

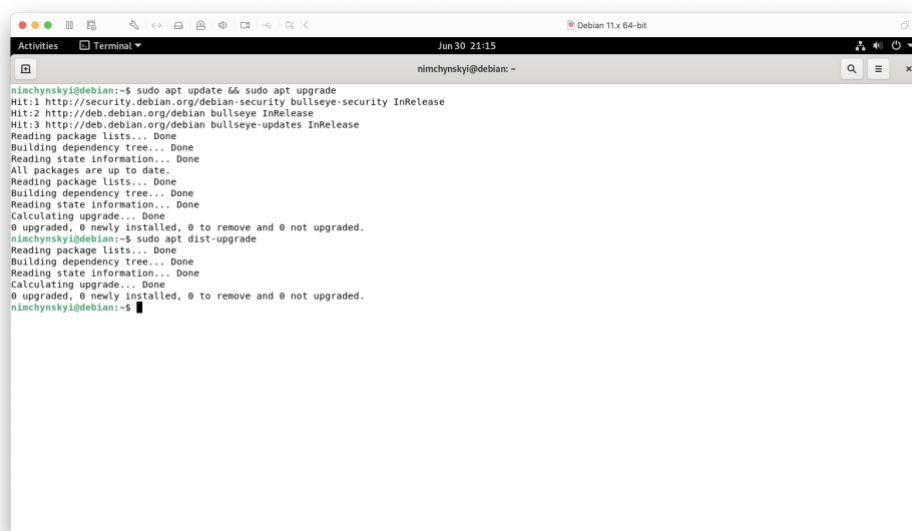
Instalacja git z źródeł

Dmytro Nimchynskyi

Wybrałem **git** jako oprogramowanie do instalacji ze źródeł. **Git** to system kontroli wersji. Służy on więc do zarządzania historią kodu źródłowego.

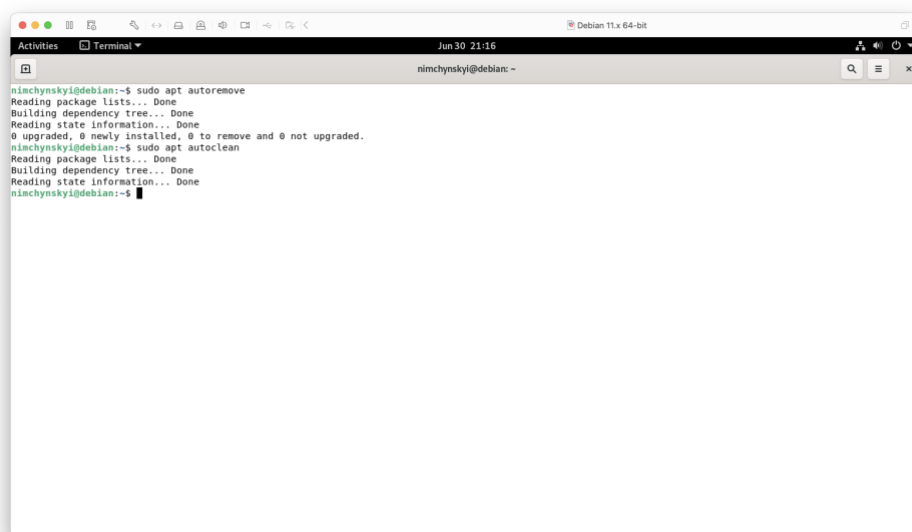
- pozwala na jednoczesną pracę na tym samym kodzie przez kilka osób
- umożliwia transferowanie i łączenie zmian z różnych branchy w jednym projekcie
- pozwala na pracę offline we własnym repozytorium
- jest szybki i wydajny

Przed rozpoczęciem instalacji oprogramowania aktualizuję swój system Debian 11 (VMWare Fusion).



```
nimchynskyi@debian:~$ sudo apt update && sudo apt upgrade
Hit:1 http://security.debian.org/debian-security bullseye-security InRelease
Hit:2 http://deb.debian.org/debian bullseye InRelease
Hit:3 http://deb.debian.org/debian bullseye-updates InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
All packages are up to date.
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
nimchynskyi@debian:~$ sudo apt dist-upgrade
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
nimchynskyi@debian:~$
```

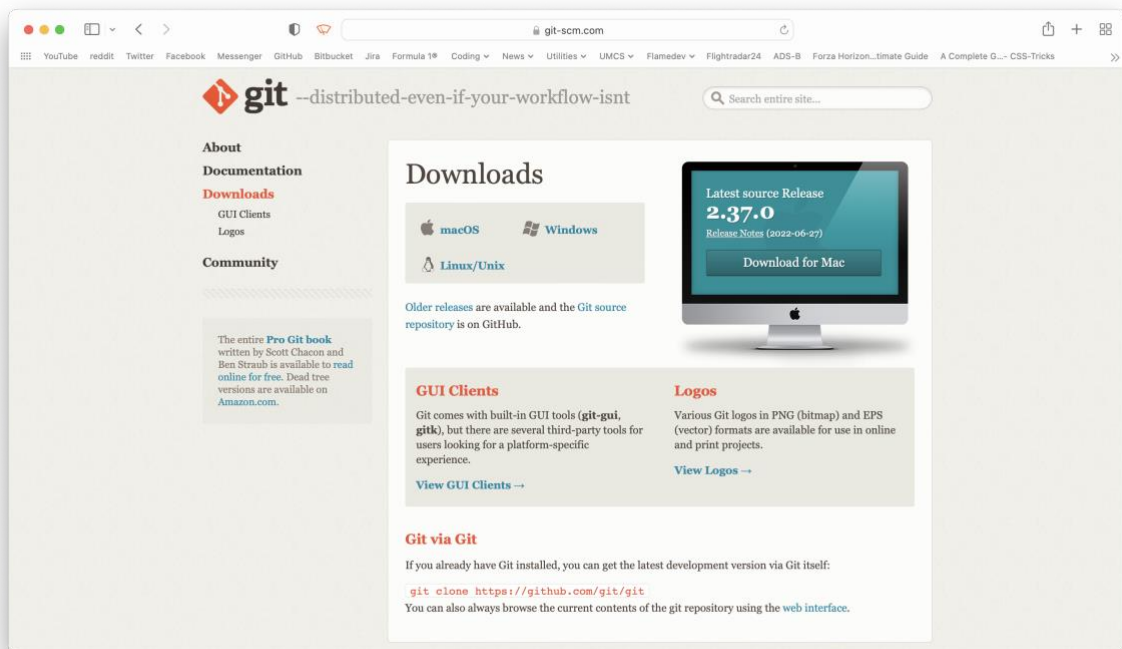
Usuwaam niepotrzebne pakiety i czyszczę cache.



```
nimchynskyi@debian:~$ sudo apt autoremove
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
nimchynskyi@debian:~$ sudo apt autoclean
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
nimchynskyi@debian:~$
```

Teraz mogę przechodzić do procesu instalacji oprogramowania.

