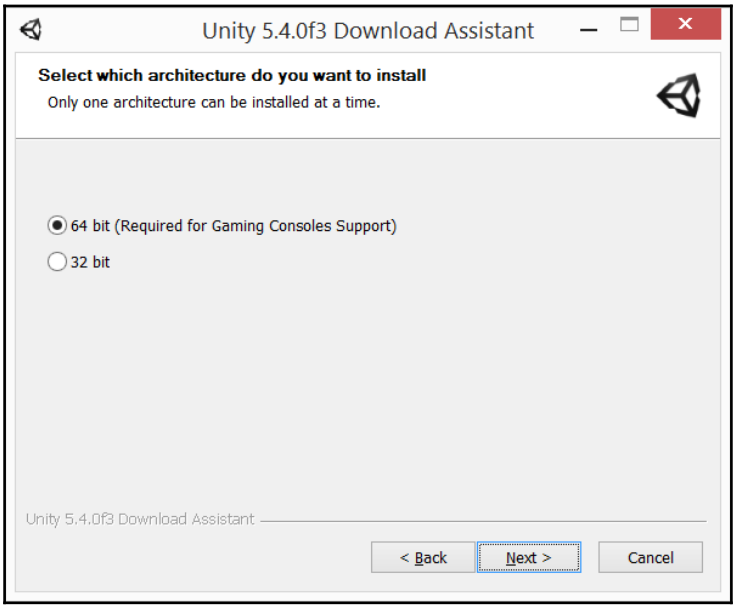
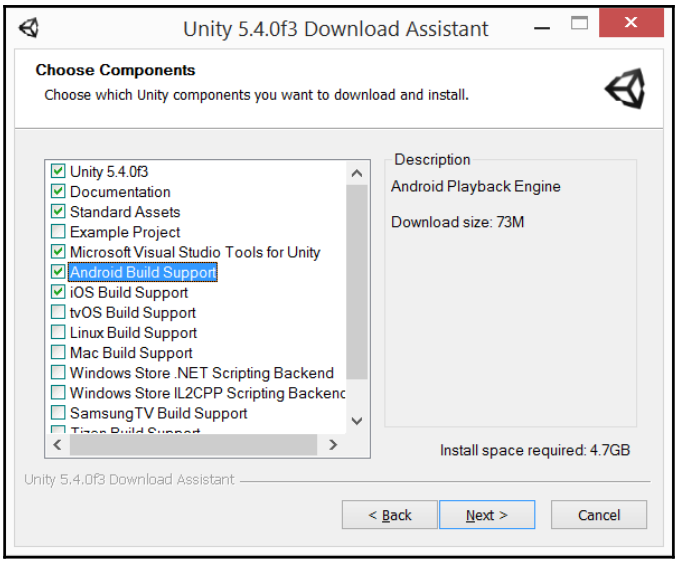
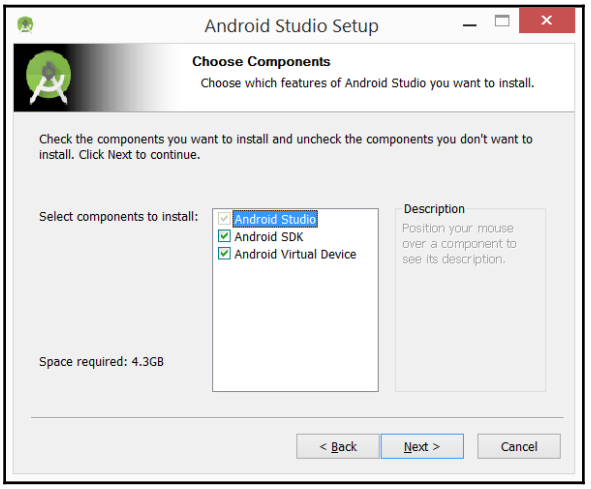
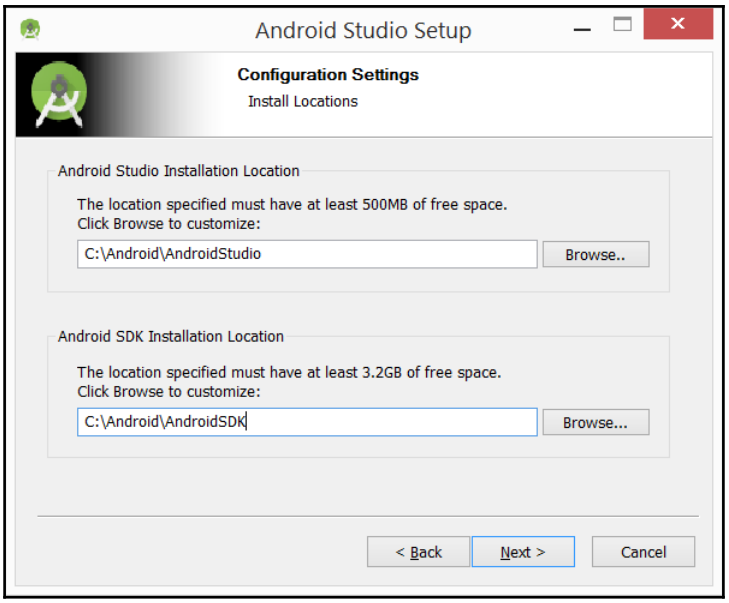
Augmented Reality Game Development

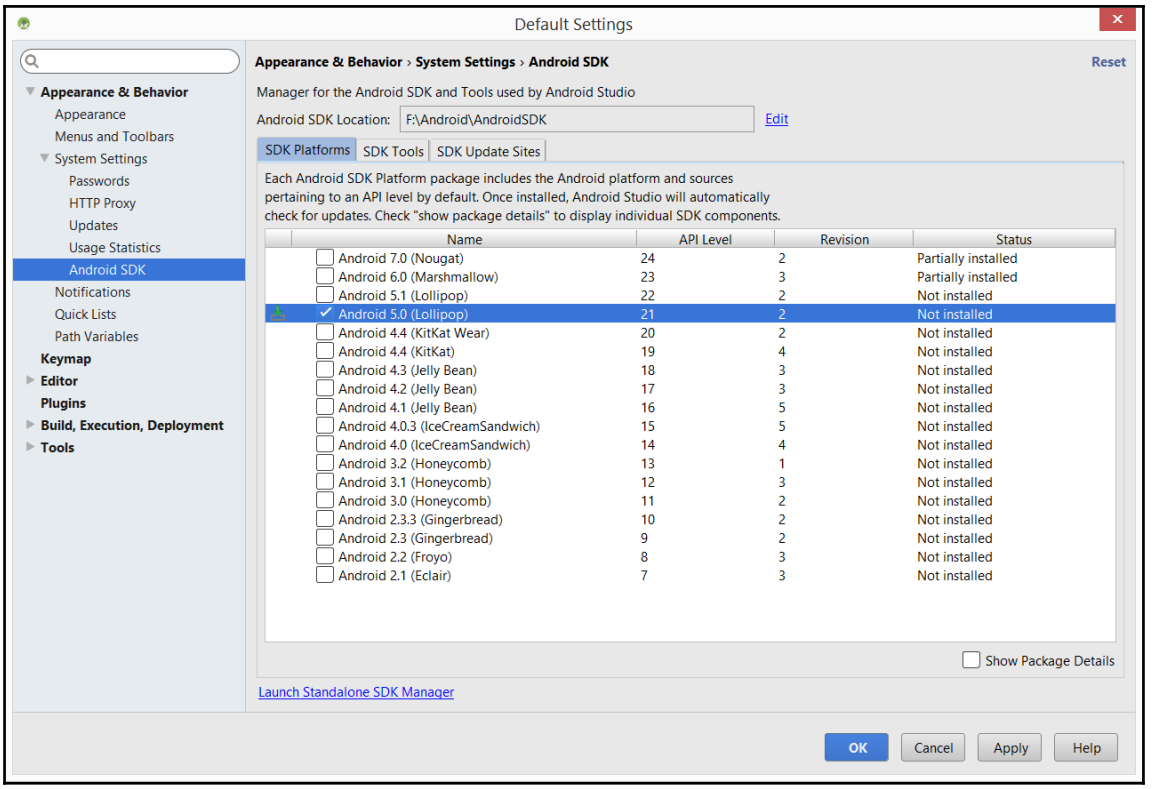
Chapter 1: Getting Started



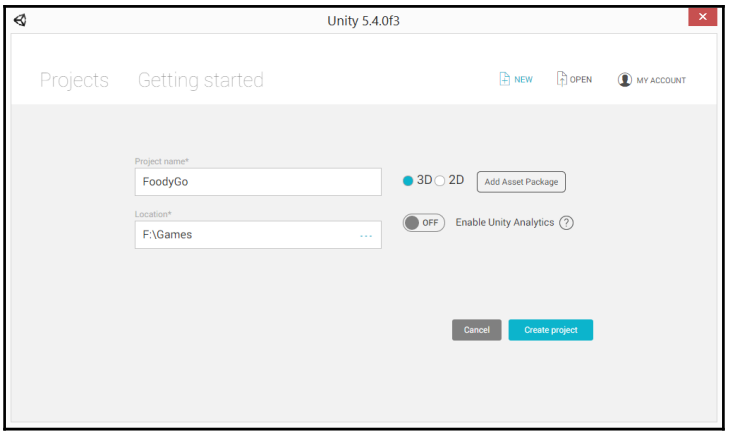

Unity 5.4.0f3 Download Assistant
Choose Components
Choose which Unity components you want to download and install.
Unity 5.4.0f3
Documentation
Standard Assets
Example Project
Microsoft Visual Studio Tools for Unity
Android Build Support
iOS Build Support
tvOS Build Support
Linux Build Support
Mac Build Support
Windows Store .NET Scripting Backend
Windows Store IL2CPP Scripting Backenc
SamsungTV Build Support
Description
Android Playback Engine
Download size: 73M
Install space required: 4.7GB
Unity 5.4.0f3 Download Assistant
< Back
Next >
Cancel

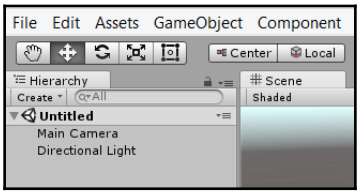

Android Studio Setup
Choose Components
Choose which features of Android Studio you want to install.
Check the components you want to install and uncheck the components you don't want to install. Click Next to continue.
Select components to install:
Android Studio
Android SDK
Android Virtual Device
Description
Position your mouse over a component to see its description.
Space required: 4.3GB
< Back
Next >
Cancel

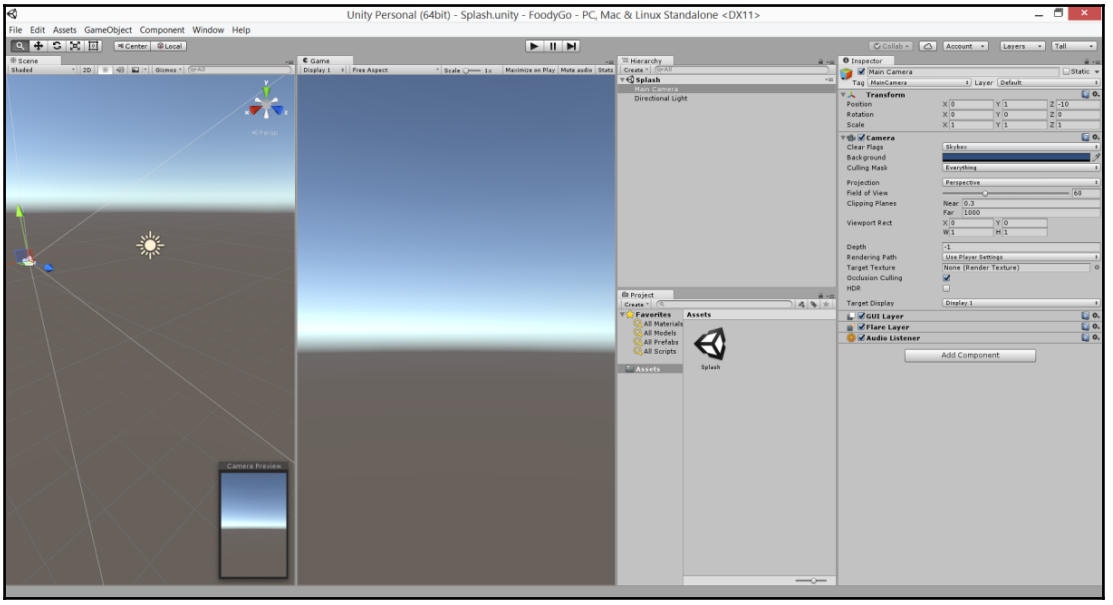

Android Studio Setup
Configuration Settings
Install Locations
Android Studio Installation Location
The location specified must have at least 500MB of free space.
Click Browse to customize:
C:\Android\AndroidStudio
Browse..
Android SDK Installation Location
The location specified must have at least 3.2GB of free space.
Click Browse to customize:
C:\Android\AndroidSDK
Browse...
< Back
Next >
Cancel

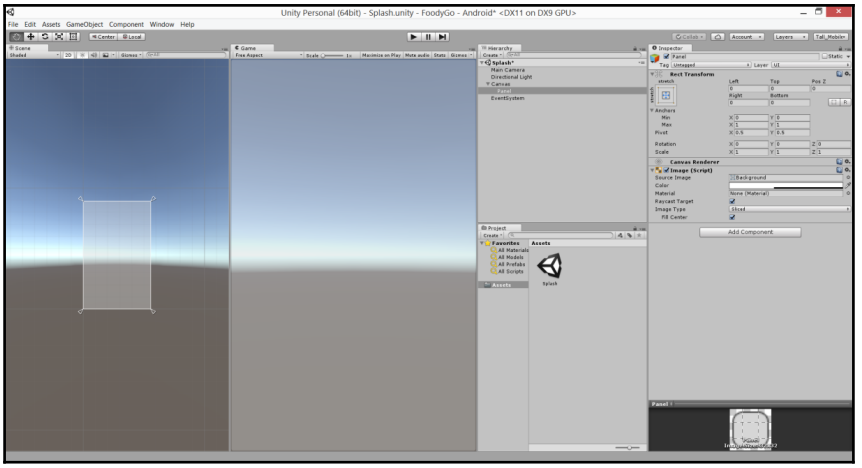


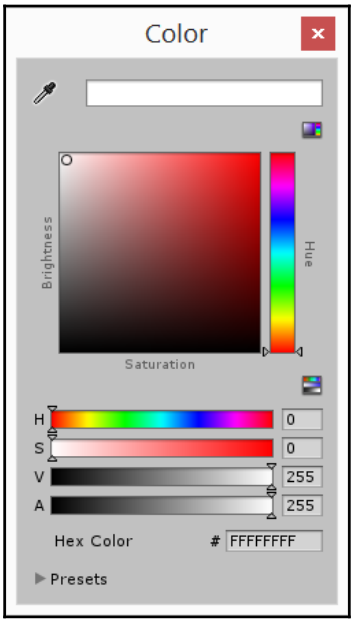

```
F:\Android\AndroidSDK\platform-tools>cd ..

F:\Android\AndroidSDK>cd platform-tools

F:\Android\AndroidSDK\platform-tools>adb devices
List of devices attached
BH90B2U116      device
```

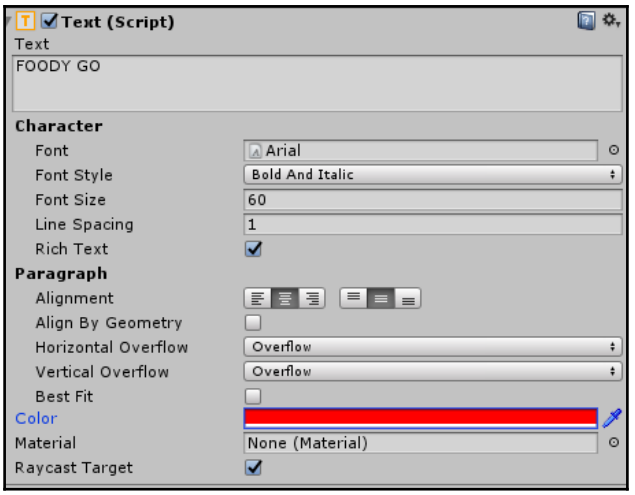

Unity 5.4.0f3
Projects
Getting started
NEW
OPEN
MY ACCOUNT
Project name*
FoodyGo
3D
2D
Add Asset Package
Location*
F:\Games
OFF
Enable Unity Analytics
Cancel
Create project

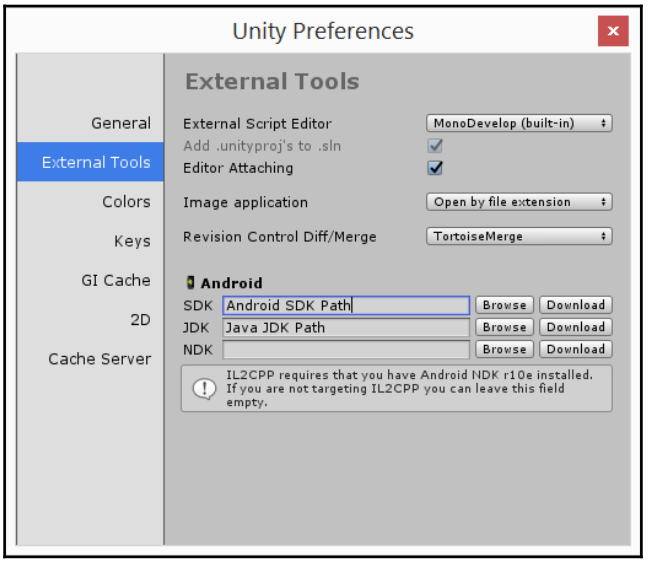

File Edit Assets GameObject Component
Center
Local
Hierarchy
Create
All
Untitled
Main Camera
Directional Light
Scene
Shaded


Unity Personal (64bit) - Splash.unity - FoodyGo - PC, Mac & Linux Standalone <DX11>
File Edit Assets GameObject Component Window Help
Hierarchy
Inspector
Project
Transform
Camera
Add Component

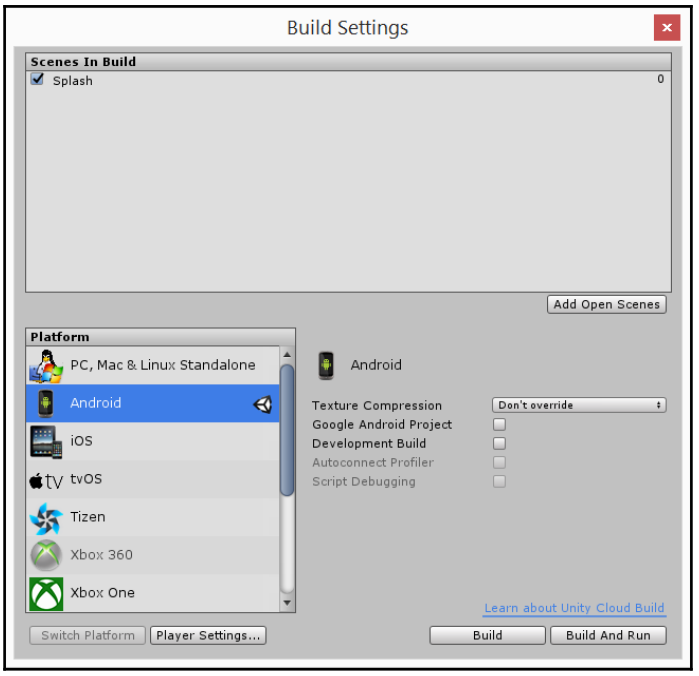

Unity Personal (64bit) - Splash.unity - FoodyGo - Android* <DX11 on DX9 GPU>
File Edit Assets GameObject Component Window Help
Hierarchy
Main Camera
Directional Light
Canvas
EventSystem
Inspector
Rect Transform
Canvas Renderer
Image (Script)
Add Component
Project
Favorites
Assets


Color
Brightness
Hue
Saturation
H
S
V
A
0
0
255
255
Hex Color
FFFFFFFF
Presets

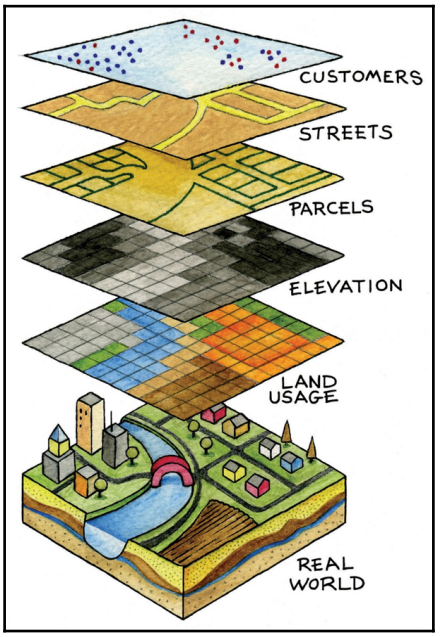

Text (Script)
Text
FOODY GO
Character
Font
Arial
Font Style
Bold And Italic
Font Size
60
Line Spacing
1
Rich Text
Paragraph
Alignment
Align By Geometry
Horizontal Overflow
Overflow
Vertical Overflow
Overflow
Best Fit
Color
Material
None (Material)
Raycast Target

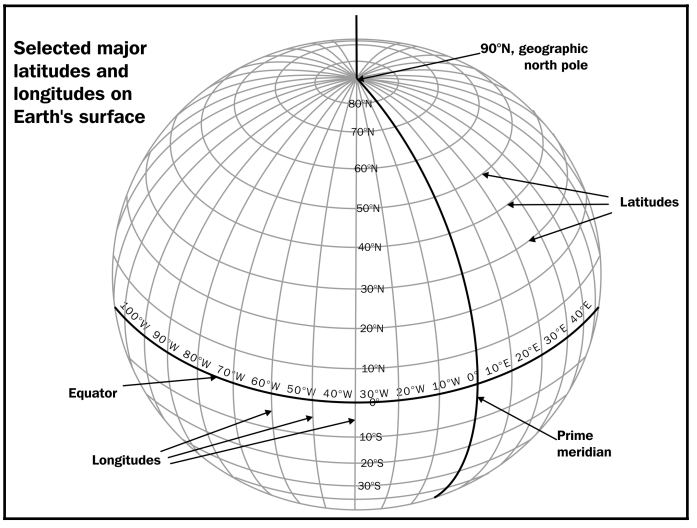

Unity Preferences
General
External Tools
Colors
Keys
GI Cache
2D
Cache Server
External Tools
External Script Editor
MonoDevelop (built-in)
Add .unityproj's to .sln
Editor Attaching
Image application
Open by file extension
Revision Control Diff/Merge
TortoiseMerge
Android
SDK
Android SDK Path
JDK
Java JDK Path
NDK
Browse
Download
IL2CPP requires that you have Android NDK r10e installed.
If you are not targeting IL2CPP you can leave this field
empty.

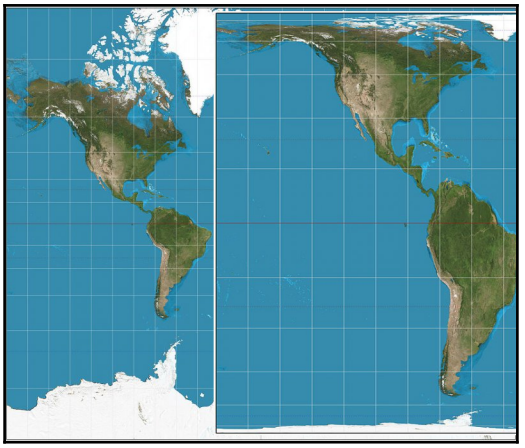

Identification
Bundle Identifier
com.packt.FoodyGO

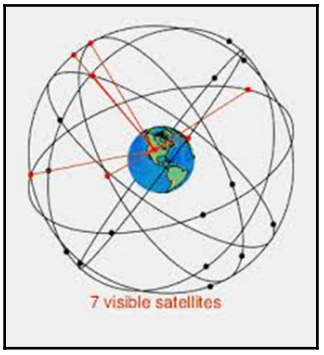

Build Settings
Scenes In Build
Splash
0
Add Open Scenes
Platform
PC, Mac & Linux Standalone
Android
iOS
tvOS
Tizen
Xbox 360
Xbox One
Android
Texture Compression
Don't override
Google Android Project
Development Build
Autoconnect Profiler
Script Debugging
Learn about Unity Cloud Build
Switch Platform
Player Settings...
Build
Build And Run

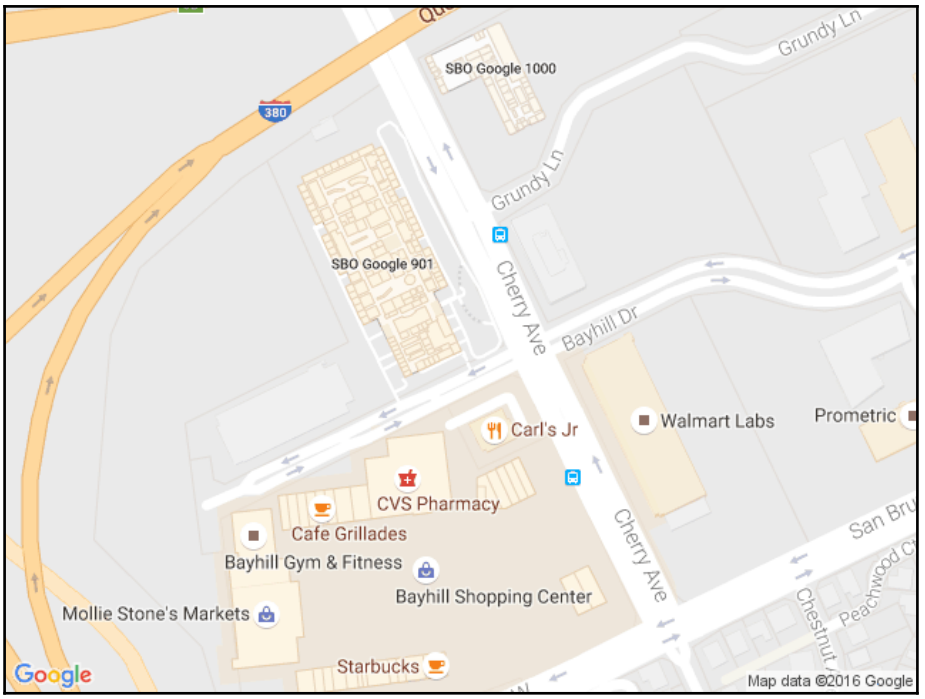
Chapter 2: Mapping the Player's Location

