Klaudia Bielak
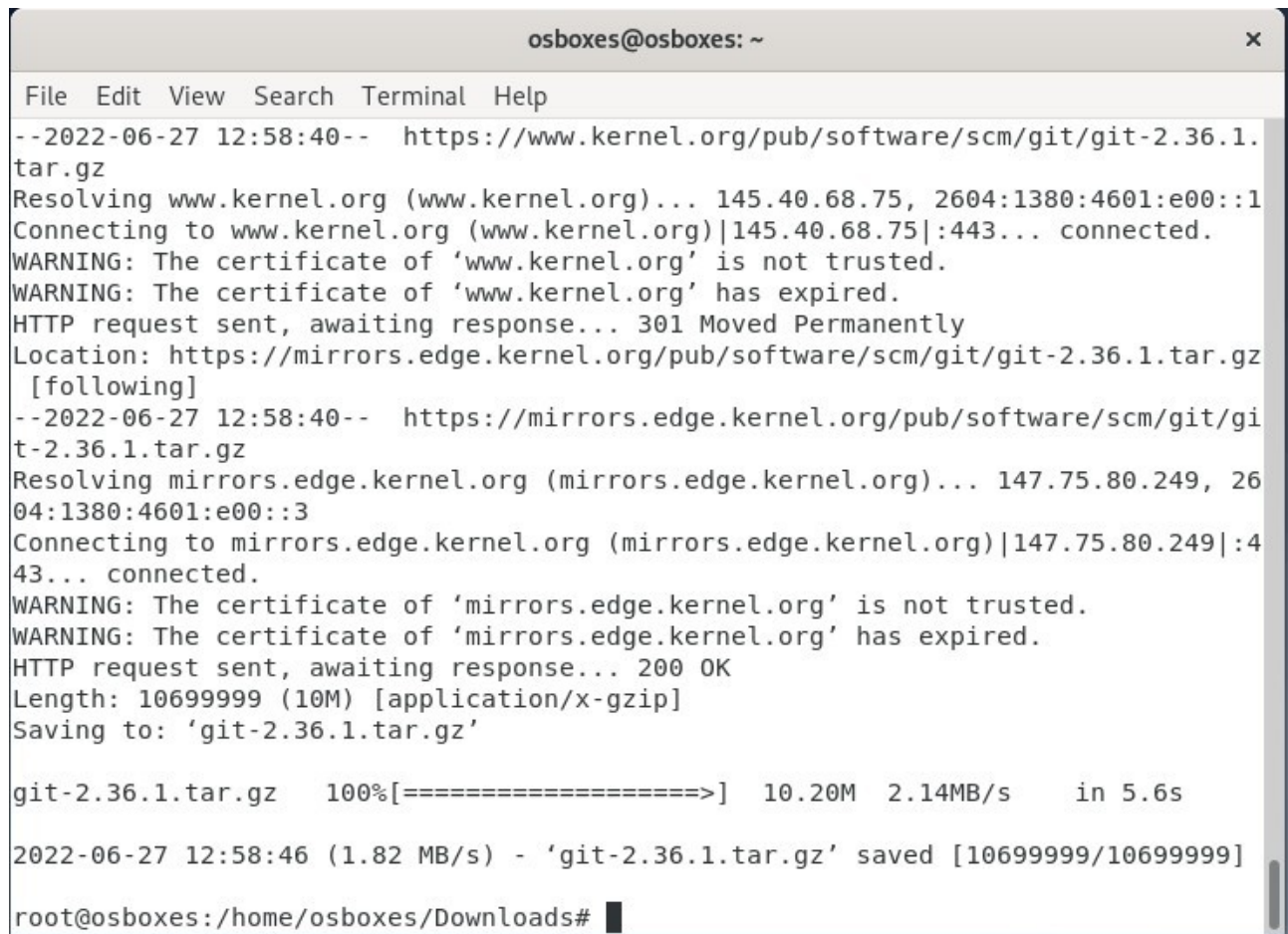
Git jest to darmowy system kontroli wersji o otwartym kodzie źródłowym. Jest stosunkowo łatwy do nauczenia i zajmuje niewiele miejsca. Jego cele to szybkość, integralność danych i obsługa rozproszonych, nieliniowych przepływów pracy (tysiące równoległych gałęzi działających w różnych systemach).

