JP's VPX8 Physics Rev3.1
(jpsalas 2025)

(This is a short introduction to my physics settings for authors who want to try them.)

What's new in 3.1

- Added more physical materials
- Increased slightly the elasticity on all the rubbers
- Changed the flipper code to make the flippers, as default, less strong and bouncy for better ball control.

Why new physics settings?

For several years I have been using the default VPX physics, which are explained in the file PhysicValues.txt which comes with VPX, and they are quite good. But there were always a few things that I always felt they could be better. Many other authors have made their own changes and all them are quite good (like ClarkKent, nFozzy and Rothbauer). But I wanted to use what VPX has to offer, and simply adjust some parameters to make the tables play a little closer to a real pinball with a few simple settings. I always felt the default physics made the ball feel more like a football (a soccer ball) or even a billiard (pool) ball, more than a pinball steel ball. The same for the flippers which were missing some functionality, and the shooting angles were not optimal.

Here it is what I wanted to accomplish:

- Stop the ball making strange stops and changes in speed or direction.
- Increase side to side action.
- Do some flipper tricks like live catches, cradle separation and backhand shots.
- Consistent flipper shooting angles.
- Reduce ball rebound on top of a flipper when it is up.
- Better ball bounce on objects, mostly rubbers, both at higher and lower speeds.
- Easy way to control the ball speed.
- The settings should not hog the CPU.

To do all these I wanted a set of values that should be the same on all the tables, older and newer, and they should be easy to add to a table. Rubbers should be rubbers on all the tables, they should not change elasticity or friction values, and the same applies to metals, plastics and wood. Flippers should work just as good on older tables than in new tables.

You will find several files in the download zip:

- JP's VPX8 Rev3.1 Physics.pdf *this document which explains all the settings*
- JP's VPX8 Rev3.1 Elasticity Test.vpx *a simple test of the new elasticity settings*

- JP's VPX8 Rev3.1 Table Physics.vpp *table and flipper settings that you can import*
- JP's VPX8 Rev3.1 Physics Materials.mat *the physic materials for easily change the object properties. I recommend using collections.*
- JP's VPX8 Rev3.1 script addons.vbs *flippers script, rolling ball script*

How to use these settings?

Press F4 to open the material manager and import *JP's VPX8 Rev3.1 Physics Materials.mat*

Now you can assign a physics material to all the objects that are in contact with the ball. The name of the materials will give a clue where to use them :)

Now go to the Table's properties and load the table physics (which include also the flipper physics). Remember to adjust any extra flippers you may have, like extra flippers. gates or diverters, as they will be overwritten. Also change the slope to fit the era of the table.

The strength and other values of the 2 main flippers are controlled in the script.

The Script

The script parts are the same as in the old rev3 physics, with just a few adjustments.

Take a look at the file "JP's VPX8 Rev3.1 script addons.vbs" to cut & paste the code to your tables.

The changes in the script are minimal. Just 2 main changes: flippers and ball speed control.

Flippers:

The script by JLouLouLou will change many values in real time, so the flippers will be able to do all kind of tricks.

Ball speed control:

Added to the ball rolling routine. Change the **maxvel** constant according to table, for ex. 25-30 for EM, 30-40 early SS or 40-50 for modern tables with high ramps. It all depends of the speed you want to give to the table and how high ramps are on the table.