Guix Installation and Setup

This only needs to be done once per machine. If you have already completed the installation and setup, please proceed to perform a build.

Otherwise, you may choose from one of the following options to install Guix:

1. Using the official **shell installer script** ↓ skip to section
   - Maintained by Guix developers
   - Easiest (automatically performs *most* setup)
   - Works on nearly all Linux distributions
   - Only installs latest release
   - Binary installation only, requires high level of trust
   - Note: The script needs to be run as root, so it should be inspected before it's run
2. Using the official **binary tarball** ↓ skip to section
   - Maintained by Guix developers
   - Normal difficulty (full manual setup required)
   - Works on nearly all Linux distributions
   - Installs any release
   - Binary installation only, requires high level of trust
3. Using fanquake's **Docker image** ↗ external instructions
   - Maintained by fanquake
   - Easy (automatically performs *some* setup)
   - Works wherever Docker images work
   - Installs any release
   - Binary installation only, requires high level of trust
4. Using a **distribution-maintained package** ↓ skip to section
   - Maintained by distribution's Guix package maintainer
   - Normal difficulty (manual setup required)
   - Works only on distributions with Guix packaged, see: https://repology.org/project/guix/versions
   - Installs a release decided on by package maintainer
   - Source or binary installation depending on the distribution
5. Building **from source** ↓ skip to section
   - Maintained by you
   - Hard, but rewarding
   - Can be made to work on most Linux distributions
   - Installs any commit (more granular)
   - Source installation, requires lower level of trust

Options 1 and 2: Using the official shell installer script or binary tarball

The installation instructions for both the official shell installer script and the binary tarballs can be found in the GNU Guix Manual's Binary Installation section.

Note that running through the binary tarball installation steps is largely equivalent to manually performing what the shell installer script does.

Note that at the time of writing (July 5th, 2021), the shell installer script automatically creates an `/etc/profile.d` entry which the binary tarball installation instructions do not ask you to create. However, you will likely need this entry for better desktop integration. Please see this section for instructions on how to add a `/etc/profile.d/guix.sh` entry.

Regardless of which installation option you chose, the changes to `/etc/profile.d` will not take effect until the next shell or desktop session, so you should log out and log back in.

Option 3: Using fanquake's Docker image

Please refer to fanquake's instructions here.

Note that the `Dockerfile` is largely equivalent to running through the binary tarball installation steps.

Option 4: Using a distribution-maintained package

Note that this section is based on the distro packaging situation at the time of writing (July 2021). Guix is expected to be more widely packaged over time. For an up-to-date view on Guix's package status/version across distros, please see: https://repology.org/project/guix/versions

Debian 11 (Bullseye)/Ubuntu 21.04 (Hirsute Hippo)

Guix v1.2.0 is available as a distribution package starting in Debian 11 and Ubuntu 21.04.

Note that if you intend on using Guix without using any substitutes (more details here), v1.2.0 has a known problem when building GnuTLS from source. Solutions and workarounds are documented here.

To install:

```
sudo apt install guix
```

For up-to-date information on Debian and Ubuntu's release history:

- Debian release history
- Ubuntu release history

Arch Linux

Guix is available in the AUR as `guix`, please follow the installation instructions in the Arch Linux Wiki (live link, 2021/03/30 permalink) to install Guix.

At the time of writing (2021/03/30), the `check` phase will fail if the path to guix's build directory is longer than 36 characters due to an anachronistic character limit on the shebang line. Since the `check` phase happens after the `build` phase, which may take quite a long time, it is recommended that users either:

1. Skip the `check` phase
   - For `makepkg`: `makepkg --nocheck ...`
   - For `yay`: `yay --mflags="--nocheck" ...`
   - For `paru`: `paru --nocheck ...`
2. Or, check their build directory's length beforehand
   - For those building with `makepkg`: `pwd | wc -c`

Option 5: Building from source

Building Guix from source is a rather involved process but a rewarding one for those looking to minimize trust and maximize customizability (e.g. building a particular commit of Guix). Previous experience with using autotools-style build systems to build packages from source will be helpful. *hic sunt dracones*.

I strongly urge you to at least skim through the entire section once before you start issuing commands, as it will save you a lot of unnecessary pain and anguish.

