This article needs some TLC. Read at your own risk.

Visual Pinball X

The Visual Pinball X is a pinball developed by Randy Davis. It was released in 2000.

This system scrapes metadata for the “vpinball” group(s) and loads the `vpinball` set from the currently selected theme, if available.



Quick reference

- **Emulator:** vpinball standalone
- **Folder:** `/userdata/roms/vpinball`
- **Accepted ROM formats:** `.vpx`

WARNING: Desktop configuration only (before batocera 40)

Before version 40, vpinball on Batocera is **not** for creating pincab configurations with multiple screens.

Before version 40, the goal is to create a pleasant and easy experience of a “Desktop” pinball where everything (the table, the scoring DMD system, the backglass recreation,...) is on one screen. It supports some accessories though (starting from v39), such as PixelCade and ZeDMD.

BIOS

No Visual Pinball X emulator in Batocera needs a BIOS file to run.

But many tables recreations require the original pinball rom to run.

ROMs

The current version of Visual Pinball supports version 10 (`.vpx` extension) tables.

Community based tables for can be downloaded from https://www.vpforums.org or https://vpuniverse.com

Place your VPX tables in the `.vpx` format in `/userdata/roms/vpinball/<table_name>/` (eg: `/userdata/roms/vpinball/Haunted House (Gottlieb 1982)/Haunted House (Gottlieb 1982) VPW 2.1.vpx`)

PinMAME

Many historical tables require the original rom file extracted from the pinball machine to run. To play these tables, you need to put the proper rom in `.zip` format in the

- `/userdata/system/configs/vpinball/pinmame/roms` (v38)
- `/userdata/roms/vpinball/<table_name>/roms` (v39+) (Eg: `/userdata/roms/vpinball/Phantom Of The Opera (Data East 1990)/roms/poto_a32.zip`

A few tables also require a nvram `.nv` file placed in:

- `/userdata/system/configs/vpinball/pinmame/nvram` (v38)
- `/userdata/roms/vpinball/<table_name>/nvram` (v39+)

Additional .vbs files

Visual Pinball uses VBScript as the scripting engine for tables. Due to incomplete support in Wine, some tables will open briefly, then close.

These tables may run with a modified `.vbs` script which can be found here: https://github.com/jsm174/vpx-standalone-scripts

Put the `.vbs` file in `/userdata/roms/vpinball/<table_name>` folder, next to your vpx table. Only the `.vbs` file is required (not the `.vbs.original`, nor the `.vbs.patch` files). The name must match the exact name of the table (eg: `/userdata/roms/vpinball/Guns N Roses (Data East 1994)/Guns N Roses (Data East 1994) VPW v1.1.vbs`)

All Paths

V38

folder	content description
/userdata/roms/vpinball	Your .vpx & and any associated .directb2s or .vbs files. Any associated .UltraDMD folders should also be in the vpinball roms folders. Note: .directb2s files should match the .vpx file name.
/userdata/system/configs/vpinball	VPinball configuration & log files
/userdata/system/configs/vpinball/user	VPinball user directory
/userdata/system/configs/vpinball/pinmame	VPinball generated PinMAME settings, ex. sound, cheat, dmd_red
/userdata/system/configs/vpinball/pinmame/roms	PinMAME ROMs directory
/userdata/system/configs/vpinball/pinmame/nvram	PinMAME NVRAM directory
/userdata/system/configs/vpinball/pinmame/altcolor	Serum colorizations directory <rom_name>/<rom.cRZ> (ex: trn_174h/trn_174h.cRZ for Tron Legacy)
/userdata/system/configs/vpinball/pinmame/altsound	Alternative sound packages directory <rom_name>/<sound files> (ex: stwr_107 for the Data East Star Wars table)
/userdata/system/configs/vpinball/pinmame/vpinball	VPinball PinMAME settings directory
/userdata/system/configs/vpinball/music	VPinball music directory, put your music here, or in the same folder as your vpx file in it's own 'music' folder. The music folder, should be lowercase - i.e. /userdata/roms/vpinball/Kiss/music

Due to the huge amount of files per table, it is recommended to opt for a folder per table organisation (default starting from v39):

1. open the `/userdata/system/configs/vpinball/VPinballX.ini` file.
2. Change `PinMAMEPath =` to `PinMAMEPath = ./`

