RPM & YUM

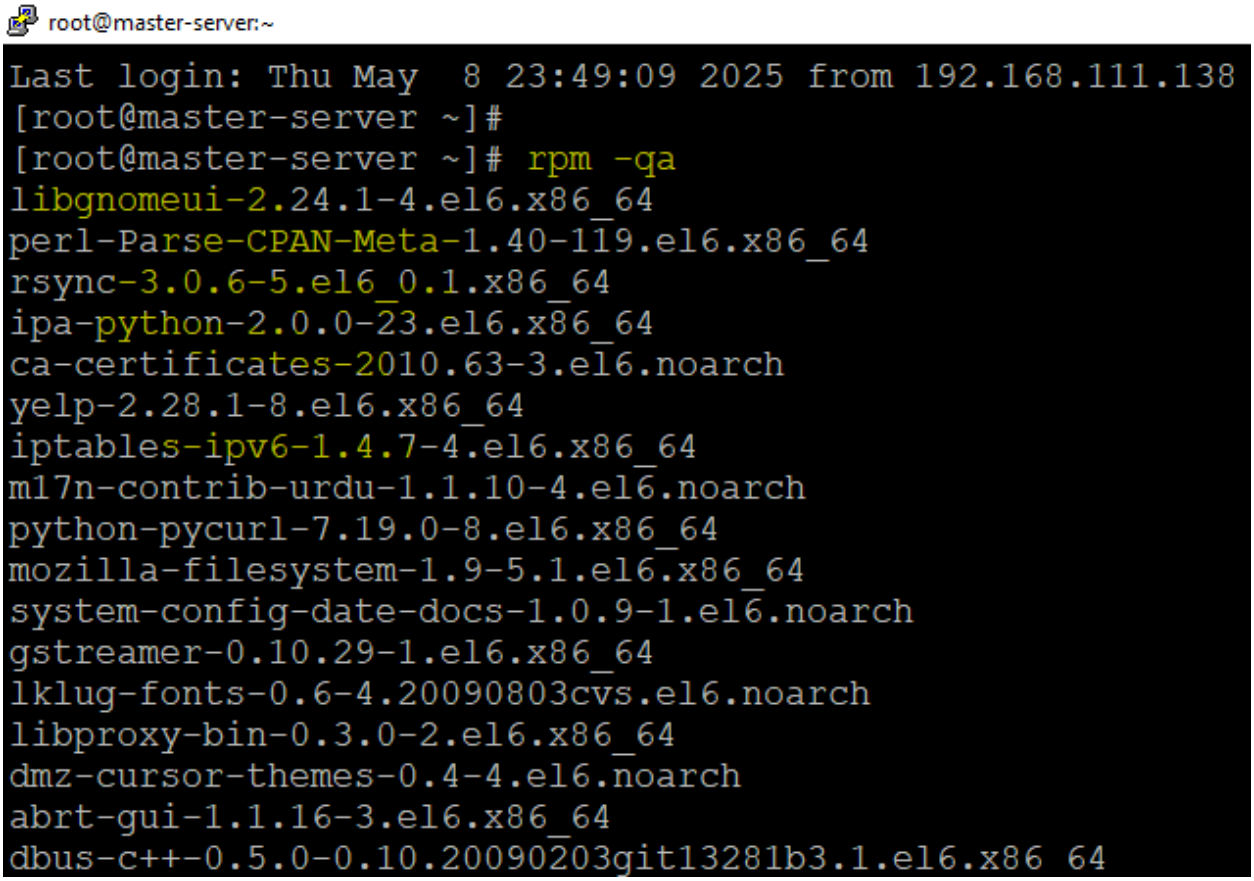
To manage the software in Linux, two utilities are used,

1. RPM – REDHAT PACKAGE MANAGER
2. YUM – YELLOWDOG UPDATER MODIFIED

RPM –REDHAT PACKAGE MANAGER:

RPM is a package managing system (collection of tools to manage software packages). RPM is a powerful software management tool for installing, uninstalling, verifying, querying and updating software packages. RPM is a straight forward program to perform the above software management tasks.

