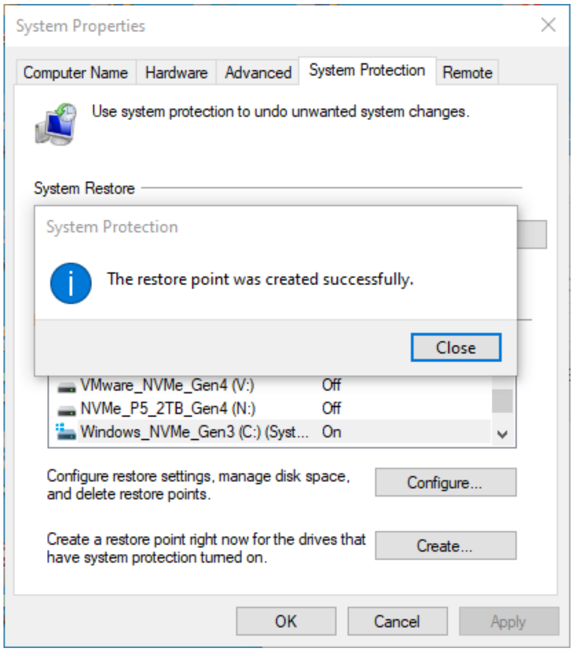
Born2beroot - ecole42

Notebook:	Linux		
Created:	2023-11-26 16:23	**Updated:**	2023-12-05 19:23
Author:	Pete Meechan		
URL:	https://www.server-world.info/en/note?os=Debian_12&p=pam&f=1		

Create System Restore Point

Create a system restore point to allow recovery in case things go seriously wrong. A full disk backup is a better option, but takes considerably longer!

Windows Key+i -> System-> About then choose Advanced System Settings. From the System Protection tab, click Create.


System Properties

Use system protection to undo unwanted system changes.

System Restore

System Protection

The restore point was created successfully.

VMware_NVMe_Gen4 (V:) Off
NVMe_P5_2TB_Gen4 (N:) Off
Windows_NVMe_Gen3 (C:) (Syst... On

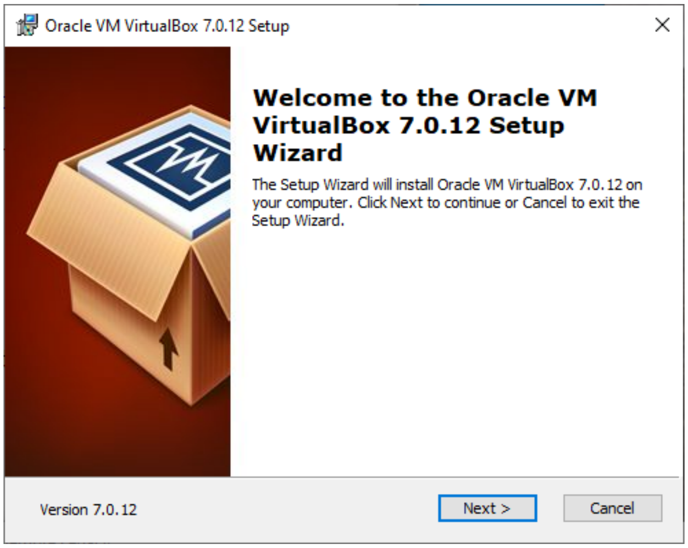
Configure restore settings, manage disk space, and delete restore points.

Create a restore point right now for the drives that have system protection turned on.

Download Virtual Box and install

Download from https://www.virtualbox.org - choose the Windows hosts download e.g. VirtualBox-7.0.12-159484-Win.exe

Execute installer (As Administrator or user with Administrator authority)

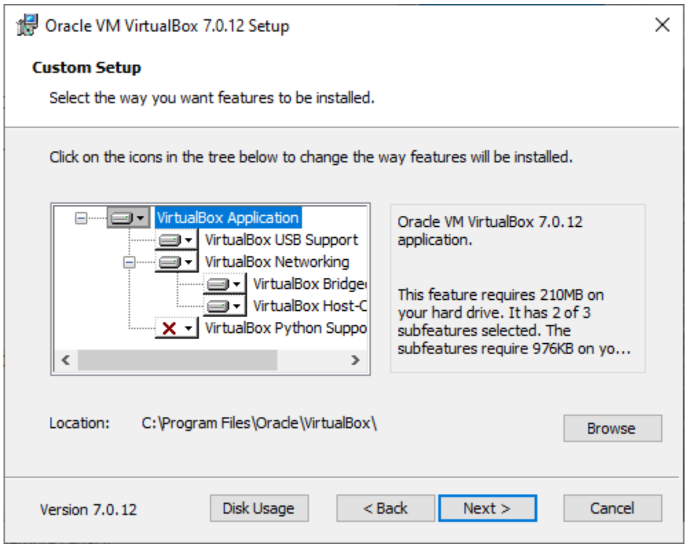

Oracle VM VirtualBox 7.0.12 Setup

Welcome to the Oracle VM VirtualBox 7.0.12 Setup Wizard

The Setup Wizard will install Oracle VM VirtualBox 7.0.12 on your computer. Click Next to continue or Cancel to exit the Setup Wizard.

Version 7.0.12

Optional - disable the Python support if not required (I don't have Python installed on my desktop so I disabled it)



Oracle VM VirtualBox 7.0.12 Setup

Custom Setup

Select the way you want features to be installed.

Click on the icons in the tree below to change the way features will be installed.

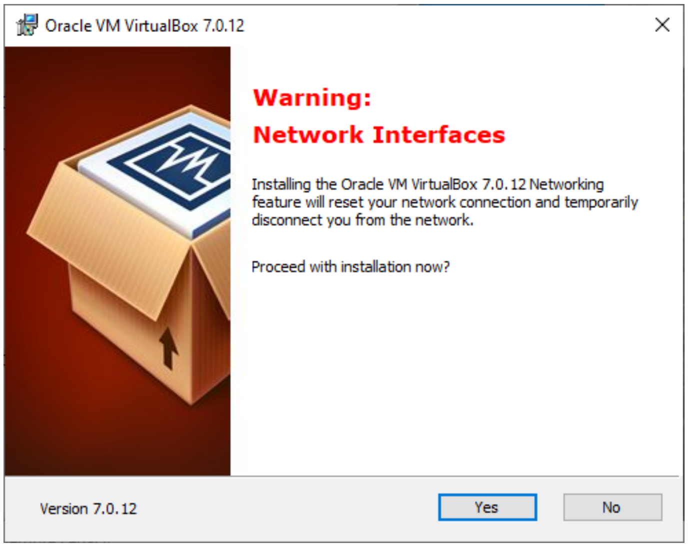
- VirtualBox Application
  - VirtualBox USB Support
  - VirtualBox Networking
    - VirtualBox Bridge
    - VirtualBox Host-C
  - ✗ VirtualBox Python Suppo

Oracle VM VirtualBox 7.0.12 application.

This feature requires 210MB on your hard drive. It has 2 of 3 subfeatures selected. The subfeatures require 976KB on yo...

Location: C:\Program Files\Oracle\VirtualBox\

Version 7.0.12



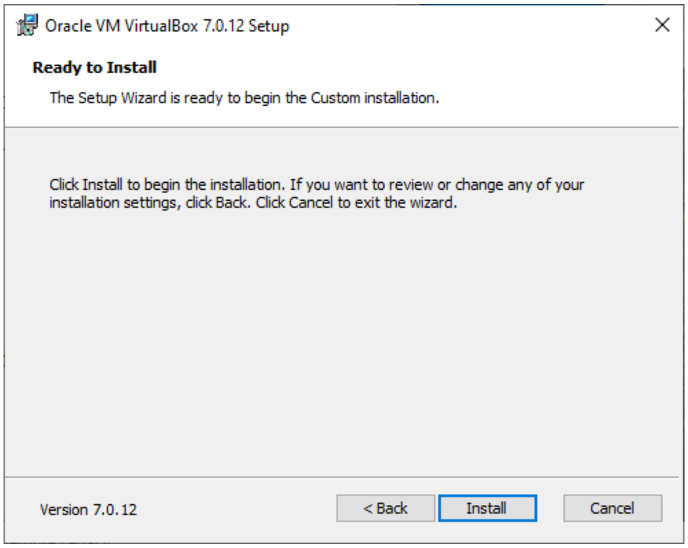
Oracle VM VirtualBox 7.0.12

Warning:
Network Interfaces

Installing the Oracle VM VirtualBox 7.0.12 Networking feature will reset your network connection and temporarily disconnect you from the network.

Proceed with installation now?

Version 7.0.12



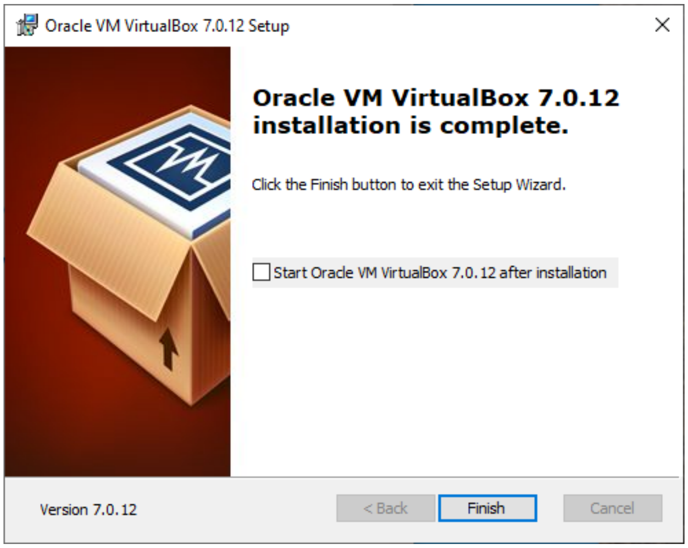
Oracle VM VirtualBox 7.0.12 Setup

Ready to Install

The Setup Wizard is ready to begin the Custom installation.

Click Install to begin the installation. If you want to review or change any of your installation settings, click Back. Click Cancel to exit the wizard.

Version 7.0.12



Oracle VM VirtualBox 7.0.12 Setup

Oracle VM VirtualBox 7.0.12 installation is complete.

Click the Finish button to exit the Setup Wizard.

☐ Start Oracle VM VirtualBox 7.0.12 after installation

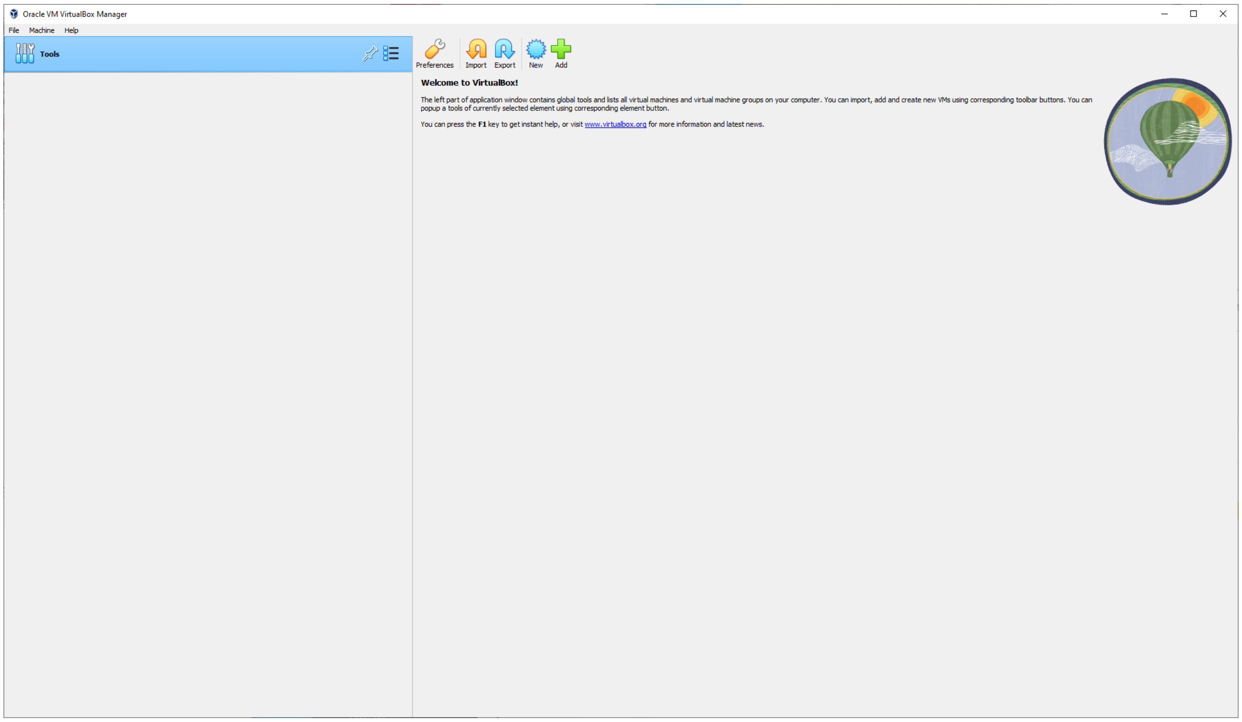
Create a folder for the VirtualBox virtual machines (VMs) e.g. c:\VirtualBox (my examples use V:\VirtualBox)

Download debian linux

Download debian linux from https://www.debian.org and click Download to download debian linux as an ISO (disk) image

Install and configure debian linux

Start VirtualBox and install debian linux as shown below

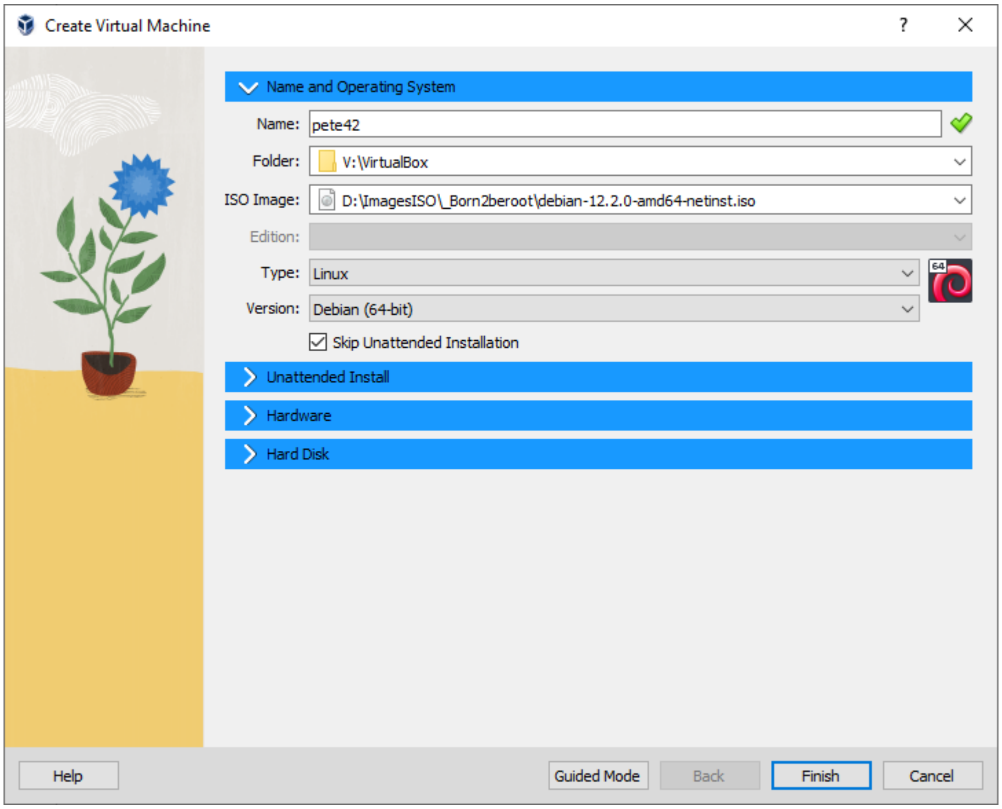


Welcome to VirtualBox!

The left part of application window contains global tools and lists all virtual machines and virtual machine groups on your computer. You can import, add and create new VMs using corresponding toolbar buttons. You can popup a tools of currently selected element using corresponding element button.

You can press the **F1** key to get instant help, or visit www.virtualbox.org for more information and latest news.

Click New icon on menu bar and then click "Expert Mode" in the pop-up window to show the following screen - make sure you check the Skip Unattended Install box



Name and Operating System

Name: pete42

Folder: V:\VirtualBox

ISO Image: D:\ImagesISO_Born2beroot\debian-12.2.0-amd64-netinst.iso

Edition:

Type: Linux

Version: Debian (64-bit)

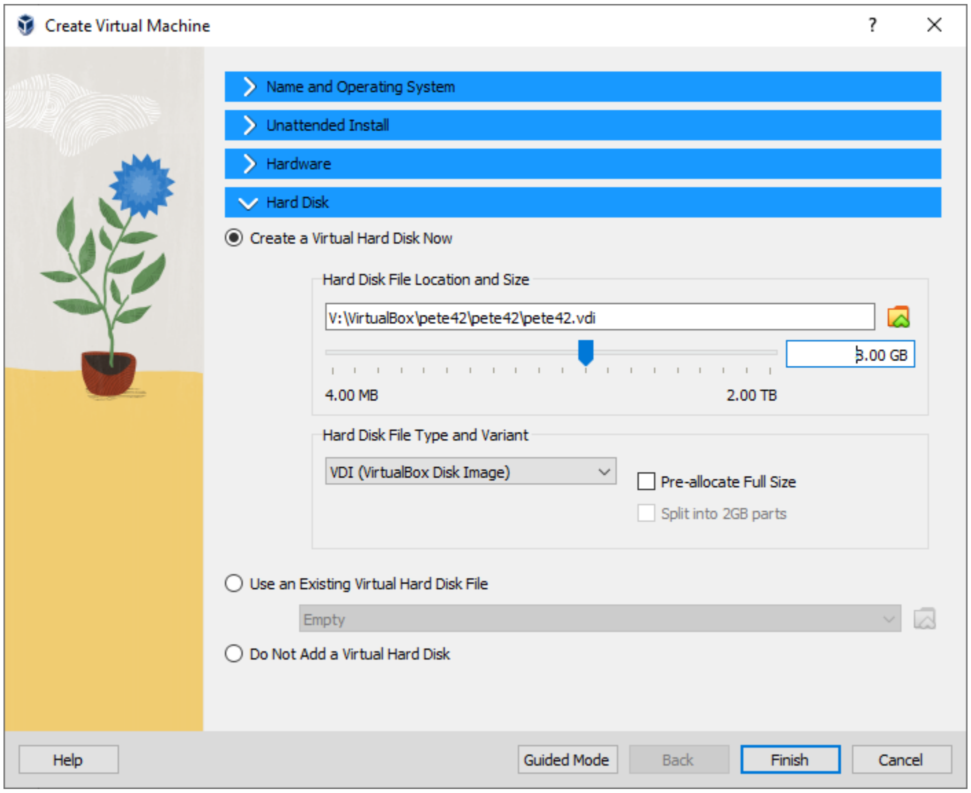
☑ Skip Unattended Installation

Unattended Install

Hardware

Hard Disk

Then click the hard disk tab and set disk space size to 8.0GB and then click Finish



Hard Disk

● Create a Virtual Hard Disk Now

Hard Disk File Location and Size

V:\VirtualBox\pete42\pete42\pete42.vdi

8.00 GB

4.00 MB 2.00 TB

Hard Disk File Type and Variant

VDI (VirtualBox Disk Image)

□ Pre-allocate Full Size

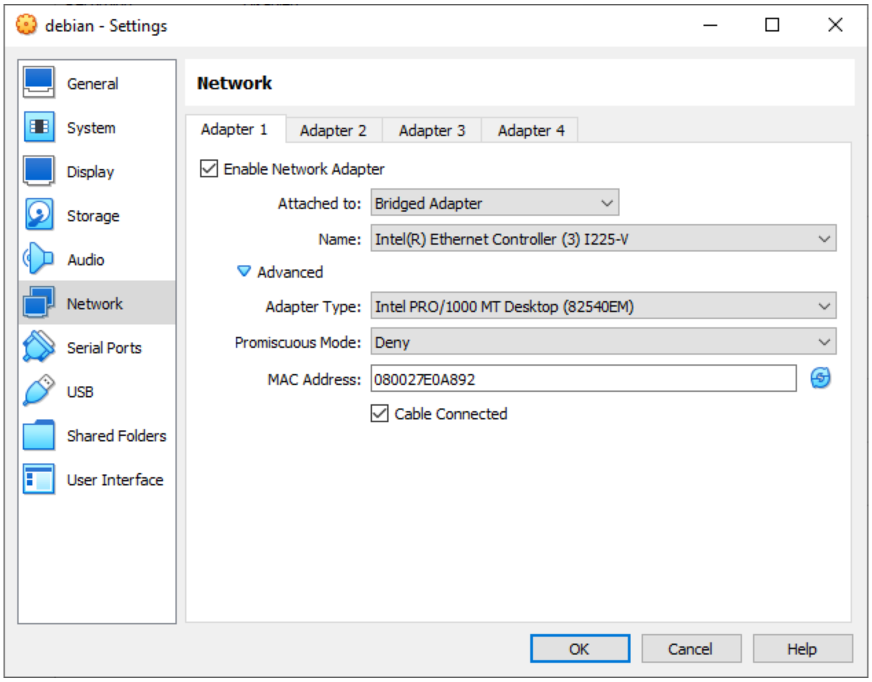
□ Split into 2GB parts

○ Use an Existing Virtual Hard Disk File

Empty

○ Do Not Add a Virtual Hard Disk

Click Settings and then Network. Enable the network adapter as a Bridged Adapter as this allows the VM access to the internet using the host machine (desktop/laptop) network adapter and also allows the host machine access to the VM.
There are many different network options available - more details can be found here https://www.nakivo.com/blog/virtualbox-network-setting-guide/