Per Table folder organisation (V39+)

Starting from v39, each table folder will contain all the necessary files to launch the table.

folder	content description
/userdata/roms/vpinball/<table_name>	Your .vpx & and any associated .directb2s or .vbs files. Any associated .UltraDMD folders should also be in this folder. Note: all file names (.directb2s, .vbs) should match the .vpx file name exactly.
/userdata/roms/vpinball/<table_name>/roms	The PinMAME rom of your table (in `.zip` format). (eg: `userdata/roms/vpinball/AC-DC LUCI Premium (Stern 2013)/roms/acd_170h.zip`)

folder	content description
/userdata/roms/vpinball/<table_name>/altcolor	Serum colorizations directory <rom_name>/<rom.cRZ> (eg: `userdata/roms/vpinball/AC-DC LUCI Premium (Stern 2013)/altcolor/acd_170h/acd_170h.cRZ`)
/userdata/roms/vpinball/<table_name>/altsound	Alternative sound packages directory <rom_name>/<sound files> (eg: `userdata/roms/vpinball/Batman (Data East 1991)/altsound/btmn_106`)
/userdata/roms/vpinball/<table_name>/music	put your music here (required by some tables). The music folder, should be lowercase
/userdata/roms/vpinball/<table_name>/nvram	PinMAME NVRAM
/userdata/roms/vpinball/<table_name>/pupvideos	Pup Pack directory <rom_name> (eg: `userdata/roms/vpinball/Tron Legacy (Stern 2011)/pupvideos/trn_174h`)
/userdata/system/configs/vpinball	VPinballX.ini configuration file & log files

Another possibility is to create a `pinmame` folder inside your table folder, containing the sub-folders `roms`,`nvram`,`altsound`... eg: `/userdata/roms/vpinball/Haunted House (Gottlieb 1982)/pinmame/roms/hh.zip`, `/userdata/roms/vpinball/Haunted House (Gottlieb 1982)/pinmame/nvram/hh.nv`,...

Emulators

vpinball standalone

Visual Pinball Standalone is a modified version of VPinballX that is designed to run on non-Windows platforms. It is an open source cross platform pinball table simulator. It targets Desktop users, but also Pincab users and has a lot of options and components to create complete Pincabs.

vpinball configuration

Standardized features available to all cores of this emulator: `vpinball.videomode`, `vpinball.padtokeyboard`, `vpinball.videomode`, `vpinball.bezel`, `vpinball.bezel_stretch`, `vpinball.hud`, `vpinball.hud_corner`, `vpinball.bezel.tattoo`, `vpinball.bezel.tattoo_corner`, `vpinball.bezel.tattoo_file`, `vpinball.bezel.resize_tattoo`

Controls

Keyboard Keys for Visual Pinball

key	action
1	start game / add player

key	action
2	buy extraball at the end of the game (judge dredd, indiana jones tpa...)
5	insert coin 1
4	insert coin 2
Enter	launch ball
L Shift	left flipper
R Shift	right flipper
L Ctrl	left magna save
R Ctrl	right magna save
L Alt	lockbar fire button (ac/dc, terminator 2...)
Q	quit
T	mechanical tilt
Space	nudge forward
Z	nudge from left
/	nudge from right
Esc	contextual menu to pause emulator / launch webserver / adjust camera
F11	display stats (press twice to have graphical stats)

Keyboard Keys for Stern S.A.M. Pinballs

Very useful to access and manipulate the service menu of the pinball, in order to change the volume, or the number of balls in play (and many other parameters)

key	action
3,4,5	insert coin 1, 2 , 3
7	back
8	minus
9	plus
0	select / access to the menus
home	slam tilt

Here are the default Visual Pinball X's controls shown on a Batocera RetroPad:

Accessing Service Menu

Due to the extreme variety of hardware, no generic procedure exists to change the volume or the number of balls. But an excellent topic on this subject is here: https://www.vpforums.org/index.php?showtopic=38669#entry388038

For non DMD tables, the options are configured through Dip switches. Vpinball standalone version doesn't support pressing F6 to display a window with the options. But you can change the Dip switches values by editing the `.vbs` file. Eg, in the Fathom table, you can have 5 balls per play instead of 3 by changing this part:

```
' Number of Balls / game
    SetDip &H40000000,1        'Number of balls.  0,0 = 3, 0,1 = 3, 1,0 = 5,
1,1 = 5
```

```
    SetDip &H80000000,0
```

More information on what each Dip switch does is found in the table user manual.

