Kdiff3

Christian Külker

2023-02-09

Contents

On the command line, slim applications are usually preferred, such as the `diff` command and its friends. However, sometimes (human eye) pattern matching is not very good on the command line, and Gnome or other lightweight desktop environments lack intuitive diff tools. KDE provides `kdiff3` and it has served well under Gnome and Mate for Debian for a long time up to and including Debian 9.13 Stretch.

However, `kdiff3` is useless on Debian 10 Buster. I am not sure if this is just buggy outside KDE or even inside KDE (it probably is). However, `kdiff3` is part of my toolchain, and

when I work on Debian 10 Buster, I need to move the task to Debian 9.13 Stretch, or in case of continuation on Debian 10 Buster, I need to move files or whole directory structures to Debian 9.13 Stretch just for comparison.

To avoid this inconvenience, I tried to find alternatives to `kdiff3` on Debian 10 Buster under Mate, but have not yet found a fully intuitive replacement. The search included `meld`, `diffuse merge tool`, `vimdiff` and `kompare`. While `meld` comes close, it is not very intuitive (to me). This document describes some attempts to compile and use different versions of `kdiff3` on different versions of Debian.

1   Versions

Debian	kdiff3	KDE	Qt	Window System	Via	Usage
11 Bullseye	1.8.5-1	5.111			package	PASS
10 Buster	1.8	5.37+	5.8		source	PARTIAL OK
10 Buster	1.7.90	5.54.9	5.11.3	xcb	package	FAIL
10 Buster	0.9.98		5		source	PASS
9 Stretch	0.9.98	4.14.26			package	PASS

The above `window system` is information provided by the application's About dialogue.

The old version 0.9.98 has its old homepage on Sourceforge. And it seems that the feature freeze was around 2014-07-04. However, minor updates and maintenance are done from time to time (updated 3 months ago - as of 2020-12-31).

The new version (Buster) seems to be under active development and offers a port to Qt5, but lacks basic functionality (see conclusion later).

With Debian 11 Bullseye, `kdiff3-qt` aka `KDiff3` is no longer developed and has been replaced by `kdiff3`.

2   Kdiff3 for Debian 11 Bullseye

The current package for `kdiff3` is `kdiff3-1.8.5` and is currently 1.5 years behind the latest source release 1.9.5 from 2022-02-23. As this is a general-purpose tool, it may be advisable to read the manual, for example to understand how to use `kdiff3` with git.

3   Kdiff3 for Debian 10 Buster

3.1   Building kdiff3 0.9.98 On Debian 10 Buster

3.1.1   Prerequisites

The prerequisite is that you have installed all the packages listed in the section `Building KDdiff3 1.8.4 on Debian 10 Buster`.

3.2   Compiling

This section presents two ways to compile the sources. The first will compile and install the binary into `/usr/local`, the second will modify the `qmake` project file and install the binary into `/srv/kdiff3-0.9.98`. For both, due to limitations of the handcrafted `configure' script and` qmake', a custom prefix cannot be set on the fly from the command line.

3.2.1   Preparation

For both locations, the following must be set up as root

```
export BUILD_USER=USER_ID
export BUILD_GROUP=GROUP_ID
mkdir -p /srv/{src,source,build,kdiff3-0.9.98}
chown $BUILD_USER:$BUILD_GROUP /srv/{build,source,src,kdiff3-0.9.98}
```

3.2.2   /usr/local

The easiest way is to use a local user `$BUILD_USER:$BUILD_GROUP` and build the project for `/usr/local`:

```
cd /srv/src
wget https://deac-riga.dl.sourceforge.net/project/kdiff3/kdiff3/0.9.98/\
kdiff3-0.9.98.tar.gz
cd /srv/build
tar xvzf ../src/kdiff3-0.9.98.tar.gz
cd /srv/build/kdiff3-0.9.98
./configure qt4
```

This will build `kdiff3` in `/srv/build/kdiff3-0.9.98/releaseQt/kdiff3` and it can be used from there. If you need to install it, do it as root:

```
cd releaseQt
make install
```

3.2.3 /srv/kdiff3-0.9.98

The following procedure will compile and install to `/srv/kdiff3-0.9.98`. Using a source and build directory is not strictly necessary, but helps to understand what is being changed during the build process.

```
cd /srv/src
wget https://deac-
↪  riga.dl.sourceforge.net/project/kdiff3/kdiff3/0.9.98/kdiff3-
↪  0.9.98.tar.gz
cd /srv/source
tar xvzf ../src/kdiff3-0.9.98.tar.gz
cp -a /srv/source/kdiff3-0.9.98 /srv/build/kdiff3-0.9.98
cd /srv/build/kdiff3-0.9.98
sed -i -e 's%target.path = /usr/local/bin%target.path = \
/srv/kdiff3-0.9.98/bin%' src-QT4/kdiff3.pro
sed -i -e 's%documentation.path = /usr/local/share/doc/kdiff3%\
documentation.path = /srv/kdiff3-0.9.98/doc/kdiff3%' src-QT4/kdiff3.pro
./configure qt4
cd releaseQt
make install
```

3.3 Usage

The binary can be installed in `/srv/kdiff3-0.9.98/bin/kdiff3`. The application also runs directly from its build location:

```
/srv/build/kdiff3-0.9.98/releaseQt/kdiff3
```