Network

☑ Enable Network Adapter

Attached to: Bridged Adapter

Name: Intel(R) Ethernet Controller (3) I225-V

Advanced

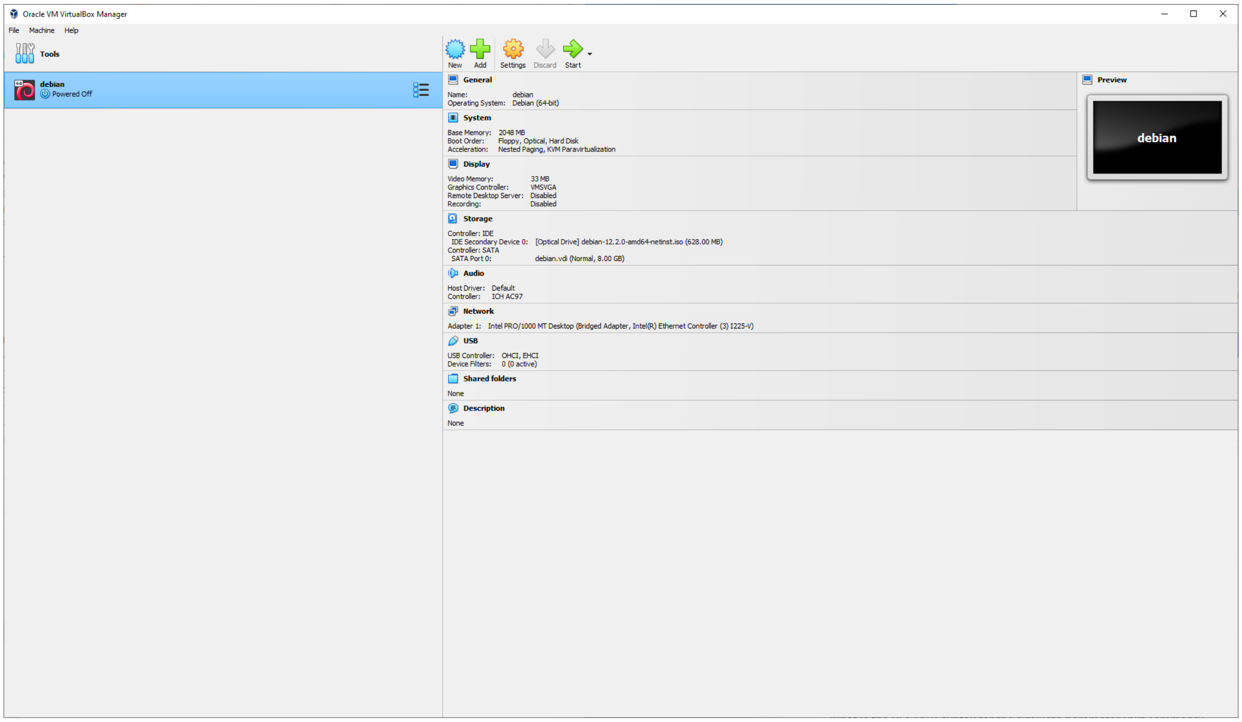
Adapter Type: Intel PRO/1000 MT Desktop (82540EM)

Promiscuous Mode: Deny

MAC Address: 080027E0A892

☑ Cable Connected

Click Start on the next screen



General

```
Name:              debian
Operating System:  Debian (64-bit)
```

System

```
Base Memory:   2048 MB
Boot Order:    Floppy, Optical, Hard Disk
Acceleration:  Nested Paging, KVM Paravirtualization
```

Display

```
Video Memory:           33 MB
Graphics Controller:    VMSVGA
Remote Desktop Server:  Disabled
Recording:              Disabled
```

Storage

```
Controller: IDE
 IDE Secondary Device 0:  [Optical Drive] debian-12.2.0-amd64-netinst.iso (628.00 MB)
Controller: SATA
 SATA Port 0:             debian.vdi (Normal, 8.00 GB)
```

Audio

```
Host Driver:  Default
Controller:   ICH AC97
```

Network

```
Adapter 1:  Intel PRO/1000 MT Desktop (Bridged Adapter, Intel(R) Ethernet Controller (3) I225-V)
```

USB

```
USB Controller:  OHCI, EHCI
Device Filters:  0 (0 active)
```

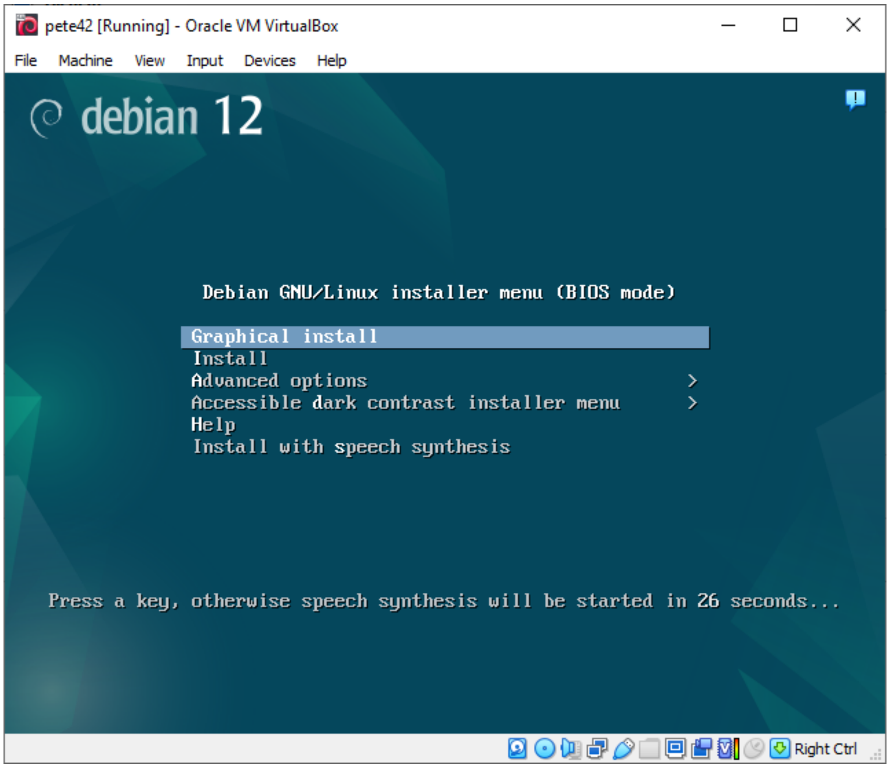
Shared folders

None

Description

None

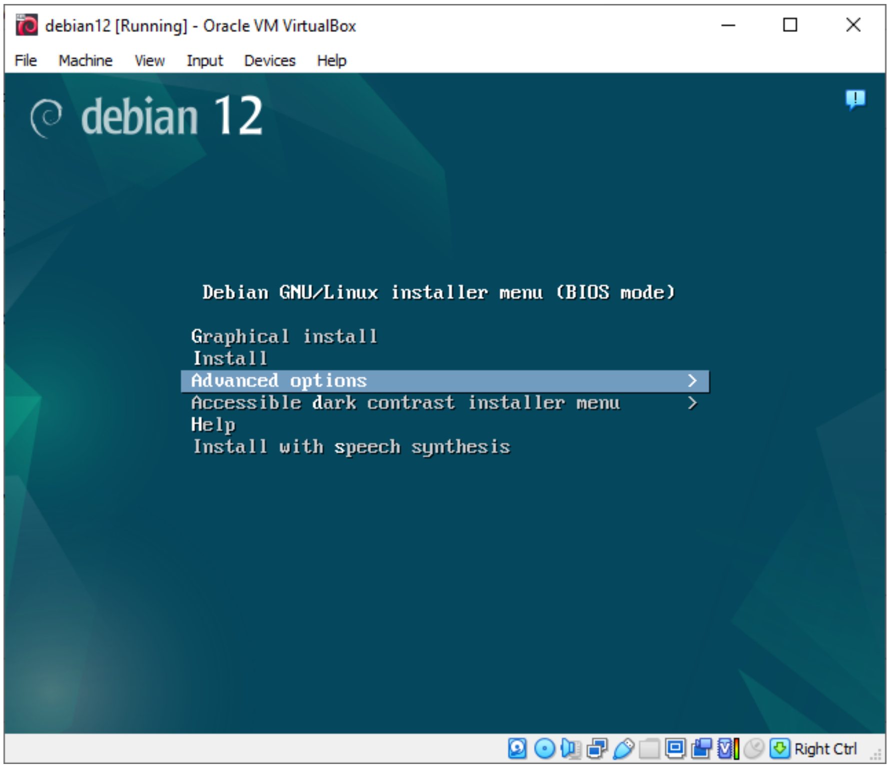
On the screen below press any key on the keyboard to prevent the system automatically installing


pete42 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
debian 12
Right Ctrl

```
Debian GNU/Linux installer menu (BIOS mode)

Graphical install
Install
Advanced options                             >
Accessible dark contrast installer menu      >
Help
Install with speech synthesis

Press a key, otherwise speech synthesis will be started in 26 seconds...
```

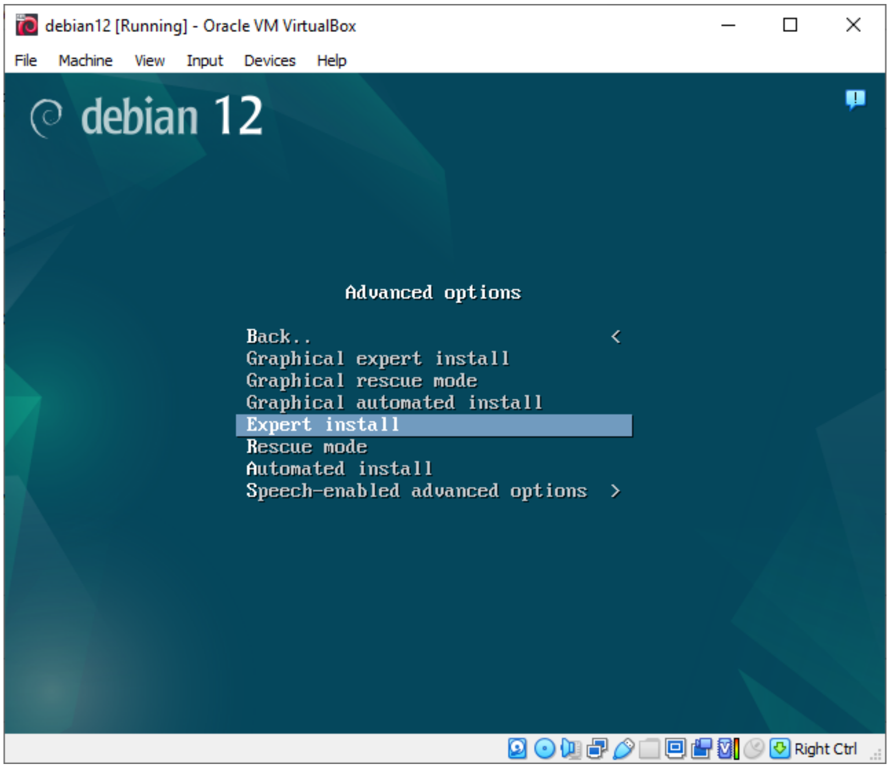
Use the up/down arrows to select the Graphical install option and press enter then follow the screenshots below

To set up the file systems as required it is best to use the Advanced options


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
debian 12
Right Ctrl

```
Debian GNU/Linux installer menu (BIOS mode)

Graphical install
Install
Advanced options                             >
Accessible dark contrast installer menu      >
Help
Install with speech synthesis
```

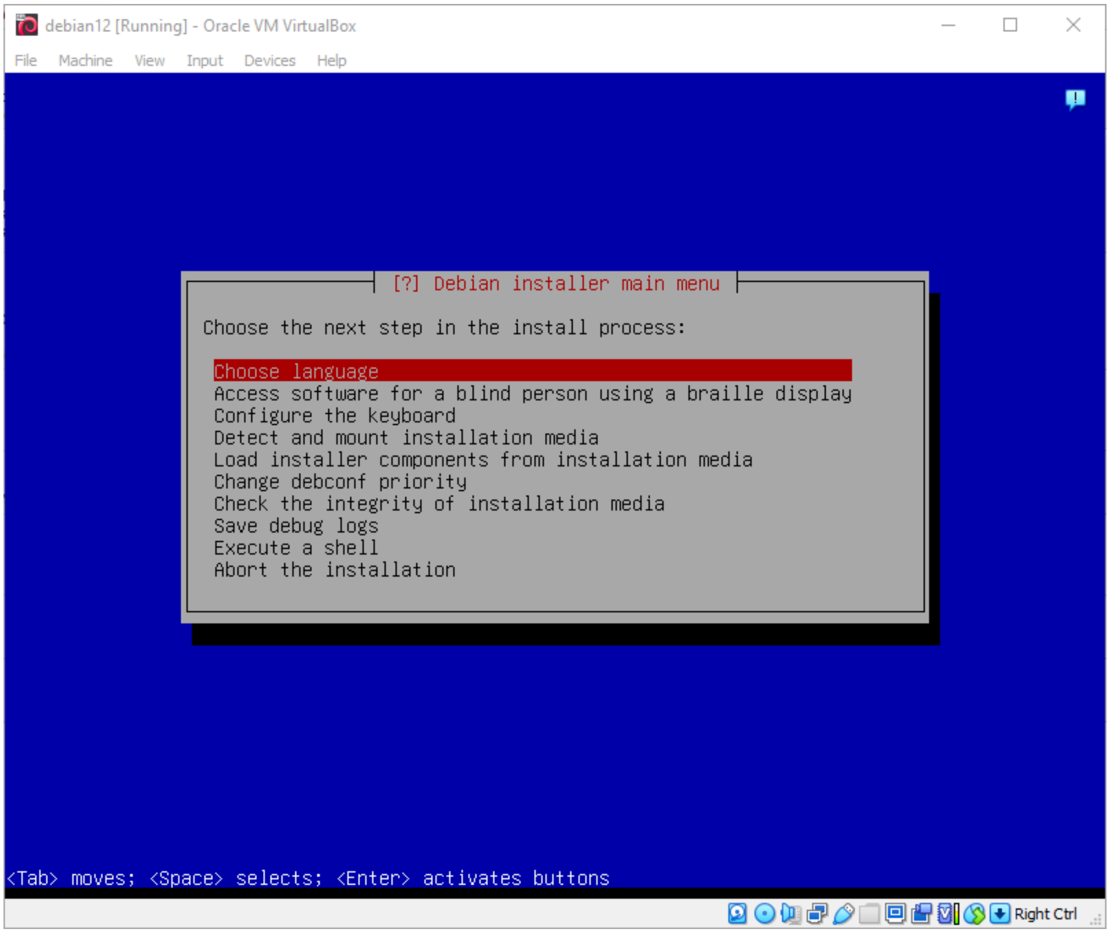
and then choose Expert Install



debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
debian 12
Right Ctrl

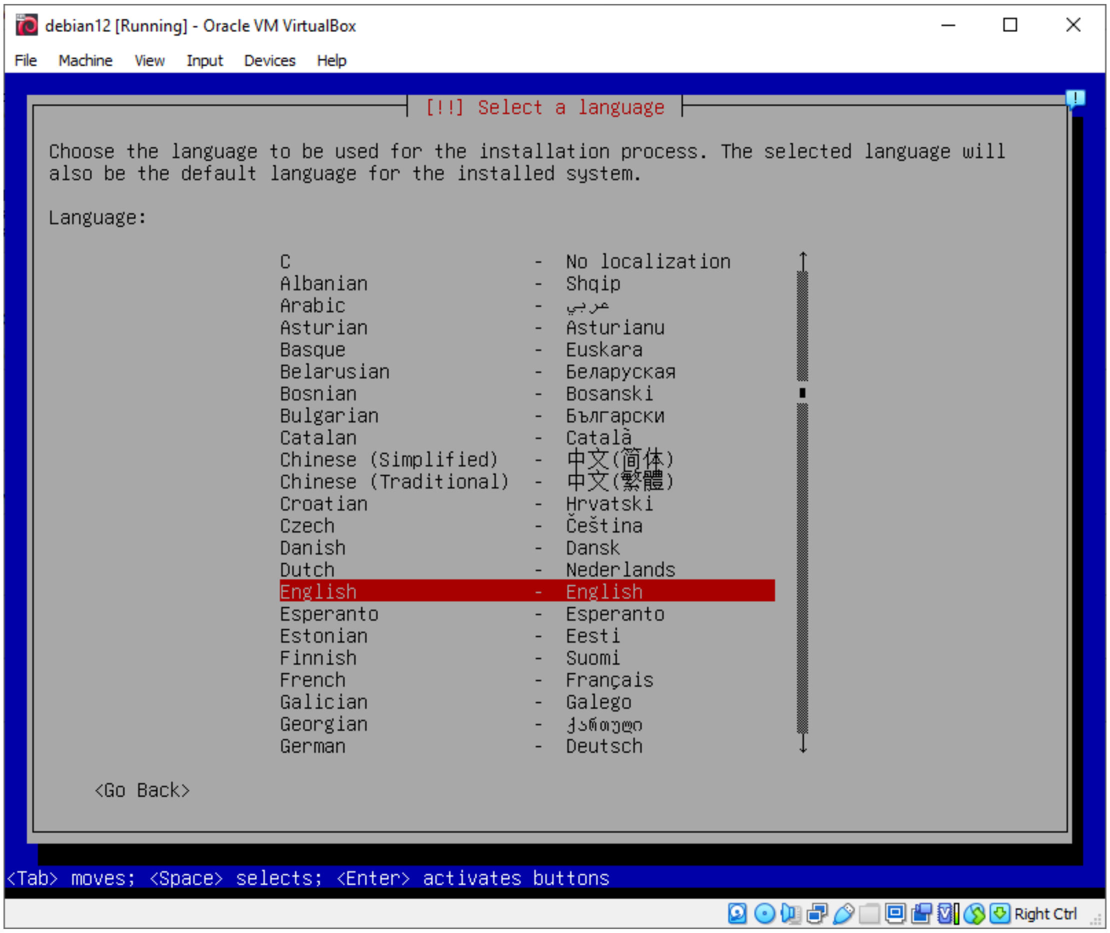
```
Advanced options

Back..                               <
Graphical expert install
Graphical rescue mode
Graphical automated install
Expert install
Rescue mode
Automated install
Speech-enabled advanced options      >
```

Follow the screenshots below - choosing the language/keyboard etc. suitable for your setup
Use the tab key to move between options and the up/down arrow keys to choose the selection and then press space to enable/disable an option or press ENTER to select the option.



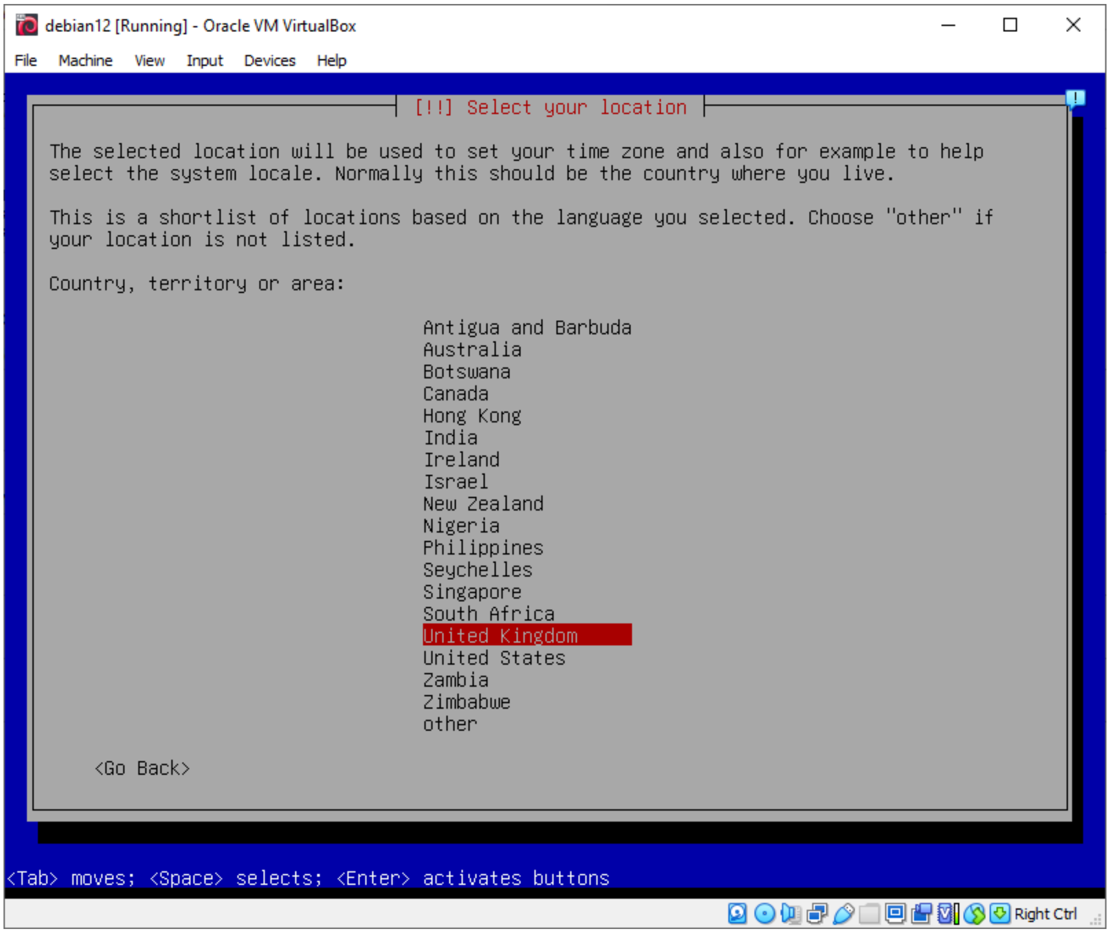
debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[?] Debian installer main menu

Choose the next step in the install process:

 Choose language
 Access software for a blind person using a braille display
 Configure the keyboard
 Detect and mount installation media
 Load installer components from installation media
 Change debconf priority
 Check the integrity of installation media
 Save debug logs
 Execute a shell
 Abort the installation

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



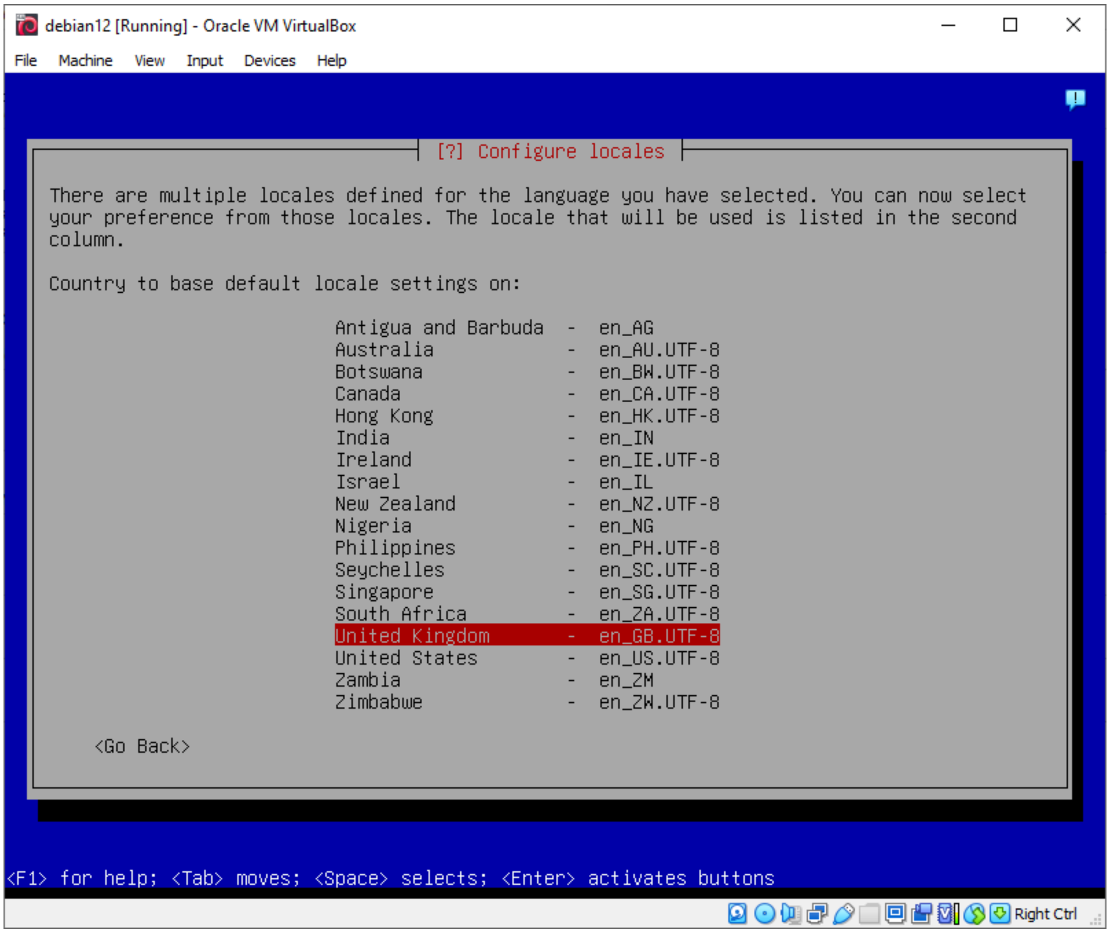
debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[!!] Select a language

Choose the language to be used for the installation process. The selected language will
also be the default language for the installed system.

