FlyPT mover

Manual for version 2.9.8 from 18 04 2020

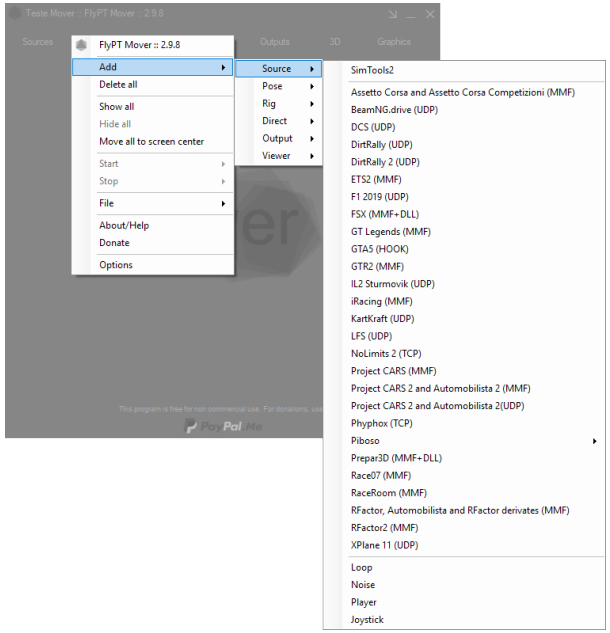
INDEX

SOURCES

Sources are the the way we generate or receive values from other games and programs.
Values are mostlly in the same units across sources to allow them to be compared .
They are also the pure values. There's no crop, filter or effect aplied to them.
The current list of values is:

	Value	Units	Observations
1	Lateral acceleration	m/s²	
2	Longitudinal acceleration	m/s²	
3	Vertical acceleration	m/s²	
4	Lateral acceleration with gravity	m/s²	
5	Longitudinal acceleration with gravity	m/s²	
6	Vertical acceleration with gravity	m/s²	
7	Lateral gravity	m/s²	Usually calculated in Mover
8	Longitudinal gravity	m/s²	
9	Vertical gravity	m/s²	
10	Yaw acceleration	°/s²	
11	Roll acceleration	°/s²	
12	Pitch acceleration	°/s²	
13	Lateral speed	m/s	
14	Longitudinal speed	m/s	
15	Vertical speed	m/s	
16	Yaw speed	°/s	
17	Roll speed	°/s	
18	Pitch speed	°/s	
19	Lateral position	m	World coordinates
20	Longitudinal position	m	
21	Vertical position	m	
22	Yaw position	°	
23	Roll position	°	
24	Pitch position	°	
25	Front left suspension acceleration	m/s2	
26	Front right suspension acceleration	m/s2	
27	Rear left suspension acceleration	m/s2	
28	Rear right suspension acceleration	m/s2	
29	Front left suspension speed	m/s	
30	Front right suspension speed	m/s	
31	Rear left suspension speed	m/s	
32	Rear right suspension speed	m/s	

	Value	Units	Observations
33	Front left suspension position	m	
34	Front right suspension position	m	
35	Rear left suspension position	m	
36	Rear right suspension position	m	
37	Front left suspension surface		Bigger the value, bigger the vibration generated
38	Front right suspension surface		
39	Rear left suspension surface		
40	Rear right suspension surface		
41	RPM		
42	Gear		
43	Speed	m/s	
44	SimTools Axis1a		See info in the SimTools section
45	SimTools Axis2a		
46	SimTools Axis3a		
47	SimTools Axis4a		
48	SimTools Axis5a		
49	SimTools Axis6a		
50	SimTools Axis1b		
51	SimTools Axis2b		
52	SimTools Axis3b		
53	SimTools Axis4b		
54	SimTools Axis5b		
55	SimTools Axis6b		
56	Engine torque	Nm	
57	Stall	%	
58	Landing gear	%	
55	Speed brakes	%	
56	Throttle	%	
57	Brake	%	
58	Clutch	%	
59	Steering	%	



Adding a source in the menu

Only some of the values are available for each source. It depends on the data given by the game/program.
Some of the values are also obtained from calculations and not directlly from the game/program.

How sources get data from the games/programs

In the name of the sources, you have the following achronyms to indicate the way we get data:

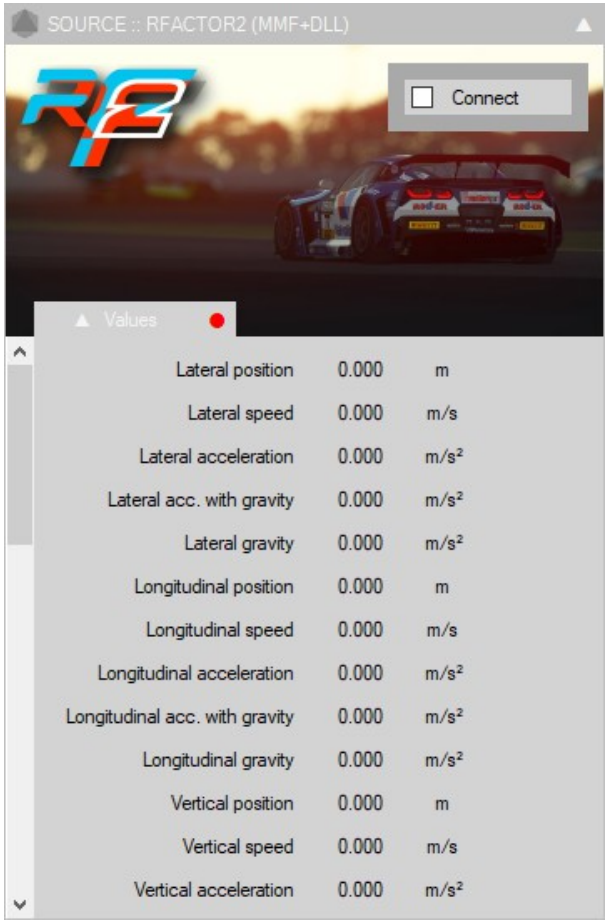
UDP
Sources of this type get the values over the UDP protocol. It's a network protocol, so with those sources you can have the game/program runing in a different machine and access it's values over the network.
For that, you just need to specify the port used by the game/program.
Usually, all the ports indicated are the default ones, but you can change them in the module as long as they match the one from the game/program.

TCP
Like UDP, it can be used over the network, but with a different protocol.
Here you need to specify the IP of the machine running the game/program.
If that's on the same machine use IP: 127.0.0.1. and the port specified by the game/application.

MMF
This stands for memory mapped file or shared memory. To use those sources, the game/program needs to be in the same machine of Mover. Has the name says, it's a file in memory that is updated by the game/program and read by Mover.
This is the fastest and safer way of getting data.

HOOK
This means we get data directlly from the game memory.
Althought they work well, any game update causes the change of the memory locations, so the connection will be lost each time an update is performed by the studios.
Ideally this should be used in older games, without updates.

DLL
This means the source requires a DLL to get the data

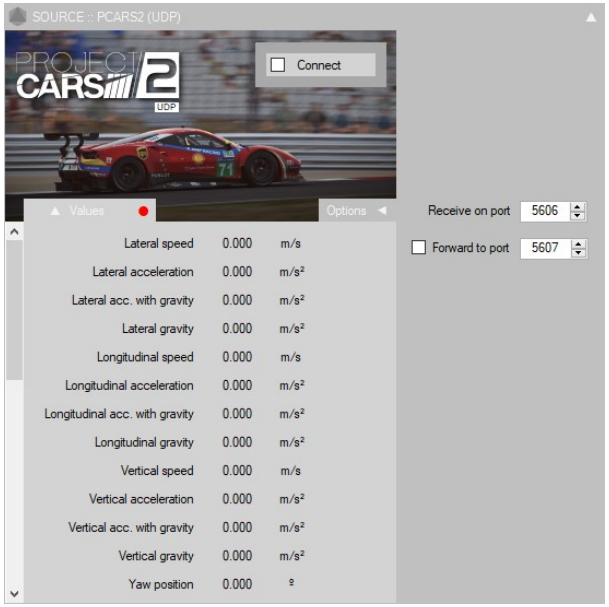


Example of game source that uses a memory mapped file and requires a dll

The source module window

In the right figure, we have an example of a source for PCARS2.
By it's title, we can see it gets data by UDP.
That's why we have a field to insert the port used by PCARS2. The default ports that shown in the sources are usually the default ports used by the games/programs.

The list of all the values we get from the source is also visible. When connected to the source, the values are updated on that list.
To connect/disconnect, press the button or select auto connect, to connect when the source detects the game sending data (the check box inside the button).



Project CARS2 UDP source

Soft transition

For example, if our source is a car game, when we enter a track from the menu, the car that had a yaw of 0º can suddenlly have 60º yaw. That causes a jump on the rig.
To overcome this problem, Mover tries to detect those changes in the sources and automatically transitions the values from zero to the current value when we enter the track and transitions to zero when we leave the track, pause the game or remove focus from the game.
That transition is performed with a time defined in the options of the main window and reflected by the color change in the button where:

Yellow is 0% transition, no data.
Orange can be 50% transition with data.
Red is 100% transition with data.

Unfortunatelly, not all situations can be detected. So be cautious and always keep this in mind!

Port forward in UDP sources

To reuse data received from a game in another application, we have to forward that data to another port.
The UDP data is consumed by the first one requesting it, so it's not available to the other application, unless you read the data and send it again to another port.
That's what you do with port forward.

Multiple sources

You can have multiple sources in the same setup. But games can be used only once in each setup.
Loops, noise or joysticks can be repeated and used more than one time in each setup.

Recording sources

Use the red dot in the sources window to record the data received in the source.
You can use it later in the player source, to replay the received data.

Assetto Corsa and Assetto Corsa Competizione (MMF)

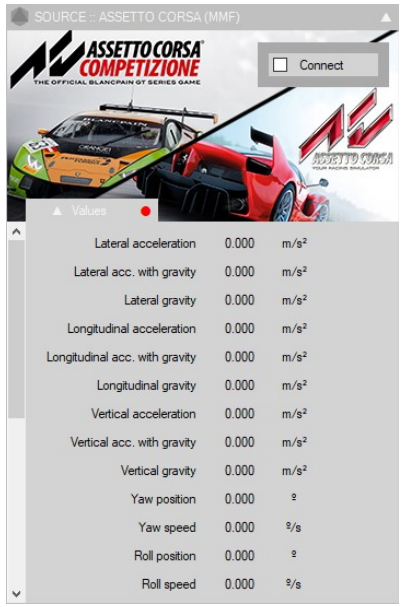
Compatibility
Source compatible with both Assetto Corsa and Assetto Corsa Competizioni.
Works only if games are run in the same PC that runs Mover.

How it gets data
Source uses the memory mapped file generated by the game to obtain the values.

Setup
None.

Value	Units	Observations
Lateral acceleration	m/s^2	
Longitudinal acceleration	m/s^2	
Vertical acceleration	m/s^2	
Lateral acceleration with gravity	m/s^2	
Longitudinal acceleration with gravity	m/s^2	
Vertical acceleration with gravity	m/s^2	Calculated by Mover
Yaw acceleration	$º/s^2$	
Roll acceleration	$º/s^2$	
Pitch acceleration	$º/s^2$	
Yaw speed	º/s	
Roll speed	º/s	
Pitch speed	º/s	
Yaw position	º	
Roll position	º	
Pitch position	º	
Front left suspension position	m	
Front right suspension position	m	
Rear left suspension position	m	
Rear right suspension position	m	
RPM		
Gear		-1 to maximum gear value
Speed	m/s	
Throttle	%	
Brake	%	
Clutch	%	
Steering	%	

Received data

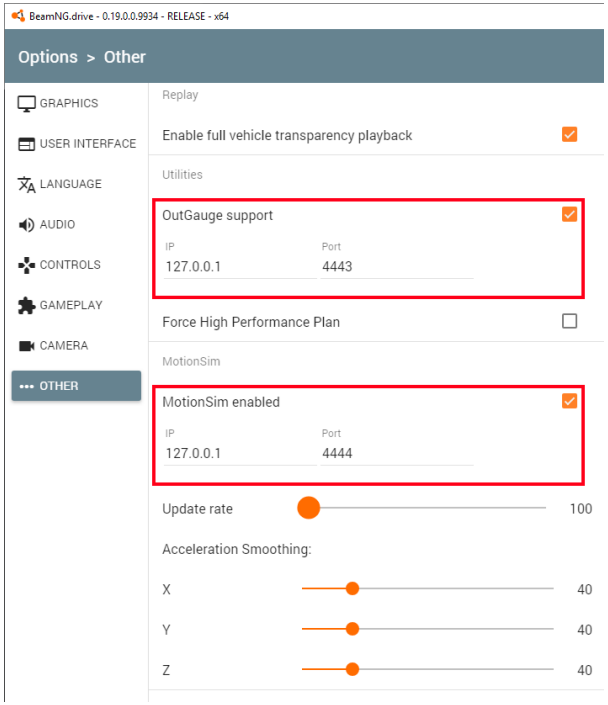


The window

BeamNG.drive (UDP)

How it gets data
Source uses UDP data generated by the game to obtain the values.