Na moment pisania raportu najnowsza wersja **git** to **2.37.0**.



Pobieram pliki źródłowe w formacie tar.gz ze strony <https://mirrors.edge.kernel.org/pub/software/scm/git/> za pomocą polecenia **wget**.



Poleceniem **tar -zxvf git-2.37.0.tar.gz** rozpakowuję archiwum i przechodzę do katalogu z źródłami git.

```
Activities Terminal Jun 30 21:33
nimchynskiy@debian: ~/Downloads

nimchynskiy@debian:~$ cd Downloads/
nimchynskiy@debian:~/Downloads$ wget https://mirrors.edge.kernel.org/pub/software/scm/git/git-2.37.0.tar.gz
--2022-06-30 21:29:52-- https://mirrors.edge.kernel.org/pub/software/scm/git/git-2.37.0.tar.gz
Resolving mirrors.edge.kernel.org (mirrors.edge.kernel.org)... 147.75.80.249, 2604:1300:4601:e00::3
Connecting to mirrors.edge.kernel.org (mirrors.edge.kernel.org)|147.75.80.249|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 10317923 (9.8M) [application/x-gzip]
Saving to: 'git-2.37.0.tar.gz'

git-2.37.0.tar.gz          100%[=====] 9.84M  765KB/s  in 37s

2022-06-30 21:30:29 (274 KB/s) - 'git-2.37.0.tar.gz' saved [10317923/10317923]

nimchynskiy@debian:~/Downloads$ ls -la
total 10092
drwxr-xr-x  3 nimchynskiy nimchynskiy  4096 Jun 30 21:29 .
drwxr-xr-x 16 nimchynskiy nimchynskiy  4096 Jun 30 21:30 ..
-rw-r--r--  1 nimchynskiy nimchynskiy 10317923 Jun 27 19:53 git-2.37.0.tar.gz
drwxr-xr-x  3 nimchynskiy nimchynskiy  4096 Jun 29 20:08 slax-2022
nimchynskiy@debian:~/Downloads$ tar -zxvf git-2.37.0.tar.gz
git-2.37.0/
git-2.37.0/.cirrus.yml
git-2.37.0/.clang-format
git-2.37.0/.editorconfig
git-2.37.0/.gitattributes
git-2.37.0/.github/
git-2.37.0/.github/CONTRIBUTING.md
git-2.37.0/.github/PULL_REQUEST_TEMPLATE.md
git-2.37.0/.github/workflows/
git-2.37.0/.github/workflows/check-whitespace.yml
git-2.37.0/.github/workflows/l10n.yml
git-2.37.0/.github/workflows/main.yml
git-2.37.0/.gitignore
git-2.37.0/.gitmodules
git-2.37.0/.mailmap
git-2.37.0/.tsan-suppressions
git-2.37.0/CODE_OF_CONDUCT.md
git-2.37.0/COPYING
git-2.37.0/Documentation/
git-2.37.0/Documentation/ gitattributes
```

```
Activities Terminal Jun 30 21:35
nimchynskiy@debian: ~/Downloads/git-2.37.0

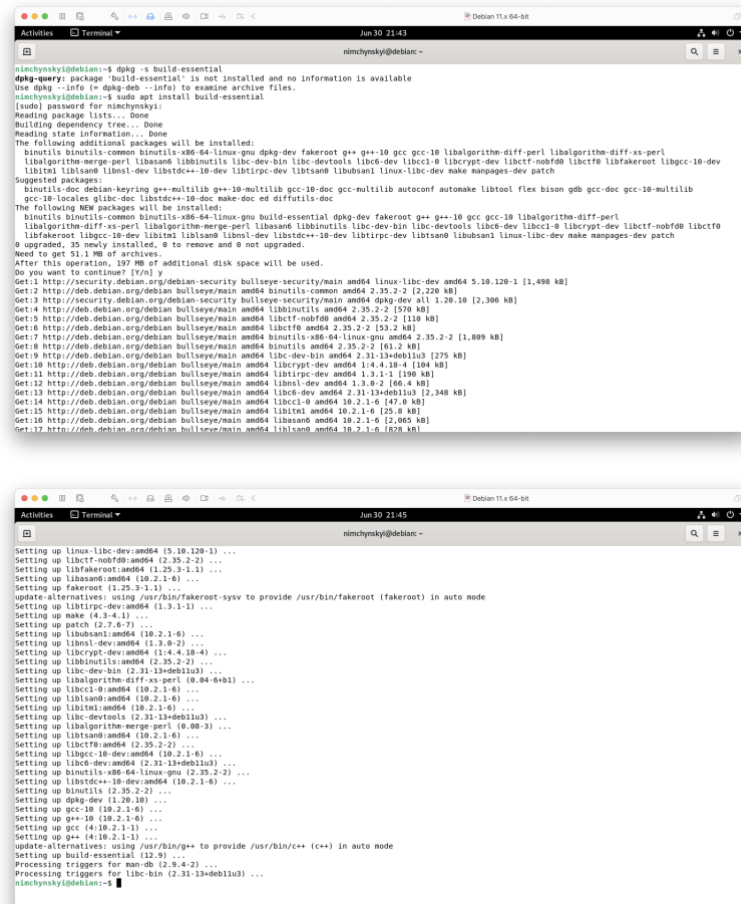
git-2.37.0/worktree.c
git-2.37.0/worktree.h
git-2.37.0/wrap-for-bin.sh
git-2.37.0/wrapper.c
git-2.37.0/write-or-die.c
git-2.37.0/ws.c
git-2.37.0/wt-status.c
git-2.37.0/wt-status.h
git-2.37.0/xdiff-interface.c
git-2.37.0/xdiff-interface.h
git-2.37.0/xdiff/
git-2.37.0/xdiff/xdiff.h
git-2.37.0/xdiff/xdiffi.c
git-2.37.0/xdiff/xdiffi.h
git-2.37.0/xdiff/xemit.c
git-2.37.0/xdiff/xemit.h
git-2.37.0/xdiff/xhistogram.c
git-2.37.0/xdiff/xinclude.h
git-2.37.0/xdiff/xmacros.h
git-2.37.0/xdiff/xmerge.c
git-2.37.0/xdiff/xpatience.c
git-2.37.0/xdiff/xprepare.c
git-2.37.0/xdiff/xprepare.h
git-2.37.0/xdiff/xtypes.h
git-2.37.0/xdiff/xutils.c
git-2.37.0/xdiff/xutils.h
git-2.37.0/zlib.c
git-2.37.0/configure
git-2.37.0/version
git-2.37.0/git-gui/version
nimchynskiy@debian:~/Downloads$ ls -la
total 10112
drwxr-xr-x  4 nimchynskiy nimchynskiy  4096 Jun 30 21:31 .
drwxr-xr-x 16 nimchynskiy nimchynskiy  4096 Jun 30 21:30 ..
drwxr-xr-x 27 nimchynskiy nimchynskiy 20480 Jun 27 19:11 git-2.37.0
-rw-r--r--  1 nimchynskiy nimchynskiy 10317923 Jun 27 19:53 git-2.37.0.tar.gz
drwxr-xr-x  3 nimchynskiy nimchynskiy  4096 Jun 29 20:08 slax-2022
nimchynskiy@debian:~/Downloads$ cd git-2.37.0/
nimchynskiy@debian:~/Downloads/git-2.37.0$
```

