

RC Quadcopter Racing Simulator

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Freerider on Itch and Steam:

https://fpv-freerider.itch.io/fpv-freerider

https://fpv-freerider.itch.io/fpv-freerider-recharged

https://store.steampowered.com/app/854250/FPV_Freerider/

https://store.steampowered.com/app/813530/FPV_Freerider_Recharged/

Freerider for Android on the Google Play Store:

https://play.google.com/store/apps/details?id=com.Freeride.Freerider

https://play.google.com/store/apps/details?id=com.Freeride.FreeriderRecharged

Features:

FPV/LOS view
Self-Leveling/Acro mode
Also features 3D flight mode (negative thrust/inverted flight)
Touch screen/Keyboard/USB Controller input
USB Controllers can be configured for mode 1 – 4 during calibration
Ability to adjust settings for rates, camera and physics

Default control setting is mode 2:
Left stick – Throttle, Yaw
Right stick – Pitch, Roll

Keyboard shortcuts:

C (or space)	- Toggle camera (FPV/LOS)
L	- Toggle self-leveling/acro/3D mode
U,I,O	- Quick select flight mode (self-leveling/acro/3D)
R	- Reset quad to starting position
T	- Timed race
P	- Pause
V	. Temporarily hide the on-screen buttons when flying.
esc	- Exit to menu
Alt + Enter	- Toggle full screen/windowed mode (not applicable to all operating systems)

(If selecting Keyboard as input you can fly with arrow keys plus WASD. Keyboard control is absolutely not recommended, it is really just for testing purposes only).

It is highly recommended to use a USB controller.
Most USB controllers should work* if you have the correct cable/dongle/interface, although it might take some setting up. Generally – if your controller can be recognized as a joystick on your device, chances are you can use it to control FPV Freerider.
In order to use USB controllers on Android, your device needs to support USB OTG, and you will need the appropriate USB OTG adapter.
Please try the free version first to see if it works with your controller.

* Controllers that have been successfully used include FrSKY Taranis, Spektrum, Devo, Turnigy, Flysky, Jumper, Radiomaster, Eachine, Detrum, Graupner and Futaba RC radios, Realflight and Esky USB Controllers, Xbox, Playstation and Logitech gamepads.

(Known incompatibilities:
The HobbyKing 6ch flight simulator USB dummy transmitter controller is known to not be compatible with the sim.
The Betafpv Literadios does not support joystick emulation on Android, however it seems to work in Windows)

See the FAQ/Trouble shooting tips for more info on how to set up your radio.

Controller Setup

After you have made sure that your controller is recognized in your operation system, select “Calibrate Controller” on the main menu screen of FPV Freerider.
Follow the on-screen instructions.

All other sticks other than the one currently being calibrated should be centered. That includes the throttle stick! It should be centered, not at the bottom.
To make sure everything is working as it should you can keep an eye on the circles just above the OK button. Ideally, all the circles will be in a straight line when no input is given. You should be able to move some of the circles smoothly up and down using your controller sticks.
Make sure you hold the stick that is currently to be calibrated all the way in the direction shown while clicking OK. The circle corresponding to the stick that is detected will change to display an abbreviation of the stick name (yaw,throttle,roll,pitch).

Note: Default is Mode 2. During the calibrate controller procedure you have the opportunity to configure for different modes by using another stick than the one shown in the picture. Keep an eye on the top of the screen - when it says, for example “Yaw Left”, you use the stick you want to assign for yaw movement).

If you have several input devices (such as other joysticks, pedals or steering wheels) connected, that may cause a conflict with the input manager. If you're having trouble calibrating your controller, make sure all other input devices other than the one you intend to use are disconnected.

Sometimes the automatic stick detection gets it wrong.
If needed, it is possible to manually override the automatic stick detection -
Keep an eye on the little circles above the OK button. Instead of clicking OK you can click on the circle that you see is the correct one for each channel. You will still need to keep the stick all the way in the direction shown while clicking in order for the calibration to work correctly.

