Realistic Car Controller V3.63

First of all, thank you for purchasing and using Realistic Car Controller!

Contents

You can find more updated details on

http://www.bonecrackergames.com/realistic-car-controller

https://www.youtube.com/playlist?list=PLRXTqAVrLDpoW58lKf8XA1AWD6kDkoKb1

(You can zoom in with CTRL + ScrollUp for enlarge PDF pages)

First to Do!

Always backup your project before updating any asset or Unity Editor. Keep your own assets outside of the RealisticCarControllerV3 folder. Delete the entire folder, and import updated version.

RCC is using **LayerMask** for avoid unwanted raycast hits. Necessary layers are created automatically, but feel free to check them after the import. These layers must be selected in the **RCC Settings**. Also you can import it from the **Welcome Screen**, but it will overwrite your **Tags & Layers**.

Script Execution Order
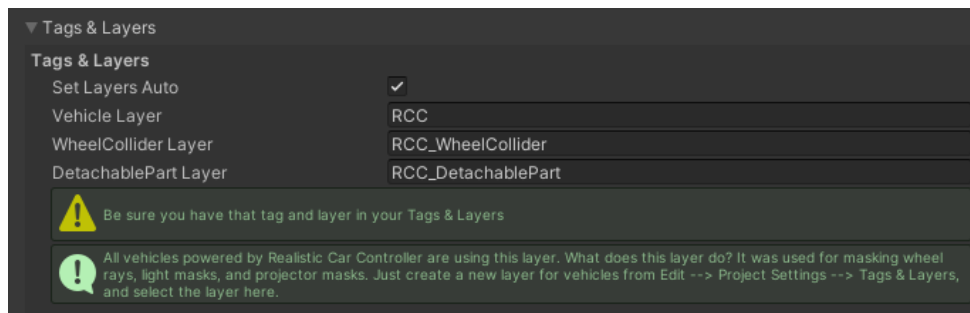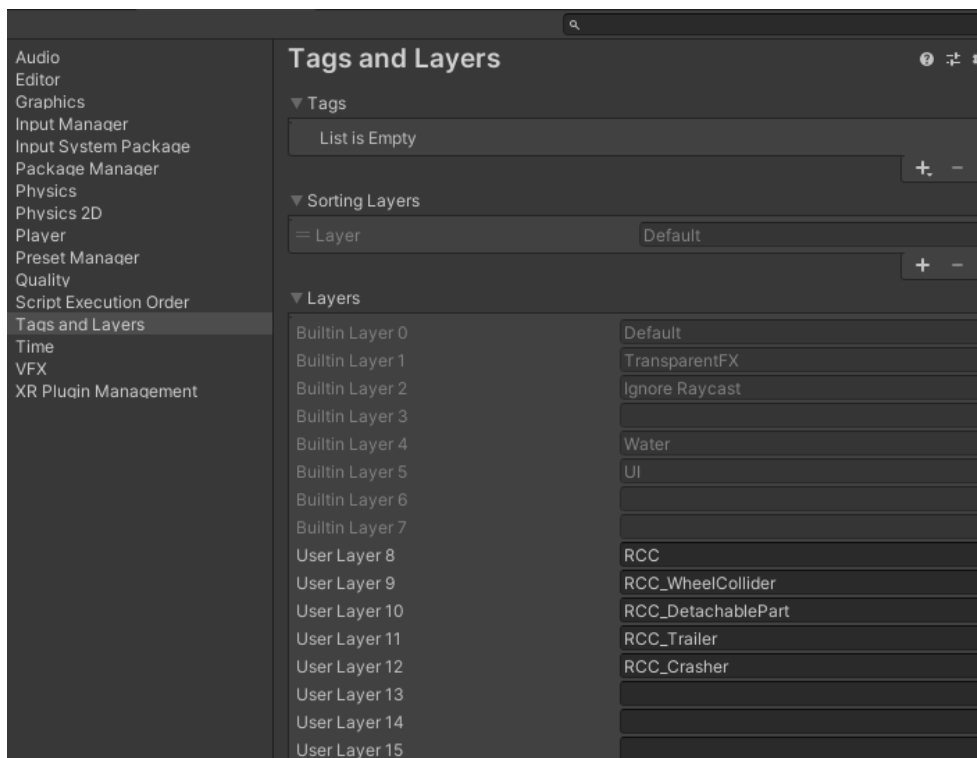
RCC is using **Script Execution Order** for avoid unexpected event conflicts. This should be imported successfully when RCC installed, and doesn't require any action. Just make sure you have this order. You can check it in **Edit → Project Settings → Script Execution Order**.
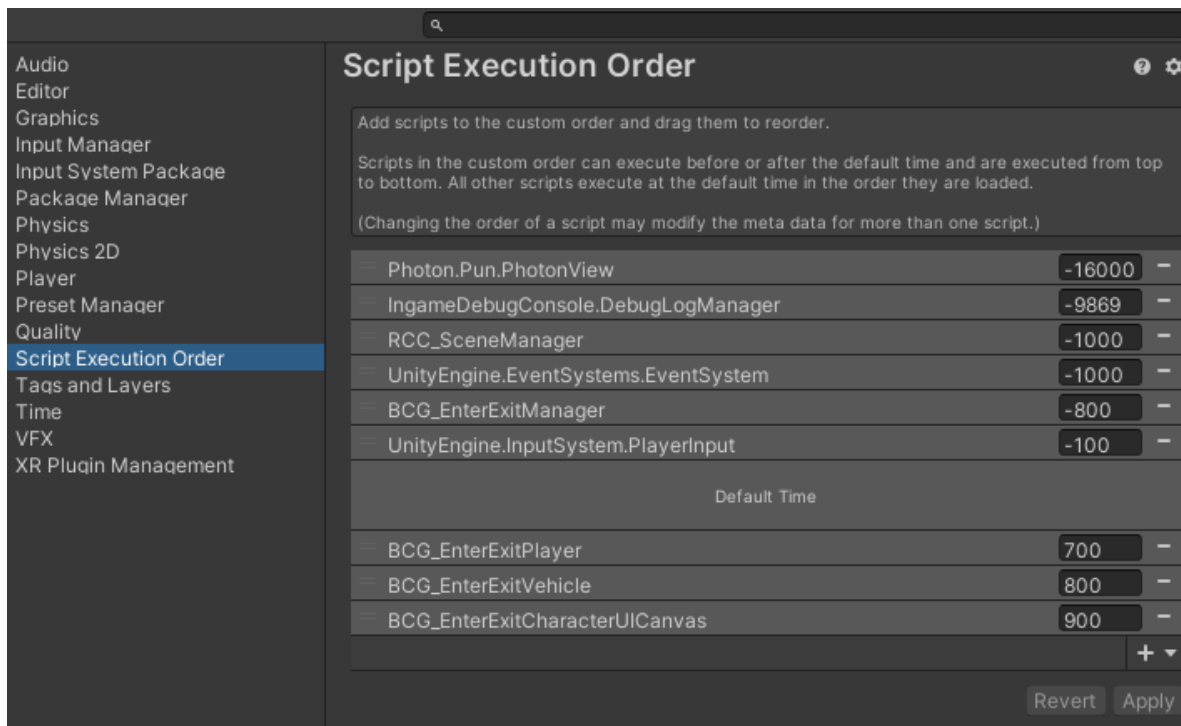
Overview

