Package management task

1. Query packages by using `rpm`.

a. Query all installed packages.

```
# rpm –qa
...
gnome-color-manager-3.8.2-6.el7.x86_64
nmap-ncat-6.40-4.el7.x86_64
ghostscript-9.07-16.el7.x86_64
libdv-1.0.0-17.el7.x86_64
```

b. Query whether a specific package (`bash`, for example) is installed.

```
# rpm –q bash
bash-4.2.45-5.el7.x86_64
```

c. Get detailed information about the `bash` package.

```
# rpm –qi bash
Name        : bash
Version     : 4.2.45
Release     : 5.el7
Architecture: x86_64
Install Date: <date_time>
Group       : System Environment/Shells
...
```

d. List the files in the `bash` package.

```
# rpm –ql bash
/etc/skel/.bash_logout
/etc/skel/.bash_profile
/etc/skel/.bashrc
/usr/bin/alias
/usr/bin/bash
...
```

e. Perform a reverse search. That is, determine what package the `/etc/sysconfig` file belongs to.

```
# rpm –qf /etc/sysconfig
filesystem-3.2-18.el7.x86_64
```

f. List the configuration files associated with the `cups` package.

```
# rpm –qc cups
/etc/cups/classes.conf
/etc/cups/client.conf
/etc/cups/cups-files.conf
/etc/cups/cupsd.conf
/etc/cups/lpoptions
...
```

2. Install packages by using `rpm`.

a. Use the `df` command to determine the mount point for Oracle Linux installation media.

```
# df –h
Filesystem ... Mounted on
...
/dev/sr0   ... /run/media/oracle/OL-7.0 Server.x86_64
```

In this example, the Oracle Linux installation media is mounted on `/run/media/oracle/OL-7.0 Server.x86_64`.

b. Use the `cd` command to change to the `/run/media/oracle/OL*` directory.

```
# cd /run/media/oracle/OL*
```

c. Use the `ls` command to list the contents of the directory.

```
# ls
addons  EULA    GPL     isolinux  Packages  RPM-GPG-KEY ...
EFI     Extras  images  LiveOS    repodata  RPM-GPG-KEY-oracle
```

Notice the `Packages` subdirectory.

d. Use the `cd` command to change to the `Packages` directory, and then list the contents of the directory.

```
# cd Packages
# ls
389-ds-base-1.3.1.6-25.el7.x86_64.rpm
```

e. Verify that the zsh package (Z-Shell) is not already installed.

```
# zsh
bash: zsh: command not found...
Similar command is: 'ssh'
# rpm -q zsh
Package zsh is not installed
```

In this example, the zsh package is not installed.

f. Install the zsh package by using rpm.

```
# rpm -ivh zsh-5.0.2-7.el7.x86_64.rpm
Preparing...                          ################################# [100%]
Updating / installing...
   1:zsh-5.0.2-7.el7                  ################################# [100%]
```

g. Verify that the zsh package is now installed.

```
# rpm -q zsh
zsh-5.0.2-7.el7.x86_64
```

h. Run the zsh command, and then display the process ID of zsh.

```
# zsh
# ps
  PID  TTY          TIME CMD
29038  pts/0    00:00:00 zsh
29062  pts/0    00:00:00 ps
30106  pts/0    00:00:00 su
30115  pts/0    00:00:02 bash
```

i. Use the exit command to log out of zsh.

```
# exit
# ps
  PID  TTY          TIME CMD
29071  pts/0    00:00:00 ps
30106  pts/0    00:00:00 su
30115  pts/0    00:00:02 bash
```

Remove packages by using rpm.

a. Remove the zsh package.

```
# rpm -e zsh
```

b. Verify that the zsh package has been removed.

```
# rpm -q zsh
package zsh is not installed
```

Creating a Local Yum Repository

1. Disable the Public Yum repositories.

a. Use the `vi` editor to edit the `/etc/yum.repos.d/public-yum-ol7.repo` file and set all "`enabled=1`" to "`enabled=0`".

```
# vi /etc/yum.repos.d/public-yum-ol7.repo
[ol7_latest]
...
enabled=1                              (old value)
enabled=0                              (new value)
...
[ol7_UEKR3]
...
enabled=1                              (old value)
enabled=0                              (new value)
...
```

b. To ensure all repositories are disabled, use the `grep` command and search for the string "`enabled`" in the `/etc/yum.repos.d/public-yum-ol7.repo` file.

```
# grep enabled /etc/yum.repos.d/public-yum-ol7.repo
enabled=0
enabled=0
enabled=0
enabled=0
enabled=0
enabled=0
enabled=0
```

In this example, all repositories are disabled (`enabled=0`).

Repeat task 1a and task 1b if necessary to ensure that all repositories are disabled.

c. Run the `yum clean all` command to clean up the `yum` cache.

```
# yum clean all
There are no enabled repos.
 Run "yum repolist all" to see the repos you have.
 You can enabled repos with yum-config-manager –enabled <repo>
```

2. Ensure that the Oracle Linux `dvd.iso` image is mounted on `/media`.
Use the `df` command to display the mounted file systems.

```
# df –h
Filesystem  Size Used Avail Use% Mounted on
...
/dev/sr0    3.9G 3.9G    0 100% /run/media/oracle/OL-
7.0 Server.x86_64
```

Note that the OL7 media is mounted on `/run/media/oracle/`.