Language:

                    C                         -  No localization
                    Albanian                  -  Shqip
                    Arabic                    -  عربي
                    Asturian                  -  Asturianu
                    Basque                    -  Euskara
                    Belarusian                -  Беларуская
                    Bosnian                   -  Bosanski
                    Bulgarian                 -  Български
                    Catalan                   -  Català
                    Chinese (Simplified)      -  中文(简体)
                    Chinese (Traditional)     -  中文(繁體)
                    Croatian                  -  Hrvatski
                    Czech                     -  Čeština
                    Danish                    -  Dansk
                    Dutch                     -  Nederlands
                    English                   -  English
                    Esperanto                 -  Esperanto
                    Estonian                  -  Eesti
                    Finnish                   -  Suomi
                    French                    -  Français
                    Galician                  -  Galego
                    Georgian                  -  ქართული
                    German                    -  Deutsch

    <Go Back>

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

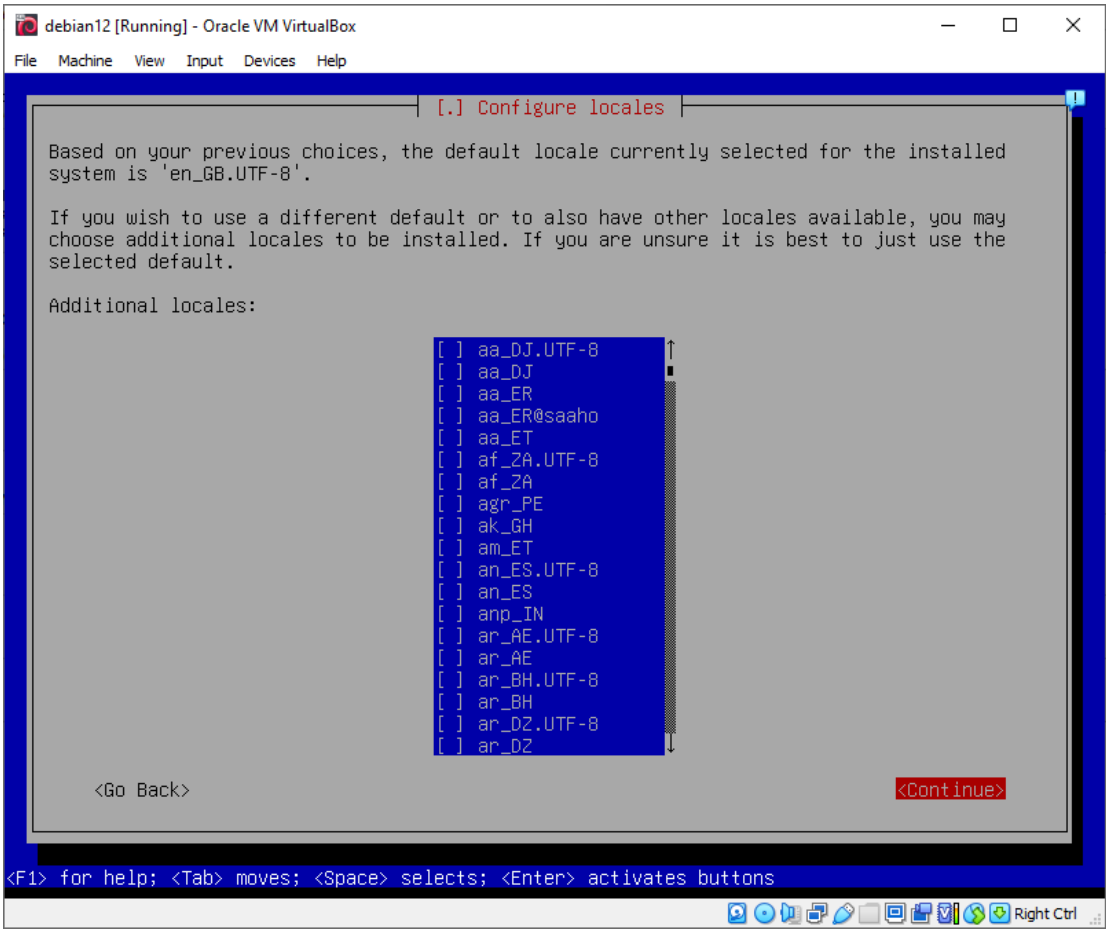


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

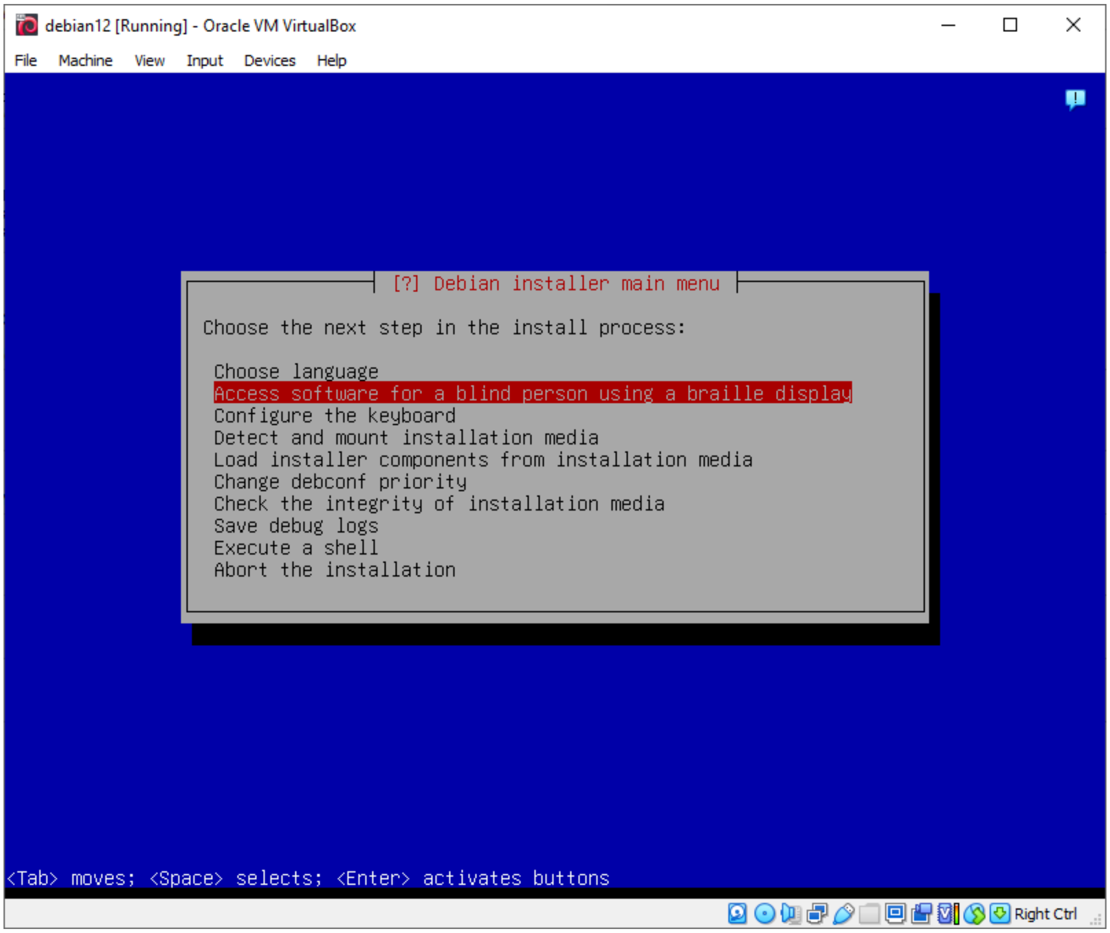
```
[!!] Select your location

The selected location will be used to set your time zone and also for example to help
select the system locale. Normally this should be the country where you live.

This is a shortlist of locations based on the language you selected. Choose "other" if
your location is not listed.

Country, territory or area:

                                 Antigua and Barbuda
                                 Australia
                                 Botswana
                                 Canada
                                 Hong Kong
                                 India
                                 Ireland
                                 Israel
                                 New Zealand
                                 Nigeria
                                 Philippines
                                 Seychelles
                                 Singapore
                                 South Africa
                                 United Kingdom
                                 United States
                                 Zambia
                                 Zimbabwe
                                 other

    <Go Back>

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


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

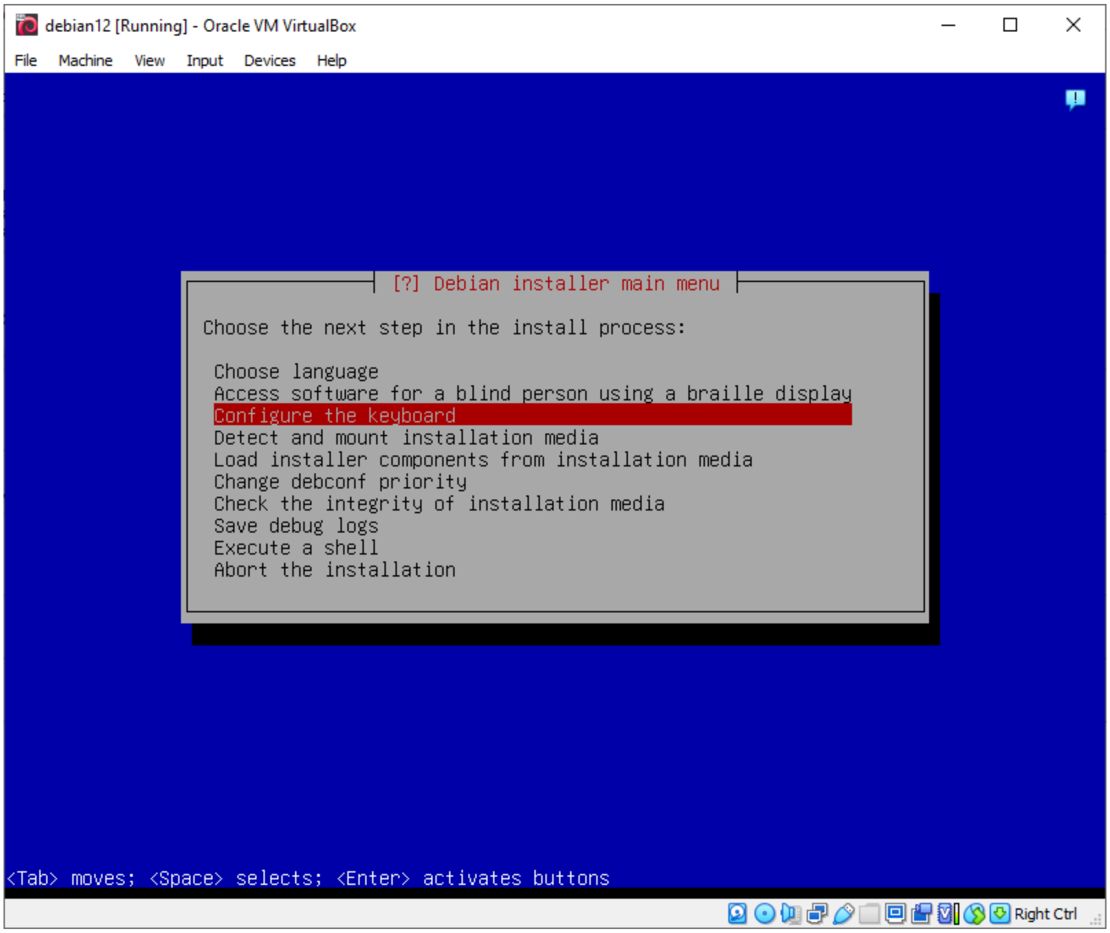
```
[?] Configure locales

There are multiple locales defined for the language you have selected. You can now select
your preference from those locales. The locale that will be used is listed in the second
column.

Country to base default locale settings on:

                          Antigua and Barbuda  -  en_AG
                          Australia            -  en_AU.UTF-8
                          Botswana             -  en_BW.UTF-8
                          Canada               -  en_CA.UTF-8
                          Hong Kong            -  en_HK.UTF-8
                          India                -  en_IN
                          Ireland              -  en_IE.UTF-8
                          Israel               -  en_IL
                          New Zealand          -  en_NZ.UTF-8
                          Nigeria              -  en_NG
                          Philippines          -  en_PH.UTF-8
                          Seychelles           -  en_SC.UTF-8
                          Singapore            -  en_SG.UTF-8
                          South Africa         -  en_ZA.UTF-8
                          United Kingdom       -  en_GB.UTF-8
                          United States        -  en_US.UTF-8
                          Zambia               -  en_ZM
                          Zimbabwe             -  en_ZW.UTF-8

    <Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[.] Configure locales

Based on your previous choices, the default locale currently selected for the installed
system is 'en_GB.UTF-8'.

If you wish to use a different default or to also have other locales available, you may
choose additional locales to be installed. If you are unsure it is best to just use the
selected default.

Additional locales:

                                   [ ] aa_DJ.UTF-8
                                   [ ] aa_DJ
                                   [ ] aa_ER
                                   [ ] aa_ER@saaho
                                   [ ] aa_ET
                                   [ ] af_ZA.UTF-8
                                   [ ] af_ZA
                                   [ ] agr_PE
                                   [ ] ak_GH
                                   [ ] am_ET
                                   [ ] an_ES.UTF-8
                                   [ ] an_ES
                                   [ ] anp_IN
                                   [ ] ar_AE.UTF-8
                                   [ ] ar_AE
                                   [ ] ar_BH.UTF-8
                                   [ ] ar_BH
                                   [ ] ar_DZ.UTF-8
                                   [ ] ar_DZ

    <Go Back>                                                                 <Continue>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```



```
[?] Debian installer main menu

Choose the next step in the install process:

 Choose language
 Access software for a blind person using a braille display
 Configure the keyboard
 Detect and mount installation media
 Load installer components from installation media
 Change debconf priority
 Check the integrity of installation media
 Save debug logs
 Execute a shell
 Abort the installation

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



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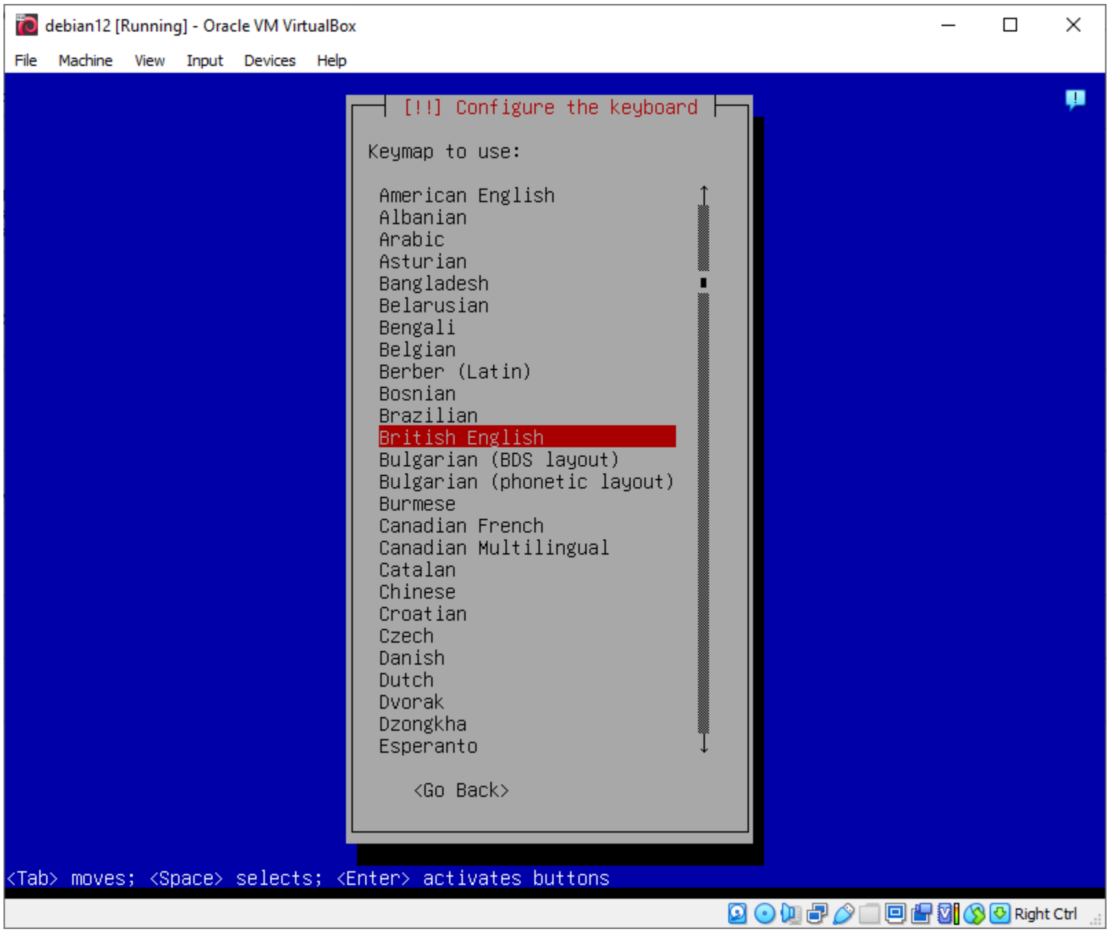
 Abort the installation

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



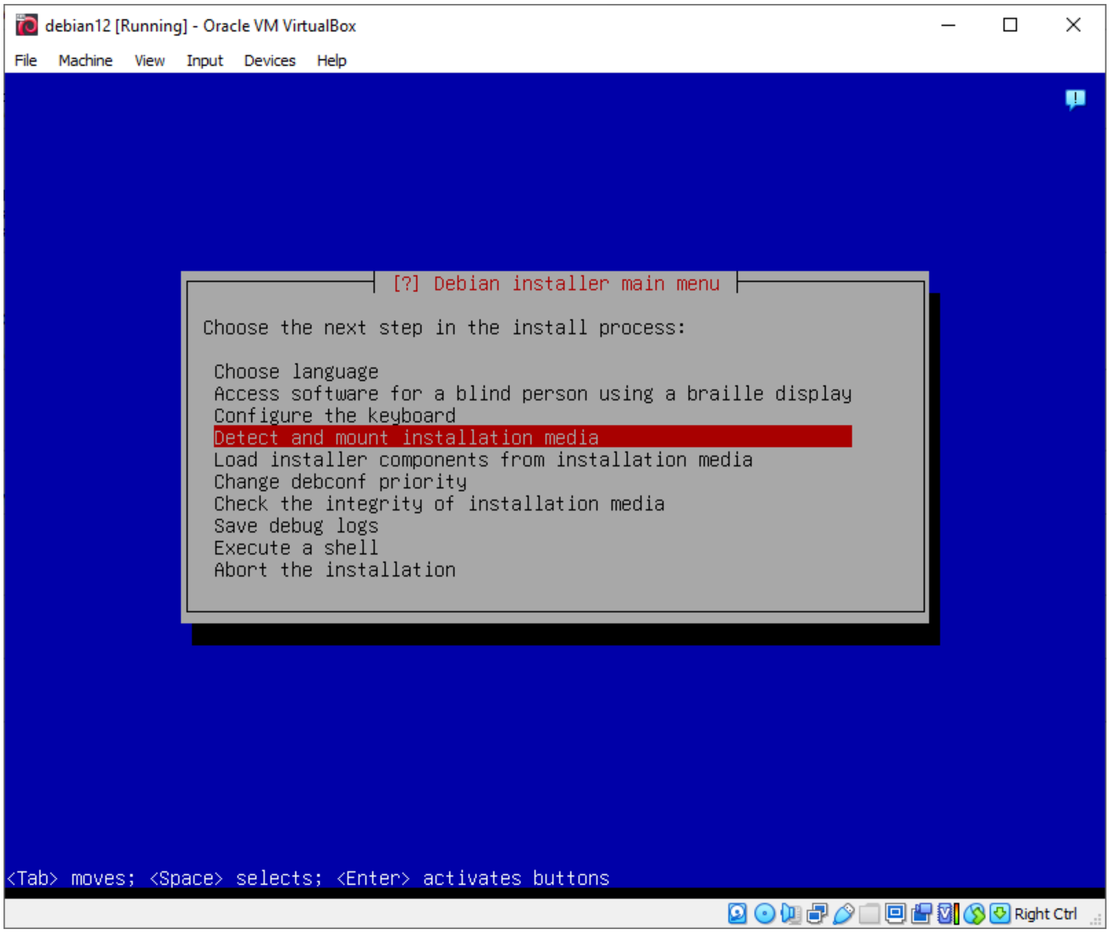
```
[!!] Configure the keyboard

Keymap to use:

American English
Albanian
Arabic
Asturian
Bangladesh
Belarusian
Bengali
Belgian
Berber (Latin)
Bosnian
Brazilian
British English
Bulgarian (BDS layout)
Bulgarian (phonetic layout)
Burmese
Canadian French
Canadian Multilingual
Catalan
Chinese
Croatian
Czech
Danish
Dutch
Dvorak
Dzongkha
Esperanto

   <Go Back>

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



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 Check the integrity of installation media
 Save debug logs
 Execute a shell
 Abort the installation