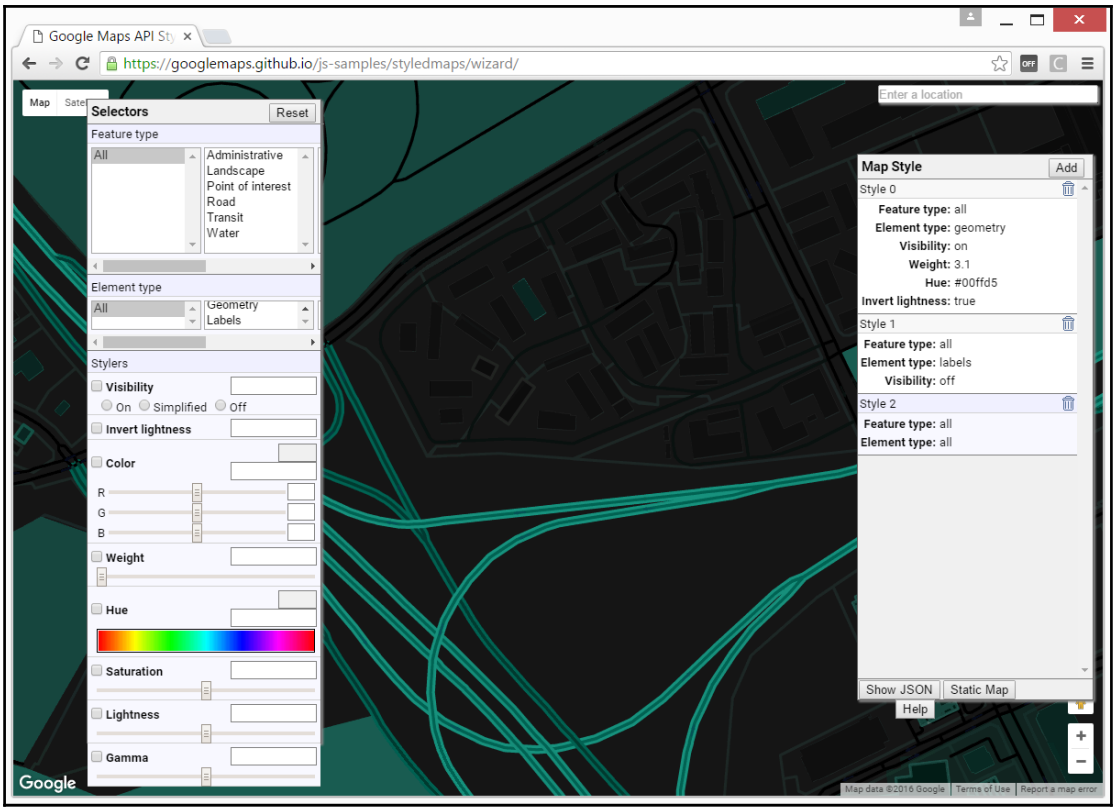


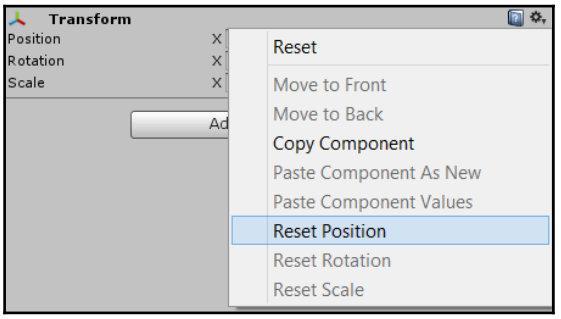




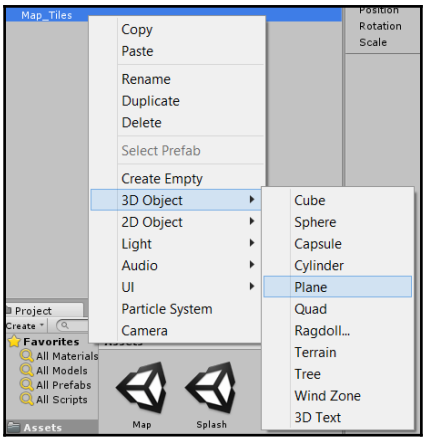

7 visible satellites

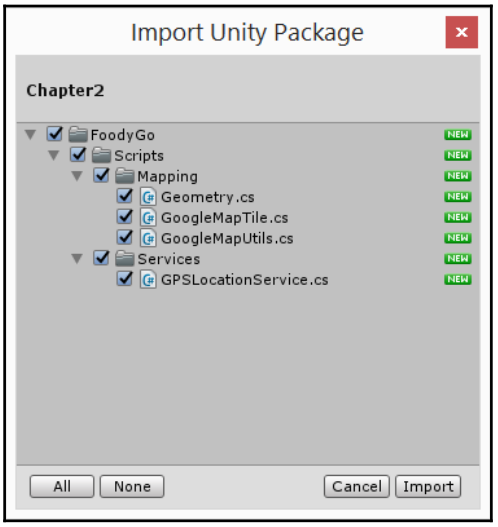

SBO Google 1000
Grundy Ln
380
Grundy Ln
SBO Google 901
Cherry Ave
Bayhill Dr
Walmart Labs
Prometric
Carl's Jr
CVS Pharmacy
Cafe Grillades
Bayhill Gym & Fitness
Bayhill Shopping Center
Cherry Ave
Mollie Stone's Markets
Starbucks
Chestnut
Google
Map data ©2016 Google

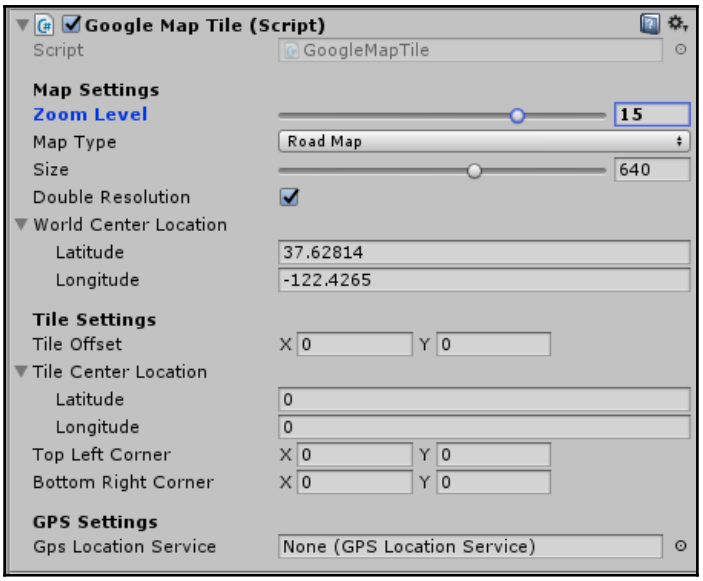

Google Maps API St
https://googlemaps.github.io/js-samples/styledmaps/wizard/
Map
Selectors
Reset
Feature type
All
Administrative
Landscape
Point of interest
Road
Transit
Water
Element type
All
Geometry
Labels
Stylers
Visibility
On
Simplified
Off
Invert lightness
Color
R
G
B
Weight
Hue
Saturation
Lightness
Gamma
Google
Enter a location
Map Style
Add
Style 0
Feature type: all
Element type: geometry
Visibility: on
Weight: 3.1
Hue: #00ffd5
Invert lightness: true
Style 1
Feature type: all
Element type: labels
Visibility: off
Style 2
Feature type: all
Element type: all
Show JSON
Static Map
Help
Map data ©2016 Google
Terms of Use
Report a map error

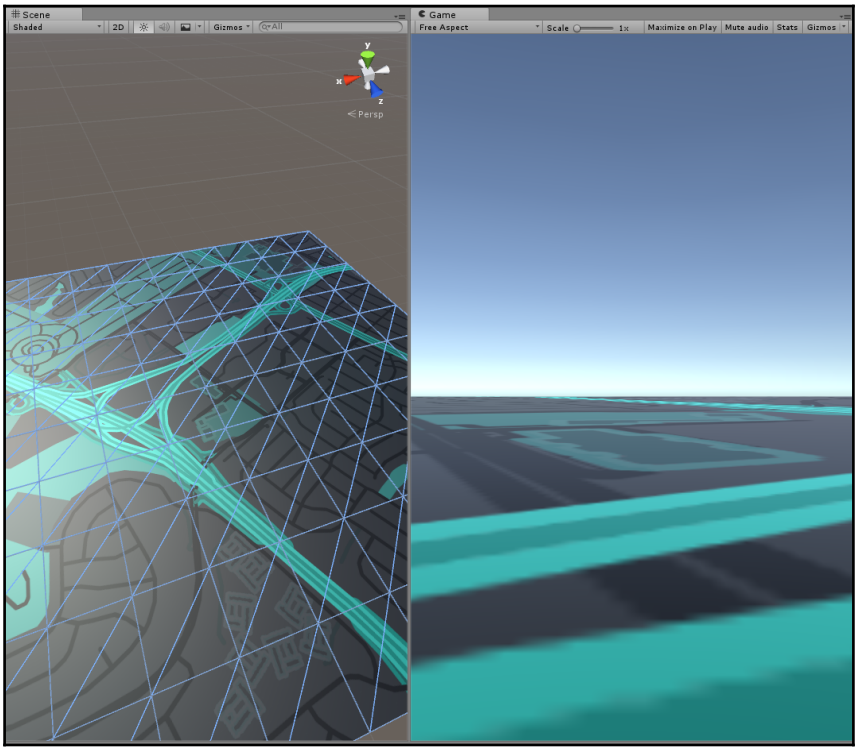

Transform
Position
Rotation
Scale
Reset
Move to Front
Move to Back
Copy Component
Paste Component As New
Paste Component Values
Reset Position
Reset Rotation
Reset Scale

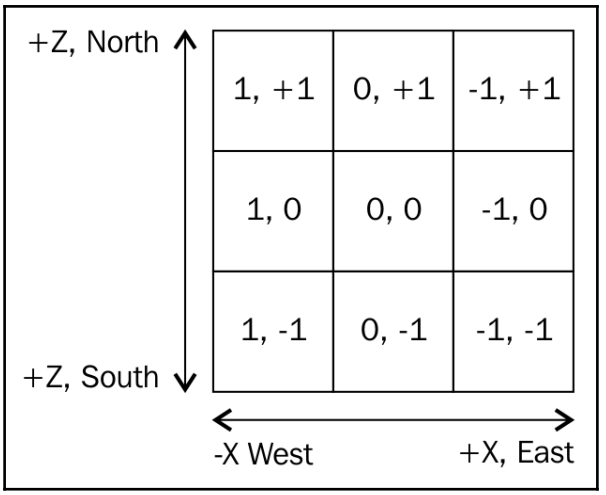

Transform
Position
Rotation
Scale
X 0
Y 0
Z 0
X 0
Y 0
Z 0
X 1
Y 1
Z 1

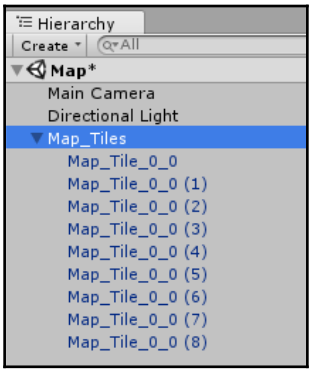

Map_Tiles
Position
Rotation
Scale
Copy
Paste
Rename
Duplicate
Delete
Select Prefab
Create Empty
3D Object
2D Object
Light
Audio
UI
Particle System
Camera
Cube
Sphere
Capsule
Cylinder
Plane
Quad
Ragdoll...
Terrain
Tree
Wind Zone
3D Text
Project
Create
Favorites
All Materials
All Models
All Prefabs
All Scripts
Assets
Map
Splash

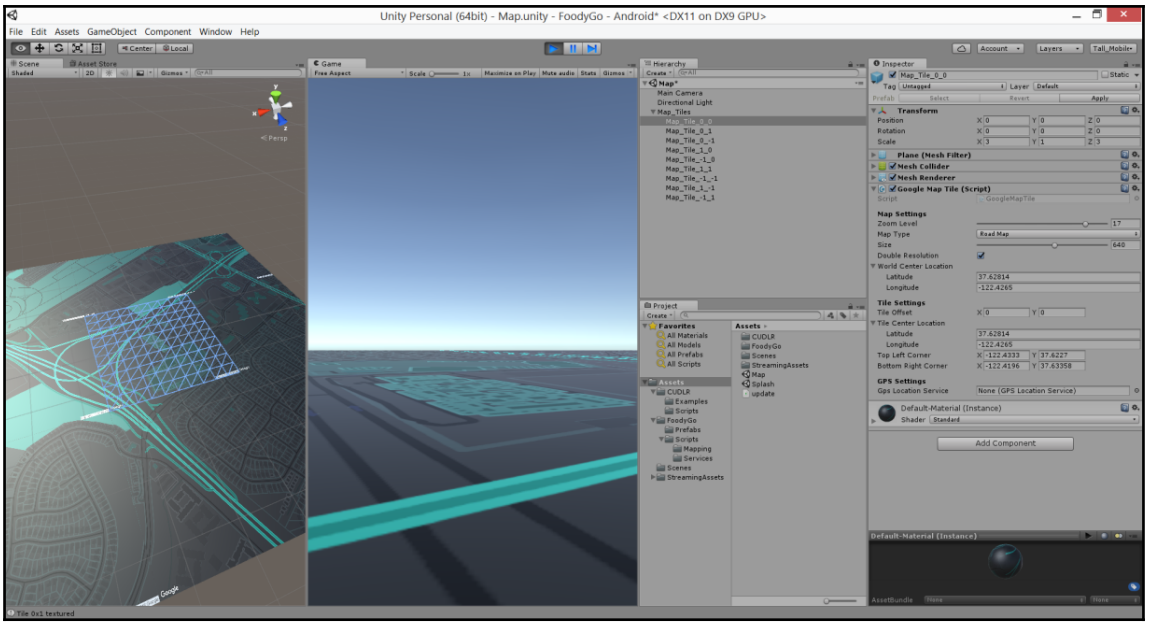

Import Unity Package
Chapter2
FoodyGo
Scripts
Mapping
Geometry.cs
GoogleMapTile.cs
GoogleMapUtils.cs
Services
GPSLocationService.cs
NEW
All
None
Cancel
Import

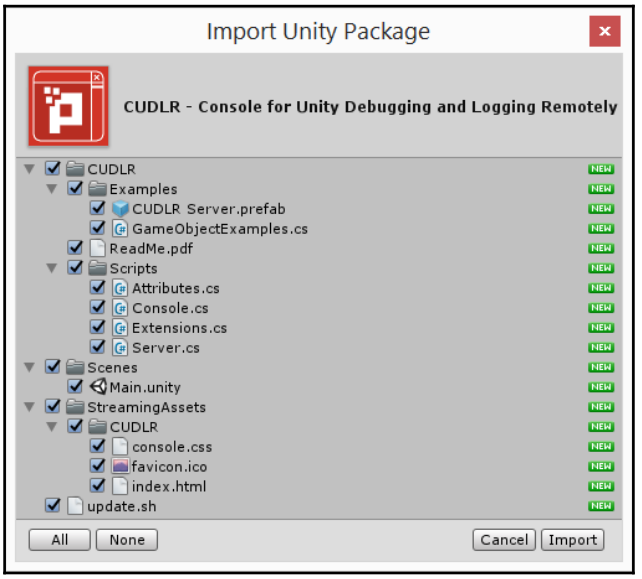

Google Map Tile (Script)
Script
GoogleMapTile
Map Settings
Zoom Level
15
Map Type
Road Map
Size
640
Double Resolution
World Center Location
Latitude
37.62814
Longitude
-122.4265
Tile Settings
Tile Offset
X 0
Y 0
Tile Center Location
Latitude
0
Longitude
0
Top Left Corner
X 0
Y 0
Bottom Right Corner
X 0
Y 0
GPS Settings
Gps Location Service
None (GPS Location Service)

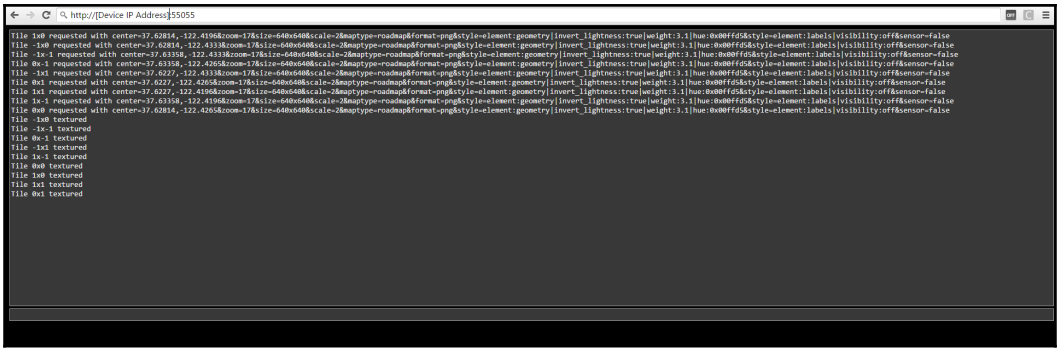

Scene
Shaded
2D
Gizmos
Persp
Game
Free Aspect
Scale
Maximize on Play
Mute audio
Stats
Gizmos

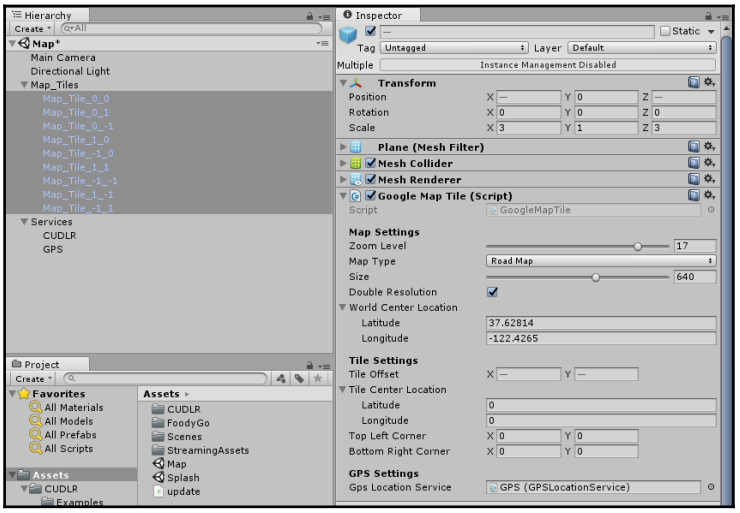

+Z, North
1, +1
0, +1
-1, +1
1, 0
0, 0
-1, 0
1, -1
0, -1
-1, -1
+Z, South
-X West
+X, East


Hierarchy
Create
All
Map*
Main Camera
Directional Light
Map_Tiles
Map_Tile_0_0
Map_Tile_0_0 (1)
Map_Tile_0_0 (2)
Map_Tile_0_0 (3)
Map_Tile_0_0 (4)
Map_Tile_0_0 (5)
Map_Tile_0_0 (6)
Map_Tile_0_0 (7)
Map_Tile_0_0 (8)

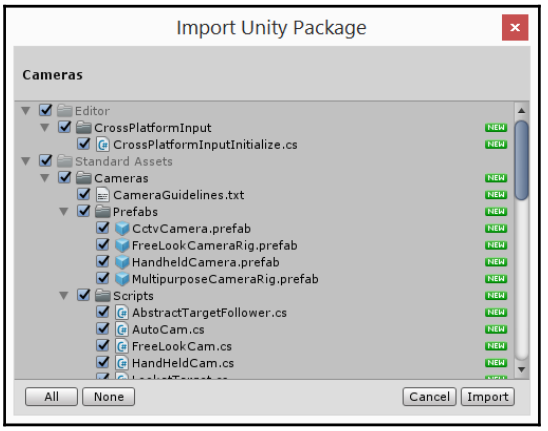

Unity Personal (64bit) - Map.unity - FoodyGo - Android* <DX11 on DX9 GPU>
File Edit Assets GameObject Component Window Help

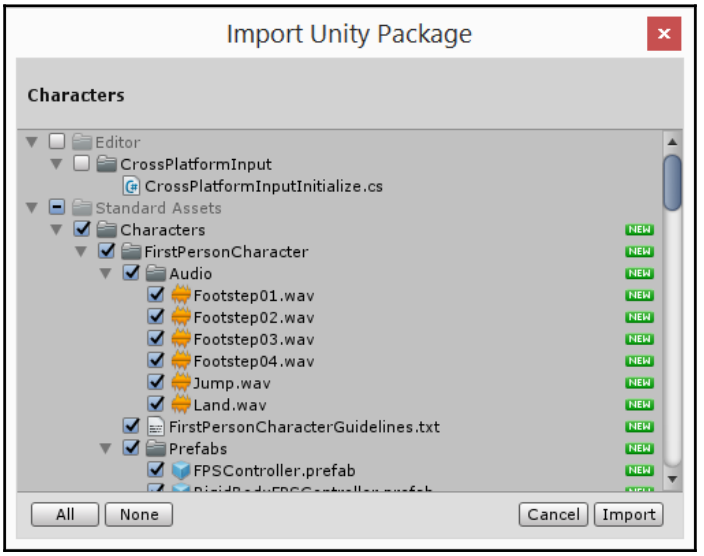

Import Unity Package
CUDLR - Console for Unity Debugging and Logging Remotely
CUDLR
Examples
CUDLR Server.prefab
GameObjectExamples.cs
ReadMe.pdf
Scripts
Attributes.cs
Console.cs
Extensions.cs
Server.cs
Scenes
Main.unity
StreamingAssets
CUDLR
console.css
favicon.ico
index.html
update.sh
NEW
All
None
Cancel
Import

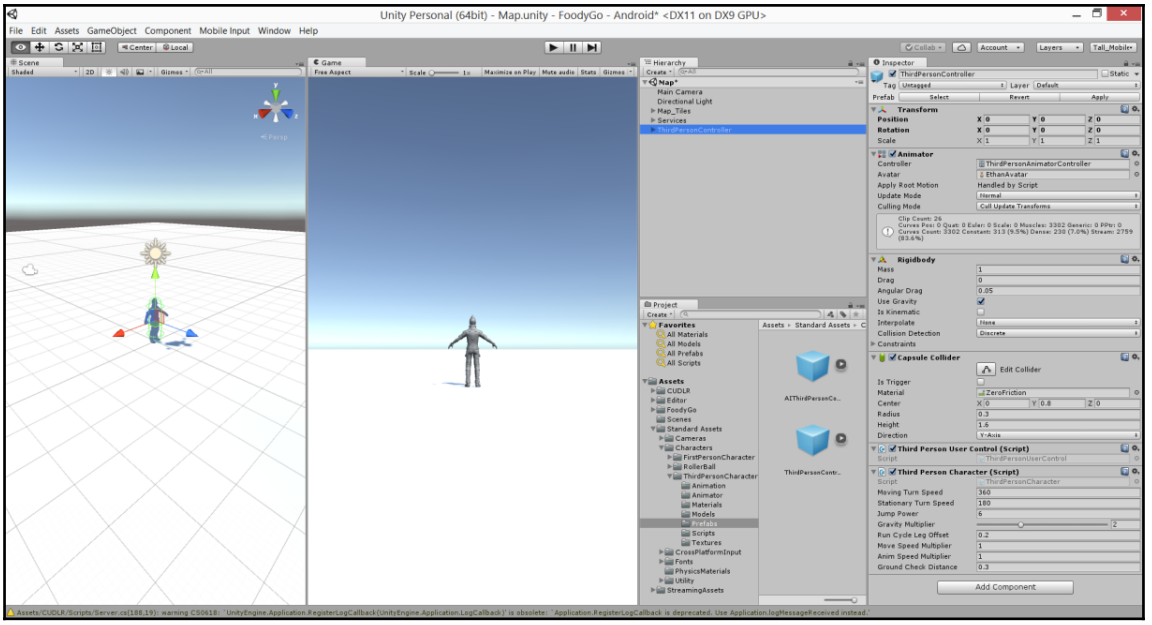

http://[Device IP Address]:55055
Tile 1x0 requested with center=37.62814,-122.4196&zoom=17&size=640x640&scale=2&maptype=roadmap&format=png&style=element:geometry|invert_lightness:true|weight:3.1|hue:0x00ffd5&style=element:labels|visibility:off&sensor=false
Tile -1x0 requested with center=37.62814,-122.4333&zoom=17&size=640x640&scale=2&maptype=roadmap&format=png&style=element:geometry|invert_lightness:true|weight:3.1|hue:0x00ffd5&style=element:labels|visibility:off&sensor=false
Tile -1x-1 requested with center=37.6335B,-122.4333&zoom=17&size=640x640&scale=2&maptype=roadmap&format=png&style=element:geometry|invert_lightness:true|weight:3.1|hue:0x00ffd5&style=element:labels|visibility:off&sensor=false
Tile 0x-1 requested with center=37.6335B,-122.4265&zoom=17&size=640x640&scale=2&maptype=roadmap&format=png&style=element:geometry|invert_lightness:true|weight:3.1|hue:0x00ffd5&style=element:labels|visibility:off&sensor=false
Tile -1x1 requested with center=37.6227,-122.4333&zoom=17&size=640x640&scale=2&maptype=roadmap&format=png&style=element:geometry|invert_lightness:true|weight:3.1|hue:0x00ffd5&style=element:labels|visibility:off&sensor=false
Tile 0x1 requested with center=37.6227,-122.4265&zoom=17&size=640x640&scale=2&maptype=roadmap&format=png&style=element:geometry|invert_lightness:true|weight:3.1|hue:0x00ffd5&style=element:labels|visibility:off&sensor=false
Tile 1x1 requested with center=37.6227,-122.4196&zoom=17&size=640x640&scale=2&maptype=roadmap&format=png&style=element:geometry|invert_lightness:true|weight:3.1|hue:0x00ffd5&style=element:labels|visibility:off&sensor=false
Tile 1x-1 requested with center=37.6335B,-122.4196&zoom=17&size=640x640&scale=2&maptype=roadmap&format=png&style=element:geometry|invert_lightness:true|weight:3.1|hue:0x00ffd5&style=element:labels|visibility:off&sensor=false
Tile 0x0 requested with center=37.62814,-122.4265&zoom=17&size=640x640&scale=2&maptype=roadmap&format=png&style=element:geometry|invert_lightness:true|weight:3.1|hue:0x00ffd5&style=element:labels|visibility:off&sensor=false
Tile -1x0 textured
Tile -1x-1 textured
Tile 0x-1 textured
Tile -1x1 textured
Tile 1x-1 textured
Tile 0x0 textured
Tile 1x0 textured
Tile 1x1 textured
Tile 0x1 textured

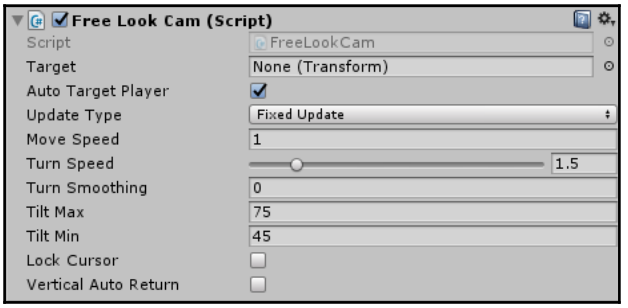

Hierarchy
Create
Map*
Main Camera
Directional Light
Map_Tiles
Map_Tile_0_0
Map_Tile_0_1
Map_Tile_0_-1
Map_Tile_1_0
Map_Tile_-1_0
Map_Tile_1_1
Map_Tile_-1_-1
Map_Tile_1_-1
Map_Tile_-1_1
Services
CUDLR
GPS
Project
Favorites
All Materials
All Models
All Prefabs
All Scripts
Assets
CUDLR
Examples
Assets
CUDLR
FoodyGo
Scenes
StreamingAssets
Map
Splash
update
Inspector
Static
Tag
Untagged
Layer
Default
Multiple
Instance Management Disabled
Transform
Position
Rotation
Scale
Plane (Mesh Filter)
Mesh Collider
Mesh Renderer
Google Map Tile (Script)
Script
GoogleMapTile
Map Settings
Zoom Level
17
Map Type
Road Map
Size
640
Double Resolution
World Center Location
Latitude
37.62814
Longitude
-122.4265
Tile Settings
Tile Offset
Tile Center Location
Latitude
Longitude
Top Left Corner
Bottom Right Corner
GPS Settings
Gps Location Service
GPS (GPSLocationService)

