

ASSIGNMENT 2b

```
unamea3-402-09@a3-402-09:~$ uname -a
Linux a3-402-09 5.15.0-91-generic #101~20.04.1-Ubuntu SMP Thu Nov 16 14:22:28 UTC 2023 x86_64
x86_64 x86_64 GNU/Linux
a3-402-09@a3-402-09:~$ apt-get
apt 2.0.9 (amd64)
Usage: apt-get [options] command
       apt-get [options] install|remove pkg1 [pkg2 ...]
       apt-get [options] source pkg1 [pkg2 ...]
```

apt-get is a command line interface for retrieval of packages and information about them from authenticated sources and for installation, upgrade and removal of packages together with their dependencies.

Most used commands:

- update - Retrieve new lists of packages
- upgrade - Perform an upgrade
- install - Install new packages (pkg is libc6 not libc6.deb)
- reinstall - Reinstall packages (pkg is libc6 not libc6.deb)
- remove - Remove packages
- purge - Remove packages and config files
- autoremove - Remove automatically all unused packages
- dist-upgrade - Distribution upgrade, see apt-get(8)
- dselect-upgrade - Follow dselect selections
- build-dep - Configure build-dependencies for source packages
- satisfy - Satisfy dependency strings
- clean - Erase downloaded archive files
- autoclean - Erase old downloaded archive files
- check - Verify that there are no broken dependencies
- source - Download source archives
- download - Download the binary package into the current directory
- changelog - Download and display the changelog for the given package

See apt-get(8) for more information about the available commands.
Configuration options and syntax is detailed in apt.conf(5).
Information about how to configure sources can be found in sources.list(5).
Package and version choices can be expressed via apt_preferences(5).
Security details are available in apt-secure(8).

This APT has Super Cow Powers.

```
a3-402-09@a3-402-09:~$ sudo apt-get update
[sudo] password for a3-402-09:
Get:1 http://packages.microsoft.com/repos/code stable InRelease [3,589 B]
Hit:2 http://in.archive.ubuntu.com/ubuntu focal InRelease
Get:3 https://packages.microsoft.com/repos/vscode stable InRelease [3,593 B]
Hit:4 http://ppa.launchpad.net/mmk2410/intellij-idea/ubuntu focal InRelease
Get:5 http://in.archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]
Get:6 http://security.ubuntu.com/ubuntu focal-security InRelease [114 kB]
Hit:7 https://packages.microsoft.com/repos/ms-teams stable InRelease
Get:8 http://packages.microsoft.com/repos/code stable/main amd64 Packages [15.7 kB]
Get:9 https://dl.google.com/linux/chrome/deb stable InRelease [1,825 B]
Get:10 http://packages.microsoft.com/repos/code stable/main arm64 Packages [15.6 kB]
Get:11 http://packages.microsoft.com/repos/code stable/main armhf Packages [15.7 kB]
Get:12 https://packages.microsoft.com/repos/vscode stable/main amd64 Packages [23.6 kB]
```

