

# Beyond Linux® From Scratch

Version 12.4

2025 9 1

**Gerard Beekmans**

**: Bruce Dubbs**

Copyright© 1999-2025 Gerard Beekmans

## Table of Contents

### Preface

- Foreword
- Audience
- LFS Target Architectures
- Prerequisites
- LFS and Standards
- Rationale for Packages in the Book
- Typography
- Structure
- Errata and Security Advisories

### I. Introduction

- 1. Introduction
  - How to Build an LFS System
  - What's new since the last release
  - Changelog
  - Resources
  - Help

### II. Preparing for the Build

- 2. Preparing the Host System
  - Introduction
  - Host System Requirements
  - Building LFS in Stages
  - Creating a New Partition
  - Creating a File System on the Partition
  - Setting the \$LFS Variable and the Umask
  - Mounting the New Partition
- 3. Packages and Patches
  - Introduction
  - All Packages
  - Needed Patches
- 4. Final Preparations
  - Introduction
  - Creating a Limited Directory Layout in the LFS Filesystem
  - Adding the LFS User
  - Setting Up the Environment
  - About SBUs

About the Test Suites

III. Building the LFS Cross Toolchain and Temporary Tools

Important Preliminary Material

Introduction

Toolchain Technical Notes

General Compilation Instructions

5. Compiling a Cross-Toolchain

Introduction

Binutils-2.45 - Pass 1

GCC-15.2.0 - Pass 1

Linux-6.16.1 API Headers

Glibc-2.42

Libstdc++ from GCC-15.2.0

6. Cross Compiling Temporary Tools

Introduction

M4-1.4.20

Ncurses-6.5-20250809

Bash-5.3

Coreutils-9.7

Diffutils-3.12

File-5.46

Findutils-4.10.0

Gawk-5.3.2

Grep-3.12

Gzip-1.14

Make-4.4.1

Patch-2.8

Sed-4.9

Tar-1.35

Xz-5.8.1

Binutils-2.45 - Pass 2

GCC-15.2.0 - Pass 2

7. Entering Chroot and Building Additional Temporary Tools

Introduction

Changing Ownership

Preparing Virtual Kernel File Systems

Entering the Chroot Environment

Creating Directories

Creating Essential Files and Symlinks

Gettext-0.26

Bison-3.8.2

Perl-5.42.0

Python-3.13.7

Texinfo-7.2

Util-linux-2.41.1

Cleaning up and Saving the Temporary System

IV. Building the LFS System

8. Installing Basic System Software

Introduction

Package Management

Man-pages-6.15

```
Iana-Etc-20250807
Glibc-2.42
Zlib-1.3.1
Bzip2-1.0.8
Xz-5.8.1
Lz4-1.10.0
Zstd-1.5.7
File-5.46
Readline-8.3
M4-1.4.20
Bc-7.0.3
Flex-2.6.4
Tcl-8.6.16
Expect-5.45.4
DejaGNU-1.6.3
Pkgconf-2.5.1
Binutils-2.45
GMP-6.3.0
MPFR-4.2.2
MPC-1.3.1
Attr-2.5.2
Acl-2.3.2
Libcap-2.76
Libxcrypt-4.4.38
Shadow-4.18.0
GCC-15.2.0
Ncurses-6.5-20250809
Sed-4.9
Psmisc-23.7
Gettext-0.26
Bison-3.8.2
Grep-3.12
Bash-5.3
Libtool-2.5.4
GDBM-1.26
Gperf-3.3
Expat-2.7.1
Inetutils-2.6
Less-679
Perl-5.42.0
XML::Parser-2.47
Intltool-0.51.0
Autoconf-2.72
Automake-1.18.1
OpenSSL-3.5.2
Libelf from Elfutils-0.193
Libffi-3.5.2
Python-3.13.7
Flit-Core-3.12.0
Packaging-25.0
Wheel-0.46.1
```

- Setuptools-80.9.0
- Ninja-1.13.1
- Meson-1.8.3
- Kmod-34.2
- Coreutils-9.7
- Diffutils-3.12
- Gawk-5.3.2
- Findutils-4.10.0
- Groff-1.23.0
- GRUB-2.12
- Gzip-1.14
- IPRoute2-6.16.0
- Kbd-2.8.0
- Libpipeline-1.5.8
- Make-4.4.1
- Patch-2.8
- Tar-1.35
- Texinfo-7.2
- Vim-9.1.1629
- MarkupSafe-3.0.2
- Jinja2-3.1.6
- Udev from Systemd-257.8
- Man-DB-2.13.1
- Procps-ng-4.0.5
- Util-linux-2.41.1
- E2fsprogs-1.47.3
- Sysklogd-2.7.2
- SysVinit-3.14
- About Debugging Symbols
- Stripping
- Cleaning Up
- 9. System Configuration
  - Introduction
  - LFS-Bootscripts-20250827
  - Overview of Device and Module Handling
  - Managing Devices
  - General Network Configuration
  - System V Bootscript Usage and Configuration
  - Configuring the System Locale
  - Creating the /etc/inputrc File
  - Creating the /etc/shells File
- 10. Making the LFS System Bootable
  - Introduction
  - Creating the /etc/fstab File
  - Linux-6.16.1
  - Using GRUB to Set Up the Boot Process
- 11. The End
  - The End
  - Get Counted
  - Rebooting the System
  - Additional Resources

## Getting Started After LFS

### V. Appendices

- A. Acronyms and Terms
- B. Acknowledgments
- C. Dependencies
- D. Boot and sysconfig scripts version-20250827
  - /etc/rc.d/init.d/rc
  - /lib/lsb/init-functions
  - /etc/rc.d/init.d/mountvirtfs
  - /etc/rc.d/init.d/modules
  - /etc/rc.d/init.d/udev
  - /etc/rc.d/init.d/swap
  - /etc/rc.d/init.d/setclock
  - /etc/rc.d/init.d/checkfs
  - /etc/rc.d/init.d/mountfs
  - /etc/rc.d/init.d/udev\_retry
  - /etc/rc.d/init.d/cleanfs
  - /etc/rc.d/init.d/console
  - /etc/rc.d/init.d/localnet
  - /etc/rc.d/init.d/sysctl
  - /etc/rc.d/init.d/sysklogd
  - /etc/rc.d/init.d/network
  - /etc/rc.d/init.d/sendsignals
  - /etc/rc.d/init.d/reboot
  - /etc/rc.d/init.d/halt
  - /etc/rc.d/init.d/template
  - /etc/sysconfig/modules
  - /etc/sysconfig/createfiles
  - /etc/sysconfig/udev-retry
  - /sbin/ifup
  - /sbin/ifdown
  - /lib/services/ipv4-static
  - /lib/services/ipv4-static-route
- E. Udev configuration rules
  - 55-lfs.rules
- F. LFS Licenses
  - Creative Commons License
  - The MIT License

Index

From:

<https://www.gamu.kr/dokuwiki/> -

Permanent link:

<https://www.gamu.kr/dokuwiki/linuxfromscratch/12.4/start?rev=1767242758>

Last update: **2026/01/01 04:45**