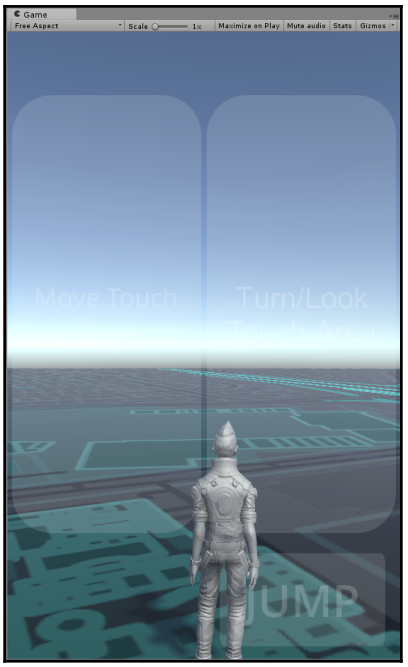
Chapter 3: Making the Avatar

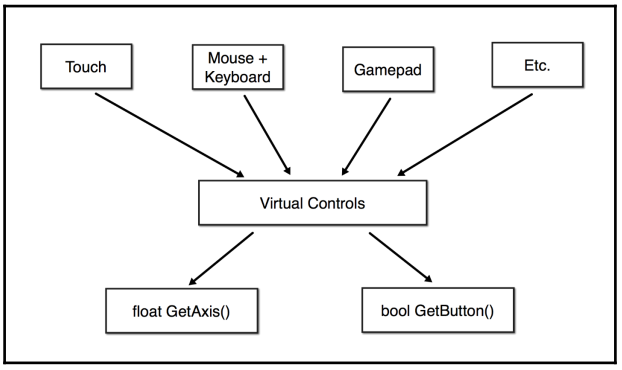


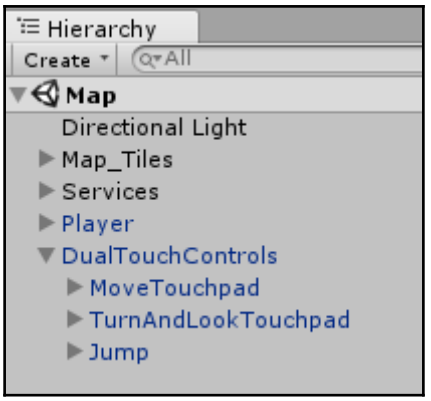


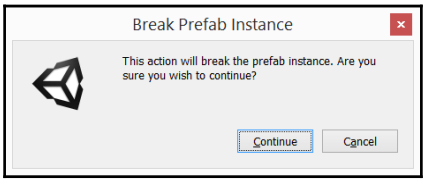

Unity Personal (64bit) - Map.unity - FoodyGo - Android* <DX11 on DX9 GPU>
File Edit Assets GameObject Component Mobile Input Window Help
Hierarchy
Inspector
Project
Add Component

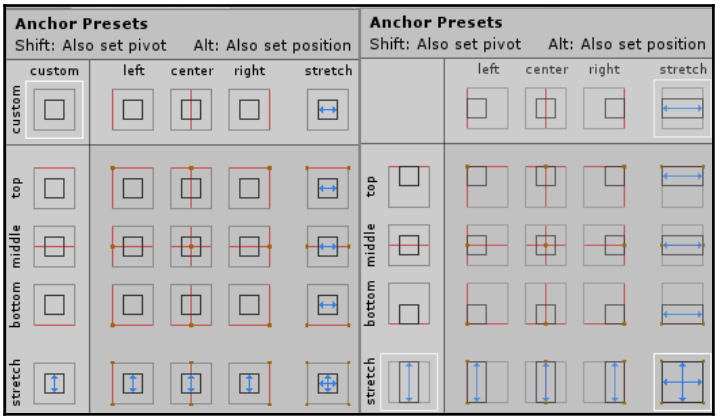

Free Look Cam (Script)
Script
FreeLookCam
Target
None (Transform)
Auto Target Player
Update Type
Fixed Update
Move Speed
1
Turn Speed
1.5
Turn Smoothing
0
Tilt Max
75
Tilt Min
45
Lock Cursor
Vertical Auto Return

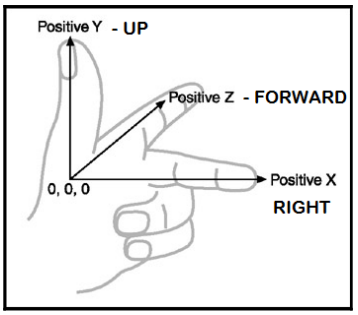

Game
Free Aspect
Scale
1x
Maximize on Play
Mute audio
Stats
Gizmos
Move Touch
Turn/Look
Touch Area
JUMP

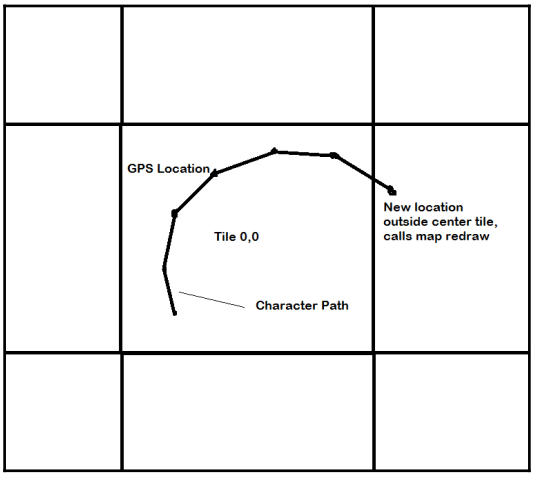

Touch
Mouse +
Keyboard
Gamepad
Etc.
Virtual Controls
float GetAxis()
bool GetButton()

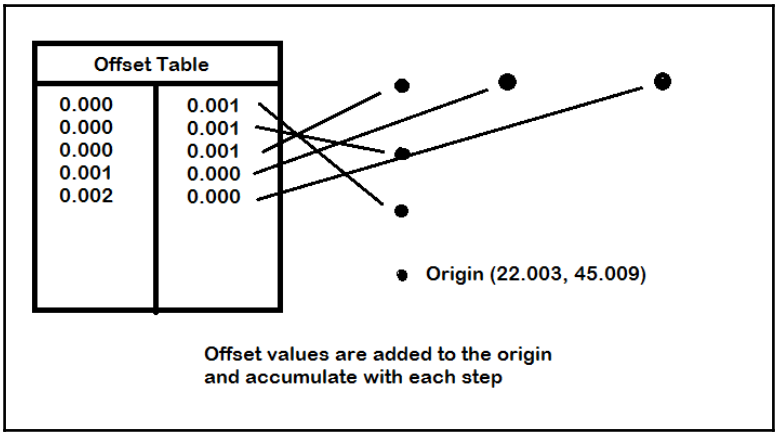

Hierarchy
Create
All
Map
Directional Light
Map_Tiles
Services
Player
DualTouchControls
MoveTouchpad
TurnAndLookTouchpad
Jump

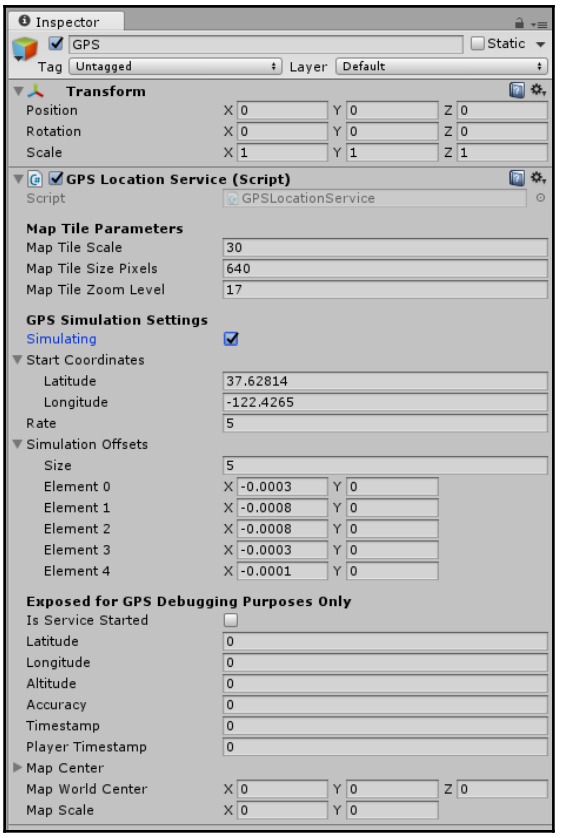

Break Prefab Instance
This action will break the prefab instance. Are you sure you wish to continue?
Continue
Cancel

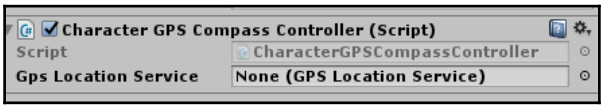

Anchor Presets
Shift: Also set pivot
Alt: Also set position
custom
left
center
right
stretch
top
middle
bottom
stretch
Anchor Presets
Shift: Also set pivot
Alt: Also set position
left
center
right
stretch
top
middle
bottom
stretch

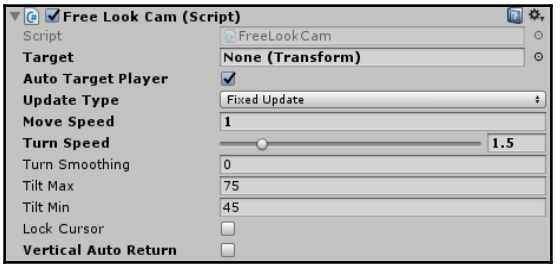

Positive Y - UP
Positive Z - FORWARD
Positive X
RIGHT
0, 0, 0

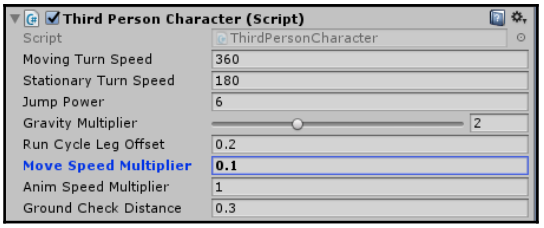

GPS Location
New location
outside center tile,
calls map redraw
Tile 0,0
Character Path

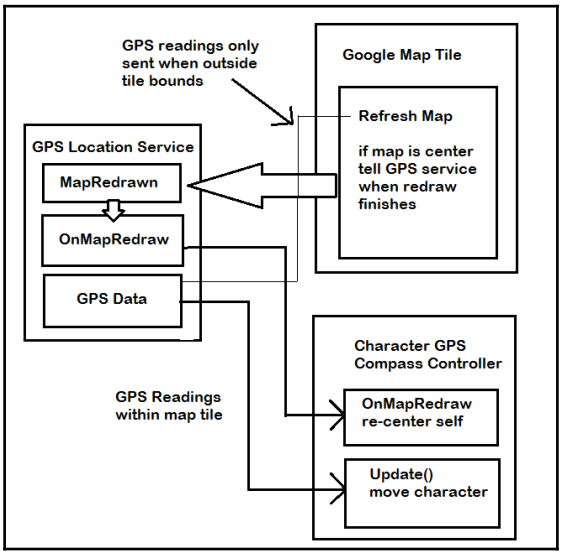

Offset Table
0.000
0.000
0.000
0.001
0.002
0.001
0.001
0.001
0.000
0.000
Origin (22.003, 45.009)
Offset values are added to the origin
and accumulate with each step

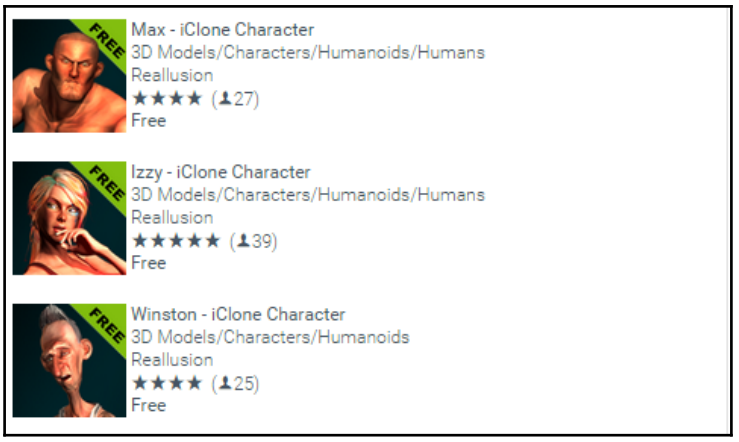

Inspector
GPS
Static
Tag Untagged
Layer Default
Transform
Position X 0 Y 0 Z 0
Rotation X 0 Y 0 Z 0
Scale X 1 Y 1 Z 1
GPS Location Service (Script)
Script GPSLocationService
Map Tile Parameters
Map Tile Scale 30
Map Tile Size Pixels 640
Map Tile Zoom Level 17
GPS Simulation Settings
Simulating
Start Coordinates
Latitude 37.62814
Longitude -122.4265
Rate 5
Simulation Offsets
Size 5
Element 0 X -0.0003 Y 0
Element 1 X -0.0008 Y 0
Element 2 X -0.0008 Y 0
Element 3 X -0.0003 Y 0
Element 4 X -0.0001 Y 0
Exposed for GPS Debugging Purposes Only
Is Service Started
Latitude 0
Longitude 0
Altitude 0
Accuracy 0
Timestamp 0
Player Timestamp 0
Map Center
Map World Center X 0 Y 0 Z 0
Map Scale X 0 Y 0

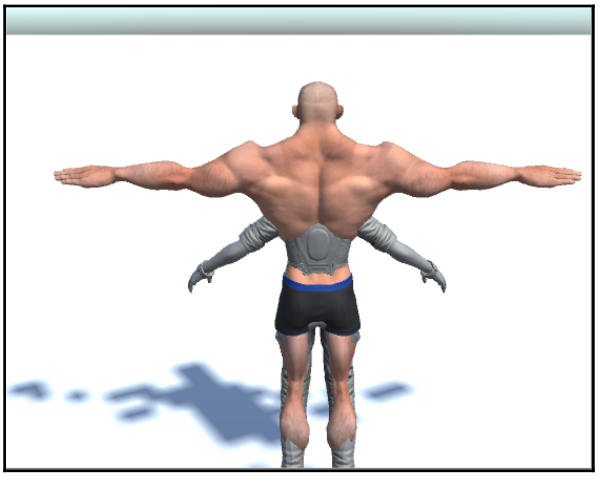

Character GPS Compass Controller (Script)
Script CharacterGPSCompassController
Gps Location Service None (GPS Location Service)

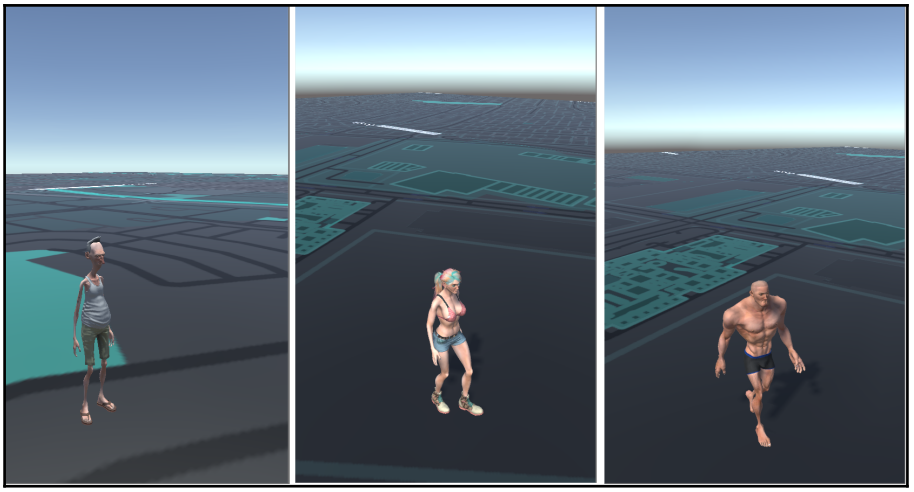

Free Look Cam (Script)
Script FreeLookCam
Target None (Transform)
Auto Target Player
Update Type Fixed Update
Move Speed 1
Turn Speed 1.5
Turn Smoothing 0
Tilt Max 75
Tilt Min 45
Lock Cursor
Vertical Auto Return


Third Person Character (Script)
Script
ThirdPersonCharacter
Moving Turn Speed
360
Stationary Turn Speed
180
Jump Power
6
Gravity Multiplier
2
Run Cycle Leg Offset
0.2
Move Speed Multiplier
0.1
Anim Speed Multiplier
1
Ground Check Distance
0.3

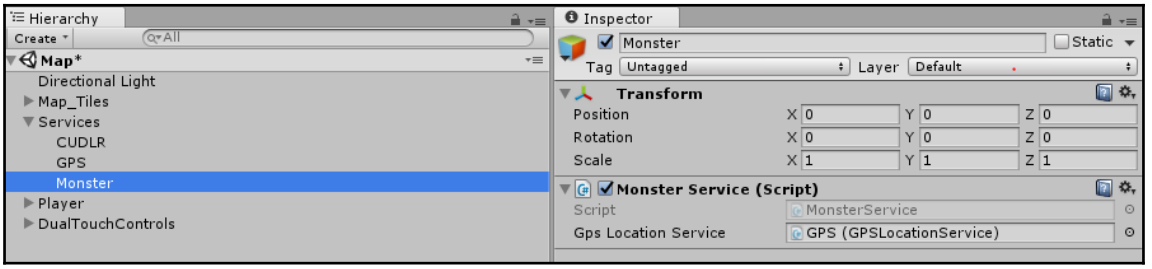

GPS readings only sent when outside tile bounds
Google Map Tile
Refresh Map
if map is center tell GPS service when redraw finishes
GPS Location Service
MapRedrawn
OnMapRedraw
GPS Data
Character GPS Compass Controller
GPS Readings within map tile
OnMapRedraw re-center self
Update() move character

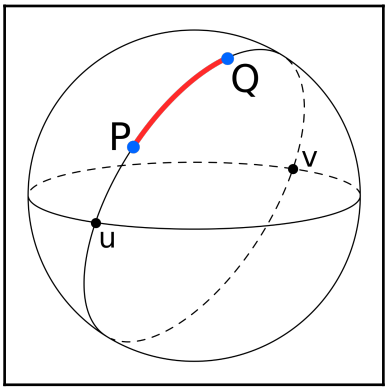

FREE
Max - iClone Character
3D Models/Characters/Humanoids/Humans
Reallusion
★★★★ (27)
Free
FREE
Izzy - iClone Character
3D Models/Characters/Humanoids/Humans
Reallusion
★★★★★ (39)
Free
FREE
Winston - iClone Character
3D Models/Characters/Humanoids
Reallusion
★★★★ (25)
Free

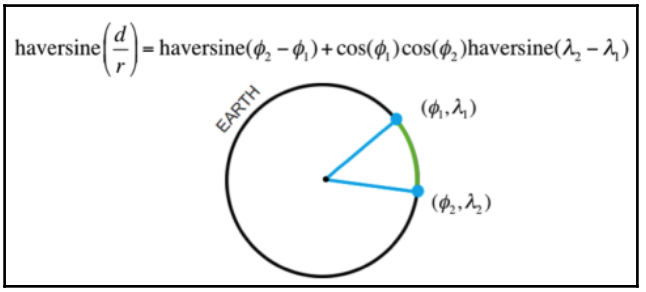




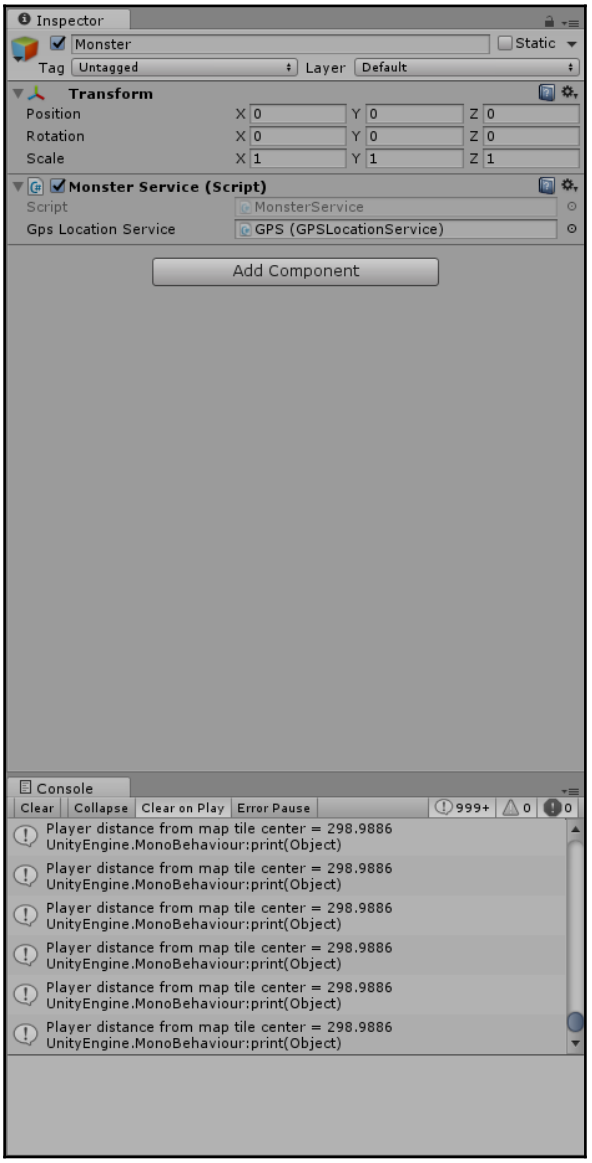
Chapter 4: Spawning the Catch

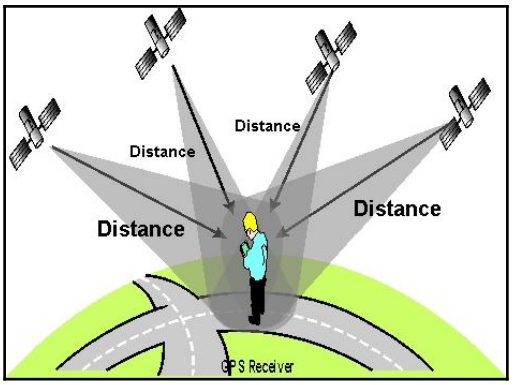


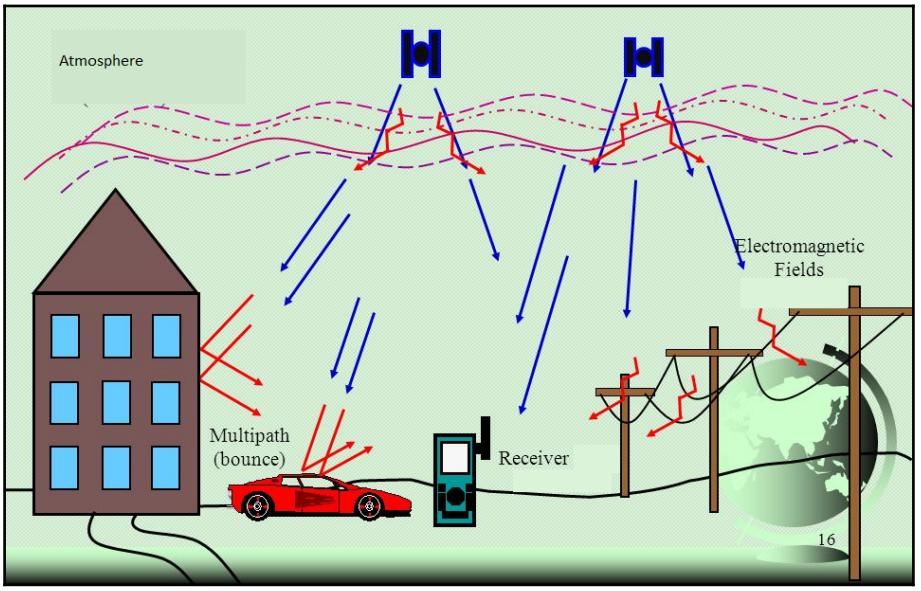


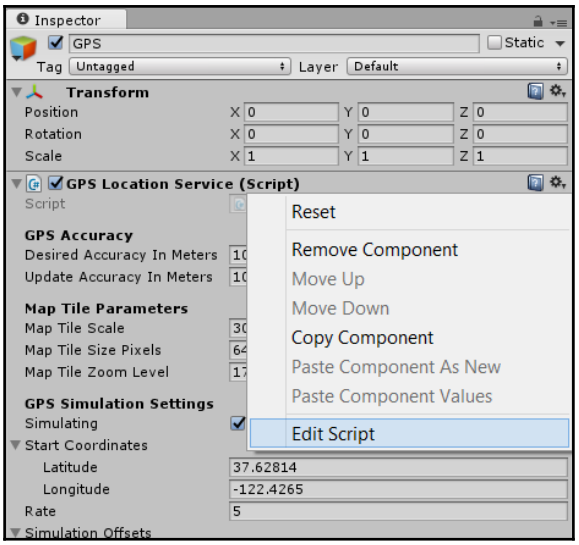


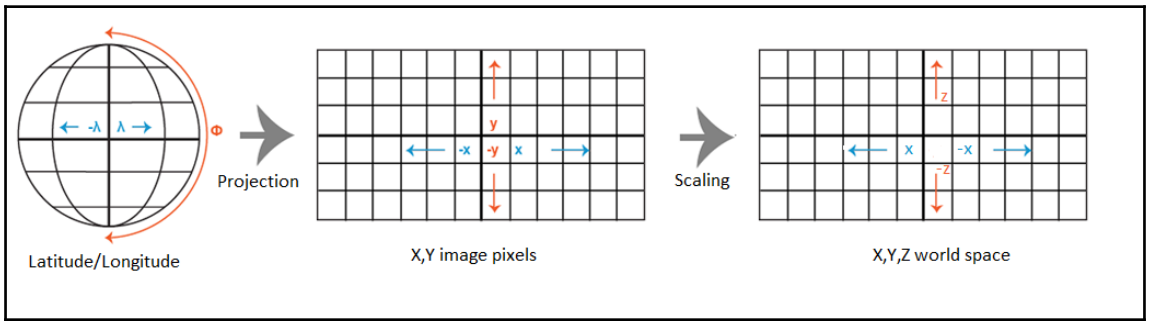
$$d = 2r \arcsin\left(\sqrt{\sin^2\left(\frac{\phi_2 - \phi_1}{2}\right) + \cos(\phi_1)\cos(\phi_2)\sin^2\left(\frac{\lambda_2 - \lambda_1}{2}\right)}\right)$$