Customize your keyboard keys

Example: you want to replace the `AddCreditKey` by `I` keypress:

- open the `/userdata/system/configs/vpinball/VPinballX.ini` file.
- In the `Keyboard input mappings` section, replace `AddCreditKey = 23`
- the keycodes are available here: https://github.com/vpinball/vpinball/tree/standalone/standalone#keyboard

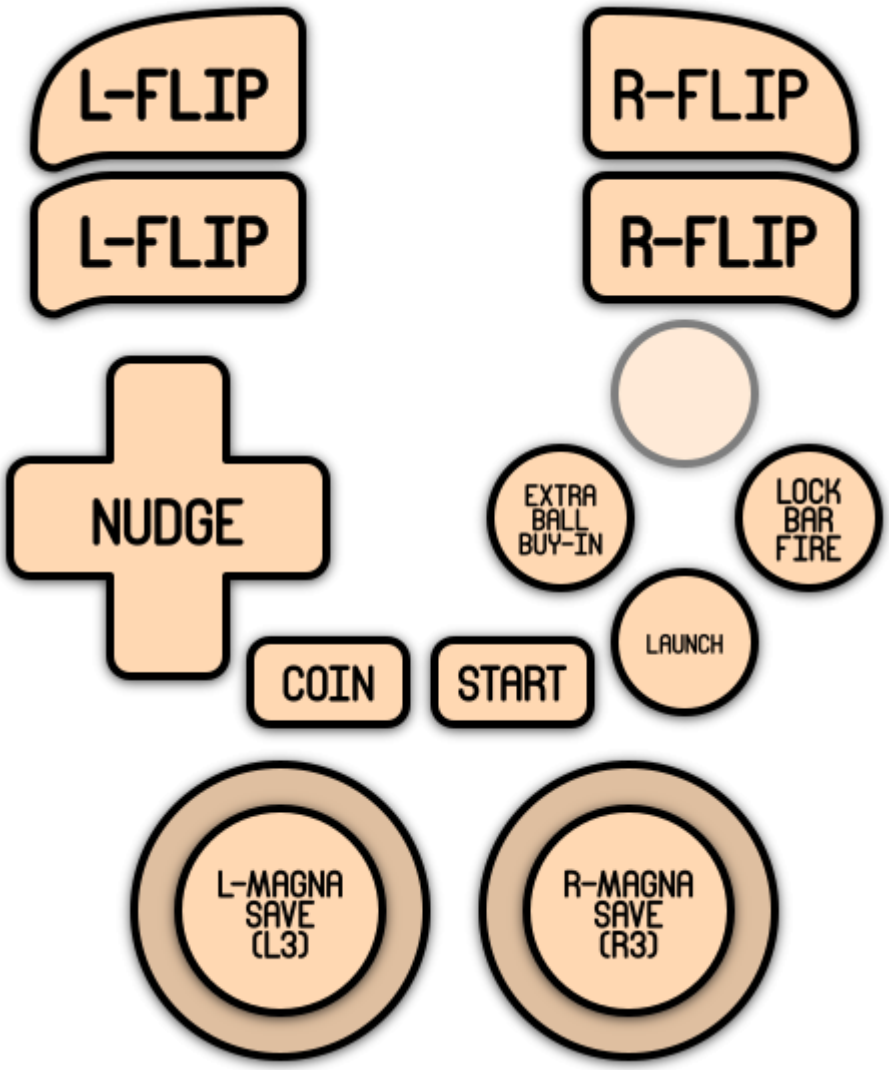
Customize your gamepad buttons

You should have a look at the Pad2Key system as modifications of `/userdata/system/configs/vpinball/VPinballX.ini` for the joystick are not taken into account.