Each vehicle has it's own **RCC_CarControllerV3.cs** script. Each vehicle is responsible for own **RCC_CarControllerV3.cs**. All global shared settings are located in **RCC Settings** (**Tools → BCG → RCC → Edit Settings**). Lights, cameras, exhausts are addons and not required as an essential. Inputs are processed by **RCC_InputManager.cs** script. It will receive corresponding inputs from the selected device. **RCC_SceneManager.cs** is managing active player vehicle, other vehicles, AI vehicles, record/replay, UI canvases, etc… All other main topics can be found below.
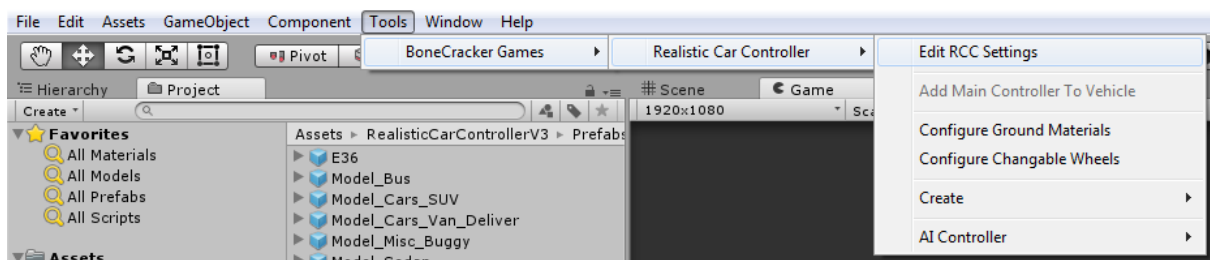
RCC_CarControllerV3.cs
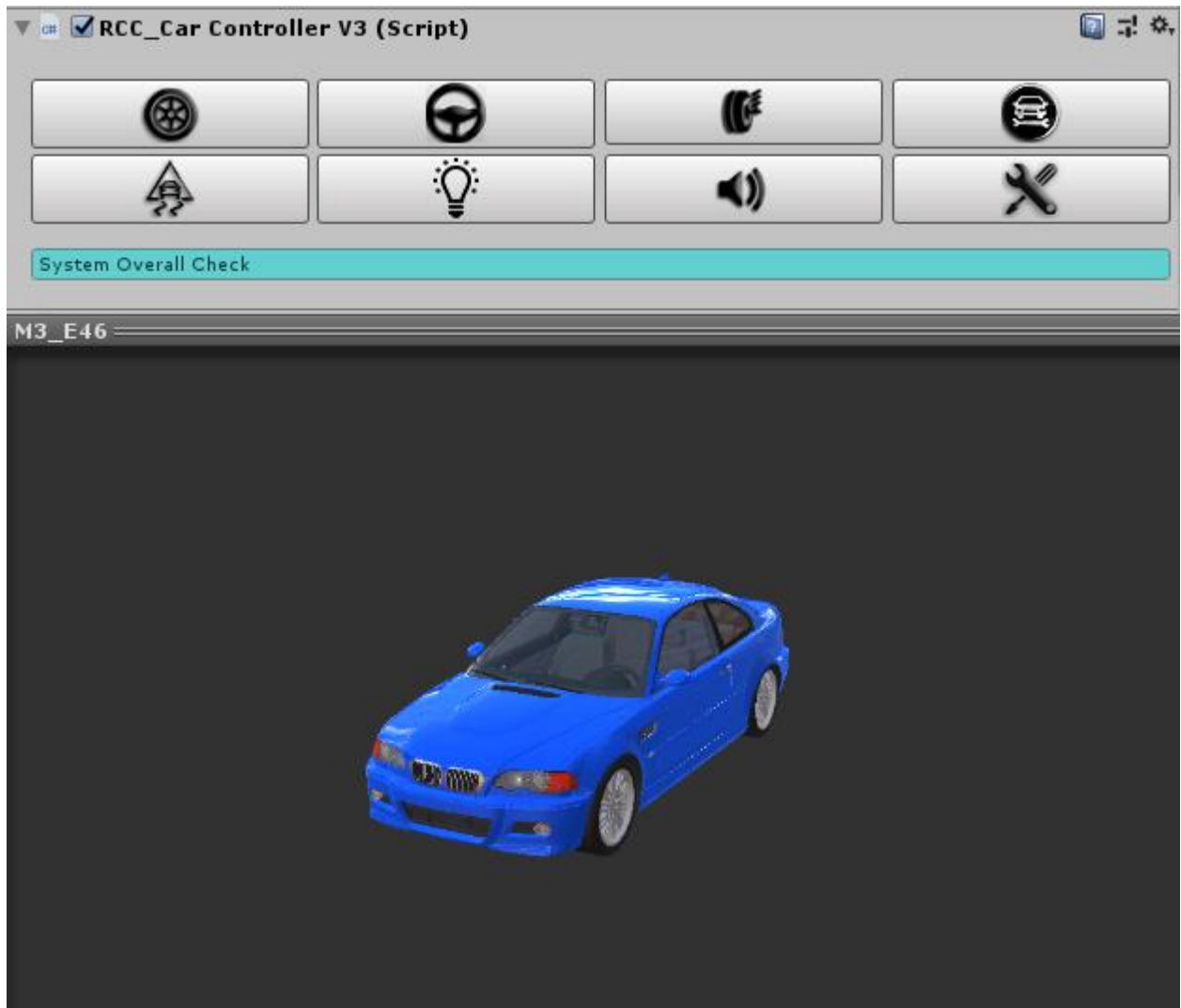
8 Main Categories for easily and understandable creating / configurating vehicles.

