INSTALLING PWNIOT LOCALLY

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INSTALLING UBUNTU 22.04

DOWNLOAD UBUNTU 22.04 DESKTOP ISO

The Desktop version will allow you to access the PwnIoT web interface in a browser directly within the VM.

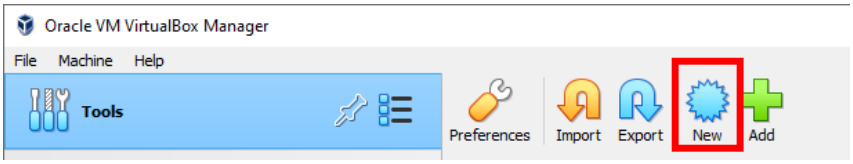
Ubuntu 22.04 (Jammy Jellyfish): https://releases.ubuntu.com/jammy/

INSTALL ORACLE VIRTUALBOX

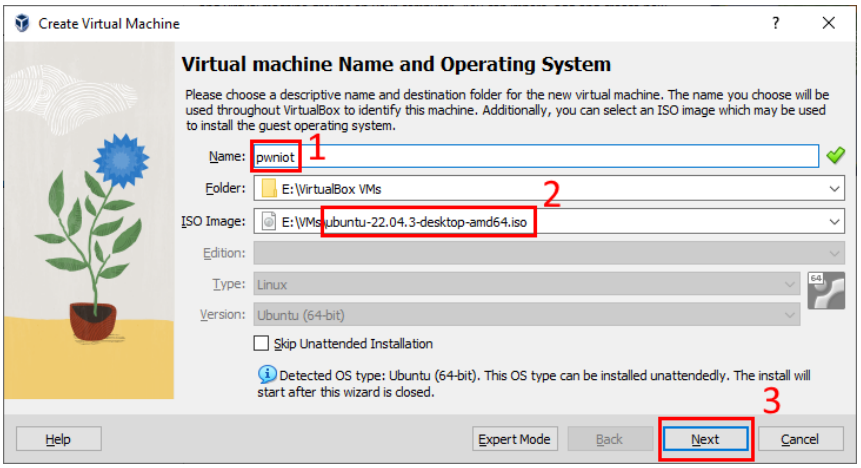
VirtualBox will be used as the hypervisor for the VM.

VirtualBox: https://www.virtualbox.org/wiki/Downloads

CREATE VIRTUAL MACHINE

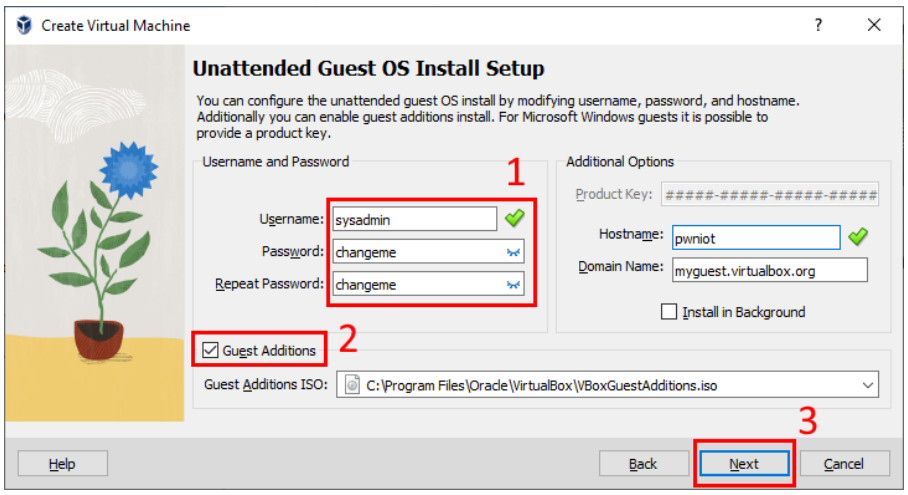


In VirtualBox, click "New".

