

CYBR 4423

Unix/Linux Administration

Software

Overview

What are the ways to install/uninstall software in Linux/Unix?

Use dpkg and apt-get command in Ubuntu

Use tar command

Basic Approaches

Use package manager

A package contains files needed for the software to function correctly. These files can be configuration files, binaries, and even pre- and postscripts to run while installing the software.

A package manager supports

- querying, installing, and uninstalling software

- maintaining a database that stores various items of information about the packages

Download source code, compile, and install

Major Package Managers

RPM: Red Hat Package Manager

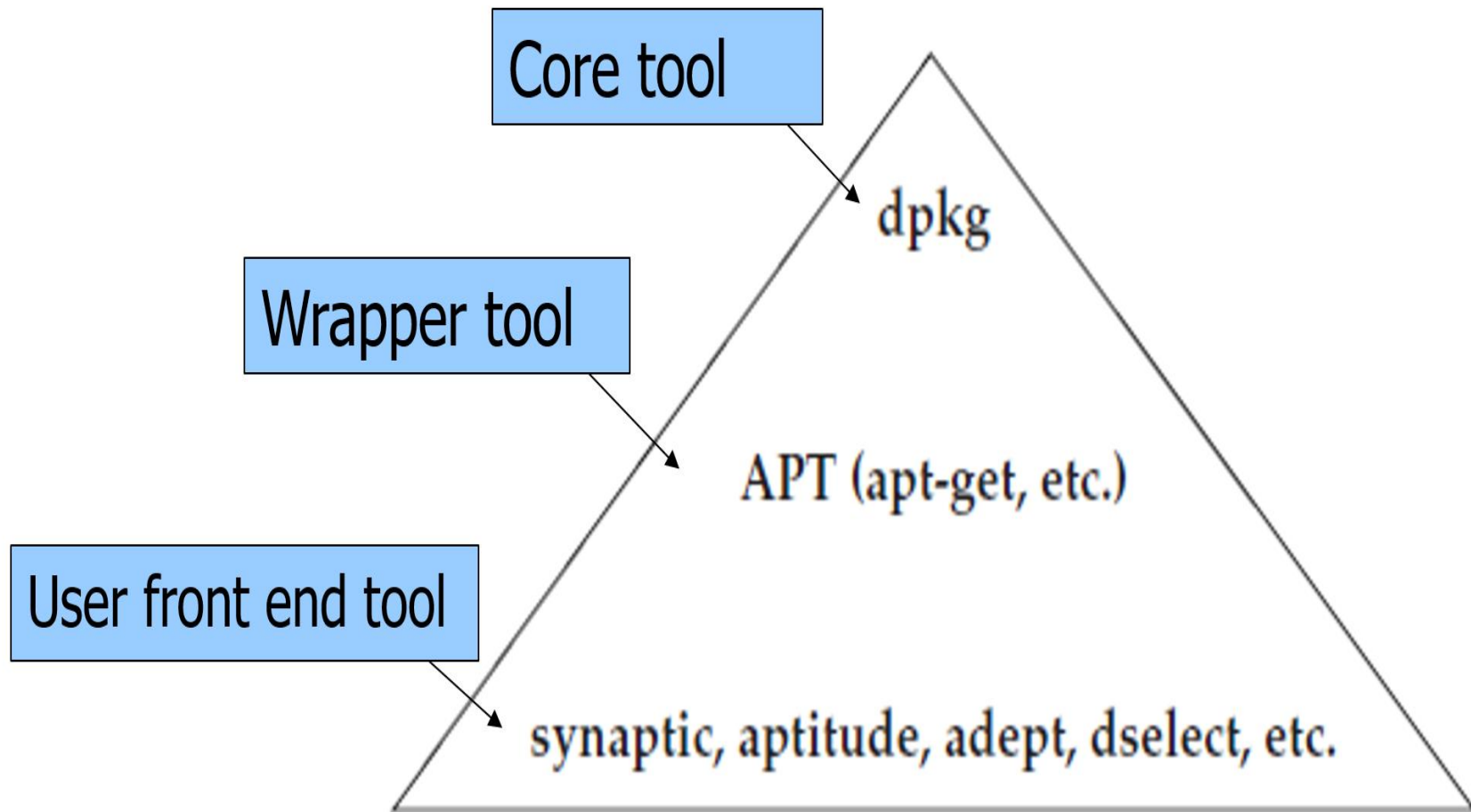
Mainly used in Red Hat, OpenSuSE, Fedora, and other Red Hat derivatives

DPMS: Debian Package Management System

Used in Debian and Debian-like systems (such as Ubuntu).

Package name ends with .deb

Tools used based on DPMS



APT is a wrapper tool that works with core libraries (DPMS) to handle the installation and removal of software on the Debian GNU/Linux distribution and its variants

APT simplifies the process of managing software on Unix-like computer systems by automating the retrieval, configuration and installation of software packages.

Packages containing dependencies required by the package(s) specified for installation will be automatically retrieved and installed

Repository

A repository is a place to store available software packages

APT can directly search and retrieve these packages

`/etc/apt/sources.list`

A repository source configuration file is used to locate and retrieve packages, and also obtain information about available (but uninstalled) packages.

`/var/lib/apt/lists/`

Local package index (APT's internal database)

Install/Remove Software

dpkg can be used to install or remove a .deb package

apt-get is also used to install any software available in the repositories on the Internet or locally (CD/DVD ROM, file system, etc).

Using apt-get to install/remove software is a little easier

- APT will usually take care of any dependency issues

- Users only need to know a part of the name of the software; no need to know the exact version number.

- No need to manually download the software before installing.