- ➔ To check all the installed packages in the system the syntax is
- ➔ #rpm –qa (where q stands for query, and a stands for all)



- ➔ To check whether a particular package is installed or not
- ➔ rpm –qa <packagename>
- ➔ #rpm –qa | grep –i < package name>

root@master-server:~

```
[root@master-server ~]# rpm -qa | grep cracklib
cracklib-2.8.16-4.el6.x86_64
cracklib-dicts-2.8.16-4.el6.x86_64
cracklib-python-2.8.16-4.el6.x86_64
[root@master-server ~]#
```

- ➔ To check whether a package is consistent or not, before installing it. (Testing the installation)
- ➔ The command used to check the package's consistency is
- ➔ #rpm –ivh - -test <packagename>
- ➔ Where i = install, v= verbose view, and h = hash progress
- ➔ #rpm -ivh --test finger-0.17-39.el6.x86_64.rpm

root@master-server:/media/RHEL_6.1 x86_64 Disc 1/Packages

```
[root@master-server Packages]# rpm -ivh --test finger-0.17-39.el6.x86_64.rpm
warning: finger-0.17-39.el6.x86_64.rpm: Header V3 RSA/SHA256 Signature, key ID fd431d51: NOKEY
Preparing...                ########################################### [100%]
[root@master-server Packages]#
```

- ➔ To install the package the syntax is
- ➔ #rpm –ivh <packagename>
- ➔ #rpm -ivh finger-0.17-39.el6.x86_64.rpm

root@master-server:/media/RHEL_6.1 x86_64 Disc 1/Packages

```
[root@master-server Packages]# rpm -ivh finger-0.17-39.el6.x86_64.rpm
warning: finger-0.17-39.el6.x86_64.rpm: Header V3 RSA/SHA256 Signature, key ID fd431d51: NOKEY
Preparing...                ########################################### [100%]
   1:finger                 ########################################### [100%]
[root@master-server Packages]#
```

- ➔ To verify the package is installed or not by using command
- ➔ **#rpm –qa finger**

root@master-server:/media/RHEL_6.1 x86_64 Disc 1/Packages

```
[root@master-server Packages]# rpm -qa | grep finge
gdm-plugin-fingerprint-2.30.4-21.el6_0.1.x86_64
finger-0.17-39.el6.x86_64
[root@master-server Packages]#
```

- ➔ To remove a package or uninstall the package
- ➔ #rpm –e < package name>
- ➔ #rpm –e finger

root@master-server:/media/RHEL_6.1 x86_64 Disc 1/Packages

```
[root@master-server Packages]# rpm -e finger
[root@master-server Packages]# rpm -qa | grep finge
gdm-plugin-fingerprint-2.30.4-21.el6_0.1.x86_64
[root@master-server Packages]#
```

- ➔ To see the information about the package before installing
- ➔ #rpm –qip <packagename> (where q is for query, i is for install and p is for package)
- ➔ #rpm –qip finger-0.17-39-el6.1686.rpm

root@master-server:/media/RHEL_6.1 x86_64 Disc 1/Packages

```
[root@master-server Packages]# rpm -qip finger-0.17-39.el6.x86_64.rpm
warning: finger-0.17-39.el6.x86_64.rpm: Header V3 RSA/SHA256 Signature, key ID fd431d51: NOKEY
Name        : finger                       Relocations: (not relocatable)
Version     : 0.17                              Vendor: Red Hat, Inc.
Release     : 39.el6                        Build Date: Fri 20 Nov 2009 09:03:14 AM IST
Install Date: (not installed)               Build Host: hs20-bc1-7.build.redhat.com
Group       : Applications/Internet         Source RPM: finger-0.17-39.el6.src.rpm
Size        : 27234                            License: BSD
Signature   : RSA/8, Mon 16 Aug 2010 09:36:06 PM IST, Key ID 199e2f91fd431d51
Packager    : Red Hat, Inc. <http://bugzilla.redhat.com/bugzilla>
Summary     : The finger client
Description :
Finger is a utility which allows users to see information about system
users (login name, home directory, name, how long they've been logged
in to the system, etc.).  The finger package includes a standard
finger client.

You should install finger if you'd like to retrieve finger information
from other systems.
[root@master-server Packages]#
```

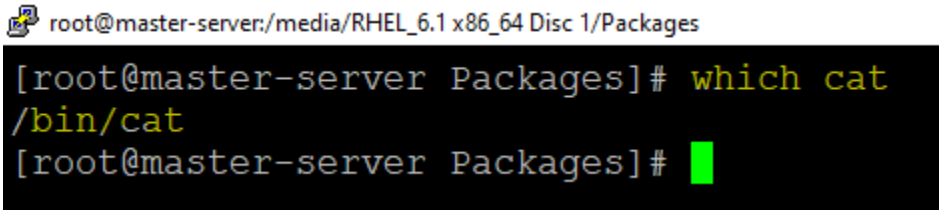
- ➔ To see the information about the installed package
- ➔ #rpm –qi < package name >
- ➔ #rpm –qi finger