(The movement of the little circles on the calibration screen shows exactly what can be read through the input manager. If all the circles are not lined up straight, or you are not able to move some of them smoothly both up and down you need to calibrate your controller in your operating system or alter some settings on the controller itself (such as trim, midpoint or range settings). Most controllers will work fine with a bit of setting up, but there is no guarantee that your particular controller will work with your particular system. Try the free version first to see).

After calibration, you will be taken to a test screen where you can try the stick input. When sticks are centered, the circles should be in the middle. When stick input is given, ideally you will be able to move the circles smoothly all the way out to the corners of the grid. Here you have the opportunity to manually add digital trim.

If you are using a RC controller you will probably want to select “Throttle zero at bottom” and “Dead zone off” on the main menu.

There is more info on setting up your controller in the FAQ section of this manual.

Graphics Settings

Use the selector on the left of the main menu to set graphics quality. The recommended setting is “Highest”. If you are getting low framerate you might want to select one of the lower quality settings. Running the simulator at lower resolution also helps the framerate a lot.

If you wish to run the game at a different resolution in Windows you can add command line parameters to the .EXE file. (Command line paramenters will work on MacOS and Linux too).

For example:

-screen-fullscreen 0 -screen-width 1280 -screen-height 720

This will run the game in a 1280x720 pixels window.

On Android you have the option to select between high and low resolution via the button on the main menu.

Tip: On Windows it is possible to pass:

-window-mode=exclusive

...in order to override the default fullscreen setting and achieve adaptive sync. On some hardware that might give smoother screen update and better performance.

Custom Settings

In the full version there is a Custom Settings screen where you can adjust settings for rates, camera and physics.
There are also a few presets that you can select (Sluggish, Snappy, Snappy2 and Snappy3)
If you aren't sure what the settings does the recommendation is to simply use the presets.
You can save your own custom presets in the slots A and B.

It is possible tune the expo curve in the custom settings. The expo will be added to yaw,pitch and roll.
Throttle is linear.

A brief explanation of the physics settings:
Mass is the weight of the quad - a high mass value will make the quad feel heavy and sluggish, low mass will make it more responsive and twitchy.
Increase the **gravity** if you feel that the behaviour is too floaty.
High **angular drag** will make the rotation of the quad more stiff (it will start and stop rotating more instantly), low angular drag will make it more loose.
Drag is the air resistance as the quad is moving through the air - a low drag value will make it fly more 'slippery', like a soap in a wet bathtub (It will keep its momentum more). A high drag value will make it need to push harder through the air, and it will stop more quickly.

Dead Zone setting

Normally it is recommended to have dead zone turned off.
Some controllers may not center very well - you may get some drifting/jittering when your sticks are supposed to be centered. In that case you can select an appropriate amount of dead zone to cancel out those small movements. Click the button on the main menu to cycle through dead zone large/medium/small/off.

3D flight mode

3D mode is selected using the flight mode button on the top left (Self-leveling - Acro - 3D)
To arm the throttle control in 3D mode, put the throttle stick above middle. You will have positive thrust above middle stick and negative thrust below.

Racetrack Generator

(FPV Freerider Classic only)

The original version of Freerider (Freerider Classic) includes a racetrack generator. It will generate an almost infinite number of 5-gate racetracks using procedural generation.
While in the Racetrack Generator, press "Generate New Track" at the bottom of the screen - a track will be created. You can then press "Timed Race" to fly timed races as usual.
Each track will have a unique number, displayed by the button.
If you wish, you can enter any number of your choice to generate that specific track. If you have found a track that you like and wish to be able to return to fly later, take a note of the track number so that you can enter it later.

Tip: You can also press shortcut "G" on the keyboard to generate a new track

Side-by-Side VR View

(FPV Freerider Classic only)

In Freerider Classic you are able to select Side-by-Side VR mode in the custom settings.
It is mostly aimed at users of Google Cardboard style VR viewers on Android.

Turn "Stereoscopic SBS FPV" on if you wish the flight camera to be stereoscopic (3D) instead of flat.
If your device supports gyro headtracking, you can turn that on in order to be able to look around freely when flying in LOS mode.

When flying using goggles you obviously need to use a physical controller (rather than touchscreen).
You can't navigate the menus while having your VR viewer strapped to your head. You either need to take it off each time, or, use a Bluetooth mouse and/or keyboard, or a USB mouse and/or keyboard connected via a USB OTG splitter to navigate the menus.

