revision
Status
Android 7.1.1 (Nougat)
25
3
Installed
Android 7.0 (Nougat)
24
2
Not installed
Android 6.0 (Marshmallow)
23
3
Not installed

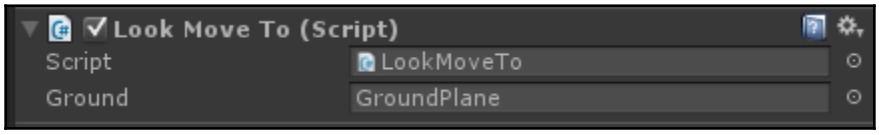

Default Settings
Appearance & Behavior
Appearance
Menus and Toolbars
System Settings
Passwords
HTTP Proxy
Updates
Usage Statistics
Android SDK
Notifications
Quick Lists
Path Variables
Keymap
Editor
Appearance & Behavior › System Settings › Android SDK
Manager for the Android SDK and Tools used by Android Studio
Android SDK Location: D:\Programs\Android\sdk
Edit
SDK Platforms
SDK Tools
SDK Update Sites
Below are the available SDK developer tools. Once installed, Android Studio will automatically check for updates. Check "show package details" to display available versions of an SDK Tool.
Name
Version
Status
Google Play services
39
Not installed
Google USB Driver, rev 11
11.0.0
Installed
Google Web Driver
2
Not installed
Intel x86 Emulator Accelerator (HAXM installer)
6.0.5
Installed
NDK
14.0.3770861
Not installed
Support Repository
ConstraintLayout for Android
Not Installed
Solver for ConstraintLayout
Not Installed
Android Support Repository
44.0.0
Installed
Show Package Details
OK
Cancel
Apply
Help

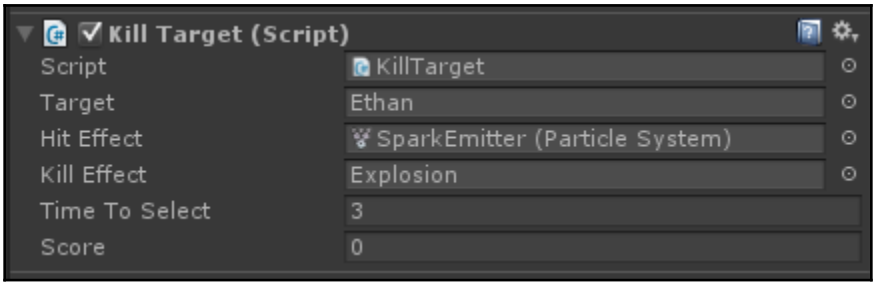

Unity Preferences
External Tools
General
External Tools
Colors
Keys
GI Cache
2D
Cache Server
External Script Editor
Visual Studio 2015
Add .unityproj's to .sln
Editor Attaching
Image application
Open by file extension
Revision Control Diff/Merge
SourceGear DiffMerge
Android
SDK
D:/Programs/Android/sdk
Browse
Download
JDK
D:\Programs\Java\jdk1.8.0_111
Browse
Download
NDK
Browse
Download
IL2CPP requires that you have Android NDK r10e installed.
If you are not targeting IL2CPP you can leave this field
empty.

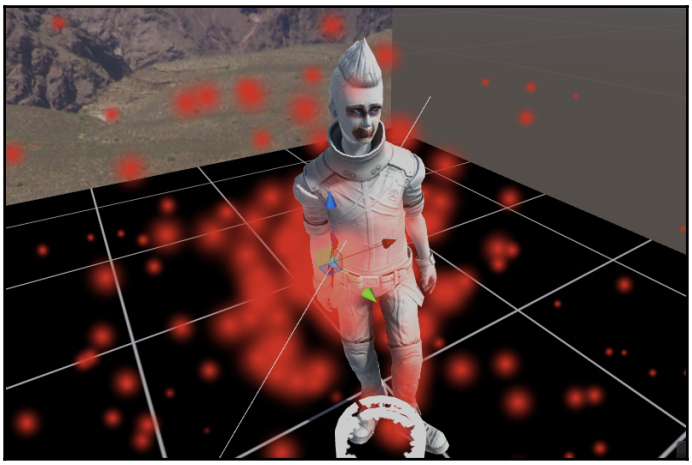
Chapter 04: Gaze-Based Control



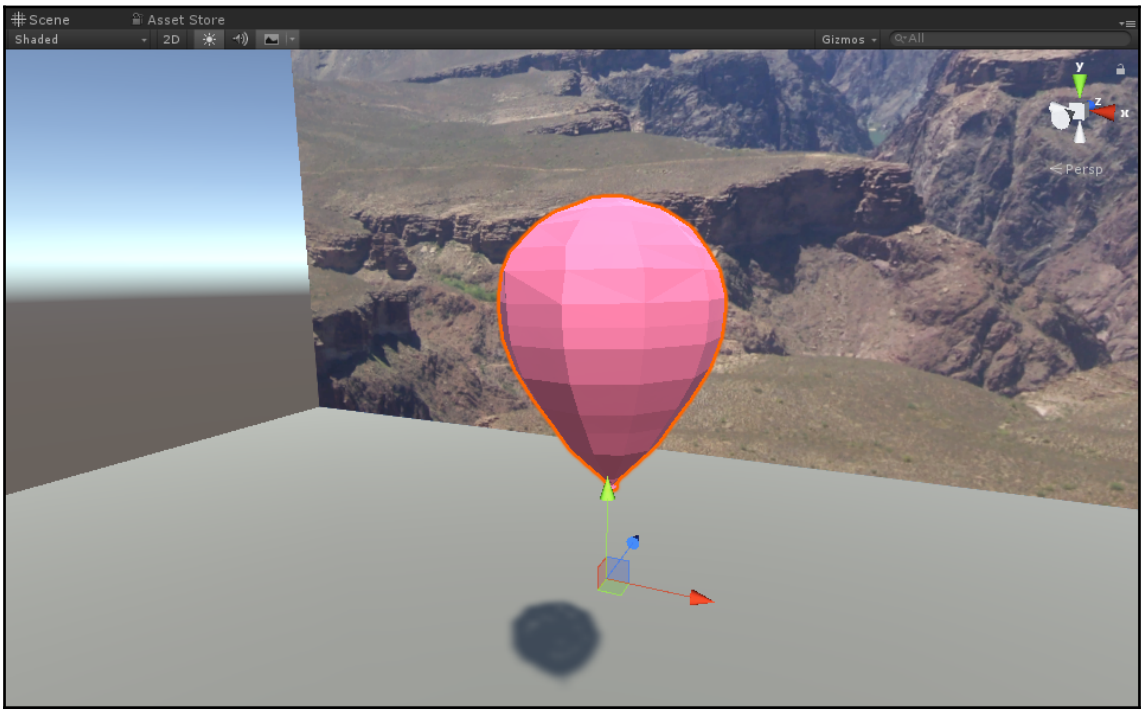

Center
Local
Scene
Shaded
2D
Gizmos
Persp
Navmesh Display
Show NavMesh
Show HeightMesh

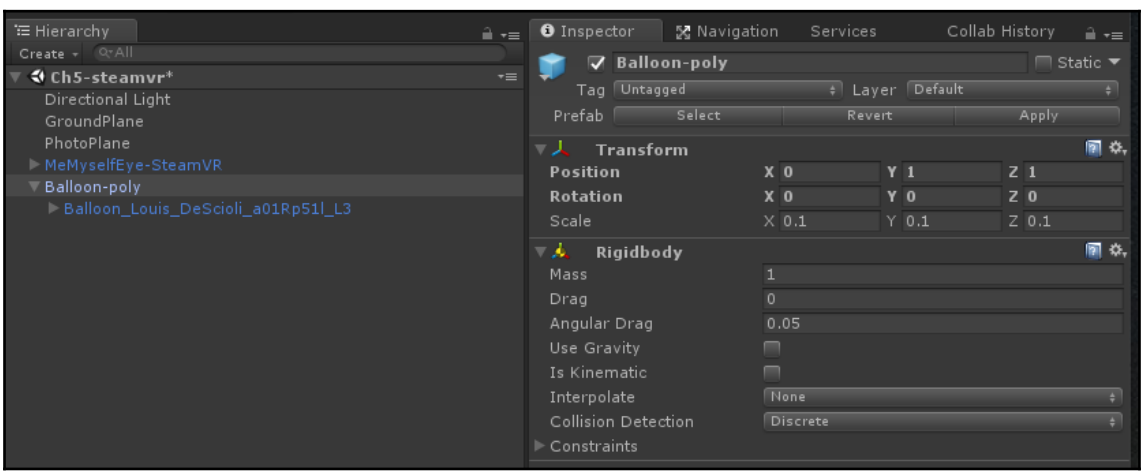

Look Move To (Script)
Script
LookMoveTo
Ground
GroundPlane

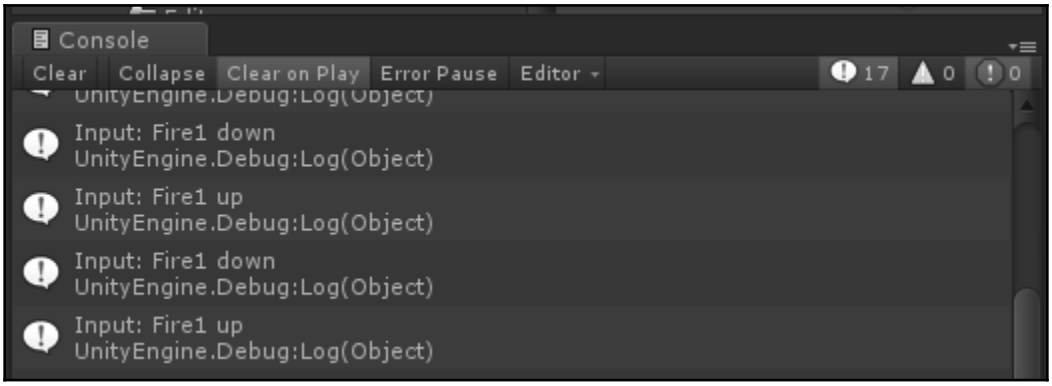

Kill Target (Script)
Script
KillTarget
Target
Ethan
Hit Effect
SparkEmitter (Particle System)
Kill Effect
Explosion
Time To Select
3
Score
0

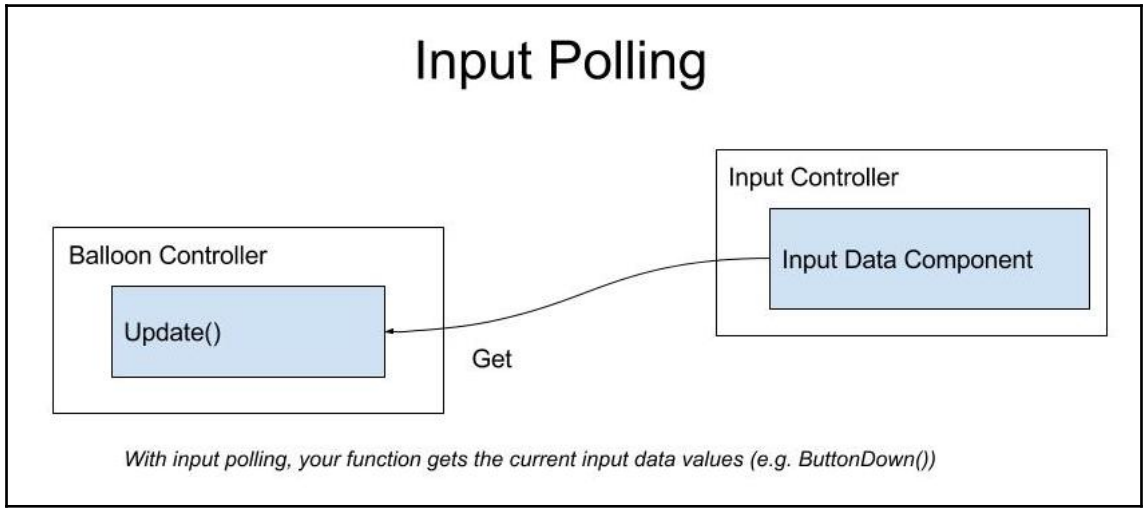


Chapter 05: Handy Interactables

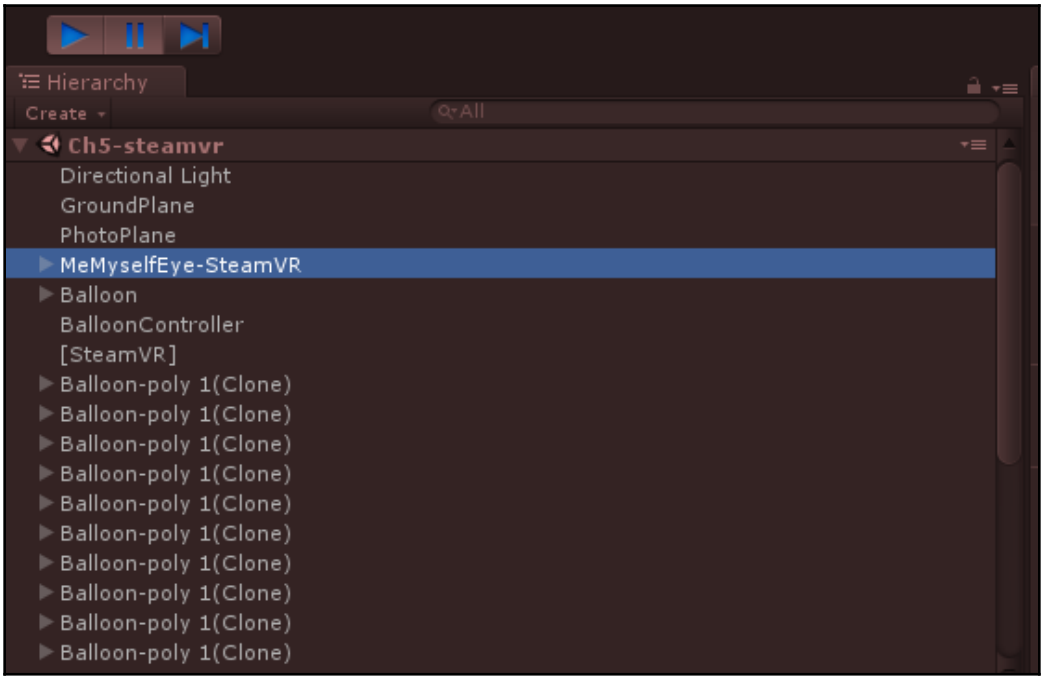




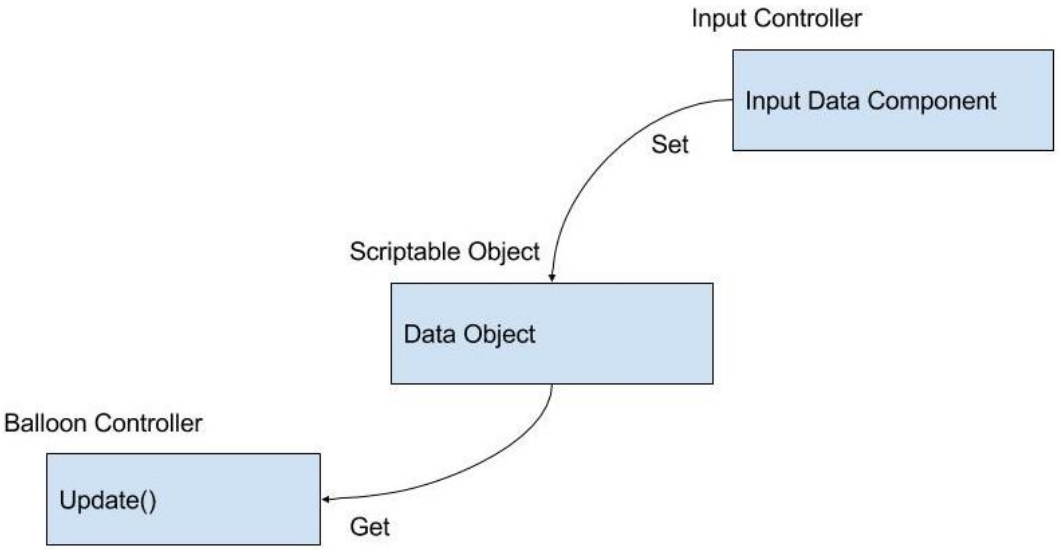

Console
Clear
Collapse
Clear on Play
Error Pause
Editor
17
0
0
Input: Fire1 down
UnityEngine.Debug:Log(Object)
Input: Fire1 up
UnityEngine.Debug:Log(Object)
Input: Fire1 down
UnityEngine.Debug:Log(Object)
Input: Fire1 up
UnityEngine.Debug:Log(Object)


Input Polling
Input Controller
Input Data Component
Balloon Controller
Update()
Get
With input polling, your function gets the current input data values (e.g. ButtonDown())

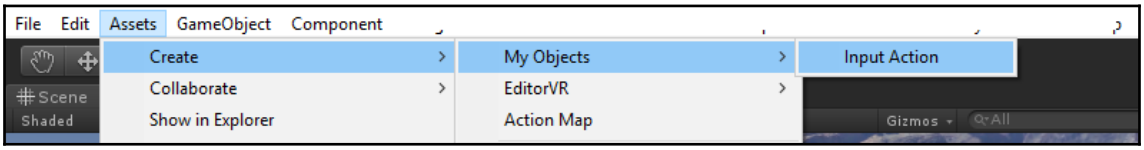
Game
Display 1
Free Aspect
Scale
1x
Maximize On Play
Mute Audio
Stats
Gizmos

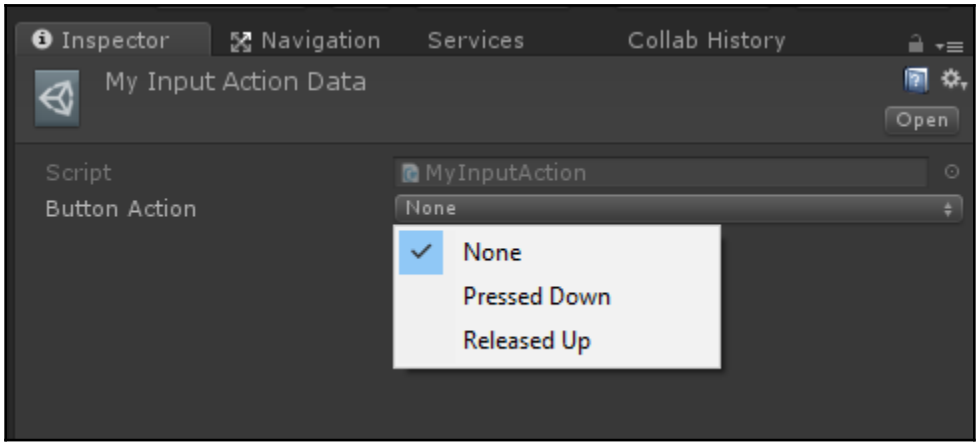

Hierarchy
Create
All
Ch5-steamvr
Directional Light
GroundPlane
PhotoPlane
MeMyselfEye-SteamVR
Balloon
BalloonController
[SteamVR]
Balloon-poly 1(Clone)
Balloon-poly 1(Clone)
Balloon-poly 1(Clone)
Balloon-poly 1(Clone)
Balloon-poly 1(Clone)
Balloon-poly 1(Clone)
Balloon-poly 1(Clone)
Balloon-poly 1(Clone)
Balloon-poly 1(Clone)
Balloon-poly 1(Clone)

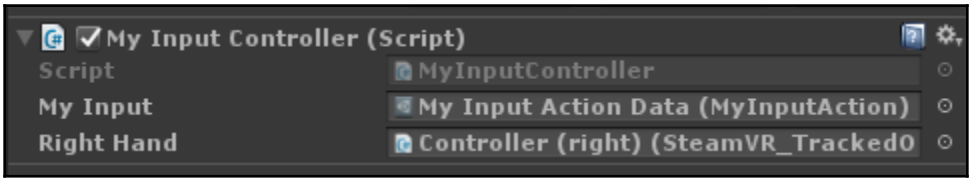
Input Object



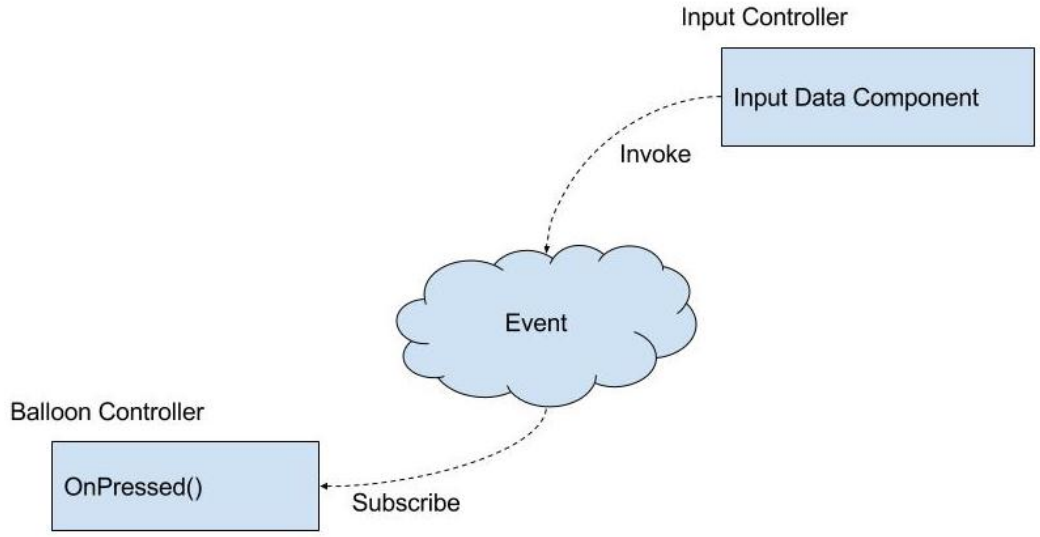
With a scriptable object, the Balloon Controller gets the current input data from a separate data object, which the input component has set.



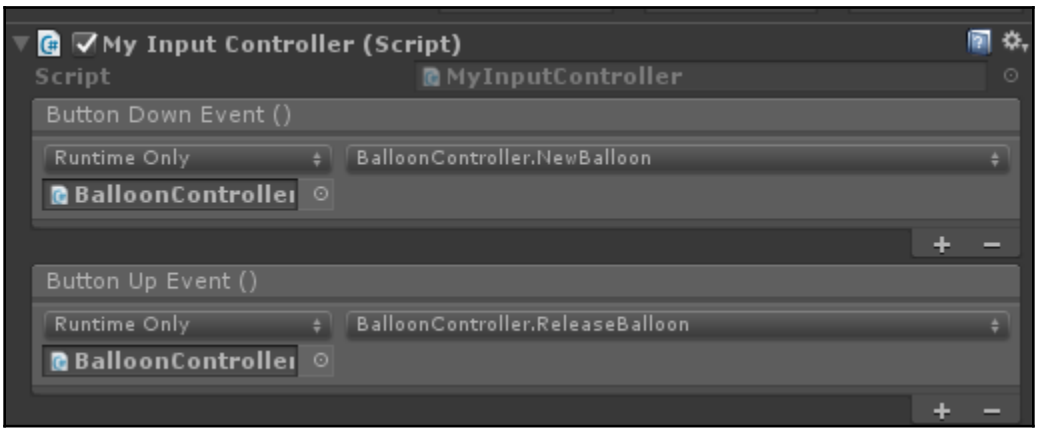

Inspector
Navigation
Services
Collab History
My Input Action Data
Open
Script
MyInputAction
Button Action
None
None
Pressed Down
Released Up


My Input Controller (Script)
Script
MyInputController
My Input
My Input Action Data (MyInputAction)
Right Hand
Controller (right) (SteamVR_Tracked0

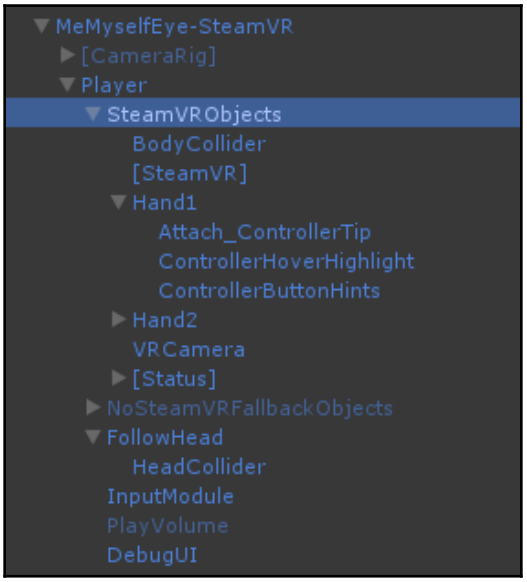
Input Events



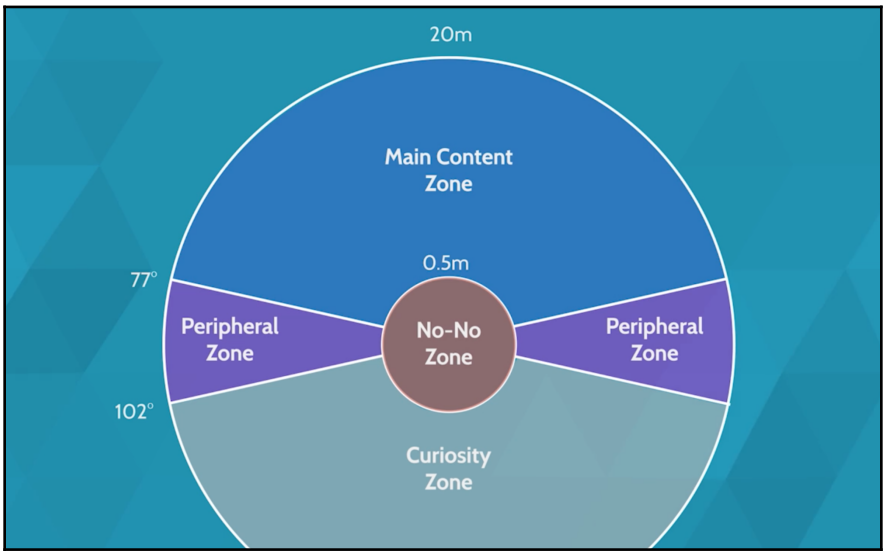
With Unity events, the input component invokes an event when input data has changed, and you subscribe listener functions that are called when such events occur.