Wheels, **Steering**, **Suspensions**, **Mechanic Configuration**, **Stability**, **Lights**, **Sounds**, and **Damage**.

All vehicles are sharing global settings, sounds, configurations via **RCC Settings**.
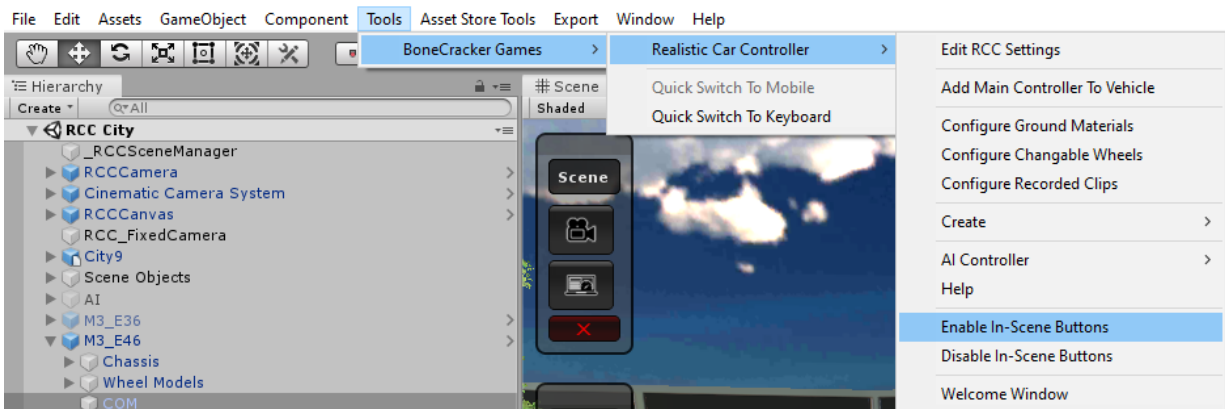
Creating new vehicles is explained in documentation named "**Realistic Car Controller V3.53 How to Create New Vehicles**."

Changing ground materials physics, particles, sounds, etc in **Tools → BoneCracker Games → Realistic Car Controller → Configure Ground Materials**. (Detailed explanation in documentation named "**Realistic Car Controller V3.53 RCC_GroundMaterials**")
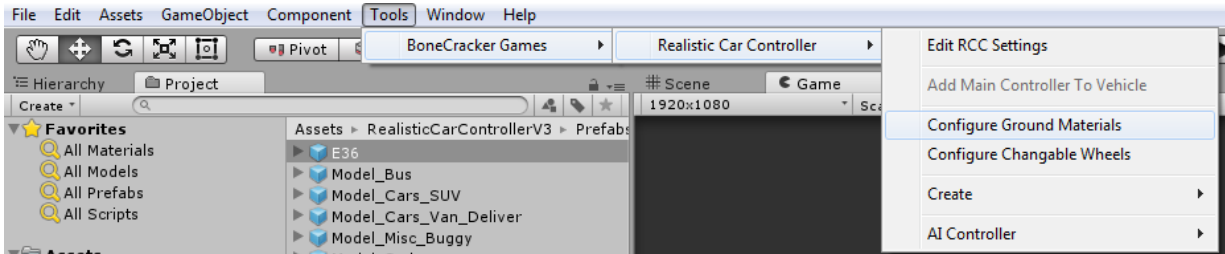
You may want to enable In-Scene buttons to create addons fastest way. **Tools → BoneCracker Games → Realistic Car Controller → Enable In-Scene Buttons**. (Detailed explanation in documentation named "**Realistic Car Controller V3.53 How To Create New Vehicles**")

