Highway Racer Complete Project

By

BoneCracker Games

Contents

First of all, thank you for purchasing Highway Racer! This documentation covers how to add/change cars, traffic cars, levels, roads, scores, multipliers, modes, menus, etc…

Highway Racer is **physics based endless racing game** against traffic. Dodge traffic vehicles at high speeds, earn score, buy&upgrade your rides.

Package Contains

- 5 Player Vehicles,
- 5 Traffic Vehicles,
- 1 Main Menu, and 3 Gameplay Levels,
- User Friendly Editor Scripts and Editor Windows for create&use your own content,
- All Necessary Scripts, Models, Materials, Textures, Sound FX, etc…

Video Tutorial Series For Creating and Configurating Player Cars, Traffic Cars, New Levels, Edit Prices, etc…

You can access this tutorial series from this link. I'll keep the list updated.

Leading Features

- Powered by Latest **Realistic Car ControllerV3.2f**
- Tested and ready to deploy for **PC, Mac, Linux, Android, iOS, WebGL, Web Player**(Haven't tested it on WP yet)
- Exciting unique game modes (including "**Speed Bomb**")
- Pooling lightmapped roads
- Acceptable count of drawcalls, triangles (Max DC 90, Max Tri 30k) for mobile devices
- Optimized traffic cars without wheelcolliders
- Lane switching traffic cars
- Variable traffic amount
- In-game currency
- Unlockable Cars
- Upgradable Stats
- Attachable sirens, NOS, and Turbo
- Upgradable Cars (You can edit cars, prices, their upgrades from editor easly)
- All systems are related with editor scripts
- Clean code, written in C#
- Easy to use, highly customizable
- Highly detailed and updated online documentation
- Guaranteed fast support

I'll keep project updated. So, don't worry about future updates, fixes, and improvements. You can take a look at our RoadMap for upcoming updates and notes.

This is the third update version of the package. Your reviews are most valued for us. Please don't hesitate to writing a review to us.

* Soundtracks used in webdemo are not included in the package. All soundtracks used in demo are licensed.

Before Releasing Your Game And About Intellectual Property Violating

- Do not use same screenshots in Asset Store page.

- Do not use the same description.

- Do not use same logo provided with package.

- Use unique game name.

- Change some materials, textures at least.
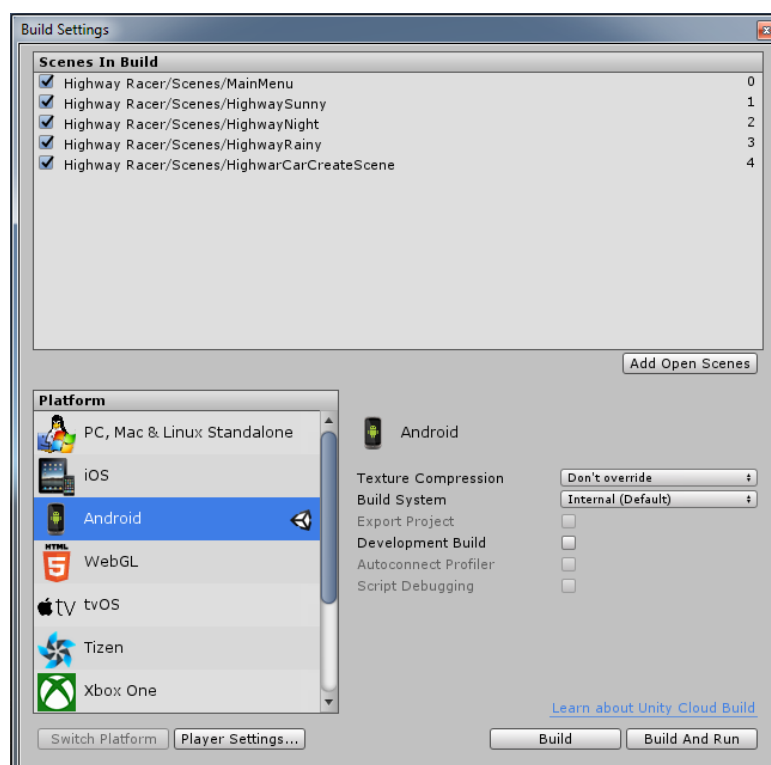
Before Importing The Package

This project was made in **Unity 2017.1.1f1.** Be sure your editor version is **Unity 2017.1.1f1.** My advice would be use the latest Unity version.

Be sure your project is a new fresh project. Package includes "**ProjectSettings**", and **overwrites** if your project has own ProjectSettings.

After Importing The Package

Check your console to see if you have any red errors. If you get any unreferrenced script error, this means your import was corrupted. Delete everything and reimport the package if this happens(Usually %99 your import will success).

Go to **File → Build Settings** and check out your build settings. Your scenes, build target, player settings. All default package settings are like this;

Updating The Package

Make sure you have backed up your entire project before updating. Once you backed up, follow the steps safely.

1. Keep your own models, prefabs, scriptableobjects, scenes outside from Highway Racer folder.

2. Package includes overwriting permission to Project Settings. This means, importing will overwrite your Tags & Layers, Input, Time, and all other project settings. If you don't want to overwrite, do not select Project Settings folder on importing screen. (See the screenshot_2)

3. Delete entire Highway Racer folder.

4. Import the latest Highway Racer to your project. Don't let the importer updates your own assets while importing.

5. After importing, check out the console if you get errors.

6. Move your own assets to corresponding folders in Highway Racer folder.

7. New UI Canvas on main menu scene is using additional features like buy nos or buy turbo kit. If your UI canvas is old and want to change it with new one, import the Highway Racer again. But only select "MenuCanvas.prefab" on import screen. This will change UI canvas on your main menu scene with new one.