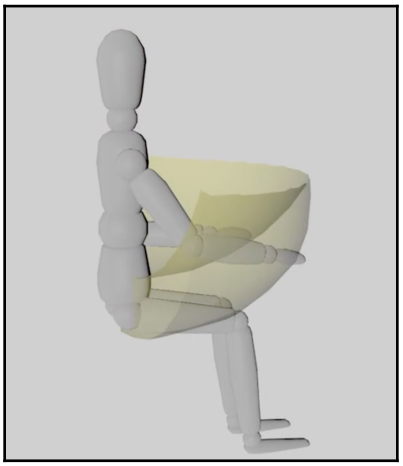


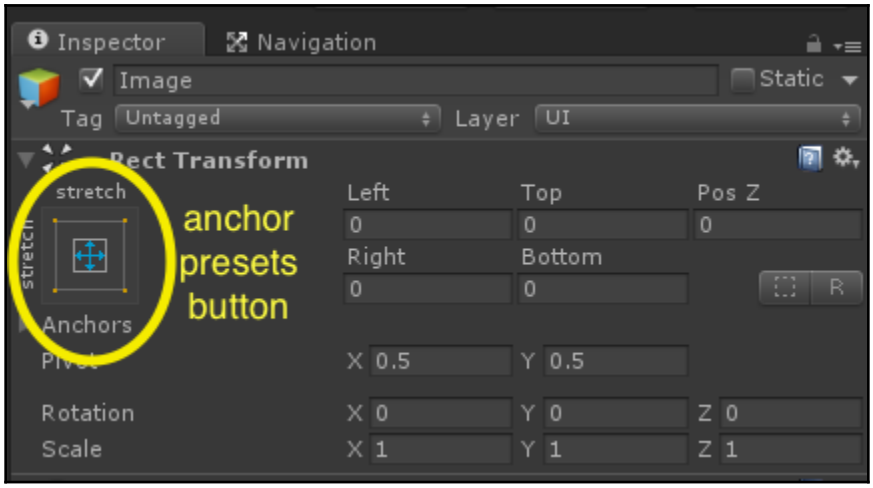
Game
Display 1
Free Aspect
Scale
1x
Maximize On Play
Mute Audio
Stats
Gizmos

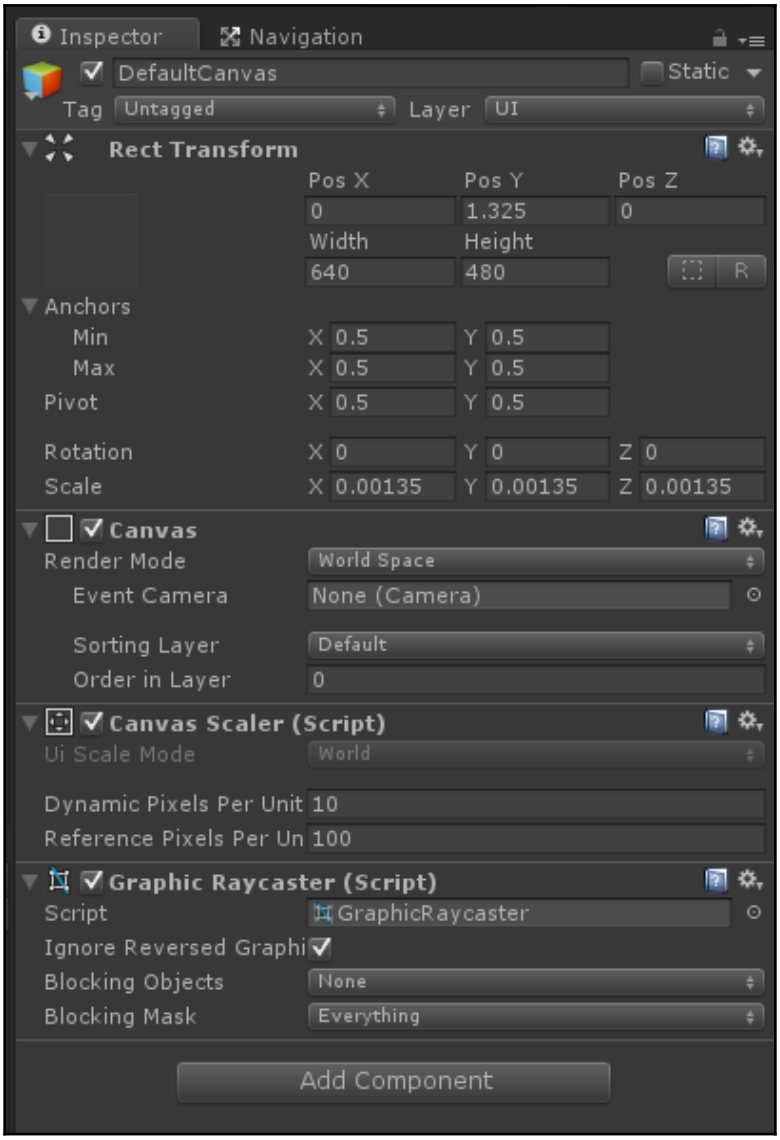

MeMyselfEye-SteamVR
[CameraRig]
Player
SteamVRObjects
BodyCollider
[SteamVR]
Hand1
Attach_ControllerTip
ControllerHoverHighlight
ControllerButtonHints
Hand2
VRCamera
[Status]
NoSteamVRFallbackObjects
FollowHead
HeadCollider
InputModule
PlayVolume
DebugUI

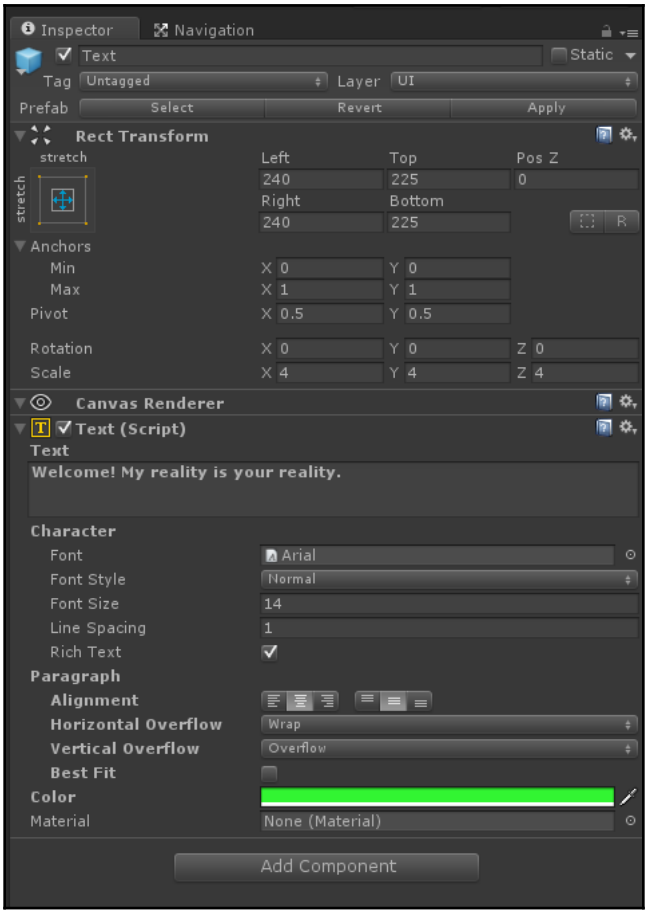
Chapter 06: World Space UI

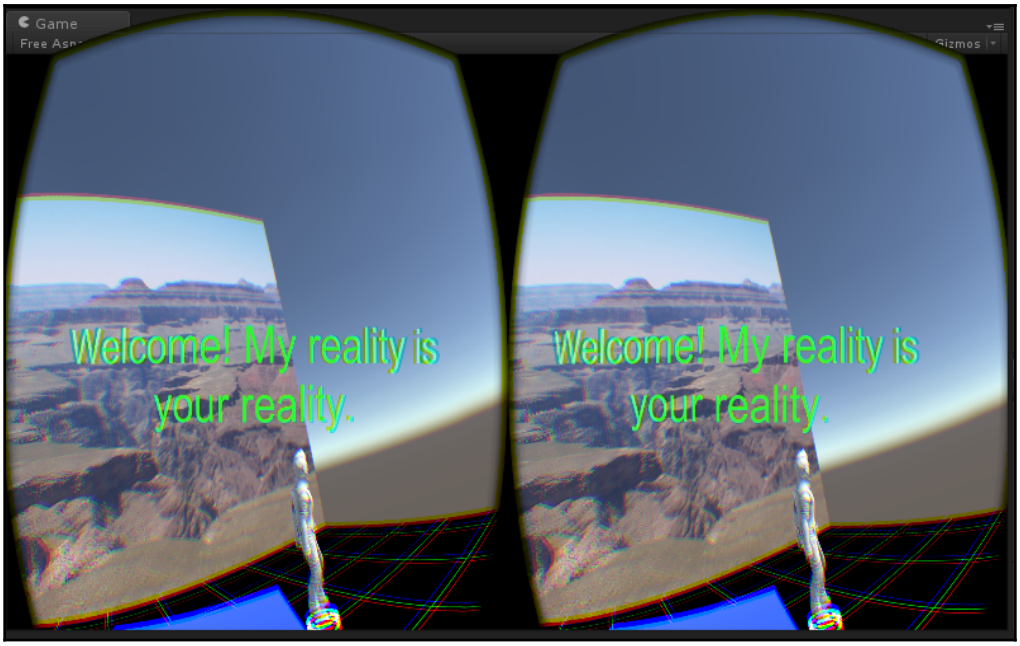


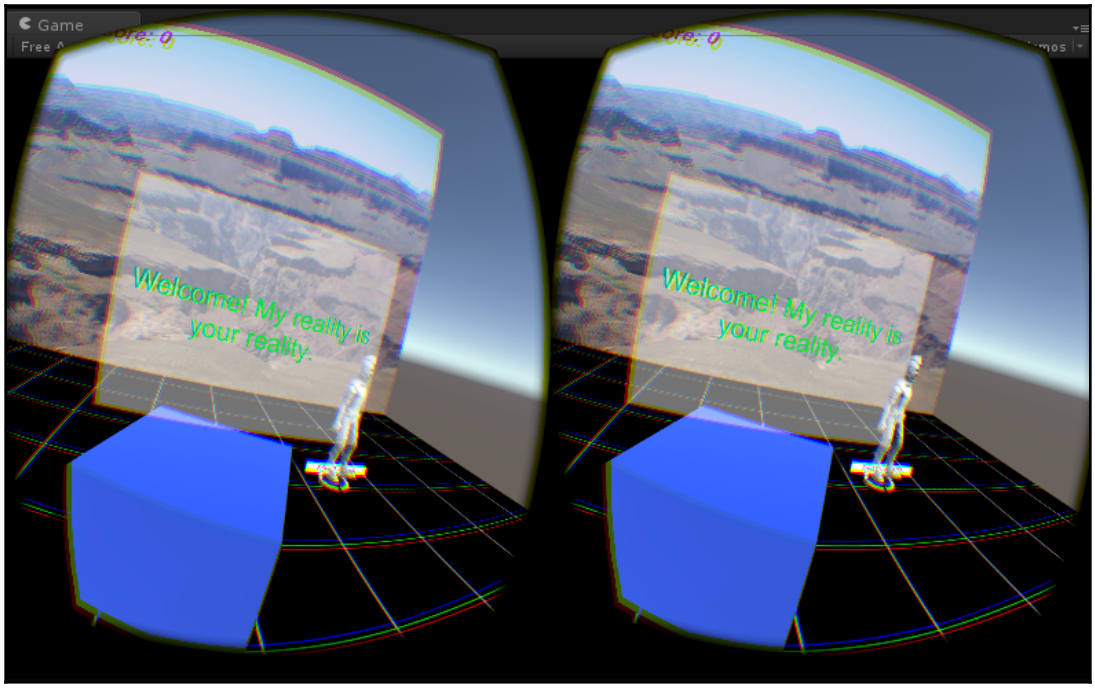


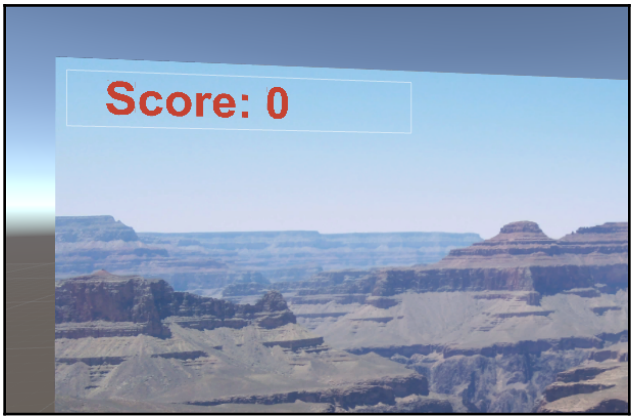

Inspector
Navigation
Image
Static
Tag
Untagged
Layer
UI
Rect Transform
stretch
stretch
anchor
presets
button
Left
Top
Pos Z
0
0
0
Right
Bottom
0
0
R
Anchors
X 0.5
Y 0.5
Rotation
X 0
Y 0
Z 0
Scale
X 1
Y 1
Z 1

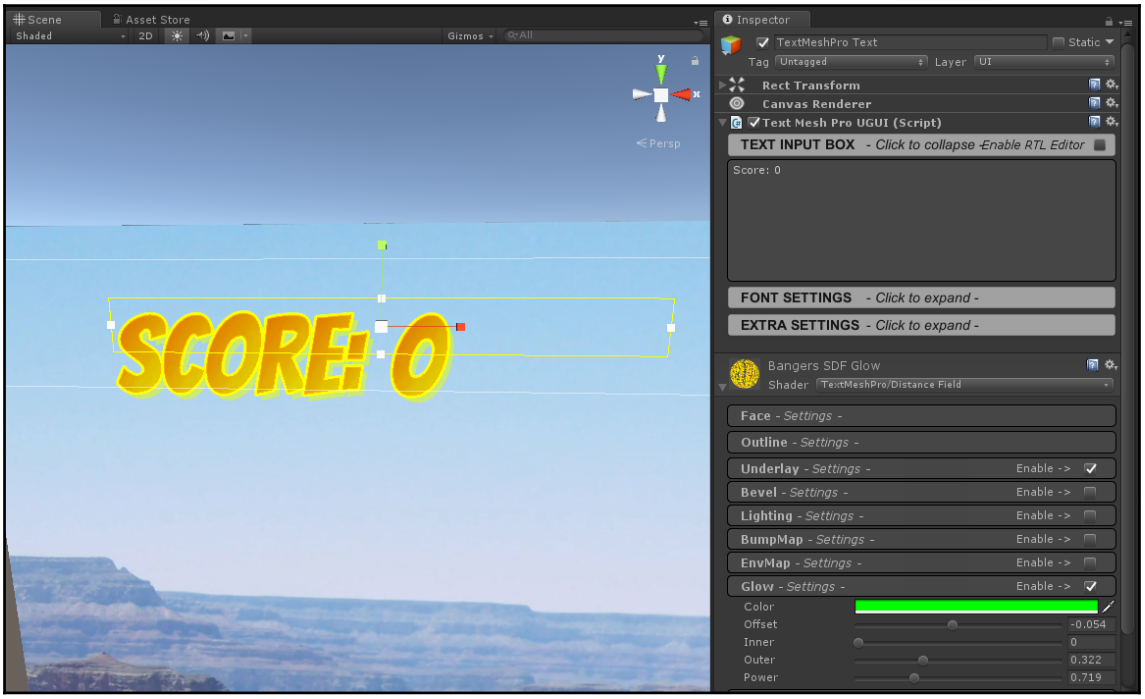

Inspector
Navigation
DefaultCanvas
Static
Tag
Untagged
Layer
UI
Rect Transform
Pos X
Pos Y
Pos Z
0
1.325
0
Width
Height
640
480
R
Anchors
Min
X 0.5
Y 0.5
Max
X 0.5
Y 0.5
Pivot
X 0.5
Y 0.5
Rotation
X 0
Y 0
Z 0
Scale
X 0.00135
Y 0.00135
Z 0.00135
Canvas
Render Mode
World Space
Event Camera
None (Camera)
Sorting Layer
Default
Order in Layer
0
Canvas Scaler (Script)
Ui Scale Mode
World
Dynamic Pixels Per Unit
10
Reference Pixels Per Un
100
Graphic Raycaster (Script)
Script
GraphicRaycaster
Ignore Reversed Graphi
Blocking Objects
None
Blocking Mask
Everything
Add Component

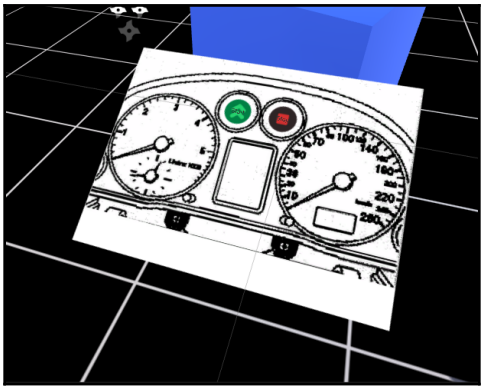

Inspector
Navigation
Text
Static
Tag
Untagged
Layer
UI
Prefab
Select
Revert
Apply
Rect Transform
stretch
stretch
Left
Top
Pos Z
240
225
0
Right
Bottom
240
225
R
Anchors
Min
X 0
Y 0
Max
X 1
Y 1
Pivot
X 0.5
Y 0.5
Rotation
X 0
Y 0
Z 0
Scale
X 4
Y 4
Z 4
Canvas Renderer
Text (Script)
Text
Welcome! My reality is your reality.
Character
Font
Arial
Font Style
Normal
Font Size
14
Line Spacing
1
Rich Text
Paragraph
Alignment
Horizontal Overflow
Wrap
Vertical Overflow
Overflow
Best Fit
Color
Material
None (Material)
Add Component


Game
Welcome! My reality is your reality.
Welcome! My reality is your reality.

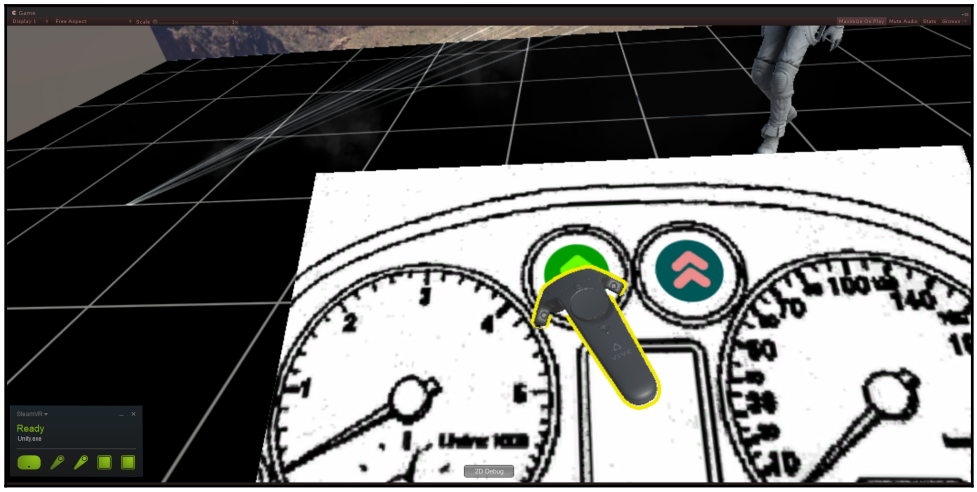

Game
Welcome! My reality is your reality.
Welcome! My reality is your reality.


Score: 0


Scene
Asset Store
Shaded
2D
Gizmos
Persp
SCORE: 0
Inspector
TextMeshPro Text
Static
Tag
Untagged
Layer
UI
Rect Transform
Canvas Renderer
Text Mesh Pro UGUI (Script)
TEXT INPUT BOX - Click to collapse - Enable RTL Editor
Score: 0
FONT SETTINGS - Click to expand -
EXTRA SETTINGS - Click to expand -
Bangers SDF Glow
Shader
TextMeshPro/Distance Field
Face - Settings -
Outline - Settings -
Underlay - Settings - Enable ->
Bevel - Settings - Enable ->
Lighting - Settings - Enable ->
BumpMap - Settings - Enable ->
EnvMap - Settings - Enable ->
Glow - Settings - Enable ->
Color
Offset -0.054
Inner 0
Outer 0.322
Power 0.719

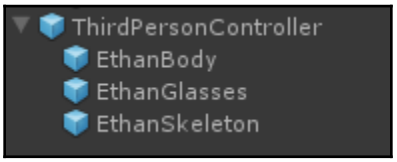


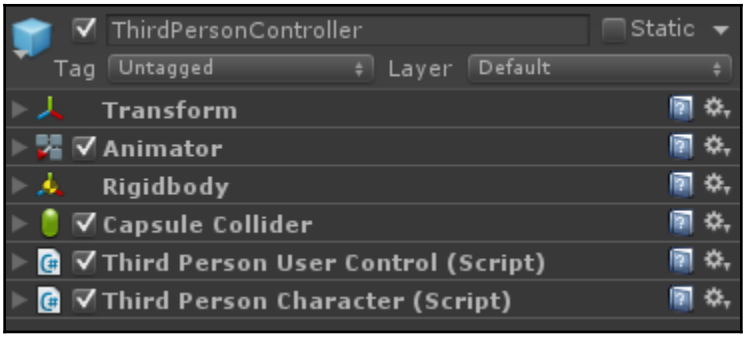
True Curved Interface
12 : 22 PM
HOME
FEATURED
NEWEST
ONLINE FRIENDS
Anna Ritz
EVE: Valkyrie 13 mins ago
John Greene
EVE: Valkyrie 13 mins ago
Mr. Horsey
EVE: Valkyrie 13 mins ago
Daniel Rodriguez
EVE: Valkyrie 13 mins ago
Sandra Hero
Game Title
oculus touch
Daydream
VIVE
+ more
VR ESSENTIALS

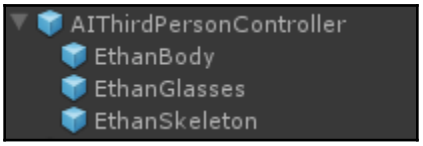

SteamVR
Ready
Unity.exe
2D Debug

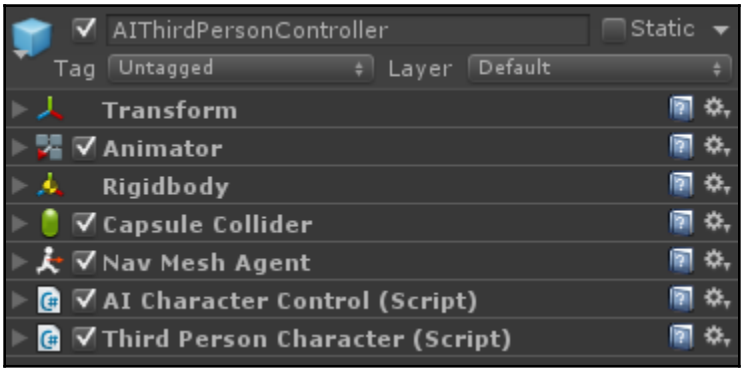
Hose

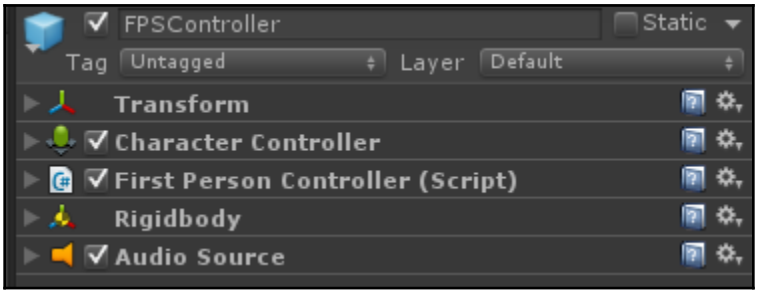
Chapter 07: Locomotion and Comfort

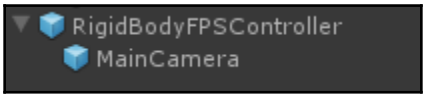


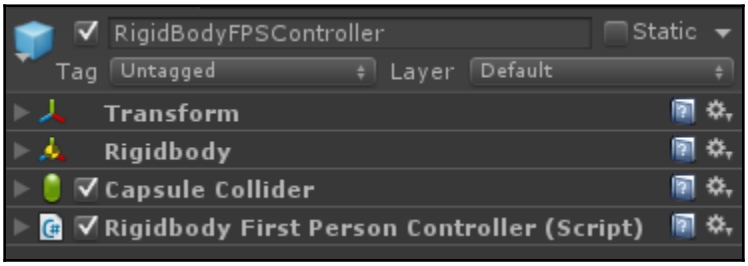


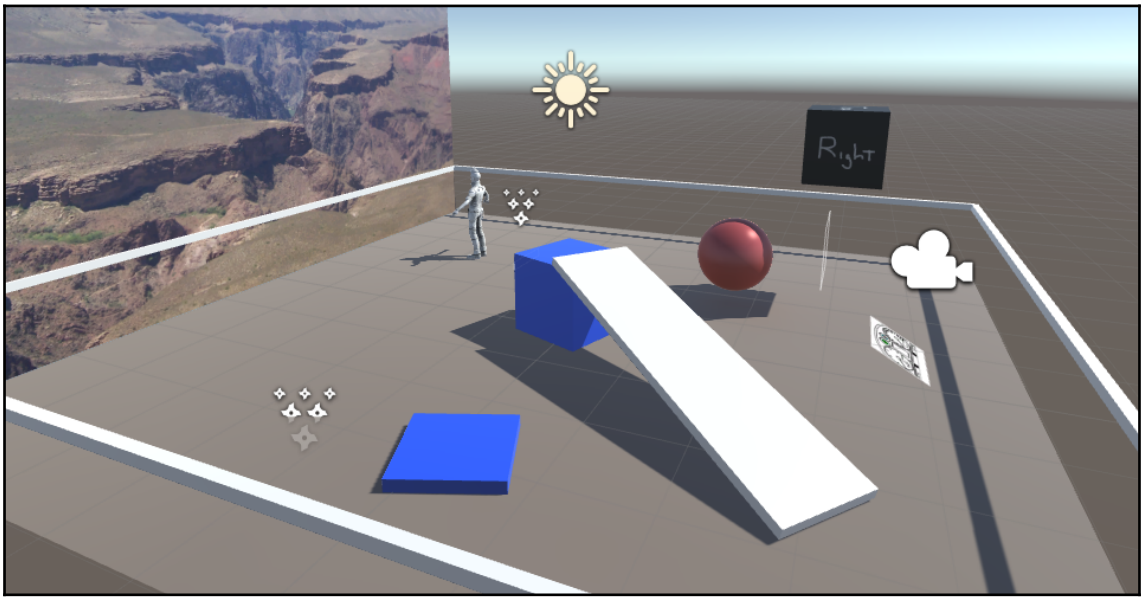


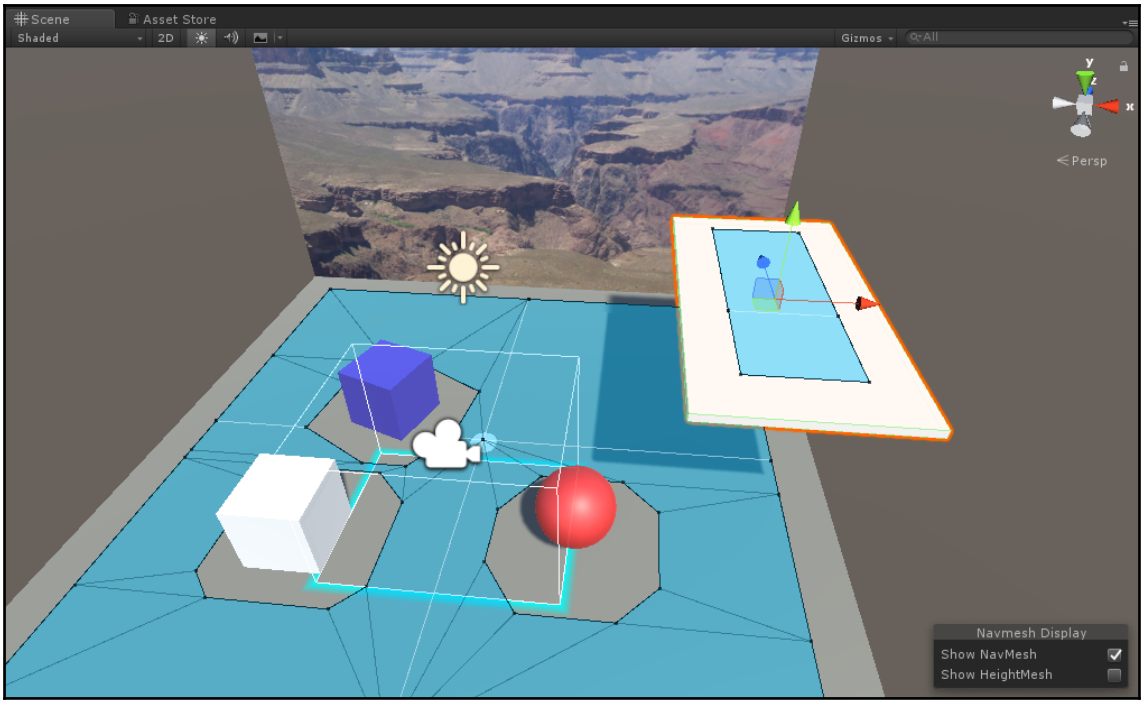


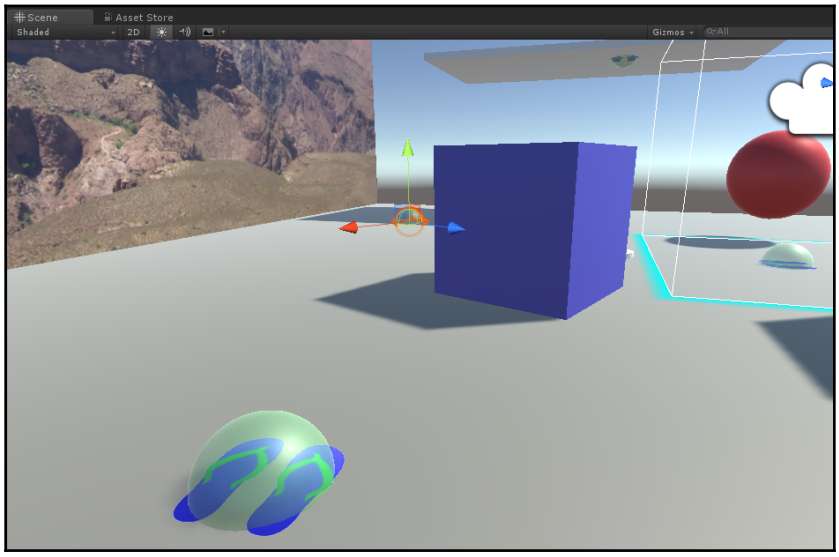

FPSController
Static
Tag
Untagged
Layer
Default
Transform
Character Controller
First Person Controller (Script)
Rigidbody
Audio Source

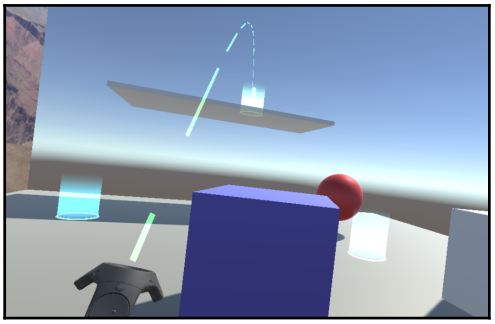

RigidBodyFPSController
MainCamera


RigidBodyFPSController
Static
Tag
Untagged
Layer
Default
Transform
Rigidbody
Capsule Collider
Rigidbody First Person Controller (Script)


Right


Scene
Asset Store
Shaded
2D
Gizmos
All
Persp
Navmesh Display
Show NavMesh
Show HeightMesh