Installing common build tools

There are a few basic build tools that are required for most things we'll build, so let's install them now:

Text transformation/i18n:

- `autopoint` (sometimes packaged in `gettext`)
- `help2man`
- `po4a`
- `texinfo`

Build system tools:

- `g++` w/ C++11 support
- `libtool`
- `autoconf`
- `automake`
- `pkg-config` (sometimes packaged as `pkgconf`)
- `make`
- `cmake`

Miscellaneous:

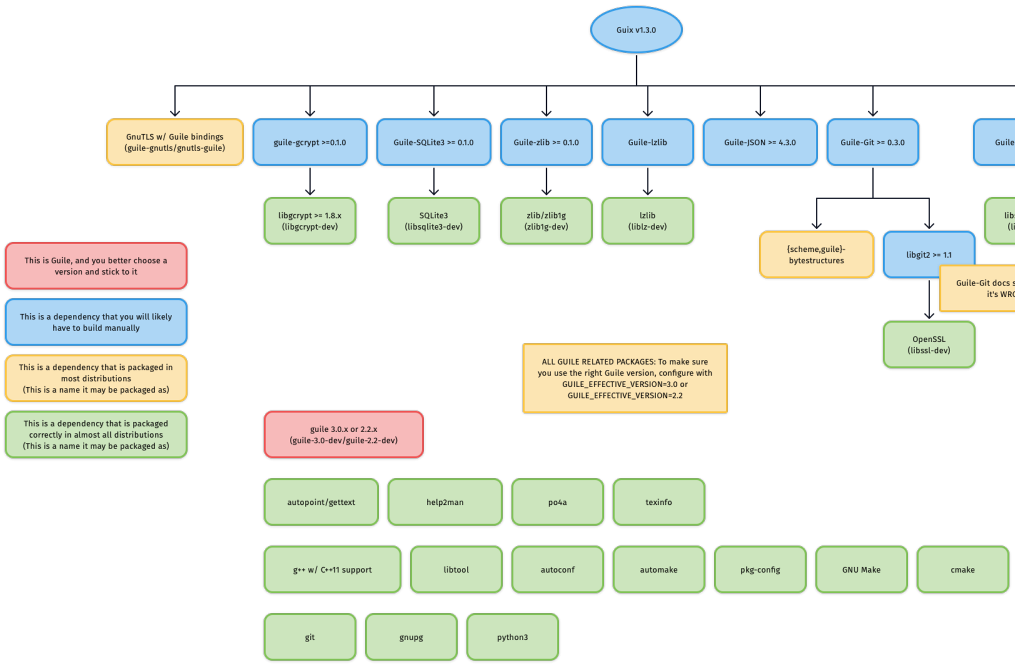
- `git`
- `gnupg`
- `python3`

Building and Installing Guix's dependencies

In order to build Guix itself from source, we need to first make sure that the necessary dependencies are installed and discoverable. The most up-to-date list of Guix's dependencies is kept in the "Requirements" section of the Guix Reference Manual.

Depending on your distribution, most or all of these dependencies may already be packaged and installable without manually building and installing.

For reference, the graphic below outlines Guix v1.3.0's dependency graph:


Guix v1.3.0
GnuTLS w/ Guile bindings (guile-gnutls/gnutls-guile)
guile-gcrypt >=0.1.0
Guile-SQLite3 >= 0.1.0
Guile-zlib >= 0.1.0
Guile-lzlib
Guile-JSON >= 4.3.0
Guile-Git >= 0.3.0
Guile-SSH >= 0.13.0
libgcrypt >= 1.8.x (libgcrypt-dev)
SQLite3 (libsqlite3-dev)
zlib/zlib1g (zlib1g-dev)
lzlib (liblz-dev)
{scheme,guile}-bytestructures
libgit2 >= 1.1
Guile-Git docs say >=0.28.0, it's WRONG
OpenSSL (libssl-dev)
libssh >= 0.7.3 (libssh-dev)
This is Guile, and you better choose a version and stick to it
This is a dependency that you will likely have to build manually
This is a dependency that is packaged in most distributions (This is a name it may be packaged as)
This is a dependency that is packaged correctly in almost all distributions (This is a name it may be packaged as)
ALL GUILE RELATED PACKAGES: To make sure you use the right Guile version, configure with GUILE_EFFECTIVE_VERSION=3.0 or GUILE_EFFECTIVE_VERSION=2.2
guile 3.0.x or 2.2.x (guile-3.0-dev/guile-2.2-dev)
autopoint/gettext
help2man
po4a
texinfo
g++ w/ C++11 support
libtool
autoconf
automake
pkg-config
GNU Make
cmake
git
gnupg
python3

Guile

Choosing a Guile version and sticking to it

One of the first things you need to decide is which Guile version you want to use: Guile v2.2 or Guile v3.0. Unlike the python2 to python3 transition, Guile v2.2 and Guile v3.0 are largely compatible, as evidenced by the fact that most Guile packages and even Guix itself support running on both.

