vDuring initial assembly don't tight bolts completely, do it at the end. First you need to assemble full frame and fight screws and bolts after.

The following arrow highlights the spot on the diagram or details that you need to pay extra attention:

If you use a flight simulator, then in the settings Axis Assignments - instead **Extra1** (Traction Loss) must be used **Yaw** effect

Please check and if needed put back the motors power and sensors plugs as they were to match the colors. This is very important. **Never change wiring**. Mixed of colors in connectors can damage the motors and platform controllers. If you think that you need to reverse one or more motors, do it in SimTools software.

Our platform is very lightweight and simple die to its perfect weight balance. This allows us to use affordable motors and gearboxes. If you plan to put something besides standard wheel, pedals, yoke, gear shifter, throttle and HOTAS you need to plan and implement it properly. Each additional even light element on the moving platform should be well positioned and counterbalanced (same weight X same arm length). You can't put even light screen/monitor on our simulator. It is always better to consult us first, before installing any extra equipment on the platform.

Don't put ANY controllers on the platform before it is completely tested and proven to be working as desired. After assembly attach the seat only. Nothing extra. When you ensure proper behavior start adding controllers one by one, doing movement tests with person seating at the pilot seat after implementing each new add on to platform weight.

Here are few videos of P3 assembly https://www.youtube.com/watch?v=4DVa2-J_feY
https://youtu.be/gz8i9IYWZcY?t=113 **and** https://youtu.be/QbTnt5a_C6w **for your** **reference.**
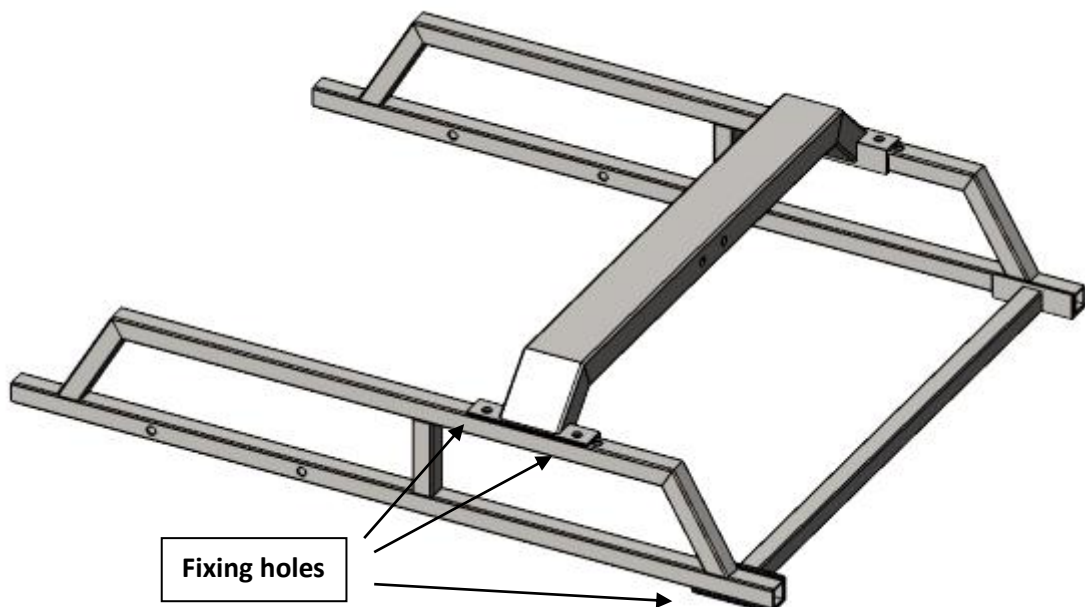
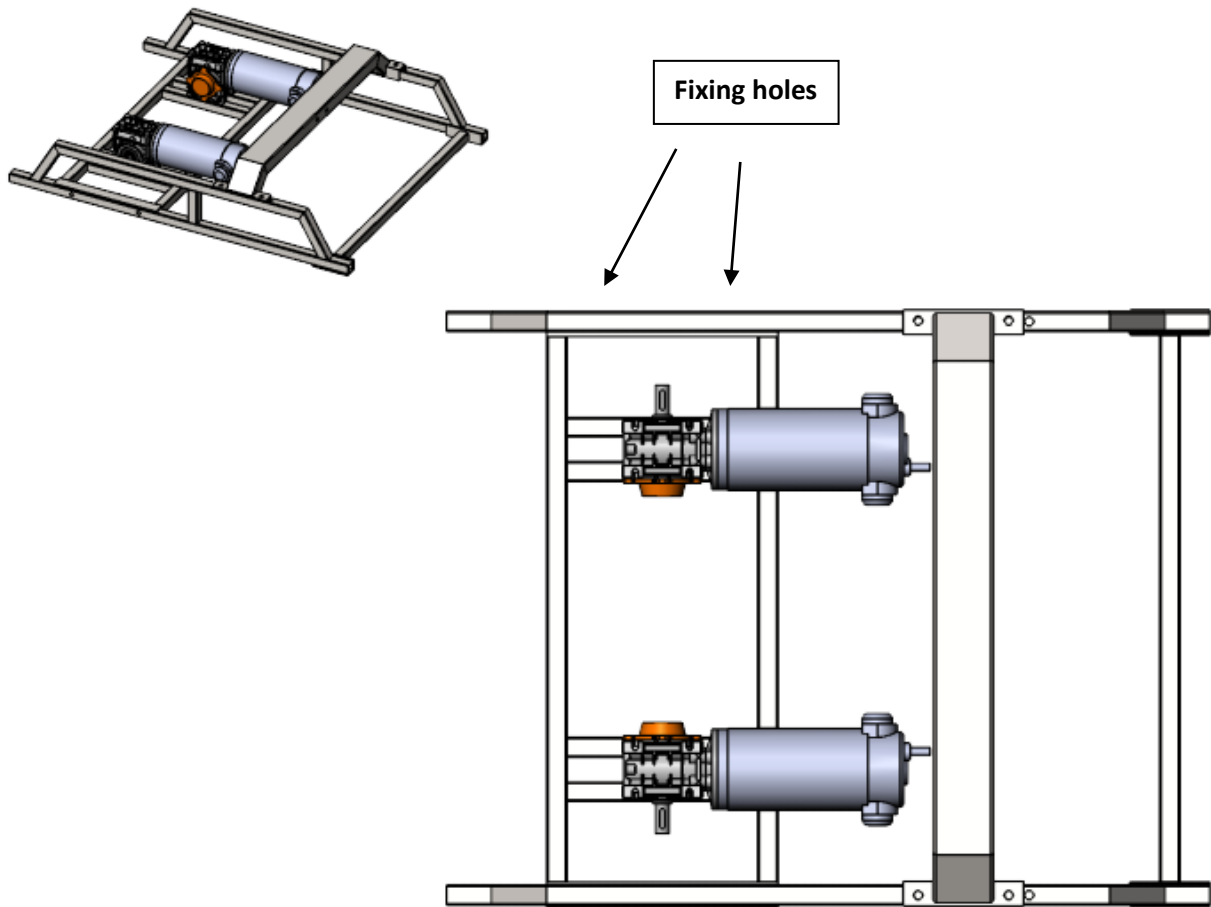1. **Lower frame assembly P3**

Parts needed:
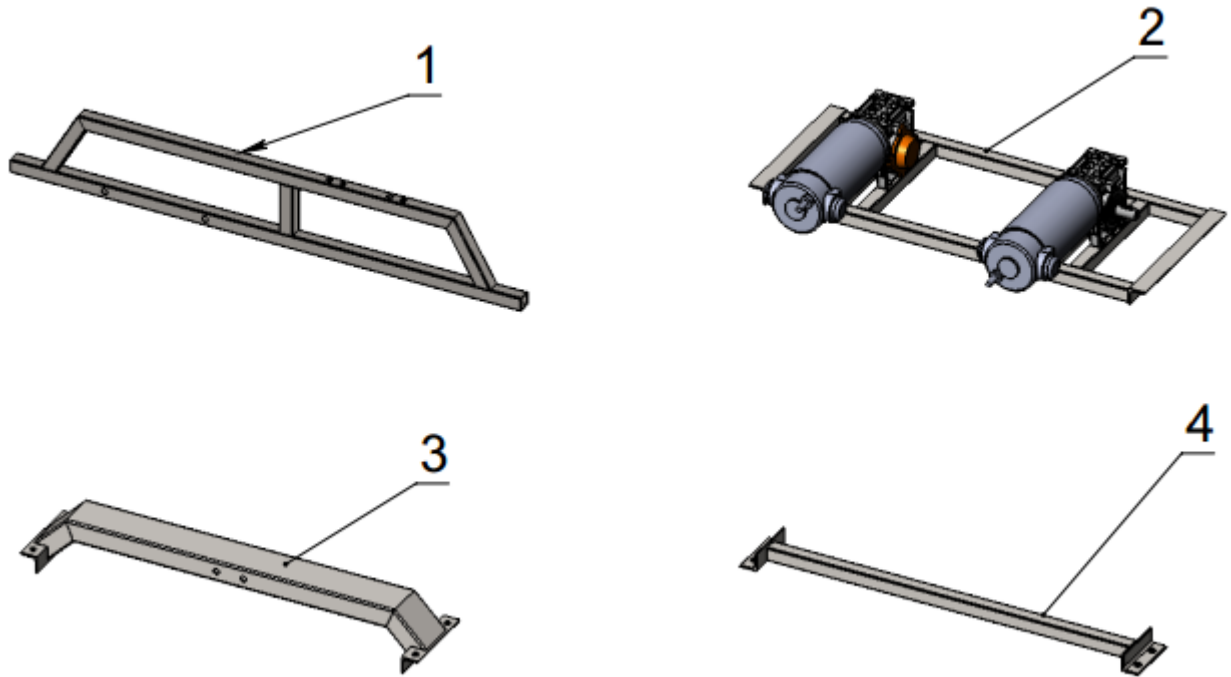
1. – Main frame (2 pcs.), 2. – Motors, 3. – U-joint mount bracket, 4. – base cross bar (2 pcs.)