- Pobranie plików źródłowych w formacie **tar.gz** za pomocą **wget**


```
osboxes@osboxes: ~                                        ×

File  Edit  View  Search  Terminal  Help

--2022-06-27 12:58:40--  https://www.kernel.org/pub/software/scm/git/git-2.36.1.
tar.gz
Resolving www.kernel.org (www.kernel.org)... 145.40.68.75, 2604:1380:4601:e00::1
Connecting to www.kernel.org (www.kernel.org)|145.40.68.75|:443... connected.
WARNING: The certificate of 'www.kernel.org' is not trusted.
WARNING: The certificate of 'www.kernel.org' has expired.
HTTP request sent, awaiting response... 301 Moved Permanently
Location: https://mirrors.edge.kernel.org/pub/software/scm/git/git-2.36.1.tar.gz
 [following]
--2022-06-27 12:58:40--  https://mirrors.edge.kernel.org/pub/software/scm/git/gi
t-2.36.1.tar.gz
Resolving mirrors.edge.kernel.org (mirrors.edge.kernel.org)... 147.75.80.249, 26
04:1380:4601:e00::3
Connecting to mirrors.edge.kernel.org (mirrors.edge.kernel.org)|147.75.80.249|:4
43... connected.
WARNING: The certificate of 'mirrors.edge.kernel.org' is not trusted.
WARNING: The certificate of 'mirrors.edge.kernel.org' has expired.
HTTP request sent, awaiting response... 200 OK
Length: 10699999 (10M) [application/x-gzip]
Saving to: 'git-2.36.1.tar.gz'

git-2.36.1.tar.gz   100%[===================>]  10.20M  2.14MB/s    in 5.6s

2022-06-27 12:58:46 (1.82 MB/s) - 'git-2.36.1.tar.gz' saved [10699999/10699999]

root@osboxes:/home/osboxes/Downloads#
```

-Rozpakowanie archiwum **tar -zxvf git 2.36.1.tar.gz**

```
root@osboxes:/home/osboxes/Downloads# tar -zxvf git-2.36.1.tar.gz
git-2.36.1/
git-2.36.1/.cirrus.yml
git-2.36.1/.clang-format
git-2.36.1/.editorconfig
git-2.36.1/.gitattributes
git-2.36.1/.github/
git-2.36.1/.github/CONTRIBUTING.md
git-2.36.1/.github/PULL_REQUEST_TEMPLATE.md
git-2.36.1/.github/workflows/
git-2.36.1/.github/workflows/check-whitespace.yml
git-2.36.1/.github/workflows/l10n.yml
git-2.36.1/.github/workflows/main.yml
git-2.36.1/.gitignore
git-2.36.1/.gitmodules
git-2.36.1/.mailmap
git-2.36.1/.tsan-suppressions
git-2.36.1/CODE_OF_CONDUCT.md
git-2.36.1/COPYING
git-2.36.1/Documentation/
git-2.36.1/Documentation/.gitattributes
git-2.36.1/Documentation/.gitignore
git-2.36.1/Documentation/CodingGuidelines
```

