

Partial Debian GNU/Linux Mirror

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<http://www.debian.org/>

Keywords

Debian, mirror

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Abstract

This document describes a way to create a partial Debian mirror using the dependency handling of apt. The integrity of the serving host is not affected, as a chroot environment is used. There are a lot of other ways to create partial Debian mirrors, but either the dependencies are not handled ([debmirror](http://packages.qa.debian.org/d/debmirror.html) <<http://packages.qa.debian.org/d/debmirror.html>>) or the integrity of the host system is not assured, i.e. updating a mirror should automatically affect packages on the serving host as well. Debian mirrors can be useful for serving or installing multiple Debian machines, for FAI <<http://www.informatik.uni-koeln.de/fai/>>, or when creating your own Knoppix <<http://www.knopper.net/knoppix/index-en.html>> variant.

1 Preconditions

You should have a Debian GNU/Linux system with [debootstrap](http://packages.qa.debian.org/d/debootstrap.html) <<http://packages.qa.debian.org/d/debootstrap.html>> installed. In theory, the host could be any UNIX like system, but this document concentrates on Debian. In my case, the serving host runs the *unstable* sid distribution, while the mirror is the *testing* gauge distribution of Debian. Most things should work with any combination of Debian distributions.

NOTE



I use the traditional `#` for the root prompt and `$` for the non-root prompt.

DIRECTORIES

- The chroot is `/var/local/chroot/`.
- The mirror is under `/var/local/mirrors/` inside of the chroot.

- The mirror is symbolically linked to the same place outside of the chroot:

```
ln -s /var/local/chroot/var/local/mirrors/ /var/local/
```

.

2 Create the mirror

The following script `<create-mirror>` can be used to create the mirror area:

```
1 #!/bin/sh
2 # generate a partial Debian mirror with debootstrap and apt-move
3 # 2004-02, W. Borgert <debackle@debian.org>
4 # Released under the terms of the GNU General Public License
5
6 # the root directory of the mirror system
7 CHROOT=/var/local/chroot
8 # the mirror directory inside of the chroot
9 MIRRORDIR=/var/local/mirrors
10 # the Debian archive next to you
11 DEBIAN=http://ftp.de.debian.org/debian
12
13 #####
14
15 OUT=adduser,aptitude,apt-utils,at,base-config,bsdmainutils,\
16 console-common,console-data,console-tools,cpio,cron,debconf-i18n,\
17 dhcp-client,ed,exim4,exim4-base,exim4-config,exim4-daemon-light,\
18 fdutils,gettext-base,groff-base,ifupdown,info,ipchains,iptables,\
19 iputils-ping,klogd,libconsole,libgcrypt1,libgcrypt7,libgdbm3,\
20 libgnutls10,libgpg-error0,libident,liblocale-gettext-perl,\
21 liblockfile1,liblzo1,libnewt0.51,libopencdk8,libpcap0.7,libpcre3,\
22 libpopt0,libsicp+-1.2-5c102,libssl0.9.7,libtasn1-0,\
23 libtext-charwidth-perl,libtext-iconv-perl,libtext-wrapi18n-perl,\
24 libwrap0,lilo,logrotate,mailx,makedev,man-db,manpages,mbr,modconf,\
25 modutils,nano,netbase,netkit-inetd,net-tools,nvi,pciutils,ppp,\
26 pppconfig,pppoe,pppoeconf,procps,psmisc,setserial,slang1,sysklogd,\
27 syslinux,sysvinit,tasksel,tcpd,telnet,wget,whiptail
28
29 IN=apt-move,bc,bzip2,dash,debconf-english,libbz2-1.0,libpam0g,\
30 libreadline4
31
32 #####
33
34 apt-get install debootstrap
35 mkdir -p $CHROOT$MIRRORDIR/debian
36 debootstrap --exclude="$OUT" --include="$IN" sarge $CHROOT $DEBIAN
37 mkdir -p $MIRRORDIR
38 ln -s $CHROOT$MIRRORDIR/debian $MIRRORDIR
39
40
```

NOTE



A sarge mirror created by debootstrap without any special options takes up about 150 MBytes, using the various excludes, it is less than the half.

