

Lab RPM and YUM

Part 1 - listing packages and content of packages

Part 2 - Install packages using rpm and verify

1. List all packages installed on your system and count them.

```
[root@centos-41 ~]# rpm -qa | tee allpkgs | wc -l
309
[root@centos-41 ~]# more allpkgs
NetworkManager-team-1.4.0-12.el7.x86_64
centos-release-7-3.1611.el7.centos.x86_64
NetworkManager-wifi-1.4.0-12.el7.x86_64
(snipped)
```

2. List all files available in the package 'bash'

```
[root@centos-41 ~]# rpm -ql bash|more
/etc/skel/.bash_logout
/etc/skel/.bash_profile
/etc/skel/.bashrc
/usr/bin/alias
/usr/bin/bash
```

3. List the package that contains the 'ls' command

```
[root@centos-41 ~]# rpm -qf /usr/bin/ls
coreutils-8.22-18.el7.x86_64
```

4. List version information about the 'bash' package

```
[root@centos-41 ~]# rpm -qi bash
Name           : bash
Version        : 4.4.19
Release        : 12.el8
(snipped)
```

5. List the dependencies of an rpm, for example 'sudo'

```
[root@centos-41 ~]# rpm -qR sudo
/bin/chmod
```

```
/bin/sh
/etc/pam.d/system-auth
/usr/bin/vi
(snipped)
```

Part 2 - Install packages using rpm and Verify

6. Change to your `/home/centos/files` directory

In this directory there is a package named `ksh-20120801-254.el8.x86_64.rpm`

List all files in this package, including the pathnames

```
[centos@centos-41 ~]$ cd files
[centos@centos-41 files]$ rpm -qlp ./ksh-20120801-254.el8.x86_64.rpm
/etc/binfmt.d/kshcomp.conf
/etc/kshrc
/etc/skel/.kshrc
/usr/bin/ksh
/usr/bin/ksh93
/usr/bin/rksh
/usr/bin/shcomp
/usr/lib/.build-id
/usr/lib/.build-id/43
/usr/lib/.build-id/43/69683e5c79cdef6bea4081cd07054187d4424b
/usr/lib/.build-id/d3
/usr/lib/.build-id/d3/0a32b3436565613bbdfa91d49474eda328cacb
/usr/share/doc/ksh
/usr/share/doc/ksh/COMPATIBILITY
/usr/share/doc/ksh/RELEASE
/usr/share/doc/ksh/TYPES
/usr/share/man/man1/ksh.1.gz
/usr/share/man/man1/ksh93.1.gz
```

7. Create a directory `kshfiles` and cd to it

Use `rpm2cpio` to extract all files to the current directory

```
[centos@centos-41 files]$ mkdir kshfiles
[centos@centos-41 files]$ cd kshfiles
[centos@centos-41 kshfiles]$ rpm2cpio \
../ksh-20120801-254.el8.x86_64.rpm | cpio -idmv
./etc/binfmt.d/kshcomp.conf
./etc/kshrc
./etc/skel/.kshrc
```

```
./usr/bin/ksh93
./usr/bin/rksh
./usr/bin/shcomp
./usr/lib/.build-id
(snipped)
```

8. Run the following command:

```
[centos@centos-41 kshfiles]$ usr/bin/ksh93
$ ps
  PID TTY          TIME CMD
 3468 pts/1        00:00:00 bash
 3614 pts/1        00:00:00 ksh93
 3615 pts/1        00:00:00 ps
$ exit
[centos@centos-41 kshfiles]$
```

9. Install the ksh package using the *rpm* command

```
[centos@centos-41 kshfiles]$ cd ~/files
[centos@centos-41 files]$ sudo rpm -ivh \
ksh-20120801-254.el8.x86_64.rpm

Verifying...
##### [100%]
Preparing...
##### [100%]
Updating / installing...
 1:ksh-20120801-254.el8
##### [100%]
```

What can you say about */usr/bin/ksh* and */usr/bin/ksh93*?