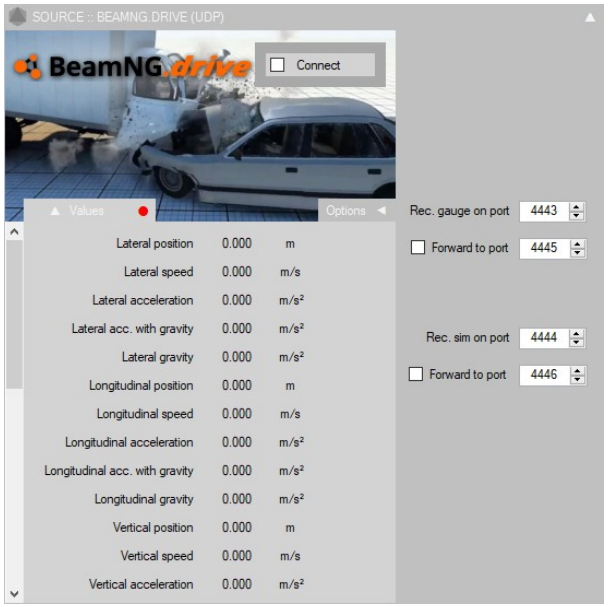
Setup
Go to the options in BeamNG.drive and put this:



You can change the ports, but they must match the ones used in Mover.
You can also lower the update rate to get more data in Mover (depends on PC performance).
Acceleration smoothing can be achieved in Mover, but you can also adjust it in BeamNG.drive options.

Value	Units	Observations
Lateral acceleration	m/s²	
Longitudinal acceleration	m/s²	
Vertical acceleration	m/s²	
Lateral acceleration with gravity	m/s²	
Longitudinal acceleration with gravity	m/s²	
Vertical acceleration with gravity	m/s²	Calculated by Mover
Lateral gravity	m/s²	
Longitudinal gravity	m/s²	
Vertical gravity	m/s²	
Lateral speed	m/s	
Longitudinal speed	m/s	
Vertical speed	m/s	
Lateral position	m	
Longitudinal position	m	World coordinates
Vertical position	m	
Yaw acceleration	°/s²	
Roll acceleration	°/s²	
Pitch acceleration	°/s²	
Yaw speed	°/s	
Roll speed	°/s	
Pitch speed	°/s	
Yaw position	°	
Roll position	°	
Pitch position	°	
RPM		
Gear		-1 to maximum gear value
Speed	m/s	
Throttle	%	
Brake	%	
Clutch	%	
Steering	%	

Received data



The window

DCS (UDP+LUA)

How it gets data
Source uses UDP data generated by the game to obtain the values.

Setup
To output data, you need to copy the LUA script included in the download, to the scripts folder of DCS.

Get the script file “DCS to FlyPT Mover.lua” included inside the folder “Sources files” of the Mover download, and copy it to the folder “C:\Users\YOUR USERNAME\Saved Games\DCS\Scripts\Hooks”.
If the “Hooks” folder doesn't exist, create it.

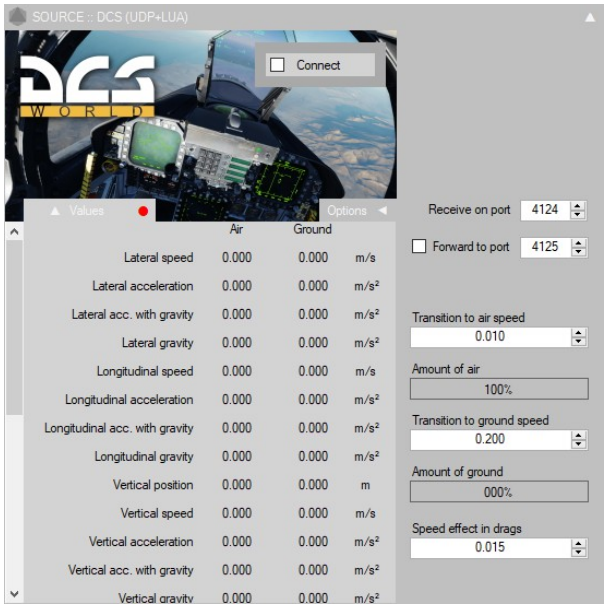
Air and ground
This source is in reality two.
It gets data from DCS, one while in the air and another when in the ground.
That way we can define different behaviours on the rig for air and ground.
There's a percent of each source. So when flying, you get 100% of air while values in the ground source are zero.
When landing, it's performed a transition where the air percent goes to zero while the ground percent increases to 100%.
So the sum of the two percents is always 100%.
The transition time can be defined independentlly for air to ground and ground to air. Use value 1.000 for instantaneous transition and 0.001 for the slowest speed.

Speed effect in drags
Drags are features that cause vibration, like flaps, stall or landing gear.
If speed is zero, there's no vibration, high speeds have more vibration.
Increasing this value, increases vibration for lower speeds.

Notes
Use wind value for fans, it takes into account how much of the canopy is open.

Value	Units	Observations
Lateral acceleration	m/s^2	
Longitudinal acceleration	m/s^2	
Vertical acceleration	m/s^2	
Lateral acceleration with gravity	m/s^2	
Longitudinal acceleration with gravity	m/s^2	
Vertical acceleration with gravity	m/s^2	Calculated by Mover
Lateral gravity	m/s^2	
Longitudinal gravity	m/s^2	
Vertical gravity	m/s^2	
Lateral speed	m/s	
Longitudinal speed	m/s	
Vertical speed	m/s	
Vertical position	m	World coordinates
Yaw speed	º/s	
Roll speed	º/s	
Pitch speed	º/s	
Yaw position	º	
Roll position	º	
Pitch position	º	
Speed	m/s	
Stall	%	
Flaps	%	
Landing gear	%	
Speed brakes	%	
Canopy	%	
Wind	m/s	Calculated by Mover

Received data



The window

DiRT Rally and DiRT 3 (UDP)

Compatibility
Besides DiRT Rally, this sources works with DiRT 3 and might work with other titles from Codemasters.

How it gets data
Source uses UDP data generated by the game to obtain the values.

Setup
Go to the folder:
“...Documents\My Games\DiRT Rally\hardwaresettings”
And open for edit the file:
“hardware_settings_config.xml”

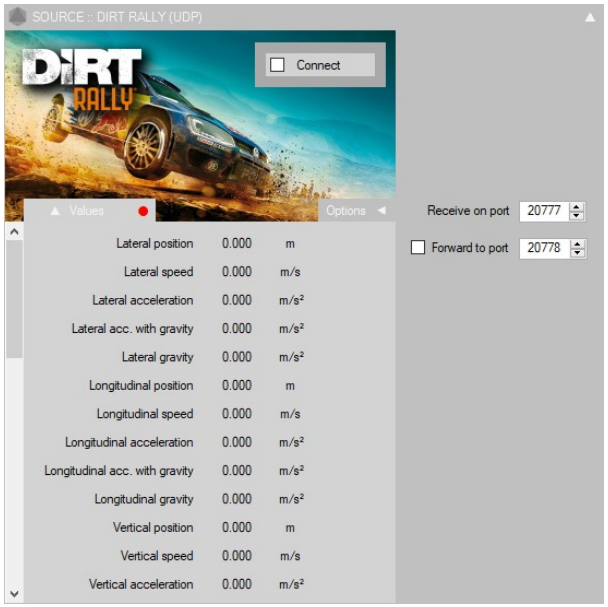
Search for the string “<motion_platform>” and under that you will find a line similar to this one:

```
<udp enabled="true" extradata="3" ip="127.0.0.1"
port="20777" delay="1" />
```

Ensure the selected values are the same pointed above, specially the “enabled” and “extradata”.

Value	Units	Observations
Lateral acceleration	m/s^2	
Longitudinal acceleration	m/s^2	
Vertical acceleration	m/s^2	
Lateral acceleration with gravity	m/s^2	
Longitudinal acceleration with gravity	m/s^2	
Vertical acceleration with gravity	m/s^2	Calculated by Mover
Lateral gravity	m/s^2	
Longitudinal gravity	m/s^2	
Vertical gravity	m/s^2	
Lateral speed	m/s	
Longitudinal speed	m/s	
Vertical speed	m/s	
Lateral position	m	
Longitudinal position	m	World coordinates
Vertical position	m	
Yaw acceleration	$º/s^2$	
Roll acceleration	$º/s^2$	
Pitch acceleration	$º/s^2$	Calculated by Mover
Yaw speed	º/s	
Roll speed	º/s	
Pitch speed	º/s	
Yaw position	º	
Roll position	º	
Pitch position	º	
Front left suspension speed	m/s	
Front right suspension speed	m/s	
Rear left suspension speed	m/s	
Rear right suspension speed	m/s	
Front left suspension position	m	
Front right suspension position	m	
Rear left suspension position	m	
Rear right suspension position	m	
RPM		
Gear		-1 to maximum gear value
Speed	m/s	
Throttle	%	
Brake	%	
Clutch	%	
Steering	%	

Received data



The window

DiRT Rally 2 (UDP)

How it gets data
Source uses UDP data generated by the game to obtain the values.

Setup
Go to the folder:
“...Documents\My Games\DiRT Rally 2.0\hardwaresettings”
And open for edit the file
“hardware_settings_config.xml”

Search for the string “<motion_platform>” and under that you will find a line similar to this one:

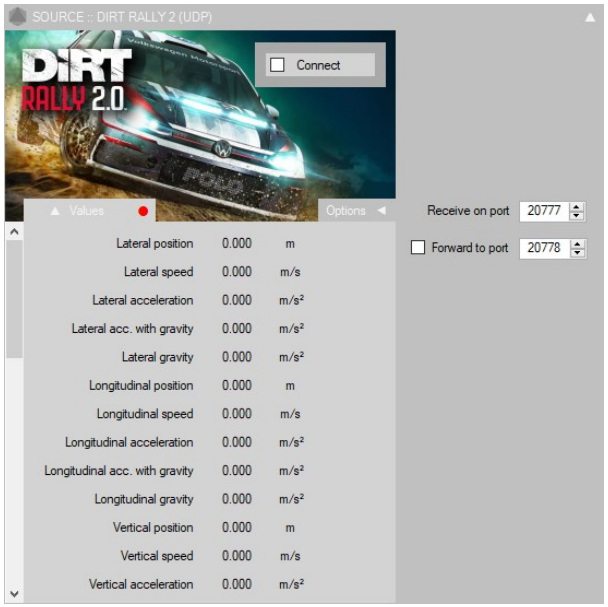
```
<udp enabled="true" extradata="3" ip="127.0.0.1"
port="20777" delay="1" />
```

Ensure the selected values are the same pointed above, specially the “enabled” and “extradata”.

If you are using VR, you need to also edit the file "hardware_settings_config_vr.xml" in the same folder, with the same values.

Value	Units	Observations
Lateral acceleration	m/s^2	
Longitudinal acceleration	m/s^2	
Vertical acceleration	m/s^2	
Lateral acceleration with gravity	m/s^2	
Longitudinal acceleration with gravity	m/s^2	
Vertical acceleration with gravity	m/s^2	Calculated by Mover
Lateral gravity	m/s^2	
Longitudinal gravity	m/s^2	
Vertical gravity	m/s^2	
Lateral speed	m/s	
Longitudinal speed	m/s	
Vertical speed	m/s	
Lateral position	m	
Longitudinal position	m	World coordinates
Vertical position	m	
Yaw acceleration	$º/s^2$	
Roll acceleration	$º/s^2$	
Pitch acceleration	$º/s^2$	Calculated by Mover
Yaw speed	º/s	
Roll speed	º/s	
Pitch speed	º/s	
Yaw position	º	
Roll position	º	
Pitch position	º	
Front left suspension speed	m/s	
Front right suspension speed	m/s	
Rear left suspension speed	m/s	
Rear right suspension speed	m/s	
Front left suspension position	m	
Front right suspension position	m	
Rear left suspension position	m	
Rear right suspension position	m	
RPM		
Gear		-1 to maximum gear value
Speed	m/s	
Throttle	%	
Brake	%	
Clutch	%	
Steering	%	

Received data



The window

ETS2 and AMTS (MMF+DLL)

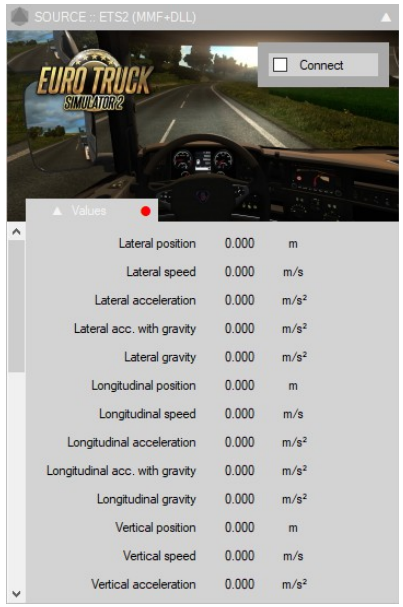
Compatibility
Source compatible with both Euro Truck Simulator 2 and American Truck Simulator.

How it gets data
Source uses the memory mapped file generated by the dll plugin to obtain the values.

Setup
Get the dll file “FlyPT_ETS2_AMTS_MMF.dll” included inside the folder “Sources files” of the Mover download, and copy it inside the instalation folder of ETS2/AMTS “...\bin\win_x64\plugins".
Create the plugin folder if he doesn't exist.