Edit the file `/var/local/chroot/etc/apt/sources.list`. The first entry must point to your own mirror inside of the chroot, other entries are the usual http or ftp ones:

```
deb file:/var/local/mirrors/debian testing main
deb http://ftp.de.debian.org/pub/debian/ testing main
```

Now edit `/var/local/chroot/etc/apt-move.conf`, especially the values for APTSITES, LOCALDIR, DIST, PKGCOMP, and CONTENTS may need adjustment:

```
APTSITES="ftp.de.debian.org"
LOCALDIR=/var/local/mirrors/debian
DIST=testing
PKGCOMP="none gzip"
CONTENTS=yes
```

If you do not have apt-move <http://packages.qa.debian.org/a/apt-move.html> installed outside of the chroot, you can still read the manual page:

```
$ zcat /var/local/chroot/usr/share/man/man8/apt-move.8.gz|nroff -man|less
```

Update the apt cache of the mirror:

```
# chroot /var/local/chroot apt-get update
```

This run will of course issue an error, because the local mirror does not yet exist. Just ignore it.

```
# chroot /var/local/chroot apt-move get
```

Copy this script `<make-release>` to `/var/local/chroot/root/` and make it executable (chmod 755 is OK):

```
1  #!/bin/sh
2  # generate Release files for a Debian mirror
3  # 2003-10, W. Borgert <debacle@debian.org>
4  # Released under the terms of the GNU General Public License
5
6  ORIGIN="Debian"
7  LABEL="Debian"
8  SUITE="testing"
9  CODENAME="sarge"
10  DESC="Debian Testing distribution - Not Released"
11  UNPACK=0
12  ARCHIVE=.
13
14  # long options not yet implemented
15  args='getopt 'a:c:d:l:o:s:u' $*'
16  for o
17      do case "$o" in
18          -a | --arch*) ARCHIVE="$2"; shift; shift;;
19          -c | --code*) CODENAME="$2"; shift; shift;;
20          -d | --desc*) DESC="$2"; shift; shift;;
21          -l | --label) LABEL="$2"; shift; shift;;
22          -o | --orig*) ORIGIN="$2"; shift; shift;;
23          -s | --suite) SUITE="$2"; shift; shift;;
```

```

24         -u | --unpa*) UNPACK=1; shift;;
25         --) shift; break;;
26     esac
27 done
28
29 #####
30
31 cd $ARCHIVE
32 DATE='date -u'
33 if [ $UNPACK -eq 1 ]; then
34     PACKAGGZ='find . -name Packages.gz -o -name Sources.gz'
35     for p in $PACKAGGZ; do
36         gunzip -c $p > 'dirname $p'/'basename $p .gz'
37     done
38 fi
39
40 PACKAGES='find . -name Packages -o -name Packages.gz -o \
41     -name Sources -o -name Sources.gz'
42 DIRS='for p in $PACKAGES; do dirname $p; done|sort -u'
43 COMPS='for d in $DIRS; do echo $d | \
44     sed 's,[^A-Za-z0-9-]*\([^A-Za-z0-9-]*\)/*.*,\1,'; done|sort -u'
45 ARCHS='for d in $DIRS; do echo $d | \
46     sed 's,.*binary-\([^A-Za-z0-9-]*\)*,\1,'; done|sort -u'
47
48 for d in $DIRS; do
49     cd $d
50     ARCH='echo $d | sed 's,.*binary-\([^A-Za-z0-9-]*\)*,\1,''
51     COMP='echo $d | \
52         sed 's,[^A-Za-z0-9-]*\([^A-Za-z0-9-]*\)/*.*,\1,''
53     echo "Archive: $SUITE
54 Component: $COMP
55 Origin: $ORIGIN
56 Label: $LABEL
57 Architecture: $ARCH" > Release
58     cd -
59 done
60
61 rm -f Release
62 MD5FILES='find . -name Packages -o -name Packages.gz -o \
63     -name Sources -o -name Sources.gz -o -name Release \
64     | sed 's,^[~/]*/,,''
65
66 echo "Origin: $ORIGIN
67 Label: $LABEL
68 Suite: $SUITE
69 Codename: $CODENAME
70 Date: $DATE
71 Architectures:" 'echo $ARCHS'
72 Components:" 'echo $COMPS'
73 Description: $DESC
74 MD5Sum:" > Release
75
76 for m in $MD5FILES; do
77     echo -n " " >> Release
78     SIZE='wc -c $m | sed 's/ *\([0-9]*\)*/\1/'