1.1. Base Assembly
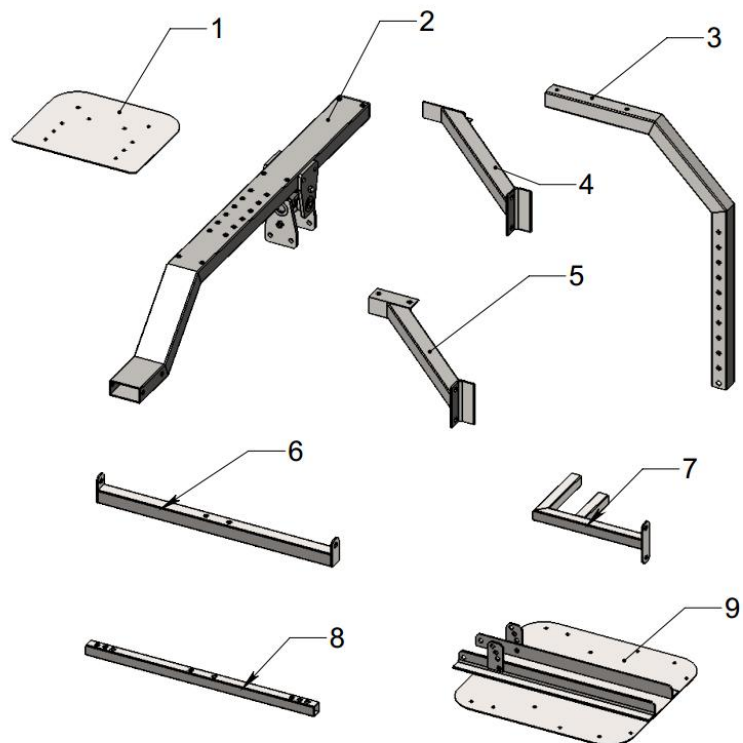
Assemble the base as per illustration below.

Fixing holes

1.1. Put main motors and U-joint mount bracket.

**Fixing holes**

2. Upper frame

These steps are the same for all platforms. There can be some small deviations for left or righthand driving, DirectDrive wheels as well as optional HOTAS side mounts.

Parts needed:

1. – wheel plate, 2. – main rail, 3. – wheel support(2 pcs.), 4. – wheels upport mount(left), 5. – wheel support mount(right), 6. – main motors arms mount, 7. – shifter support, 8. – Seat mounts bars(2pcs.), 9. – pedals stand.

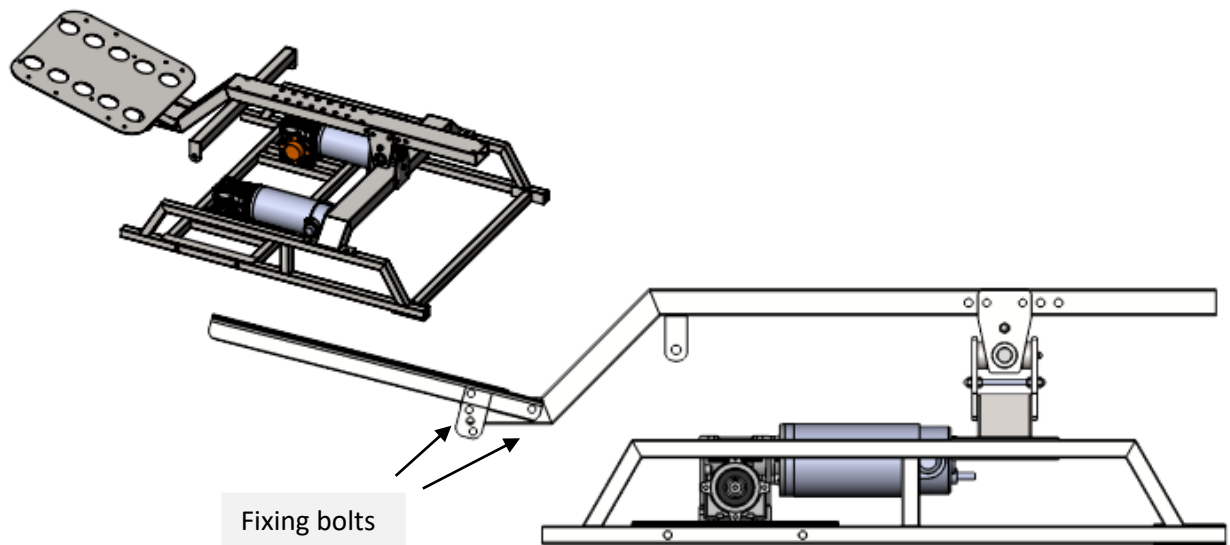**2.1.** With U-joint attach the main rail to the lower frame.

Fixing holes
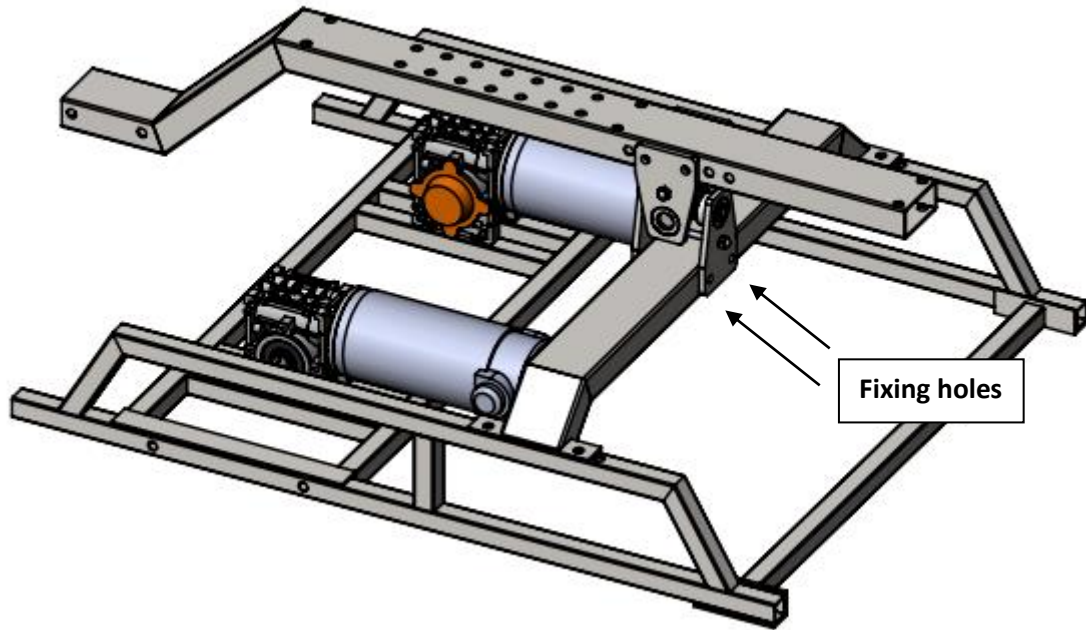
2.2. **Attach front lateral bracket.**

Make sure the front one is placed mounting wholes down. Attach motor pulls arms rods.

Fixing holes
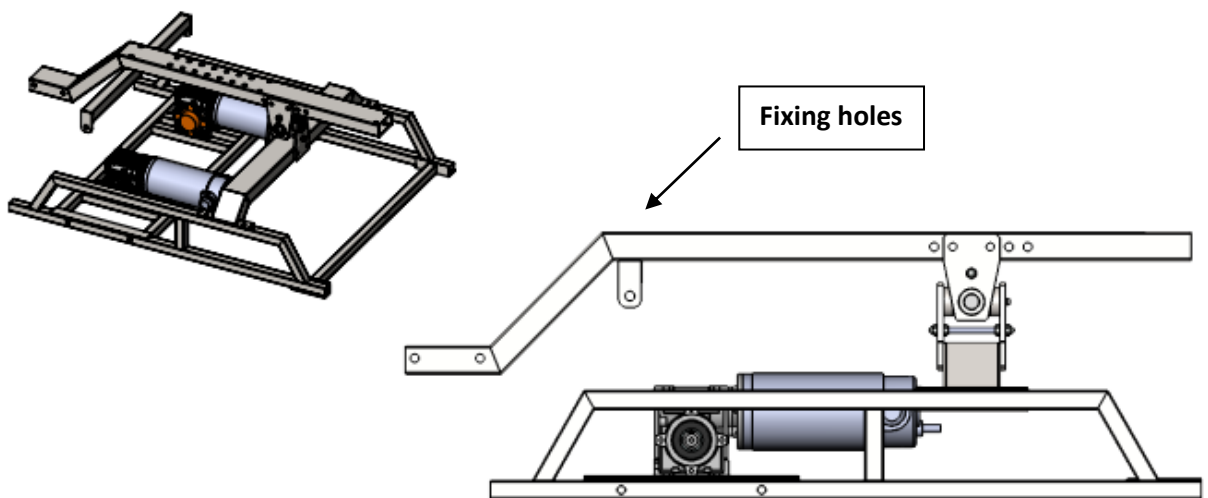
2.3. Attach the pedals stand.

