

Primary content

Renewed look at

-fsanitize=array-bounds in Chromium

May 29, 2025

Context

- In the thick of spatial safety work ([spanification and arrayification](#)), a hardening option for C-style arrays emerged as a supplement to `std::array` hardening ([provided by libcxx hardening](#)).
 - See also: [project idea in Post-MiraclePtr roadmap](#).
- David Benjamin filed [issue 386992829](#) and created [CL 6600050](#).
- Top-level [Chromium memory-safety-dev discussion thread](#)

This is a brief on the state of [David's CL today](#).

Impact

- This change helped surface an [off-by-one read in Chromium's H.265 parser](#).

Competitive benchmarks read

TL;DR — this is noisier than usual, but apparently neutral.

[Speedometer3](#) (improve 0.2%)

None

Charts-chartjs	[-0.4%, +0.6%]
Charts-observable-plot	[-0.5%, +0.1%]
Editor-CodeMirror	[-0.6%, +0.8%]
👍 Editor-TipTap	[-0.7%, -0.3%]
NewsSite-Next	[-0.3%, +0.0%]
NewsSite-Nuxt	[-0.4%, +0.0%]
Perf-Dashboard	[-0.7%, +0.3%]
React-Stockcharts-SVG	[-0.4%, +0.2%]
👍 Score	[+0.0%, +0.3%]
TodoMVC-Angular-Complex-DOM	[-0.4%, +0.6%]
TodoMVC-Backbone	[-0.3%, +0.3%]
TodoMVC-JavaScript-ES5	[-1.4%, +1.2%]
TodoMVC-JavaScript-ES6-Webpack-Complex-DOM	[-0.3%, +0.3%]
👍 TodoMVC-Lit-Complex-DOM	[-0.6%, -0.0%]
TodoMVC-Preact-Complex-DOM	[-1.1%, +0.3%]
TodoMVC-React-Complex-DOM	[-0.3%, +0.2%]
TodoMVC-React-Redux	[-0.4%, +0.2%]
TodoMVC-Svelte-Complex-DOM	[-3.4%, +0.2%]
TodoMVC-Vue	[-0.2%, +0.5%]
TodoMVC-WebComponents	[-0.3%, +0.3%]
TodoMVC-jQuery	[-0.8%, +1.1%]

[Jetstream2](#) (flush)

pinpoint_ci did not produce output.

[MotionMark](#) (improve 0.2%)

None

👎 Canvas Arcs	[-0.5%, -0.2%]
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👍 Canvas Lines	[+0.3%, +0.5%]
Design	[-1.6%, +1.4%]
Images	[-0.7%, +0.8%]
👍 Leaves	[+0.1%, +0.9%]
👍 Multiply	[+0.2%, +1.0%]
👍 Paths	[+0.1%, +0.5%]
Suits	[-0.4%, +1.0%]
motionmark_ramp_composite	[-0.0%, +0.5%]

Note: binary size

binary-size@ is [actually more sanguine about this](#) than I am.

“70KB across the entire product doesn't seem like a lot. libc++ hardening cost ~200KB.”

Daniel Cheng

“I agree that 70 KB for this feature isn't worth spending much time on...”

Nico Weber

We are well over the line for permissible binary size increase. Consulting the [SuperSize dashboard](#), it's largely concentrated in `third_party/`:

Library	72.00 KiB
libmonochrome.so (armeabi-v7a)	72.00 KiB
third_party	62.19 KiB
skia	10.05 KiB
webrtc	8.05 KiB
libvpx	7.70 KiB
opus	7.45 KiB
ffmpeg	6.18 KiB
libjpeg_turbo	3.79 KiB
dav1d	3.75 KiB
icu	3.41 KiB
libwebp	2.52 KiB

boringssl	1.49 KiB
harfbuzz-ng	1.10 KiB
angle	0.82 KiB

Mitigations are possible; e.g. [this change in Skia claws back some 3 kB](#). But they have to be investigated piecemeal, depending on the exact build setup of each target.

- Skia has a **BUILD.gn** sitting just atop the git submodule, giving us an easy entry point, but the remaining ~6 kB of growth is yet to be investigated.
- WebRTC gives us no good footing.
- **libvpx** similar.

Per-project perf considerations

TL;DR — broadly, everybody is okay with this landing (either by tacit consensus or by being convinced).

Skia

- [Discussion thread](#)

WebRTC

- [Discussion thread](#)
 - (This veered off into DMs with **Tomas Gunnarsson**)

V8

- [Google-internal] [discussion thread](#)
 - Result: Okay with landing, but will evaluate performance afterwards and might want to revert or opt-out particular parts of code.

ANGLE

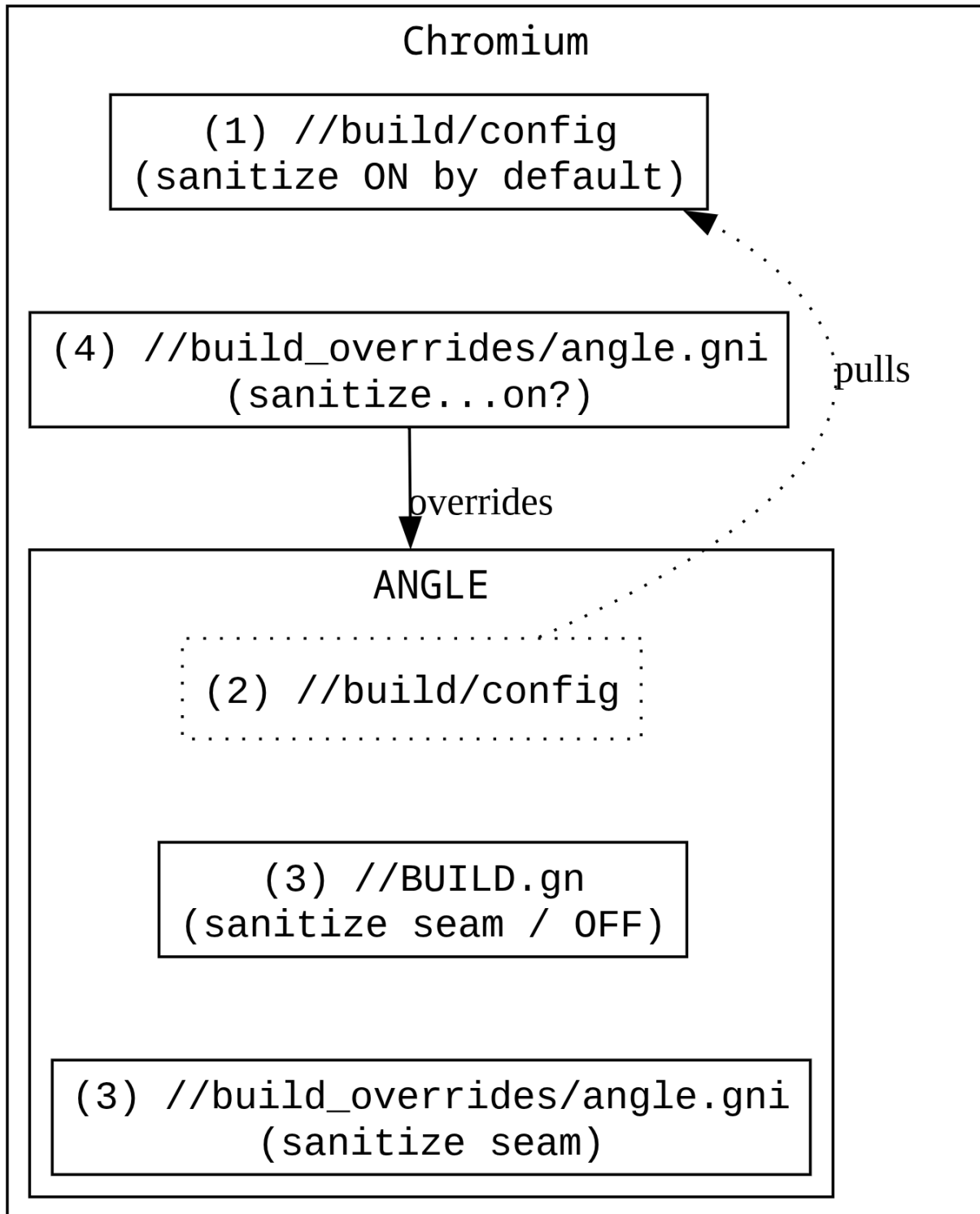
- [Discussion thread](#)