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Hit:13 http://in.archive.ubuntu.com/ubuntu focal-backports InRelease
Get:14 https://dl.google.com/linux/chrome/deb stable/main amd64 Packages [1,068 B]
Get:15 http://in.archive.ubuntu.com/ubuntu focal-updates/main i386 Packages [920 kB]
Get:16 http://security.ubuntu.com/ubuntu focal-security/main i386 Packages [694 kB]
Get:17 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 Packages [3,030 kB]
Get:18 http://in.archive.ubuntu.com/ubuntu focal-updates/restricted i386 Packages [36.9 kB]
Get:19 http://in.archive.ubuntu.com/ubuntu focal-updates/restricted amd64 Packages [2,585 kB]
Get:20 http://security.ubuntu.com/ubuntu focal-security/main amd64 Packages [2,648 kB]
Get:21 http://in.archive.ubuntu.com/ubuntu focal-updates/restricted Translation-en [360 kB]
Get:22 http://in.archive.ubuntu.com/ubuntu focal-updates/universe i386 Packages [768 kB]
Get:23 http://in.archive.ubuntu.com/ubuntu focal-updates/universe amd64 Packages [1,155 kB]
Get:24 http://in.archive.ubuntu.com/ubuntu focal-updates/multiverse i386 Packages [8,456 B]
Get:25 http://in.archive.ubuntu.com/ubuntu focal-updates/multiverse amd64 Packages [26.1 kB]
Get:26 http://security.ubuntu.com/ubuntu focal-security/main Translation-en [406 kB]
Get:27 http://security.ubuntu.com/ubuntu focal-security/restricted i386 Packages [35.5 kB]
Get:28 http://security.ubuntu.com/ubuntu focal-security/restricted amd64 Packages [2,462 kB]
Get:29 http://security.ubuntu.com/ubuntu focal-security/restricted Translation-en [343 kB]
Get:30 http://security.ubuntu.com/ubuntu focal-security/universe i386 Packages [640 kB]
Get:31 http://security.ubuntu.com/ubuntu focal-security/universe amd64 Packages [929 kB]
Get:32 http://security.ubuntu.com/ubuntu focal-security/universe Translation-en [196 kB]
Get:33 http://security.ubuntu.com/ubuntu focal-security/multiverse amd64 Packages [23.9 kB]
Fetched 17.6 MB in 10s (1,802 kB/s)
Reading package lists... Done
a3-402-09@a3-402-09:~$ sudo apt-get install apt-transport-https ca-certificates
E: Could not get lock /var/lib/dpkg/lock-frontent. It is held by process 4459 (unattended-upgr)
N: Be aware that removing the lock file is not a solution and may break your system.
E: Unable to acquire the dpkg frontend lock (/var/lib/dpkg/lock-frontent), is another process using it?
a3-402-09@a3-402-09:~$ ps aux | grep -i apt
root      833  0.0  0.1 126272  9348 ?        Ssl  11:40   0:00 /usr/sbin/thermald --systemd --dbus-enable --adaptive
a3-402-+  6258  0.0  0.0  9040  716 pts/0    S+   12:33   0:00 grep --color=auto -i apt
a3-402-09@a3-402-09:~$ sudo kill 833
a3-402-09@a3-402-09:~$ ps aux | grep -i apt
a3-402-+  6412  0.0  0.0  8908  648 pts/0    S+   12:36   0:00 grep --color=auto -i apt
a3-402-09@a3-402-09:~$ sudo apt-get install apt-transport-https ca-certificates
Reading package lists... Done
Building dependency tree
Reading state information... Done
ca-certificates is already the newest version (20230311ubuntu0.20.04.1).
The following packages will be upgraded:
  apt-transport-https
1 upgraded, 0 newly installed, 0 to remove and 42 not upgraded.
Need to get 1,704 B of archives.
After this operation, 0 B of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://in.archive.ubuntu.com/ubuntu focal-updates/universe amd64 apt-transport-https all 2.0.10 [1,704 B]
Fetched 1,704 B in 1s (3,358 B/s)
(Reading database ... 240368 files and directories currently installed.)
Preparing to unpack .../apt-transport-https_2.0.10_all.deb ...
Unpacking apt-transport-https (2.0.10) over (2.0.9) ...
Setting up apt-transport-https (2.0.10) ...
a3-402-09@a3-402-09:~$ sudo apt-key adv \
> --keyserver hkp://ha.pool.sks-keyservers.net:80 \
> --recv-keys 58118E89F3A912897C070ADB76221572C52609D
Executing: /tmp/apt-key-gpghome.PVot5r95yd/gpg.1.sh --keyserver hkp://ha.pool.sks-keyservers.net:80 --recv-keys 58118E89F3A912897C070ADB76221572C52609D

```