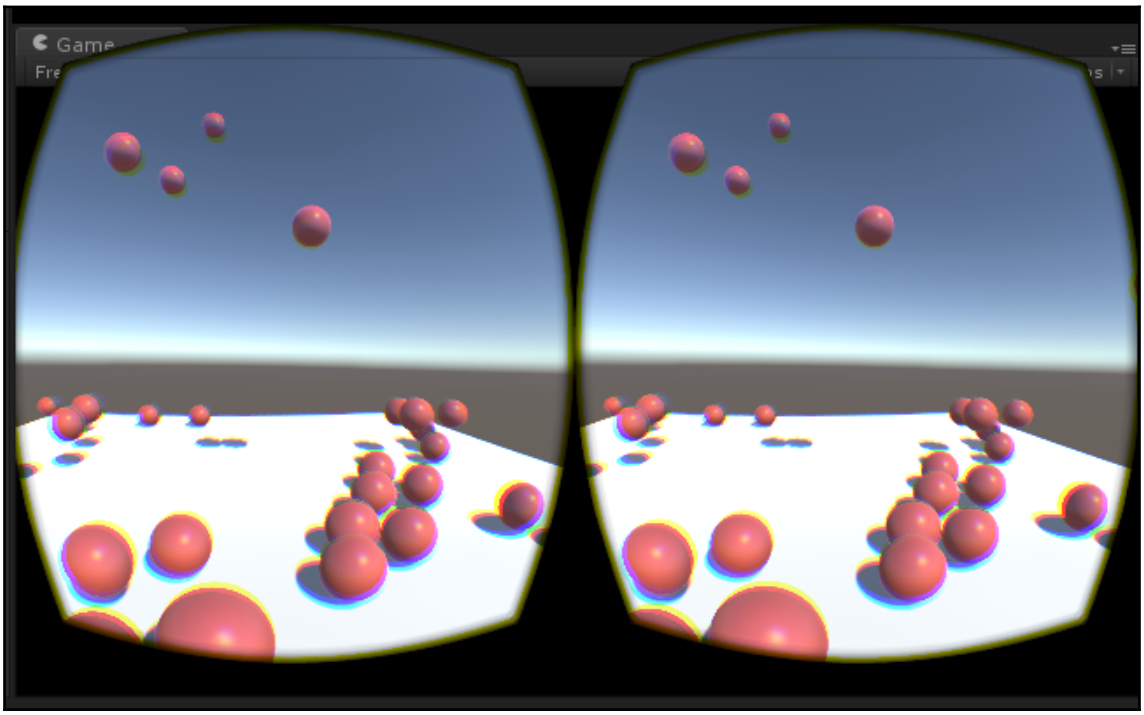

Scene
Asset Store
Shaded
2D
Gizmos
All

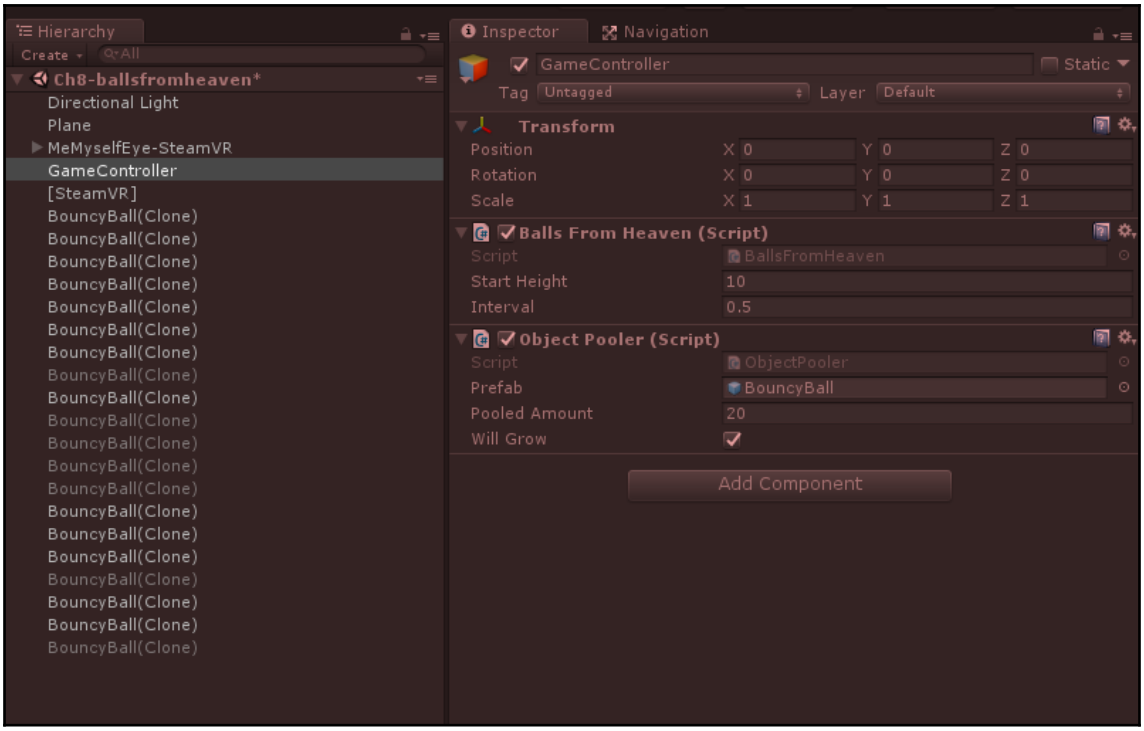


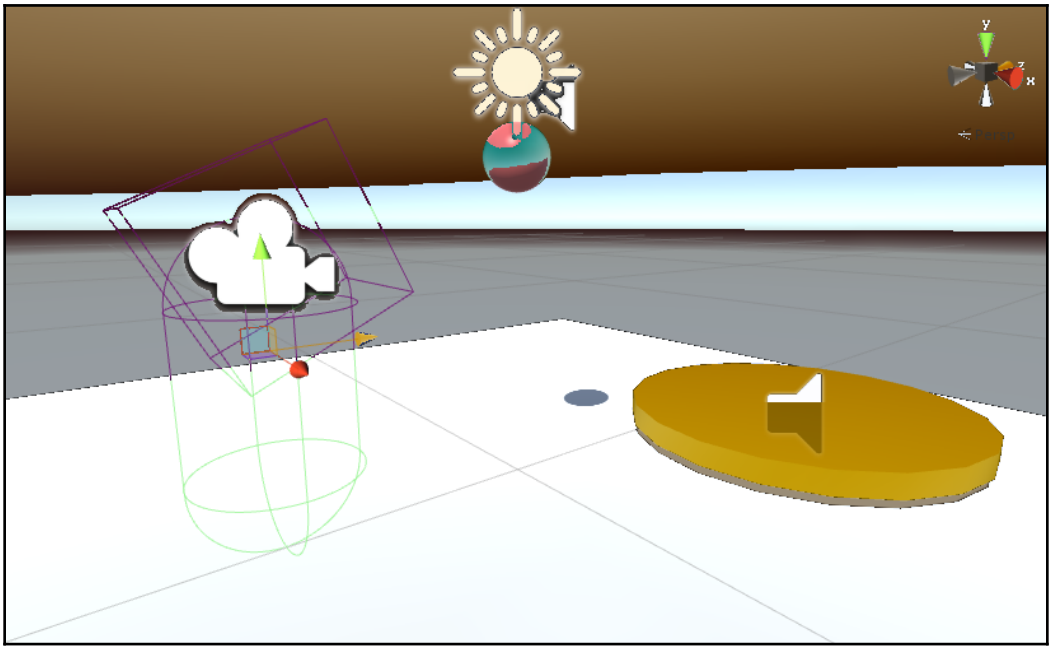
Teleport Controller (Script)

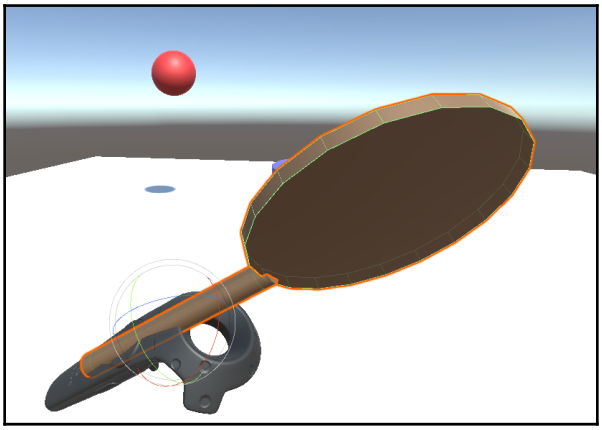
Script	TeleportController
Player	**MeMyselfEye-GVR (Transform)**
Controller	**GvrControllerPointer (Transform)**
Teleport Start Trigger	TeleportController (TouchpadTouchingTrigger)
Teleport Commit Trigger	TeleportController (TouchpadMiddleClickUpTrigger)
Teleport Cancel Trigger	TeleportController (TouchpadTouchUpTrigger)
Rotate Left Trigger	TeleportController (TouchpadSideClickDownTrigger)
Rotate Right Trigger	TeleportController (TouchpadSideClickDownTrigger)
Detector	TeleportController (ArcTeleportDetector)
Visualizer	TeleportController (ArcTeleportVisualizer)
Transition	TeleportController (LinearTeleportTransition)
Allow Rotation	☑
Rotation Speed	30
Rotation Degrees Increment	20

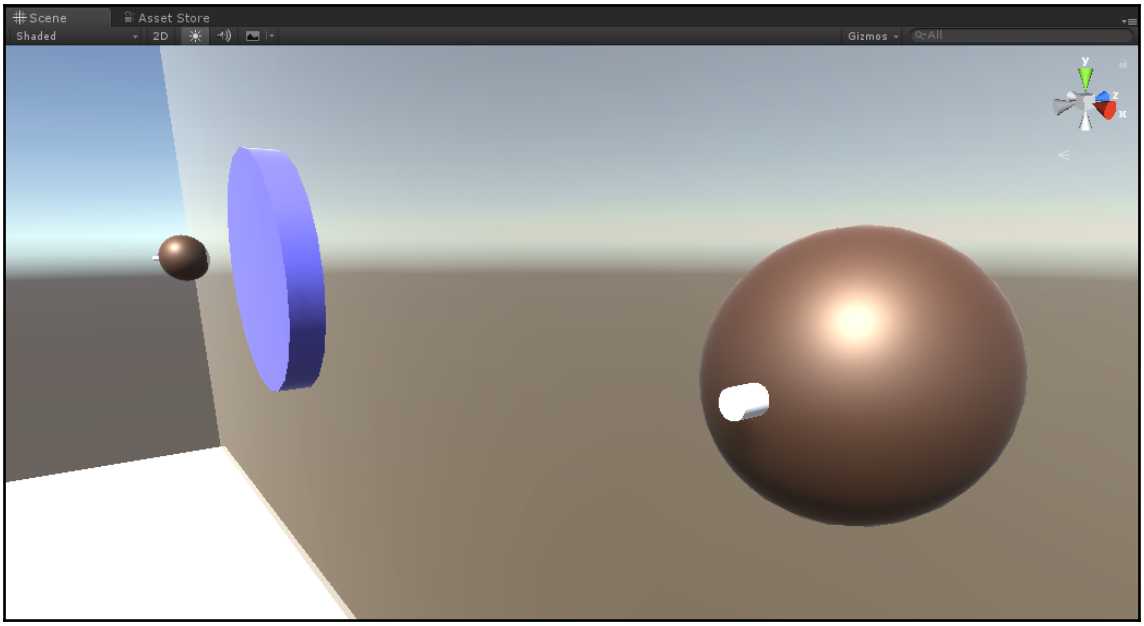
Chapter 08: Playing with Physics and Fire



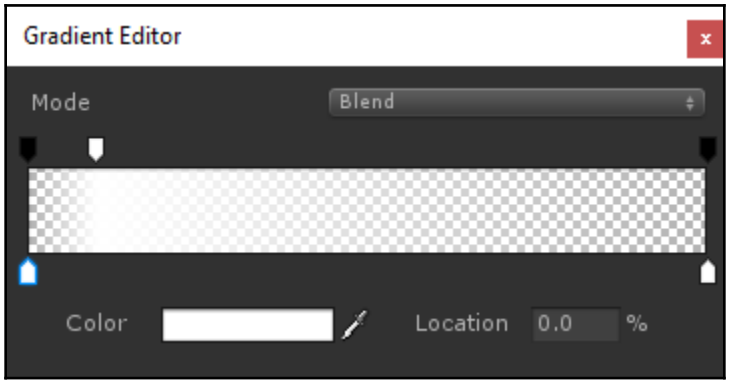

Hierarchy
Create
All
Ch8-ballsfromheaven*
Directional Light
Plane
MeMyselfEye-SteamVR
GameController
[SteamVR]
BouncyBall(Clone)
BouncyBall(Clone)
BouncyBall(Clone)
BouncyBall(Clone)
BouncyBall(Clone)
BouncyBall(Clone)
BouncyBall(Clone)
BouncyBall(Clone)
BouncyBall(Clone)
BouncyBall(Clone)
BouncyBall(Clone)
BouncyBall(Clone)
BouncyBall(Clone)
BouncyBall(Clone)
BouncyBall(Clone)
BouncyBall(Clone)
BouncyBall(Clone)
BouncyBall(Clone)
BouncyBall(Clone)
BouncyBall(Clone)
Inspector
Navigation
GameController
Static
Tag
Untagged
Layer
Default
Transform
Position
Rotation
Scale
X 0
Y 0
Z 0
X 0
Y 0
Z 0
X 1
Y 1
Z 1
Balls From Heaven (Script)
Script
BallsFromHeaven
Start Height
10
Interval
0.5
Object Pooler (Script)
Script
ObjectPooler
Prefab
BouncyBall
Pooled Amount
20
Will Grow
Add Component

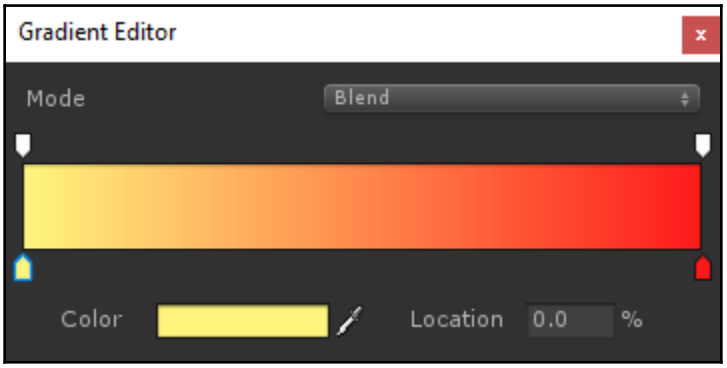


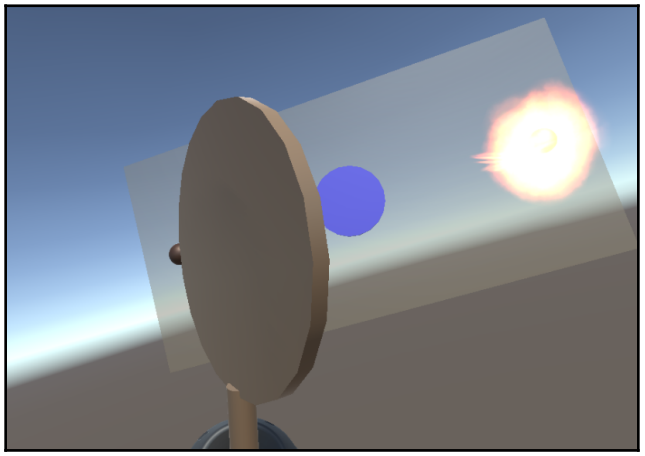


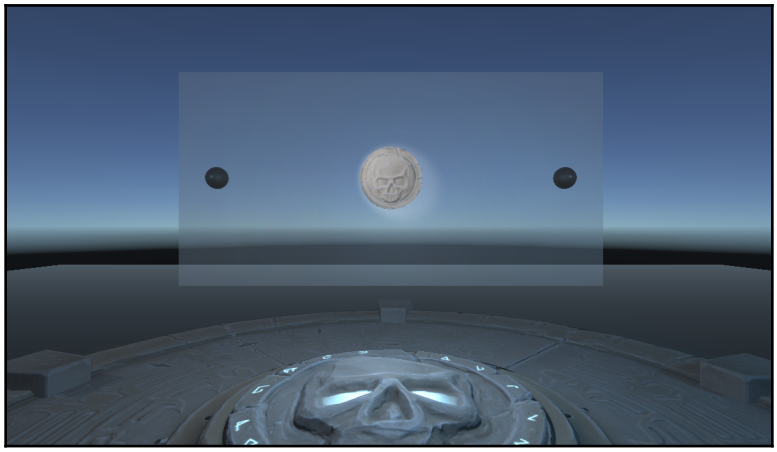

Scene
Asset Store
Shaded
2D
Gizmos
All

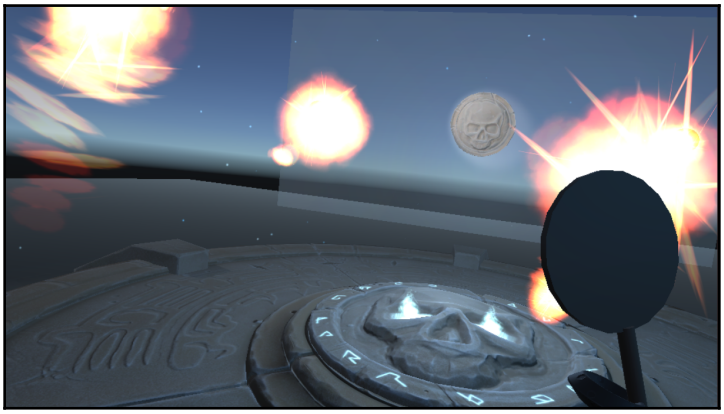
Particle System Curves
Start Rotation
Optimize
Remove
180
150
100
50
0
-50
-100
-150
0.0
0.5
1.0
1.5
2.0


Gradient Editor
Mode
Blend
Color
Location
0.0
%

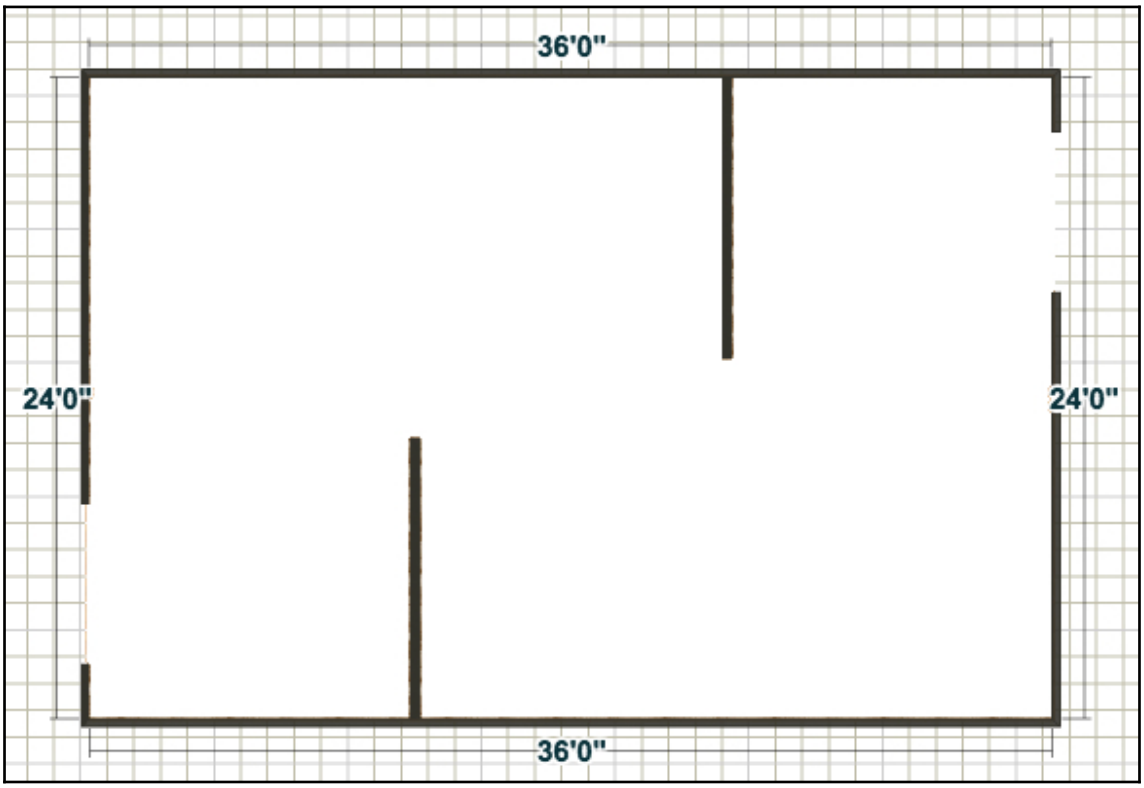

Gradient Editor
Mode
Blend
Color
Location
0.0
%

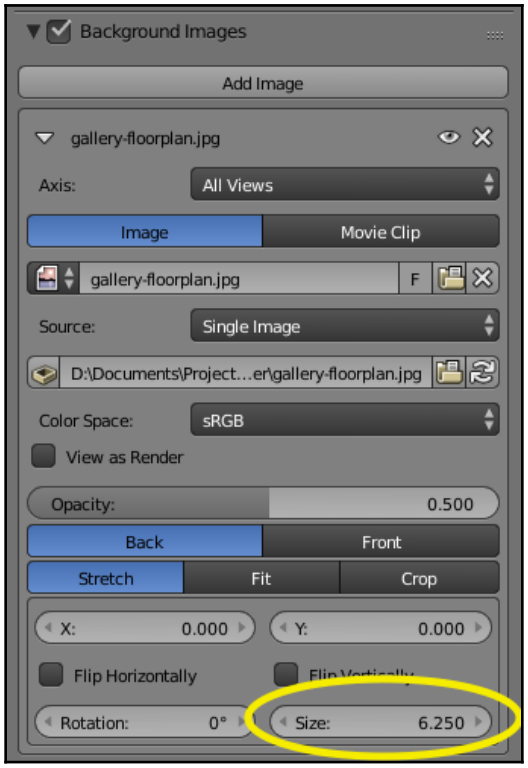


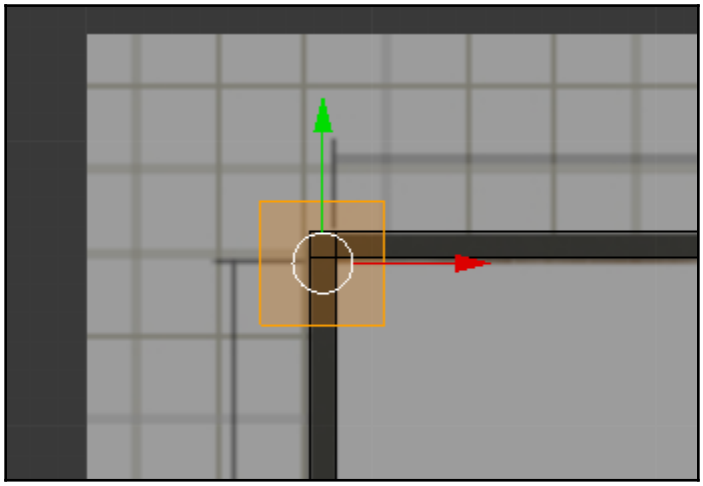


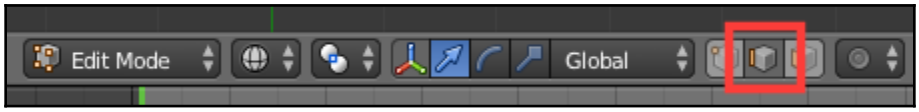


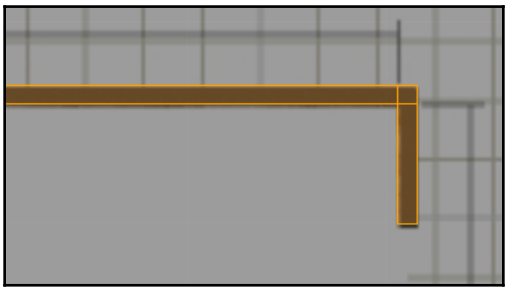
Chapter 09: Exploring Interactive Spaces

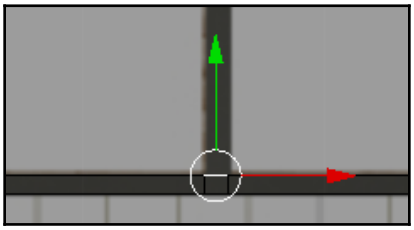


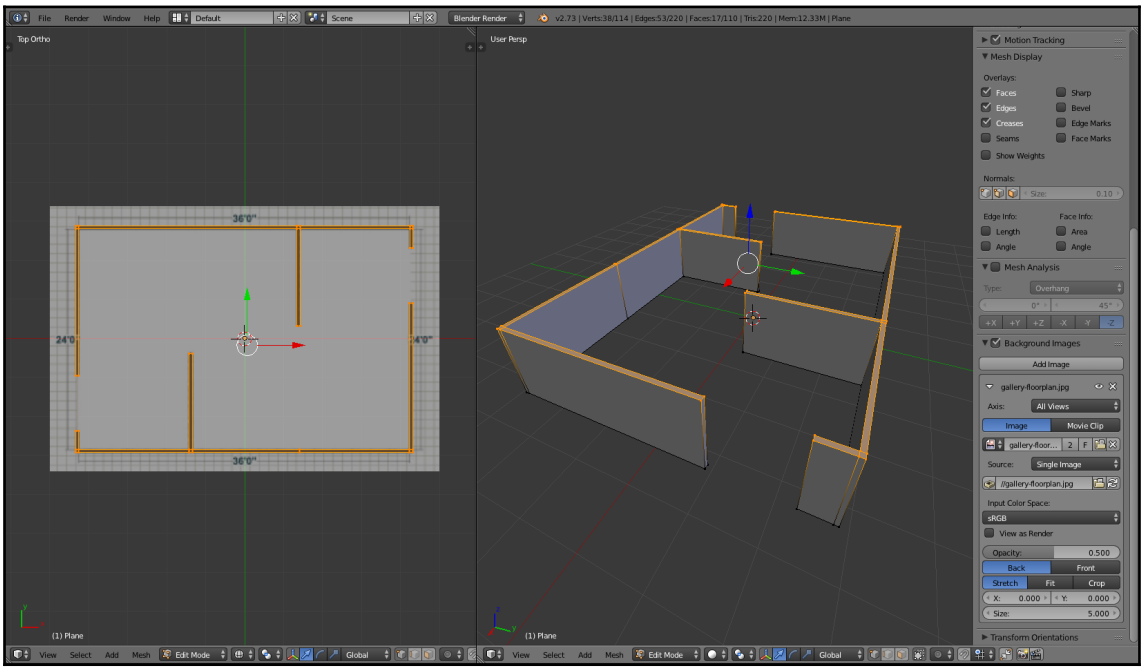

Background Images
Add Image
gallery-floorplan.jpg
Axis:
All Views
Image
Movie Clip
gallery-floorplan.jpg
F
Source:
Single Image
D:\Documents\Project...er\gallery-floorplan.jpg
Color Space:
sRGB
View as Render
Opacity:
0.500
Back
Front
Stretch
Fit
Crop
X:
0.000
Y:
0.000
Flip Horizontally
Rotation:
0°
Size:
6.250

