



# Linux × VR!

Beginner's Guide on How to Join Events in Virtual Reality from Ubuntu using Envision and Monado, an OpenXR Alternative to SteamVR<sup>†</sup>

Kawane Rio

2/2/2025

† According to feedback, this guide may be slightly biased by the author's experiences with setting up VR on Linux.

Please watch the entire presentation before proceeding with your Linux VR setup.





# Linux × VR!

Beginner's Guide on How to Join Events in Virtual Reality from Ubuntu using Envision and Monado, an OpenXR Alternative to SteamVR<sup>†</sup>

Kawane Rio 2/2/2025

W/ WRONG STEPS INCLUDED!

† According to feedback, this guide may be slightly biased by the author's experiences with setting up VR on Linux.

Please watch the entire presentation before proceeding with your Linux VR setup.





FOLKS WHO EXMINAL!

# Linux × VR!

Beginner's Guide on How to Join Events in Virtual Reality from Ubuntu

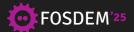
using Envision and Monado, an OpenXR Alternative to SteamVR<sup>†</sup>

Kawane Rio 2/2/2025

W/ WRONG STEPS INCLUDED!

† According to feedback, this guide may be slightly biased by the author's experiences with setting up VR on Linux.

Please watch the entire presentation before proceeding with your Linux VR setup.





### In This Lightning Talk...

- 0. What is Linux?
- 1. What is VR?
- 2. What is SteamVR?
- 3. What is Proton?

- 5. What is Monado?
- 6. What is Envision?
- 7. What is WiVRn?
- 8. What is WlxOverlay-S?
- 4. Beginner's Guide on How to Join Events in VR from Ubuntu
  - 9. Where can I learn more about VR on Linux?





### What is Linux?

- ▶ Linux is a Free and Open Source Operating System Kernel
- **▼**Why Linux?
  - ▶ Great Price (Gratis!)
  - ▶ Freedom to Customize (Open Source)
  - ▶ Extremely Versatile (from Servers to Smartphones!)
  - ▶ Respects User Privacy
  - ▶ No Ads
  - ▶ Update Whenever You Want
  - ▶ Has Software Package Managers
  - ▶ Can play lots of Games! (Especially on Steam!)







### Ubuntu

- ▶ Ubuntu is a Linux Distribution (Distro) by Canonical
- **▼**Why Ubuntu?
  - ▶ Beginner-Friendly
  - **▶** Great Community
  - ▶ Well Documented
  - ▶ Stable LTS
  - **▶** Secure
  - ▶ Ready for Gaming (just install Steam)







- ▶ VR (Virtual Reality) is a Virtually Simulated 3D Reality
- **▶** Applications

**▶** Key Components





- ▶ VR (Virtual Reality) is a Virtually Simulated 3D Reality
- ▶ Applications

- **▼**Key Components
  - ▶ Head-Mounted Display (HMD)
  - ▶ Motion Tracking
  - **▶** Controllers
  - ▶ Spatial Audio







- ▶ VR (Virtual Reality) is a Virtually Simulated 3D Reality
- **▼**Applications
  - ▶ Development (training, etc.)
  - **▶** Collaboration
  - ▶ Gaming

- **▼**Key Components
  - ► Head-Mounted Display (HMD)
  - ▶ Motion Tracking
  - **▶** Controllers
  - ▶ Spatial Audio







- ▶ VR (Virtual Reality) is a Virtually Simulated 3D Reality
- **▼**Applications
  - ▶ Development (training, etc.)
  - **▶** Collaboration
  - **▼**Gaming
    - **▶ VRChat**
    - **▶** Resonite
    - ▶ Overte







- **▼**Key Components
  - ► Head-Mounted Display (HMD)
  - ▶ Motion Tracking
  - **▶** Controllers
  - ▶ Spatial Audio







## What is VR? (Brief History)

1968: First "HMD" by Ivan Sutherland

1987: "Virtual Reality" coined by Jaron Lanier

1992: "Snow Crash" by Neal Stephenson

1995: The Nintendo Virtual Boy™

2003: Philip Rosedale creates Second Life

1968

**2012:** Oculus Rift Kickstarter by Palmer Freeman Luckey

2013: High Fidelity, Inc. is founded by Philip Rosedale

2014: VRChat Inc. is founded by Graham Gaylor and Jesse Joudrey

2019: Release of Oculus Quest and Valve Index

1987 1992 1995

Social VR Games/ Platforms

2014: VRChat, SteamVR 2015: Cluster, AltspaceVR, 2016: Rec Room, High Fidelity 2018: NeosVR, VirtualCast, Mozilla Hubs 2019: Lavender

2003

2020: Vircadia,
TivoliVR
2021: Helios,
Vket Cloud,
ChilloutVR,
Horizon Worlds
2022: Overte,
Somnium Space,
DMM ConnectChat
2023: Resonite,
aU, Planeta
2024: SuteraVR

**2012**...2016 2018.....2025





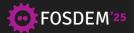




## In This Lightning Talk...

- 0. What is Linux?
- 1. What is VR?
- **YOU ARE HERE**
- 2. What is SteamVR?
- 3. What is Proton?

- 5. What is Monado?
- 6. What is Envision?
- 7. What is WiVRn?
- 8. What is WlxOverlay-S?
- 4. Beginner's Guide on How to Join Events in VR from Ubuntu
  - 9. Where can I learn more about VR on Linux?





### What is SteamVR?

- ▶ VR Platform & Runtime by Valve
- ▶ Compatible with multiple HMDs
- ▶ Integrates with the Steam Store
- ▶ Uses Base Station Tracking
- ▶ Runs on Linux! with the power of <u>Proton</u> (Steam Play)

# VALVE



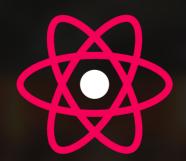




### What is Proton?

- ▶ Compatibility Layer by Valve, built on top of Wine and DXVK
- ▶ Designed to run Windows games on Linux via Steam
- ▶ Free and Open Source!
- **▼**Notable forks:
  - ▶ Proton-GE
  - ▶ Proton-GE-rtsp







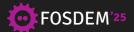




## What is Proton-GE (and Proton-GE-rtsp)?

▶ Proton-GE

▶ Proton-GE-rtsp





### What is Proton-GE (and Proton-GE-rtsp)?

#### **▼Proton-GE**

- ▶ Fork of Valve's Proton by Thomas "Glorious Eggroll" Crider
- ► Contains Additional media foundation patches for better video playback support
- Nvidia CUDA support for PhysX and NVAPI
- ▶ AMD FSR patches
- ▶ Raw input mouse support
- ▶ Various upstream Wine patches

▶ Proton-GE-rtsp





## What is Proton-GE (and Proton-GE-rtsp)?

#### **▼Proton-GE**

- ▶ Fork of Valve's Proton by Thomas "Glorious Eggroll" Crider
- ► Contains Additional media foundation patches for better video playback support
- Nvidia CUDA support for PhysX and NVAPI
- ▶ AMD FSR patches
- ▶ Raw input mouse support
- ▶ Various upstream Wine patches

#### **▼Proton-GE-rtsp**

- ► Proton-GE fork by SpookySkeleton
- ▶ RTSP (Real-Time Streaming Protocol) support for watching livestreams in VR Platforms
- ▶ HLS Playback support
- ► MPEG-TS support

#### **Proton-GE**



#### **Proton-GE-rtsp**



### Proton (Hotfix)







## In This Lightning Talk...

- 0. What is Linux?
- 1. What is VR?
- 2. What is SteamVR?
- 3. What is Proton?
- YOU ARE HERE

- 5. What is Monado?
- 6. What is Envision?
- 7. What is WiVRn?
- 8. What is Wlx-Overlay-S?
- 4. Beginner's Guide on How to Join Events in VR from Ubuntu
  - 9. Where can I learn more about VR on Linux?





#### Beginner's Guide on How to Join Events in VR from Ubuntu





#### Beginner's Guide on How to Join Events in VR from Ubuntu

- 1. Install Steam
- 2. Play!







Jan 21 16:26 † ♣ ♠ Ů



Not listed?









Complete your setup with additional settings and we'll have you up and running in no time

View changelog



















#### vious Ubuntu Pro



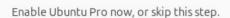




Upgrade this machine to Ubuntu Pro. Free for up to 5 machines.

- Get security updates on a wide range of packages until 2034
- Fulfill FedRAMP, FIPS, STIG and HIPAA and other compliance and hardening requirements with certified tooling and crypto-modules

Learn more at ubuntu.com/pro.



- Enable Ubuntu Pro
- O Skip for now

You can always enable Ubuntu Pro later via the Software & Updates application













Previous Help improve Ubuntu



















Help us improve Ubuntu by sharing your system data with us. This includes things like your machine model, installed software and the location you chose for your timezone.





Show the First Report

Legal notice



























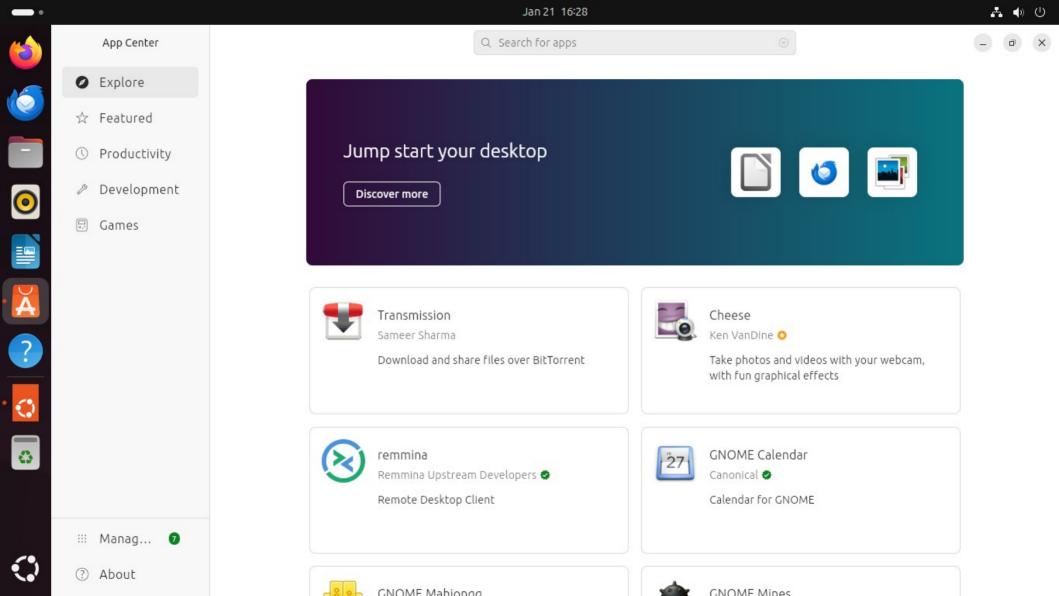


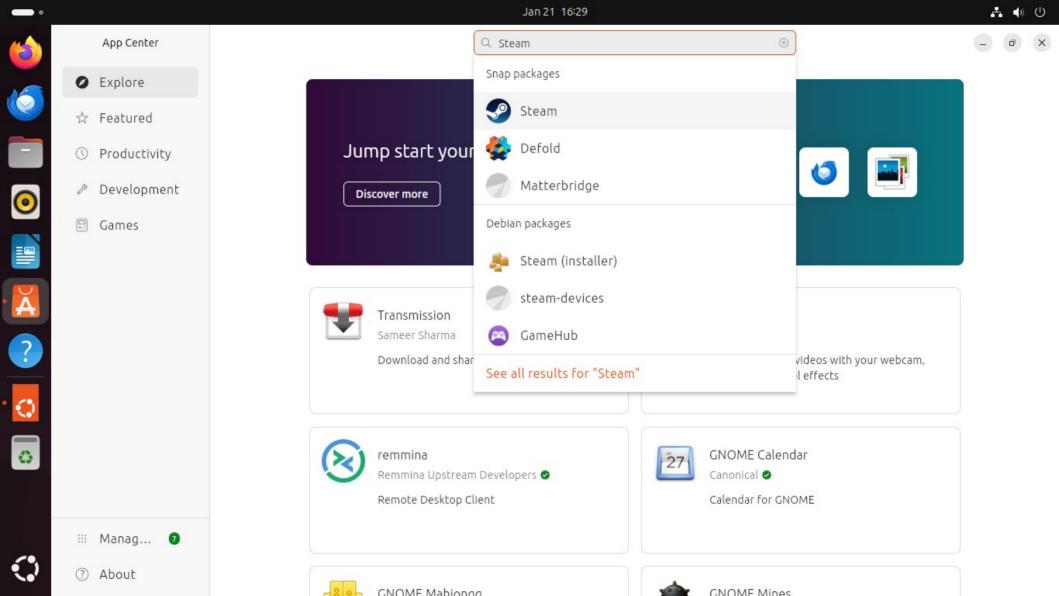
Ubuntu's App Center has a range of apps you can get started with.

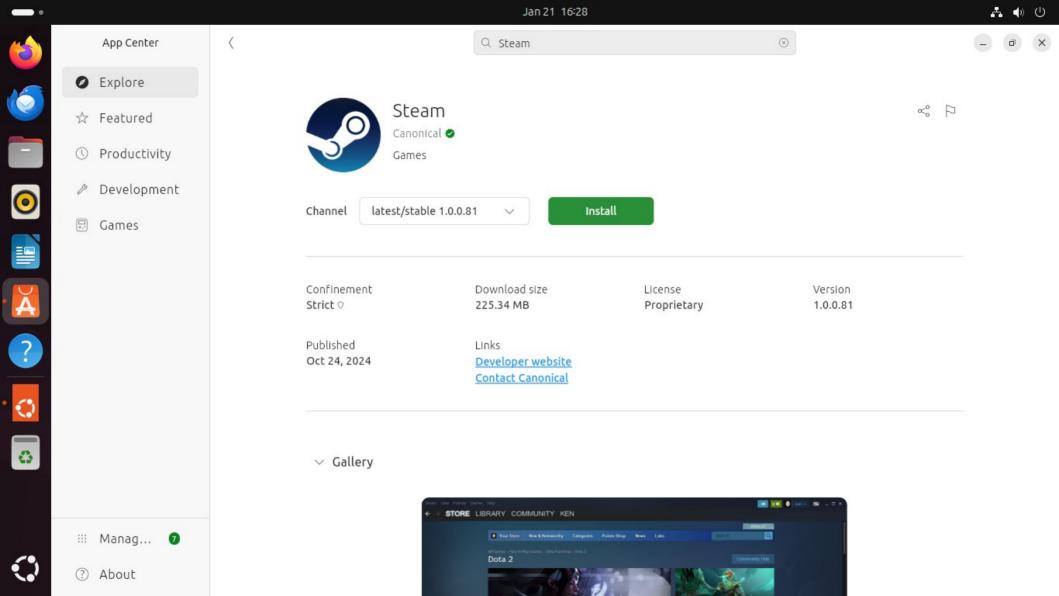


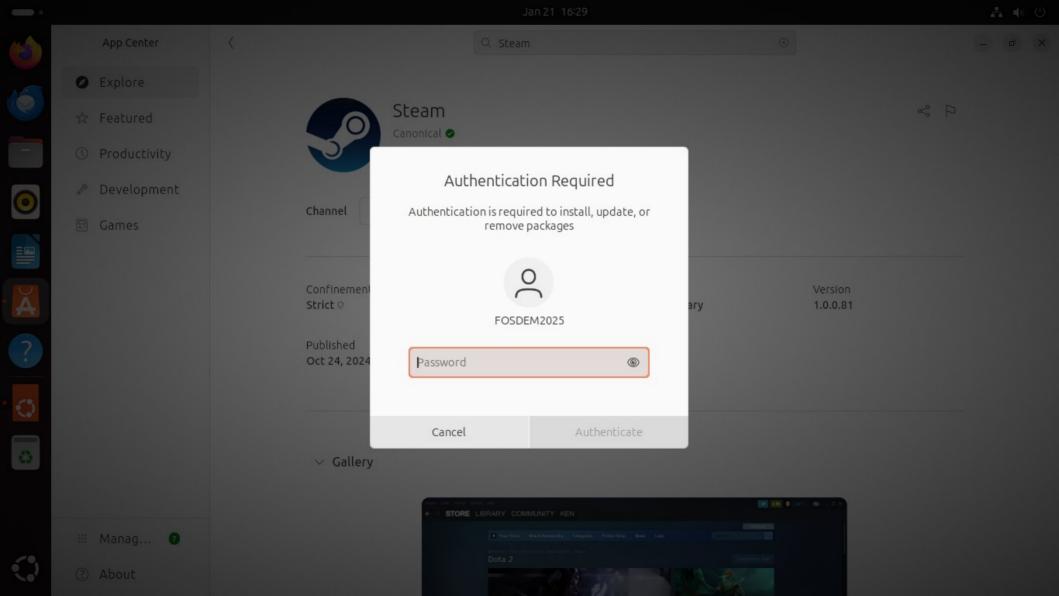
Open App Center

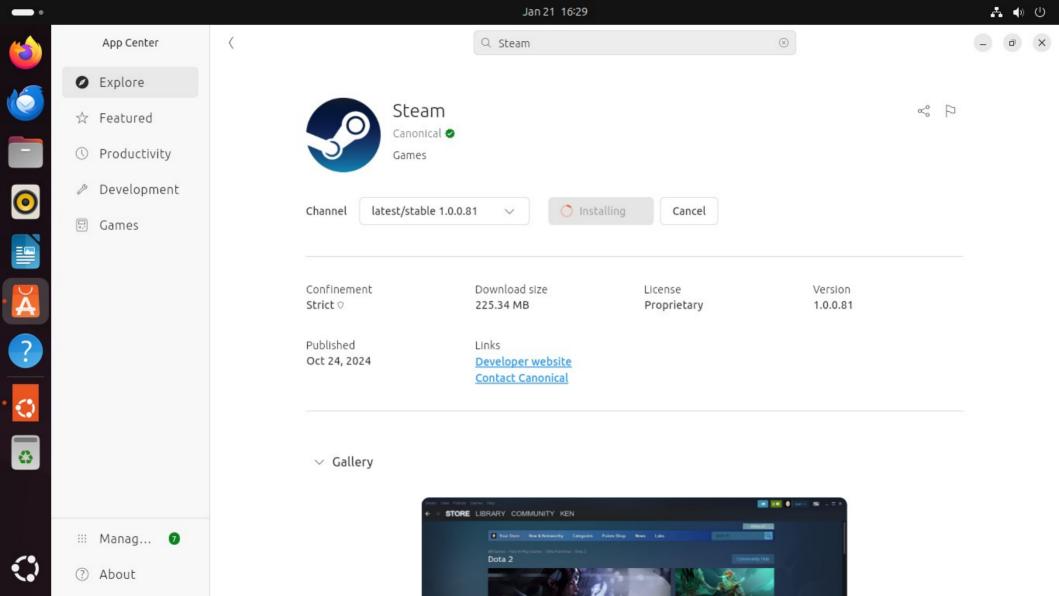


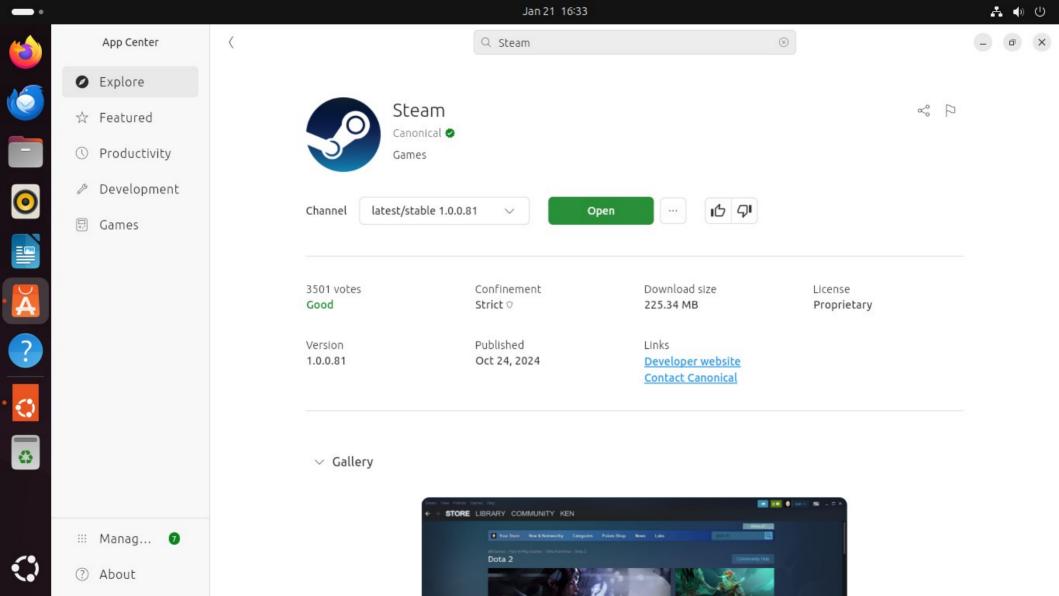


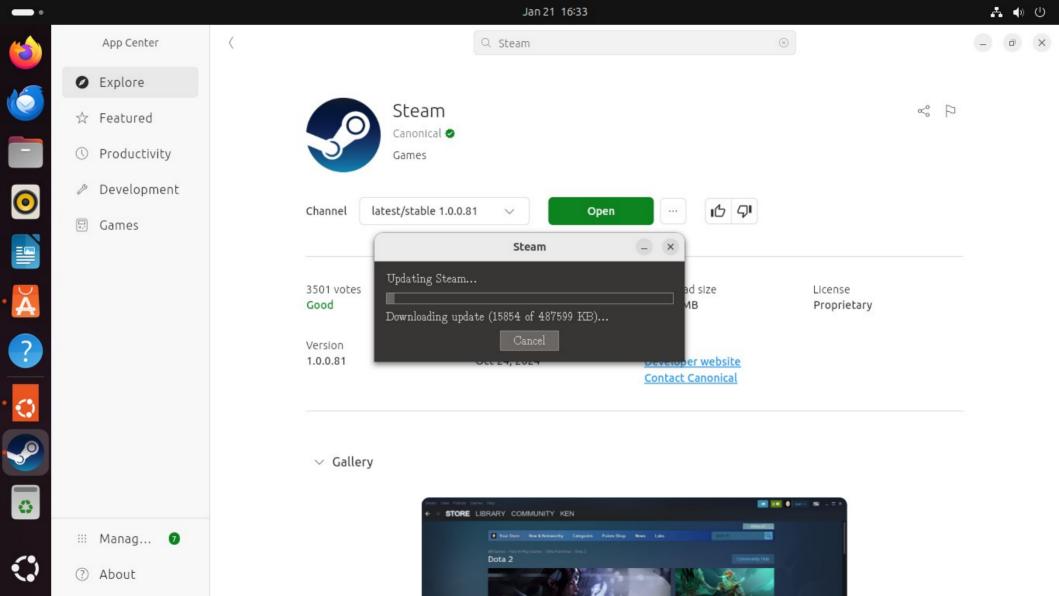


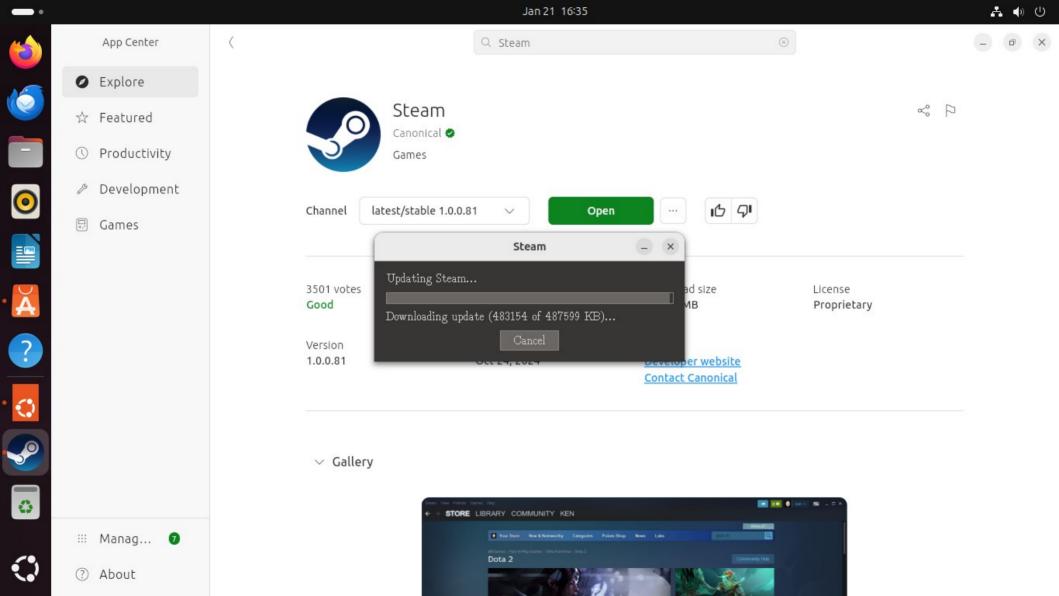


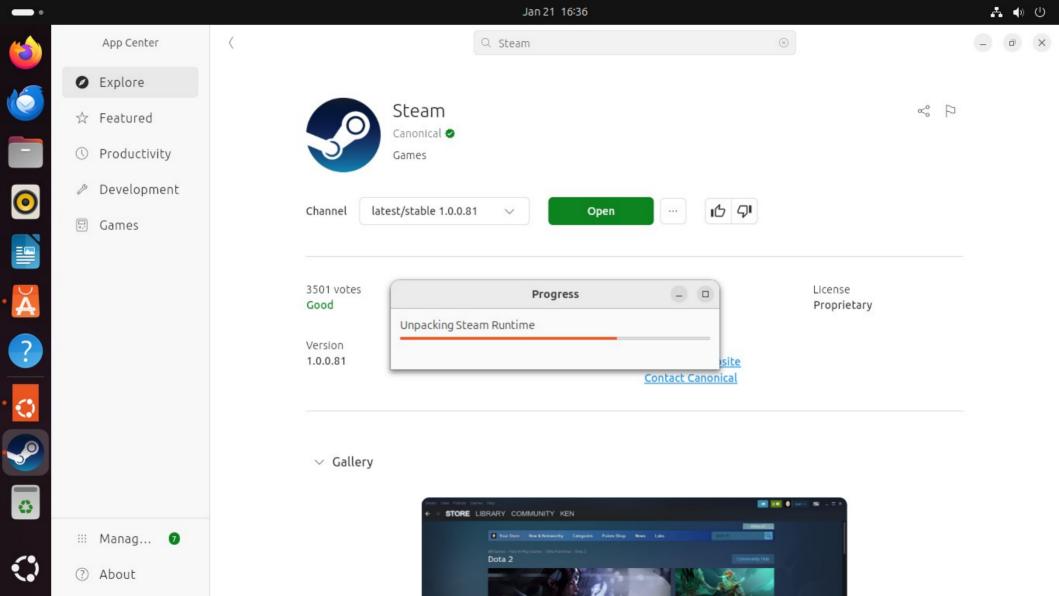


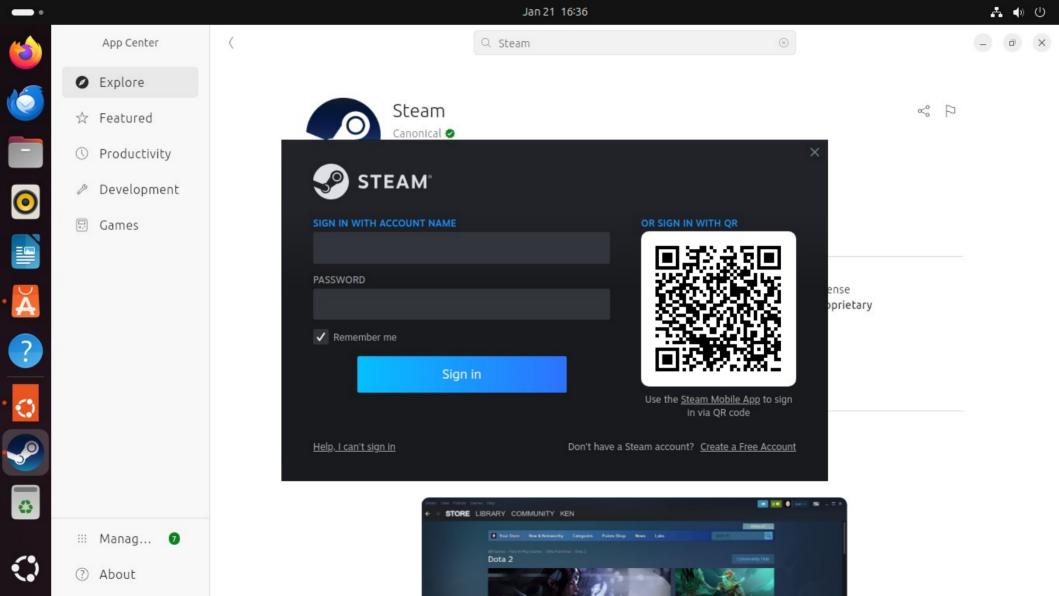






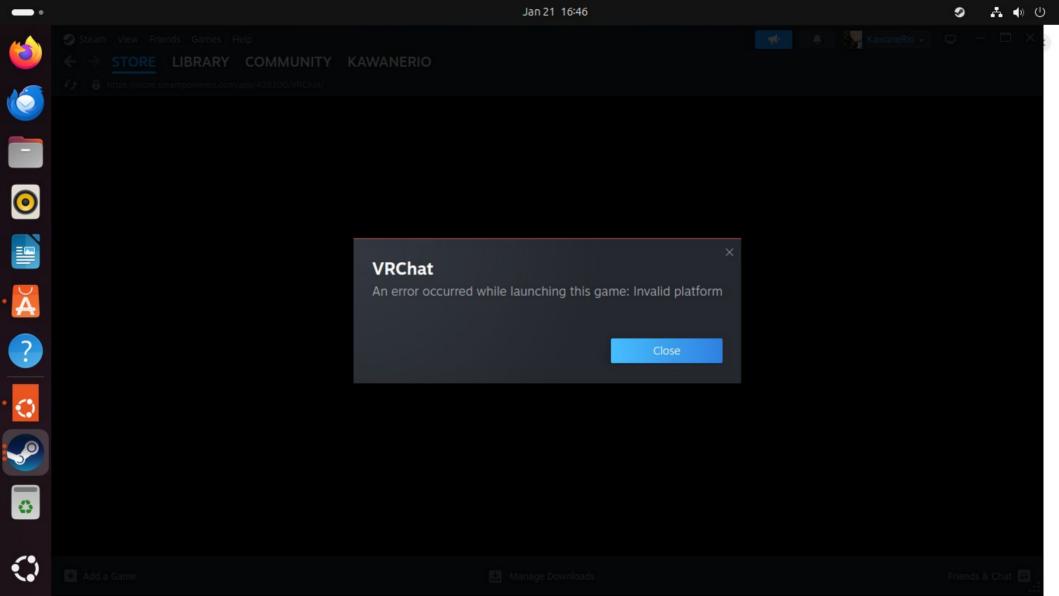




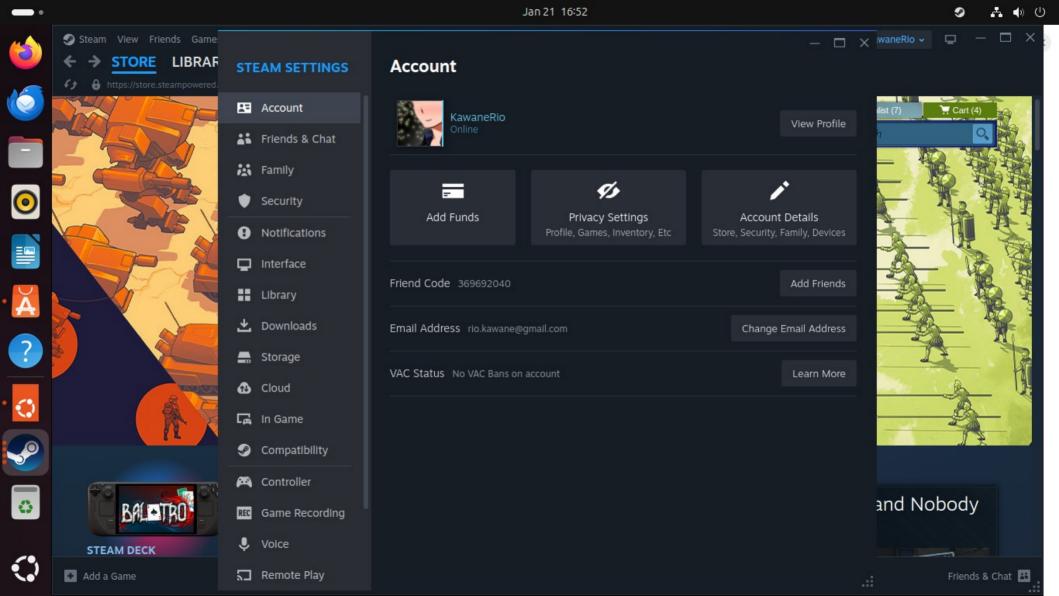


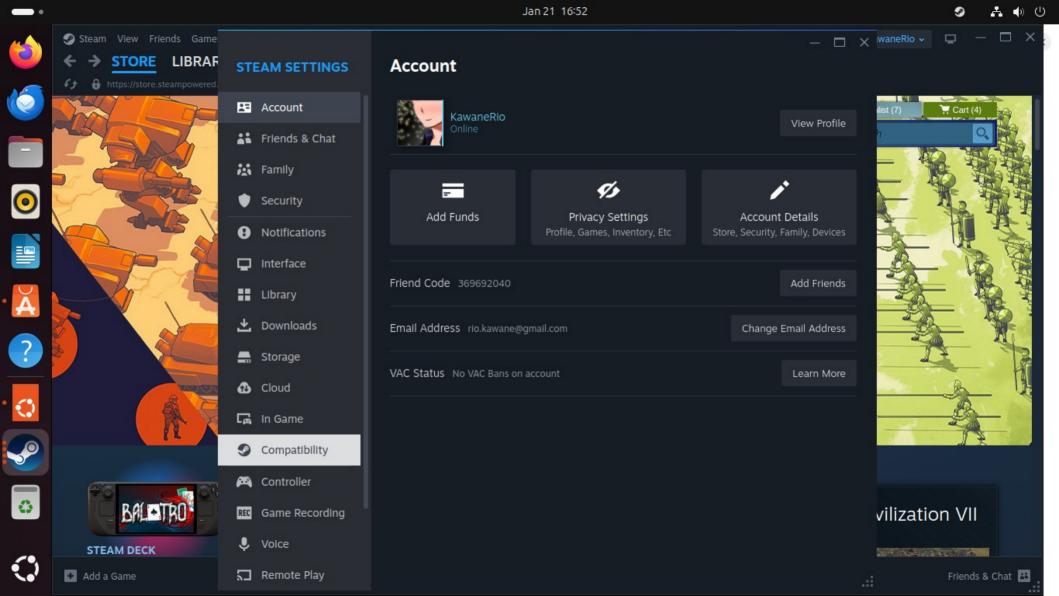


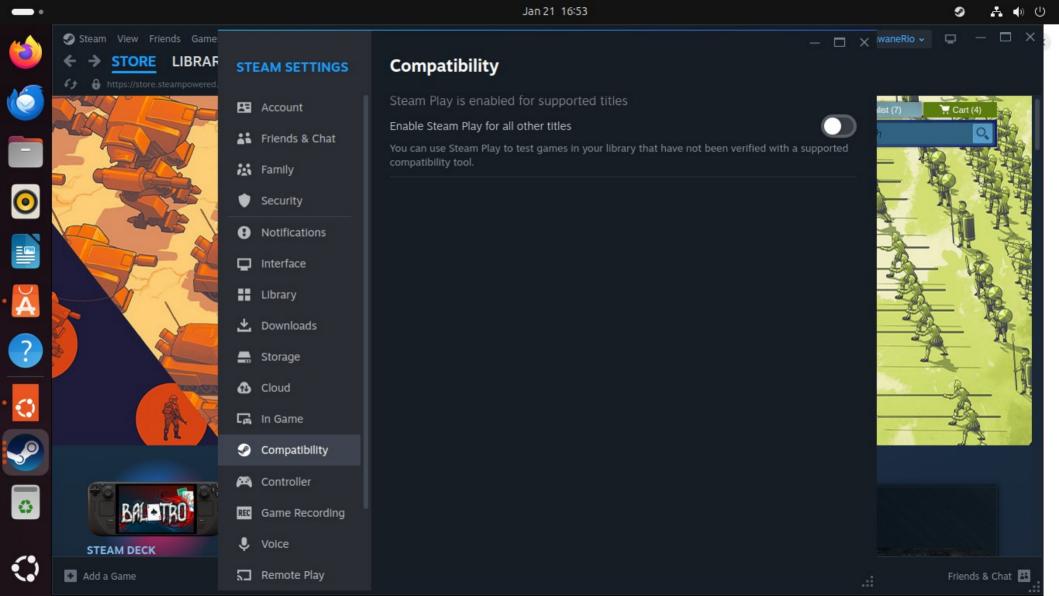


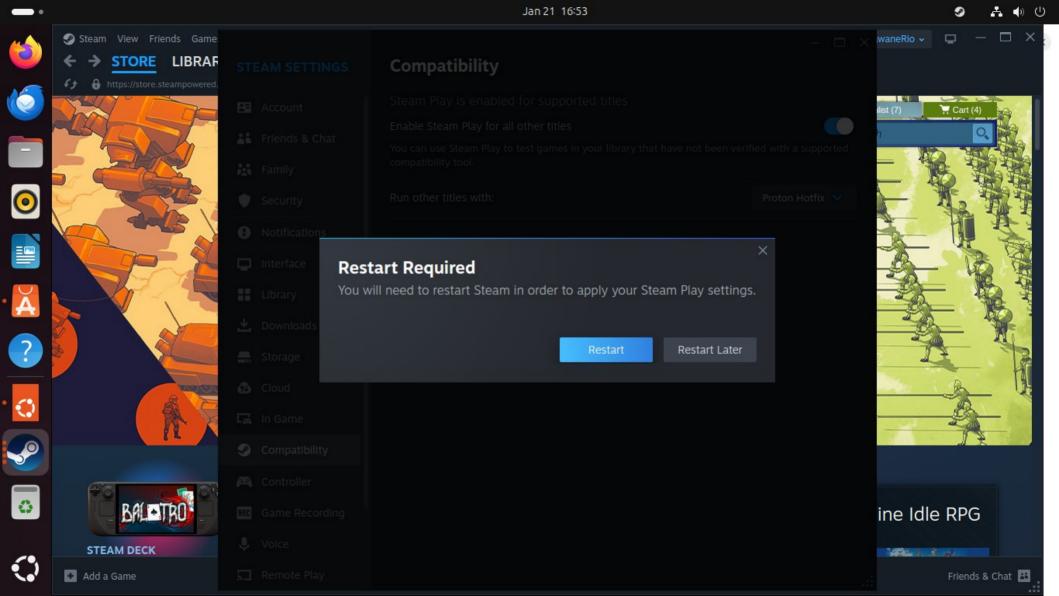


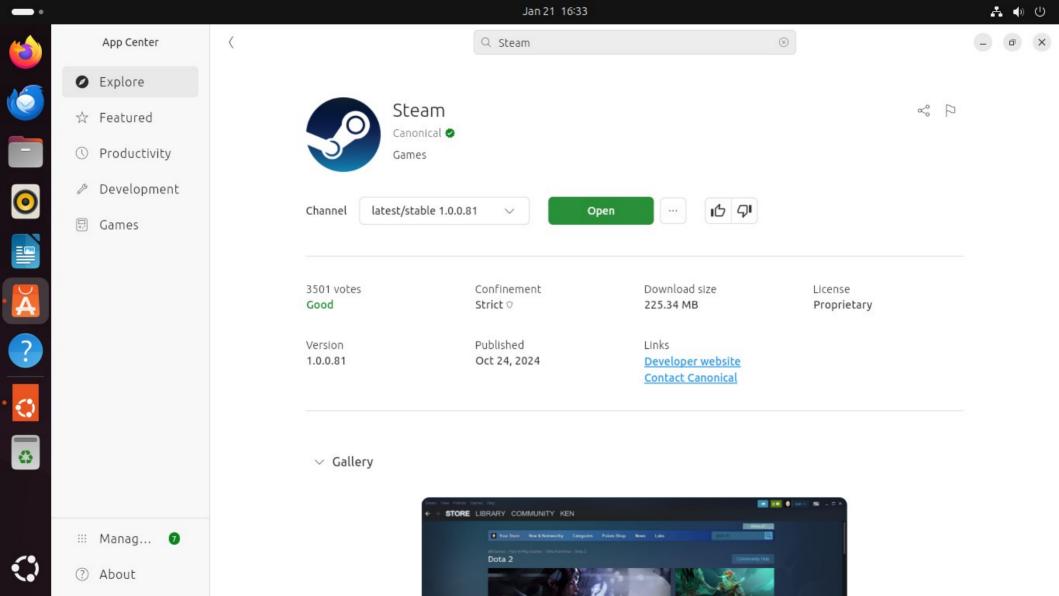






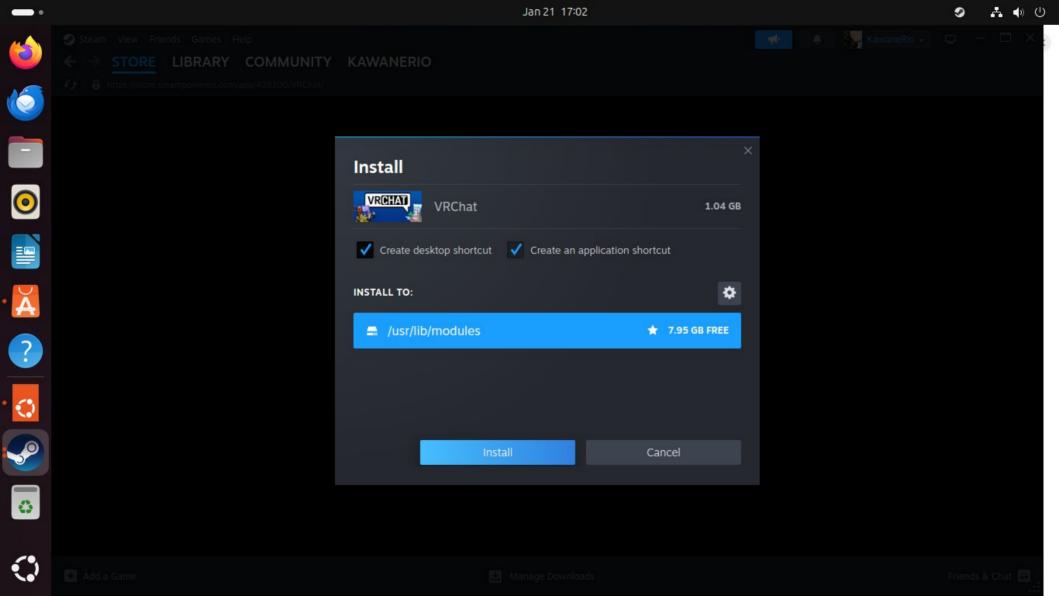














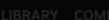




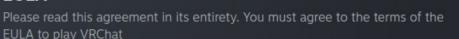


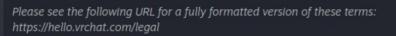












Terms of Service

Last Updated: November 18, 2024

Welcome, and thank you for your interest in VRChat Inc. ("VRChat," "we," or "us") and our website at www.vrchat.com, along with our related websites, networks, desktop applications (each, a "Desktop Client"), VR headset applications (each, a "VR Client"), mobile applications (each, a "Mobile Client" and together with any Desktop Clients and VR Clients, "Clients"), software development kits for use in connection with any technology or services made available by or on behalf of VRChat (each, an "SDK"), and other services provided by us (collectively, including any Clients and SDKs, the "Platform"). These VRChat Terms of Service (these "Terms"), are a legally binding contract between you and VRChat regarding your use of the Platform.

PLEASE READ THE FOLLOWING TERMS CAREFULLY. BY CLICKING "I ACCEPT," OR BY USING THE PLATFORM OR ANY PART OF THE PLATFORM, YOU ACKNOWLEDGE THAT YOU HAVE READ, UNDERSTOOD, AND AGREE TO BE BOUND BY THESE TERMS. If you are not eligible, or do not agree to these Terms, then you do not have

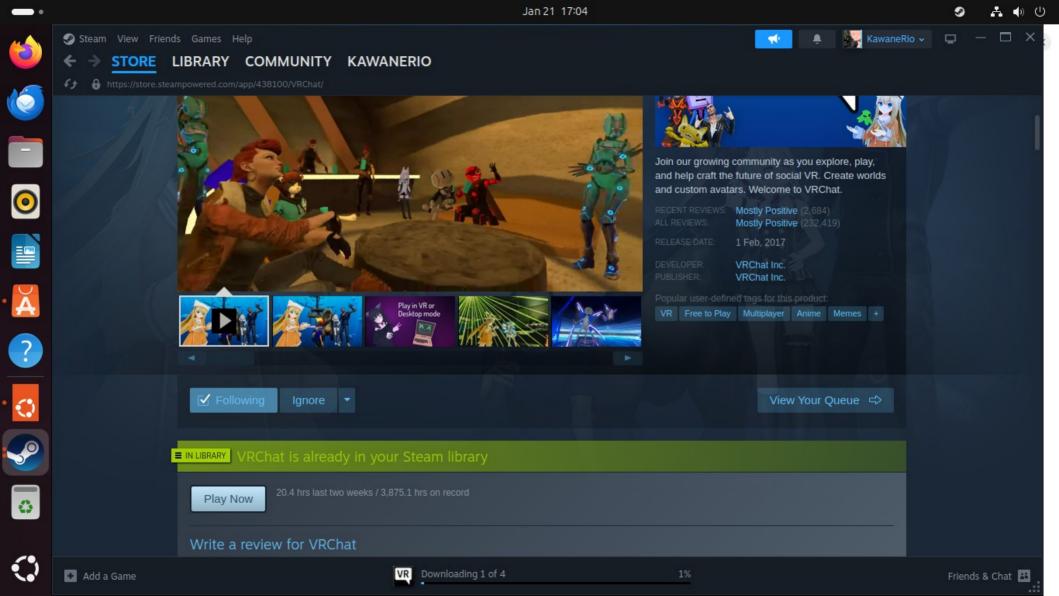
Cancel









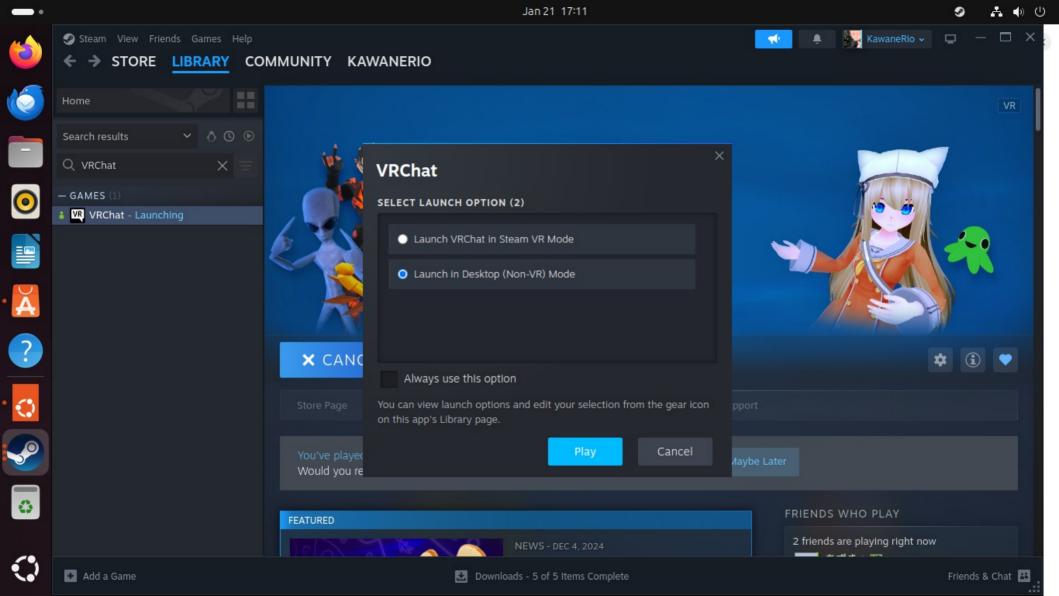










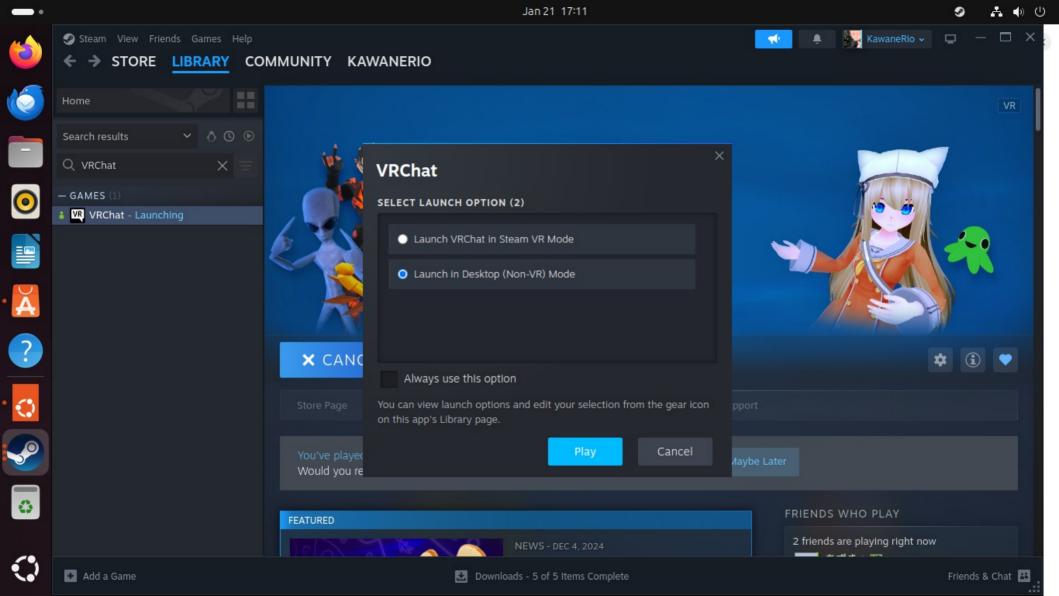












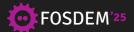






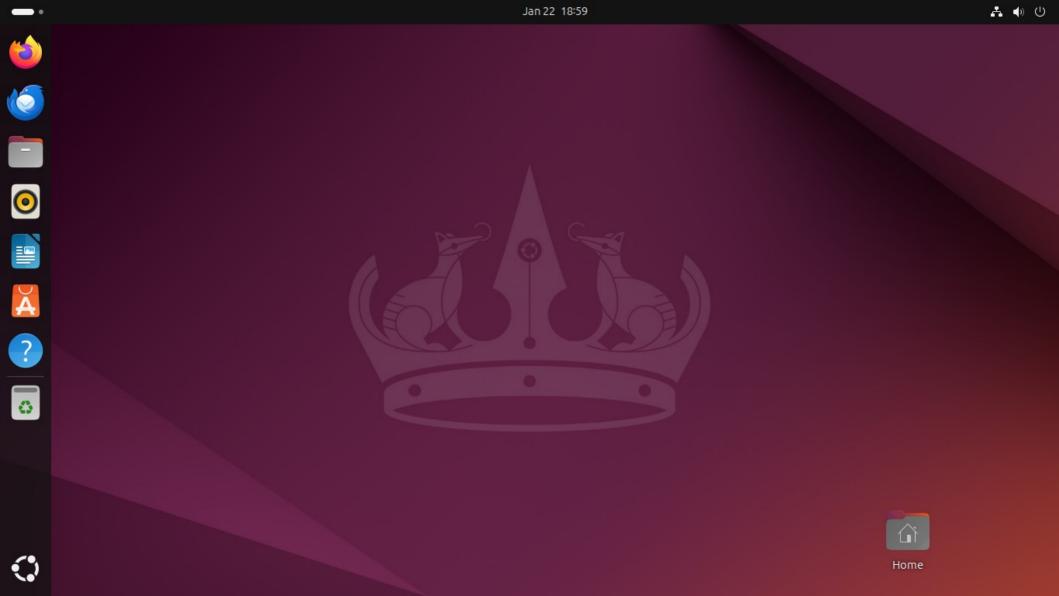


- 1. Install Steam
- 2. Play!





- 1. UPDATE YOUR SYSTEM **AMD GPU** → ppa:kisak/kisak-mesa 2. Install Graphic Drivers & Install CoreCtrl 3. Upgrade All Drivers **NVIDIA GPU** 4. Install Steam - installer → ppa:graphics-drivers/ppa 5. Install Proton-GE i. Enable Steam Play 6. Install Envision Set Default to Proton-Experimental 7. Install Wlx-Overlay-S ii. Set Interface to Steam Beta
- 8. Start Envision, then Wlx-Overlay-S, and then your OpenXR App/Game

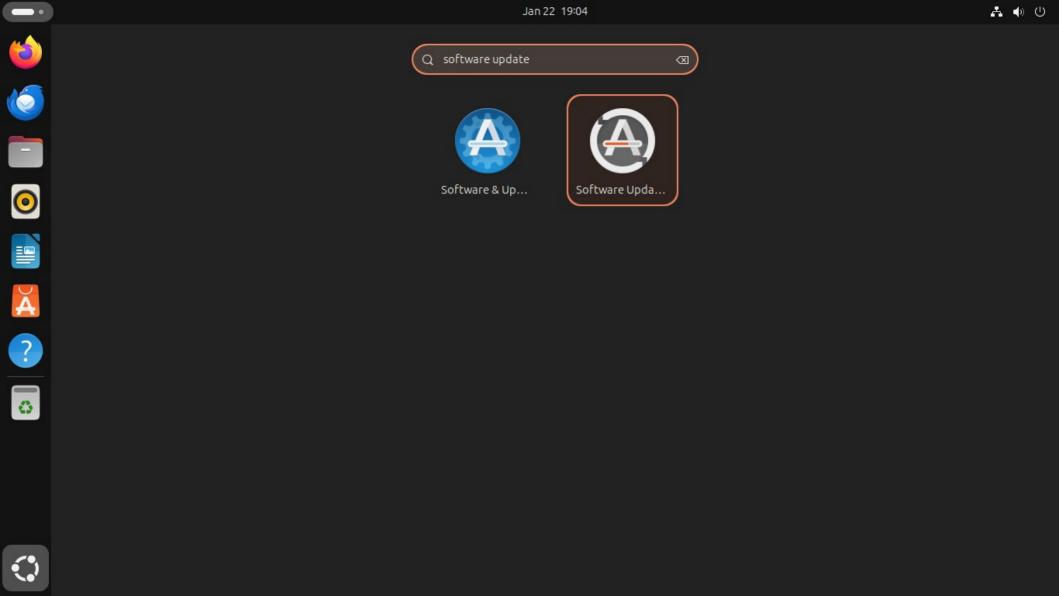


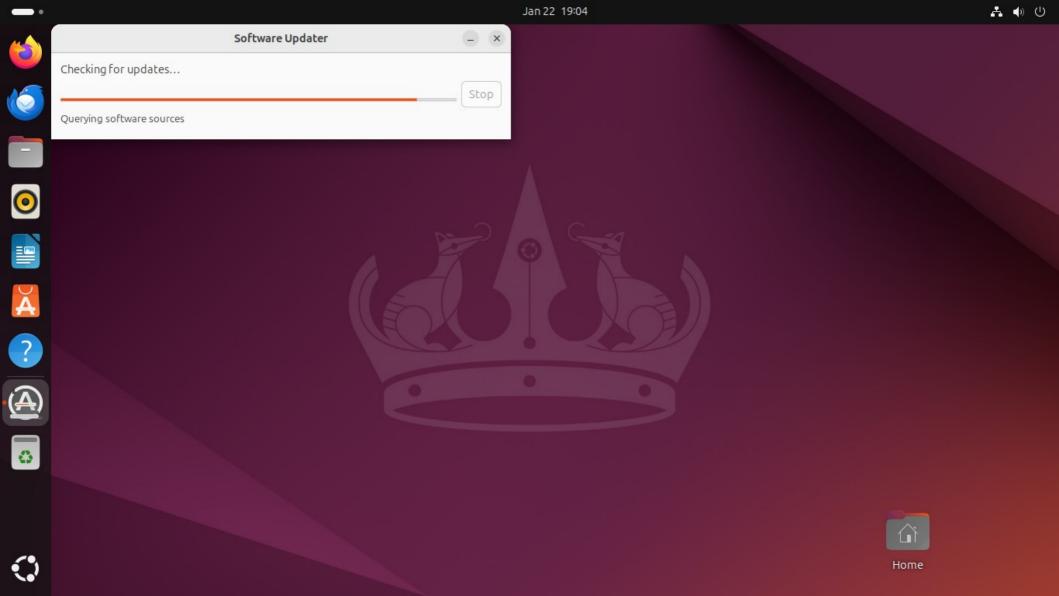


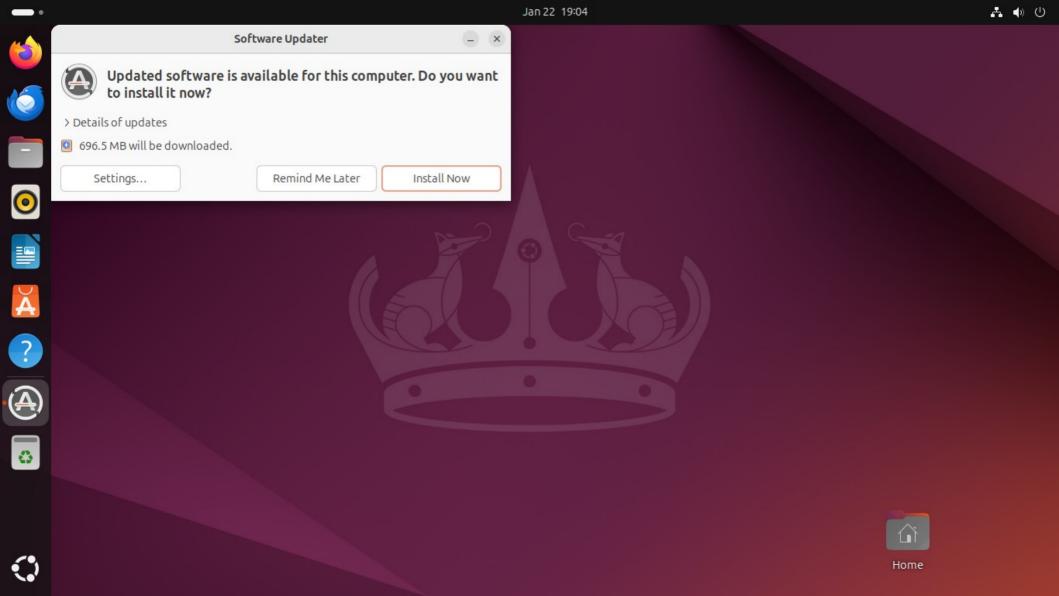


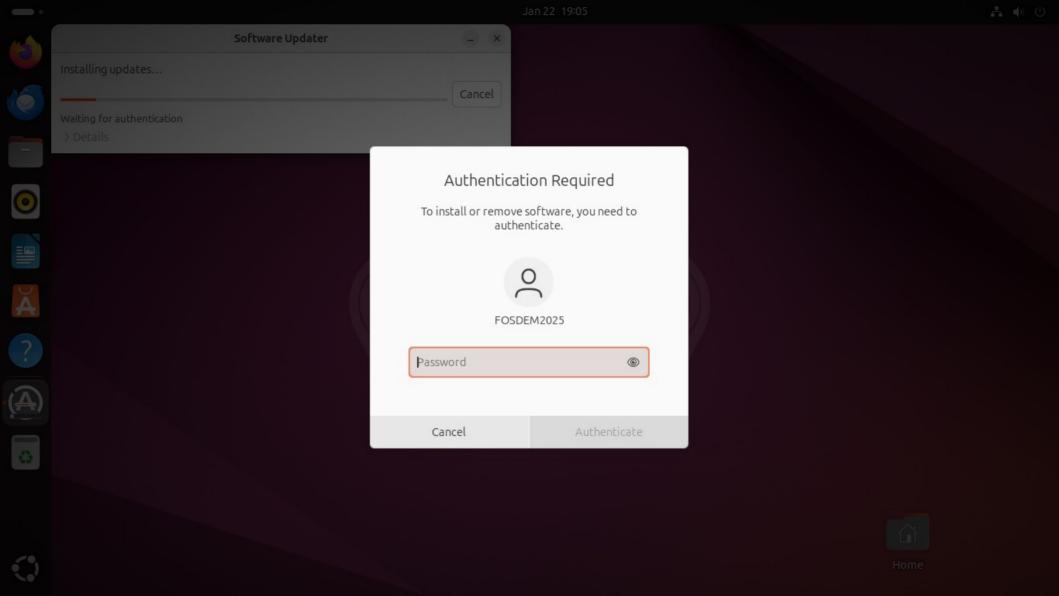


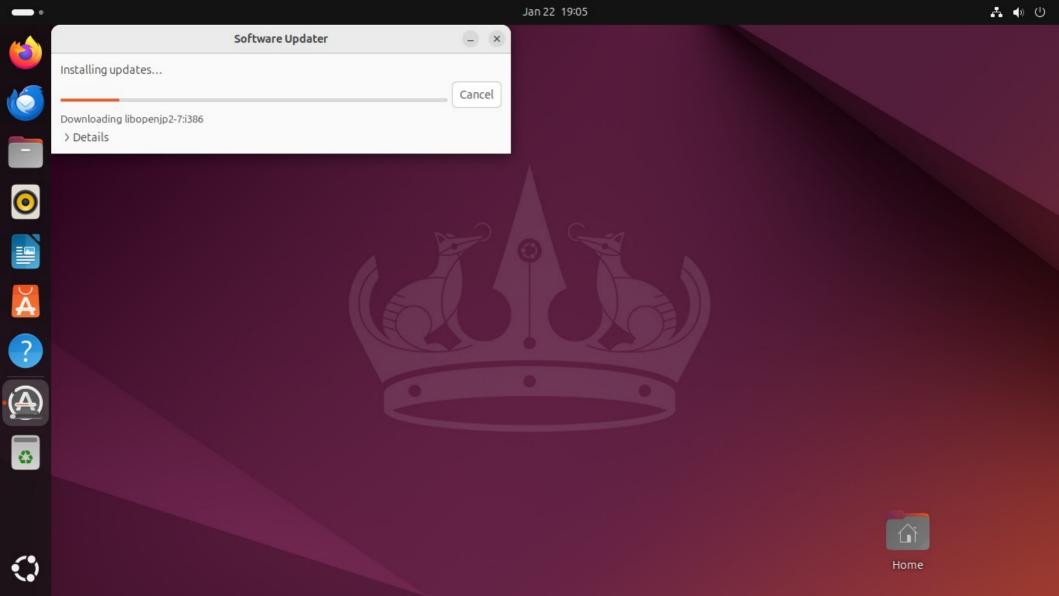


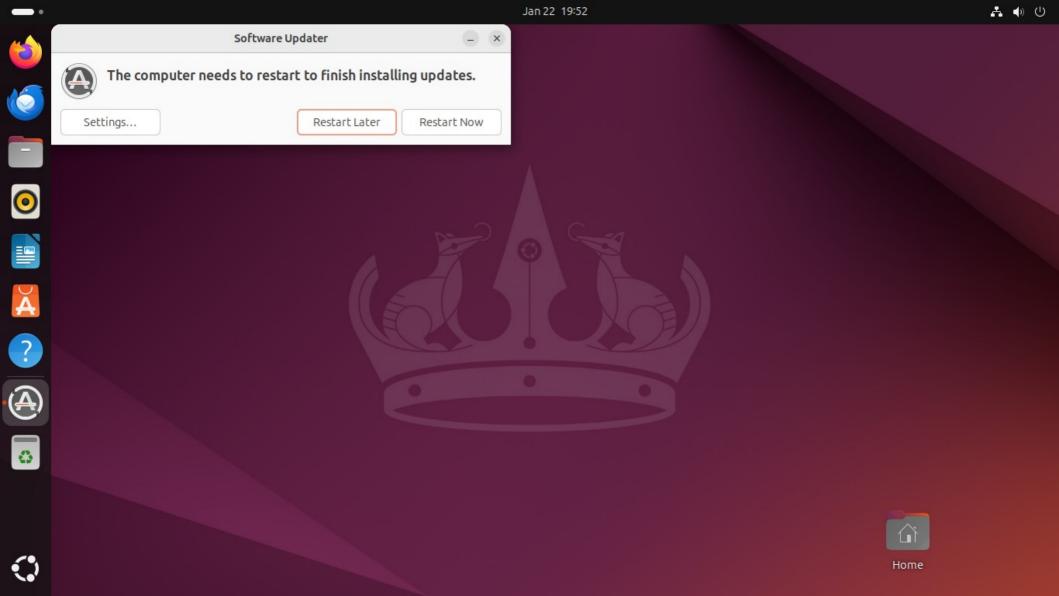
















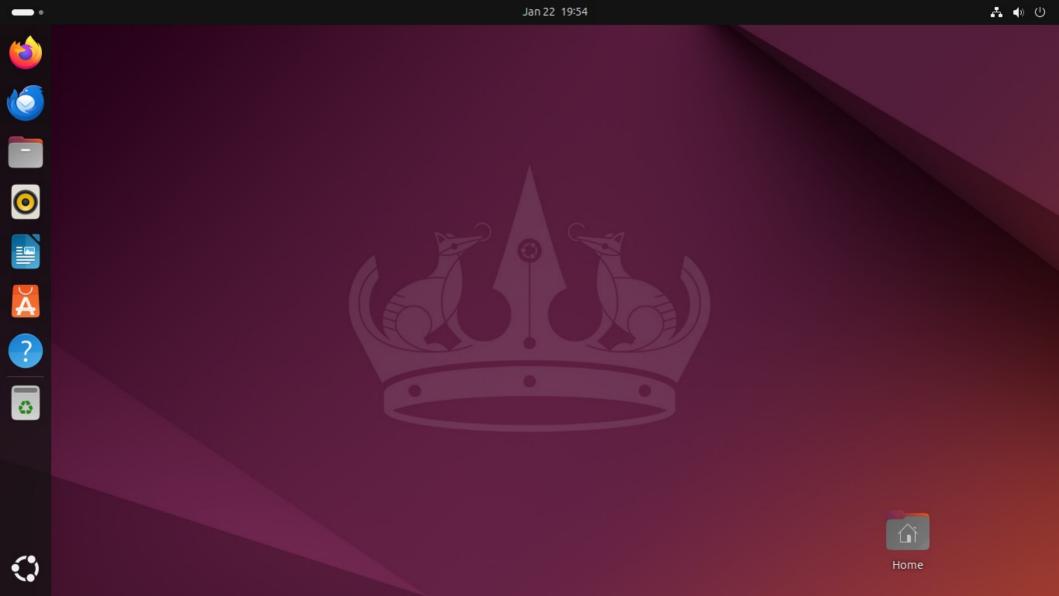


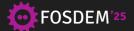
Jan 22 19:53 👬 ♣ •() ()



Not listed?

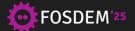






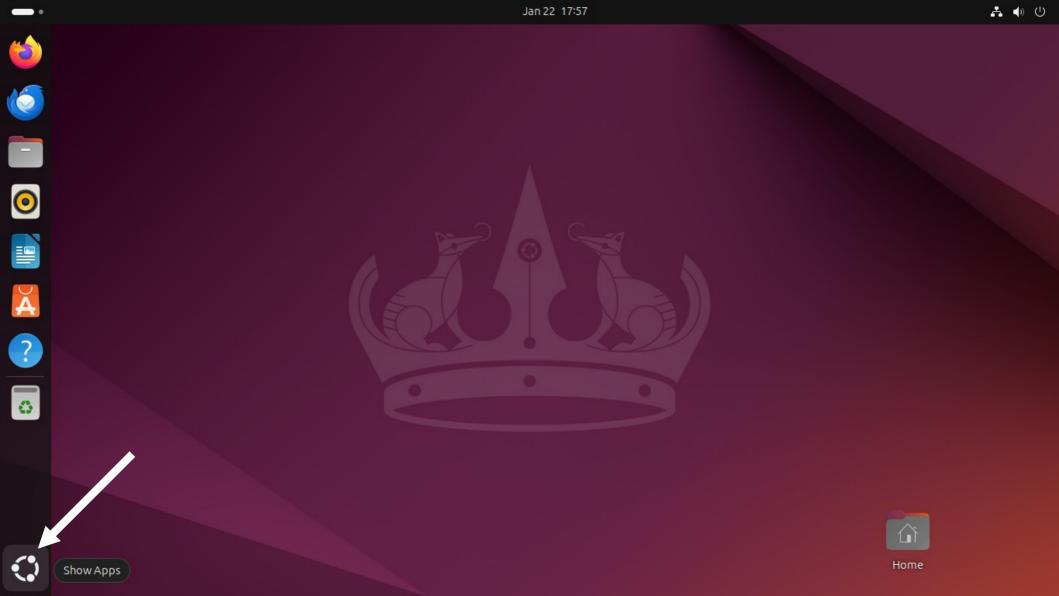


- 1. UPDATE YOUR SYSTEM **AMD GPU** → ppa:kisak/kisak-mesa 2. Install Graphic Drivers & Install CoreCtrl 3. Upgrade All Drivers **NVIDIA GPU** 4. Install Steam - installer → ppa:graphics-drivers/ppa 5. Install Proton-GE i. Enable Steam Play 6. Install Envision Set Default to Proton-Experimental 7. Install Wlx-Overlay-S ii. Set Interface to Steam Beta
- 8. Start Envision, then Wlx-Overlay-S, and then your OpenXR App/Game

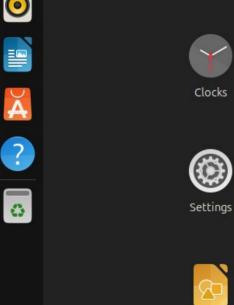


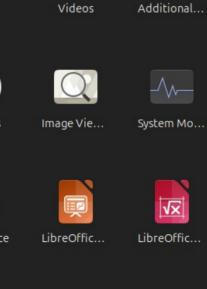


- 1. UPDATE YOUR SYSTEM AMD GPU → ppa:kisak/kisak-mesa 2. Install Graphic Drivers & Install CoreCtrl 3. Upgrade All Drivers **NVIDIA GPU** 4. Install Steam - installer → ppa:graphics-drivers/ppa 5. Install Proton-GE i. Enable Steam Play 6. Install Envision Set Default to Proton-Experimental 7. Install Wlx-Overlay-S ii. Set Interface to Steam Beta
- 8. Start Envision, then Wlx-Overlay-S, and then your OpenXR App/Game











Calculator





Calendar



Camera



Document ...



Firmware ...