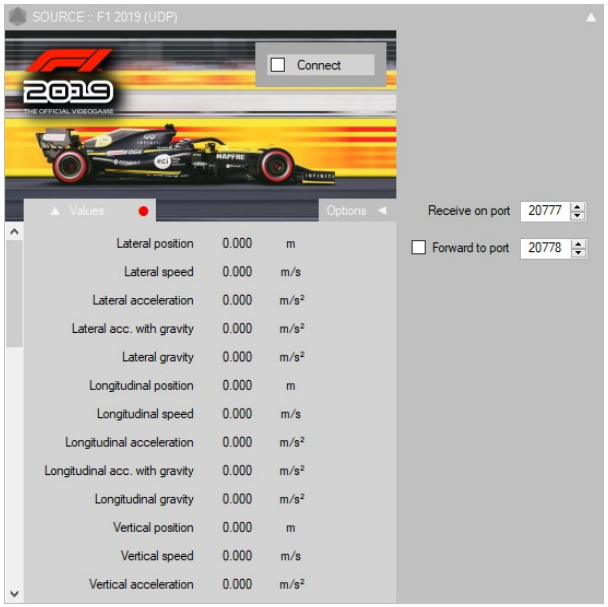
Value	Units	Observations
Lateral acceleration	m/s²	
Longitudinal acceleration	m/s²	
Vertical acceleration	m/s²	
Lateral acceleration with gravity	m/s²	Calculated by Mover
Longitudinal acceleration with gravity	m/s²	
Vertical acceleration with gravity	m/s²	
Lateral gravity	m/s²	
Longitudinal gravity	m/s²	
Vertical gravity	m/s²	
Lateral speed	m/s	
Longitudinal speed	m/s	
Vertical speed	m/s	
Lateral position	m	World coordinates
Longitudinal position	m	
Vertical position	m	
Yaw acceleration	º/s²	Calculated by Mover
Roll acceleration	º/s²	
Pitch acceleration	º/s²	
Yaw speed	º/s	
Roll speed	º/s	
Pitch speed	º/s	
Yaw position	º	
Roll position	º	
Pitch position	º	
Front left suspension position	m	
Front right suspension position	m	
Rear left suspension position	m	
Rear right suspension position	m	
RPM		
Gear		-1 to maximum gear value
Speed	m/s	
Throttle	%	
Brake	%	
Clutch	%	
Steering	%	

Received data



The window

F1 2019 (UDP)



The window

How it gets data
Source uses UDP data generated by the game to obtain the values.

Setup
In the F1 2019 menus, follow the sequence:

1. Game options
2. Settings
3. Telemetry settings
4. Enable UDP telemetry
5. Enable broadcast mode for remote access
6. Change send rate to maximum (60Hz)
7. Use UDP format of 2019

	Units	Observations
Lateral acceleration	m/s²	
Longitudinal acceleration	m/s²	
Vertical acceleration	m/s²	
Lateral acceleration with gravity	m/s²	Calculated by Mover
Longitudinal acceleration with gravity	m/s²	
Vertical acceleration with gravity	m/s²	
Lateral gravity	m/s²	
Longitudinal gravity	m/s²	
Vertical gravity	m/s²	
Lateral speed	m/s	
Longitudinal speed	m/s	
Vertical speed	m/s	
Lateral position	m	World coordinates
Longitudinal position	m	
Vertical position	m	
Yaw acceleration	º/s²	Calculated by Mover
Roll acceleration	º/s²	
Pitch acceleration	º/s²	
Yaw speed	º/s	
Roll speed	º/s	
Pitch speed	º/s	

Value	Units	Observations
Yaw position	º	
Roll position	º	
Pitch position	º	
Front left suspension acceleration	m/s²	
Front right suspension acceleration	m/s²	
Rear left suspension acceleration	m/s²	
Rear right suspension acceleration	m/s²	
Front left suspension speed	m/s	
Front right suspension speed	m/s	
Rear left suspension speed	m/s	
Rear right suspension speed	m/s	
Front left suspension position	m	
Front right suspension position	m	
Rear left suspension position	m	
Rear right suspension position	m	
RPM		
Gear		-1 to maximum gear value
Speed	m/s	
Throttle	%	
Brake	%	
Clutch	%	
Steering	%	

Received data

FSX (MMF+DLL)

How it gets data
Source uses the memory mapped file generated by the dll plugin to obtain the values.

Setup
You need to install the Microsoft VC++ Redist for 32 bits. Download the file “vc_redist.x86.exe” here:

https://support.microsoft.com/en-us/help/2977003/the-latest-supported-visual-c-downloads

Go to the following directory and install all versions of the FSX sdk "C:\Program Files (x86)\Steam\steamapps\common\FSX\SDK\Core Utilities Kit\SimConnect SDK\LegacyInterfaces\..."

Copy the “FlyPT_FSX_DLL.dll” file ncluded in the “Sources files” folder of the download, to the instalation folder of FSX.

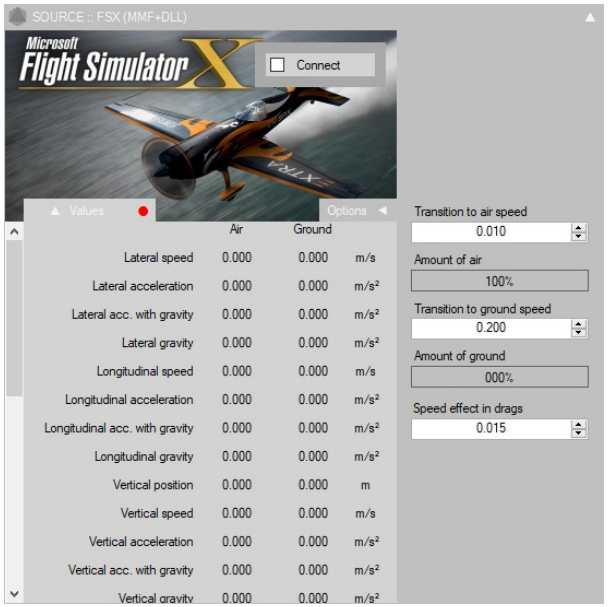
Go to the folder "C:\Users\YOUR USERNAME\AppData\Roaming\Microsoft\FSX" and edit the file “dll.xml”. If she doesn't exist, create it with a text editor and copy the text bellow.
If the file exists, you need to add a “<Launch.Addon>” section like shown bellow.
It should end with this aspect (you might have more addons in the file).

```
<?xml version="1.0" encoding="Windows-1252"?>
<SimBase.Document Type="Launch" version="1,0">
  <Descr>Launch</Descr>
  <Filename>dll.xml</Filename>
  <Disabled>False</Disabled>
  <Launch.ManualLoad>False</Launch.ManualLoad>
  <Launch.Addon>
    <Name>FlyPT Mover</Name>
    <Disabled>False</Disabled>
    <ManualLoad>False</ManualLoad>
    <Path>Path to FlyPT_FSX_DLL.dll including the file name with extension</Path>
  </Launch.Addon>
</SimBase.Document>
```

The path in red, should be the one where you have the dll. Like said above, I recomend the instalation folder of FSX.

Value	Units	Observations
Lateral acceleration	m/s²	
Longitudinal acceleration	m/s²	
Vertical acceleration	m/s²	
Lateral acceleration with gravity	m/s²	
Longitudinal acceleration with gravity	m/s²	Calculated by Mover
Vertical acceleration with gravity	m/s²	
Lateral gravity	m/s²	
Longitudinal gravity	m/s²	
Vertical gravity	m/s²	
Lateral speed	m/s	
Longitudinal speed	m/s	
Vertical speed	m/s	
Vertical position	m	World coordinates
Yaw acceleration	º/s²	
Roll acceleration	º/s²	
Pitch acceleration	º/s²	
Yaw speed	º/s	Calculated by Mover
Roll speed	º/s	
Pitch speed	º/s	
Yaw position	º	
Roll position	º	
Pitch position	º	
Front left suspension surface		
Front right suspension surface		Bigger the value, bigger the vibration generated
Rear left suspension surface		
Rear right suspension surface		
RPM		
Speed	m/s	
Stall	%	
Flaps	%	
Landing gear	%	
Canopy		
Wind	M/s	Calculated by Mover

Received data



The window

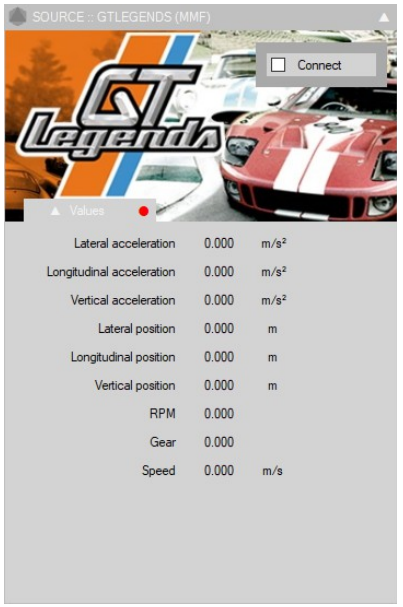
GT Legends (MMF)

How it gets data
Source uses the memory mapped file generated by the the game to obtain the values.

Setup
None.

Value	Units	Observations
Lateral acceleration	m/s^2	
Longitudinal acceleration	m/s^2	
Vertical acceleration	m/s^2	
Lateral position	m	
Longitudinal position	m	World coordinates
Vertical position	m	
RPM		
Gear		-1 to maximum gear value
Speed	m/s	

Received data



The window

GTA5 (HOOK)

How it gets data
Accesses game memory directlly to obtain the values.

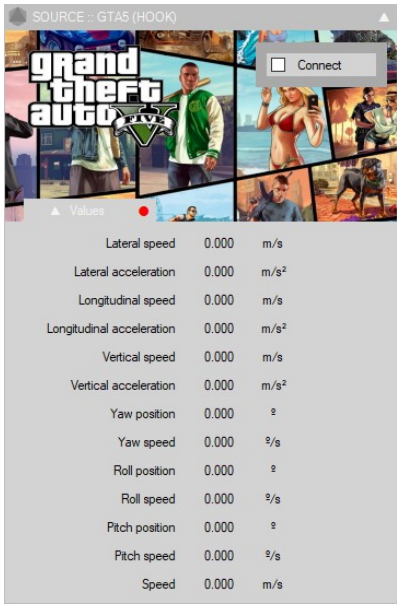
Warning!
Due to the way we get data, any game update can cause changes in the memory location of the values and we loose the values.
Don't expect this to always work.

Setup
None

Fun
Try jumping waves in boats...

Value	Units	Observations
Lateral acceleration	m/s^2	
Longitudinal acceleration	m/s^2	
Vertical acceleration	m/s^2	
Lateral speed	m/s	
Longitudinal speed	m/s	
Vertical speed	m/s	
Yaw speed	º/s	
Roll speed	º/s	
Pitch speed	º/s	
Yaw position	º	
Roll position	º	
Pitch position	º	
Speed	m/s	

Received data



The window

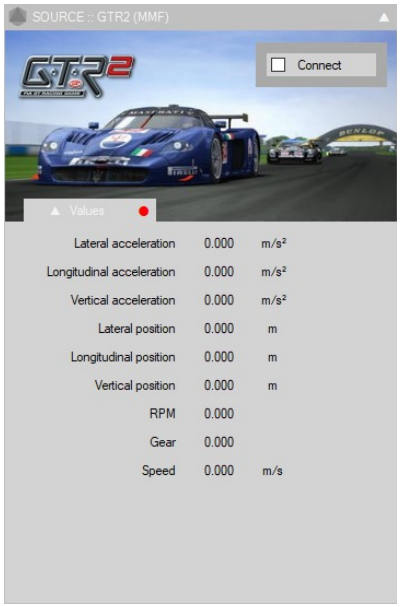
GTR2 (MMF)

How it gets data
Source uses the memory mapped file generated by the the game to obtain the values.

Setup
None.

Value	Units	Observations
Lateral acceleration	m/s^2	
Longitudinal acceleration	m/s^2	
Vertical acceleration	m/s^2	
Lateral position	m/s	
Longitudinal position	m/s	World coordinates
Vertical position	m/s	
RPM		
Gear		-1 to maximum gear value
Speed	m/s	

Received data



The window

IL-2 Sturmovik (UDP)

How it gets data
Source uses UDP data generated by the game to obtain the values.

Setup
Go to the game instalation folder:

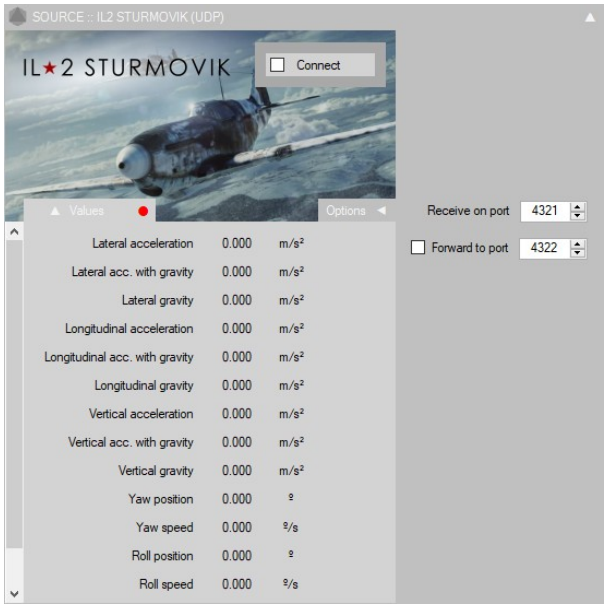
"...\IL-2 Sturmovik Battle of Stalingrad\data"

Edit the file "startup.cfg" by adding the following code:

```
[KEY = motiondevice]
        addr = "127.0.0.1"
        decimation = 1
        enable = true
        port = 4321
[END]
```

Value	Units	Observations
Lateral acceleration	m/s²	
Longitudinal acceleration	m/s²	
Vertical acceleration	m/s²	
Lateral acceleration with gravity	m/s²	
Longitudinal acceleration with gravity	m/s²	Calculated by Mover
Vertical acceleration with gravity	m/s²	
Lateral gravity	m/s²	
Longitudinal gravity	m/s²	
Vertical gravity	m/s²	
Yaw speed	º/s	
Roll speed	º/s	
Pitch speed	º/s	
Yaw position	º	
Roll position	º	
Pitch position	º	

Received data



The window

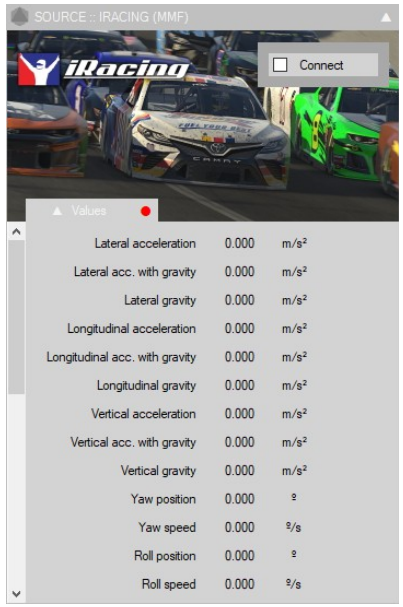
iRacing (MMF)

How it gets data
Source uses the memory mapped file generated by the the game to obtain the values.

