# The state of gaming on FreeBSD

Thibault Payet

# Who am I ?

- FreeBSD user since 9.2
- Port maintainer since 2016
- Mainly a C++ developer, and occasionally a python developer

# Outline

1. Wine gaming
2. Linux gaming
3. Linux Steam Utils gaming
4. Gaming on bhyve

# Wine gaming

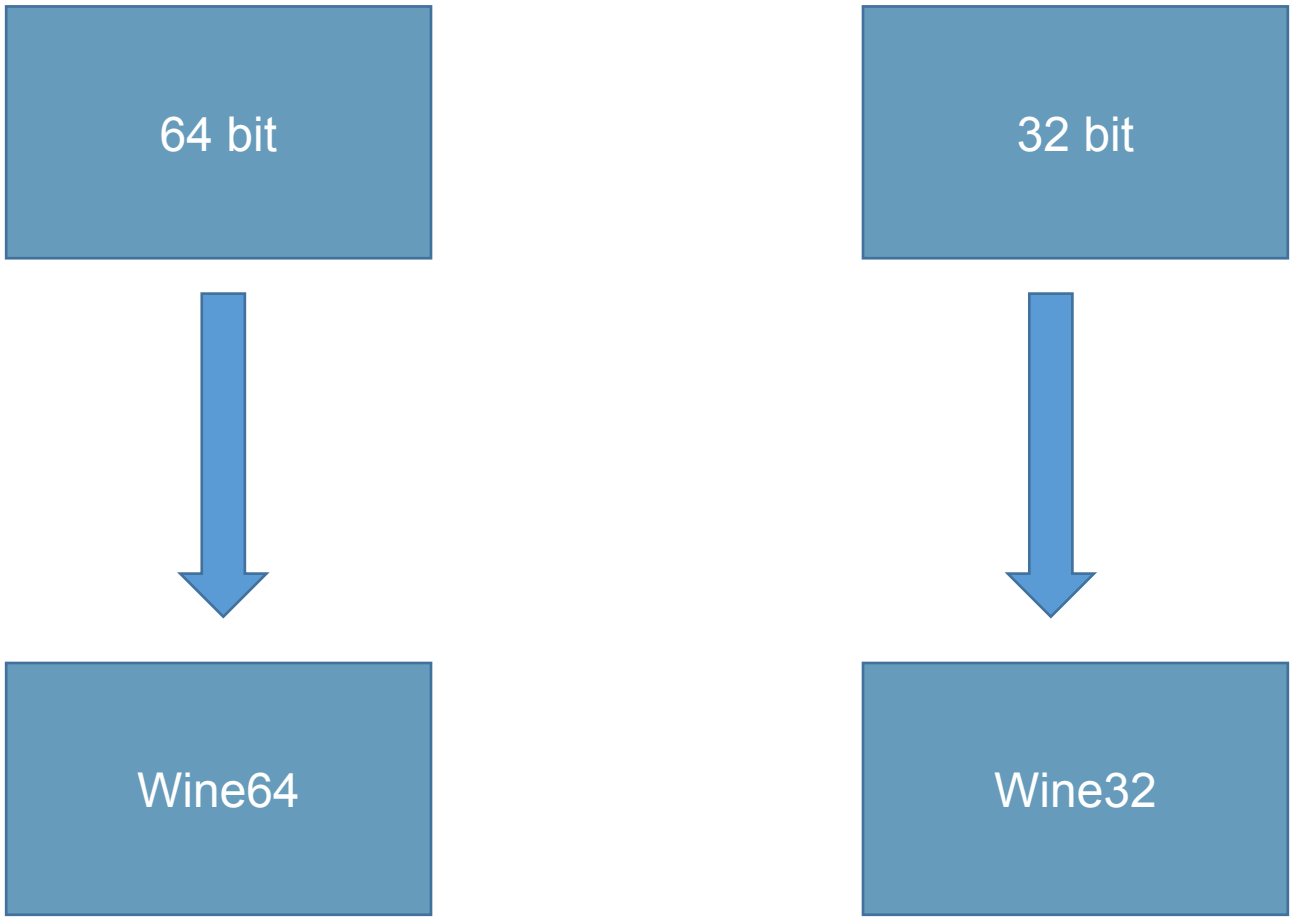
## Available in ports

wine (stable) - 10.0

wine-devel (development) - 11.1

wine-proton - 9.0.3

# How to manage the mix of architectures ?



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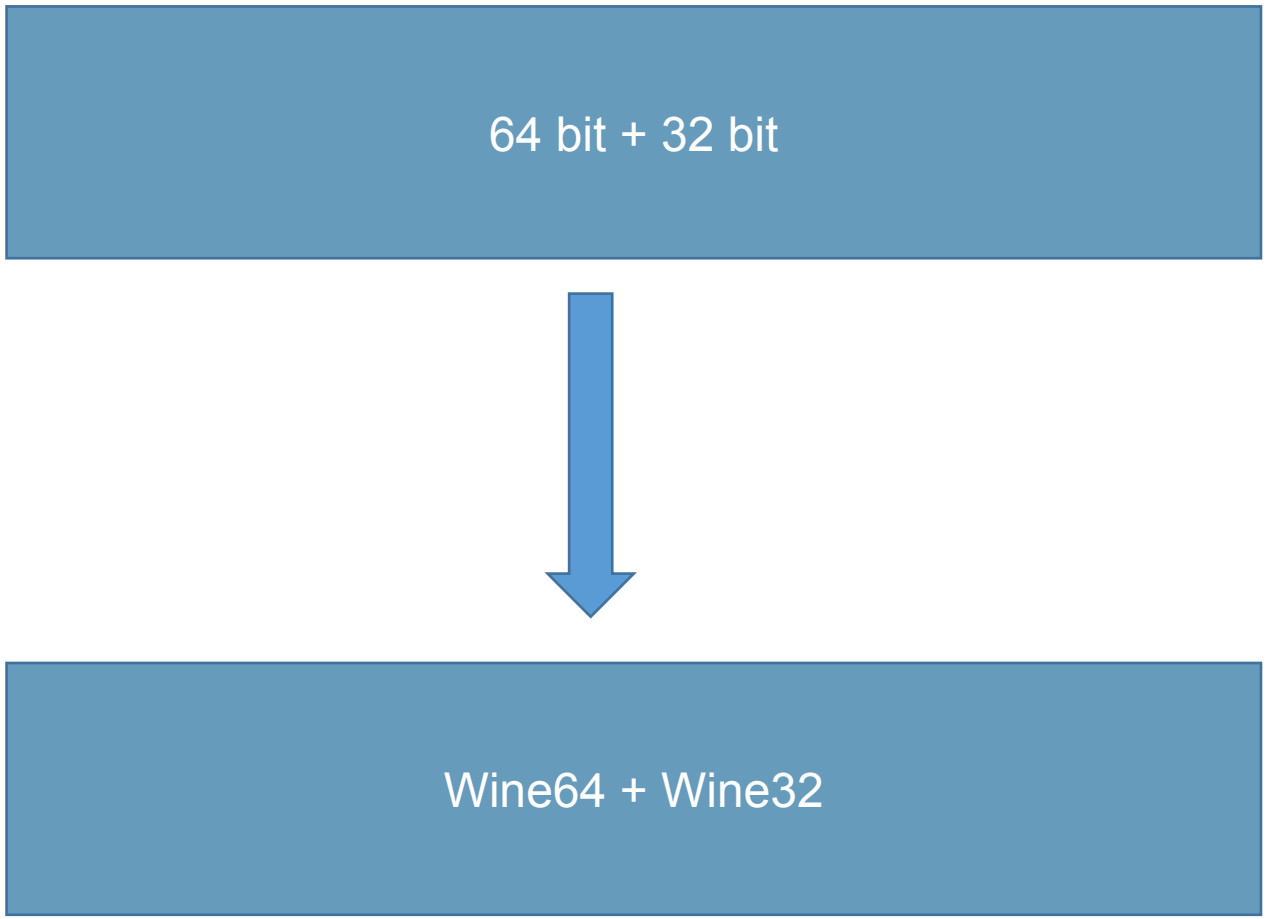