Creating lights, exhausts, mirrors, cameras, etc in **Tools → BoneCracker Games → Realistic Car Controller → Create**. (Detailed explanation in documentation named "**Realistic Car Controller V3.53 How To Create New Vehicles**")
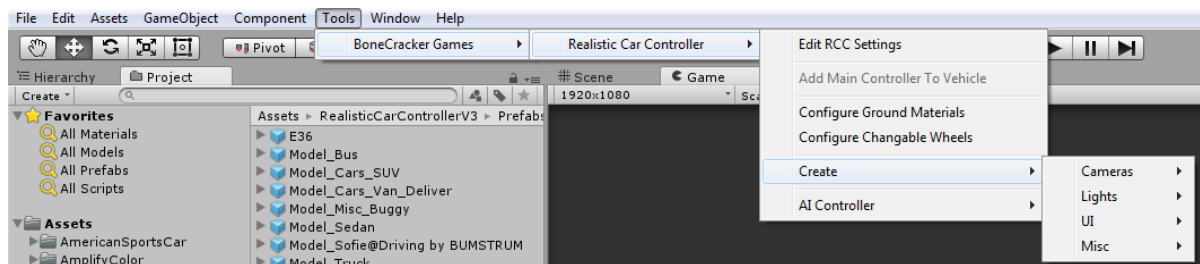
Making vehicles controlled by AI in **Tools → BoneCracker Games → Realistic Car Controller → AI Controller**. (Detailed explanation in documentation named "**Realistic Car Controller V3.53 AI**")

RCC Settings

Main RCC Settings. It's shared by all vehicles powered by RCC. **Tools → BoneCracker Games → Realistic Car Controller → RCC Settings**. (Detailed explanation in documentation named "**Realistic Car Controller V3.53 RCC_Settings**")

Main Controller Settings

Units	KMH ‡
Use VR / XR	☐
Use Automatic Gear	☑
Engines Are Running At Awake	☑
Auto Reverse	☑
Auto Reset	☑
Contact Particles On Collision	⬤RCCContactSparkles ⊙

▼ UI Settings

UI Dashboard Settings

Use Telemetry	☑

▼ Wheel Physics Settings

Ground Physic Materials

Ground Physic Materials 0	RCCAsphaltPhysics ⊙
Ground Physic Materials 1	RCCGrassPhysics ⊙
Ground Physic Materials 2	RCCSandPhysics ⊙

Configure Ground Physic Materials

▼ SFX Settings

Sound FX

Configure Wheel Slip Sounds

Main Audio Mixer	✛ Master (RCC_AudioMixer) ⊙
▸ Crashing Sounds	
▸ Gear Shifting Sounds	
Indicator Clip	⬤Indicator ⊙
Bump Clip	⬤Bump ⊙
▸ Exhaust Flame Clips	
NOS Clip	⬤NOS ⊙
Turbo Clip	⬤Turbo ⊙
▸ Blowout Clip	
Reverse Transmission Sound	⬤Reverse ⊙
Wind Sound	⬤Wind ⊙
Brake Sound	⬤Brakes ⊙
Max Gear Shifting Sound Volume	───────●────── 0.5
Max Crash Sound Volume	───────●────── 0.5
Max Wind Sound Volume	──────────────● 1
Max Brake Sound Volume	───────●────── 0.494

▼ Optimization

Optimization

Use Lights As Vertex Lights On Vehicles	☑

⚠ Always use vertex lights for mobile platform. Even only one pixel light will drop your performance dramatically!

Use Light Projector For Lighting Effect	☐

⚠ Unity's Projector will be used for lighting effect. Be sure it effects to your road only. Select ignored layers below this section. Don't let projectors hits the vehicle itself. It may increase your drawcalls if it hits unnecessary high numbered materials. It should just hit the road, nothing else.

Light Projector Ignore Layer	Nothing ‡

⚠ For ex, 4 Audio Sources will be created for each wheelslip SFX. This option merges them to only 1 Audio Source.

Do Not Use Any Particle Effects	☐
Do Not Use Skidmarks	☐

▼ Tags & Layers

Tags & Layers

Set Tags And Layers Auto	☑
Vehicle Layer	RCC
Vehicle Tag	Player
Tag All Children Gameobjects	☐

⚠ Be sure you have that tag and layer in your Tags & Layers

⚠ All vehicles powered by Realistic Car Controller are using this layer. What does this layer do? It was used for masking wheel rays, light masks, and projector masks. Just create a new layer for vehicles from Edit --> Project Settings --> Tags & Layers, and select the layer here.

