

## 京峰教育 第五次作業 – 0408 課程

### [ 作業一 ] 預習 rpm 和 yum 命令

rpm 命令為 redhat 體系下的 linux 一種軟件包管理機制, 當需要安裝特定軟體時, 不需要再自行編譯源碼, 軟體廠商已將其源碼進行編譯及打包, 使用者直接使用 .rpm 包即可進行查詢、安裝、升級, 以及移除

#### 查詢命令

以 rpm 進行軟件的查詢, 如查詢本機有無安裝 nginx 軟件, 通常以 rpm -qa | grep nginx 查詢, 如下圖一

```
[root@CentOS7 src]# rpm -qa | grep nginx  
[root@CentOS7 src]#
```

圖一、rpm 查詢本機有無安裝 nginx

#### 安裝命令

一般安裝命令都會使用 rpm 搭配 ivh 參數, i 表示 install, vh 為顯示安裝進度, 此下以安裝 nginx 為例, 先至 nginx 官網下載 nginx-1.8.1-1.el7ngx.x86\_64.rpm 包, 再進行安裝, 如下圖二

```
[root@CentOS7 src]# rpm -ivh nginx-1.8.1-1.el7ngx.x86_64.rpm  
warning: nginx-1.8.1-1.el7ngx.x86_64.rpm: Header V4 RSA/SHA1 Signature, key ID 7bd9bf62: NOKEY  
Preparing... ##### [100%]  
Updating / installing...  
 1:nginx-1:1.8.1-1.el7ngx ##### [100%]  
-----  
  
Thanks for using nginx!  
  
Please find the official documentation for nginx here:  
* http://nginx.org/en/docs/  
  
Commercial subscriptions for nginx are available on:  
* http://nginx.com/products/  
-----  
[root@CentOS7 src]# rpm -qa | grep nginx  
nginx-1.8.1-1.el7ngx.x86_64
```

圖二、rpm -ivh 安裝 nginx

## 升級命令

將以 **nginx-1.8.1** 升級為 **nginx-1.16.0**, 使用 **rpm** 搭配 **Uvh** 參數, **U** 表示 **update**, **vh** 為顯示安裝進度, 如下圖三

```
[root@CentOS7 src]# rpm -Uvh nginx-1.16.0-1.el7ngx.x86_64.rpm
warning: nginx-1.16.0-1.el7ngx.x86_64.rpm: Header V4 RSA/SHA1 Signature, key ID 7bd9bf62: NOKEY
Preparing...                               ##### [100%]
Updating / installing...
 1:nginx-1:1.16.0-1.el7ngx                 ##### [ 50%]
Cleaning up / removing...
 2:nginx-1:1.8.1-1.el7ngx                  ##### [100%]
```

圖三、更新 **nginx**

## 移除命令

一般用 **rpm** 搭配 **-evh** 參數進行軟件移除 **e** 表示移除, **vh** 為顯示移除進度, 並以 **rpm** 搭配 **-qa** 查詢套件是否移除, 如下圖四

```
[root@CentOS7 src]# rpm -evh nginx-1:1.16.0-1.el7ngx
Preparing...                               ##### [100%]
Cleaning up / removing...
 1:nginx-1:1.16.0-1.el7ngx                 ##### [100%]

[root@CentOS7 src]#
[root@CentOS7 src]# rpm -qa | grep nginx
[root@CentOS7 src]#
```

圖四、移除 **nginx**

rpm 命令為 redhat 體系下的 linux 一種軟件包管理機制, 當安裝特定軟體時, 可以處理軟件相依性問題, 需要指定特定的 yum 源倉庫, 即可進行查詢、安裝、升級, 以及移除

### 查詢命令

yum 提供軟件相關資訊查詢, 可以利用 yum search 查詢當前 yum 源倉庫是否提供此軟件, 如圖五

```
[root@CentOS7 src]# yum search nginx
Loaded plugins: fastestmirror
Loading mirror speeds from cached hostfile
* base: mirrors.bestthaihost.com
* extras: mirrors.bestthaihost.com
* updates: mirrors.bangmod.cloud
===== N/S matched: nginx =====
pcp-pmda-nginx.x86_64 : Performance Co-Pilot (PCP) metrics for the Nginx Webserver

Name and summary matches only, use "search all" for everything.
[root@CentOS7 src]# yum search all nginx
Loaded plugins: fastestmirror
Loading mirror speeds from cached hostfile
* base: mirrors.bestthaihost.com
* extras: mirrors.bestthaihost.com
* updates: mirrors.bangmod.cloud
===== Matched: nginx =====
pcp-pmda-nginx.x86_64 : Performance Co-Pilot (PCP) metrics for the Nginx Webserver
```