/usr/local/bin


Shell script

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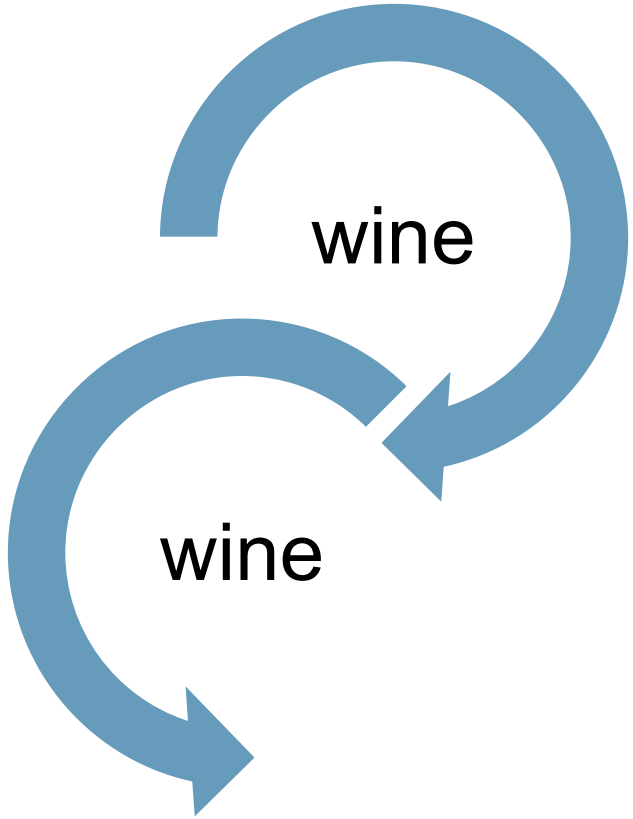



Shell script

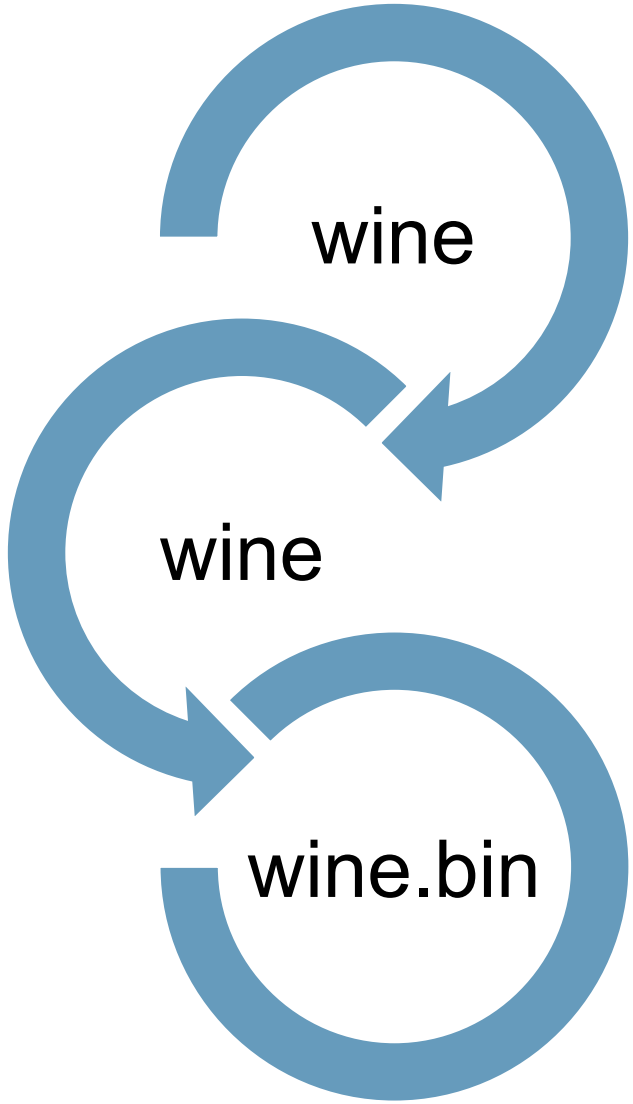
$HOME/.i386-wine-pkg/**/bin

Shell script

# 64bit + 32bit Architecture

/usr/local/bin

Shell script




$HOME/.i386-wine-pkg/**/bin

Shell script

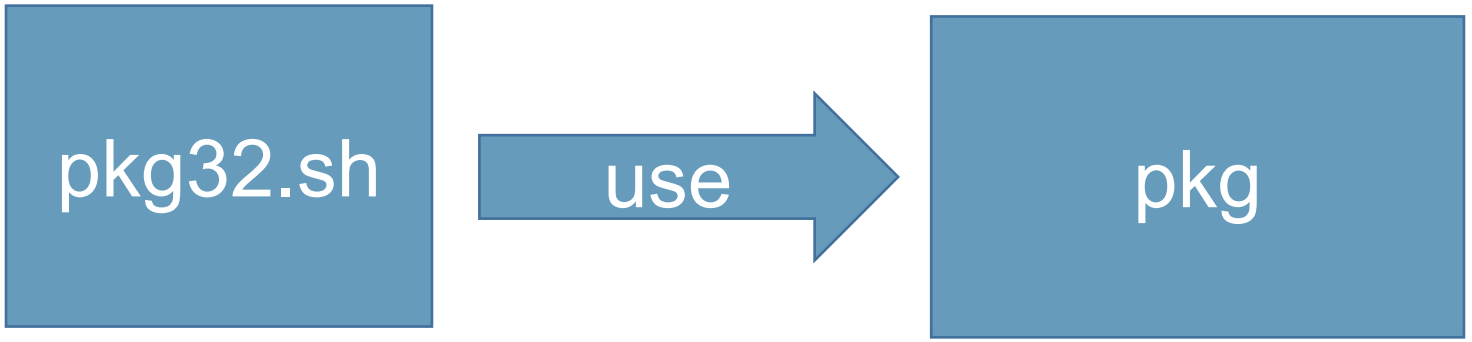
$HOME/.i386-wine-pkg/**/bin

Binary executable

## How do we install the 32bit pkg on a 64bit system ?

pkg32.sh

# How do we install the 32bit pkg on a 64bit system ?



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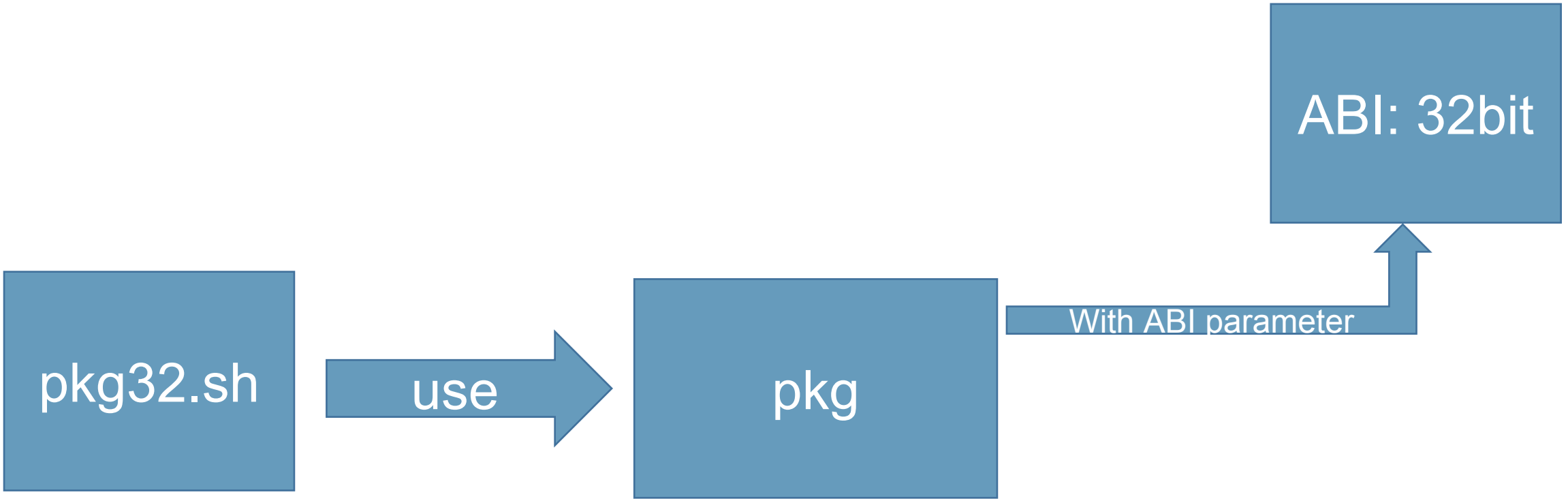