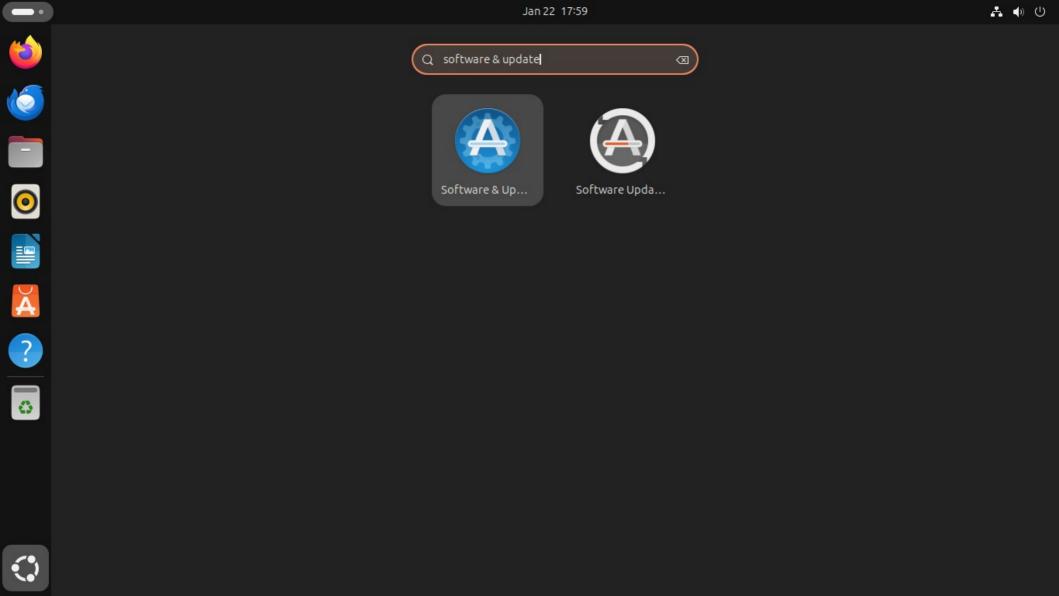


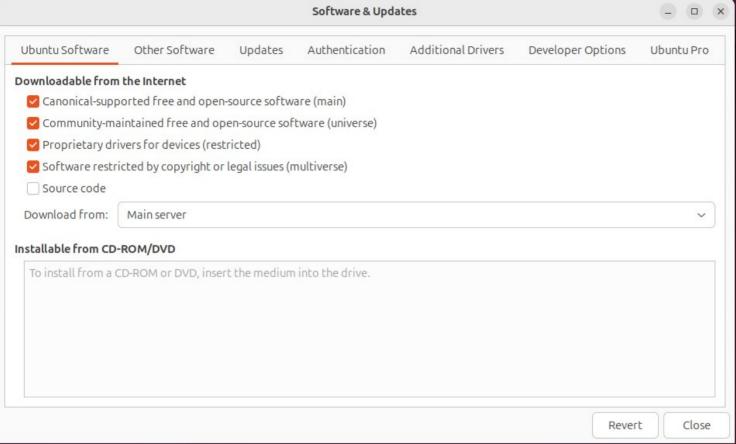




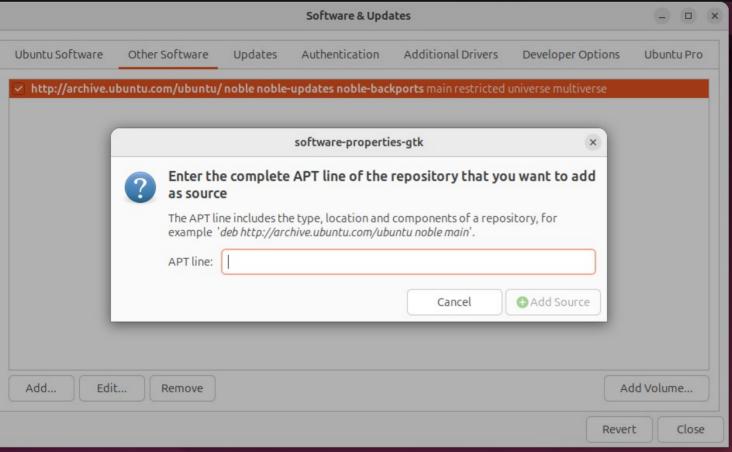




























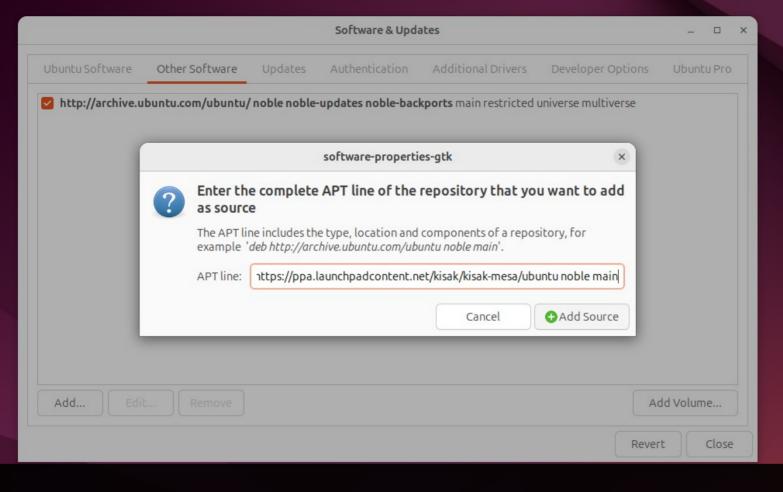












deb https://ppa.launchpadcontent.net/kisak/kisak-mesa/ubuntu noble main















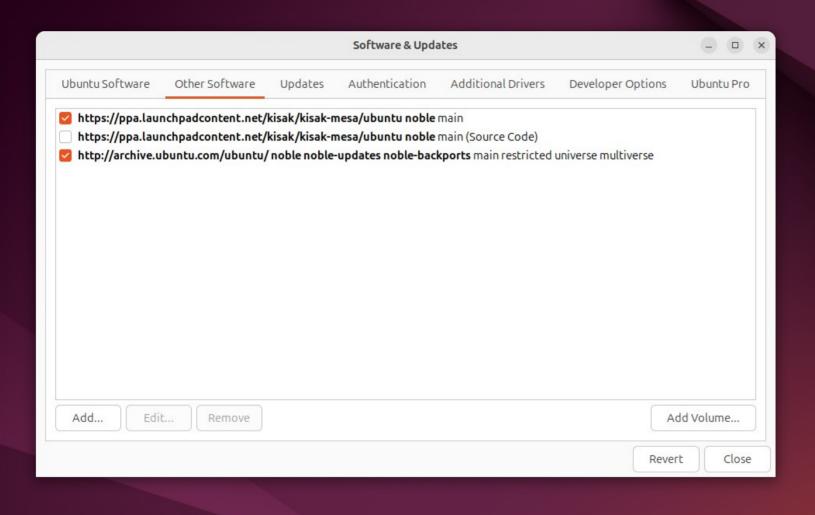








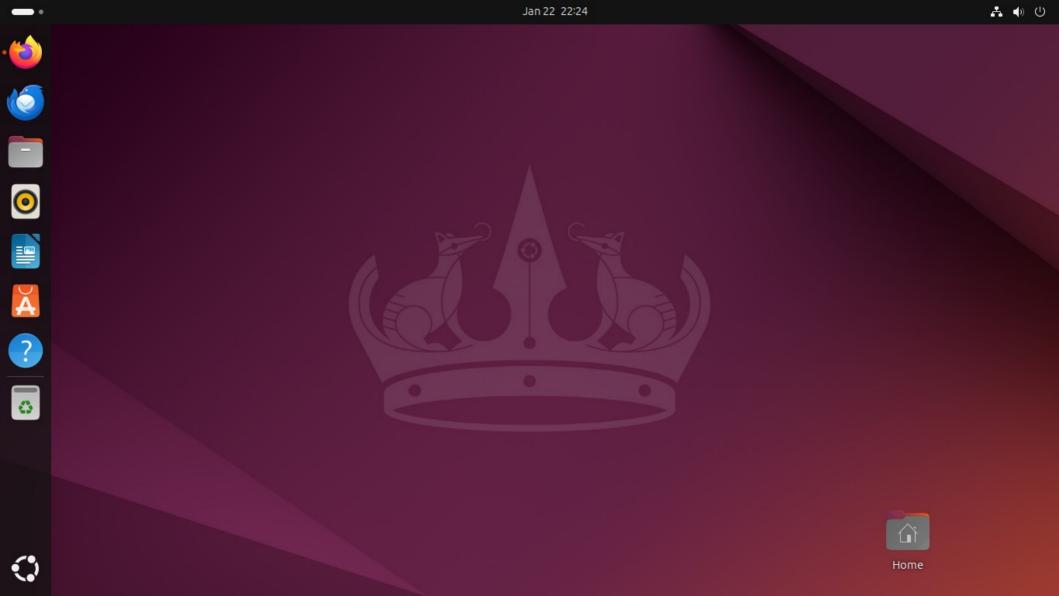


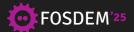






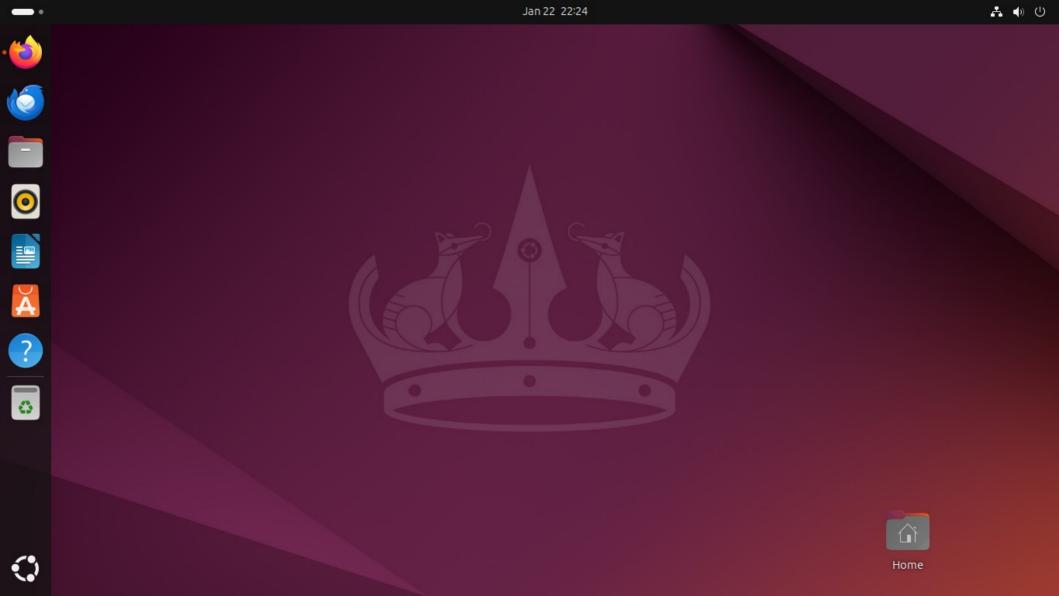


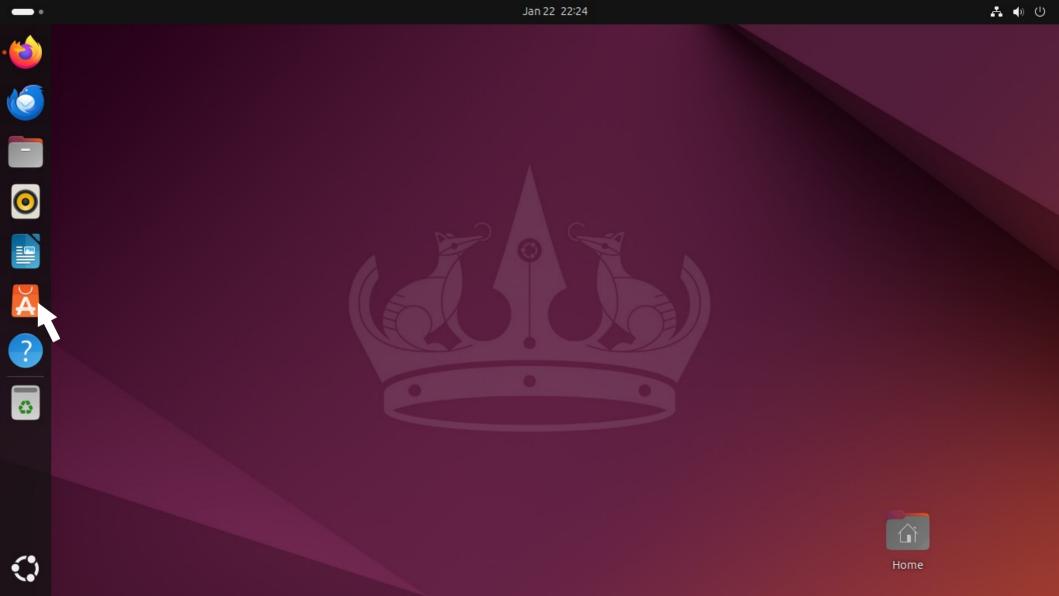


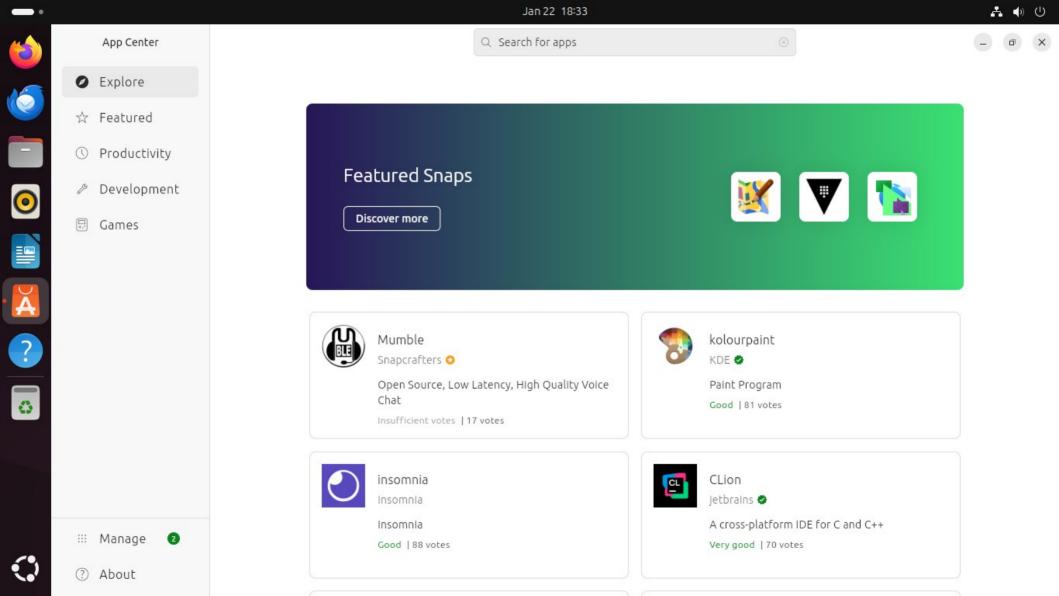


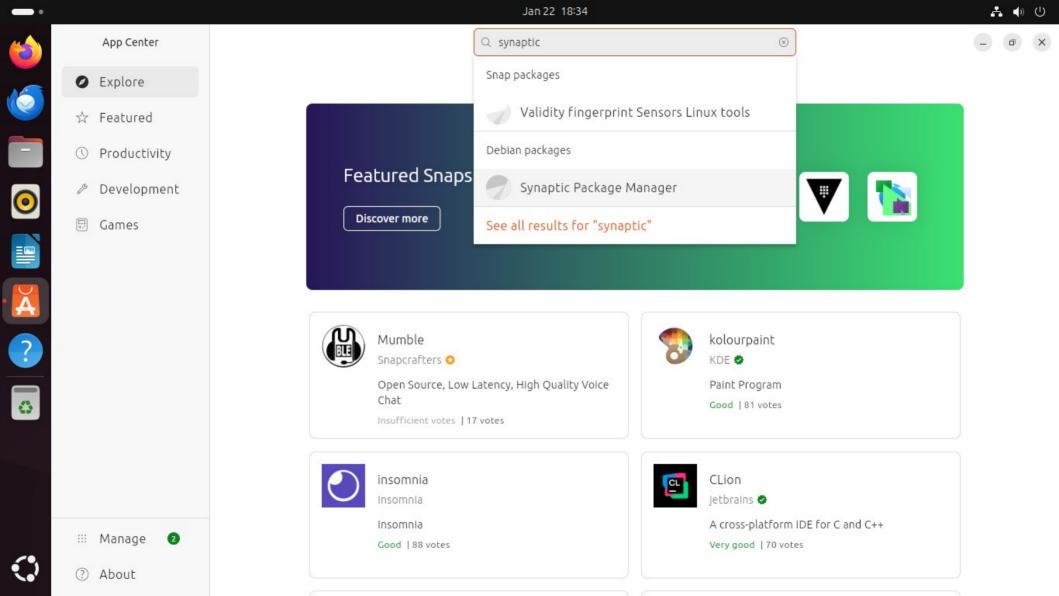


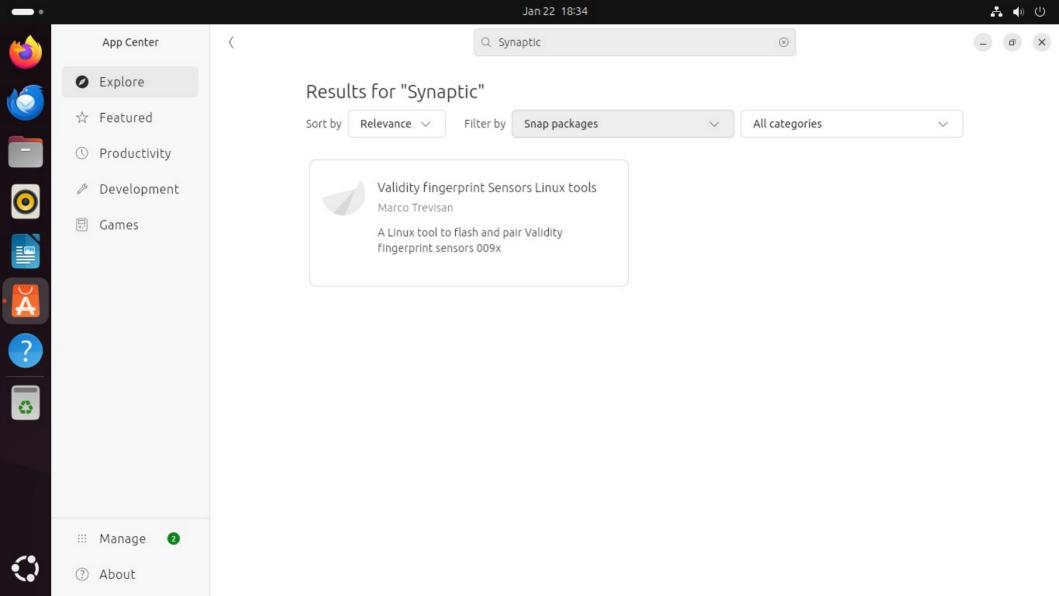
- 1. UPDATE YOUR SYSTEM **AMD GPU** → ppa:kisak/kisak-mesa 2. Install Graphic Drivers & Install CoreCtrl 3. Upgrade All Drivers **NVIDIA GPU** 4. Install Steam - installer → ppa:graphics-drivers/ppa 5. Install Proton-GE i. Enable Steam Play 6. Install Envision Set Default to Proton-Experimental 7. Install Wlx-Overlay-S ii. Set Interface to Steam Beta
- 8. Start Envision, then Wlx-Overlay-S, and then your OpenXR App/Game

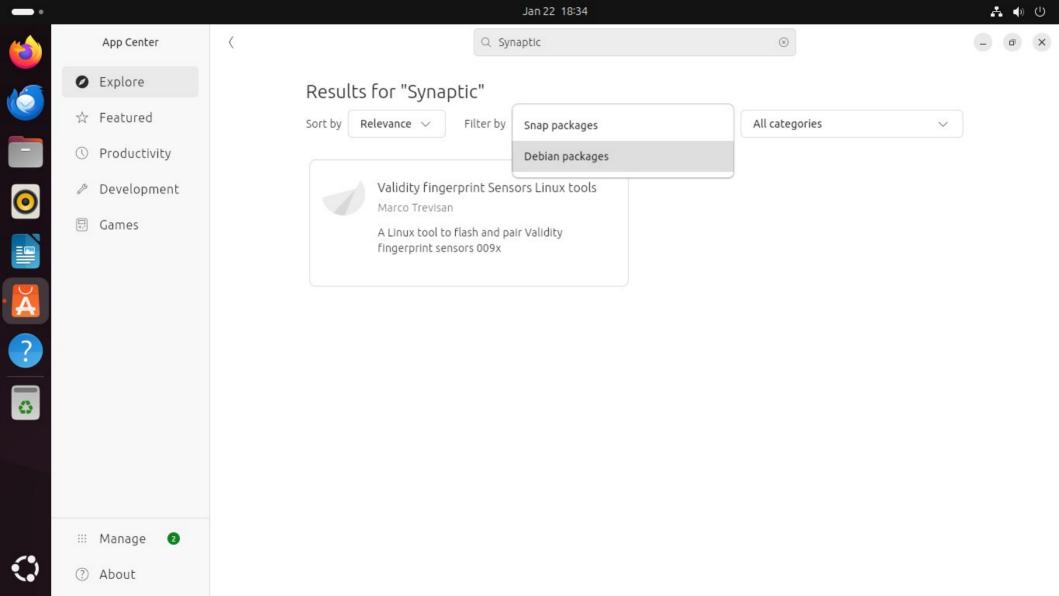


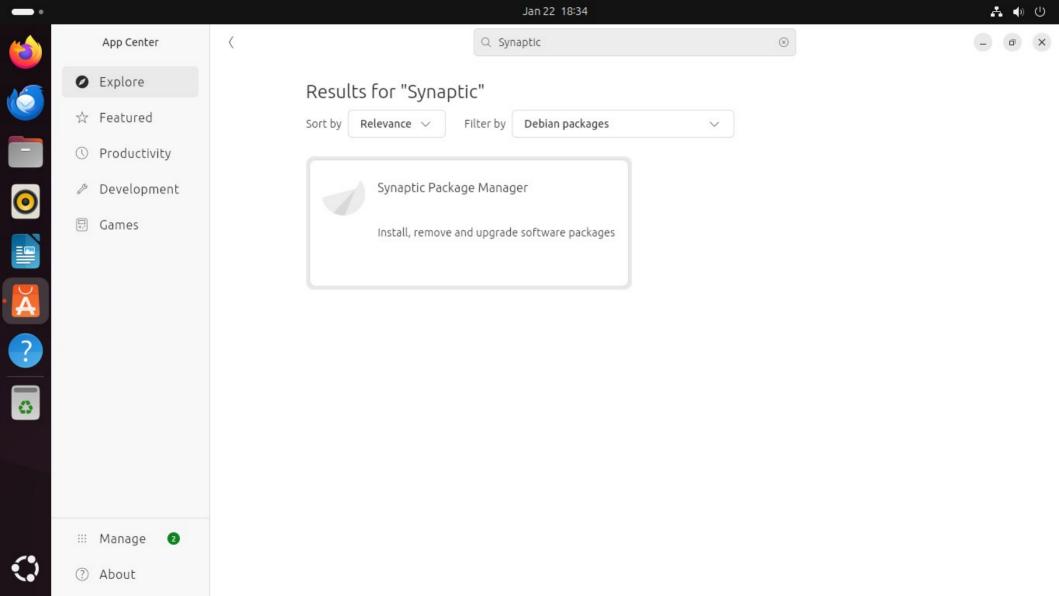


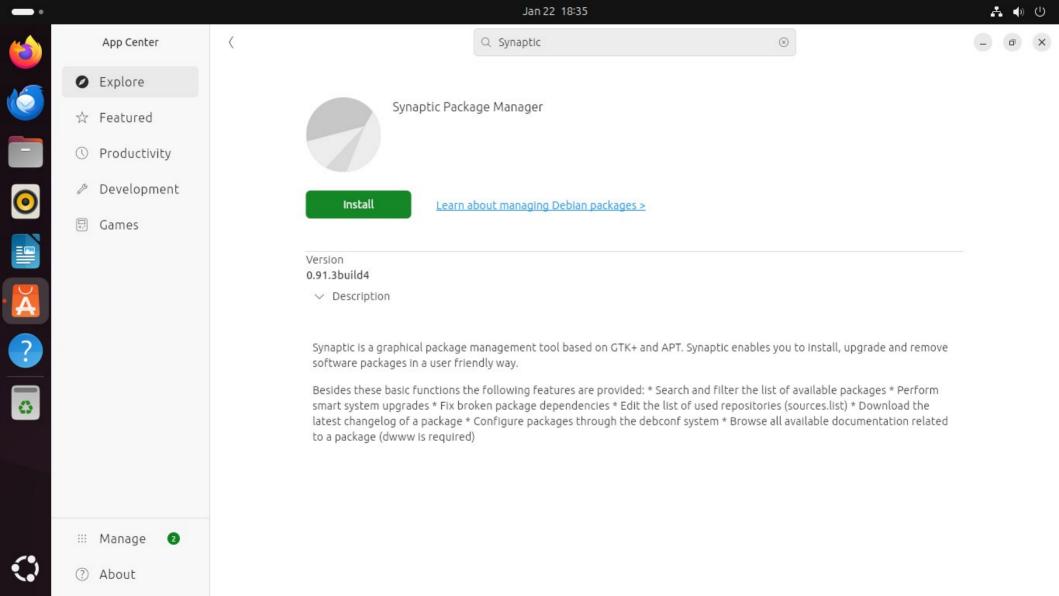


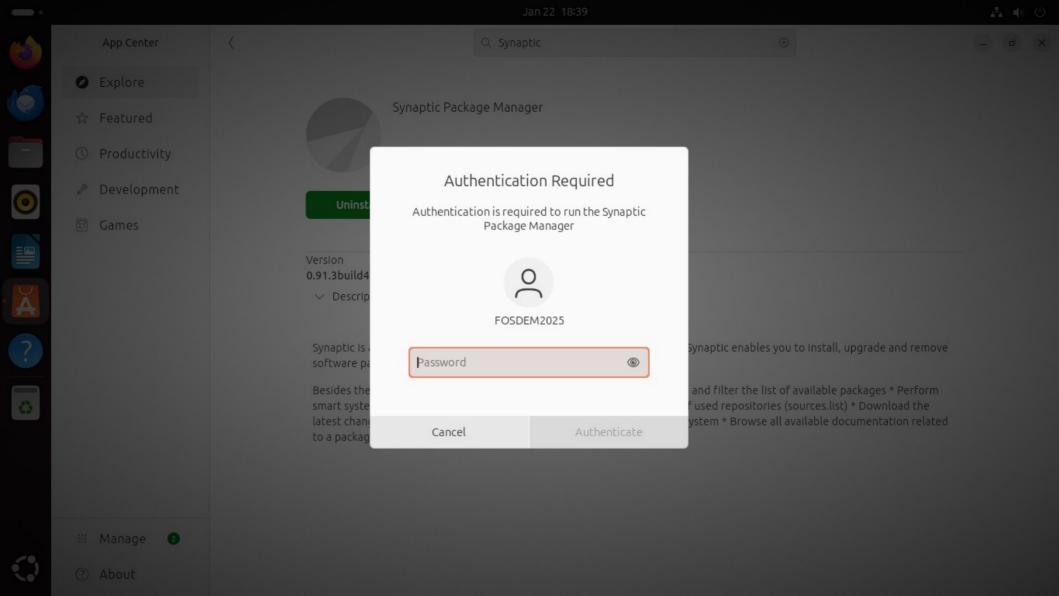


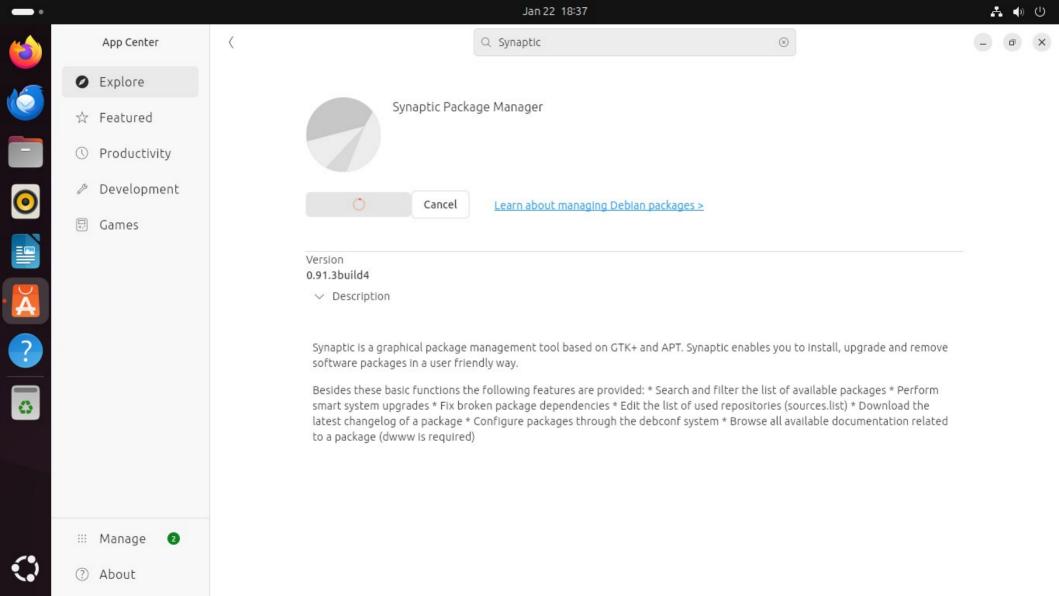


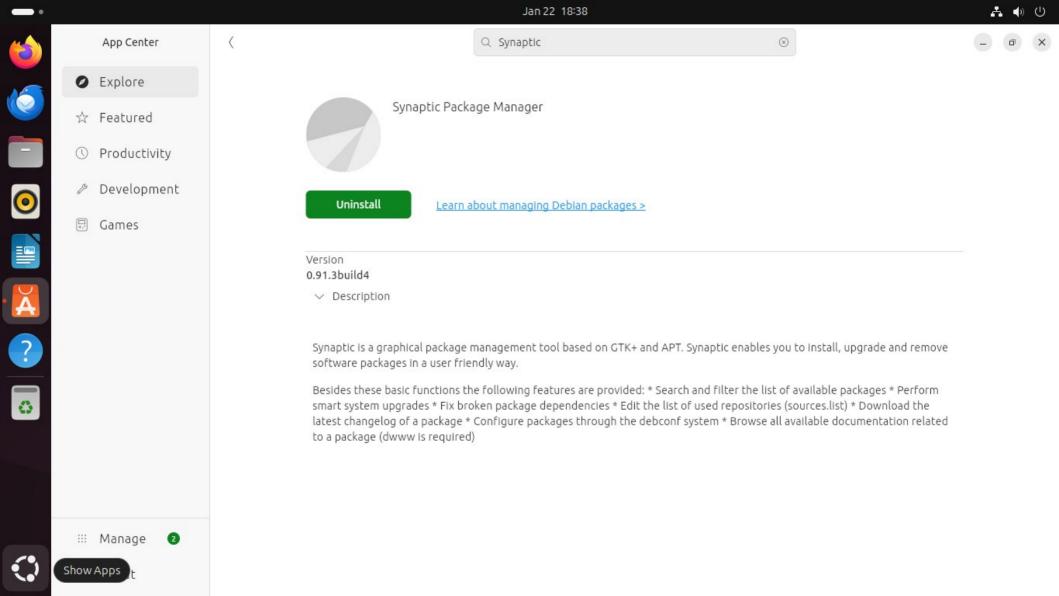


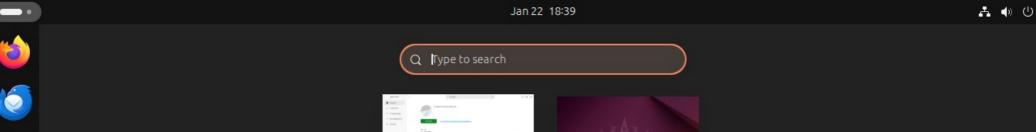




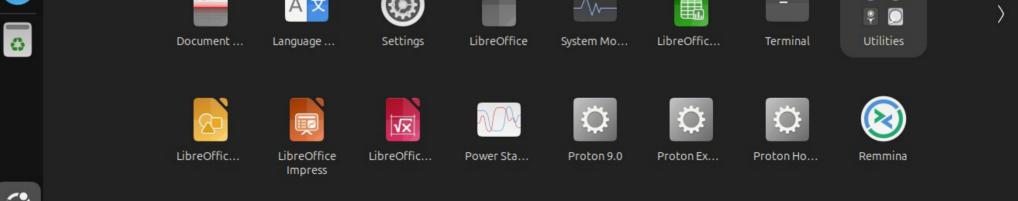




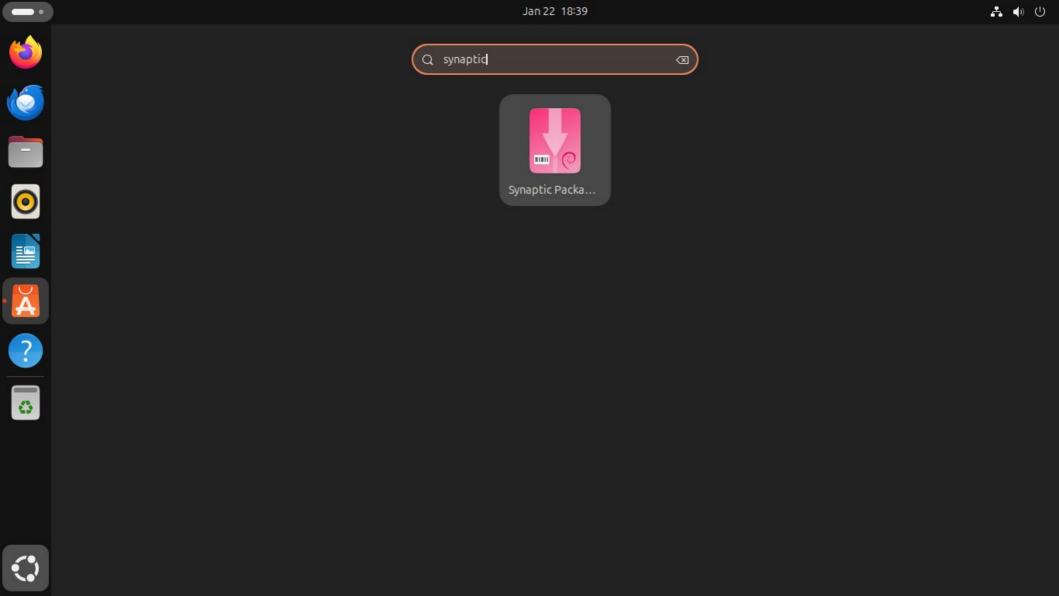


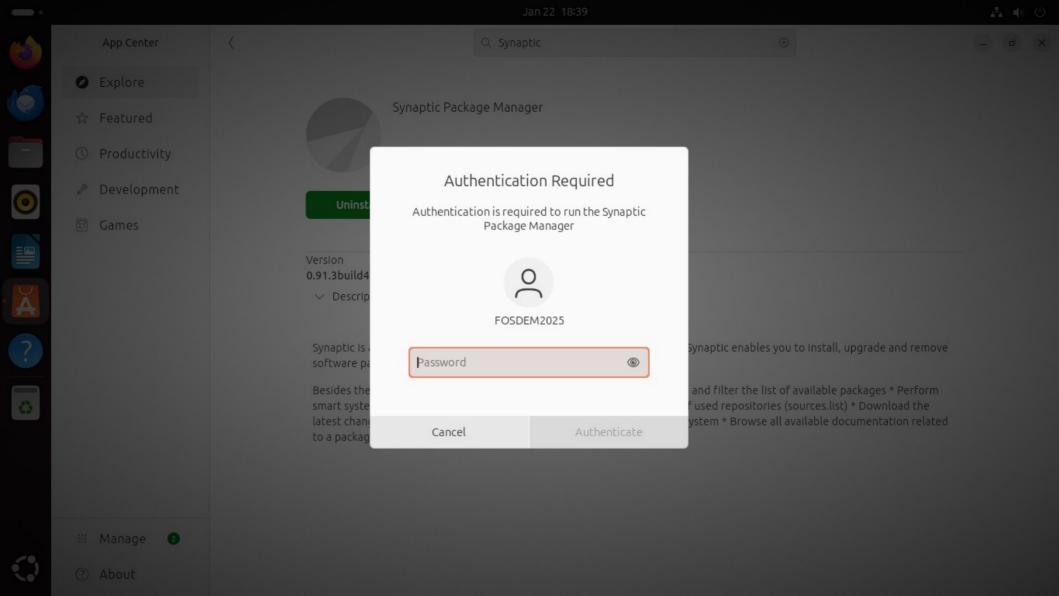


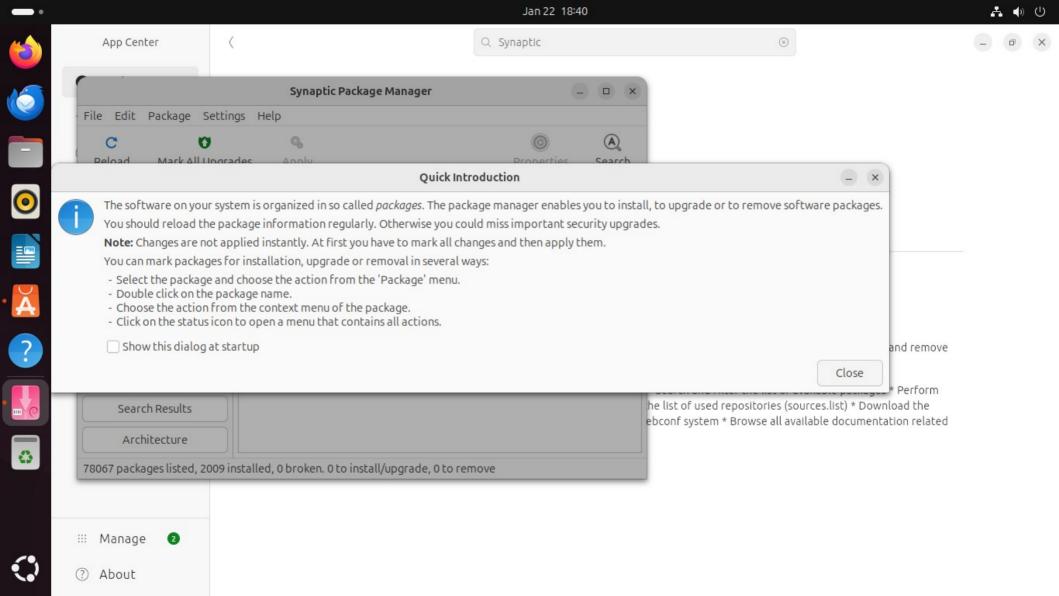


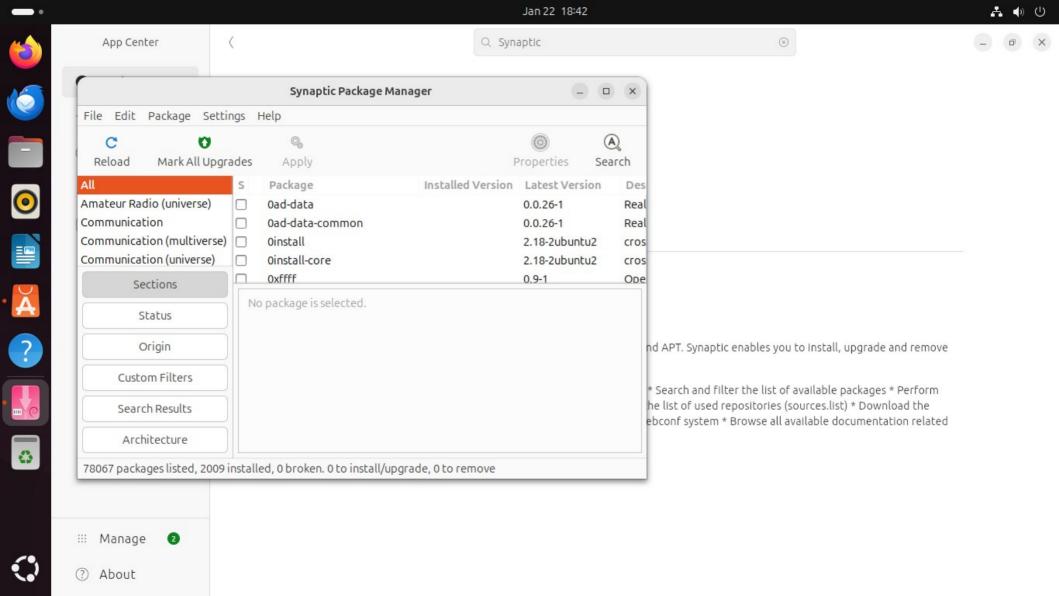


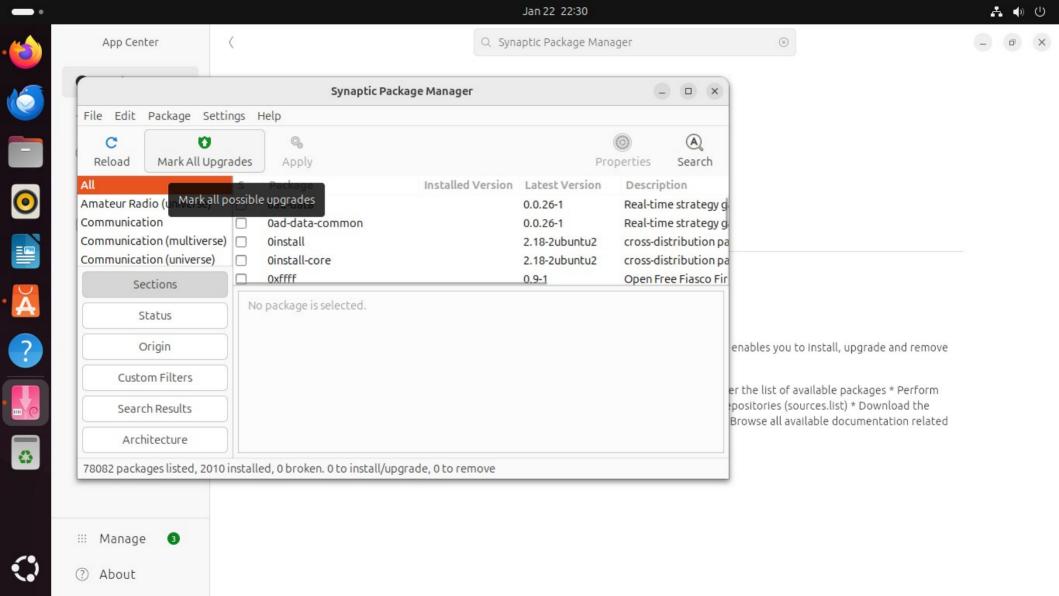


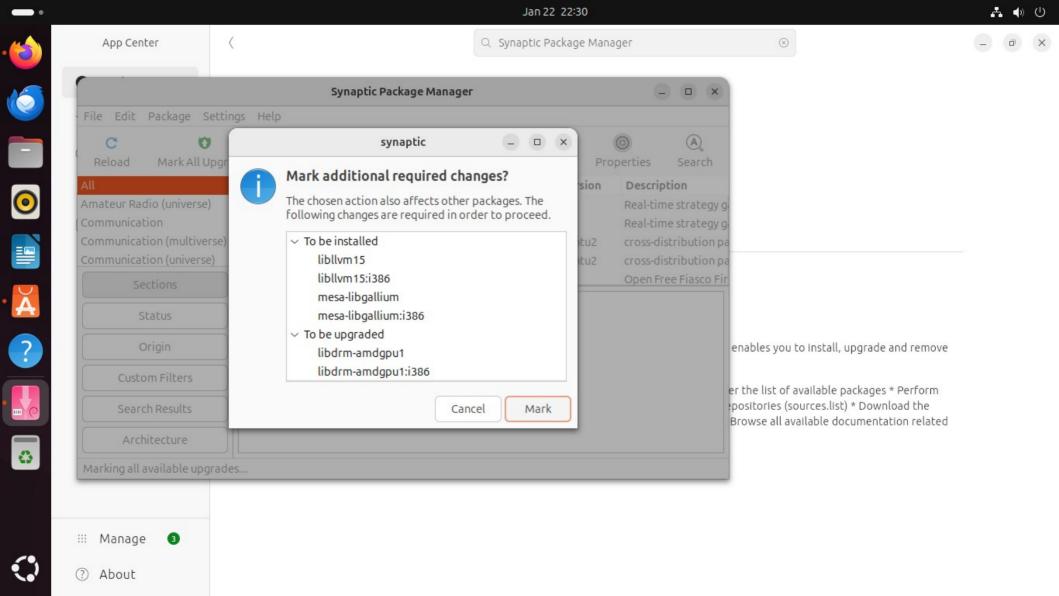


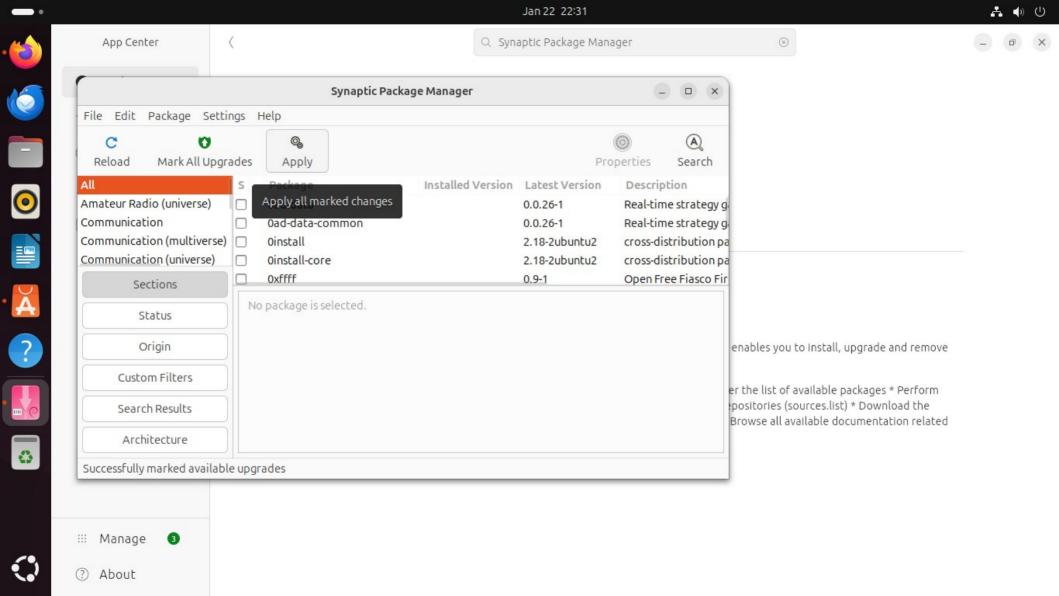


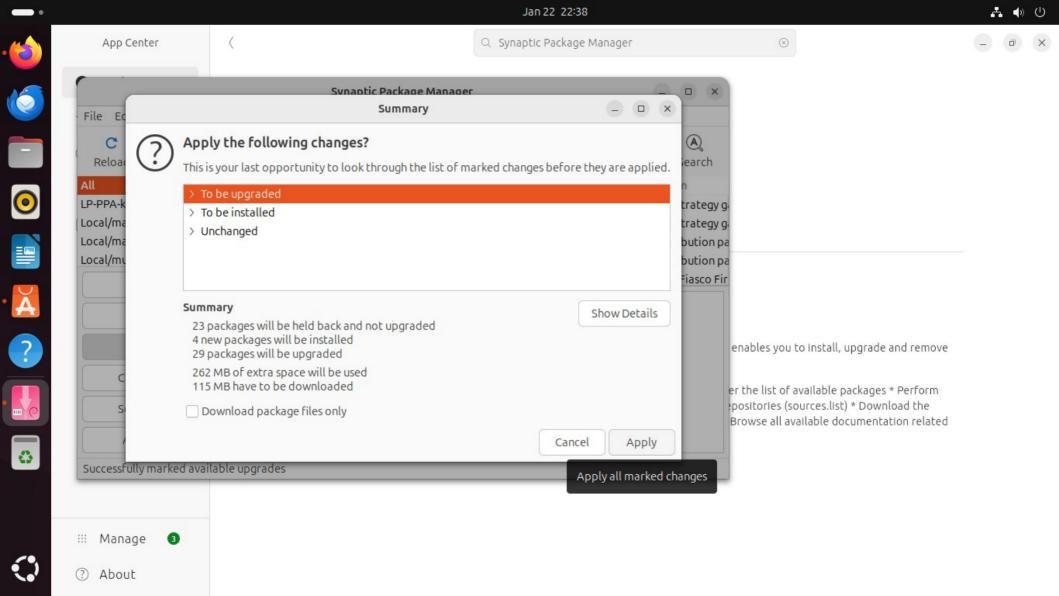


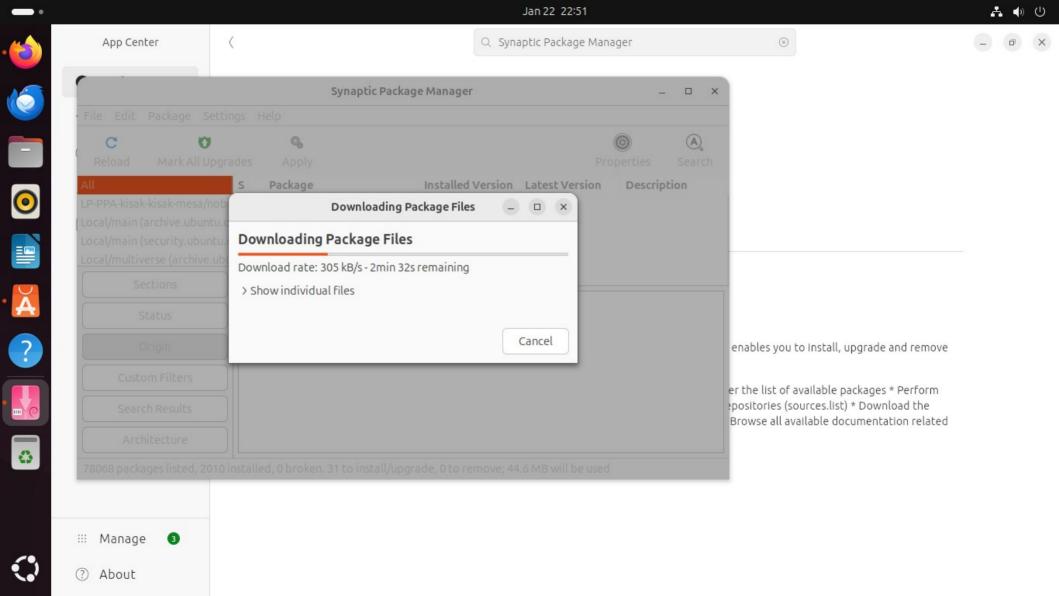


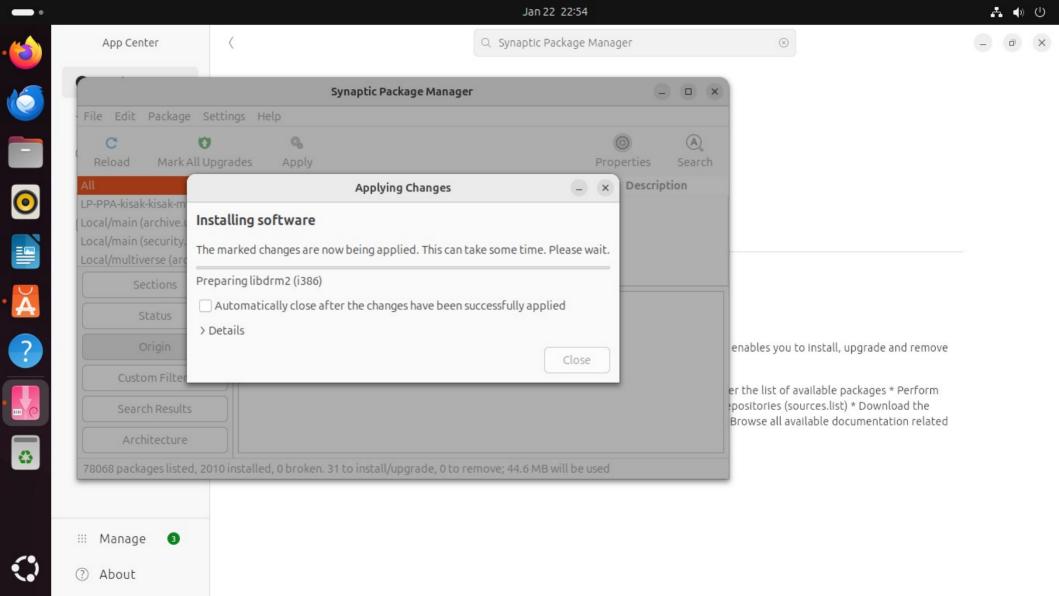


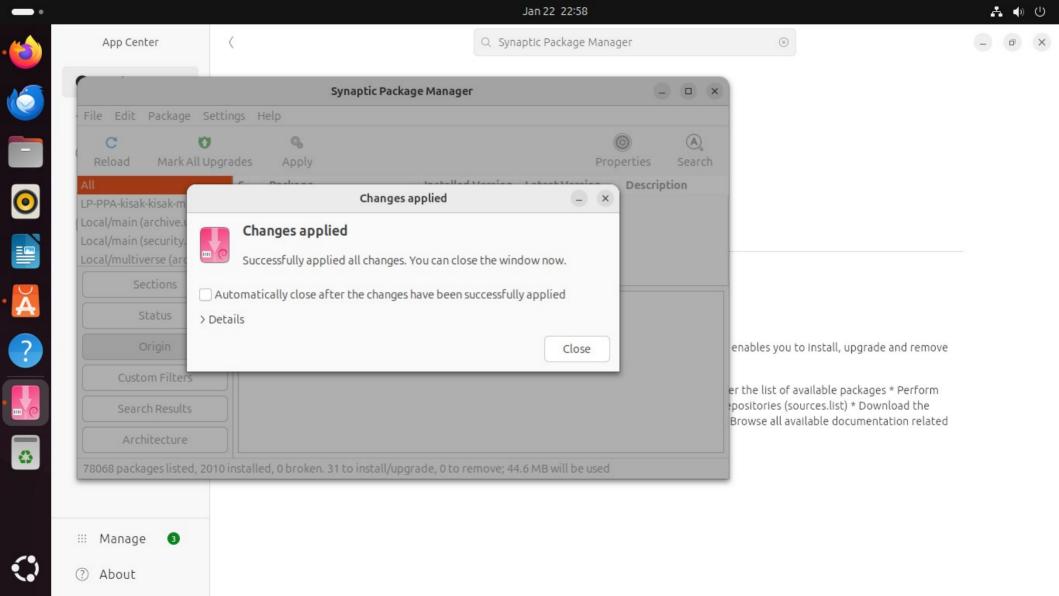


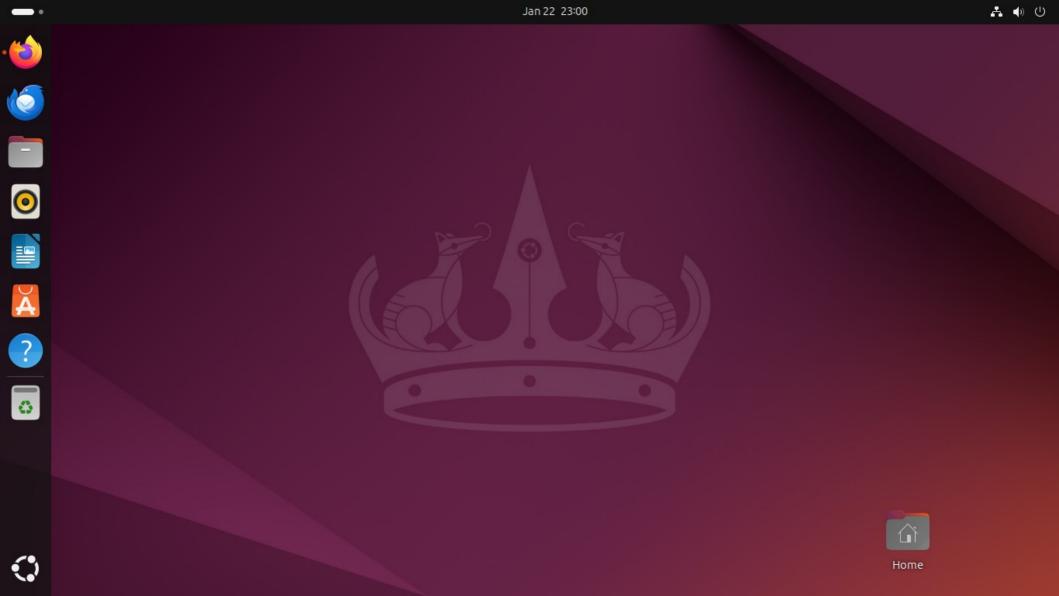


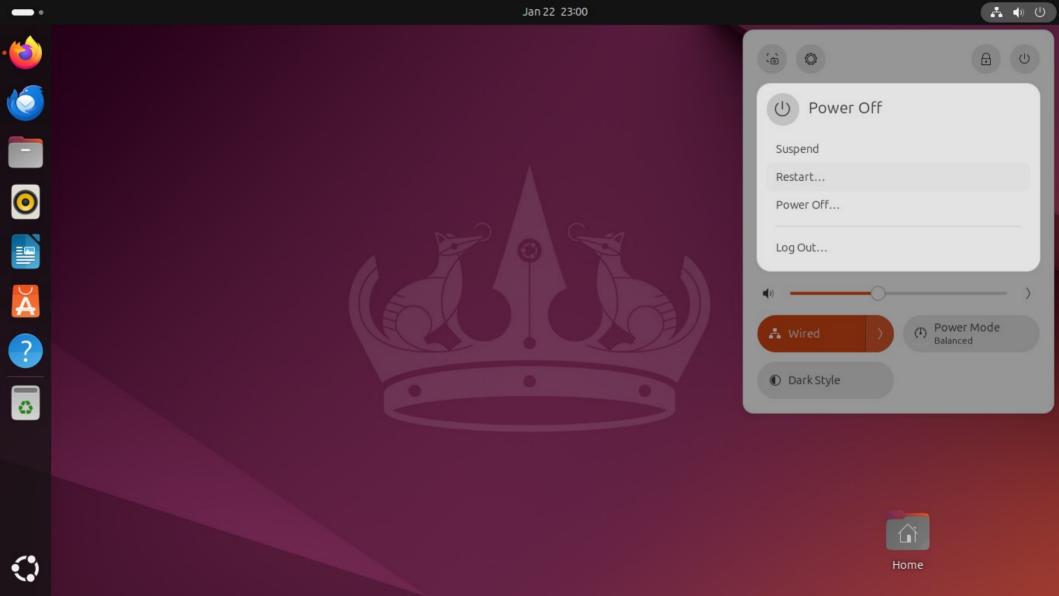


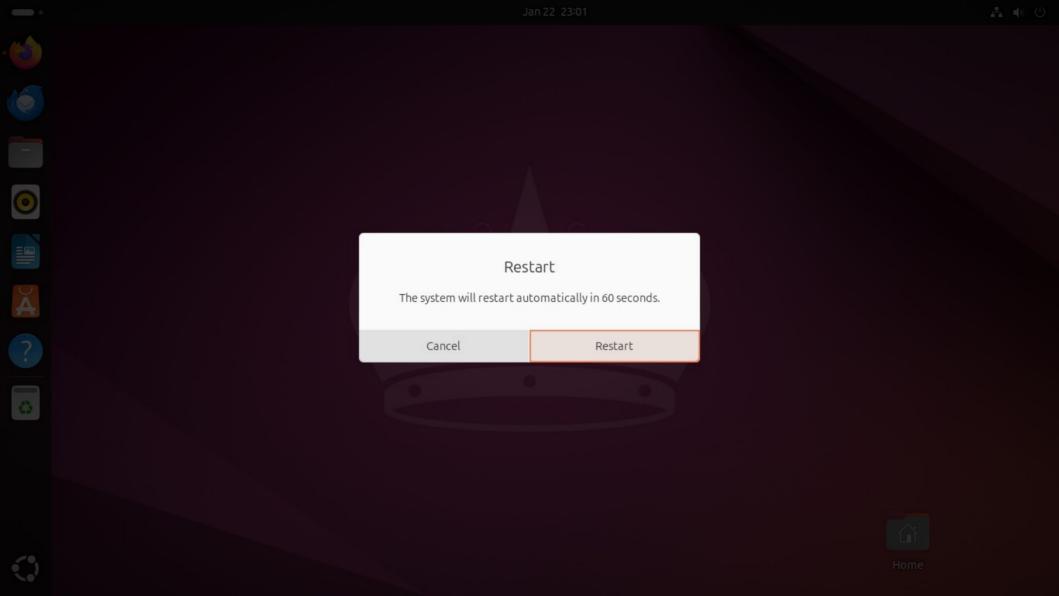
















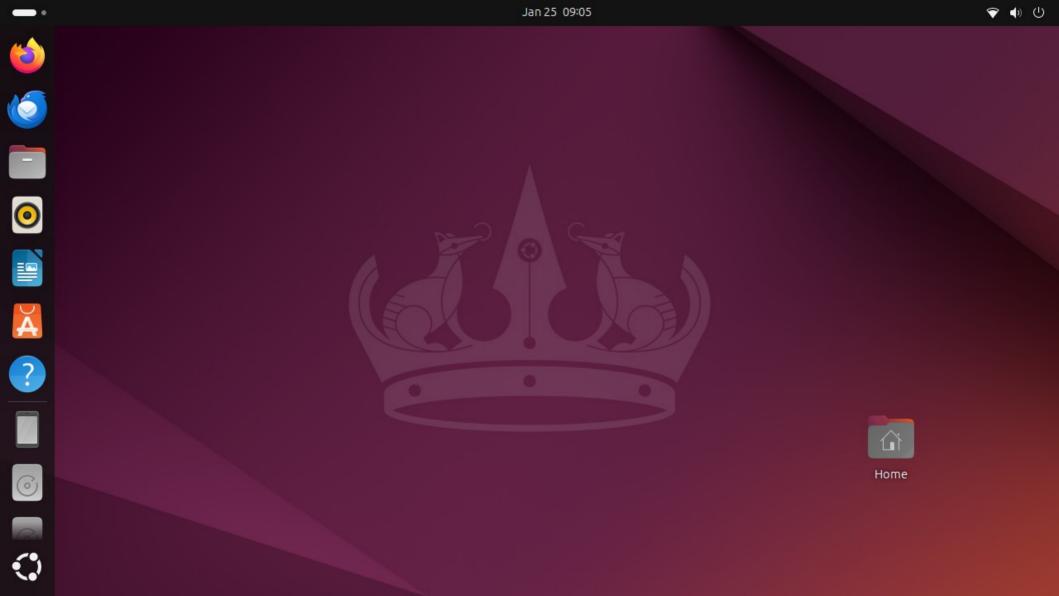


Jan 22 19:53 **† ♣ •**)

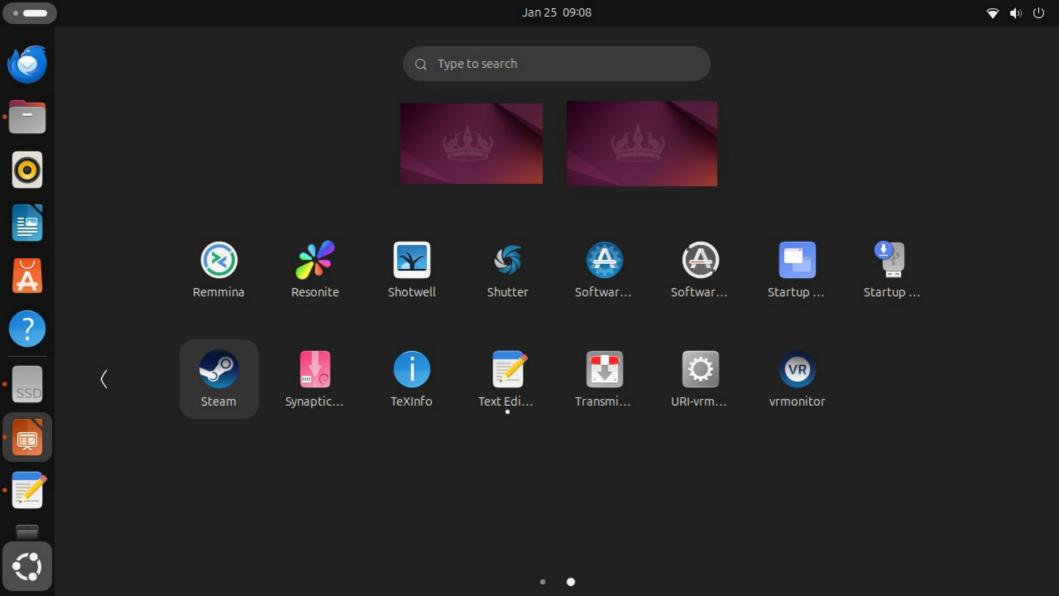


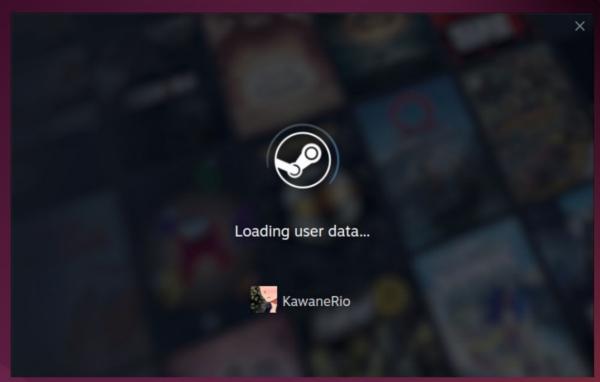
Not listed?









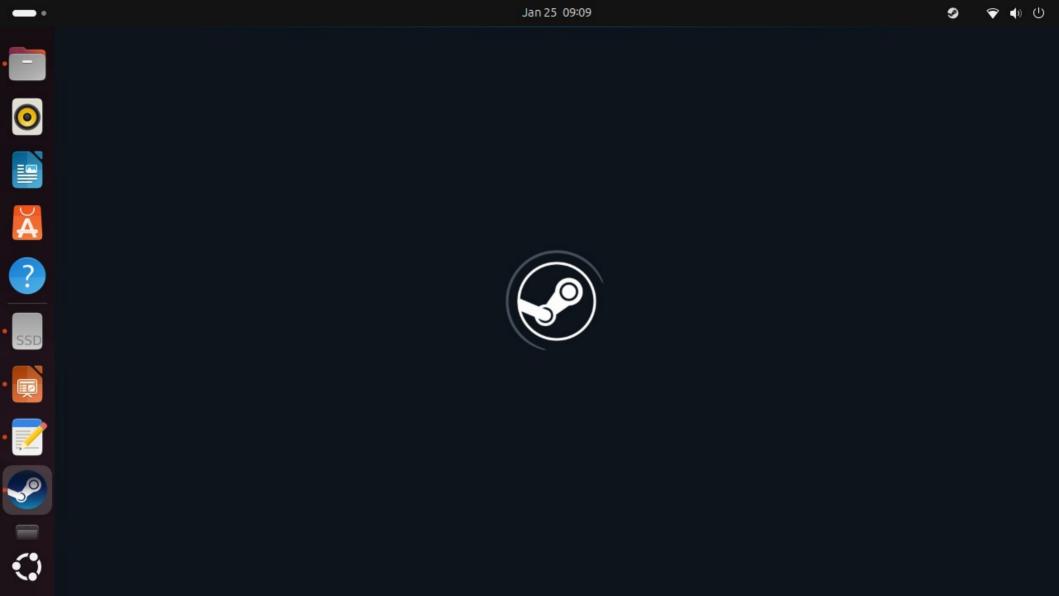


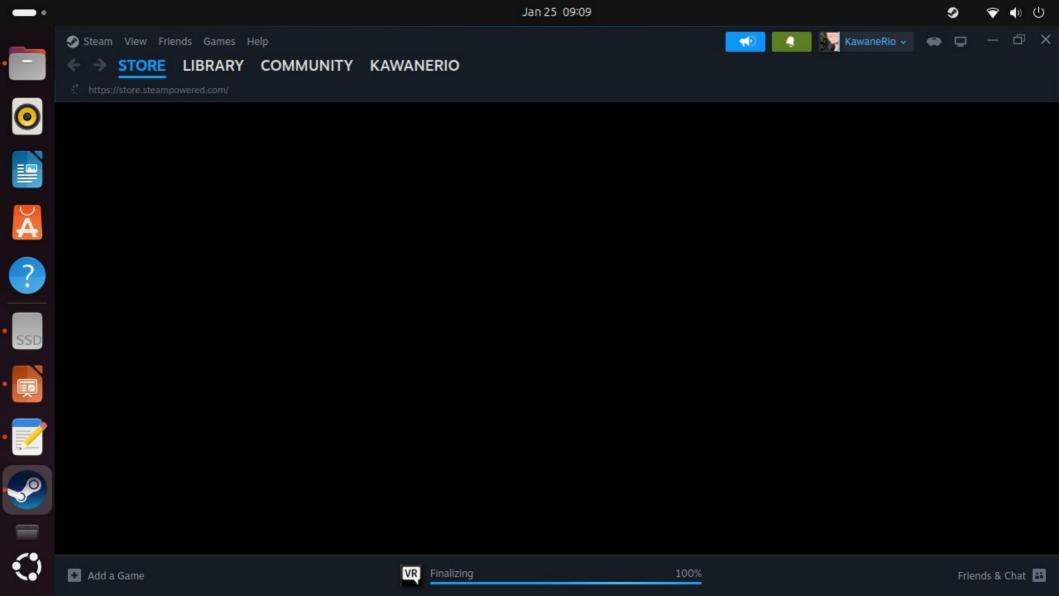




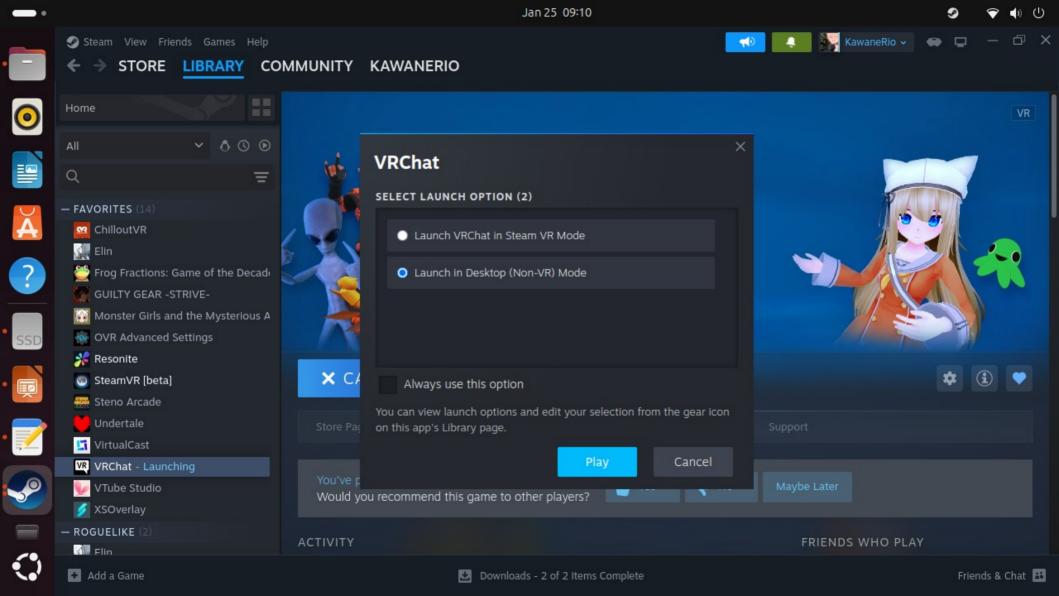








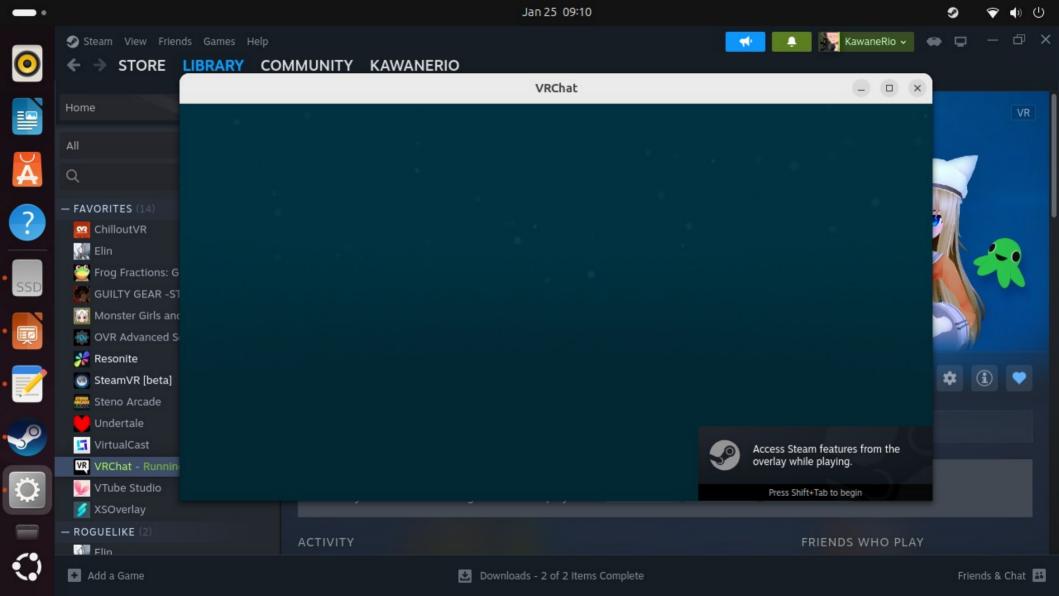


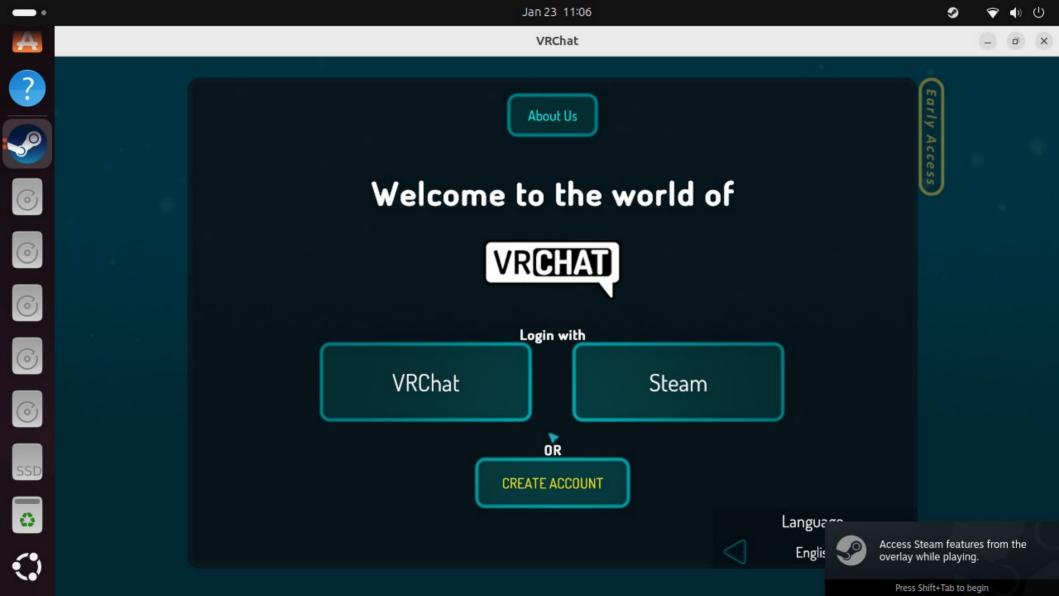


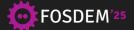








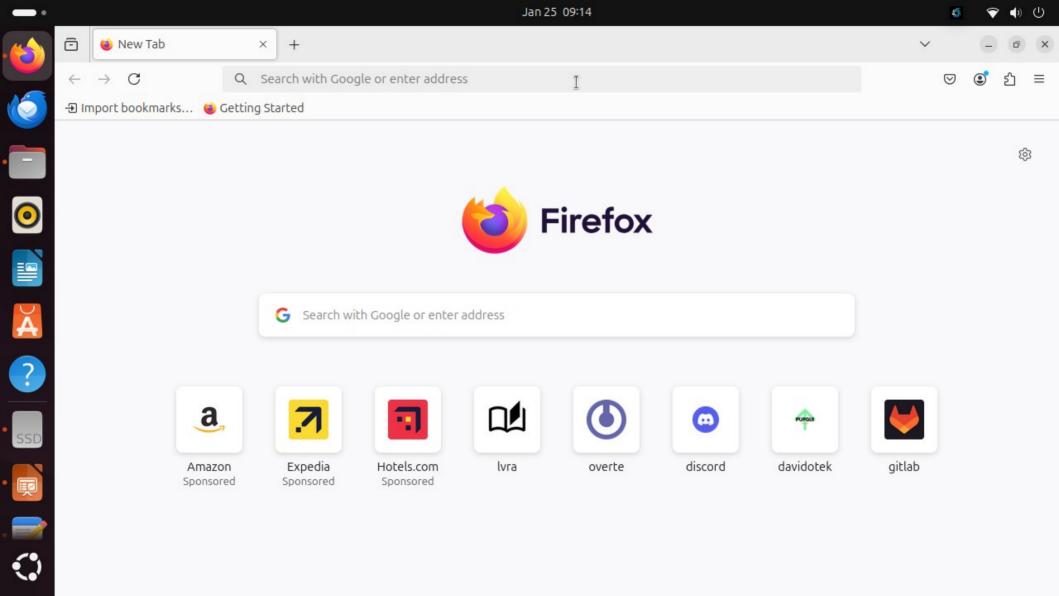


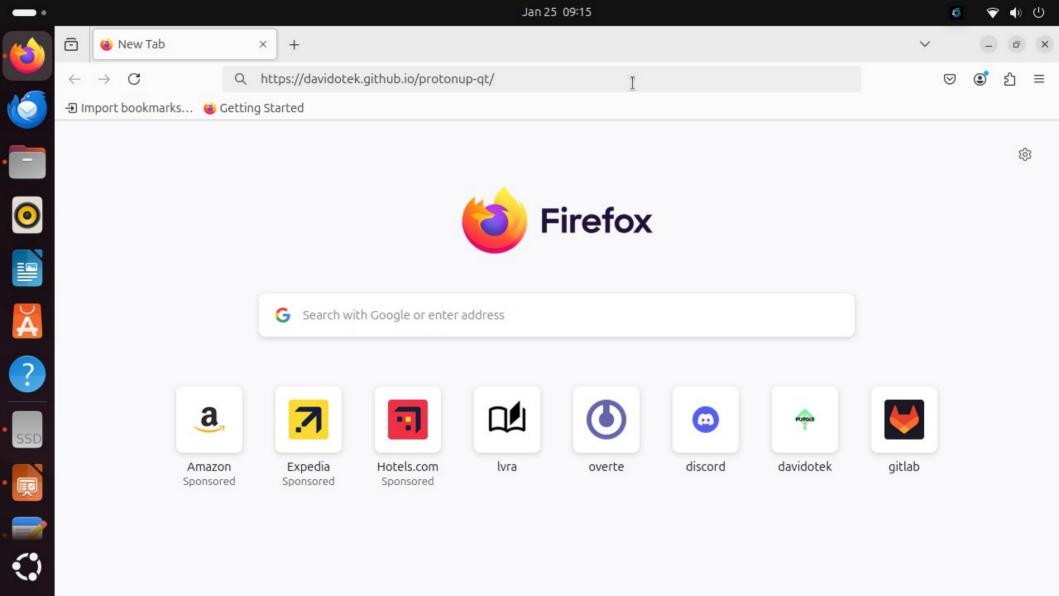


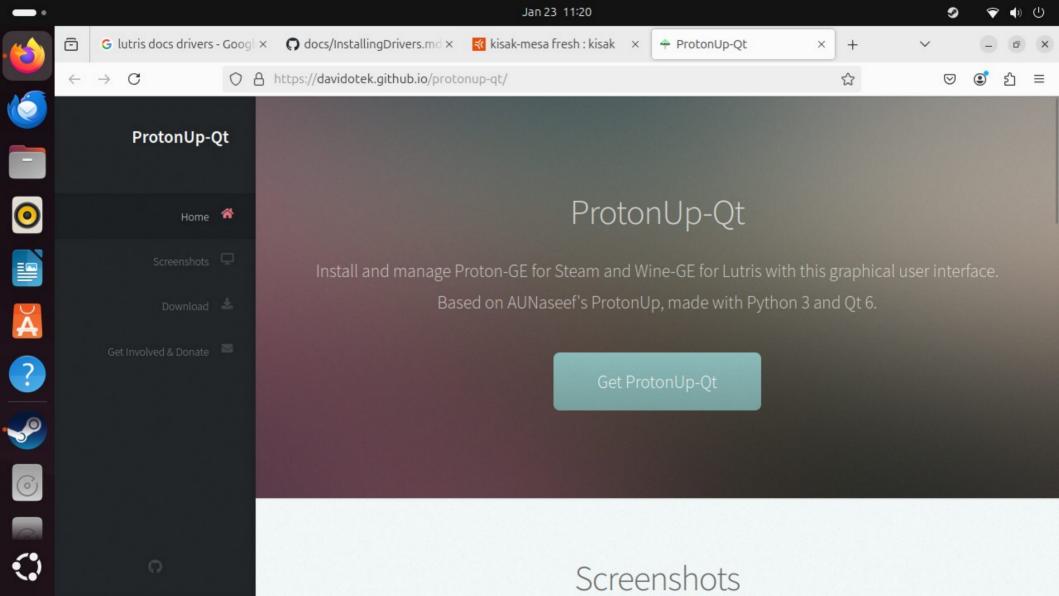


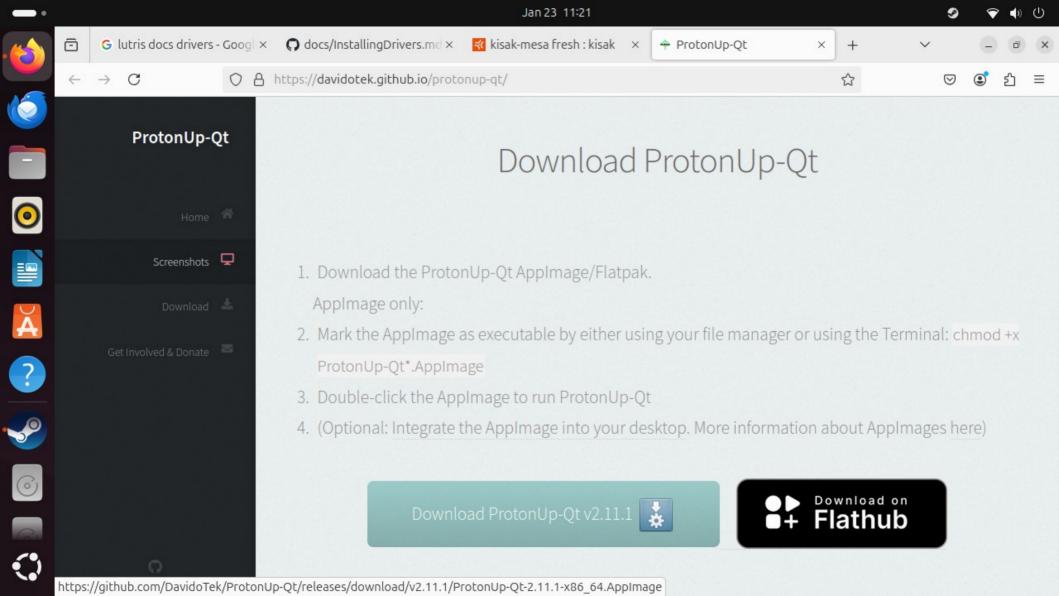
## Beginner's Guide on How to Join Events in VR from Ubuntu