Fixing bolts

2.4. Attach two seat mount brackets.

You can also mount the seat. Attach the wheel plate wheel support mounts.

Fixing holes
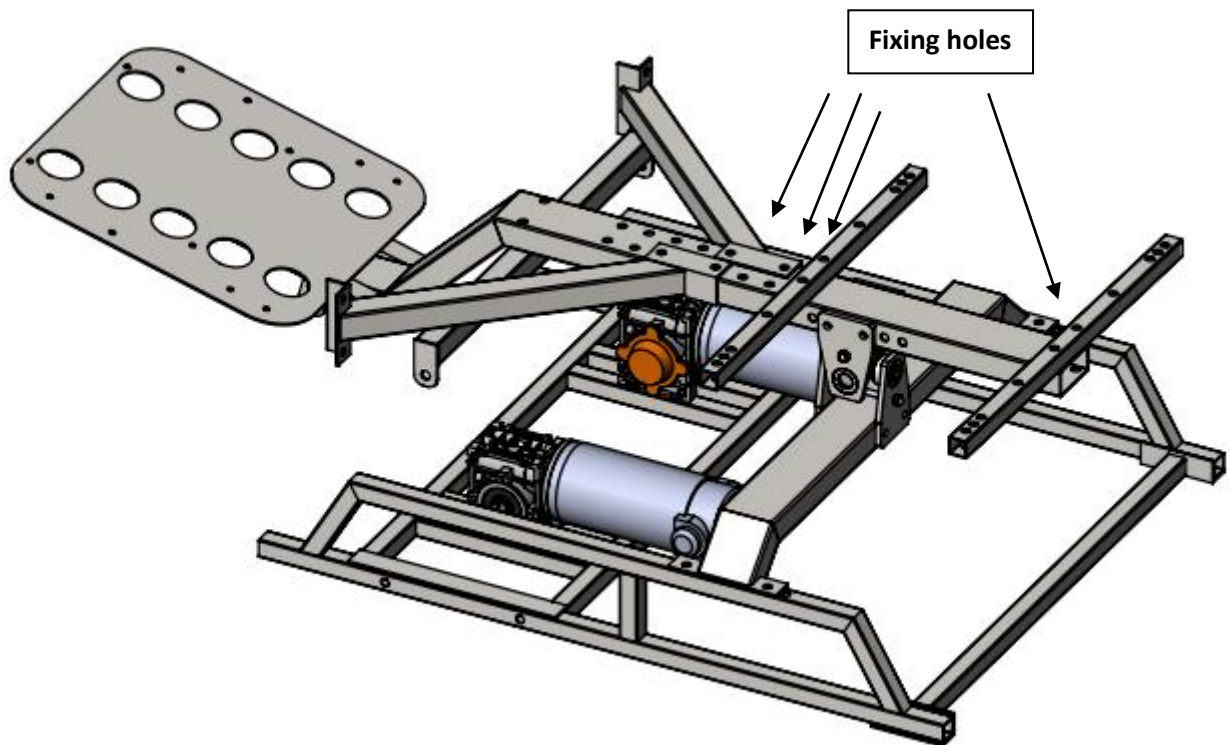
2.5. Attach wheel and shifter stand to the main rail.

For more rigidity (with heavy Direct Drive wheels) bolt it to front lateral bracket.

Fixing holes
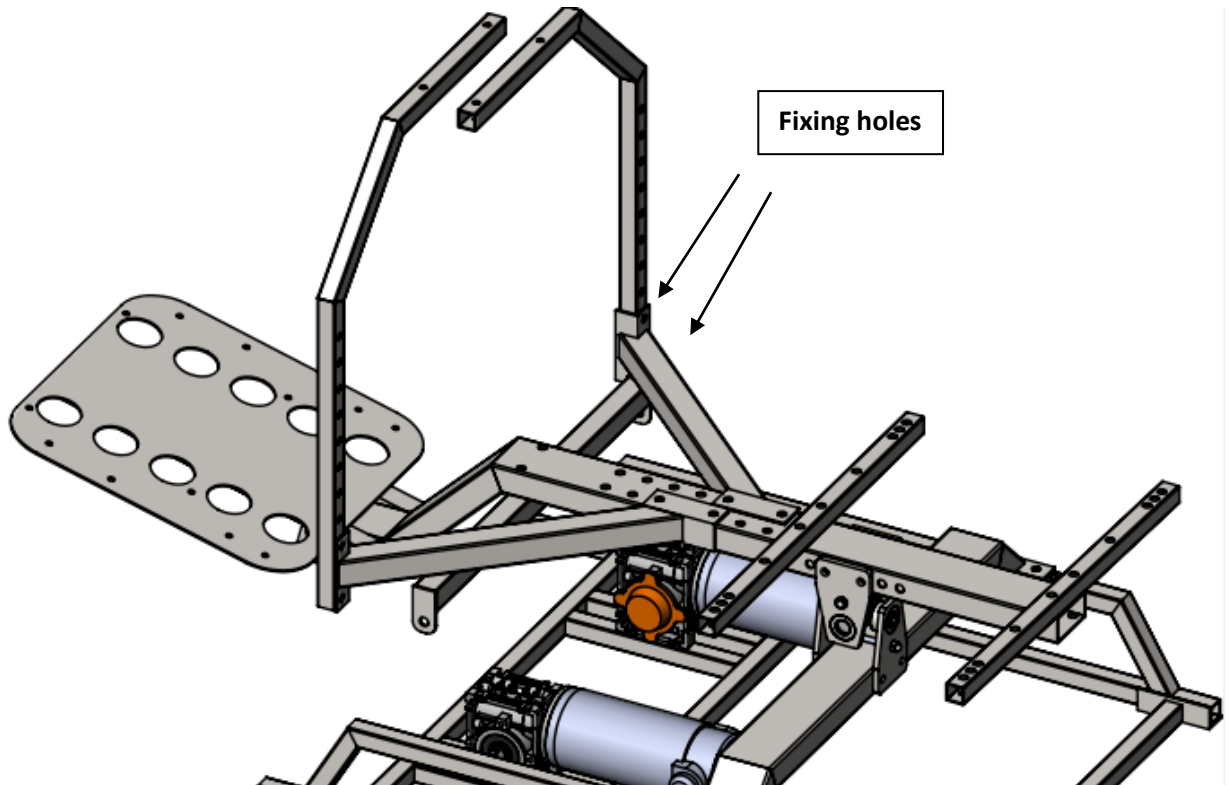
2.6. Attach the wheel plate. Attach the shifter holder bracket.

Fixing holes
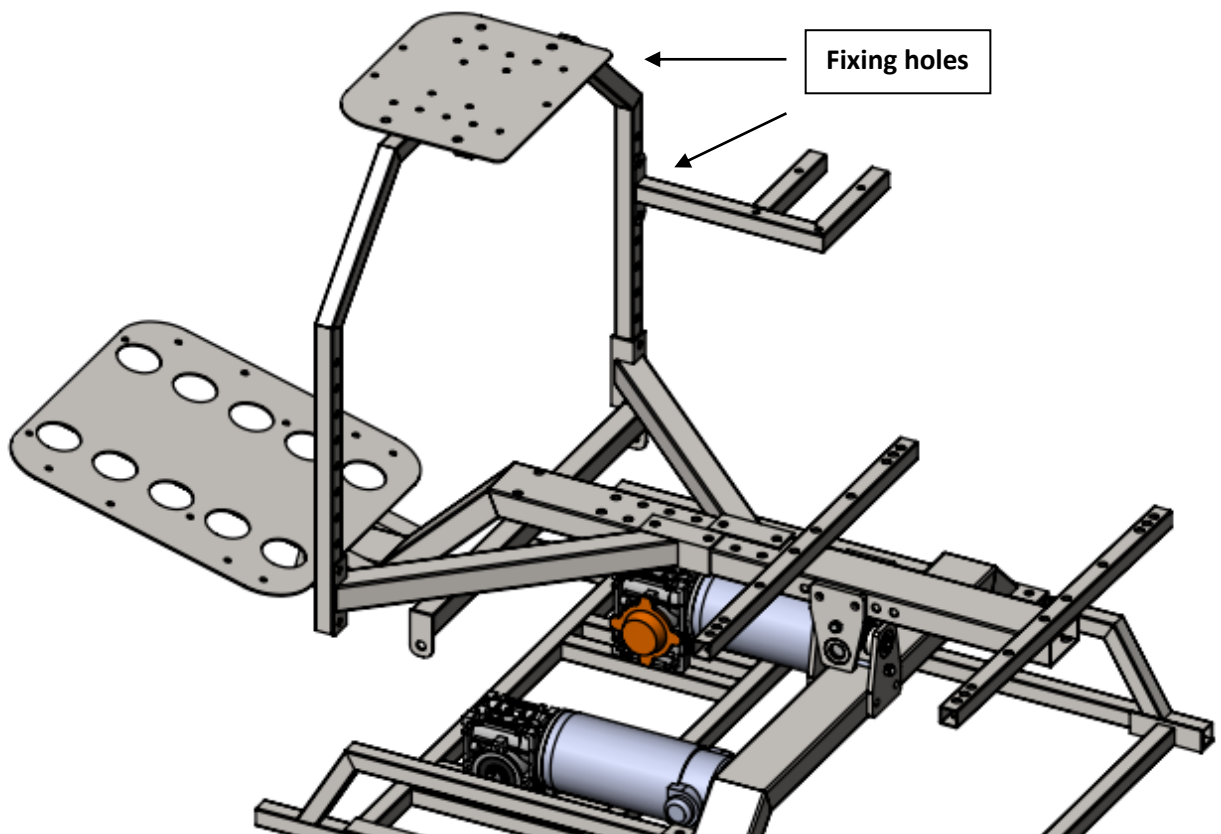
3. Additional controllers mounting