Dalej sprawdzę czy zainstalowany pakiet **build-essential**, niezbędny do kompilacji oprogramowania.



```
nimchynskyi@debian:~$ dpkg -s build-essential
dpkg-query: package 'build-essential' is not installed and no information is available
Use dpkg --info (= dpkg-deb --info) to examine archive files.
nimchynskyi@debian:~$
```

Jak widać nie jest on zainstalowany w moim systemie. Zainstaluję go.



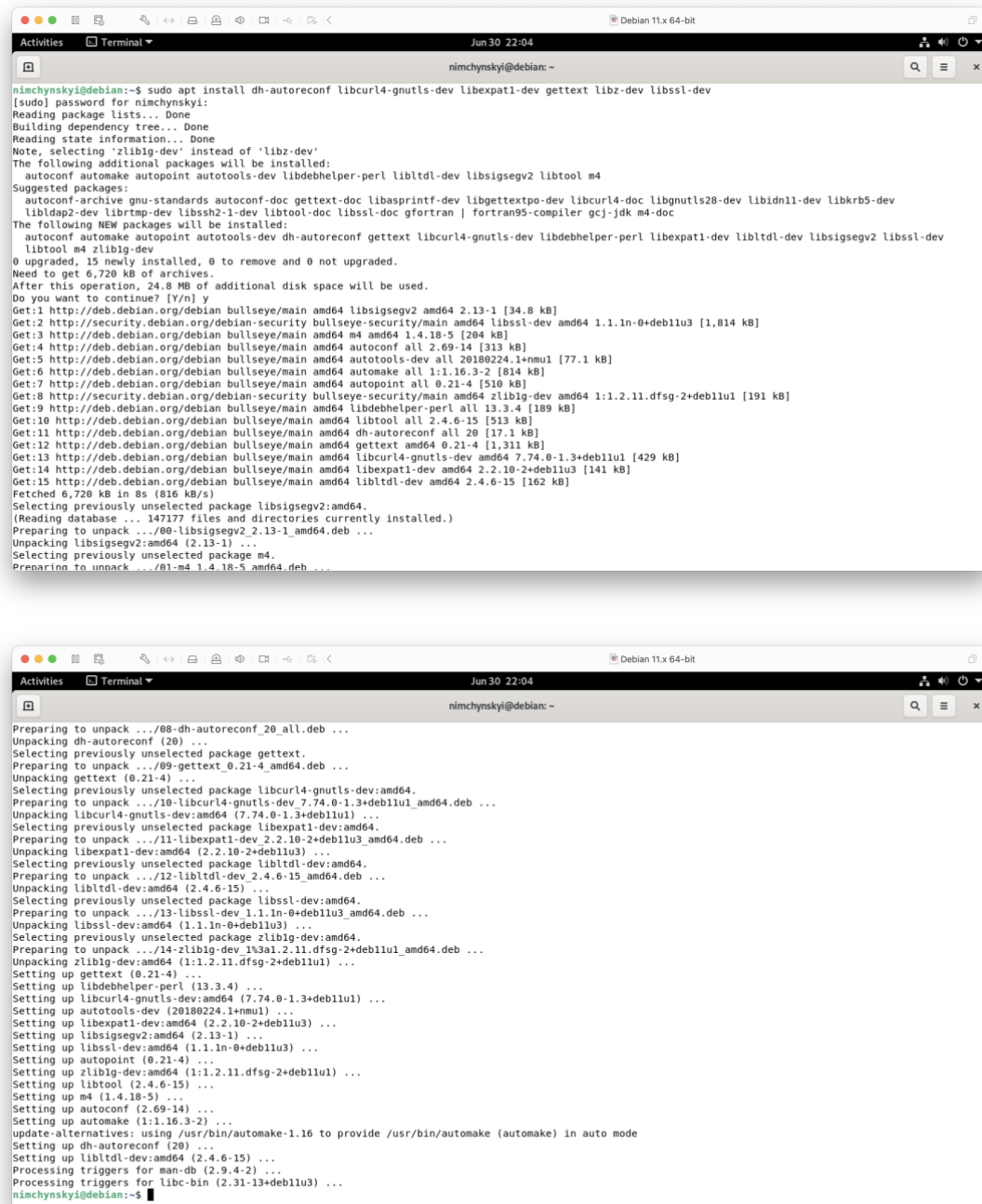
```
nimchynskyi@debian:~$ dpkg -s build-essential
dpkg-query: package 'build-essential' is not installed and no information is available
Use dpkg --info (= dpkg-deb --info) to examine archive files.
nimchynskyi@debian:~$ sudo apt install build-essential
[sudo] password for nimchynskyi:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  binutils binutils-common binutils-x86-64-linux-gnu dpkg-dev fakeroot g++ g++-10 gcc gcc-10 libalgorithm-diff-perl libalgorithm-diff-xs-perl
  libalgorithm-merge-perl libasan6 libbinutils libc-dev-bin libc-devtools libc6-dev libcc1-0 libcrypt-dev libctf-nobfd libctf-nobfd0 libctf0 libfakeroot libgcc-10-dev
  libitm1 liblsan6 liblto-dev libobjc4 libobjc-dev libomp5-10-dev librtmp-dev libstdc++-10-dev libstdc++6 libubsan1 linux-libc-dev make manpages-dev patch
Suggested packages:
  binutils-doc debian-keyring g++-multilib gcc-10-doc gcc-multilib autoconf automake libtool flex bison gdb gcc-10-multilib
  gcc-10-locales glibc-doc libstdc++-10-doc make-doc nc diffutils-doc
The following NEW packages will be installed:
  binutils binutils-common binutils-x86-64-linux-gnu build-essential dpkg-dev fakeroot g++ g++-10 gcc gcc-10 libalgorithm-diff-perl
  libalgorithm-diff-xs-perl libalgorithm-merge-perl libasan6 libbinutils libc-dev-bin libc-devtools libc6-dev libcc1-0 libcrypt-dev libctf-nobfd0 libctf0
  libfakeroot libgcc-10-dev libitm1 liblsan6 liblto-dev libobjc4 libobjc-dev libomp5-10-dev librtmp-dev libstdc++-10-dev libstdc++6 libubsan1 linux-libc-dev make
  manpages-dev patch
0 upgraded, 35 newly installed, 0 to remove and 0 not upgraded.
Need to get 51.1 MB of archives.
After this operation, 197 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://security.debian.org/debian-security bullseye-security/main amd64 linux-libc-dev amd64 5.10.120-1 [1,498 kB]
Get:2 http://deb.debian.org/debian bullseye/main amd64 binutils-common amd64 2.35.2-2 [2,220 kB]
Get:3 http://security.debian.org/debian-security bullseye-security/main amd64 dpkg-dev all 1.20.10 [2,306 kB]
Get:4 http://deb.debian.org/debian bullseye/main amd64 libbinutils amd64 2.35.2-2 [570 kB]
Get:5 http://deb.debian.org/debian bullseye/main amd64 libctf-nobfd0 amd64 2.35.2-2 [110 kB]
Get:6 http://deb.debian.org/debian bullseye/main amd64 libctf0 amd64 2.35.2-2 [53.2 kB]
Get:7 http://deb.debian.org/debian bullseye/main amd64 binutils-x86-64-linux-gnu amd64 2.35.2-2 [1,009 kB]
Get:8 http://deb.debian.org/debian bullseye/main amd64 binutils amd64 2.35.2-2 [63.2 kB]