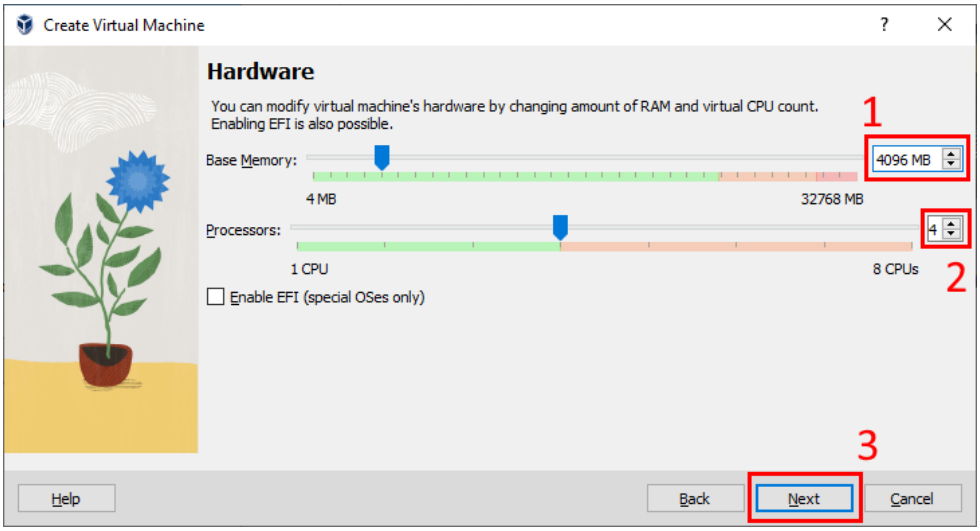


Set the name of the VM to "pwniot". Select a destination folder for the machine's filesystem. Select the downloaded Ubuntu 22.04 Desktop ISO for the image; doing so will automatically detect the type and version. Ensure that "Skip Unattended Installation" is unchecked. Click "Next".

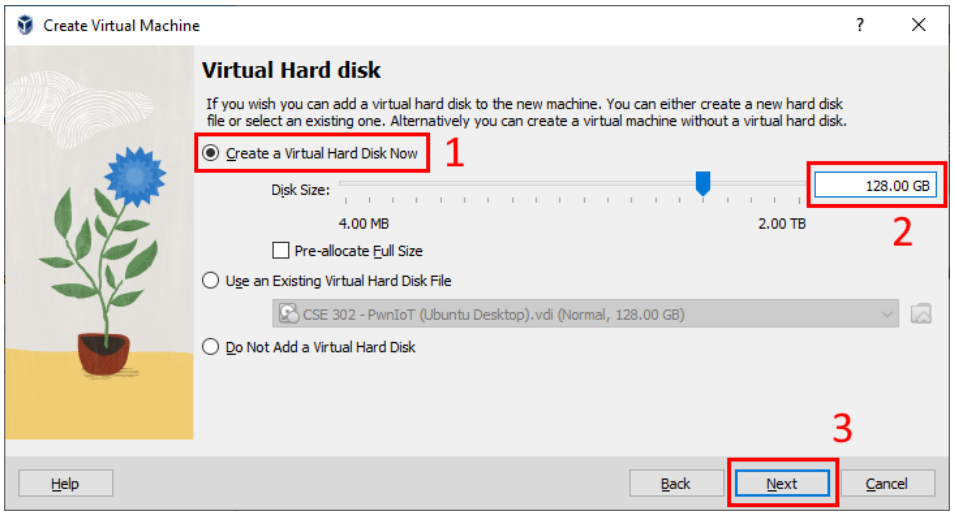
Note that there is an issue with unattended installations of Ubuntu, where the user created in the next step will not be added to the list of superusers. This does not affect the use of the machine for our purposes and also simplifies the installation process.