Your order might include Oculus camera mount and some spare parts. For flight HOTAS sim configuration attach throttle mount support same way as main wheel stand. You can rotate the support and move it closer or farther away.

fixing bolts

Oculus camera mount

4. **Software installation**

Please check the motor's power and sensors to ensure the plug colors match. This is very important. Never change wiring. Mismatched connector colors can damage the motors and platform controllers. If you think that you need to reverse one or more motors, do it in SimTools software
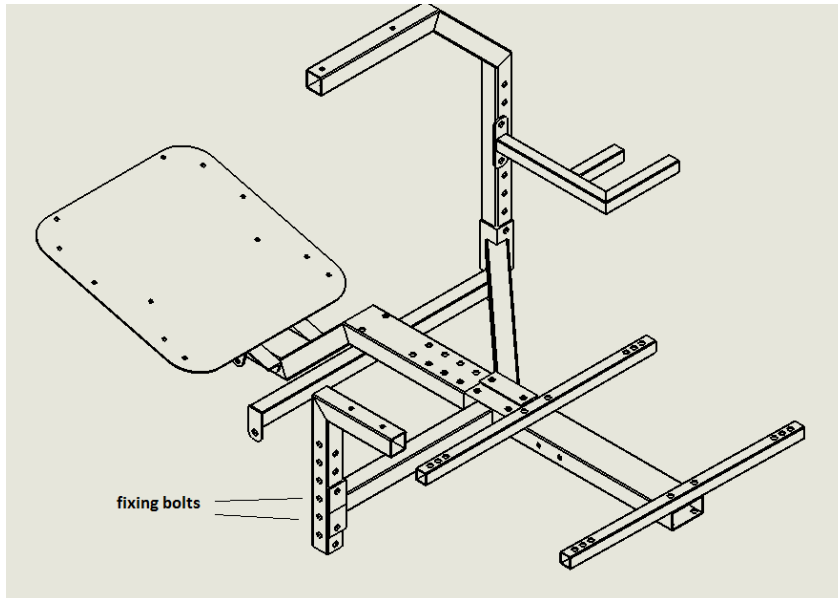
Follow this video guide to set up all you need in 5 min https://youtu.be/6V7hxBXzaLE

a) you will need this setup file http://dofreality.com/DOFREALITYSetup.exe

b) update SimTools to the most recent version from https://simtools.us/downloads-links/

c) run Games Plugins updater http://dofreality.com/DOFRealityPluginsUpdater.exe

   there are no viruses or anything harmful in this file, but sometimes antivirus is too aggressive and prevent you to run it and if you can't even do it with the exception download this file https://dofreality.com/AllPlugins.zip and drag and drop this zip file to the SimTools Plugin Updater. **This file gets automatically updated every day** with all latest released plugins and their versions, so if you need new plugin version or new plugin for recently released game redownload the file and drag it to the Updater. For Individual plugins use http://dofreality.com/PluginsSimtools.zip

d) Enable auto start – open Game Engine -> Tools and Check *Start with Windows*

You can get suggested presets settings for popular games from here:
https://www.xsimulator.net/community/threads/dof-reality-platforms-presets-profiles-and-tips.11273

When all is moving and working, and you mounted all your game controllers on the platform it is perfect time to **Balance it**. This is a very important and crucial steep to get the best performance and lifespan from your platform.

To check the balance, disconnect both front motors arms. get one or two strong friends to help you. Ask them to hold your seat from the back left and right while you are getting in seat. When you are seated in your usual driver/pilot posture, platform should be almost perfectly balanced (not diving to the front and not to the left) so it is easy for your friends to hold can be leveled with minimal effort. The goal is for you to move seat and other parts to the COG balance point described above. The better you balance it the better and longer it will perform. You might find advice online to balance it with counterweights. This is strongly inadvisable as this adds unnecessary weight for the motors to lift and momentum to fight with while changing directions. The best counter balance is you own weight. When you are finished you can put motor arms back and check the performance.

For some games such as Dirt 3, during patching you need to provide path to the game folder inside your windows **Documents** folder, not the actual game installation folder. You can check the specifics of the game plugin installation details at: https://www.xsimulator.net/community/marketplace/categories/game-plugins.2/

In case of issues contact our sales support sales@dofreality.com

For more SimTools settings understanding watch:

https://www.youtube.com/watch?v=OI92YH5L3OU
https://www.youtube.com/watch?v=m76rkAmur_k
https://www.youtube.com/watch?v=hkWuMlL9Gz0
https://www.youtube.com/watch?v=P2cybJHNUAU and check https://youtu.be/gz8i9lYWZcY?t=418

For the SimTools updates, Video Ride Creator, Video Ride Recorder, Video Ride Player, Game Vibe (control your shakers and bud kickers) and others use this official download page: https://simtools.us/downloads-links/

VR

You can use any VR headset. We have different ways to provide motion Compensation cancellation. In some articles you may find two terms - motion Compensation and motion Cancellation used to describe the same goal. However, motion Compensation is the proper term to define the actions to compensate the head movements caused by motion simulator so it doesn't affect the players view. You can use any VR set with or without the external reference tracking camera like (Rift or Vive). We have many users reporting better results when camera(s) mounted in front of the platform making sure it is always visible from any helmet location.

We include mounts for Oculus as Vive is easy to mount on the top of the seat

Oculus VR Motion Cancellation https://dofreality.com/OpenVR.pdf

HTC Vive - Vive Pro VR Motion Cancellation Setup Guide https://dofreality.com/HTCMotionCancellation.pdf

Another **Vive** option: https://www.youtube.com/watch?v=BPmo5kmk5CY .

VR Motion Cancellation on motion platforms details:

https://www.xsimulator.net/community/threads/vr-motion-cancellation-time-to-test.10241/page-22#post-160590
https://www.xsimulator.net/community/attachments/htc-vive-vive-pro-vr-motion-cancellation-setup-guide-pdf.53774/
https://www.xsimulator.net/community/faq/htc-vive-vive-pro-vr-motion-cancellation-setup-guide.311/

Depending on where your camera is placed (On or off rig) you may encounter the image inside the HMD (Head Mounted Display) "Jumping around". This is due to the camera and the headset working against each other as the hardware is not designed for use in motion platforms. There are a few ways to resolve the problem, however none are ideal nor official.

Method 1.

> Attach the camera on the rig and blinding the camera (cover it with something). This disables the 3D tracking preventing the camera at jumping around in game. This method also disables the rotation tracking meaning, if the simulator turns 90degrees IRL, you will have to turn your head 90degrees to look forward in game. That is why we suggest limit Yaw/Extra1 to 5 - 10% making the rotation just enough for you to feel but you will not notice having to turn your head to look forward in game.

Method 2.

> Placing the camera off rig. this will yeld the same results as above, however you are able to get off the rig and move around (also in game). You might move slightly around ingame depending on the settings of the simulator.

Method 3.

> Placing the camera on rig. If you wish to place the camera on rig and you do not wish to blind it to get the full experience, you might need to turn down movement on the simulator to a rather low setting. This will minimize the "hopping" and will give you a smooth experience with the HMD.

Some customers prefer it on the platform, some off. You need to try and choose the one that suits you best.

