

ELFUTILS - libraries

- libelf
 - Unix “standard” library, following ELF spec.
 - Coordination with others (mainly Solaris)
- libdw
 - dwarf_* Low-level DWARF reader
 - dwfl_* High-level process (or kernel) “layout”
 - dwelf_* Utility functions
- libasm
 - Mostly abandoned, does x86 and bpf only

ELFUTILS - tools

- binutils “replacements”
 - eu-addr2line, eu-ar, eu-nm, eu-ranlib, eu-size, eu-objdump, eu-readelf, eu-strip, etc.
- elfutils extensions
 - eu-stack, eu-elfcompress, eu-elflint, eu-elfcmp, eu-unstrip
- debuginfod, client library and server
 - New in 0.178, extended and improved in 0.179

valgrind

- A framework for heavyweight Dynamic Binary Instrumentation
- Whole program instrumentation (feels magic)
 - i686, x86_64, s390x, arm[64], ppc[64][le], mips
- Mainly used for memcheck, undefined memory usage, invalid memory accesses and leaks.
 - cachegrind, calgrind, massif, helgrind/drd, dhat

Valgrind – 3.16.0

- Not released yet. Should have been...
 - About 7 active maintainers
- More dynamic `-help-dyn-options`
 - (gdb) `monitor v.clo -trace-children=yes`
 - `#include <valgrind/valgrind.h>`
`VALGRIND_CLO_CHANGE("--trace-signals");`
- Various new syscalls (including 20 - 32bit time64)
- s390x -z14 miscellaneous instructions

Valgrind – 3.16.0

- Various gcc10 “fixes”
 - Mostly is test programs
 - Make various instruction emulations more accurate because gcc became “too smart”.
 - Extreme case “grail”

```
int result;
```

```
bool ok = compute (&result);
```

```
if (ok && result == 42) { ... }
```

^ compiler might swap these!