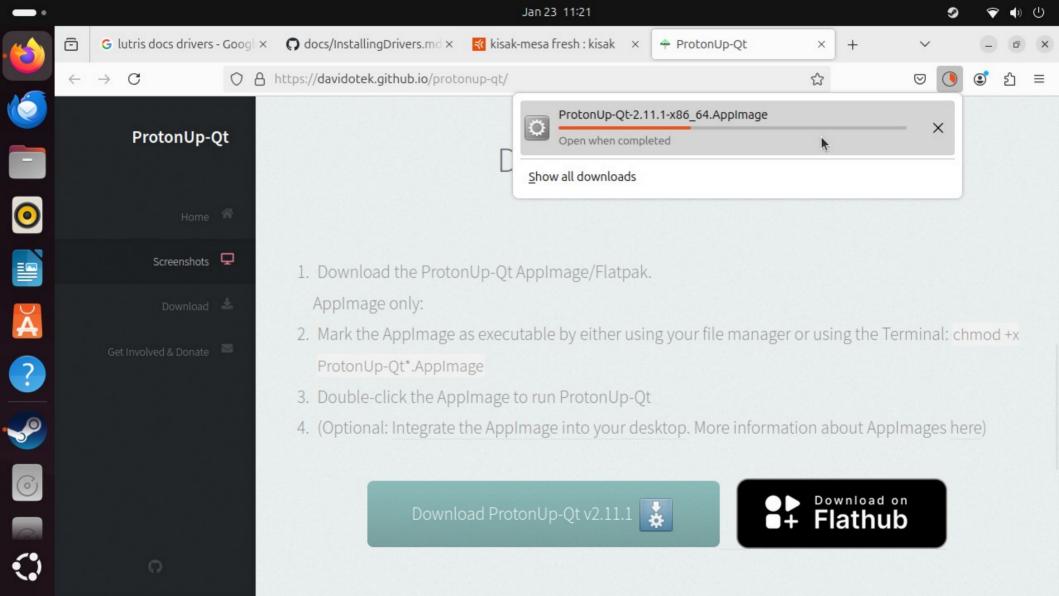
1. UPDATE YOUR SYSTEM **AMD GPU** → ppa:kisak/kisak-mesa 2. Install Graphic Drivers & Install CoreCtrl 3. Upgrade All Drivers **NVIDIA GPU** 4. Install Steam - installer → ppa:graphics-drivers/ppa 5. Install Proton-GE i. Enable Steam Play 6. Install Envision Set Default to Proton-Experimental 7. Install Wlx-Overlay-S ii. Set Interface to Steam Beta 8. Start Envision, then Wlx-Overlay-S, and then your OpenXR App/Game

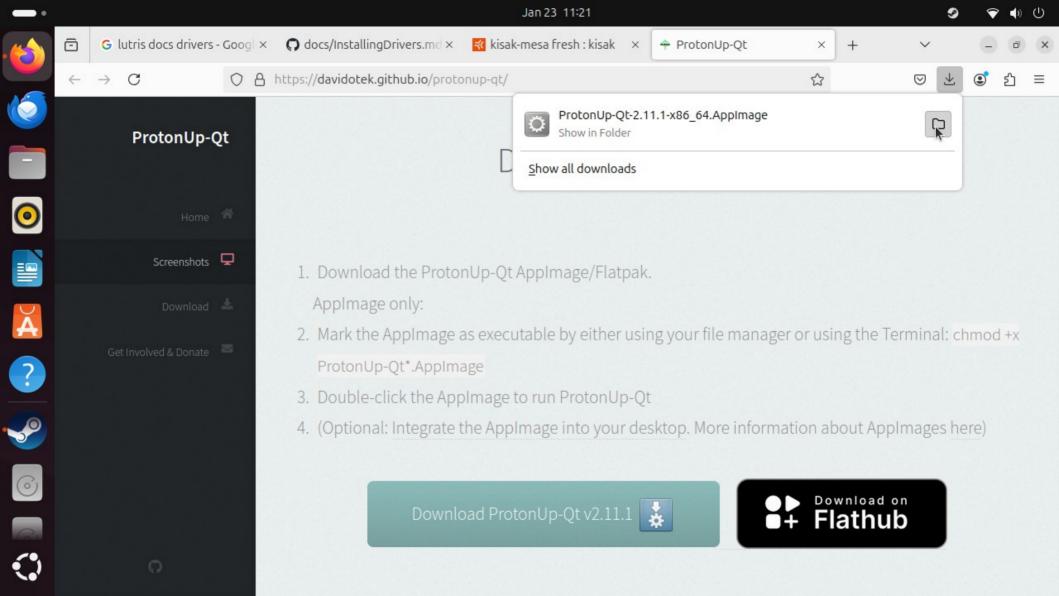


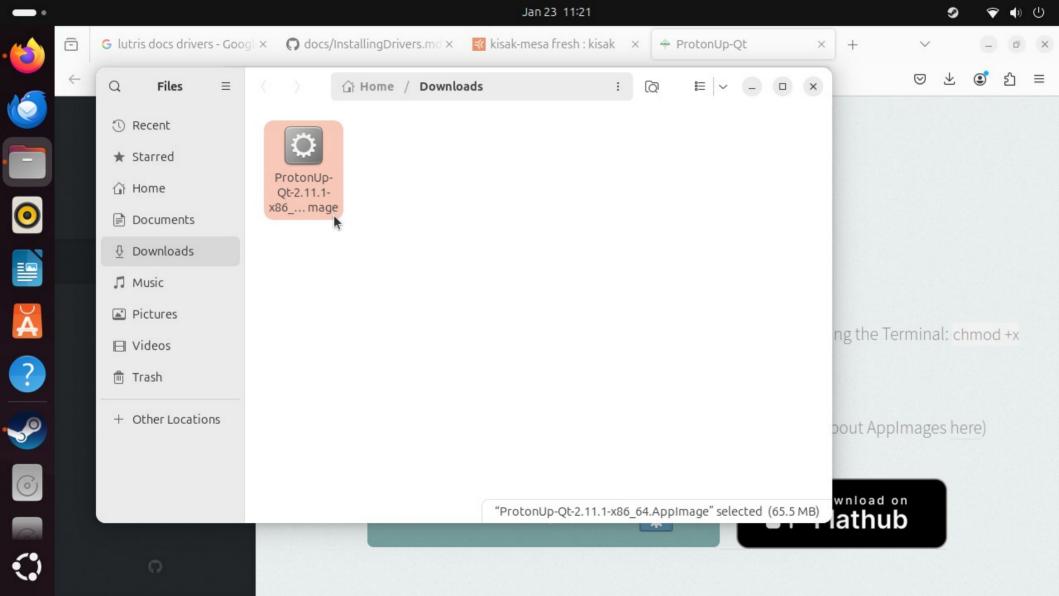


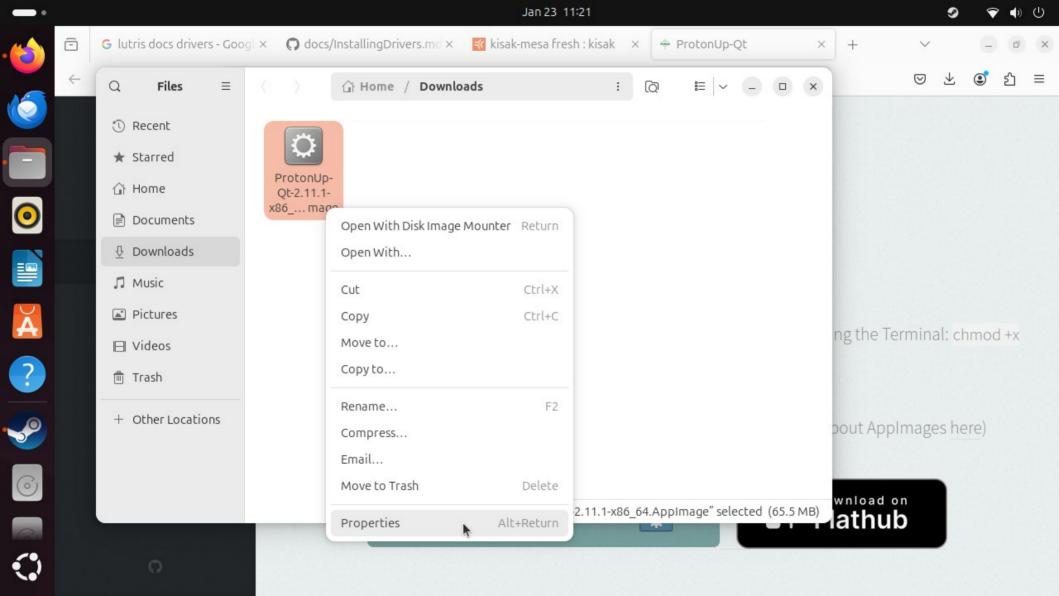


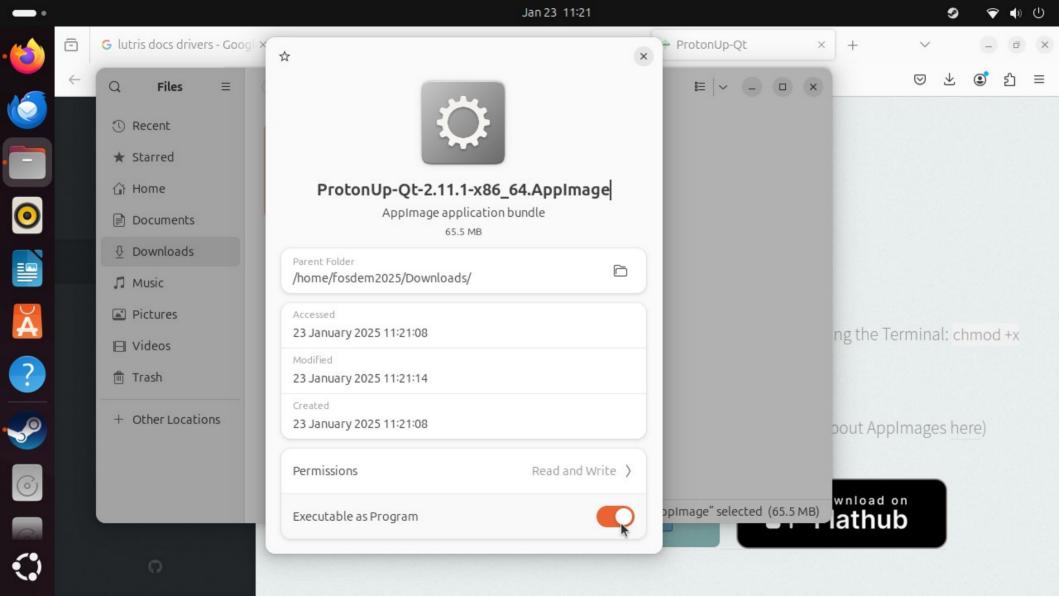


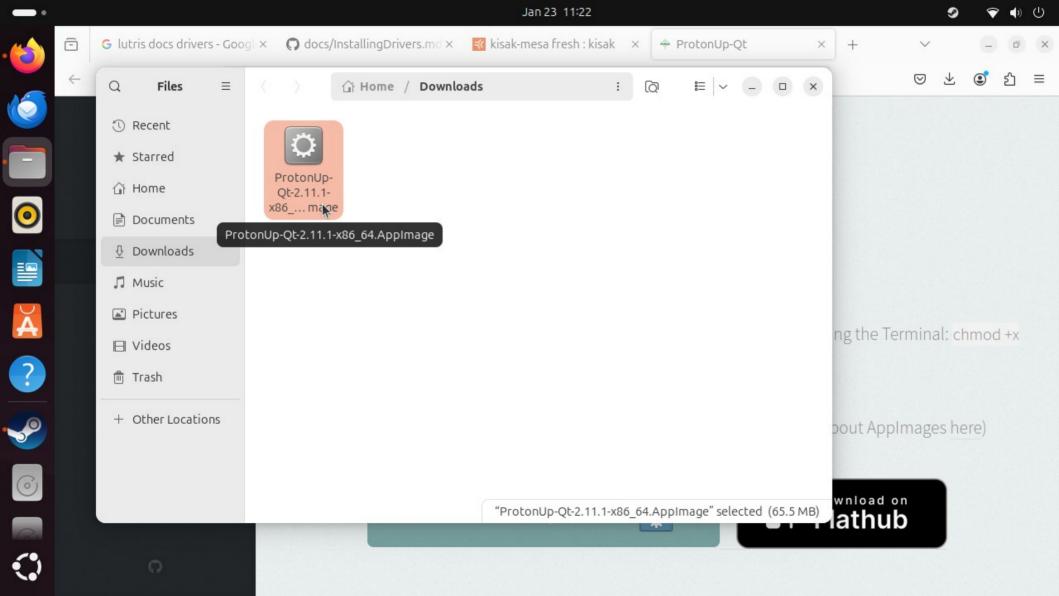


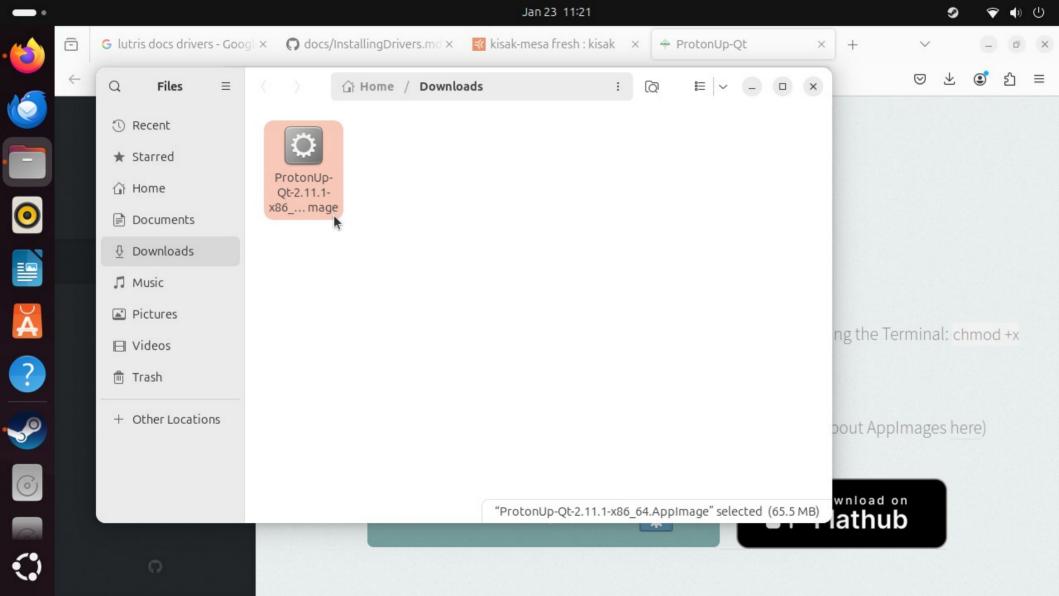


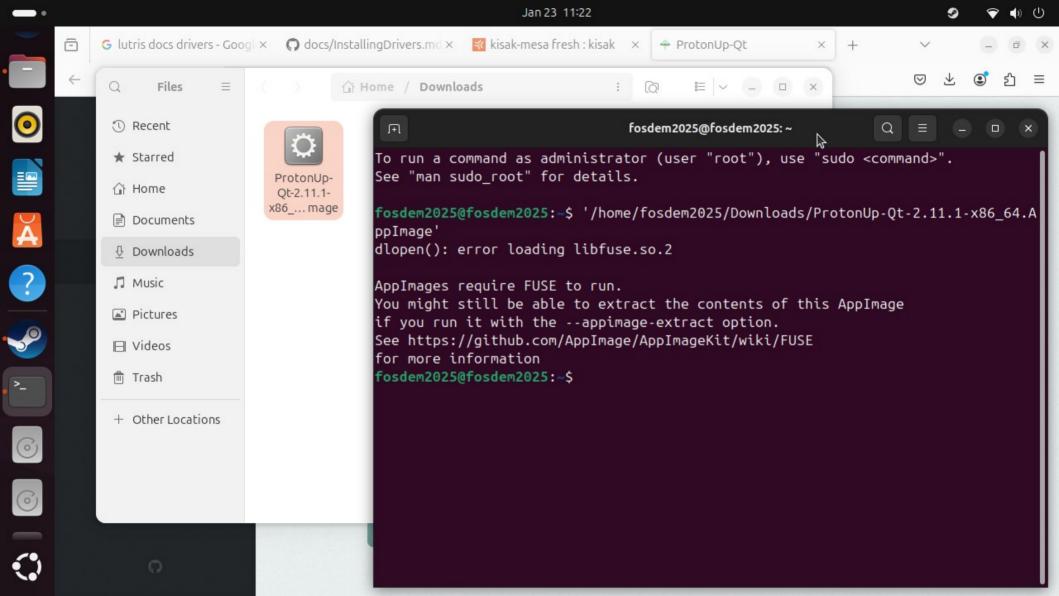


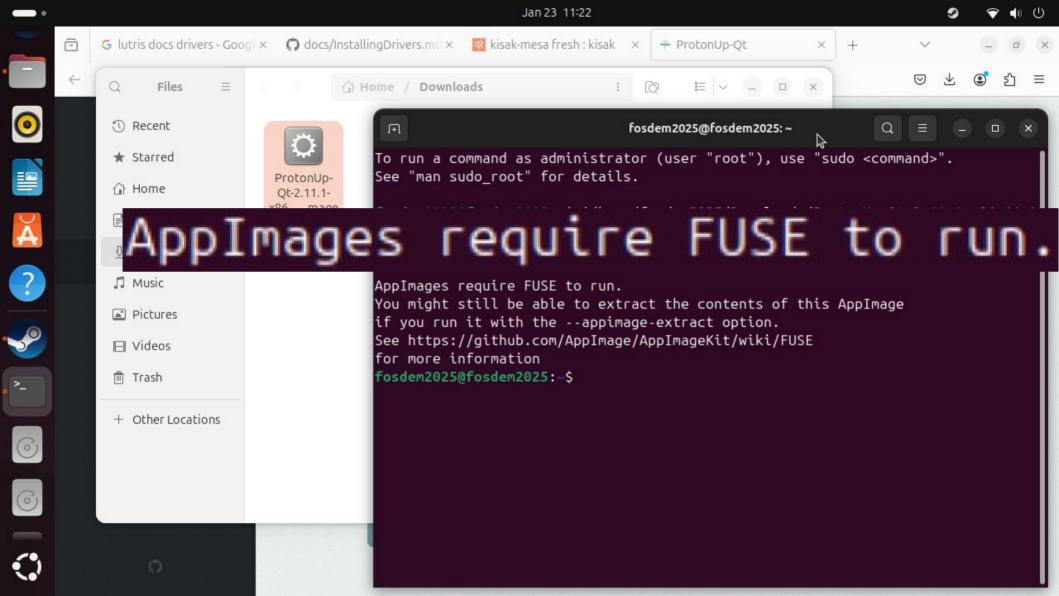


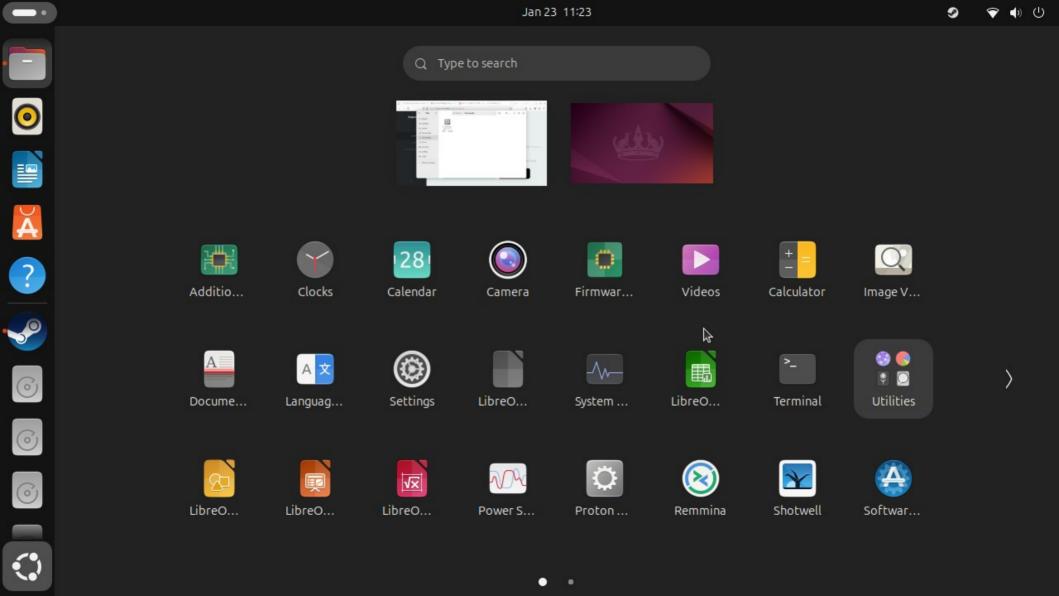


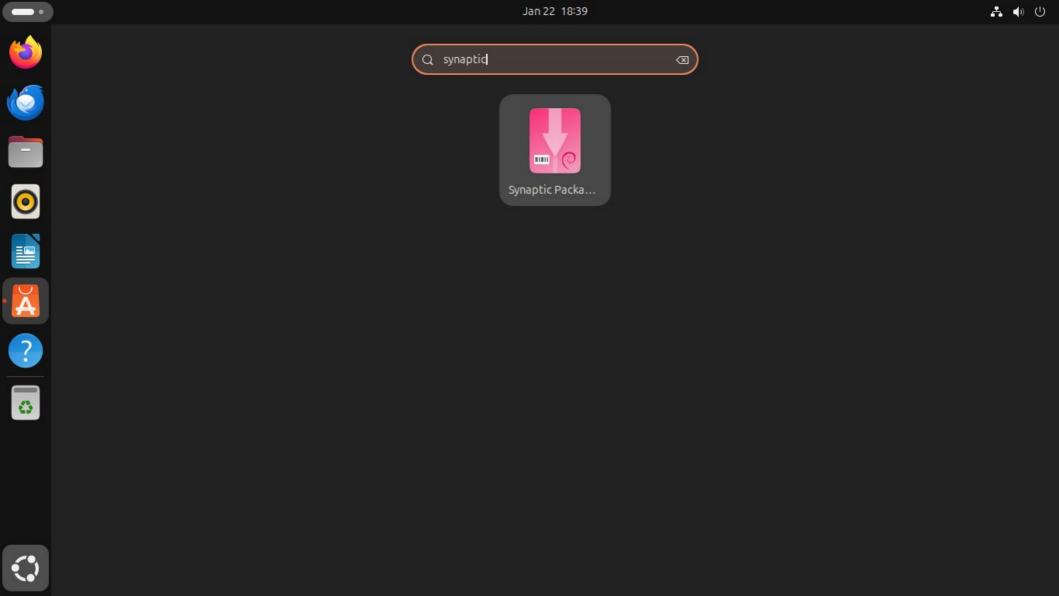


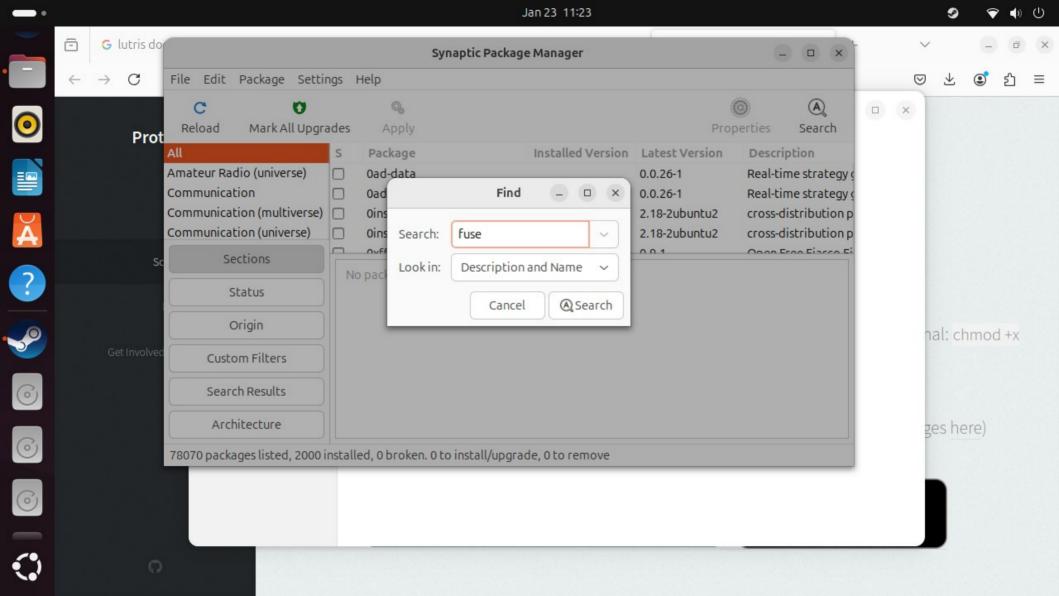


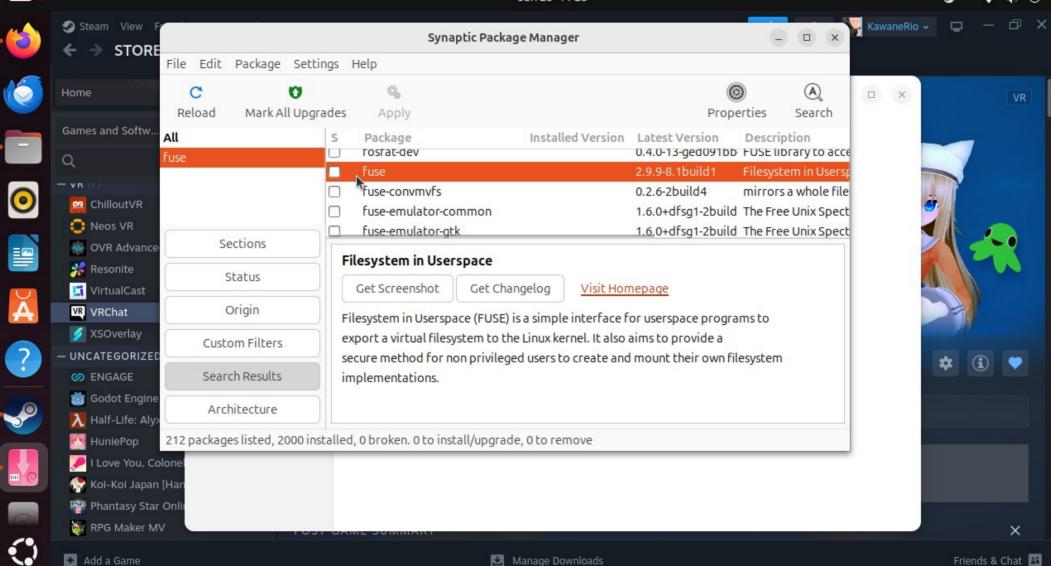


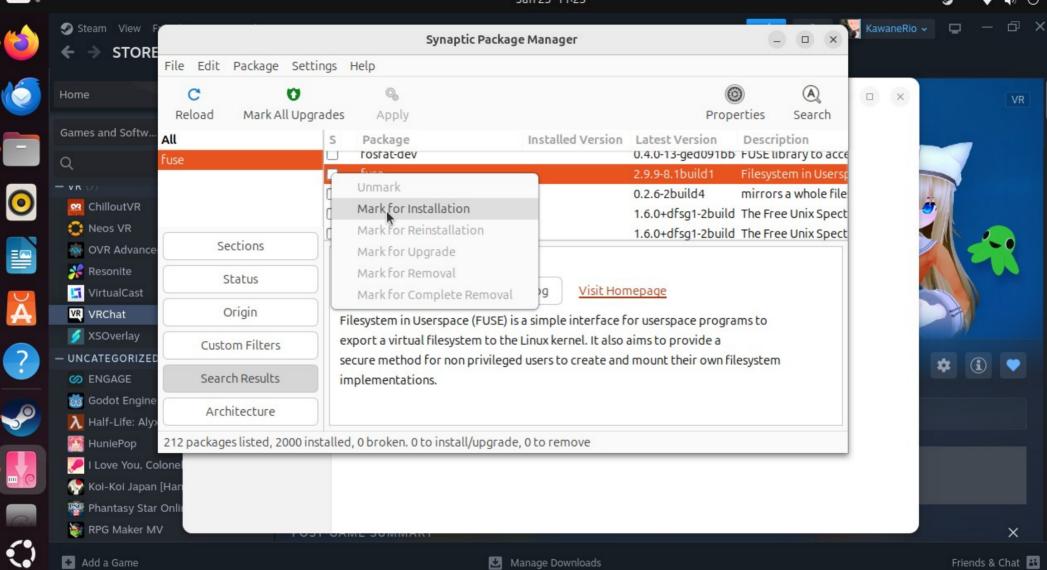


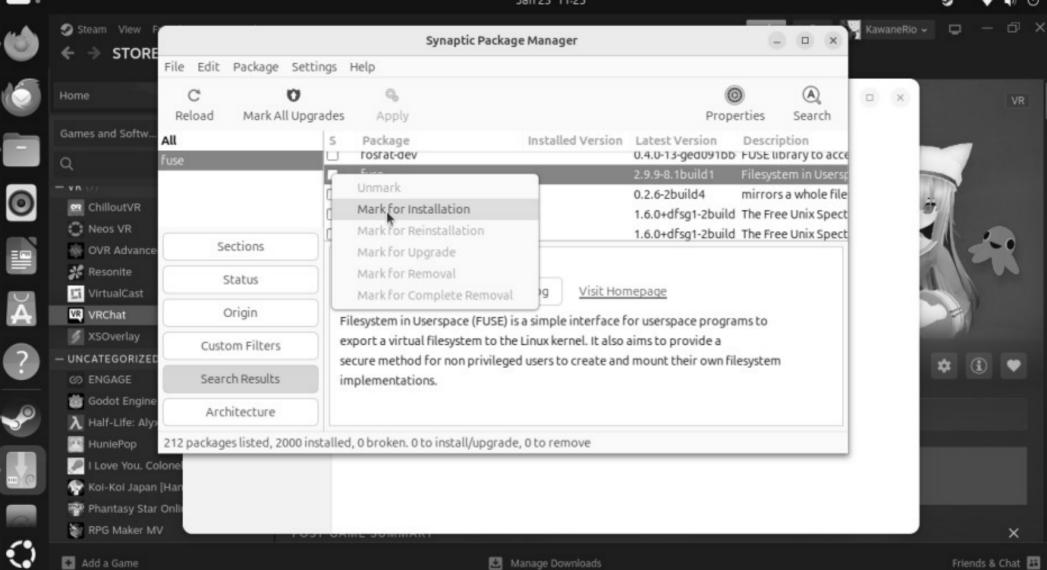














## SE



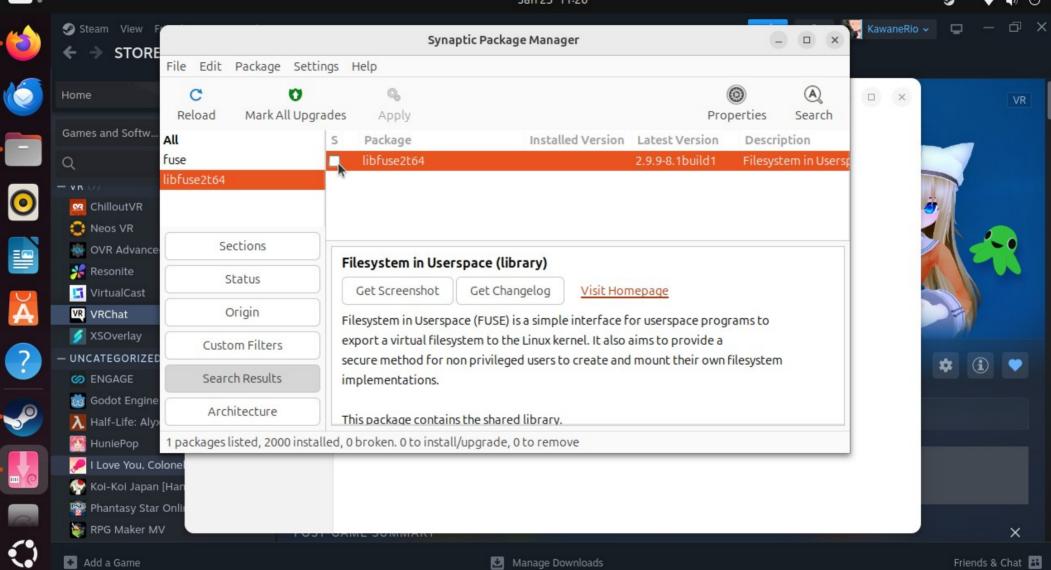
Installing fuse or fuse2 will Break Your System!\*

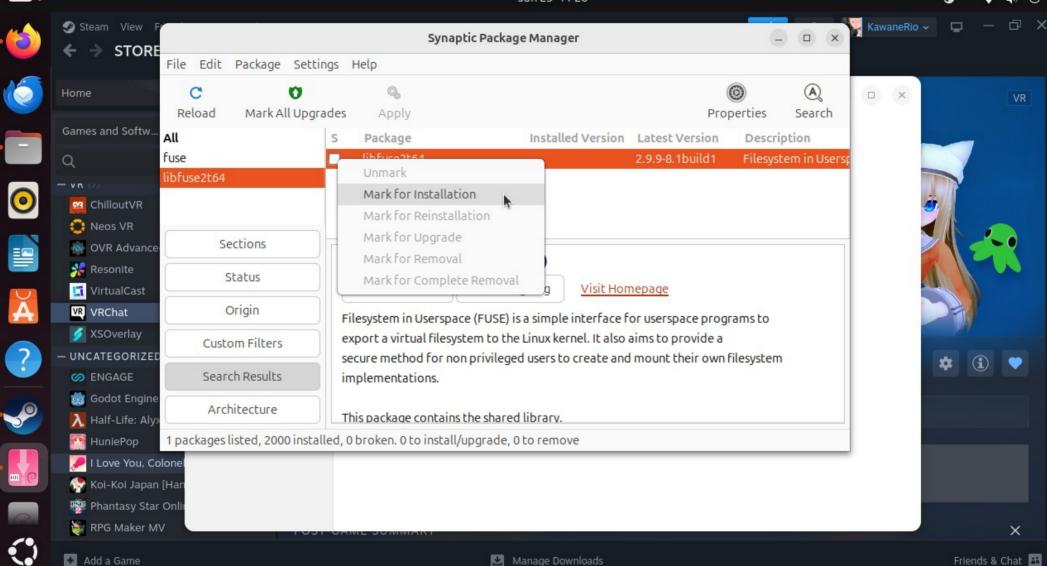
\*On a Fresh Install of Ubuntu 24.04.1 LTS

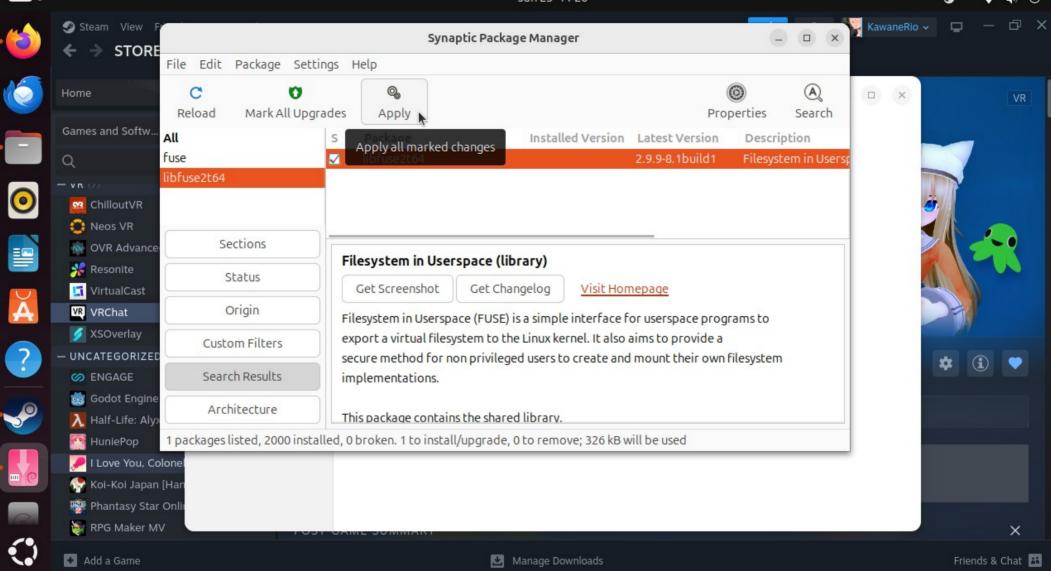
## INSTALL libfuse2t64 nstead!\*

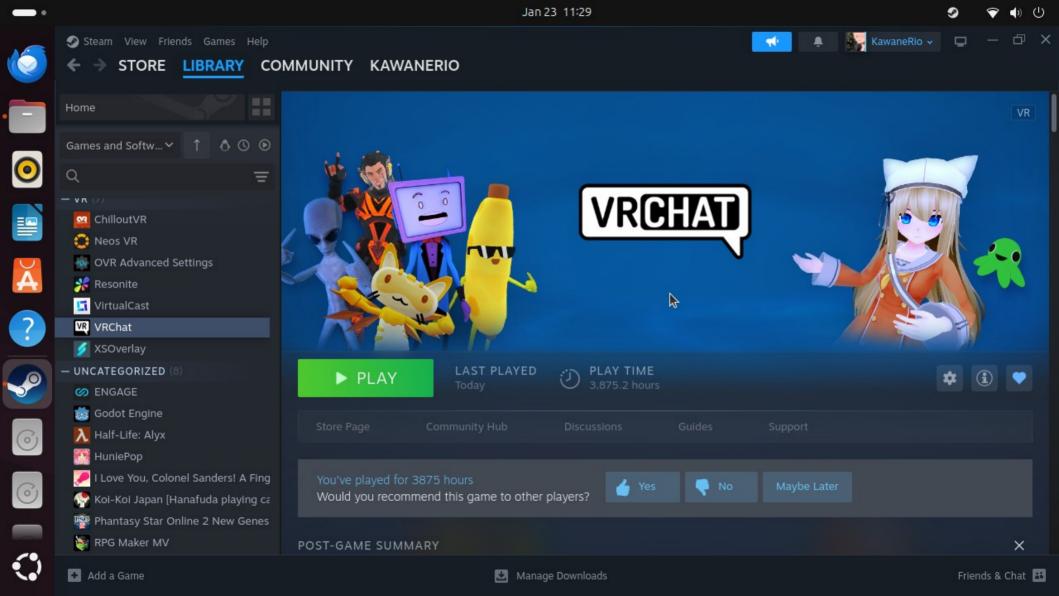
Installing fuse or fuse2 will Break Your System!

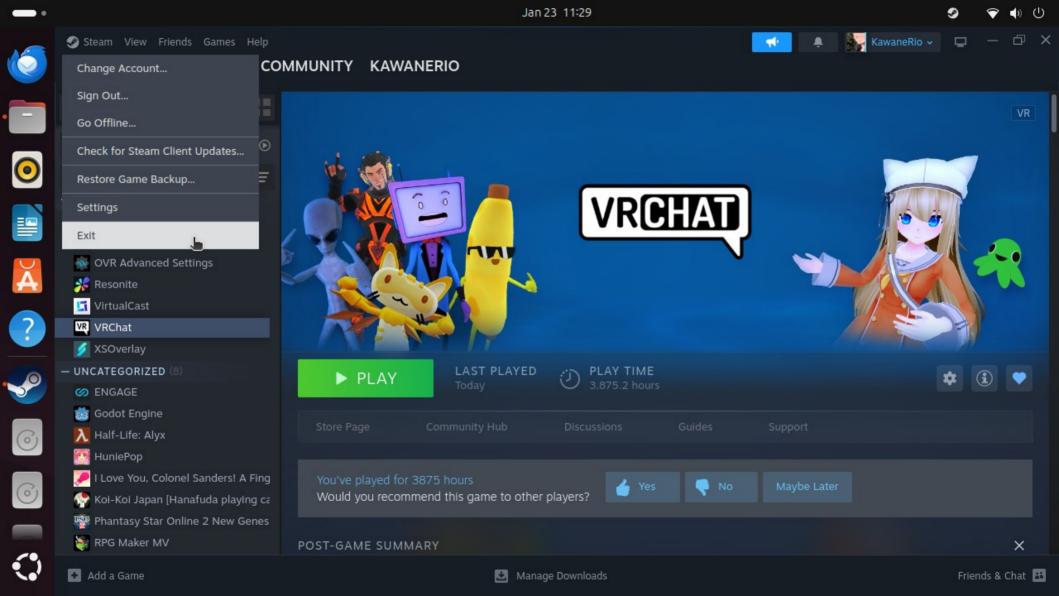
\*Alternatively, libfuse2 should work as well.

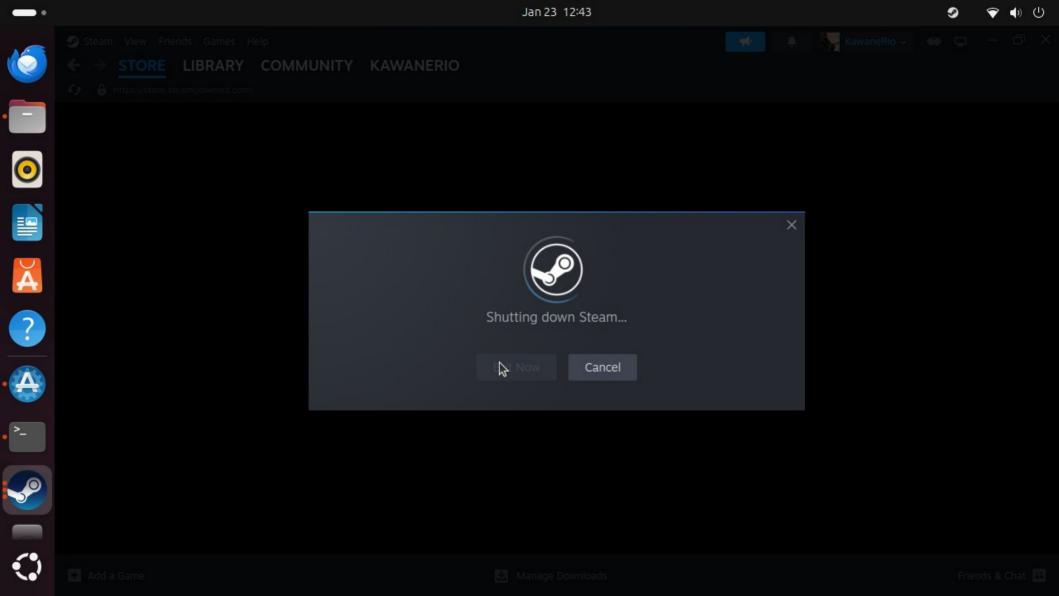


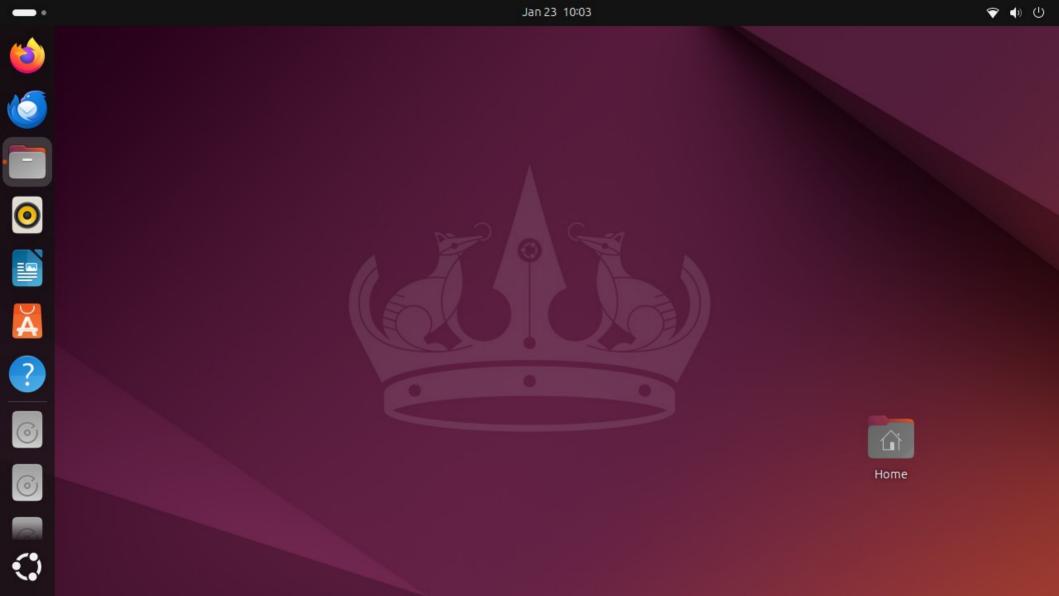


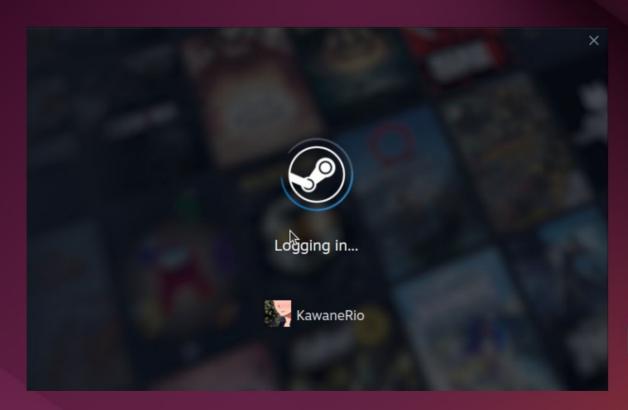












6



Home





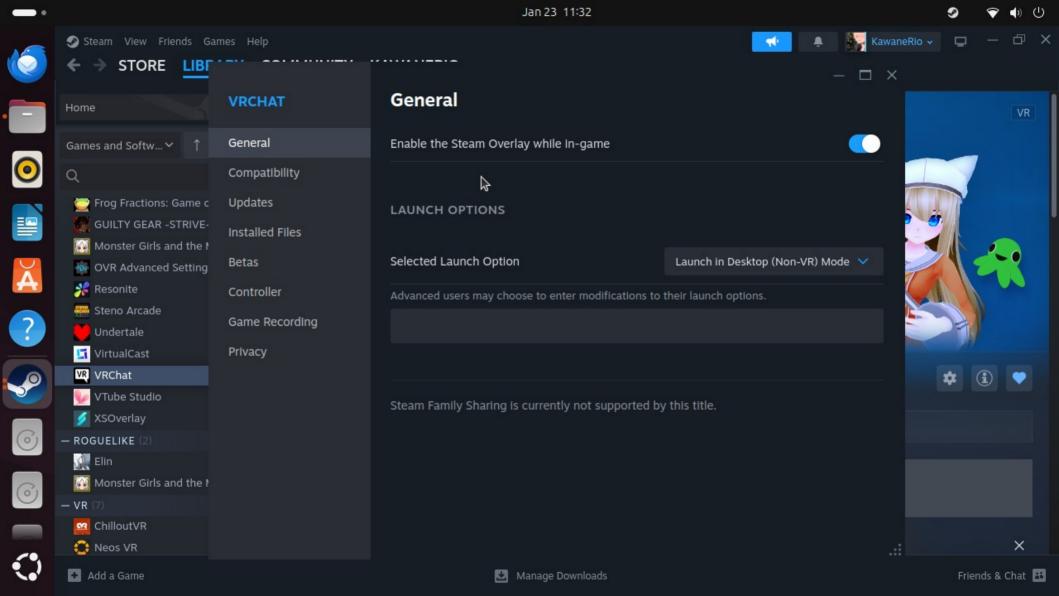
Danganronpa 2: Goodbye

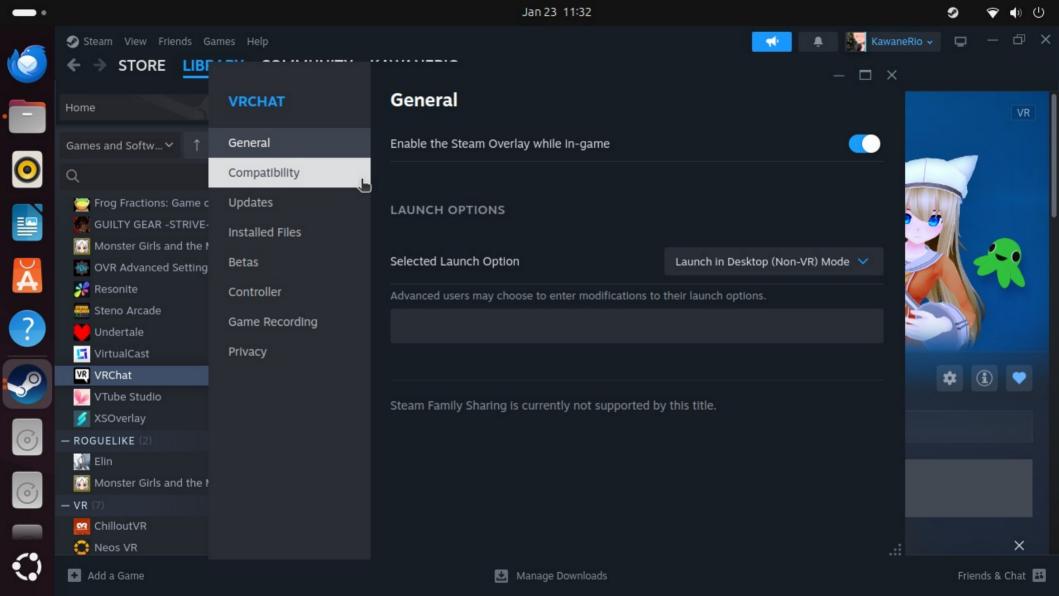


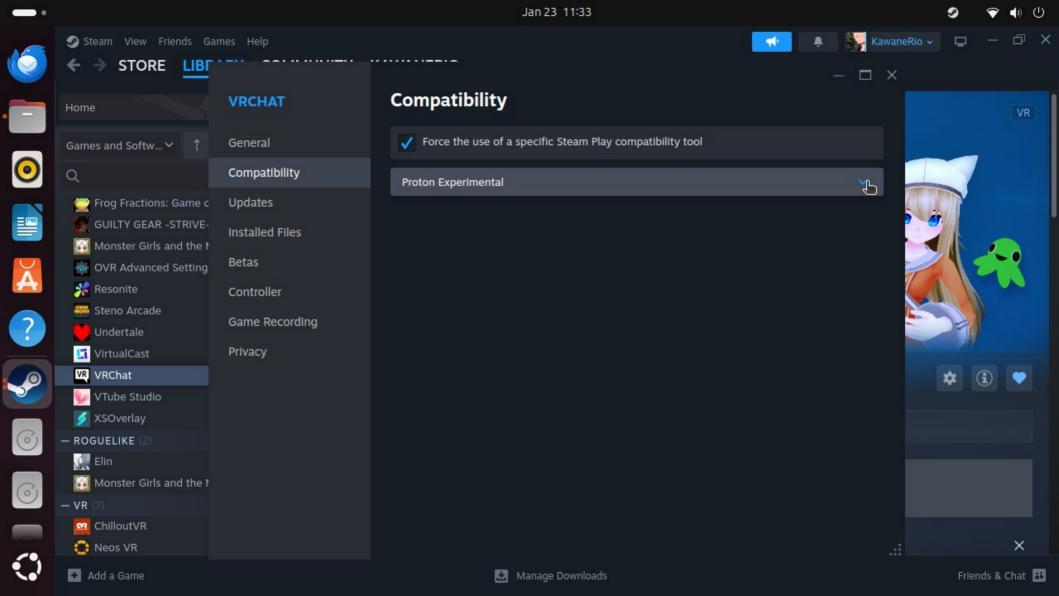






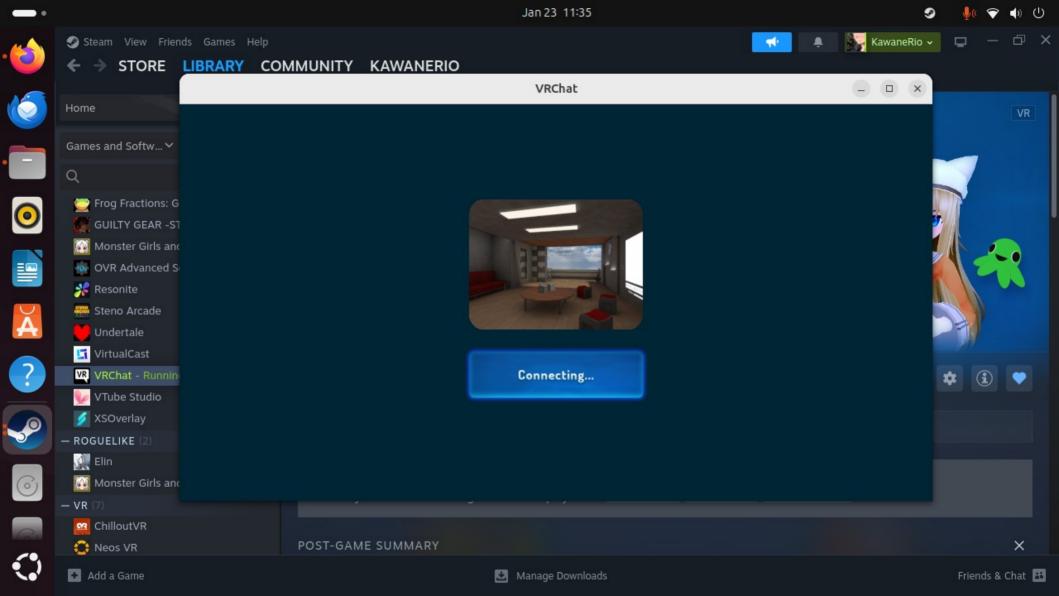


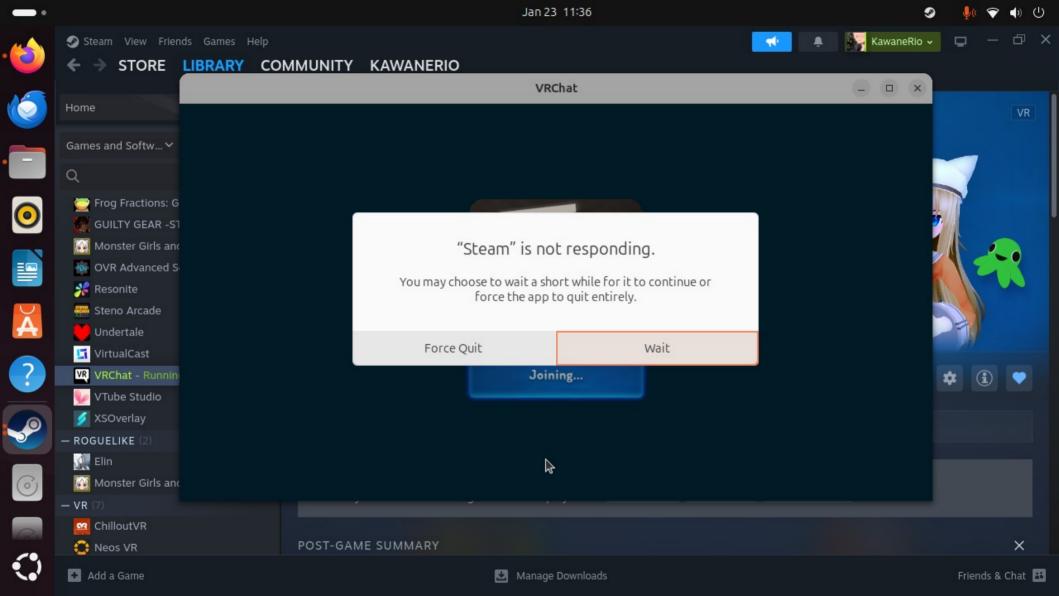


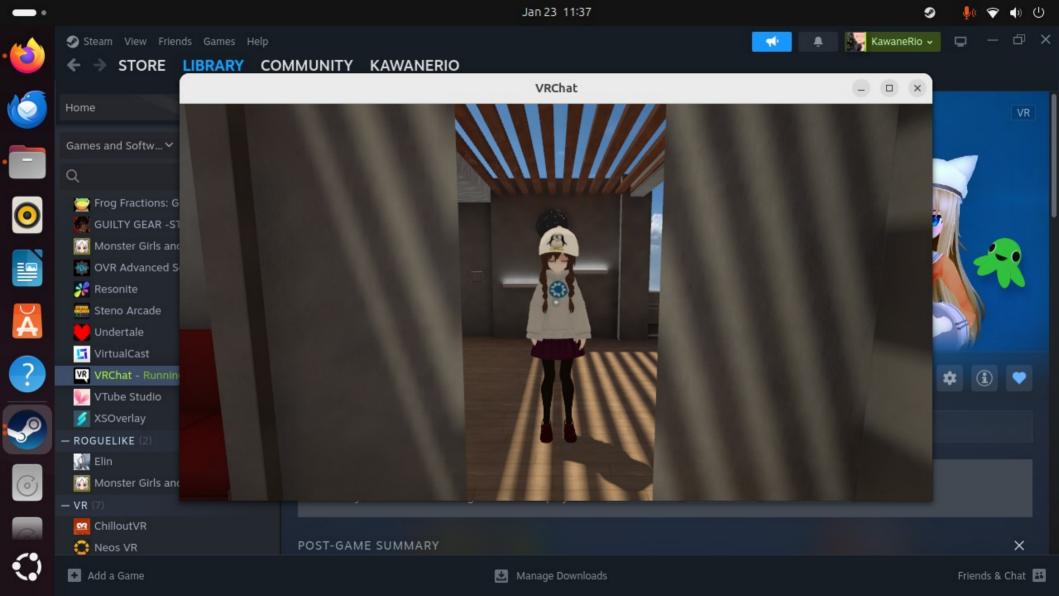






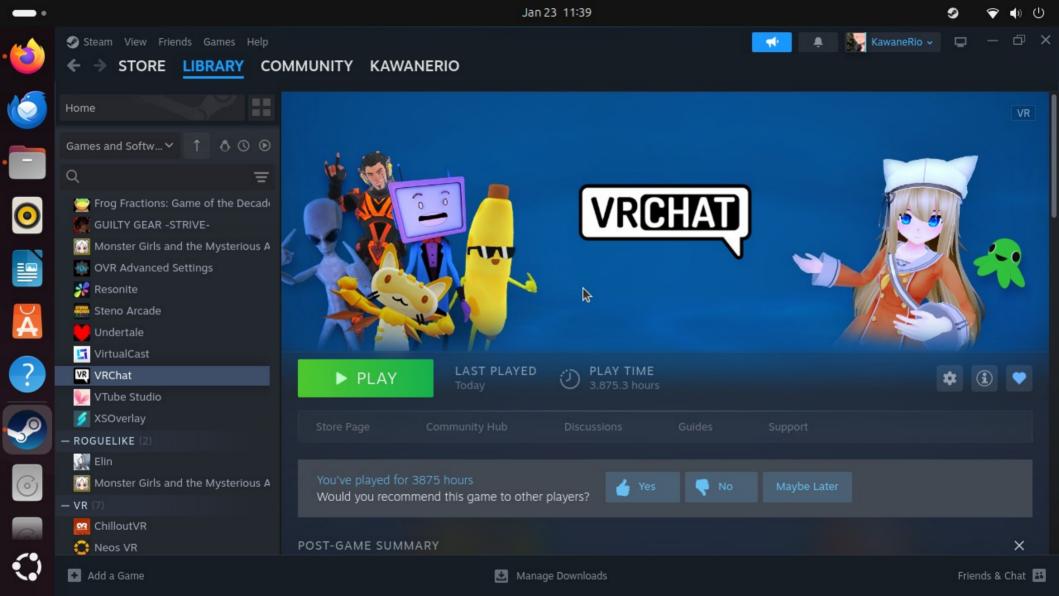
















#### Beginner's Guide on How to Join Events in VR from Ubuntu

1. UPDATE YOUR SYSTEM **AMD GPU** → ppa:kisak/kisak-mesa 2. Install Graphic Drivers & Install CoreCtrl 3. Upgrade All Drivers **NVIDIA GPU** 4. Install Steam - installer → ppa:graphics-drivers/ppa 5. Install Proton-GE i. Enable Steam Play 6. Install Envision Set Default to Proton-Experimental 7. Install Wlx-Overlay-S ii. Set Interface to Steam Beta 8. Start Envision, then Wlx-Overlay-S, and then your OpenXR App/Game





## In This Lightning Talk...

- 0. What is Linux?
- 1. What is VR?
- 2. What is SteamVR?
- 3. What is Proton?

- 5. What is Monado? ← NOW HERE
- 6. What is Envision?
- 7. What is WiVRn?
- 8. What is Wlx-Overlay-S?
- 4. Beginner's Guide on How to Join Events in VR from Ubuntu
  - 9. Where can I learn more about VR on Linux?





### What is Monado?

- ▶ Monado is an Open Source OpenXR Runtime by Collabora
- ▶ FOSS VR Alternative to Valve's SteamVR (proprietary)





COLLABORA MONADO





# What is Envision?

- ▶ Open Source GUI Orchestrator for Monado and WiVRn
- ▶ Constructs Runtime with Native OpenXR & OpenVR API
- ▶ Makes VR work on Linux with a few clicks on GUI!











### What is WiVRn?

- ▶ Open Source OpenXR Streaming Application
- ▶ Enables Wireless PCVR Gaming on Linux
- ▶ Based on Monado!
- ▶ Supports a lot of Wireless Headsets!









#### What is WiVRn?

▶ Open Source OpenXR Streaming Application

- ▶ Enables Wireless PCVR Gaming on Linux
- ▶ Based on Monado!
- ▼Supports a lot of Wireless Headsets!
  - ▶ Quest 1 / 2 / Pro / 3 / 3S
  - ▶ Pico Neo 4
  - ▶ HTC Vive Focus 3
  - **▶ HTC XR Elite**







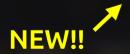


# In This Lightning Talk...

- 0. What is Linux?
- 1. What is VR?
- 2. What is SteamVR?
- 3. What is Proton?

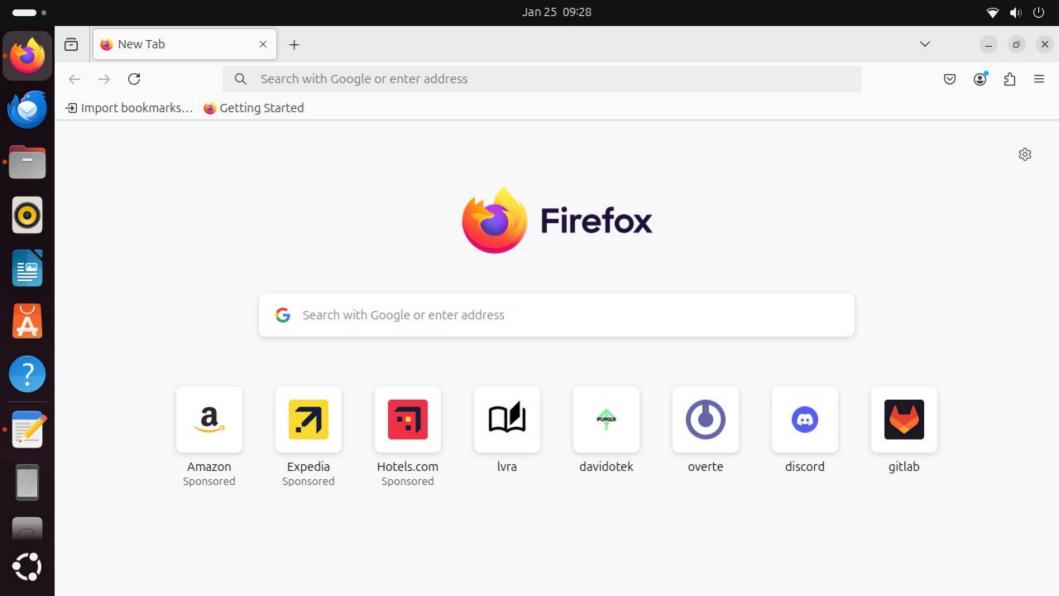
- 5. What is Monado?
- 6. What is Envision?
- 7. What is WiVRn?
- 8. What is Wlx-Overlay-S?

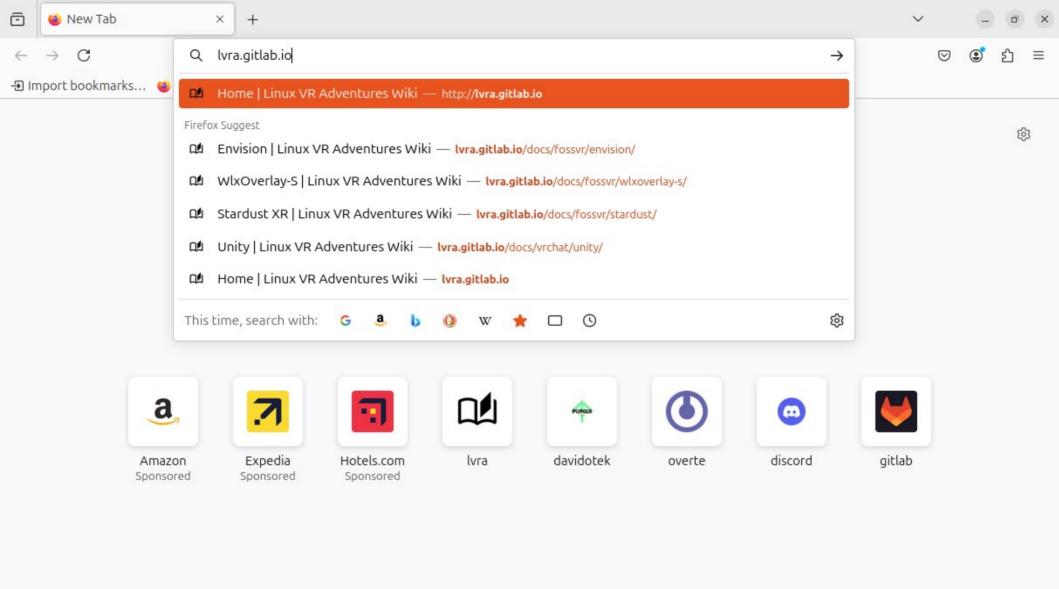
4+i. Beginner's Guide on How to Join Events in VR

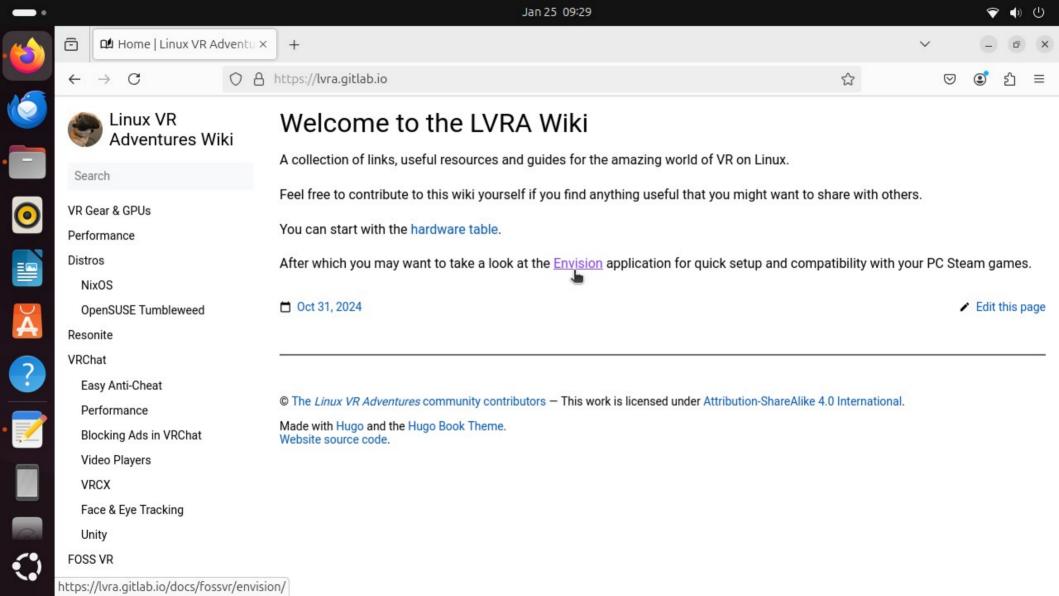


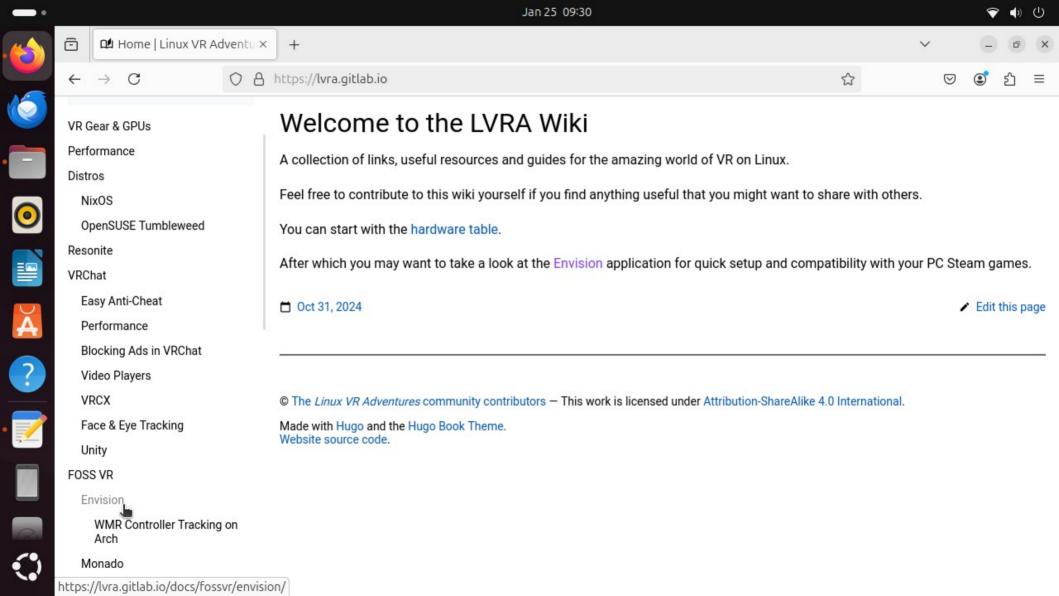
from Ubuntu using Envision and Monado

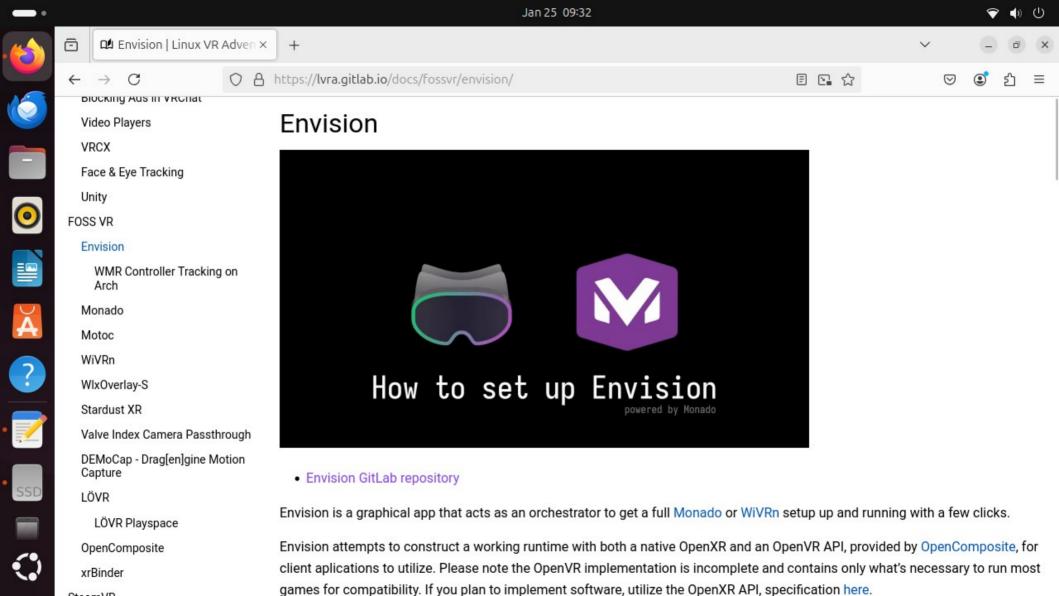
9. Where can I learn more about VR on Linux?