圖五、查詢 nginx 軟件在當前 yum 源倉庫是否提供

yum 提供查詢軟體資訊, 可以利用 yum info 查詢該軟件相關資訊, 如圖六

```
[root@CentOS7 src]# yum info pcp-pmda-nginx.x86_64
Loaded plugins: fastestmirror
Loading mirror speeds from cached hostfile
* base: mirrors.bestthaihost.com
* extras: mirrors.bestthaihost.com
* updates: mirrors.bangmod.cloud
Available Packages
Name       : pcp-pmda-nginx
Arch       : x86_64
Version    : 4.3.2
Release    : 5.el7_7
Size       : 24 k
Repo       : updates/7/x86_64
Summary    : Performance Co-Pilot (PCP) metrics for the Nginx Webserver
URL        : https://pcp.io
License    : GPLv2+
Description: This package contains the PCP Performance Metrics Domain Agent (PMDA) for
           : collecting metrics about the Nginx Webserver.
```

圖六、查詢軟件訊息

## 安裝命令

在 `yum list [軟件名稱]` 後, 如果在 `yum` 倉庫源有該軟件, 則可進行安裝, 在此以安裝 `nginx` 為例, 如圖七為 `yum info` 查詢 `nginx` 軟件

```
[root@CentOS7 src]# yum info nginx
Loaded plugins: fastestmirror
Loading mirror speeds from cached hostfile
 * base: mirrors.bestthaihost.com
 * epel: mirrors.bangmodhosting.com
 * extras: mirrors.bestthaihost.com
 * updates: mirrors.bangmod.cloud
Available Packages
Name       : nginx
Arch       : x86_64
Epoch     : 1
Version    : 1.16.1
Release    : 1.el7
Size       : 562 k
Repo       : epel/x86_64
Summary    : A high performance web server and reverse proxy server
URL        : http://nginx.org/
License    : BSD
Description: Nginx is a web server and a reverse proxy server for HTTP, SMTP, POP3 and
            : IMAP protocols, with a strong focus on high concurrency, performance and low
            : memory usage.
```

圖七、查詢有 `nginx` 網頁服務器軟件

以 `yum -y install nginx` 進行軟件安裝, 如圖八

```
[root@CentOS7 src]# yum -y install nginx
Loaded plugins: fastestmirror
Loading mirror speeds from cached hostfile
 * base: mirrors.bestthaihost.com
 * epel: mirrors.bangmodhosting.com
 * extras: mirrors.bestthaihost.com
 * updates: mirrors.bangmod.cloud
Resolving Dependencies
--> Running transaction check
--> Package nginx.x86_64 1:1.16.1-1.el7 will be installed
--> Processing Dependency: nginx-all-modules = 1:1.16.1-1.el7 for package: 1:nginx-1.16.1-1.el7.x86_64
--> Processing Dependency: nginx-filestream = 1:1.16.1-1.el7 for package: 1:nginx-1.16.1-1.el7.x86_64
--> Processing Dependency: nginx-filestream for package: 1:nginx-1.16.1-1.el7.x86_64
--> Running transaction check
```

圖八、`yum` 命令安裝 `nginx`

在安裝完成後, 可用 `rpm -qa | grep nginx` 檢查軟件是否安裝成功, 如圖九

```
[root@CentOS7 src]# rpm -qa | grep nginx
nginx-filestream-1.16.1-1.el7.noarch
nginx-mod-mail-1.16.1-1.el7.x86_64
nginx-mod-http-image-filter-1.16.1-1.el7.x86_64
nginx-mod-stream-1.16.1-1.el7.x86_64
nginx-mod-http-perl-1.16.1-1.el7.x86_64
nginx-mod-http-xslt-filter-1.16.1-1.el7.x86_64
nginx-1.16.1-1.el7.x86_64
nginx-all-modules-1.16.1-1.el7.noarch
```