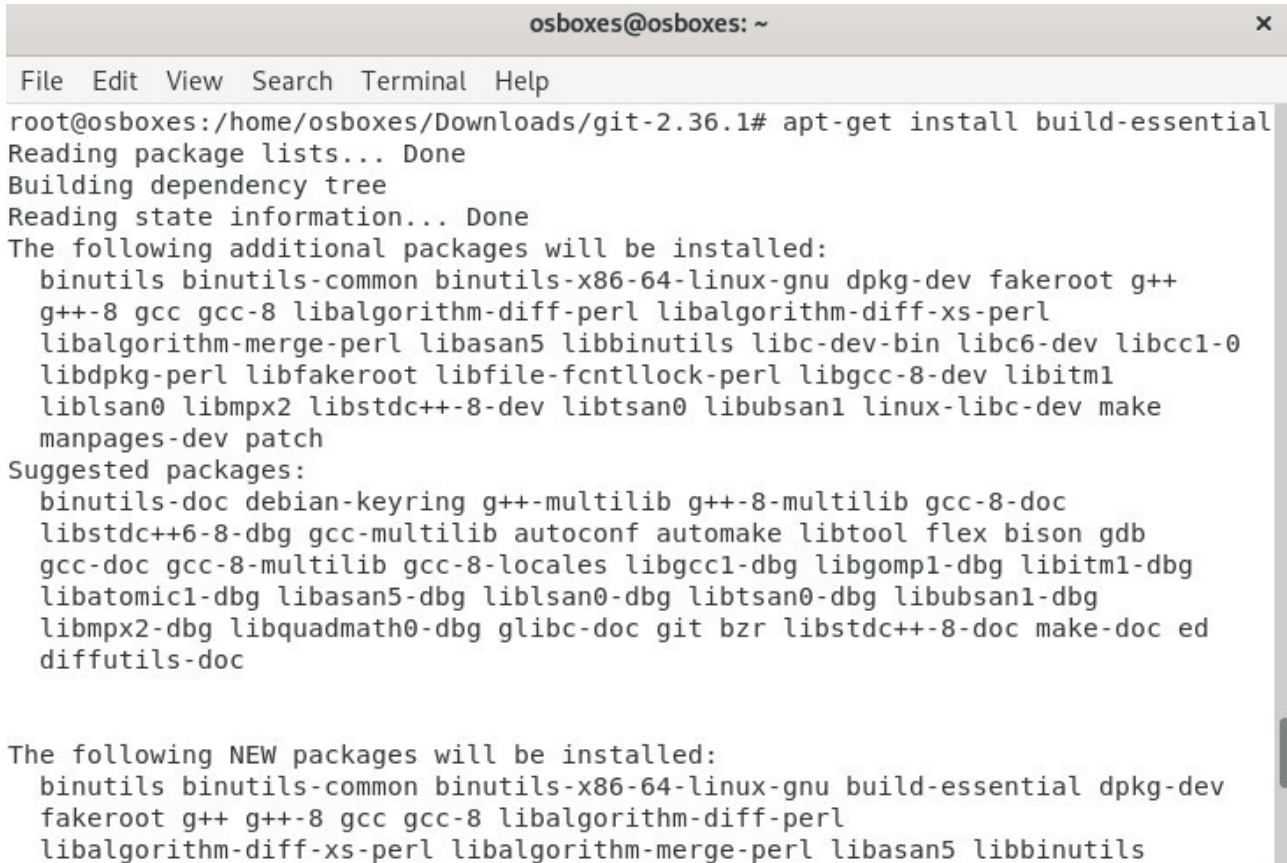| osboxes@osboxes: ~	✕

File   Edit   View   Search   Terminal   Help

```
git-2.36.1/wt-status.h
git-2.36.1/xdiff-interface.c
git-2.36.1/xdiff-interface.h
git-2.36.1/xdiff/
git-2.36.1/xdiff/xdiff.h
git-2.36.1/xdiff/xdiffi.c
git-2.36.1/xdiff/xdiffi.h
git-2.36.1/xdiff/xemit.c
git-2.36.1/xdiff/xemit.h
git-2.36.1/xdiff/xhistogram.c
git-2.36.1/xdiff/xinclude.h
git-2.36.1/xdiff/xmacros.h
git-2.36.1/xdiff/xmerge.c
git-2.36.1/xdiff/xpatience.c
git-2.36.1/xdiff/xprepare.c
git-2.36.1/xdiff/xprepare.h
git-2.36.1/xdiff/xtypes.h
git-2.36.1/xdiff/xutils.c
git-2.36.1/xdiff/xutils.h
git-2.36.1/zlib.c
git-2.36.1/configure
git-2.36.1/version
git-2.36.1/git-gui/version
root@osboxes:/home/osboxes/Downloads# ls
git-2.36.1  git-2.36.1.tar.gz
root@osboxes:/home/osboxes/Downloads# ▊
```