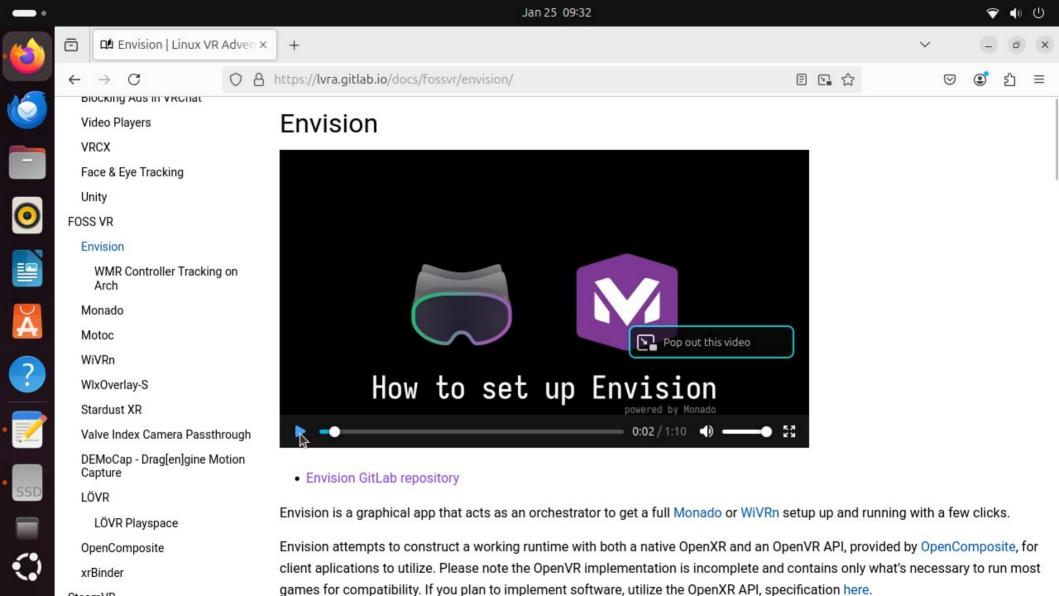


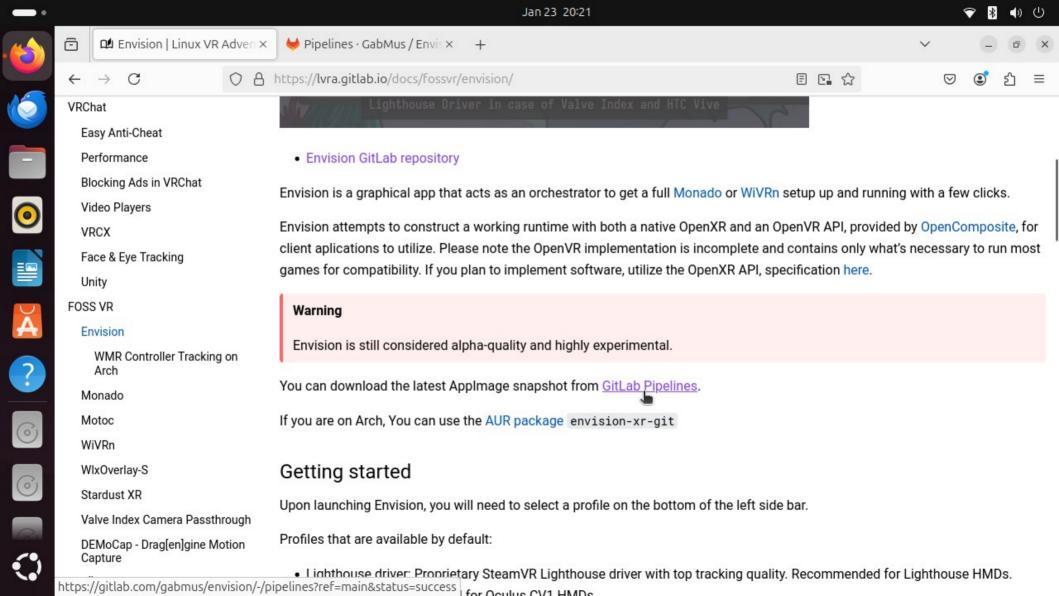


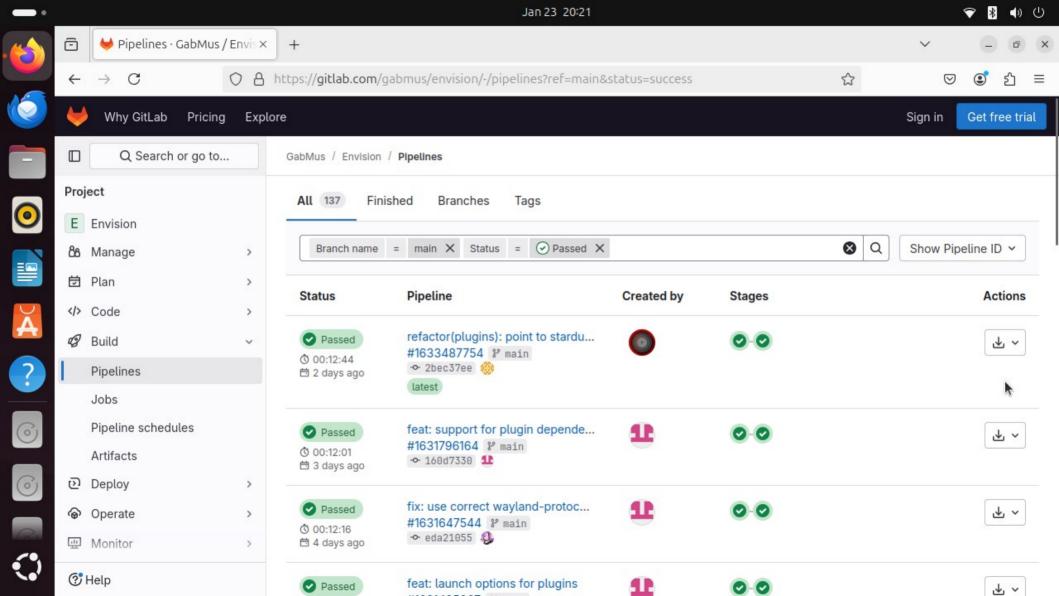


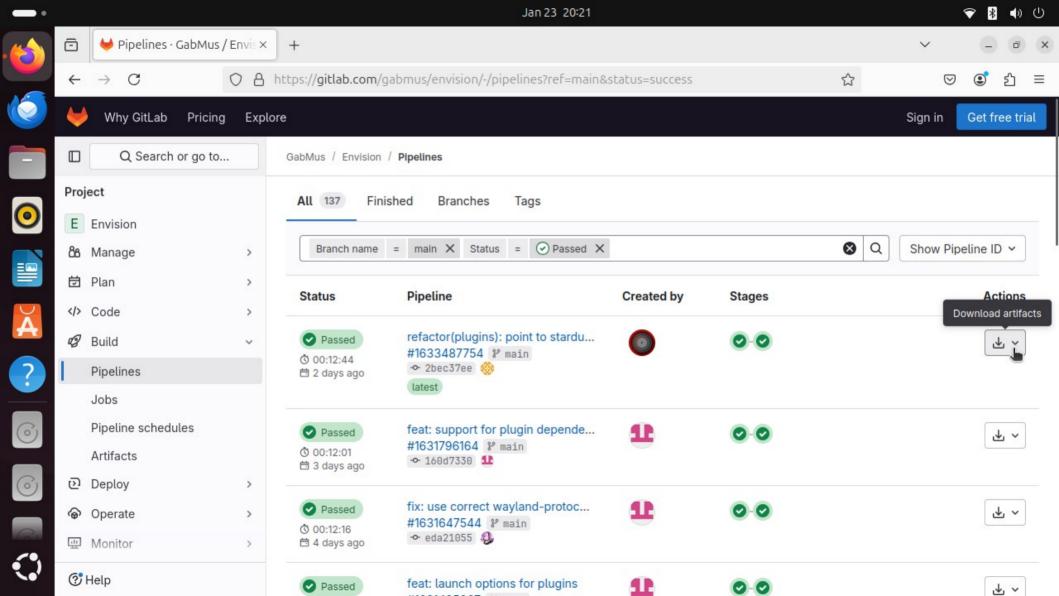


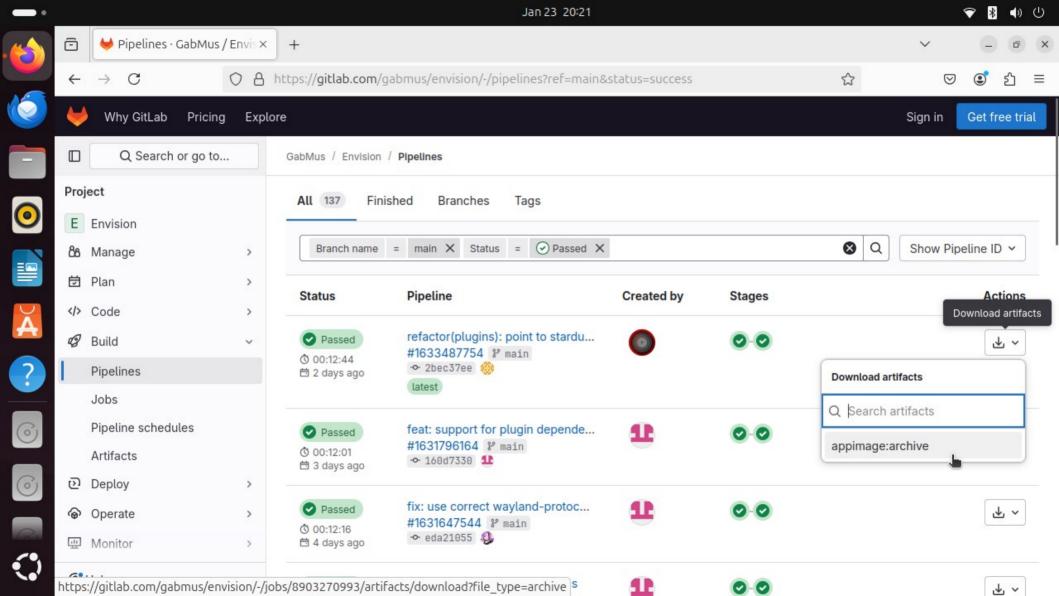


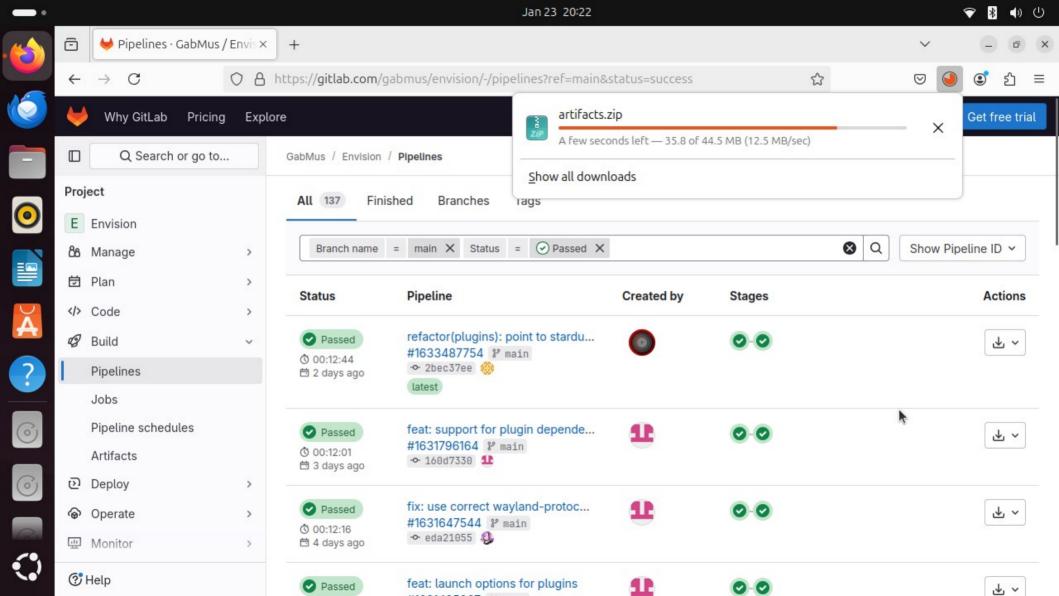


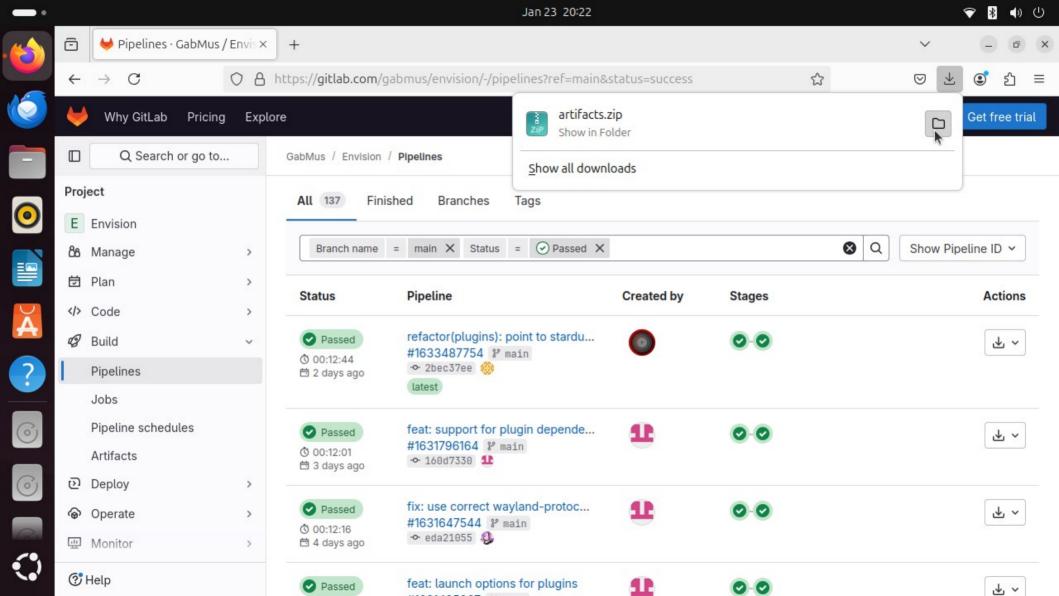


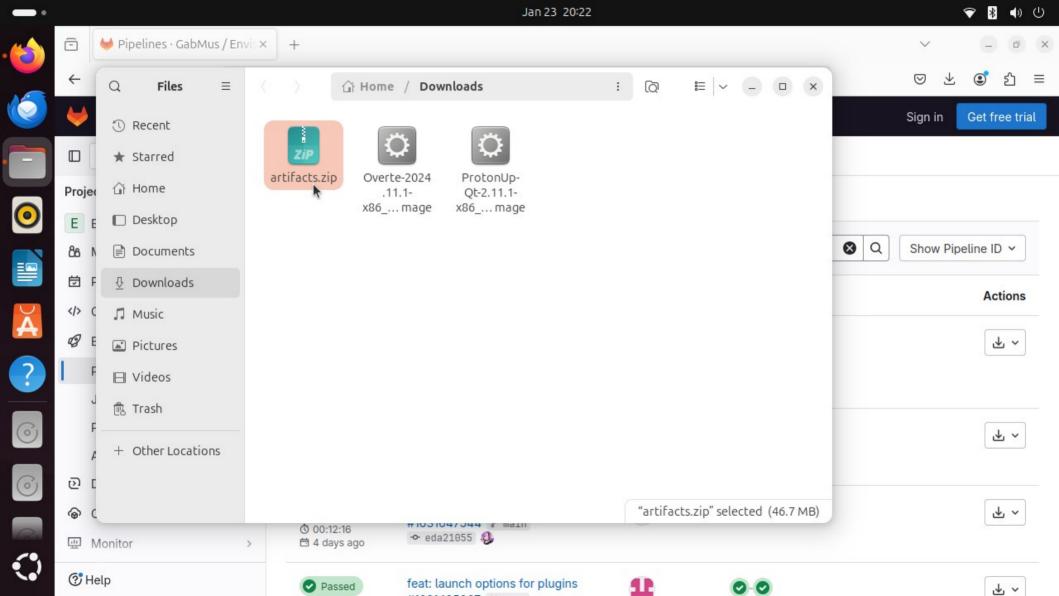


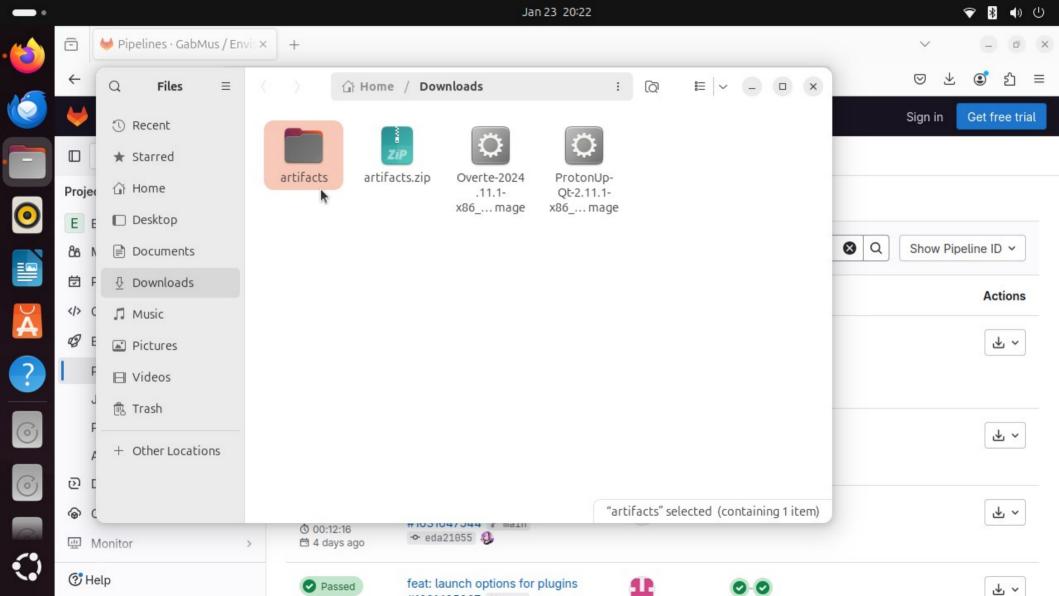


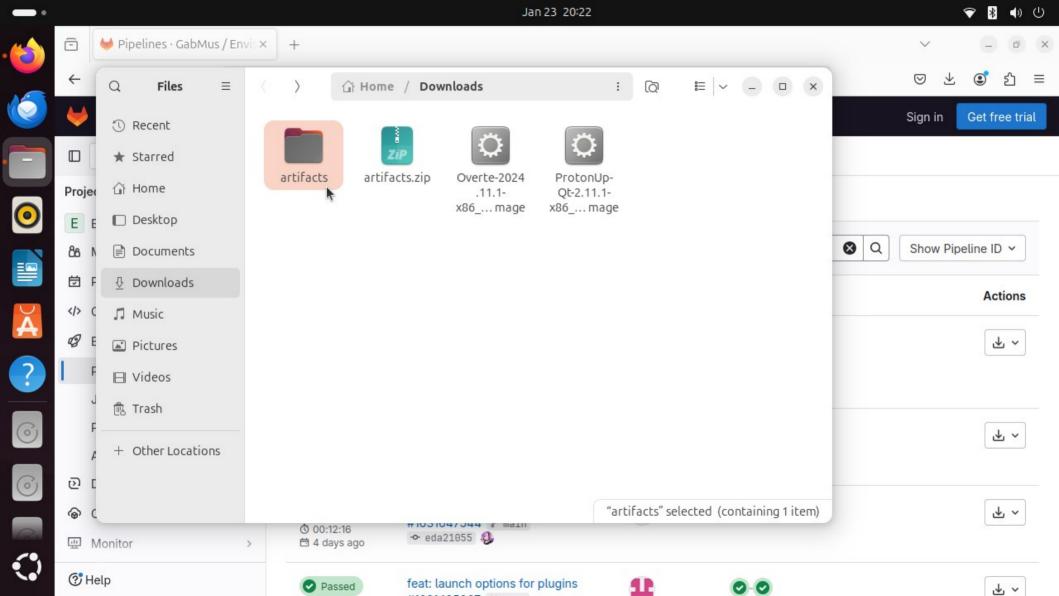


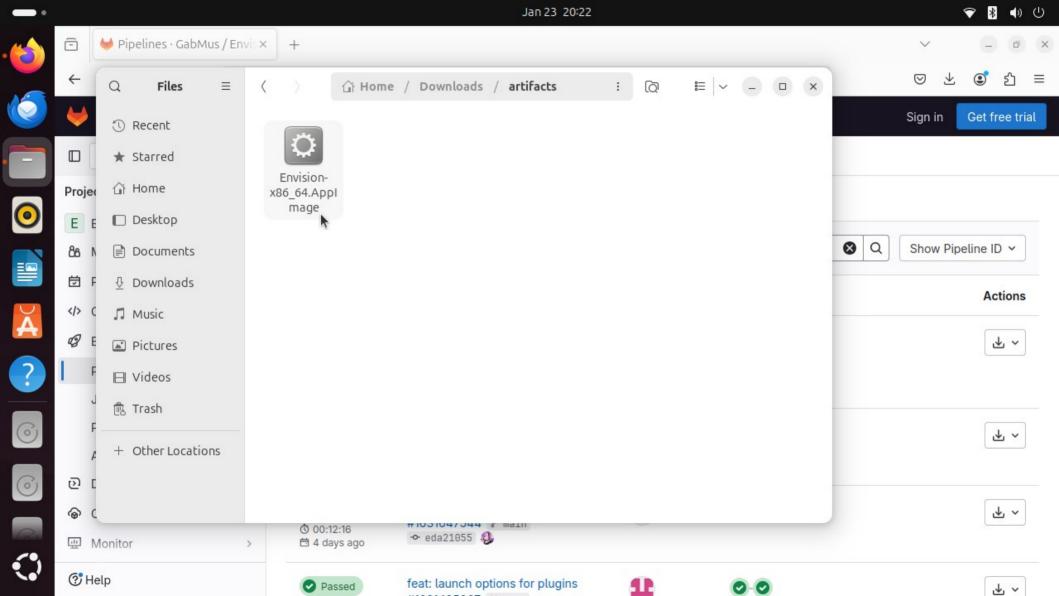


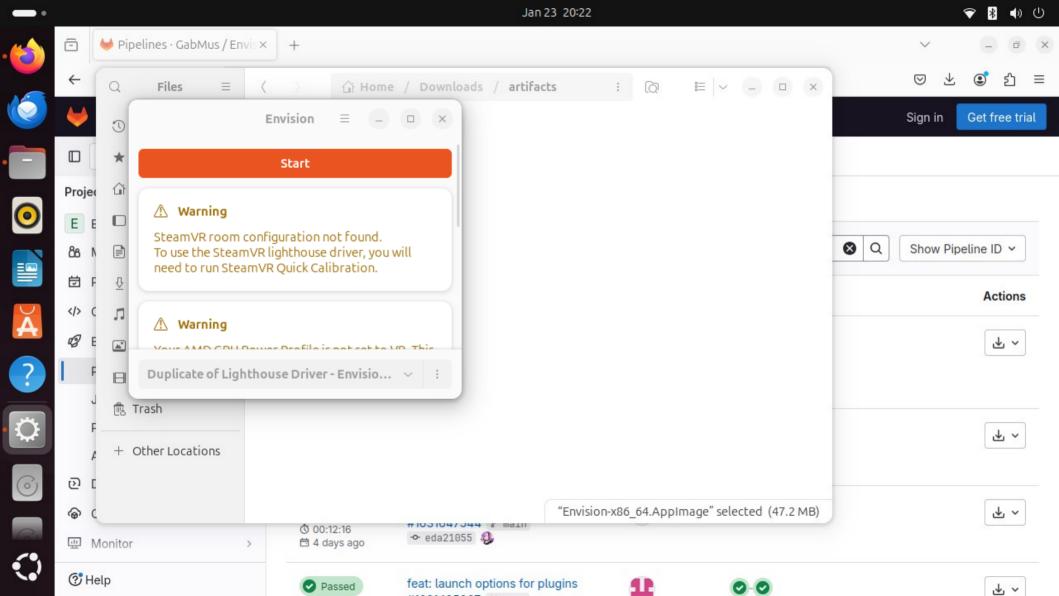


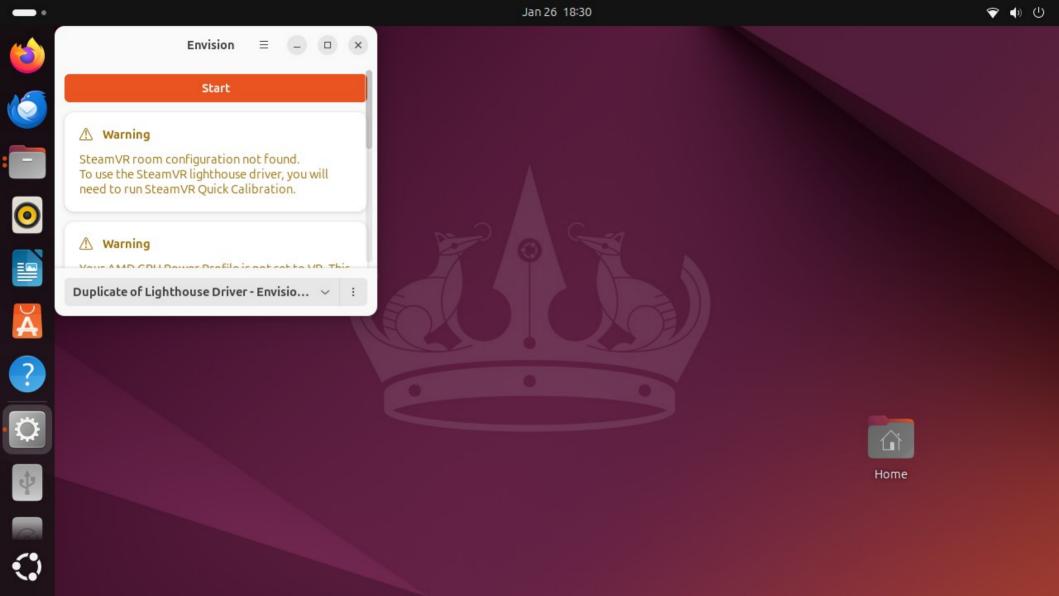


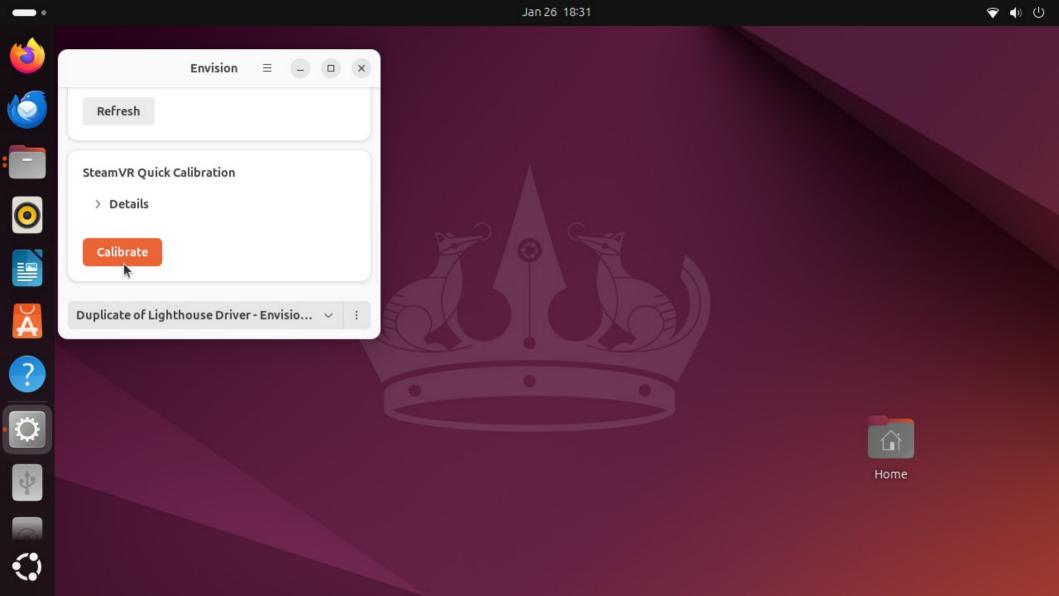


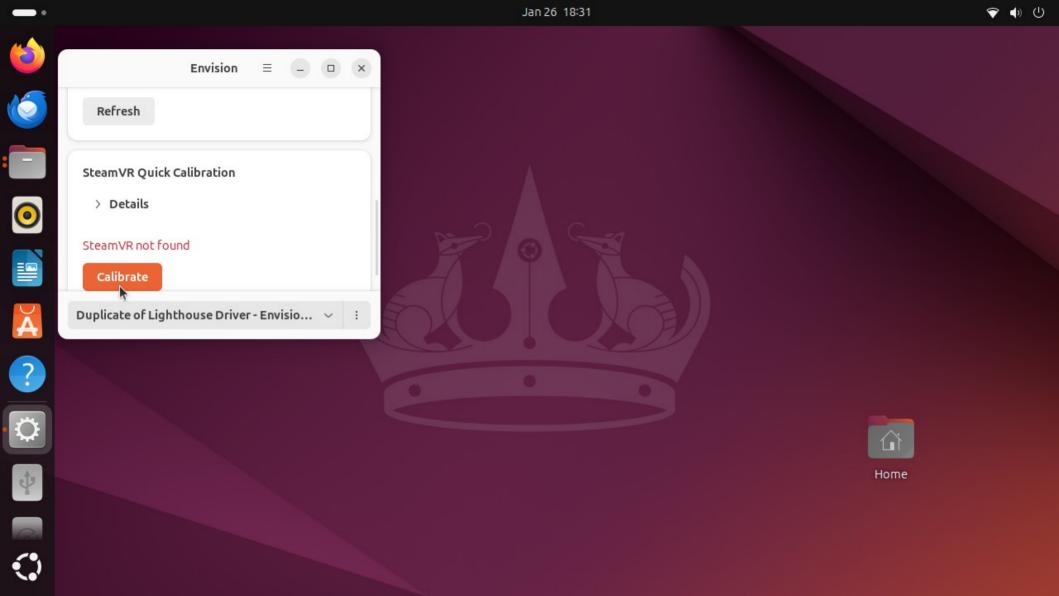






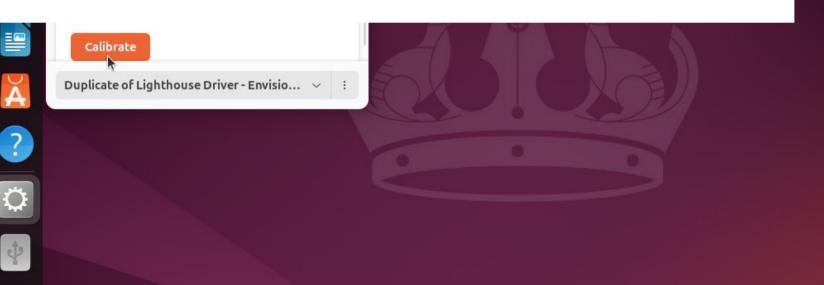








# SteamVR not found





Home



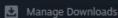
Add a Game

0

Steam View Friends Games Help

A https://store.steampowered.com/

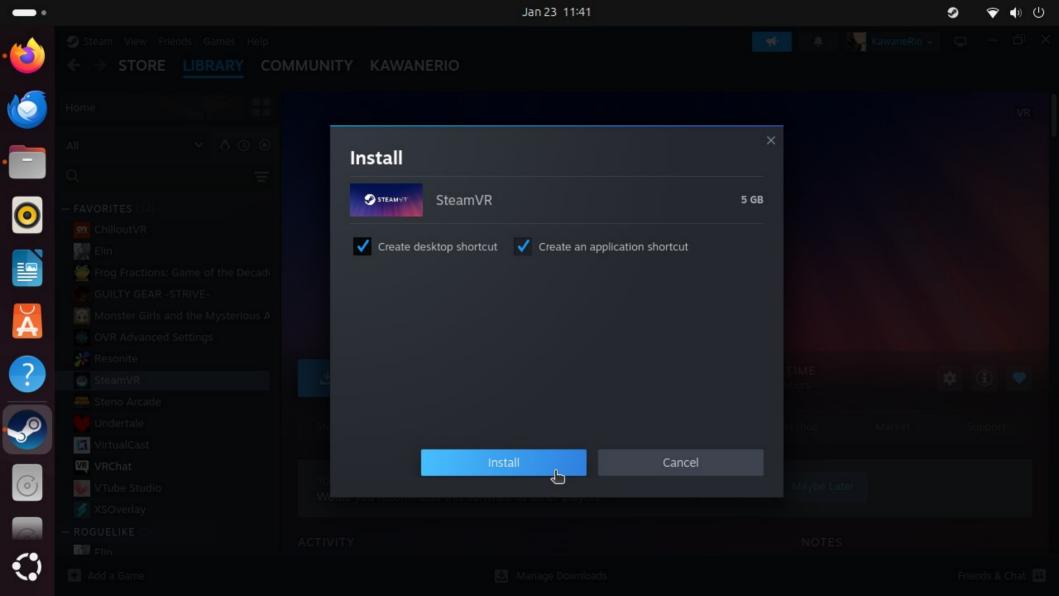
FEATURED & RECOMMENDED



shapez

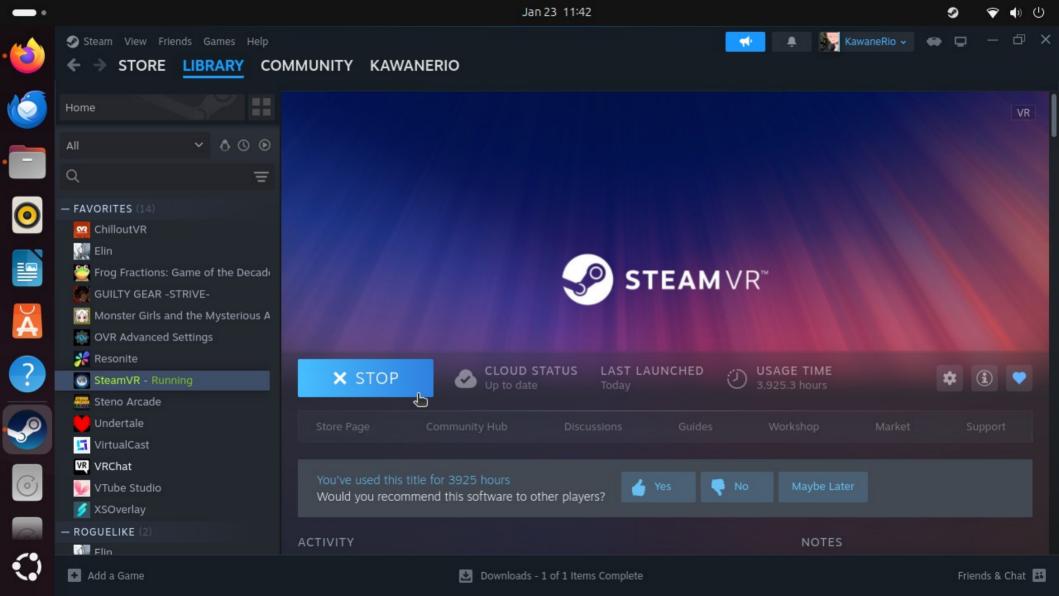


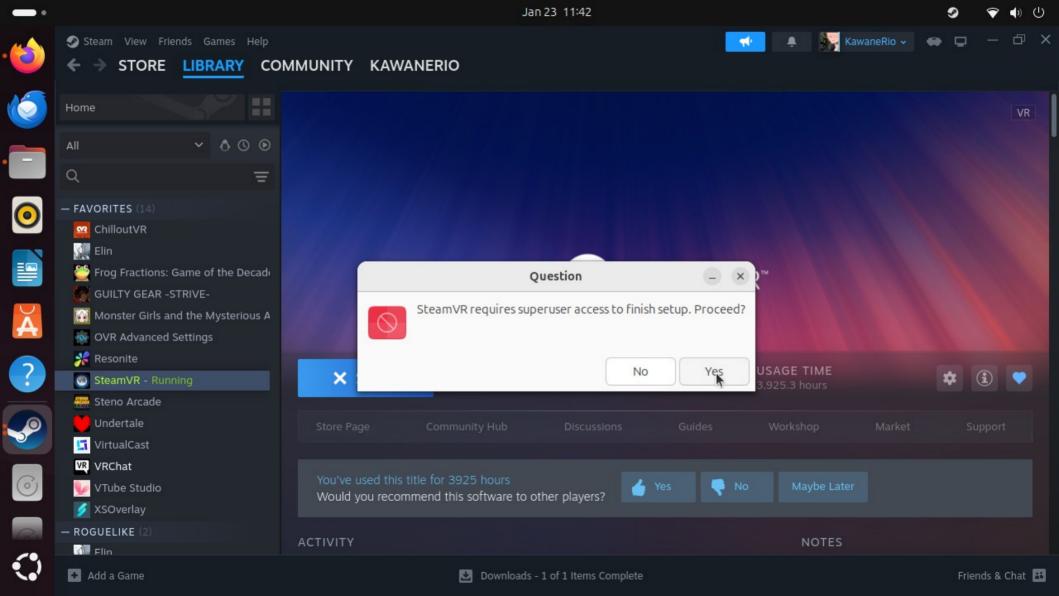


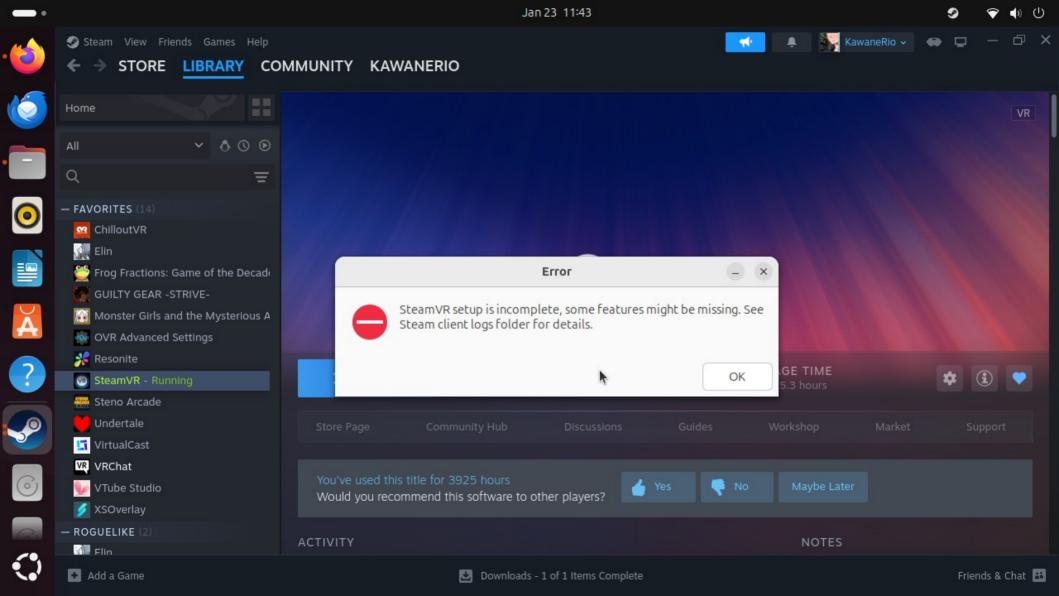


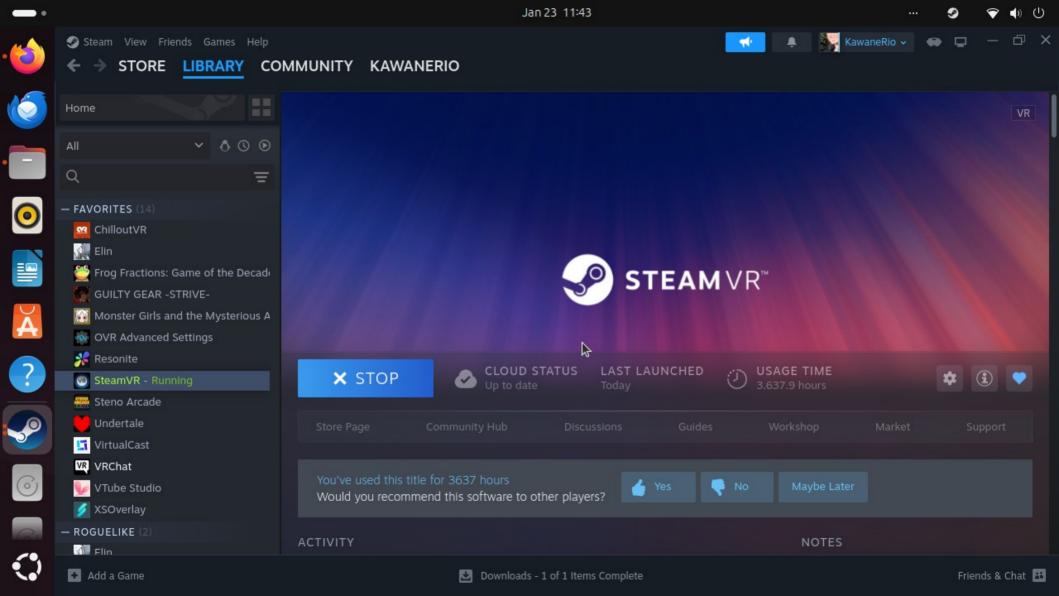


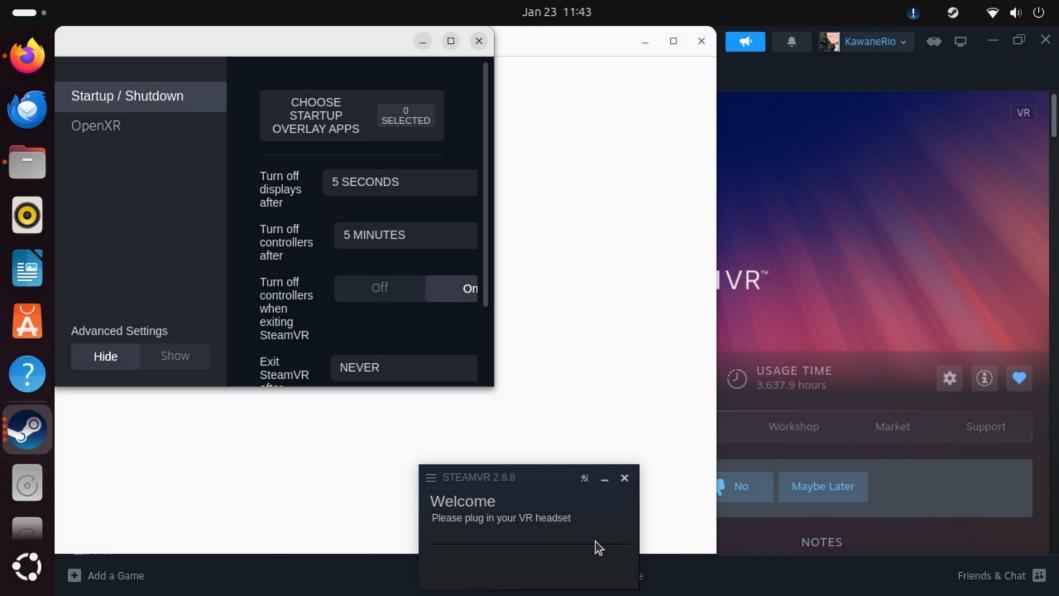


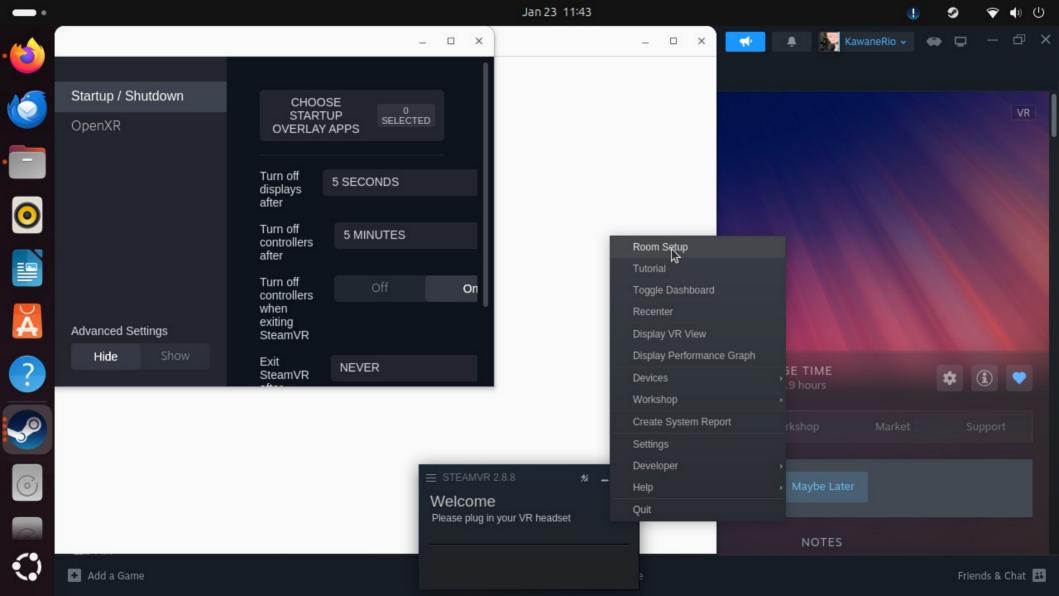
















## Set up for Room-Scale

Play Room-Scale, Standing, and Seated VR experiences. Choose this if you have at least 2 meters by 1.5 meters, or around 6.5 by 5 feet.



## **ROOM-SCALE**

## Set up for Standing Only

Play Standing and Seated VR experiences. Choose this if you have limited space to walk around.



### STANDING ONLY



















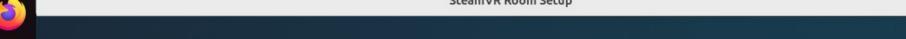




# Establish tracking.

Place the Headset in a location visible from the Base Stations.

**BACK** 



































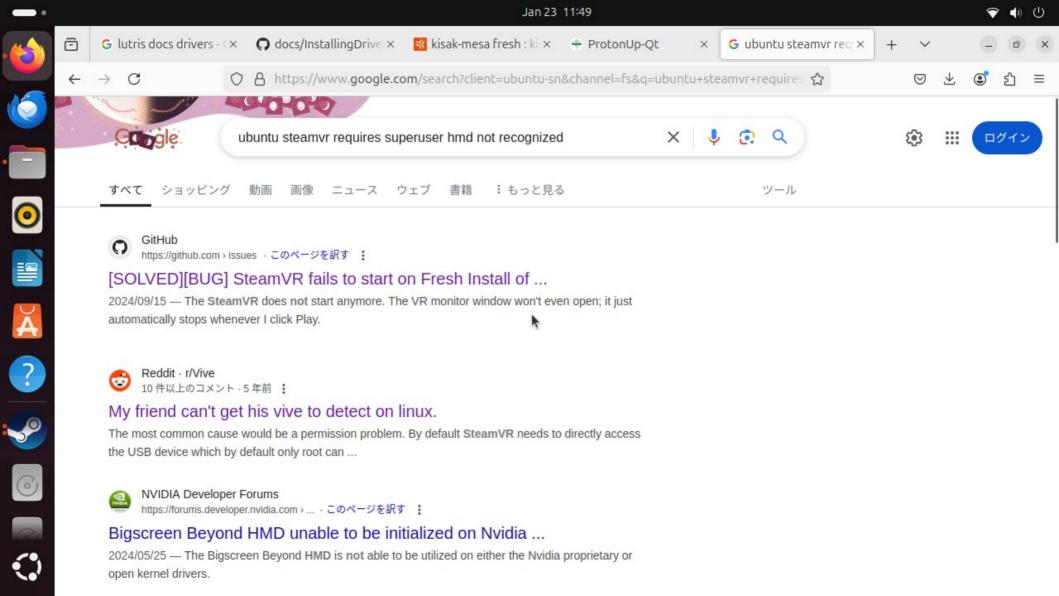


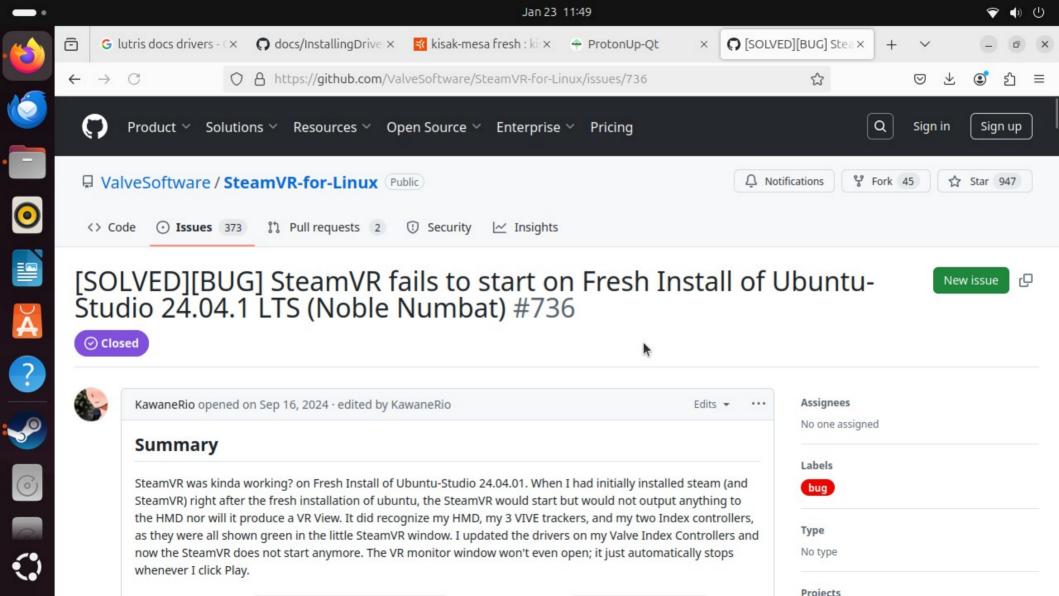


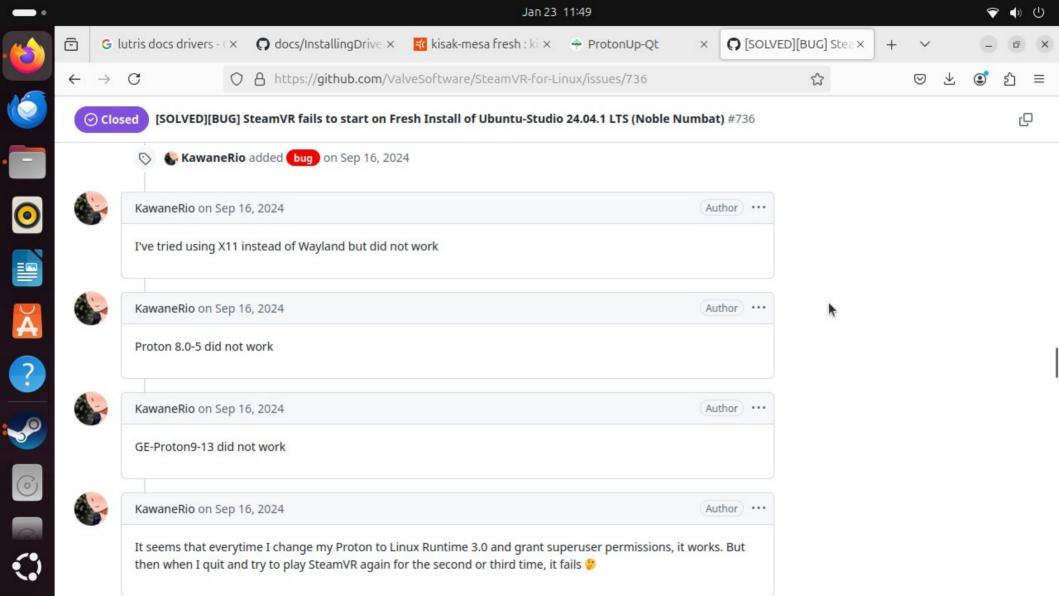


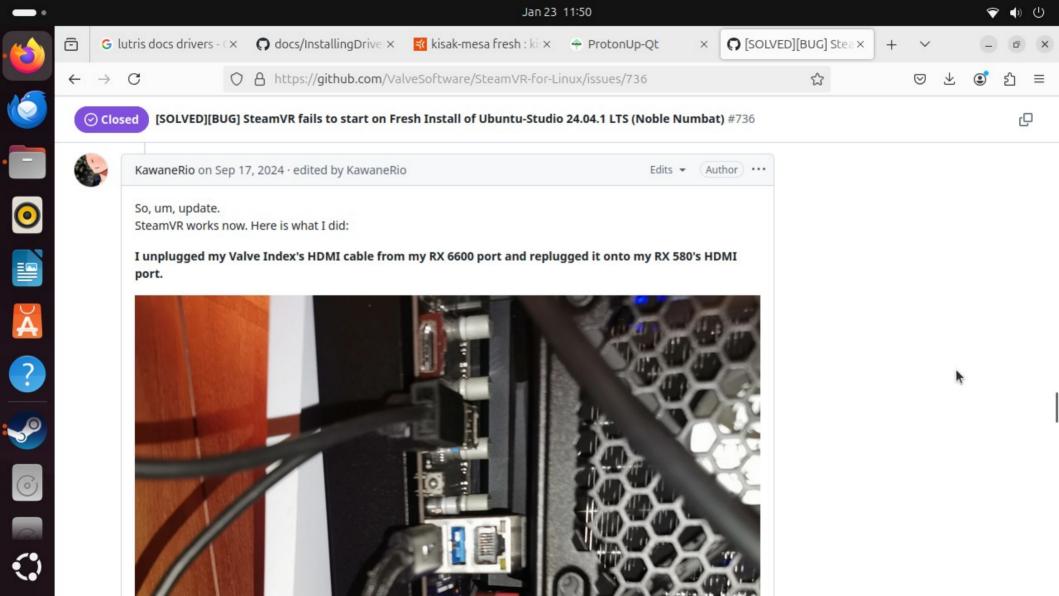


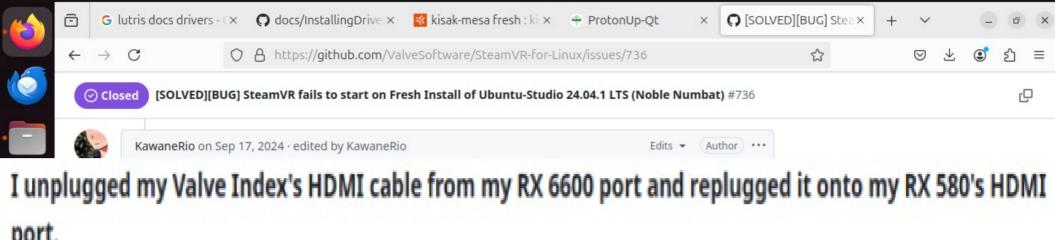








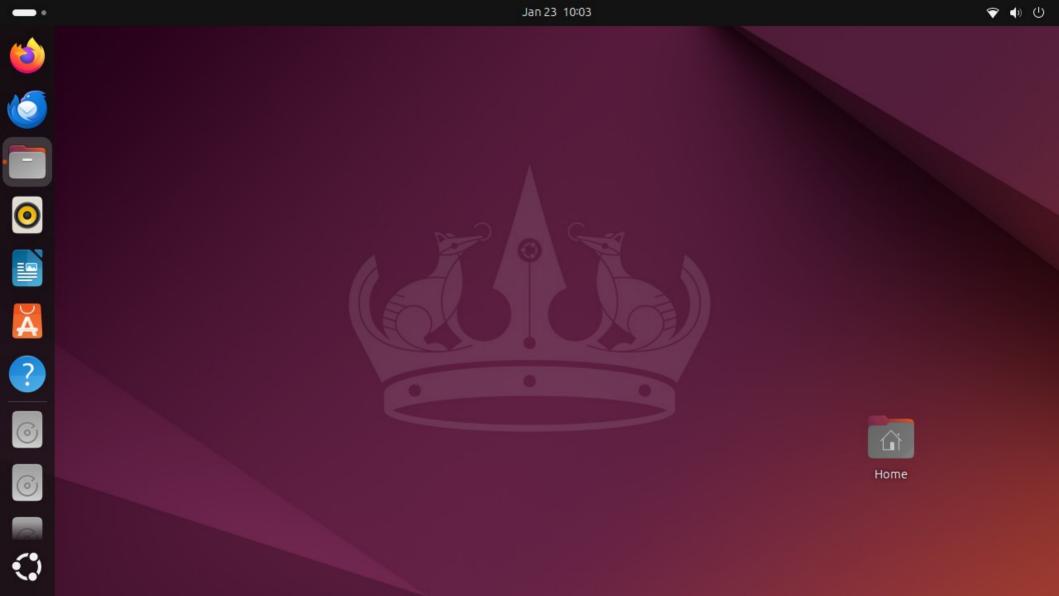


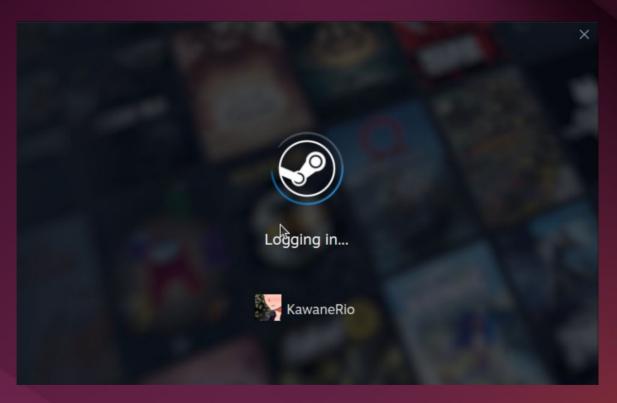


Jan 23 11:50

## port.







6



Home









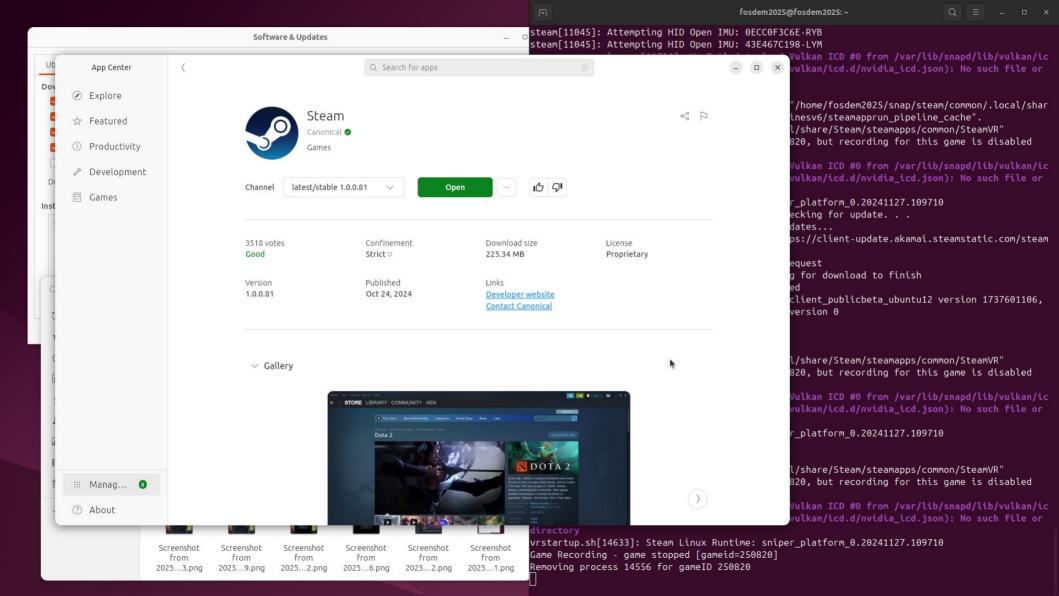


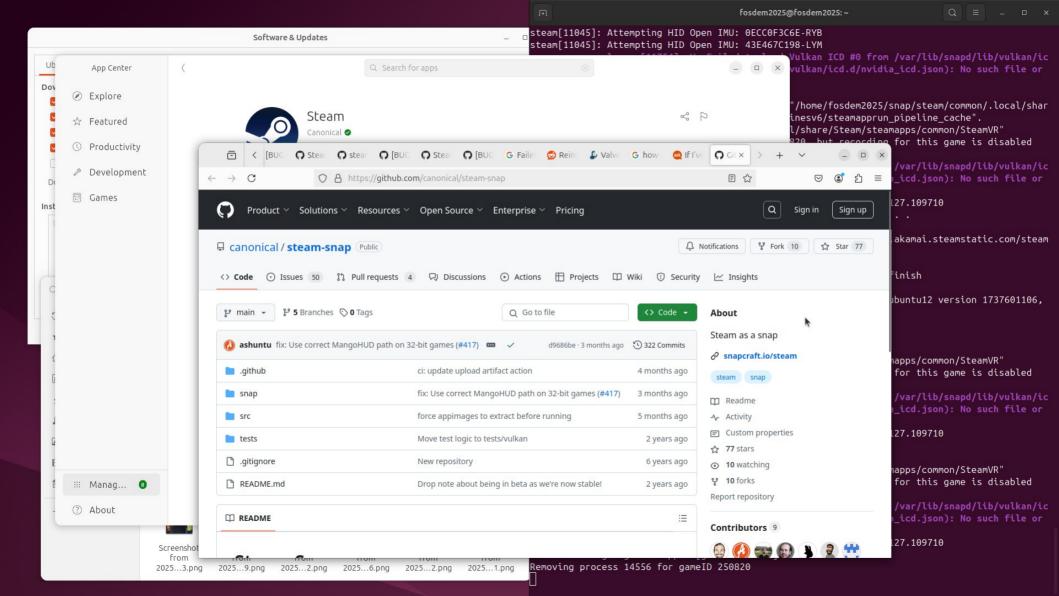


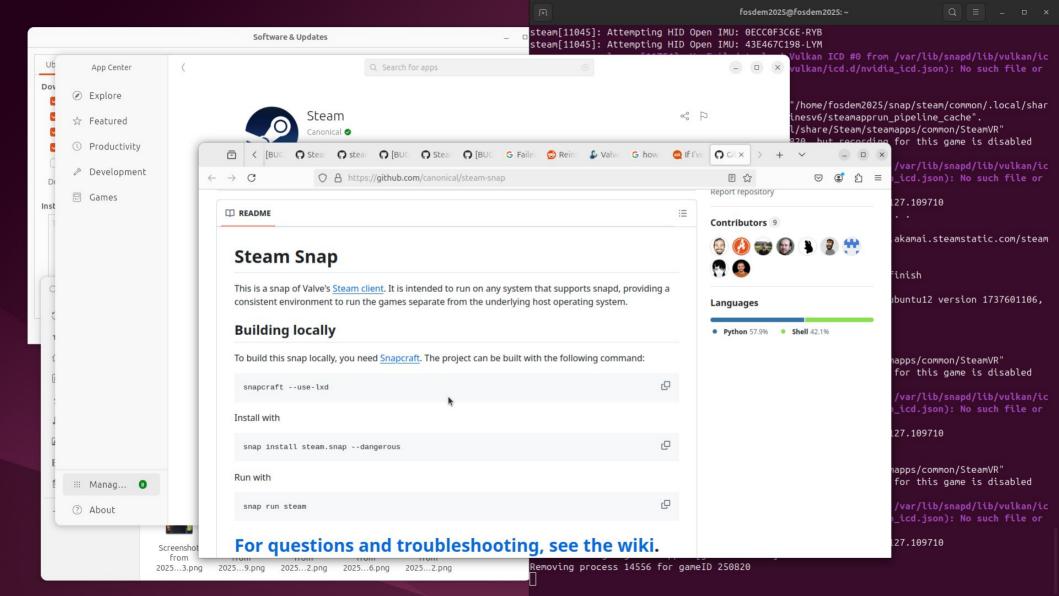


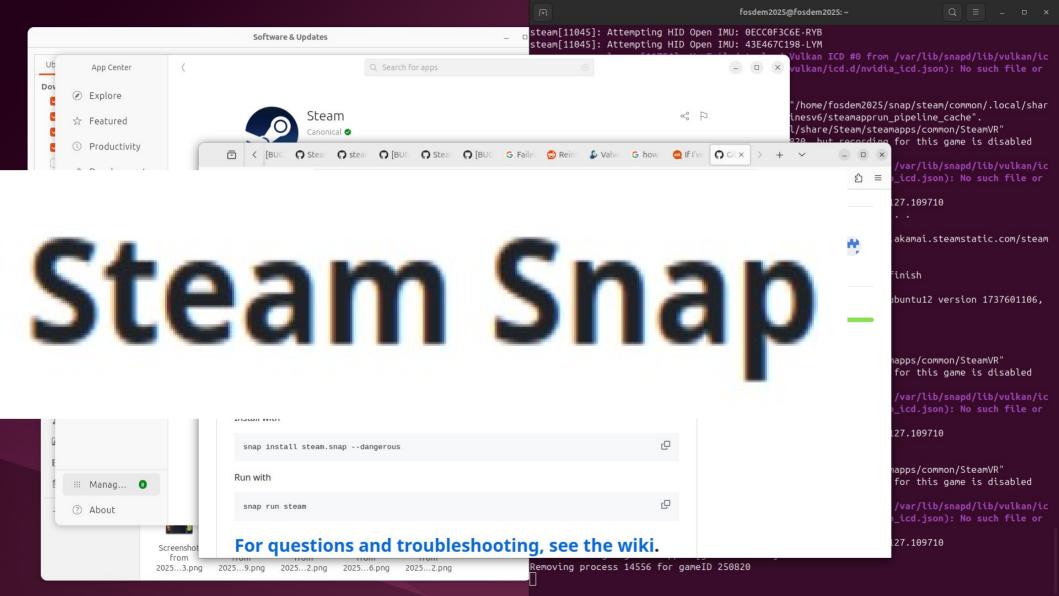
BACK

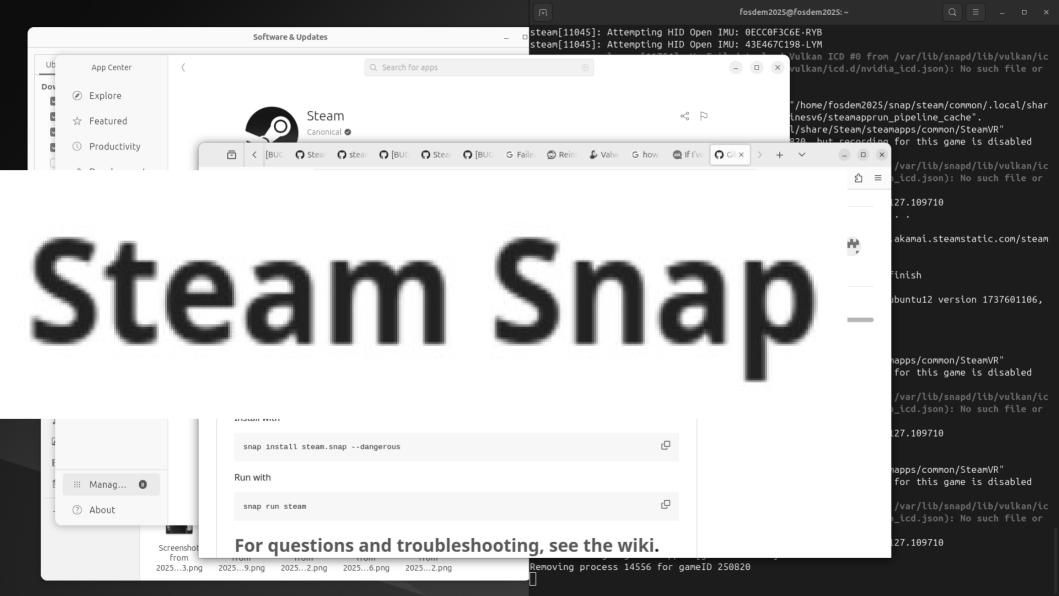














## DON'THISTALL STEAMSIAP

## DONT INSTALL STEAMSIAP

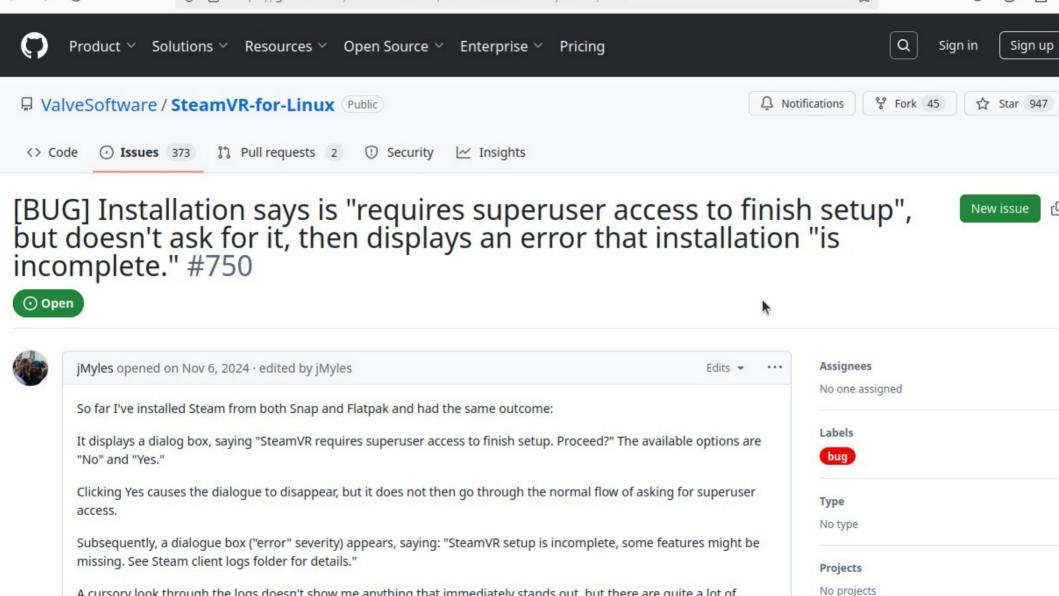
Steam Snap will NOT work with SteamVR so you are gonna have to reinstall Steam all over again\*

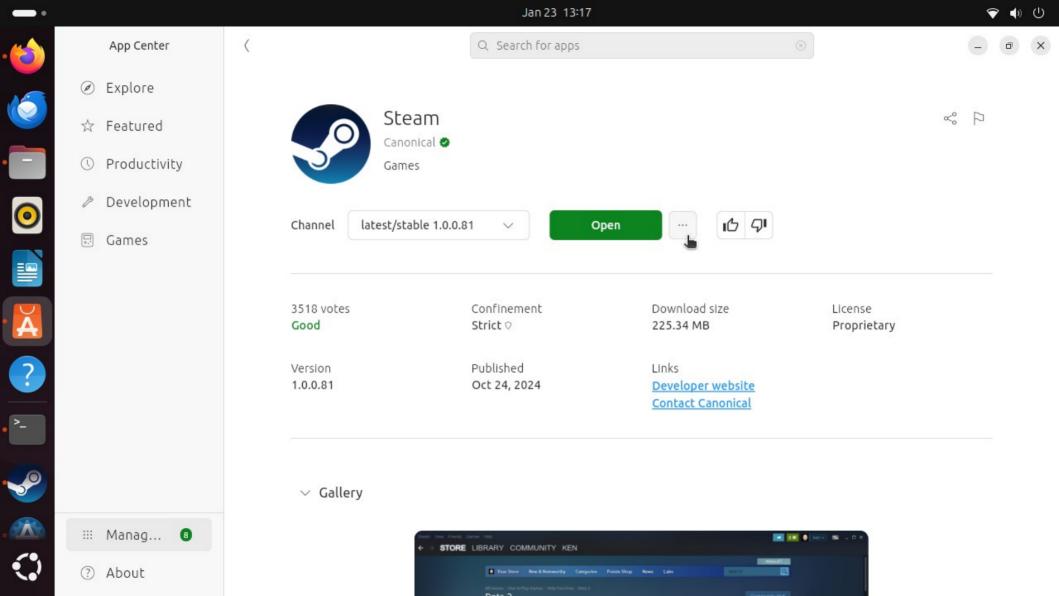
\*On a Fresh Install of Ubuntu 24.04.1 LTS

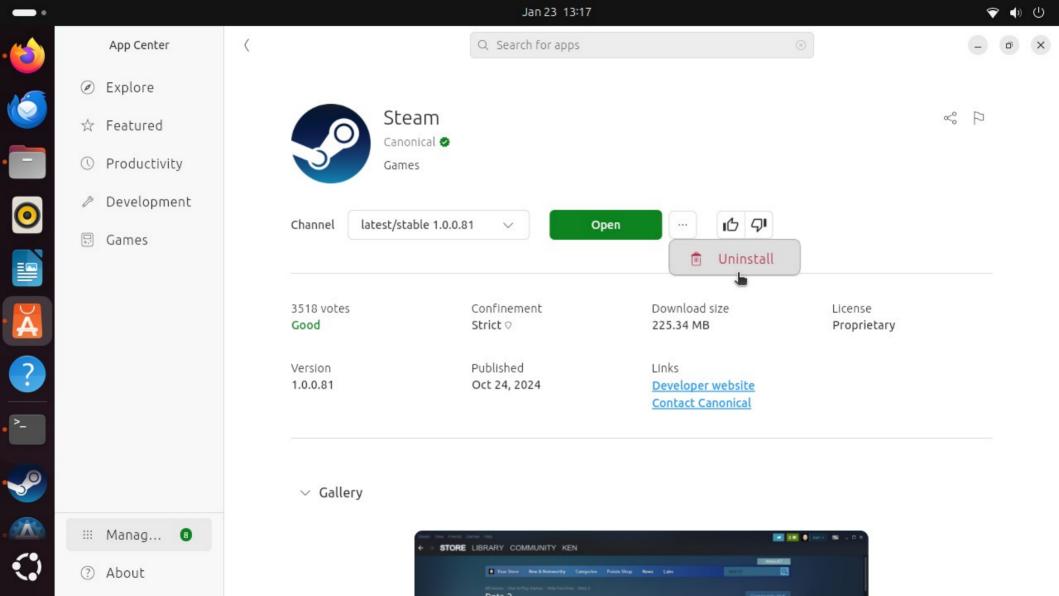
## INSTALL steam-installer Instead!

