

# Porting applications in FreeBSD

why and how



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# Introduction

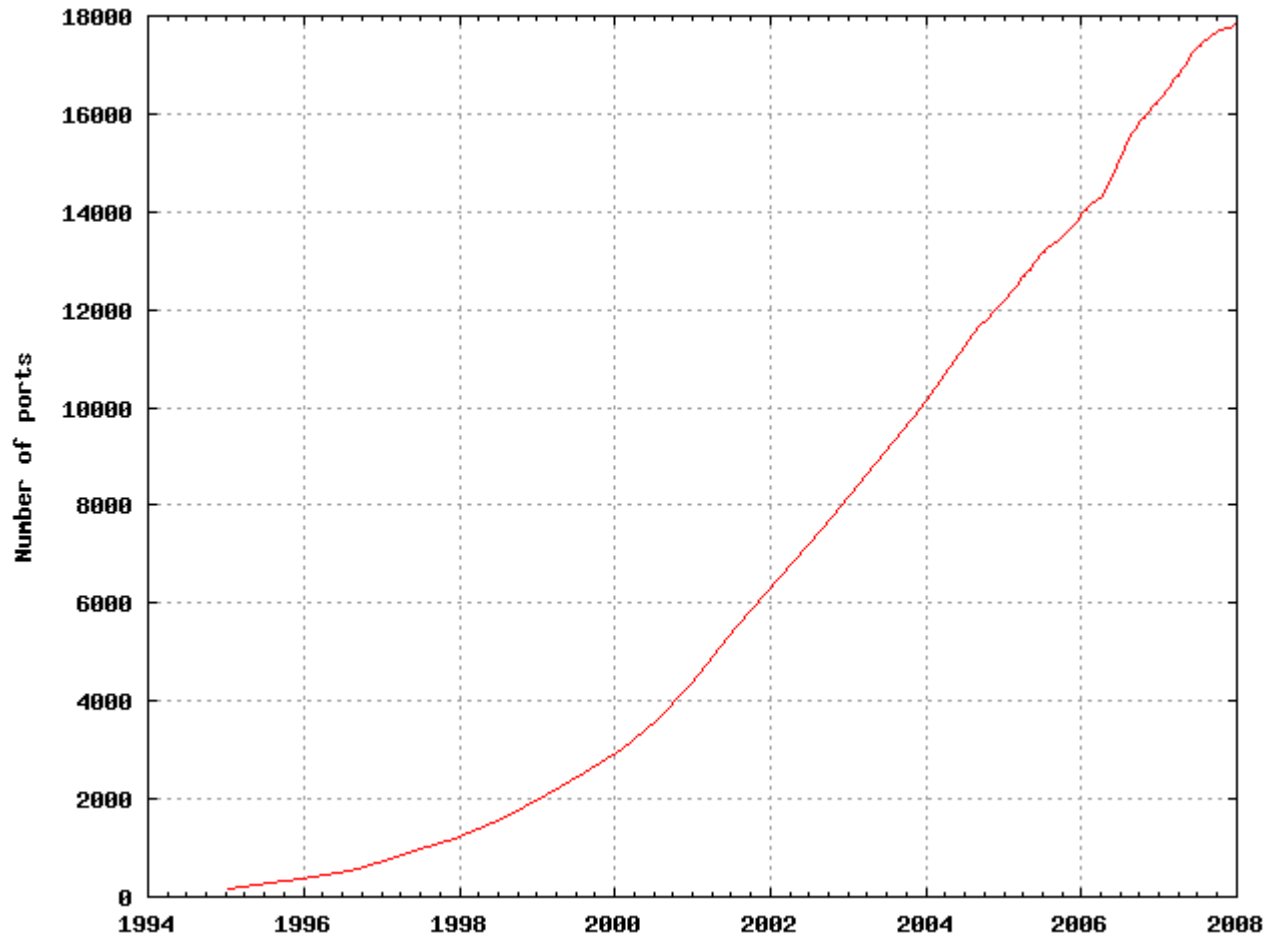


1994 : Ports are introduced in FreeBSD

- A framework to install applications & deinstall cleanly
- Dealing with dependencies
- Independent from FreeBSD version
- A large set of applications (over 19555 )



## The port collection is growing every day !



**What's a port ?**



- Files that allow an application to be
  - Compiled from source
  - Installed
  - Deinstalled
- Located in  
`/usr/port/<category>/<portname>/`
- Organized in 63 categories  
( ..., benchmarks, databases, deskutils, devel, dns, editors, emulators, finance, french, ftp, games, german, graphics, ...)



What's those file contains ?

For each port we have :

- Makefile : the rules to install a port
- pkg-descr : (short) port description
- pkg-plist : list of installed files
- distinfo : checksum of the appl. files
- A “files” directory for patches & scripts



- Using the ports system
  - Install
    - # cd /usr/ports/www/firefox3/ && make install clean
  - Deinstall
    - # cd /usr/ports/www/firefox3/ && make deinstall
- Other Ports tools
  - Portupdate to update the applications
  - Portsnap to update the port tree
  - ...