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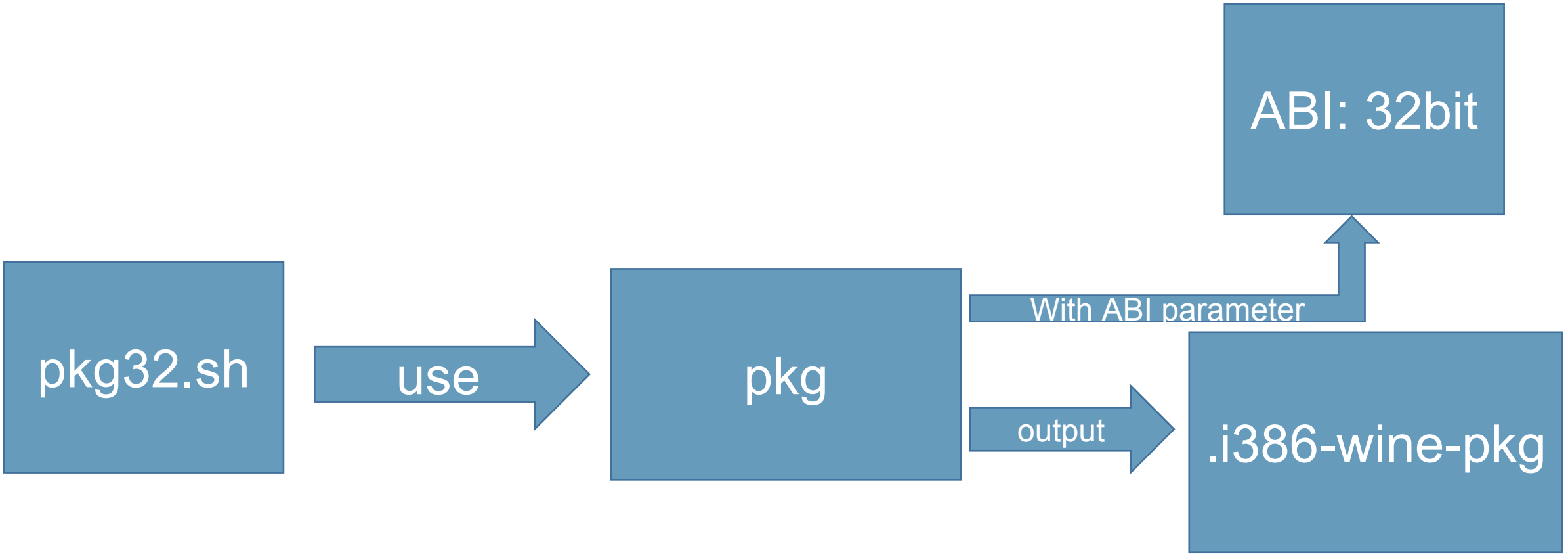
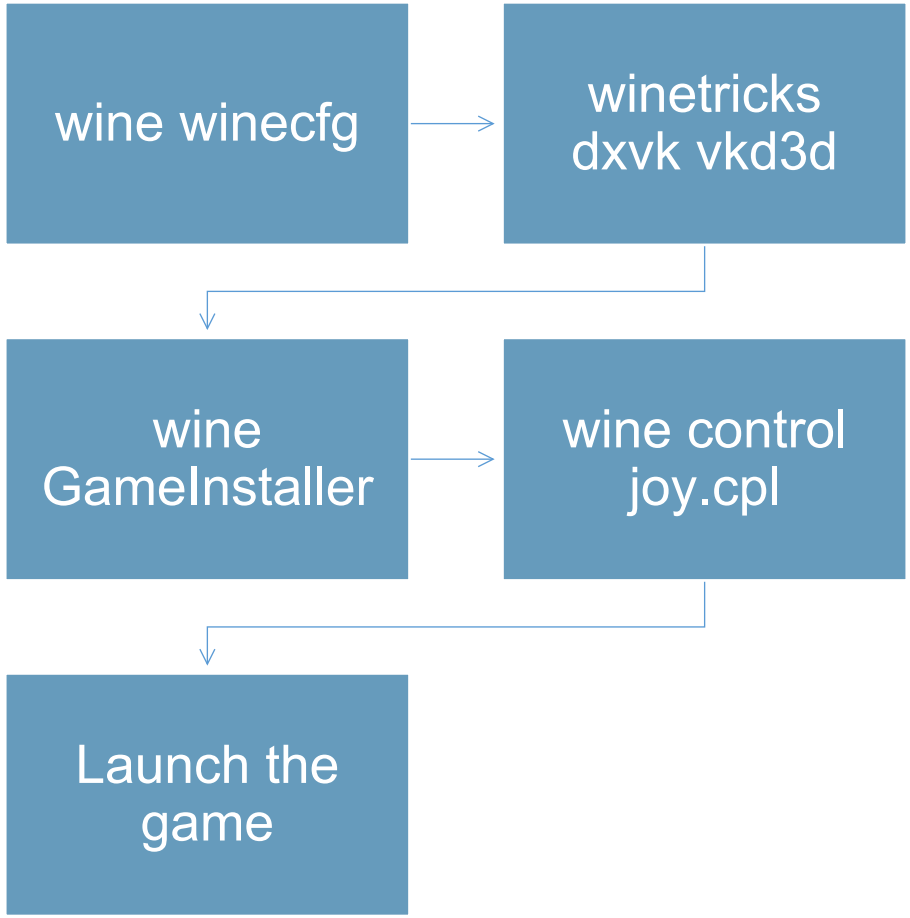
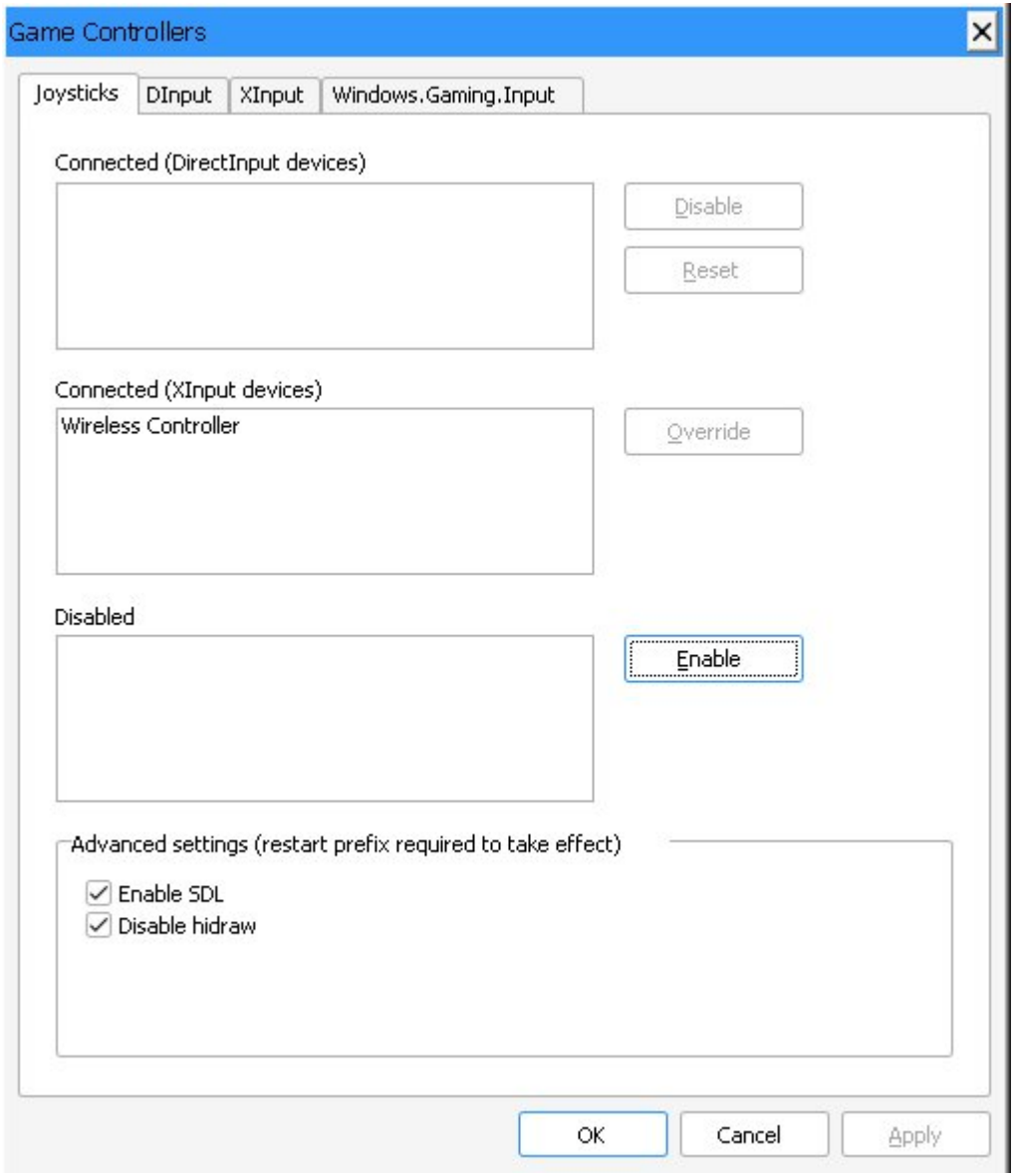



wine winecfg
winetricks
dxvk vkd3d
wine
GameInstaller
wine control
joy.cpl
Launch the
game