root@master-server:/media/RHEL_6.1 x86_64 Disc 1/Packages

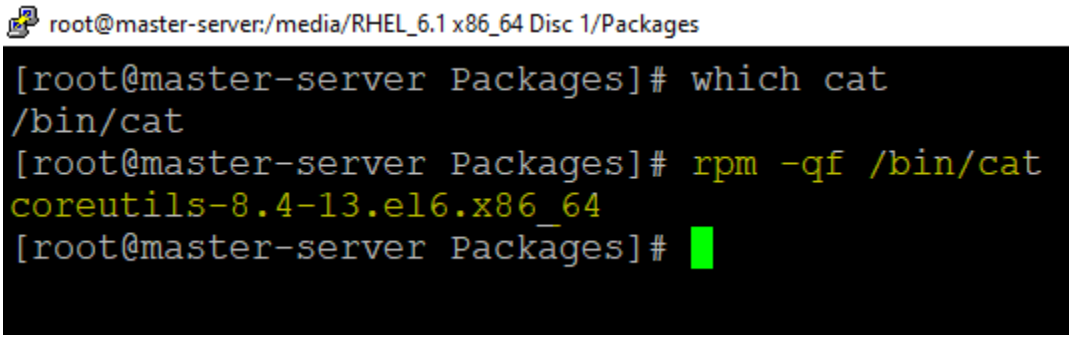
```
[root@master-server Packages]# rpm -qi finger
Name        : finger                       Relocations: (not relocatable)
Version     : 0.17                              Vendor: Red Hat, Inc.
Release     : 39.el6                        Build Date: Fri 20 Nov 2009 09:03:14 AM IST
Install Date: Fri 09 May 2025 01:41:18 AM IST      Build Host: hs20-bc1-7.build.redhat.com
Group       : Applications/Internet         Source RPM: finger-0.17-39.el6.src.rpm
Size        : 27234                            License: BSD
Signature   : RSA/8, Mon 16 Aug 2010 09:36:06 PM IST, Key ID 199e2f91fd431d51
Packager    : Red Hat, Inc. <http://bugzilla.redhat.com/bugzilla>
Summary     : The finger client
Description :
Finger is a utility which allows users to see information about system
users (login name, home directory, name, how long they've been logged
in to the system, etc.).  The finger package includes a standard
finger client.

You should install finger if you'd like to retrieve finger information
from other systems.
[root@master-server Packages]#
```

To check the package of a particular command:

- ➔ To check the package of a particular command, first check the installed location of a command
- ➔ #which <commandname>
- ➔ #which cat



- ➔ Now, use the following command
- ➔ #rpm –qf <path of the command>
- ➔ #rpm –qf /bin/cat



To install a package forcefully

- ➔ # rpm –ivh <packagename> - -force
- ➔ To see the configuration files of the installed package
- ➔ #rpm –qlc <packagename>
- ➔ To see the directory with which a particular package is associated.
- ➔ #rpm –qld <packagename>

To install a package without installing dependencies: -> #rpm –ivh <packagename> - -nodeps

- ➔ To update a particular package #rpm –Uvh <packagename>

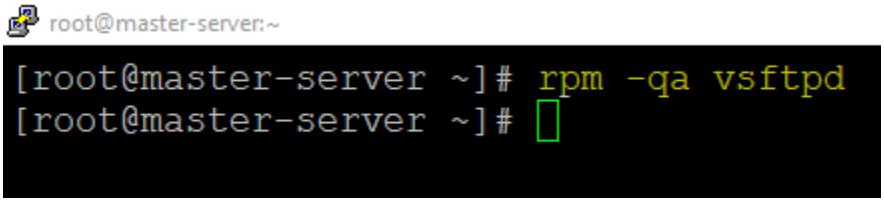
YUM

- ➔ The Yellow dog Updater Modified (YUM) is a package management application for computers running Linux operating systems.
- ➔ With yum we can install, update, remove the packages
- ➔ Yum resolves the dependencies.
- ➔ Yum uses a configuration file at /etc/yum.conf

