



# Unleash the force!

## What is it?

XPFforce is a plugin for Laminar Research X-Plane 9.20 or higher which adds support for force-feedback joysticks on Windows and Linux. Since many aircraft designers don't provide any force-feedback data with their aircraft, the plugin also emulates these forces if needed, meaning that you don't need to alter any .acf files with PlaneMaker to get realistic forces applied.

Each type of force supported can be changed either globally, or for specific aircraft. Your preferences for each individual aircraft will be used automatically.

## Features

- Real control-surface forces sent to any Force-Feedback capable joystick or pedals
- No need to manually change .acf files to enable forces
- Full simulation of forces in realtime
- Will use forces provided by X-Plane for force-enabled aircraft, at your choice
- Fully configurable force strengths
- Save individual configuration for each aircraft, or one to apply to all aircraft
- Easily share force settings
- 32-bit and 64-bit on Windows, 64-bit only on Linux

## Requirements

- [X-Plane](#) 9.20 or higher (including 10 and 11)
- Windows 32-bit or 64-bit
- A DirectInput-compatible Force Feedback joystick.

## Features

XPFORCE has been tested with the following controllers:

- Microsoft Sidewinder Force Feedback 2
- Logitech Force 3D Pro
- Logitech G940
- Iris Dynamics Yoke

In theory, any DirectInput-compatible force feedback stick or controller will work.

At present it is NOT compatible with the Saitek Evo Force on a 64-bit operating system. This is because Saitek's drivers are badly broken. It may be possible to add this support in the future but complete replacement drivers would be needed.

## **Installation**

### **Windows**

Simply double-click on the MSI installer. It will ask you to find your X-Plane base directory and then install the plugin to the appropriate places. This is typically “C:\X-Plane” or similar, but you may have chosen a different place when you originally installed X-Plane.

The package contains several “.xpl” files, this manual and a directory containing some example configurations.

### **Upgrade**

When a new version becomes available, install it using the same method described above. There is no need to remove the old version first.

## **Removal**

### **Windows**

To remove the plugin, use the “Programs and Features” Control Panel. Alternatively, you can re-run the MSI and it will uninstall the plugin.

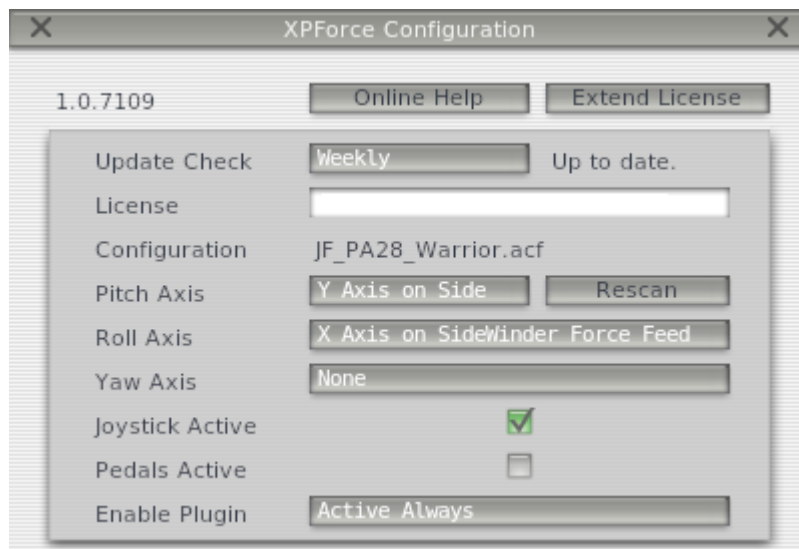
## Using the Plugin

Once the plugins are installed, launch X-Plane. You can check to see that the plugin is running by looking on the “Plugins” menu – there will be a menu item called “XPForce”. Provided it is there, any force-feedback joystick will be found and used automatically. There is usually nothing more you need to do.

The plugin will work for around ten minutes without a license, after which it will restore the joystick to its normal uncontrolled state, typically with a simple return-to-centre effect. If you want real forces for longer than ten minutes, please buy a copy of the plugin from <http://www.fsmissioneditor.com> . Buying a license gives you unlimited use of the plugin on all available platforms (currently Windows, sadly Linux support proved impractical), and free upgrades for a year. After that period you can renew the license at a substantial discount.

