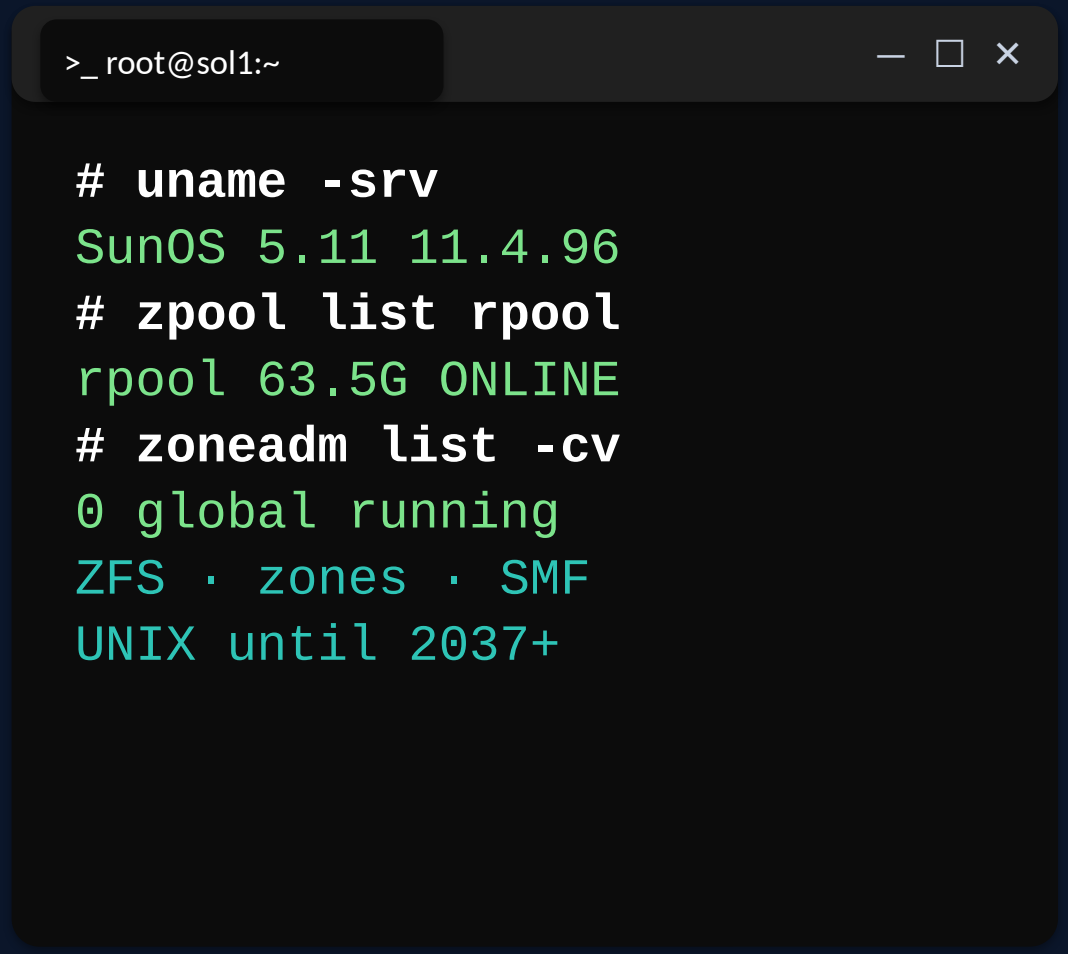


LESSON 3 OF 12

Oracle Solaris 11.4

ZFS · Zones · SMF · LDoms · OLVM

IPS Packages, SRU Updates & Boot Environments

Full Course · Solaris 11.4 SRU96 · OVM (Nov 2026)

What You Will Learn in Lesson 3

- IPS concepts: packages, FMRIs, publishers, groups
- Everyday pkg: search, info, install, uninstall, verify
- Publishers: release, support and CBE repositories
- Applying an SRU with pkg update
- Boot environments with beadm: create, activate, roll back
- Package mediators, facets and the entire incorporation
- Local repositories for offline sites

IPS Concepts

Term	Meaning
Package	Named, versioned set of files and dependencies
FMRI	pkg://solaris/web/server/apache-24@2.4.66,11.4-11.4.96.0.1.2.0
Publisher	Source of packages (solaris, a vendor, your own)
Repository	Where a publisher's packages live (HTTP or a directory)
Group package	group/system/solaris-large-server, …-desktop
entire	Incorporation that locks the whole OS to one SRU
Image	The installed system (global zone, zone, or alternate root)

