

## How to Add Cars to RTG Ultimate

Video Tutorial (6:05): <https://youtu.be/UpSeAzk-VL4>

Video Tutorial2 (6:47): <https://youtu.be/LZZCfCrxEj8>

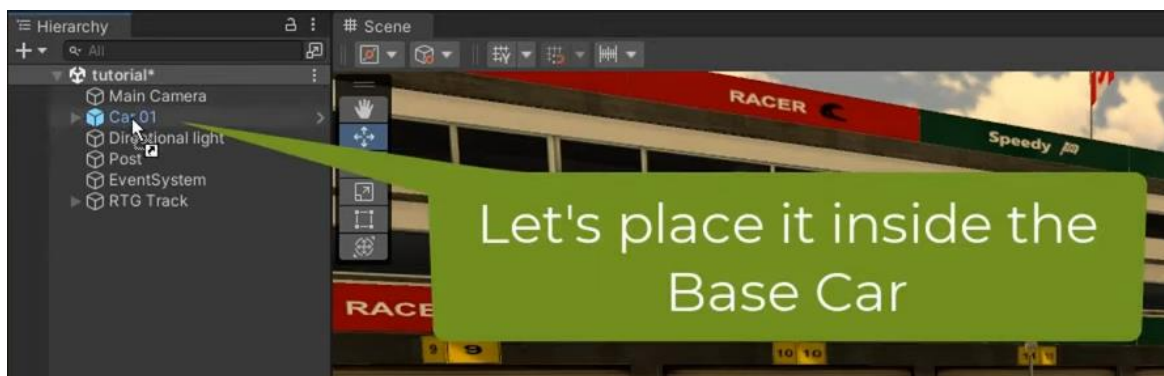
With RTG Ultimate, users can add their own car models or download cars from the Unity Asset Store and integrate them into the system. Follow these steps to add a new car:

### Step 1: Place a Base Car in the Scene

1. Drag and drop one of the base cars (included in the package) into your scene.
  - The base cars can be found in:  
"Assets\RTG Ultimate\Cars\Prefabs"
2. This car will serve as the base setup for configuring your new car model.

### Step 2: Add Your New Car to the Scene

1. Drag your new car (the car you want to add) into the scene, and make it a **child** of the base car by dragging it under the base car GameObject in the Hierarchy.



2. Align the new car to match the position of the base car.



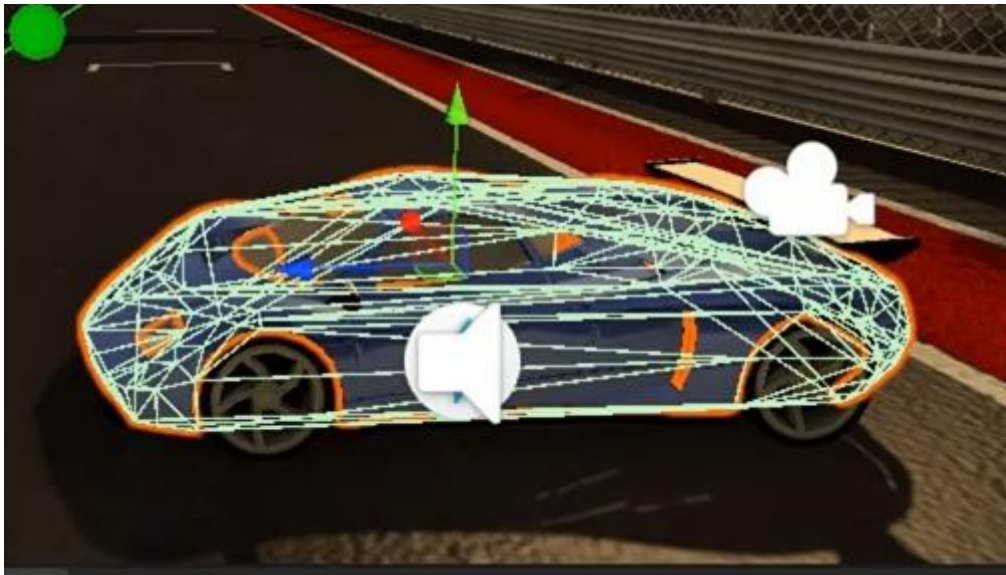
- Ensure the new car is positioned at the same location as the base car.
- Make sure the wheels of the new car are touching the ground in the same way as the base car wheels.
- **Tip:** Use the orthographic view for precise alignment.

