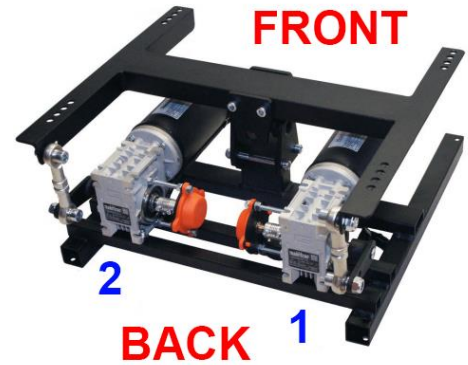


WARNING! Assembled platform will have exposed motors moving parts. Neven operate it with the small children around or use optional protection cover.

Please check and if needed put back the motors power and sensors plugs as they were to match the colors or numbers. 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 SRS software.

If your control box don't have colored motors plugs:
right motor brown plug is Motor 1,

left 2 black plug



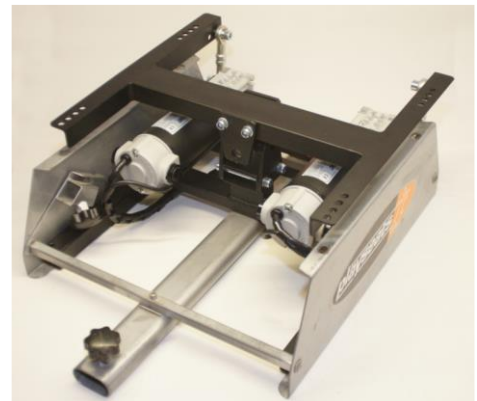
Don't put ANY controllers on the platform before it is completely tested and proven to be working as desired. After assembly attach the seat only. Nothing extra. When you ensure proper behavior start adding controllers one by one, doing movement tests with person seating at the pilot seat after implementing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

For most frames you need to slide the mover inside, not on top of it. Motors always should be facing back. So here is the PlaySeat EVO frame view

from the back:



And from the front:



If you not sure what bolts to use print the following 1:1 template on corresponding paper size without extra borders or spacing:

For US Letter Paper : https://dofreality.com/hardware_template_Letter.pdf

For A4 Paper : https://dofreality.com/hardware_templateA4.pdf

Never ever leave platform powered unattended and powered on when not used. Motors are constantly doing micro adjustments. When overheated over 70C they can loose the power.

3. Balancing

When you mounted seat on the platform it is perfect time to **Balance it**. It is mandatory step. It is very important and crucial step to get best performance and lifespan from your platform.

<https://www.youtube.com/watch?v=F5B0cA6hIDo>

To check the balance, disconnect both motors tie rod 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 in the seat at your usual pilot posture. platform should be almost perfectly balanced (not diving to the front and not to the left) so it is easy to keep it leveled with minimal effort. We recommend you to ask someone to help you holding the seat while you are balancing it. 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 counterweight. This is strongly not advisable as making better balance you add unnecessary weight for the motors to lift and momentum to fight with while changing directions. The best counter balance is your own weight. When you are done you can put motor arms back and check the performance. If one or few motors getting hotter during use this is a clear indication that that side of the platform is overloaded and you need to move the weight away from it. Under no circumstances You should let motors getting hot! Overheated magnets inside the motor loose power forever and it leads to substantial motor power decrease.

Never ever leave platform powered unattended and powered on when not used. Motors are constantly doing micro adjustments.

4. Software installation

Review <https://youtu.be/CGZ4N-SRfso?t=122> and get latest SimRacingStudio (SRS) app <https://www.simracingstudio.com/download>
SRS is the “brains” of the system, and will allow you to test the connection of the platform to your computer. You must have SRS running when playing games, as it tells the platform what the game needs, so the platform moves with the game action.