Everyday pkg

```
root@sol1:~# pkg search -p tmux              # which package has it?
root@sol1:~# pkg info -r tmux                # info from the repository
root@sol1:~# pkg install tmux git            # install (BE only if needed)
root@sol1:~# pkg install -nv group/system/solaris-desktop   # dry run
root@sol1:~# pkg list -u                     # updates available?
root@sol1:~# pkg contents -t file -o path tmux | head -3
root@sol1:~# pkg search -l /usr/bin/ssh      # who owns this file?
root@sol1:~# pkg verify -v openssh           # check files
root@sol1:~# pkg fix openssh                 # repair damaged files
root@sol1:~# pkg uninstall tmux ; pkg history | tail -3
```

Publishers and Repositories

```
root@sol1:~# pkg publisher
PUBLISHER  TYPE    STATUS P LOCATION
solaris    origin  online F https://pkg.oracle.com/solaris/release/

# Support contract: download key + certificate from pkg-register.oracle.com
root@sol1:~# pkg set-publisher -k /root/pkg.key.pem -c /root/pkg.cert.pem \
      -G '*' -g https://pkg.oracle.com/solaris/support/ solaris

# Free CBE system: keep the release/CBE origin from your CBE instructions
root@sol1:~# pkg set-publisher -P -g file:///export/repo/myapps myapps
root@sol1:~# pkg refresh --full
```

Applying an SRU Safely

```
root@sol1:~# pkg update -nv                          # preview: what changes?
root@sol1:~# pkg update --be-name sru96 --accept   # new BE, current one untouched
...
A clone of 11.4.90 exists and has been updated and activated.
On the next boot the Boot Environment sru96 will be mounted on '/'.
root@sol1:~# beadm list
BE       Flags Mountpoint Space  Policy Created
solaris  N     /          312M   static 2026-11-20 21:04
sru96    R     -          8.9G   static 2026-11-20 21:40
root@sol1:~# init 6                                  # reboot into sru96
root@sol1:~# pkg update 'entire@11.4-11.4.96'      # or pin a specific SRU
```

Boot Environments with beadm

```
root@sol1:~# beadm create before-apache          # snapshot-based, seconds
root@sol1:~# beadm list
root@sol1:~# beadm mount before-apache /mnt      # look inside an old BE
root@sol1:~# beadm unmount before-apache
root@sol1:~# beadm activate solaris              # roll back: choose old BE
root@sol1:~# init 6
root@sol1:~# beadm destroy -F sru96              # remove an unwanted BE
root@sol1:~# beadm rename sru96 sru96-prod
# GRUB menu (x86) / boot -L at ok prompt (SPARC) also lists BEs
```

Mediators, Facets and Avoid

Feature	Example
Mediator	pkg set-mediator -V 3.13 python (which python is default)
Facet	pkg change-facet facet.locale.de=false (skip optional parts)
Variant	variant.arch=i386 / sparc; variant.opensolaris.zone
Avoid	pkg avoid gnome-media (do not pull in via group)
Freeze	pkg freeze openssl (hold a version — use with care)
entire	Always update entire with the rest — never mix SRU levels

Local Repository for Offline Sites

```
root@sol1:~# zfs create -o mountpoint=/export/repo rpool/export/repo
# From the downloaded SRU repository zip files (My Oracle Support):
root@sol1:~# unzip -q 'p*_11.4.96*_1of*.zip' -d /var/tmp/sru96
root@sol1:~# pkgrecv -s /var/tmp/sru96/repo -d /export/repo '*'
root@sol1:~# pkgrepo rebuild -s /export/repo
root@sol1:~# svccfg -s pkg/server setprop pkg/inst_root=/export/repo
root@sol1:~# svcadm refresh pkg/server ; svcadm enable pkg/server
# Clients:
root@sol2:~# pkg set-publisher -G '*' -g http://192.168.56.51/ solaris
```

Summary and Homework

- IPS: packages, FMRIs, publishers; entire locks the SRU level
- pkg search / info / install / list -u / verify / fix / history
- SRUs need the support repository (key + certificate)
- pkg update --be-name X: new BE, reboot, roll back if needed
- beadm create / list / activate / destroy
- Homework: create a BE, install tmux, roll back, check beadm list

Thank You! 🙏

Free videos & PDFs: www.MyWebUniversity.com

Slides for this lesson: MyWebUniversity.com/presentations

YouTube: @MyWebUniversity · @MyWebUniversity-Dari

Wahidullah Lutfy — Founder and Director of IT of MyWebUniversity, and CS teacher

Book: The Direct Path to Linux Ubuntu (Amazon · Barnes & Noble)

Learn it, then pass it on.