Only if you still have issues with software installation and settings, so you still can't get platform working follow the instructions in this chapter:

If you have issues with this installation, follow this manual setup guide https://youtu.be/EfJej9J1usw

4.1 Plug in the USB cable to PC

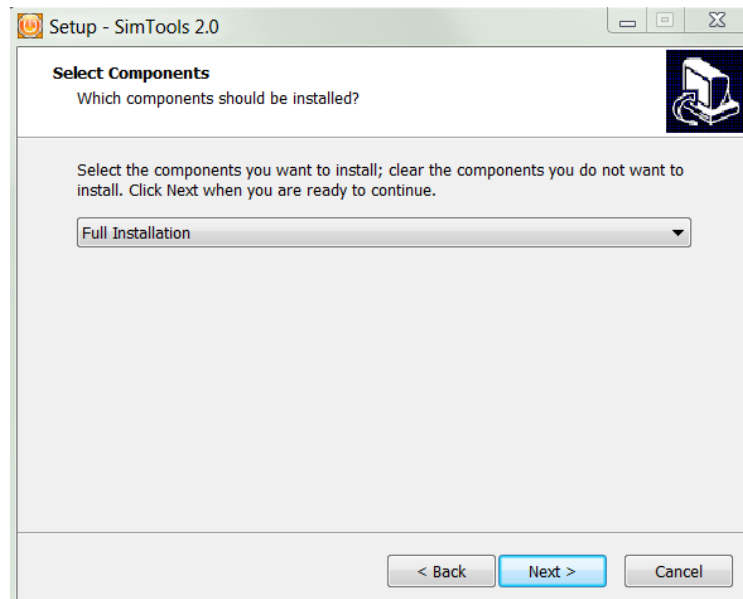**4.2** Install the following driver: http://dofreality.com/drivers.zip

4.3 Check that you get a COM port installed in **windows Device Manager**. This will help you properly setup **Simtools GameEngine** later. Please note the COM port number
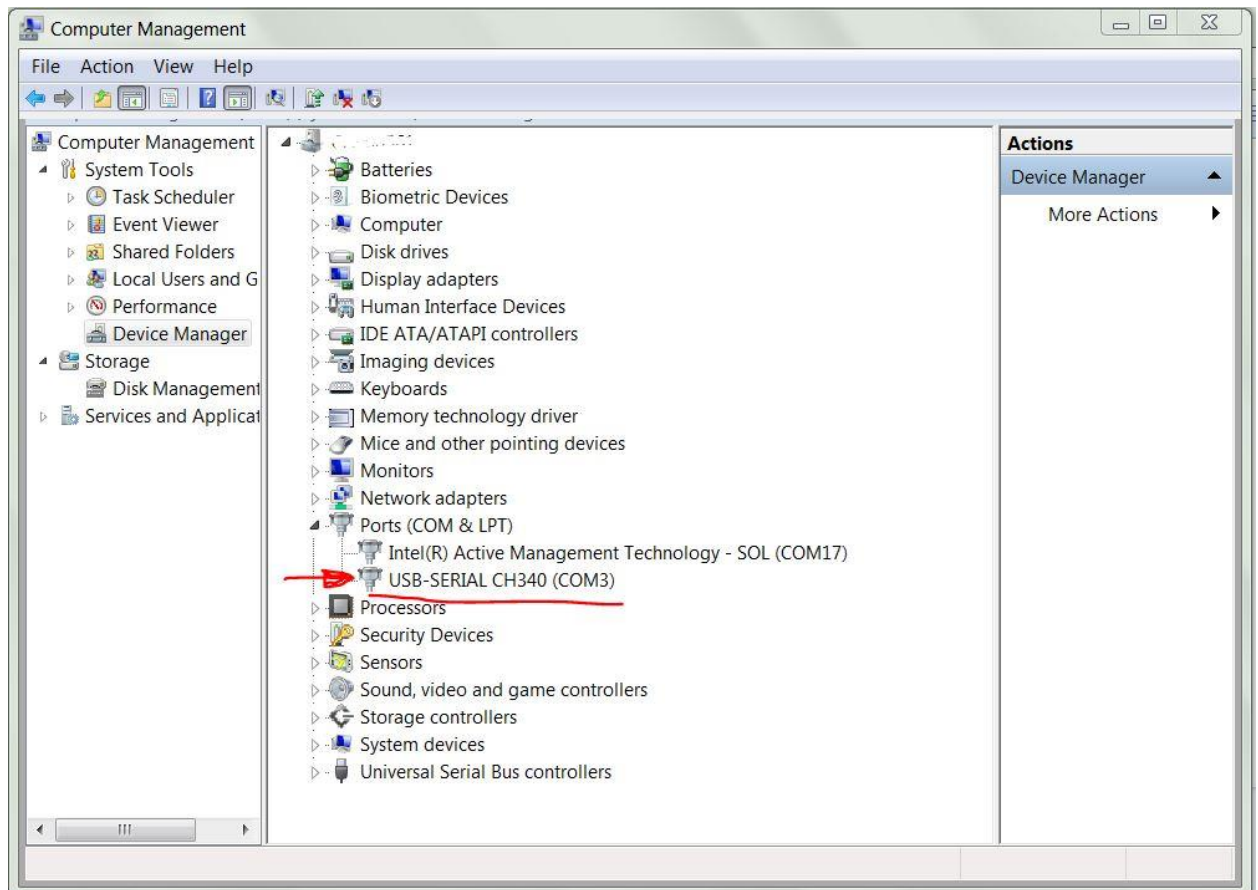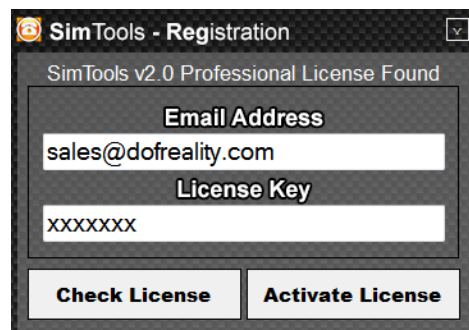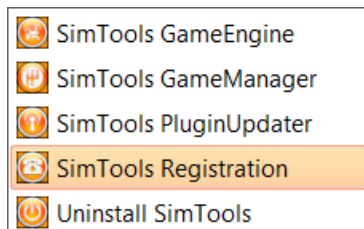

4.4 Download the latest version of SimTools from https://simtools.us/downloads-links/

4.5 Install it

Make sure you choose "**Full Installation**".

4.6 Open SimTools registration and register your copy of SimTools with the license key sent to you over e-mail. For registration always use our email sales@dofreality.com, not your personal one.

4.7 Download latest file https://dofreality.com/AllPlugins.zip and drag and drop this zip file to the SimTools Plugin Updater.

This file gets automatically updated every day with all latest released plugins and their versions, so if you need new plugin version or new plugin for recently released game redownload the file and drag it to the Updater..
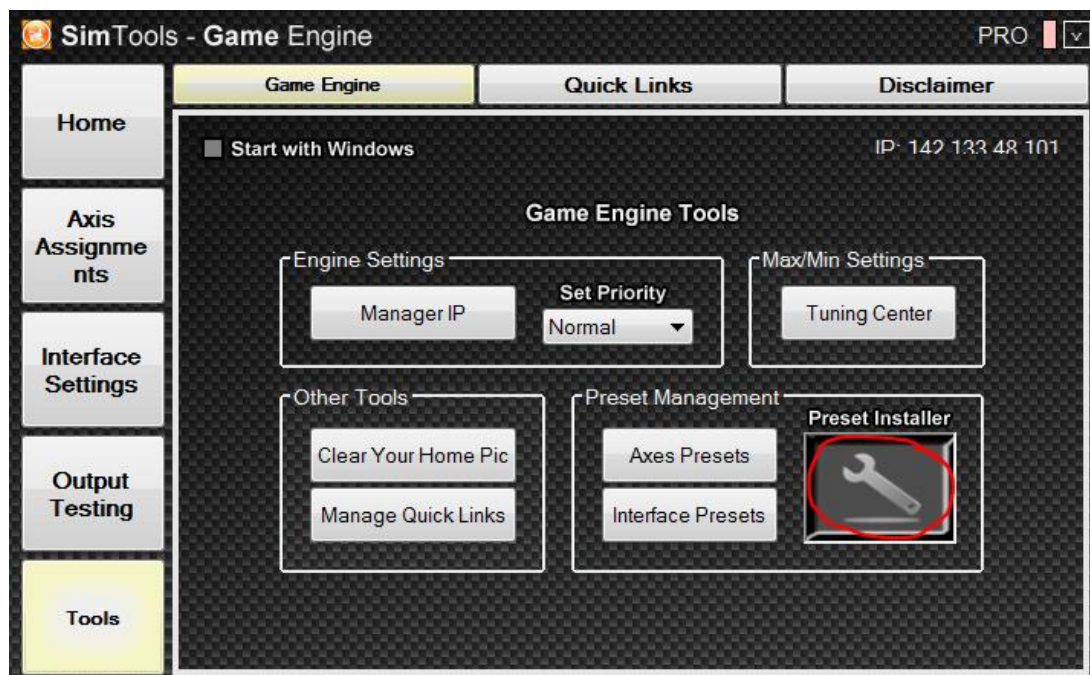

4.11 Download DOF Reality Presets http://dofreality.com/Presets.zip

4.12 Run **Simtools GameEngine** from the start menu. This is the main tool to do all needed configuration.

4.12 Click at **Tools**. And import needed settings by Drag and drop provided presets files from Presets.zip to the Preset Installer area. Extract files from zip before dragging them.