4.1 INSTALL LICENSE

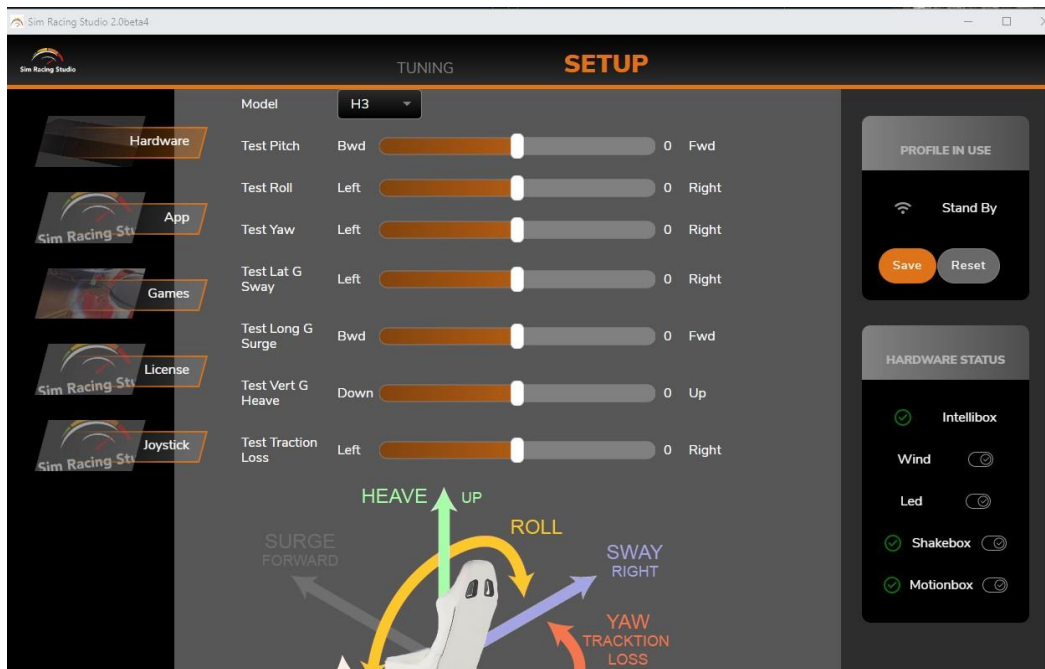
Go to **SETUP**- > **LICENSE** tab and **ACTIVATE** your license by entering the license number you received in an email from either SRS or DOF Reality (Check your spam folder). If you can't find your license, you can recover it by going to: license | | recover | then enter the email used to purchase your DOF hardware.

4.2 CONFIGURE HARDWARE

Go to **SETUP**-> **Hardware** and select your model.

Wait 30 seconds to see if “motionbox” becomes green (Bottom right corner of hardware status)

1. Green = Connected and License OK
2. Yellow = Connected but license not activated
3. Red = not connected to your DOF motion platform



If the motionbox is not connected, try to reboot your PC. If after you reboot, it is still not connected, try these instructions to manually connect:

<https://docs.google.com/document/d/10PoaStPtHJCo5WiMVVhPfOkooxE7GzrzfS7FDFskoPM/edit?usp=sharing>

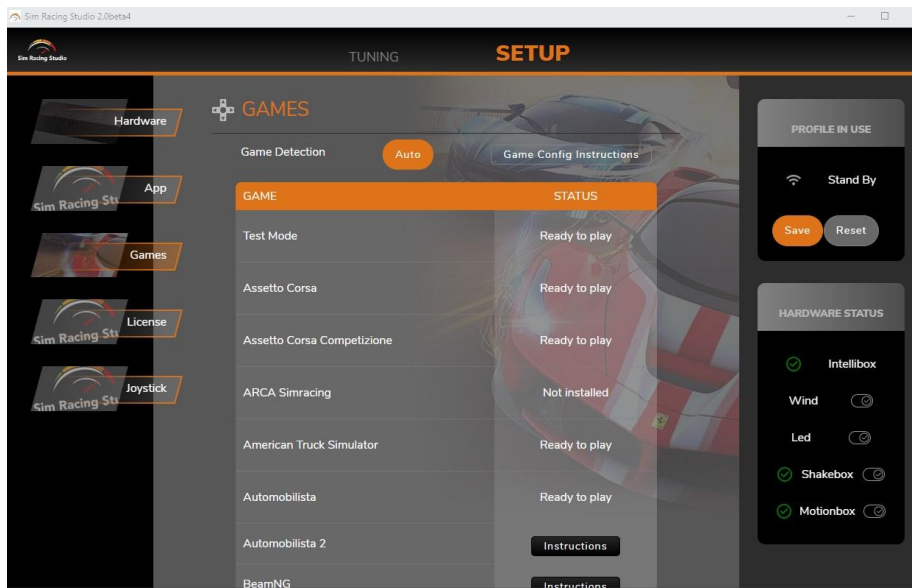
If SRS is still not connected, please check section 5.2 of this manual or contact support.