- I was bounced to the [Google-internal] [Chrome Graphics team](#).
- ANGLE requests an opt-out, both when standalone and when embedded in Chromium.

Proposed ANGLE opt-out flow

In prose,

1. Add the compiler config by default under Chromium's `//build/config`, doing nothing special to allow for opt-out.
 - a. We can observe Chromium's performance from here on Chromium perf bots.
2. Let ANGLE roll their copy of `//build/config`.
 - a. We can observe standalone ANGLE's performance from here.
3. Send a CL to modify ANGLE's top-level build recipes, letting them opt out. Expose a seam that can be controlled with [GN's build overrides pattern](#).
 - a. If (2) exposed any perf regressions in standalone ANGLE, this will solve them.
 - b. If ANGLE still firmly rejects the config *when embedded in Chromium*, the build override and (4) become unnecessary.
4. Once Chromium reciprocates with an ANGLE roll, consider using it to let ANGLE gain protection in Chromium.
5. Investigate causes of performance regressions for scoped-opt outs if needed.



Chrome Graphics benchmarks

Jonathan Ross recommended the `rendering.<form factor>` benchmarks with the `representative.<form factor>` and `tough_scrolling` story tags selected.

- [Mac representative_mac_desktop](#)
- [Mac tough_scrolling](#)
- [Android Pixel 4 representative_mobile](#)
- [Android Pixel 9 tough_scrolling](#)

Jonathan Ross read through the results: performance of the Pixel 4 on `representative_mobile` shows Canvas stories flagging a bit, suggesting a general slowdown in ANGLE workloads.

Appendix: non-GN approach to opting out

- See David Benjamin's comment in the GN section below.
 - [Out-of-band comment] He thinks it unlikely that we'll need to actually use this mitigation, but just in case...
- He offers an alternative to the "removable" GN config: [a clang ignorelist](#).
- [...wired into Chromium's build like so](#).

Appendix: opting out via GN

- We tweaked David's CL lightly to allow folks to strip the `sanitize_c_array_bounds` config from build targets (or directories) — [see this example on Gerrit](#).
- Google-internal CL 753218145 uses `[[clang::no_sanitize("array-bounds")]]` to get even more granular. If demand is there, we could introduce an analogue in `compiler_specific.h`.
- We don't want to encourage opting out, though, since this is an issue of safety.

Patching overbroad UBSan checks

Patching overbroad UBSan checks

Context

Using `__has_feature(undefined_behavior_sanitizer)` allows you to gate code that should only be built for UBSan. However, as UBSan is a [heterogeneous collection of checks](#), this condition is too broad. In attempting to enable `-fsanitize=array-bounds` for Chromium, we found that some code reacts badly (e.g. builds costly workarounds).

To patch this, we can tailor the gating to check for the specific sanitizer. Florian Mayer landed the [plumbing for this in upstream LLVM](#).

Narrowing the gating is mainly worthwhile for clearly expressing *exactly* which UBSan check the workaround is being built against, but Florian Mayer mentioned in [Google-internal] [b/430428326#comment10](#) that if we implemented a composable `-fsanitize-ignore-for-ubsan-feature=...`, we could simply use that in the Chromium toolchain for `array-bounds` — that would form a complete workaround for the issue at hand¹.

Non-test work items

David Benjamin wrote a [CodeSearch query to find the over-broad gating we'd like to narrow](#) [[live query](#)].

V8

- Michael Lippautz suggested that PartitionAlloc provide a `__size_returning_new()` ([issue 430336828](#)) to prevent one highly perf-hostile workaround from activating.

Other aspects of V8 — probably optional

- At the top level, V8's “are we UBSan” check branches out into a [general sanitizer checker](#) that we might have to untangle.
- Separately, Michael Lippautz fixed the V8 sandbox.

¹ Need to think: will downstream users of `//build/config/` play nicely with this?

Highway

- Changes the component into a debug build.

Items that are not work

EarlGrey2

- `SANITIZERS_ENABLED` is defined but apparently not used anywhere.
- ...because its only use as of Sep 9, 2025 [is Google-internal](#) — just a diagnostic log.

ANGLE

- [ANGLE wants to opt-out of `-fsanitize=array-bounds` entirely.](#)

`libjpeg_turbo`

- They're just using it to apply `no_sanitize` attributes [\[example\]](#). I don't think this has perf implications.

XNNPACK (developed Google-internally)

- Remarks on Google-internal [cl/799298215](#) suggest this is integer overflow of some kind. As with `libjpeg_turbo`, should not be problematic for perf.

Appendix: Dot diagram source

Graphviz source

```
None
digraph {
    fontname = "Noto Sans Mono"
    compound = true
    node[fontname="Courier New" shape=box]

    subgraph cluster_chromium {
        label = Chromium
        build[label="(1) //build/config\n(sanitize ON by default)"]
        overrides[label="(4) //build_overrides/angle.gni\n(sanitize...on?)"]
        build->overrides[style=invisible, dir=none]

        subgraph cluster_angle {
            label = "ANGLE"
            angle_build[label="(2) //build/config", style=dotted]
            angle_build_gn[label="(3) //BUILD.gn\n(sanitize seam / OFF)"]
            angle_overrides[label="(3) //build_overrides/angle.gni\n(sanitize seam)"]
            angle_build->angle_build_gn->angle_overrides[style=invisible, dir=none]
        }
        angle_build->build[label="pulls", style=dotted, constraint=false]
        overrides->angle_build[label="overrides", lhead=cluster_angle]
    }
}
```

Appendix: x86 ASan bot address space issue

x86 ASan bot address space issue

The initial CL enabling `-fsanitize=array-bounds` was reverted in [6600050](#). The symptoms shown were identical to [issue 40891132](#).

I could readily reproduce this in my own tree, so I took an `strace` of the offending action. This trace had these constraints:

- Trace successful `openat()` syscalls with `LARGEFILE` in their flags.
- Look only for `.so` files in our `out/` directory (i.e. shared objects that can participate in growth / shrinkage).

