

WSL

1) To install the default Ubuntu 20.04 distro, enter:

`wsl --install`

```
yaswanth@3bb36d3d774953e: ~
Windows PowerShell
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Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Users\Administrator> wsl --install
Ubuntu is already installed.
Launching Ubuntu...
Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 5.15.167.4-microsoft-standard-WSL2 x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:       https://ubuntu.com/pro

System information as of Tue Feb  4 06:59:03 UTC 2025

System load:  0.39               Processes:    52
Usage of /:   0.2% of 1006.85GB   Users logged in:  0
Memory usage: 5%                IPv4 address for eth0: 172.30.10.97
Swap usage:   0%

 * Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s
   just raised the bar for easy, resilient and secure k8s cluster deployment.

https://ubuntu.com/engage/secure-kubernetes-at-the-edge

This message is shown once a day. To disable it please create the
/home/yaswanth/.hushlogin file.
```

2) To install a specific distro by name, such as Debian, enter:

```
yaswanth@3bb36d3d774953e: ~$ sudo apt install wsl
[sudo] password for yaswanth:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libxml2-utils libxslt1.1 xsltproc
The following NEW packages will be installed:
  libxml2-utils libxslt1.1 wsl xsltproc
0 upgraded, 4 newly installed, 0 to remove and 59 not upgraded.
Need to get 240 kB of archives.
After this operation, 806 kB of additional disk space will be used.
Do you want to continue? [Y/n] Y
Get:1 http://archive.ubuntu.com/ubuntu noble-updates/main amd64 libxml2-utils amd64 2.9.14+dfsg-1.3ubuntu3.1 [39.4 kB]
Get:2 http://archive.ubuntu.com/ubuntu noble/main amd64 libxslt1.1 amd64 1.1.39-0exp1build1 [167 kB]
Get:3 http://archive.ubuntu.com/ubuntu noble/universe amd64 wsl all 0.2.1-3 [18.7 kB]
Get:4 http://archive.ubuntu.com/ubuntu noble/main amd64 xsltproc amd64 1.1.39-0exp1build1 [15.0 kB]
Fetched 240 kB in 3s (87.5 kB/s)
Selecting previously unselected package libxml2-utils.
Reading database ... 42119 files and directories currently installed.)
Preparing to unpack .../libxml2-utils_2.9.14+dfsg-1.3ubuntu3.1_amd64.deb ...
Unpacking libxml2-utils (2.9.14+dfsg-1.3ubuntu3.1) ...
Selecting previously unselected package libxslt1.1:amd64.
Preparing to unpack .../libxslt1.1_1.1.39-0exp1build1_amd64.deb ...
Unpacking libxslt1.1:amd64 (1.1.39-0exp1build1) ...
Selecting previously unselected package wsl.
Preparing to unpack .../archives/wsl_0.2.1-3_all.deb ...
Unpacking wsl (0.2.1-3) ...
Selecting previously unselected package xsltproc.
Preparing to unpack .../xsltproc_1.1.39-0exp1build1_amd64.deb ...
Unpacking xsltproc (1.1.39-0exp1build1) ...
Setting up libxslt1.1:amd64 (1.1.39-0exp1build1) ...
Setting up libxml2-utils (2.9.14+dfsg-1.3ubuntu3.1) ...
Setting up wsl (0.2.1-3) ...
Setting up xsltproc (1.1.39-0exp1build1) ...
Processing triggers for libc-bin (2.39-0ubuntu8.3) ...
Processing triggers for man-db (2.12.0-4build2) ...
```

```
yaswanth@3bb36d3d774953e: ~$ exit
logout
The operation completed successfully.
PS C:\Users\Administrator> wsl --install -d debian
Installing: Debian GNU/Linux
Debian GNU/Linux has been installed.
Launching Debian GNU/Linux...
Installing, this may take a few minutes...
Please create a default UNIX user account. The username does not need to match your Windows username.
For more information visit: https://aka.ms/wslusers
Enter new UNIX username: YASH@123
adduser: Please enter a username matching the regular expression
configured via the NAME_REGEX configuration variable. Use the
"--allow-bad-names" option to relax this check or reconfigure
NAME_REGEX in configuration.
Enter new UNIX username: YASH123
adduser: Please enter a username matching the regular expression
configured via the NAME_REGEX configuration variable. Use the
"--allow-bad-names" option to relax this check or reconfigure
NAME_REGEX in configuration.
Enter new UNIX username: yash123
New password:
Retype new password:
passwd: password updated successfully
```