4.3 TEST HARDWARE

Once connected, use your mouse to move TEST sliders and see if platform is moving and in the correct direction.

4.4 GAME SETUP (PC INSTRUCTIONS)

For the game console, please check here: <https://www.simracingstudio.com/console>



Check if your game requires anything special. Go to **SETUP-> GAMES** and click CONFIG or INSTRUCTIONS if needed.

There are 4 possible statuses:

- 1) **Game not installed.** SRS did not detect your game. Some games require you to run the game first for SRS to see it. Run the game, Quit and restart SRS.
- 2) **Ready to play.** SRS detected game installed. Should be good to go.
- 3) **CONFIG:** Press the button and SRS will try to automatically configure to the game to your SRS console. If it is successful, it will say “Ready to play”.
- 4) **INSTRUCTIONS.** If SRS can’t connect to the game, it may be because they are only available in the “Game Menu”, follow the instructions on the screen from the “Games” section. Most instructions are for changes in the game, not in SRS. Instructions will never go to “Ready to play” as we can’t validate if you have successfully made the manual changes in the game or not. You can also check this article for more details on manual game setup

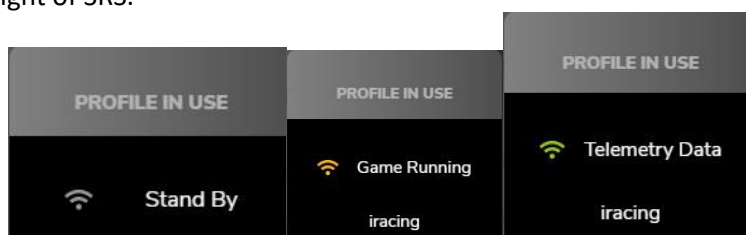
<https://www.simracingstudio.com/manual-game-config>

If you need additional help to make a supported game to work with DOF platform, please contact us by clicking here <https://www.simracingstudio.com/change-log>

4.5 PLAYING THE GAME

SRS will automatically connect to the game once have started the game, although you **MUST** have SRS running when you open the game in order to engage the platform. Note that some games require you to start a race to connect. Some games connect from the main menu.

There are 3 game statuses that will tell you if everything is ok or not. Check the PROFILE IN USE box on the top right of SRS.



- 1) **STAND BY:** Game not running
- 2) **GAME RUNNING:** Game is detected...no telemetry to move platform has yet been received. For Some games, this is **NORMAL** as they only send telemetry once you are on the track or in the air...

- a. In this status, you also unlocked the TUNING -> MOTION settings. Now you can make changes to the tuning parameters (See below).
- 3) **TELEMETRY DATA:** All good. If the MOTIONBOX status is green and SRS is in this status, the platform will be moving for this game. Make sure platform boxes are ON... 😊
 - a. Intellibox is for Wind (if you didn't buy the wind accessory, you won't have this), Led and Tach are used if you bought an LED or Tachometer as a separate accessory for your racing system. Shakebox is for the buttkicker.
 - b. Try to mouse over the status icon to get more info.

4.6 TUNING (Fine tune the platform to move exactly the way you want)

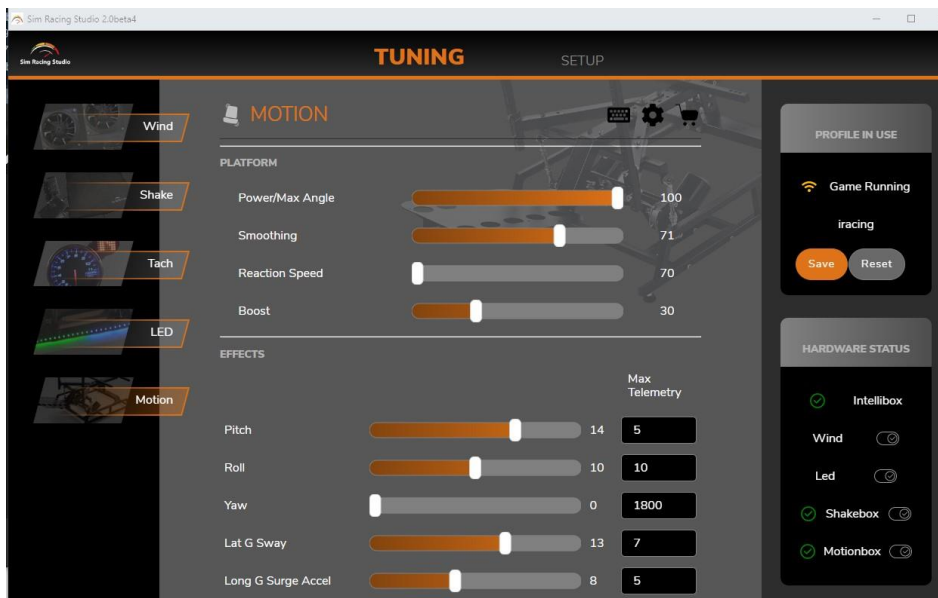
The SRS App has been tuned by our team to provide a great experience out of the box.

