NAME
mirrorrib – locally mirror a Debian release, including backports

SYNOPSIS
mirrorrib [*OPTIONS*] *DEBIAN-VER ARGUMENTS*...
mirrorrib [**−ls?−**] [**−p** *FILE*] {**10.***N*|**11.***N*} *CD-REV ARCH OLD TARGET ISO MIRROR* [*LANGS*...]

DESCRIPTION
Debian releases a major revision of its operating system about every two years and a minor revision approximately quarterly, but these revisions exclude Debian backports. Debian releases backports only on a rolling basis like sid.

mirrorrib is for Debian users who want an approximately quarterly, stable revision of backports to accompany the approximately quarterly, stable revision of the rest of the operating system—with both revisions dated as of the same date.

mirrorrib reproducibly assembles a stable backports revision and release to accompany a stable regular revision and release. It downloads the matched pair of releases with all their packages and associated files, mirroring the pair together to your hard drive. After running **mirrorrib** and configuring */etc/apt/sources.list* to access the local repository **mirrorrib** has assembled, one no longer needs a live network connection to update or reinstall one's system to Debian stable—not even if the update or reinstallation requires access to backports.

In addition to the matched pair of releases, **mirrorrib** also mirrors the standard, bootable system-installation image, *netinst.iso*, from the Debian-CD archive.

mirrorrib's name stands for "MIRROR Release Including Backports."

ARGUMENTS
The first argument to **mirrorrib**, the *DEBIAN-VER*, specifies the stable version of Debian whose release **mirrorrib** is to fetch. The arrangement and number of the other arguments depend on the value of the first argument. (At present, only Debian **10.***N* and **11.***N* are supported, the latter support remaining *tentative.* Tentatively, **mirrorrib** arranges its command line similarly whether for Debian **10.***N* or for Debian **11.***N*. When future support for Debian **12.***N* arrives, though, **mirrorrib** might arrange its command line for that Debian version differently. Check this page once future support arrives.)

DEBIAN-VER
> The number of the stable version of Debian whose release **mirrorrib** is to fetch (for example **10.9** to fetch the .9 release of Debian 10 buster).

CD-REV
> The Debian-CD revision number (usually **0**, for example for Debian-CD revision 10.9.0).

ARCH   The computer architecture (**amd64**, for example) for which the release is to be fetched.

OLD   To avoid unnecessary downloading, an old Debian repository already on your hard drive (**/home/jsmith/debian-10.8**, for example), from which **mirrorrib** can try to copy or hard-link files already downloaded. Enter **/dev/null** if no such repository is available, but beware: **/dev/null** results in a huge download, possibly of hundreds of GiB, which is presumably not what you wanted if you had run **mirrorrib** before and, thus, already possessed most of the needed files! (Note that **/dev/null** does not cause files to be downloaded *to* **/dev/null**, but to be copied locally *from* **/dev/null**, which is to say, not copied locally at all.)

TARGET
> The location (**/home/jsmith/debian-10.9**, for example), which must be a directory that does not yet exist, at which **mirrorrib** is to install the new, matched pair of Debian releases—with all their packages and associated files—as a proper Debian repository. You may find it useful to put this on a different hard-disk partition (as **/other-partition/debian-10.9**, for example) than the one onto which the operating system is installed, for doing so lets the new repository be used during a future wipe-and-reinstallation of the machine.

ISO   The location (**/home/jsmith/debian-cd-10.9.0** or **/other-partition/debian-cd-10.9.0**, for example), which must be a directory that does not yet exist, at which **mirrorrib** is to install the new Debian-CD repository. (Note that only your architecture's *netinst.iso* along with its associated checksums are fetched to the new Debian-CD repository, for the Debian Project's debian-cd service specifies no particular release suite and *netinst.iso* is the minimal, standard ISO image one needs to boot the installation of a fresh Debian system—during which fresh installation one can rely on the new, local repository to supply packages and associated files instead of relying on a network connection. Alternate ISO images and various other nonessential Debian-CD files exist, but because a canonical, reproducible selection among those is impossible, none of those other images or files is fetched.)

MIRROR

The regular Debian mirror from which **mirrorrib** is to download (**mirror.example.org**, for example). Choose from the list at *https://www.debian.org/mirror/* a single mirror that serves both *debian/* and *debian-cd/* for your architecture via the *rsync* protocol. (If unsure about *rsync*, then just pick a mirror and try. Most Debian mirrors support *rsync* and if the one you have chosen does not, then **mirrorrib** will detect that and abort before starting the big download. If you have issued the −**s** option, then the mirror does not matter, so you can just enter **localhost** in that case.)

LANGS...

A space-separated list of the languages whose package-description Translation files are to be fetched (for example, **en fr de de_DE** for English, French, German and the German of Germany; normally, you should at least list **en** here). Enter **@** to fetch all available languages.

