

# FreeBSD Ports Collection, Autumn 2010

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# Ports Collection overall

Main URL: <http://www.freebsd.org/ports>

Important statistics:

- ▶ 22334 ports
- ▶ several architectures:
  - ▶ now: amd64, i386, ia64, powerpc (32-bit), sparc64
  - ▶ future: mips, powerpc64
- ▶ 4 (!) major branches:
  - ▶ 6, 7, 8, 9
  - ▶ 6 EOL is imminent



# Social Structure

- ▶ Ports Management team (<http://www.FreeBSD.org/portmgr>) is responsible for the state of the Ports Collection
  - ▶ approves new committers for ports bits
  - ▶ creates packages for upload
    - ▶ -stable branches
    - ▶ -current branch
    - ▶ releases
  - ▶ runs "test builds" for infrastructure changes
- ▶ 170 ports committers
  - ▶ 30 very active
  - ▶ another 70 fairly active
- ▶ many hundreds of maintainers
- ▶ mailing lists:
  - ▶ `freebsd-ports@FreeBSD.org`
  - ▶ `freebsd-ports-bugs@FreeBSD.org`
- ▶ IRC channels:
  - ▶ `bsdports` (EFNet)



# Technical Details

- ▶ 22334 ports in 73 categories

- ▶ `wc -l` of files in `ports/Mk/` :

```
6458 bsd.port.mk
1566 bsd.sites.mk
 842 bsd.gnome.mk
 653 bsd.gecko.mk
 593 bsd.ruby.mk
 592 bsd.wx.mk
 572 bsd.lua.mk
 547 bsd.gnustep.mk
 545 bsd.java.mk
 524 bsd.efl.mk
...
21671 total
```



# Hardware

portmgr has a number of machines at its disposal to help do package builds.

- ▶ dispatch machine: `pointyhat.FreeBSD.org/errorlogs/`
  - ▶ only set up for automated builds
- ▶ package buiding machines:
  - ▶ Yahoo: 7 amd64 machines, some older i386 machines, 2 ia64 machines
  - ▶ ISC: 2 amd64 machines, 5 i386 machines, 1 powerpc machine, 8 sparc64 machines
  - ▶ on loan: 12 sparc64 machines

In general, these machines are constantly busy.

It is portmgr's job to filter the false positives out of the failure logs, and forward the rest in emails to the maintainers.



## New Hardware: In Progress

- ▶ new dispatch machine:  
`pointyhat-west.isc.FreeBSD.org/errorlogs/`
- ▶ new dispatch machine:  
`pointyhat-east.isc.FreeBSD.org/errorlogs/`
- ▶ package buiding machines:
  - ▶ NYI: 11 amd64/i386 machines (new)
  - ▶ possibly, some VMWare instances

The intention is that we can now dispatch many more times the amount of builds that we do now.



## How This Will Help

In the past, we have been so constrained by hardware, that we have been unable to keep up with demand:

- ▶ incremental package builds for upload (-stable, -current)
- ▶ full package builds for upload (-release)
- ▶ regression-tests for `bsd.*.mk` changes
- ▶ regression-tests for other sweeping changes
  - ▶ gettext
  - ▶ autotools
  - ▶ xorg
  - ▶ (and so on.)

Result: PRs stack up, and people get discouraged.



# The Plan For This Hardware

- ▶ allow for -exp builds even during release cycles
- ▶ allow for multiple -exp runs simultaneously
- ▶ start doing -exp runs for nonstandard options:
  - ▶ non-standard LOCALBASE
  - ▶ NO\_GETTEXT
  - ▶ NO\_X11

See also

<http://www.freebsd.org/cgi/cvsweb.cgi/ports/KNOBS>





# Other Machines

- ▶ <http://portsmon.freebsd.org>
  - ▶ inputs: CVS commits, GNATS PRs, pointyhat errorlogs, other http/ftp pages
  - ▶ outputs: web pages per-port, per-maintainer, per-build; also, periodic emails
- ▶ Quality Assurance Tinderbox (QAT)
  - ▶ performs test-builds of packages immediately on commit
  - ▶ performs test-builds of packages in batch (like pointyhat), but can use non-standard options
  - ▶ inputs: CVS commits
  - ▶ outputs: emails
  - ▶ optimized for automated builds



## Related Technology (1)

Ports tinderbox (see <http://www.freebsd.org/cgi/cvsweb.cgi/ports/ports-mgmt/tinderbox/>)

- ▶ owned by individual committers
- ▶ intended for pre-commit screening
- ▶ optimized for user-started builds
- ▶ outputs: error logs

We need more people to be using these!