8. If you want to change gameplay and gamover UI canvases too, do the same steps. Import latest Highway Racer. But only select "HR_Gameplay Canvas.prefab" and "HR_Gameover Canvas.prefab".
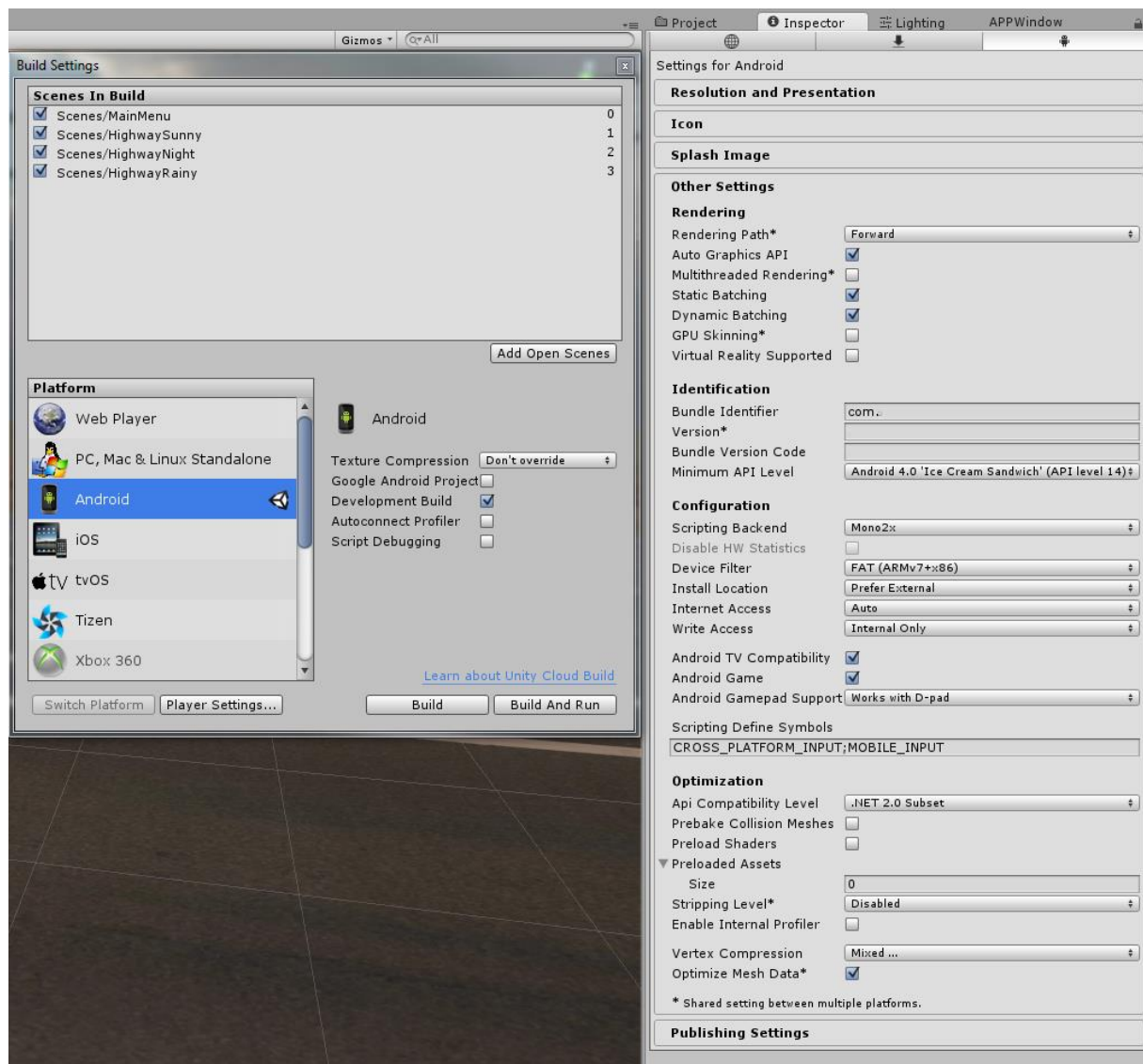
Set your bundle identifier, version, bundle version code. Create a new keystore from "Publishing Settings" tab. **Do not lose this keystore after you created**, otherwise you can't update your game on store (for Android).

Hit play and try the game. Every modes, every cars, every upgrades.

Congrats, your import is fine and all ready to go!

Highway Racer Properties Editor Panel

All general settings are related with this one single editor script. You can access it from **Highway Racer** → **General Settings** from top tab menu.

As you can see, you can edit everything here. Minimum speed for gaining score, default settings, score multipliers, main menu and game play soundtracks, button sfx, nearmiss sfx, label slide sfx, rides, upgrades, their prices, traffic cars, etc...

You can edit the package whatever you like here. You don't need to edit scripts for making changes.

You can enable 1M Money for testing purposes. **Don't forget to disable it when you are about to release your game.**

Configure Player Cars

Click "Configure Player Cars" for editing current player cars, and their prices. You can easily edit their maximum speeds, steering angles, masses, engine torques, and maximum upgradable values.

