

Alpine Linux Setup

Installation

- parted & mkfs.ext4...

```
setup-alpine -q  
setup-timezone  
setup-sshd  
setup-ntp
```
- mount /mnt + /mnt/boot...

```
setup-disk /mnt
```

Alix tweaks

```
sed -i '/ext4/ s/relatime/noatime/g' /etc/fstab  
sed -i '/^default_kernel_opts/ s/=.*/="libata.force=1.0:udma66 console=tty0  
console=ttyS0,38400 quiet"/' /etc/update-extlinux.conf  
update-extlinux
```

Serial console

```
sed -i '/^serial_port/ s/=.*/=0/' /etc/update-extlinux.conf  
sed -i '/^serial_baud/ s/=.*/=38400/' /etc/update-extlinux.conf  
update-extlinux  
echo 'ttyS0::respawn:/sbin/getty -L ttyS0 38400 vt100' >> /etc/inittab  
echo 'ttyS0' >> /etc/securetty
```

Swap file

```
dd if=/dev/zero of=/swapfile bs=1M count=512  
chmod 600 /swapfile  
mkswap /swapfile  
echo '/swapfile none swap sw 0 0' >> /etc/fstab
```

Disable IPv6

```
echo 'ipv6' >> /etc/modules  
echo 'net.ipv6.conf.all.disable_ipv6 = 1' >> /etc/sysctl.d/01-disable-ipv6.conf
```

Packages

```
sed -i '/^http/ s/^/#/g' /etc/apk/repositories  
sed -i '/edge/ s/^/#//g' /etc/apk/repositories  
apk update  
apk upgrade --available  
apk add man mc screen iputils rsync subversion git build-base
```

NFS server

```
apk add nfs-utils  
sed -i '/^OPTS_RPC_MOUNTD/ s/""/"-p 32767"/' /etc/conf.d/nfs  
sed -i '/^OPTS_RPC_STATD/ s/""/"-p 32765 -o 32766"/' /etc/conf.d/nfs
```

```
echo 'options lockd nlm_udpport=32768 nlm_tcpport=32768' >>
/etc/modprobe.d/local.conf
echo 'options nfs callback_tcpport=32764' >> /etc/modprobe.d/local.conf
rc-update add nfs
```

MySQL

```
apk add mariadb mariadb-client
/etc/init.d/mariadb setup && /etc/init.d/mariadb start
mysql_secure_installation
sed -i '/^\[mysqld\]/ s/$/\nbind-address = 127.0.0.1/' /etc/mysql/my.cnf
rc-update add mariadb
```

Apache + PHP + FastCGI + suEXEC + Pound

```
apk add apache2 apache2-utils apache-mod-fcgid php5 php5-cgi pound openssl lynx
apk add php5-pdo_sqlite php5-pdo_mysql php5-json
sed -i '/LoadModule.*rewrite/ s/^#/' /etc/apache2/httpd.conf
sed -i '/LoadModule.*suexec/ s/^#/' /etc/apache2/httpd.conf
sed -i '/^\s*DirectoryIndex/ s/$/ index.htm index.php/' /etc/apache2/httpd.conf
sed -i '31 s/HTTP/HTTPS/' /etc/pound.cfg
sed -i '32 s/127.0.0.1/0.0.0.0/' /etc/pound.cfg
sed -i '33 s/8888/443/' /etc/pound.cfg
sed -i '/^Port 443/ s$_\nCert "/etc/ssl/pound/bundle.pem"_ ' /etc/pound.cfg
sed -i '/^xHTTP/ s/0/2/' /etc/pound.cfg
mkdir /etc/ssl/pound
# create SSL certificate
rc-update add apache2
rc-update add pound
```