If you want to fine-tune the motion, you can do it simply by changing the sliders in SRS by going to **TUNING -> MOTION**.

This can be done **ONLY** while the game is running. If the game is running, SRS app will automatically select this game and or vehicle.

Once you have adjusted your tuning, click **SAVE** and next time you open the game (along with SRS), these settings will be the loaded automatically. For more profiles visit

<https://www.simracingstudio.com/forum/motion-profiles>



4.7 SRS tuning tips: <https://www.youtube.com/watch?v=giHMrIjiUFE>

<https://www.simracingstudio.com/forum/motion-profiles>

<https://www.simracingstudio.com/post/motion-too-weak>

<https://www.simracingstudio.com/post/motion-how-power-and-smoothing-affects-my-ride>

<https://www.simracingstudio.com/post/test-works-game-doesn-t>

You can also find additional help in our FAQ. <https://www.simracingstudio.com/copy-of-download-faq-1>

4.8 VR (Virtual Reality)

The DOF motion platform can be used with any VR headset. There are some subtleties to be considered when combining VR with a motion platform. The motion platform will move the player's head, which will move the VR headset, which will automatically affect the amount of movement you see in the VR image. Most of the time, the degree of motion is not enough to impact gameplay and can be ignored like in this example video <https://youtu.be/oi8yvWzZXVw>. If the additional motion of the VR image is too extreme, you might need to turn down the motion of the platform to a lower setting. This will minimize the "hopping/swimming" type of effects in the image and will give you a smoother experience with VR.

Software Solution for Motion Compensation

If the amount of movement in the VR image is too much and you do not want to turn down the motion, you can utilize motion compensation software which removes the platform movement from the VR image. OpenVR Motion Compensation is the current software to be utilized for motion compensation which can be downloaded here: <https://ovrmc.dschadu.de/>. OpenVR Motion Compensation will track the movement of a tracker mounted on the platform and remove the motion of the platform from the movement of the VR headset. OpenVR Motion Compensation can work with both types of VR headsets (base stations and inside-out tracking).

OpenVR Motion Compensation Tutorial Video: <https://www.youtube.com/watch?v=1MqGO46xdtI&t>
OpenVR Motion Compensation Install and Setup: <https://ovrmc.dschadu.de/en/setup>

There are primarily two types of VR headsets and they require the tracker to be mounted differently. Ones that utilize base stations (outside-in) for tracking of the VR headset movements such as the Valve Index, HTC Vive Cosmos, Pimax 5k/8k* and the original Oculus Rift (CV1). The other type utilizes cameras in the headsets that provide inside-out tracking which include the HP Reverb/G2, Oculus Quest/Quest 2/Rift S**, Samsung HMD Odyssey+ and other Windows Mix Reality (WMR) type headsets.

For VR headsets that utilize base stations, a tracker or controller (Valve Index Controller, HTC Vive Controller, HTC Vive Tracker) must be mounted on the motion platform and be in-line of sight by all the base stations. It does not matter where the tracker is mounted as long as its visible to all the base stations, though typically they are mounted near the head at the top of the chair.

For VR headsets that utilize inside-out tracking via the cameras on the headset, a controller (Oculus Touch Controller or WMR Controller) must be mounted on the front of the motion platform so it is in-line of sight of the cameras on the headset.

