

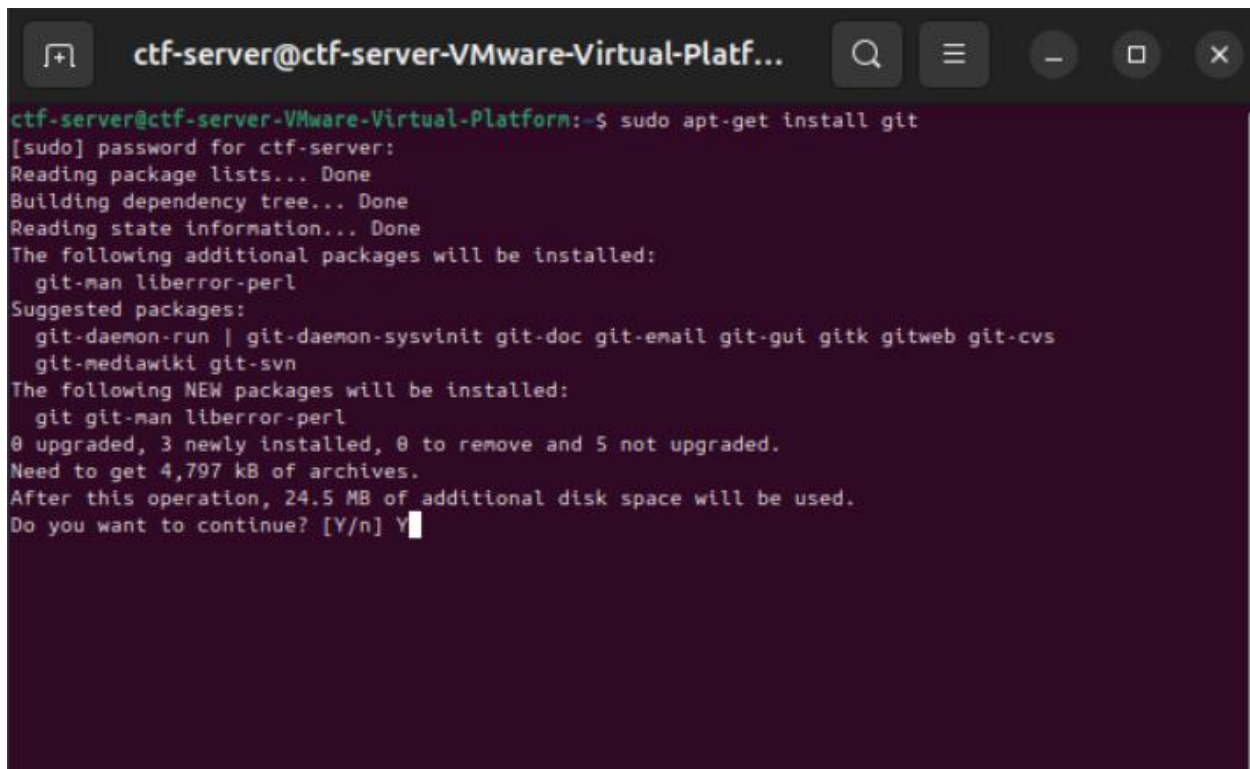
Root The Box CTF Setup on Ubuntu CLI

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Step 1: Assuming you already have ubuntu installed, navigate to the terminal and execute the command below, once prompted type **Y** and press enter.

Command: **sudo apt-get install git**

A terminal window titled 'ctf-server@ctf-server-VMware-Virtual-Platf...' with standard window controls. The terminal shows the command 'sudo apt-get install git' being executed. It prompts for a password, then shows progress for reading package lists, building the dependency tree, and reading state information. It lists additional packages to be installed (git-man, liberror-perl) and suggested packages (git-daemon-run, git-daemon-sysvinit, git-doc, git-email, git-gui, gitk, gitweb, git-cvs, git-mediawiki, git-svn). It states that 3 new packages will be installed (git, git-man, liberror-perl), with 0 upgraded, 3 newly installed, 0 to remove, and 5 not upgraded. It shows the disk space requirements: 4,797 kB of archives and 24.5 MB of additional disk space. Finally, it asks 'Do you want to continue? [Y/n]' with 'Y' entered.

```
ctf-server@ctf-server-VMware-Virtual-Platf...$ sudo apt-get install git
[sudo] password for ctf-server:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  git-man liberror-perl
Suggested packages:
  git-daemon-run | git-daemon-sysvinit git-doc git-email git-gui gitk gitweb git-cvs
  git-mediawiki git-svn
The following NEW packages will be installed:
  git git-man liberror-perl
0 upgraded, 3 newly installed, 0 to remove and 5 not upgraded.
Need to get 4,797 kB of archives.
After this operation, 24.5 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y
```

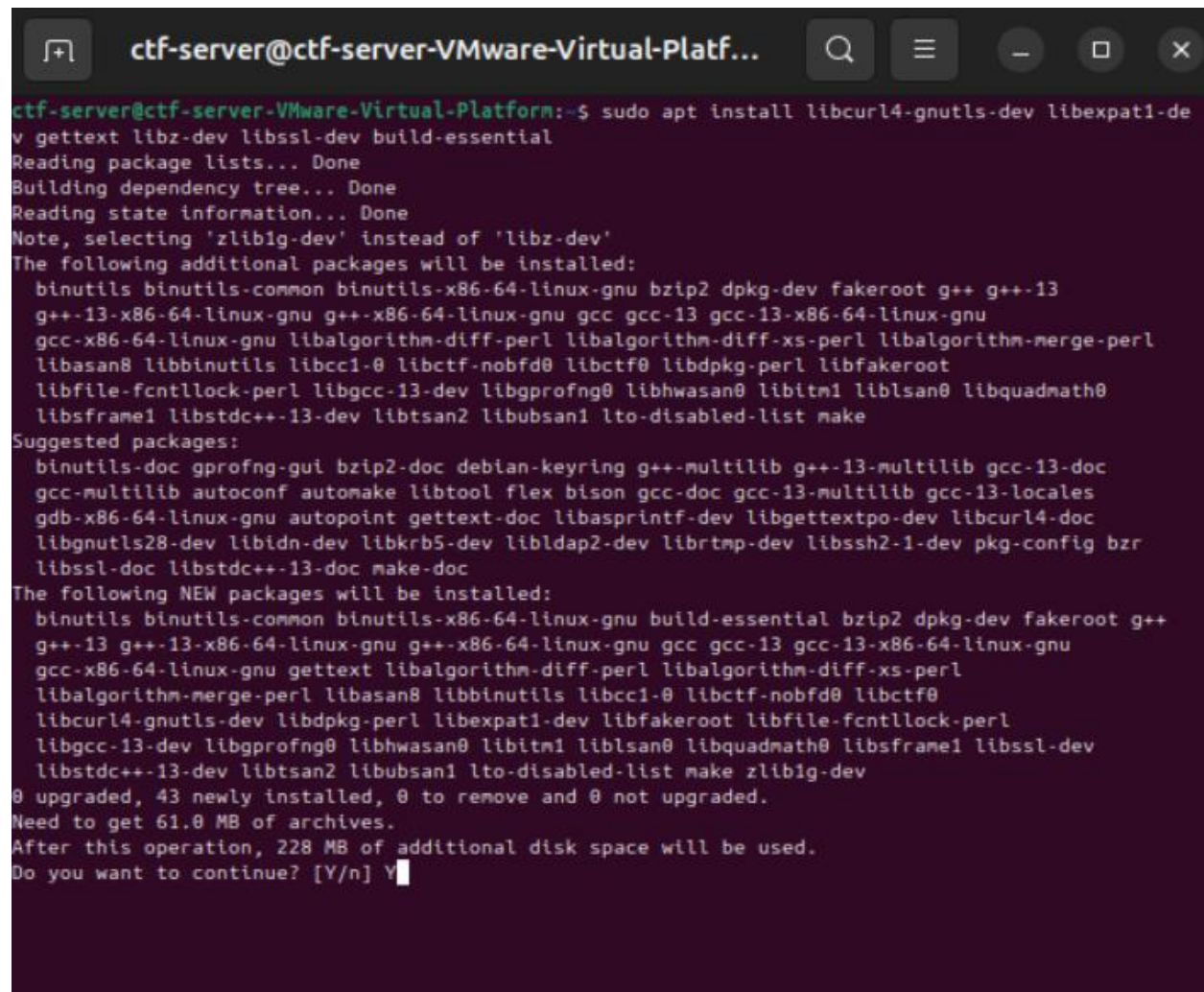
Step 2: then update the package list followed by a package list upgrade.