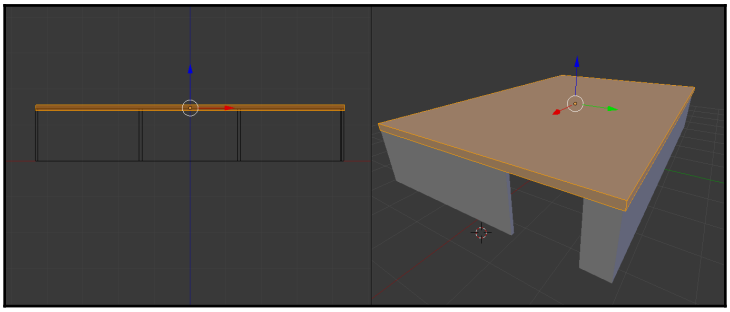


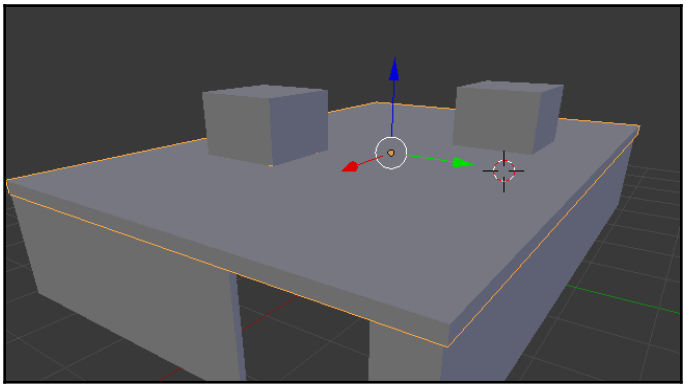

Edit Mode
Global

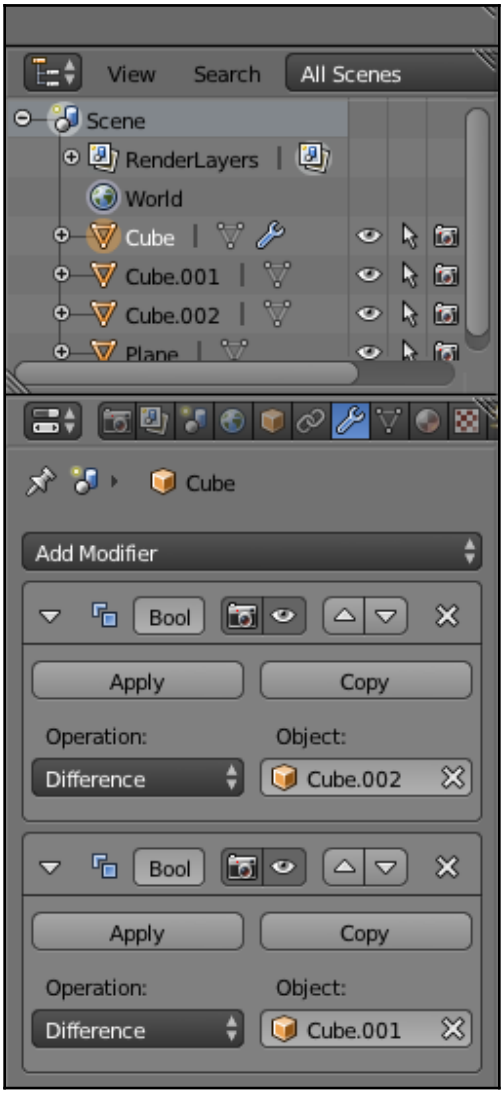


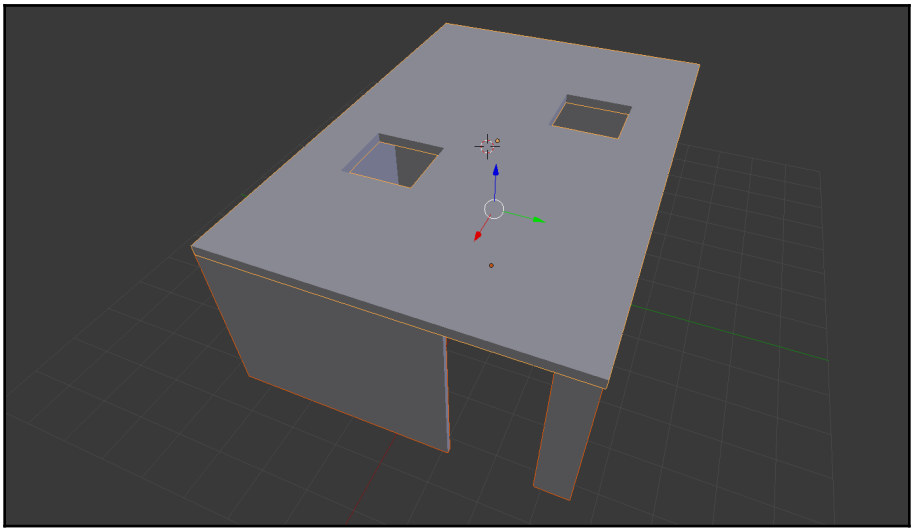


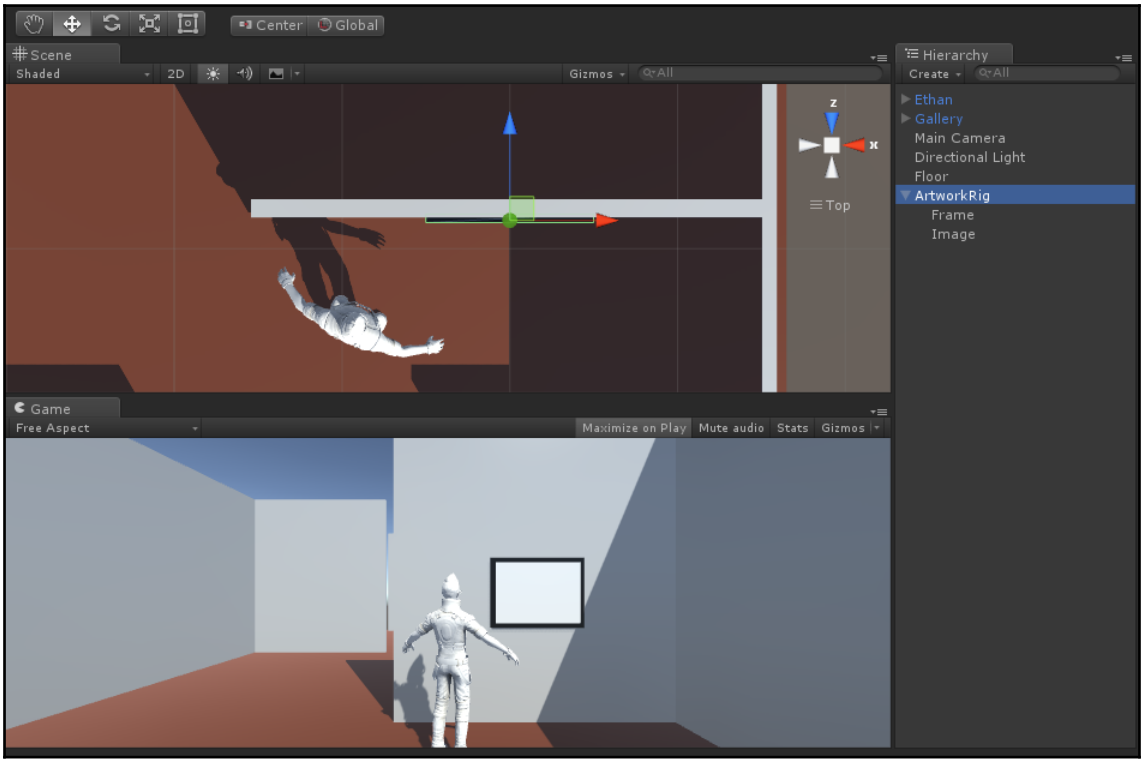

Top Ortho
User Persp
36'0"
24'0"
24'0"
36'0"
(1) Plane
(1) Plane
Motion Tracking
Mesh Display
Overlays:
Faces
Edges
Creases
Seams
Sharp
Bevel
Edge Marks
Face Marks
Show Weights
Normals:
Edge Info:
Length
Angle
Face Info:
Area
Angle
Mesh Analysis
Background Images
Add Image
gallery-floorplan.jpg
Axis:
All Views
Image
Movie Clip
Source:
Single Image
//gallery-floorplan.jpg
Input Color Space:
sRGB
View as Render
Opacity:
0.500
Back
Front
Stretch
Fit
Crop
Transform Orientations

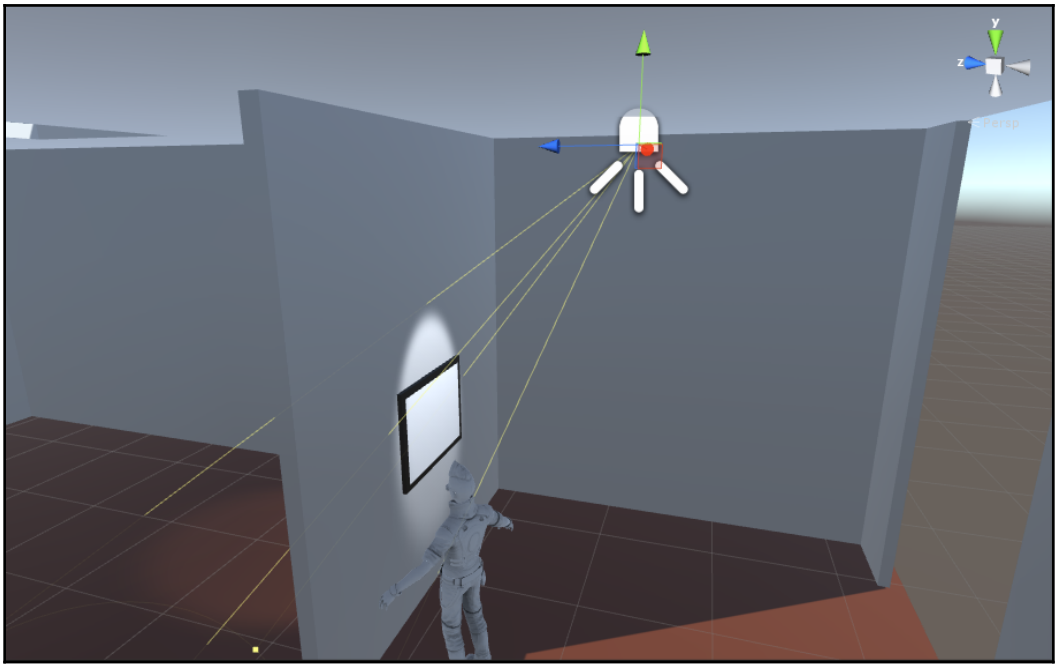


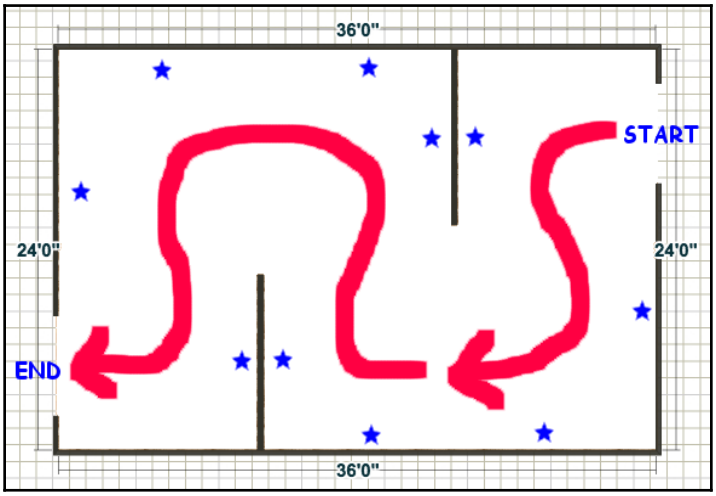


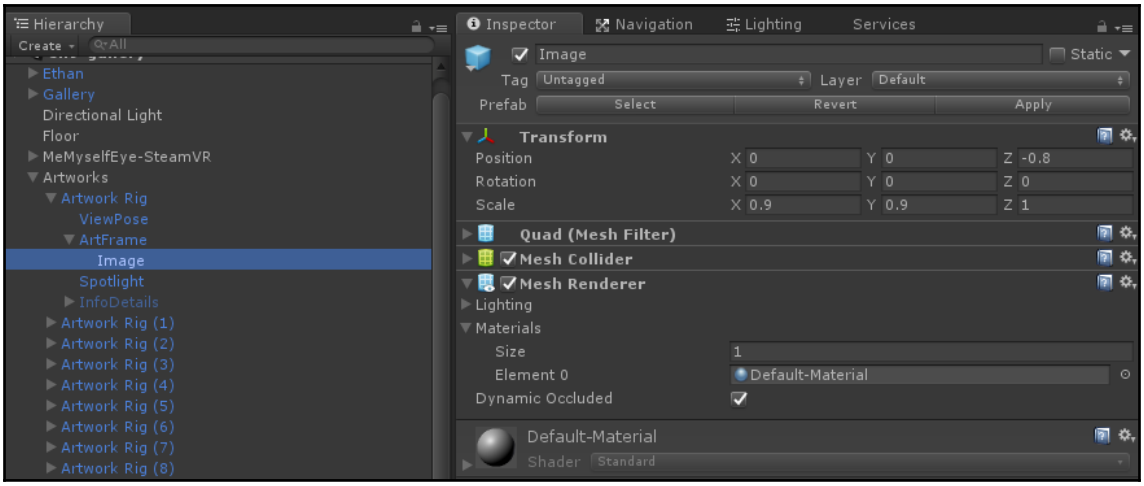

View
Search
All Scenes
Scene
RenderLayers
World
Cube
Cube.001
Cube.002
Plane
Cube
Add Modifier
Bool
Apply
Copy
Operation:
Object:
Difference
Cube.002
Bool
Apply
Copy
Operation:
Object:
Difference
Cube.001



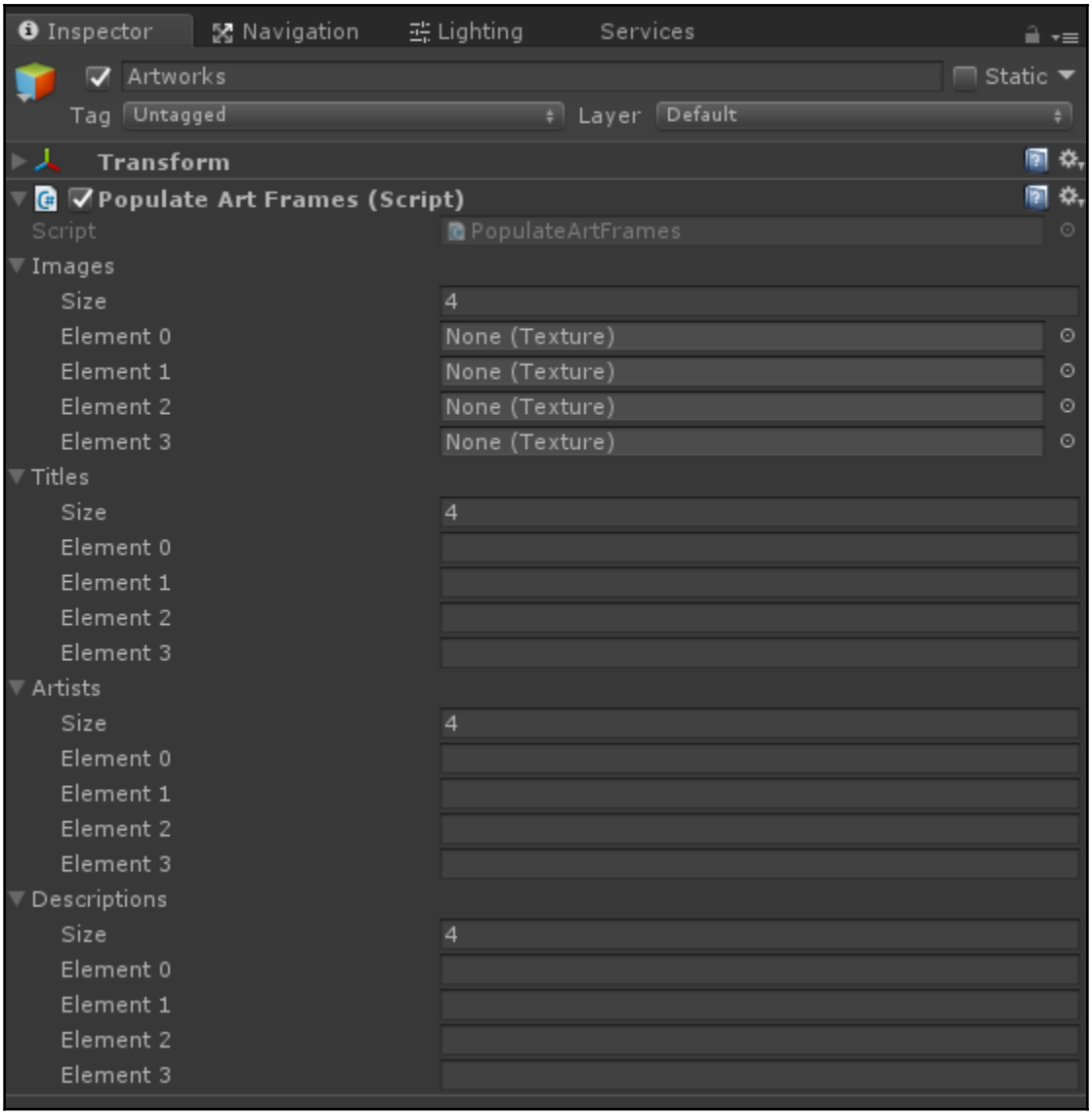

Center
Global
Scene
Shaded
2D
Gizmos
All
Top
Hierarchy
Create
All
Ethan
Gallery
Main Camera
Directional Light
Floor
ArtworkRig
Frame
Image
Game
Free Aspect
Maximize on Play
Mute audio
Stats
Gizmos

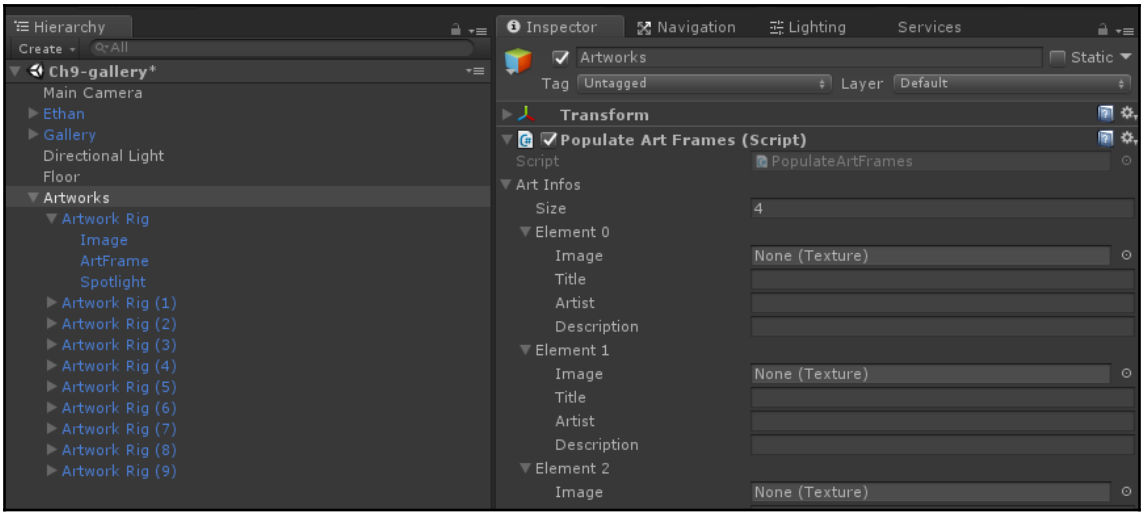


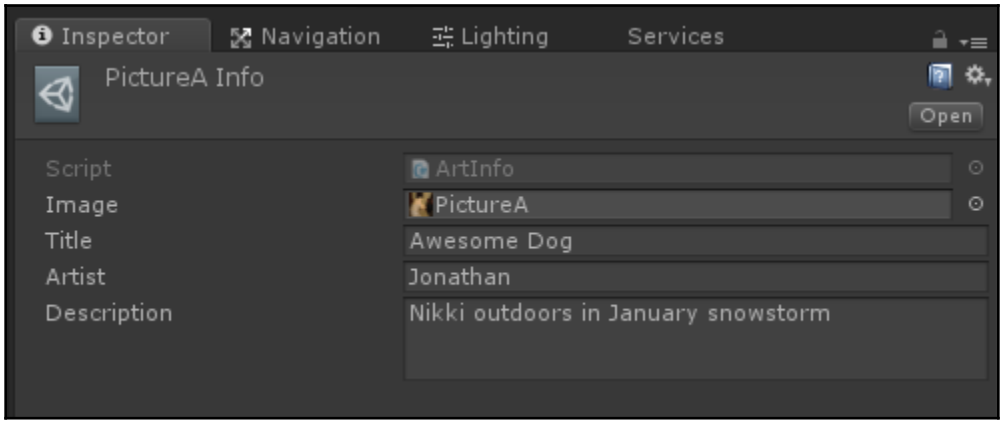

36'0"
START
24'0"
24'0"
END
36'0"

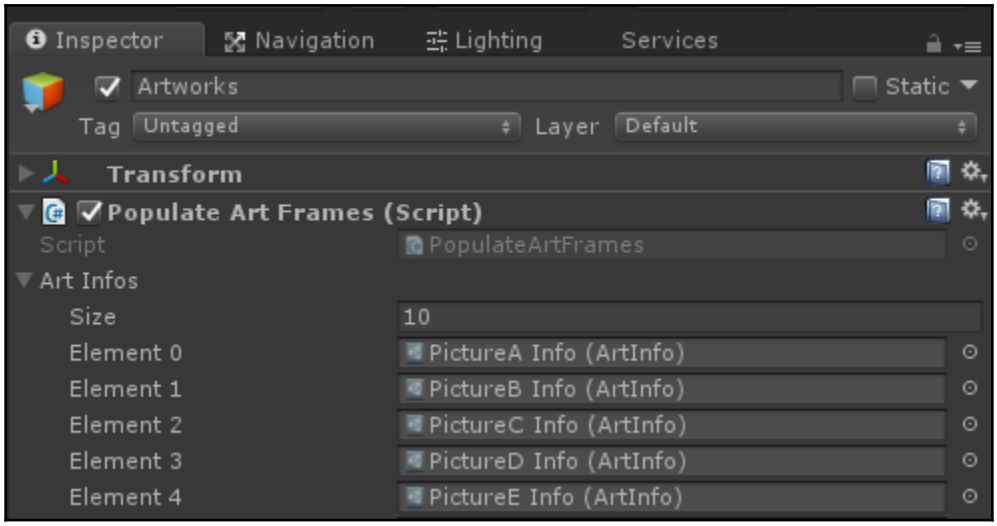

Hierarchy
Create
All
Ethan
Gallery
Directional Light
Floor
MeMyselfEye-SteamVR
Artworks
Artwork Rig
ViewPose
ArtFrame
Image
Spotlight
InfoDetails
Artwork Rig (1)
Artwork Rig (2)
Artwork Rig (3)
Artwork Rig (4)
Artwork Rig (5)
Artwork Rig (6)
Artwork Rig (7)
Artwork Rig (8)
Inspector
Navigation
Lighting
Services
Image
Static
Tag
Untagged
Layer
Default
Prefab
Select
Revert
Apply
Transform
Position
X 0
Y 0
Z -0.8
Rotation
X 0
Y 0
Z 0
Scale
X 0.9
Y 0.9
Z 1
Quad (Mesh Filter)
Mesh Collider
Mesh Renderer
Lighting
Materials
Size
1
Element 0
Default-Material
Dynamic Occluded
Default-Material
Shader
Standard

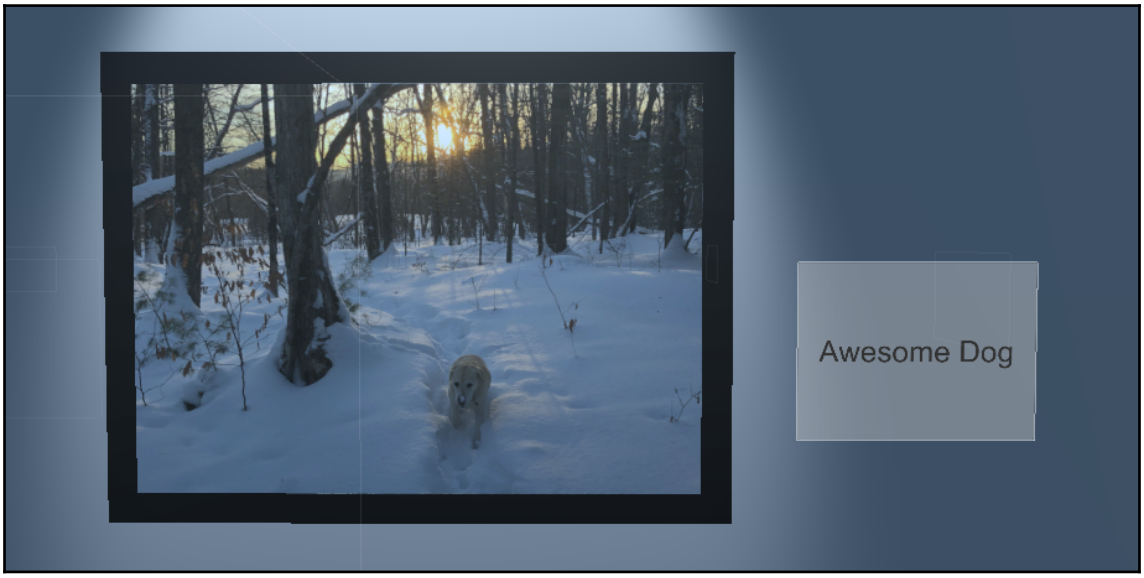
Persp


Inspector
Navigation
Lighting
Services
Artworks
Static
Tag
Untagged
Layer
Default
Transform
Populate Art Frames (Script)
Script
PopulateArtFrames
Images
Size
4
Element 0
None (Texture)
Element 1
None (Texture)
Element 2
None (Texture)
Element 3
None (Texture)
Titles
Size
4
Element 0
Element 1
Element 2
Element 3
Artists
Size
4
Element 0
Element 1
Element 2
Element 3
Descriptions
Size
4
Element 0
Element 1
Element 2
Element 3


Hierarchy
Create
All
Ch9-gallery*
Main Camera
Ethan
Gallery
Directional Light
Floor
Artworks
Artwork Rig
Image
ArtFrame
Spotlight
Artwork Rig (1)
Artwork Rig (2)
Artwork Rig (3)
Artwork Rig (4)
Artwork Rig (5)
Artwork Rig (6)
Artwork Rig (7)
Artwork Rig (8)
Artwork Rig (9)
Inspector
Navigation
Lighting
Services
Artworks
Static
Tag
Untagged
Layer
Default
Transform
Populate Art Frames (Script)
Script
PopulateArtFrames
Art Infos
Size
4
Element 0
Image
None (Texture)
Title
Artist
Description
Element 1
Image
None (Texture)
Title
Artist
Description
Element 2
Image
None (Texture)

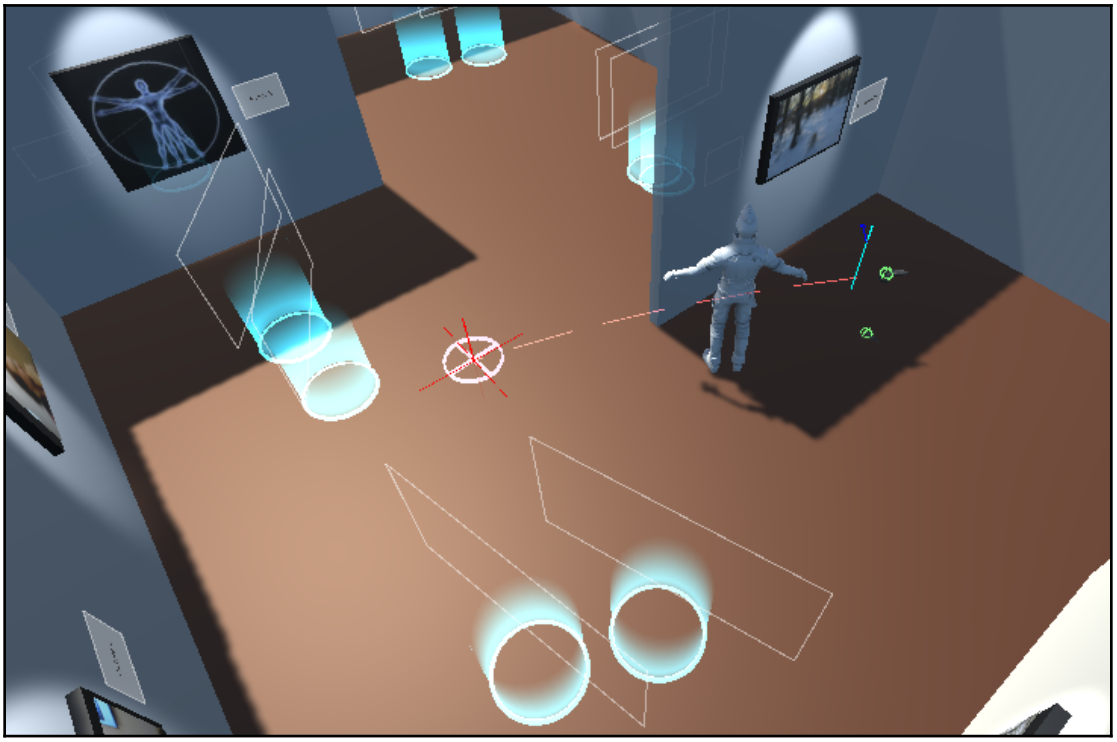

Inspector
Navigation
Lighting
Services
PictureA Info
Open
Script
ArtInfo
Image
PictureA
Title
Awesome Dog
Artist
Jonathan
Description
Nikki outdoors in January snowstorm

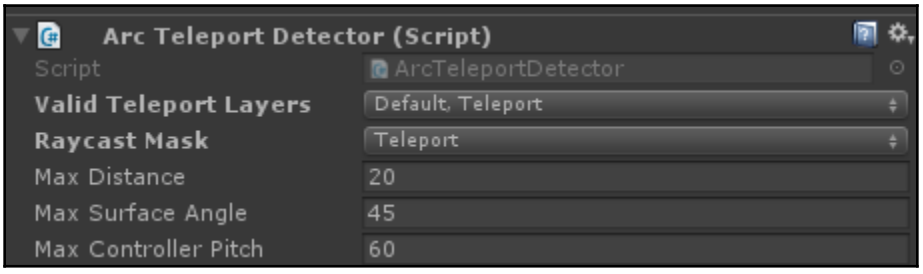

Inspector
Navigation
Lighting
Services
Artworks
Static
Tag
Untagged
Layer
Default
Transform
Populate Art Frames (Script)
Script
PopulateArtFrames
Art Infos
Size
10
Element 0
PictureA Info (ArtInfo)
Element 1
PictureB Info (ArtInfo)
Element 2
PictureC Info (ArtInfo)
Element 3
PictureD Info (ArtInfo)
Element 4
PictureE Info (ArtInfo)