In either case, the tracker must be 1) firmly mounted to the platform and 2) must utilize some type of vibration mitigation. Vibration mitigation can be achieved by 1) adding additional mass/weight to the mount so it absorbs vibration energy and 2) using a vibration absorption material like soft rubber or Sorbothane.



Another potential software solution is the older version of motion cancellation called OpenVR Input Emulator. Though it is no longer being developed, there is still limited support from the community via its download page here: <https://github.com/matzman666/OpenVR-InputEmulator/releases>.

HTC Vive/Vive Pro: <https://dofreality.com/HTCMotionCancellation.pdf>

Oculus Rift setup: <https://dofreality.com/OpenVR.pdf>

* For Pimax users, the PiTool can potentially be utilized for VR Motion Compensation:

<https://www.pimax.com/pages/pitool>. In PiTool, turn on a Valve Index controller, select it as the sensor in PiTool “Motion Cancellation’ and open the game. However, support is not guaranteed and may not work properly.

** The Oculus driver for SteamVR is made by Valve and not by Oculus as they only support their own closed ecosystem. This causes issues with 1) big motions on Oculus devices might see a black border on the edge of your view and 2) rotation is not always compensated correctly.

Hardware/Non-Software Based Solutions for Motion Compensation

1) For VR headsets with inside-out tracking, consider covering one of the cameras with tape. It will prevent the headset movements from being tracked in the environment and provide some VR motion compensation without significant side effects and the need to use motion compensation software:

<https://www.youtube.com/watch?v=ksy7AxjbcD0>

2) For the Oculus Rift, attach the sensor the platform using the DOF Oculus mount and cover the cameras on the VR headset. This disables the 3D tracking, which prevents the camera from jumping around in the game. However, this method also disables the rotation tracking, so if the motion platform turns on its yaw axis, you will have to turn your head to look forward in game. It’s suggested to limit the Yaw movement in your motion platform software in order to make the rotation just enough for you to feel but you will not have to turn your head to look forward in the game. This of course is not ideal, but doesn’t require motion compensation software.



3) For original Oculus Rift (CV1) users, the Oculus Rift sensor could be mounted directly to your DOF Reality platform to provide simulated motion compensation without the need to use motion compensation software; however, due to recent Oculus update this solution may or may not work. DOF Reality includes a mount for the Oculus Rift sensor in your DOF hardware shipment which should be placed at the front of the platform looking back at the VR headset. Mount the bracket to the two holes at the back of the wheel deck plate so it extends up and out to the front of the platform.

Additional VR Motion Compensation Resources

OpenVR Motion Compensation Tested Devices: <https://ovrmc.dschadu.de/en/testeddevices>

XSimulator Motion Compensation Thread: <https://www.xsimulator.net/community/threads/openvr-motioncompensation.14576/>

XSimulator Motion Cancellation Thread: <https://www.xsimulator.net/community/threads/vr-motion-cancellation-time-to-test.10241/>

