Keeping Up-To-Date with Yum

Updater

Not even Linux is totally error-free, and that makes it all the more important to keep your system updated with patched packages. Fedora uses the Yum tool for this job. And what's more, Yum can even update older Red Hat systems.

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The Yum (Yellowdog Updater, Modified) program handles updates and package management on modern Fedora systems. Yum detects and resolves program dependencies more cleanly than RPM. Figure 1 shows an example of a Yum update with the *x11-org* package.

Yum was developed by a group of Linux users at Duke University, [1]. The Fedora Linux distribution includes the program, and RPMs for older distributions are available from [2].

Some of Yum's major features include:
• support for multiple repositories;
• simple ASCII configuration file;
• package dependency checking;
• RPM compatibility.
Yum, which is licensed under the GPL, is included with Fedora Core (FC) 1 and FC 2 (and probably will be with future versions of Fedora).

Setting Up the Server

Yum needs a data source on the local network or the Internet, although you can use your local host. By default, the configuration file, */etc/yum.conf*, accesses the US server. International readers can check the list at [3] for a local server. You need to specify the server following the *baseurl* tag. Yum supports both HTTP and FTP servers, although HTTP may work better if you have a firewall. Let's look at how to configure Yum to use the Stanford University site (*http://mirrors.kernel.org/fedora/core/*). The entries you need are shown in Listing 1, which has an entry for base packages and one for updates. Yum replaces the variables – which you can identify by the dollar signs – with appropriate values at runtime.

It makes sense to choose a mirror server near where you live to improve download speeds.

Practical Applications

As previously mentioned, Yum is mainly used for software updates. To find out if the developers have released new updates for Yum itself, run *yum check-update* as shown in Figure 2.

Depending on the speed of your Internet connection, it can take a few minutes to download the required header files, which Yum stores locally. The headers contain details on the packets but not the packets themselves. *yum list* gives you a list of the available packets. And *yum update* starts updating the programs.

As the previous *x11-org* example shows, Yum lets you specify individual packages that you want to update. The longer you wait between updates, the more data Yum needs to download. Thus, it makes sense to set up a background service to take care of the updates in the middle of the night. In fact, Fedora already has an update service that does this. To launch the service, type:

```
service yum start
```

If you want to start the service when you boot your machine, use the following command instead:

```
chkconfig yum on
```

```
[root@localhost root]# update xorg-x11
bash: update: command not found
[root@localhost root]# yum update xorg-x11
Gathering header information file(s) from server(s)
Server: Fedora Core 2 - i386 - Base
Server: Fedora Core 2 - i386 - Released Updates
Finding updated packages
Downloading needed headers
Resolving dependencies
..Dependencies resolved
I will do the following:
[update: xorg-x11 6.7.0-9.i386]
I will install/upgrade these to satisfy the dependencies:
[deps: xorg-x11-xfs 6.7.0-9.i386]
[deps: xorg-x11-libs 6.7.0-9.i386]
[deps: xorg-x11-twm 6.7.0-9.i386]
[deps: xorg-x11-libs-data 6.7.0-9.i386]
Is this ok [y/N]:
```

Figure 1: Yum resolving dependencies for the *x11-org* package.

```
[root@localhost root]# yum check-update
Gathering header information file(s) from server(s)
Server: Fedora Core 2 - i386 - Base
Server: Fedora Core 2 - i386 - Released Updates
Finding updated packages
Downloading needed headers
Name                    Arch    Version             Repo
--------------------------------------------------------------------------------
GConf2                  i386    2.6.0-7             updates-released
ORBit2                  i386    2.10.0-4            updates-released
cdda2wav                i386    8:2.01.1-0.FC2.1    updates-released
cdrecord                i386    8:2.01.1-0.FC2.1    updates-released
cups                    i386    1:1.1.20-11.3       updates-released
cups-libs               i386    1:1.1.20-11.3       updates-released
dhclient                i386    2:3.0.1rc14-1       updates-released
dvd+rw-tools            i386    5.21.4.10.8-1.FC2.1 updates-released
fam                     i386    2.6.10-9.FC2        updates-released
finger                  i386    0.17-24             updates-released
foomatic                i386    3.0.1-3.1           updates-released
ftp                     i386    0.17-21             updates-released
gaim                    i386    1:1.0.0-0.FC2       updates-released
gdk-pixbuf              i386    1:0.22.0-11.3.5     updates-released
gimp                    i386    1:2.0.4-0.fc2.1     updates-released
gnome-applets           i386    1:2.6.2.1-1         updates-released
gnome-session           i386    2.6.0-4             updates-released
gstreamer               i386    0.8.3-2             updates-released
```

Figure 2: *yum check-update* displays available updates.

You can use the GUI setup tool to launch the service in the current session or to configure the service to launch when you reboot.