-Sprawdzenie czy jest zainstalowany pakiet **build-essential** niezbędny do kompilacji oprogramowania **dpkg -s build-essential**

```
root@osboxes:/home/osboxes/Downloads/git-2.36.1# dpkg -s build-essential
dpkg-query: package 'build-essential' is not installed and no information is ava
ilable
Use dpkg --info (= dpkg-deb --info) to examine archive files.
root@osboxes:/home/osboxes/Downloads/git-2.36.1#
```

-Zainstalowanie pakietu **sudo apt-get install build-esential**

```
                          osboxes@osboxes: ~                              ×

File  Edit  View  Search  Terminal  Help
root@osboxes:/home/osboxes/Downloads/git-2.36.1# apt-get install build-essential
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  binutils binutils-common binutils-x86-64-linux-gnu dpkg-dev fakeroot g++
  g++-8 gcc gcc-8 libalgorithm-diff-perl libalgorithm-diff-xs-perl
  libalgorithm-merge-perl libasan5 libbinutils libc-dev-bin libc6-dev libcc1-0
  libdpkg-perl libfakeroot libfile-fcntllock-perl libgcc-8-dev libitm1
  liblsan0 libmpx2 libstdc++-8-dev libtsan0 libubsan1 linux-libc-dev make
  manpages-dev patch
Suggested packages:
  binutils-doc debian-keyring g++-multilib g++-8-multilib gcc-8-doc
  libstdc++6-8-dbg gcc-multilib autoconf automake libtool flex bison gdb
  gcc-doc gcc-8-multilib gcc-8-locales libgcc1-dbg libgomp1-dbg libitm1-dbg
  libatomic1-dbg libasan5-dbg liblsan0-dbg libtsan0-dbg libubsan1-dbg
  libmpx2-dbg libquadmath0-dbg glibc-doc git bzr libstdc++-8-doc make-doc ed
  diffutils-doc


The following NEW packages will be installed:
  binutils binutils-common binutils-x86-64-linux-gnu build-essential dpkg-dev
  fakeroot g++ g++-8 gcc gcc-8 libalgorithm-diff-perl
  libalgorithm-diff-xs-perl libalgorithm-merge-perl libasan5 libbinutils
```

```
Setting up libbinutils:amd64 (2.31.1-16) ...
Setting up libc-dev-bin (2.28-10+deb10u1) ...
Setting up libalgorithm-diff-xs-perl (0.04-5+b1) ...
Setting up libcc1-0:amd64 (8.3.0-6) ...
Setting up liblsan0:amd64 (8.3.0-6) ...
Setting up libitm1:amd64 (8.3.0-6) ...
Setting up libalgorithm-merge-perl (0.08-3) ...
Setting up binutils-x86-64-linux-gnu (2.31.1-16) ...
Setting up libtsan0:amd64 (8.3.0-6) ...
Setting up binutils (2.31.1-16) ...
Setting up dpkg-dev (1.19.8) ...
Setting up libgcc-8-dev:amd64 (8.3.0-6) ...
Setting up libc6-dev:amd64 (2.28-10+deb10u1) ...
Setting up libstdc++-8-dev:amd64 (8.3.0-6) ...
Setting up gcc-8 (8.3.0-6) ...
Setting up gcc (4:8.3.0-1) ...
Setting up g++-8 (8.3.0-6) ...
Setting up g++ (4:8.3.0-1) ...
update-alternatives: using /usr/bin/g++ to provide /usr/bin/c++ (c++) in auto mo
de
Setting up build-essential (12.6) ...
Processing triggers for man-db (2.8.5-2) ...
Processing triggers for libc-bin (2.28-10+deb10u1) ...
root@osboxes:/home/osboxes/Downloads/git-2.36.1#
```

-Instalacja zależnych pakietów, które nie są zainstalowane w systemie:
- -zlib
- -ssh
- -Perl
- -curl
- -expat
- -tk
- -gettext
- -Python
- -autoconf