Setup
None.

Value	Units	Observations
Lateral acceleration	m/s²	Calculated by Mover
Longitudinal acceleration	m/s²	
Vertical acceleration	m/s²	
Lateral gravity	m/s²	
Longitudinal gravity	m/s²	
Vertical gravity	m/s²	
Lateral acceleration with gravity	m/s²	
Longitudinal acceleration with gravity	m/s²	
Vertical acceleration with gravity	m/s²	
Yaw speed	º/s	
Roll speed	º/s	
Pitch speed	º/s	
Yaw position	º	
Roll position	º	
Pitch position	º	
Front left suspension speed	m/s	
Front right suspension speed	m/s	
Rear left suspension speed	m/s	
Rear right suspension speed	m/s	
Front left suspension position	m	
Front right suspension position	m	
Rear left suspension position	m	
Rear right suspension position	m	
RPM		
Gear		-1 to maximum gear value
Speed	m/s	
Throttle	%	
Brake	%	
Clutch	%	
Steering	%	

Received data



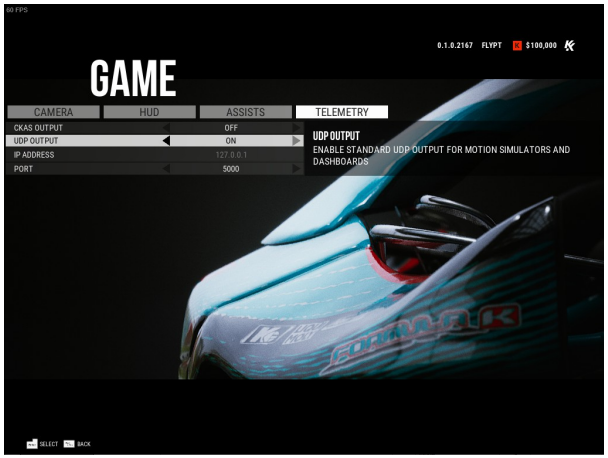
The window

Kart Kraft (UDP)

How it gets data
Source uses UDP data generated by the game to obtain the values.

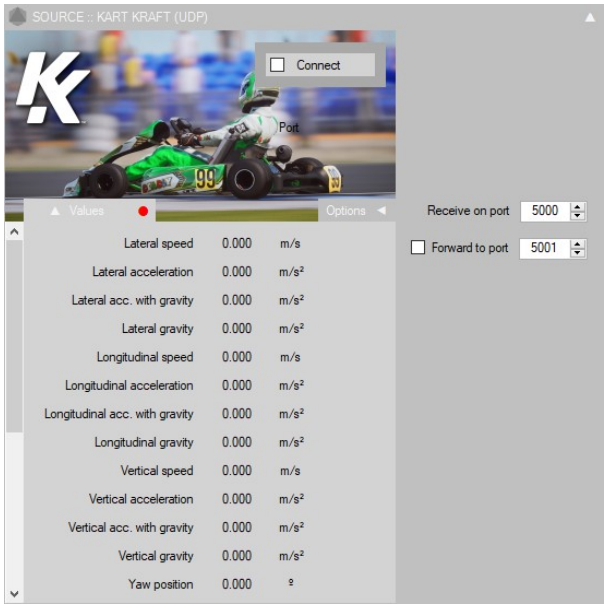
Setup
You need to enable UDP in the game, follow this steps:

1. In the game menu, go to settings.
2. Select game.
3. Click in telemetry.
4. Enable UDP output.
5. You can change the UDP port, but she should match the one used in the Mover source.



Value	Units	Observations
Lateral acceleration	m/s²	
Longitudinal acceleration	m/s²	
Vertical acceleration	m/s²	
Lateral acceleration with gravity	m/s²	
Longitudinal acceleration with gravity	m/s²	
Vertical acceleration with gravity	m/s²	Calculated by Mover
Lateral gravity	m/s²	
Longitudinal gravity	m/s²	
Vertical gravity	m/s²	
Lateral speed	m/s	
Longitudinal speed	m/s	
Vertical speed	m/s	
Yaw speed	º/s	
Roll speed	º/s	
Pitch speed	º/s	
Yaw position	º	
Roll position	º	
Pitch position	º	
RPM		
Gear		-1 to maximum gear value
Speed	m/s	
Throttle	%	
Brake	%	
Clutch	%	
Steering	%	

Received data



The window

LFS (UDP)

How it gets data
Source uses UDP data generated by the game to obtain the values.
There's two data streams, one for motion and another for gauges.

Setup
To use the LFS source, you need to edit a section of your cfg.txt file.
Go to the LFS instalation folder and open the file for edit.
Search for this section and change the values to the following:

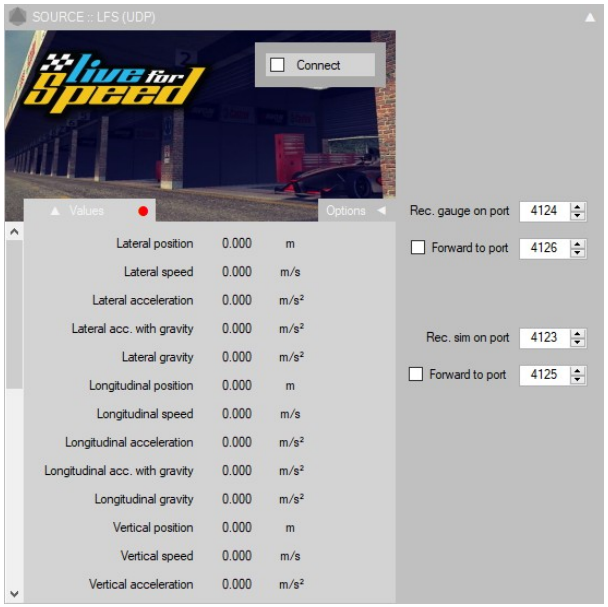
```
OutSim Mode 2
OutSim Delay 1
OutSim IP 127.0.0.1
OutSim Port 4123
OutSim ID 1
OutGauge Mode 2
OutGauge Delay 1
OutGauge IP 127.0.0.1
OutGauge Port 4124
OutGauge ID 1
```

If this section is not present in the file, or the file does not exist, you need to make some laps in LFS before the file is completelly generated and that section is available.
You can change the UDP ports, but they have to match the ones used by the source in Mover.
The shown ports are the default in Mover.

Warning
Soft transitions work, but not on restarts.

Value	Units	Observations
Lateral acceleration	m/s²	
Longitudinal acceleration	m/s²	
Vertical acceleration	m/s²	
Lateral acceleration with gravity	m/s²	
Longitudinal acceleration with gravity	m/s²	
Vertical acceleration with gravity	m/s²	Calculated by Mover
Lateral gravity	m/s²	
Longitudinal gravity	m/s²	
Vertical gravity	m/s²	
Lateral speed	m/s	
Longitudinal speed	m/s	
Vertical speed	m/s	
Lateral position	m	
Longitudinal position	m	World coordinates
Vertical position	m	
Yaw speed	º/s	
Roll speed	º/s	
Pitch speed	º/s	
Yaw position	º	
Roll position	º	
Pitch position	º	
RPM		
Gear		-1 to maximum gear value
Speed	m/s	
Throttle	%	
Brake	%	
Clutch	%	
Steering	%	

Received data



The window

No Limits 2 (TCP)

How it gets data
Source uses TCP data generated by the game to obtain the values.

Setup
Telemetry server needs to be enabled by starting NoLimits2 with command line parameter “--telemetry”
Port can be changed with command line parameter:

“--telemetryport=<port>”.

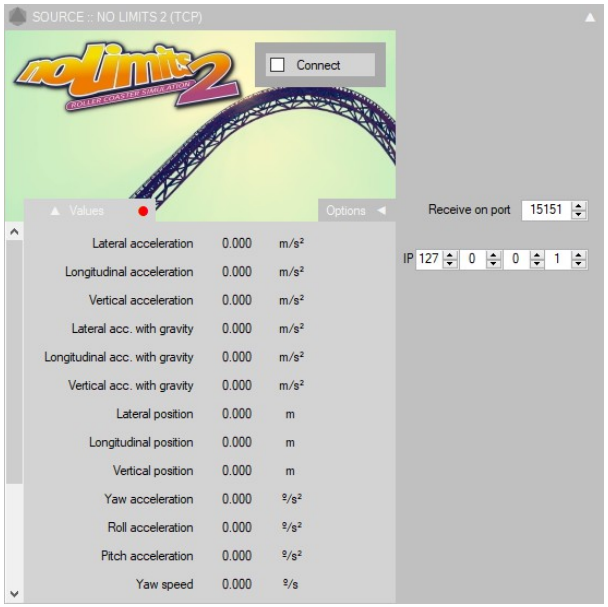
So for starting the server on port 15152, start with commandline:

'"NoLimits2app.exe --telemetry –telemetryport=15152”

Note
Demo has no telemetry.

Value	Units	Observations
Lateral acceleration	m/s^2	Calculated by Mover
Longitudinal acceleration	m/s^2	
Vertical acceleration	m/s^2	
Lateral acceleration with gravity	m/s^2	
Longitudinal acceleration with gravity	m/s^2	
Vertical acceleration with gravity	m/s^2	
Lateral gravity	m/s^2	Calculated by Mover
Longitudinal gravity	m/s^2	
Vertical gravity	m/s^2	
Lateral position	m	World coordinates
Longitudinal position	m	
Vertical position	m	
Yaw acceleration	$º/s^2$	Calculated by Mover
Roll acceleration	$º/s^2$	
Pitch acceleration	$º/s^2$	
Yaw speed	º/s	
Roll speed	º/s	
Pitch speed	º/s	
Yaw position	º	
Roll position	º	
Pitch position	º	
Speed	m/s	

Received data



The window

Project CARS (MMF)

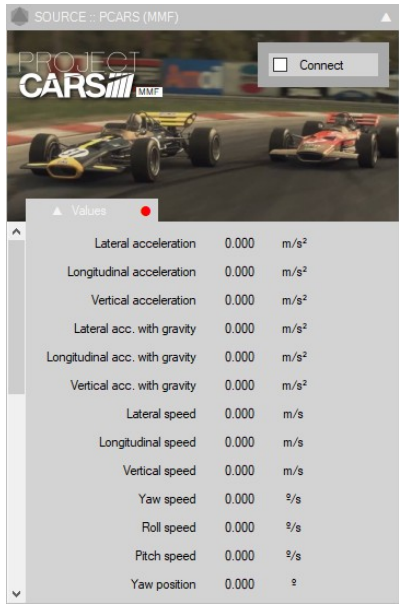
How it gets data
Source uses the memory mapped file generated by the the game to obtain the values.

Setup
You need to enable shared memory in the game options.
Follow this steps:

1. In the menu, go to options & help.
2. Select visuals and press hardware in the top right.
3. Enable use shared memory.

Value	Units	Observations
Lateral acceleration	m/s^2	
Longitudinal acceleration	m/s^2	
Vertical acceleration	m/s^2	
Lateral acceleration with gravity	m/s^2	
Longitudinal acceleration with gravity	m/s^2	Calculated by Mover
Vertical acceleration with gravity	m/s^2	
Yaw speed	º/s	
Roll speed	º/s	
Pitch speed	º/s	
Yaw position	º	
Roll position	º	
Pitch position	º	
Front left suspension position	m	
Front right suspension position	m	
Rear left suspension position	m	
Rear right suspension position	m	
RPM		
Gear		-1 to maximum gear value
Speed	m/s	
Throttle	%	
Brake	%	
Clutch	%	
Steering	%	

Received data



The window

Project CARS 2 and Automobilista 2 (MMF)

Compatibility
Source compatible with both PCARS2 and AMS2.