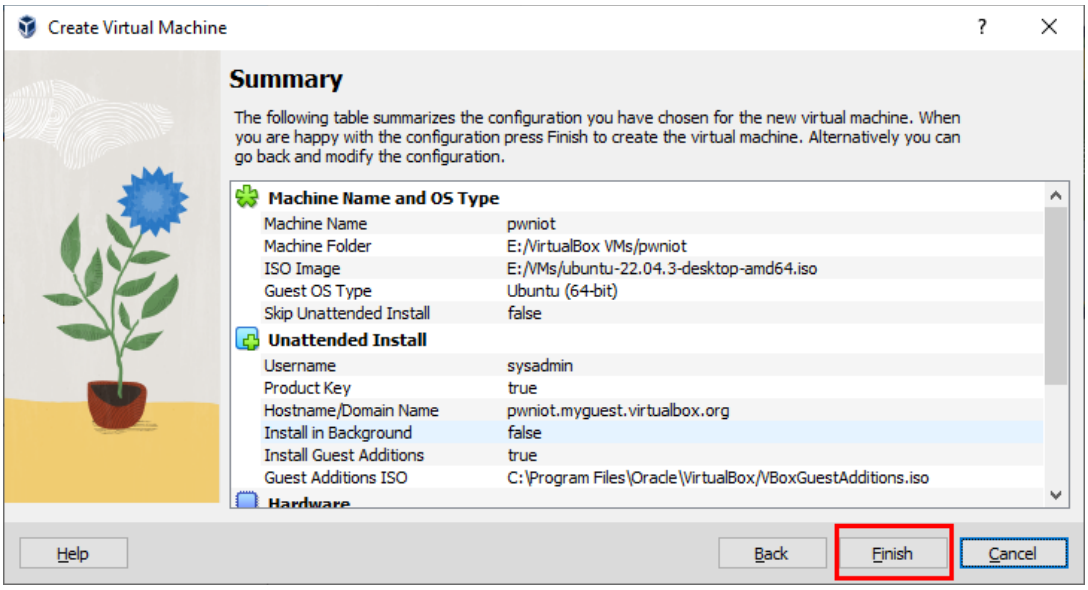
Set an appropriate username and password that will be used to constantly log into the machine and to perform administrative actions. Keep the hostname and domain name as they are by default. Check "Guest Additions", which will install additional software to help with GUI support. Click "Next".



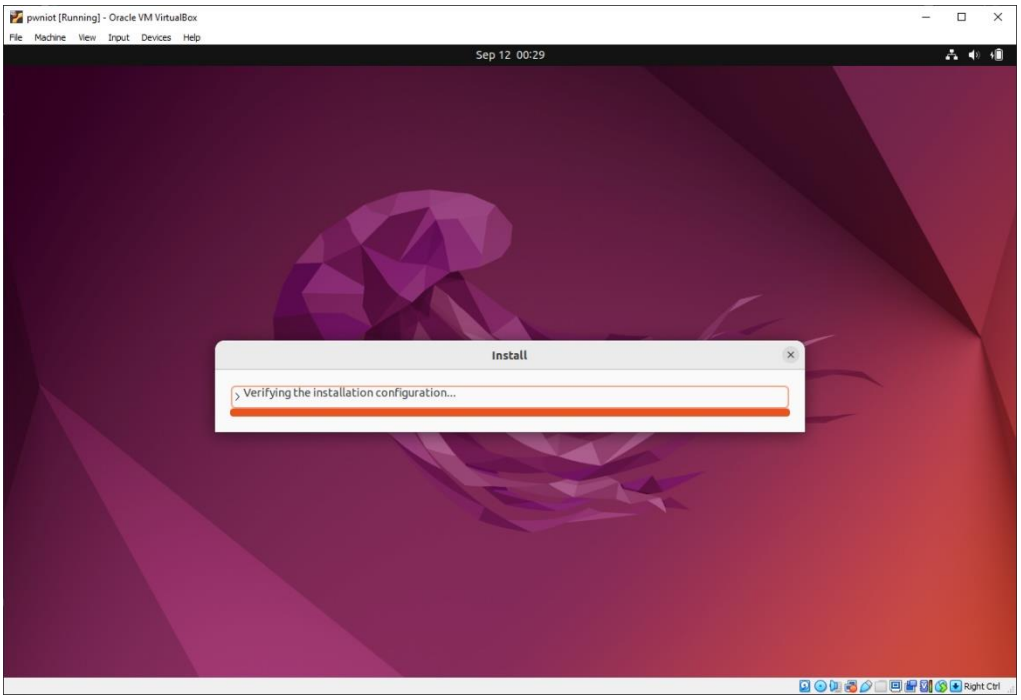
These options will vary depending on your host computer's capabilities. If resources can be spared, set the memory to 4GB and provide 2 or more cores. Click "Next".