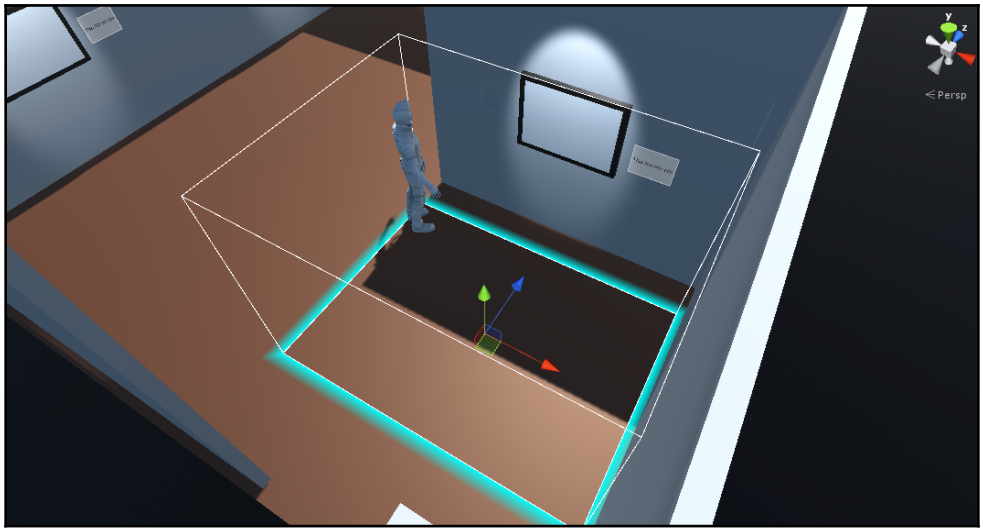

Awesome Dog

Jonathan
Nikki outdoors in January snowstorm
Awesome Dog

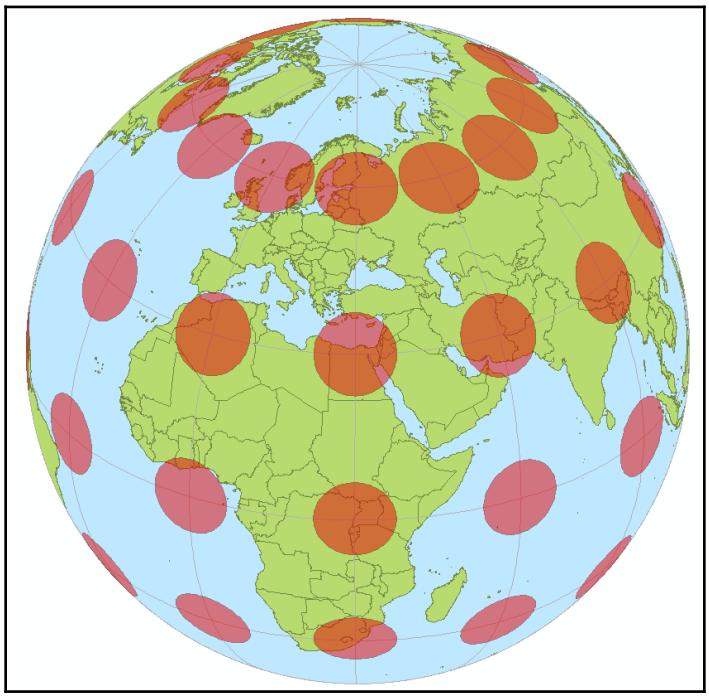
Apple Blossoms

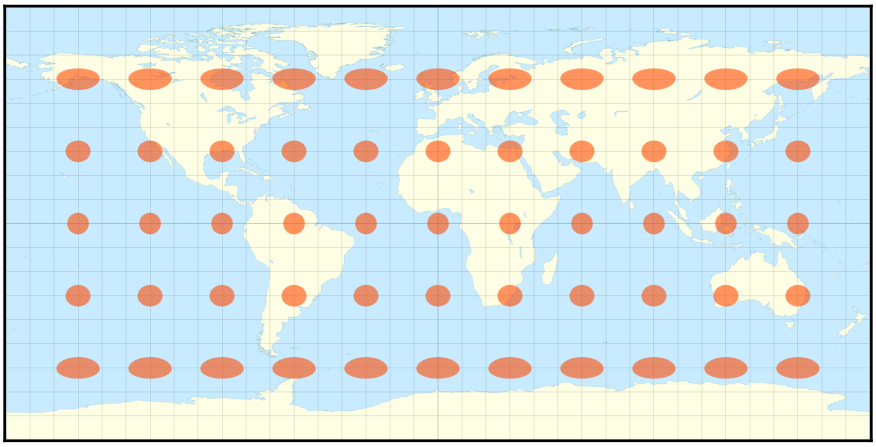


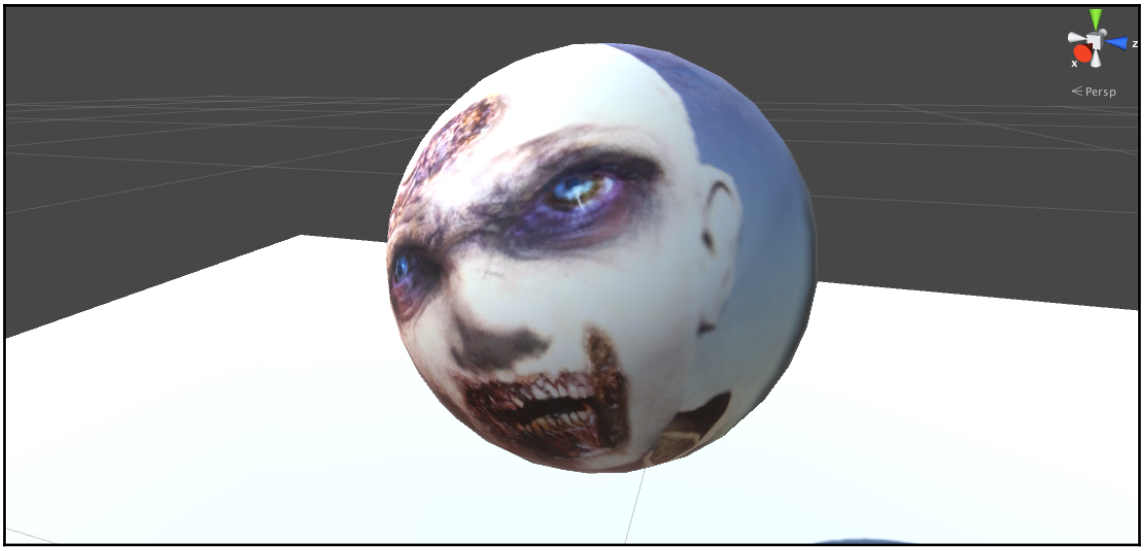

Arc Teleport Detector (Script)
Script
ArcTeleportDetector
Valid Teleport Layers
Default, Teleport
Raycast Mask
Teleport
Max Distance
20
Max Surface Angle
45
Max Controller Pitch
60

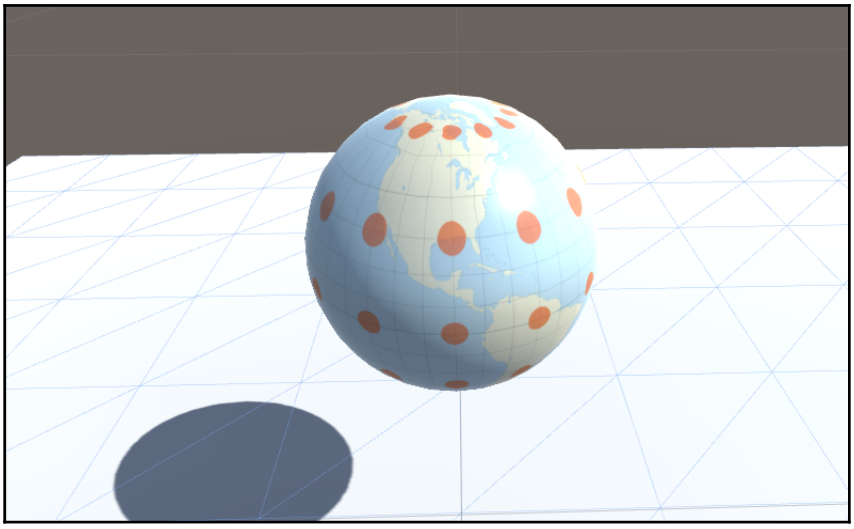

y
z
Persp

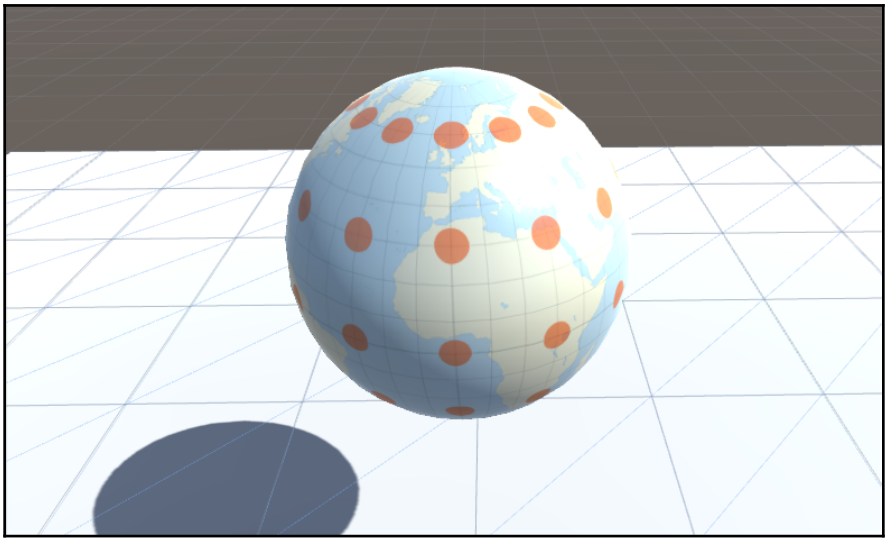
Chapter 10: Using All 360 Degrees



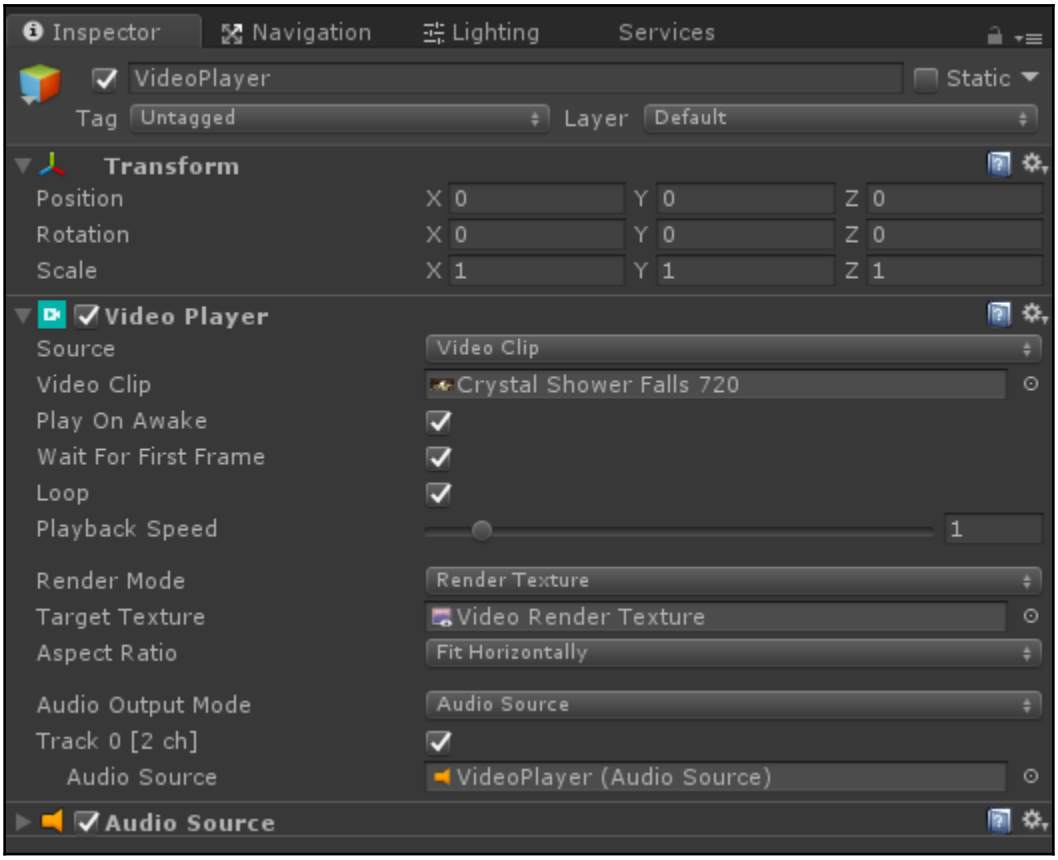


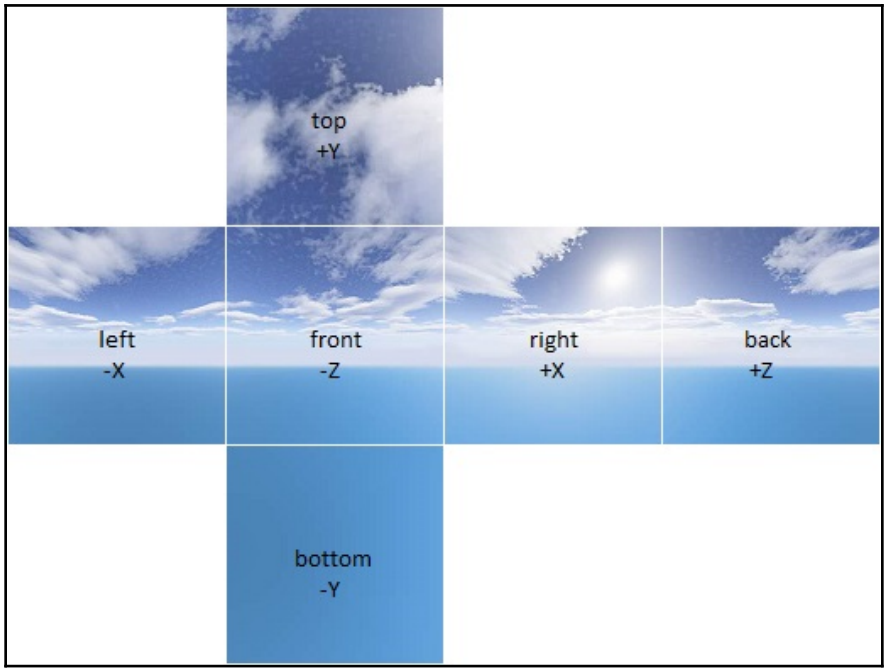

Persp

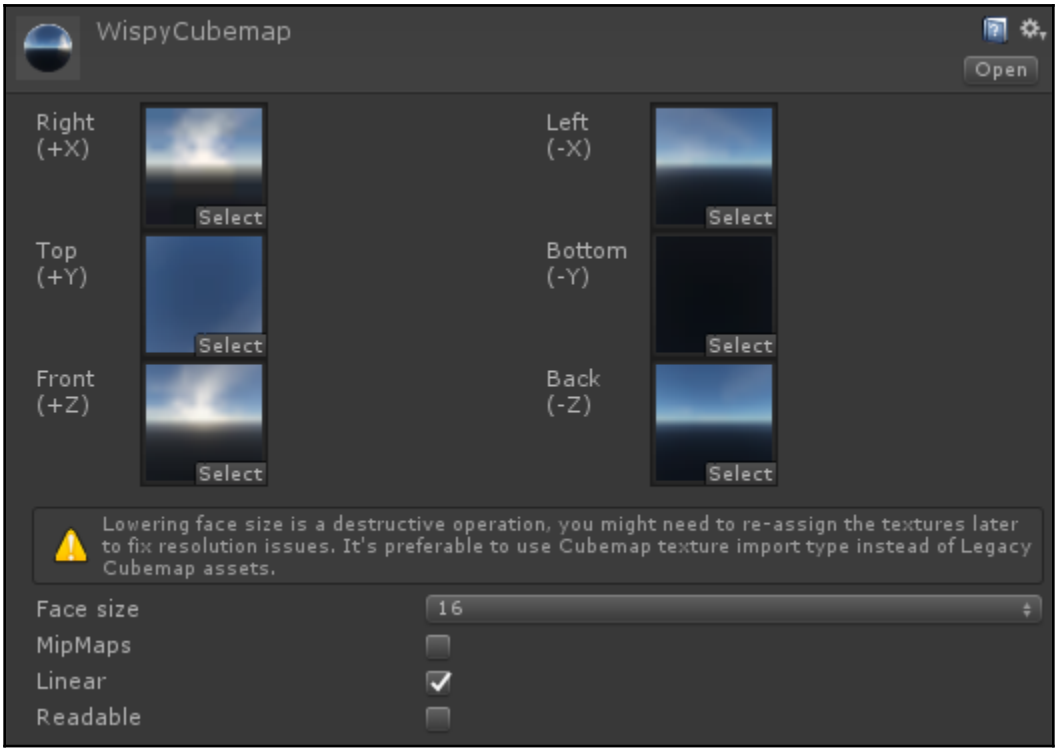


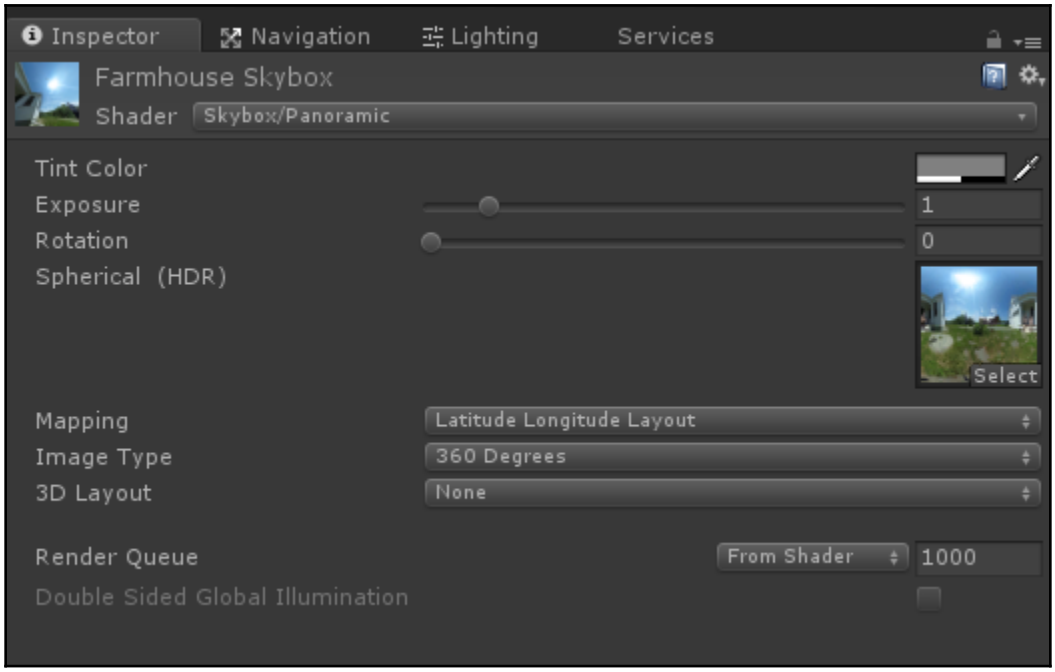


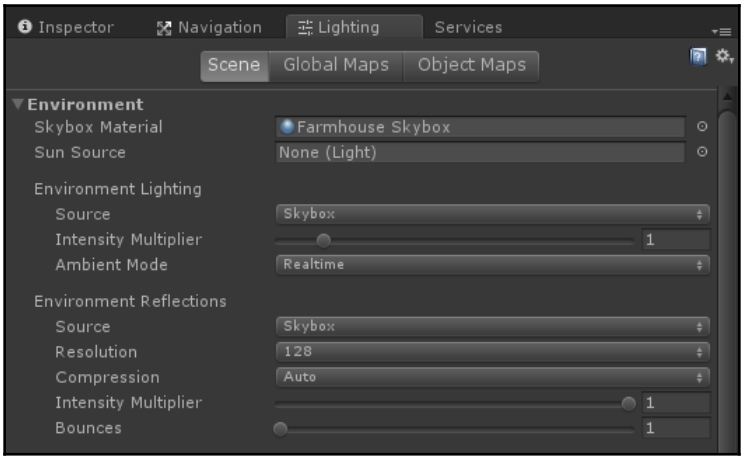
2D Debug

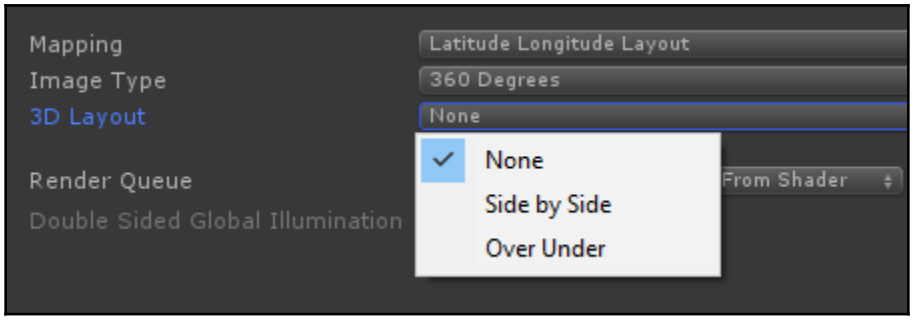

Inspector
Navigation
Lighting
Services
VideoPlayer
Static
Tag
Untagged
Layer
Default
Transform
Position
X 0
Y 0
Z 0
Rotation
X 0
Y 0
Z 0
Scale
X 1
Y 1
Z 1
Video Player
Source
Video Clip
Video Clip
Crystal Shower Falls 720
Play On Awake
Wait For First Frame
Loop
Playback Speed
1
Render Mode
Render Texture
Target Texture
Video Render Texture
Aspect Ratio
Fit Horizontally
Audio Output Mode
Audio Source
Track 0 [2 ch]
Audio Source
VideoPlayer (Audio Source)
Audio Source

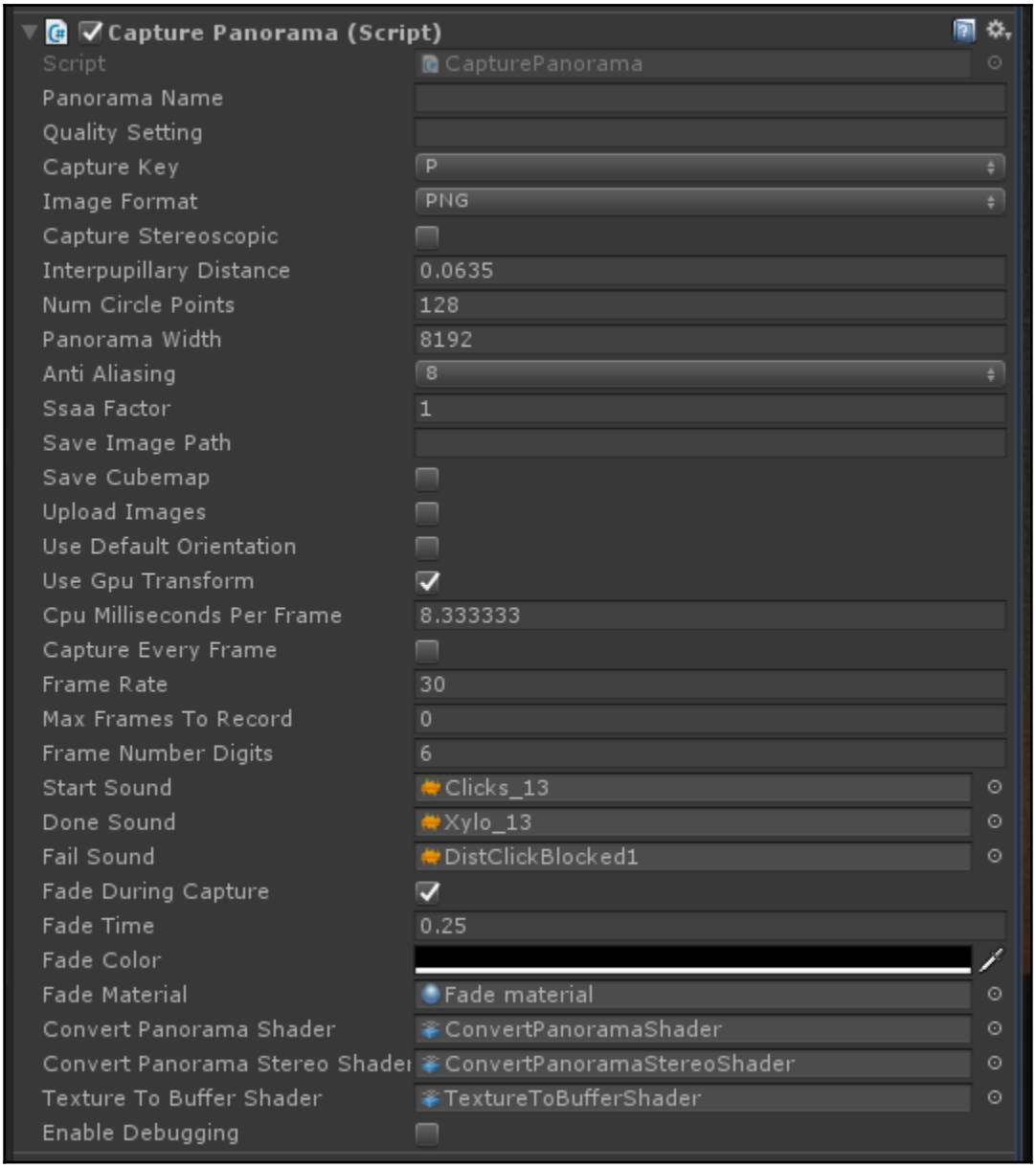

top
+Y
left
-X
front
-Z
right
+X
back
+Z
bottom
-Y

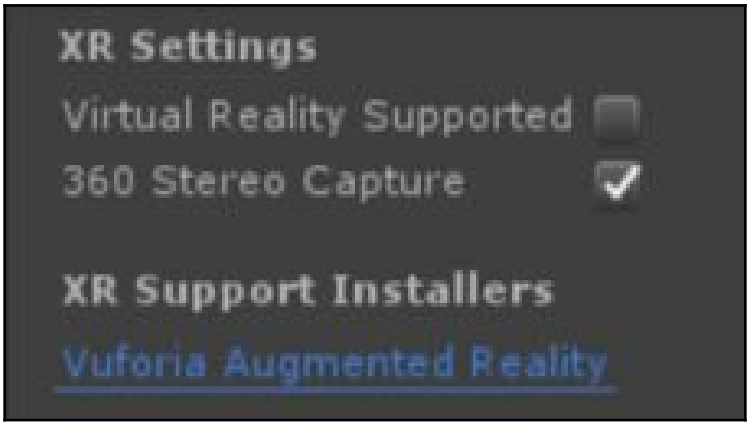

WispyCubemap
Open
Right
(+X)
Select
Left
(-X)
Select
Top
(+Y)
Select
Bottom
(-Y)
Select
Front
(+Z)
Select
Back
(-Z)
Select
Lowering face size is a destructive operation, you might need to re-assign the textures later to fix resolution issues. It's preferable to use Cubemap texture import type instead of Legacy Cubemap assets.
Face size
16
MipMaps
Linear
Readable

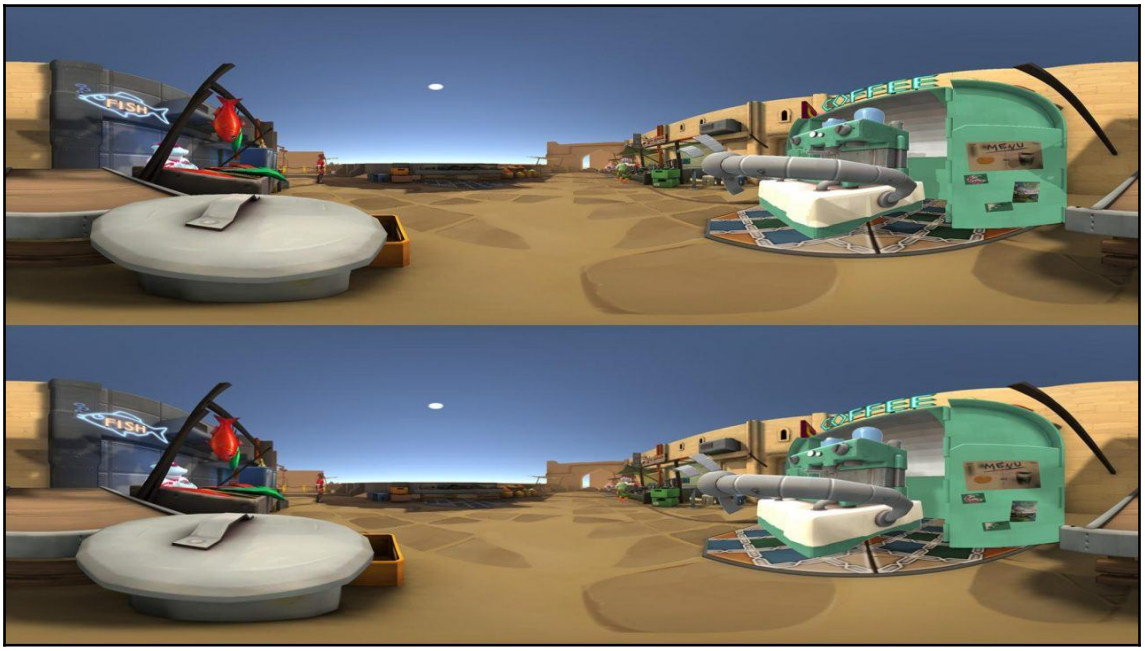

Inspector
Navigation
Lighting
Services
Farmhouse Skybox
Shader
Skybox/Panoramic
Tint Color
Exposure
1
Rotation
0
Spherical (HDR)
Select
Mapping
Latitude Longitude Layout
Image Type
360 Degrees
3D Layout
None
Render Queue
From Shader
1000
Double Sided Global Illumination