# Game controller support



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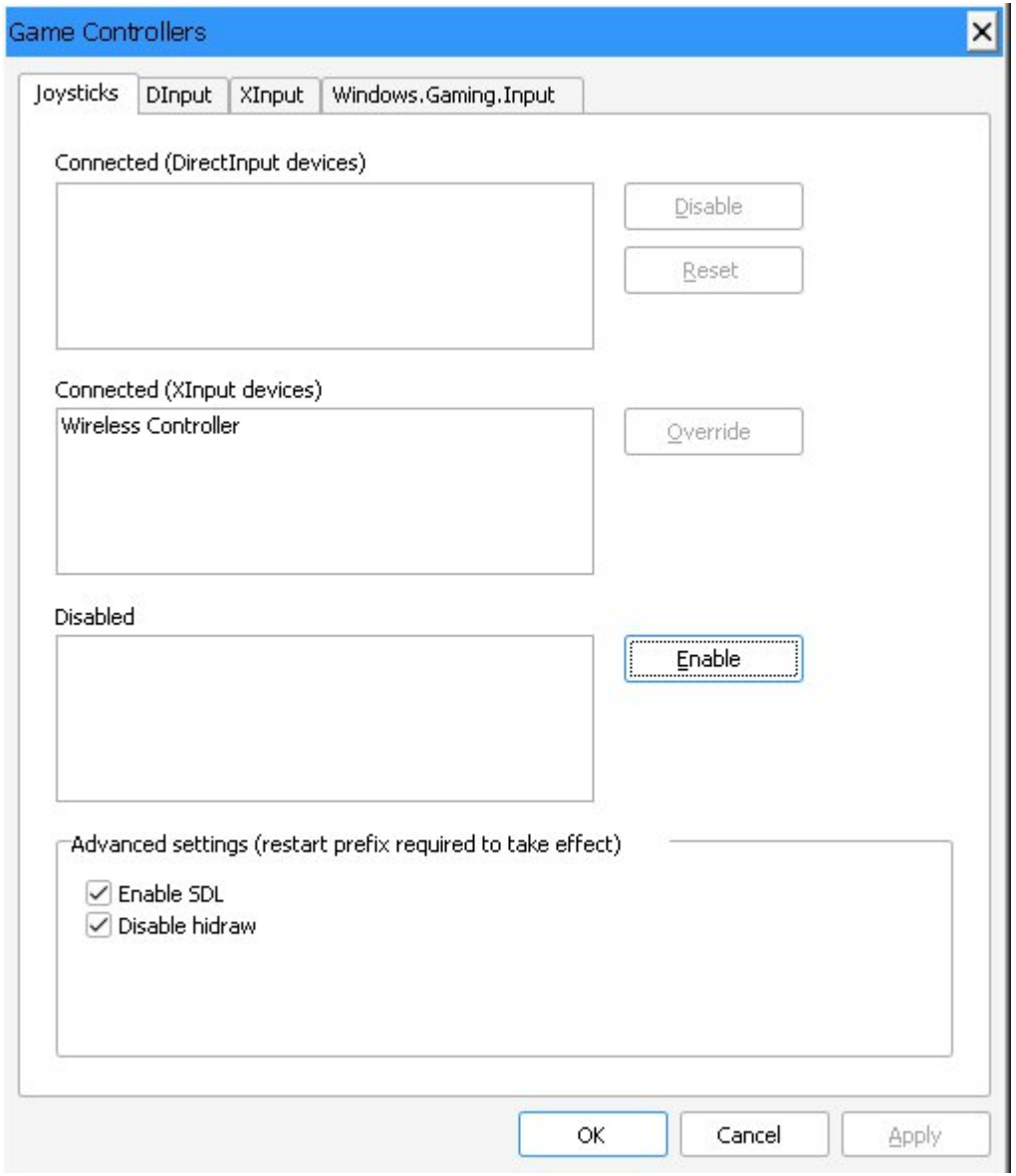