Command: **sudo apt update, sudo apt upgrade**

```
Setting up liberror-perl (0.17029-2) ...
Setting up git-man (1:2.43.0-1ubuntu7) ...
Setting up git (1:2.43.0-1ubuntu7) ...
Processing triggers for man-db (2.12.0-4build2) ...
ctf-server@ctf-server-VMware-Virtual-Platform:~$ sudo apt update
Warning: The unit file, source configuration file or drop-ins of apt-news.service changed on disk.
Run 'systemctl daemon-reload' to reload units.
Warning: The unit file, source configuration file or drop-ins of esm-cache.service changed on disk.
Run 'systemctl daemon-reload' to reload units.
Hit:1 http://us.archive.ubuntu.com/ubuntu noble InRelease
Hit:2 http://us.archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:3 http://security.ubuntu.com/ubuntu noble-security InRelease
Hit:4 http://us.archive.ubuntu.com/ubuntu noble-backports InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
5 packages can be upgraded. Run 'apt list --upgradable' to see them.
ctf-server@ctf-server-VMware-Virtual-Platform:~$ sudo apt upgrade
```

Step 3: Install the requirements needed to install git, when prompted press Y.

Command: **sudo apt install libcurl4-gnutls-dev libexpat1-dev gettext libz-dev libssl-dev build-essential**



```
ctf-server@ctf-server-VMware-Virtual-Platf...
ctf-server@ctf-server-VMware-Virtual-Platform:~$ sudo apt install libcurl4-gnutls-dev libexpat1-dev gettext libz-dev libssl-dev build-essential
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Note, selecting 'zlib1g-dev' instead of 'libz-dev'
The following additional packages will be installed:
  binutils binutils-common binutils-x86-64-linux-gnu bzip2 dpkg-dev fakeroot g++ g++-13
  g++-13-x86-64-linux-gnu g++-x86-64-linux-gnu gcc gcc-13 gcc-13-x86-64-linux-gnu
  gcc-x86-64-linux-gnu libalgorithm-diff-perl libalgorithm-diff-xs-perl libalgorithm-merge-perl
  libasan8 libbinutils libcc1-0 libctf-nobfd0 libctf0 libdpkg-perl libfakeroot
  libfile-fcntllock-perl libgcc-13-dev libgprofng0 libhwasan0 libitm1 liblsan0 libquadmath0
  libsframe1 libstdc++-13-dev libtsan2 libubsan1 lto-disabled-list make
Suggested packages:
  binutils-doc gprofng-gui bzip2-doc debian-keyring g++-multilib g++-13-multilib gcc-13-doc
  gcc-multilib autoconf automake libtool flex bison gcc-doc gcc-13-multilib gcc-13-locales
  gdb-x86-64-linux-gnu autopoint gettext-doc libasprintf-dev libgettextpo-dev libcurl4-doc
  libgnutls28-dev libidn-dev libkrb5-dev libldap2-dev librtmp-dev libssh2-1-dev pkg-config bzip2-doc
  libstdc++-13-doc make-doc
The following NEW packages will be installed:
  binutils binutils-common binutils-x86-64-linux-gnu build-essential bzip2 dpkg-dev fakeroot g++
  g++-13 g++-13-x86-64-linux-gnu g++-x86-64-linux-gnu gcc gcc-13 gcc-13-x86-64-linux-gnu
  gcc-x86-64-linux-gnu gettext libalgorithm-diff-perl libalgorithm-diff-xs-perl
  libalgorithm-merge-perl libasan8 libbinutils libcc1-0 libctf-nobfd0 libctf0
  libcurl4-gnutls-dev libdpkg-perl libexpat1-dev libfakeroot libfile-fcntllock-perl
  libgcc-13-dev libgprofng0 libhwasan0 libitm1 liblsan0 libquadmath0 libsframe1 libssl-dev
  libstdc++-13-dev libtsan2 libubsan1 lto-disabled-list make zlib1g-dev
0 upgraded, 43 newly installed, 0 to remove and 0 not upgraded.
Need to get 61.0 MB of archives.
After this operation, 228 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y
```

Step 4: Download the git source code from the GitHub website.