Ensure "Create a Virtual Hard Disk Now" is checked. Set the disk size to 128GB. This may be needed in order to support all of the challenge containers that can be added to PwnIoT. Note that "Pre-allocate Full Size" is **unchecked,** which saves disk space on your host computer in the event you do not need to use all 128GB. Click "Next".

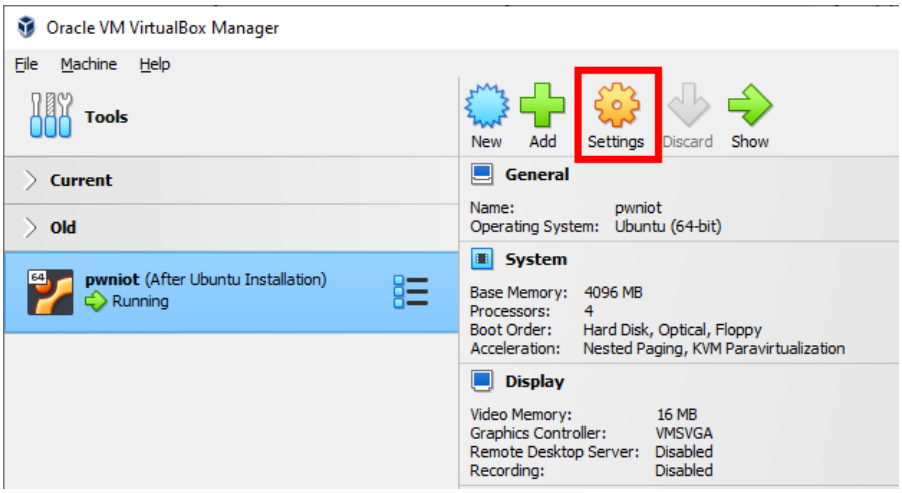


Review the summary and click "Finish".

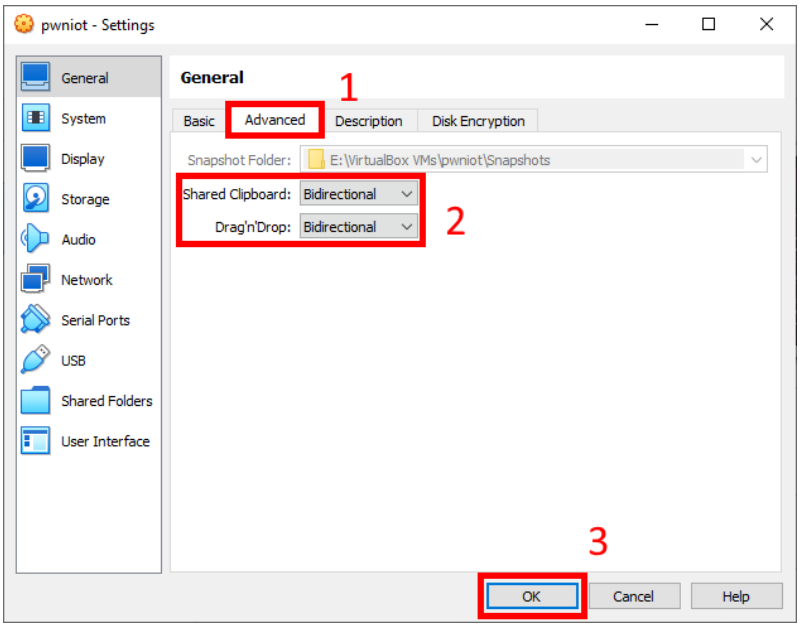


Ubuntu will automatically install and start when finished.