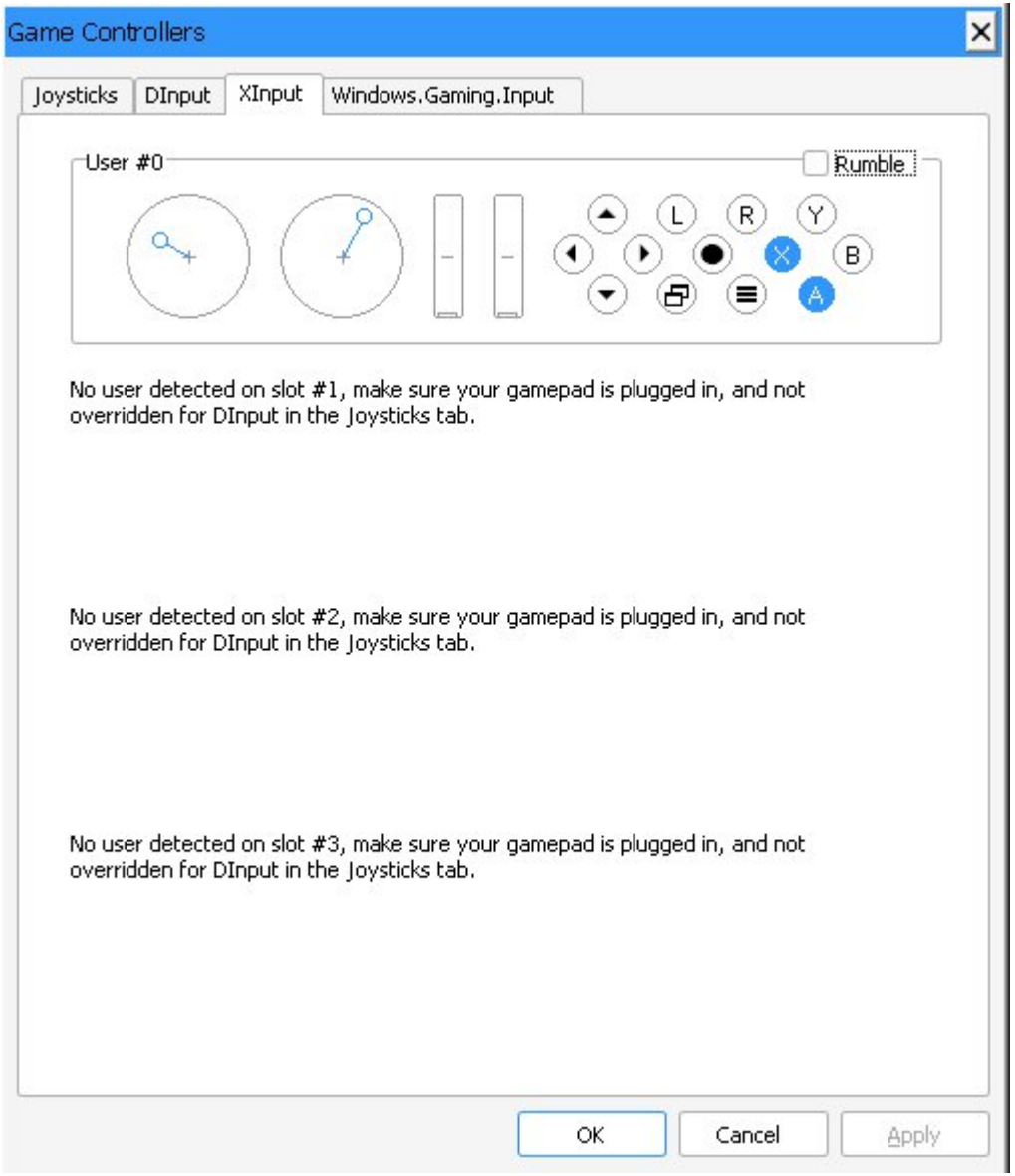

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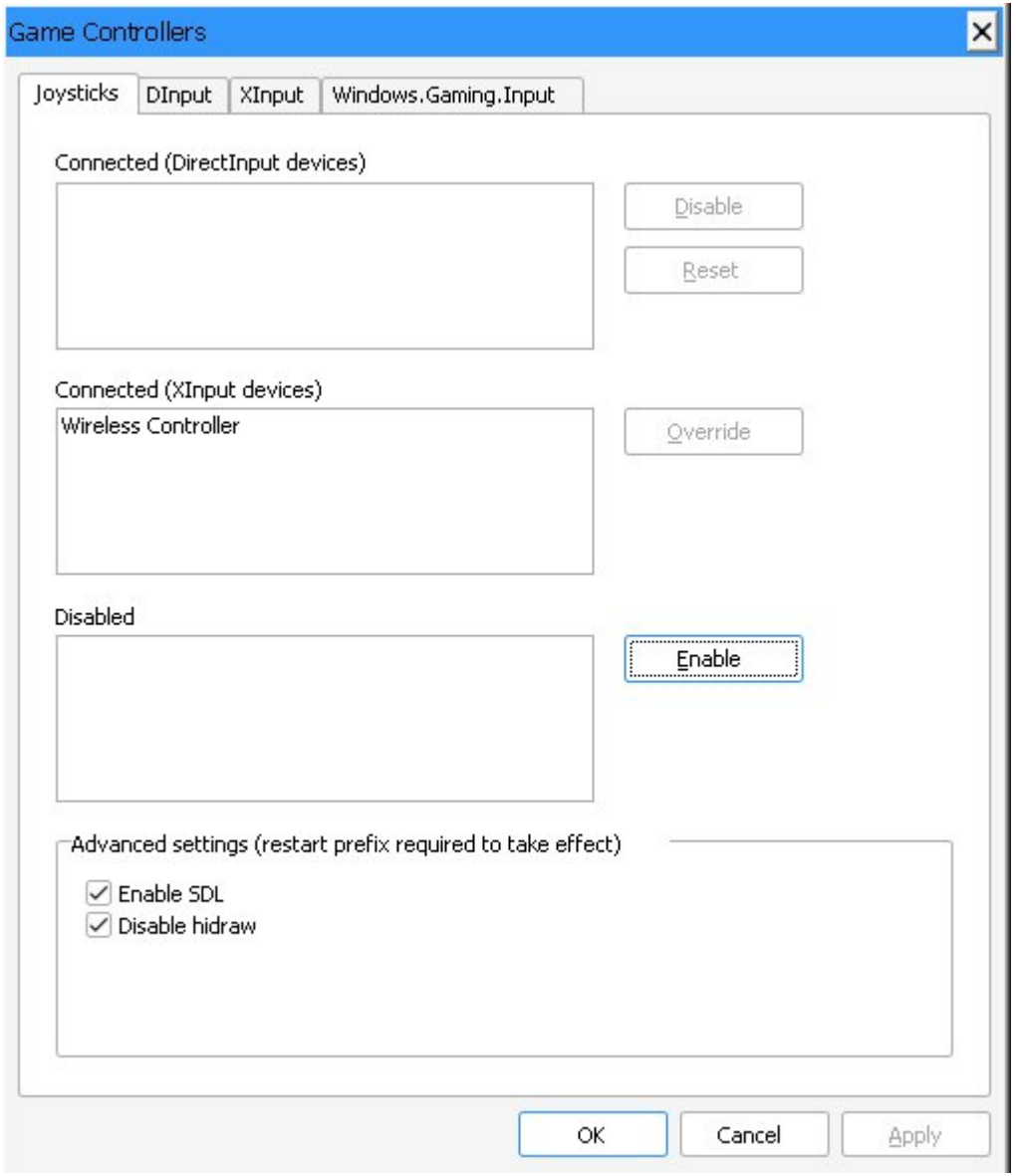
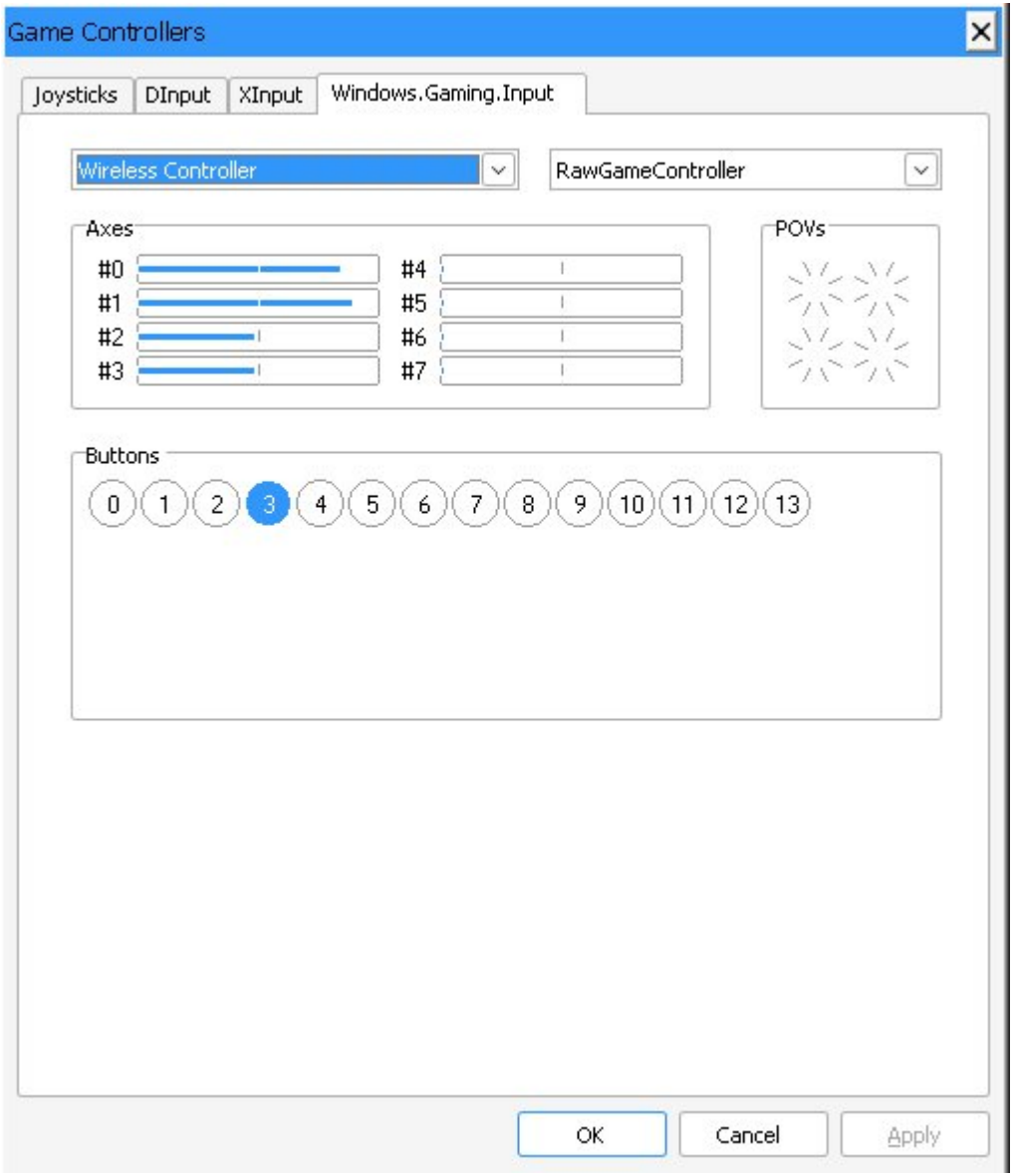


