Package Management Cheatsheet

A package management reference card for Linux distributions and FreeBSD

Introduction

Package management is probably the most distinctive feature of any Linux distribution. While the current trend among most of the major projects is to offer some sort of a clickable interface where users can select a package and install it with a mouse click (e.g. Debian's Synaptic or Mandriva's Drakrpm), these types of programs are generally just graphical front-ends to the low-level utilities that manage the tasks associated with installing packages on a Linux system. And even though many desktop Linux users feel much more comfortable installing packages through these intuitive graphical tools, there is no denying that command-line package management offers two excellent features not available in any graphical package management utility: power and speed.

One problem that many distro-hoppers and operating system enthusiasts encounter is having to master (or relearn) a set of package management commands each time they switch from one distribution group to another. Additionally, the package management tools tend to evolve, with new features and even new commands added to every new version. This is why we created this package management cheatsheet - an easy reference card covering most frequently used package management tasks in Linux distributions and FreeBSD. As always, we welcome corrections, updates and suggestions - if you spot any error or wish to have another package management utility added to this page, feel free to contact us (email address at the bottom of this page).

Cheatsheet

Main distributions

The first table lists package management tasks in the four most popular distribution groups - Debian (including Ubuntu, Linux Mint, KNOPPIX, sidux and other Debian derivatives), openSUSE, Fedora (including Red Hat Enterprise Linux, CentOS, Scientific Linux and other Fedora-based distributions), and Mandriva Linux.

Task	**apt (deb) Debian, Ubuntu**	**zypp (rpm) openSUSE**	**yum (rpm) Fedora, CentOS**	**urpmi (rpm) Mandriva**
Managing software				
Install new software from package repository	apt-get install *pkg*	zypper install *pkg*	yum install *pkg*	urpmi *pkg*
Install new software from package file	dpkg -i *pkg*	zypper install *pkg*	yum localinstall *pkg*	urpmi *pkg*
Update existing software	apt-get install *pkg*	zypper update -t package *pkg*	yum update *pkg*	urpmi *pkg*
Remove unwanted software	apt-get remove *pkg*	zypper remove *pkg*	yum erase *pkg*	urpme *pkg*

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Task	apt (deb) Debian, Ubuntu	zypp (rpm) openSUSE	yum (rpm) Fedora, CentOS	urpmi (rpm) Mandriva
Updating the system				
Update package list	apt-get update aptitude update	zypper refresh	yum check-update	urpmi.update -a
Update system	apt-get upgrade aptitude safe-upgrade	zypper update	yum update	urpmi --auto-select
Searching for packages				
Search by package name	apt-cache search *pkg*	zypper search *pkg*	yum list *pkg*	urpmq *pkg*
Search by pattern	apt-cache search *pattern*	zypper search -t pattern *pattern*	yum search *pattern*	urpmq --fuzzy *pkg*
Search by file name	apt-file search *path*	zypper wp *file*	yum provides *file*	urpmf *file*
List installed packages	dpkg -l	zypper search -is	rpm -qa	rpm -qa
Configuring access to software repositories				
List repositories	cat /etc/apt/sources.list	zypper repos	yum repolist	urpmq --list-media
Add repository	(edit /etc/apt/sources.list)	zypper addrepo *path name*	(add repo to /etc/yum.repos.d/)	urpmi.addmedia *name path*
Remove repository	(edit /etc/apt/sources.list)	zypper removerepo *name*	(remove repo from /etc/yum.repos.d/)	urpmi.removemedia *media*

Slackware and Slackware Based Distributions

The table below lists package management utilities found in Slackware Linux and other Slackware-based distributions. As stated by Patrick Volkerding on several occasions, Slackware is unlikely to ever have any advanced (i.e. dependency-resolving) package management tool, so all installation, upgrade and removal tasks continue to be performed with *pkgtools*, a set of very simple scripts that haven't changed much in years. Nevertheless, *slackpkg*, an advanced package management tool which for years had been relegated to the unsupported "extra" repository, was finally made part of Slackware Linux 12.2. It's worth noting that some popular Slackware derivatives, such as VectorLinux, have standardised on *slapt-get*, another third-party utility imitating the behaviour of Debian's APT, while Zenwalk Linux has introduced its own package management tool called netpkg.

