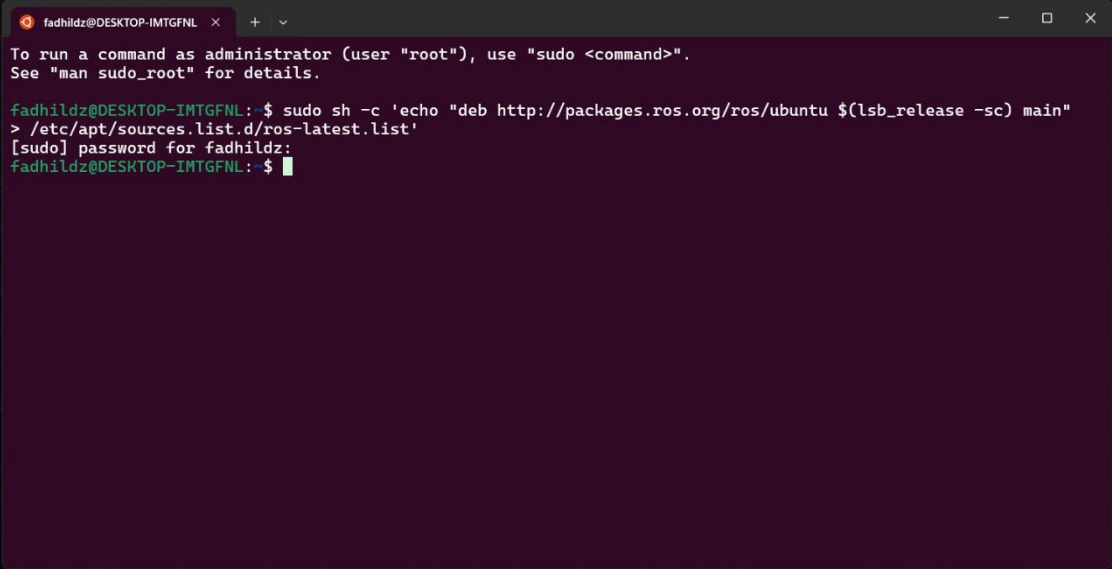


Tahap Instalasi ROS Noetic di Ubuntu 20.04.6 LTS (WSL)

Tutorial : <http://wiki.ros.org/noetic/Installation/Ubuntu>

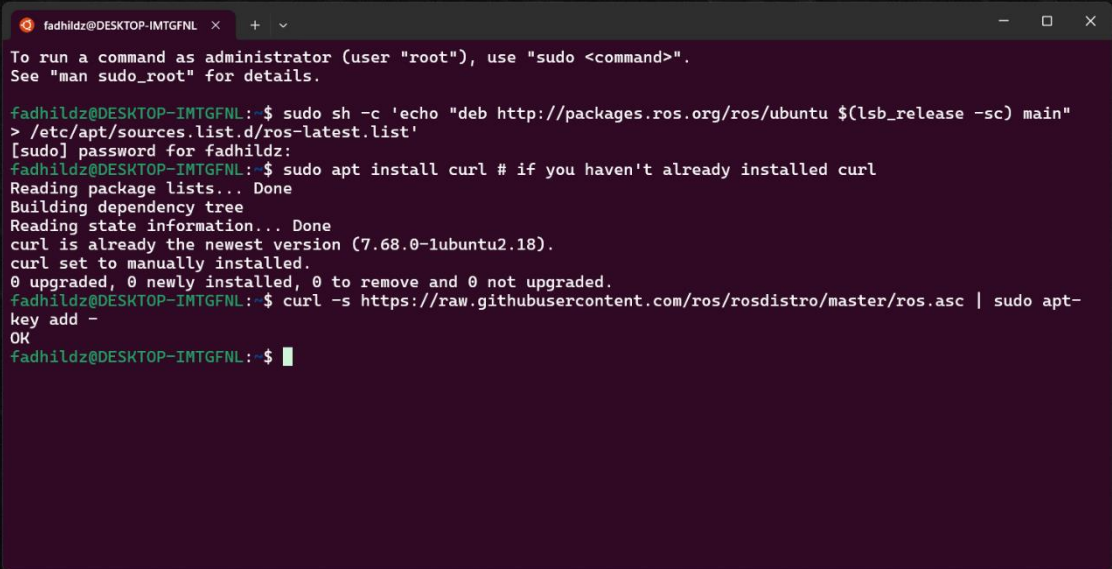
1. Setup your sources.list



```
fadhildz@DESKTOP-IMTGFNL x + v
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

fadhildz@DESKTOP-IMTGFNL:~$ sudo sh -c 'echo "deb http://packages.ros.org/ros/ubuntu $(lsb_release -sc) main"
> /etc/apt/sources.list.d/ros-latest.list'
[sudo] password for fadhildz:
fadhildz@DESKTOP-IMTGFNL:~$
```

2. Set up your keys



```
fadhildz@DESKTOP-IMTGFNL x + v
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

fadhildz@DESKTOP-IMTGFNL:~$ sudo sh -c 'echo "deb http://packages.ros.org/ros/ubuntu $(lsb_release -sc) main"
> /etc/apt/sources.list.d/ros-latest.list'
[sudo] password for fadhildz:
fadhildz@DESKTOP-IMTGFNL:~$ sudo apt install curl # if you haven't already installed curl
Reading package lists... Done
Building dependency tree
Reading state information... Done
curl is already the newest version (7.68.0-1ubuntu2.18).