Inspector
Navigation
Lighting
Services
Scene
Global Maps
Object Maps
Environment
Skybox Material
Farmhouse Skybox
Sun Source
None (Light)
Environment Lighting
Source
Skybox
Intensity Multiplier
1
Ambient Mode
Realtime
Environment Reflections
Source
Skybox
Resolution
128
Compression
Auto
Intensity Multiplier
1
Bounces
1

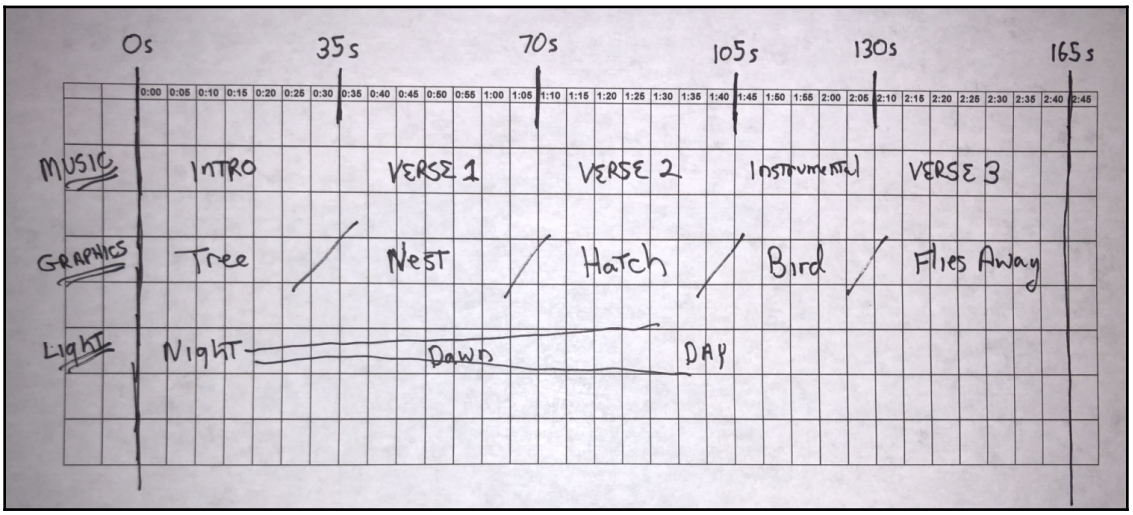

Mapping
Latitude Longitude Layout
Image Type
360 Degrees
3D Layout
None
None
Side by Side
Over Under
Render Queue
From Shader
Double Sided Global Illumination

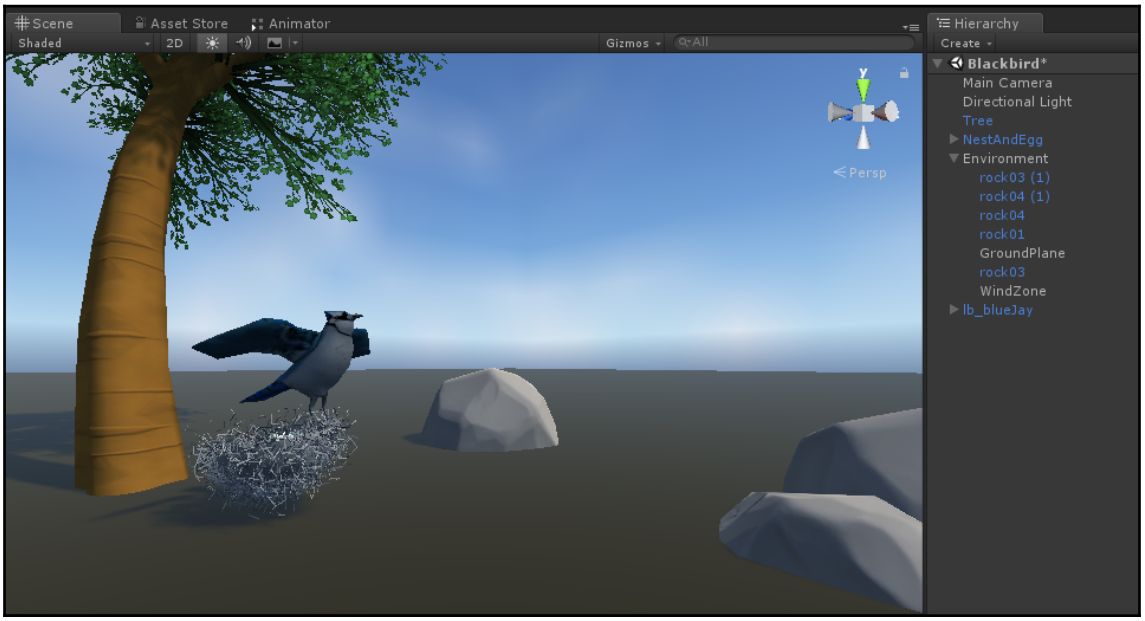

Capture Panorama (Script)
Script
CapturePanorama
Panorama Name
Quality Setting
Capture Key
P
Image Format
PNG
Capture Stereoscopic
Interpupillary Distance
0.0635
Num Circle Points
128
Panorama Width
8192
Anti Aliasing
8
Ssaa Factor
1
Save Image Path
Save Cubemap
Upload Images
Use Default Orientation
Use Gpu Transform
Cpu Milliseconds Per Frame
8.333333
Capture Every Frame
Frame Rate
30
Max Frames To Record
0
Frame Number Digits
6
Start Sound
Clicks_13
Done Sound
Xylo_13
Fail Sound
DistClickBlocked1
Fade During Capture
Fade Time
0.25
Fade Color
Fade Material
Fade material
Convert Panorama Shader
ConvertPanoramaShader
Convert Panorama Stereo Shader
ConvertPanoramaStereoShader
Texture To Buffer Shader
TextureToBufferShader
Enable Debugging

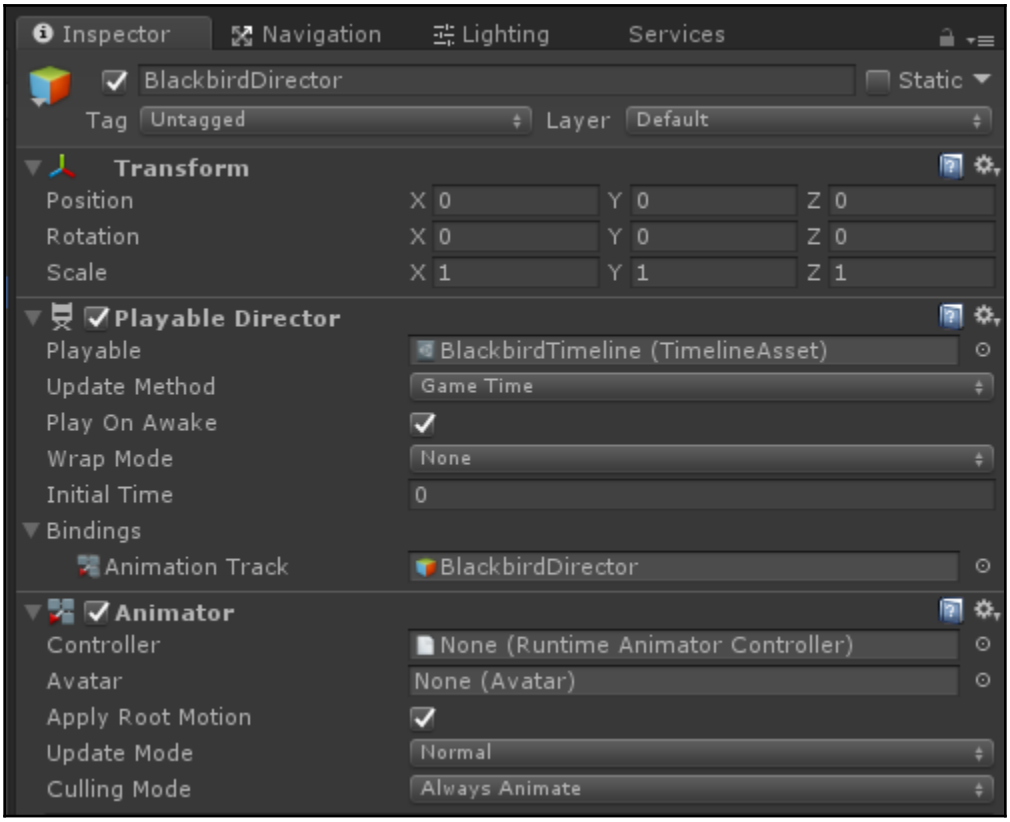

XR Settings
Virtual Reality Supported
360 Stereo Capture
XR Support Installers
Vuforia Augmented Reality

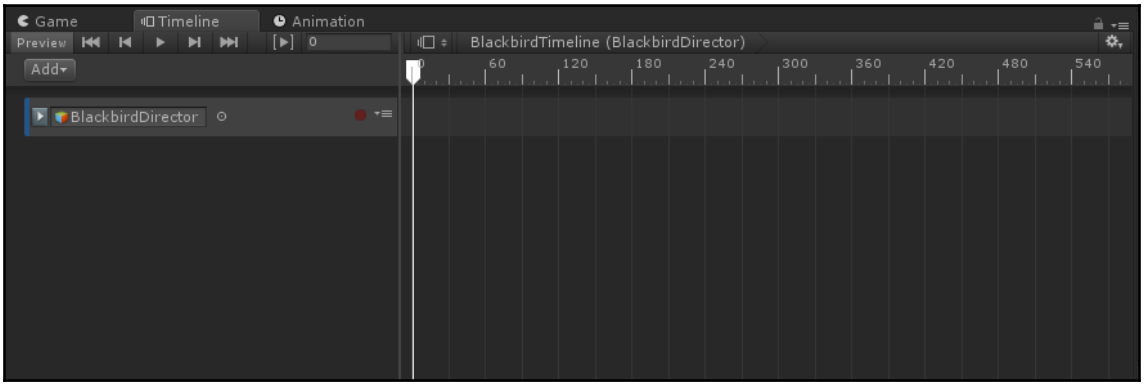

FISH
COFFEE
MENU

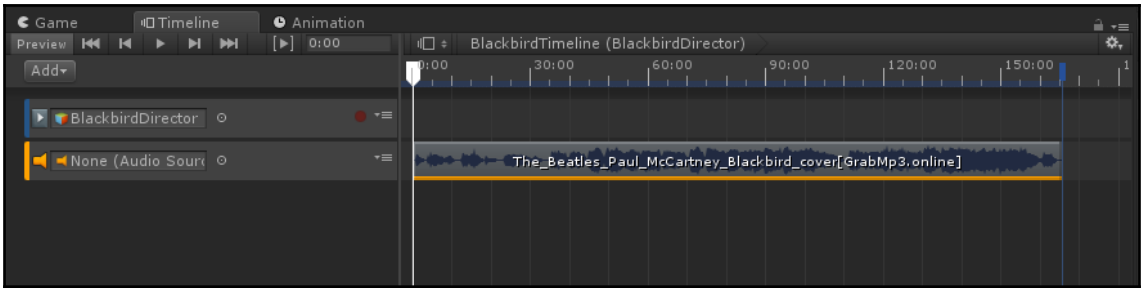
Chapter 11: Animation and VR Storytelling



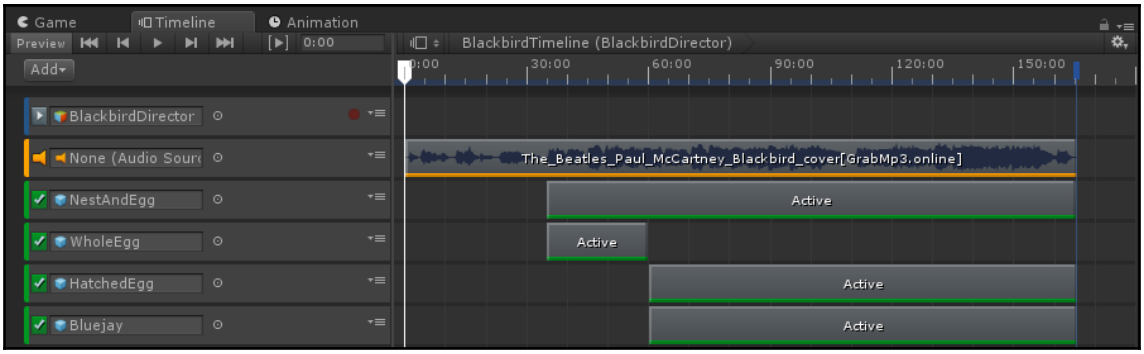


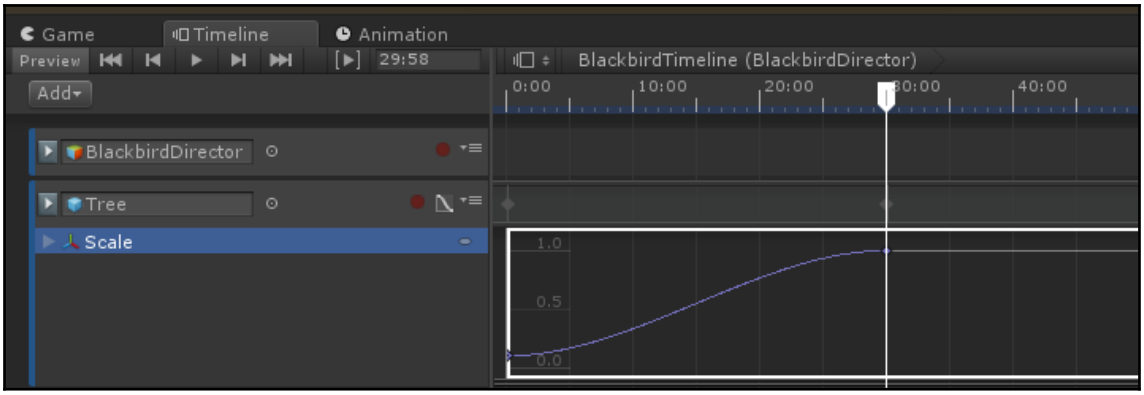

Inspector
Navigation
Lighting
Services
BlackbirdDirector
Static
Tag
Untagged
Layer
Default
Transform
Position
X 0
Y 0
Z 0
Rotation
X 0
Y 0
Z 0
Scale
X 1
Y 1
Z 1
Playable Director
Playable
BlackbirdTimeline (TimelineAsset)
Update Method
Game Time
Play On Awake
Wrap Mode
None
Initial Time
0
Bindings
Animation Track
BlackbirdDirector
Animator
Controller
None (Runtime Animator Controller)
Avatar
None (Avatar)
Apply Root Motion
Update Mode
Normal
Culling Mode
Always Animate

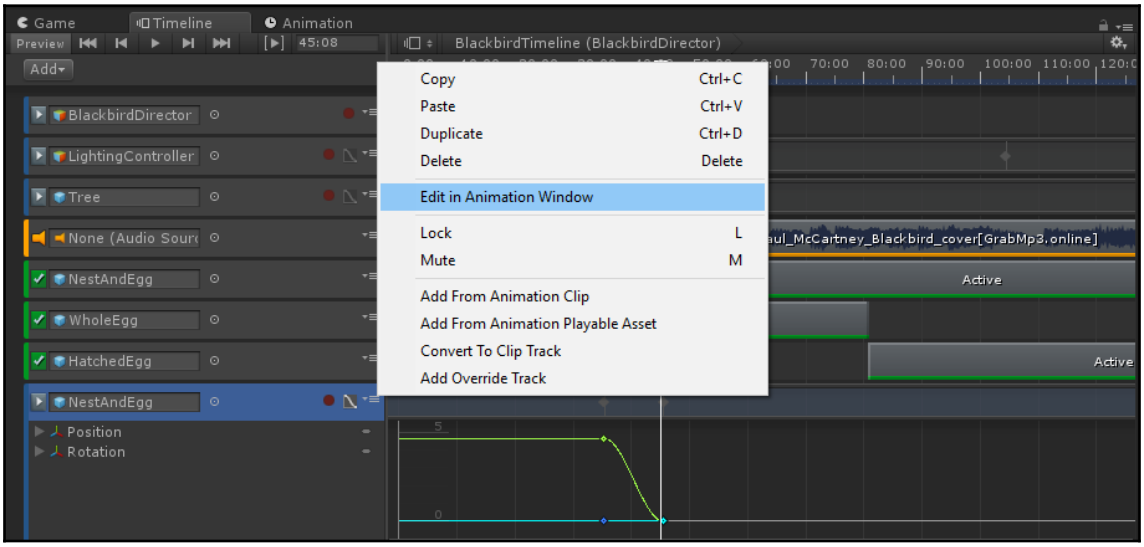

Game
Timeline
Animation
Preview
BlackbirdTimeline (BlackbirdDirector)
Add
60
120
180
240
300
360
420
480
540
BlackbirdDirector

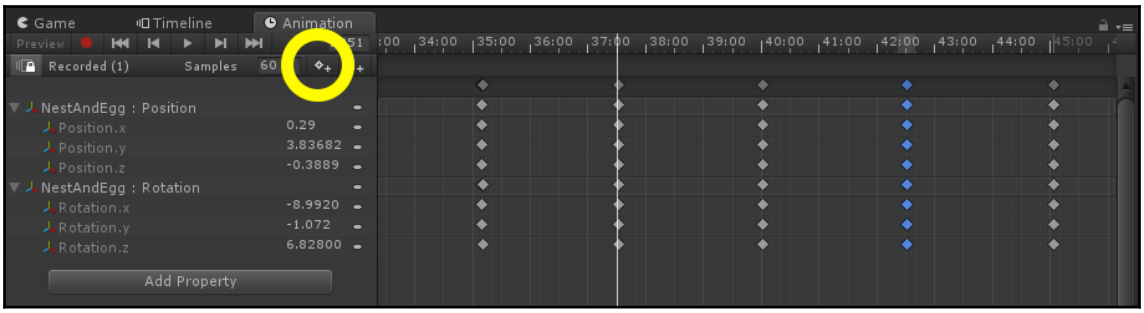

Game
Timeline
Animation
Preview
0:00
BlackbirdTimeline (BlackbirdDirector)
Add
0:00
30:00
60:00
90:00
120:00
150:00
BlackbirdDirector
None (Audio Sour
The_Beatles_Paul_McCartney_Blackbird_cover[GrabMp3.online]

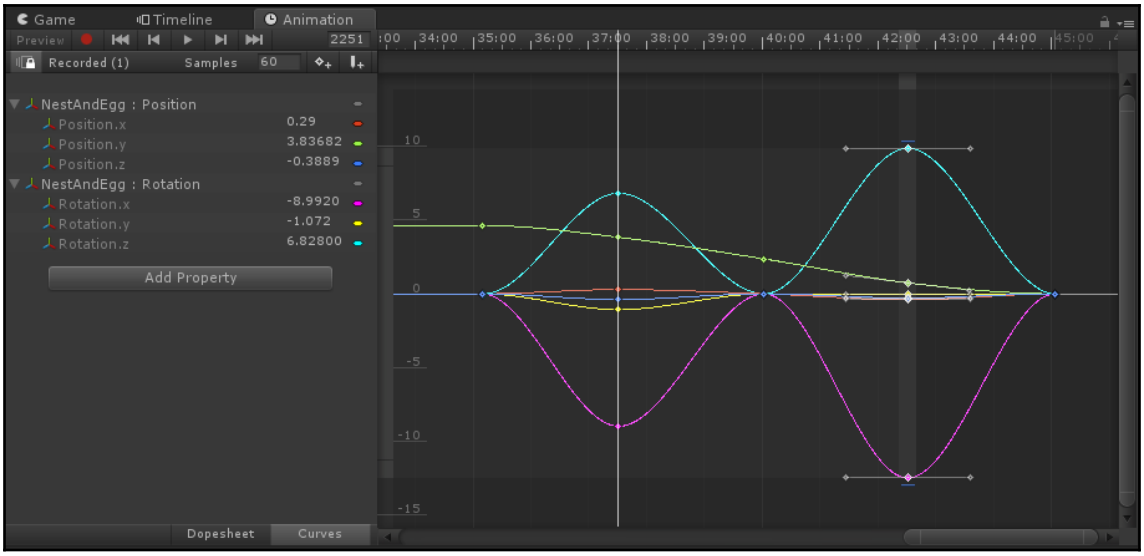
Hierarchy
Create
Blackbird*
Main Camera
Directional Light
Tree
NestAndEgg
WholeEgg
Nest
HatchedEgg
EggShell1
EggShell2
Environment
BlackbirdDirector

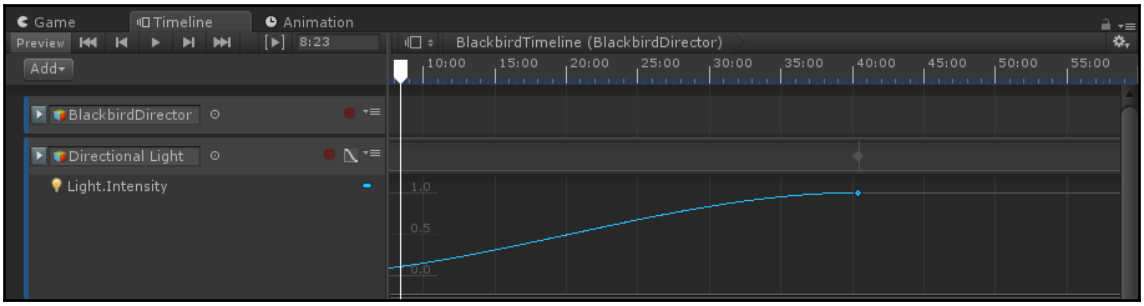

Game
Timeline
Animation
Preview
0:00
BlackbirdTimeline (BlackbirdDirector)
Add
0:00
30:00
60:00
90:00
120:00
150:00
BlackbirdDirector
None (Audio Sour
NestAndEgg
WholeEgg
HatchedEgg
Bluejay
The_Beatles_Paul_McCartney_Blackbird_cover[GrabMp3.online]
Active
Active
Active
Active

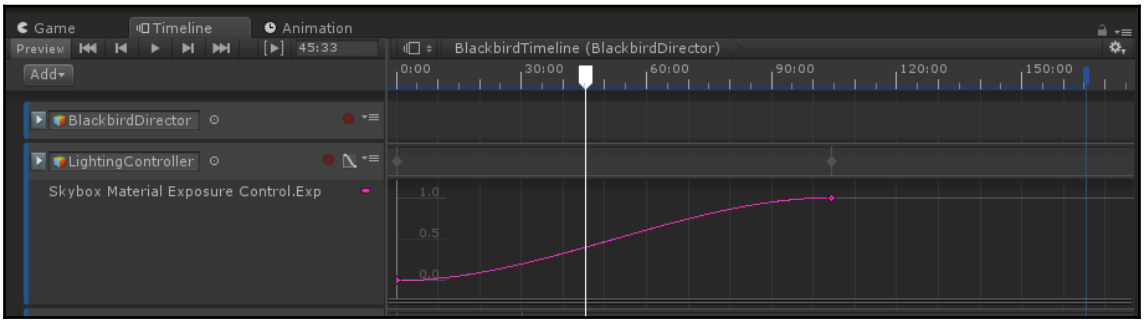

Game
Timeline
Animation
Preview
29:58
Add
BlackbirdTimeline (BlackbirdDirector)
0:00
10:00
20:00
30:00
40:00
BlackbirdDirector
Tree
Scale
1.0
0.5
0.0

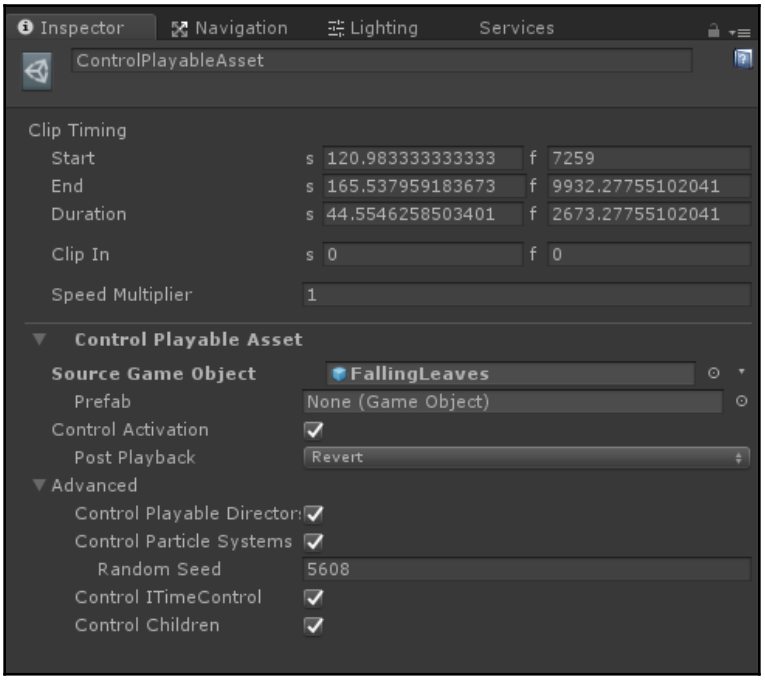

Game
Timeline
Animation
Preview
45:08
Add
BlackbirdTimeline (BlackbirdDirector)
BlackbirdDirector
LightingController
Tree
None (Audio Sour
NestAndEgg
WholeEgg
HatchedEgg
NestAndEgg
Position
Rotation
Copy Ctrl+C
Paste Ctrl+V
Duplicate Ctrl+D
Delete Delete
Edit in Animation Window
Lock L
Mute M
Add From Animation Clip
Add From Animation Playable Asset
Convert To Clip Track
Add Override Track
Active
Active

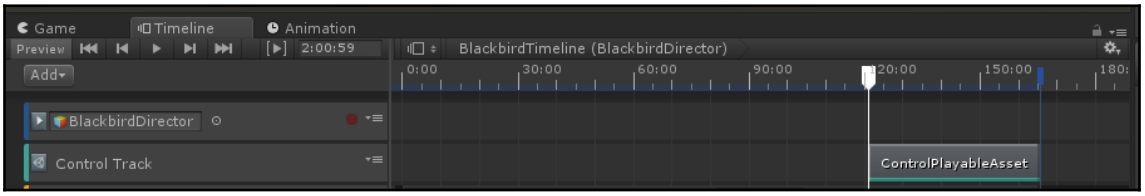

Game
Timeline
Animation
Preview
Recorded (1)
Samples 60
NestAndEgg : Position
Position.x 0.29
Position.y 3.83682
Position.z -0.3889
NestAndEgg : Rotation
Rotation.x -8.9920
Rotation.y -1.072
Rotation.z 6.82800
Add Property

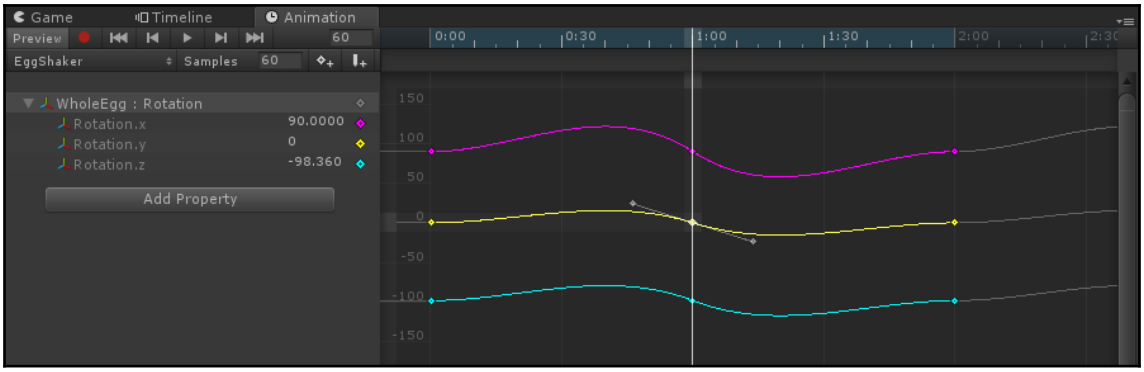

Game
Timeline
Animation
Preview
2251
Recorded (1)
Samples
60
NestAndEgg : Position
Position.x
0.29
Position.y
3.83682
Position.z
-0.3889
NestAndEgg : Rotation
Rotation.x
-8.9920
Rotation.y
-1.072
Rotation.z
6.82800
Add Property
Dopesheet
Curves