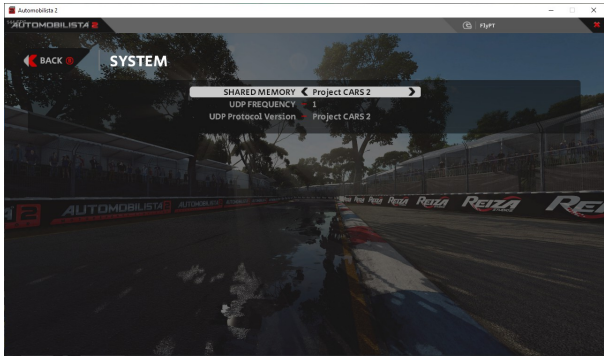
How it gets data
Source uses the memory mapped file generated by the the game to obtain the values.

Setup
You need to enable shared memory in the game options.
Follow this steps for PCARS2:

1. In the menu, go to options.
2. Select system.
3. Enable shared memory with Project CARS 2.

Follow this steps for AMS2:

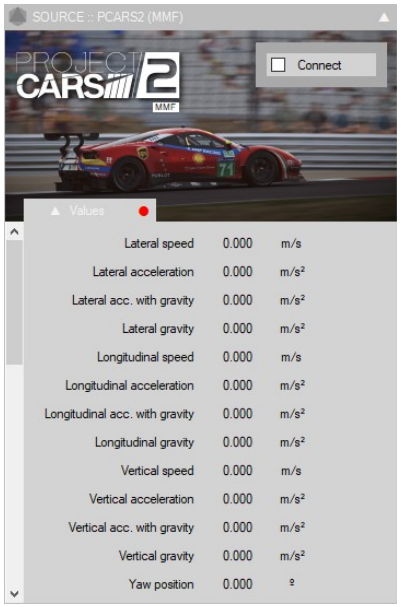
1. In the menu, go to options
2. Select system.
3. Enable shared memory with Project CARS 2.



Note
If using the game on the same PC you have Mover, please use this source instead of the UDP source.

Value	Units	Observations
Lateral acceleration	m/s²	
Longitudinal acceleration	m/s²	
Vertical acceleration	m/s²	
Lateral acceleration with gravity	m/s²	Calculated by Mover
Longitudinal acceleration with gravity	m/s²	
Vertical acceleration with gravity	m/s²	
Lateral gravity	m/s²	
Longitudinal gravity	m/s²	
Vertical gravity	m/s²	
Lateral speed	m/s	
Longitudinal speed	m/s	
Vertical speed	m/s	
Yaw speed	º/s	
Roll speed	º/s	
Pitch speed	º/s	
Yaw position	º	
Roll position	º	
Pitch position	º	
Front left suspension speed	m/s	
Front right suspension speed	m/s	
Rear left suspension speed	m/s	
Rear right suspension speed	m/s	
Front left suspension position	m	
Front right suspension position	m	
Rear left suspension position	m	
Rear right suspension position	m	
Front left suspension surface		Bigger the value, bigger the vibration generated
Front right suspension surface		
Rear left suspension surface		
Rear right suspension surface		
RPM		
Gear		-1 to maximum gear value
Speed	m/s	
Throttle	%	
Brake	%	
Clutch	%	
Steering	%	

Received data



The window

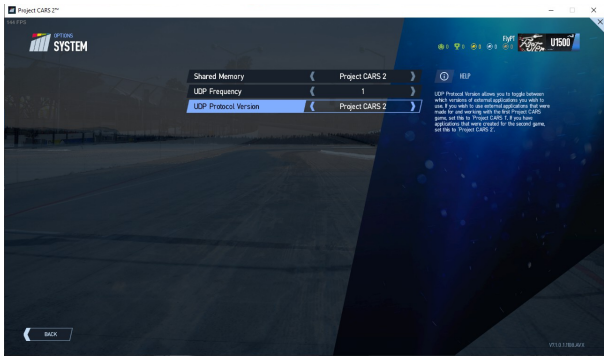
Project CARS 2 and Automobilista 2 (UDP)

Compatibility
Source compatible with both PCARS2 and AMS2.

How it gets data
Source uses UDP data generated by the game to obtain the values.

Setup
You need to enable shared memory in the game options.
Follow this steps for PCARS2:

1. In the menu, go to options & help.
2. Select system.
3. Enable UDP protocol for Project CARS 2.



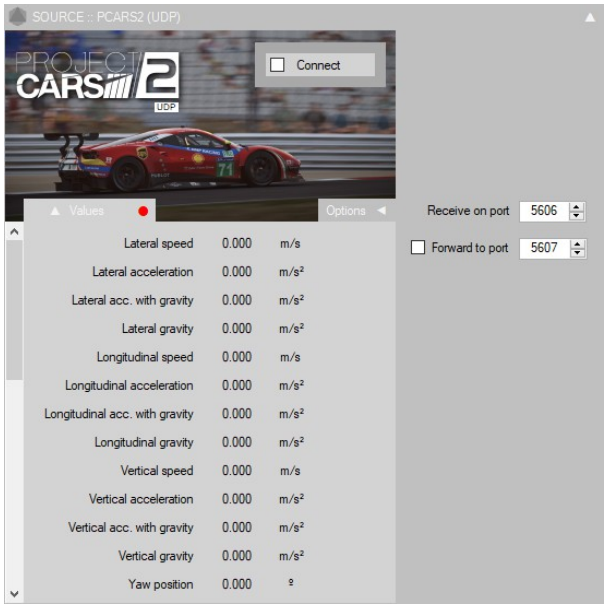
Follow this steps for AMS2:

1. In the menu, go to options
2. Select system.
3. Enable UDP protocol for Project CARS 2.

Note
If using the game on the same PC you have Mover, please use the MMF source instead of this source.

Value	Units	Observations
Lateral acceleration	m/s^2	
Longitudinal acceleration	m/s^2	
Vertical acceleration	m/s^2	
Lateral acceleration with gravity	m/s^2	Calculated by Mover
Longitudinal acceleration with gravity	m/s^2	
Vertical acceleration with gravity	m/s^2	
Lateral gravity	m/s^2	
Longitudinal gravity	m/s^2	
Vertical gravity	m/s^2	
Lateral speed	m/s	
Longitudinal speed	m/s	
Vertical speed	m/s	
Yaw speed	º/s	
Roll speed	º/s	
Pitch speed	º/s	
Yaw position	º	
Roll position	º	
Pitch position	º	
Front left suspension speed	m/s	
Front right suspension speed	m/s	
Rear left suspension speed	m/s	
Rear right suspension speed	m/s	
Front left suspension position	m	
Front right suspension position	m	
Rear left suspension position	m	
Rear right suspension position	m	
Front left suspension surface		Bigger the value, bigger the vibration generated
Front right suspension surface		
Rear left suspension surface		
Rear right suspension surface		
RPM		
Gear		-1 to maximum gear value
Speed	m/s	
Throttle	%	
Brake	%	
Clutch	%	
Steering	%	

Received data



The window

PiBoSo WRS World Racing Series (UDP)

How it gets data
Source uses UDP data generated by the game to obtain the values.

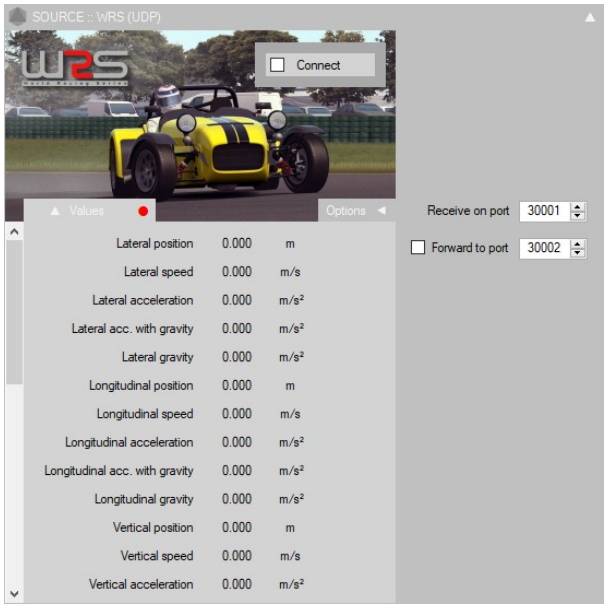
Setup
Go to the instalation folder, and open the file "proxy_udp.ini" inside the wrs folder.
Edit this section to enable udp output:

```
[params]
enable = 1
port = 30000
ip = 127.0.0.1:30001
delay = 1
```

Note
Game should be run as administrator.

Value	Units	Observations
Lateral acceleration	m/s^2	
Longitudinal acceleration	m/s^2	
Vertical acceleration	m/s^2	
Lateral acceleration with gravity	m/s^2	Calculated by Mover
Longitudinal acceleration with gravity	m/s^2	
Vertical acceleration with gravity	m/s^2	
Lateral gravity	m/s^2	
Longitudinal gravity	m/s^2	
Vertical gravity	m/s^2	
Lateral speed	m/s	
Longitudinal speed	m/s	
Vertical speed	m/s	
Lateral position	m	World coordinates
Longitudinal position	m	
Vertical position	m	
Yaw speed	º/s	
Roll speed	º/s	
Pitch speed	º/s	
Yaw position	º	
Roll position	º	
Pitch position	º	
Front left suspension position	m	
Front right suspension position	m	
Rear left suspension position	m	
Rear right suspension position	m	
RPM		
Gear		-1 to maximum gear value
Speed	m/s	
Throttle	%	
Brake	%	
Clutch	%	
Steering	%	

Received data



The window

PiBoSo Kart Racing Pro (UDP)

How it gets data
Source uses UDP data generated by the game to obtain the values.

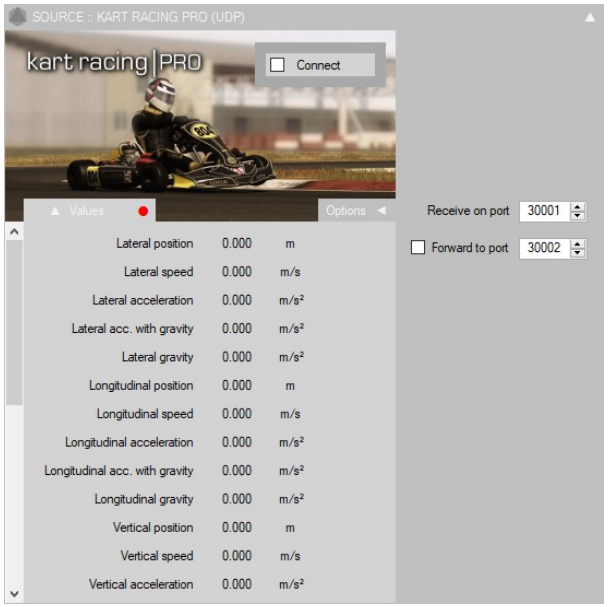
Setup
Go to the instalation folder, and open the file "proxy_udp.ini".
Edit this section to enable udp output:

```
[params]
enable = 1
port = 30000
ip = 127.0.0.1:30001
delay = 1
```

Note
Game should be run as administrator.

Value	Units	Observations
Lateral acceleration	m/s^2	
Longitudinal acceleration	m/s^2	
Vertical acceleration	m/s^2	
Lateral acceleration with gravity	m/s^2	Calculated by Mover
Longitudinal acceleration with gravity	m/s^2	
Vertical acceleration with gravity	m/s^2	
Lateral gravity	m/s^2	
Longitudinal gravity	m/s^2	
Vertical gravity	m/s^2	
Lateral speed	m/s	
Longitudinal speed	m/s	
Vertical speed	m/s	
Yaw speed	º/s	
Roll speed	º/s	
Pitch speed	º/s	
Yaw position	º	
Roll position	º	
Pitch position	º	
RPM		
Gear		-1 to maximum gear value
Speed	m/s	
Throttle	%	
Brake	%	
Clutch	%	
Steering	%	

Received data



The window

PiBoSo GP Bikes (UDP)

How it gets data
Source uses UDP data generated by the game to obtain the values.

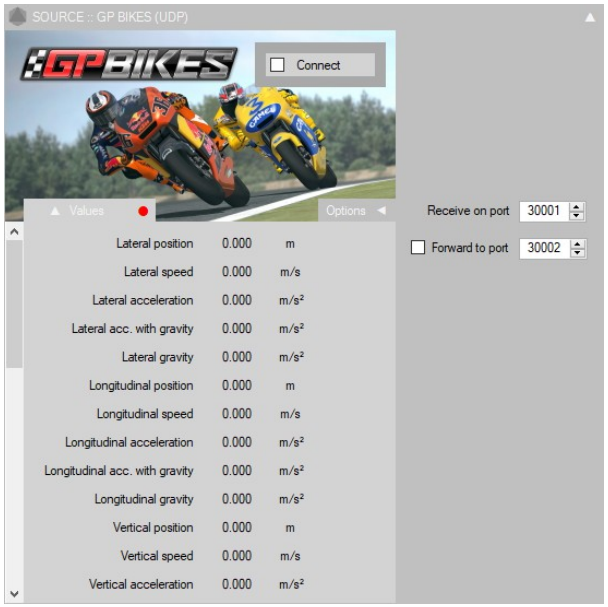
Setup
Go to the instalation folder, and open the file "proxy_udp.ini" inside the gpbikes folder.
Edit this section to enable udp output:

```
[params]
enable = 1
port = 30000
ip = 127.0.0.1:30001
delay = 1
```

Note
Game should be run as administrator.