The examples use absolute pathnames but of course relative pathnames (**debian-10.9** or **foo/debian-10.9**, for example) work just as well.

OPTIONS

−**l**   Save local disk space by hard-linking pool files from *OLD* to *TARGET* where practicable. (Recommended. Note however that a hard-linked file is *one, single file,* accessible in two or more different locations. If for some reason **mirrorrib** found it necessary to update a hard-linked file—most likely by correcting the file's timestamp—then it would update the file equally in *OLD* as well as in *TARGET*.)

−**s**   Change nothing, but print checksums as listed in the release's control files (such as *Packages*, *Sources* and *SHA256SUMS* files). This option does not care about the *OLD*, *ISO* and *MIRROR* parameters, so you can enter **/dev/null** for each of the first two and **localhost** for the last if you wish. However, it does require a correct *LANGS* list.

−**?**   Print a help message. Do nothing else.

−−   Disable further options processing.

−**p** *FILE*

Set *FILE*'s modification timestamp to indicate the date and time of the snapshot upon which **mirrorrib** has relied. (The *FILE* is not a file **mirrorrib** downloads but is any file you name, usually a nonexistent or empty file. Naming such a file is useful if you wish to identify at *https://snapshot.debian.org/archive/debian/* the specific snapshot **mirrorrib** has referenced. If the file you name exists, then **mirrorrib** timestamps it but does not otherwise alter it. If the file does not exist, then **mirrorrib** creates and timestamps it.)

Besides these, **mirrorrib** also accepts −−**help** or −−**version**, provided that the option immediately follows the command. These do what you expect. The −−**help** option does the same as the −**?** option does.

EXIT STATUS

0   Successful program execution.

Any other integer

Failure. [**mirrorrib** itself always generates the exit status **1** upon failure, but the various other programs mirrorrib calls during its execution, such as **rsync**(1), can issue other integers. In most cases, an error message will be printed to *stderr* to indicate the failure's cause.]

ENVIRONMENT

Summary: except for **LC_MESSAGES**, neither the environment nor the **umask** matters much to **mirrorrib**. Details follow.

LC_MESSAGES

The locale, as **fr_FR.UTF-8** (for the French language of France) or **de_AT.UTF-8** (for the German language of Austria) for example, to which **mirrorrib**'s diagnostic messages are translated.

LC_ALL LANG

Alternatives to **LC_MESSAGES** that have exactly the same effect on **mirrorrib LC_MESSAGES** has. As **locale**(7) explains, **LC_ALL** supersedes **LC_MESSAGES** unless **LC_ALL** is null, whereas **LANG** serves as a fallback in case both of the others are null. If you need localization, then your **LANG** is probably already set to the right default, so you won't need to worry about the other variables; but if your **LANG** is null or wrong and you are unsure of what to do, then just set **LC_MESSAGES** and leave the other two alone. The most straightforward way to do this is to set the variable by prefixing the command line. For example, **LC_MESSAGES=fr_FR.UTF-8 mirrorrib**. . . . (Note that the last works only if you have generated the **fr_FR.UTF-8** locale on your system. If you haven't and you wish to, then issue **dpkg-reconfigure locales** as root.)

TZ   No effect. **mirrorrib** uses UTC, regardless of the time zone to which **TZ** is set. (The matter of times zones is mentioned because the matter confuses some inexperienced Debian users and because timestamps are significant to **mirrorrib**. Internally, the Debian operating system keeps time solely in UTC, regardless of the time zone to which **TZ** is set. Files are stamped in UTC, not only by **mirrorrib** but by other programs, as well. The **TZ** affects how time is *displayed* by certain tools like **date**(1), but not how time is stored. The point is that, if you transferred a repository assembled by **mirrorrib** in one time zone to a second machine in another time zone, then the second machine could not—by examining the transferred repository's timestamps—infer the time zone in which the repository had been assembled. The second machine would find only timestamps in correct UTC. In other words, results are reliable. You need not worry about it.)

Other variables

No effect. Internally, **mirrorrib** launches several other programs but, except for the aforementioned **LC_MESSAGES**, **mirrorrib** does not pass the user's environment variables to them.

Though the user's **umask** setting is not part of the environment as such (for a new Linux process inherits its **umask**, along with its working directory, directly without regard to the environment via the kernel's process-launching mechanism), the **umask** is mentioned here because **mirrorrib** respects it—momentarily. After downloading, **mirrorrib** resets the modes of downloaded files and symlinks to 0644 and of downloaded directories to 0755, anyway, so in the end the **umask** hardly matters in normal use cases. As far as the maintainer is aware, the **umask** affects no *persistent* production of **mirrorrib** except the **−p** option's timestamp. Nevertheless, the **umask**'s usual default value on a Debian system is 0022, so if you wish to set a specific value before launching **mirrorrib** (or almost any other program), then you can issue **umask 0022** first.

