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

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:~ -lwhsu- 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
- https://www.freebsd.org/doc/zh_TW.UTF-8/books/handbook/portsnap.html

- https://www.freebsd.org/doc/en_US.ISO8859-1/books/handbook/ports-using.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 <u>fetch(1)</u> 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)csh

  ➢ 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

❑ ports-mgmt/portaudit

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

- portaudit –Fda

```
lucky7:~ -lwhsu- 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