Task	pkgtools Slackware	slackpkg Slackware	slapt-get Vector	netpkg Zenwalk
Managing software				
Install new software from package repository	--	slackpkg install *pkg*	slapt-get --install *pkg*	netpkg *pkg*
Install new software from package file	installpkg *pkg*	slackpkg install *pkg*	slapt-get --install *pkg*	netpkg *pkg*
Update existing software	upgradepkg *pkg*	slackpkg upgrade *pkg*	slapt-get --install *pkg*	netpkg *pkg*
Remove unwanted software	removepkg *pkg*	slackpkg remove *pkg*	slapt-get --remove *pkg*	netpkg remove *pkg*
Updating the system				
Update package list	--	slackpkg update	slapt-get --update	(automatic)
Update system	--	slackpkg upgrade-all	slapt-get --upgrade	netpkg upgrade
Searching for packages				
Search by package name	--	slackpkg search *pkg*	slapt-get --search *pkg*	netpkg *pkg* repo

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Task	pkgtools Slackware	slackpkg Slackware	slapt-get Vector	netpkg Zenwalk
Search by pattern	--	slackpkg search *pattern*	slapt-get --search *pattern*	netpkg list | grep *pattern*
Search by file name	--	--	--	netpkg *file* repo
List installed packages	ls /var/log/packages/	ls /var/log/packages/	slapt-get --installed	netpk list I
Configuring access to software repositories				
List repositories	--	cat /etc/slackpkg/mirrors	cat /etc/slapt-get/slapt-getrc	netpkg mirror
Add repository	--	(edit /etc/slackpkg/mirrors)	(edit /etc/slapt-get/slapt-getrc)	(edit /etc/netpkg.conf)
Remove repository	--	(edit /etc/slackpkg/mirrors)	(edit /etc/slapt-get/slapt-getrc)	(edit /etc/netpkg.conf)

Independent Linux Distributions

In the next group we have a few (mostly) independent distributions that have been gaining popularity in recent years. Sabayon Linux, although derived from Gentoo, has introduced its own command-line package management utility called *equo*. Arch Linux's *Pacman* has been around for a long time and it's often considered one of the fastest package management utilities around. *Conary*, developed by rPath and popularised by Foresight Linux, is a completely new approach to package management, created by well-known ex-Red Hat engineers with many years of package management experience. In contrast, *PiSi* by Pardus Linux is a relatively new utility, but the distribution itself has been growing fast in the last couple of years.

Task	equo Sabayon	pacman Arch	conary rPath, Foresight	pisi Pardus
Managing software				
Install new software from package repository	equo install *pkg*	pacman -S *pkg*	conary update *pkg*	pisi install *pkg*
Install new software from package file	equo install *pkg*	pacman -U *pkg*	conary update *pkg*	pisi install *pkg*
Update existing software	equo install *pkg*	pacman -S *pkg*	conary update *pkg*	pisi install *pkg*
Remove unwanted software	equo remove *pkg*	pacman -R *pkg*	conary erase *pkg*	pisi remove *pkg*
Updating the system				
Update package list	equo update	pacman -Sy		pisi update-repo
Update system	equo world	pacman -Su	conary updateall	pisi upgrade
Searching for packages				
Search by package name	equo match *pkg*	pacman -Ss *pkg*	conary query *pkg*	pisi search *pkg*
Search by pattern	equo search *pattern*	pacman -Ss *pattern*	conary query *pkg*	pisi search *pkg*
Search by file name	equo belongs *file*	pacman -Qo *file*	conary query --path *path*	pisi search-file *path*
List installed packages	equo list	pacman -Q	conary query	pisi list-installed
Configuring access to software repositories				
List repositories		cat /etc/pacman.conf		pisi list-repo
Add repository		(edit /etc/pacman.conf)		pisi add-repo *name path*

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Task	equo Sabayon	pacman Arch	conary rPath, Foresight	pisi Pardus
Remove repository		(edit /etc/pacman.conf)		pisi remove-repo *name*

Distribution Agnostic Package Management

Besides standard package management utilities that most distributions use as part of their systems, there are also some distro-agnostic ones that have been deployed with various levels of success in certain distributions. *Smart*, originally developed by Conectiva, hasn't been in the news lately, but some users seem to prefer it over Mandriva's *urpmi* or openSUSE's *zypper* (it also supports Debian and Slackware-based systems). More recently it is Fedora's PackageKit that has been gaining momentum as a way to manage packages across distributions and architectures. Now included in many other distributions, PackageKit's *pkgcon* command-line utility is effectively a unified front-end to the native package management tools of Fedora, Ubuntu, openSUSE, Mandriva and other distributions.