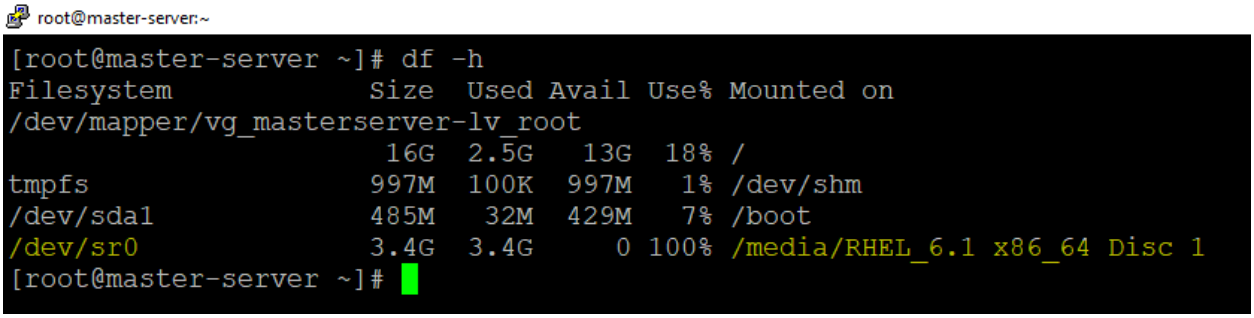
To configure a YUM server the steps are.

- ➔ Make sure that vsftpd package is installed, if not install it.
- ➔ Copy entire RHEL6 DVD to "/var/ftp/pub/rhel6" directory, where rhel6 dir is to made by us only it is not default dir.
- ➔ Make a repo file as "yallareddy-rhel6.repo"in /etc/yum.repos.d directory
- ➔ Clean the yum cache and check the package list using yum command

Checking the vsftpd package is installed or not.



If it is not installed, then go to dvd's mount point and navigate to "Packages" directory and install it as shown below.



As we know the mount point of dvd is /media/RHEL_6, move to its location and enter into Packages directory.

root@master-server:/media/RHEL_6.1 x86_64 Disc 1/Packages

```
[root@master-server ~]# cd /media/RHEL_6.1\ x86_64\ Disc\ 1/
[root@master-server RHEL_6.1 x86_64 Disc 1]# ls
EFI                RELEASE-NOTES-as-IN.html  RELEASE-NOTES-kn-IN.html  RELEASE-NOTES-te-IN.html
EULA               RELEASE-NOTES-bn-IN.html  RELEASE-NOTES-ko-KR.html  RELEASE-NOTES-zh-CN.html
GPL                RELEASE-NOTES-de-DE.html  RELEASE-NOTES-ml-IN.html  RELEASE-NOTES-zh-TW.html
HighAvailability   RELEASE-NOTES-en-US.html  RELEASE-NOTES-mr-IN.html  repodata
images             RELEASE-NOTES-es-ES.html  RELEASE-NOTES-or-IN.html  ResilientStorage
isolinux           RELEASE-NOTES-fr-FR.html  RELEASE-NOTES-pa-IN.html  RPM-GPG-KEY-redhat-beta
LoadBalancer       RELEASE-NOTES-gu-IN.html  RELEASE-NOTES-pt-BR.html  RPM-GPG-KEY-redhat-release
media.repo         RELEASE-NOTES-hi-IN.html  RELEASE-NOTES-ru-RU.html  ScalableFileSystem
Packages           RELEASE-NOTES-it-IT.html  RELEASE-NOTES-si-LK.html  Server
README             RELEASE-NOTES-ja-JP.html  RELEASE-NOTES-ta-IN.html  TRANS.TBL
[root@master-server RHEL_6.1 x86_64 Disc 1]# cd Packages/
[root@master-server Packages]# pwd
/media/RHEL_6.1 x86_64 Disc 1/Packages
[root@master-server Packages]#
```

Now install the “vsftpd” package.

root@master-server:/media/RHEL_6.1 x86_64 Disc 1/Packages

```
[root@master-server Packages]# ls | grep vsftpd
vsftpd-2.2.2-6.el6_0.1.x86_64.rpm
[root@master-server Packages]# pwd
/media/RHEL_6.1 x86_64 Disc 1/Packages
[root@master-server Packages]#
[root@master-server Packages]# rpm -ivh vsftpd-2.2.2-6.el6_0.1.x86_64.rpm
warning: vsftpd-2.2.2-6.el6_0.1.x86_64.rpm: Header V3 RSA/SHA256 Signature, key ID fd431d51: NOKEY
Preparing...                ########################################### [100%]
   1:vsftpd                 ########################################### [100%]
[root@master-server Packages]#
[root@master-server Packages]# rpm -qa vsftpd-2.2.2-6.el6_0.1.x86_64.rpm
[root@master-server Packages]# rpm -qa vsftpd
vsftpd-2.2.2-6.el6_0.1.x86_64
[root@master-server Packages]#
```

root@master-server:/media/RHEL_6.1 x86_64 Disc 1/Packages

```
[root@master-server Packages]# rpm -qi vsftpd | grep Install
Install Date: Fri 09 May 2025 12:12:06 PM IST      Build Host: hs20-bc2-3.build.redhat.com
[root@master-server Packages]#
```

