



## pkg (5)

Image Packaging System

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# Agenda

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Introduction to the IPS

How to setup an IPS server

How to create / publish own packages

How to get involved?

Q&A

# Introduction to the IPS

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Overview

pkg (5) components

Package FMRI and  
versions

Example usage of pkg  
(1)

Package manager

pkg authorities

# Overview

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IPS is a packaging system used by OpenSolaris 2008.\* releases

The IPS software is a network-centric packaging system written in Python

IPS enables you to install and manage packages on your system

Both IPS and SVr4 packages are supported

Packages are identified by FMRI's

# Overview

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Scripting free (checkinstall, preinstall, postinstall ...),  
if needed this can be partially replaced by creating  
some smf services ...

Network repository support :-)

Default authority is set to pkg.opensolaris.org

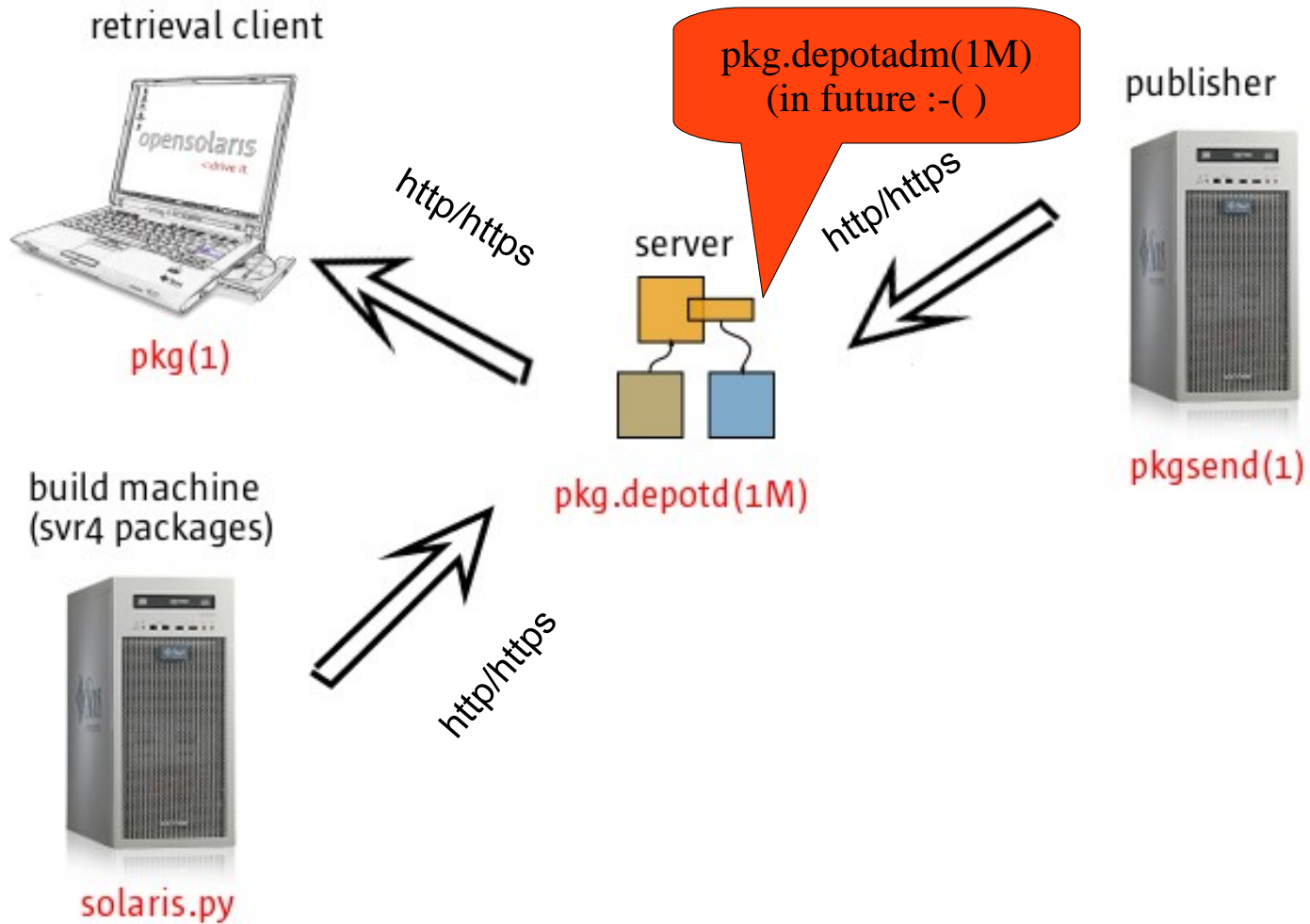
Not all packages are installed by default (caused by  
live cd capacity)

Solving dependencies

Branded zone support (create -t SUNWipkg)