Command: **wget** <https://github.com/git/git/archive/refs/tags/v2.31.1.tar.gz>

```
Setting up libcc1-0:amd64 (14-20240412-0ubuntu1) ...
Setting up liblsan0:amd64 (14-20240412-0ubuntu1) ...
Setting up libitm1:amd64 (14-20240412-0ubuntu1) ...
Setting up libalgorithm-merge-perl (0.08-5) ...
Setting up libctf0:amd64 (2.42-4ubuntu2) ...
Setting up libgprofng0:amd64 (2.42-4ubuntu2) ...
Setting up libgcc-13-dev:amd64 (13.2.0-23ubuntu4) ...
Setting up libstdc++-13-dev:amd64 (13.2.0-23ubuntu4) ...
Setting up binutils-x86-64-linux-gnu (2.42-4ubuntu2) ...
Setting up gcc-13-x86-64-linux-gnu (13.2.0-23ubuntu4) ...
Setting up binutils (2.42-4ubuntu2) ...
Setting up dpkg-dev (1.22.6ubuntu6) ...
Setting up gcc-13 (13.2.0-23ubuntu4) ...
Setting up g++-13-x86-64-linux-gnu (13.2.0-23ubuntu4) ...
Setting up gcc-x86-64-linux-gnu (4:13.2.0-7ubuntu1) ...
Setting up gcc (4:13.2.0-7ubuntu1) ...
Setting up g++-x86-64-linux-gnu (4:13.2.0-7ubuntu1) ...
Setting up g++-13 (13.2.0-23ubuntu4) ...
Setting up g++ (4:13.2.0-7ubuntu1) ...
update-alternatives: using /usr/bin/g++ to provide /usr/bin/c++ (c++) in auto mode
Setting up build-essential (12.10ubuntu1) ...
Processing triggers for libc-bin (2.39-0ubuntu8.1) ...
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for install-info (7.1-3build2) ...
ctf-server@ctf-server-VMware-Virtual-Platform:~$ wget https://github.com/git/git/archive/refs/tags/v2.31.1.tar.gz
```


Step 5: Next we need to extract the downloaded archive by using the tar command.

Command: **tar -xvf v2.31.1.tar.gz**

```
Setting up g++-x86-64-linux-gnu (4:13.2.0-7ubuntu1) ...
Setting up g++-13 (13.2.0-23ubuntu4) ...
Setting up g++ (4:13.2.0-7ubuntu1) ...
update-alternatives: using /usr/bin/g++ to provide /usr/bin/c++ (c++) in auto mode
Setting up build-essential (12.10ubuntu1) ...
Processing triggers for libc-bin (2.39-0ubuntu8.1) ...
Processing triggers for man-db (2.12.0-4build2) ...
Processing triggers for install-info (7.1-3build2) ...
ctf-server@ctf-server-VMware-Virtual-Platform:~$ wget https://github.com/git/git/archive/refs/tags/v2.31.1.tar.gz
--2024-05-15 10:34:46-- https://github.com/git/git/archive/refs/tags/v2.31.1.tar.gz
Resolving github.com (github.com)... 140.82.116.3
Connecting to github.com (github.com)|140.82.116.3|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://codeload.github.com/git/git/tar.gz/refs/tags/v2.31.1 [following]
--2024-05-15 10:34:46-- https://codeload.github.com/git/git/tar.gz/refs/tags/v2.31.1
Resolving codeload.github.com (codeload.github.com)... 140.82.116.10
Connecting to codeload.github.com (codeload.github.com)|140.82.116.10|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 10148596 (9.7M) [application/x-gzip]
Saving to: 'v2.31.1.tar.gz'

v2.31.1.tar.gz      100%[=====>]  9.68M  26.3MB/s   in 0.4s

2024-05-15 10:34:47 (26.3 MB/s) - 'v2.31.1.tar.gz' saved [10148596/10148596]

ctf-server@ctf-server-VMware-Virtual-Platform:~$ tar -xvf v2.31.1.tar.gz
```

Step 6: Change directory to git-2.31.1 by using the cd command.

Command: **cd git-2.31.1**

```
git-2.31.1/worktree.h
git-2.31.1/wrap-for-bin.sh
git-2.31.1/wrapper.c
git-2.31.1/write-or-die.c
git-2.31.1/ws.c
git-2.31.1/wt-status.c
git-2.31.1/wt-status.h
git-2.31.1/xdiff-interface.c
git-2.31.1/xdiff-interface.h
git-2.31.1/xdiff/
git-2.31.1/xdiff/xdiff.h
git-2.31.1/xdiff/xdiffi.c
git-2.31.1/xdiff/xdiffi.h
git-2.31.1/xdiff/xemit.c
git-2.31.1/xdiff/xemit.h
git-2.31.1/xdiff/xhistogram.c
git-2.31.1/xdiff/xinclude.h
git-2.31.1/xdiff/xmacros.h
git-2.31.1/xdiff/xmerge.c
git-2.31.1/xdiff/xpatience.c
git-2.31.1/xdiff/xprepare.c
git-2.31.1/xdiff/xprepare.h
git-2.31.1/xdiff/xtypes.h
git-2.31.1/xdiff/xutils.c
git-2.31.1/xdiff/xutils.h
git-2.31.1/zlib.c
ctf-server@ctf-server-VMware-Virtual-Platform:~$ cd git-2.31.1
```

Step 7: Run the following command to configure the build.

Command: **make configure**

Note: make configure will give you error messages but the command makes all will download everything

```
git-2.31.1/xdiff/xemit.h
git-2.31.1/xdiff/xhistogram.c
git-2.31.1/xdiff/xinclude.h
git-2.31.1/xdiff/xmacros.h
git-2.31.1/xdiff/xmerge.c
git-2.31.1/xdiff/xpatience.c
git-2.31.1/xdiff/xprepare.c
git-2.31.1/xdiff/xprepare.h
git-2.31.1/xdiff/xtypes.h
git-2.31.1/xdiff/xutils.c
git-2.31.1/xdiff/xutils.h
git-2.31.1/zlib.c
ctf-server@ctf-server-VMware-Virtual-Platform:~$ cd git-2.31.1
ctf-server@ctf-server-VMware-Virtual-Platform:~/git-2.31.1$ make configure
GIT_VERSION = 2.31.1
./GIT-VERSION-GEN: 39: cannot create GIT-VERSION-FILE: Permission denied
make: *** No rule to make target 'GIT-VERSION-FILE', needed by 'configure'. Stop.
ctf-server@ctf-server-VMware-Virtual-Platform:~/git-2.31.1$ sudo make configure
GIT_VERSION = 2.31.1
  GEN configure
/bin/sh: 1: autoconf: not found
make: *** [Makefile:2354: configure] Error 127
ctf-server@ctf-server-VMware-Virtual-Platform:~/git-2.31.1$ ./configure --prefix=/usr/local
```

Step 8: Install Git by using the following command.

Command: **sudo make all**

```
ctf-server@ctf-server-VMware-Virtual-Platform:~$ cd git-2.31.1
ctf-server@ctf-server-VMware-Virtual-Platform:~/git-2.31.1$ make configure
GIT_VERSION = 2.31.1
./GIT-VERSION-GEN: 39: cannot create GIT-VERSION-FILE: Permission denied
make: *** No rule to make target 'GIT-VERSION-FILE', needed by 'configure'. Stop.
ctf-server@ctf-server-VMware-Virtual-Platform:~/git-2.31.1$ sudo make configure
GIT_VERSION = 2.31.1
  GEN configure
/bin/sh: 1: autoconf: not found
make: *** [Makefile:2354: configure] Error 127
ctf-server@ctf-server-VMware-Virtual-Platform:~/git-2.31.1$ ./configure --prefix=/usr/local
bash: ./configure: No such file or directory
ctf-server@ctf-server-VMware-Virtual-Platform:~/git-2.31.1$ sudo make all
* 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
```


Step 9: Confirm that git has been installed by checking the version, and after checking the version make sure to change back to the home directory.