Configure Upgradable Wheels

Click "Configure Upgradable Wheels" for editing current upgradable wheels. And their prices. They are just models. Just be sure your models have same sizes. Their pivots and axises must be correct just like other wheels provided with package.
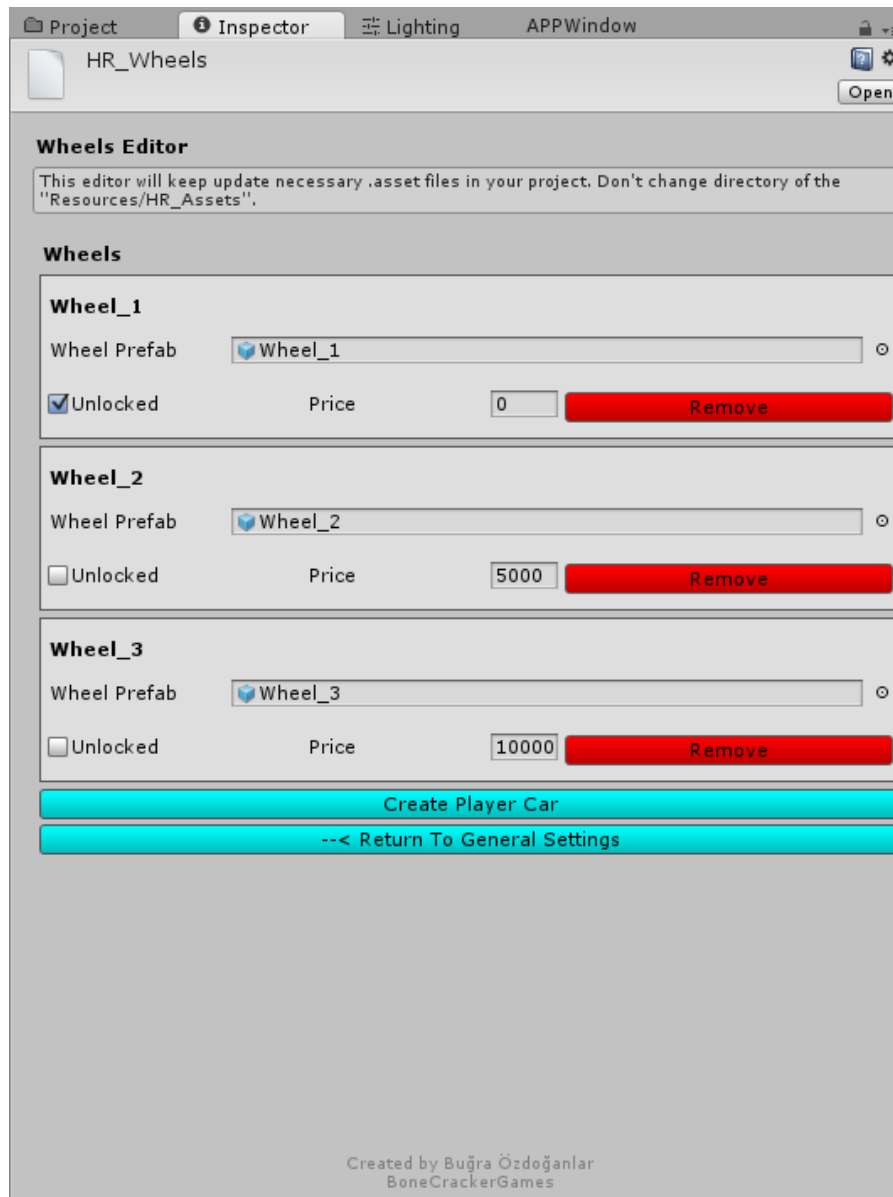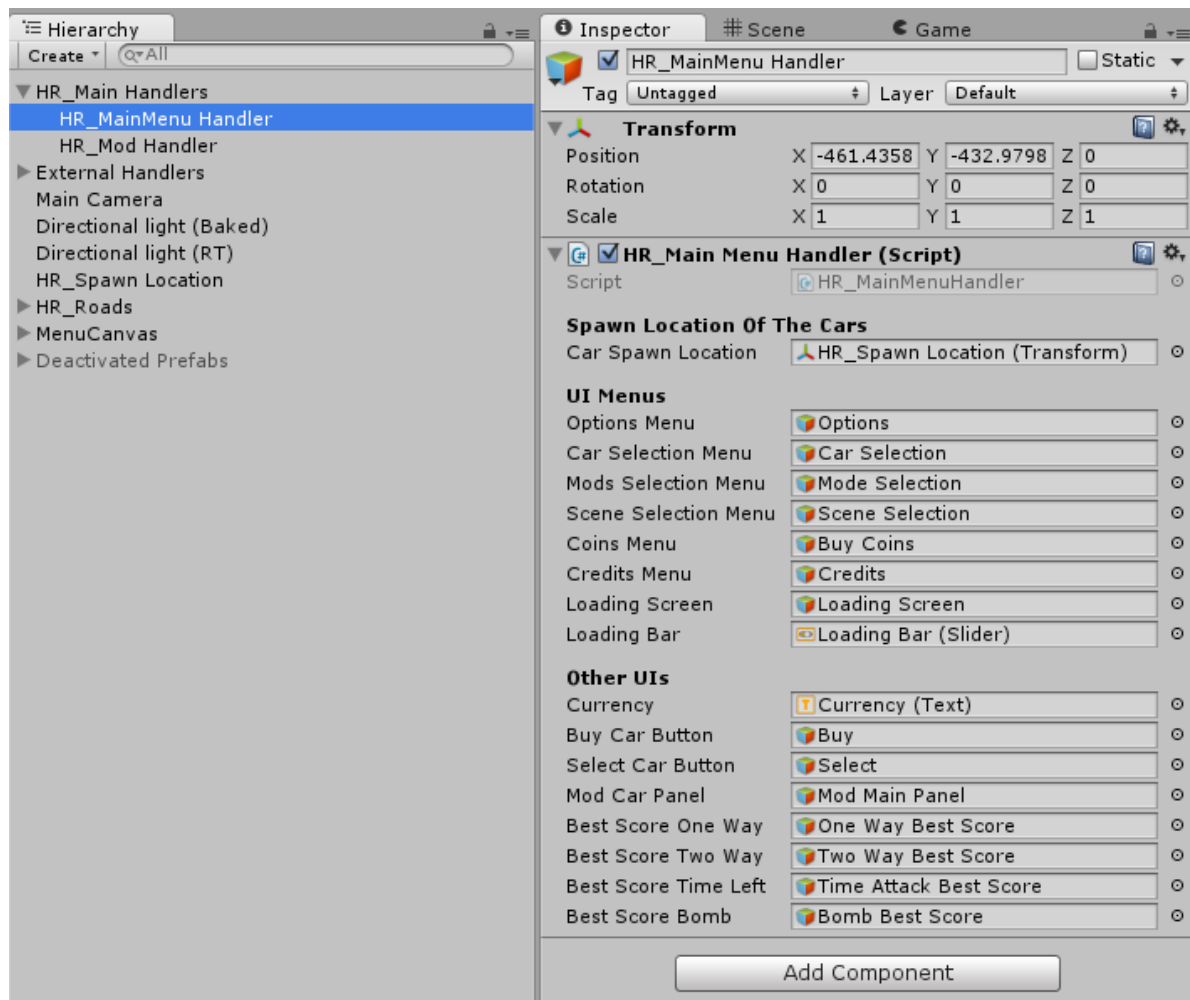
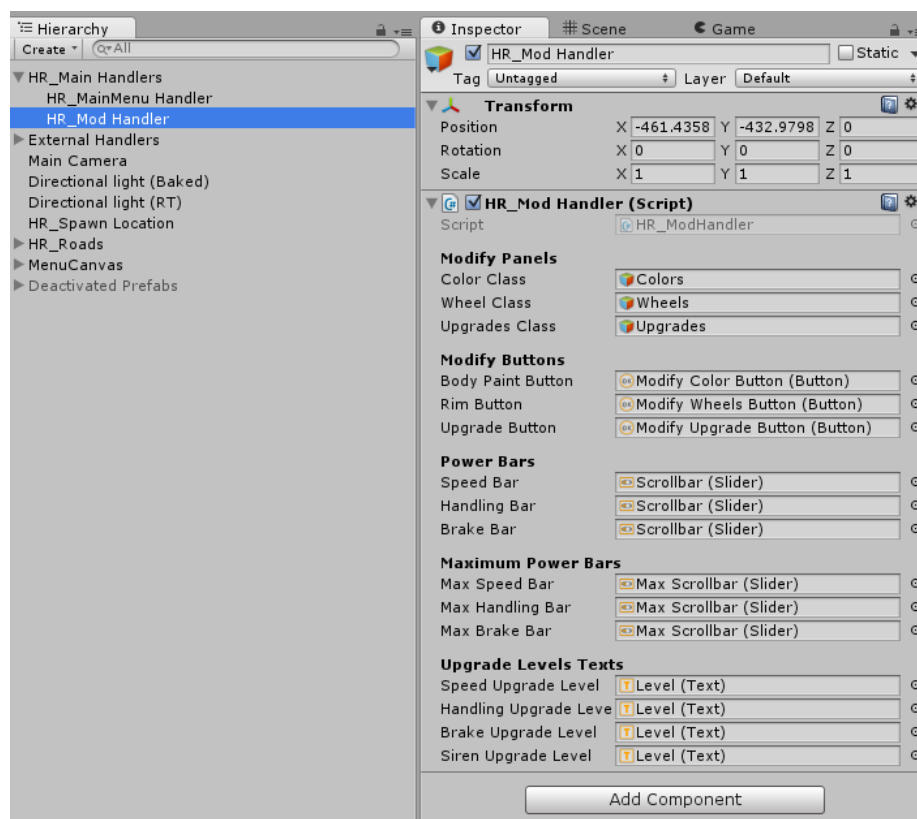# Scene Setups