What is important here is that you **choose one**, and you **remain consistent** with your choice throughout **all Guile-related packages**, no matter if they are installed via the distribution's package manager or installed from source. This is because the files for Guile packages are installed to directories which are separated based on the Guile version.

EXAMPLE: CHECKING THAT UBUNTU'S `GUILE-GIT` IS COMPATIBLE WITH YOUR CHOSEN GUILE VERSION

On Ubuntu Focal:

```
$ apt show guile-git
Package: guile-git
...
Depends: guile-2.2, guile-bytestructures, libgit2-dev
...
```

As you can see, the package `guile-git` depends on `guile-2.2`, meaning that it was likely built for Guile v2.2. This means that if you decided to use Guile v3.0 on Ubuntu Focal, you would need to build guile-git from source instead of using the distribution package.

On Ubuntu Hirsute:

```
$ apt show guile-git
Package: guile-git
```

```
...
Depends: guile-3.0 | guile-2.2, guile-bytestructures (>= 1.0.7-3~), libgit2-dev (>=
1.0)
...
```

In this case, `guile-git` depends on either `guile-3.0` or `guile-2.2`, meaning that it would work no matter what Guile version you decided to use.

CORNER CASE: MULTIPLE VERSIONS OF GUILE ON ONE SYSTEM

It is recommended to only install one version of Guile, so that build systems do not get confused about which Guile to use.

However, if you insist on having both Guile v2.2 and Guile v3.0 installed on your system, then you need to **consistently** specify one of `GUILE_EFFECTIVE_VERSION=3.0` or `GUILE_EFFECTIVE_VERSION=2.2` to all `./configure` invocations for Guix and its dependencies.

Installing Guile

Guile is most likely already packaged for your distribution, so after you have chosen a Guile version, install it via your distribution's package manager.

If your distribution splits packages into `-dev`-suffixed and non-`-dev`-suffixed sub-packages (as is the case for Debian-derived distributions), please make sure to install both. For example, to install Guile v2.2 on Debian/Ubuntu:

```
apt install guile-2.2 guile-2.2-dev
```

Mixing distribution packages and source-built packages

At the time of writing, most distributions have *some* of Guix's dependencies packaged, but not all. This means that you may want to install the distribution package for some dependencies, and manually build-from-source for others.

Distribution packages usually install to `/usr`, which is different from the default `./configure` prefix of source-built packages: `/usr/local`.

This means that if you mix-and-match distribution packages and source-built packages and do not specify exactly `--prefix=/usr` to `./configure` for source-built packages, you will need to augment the `GUILE_LOAD_PATH` and `GUILE_LOAD_COMPILED_PATH` environment variables so that Guile will look under the right prefix and find your source-built packages.

For example, if you are using Guile v2.2, and have Guile packages in the `/usr/local` prefix, either add the following lines to your `.profile` or `.bash_profile` so that the environment variable is properly set for all future shell logins, or paste the lines into a POSIX-style shell to temporarily modify the environment variables of your current shell session.

```
# Help Guile v2.2.x find packages in /usr/local
export
GUILE_LOAD_PATH="/usr/local/share/guile/site/2.2${GUILE_LOAD_PATH:+:}$GUILE_LOAD_PATH"

export GUILE_LOAD_COMPILED_PATH="/usr/local/lib/guile/2.2/site-
ccache${GUILE_LOAD_COMPILED_PATH:+:}$GUILE_COMPILED_LOAD_PATH"
```

Note that these environment variables are used to check for packages during `./configure`, so they should be set as soon as possible should you want to use a prefix other than `/usr`.

