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# DriverMaster

By Efim Armand

## INTRODUCTION

There are more than a few scripts and rigging tools available for rigging automobiles in 3ds Max. Some offer an easy way to get wheels rotating based on the movement of the car, others will add in steering, and even others will incorporate a suspension system.

A new offering however seems to roll all of those features into one car rigging script.

**DriverMaster** is a tool that will automatically create a 4-wheeled car rig in 3ds Max.

You can easily animate the motion for the vehicle manually or by using a curve in the scene.

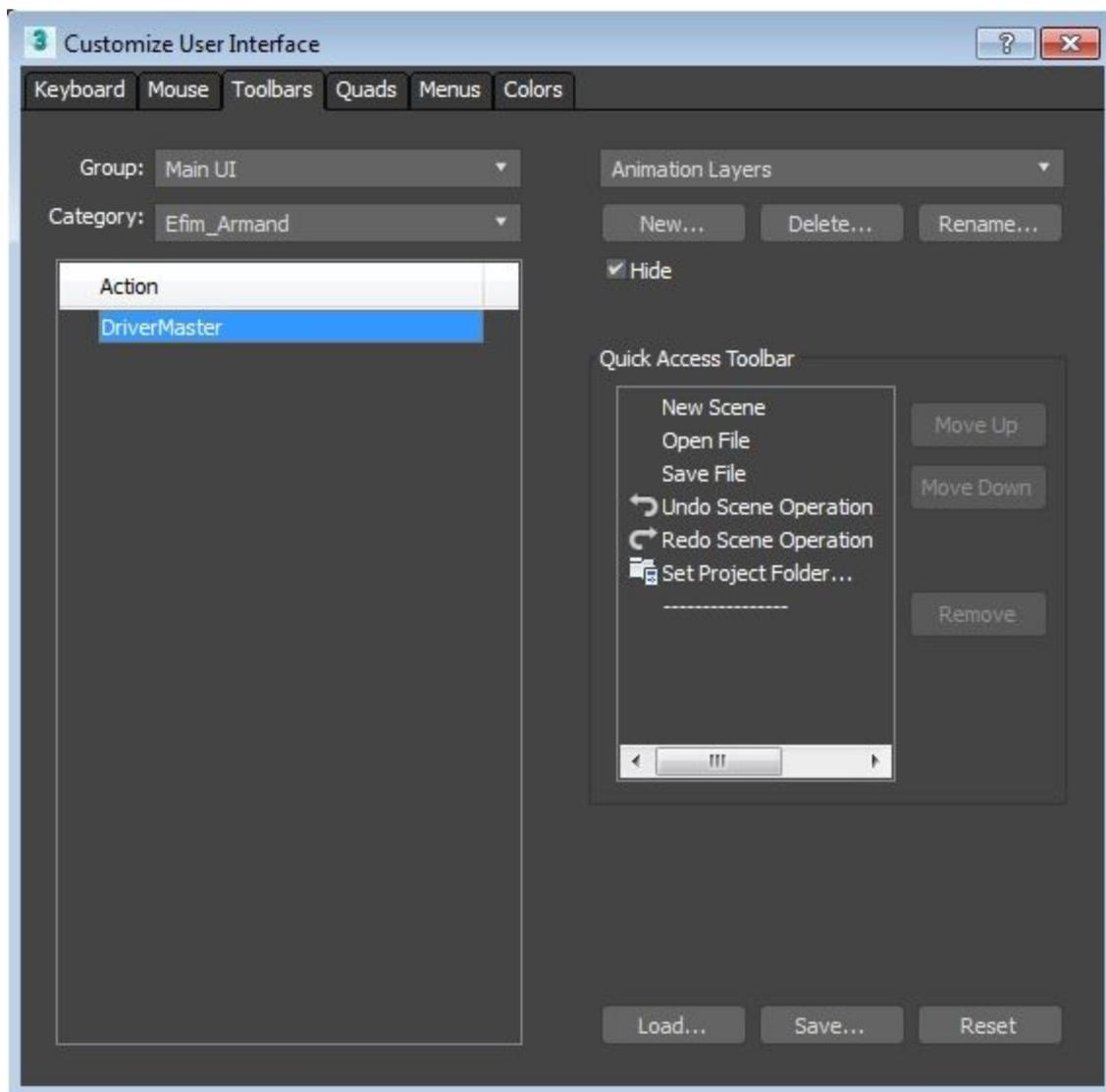
The script will also make the wheels stick to the ground, even if the ground is a terrain.