Diff (measured in KB)

Cumulatively, these total ~16 MB.

```
None
[(2880, 'libthird_party_webrtc_overrides_webrtc_component.so'),
 (2776, 'libmedia.so'),
 (2688, 'libblink_modules.so'),
 (2460, 'libmedia_gpu.so'),
 (600, 'libblink_platform.so'),
 (500, 'libdawn_native.so'),
 (460, 'libimage_decoders.so'),
 (392, 'libblink_core.so'),
 (316, 'libskia.so'),
 (244, 'libcomponents_language_detection_core.so'),
 (148, 'libblink_common.so'),
 (144, 'libmedia_capture_capture_lib.so'),
 (132, 'libgpu_gles2.so'),
 (100, 'libffmpeg.so'),
 (100, 'libgpu.so'),
 (96, 'libdevice_fido.so'),
 (84, 'libviz_common.so'),
```

```
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(72, 'libnet.so'),
(72, 'libui_compositor.so'),
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(68, 'libgamepad_mojom_blink.so'),
(68, 'libmojom_platform_shared.so'),
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(48, 'libthird_party_harfbuzz-ng.so'),
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(40, 'libnetwork_cpp.so'),
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(36, 'libcomponents_optimization_guide_core_features.so'),
(36, 'libgoogle_apis.so'),
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(36, 'libui_ozone.so'),
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(32, 'libtracing_cpp.so'),
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(28, 'libnetwork_cpp_base.so'),
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(28, 'libv8.so'),
(24, 'libmedia_capture_mojom_video_capture_mojom_support.so'),
```



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```

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(0, 'libwebnn_mojom.so'),
(0, 'libx11_events_platform.so'),
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'libbase_allocator_partition_allocator_src_partition_alloc_allocator_core.so')]

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Before (no sanitize)

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16992
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.so
5896
/usr/local/google/home/kdlee/chromium/src/out/default/libandroid_mojo_bindings_
shared.so
112      /usr/local/google/home/kdlee/chromium/src/out/default/libatomic.so

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168

/usr/local/google/home/kdlee/chromium/src/out/default/libautofill_core_common_features.so

204

/usr/local/google/home/kdlee/chromium/src/out/default/libbase_allocator_partition_allocator_src_partition_alloc_allocator_base.so

992

/usr/local/google/home/kdlee/chromium/src/out/default/libbase_allocator_partition_allocator_src_partition_alloc_allocator_core.so

8

/usr/local/google/home/kdlee/chromium/src/out/default/libbase_allocator_partition_allocator_src_partition_alloc_allocator_shim.so

12

/usr/local/google/home/kdlee/chromium/src/out/default/libbase_allocator_partition_allocator_src_partition_alloc_raw_ptr.so

1420 /usr/local/google/home/kdlee/chromium/src/out/default/libbase_i18n.so

58320 /usr/local/google/home/kdlee/chromium/src/out/default/libbase.so

260068

/usr/local/google/home/kdlee/chromium/src/out/default/libblink_common.so

3324

/usr/local/google/home/kdlee/chromium/src/out/default/libblink_controller.so

678988 /usr/local/google/home/kdlee/chromium/src/out/default/libblink_core.so

8004

/usr/local/google/home/kdlee/chromium/src/out/default/libblink_embedded_frame_sink_mojom_bindings_shared.so

56

/usr/local/google/home/kdlee/chromium/src/out/default/libblink_gpu_mojom_shared.so

416

/usr/local/google/home/kdlee/chromium/src/out/default/libblink_gpu_mojom.so

24

/usr/local/google/home/kdlee/chromium/src/out/default/libblink_histogram.so

577608

/usr/local/google/home/kdlee/chromium/src/out/default/libblink_modules.so

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568
/usr/local/google/home/kdlee/chromium/src/out/default/libbrowsing_topics_common
.so
2988
/usr/local/google/home/kdlee/chromium/src/out/default/libcc_animation.so
1328    /usr/local/google/home/kdlee/chromium/src/out/default/libcc_base.so
140     /usr/local/google/home/kdlee/chromium/src/out/default/libcc_debug.so
28      /usr/local/google/home/kdlee/chromium/src/out/default/libcc_ipc.so
88532
/usr/local/google/home/kdlee/chromium/src/out/default/libcc_mojo_embedder.so
13392   /usr/local/google/home/kdlee/chromium/src/out/default/libcc_paint.so
8064
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124
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20

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shared.so
1476
/usr/local/google/home/kdlee/chromium/src/out/default/libgpu_config_vulkan_info
.so
71464   /usr/local/google/home/kdlee/chromium/src/out/default/libgpu_gles2.so
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/usr/local/google/home/kdlee/chromium/src/out/default/libgpu_ipc_client.so
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16

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7768

/usr/local/google/home/kdlee/chromium/src/out/default/libgpu_ipc_service.so

64 /usr/local/google/home/kdlee/chromium/src/out/default/libgpu_mailbox.so

1632 /usr/local/google/home/kdlee/chromium/src/out/default/libgpu_raster.so

24260 /usr/local/google/home/kdlee/chromium/src/out/default/libgpu.so

584 /usr/local/google/home/kdlee/chromium/src/out/default/libgpu_webgpu.so

8032 /usr/local/google/home/kdlee/chromium/src/out/default/libicuuc.so

123688

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268

/usr/local/google/home/kdlee/chromium/src/out/default/libime_shared_mojom_traits.so

248

/usr/local/google/home/kdlee/chromium/src/out/default/libipc_message_support.so

72

/usr/local/google/home/kdlee/chromium/src/out/default/libipc_mojom_shared.so

380 /usr/local/google/home/kdlee/chromium/src/out/default/libipc_mojom.so

3624 /usr/local/google/home/kdlee/chromium/src/out/default/libipc.so

312

/usr/local/google/home/kdlee/chromium/src/out/default/libkeycodes_x11.so

1360

/usr/local/google/home/kdlee/chromium/src/out/default/libkeyed_service_core.so

620

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572

/usr/local/google/home/kdlee/chromium/src/out/default/liblearning_common.so

6112

/usr/local/google/home/kdlee/chromium/src/out/default/liblearning_impl.so

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196
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base.so
100844
/usr/local/google/home/kdlee/chromium/src/out/default/libmedia_capture_capture_
lib.so
16
/usr/local/google/home/kdlee/chromium/src/out/default/libmedia_capture_capture_
switches.so
7164
/usr/local/google/home/kdlee/chromium/src/out/default/libmedia_capture_mojom_vi
deo_capture_mojom_support.so
108
/usr/local/google/home/kdlee/chromium/src/out/default/libmedia_gpu_buffer_valid
ation.so
127684 /usr/local/google/home/kdlee/chromium/src/out/default/libmedia_gpu.so
680
/usr/local/google/home/kdlee/chromium/src/out/default/libmedia_learning_mojom_im
pl.so
636
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232
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typemap_traits.so
272
/usr/local/google/home/kdlee/chromium/src/out/default/libmedia_session_base_cpp
.so
668
/usr/local/google/home/kdlee/chromium/src/out/default/libmedia_shared_memory_su
pport.so
102828 /usr/local/google/home/kdlee/chromium/src/out/default/libmedia.so
716
/usr/local/google/home/kdlee/chromium/src/out/default/libmedia_webrtc.so
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52