Main Menu Scene

Main Menu must contains;

MainMenu Handler

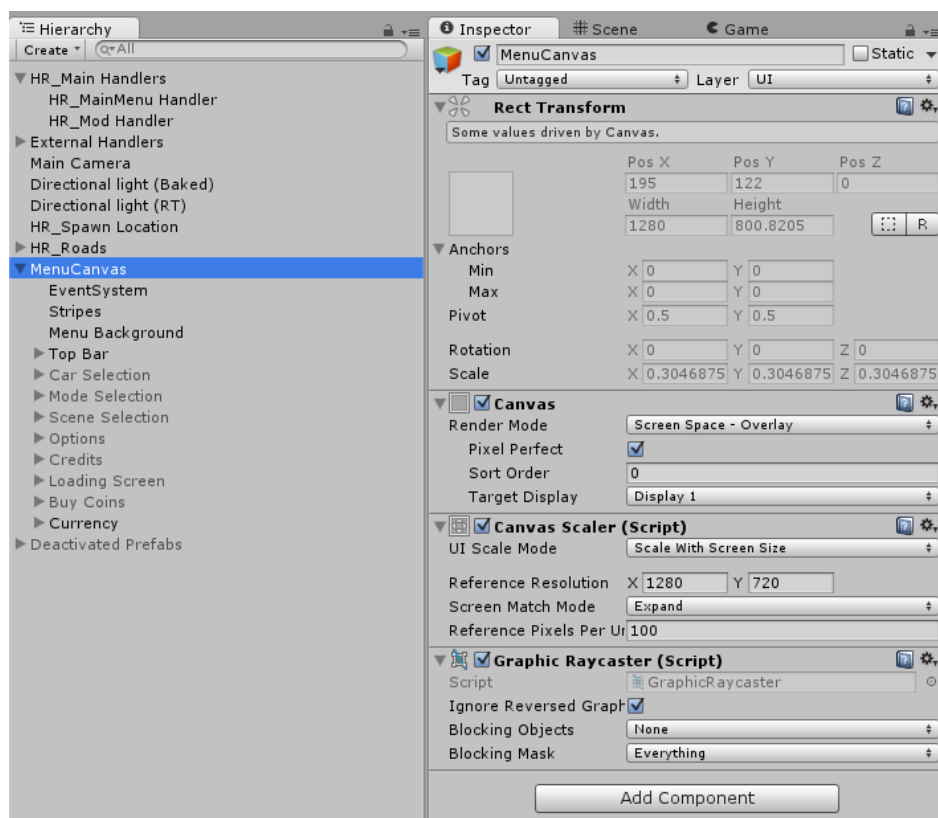Used for managing menus, options, UI, interactions, spawning player car position, etc...

Mod Handler

Used for managing modding section, UI buttons, slider bars, texts, etc...

Main Menu UI Canvas

UI Canvas for Main Menu

Main Camera (Attached with animation)

GamePlay Scene

All GamePlay Scenes must contain;

