

SDL: The Quest for Wayland By Default

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VERY fast intro running at incredible high speed

- Ethan makes a lot of Linux ports, 68 as of this presentation (so close)
- SDL is *in* a lot of Linux ports, way too many to count
- SDL defaults to X (no surprise), but also supports Wayland (mildly surprising), and the Wayland driver is really close to done (big surprise!)
- SDL 2.0.16 (August 10) has most of what's been done, still a lot going on!
 - Yes, we finally got client-side decorations in :)
- But what is left...?

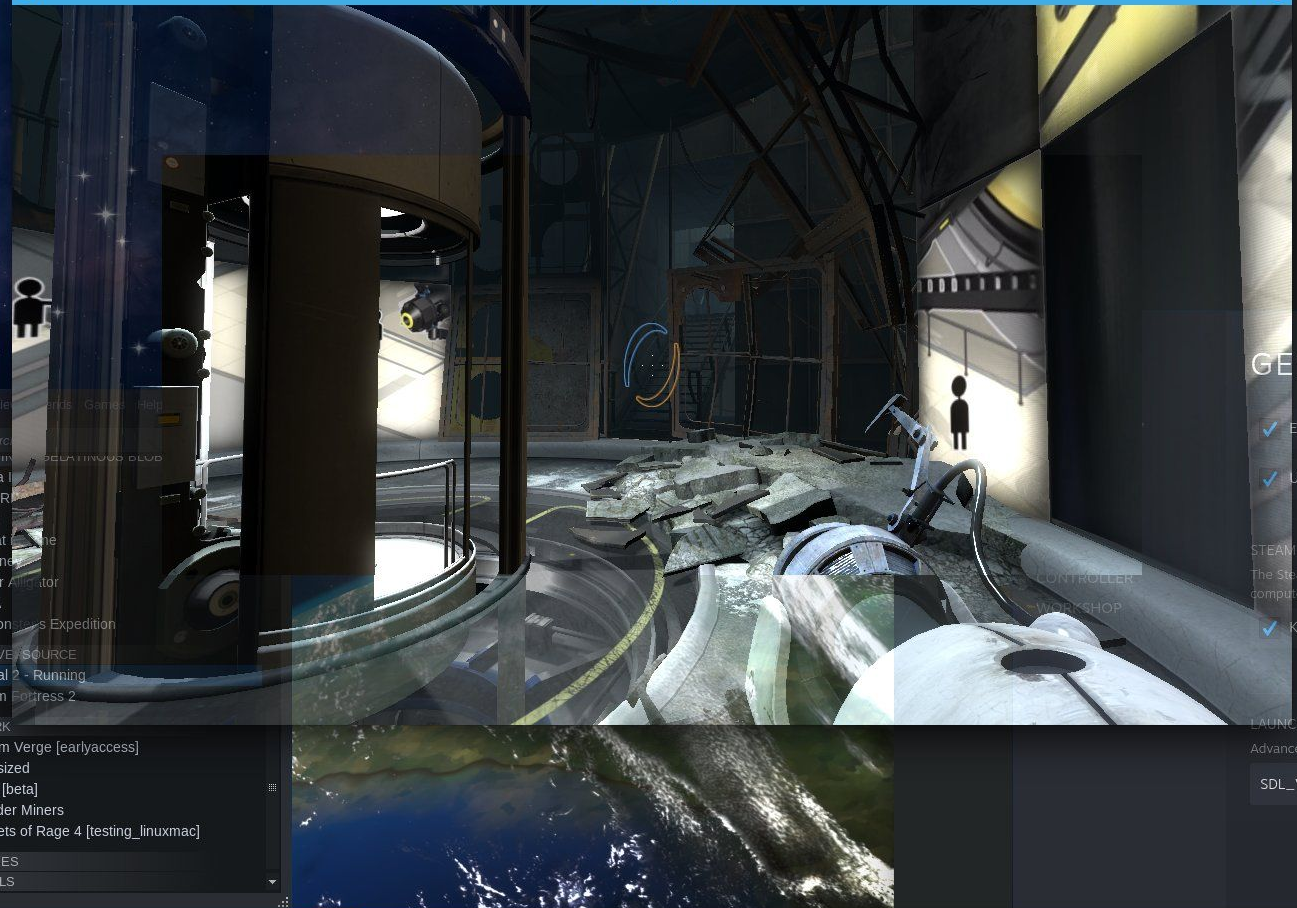
The SDL Wayland TODO

- The “Tracker”: <https://github.com/libSDL-org/SDL/pull/4306>
- Mostly just bugs, many of them keyboard/text-related
- Our wl_surface management is kind of weird, but not the *worst* thing ever
- A couple minor wishlist items (“usable bounds”, border size, stuff like that)
- Test with like a billion games (SDL_VIDEODRIVER=wayland %command%)