HTC Vive Tracker Mount Example: <https://www.youtube.com/watch?v=BPmo5kmk5CY>

5. Troubleshooting & Maintenance

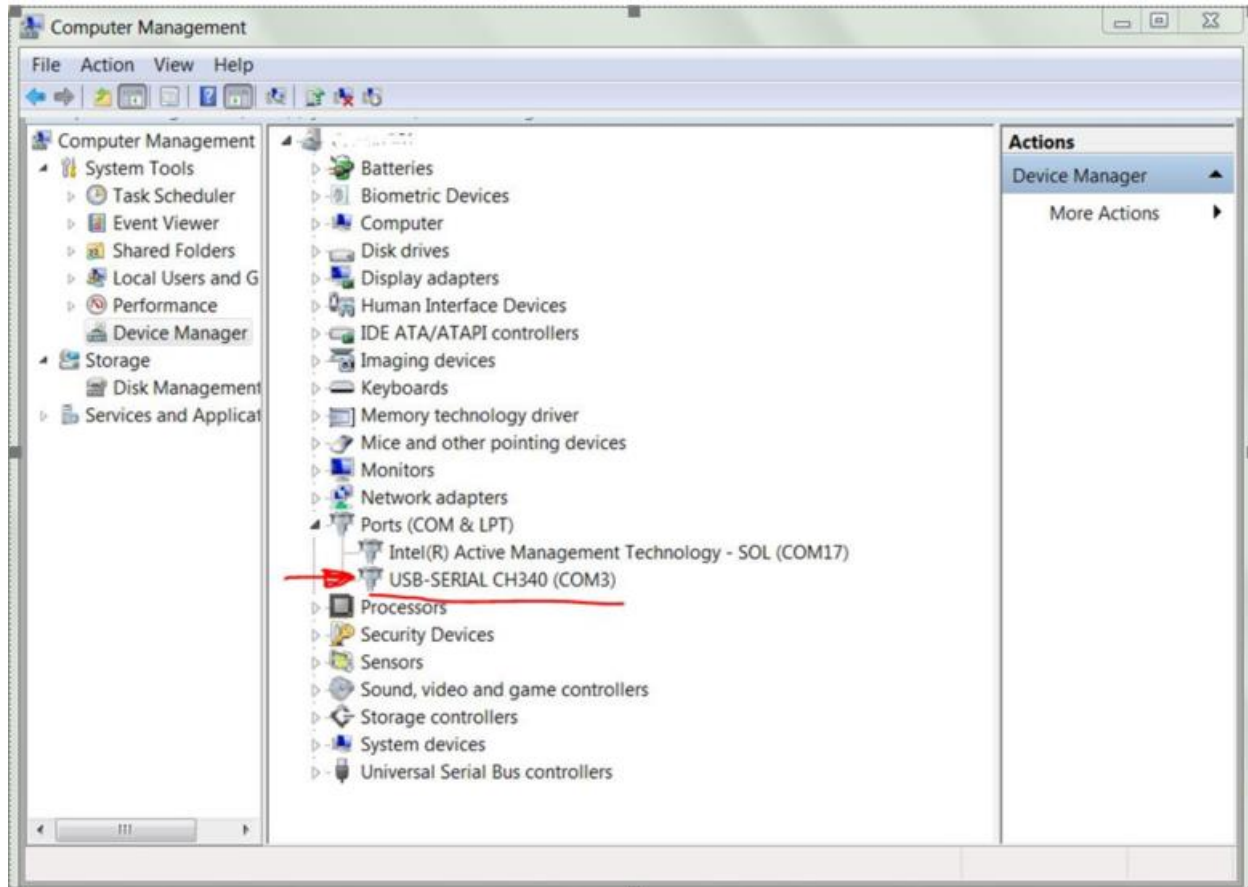
The simulator does not need much maintenance, but you should check for loose bolts or other abnormalities periodically (we recommend once a month).

- Confirm the security of the nuts and bolts every few weeks.
- 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 attached to the motor arms.

Some play in the gearboxes and arms joints is unavoidable. It is in the nature of the gearboxes to have play. otherwise, they won't move. Some gearboxes have less at the beginning, but with time they all will get it. It is normal to have up to 10% of the motion range. Motors can be warm after hours but should not be overheated over 70C.

5.1 Platform doesn't move and is not shown as "Connected" in SRS.

- A) When you plug the control boxes into your USB ports, you should be able to find the boxes listed in Device Manager under the Ports section (see below). If your control boxes are plugged into the computer via USB ports, but the SRS application gives you an error message "Not Connected", check the Windows Device Manager if you have a corresponding two COM ports in the devices list. Each control box has own port number. If not you need to reinstall drivers: <http://dofreality.com/drivers.zip>.



If even after rebooting your system, you still don't see the COM port please contact sales@dofreality.com

B) If in the Model box you see “Connected”.

But the platform is not moving in “Tests” (within SRS) contact sales@dofreality.com

C) If your platform is moving fine in Tests, but not in the games, first make sure SRS is running while you are playing the game. If the platform is still not moving, you need to click the Auto Install button in SRS. For games changes in game settings following this guide <https://www.simracingstudio.com/download> .

If the platform still doesn't move, you should open a ticket by emailing sales@dofreality.com.