Resources

Head Lights	⬤HeadLight ⊙
Brake Lights	⬤BrakeLight ⊙
Reverse Lights	⬤ReverseLight ⊙
Indicator Lights	⬤IndicatorLight ⊙
Light Trailers	⬤LightTrailer ⊙
Mirrors	⬤Mirrors ⊙
Skidmarks Manager	RCCSkidmarksManager (RCC_SkidmarksManager) ⊙
Light Projector	⬤HeadlightProjector ⊙
Exhaust Gas	⬤RCCExhaust ⊙
Chassis Joint	⬤ChassisJoint ⊙
RCC Main Camera	RCCCamera (RCC_Camera) ⊙
Hood Camera	⬤HoodCamera ⊙
Cinematic Camera	⬤Cinematic Camera System ⊙
RCC UI Canvas	⬤RCCCanvas ⊙
RCC Telemetry Canvas	⬤RCCTelemetry ⊙

Reset To Defaults

Open PDF Documentation

Configurable Ground Materials

Changing or adding new ground materials physics, particles, damps, sounds, etc in **Tools →
BoneCracker Games → Realistic Car Controller → Configure Ground Materials**.
(Detailed explanation in documentation named "**Realistic Car Controller V3.53
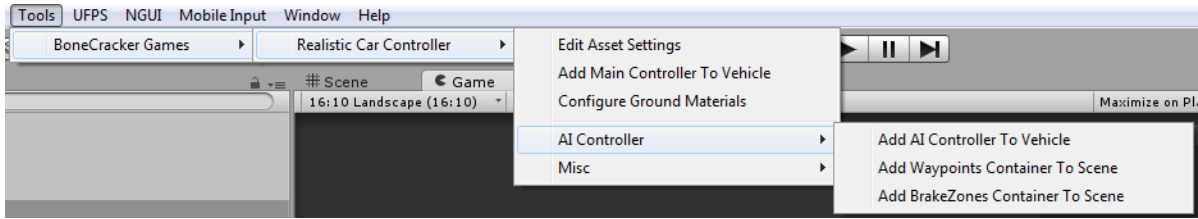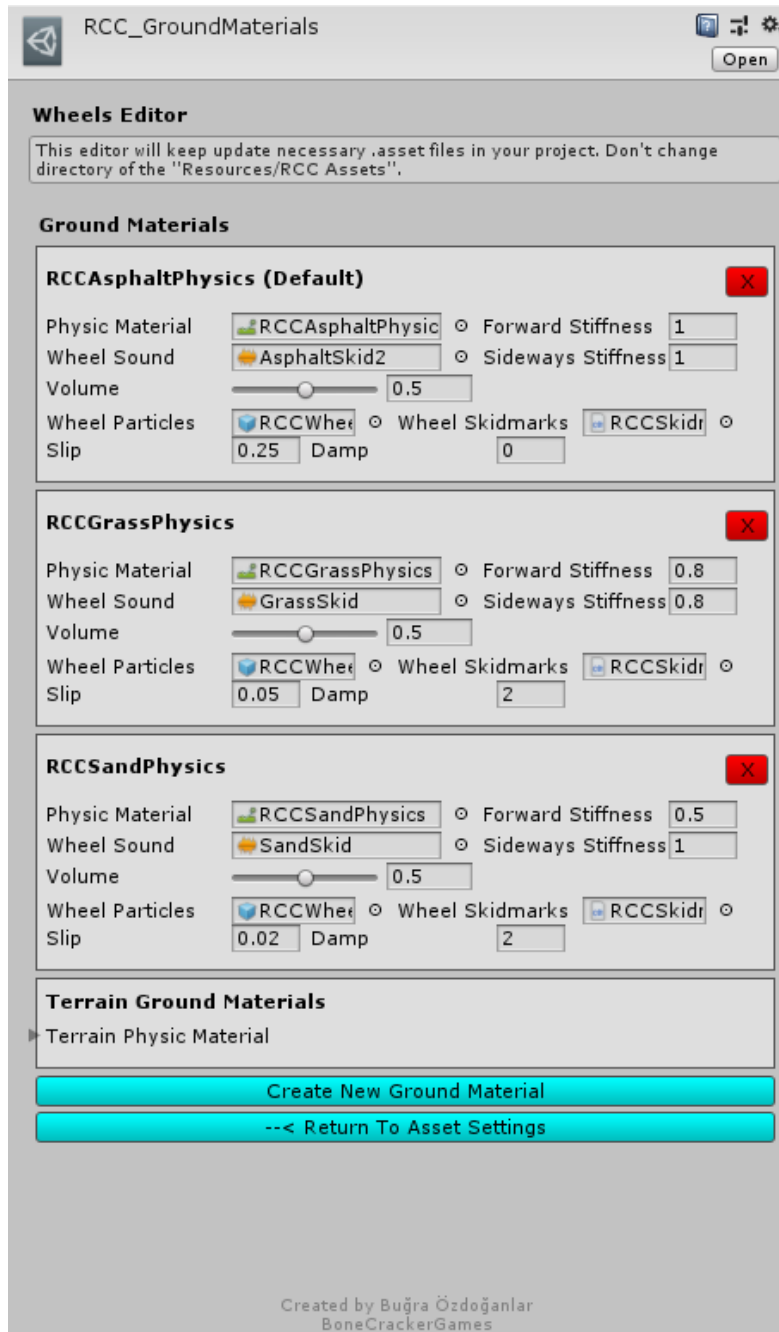RCC_GroundMaterials**")

If WheelCollider hits a collider with one of the physic material in the list, changes will be
applied to WheelCollider. You can check out demo scenes.