圖九、檢查 `nginx` 是否安裝成功

## 更新命令

使用 `yum update` 和 `yum upgrade` 基本上是相同的, 唯一的區別在於 `yum update` 會保留舊有的 `package`, 而 `yum upgrade` 會刪除

## 移除命令

可以使用 `yum remove [軟件名稱]`, 進行軟件移除, 如圖十, 以移除 `nginx` 為例

```
[root@CentOS7 src]# yum -y remove nginx
Loaded plugins: fastestmirror
Resolving Dependencies
--> Running transaction check
--> Package nginx.x86_64 1:1.16.1-1.el7 will be erased
--> Processing Dependency: nginx for package: 1:nginx-mod-http-xslt-filter-1.16.1-1.el7.x86_64
--> Processing Dependency: nginx for package: 1:nginx-mod-http-perl-1.16.1-1.el7.x86_64
--> Processing Dependency: nginx for package: 1:nginx-mod-stream-1.16.1-1.el7.x86_64
--> Processing Dependency: nginx for package: 1:nginx-mod-mail-1.16.1-1.el7.x86_64
--> Processing Dependency: nginx for package: 1:nginx-mod-http-image-filter-1.16.1-1.el7.x86_64
--> Running transaction check
```

圖十、移除 `nginx` 軟件

## yum 倉庫源

`yum` 的倉庫源文件路徑 `/etc/yum.repos.d/xxx.repo`, 一般放置在此, 若要新增倉庫源, 則手動新增該文件, 在此以新增 `nginx` 倉庫源為例, 新增 `nginx.repo` 文件, 如圖十一

```
[nginx-stable]
name=nginx stable repo
baseurl=http://nginx.org/packages/centos/$releasever/$basearch/
gpgcheck=1
enabled=1
gpgkey=https://nginx.org/keys/nginx_signing.key
module_hotfixes=true

[nginx-mainline]
name=nginx mainline repo
baseurl=http://nginx.org/packages/mainline/centos/$releasever/$basearch/
gpgcheck=1
enabled=0
gpgkey=https://nginx.org/keys/nginx_signing.key
module_hotfixes=true
```

圖十一、新增 `nginx` yum 倉庫源

## 啟用倉庫源

**yum-config-manager** 可以啟用特定倉庫源,如圖十二,啟用 **nginx** 提供的源,圖十三為確認當前 **nginx** 軟件提供源為 **nginx-mainline**

```
[root@CentOS7 yum.repos.d]# tail /etc/yum.repos.d/nginx.repo
gpgkey=https://nginx.org/keys/nginx_signing.key
module_hotfixes=true

[nginx-mainline]
name=nginx mainline repo
baseurl=http://nginx.org/packages/mainline/centos/$releasever/$basearch/
gpgcheck=1
enabled=0
gpgkey=https://nginx.org/keys/nginx_signing.key
module_hotfixes=true
[root@CentOS7 yum.repos.d]# yum-config-manager --enable nginx-mainline
```

圖十二、yum-config-manager 啟用 nginx 提供的源

```
[root@CentOS7 yum.repos.d]# yum list nginx
Loaded plugins: fastestmirror
Loading mirror speeds from cached hostfile
 * base: mirrors.bestthaihost.com
 * epel: mirrors.thzhost.com
 * extras: mirrors.bestthaihost.com
 * updates: mirrors.bangmod.cloud
nginx-mainline | 2.9 kB 00:00:00
nginx-stable | 2.9 kB 00:00:00
nginx-mainline/7/x86_64/primary_db | 168 kB 00:00:01
Available Packages
nginx.x86_64 1:1.17.9-1.el7.ngx nginx-mainline
```

圖十三、當前 nginx 軟件提供源為 nginx-mainline

## [ 作業二 ] 手動配置本地 yum 源倉庫

先檢查當前 yum 源倉庫路徑有無倉庫源文件存在, 如圖十四

```
[root@CentOS7 yum.repos.d]# yum repolist
Loaded plugins: fastestmirror
Loading mirror speeds from cached hostfile
repolist: 0
[root@CentOS7 yum.repos.d]# pwd
/etc/yum.repos.d
[root@CentOS7 yum.repos.d]# ls
[root@CentOS7 yum.repos.d]#
```