ENABLE BIDIRECTIONAL CLIPBOARD



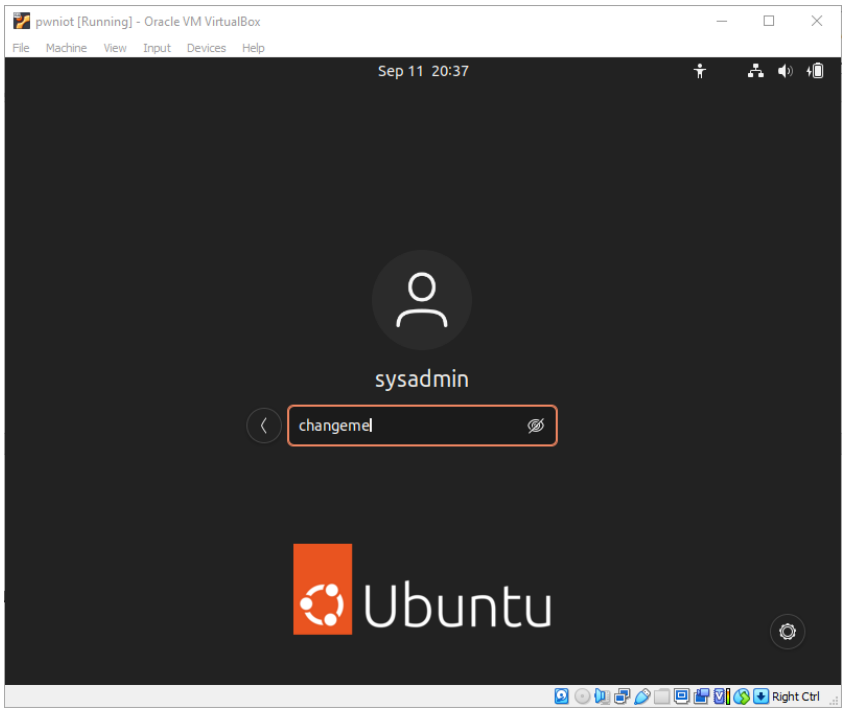
In VirtualBox, select the VM and click "Settings".



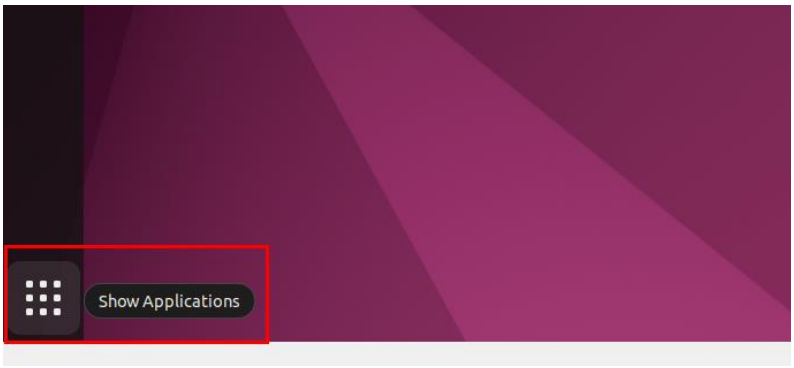
Open the "Advanced" tab and set the shared clipboard and drag'n'drop options to "Bidirectional". Then click "Ok".