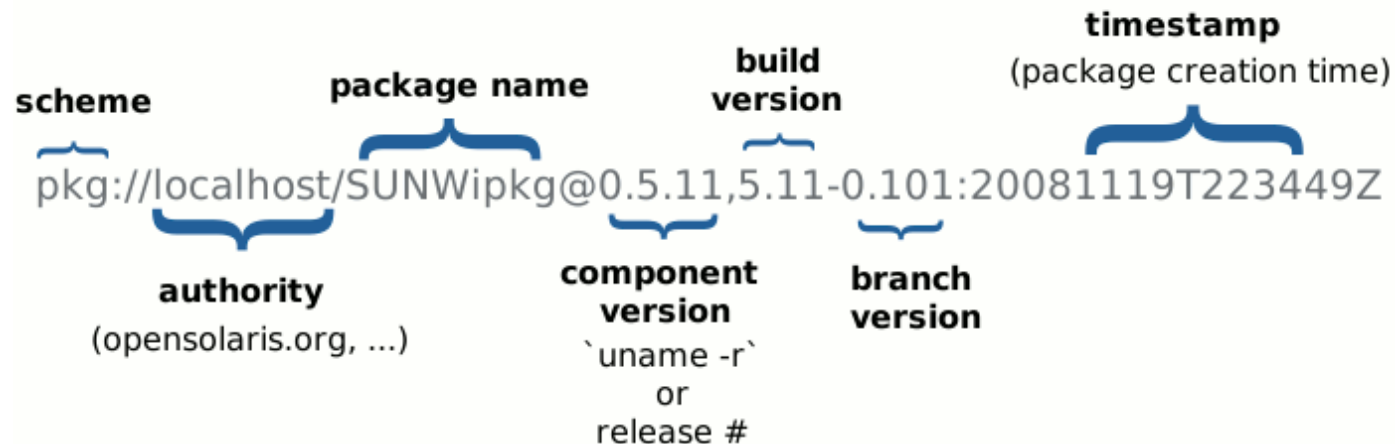
Per user image

# pkg (5) components



# FMRI - Fault Management Resource Identifier

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# Example usage of pkg (1)

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## Install / Update package

```
$ pfexec pkg install package_FMRI (SUNWfirefox)
```

*This will take all the dependencies and install latest software to the destination specified in PKG\_IMAGE )*

## Uninstall package

```
$ pfexec pkg uninstall package_FMRI
```

## Update entire image

```
$ pfexec pkg image-update
```

# Example usage of pkg (1)

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**Search for file in local (installed) / remote package**

```
$ pkg search [-lr] ggrep  
<show output in terminal>
```

**Get package information**

```
$ pkg info [-lr] package_FMRI  
<show output in terminal>
```

# Example usage of pkg(1)

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Let's take a closer look on the “entire” update process

```
$ pfexec pkg image-update
```

- Current image's dataset will be cloned and updated (new BE creation). So you can stop thinking of what if the update process will fail ... After update you should be able to boot your new update be.
- There is a utility called beadm to handle those Bes (create/delete/activate ...)

# Example usage of pkg (1)

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## Show contents of the package

```
$ pkg contents -t dir,file,link,hardlink -o  
action.name,mode,pkg.size,path,target SUNWzfs
```

*<show output in terminal>*

```
$ see man -s 1 pkg for more information and  
examples
```

# Package manager

The screenshot shows the OpenSolaris Package Manager window. The menu bar includes File, Edit, Package, Settings, and Help. The toolbar contains icons for Reload, Update All, Install/Update, and Remove, along with a 'Manage Repositories...' button. The repository is set to 'opensolaris.org'. The main area displays a list of packages with columns for Name, Status, and Description. The status column shows checkboxes for installation and blue checkmarks for installed packages. The status bar at the bottom indicates '3218 packages listed, 676 installed, 0 selected, 0 broken.'

Name	Status	Description
BRCMbnx	✓	Broadcom NetXtreme II Gig
FSWfontconfig-devel-docs		
FSWxorg-client-docs		
FSWxorg-client-programs		
FSWxorg-clientlibs		
FSWxorg-data		
FSWxorg-devel-docs		
FSWxorg-fonts		
FSWxorg-fonts-core	✓	X.Org Foundation X11 core
FSWxorg-fonts-cyrillic		
FSWxorg-fonts-daewoo		

**PACKAGE NAME**  
Short description

General Info | Files Details | Dependencies | Legal

3218 packages listed, 676 installed, 0 selected, 0 broken.