3. Create the local repository.

a. Use the `rpm` command to check whether the `createrepo` package is installed.

```
# rpm –q createrepo
createrepo-0.9.9-23.el7.noarch
```

In this example, the package is installed.

b. Change to the `/run/media/oracle` directory.

```
# cd /run/media/oracle
# ls
OL-7.0 Server.x86_64
```

c. Use the `createrepo` command to create a repository of the current directory.

This command takes several minutes to complete.
Include the "`.`" argument to represent the current directory.

```
# createrepo .
Spawning worker 0 with 4364 pkgs
Workers Finished
Saving Primary metadata
Saving file lists metadata
Saving other metadata
Generating sqlite DBs
Sqlite DBs complete
```

d. View the results of the `createrepo` command.

```
# pwd
/run/media/oracle
# ls –l
drwx-r-x-r-x.        OL-7.0 Server.x86_64
drwx-r-x-r-x.        repodata
```

Notice that the **`repodata`** directory has been created.

e. View the contents of the `repodata` directory.

```
# ls –l repodata
-rw-r--r--   ...primary.xml.gz
-rw-r--r--   ...filelists.xml.gz
-rw-r--r--   ...filelists.sqlite.bz2
-rw-r--r--   ...primary.sqlite.bz2
```

f. Use the `cd` command to change to the `yum` repository directory. Use the `vi` editor to create the `iso.repo` file:

```
# cd /etc/yum.repos.d
# vi iso.repo
[Myrepo]
name=Oracle Linux
baseurl=file:///run/media/oracle
enabled=1
gpgkey=file:///run/media/oracle/RPM-GPG-KEY
gpgcheck=1
```

g. In this example, the GPG key is located on the Oracle Linux `dvd.iso` image.

```
# cd /run/media/oracle/OL*
# ls *GPG*
RPM-GPG-KEY    RPM-GPG-KEY-oracle
```

There are two files that contain the GPG key.
The files are the same, so either can be used.

Copy the `RPM-GPG-KEY` file because this is the file you designated in the `iso.repo` file.

```
# cp /run/media/oracle/OL*/RPM-GPG-KEY /run/media/oracle
```

i. Manually install the public key.

```
# rpm --import RPM-GPG-KEY
```

j. Confirm the import of the public key.

```
# rpm –q gpg-pubkey
gpg-pubkey-...
```

k. Use the `yum repolist` command to list the configured repositories.
Note that the “`Myrepo`” repository is the only enabled repository.

```
# yum repolist
...
repo id                    repo name                    status
Myrepo                     Oracle Linux                 4,364
repolist: 4,364
```

Using the yum Utility

1. **List packages by using yum.**

a. List all packages installed on your system and all packages available in all configured repositories.

Notice that some packages were installed during installation (`@anaconda/7.0`) and some are available in the new repository (`Myrepo`).

```
# yum list
Loaded plugins: langpacks
Installed Packages
GConf2.x86_64                3.2.6-8.el7          @anaconda/7.0
ModemManager.x86_64          1.1.0-6.git...       @anaconda/7.0
ModemManager-glib.x86_64     1.1.0-6.git...       @anaconda/7.0
...
zsh.x86_64                   5.0.2-7.el7          Myrepo
zziplib.i686                 0.13.62-5.el7        Myrepo
zziplib.x86_64               0.13.62-5.el7        Myrepo
```

b. List only the installed packages.

```
# yum list installed
Loaded plugins: langpacks
Installed Packages
GConf2.x86_64                3.2.6-8.el7          @anaconda/7.0
ModemManager.x86_64          1.1.0-6.git...       @anaconda/7.0
ModemManager-glib.x86_64     1.1.0-6.git...       @anaconda/7.0
...
zenity.x86_64                3.8.0-4.el7          @anaconda/7.0
zip.x86_64                   3.0-10.el7           @anaconda/7.0
zlib.x86_64                  1.2.7-13.el7         @anaconda/7.0.
```

c. List only the packages that are available to be installed from enabled repositories.

```
# yum list available
Available Packages
389-ds-base.x86_64             1.3.1.6-25.el7       Myrepo
389-ds-base-libs.x86_64        1.3.1.6-25.el7       Myrepo
```

d. List the name of the package to which the `/etc/sysconfig/crond` file belongs.

```
# yum provides /etc/sysconfig/crond

cronie-1.4.11-11.el7.x86_64 : Cron daemon for executing prog...
Repo           : Myrepo
...
```

2. Install packages by using `yum`.

```
# yum install zsh
```

3. Remove packages by using `yum`.

Remove the `zsh` package.

If the following "`yum remove`" command fails, run the "`yum clean all`" command to clean up the `yum` cache, then run the "`yum remove`" command again.

Answer **y** when prompted.

```
# yum remove zsh
...
Transaction Summary
================================================
Remove     1 Package

Installed size: 5.0 M
Is this ok [y/d/N]: y
...
```