Command: **git --version, cd**

```
CC t/helper/test-sha256.o
CC t/helper/test-sigchain.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-wildmatch.o
CC t/helper/test-windows-named-pipe.o
CC t/helper/test-write-cache.o
CC t/helper/test-xml-encode.o
LINK t/helper/test-tool
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
ctf-server@ctf-server-VMware-Virtual-Platform:~/git-2.31.1$ git --version
git version 2.43.0
ctf-server@ctf-server-VMware-Virtual-Platform:~/git-2.31.1$ sudo make install
```

Step 10: Next we need to install the docker prerequisites and press Y.

Command: **sudo apt install apt-transport-https ca-certificates curl gnupg lsb-release**

```
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 && \
./check_bindir "$bindir" "$execdir" "$bindir/git-add"
ctf-server@ctf-server-VMware-Virtual-Platform:~/git-2.31.1$ git --version
git version 2.43.0
ctf-server@ctf-server-VMware-Virtual-Platform:~/git-2.31.1$ cd
ctf-server@ctf-server-VMware-Virtual-Platform:~$ sudo apt install apt-transport-https ca-certificates curl gnupg lsb-release
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
ca-certificates is already the newest version (20240203).
ca-certificates set to manually installed.
gnupg is already the newest version (2.4.4-2ubuntu17).
gnupg set to manually installed.
lsb-release is already the newest version (12.0-2).
lsb-release set to manually installed.
The following NEW packages will be installed:
  apt-transport-https curl
0 upgraded, 2 newly installed, 0 to remove and 0 not upgraded.
Need to get 230 kB of archives.
After this operation, 568 kB of additional disk space will be used.
Do you want to continue? [Y/n] Y
```

Step 11: Then import the docker GPG repository key to your ubuntu system. This security feature ensures that the software you're installing is authentic.

Command: **curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo gpg --dearmor -o /etc/apt/keyrings/docker.gpg**

```

2 [3,974 B]
Get:2 http://us.archive.ubuntu.com/ubuntu noble-updates/main amd64 curl amd64 8.5.0-2ubuntu10.1 [2
27 kB]
Fetched 230 kB in 1s (408 kB/s)
Selecting previously unselected package apt-transport-https.
(Reading database ... 152288 files and directories currently installed.)
Preparing to unpack .../apt-transport-https_2.7.14build2_all.deb ...
Unpacking apt-transport-https (2.7.14build2) ...
Selecting previously unselected package curl.
Preparing to unpack .../curl_8.5.0-2ubuntu10.1_amd64.deb ...
Unpacking curl (8.5.0-2ubuntu10.1) ...
Setting up apt-transport-https (2.7.14build2) ...
Setting up curl (8.5.0-2ubuntu10.1) ...
Processing triggers for man-db (2.12.0-4build2) ...
ctf-server@ctf-server-VMware-Virtual-Platform:~$ curl -fsSL https://download.docker.com/linux/ubun
tu/gpg | sudo gpg --dearmor -o /etc/apt/keyrings/docker.gpg
ctf-server@ctf-server-VMware-Virtual-Platform:~$ echo "deb [arch=$(dpkg --print-architecture) sign
ed-by=/etc/apt/keyrings/docker.gpg] https://download.docker.com/linux/ubuntu $(lsb_release -cs) st
able" | sudo tee /etc/apt/sources.list.d/docker.list > /dev/null

```

Step 12: after importing GPG keys, the Docker repository is added to Ubuntu 22.04. Updates for Docker will then be included in regular system updates, then refresh the apt package list by running the command **sudo apt update**.

Command: **echo "deb [arch=\$(dpkg --print-architecture) signed-by=/etc/apt/keyrings/docker.gpg] https://download.docker.com/linux/ubuntu \$(lsb_release -cs) stable" | sudo tee /etc/apt/sources.list.d/docker.list > /dev/null , sudo apt update**

```
Preparing to unpack .../curl_8.5.0-2ubuntu10.1_amd64.deb ...
Unpacking curl (8.5.0-2ubuntu10.1) ...
Setting up apt-transport-https (2.7.14build2) ...
Setting up curl (8.5.0-2ubuntu10.1) ...
Processing triggers for man-db (2.12.0-4build2) ...
ctf-server@ctf-server-VMware-Virtual-Platform:~$ curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo gpg --dearmor -o /etc/apt/keyrings/docker.gpg
ctf-server@ctf-server-VMware-Virtual-Platform:~$ echo "deb [arch=$(dpkg --print-architecture) signed-by=/etc/apt/keyrings/docker.gpg] https://download.docker.com/linux/ubuntu $(lsb_release -cs) stable" | sudo tee /etc/apt/sources.list.d/docker.list > /dev/null
ctf-server@ctf-server-VMware-Virtual-Platform:~$ sudo apt update
```

Step 13: Install docker to the latest up-to-date version, and press Y.

Command: **sudo apt install docker-ce docker-ce-cli containerd.io docker-buildx-plugin docker-compose-plugin**

```
ctf-server@ctf-server-VMware-Virtual-Platform:~$ sudo apt update
Get:1 https://download.docker.com/linux/ubuntu noble InRelease [48.8 kB]
Hit:2 http://us.archive.ubuntu.com/ubuntu noble InRelease
Hit:3 http://security.ubuntu.com/ubuntu noble-security InRelease
Hit:4 http://us.archive.ubuntu.com/ubuntu noble-updates InRelease
Get:5 https://download.docker.com/linux/ubuntu noble/stable amd64 Packages [6,337 B]
Hit:6 http://us.archive.ubuntu.com/ubuntu noble-backports InRelease
Fetched 55.2 kB in 1s (75.8 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
All packages are up to date.
ctf-server@ctf-server-VMware-Virtual-Platform:~$ sudo apt install docker-ce docker-ce-cli containe
rd.io docker-buildx-plugin docker-compose-plugin
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  docker-ce-rootless-extras libslirp0 pigz slirp4netns
Suggested packages:
  aufs-tools cgroupfs-mount | cgroup-lite
The following NEW packages will be installed:
  containerd.io docker-buildx-plugin docker-ce docker-ce-cli docker-ce-rootless-extras
  docker-compose-plugin libslirp0 pigz slirp4netns
0 upgraded, 9 newly installed, 0 to remove and 0 not upgraded.
Need to get 121 MB of archives.
After this operation, 434 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y
```

Step 14: This command adds Docker's stable repository to your system's APT sources, allowing you to install and update Docker packages from Docker's official repository. Refresh the apt package list by executing the command `sudo apt update`.