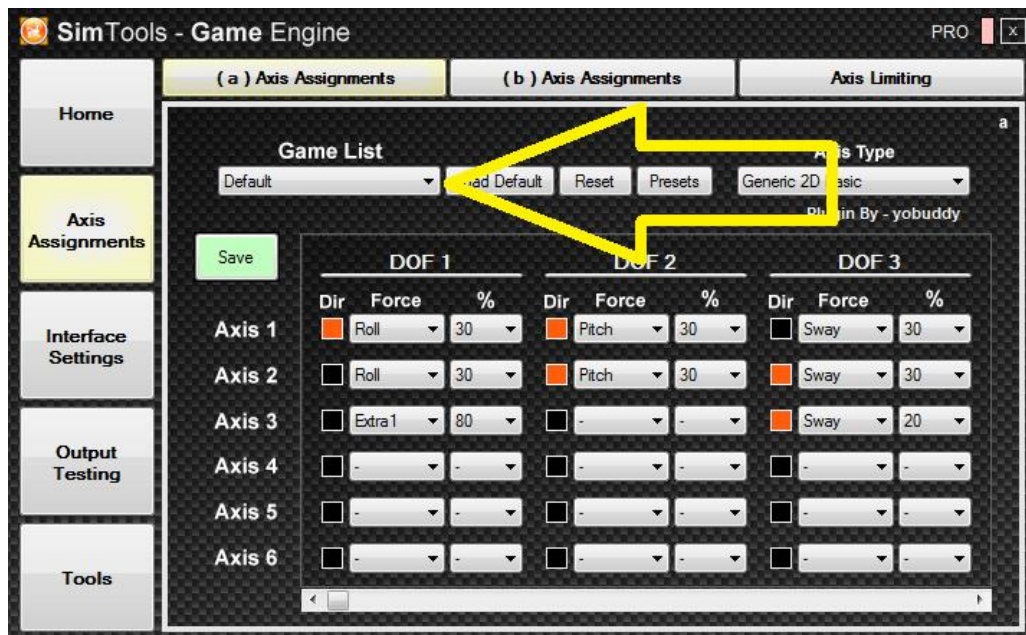4.13 In Interface Settings tab select *Interface Type* as Serial and choose proper DOF Reality in Presets corresponding to your platform model from the dropdown.

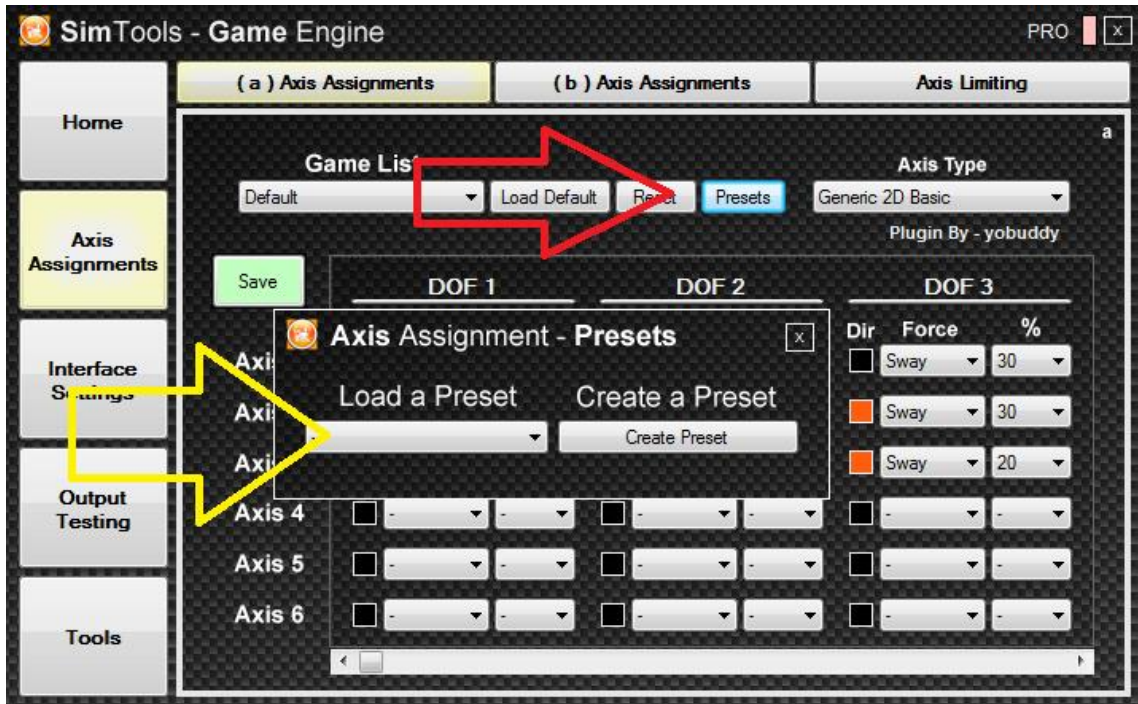4.14 Set proper Com Port number, same as indicated in Windows OS in Device Manager, and click save.
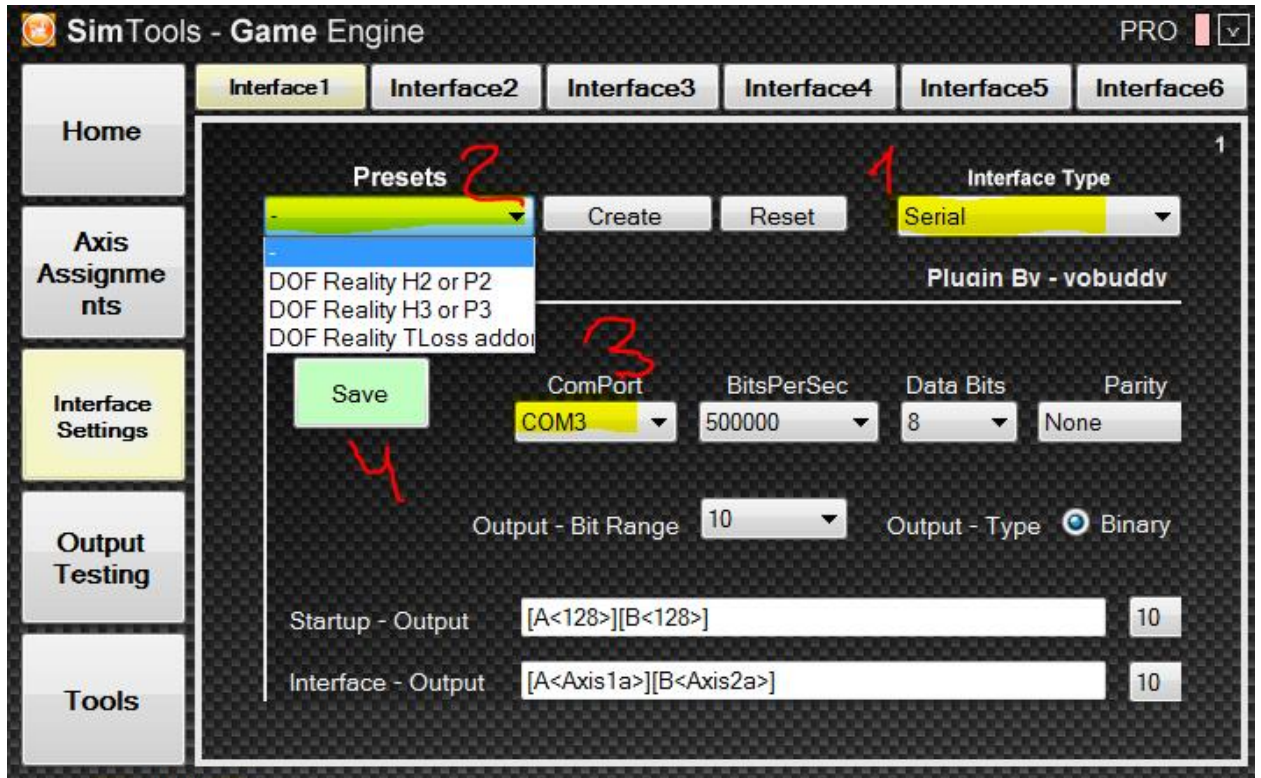
4.15 In **Axis Assignments** tab select «**Default**» in Game List dropdown:

4.16 Then press **Presets** button and in pop up select proper preset file.

For **DOF Reality H3/P3** (for flight simulator you can replace **Extra1** (Traction Loss) on **Yaw**).

You can get suggested presets settings for popular games from here:
https://www.xsimulator.net/community/threads/dof-reality-platforms-presets-profiles-and-tips.11273

To load game specific preset(s) from that post zip file or any other:

In SimTools Game open Tools and drag'n'drop .PRE preset file (not zip) to the Preset Installer button. You should get popup message that it was succesfuly imported.

In Axis Assingment click Presets and select needed one from the Load a Preset drop down. You should get popup message that it was succesfuly loaded. Clisk **Save**
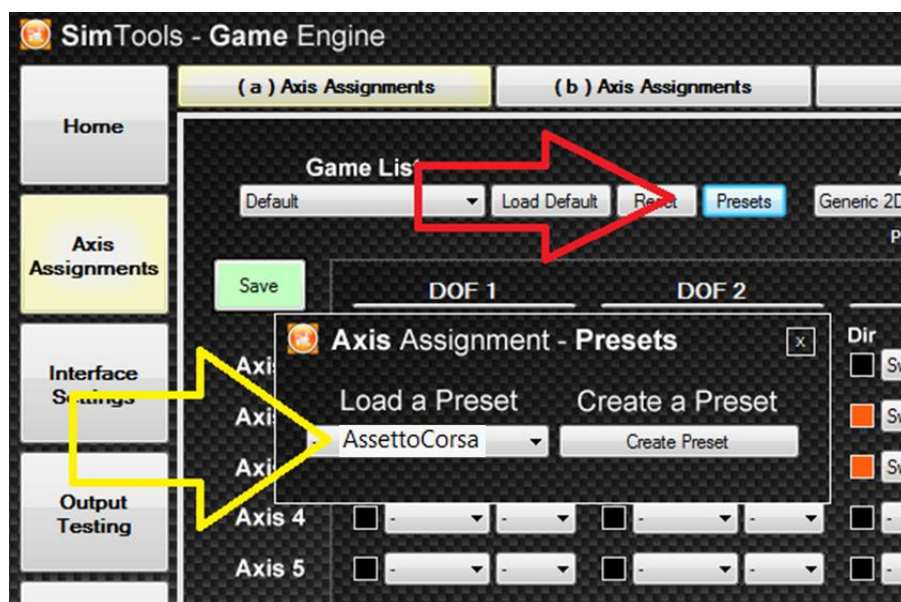
To fine tune the specific game settings according to your needs or shared screenshots:

In SimTools Game open Tools and click Tuning center button.
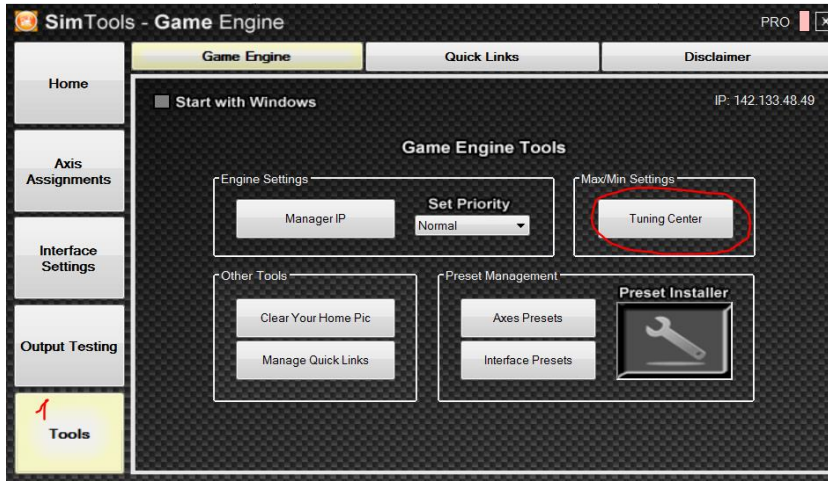
Select a game in Game Selected dropdown. Cature Max Min. Set needed values in the table. Click Save new settings.
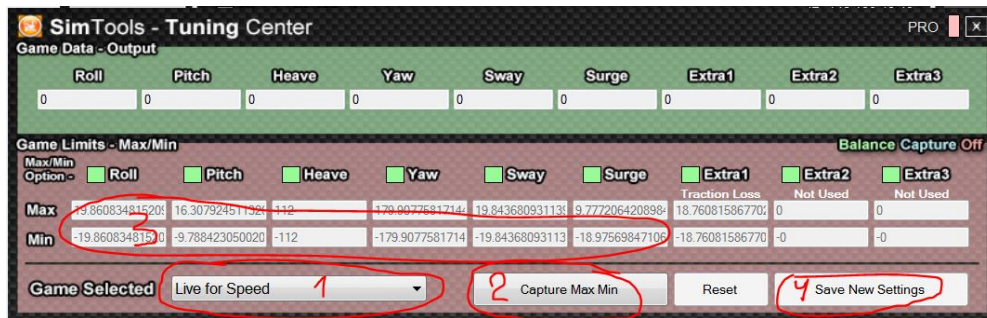
4.17 Turn Platform Power on

4.18 Open **Output Testing** tab click **Turn On** button, and **gently** move sliders for Roll, Pitch and Sway or Yaw . platform should move in all directions accordingly. When done click Turn Off button.

- Roll 100% - maximum bank to the left.
- Pitch 100% - maximum bank to the front.
- Surge 100% - maximum bank to the back
- Sway 100% - maximum bank to the left
- Heave 100% - maximum bank to the back
- Yaw or Extra1 – maximum rotate.

To set them individually for each game. Choose the target game from Game List and change needed parameters **(%** , **Dir**ection). After changes always click **Save**.

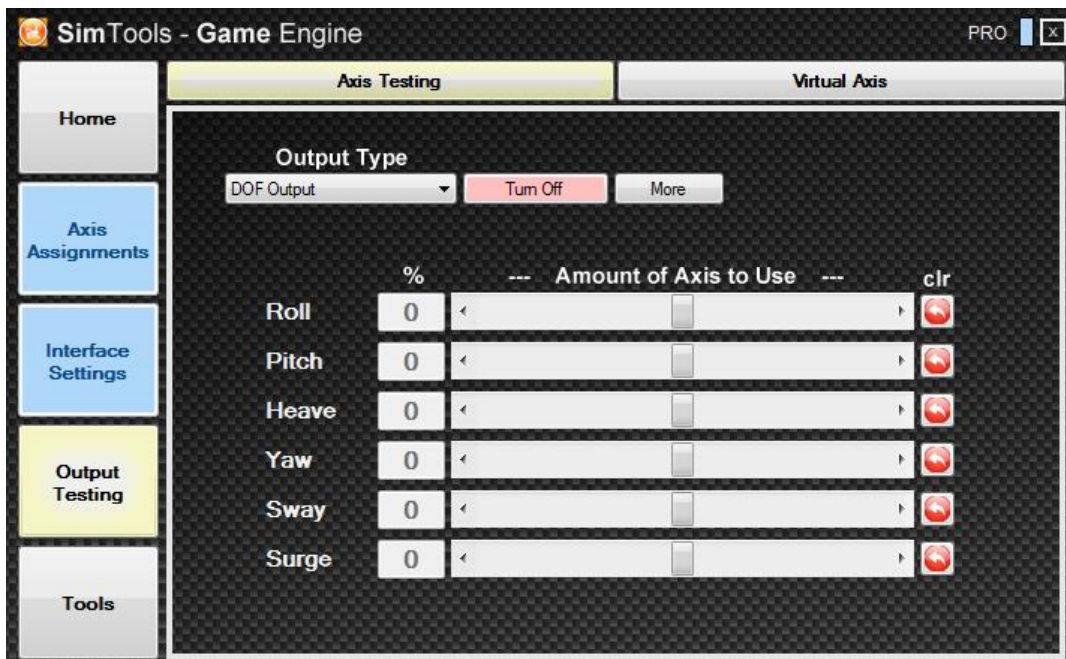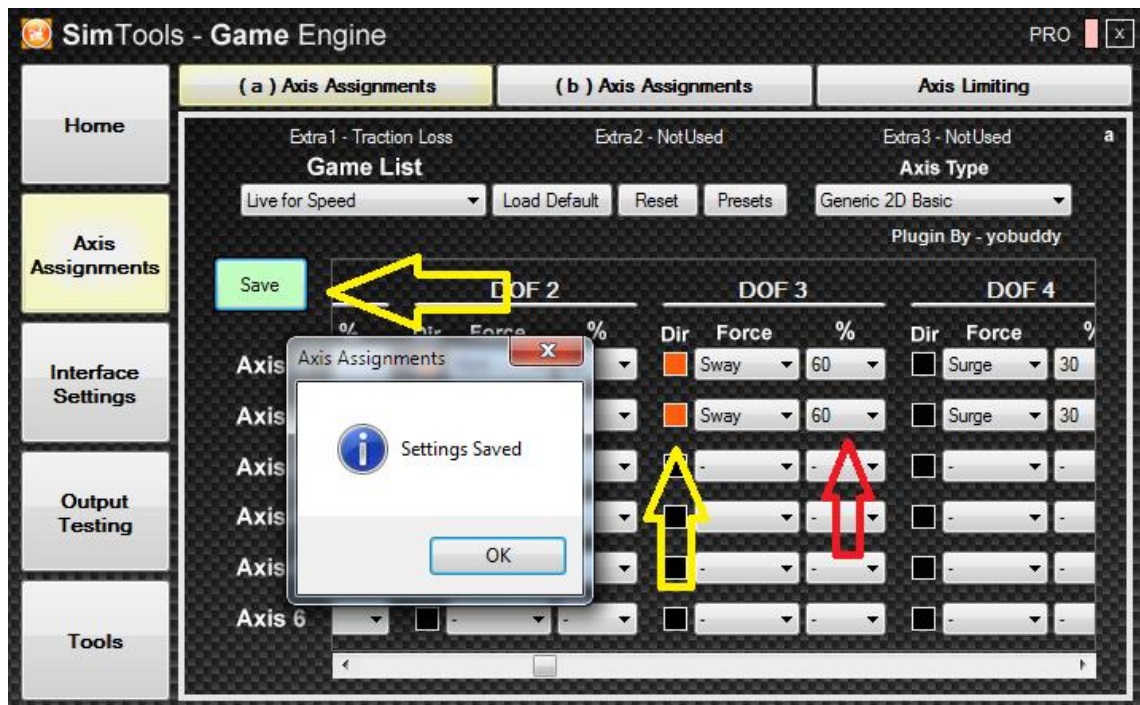Each game transmits motion data values differently and most of the games need to be individually tuned for your preferred experience and weight. In most Gs effects, two main motors act in pair so both Axis 1 and 2 should have same values. Output Test uses "Default" values from Axis Assignments settings. You need to try settings in the game and then adjust them if needed.

For example, In Dirt Rally you have to limit Pitch and Roll to not more than 30% of travel distance (bank angles) in order not to feel **dizzy**.

Please follow the following steps:

Try Default values and directions settings in the game. If directions are fine you can fine tune % values to your preference.