- Example: VirtualHost configuration

```
adduser web1
mkdir ~web1/etc ~web1/tmp /var/www/vhosts
mkdir -m 750 /var/www/vhosts/web1
mkdir /var/www/vhosts/web1/html /var/www/vhosts/web1/fcgi-bin
```

```
cat >/var/www/vhosts/web1/fcgi-bin/php-fcgi-starter <<EOF
#!/bin/sh
export PHPRC="/home/web1/etc"
export TMPDIR="/home/web1/tmp"
exec /usr/bin/php-cgi
EOF
```

```
chmod +x /var/www/vhosts/web1/fcgi-bin/php-fcgi-starter
chown -hR web1:web1 /var/www/vhosts/web1 ~web1
chgrp -h www-data /var/www/vhosts/web1
```

```
cat >/etc/apache2/conf.d/web1.conf <<EOF
<VirtualHost *:80>
ServerName web1.stelas.de
ServerAlias *.web1.stelas.de
SuexecUserGroup web1 web1
DocumentRoot "/var/www/vhosts/web1/html"
<Directory "/var/www/vhosts/web1/html">
    AddHandler fcgid-script .php
    Options SymLinksIfOwnerMatch ExecCGI
    AllowOverride AuthConfig FileInfo Limit
    FcgidWrapper /var/www/vhosts/web1/fcgi-bin/php-fcgi-starter .php
    Require all granted
</Directory>
```

```
CustomLog /var/log/apache2/web1_access.log combined
ErrorLog /var/log/apache2/web1_error.log
RewriteEngine On
RewriteRule .* - [E=HTTP_AUTHORIZATION:%{HTTP:Authorization}]
</VirtualHost>
EOF
```

AWall

- TBD

slrn, ansiweather

```
apk add bc curl jq slrn
```

- Install [AnsiWeather](#)

Backup

```
export LBU_BACKUPDIR=/export/backup
lbu ci
```

<https://www.dateihal.de/cms/docs/alpine-linux-setup>

Alpine Linux Cheat Sheet

Installation

Management

Packages

Basic Operations

```
$ apk update
$ apk upgrade
$ apk add <package 1> <package 2>
$ apk del <package 1> <package 2>

# Find Packages
$ apk search -v
$ apk search -v 'acf*'
$ apk search -v --description 'NTP'

# Install Packages From Pinned Repos
$ apk add stableapp newapp@edge bleedingapp@testing

# Add A Local Package
$ apk add --allow-untrusted /path/to/file.apk

# Install From Repos Not In /etc/apk/repositories
$ apk add cherokee --update-cache \
                    --repository http://dl-3.alpinelinux.org/alpine/edge/testing/
\
                    --allow-untrusted

# Save Changes
$ lbu commit -d
```

Notes:

1. Alpine running in ram disk mode does not restore packages installed from repos not in /etc/apk/repositories

Services

Alpine uses the OpenRC init system

```
$ rc-update add <service> <runlevel>
$ rc-update del <service> <runlevel>
$ rc-service <service> <start stop restart>

$ rc-status
$ rc <runlevel>

$ reboot
$ halt      # Equivalent to shutdown -r now
$ poweroff  # Equivalent to shutdown -h now
```

Notes:

1. Runlevels: default, hotplugged, manual

Service Files:

- /etc/conf.d
- /etc/init.d

Resources

1. [Alpine Wiki](#)
2. [Alpine Package Repo](#)

References

1. [Alpine Package Management](#)
2. [Alpine Local Backup](#)
3. [Alpine Linux Init System](#)
4. [OpenRC Service Script Writing Guide](#)

https://notebook.jstout.us/system_admin/distributions/cheat_sheets/alpine_linux.html

Robust Concept

- [Alpine-Linux](#)
- [Nginx](#)

Alpine Linux cheatsheet.