Command: `echo "deb [arch=$(dpkg --print-architecture) signed-by=/etc/apt/keyrings/docker.asc] https://download.docker.com/linux/ubuntu $(. /etc/os-release && echo "$VERSION_CODENAME") stable" | sudo tee /etc/apt/sources.list.d/docker.list > /dev/null , sudo apt update`

```
Preparing to unpack .../curl_8.5.0-2ubuntu10.1_amd64.deb ...
Unpacking curl (8.5.0-2ubuntu10.1) ...
Setting up apt-transport-https (2.7.14build2) ...
Setting up curl (8.5.0-2ubuntu10.1) ...
Processing triggers for man-db (2.12.0-4build2) ...
ctf-server@ctf-server-VMware-Virtual-Platform:~$ curl -fsSL https://download.docker.com/linux/ubuntu/gpg | sudo gpg --dearmor -o /etc/apt/keyrings/docker.gpg
ctf-server@ctf-server-VMware-Virtual-Platform:~$ echo "deb [arch=$(dpkg --print-architecture) signed-by=/etc/apt/keyrings/docker.gpg] https://download.docker.com/linux/ubuntu $(lsb_release -cs) stable" | sudo tee /etc/apt/sources.list.d/docker.list > /dev/null
ctf-server@ctf-server-VMware-Virtual-Platform:~$ sudo apt update
```

Step 14: Next simply install docker compose, then verify that it has been installed by checking its version.

Command: `sudo apt install docker-compose-plugin -y , docker compose version`

```

ctf-server@ctf-server-VMware-Virtual-Platform:~$ sudo chmod a+r /etc/apt/keyrings/docker.asc
ctf-server@ctf-server-VMware-Virtual-Platform:~$ echo \
"deb [arch=$(dpkg --print-architecture) signed-by=/etc/apt/keyrings/docker.asc] https://download
.docker.com/linux/ubuntu \
$(. /etc/os-release && echo "$VERSION_CODENAME") stable" | \
sudo tee /etc/apt/sources.list.d/docker.list > /dev/null
ctf-server@ctf-server-VMware-Virtual-Platform:~$ sudo apt update
Hit:1 https://download.docker.com/linux/ubuntu noble InRelease
Hit:2 http://us.archive.ubuntu.com/ubuntu noble InRelease
Hit:3 http://security.ubuntu.com/ubuntu noble-security InRelease
Hit:4 http://us.archive.ubuntu.com/ubuntu noble-updates InRelease
Hit:5 http://us.archive.ubuntu.com/ubuntu noble-backports InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
All packages are up to date.
ctf-server@ctf-server-VMware-Virtual-Platform:~$ sudo apt install docker-compose-plugin -y
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
docker-compose-plugin is already the newest version (2.27.0-1~ubuntu.24.04~noble).
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
ctf-server@ctf-server-VMware-Virtual-Platform:~$ docker compose version
Docker Compose version v2.27.0
ctf-server@ctf-server-VMware-Virtual-Platform:~$

```

Step 15: Now execute a test run on docker compose, then create a new directory and change to the directory. After that create a .yml file and add the following code below.

Command: **mkdir hello-world && cd hello-world, sudo nano compose.yml**

version: '2'

services:

hello-world:

image:

hello-world:latest

```
ctf-server@ctf-server-VMware-Virtual-Platform:~$ docker compose version
Docker Compose version v2.27.0
ctf-server@ctf-server-VMware-Virtual-Platform:~$ sudo mkdir hello-world && cd hello-world
ctf-server@ctf-server-VMware-Virtual-Platform:~/hello-world$ nano compose.yml
ctf-server@ctf-server-VMware-Virtual-Platform:~/hello-world$
ctf-server@ctf-server-VMware-Virtual-Platform:~/hello-world$ sudo nano compose.yml
ctf-server@ctf-server-VMware-Virtual-Platform:~/hello-world$ cat compose.yml
version: '2'
services:
  hello-world:
    image:
      hello-world:latest
ctf-server@ctf-server-VMware-Virtual-Platform:~/hello-world$
```

Step 16: Run the docker compose by running the command below.

Command: **sudo docker compose up**

```

hello-world:latest
ctf-server@ctf-server-VMware-Virtual-Platform:~/hello-world$ docker compose up
WARN[0000] /home/ctf-server/hello-world/compose.yml: 'version' is obsolete
permission denied while trying to connect to the Docker daemon socket at unix:///var/run/docker.sock: Get "http://%2Fvar%2Frun%2Fdocker.sock/v1.45/containers/json?all=1&filters=%7B%22label%22%3A%7B%22com.docker.compose.config-hash%22%3Atrue%2C%22com.docker.compose.project%3Dhello-world%22%3Atrue%7D%7D": dial unix /var/run/docker.sock: connect: permission denied
ctf-server@ctf-server-VMware-Virtual-Platform:~/hello-world$ sudo docker compose up
WARN[0000] /home/ctf-server/hello-world/compose.yml: 'version' is obsolete
[+] Running 2/1
  ✓ Network hello-world_default          Created                                0.1s
  ✓ Container hello-world-hello-world-1 Created                                0.0s
Attaching to hello-world-1
hello-world-1 |
hello-world-1 | Hello from Docker!
hello-world-1 | This message shows that your installation appears to be working correctly.
hello-world-1 |
hello-world-1 | To generate this message, Docker took the following steps:
hello-world-1 | 1. The Docker client contacted the Docker daemon.
hello-world-1 | 2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
hello-world-1 |    (amd64)
hello-world-1 | 3. The Docker daemon created a new container from that image which runs the
hello-world-1 |    executable that produces the output you are currently reading.
hello-world-1 | 4. The Docker daemon streamed that output to the Docker client, which sent it
hello-world-1 |    to your terminal.
hello-world-1 |
hello-world-1 | To try something more ambitious, you can run an Ubuntu container with:
hello-world-1 | $ docker run -it ubuntu bash
hello-world-1 |
hello-world-1 | Share images, automate workflows, and more with a free Docker ID:
hello-world-1 | https://hub.docker.com/
hello-world-1 |
hello-world-1 | For more examples and ideas, visit:
hello-world-1 | https://docs.docker.com/get-started/
hello-world-1 |
hello-world-1 exited with code 0
ctf-server@ctf-server-VMware-Virtual-Platform:~/hello-world$

```

Step 17: Change back to the home directory then install git and clone the RootThebox repository from GitHub. After that change to the RootTheBox directory, then update the local GitHub repository

