

OSC 原创会
年终盛典 2016

FreeBSD is not a Linux Distro ▽

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Overview

- What is FreeBSD?
- A Brief History of BSD
- Features
- Futures



Who am I?

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- Network Protocol and Security Practitioner
- Twenty year veteran of BSDs and Operating Systems
- Co-author of The Design and Implementation of the FreeBSD Operating System
- Member of FreeBSD's Elected Core Team
- Director of the FreeBSD Foundation
- ACM Queue's Kode Vicious



What is FreeBSD?

- Complete Operating System
- Tools and Source
- More than 24,000 3rd Party Open Source Packages
- Complete Documentation
- An Open Source Community



Who uses FreeBSD?

- NetApp
- Dell/EMC/Isilon
- Dell/KACE
- Panasas
- Apple
- Limelight Networks
- Swisscom
- Sentex
- Microsoft
- WhatsApp
- Juniper Networks
- Verisign
- Perseus Telecom
- Sony
- XipLink
- McAfee
- NYI
- Yahoo



Why use FreeBSD?

- Innovation
- Great Tools
- Mature release model
- Excellent Documentation in many Languages
 - https://www.freebsd.org/doc/zh_CN/books/handbook/
- Business Friendly License
- Open Community



FreeBSD 使用手册

The FreeBSD Documentation Project

FreeBSD 中文计划

修订: [46749](#)

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1999 年 2 月 由 .

2005 年 12 月 由 .

摘要

欢迎使用 FreeBSD! 本手册适用于安装 *FreeBSD 10.3-RELEASE* 和 *FreeBSD 11.0-RELEASE* 以及它们的日常使用。这个手册目前由很多人 *持续地* 维护。其中的内容需要不断地更新。如果您有兴趣参加这个项目, 请发邮件到 [FreeBSD 文档计划邮件列表](#)。此文档最新的英文原始版本可以从 [FreeBSD 网站](#) 上获得 (本手册的较早期版本可以在 <http://docs.FreeBSD.org/docs/> 找到)。由 [FreeBSD 中文计划](#) 维护的最新译本可以在 [FreeBSD 中文计划 快照网站](#) 获得, 这一译本会持续地向主站同步。此外, 您也可以从 [FreeBSD FTP 服务器](#) 及其众多 [镜像站点](#) 取得这份文档的各种其它格式, 以及压缩形式的版本。如果您希望得到一份印刷版本的手册, 可以从 [FreeBSD Mall](#) 购买。除此之外, 您还可以在 [手册中搜索内容](#)。

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BSD History: 30+ years in 3 minutes

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- Chaos reigned
- MULTICS
- UNIX(BellLabs)
- Berkeley Tools Tapes
- ex/vi
- Pascal Compiler
- Tools for UNIX
- CSRG, DARPA and the Internet
- Removal of last bits of AT&T Code
- Rewrite of all non open source code
- AT&T Lawsuit
- BSD is Free



Flavors and Branch Dates

- NetBSD Broad platforms support (1993)
- FreeBSD Rock Solid Performance (1993)
- OpenBSD Security (1996)
- PC-BSD Desktop (2006) (now TrueOS)



The FreeBSD Philosophy

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- Use our code
- Produce a whole system ready for development
- Don't Sue Us



Produce a Whole System

- Operating System
- Drivers
- Compilers and associated Tools
- Debugging Tools
- Editors
- Packaging System
- Ready for Coding when Install is Done



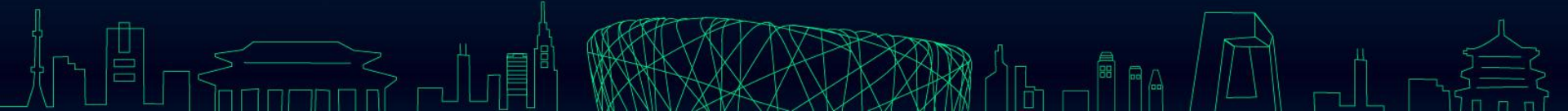
Key Features and Innovations

- UFS2
- ZFS
- DTrace
- VNet
- Jails
- LLVM/Clang/LLDB
- Capsicum
- MAC and Audit Frameworks
- netmap/VALE
- Linuxulator



Filesystems

- UFS
 - Traditional Unix Filesystem
 - High Performance
 - Snapshots
 - Journaled Soft Updates
- ZFS
 - Zetabyte Filesystem
 - Volume Manager
 - RAID
 - Fully up to date in FreeBSD



Security Features

- Jails
 - Light weight VM
- MAC and Audit Frameworks
- Capsicum
 - Capabilities for UNIX
 - Sandboxing



Innovative Compiler Technology

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- LLVM/Clang
- LLD
- LLDB
- Complete replacement for gcc/g++
- Moving compilers into the 21st Century



DTrace

- Complete system transparency
- See inside any call or return
- System Calls
- Disk, NFS, Networking subsystems
- DTraceToolkit



Networking

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- Pluggable TCP Stacks
 - BBR (latest from Google)
 - RACK
 - CUBIC
 - NewReno
- IPFWandPF Dummynet
- netmap
- VALE
- VXLAN



Virtualization

- Ready to use images
 - VMWare
 - Virtual Box
 - qemu
- bhyve
 - Native hypervisor
 - Runs Linux, Windows and FreeBSD images
 - Also used on Mac OS (xhyve)
 - BSD Licensed



More New Features

- Scaling
 - More Cores
 - Queues
 - NUMA
- ARM64
- MPTCP
- DCTCP
- BBR (the latest in TCP congestion control)
- SecureBoot/UEFI



How the Project Works

- Democratically Elected Core Team
- Mentorship for Commit Bit
- Hats
- We have no dictator



Becoming a Committer

- Join the mailing lists
- Clone or Checkout the code
 - svn.freebsd.org
 - [github/freebsd](https://github.com/freebsd)
- Submit Patches
 - reviews.freebsd.org
- Get a mentor
- Get proposed to core@
- Granted a commit bit (all commits ReviewedBy)
- Be freed from mentorship
- Find a mentee



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- 226 words
 - Open
 - Unrestrictive
 - Not viral
- 2968 words
 - Restricts what you can do with your own code
 - Viral



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