圖十四、無倉庫源文件存在

在/etc/yum.repos.d 目錄下新增 tsinghua.repo 文件, 並將清華大學開源軟件鏡像站提供的 repodata 所在的路徑填至 baseurl 上, 如下圖十五, 清華大學默認提供四個源, [base]、[updates]、[extras]、[centosplus]

```
[base]
name=TsingHua-CentOS-$releasever - Base
baseurl=https://mirrors.tuna.tsinghua.edu.cn/centos/$releasever/os/$basearch/
enabled=1
gpgcheck=1
gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY-7

#released updates
[updates]
name=TsingHua-CentOS-$releasever - Updates
baseurl=https://mirrors.tuna.tsinghua.edu.cn/centos/$releasever/updates/$basearch/
enabled=1
gpgcheck=1
gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY-7

#additional packages that may be useful
[extras]
name=TsingHua-CentOS-$releasever - Extras
baseurl=https://mirrors.tuna.tsinghua.edu.cn/centos/$releasever/extras/$basearch/
enabled=1
gpgcheck=1
gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY-7

#additional packages that extend functionality of existing packages
[centosplus]
name=TsingHua-CentOS-$releasever - Plus
baseurl=https://mirrors.tuna.tsinghua.edu.cn/centos/$releasever/centosplus/$basearch/
gpgcheck=1
enabled=0
```

圖十五、手動配置 yum 源倉庫的 urlbase 地址



為新 yum 源倉庫清理緩存 yum clean all, 如圖十六

```
[root@CentOS7 yum.repos.d]# yum clean all
Loaded plugins: fastestmirror
Cleaning repos: base extras updates
Cleaning up list of fastest mirrors
Other repos take up 140 M of disk space (use --verbose for details)
```

圖十六、清理 yum 倉庫緩存

為新 yum 源倉庫建立緩存 yum makecache, 如圖十七

```
[root@CentOS7 yum.repos.d]# yum makecache
Loaded plugins: fastestmirror
Determining fastest mirrors
base                                     | 3.6 kB  00:00:00
extras                                 | 2.9 kB  00:00:00
updates                               | 2.9 kB  00:00:00
(1/10): base/7/x86_64/group_gz        | 165 kB  00:00:10
(2/10): base/7/x86_64/primary_db       | 6.0 MB  00:00:29
base/7/x86_64/filelists_db            | 165 kB  00:00:10
https://mirrors.tuna.tsinghua.edu.cn/centos/7/os/x86_64/repodata/41232548001a78473ae0f2d4b92e1ec28f7a0593e0495056515887fe2a39b416-filelists.sqlite.bz2: [Errno 12] Timeout on https://mirrors.tuna.tsinghua.edu.cn/centos/7/os/x86_64/repodata/41232548001a78473ae0f2d4b92e1ec28f7a0593e0495056515887fe2a39b416-filelists.sqlite.bz2: (28, 'Operation too slow. Less than 1000 bytes/sec transferred the last 30 seconds')
Trying other mirror.
(3/10): extras/7/x86_64/filelists_db    | 217 kB  00:00:04
(4/10): extras/7/x86_64/primary_db     | 165 kB  00:00:04
(5/10): extras/7/x86_64/other_db       | 106 kB  00:00:00
(6/10): updates/7/x86_64/filelists_db  | 4.5 MB  00:00:28
```

圖十七、建立新 yum 倉庫緩存

確認新的源倉庫已成功配置 yum repolist, 如圖十八

```
[root@CentOS7 yum.repos.d]# yum repolist
Loaded plugins: fastestmirror
Loading mirror speeds from cached hostfile
repo id                                repo name                                status
base/7/x86_64                         TsingHua-CentOS-7 - Base                10,097
extras/7/x86_64                       TsingHua-CentOS-7 - Extras              341
updates/7/x86_64                      TsingHua-CentOS-7 - Updates             1,787
repolist: 12,225
```