## Status

The top section of the “Configuration” dialog shows the current status of the plugin.



### *Update Check*

The plugin will check for updates automatically if you set this to “Daily”, “Weekly” or “Monthly”. You can disable the update checks entirely by selecting “None”, or check immediately by selecting “Now”.

If an upgrade is available, you will be shown some information about what the differences are, and also whether your license is still within the free upgrade period.

### *License*

If you have bought the plugin, enter your license key here. Without a license key the plugin will stop working after approximately ten minutes. You can paste the license in instead of typing by clicking in the license box and pressing “Ctrl+V” or “Shift+Insert” after copying it from the email.

### *Configuration*

Each aircraft can use individual settings, if you choose. You can also create default settings which are used for all aircraft, but which are different to the plugin’s internal settings. This line shows you which configuration set is being used.

### *Pitch/Roll/Yaw Axis*

Use these dropdowns to choose which axis on which device should be used for replaying forces for pitch, roll and yaw respectively. The Pitch and Roll axes must be assigned to the same device.

The “Rescan” button forces the list of force-enabled joysticks to be re-loaded. This should only be needed if you have plugged your joystick in after starting X-Plane.

### *Joystick/Pedals Active*

Normally this will be ticked for each device you have. It shows whether the plugin is sending commands to the device. Provided you have a DirectInput-compatible force feedback device connected and the X-Plane window is active, this should be on.

### ***Enable Plugin***

This Windows-only control changes how the plugin works. You can choose between “Disabled”, “Active with XPlane” where the forces are sent only when the X-Plane window is active, and “Active Always”.

## Configuration

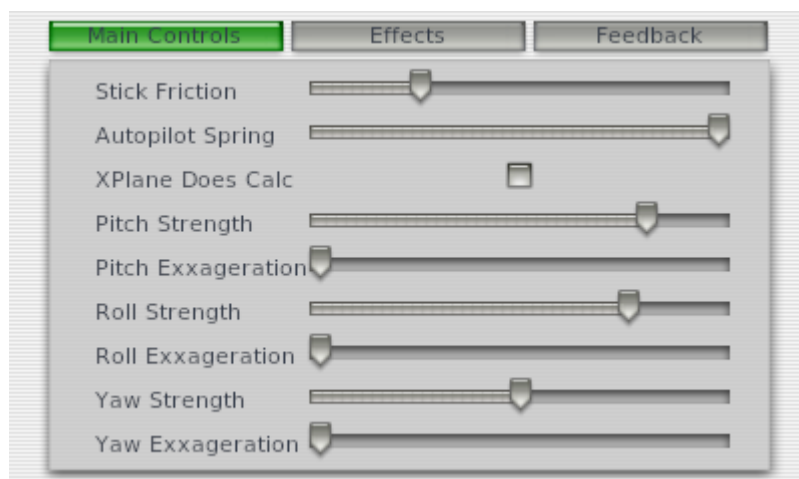
XPFORce should provide a reasonable set of forces without any more configuration at all. However, there are many different aircraft so you may well want to customise each one to have different forces.

Normally this would be done by the aircraft designer, but it seems that most of them leave the “Control Forces” settings set to zero in Plane-Maker. This would normally mean that there is no force-feedback at all. To counter this, the plugin provides a set of assumed defaults and can be told to use these instead of the aircraft settings.

All sliders are set so that full-left means “no force” and full-right means “maximum force”. Any changes take effect immediately, so there is no need to close the configuration dialog. This means you can leave it open while you change the settings interactively until you achieve the effect that feels best to you.

There are three tabs in the configuration dialog, the first two of which are for configuring your controller.

### Main Controls Tab



#### *Stick Friction*

This controls the force that you need to use to move the stick, without taking any pressures from control surfaces into account.

#### *Autopilot Spring*

This controls how strongly the stick tries to centre itself on the position dictated by the control surface forces when the autopilot is engaged.