```

gpg: keyserver receive failed: Server indicated a failure
a3-402-09@a3-402-09:~$ gpg --keyserver-options http-proxy="http://xxxx:xxxx@proxy:8080" --keyserver
hkp://p80.pool.sks-keyservers.net:80 --recv-keys B42F6819007F00F88E364FD4036A9C25BF357DD4
gpg: keyserver receive failed: No name
a3-402-09@a3-402-09:~$ for server in ha.pool.sks-keyservers.net \
> hkp://p80.pool.sks-keyservers.net:80 \
> keyserver.ubuntu.com \
> hkp://keyserver.ubuntu.com:80 \
> pgp.mit.edu; do
> gpg --keyserver "$server" --recv-keys B42F6819007F00F88E364FD4036A9C25BF357DD4 && break ||
echo "Trying new server..."
> done
gpg: keyserver receive failed: Server indicated a failure
Trying new server...
gpg: keyserver receive failed: Server indicated a failure
Trying new server...
gpg: key 036A9C25BF357DD4: 11 duplicate signatures removed
gpg: key 036A9C25BF357DD4: public key "Tianon Gravi <tianon@tianon.xyz>" imported
gpg: Total number processed: 1
gpg: imported: 1
a3-402-09@a3-402-09:~$ echo "deb https://apt.dockerproject.org/repo ubuntu-trusty main" | sudo tee
/etc/apt/sources.list.d/docker.list
deb https://apt.dockerproject.org/repo ubuntu-trusty main
a3-402-09@a3-402-09:~$ sudo apt-get update
Err:1 https://apt.dockerproject.org/repo ubuntu-trusty InRelease
Something wicked happened resolving 'apt.dockerproject.org:https' (-5 - No address associated with
hostname)
Hit:2 http://packages.microsoft.com/repos/code stable InRelease
Hit:3 http://ppa.launchpad.net/mmk2410/intellij-idea/ubuntu focal InRelease
Get:4 https://packages.microsoft.com/repos/vscode stable InRelease [3,593 B]
Hit:5 http://in.archive.ubuntu.com/ubuntu focal InRelease
Hit:6 http://security.ubuntu.com/ubuntu focal-security InRelease
Hit:7 https://packages.microsoft.com/repos/ms-teams stable InRelease
Hit:8 https://dl.google.com/linux/chrome/deb stable InRelease
Hit:9 http://in.archive.ubuntu.com/ubuntu focal-updates InRelease
Hit:10 http://in.archive.ubuntu.com/ubuntu focal-backports InRelease
Get:11 https://packages.microsoft.com/repos/vscode stable/main amd64 Packages [23.7 kB]
Fetched 27.3 kB in 2s (12.5 kB/s)
Reading package lists... Done
W: Failed to fetch https://apt.dockerproject.org/repo/dists/ubuntu-trusty/InRelease Something wicked
happened resolving 'apt.dockerproject.org:https' (-5 - No address associated with hostname)
W: Some index files failed to download. They have been ignored, or old ones used instead.
a3-402-09@a3-402-09:~$ sudo nano /etc/apt/sources.list.d/docker.list
a3-402-09@a3-402-09:~$ sudo apt-get update
Get:1 http://packages.microsoft.com/repos/code stable InRelease [3,589 B]
Err:2 https://apt.dockerproject.org/repo ubuntu-trusty InRelease
Something wicked happened resolving 'apt.dockerproject.org:https' (-5 - No address associated with
hostname)
Get:3 http://security.ubuntu.com/ubuntu focal-security InRelease [114 kB]
Hit:4 https://dl.google.com/linux/chrome/deb stable InRelease
Hit:5 https://packages.microsoft.com/repos/vscode stable InRelease
Hit:6 https://packages.microsoft.com/repos/ms-teams stable InRelease
Hit:7 http://in.archive.ubuntu.com/ubuntu focal InRelease
Hit:8 http://ppa.launchpad.net/mmk2410/intellij-idea/ubuntu focal InRelease
Hit:9 http://in.archive.ubuntu.com/ubuntu focal-updates InRelease
Hit:10 http://in.archive.ubuntu.com/ubuntu focal-backports InRelease
Fetched 117 kB in 2s (75.7 kB/s)

```

Reading package lists... Done

W: Failed to fetch https://apt.dockerproject.org/repos/dists/ubuntu-trusty/InRelease Something wicked happened resolving 'apt.dockerproject.org:https' (-5 - No address associated with hostname)

W: Some index files failed to download. They have been ignored, or old ones used instead.

a3-402-09@a3-402-09:~\$ curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo gpg --dearmor -o /usr/share/keyrings/docker-archive-keyring.gpg

a3-402-09@a3-402-09:~\$ echo "deb [arch=amd64 signed-by=/usr/share/keyrings/docker-archive-keyring.gpg] https://download.docker.com/linux/ubuntu focal stable" | sudo tee /etc/apt/sources.list.d/docker.list > /dev/null

a3-402-09@a3-402-09:~\$ sudo apt-get update

Get:1 https://download.docker.com/linux/ubuntu focal InRelease [57.7 kB]

Get:2 https://download.docker.com/linux/ubuntu focal/stable amd64 Packages [34.9 kB]

Get:3 http://packages.microsoft.com/repos/code stable InRelease [3,589 B]

Hit:4 http://in.archive.ubuntu.com/ubuntu focal InRelease

Hit:5 https://dl.google.com/linux/chrome/deb stable InRelease

Hit:6 http://in.archive.ubuntu.com/ubuntu focal-updates InRelease

Get:7 http://packages.microsoft.com/repos/code stable/main arm64 Packages [15.7 kB]

Hit:8 http://ppa.launchpad.net/mmk2410/intellij-idea/ubuntu focal InRelease

Hit:9 https://packages.microsoft.com/repos/vscode stable InRelease

Hit:10 https://packages.microsoft.com/repos/ms-teams stable InRelease

Hit:11 http://security.ubuntu.com/ubuntu focal-security InRelease

Hit:12 http://in.archive.ubuntu.com/ubuntu focal-backports InRelease

Get:13 http://packages.microsoft.com/repos/code stable/main armhf Packages [15.8 kB]

Get:14 http://packages.microsoft.com/repos/code stable/main amd64 Packages [15.7 kB]

Fetch: 143 kB in 1s (111 kB/s)

Reading package lists... Done

a3-402-09@a3-402-09:~\$ apt-cache policy docker-engine

docker-engine:

Installed: (none)

Candidate: (none)

Version table:

a3-402-09@a3-402-09:~\$ sudo apt autoremove

Reading package lists... Done

Building dependency tree

Reading state information... Done

0 upgraded, 0 newly installed, 0 to remove and 42 not upgraded.

a3-402-09@a3-402-09:~\$ sudo apt-get install docker.io

Reading package lists... Done

Building dependency tree

Reading state information... Done

The following additional packages will be installed:

bridge-utils containerd pigz runc ubuntu-fan

Suggested packages:

ifupdown aufs-tools btrfs-progs cgroupfs-mount | cgroup-lite debootstrap docker-doc rinse zfs-fuse | zfsutils

The following NEW packages will be installed:

bridge-utils containerd docker.io pigz runc ubuntu-fan

0 upgraded, 6 newly installed, 0 to remove and 42 not upgraded.

Need to get 62.9 MB of archives.

After this operation, 266 MB of additional disk space will be used.

Do you want to continue? [Y/n] y

Get:1 http://in.archive.ubuntu.com/ubuntu focal/universe amd64 pigz amd64 2.4-1 [57.4 kB]

Get:2 http://in.archive.ubuntu.com/ubuntu focal/main amd64 bridge-utils amd64 1.6-2ubuntu1 [30.5 kB]

Get:3 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 runc amd64 1.1.7-0ubuntu1~20.04.1 [3,819 kB]

Get:4 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 containerd amd64 1.7.2-0ubuntu1~20.04.1 [32.5 MB]

