FreeBSD ports & packages

FreeBSD ports & packages - overview

- Different UNIX distributions use different package systems for distributing software
  - Debian GNU/Linux and Ubuntu use .DEB
  - SuSE, RedHat, Fedora use .RPM
  - etc..
- FreeBSD uses a simple format (.TGZ)
- Where do they come from ?

Installing software on FreeBSD

- Normally 3 ways to install software on FreeBSD:
  - from the « source »
    # ./configure; make; make install
  - from the port
  - from the package

The FreeBSD ports collection

- Described in detail at
  http://www.freebsd.org/doc/en_US.ISO8859-1/books/handbook/ports.html
- The ports is a collection of « skeleton » instructions (Makefile, patches) to retrieve, configure, build and install software
- The ports collection contains instructions for over 16.000 software programs as of 2007, and it is still growing.

Installing software ...

Open source software is shipped in source form; to be usable on a system

1. It must be unpacked
2. It must be adapted to the system one is running on (« porting »)
3. It may be compiled (source -> binary)
4. It must installed
5. It may need to be configured

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Installing software ...

The ports system takes care of steps 1 – 4, and sometimes 5 (preconfiguration)

The build and installation process might trigger the build and Installation of other required software
– this is known as « dependencies ».

For example, a graphics program might need
a JPEG software library to be able to read and write JPEG images

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From port to package

- Once the port is built, one can make a **package**
- A package is a pre-built port
- Packages can be installed...
  - from the network via FTP
  - from the FreeBSD CDROM
- Packages can be those built by the FreeBSD project or your own

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Ports vs packages

PACKAGES

precompiled
easy to install
no need to have ports collection installed

PORTS

more and better configuration control / options

(for example Apache and PHP)
local patches possible
tuning options

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Installing packages

- pkg_add [-r] <package name>
- For instance:
  # pkg_add -r bash
- This will attempt to install the bash package from the network
- Problems:
  - what if bash depends on other software ?
  - which version of bash ? 2 or 3 ?
- pkg_add will try to install dependencies, if they are available

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Installing packages

- If you have the package on CD, and the CD is mounted, you can install it directly, for instance:
  # pkg_add /cdrom/packages/All/bash-3.1.10_1.tbz
- If you know the URL (Link) to the package on the Internet, you could:
  # pkg_add ftp://ftp.freebsd.org/pub/FreeBSD/releases/i386/6.1-RELEASE/packages/All/bash-3.1.10_1.tbz

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Ports

- To install a port, you can search by name or keyword:
  # cd /usr/ports; make search name=<name>
  # cd /usr/ports; make search key=<keywrd>
- Once you know where the port resides (its **category**), you can go to that directory, and install it:
  # cd /usr/ports/**shells**/bash3
  # make
  # make install
  # make clean
- That's it!

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Ports

- If you want to build a **package**, you just need to type:

  # make package

- ... from the directory where you built the port from.

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Best of both worlds

- But what if...
  - you don't know in which category the port is located or which version you want;
  - you can't find up-to-date packages for the version of FreeBSD you are running (maybe it's a bit older) ;
  - you want to upgrade a package, but other packages depend on it ;
- For all the above reasons, it is strongly recommended to use a tool called **portupgrade**

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Portupgrade

- **Portupgrade** is a « meta » package manager. It sits on a layer above the ports and package system, and makes your life easier
- Portupgrade greatly simplifies package installation, upgrades.

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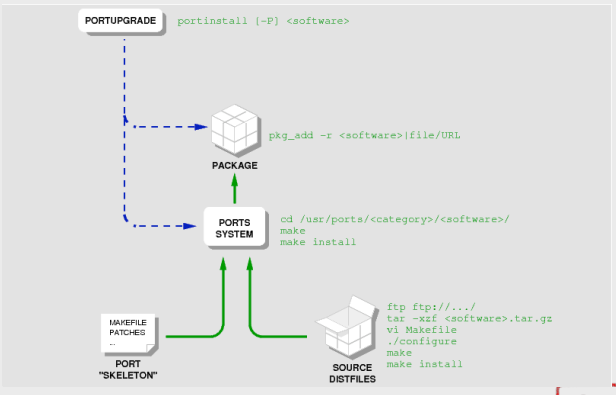
The big picture



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Installing portupgrade

Portupgrade is itself a port, and can be installed as such, or as a package:

```
# cd /usr/ports/sysutils/portupgrade
# make
# make install
# make clean
```

or

```
# pkg_add -r portupgrade
```

It can also be installed at system install time (via sysinstall)

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Using portupgrade

- To install a program with portupgrade

  # portinstall <port name>

- For instance:

  # portinstall bash

Using portupgrade

- Portupgrade can be told to try and install a pre-built package, using the -P option, one or more times:
  - Try and install from a package, fallback to the port if the package isn't found:
    # portinstall -P <port name>
  - Try and install from a package, stop if it's not found:
    # portinstall -P -P <port name>

Using portupgrade

- To upgrade an already installed software package:

  # portupgrade <package name>

- For instance:

  # portupgrade apache

Questions ?

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