

# 3. Installing software and package management

## Option 1: Installing software from OpenIndiana repositories via IPS

OpenIndiana uses the Image Packaging System - IPS, pkg(5), the same package management system as Oracle Solaris 11. Oracle is continuing practice of providing well written manuals: <http://download.oracle.com/docs/cd/E19963-01/html/820-6572/index.html>

To find more information on IPS/ pkg(5), using man command, use:

```
$ man -s 5 pkg
```

The command line package manager command is 'pkg'.  
To find more information about pkg(1), using man command, use:

```
$ man pkg
```

In IPS parlance, we are talking about adding **publishers** in place of term **repositories**.  
Package management is performed using accounts with elevated **Role Based Access Control (RBAC)** privileges (using **pfexec** or **sudo** before commands shown below).

### Adding publisher

```
$ pfexec bash  
# pkg set-publisher -g repository_url repository_name
```

### Replacing publisher

```
# pkg set-publisher -G old_repository_url -g new_repository_url repository_name
```

### Replacing publisher - example

```
# pkg set-publisher \  
-G http://pkg.openindiana.org/hipster-2015 \  
-g https://pkg.openindiana.org/hipster openindiana.org
```

### Listing publishers configured on the local system:

```
# pkg publisher  
  
PUBLISHER          TYPE      STATUS P LOCATION  
openindiana.org    origin   online F https://pkg.openindiana.org/hipster/  
hipster-encumbered origin   online F https://pkg.openindiana.org/hipster-encumbered/
```

### 'OpenIndiana hipster' repositories (as of February, 2017)

openindiana.org	<a href="https://pkg.openindiana.org/hipster">https://pkg.openindiana.org/hipster</a>	Hipster primary package repository
hipster-encumbered	<a href="https://pkg.openindiana.org/hipster-encumbered">https://pkg.openindiana.org/hipster-encumbered</a>	Hipster encumbered license packages
localhostoih	<a href="http://sfe.opencsw.org/localhostoih">http://sfe.opencsw.org/localhostoih</a>	3rd party <a href="#">Spec Files Extra (SFE)</a> packages

### Syntax for searching remotely for IPS packages

```
# pkg search -rp package_name
```

### Syntax for installing an IPS package

```
# pkg install package_name
```

## Syntax for upgrading a package

```
# pkg update package_name
```

## Upgrading all the packages on the system, with linked image Solaris Zones. (-r) and verbose output (-v)

```
# pkg update -v -r
```

Option `pkg -r` updates all Solaris Zones, if not issued, they are kept unupdated until `-r` command is issued on update or they are updated separately.

## Option 2: Install software from SmartOS repositories via pkgin

All illumos-based operating systems, like OmniOS, OpenIndiana and SmartOS can use the repository from Joyent/SmartOS. Its main advantage is that you find there a lot of very up to date packages.

A list of available software: <http://pkgsrc.joyent.com/packages/SmartOS/> in folder <http://pkgsrc.joyent.com/packages/SmartOS/> (or <http://pkgsrc.smartos.org/packages/illumos/>).

If you want to install software via `pkgin` (installs every package to `/opt`), you need to (console as `root`):

1. add `/opt/local/{s,}bin` where all software is installed to your `PATH` (in your shell, maybe save to your `.profile`):

```
PATH=/opt/local/sbin:/opt/local/bin:$PATH
export PATH
```

2. install the `bootstrap-loader`: (use the loader according to your repository, see <http://pkgsrc.joyent.com/packages/SmartOS/bootstrap/>)

```
;; curl https://pkgsrc.joyent.com/packages/SmartOS/bootstrap/bootstrap-2016Q4-x86_64.tar.gz | gtar -zxpf
- -C /
```

3. update the repository database:

```
;; pkgin -y update
```

4. install the needed package, for example – Apache 2.4.6:

```
;; pkgin -y install apache-2.4.6
```

or, just for newest 2.4:

```
;; pkgin -y install apache-2.4
```

For more information see:

- <http://wiki.smartos.org/display/DOC/Working+with+Packages>
- <http://www.perkin.org.uk/posts/whats-new-in-pkgsrc-2013Q2.html>
- newest repository: <http://pkgsrc.joyent.com/packages/SmartOS/>

## Option 3: Compile yourself

You need a compiler like `gcc`; download the sources, switch to the folder with your sources (make the content of your 'sourcefolder' executable recursively) and compile via:

```
;; cd /sourcefolder
;; ./configure
;; make
;; make install
```

You might want to first look into `./configure --help` to see what options are available for building the software – quite often, some features useful for you might not be a general choice enabled by default, or might require other dependency software to be available first in binary or source form, in order to compile.

For building software from NetBSD `pkgsrc` from sources, see page: [pkgsrc in OI](#) .

## Option 4: Build software using oi-userland

For contributing to oi-userland, see page: [Building with oi-userland](#)