Table 1 shows a few useful options, most of which support additional parameters. Check the *man*page for more details. Yum supports the use of placeholders in package names. For example,

```
yum upgrade X11*
```

will update any packages that start with *X11*. Of course, Yum takes care of dependencies.

Yum-based Distribution Update

Yum can even update complete distributions, provided you use Red Hat or Fedora. You could update Red Hat 9.0 to the current Fedora Core 2, for example.

On the downside, a distribution update does need a lot of hard disk space, and it will not work if your system uses LVM (Logical Volume Management). LVM users should stick to the installation CDs and run the *anaconda* tool (*anaconda* is the Red Hat and Fedora installation program) to tidy up.

A complete system upgrade is always a risky thing, so make sure you have a good backup. Let the upgrade complete to avoid a semi-updated system that will not boot either distro correctly.

Watch Out for the Kernel!

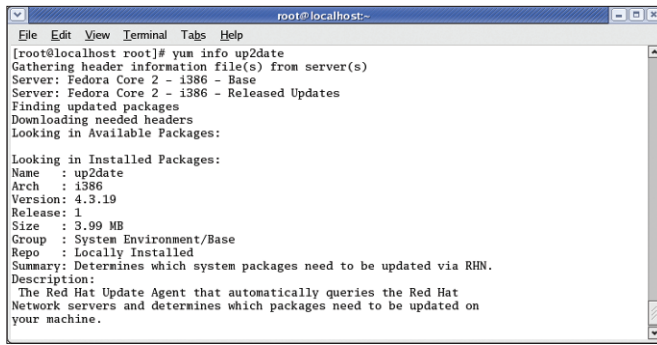The kernel is the center of any system, so pay special attention to what hap-

Figure 3: *yum info* displays detailed information about individual packages – *up2date* in this case.

pens. First, you should check which kernel version you have installed:

```
rpm -q kernel kernel-smp
```

It is a good idea to run RPM or Yum to update the kernel first. Remove any kernel versions you do not need. According to the Yum authors, this not only saves disk space, it can also save you a lot of trouble. The *uname -a* command tells you the current kernel version.

This also applies to kernel sources. The following commands remove a kernel and the accompanying kernel source code:

```
rpm -e kernel-2.4.22-1.2115.nptl
rpm -e kernel-source-↵
2.4.22-1.2188.nptl
```

You may also need to remove any packages that were not part of the original distro but were installed later. If Yum fails to find an update for an installed package, it displays an error message and quits. Your best approach in this case is to remove the package and relaunch Yum – keep repeating this remove and reinstall process until Yum stops complaining. For an overview of installed software, select *System settings | Add/Remove Application*.

Listing 1: Excerpt from yum.conf

```
01 [base]
02 name=Fedora Core $releasever -
   $basearch - Base
03
   baseurl=http://mirrors.kernel.
   org/fedora/core/$releasever/$b
   asearch/os/
04
05 [updates-released]
06 name=Fedora Core $releasever -
   $basearch - Released Updates
07
   baseurl=http://mirrors.kernel.
   org/fedora/core/updates/$relea
   sever/$basearch/os/
```

Of course, you may need to add Yum to your original distribution. Files for older Red Hats are available from [1]. You should avoid manually editing *yum.conf*; instead download the *fedora-release-2-4.i386.rpm*, and run *rpm -U* to install. This ensures that Yum will set up the variables in *yum.conf* correctly.

Conclusion

Yum is extremely useful for managing groups of networked computers. Having a Yum package server on the network makes it really easy to keep all your Linux machines up to date. The Yum manpages (*man yum*) provide more details on using Yum, and the Yum project provides a mailing list for more complex topics. ∎

INFO

[1] Yum project homepage:
http://linux.duke.edu/projects/yum

[2] Yum downloads:
http://linux.duke.edu/projects/yum/download.ptml

[3] Fedora mirror server:
http://www.fedora.redhat.com/download/mirrors.html

[4] Yum system upgrade howto :
http://linux.duke.edu/%7Eskvidal/misc/fc1-fc2-yum-hints.txt

[5] Multimedia repository:
http://rpm.livna.org

[6] Unofficial Fedora FAQ:
http://www.fedorafaq.org/

Table 1: Yum – Useful Options

yum info up2date	Displays a short description and information about the *up2date* program. The output from this command is shown in Figure 3.
yum remove xemacs	Removes the *xemacs* program package and a few accompanying tools.
yum list.	Displays information about the available packages.
yum search nmap gui	Searches the available packages for the specified strings (*nmap* and *gui* in this case). This allows you to search for packages even if you do not know their exact names.
yum clean all	Removes all information from the *yum* cache directory.
yum update yum	Updates the Yum package, if an update is available.