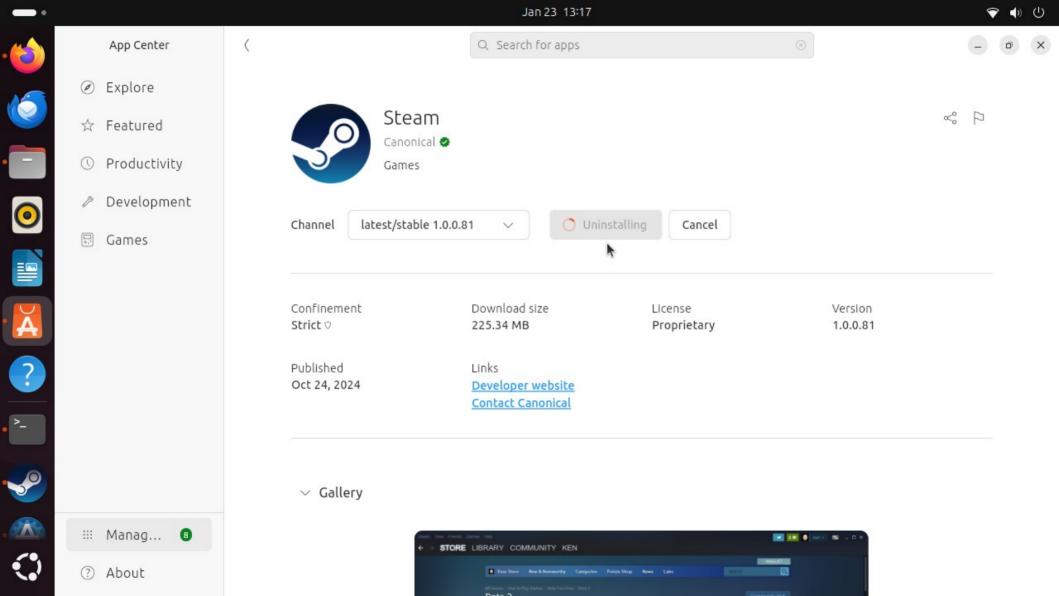
Steam Snap will NOT work with SteamVR so you are gonna have to reinstall Steam all over again\*

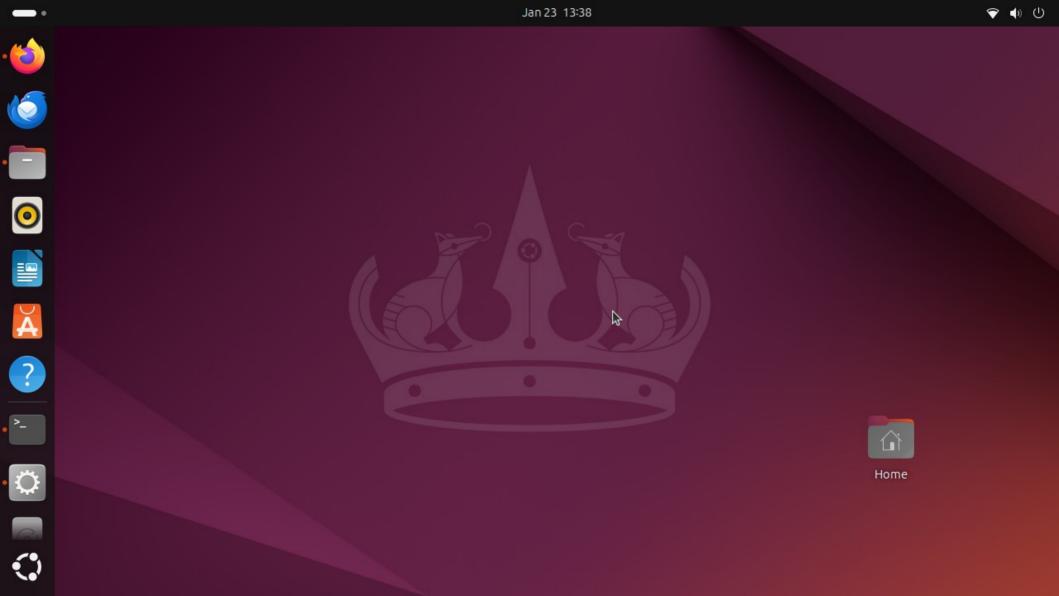
\*On a Fresh Install of Ubuntu 24.04.1 LTS

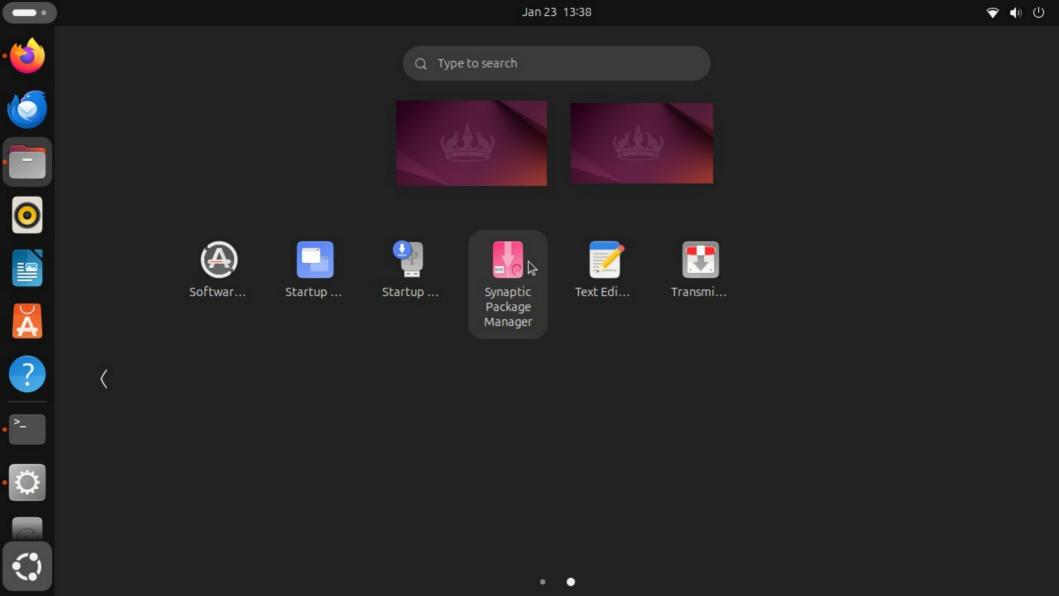


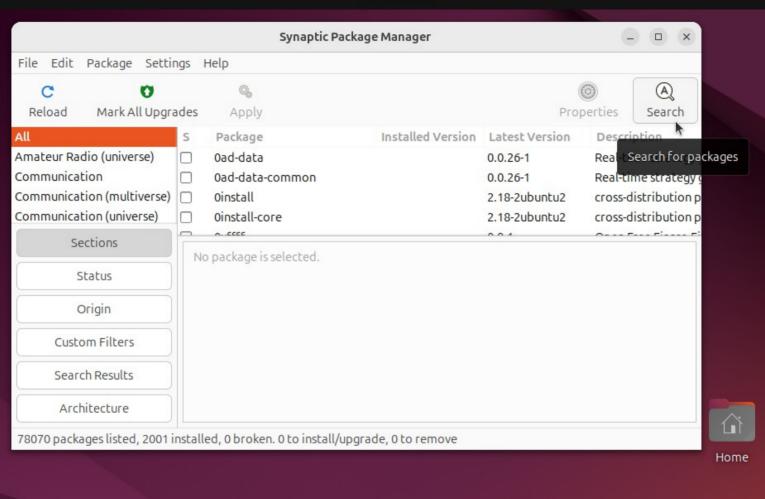
























































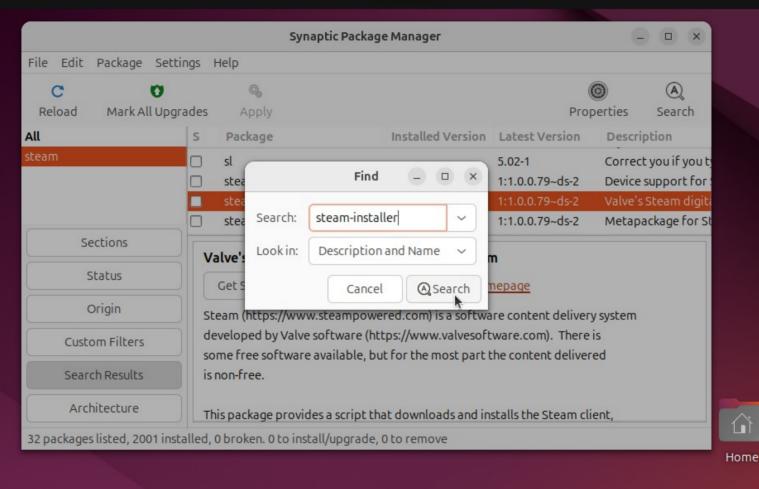




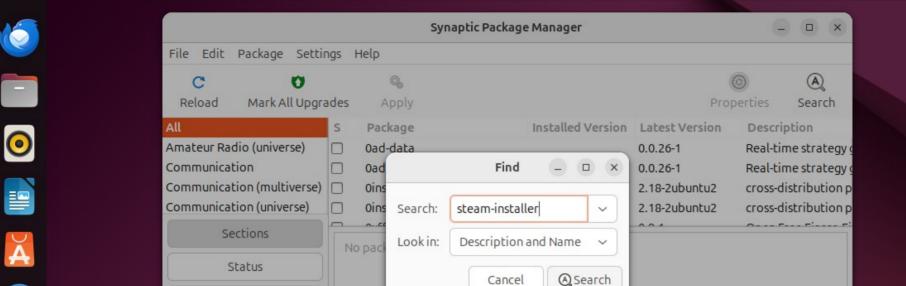












78070 packages listed, 2001 installed, 0 broken. 0 to install/upgrade, 0 to remove

Origin

Custom Filters

Search Results

Architecture



























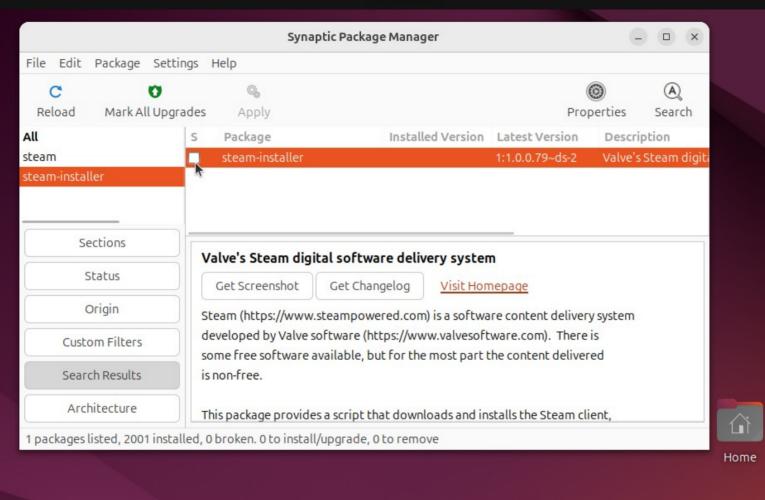


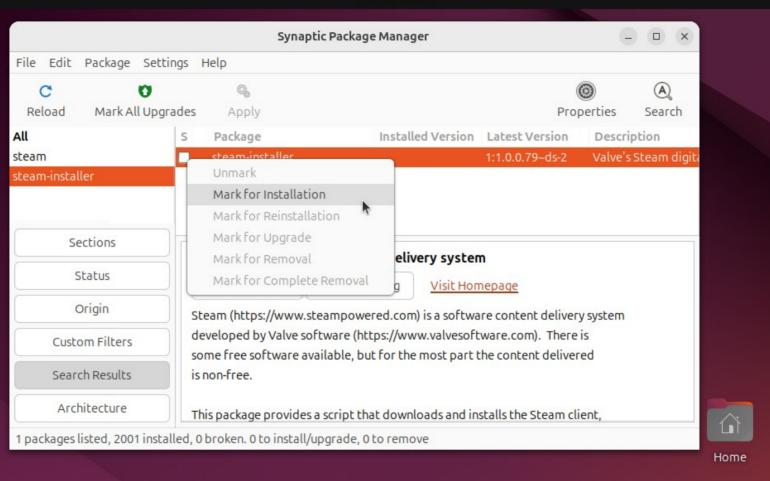
































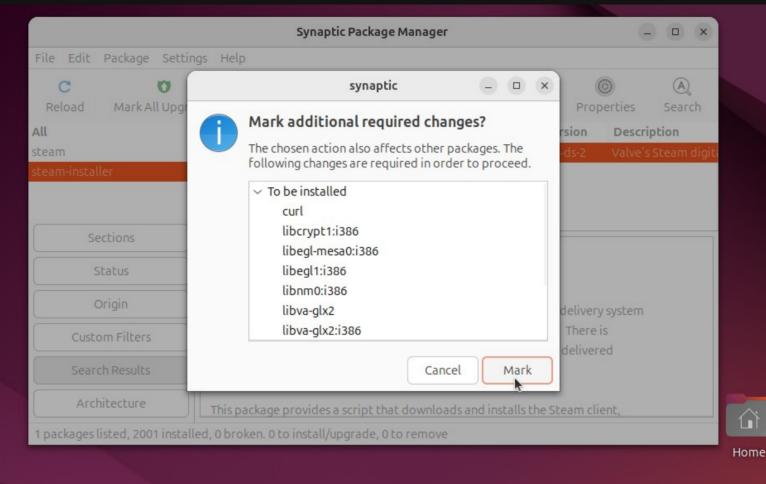


























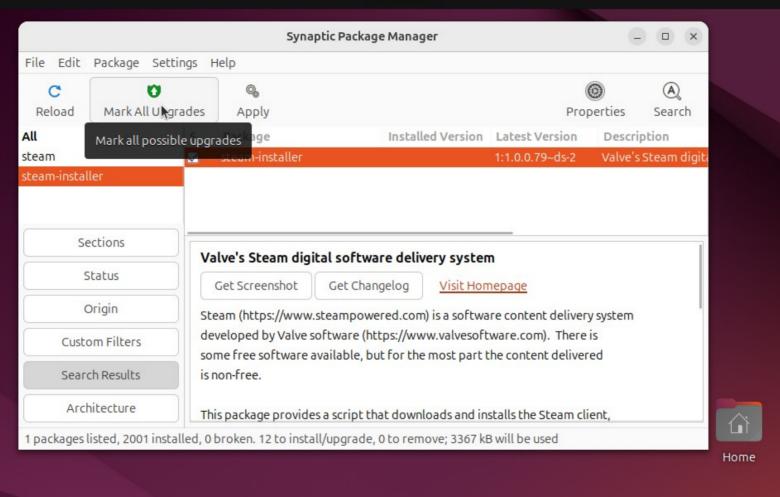


























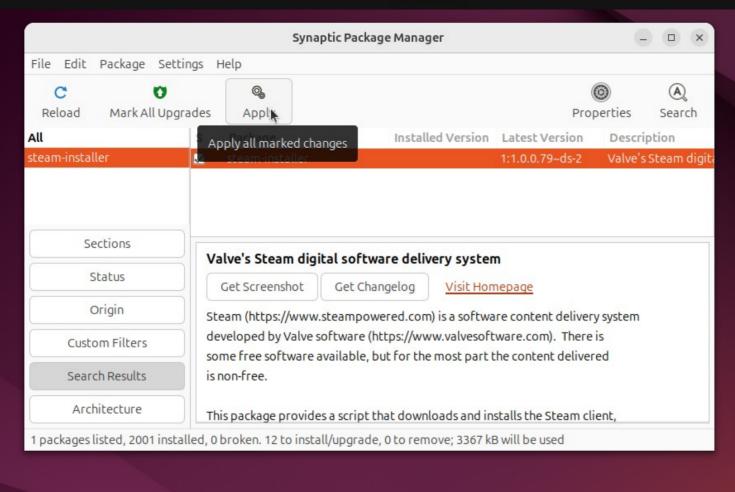






























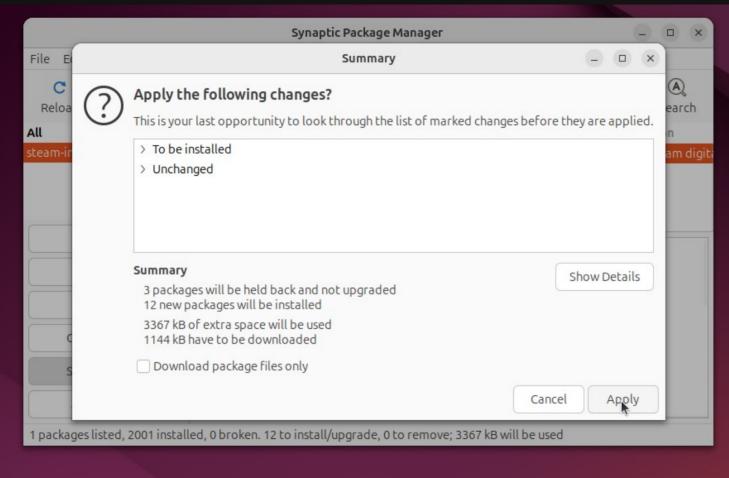




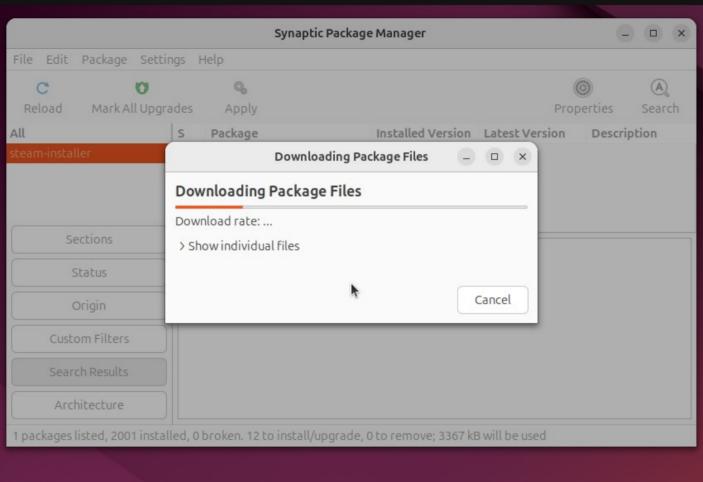








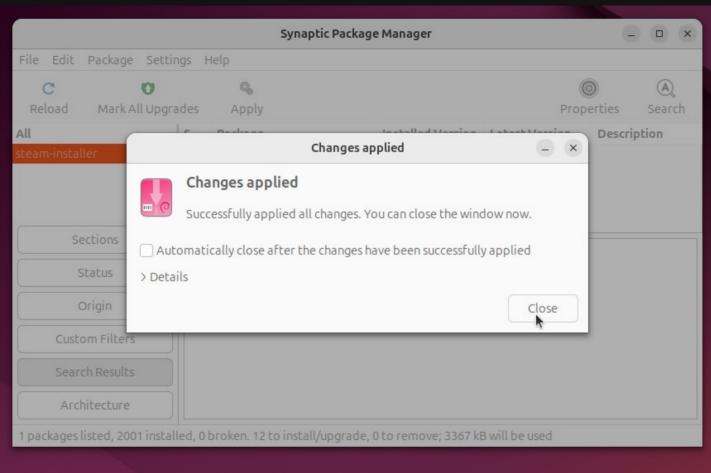


























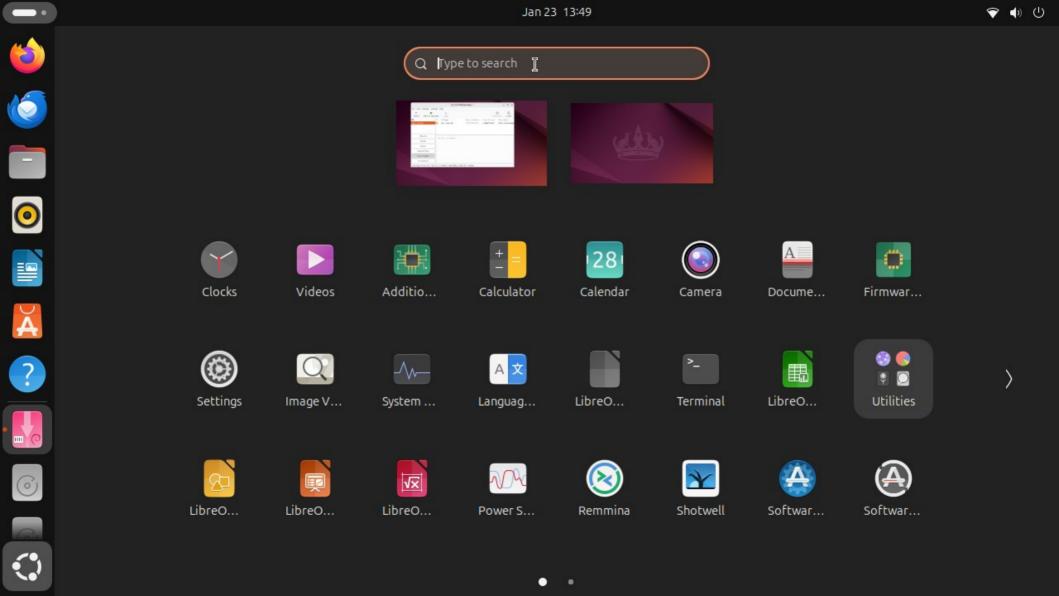


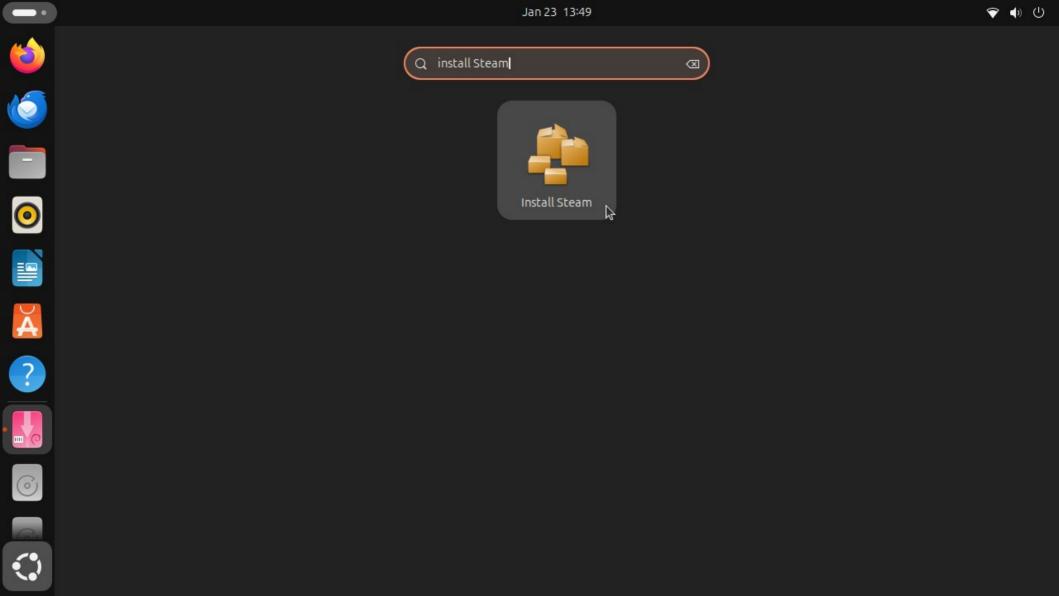


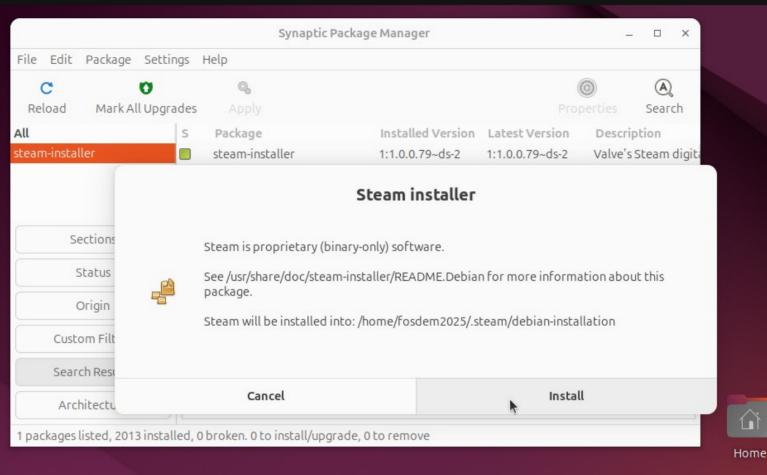










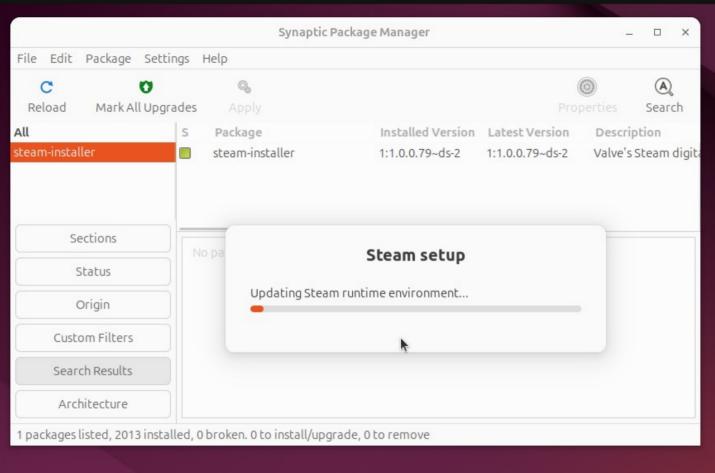










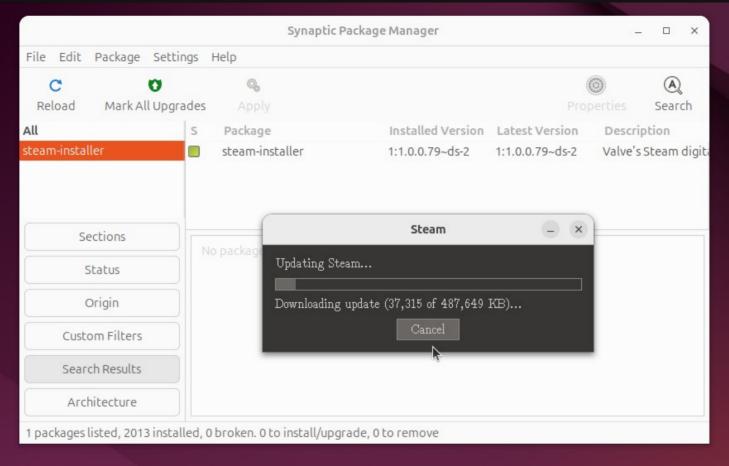




Home









Home













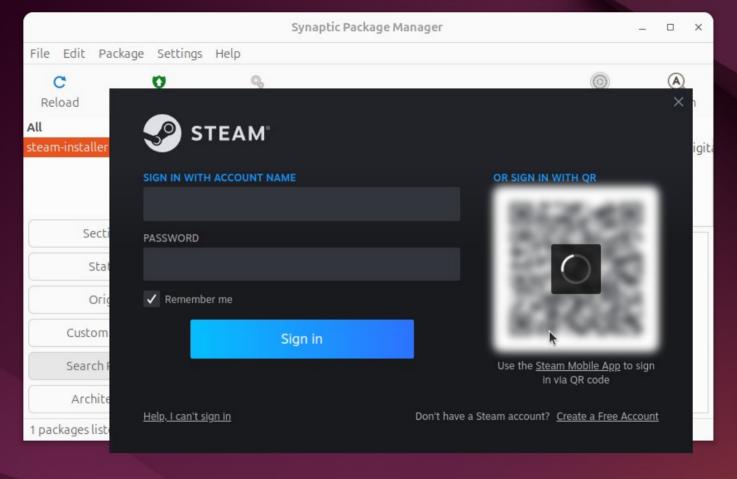














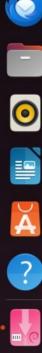
Home



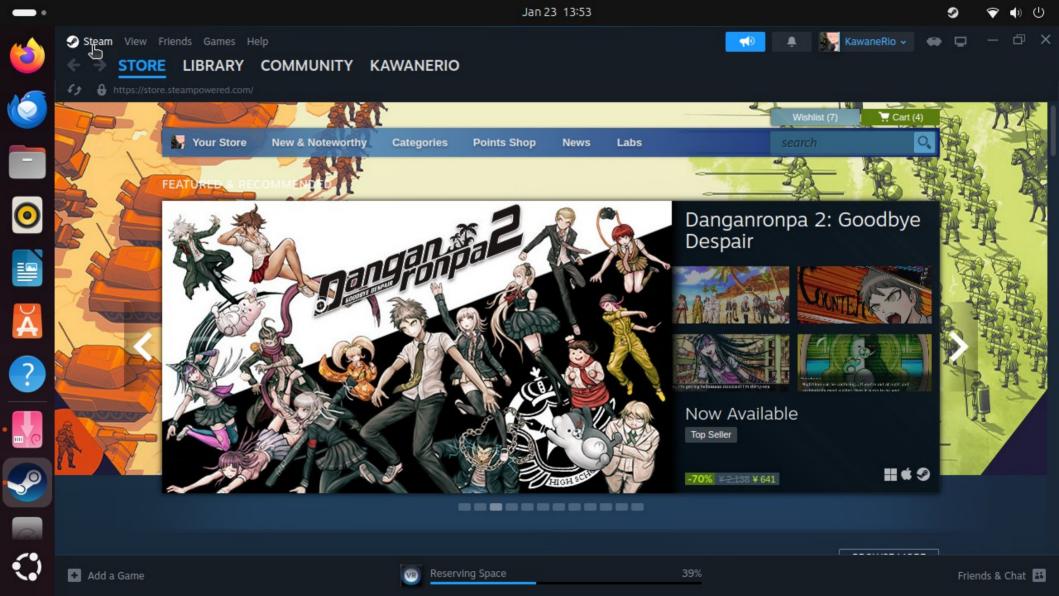


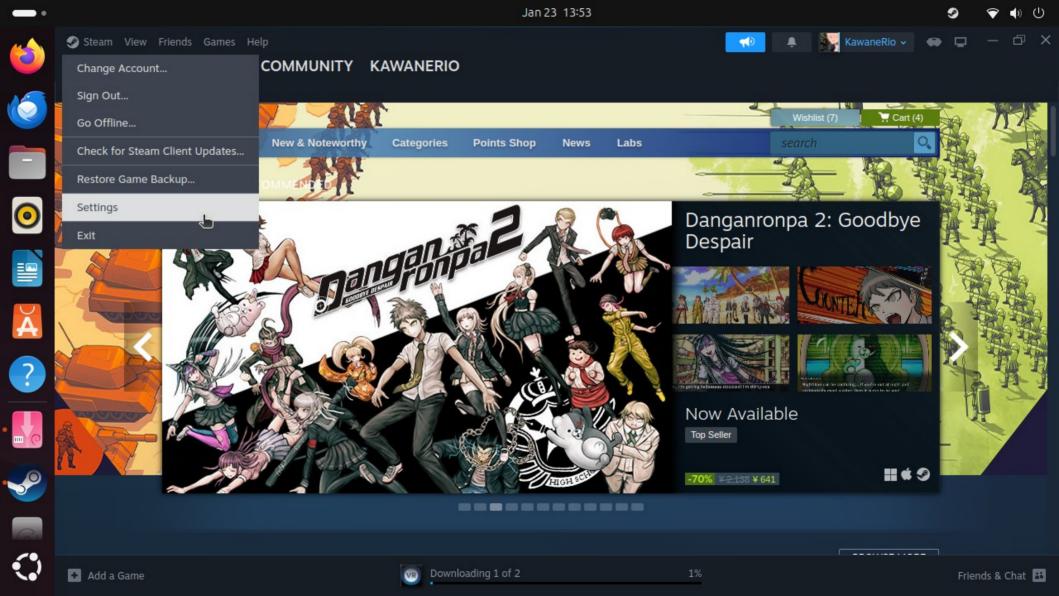


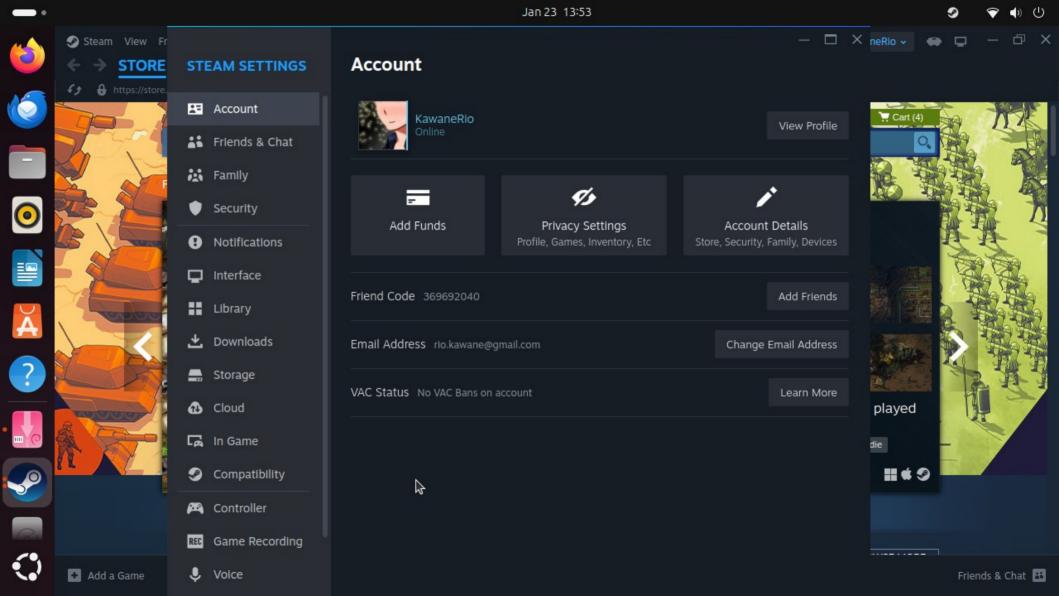


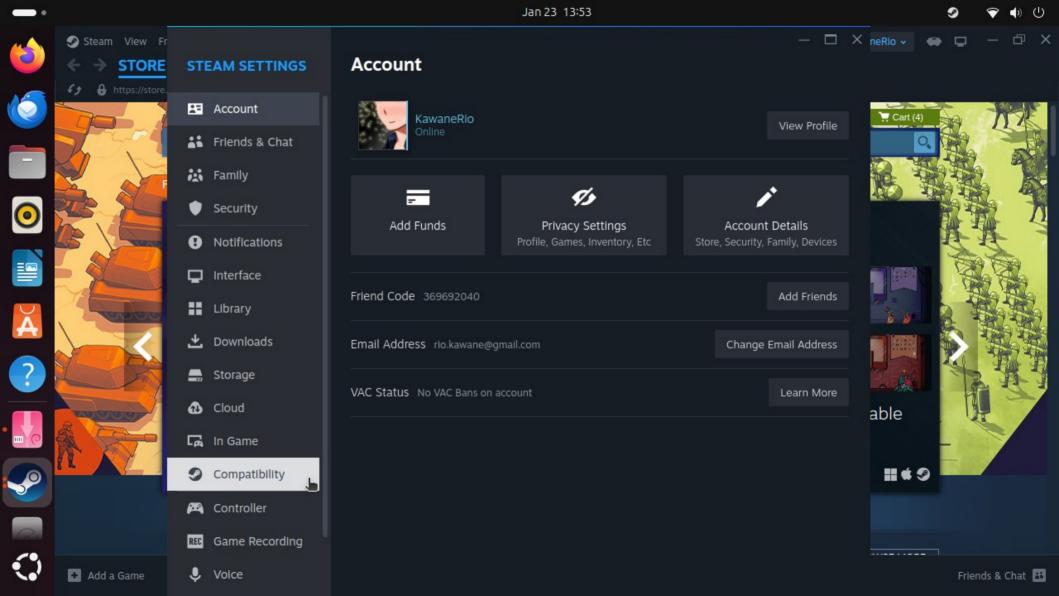


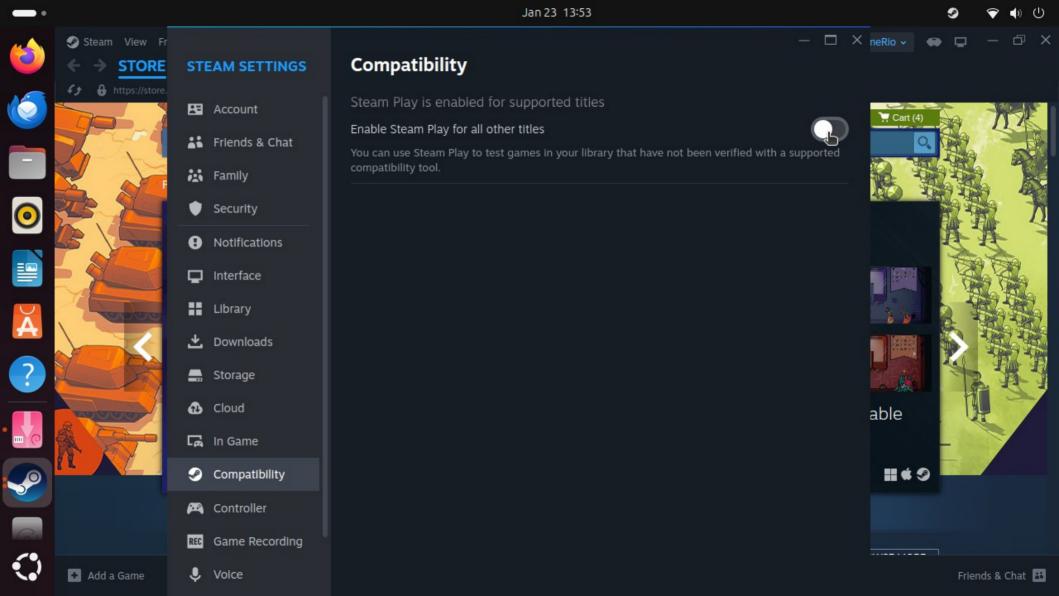


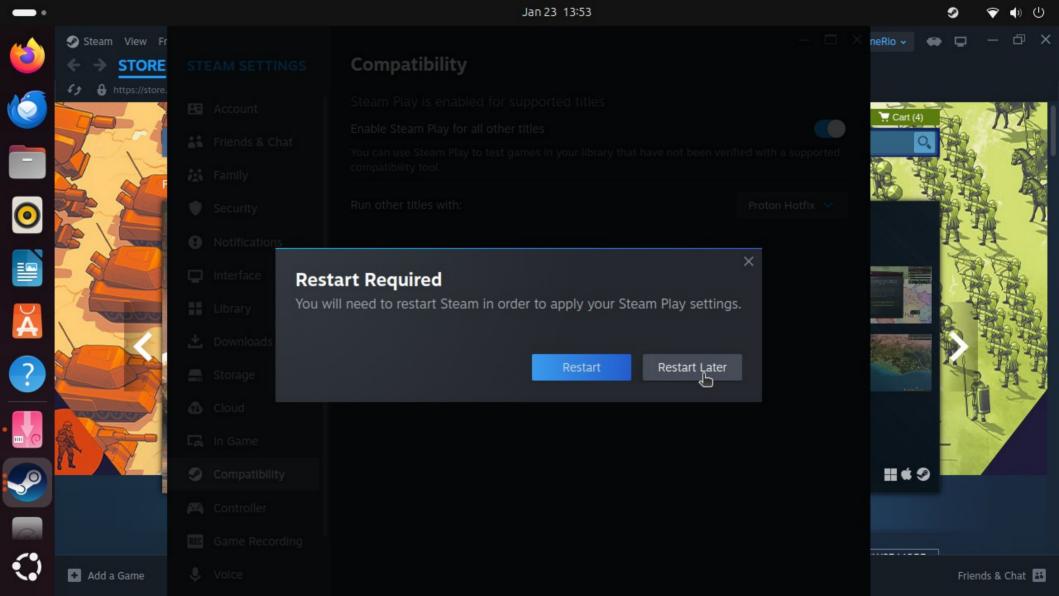


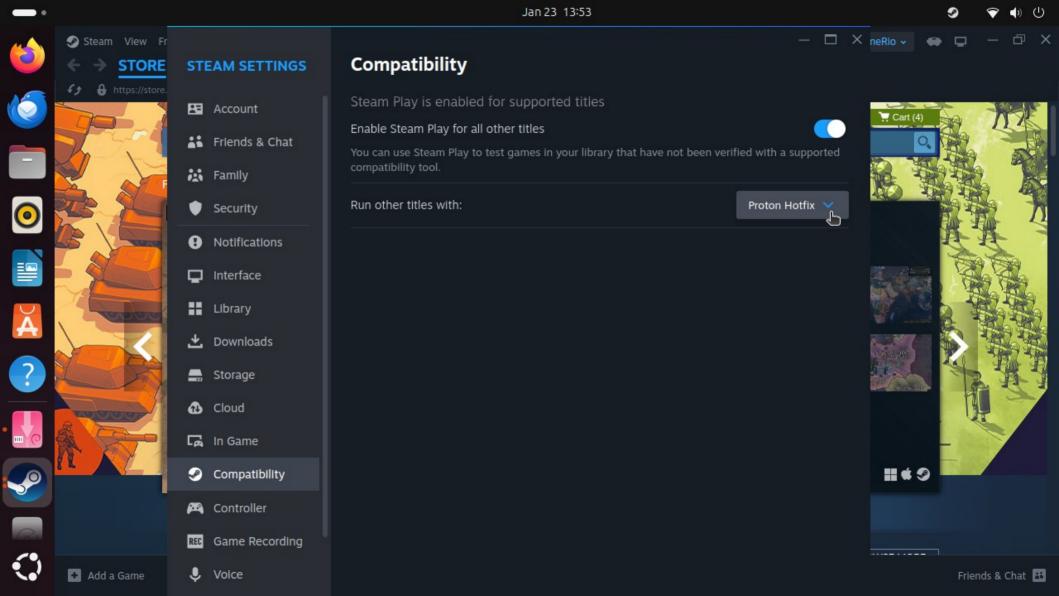


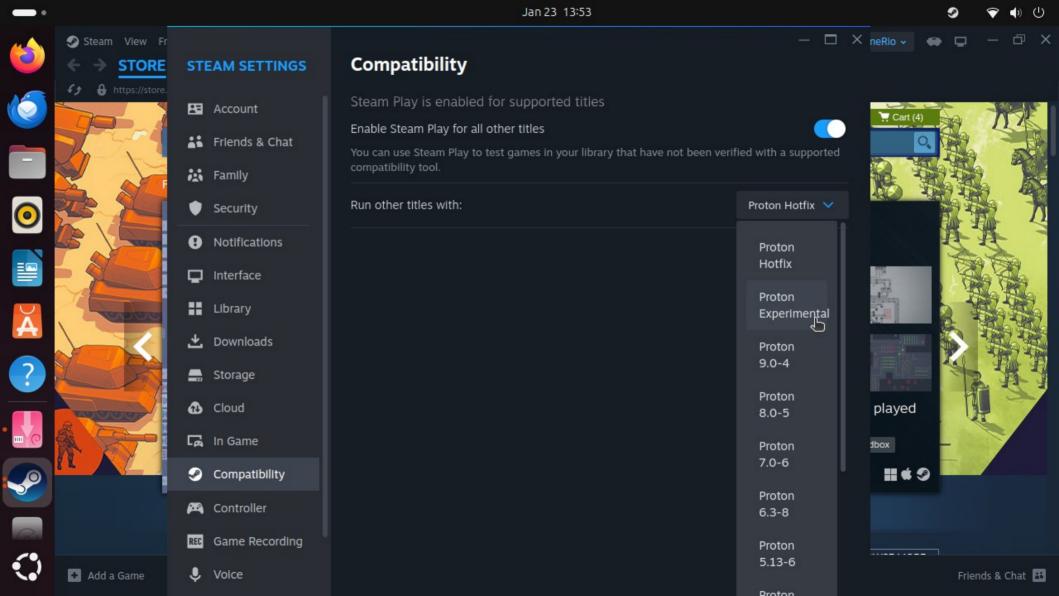


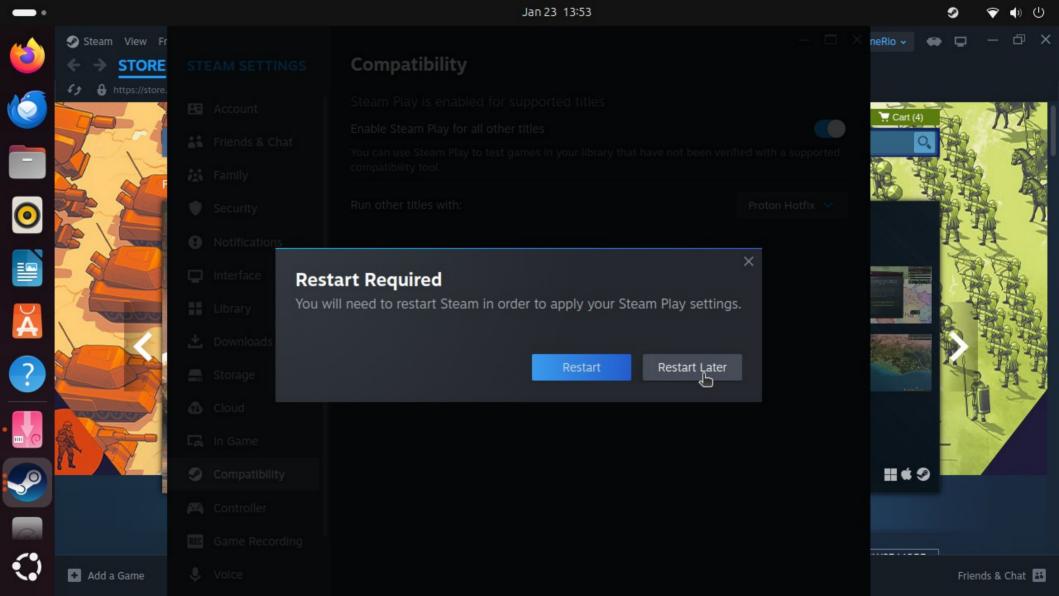


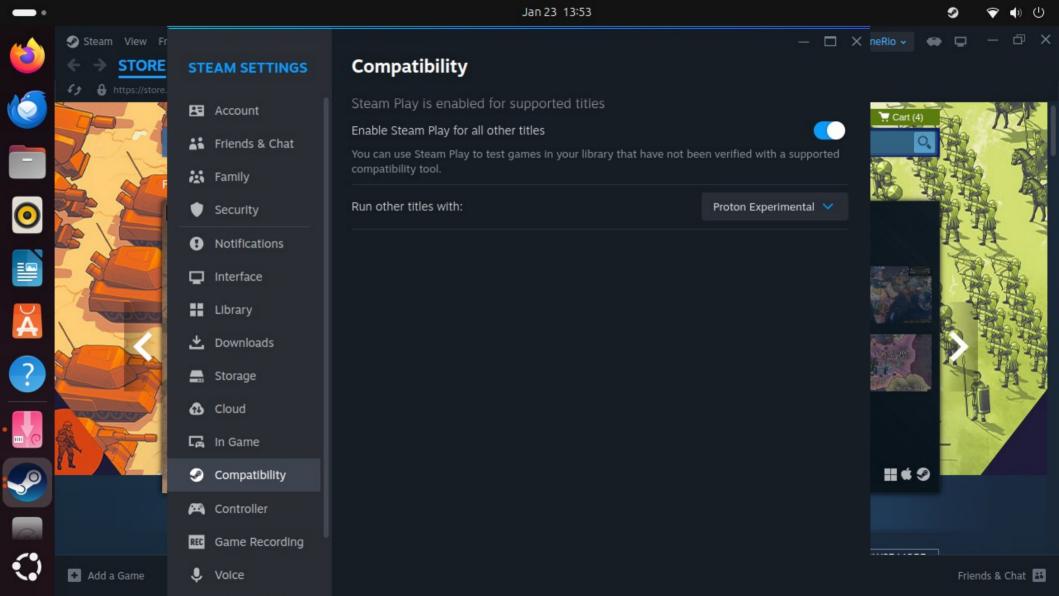


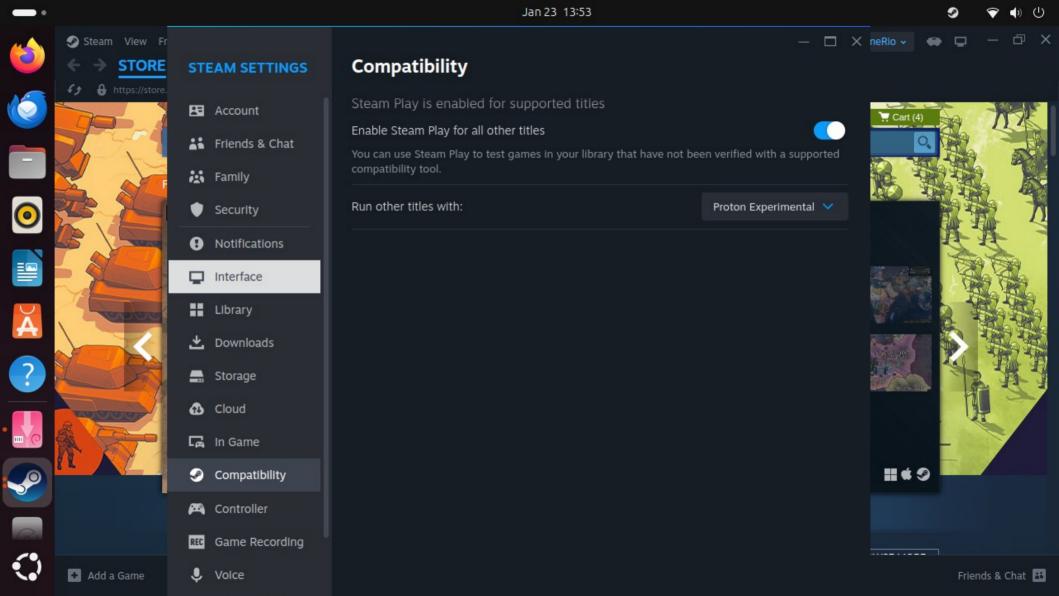


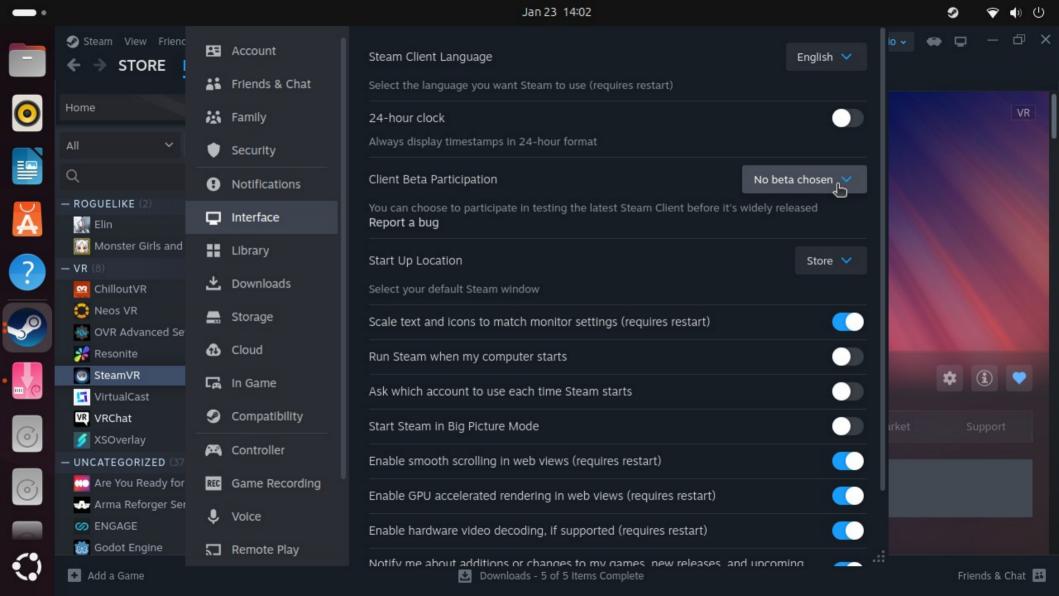


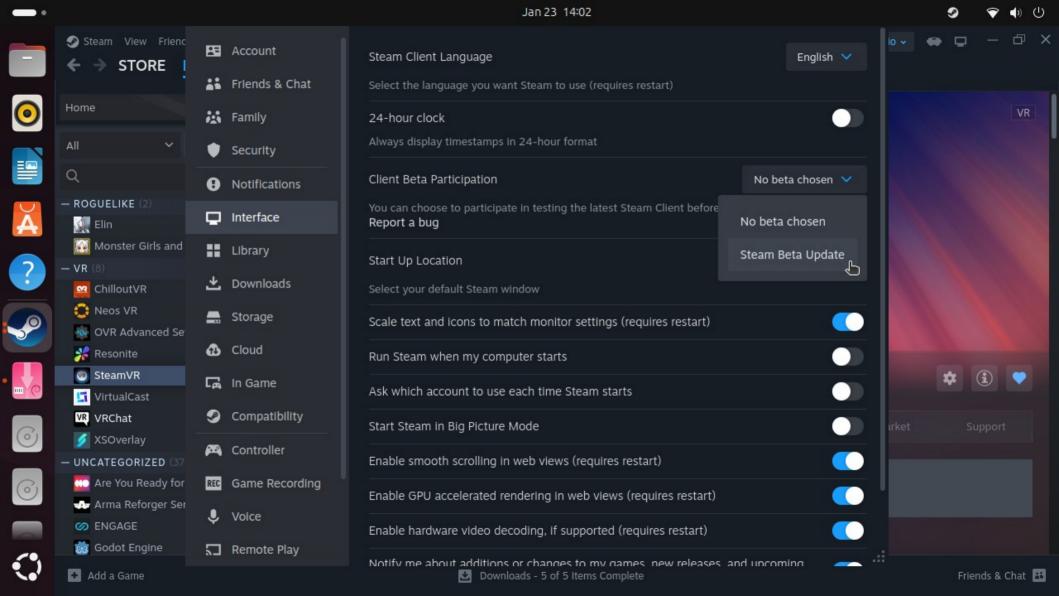


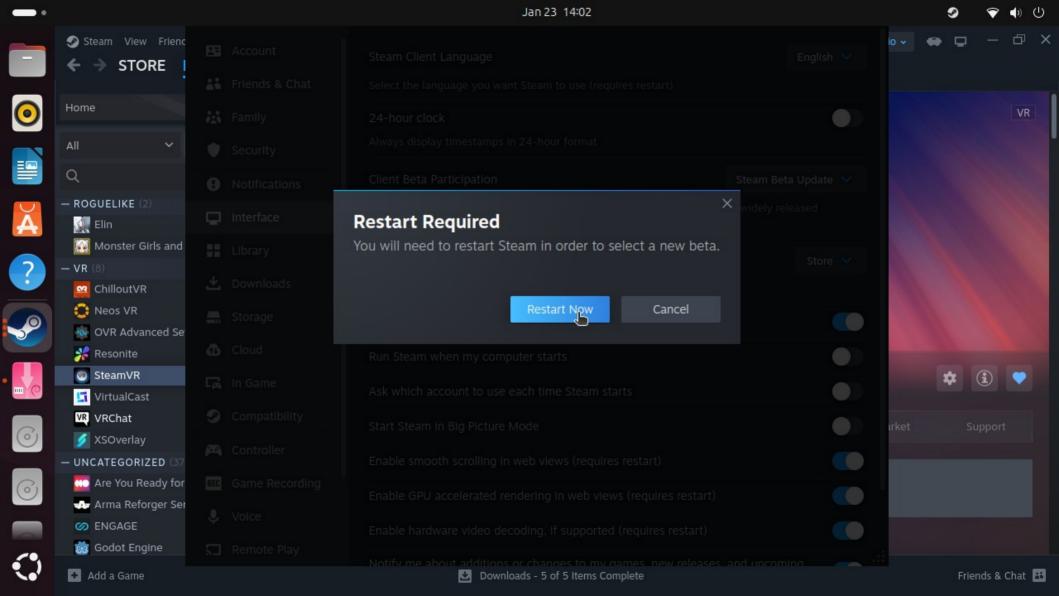


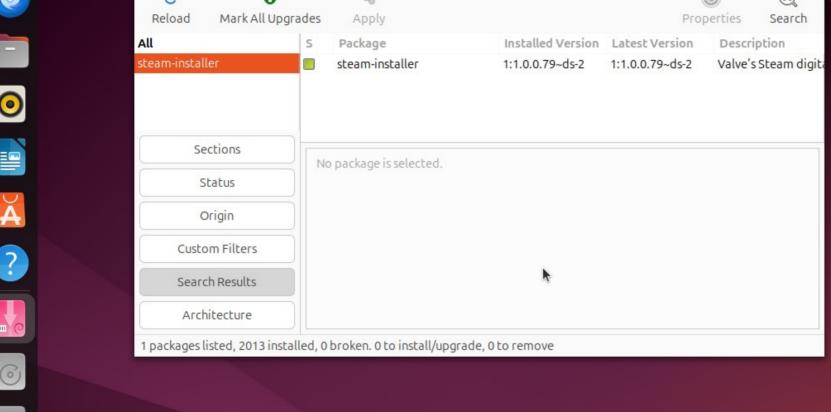






























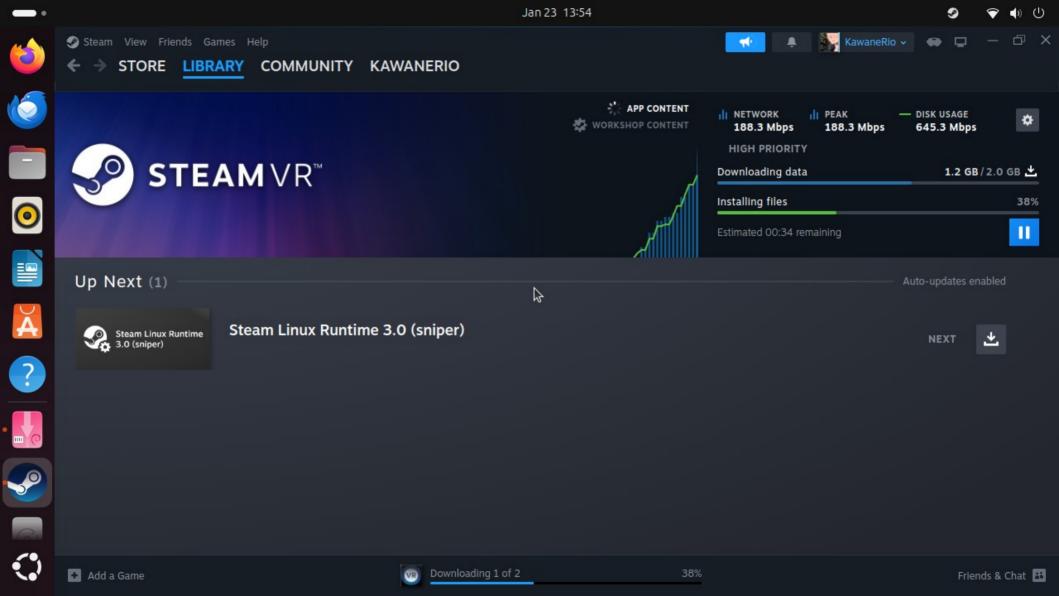




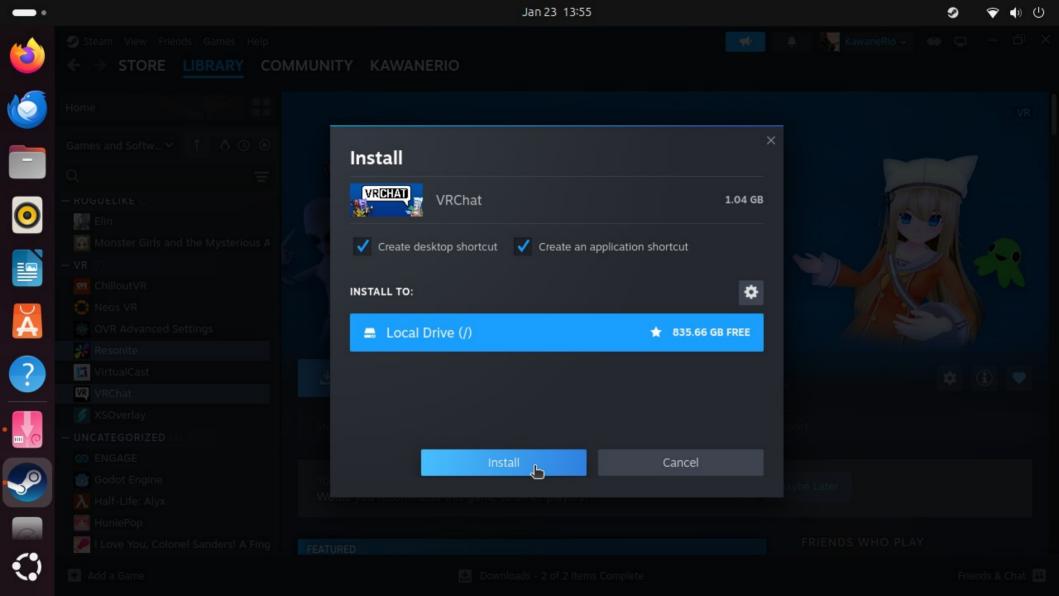


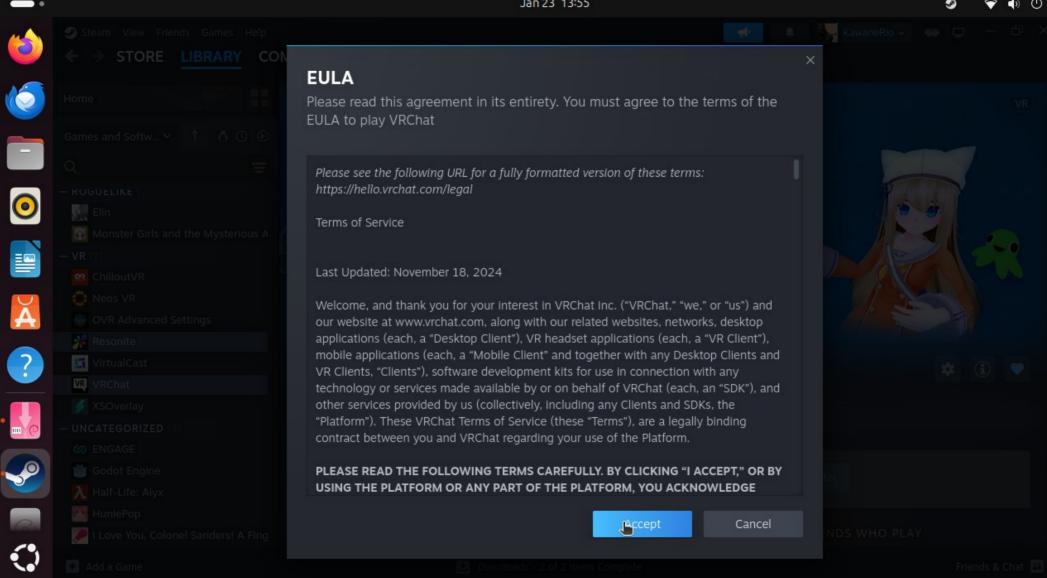






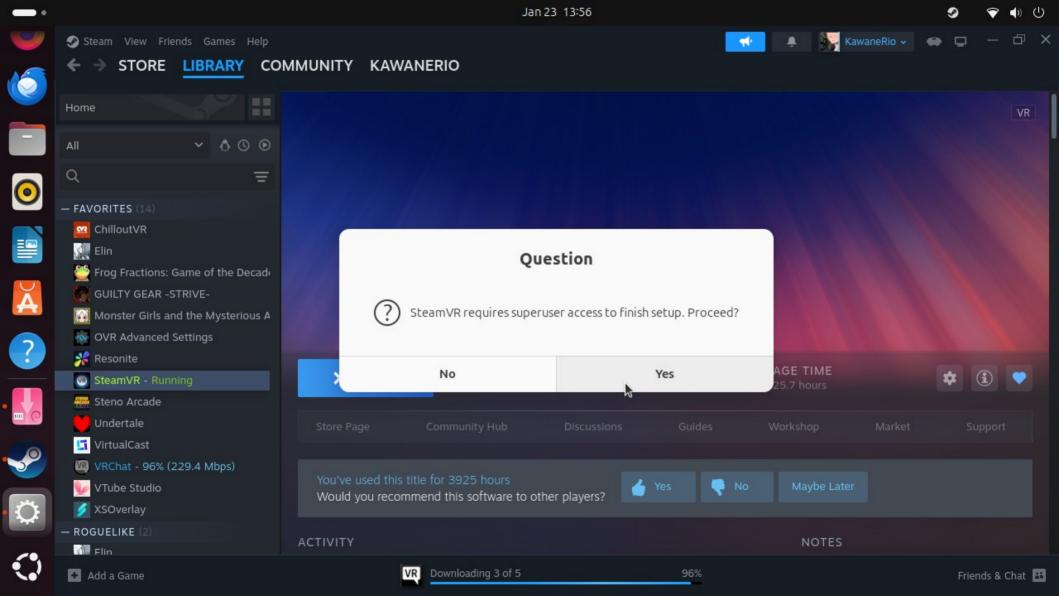


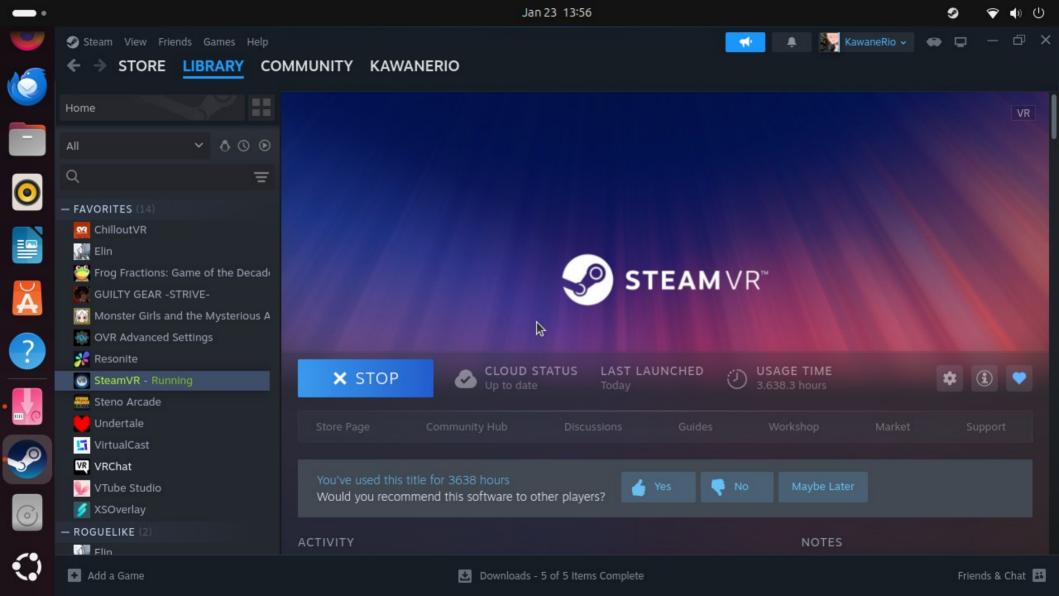


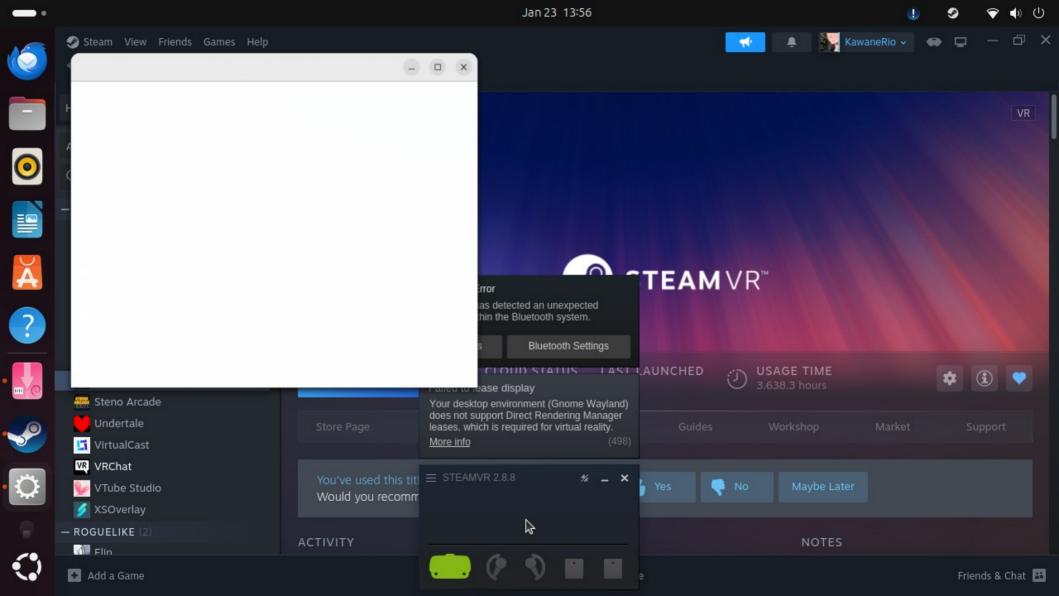


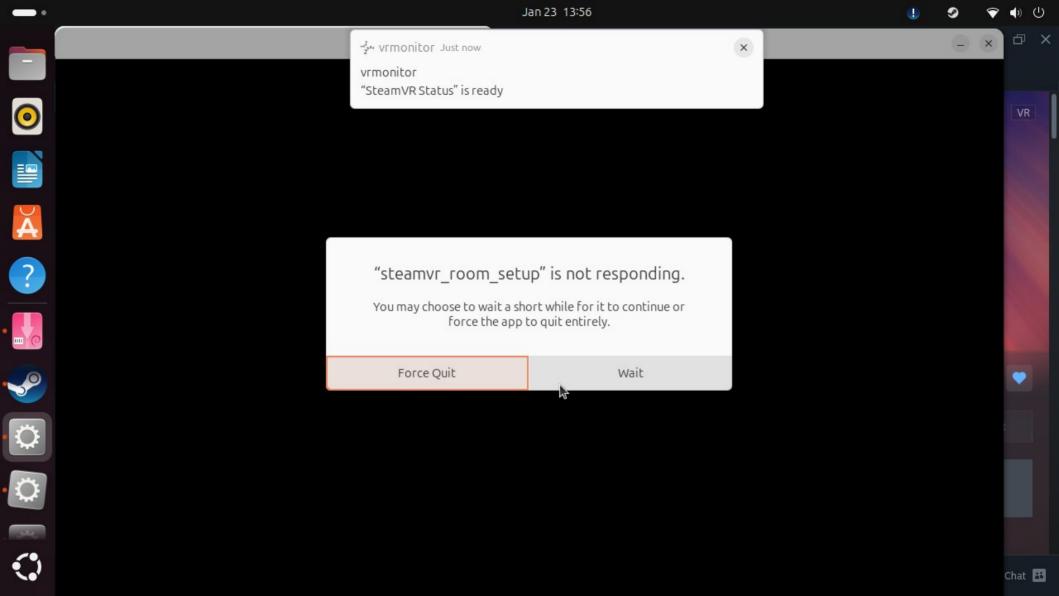
















### Welcome to Room Setup!

#### Set up for Room-Scale

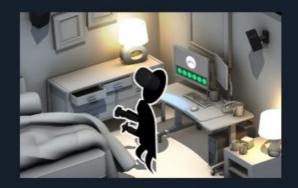
Play Room-Scale, Standing, and Seated VR experiences. Choose this if you have at least 2 meters by 1.5 meters, or around 6.5 by 5 feet.



#### **ROOM-SCALE**

#### Set up for Standing Only

Play Standing and Seated VR experiences. Choose this if you have limited space to walk around.



#### STANDING ONLY













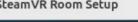














## Establish tracking.

Place the Headset in a location visible from the Base Stations.

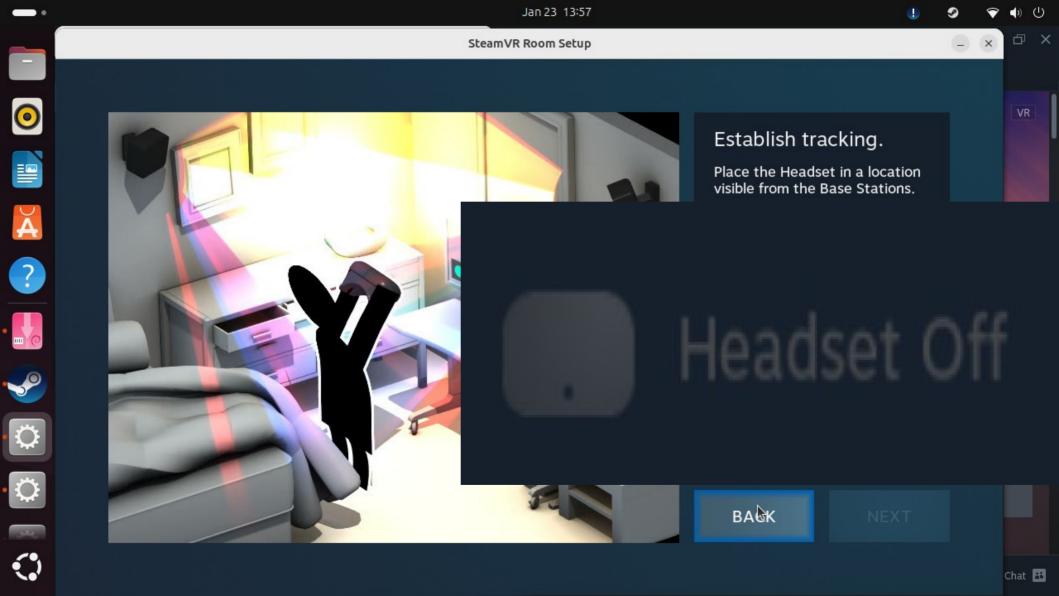
BACK

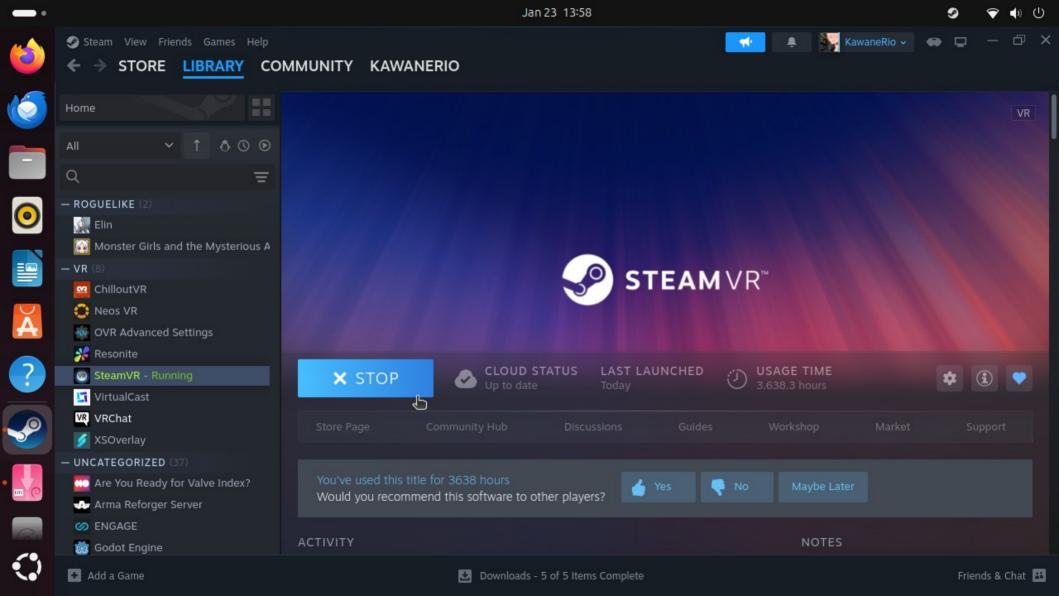












#### Welcome to Room Setup!

### Set up for Room-Scale

Play Room-Scale, Standing, and Seated VR experiences. Choose this if you have at least 2 meters by 1.5 meters, or around 6.5 by 5 feet.

**ROOM-SCALI** 

Some Add-ons Blocked

Due to a recent crash, some SteamVR addons have been blocked.

Learn more.

Dismiss

Manage Add-ons

Failed to lease display

Your desktop environment (Gnome Wayland) does not support Direct Rendering Manager leases, which is required for virtual reality.

More info

#### STANDING ONLY

### Set up for Standing Only

Play Standing and Seated VR experiences. Choose this if you have limited space to walk around.























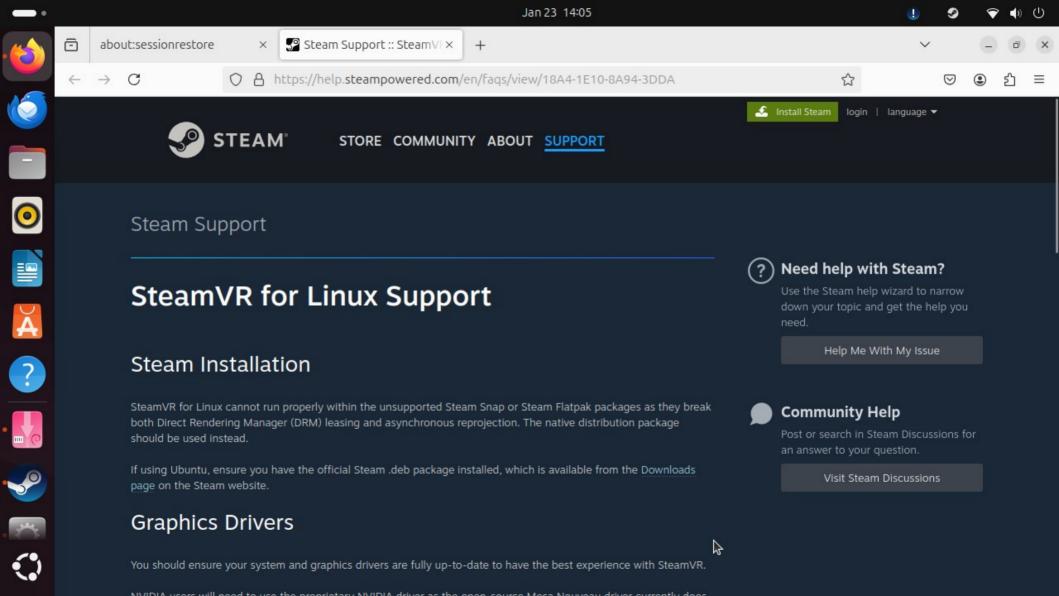


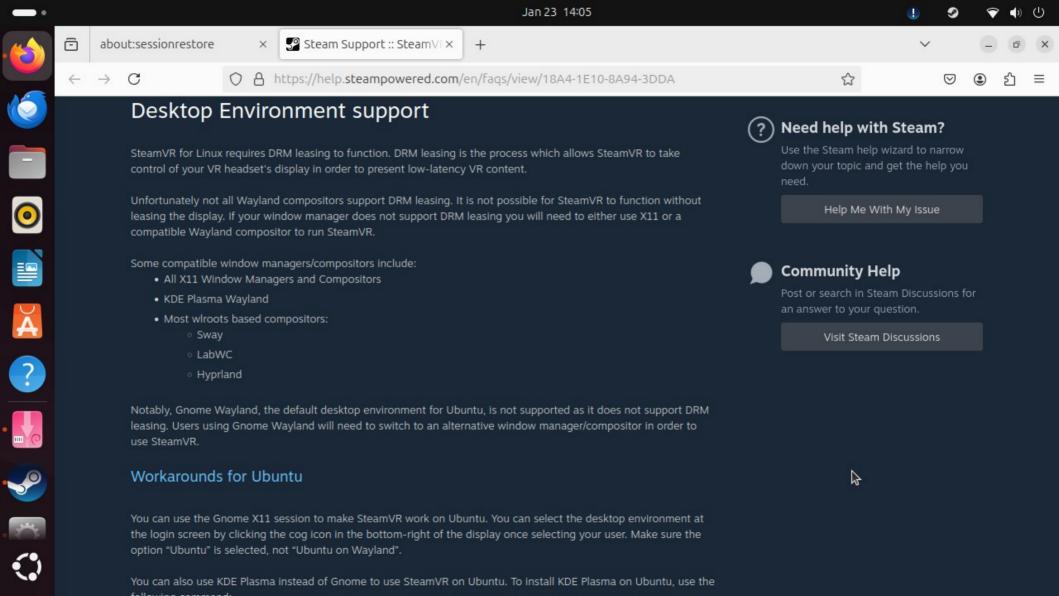


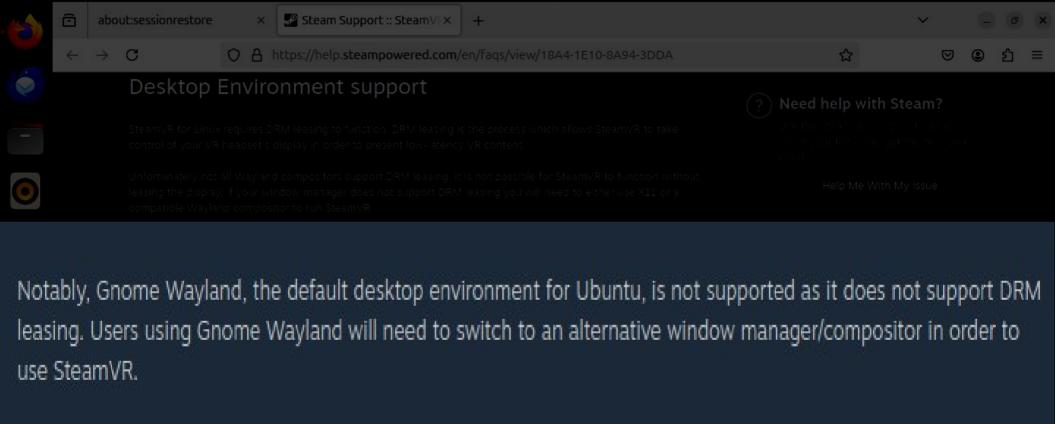


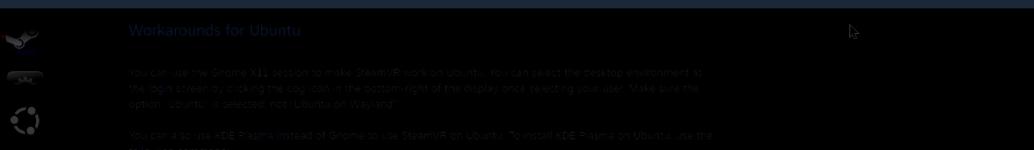


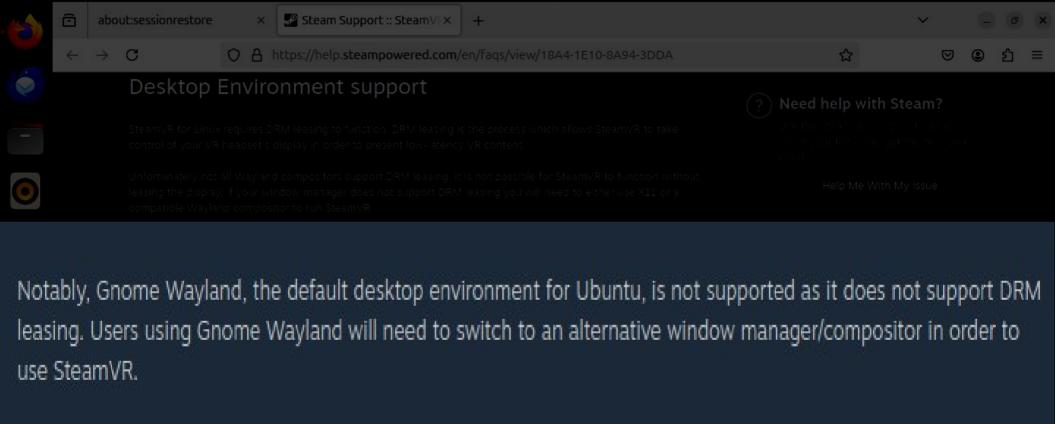
Chat 🎛

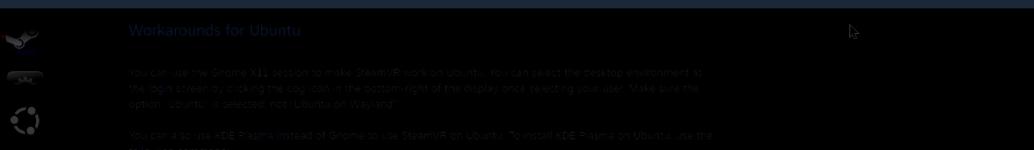














# What's new for developers

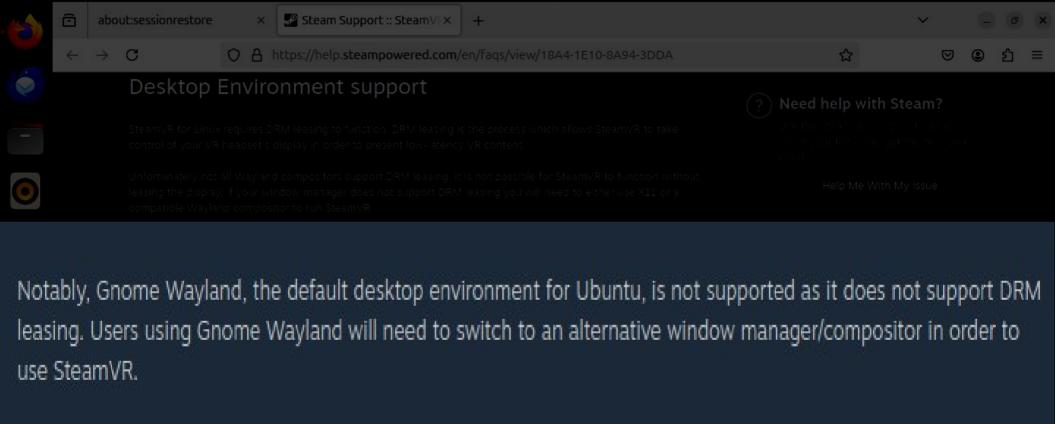
GNOME 47 comes with plenty of new features and enhancements for those who use the GNOME platform. These include updates to GNOME's developer tools, improved libraries, and updated language bindings.