-Konfiguracja oprogramowania **./configure**

```
root@osboxes:/home/osboxes/Downloads/git-2.36.1# ./configure
configure: Setting lib to 'lib' (the default)
configure: Will try -pthread then -lpthread to enable POSIX Threads.
configure: CHECKS for site configuration
checking for gcc... gcc
checking whether the C compiler works... yes
checking for C compiler default output file name... a.out
checking for suffix of executables...
checking whether we are cross compiling... no
checking for suffix of object files... o
checking whether we are using the GNU C compiler... yes
checking whether gcc accepts -g... yes
checking for gcc option to accept ISO C89... none needed
checking how to run the C preprocessor... gcc -E
checking for grep that handles long lines and -e... /usr/bin/grep
checking for egrep... /usr/bin/grep -E
checking for ANSI C header files... yes
checking for sys/types.h... yes
checking for sys/stat.h... yes
checking for stdlib.h... yes
checking for string.h... yes
checking for memory.h... yes
checking for strings.h... yes
```

```
checking for memmem... yes
checking for library containing memmem... none required
checking for strlcpy... no
checking for uintmax_t... yes
checking for strtoumax... yes
checking for library containing strtoumax... none required
checking for setenv... yes
checking for library containing setenv... none required
checking for unsetenv... yes
checking for library containing unsetenv... none required
checking for mkdtemp... yes
checking for library containing mkdtemp... none required
checking for initgroups... yes
checking for library containing initgroups... none required
checking for getdelim... yes
checking for library containing getdelim... none required
checking for BSD sysctl... no
checking for POSIX Threads with ''... no
checking for POSIX Threads with '-mt'... no
checking for POSIX Threads with '-pthread'... yes
configure: creating ./config.status
config.status: creating config.mak.autogen
config.status: executing config.mak.autogen commands
root@osboxes:/home/osboxes/Downloads/git-2.36.1# ▮
```

-Kompilacja oprogramowania **make**

```
root@osboxes:/home/osboxes/Downloads/git-2.36.1# make -j4
GIT_VERSION = 2.36.1
    * new build flags
    CC fuzz-commit-graph.o
    CC fuzz-pack-headers.o
    CC fuzz-pack-idx.o
    CC daemon.o
    CC common-main.o
    * new link flags
    CC abspath.o
    CC add-interactive.o
    CC add-patch.o
    CC advice.o
    CC alias.o
    CC alloc.o
    CC apply.o
    CC archive-tar.o
    CC archive-zip.o
    CC archive.o
    * new prefix flags
    CC base85.o
    CC bisect.o
    CC blame.o



    CC t/helper/test-string-list.o
    CC t/helper/test-submodule-config.o
    CC t/helper/test-submodule-nested-repo-config.o
    CC t/helper/test-subprocess.o
    CC t/helper/test-trace2.o
    CC t/helper/test-urlmatch-normalization.o
    CC t/helper/test-userdiff.o
    CC t/helper/test-wildmatch.o
    CC t/helper/test-windows-named-pipe.o
    CC t/helper/test-write-cache.o
    CC t/helper/test-xml-encode.o
    MKDIR -p bin-wrappers
    GEN bin-wrappers/git
    GEN bin-wrappers/git-receive-pack
    GEN bin-wrappers/git-shell
    GEN bin-wrappers/git-upload-archive
    GEN bin-wrappers/git-upload-pack
    GEN bin-wrappers/git-cvsserver
    GEN bin-wrappers/test-fake-ssh
    GEN bin-wrappers/test-tool
    AR reftable/libreftable_test.a
    LINK t/helper/test-fake-ssh
    LINK t/helper/test-tool
root@osboxes:/home/osboxes/Downloads/git-2.36.1#
```