Get:9 http://deb.debian.org/debian bullseye/main amd64 libc-dev-bin amd64 2.31-13+deb11u3 [275 kB]
Get:10 http://deb.debian.org/debian bullseye/main amd64 libc6-dev amd64 2.31-13+deb11u3 [1,044 kB]
Get:11 http://deb.debian.org/debian bullseye/main amd64 librtmp-dev amd64 1.3.1-1 [190 kB]
Get:12 http://deb.debian.org/debian bullseye/main amd64 libstdc++6 amd64 10.2.1-6 [464.4 kB]
Get:13 http://deb.debian.org/debian bullseye/main amd64 libc6-dev amd64 2.31-13+deb11u3 [2,340 kB]
Get:14 http://deb.debian.org/debian bullseye/main amd64 libcc1-0 amd64 10.2.1-6 [47.0 kB]
Get:15 http://deb.debian.org/debian bullseye/main amd64 libitm1 amd64 10.2.1-6 [25.9 kB]
Get:16 http://deb.debian.org/debian bullseye/main amd64 libasan6 amd64 10.2.1-6 [2,065 kB]
Get:17 http://deb.debian.org/debian bullseye/main amd64 liblto-dev amd64 10.2.1-6 [878 kB]
Setting up linux-libc-dev:amd64 (5.10.120-1) ...
Setting up libctf-nobfd0:amd64 (2.35.2-2) ...
Setting up libfakeroot:amd64 (1.25.3-1.1) ...
Setting up libasan6:amd64 (10.2.1-6) ...
Setting up fakeroot (1.25.3-1.1) ...
update-alternatives: using /usr/bin/fakeroot-sysv to provide /usr/bin/fakeroot (fakeroot) in auto mode
Setting up librtmp-dev:amd64 (1.3.1-1) ...
Setting up make (4.3-1) ...
Setting up patch (2.7.6-7) ...
Setting up libubsan1:amd64 (10.2.1-6) ...
Setting up liblto-dev:amd64 (10.2.1-6) ...
Setting up libbinutils:amd64 (2.35.2-2) ...
Setting up libc-dev-bin (2.31-13+deb11u3) ...
Setting up libalgorithm-diff-xs-perl (0.84-4deb1) ...
Setting up libcc1-0:amd64 (10.2.1-6) ...
Setting up liblsan6:amd64 (10.2.1-6) ...
Setting up libitm1:amd64 (10.2.1-6) ...
Setting up libc-devtools (2.31-13+deb11u3) ...
Setting up libalgorithm-merge-perl (0.08-3) ...
Setting up libstdc++6:amd64 (10.2.1-6) ...
Setting up libctf0:amd64 (2.35.2-2) ...
Setting up libgcc-10-dev:amd64 (10.2.1-6) ...
Setting up libomp5-10-dev (10.2.1-6) ...
Setting up binutils-x86-64-linux-gnu (10.2.1-6) ...
Setting up binutils (2.35.2-2) ...
Setting up dpkg-dev (1.20.10) ...
Setting up gcc-10 (10.2.1-6) ...
Setting up g++-10 (10.2.1-6) ...
Setting up gcc (4:10.2.1-1) ...
Setting up g++ (4:10.2.1-1) ...
update-alternatives: using /usr/bin/g++ to provide /usr/bin/c++ (c++) in auto mode
Setting up build-essential (12.9) ...
Processing triggers for man-db (2.9.4-2) ...
Processing triggers for libc-bin (2.31-13+deb11u3) ...
nimchynskyi@debian:~$
```

Pakiet **build-essential** zainstalował się poprawnie.

Dalszym krokiem jest instalowanie zależnych pakietów wymaganych do instalowania i obsługi oprogramowania **git**. Na stronie <https://git-scm.com/> znalazłem pakiety niezbędne do instalacji **git**:

- **dh-autoreconf**
- **curl-devel**
- **expat-devel**
- **gettext-devel**
- **openssl-devel**
- **perl-devel**
- **zlib-devel**

Także dla systemów opartych na Debian trzeba zainstalować pakiet **install-info**. Zainstaluj te pakiety.