Using GUI tools based on APT

GUI Tools

Aptitude

Aptitude is a text-based user interface used for console

[AptitudeSurvivalGuide](#)

Synaptic

This is a GUI tool in Gnome to manage software

Not installed by default in Ubuntu 12.04

[SynapticHowto](#)

Ubuntu Software Center

Intended to replace synaptic

[UbuntuSoftwareCenter](#)

Installation from a browser

[AptURL](#)



dpkg

Install a downloaded .deb package

```
#> dpkg -i lynx_2.8.6-2ubuntu2_i386.deb
```

List currently installed packages (sort of like "ls")

```
#> dpkg -l  
#> dpkg -l nano  
#> dpkg -l bas*
```

Get more detailed information about the nano package

```
#> dpkg -p nano
```

Remove a package

```
#> dpkg -r lynx
```

Reference

[Ubuntu Server Guide](#)



dpkg-query

dpkg-query is a tool to show information about packages installed.

To view the list of files that comes with the firefox

```
#> dpkg-query -L firefox
```

Query for specific information about a package

```
#> dpkg-query -W --showformat='${Package} ${Architecture}\n' bash
```

apt-get

apt-get is the command-line tool for handling packages for Debian Linux:

- Install/manage individual packages
- Upgrade packages
- Apply security patch(s)

Basic usage

apt-get [options] command [package name]

apt-get update

Used to re-synchronize the package index files from their sources. The indexes of available packages are fetched from the location(s) specified in /etc/apt/sources.list. An update should always be performed before an upgrade.

apt-get upgrade

Used to install the newest versions of all packages currently installed on the system from the sources enumerated in /etc/apt/sources.list

apt-get install/remove

Install a package

```
#> apt-get install vim
```

Remove software

```
#> apt-get remove vim
```

apt-cache

`/var/lib/apt/lists/`

Local package index (APT's internal database)

`/var/cache/apt/archives/`

contains a cache of already downloaded packages to avoid downloading them again

Use "apt-cache" to search packages

```
#> apt-cache search "vi improved"
```

```
#> apt-cache search ^perl --names-only
```

Reference

[Apt-cache\(8\)- Linux man page](#)

Alternative Package Manager

RPM

A command line package management system used in distributions such as Red Hat Enterprise Linux, the Fedora Project, SUSE Linux Enterprise, openSUSE, CentOS, etc.

[RPM](#)

YUM

YUM to RPM is like APT to dpkg

[Yum](#)

PackageKit - [packagekit](#)

An open source and free suite of software applications designed to provide a consistent and high-level front end for a number of different package management systems.

Compile and Install from Source

General steps

1. Get the source package (frequently a compressed TAR file)
2. Extract all files in a local directory
3. View the installation file
"INSTALL" or "ReadMe"
4. Configure it for compilation and installation
Usually there is a "configure" executable file
5. Compile and install it use the "make" command
Enter "make install" on the command line

TAR

Source code is usually wrapped by in a .tar.gz file

Tar wraps separate files

Gzip compresses the file

Use the "tar" utility to extract files

```
tar -xf hello.2.3.tar.gz
```

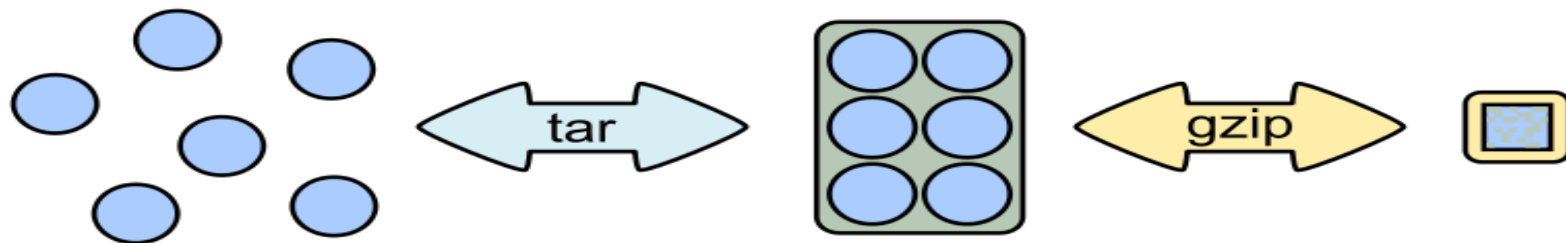


Image from [File: Targzip.svg](#)

Tar 2

Basic commands

c --- to create a tar file
t --- table of contents, see the names of all files or those specified in other command line arguments
x --- extract (restore) the contents of the tar file
f --- specifies the filename (which follows the f) used to tar into or to tar out from
z --- use zip/gzip to compress the tar file or to read from a compressed tar file
v --- verbose output

Basic usage

Compress: tar cf [archive file name] [file list]

tar cf my-file.tar *

Extract: tar xf [archive file name]

tar xvf Desktop/my-file.tar

tar xvf hello.2.3.tar.gz

View content

tar tf my-file.tar

Reference

[Computer Hope](#)



Alternative Programs

zip/unzip

Compress: zip [archive file name] [file list]

 zip my-zip-file *

 zip my-zip-file my-directory -r (archive files in a directory)

Extract: unzip [archive file] -d [directory]

 unzip my-zip-file -d new-directory

gzip/gunzip

Bzip2/bunzip2

Summary

Key concepts and terms

Software package

RPM, APT, DPMS

Software repository

Synaptic, Aptitude, TAR

Key practices

Use dpkg command to view installed packages

Use apt-get to install and remove packages

Use GUI tools such as Synaptic to manage software packages

More Resources

Ubuntu documentation

[SoftwareManagement](#)

[InstallingSoftware](#)

[AptGet/Howto](#)

Installing Debian Software with the Advanced Package Tool

[Installing Debian Software with the Advanced Package Tool](#)

Check downloads

Hash, md5, md5sum