3) Update Linux

There are likely to be several Linux updates. To update Ubuntu applications, enter the following commands in the Linux terminal:

```
yash123@b36b36d3d74953e:~$ sudo apt update
[sudo] password for yash123:
Get:1 http://deb.debian.org/debian bookworm InRelease [151 kB]
Get:2 http://security.debian.org/debian-security bookworm-security InRelease [48.0 kB]
Get:3 http://deb.debian.org/debian bookworm-updates InRelease [55.4 kB]
Get:4 http://ftp.debian.org/debian bookworm-backports InRelease [59.0 kB]
Get:5 http://security.debian.org/debian-security bookworm-security/main amd64 Packages [243 kB]
Get:6 http://ftp.debian.org/debian bookworm-backports/main Translation-en [235 kB]
Get:7 http://deb.debian.org/debian bookworm/main amd64 Packages [8,792 kB]
Get:8 http://ftp.debian.org/debian bookworm-backports/main amd64 Packages [282 kB]
Get:9 http://ftp.debian.org/debian bookworm-backports/main Translation-en [235 kB]
Get:10 http://deb.debian.org/debian bookworm/main Translation-en [6,109 kB]
Get:11 http://deb.debian.org/debian bookworm-updates/main amd64 Packages [13.5 kB]
Get:12 http://deb.debian.org/debian bookworm-updates/main Translation-en [16.0 kB]
Fetched 16.1 MB in 4s (3,883 kB/s)
Reading package lists... Done
Building dependency tree... Done
18 packages can be upgraded. Run 'apt list --upgradable' to see them.
N: Repository 'http://deb.debian.org/debian bookworm InRelease' changed its 'Version' value from '12.8' to '12.9'
```

```
yash123@b36b36d3d74953e:~$ sudo apt upgrade
Reading package lists... Done
Building dependency tree... Done
Calculating upgrade... Done
The following packages will be upgraded:
  base-files bsdutils fdisk libblkid1 libfdisk1 libmount1 libsmartcols1 libsystemd-shared libsystemd0 libudev1 libuuid1 mount systemd systemd-sysv tzdata udev util-linux
  util-linux-extra
18 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
Need to get 9,583 kB of archives.
After this operation, 156 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://deb.debian.org/debian bookworm/main amd64 base-files amd64 12.4+deb12u9 [70.8 kB]
Get:2 http://deb.debian.org/debian bookworm/main amd64 bsdutils amd64 1:2.38.1-5+deb12u3 [94.4 kB]
Get:3 http://deb.debian.org/debian bookworm/main amd64 libsmartcols1 amd64 2.38.1-5+deb12u3 [107 kB]
Get:4 http://deb.debian.org/debian bookworm/main amd64 util-linux-extra amd64 2.38.1-5+deb12u3 [111 kB]
Get:5 http://deb.debian.org/debian bookworm/main amd64 util-linux amd64 2.38.1-5+deb12u3 [1,177 kB]
Get:6 http://deb.debian.org/debian bookworm/main amd64 mount amd64 2.38.1-5+deb12u3 [134 kB]
Get:7 http://deb.debian.org/debian bookworm/main amd64 libblkid1 amd64 2.38.1-5+deb12u3 [147 kB]
Get:8 http://deb.debian.org/debian bookworm/main amd64 libuuid1 amd64 2.38.1-5+deb12u3 [28.8 kB]
Get:9 http://deb.debian.org/debian bookworm/main amd64 libfdisk1 amd64 2.38.1-5+deb12u3 [194 kB]
Get:10 http://deb.debian.org/debian bookworm/main amd64 libmount1 amd64 2.38.1-5+deb12u3 [166 kB]
Get:11 http://deb.debian.org/debian bookworm/main amd64 systemd amd64 252.33-1-deb12u1 [3,036 kB]
Get:12 http://deb.debian.org/debian bookworm/main amd64 libsystemd-shared amd64 252.33-1-deb12u1 [1,691 kB]
Get:13 http://deb.debian.org/debian bookworm/main amd64 libsystemd0 amd64 252.33-1-deb12u1 [332 kB]
Get:14 http://deb.debian.org/debian bookworm/main amd64 systemd-sysv amd64 252.33-1-deb12u1 [42.5 kB]
Get:15 http://deb.debian.org/debian bookworm/main amd64 udev amd64 252.33-1-deb12u1 [1,704 kB]
Get:16 http://deb.debian.org/debian bookworm/main amd64 libudev1 amd64 252.33-1-deb12u1 [109 kB]
Get:17 http://deb.debian.org/debian bookworm/main amd64 tzdata all 2024b-0+deb12u1 [298 kB]
Get:18 http://deb.debian.org/debian bookworm/main amd64 fdisk amd64 2.38.1-5+deb12u3 [141 kB]
Fetched 9,583 kB in 1s (8,840 kB/s)
```