curl set to manually installed.
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
fadhildz@DESKTOP-IMTGFNL:~$ curl -s https://raw.githubusercontent.com/ros/rosdistro/master/ros.asc | sudo apt-
key add -
OK
fadhildz@DESKTOP-IMTGFNL:~$
```


3. Installation

```
fadhildz@DESKTOP-IMTGFNL: $ sudo apt update
Hit:1 http://archive.ubuntu.com/ubuntu focal InRelease
Get:2 http://security.ubuntu.com/ubuntu focal-security InRelease [128 kB]
Get:3 http://archive.ubuntu.com/ubuntu focal-updates InRelease [128 kB]
Get:4 http://packages.ros.org/ros/ubuntu focal InRelease [4679 B]
Get:5 http://packages.ros.org/ros/ubuntu focal/main amd64 Packages [824 kB]
Get:6 http://security.ubuntu.com/ubuntu focal-security/main amd64 Packages [3236 kB]
Get:7 http://archive.ubuntu.com/ubuntu focal-backports InRelease [128 kB]
Get:8 http://archive.ubuntu.com/ubuntu focal/universe amd64 Packages [8628 kB]
Get:9 http://security.ubuntu.com/ubuntu focal-security/main Translation-en [477 kB]
Get:10 http://security.ubuntu.com/ubuntu focal-security/main amd64 c-n-f Metadata [14.3 kB]
Get:11 http://security.ubuntu.com/ubuntu focal-security/restricted amd64 Packages [3169 kB]
Get:12 http://security.ubuntu.com/ubuntu focal-security/restricted Translation-en [444 kB]
Get:13 http://security.ubuntu.com/ubuntu focal-security/restricted amd64 c-n-f Metadata [548 B]
Get:14 http://security.ubuntu.com/ubuntu focal-security/universe amd64 Packages [1012 kB]
Get:15 http://security.ubuntu.com/ubuntu focal-security/universe Translation-en [213 kB]
Get:16 http://security.ubuntu.com/ubuntu focal-security/universe amd64 c-n-f Metadata [21.5 kB]
Get:17 http://security.ubuntu.com/ubuntu focal-security/multiverse amd64 Packages [20.8 kB]
Get:18 http://security.ubuntu.com/ubuntu focal-security/multiverse Translation-en [5968 B]
Get:19 http://security.ubuntu.com/ubuntu focal-security/multiverse amd64 c-n-f Metadata [540 B]
Get:20 http://archive.ubuntu.com/ubuntu focal/universe Translation-en [5124 kB]
Get:21 http://archive.ubuntu.com/ubuntu focal/universe amd64 c-n-f Metadata [265 kB]
Get:22 http://archive.ubuntu.com/ubuntu focal/multiverse amd64 Packages [144 kB]
Get:23 http://archive.ubuntu.com/ubuntu focal/multiverse Translation-en [104 kB]
Get:24 http://archive.ubuntu.com/ubuntu focal/multiverse amd64 c-n-f Metadata [9136 B]
Get:25 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 Packages [3605 kB]
Get:26 http://archive.ubuntu.com/ubuntu focal-updates/main Translation-en [555 kB]
```

```
fadhildz@DESKTOP-IMTGFNL: $ sudo apt update
Get:23 http://archive.ubuntu.com/ubuntu focal/multiverse Translation-en [104 kB]
Get:24 http://archive.ubuntu.com/ubuntu focal/multiverse amd64 c-n-f Metadata [9136 B]
Get:25 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 Packages [3605 kB]