GamePlay Handler

Used for managing time of the scene, UI Canvases, player spawn location, menus, etc...
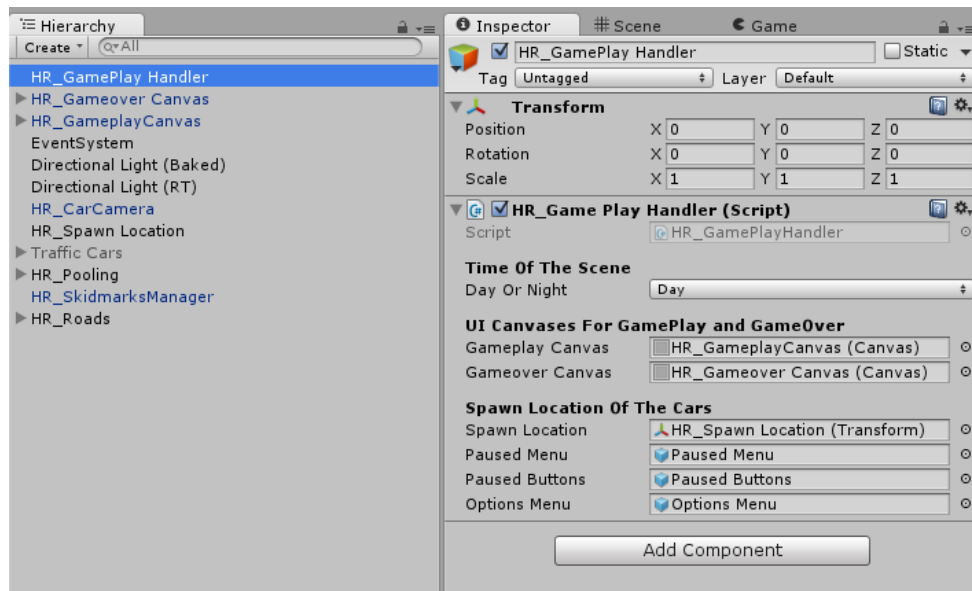
Traffic Pooling

Used for pooling and re-using the traffic. Road lines must be selected here. Traffic cars will use these lines.
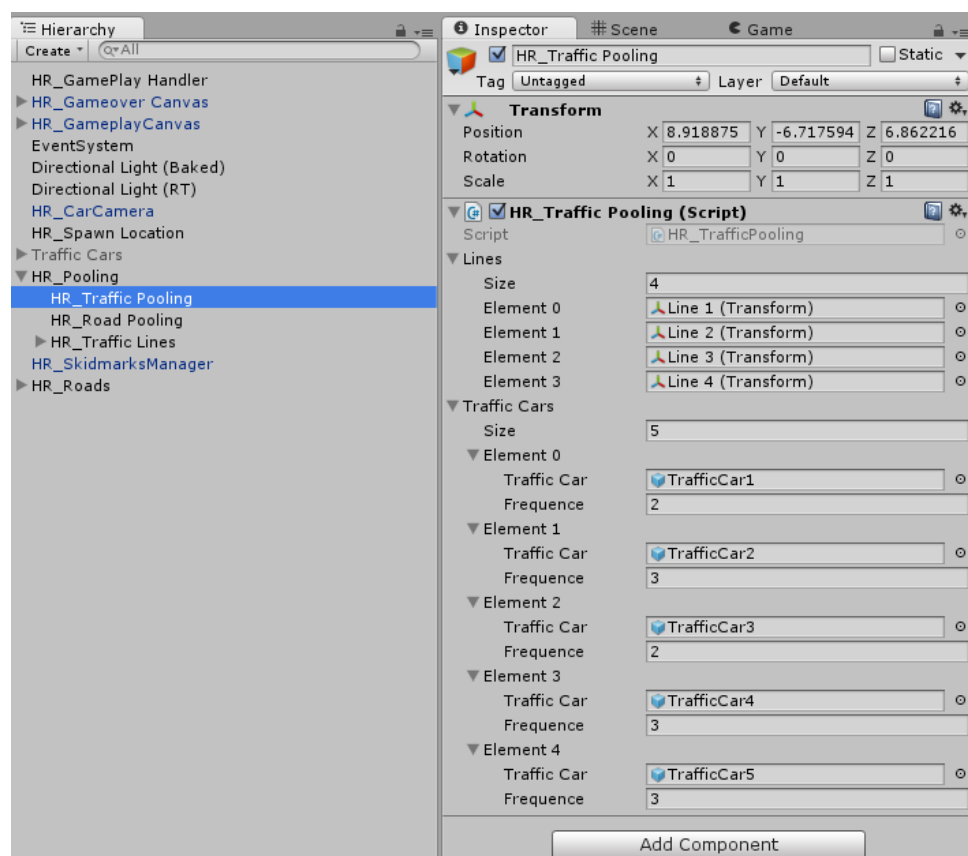
Road Pooling

Used for pooling and re-using the roads. If you want to use lightmapped roads, you must bake it while on your scene. Once your baking is completed, select your road group while they are on your scene. If you select a prefab in your project, you will lose the lightmaps.
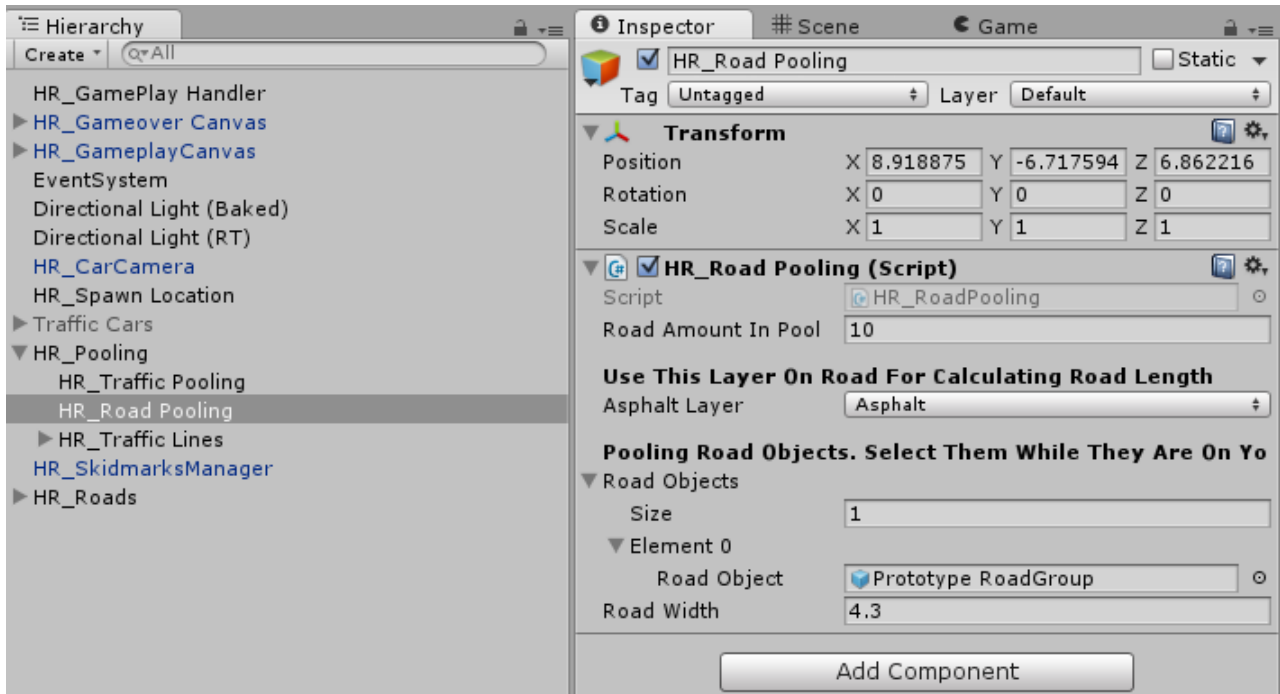
Traffic Lines