RCC Scene Manager

Every scene will have this manager automatically. **RCC Scene Manager** contains current player vehicle, current player camera, current player UI, current player character, recording / replay mechanim, and other vehicles as well. Instead of finding current car controller, or camera on scene, RCC Scene Manager will find it and manage it only. All other scripts depending on player vehicle will take reference of the RCC Scene Manager. For ex, finding player vehicle on scene is **RCC_SceneManager.Instance.activePlayerVehicle**. All other codes can be found at scripts documentation.
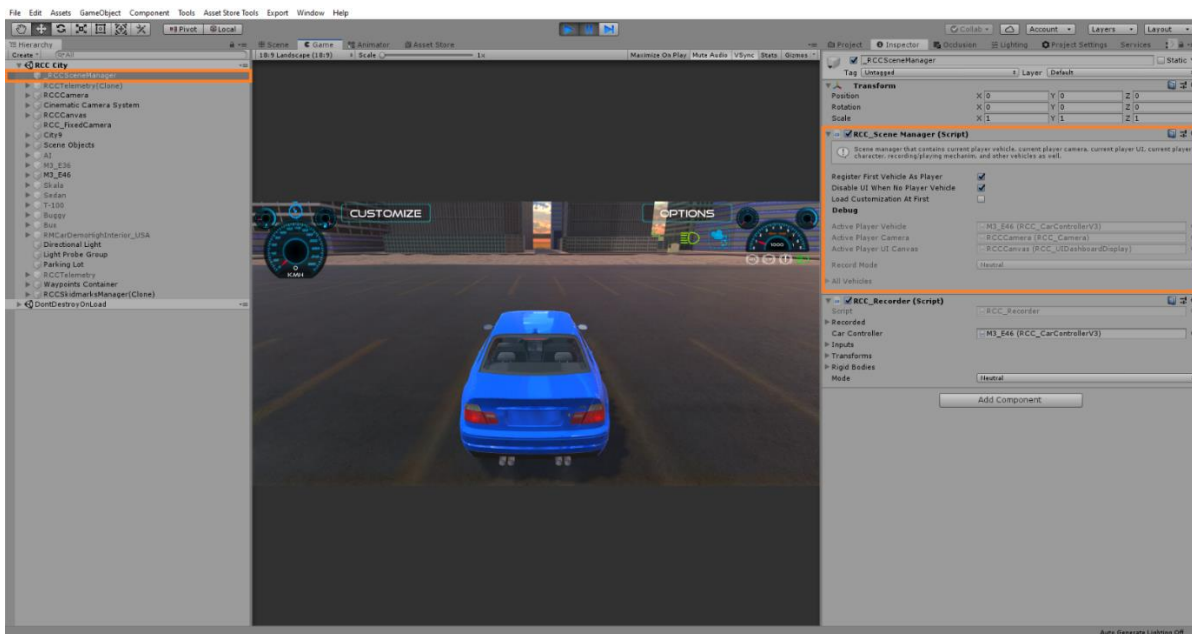
Controller Types

RCC supports all controller types with the new input system. Each controller can be changed directly from **RCC_InputActions** (Detailed explanation in documentation named "**Realistic Car Controller V3.53 New Input System**")

Logitech Steering requires **Logitech Gaming SDK** installed in your project.