Get:26 http://archive.ubuntu.com/ubuntu focal-updates/main Translation-en [555 kB]
Get:27 http://archive.ubuntu.com/ubuntu focal-updates/main amd64 c-n-f Metadata [17.7 kB]
Get:28 http://archive.ubuntu.com/ubuntu focal-updates/restricted amd64 Packages [3287 kB]
Get:29 http://archive.ubuntu.com/ubuntu focal-updates/restricted Translation-en [461 kB]
Get:30 http://archive.ubuntu.com/ubuntu focal-updates/restricted amd64 c-n-f Metadata [548 B]
Get:31 http://archive.ubuntu.com/ubuntu focal-updates/universe amd64 Packages [1232 kB]
Get:32 http://archive.ubuntu.com/ubuntu focal-updates/universe Translation-en [295 kB]
Get:33 http://archive.ubuntu.com/ubuntu focal-updates/universe amd64 c-n-f Metadata [28.3 kB]
Get:34 http://archive.ubuntu.com/ubuntu focal-updates/multiverse amd64 Packages [27.1 kB]
Get:35 http://archive.ubuntu.com/ubuntu focal-updates/multiverse Translation-en [7936 B]
Get:36 http://archive.ubuntu.com/ubuntu focal-updates/multiverse amd64 c-n-f Metadata [616 B]
Get:37 http://archive.ubuntu.com/ubuntu focal-backports/main amd64 Packages [45.7 kB]
Get:38 http://archive.ubuntu.com/ubuntu focal-backports/main Translation-en [16.3 kB]
Get:39 http://archive.ubuntu.com/ubuntu focal-backports/main amd64 c-n-f Metadata [1420 B]
Get:40 http://archive.ubuntu.com/ubuntu focal-backports/restricted amd64 c-n-f Metadata [116 B]
Get:41 http://archive.ubuntu.com/ubuntu focal-backports/restricted amd64 Packages [25.0 kB]
Get:42 http://archive.ubuntu.com/ubuntu focal-backports/universe Translation-en [16.3 kB]
Get:43 http://archive.ubuntu.com/ubuntu focal-backports/universe amd64 c-n-f Metadata [880 B]
Get:44 http://archive.ubuntu.com/ubuntu focal-backports/multiverse amd64 c-n-f Metadata [116 B]
Fetched 33.7 MB in 32s (1048 kB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
155 packages can be upgraded. Run 'apt list --upgradable' to see them.
```


4. Install Desktop-Full Install

```
fadhildz@DESKTOP-IMTGFNL: $ sudo apt install ros-noetic-desktop-full
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  acl adwaita-icon-theme app aptdaemon aptdaemon-data aspell aspell-en at-spi2-core autoconf automake
  autopoint autotools-dev avahi-daemon avahi-utils binfmt-support binutils binutils-common
  binutils-x86-64-linux-gnu blt bluez bubblewrap build-essential bzip2-doc cheese-common cmake cmake-data
  colord colord-data comerr-dev cpp cpp-8 cpp-9 cracklib-runtime crda cups-pk-helper curl cython3 dconf-cli
  debhelper default-libmysqlclient-dev desktop-file-utils dh-autoreconf dh-strip-nondeterminism
  dictionaries-common dns-root-data dnsmasq-base docbook-xml docutils-common dpkg-dev dwz emacs-common
  enchant-2 evolution-data-server evolution-data-server-common fakeroot fltk1.3-doc fluid fontconfig
  fonts-lato fonts-liberation fonts-lyx fprintd freeglut3 freeglut3-dev g++ g++-9 gazebo11 gazebo11-common
