SD_ELF_NOTE_DLOPEN

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systemd

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Embed ELF .note.dlopen metadata for shared library dependencies

#include <systemd/sd-dlopen.h>

SD_ELF_NOTE_DLOPEN(

feature

,

description

,

priority

,

soname...

)

#define SD_ELF_NOTE_DLOPEN_VENDOR "FDO"

#define SD_ELF_NOTE_DLOPEN_TYPE UINT32_C(0x407c0c0a)

#define SD_ELF_NOTE_DLOPEN_PRIORITY_REQUIRED "required"

#define SD_ELF_NOTE_DLOPEN_PRIORITY_RECOMMENDED "recommended"

#define SD_ELF_NOTE_DLOPEN_PRIORITY_SUGGESTED "suggested"

Description

`SD_ELF_NOTE_DLOPEN()` is a macro that embeds a `.note.dlopen` ELF note section in the compiled binary, declaring a weak dependency on a shared library loaded via `dlopen()`. This implements the ELF dlopen metadata specification, allowing package managers and build systems to discover runtime dependencies that are not visible through regular ELF `DT_NEEDED` entries.

The macro takes the following parameters:

`feature`
A short string identifying the feature this library provides (e.g. `XKB`, `PCRE2`).

`description`
A human-readable description of what the library is used for.

`priority`
One of `SD_ELF_NOTE_DLOPEN_PRIORITY_REQUIRED`, `SD_ELF_NOTE_DLOPEN_PRIORITY_RECOMMENDED`, or `SD_ELF_NOTE_DLOPEN_PRIORITY_SUGGESTED`, indicating how important the dependency is.

`soname...`
One or more shared object names (sonames) for the library, e.g. `libfoo.so.1`. Multiple sonames may be specified as separate arguments (up to 5) for libraries that have changed soname across versions.

The embedded metadata can be read from a compiled ELF binary using:

```
systemd-analyze dlopen-metadata binary
```

Examples

Single soname

```
#include <systemd/sd-dlopen.h>

SD_ELF_NOTE_DLOPEN("XKB", "Keyboard layout support",
                   SD_ELF_NOTE_DLOPEN_PRIORITY_RECOMMENDED,
                   "libxkbcommon.so.0");
```

Multiple sonames for different library versions

```
SD_ELF_NOTE_DLOPEN("crypt", "Support for hashing passwords",
                   SD_ELF_NOTE_DLOPEN_PRIORITY_RECOMMENDED,
                   "libcrypt.so.2", "libcrypt.so.1", "libcrypt.so.1.1");
```

Notes

The macros described here are header-only and do not require runtime linkage against `libsystemd(3)`. Only the installed header and include path (as provided by `pkg-config --cflags libsystemd`) are needed.

History

`SD_ELF_NOTE_DLOPEN()`, `SD_ELF_NOTE_DLOPEN_VENDOR`, `SD_ELF_NOTE_DLOPEN_TYPE`, `SD_ELF_NOTE_DLOPEN_PRIORITY_REQUIRED`, `SD_ELF_NOTE_DLOPEN_PRIORITY_RECOMMENDED`, and `SD_ELF_NOTE_DLOPEN_PRIORITY_SUGGESTED` were added in version 261.

See Also

`systemd(1)`, `sd-dlopen(3)`, `dlopen(3)`

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