### Step 3: Remove the Base Car Mesh

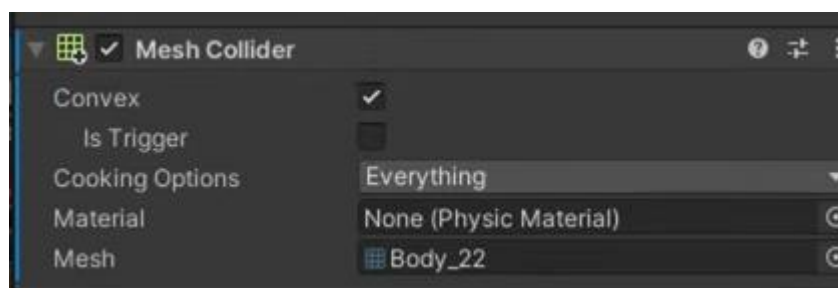
1. Once the new car is properly positioned, delete the "**CarBody**" folder (or equivalent GameObject) from the base car.
  - This folder contains the base car's meshes, leaving only the meshes of your new car.

### Step 4: Add the Mesh Collider

1. Select the **body** of the new car.
2. Check if a low-polygon mesh for the collider already exists. If not, add a **MeshCollider** to the **body** of the vehicle.



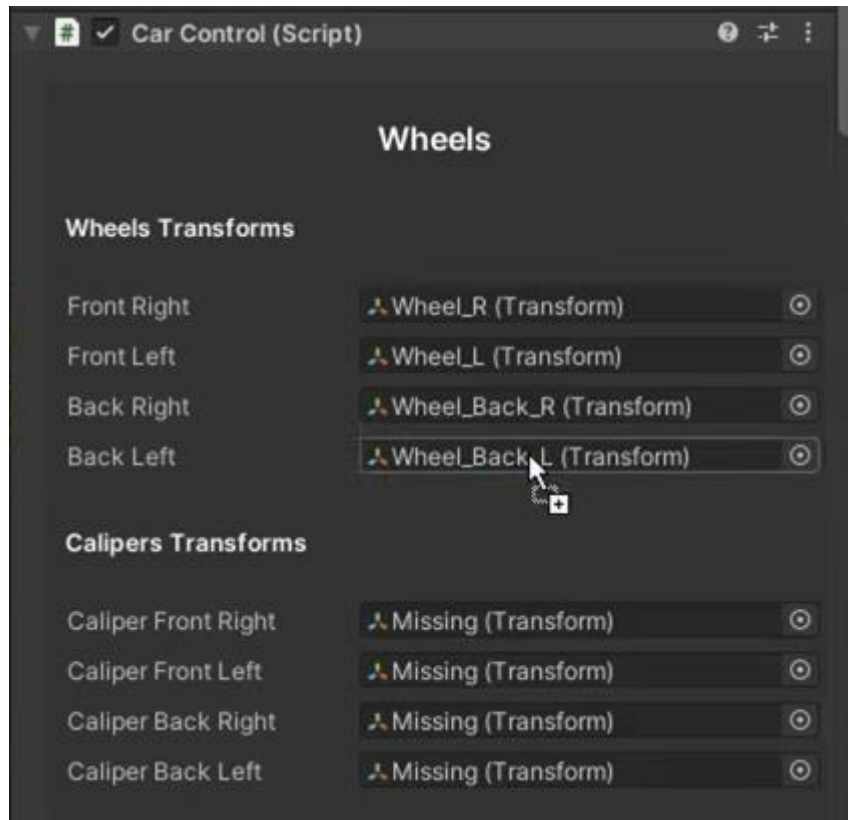
- Set the **MeshCollider** to **Convex**:



- Ideally, use a separate low-polygon mesh for the collider. If your vehicle's mesh has a high polygon count, consider:
  - Creating a simpler mesh for the collider by duplicating the existing mesh, removing the **MeshRenderer**, and adding a **MeshCollider** to the duplicate mesh.

