

Linkers

Linkers are programs implemented by operating systems to construct executable files from object file(s). Linking can be done at compile time, load time or run time. Linkers make programmers work easy by allowing multiple simpler code files to be collected and combined into a single executable and allows for easy recompiling when making changes to the code. Linkers are invoked by compiler drivers, for example GCC in the case of .c files compiled by the GNU compiler.

Static Linkers collect multiple object files and command line arguments to make a loadable and runnable object file. To do this, linkers perform symbol resolution and relocation. Symbol resolution is the association of each reference symbol defined by object files with a single symbol definition. Relocation is the association of physical memory addresses to reference symbols and then changing the references according to the assigned location.

Dynamic Linkers on the other hand make use of shared libraries which can be loaded into memory at runtime and linked with processes. Applications can request a dynamic linker to link arbitrary shared libraries while the application is running even if they had not been linked at compile time. Generating dynamic content makes multiple processes run more efficiently.