#### *X-Plane Does Calc*

This is an important control. When this is ticked, it tells the plugin not to emulate any control-surface or air turbulence forces. Instead, these are left to X-Plane to calculate. For this to work, the aircraft model (the .acf file) *must* have usable numbers entered on the “Control Forces” tab in Plane-Maker.

When the control is not ticked, control surface and turbulence forces are calculated by the plugin.

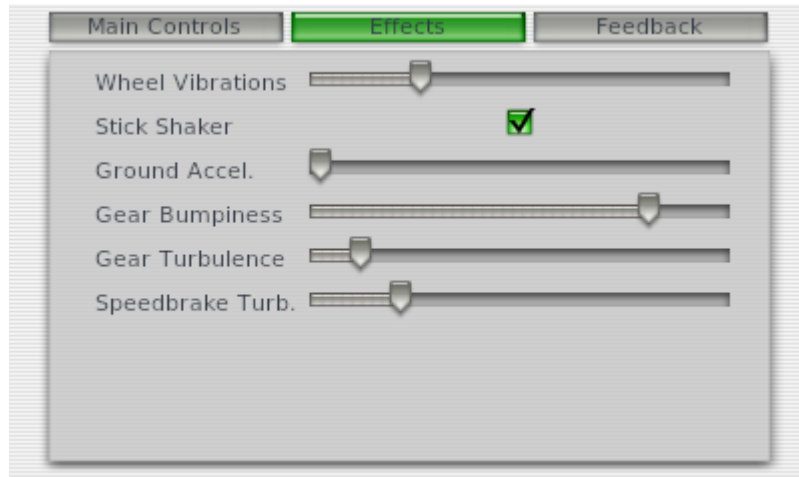
### *Pitch/Roll/Yaw Exaggeration*

These three sliders control the speed with which both control surface and turbulence forces move from minimum to maximum.

### *Pitch/Roll/Yaw Strength*

These three sliders control the force needed to move the control away from it's desired point.

### **Effects Tab**



### *Wheel Vibrations*

When you are on the ground and moving, there will be a vibration created by the wheels. This slider controls the intensity of the vibrations felt.

### *Stick Shaker*

Some aircraft will have a strong shaking force applied to the joystick if the wings are stalling. This checkbox enables this force.

### *Ground Accel.*

This is a fake force which tries to show the effects of acceleration. When your aircraft is on the ground and accelerating or decelerating, a fake force is created which pulls the joystick forward or backward. This slider controls the strength of this fake force.

It is extremely distracting in the air, so is limited to working only when on the ground.

### *Gear Bumpiness*

When you are on the ground and moving, there will be forces generated by the landing gear depending on the type of surface you are on, and how fast you are moving. This also covers landing forces, and bumps during seaplane takeoff.

### *Gear Turbulence and Speedbrake Turbulence*

When you are airborne and your landing gear is down, there will be a small vibration from airflow turbulence. The same applies for an extended speedbrake. These sliders control the intensity of these vibrations.



If your aircraft does not have retractable landing gear, there is no turbulence force feedback created.

## **Feedback Tab**

### *Pitch/Roll/Yaw*

These sliders show the current force being applied to each axis. Changing the sliders will have no effect, these are only to show that there are forces being applied.

## **Autopilots**

If your aircraft has an autopilot, the forces generated will be different when the autopilot is in control. Normally, the forces are based on aerodynamic forces on the control surfaces. In autopilot mode, the forces are instead set to centre on the flight director's input. This makes your joystick follow the control inputs.

## **Saving and Loading Configurations**

If you change the default settings, you probably want to store your changes so you can use them later. There are controls at the bottom of the Configuration dialog to allow you to do this.

When the plugin starts, and whenever it sees that you have switched to a new aircraft, it will try to load the most appropriate settings. If you have aircraft-specific settings it will prefer those, then try global settings, then fall back to the plugin's internal default settings.

### ***Reset Internal***

This resets all settings to the plugin's internal defaults.

### ***Reset Global***

If you have saved your own set of global settings, this button will reload them. If you haven't saved any, it will reset to the plugin's internal defaults.

### ***Reset Aircraft***

If you have saved aircraft-specific settings, this button will reload them. If not, it will reload any global settings you have saved. If they don't exist, it will reset to the plugin's internal defaults.