Activate Windows
Go to Settings to activate Windows.

5) you can also check for Linux kernel updates from Powershell using:

```
yash123@b36b36d3d74953e:~$ exit
logout
The installation process for distribution 'Debian' failed with exit code: 127.
Error code: Wsl/InstallDistro/WSL_E_INSTALL_PROCESS_FAILED
PS C:\Users\Administrator> wsl --update
Checking for updates.
The most recent version of Windows Subsystem for Linux is already installed.
PS C:\Users\Administrator>
```

6) Switch Between WSL1 and WSL2

```
PS C:\Users\Administrator> wsl --list --verbose
  NAME      STATE      VERSION
* docker-desktop Stopped    2
  Ubuntu    Stopped    2
  Debian     Stopped    2
PS C:\Users\Administrator>
```

Activate Windows

7) (The * asterisk highlights the default Linux installation.)

To switch Ubuntu to WSL2, enter: `wsl --set-version Ubuntu 2`

```
PS C:\Users\Administrator> wsl --set-version Ubuntu 2
For information on key differences with WSL 2 please visit https://aka.ms/wsl2
Conversion in progress, this may take a few minutes.
The distribution is already the requested version.
Error code: Wsl/Service/WSL_E_VH_MODE_INVALID_STATE
PS C:\Users\Administrator> wsl --set-version Ubuntu 1
Conversion in progress, this may take a few minutes.
The operation completed successfully.
PS C:\Users\Administrator>
```

8) Set a Default Linux Distribution:

To set the default distro, list your Linux installations:

```
PS C:\Users\Administrator> wsl --list
Windows Subsystem for Linux Distributions:
docker-desktop (Default)
Ubuntu
Debian
PS C:\Users\Administrator>
```

And set a default with:

```
PS C:\Users\Administrator> wsl --setdefault Ubuntu
The operation completed successfully.
PS C:\Users\Administrator>
```

9) Run Linux as a Specific User

To run your default distribution as a specific user, enter the following command in a Windows Powershell terminal:

```
PS C:\Users\Administrator> wsl --user exit
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.
exit@3bb36d3d774953e: /mnt/c/Users/Administrator/$
```

10) Move or Clone Your Linux Disk Image:

Unregister that distro to remove it from the C: drive:

```
exit@3bb36d3d774953e: /mnt/c/Users/Administrator/$ exit
logout
PS C:\Users\Administrator> mkdir D:\backup

Directory: D:\

Mode                LastWriteTime         Length Name
----                -
d-----          04-02-2025      14:52         backup

PS C:\Users\Administrator> wsl --export Ubuntu D:\backup\ubuntu.tar
Export in progress, this may take a few minutes.
The operation completed successfully.
PS C:\Users\Administrator> wsl --unregister Ubuntu
Unregistering.
The operation completed successfully.
```

11) Enter `wsl --list` to verify the distro has been removed.

Import the backup into a new WSL2 distro at another location, such as `D:\wsl`

```
PS C:\Users\Administrator> mkdir D:\wsl

Directory: D:\

Mode                LastWriteTime         Length Name
----                -
d-----          04-02-2025      14:53         wsl

PS C:\Users\Administrator> wsl --import Ubuntu D:\wsl D:\backup\ubuntu.tar
Import in progress, this may take a few minutes.
The operation completed successfully.
PS C:\Users\Administrator> wsl --import Clone01 D:\wsl D:\backup\ubuntu.tar
Import in progress, this may take a few minutes.
The supplied install location is already in use.
PS C:\Users\Administrator> ubuntu config --default-user exit
PS C:\Users\Administrator>

exit@3bb36d3d774953e: $ sudo su
[sudo] password for exit:
root@3bb36d3d774953e:/home/exit# touch /etc/wsl.conf
root@3bb36d3d774953e:/home/exit# nano /etc/wsl.conf
root@3bb36d3d774953e:/home/exit#
root@3bb36d3d774953e:/home/exit# nano /etc/wsl.conf
exit@3bb36d3d774953e: $ exit
logout
PS C:\Users\Administrator> wsl --terminate ubuntu
The operation completed successfully.
PS C:\Users\Administrator> cd \\wsl$\Ubuntu\home\yash
```

12) For other distros that aren't the WSL Windows default, define a user by logging on to the distro and creating/editing `/etc/wsl.conf`:

`touch /etc/wsl.conf`

`nano /etc/wsl.conf`

```
root@3bb36d3d774953e:/home/exit
GNU nano 7.2 /etc/wsl.conf
[root]
system=true
[user]
default=yash
```

13) Accessing Windows Files from Linux

```
PS C:\Users\Administrator> wsl ls -la
total 11864
drwxrwxrwx 1 yash123 yash123      512 Jan 31 11:26 .
drwxrwxrwx 1 yash123 yash123      512 Oct 18 2022 ..
drwxrwxrwx 1 yash123 yash123      512 Oct 18 2022 '3D Objects'
drwxrwxrwx 1 yash123 yash123      512 Oct 18 2022 AppData
lrwxrwxrwx 1 yash123 yash123       42 Oct 18 2022 'Application Data' -> /mnt/c/Users/Administrator/AppData/Roaming
-rwxrwxrwx 1 yash123 yash123    9291 Jan 18 13:19 .bash_history
drwxrwxrwx 1 yash123 yash123      512 Apr 13 2024 .cache
drwxrwxrwx 1 yash123 yash123      512 Oct 18 2022 Contacts
drwxrwxrwx 1 yash123 yash123      70 Oct 18 2022 Cookies -> /mnt/c/Users/Administrator/AppData/Local/Microsoft/Windows/InetCookies
drwxrwxrwx 1 yash123 yash123      512 Jan  6 12:55 demo1
drwxrwxrwx 1 yash123 yash123      512 Jan  6 14:18 demo2
drwxrwxrwx 1 yash123 yash123      512 Jan 21 12:42 Desktop
drwxrwxrwx 1 yash123 yash123      512 Dec 24 12:30 .docker
drwxrwxrwx 1 yash123 yash123      512 Dec 16 15:27 Documents
drwxrwxrwx 1 yash123 yash123      512 Jan 30 14:45 Downloads
drwxrwxrwx 1 yash123 yash123      512 Apr 19 2024 .eclipse
drwxrwxrwx 1 yash123 yash123      512 Apr 13 2024 eclipse
drwxrwxrwx 1 yash123 yash123      512 Apr 13 2024 eclipse-workspace
-rwxrwxrwx 1 yash123 yash123      20 Dec 18 00:00 .erlang.cookie
drwxrwxrwx 1 yash123 yash123      512 Oct 18 2022 Favorites
drwxrwxrwx 1 yash123 yash123      512 Jan  8 09:46 flow
drwxrwxrwx 1 yash123 yash123      512 Jan 15 12:02 .git
-rwxrwxrwx 1 yash123 yash123      77 Jan  8 09:23 .gitconfig
drwxrwxrwx 1 yash123 yash123      512 Jan 15 12:00 hello-world
-rwxrwxrwx 1 yash123 yash123      20 Jan 17 15:18 .lessht
drwxrwxrwx 1 yash123 yash123      512 Oct 18 2022 links
lrwxrwxrwx 1 yash123 yash123      40 Oct 18 2022 'Local Settings' -> /mnt/c/Users/Administrator/AppData/Local
drwxrwxrwx 1 yash123 yash123      512 Oct 18 2022 Music
```