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228

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/usr/local/google/home/kdlee/chromium/src/out/default/libmojo_base_mojom_blink.so

64

/usr/local/google/home/kdlee/chromium/src/out/default/libmojo_base_mojom_protobuf_support_blink.so

48

/usr/local/google/home/kdlee/chromium/src/out/default/libmojo_base_mojom_protobuf_support_shared.so

56

/usr/local/google/home/kdlee/chromium/src/out/default/libmojo_base_mojom_protobuf_support.so

380

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1100

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108

/usr/local/google/home/kdlee/chromium/src/out/default/libmojo_base_protobuf_support.so

48

/usr/local/google/home/kdlee/chromium/src/out/default/libmojo_base_protobuf_support_traits.so

396

/usr/local/google/home/kdlee/chromium/src/out/default/libmojo_base_shared_type_map_traits.so

132

/usr/local/google/home/kdlee/chromium/src/out/default/libmojo_base_type_map_traits.so

28

/usr/local/google/home/kdlee/chromium/src/out/default/libmojo_core_embedder_features.so

7992

/usr/local/google/home/kdlee/chromium/src/out/default/libmojo_core_embedder_internal.so

5548

/usr/local/google/home/kdlee/chromium/src/out/default/libmojo_core_embedder.so
324

/usr/local/google/home/kdlee/chromium/src/out/default/libmojo_cpp_platform.so
10236

/usr/local/google/home/kdlee/chromium/src/out/default/libmojom_core_shared.so
44

/usr/local/google/home/kdlee/chromium/src/out/default/libmojom_mhtml_load_result_shared.so

836

/usr/local/google/home/kdlee/chromium/src/out/default/libmojom_modules_shared.so

160

/usr/local/google/home/kdlee/chromium/src/out/default/libmojo_mojom_bindings_shared.so

520

/usr/local/google/home/kdlee/chromium/src/out/default/libmojo_mojom_bindings.so
17872

/usr/local/google/home/kdlee/chromium/src/out/default/libmojom_platform_shared.so

1256

/usr/local/google/home/kdlee/chromium/src/out/default/libmojo_public_cpp_bindings_base.so

4076

/usr/local/google/home/kdlee/chromium/src/out/default/libmojo_public_cpp_bindings.so

85192

/usr/local/google/home/kdlee/chromium/src/out/default/libmojo_public_cpp_bindings_wtf_support.so

1544

/usr/local/google/home/kdlee/chromium/src/out/default/libmojo_public_system_cpp.so

92

/usr/local/google/home/kdlee/chromium/src/out/default/libmojo_public_system.so

16

/usr/local/google/home/kdlee/chromium/src/out/default/libnative_theme_features.so

64

/usr/local/google/home/kdlee/chromium/src/out/default/libnet_shared_dictionary_info.so

101092 /usr/local/google/home/kdlee/chromium/src/out/default/libnet.so

36720

/usr/local/google/home/kdlee/chromium/src/out/default/libnet_third_party_quiche.so

108

/usr/local/google/home/kdlee/chromium/src/out/default/libnet_third_party_uri_template.so

23140

/usr/local/google/home/kdlee/chromium/src/out/default/libnetwork_cpp_base.so

49352 /usr/local/google/home/kdlee/chromium/src/out/default/libnetwork_cpp.so

60

/usr/local/google/home/kdlee/chromium/src/out/default/liborigin_trial_features_shared.so

124

/usr/local/google/home/kdlee/chromium/src/out/default/liborigin_trial_state_shared.so

1876

/usr/local/google/home/kdlee/chromium/src/out/default/libperformance_manager_public_mojom_blink.so

208

/usr/local/google/home/kdlee/chromium/src/out/default/libperformance_manager_public_mojom_shared.so

12

/usr/local/google/home/kdlee/chromium/src/out/default/libplatform_window_common.so

36

/usr/local/google/home/kdlee/chromium/src/out/default/libplatform_window_wm.so

32

/usr/local/google/home/kdlee/chromium/src/out/default/libplus_addresses_features.so

1040

/usr/local/google/home/kdlee/chromium/src/out/default/libprinting_metafile.so

60

/usr/local/google/home/kdlee/chromium/src/out/default/libprivacy_sandbox_features.so

4344

/usr/local/google/home/kdlee/chromium/src/out/default/libprivate_network_device_shared.so

56

/usr/local/google/home/kdlee/chromium/src/out/default/libquota_shared.so

3532

/usr/local/google/home/kdlee/chromium/src/out/default/libresource_coordinator_public_mojom_blink.so

392

/usr/local/google/home/kdlee/chromium/src/out/default/libresource_coordinator_public_mojom_shared.so

3328

/usr/local/google/home/kdlee/chromium/src/out/default/libresource_coordinator_public_mojom.so

44

/usr/local/google/home/kdlee/chromium/src/out/default/libruntime_feature_state_shared.so

64

/usr/local/google/home/kdlee/chromium/src/out/default/libscript_type_mojom_shared.so

12

/usr/local/google/home/kdlee/chromium/src/out/default/libscript_type_mojom.so

1192

/usr/local/google/home/kdlee/chromium/src/out/default/libservice_manager_cpp.so

288

/usr/local/google/home/kdlee/chromium/src/out/default/libservice_manager_cpp_types.so

1668

/usr/local/google/home/kdlee/chromium/src/out/default/libservice_manager_mojom_blink.so

28

/usr/local/google/home/kdlee/chromium/src/out/default/libservice_manager_mojom_constants_blink.so

12

/usr/local/google/home/kdlee/chromium/src/out/default/libservice_manager_mojom_constants_shared.so

20

/usr/local/google/home/kdlee/chromium/src/out/default/libservice_manager_mojom_constants.so

240

/usr/local/google/home/kdlee/chromium/src/out/default/libservice_manager_mojom_shared.so

1604

/usr/local/google/home/kdlee/chromium/src/out/default/libservice_manager_mojom.so

60

/usr/local/google/home/kdlee/chromium/src/out/default/libservice_manager_mojom_traits.so

5308

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_data_decoder_public_cpp_service_provider.so

892

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_device_public_cpp_device_features.so

5432

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_metrics_public_cpp_metrics_cpp.so

348

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_ad_auction_support.so

672

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_cookies_mojom_support.so

16

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_crash_keys.so

2620

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_cross_origin_embedder_policy.so

2620

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_document_isolation_policy.so

2584

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_fetch_retry_options.so

712

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_first_party_sets_mojom_support.so

332

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_flags_and_switches.so

2948

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_host_resolver_mojom_support.so

472

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_integrity_policy.so

428

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_ip_address_mojom_support.so

232

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_is_potentially_trustworthy.so

736

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_network_param_mojom_support.so

364

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_proxy_config_mojom_support.so

144

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_schemeful_site_mojom_support.so

408

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_shared_storage_support.so

44

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_storage_access_api_mojom_support.so

400

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_structured_headers_mojom_support.so