  gazebo11-plugin-base gcc gcc-10-base gcc-7-base gcc-8 gcc-8-base gcc-9 gcc-9-base gcr gdal-data gdm3
  geoclue-2.0 gettext gfortran gfortran-8 gfortran-9 gir1.2-accountsservice-1.0 gir1.2-atk-1.0
  gir1.2-atspi-2.0 gir1.2-freedesktop gir1.2-gck-1 gir1.2-gcr-3 gir1.2-gdesktopenums-3.0
  gir1.2-gdkpixbuf-2.0 gir1.2-gdm-1.0 gir1.2-geoclue-2.0 gir1.2-gnomebluetooth-1.0 gir1.2-gnomedesktop-3.0
  gir1.2-graphene-1.0 gir1.2-gtk-2.0 gir1.2-gtk-3.0 gir1.2-gweather-3.0 gir1.2-harfbuzz-0.0 gir1.2-ibus-1.0
  gir1.2-json-1.0 gir1.2-mutter-6 gir1.2-nm-1.0 gir1.2-nma-1.0 gir1.2-notify-0.7 gir1.2-pango-1.0
  gir1.2-polkit-1.0 gir1.2-rsvg-2.0 gir1.2-secret-1 gir1.2-soup-2.4 gir1.2-upowerglib-1.0 gir1.2-vte-2.91
  gjs gkbd-capplet gnome-control-center gnome-control-center-data gnome-control-center-faces
  gnome-desktop3-data gnome-keyring gnome-keyring-pkcs11 gnome-menus gnome-online-accounts gnome-session-bin
  gnome-session-common gnome-settings-daemon gnome-settings-daemon-common gnome-shell gnome-shell-common
  gnome-session-applications gnome-user-docs googlemock googletest graphviz gstreamer1.0-clutter-3.0
  gstreamer1.0-gl gstreamer1.0-plugins-base gstreamer1.0-plugins-good gstreamer1.0-pulseaudio gstreamer1.0-x
  gtk-update-icon-cache hddtemp hdf5-helpers hicolor-icon-theme humanity-icon-theme hunspell-en-us
  i965-va-driver ibus ibus-data ibus-gtk ibus-gtk3 ibverbs-providers icu-devtools ignition-tools
```

```
fadhildz@DESKTOP-IMTGFNL: $
aspell-autobuildhash: processing: en [en-variant_1].
aspell-autobuildhash: processing: en [en-variant_2].
aspell-autobuildhash: processing: en [en-w_accents-only].
aspell-autobuildhash: processing: en [en-wo_accents-only].
aspell-autobuildhash: processing: en [en_AU-variant_0].
aspell-autobuildhash: processing: en [en_AU-variant_1].
aspell-autobuildhash: processing: en [en_AU-w_accents-only].
aspell-autobuildhash: processing: en [en_AU-wo_accents-only].
aspell-autobuildhash: processing: en [en_CA-variant_0].
aspell-autobuildhash: processing: en [en_CA-variant_1].
aspell-autobuildhash: processing: en [en_CA-w_accents-only].
aspell-autobuildhash: processing: en [en_CA-wo_accents-only].
aspell-autobuildhash: processing: en [en_GB-ise-w_accents-only].
aspell-autobuildhash: processing: en [en_GB-ise-wo_accents-only].
aspell-autobuildhash: processing: en [en_GB-ize-w_accents-only].
aspell-autobuildhash: processing: en [en_GB-ize-wo_accents-only].
aspell-autobuildhash: processing: en [en_GB-variant_0].
aspell-autobuildhash: processing: en [en_GB-variant_1].
aspell-autobuildhash: processing: en [en_US-w_accents-only].
aspell-autobuildhash: processing: en [en_US-wo_accents-only].
Processing triggers for libgdk-pixbuf2.0-0:amd64 (2.40.0+dfsg-3ubuntu0.5) ...
Processing triggers for rygel (0.38.3-1ubuntu1) ...
Processing triggers for sgml-base (1.29.1) ...
