

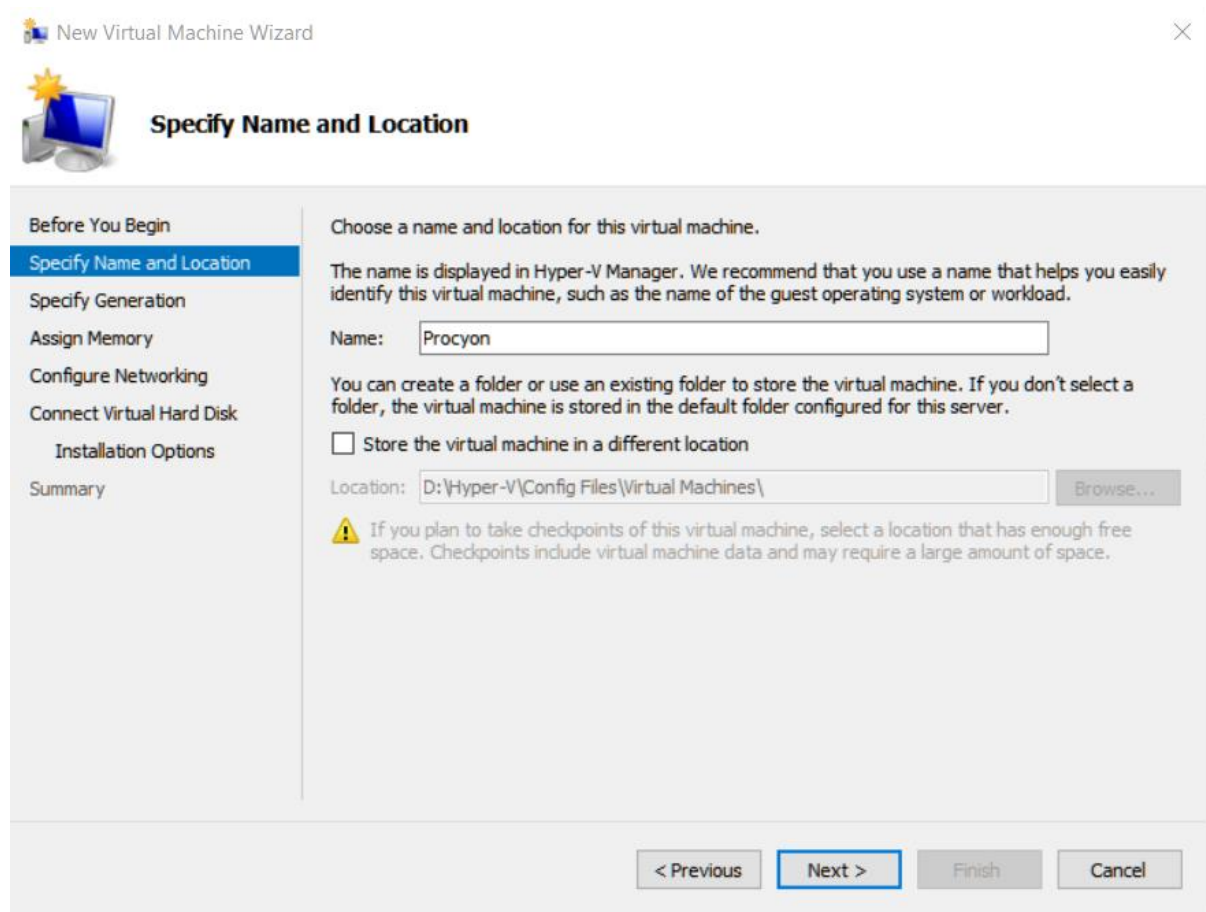
Install Ubuntu Server 15.10

What you will need:

- Somewhere to install the server. I used hyper-v on a whitebox server, but you can use whatever you want. The resource requirements are low.
- The Ubuntu 15.10 install iso from here: <http://releases.ubuntu.com/15.10/>
- Your home IP address range and domain name
- A free IP address for the server
- DHCP running
- DNS Server with an entry for the new server

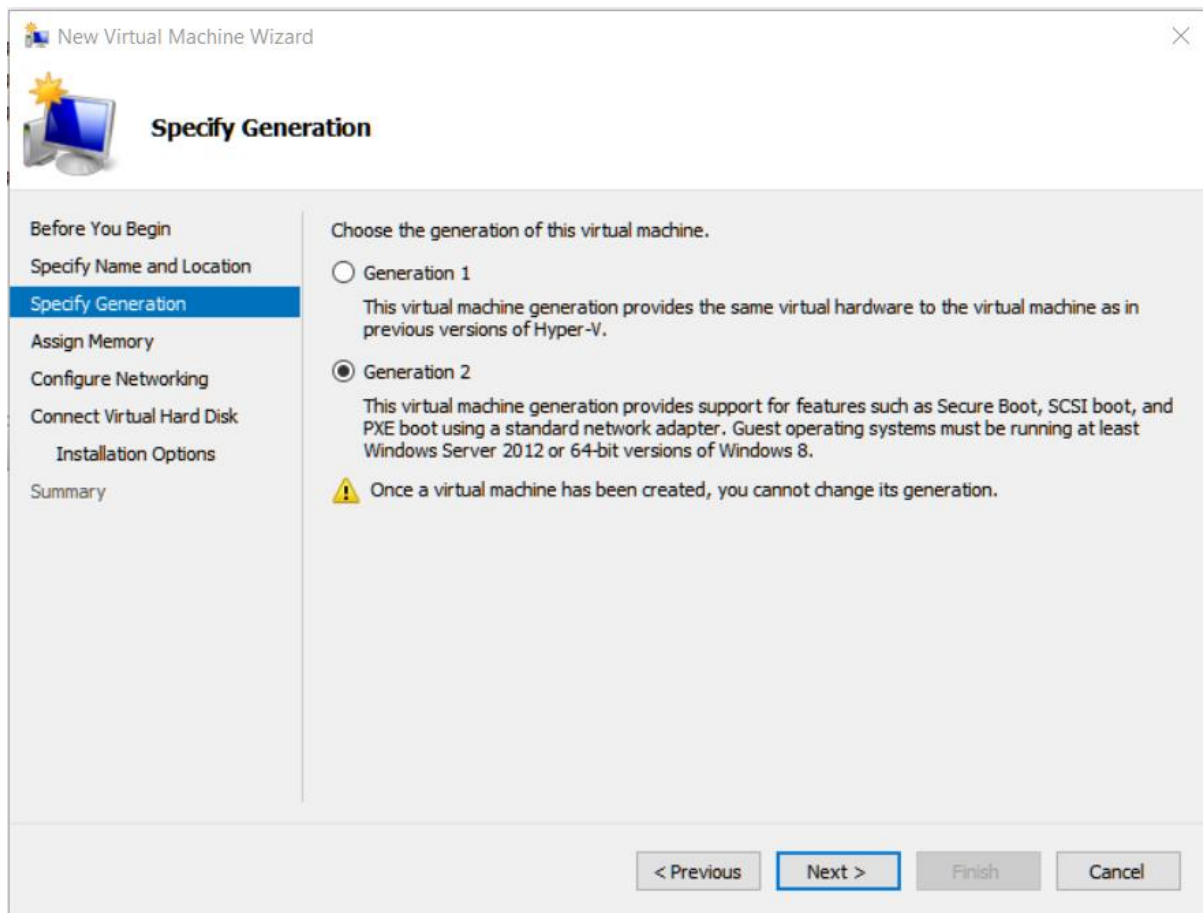
Set up Virtual Machine on Hyper-V

VM was set up as follows:



The screenshot shows the 'New Virtual Machine Wizard' window with the title bar 'New Virtual Machine Wizard' and a close button. The window has a sidebar on the left with the following steps: 'Before You Begin', 'Specify Name and Location' (which is highlighted), 'Specify Generation', 'Assign Memory', 'Configure Networking', 'Connect Virtual Hard Disk', 'Installation Options', and 'Summary'. The main area of the wizard is titled 'Specify Name and Location' and contains the following text: 'Choose a name and location for this virtual machine.' followed by 'The name is displayed in Hyper-V Manager. We recommend that you use a name that helps you easily identify this virtual machine, such as the name of the guest operating system or workload.' Below this is a text box for 'Name' containing the word 'Procyon'. Another paragraph states: 'You can create a folder or use an existing folder to store the virtual machine. If you don't select a folder, the virtual machine is stored in the default folder configured for this server.' Below this is a checkbox labeled 'Store the virtual machine in a different location' which is currently unchecked. Underneath the checkbox is a text box for 'Location' containing the path 'D:\Hyper-V\Config Files\Virtual Machines\' and a 'Browse...' button to its right. At the bottom of the main area is a yellow warning icon followed by the text: 'If you plan to take checkpoints of this virtual machine, select a location that has enough free space. Checkpoints include virtual machine data and may require a large amount of space.' At the bottom of the wizard window are four buttons: '< Previous', 'Next >' (which is highlighted with a blue border), 'Finish', and 'Cancel'.

Generation 2



1024 MB of memory – do not use dynamic memory, causes issues reboots with MySQL installed



Assign Memory

Before You Begin

Specify Name and Location

Specify Generation

Assign Memory

Configure Networking

Connect Virtual Hard Disk


Installation Options

Summary

Specify the amount of memory to allocate to this virtual machine. You can specify an amount from 32 MB through 29080 MB. To improve performance, specify more than the minimum amount recommended for the operating system.

Startup memory: MB

☐ Use Dynamic Memory for this virtual machine.

 When you decide how much memory to assign to a virtual machine, consider how you intend to use the virtual machine and the operating system that it will run.

< Previous


Next >

Finish

Cancel

1 network connection

New Virtual Machine Wizard

 **Configure Networking**

Before You Begin
Specify Name and Location
Specify Generation
Assign Memory
Configure Networking
Connect Virtual Hard Disk
Installation Options
Summary

Each new virtual machine includes a network adapter. You can configure the network adapter to use a virtual switch, or it can remain disconnected.