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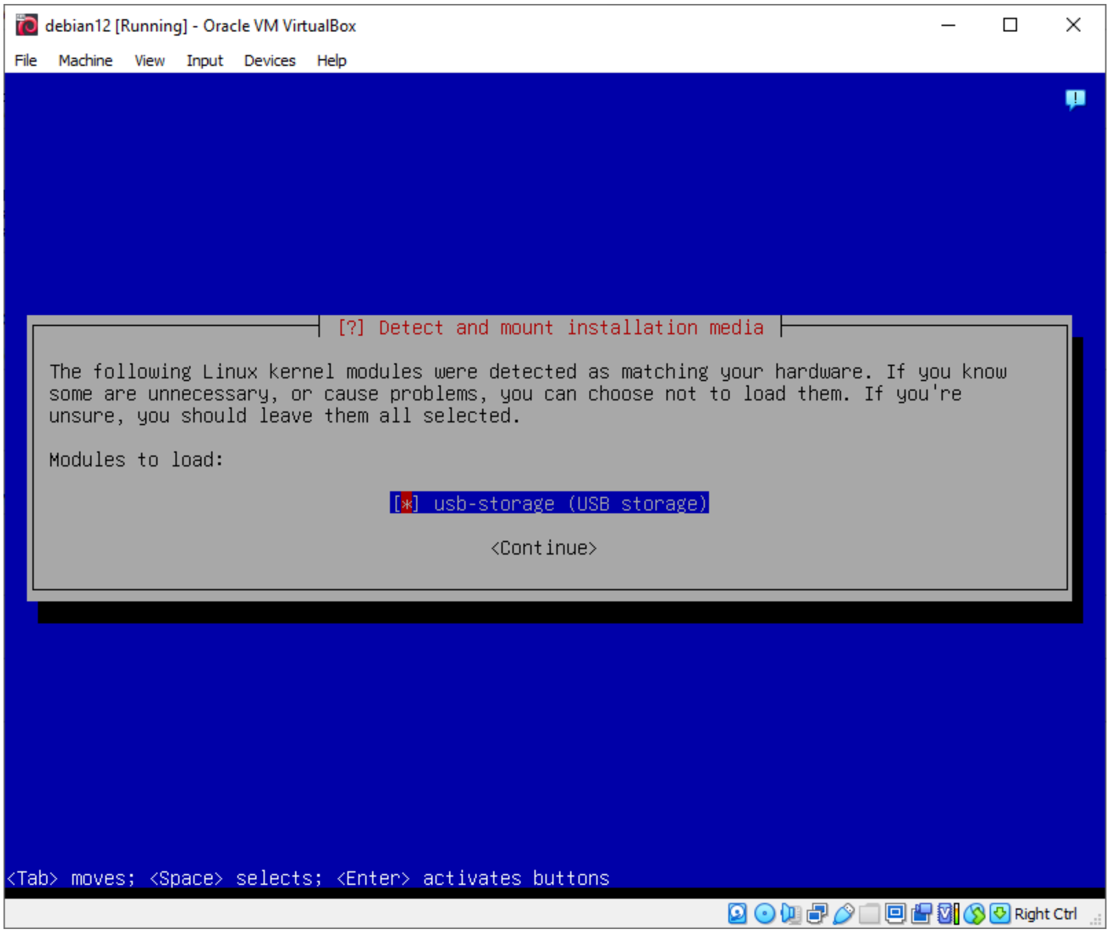
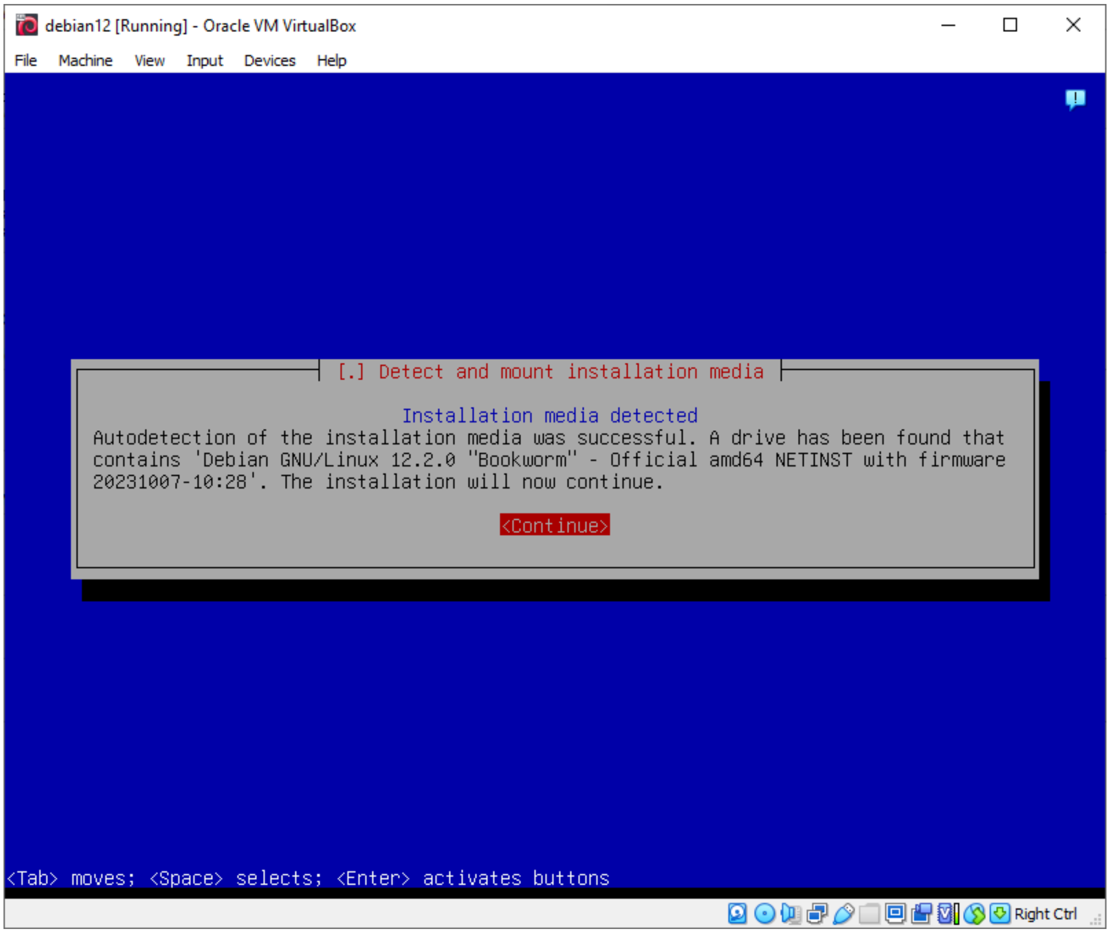
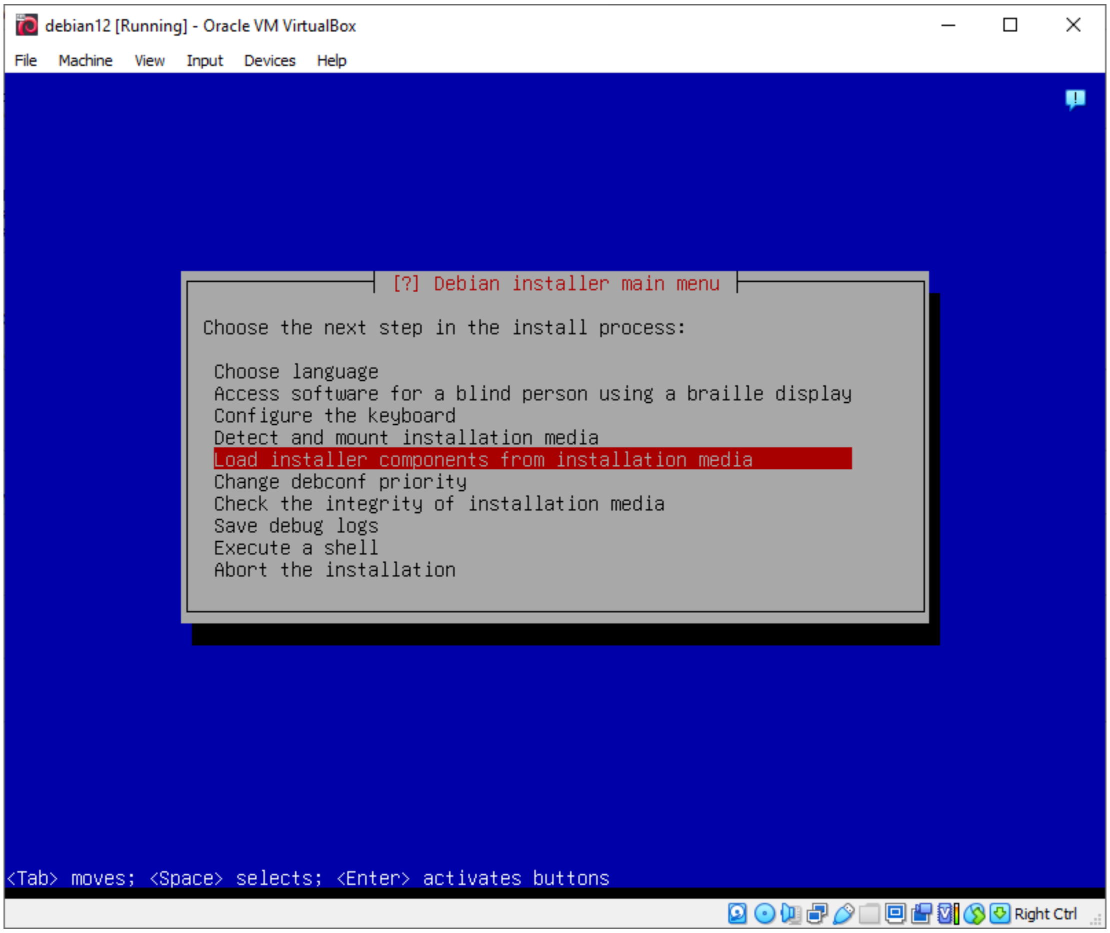



```
[?] Detect and mount installation media

The following Linux kernel modules were detected as matching your hardware. If you know
some are unnecessary, or cause problems, you can choose not to load them. If you're
unsure, you should leave them all selected.

Modules to load:

                    [*] usb-storage (USB storage)

                             <Continue>

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

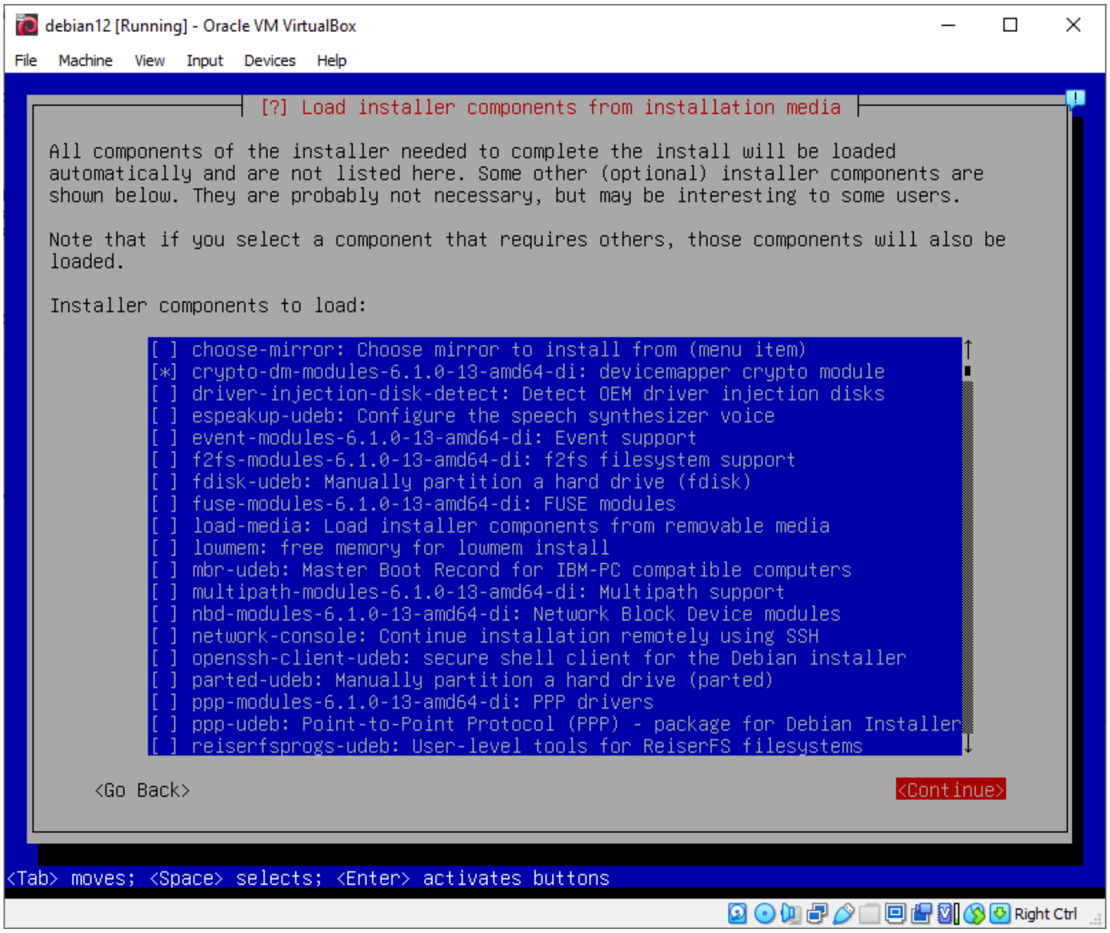


```
[.] Detect and mount installation media

                     Installation media detected
Autodetection of the installation media was successful. A drive has been found that
contains 'Debian GNU/Linux 12.2.0 "Bookworm" - Official amd64 NETINST with firmware
20231007-10:28'. The installation will now continue.

                             <Continue>

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

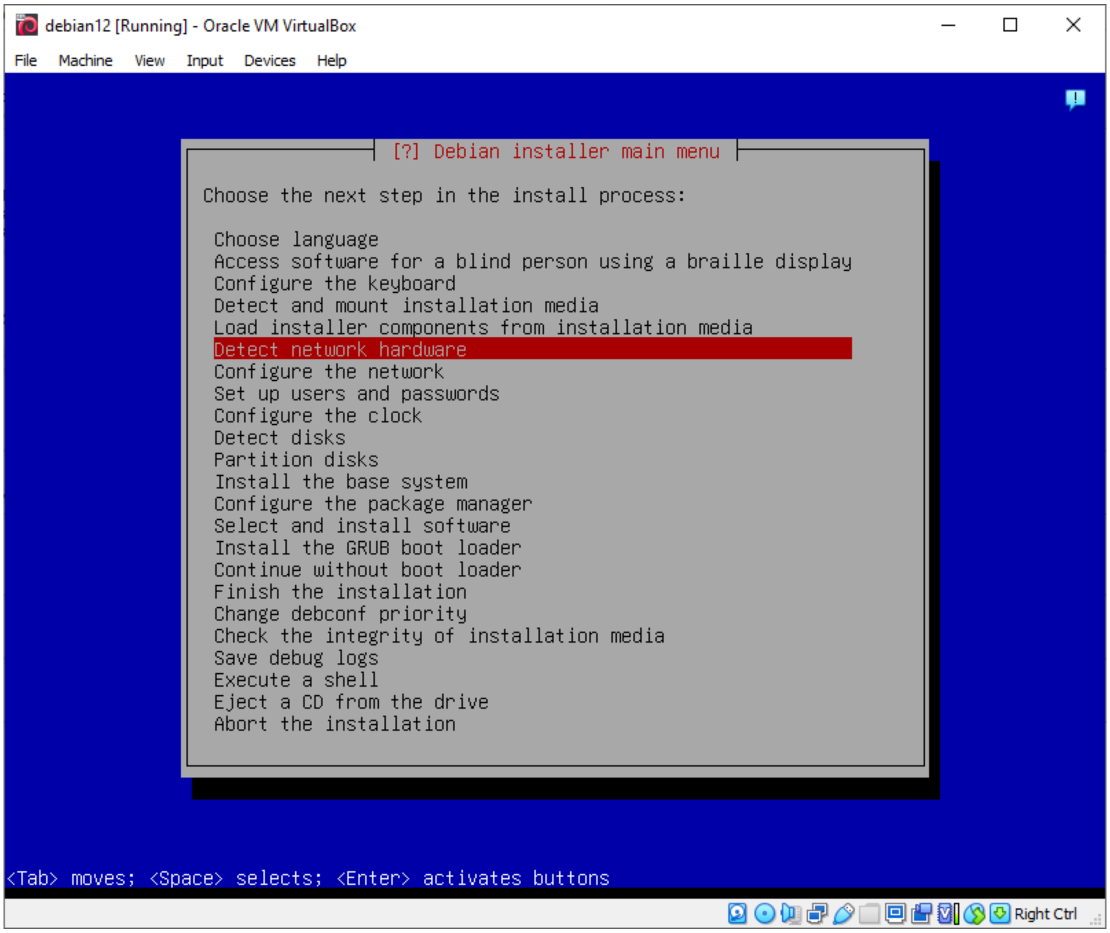

debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[?] Debian installer main menu

Choose the next step in the install process:

 Choose language
 Access software for a blind person using a braille display
 Configure the keyboard
 Detect and mount installation media
 Load installer components from installation media
 Change debconf priority
 Check the integrity of installation media
 Save debug logs
 Execute a shell
 Abort the installation

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

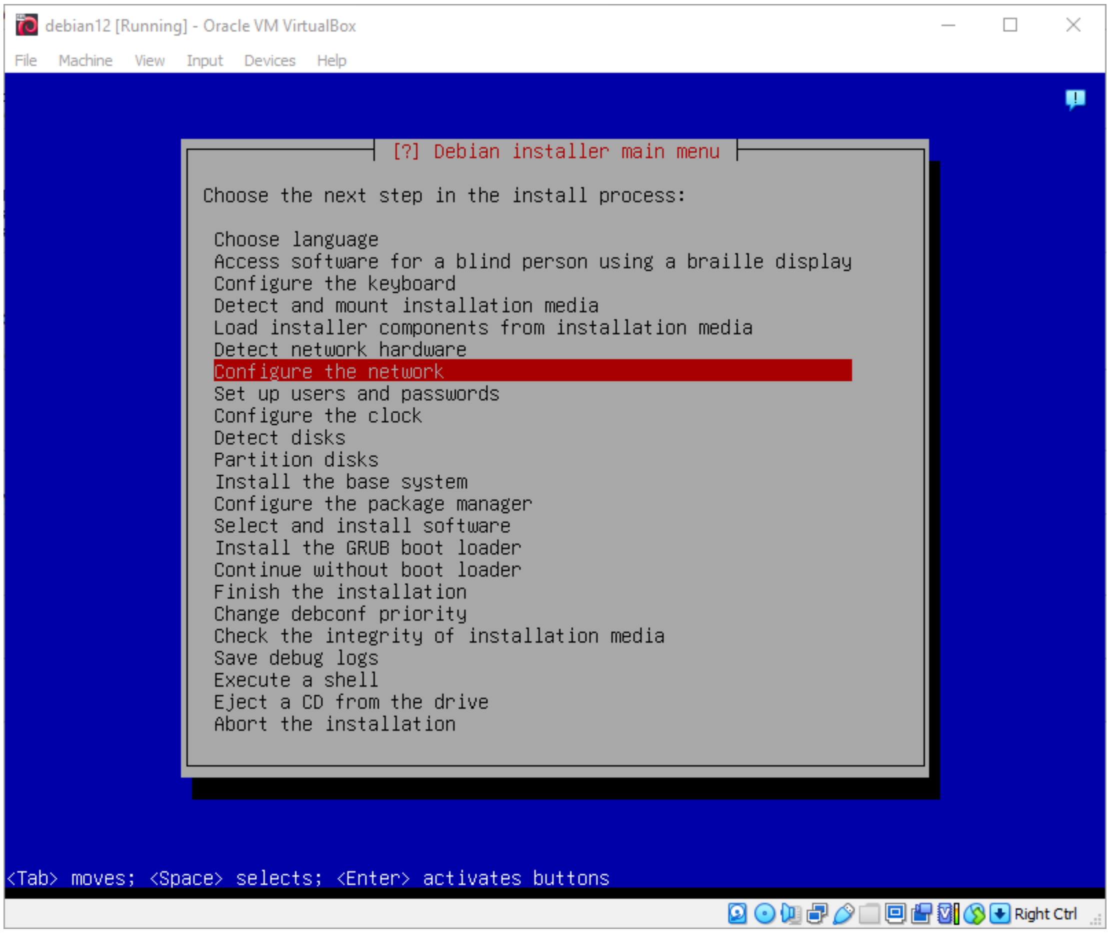
Select the crypto-dm-modules as shown below (use the up/down keys and space to select/unselect)