Building and installing source-built packages

***IMPORTANT**: A few dependencies have non-obvious quirks/errata which are documented in the sub-sections immediately below. Please read these sections before proceeding to build and install these packages.*

Although you should always refer to the README or INSTALL files for the most accurate information, most of these dependencies use autoconf-style build systems (check if there's a `configure.ac` file), and will likely do the right thing with the following:

Clone the repository and check out the latest release:

```
git clone <git-repo-of-dependency>/<dependency>.git
cd <dependency>
git tag -l  # check for the latest release
git checkout <latest-release>
```

For autoconf-based build systems (if `./autogen.sh` or `configure.ac` exists at the root of the repository):

```
./autogen.sh || autoreconf -vfi
./configure --prefix=<prefix>
make
sudo make install
```

For CMake-based build systems (if `CMakeLists.txt` exists at the root of the repository):

```
mkdir build && cd build
cmake .. -DCMAKE_INSTALL_PREFIX=<prefix>
sudo cmake --build . --target install
```

If you choose not to specify exactly `--prefix=/usr` to `./configure`, please make sure you've carefully read the [previous section] on mixing distribution packages and source-built packages.

Binding packages require `-dev`-suffixed packages

Relevant for:

- Everyone

When building bindings, the `-dev`-suffixed version of the original package needs to be installed. For example, building `Guile-zlib` on Debian-derived distributions requires that `zlib1g-dev` is installed.

When using bindings, the `-dev`-suffixed version of the original package still needs to be installed. This is particularly problematic when distribution packages are mispackaged like `guile-sqlite3` is in Ubuntu Focal such that installing `guile-sqlite3` does not automatically install `libsqlite3-dev` as a dependency.

Below is a list of relevant Guile bindings and their corresponding `-dev` packages in Debian at the time of writing.

Guile binding package	-dev Debian package
guile-gcrypt	libgcrypt-dev

guile-git	libgit2-dev
guile-lzlib	liblz-dev
guile-ssh	libssh-dev
guile-sqlite3	libsqlite3-dev
guile-zlib	zlib1g-dev

`guile-git` actually depends on `libgit2 >= 1.1`

Relevant for:

- Those building `guile-git` from source against `libgit2 < 1.1`
- Those installing `guile-git` from their distribution where `guile-git` is built against `libgit2 < 1.1`

As of v0.4.0, `guile-git` claims to only require `libgit2 >= 0.28.0`, however, it actually requires `libgit2 >= 1.1`, otherwise, it will be confused by a reference of `origin/keyring`: instead of interpreting the reference as "the 'keyring' branch of the 'origin' remote", the reference is interpreted as "the branch literally named 'origin/keyring'"

This is especially notable because Ubuntu Focal packages `libgit2 v0.28.4`, and `guile-git` is built against it.

Should you be in this situation, you need to build both `libgit2 v1.1.x` and `guile-git` from source.

Source: https://logs.guix.gnu.org/guix/2020-11-12.log#232527

`{scheme,guile}-bytestructures` v1.0.8 and v1.0.9 are broken for Guile v2.2

Relevant for:

- Those building `{scheme,guile}-bytestructures` from source against Guile v2.2

Commit 707eea3 introduced a regression for Guile v2.2 and was first included in v1.0.8, this was later corrected in commit ec9a721 and included in v1.1.0.

TL;DR If you decided to use Guile v2.2, do not use `{scheme,guile}-bytestructures` v1.0.8 or v1.0.9.

Building and Installing Guix itself

Start by cloning Guix:

```
git clone https://git.savannah.gnu.org/git/guix.git
cd guix
```

You will likely want to build the latest release, however, if the latest release when you're reading this is still 1.2.0 then you may want to use 95aca29 instead to avoid a problem in the GnuTLS test suite.

```
git branch -a -l 'origin/version-*'  # check for the latest release
git checkout <latest-release>
```

Bootstrap the build system:

```
./bootstrap
```

Configure with the recommended `--localstatedir` flag:

```
./configure --localstatedir=/var
```

Note: If you intend to hack on Guix in the future, you will need to supply the same `--localstatedir=` flag for all future Guix `./configure` invocations. See the last paragraph of this section for more details.

Build Guix (this will take a while):

```
make -j$(nproc)
```

Install Guix:

```
sudo make install
```

Post-"build from source" Setup

Creating and starting a `guix-daemon-original` service with a fixed `argv[0]`

At this point, guix will be installed to `${bindir}`, which is likely `/usr/local/bin` if you did not override directory variables at `./configure`-time. More information on standard Automake directory variables can be found here.