Command: `sudo apt-get install git , git clone https://github.com/moloch--/RootTheBox.git , git pull`

```
ctf-server@ctf-server-VMware-Virtual-Platform:~/hello-world$ cd
ctf-server@ctf-server-VMware-Virtual-Platform:~$ sudo apt-get install git
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
git is already the newest version (1:2.43.0-1ubuntu7).
0 upgraded, 0 newly installed, 0 to remove and 0 not upgraded.
ctf-server@ctf-server-VMware-Virtual-Platform:~$ sudo git clone https://github.com/moloch--/RootTheBox.git
Cloning into 'RootTheBox'...
remote: Enumerating objects: 16794, done.
remote: Counting objects: 100% (2555/2555), done.
remote: Compressing objects: 100% (836/836), done.
remote: Total 16794 (delta 1923), reused 2106 (delta 1682), pack-reused 14239
Receiving objects: 100% (16794/16794), 73.15 MiB | 26.13 MiB/s, done.
Resolving deltas: 100% (12092/12092), done.
ctf-server@ctf-server-VMware-Virtual-Platform:~$ cd RootTheBox
ctf-server@ctf-server-VMware-Virtual-Platform:~/RootTheBox$ git pull
fatal: detected dubious ownership in repository at '/home/ctf-server/RootTheBox'
To add an exception for this directory, call:

    git config --global --add safe.directory /home/ctf-server/RootTheBox
ctf-server@ctf-server-VMware-Virtual-Platform:~/RootTheBox$ rootthebox.py --update
rootthebox.py: command not found
ctf-server@ctf-server-VMware-Virtual-Platform:~/RootTheBox$
```

Step 17: Next simply Install mysql server by executing the command below and pressing Y.

Command: `sudo apt install mysql-server`


```

ctf-server@ctf-server-VMware-Virtual-Platform:~$ cd RootTheBox
ctf-server@ctf-server-VMware-Virtual-Platform:~/RootTheBox$ git pull
fatal: detected dubious ownership in repository at '/home/ctf-server/RootTheBox'
To add an exception for this directory, call:

    git config --global --add safe.directory /home/ctf-server/RootTheBox
ctf-server@ctf-server-VMware-Virtual-Platform:~/RootTheBox$ rootthebox.py --update
rootthebox.py: command not found
ctf-server@ctf-server-VMware-Virtual-Platform:~/RootTheBox$ sudo git pull
Already up to date.
ctf-server@ctf-server-VMware-Virtual-Platform:~/RootTheBox$ sudo apt install mysql-server
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libaio1t64 libcgi-fast-perl libcgi-pm-perl libevent-core-2.1-7t64 libevent-pthreads-2.1-7t64
  libfcgi-bin libfcgi-perl libfcgi0t64 libhtml-template-perl libmecab2 libprotobuf-lite32t64
  mecab-ipadic mecab-ipadic-utf8 mecab-utils mysql-client-8.0 mysql-client-core-8.0 mysql-common
  mysql-server-8.0 mysql-server-core-8.0
Suggested packages:
  libipc-sharedcache-perl mailx tinycd
The following NEW packages will be installed:
  libaio1t64 libcgi-fast-perl libcgi-pm-perl libevent-core-2.1-7t64 libevent-pthreads-2.1-7t64
  libfcgi-bin libfcgi-perl libfcgi0t64 libhtml-template-perl libmecab2 libprotobuf-lite32t64
  mecab-ipadic mecab-ipadic-utf8 mecab-utils mysql-client-8.0 mysql-client-core-8.0 mysql-common
  mysql-server mysql-server-8.0 mysql-server-core-8.0
0 upgraded, 20 newly installed, 0 to remove and 0 not upgraded.
Need to get 29.2 MB of archives.
After this operation, 242 MB of additional disk space will be used.
Do you want to continue? [Y/n] Y

```

Step 18: Then save the changes of git and update the local repository with changes from the remote repository. After that build a docker image based on the composed.yml file that was created earlier.

Command: **sudo git stash , sudo git pull , sudo docker-compose build , sudo apt install docker-compose**

```
ctf-server@ctf-server-VMware-Virtual-Platform:~/RootTheBox$ sudo git log -l oneline
error: switch `l' expects a numerical value
ctf-server@ctf-server-VMware-Virtual-Platform:~/RootTheBox$ sudo git log -1 oneline
fatal: ambiguous argument 'oneline': unknown revision or path not in the working tree.
Use '--' to separate paths from revisions, like this:
'git <command> [<revision>...] -- [<file>...]'
ctf-server@ctf-server-VMware-Virtual-Platform:~/RootTheBox$ git log -1 oneline
fatal: detected dubious ownership in repository at '/home/ctf-server/RootTheBox'
To add an exception for this directory, call:

    git config --global --add safe.directory /home/ctf-server/RootTheBox
ctf-server@ctf-server-VMware-Virtual-Platform:~/RootTheBox$ sudo git stash
No local changes to save
ctf-server@ctf-server-VMware-Virtual-Platform:~/RootTheBox$ sudo git pull
Already up to date.
ctf-server@ctf-server-VMware-Virtual-Platform:~/RootTheBox$ sudo docker-compose build
sudo: docker-compose: command not found
ctf-server@ctf-server-VMware-Virtual-Platform:~/RootTheBox$ sudo apt install docker-compose
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  python3-compose python3-docker python3-dockerpty python3-docopt python3-dotenv
  python3-texttable python3-websocket
Recommended packages:
  docker.io
The following NEW packages will be installed:
  docker-compose python3-compose python3-docker python3-dockerpty python3-docopt python3-dotenv
  python3-texttable python3-websocket
0 upgraded, 8 newly installed, 0 to remove and 0 not upgraded.
Need to get 297 kB of archives.
After this operation, 1,589 kB of additional disk space will be used.
Do you want to continue? [Y/n] Y
```

Step 18: Finally, it's time to get the RootTheBox CTF up and running.