In **v40+**, you can control the plunger with the right stick by editing your `VPinballX.ini`:

```
[Player]
; Plunger
PlungerAxis = 5
```

Default gamepad layout:



Customize your Table

Visual Settings

Change the Point of View and Lighting

1. Press `Esc` then choose `Adjust Camera`
2. Use:
    1. Flippers (shift keys by default) to increase/decrease value
    2. Magnasaves (ctrl keys by default) to select previous/next item
    3. Credit (5 key by default) to reset to table's defaults
    4. Start (1 key by default) to save your changes in an pov file

In v38, this creates a `.pov` file next to your table `.vpx` file, with the same name (in `/userdata/roms/vpinball`). Note that `Environment Emission` is not saved in this `.pov` file and must be set in your table's `.ini` file

The `.pov` files are deprecated in v39 (following evolutions of vpinball). The customisation process remains exactly the same (press `Esc` then choose `Adjust Camera`), but it now creates a `.ini` file. It's recommended to remove the old `.pov` files to use the new `.ini` files, and also to choose the

Camera view instead of the Legacy view.

Display a ball trail (to better see it)

It'll help keep track of your ball in fast moments or with dark tables.

- **v38**: in the VPinballX.ini file, put these values

```
[Player]
; Ball options
BallTrail = 1
BallTrailStrength = 0.8
```

- **v39**: you can configure this directly in the Advanced Options of the emulator

Reduce the visual nudge effect

This setting won't change the real nudge intensity, just the visual effect. If you want a more subtle visual effect when nudging:

- **v38**: in the VPinballX.ini file, put these values:

```
[Player]
; Visual nudge strength
NudgeStrength = 0.01
```

- **v39**: you can configure this directly in the Advanced Options of the emulator

Customize Sounds

Change the Sound Volumes

1. If a particular table has a low music volume, you should first check if the volume is adjustable by accessing its service menu (or try pressing 8, or 9, or 7). Note that for some tables, it'll be impossible to adjust it.
2. If you want to balance the volumes between mechanical sounds of music sounds, you can do it globally (by editing the VPinballX.ini file), or on a table basis (by editing the table's .ini file, located next to its .vpx). Look for this section:

```
[Player]
MusicVolume = 100
SoundVolume = 5
```

- **v39+**: you can also configure this directly in the Advanced Options of the emulator

Altsound packages

(starting in v39 of Batocera)

The sounds included in the rom can be totally replaced. You can find some packages at https://vpuniverse.com/files/category/113-altsound/ or http://altsound.vpin24.com/

1. Download the `.zip` file
2. Extract it in `/userdata/roms/vpinball/<table_folder>/pinmame/altsound/<rom_name>` (example: `/userdata/roms/vpinball/Guns_n_Roses_1994/altsound/gnr_300` for the Data East Guns N' Roses table)

Data East tables are notorious for having a very bad sound quality. You can find altsound packages which can be simply a better version of the original sounds, or a very different version.

Use colored DMD

Only the Serum colorization system is supported (https://vpuniverse.com/files/category/173-serum-dmd-colorizations/) at the moment (with Batocera 39+)

1. Download the corresponding `.cRZ` file for the pinmame ROM and copy it into `/userdata/roms/vpinball/<table_folder>/pinmame/altcolor/<rom_name>/<rom.cRZ>` (ex: `/userdata/roms/vpinball/Tron_Legacy/pinmame/altcolor/trn_174h/trn_174h.cRZ` for Tron Legacy).
2. Check on jsm174's GitHub page if a pre-existing updated script for Serum colored DMD `.vbs.dmdcolored` file exists. If it does, you can download it and copy it into the table directory and **rename it with a `.vbs` extension**, letting it sit next to the `.vpx` file, with the same filename (ex: `/userdata/roms/vpinball/Tron_Legacy/Tron Legacy (Stern 2011) VPW Mod v1.1.vbs` (from the original `.vbs.dmdcolored` on jsm174's Github repo).
3. If no `.vbs.dmdcolored` script is available and the DMD is not colorized, you can try and set it by yourself:
    1. first, extract the `.vbs` script from the `.vpx` table file using a tool like the VPX-VBS extractor;
    2. In the `.vbs` file, replace the `UseVPMDMD` parameter by `UseVPMColoredDMD`;
    3. Save the table, and keep the same filename as the `.vpx` table, just with the extension changed to `.vbs`. It's not necessary to import the `.vbs` file back into the `.vpx` file, if a `.vbs` file exists in the folder, it takes priority.