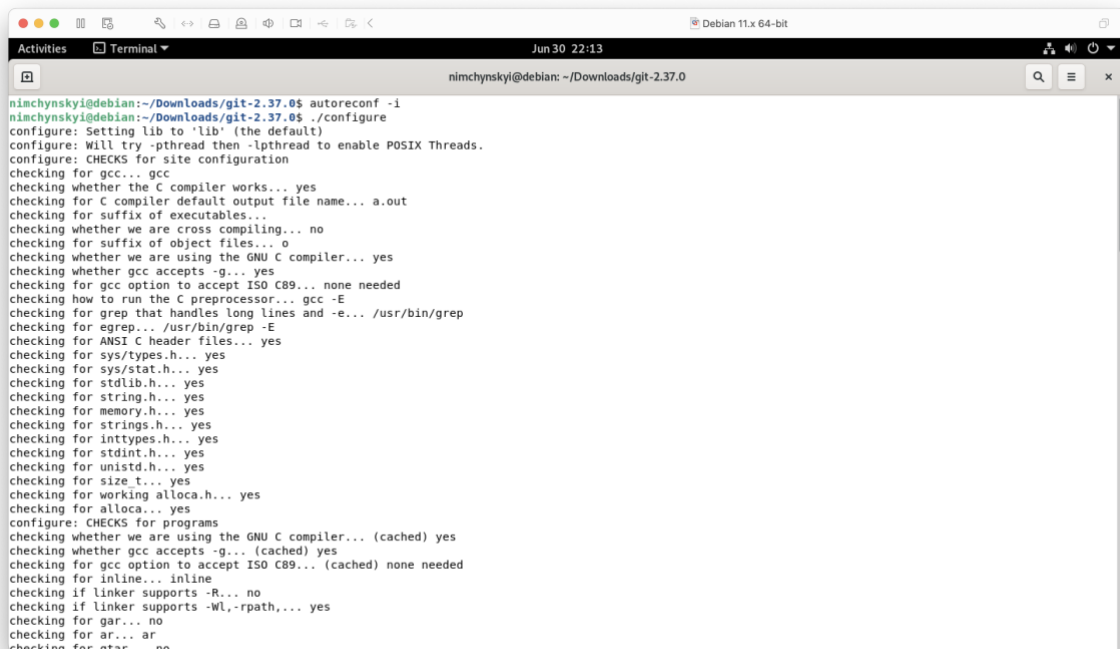
```
nimchynskyi@debian:~$ sudo apt install dh-autoreconf libcurl4-gnutls-dev libexpat1-dev gettext libz-dev libssl-dev
[sudo] password for nimchynskyi:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Note, selecting 'zlib-dev' instead of 'libz-dev'
The following additional packages will be installed:
  autoconf automake autopoint autotools-dev libdebhelper-perl libltdl-dev libsieve2 libtool m4
Suggested packages:
  autoconf-archive gnu-stardards autoconf-doc gettext-doc libasprintf-dev libgettextpo-dev libcurl4-doc libgnutls28-dev libidn11-dev libkrb5-dev
  libldap2-dev librtmp-dev libssh2-1-dev libtool-doc libssl-doc gfortran | fortran95-compiler gcj-jdk m4-doc
The following NEW packages will be installed:
  autoconf automake autopoint autotools-dev dh-autoreconf gettext libcurl4-gnutls-dev libdebhelper-perl libexpat1-dev libltdl-dev libsieve2 libssl-dev
  libtool m4 zlib-dev
0 upgraded, 15 newly installed, 0 to remove and 0 not upgraded.
Need to get 6,720 kB of archives.
After this operation, 24.8 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://deb.debian.org/debian bullseye/main amd64 libsieve2 amd64 2.13-1 [34.8 kB]
Get:2 http://security.debian.org/debian-security bullseye-security/main amd64 libssl-dev amd64 1.1.1n-0+deb11u3 [1,814 kB]
Get:3 http://deb.debian.org/debian bullseye/main amd64 m4 amd64 1.4.18-5 [204 kB]
Get:4 http://deb.debian.org/debian bullseye/main amd64 autoconf all 2.69-14 [313 kB]
Get:5 http://deb.debian.org/debian bullseye/main amd64 autotools-dev all 20180224.1+nmul [77.1 kB]
Get:6 http://deb.debian.org/debian bullseye/main amd64 automake all 1:1.16.3-2 [814 kB]
Get:7 http://deb.debian.org/debian bullseye/main amd64 autopoint all 0.21-4 [510 kB]
Get:8 http://security.debian.org/debian-security bullseye-security/main amd64 libdebhelper-perl amd64 1:1.2.11.dfsg-2+deb11u1 [191 kB]
Get:9 http://deb.debian.org/debian bullseye/main amd64 libdebhelper-perl all 13.3.4 [189 kB]
Get:10 http://deb.debian.org/debian bullseye/main amd64 libtool all 2.4.6-15 [513 kB]
Get:11 http://deb.debian.org/debian bullseye/main amd64 dh-autoreconf all 20 [17.1 kB]
Get:12 http://deb.debian.org/debian bullseye/main amd64 gettext amd64 0.21-4 [1,311 kB]
Get:13 http://deb.debian.org/debian bullseye/main amd64 libcurl4-gnutls-dev amd64 7.74.0-1.3+deb11u1 [429 kB]
Get:14 http://deb.debian.org/debian bullseye/main amd64 libexpat1-dev amd64 2.2.10-2+deb11u3 [141 kB]
Get:15 http://deb.debian.org/debian bullseye/main amd64 libltdl-dev amd64 2.4.6-15 [162 kB]
Fetched 6,720 kB in 8s (816 kB/s)
Selecting previously unselected package libsieve2:amd64.
(Reading database ... 147177 files and directories currently installed.)
Preparing to unpack .../00-libsieve2_2.13-1_amd64.deb ...
Unpacking libsieve2:amd64 (2.13-1) ...
Selecting previously unselected package m4.
Preparing to unpack .../01-m4_1.4.18-5_amd64.deb ...
Unpacking m4 (1.4.18-5) ...
Preparing to unpack .../08-dh-autoreconf_20_all.deb ...
Unpacking dh-autoreconf (20) ...
Selecting previously unselected package gettext.
Preparing to unpack .../09-gettext_0.21-4_amd64.deb ...
Unpacking gettext (0.21-4) ...
Selecting previously unselected package libcurl4-gnutls-dev:amd64.
Preparing to unpack .../10-libcurl4-gnutls-dev_7.74.0-1.3+deb11u1_amd64.deb ...
Unpacking libcurl4-gnutls-dev:amd64 (7.74.0-1.3+deb11u1) ...
Selecting previously unselected package libexpat1-dev:amd64.
Preparing to unpack .../11-libexpat1-dev_2.2.10-2+deb11u3_amd64.deb ...
Unpacking libexpat1-dev:amd64 (2.2.10-2+deb11u3) ...
Selecting previously unselected package libltdl-dev:amd64.
Preparing to unpack .../12-libltdl-dev_2.4.6-15_amd64.deb ...
Unpacking libltdl-dev:amd64 (2.4.6-15) ...
Selecting previously unselected package libssl-dev:amd64.
Preparing to unpack .../13-libssl-dev_1.1.1n-0+deb11u3_amd64.deb ...
Unpacking libssl-dev:amd64 (1.1.1n-0+deb11u3) ...
Selecting previously unselected package zlib-dev:amd64.
Preparing to unpack .../14-zlib-dev_1:3.1.2-11.dfsg-2+deb11u1_amd64.deb ...
Unpacking zlib-dev:amd64 (1:1.2.11.dfsg-2+deb11u1) ...
Setting up gettext (0.21-4) ...
Setting up libdebhelper-perl (13.3.4) ...
Setting up libcurl4-gnutls-dev:amd64 (7.74.0-1.3+deb11u1) ...
Setting up autotools-dev (20180224.1+nmul) ...
Setting up libexpat1-dev:amd64 (2.2.10-2+deb11u3) ...
Setting up libsieve2:amd64 (2.13-1) ...
Setting up libssl-dev:amd64 (1.1.1n-0+deb11u3) ...
Setting up autopoint (0.21-4) ...
Setting up zlib-dev:amd64 (1:1.2.11.dfsg-2+deb11u1) ...
Setting up libtool (2.4.6-15) ...
Setting up m4 (1.4.18-5) ...
Setting up autoconf (2.69-14) ...
Setting up automake (1:1.16.3-2) ...
update-alternatives: using /usr/bin/automake-1.16 to provide /usr/bin/automake (automake) in auto mode
Setting up dh-autoreconf (20) ...
Setting up libltdl-dev:amd64 (2.4.6-15) ...
Processing triggers for man-db (2.9.4-2) ...
Processing triggers for libc-bin (2.31-13+deb11u3) ...
nimchynskyi@debian:~$
```