Task	smart Mandriva, openSUSE	pkgcon Fedora, Ubuntu, openSUSE, Mandriva
Managing software		
Install new software from package repository	smart install *pkg*	pkcon install *pkg*
Install new software from package file	smart install *pkg*	pkcon install-file *pkg*
Update existing software	smart install *pkg*	pkcon update *pkg*
Remove unwanted software	smart remove *pkg*	pkcon remove *pkg*
Updating the system		
Update package list	smart update	pkcon refresh
Update system	smart upgrade	pkcon upgrade
Searching for packages		
Search by package name	smart search *pkg*	pkcon search name *pkg*
Search by pattern	smart search *pattern*	pkcon search details *pattern*
Search by file name	smart query *file*	pkcon what-provides *file*
List installed packages	smart query --installed	--
Configuring access to software repositories		
List repositories	smart channel --show	pkcon repo-list
Add repository	smart channel --add *name path*	
Remove repository	smart channel --remove *name*	

Source Based Distributions

Next, a table for source-based distributions. Gentoo's Portage is well-documented and widely used, but other distributions that are designed to be built from scratch don't often feature in the Linux media, so their package management systems are not particularly well-known. Sorcerer, which existed even before Gentoo Linux was conceived, uses Bash scripts to "cast spells" or download, install and compile packages. Sorcerer was later forked into Lunar Linux and Source Mage GNU/Linux, both of which are included in the table below. Unfortunately, Sorcerer doesn't offer much in terms of online documentation so it has been omitted for now.

Task	portage Gentoo	lunar Lunar	sorcery Source Mage
Managing software			
Install new software from package repository	emerge *pkg*	lin *pkg*	cast *pkg*
Install new software from package file			
Update existing software	emerge *pkg*	lin *pkg*	cast *pkg*
Remove unwanted software	emerge -aC *pkg*	lrm *pkg*	dispel *pkg*
Updating the system			
Update package list	emerge --sync	lin moonbase	scribe update
Update system	emerge -NuDa world	lunar update	sorcery upgrade
Searching for packages			
Search by package name	emerge --search *pkg*	lvu search *pkg*	gaze search -name *pkg*
Search by pattern	emerge --search *pattern*	lvu search *pattern*	gaze search *pattern*
Search by file name	equery belongs *pkg*		gaze from *file*
List installed packages	qlist -I	lvu installed	gaze installed
Configuring access to software repositories			
List repositories	layman -L	--	scribe index
Add repository	layman -a *repo*	--	scribe add *repo*
Remove repository	layman -d *repo*	--	scribe remove *repo*

FreeBSD

Finally, a table for FreeBSD, a popular operating system offering both binary and source package management.

Task	packages FreeBSD	ports FreeBSD
Managing software		
Install new software from package repository	pkg_add -r *package*	cd port_dir && make && make install
Install new software from package file	pkg_add *path_to_package*	--
Update existing software	pkg_add *path_to_package*	portupgrade -R *pkg*
Remove unwanted software	pkg_delete *pkg*	pkg_delete *pkg*
Updating the system	freebsd-update fetch install	portsnap fecth install

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Task	**packages FreeBSD**	**ports FreeBSD**
Update package list		csup -L 2 -h cvsup.FreeBSD.org *path_to_supfile* portsnap update
Update system		portupgrade -a portmanager -u portmaster -a
Searching for packages		
Search by package name		cd /usr/ports && make search *pkg*
Search by pattern		cd /usr/ports && make search *pattern*
Search by file name		
List installed packages	pkg_info	pkg_info
Configuring access to software repositories		
List repositories	--	--
Add repository	--	--
Remove repository	--	--