Copy entire RHEL6 DVD to **“/var/ftp/pub/yalla-rhel6”** directory, Where rhel6 dir is to be made by user only it is not a default dir

First make an directory “yalla-rhel6” under /var/ftp/pub

#mkdir /var/ftp/pub/yalla-rhel6

root@master-server:~

```
[root@master-server ~]# mkdir -p /var/ftp/pub/yalla-rhel6
[root@master-server ~]# ls -ld /var/ftp/pub/yalla-rhel6/
drwxr-xr-x. 2 root root 4096 May  9 12:15 /var/ftp/pub/yalla-rhel6/
[root@master-server ~]#
```

Now copy the RHEL6 DVD to /var/ftp/pub/rhel6 directory with its default permission

#cp –rvfp /media/RHEL_6.0\I386\Disc\1/* /var/ftp/pub/ yalla-rhel6

root@master-server:~

```
[root@master-server ~]# mkdir -p /var/ftp/pub/yalla-rhel6
[root@master-server ~]# ls -ld /var/ftp/pub/yalla-rhel6/
drwxr-xr-x. 2 root root 4096 May  9 12:15 /var/ftp/pub/yalla-rhel6/
[root@master-server ~]# cp -rfp /media/RHEL_6.1\ x86_64\ Disc\ 1/* /var/ftp/pub/yalla-rhel6/
```

Check the directory after copying is finished.

root@master-server:/var/ftp/pub/yalla-rhel6

```
[root@master-server ~]# cd /var/ftp/pub/yalla-rhel6/
[root@master-server yalla-rhel6]# ls
EFI                RELEASE-NOTES-as-IN.html  RELEASE-NOTES-kn-IN.html  RELEASE-NOTES-te-IN.html
EULA               RELEASE-NOTES-bn-IN.html  RELEASE-NOTES-ko-KR.html  RELEASE-NOTES-zh-CN.html
GPL                RELEASE-NOTES-de-DE.html  RELEASE-NOTES-ml-IN.html  RELEASE-NOTES-zh-TW.html
HighAvailability   RELEASE-NOTES-en-US.html  RELEASE-NOTES-mr-IN.html  repodata
images             RELEASE-NOTES-es-ES.html  RELEASE-NOTES-or-IN.html  ResilientStorage
isolinux           RELEASE-NOTES-fr-FR.html  RELEASE-NOTES-pa-IN.html  RPM-GPG-KEY-redhat-beta
LoadBalancer       RELEASE-NOTES-gu-IN.html  RELEASE-NOTES-pt-BR.html  RPM-GPG-KEY-redhat-release
media.repo         RELEASE-NOTES-hi-IN.html  RELEASE-NOTES-ru-RU.html  ScalableFileSystem
Packages           RELEASE-NOTES-it-IT.html  RELEASE-NOTES-si-LK.html  Server
README             RELEASE-NOTES-ja-JP.html  RELEASE-NOTES-ta-IN.html  TRANS.TBL
[root@master-server yalla-rhel6]# pwd
/var/ftp/pub/yalla-rhel6
[root@master-server yalla-rhel6]#
```

Make a repo file as “yallareddy-rhel6.repo”in /etc/yum.repos.d directory

The file which we make inside /etc/yum.reops.d, will be functioning as the repository address and configuration file. Create the file with following details.

#vim /etc/yum.reops.d/ yallareddy-rhel6.repo

root@master-server:/etc/yum.repos.d

```
[root@master-server yum.repos.d]# cat yallareddy-rhel6.repo
[yallareddy-rhel6.repo]
name= RHEL6 Repo
baseurl=file:///var/ftp/pub/yalla-rhel6
enabled=1
gpgcheck=0
[root@master-server yum.repos.d]# pwd
/etc/yum.repos.d
[root@master-server yum.repos.d]#
```

[yallareddy-rhel6.repo] - short name given to the repository

name is the complete name for the repository.

baseurl is the location of the dvd dump we have made.