But it probably isn't necessary.

FILES

/etc/mirrorrib.conf

Systemwide configuration of **mirrorrib**. (You probably won't need to touch it.)

/etc/apt/sources.list

List of locations from which **apt-get**(8) is to fetch packages.

CONFORMING TO

•   Debian 10 buster

•   Debian 11 bullseye

USAGE WITH APT

Debian's rolling backports releases are each marked to expire a week after issue, whereas a **mirrorrib** repository expects to remain in service about three months, until the next stable release arrives. APT will object if asked to update according to an expired backports *Release* file. After **mirrorrib** has finished its run and you have suitably configured */etc/apt/sources.list*, you can overcome APT's objection by issuing the command

```
apt-get -o Acquire::Check-Valid-Until=false update
```

as root.

If backports use with APT is generally unfamiliar to you, then refer to the **–t** option on the manual page of **apt-get**(8).

As far as */etc/apt/sources.list* goes, if you are already as familiar with that file as many Debian users are, then you can configure the file however you like. However, if you are unsure, then, after backing up the existing file, you might try letting the file consist of several lines resembling these:

```
deb     file:///home/jsmith/debian-10.9/ buster main contrib non-free
deb-src file:///home/jsmith/debian-10.9/ buster main contrib non-free
deb     file:///home/jsmith/debian-10.9/ buster-backports main contrib non-free
deb-src file:///home/jsmith/debian-10.9/ buster-backports main contrib non-free
```

Notice that the repository **mirrorrib** has installed makes it unnecessary to list an online mirror, though if you require rolling security updates then, of course, you still must list the Debian Project's security mirror for that. (In the latter case, consult *https://www.debian.org/security/* for further instructions.)

RELIANCE ON THE DEBIAN PROJECT'S SNAPSHOT SERVICE

mirrorrib relies on the Debian Project's snapshot service at *https://snapshot.debian.org/* for several purposes, mainly to serve backports' *dists/* and, in *pool/*, to serve specific backports packages that have expired from the regular mirrors.

The snapshot service is not a mirror. Therefore, it is important that the user not abuse it. Use is logged. Abusers can be banned, but if like most Debian users your habit is to be a good netizen, then the prospect of bans has little to do with you. Therefore, to moderate the load (and indeed to unclog your own Internet connection), please consider specifying an *OLD* repository when invoking **mirrorrib** if feasible.

(Kindly do not contact the maintainer regarding bans. The maintainer does not issue bans, cannot revoke them, and does not know you well enough to advocate on your behalf. If the maintainer understands, there was one instance in which the persistent actions of a single abuser forced the snapshot service to ban the entirety of a major Internet infrastructure company whose name would be familiar to you if the name were mentioned here, that the snapshot service could remain functional for the rest of us. So don't do that.)

For information, rather than serving files via *rsync* as the regular mirror does, snapshot serves files only via *http(s)*, which leaves **mirrorrib** locally to treat several complications regarding symlinks, directories and timestamps. **mirrorrib** is programmed to treat these complications automatically, so the details need not concern the user; except that, to achieve reproducibility, **mirrorrib** is forced locally to stamp a standardized date and time on certain symlinks and directories (mainly regarding backports) rather than duplicating all timestamps off a regular mirror as one otherwise would do.

THE REPOSITORY'S SIZE

Even for a single stable release for a single architecture, the local repository **mirrorrib** assembles is big. The manual page you are reading cannot tell you in advance how big, but, at this writing, the last time the author ran **mirrorrib**, himself, for Debian buster 10.9 amd64, the repository proved to be 180 GiB in size. The size of backports' contribution fluctuates but, by the time you read this manual page, the combined repository including backports will probably have grown even larger than the 180 GiB.

Fortunately, during your second and subsequent invocations of **mirrorrib**, or even during your first invocation if you already happen to have a local repository on your hard drive by another tool, the **–l** option helps to conserve drive space.

THE @ LANGUAGE

When the author runs **mirrorrib**, himself, he lists on the command line only **en** for English plus the standard abbreviations for one or two other languages he is able to read. However, this is a matter of preference. Compared to the size of the overall repository, the size of Debian's *Translation* files is not very significant, so if you prefer to order @ for all available languages, go ahead and do it.

WIRELESS FIRMWARE TROUBLES

Refer to */usr/share/doc/mirrorrib/NON-FREE-FIRMWARE*.

REPRODUCIBLE RESULTS

mirrorrib is designed to deliver strictly reproducible results, even as regards file-, symlink- and directory-modification timestamps. (If you should notice a difference between results obtained on one date or machine and results obtained on another date or machine, if you are running the latest **mirrorrib**, and if you can show how to reproduce the behavior, then kindly report the bug via Debian's Bug Tracking System with normal priority.)