Value	Units	Observations
Lateral acceleration	m/s²	
Longitudinal acceleration	m/s²	
Vertical acceleration	m/s²	
Lateral acceleration with gravity	m/s²	Calculated by Mover
Longitudinal acceleration with gravity	m/s²	
Vertical acceleration with gravity	m/s²	
Lateral gravity	m/s²	
Longitudinal gravity	m/s²	
Vertical gravity	m/s²	
Lateral speed	m/s	
Longitudinal speed	m/s	
Vertical speed	m/s	
Lateral position	m	World coordinates
Longitudinal position	m	
Vertical position	m	
Yaw speed	º/s	
Roll speed	º/s	
Pitch speed	º/s	
Yaw position	º	
Roll position	º	
Pitch position	º	
Front left suspension speed	m/s	Same value
Front right suspension speed	m/s	
Rear left suspension speed	m/s	Same value
Rear right suspension speed	m/s	
Front left suspension position	m	Same value
Front right suspension position	m	
Rear left suspension position	m	Same value
Rear right suspension position	m	
RPM		
Gear		-1 to maximum gear value
Speed	m/s	
Throttle	%	
Brake	%	
Clutch	%	
Steering	%	

Received data



The window

PiBoSo MX Bikes (UDP)

How it gets data
Source uses UDP data generated by the game to obtain the values.

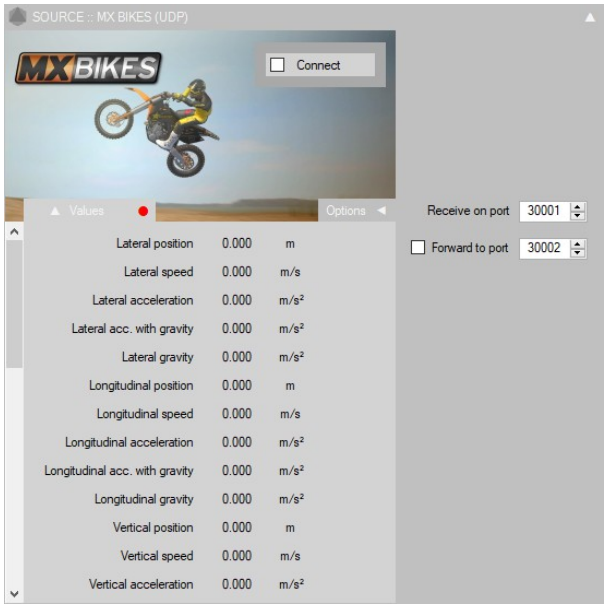
Setup
Go to the instalation folder, and open the file "proxy_udp.ini".
Edit this section to enable udp output:

```
[params]
enable = 1
port = 30000
ip = 127.0.0.1:30001
delay = 1
```

Note
Game should be run as administrator.

Value	Units	Observations
Lateral acceleration	m/s²	
Longitudinal acceleration	m/s²	
Vertical acceleration	m/s²	
Lateral acceleration with gravity	m/s²	Calculated by Mover
Longitudinal acceleration with gravity	m/s²	
Vertical acceleration with gravity	m/s²	
Lateral gravity	m/s²	
Longitudinal gravity	m/s²	
Vertical gravity	m/s²	
Lateral speed	m/s	
Longitudinal speed	m/s	
Vertical speed	m/s	
Lateral position	m	World coordinates
Longitudinal position	m	
Vertical position	m	
Yaw speed	º/s	
Roll speed	º/s	
Pitch speed	º/s	
Yaw position	º	
Roll position	º	
Pitch position	º	
Front left suspension speed	m/s	Same value
Front right suspension speed	m/s	
Rear left suspension speed	m/s	Same value
Rear right suspension speed	m/s	
Front left suspension position	m	Same value
Front right suspension position	m	
Rear left suspension position	m	Same value
Rear right suspension position	m	
RPM		
Gear		-1 to maximum gear value
Speed	m/s	
Throttle	%	
Brake	%	
Clutch	%	
Steering	%	

Received data



The window

Prepar3D (MMF+DLL)

How it gets data
Source uses the memory mapped file generated by the dll plugin to obtain the values.

Setup
You need to install the Microsoft VC++ Redist for 64 bits. Download the file “vc_redist.x64.exe” here:

https://support.microsoft.com/en-us/help/2977003/the-latest-supported-visual-c-downloads

Install the P3D SDK. Download from the P3D website:

https://www.prepar3d.com/purchased_downloads/

Copy the DLL file to: "C:\Users\YOUR USERNAME\Documents\Prepar3D v4 Add-ons".

Edit or create the “dll.xml” file in the folder "C:\Users\YOUR USERNAME\AppData\Roaming\Lockheed Martin\Prepar3D v4".

If the file does not exist create with:

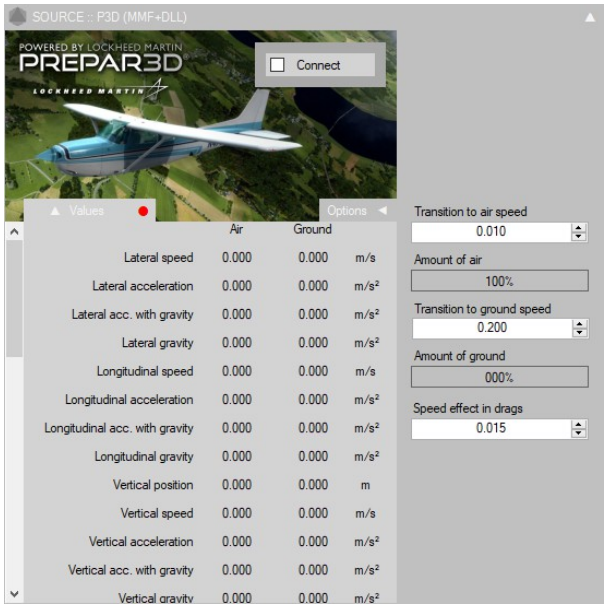
```
<?xml version="1.0" encoding="Windows-1252"?>
<SimBase.Document Type="Launch" version="1,0">
  <Descr>Launch</Descr>
  <Filename>dll.xml</Filename>
  <Disabled>False</Disabled>
  <Launch.ManualLoad>False</Launch.ManualLoad>
  <Launch.Addon>
    <Name>FlyPT Mover</Name>
    <Disabled>False</Disabled>
    <ManualLoad>False</ManualLoad>
    <Path>C:\Users\YOUR USERNAME\Documents\Prepar3D
v4 Add-ons\FlyPT_P3D_DLL.dll</Path>
  </Launch.Addon>
</SimBase.Document>
```

If the file exists, just add this next to other addons:

```
  <Launch.Addon>
    <Name>FlyPT Mover</Name>
    <Disabled>False</Disabled>
    <ManualLoad>False</ManualLoad>
    <Path>C:\Users\YOUR USERNAME\Documents\Prepar3D
v4 Add-ons\FlyPT_P3D_DLL.dll</Path>
  </Launch.Addon>
```

Value	Units	Observations
Lateral acceleration	m/s²	Calculated by Mover
Longitudinal acceleration	m/s²	
Vertical acceleration	m/s²	
Lateral acceleration with gravity	m/s²	
Longitudinal acceleration with gravity	m/s²	
Vertical acceleration with gravity	m/s²	
Lateral gravity	m/s²	
Longitudinal gravity	m/s²	
Vertical gravity	m/s²	
Lateral speed	m/s	
Longitudinal speed	m/s	
Vertical speed	m/s	
Vertical position	m	World coordinates
Yaw acceleration	º/s²	Calculated by Mover
Roll acceleration	º/s²	
Pitch acceleration	º/s²	
Yaw speed	º/s	
Roll speed	º/s	
Pitch speed	º/s	
Yaw position	º	
Roll position	º	
Pitch position	º	
Front left suspension surface		Bigger the value, bigger the vibration generated
Front right suspension surface		
Rear left suspension surface		
Rear right suspension surface		
RPM		
Speed	m/s	
Stall	%	
Flaps	%	
Landing gear	%	
Canopy		
Wind	M/s	Calculated by Mover

Received data



The window

Race 07 and all derivates (MMF)

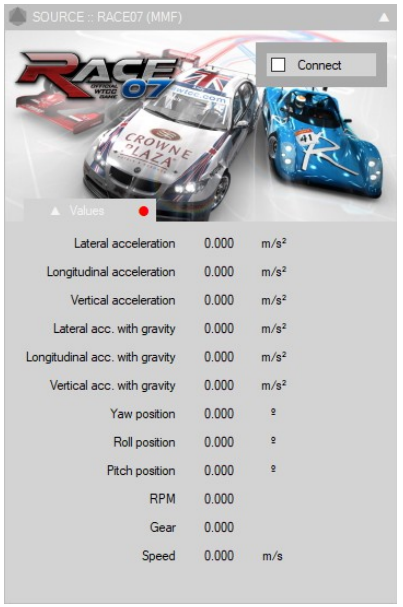
Compatibility
Source compatible with all Race07 extensions and derivates.

How it gets data
Source uses the memory mapped file generated by the the game to obtain the values.

Setup
None.

Value	Units	Observations
Lateral acceleration	m/s^2	
Longitudinal acceleration	m/s^2	
Vertical acceleration	m/s^2	
Lateral acceleration with gravity	m/s^2	
Longitudinal acceleration with gravity	m/s^2	Calculated by Mover
Vertical acceleration with gravity	m/s^2	
Yaw position	º	
Roll position	º	
Pitch position	º	
RPM		
Gear		-1 to maximum gear value
Speed	m/s	

Received data



The window

RaceRoom (MMF)

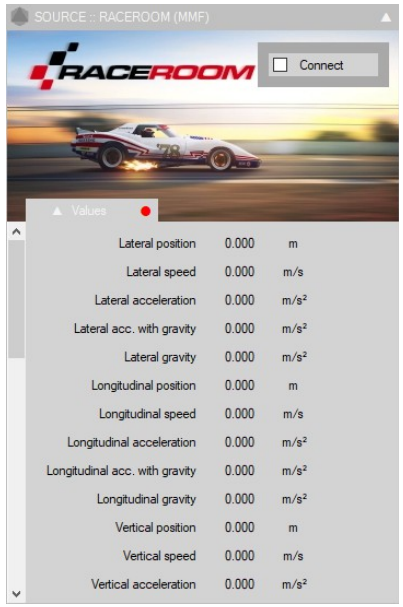
Compatibility
Source compatible with all Race07 extensions and derivates.

How it gets data
Source uses the memory mapped file generated by the the game to obtain the values.

Setup
None.

Value	Units	Observations
Lateral acceleration	m/s^2	
Longitudinal acceleration	m/s^2	
Vertical acceleration	m/s^2	
Lateral acceleration with gravity	m/s^2	
Longitudinal acceleration with gravity	m/s^2	
Vertical acceleration with gravity	m/s^2	Calculated by Mover
Lateral gravity	m/s^2	
Longitudinal gravity	m/s^2	
Vertical gravity	m/s^2	
Lateral speed	m/s	
Longitudinal speed	m/s	
Vertical speed	m/s	
Lateral position	m	
Longitudinal position	m	World coordinates
Vertical position	m	
Yaw acceleration	$º/s^2$	
Roll acceleration	$º/s^2$	
Pitch acceleration	$º/s^2$	
Yaw speed	º/s	
Roll speed	º/s	
Pitch speed	º/s	
Yaw position	º	
Roll position	º	
Pitch position	º	
Front left suspension speed	m/s	
Front right suspension speed	m/s	
Rear left suspension speed	m/s	
Rear right suspension speed	m/s	
Front left suspension position	m	
Front right suspension position	m	
Rear left suspension position	m	
Rear right suspension position	m	
RPM		
Gear		-1 to maximum gear value
Speed	m/s	
Throttle	%	
Brake	%	
Clutch	%	
Steering	%	

Received data



The window

rFactor and derivates like Automobilista (MMF+DLL)

Compatibility
Source compatible with all rFactor derivates like:

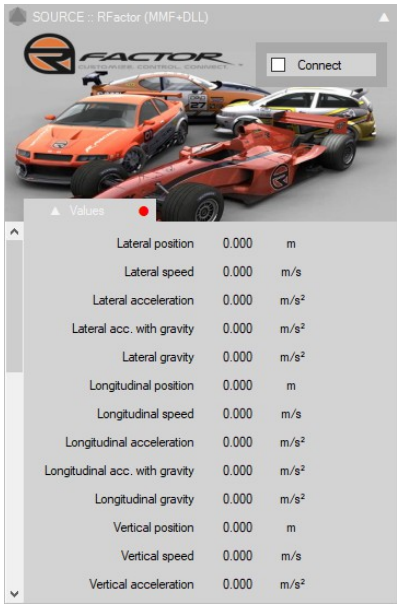
Automobilista
Stock Car Extreme
Formula Truck 2013
ARCA Sim Racing
...

How it gets data
Source uses the memory mapped file generated by the dll plugin.

Setup
Get the file "FlyPT_RFactor_MMF.dll" included in the folder “Sources files” of the Mover download and copy it to the folder: "..\Plugins" of the game instalation folder.