6264

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_web_platform.so

564

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_on_device_model_public_cpp_types.so

720

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_proxy_resolver_public_cpp_proxy_resolver_mojom_support.so

1156

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_resource_coordinator_public_cpp_memory_instrumentation.so

12

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_viz_privileged_features_mojom_shared.so

12

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_viz_privileged_features_mojom.so

1404

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_webnn_public_cpp.so

36

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_webnn_public_mojom_webnn_mojom_traits.so

84

/usr/local/google/home/kdlee/chromium/src/out/default/libservice_worker_storage_mojom_shared.so

136

/usr/local/google/home/kdlee/chromium/src/out/default/libservice_worker_storage_mojom.so

12

/usr/local/google/home/kdlee/chromium/src/out/default/libshared_image_pool_client_interface_shared.so

60

/usr/local/google/home/kdlee/chromium/src/out/default/libsignin_switches.so

1116

/usr/local/google/home/kdlee/chromium/src/out/default/libskia_shared_typedmap_traits.so

12

/usr/local/google/home/kdlee/chromium/src/out/default/libskia_skia_switches.so

```
153920 /usr/local/google/home/kdlee/chromium/src/out/default/libskia.so
2260   /usr/local/google/home/kdlee/chromium/src/out/default/libsql.so
86876
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88
/usr/local/google/home/kdlee/chromium/src/out/default/libstorage_key_shared.so
192
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116
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52     /usr/local/google/home/kdlee/chromium/src/out/default/libstub_window.so
8264
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6124
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416
/usr/local/google/home/kdlee/chromium/src/out/default/libthird_party_blink_public_mojom_tokens_tokens_traits.so
11384
/usr/local/google/home/kdlee/chromium/src/out/default/libthird_party_boringssl.so
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6476

/usr/local/google/home/kdlee/chromium/src/out/default/libthird_party_fontconfig
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4580

/usr/local/google/home/kdlee/chromium/src/out/default/libthird_party_freetype.s
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19420

/usr/local/google/home/kdlee/chromium/src/out/default/libthird_party_harfbuzz-n
g.so

12872

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/usr/local/google/home/kdlee/chromium/src/out/default/libthird_party_inspector_
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6912

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520

/usr/local/google/home/kdlee/chromium/src/out/default/libthird_party_liburlpatt
ern.so

55920

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ibperfetto.so

6488

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5016

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romium_sqlite3.so

167636

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rrides_webrtc_component.so

96

/usr/local/google/home/kdlee/chromium/src/out/default/libtokens_mojom_shared.so

15784 /usr/local/google/home/kdlee/chromium/src/out/default/libtracing_cpp.so

324

/usr/local/google/home/kdlee/chromium/src/out/default/libtracing_mojom_shared.s

o

2748

/usr/local/google/home/kdlee/chromium/src/out/default/libtracing_mojom.so

11272

/usr/local/google/home/kdlee/chromium/src/out/default/libui_accessibility_accessibility_internal.so

1888

/usr/local/google/home/kdlee/chromium/src/out/default/libui_accessibility_ax_base.so

12

/usr/local/google/home/kdlee/chromium/src/out/default/libui_accessibility_ax_features_mojom_shared.so

12

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20

/usr/local/google/home/kdlee/chromium/src/out/default/libui_accessibility_ax_mojom_blink.so

268

/usr/local/google/home/kdlee/chromium/src/out/default/libui_accessibility_ax_mojom_shared.so

12

/usr/local/google/home/kdlee/chromium/src/out/default/libui_accessibility_ax_mojom.so

4952 /usr/local/google/home/kdlee/chromium/src/out/default/libui_aura.so

3088

/usr/local/google/home/kdlee/chromium/src/out/default/libui_base_clipboard.so

```
56
/usr/local/google/home/kdlee/chromium/src/out/default/libui_base_clipboard_type
s.so
332
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16
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so
44
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policy.so
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420
/usr/local/google/home/kdlee/chromium/src/out/default/libui_base_ime_linux.so
1548    /usr/local/google/home/kdlee/chromium/src/out/default/libui_base_ime.so
492
/usr/local/google/home/kdlee/chromium/src/out/default/libui_base_ime_types.so
```



```
2616
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964
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548
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o
5060   /usr/local/google/home/kdlee/chromium/src/out/default/libui_base_x.so
48
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.so
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1172   /usr/local/google/home/kdlee/chromium/src/out/default/libui_color.so
96832
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2324   /usr/local/google/home/kdlee/chromium/src/out/default/libui_display.so
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features.so
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468
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1536
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ction.so
24
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212

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k.so

220

/usr/local/google/home/kdlee/chromium/src/out/default/libui_events_platform.so

2492 /usr/local/google/home/kdlee/chromium/src/out/default/libui_events.so

408

/usr/local/google/home/kdlee/chromium/src/out/default/libui_events_velocity_tra
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1184

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572

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372

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1636

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288

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912

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ry_skia.so

660

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56

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16

/usr/local/google/home/kdlee/chromium/src/out/default/libui_gfx_gfx_switches.so

708

/usr/local/google/home/kdlee/chromium/src/out/default/libui_gfx_linux_gpu_memor
y_buffer_support_x11.so

60

/usr/local/google/home/kdlee/chromium/src/out/default/libui_gfx_range.so

```
9636    /usr/local/google/home/kdlee/chromium/src/out/default/libui_gfx.so
360
/usr/local/google/home/kdlee/chromium/src/out/default/libui_gl_gl_enums.so
268
/usr/local/google/home/kdlee/chromium/src/out/default/libui_linux_linux_ui.so
856    /usr/local/google/home/kdlee/chromium/src/out/default/libui_lottie.so
1052
/usr/local/google/home/kdlee/chromium/src/out/default/libui_native_theme.so
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and_wayland_proxy.so
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152
/usr/local/google/home/kdlee/chromium/src/out/default/liburl_mojom_traits.so
1484   /usr/local/google/home/kdlee/chromium/src/out/default/liburl.so
332    /usr/local/google/home/kdlee/chromium/src/out/default/libusb_shared.so
1468   /usr/local/google/home/kdlee/chromium/src/out/default/libv8_libbase.so
816
/usr/local/google/home/kdlee/chromium/src/out/default/libv8_libplatform.so
535128 /usr/local/google/home/kdlee/chromium/src/out/default/libv8.so
12
/usr/local/google/home/kdlee/chromium/src/out/default/libvariations_features.so
10204  /usr/local/google/home/kdlee/chromium/src/out/default/libviz_common.so
156
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t.so
```

```
216
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36      /usr/local/google/home/kdlee/chromium/src/out/default/libvulkan_init.so
192
/usr/local/google/home/kdlee/chromium/src/out/default/libvulkan_interface_share
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6468
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340
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dings_shared.so
684
/usr/local/google/home/kdlee/chromium/src/out/default/libwebdata_common.so
20
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ngs_mojom_blink.so
1180
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ngs_mojom_shared.so
12
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20
/usr/local/google/home/kdlee/chromium/src/out/default/libwebnn_mojom_features_b
link.so
12
/usr/local/google/home/kdlee/chromium/src/out/default/libwebnn_mojom_features_s
hared.so
12
/usr/local/google/home/kdlee/chromium/src/out/default/libwebnn_mojom_features.s
o
```

```
692
/usr/local/google/home/kdlee/chromium/src/out/default/libwebnn_mojom_shared.so
6064    /usr/local/google/home/kdlee/chromium/src/out/default/libwebnn_mojom.so
880
/usr/local/google/home/kdlee/chromium/src/out/default/libx11_events_platform.so
```