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

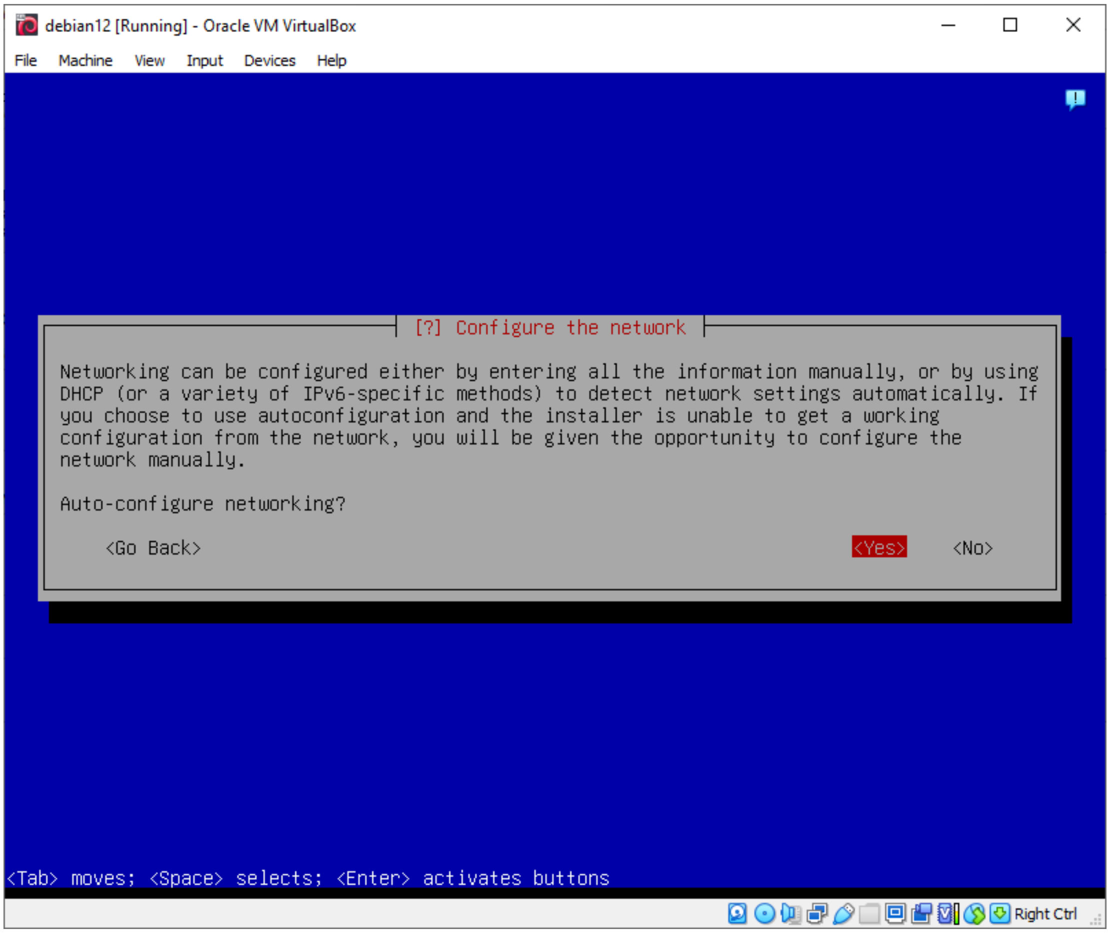
```
[?] Load installer components from installation media

All components of the installer needed to complete the install will be loaded
automatically and are not listed here. Some other (optional) installer components are
shown below. They are probably not necessary, but may be interesting to some users.

Note that if you select a component that requires others, those components will also be
loaded.

Installer components to load:

[ ] choose-mirror: Choose mirror to install from (menu item)
[*] crypto-dm-modules-6.1.0-13-amd64-di: devicemapper crypto module
[ ] driver-injection-disk-detect: Detect OEM driver injection disks
[ ] espeakup-udeb: Configure the speech synthesizer voice
[ ] event-modules-6.1.0-13-amd64-di: Event support
[ ] f2fs-modules-6.1.0-13-amd64-di: f2fs filesystem support
[ ] fdisk-udeb: Manually partition a hard drive (fdisk)
[ ] fuse-modules-6.1.0-13-amd64-di: FUSE modules
[ ] load-media: Load installer components from removable media
[ ] lowmem: free memory for lowmem install
[ ] mbr-udeb: Master Boot Record for IBM-PC compatible computers
[ ] multipath-modules-6.1.0-13-amd64-di: Multipath support
[ ] nbd-modules-6.1.0-13-amd64-di: Network Block Device modules
[ ] network-console: Continue installation remotely using SSH
[ ] openssh-client-udeb: secure shell client for the Debian installer
[ ] parted-udeb: Manually partition a hard drive (parted)
[ ] ppp-modules-6.1.0-13-amd64-di: PPP drivers
[ ] ppp-udeb: Point-to-Point Protocol (PPP) - package for Debian Installer
[ ] reiserfsprogs-udeb: User-level tools for ReiserFS filesystems

<Go Back>                                                          <Continue>

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



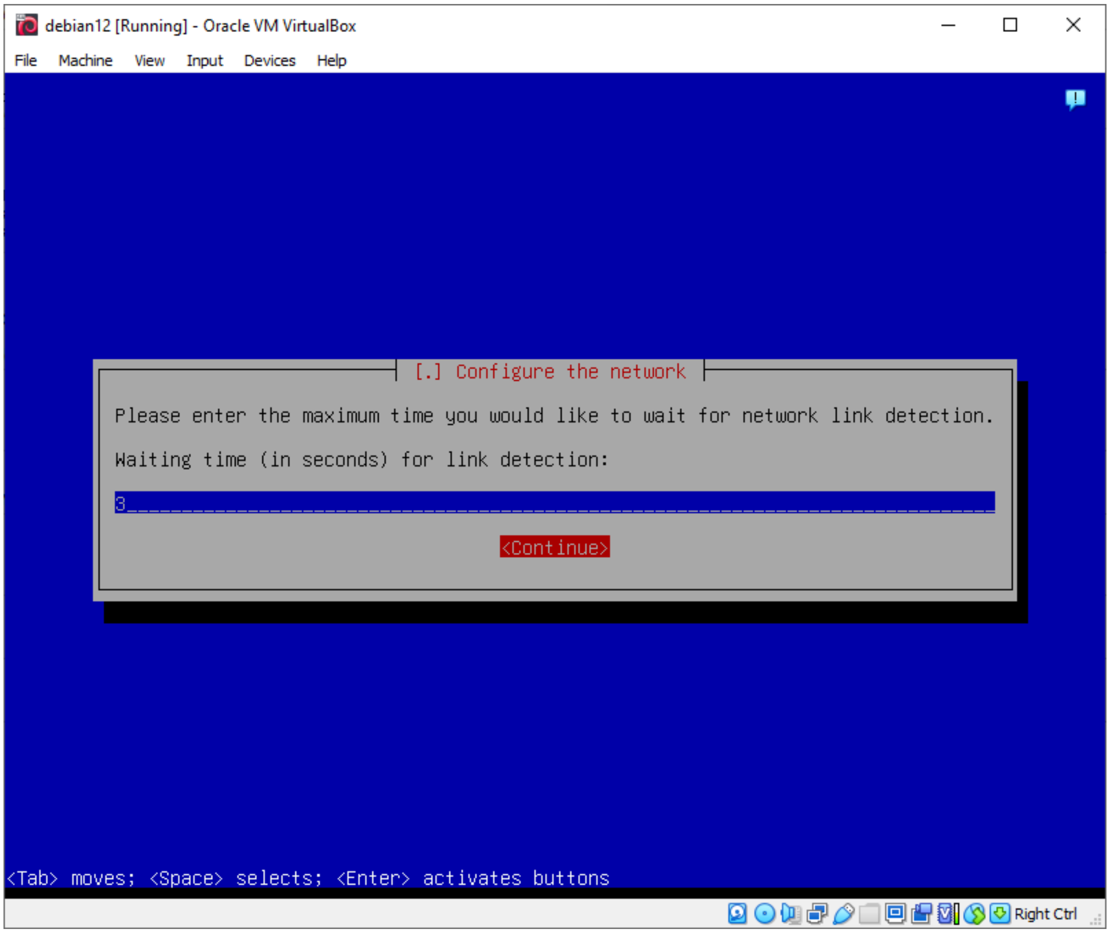
```
[?] Debian installer main menu

Choose the next step in the install process:

 Choose language
 Access software for a blind person using a braille display
 Configure the keyboard
 Detect and mount installation media
 Load installer components from installation media
 Detect network hardware
 Configure the network
 Set up users and passwords
 Configure the clock
 Detect disks
 Partition disks
 Install the base system
 Configure the package manager
 Select and install software
 Install the GRUB boot loader
 Continue without boot loader
 Finish the installation
 Change debconf priority
 Check the integrity of installation media
 Save debug logs
 Execute a shell
 Eject a CD from the drive
 Abort the installation

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



```
[?] Debian installer main menu

Choose the next step in the install process:

 Choose language
 Access software for a blind person using a braille display
 Configure the keyboard
 Detect and mount installation media
 Load installer components from installation media
 Detect network hardware
 Configure the network
 Set up users and passwords
 Configure the clock
 Detect disks
 Partition disks
 Install the base system
 Configure the package manager
 Select and install software
 Install the GRUB boot loader
 Continue without boot loader
 Finish the installation
 Change debconf priority
 Check the integrity of installation media
 Save debug logs
 Execute a shell
 Eject a CD from the drive
 Abort the installation

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

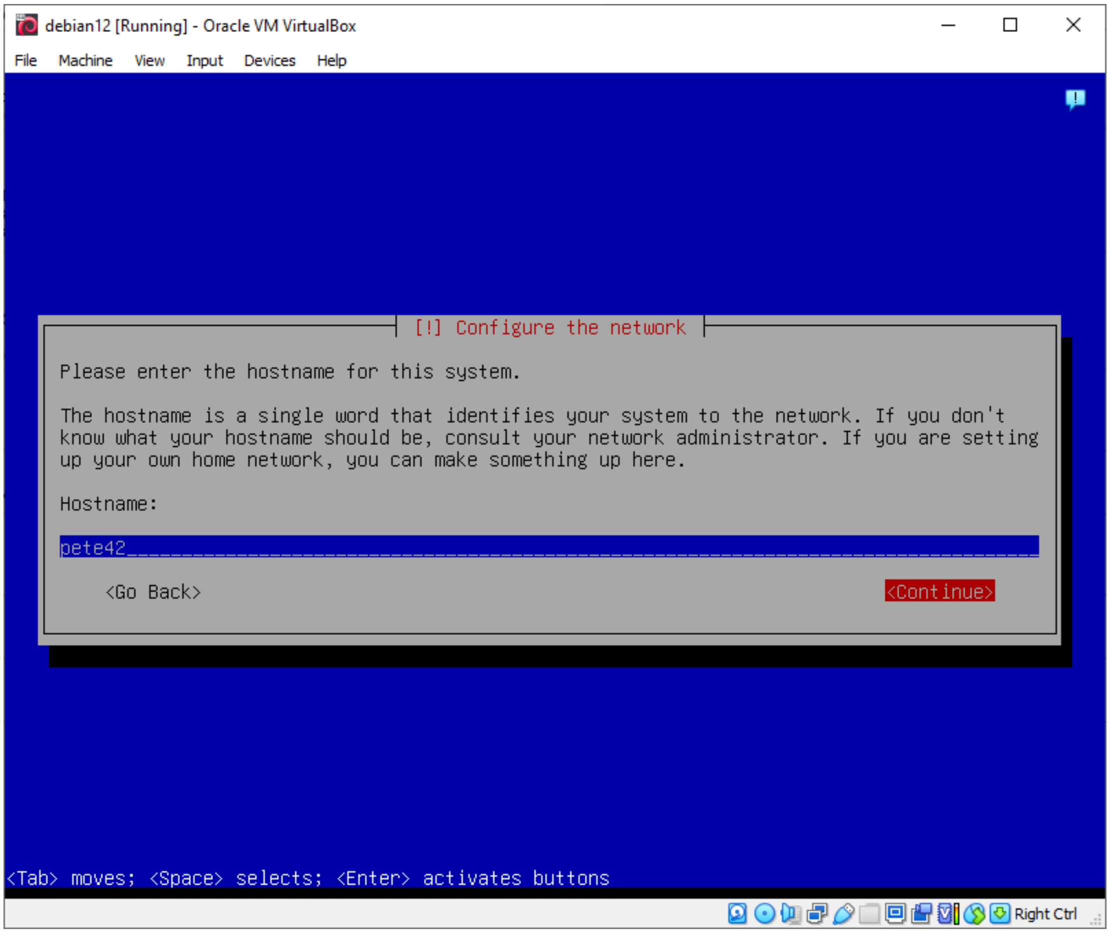

debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[?] Configure the network

Networking can be configured either by entering all the information manually, or by using
DHCP (or a variety of IPv6-specific methods) to detect network settings automatically. If
you choose to use autoconfiguration and the installer is unable to get a working
configuration from the network, you will be given the opportunity to configure the
network manually.

Auto-configure networking?

    <Go Back>                                                          <Yes>     <No>

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


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[.] Configure the network

Please enter the maximum time you would like to wait for network link detection.

Waiting time (in seconds) for link detection:

3_______________________________________________________________________________

                              <Continue>

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

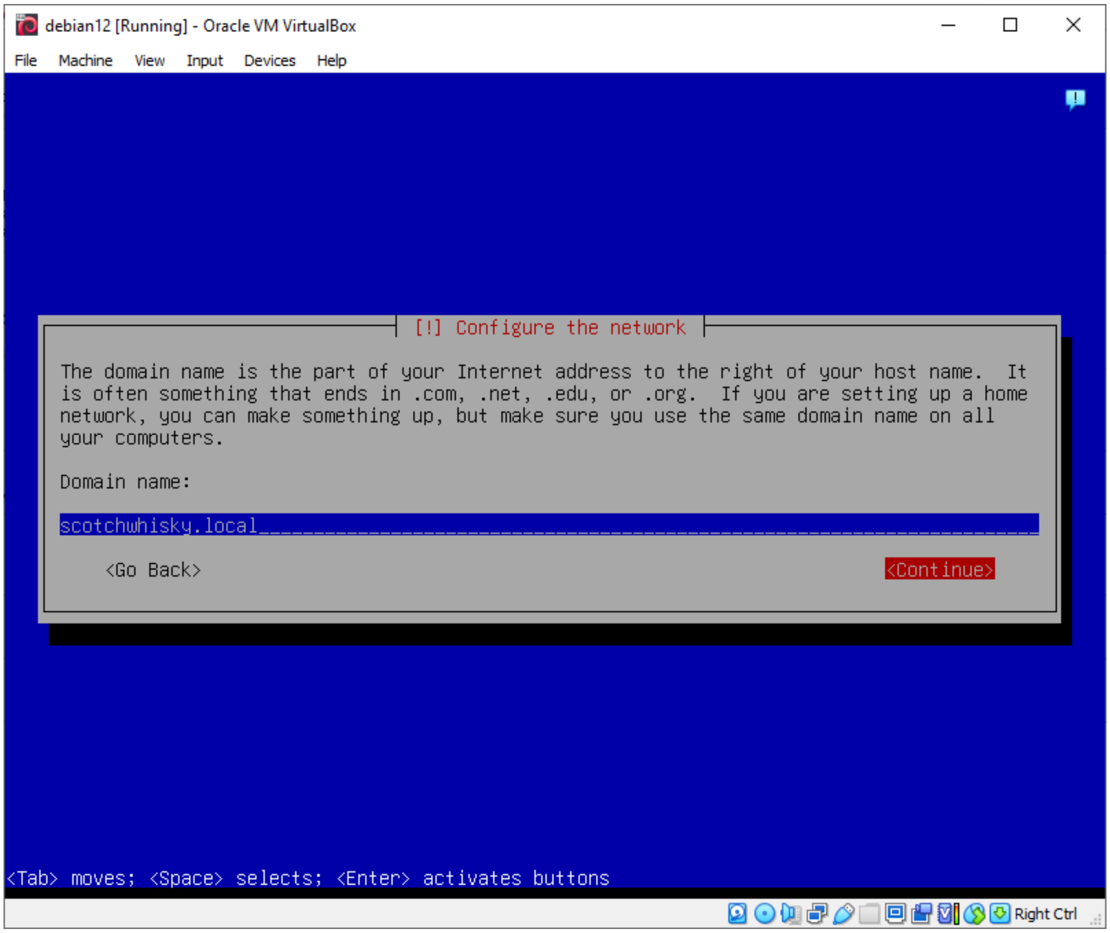
Set the hostname to your login suffixed by 42 e.g. pete42



debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

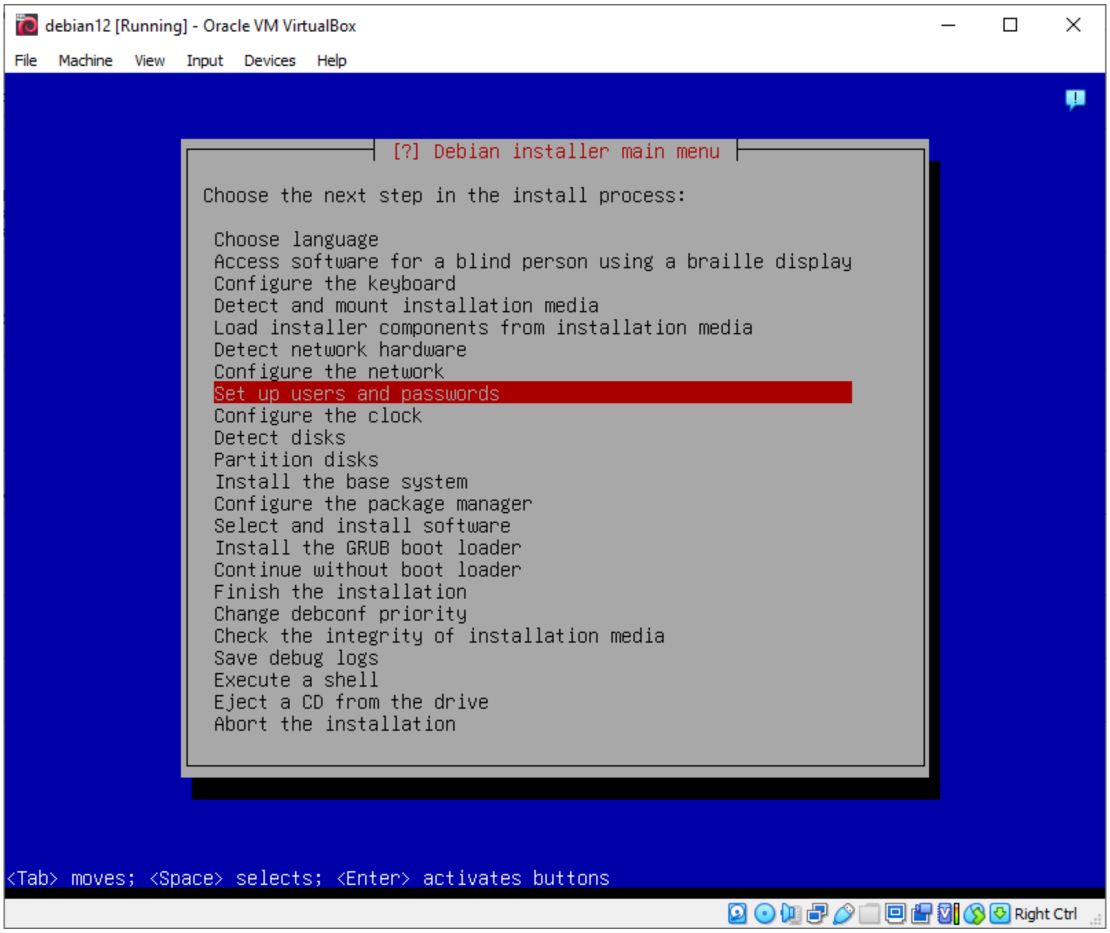
```
[!] Configure the network

Please enter the hostname for this system.

The hostname is a single word that identifies your system to the network. If you don't
know what your hostname should be, consult your network administrator. If you are setting
up your own home network, you can make something up here.

Hostname:

pete42

    <Go Back>                                                              <Continue>

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

Nothing in documentation about the domain name so I used the usual domain for my other VMs e.g. scotchwhisky.local



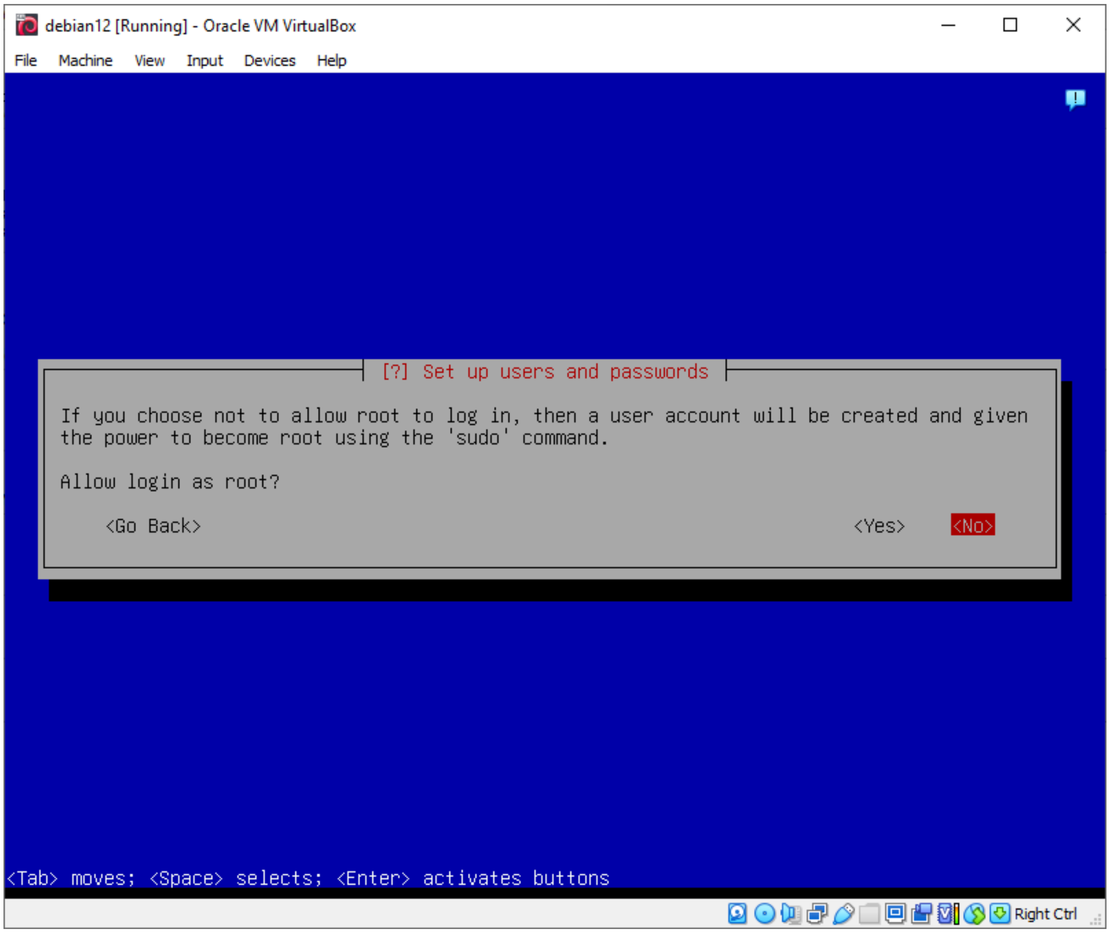
debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[!] Configure the network

The domain name is the part of your Internet address to the right of your host name.  It
is often something that ends in .com, .net, .edu, or .org.  If you are setting up a home
network, you can make something up, but make sure you use the same domain name on all
your computers.