I jeszcze pakiet **install-info**.



```
Unpacking zlibc-dev:amd64 (1:1.2.11.dfsg-2+deb11u1) ...
Setting up gettext (0.21-4) ...
Setting up libdebhelper-perl (13.3.4) ...
Setting up libcurl4-gnutls-dev:amd64 (7.74.0-1.3+deb11u1) ...
Setting up autotools-dev (20180224.1+nmul) ...
Setting up libexpat1-dev:amd64 (2.2.10-2+deb11u3) ...
Setting up libsigsegv2:amd64 (2.13-1) ...
Setting up libssl-dev:amd64 (1.1.1n-0+deb11u3) ...
Setting up autopoint (0.21-4) ...
Setting up zlibc-dev:amd64 (1:1.2.11.dfsg-2+deb11u1) ...
Setting up libtool (2.4.6-15) ...
Setting up m4 (1.4.18-5) ...
Setting up autoconf (2.69-14) ...
Setting up automake (1:1.16.3-2) ...
update-alternatives: using /usr/bin/automake-1.16 to provide /usr/bin/automake (automake) in auto mode
Setting up dh-autoreconf (20) ...
Setting up liblttl-dev:amd64 (2.4.6-15) ...
Processing triggers for man-db (2.9.4-2) ...
Processing triggers for libc-bin (2.31-13+deb11u3) ...
ninchynski@debian:~$ sudo apt install install-info
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
  install-info
0 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 151 kB of archives.
After this operation, 237 kB of additional disk space will be used.
Get:1 http://deb.debian.org/debian bullseye/main amd64 install-info amd64 6.7.0.dfsg.2-6 [151 kB]
Fetched 151 kB in 2s (90.2 kB/s)
Selecting previously unselected package install-info.
(Reading database ... 147979 files and directories currently installed.)
Preparing to unpack .../install-info_6.7.0.dfsg.2-6_amd64.deb ...
Unpacking install-info (6.7.0.dfsg.2-6) ...
Setting up install-info (6.7.0.dfsg.2-6) ...
Processing triggers for man-db (2.9.4-2) ...
ninchynski@debian:~$
```

Teraz mamy zainstalowane wszystkie wymagane do instalacji **git** pakiety. Mogę wygenerować pliki konfiguracyjne za pomocą polecenia **autoreconf -i**. Następnie wykonuję poleceniem **./configure**. Ten skrypt konfiguracyjny jest odpowiedzialny za przygotowanie się do zbudowania oprogramowania w naszym systemie.



```
ninchynski@debian:~/Downloads/git-2.37.0$ autoreconf -i
ninchynski@debian:~/Downloads/git-2.37.0$ ./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 inttypes.h... yes
checking for stdint.h... yes
checking forunistd.h... yes
checking for size_t... yes
checking for working alloca.h... yes
checking for alloca... yes
configure: CHECKS for programs
checking whether we are using the GNU C compiler... (cached) yes
checking whether gcc accepts -g... (cached) yes
checking for gcc option to accept ISO C89... (cached) none needed
checking for inline... inline
checking if linker supports -R... no
checking if linker supports -Wl,-rpath,... yes
checking for gar... no
checking for ar... ar
checking for gtar... no
```

```
Activities Terminal Jun 30 22:13
nimchynskyi@debian: ~/Downloads/git-2.37.0

checking libcharset.h usability... no
checking libcharset.h presence... no
checking for libcharset.h... no
checking for strings.h... (cached) yes
checking for locale_charset in -liconv... no
checking for locale_charset in -lcharset... no
checking for clock_gettime... yes
checking for library containing clock_gettime... none required
checking for CLOCK_MONOTONIC... yes
checking for sync_file_range... yes
checking for library containing sync_file_range... none required
checking for setitimer... yes
checking for library containing setitimer... none required
checking for strcasestr... yes
checking for library containing strcasestr... none required
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 systctl... no
checking for POSIX Threads with ''... 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
nimchynskyi@debian:~/Downloads/git-2.37.0
```

Wszystko skończyło się sukcesem. Dalej przechodzę do kompilacji oprogramowania **git** za pomocą polecenia **make -j2** (wykorzystam 2 rdzenie mojego systemu dla przyspieszenia procesu).

```
Activities Terminal Jun 30 22:18
nimchynskyi@debian: ~/Downloads/git-2.37.0$ make -j2
GIT_VERSION = 2.37.0
+ new build flags
CC fuzz-commit-graph.o
CC fuzz-pack-headers.o
CC fuzz-pack-idx.o
CC daemon.o
+ new link flags
CC common-main.o
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 base64.o
CC bisect.o
CC blame.o
CC blob.o
CC bloom.o
CC branch.o
CC bulk-checkin.o
CC bundle.o
CC cache-tree.o
CC cbtree.o
CC chdir-notify.o
CC checkout.o
CC chunk-format.o
CC color.o
CC column.o
CC combine-diff.o
CC commit-graph.o
CC commit-reach.o
CC commit.o
CC compat/obstack.o
```

```
Activities Terminal Jun 30 22:19
nimchynskyi@debian: ~/Downloads/git-2.37.0

CC t/helper/test-read-graph.o
CC t/helper/test-read-midx.o
CC t/helper/test-ref-store.o
CC t/helper/test-reftable.o
CC t/helper/test-regex.o
CC t/helper/test-repository.o
CC t/helper/test-revision-walking.o
CC t/helper/test-run-command.o
CC t/helper/test-scrub-cache-tree.o
CC t/helper/test-serve-v2.o
CC t/helper/test-sha1.o
CC t/helper/test-sha256.o
CC t/helper/test-sigchain.o
CC t/helper/test-simple-ipc.o
CC t/helper/test-strcmp-offset.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
nimchynskyi@debian:~/Downloads/git-2.37.0
```