-Instalacja oprogramowania **sudo make install**

```
root@osboxes:/home/osboxes/Downloads/git-2.36.1# make install
    SUBDIR git-gui
    SUBDIR gitk-git
    SUBDIR templates
install -d -m 755 '/usr/local/bin'
install -d -m 755 '/usr/local/libexec/git-core'
install    git-daemon git-http-backend git-imap-send git-sh-i18n--envsubst git-s
hell '/usr/local/libexec/git-core'
install git-bisect git-difftool--helper git-filter-branch git-merge-octopus git-
merge-one-file git-merge-resolve git-mergetool git-quiltimport git-request-pull
git-submodule git-web--browse git-add--interactive git-archimport git-cvsexportc
ommit git-cvsimport git-cvsserver git-send-email git-svn git-p4 git-instaweb '/u
sr/local/libexec/git-core'
install -m 644  git-mergetool--lib git-sh-i18n git-sh-setup '/usr/local/libexec/
git-core'
install  git git-receive-pack git-shell git-upload-archive git-upload-pack '/usr
/local/bin'
install git-cvsserver '/usr/local/bin'
make -C templates DESTDIR='' install
make[1]: Entering directory '/home/osboxes/Downloads/git-2.36.1/templates'
install -d -m 755 '/usr/local/share/git-core/templates'
(cd blt && tar cf - .) | \
(cd '/usr/local/share/git-core/templates' && umask 022 && tar xof -)
make[1]: Leaving directory '/home/osboxes/Downloads/git-2.36.1/templates'
install -d -m 755 '/usr/local/libexec/git-core/mergetools'
```

```
 git-verify-pack git-verify-tag git-worktree git-write-tree git-cherry git-cherr
y-pick git-format-patch git-fsck-objects git-init git-maintenance git-merge-subt
ree git-restore git-show git-stage git-status git-switch git-whatchanged; do \
        rm -f "$execdir/$p" && \
        if test -z ""; \
        then \
                test -n "" && \
                ln -s "$destdir_from_execdir_SQ/bin/git" "$execdir/$p" || \
                { test -z "" && \
                  ln "$execdir/git" "$execdir/$p" 2>/dev/null || \
                  ln -s "git" "$execdir/$p" 2>/dev/null || \
                  cp "$execdir/git" "$execdir/$p" || exit; }; \
        fi \
done && \
remote_curl_aliases="" && \
for p in $remote_curl_aliases; do \
        rm -f "$execdir/$p" && \
        test -n "" && \
        ln -s "git-remote-http" "$execdir/$p" || \
        { test -z "" && \
          ln "$execdir/git-remote-http" "$execdir/$p" 2>/dev/null || \
          ln -s "git-remote-http" "$execdir/$p" 2>/dev/null || \
          cp "$execdir/git-remote-http" "$execdir/$p" || exit; } \
done
root@osboxes:/home/osboxes/Downloads/git-2.36.1#
```