Domain name:

scotchwhisky.local

    <Go Back>                                                              <Continue>

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

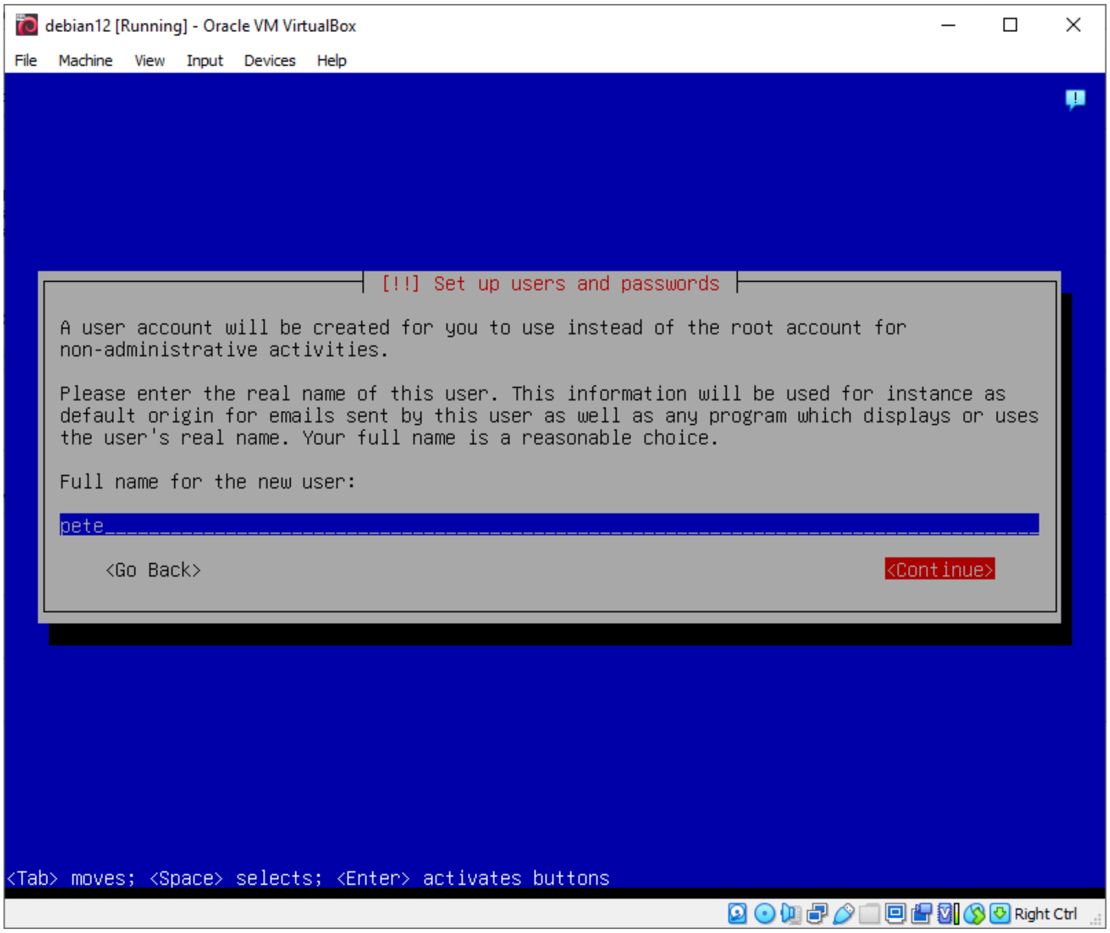


```
[?] Debian installer main menu

Choose the next step in the install process:

 Choose language
 Access software for a blind person using a braille display
 Configure the keyboard
 Detect and mount installation media
 Load installer components from installation media
 Detect network hardware
 Configure the network
 Set up users and passwords
 Configure the clock
 Detect disks
 Partition disks
 Install the base system
 Configure the package manager
 Select and install software
 Install the GRUB boot loader
 Continue without boot loader
 Finish the installation
 Change debconf priority
 Check the integrity of installation media
 Save debug logs
 Execute a shell
 Eject a CD from the drive
 Abort the installation

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

Don't allow root user login (uses sudo instead)



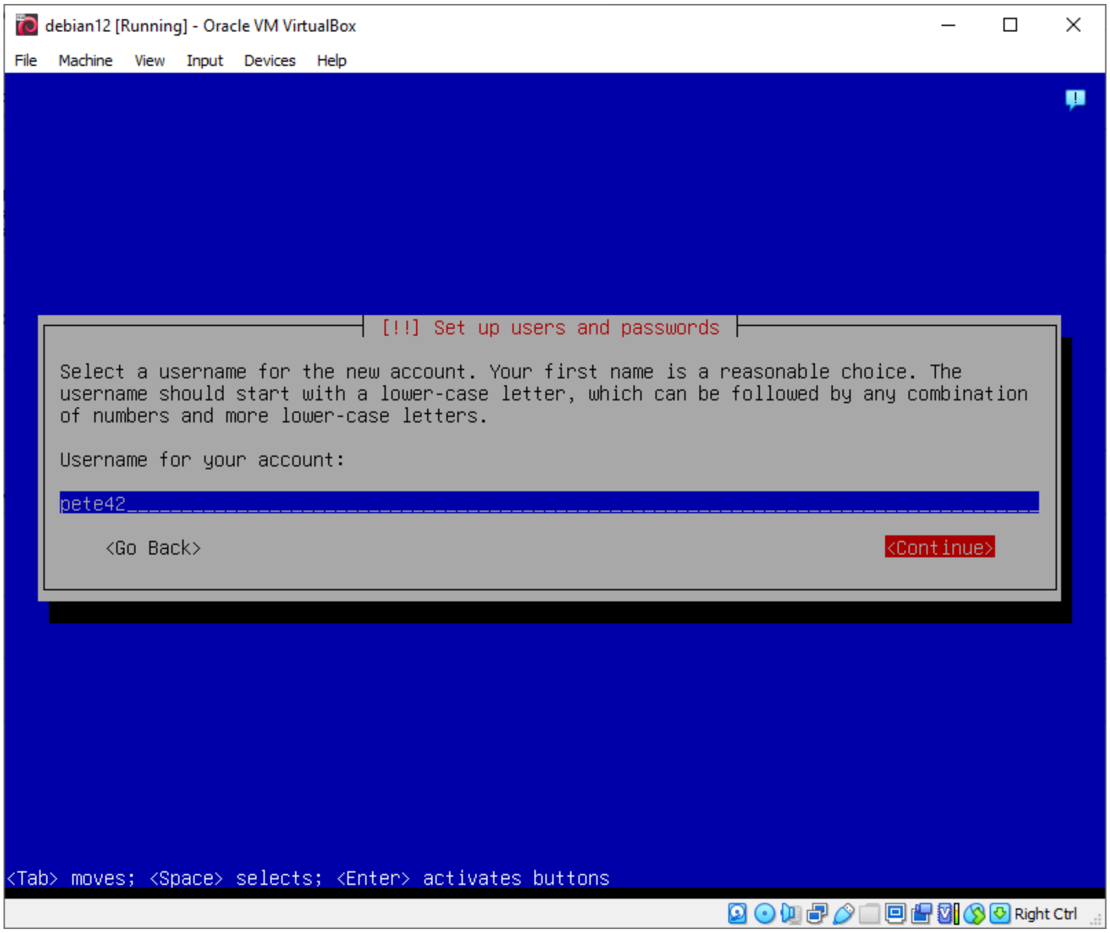
```
[?] Set up users and passwords

If you choose not to allow root to log in, then a user account will be created and given
the power to become root using the 'sudo' command.

Allow login as root?

    <Go Back>                                                          <Yes>    <No>

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



debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[!!] 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:

pete

    <Go Back>                                                              <Continue>

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

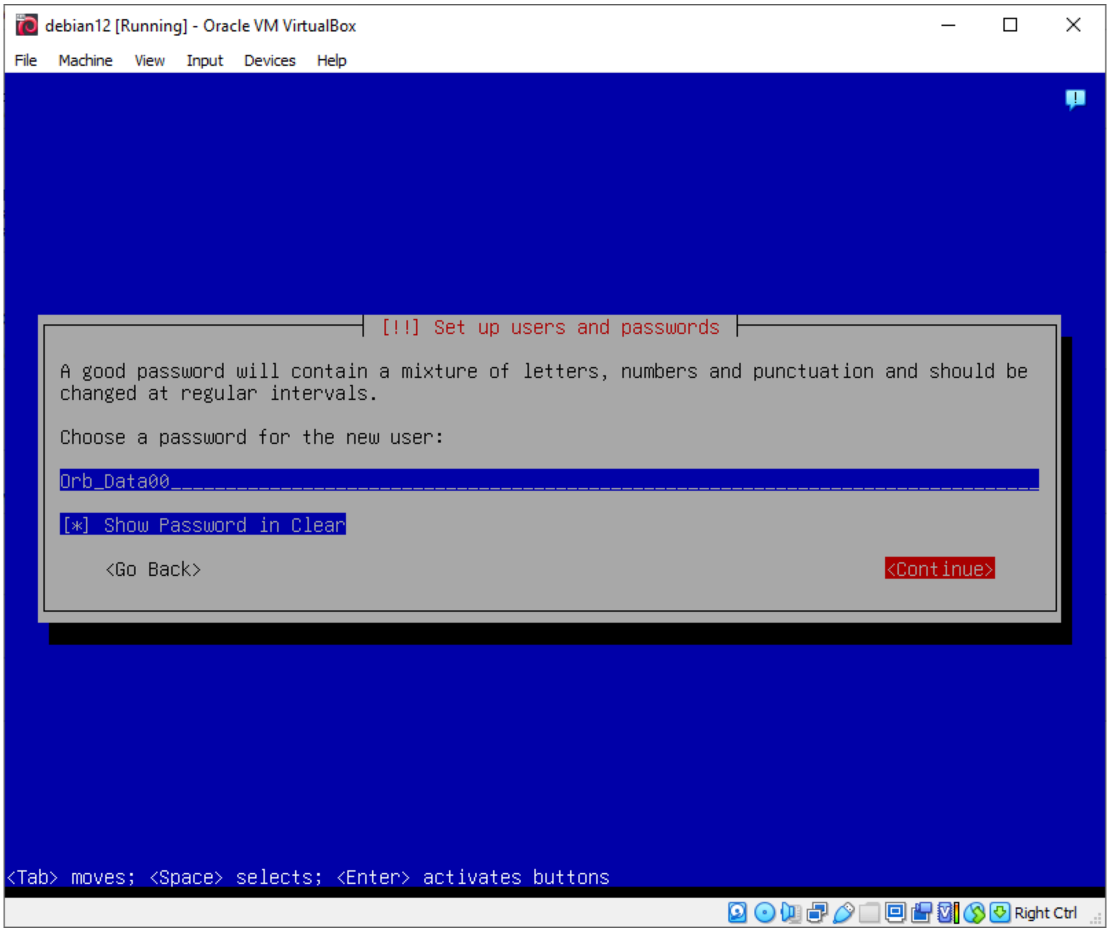
Set login to your login with "42" e.g. pete42



debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[!!] 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:

pete42

    <Go Back>                                                              <Continue>

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

Set a minimum 10 character complex password as required by documentation


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

[!!] Set up users and passwords

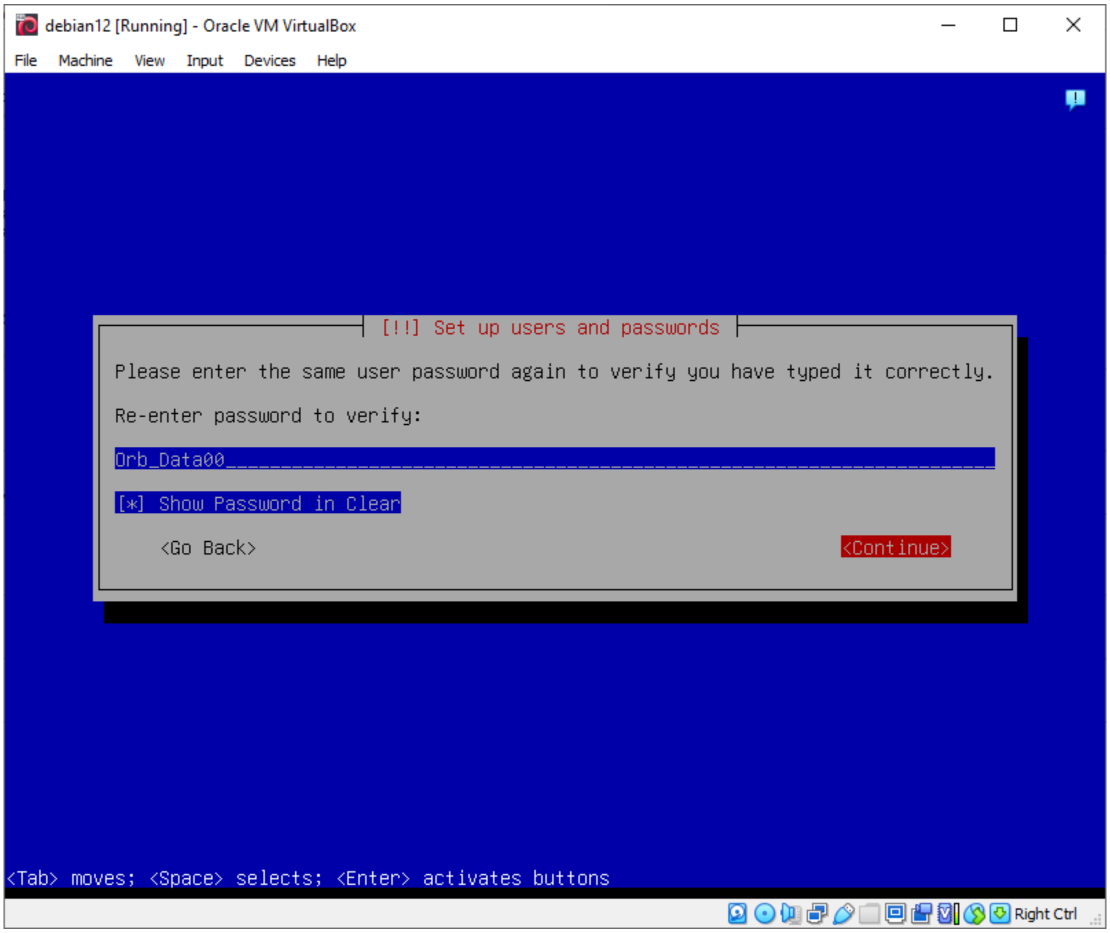
A good password will contain a mixture of letters, numbers and punctuation and should be changed at regular intervals.

Choose a password for the new user:

Orb_Data00

[*] Show Password in Clear

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


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

[!!] Set up users and passwords

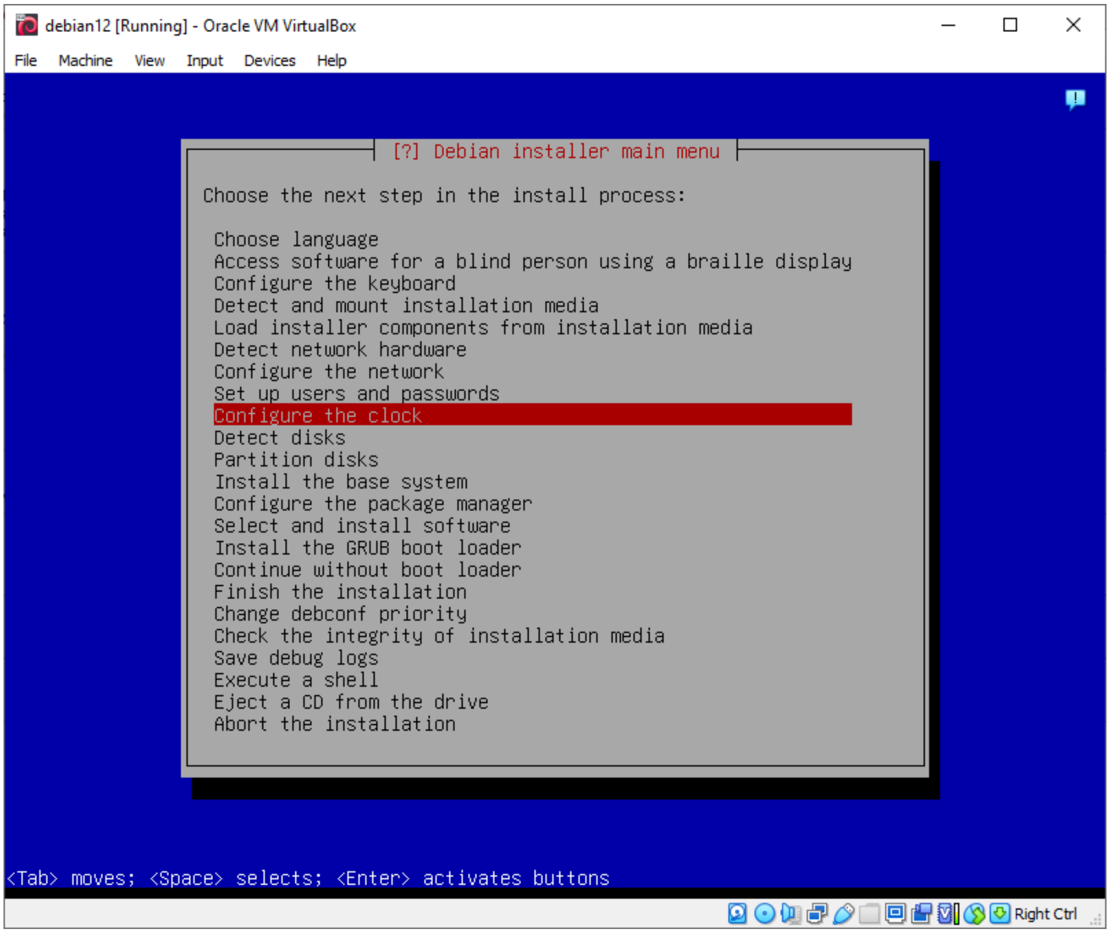
Please enter the same user password again to verify you have typed it correctly.

Re-enter password to verify:

Orb_Data00

[*] Show Password in Clear

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



```
[?] Debian installer main menu

Choose the next step in the install process:

 Choose language
 Access software for a blind person using a braille display
 Configure the keyboard
 Detect and mount installation media
 Load installer components from installation media
 Detect network hardware
 Configure the network
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 Partition disks
 Install the base system
 Configure the package manager
 Select and install software
 Install the GRUB boot loader
 Continue without boot loader
 Finish the installation
 Change debconf priority
 Check the integrity of installation media
 Save debug logs
 Execute a shell
 Eject a CD from the drive
 Abort the installation

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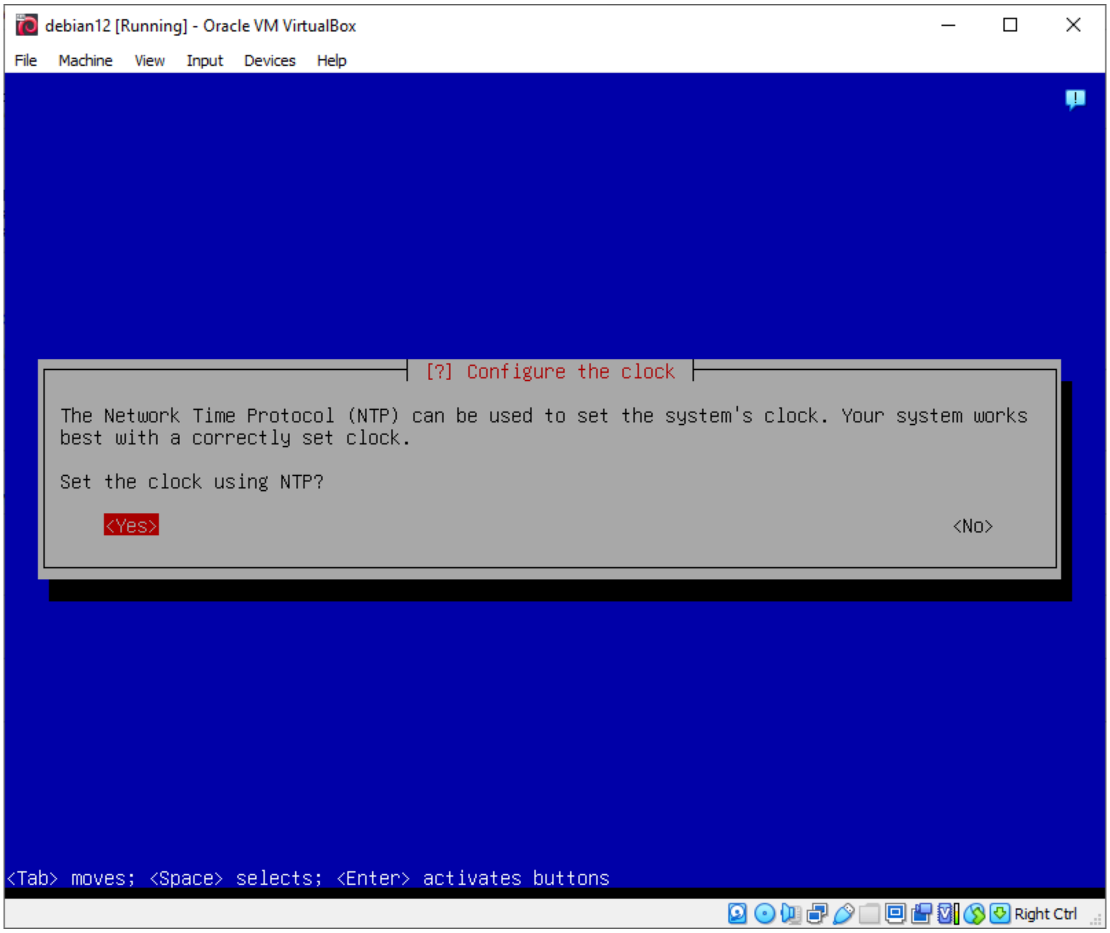
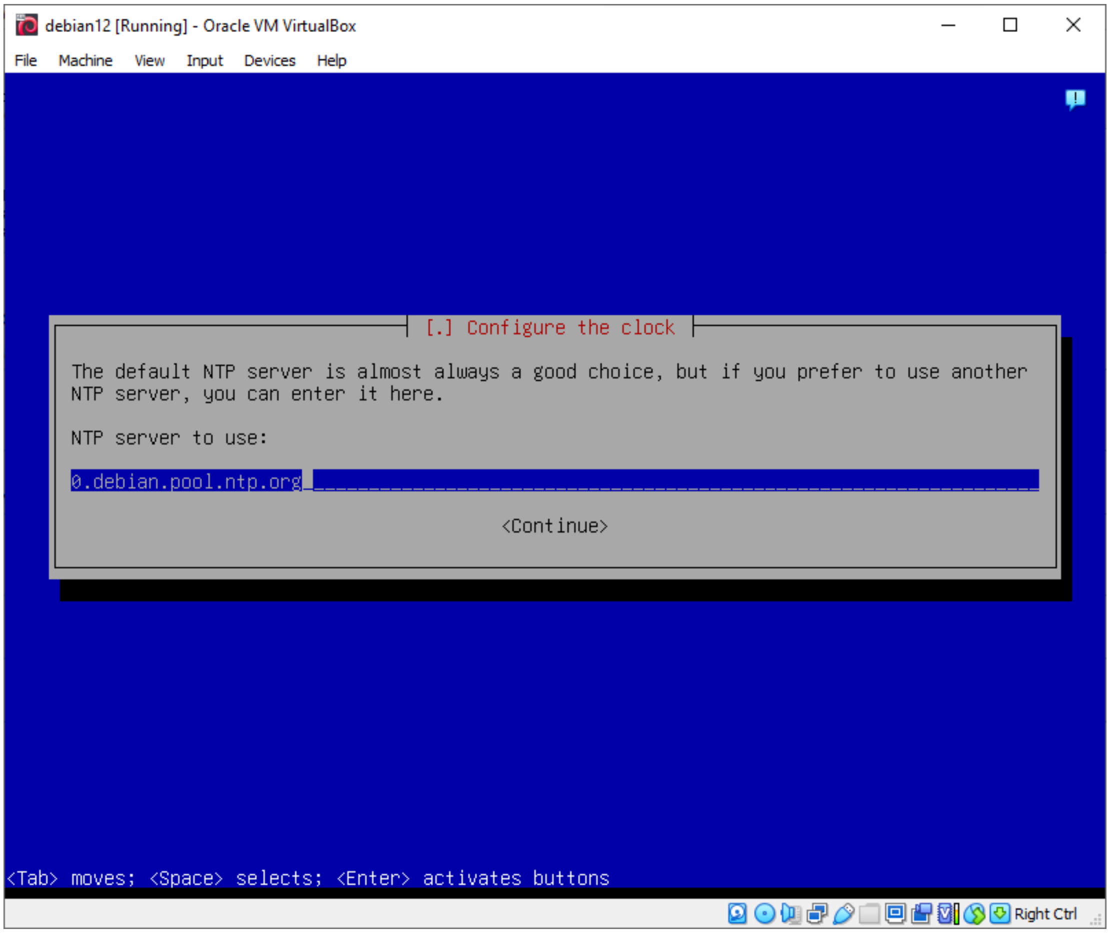
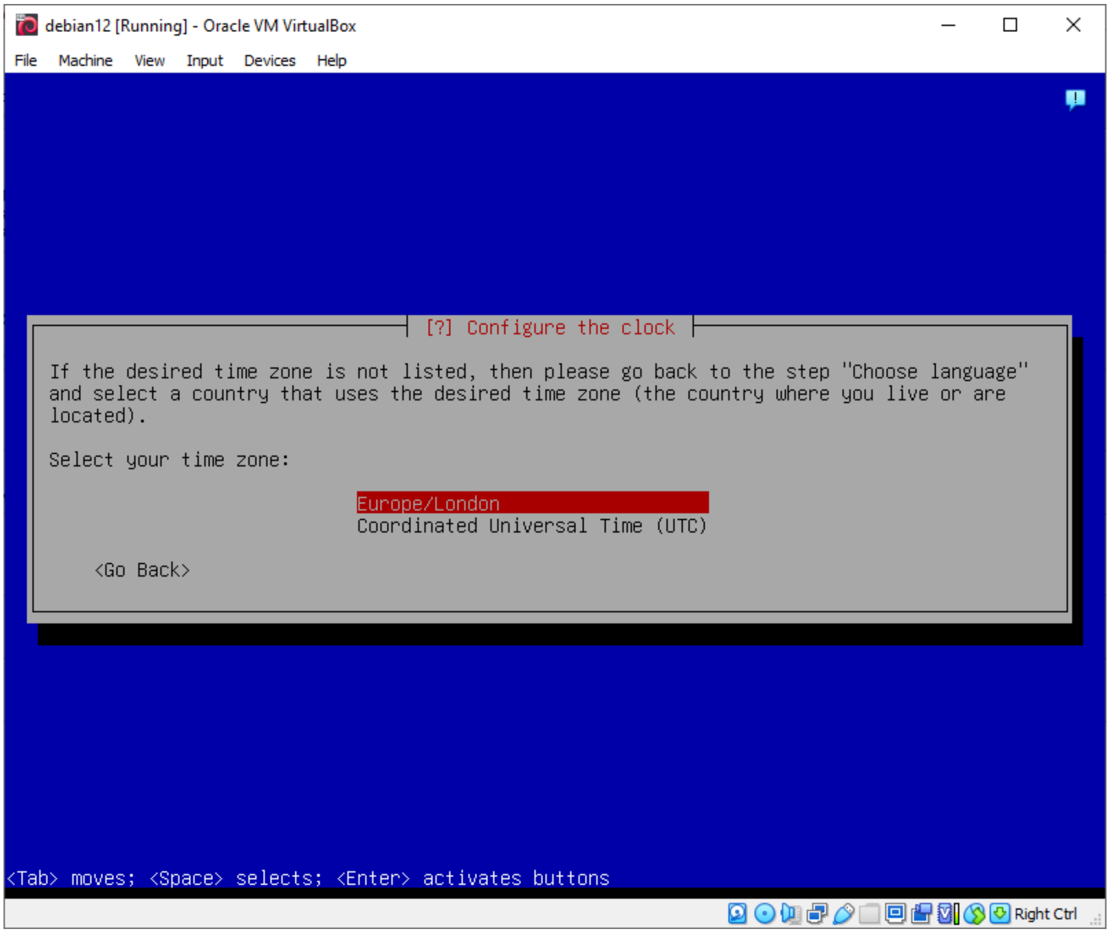



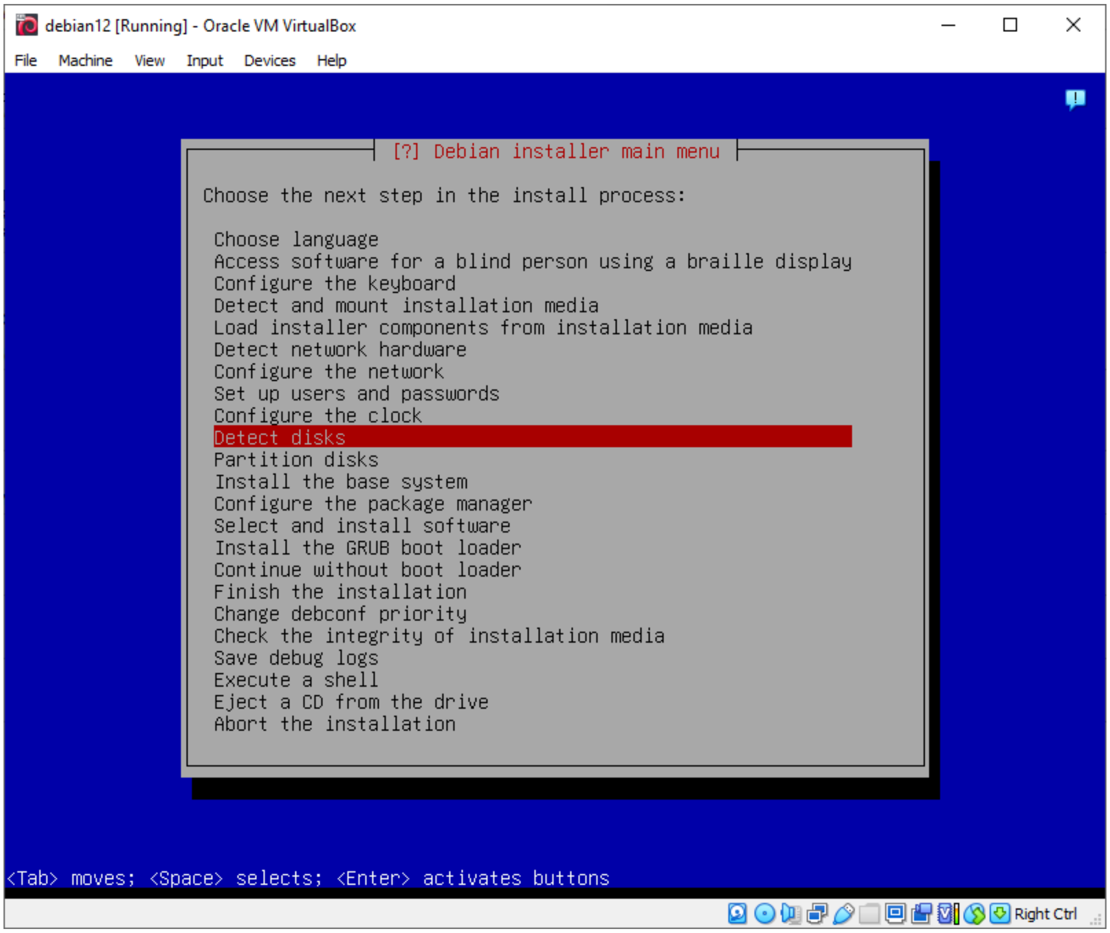
```
[?] Configure the clock