Value	Units	Observations
Lateral acceleration	m/s^2	
Longitudinal acceleration	m/s^2	
Vertical acceleration	m/s^2	
Lateral acceleration with gravity	m/s^2	
Longitudinal acceleration with gravity	m/s^2	
Vertical acceleration with gravity	m/s^2	Calculated by Mover
Lateral gravity	m/s^2	
Longitudinal gravity	m/s^2	
Vertical gravity	m/s^2	
Lateral speed	m/s	
Longitudinal speed	m/s	
Vertical speed	m/s	
Lateral position	m	
Longitudinal position	m	World coordinates
Vertical position	m	
Yaw acceleration	$º/s^2$	
Roll acceleration	$º/s^2$	
Pitch acceleration	$º/s^2$	
Yaw speed	º/s	
Roll speed	º/s	
Pitch speed	º/s	
Yaw position	º	
Roll position	º	
Pitch position	º	
Front left suspension position	m	
Front right suspension position	m	
Rear left suspension position	m	
Rear right suspension position	m	
RPM		
Gear		-1 to maximum gear value
Speed	m/s	
Throttle	%	
Brake	%	
Clutch	%	
Steering	%	

Received data



The window

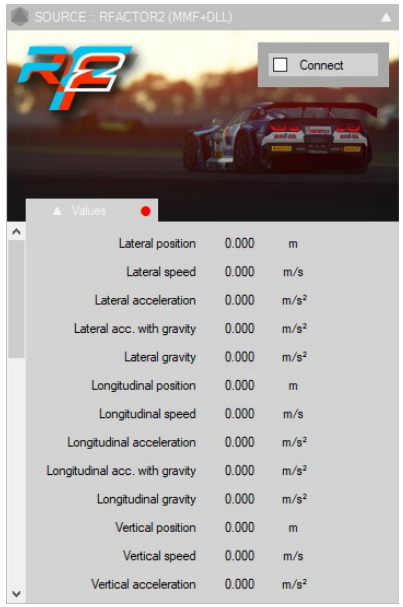
rFactor2 (MMF+DLL)

How it gets data
Source uses the memory mapped file generated by the dll plugin.

Setup
Get the file "FlyPT_RFactor2_MMF.dll" included in the folder “Sources files” of the Mover download and copy it to the folder "..\rFactor 2\Bin64\Plugins".

Value	Units	Observations
Lateral acceleration	m/s²	
Longitudinal acceleration	m/s²	
Vertical acceleration	m/s²	
Lateral acceleration with gravity	m/s²	Calculated by Mover
Longitudinal acceleration with gravity	m/s²	
Vertical acceleration with gravity	m/s²	
Lateral gravity	m/s²	
Longitudinal gravity	m/s²	
Vertical gravity	m/s²	
Lateral speed	m/s	
Longitudinal speed	m/s	
Vertical speed	m/s	
Lateral position	m	World coordinates
Longitudinal position	m	
Vertical position	m	
Yaw acceleration	º/s²	
Roll acceleration	º/s²	
Pitch acceleration	º/s²	
Yaw speed	º/s	
Roll speed	º/s	
Pitch speed	º/s	
Yaw position	º	
Roll position	º	
Pitch position	º	
Front left suspension position	m	
Front right suspension position	m	
Rear left suspension position	m	
Rear right suspension position	m	
Front left suspension surface		Bigger the value, bigger the vibration generated
Front right suspension surface		
Rear left suspension surface		
Rear right suspension surface		
RPM		
Gear		-1 to maximum gear value
Speed	m/s	
Throttle	%	
Brake	%	
Clutch	%	
Steering	%	

Received data



The window

XPlane11 (UDP)

How it gets data
Source uses UDP data generated by the game to obtain the values.
It get's two streams, one for air and another for ground, generating two sources.

Setup
To setup Xplane11, go to the data output separator in the options menu and check the following items in the right column (Network via UDP):

3 Speeds
13 Trim, flap, stats, & speedbrakes
14 Gear & brakes
36 Engine torque
17 Pitch, roll, & headings
37 Engine RPM
63 Payload weights & center of gravity (CG)
66 Landing gear vertical force
127 Warning status
135 Motion platform stats

Check Send network data output and put 4123 in the port and 127.0.0.1 in the IP.

Transition to air speed
How fast we do the transition from ground to air.
Low number, it's slow, high number fast.
The number is how much we add to the percent in each calculation loop, being 1 equivalent to 100%. If we use 1, the change is instantaneous.

Transition to ground speed
How fast is made the transition to ground.

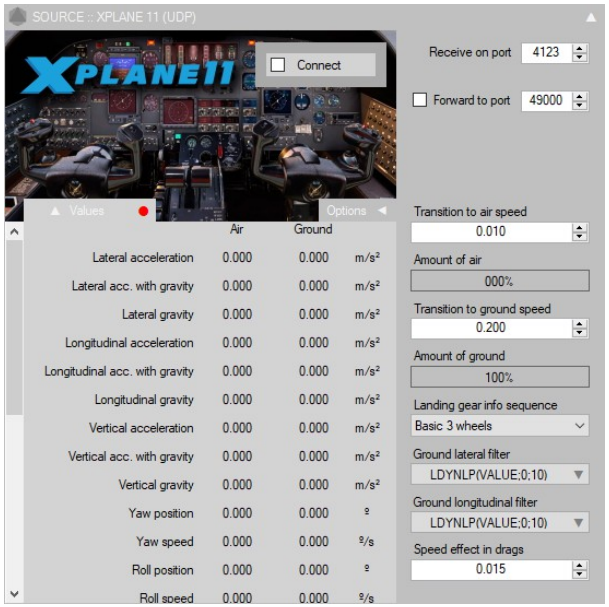
Landing gear info sequence
It's the type of landing gear of the aircraft.
It defines how the suspension is calculated and how that data reaches the pose from suspension module.

Ground filters
This filter is here to remove spikes that happen on longitudinal and lateral accelerations, when we are on the ground and brake at low speeds.
The idea is to remove those spikes, that seem to be a bug in Xplane11.
When solved, they will be useless.

Speed effect in drags
Drag is produced by the landing gear deployed, the flaps or the speed brakes.
Those drags produce vibration, but the amount of vibration also depends on the aircracft speed. So:

Vibration = Factor x Speed x Effect

Where Effect is how much is deployed the landing gear, flaps or speed brakes and Factor the value specified in the field.



The window

Value	Units	Observations
Lateral acceleration	m/s²	Calculated by Mover
Longitudinal acceleration	m/s²	
Vertical acceleration	m/s²	
Lateral acceleration with gravity	m/s²	
Longitudinal acceleration with gravity	m/s²	
Vertical acceleration with gravity	m/s²	
Lateral gravity	m/s²	Calculated by Mover
Longitudinal gravity	m/s²	
Vertical gravity	m/s²	
Yaw speed	º/s	
Roll speed	º/s	
Pitch speed	º/s	
Yaw position	º	

Value	Units	Observations
Roll position	º	
Pitch position	º	
Front left suspension acceleration	m/s²	
Front right suspension acceleration	m/s²	
Rear left suspension acceleration	m/s²	
Rear right suspension acceleration	m/s²	
Emgine torque		
RPM		
Speed	m/s	
Stall	%	
Flaps	%	
Landing gear	%	
Speed brakes	%	

SimTools2 (MMF+DLL)

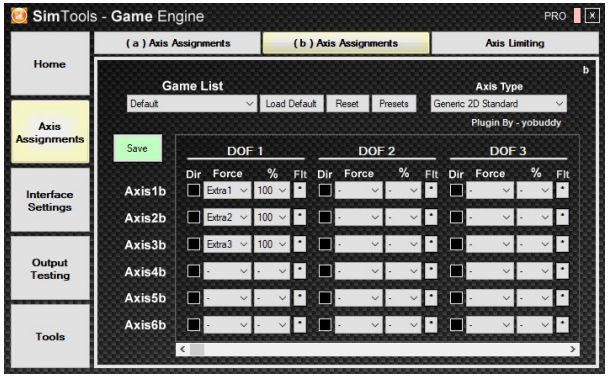
About
Mover doesn't need SimTools to work, but can use data collected by SimTools from games not included in the Mover sources.

How it gets data
Source uses the memory mapped file generated by the dll plugin installed in SimTools.

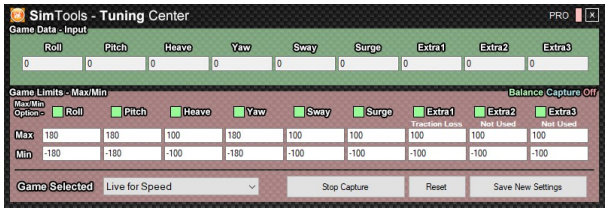
Setup
Get the file "FlyPT_SimTools_to_Mover_InterfacePlugin.dll" included in the folder “Sources files” of the Mover download and drop it in the SimTools plugin installer.

How to use it
You can now select as output interface, the FlyPT_SimTools_to_Mover:

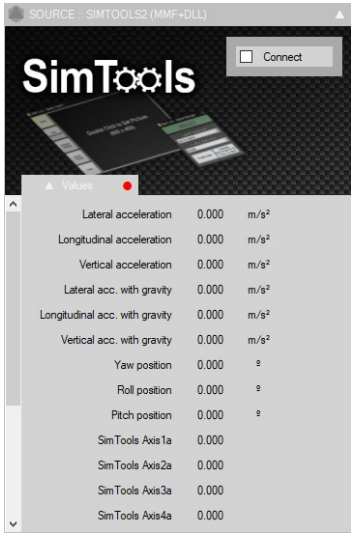
In axis assignments, I recommend to start with:



This is pure axis data. If you want to, you can perform mixing in SimTools.
To ensure we receive the pure values from the game, I also recomend the use of high ranges in the tuning center. Use the following by default (you can also change it):



All cropping can be done in Mover.



The window

Value	Units	Observations
Lateral acceleration	m/s²	Axis1a in range -100 to +100
Longitudinal acceleration	m/s²	Axis2a in range -100 to +100
Vertical acceleration	m/s²	Axis3a in range -100 to +100
Yaw position	º	Axis4a in range -180 to +180
Roll position	º	Axis5a in range -180 to +180
Pitch position	º	Axis6a in range -180 to +180
Lateral acceleration with gravity	m/s²	
Longitudinal acceleration with gravity	m/s²	Calculated by Mover
Vertical acceleration with gravity	m/s²	
SimTools Axis1a		
SimTools Axis2a		
SimTools Axis3a		
SimTools Axis4a		
SimTools Axis5a		
SimTools Axis6a		Contains the values defined in the mix of SimTools axis assignments, in a range between -10 and +10.
SimTools Axis1b		
SimTools Axis2b		
SimTools Axis3b		
SimTools Axis4b		
SimTools Axis5b		
SimTools Axis6b		

Received data

Phyphox (TCP)

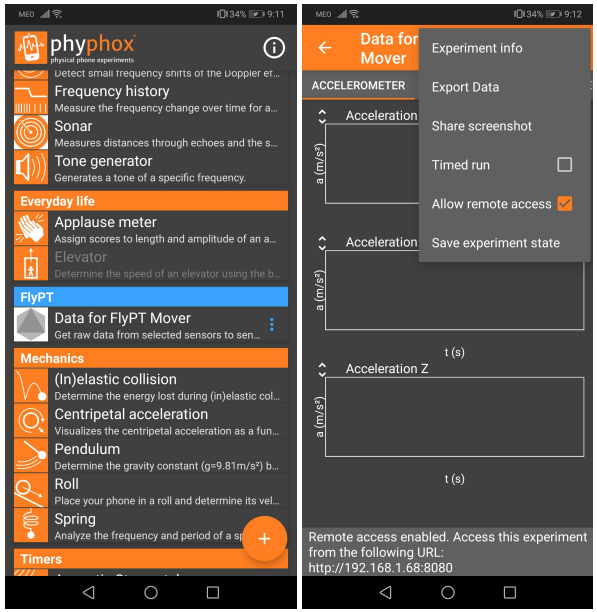
bout
Phyphox is a free celular application that captures data from the phone sensor and can export it through TCP.
With this source, you can receive live data from the phone.
Exists for Android and IOS.
To play phyphox files, use the player source.

How it gets data
Source uses TCP data sent by phyphox.

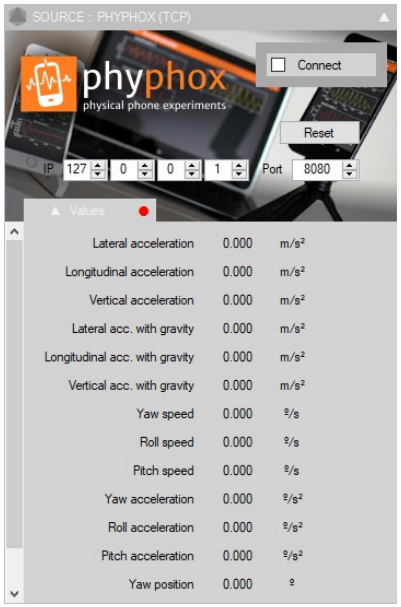
Setup
Install the app in the phone.
Scan the QR code to load the experiment:

Now open the experiment, and click in the 3 dots.
Allow remote access.
Put the ocal IP nd port shown in the phone and put them in the source window.
Press play to start data capture.

Note
Some phones have limited sensors, don't expect it to work on all phones.



Phone captures, showing in the right, the local IP and port.



The window

Value	Units	Observations
Lateral acceleration	m/s^2	
Longitudinal acceleration	m/s^2	
Vertical acceleration	m/s^2	
Lateral acceleration with gravity	m/s^2	
Longitudinal acceleration with gravity	m/s^2	
Vertical acceleration with gravity	m/s^2	
Yaw acceleration	$°/s^2$	
Roll acceleration	$°/s^2$	Calculated by Mover
Pitch acceleration	$°/s^2$	
Yaw speed	°/s	
Roll speed	°/s	
Pitch speed	°/s	
Yaw position	°	
Roll position	°	Calculated by Mover
Pitch position	°	

Received data

Loop source

The loop source is a source calculated by Mover.
It's used for tests and allows the user to create a wave and generate values from that wave.