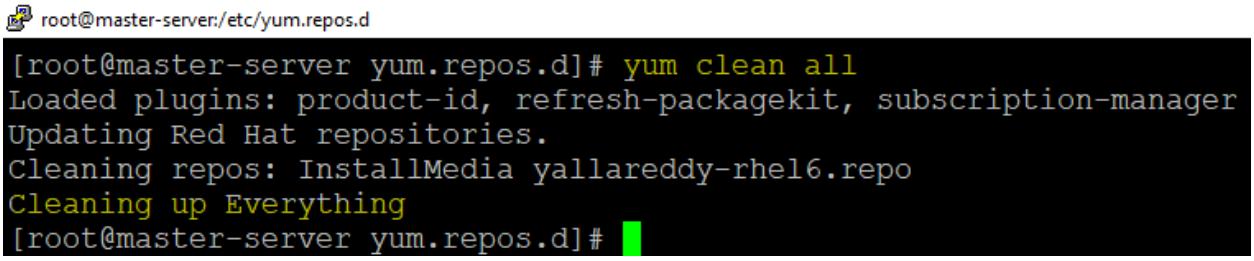
enabled is to enable or disable the repository. The possible value for it is 0 and 1, where 0 means disable and 1 means enabled.

gpgcheck With the gpgcheck option, all packages must be signed, and yum must be able to verify the signatures on packages from red hat . If gpgcheck=0, there will be no package signing by red hat and signature verification.

Clean the yum cache and check the package list using yum command

To clear the cache use the following command

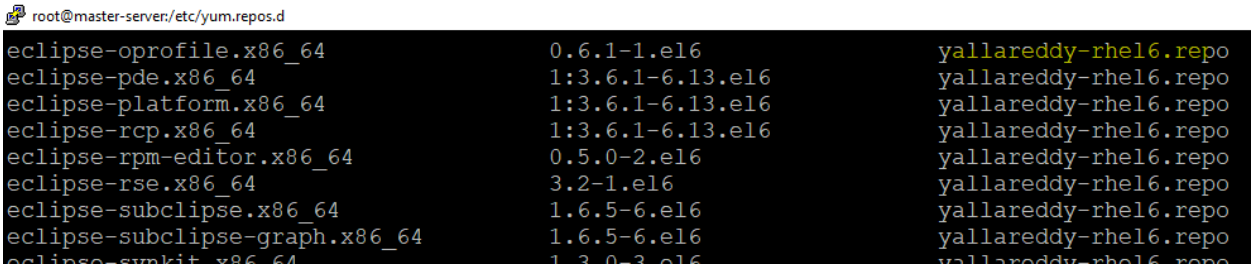
#yum clean all



If the configuration is correct, then the following output will be displayed, otherwise there will be some errors displayed.

Now let's check whether our repository is functioning properly or not.

#yum list (to list all the packages in repository)



YUM Client configuration

Configure the yum client and check whether yum server is responding to it.

Yum server IP: 192.168.111.135 (which we configured yum)

Yum client IP: 192.168.111.139

Configuring a yum client is very simple with just three steps.

- ➔ Install ftp package , so that packages can be accessed from client
- ➔ Make a repo file /etc/yum.repo.d/ as “yalla-client.repo”
- ➔ Clean the cache and check whether yum server is responding or not

Install ftp package, so that packages can be accessed from client

Install the ftp package from rhel dvd in Packages directory.

Execute the commands from the yum client server only 192.168.111.139

root@master-server:/media/RHEL_6.1 x86_64 Disc 1/Packages

```
[root@master-server Packages]# pwd
/media/RHEL_6.1 x86_64 Disc 1/Packages
[root@master-server Packages]# rpm -ivh ftp-0.17-51.1.el6.x86_64.rpm
warning: ftp-0.17-51.1.el6.x86_64.rpm: Header V3 RSA/SHA256 Signature, key ID fd
431d51: NOKEY
Preparing...                ########################################### [100%]
   1:ftp                    ########################################### [100%]
[root@master-server Packages]# ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 16436 qdisc noqueue state UNKNOWN
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
    inet6 ::1/128 scope host
       valid_lft forever preferred_lft forever
2: eth1: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc pfifo_fast state UP ql
en 1000
    link/ether 00:0c:29:7c:af:53 brd ff:ff:ff:ff:ff:ff
    inet 192.168.111.139/24 brd 192.168.111.255 scope global eth1
    inet6 fe80::20c:29ff:fe7c:af53/64 scope link
       valid_lft forever preferred_lft forever
[root@master-server Packages]#
```

- ➔ Make a repo file /etc/yum.repo.d/ as “yalla-client.repo”

root@master-server:/etc/yum.repos.d

```
[root@master-server yum.repos.d]# cat yalla-client.repo
[yalla-client.repo]
name=rhel6client
baseurl=ftp://192.168.111.135/pub/yalla-rhel6
enabled=1
gpgcheck=0
[root@master-server yum.repos.d]# pwd
/etc/yum.repos.d
[root@master-server yum.repos.d]#
```

Note:- baseurl =ftp:// 192.168.111.135/pub/rhel6 refers to the server’s ftp address.