The Network Time Protocol (NTP) can be used to set the system's clock. Your system works
best with a correctly set clock.

Set the clock using NTP?

    <Yes>                                                                     <No>

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


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

```
[.] Configure the clock

The default NTP server is almost always a good choice, but if you prefer to use another
NTP server, you can enter it here.

NTP server to use:

0.debian.pool.ntp.org

<Continue>

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


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

```
[?] Configure the clock

If the desired time zone is not listed, then please go back to the step "Choose language"
and select a country that uses the desired time zone (the country where you live or are
located).

Select your time zone:

                                     Europe/London
                                     Coordinated Universal Time (UTC)

     <Go Back>

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


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[?] Debian installer main menu

Choose the next step in the install process:

 Choose language
 Access software for a blind person using a braille display
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 Partition disks
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 Configure the package manager
 Select and install software
 Install the GRUB boot loader
 Continue without boot loader
 Finish the installation
 Change debconf priority
 Check the integrity of installation media
 Save debug logs
 Execute a shell
 Eject a CD from the drive
 Abort the installation

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

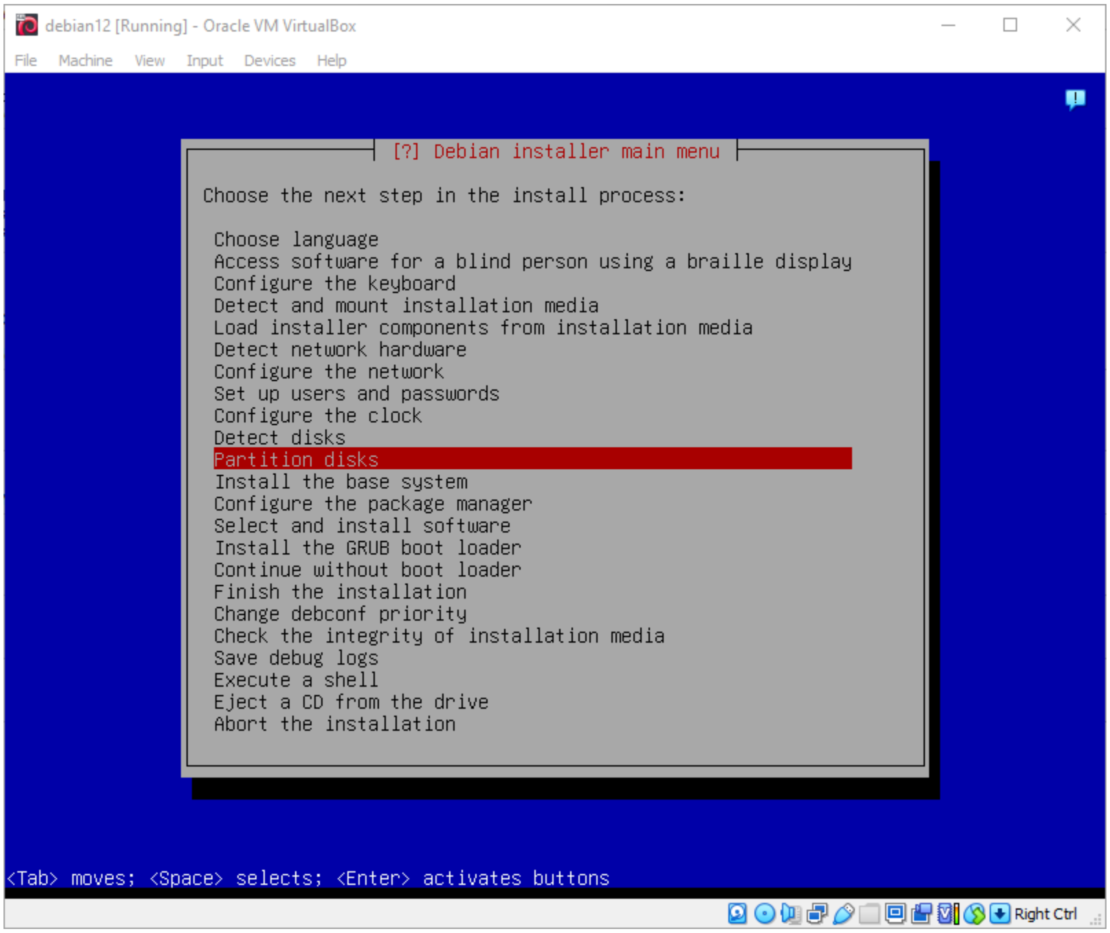
debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[?] Debian installer main menu

Choose the next step in the install process:

 Choose language
 Access software for a blind person using a braille display
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 Change debconf priority
 Check the integrity of installation media
 Save debug logs
 Execute a shell
 Eject a CD from the drive
 Abort the installation

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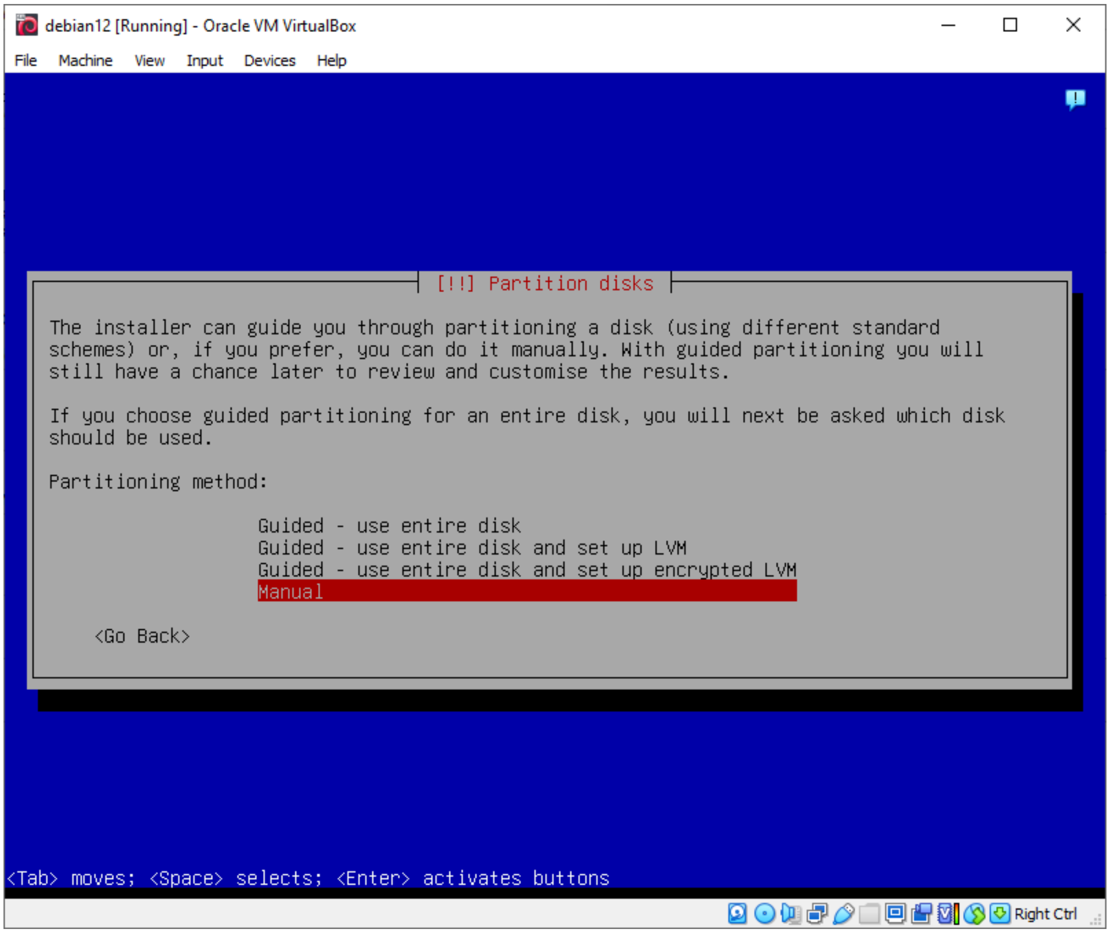
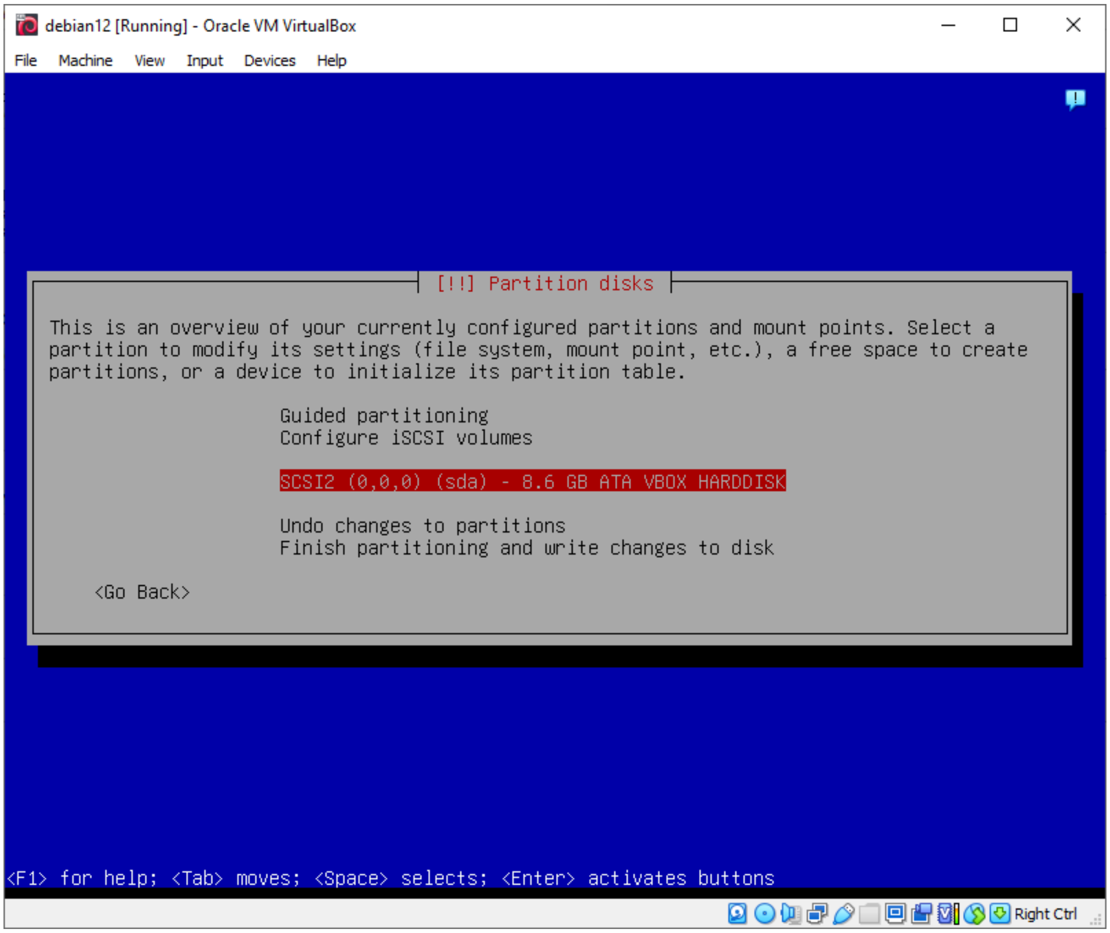
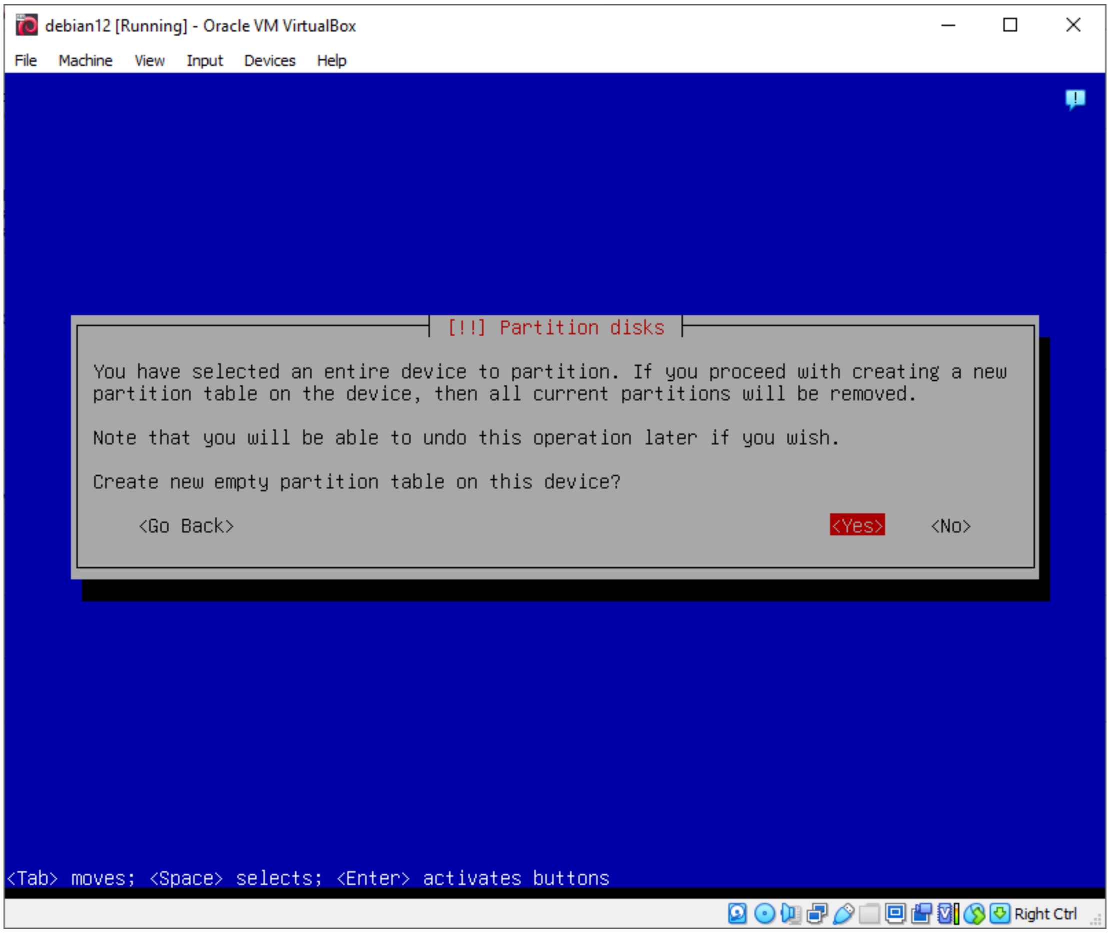



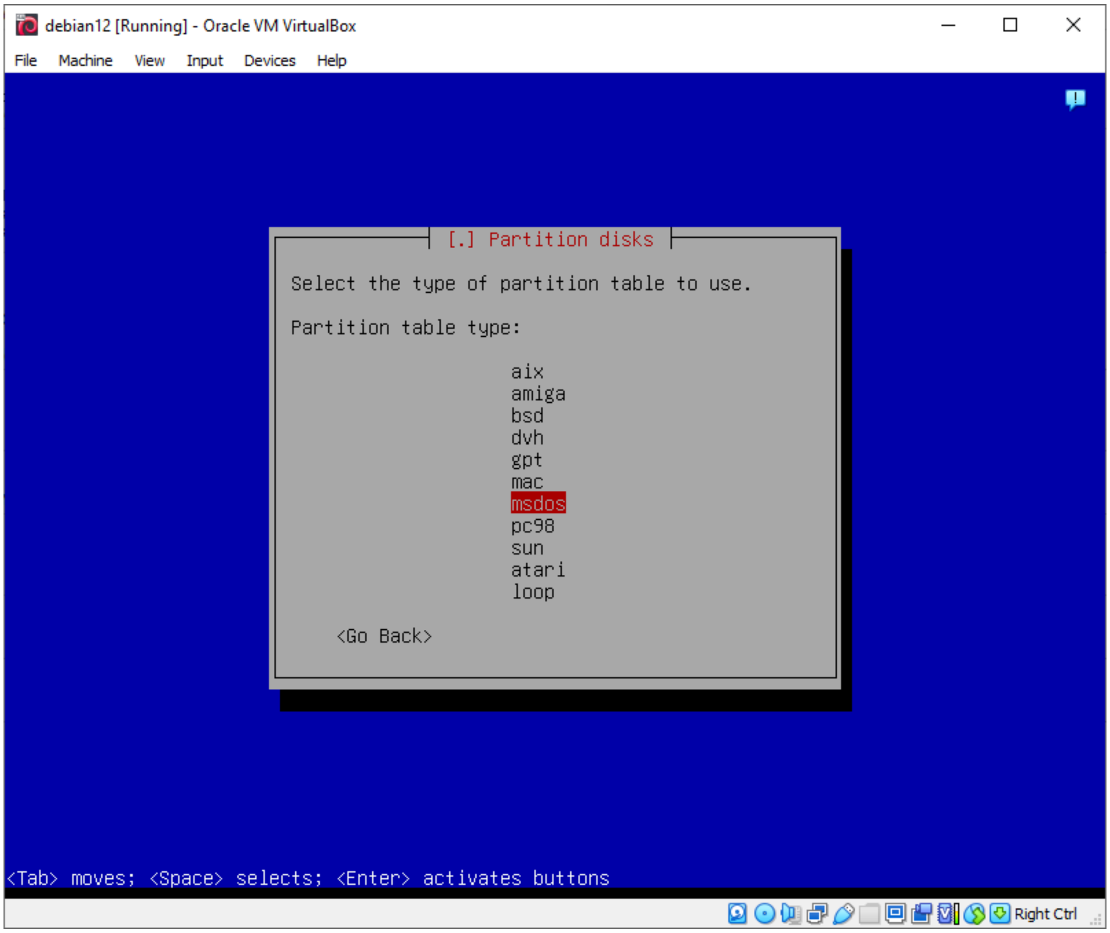
```
[!!] Partition disks

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
```