**DriverMaster** gives you a fast set up, dynamic suspension, automatic wheel ground contact, automatic wheel rotation and offset attributes for adjusting/animating your car on top off the generated animation.

## INSTALLATION

Once you download [DriverMaster](#) simply drag and drop MZP file into 3ds Max viewport. An activation dialog will pop up. Copy a request code and send it to [drivermaster@e-armand.com](mailto:drivermaster@e-armand.com). I will send you personal license as soon as possible.

Licensing process is same simple: drag and drop [DriverMaster\\_License\\_Installer.mzp](#) file into 3ds Max.



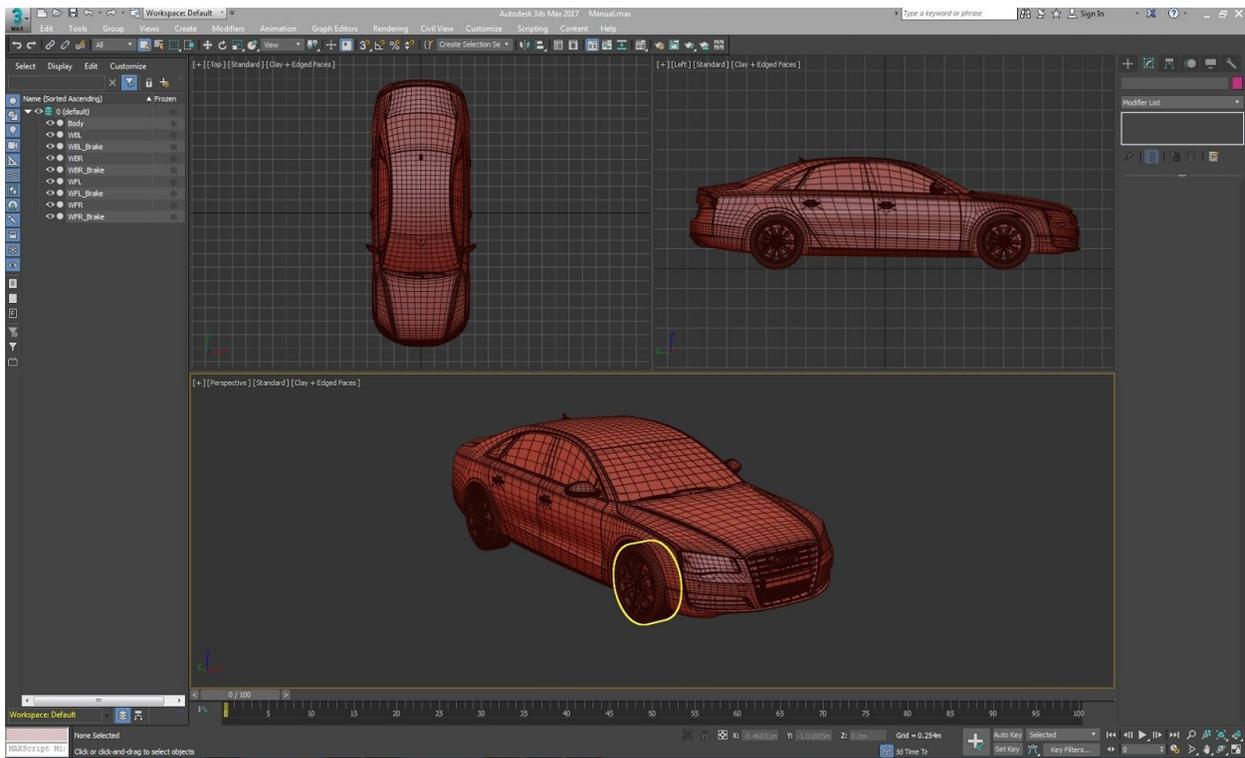
You may run [DriverMaster](#) script now. Just go to [Menu - Customize - Customize User Interface](#) and assign a shortcut to the script or drag and drop it to any toolbar.