Proces kompilacji zakończył się sukcesem i zajął ok. 3 min.
Następnym krokiem będzie wykonanie testów jednostkowych za pomocą polecenia **make test**.

```

ok 56 - prompt - bash color pc mode - untracked files status indicator
ok 57 - prompt - zsh color pc mode
ok 58 - prompt - hide if pwd ignored - env var unset, config disabled
ok 59 - prompt - hide if pwd ignored - env var unset, config disabled, pc mode
ok 60 - prompt - hide if pwd ignored - env var unset, config unset
ok 61 - prompt - hide if pwd ignored - env var unset, config unset, pc mode
ok 62 - prompt - hide if pwd ignored - env var set, config disabled
ok 63 - prompt - hide if pwd ignored - env var set, config disabled, pc mode
ok 64 - prompt - hide if pwd ignored - env var set, config unset
ok 65 - prompt - hide if pwd ignored - env var set, config unset, pc mode
ok 66 - prompt - hide if pwd ignored - inside gitdir

# passed all 66 test(s)
1..66
make aggregate-results
make[3]: Entering directory '/home/nimchynskiy/Downloads/git-2.37.0/t'
for f in `test-results`/t+*.counts; do \
    echo "$f"; \
done | `bin/sh` ./aggregate-results.sh

missing prereq: AUTOIDENT CASE INSENSITIVE FS EXPENSIVE FSMONITOR DAEMON GETTEXT ISO_LOCALE GETTEXT_LOCALE GPGSSH VERIFYTIME JGIT LIBPCRE2 !LONG IS 64BIT MING
W NATIVE_CRLF PCRE PCRE2_MATCH_INVALID_UTF PERLJSOP !PTHREADS !REFFILES REGEX_LOCALE RFC1191 RUNTIME_PREFIX SYMLINKS_WINDOWS TAR_NEEDS_PAX_FALLBACK TTY USB_BI
N_TIME UTF8_NFD_NO_NFC WINDOWS

fixed 0
success 24456
failed 0
broken 215
total 25079
make[3]: Leaving directory '/home/nimchynskiy/Downloads/git-2.37.0/t'
make clean
make[3]: Entering directory '/home/nimchynskiy/Downloads/git-2.37.0/t'
rm -f -r 'chainlinting'
rm -f -r 'trash directory'.* 'test-results'
rm -f -r valgrind/bin
rm -f .prove
make[3]: Leaving directory '/home/nimchynskiy/Downloads/git-2.37.0/t'
make[2]: Leaving directory '/home/nimchynskiy/Downloads/git-2.37.0/t'
make[1]: Leaving directory '/home/nimchynskiy/Downloads/git-2.37.0/t'
nimchynskiy@debian:~/Downloads/git-2.37.0$

```

Zajął to ok. 20-25 min i jak widać wszystkie testy zostały zaliczone. Przechodzę do instalacji oprogramowania.

```

nimbhynskyl@debian:~/Downloads/git-2.37.0$ sudo make install
[sudo] password for nimbhynskyl:
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-shell git-http-fetch git-http-push git-remote-http git-remote-https git-remote-f
git-remote-ftps '/usr/local/libexec/git-core'
install -git-bisect git-merge-one-file git-filter-branch git-merge-ctopus git-merge-one-file git-merge-resolve git-mergetool git-quiltimport git-request-pul
l git-submodule git-web--browse git-add--interactive git-archimport git-cvsexportcommit git-cvsignport git-cvsserver git-send-email git-svn git-p4 git-instaweb
'/usr/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/nimbhynskyl/Downloads/git-2.37.0/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/nimbhynskyl/Downloads/git-2.37.0/templates'
install -d -m 755 '/usr/local/libexec/git-core/mergetools'
install -m 644 mergetools/* '/usr/local/libexec/git-core/mergetools'
install -d -m 755 '/usr/local/share/locale'
(cd po/build/locale && tar cf - .) | \
(cd '/usr/local/share/locale' && umask 022 && tar xof -)
install -d -m 755 '/usr/local/share/perl5'
(cd perl/build/lib && tar cf - .) | \
(cd '/usr/local/share/perl5' && umask 022 && tar xof -)
make -C gitweb install
make[1]: Entering directory '/home/nimbhynskyl/Downloads/git-2.37.0/gitweb'
make[2]: Entering directory '/home/nimbhynskyl/Downloads/git-2.37.0'
make[2]: 'GIT-VERSION-FILE' is up to date.
make[2]: Leaving directory '/home/nimbhynskyl/Downloads/git-2.37.0'
install -d -m 755 '/usr/local/share/gitweb'
install -m 755 gitweb.cgi '/usr/local/share/gitweb'
install -d -m 755 '/usr/local/share/gitweb/static'
install -m 644 static/gitweb.js static/gitweb.css static/git-logo.png static/git-favicon.png '/usr/local/share/gitweb/static'
make[1]: Leaving directory '/home/nimbhynskyl/Downloads/git-2.37.0/gitweb'
make -C ntkn install