```
Get:5 http://in.archive.ubuntu.com/ubuntu focal-updates/universe amd64 docker.io amd64 24.0.5-0ubuntu1~20.04.1 [26.4 MB]
Get:6 http://in.archive.ubuntu.com/ubuntu focal-updates/main amd64 ubuntu-fan all 0.12.13ubuntu0.1 [34.4 kB]
Fetched 62.9 MB in 26s (2,461 kB/s)
Preconfiguring packages ...
Selecting previously unselected package pigz.
(Reading database ... 240368 files and directories currently installed.)
Preparing to unpack .../0-pigz_2.4-1_amd64.deb ...
Unpacking pigz (2.4-1) ...
Selecting previously unselected package bridge-utils.
Preparing to unpack .../1-bridge-utils_1.6-2ubuntu1_amd64.deb ...
Unpacking bridge-utils (1.6-2ubuntu1) ...
Selecting previously unselected package runc.
Preparing to unpack .../2-runc_1.1.7-0ubuntu1~20.04.1_amd64.deb ...
Unpacking runc (1.1.7-0ubuntu1~20.04.1) ...
Selecting previously unselected package containerd.
Preparing to unpack .../3-containerd_1.7.2-0ubuntu1~20.04.1_amd64.deb ...
Unpacking containerd (1.7.2-0ubuntu1~20.04.1) ...
Selecting previously unselected package docker.io.
Preparing to unpack .../4-docker.io_24.0.5-0ubuntu1~20.04.1_amd64.deb ...
Unpacking docker.io (24.0.5-0ubuntu1~20.04.1) ...
Selecting previously unselected package ubuntu-fan.
Preparing to unpack .../5-ubuntu-fan_0.12.13ubuntu0.1_all.deb ...
Unpacking ubuntu-fan (0.12.13ubuntu0.1) ...
Setting up runc (1.1.7-0ubuntu1~20.04.1) ...
Setting up bridge-utils (1.6-2ubuntu1) ...
Setting up pigz (2.4-1) ...
Setting up containerd (1.7.2-0ubuntu1~20.04.1) ...
Created symlink /etc/systemd/system/multi-user.target.wants/containerd.service → /lib/systemd/system/containerd.service.
Setting up ubuntu-fan (0.12.13ubuntu0.1) ...
Created symlink /etc/systemd/system/multi-user.target.wants/ubuntu-fan.service → /lib/systemd/system/ubuntu-fan.service.
Setting up docker.io (24.0.5-0ubuntu1~20.04.1) ...
Adding group `docker' (GID 139) ...
Done.
Created symlink /etc/systemd/system/multi-user.target.wants/docker.service → /lib/systemd/system/docker.service.
Created symlink /etc/systemd/system/sockets.target.wants/docker.socket → /lib/systemd/system/docker.socket.
Processing triggers for systemd (245.4-4ubuntu3.22) ...
Processing triggers for man-db (2.9.1-1) ...
a3-402-09@a3-402-09:~$ apt-cache policy docker-engine
docker-engine:
  Installed: (none)
  Candidate: (none)
  Version table:
a3-402-09@a3-402-09:~$ sudo apt-get update
Hit:1 https://download.docker.com/linux/ubuntu focal InRelease
Hit:2 http://packages.microsoft.com/repos/code stable InRelease
Hit:3 http://ppa.launchpad.net/mmk2410/intellij-idea/ubuntu focal InRelease
Hit:4 https://dl.google.com/linux/chrome/deb stable InRelease
Hit:5 http://in.archive.ubuntu.com/ubuntu focal InRelease
Hit:6 http://security.ubuntu.com/ubuntu focal-security InRelease
Hit:7 https://packages.microsoft.com/repos/vscode stable InRelease
Hit:8 https://packages.microsoft.com/repos/ms-teams stable InRelease
```