If you feel that directions are messed up (eg instead of leaning straight forward platform banks to one side) : for each game you need to do build proper settings from scratch:

- Select you game in Game List
- Clear all effects in Axis Assignments;
- Add Roll with 100% effect (for both Axis)–Test inGame (you need to Save Axes assignments in SimTools and Run the game, and when done exit the game, you can't change settings while game is open);

- If motor Directions are Wrong – change **Dir**ections (by checkbox) in **Assignment Axis**;
- Set Roll - 0%, Add Pitch - 100% (for both Axis)   - Test;
- Set Roll and Pitch - 0%, add Sway (for both Axis) - Test;
- Set Roll, Pitch and Sway - 0%, add Surge (for both Axis)   - Test.

 When you know all directions then we may **change %** of each effect. It takes time, but once you learn the process, you can customize each game fast.

More details on this process https://www.xsimulator.net/community/faq/steps-to-create-a-motion-profile.228/

And play with those settings because you can fine tuning your rig for the games based on the type of driving of your pleasure.

4.19   Patching game

For most of the games you **should complete** at least one race before patching. When you just installed the game folders and needed configuration files for SimTools patching (and proper work) are not created. In order to perform successful integration of the game with SimTools you need to run the game and complete at least one race/stage/ride/flight/mission. And do the patching only after it. Otherwise integration will not work. For some games such as Dirt 3, during patching you need to provide path to the game folder inside your windows **Documents** folder, not the actual game installation folder. You can check the specifics of the game plugin installation details at:
https://www.xsimulator.net/community/marketplace/categories/game-plugins.2/

Run **Simtools GameManager**. If the following screen is not popping up, open it form tray Icon

In drop down select target game. Patch it providing proper path to the game files.

Start the game with **Simtools GameEngine** and **Simtools GameManager** running in the background (tray icons).

For the full documentation please refer to https://www.xsimulator.net/simtools-complete-documentation/

5   Troubleshooting & Maintenance

The simulator does not need much maintenance, but it is wise to check for loose bolts or other abnormalities occasionally.

- Checking bolts and nuts every few weeks to ensure nothing is getting loose.

- Clear the dust filters on the three fans on top of the cover.

- Listen for any abnormal noises, if encountered please follow the instructions below on how to

grease the ball joints inside the simulator.

5.1 My platform shakes in Output Testing.

Change windows system locale settings https://dofreality.com/wp-content/uploads/2018/04/win10local.jpg

if this is not helping check that you have Axis limiting at 80% for 3 axis:
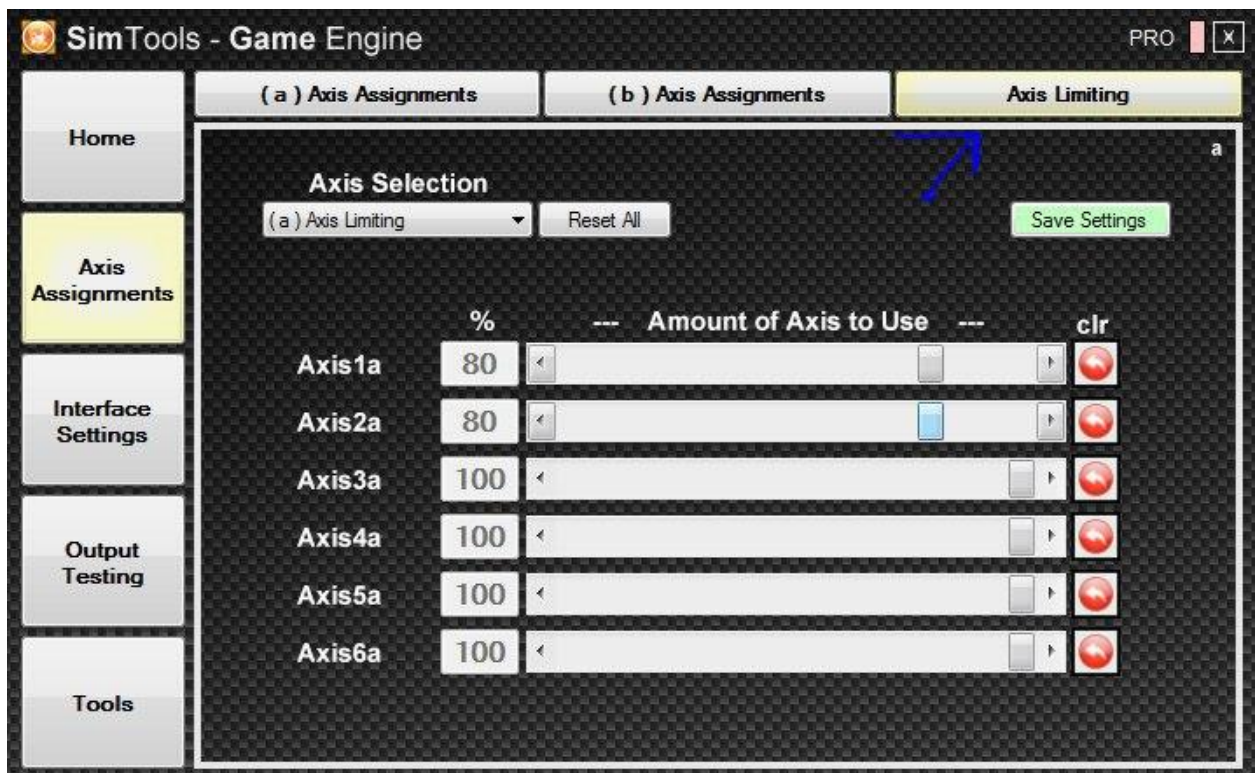
5.2 If one or more of your motors are stuck in an improper position and doesn't seem to respond

It happens if motor somehow got into protection zone. It should not happen. It got locked in software. To unlock it:

1) close all SimTools applications

2) Download http://dofreality.com/SMC3Utils.zip

3) unpack all archive contents into any local folder on your PC

4) Open with notepad file SMC3Utils.ini and set COMM_PORT= to proper COM port number from your Windows Device Manager or SimTools

5) start/run SMC3Utils.exe

6) select the problematic motor (left motor brown plug is Motor 1, right 2 black plug, rear Motor 3 white plug) most probably it is shown as OFF.

7) write down current Max Limits and Clip Input values (on the right of the SMC3Utils window) and reduce them to 0

8) in SMC3Utils click small OFF button to the right of the motors selection, so it becomes ON.

9) power ON the platform

10) motor should move back to normal position, you can try 'Sine' for it to see that it moves fine and measured motor position = green line goes along with desired motor position = blue line.

11) if all is good restore original Max Limits and Clip Input values (you need to increase Clip first and then Max as max can't be bigger than Clip) and close SMC3Utils

5.3 Motor arm is not horizontal in neutral position

Over time motor-sensor coupler bolts may get loose and neutral motor position can get off from normal (just a bit higher that horizontal). Proceed with this motor calibration
https://www.youtube.com/watch?v=Wa6hRdMB4vA

5.4 Something is wrong with my platform !

0) check all cables and motor connections, and any loose wires inside the control box.

1) close all SimTools applications

2) Download http://dofreality.com/SMC3Utils.zip

3) unpack all archive contents into any local folder on your PC

4) Open with notepad file SMC3Utils.ini and set COMM_PORT= to proper COM port number from your Windows Device Manager or SimTools

5) start/run SMC3Utils.exe

6) power ON the platform

7) Set it to 'sine' click Motor 1 and Motor 2 and 3 send us (sales@dofreality.com) screen shots of SMC Util charts for each motor separately and SMC under chart settings you have and a short video clearly showing the problem

5.5 I have troubles installing SimTools (Antivirus detects it as a thread)

SimTools uses a variety of methods to read the telemetry from the game and some of those methods will trigger the antivirus. SimTools is completely safe and making an exception for SimTools will solve the problem.

5.6 Simulator does not move in-game

This can be caused by not having patched the game or followed a guide for the particular game if it needs additional adjustments before it can be used. Depending on the game you use, there might not be calibrated settings for the simulator and the numbers might be too high in Tuning Center. This will prevent movements. For further details please see the SimTools guide.

5.7 Simulator used to work in the game, but stopped

This can happen if the connection is lost to the computer or Windows Defender (If not using other antivirus software) have deemed the software a threat. Unfortunately, this may occur as Defender is quite aggressive. Please investigate with your antivirus software. Usually a SimTools reinstall helps or you can add an exception for SimTools.

5.8 The motors make small adjustments all the time

This is due to the motors always have power to be able to move the rig quickly without delay. The small movements of the motors should not be present when there is weigh on the rig or it is being used.

5.9 The simulator behaves strange in games

A lot can cause this behavior, but the most common things are:.

- The simulator is not in balance.

- Wrong settings for you. (We make general settings, you might not like them)

- The rig might be too heavy.

5.10 SimTools Output Testing works, the game does not

If you encounter that problem, please do the following to determine the cause.

1. Have you looked for the game-guide in our support section on our forums?

2. Restart the computer or SimTools

3. Remembered to Patch the game? Some games need to be patched while SimTools is run in

administrative mode.

4. Some racing games need you to take a lap or two before you can patch it. Proceed with un-patching it in SimTools game Manager and do a lap or two, than patch it again.

5. Update SimTools from the official https://simtools.us/downloads-links/ website.

6. In still no motion in game open a ticket with the SimTools support http://simtools.us/contact-us/

6 Reparation

The simulator should under no circumstances be repaired by unauthorized personnel without consulting us first. Failing to comply may cause damage to equipment and/or injury to the personnel.