Freerider Recharged specific features

The desktop version of Freerider Recharged (PC/Mac/Linux) has extra levels included in the level editor.
In order to fly the extra levels - Click the Level Editor icon on the main menu. Select "Level" on the top right, click "Load". Select the level you want to play, and click "Play".
That is also the way to load any levels that you have downloaded or created yourself.
(See more info on custom levels in the following pages).

Keyboard shortcuts (Recharged only)

1 - LOS view
2 - FPV view
3 - Ghost quad FPV view (when available)

S - Set the LOS view position (It will be set to the quads current position)

F1 - Record
F2 - Play

How to use the flight recording feature in Recharged:

Press the Record button (or F1) to record. Press again to stop recording.
Press Play (or F2) to play back the recording.

When the recorded flight is being played back you can select the ghost quad FPV view if you wish by pressing the "camera" button or keyboard shortcut "C" as usual. You can also quick select the ghost FPV view by pressing number 3 on the keyboard.

Any other camera view will also work. And, while the recording is being played back you can also fly as usual. The simulator still functions exactly as usual.

Ghost quad racing

You can use the recording feature for simple ghost racing.
When starting a race - if you press record before the countdown has finished, a recording of the race will be made. (The recording will start exactly when the countdown is finished, you don't need to time it perfectly).

When starting a race the next time - press play before the countdown has finished, a ghost quad will be replayed from the previously recorded race. (The replay will start exactly when the countdown is finished, you don't need to time it perfectly).

Note: Flight recording is somewhat an experimental feature. It's admittedly not very intuitive and user friendly. It is mostly for fun really.
It works best when the simulator is running at a high and stable framerate.
It is limited to one single recording in memory. Whenever you make a new recording the old one will be lost. A recording or custom LOS view position is not kept when exiting the simulator.

Freerider Recharged Level Editor:

To load a custom level, click the “Level” tab, then “Load”.
A window will open that lets you select the level you want.
After loading, click “Play”.

Controls:

Click "Controls" in the upper right corner of the level editor to view the control layout.
Basically, you navigate the level editor using the mouse and keyboard:

Mouse:
Left mouse button - Interact
Right mouse button - Rotate camera (+Alt to rotate around focused object)
Middle mouse button - Move camera
(Hold and drag wheel to move, scroll wheel to move forward/backward)

Keyboard:
Arrow keys - Move camera
Page up/Page down - Move camera up/down
Hold down shift key to move camera faster.

You can also use the numerical keyboard to move around.

Keyboard shortcuts:

F - Focus on selected object.
Ctrl+D - Duplicate selected object
Ctrl+Z - Undo
Ctrl+Y - Redo
<del> - Delete selected object
S - Scale selected object
R - Rotate selected object
T - Translate (Move) selected object

Tip: Hold shift when scaling a non-uniform scale object to perform a uniform scale.

Touchscreen Controls:

If you are using a touchscreen device, for example if you are using the Android version of Recharged, it is possible to edit and navigate using touch screen controls.

- One finger to interact/select objects.
- Two fingers to look around.
- Three fingers to move camera.
- Pinch to zoom.

It is very difficult to do any extensive and precise editing using a small touchscreen though, so it is recommended to use a USB or bluetooth mouse (and keyboard) if possible.

Tools:

There are three main tool menus on the top right of the screen:

Terrain:
Use the Terrain tools to paint terrain height and texture.
The Terrain tool menu is also where you choose the sky.
Note: Since all textures are saved on a separate layer, using many textures will significantly increase file size. It is recommended to use as few textures as possible.

Objects:
Open up the different categories of objects in the list.
Drag the desired object to the scene to place the object.
Depending on the type of object it is possible to rotate, move and scale it using the transform tools in the Objects menu.
(Drag the colored arrows (or the center part of the arrows) to rotate, move and scale in different directions. It is not possible to select multiple objects at the same time).
Some objects have a color property - an RGB selector will automatically appear. The Basic Shapes also have a material property.