14) Run Windows Applications from Linux

```
PS C:\Users\Administrator> explorer.exe .
PS C:\Users\Administrator> notepad.exe ~/.bashrc
```

Activate Windows
Go to Settings to activate Windows.

15) Install Application

```
Administration: Windows PowerShell
Untitled - Notepad
File Edit Format View Help
Ln 1, Col 1 100% Windows (CRLF) UTF-8

drwxrwxrwx 1 yash123 yash123      67 Oct 18 2022 Recent -> /mnt/c/Users/Administrator/AppData/Roaming/Microsoft/Windows/Recent
drwxrwxrwx 1 yash123 yash123      512 Oct 18 2022 'Saved Games'
drwxrwxrwx 1 yash123 yash123      512 Oct 18 2022 Searches
drwxrwxrwx 1 yash123 yash123      67 Oct 18 2022 SendTo -> /mnt/c/Users/Administrator/AppData/Roaming/Microsoft/Windows/SendTo
drwxrwxrwx 1 yash123 yash123      71 Oct 18 2022 Start Menu -> /mnt/c/Users/Administrator/AppData/Roaming/Microsoft/Windows/Start Menu'
-rwxrwxrwx 1 yash123 yash123      23 Jan 13 19:11 surnames
drwxrwxrwx 1 yash123 yash123      70 Oct 18 2022 Templates -> /mnt/c/Users/Administrator/AppData/Roaming/Microsoft/Windows/Templates
drwxrwxrwx 1 yash123 yash123      512 Sep 11 2023 Videos
-rwxrwxrwx 1 yash123 yash123    6259 Jan 15 14:43 .viminfo
drwxrwxrwx 1 yash123 yash123      512 Jan  6 12:34 .vscode
drwxrwxrwx 1 yash123 yash123      512 Apr 13 2024 WPS Cloud Files'
-rwxrwxrwx 1 yash123 yash123      36 Jan 13 19:10 yash
-rwxrwxrwx 1 yash123 yash123       0 Jan  3 12:22 yash1.tx
-rwxrwxrwx 1 yash123 yash123       0 Jan  3 12:22 yash1.txt
-rwxrwxrwx 1 yash123 yash123       0 Jan  3 12:22 yash2.txt
-rwxrwxrwx 1 yash123 yash123       0 Jan  3 12:22 yash3.txt
drwxrwxrwx 1 yash123 yash123      512 Jan 15 12:05 yashree
-rwxrwxrwx 1 yash123 yash123    12288 Jan 13 19:00 .yash.swp
PS C:\Users\Administrator> explorer.exe .
PS C:\Users\Administrator> notepad.exe ~/.bashrc
PS C:\Users\Administrator> git config --global core.autocrlf input
```

Activate Windows
Go to Settings to activate Windows.

