

# FreeBSD ports



**Case study: managing a worldwide open source project:  
FreeBSD port manager**

# FreeBSD ports



## Me

- user since 2000
- submitter since 2002
- committer since 2003
- portmgr secretary since 2004
- portmgr since 2005

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## FreeBSD

- Open Source OS under BSD licence
  - derived work need not be open source
- BSD Unix derived
- Used by ISPs: Y!, ISC
- Appliance/ product foundation: Juniper JunOS, OS X

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Default installation gives a "base system"

Kernel:

- Hardware drivers
- Packetfilterse: ipfw(4), pf(4), ipf(4)
- Networking: ppp(4), tunnel (gif(4), gre(4), tun(4))
- Software RAID

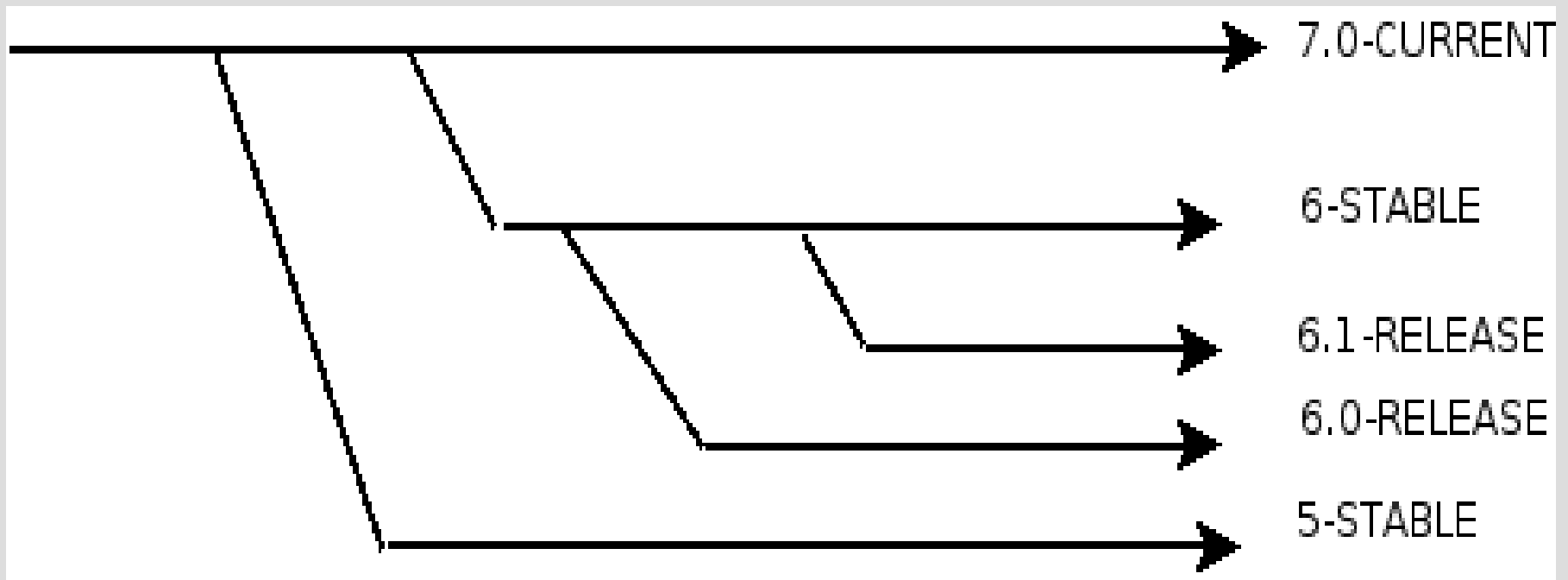
Userland:

- sh(1), tcsh(1)
- OpenSSH, inetd(8), ntpd(8), named(8), sendmail(8)
- make(1), gcc(1)
- vi(1), ee(1)

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## Release cycle



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## Communication

- mostly online
  - 40 active mailinglists
  - mostly public
- IRC channels
- Wiki
- Conferences
  - USENIX
  - BSDCon
  - BSDCan
  - EuroBSDCon
  - AsiaBSDCon
- devsummits