Level:
Used to Load, Save and Play a level.
(This is also used to load custom levels that you might have downloaded or purchased).

(Note: It is not possible to load or edit FPV Freerider's built-in levels, that is, the ones on the main menu of Freerider.
In the Android version of Recharged it is possible to edit the built-in levels by pressing the *Edit Level* button to the right of the main flight screen)

How to create a level from scratch:

1. Create Terrain
You need to create a terrain first. The default size is 1000, that's a pretty decent sized level. Be aware that large terrains increase file size. Please note that it is not possible to change the terrain size once it is set.
Choose a base texture and click "Create Terrain"

2. Place the "Player Start Position" object
This is necessary to be able to play the level.
The Start Position object is found on the very top of the Objects list.
Drag the icon of the object into the scene to place it.
Place the quad so that it is resting on a flat surface.

3. Save the level
The level will be saved in your Freerider Data folder. The full path can be seen after saving is complete.
(Tip: This is the same folder where you will also put community created levels, so remember the path)
Before saving, it is also a good idea to "Render Level Icon".

4. Play

Creating a racetrack:

In order to create a racetrack that can be used with the "Timed Race" function, it is necessary to place gate triggers. You can move, scale and rotate the gate triggers just like ordinary objects. The gate triggers are directional, meaning the player need to pass them in the right direction to clear the gate. There is a light on the triggers that is only visible from one side, place them in the correct orientation for your track.

Tip: Freerider will automatically detect the gates in the correct order, even if there are "gaps" between the gate numbers. Therefore it is possible to start off by placing "Gate 1", "Gate 5", "Gate 10" for example, to be able to place other gates in-between later, if necessary, without having to rearrange the actual gate placement.

Tip 2: If you need to create a track with precise dimensions you can use the built-in objects to measure distance:
The Basic Shape Box is 0.5 meters.
The Basic Shape Cylinder is 1 yard long (3 feet).
The Concrete Pillar, Wooden Stick and Iron Rod is 2 meters long.
(Laying these objects next to each other it is quite easy to create a custom measuring object that is 5 meters for example)

Sharing levels online:

At the time of this writing, there is no centralized sharing hub for levels, so you will need some DIY skills to share and find levels.
A good starting point to share and find levels might be the official FPV Freerider forum at Itch.

Loading community created levels:

In order to load a level that someone else has made available, download it, unzip it (if it comes in ZIP format) and place the unzipped level folder in your Freerider Data folder. This is the same folder as mentioned in *Save the level* above. It needs to be in the correct folder in order for Freerider to find it. If you are uncertain of this folder location, save any level and take a note of the full folder path that is displayed after saving is complete.
The folders are as follows:

Windows:
FPVFreerider_Recharged_Data

MacOS:
FPVFreerider_Recharged.app/Contents

Linux:
FPVFreerider_Recharged_Data

Android:
/storage/emulated/0/Android/data/com.Freeride.FreeriderRecharged/files/
or
Internal Storage/Android/Data/com.Freeride.FreeriderRecharged/files/

Note: The name of the custom level .txt file needs to be the same as it's folder name for it to be recognized.

Sharing a level online:

Create a zip file of your level folder that you wish to share.
(On windows - right click the folder of your specific level and create a zip)

Upload the zip file to an appropriate place, for example your Google Drive account, or a filesharing site.
Post the link to that file, preferably along with a short description and screenshot of your level.
the official FPV Freerider forum at Itch or the FPV Freerider Recharged Steam community hub forum are good places to post.

Tip: There is a small .PNG image in the level folder that you can use as screenshot when posting.

Note: The name of the custom level .txt file needs to be the same as it's folder name for it to be recognized.

FAQ/Troubleshooting tips

Q: How do I connect my transmitter?

There are several alternatives, listed below:
(Note: There is no guarantee that any particular method or cable/hardware will work with your setup. There are so many variables, you wiill have to try)

1. Directly via USB
Some transmitters work directly plugged in via their USB port. That is the case with for example FrSKY Taranis and some Walkera Devo radios, and other universal protocol radios running OpenTX or DeviationTX.