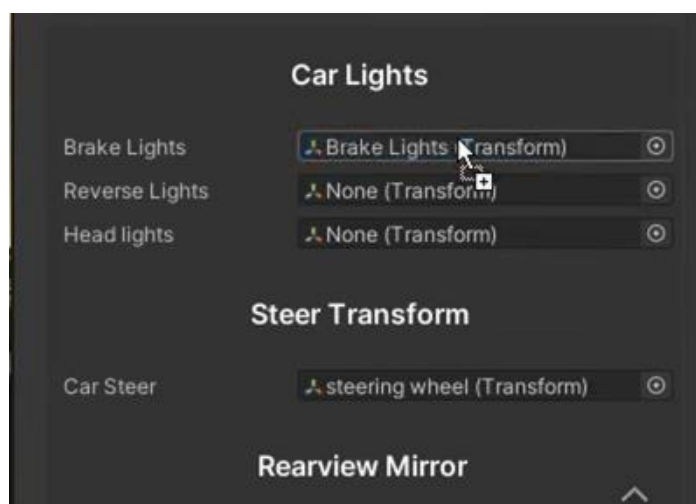
## Step 5: Set Up Wheels and Calipers

1. Select the root GameObject of your new car.
2. In the **Inspector** under the **Wheel Settings** section, assign the wheels of the new car to the corresponding fields.
3. Do the same for the **Brake Calipers** section if your car has calipers.



## Step 6: Add Brake Lights

1. In your new car's hierarchy, create a new empty GameObject and name it (e.g., "Brake Lights").
2. Inside this GameObject, add the light components or meshes that should activate when the car brakes.
3. Drag and drop this "Brake Lights" GameObject into the **Brake Lights** field under the **Lighting Settings** section in the **Inspector**.



## Step 7: Configure Camera Viewpoints

You can add camera viewpoints for both global (all cars) and specific (individual car) perspectives.

### a) Global Camera Viewpoints:

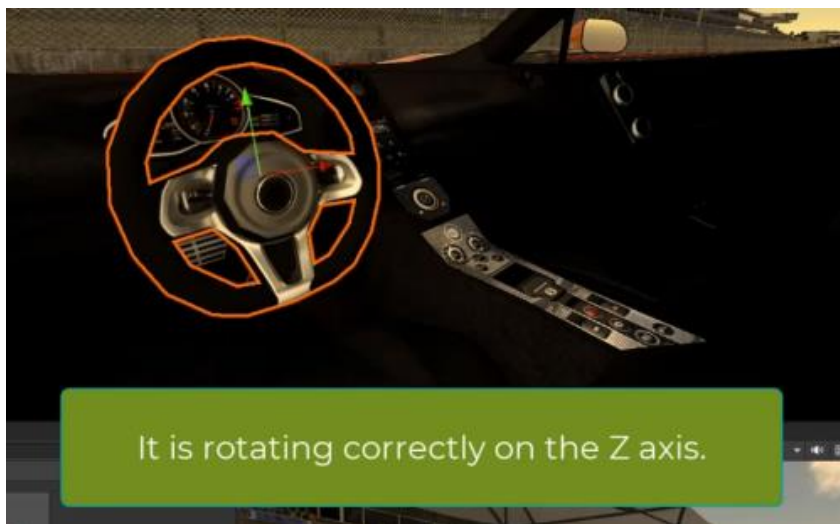
1. The default camera viewpoints are managed in the VehicleCamera.cs script.
  - Here, you can add new camera points that will apply to all cars in the game.
  - These camera points are dynamic and have smooth transition effects, which can be configured in the Inspector.

### b) Specific Camera Viewpoints for Each Car:

1. Inside the car's GameObject, locate the folder named "**Cameras**".
  - This folder contains the specific camera points for the car, which are empty GameObjects indicating where the camera should be positioned when these viewpoints are activated.
2. You can add as many viewpoints as needed by creating new empty GameObjects and placing them where you want the camera to be.
3. Finally, test the viewpoints:
  - Place the car in the scene, press Play, and switch between the viewpoints to ensure they are positioned correctly.