Mobile Controller

Mobile controller is using my own input system instead of the new input manager. Each UI controller button has "RCC_UIController.cs" script for inputs. These buttons feeds RCC_InputManager with normalized float values. You can adjust UI buttons sensitivity and gravity from RCC Settings. Switching mobile controller to the new input manager is easy, however I don't recommend to do this. Because UI buttons will simulate gamepad buttons in this case.
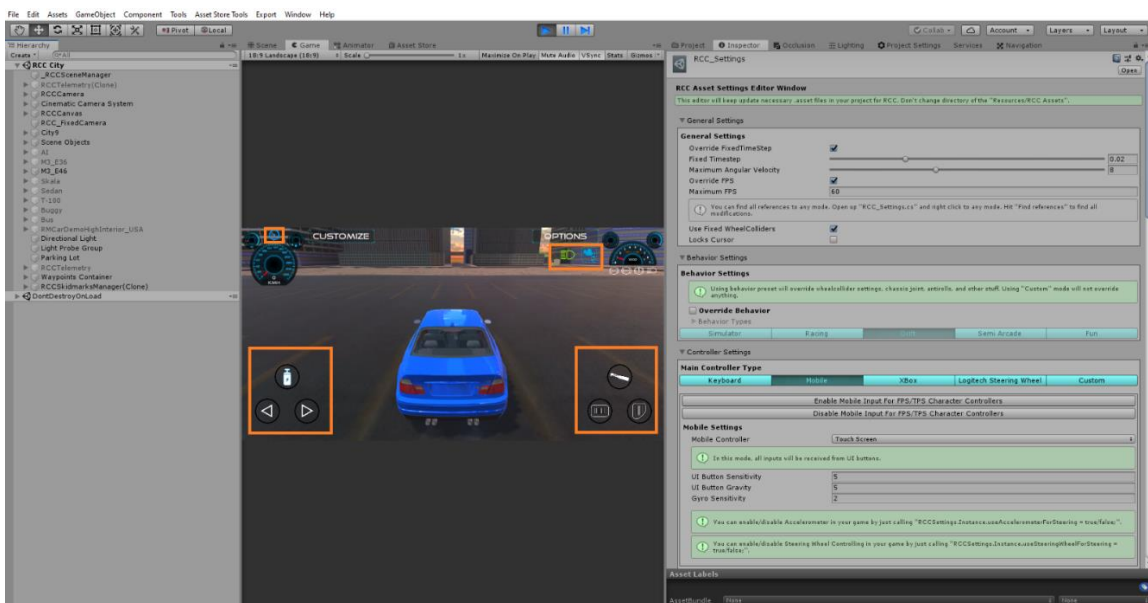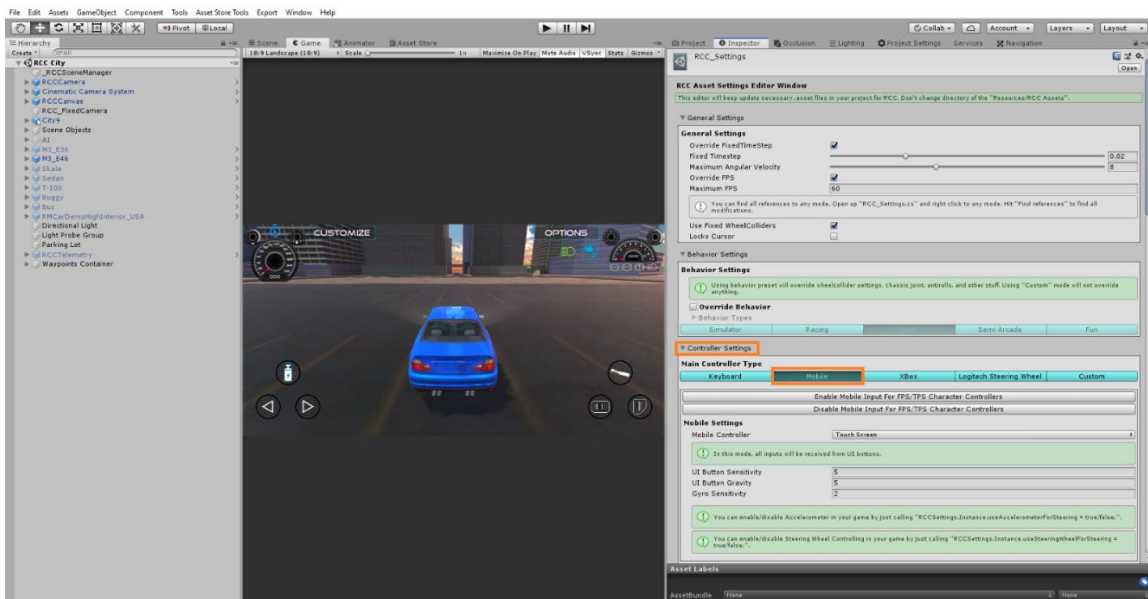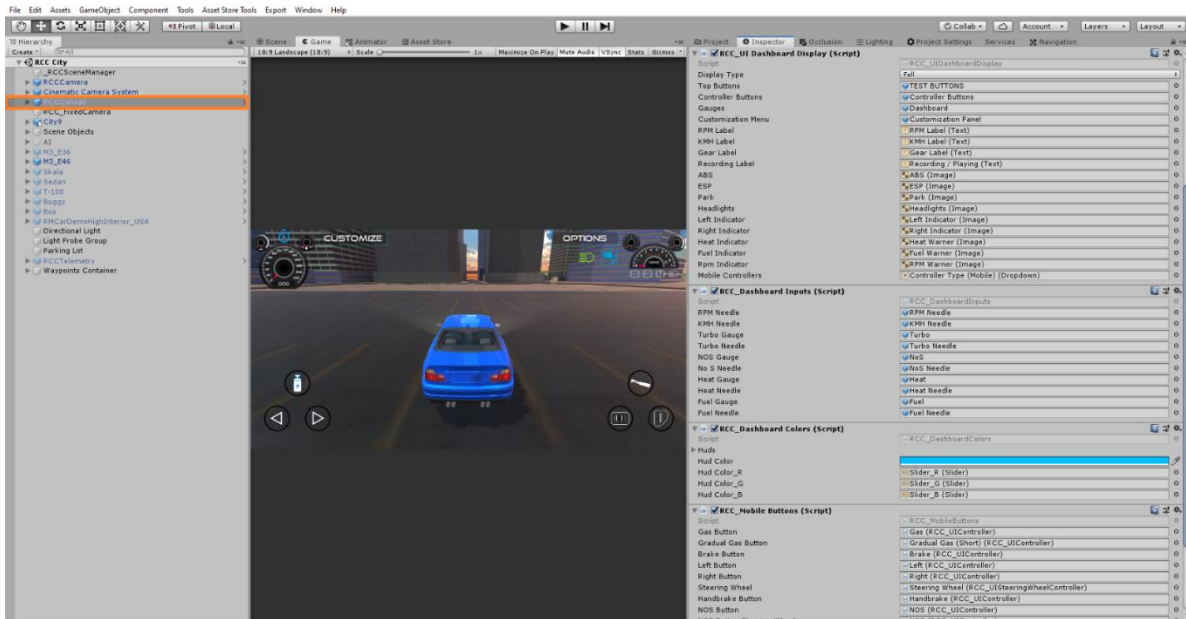
About Mobile Usement On City Scene

City scene has lot of specular maps with alpha channels. Textures with alpha channels and bump maps are heavy for mobile devices. In Demo APK in my website is not using any texture with alpha channels. Also all standard shaders are replaced with mobile shaders in **RCC City Mobile** scene at the demo. If you build an APK without editing materials, you may get performance loss on low-end devices.