[illegible]

Git on Ubuntu is installed using:

```

0925-02-04 18:38:23 - To Install Node.js, run: apt-get install nodejs -y
0925-02-04 18:38:23 - You can use Ntsolid Runtime as a node.js alternative
0925-02-04 18:38:23 - To Install Ntsolid Runtime, run: apt-get install ntsolid -y

git@bb363d3d774953e:~$ sudo apt install gedit
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  alsa-topology-conf alsa-ucm-conf aspell aspell-en bubblewrap dictionaries-common docbook-xsl emacsens-common enchant-2 gedit-common gir1.2-atk-5 gir1.2-atk-1.0
  gir1.2-freedesktop gir1.2-gdkpixbuf-2.0 gir1.2-gtk-3.0 gir1.2-gtksource-300 gir1.2-pango-1.0 gir1.2-peas-1.0 gir1.2-tepl-5 glib-networking
  glib-networking-common glib-networking-services gstreamer-1.0-plugins-good gstreamer-1.0-plugins-gsm gstreamer-1.0-x-hwdep gstreamer-1.0 gstreamer-en-us libadwaita-1.0
  libapparmor1 libaspell15 libasyncns0 libatomic1 libaudio104 libcares2 libcdio-paranoia1 libcdio10 libcurl4 libdbus-1-3 libdconf1 libdrm-amdgpu1 libdrm-common libdrm-intel1
  libflac12t64 libgdbmt1 libgdip1 libgirepository1.0 libgl1 libgl1-mesa-dri libgl1-mesa-glx libglapi-mesa libglvnd0 libgnutls30 libgomp1 libgraphviz6 libgs10-common libgs10
  libgtk-3-0 libgstbase-plugin-basel-0.0 libgstbase-plugin-good-0.0 libgltk-4.1 libgltk-4-bin libgtk-4-common libgtk-4-media-gstreamer libgudev-1.0-0 libhandy-1-0
  libharfbuzz-gobject libharfbuzz-gobject intltool libl10n-1.7-0 liblhyphen0 libecb1883-0 libjvascriptcoregtk-4.1-0 libjson-glib-1.0-0 libjson-glib-1.0-common libnatnet1-0.2-0
  libnp3-lame0 libmpeg2-0 libmpc6 libncurses6 libogg0 libopus0 liborc-0.4-0 libpngfxt1-1.0-0 libpeas-1-0 libpeas-common libpipewire-0.3-0 libpipewire-0.3-common libproxifyV5

```

```

root@b0b04507499set:~# curl -sL https://deb.nodesource.com/setup_18.x | sudo -E bash -
[NM-02-04 10:29:55 - Installing pre-requisites]
get11 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
get12 http://archive.ubuntu.com/ubuntu noble InRelease
get13 http://archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
get14 http://security.ubuntu.com/ubuntu noble-security/main amd64 Packages [615 kB]
get15 http://archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
get16 http://archive.ubuntu.com/ubuntu noble/universe amd64 Packages [15.0 MB]
get17 http://security.ubuntu.com/ubuntu noble-security/main Translation-en [118 kB]
get18 http://security.ubuntu.com/ubuntu noble-security/main amd64 Components [8972 B]
get19 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages [803 kB]
get10 http://archive.ubuntu.com/ubuntu noble/universe Translation-en [5982 kB]
get11 http://archive.ubuntu.com/ubuntu noble/universe amd64 Components [3871 kB]
get12 http://security.ubuntu.com/ubuntu noble-security/universe Translation-en [171 kB]
get13 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Components [152.0 kB]
get14 http://security.ubuntu.com/ubuntu noble-security/universe amd64 c-n-f Metadata [13.5 kB]
get15 http://archive.ubuntu.com/ubuntu noble-security/restricted amd64 Packages [620 kB]
get16 http://archive.ubuntu.com/ubuntu noble/universe amd64 c-n-f Metadata [301 kB]
get17 http://archive.ubuntu.com/ubuntu noble/multiverse amd64 Packages [269 kB]
get18 http://archive.ubuntu.com/ubuntu noble/multiverse Translation-en [118 kB]
get19 http://security.ubuntu.com/ubuntu noble-security/restricted Translation-en [119 kB]
get20 http://archive.ubuntu.com/ubuntu noble/multiverse amd64 Components [35.0 kB]