## Related Technology (2)

- ▶ Emanuel Haupt's distfile survey (see <http://distilator.org>)
  - ▶ iterates over all sources of distfiles for each port
- ▶ Shaun Amott's portscout (see <http://portscout.org/>)
  - ▶ iterates over all ports looking for updated distfiles



## Related Technology (3)

Dan Langille's <http://www.freshports.org>

- ▶ various HTML pages for you to browse the Ports Collection
- ▶ ability to subscribe via email to changes to individual ports



# Challenges

There are a number of challenges.

- ▶ keeping the ports tree up-to-date
- ▶ making sure ports fetch correctly
- ▶ making sure ports build correctly in all build environments
- ▶ dealing with regressions

One strategy: staging areas for large commits:

- ▶ xorg
- ▶ kde
- ▶ gnome



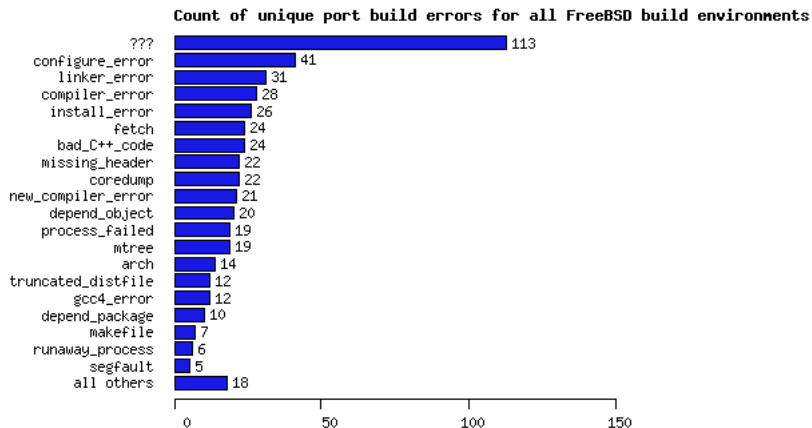
# Common Sources Of Port Errors (1)

- ▶ missing or extra items vs. packing list
- ▶ failure to configure
- ▶ failure to compile
- ▶ compiler bug
- ▶ error in dependency (2nd-order effect)
- ▶ fetch error
  - ▶ transient
  - ▶ actual distfile update
  - ▶ distfile no longer available

See <http://portsmon.freebsd.org/chartsandgraphs/uniqueerrorcounts.html>:



## Common Sources Of Port Errors (2)



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# How You Can Help

We can always use more help:

- ▶ send port updates for the ports you use
- ▶ send error reports for the ports you use
- ▶ adopt an unmaintained port (please!)
- ▶ consider working towards becoming a committer

send-pr(1) is your friend!





# Becoming A New Commmmitter

portmgr has several things that we look for in considering new committers:

- ▶ a track record of a number of ports PRs over a year or more
- ▶ quality PRs
- ▶ demonstrated ability to work well with others (via mailing lists and/or IRC)

It doesn't happen overnight; we try to make sure that people are familiar with most of the tricks and traps in the Ports Collection, and are persistent enough to stick with the project for more than a short period of time.



# Frequently Asked Questions

- ▶ is the ports tree branched?
- ▶ is it possible to cross-build ports?
- ▶ will ports switch from CVS to SVN?



# Handy Links

Here are some handy links.

- ▶ [http://www.freebsd.org/doc/en\\_US.ISO8859-1/books/porters-handbook](http://www.freebsd.org/doc/en_US.ISO8859-1/books/porters-handbook)
- ▶ [http://www.freebsd.org/doc/en\\_US.ISO8859-1/articles/contributing-ports](http://www.freebsd.org/doc/en_US.ISO8859-1/articles/contributing-ports)
- ▶ [http://www.freebsd.org/doc/en\\_US.ISO8859-1/articles/problem-reports](http://www.freebsd.org/doc/en_US.ISO8859-1/articles/problem-reports)
- ▶ <http://freshports.org>
- ▶ <http://people.freebsd.org/~linimon/presentations/bsd-day-ports-2010.pdf> (this presentation)



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<http://www.freebsdoundation.org/>
- ▶ assistance from our organizer Gabor Pali

Thanks to both of them!



And now, time for your questions!  
*remember, there is supposed to be an award ...*