```
Hit:9 http://in.archive.ubuntu.com/ubuntu focal-updates InRelease
Hit:10 http://in.archive.ubuntu.com/ubuntu focal-backports InRelease
Reading package lists... Done
a3-402-09@a3-402-09:~$ sudo apt-get install docker.io
Reading package lists... Done
Building dependency tree
Reading state information... Done
docker.io is already the newest version (24.0.5-0ubuntu1~20.04.1).
0 upgraded, 0 newly installed, 0 to remove and 42 not upgraded.
a3-402-09@a3-402-09:~$ docker --version
Docker version 24.0.5, build 24.0.5-0ubuntu1~20.04.1
a3-402-09@a3-402-09:~$ sudo apt-get install -y docker-engine
Reading package lists... Done
Building dependency tree
Reading state information... Done
Package docker-engine is not available, but is referred to by another package.
This may mean that the package is missing, has been obsoleted, or
is only available from another source
However the following packages replace it:
  docker-ce
```

```
E: Package 'docker-engine' has no installation candidate
a3-402-09@a3-402-09:~$ sudo service docker start
a3-402-09@a3-402-09:~$ sudo docker run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
c1ec31eb5944: Pull complete
Digest: sha256:4bd78111b6914a99dbc560e6a20eab57ff6655aea4a80c50b0c5491968cbc2e6
Status: Downloaded newer image for hello-world:latest
```

Hello from Docker!
This message shows that your installation appears to be working correctly.

To generate this message, Docker took the following steps:

1. The Docker client contacted the Docker daemon.
2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
(amd64)
3. The Docker daemon created a new container from that image which runs the executable that produces the output you are currently reading.
4. The Docker daemon streamed that output to the Docker client, which sent it to your terminal.

To try something more ambitious, you can run an Ubuntu container with:
\$ docker run -it ubuntu bash

Share images, automate workflows, and more with a free Docker ID:
<https://hub.docker.com/>

For more examples and ideas, visit:
<https://docs.docker.com/get-started/>