5.2 If one or more of your motors are stuck in an improper position and don't seem to respond

If a motor gets into the “protection zone”, it may stop responding. If this occurs, the mechanical position is so far out of line that the software locks. To unlock it:

- 1) Power off both control boxes
- 2) Close all SRS applications
- 3) Download <http://dofreality.com/SMC3Utils.zip>
- 4) Unzip all archive contents into any local folder on your PC
- 5) Open with notepad file SMC3Utils.ini and set COMM_PORT= to proper COM port number from your Windows Device Manager (see 5.1) Each control box has a specific port number. Test one box at a time.
- 6) Start/run SMC3Utils.exe. If you are getting an error messages about the COM port communication, you haven't set the port number properly in the previous step.
- 7) Select the problematic motor . Most commonly, in the SRS application, the motor will be shown as OFF and the green line on the chart for it is below the blue line. Disconnect corresponding motor vertical silver links from the black motor arm so motor black arm can rotate freely 360 degree.
- 8) Write down current Max Limits and Clip Input values (on the right of the SMC3Utils window) and reduce them to 0. Normal is Max Limit 50, and Clip Input is 190.
- 9) In SMC3Utils click small OFF button in the top left hand part of the screen, so it becomes ON. Select the button next to the motor you are adjusting.
- 10) Power ON the platform
- 11) The motor should move back to normal position. If you want to check the motion, you can select the 'Sine' radio button and see that it moves appropriately. The green line is a reflection of the measured motor position (where it actually is), the blue line is the desired motor position (where it theoretically should be). These will not be perfectly aligned, but should be similar. 2) If the motor arm has recalibrated, reset the 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 the neutral position

The resting position of the black motor arm should be:

If your motor arm is out of the natural/level position it should be reset. Correct calibration is the default resting arm position of the motor. Setting this correctly fixes several problems commonly experienced by users. To recalibrate the motor arm, you will need the small “allen wrench” or “hex key” provided in your hardware kit.

Over time the motor-sensor coupler bolts may get loose and the neutral motor position can get malaligned from normal (often the arm moves just a bit higher than horizontal). If this is the case perform tests (see section 5.4) to make sure motor is moving correctly first or consult DOF Reality support.

Please review the video of the calibration procedure:

<https://www.youtube.com/watch?v=Wa6hRdMB4vA>

1. Before starting, fully exit everything else on the PC possible, especially SimRacingStudio and SimHub (check the Windows task manager to make sure).
2. Download <http://dofreality.com/SMC3Utils.zip>, unzip all contents into any local folder on your PC. Open with notepad file SMC3Utils.ini and set COMM_PORT= to proper COM port number from your Windows Device Manager (see 5.1). If you have H6/P6 DOF: each control box has a specific port number. In order for SRS find the control box, you must know which box corresponds to the desired control box. See section 5.2.4. Run SMC3Utils.exe. If you are getting an error messages about COM port communication, you haven't set port the number properly in this step.
3. Make sure the DOFR control box power is OFF (make sure motor connections and the USB remain fully plugged in).
4. Using a wrench and the large allen wrench, disconnect the silver threaded “motor arm” from the motor that needs to be re-calibrated. Disconnect only from motor side and leave hanging freely. If you have a damper attached, you will need to disconnect that as well. The motor needs to be free to move.
5. On the side of the motor pointing towards the center of the platform, use a small allen wrench to loosen the “coupler” (silver tube like roller). You only want to loosen the two small allen screws on the MOTOR SIDE. The other side is the “sensor” that connects to the plastic cover. Do not touch the sensor side allen screws.
6. On your PC go to the SMC3 application.
7. With a computer screen-shot (or your phone) take a picture of the SMC3 screen with the current settings and values (IMPORTANT). The **default** settings are: **Fpid / 10, Kp = 120, Ki = 1, Kd = 10, Ks = 5, PWMmin = 0, PWMmax = 180, PWMrev =200, Max limit = 50, Clip Input = 190, Deadzone = 0.**
8. At top left of SMC3 tool now click “ON” the motor that needs calibrated.
9. Click the “step 1” buttons to say “step 10”
10. Click “KP” down to “60”
11. “PWMmax” to “60” and “Ki” to “0” (zero).
12. At this point the “Max Limits” and “Clip Input” should also have adjusted down to 0 as well. If not, then click them both to “0”.
13. Power ON the DOFR control box.
14. By hand, slowly rotate the “coupler” (silver tube like roller). It will move the green graph line in the SMC3 tool. Make sure this is happening. If not, start over.