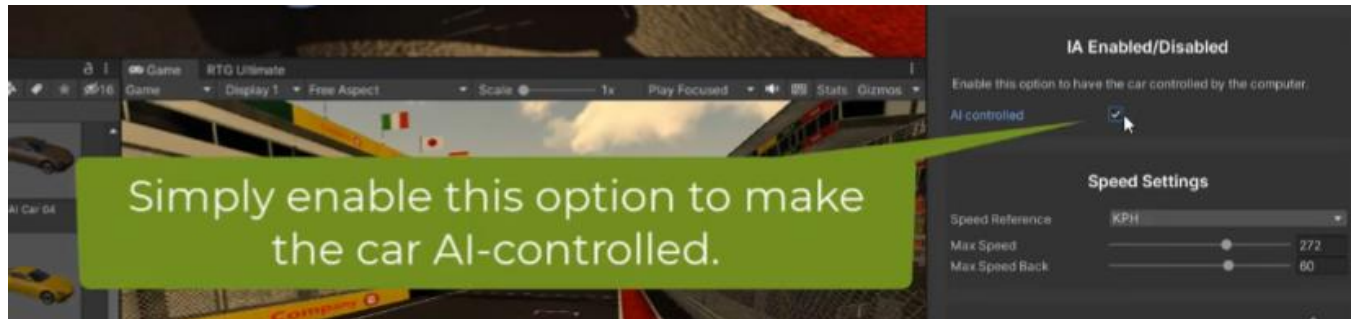
## Step 8: Set Up the Steering Wheel

1. In the **Inspector**, locate the "**Steering Settings**" section.
2. Find the "**Steering Wheel**" field and assign the mesh of the car's steering wheel to this field.
3. **Important:** Ensure the steering wheel mesh rotates correctly around the Z-axis for proper functionality.
  - Refer to the video tutorial for detailed instructions: [LINK to be provided].



## Step 9: Configure AI Control

1. In the **Inspector**, locate the "**AI Enabled/Disabled**" section.
2. Set the "**AI Controlled**" option:
  - **Disabled** for cars controlled by the player.
  - **Enabled** for cars controlled by AI.



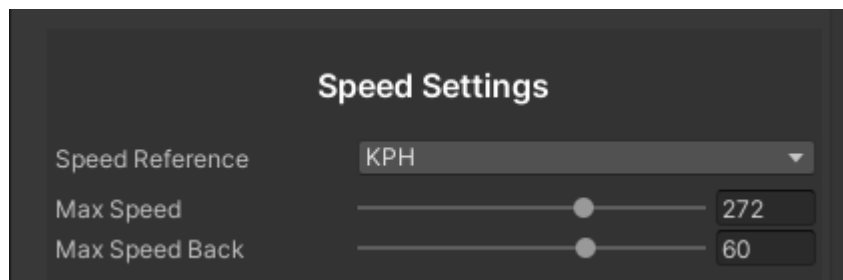
## Step 10: Configure Car Sounds

1. In the **Inspector**, locate the "**Car Sounds**" section.
2. Assign the sound files for the car engine.
3. Adjust the **Pitch** and **Volume** settings for optimal sound.



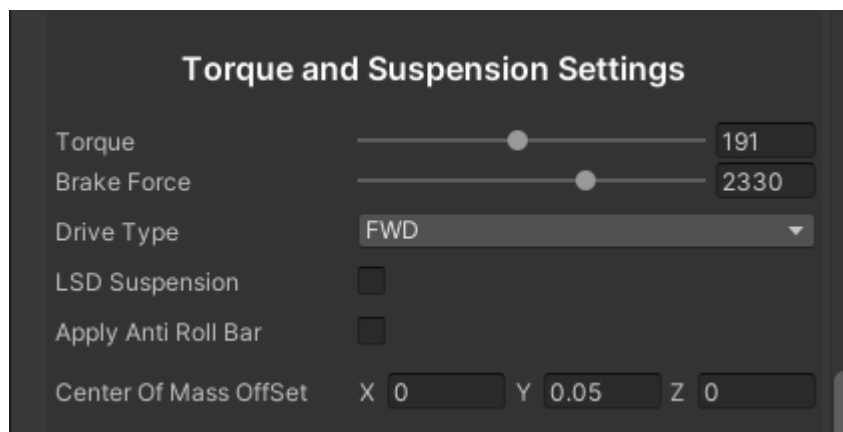
## Step 11: Set Speed Settings

1. In the **Inspector**, find the "**Speed Settings**" section.
2. Set the maximum speed for the car.
3. Choose whether to use **MPH** or **KMH** as the unit of measurement.