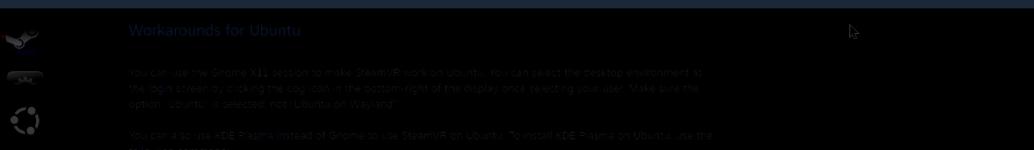
We encourage you to explore the <u>GNOME Developer website</u> for a comprehensive overview of the resources available to you. Get started building and contributing to the

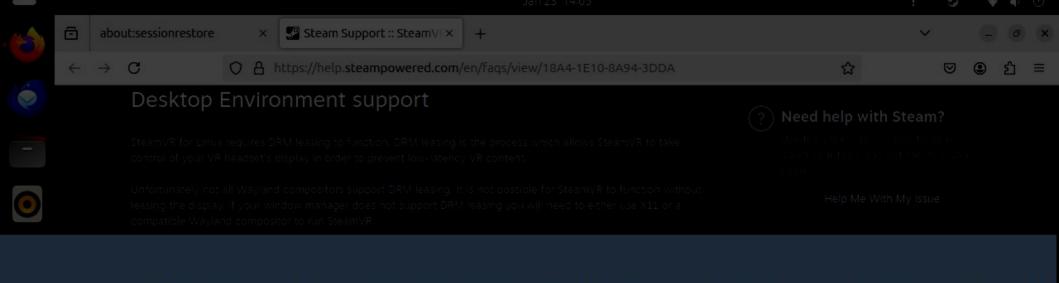
# **Mutter: Wayland DRM Lease**

This protocol is used by Wayland compositors which act as Direct Rendering Manager (DRM) masters to lease DRM resources to Wayland clients.





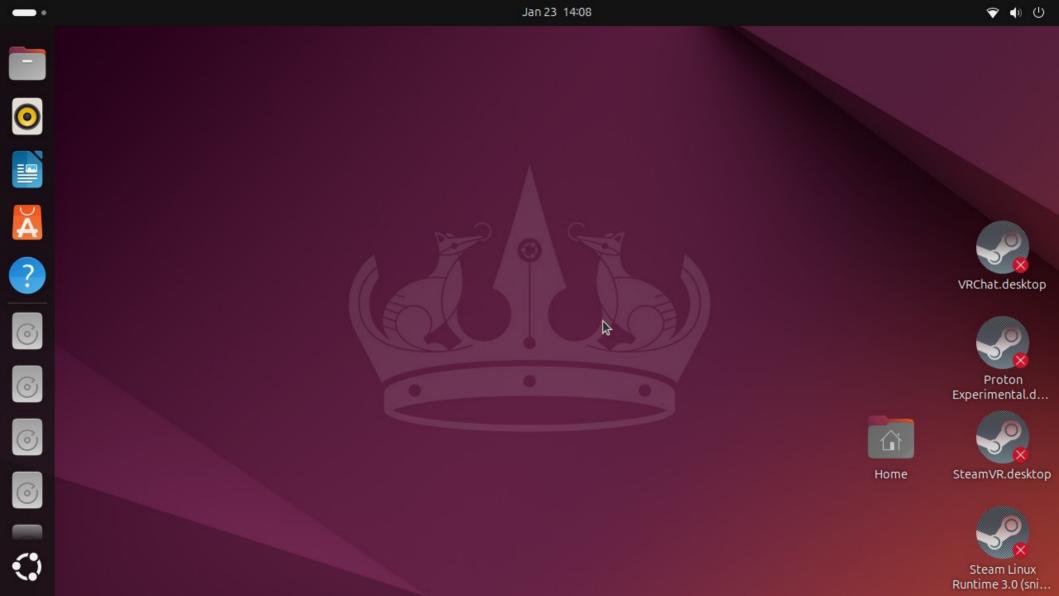


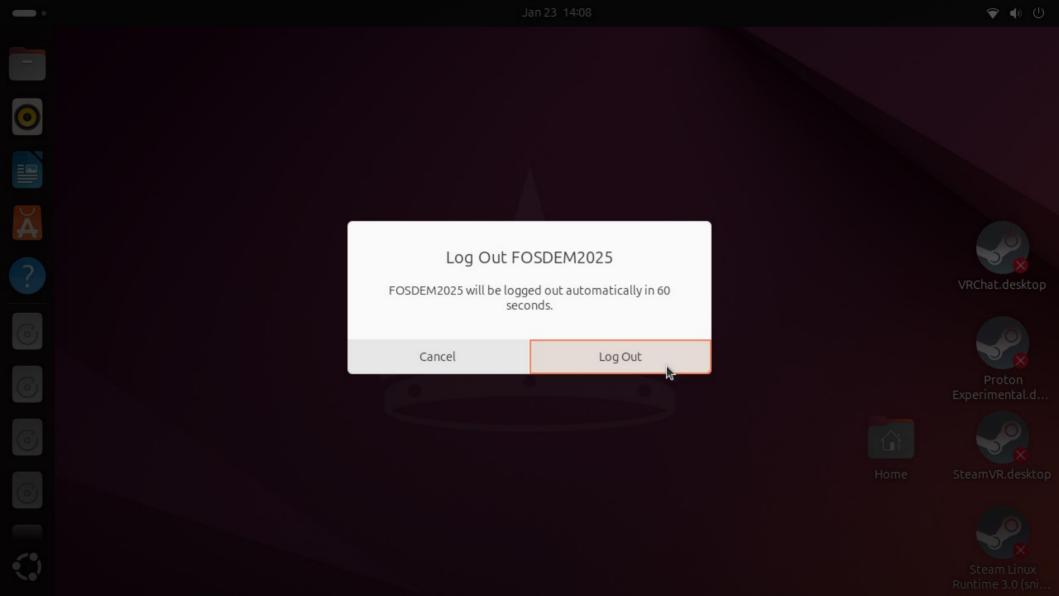


Notably, Gnome Wayland, the default desktop environment for Ubuntu, is not supported as it does not support DRM leasing. Users using Gnome Wayland will need to switch to an alternative window manager/compositor in order to use SteamVR.

# Workarounds for Ubuntu

You can use the Gnome X11 session to make SteamVR work on Ubuntu. You can select the desktop environment at the login screen by clicking the cog icon in the bottom-right of the display once selecting your user. Make sure the option "Ubuntu" is selected, not "Ubuntu on Wayland".











Jan 22 19:53 **† ♣ •**)



Not listed?







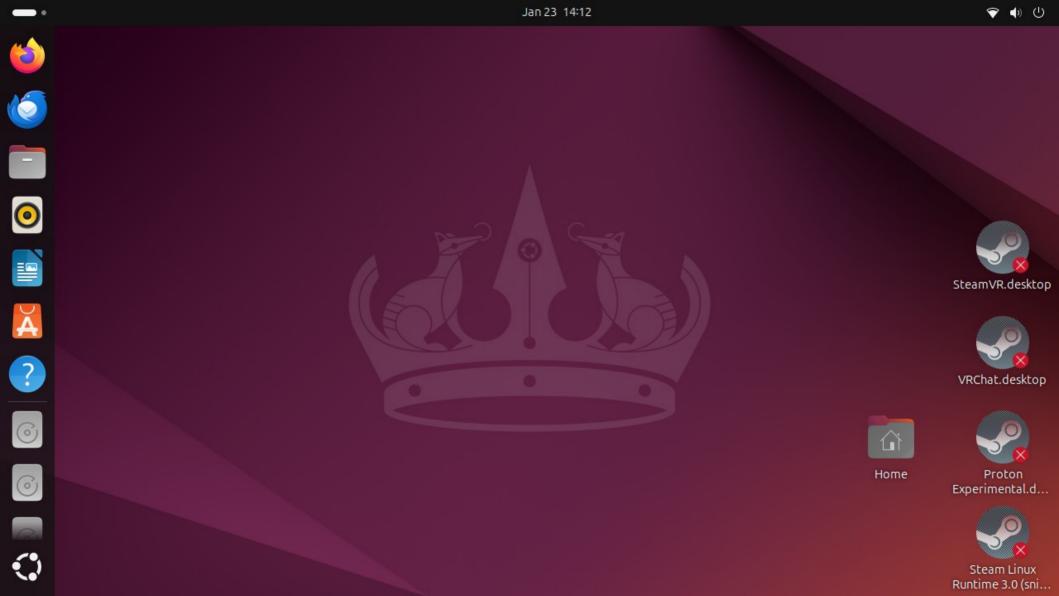
Not listed?

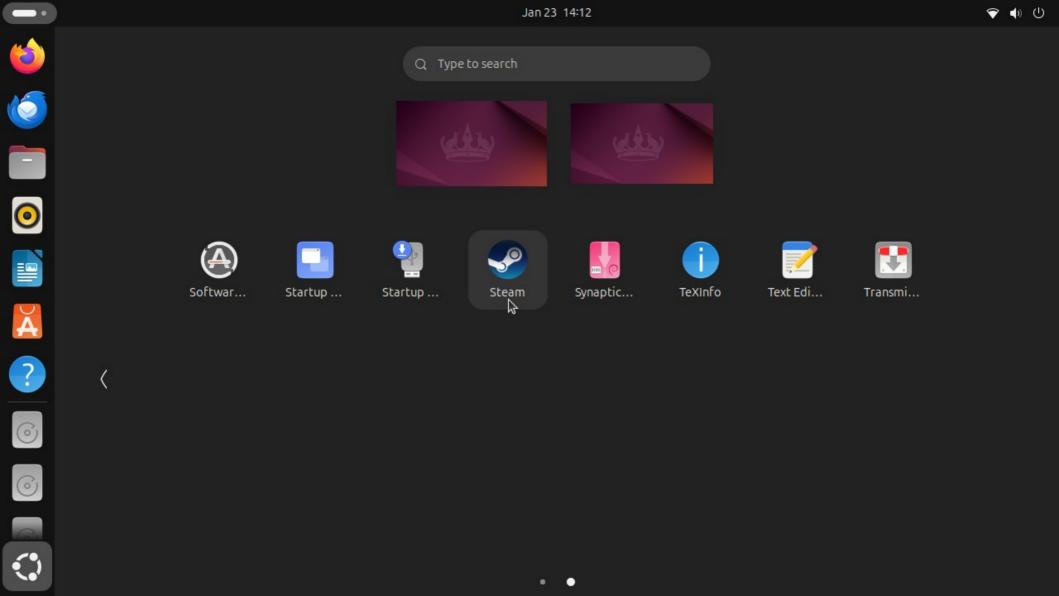




Ubuntu on Xorg

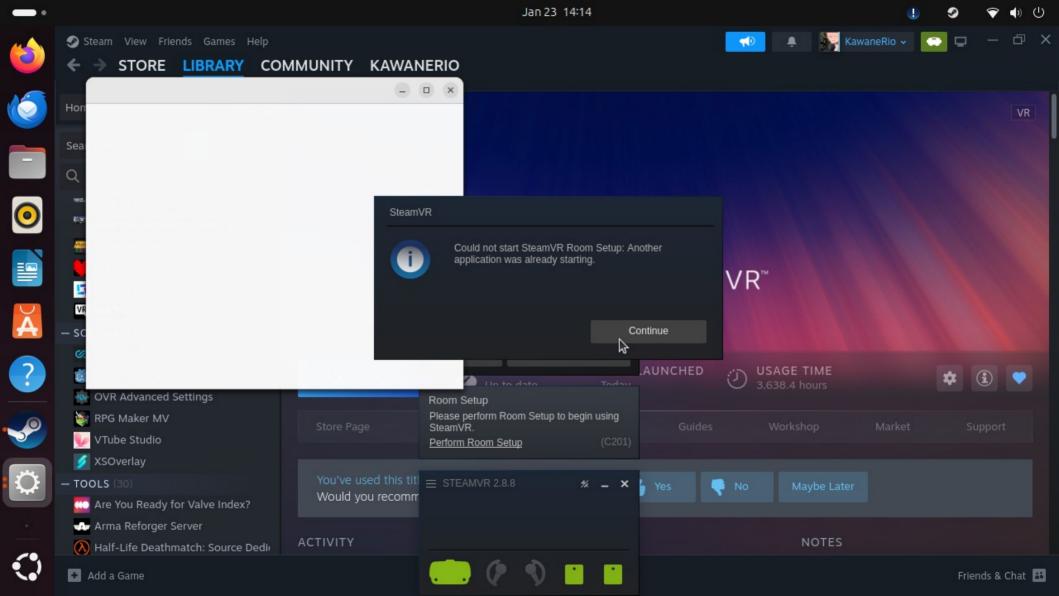


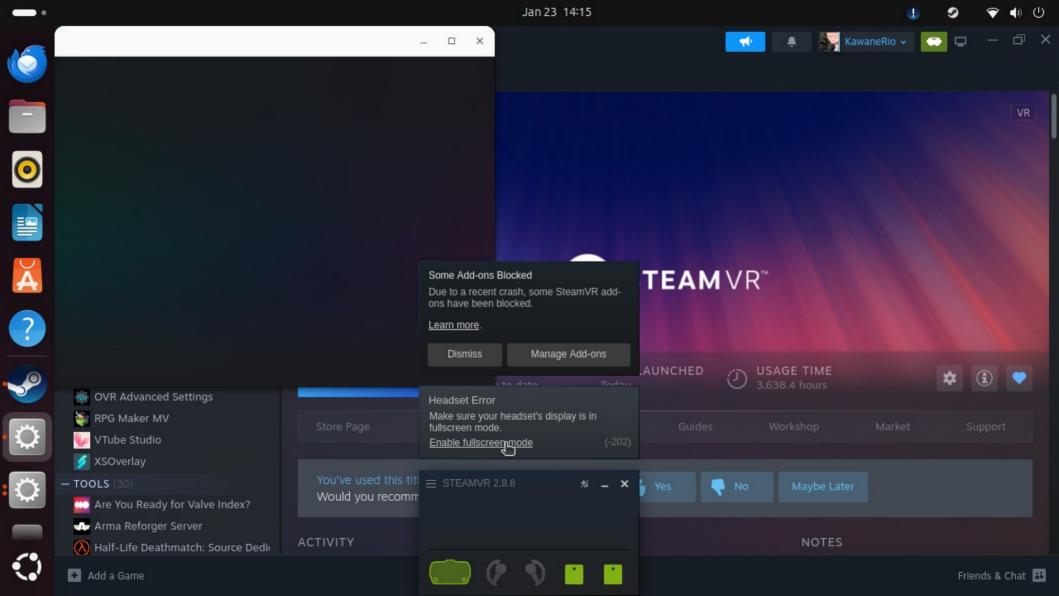




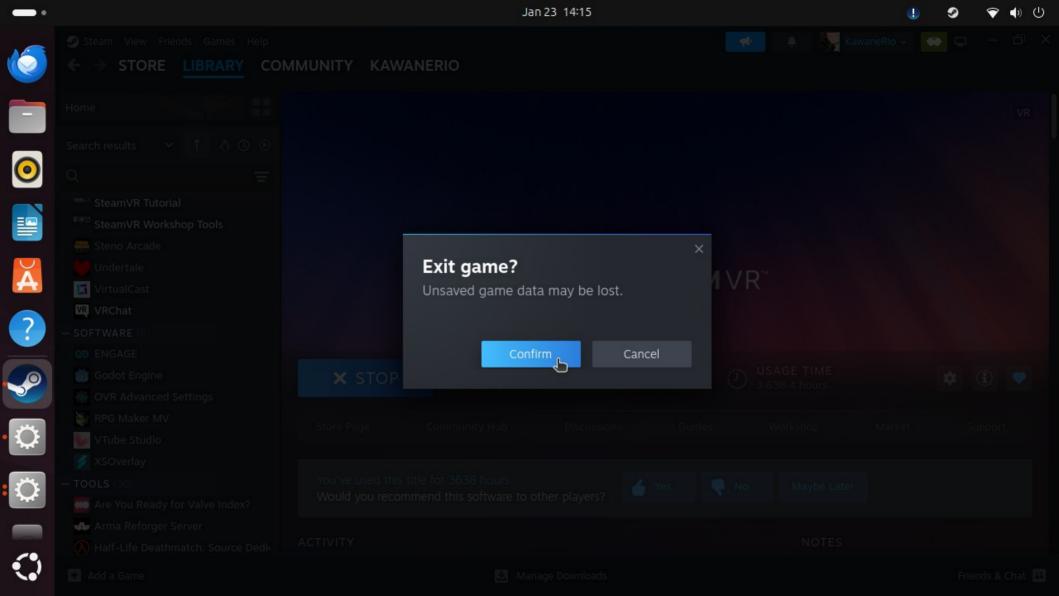






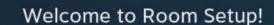












# Set up for Room-Scale

Play Room-Scale, Standing, and Seated VR experiences. Choose this if you have at least 2 meters by 1.5 meters, or around 6.5 by 5 feet.



ROOM-SCALE



Dismiss











Play Standing and Seated VR experiences. Choose this if you have limited space to walk around.



STANDING ONLY



























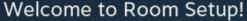












#### Set up for Room-Scale

Play Room-Scale, Standing, and Seated VR experiences. Choose this if you have at least 2 meters by 1.5 meters, or around 6.5 by 5 feet.



#### **ROOM-SCALE**

### Set up for Standing Only

Play Standing and Seated VR experiences. Choose this if you have limited space to walk around.



STANDING ONLY













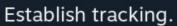




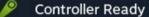








Place the Headset in a location visible from the Base Stations.







BACK

NEXT 🍃



















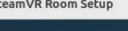


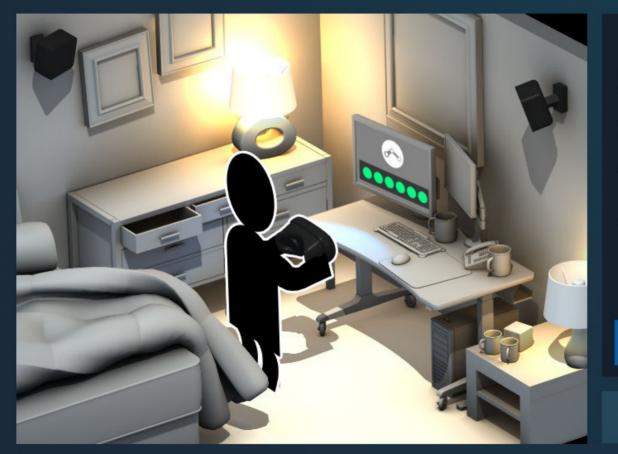












### Calibrate your space.

Stand in the middle of your cleared space while holding the Headset so that it is facing the default direction you want to face in VR.

Then click the Calibrate Center button, or the trigger, and remain still while calibration completes.



**Headset Ready** 

CALIBRATE CENTER

**BACK** 



































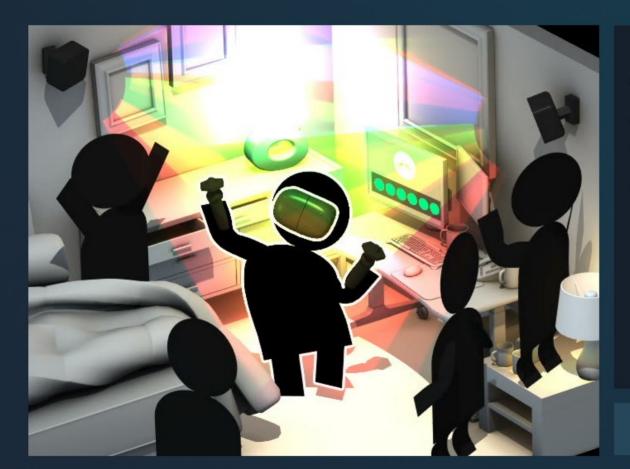












# Setup complete!

You've successfully completed room setup and your configuration has been saved!

When you're ready, click the Next button to proceed to the SteamVR Tutorial.

**BACK** 



























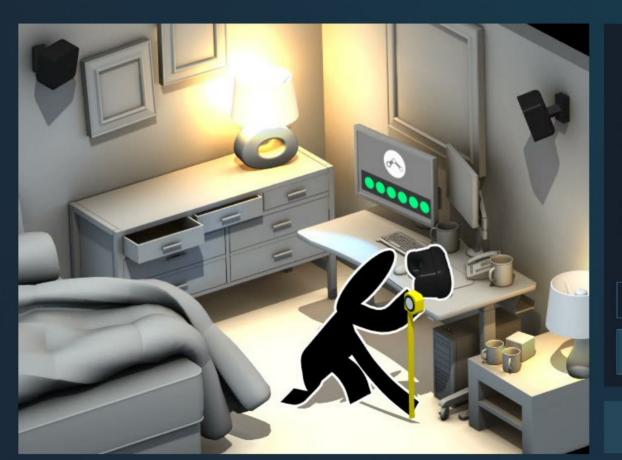












#### Locate the floor.

Place the Headset on a stable surface and click the Calibrate Floor button. Then measure the vertical distance between the surface and the floor and enter it below.

If you place your Headset on the floor, enter O. If you place it on your head, enter your height.









**NEXT** 









































You've successfully completed room setup and your configuration has been saved!

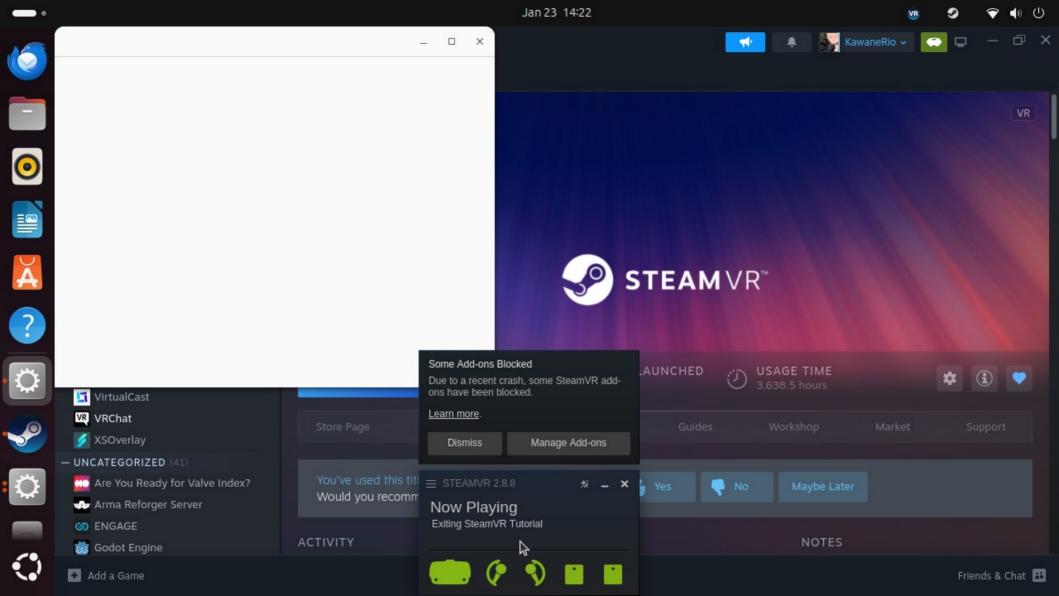
When you're ready, click the Next button to proceed to the SteamVR Tutorial.

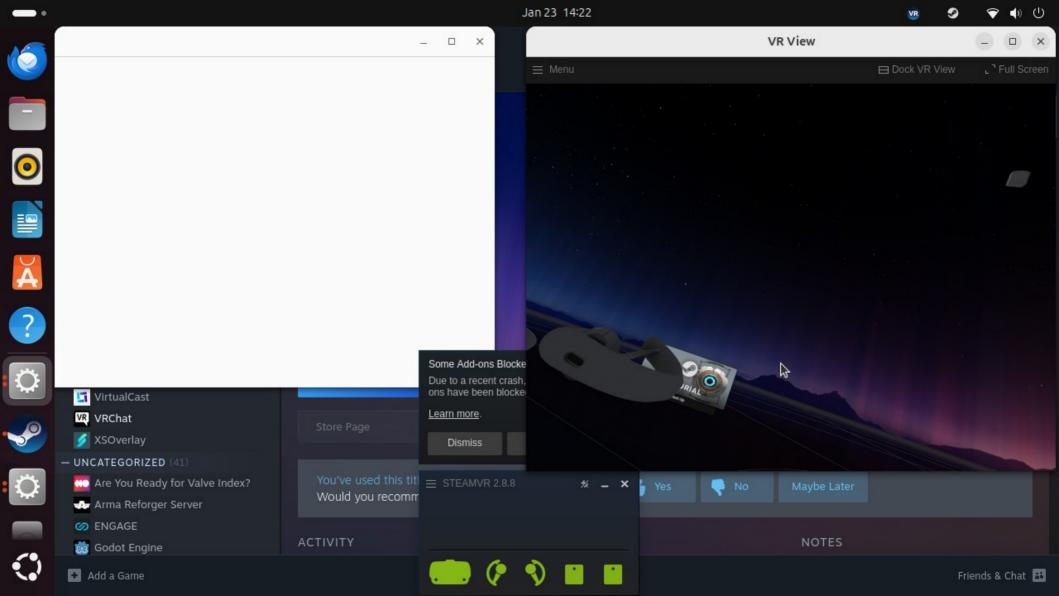


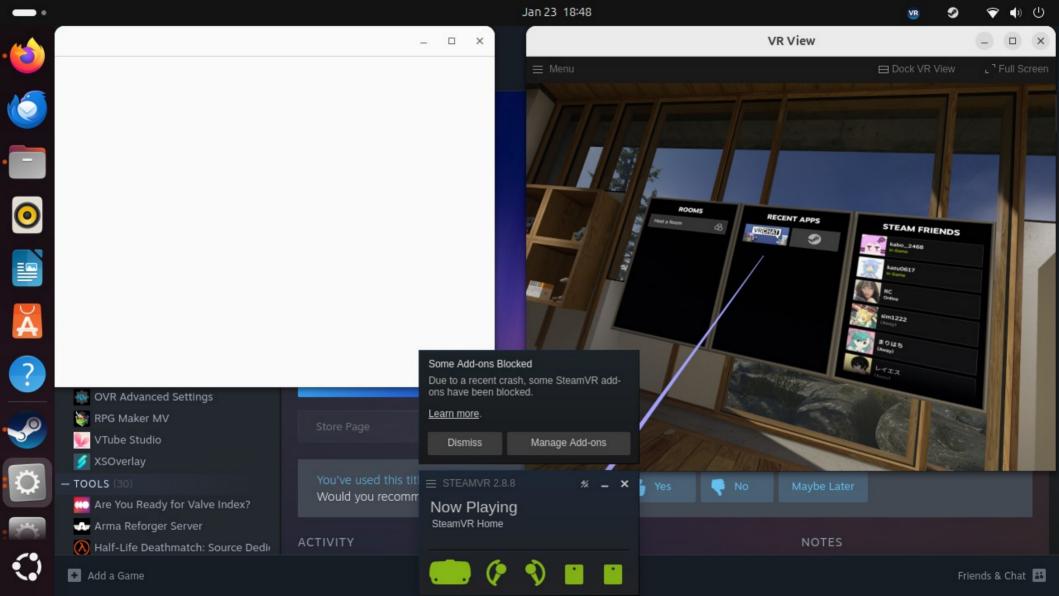
MEXT

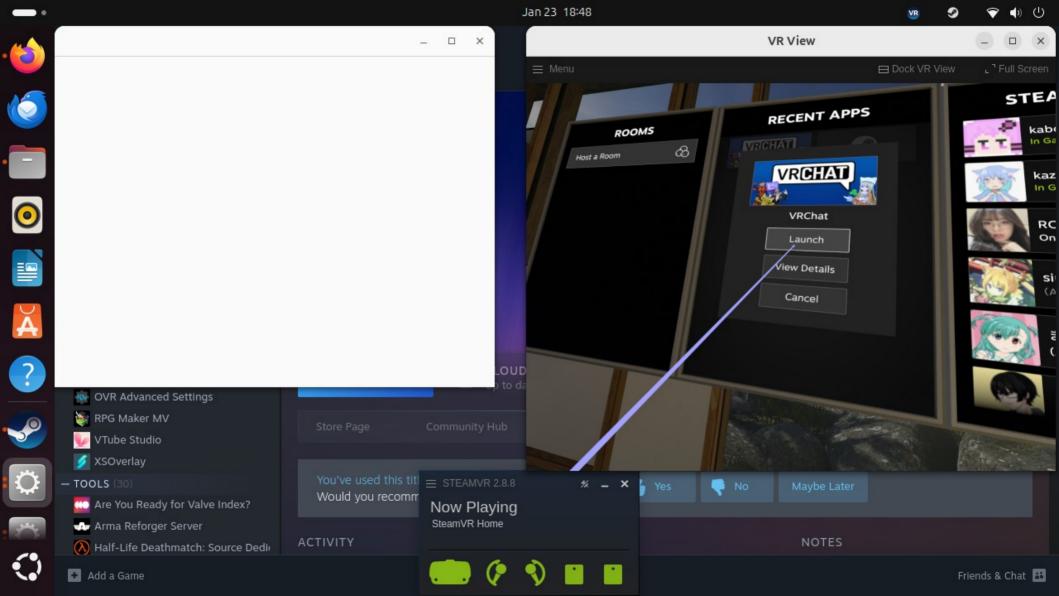


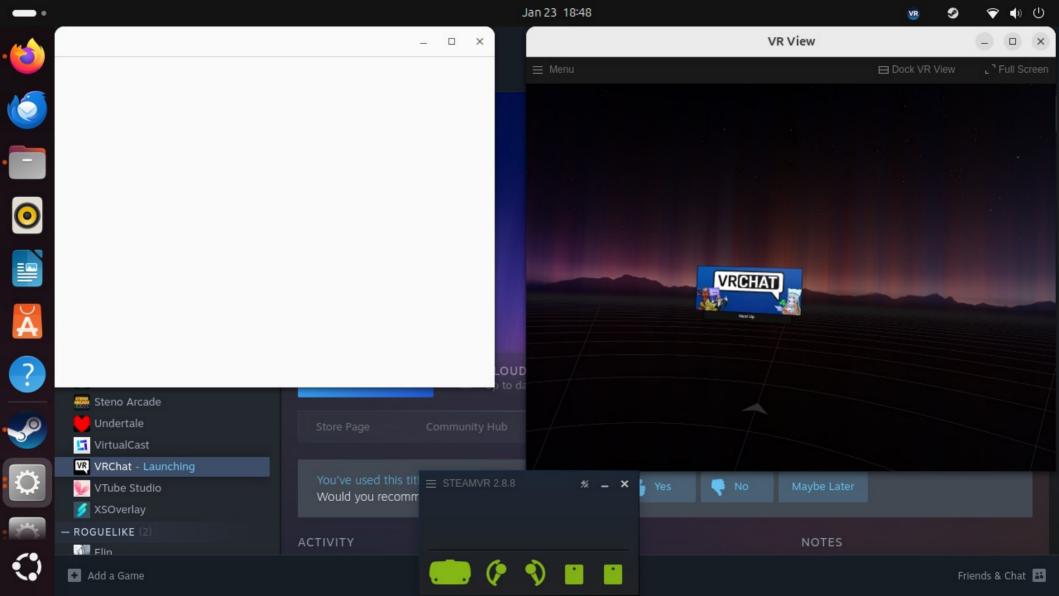


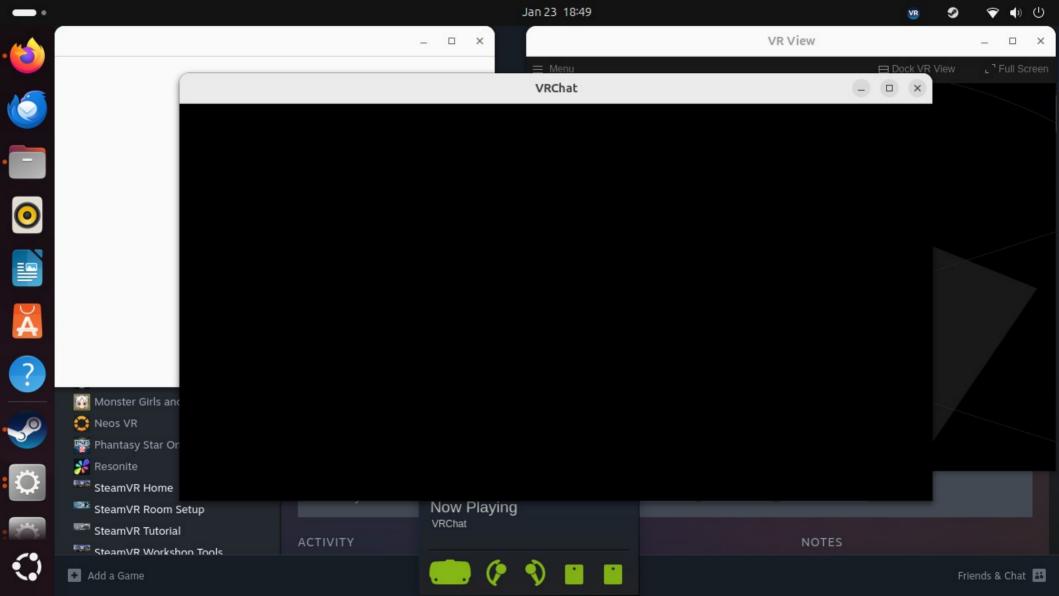


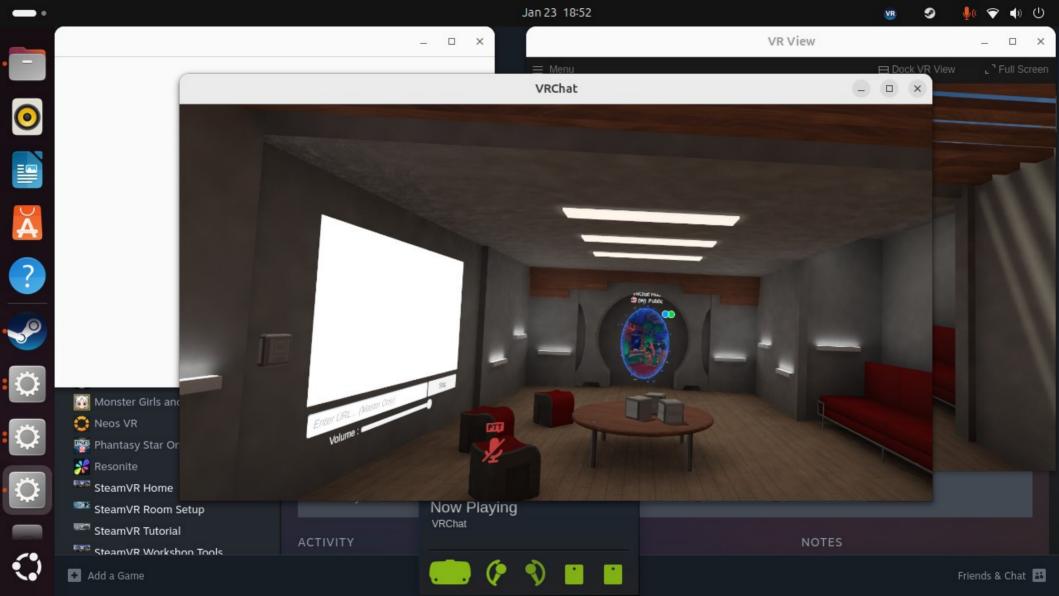


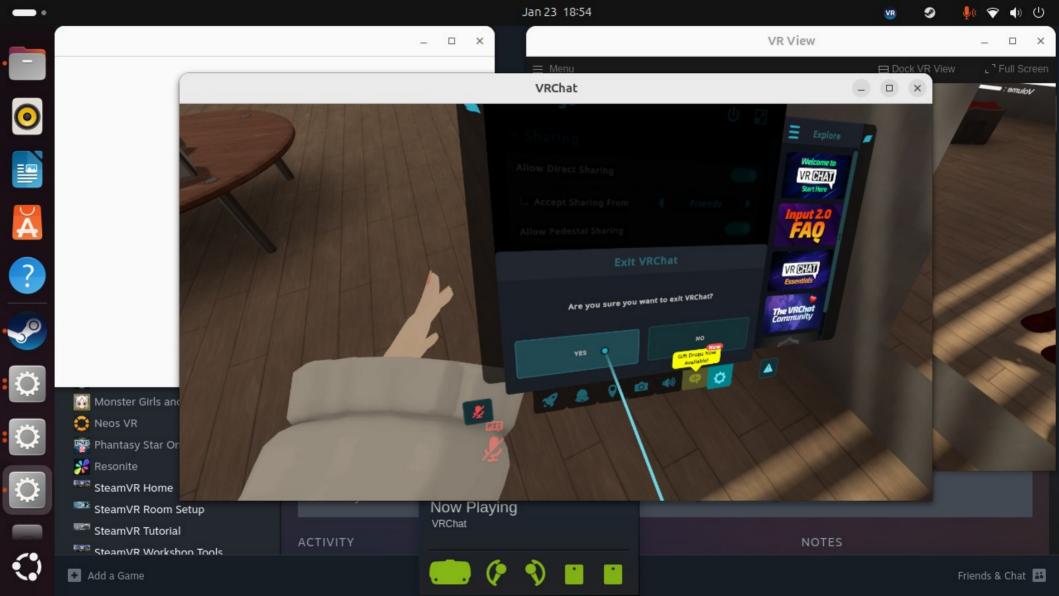


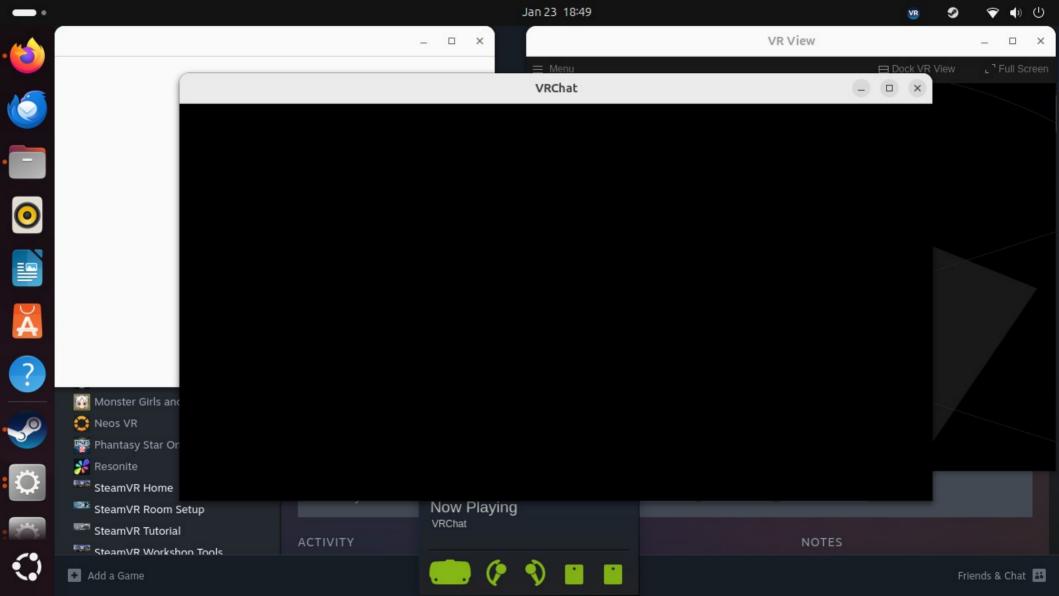




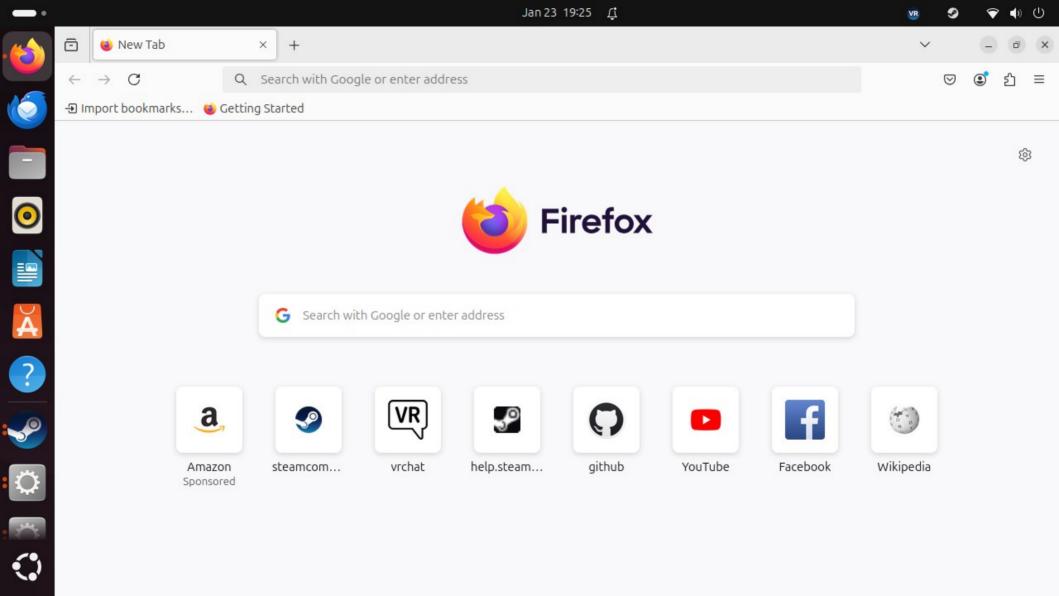


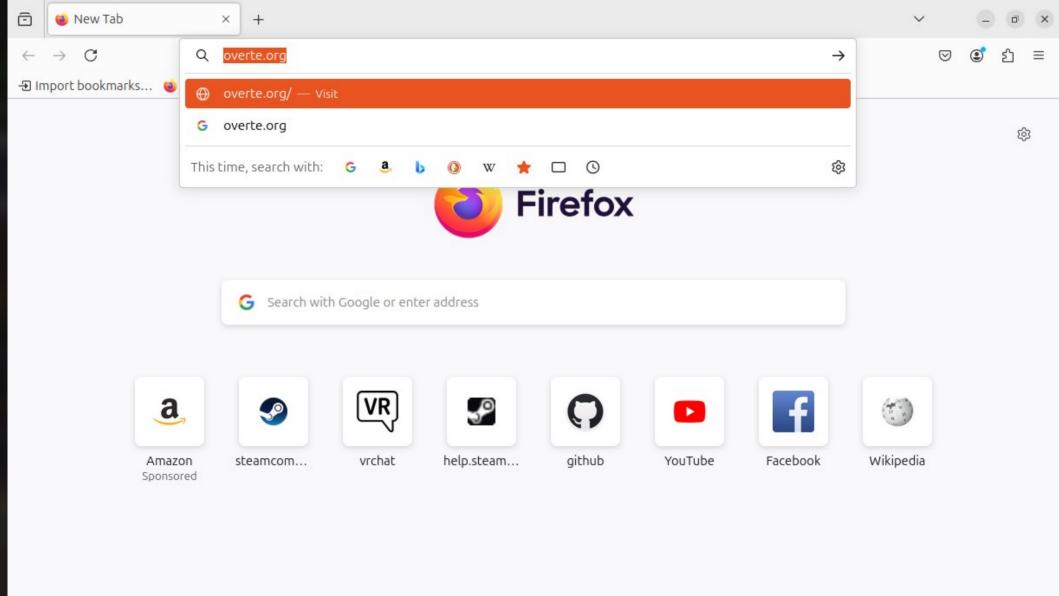


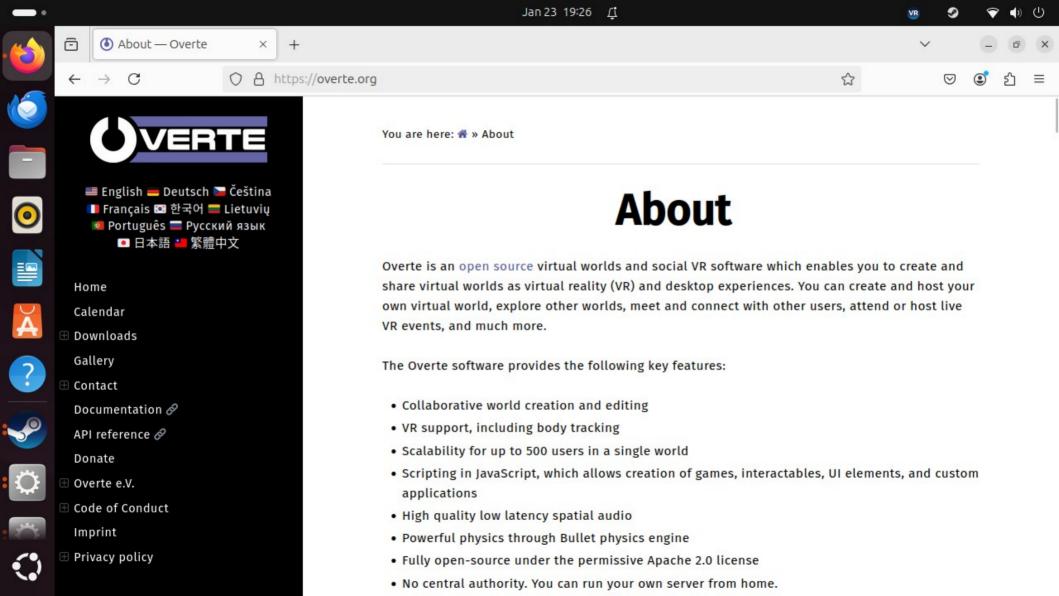


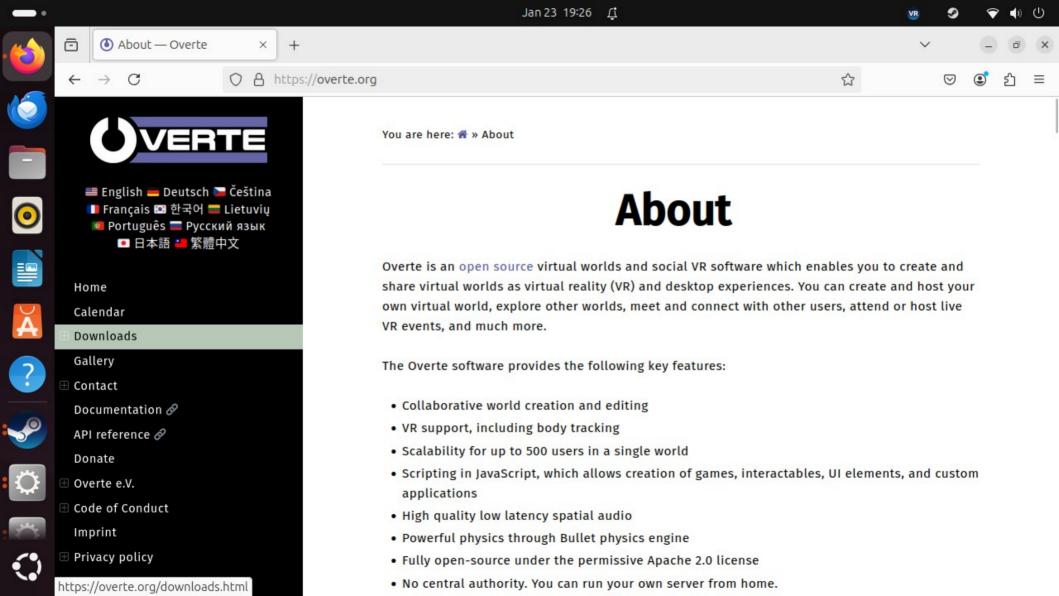


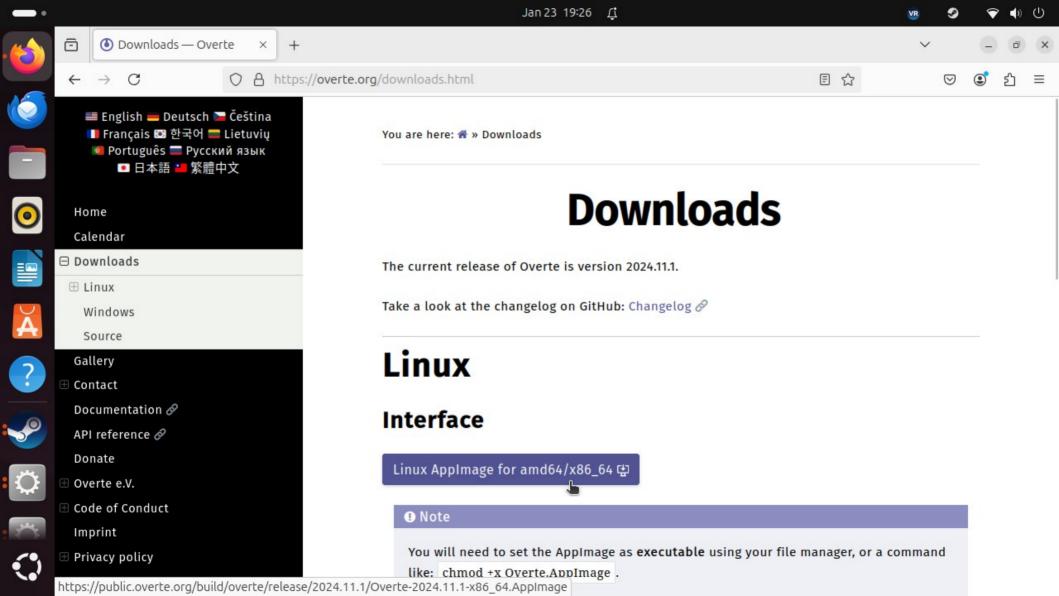


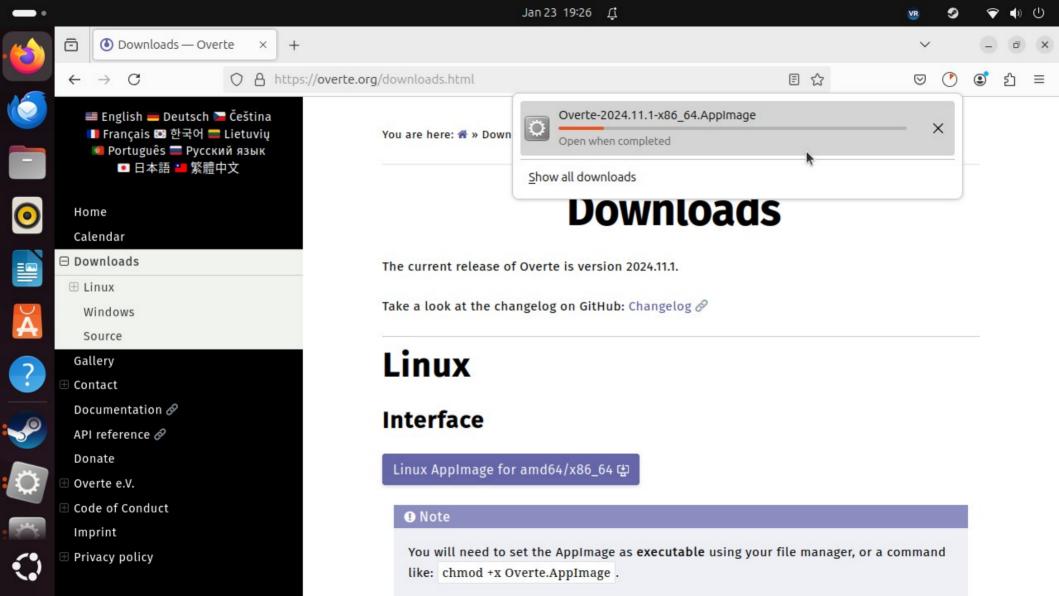


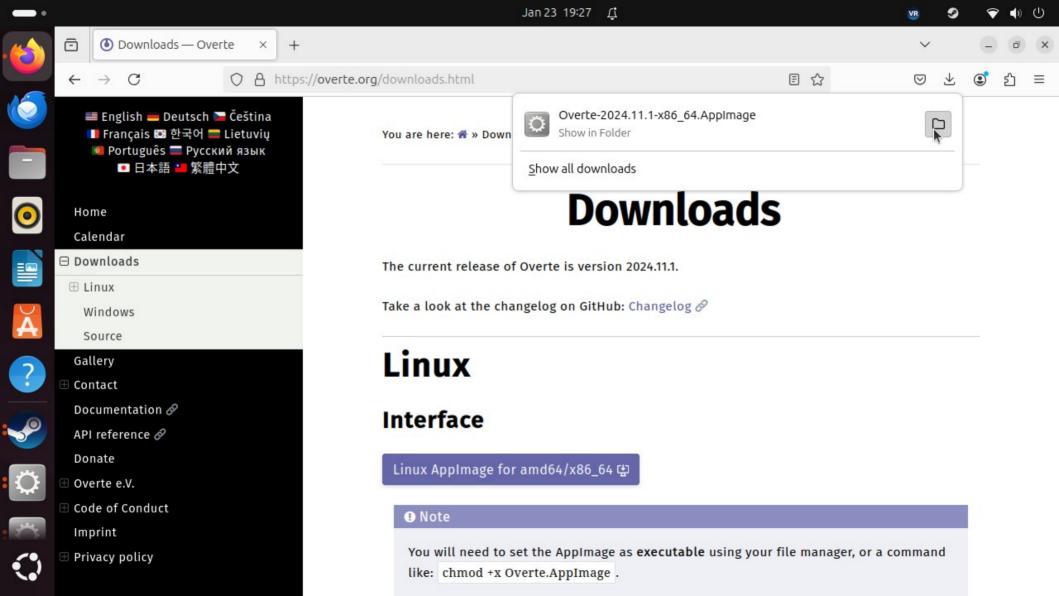


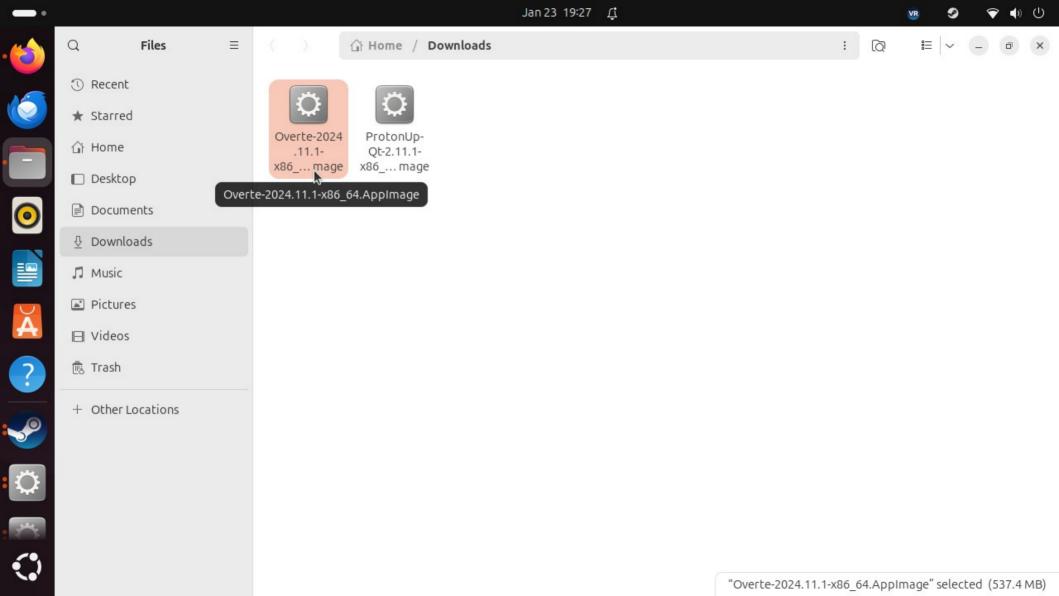


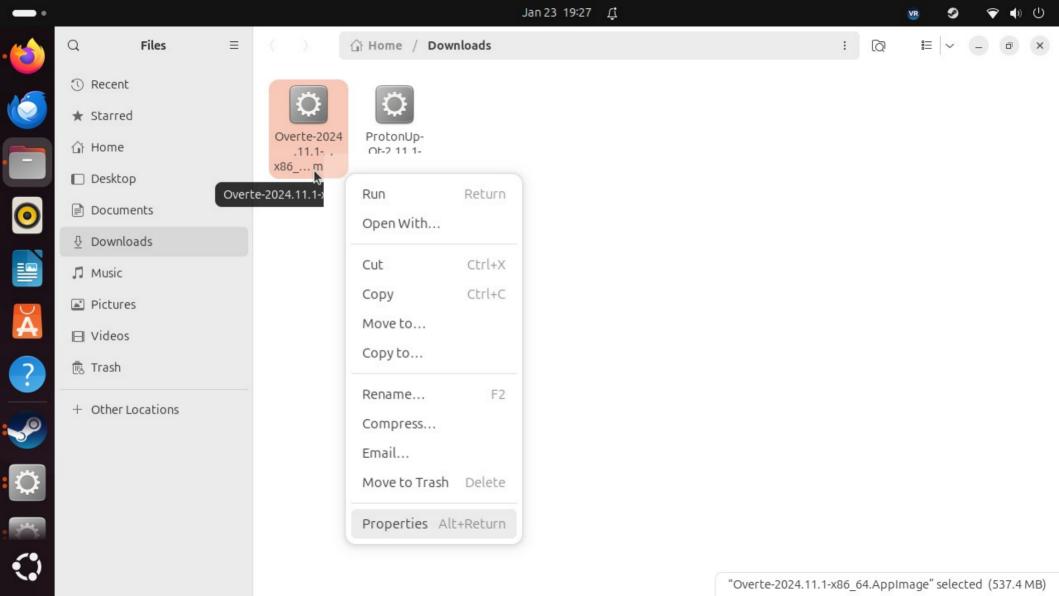




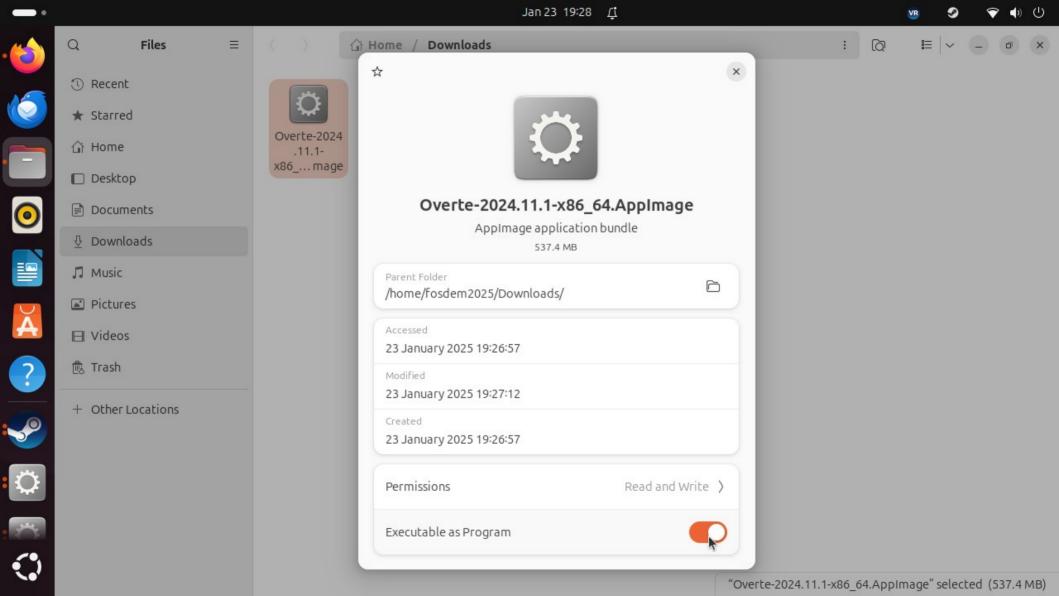


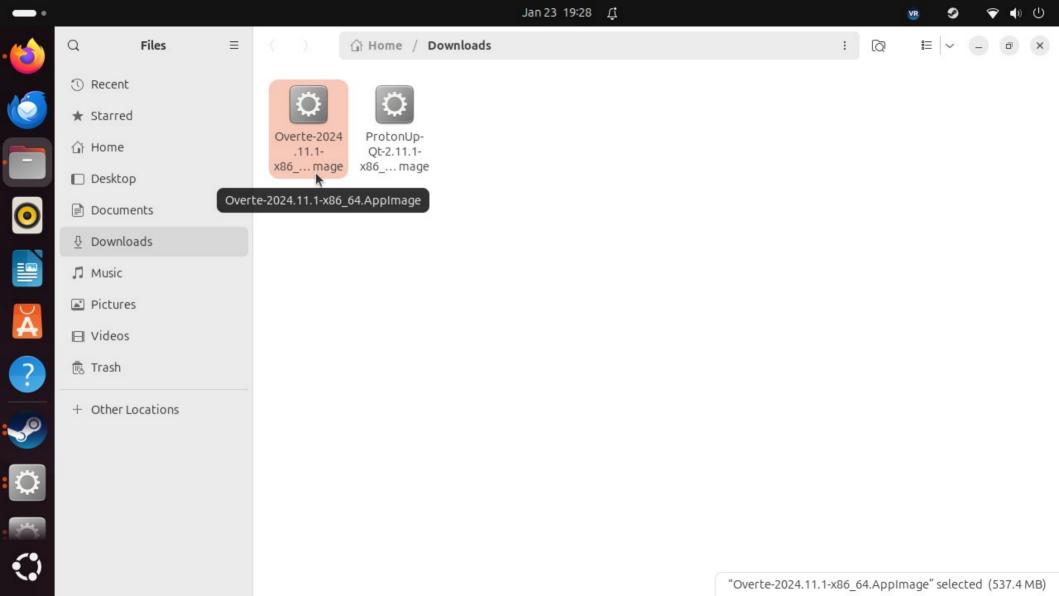


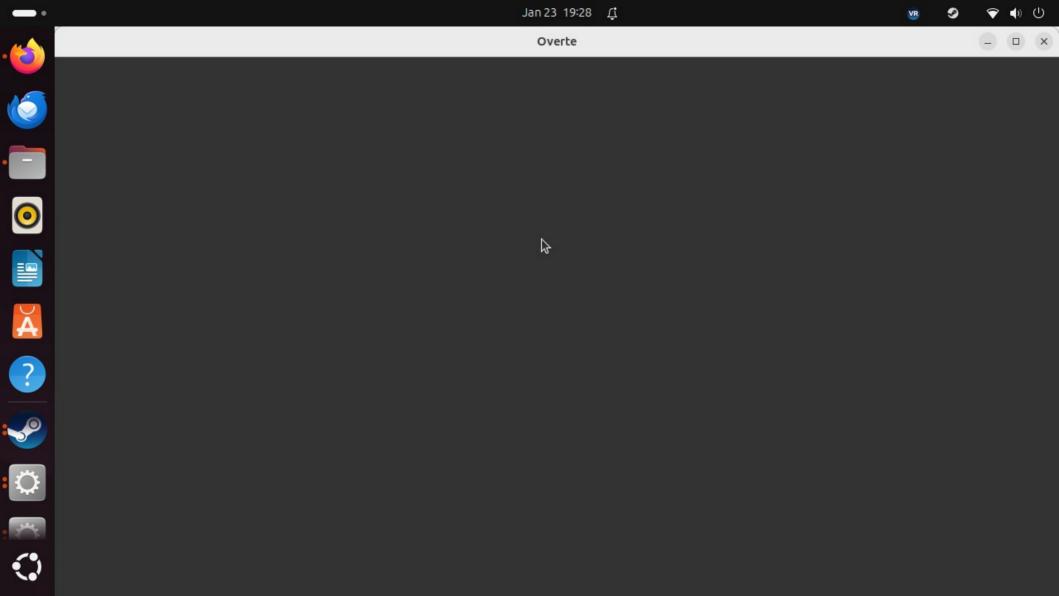


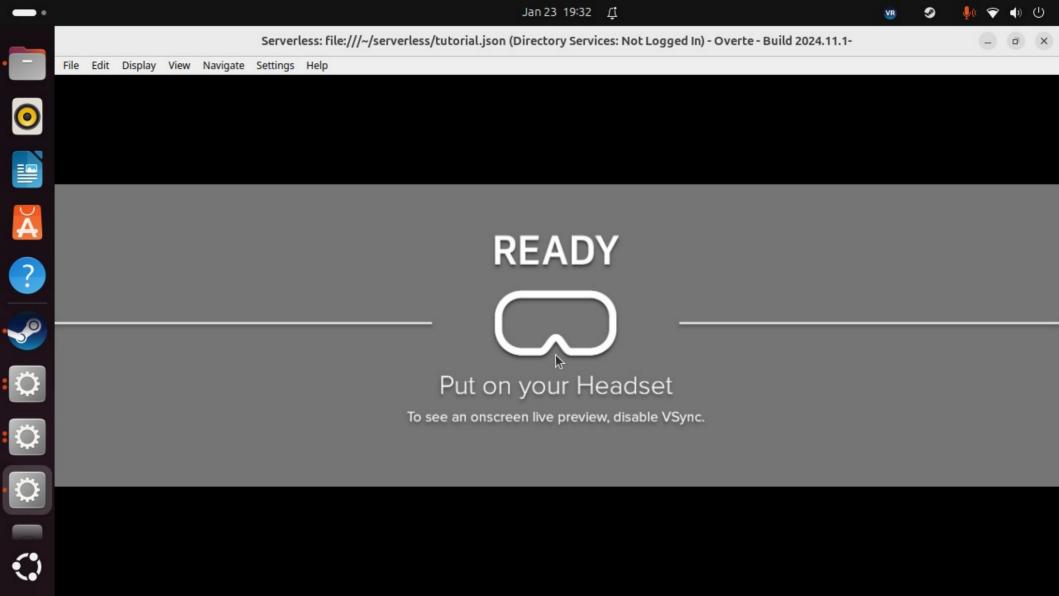




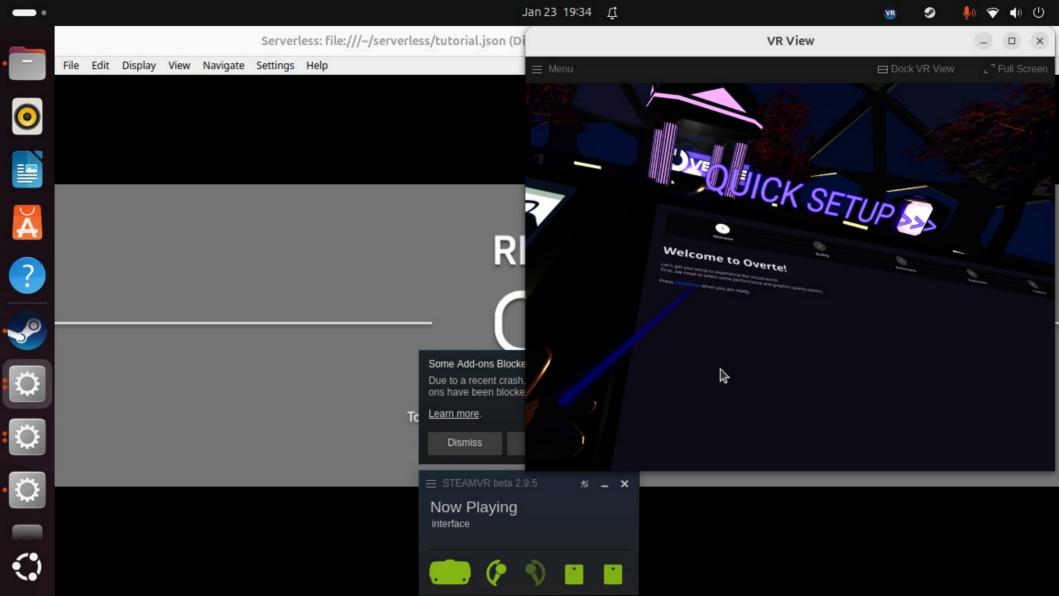












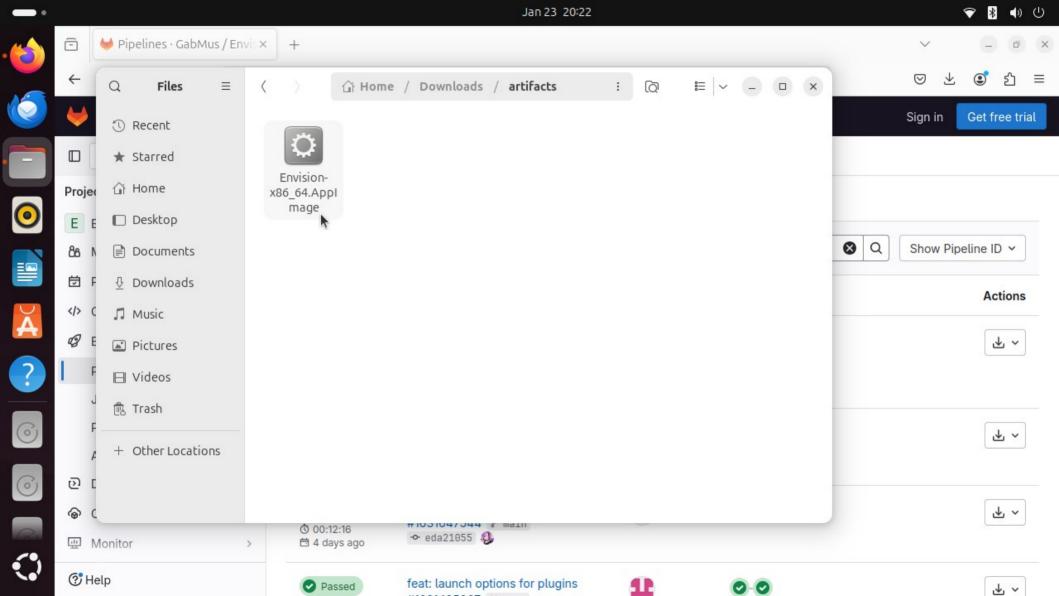


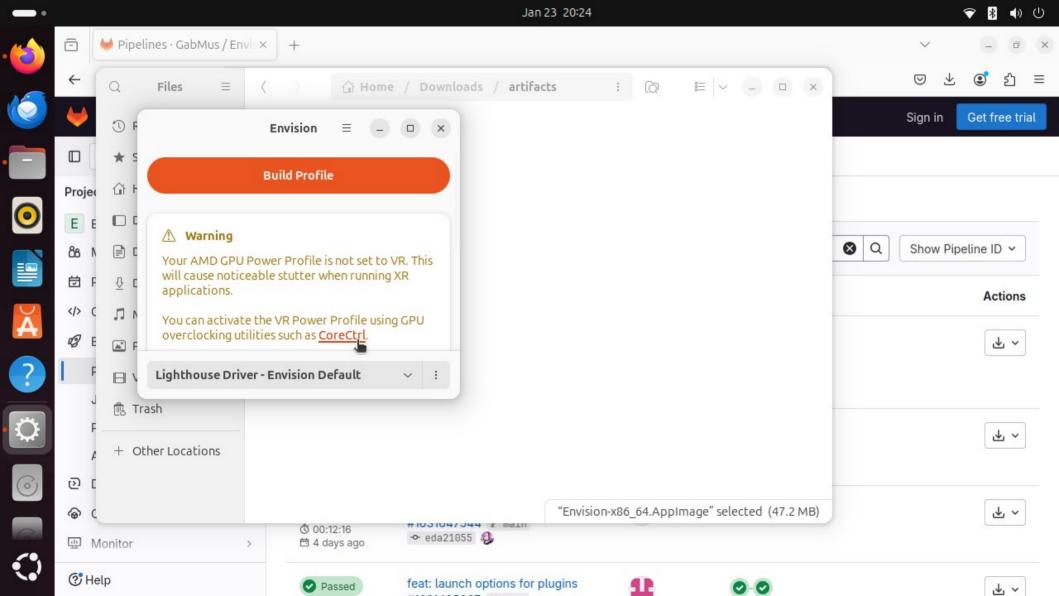


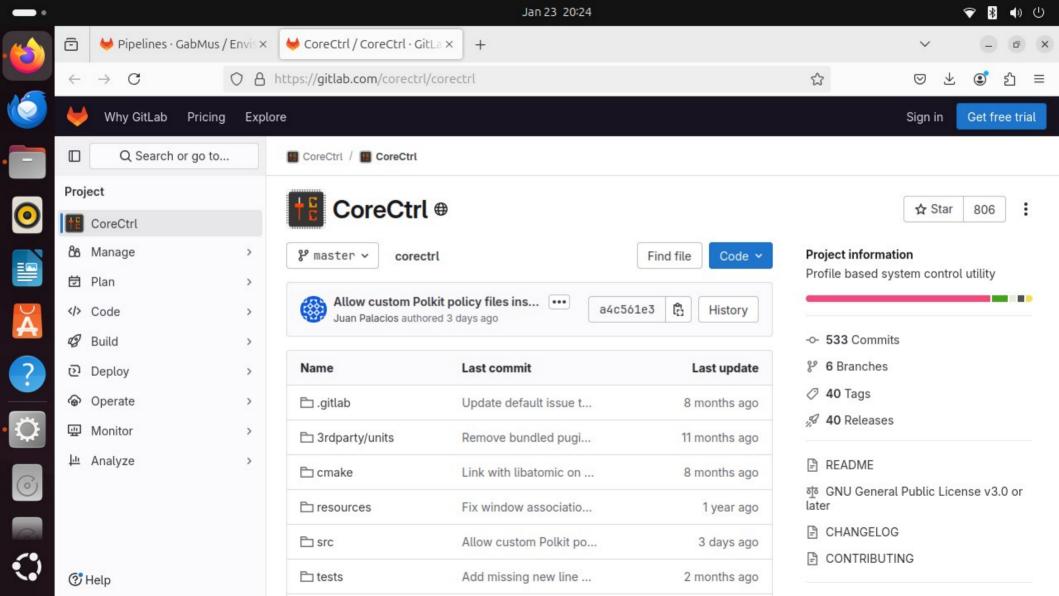


## Beginner's Guide on How to Join Events in VR from Ubuntu

- 1. UPDATE YOUR SYSTEM **AMD GPU** → ppa:kisak/kisak-mesa 2. Install Graphic Drivers & Install CoreCtrl 3. Upgrade All Drivers **NVIDIA GPU** 4. Install Steam - installer → ppa:graphics-drivers/ppa 5. Install Proton-GE i. Enable Steam Play 6. Install Envision Set Default to Proton-Experimental 7. Install Wlx-Overlay-S ii. Set Interface to Steam Beta
- 8. Start Envision, then Wlx-Overlay-S, and then your OpenXR App/Game