Have an animated Backglass (B2S)

Animated backglasses are files with `.directb2s` extension and should be placed next to your `.vpx` file. The support was added for **v39+**. The extension `.directb2s` must be lower case and the name has to be identical to your table's name (eg: `Transporter the Rescue (Midway 1989) VPW v1.05.directb2s` for `Transporter the Rescue (Midway 1989) VPW v1.05.vpx`).

Have PUP Pack Animations on the Backglass

In **v40+**, there's initial support. In `VPinballX.ini`, there are new settings. If you want to activate pup support:

```
[Standalone]
B2SPlugins = 1
PUPCapture = 1
PUPPlugin = 1
```

Download the corresponding PUP Pack and copy it into `/userdata/roms/vpinball/<table_folder>/pupvideos/<rom_name>/` (eg: `/userdata/roms/vpinball/Lord of the Rings (Stern 2003)/pupvideos/lotr`).

The expected ratio for the backglass and the FullDMD are 16:9. For the topper, it's not strictly defined, so 4:1 ratio is a good starting point to start experimenting.

You need to be patient: don't expect everything to work as it's a WIP.

If it's not working as expected, you can check if you have the correct (ie: adapted to desktop or 2 screens, or 3 screens...) `playlists.pup`, `screens.pup` and `triggers.pup` files in `/userdata/roms/vpinball/<table_folder>/pupvideos/<rom_name>/`. Most of the time, you have a `PuP-Pack_Options` folder with some preconfigured ready-to-use files. Eg: for `Batman 66 Stern Tribute (2021)`, you need to replace the 3 .pup files in `/userdata/roms/vpinball/Batman 66 Stern Tribute (2021)/pupvideos/b66_orig/` by the ones from `/userdata/roms/vpinball/Batman 66 Stern Tribute (2021)/pupvideos/b66_orig/PuP-Pack_Options/Option 3 - Desktop`.

A few ideas if a puppack is not working:

- sometimes you need to activate it in the .vbs script (eg: the goonies table)
- make sure the folder “PupCapture” is spelled this way (this folder is currently case-sensitive, so it won't work if it's “PuPCapture” for example)

I want to use Batocera for a Visual Pinball Cabinet

Starting with Batocera 40, you can use Batocera as the OS for a VPX-based pincab. Here are the configuration steps:

- First, define if you want the primary screen for ES to be the playfield or the backglass (assuming you have at least 2 screens for your pincab).
- Let's assume that you choose the backglass as the primary ES screen. You need to define it with its identifier and resolution in EmulationStation (**SYSTEM SETTINGS → VIDEO OUTPUT**). Don't keep the **AUTO** value. If necessary, you can tweak the resolution in **SYSTEM SETTINGS → ADVANCED FRONTEND OPTIONS**)
- Then, in **SYSTEM SETTINGS → MULTISCREEN** you need to define the output for your secondary ES screen. In our example here, this would be the playfield for VPX, and the information screen for EmulationStation.
- Now, for the DMD, you have two options here:
  - Either you use another screen for DMD, and then you need to define it as the **DMD SCREEN** in this **MULTISCREEN** menu;
  - Or you have a physical LED-based DMD like a Pixelcade or a ZeDMD and you need to configure it in **SYSTEM SETTINGS → DMD**.

- If you use a 3rd screen as the DMD, go to **SYSTEM SETTINGS → DMD** and set the server to **DMDSIMULATOR**. If you have a physical LED-based DMD, set this option to **DMDSERVER (FOR REAL DMDs)**.
- When you launch a VPX table, Batocera will try and detect which screen is the backglass, which screen is the playfield (independently from the selection that has been made for EmulationStation). If it gets inverted, you can swap the screens for the playfield and the backglass with the option **INVERSE PLAYFIELD AND B2S** in the advanced settings of Virtual Pinball.
- When using Batocera in a pincab, in the same advanced settings for the Virtual Pinball system, set the **PLAYFIELD MODE** to **FULLSCREEN**.
- If you launch a table, and the playfield is not set up correctly, like it is in single-screen mode and not the right playfield view you expect, you can fix it from the VPX menu:
  - Plug a keyboard to your Batocera machine and press **ESC** to enter the VPX menus
  - Go to **table options**, then **Page 2/3 Point of View**
  - Use left and right CTRL keys to browse the menu options, and use left and right SHIFT key to change values
  - Set **View layout mode** to **Window**.
  - Press the key 1 on your keyboard to save the setting.