# HOW TO USE DRIVERMASTER

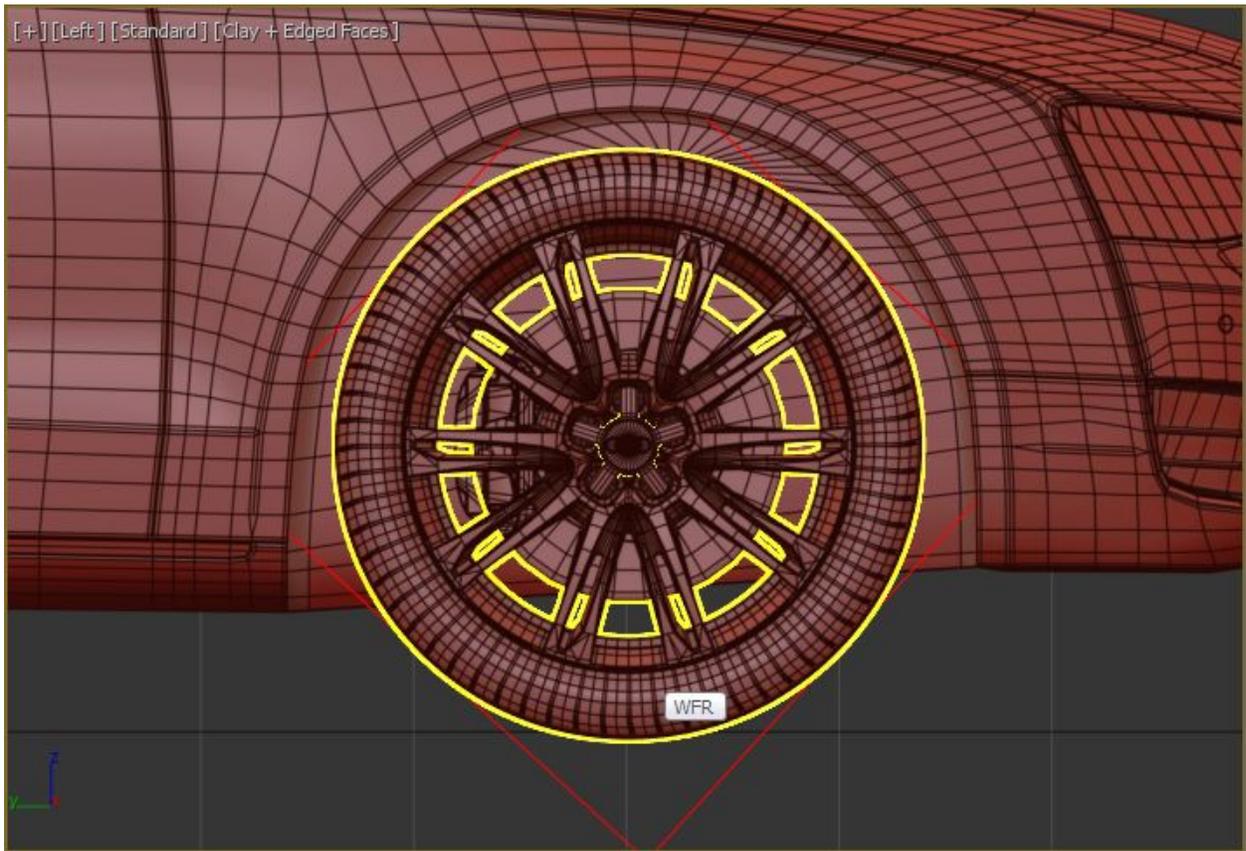
## Preparation

In order to get your vehicle rigged correct there is something you have to consider before rigging process:

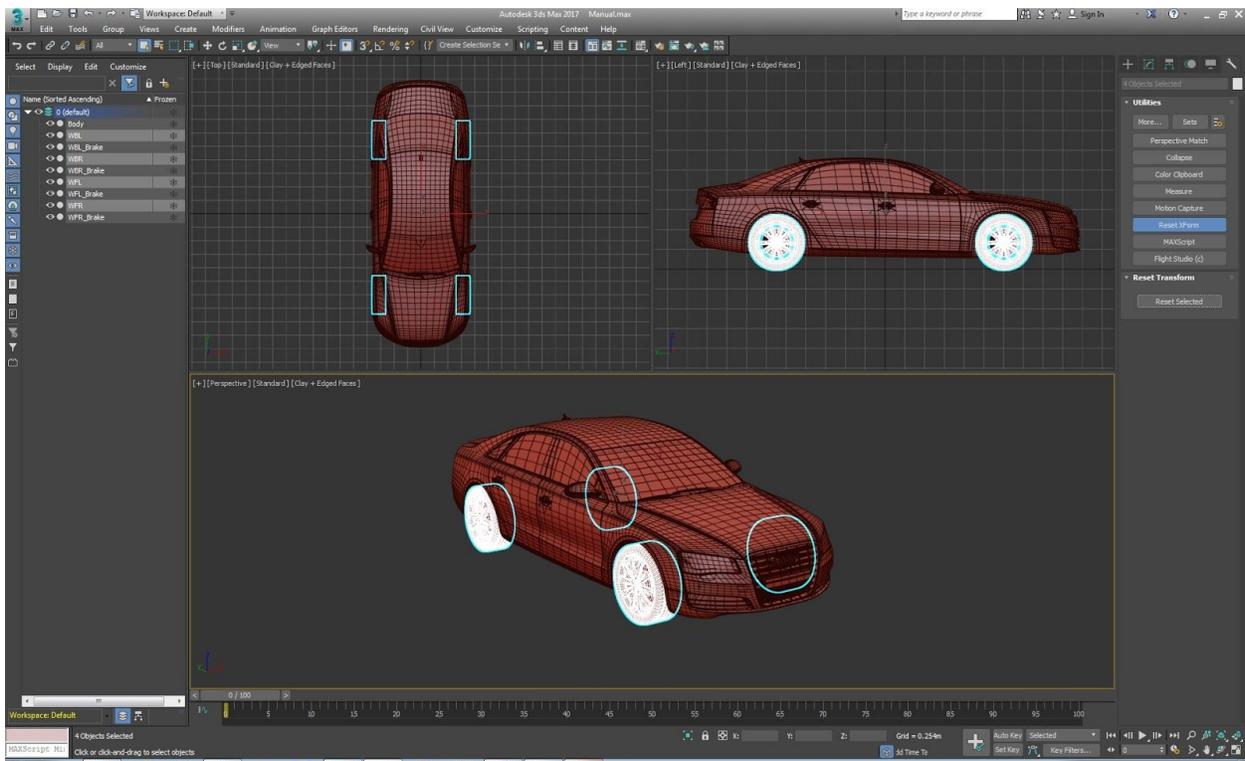
- ❖ Vehicle must be directed down in the top viewport



- ❖ Wheels must be standing on the ground level (zero Z axis)



- ❖ There must be at least 5 objects: chassis (body) and 4 wheels. It's better to Reset XForm all the wheels before rigging



- ❖ **DriverMaster** supports wheel brakes which must be 4 separate objects. In case you don't want to collapse vehicle model objects there is a solution to rig main objects such as vehicle chassis, wheels and brakes (if you have them in the model) and then link the rest of the model objects to particular **DriverMaster** helpers:

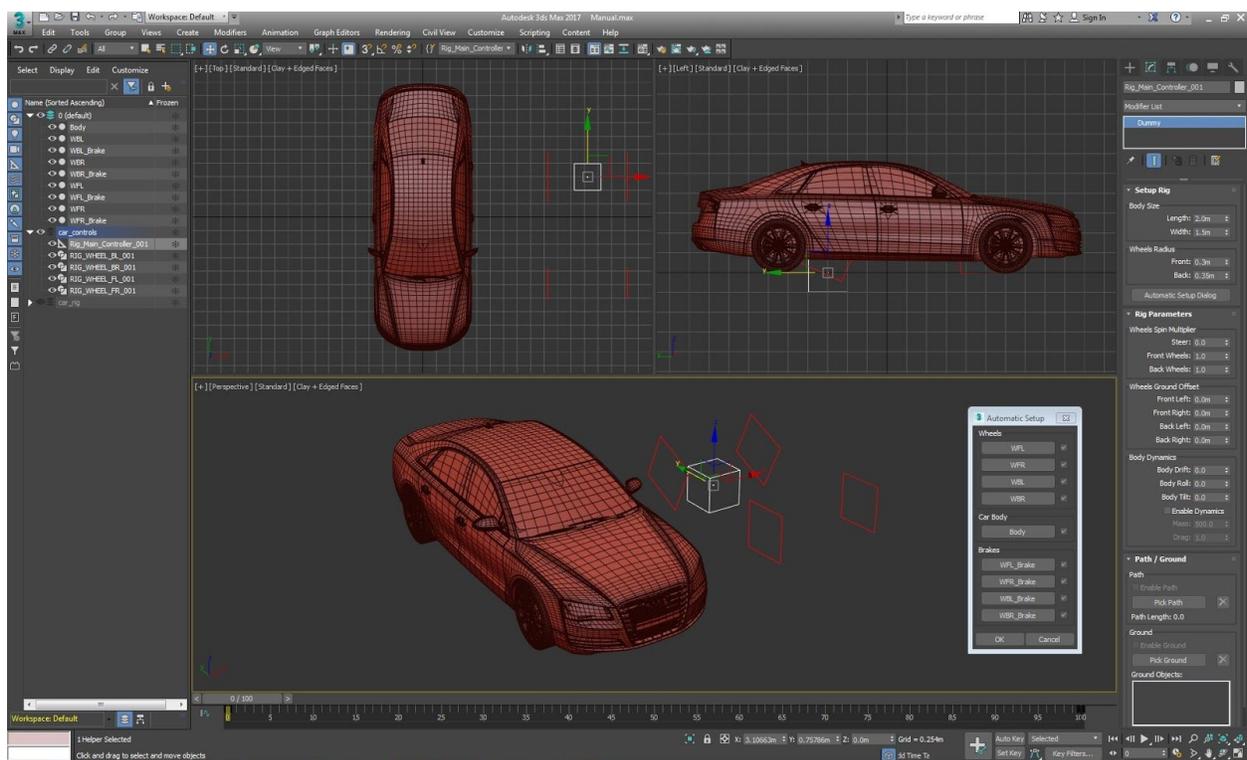
- RIG\_CAR\_BODY\_\*
- RIG\_WHEEL\_FL\_\*
- RIG\_WHEEL\_FR\_\*
- RIG\_WHEEL\_BL\_\*
- RIG\_WHEEL\_BR\_\*
- RIG\_WHEEL\_BRAKE\_FL\_\*
- RIG\_WHEEL\_BRAKE\_FR\_\*
- RIG\_WHEEL\_BRAKE\_BL\_\*
- RIG\_WHEEL\_BRAKE\_BR\_\*

## Rigging

Process of rigging is fast and simple. Once you created the rig by running **DriverMaster** you'll find "Automatic Setup Dialog" which contains several pick buttons. You can select vehicle part in two different ways:

- ❖ Select an object in 3ds Max viewport, then press corresponding button in "Automatic Setup" dialog
- ❖ Press a button in "Automatic Setup" dialog, then pick corresponding object in the viewport or select the object in "Select By Name" dialog

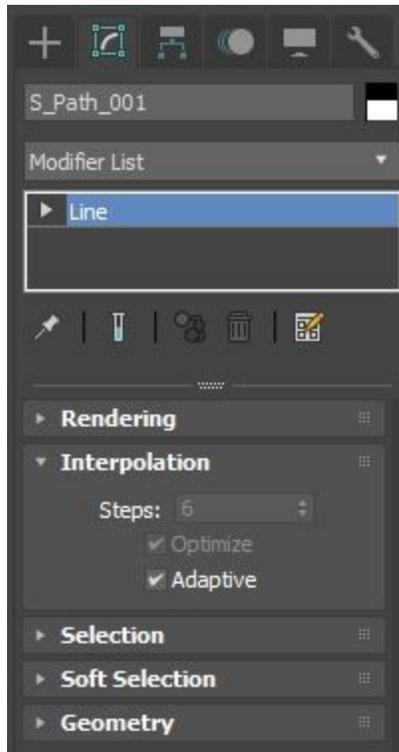
After your main 5 vehicle parts are defined "OK" button will become active. You may press it now.



**DriverMaster** rig will get aligned and scaled to your model. You are ready to use it!

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## Controls



There is a main controller helper which helps you to animate your vehicle. It is called “**Rig\_Main\_Controller\_\***” and you can pick it from Selection Sets.

**DriverMaster** works best with a spline path. In order to make vehicle follow the spline smoothly it's recommended to change Interpolation of the spline to Adaptive. NURBS Curve seems to work better than a spline.

**NOTICE:** never delete the path spline when it is used by the rig. First you have to delete it from the rig by pressing X button and then delete it in the scene. Same have to be applied for ground objects.