圖十八、清華大學源倉庫建立完成

利用清華大學的源倉庫查詢有無 mariadb 軟件 yum search mariadb, 如圖十九

```
[root@CentOS7 yum.repos.d]# yum search mariadb
Loaded plugins: fastestmirror
Loading mirror speeds from cached hostfile
===== N/S matched: mariadb =====
mariadb-bench.x86_64 : MariaDB benchmark scripts and data
mariadb-devel.i686 : Files for development of MariaDB/MySQL applications
mariadb-devel.x86_64 : Files for development of MariaDB/MySQL applications
mariadb-embedded.i686 : MariaDB as an embeddable library
mariadb-embedded.x86_64 : MariaDB as an embeddable library
mariadb-embedded-devel.i686 : Development files for MariaDB as an embeddable library
mariadb-embedded-devel.x86_64 : Development files for MariaDB as an embeddable library
mariadb-libs.i686 : The shared libraries required for MariaDB/MySQL clients
mariadb-libs.x86_64 : The shared libraries required for MariaDB/MySQL clients
mariadb-server.x86_64 : The MariaDB server and related files
mariadb.x86_64 : A community developed branch of MySQL
mariadb-test.x86_64 : The test suite distributed with MariaD

Name and summary matches only, use "search all" for everything.
[root@CentOS7 yum.repos.d]#
```

圖十九、清華大學源倉庫提供查詢



關閉特定源倉庫 `yum-config-manager --disable [repo 名稱]` 參數, 如圖二十

```
[root@CentOS7 yum.repos.d]# yum repolist
Loaded plugins: fastestmirror
Loading mirror speeds from cached hostfile
repo id                                repo name                                status
base/7/x86_64                          TsingHua-CentOS-7 - Base                10,097
extras/7/x86_64                        TsingHua-CentOS-7 - Extras              341
updates/7/x86_64                       TsingHua-CentOS-7 - Updates             1,787
repolist: 12,225
[root@CentOS7 yum.repos.d]# yum-config-manager --disable Base
```

圖二十、關閉 Base 源

確認 repo 倉庫源已關閉(Base 源), 如圖二十一

```
[root@CentOS7 yum.repos.d]# yum repolist
Loaded plugins: fastestmirror
Loading mirror speeds from cached hostfile
repo id                                repo name                                status
extras/7/x86_64                        TsingHua-CentOS-7 - Extras              341
updates/7/x86_64                       TsingHua-CentOS-7 - Updates             1,787
repolist: 2,128
```

圖二十一、確認關閉 Base 源

啟用特定源倉庫 `yum-config-manager --enable [repo 名稱]` 參數, 如圖二十二

```
[root@CentOS7 yum.repos.d]# yum-config-manager --enable Base
Loaded plugins: fastestmirror
===== repo: base =====
[base]
async = True
bandwidth = 0
base_persistdir = /var/lib/yum/repos/x86_64/7
baseurl = https://mirrors.tuna.tsinghua.edu.cn/centos/7/os/x86_64/
cache = 0
```

圖二十二、啟用 Base 源

確認 repo 倉庫源已開啟(Base 源), 如圖二十三

```
[root@CentOS7 yum.repos.d]# yum repolist
Loaded plugins: fastestmirror
Loading mirror speeds from cached hostfile
repo id                                repo name                                status
base/7/x86_64                          TsingHua-CentOS-7 - Base                10,097
extras/7/x86_64                        TsingHua-CentOS-7 - Extras              341
updates/7/x86_64                       TsingHua-CentOS-7 - Updates             1,787
repolist: 12,225
```

圖二十三、確認 Base 源開啟

[ 作業三 ] 用命令自動配置 163 的源倉庫

利用 `yum-config-manager --add-repo [repo 源地址]`, 如圖二十四

```
[root@CentOS7 yum.repos.d]# yum-config-manager --add-repo https://mirrors.163.com/.help/CentOS7-Base-163.repo
Loaded plugins: fastestmirror
adding repo from: https://mirrors.163.com/.help/CentOS7-Base-163.repo
grabbing file https://mirrors.163.com/.help/CentOS7-Base-163.repo to /etc/yum.repos.d/CentOS7-Base-163.repo
repo saved to /etc/yum.repos.d/CentOS7-Base-163.repo
```

圖二十四、命令配置 163 倉庫