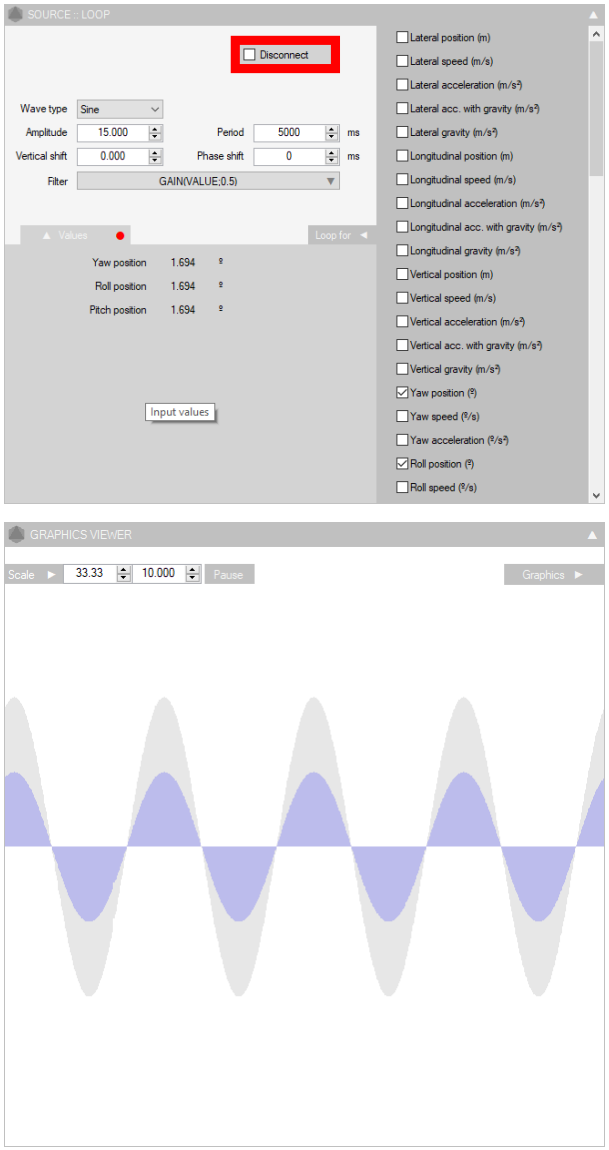
The wave is defined on the fields. You can select the type of wave and adjust the amplitude and veritcal shift of the wave.

You can add the amount of loop modules you want. All of them use the same clock to keep them synchronized. So when you adjust the period and phase shift, you do it relative to the same clock. This allows you to define some interesting movements on the rig, by using more than one loop module.

Because of the sync, you should be carefull changing those values, since they can generate sudden moves on the wave and if you have the rig connected, it might produce a violent move of the rig.

On the right column, select the values feeded by the wave.
By default, rotation positions are selected.
You can select the values you want without limits, but all of them get the same value.

There's a filter field where you can apply a filter to the generated wave and modify it's result.
Here you have a good place to test the effect of the filters on a signal



The loop source and the resulting sinusoid (colored=filtered)

Noise source

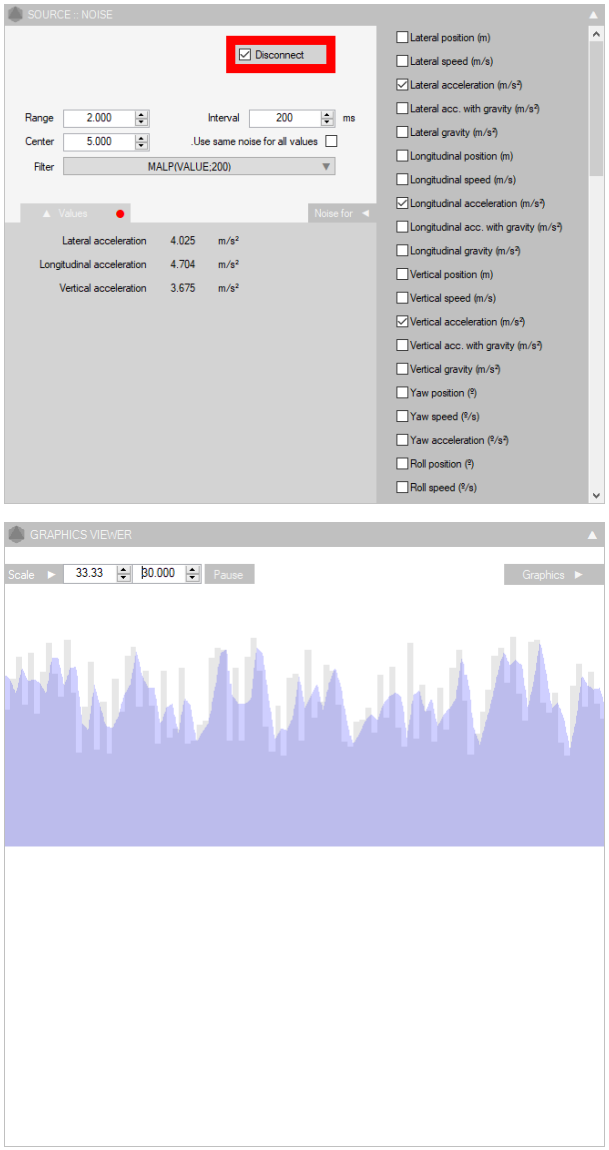
The noise source is also calculated by Mover.
It allows the user to create random noise.

The noise is defined on the fields. You can select the maximum range of the generated value, it's center (value around which we generate the random value) and the interval/frequency we update the value.

You can add the amount of noise modules you want.

On the right column, select the values feeded by the noise.
By default, translational accelerations are selected.

The noise generated can be equal or different to all the selected values depending on the check box selection (use same noise for all sources).



The noise source and the resulting sinusoid (colored=filtered)

Joystick source

The joystick source, allows you to map a joystick control to one of the values.
You can add the amount of joystick sources you want.

Press the withe field next to the value (it becomes yellow) and press the control you want to assign.

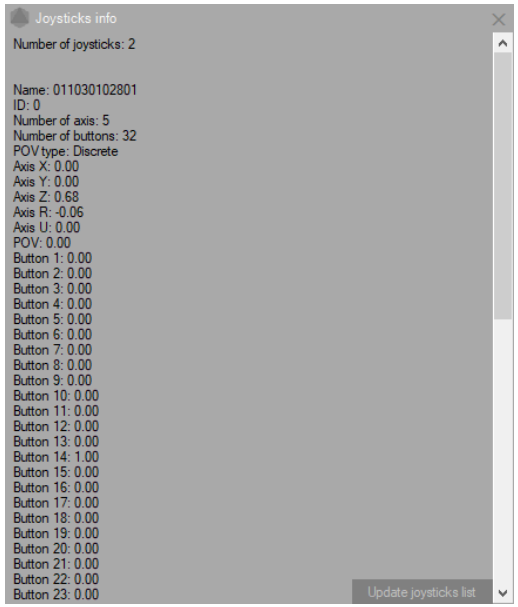
If the selected joystick is not connected, you get a warning (red square) next to it.

For buttons, values are 0 or 1.
For axes, values are between -1 and 1.
And for POV, values are between 0 and 360.
POV holds the last value when going back to center and is initialized with zero.

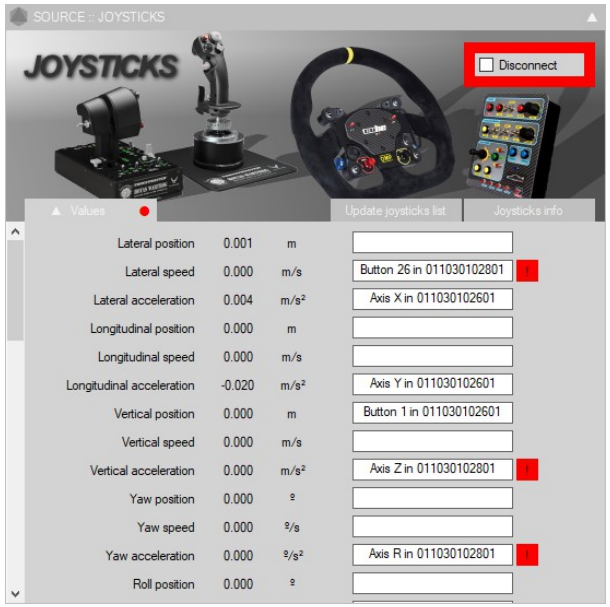
Values can be remapped and filtered in the modules where you use them.

If you connect or disconnect the joystick after opening Mover, you can press the update joystick list button to refresh the info.

You can also check what is detected by opening the joystick info window.



The joystick info window

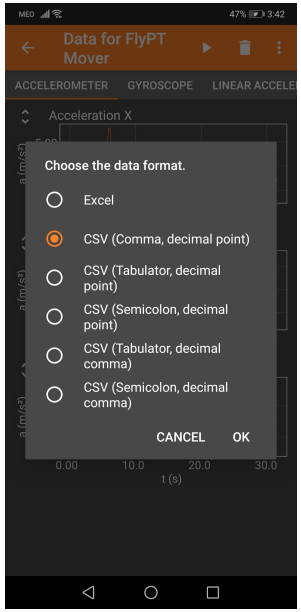


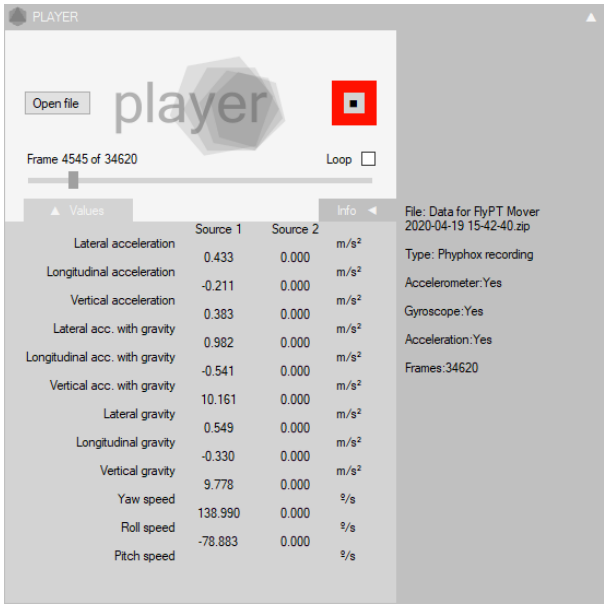
The joystick source

Player source

Here, you can play the recorded files or the Phyphox generated files.

Phyphox files should be exported from the phone applications in the CSV (Comma, decimal point):





The player source with a file open (PhyPhox recording)

The player source with a file open (P3D recording with 2 values columns)

List of known compatible games/programs
If you know of others, please report.

Game/Program	Page	From	Type	MMF	UDP	TCP	HOOK	Observations
ARCA Sim Racing	31	The Sim Factory	Cars	x				Use RFactor source
Assetto Corsa	5	Kunos	Cars	x				
Assetto Corsa Competizioni	5	Kunos	Cars	x				
Automobilista	31	Reiza	Cars	x				Use RFactor source
BeamNG.drive	6	BeamNG	Cars		x			Needs setup in the game
Copa Petrobras de Marcas	31	Reiza	Cars	x				Use RFactor source
DCS	7	Eagle Dynamics	Aircrafts		x			Needs LUA script
DiRT 3	8	Codemasters	Cars		x			Use DiRT Rally source
DiRT Rally	8	Codemasters	Cars		x			Needs script edition
DiRT Rally 2	9	Codemasters	Cars		x			Needs script edition
F1 2019	11	Codemasters	Cars		x			
Formula Truck Extreme	31	Reiza	Cars	x				Use RFactor source
iRacing	17	iRacing	Cars	x				
KartKraft	18	Black Delta	Cars		x			Needs setup in the game
LFS	19	LFS	Cars		x			Needs script edition
NoLimits2	20	Ole Lange	Rollercoaster			x		Only for full game
Project CARS	21	SMS	Cars	x				Needs setup in the game
Project CARS 2	22 and 23	SMS	Cars	x	x			Needs setup in the game
PhyPhox	35	RWTH AACHEN University	Physics with phones			x		Problems with iPhones
Race07	29	SimBin	Cars	x				
GTR2	15	SimBin	Cars	x				
GTLegends	13	SimBin	Cars	x				
RaceRoom	30	Sector3	Cars	x				
RFactor	31	ISI	Cars	x				Needs DLL
RFactor 2	32	ISI	Cars	x				Needs DLL
Stock Car Extreme	31	Reiza	Cars	x				Use RFactor source
SimTools2	34			x				Requires setup and DLL
XPlane11	33	Laminar Research	Aircrafts		x			Needs setup in the game
IL-2 Sturmovik	16	Oleg Maddox	Aircrafts		x			Requires setup
Microsoft Flight Simulator X	12	Microsoft	Aircrafts	x				Requires setup and DLL
Prepar3D	28		Aircrafts	x				Requires setup and DLL
World Racing Series	24	PiBoSo	Cars		x			Needs script edition
Kart Racing Pro	25	PiBoSo	Cars		x			Needs script edition
GP Bikes	26	PiBoSo	Motos		x			Needs script edition
MX Bikes	27	PiBoSo	Motos		x			Needs script edition
GTA5	14	Rockstar					x	
European Truck Simulator 2	10	SCS Software	Trucks	x				Needs DLL
American Truck Simulator	10	SCS Software	Trucks	x				Needs DLL