Connection:

< Previous **Next >** Finish Cancel

1024 GB HDD, thin provisioned. Overkill but that's the joy of thin provisioning. If you're not thin provisioning the I've used 3.1G of the hard drive after approximately 3 months of use.

New Virtual Machine Wizard

Connect Virtual Hard Disk

Before You Begin
Specify Name and Location
Specify Generation
Assign Memory
Configure Networking
Connect Virtual Hard Disk
Installation Options
Summary

A virtual machine requires storage so that you can install an operating system. You can specify the storage now or configure it later by modifying the virtual machine's properties.

☒ **Create a virtual hard disk**
Use this option to create a VHDX dynamically expanding virtual hard disk.

Name:
Location:
Size: GB (Maximum: 64 TB)

☐ **Use an existing virtual hard disk**
Use this option to attach an existing VHDX virtual hard disk.


Location:

☐ **Attach a virtual hard disk later**
Use this option to skip this step now and attach an existing virtual hard disk later.

< Previous **Next >** Finish Cancel

Select "Install an operating system from a bootable image file" and browse to the Ubuntu iso:

New Virtual Machine Wizard

 **Installation Options**

Before You Begin
Specify Name and Location
Specify Generation
Assign Memory
Configure Networking
Connect Virtual Hard Disk
Installation Options
Summary

You can install an operating system now if you have access to the setup media, or you can install it later.

☐ Install an operating system later

☒ Install an operating system from a bootable image file

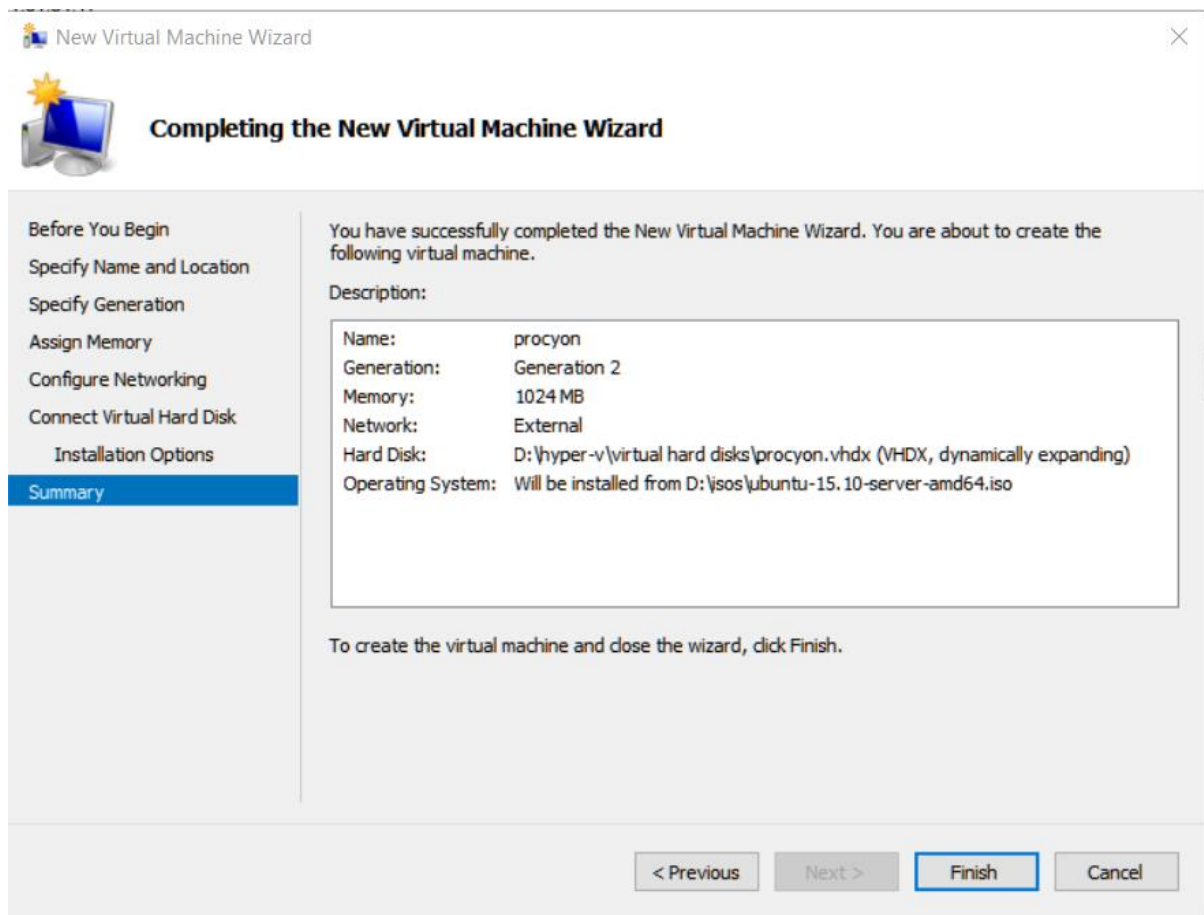
Media

Image file (.iso):

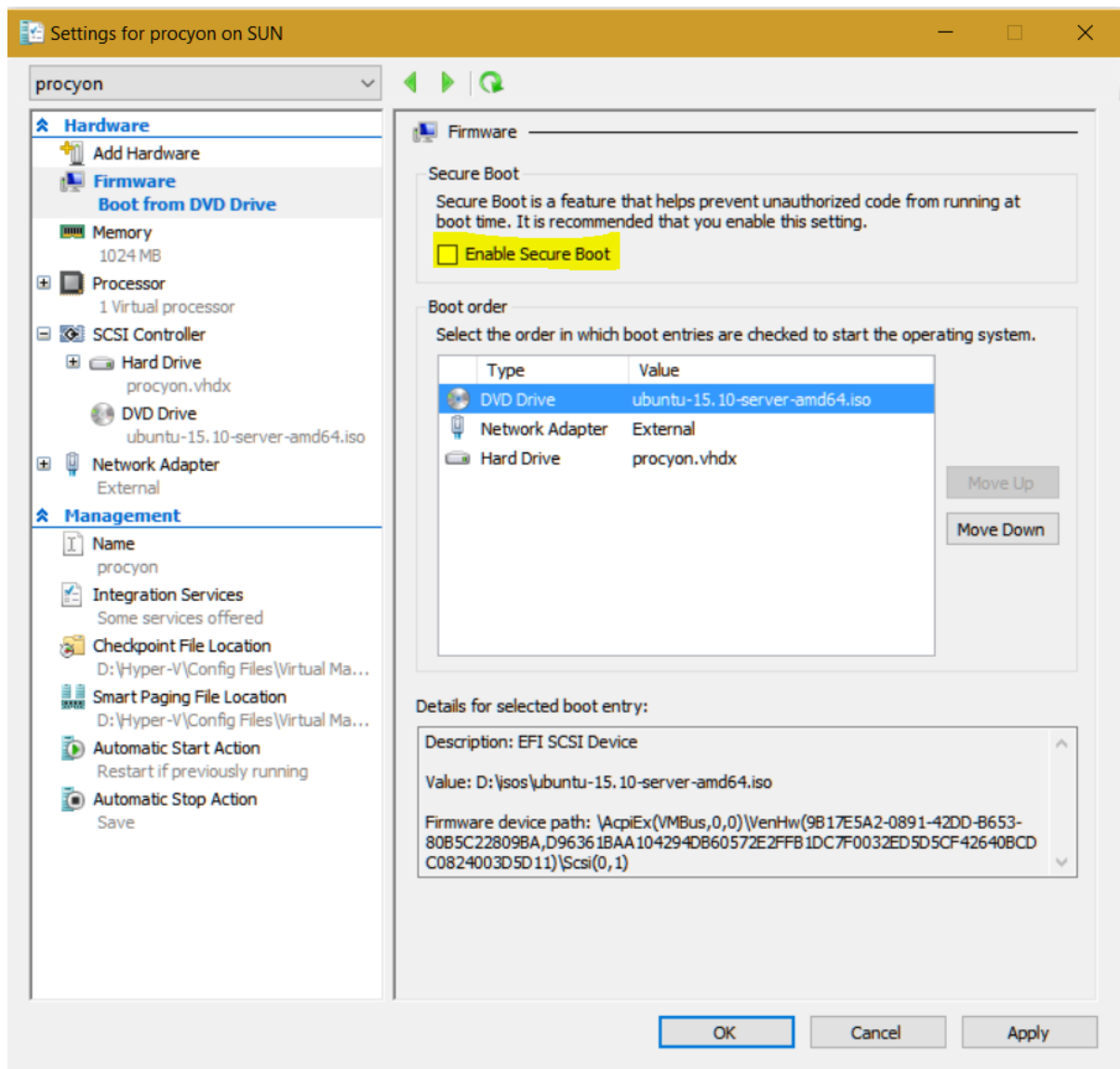
☐ Install an operating system from a network-based installation server