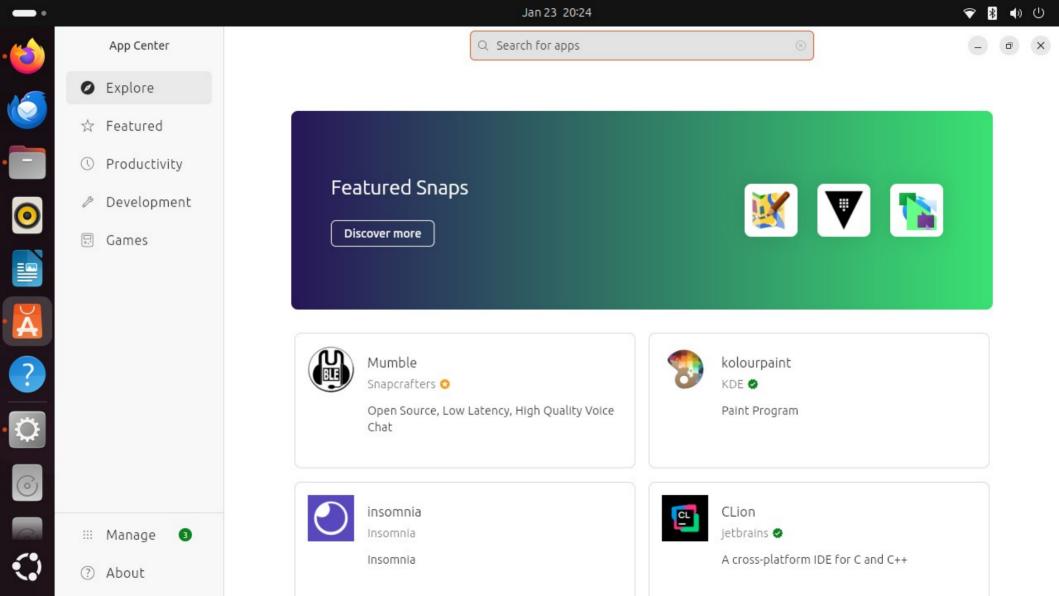


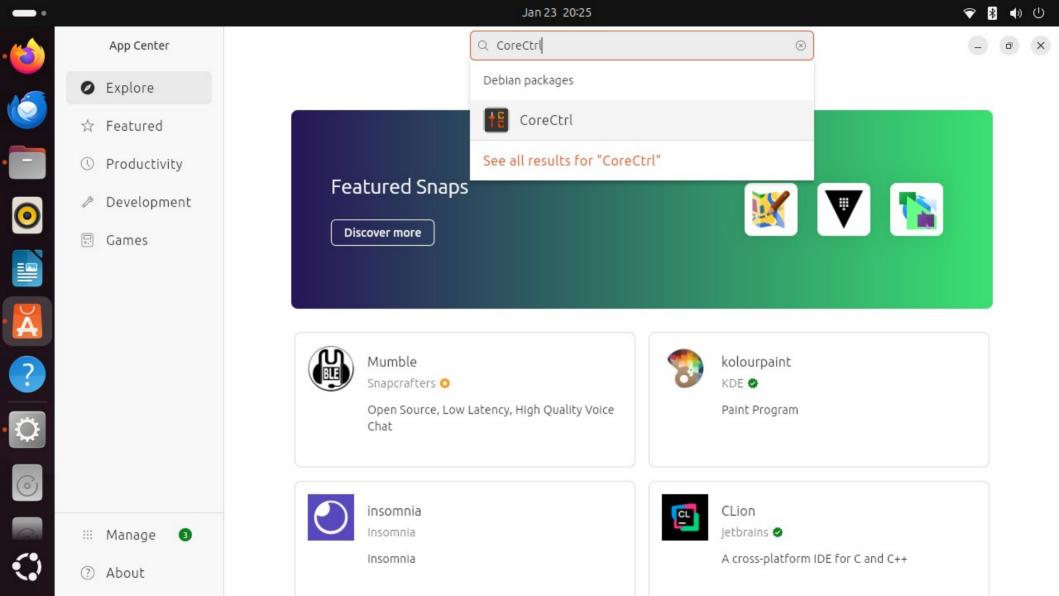


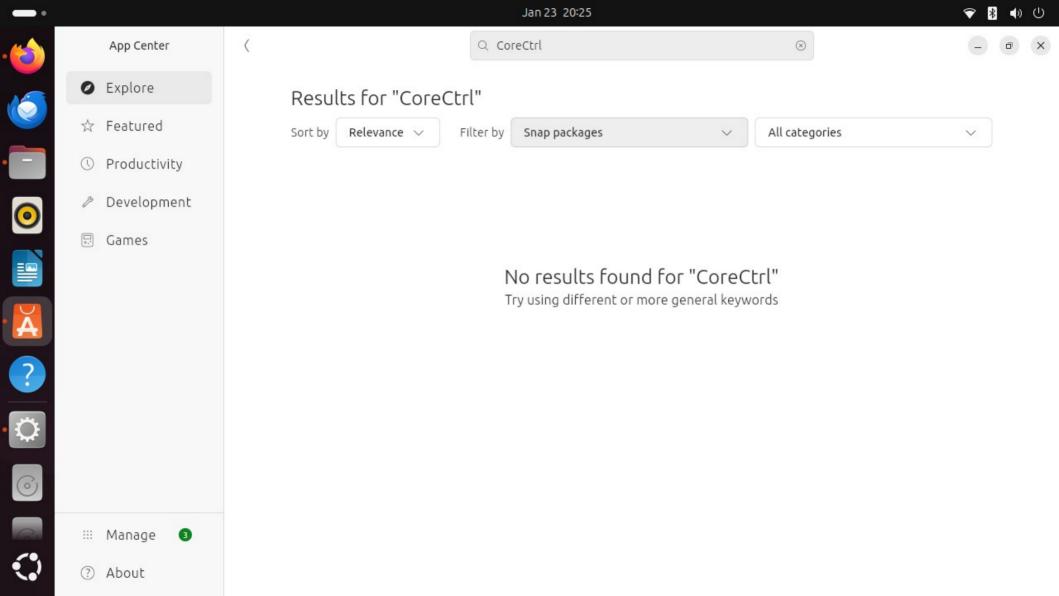
## What is CoreCtrl? (for AMD GPU Users Only)

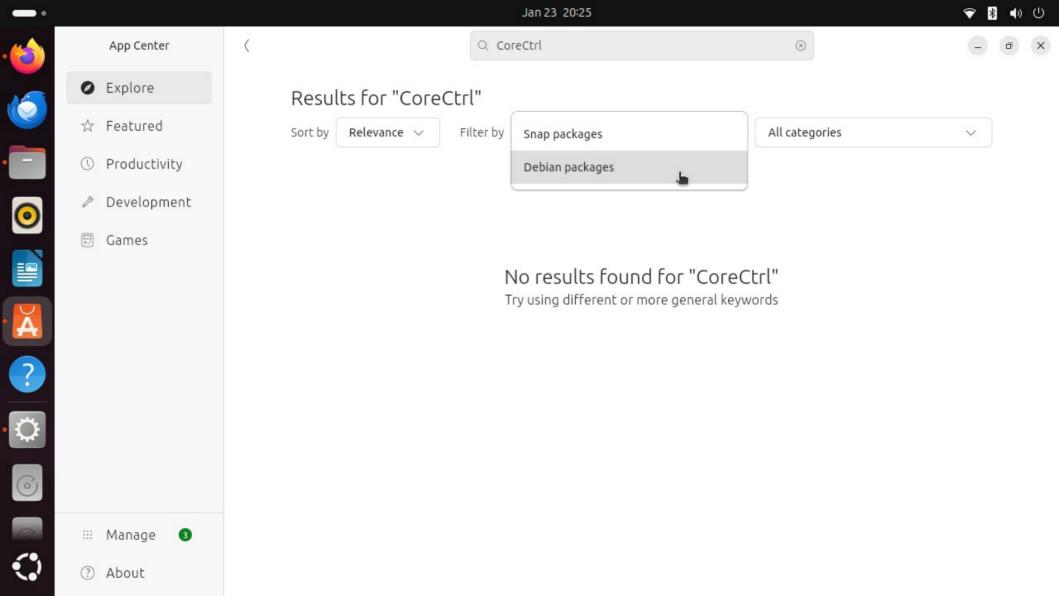
- ▶ Open Source System Management Tool
- ▶ Manages GPU and CPU Power and Performance via GUI
- ▶ For playing VR on AMD GPU
  - ▶ Performance must be set to "Advanced"
  - ▶ Power profile must be set to "Virtual Reality"

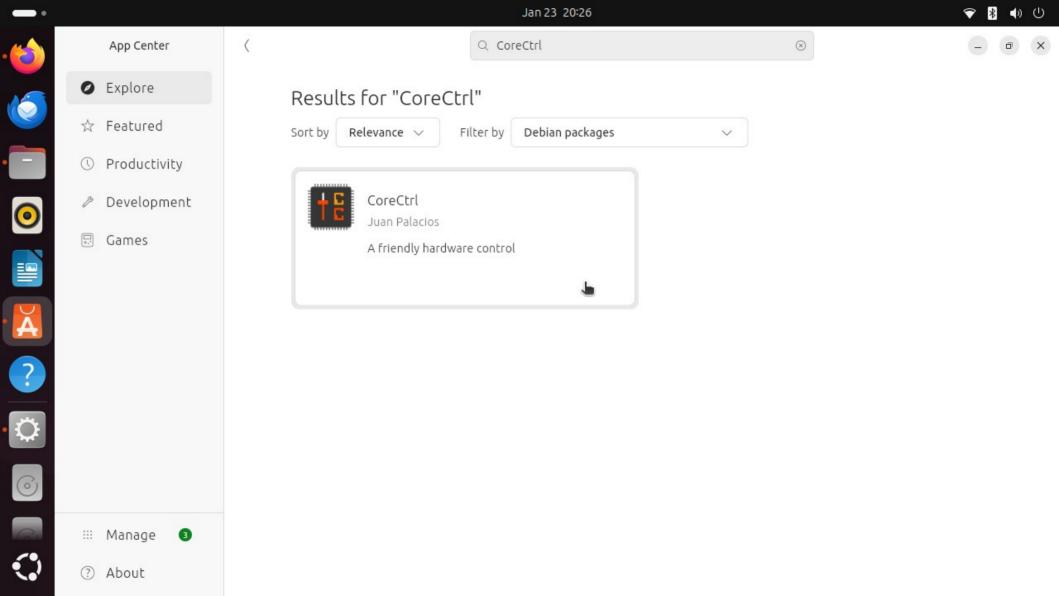


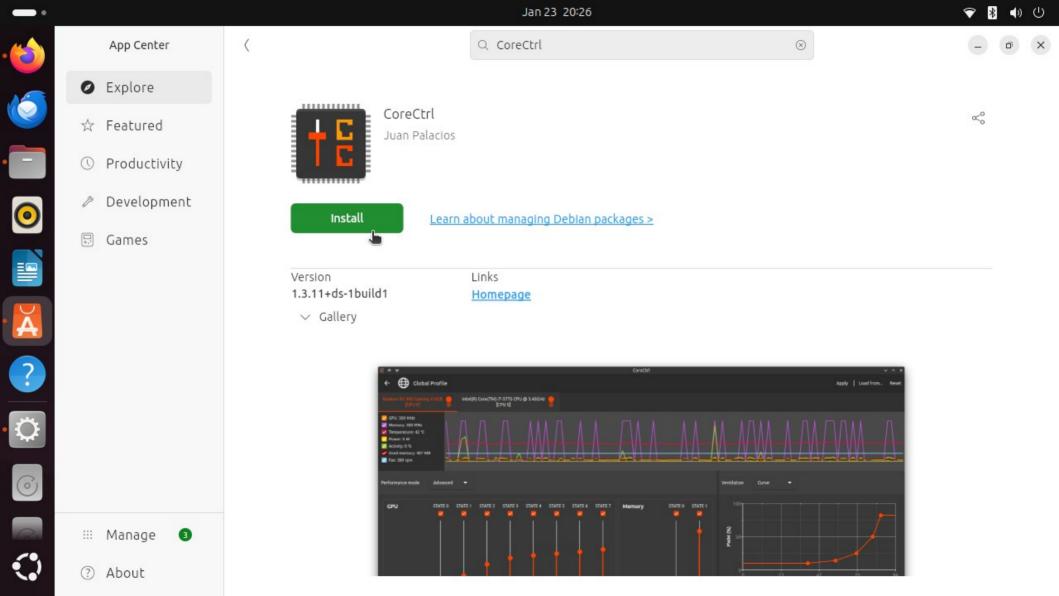


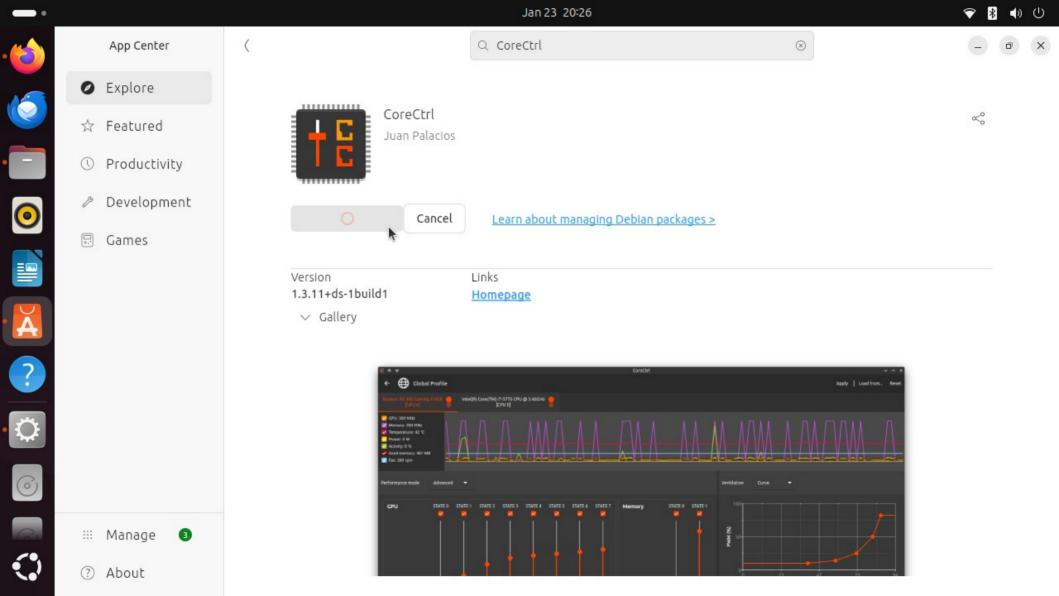


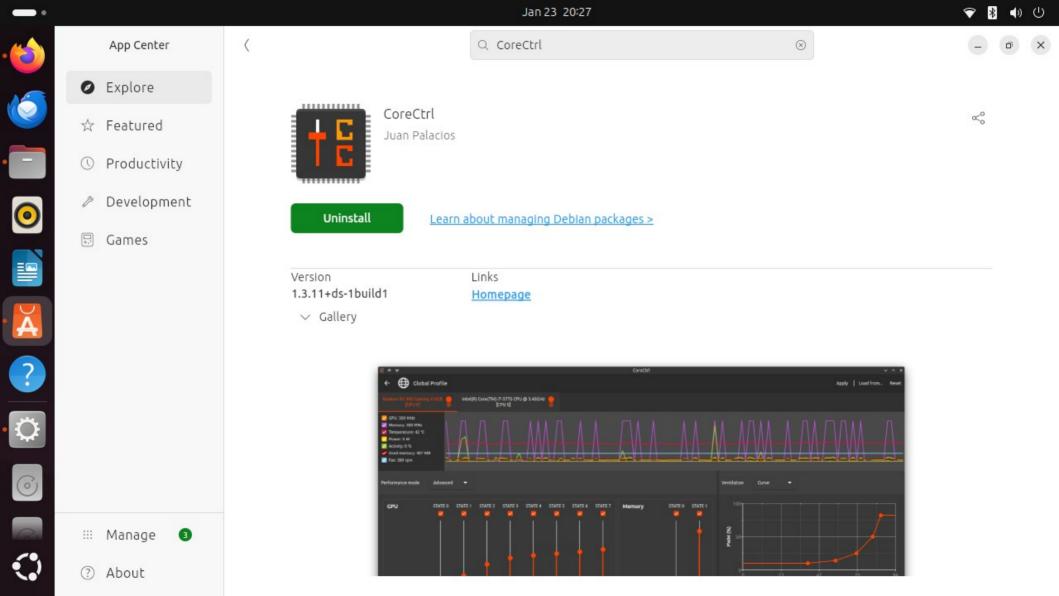


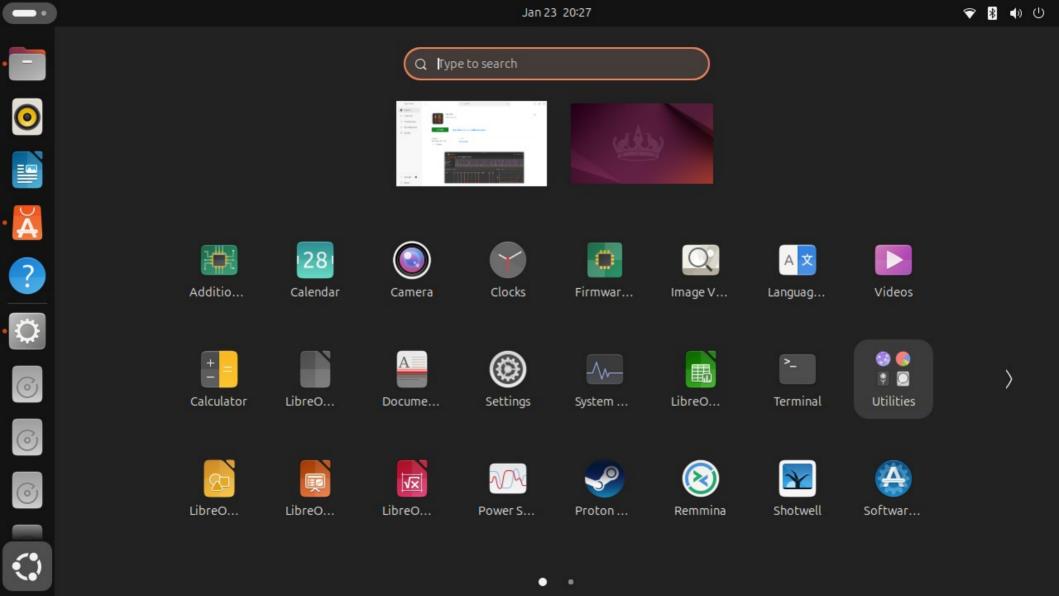


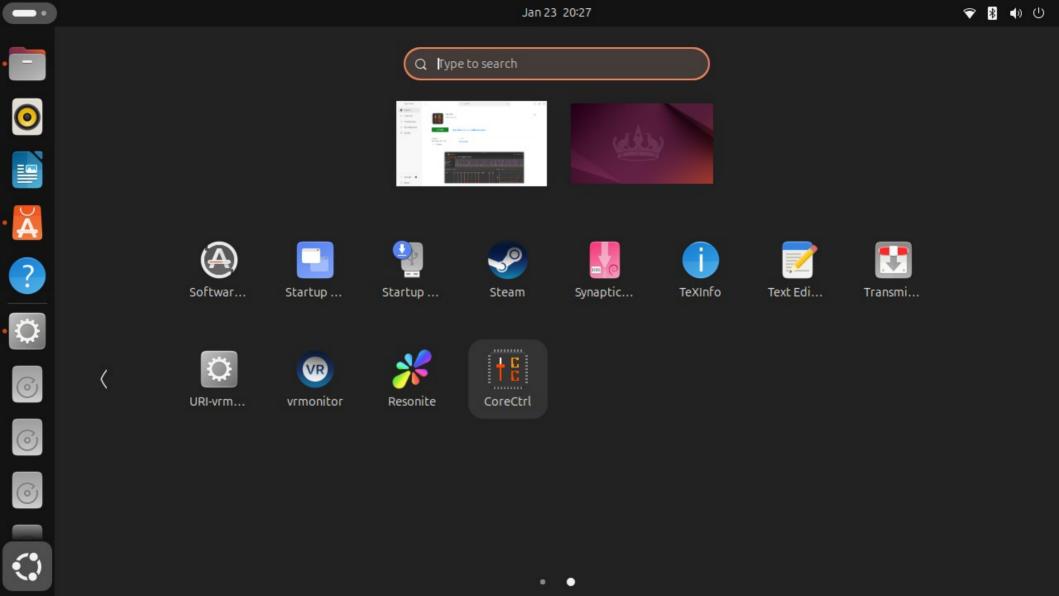


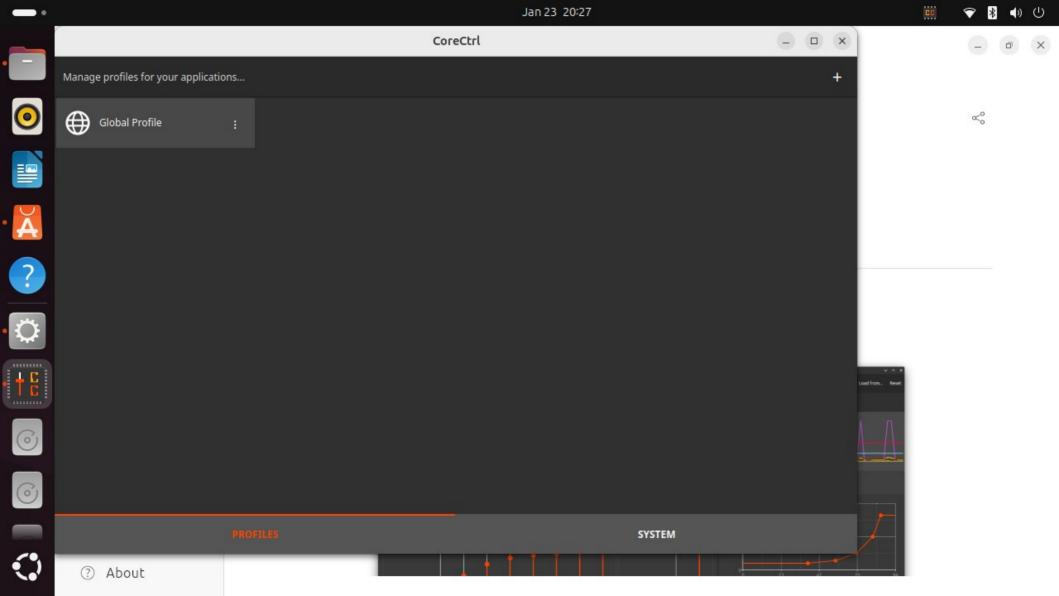


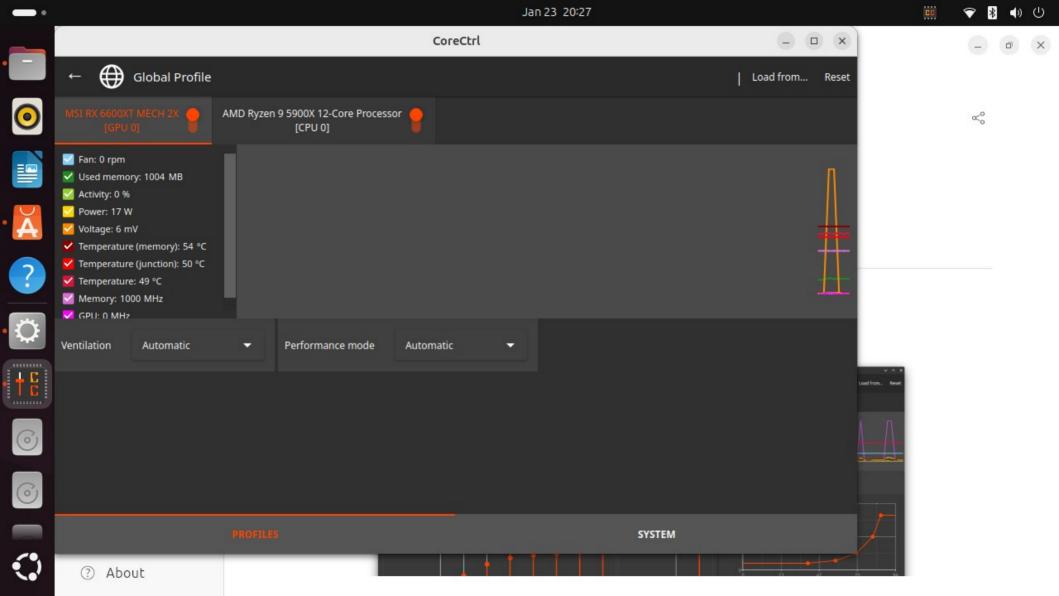


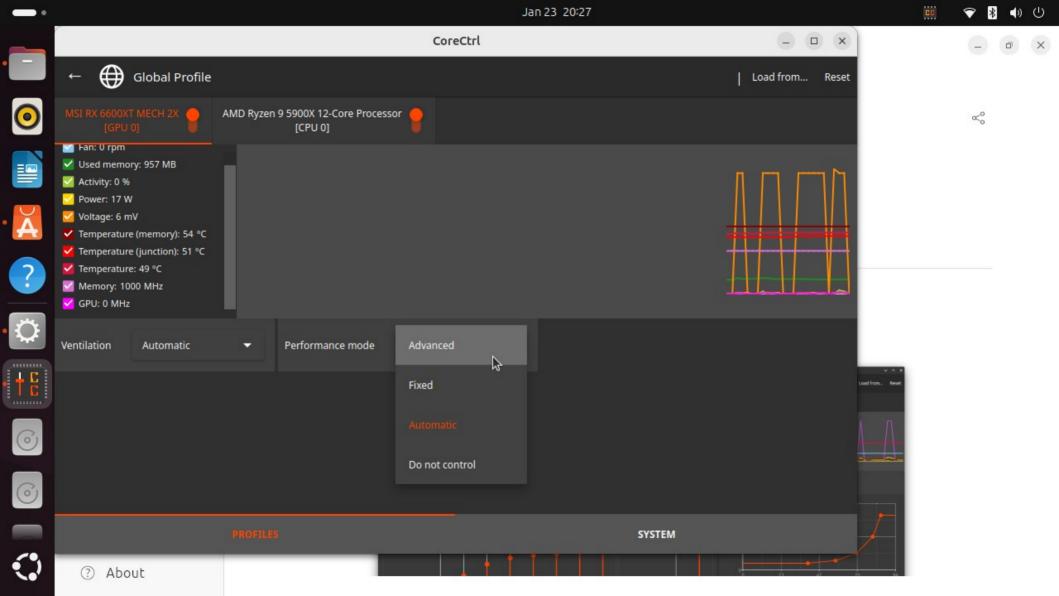


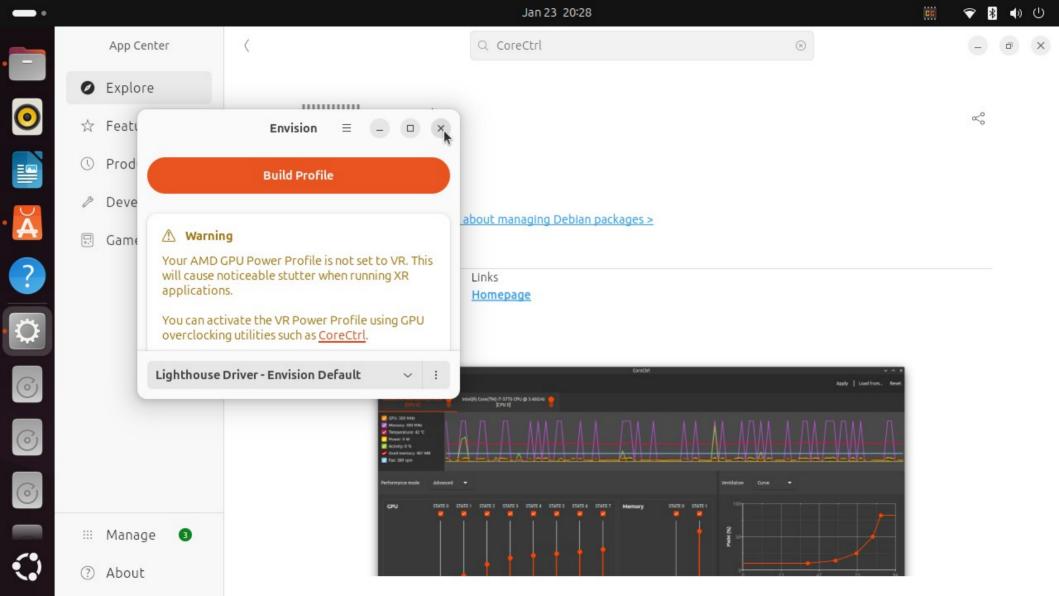


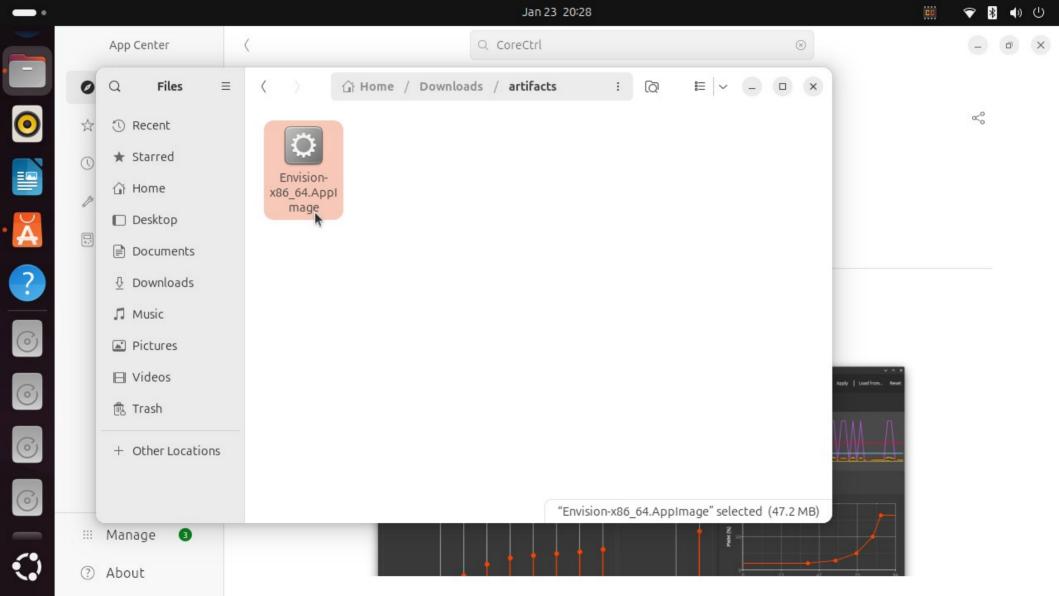


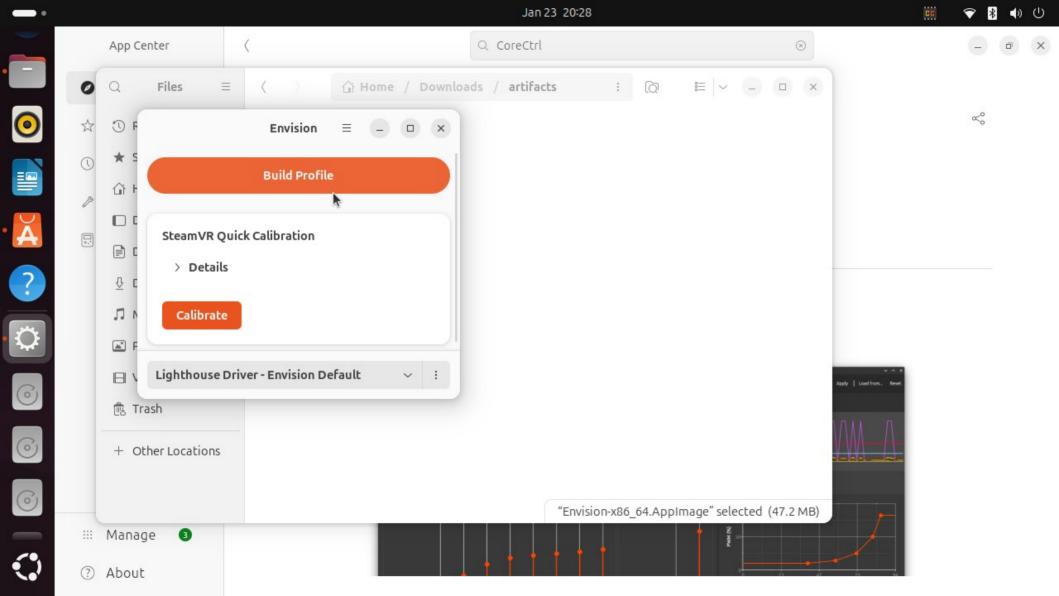


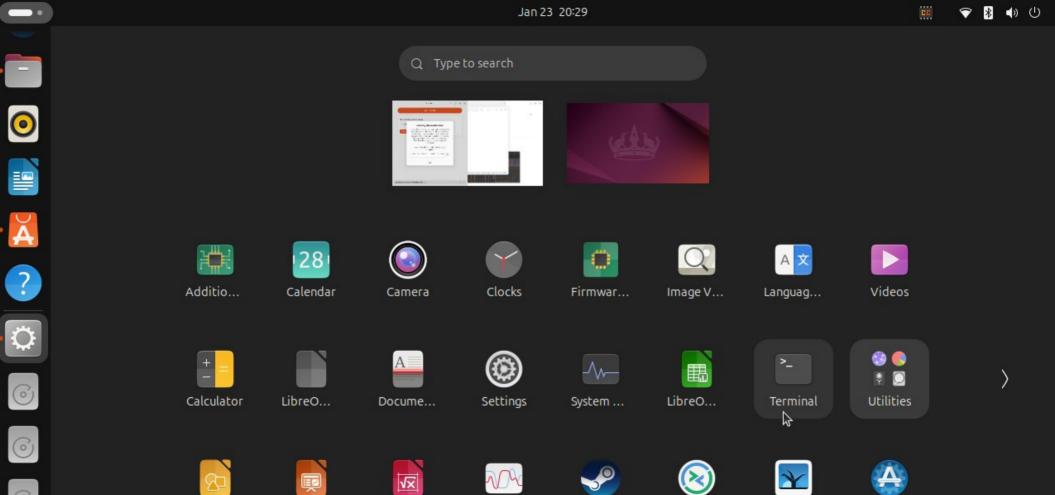


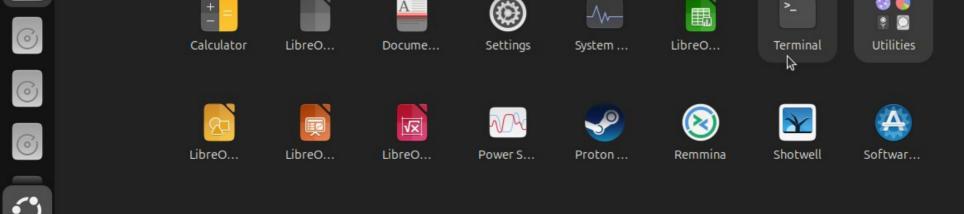


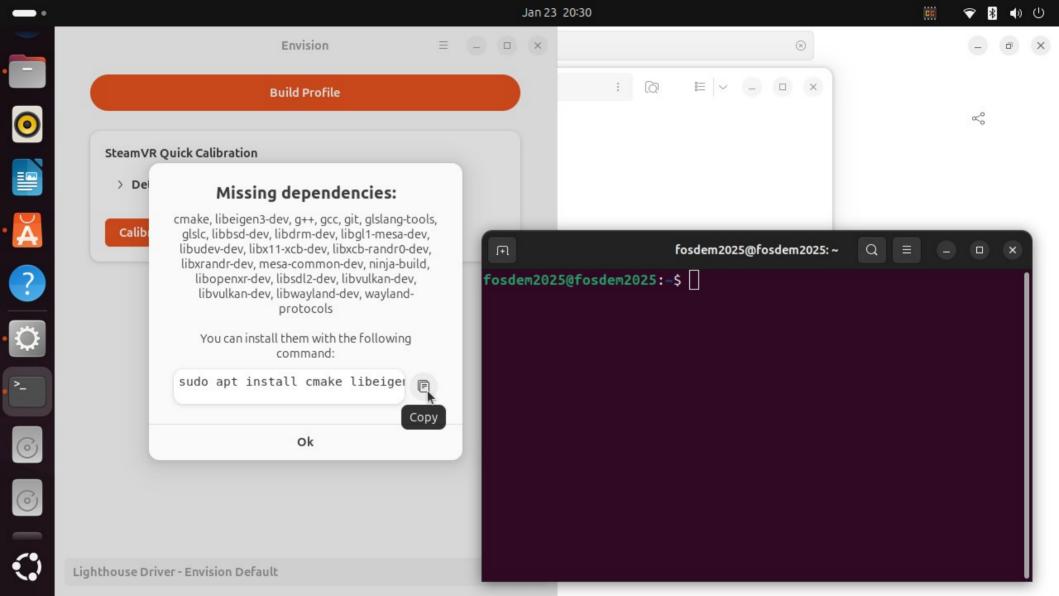


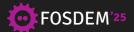














## What does that command do?

## sudo apt install: Install the following packages with superuser privileges:

cmake: A build system generator used to configure and build projects.

ninja-build: A fast build system often used with cmake.

g++: The GNU C++ compiler, used to compile C++ code.

git: Version control system to clone and manage repositories.

libepoxy-dev: For OpenGL binding and runtime support.

libgl1-mesa-dev: Provides OpenGL development libraries.

libvulkan-dev: Provides Vulkan API development support.

libwayland-dev: For developing Wayland-based applications.

wayland-protocols: Protocol definitions for Wayland extensions.

libxcb-randr0-dev and libxrandr-dev: X11 libraries for screen resolution changes and window management.

libx11-xcb-dev: Provides X11 client libraries with XCB support.

libudev-dev: For device management and hardware detection.

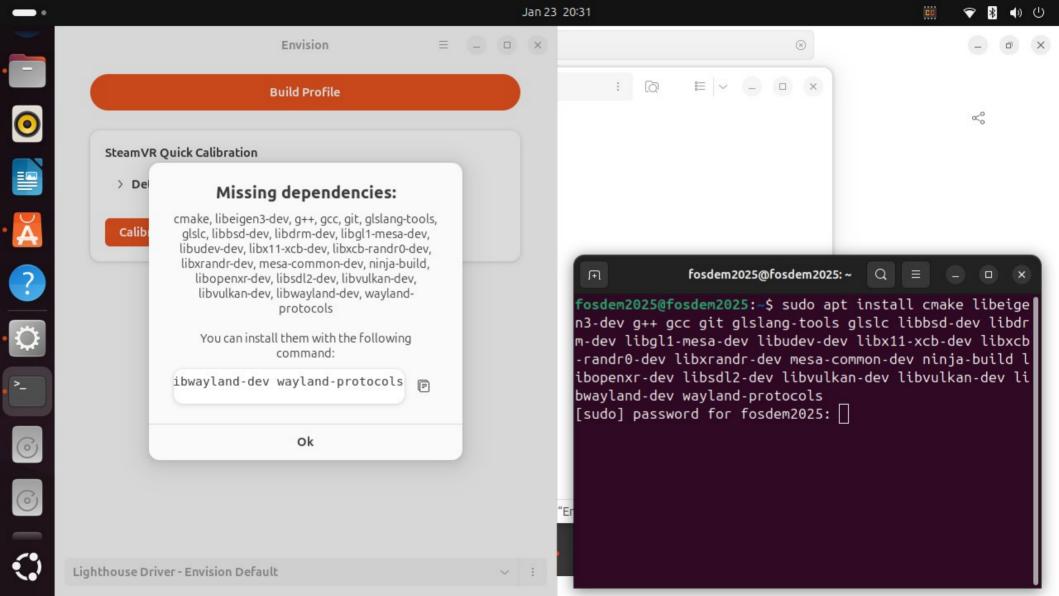
libsdl2-dev: For handling input, audio, and basic 2D graphics in VR applications.

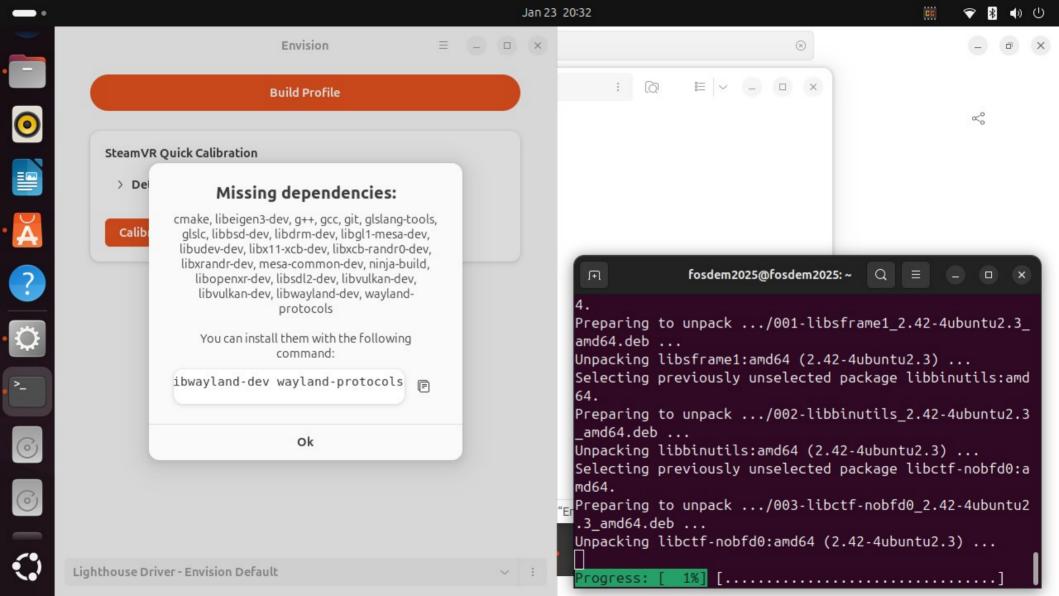
glslang-tools and glslc: Tools for compiling GLSL (OpenGL Shader Language) shaders.

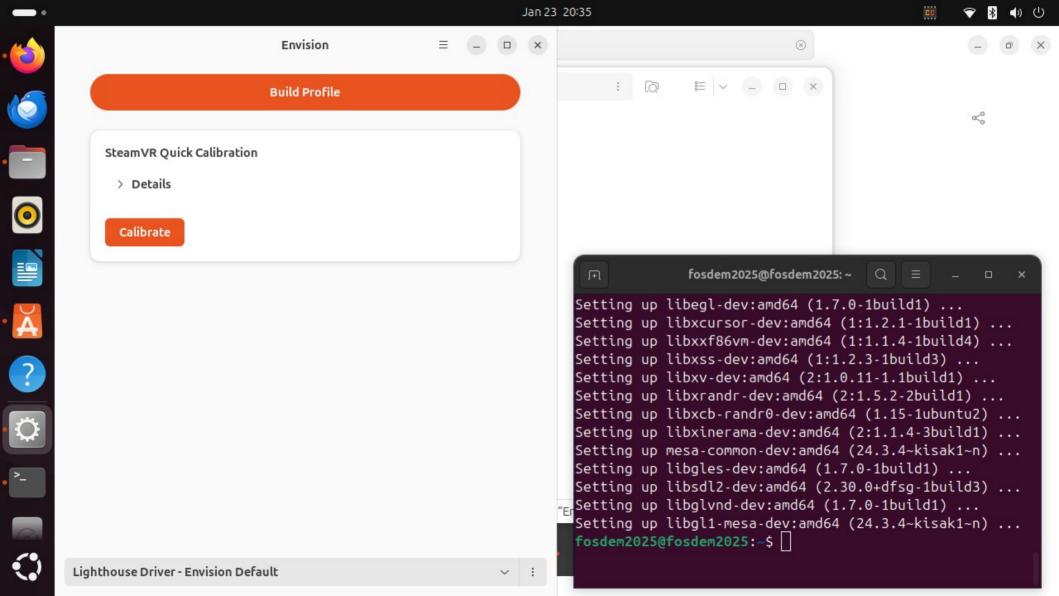
libbsd-dev: Provides functions commonly found in BSD systems.

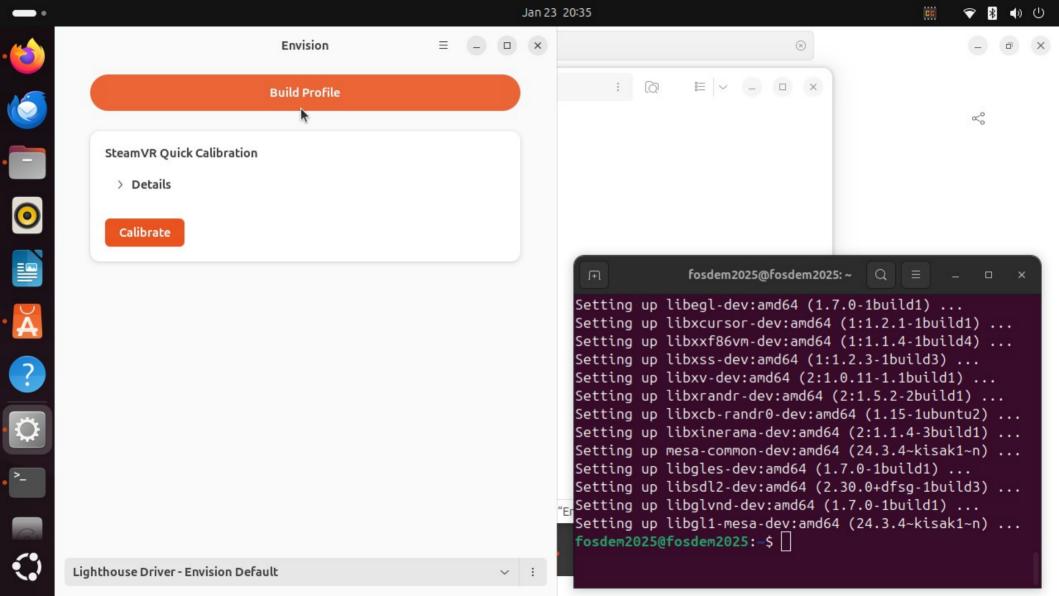
mesa-common-dev: General Mesa libraries for graphics drivers.

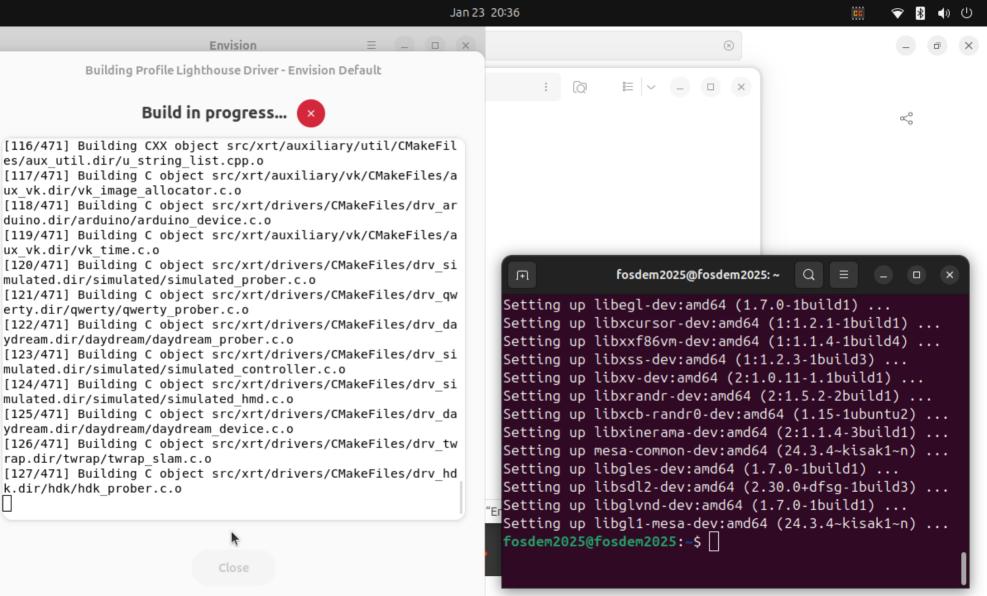
libopenxr-dev: OpenXR development library for creating VR/AR applications.