UPDATE UBUNTU

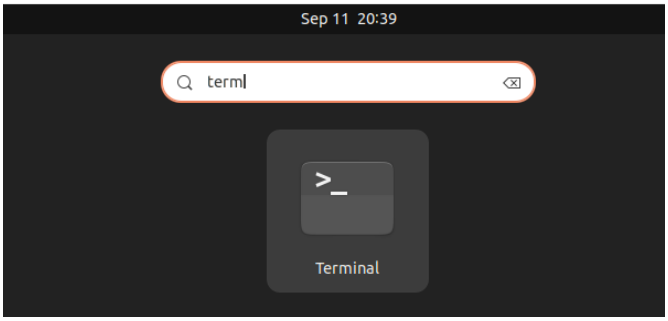
Updates will need to be performed upon first installation.



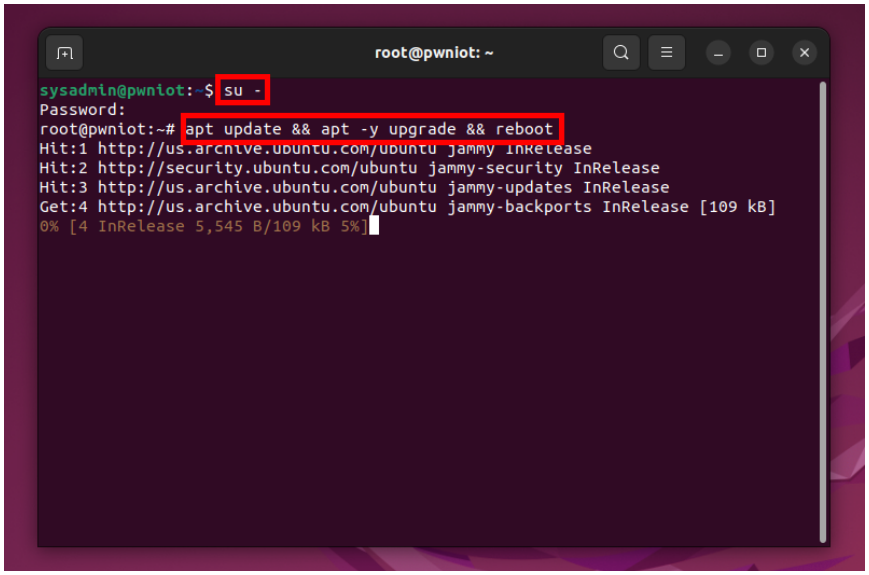
Log into the user you created with the password you gave it.



Click "Show Applications" at the bottom-left.



Search for and then open the "Terminal" application.



Within the terminal, run the following commands in order:

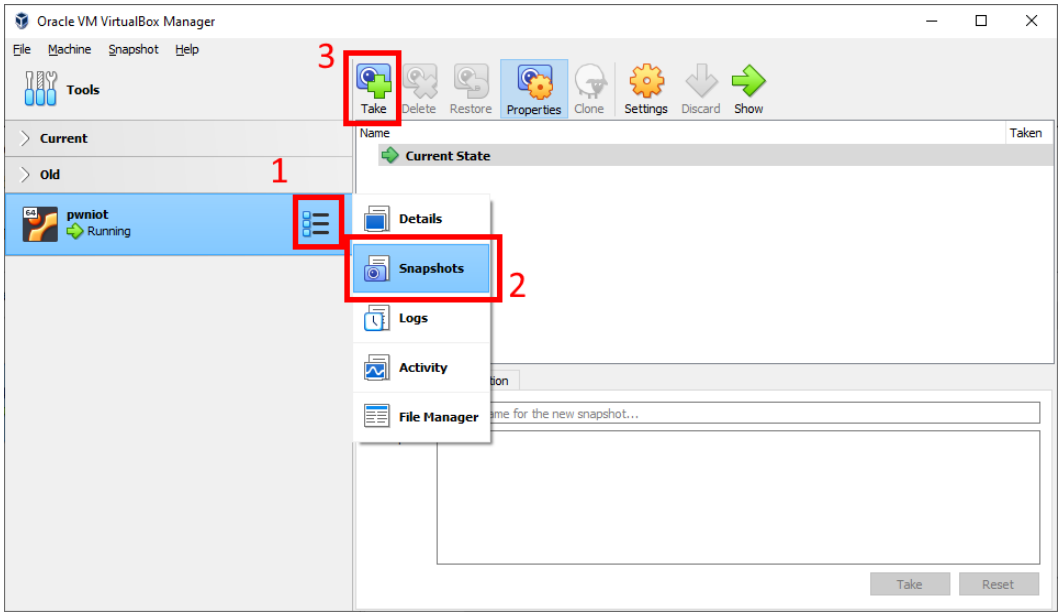
1. `su -`
2. Enter the password for your account.
3. `apt update && apt -y upgrade && reboot`