Keyboard Shortcuts

Keyboard shortcuts can be used if "**Use Shortcuts**" is enabled in the **RCC Settings**. It's disabled by default.

Shift + R = Add main controller to the vehicle

Shift + S = RCC Settings

Shift + E = Enable In-Scene editor buttons

Some packages may conflict with the shortcuts. For example, removing road key in EasyRoads (Shift + R) will conflict with this. To remove or change any shortcut, disable "**Use Shortcuts**" in the **RCC Settings**.

RCC Camera

Main camera system designed for using with RCC. Related with vehicle stats and includes six different camera modes with many customizable settings. It doesn't use different individual cameras on your scene. Simply it parents the camera to their positions, and that's all.

If your scene doesn't have RCC Camera, you can create it from **Tools → BoneCracker Games → Realistic Car Controller → Create → Cameras → Add RCC Camera To Scene**.

Each camera mode can be customized here. **TPS** mode is required, and all other modes are optional. If you don't want to use hood, wheel, fixed, cinematic camera, top-down modes, you can just disable them here.

Record / Replay

Complete physics and input based record / replay system. Player vehicle and all active AI vehicles can record / replay. All you have to do is press "R" for start recording, and "P" for start replay. These buttons can be changed in RCC_InputActions. And of course, there is a UI button for mobile.

RCC_Recorder can be found at attached to _RCCSceneManager on your scene. You can enable or disable it. Script will be added at awake, or you can add it by manually if enabled. You can use RCC's API for start record / replay at runtime. For ex;
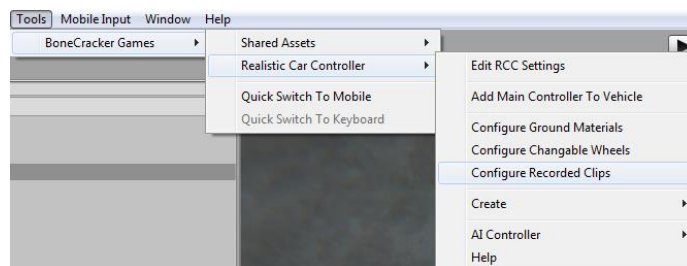
RCC. StartStopReplay ();

RCC. StartStopReplay (RCC_Recorder.Recorded recordedClip);

RCC. StartStopReplay (int index);

RCC. StartStopReplay (RCC_Recorder.Recorded recordedClip);

All records are stored in RCC_Records. You can access it from Tools → BCG → RCC → Configure Recorded Clips.

Customization

You can customize your vehicles by just calling a single method. Please take a look at "**Realistic Car Controller V3.53 Scripts**" documentation. All methods in **RCC_Customization** are explained there.

How The Customization Panel Works

I wrote a example script called "**RCC_CustomizerExample.cs**" which uses static methods in **RCC_Customization.cs**. Script is attached to **RCCCanvas**. UI buttons in customization panel sends methods to this example script. And this example script uses static methods in **RCC_Customization.cs** for making changes. Let me explain it with simple examples;

We want to change front suspension distance of our vehicle. So, we have to call;

**RCC_Customization**.**SetFrontSuspensionsDistances** (**targetRCC**, **targetValue**);

We want to repair our car. So, we have to call;

RCC_Customization. **RepairCar** (**targetRCC**);

We want to change drivetrain of our car to AWD. So, we have to call it;

<div align="center">

RCC_Customization. **SetDrivetrainMode** (**targetRCC**,
RCC_CarControllerV3.**WheelType**.**AWD**);

</div>

And goes on... Simply take a look at all methods in **RCC_CustomizerExample.cs** script, you will see how I customized the player vehicle by using **RCC_Customization.cs** script.
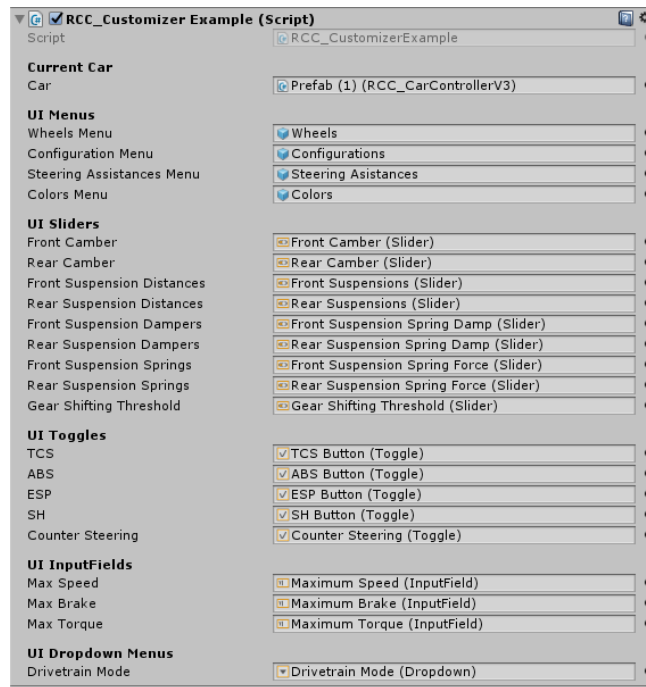
This example script handles all UI menus, buttons, sliders, toggles, inputfields, and dropdown menus of the customization panel. It just receives inputs from UI, and fires necessary actions.

Credits

Driver Sofie, her animations, and her car model made by 3DMaesen. You can access 3DMaesen asset store from this link;

http://u3d.as/2vg

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