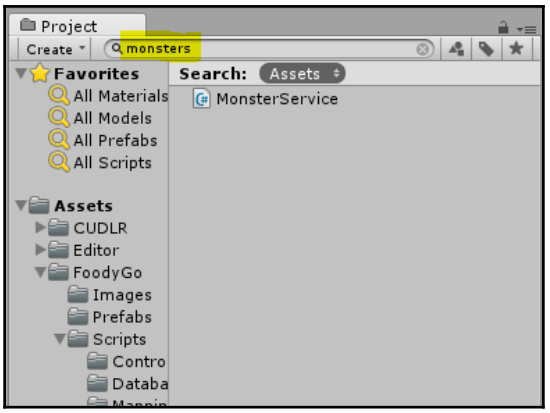


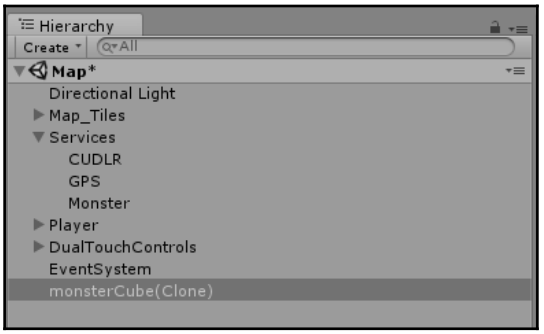

Distance
Distance
Distance
Distance
Distance
GPS Receiver

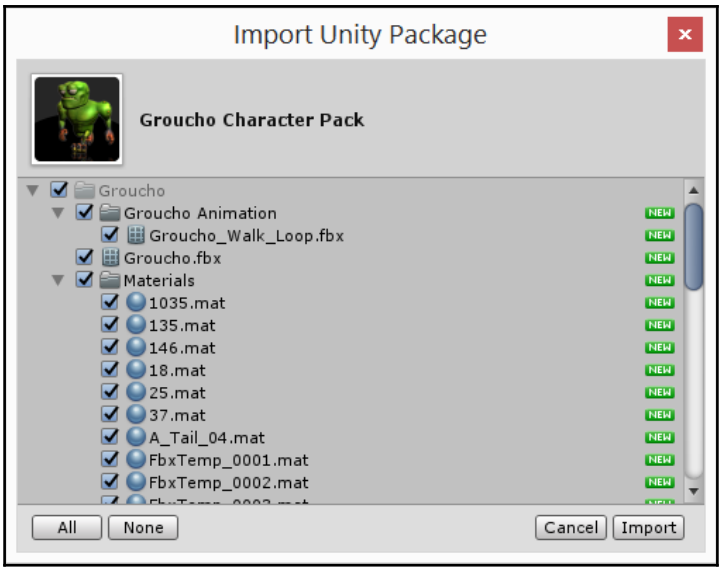

Atmosphere
Electromagnetic
Fields
Multipath
(bounce)
Receiver
16

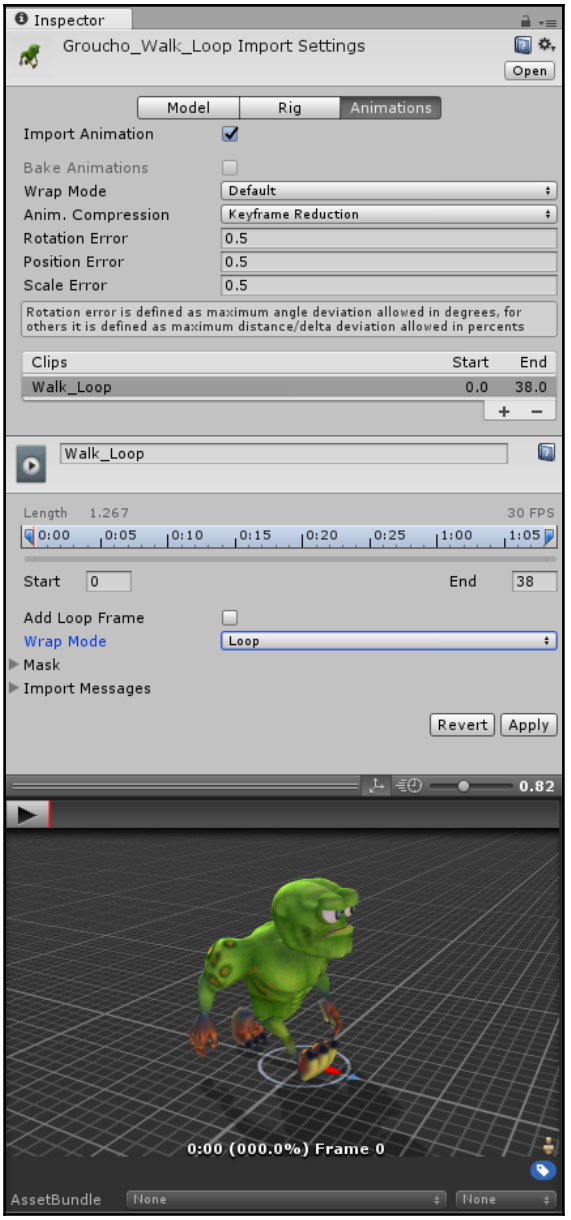

Inspector
GPS
Static
Tag Untagged
Layer Default
Transform
Position X 0 Y 0 Z 0
Rotation X 0 Y 0 Z 0
Scale X 1 Y 1 Z 1
GPS Location Service (Script)
Script
GPS Accuracy
Desired Accuracy In Meters
Update Accuracy In Meters
Map Tile Parameters
Map Tile Scale
Map Tile Size Pixels
Map Tile Zoom Level
GPS Simulation Settings
Simulating
Start Coordinates
Latitude 37.62814
Longitude -122.4265
Rate 5
Simulation Offsets
Reset
Remove Component
Move Up
Move Down
Copy Component
Paste Component As New
Paste Component Values
Edit Script

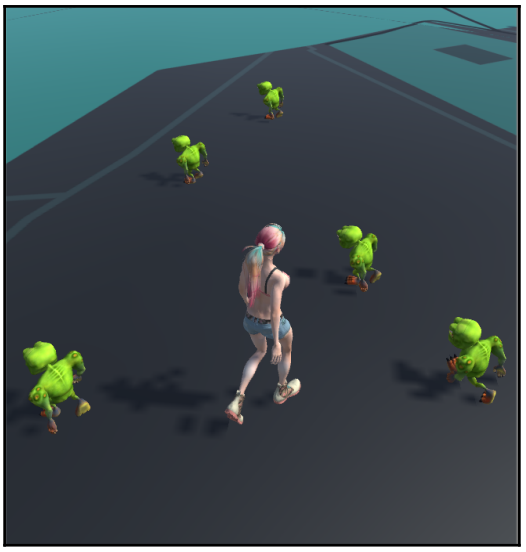

-λ
λ
Φ
Projection
y
-x
-y
x
Scaling
z
x
-x
-z
Latitude/Longitude
X,Y image pixels
X,Y,Z world space


Project
Create
monsters
Favorites
All Materials
All Models
All Prefabs
All Scripts
Assets
CUDLR
Editor
FoodyGo
Images
Prefabs
Scripts
Contro
Databa
Search:
Assets
MonsterService


Hierarchy
Create
All
Map*
Directional Light
Map_Tiles
Services
CUDLR
GPS
Monster
Player
DualTouchControls
EventSystem
monsterCube(Clone)


Import Unity Package
Groucho Character Pack
Groucho
Groucho Animation
Groucho_Walk_Loop.fbx
Groucho.fbx
Materials
1035.mat
135.mat
146.mat
18.mat
25.mat
37.mat
A_Tail_04.mat
FbxTemp_0001.mat
FbxTemp_0002.mat
NEW
All
None
Cancel
Import


Inspector
Groucho_Walk_Loop Import Settings
Open
Model
Rig
Animations
Import Animation
Bake Animations
Wrap Mode
Default
Anim. Compression
Keyframe Reduction
Rotation Error
0.5
Position Error
0.5
Scale Error
0.5
Rotation error is defined as maximum angle deviation allowed in degrees, for others it is defined as maximum distance/delta deviation allowed in percents
Clips
Start
End
Walk_Loop
0.0
38.0
Walk_Loop
Length 1.267
30 FPS
0:00
0:05
0:10
0:15
0:20
0:25
1:00
1:05
Start
0
End
38
Add Loop Frame
Wrap Mode
Loop
Mask
Import Messages
Revert
Apply
0.82
0:00 (000.0%) Frame 0
AssetBundle
None
None



Inspector

Monster — Static

Tag: Untagged — Layer: Default

Transform

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

Monster Service (Script)

Script	MonsterService
Gps Location Service	GPS (GPSLocationService)
Monster Prefab	Monster

Monster Spawn Parameters

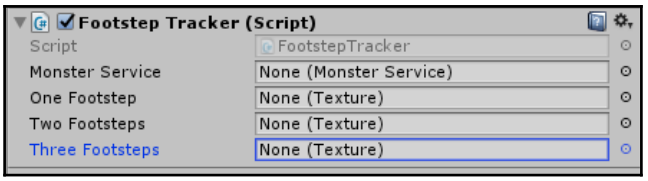
Monster Spawn Rate	0.8
Latitude Spawn Offset	0.001
Longitude Spawn Offset	0.001

Monster Visibility

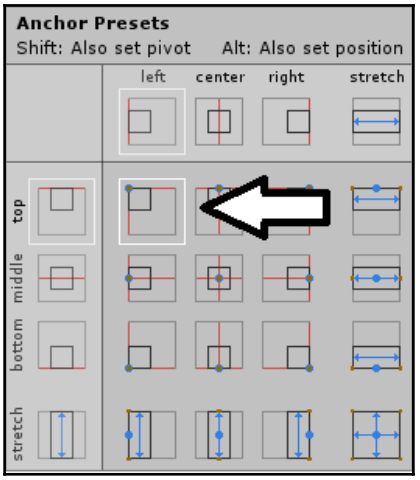
Monster Hear Distance	200
Monster See Distance	100
Monster Lifetime Seconds	3000

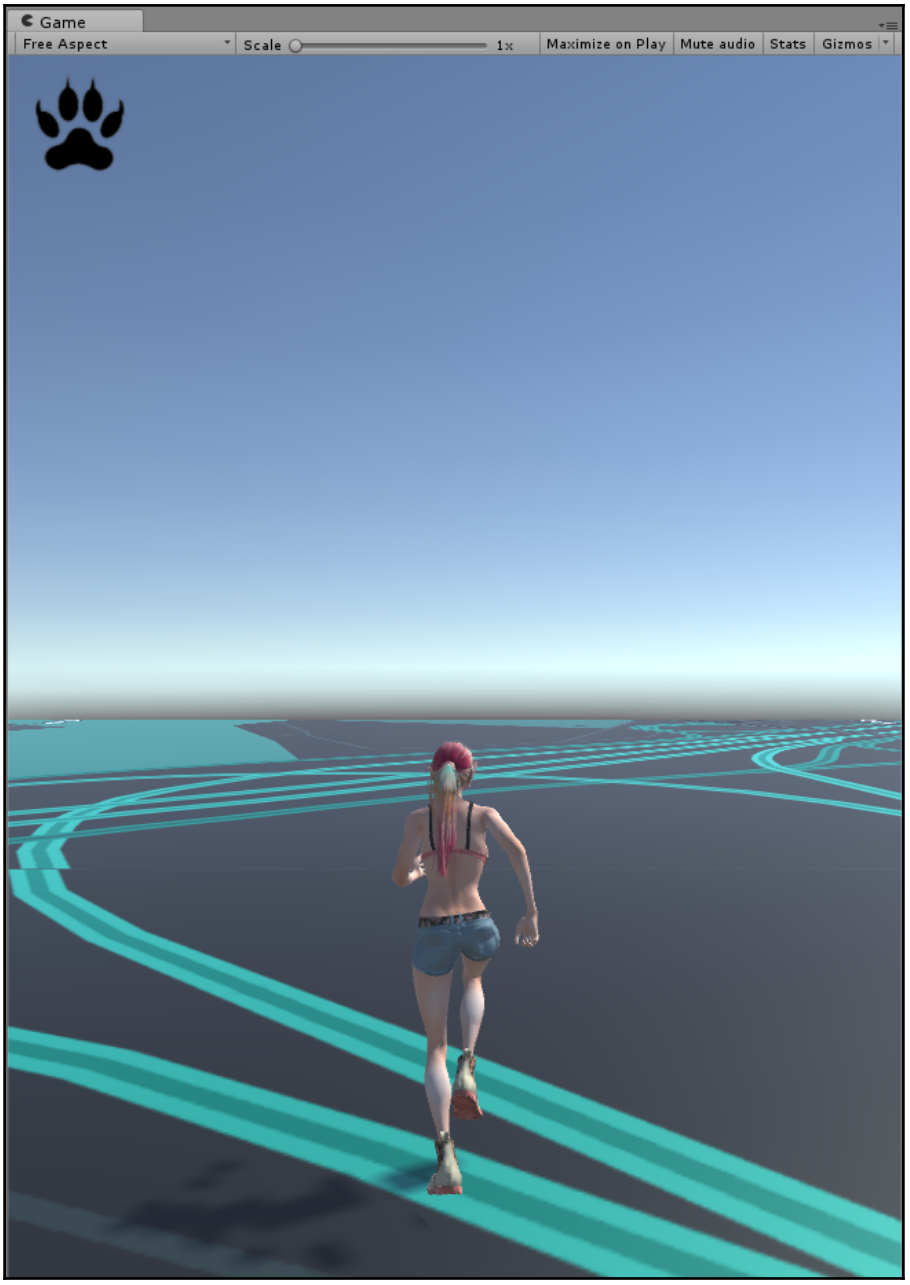
Monster Foot Step Range

One Step Range	125
Two Step Range	150
Three Step Range	200

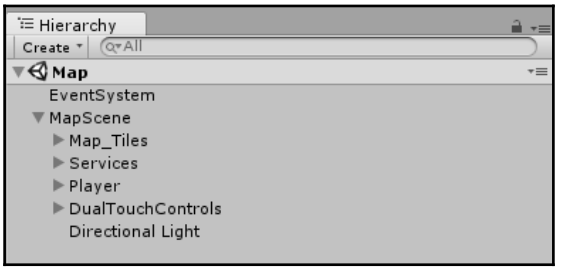

Footstep Tracker (Script)
Script
FootstepTracker
Monster Service
None (Monster Service)
One Footstep
None (Texture)
Two Footsteps
None (Texture)
Three Footsteps
None (Texture)

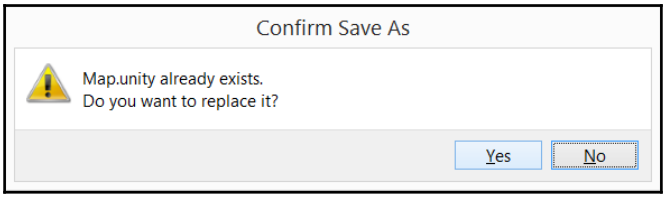

Footstep Tracker (Script)
Script
FootstepTracker
Monster Service
Monster (MonsterService)
One Footstep
paws1
Two Footsteps
paws2
Three Footsteps
paws3

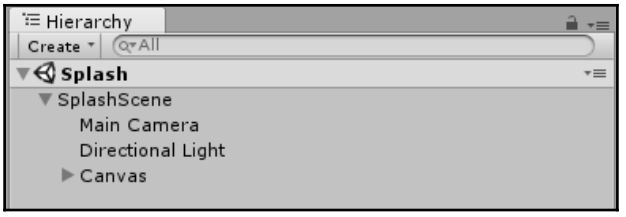

Anchor Presets
Shift: Also set pivot
Alt: Also set position
left
center
right
stretch
top
middle
bottom
stretch

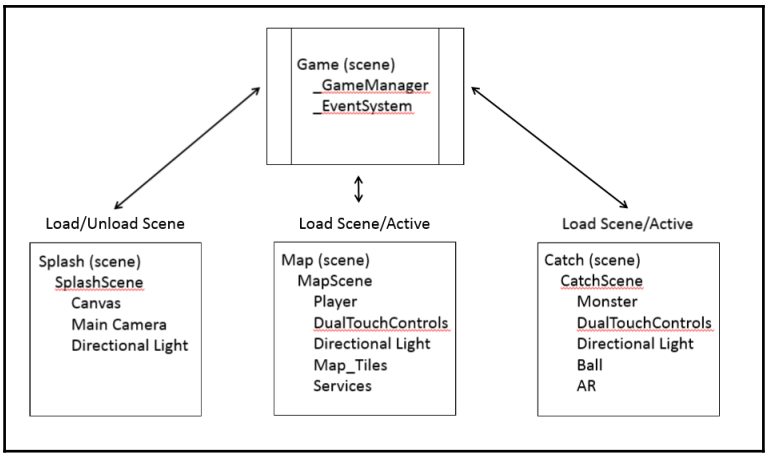

Game
Free Aspect
Scale
1x
Maximize on Play
Mute audio
Stats
Gizmos

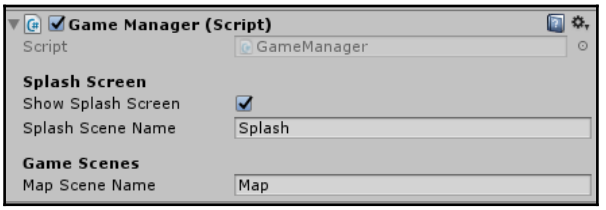
Chapter 5: Catching the Prey in AR

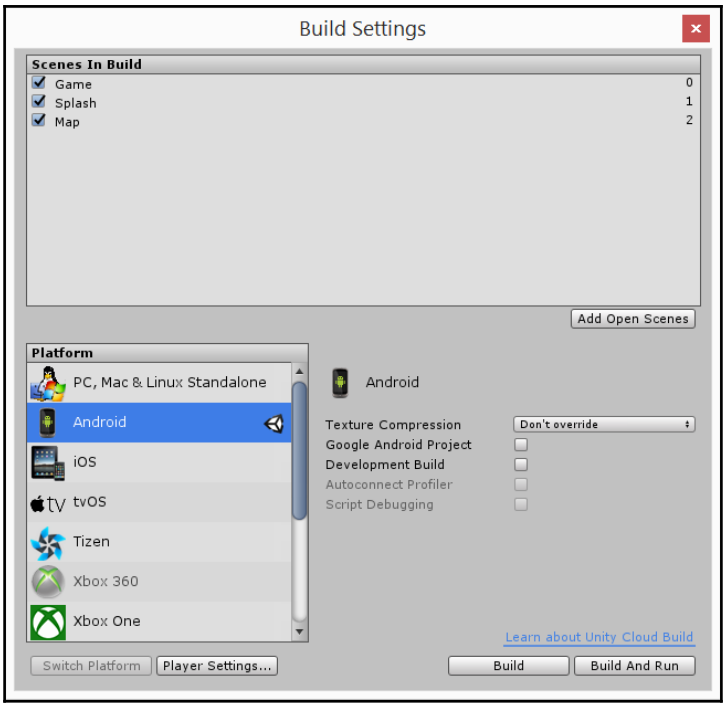


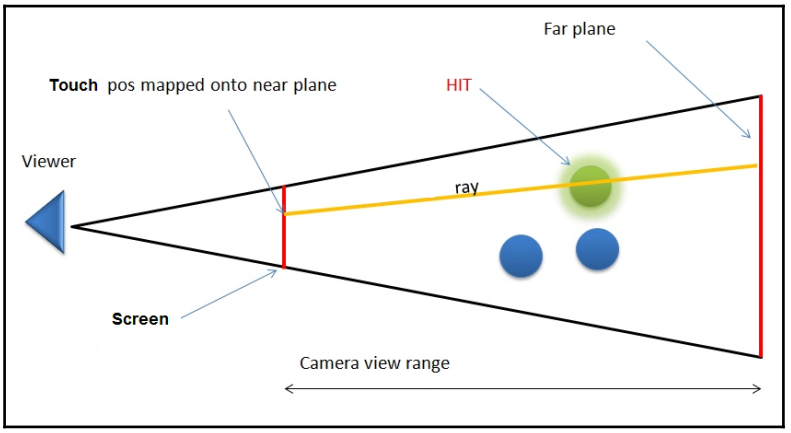


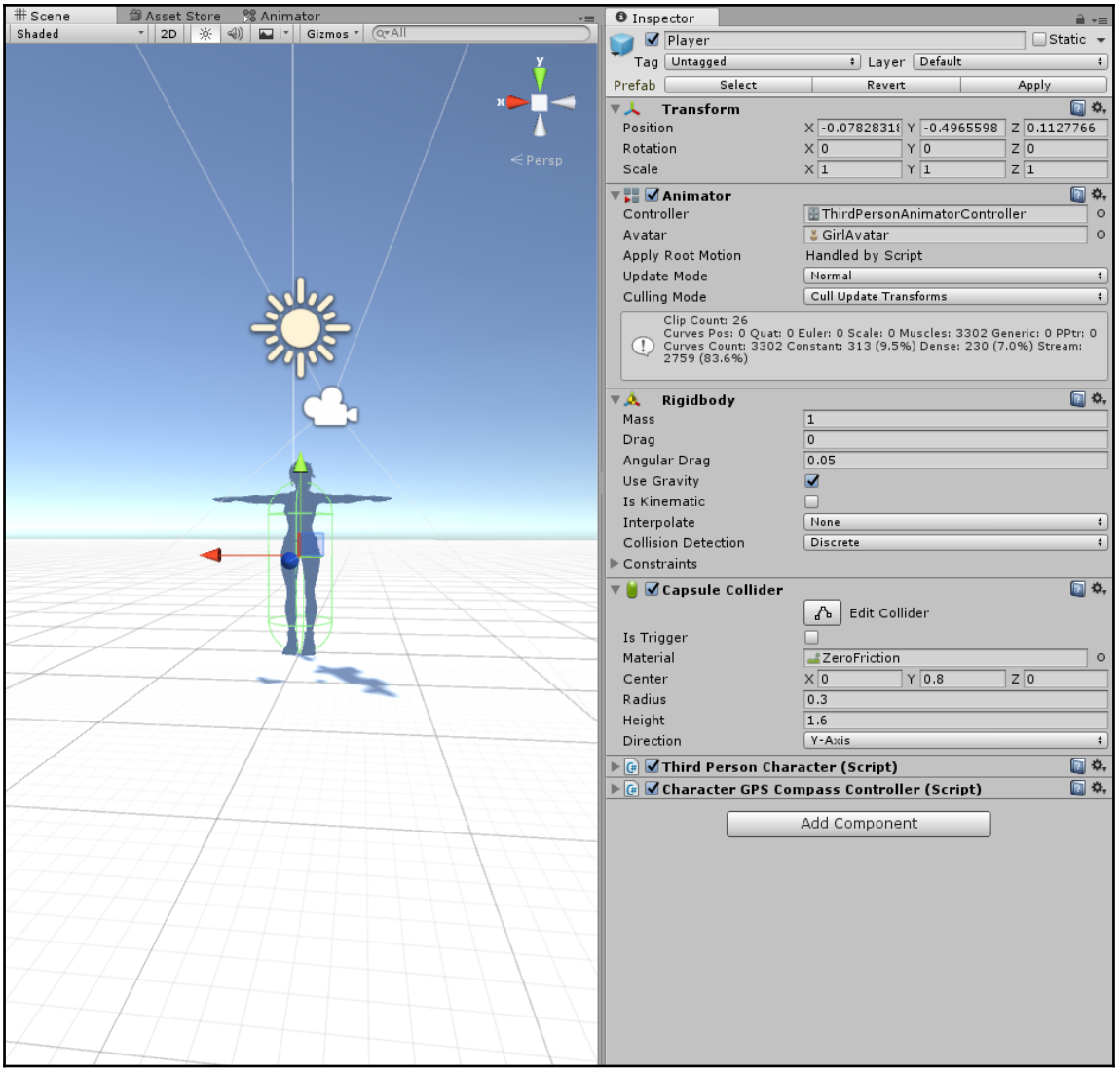


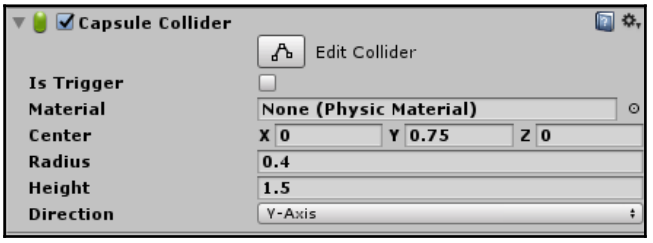

Game (scene)
_GameManager
_EventSystem
Load/Unload Scene
Load Scene/Active
Load Scene/Active
Splash (scene)
SplashScene
Canvas
Main Camera
Directional Light
Map (scene)
MapScene
Player
DualTouchControls
Directional Light
Map_Tiles
Services
Catch (scene)
CatchScene
Monster
DualTouchControls
Directional Light
Ball
AR

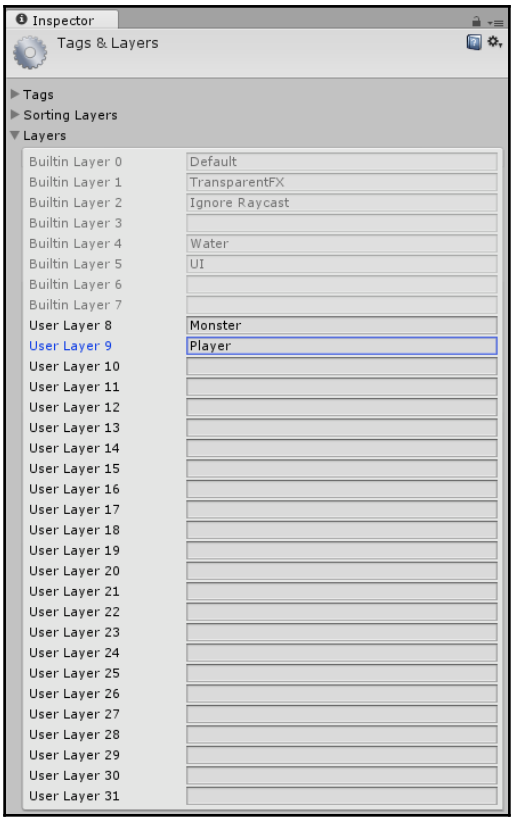

Game Manager (Script)
Script
GameManager
Splash Screen
Show Splash Screen
Splash Scene Name
Splash
Game Scenes
Map Scene Name
Map

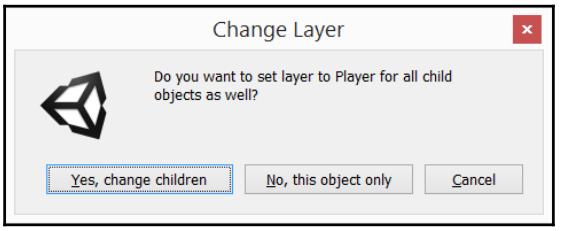

Build Settings
Scenes In Build
Game 0
Splash 1
Map 2
Add Open Scenes
Platform
PC, Mac & Linux Standalone
Android
iOS
tvOS
Tizen
Xbox 360
Xbox One
Android
Texture Compression
Don't override
Google Android Project
Development Build
Autoconnect Profiler
Script Debugging
Learn about Unity Cloud Build
Switch Platform
Player Settings...
Build
Build And Run

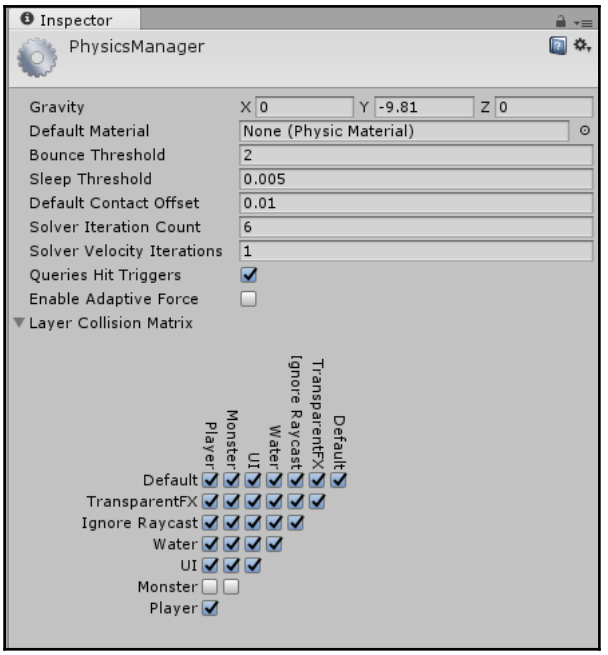

Far plane
Touch pos mapped onto near plane
HIT
Viewer
ray
Screen
Camera view range