However, the Guix init scripts and service configurations for Upstart, systemd, SysV, and OpenRC are installed (in `${libdir}`) to launch `${localstatedir}/guix/profiles/per-user/root/current-guix/bin/guix-daemon`, which does not yet exist, and will only exist after `root` performs their first `guix pull`.

We need to create a `-original` version of these init scripts that's pointed to the binaries we just built and `make install`'ed in `${bindir}` (normally, `/usr/local/bin`).

Example for `systemd`, run as `root`:

```
# Create guix-daemon-original.service by modifying guix-daemon.service
libdir=# set according to your PREFIX (default is /usr/local/lib)
bindir="$(dirname $(command -v guix-daemon))"
sed -E -e "s|/\S*/guix/profiles/per-user/root/current-guix/bin/guix-
daemon|${bindir}/guix-daemon|" "${libdir}"/systemd/system/guix-daemon.service >
/etc/systemd/system/guix-daemon-original.service
chmod 664 /etc/systemd/system/guix-daemon-original.service

# Make systemd recognize the new service
systemctl daemon-reload

# Make sure that the non-working guix-daemon.service is stopped and disabled
systemctl stop guix-daemon
systemctl disable guix-daemon

# Make sure that the working guix-daemon-original.service is started and enabled
systemctl enable guix-daemon-original
systemctl start guix-daemon-original
```

Creating `guix-daemon` users / groups

Please see the relevant section in the Guix Reference Manual for more details.

Optional setup

At this point, you are set up to use Guix to build Bitcoin Core. However, if you want to polish your setup a bit and make it "what Guix intended", then read the next few subsections.

Add an `/etc/profile.d` entry

This section definitely does not apply to you if you installed Guix using:

1. The shell installer script
2. fanquake's Docker image
3. Debian's `guix` package

Background

Although Guix knows how to update itself and its packages, it does so in a non-invasive way (it does not modify `/usr/local/bin/guix`).

Instead, it does the following:

- After a `guix pull`, it updates `/var/guix/profiles/per-user/$USER/current-guix`, and creates a symlink targeting this directory at `$HOME/.config/guix/current`
- After a `guix install`, it updates `/var/guix/profiles/per-user/$USER/guix-profile`, and creates a symlink targeting this directory at `$HOME/.guix-profile`

Therefore, in order for these operations to affect your shell/desktop sessions (and for the principle of least astonishment to hold), their corresponding directories have to be added to well-known environment variables like `$PATH`, `$INFOPATH`, `$XDG_DATA_DIRS`, etc.

In other words, if `$HOME/.config/guix/current/bin` does not exist in your `$PATH`, a `guix pull` will have no effect on what `guix` you are using. Same goes for `$HOME/.guix-profile/bin`, `guix install`, and installed packages.

Helpfully, after a `guix pull` or `guix install`, a message will be printed like so:

```
hint: Consider setting the necessary environment variables by running:

     GUIX_PROFILE="$HOME/.guix-profile"
     . "$GUIX_PROFILE/etc/profile"

Alternately, see `guix package --search-paths -p "$HOME/.guix-profile"'.
```

However, this is somewhat tedious to do for both `guix pull` and `guix install` for each user on the system that wants to properly use `guix`. I recommend that you instead add an entry to `/etc/profile.d` instead. This is done by default when installing the Debian package later than 1.2.0-4 and when using the shell script installer.

Instructions

Create `/etc/profile.d/guix.sh` with the following content:

```
# _GUIX_PROFILE: `guix pull` profile
_GUIX_PROFILE="$HOME/.config/guix/current"
if [ -L $_GUIX_PROFILE ]; then
  export PATH="$_GUIX_PROFILE/bin${PATH:+:}$PATH"
  # Export INFOPATH so that the updated info pages can be found
  # and read by both /usr/bin/info and/or $GUIX_PROFILE/bin/info
  # When INFOPATH is unset, add a trailing colon so that Emacs
  # searches 'Info-default-directory-list'.
  export INFOPATH="$_GUIX_PROFILE/share/info:$INFOPATH"
fi

# GUIX_PROFILE: User's default profile
GUIX_PROFILE="$HOME/.guix-profile"
[ -L $GUIX_PROFILE ] || return
GUIX_LOCPATH="$GUIX_PROFILE/lib/locale"
export GUIX_PROFILE GUIX_LOCPATH

[ -f "$GUIX_PROFILE/etc/profile" ] && . "$GUIX_PROFILE/etc/profile"

# set XDG_DATA_DIRS to include Guix installations
export
XDG_DATA_DIRS="$GUIX_PROFILE/share:${XDG_DATA_DIRS:-/usr/local/share/:/usr/share/}"
```

Please note that this will not take effect until the next shell or desktop session (log out and log back in).