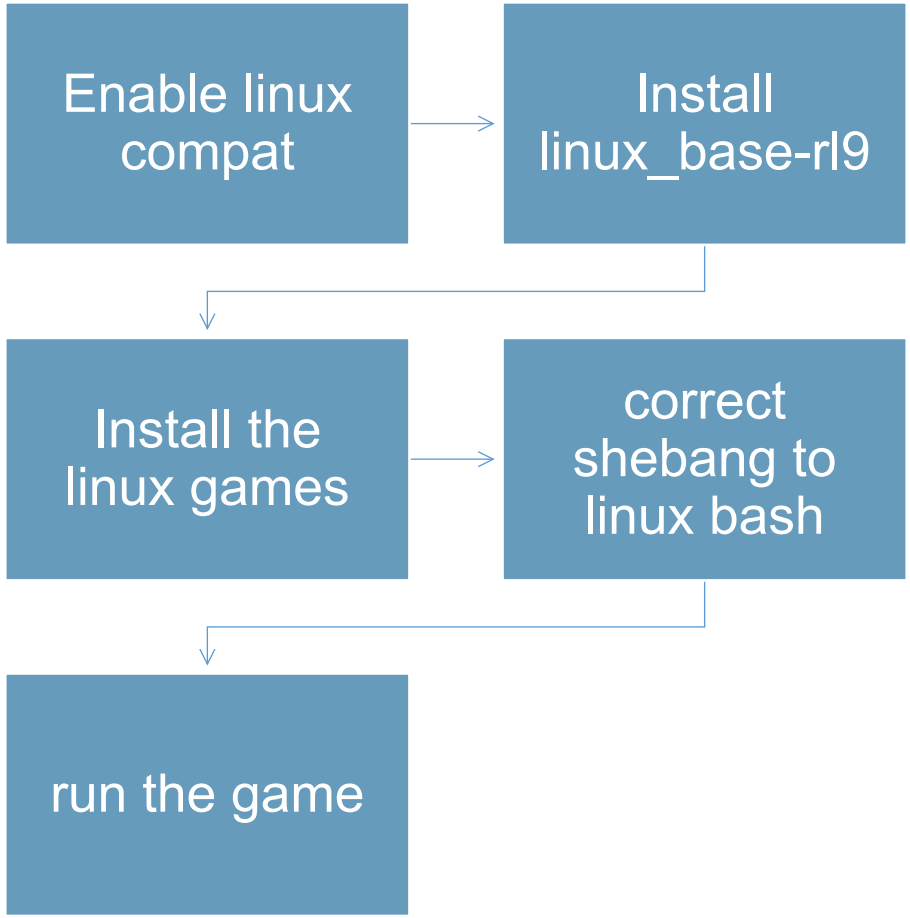
# Cyberpunk 2077

# Hollow Knight: Silksong

# The Elder Scrolls V: Skyrim

# Fallout 4

# Linux gaming


Enable linux compat
Install linux_base-rl9
Install the linux games
correct shebang to linux bash
run the game

# This was too easy right ?

**Nvidia**

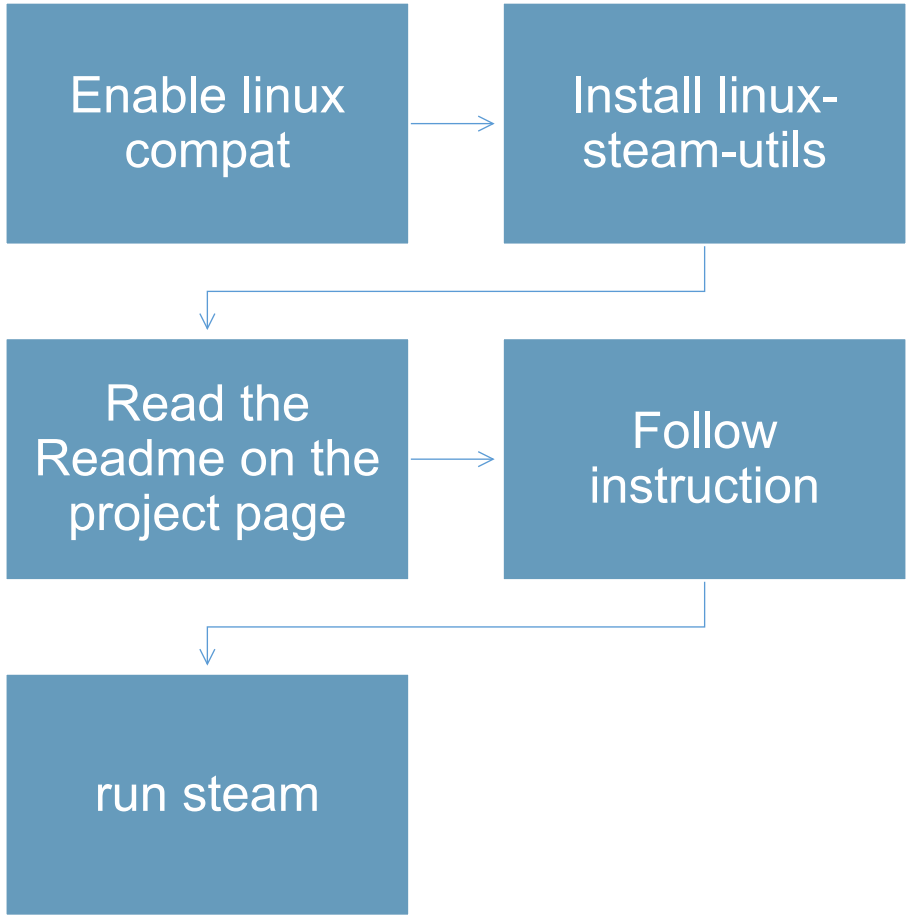
- Install linux-nvidia-libs

**Mesa**

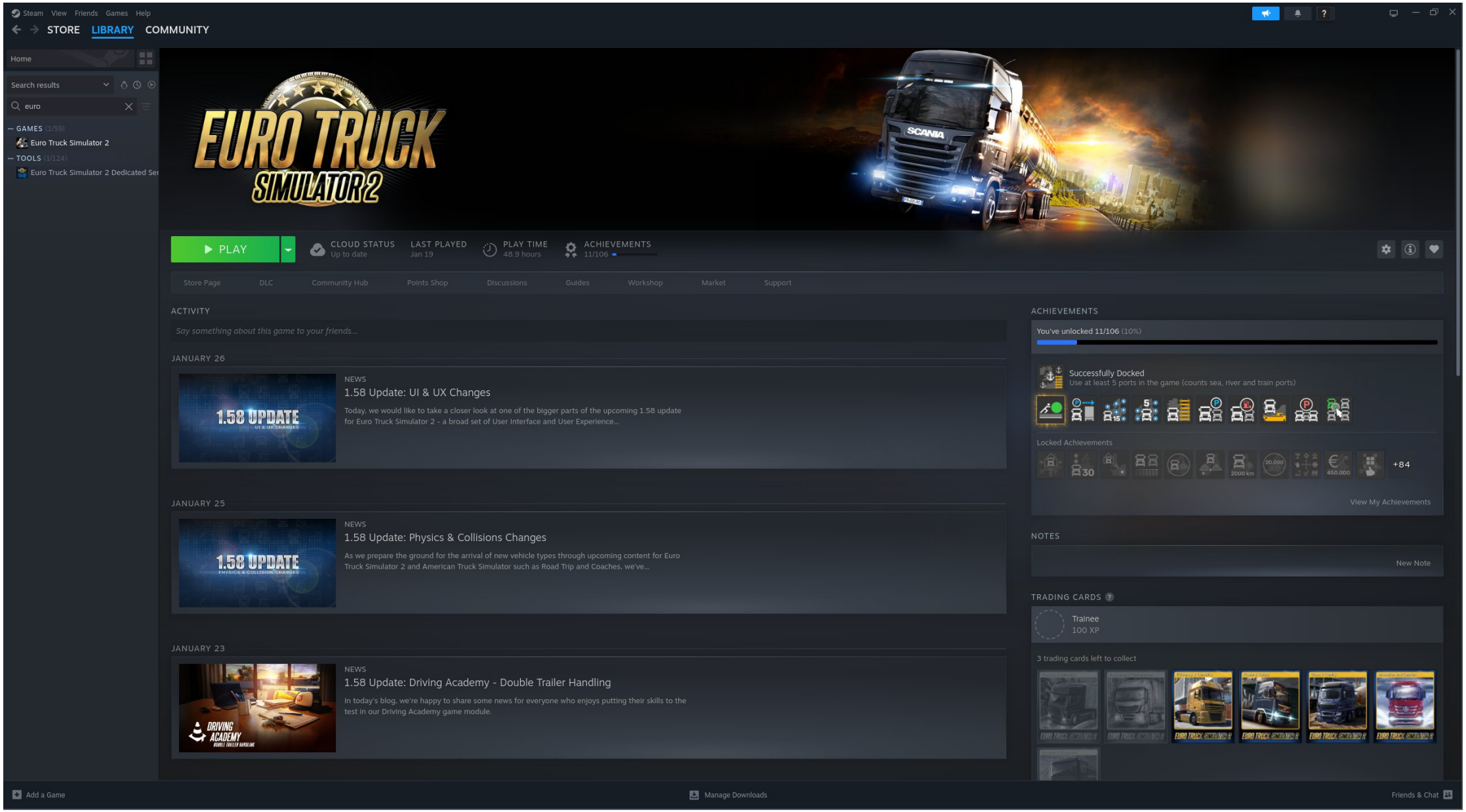
- Apply https://reviews.freebsd.org/D26836 or https://reviews.freebsd.org/D38545
- Rebuild your linsysfs kernel module
- This patch is to allowing linsysfs to see the render device /dev/dri/renderD*