After (with sanitize)

```
None
17012
/usr/local/google/home/kdlee/chromium/src/out/default/libaccessibility_platform
.so
5916
/usr/local/google/home/kdlee/chromium/src/out/default/libandroid_mojo_bindings_
shared.so
112    /usr/local/google/home/kdlee/chromium/src/out/default/libatomic.so
168
/usr/local/google/home/kdlee/chromium/src/out/default/libautofill_core_common_f
eatures.so
204
/usr/local/google/home/kdlee/chromium/src/out/default/libbase_allocator_partiti
on_allocator_src_partition_alloc_allocator_base.so
988
/usr/local/google/home/kdlee/chromium/src/out/default/libbase_allocator_partiti
on_allocator_src_partition_alloc_allocator_core.so
8
/usr/local/google/home/kdlee/chromium/src/out/default/libbase_allocator_partiti
on_allocator_src_partition_alloc_allocator_shim.so
12
/usr/local/google/home/kdlee/chromium/src/out/default/libbase_allocator_partiti
on_allocator_src_partition_alloc_raw_ptr.so
1440    /usr/local/google/home/kdlee/chromium/src/out/default/libbase_i18n.so
```

```
58364    /usr/local/google/home/kdlee/chromium/src/out/default/libbase.so
260216
/usr/local/google/home/kdlee/chromium/src/out/default/libblink_common.so
3324
/usr/local/google/home/kdlee/chromium/src/out/default/libblink_controller.so
679380   /usr/local/google/home/kdlee/chromium/src/out/default/libblink_core.so
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568
/usr/local/google/home/kdlee/chromium/src/out/default/libbrowsing_topics_common
.so
2988
/usr/local/google/home/kdlee/chromium/src/out/default/libcc_animation.so
1328     /usr/local/google/home/kdlee/chromium/src/out/default/libcc_base.so
140      /usr/local/google/home/kdlee/chromium/src/out/default/libcc_debug.so
28       /usr/local/google/home/kdlee/chromium/src/out/default/libcc_ipc.so
88596
/usr/local/google/home/kdlee/chromium/src/out/default/libcc_mojo_embedder.so
13412    /usr/local/google/home/kdlee/chromium/src/out/default/libcc_paint.so
```

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8092
/usr/local/google/home/kdlee/chromium/src/out/default/libcc_shared_mojom_traits
.so
56632  /usr/local/google/home/kdlee/chromium/src/out/default/libcc.so
644    /usr/local/google/home/kdlee/chromium/src/out/default/libchrome_zlib.so
44
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ings_shared.so
124
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so
140
/usr/local/google/home/kdlee/chromium/src/out/default/libcomponents_aggregation
_service.so
172
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692
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32

/usr/local/google/home/kdlee/chromium/src/out/default/libcomponents_country_codes.so

356

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8156

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796

/usr/local/google/home/kdlee/chromium/src/out/default/libcomponents_metrics_metrics_component.so

13712

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364

/usr/local/google/home/kdlee/chromium/src/out/default/libcomponents_os_crypto_async_browser.so

372

/usr/local/google/home/kdlee/chromium/src/out/default/libcomponents_os_crypt_async_common.so

632

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556

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2156

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528

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97956

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52

/usr/local/google/home/kdlee/chromium/src/out/default/libcontent_settings_features.so