By [Pawel Wojcik](#)

Category: [Alpine-Linux](#)

Init system - [OpenRC](#)

- `rc-update add <service> <runlevel>`
- `rc-update del <service> <runlevel>`
- `rc-service <service> <start stop restart>`
- `rc-status`
- `rc <runlevel>`
- `reboot`
- `halt`
- `poweroff`

Package management

- `apk update` - update package list
- `apk add <package name>` - install packages from repository
- `apk del <package name>` - remove package
- `apk upgrade` - upgrade all packages
- `apk add --upgrade <package name>` - upgrade selected package

Reference

- https://wiki.alpinelinux.org/wiki/Alpine_Linux_Init_System#Quick-Start_Information
- https://wiki.alpinelinux.org/wiki/Alpine_Linux_package_management

<https://robustconcept.com/alpine-linux-cheatsheet.html>

10 Alpine Linux apk Command Examples

Author: Vivek Gite Last updated: August 10, 2020 [1 comment](#)

I am new Alpine Linux system admin user. How do I use apk command line utility for the package management on Alpine Linux server running in cloud or a Linux container? How can I use the apk command for the package management?

apk command details

Description	APK command
Category	N/A
Difficulty	Easy
Root privileges	Yes
Estimated completion time	10m
Contents	

- » [Syntax](#)
- » [Examples](#)
- » [Update the package list](#)
- » [Search for package](#)
- » [Install a package](#)
- » [Remove/delete a package](#)
- » [Upgrade running system](#)
- » [List installed packages](#)
- » [Show statistics](#)
- » [See also](#)

Alpine Linux is a free and open source Linux-based distro. It uses musl and busybox. It is designed with security in mind and targeted at power users who want a secure distro out of the box. It uses PaX and grsecurity for Linux kernel protection. All binaries are compiled with stack smashing protection. APK stands for Alpine Linux package manager. You use the apk command to delete, install, upgrade, or list software on a running Alpine Linux based system. Like most modern Linux distros, all software packages for Alpine Linux are digitally signed to avoid security problems. You can install packages from local disk (such as CDROM or a USB stick) or the internet archive location (repositories) such as <http://dl-cdn.alpinelinux.org/alpine/v3.5/main>. The list of repositories is stored in /etc/apk/repositories configuration file. Use the [cat command](#) to view /etc/apk/repositories file i.e. type `cat /etc/apk/repositories`. Alpine Linux package often has the .apk extension and called as “a-packs”. The apk command is equivalent to [apt command](#) / [apt-get command](#) on Debian/Ubuntu on [yum command](#) on CentOS Linux.

Purpose

Use apk for installing, upgrading, configuring, and removing apps/programs for an Alpine Linux operating system in a consistent manner.

Syntax

The basic syntax is as follows:

```
apk [options] command
apk [options] command pkgName
apk [options] command pkgName1 pkgName2
```

Alpine Linux apk command examples

Let us see how to use the apk command to install security updates or new set of packages on an Alpine Linux server.

How to update the package list

To update your package list, enter:

```
# apk update
```

Sample outputs:

Fig.01: How to update the package list in Alpine Linux

How to search for package(s)

The syntax is:

```
# apk search pkgName
```

For example, search a package named htop, run:

```
# apk search htop
```

Sample outputs:

```
htop-doc-2.0.2-r0
htop-2.0.2-r0
```

To search and display description:

```
# apk search -v -d 'htop'
```

Sample outputs:

```
htop-doc-2.0.2-r0 - An interactive process viewer (documentation)
htop-2.0.2-r0 - An interactive process viewer
```

To list all packages available, along with their descriptions

```
# apk search -v
```