flibitjibibo@flibitAMD:~/local/share/Steam/steamapps/comm...

```
[flibitjibibo@flibitAMD FEZ]$ SDL_VIDEODRIVER=wayland ./FEZ  
[S_API FAIL] SteamAPI_Init() failed; SteamAPI_IsSteamRunning() failed.  
[S_API FAIL] SteamAPI_Init() failed; unable to locate a running instance of Stea  
m, or a local steamclient.so.
```





Steam View Friends Games Help

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- Capsized
- FEZ [beta]
- Murder Miners
- Streets of Rage 4 [testing_linuxmac]
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GENERAL

- Enable the Steam Overlay while in-game
- Use Desktop Game Theatre while SteamVR is active

STEAM CLOUD

The Steam Cloud stores information so your product experience is consistent across computers.

- Keep game saves in the Steam Cloud for Portal 2
- 9.00 MB stored / 1,015.00 MB available

LAUNCH OPTIONS

Advanced users may choose to enter modifications to their launch options.

SDL_VIDEODRIVER=wayland %command%

Blocker #1: Opaque Presentation for OpenGL

- A huge percentage of games have an alpha channel in the backbuffer
- Wayland treats alpha as transparent
- Arguably a game screw-up
 - “Who could have thought that alpha might one day be transparent!”
 - ... but it’s a LOT of games
- Vulkan has a solution for this already!
 - VkCompositeAlphaFlagBitsKHR
 - No EGL equivalent
 - ... until:

EGL_EXT_present_opaque

- Written by Eric Engestrom (thanks Eric!)
- It's in the EGL registry!
- It's in the next SDL release!
- There's an implementation for Mesa!
- ... but no standalone test program, just an SDL sample
- https://gitlab.freedesktop.org/mesa/mesa/-/merge_requests/12373
- (NVIDIA has ack'd the extension, just need an updated driver)

Blocker #2: Surface Suspension

- When a Wayland surface is not visible, presentation is stalled *completely*
- Games in particular *hate* this
 - Calling SwapBuffers before the xdg surface/toplevel are mapped stalls infinitely
 - Stalling for too long breaks online functionality
 - <https://github.com/swaywm/sway/issues/6263>
 - Stalling presentation != Blocking the program, threads misbehave/crash entirely
 - Oh crap this is supposed to be a lightning talk what am I doing
- A couple proposals for this...

Proposal A: SwapBuffersWithTimeout

- <https://gitlab.freedesktop.org/mesa/mesa/-/issues/4932>
- Again, Vulkan has something like this already
 - vkAcquireNextImageKHR has a timeout parameter
 - However, *nobody* uses the parameter. Like, actually nobody at all. Nope, not them either.
- This hasn't gotten anywhere beyond some design ideas
 - (At the moment I'm basically the only person asking for this...)
- Good idea for new stuff, doesn't address the back catalog very well

Proposal B: wp_surface_suspension

- https://gitlab.freedesktop.org/wayland/wayland-protocols/-/merge_requests/99
- Fires an event to inform application whether the surface is hidden (and therefore “suspended”) or not. One callback, one bool, no fuss.
- Was easy to integrate into first drafts for EGL, Vulkan WSI, and even SDL
 - Toolkits can use this to fire events like `SDL_WINDOWEVENT_HIDDEN/EXPOSED`
- wlroots has a working prototype too!
- Solves the problem for games new and old
- Not 100% agreed upon yet
 - Spec wording is getting carefully reviewed
 - Presentation implementation isn’t totally clear (i.e. what to do with unused frames)
 - Discussion thread is *long* and is mostly people smarter than me, worth a read

I went over time, didn't I?

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