# Porting an application



Step one :  
make the application compile  
& runs in FreeBSD



- Make the required changes in the source code
- Avoid functional changes
- Avoid linuxisms like :
  - Use /proc if not required
  - Rely on linux specific behaviors
  - Assume that /bin/sh is bash
  - More examples :  
<http://wiki.freebsd.org/AvoidingLinuxisms>



Step two :  
Write the port files



- A simple makefile

```
# New ports collection makefile for: xclock
# Date Created:                17 Feb 2006
# Whom:                        Florent Thoumie <flz@FreeBSD.org>
#
# $FreeBSD$                    (1)
#
PORTNAME= xclock                (2)
PORTVERSION= 1.0.3             (3)
CATEGORIES= x11                 (4)
MASTER_SITES= ${MASTER_SITE_SOURCEFORGE} (5)
#
MAINTAINER= x11@FreeBSD.org    (6)
COMMENT= Analog and digital clock for X (7)
#
XORG_CAT= app                  (8)
USE_XORG= xrender xft xkbfile xt xaw (9)
#
MAN1= xclock.1                 (10)
#
.include <bsd.port.mk>         (11)
```



A makefile provide informations to

- Download source files
  - xclock-1.0.3.tar.bz2 at sourceforge
- Unpack the files
  - Using the right tool
- Patch it
  - If patch files are provider in files/ directory.
- Compile
  - With the good tools & options
- Install
  - Inside the FreeBSD directories hierarchy



- The description file : pkg-descr

```
This package contains xclock, a program for the X Window System
that display
the time in analog or digital form.
```

```
- Joel Dahl
joel@FreeBSD.org
```

- The list of file : pkg-plist

```
bin/xclock
share/X11/app-defaults/XClock-color
share/X11/app-defaults/XClock
@dirrmtry share/X11/app-defaults
@dirrmtry share/X11
```

- The source file info : distinfo

```
MD5 (xorg/app/xclock-1.0.3.tar.bz2) = 2b1a3d030d87e62a591...
SHA256 (xorg/app/xclock-1.0.3.tar.bz2) = 10b5777ae9ef2a10d4cf...
SIZE (xorg/app/xclock-1.0.3.tar.bz2) = 113967
```



Step three :  
Test the port



- Run the port
  - If possible in different architectures
  - With others ports up-to-dated
- Tools to test the port
  - Portlint to check ports file sanity
  - Tinderbox : to automatic test your ports



Step four :  
Submit your port



- Using gnats, the FreeBSD Problem Report (PR) database
  - Submit a PR
  - With the new port name
  - With the port files
  - A short description



ports/130081: New port: sysutils/jx This is a perl wrapper to "jexec" with more feature.

**From:** Dmitry Shulgachik <legh@legh.ru>  
**Date:** Wed, 31 Dec 2008 16:20:48 +0300 (MSK)  
**Subject:** New port: sysutils/jx This is a perl wrapper to "jexec" with more feature.  
**Send-pr version:** 3.113

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**Number:** 130081  
**Category:** ports  
**Synopsis:** New port: sysutils/jx This is a perl wrapper to "jexec" with more feature.  
**Severity:** serious  
**Priority:** medium  
**Responsible:** [freebsd-ports-bugs@FreeBSD.org](mailto:freebsd-ports-bugs@FreeBSD.org)  
**State:** open  
**Class:** change-request  
**Arrival-Date:** Wed Dec 31 13:40:01 UTC 2008  
**Closed-Date:**  
**Last-Modified:** Sun Jan 18 11:29:15 UTC 2009  
**Originator:** Dmitry Shulgachik <legh@legh.ru>  
**Release:** FreeBSD 7.1-PRERELEASE i386

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**Organization:**

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**Environment:**

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System: FreeBSD legh.ru 7.1-PRERELEASE FreeBSD 7.1-PRERELEASE #0: Sun Dec 14 15:20:31 MSK 2008  
root@home.legh.ru:/usr/obj/usr/src/sys/LEGH\_KERNEL i386

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Then...

- your port is now in the ports cvs repo
- Available to anyone
- You became a port maintainer



## Maintainer tasks



- Ensure your port works for every maintained version of FreeBSD
  - Pointyhat will help you

## Package building logs for rodrigo@bebik.net

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

"[B]" indicates port is marked BROKEN

This summary updated Mon Jan 26 12:33:03 UTC 2009, 7 errors:

[list by ports](#), [list by arch](#), [list by date](#)

Run	Timestamp	Log	Aff.	Size	Repository	Reason
amd64-7-exp-full	Fri Jan 23 08:09:08 2009	<a href="#">wml-2.0.12.1.log</a>		56k		
amd64-7-latest	Wed Jan 21 09:45:10 2009	<a href="#">wml-2.0.12.1.log</a>		56k		
amd64-7-full	Wed Jan 21 09:45:10 2009	<a href="#">wml-2.0.12.1.log</a>		56k		unknown
amd64-6-latest	Mon Jan 19 14:52:56 2009	<a href="#">wml-2.0.12.1.log</a>		56k	<a href="#">www/wml</a>	
amd64-6-full	Mon Jan 19 14:52:56 2009	<a href="#">wml-2.0.12.1.log</a>		56k		
i386-8-full	Sat Jan 17 10:18:25 2009	<a href="#">wml-2.0.12.1.log</a>		128k		install
i386-7-full	Fri Jan 16 17:04:05 2009	<a href="#">wml-2.0.12.1.log</a>		128k		

This service is generated by dinoex, original idea by Bill Fenner



- Ensure the application is up-to-date
- Ensure your port is secure
  - Check for patches
  - Check security advisories



Questions ?



Thanks !