## Step 12: Configure Torque and Suspension Settings

1. In the **Inspector**, locate the "**Torque and Suspension Settings**" section.
2. Enable or disable **LSD Suspension** and **AntiRoll Bar** options as needed.
3. Define the values for **Torque**, **Brake Force**, and select the type of traction.

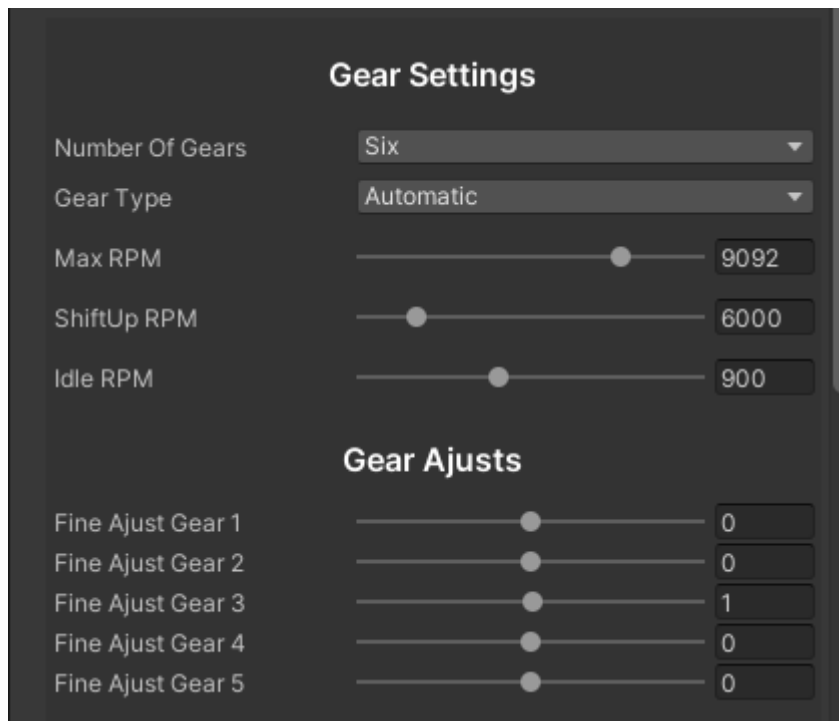


Torque:

"Power is automatic, based on the defined maximum speed. Torque then works as an additional adjustment: with a higher value, it will reach the desired speed more easily."

## Step 13: Set Gear Settings

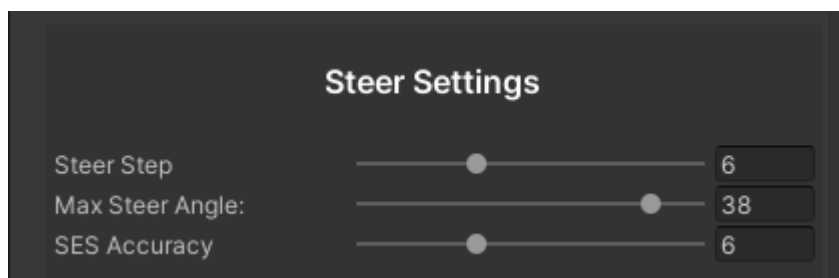
1. In the **Inspector**, navigate to the "**Gear Settings**" section.
2. Set the number of gears.
3. Choose between **Manual** or **Automatic** transmission.
  - Note: Only **Automatic** works for AI-controlled cars.
4. Define values for **Max RPM**, **ShiftUp RPM**, and **Idle RPM**.
5. Optionally, fine-tune each gear by adjusting the gear ratios for better performance.



*Note: When you set the maximum speed and the number of gears, the car will automatically adjust its settings, reducing the need for extensive testing and manual adjustments.*

## Step 14: Adjust Steering Settings

1. In the **Inspector**, find the "**Steer Settings**" section.
2. Adjust the **Steer Step**, **Max Steer Angle**, and **SES-Accuracy** for fine-tuning the steering sensitivity.



## Step 15: Configure Advanced Wheel Settings

1. In the **Inspector**, locate the "**Advanced Wheels Settings**" section.
2. Set values for **Mass**, **Suspension**, **Damper**, **Slip**, and other wheel-related configurations.