Command: **sudo docker compose up**

```

ctf-server@ctf-server-VMware-Virtual-Platform:~/RootTheBox$ sudo docker compose up
WARN[0000] /home/ctf-server/RootTheBox/docker-compose.yml: 'version' is obsolete
[+] Running 7/7
  ✓ mencached Pulled                                4.5s
  ✓ 09f376ebb190 Pull complete                      2.9s
  ✓ f2aa97235084 Pull complete                      2.9s
  ✓ 91c3eebfc234 Pull complete                      3.0s
  ✓ 5520a877f09a Pull complete                      3.0s
  ✓ efe67d33c4a6 Pull complete                      3.0s
  ✓ 450e4b876275 Pull complete                      3.0s
[+] Building 82.0s (11/11) FINISHED                docker:default
=> [webapp internal] load build definition from Dockerfile 0.0s
=> == transferring dockerfile: 522B 0.0s
=> [webapp internal] load metadata for docker.io/library/python:3.8 1.0s
=> [webapp internal] load .dockerignore 0.0s
=> == transferring context: 180B 0.0s
=> [webapp 1/6] FROM docker.io/library/python:3.8sha256:01a4da15f16395a2d17dd9b673cccdcd 20.6s
=> == resolve docker.io/library/python:3.8sha256:01a4da15f16395a2d17dd9b673cccdcd6a6dbb4e 0.0s
=> == sha256:fc6a57648aa5e9aef11fe915791e34dfce19169a2a77a312b0bd3ab40e264 7.36kB / 7.36kB 0.0s
=> == sha256:091494355808bdd3db5552f0d3723fd0fa826675f774853796fafa221d0 24.05MB / 24.05MB 0.9s
=> == sha256:6582c62583ef22717db8d306b1d6a0c288089ff607d9c0d2d81c4f8973c 64.14MB / 64.14MB 2.1s
=> == sha256:01a4da15f16395a2d17dd9b673cccdcd6a6dbb4e130c8056d0d804dedac11 1.86kB / 1.86kB 0.0s
=> == sha256:340112dda59ac649527c9a8ba86f02343d981cb508161ba34ae7bb52a797e 2.01kB / 2.01kB 0.0s
=> == sha256:c6cf28de8a067787ee0d08f8b01d7ff1566a508b56f6e549687b41dfd375 49.58MB / 49.58MB 1.1s
=> == sha256:bfc2c3e352f3d2eed4eda4feeed44a1022a881058df20ac0584db70c13 211.21MB / 211.21MB 4.3s
=> == sha256:a99509a323905a80628005e4f3bc26ac15ebaf3ffdb08a9646a7f2d110ab3 6.39MB / 6.39MB 1.5s
=> == extracting sha256:c6cf28de8a067787ee0d08f8b01d7ff1566a508b56f6e549687b41dfd375f12c7 3.4s
=> == sha256:7327cba2bf36683c119324ade7c9ed62f8a95523d745bb55658ee7f0554 15.20MB / 15.20MB 2.2s
=> == sha256:c44e905d3c51b51708b9fde83dce11f6c5b23aae56d591228cab6babac67d71f 244B / 244B 2.3s
=> == sha256:a99509a323905a80628005e4f3bc26ac15ebaf3ffdb08a9646a7f2d110ab38f9 2.85MB / 2.85MB 2.4s
=> == extracting sha256:091494355808bdd3db5552f0d3723fd0fa826675f774853796fafa221d850d42 0.8s
=> == extracting sha256:6582c62583ef22717db8d306b1d6a0c288089ff607d9c0d2d81c4f8973cbf7ee3 3.6s
=> == extracting sha256:bfc2c3e352f3d2eed4eda4feeed44a1022a881058df20ac0584db70c138b041e2 0.2s
=> == extracting sha256:a99509a323905a80628005e4f3bc26ac15ebaf3ffdb08a9646a7f2d110ab38f9 0.4s
=> == extracting sha256:7327cba2bf36683c119324ade7c9ed62f8a95523d745bb55658ee7f0554a3dd0 0.7s
=> == extracting sha256:c44e905d3c51b51708b9fde83dce11f6c5b23aae56d591228cab6babac67d71f 0.8s
=> == extracting sha256:e64bc13ba68336ce21a4ee8553c9e633c496c72488af8b4d5c45e949725b0894 0.4s
=> [webapp internal] load build context 0.7s
=> == transferring context: 53.60MB 0.7s
=> [webapp 2/6] RUN mkdir /opt/rub 1.8s
=> [webapp 3/6] ADD . /opt/rub 0.7s
=> [webapp 4/6] RUN apt-get update && apt-get install -y build-essential zlib1g-dev rustc 25.3s
=> [webapp 5/6] ADD ./setup/requirements.txt ./ 0.1s
=> [webapp 6/6] RUN pip install --no-cache-dir -r requirements.txt --upgrade 25.8s
=> [webapp] exporting to image 6.5s
=> == exporting layers 6.5s
=> == writing image sha256:cc6f6766abfc5f4efa2c036116c15b5d5528298430db6b19c148db42e03fb5d 0.0s
=> == naming to docker.io/library/rootthebox-webapp 0.0s
[+] Running 3/3
  ✓ Network rootthebox_default Created 0.2s
  ✓ Container rootthebox-mencached-1 Created 0.1s
  ✓ Container rootthebox-webapp-1 Created 0.1s
Attaching to mencached-1, webapp-1

```

Step 19: From the output that is displayed here we can see that the RootTheBox CTF is up and running on <http://localhost:8888>. The admin account has been

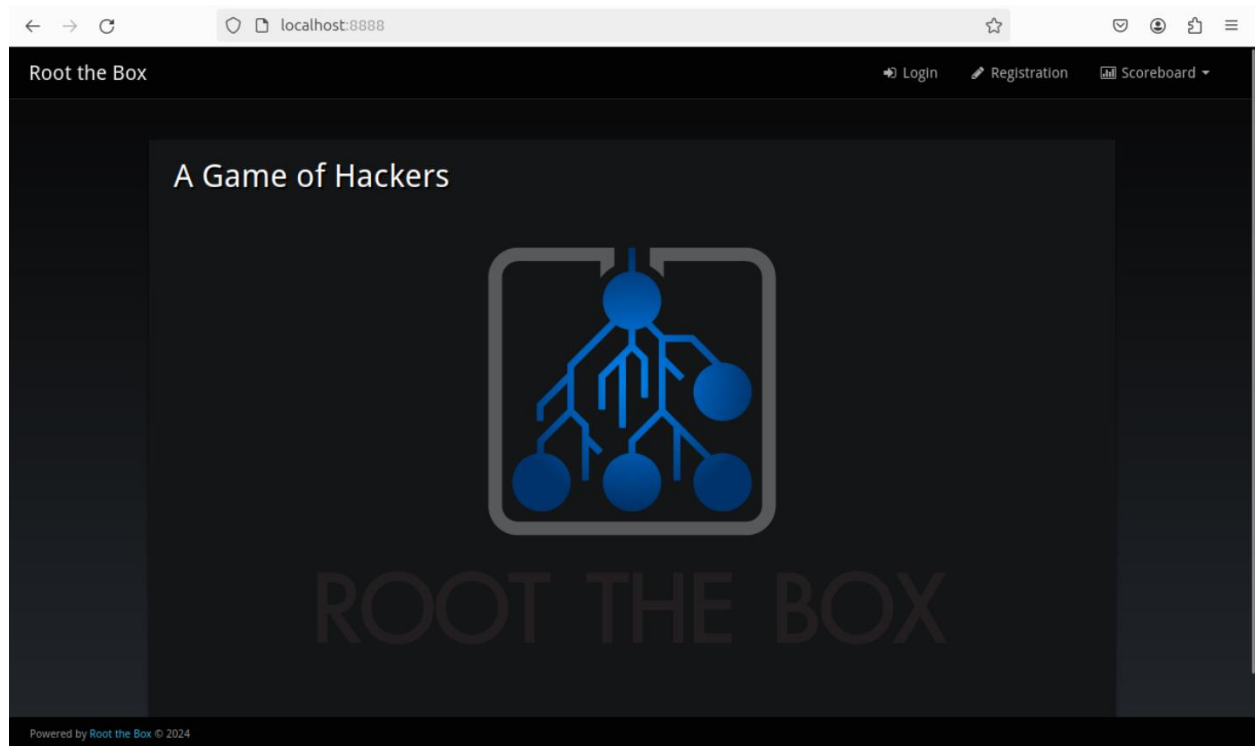
created by default when running the RTB CTF and it's credentials are also displayed which are username: admin, password: rootthebox.