```

16) Installing Graphical Linux Applications

```
exit@3bb36d3d774953e: $ sudo apt-get install build-essential
[sudo] password for exit:
Sorry, try again.
[sudo] password for exit:
Sorry, try again.
[sudo] password for exit:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  bzip2 cpp cpp-13 cpp-13-x86-64-linux-gnu cpp-x86-64-linux-gnu dpkg-dev fakeroot g++ g++-13 g++-13-x86-64-linux-gnu
  g++-x86-64-linux-gnu gcc gcc-13 gcc-13-base gcc-13-x86-64-linux-gnu gcc-x86-64-linux-gnu libalgorithm-diff-perl
  libalgorithm-diff-xs-perl libalgorithm-merge-perl libao3 libasan8 libatomic1 libc-dev-bin libc-devtools libc6-dev
  libcc1-0 libcrypt-dev libde265-0 libdpkg-perl libfakeroot libfile-fcntllock-perl libgcc-13-dev libgd3 libgomp1
  libheif-plugin-aomdec libheif-plugin-aomenc libheif-plugin-libde265 libheif1 libhwasan0 libisl23 libitm1 liblsan0
  libmpc3 libquadmath0 libstdc++-13-dev libtsan2 libubsan1 libxpm4 linux-libc-dev lto-disabled-list make manpages-dev
  rpcsvc-proto
Suggested packages:
  bzip2-doc cpp-doc gcc-13-locales cpp-13-doc debconf-keyring g++-multilib g++-13-multilib gcc-13-doc gcc-multilib
  autoconf automake libtool flex bison gdb gcc-doc gcc-13-multilib gdb-x86-64-linux-gnu libc-dev-bin libgd-tools
  libheif-plugin-x265 libheif-plugin-x265 libheif-plugin-jpegdec libheif-plugin-jpegenc libheif-plugin-j2kdec
  libheif-plugin-j2kenc libheif-plugin-rav1e libheif-plugin-svtenc libstdc++-13-doc make-doc
The following NEW packages will be installed:
  build-essential bzip2 cpp cpp-13 cpp-13-x86-64-linux-gnu cpp-x86-64-linux-gnu dpkg-dev fakeroot g++ g++-13
  g++-13-x86-64-linux-gnu g++-x86-64-linux-gnu gcc gcc-13 gcc-13-base gcc-13-x86-64-linux-gnu gcc-x86-64-linux-gnu
  libalgorithm-diff-perl libalgorithm-diff-xs-perl libalgorithm-merge-perl libao3 libasan8 libatomic1 libc-dev-bin
  libc-devtools libc6-dev libcc1-0 libcrypt-dev libde265-0 libdpkg-perl libfakeroot libfile-fcntllock-perl
  libgcc-13-dev libgd3 libgomp1 libheif-plugin-aomdec libheif-plugin-aomenc libheif-plugin-libde265 libheif1
  libhwasan0 libisl23 libitm1 liblsan0 libmpc3 libquadmath0 libstdc++-13-dev libtsan2 libubsan1 libxpm4 linux-libc-dev
  lto-disabled-list make manpages-dev rpcsvc-proto
0 upgraded, 54 newly installed, 0 to remove and 0 not upgraded.
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```