### ***Save Global***

Store the current settings as global defaults. These will be used in future for all aircraft which don't have more specific settings saved.

### ***Save Aircraft***

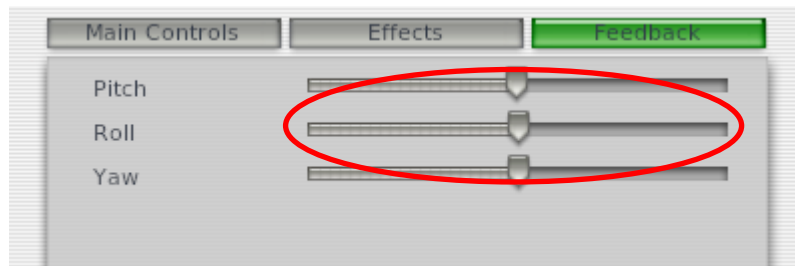
Store the current settings are aircraft-specific. These will be used in future every time this aircraft is loaded.

## Troubleshooting

Hopefully, XPForce will simply work “out the box”. If not, try some of the suggestions below.

### *I feel no forces at all.*

- Your joystick does support force-feedback, right? This kind of joystick will clearly be sold as supporting force feedback or “haptics”, will tend to be larger than most joysticks to give space for the internal motors that are required, and will usually cost more than a normal joystick.
- If you use Windows and have the “Enable Plugin” setting set to anything other than “Always Active”, check that X-Plane is the foreground window. In other words, if you have X-Plane on one monitor and then switch to a browser or any other tool, possibly including other X-Plane plugins, forces will stop until you click back on the X-Plane window. You can change this behaviour using the “Enable Plugin” control.
- Open the Config window from the Plugin menu and check that forces are being calculated, using the three sliders on the Feedback tab. These will usually move a little, unless your aircraft is flying on autopilot.



If there are no forces generated, your aircraft probably isn't set up for force feedback. Make sure the “XPlane Does Calc” tickbox is switched OFF.

- Check that the “Joystick Active” or “Pedals Active” checkbox is ON. If not, it was probably unable to set the joystick up. There would have been an error dialog shown if this is the case. Please check that your joystick is connected properly, and has appropriate drivers. Check the logfile for more details.
- Check that the force-feedback joystick works as expected in another program, such as another force-enabled game or simulator, or the device control panel if it has a “Test Forces” feature. If not, follow the advice in your joystick's manual.

### *I get an error message when saving a configuration.*

All configuration files are saved to <XPlane>\Resources\plugins\XPForce . If this directory isn't writeable you will get an error. Please check that this exists, and that you can create a file inside it. Also check the logfile for more details.

### *Checking the Log*

Every time the plugin is started, it will create a logfile as <XPPlane>\Output\XPForce.log . Information about your hardware, significant events and errors are written here. If you are seeing unusual behaviour from the plugin please check in here to see if there is any useful information. If you need support, please be sure to include the logfile with the request.

### *Support*

You can view an online FAQ at <http://www.fsmissioneditor.com/XPForce/faq.php> .

There is an interactive troubleshooter at <http://www.fsmissioneditor.com/XPForce/troubleshooter.php> .

If none of these options help, then support is available via the Support link at <http://www.fsmissioneditor.com/> . Please check the options above first!

### *Advanced*

When the plugin is not using X-Plane's own calculations, there are a number of things that are taken into account when calculating the main forces. Although it does not do the full surface-based simulation that X-Plane *may* be doing itself for yoke feedback, it does take many factors into account.

- Autopilot on/off
- Autopilot yoke force
- Hydraulic system existence and failure state
- Number, type and location of engines
- Prop disc rotation direction (for propwash)
- On/off ground, and force of contact
- Gear rotation speed
- Gear's ability to retract and retraction state
- Airbrake existence and state
- Stick-shaker
- Relative velocity (for windshear, crosswinds etc.)
- Estimated "normal" cruise speed
- Pitch/Roll/Yaw control surface deflection
- Pitch/Roll/Yaw trim settings
- Flight Director/autopilot status
- Artificial Stability systems and status