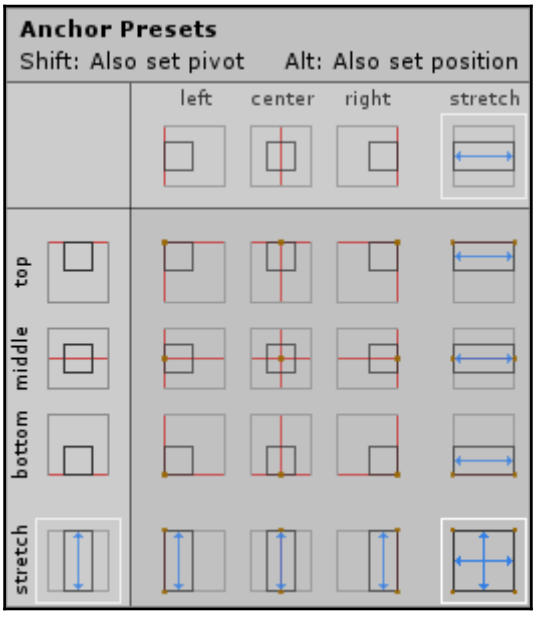

Scene
Asset Store
Animator
Shaded
2D
Gizmos
Persp
Inspector
Player
Static
Tag
Untagged
Layer
Default
Prefab
Select
Revert
Apply
Transform
Position
Rotation
Scale
Animator
Controller
ThirdPersonAnimatorController
Avatar
GirlAvatar
Apply Root Motion
Handled by Script
Update Mode
Normal
Culling Mode
Cull Update Transforms
Clip Count: 26
Curves Pos: 0 Quat: 0 Euler: 0 Scale: 0 Muscles: 3302 Generic: 0 PPtr: 0
Curves Count: 3302 Constant: 313 (9.5%) Dense: 230 (7.0%) Stream: 2759 (83.6%)
Rigidbody
Mass
Drag
Angular Drag
Use Gravity
Is Kinematic
Interpolate
None
Collision Detection
Discrete
Constraints
Capsule Collider
Edit Collider
Is Trigger
Material
ZeroFriction
Center
Radius
Height
Direction
Y-Axis
Third Person Character (Script)
Character GPS Compass Controller (Script)
Add Component

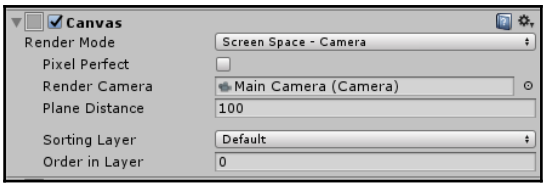

Capsule Collider
Edit Collider
Is Trigger
Material
None (Physic Material)
Center
X 0
Y 0.75
Z 0
Radius
0.4
Height
1.5
Direction
Y-Axis

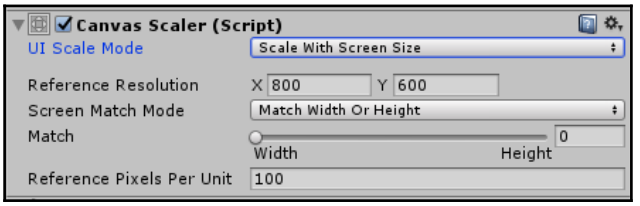

Inspector
Tags & Layers
Tags
Sorting Layers
Layers
Builtin Layer 0
Default
Builtin Layer 1
TransparentFX
Builtin Layer 2
Ignore Raycast
Builtin Layer 3
Builtin Layer 4
Water
Builtin Layer 5
UI
Builtin Layer 6
Builtin Layer 7
User Layer 8
Monster
User Layer 9
Player
User Layer 10
User Layer 11
User Layer 12
User Layer 13
User Layer 14
User Layer 15
User Layer 16
User Layer 17
User Layer 18
User Layer 19
User Layer 20
User Layer 21
User Layer 22
User Layer 23
User Layer 24
User Layer 25
User Layer 26
User Layer 27
User Layer 28
User Layer 29
User Layer 30
User Layer 31

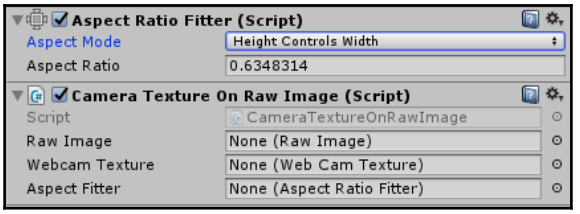

Change Layer
Do you want to set layer to Player for all child objects as well?
Yes, change children
No, this object only
Cancel

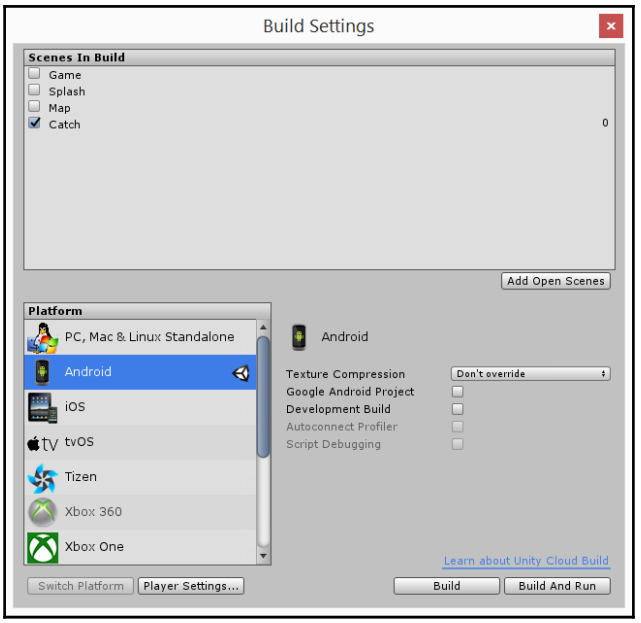

Inspector
PhysicsManager
Gravity
X 0
Y -9.81
Z 0
Default Material
None (Physic Material)
Bounce Threshold
2
Sleep Threshold
0.005
Default Contact Offset
0.01
Solver Iteration Count
6
Solver Velocity Iterations
1
Queries Hit Triggers
Enable Adaptive Force
Layer Collision Matrix
Player
Monster
UI
Water
Ignore Raycast
TransparentFX
Default
Default
TransparentFX
Ignore Raycast
Water
UI
Monster
Player

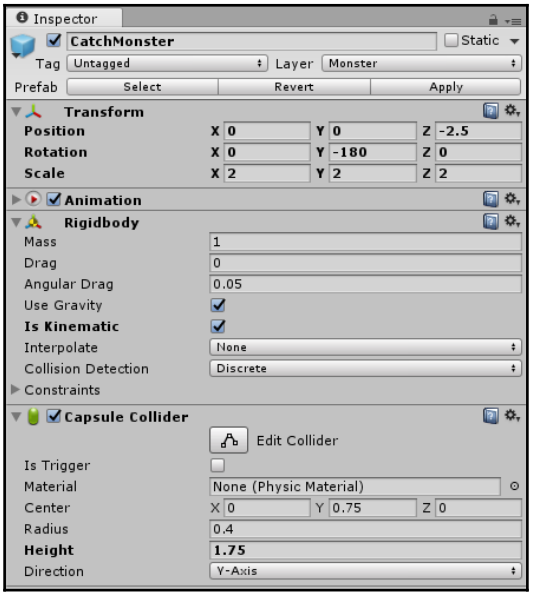

Anchor Presets
Shift: Also set pivot
Alt: Also set position
left
center
right
stretch
top
middle
bottom
stretch

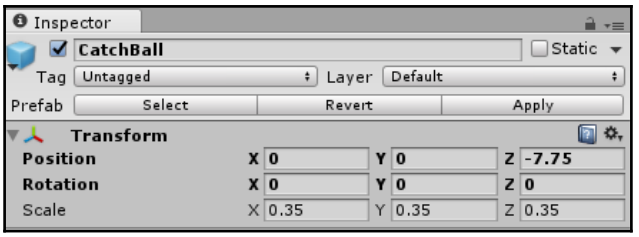

Canvas
Render Mode
Screen Space - Camera
Pixel Perfect
Render Camera
Main Camera (Camera)
Plane Distance
100
Sorting Layer
Default
Order in Layer
0

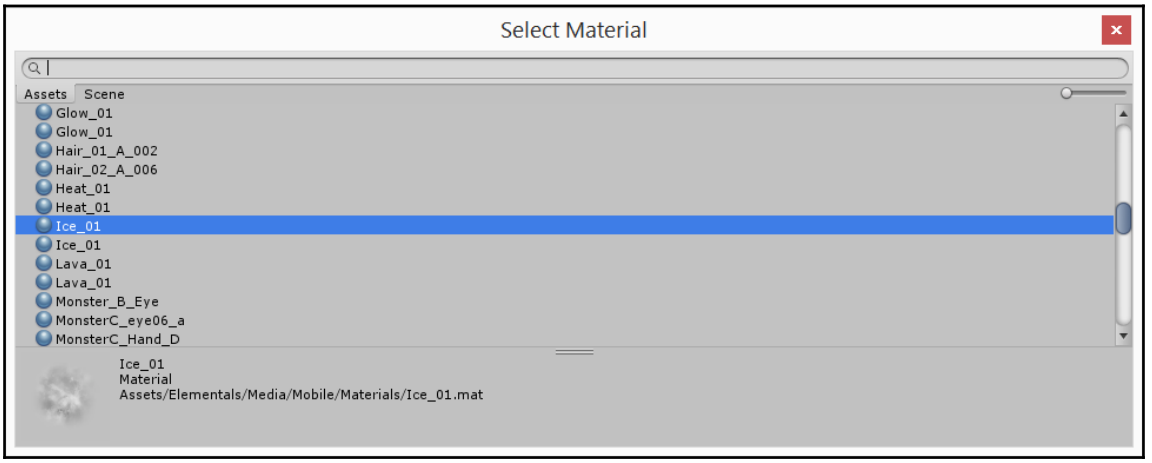

Canvas Scaler (Script)
UI Scale Mode
Scale With Screen Size
Reference Resolution
X 800
Y 600
Screen Match Mode
Match Width Or Height
Match
0
Width
Height
Reference Pixels Per Unit
100

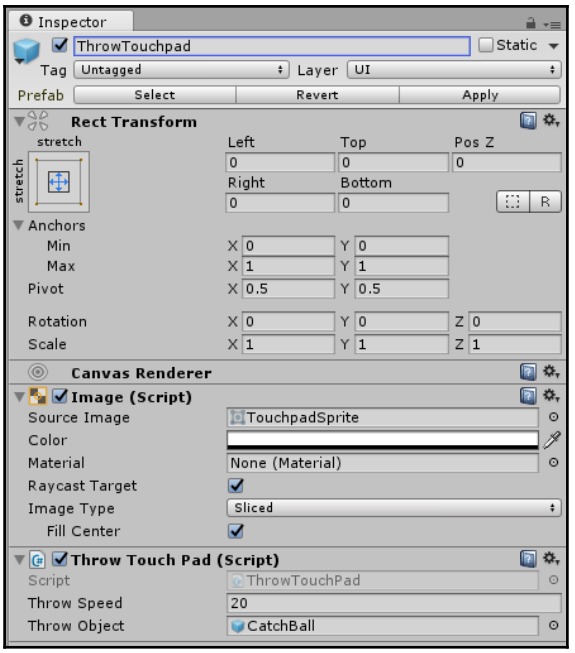

Aspect Ratio Fitter (Script)
Aspect Mode
Height Controls Width
Aspect Ratio
0.6348314
Camera Texture On Raw Image (Script)
Script
CameraTextureOnRawImage
Raw Image
None (Raw Image)
Webcam Texture
None (Web Cam Texture)
Aspect Fitter
None (Aspect Ratio Fitter)

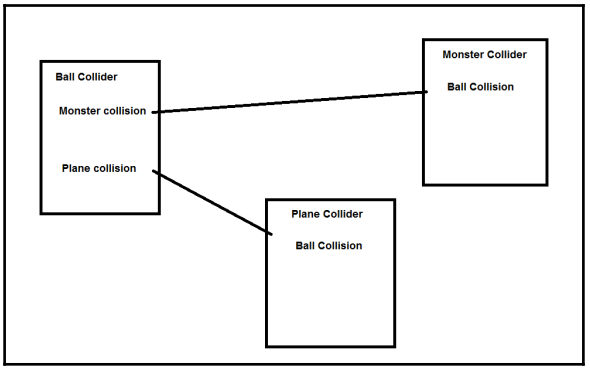

Build Settings
Scenes In Build
Game
Splash
Map
Catch
0
Add Open Scenes
Platform
PC, Mac & Linux Standalone
Android
iOS
tvOS
Tizen
Xbox 360
Xbox One
Android
Texture Compression
Don't override
Google Android Project
Development Build
Autoconnect Profiler
Script Debugging
Learn about Unity Cloud Build
Switch Platform
Player Settings...
Build
Build And Run

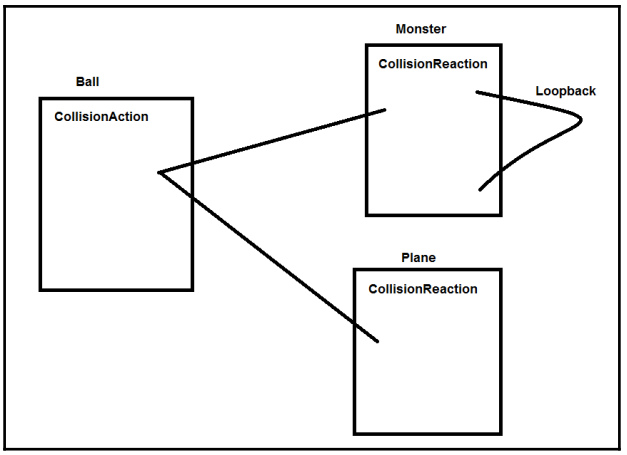

Inspector
CatchMonster
Static
Tag
Untagged
Layer
Monster
Prefab
Select
Revert
Apply
Transform
Position
X 0 Y 0 Z -2.5
Rotation
X 0 Y -180 Z 0
Scale
X 2 Y 2 Z 2
Animation
Rigidbody
Mass
1
Drag
0
Angular Drag
0.05
Use Gravity
Is Kinematic
Interpolate
None
Collision Detection
Discrete
Constraints
Capsule Collider
Edit Collider
Is Trigger
Material
None (Physic Material)
Center
X 0 Y 0.75 Z 0
Radius
0.4
Height
1.75
Direction
Y-Axis

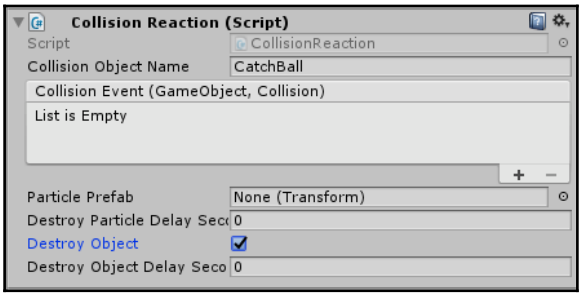

Inspector
CatchBall
Static
Tag
Untagged
Layer
Default
Prefab
Select
Revert
Apply
Transform
Position
X 0
Y 0
Z -7.75
Rotation
X 0
Y 0
Z 0
Scale
X 0.35
Y 0.35
Z 0.35

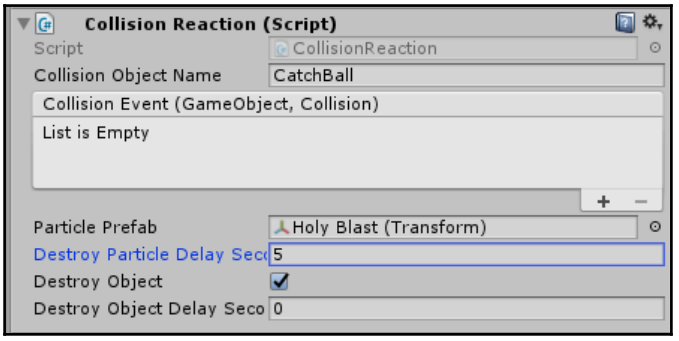

Select Material
Assets
Scene
Glow_01
Glow_01
Hair_01_A_002
Hair_02_A_006
Heat_01
Heat_01
Ice_01
Ice_01
Lava_01
Lava_01
Monster_B_Eye
MonsterC_eye06_a
MonsterC_Hand_D
Ice_01
Material
Assets/Elementals/Media/Mobile/Materials/Ice_01.mat

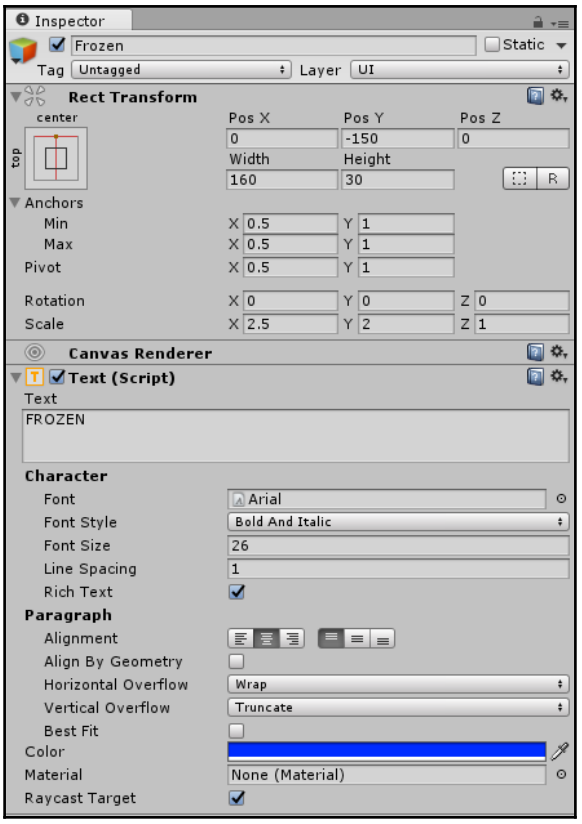

Inspector
ThrowTouchpad
Static
Tag
Untagged
Layer
UI
Prefab
Select
Revert
Apply
Rect Transform
stretch
Left
Top
Pos Z
Right
Bottom
Anchors
Min
Max
Pivot
Rotation
Scale
Canvas Renderer
Image (Script)
Source Image
TouchpadSprite
Color
Material
None (Material)
Raycast Target
Image Type
Sliced
Fill Center
Throw Touch Pad (Script)
Script
ThrowTouchPad
Throw Speed
20
Throw Object
CatchBall

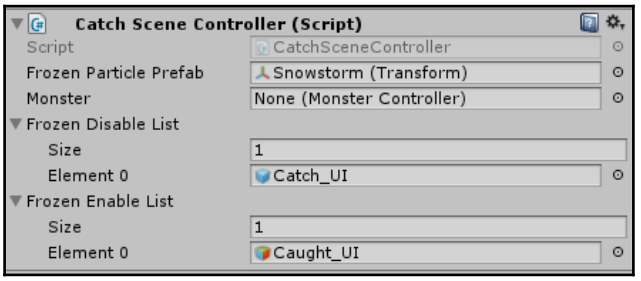

Ball Collider
Monster collision
Plane collision
Monster Collider
Ball Collision
Plane Collider
Ball Collision


Monster
CollisionReaction
Loopback
Ball
CollisionAction
Plane
CollisionReaction


Collision Reaction (Script)
Script
CollisionReaction
Collision Object Name
CatchBall
Collision Event (GameObject, Collision)
List is Empty
Particle Prefab
None (Transform)
Destroy Particle Delay Sec
0
Destroy Object
Destroy Object Delay Seco
0

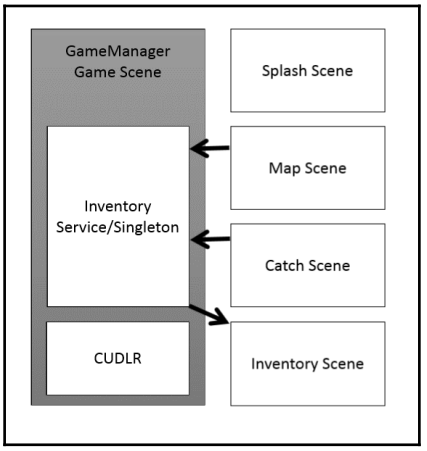

Collision Reaction (Script)
Script
CollisionReaction
Collision Object Name
CatchBall
Collision Event (GameObject, Collision)
List is Empty
Particle Prefab
Holy Blast (Transform)
Destroy Particle Delay Sec
5
Destroy Object
Destroy Object Delay Seco
0

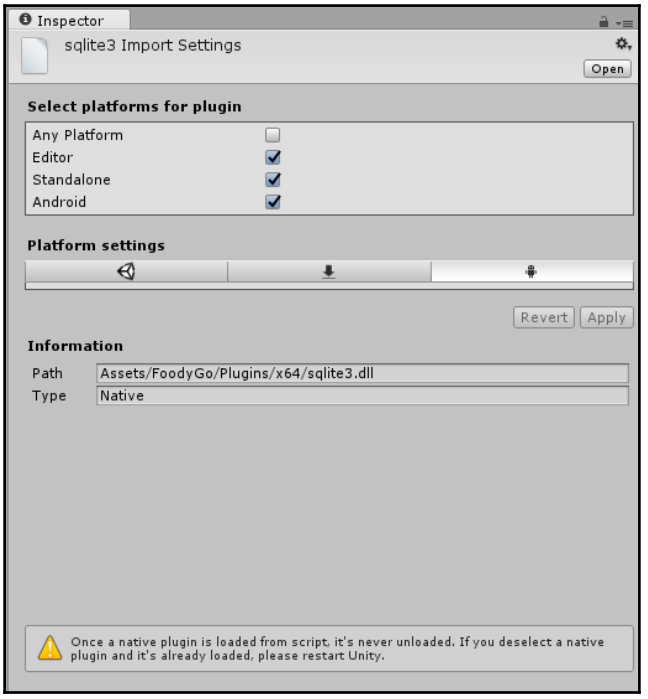

Inspector
Frozen
Static
Tag Untagged
Layer UI
Rect Transform
center
top
Pos X
Pos Y
Pos Z
0
-150
0
Width
Height
160
30
R
Anchors
Min X 0.5 Y 1
Max X 0.5 Y 1
Pivot X 0.5 Y 1
Rotation X 0 Y 0 Z 0
Scale X 2.5 Y 2 Z 1
Canvas Renderer
Text (Script)
Text
FROZEN
Character
Font Arial
Font Style Bold And Italic
Font Size 26
Line Spacing 1
Rich Text
Paragraph
Alignment
Align By Geometry
Horizontal Overflow Wrap
Vertical Overflow Truncate
Best Fit
Color
Material None (Material)
Raycast Target

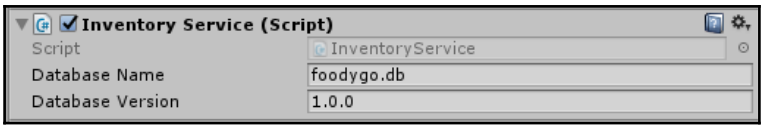

Catch Scene Controller (Script)
Script CatchSceneController
Frozen Particle Prefab Snowstorm (Transform)
Monster None (Monster Controller)
Frozen Disable List
Size 1
Element 0 Catch_UI
Frozen Enable List
Size 1
Element 0 Caught_UI

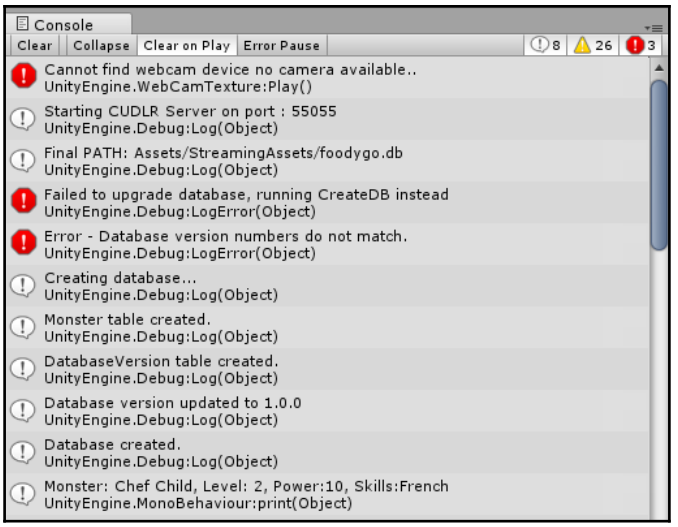

FROZEN

Chapter 6: Storing the Catch

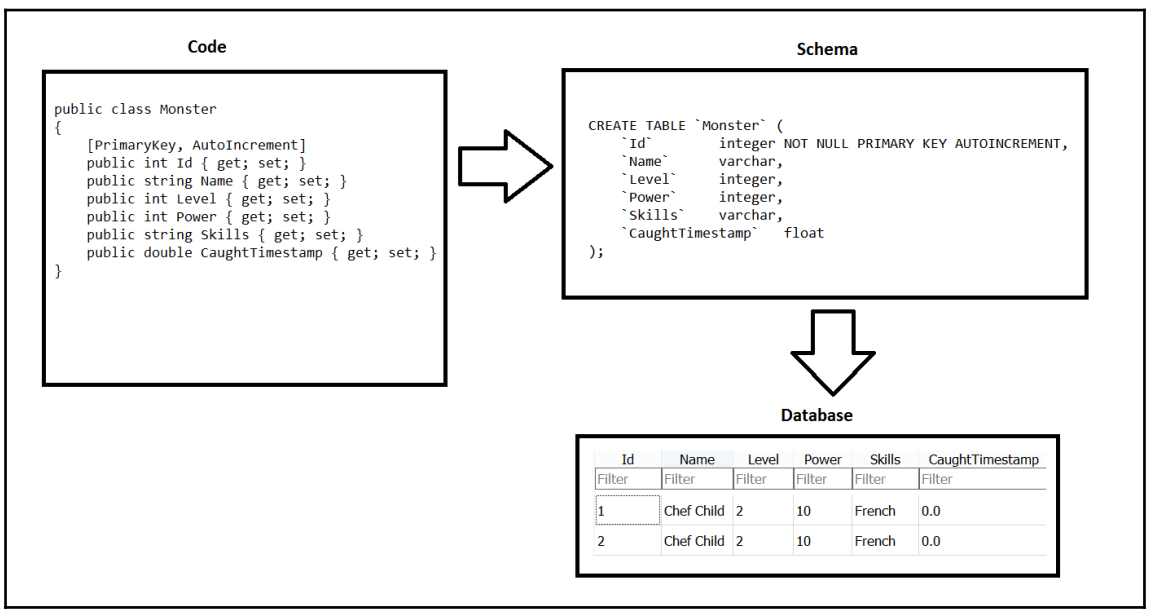


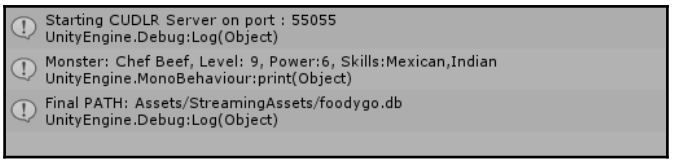



Inventory Service (Script)
Script
InventoryService
Database Name
foodygo.db
Database Version
1.0.0