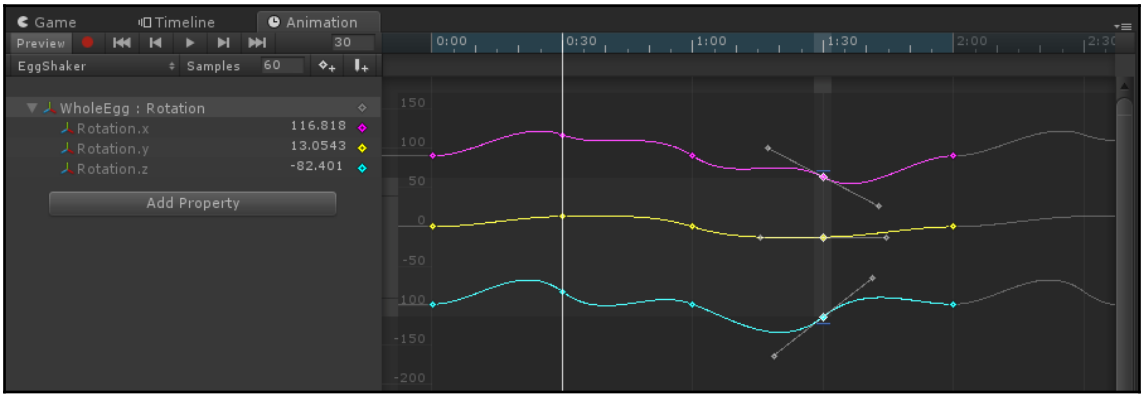

Game
Timeline
Animation
Preview
8:23
BlackbirdTimeline (BlackbirdDirector)
Add
BlackbirdDirector
Directional Light
Light.Intensity

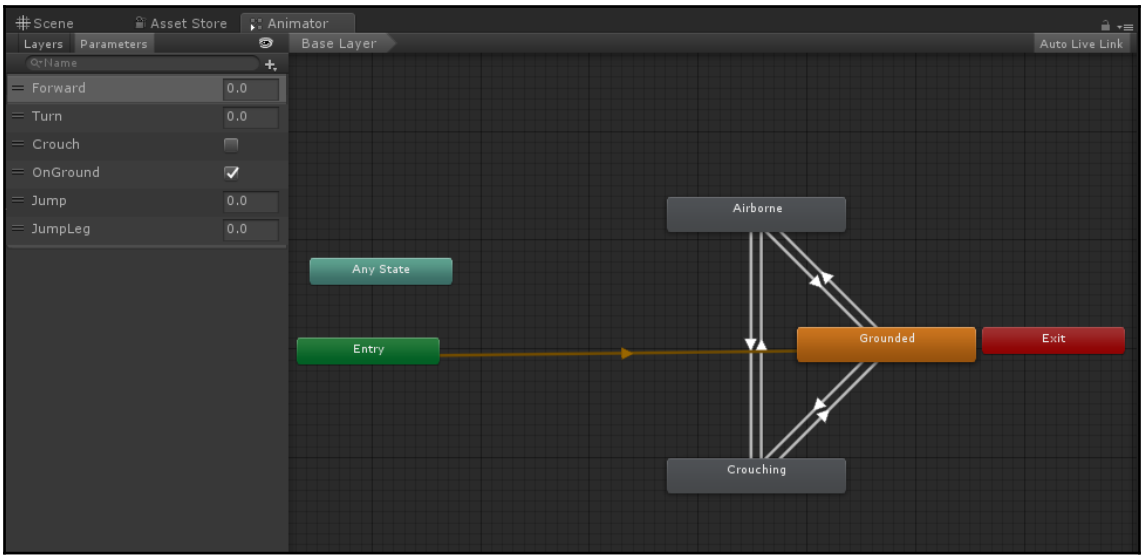

Game
Timeline
Animation
Preview
45:33
BlackbirdTimeline (BlackbirdDirector)
Add
BlackbirdDirector
LightingController
Skybox Material Exposure Control.Exp

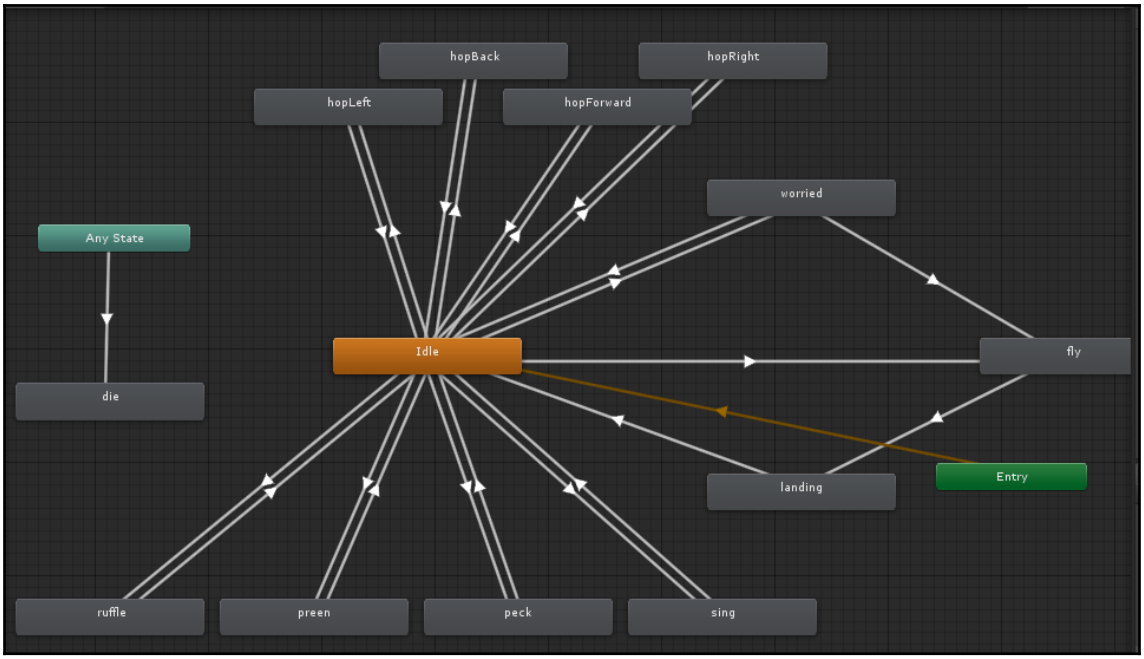

Inspector
Navigation
Lighting
Services
ControlPlayableAsset
Clip Timing
Start s 120.983333333333 f 7259
End s 165.537959183673 f 9932.2755102041
Duration s 44.5546258503401 f 2673.2755102041
Clip In s 0 f 0
Speed Multiplier 1
Control Playable Asset
Source Game Object FallingLeaves
Prefab None (Game Object)
Control Activation
Post Playback Revert
Advanced
Control Playable Director
Control Particle Systems
Random Seed 5608
Control ITimeControl
Control Children

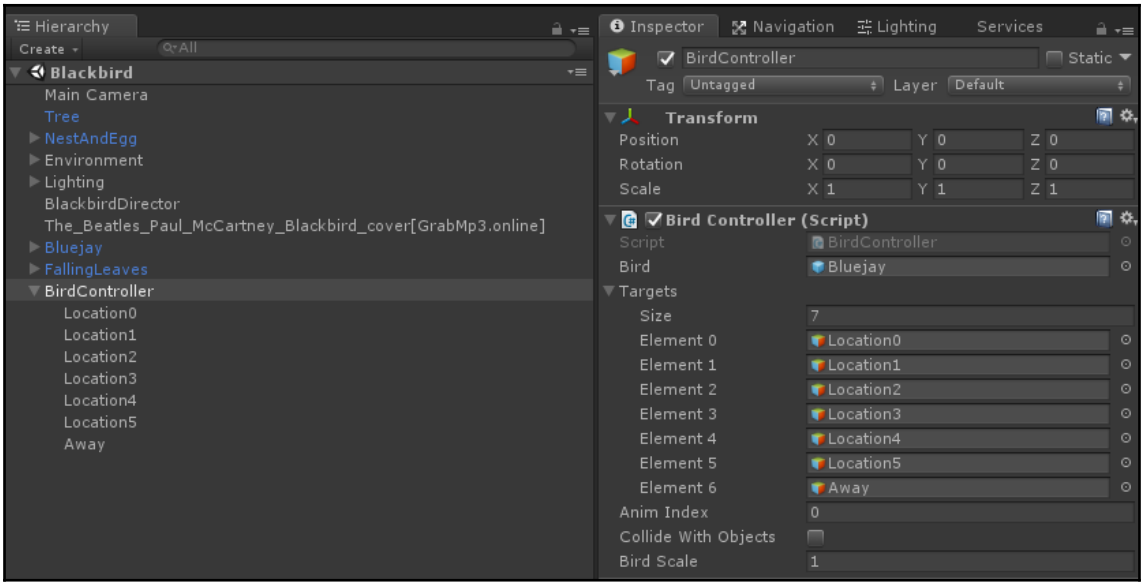

Game
Timeline
Animation
Preview
2:00:59
BlackbirdTimeline (BlackbirdDirector)
Add
0:00
30:00
60:00
90:00
120:00
150:00
BlackbirdDirector
Control Track
ControlPlayableAsset

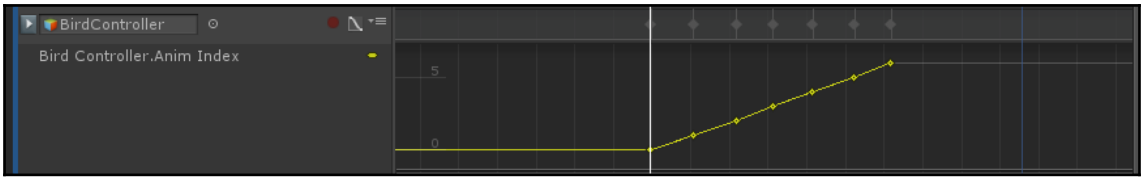

Game
Timeline
Animation
Preview
60
EggShaker
Samples
60
WholeEgg : Rotation
Rotation.x
90.0000
Rotation.y
0
Rotation.z
-98.360
Add Property
0:00
0:30
1:00
1:30
2:00
150
100
50
0
-50
-100
-150


Game
Timeline
Animation
Preview
30
EggShaker
Samples
60
WholeEgg : Rotation
Rotation.x
116.818
Rotation.y
13.0543
Rotation.z
-82.401
Add Property
0:00
0:30
1:00
1:30
2:00
150
100
50
0
-50
-100
-150
-200

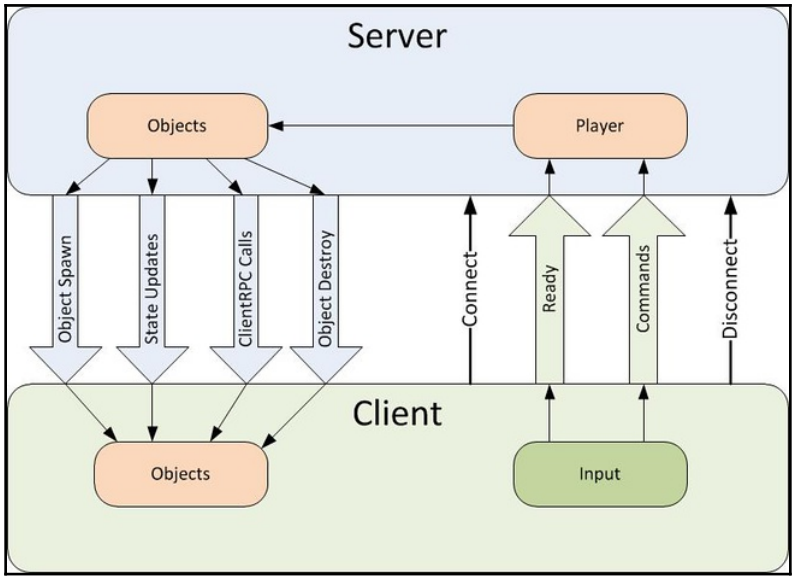

Scene
Asset Store
Animator
Layers
Parameters
Base Layer
Auto Live Link
Name
Forward
0.0
Turn
0.0
Crouch
OnGround
Jump
0.0
JumpLeg
0.0
Airborne
Any State
Entry
Grounded
Exit
Crouching

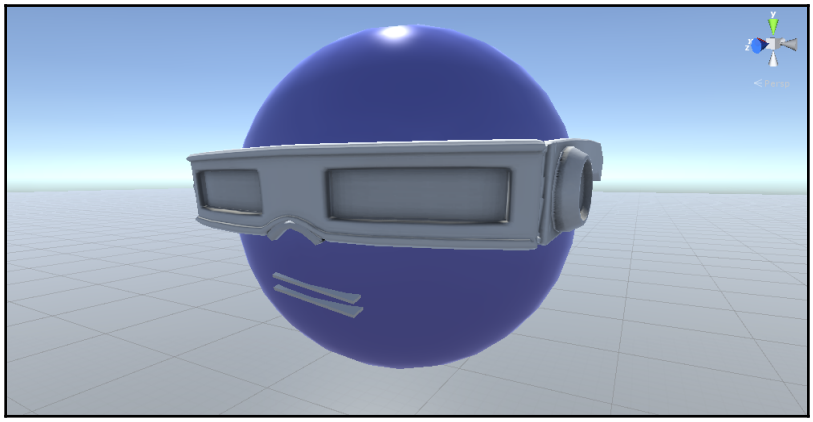

hopBack
hopRight
hopLeft
hopForward
worried
Any State
Idle
fly
die
Entry
landing
ruffle
preen
peck
sing

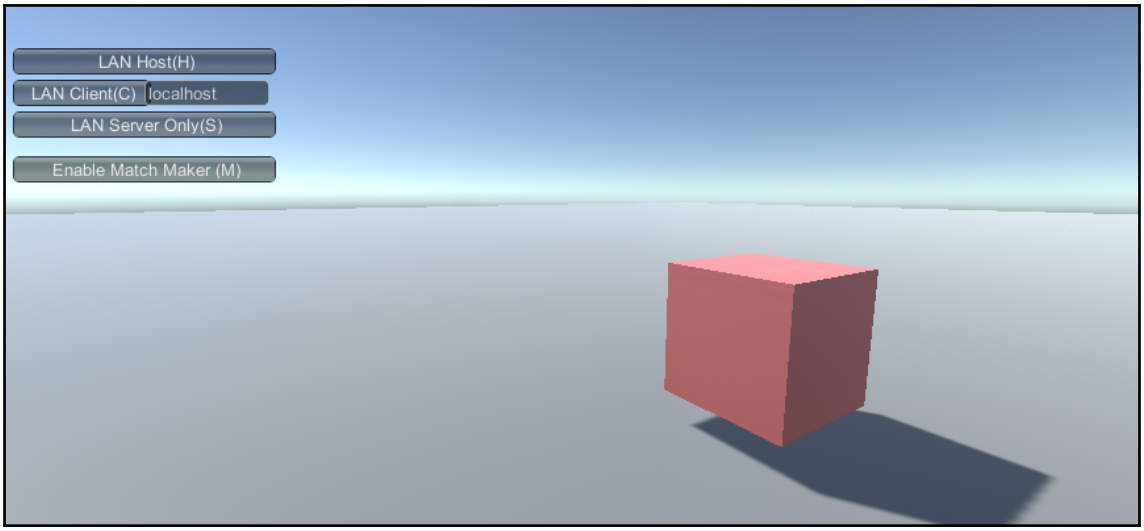

Hierarchy
Create
All
Blackbird
Main Camera
Tree
NestAndEgg
Environment
Lighting
BlackbirdDirector
The_Beatles_Paul_McCartney_Blackbird_cover[GrabMp3.online]
Bluejay
FallingLeaves
BirdController
Location0
Location1
Location2
Location3
Location4
Location5
Away
Inspector
Navigation
Lighting
Services
BirdController
Static
Tag
Untagged
Layer
Default
Transform
Position
Rotation
Scale
Bird Controller (Script)
Script
BirdController
Bird
Bluejay
Targets
Size
7
Element 0
Location0
Element 1
Location1
Element 2
Location2
Element 3
Location3
Element 4
Location4
Element 5
Location5
Element 6
Away
Anim Index
0
Collide With Objects
Bird Scale
1

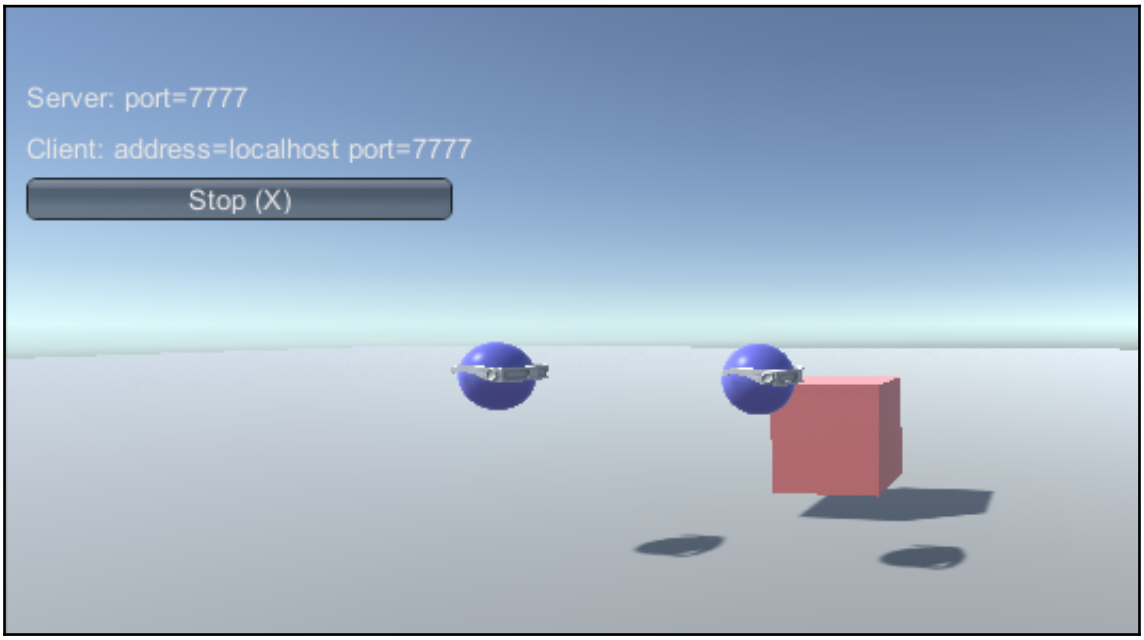

BirdController
Bird Controller.Anim Index
5
0

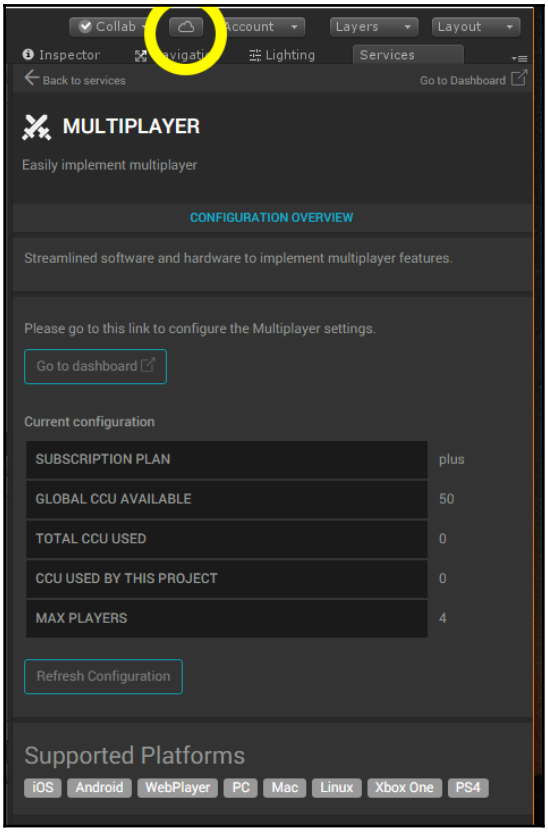
Chapter 12: Social VR Metaverse

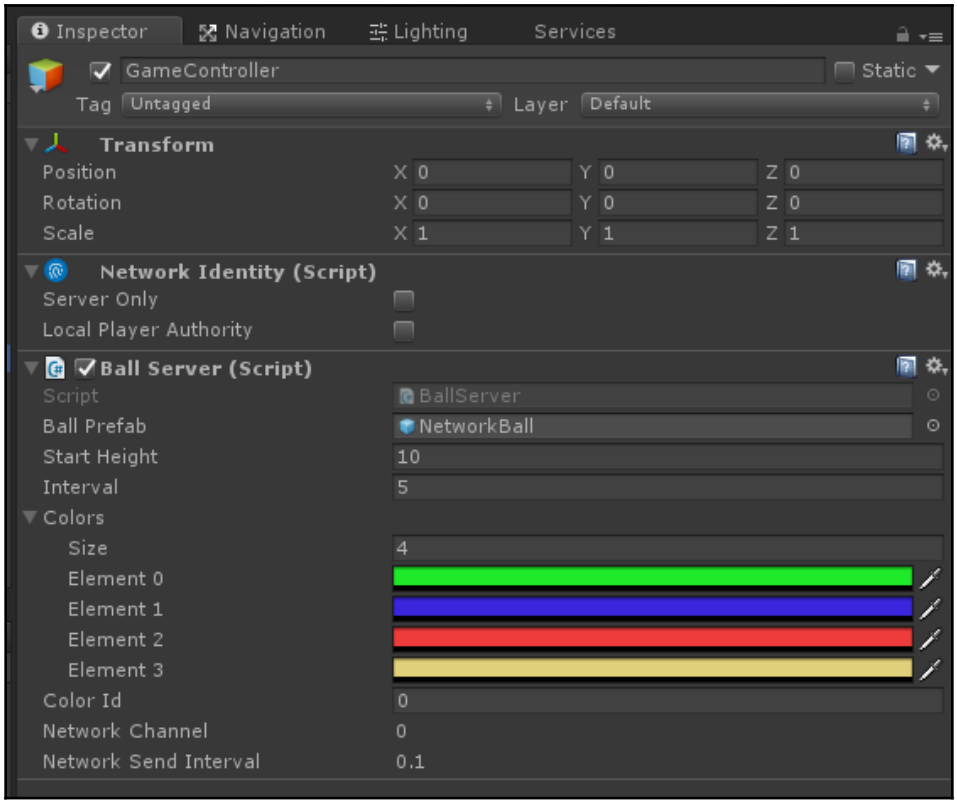

Server
Objects
Player
Object Spawn
State Updates
ClientRPC Calls
Object Destroy
Connect
Ready
Commands
Disconnect
Client
Objects
Input

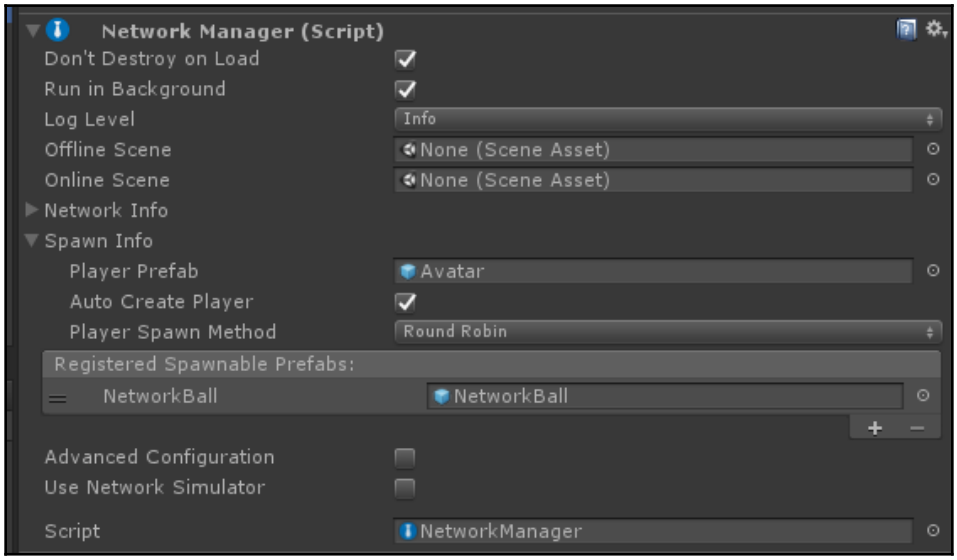


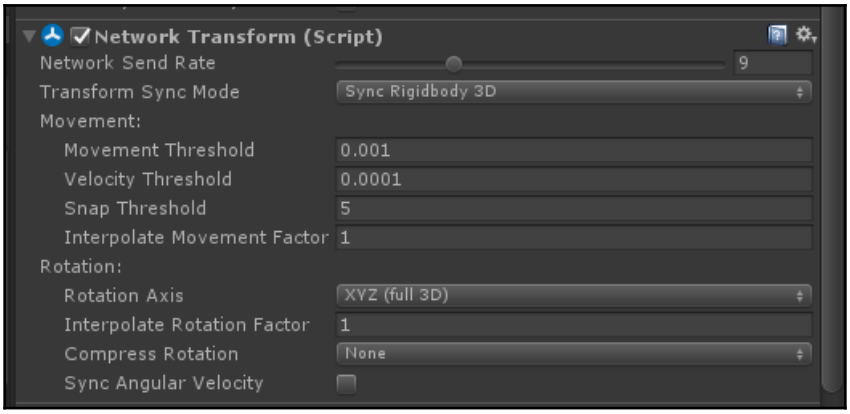

LAN Host(H)
LAN Client(C)
localhost
LAN Server Only(S)
Enable Match Maker (M)

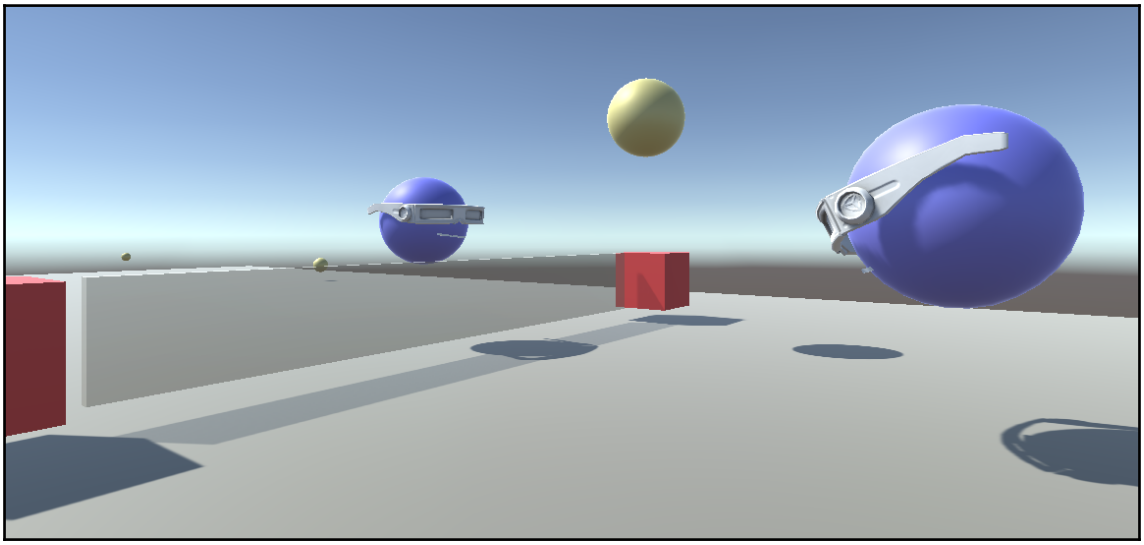

Server: port=7777
Client: address=localhost port=7777
Stop (X)

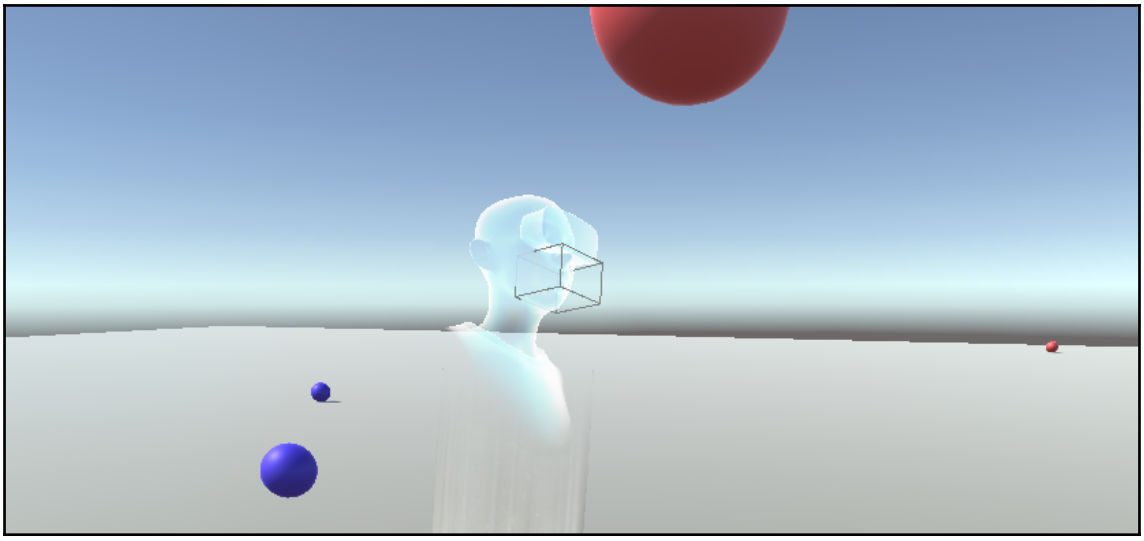

Collab
Account
Layers
Layout
Inspector
Lighting
Services
Back to services
Go to Dashboard
MULTIPLAYER
Easily implement multiplayer
CONFIGURATION OVERVIEW
Streamlined software and hardware to implement multiplayer features.
Please go to this link to configure the Multiplayer settings.
Go to dashboard
Current configuration
SUBSCRIPTION PLAN
plus
GLOBAL CCU AVAILABLE
50
TOTAL CCU USED
0
CCU USED BY THIS PROJECT
0
MAX PLAYERS
4
Refresh Configuration
Supported Platforms
iOS
Android
WebPlayer
PC
Mac
Linux
Xbox One
PS4

