Gaming On Linux

November 1st 2019

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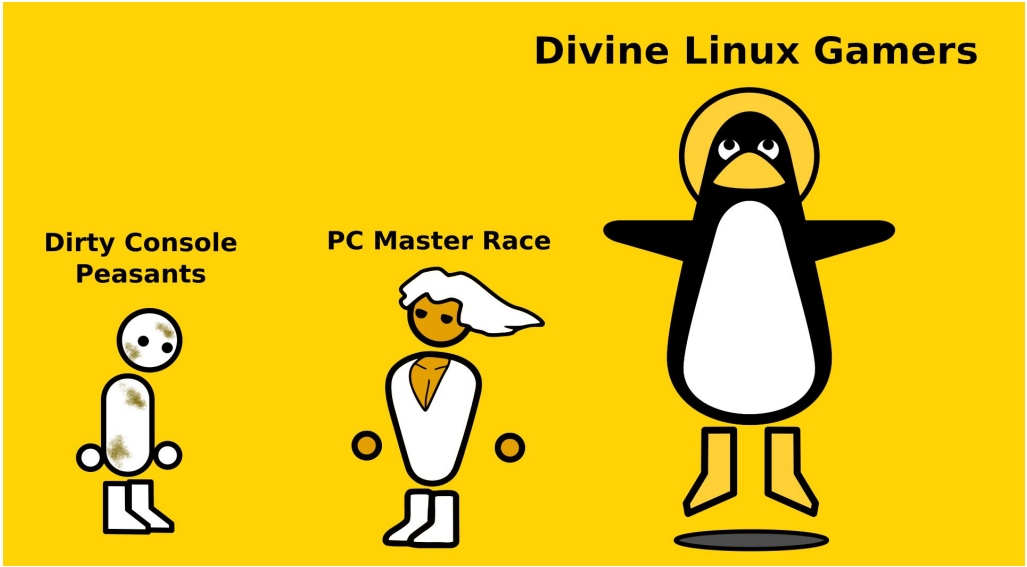

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Who here plays video games?

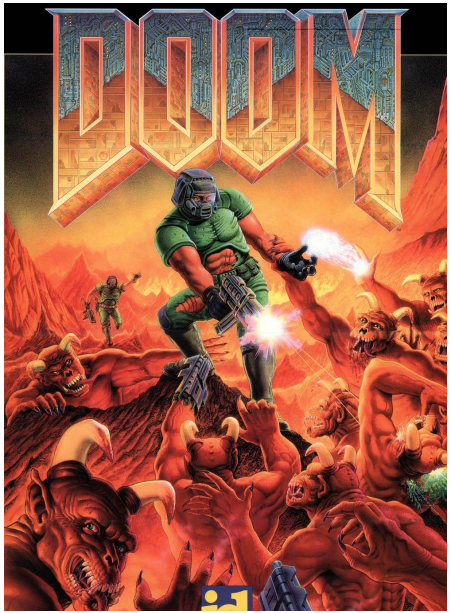
… what about on Linux?


WHAT IF I TOLD YOU
YOU CAN PLAY MODERN GAMES ON LINUX

But can it run Doom?

But first, a little History...

Humble Beginnings (1993-1997)



- Wine is first released in 1993
- The Linux gaming scene started as an extension to the Unix gaming scene… which was practically nothing...
- Linux “officially” started being a commercial gaming platform in 1994 when idSoftware employee Dave D. Taylor ported *Doom* to Linux, then *Quake* in 1996
- Games on Linux started as ports, made by enthusiastic game company employees

Linux Gaming has some ups… and a lot of downs… (1998-2010)

- In 1998, Loki Entertainment, the first commercial Linux gaming company is born… but is defunct by 2002.
- Some others companies take up the mantle:
  - Tux Games, Linux Game Publishing, Tribsoft, Hyperion Entertainment, Xantrix Entertainment, RuneSoft
- Mainstream game developers mostly give up on Linux
- By this time, Linux users start looking looking for other ways of getting their games… mostly through running Wine and packaging on Desura

Things are... good? (2011-2017)

- The 2010's brought a lot of progress for gaming on Linux
- In 2012 Linux got native support for the Unity Engine and the Source Engine
- In 2013 SteamOS was released by Valve, based on Debian
  - "Linux and open source are the future of gaming." - Gabe Newell
- In 2014 Linux got native support for Unreal Engine 4 and CryEngine
- But... developers are still not making the games native

The Future is Here... almost... (2018-Present)

- In 2018, Valve changed the way we game on Linux, by releasing the Proton API
- With the Proton API we now have the tools to run Windows native games much more efficiently
- Provides near native support
- Companies are starting to recognize the Linux market… let’s see how it goes

So how can we run all the games?