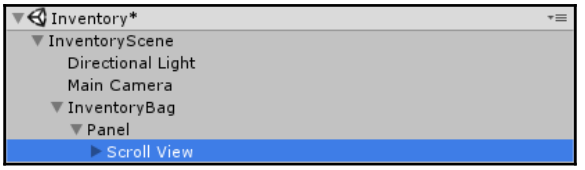

Console
Clear
Collapse
Clear on Play
Error Pause
8
26
3
Cannot find webcam device no camera available..
UnityEngine.WebCamTexture:Play()
Starting CUDLR Server on port : 55055
UnityEngine.Debug:Log(Object)
Final PATH: Assets/StreamingAssets/foodygo.db
UnityEngine.Debug:Log(Object)
Failed to upgrade database, running CreateDB instead
UnityEngine.Debug:LogError(Object)
Error - Database version numbers do not match.
UnityEngine.Debug:LogError(Object)
Creating database...
UnityEngine.Debug:Log(Object)
Monster table created.
UnityEngine.Debug:Log(Object)
DatabaseVersion table created.
UnityEngine.Debug:Log(Object)
Database version updated to 1.0.0
UnityEngine.Debug:Log(Object)
Database created.
UnityEngine.Debug:Log(Object)
Monster: Chef Child, Level: 2, Power:10, Skills:French
UnityEngine.MonoBehaviour:print(Object)

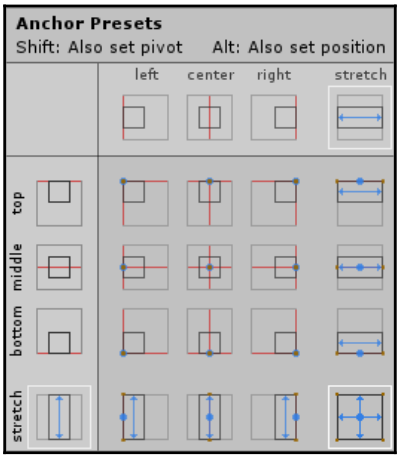
```
Database not in Persistent path
Database written
Final PATH: /storage/emulated/0/Android/data/com.packt.FoodyGO/files/foodygo.db
Creating database...
Monster table created.
DatabaseVersion table created.
Database version updated to 1.0.0
Database created.
Monster: Chef Child, Level: 2, Power:10, Skills:French
```

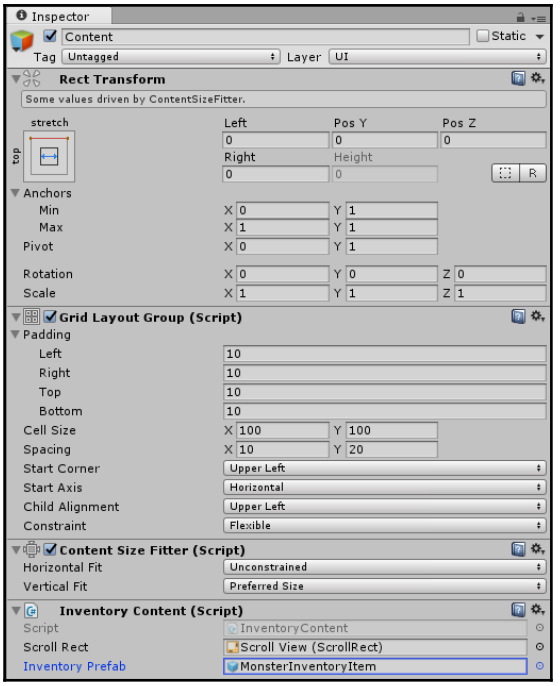


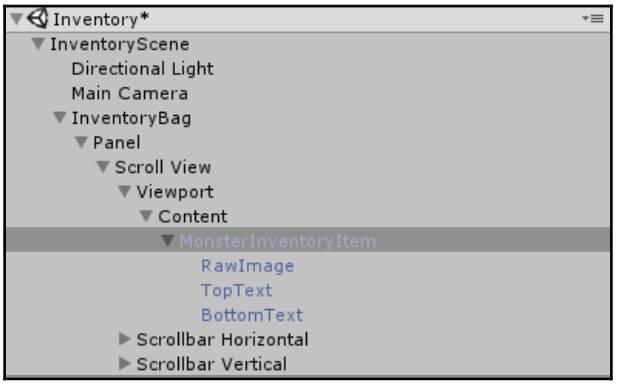

Starting CUDLR Server on port : 55055
UnityEngine.Debug:Log(Object)
Monster: Chef Beef, Level: 9, Power:6, Skills:Mexican,Indian
UnityEngine.MonoBehaviour:print(Object)
Final PATH: Assets/StreamingAssets/foodygo.db
UnityEngine.Debug:Log(Object)


Paragraph
Alignment


Inventory*
InventoryScene
Directional Light
Main Camera
InventoryBag
Panel
Scroll View


Anchor Presets
Shift: Also set pivot
Alt: Also set position
left
center
right
stretch
top
middle
bottom
stretch


Inspector
Content
Static
Tag Untagged
Layer UI
Rect Transform
Some values driven by ContentSizeFitter.
stretch
top
Left
Pos Y
Pos Z
Right
Height
Anchors
Min
Max
Pivot
Rotation
Scale
Grid Layout Group (Script)
Padding
Left
Right
Top
Bottom
Cell Size
Spacing
Start Corner
Start Axis
Child Alignment
Constraint
Content Size Fitter (Script)
Horizontal Fit
Vertical Fit
Inventory Content (Script)
Script
InventoryContent
Scroll Rect
Scroll View (ScrollRect)
Inventory Prefab
MonsterInventoryItem


Inventory*
InventoryScene
Directional Light
Main Camera
InventoryBag
Panel
Scroll View
Viewport
Content
MonsterInventoryItem
RawImage
TopText
BottomText
Scrollbar Horizontal
Scrollbar Vertical

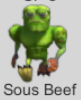
CP 20

Chef Child

CP 20

Chef Child

CP 8



Sous Beef

CP 1

Sous Poulet

CP 1

Beef Bacon

CP 1

Sous Duck

CP 1

Poulet Sauce

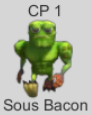
CP 1

Benedict Poulet

CP 1

Sauce Sous

CP 1



Sous Bacon

CP 1

Slice Chef

CP 1

Sous Child

CP 1

Slice Poulet

CP 1

Poulet Slice

CP 1

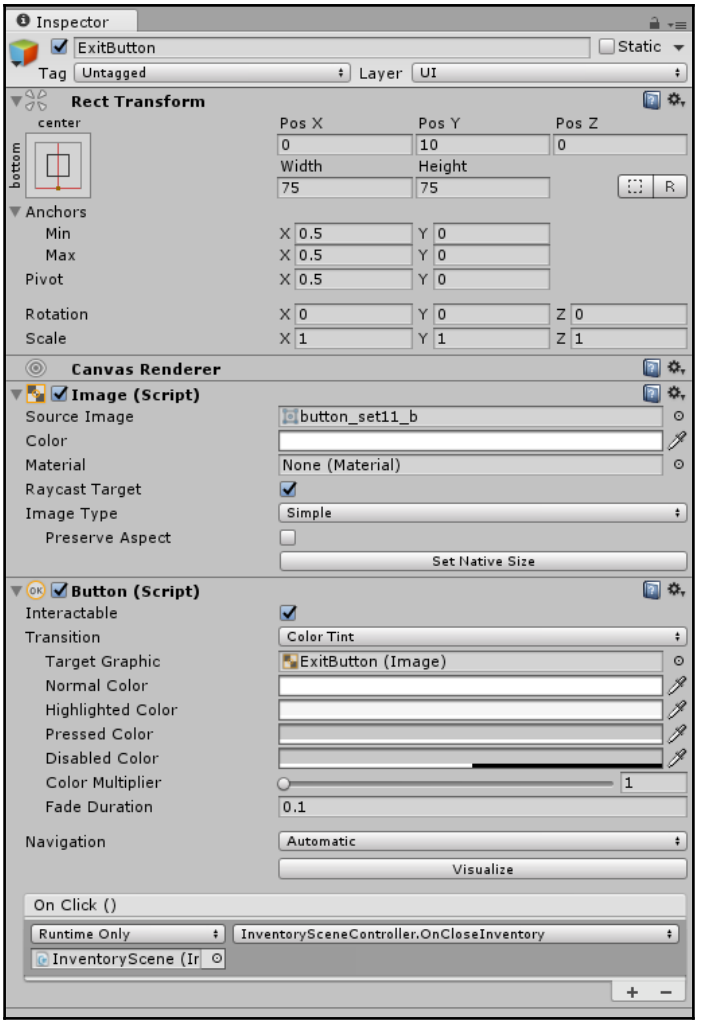
Benedict Chef

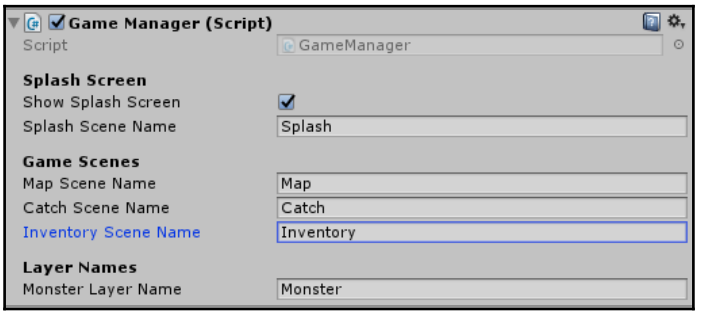
CP 1

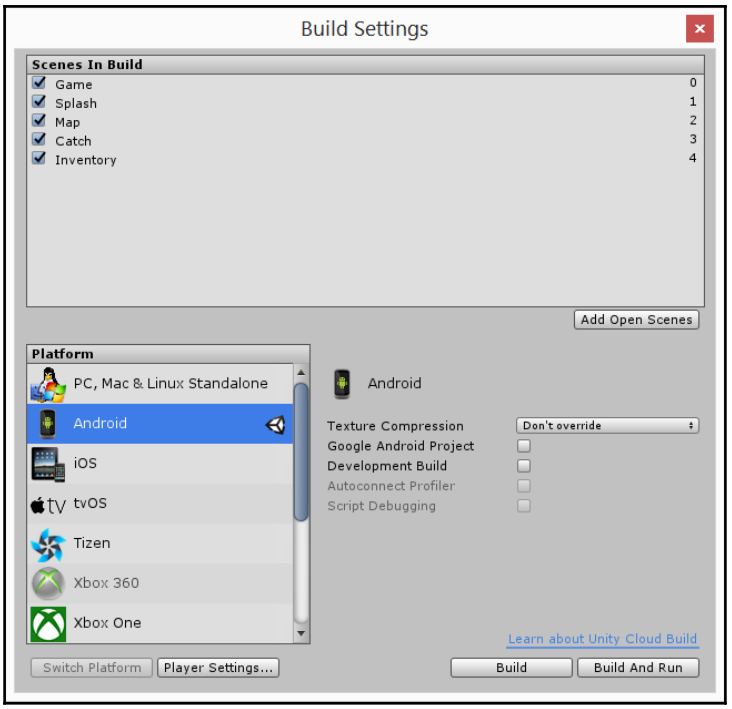
Slice Bacon

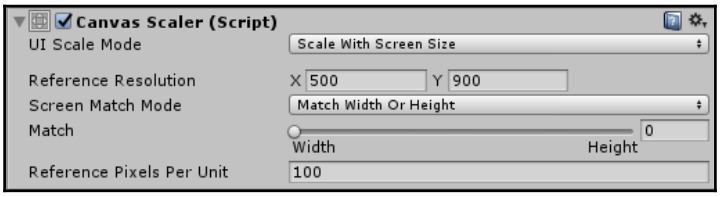
CP 1

Duck Chef

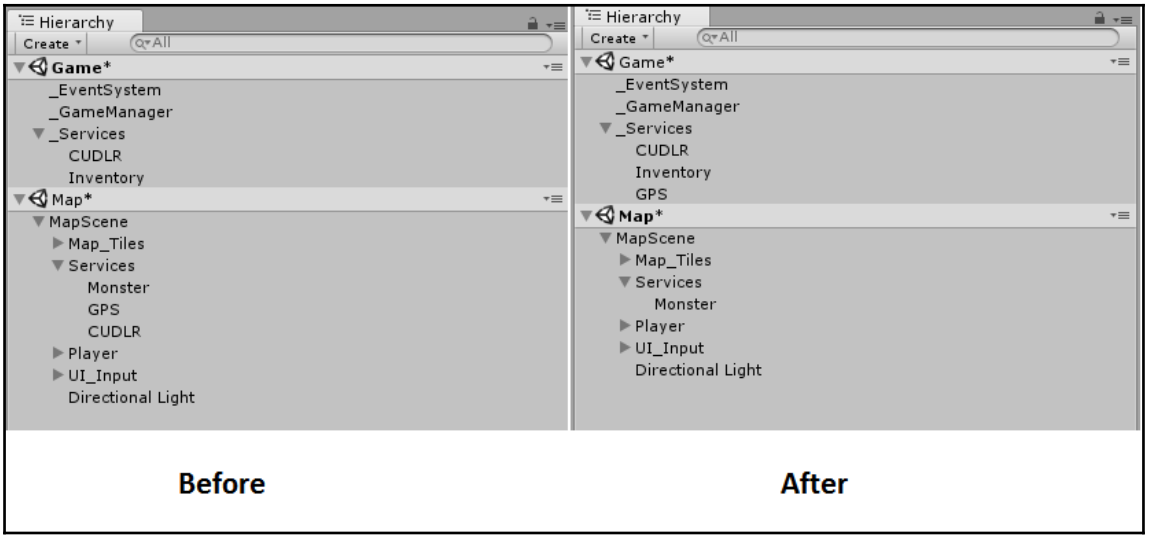

Inspector
ExitButton
Static
Tag Untagged
Layer UI
Rect Transform
center
bottom
Pos X 0
Pos Y 10
Pos Z 0
Width 75
Height 75
Anchors
Min X 0.5 Y 0
Max X 0.5 Y 0
Pivot X 0.5 Y 0
Rotation X 0 Y 0 Z 0
Scale X 1 Y 1 Z 1
Canvas Renderer
Image (Script)
Source Image button_set11_b
Color
Material None (Material)
Raycast Target
Image Type Simple
Preserve Aspect
Set Native Size
Button (Script)
Interactable
Transition Color Tint
Target Graphic ExitButton (Image)
Normal Color
Highlighted Color
Pressed Color
Disabled Color
Color Multiplier 1
Fade Duration 0.1
Navigation Automatic
Visualize
On Click ()
Runtime Only
InventorySceneController.OnCloseInventory
InventoryScene (Ir

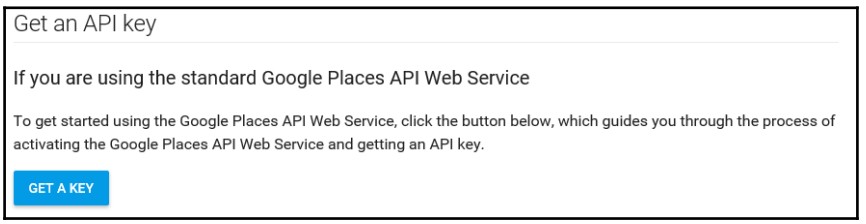

Game Manager (Script)
Script GameManager
Splash Screen
Show Splash Screen
Splash Scene Name Splash
Game Scenes
Map Scene Name Map
Catch Scene Name Catch
Inventory Scene Name Inventory
Layer Names
Monster Layer Name Monster

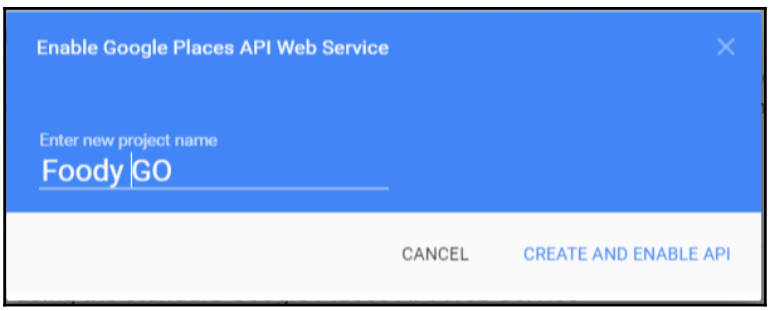

Build Settings
Scenes In Build
Game 0
Splash 1
Map 2
Catch 3
Inventory 4
Add Open Scenes
Platform
PC, Mac & Linux Standalone
Android
iOS
tvOS
Tizen
Xbox 360
Xbox One
Android
Texture Compression
Don't override
Google Android Project
Development Build
Autoconnect Profiler
Script Debugging
Learn about Unity Cloud Build
Switch Platform
Player Settings...
Build
Build And Run

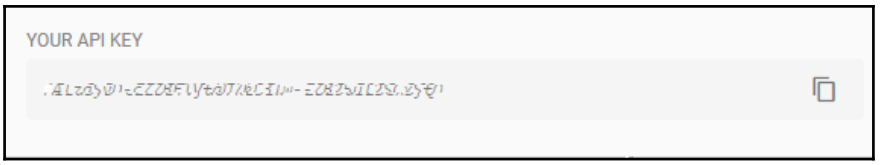

Canvas Scaler (Script)
UI Scale Mode
Scale With Screen Size
Reference Resolution
X 500
Y 900
Screen Match Mode
Match Width Or Height
Match
0
Width
Height
Reference Pixels Per Unit
100

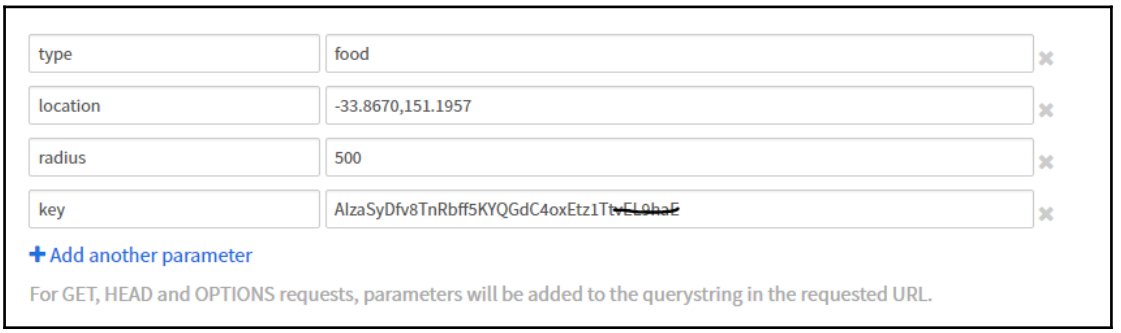
Chapter 7: Creating the AR World





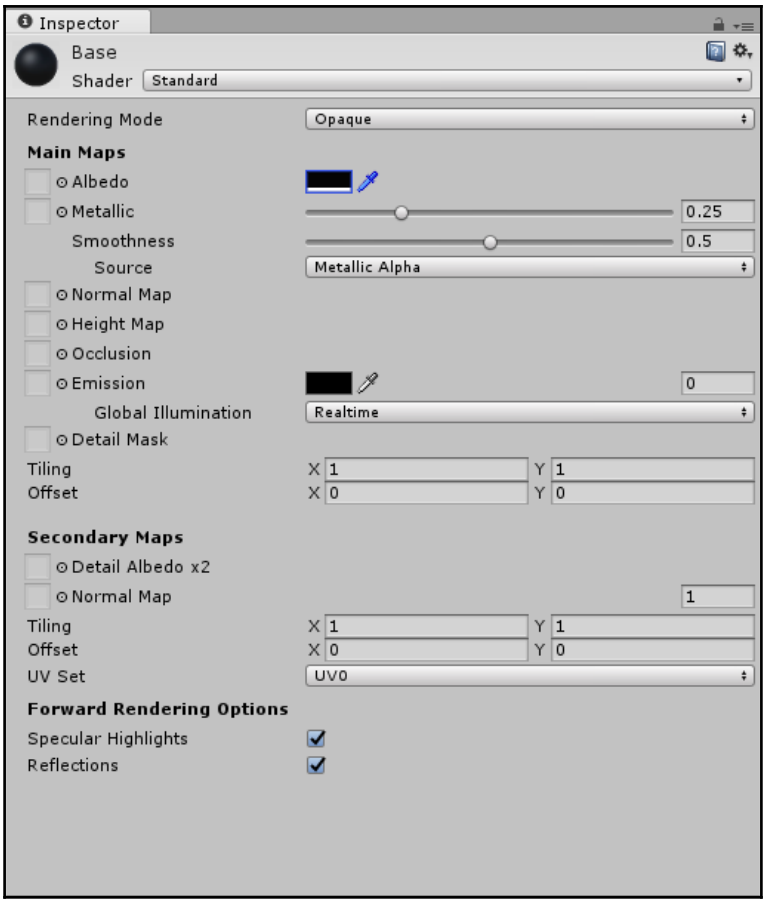


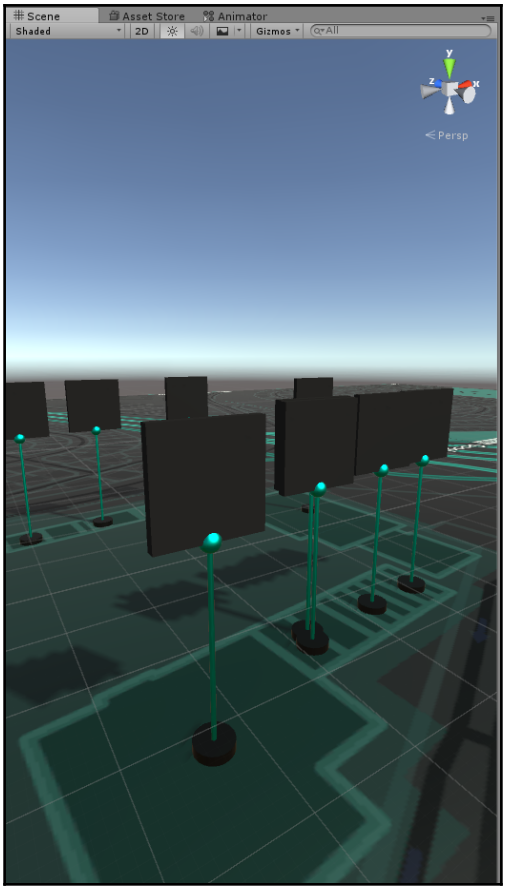

YOUR API KEY

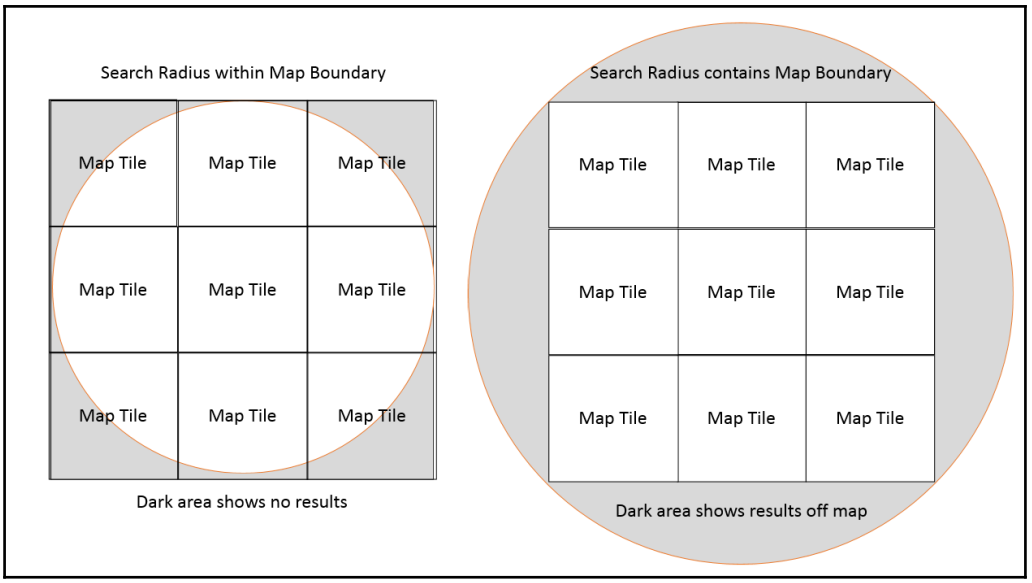

type
food
location
-33.8670,151.1957
radius
500
key
AIzaSyDfv8TnRbff5KYQGdC4oxEtz1Tt
+ Add another parameter
For GET, HEAD and OPTIONS requests, parameters will be added to the querystring in the requested URL.