The Devo 7E/Devo 10 and other radios running DeviationTX seems to most often work fine with the stock ini file on MacOS and Android. Note: Select "USBHID" as protocol in the model setup. You may need to select "Re-Init" once connected via USB.
On Windows you may need to set up the endpoints. Here is a custom model ini file that you can try:
https://drive.google.com/file/d/0BwSDHIR7yDwSM0ZPam9LY3N4ZXc/view?usp=sharing

2. USB Dongle
You can try to connect your transmitter using a universal USB flight simulator dongle. Some of them have switches on the side. In that case, find the position that works with your transmitter.

Note: The Phoenix proprietary dongle does *not* work with FPV Freerider, it is deliberately made to work only with the Phoenix simulator.

Here is an example of such a dongle:
22 in 1 RC Flight Simulator Dongle

3. Wireless USB Dongle
There are some wireless USB dongles to which you add your own receiver, and some which contains a receiver in the dongle itself.
Here is an example:
Wireless Simulator Dongle

4. 3.5mm audio cable, Smartpropoplus method (Windows)
A lot of Spektrum users are using this method successfully. It also works with a lot of other radios.
Download the application called "SmartPropoPlus" from https://sourceforge.net/projects/smartpropoplus/ and install it.
Hook your radio up with a standard 3.5mm mono audio cable and plug it into one of your soundcard speaker ports. Mono cables are reported to work the best. Smartpropoplus and vJoy will detect the PPM pulses and transform them into a joystick driver. You can find more information regarding this method in the Spektrum tips and tricks document:

https://drive.google.com/file/d/0BwSDHIR7yDwSaHNwcmZuQm1NeG8/view?usp=sharing

Note: With smartpropoplus, you need to turn off mic filtering in the advanced tab. Otherwise it perceives some of the PPM as noise.

Also, make sure any external mic is disabled while you're using the trainer port and smartproplus, otherwise there might be interference.

Tip for Linux users: https://github.com/nigelsim/ppmadapter is a Linux equivalent to Smartpropoplus.
https://github.com/artgopi/audio2joystic is another Linux alternative.

Tip for Mac users: https://github.com/albhm/macPPM is a MacOS equivalent to Smartpropoplus.

5. Dedicated USB Controller
This is similar to using a gamepad. Generally you have a lot better control with a dedicated USB RC controller that with a standard gamepad.
Here is an example of such a USB RC controller: 6CH RC Flight Simulator Controller

6. Home-Built USB interface using Arduino
This is an interesting project for those who like to tinker and build things themselves:
http://www.instructables.com/id/RC-Transmitter-to-USB-Gamepad-Using-Arduino/

Q: My controller is not detected in Windows 10. It used to work fine but now it doesn't
Due to an automatic Windows 10 update that broke the USB drivers some controllers may not be detected:
See this document for a possible fix:
https://drive.google.com/file/d/1wF9BgUEZSSCORfa4lauR_EivjLp8ohZJ/view?usp=sharing

Q: It doesn't work with my transmitter/Only three of the four axis works:
Here are some suggestions:

- Make sure you don't have any other joysticks/controllers connected, that might cause a conflict.

- If you're having trouble with calibration using a USB connection, make sure you uninstall vJoy and Smartpropoplus if you have that software installed on your computer.

- Make sure you have "Heli" selected as model type on your radio. ("Plane" generally doesn't work so well).

- If you're using a USB dongle - check if there's a switch on the dongle where you can select different modes.

- Perhaps you can remap the output channels (in the menu of the transmitter) so that it sends to another channel.

- If you have tried connecting your transmitter using a USB dongle with no luck, you might want to try the 3.5mm audio cable method which is described earlier in this document.

Q: Since I updated to Windows 10, FPV Freerider won't work:
That problem is most often solved by updating your graphics card drivers (and/or sound card drivers).

Q: Is it possible to assign the keyboard shortcuts to a switch/button on my transmitter?