Processing triggers for libc-bin (2.31-0ubuntu9.9) ...
fadhildz@DESKTOP-IMTGFNL: $
```


5. Environment setup

```
fadhildz@DESKTOP-IMTGFNL: ~$ source /opt/ros/noetic/setup.bash
fadhildz@DESKTOP-IMTGFNL: ~$ echo "source /opt/ros/noetic/setup.bash" >> ~/.bashrc
fadhildz@DESKTOP-IMTGFNL: ~$ source ~/.bashrc
fadhildz@DESKTOP-IMTGFNL: ~$
```

6. Dependencies for building packages

```
fadhildz@DESKTOP-IMTGFNL: ~$ sudo apt install python3-rosdep python3-rosinstall python3-rosinstall-generator py
thon3-wstool build-essential
[sudo] password for fadhildz:
Reading package lists... Done
Building dependency tree
Reading state information... Done
build-essential is already the newest version (12.8ubuntu1.1).
build-essential set to manually installed.
The following additional packages will be installed:
  brz bzip2 libpython2-stdlib libpython2.7-minimal libpython2.7-stdlib libserf-1-1 libsvn1 libutf8proc2
  mercurial mercurial-common python2 python2-minimal python2.7 python2.7-minimal python3-breezy
  python3-deprecated python3-dulwich python3-fastimport python3-github python3-gitlab python3-gpg
  python3-rosdistro python3-vcstools python3-wrapt subversion
Suggested packages:
  brz-doc python3-breezy.tests kdiff3 | kdiff3-qt | kompare | meld | tkcvs | mgdiff qct python-mysqldb
  python-openssl python-pygments python2-doc python-tk python2.7-doc python3-breezy-dbg python3-kberos
  xdg-utils python-gitlab-doc db5.3-util libapache2-mod-svn subversion-tools
The following NEW packages will be installed:
  brz bzip2 libpython2-stdlib libpython2.7-minimal libpython2.7-stdlib libserf-1-1 libsvn1 libutf8proc2
  mercurial mercurial-common python2 python2-minimal python2.7 python2.7-minimal python3-breezy
  python3-deprecated python3-dulwich python3-fastimport python3-github python3-gitlab python3-gpg
  python3-rosdep python3-rosdistro python3-rosinstall python3-rosinstall-generator python3-vcstools
  python3-wrapt python3-wstool subversion
0 upgraded, 29 newly installed, 0 to remove and 127 not upgraded.
Need to get 11.4 MB of archives.
After this operation, 56.1 MB of additional disk space will be used.
Do you want to continue? [Y/n]
```

```
fadhildz@DESKTOP-IMTGFNL x + v
Setting up python3-rosdistro (0.9.1-100) ...
Setting up libsvn1:amd64 (1.13.0-3ubuntu0.2) ...
Setting up python3-gitlab (1:2.0.1-1) ...
Setting up python3-deprecated (1.2.7-1) ...
Setting up python2.7 (2.7.18-1~20.04.4) ...
Setting up libpython2-stdlib:amd64 (2.7.17-2ubuntu4) ...
Setting up subversion (1.13.0-3ubuntu0.2) ...
Setting up python3-wstool (0.1.18-2) ...
Setting up python3-breezy (3.0.2-4ubuntu2) ...
Setting up python2 (2.7.17-2ubuntu4) ...
Setting up brz (3.0.2-4ubuntu2) ...
update-alternatives: using /usr/bin/brz to provide /usr/bin/bzr (bzs) in auto mode
Setting up python3-github (1.43.7-1) ...
Setting up bzr (2.7.0+bzr6622+brz) ...
Setting up python3-rosinstall (0.7.8-4) ...
Setting up mercurial-common (5.3.1-1ubuntu1) ...
Setting up mercurial (5.3.1-1ubuntu1) ...

Creating config file /etc/mercurial/hgrc.d/hgext.rc with new version
Processing triggers for libc-bin (2.31-0ubuntu9.9) ...
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for desktop-file-utils (0.24-1ubuntu3) ...
Processing triggers for mime-support (3.64ubuntu1) ...
Processing triggers for gnome-menus (3.36.0-1ubuntu1) ...
fadhildz@DESKTOP-IMTGFNL:~$
```

7. Initialize rosdep

```
fadhildz@DESKTOP-IMTGFNL x + v
Setting up subversion (1.13.0-3ubuntu0.2) ...
Setting up python3-wstool (0.1.18-2) ...
Setting up python3-breezy (3.0.2-4ubuntu2) ...
Setting up python2 (2.7.17-2ubuntu4) ...