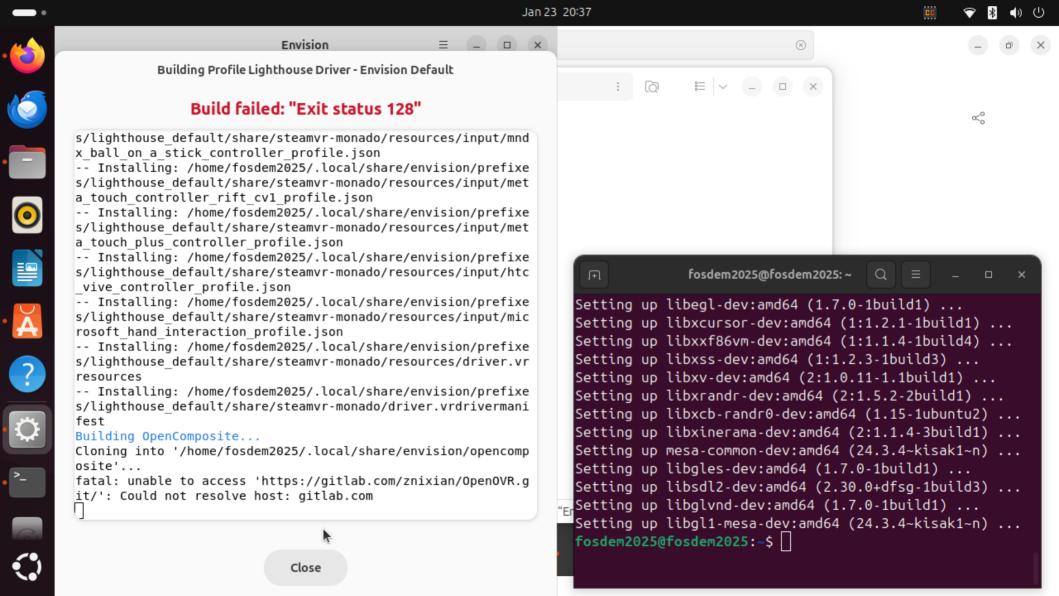


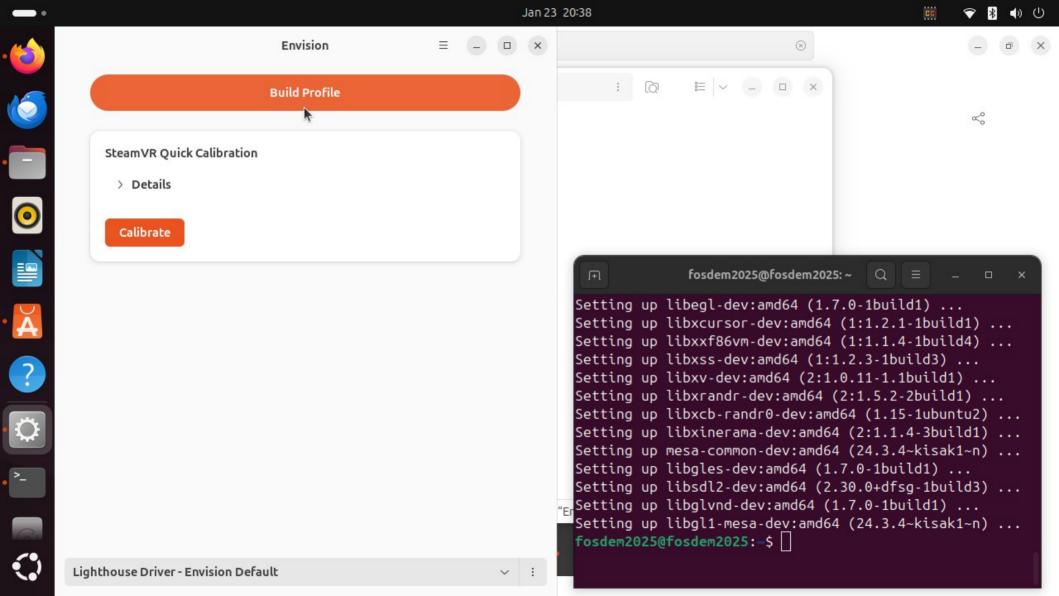


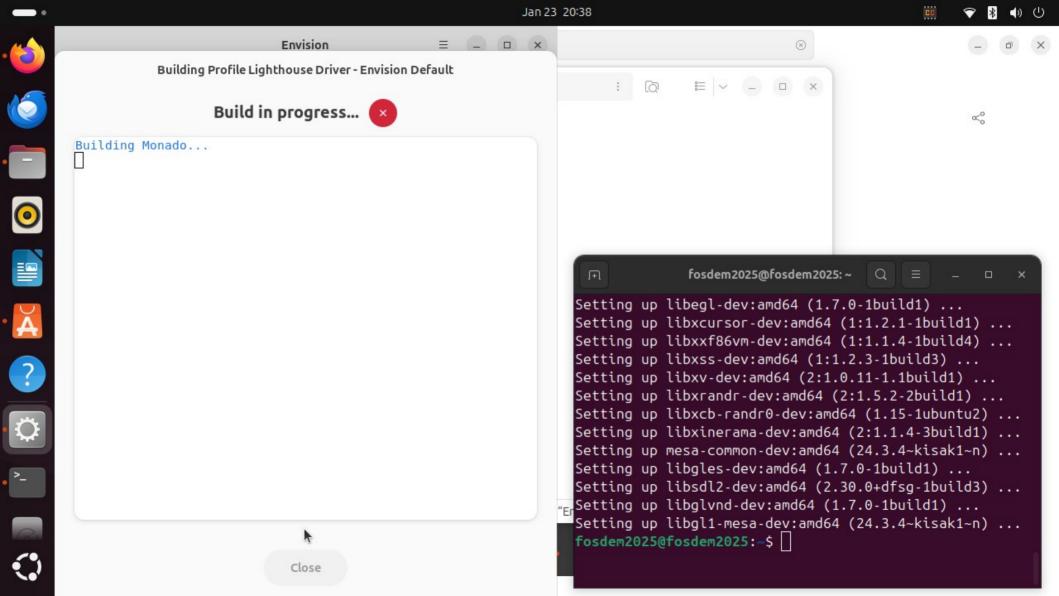


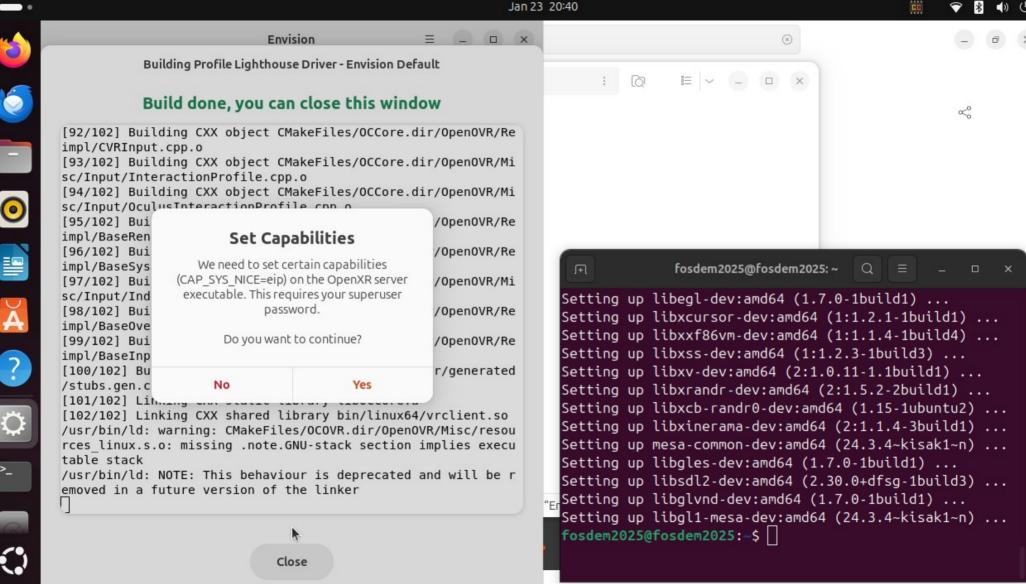


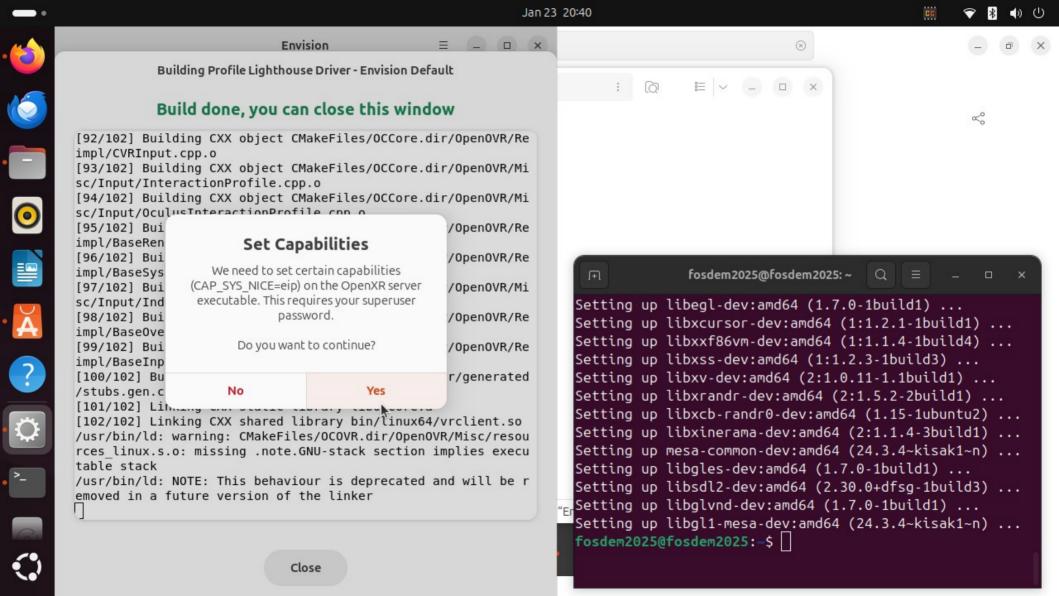


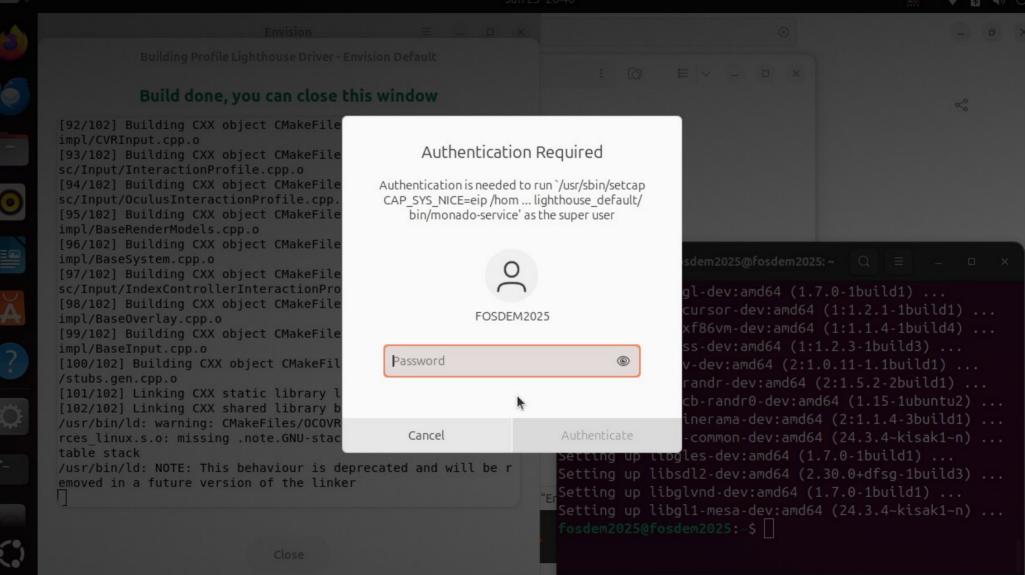


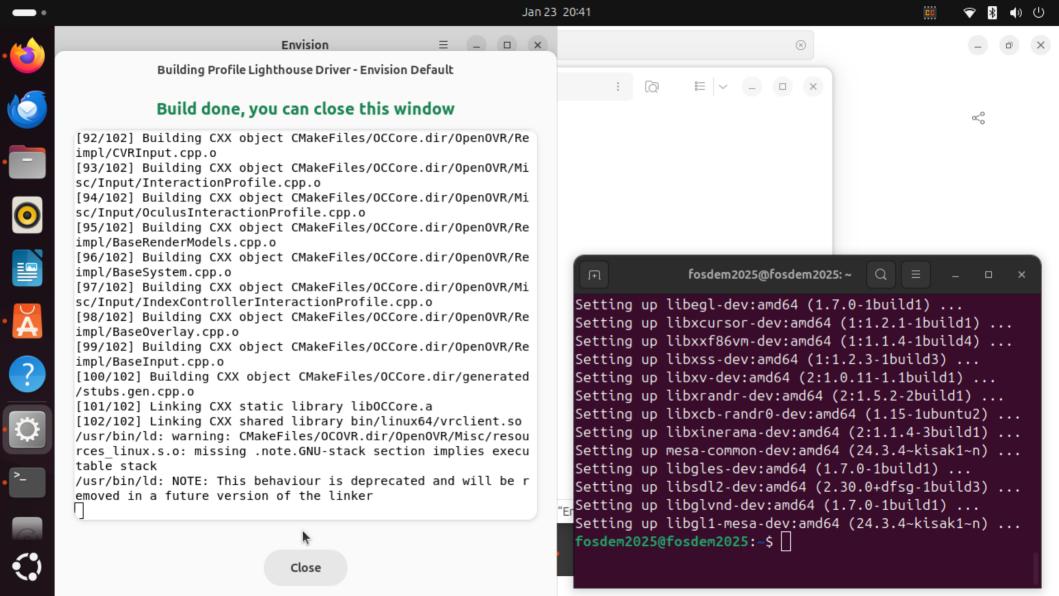


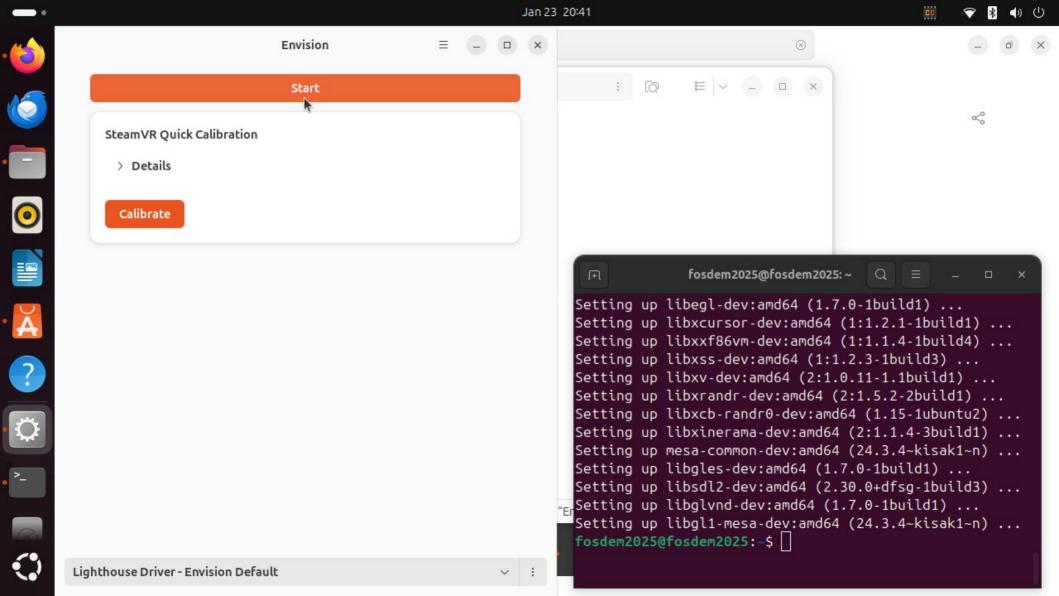


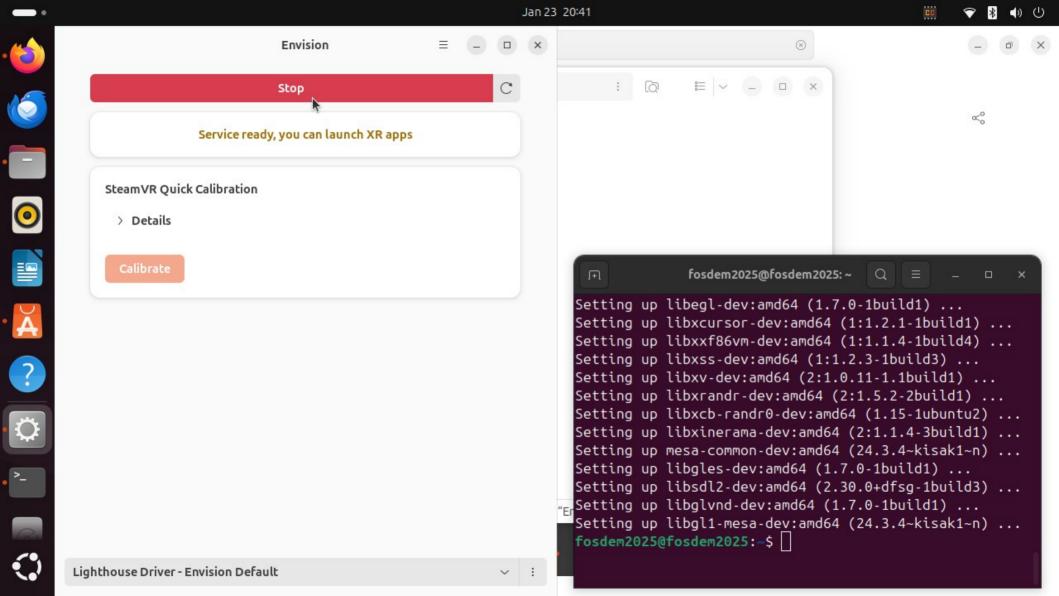


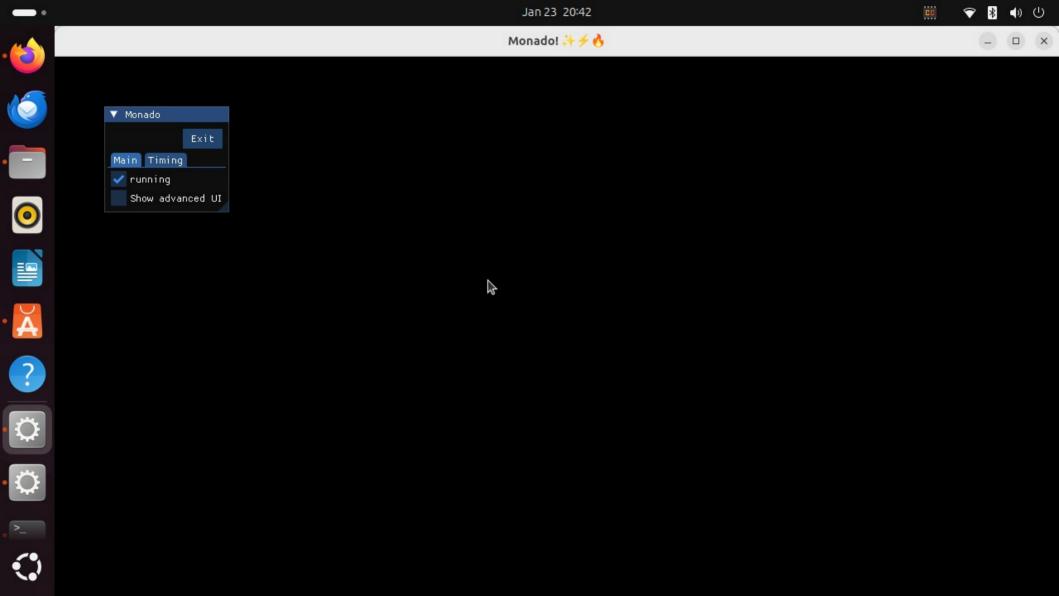




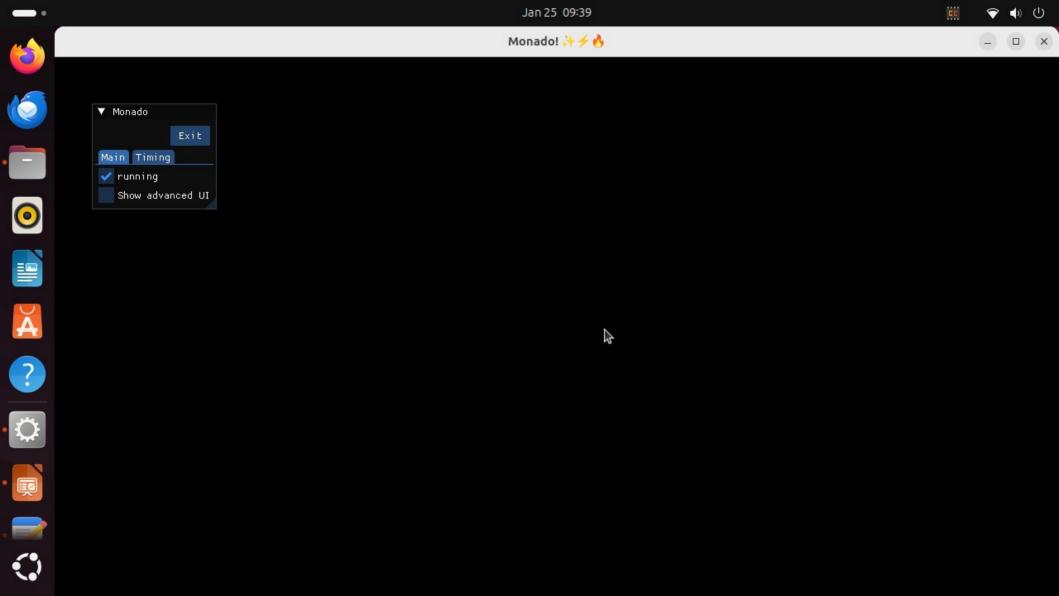


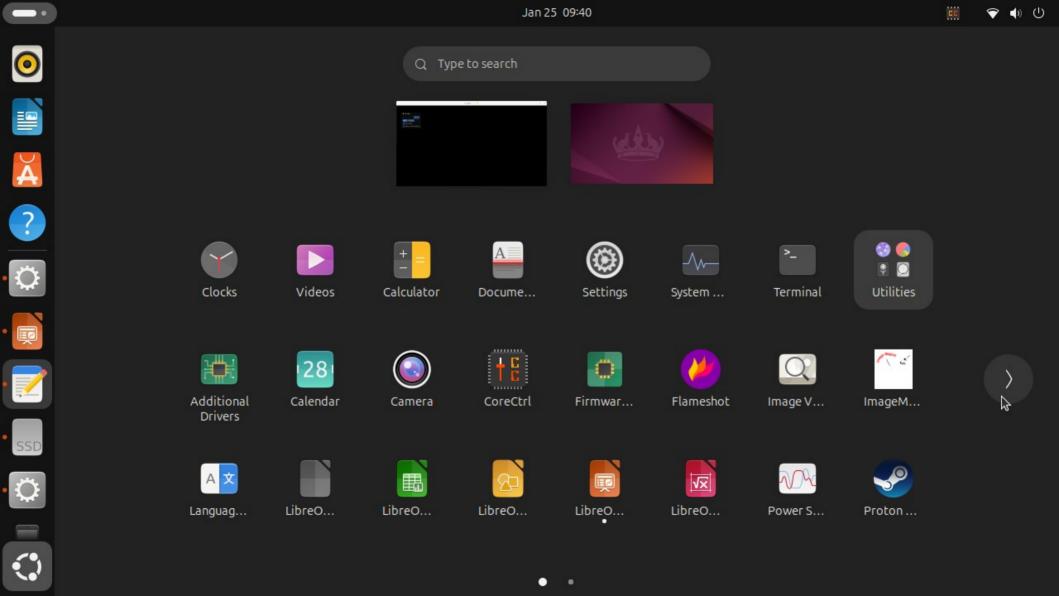


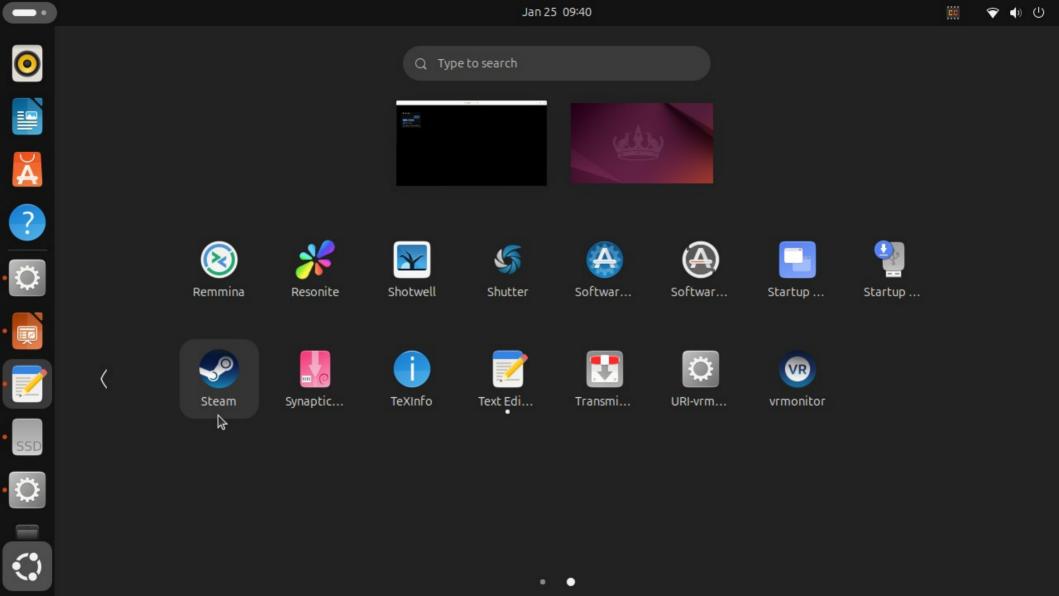


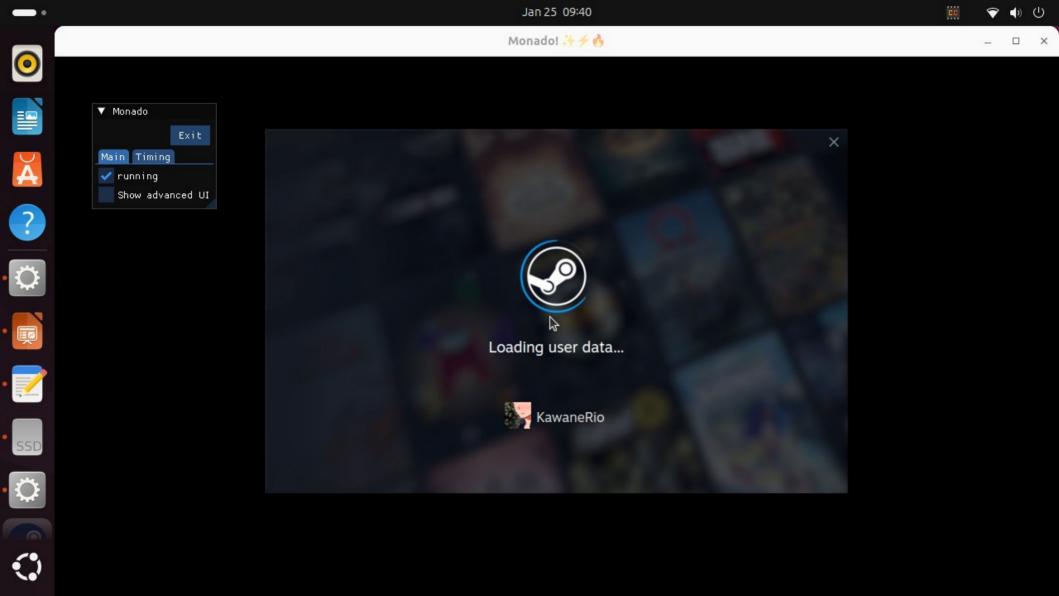


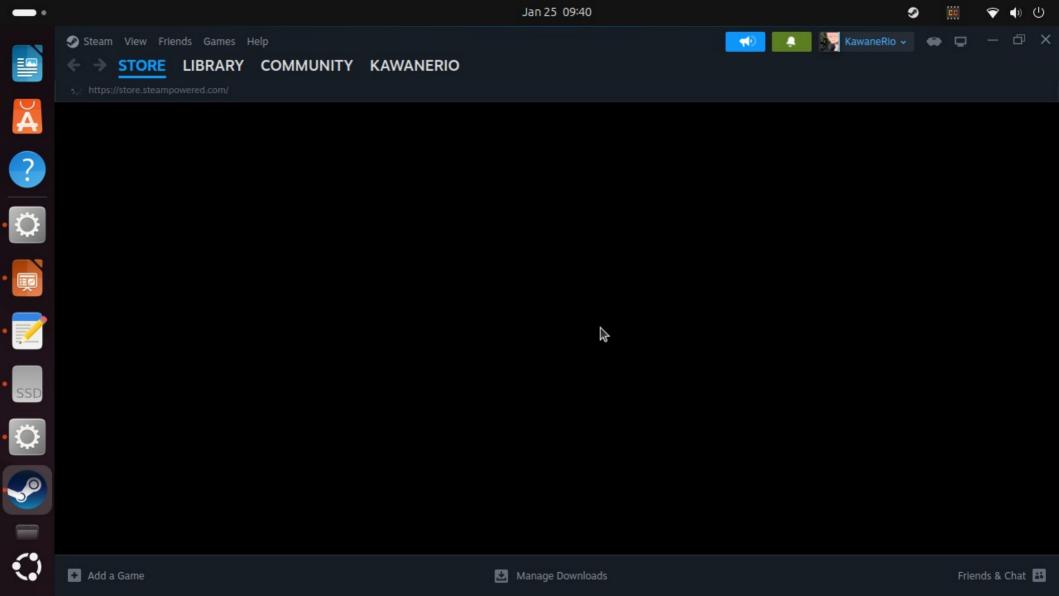


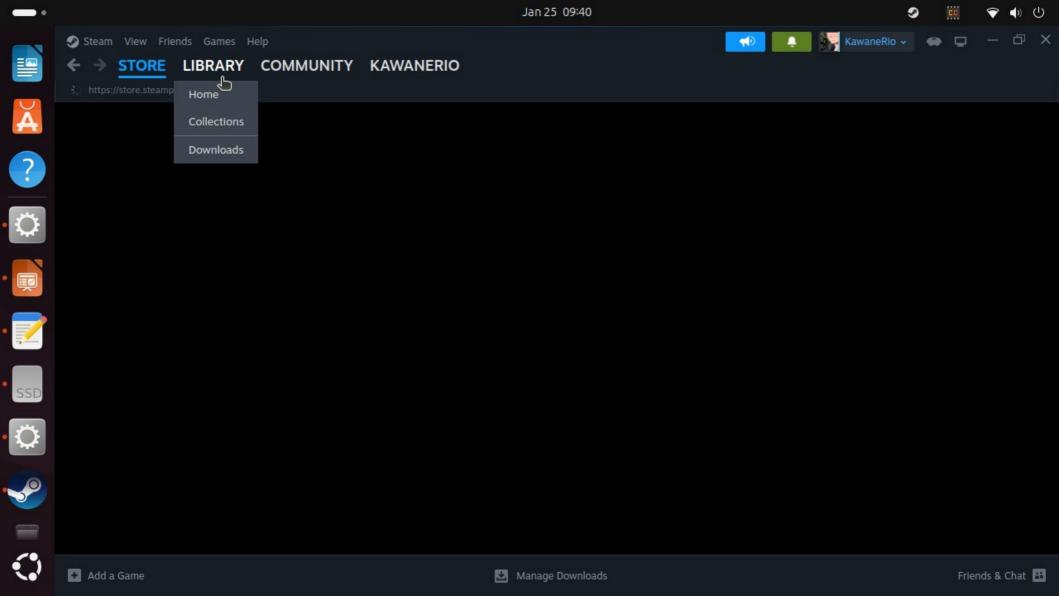






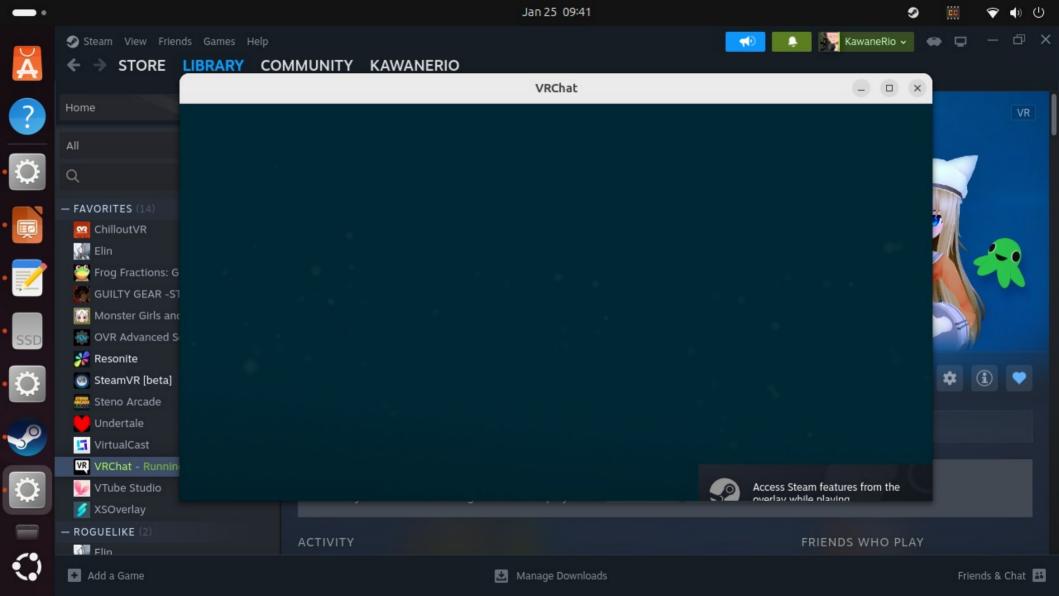


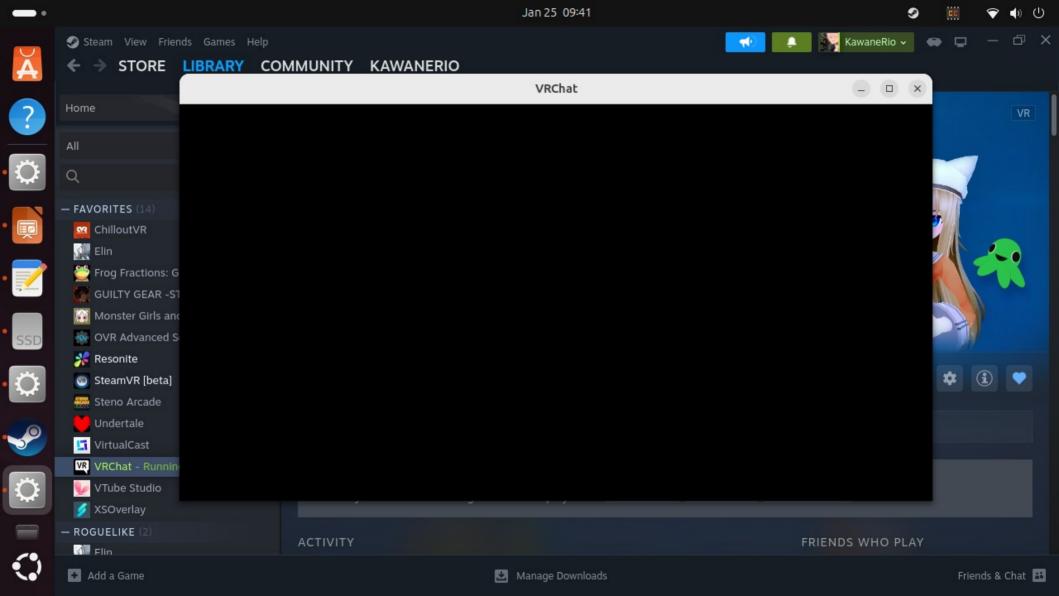


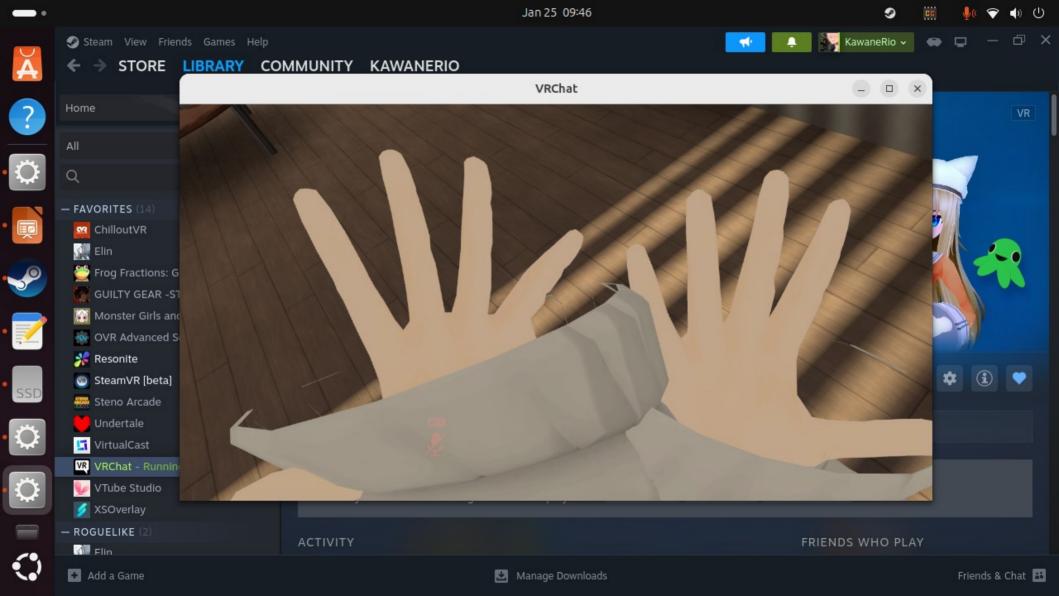




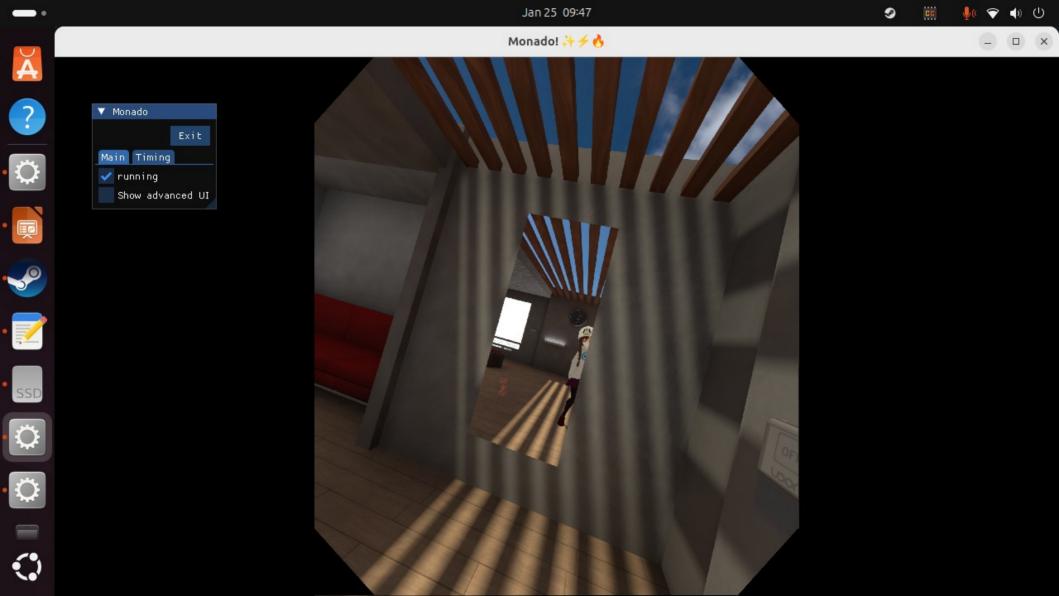




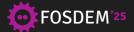








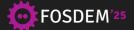






## Beginner's Guide on How to Join Events in VR from Ubuntu

1. UPDATE YOUR SYSTEM **AMD GPU** → ppa:kisak/kisak-mesa 2. Install Graphic Drivers & Install CoreCtrl 3. Upgrade All Drivers **NVIDIA GPU** 4. Install Steam - installer → ppa:graphics-drivers/ppa 5. Install Proton-GE i. Enable Steam Play 6. Install Envision Set Default to Proton-Experimental 7. Install Wlx-Overlay-S ii. Set Interface to Steam Beta 8. Start Envision, then Wlx-Overlay-S, and then your OpenXR App/Game





## In This Lightning Talk...

- 0. What is Linux?
- 1. What is VR?
- 2. What is SteamVR?
  NOW HERE
- 3. What is Proton?

- 5. What is Monado?
- 6. What is Envision?
- 7. What is WiVRn?
- >> 8. What is Wlx-Overlay-S?

4+i. Beginner's Guide on How to Join Events in VR

from Ubuntu using Envision and Monado

9. Where can I learn more about VR on Linux?





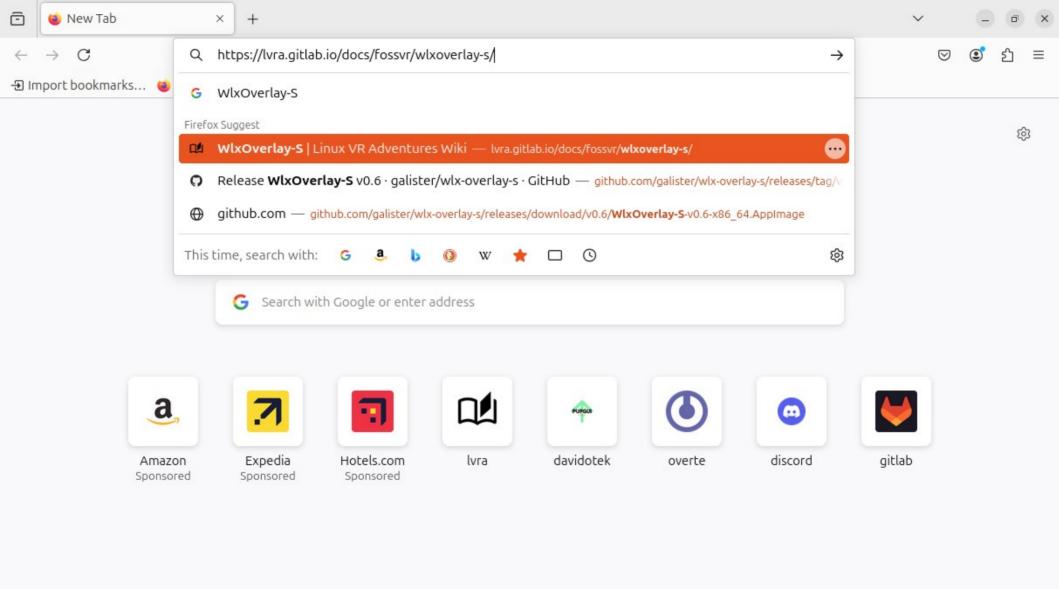
## What is Wlx-Overlay-S?

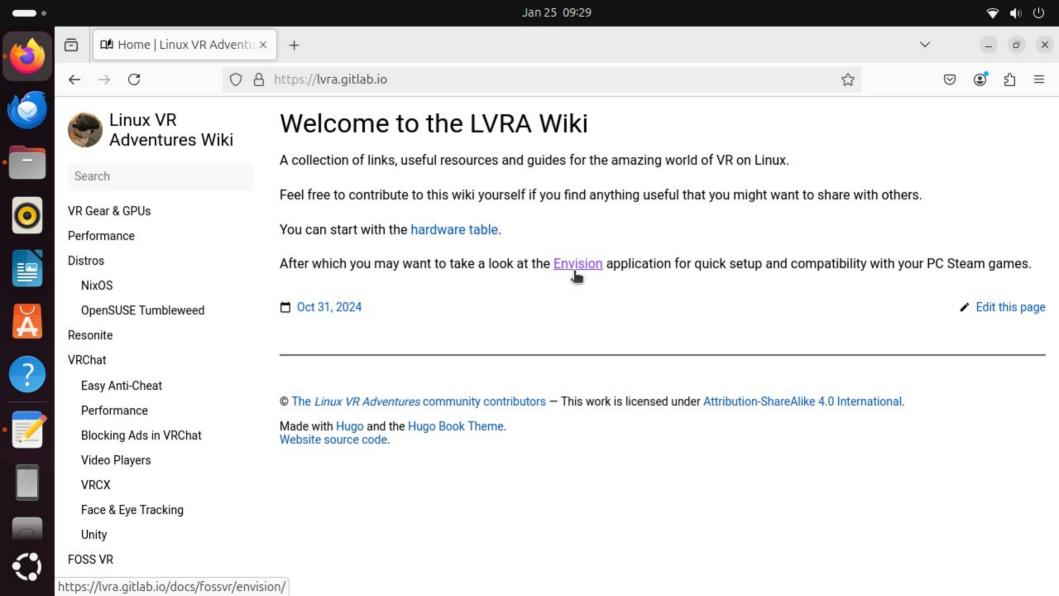
- ▶ Open Source Lightweight VR Desktop Overlay
- ▶ Functionality similar to OVRAS and XSOverlay, but for Monado!
- ▶ Customizable Skybox (Home Environment for Monado)

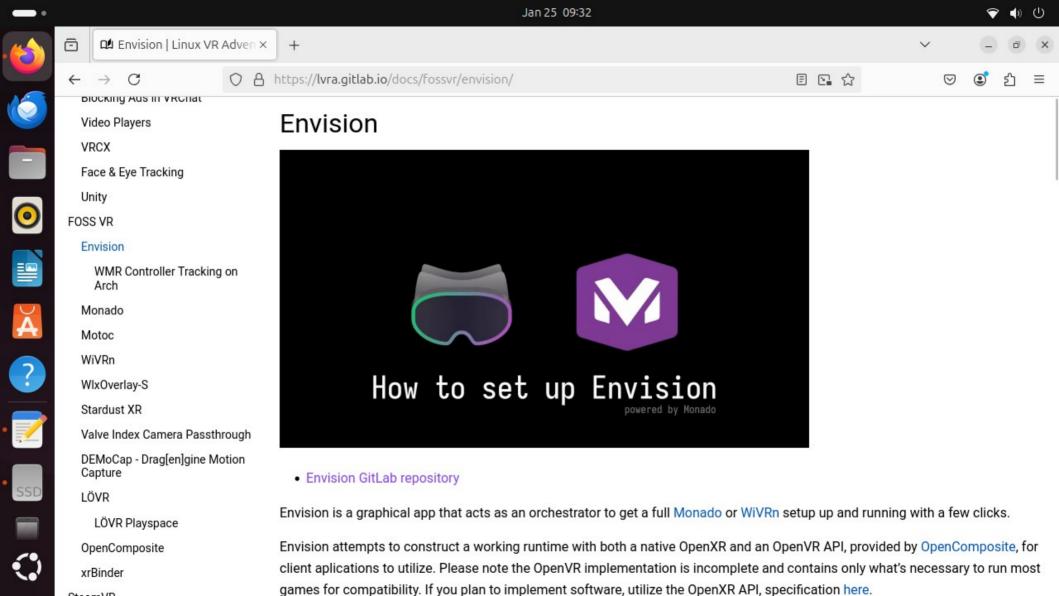


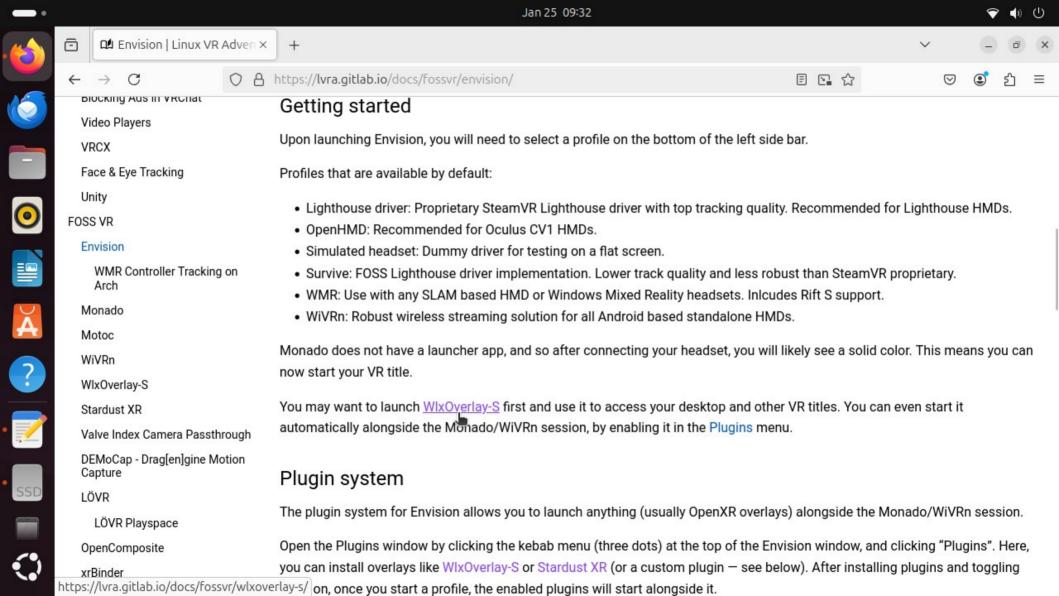
- ▶ Customizable Virtual Wristwatch
- ▶ Customizable Virtual Keyboard
- ▶ Playspace Mover

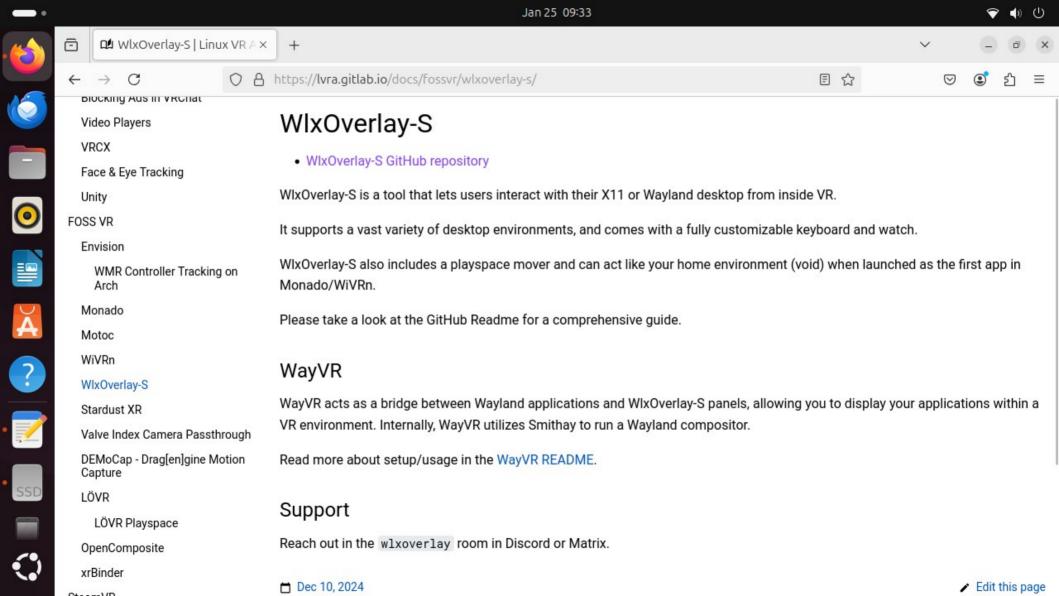


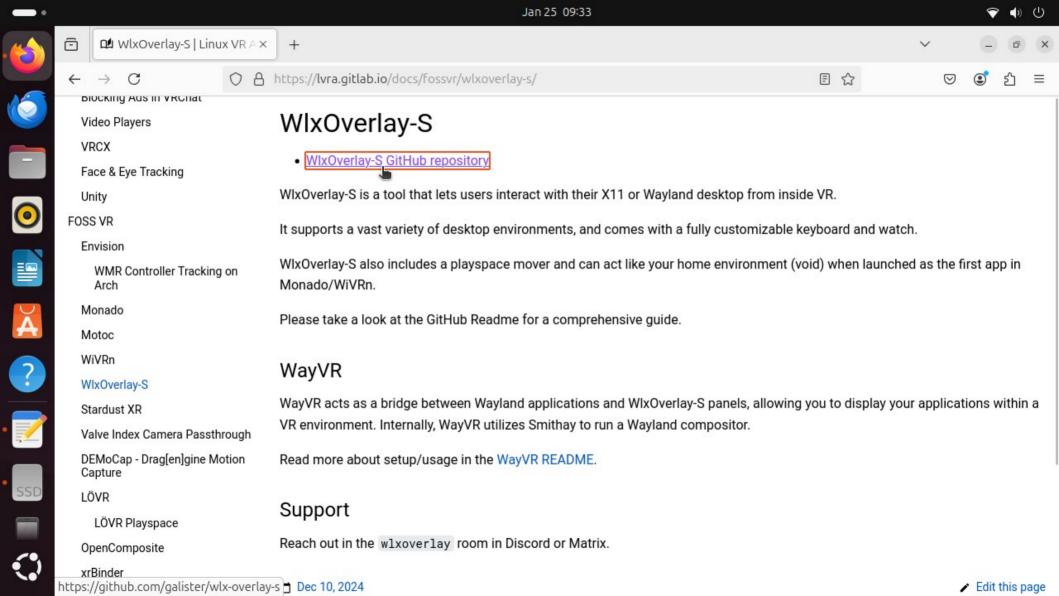


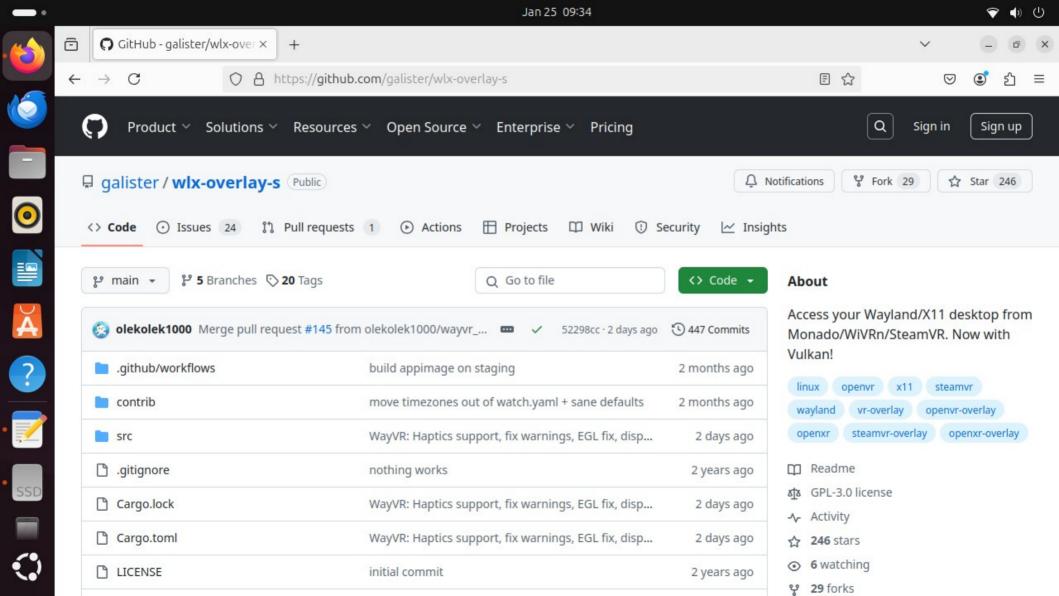


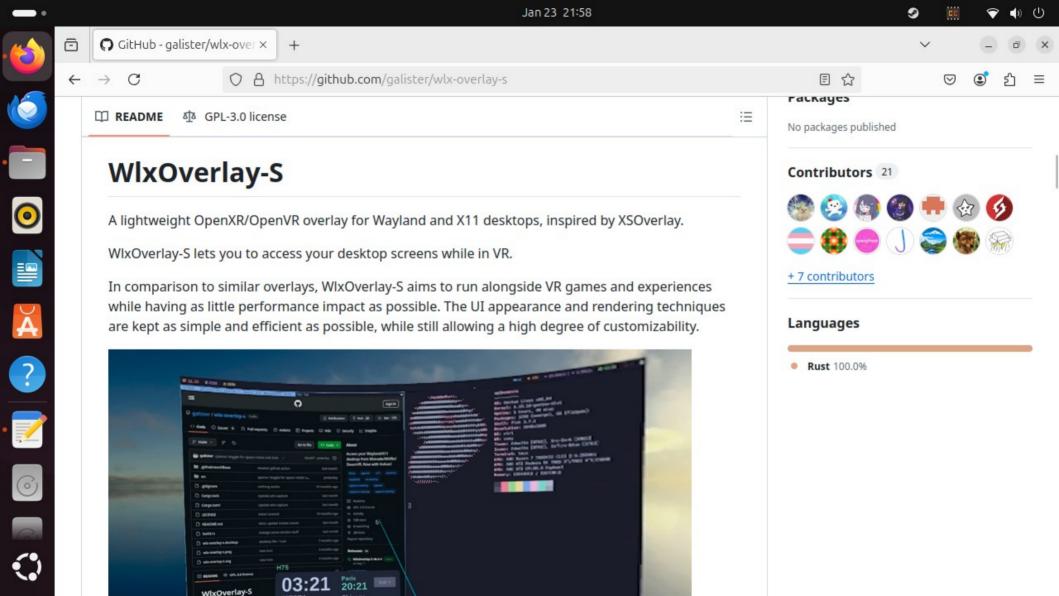


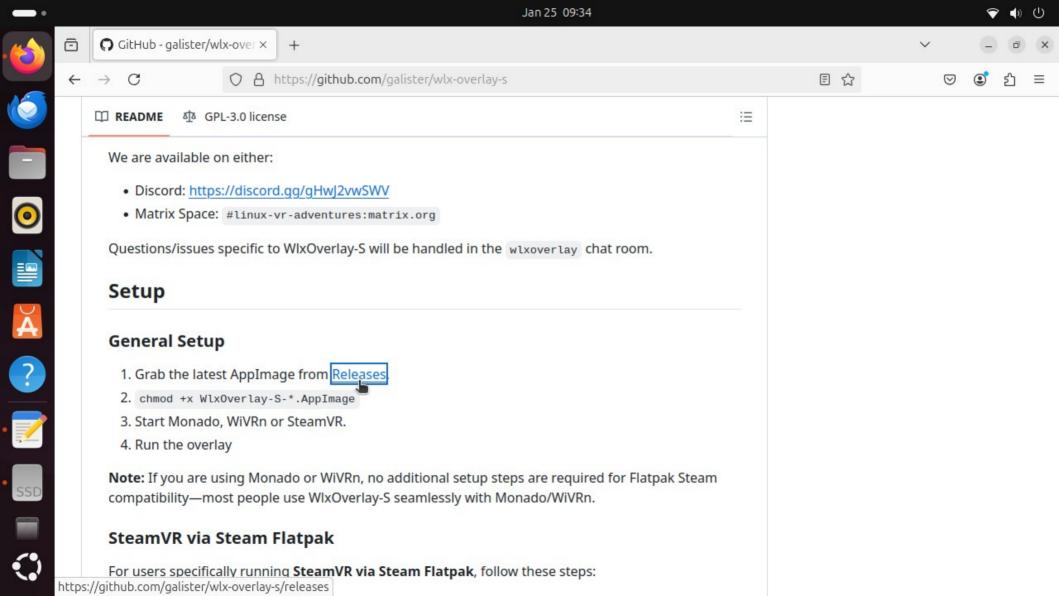


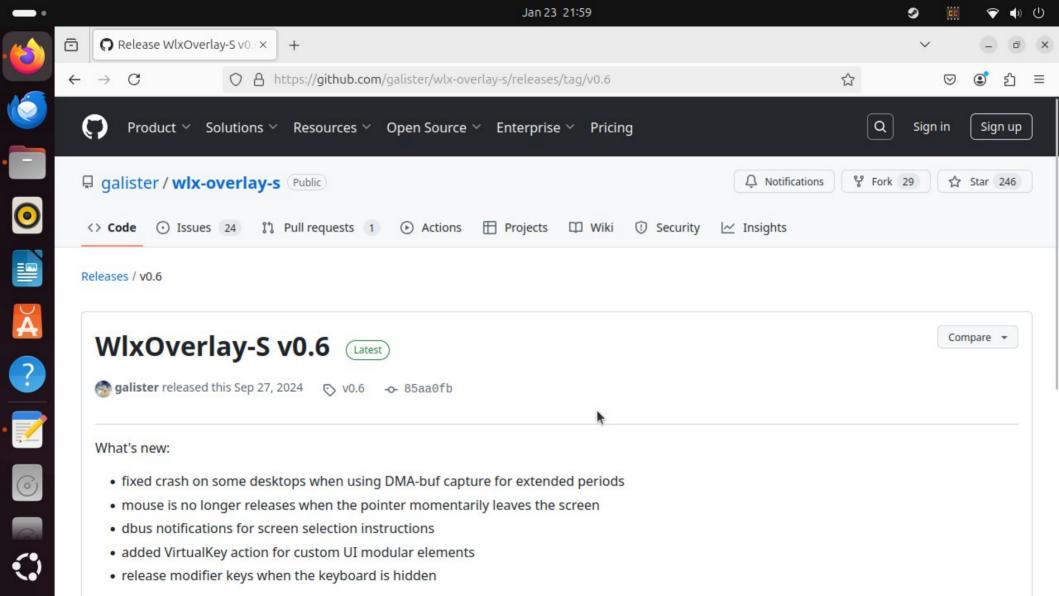


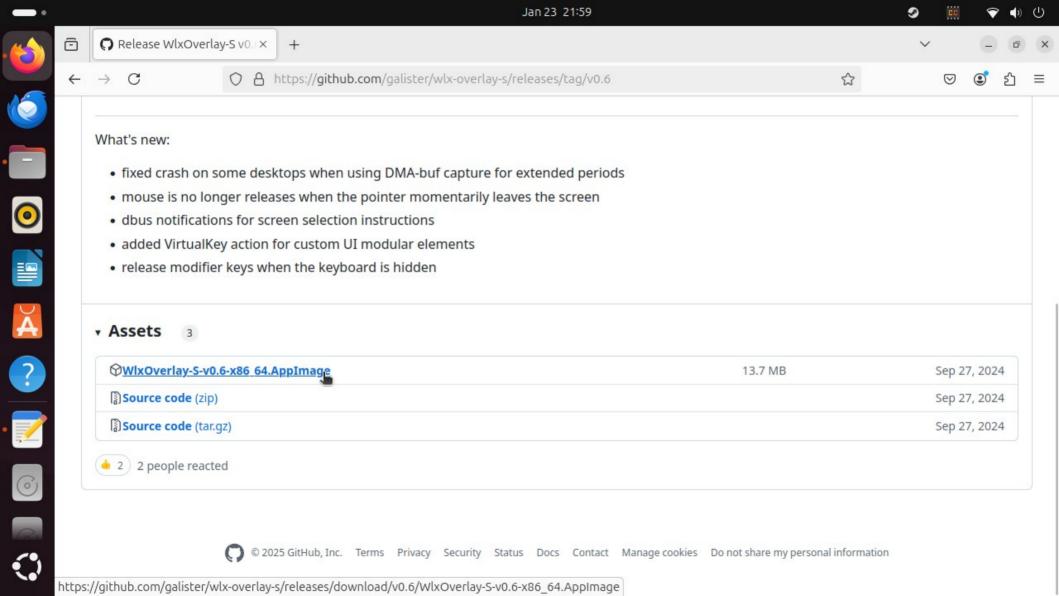


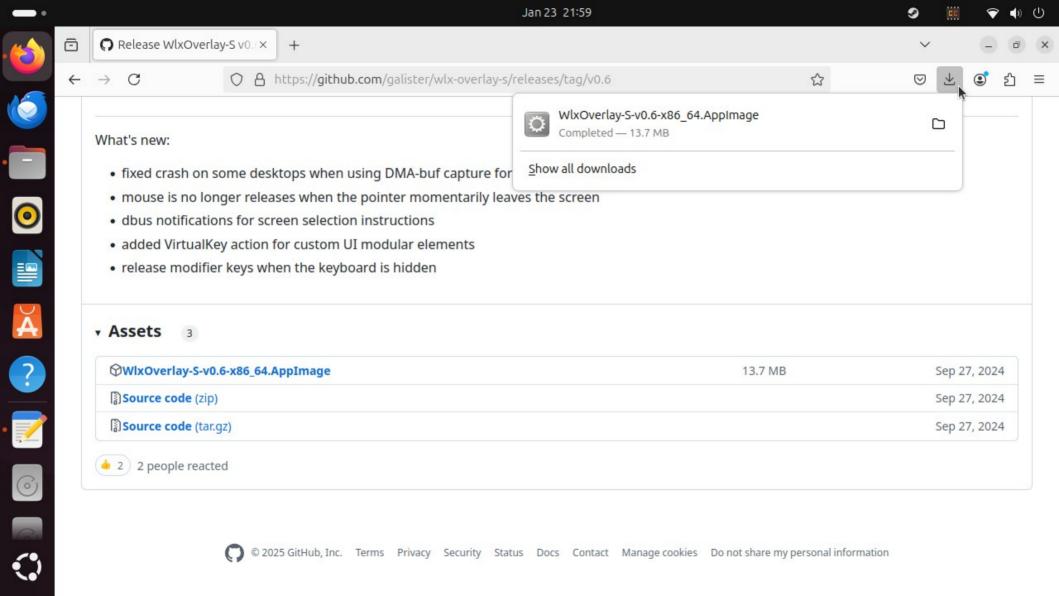


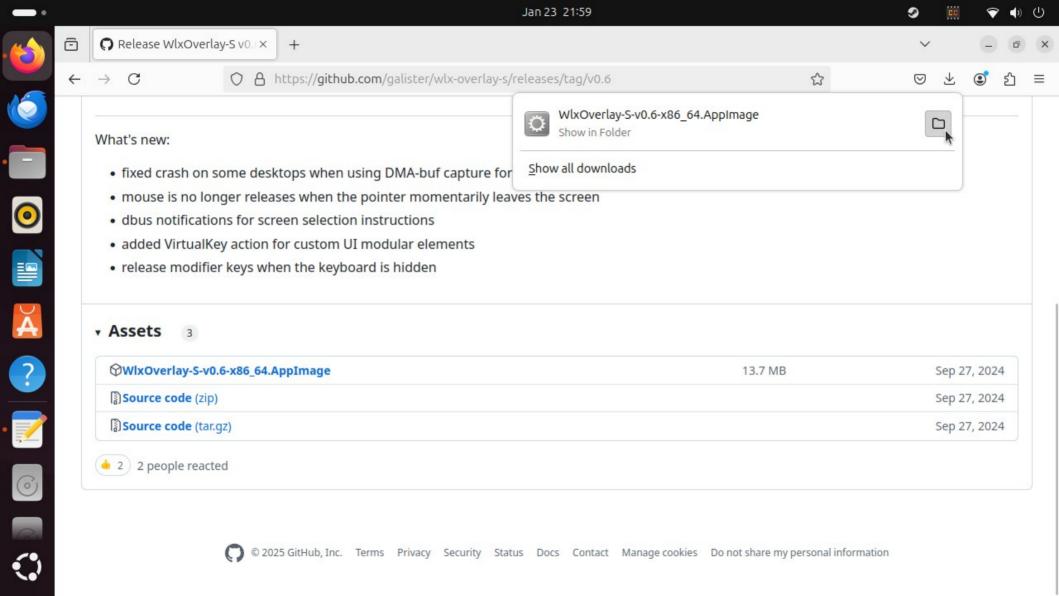


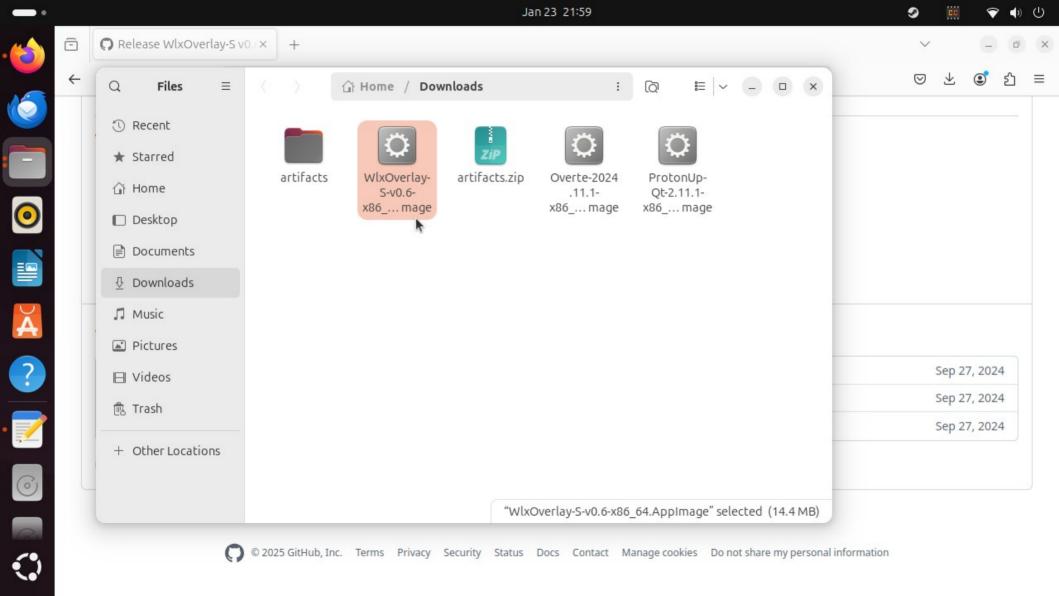


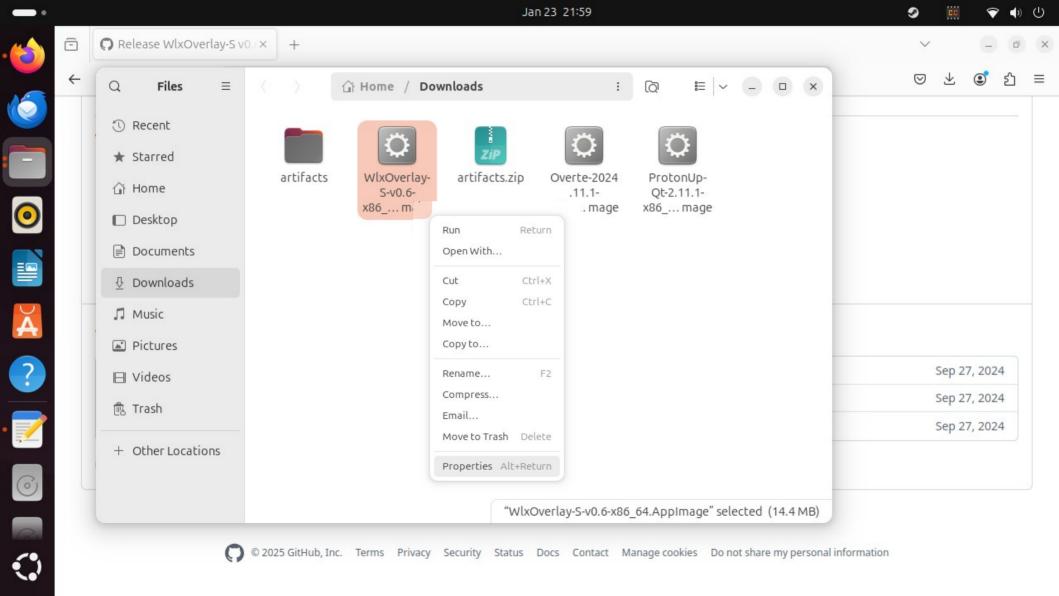


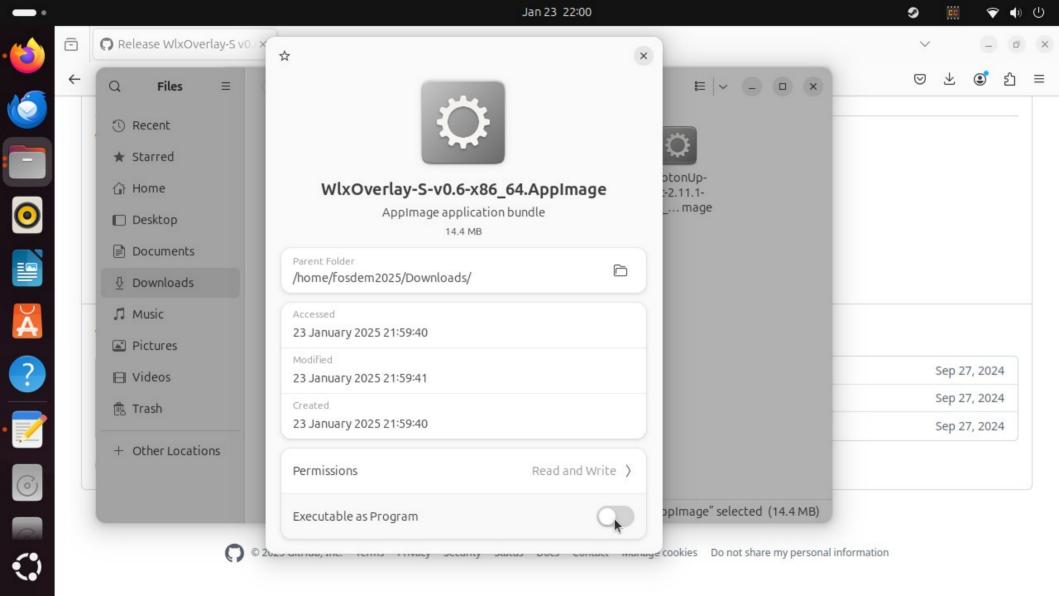


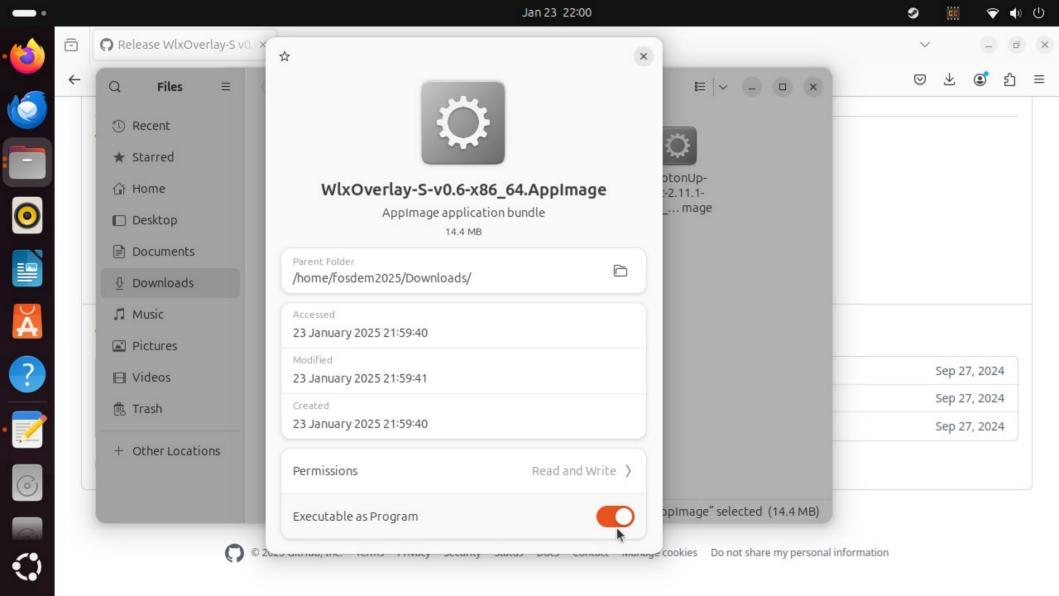


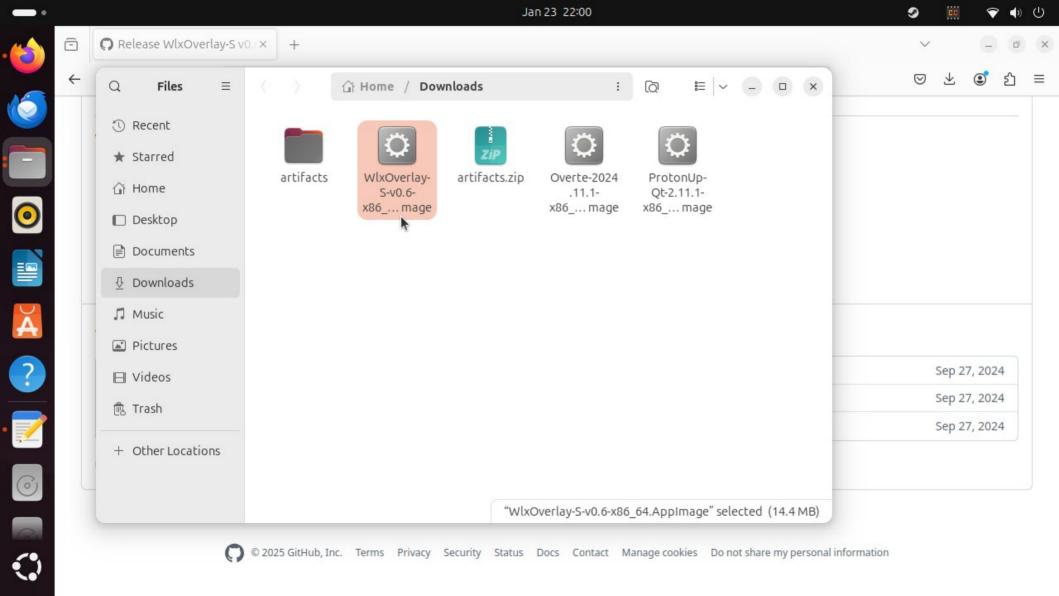


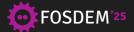










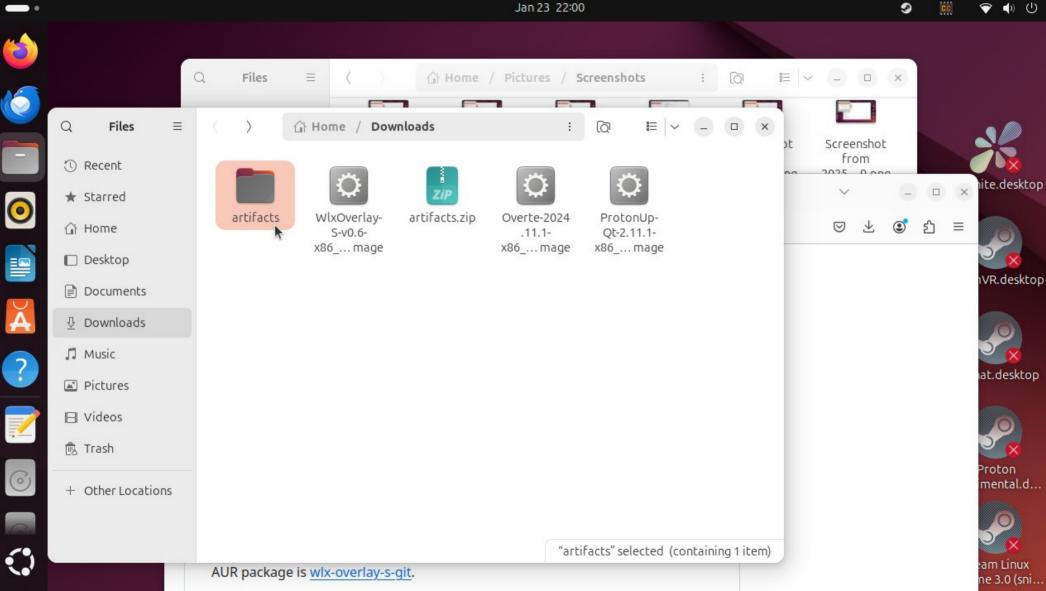


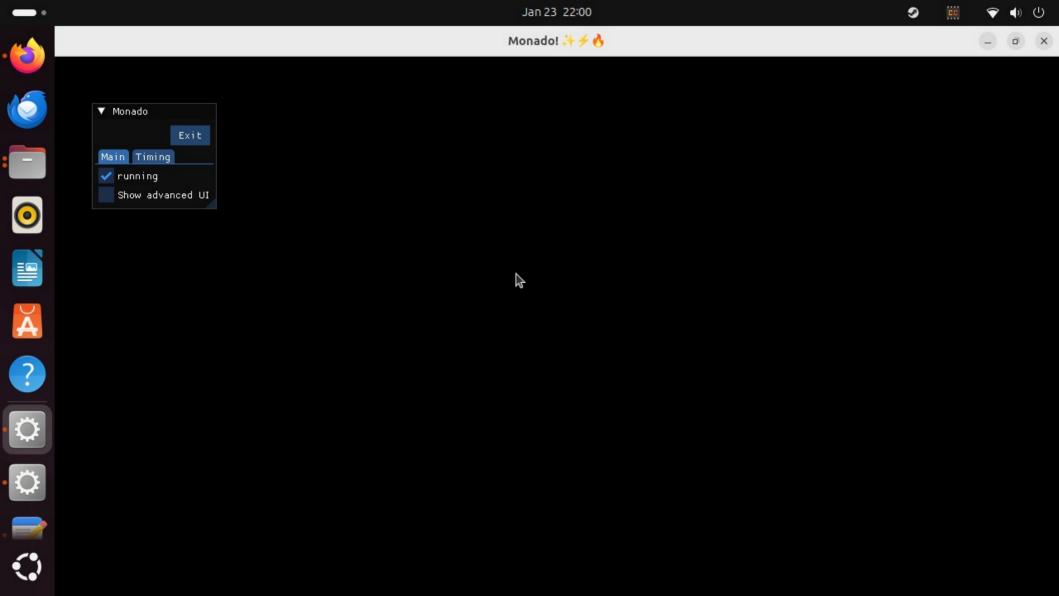


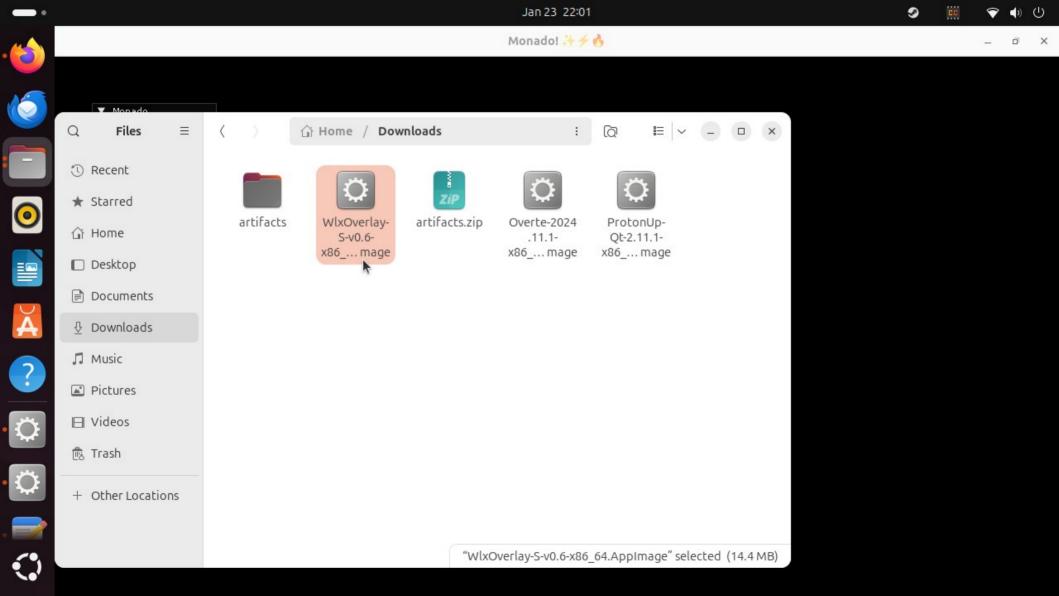
#### Beginner's Guide on How to Join Events in VR from Ubuntu

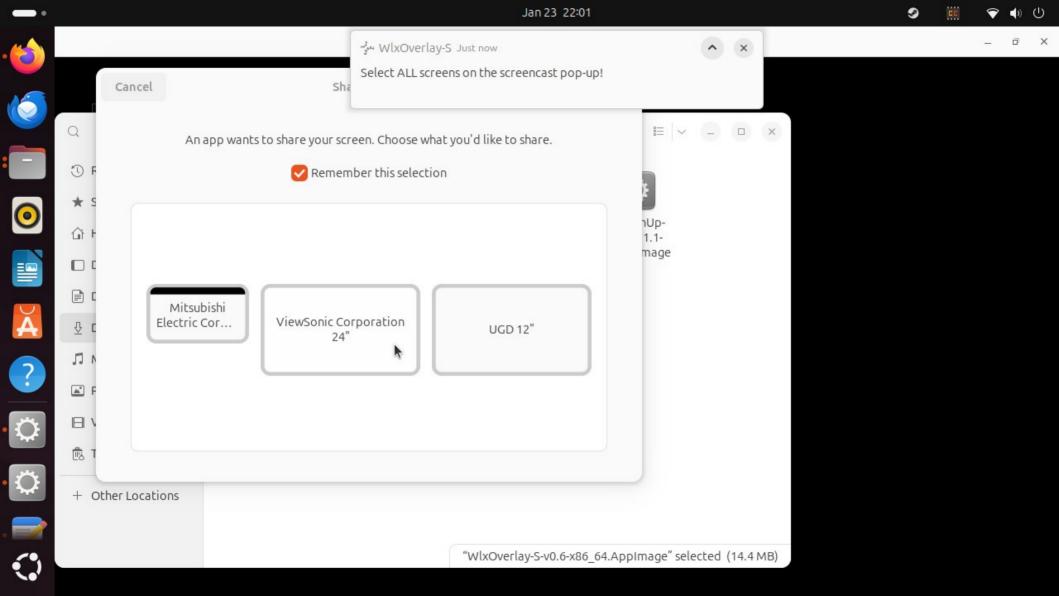
- 1. UPDATE YOUR SYSTEM **AMD GPU** → ppa:kisak/kisak-mesa 2. Install Graphic Drivers & Install CoreCtrl 3. Upgrade All Drivers **NVIDIA GPU** 4. Install Steam - installer → ppa:graphics-drivers/ppa 5. Install Proton-GE i. Enable Steam Play 6. Install Envision Set Default to Proton-Experimental 7. Install Wlx-Overlay-S ii. Set Interface to Steam Beta 8. Start Envision, then Wlx-Overlay-S, and then your OpenXR App/Game
  - .pp/ come

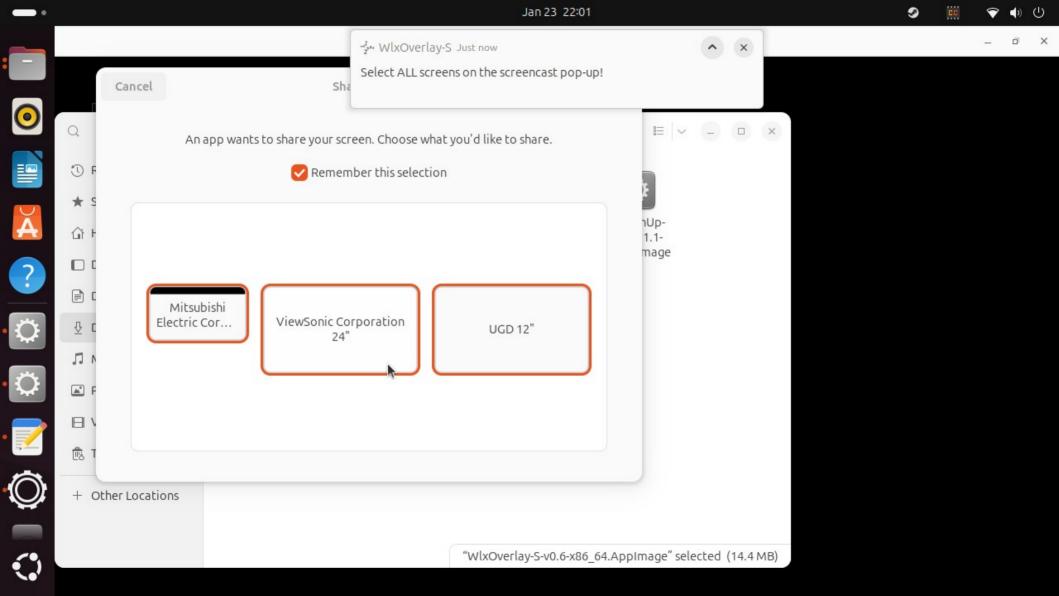
607

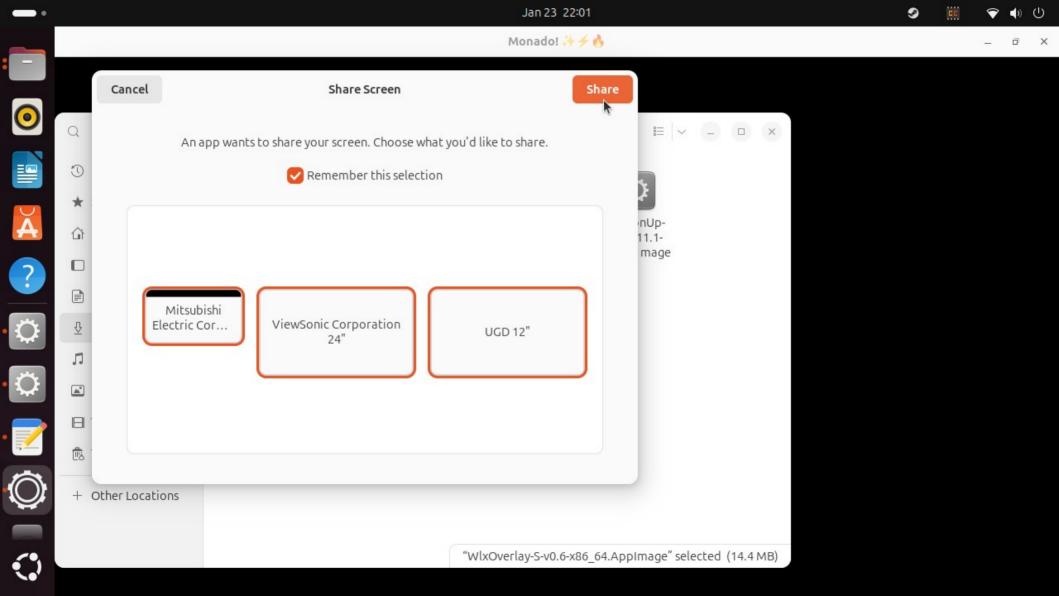


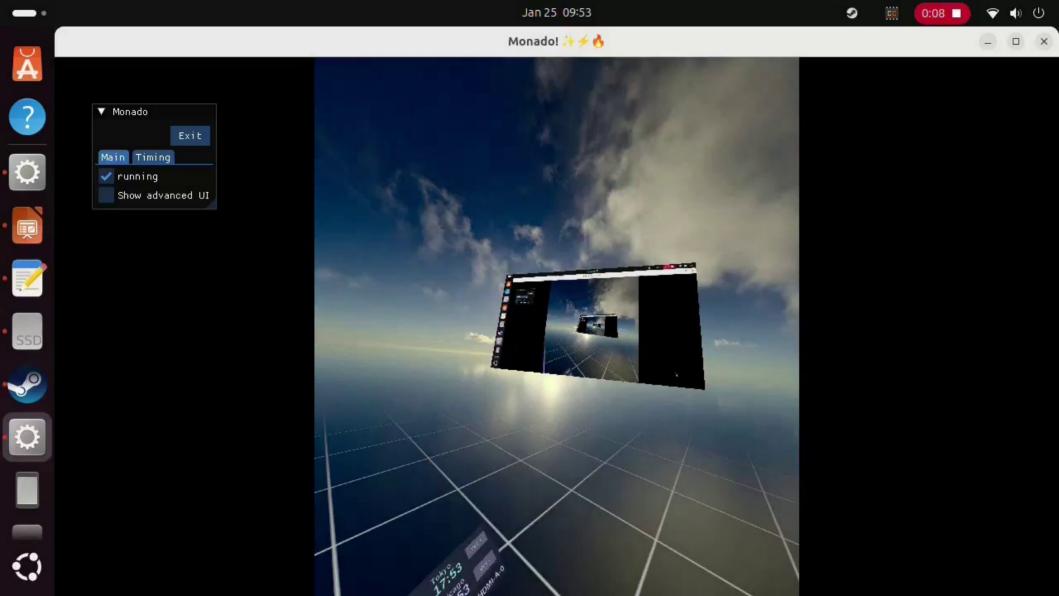












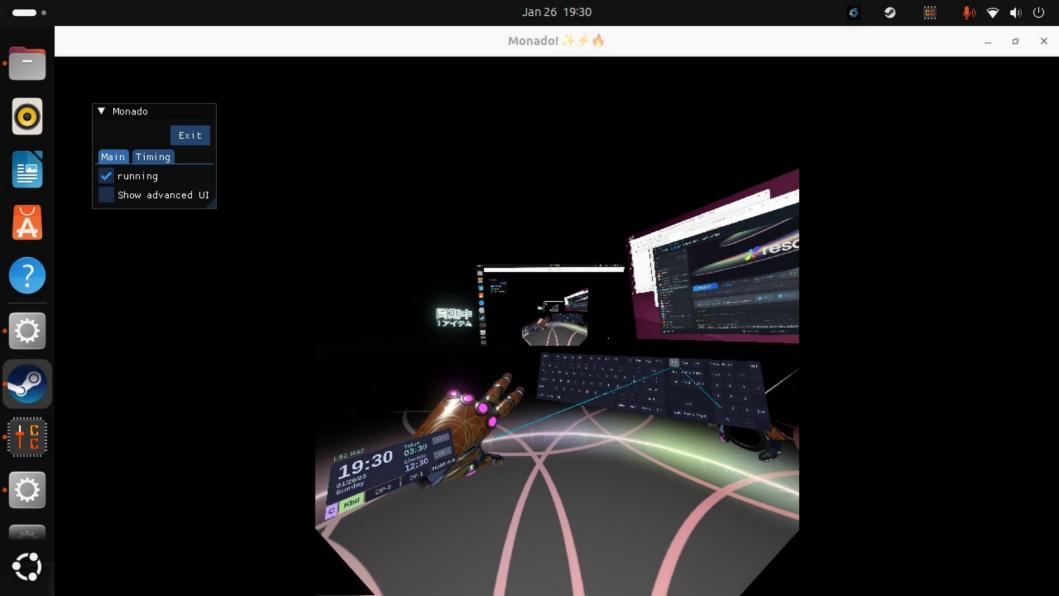
#### Welcome!

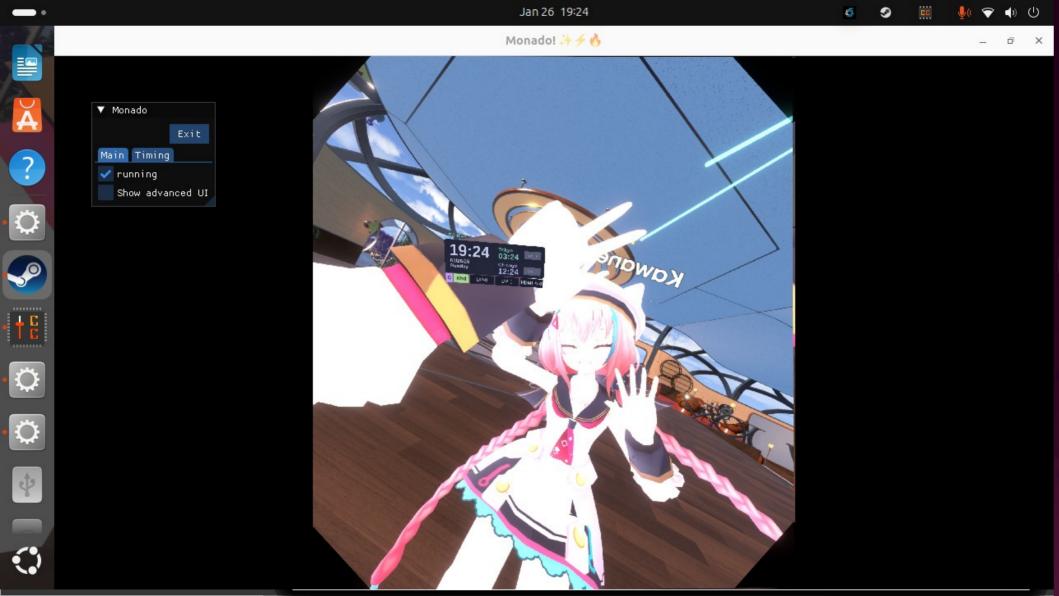


Dive into a brand new digital universe with infinite possibilities. Whether you co Dive into a braile flew digital people around the world or to build, create and socialize and hang out with people around the world or to build, create and to socialize and beautiful art, interactive avatars and gadgets, to complex thing from beautiful art, interactive avatars and gadgets, to complex in the social section is an endlessly customizable of the social section. o socialize and hang but the property of the build, create and socialize and hang beautiful art, interactive avatars and gadgets, to complex interactive avatars and gadgets, to complex integrated and games, Resonite is an endlessly customizable place where you'll find a group to resonate anything from beautiful art, interdetive availars and gadgets, to complex interactive available available

Before you start exploring, we'll first guide you through setting up some essent.

Before ensure a smooth experience. When you're ready, click the button below.











#### Beginner's Guide on How to Join Events in VR from Ubuntu

1. UPDATE YOUR SYSTEM **AMD GPU** → ppa:kisak/kisak-mesa 2. Install Graphic Drivers & Install CoreCtrl 3. Upgrade All Drivers **NVIDIA GPU** 4. Install Steam - installer → ppa:graphics-drivers/ppa 5. Install Proton-GE i. Enable Steam Play 6. Install Envision Set Default to Proton-Experimental 7. Install Wlx-Overlay-S ii. Set Interface to Steam Beta 8. Start Envision, then Wlx-Overlay-S, and then your OpenXR App/Game





## In This Lightning Talk...

- 0. What is Linux?
- 1. What is VR?
- 2. What is SteamVR?
- 3. What is Proton?

- 5. What is Monado?
- 6. What is Envision?
- 7. What is WiVRn?
- 8. What is Wlx-Overlay-S?

4+i. Beginner's Guide on How to Join Events in VR

from Ubuntu using Envision and Monado

NOW HERE —— 9. Where can I learn more about VR on Linux?





## Where can I learn more about VR on Linux?

► The Linux VR Adventures Wiki! https://lvra.gitlab.io



Matrix: #linux-vr-adventures:matrix.org

Discord: EHAYe3tTYa

► The LinuxVRC Meetup! https://vrc.group/LINUX.9649



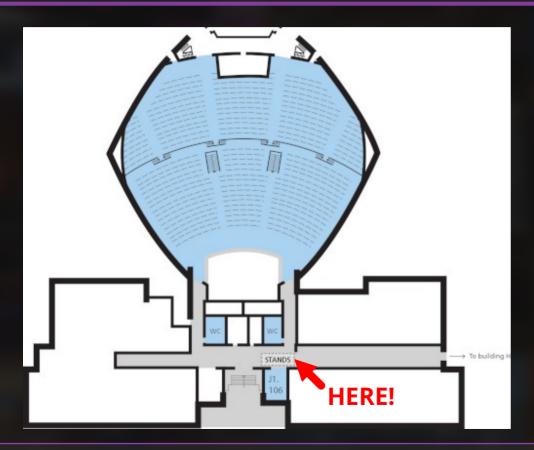
Hang out with Linux VR Enthusiasts in Virtual Reality!

Weekly Meetups Every Saturday 14:00 UTC in VRChat





### Where can I learn more about VR on Linux?



# () VERTE

- ► Free, Open Source, and Decentralized Social VR Platform
- ▶ Super Easy to Play! (AppImage)
- ▶ Meetups Every Saturday 19:00 UTC!
- ► Check out the Overte Stand at Building J! (Janson)

# **QUESTIONS?**

# **QUESTIONS?**







## Repositories for Mentioned Softwares

- ► Steam for Linux Client https://github.com/ValveSoftware/steam -for-linux
- ► SteamVR for Linux https://github.com/ValveSoftware/Steam VR-for-Linux
- ► Steam Snap https://github.com/canonical/steam-snap
- ► Wine https://gitlab.winehq.org/wine/wine

- ► Proton https://github.com/ValveSoftware/Proton
- ▶ Proton-GE-custom https://github.com/GloriousEggroll/pr oton-ge-custom
- ▶ Proton-GE-rtsp https://github.com/SpookySkeletons/ proton-ge-rtsp
- ► ProtonUp-Qt https://github.com/DavidoTek/Proton Up-Qt





## Repositories for Mentioned Softwares

- kisak-mesa fresh https://launchpad.net/~kisak/+archive/ ubuntu/kisak-mesa
- ▶ Proprietary GPU Drivers https://launchpad.net/~graphics-drivers /+archive/ubuntu/ppa
- ► Synaptic Package Manager https://github.com/mvo5/synaptic
- ▶ libfuse https://github.com/libfuse/libfuse
- ► CoreCtrl https://gitlab.com/corectrl/corectrl

- ► Envision https://gitlab.com/gabmus/envision
- ► Monado https://gitlab.freedesktop.org/monado/ monado
- ► WiVRn https://github.com/WiVRn/WiVRn
- ► WlxOverlay-S https://github.com/galister/wlx-overlay-s
- ► Overte https://github.com/overte-org/overte





## Virtual World Locations Used



Babilturo だべりの棟 ver2 by Anno (あんのん)

https://vrchat.com/home/w orld/wrld\_900dd077-1337-c 0fe-babe-71de05ea12c4



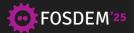
VRChat Home 2018 by Arkelioko

https://vrchat.com/home/world/wrld\_900dd077-1337-c0fe-babe-71de05ea12c4



YTS 2.1 - YouTube Search, Subtitles, Quest by syncpulse

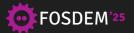
https://vrchat.com/home/world/wrld\_900dd077-1337-c0fe-babe-71de05ea12c4





## References

- Agency, European Space. English: A Team of Researchers at ESA's Mission Control Centre in Darmstadt, Germany, Are Investigating New Concepts for Controlling Rovers on a Planet and Satellites in Orbit. 28 Sept. 2017, https://commons.wikimedia.org/wiki/File:Reality\_check\_ESA384313.jpg. https://www.esa.int/ESA\_Multimedia/Images/2017/07/Reality\_check.
- Augmented World Expo. "Graham Gaylor and Jesse Joudrey." AWE XR Hall of Fame, https://www.awexr.com/hall-of-fame/90-graham-gaylor-and-jesse-joudrey. Accessed 17 Jan. 2025.
- ▶ Collabora. "Monado Open Source XR Runtime." Monado First OpenXR Runtime for GNU/Linux, https://monado.dev. Accessed 20 Jan. 2025.
- Evan-Amos. Virtual-Boy-Set.Png. 22 Sept. 2011, https://commons.wikimedia.org/wiki/File:Virtual-Boy-Set.png. Own work.
- ▶ eVRydayVR. Jesse Joudrey at VR Chat Booth at SVVR 2015 (Closeup / Bust). photo, 18 May 2015, https://www.flickr.com/photos/evrydayvr/18082506395/.
- ▶ Heilig, Morton L. Stereoscopic-Television Apparatus for Individual Use. US2955156A, 4 Oct. 1960, https://patents.google.com/patent/US2955156A/en.





## References

- Lyon, Dick. Ivan Sutherland at CHM.Jpg. 22 May 2008, https://commons.wikimedia.org/wiki/File:Ivan\_Sutherland\_at\_CHM.jpg.
- ▶ Michel, Chris. Philip Rosedale in 2021 by Chris Michel 1d35908-4-26.Jpg. 4 Aug. 2021, https://commons.wikimedia.org/wiki/File:Philip\_Rosedale\_in\_2021\_by\_Chris\_Michel\_1d35908-4-26.jpg.
- Norman, Jeremy M. "Ivan Sutherland and Bob Sproull Create the First Virtual Reality Head Mounted Display System." HistoryofInformation.Com, 15 Dec. 2024, https://www.historyofinformation.com/detail.php?id=861.
- Palmertech. Palmer Luckey Corporate Photo. 1 June 2022, https://commons.wikimedia.org/wiki/File:Palmer\_Luckey\_Stage\_Microphone.png. Own work.
- Podevin, Jean-François. Snowcrash.Jpg. 31 May 2020, https://en.wikipedia.org/w/index.php?title=File:Snowcrash.jpg&oldid=959954839.
- ▶ Stabinger, Sebastian. Oculus Rift Developer Version Front.Jpg. 9 Dec. 2013, https://commons.wikimedia.org/wiki/File:Oculus\_Rift\_-\_Developer\_Version\_-\_Front.jpg.
- Lasica, J. D. Jaron Lanier. 29 July 2010, https://commons.wikimedia.org/wiki/File:Jaron\_Lanier\_in\_2010.jpg. https://www.flickr.com/photos/jdlasica/4843374960/.





# Special Thanks



ミツアミめがね (Mitsuami Megane)

for fixing my LinuxVR setup



八黑山 (BLKZOR)

for supporting me throughout my journey



Julian Groß
for inviting me to
FOSDEM today!





# Linux × VR!

Beginner's Guide on How to Join Events in Virtual Reality from Ubuntu using Envision and Monado, an OpenXR Alternative to SteamVR

Thank you for Tuning In!