There is a spring based Dynamics which helps to achieve some extra chassis movements. It is turned off by default, because it might slow down the realtime playback in the viewport depending on your animation. Try to turn it on before you sending animation to render or for creating viewport

previews. Besides that Dynamics might look shaken sometimes while you are playing animation in viewport. It is a 3ds Max issue.

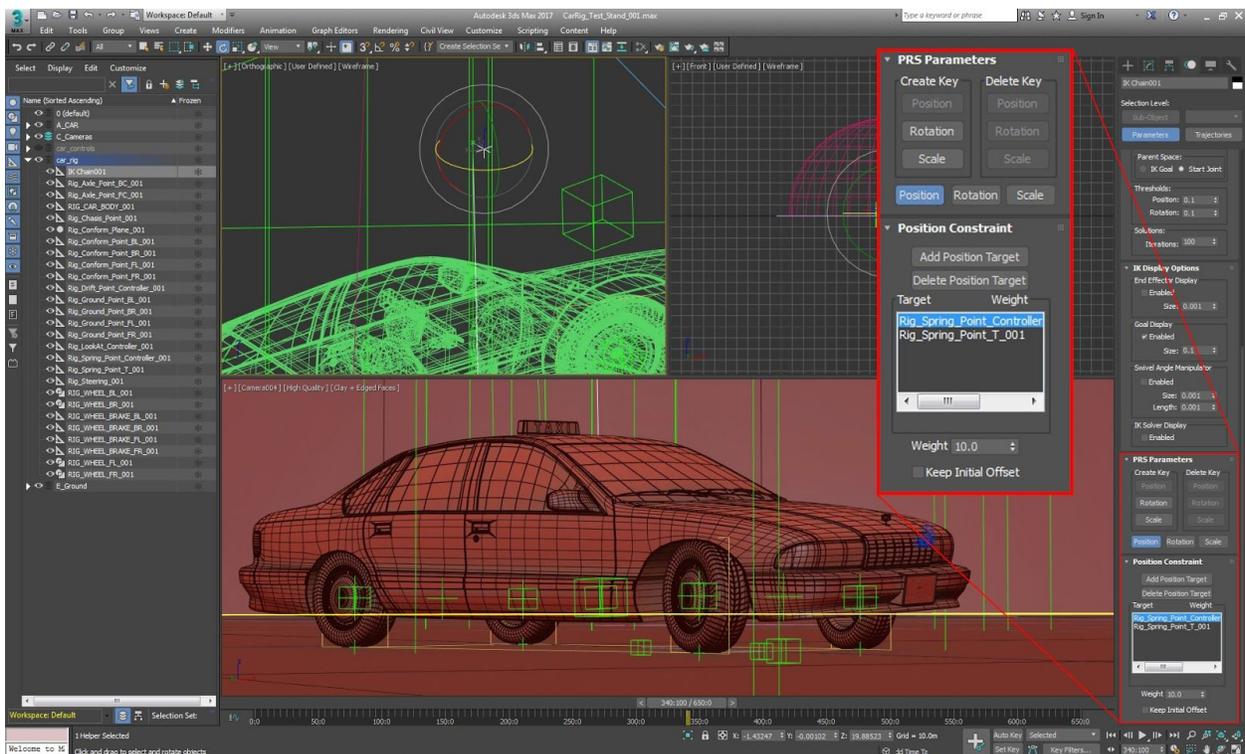
The best way to test your animation is to create a preview animation and as you will notice all the weird motions will be gone.



## Troubleshooting

There are certain things you have to avoid while using **DriverMaster**. As the rig is based on maxscript some actions might cause script errors. It is normal for any software and based on customer's feedback software get updated. Here I will describe some issues and solutions to solve them.

- ❖ As has been noticed rig works better with mesh ground object, not poly. Mesh normals must be facing up, that way script send some ray down to it, gets the intersection coordinates and places wheel helpers on the ground. Sometimes it is recommended to apply **Subdivide/TurboSmooth** modifier to ground object to increase its density.
- ❖ Depending on 3ds Max scene units vehicle chassis reaction to turns might be too big. The solution I found is to adjust one controller's parameter. Select **"IK Chain\*"** helper and find **"Position Constraint"** in the **"Motion"** rollout. Select **"Rig\_Spring\_Point\_Controller"** in the list and lower its weight parameter. Rig's inertia will be reduced.



- ❖ Whenever you want to delete rig or replace it with a new one you must select all the objects in **"car\_controls"** and **"car\_rig"** layers and then delete them.