```

```

79     SUM='md5sum $m | sed 's/^ *\([A-Fa-f0-9]*\) .*/\1/'
80     printf "%s %16d %s\n" $SUM $SIZE $m >> Release
81 done
82
83 echo "SHA1:" >> Release
84 for m in $MD5FILES; do
85     echo -n " " >> Release
86     SIZE='wc -c $m | sed 's/ *([0-9]*) .*/\1/'
87     SUM='sha1sum $m | sed 's/^ *\([A-Fa-f0-9]*\) .*/\1/'
88     printf "%s %16d %s\n" $SUM $SIZE $m >> Release
89 done
90

```

It will be used later by the maintenance script.

3 Maintain the mirror

The master list of packages is the file `/var/local/chroot/root/packages`, which contains the package names. The good thing is: Packages that have implicitly installed in the mirror do not appear here. You can always edit this file manually, if you do not wish some packages to be tracked in the future. The maintenance of the mirror itself is done with this script `<update-mirror>`:

```

1  #!/bin/sh
2  # update a partial Debian mirror with apt-move
3  # 2004-02, W. Borgert <debacle@debian.org>
4  # Released under the terms of the GNU General Public License
5
6  # the root directory of the mirror system
7  CHROOT=/var/local/chroot
8  # the mirror directory inside of the chroot
9  MIRRORDIR=/var/local/mirrors/debian
10 # master packages file inside of the chroot
11 MASTER=/root/packages
12
13 #####
14
15 MODE=$1; shift
16
17 case "$MODE" in
18     clean)
19     chroot $CHROOT apt-move --force delete
20     exit 0
21     ;;
22     install)
23     PACKAGES="$*"
24     if [ -f $CHROOT/$MASTER ]; then
25         OLDPACKAGES='cat $CHROOT/$MASTER'
26     else
27         OLDPACKAGES=
28     fi
29     for p in $OLDPACKAGES $PACKAGES; do echo $p; done | \
30         sort -u > $CHROOT/$MASTER
31     ;;
32     upgrade)
33     if [ -f $CHROOT/$MASTER ]; then

```

```
34     PACKAGES='cat $CHROOT/$MASTER'
35 else
36     exit 0
37 fi
38 ;;
39 *)
40 echo "Usage:"
41 echo "$0 clean"
42 echo "$0 install <packages>"
43 echo "$0 upgrade"
44 exit -1
45 ;;
46 esac
47
48 chroot $CHROOT apt-get update
49 chroot $CHROOT apt-get install \
50     --option 'DPkg::Options::=--dry-run' --yes $PACKAGES
51 chroot $CHROOT apt-move get
52 chroot $CHROOT apt-move move
53 chroot $CHROOT apt-move packages
54 chroot $CHROOT /root/make-release -a $MIRRORDIR
55 chroot $CHROOT apt-get autoclean
56
```

Try it out:

```
# ./update-mirror install dia ethereal glade-2
```

Quite a lot of packages will be installed in your mirror.

The following command upgrades the mirror:

```
# ./update-mirror upgrade
```

4 Allow http access to your mirror

If you happen to have apache2 <<http://packages.qa.debian.org/a/apache2.html>> installed, add the following lines to `/etc/apache2/sites-enabled/default`:

```
Alias /debian/ "/var/local/mirrors/debian/"
<Directory "/var/local/mirrors/debian/">
    Options Indexes MultiViews
    AllowOverride None
    Order allow,deny
    Allow from all
</Directory>
```

Of course, any web server will do.

Use the mirror like any other apt source in your `/etc/apt/sources.list`:

```
deb http://<yourhost>/debian/ testing main
```

5 Supporting different architectures

If you like to have not your native, but another architecture mirrored, just specify that in `/var/local/chroot/etc/apt/apt.conf`:

```
APT::Architecture "arm";
```

```
And in /var/local/chroot/etc/apt-move.conf:
```

```
ARCHS="arm i386"
```

6 Links

Willem van Engen <<mailto:wvengen@stack.nl>> sent me a link to his work <<http://willem.engen.nl/debpartmirror/>>, which might be similar to the approach presented here.