The system will update and automatically restart afterwards.

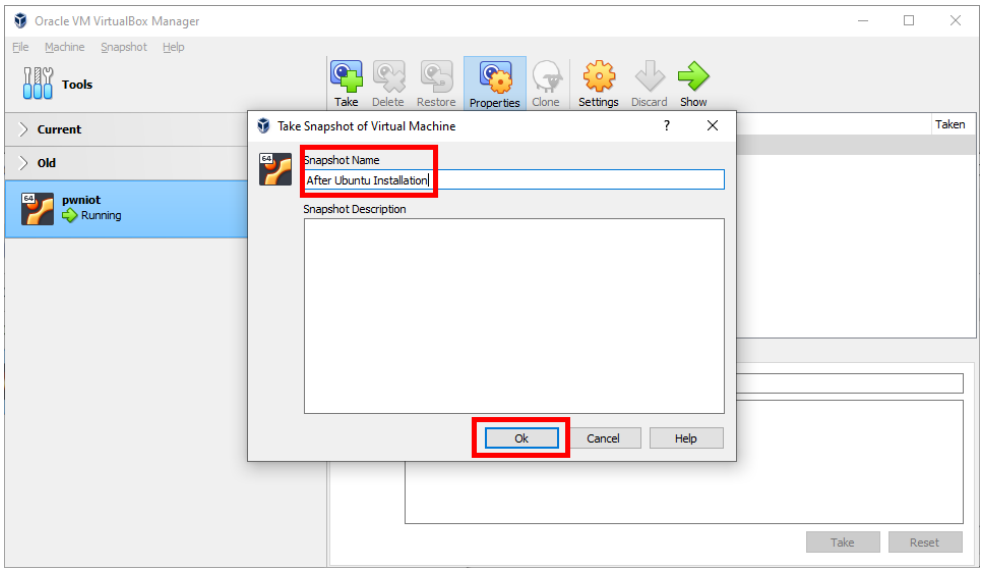
INSTALLING PWNIOT

CREATE A SNAPSHOT

Before continuing, create a snapshot of Ubuntu in its current state. This way, if something goes horribly wrong, there will be no need to reinstall the operating system.



First, open the menu for the "pwniot" virtual machine. Then click "Snapshots". Then click "Take" at the top.



Supply an appropriate name for the snapshot and then click "Ok". The newly-created snapshot can be restored by selecting that snapshot and clicking "Restore" at the top.

INSTALL PREREQUISITES

Before being able to install PwnIoT, git and curl must be installed.

```
apt -y install git curl
```

INSTALL PWNIOT

Follow the instructions in the repository: https://github.com/CactiLab/pwniot/blob/master/README.md

Note that you will need to use `su -` to run some commands as root during installation.

After the docker run command is run, its progress can be monitored using:

```
docker exec pwniot.academy dojo logs
```

The initial run may take upwards of 30 minutes to complete.

CONTROLLING PWNIOT DOCKER CONTAINERS

After the initial run, the container can be stopped and started with the following commands:

```
docker stop pwniot.academy
docker start pwniot.academy
```

The following command will enter the bash shell for the root container:

```
docker exec -it pwniot.academy bash
```

While within this shell, running the following command will list the nested containers within the root container:

```
docker container ls
```

The "ctfd" container hosts the web server, whose shell can then be accessed with:

```
docker exec -it ctfd bash
```