# Linux Steam Utils gaming

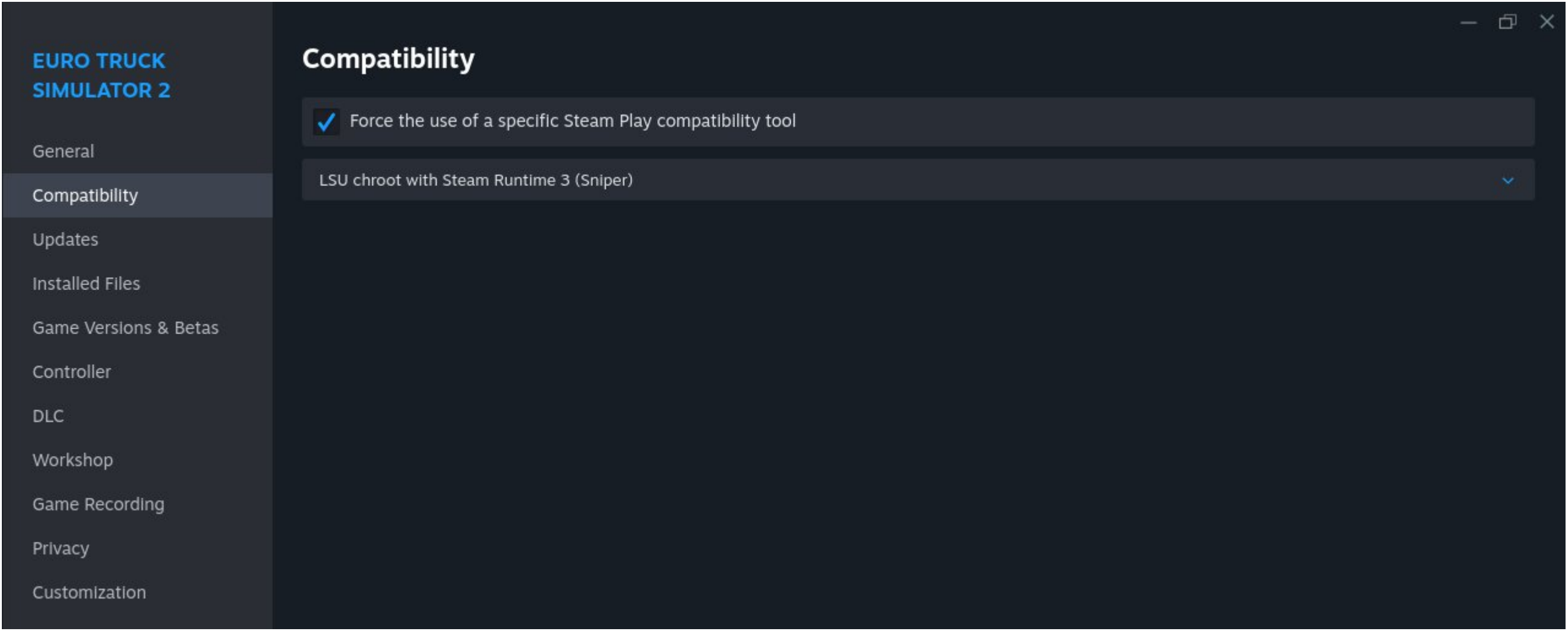
- A set of workarounds for the Linux Steam client targeting FreeBSD 14+
- Fix the gpu acceleration issue
  - Use the information from the FreeBSD drivers with sysctl to reconstruct the character device
  - Similar to https://reviews.freebsd.org/D26836
- Use user chroot to use steam runtime
- Allow to play windows games with wine-proton
- Gamepad support for linux games by running a specific script: https://github.com/shkhln/linuxulator-steam-utils/blob/master/bin/fix-gamepad-permissions


Enable linux compat
Install linux-steam-utils
Read the Readme on the project page
Follow instruction
run steam

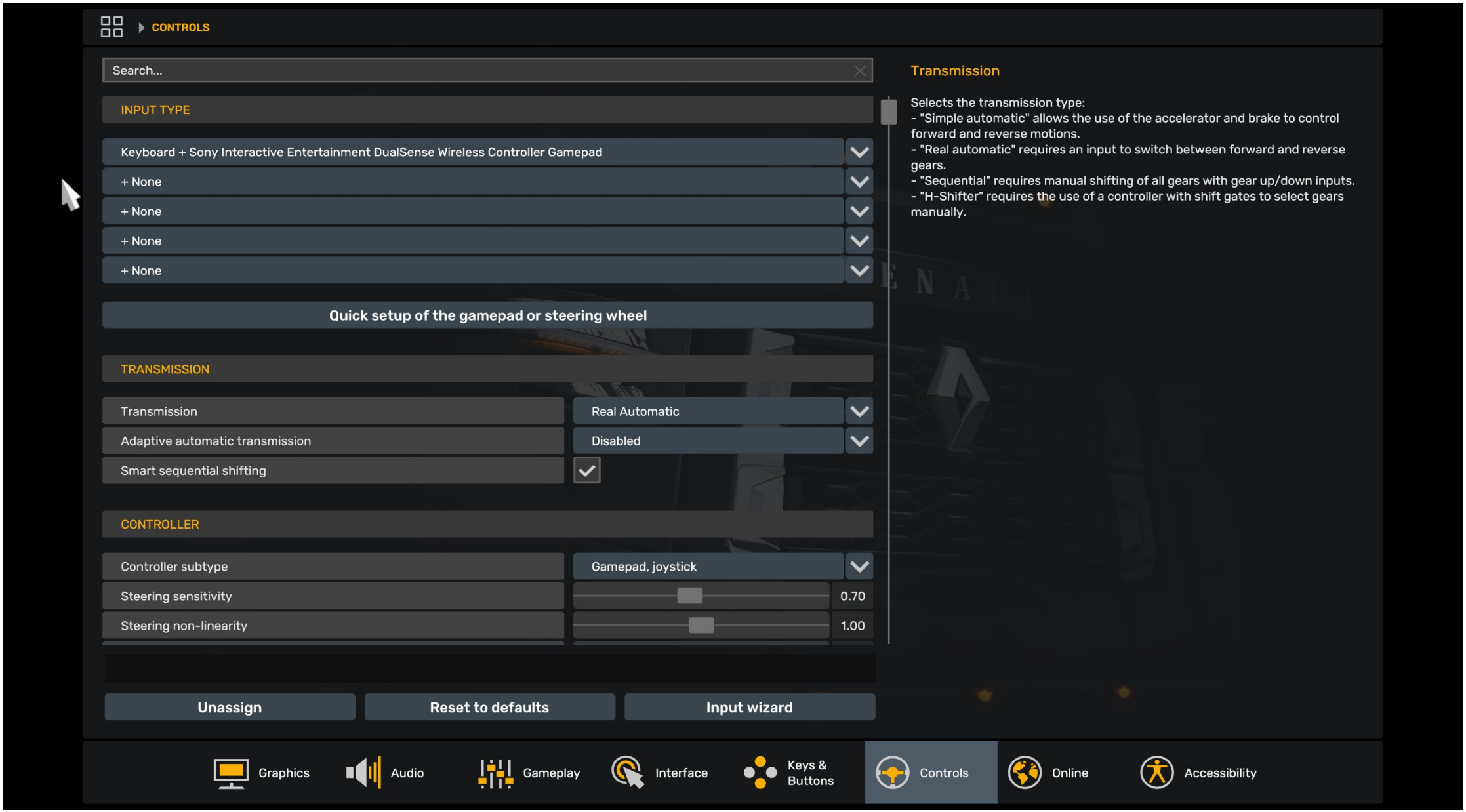
# Steam client running through Linuxulator