-Usunięcie plików konfiguracyjnych z folderu źródłowego **sudo make clean**

```
root@osboxes:/home/osboxes/Downloads/git-2.36.1# make clean
rm -f /home/osboxes/Downloads/git-2.36.1/./*.gcda /home/osboxes/Downloads/git-2.
36.1/builtin/*.gcda /home/osboxes/Downloads/git-2.36.1/compat/*.gcda /home/osbox
es/Downloads/git-2.36.1/compat/linux/*.gcda /home/osboxes/Downloads/git-2.36.1/c
ompat/simple-ipc/*.gcda /home/osboxes/Downloads/git-2.36.1/contrib/scalar/*.gcda
 /home/osboxes/Downloads/git-2.36.1/ewah/*.gcda /home/osboxes/Downloads/git-2.36
.1/negotiator/*.gcda /home/osboxes/Downloads/git-2.36.1/refs/*.gcda /home/osboxe
s/Downloads/git-2.36.1/reftable/*.gcda /home/osboxes/Downloads/git-2.36.1/sha1dc
/*.gcda /home/osboxes/Downloads/git-2.36.1/sha256/block/*.gcda /home/osboxes/Dow
nloads/git-2.36.1/t/helper/*.gcda /home/osboxes/Downloads/git-2.36.1/trace2/*.gc
da /home/osboxes/Downloads/git-2.36.1/xdiff/*.gcda
rm -f /home/osboxes/Downloads/git-2.36.1/./*.gcno /home/osboxes/Downloads/git-2.
36.1/builtin/*.gcno /home/osboxes/Downloads/git-2.36.1/compat/*.gcno /home/osbox
es/Downloads/git-2.36.1/compat/linux/*.gcno /home/osboxes/Downloads/git-2.36.1/c
ompat/simple-ipc/*.gcno /home/osboxes/Downloads/git-2.36.1/contrib/scalar/*.gcno
 /home/osboxes/Downloads/git-2.36.1/ewah/*.gcno /home/osboxes/Downloads/git-2.36
.1/negotiator/*.gcno /home/osboxes/Downloads/git-2.36.1/refs/*.gcno /home/osboxe
s/Downloads/git-2.36.1/reftable/*.gcno /home/osboxes/Downloads/git-2.36.1/sha1dc
/*.gcno /home/osboxes/Downloads/git-2.36.1/sha256/block/*.gcno /home/osboxes/Dow
nloads/git-2.36.1/t/helper/*.gcno /home/osboxes/Downloads/git-2.36.1/trace2/*.gc
no /home/osboxes/Downloads/git-2.36.1/xdiff/*.gcno
rm -f ./*.gcov builtin/*.gcov compat/*.gcov compat/linux/*.gcov compat/simple-ip
c/*.gcov contrib/scalar/*.gcov ewah/*.gcov negotiator/*.gcov refs/*.gcov reftabl
e/*.gcov sha1dc/*.gcov sha256/block/*.gcov t/helper/*.gcov trace2/*.gcov xdiff/*
```

```
make -C templates/ clean
make[1]: Entering directory '/home/osboxes/Downloads/git-2.36.1/templates'
rm -f -r blt boilerplates.made
make[1]: Leaving directory '/home/osboxes/Downloads/git-2.36.1/templates'
make -C t/ clean
make[1]: Entering directory '/home/osboxes/Downloads/git-2.36.1/t'
rm -f -r 'chainlinttmp'
rm -f -r 'trash directory'.* 'test-results'
rm -f -r valgrind/bin
rm -f .prove
make[1]: Leaving directory '/home/osboxes/Downloads/git-2.36.1/t'
make -C gitk-git clean
make[1]: Entering directory '/home/osboxes/Downloads/git-2.36.1/gitk-git'
rm -f gitk-wish po/*.msg GIT-TCLTK-VARS
make[1]: Leaving directory '/home/osboxes/Downloads/git-2.36.1/gitk-git'
make -C git-gui clean
make[1]: Entering directory '/home/osboxes/Downloads/git-2.36.1/git-gui'
rm -rf git-gui lib/tclIndex po/*.msg
rm -rf GIT-VERSION-FILE GIT-GUI-VARS
make[1]: Leaving directory '/home/osboxes/Downloads/git-2.36.1/git-gui'
rm -f GIT-VERSION-FILE GIT-CFLAGS GIT-LDFLAGS GIT-BUILD-OPTIONS
rm -f GIT-USER-AGENT GIT-PREFIX
rm -f GIT-SCRIPT-DEFINES GIT-PERL-DEFINES GIT-PERL-HEADER GIT-PYTHON-VARS
root@osboxes:/home/osboxes/Downloads/git-2.36.1# █
```

-Działająca aplikacja

```
root@osboxes:/home/osboxes/Downloads/git-2.36.1# git --version
git version 2.36.1
root@osboxes:/home/osboxes/Downloads/git-2.36.1# git --help
usage: git [--version] [--help] [-C <path>] [-c <name>=<value>]
           [--exec-path[=<path>]] [--html-path] [--man-path] [--info-path]
           [-p | --paginate | -P | --no-pager] [--no-replace-objects] [--bare]
           [--git-dir=<path>] [--work-tree=<path>] [--namespace=<name>]
           [--super-prefix=<path>] [--config-env=<name>=<envvar>]
           <command> [<args>]

These are common Git commands used in various situations:

start a working area (see also: git help tutorial)
   clone     Clone a repository into a new directory
   init      Create an empty Git repository or reinitialize an existing one

work on the current change (see also: git help everyday)
   add       Add file contents to the index
   mv        Move or rename a file, a directory, or a symlink
   restore   Restore working tree files
   rm        Remove files from the working tree and from the index

examine the history and state (see also: git help revisions)
   bisect    Use binary search to find the commit that introduced a bug
   diff      Show changes between commits, commit and working tree, etc
```

Wnioski
Instalacja się udała, została spełniona większość zależności wymienionych w dokumentacji (niektóre były opcjonalne). Najwięcej czasu pochłonęło szukanie i sprawdzanie czy dany pakiet jest zainstalowany, do czego służy, jak dokładnie się nazywa. Na koniec jest problem z wykonaniem polecenia **make uninstall**, ale prawdopodobnie może nie być możliwa taka opcja/trzeba by było zrobić to w inny sposób.