They are just transforms without any components. Traffic cars will use these lines. They must be selected in Traffic Pooling.)
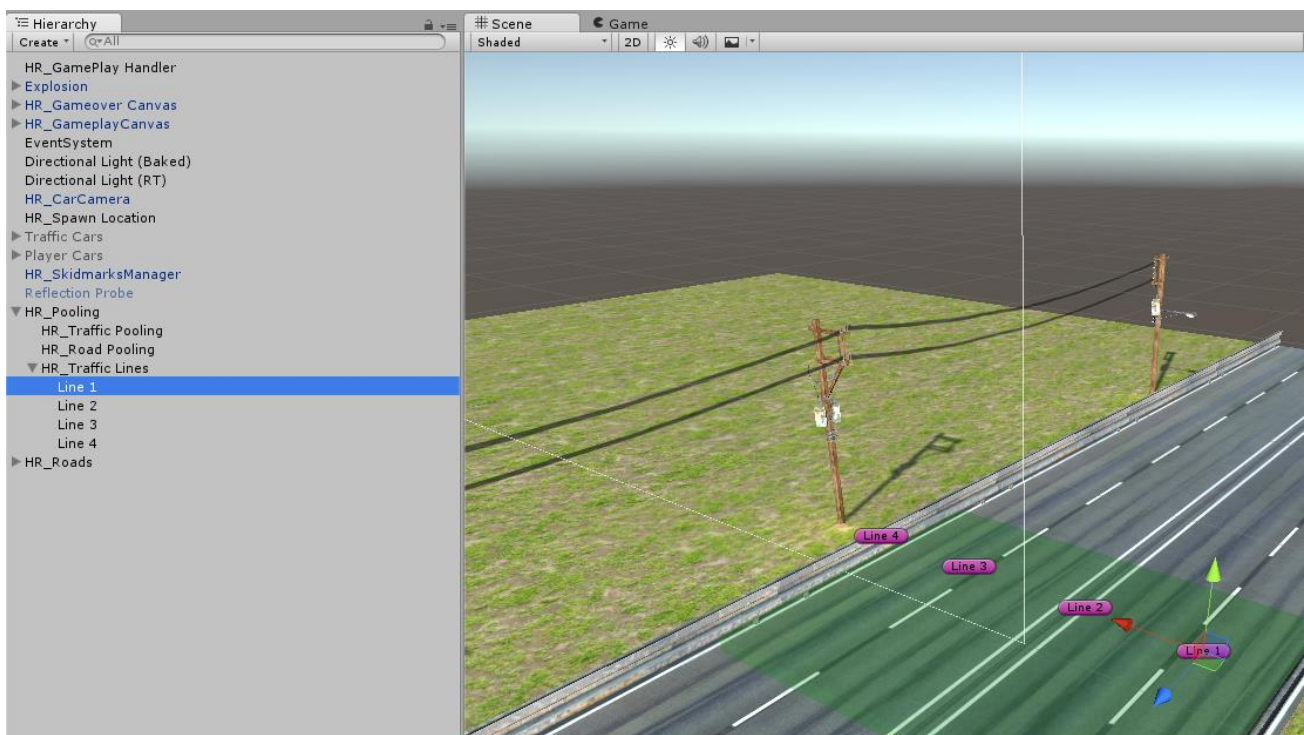
GamePlay and GameOver UI Canvases