Note: 192.168.111.135 IP is yum server IP

Clean the cache and check whether yum server is responding or not

root@master-server:/etc/yum.repos.d

```
[root@master-server yum.repos.d]# yum clean all
Loaded plugins: product-id, refresh-packagekit, subscription-manager
Updating Red Hat repositories.
Cleaning repos: yalla-client.repo
Cleaning up Everything
[root@master-server yum.repos.d]#
```

Check whether the server is responding to clients yum request.

#yum list

root@master-server:/etc/yum.repos.d

```
[root@master-server yum.repos.d]# yum list
Loaded plugins: product-id, refresh-packagekit, subscription-manager
Updating Red Hat repositories.
ftp://192.168.111.135/pub/yalla-rhel6/repodata/repomd.xml: [Errno 14] PYCURL ERROR 7 - "couldn't connect to host"
Trying other mirror.
Error: Cannot retrieve repository metadata (repomd.xml) for repository: yalla-client.repo. Please verify its path and try again
[root@master-server yum.repos.d]#
```

To resolve the issue follow the below steps at yum client side

#Install the vsftpd package

#start the vsftpd service

Note: install ftp & vsftpd package at yum server side

Note: start the vsftpd service at yum server side also.

root@master-server:/media/RHEL_6.1 x86_64 Disc 1/Packages

```
[root@master-server Packages]# rpm -ivh vsftpd-2.2.2-6.el6_0.1.x86_64.rpm
warning: vsftpd-2.2.2-6.el6_0.1.x86_64.rpm: Header V3 RSA/SHA256 Signature, key ID fd431d51: NOKEY
Preparing...                ########################################### [100%]
   1:vsftpd                 ########################################### [100%]
[root@master-server Packages]#
[root@master-server Packages]# service vsftpd status
vsftpd is stopped
[root@master-server Packages]# service vsftpd start
Starting vsftpd for vsftpd:                                [  OK  ]
[root@master-server Packages]# service vsftpd status
vsftpd (pid 2401) is running...
[root@master-server Packages]#
```

Now again run the command #yum list

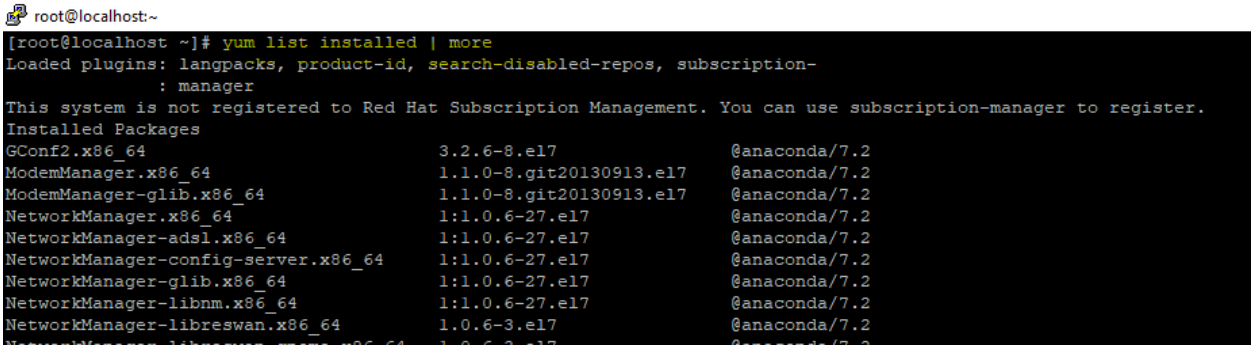
root@localhost:~

```
[root@localhost ~]# yum repolist
Loaded plugins: langpacks, product-id, search-disabled-repos, subscription-manager
This system is not registered to Red Hat Subscription Management. You can use subscription-manager to register.
repo id                                                    repo name                                                  status
yalla-repo7                                                rhel77                                                     4,620
repolist: 4,620
[root@localhost ~]#
```

To list all the installed packages in the system.

