My view of glibc

Abstract：

1. Introduction

glibc is the libc library, or c runtime library, released by gnu, which is an integral part of gcc.The header files in glibc are the basis for all user-level application development.Therefore glibc is the main interface to OS control and the best interface besides system calls.

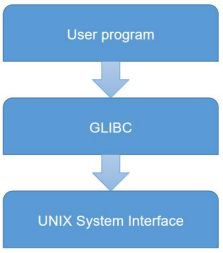
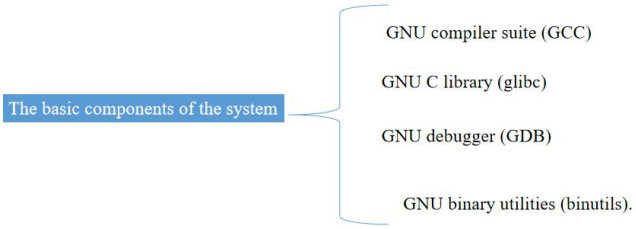


Figure1

History of GLIBC;

The glibc project was initially written mostly by Roland McGrath, working for the Free Software Foundation (FSF) in the 1980s. By 1992, it had the ANSI C-1989 and POSIX.1-1990 functions implemented and work was under way on POSIX.2. In September 1995 Ulrich Drepper made his first contribution to the glibc and by 1997 most commits were made by him. Drepper held the maintainership position for many years and until 2012 accumulated 63% of all commits to the project.

GLIBC is a part of GNU.GNU exists mainly because the early people with UNIX system used very well, UNIX system contains a variety of software, all can be used, but the good times are not long, unix for some projects to close the source and charge, resulting in users to open source design, so the name is called GNU Project. The GNU Project is a replacement for the kernel under UNIX and the tools and software on top of the kernel.Therefore the tools and software developed under GNU mostly follow unix rules and poxis rules, mainly because of the development in UNIX environment, which Leading to when Linux came along later, the interface was also designed according to unix. Therefore, the upper layer of glibc's interface is mainly according to poxic, the c language tool interface, and the lower layer is unix, the interface. The basic components of the system include the GNU compiler suite (GCC), the GNU C library (glibc), and the GNU core toolset (coreutils), in addition to the GNU debugger (GDB), and the GNU binary utilities (binutils).



2. Content

(1) Virtual Memory Allocation And Paging;

(2) String and Array Utilities;

(3) Searching and Sorting;

(4) Pattern Matching;

(5) Input/Output on Streams;

(6) Low-Level Input/Output;

(7)

For historical reasons, the type of the C data structure that represents a stream is called FILE rather than “stream”.

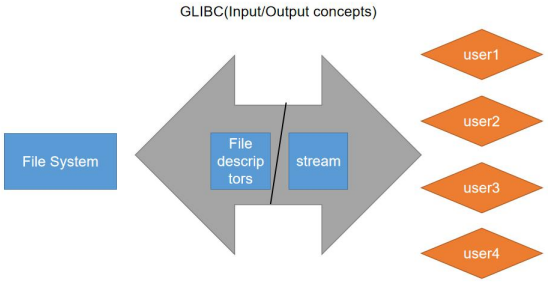


Figure 1.

3. Discuss

What principles is included in the design of a library;

(1) Header file for user calls;

The user call chain should be simple and straightforward.

(2) Not know the bottom-level interface;

Only let users care about the top-level interface and not the bottom-level interface.

(3) Functional design;

What a library should contain:

(1) User call;

User calls should explain to the user the basic implementation and functionality, as well as simple user logic. The description of the basic implementation method facilitates the user to select different interfaces to call.

(2) Internal implementation algorithm;

(3) Description of the dependent libraries;
Glibc

(4) Internal inter-call to facilitate the user's own coupling of most programs;

4. Conclusion

5. Acknowledgements