1140 /usr/local/google/home/kdlee/chromium/src/out/default/libccrypto.so

6072 /usr/local/google/home/kdlee/chromium/src/out/default/libc++.so

158252 /usr/local/google/home/kdlee/chromium/src/out/default/libdawn_native.so

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640
/usr/local/google/home/kdlee/chromium/src/out/default/libdawn_platform.so
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9340     /usr/local/google/home/kdlee/chromium/src/out/default/libdawn_wire.so
3524     /usr/local/google/home/kdlee/chromium/src/out/default/libdbus.so
12       /usr/local/google/home/kdlee/chromium/src/out/default/libdevice_base.so
12
/usr/local/google/home/kdlee/chromium/src/out/default/libdevice_bluetooth_public_cpp_features.so
33668
/usr/local/google/home/kdlee/chromium/src/out/default/libdevice_bluetooth.so
109688  /usr/local/google/home/kdlee/chromium/src/out/default/libdevice_fido.so
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/usr/local/google/home/kdlee/chromium/src/out/default/libdevice_gamepad_public_cpp_shared_with_blink.so
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mon.so
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1088
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/usr/local/google/home/kdlee/chromium/src/out/default/libevents_ozone_layout.so
1188
/usr/local/google/home/kdlee/chromium/src/out/default/libevents_ozone.so
192    /usr/local/google/home/kdlee/chromium/src/out/default/libevents_x.so
7532   /usr/local/google/home/kdlee/chromium/src/out/default/libffmpeg.so
86136
/usr/local/google/home/kdlee/chromium/src/out/default/libgamepad_mojom_blink.so
156
/usr/local/google/home/kdlee/chromium/src/out/default/libgamepad_mojom_shared.s
o
132
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_traits.so
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/usr/local/google/home/kdlee/chromium/src/out/default/libgfx_ipc_skia.so
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/usr/local/google/home/kdlee/chromium/src/out/default/libgfx_shared_mojom_trait
s.so
12972   /usr/local/google/home/kdlee/chromium/src/out/default/libgfx_x11.so
1712    /usr/local/google/home/kdlee/chromium/src/out/default/libgin.so
1208    /usr/local/google/home/kdlee/chromium/src/out/default/libgl_init.so
48
/usr/local/google/home/kdlee/chromium/src/out/default/libgl_mojom_blink.so
60
/usr/local/google/home/kdlee/chromium/src/out/default/libgl_mojom_shared.so
64      /usr/local/google/home/kdlee/chromium/src/out/default/libgl_mojom.so
14248   /usr/local/google/home/kdlee/chromium/src/out/default/libgl_wrapper.so
46816   /usr/local/google/home/kdlee/chromium/src/out/default/libgoogle_apis.so
764
/usr/local/google/home/kdlee/chromium/src/out/default/libgpu_channel_mojom_shar
ed.so
7824
/usr/local/google/home/kdlee/chromium/src/out/default/libgpu_command_buffer_cli
ent_gles2_implementation.so
```

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2704
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628
/usr/local/google/home/kdlee/chromium/src/out/default/libgpu_command_buffer_common.so
2992
/usr/local/google/home/kdlee/chromium/src/out/default/libgpu_command_buffer_service.so
892
/usr/local/google/home/kdlee/chromium/src/out/default/libgpu_common_interfaces_shared.so
1476
/usr/local/google/home/kdlee/chromium/src/out/default/libgpu_config_vulkan_info.so
71596   /usr/local/google/home/kdlee/chromium/src/out/default/libgpu_gles2.so
2236
/usr/local/google/home/kdlee/chromium/src/out/default/libgpu_ipc_client.so
16
/usr/local/google/home/kdlee/chromium/src/out/default/libgpu_ipc_common_vulkan_ycbcr_info.so
7776
/usr/local/google/home/kdlee/chromium/src/out/default/libgpu_ipc_service.so
64      /usr/local/google/home/kdlee/chromium/src/out/default/libgpu_mailbox.so
1632    /usr/local/google/home/kdlee/chromium/src/out/default/libgpu_raster.so
24360   /usr/local/google/home/kdlee/chromium/src/out/default/libgpu.so
584     /usr/local/google/home/kdlee/chromium/src/out/default/libgpu_webgpu.so
8088    /usr/local/google/home/kdlee/chromium/src/out/default/libicuuc.so
124148
/usr/local/google/home/kdlee/chromium/src/out/default/libimage_decoders.so
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268

/usr/local/google/home/kdlee/chromium/src/out/default/libime_shared_mojom_traits.so

248

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72

/usr/local/google/home/kdlee/chromium/src/out/default/libipc_mojom_shared.so

380 /usr/local/google/home/kdlee/chromium/src/out/default/libipc_mojom.so

3628 /usr/local/google/home/kdlee/chromium/src/out/default/libipc.so

312

/usr/local/google/home/kdlee/chromium/src/out/default/libkeycodes_x11.so

1364

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620

/usr/local/google/home/kdlee/chromium/src/out/default/liblatency_shared_mojom_traits.so

576

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6112

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196

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100988

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16

/usr/local/google/home/kdlee/chromium/src/out/default/libmedia_capture_capture_switches.so

7188

/usr/local/google/home/kdlee/chromium/src/out/default/libmedia_capture_mojom_video_capture_mojom_support.so

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130144 /usr/local/google/home/kdlee/chromium/src/out/default/libmedia_gpu.so
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/usr/local/google/home/kdlee/chromium/src/out/default/libmedia_learning_mojo_impl.so

636

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232

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276

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668

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105604 /usr/local/google/home/kdlee/chromium/src/out/default/libmedia.so

716

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52

/usr/local/google/home/kdlee/chromium/src/out/default/libmiracle_parameter_common.so

228

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1136

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64

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52

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56

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380

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48

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396

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132

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28

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7992

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5548

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328

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10272

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44

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840

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164

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524

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17940

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1256

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1544

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92

/usr/local/google/home/kdlee/chromium/src/out/default/libmojo_public_system.so

16

/usr/local/google/home/kdlee/chromium/src/out/default/libnative_theme_features.so

64

/usr/local/google/home/kdlee/chromium/src/out/default/libnet_shared_dictionary_info.so

101164 /usr/local/google/home/kdlee/chromium/src/out/default/libnet.so

36752

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108

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124

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1876

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212

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12

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36

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56

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5312

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892

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5448

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_metrics_public_cpp_metrics_cpp.so

348

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676

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16

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_crash_keys.so

2632

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2632

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_document_isolation_policy.so

2592

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_fetch_retry_options.so

712

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_first_party_sets_mojom_support.so

332

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_flags_and_switches.so

2960

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_host_resolver_mojom_support.so

472

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_integrity_policy.so

428

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_ip_address_mojom_support.so

232

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_is_potentially_trustworthy.so

740

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_network_param_mojom_support.so

364

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_proxy_config_mojom_support.so

144

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_schemeful_site_mojom_support.so

412

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_shared_storage_support.so

48

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400

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_structured_headers_mojom_support.so

6280

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_network_public_cpp_web_platform.so

564

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_on_device_model_public_cpp_types.so

724

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_proxy_resolver_public_cpp_proxy_resolver_mojom_support.so

1156

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_resource_coordinator_public_cpp_memory_instrumentation.so

12

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_viz_privileged_features_mojom_shared.so

12

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_viz_privileged_features_mojom.so

1404

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36

/usr/local/google/home/kdlee/chromium/src/out/default/libservices_webnn_public_mojom_webnn_mojom_traits.so

84

/usr/local/google/home/kdlee/chromium/src/out/default/libservice_worker_storage_mojom_shared.so

140

/usr/local/google/home/kdlee/chromium/src/out/default/libservice_worker_storage_mojom.so

12

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60

/usr/local/google/home/kdlee/chromium/src/out/default/libsignin_switches.so

1124

/usr/local/google/home/kdlee/chromium/src/out/default/libskia_shared_typemap_traits.so

12

/usr/local/google/home/kdlee/chromium/src/out/default/libskia_skia_switches.so

154236 /usr/local/google/home/kdlee/chromium/src/out/default/libskia.so

2264 /usr/local/google/home/kdlee/chromium/src/out/default/libsql.so

86940

/usr/local/google/home/kdlee/chromium/src/out/default/libstorage_common.so

88

/usr/local/google/home/kdlee/chromium/src/out/default/libstorage_key_shared.so

192

/usr/local/google/home/kdlee/chromium/src/out/default/libstorage_service_buckets_support.so

116

/usr/local/google/home/kdlee/chromium/src/out/default/libstorage_service_filesystem_mojom_shared.so

1352

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572

/usr/local/google/home/kdlee/chromium/src/out/default/libstorage_service_filesystem_support.so

36

/usr/local/google/home/kdlee/chromium/src/out/default/libstorage_service_typeapp_traits.so

52 /usr/local/google/home/kdlee/chromium/src/out/default/libstub_window.so

8284

/usr/local/google/home/kdlee/chromium/src/out/default/libthird_party_abseil-cpp_absl.so

6124

/usr/local/google/home/kdlee/chromium/src/out/default/libthird_party_blink_common_privacy_budget.so

416

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11460

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1376

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96

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/usr/local/google/home/kdlee/chromium/src/out/default/libtracing_mojom_shared.so

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12

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268

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12

/usr/local/google/home/kdlee/chromium/src/out/default/libui_accessibility_ax_mojom.so

4956 /usr/local/google/home/kdlee/chromium/src/out/default/libui_aura.so

3092

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56

/usr/local/google/home/kdlee/chromium/src/out/default/libui_base_clipboard_types.so

332

/usr/local/google/home/kdlee/chromium/src/out/default/libui_base_cursor_base.so

16

/usr/local/google/home/kdlee/chromium/src/out/default/libui_base_data_exchange.so

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44
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policy.so
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.so
64
/usr/local/google/home/kdlee/chromium/src/out/default/libui_base_features.so
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/usr/local/google/home/kdlee/chromium/src/out/default/libui_base_ime_init.so
424
/usr/local/google/home/kdlee/chromium/src/out/default/libui_base_ime_linux.so
1552    /usr/local/google/home/kdlee/chromium/src/out/default/libui_base_ime.so
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/usr/local/google/home/kdlee/chromium/src/out/default/libui_base_ime_types.so
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/usr/local/google/home/kdlee/chromium/src/out/default/libui_base_metadata.so
964
/usr/local/google/home/kdlee/chromium/src/out/default/libui_base_prediction.so
10688   /usr/local/google/home/kdlee/chromium/src/out/default/libui_base.so
548
/usr/local/google/home/kdlee/chromium/src/out/default/libui_base_ui_data_pack.s
o
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5060    /usr/local/google/home/kdlee/chromium/src/out/default/libui_base_x.so
48
/usr/local/google/home/kdlee/chromium/src/out/default/libui_color_color_provide
r_key.so
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.so
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/usr/local/google/home/kdlee/chromium/src/out/default/libui_color_mixers.so
1172    /usr/local/google/home/kdlee/chromium/src/out/default/libui_color.so
96904
/usr/local/google/home/kdlee/chromium/src/out/default/libui_compositor.so
2332    /usr/local/google/home/kdlee/chromium/src/out/default/libui_display.so
12
/usr/local/google/home/kdlee/chromium/src/out/default/libui_events_blink_blink_
features.so
724
/usr/local/google/home/kdlee/chromium/src/out/default/libui_events_devices.so
472
/usr/local/google/home/kdlee/chromium/src/out/default/libui_events_events_base.
so
1536
/usr/local/google/home/kdlee/chromium/src/out/default/libui_events_gesture_dete
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/usr/local/google/home/kdlee/chromium/src/out/default/libui_events_ipc.so
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/usr/local/google/home/kdlee/chromium/src/out/default/libui_events_keyboard_hoo
k.so
220
/usr/local/google/home/kdlee/chromium/src/out/default/libui_events_platform.so
2492    /usr/local/google/home/kdlee/chromium/src/out/default/libui_events.so
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408
/usr/local/google/home/kdlee/chromium/src/out/default/libui_events_velocity_tracker.so
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/usr/local/google/home/kdlee/chromium/src/out/default/libui_gfx_animation.so
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712
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60
/usr/local/google/home/kdlee/chromium/src/out/default/libui_gfx_range.so
9648    /usr/local/google/home/kdlee/chromium/src/out/default/libui_gfx.so
360
/usr/local/google/home/kdlee/chromium/src/out/default/libui_gl_gl_enums.so
268
/usr/local/google/home/kdlee/chromium/src/out/default/libui_linux_linux_ui.so
856    /usr/local/google/home/kdlee/chromium/src/out/default/libui_lottie.so
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1052
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/usr/local/google/home/kdlee/chromium/src/out/default/libui_ozone_platform_wayl
and_wayland_proxy.so
28464   /usr/local/google/home/kdlee/chromium/src/out/default/libui_ozone.so
152
/usr/local/google/home/kdlee/chromium/src/out/default/libui_platform_window.so
24
/usr/local/google/home/kdlee/chromium/src/out/default/liburl_ipc_url_ipc.so
152
/usr/local/google/home/kdlee/chromium/src/out/default/liburl_mojom_traits.so
1484   /usr/local/google/home/kdlee/chromium/src/out/default/liburl.so
332    /usr/local/google/home/kdlee/chromium/src/out/default/libusb_shared.so
1468   /usr/local/google/home/kdlee/chromium/src/out/default/libv8_libbase.so
816
/usr/local/google/home/kdlee/chromium/src/out/default/libv8_libplatform.so
535156 /usr/local/google/home/kdlee/chromium/src/out/default/libv8.so
12
/usr/local/google/home/kdlee/chromium/src/out/default/libvariations_features.so
10288  /usr/local/google/home/kdlee/chromium/src/out/default/libviz_common.so
156
/usr/local/google/home/kdlee/chromium/src/out/default/libviz_shared_image_forma
t.so
216
/usr/local/google/home/kdlee/chromium/src/out/default/libviz_vulkan_context_pro
vider.so
36     /usr/local/google/home/kdlee/chromium/src/out/default/libvulkan_init.so
192
/usr/local/google/home/kdlee/chromium/src/out/default/libvulkan_interface_share
d.so
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6480

/usr/local/google/home/kdlee/chromium/src/out/default/libvulkan_wrapper.so

340

/usr/local/google/home/kdlee/chromium/src/out/default/libweb_bluetooth_mojo_bindings_shared.so

684

/usr/local/google/home/kdlee/chromium/src/out/default/libwebdata_common.so

20

/usr/local/google/home/kdlee/chromium/src/out/default/libweb_feature_mojo_bindings_mojom_blink.so

1180

/usr/local/google/home/kdlee/chromium/src/out/default/libweb_feature_mojo_bindings_mojom_shared.so

12

/usr/local/google/home/kdlee/chromium/src/out/default/libweb_feature_mojo_bindings_mojom.so

10444

/usr/local/google/home/kdlee/chromium/src/out/default/libwebnn_mojom_blink.so

20

/usr/local/google/home/kdlee/chromium/src/out/default/libwebnn_mojom_features_blink.so

12

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12

/usr/local/google/home/kdlee/chromium/src/out/default/libwebnn_mojom_features.so

692

/usr/local/google/home/kdlee/chromium/src/out/default/libwebnn_mojom_shared.so

6064 /usr/local/google/home/kdlee/chromium/src/out/default/libwebnn_mojom.so

880

/usr/local/google/home/kdlee/chromium/src/out/default/libx11_events_platform.so

Diff script

Python