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## Development

- used VCS from day 1
- GNATS as bugtracking software
  - Send-pr(1)
  - <http://bugs.freebsd.org/>

## CVS repository in 3 parts

- src - kernel, userland
- doc - books, articles, website
- ports - 3rd party software

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## Submitter

Anyone who sends bug reports and/ or patches

## Committer

- Someone with write access to CVS
- Significant code contributions
- Long term commitment
- Mentor proposes and voted on by relevant authority



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## Committers – random statistics

- 216 src
- 177 ports
- 84 doc
  
- 370 total

(note: overlap)

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## Committers – random statistics

### Where

- 34 countries
- 6 continents

### Age

- Oldest: 1948
- Youngest: 1989

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## Organization

### Core team:

- 9 members
- Elections for core every 2 years from and by active committers
- Project direction
- Rules
- Conflict resolution
- Delegated ports to portmgr, doc to doceng

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## Other teams

- Release engineering
- Security officer / security team
- Admins
- GNOME/ KDE/ java/ ...

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## Ports

Ports are small pieces of code to integrate 3rd party software

Written in BSD `make(1)` and `sh(1)`

~ 16.000 ports

Packages

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## Ports

- `bsd.ports.mk`
- ~ 6000 lines
- `bsd.apache.mk`, `bsd.java.mk`, `bsd.kde.mk`, `bsd.gnome.mk`, `bsd.ruby.mk`, etc.
- Small Makefile
  - Where to fetch sources
  - Description
  - How to build, install and deinstall
  - FreeBSD specific patches
  - Startup scripts
- Porters handbook

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## Submitter

Anyone who sends a patch

## MAINTAINER

A person or group that actively maintains a port and has to approve any changes

## Committer

A person with write access to the ports part of CVS

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## More random statistics

- 1439 maintainers
- 177 committers
- many, many submitters
- > 100 commits per day



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## Portmgr

- 6 persons
- appointed by core
- core oversight
- charter
- policies
- QA
- new committers
- conflict resolution
- secretary
- montly reports

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## Quality assurance

- pointyhat cluster
- Gohans
- "krismails"
- korean ports cluster
- Portsmon
- Package building (ftp/release cd)
- 4 branches
- 3 major architectures (i386, amd64, sparc64)



http://pointyhat.freebsd.org/errorlogs/packagestats.html

# FreeBSD package building statistics

as of Sat Oct 28 13:15:00 UTC 2006

	cvs date	latest log	INDEX	packages	errors	skipped	missing	done?
amd64-5	<a href="#">Oct 4</a>	<a href="#">Oct 9</a>	<a href="#">15828</a>	<a href="#">13569</a>	<a href="#">243</a>	1185	831	Y
amd64-6	<a href="#">Oct 27</a>	<a href="#">Oct 28</a>	<a href="#">15917</a>	<a href="#">13963</a>	<a href="#">20</a>	1170	764	N
amd64-7	<a href="#">Oct 12</a>	<a href="#">Oct 16</a>	<a href="#">15887</a>	<a href="#">13512</a>	<a href="#">105</a>	1230	1040	N

	cvs date	latest log	INDEX	packages	errors	skipped	missing	done?
i386-4	<a href="#">Oct 6</a>	<a href="#">Oct 10</a>	<a href="#">15847</a>	<a href="#">11612</a>	<a href="#">257</a>	2298	1680	Y
i386-5	<a href="#">Oct 24</a>	<a href="#">Oct 27</a>	<a href="#">15918</a>	<a href="#">15096</a>	<a href="#">88</a>	599	135	Y
i386-6	<a href="#">Oct 27</a>	<a href="#">Oct 28</a>	<a href="#">15918</a>	<a href="#">14695</a>	<a href="#">18</a>	561	644	N
i386-7	<a href="#">Oct 26</a>	<a href="#">Oct 28</a>	<a href="#">15918</a>	<a href="#">14679</a>	<a href="#">34</a>	620	585	N