15. Now slowly rotate the coupler until the small black motor arm is positioned at the “2:30” position as on a clock (pointing forward, AWAY from the black portion of the motor). If you are calibrating the rear yaw/traction loss motor it should be left at a 90 degree angle.
16. Power OFF the DOFR control box.
17. Now looking at the SMC3 program tool, slowly rotate the coupler until the green line sits in the middle of the graph slightly below the blue line. At this point the green line should be moving right with the blue line.
18. Now take the allen wrench and without moving the “coupler”, properly tighten ONE of the allen screws we previously loosened(as you do this make sure green line stays in position on SMC3 with the blue line).
19. Tighten then the second allen screw.
20. Now in the SMC3 application, turn all values back to original settings(from your earlier screen-capture or phone picture) The **default** settings are: **Fpid / 10, Kp = 120, Ki = 1, Kd = 10, Ks = 5, PWMmin = 0, PWMmax = 180, PWMrev =200, Max limit = 50, Clip Input = 190, Deadzone = 0**
21. Power on the control box.
22. On the SMC3 tool at the bottom left area, click “Sine”.
23. If we have been successful the green and blue line on the SMC3 will start moving up and down almost together with the black motor arm we just re-calibrated.
24. Exit SMC3 tool and you are ready to go. If this is not fixing your problem, please review and repeat these steps very carefully. If you are still not able to recalibrate the motor arm to a horizontal position, contact DOF Reality.

5.4 Something is wrong with my platform!

- 1) Check all cables and motor connections, including any loose wires inside the control box.
- 2) Close and exit SimRacingStudio.
- 3) Download <http://dofreality.com/SMC3Utils.zip>
- 4) Unzip all contents into any local folder on your PC.
- 5) Open SMC3Utils.ini with notepad and set COMM_PORT= to the proper COM port number from your Windows Device Manager (see 5.1) . Each control box should have a specific port number. Test one box at a time.
- 6) Start/run SMC3Utils.exe. If you are getting an error message regarding the COM port communication, you haven't set the port number properly in the previous steps.
- 7) Power ON the platform
- 8) Set it to 'sine' click Motor 1 and Motor 2 and 3 send us (sales@dofreality.com) screen shots of the SMC Util charts for each motor. It will also be helpful to include a short video clearly demonstrating the problem.

5.5 I have troubles installing SRS (Antivirus detects it as a threat)

SRS uses a variety of methods to read the telemetry from the game and some of those methods will trigger antivirus software. SRS is completely safe, use your antivirus software to allow an exception for SRS. This will typically solve the problem.

5.6 Simulator does not move in-game

Make sure the SRS application is open and running in the background. This connects the simulator to your gaming software. If you have already confirmed this, click the "Auto Install" button from within the SRS Game section. For some games, you will need to the game settings following this guide: <https://www.simracingstudio.com/download>. If you have completed all this, and your platform still doesn't move, please Open a Ticket by contacting sales@dofreality.com.

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 (or other antivirus software) have deemed the software a threat. Windows Defender is notorious for this. Please investigate with your antivirus software. Usually an SRS reinstall helps or you can add an exception for SRS from within your antivirus software application.

5.8 The motors make small adjustments all the time

This is because the motors always have power flowing through them, and are always in a ready state to be able to move the rig quickly without delay. The small movements of the motors will typically disappear when there is weight on the rig or it is in use.

5.9 The simulator behaves strangely while playing games

There are many reasons you may experience this behavior, but the most common reasons are:

- The simulator is not in balance.
- The simulator doesn't have the right settings for you. (We supply generic settings, but they might not match your preferences, weight distribution, or accessory setup).
- The rig might be too heavy.

6 Repairing the simulator

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.

Technical Specifications

Motion Simulator for computer gaming

Brand: DOF Reality

Model: DOF REALITY M2

Power input: 100-120/210-240VAC, 50/60Hz

Power consumption: 700Watt

Peak current: 5.8/3.2A

Short-circuit rating: 20A

IP number: 1P190305.DR0W93

Total Weight: 23.850 kg

Made in Ukraine by: "DOF REALITY" LLC

Zaporizhzhya, Harchova, 17/94, Ukraine, 69014



EN 60204-1:2006/AC:2010, EN 60335-2-82:2003/A1:2008, EN 60335-1:2012+A11:2014; EN 55014-1:2006+A1:2009+A2:2011; EN 61000-3-2:2014; EN 61000-3-3:2013. 2019

<http://dofreality.com/CE.pdf>