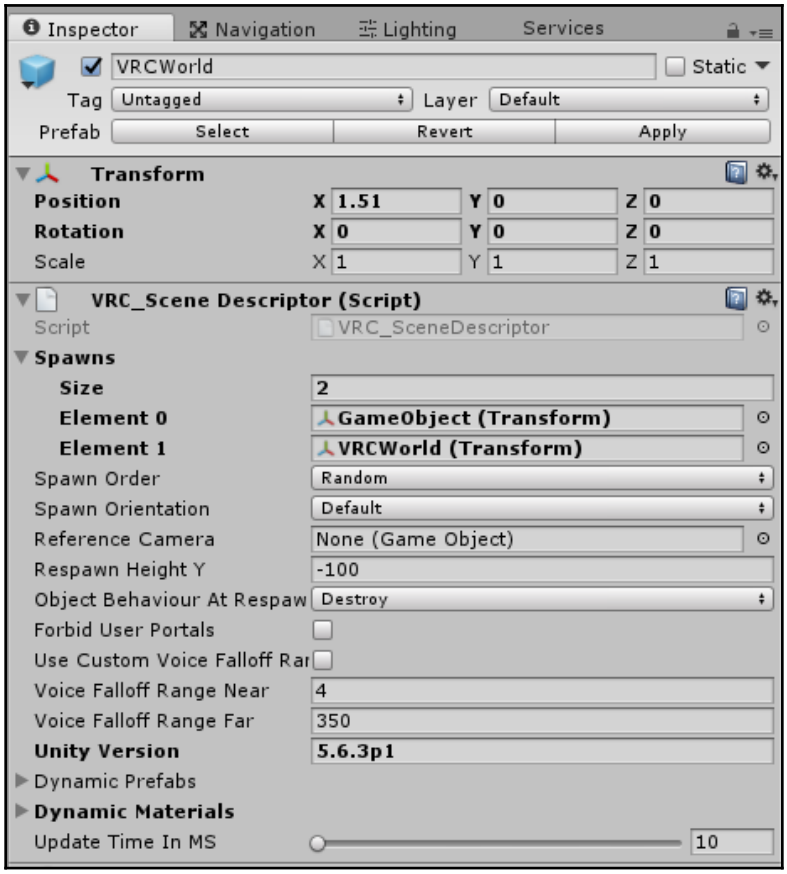

Inspector
Navigation
Lighting
Services
GameController
Static
Tag
Untagged
Layer
Default
Transform
Position
X 0
Y 0
Z 0
Rotation
X 0
Y 0
Z 0
Scale
X 1
Y 1
Z 1
Network Identity (Script)
Server Only
Local Player Authority
Ball Server (Script)
Script
BallServer
Ball Prefab
NetworkBall
Start Height
10
Interval
5
Colors
Size
4
Element 0
Element 1
Element 2
Element 3
Color Id
0
Network Channel
0
Network Send Interval
0.1


Network Manager (Script)
Don't Destroy on Load
Run in Background
Log Level
Info
Offline Scene
None (Scene Asset)
Online Scene
None (Scene Asset)
Network Info
Spawn Info
Player Prefab
Avatar
Auto Create Player
Player Spawn Method
Round Robin
Registered Spawnable Prefabs:
NetworkBall
NetworkBall
Advanced Configuration
Use Network Simulator
Script
NetworkManager

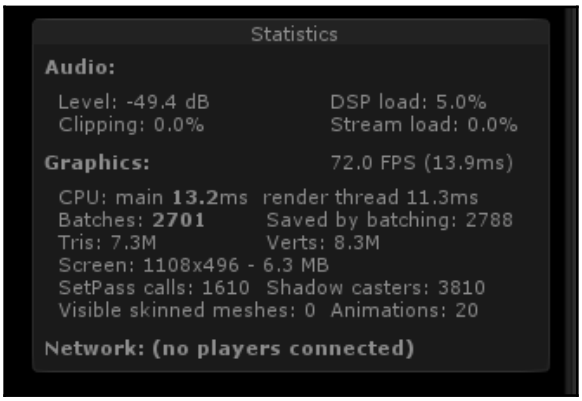

Network Transform (Script)
Network Send Rate
9
Transform Sync Mode
Sync Rigidbody 3D
Movement:
Movement Threshold
0.001
Velocity Threshold
0.0001
Snap Threshold
5
Interpolate Movement Factor
1
Rotation:
Rotation Axis
XYZ (full 3D)
Interpolate Rotation Factor
1
Compress Rotation
None
Sync Angular Velocity

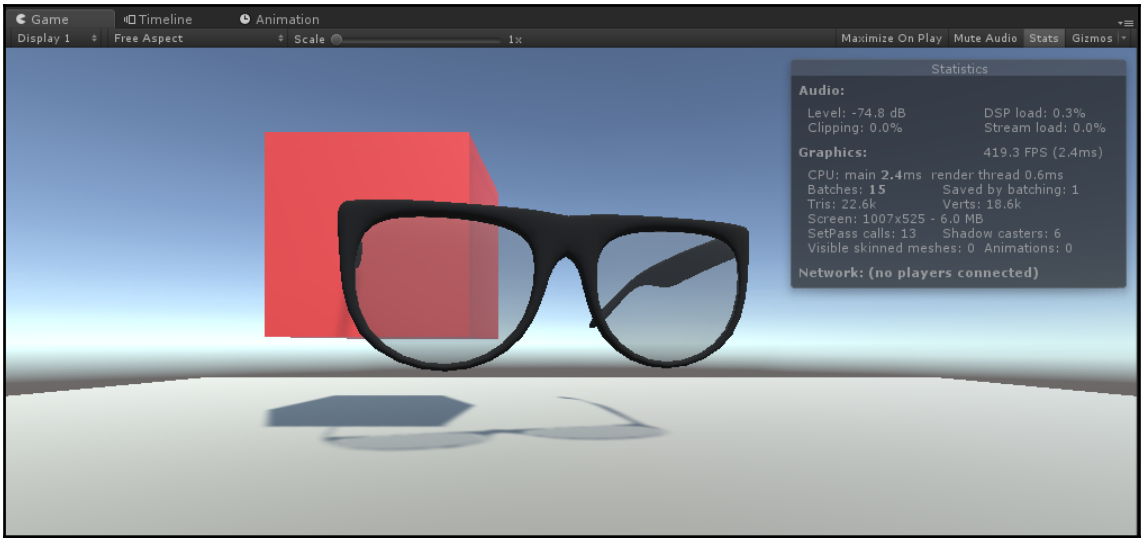


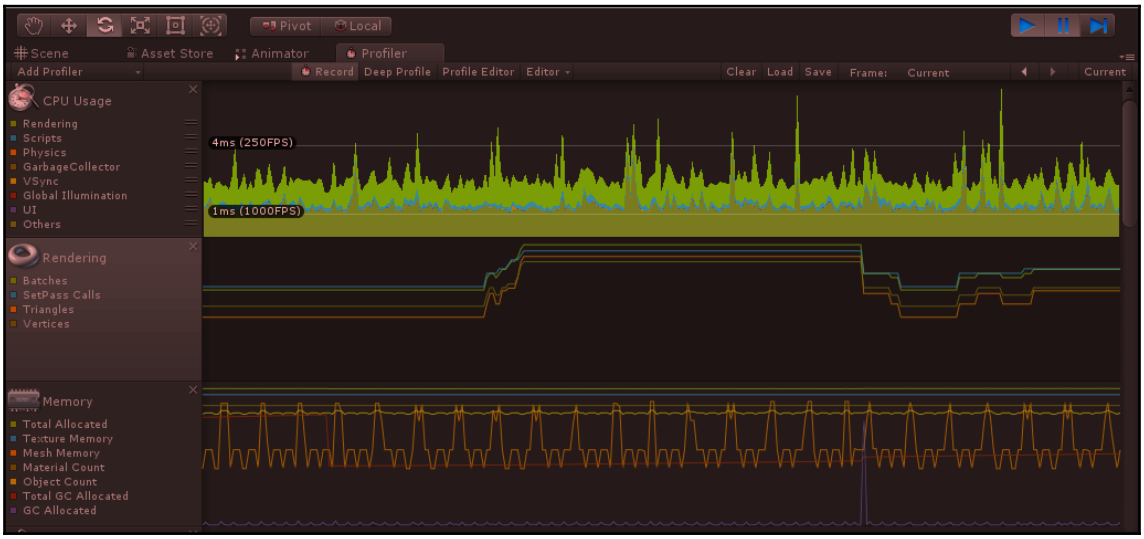


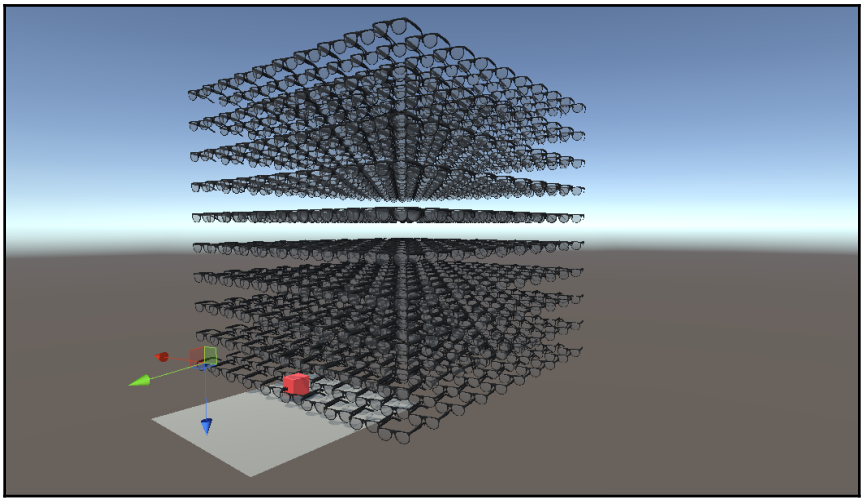

Inspector
Navigation
Lighting
Services
VRCWorld
Static
Tag
Untagged
Layer
Default
Prefab
Select
Revert
Apply
Transform
Position
X 1.51
Y 0
Z 0
Rotation
X 0
Y 0
Z 0
Scale
X 1
Y 1
Z 1
VRC_Scene Descriptor (Script)
Script
VRC_SceneDescriptor
Spawns
Size
2
Element 0
GameObject (Transform)
Element 1
VRCWorld (Transform)
Spawn Order
Random
Spawn Orientation
Default
Reference Camera
None (Game Object)
Respawn Height Y
-100
Object Behaviour At Respaw
Destroy
Forbid User Portals
Use Custom Voice Falloff Rar
Voice Falloff Range Near
4
Voice Falloff Range Far
350
Unity Version
5.6.3p1
Dynamic Prefabs
Dynamic Materials
Update Time In MS
10

Chapter 13:
Optimizing for Performance and Comfort

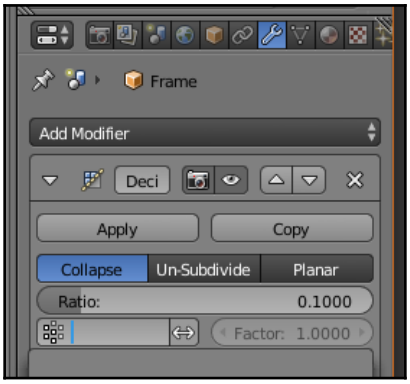



Game
Timeline
Animation
Display 1
Free Aspect
Scale
1x
Maximize On Play
Mute Audio
Stats
Gizmos
Statistics
Audio:
Level: -74.8 dB
DSP load: 0.3%
Clipping: 0.0%
Stream load: 0.0%
Graphics:
419.3 FPS (2.4ms)
CPU: main 2.4ms render thread 0.6ms
Batches: 15
Saved by batching: 1
Tris: 22.6k
Verts: 18.6k
Screen: 1007x525 - 6.0 MB
SetPass calls: 13
Shadow casters: 6
Visible skinned meshes: 0
Animations: 0
Network: (no players connected)

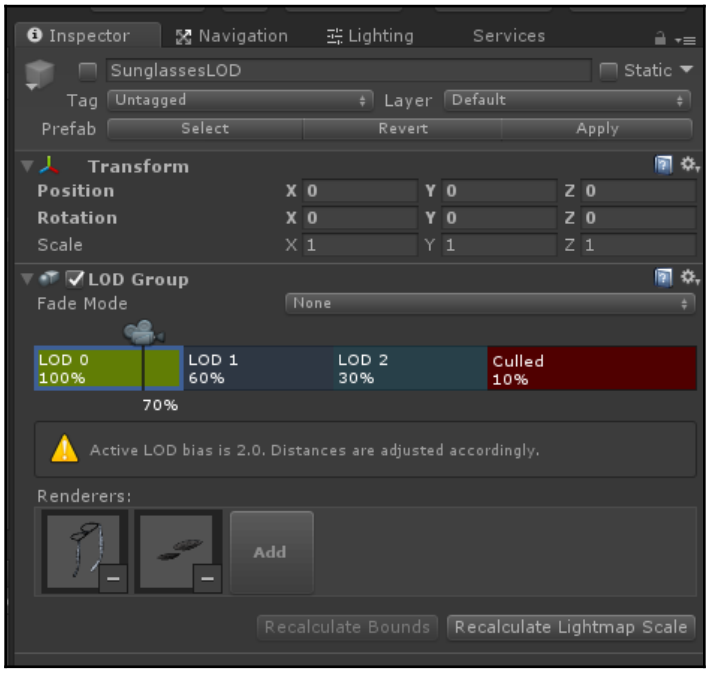

Pivot
Local
Scene
Asset Store
Animator
Profiler
Add Profiler
Record
Deep Profile
Profile Editor
Editor
Clear
Load
Save
Frame:
Current
Current
CPU Usage
Rendering
Scripts
Physics
GarbageCollector
VSync
Global Illumination
UI
Others
4ms (250FPS)
1ms (1000FPS)
Rendering
Batches
SetPass Calls
Triangles
Vertices
Memory
Total Allocated
Texture Memory
Mesh Memory
Material Count
Object Count
Total GC Allocated
GC Allocated



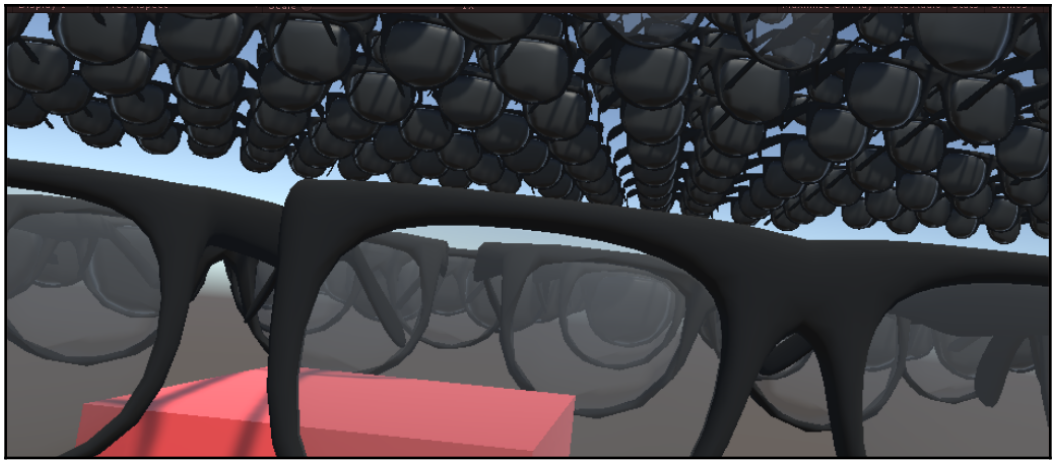
Pivot
Local
Scene
Asset Store
Animator
Profiler
Add Profiler
Record
Deep Profile
Profile Editor
Editor
Clear
Load
Save
Frame:
Current
CPU Usage
Rendering
Scripts
Physics
GarbageCollector
VSync
Global Illumination
UI
Others
16ms (60FPS)
10ms (100FPS)
5ms (200FPS)
Rendering
Batches
SetPass Calls
Triangles
Vertices
Memory
Total Allocated
Texture Memory
Mesh Memory
Material Count
Object Count
Total GC Allocated
GC Allocated
Audio
Hierarchy
CPU:20.92ms GPU:0.00ms
No Details
Overview
Total
Self
Calls
GC Alloc
Time ms
Self ms
Camera.Render 41.8% 0.5% 1 0 B 8.75 0.11
EditorOverhead 25.8% 25.8% 2 0 B 5.40 5.40
FrameEvents.XRBeginFrame 25.0% 0.0% 1 0 B 5.24 0.01
Profiler.CollectGlobalStats 4.3% 0.1% 1 0 B 0.90 0.04
PreUpdate.SendMouseEvents 0.3% 0.0% 1 0.6 KB 0.06 0.00
EarlyUpdate.XRUpdate 0.2% 0.2% 1 0 B 0.05 0.04
XR.MirrorToGameView 0.2% 0.1% 1 0 B 0.04 0.02
GUIUtility.SetSkin() 0.1% 0.1% 1 0 B 0.03 0.03

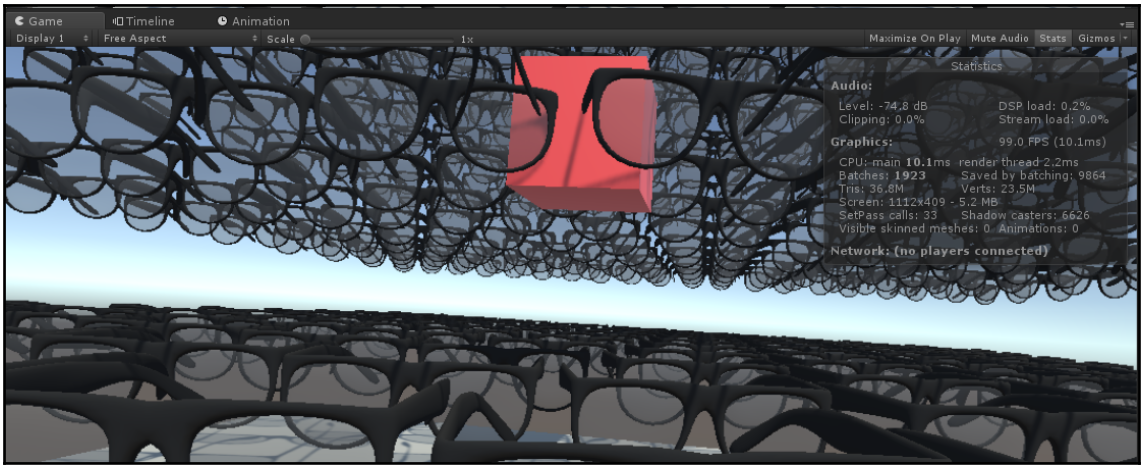

Frame
Add Modifier
Deci
Apply
Copy
Collapse
Un-Subdivide
Planar
Ratio:
0.1000
Factor: 1.0000

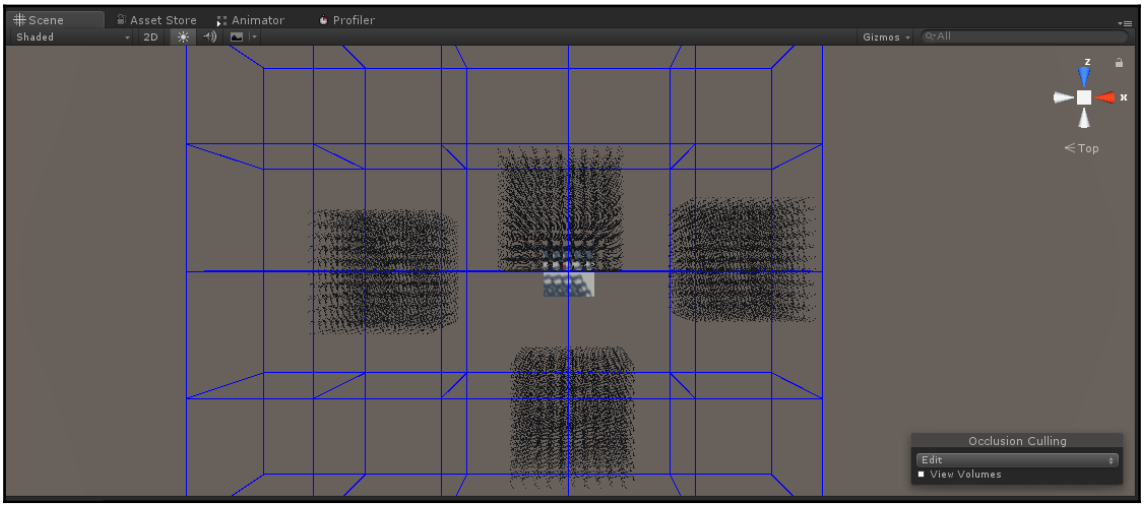
Scene
Asset Store
Animator
Profiler
Add Profiler
Record
Deep Profile
Profile Editor
Editor
Clear
Load
Save
Frame: 107845 / 12663
Current
CPU Usage
Rendering
Scripts
Physics
GarbageCollector
VSync
Global Illumination
UI
Others
10ms (100FPS)
5ms (200FPS)

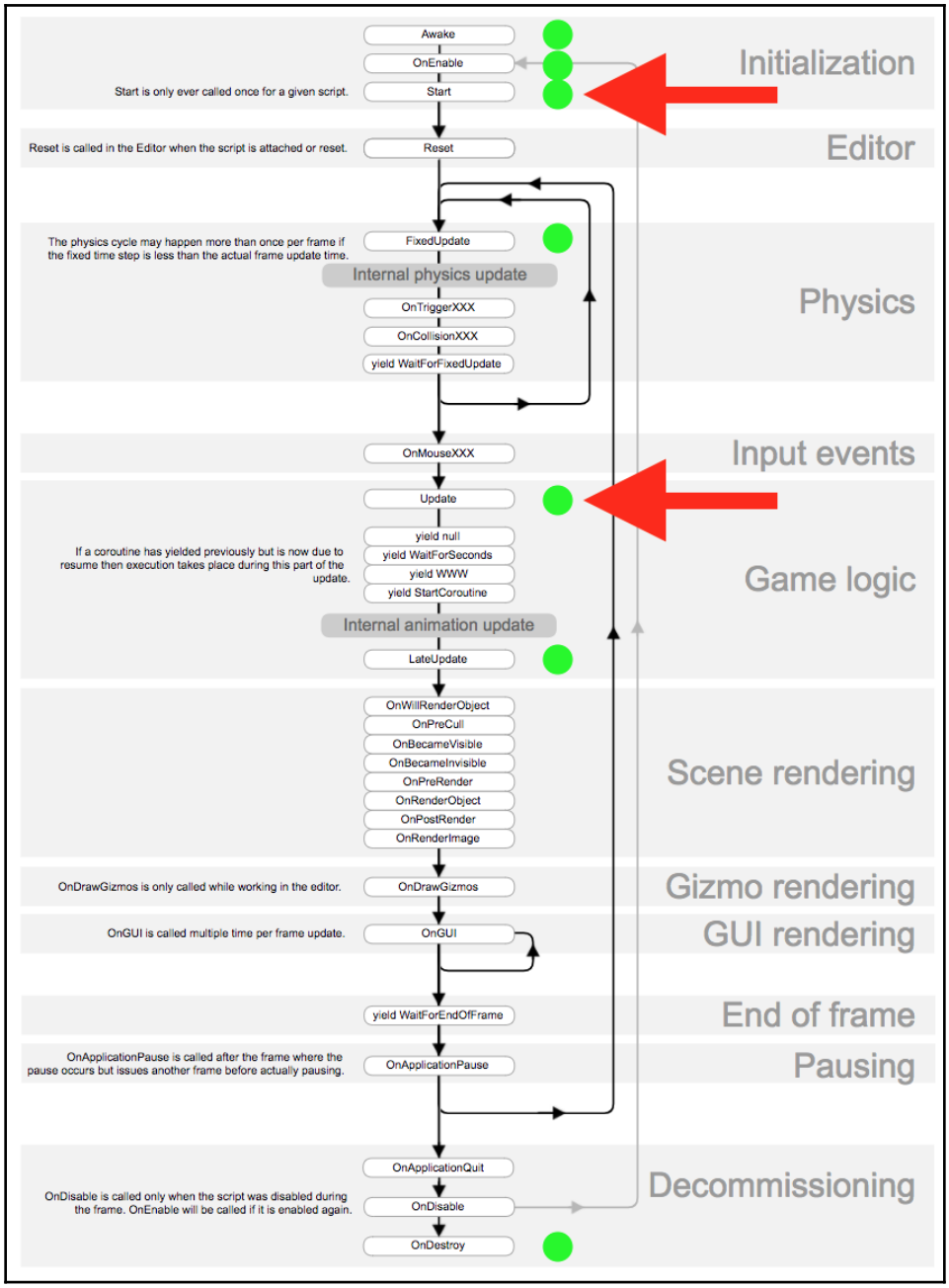

Inspector
Navigation
Lighting
Services
SunglassesLOD
Static
Tag
Untagged
Layer
Default
Prefab
Select
Revert
Apply
Transform
Position
Rotation
Scale
LOD Group
Fade Mode
None
LOD 0
100%
LOD 1
60%
LOD 2
30%
Culled
10%
70%
Active LOD bias is 2.0. Distances are adjusted accordingly.
Renderers:
Add
Recalculate Bounds
Recalculate Lightmap Scale

Scene
Asset Store
Animator
Profiler
Add Profiler
Record
Deep Profile
Profile Editor
Editor
Clear
Load
Save
Frame:
Current
Current
CPU Usage
Rendering
Scripts
Physics
GarbageCollector
VSync
Global Illumination
UI
Others
10ms (100FPS)
5ms (200FPS)
Rendering
Batches
SetPass Calls
Triangles
Vertices
Memory
Open Frame Debugger
(Static Batching) Batched Draw Calls: 0 Batches: 0 Tris: 0 Verts: 0
(Instancing) Batched Draw Calls: 0 Batches: 0 Tris: 0 Verts: 0
Used Textures: 11 - 129.0 KB
RenderTextures: 9 - 138.9 MB
RenderTexture Switches: 11
Screen: 1026x439 - 5.2 MB
VRAM usage: 144.1 MB to 144.7 MB (of 7.00 GB)




Game
Timeline
Animation
Display 1
Free Aspect
Scale
1x
Maximize On Play
Mute Audio
Stats
Gizmos
Statistics
Audio:
Level: -74.8 dB
DSP load: 0.2%
Clipping: 0.0%
Stream load: 0.0%
Graphics:
99.0 FPS (10.1ms)
CPU: main 10.1ms render thread 2.2ms
Batches: 1923
Saved by batching: 9864
Tris: 36.8M
Verts: 23.5M
Screen: 1112x409 - 5.2 MB
SetPass calls: 33
Shadow casters: 6626
Visible skinned meshes: 0
Animations: 0
Network: (no players connected)


Scene
Asset Store
Animator
Profiler
Shaded
2D
Gizmos
Top
Occlusion Culling
Edit
View Volumes


Awake
OnEnable
Start is only ever called once for a given script.
Start
Initialization
Reset is called in the Editor when the script is attached or reset.
Reset
Editor
The physics cycle may happen more than once per frame if the fixed time step is less than the actual frame update time.
FixedUpdate
Internal physics update
OnTriggerXXX
OnCollisionXXX
yield WaitForFixedUpdate
Physics
OnMouseXXX
Input events
Update
If a coroutine has yielded previously but is now due to resume then execution takes place during this part of the update.
yield null
yield WaitForSeconds
yield WWW
yield StartCoroutine
Internal animation update
LateUpdate
Game logic
OnWillRenderObject
OnPreCull
OnBecameVisible
OnBecameInvisible
OnPreRender
OnRenderObject
OnPostRender
OnRenderImage
Scene rendering
OnDrawGizmos is only called while working in the editor.
OnDrawGizmos
Gizmo rendering
OnGUI is called multiple time per frame update.
OnGUI
GUI rendering
yield WaitForEndOfFrame
End of frame
OnApplicationPause is called after the frame where the pause occurs but issues another frame before actually pausing.
OnApplicationPause
Pausing
OnApplicationQuit
OnDisable is called only when the script was disabled during the frame. OnEnable will be called if it is enabled again.
OnDisable
OnDestroy
Decommissioning