Setting up brz (3.0.2-4ubuntu2) ...
update-alternatives: using /usr/bin/brz to provide /usr/bin/bzr (bzs) in auto mode
Setting up python3-github (1.43.7-1) ...
Setting up bzr (2.7.0+bzr6622+brz) ...
Setting up python3-rosinstall (0.7.8-4) ...
Setting up mercurial-common (5.3.1-1ubuntu1) ...
Setting up mercurial (5.3.1-1ubuntu1) ...

Creating config file /etc/mercurial/hgrc.d/hgext.rc with new version
Processing triggers for libc-bin (2.31-0ubuntu9.9) ...
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for desktop-file-utils (0.24-1ubuntu3) ...
Processing triggers for mime-support (3.64ubuntu1) ...
Processing triggers for gnome-menus (3.36.0-1ubuntu1) ...
fadhildz@DESKTOP-IMTGFNL:~$ sudo apt install python3-rosdep\
> ^C
fadhildz@DESKTOP-IMTGFNL:~$ sudo apt install python3-rosdep
Reading package lists... Done
Building dependency tree
Reading state information... Done
python3-rosdep is already the newest version (0.25.1-1).
0 upgraded, 0 newly installed, 0 to remove and 127 not upgraded.
fadhildz@DESKTOP-IMTGFNL:~$
```



```
fadhildz@DESKTOP-IMTGFNL: ~$ sudo rosdep init
Wrote /etc/ros/rosdep/sources.list.d/20-default.list
Recommended: please run

    rosdep update

fadhildz@DESKTOP-IMTGFNL: ~$ rosdep update
reading in sources list data from /etc/ros/rosdep/sources.list.d
Hit https://raw.githubusercontent.com/ros/rosdistro/master/rosdep/osx-homebrew.yaml
Hit https://raw.githubusercontent.com/ros/rosdistro/master/rosdep/base.yaml
Hit https://raw.githubusercontent.com/ros/rosdistro/master/rosdep/python.yaml
Hit https://raw.githubusercontent.com/ros/rosdistro/master/rosdep/ruby.yaml
Hit https://raw.githubusercontent.com/ros/rosdistro/master/releases/fuerte.yaml
Query rosdistro index https://raw.githubusercontent.com/ros/rosdistro/master/index-v4.yaml
Skip end-of-life distro "ardent"
Skip end-of-life distro "bouncy"
Skip end-of-life distro "crystal"
Skip end-of-life distro "dashing"
Skip end-of-life distro "eloquent"
Skip end-of-life distro "foxy"
Skip end-of-life distro "galactic"
Skip end-of-life distro "groovy"
Add distro "humble"
Skip end-of-life distro "hydro"
Skip end-of-life distro "indigo"
Add distro "iron"
Skip end-of-life distro "jade"
```

```
fadhildz@DESKTOP-IMTGFNL: ~$ rosdep update
Hit https://raw.githubusercontent.com/ros/rosdistro/master/rosdep/osx-homebrew.yaml
Hit https://raw.githubusercontent.com/ros/rosdistro/master/rosdep/base.yaml
Hit https://raw.githubusercontent.com/ros/rosdistro/master/rosdep/python.yaml
Hit https://raw.githubusercontent.com/ros/rosdistro/master/rosdep/ruby.yaml
Hit https://raw.githubusercontent.com/ros/rosdistro/master/releases/fuerte.yaml
Query rosdistro index https://raw.githubusercontent.com/ros/rosdistro/master/index-v4.yaml
Skip end-of-life distro "ardent"
Skip end-of-life distro "bouncy"
Skip end-of-life distro "crystal"
Skip end-of-life distro "dashing"
Skip end-of-life distro "eloquent"
Skip end-of-life distro "foxy"
Skip end-of-life distro "galactic"
Skip end-of-life distro "groovy"
Add distro "humble"
Skip end-of-life distro "hydro"
Skip end-of-life distro "indigo"
Add distro "iron"
Skip end-of-life distro "jade"
Add distro "jazzy"
Skip end-of-life distro "kinetic"
Skip end-of-life distro "lunar"
Skip end-of-life distro "melodic"
Add distro "noetic"
Add distro "rolling"
updated cache in /home/fadhildz/.ros/rosdep/sources.cache
fadhildz@DESKTOP-IMTGFNL: ~$
```