< Previous **Next >** Finish Cancel

Click Finish



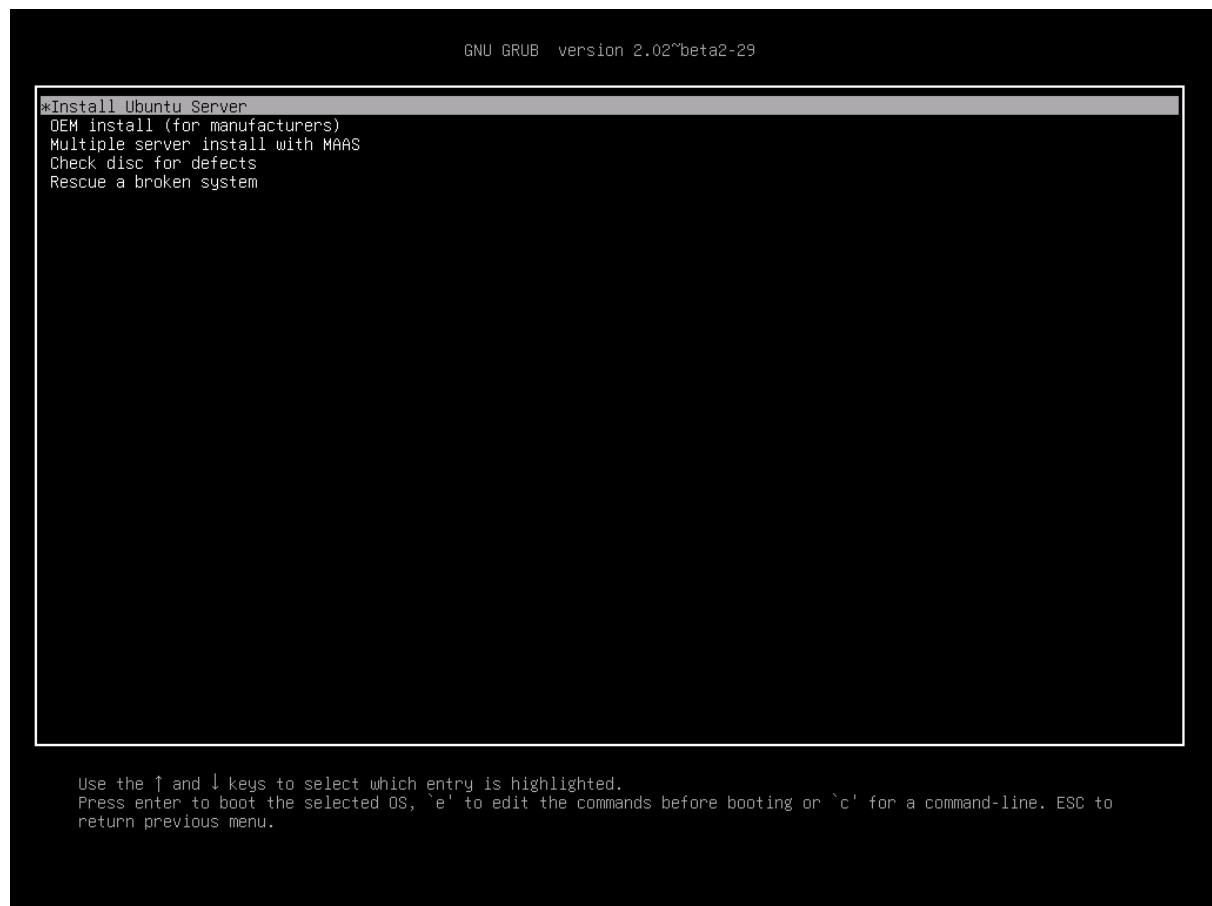
Edit the VM firmware settings and untick "Enable Secure Boot"



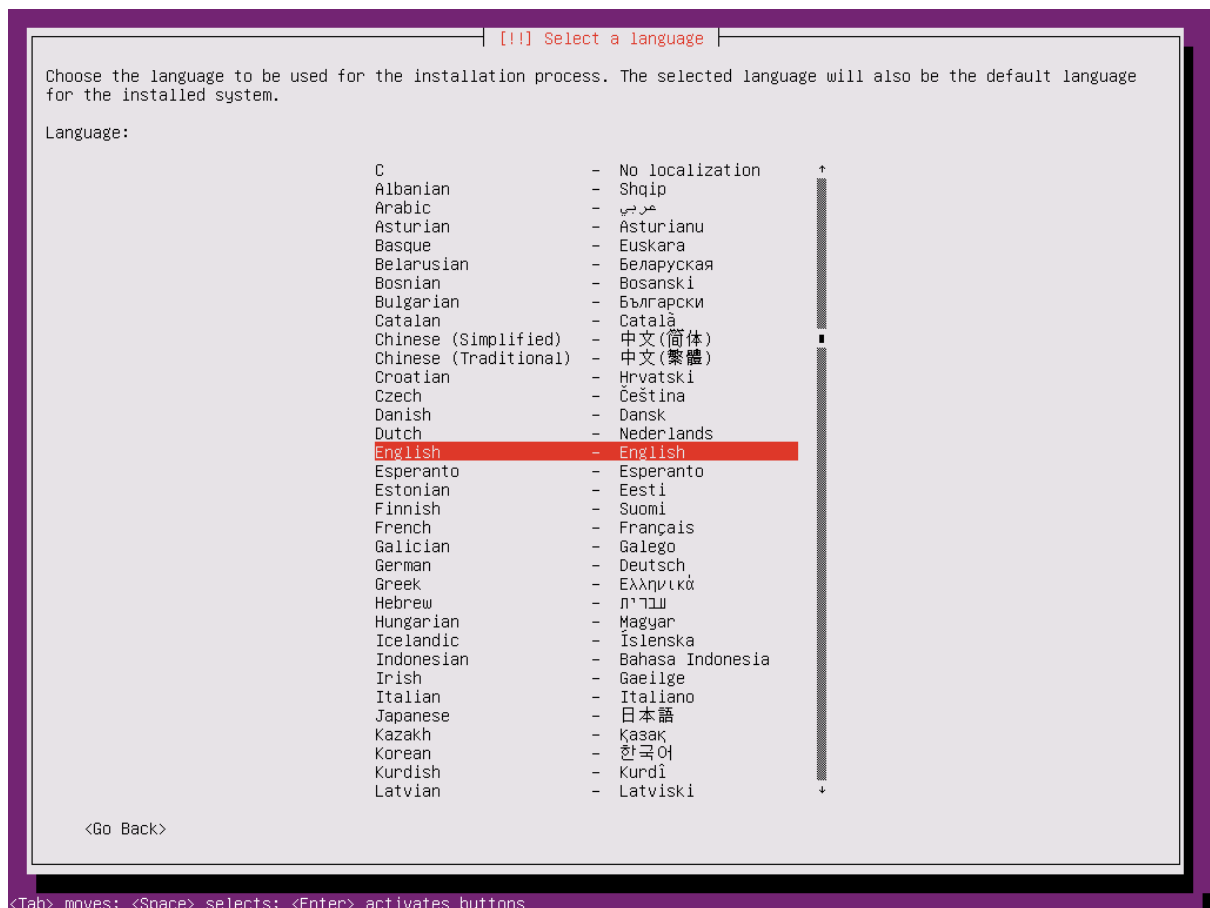
Install Ubuntu

Start VM or boot PC

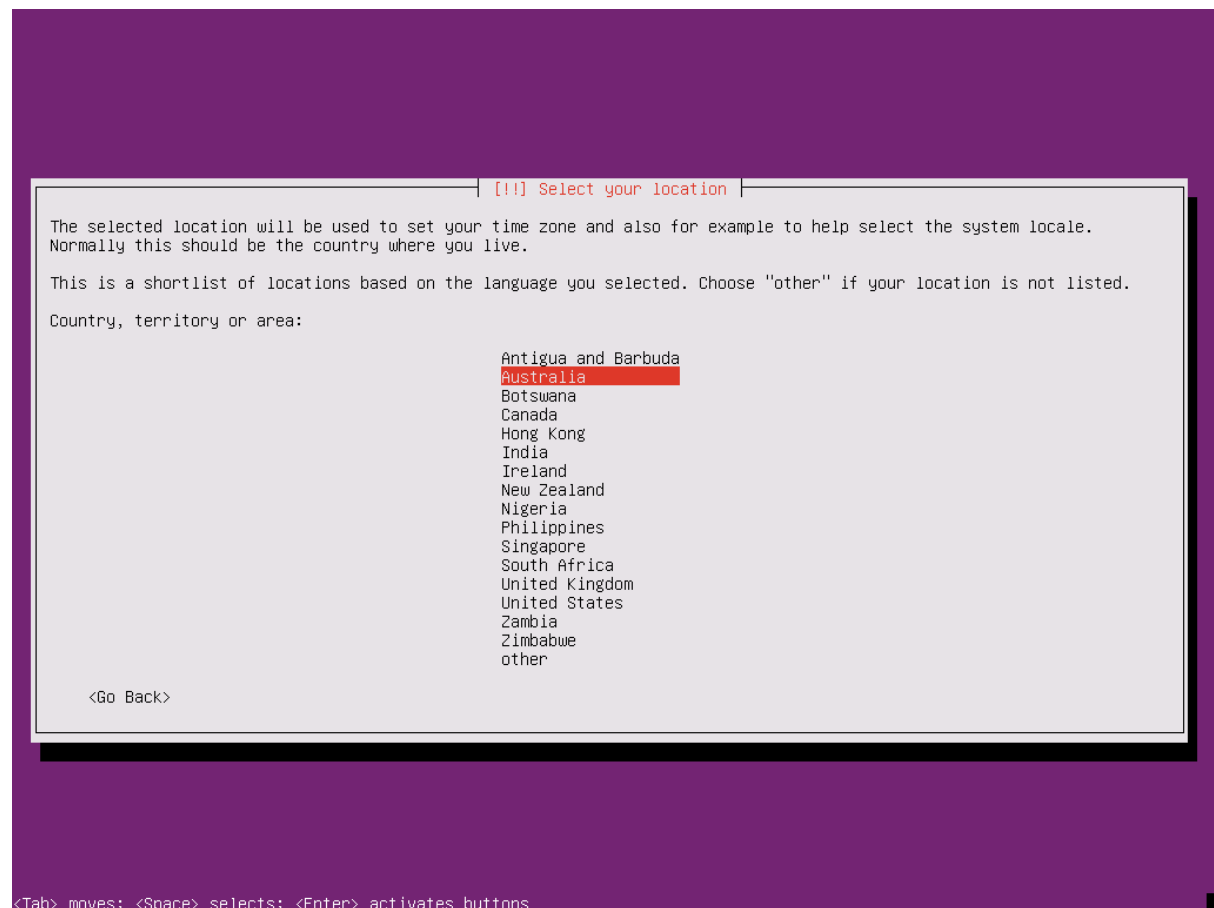
Select "Install Ubuntu Server"



Select your language of choice



Select your location:



Select your keyboard

[!] Configure the keyboard

You can try to have your keyboard layout detected by pressing a series of keys. If you do not want to do this, you will be able to select your keyboard layout from a list.

Detect keyboard layout?

<Go Back>

<Yes>

<No>

<Tab> moves; <Space> selects; <Enter> activates buttons

[!] Configure the keyboard

The layout of keyboards varies per country, with some countries having multiple common layouts. Please select the country of origin for the keyboard of this computer.