Sample outputs:

```
gettext-0.19.8.1-r0 - GNU locale utilities
gst-plugins-base0.10-dev-0.10.36-r3 - GStreamer Multimedia Framework Base
Plugins (development files)
xcb-util-keysyms-dev-0.4.0-r0 - Utility libraries for XC Binding - keysyms
(development files)
openlibm-0.5.4-r0 - High quality system independent, portable, open source libm
implementation
```



```

imapsync-doc-1.727-r1 - IMAP synchronisation, sync, copy or migration tool
(documentation)
evinced-lang-3.22.1-r0 - Languages for package evince
jack-1.9.10-r2 - The Jack Audio Connection Kit
php7-intl-7.0.16-r0 - PHP7 extension: intl
php5-5.6.30-r0 - The PHP language runtime engine
samba-libs-4.5.7-r0 - Samba core libraries
gst-plugins-bad1-1.8.3-r0 - GStreamer bad plugins
docker-bash-completion-1.12.6-r0 - Bash completion for Docker
mesa-gl-12.0.3-r0 - Mesa libGL runtime libraries
nagios-plugins-mrtg-2.1.4-r2 - Nagios plugin check_mrtg
.....
..
....
nrpe-2.15-r4 - NRPE allows you to remotely execute Nagios plugins on other
Linux/Unix machines.
py2-psycopg2-2.6.2-r1 - A Python-PostgreSQL Database Adapter (for python2)
perl-mime-types-2.13-r0 - Definition of MIME types
perl-net-http-doc-6.09-r0 - Net::HTTP perl module (documentation)
shared-mime-info-lang-1.8-r0 - Languages for package shared-mime-info
altermime-0.3.11-r0 - alterMIME - MIME encoded email pack alteration tool
at-3.1.20-r0 - AT and batch delayed command scheduling utility and daemon
fbida-2.12-r0 - Few applications to display and elementary edit images

```

How do I search package by wildcards?

The syntax is as follows to search all php7 packages or php5 packages:

```
# apk search -v 'php5*'

```

```
### OR ###

```

```
# apk search -v 'php7*'

```

Sample outputs:

```

php7-intl-7.0.16-r0 - PHP7 extension: intl
php7-openssl-7.0.16-r0 - PHP7 extension: openssl
php7-dba-7.0.16-r0 - PHP7 extension: dba
php7-sqlite3-7.0.16-r0 - PHP7 extension: sqlite3
php7-pear-7.0.16-r0 - PHP Extension and Application Repository
php7-phpdbg-7.0.16-r0 - Interactive PHP debugger
php7-litespeed-7.0.16-r0 - PHP LiteSpeed SAPI
php7-gmp-7.0.16-r0 - PHP7 extension: gmp
php7-pdo_mysql-7.0.16-r0 - PHP7 extension: pdo_mysql
php7-pcntl-7.0.16-r0 - PHP7 extension: pcntl
php7-common-7.0.16-r0 - The PHP language runtime engine - 7th branch (common
config)
php7-xsl-7.0.16-r0 - PHP7 extension: xsl
php7-fpm-7.0.16-r0 - PHP FastCGI Process Manager
php7-mysqlnd-7.0.16-r0 - PHP7 extension: mysqlnd
php7-enchanted-7.0.16-r0 - PHP7 extension: enchant
php7-pspell-7.0.16-r0 - PHP7 extension: pspell
php7-snmp-7.0.16-r0 - PHP7 extension: snmp
....
..
...
php7-sockets-7.0.16-r0 - PHP7 extension: sockets
php7-soap-7.0.16-r0 - PHP7 extension: soap
php7-apcu-5.1.8-r0 - PHP extension APC User Cache
php7-sysvmsg-7.0.16-r0 - PHP7 extension: sysvmsg
php7-zlib-7.0.16-r0 - PHP7 extension: zlib
php7-ftp-7.0.16-r0 - PHP7 extension: ftp
php7-sysvsem-7.0.16-r0 - PHP7 extension: sysvsem
php7-pdo-7.0.16-r0 - PHP7 extension: pdo

```

```
php7-bz2-7.0.16-r0 - PHP7 extension: bz2
php7-mysqli-7.0.16-r0 - PHP7 extension: mysqli
```

How to install a package(s) by name

The syntax is:

```
# apk add pkgName
# apk add pkgName1 pkgName2
```

To install a htop package, run:

```
# apk add htop
```

Sample outputs:

```
(1/1) Installing htop (2.0.2-r0)
Executing busybox-1.25.1-r0.trigger
OK: 39 MiB in 28 packages
```

To install Apache2 along with PHP7 and modules, run:

```
# apk add apache2 php7-apache2 php7-gd php7-mysqli
```