Yes, you can use a separate piece of software to do that. Here are some examples of such applications:

Windows: http://joytokey.net/en/

Mac: http://joystickmapper.com/

Linux, Windows: http://www.lgdb.org/tool/antimicro

Mac installation troubleshooting

Newer version of MacOS are picky when it comes to what apps can be run.
If, when you try to open the app on your Mac, it says: 'The application “FPVFreerider” can’t be opened”, here are four possible solutions:

Usually method 4 in this list works for most people:

1. If you unzip the file on a Windows machine and transfer the file to your mac with a USB stick it might work.

There's also a chance that it works better if you download the zip using Chrome (not Safari) on MacOS and extract with Keka or Unarchive app.

2. To run a program that says "this can't be opened", right-click the icon and choose "Open". You'll be given an option to open the program, and from then on, chances are it won't bug you.

3. For Mac's having trouble installing FPV Freerider try going to the Mac's System Preferences>Security and Privacy> General Tab and check the box "Anywhere" to see if this allows your Mac to install FPV Freerider.

4. For those who are still having the issue of the simulator not opening, you need to open up terminal and type *sudo chmod +x (fpvfreerider.app)* and that should do it.

It should look something like:

chmod +x /Applications/FPVFreerider.app/Contents/MacOS/FPVFreerider

or

chmod +x /Applications/FPVFreerider_Recharged.app/Contents/MacOS/FPVFreerider_Recharged

(adding *sudo* at the start, if needed).

Make sure you enter the correct folder path and app name (where the app is located on your computer).

After that you might need to go to your Mac menu *System Preferences>Security & Privacy*

If it says something like "Freerider was blocked from use because it is not from an identified developer" you need to select "Open Anyway".

If you still have trouble getting it working there's a more detailed step-by-step instructions for this method on the next page.

Here is a more detailed step-by-step description of the *chmod+x* method, for those who a still struggling to get it working on their Mac:

1. go to settings => security and privacy

click on general

click the lock and enter your password

click "allow apps from app store and identified developers"

2. double-click the zip file you downloaded from itch.io and put the .app file in your application folder as usual to "install" the app by drag and drop to your applications.

3. once the file is in the application folder like this: "/Applications/FPVFreerider.app", right-click it and select "show package content" - a new window will pop up with the content of the .app file.

4. Navigate to : "Contents" => "MacOS" => "FPVFreerider"

5. launch terminal with [command] + [space bar] then type "term" then press [enter] or [return]

6. in the terminal, type: *chmod +x* (don't press enter now)

return to the finder where the content of the .app is open. then drag and drop the "FPVFreerider" file to the terminal. Now the path to the file is added automatically the line in the terminal should look something like this :

myusername@MyMacBook-Pro ~ %

chmod +x /Applications/FPVFreerider.app/Contents/MacOS/FPVFreerider

(the command start with "chmod", the part with "@" is your user name and computer name.)

7. press enter, then launch the Freerider app by double-clicking it in your app folder and it should work.

Q: How do I run the simulator on Linux?

FPV Freerider is distributed as a Linux executable, not a package.
Create a "bin" folder in your home directory, this isn't necessary but traditionally, binary executables go in the bin folder. Unzip Freerider_Linux.zip into that directory. Open Freerider_Linux. Right click on the appropriate executable for your system (32 or 64 bit), and select 'Properties'. Click the 'Permissions' tab. At the bottom of that tab check: 'Execute: Allow executing file as a program'. Now when you want to play, just double click that icon.

Tip: If you are unable to run the sim on your Linux machine you might need to force Open GL:
user@computer:~$ ./FPVFreerider.x86_64 -force-opengl

Q: Joystick calibration doesn't work for me on Linux

Sometimes, buttons must be emulated otherwise the controller is not recognised by FPVfreerider.

To do that, use Wejoy https://github.com/Vantskruv/wejoy and calibrate the original joystick with jscal to get rid of deadzone.

Freerider on Itch:

https://fpv-freerider.itch.io/fpv-freerider

https://fpv-freerider.itch.io/fpv-freerider-recharged

Freerider on Steam:

https://store.steampowered.com/app/854250/FPV_Freerider/

https://store.steampowered.com/app/813530/FPV_Freerider_Recharged/

Freerider for Android on the Google Play Store:

https://play.google.com/store/apps/details?id=com.Freeride.Freerider

https://play.google.com/store/apps/details?id=com.Freeride.FreeriderRecharged