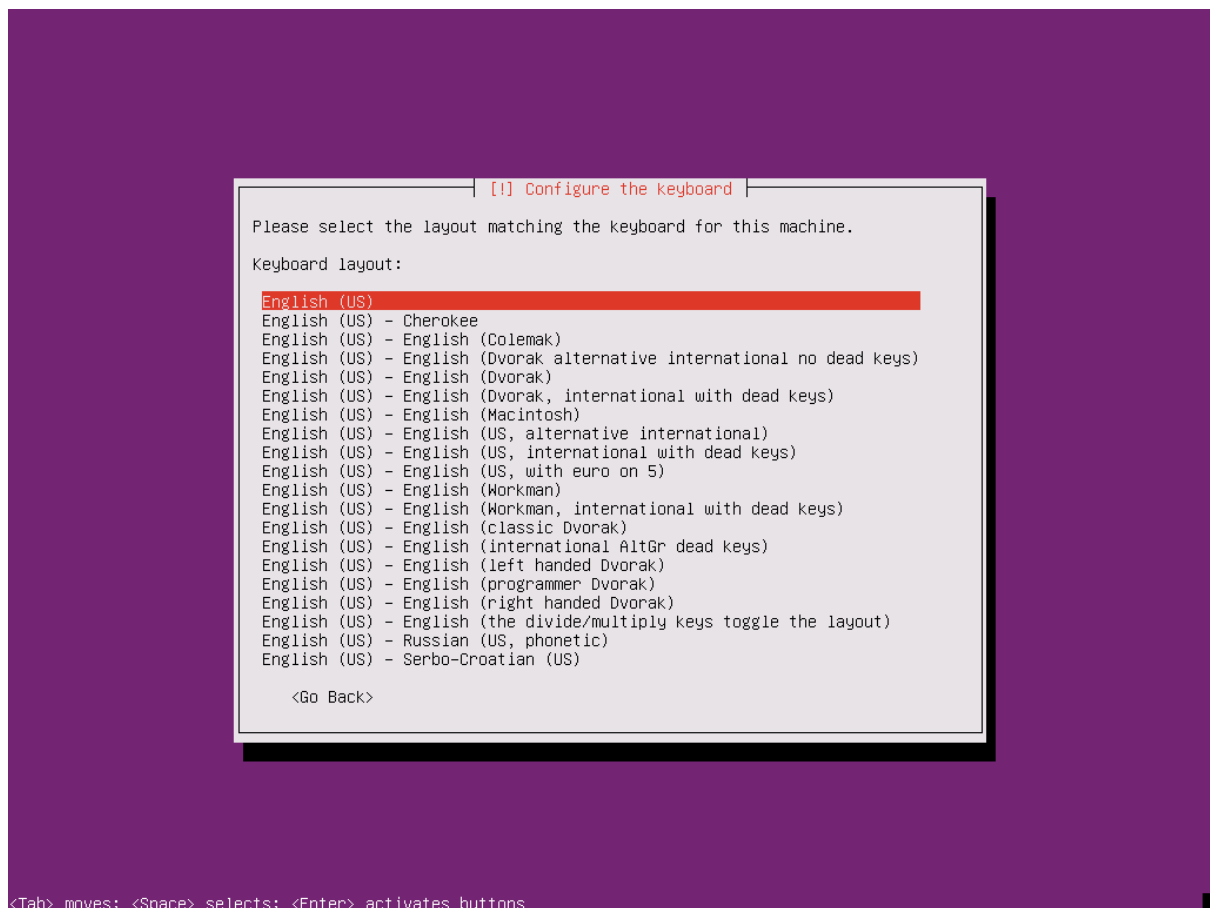
Country of origin for the keyboard:

Afghani
Albanian
Amharic
Arabic
Arabic (Morocco)
Arabic (Syria)
Armenian
Azerbaijani
Bambara
Bangla
Belarusian
Belgian
Bosnian
Braille
Bulgarian
Burmese
Chinese
Croatian
Czech
Danish
Dhivehi
Dutch
Dzongkha
English (Cameroon)
English (Ghana)
English (Nigeria)
English (South Africa)
English (UK)
English (US)
Esperanto
Estonian
Faroese
Filipino
Finnish

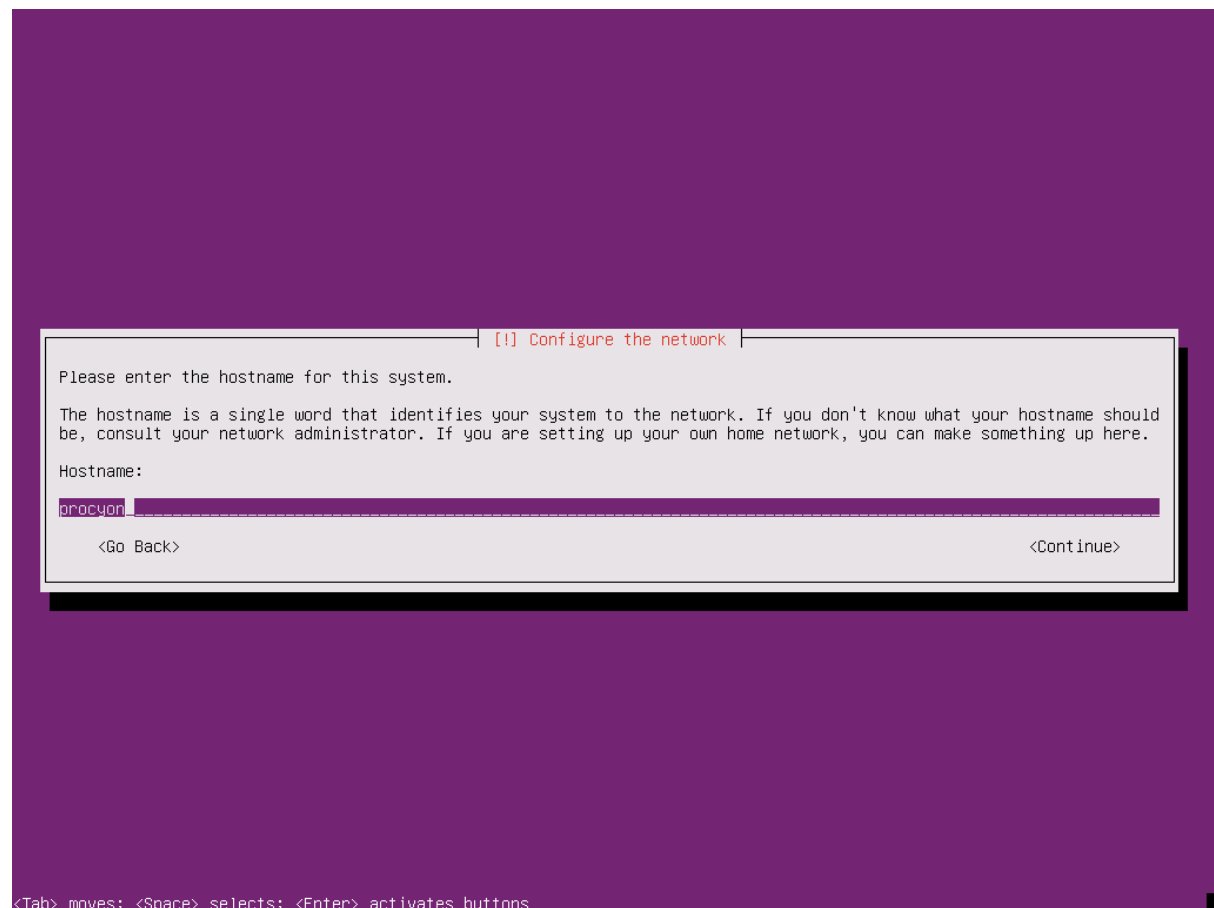


<Go Back>

<Tab> moves; <Space> selects; <Enter> activates buttons



Name the server



Create a user

[!!] Set up users and passwords

A user account will be created for you to use instead of the root account for non-administrative activities.

Please enter the real name of this user. This information will be used for instance as default origin for emails sent by this user as well as any program which displays or uses the user's real name. Your full name is a reasonable choice.

Full name for the new user:

David Leffley

<Go Back>

<Continue>

<Tab> moves; <Space> selects; <Enter> activates buttons

[!!] Set up users and passwords

Select a username for the new account. Your first name is a reasonable choice. The username should start with a lower-case letter, which can be followed by any combination of numbers and more lower-case letters.

Username for your account:

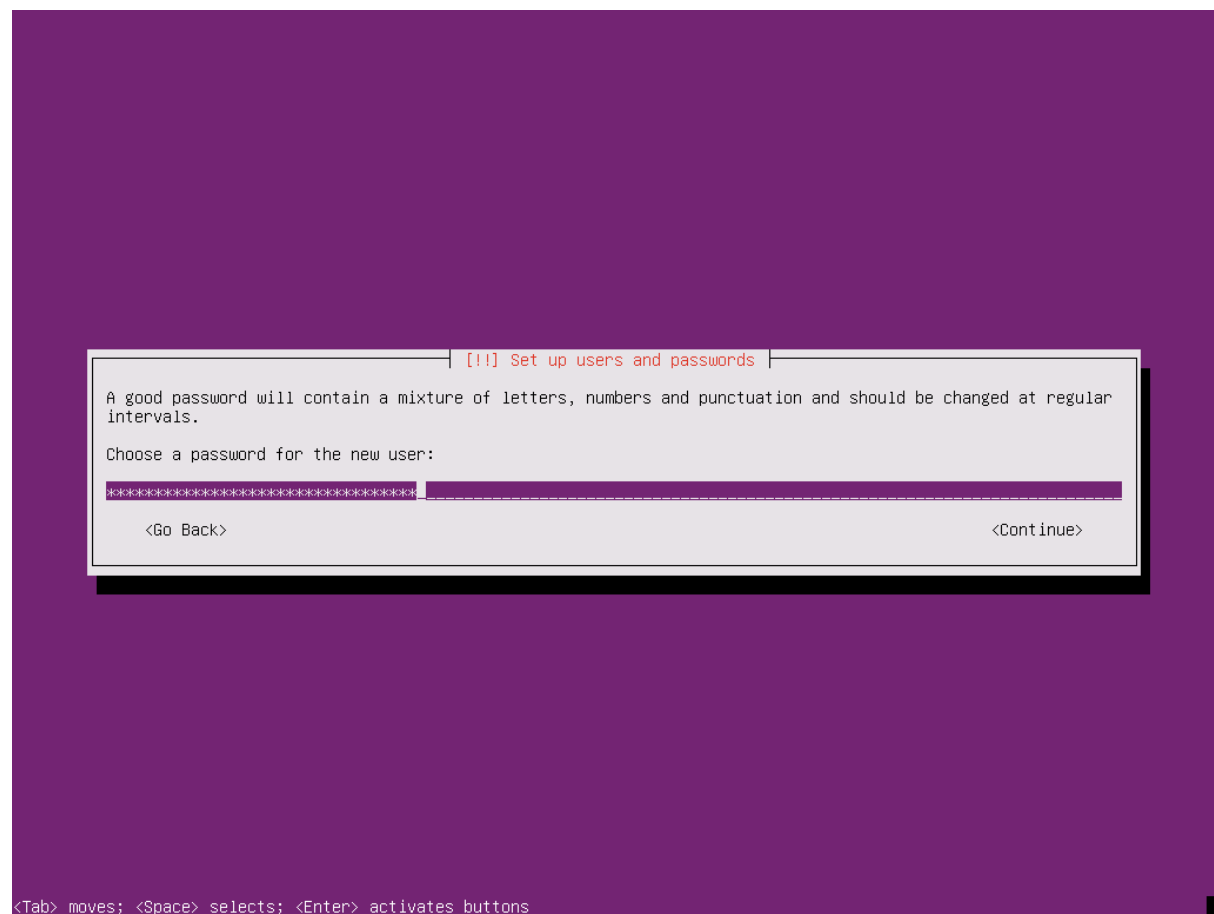
david

<Go Back>

<Continue>

<Tab> moves; <Space> selects; <Enter> activates buttons

Provide a password



The screenshot shows a terminal window with a dark purple background. At the top, a title bar reads "[!!] Set up users and passwords". Below this, a light gray box contains the text: "A good password will contain a mixture of letters, numbers and punctuation and should be changed at regular intervals." followed by "Choose a password for the new user:". A password input field is shown with a solid purple bar for the first 15 characters and a dashed line for the rest. At the bottom of the box are two buttons: "<Go Back>" on the left and "<Continue>" on the right. A legend at the bottom left of the terminal states: "<Tab> moves; <Space> selects; <Enter> activates buttons".

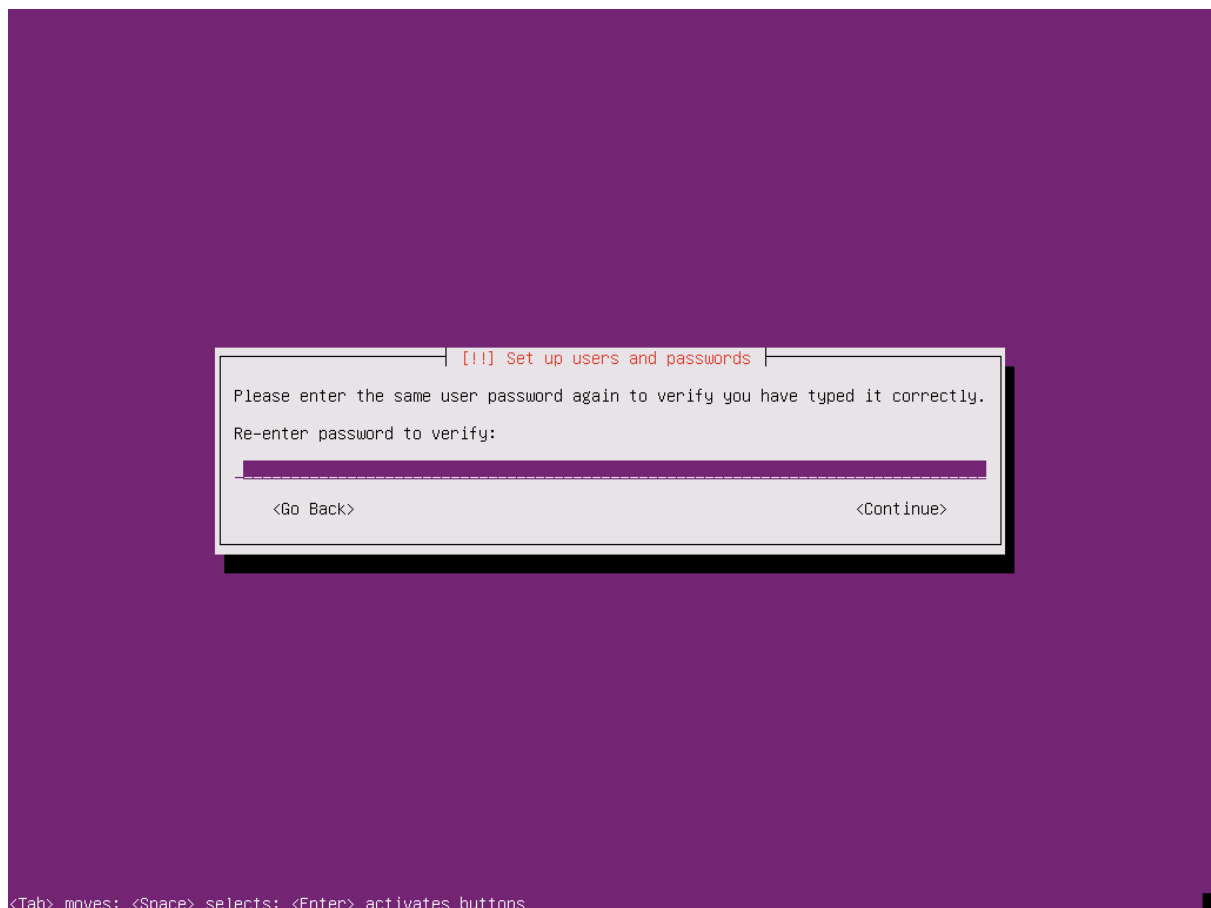
[!!] Set up users and passwords

A good password will contain a mixture of letters, numbers and punctuation and should be changed at regular intervals.

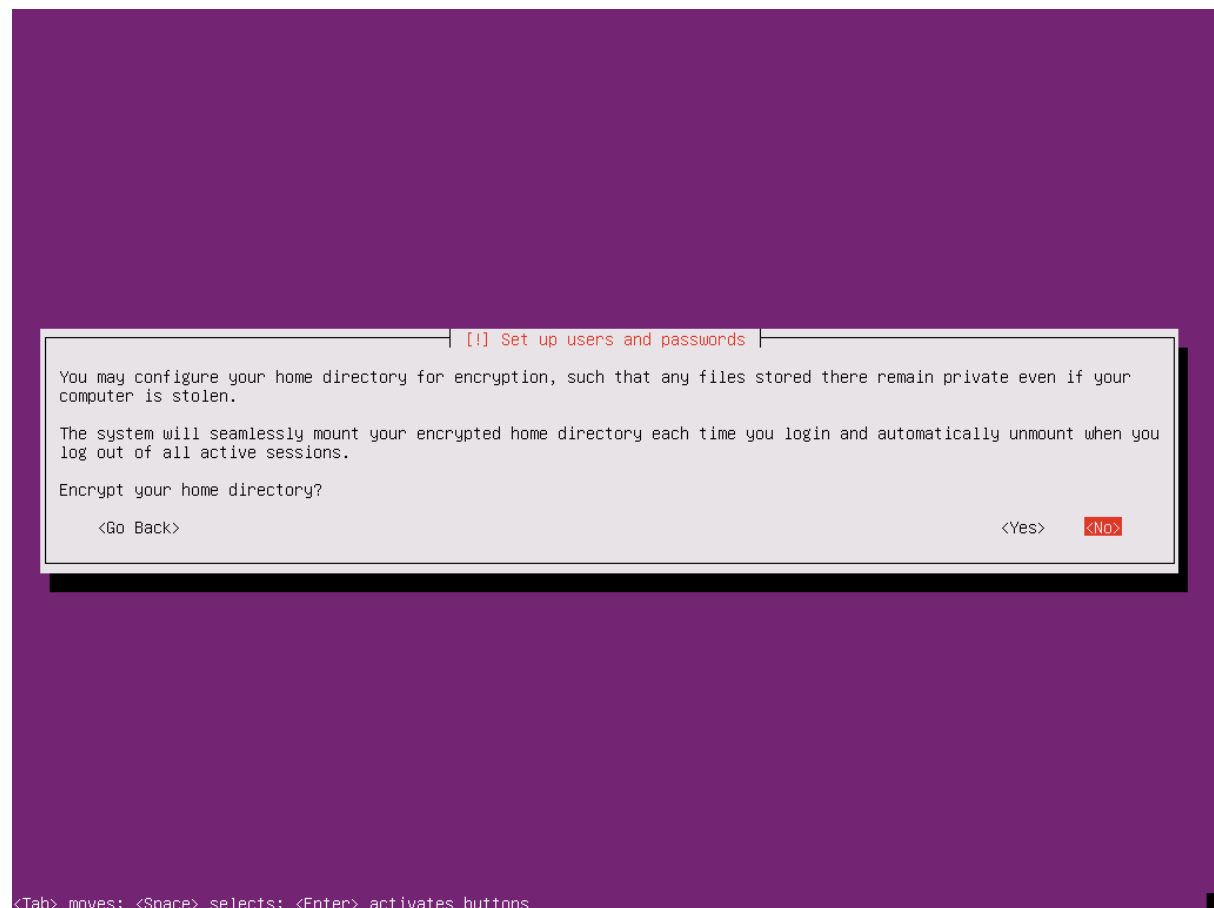
Choose a password for the new user:

<Go Back> <Continue>

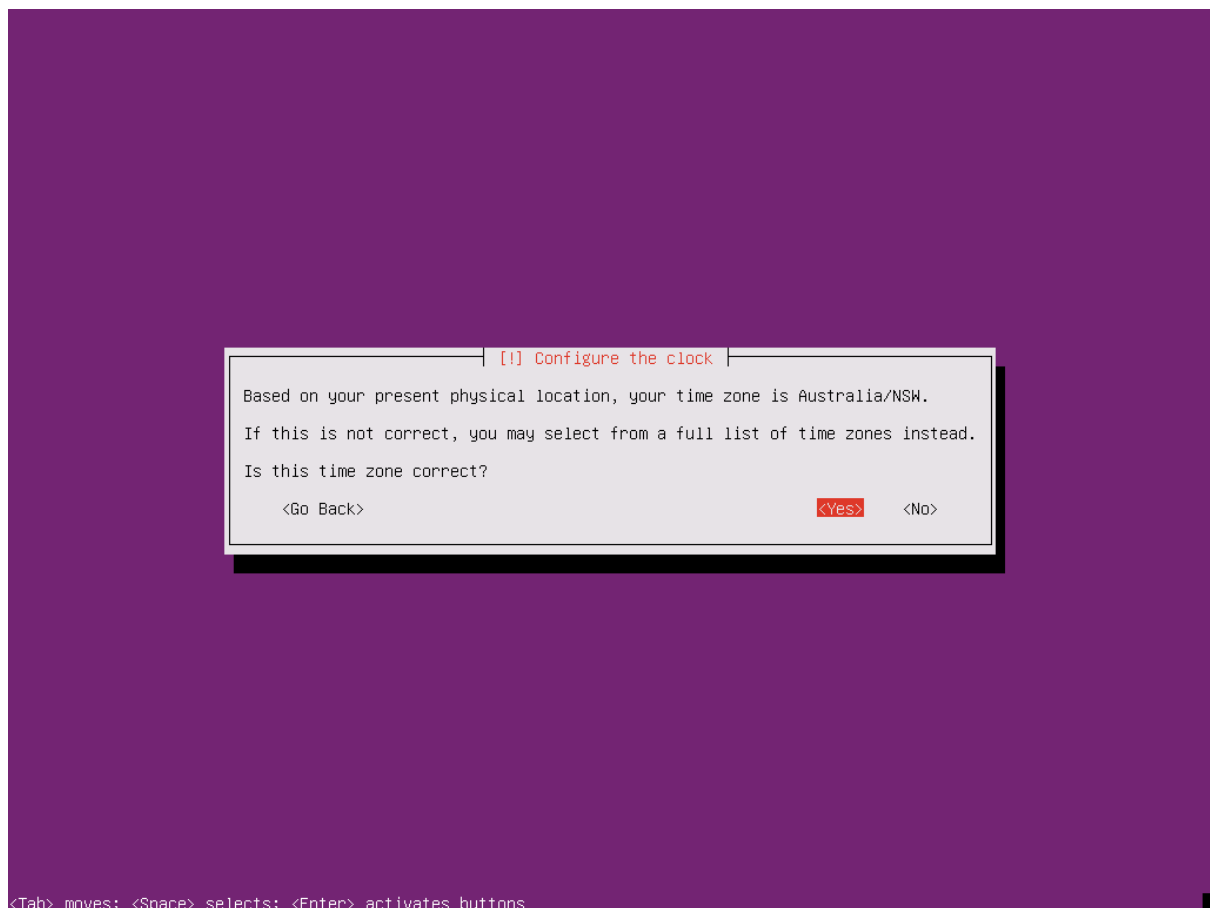
<Tab> moves; <Space> selects; <Enter> activates buttons



Don't encrypt your home directory



Choose your timezone:



Partition disks selecting defaults.

!!! Partition disks

The installer can guide you through partitioning a disk (using different standard schemes) or, if you prefer, you can do it manually. With guided partitioning you will still have a chance later to review and customise the results.

If you choose guided partitioning for an entire disk, you will next be asked which disk should be used.

Partitioning method:

Guided - use entire disk
Guided - use entire disk and set up LVM
Guided - use entire disk and set up encrypted LVM
Manual

<Go Back>

<Tab> moves; <Space> selects; <Enter> activates buttons

!!! Partition disks

Note that all data on the disk you select will be erased, but not before you have confirmed that you really want to make the changes.

Select disk to partition:

SCSI1 (0,0,0) (sda) - 1.1 TB Msft Virtual Disk

<Go Back>

<Tab> moves; <Space> selects; <Enter> activates buttons

[!] Partition disks

Before the Logical Volume Manager can be configured, the current partitioning scheme has to be written to disk. These changes cannot be undone.

After the Logical Volume Manager is configured, no additional changes to the partitioning scheme of disks containing physical volumes are allowed during the installation. Please decide if you are satisfied with the current partitioning scheme before continuing.

The partition tables of the following devices are changed:

SCSI1 (0,0,0) (sda)

Write the changes to disks and configure LVM?

<Yes>

<No>

<Tab> moves; <Space> selects; <Enter> activates buttons

[!] Partition disks

You may use the whole volume group for guided partitioning, or part of it. If you use only part of it, or if you add more disks later, then you will be able to grow logical volumes later using the LVM tools, so using a smaller part of the volume group at installation time may offer more flexibility.

The minimum size of the selected partitioning recipe is 1.6 GB (or 0%); please note that the packages you choose to install may require more space than this. The maximum available size is 1.1 TB.

Hint: "max" can be used as a shortcut to specify the maximum size, or enter a percentage (e.g. "20%") to use that percentage of the maximum size.

Amount of volume group to use for guided partitioning:

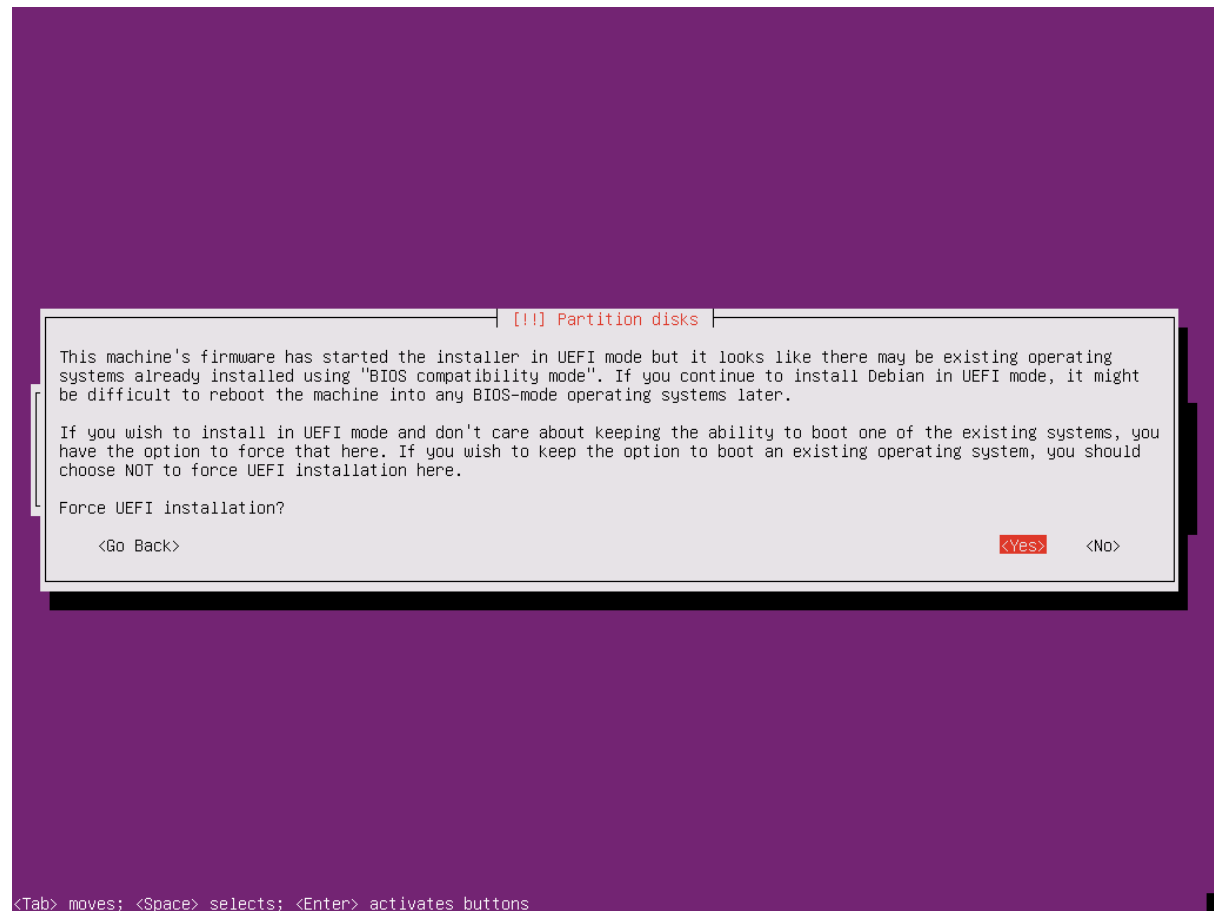
1.1 TB

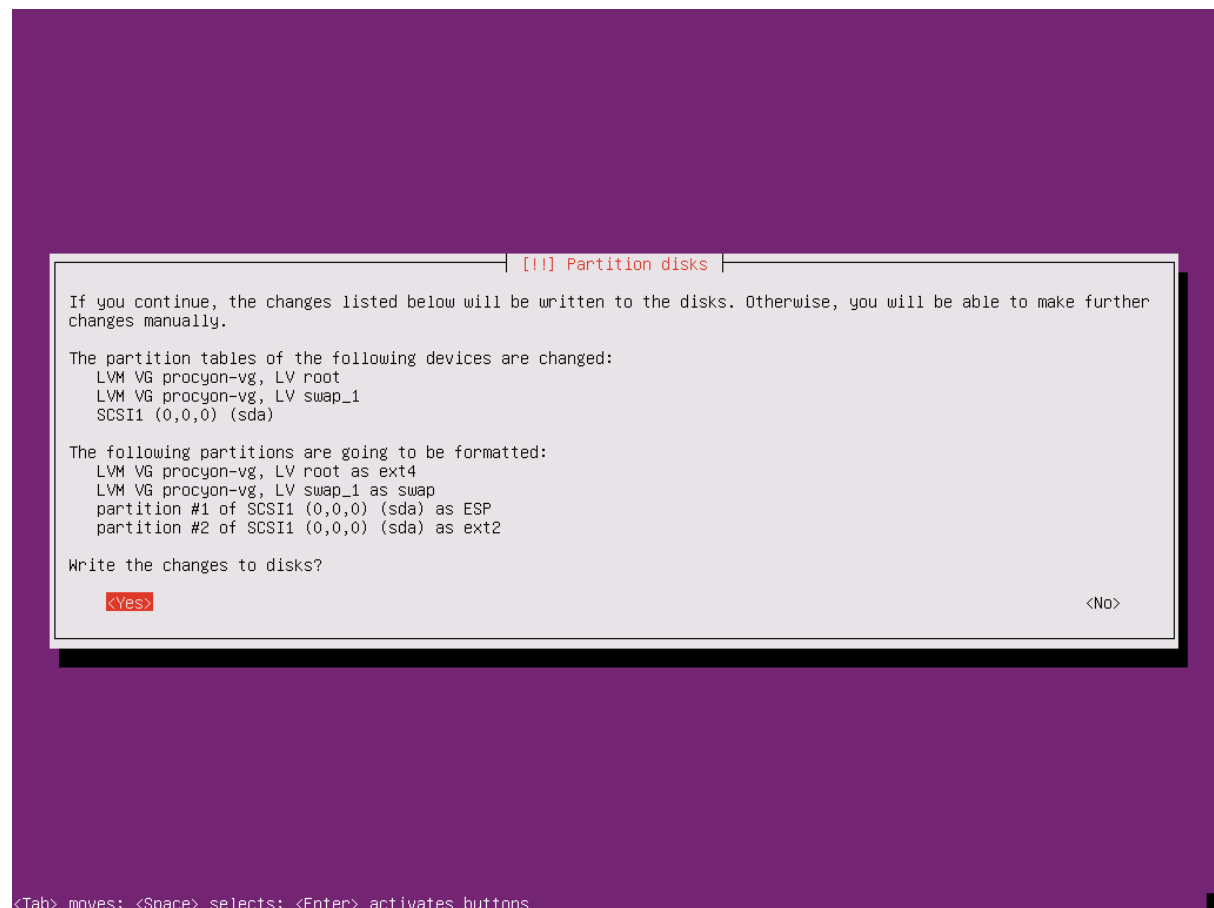
<Go Back>

<Continue>

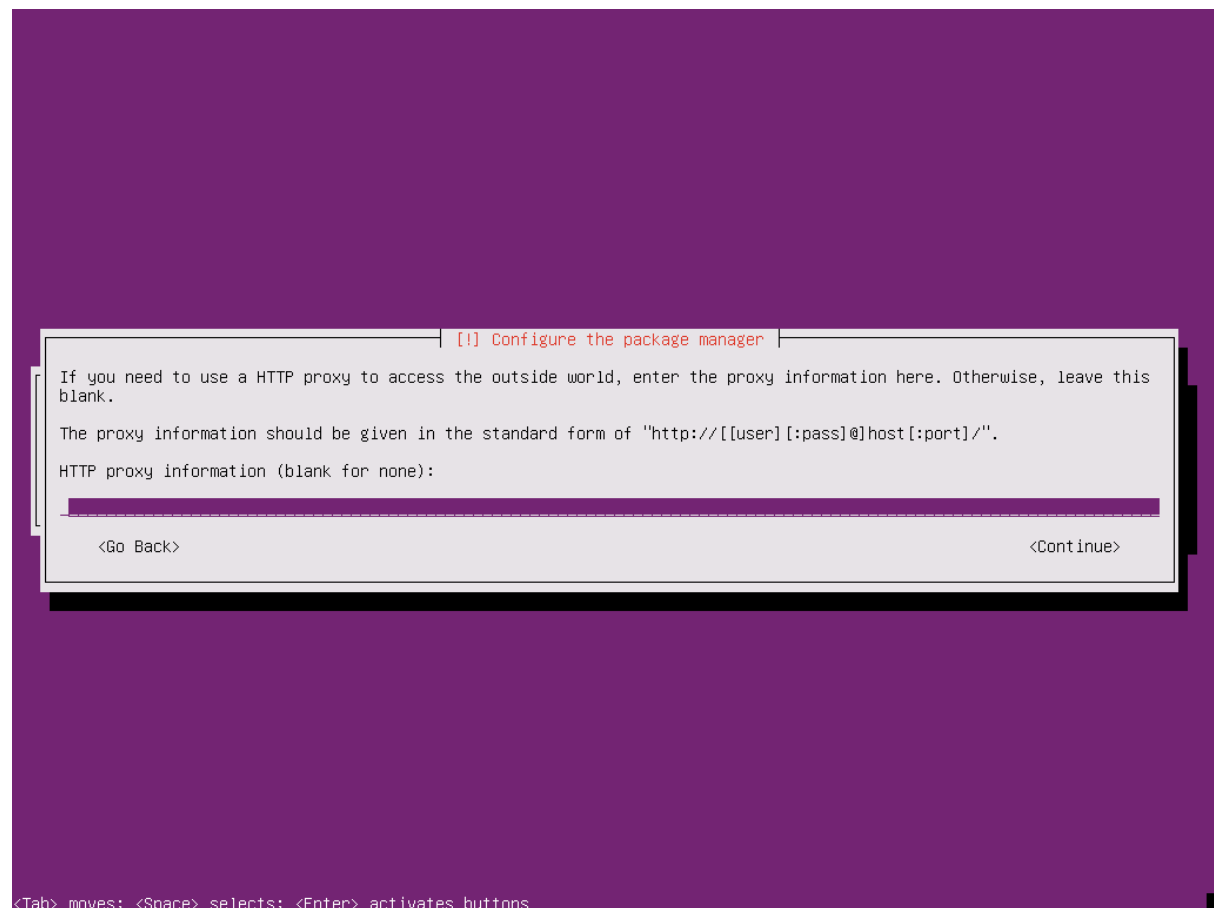
<Tab> moves; <Space> selects; <Enter> activates buttons

Force UEFI Installation





Leave proxy blank unless you have one



Install security updates automatically

[!] Configuring tasksel

Applying updates on a frequent basis is an important part of keeping your system secure.

By default, updates need to be applied manually using package management tools. Alternatively, you can choose to have this system automatically download and install security updates, or you can choose to manage this system over the web as part of a group of systems using Canonical's Landscape service.

How do you want to manage upgrades on this system?

No automatic updates

Install security updates automatically

Manage system with Landscape

<Tab> moves; <Space> selects; <Enter> activates buttons

Continue without installing any packages

[!] Software selection

At the moment, only the core of the system is installed. To tune the system to your needs, you can choose to install one or more of the following predefined collections of software.

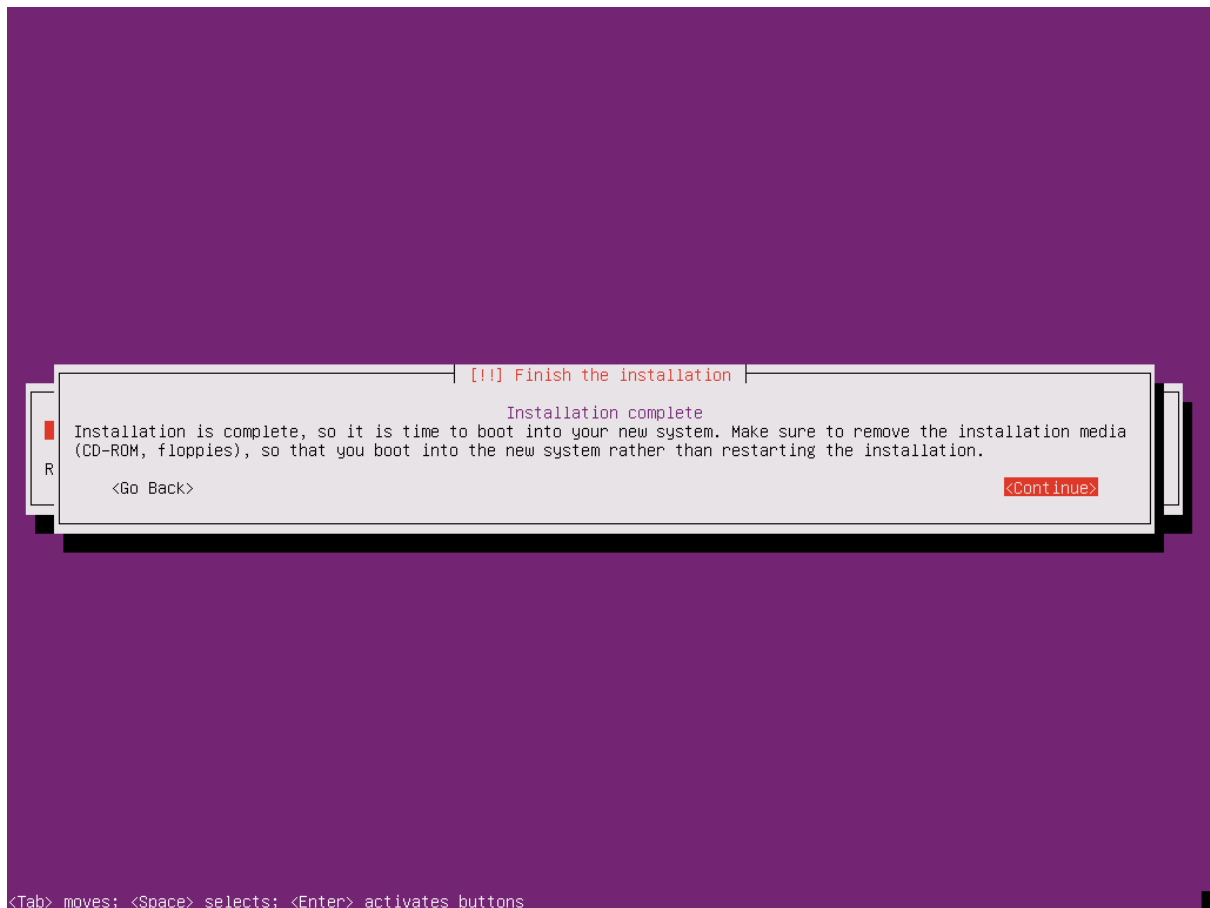
Choose software to install:

- ☐ OpenSSH server
- ☐ DNS server
- ☐ LAMP server
- ☐ Mail server
- ☐ PostgreSQL database
- ☐ Print server
- ☐ Samba file server
- ☐ Tomcat Java server
- ☐ Virtual Machine host
- ☐ Manual package selection

<Continue>

<Tab> moves; <Space> selects; <Enter> activates buttons

Reboot



Login

```
Ubuntu 15.10 procyon tty1

Ubuntu 15.10 procyon tty1
procyon login: david
Password:

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

david@procyon:~$
```

Run these commands:

```
sudo apt-get update
sudo apt-get upgrade
```

Configure Ubuntu Server

Based on <http://ubuntuforums.org/showthread.php?t=2146198>

```
sudo nano /etc/network/interfaces
```

Edit the interfaces file so that you have a static IP address. In the following example, the IP address subnet is 192.168.1.x and domain is home.local

```
GNU nano 2.4.2                                File: /etc/network/interfaces                                Modified
# This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).

source /etc/network/interfaces.d/*

# The loopback network interface
auto lo
iface lo inet loopback

# The primary network interface
auto eth0
iface eth0 inet static
    address          192.168.1.26
    netmask          255.255.255.0
    network          192.168.1.0
    broadcast        192.168.1.255
    gateway          192.168.1.1
    dns-nameservers  192.168.1.21 8.8.8.8
    dns-search       home.local

Get Help  Write Out  Where Is  Cut Text  Justify  Cur Pos  Prev Page  First Line  WhereIs Next
Exit     Read File  Replace  Uncut Text  To Spell  Go To Line  Next Page  Last Line  To Bracket
```

sudo nano /etc/hosts

Change the lines that read:

```
127.0.0.1    localhost
127.0.1.1    <hostname>
```

To:

```
127.0.0.1                localhost.localdomain    localhost
<host ip address>        <hostname.domain.name>  hostname
```

i.e.:

```
127.0.0.1                localhost.localdomain    localhost
192.168.1.26             procyon.home.local       Procyon
```

And then save the file by pressing:

```
ctrl-o
enter
ctrl-x
```

```
GNU nano 2.4.2                                File: /etc/hosts                                Modified
127.0.0.1      localhost.localdomain  localhost
192.168.1.26   procyon.home.local    procyon_

# The following lines are desirable for IPv6 capable hosts
::1            localhost ip6-localhost ip6-loopback
ff02::1        ip6-allnodes
ff02::2        ip6-allrouters
```

[Cancelled]

Get Help Write Out Where Is Cut Text Justify Cur Pos Prev Page First Line WhereIs Next
Exit Read File Replace Uncut Text To Spell Go To Line Next Page Last Line To Bracket

Sudo nano /etc/hostname

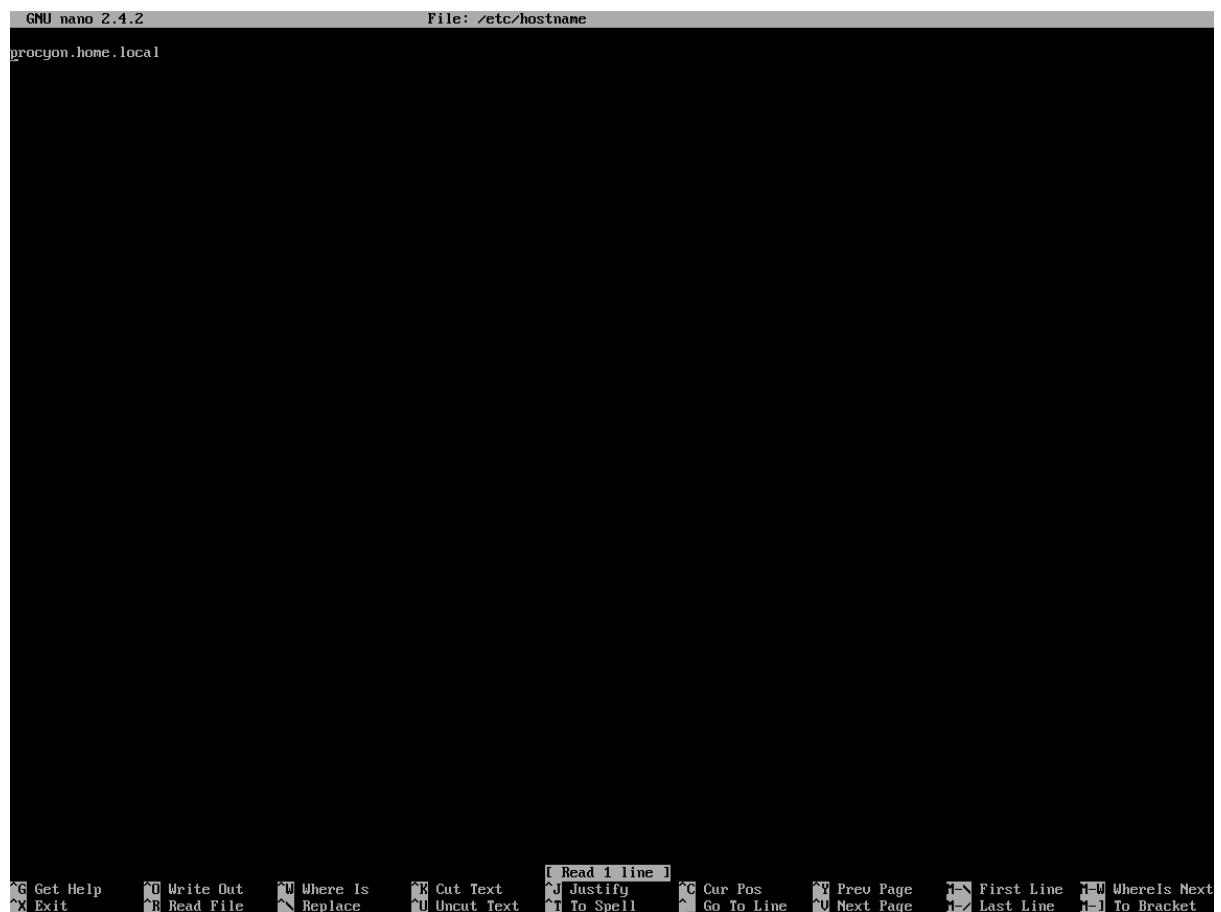
Change to fully qualified hostname. E.g:

procyon.home.local

And then save the file by pressing:

ctrl-o
enter
ctrl-x

```
GNU nano 2.4.2      File: /etc/hostname
procyon.home.local
```



The screenshot shows the GNU nano 2.4.2 text editor. The title bar at the top indicates the file being edited is `/etc/hostname`. The main editing area contains the text `procyon.home.local`. The bottom status bar displays a series of keyboard shortcuts for various editor functions, including `Get Help`, `Write Out`, `Where Is`, `Cut Text`, `Justify`, `Cur Pos`, `Prev Page`, `First Line`, `WhereIs Next`, `Exit`, `Read File`, `Replace`, `Uncut Text`, `To Spell`, `Go To Line`, `Next Page`, `Last Line`, and `To Bracket`.

Restart networking:

```
sudo systemctl restart networking
```

```
david@antares:~$ sudo /etc/init.d/networking restart
[ ok ] Restarting networking (via systemctl): networking.service.
david@antares:~$
```

Install OpenSSH Server

```
sudo apt-get install openssh-server
```

You can now ssh to the server instead of being in front of it/using the VM Console

For windows, use putty. <http://www.putty.org/>

Install vsftpd

From <https://help.ubuntu.com/lts/serverguide/ftp-server.html>

```
sudo apt-get install vsftpd
sudo nano /etc/vsftpd.conf
uncomment write_enable=YES
```

ctrl-o to save

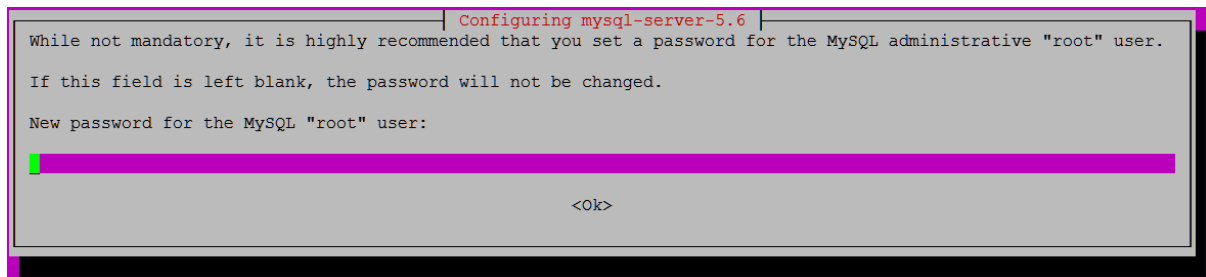
ctrl-x to exit

```
sudo systemctl restart vsftpd
```

Install MySQL


```
sudo apt-get install mysql-server
```

Make a root password for MySQL



Install Python 2.7

Note: Python3 does not work with the SDK.

```
sudo apt-get install python python-pip
```

Clone python-lifx-sdk and

```
git clone https://github.com/smarthall/python-lifx-sdk.git python-lifx-sdk
```

```
git clone https://github.com/dleffo/particle-button-lifx.git lifx
```

Setup python-lifx-sdk

```
Pip install setuptools  
sudo ~/python-lifx-sdk/setup.py install
```

Test what you've done so far

```
python ~/lifx/light.py -l Study --on  
python ~/lifx/light.py -l Study --off
```

To turn the light “Study” on and off respectively.

Documentation to be completed:

- Set up database
- Set up internet button
- Run scripts on startup
- ???