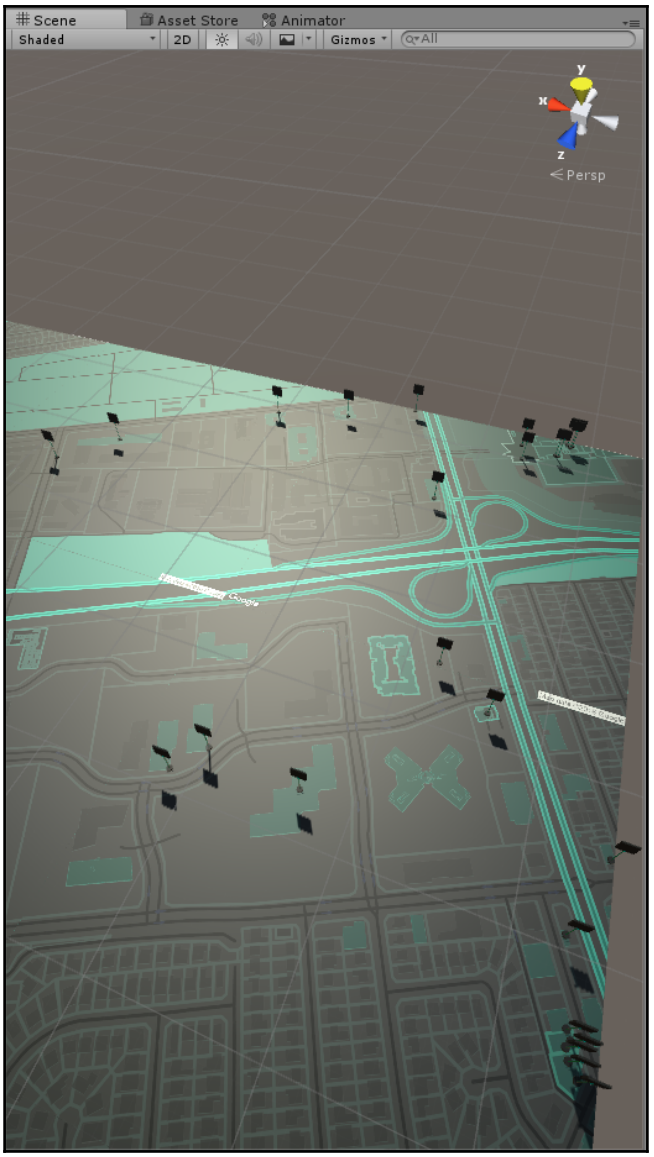
```
public class Location
{
    public double lat { get; set; }
    public double lng { get; set; }
}

public class Northeast
{
    public double lat { get; set; }
    public double lng { get; set; }
}

public class Southwest
{
    public double lat { get; set; }
    public double lng { get; set; }
}

public class Viewport
{
    public Northeast northeast { get; set; }
    public Southwest southwest { get; set; }
}

public class Geometry
{
    public Location location { get; set; }
    public Viewport viewport { get; set; }
}

public class OpeningHours
{
    public bool open_now { get; set; }
    public List<object> weekday_text { get; set; }
}

public class Photo
{
    public int height { get; set; }
    public List<string> html_attributions { get; set; }
    public string photo_reference { get; set; }
    public int width { get; set; }
}

public class Result
{
    public Geometry geometry { get; set; }
    public string icon { get; set; }
    public string id { get; set; }
    public string name { get; set; }
    public OpeningHours opening_hours { get; set; }
    public List<Photo> photos { get; set; }
    public string place_id { get; set; }
    public int price_level { get; set; }
    public double rating { get; set; }
    public string reference { get; set; }
    public string scope { get; set; }
    public List<string> types { get; set; }
    public string vicinity { get; set; }
}

public class RootObject
{
    public List<object> html_attributions { get; set; }
    public string next_page_token { get; set; }
    public List<Result> results { get; set; }
    public string status { get; set; }
}
```

Close Copy

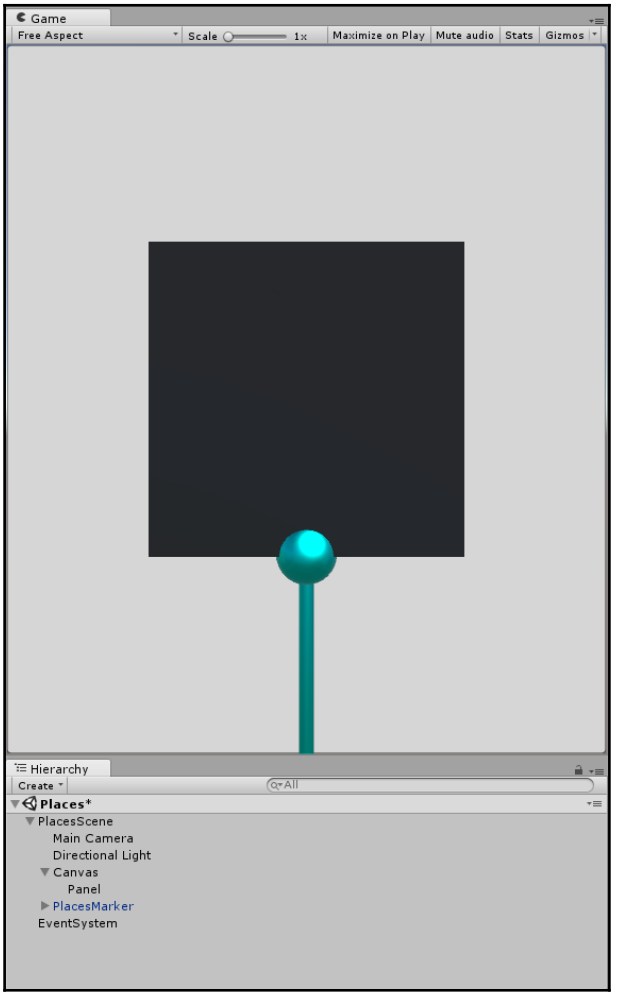

Inspector
Base
Shader
Standard
Rendering Mode
Opaque
Main Maps
Albedo
Metallic
0.25
Smoothness
0.5
Source
Metallic Alpha
Normal Map
Height Map
Occlusion
Emission
0
Global Illumination
Realtime
Detail Mask
Tiling
X 1
Y 1
Offset
X 0
Y 0
Secondary Maps
Detail Albedo x2
Normal Map
1
Tiling
X 1
Y 1
Offset
X 0
Y 0
UV Set
UV0
Forward Rendering Options
Specular Highlights
Reflections

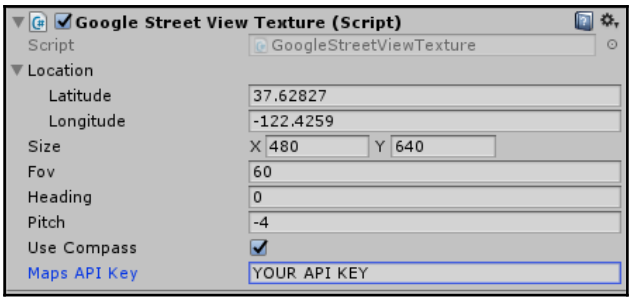

Scene
Asset Store
Animator
Shaded
2D
Gizmos
Persp

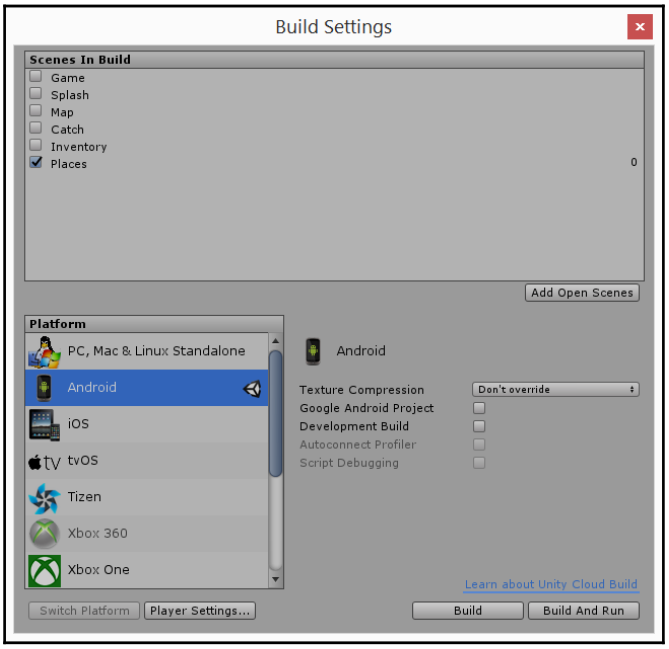

Search Radius within Map Boundary
Map Tile
Map Tile
Map Tile
Map Tile
Map Tile
Map Tile
Map Tile
Map Tile
Map Tile
Dark area shows no results
Search Radius contains Map Boundary
Map Tile
Map Tile
Map Tile
Map Tile
Map Tile
Map Tile
Map Tile
Map Tile
Map Tile
Dark area shows results off map

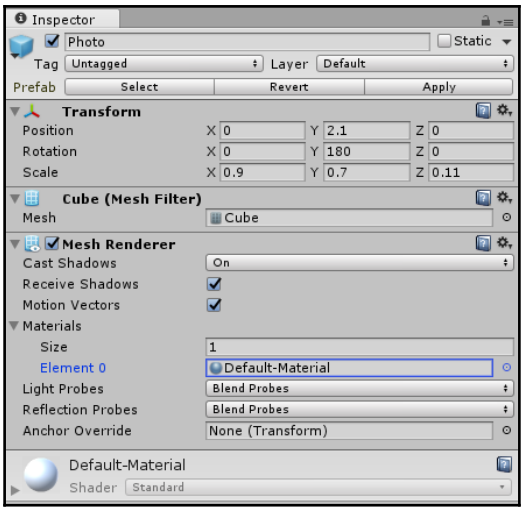

Scene
Asset Store
Animator
Shaded
2D
Gizmos
All
y
x
z
Persp

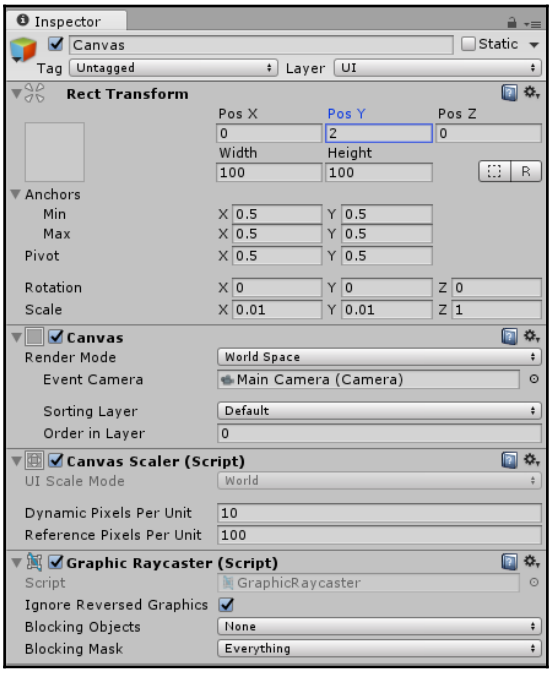
Chapter 8: Interacting with an AR World

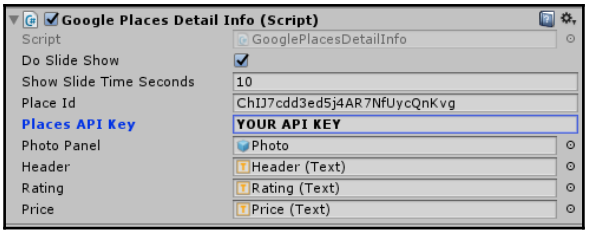


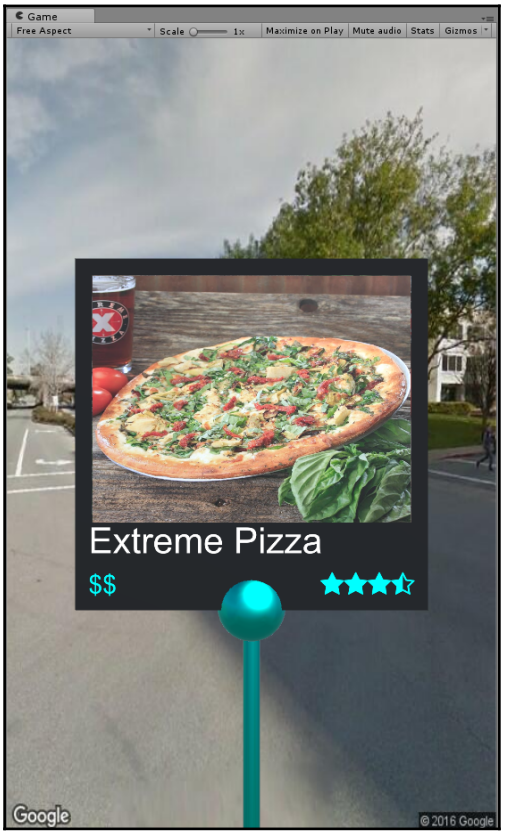

Google Street View Texture (Script)
Script
GoogleStreetViewTexture
Location
Latitude
37.62827
Longitude
-122.4259
Size
X 480
Y 640
Fov
60
Heading
0
Pitch
-4
Use Compass
Maps API Key
YOUR API KEY

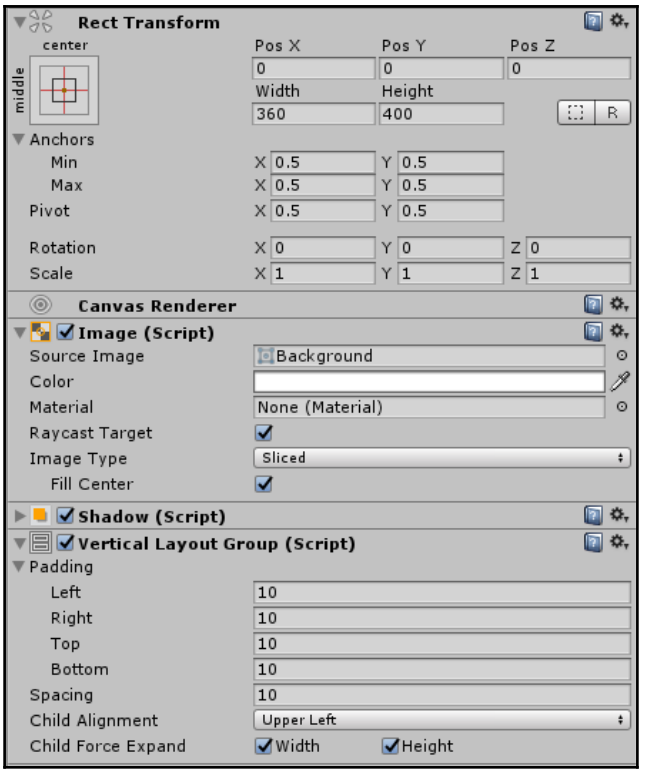

Build Settings
Scenes In Build
Game
Splash
Map
Catch
Inventory
Places
0
Add Open Scenes
Platform
PC, Mac & Linux Standalone
Android
iOS
tvOS
Tizen
Xbox 360
Xbox One
Android
Texture Compression
Don't override
Google Android Project
Development Build
Autoconnect Profiler
Script Debugging
Learn about Unity Cloud Build
Switch Platform
Player Settings...
Build
Build And Run

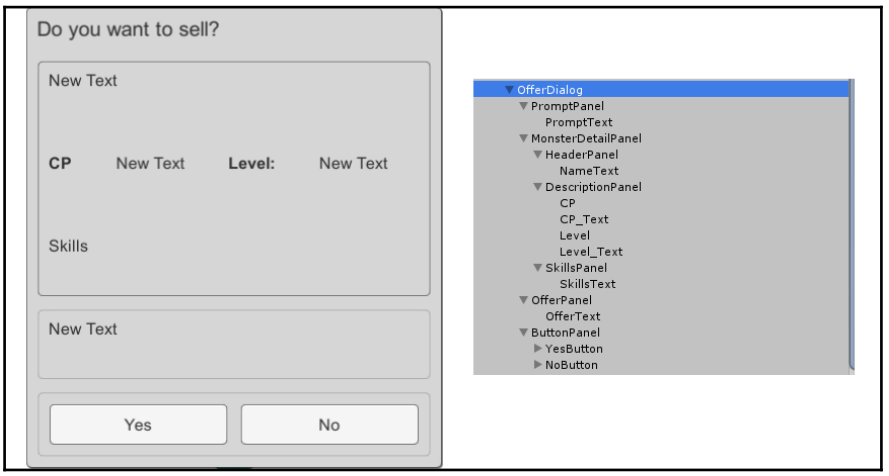

Inspector
Photo
Static
Tag Untagged
Layer Default
Prefab Select Revert Apply
Transform
Position X 0 Y 2.1 Z 0
Rotation X 0 Y 180 Z 0
Scale X 0.9 Y 0.7 Z 0.11
Cube (Mesh Filter)
Mesh Cube
Mesh Renderer
Cast Shadows On
Receive Shadows
Motion Vectors
Materials
Size 1
Element 0 Default-Material
Light Probes Blend Probes
Reflection Probes Blend Probes
Anchor Override None (Transform)
Default-Material
Shader Standard

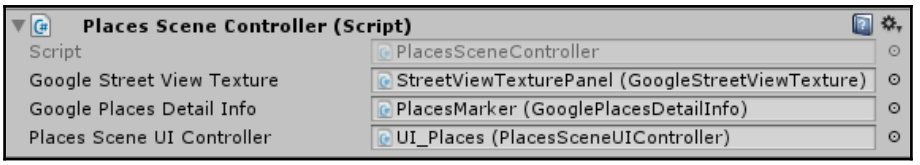

Inspector
Canvas
Static
Tag Untagged
Layer UI
Rect Transform
Pos X Pos Y Pos Z
0 2 0
Width Height
100 100
R
Anchors
Min X 0.5 Y 0.5
Max X 0.5 Y 0.5
Pivot X 0.5 Y 0.5
Rotation X 0 Y 0 Z 0
Scale X 0.01 Y 0.01 Z 1
Canvas
Render Mode World Space
Event Camera Main Camera (Camera)
Sorting Layer Default
Order in Layer 0
Canvas Scaler (Script)
UI Scale Mode World
Dynamic Pixels Per Unit 10
Reference Pixels Per Unit 100
Graphic Raycaster (Script)
Script GraphicRaycaster
Ignore Reversed Graphics
Blocking Objects None
Blocking Mask Everything

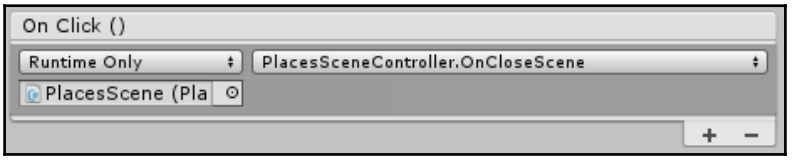

Google Places Detail Info (Script)
Script
GooglePlacesDetailInfo
Do Slide Show
Show Slide Time Seconds
10
Place Id
ChIJ7cdd3ed5j4AR7NfUycQnKvg
Places API Key
YOUR API KEY
Photo Panel
Photo
Header
Header (Text)
Rating
Rating (Text)
Price
Price (Text)

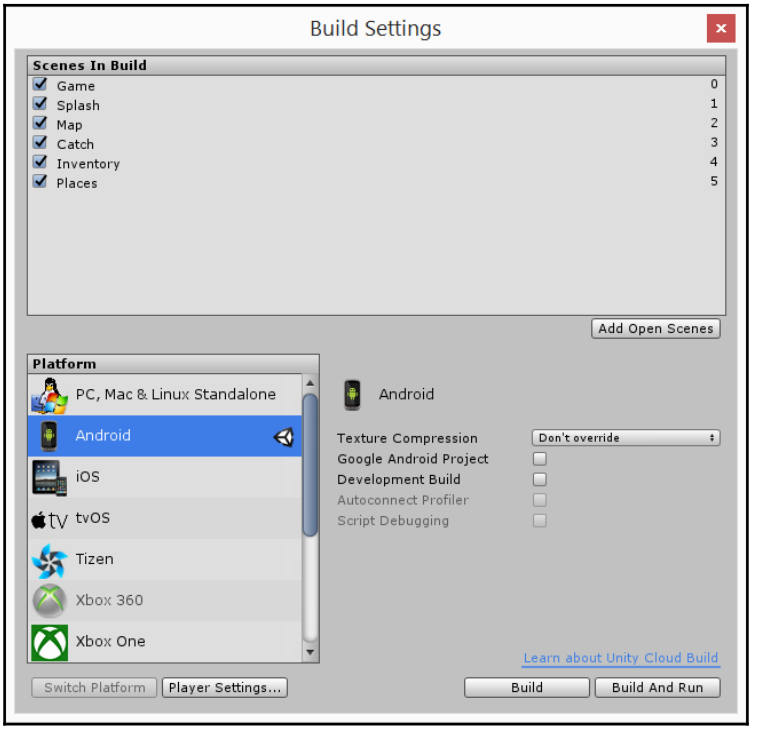

Game
Free Aspect
Scale
1x
Maximize on Play
Mute audio
Stats
Gizmos
Extreme Pizza
$$
Google
© 2016 Google

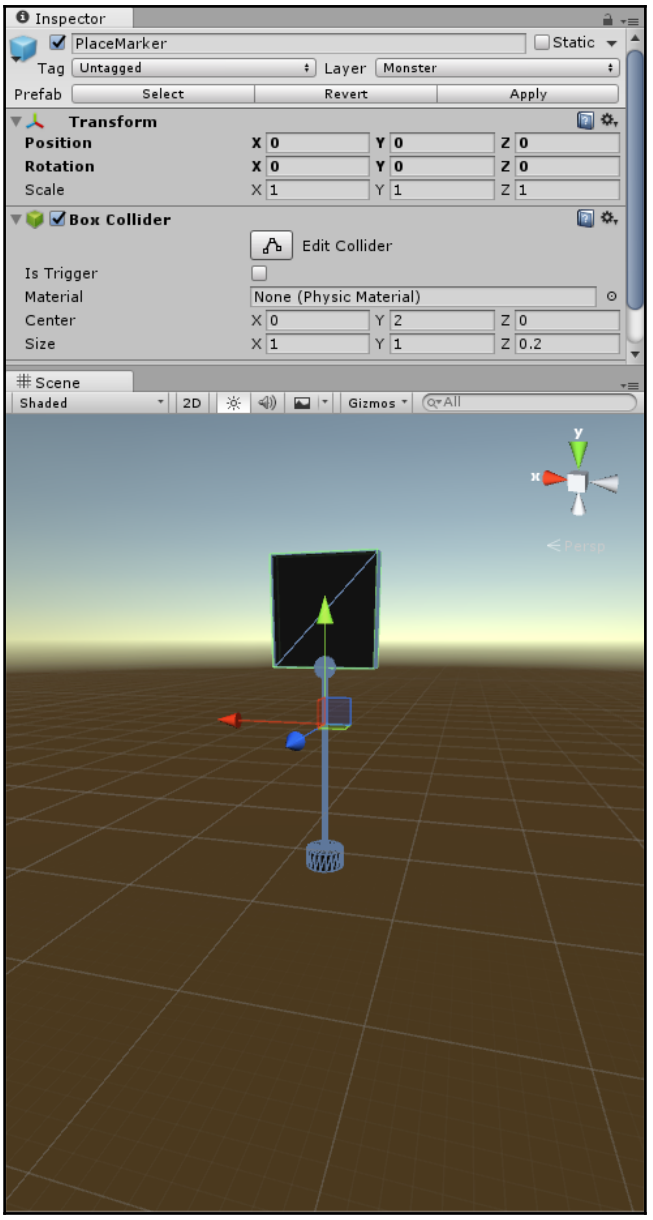

Rect Transform
center
middle
Pos X
Pos Y
Pos Z
0
0
0
Width
Height
360
400
R
Anchors
Min
X 0.5
Y 0.5
Max
X 0.5
Y 0.5
Pivot
X 0.5
Y 0.5
Rotation
X 0
Y 0
Z 0
Scale
X 1
Y 1
Z 1
Canvas Renderer
Image (Script)
Source Image
Background
Color
Material
None (Material)
Raycast Target
Image Type
Sliced
Fill Center
Shadow (Script)
Vertical Layout Group (Script)
Padding
Left
10
Right
10
Top
10
Bottom
10
Spacing
10
Child Alignment
Upper Left
Child Force Expand
Width
Height


Do you want to sell?
New Text
CP
New Text
Level:
New Text
Skills
New Text
Yes
No
OfferDialog
PromptPanel
PromptText
MonsterDetailPanel
HeaderPanel
NameText
DescriptionPanel
CP
CP_Text
Level
Level_Text
SkillsPanel
SkillsText
OfferPanel
OfferText
ButtonPanel
YesButton
NoButton

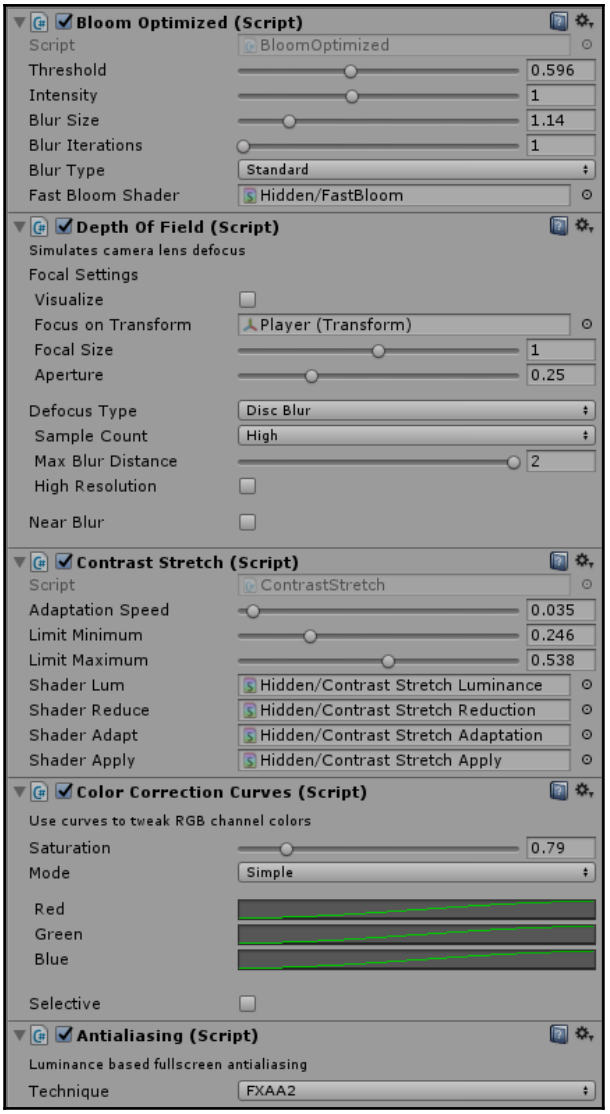

Places Scene Controller (Script)
Script
PlacesSceneController
Google Street View Texture
StreetViewTexturePanel (GoogleStreetViewTexture)
Google Places Detail Info
PlacesMarker (GooglePlacesDetailInfo)
Places Scene UI Controller
UI_Places (PlacesSceneUIController)

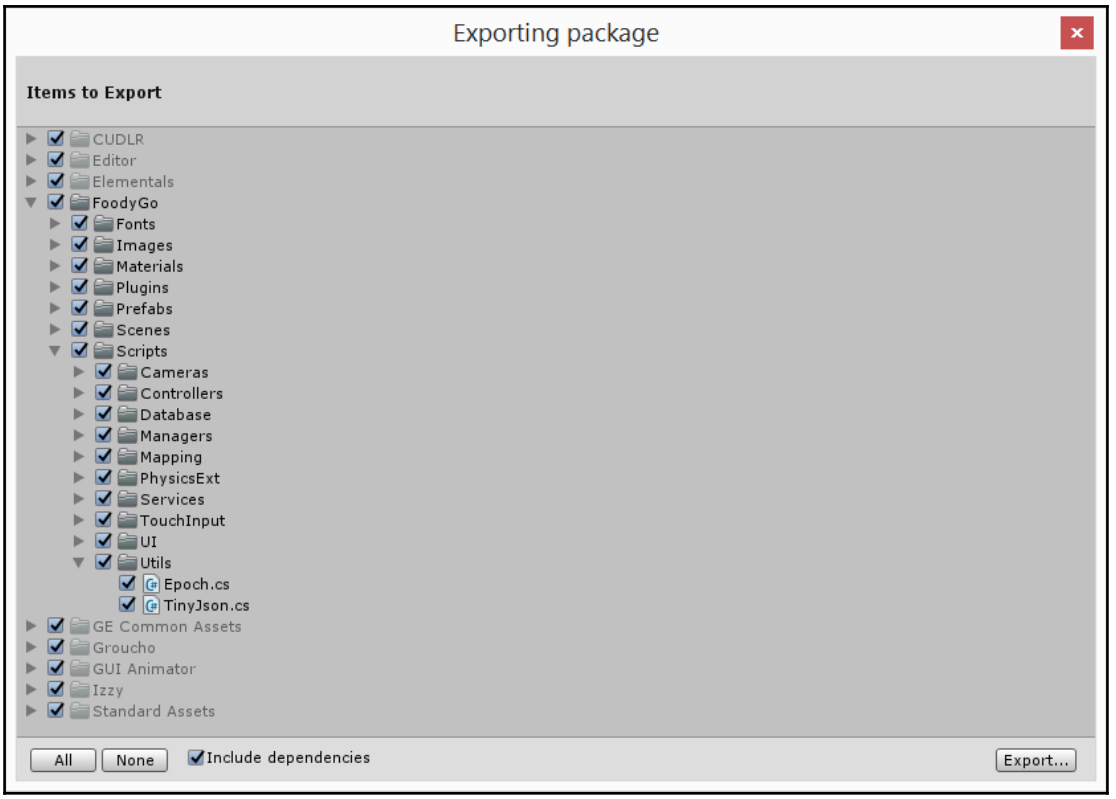

On Click ()
Runtime Only
PlacesSceneController.OnCloseScene
PlacesScene (Pla

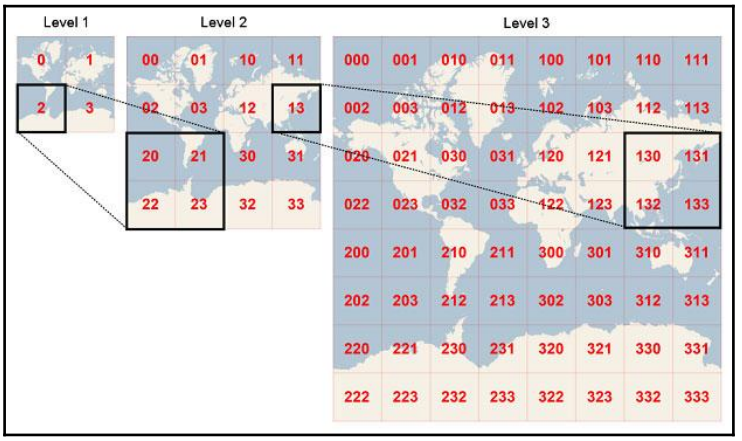

Build Settings
Scenes In Build
Game 0
Splash 1
Map 2
Catch 3
Inventory 4
Places 5
Add Open Scenes
Platform
PC, Mac & Linux Standalone
Android
iOS
tvOS
Tizen
Xbox 360
Xbox One
Android
Texture Compression
Don't override
Google Android Project
Development Build
Autoconnect Profiler
Script Debugging
Learn about Unity Cloud Build
Switch Platform
Player Settings...
Build
Build And Run