To view all the installed packages in the system, the syntax is

#yum list installed

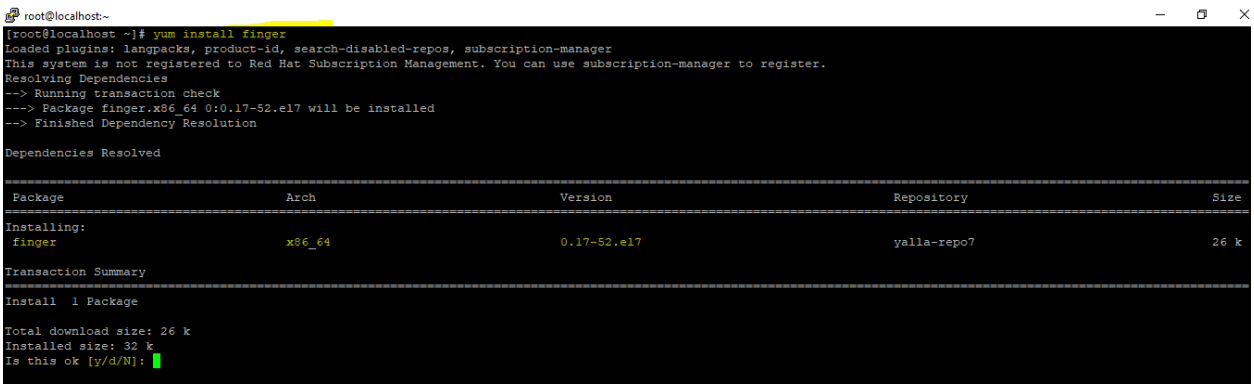


To install a package using yum

Installing a package using yum does not requires full package name as in the case of rpm, and it also automatically resolves the dependencies as well.

The syntax for installing a package is

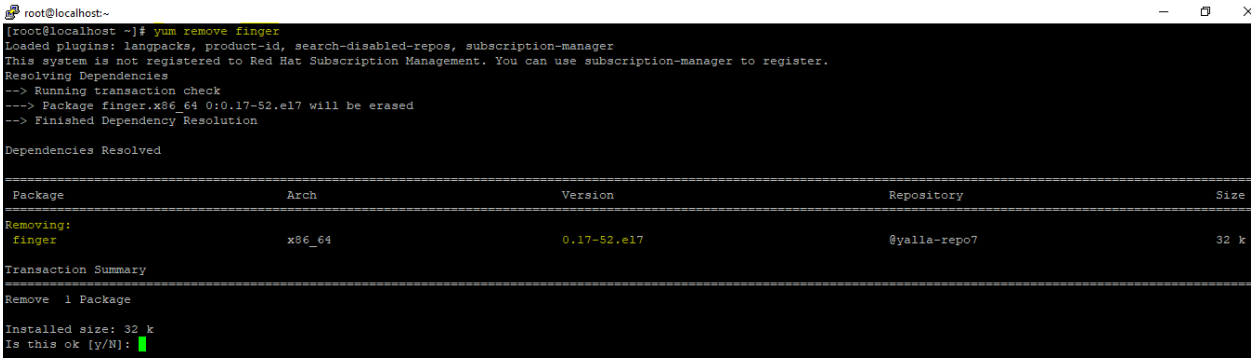
#yum install <packaagename>



To remove the package with yum command

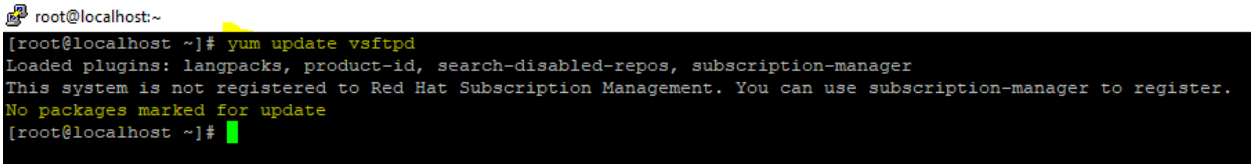
#yum remove <packagename>

#yum remove finger –y



To update the package using yum

#yum update <packagename>



The syntax for installing a package locally is

#yum localinstall <packagename> -y

Note: If you face issue while configuring yum client follow the below steps

RHEL7: solution steps from client machine

telnet 192.168.111.135 21 -> it should be connected only

if not connected follow below steps

sudo firewall-cmd --permanent --add-service=ftp

sudo firewall-cmd –reload

sudo iptables -I INPUT -p tcp --dport 21 -j ACCEPT

sudo systemctl start vsftpd

Solution of RHEL6 at client side:

sudo service iptables status

sudo iptables -L –n

ACCEPT tcp -- 0.0.0.0/0 0.0.0.0/0 tcp dpt:21

sudo iptables -I INPUT -p tcp --dport 21 -j ACCEPT

sudo service iptables save

sudo service iptables restart

sudo iptables -L -n | grep 21

telnet <yumserverip >21