UI Canvases.
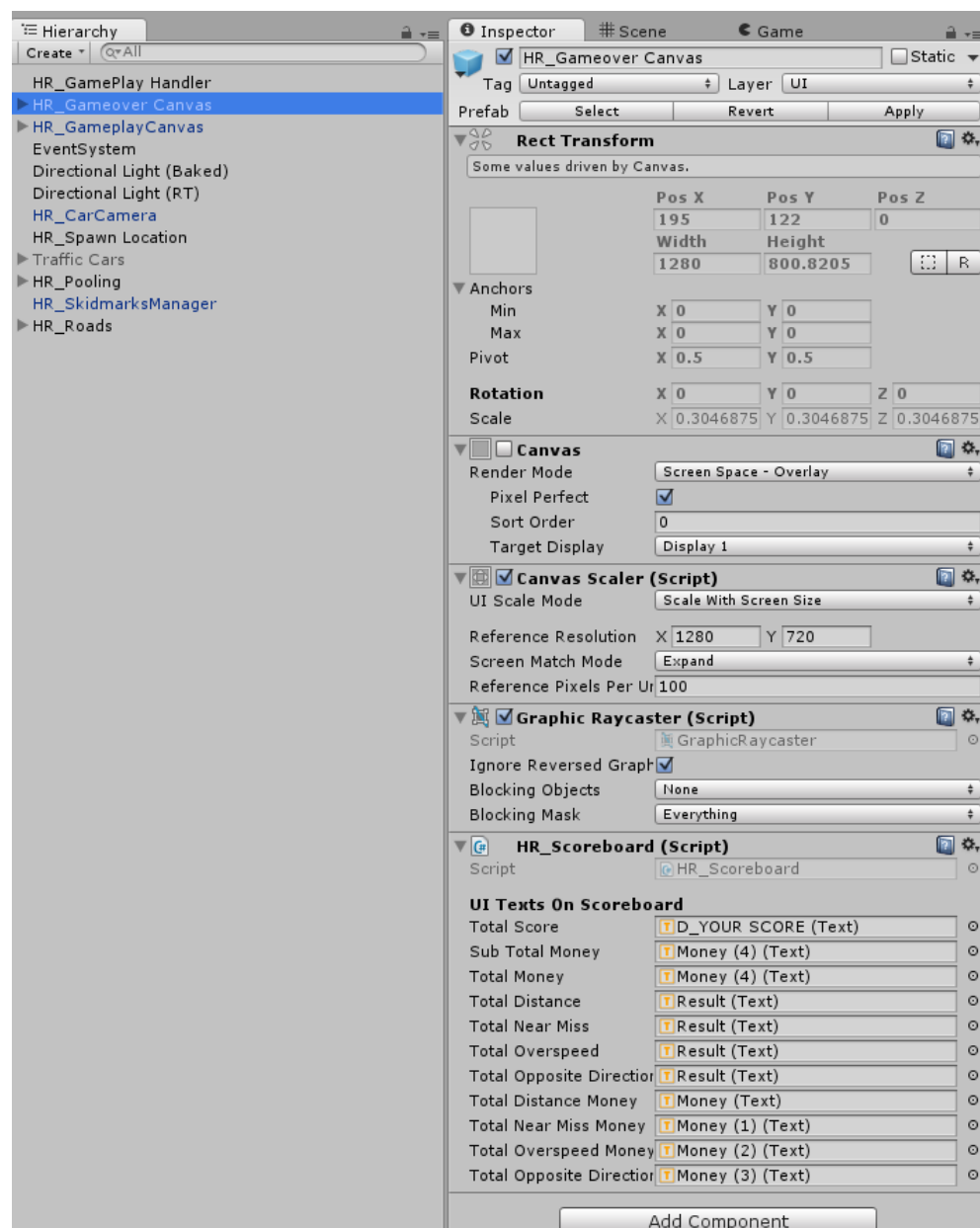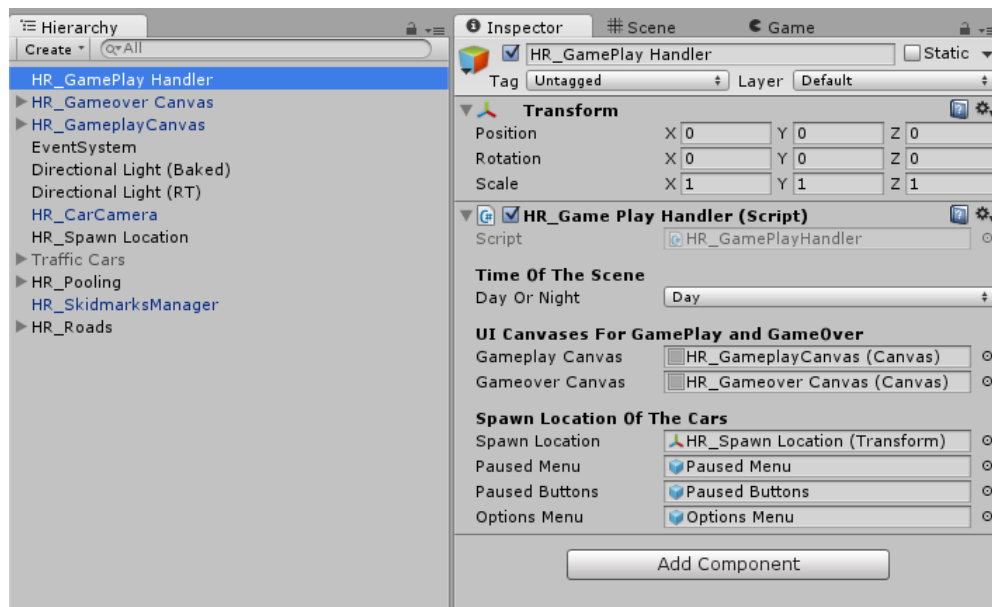
Adding / Editing Player Cars

All player cars are controlled by **Realistic Car Controller**. If you want to add your own car in the game, you have to create it according to Realistic Car Controller Documentation.

[Highway Racer V2 Create Player Vehicle Tutorial Video](#)

There is a scene named "HighwayCarCreateScene" in scenes folder. Open it up, and build your car here. If final results are good, you can add it to your game.

Make a prefab of your car. Just drag and drop your car root to "Resources/PlayerCars".

Select your prefab in Highway Racer → Configure Player Cars.

Also there is a cube prototype car for your new car in "Prototype" folder. If you can't build your car, you can replace your model with this one. I don't prefer this way, but if you are new to Unity, this way is the easiest one.

Adding / Editing Scenes

All these necessary handlers are located in "Resources" folder. You can drag and drop them to your scene for quick install. <u>Actually you won't need to create a new scene and placing them</u>. Just duplicate one of the gameplay scenes, and redesign the level. That's it! Add this new scene to Build Settings. At Main Menu scene, all UI buttons in scene selection canvas are using build indexes. For ex, build index of the night scene is 2. Night scene UI button is using index 2;
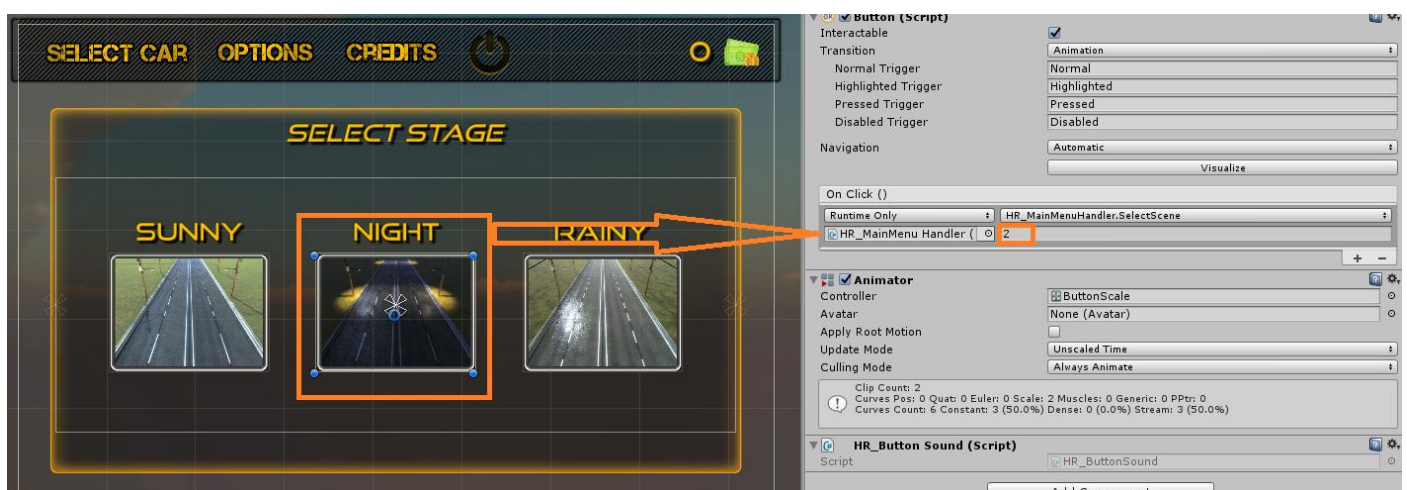
All scenes are using just one big grouped road gameobject. This grouped gameobject must be selected in Road Pooling script. You have to use big grouped gameobjects like in other gameplay scenes.