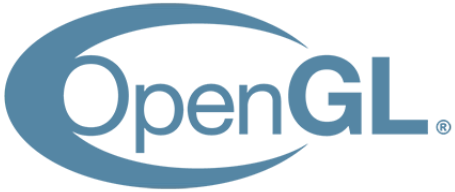
Native Ports of Games

- Plug and Play, native ports of games do exist, and they play just as well as natively on Windows or OSX
- Steam is your friend
- SteamOS
- Unfortunately, the number of officially ported titles is rather limited

Virtual Machines

- One of the easiest way to play games on Linux is to play the game itself on a Windows or OSX VM
- Heavy system requirements
- VMWare
- VirtualBox
- But that isn’t really gaming on Linux so no...

Graphics APIs



- OpenGL (1992)
  - APIs purely focused on rendering, but no APIs for input, audio, or windowing
  - GPU memory and synchronization typically hidden
  - Operations are sequential
  - Extensive error checking
- Vulkan (2016)
  - APIs offer support for rendering, input, audio, windowing, etc.
  - Explicit control over memory management
  - Multi-threading support
  - Limited error checking, but there is a validation layer

Wine and PlayOnLinux

- First released in 1993, just released version 4.0 in August 2019
- “Wine Is Not an Emulator” (it’s a compatibility layer)
- Originally made to generally emulate Windows applications on Linux, but now is pretty much mostly used for game compatibility Layer
- PlayOnLinux
- Game/App Reviews and HowTo: https://www.winehq.org/

Game/Hardware Emulation

- The main way to play games on Linux was through emulating the hardware of a the game's native system
- Some popular emulators:
  - Dolphin (Nintendo GameCube and Wii)
  - Cemu with Wine (Wii U)
  - RPCS3 (PlayStation 3)
  - DGen/SDL (Sega Mega and Sega Genesis)
- Depending on your emulator
- ROM Files

Proton

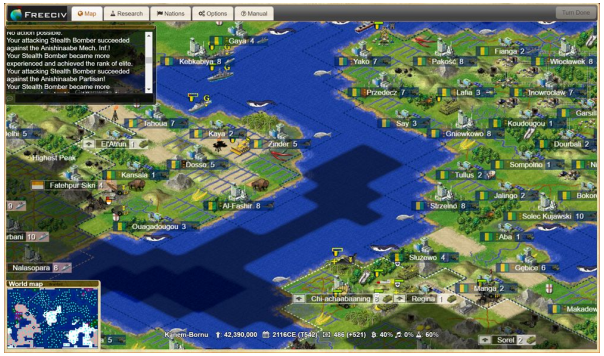
VALVE®

- In 2018, Valve released Proton, an open source fork of Wine, which is more finely tuned to work specifically games
- Steam Compatibility Support
- Very good support with OpenGL, Vulkan, DirectX11, and DirectX12
- Game Reviews and HowTo: https://www.protondb.com/

So what games can we play?

The Linux/FOSS Classics

- Some Classic Linux/FOSS Games you can play:
  - Super Tux
  - SuperTuxKart
  - Super Tux Party
  - OpenArena
  - FreeCiv
  - Tuxemon
- https://www.gamingonlinux.com/free-games/



Proton Silver

Proton Gold


METAL GEAR SOLID V
THE PHANTOM PAIN


grand theft auto
V
FIVE


STAR WARS
BATTLEFRONT


MORTAL KOMBAT X

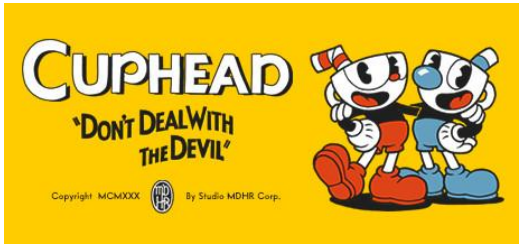

DEUS EX
HUMAN REVOLUTION
DIRECTOR'S CUT


DARK SOULS III


FINAL FANTASY VII


Fallout
NEW VEGAS

Proton Platinum



Questions?