As of now, not everything is supported on Batocera 40, but things move fast. In particular what is missing compared to traditional Windows-based pincabs:

- DOFlink to control toys (addressable LEDs, shakers…)
- SFF and multi-output sound systems

For earlier versions of Batocera, this is not supported, and requires some manual work with many steps. A pinball & batocera fan shared information about how to tweak Batocera 39 for pincabs at this location.

Troubleshooting

- a lot is logged in `/userdata/system/configs/vpinball/vpinball.log`. That'll help you investigate your problem.
- the table opens briefly then closes:
  - do you have the correct rom in `.zip` format in `/userdata/system/configs/vpinball/pinmame/roms` ?
  - did you check if the table needs an additionnal `.vbs` file from https://github.com/jsm174/vpx-standalone-scripts ?
- my dmd is not showing: https://github.com/vpinball/vpinball/tree/standalone/standalone#my-game-is-not-displaying-a-dmd. The https://github.com/jsm174/vpx-standalone-scripts repository also has a bunch of files with a `.vbs.dmd` extension: they contain some hacks to display the DMD if you're playing on a single screen. Just rename the extension to `.vbs` and put this file next to your table (with the exact same name).
- I can't add coins:
  - sometimes you have to launch a table twice: the 1st time, the rom is initiated. You have to quit and launch the table again.
  - some Bally and Gottlieb tables (gts3 type: cueball wizard for example) need a pre-initialized nvram to accept coins. You can get some files here https://www.vpforums.org/index.php?app=downloads&showfile=1362 and copy them to

`/userdata/system/configs/vpinball/pinmame/roms`

- a lot is logged in `/userdata/system/configs/vpinball/vpinball.log`. That'll help you investigate your problem.
- the table opens briefly then closes:
  - do you have the correct rom in `.zip` format in `/userdata/system/configs/vpinball/pinmame/roms` ?
  - did you check if the table needs an additionnal `.vbs` file from https://github.com/jsm174/vpx-standalone-scripts ?
- my dmd is not showing: https://github.com/vpinball/vpinball/tree/standalone/standalone#my-game-is-not-displaying-a-dmd. The https://github.com/jsm174/vpx-standalone-scripts repository also has a bunch of files with a `.vbs.dmd` extension: they contain some hacks to display the DMD if you're playing on a single screen. Just rename the extension to `.vbs` and put this file next to your table (with the exact same name).
- When I touch the left stick, the ball starts to behave in a crazy way (**v40+**):
  - there's some analog control support in v40+ versions. You should disable the accelorometer support by editing the `VPinballX.ini` file, put these values

```
[Player]
; Nudge
PBWEnabled = 0
```

Performance Tips

If your table is not playing smoothly:

1. Press `F11` to display the fps.
2. Easy fix: use a lower resolution: go to `Options> Advanced System Options > Video Mode`.
3. Another easy fix: starting with **v39**, the Advanced Options have presets to match your hardware.
4. More advanced fix: fine tuning the settings in `VPinballX.ini` may allow you to play at a higher resolution (4k 60fps for example), by sacrifying a few less visible visual effects. For example, a table will look much nicer at 4k without dynamic ambient occlusion than at 1080p with dynamic ambient occlusion (which can bring your gpu to its knees...). You could start with:

```
[Player]
; Video options
SyncMode = 2
MaxFramerate = 60
MaxPrerenderedFrames = 0
FXAA = 0
Sharpen = 0
ScaleFXDMD = 0
DisableAO = 1
DynamicAO = 0
SSRefl =
PFReflection = 4
```

Note: Some settings in the VPinballX.ini file only apply to specific systems (windows for eg). Eg:

`UseNVidiaAPI` has no effect on standalone version.

Further troubleshooting

For further troubleshooting, refer to the generic support pages.

From:
https://wiki.batocera.org/ - **Batocera.linux - Wiki**

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https://wiki.batocera.org/systems:vpinball?rev=1718607199

Last update: **2024/06/17 06:53**