`guix pull` as root

Before you do this, you need to read the section on choosing your security model and adjust `guix` and `guix-daemon` flags according to your choice, as invoking `guix pull` may pull substitutes from substitute servers (which you may not want).

As mentioned in a previous section, Guix expects `${localstatedir}/guix/profiles/per-user/root/current-guix` to be populated with `root`'s Guix profile, `guix pull`-ed and built by some former version of Guix. However, this is not the case when we build from source. Therefore, we need to perform a `guix pull` as `root`:

```
sudo --login guix pull --branch=version-<latest-release-version>
# or
sudo --login guix pull --commit=<particular-commit>
```

`guix pull` is quite a long process (especially if you're using `--no-substitute`). If you encounter build problems, please refer to the troubleshooting section.

Note that running a bare `guix pull` with no commit or branch specified will pull the latest commit on Guix's master branch, which is likely fine, but not recommended.

If you installed Guix from source, you may get an error like the following:

```
error: while creating symlink '/root/.config/guix/current' No such file or directory
```

To resolve this, simply:

```
sudo mkdir -p /root/.config/guix
```

Then try the `guix pull` command again.

After the `guix pull` finishes successfully, `${localstatedir}/guix/profiles/per-user/root/current-guix` should be populated.

Using the newly-pulled `guix` by restarting the daemon

Depending on how you installed Guix, you should now make sure that your init scripts and service configurations point to the newly-pulled `guix-daemon`.

If you built Guix from source

If you followed the instructions for fixing argv[0], you can now do the following:

```
systemctl stop guix-daemon-original
systemctl disable guix-daemon-original

systemctl enable guix-daemon
systemctl start guix-daemon
```

If you installed Guix via the Debian/Ubuntu distribution packages

You will need to create a `guix-daemon-latest` service which points to the new `guix` rather than a pinned one.

```
# Create guix-daemon-latest.service by modifying guix-daemon.service
sed -E -e "s|/usr/bin/guix-daemon|/var/guix/profiles/per-user/root/current-
guix/bin/guix-daemon|" /etc/systemd/system/guix-daemon.service >
/lib/systemd/system/guix-daemon-latest.service
chmod 664 /lib/systemd/system/guix-daemon-latest.service

# Make systemd recognize the new service
systemctl daemon-reload

# Make sure that the old guix-daemon.service is stopped and disabled
systemctl stop guix-daemon
systemctl disable guix-daemon

# Make sure that the new guix-daemon-latest.service is started and enabled
systemctl enable guix-daemon-latest
systemctl start guix-daemon-latest
```

If you installed Guix via lantw44's Arch Linux AUR package

At the time of writing (July 5th, 2021) the systemd unit for "updated Guix" is `guix-daemon-latest.service`, therefore, you should do the following:

```
systemctl stop guix-daemon
systemctl disable guix-daemon
systemctl enable guix-daemon-latest
systemctl start guix-daemon-latest
```

Otherwise...

Simply do:

```
systemctl restart guix-daemon
```

Checking everything

If you followed all the steps above to make your Guix setup "prim and proper," you can check that you did everything properly by running through this checklist.

1. `/etc/profile.d/guix.sh` should exist and be sourced at each shell login
2. `guix describe` should not print `guix describe: error: failed to determine origin`, but rather something like:

   ```
   Generation 38   Feb 22 2021 16:39:31    (current)
     guix f350df4
       repository URL: https://git.savannah.gnu.org/git/guix.git
       branch: version-1.2.0
       commit: f350df405fbcd5b9e27e6b6aa500da7f101f41e7
   ```

3. `guix-daemon` should be running from `${localstatedir}/guix/profiles/per-user/root/current-guix`