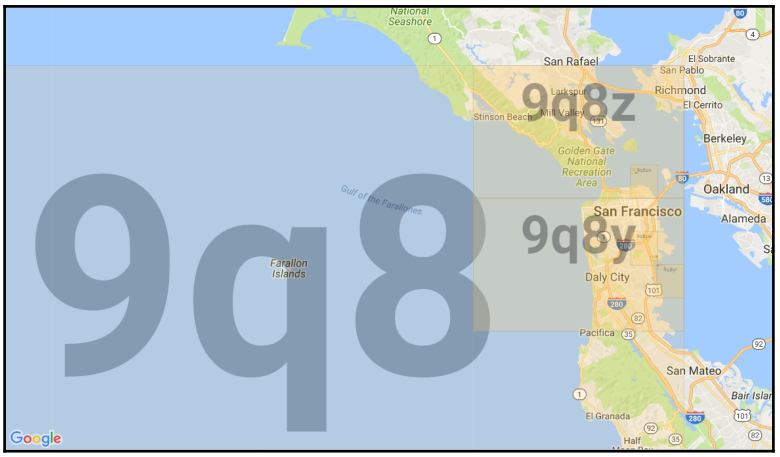

Inspector
PlaceMarker
Static
Tag
Untagged
Layer
Monster
Prefab
Select
Revert
Apply
Transform
Position
Rotation
Scale
Box Collider
Edit Collider
Is Trigger
Material
None (Physic Material)
Center
Size
Scene
Shaded
2D
Gizmos
All
y
x
Persp

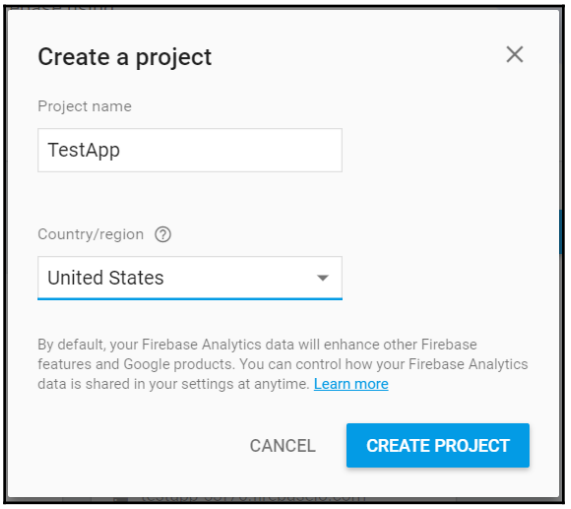
Chapter 9: Finishing the Game

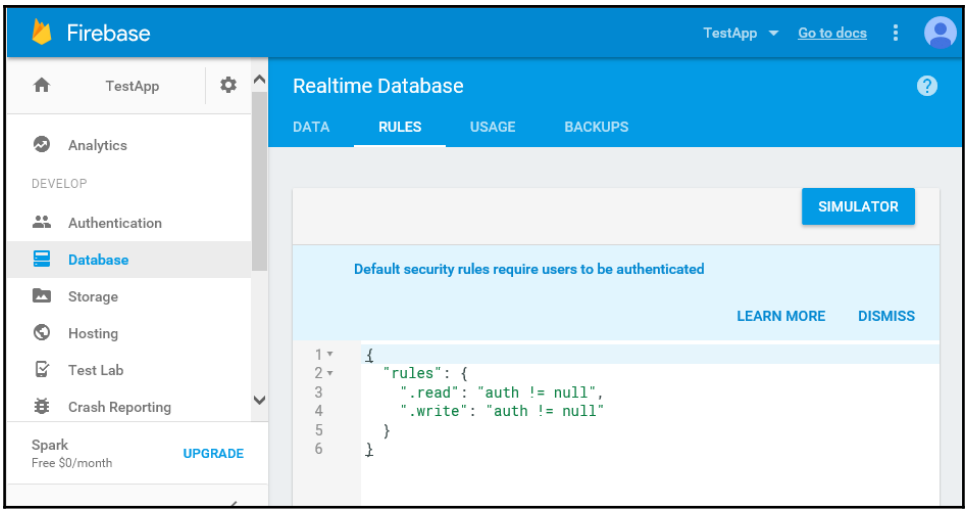

Bloom Optimized (Script)
Script
BloomOptimized
Threshold
0.596
Intensity
1
Blur Size
1.14
Blur Iterations
1
Blur Type
Standard
Fast Bloom Shader
Hidden/FastBloom
Depth Of Field (Script)
Simulates camera lens defocus
Focal Settings
Visualize
Focus on Transform
Player (Transform)
Focal Size
1
Aperture
0.25
Defocus Type
Disc Blur
Sample Count
High
Max Blur Distance
2
High Resolution
Near Blur
Contrast Stretch (Script)
Script
ContrastStretch
Adaptation Speed
0.035
Limit Minimum
0.246
Limit Maximum
0.538
Shader Lum
Hidden/Contrast Stretch Luminance
Shader Reduce
Hidden/Contrast Stretch Reduction
Shader Adapt
Hidden/Contrast Stretch Adaptation
Shader Apply
Hidden/Contrast Stretch Apply
Color Correction Curves (Script)
Use curves to tweak RGB channel colors
Saturation
0.79
Mode
Simple
Red
Green
Blue
Selective
Antialiasing (Script)
Luminance based fullscreen antialiasing
Technique
FXAA2

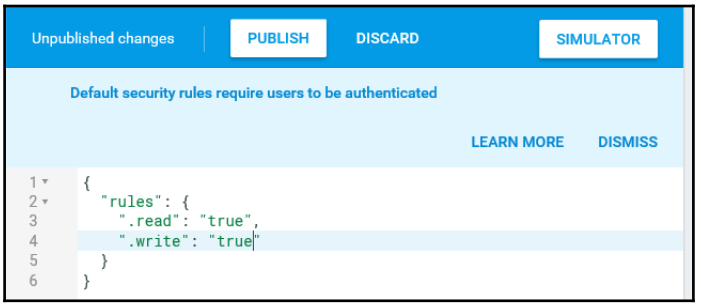

Exporting package
Items to Export
CUDLR
Editor
Elementals
FoodyGo
Fonts
Images
Materials
Plugins
Prefabs
Scenes
Scripts
Cameras
Controllers
Database
Managers
Mapping
PhysicsExt
Services
TouchInput
UI
Utils
Epoch.cs
TinyJson.cs
GE Common Assets
Groucho
GUI Animator
Izzy
Standard Assets
All
None
Include dependencies
Export...

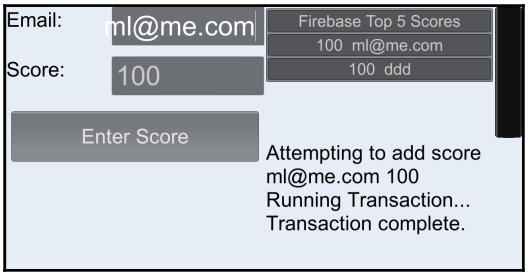

Level 1
Level 2
Level 3
0 1
2 3
00 01 10 11
02 03 12 13
20 21 30 31
22 23 32 33
000 001 010 011 100 101 110 111
002 003 012 013 102 103 112 113
020 021 030 031 120 121 130 131
022 023 032 033 122 123 132 133
200 201 210 211 300 301 310 311
202 203 212 213 302 303 312 313
220 221 230 231 320 321 330 331
222 223 232 233 322 323 332 333

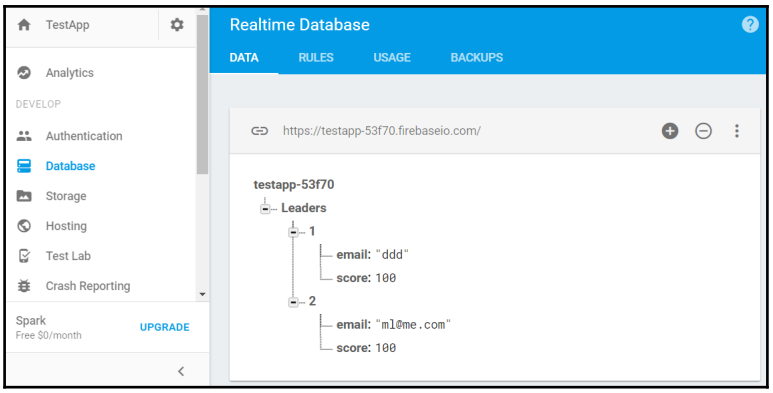

9q8
9q8z
9q8y
San Rafael
Richmond
Berkeley
Oakland
San Francisco
Alameda
Daly City
Pacifica
San Mateo
Google


Create a project
Project name
TestApp
Country/region
United States
By default, your Firebase Analytics data will enhance other Firebase features and Google products. You can control how your Firebase Analytics data is shared in your settings at anytime. Learn more
CANCEL
CREATE PROJECT

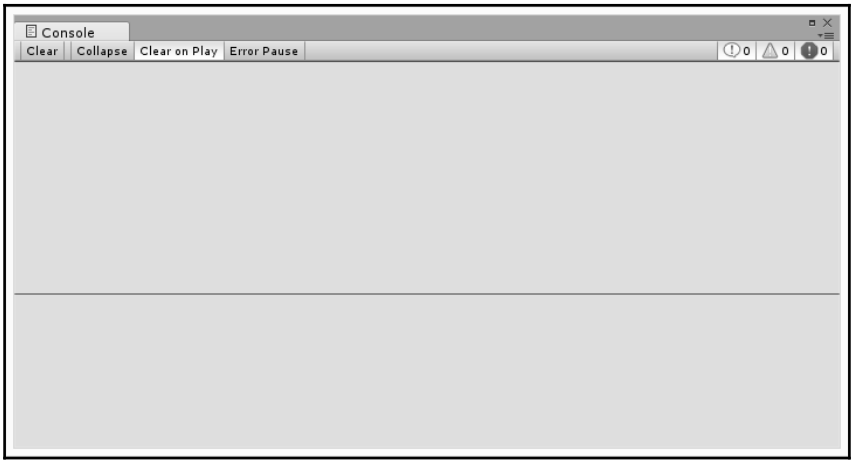

Firebase
TestApp
Go to docs
TestApp
Realtime Database
Analytics
DEVELOP
Authentication
Database
Storage
Hosting
Test Lab
Crash Reporting
DATA
RULES
USAGE
BACKUPS
SIMULATOR
Default security rules require users to be authenticated
LEARN MORE
DISMISS
{
"rules": {
".read": "auth != null",
".write": "auth != null"
}
}
Spark
Free $0/month
UPGRADE

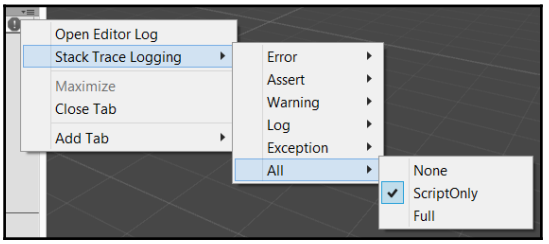

Unpublished changes
PUBLISH
DISCARD
SIMULATOR
Default security rules require users to be authenticated
LEARN MORE
DISMISS
{
"rules": {
".read": "true",
".write": "true"
}
}

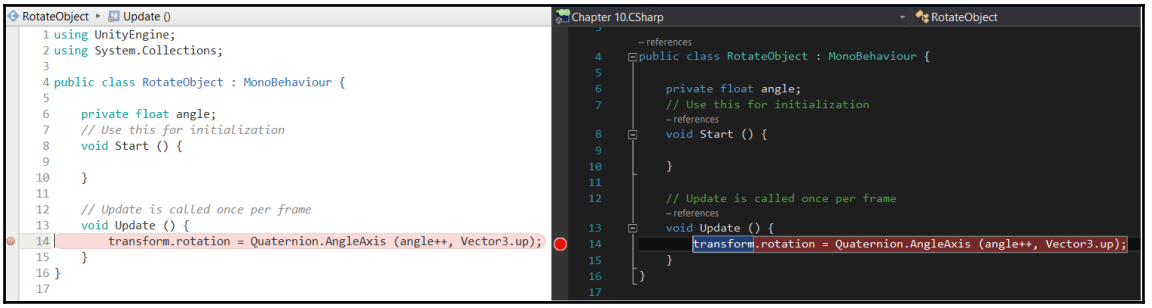

Email:
ml@me.com
Score:
100
Enter Score
Firebase Top 5 Scores
100 ml@me.com
100 ddd
Attempting to add score
ml@me.com 100
Running Transaction...
Transaction complete.

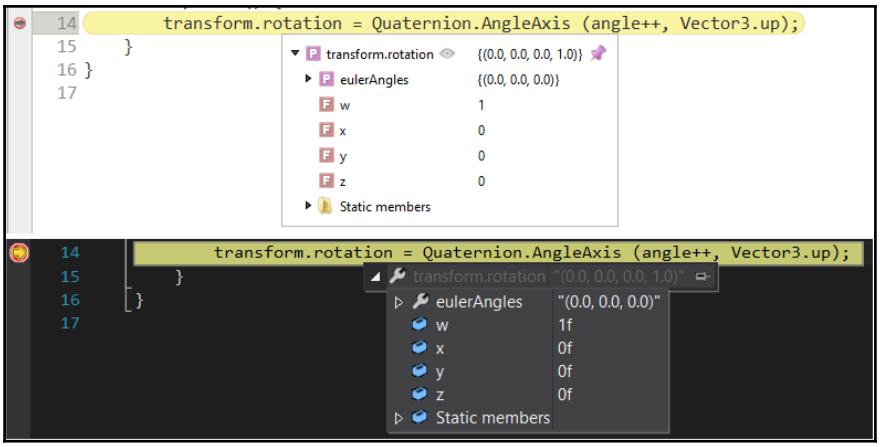

TestApp
Analytics
DEVELOP
Authentication
Database
Storage
Hosting
Test Lab
Crash Reporting
Spark
Free $0/month
UPGRADE
Realtime Database
DATA
RULES
USAGE
BACKUPS
https://testapp-53f70.firebaseio.com/
testapp-53f70
Leaders
1
email: "ddd"
score: 100
2
email: "ml@me.com"
score: 100

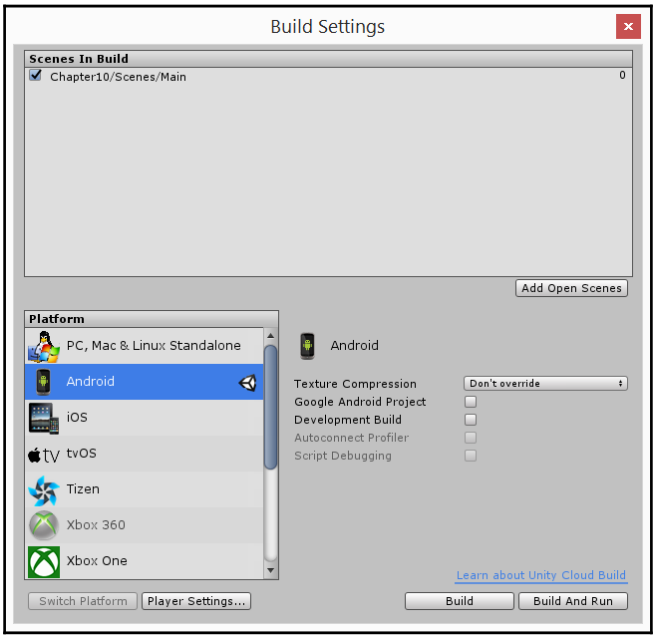
Chapter 10: Troubleshooting

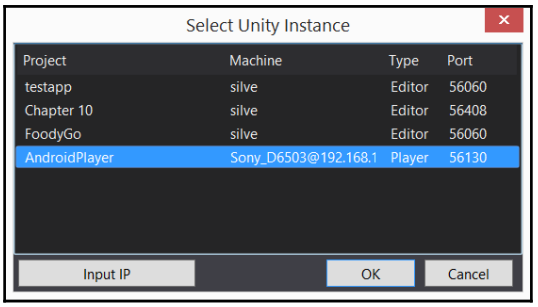


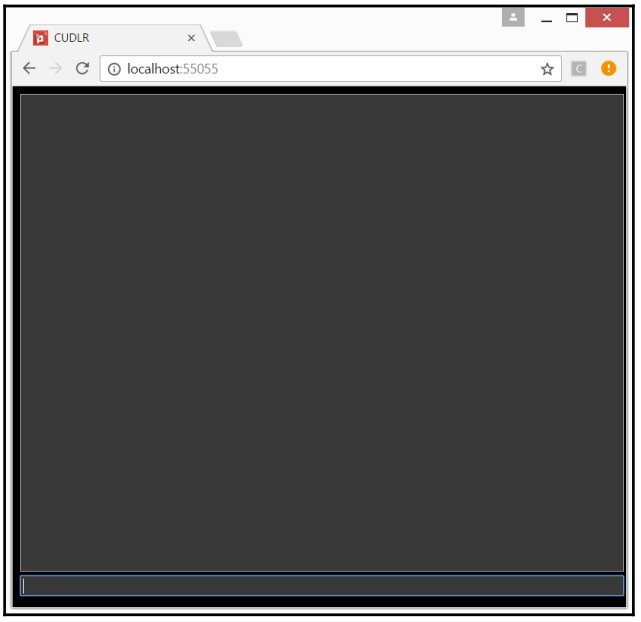


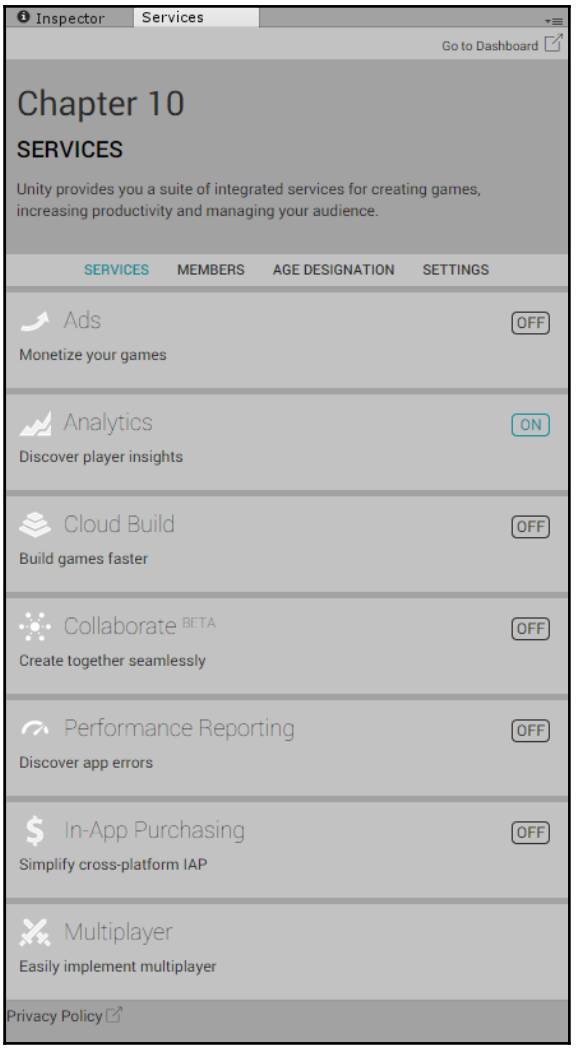


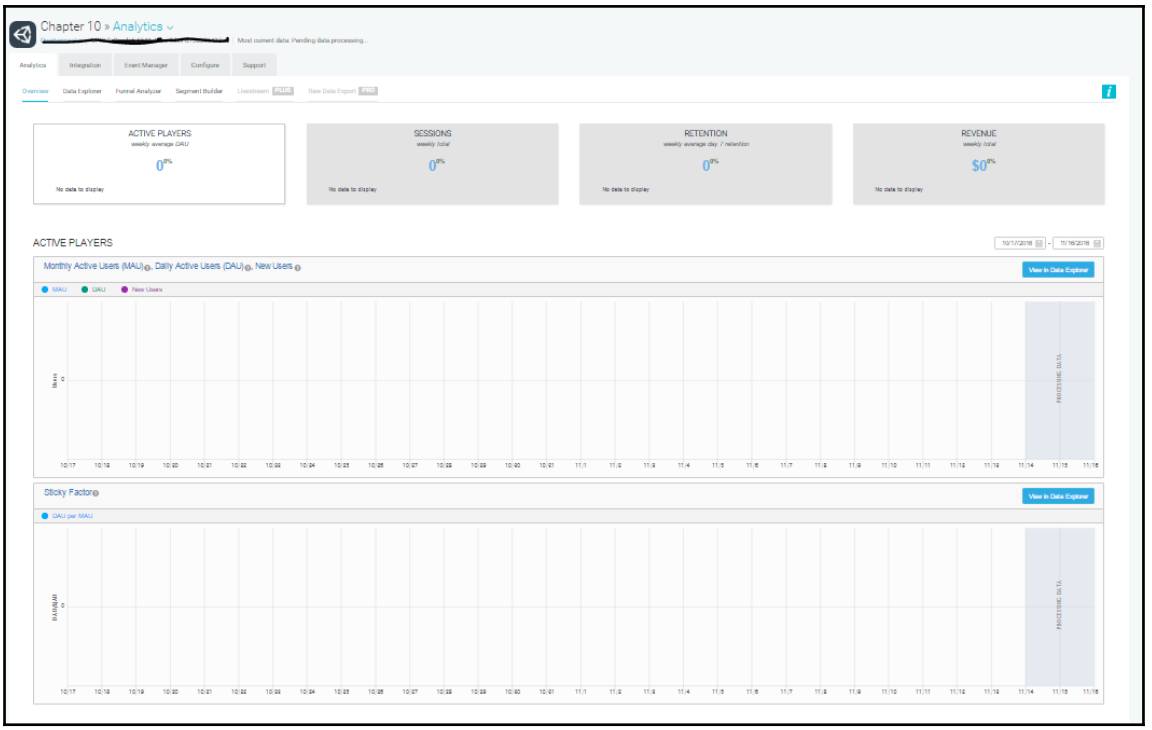

14 transform.rotation = Quaternion.AngleAxis (angle++, Vector3.up);
15 }
16 }
17
transform.rotation {(0.0, 0.0, 0.0, 1.0)}
eulerAngles {(0.0, 0.0, 0.0)}
w 1
x 0
y 0
z 0
Static members
14 transform.rotation = Quaternion.AngleAxis (angle++, Vector3.up);
15 }
16 }
17
transform.rotation "(0.0, 0.0, 0.0, 1.0)"
eulerAngles "(0.0, 0.0, 0.0)"
w 1f
x 0f
y 0f
z 0f
Static members

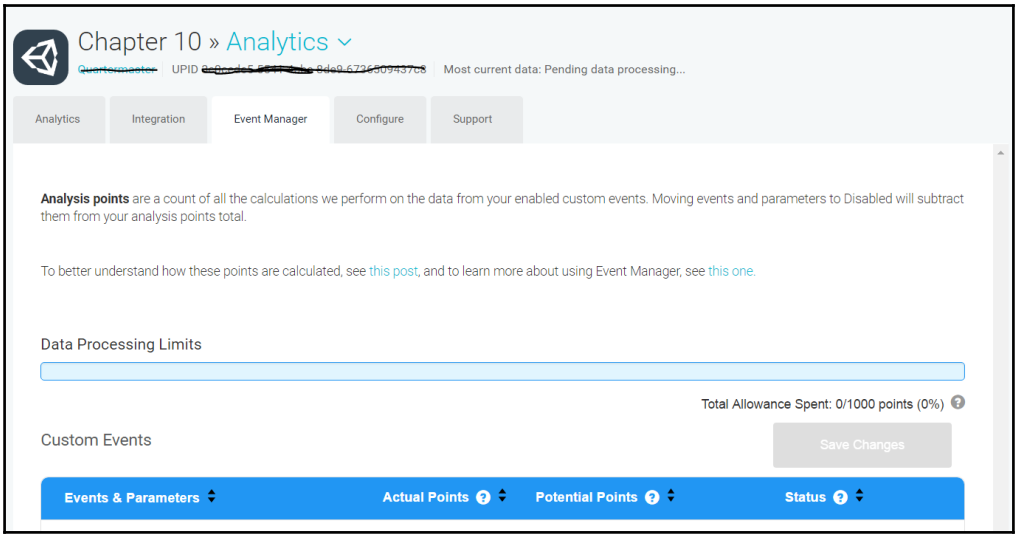

Build Settings
Scenes In Build
Chapter10/Scenes/Main 0
Add Open Scenes
Platform
PC, Mac & Linux Standalone
Android
iOS
tvOS
Tizen
Xbox 360
Xbox One
Android
Texture Compression Don't override
Google Android Project
Development Build
Autoconnect Profiler
Script Debugging
Learn about Unity Cloud Build
Switch Platform
Player Settings...
Build
Build And Run


Select Unity Instance
Project
Machine
Type
Port
testapp
silve
Editor
56060
Chapter 10
silve
Editor
56408
FoodyGo
silve
Editor
56060
AndroidPlayer
Sony_D6503@192.168.1
Player
56130
Input IP
OK
Cancel


CUDLR
localhost:55055


Inspector
Services
Go to Dashboard
Chapter 10
SERVICES
Unity provides you a suite of integrated services for creating games, increasing productivity and managing your audience.
SERVICES
MEMBERS
AGE DESIGNATION
SETTINGS
Ads
OFF
Monetize your games
Analytics
ON
Discover player insights
Cloud Build
OFF
Build games faster
Collaborate BETA
OFF
Create together seamlessly
Performance Reporting
OFF
Discover app errors
In-App Purchasing
OFF
Simplify cross-platform IAP
Multiplayer
Easily implement multiplayer
Privacy Policy


Chapter 10 » Analytics
Analytics
Integration
Event Manager
Configure
Support
Overview
Data Explorer
Funnel Analyzer
Segment Builder
Livestream PRO
Raw Data Export PRO
ACTIVE PLAYERS
weekly average DAU
0 0%
No data to display
SESSIONS
weekly total
0 0%
No data to display
RETENTION
weekly average day 7 retention
0 0%
No data to display
REVENUE
weekly total
$0 0%
No data to display
ACTIVE PLAYERS
Monthly Active Users (MAU), Daily Active Users (DAU), New Users
View in Data Explorer
MAU
DAU
New Users
Sticky Factor
View in Data Explorer
DAU per MAU


Chapter 10 » Analytics
Most current data: Pending data processing...
Analytics
Integration
Event Manager
Configure
Support
Analysis points are a count of all the calculations we perform on the data from your enabled custom events. Moving events and parameters to Disabled will subtract them from your analysis points total.
To better understand how these points are calculated, see this post, and to learn more about using Event Manager, see this one.
Data Processing Limits
Total Allowance Spent: 0/1000 points (0%)
Custom Events
Save Changes
Events & Parameters
Actual Points
Potential Points
Status