# pkg authorities (repositories)

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**<http://pkg.opensolaris.org/release> or [/dev](http://pkg.opensolaris.org/dev)**

The default authority

# of packages: 22791

**<http://blastwave.network.com:10000>**

Blastwave project

# of packages: 1714

**<http://pkg.sunfreeware.com:9000>**

The Companion project (companion dvd)

# of packages: 297

# Authority pkg.opensolaris.org

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- New version of opensolaris for the **/release** tree should be available every half a year
- New version for the **/dev** release should be available every **2-3 weeks** (for now depends on release date of the next SXCE)

# How to manage pkg authorities?

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Authorities can be managed via `pkg(1)` command

Listing authorities

```
$pkg authority
```

Adding authority

```
# pkg set-authority [-P] -O http://... Name
```

Remove authority

```
#pkg unset-authority Name
```

# How to setup an IPS server

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via SMF services  
via `pkg.depotd(1)`  
how to setup mirror

# How to set up an IPS server (smf way)

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How to set up pkg server via smf services?

```
# svcadm enable application/pkg/server
```

By default port is set to 80 and the server directory is `/var/pkg`

Often used options

```
pkg/port
```

```
pkg/inst_root
```

# How to set up an IPS server (the next one)

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You can also run

```
$ /usr/lib/pkg.depotd
```

By default port is set to 80 and the server directory is `/var/pkg/repo`

Server could be started by normal user using this way

Often used options

- p [ port number ]

- d [ server directory ]

- s [ number of threads for requests ] Def. 10

# How to setup an IPS mirror

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- IPS mirror is mirroring only files under **\$YOUR\_IPS\_MIRROR\_DIR/file** directory it does not provide any information about packages served. Even while “Plan creation” you're working with original server.
- Link with all needed information
  - <http://opensolaris.org/os/project/pkg/Mirroring/>

# How to setup an IPS mirror

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```
# mkdir /export/pkg
```

```
# /usr/lib/pkg.depotd -d /export/pkg -p 8009
```

```
# Add this command to the cron for public mirror please  
pull at 2:00 am. This will pull pkg.opensolaris.org/dev.
```

```
# /usr/bin/rsync -a pkg.opensolaris.org::osol_dev_files \  
/export/pkg/file
```

# How to setup an IPS mirror

---

```
# svccfg -s pkg/server
> add mirror
> select mirror
> addpg pkg application
> addpg start method
> setprop pkg/mirror = boolean: true
> setprop pkg/inst_root = astring: "/export/pkg"
> setprop pkg/threads = count: 50
> exit

# svcadm refresh pkg/server:mirror
# svcadm enable pkg/server:mirror
```

# How to setup an IPS mirror

---

- Performance issue

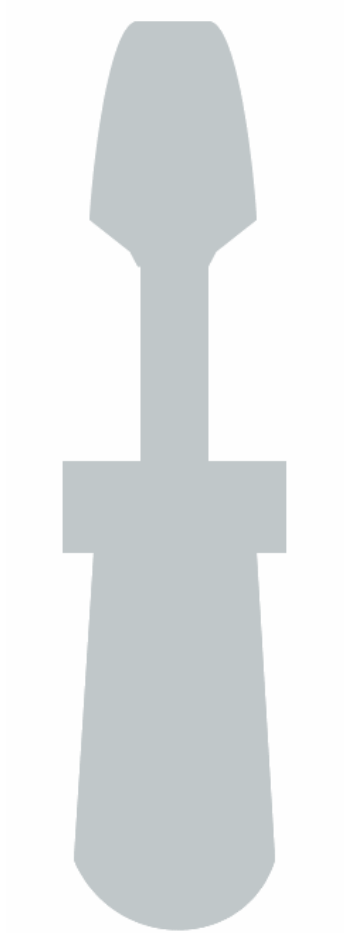
```
# zfs set atime=no <fs-name>
```

- And finally adding mirror to your authorities list

```
$ pfexec pkg set-authority -m http://myips.com \
  dev.opensolaris.org
```

# How to publish package to IPS server

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pkgsend syntax &  
attributes

Things to know before  
demo

Demo

# pkgsend syntax

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pkgsend open [-en] package\_FMRI

pkgesend add action arguments

pkgsend import [-T] pattern  
(pattern such as a SV4 package)

# pkgsend add actions

---

depend

dir

driver

file

group

hardlink

legacy

license

link

set

user

# Things to know before demo

---

Authority attribute is needed when we are working with authority different from <http://localhost:10000>.

Opening a transaction in different shells

*In Bourne like shells (ksh included)*

```
eval` pkgsend [-s authority] open package_fmri`
```

*In C like shells*

```
$ pkgsend [-s authority ] open package_fmri
```

```
export PKG_TRANS_ID=1228122616_pkg%3A%2Ftest  
%401.0.0%2C5.11%3A20081201T091016Z
```

```
$ setenv PKG_TRANS_ID 1228.....
```

# How to publish package to IPS server

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PKG publication demo  
Both SVr4 and IPS

# How to get involved?

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## Get more information

<http://www.opensolaris.org/os/project/pkg/>

## Get the source

```
hg clone --ssh "ssh -C"  
ssh://anon@hg.opensolaris.org/hg/pkg/gate
```

***Join the discuss list, report bugs or contribute :-)***

# Q&A

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Any questions?



**Thank you**

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