TENTATIVE SUPPORT FOR DEBIAN 11

When the present version of **mirrorrib** was prepared, Debian 11 was still in testing. At that time, the present version of **mirrorrib** seemed ready to handle Debian 11 correctly. Nevertheless, **mirrorrib**'s maintainer cannot guarantee that, when Debian 11 stable arrives, the present version of **mirrorrib** will still handle it correctly. Indeed, depending on the finalized details of Debian 11 (and on the soundness of **mirrorrib**'s maintainer's forward-looking grasp of those details), there is a significant probability that **mirrorrib** will not handle it correctly. If it does not seem to, then look for an updated *mirrorrib* package in Debian's *backports* archive online.

PATIENCE ON THE DAY OF A NEW RELEASE

mirrorrib will probably not do what you want during the first 48 hours or so following the Debian Project's approximately quarterly announcement of a new stable release. The reason is that time is needed for Debian's Images Team to build and upload ISO CD installation images, for hundreds or thousands of pool and dists files to propagate to the mirrors, and for sufficient numbers of pre- and post-release snapshots to appear on *snapshot.debian.org* to afford **mirrorrib** enough information to deduce with confidence which is the optimal snapshot for **mirrorrib** to reference. If **mirrorrib** fails and the release is new, then try again tomorrow. Forty-eight hours probably suffice. The author has never noticed the overall delay to take longer than a week.

EXAMPLES

If an old repository is locally present and English, French, German and the German of Germany are wanted,

```
mirrorrib -lp /home/jsmith/snapshot.stamp 10.9 0 amd64 \
 /home/jsmith/debian-10.8 \
 /home/jsmith/debian-10.9 \
 /home/jsmith/debian-cd-10.9.0 \
 mirror.example.org en fr de de_DE
```

Alternately, if no old repository is locally present and all available languages are wanted (caution: because no old repository, a huge download will ensue!),

```
mirrorrib -p /home/jsmith/snapshot.stamp 10.9 0 amd64 \
 /dev/null \
 /home/jsmith/debian-10.9 \
 /home/jsmith/debian-cd-10.9.0 \
 mirror.example.org @
```

Subsequently, user *jsmith*, who has run the program, can examine the snapshot timestamp by

```
TZ=UTC stat -c%y /home/jsmith/snapshot.stamp
```

If user *jsmith* has sufficient hard-drive space available, then he or she can pack up pristine copies of the new repositories by

```
cd /home/jsmith
tar --owner=0 --group=0 -cf debian-10.9{.tar,}
tar --owner=0 --group=0 -cf debian-cd-10.9.0{.tar,}
```

(Note that it is probably unnecessary and undesirable for user *jsmith* to compress the *.tar* files as *.tar.xz* or the like, for most of the content is already compressed. Note also that user *jsmith*'s language selection influences only which *Translation* files are retrieved. All packages belonging to the release for the selected architecture, including culture-specific packages, are retrieved in any case.)

Before running **mirrorrib**, if user *jsmith* has old files in two different old repositories, then he or she can issue

```
for A in $(find old2 -type f -printf '%P\n'); do
    [ -e "old1/$A" ] || {
        mkdir -pv "old1/$(dirname "$A")" \
          && ln -v "$(realpath -e old2)/$A" \
          "$(realpath -e old1)/$A"
    }
done
```

to merge the files of **old2/** into **old1/**.

After running **mirrorrib**, if user *jsmith* wishes to verify, against the *Release* files **mirrorrib** has fetched, the rest of the files it has fetched, then user *jsmith* can issue

```
cd /home/jsmith/debian-10.9
sha256sum -c --quiet <(mirrorrib -s 10.9 0 amd64 \
 /dev/null . /dev/null localhost @)
cd /home/jsmith/debian-cd-10.9.0/10.9.0/amd64/iso-cd
sha256sum -c --ignore-missing SHA256SUMS
```

Of the pair of **sha256sum**(1) commands, the first checks the main repository, takes perhaps half an hour, and is quiet if it finds no problems. The second checks the ISO CD repository's *netinst.iso* image, is much quicker, and prints a single line to verify the image. Observe that **mirrorrib**'s **–s** option requires a correct *LANGS* list, so the example's @ is correct only if @ was also issued earlier, during **mirrorrib**'s main run.

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SEE ALSO
df(1), **du**(1), **stat**(1), **chmod**(1), **date**(1), **mkdir**(1), **dirname**(1), **realpath**(1), **ln**(1), **find**(1), **tar**(1), **sha256sum**(1), **rsync**(1), **wget**(1), **debmirror**(1), **aptly**(1), **null**(4), **sources.list**(5), **apt-conf**(5), **locale**(7), **dpkg-reconfigure**(8), **apt-get**(8).