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http://pointyhat.freebsd.org/errorlogs/amd64-6-latest/

## Package building errors

View by [ [port](#) | [maintainer](#) | [category](#) | [error](#) | [builddate](#) ]

CVS update finished at: Sun Oct 15 21:57:26 UTC 2006

Timestamp of newest log: Oct 28 03:02:16 2006

"Aff." is number of ports that depend on this one

"[B]" indicates port is marked BROKEN (Note: BROKEN ports are not frequently rebuilt so they may not be listed here)

20 errors

Port	Aff.	Size	CVS	Maintainer	Reason	Build date
<a href="#">diablo-jdk-1.5.0.07.01</a>	349	4 Kb	<a href="#">java/diablo-jdk15</a>	<a href="mailto:glewis@FreeBSD.org">glewis@FreeBSD.org</a>	<a href="#">fetch</a>	Oct 28 02:33:11 UTC 2006
<a href="#">diablo-jre-1.5.0.07.01</a>		4 Kb	<a href="#">java/diablo-jre15</a>	<a href="mailto:glewis@FreeBSD.org">glewis@FreeBSD.org</a>	<a href="#">fetch</a>	Oct 28 02:32:55 UTC 2006
<a href="#">firebird-server-1.5.3</a>		272 Kb	<a href="#">databases/firebird-server</a>	<a href="mailto:skv@FreeBSD.org">skv@FreeBSD.org</a>	<a href="#">install error</a>	Oct 28 02:33:43 UTC 2006
<a href="#">flock-0.7_2</a>		4096 Kb	<a href="#">www/flock</a>	<a href="mailto:gnome@FreeBSD.org">gnome@FreeBSD.org</a>	<a href="#">arch</a>	Oct 28 02:36:45 UTC 2006
<a href="#">gcc-withgciawt-4.2.0_20061014</a>		8 Kb	<a href="#">lang/gcc42-withgciawt</a>	<a href="mailto:maho@FreeBSD.org">maho@FreeBSD.org</a>	<a href="#">patch</a>	Oct 28 02:27:06 UTC 2006
<a href="#">gforth-0.6.2_1</a>		46 Kb	<a href="#">lang/gforth</a>	<a href="mailto:stas@FreeBSD.org">stas@FreeBSD.org</a>	<a href="#">coredump</a>	Oct 28 02:26:10 UTC 2006
<a href="#">inn-stable-20040707</a>		82 Kb	<a href="#">news/inn-stable</a>	<a href="mailto:ports@FreeBSD.org">ports@FreeBSD.org</a>	<a href="#">mtree</a>	Oct 28 02:26:22 UTC 2006

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## Policies

- inactive committers
  - 1 year
- inactive maintainers
  - Approval: 2 weeks
  - Reset: 3 months

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## Policies

”New ports should only be submitted by someone who is actually using the software and will continue to use the port to maintain the software.”

- Too much software (CPAN / SF.net)
- Limited resources
  - Committers
  - Cluster
- Common sense

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What changes are allowed and when  
*bsd.ports.mk*

All commits must be regression tested and approved by portmgr

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## What changes are allowed and when

*When the tree is frozen*

All changes must be approved by portmgr. In general, only the following will be accepted:

- fixes that would prevent a port from installing, deinstalling or running properly for the upcoming release.
- security problems.
- licensing issues.



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## What changes are allowed and when *When the tree is thawed*

No sweeping changes

- a commit that would affect a non-trivial number of packages

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## Policies

### *Supported releases*

In general, follows the EOL set by security officer.  
FreeBSD 4.x has EOL January 31st, 2007

- Package building/regression testing deprioritized
- Infrastructure (bsd.ports.mk) supported until EOL date
- Individual ports can be marked broken
- Patches still accepted
- Users encouraged to upgrade

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## Links

- <http://www.FreeBSD.org/ports/>
- <http://www.FreeBSD.org/portmgr/>
- <http://portsmon.FreeBSD.org/>

<http://people.FreeBSD.org/~erwin/presentations/>

[erwin@FreeBSD.org](mailto:erwin@FreeBSD.org)