Sample outputs:

```
(1/28) Installing libuuid (2.28.2-r1)
(2/28) Installing apr (1.5.2-r1)
(3/28) Installing expat (2.2.0-r0)
(4/28) Installing apr-util (1.5.4-r2)
(5/28) Installing pcre (8.39-r0)
(6/28) Installing apache2 (2.4.25-r0)
Executing apache2-2.4.25-r0.pre-install
(7/28) Installing php7-common (7.0.16-r0)
(8/28) Installing libedit (20150325.3.1-r3)
(9/28) Installing libxml2 (2.9.4-r2)
(10/28) Installing php7-apache2 (7.0.16-r0)
(11/28) Installing libxau (1.0.8-r1)
(12/28) Installing libxdmcp (1.1.2-r2)
(13/28) Installing libxcb (1.12-r0)
(14/28) Installing libx11 (1.6.4-r0)
(15/28) Installing libxext (1.3.3-r1)
(16/28) Installing libice (1.0.9-r1)
(17/28) Installing libsm (1.2.2-r0)
(18/28) Installing libxt (1.1.5-r0)
(19/28) Installing libxpm (3.5.12-r0)
(20/28) Installing libbz2 (1.0.6-r5)
(21/28) Installing libpng (1.6.25-r0)
(22/28) Installing freetype (2.7-r1)
(23/28) Installing libjpeg-turbo (1.5.1-r0)
(24/28) Installing libwebp (0.5.2-r0)
(25/28) Installing php7-gd (7.0.16-r0)
(26/28) Installing mariadb-common (10.1.22-r0)
(27/28) Installing mariadb-client-libs (10.1.22-r0)
(28/28) Installing php7-mysqli (7.0.16-r0)
Executing busybox-1.25.1-r0.trigger
OK: 64 MiB in 56 packages
```

How to hold a specific package back and not upgrade it

If you want to upgrade Alpine Linux system, but keep or hold a specific package add version number. For instance, to hold the bash package to the version 5.0.0-r0 level or lower, run:

```
# apk add bash=5.0.0-r0
```

One can do regex based version matching to hold the version to a major/minor release. For example:

```
# apk add bash=~5.0
```

Now, upgrade the system. However, apk will upgrade the entire system, keeping the bash package at the 5.0.0-r0 or lower level:

```
# apk upgrade
```

It is possible to remove holding. For example, make sure upgrade bash to the current latest version, run:

```
# apk add bash>5.0.0-r0
```

How do install a local .apk file package?

The syntax is as follows to add a local package named foo.apk:

```
# apk add --allow-untrusted /path/to/foo.apk
```

```
apk add --allow-untrusted pkg1.apk pkg2.apk
```

How to remove or delete a package(s) by name

The syntax is:

```
# apk del pkgName
```

```
# apk del pkgName1 pkgName2
```

To delete a htop package run:

```
# apk del htop
```

Sample outputs:

```
(1/1) Purging htop (2.0.2-r0)
Executing busybox-1.25.1-r0.trigger
OK: 39 MiB in 27 packages
```

How do I delete old packages caches on Alpine Linux?

To remove out older versions of packages, run the clean command as follows:

```
# apk cache clean
```

```
## or ##
```

```
# apk -v cache clean
```

One can also clean cache and download missing packages in one step:

```
# apk cache -v sync
```

How to upgrade running Alpine Linux

The syntax is:

```
# apk update && apk upgrade
```

You [can create a bash shell alias as follows](#) in ~/.bashrc

```
# echo "alias update='apk update && apk upgrade'" >> ~/.bashrc
```

Run it as follows:

```
# update
```

How do I upgrade selected packages only?

The syntax is

```
# apk add -u pkgName
```

To upgrade a htop only package:

```
# apk update
```

```
# apk add -u htop
```

How do I list installed packages?

