



Installing Applications in FreeBSD

Install software

❑ Package

- Pre-built
- rpm, yum, dpkg, ...
- FreeBSD: pkg_add, pkg_delete, pkg_info

❑ Source

- Tar ball
- tar xzf certain-source.tar.gz
- cd certain-source
- ./configure --help
- ./configure [options ...]
- make
- make install

Overview

- ❑ Three technologies
 - Packages
 - **Ports**
 - Tar ball
- ❑ Packages
 - pre-built ports, contain **pre-compiled** copies of all the commands for the application, as well as any configuration files or documentation.
- ❑ Ports
 - a collection of files designed to **automate** the process of **compiling** an application from source code and **additional patches**
 - a set of Makefile, patches, description files, ...
- ❑ Both packages and ports understand *dependencies*
- ❑ Tar ball
 - fetch it, configure the installation options, and compile it by yourself. **NO DEPENDENCY CHECKING.**

Overview

❑ Package benefits

- Packages do not require any additional compilation
 - Benefit for slow machines

❑ Ports benefits

- You can tweak the compilation options to generate code that is **specific** to a different processor – speed
- Some applications have compile time options relating to what they can and cannot do – customization

❑ Why tar ball?

Package System

❑ Tools

- sysinstall
- pkg_add, pkg_delete, pkg_info, pkg_version

❑ pkg_add(1)

- pkg_add pkg_name
pkg_add lsof-4.82,4.tbz
 - <ftp://ftp.tw.freebsd.org/pub/ports/amd64/packages-7.2-release/>
 - pkg_add -r pkg_name
 - If you don't have a source of local packages
 - If you are using FreeBSD-CURRENT or FreeBSD-STABLE, pkg_add will download the latest version of your application
 - If your are using FreeBSD-RELEASE, it will grab the version of the package that was built with your release
 - **PACKAGEROOT** environment variable
 - PACKAGEROOT=<ftp://ftp.tw.freebsd.org>
 - PACKAGEROOT=<http://ftp.tw.freebsd.org>
- # *pkg_add -r lsof*

Managing Packages

❑ pkg_info(1)

```
liuyh@NASA ~ $ pkg_info
OpenSP-1.5.2_1      This package is a collection of SGML/XML tools called OpenS
autoconf-2.62      Automatically configure source code on many Un*x platforms
autoconf-wrapper-20071109  Wrapper script for GNU autoconf
automake-1.10.1     GNU Standards-compliant Makefile generator (1.10)
automake-1.9.6_3    GNU Standards-compliant Makefile generator (1.9)
automake-wrapper-20071109  Wrapper script for GNU automake
docbook-1.4         Meta-port for the different versions of the DocBook DTD
docbook-4.1_3       V4.1 of the DocBook DTD, designed for technical documentati
docbook-4.2         V4.2 of the DocBook DTD, designed for technical documentati
```

❑ pkg_delete(1)

```
# pkg_delete automake-1.10.1
```

❑ pkg_version(1)

```
x:~ -lwshsu- pkg_version -IvL =
adns-1.4           < needs updating (index has 1.4_1)
apache-2.2.6_1     < needs updating (index has 2.2.9)
apr-gdbm-db42-1.2.7_1 < needs updating (index has 1.3.3.1.3.4)
autoconf-2.61_2    < needs updating (index has 2.62)
```

How to use ports

- ❑ Obtain the ports collection
- ❑ We should...
 - Find the application
 - Change to the directory for the port
- ❑ Ports will
 - Fetch the tar ball
 - Compile the source code
 - Install your application
- ❑ Deinstall process

Obtaining the Ports Collection

❑ sysinstall

❑ portsnap(8)

- Using HTTP, secure, diff
- fetch, extract, update, cron
- /etc/portsnap.conf
 - SERVERNAME=portsnap.tw.FreeBSD.org
- <http://www.freebsd.org/doc/handbook/portsnap.html>

Ports system (1)

❑ Find your application

- `cd /usr/ports`
- `make search name=program name`
- `make search key=string`

```
liuyh@NASA /usr/ports $ make search name=zh-mutt
```

```
Port: zh-mutt-devel-1.5.20_20090629
```

```
Path: /usr/ports/chinese/mutt
```

```
Info: The Mongrel of Mail User Agents with Chinese support
```

```
Maint: rafan@FreeBSD.org
```

```
B-deps: autoconf-2.62 autoconf-wrapper-20071109 automake-1.10.1 automake-wrapper-20071109 gettext-0.17_1 libiconv-1.13.1 m4-1.4.13,1 perl-5.8.9_3 zh-autoconvert-0.3.16
```

```
R-deps: gettext-0.17_1 libiconv-1.13.1 mime-support-3.46.1 zh-autoconvert-0.3.16
```

```
WWW: http://www.mutt.org/
```

- `psearch(1)`
 - `ports-mgmt/psearch`
 - `/usr/ports/<categories>/<portname>`

Ports system (2)

- ❑ Type “make install clean” to install your application
 - make config (/var/db/ports/)
 - make fetch (/usr/ports/distfiles/)
 - make checksum
 - make extract
 - make patch
 - make configure
 - make build
 - “make” means all of the above
 - make install
 - make clean
 - make distclean

Ports system (3)

- ❑ The ports system uses fetch(1) to download the files
 - **MASTER_SITES** environment variable
 - /etc/make.conf

```
MASTER_SITE_BACKUP?= \
    http://freebsd.cs.nctu.edu.tw/distfiles/${DIST_SUBDIR}/
MASTER_SITE_OVERRIDE?= ${MASTER_SITE_BACKUP}
```

- ❑ Options for ports
 - make config
 - hidden options
 - defined(BLAH) on Makefile
 - **-DOPTIONS**, OPTION=VALUE
 - CONFIGURE_ARGS+=

Ports system (4)

- ❑ I installed the application but
 - Command not found...
 - Logout, and then login.
 - If you use (t)osh
 - rehash

Deinstall Applications

❑ Two methods

- `pkg_delete`
 - Find the package name via `pkg_info`
 - Dependency check
- `make deinstall`
 - Change to the ports directory
 - `make deinstall`
 - Delete it anyway

Upgrading Ports using Portmaster

❑ ports-mgmt/portmaster

- A utility for easily upgrading and installing ports
- It was designed to make use of the tools found in the base system
 - ports-mgmt/portupgrade
- ```
cd /usr/ports/ports-mgmt/portmaster
make install clean
```

## ❑ Install or upgrade a port

- `# portmaster sysutils/lsof`
- `/usr/ports/UPDATING`

## ❑ Useful options

- `-B, -D, -a, -r`

## ❑ Options

# Portaudit

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## ❑ ports-mgmt/portaudit

- check if installed ports are listed in a database of published security vulnerabilities
- portaudit -Fda

```
lucky7:~ -lwshsu- sudo portaudit -Fda
```

```
New database installed.
```

```
Database created: Tue Dec 9 17:10:01 CST 2008
```

```
Affected package: php5-5.2.7
```

```
Type of problem: php5 -- potential magic_quotes_gpc vulnerability.
```

```
Reference: <http://www.FreeBSD.org/ports/portaudit/1f9e2376-c52f-11dd-8cbc-00163e000016.html>
```

```
1 problem(s) in your installed packages found.
```

```
You are advised to update or deinstall the affected package(s) immediately.
```

# Try to install from ports

---

- screen, tmux
- vim, emacs
- mutt
- wget, curl
- lftp
- lynx, w3m
- expect
- zh-telnet