```



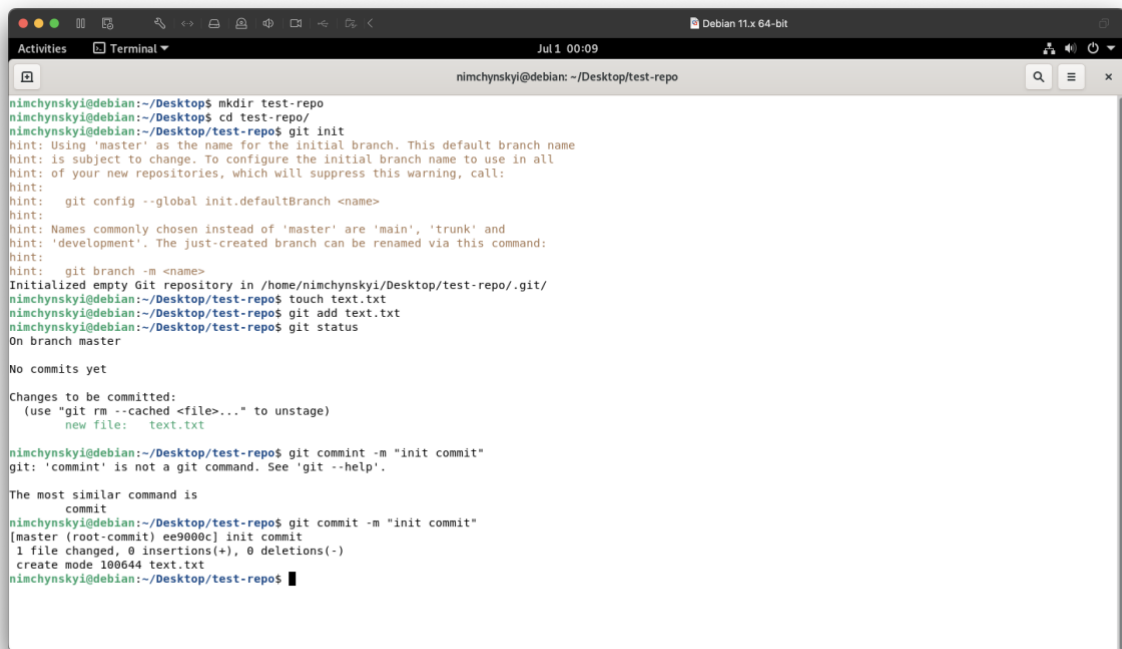

```
ln "$bindir/git" "$bindir/$p" 2>/dev/null || \
ln -s "git" "$bindir/$p" 2>/dev/null || \
cp "$bindir/git" "$bindir/$p" || exit; }; \
done && \
for p in git-add git-am git-annotate git-apply git-archive git-bisect--helper git-blame git-branch git-bugreport git-bundle git-cat-file git-check-attr git-check-ignore git-check-mailmap git-check-ref-format git-checkout--worker git-checkout-index git-checkout git-clean git-clone git-column git-commit-graph git-commit-tree git-commit git-config git-count-objects git-credential-cache-daemon git-credential-cache git-credential-store git-credential git-describe git-diff-files git-diff-index git-diff-tree git-diff git-difftool git-env--helper git-fast-export git-fast-import git-fetch-pack git-fetch git-fmt-merge-msg git-for-each-ref git-for-each-repo git-fsck git-fsmonitor--daemon git-gc git-get-tar-commit-id git-grep git-hash-object git-help git-hook git-index-pack git-init-db git-interpret-trailers git-log git-ls-files git-ls-remote git-ls-tree git-mailinfo git-mailsplit git-merge-base git-merge-file git-merge-index git-merge-ours git-merge-recursive git-merge-tree git-merge git-mktag git-mktree git-multi-pack-index git-mv git-name-rev git-notes git-pack-objects git-pack-redundant git-pack-refs git-patch-id git-prune-packed git-prune git-pull git-push git-range-diff git-read-tree git-rebase git-receive-pack git-reflog git-remote-ext git-remote-fd git-remote git-repack git-replace git-rerere git-reset git-rev-list git-rev-parse git-revert git-rm git-send-pack git-shortlog git-show-branch git-show-index git-show-ref git-sparse-checkout git-stash git-strispace git-submodule--helper git-symbolic-ref git-tag git-unpack-file git-unpack-objects git-update-index git-update-ref git-update-server-info git-upload-archive git-upload-pack git-var git-verify-commit git-verify-pack git-verify-tag git-worktree git-write-tree git-cherry git-cherry-pick git-format-patch git-fsck-objects git-init git-maintenance git-merge-subtree 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 "$sourcedir_from_execdir_SQ/bin/git" "$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="git-remote-https git-remote-ftp git-remote-https" && \
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/$p" || exit; }; \
done
ninchynskyi@debian:~/Downloads/git-2.37.0$
```

Proces zakończył się szybko. Sprawdzę wersję **git** w konsoli poleceniem **git --version**.



```
ninchynskyi@debian:~/Downloads/git-2.37.0$ git --version
git version 2.37.0
ninchynskyi@debian:~/Downloads/git-2.37.0$
```

Stworzyłem testowy repozytorium żeby sprawdzić czy program działa poprawnie.



```
nimchynskyi@debian: ~/Desktop$ mkdir test-repo
nimchynskyi@debian: ~/Desktop$ cd test-repo/
nimchynskyi@debian: ~/Desktop/test-repo$ git init
hint: Using 'master' as the name for the initial branch. This default branch name
hint: is subject to change. To configure the initial branch name to use in all
hint: of your new repositories, which will suppress this warning, call:
hint:
hint:   git config --global init.defaultBranch <name>
hint:
hint: Names commonly chosen instead of 'master' are 'main', 'trunk' and
hint: 'development'. The just-created branch can be renamed via this command:
hint:
hint:   git branch -m <name>
Initialized empty Git repository in /home/nimchynskyi/Desktop/test-repo/.git/
nimchynskyi@debian: ~/Desktop/test-repo$ touch text.txt
nimchynskyi@debian: ~/Desktop/test-repo$ git add text.txt
nimchynskyi@debian: ~/Desktop/test-repo$ git status
On branch master

No commits yet

Changes to be committed:
  (use "git rm --cached <file>..." to unstage)
        new file:   text.txt

nimchynskyi@debian: ~/Desktop/test-repo$ git commint -m "init commit"
git: 'commint' is not a git command. See 'git --help'.

The most similar command is
    commit
nimchynskyi@debian: ~/Desktop/test-repo$ git commit -m "init commit"
[master (root-commit) ee9000c] init commit
 1 file changed, 0 insertions(+), 0 deletions(-)
 create mode 100644 text.txt
nimchynskyi@debian: ~/Desktop/test-repo$
```

Wnioski

Proces instalacji z źródeł dla mnie okazał się nie ciężki, a nawet przyjemny. Instrukcja do instalacji pakietu **git** ze źródeł jest bardzo dobrze opisana na oficjalnej stronie oprogramowania. Także tam podane wszystkie zależne pakiety niezbędne do instalacji **git**, te wszystkie zależności byli w postaci paczek **deb**, więc z tym też nie było żadnych trudności. Instalacja oprogramowania z źródeł nie zajmuje aż tak dużo czasu, najwięcej czasu mi zajęło zaliczenie testów bo dla **git** było ich aż **25 079** sztuk. W przyszłości będę próbować instalować oprogramowanie z źródeł, jest to dobrą opcją np. kiedy chcę zainstalować najnowszą wersję jakiegoś oprogramowania.