3.4 Building KDdiff3 1.8.4 On Debian 10 Buster

- Supported Qt-versions: 4.8, 5.2 or higher.
- Supported KDE-version: 4, 5

3.4.1 Prerequisites

Building `KDiff3` requires the following minimum versions:

- Qt 5.6 or later

- KF5 5.27+
- CMake 3.1
- ECM 1.8
- boost 1.66+

Supported compilers:

- MSVC 2015+
- gcc 5.0+
- clang 3.3+

```
aptitude install gettext qtbase5-dev extra-cmake-modules libboost-dev \
libkf5i18n-dev libkf5coreaddons-dev libkf5iconthemes-dev libkf5parts-dev \
libkf5doctools-dev libkf5crash-dev cmake gcc build-essential
```

3.4.2 Compiling

This will download, configure and build `kdiff3-1.8.4` and install it in `/srv/kdiff3-1.8.4`.

A clean way for `cmake` is to distinguish between the `source`, `build` and `install` directories. We will add the tar archive to `src`.

As root:

```
export BUILD_USER=USER_ID
export BUILD_GROUP=GROUP_ID
mkdir -p /srv/{build,source,src}/kdiff3-1.8.4
mkdir -p /srv/kdiff3-1.8.4/share
chown -R $BUILD_USER:$BUILD_GROUP /srv/{build,source,src}/kdiff3-1.8.4
```

Debian 10 Buster uses an old version of `cmake`: 3.13.4, which **doesn't** have the `--install` option. For the new version use `cmake --install /srv/build/kdiff3-1.8.4 --prefix /s` (untested). The following uses the old method.

As user `$BUILD_USER:$BUILD_GROUP`:

```
cd /srv/src
wget -nc https://download.kde.org/stable/kdiff3/kdiff3-1.8.4.tar.xz
cd /srv/source
tar xvJf ../src/kdiff3-1.8.4.tar.xz
cd /srv/build/kdiff3-1.8.4
cmake -DCMAKE_INSTALL_PREFIX:PATH=/srv/kdiff3-1.8.4
 ↪   /srv/source/kdiff3-1.8.4
make
make install
```

3.4.3   Usage

After installation `kdiff3` can be started:

```
/srv/kdiff3-1.8.4/bin/kdiff3
```

3.4.4   Critique

This is critique is valid for Debian 10 Buster.

Positive

- The compilation is straight forward
- The code compiles fast
- Dependency detection seems to work
- The binary starts
- Unlike the original version on Debian 10 Buster, directory comparison works to some degree (but not all)

Negative

- A directory comparison with symbolic links threw an error in the form of a GUI with many messages like "Mix of links and normal files", and the resulting `kdiff3` instance dropped the window manager (mate) boundaries and made it difficult to quit or move the instance via the window manager. Quitting via the `file'` menu and quit' worked. Subsequent starts dropped the window manager decorations. Even rebooting the system did not make the window manager appear again. It just shows "QMainWindow::addToolBar: invalid 'area' argument" when started from the command line. However, the window manager decorations are visible when executed via 'ssh -X' from a remote system. The above error message remains, so this is probably unrelated.
- Binary comparison of files does **not** work. This limits the directory compare mode. While `diff` is primarily used to understand the difference between text files, it is essential to know whether binary files are different (or not) when comparing directories.
- The overview info box regarding equal and different file count is not displayed
- The writing of the application has been changed from `kdiff3` to `KDiff3` for no reason (this was also partly observed in the old version).

3.5   Conclusion

In view of the problems found in `KDiff3` 1.8.4, I would recommend using the old version `kdiff3` 0.9.98 on Debian 10 Buster. No guarantee. It seems to be an example of software

'innovation' where the application now supports Qt5 instead of Qt4 and a 'better' build system, but a reduction in features and in this case lacks basic features like comparing binary files or handling symbolic links. Sometimes software is like wine, the older the better.

3.6 Update on kdiff3-1.8.5

The compilation is similar to kdiff3-1.8.4, some problems have been fixed, like the vanishing border. However, links cause the application to crash. So the previous conclusion is still valid. However, after using this version on Debian 11 Bullseye from package, it could be that the build process introduced these bugs.

4 Links

4.1 Old Version

- old homepage
- Handbook 0.9.92

4.2 New Version

- source
- download
- Handbook 1.08.02
- Handbook 1.08.70
- 1.8.4

5 History

Version	Date	Notes
0.1.3	2023-02-09	Improve writing
0.1.2	2022-06-20	Shell->bash, update Debian 11, hierarchy
0.1.1	2020-12-31	Compilation of KDiff3-1.8.4 on Debian 10 Buster
0.1.0	2020-07-07	Initial release

6   Disclaimer of Warranty

THERE IS NO WARRANTY FOR THIS INFORMATION, DOCUMENTS AND PROGRAMS, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE INFORMATION, DOCUMENT OR THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE INFORMATION, DOCUMENTS AND PROGRAMS IS WITH YOU. SHOULD THE INFORMATION, DOCUMENTS OR PROGRAMS PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

7   Limitation of Liability

IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MODIFIES AND/OR CONVEYS THE INFORMATION, DOCUMENTS OR PROGRAMS AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE INFORMATION, DOCUMENTS OR PROGRAMS (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE INFORMATION, DOCUMENTS OR PROGRAMS TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.