```
#!/usr/bin/python

import sys
from pprint import pprint
from pathlib import Path

def _parse_line(line):
    (size, path) = line.strip().split()
    return (int(size), path)

def parse_size_readout(path):
    result = {}
    with open(path, "r") as srfp:
        for line in srfp:
            kilobytes, path = _parse_line(line)
            assert path not in result
            result[path] = kilobytes
    return result

def main(disabled_kilobytes, enabled_kilobytes):
    disabled_read = parse_size_readout(disabled_kilobytes)
    enabled_read = parse_size_readout(enabled_kilobytes)
    assert len(enabled_read) == len(disabled_read)

    growth_list = []
    for (path, kilobytes) in enabled_read.items():
        growth_list.append((kilobytes - disabled_read[path], Path(path).name))
    growth_list.sort(key=lambda x: x[0], reverse=True)
    pprint(growth_list)
    print(f"\nCumulative growth is {sum([x[0] for x in growth_list])/1024} MB.")
```



```
if __name__ == "__main__":  
    sys.exit(main(sys.argv[1], sys.argv[2]))
```

Appendix: Florian speaks

Basics of

`-fsanitize-ignore-for-ubsan-feature=array-bounds`

Unstructured chat with Florian Mayer

- For good or bad, `__has_feature()` has shipped, even if people don't like it. `#defines` are the future (long-term).
- Pass the flag into the driver (`Options.td?`) — if it doesn't work, you probably forgot to forward it?
- Clang is a driver, and the driver passes it into the `[?]`, which is also Clang
- If you want this to be more legit, write an RFC (oogh)
- `-fharden` will probably trigger an RFC. It would be good to have, though.
 - It will be very different — and the scrutiny will scale commensurately.
 - “If you go down that path, it will probably be cleaner...but you will set off some bikeshedding, etc.”
 - The plumbing *will* get more complicated — have we considered how `-fsanitize` and `-fharden` would play together?

Additional reading

Additional reading

- The back-and-forth regarding “surprise! Your prod build now quacks like UBSan” got us [mentioned in a Google-internal memo](#) (comment thread under “Disadvantages”).
- Google is working on this: [\(Google-internal\) memo](#).