VRS DriveForce Pro Settings Guide

by memoNo1

If the guide was helpful for you or better said it is, I would be happy if you visit my channel E - Motorsport - Nxt Lvl SimRacing on Youtube or FB, and leave a subscription or like there!

Have fun with the guide!

Best regards your memoNo1

Damping:

Increasing the % increases the damping.

The overshoot (oscillation) of the wheel is reduced with the damper.
The damping sends signals to the servo motor to hold the wheel at its intended position.
As the damping tries to maintain position, it can simultaneously reduce steering effort under load as the wheel actively tries to stay in its intended position.
The higher the percentage, the higher the resistance and smoother the return to center position.
Note:
More damping feels like soft tires with less air.
With less damping the tires feel like harder ones with hard sidewalls and more air in the tires.
Damping is especially handy when you turn the wheel too hard. This is usually the case in an entry or mid-corner phase during the race. For example, if you turn in too much under braking, it's poison for your tires as they lock up, overheat and understeer. Using damping is a good tool to improve your driving performance, especially in the entry phase of the corner.

Friction:

(Opposite force!)
More % = increase in friction force

Friction is the general weight of how hard, smoothly the steering wheel turns.
It simulates the friction of the steering wheel.
It slows down the reaction of the steering wheel, (simulating the rack, ball joint and bushings) as by tire contact surface resistance.
This setting is best used when you feel that the steering wheel forces are correct, but the steering feels excessively light during certain movements.
This parameter does not seriously affect the FFB, but you are increasing the weight, mimicking the steering of the drag that would be in a real steering gear.

Note:
As you may understand from the name of the filter, it adds friction, slowing down wheel movement around the wheel shaft. This is a handy tool if you have trouble at corner exits or other stages around the corner where the wheel starts to oscillate, or you can't keep the wheel as steady as you should for better performance. Add this filter in small doses, just the amount you need and no more, as the compromise loses accuracy when using this filter.

Inertia:

(force in the direction of steering!).
Adding % increases the inertia!

The inertia filter provides a signal to the wheel that attempts to reduce the wheel's inertia. Essentially, a wheel with no inertia would spin forever, and a wheel with infinite inertia could never be moved, no matter how much force you applied to it.
It adds additional force to the rotation of the steering wheel.
In terms of force feedback, however, this is a double-edged sword, since the inertia filter is trying to apply additional force to the wheel to move it in the direction it is moving when you turn the wheel in the applied force.
The signal from the feedback system tells it to go in.
Note:
Reduce inertia, leave friction at higher parameter =.
Less force on turn in and more force on return to center.
The force of inertia decreases, making it easier to bring the steering wheel to its center position. =
Power steering effect!

Spring:

The spring adds a centering spring force that increases linearly with rotation.
It literally makes your wheel turn back to the center position.
The more you turn it, the greater the force it wants to move back.

Note:
In the days before force feedback, steering wheel bases often used a physical center spring so they could provide some feedback to the driver.
Preferably always leave it at 0.

Smoothing:

Adjusting smoothness.
Smoothing settings reduce the graininess and noise of the force feedback feel. A smoother setting takes away some of the smaller details, but your wheelbase works quietly and feels (as the setting implies!) SMOOTH. A lower smoothness setting gives you much more track and curb detail, but makes the wheel more active and may show less than ideal FFB effects like a grainy feel and even audible noise from the wheel in various simulator titles.

Note:
Smoothing is basically sanding down the rough edges of something
New and improved smoothing options.
The higher the input of the tabs, e.g. Soft 1 - 3, the softer the signal.

Legacy 1-4 are the original smoothing options.
(Legacy 1-4 = smoothing 1-4 in RC2)

Responsive (claiming speed) 1-2 are new "direct" filters that remove quantization steps (signal processing) from the input signal, but minimize filter delay.

The Optimal filter completely removes quantization (signal processing) from the input signal, but makes it less direct/smoother without losing detail.

Soft 1-3 modes not only smooth the game's input signal, but also remove high frequency signals from the input signal. The soft modes are helpful for games that run at high FFB frame rates and output unwanted high frequency oscillations.
The soft modes are intended for games with high FFB refresh rates.
The soft modes were introduced to eliminate harsh vibrations in rF2 and AC/ACC.
Soft 1-3 reduces the input FFB update rate to remove the high frequency noise from the input. This effectively increases the filter delay. Not really much of an issue for 400Hz refresh rate, but much more noticeable when the game output is 60Hz.

Tips for FFB Settings:
Try everything. See what you like. The descriptions on the Simucube website also apply to the VRS filters. In general, most just set Slew Rate (how fast the base responds to a signal), Smoothing (how much the base contributes to the prediction forces between play signals, grinding off rough edges), and Damping (how much resistance the wheel naturally gives to the forces).

Set Damping to 0, Slew Rate to Balanced. Smoothing to Optimal.
Then change either Slew or Smoothing until you find something you like. Then change the other until you like it. Then add the damping for comfort.

Generally, most seem to use 0-20% damping, depending on preference. For me, it's a matter of comfort.
Using too many filters can obscure what the Sim is trying to tell you about the car.

Static force reduction:

Static force reduction.
If you want to keep the force feedback strength strong with your base, but the FFB generated is too strong in the long turns with high G forces, this is a good tool.
The filter reduces the FFB strength in these long and slowly changing conditions while generating most of the small details like curbs and road surface for your hands, making it good for simulations such as rFactor 2.

Non-linear:

Non-linear means that the highest forces in the simulation are compressed near the top, giving you more feedback in the low to mid range. Since the grip feedback of the tire is only in the low to mid range, you only miss details of highest impact forces like curbs.

Slew Rate:

The slew rate limits the acceleration of the FFB.
This is a very handy tool if you feel that the wheelbase is very strong and rough on your hands, for example in crash or corner exit situations, and you are having trouble keeping the sim racing safely. Slew rate adds a bit of latency (delay), but is also sometimes a handy tool to increase fidelity, as some road noise can be removed by decreasing the slew rate, and in turn you feel more of what the tires are telling you.

Note:
- All three slew rate settings are audibly quieter. Performance is the most noticeably quieter for the same response time. Balanced is better between performance and quiet. You can think of slew rate like an output filter. If you choose Balanced and Quiet, you should choose a more responsive input filter.
If you want the steering wheel to be more lively and responsive, you shouldn't add another filter on top of it to make it less so, that defeats the purpose.
If Performance/Balanced sounds and/or feels too lively, stick with Quiet.

Smoothing is independent of slew rate and applies only to the simulator's input signal. Slew Rate controls how fast the motor responds to the input signal.
Slew rate is the speed at which the device can increase torque
it is the main factor for how fast a wheelbase can be accelerated