Road Pooling script is calculating the road automatically. You don't have to specify road length, or make some triggers…

Also there is a blank prototype road gameobject for your new roads in "**Prototype**" folder. If you can't build your road, you can use this one. Just place your models on this prototype, change materials, textures, you are done.

Optimization On Levels

All models have minimal amount of materials. Therefore, scenes have maximum 50 - 55 drawcalls at top camera mode, 80 – 90 drawcalls at fps or tps camera mode.

Scenes are using pooled traffic cars and roads. No wasting any resources. Also roads are lightmapped. This will avoid realtime lighting roads.

All scenes have two directional lights. Baked and RT (Realtime). You may say, why you are using two of them? Baked one is affecting to dynamic nonlightmapped objects. Realtime is affecting the asphalt only. Asphalt has specular texture. You can't see this specular map on your lightmapped asphalt with your baked directional light. Because it was baked with non directional lightmapping mode. If player enables "Road Reflection" from options menu, this realtime directional light will affect just the asphalt for nice looking shiny effect. Especially on rainy scene. I could use "Directional Specular Lightmapping" while lightmapping the scene, but this doesn't support OpenGL2, and there are some performance issues with this. That's why I used this technique.

In Main Menu, closest roads around spawn location are lightmapped at high quality settings. Other far away (damn Red Dead Redemption…) roads are lightmapped at low quality settings. All lightmaps are at 1024 * 1024 resolution.

None of any lights on any car using as pixel light. They are not affecting on any surface. They are just used for nice looking halo and lens flare effects. If you are planning to release it to PC or Mac, you can use pixel lights instead of vertex lights from Highway Racer → RCC → Edit Settings. In "Optimizations" section.

Head lights and siren lights are using projector for lighting effect. If I could use pixel lights instead of projectors, this will eat 2x or even 3x more FPS. Projectors are affecting to just asphalt. Because projectors are increasing drawcalls if you don't use them wisely.

All UI elements are atlased with one big sprite texture. All of them takes only 1 drawcall.

Only player cars body, wheel, and asphalt shaders are standard shader. All other shaders are legacy.

Total build size is only 35mb with high quality soundtracks. Without them, build size is only 30mb.

All moderate devices are running the game very well.

About Model Pivot Positions and Axis

All models in any game must have the correct pivot position and axis. Some models may have incorrect pivot position or axis. Fixing them is not hard work. Let me explain this with few examples;

You're gonna use a interactable door in your game. The doors pivot position must be at right position like this;

The door will turn around this pivot. You may think why you writing this, but pivots and axises are one of the most important things in game development. Many 3D artist makes this mistake, because they won't care about pivots or axises. They are using models for renders, not games.

If you take a look at models in project, all models pivots and axises are correct.

X must face to **RIGHT**

Y must face to **UP**

Z must face to **FORWARD**
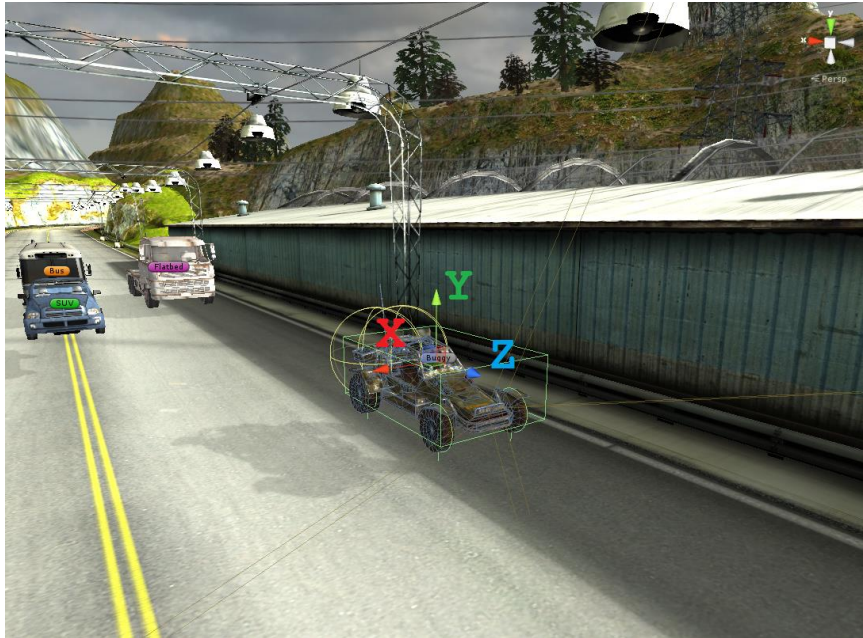
Local Saved Files

Package is using PlayerPrefs registry data for saving player settings, cars, upgrades, highscores, achievements. To see them and edit easily, I can recommend "Advanced PlayerPrefs Window" asset on Asset Store.

If you need any support, just contact me via

Contact@BoneCrackerGames.com