# Compatibility option: LSU chroot



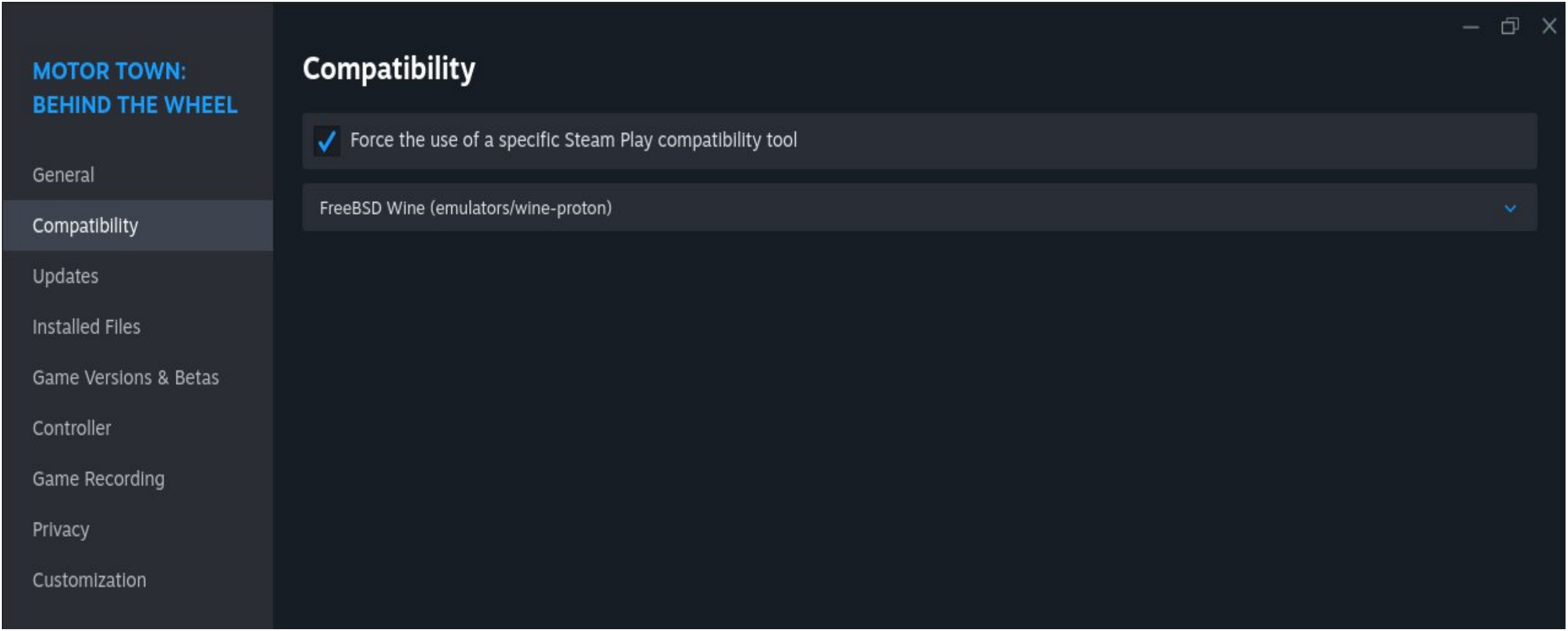
# Game controller support



# Euro Truck Simulator 2

# Don’t Starve Together

# Compatibility option: wine-proton



# Game controller support

# Motor Town: Behind The Wheel

# GTA III

# Gaming on bhyve

## Configuration for vm-bhyve and gpu passthru

```
loader="uefi"
cpu=6
memory=12G
network0_type="virtio-net"
network0_switch="public"
disk0_name="disk0"
disk0_dev="sparse-zvol"
disk0_type="virtio-blk"
network0_mac="58:9c:fc:0d:82:f4"
uuid="0f3925b3-9252-4ca7-8861-7028415199be"

# The gpu
passthru0="3/0/0=3:0"
# The audio on the gpu
passthru1="3/0/1=3:1"
#The usb controller that have: usbc, bluetooth, other usb
passthru2="4/0/0=9:0"
```

## Scripts: enable-game-vm

```
sysrc vm_list="game"
sysrc -f /boot/loader.conf pptdevs="3/0/0 3/0/1 4/0/0"
```

## rc.d service: nextboot_freebsd

```
#!/bin/sh
# PROVIDE: nextboot_freebsd
# REQUIRE: LOGIN
# KEYWORD: shutdown

. /etc/rc.subr

name="nextboot_freebsd"
rcvar="nextboot_freebsd_enable"

: ${nextboot_freebsd_enable:="NO"}

command="/root/bin/disable-game-vm"

load_rc_config $name
run_rc_command "$1"
```

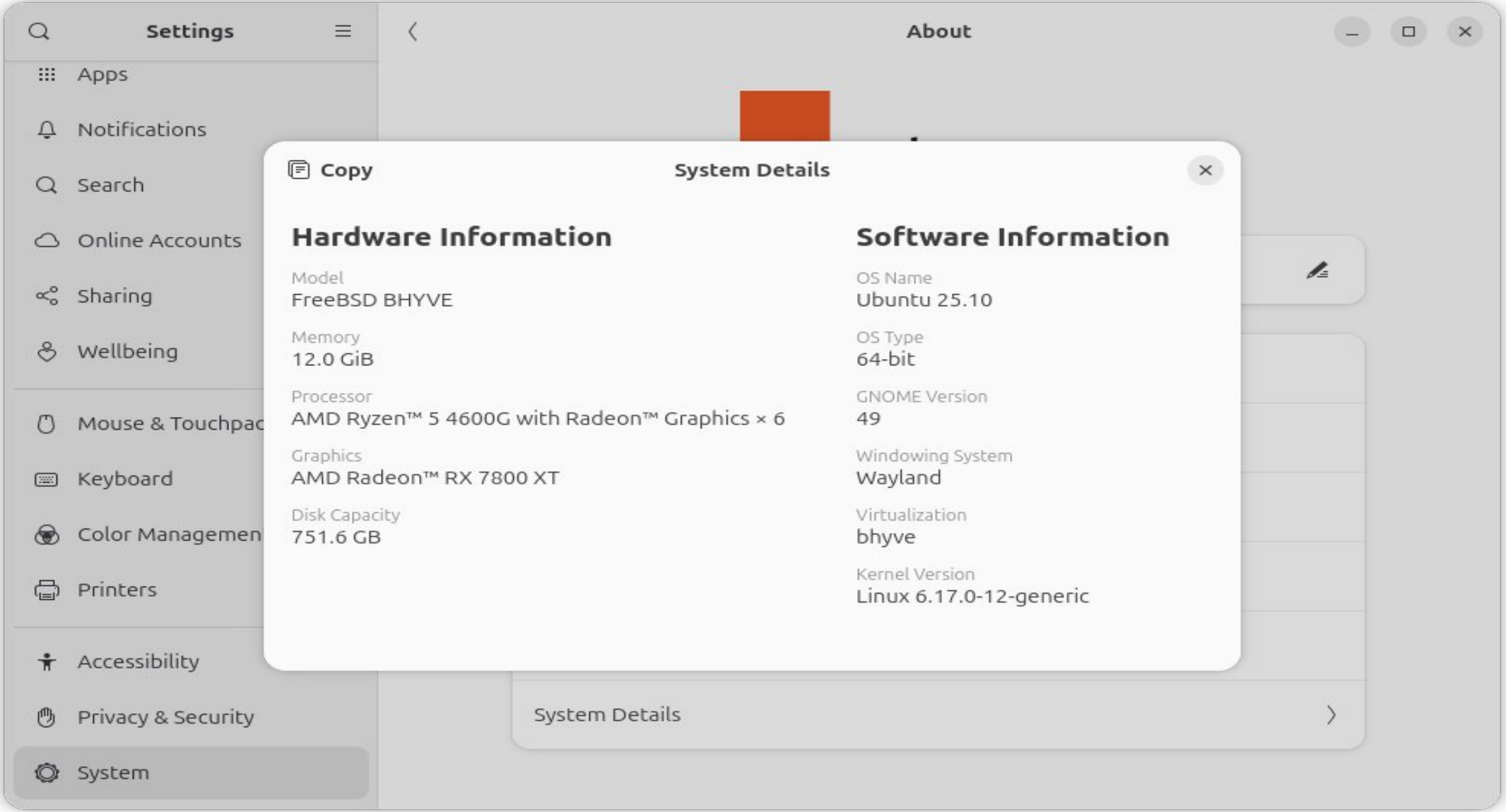
## Scripts: disable-game-vm

```
sysrc -ci vm_list && sysrc -x vm_list || true
sysrc -ci -f /boot/loader.conf pptdevs && sysrc -f /boot/loader.conf -x pptdevs || true
```

# How to restart to the game VM ?

- Launch the script enable-game-vm as root
- Reboot the system
- Once the vm start, the monitor output will be from the vm if they are connected to the gpu that we just passthru
- If the system have multiple gpu (like an igpu for instance), it is still possible to use FreeBSD by connecting one monitor to each gpu. Thus allowing to run simultaneously two desktop: one for the Linux vm, and the other for a FreeBSD desktop.
  - For such case, having a physical kvm connected to two different usb controller will greatly help the process

# GPU detected



# Elden Ring

# Baldur's Gate 3

# Monster Hunter Wilds

# Conclusion

# Conclusion

- Gaming on FreeBSD can be achieved by multiple means:
  - Running a native open source game
  - Leveraging Wine to play Windows games
  - Leveraging Linuxulator to play Linux games directly, or through a set of workarounds added to it: linuxulator-steam-utils
  - Running the games through a bhyve VM with gpu passthru.

# Thank you for your attention