The syntax is:

```
# apk info
```

```
# apk info -vv | grep 'foo'
```

```
# apk info -vv | sort
```

Fig.02: How do I show/list installed packages in Alpine Linux

Find out which package a file belongs to..

to determine which package a file named /etc/passwd or /sbin/apk belongs to:

```
# apk info --who-owns /etc/passwd
```

/etc/passwd is owned by alpine-baselayout-3.0.4-r0

```
# apk info --who-owns /sbin/apk
```

/sbin/apk is owned by apk-tools-2.6.8-r2

List contents of the PACKAGE

```
# apk -L info pkgName
```

```
# apk -L info htop
```

Sample outputs:

htop-2.0.2-r0 contains:

usr/bin/htop

usr/share/applications/htop.desktop

usr/share/pixmaps/htop.png

Check if PACKAGE is installed

```
# apk -e info pkgName
```

```
#####
```

```
### find out if atop PACKAGE is installed ###
```

```
#####
```

```
# apk -e info atop
```

No output displayed if PACKAGE is NOT installed.

List packages that the PACKAGE depends on

```
# apk -R info atop
```

```
# apk -R info atop
```

Sample outputs:

```
atop-2.2_p3-r0 depends on:
so:libc.musl-x86_64.so.1
so:libncursesw.so.6
so:libz.so.1
```

List all packages depending on PACKAGE

```
# apk info -r pkgName
# apk info -r bash
```

Sample outputs:

```
bash-completion-2.4-r0
```

Show installed size of PACKAGE

```
# apk info -s pkgName
# apk info -s atop
```

Sample outputs:

```
atop-2.2_p3-r0 installed size:
520192
```

Print description for PACKAGE

```
# apk info -d pkgName
# apk info -d bash
```

Sample outputs:

```
bash-4.3.46-r5 description:
The GNU Bourne Again shell
```

Print all information about PACKAGE

```
# apk info -a pkgName
# apk info -a bash
```

Sample outputs:

```
apk info -a bash
bash-4.3.46-r5 description:
The GNU Bourne Again shell
```

```
bash-4.3.46-r5 webpage:
http://www.gnu.org/software/bash/bash.html
```

```
bash-4.3.46-r5 installed size:
700416
```

```
bash-4.3.46-r5 depends on:
busybox
so:libc.musl-x86_64.so.1
so:libncursesw.so.6
so:libreadline.so.6
```

```
bash-4.3.46-r5 provides:
```

```
bash-4.3.46-r5 is required by:
bash-completion-2.4-r0
```

bash-4.3.46-r5 contains:
bin/bashbug
bin/bash

bash-4.3.46-r5 triggers:

bash-4.3.46-r5 has auto-install rule:

bash-4.3.46-r5 affects auto-installation of:
bash-doc-4.3.46-r5

bash-4.3.46-r5 replaces:

bash-4.3.46-r5 license:
GPL3+

How do I see statistics about repositories and installations?

Run the command:

```
# apk stats
```

Sample outputs:

```
installed:
  packages: 28
  dirs: 163
  files: 7097
  bytes: 41205760
  triggers: 1
available:
  names: 11710
  packages: 7961
atoms:
  num: 5934
bash-4.3#
bash-4.3# apk stats
installed:
  packages: 28
  dirs: 163
  files: 7097
  bytes: 41205760
  triggers: 1
available:
  names: 11710
  packages: 7961
atoms:
  num: 5934
```

apk command options and examples

Command	Usage	Example
apk update	Update the package list	apk update
apk upgrade	Upgrade the system	apk update apt upgrade
apk add pkg	Add a package	apk add apache
apk del pkg	Delete a package	apk del nginx
apk search -v	Search for packages	apk search -v

apk info List all installed packages
apk fix Repair package or upgrade it without modifying main
 dependencies
apk policy pkg Show repository policy for packages
apk stats Show statistics about repositories and installations

See also

- **/etc/apk/repositories** file.
- apk man page

<https://www.cyberciti.biz/faq/10-alpine-linux-apk-command-examples/>

apk search -v -d
'nginx*'
apk search -v 'apache*'
apk info
apk fix
apk policy bash
apk stats