10. Check whether installed packages have changed after installation

```
[centos@centos-41 files]$ sudo rpm -Va ksh
[centos@centos-41 files]$
```

There should be no output since you just installed the rpm
Make the following change:

```
[centos@centos-41 files]$ sudo chmod u+s /usr/bin/ksh93
```

Run the check again

```
[centos@centos-41 files]$ rpm -Va ksh
.M..... /usr/bin/ksh93
[centos@centos-41 ~]$
```

Check out these fields....

```
S file Size differs
M Mode differs (includes permissions and file type)
5 digest (formerly MD5 sum) differs
D Device major/minor number mismatch
L readLink(2) path mismatch
U User ownership differs
G Group ownership differs
T mTime differs
P caPabilities differ
```

11. Run the Korn Shell and check your user id's (your effective user id should be 0)

```
[centos@centos-41 files]$ ksh
# id
uid=1000(centos) gid=1000(centos) euid=0(root) (snipped)
```

12. Uninstall the *ksh* package

```
[centos@centos-41 files]$ sudo rpm -e ksh
```

Part 3 - yum

Yum will resolve dependencies and install or download only. You will first download the *dsniff* package to your files directory and then try to install it with rpm.

13. Download *dsniff* the files directory

```
[centos@centos-41 files]$ sudo yum install dsniff --downloadonly \
--downloadaddir=$HOME/files
```

```
Last metadata expiration check: 0:11:18 ago on Thu 03 Jun 2021
03:05:28 PM CEST.
Dependencies resolved.
```

(snipped)

14. List the content of the files directory, and see that there are some more rpms that were downloaded

```
[centos@centos-41 files]$ ls
dsniff-2.4-0.33.b1.el8.x86_64.rpm  kshfiles
libnids-1.24-18.el8.x86_64.rpm
ksh-20120801-254.el8.x86_64.rpm  libnet-1.1.6-15.el8.x86_64.rpm
```

15. Use rpm to install dsniff. This should fail based on missing dependencies

```
[centos@centos-41 files]$ sudo rpm -ivh
dsniff-2.4-0.33.b1.el8.x86_64.rpm
error: Failed dependencies:
    libnet.so.1()(64bit) is needed by dsniff-2.4-0.33.b1.el8.x86_64
    libnids.so.1.24()(64bit) is needed by
dsniff-2.4-0.33.b1.el8.x86_64
```

16. Use yum to install dnsiff. This should succeed. You can do that in two ways

```
[centos@centos-41 files]$ sudo yum install dsniff
```

Or

```
[centos@centos-41 files]$ sudo yum localinstall \
~/files/dsniff-2.4-0.33.b1.el8.x86_64.rpm
```

17. What happens when you try to remove the *libnids* package using *rpm -e* ?

```
[centos@centos-41 files]$ rpm -e libnids
error: Failed dependencies:
    libnids.so.1.24()(64bit) is needed by (installed)
dsniff-2.4-0.33.b1.el8.x86_64
```

18. Remove the dsniff including the libraries it needs

```
[centos@centos-41 files]$ sudo yum remove dsniff
Dependencies resolved.
=====
Package                Architecture      Version
Repository              Size
=====
Removing:
  dsniff                x86_64           2.4-0.33.b1.e18
@@commandline           397 k
Removing unused dependencies:
  libnet                x86_64           1.1.6-15.e18
@appstream               170 k
  libnids               x86_64           1.24-18.e18           @epel
85 k

Transaction Summary
=====
Remove 3 Packages

Freed space: 653 k
Is this ok [y/N]:y
```

19. The repository files are located in `/etc/yum.repos.d`
 In the previous example you installed `dsniff` which needs the `epel` repository to be
 And it needs to be enabled.

Disable the repo and try and install `dsniff` once more
 You can use `vi` to do that or `sed`

```
[centos@centos-41 files]$ sudo sed -i 's/enabled=1/enabled=0/' \
/etc/yum.repos.d/epel.repo
```

What happens when you install `dsniff` (it should fail)

```
[centos@centos-41 files]$ sudo yum install -y dsniff
Last metadata expiration check: 0:53:08 ago on Thu 03 Jun 2021
03:05:28 PM CEST.
No match for argument: dsniff
Error: Unable to find a match: dsniff
```

Use your favorite editor to enable the `epel.repo` again.