Note: This documentation is for the initial setup on a Linux machine, this documentation does not cover the networking aspects or networking configurations of it.

```
ctf-server@ctf-server-VMware-Virtual-Platf...

=> [webapp 1/6] FROM docker.io/library/python:3.8@sha256:01a4da15f16395a2d17dd9b673cccdcd 20.6s
=> resolve docker.io/library/python:3.8@sha256:01a4da15f16395a2d17dd9b673cccdcd6a6dbb4e 0.0s
=> sha256:fc6a57648aa5e9aef11fe915791e34dfce19169a2a77a312b0bd3ab40e264 7.36kB / 7.36kB 0.0s
=> sha256:891494355808bdd3db5552f0d3723fd0fa826675f774853796fafa221d8 24.85MB / 24.85MB 0.9s
=> sha256:6582c62583ef22717db8d306b1d6a0c288089ff607d9c0d2d81c4f8973c 64.14MB / 64.14MB 2.1s
=> sha256:01a4da15f16395a2d17dd9b673cccdcd6a6dbb4e130c8056d0d004dedac11 1.86kB / 1.86kB 0.0s
=> sha256:340112dda59ac649527c9a8ba86f02343d981cb508161ba34a7bb52a797e 2.01kB / 2.01kB 0.0s
=> sha256:c6cf28de8a067787ee0d08f8b01d77f1566a508b56f6e549687b41dfd375 49.58MB / 49.58MB 1.1s
=> sha256:b72c3e352f3d2eed4eda4feed44a1022a881058df20ac0584db70c13 211.21MB / 211.21MB 4.3s
=> sha256:a99589a323905a80628005e4f3bc26ac15ebaf3ffdb08a9646a7f2d110ab3 6.39MB / 6.39MB 1.5s
=> extracting sha256:c6cf28de8a067787ee0d08f8b01d77f1566a508b56f6e549687b41dfd375f12c7 3.4s
=> sha256:7327cba2bf36683c119324ade7c9ed62f8a95523d745bb55658ee7f0554 15.20MB / 15.20MB 2.2s
=> extracting sha256:6582c62583ef22717db8d306b1d6a0c288089ff607d9c0d2d81c4f8973c0fee3 3.6s
=> sha256:e64bc13ba68336ce21a4ee8553c9e633c496c72408af8b4d5c45e949725b0 2.85MB / 2.85MB 2.4s
=> extracting sha256:891494355808bdd3db5552f0d3723fd0fa826675f774853796fafa221d850d42 0.8s
=> extracting sha256:a99589a323905a80628005e4f3bc26ac15ebaf3ffdb08a9646a7f2d110ab38f9 0.4s
=> extracting sha256:7327cba2bf36683c119324ade7c9ed62f8a95523d745bb55658ee7f0554a3dd0 0.7s
=> extracting sha256:c44e905d3c51b51788b9fde83dce11f6c5b23aae56d591278cab6babac67d71f 0.8s
=> extracting sha256:e64bc13ba68336ce21a4ee8553c9e633c496c72408af8b4d5c45e949725b0894 0.4s
=> [webapp internal] load build context
=> transferring context: 53.60MB 0.7s
=> [webapp 4/6] RUN mkdir /opt/rtb 1.8s
=> [webapp 3/6] ADD . /opt/rtb 0.7s
=> [webapp 4/6] RUN apt-get update && apt-get install -y build-essential zlib1g-dev rustc 25.3s
=> [webapp 5/6] ADD ./setup/requirements.txt ./ 0.1s
=> [webapp 6/6] RUN pip install --no-cache-dir -r requirements.txt --upgrade 25.8s
=> [webapp] exporting to image 6.5s
=> exporting layers 6.5s
=> writing image sha256:cc6f6766abfc5f4efa2c036116c15b5d5528208430db6b19c148db42e03fb5d 0.0s
=> naming to docker.io/library/rootthebox-webapp 0.0s
[+] Running 3/3
✔ Network rootthebox_default Created 0.2s
✔ Container rootthebox-memcached-1 Created 0.1s
✔ Container rootthebox-webapp-1 Created 0.1s
Attaching to memcached-1, webapp-1
webapp-1 | [I 240515 18:02:15 rootthebox:260] Environment Configuration (SQL_DIALECT): sqlite
webapp-1 | [I 240515 18:02:15 rootthebox:1166] Running Docker Setup
webapp-1 | [I 240515 18:02:15 ConfigHelpers:15] Saving current config to: files/rootthebox.cfg
webapp-1 | [*] Switching CWD to '/opt/rtb'
webapp-1 | [*] 18:02:15 : Creating the database ...
webapp-1 | [I 240515 18:02:17 __init__:267] Checking for Database Updates...
webapp-1 | [I 240515 18:02:17 migration:216] Context impl SQLiteImpl.
webapp-1 | [I 240515 18:02:17 migration:219] Will assume non-transactional DDL.
webapp-1 | [I 240515 18:02:17 migration:622] Running stamp_revision -> 1ee5b63e716f
webapp-1 | [I 240515 18:02:17 rootthebox:260] Environment Configuration (SQL_DIALECT): sqlite
webapp-1 | [*] 18:02:16 : Bootstrapping the database ...
webapp-1 | [*] Development bootstrap: Admin Username: admin, Password: rootthebox
webapp-1 | [I 240515 18:02:17 __init__:267] Checking for Database Updates...
webapp-1 | [I 240515 18:02:17 migration:216] Context impl SQLiteImpl.
webapp-1 | [I 240515 18:02:17 migration:219] Will assume non-transactional DDL.
webapp-1 | [*] Starting RTB on http://localhost:8888
webapp-1 | [I 240515 18:02:17 __init__:328] Building Scoreboard Gamestate...
```

Step 20: Open a browser and type <http://localhost:8888>. Here we can see that we finally have our RTB CTF up and running, we can simple login as admin with the credentials given at the terminal output.



End of Documentation