Troubleshooting

Derivation failed to build

When you see a build failure like below:

```
building /gnu/store/...-foo-3.6.12.drv...
/ 'check' phasenote: keeping build directory `/tmp/guix-build-foo-3.6.12.drv-0'
builder for `/gnu/store/...-foo-3.6.12.drv' failed with exit code 1
build of /gnu/store/...-foo-3.6.12.drv failed
View build log at '/var/log/guix/drvs/../...-foo-3.6.12.drv.bz2'.
cannot build derivation `/gnu/store/...-qux-7.69.1.drv': 1 dependencies couldn't be
built
cannot build derivation `/gnu/store/...-bar-3.16.5.drv': 1 dependencies couldn't be
built
cannot build derivation `/gnu/store/...-baz-2.0.5.drv': 1 dependencies couldn't be
built
guix time-machine: error: build of `/gnu/store/...-baz-2.0.5.drv' failed
```

It means that `guix` failed to build a package named `foo`, which was a dependency of `qux`, `bar`, and `baz`. Importantly, note that the last "failed" line is not necessarily the root cause, the first "failed" line is.

Most of the time, the build failure is due to a spurious test failure or the package's build system/test suite breaking when running multi-threaded. To rebuild *just* this derivation in a single-threaded fashion (please don't forget to add other `guix` flags like `--no-substitutes` as appropriate):

```
$ guix build --cores=1 /gnu/store/...-foo-3.6.12.drv
```

If the single-threaded rebuild did not succeed, you may need to dig deeper. You may view `foo`'s build logs in `less` like so (please replace paths with the path you see in the build failure output):

```
$ bzcat /var/log/guix/drvs/../...-foo-3.6.12.drv.bz2 | less
```

`foo`'s build directory is also preserved and available at `/tmp/guix-build-foo-3.6.12.drv-0`. However, if you fail to build `foo` multiple times, it may be `/tmp/...drv-1` or `/tmp/...drv-2`. Always consult the build failure output for the most accurate, up-to-date information.

python(-minimal): [Errno 84] Invalid or incomplete multibyte or wide character

This error occurs when your `$TMPDIR` (default: /tmp) exists on a filesystem which rejects characters not present in the UTF-8 character code set. An example is ZFS with the utf8only=on option set.

More information: https://bugs.python.org/issue37584

GnuTLS: test-suite FAIL: status-request-revoked

The derivation is likely identified by: `/gnu/store/vhphki5sg9xkdhh2pbc8gi6vhpfzryf0-gnutls-3.6.12.drv`

This unfortunate error is most common for non-substitute builders who installed Guix v1.2.0. The problem stems from the fact that one of GnuTLS's tests uses a hardcoded certificate which expired on 2020-10-24.

What's more unfortunate is that this GnuTLS derivation is somewhat special in Guix's dependency graph and is not affected by the package transformation flags like `--without-tests=`.

The easiest solution for those encountering this problem is to install a newer version of Guix. However, there are ways to work around this issue:

Workaround 1: Using substitutes for this single derivation

If you've authorized the official Guix build farm's key (more info here), then you can use substitutes just for this single derivation by invoking the following:

```
guix build --substitute-urls="https://ci.guix.gnu.org"
/gnu/store/vhphki5sg9xkdhh2pbc8gi6vhpfzryf0-gnutls-3.6.12.drv
```

See this section for instructions on how to remove authorized keys if you don't want to keep the build farm's key authorized.

Workaround 2: Temporarily setting the system clock back

This workaround was described here.

Basically:

1. Turn off networking
2. Turn off NTP
3. Set system time to 2020-10-01
4. guix build --no-substitutes /gnu/store/vhphki5sg9xkdhh2pbc8gi6vhpfzryf0-gnutls-3.6.12.drv
5. Set system time back to accurate current time
6. Turn NTP back on
7. Turn networking back on

coreutils: FAIL: tests/tail-2/inotify-dir-recreate

The inotify-dir-create test fails on "remote" filesystems such as overlayfs (Docker's default filesystem) due to the filesystem being mistakenly recognized as non-remote.

A relatively easy workaround to this is to make sure that a somewhat traditional filesystem is mounted at `/tmp` (where `guix-daemon` performs its builds). For Docker users, this might mean using a volume, binding mounting from host, or (for those with enough RAM and swap) mounting a tmpfs using the `--tmpfs` flag.

Please see the following links for more details:

- An upstream coreutils bug has been filed: debbugs#47940
- A Guix bug detailing the underlying problem has been filed: guix-issues#47935
- A commit to skip this test in Guix has been merged into the core-updates branch: savannah/guix@6ba1058