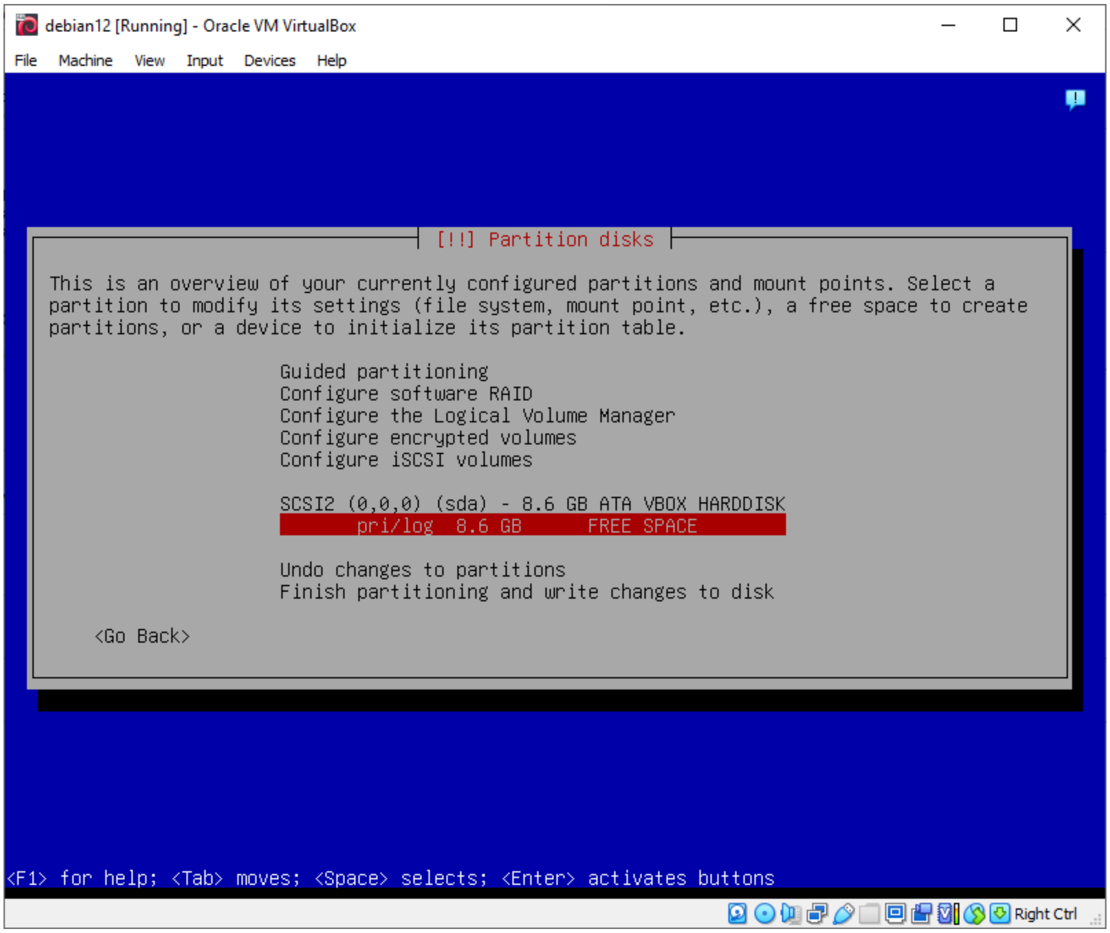
```
[!!] Partition disks

This is an overview of your currently configured partitions and mount points. Select a
partition to modify its settings (file system, mount point, etc.), a free space to create
partitions, or a device to initialize its partition table.

                     Guided partitioning
                     Configure iSCSI volumes

                     SCSI2 (0,0,0) (sda) - 8.6 GB ATA VBOX HARDDISK

                     Undo changes to partitions
                     Finish partitioning and write changes to disk

    <Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

```
[!!] Partition disks

You have selected an entire device to partition. If you proceed with creating a new
partition table on the device, then all current partitions will be removed.

Note that you will be able to undo this operation later if you wish.

Create new empty partition table on this device?

    <Go Back>                                                <Yes>     <No>

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

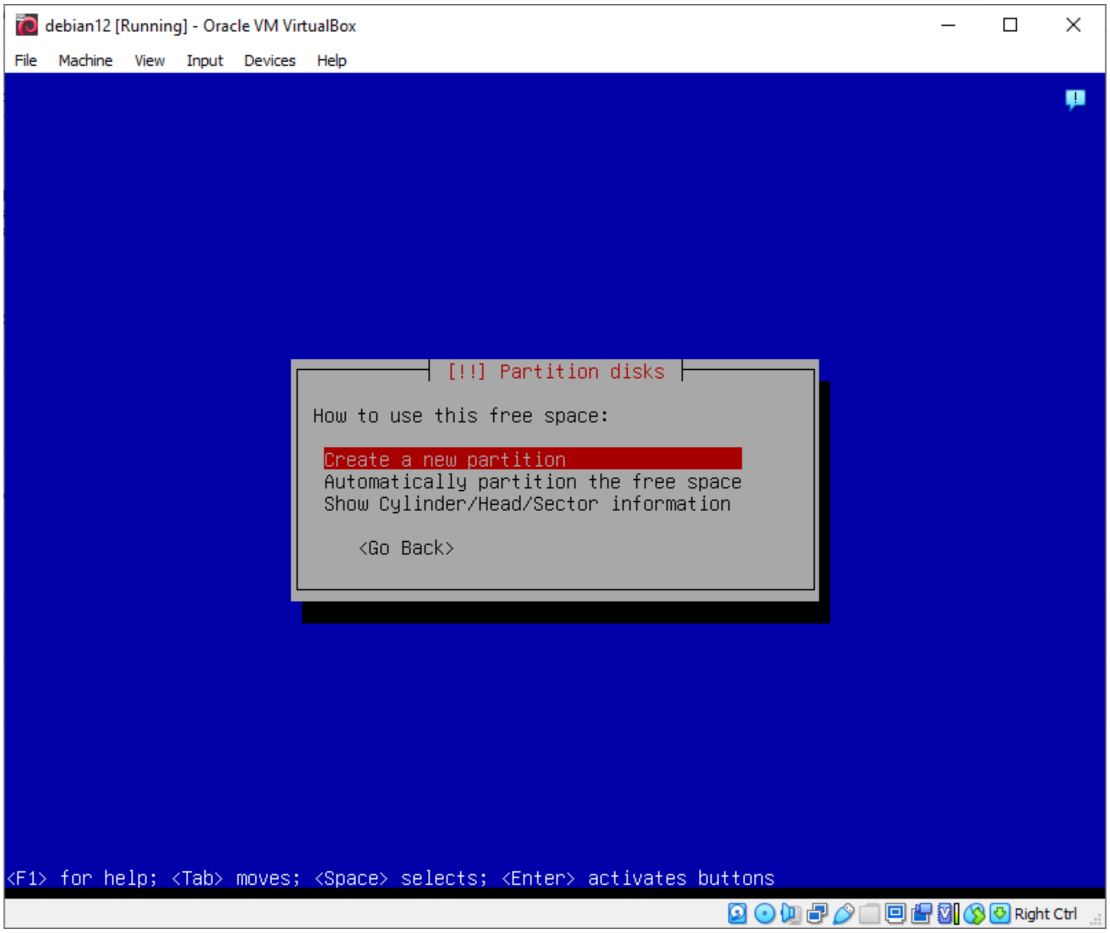

debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

```
[.] Partition disks

Select the type of partition table to use.

Partition table type:

                    aix
                    amiga
                    bsd
                    dvh
                    gpt
                    mac
                    msdos
                    pc98
                    sun
                    atari
                    loop

    <Go Back>

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



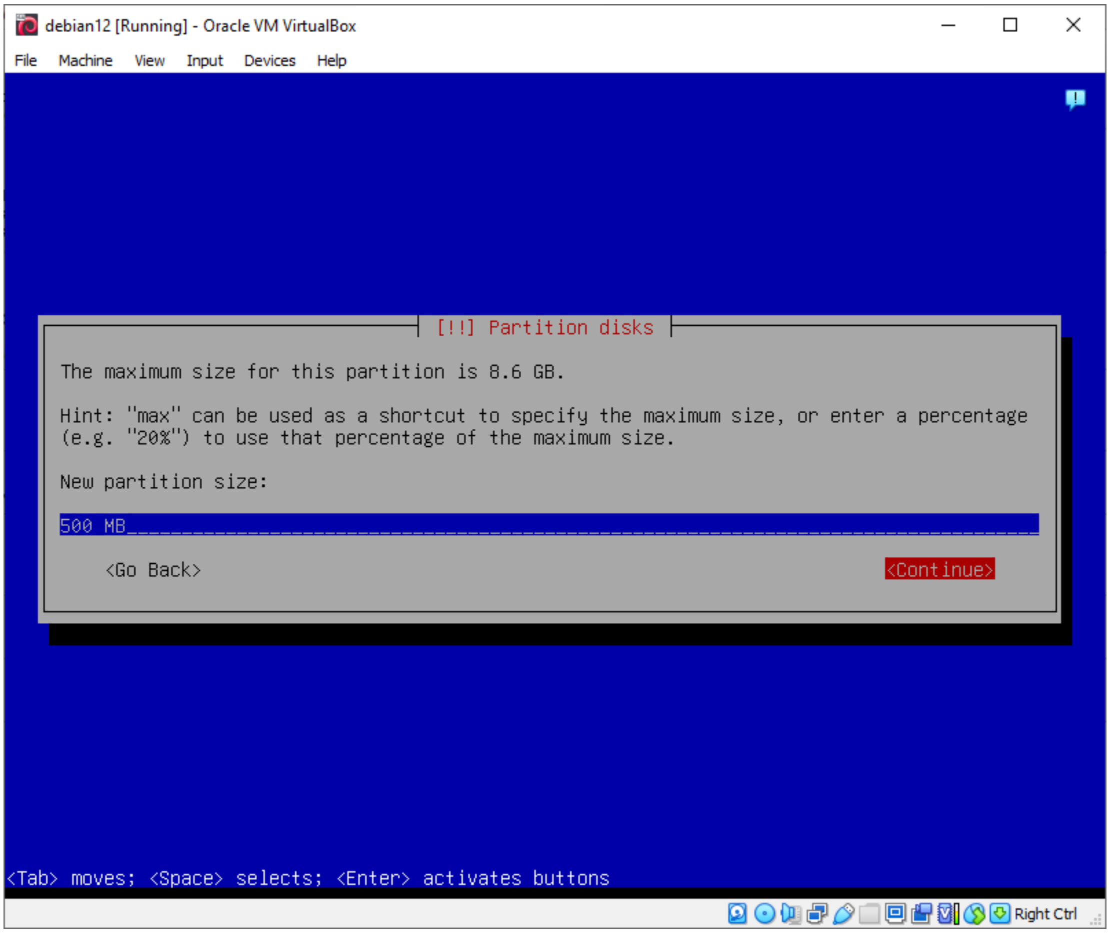
debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[!!] Partition disks

This is an overview of your currently configured partitions and mount points. Select a
partition to modify its settings (file system, mount point, etc.), a free space to create
partitions, or a device to initialize its partition table.

                     Guided partitioning
                     Configure software RAID
                     Configure the Logical Volume Manager
                     Configure encrypted volumes
                     Configure iSCSI volumes

                     SCSI2 (0,0,0) (sda) - 8.6 GB ATA VBOX HARDDISK
                            pri/log  8.6 GB        FREE SPACE

                     Undo changes to partitions
                     Finish partitioning and write changes to disk

     <Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```

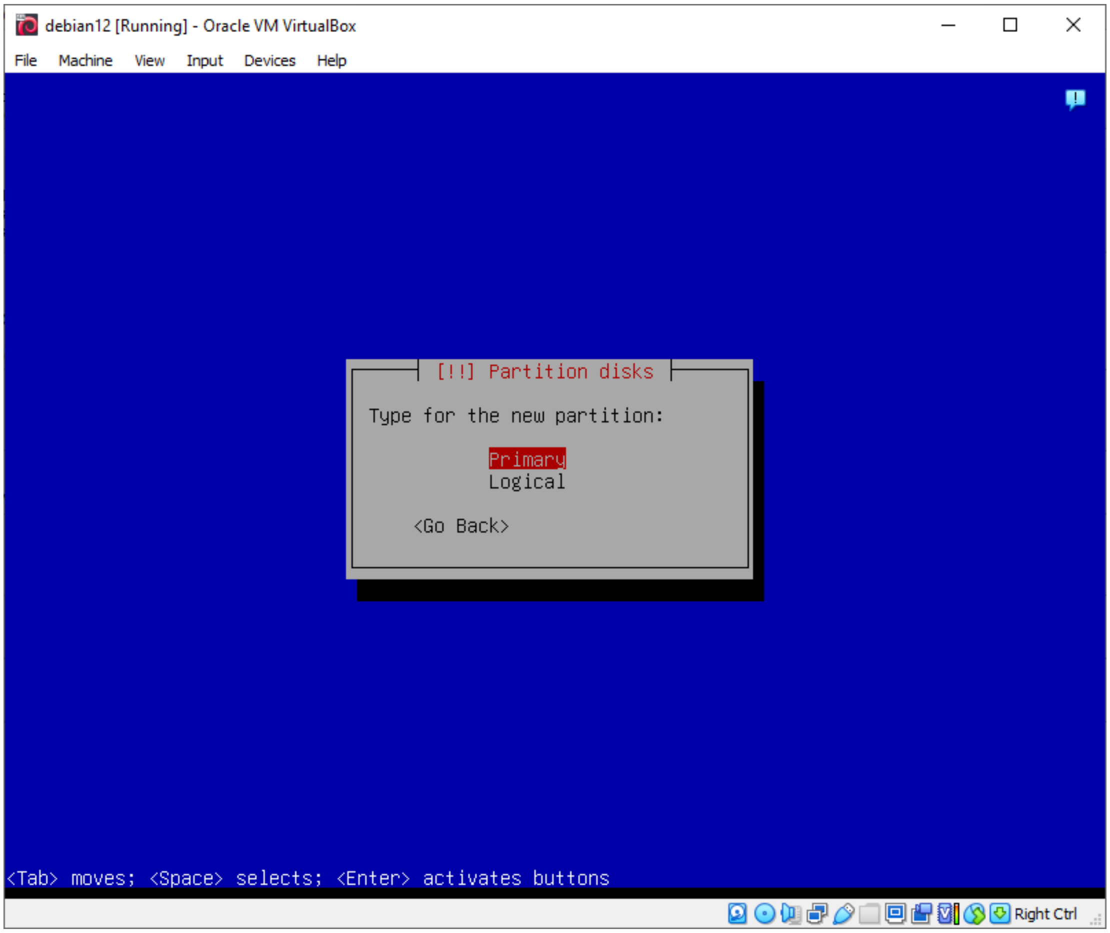


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

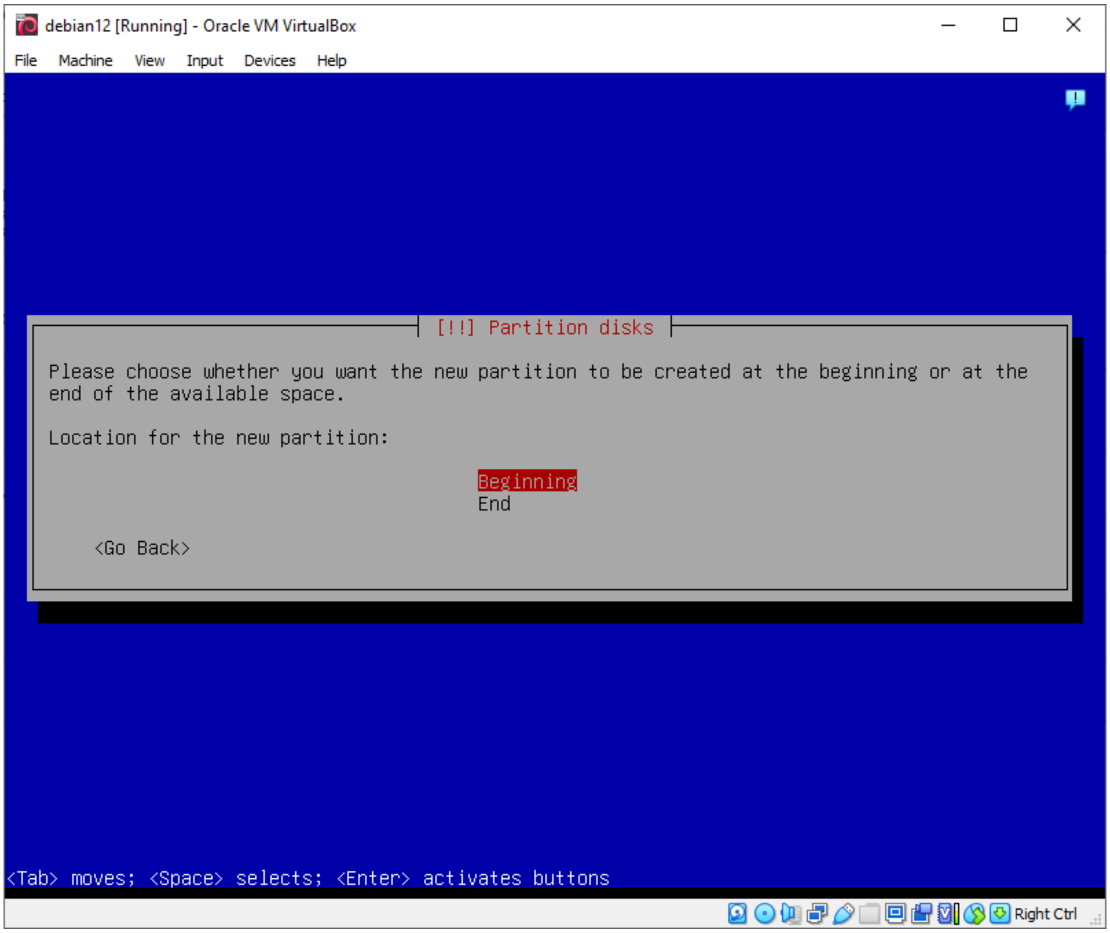
```
[!!] Partition disks

How to use this free space:

 Create a new partition
 Automatically partition the free space
 Show Cylinder/Head/Sector information

    <Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```



```
[!!] Partition disks

The maximum size for this partition is 8.6 GB.

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.

New partition size:

500 MB

    <Go Back>                                                                   <Continue>

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

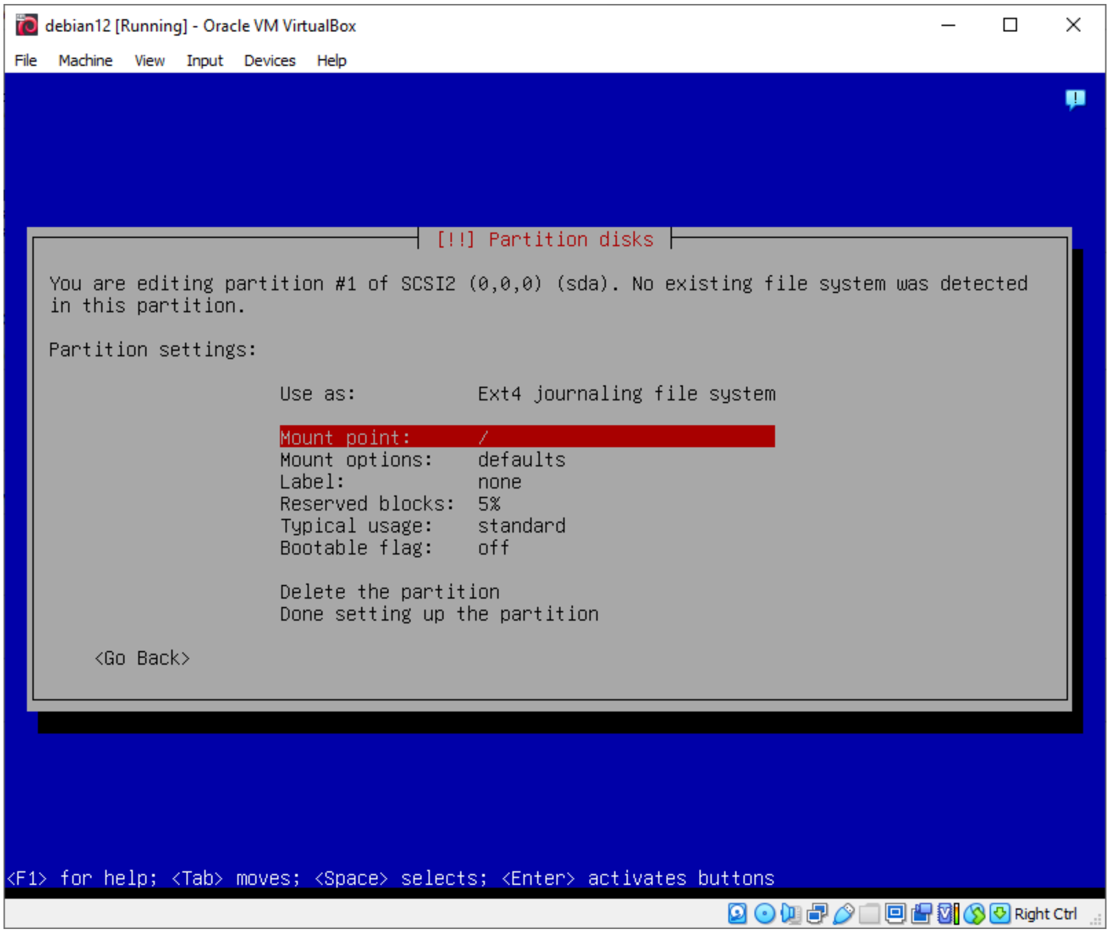


```
[!!] Partition disks

Type for the new partition:

           Primary
           Logical

    <Go Back>

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


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

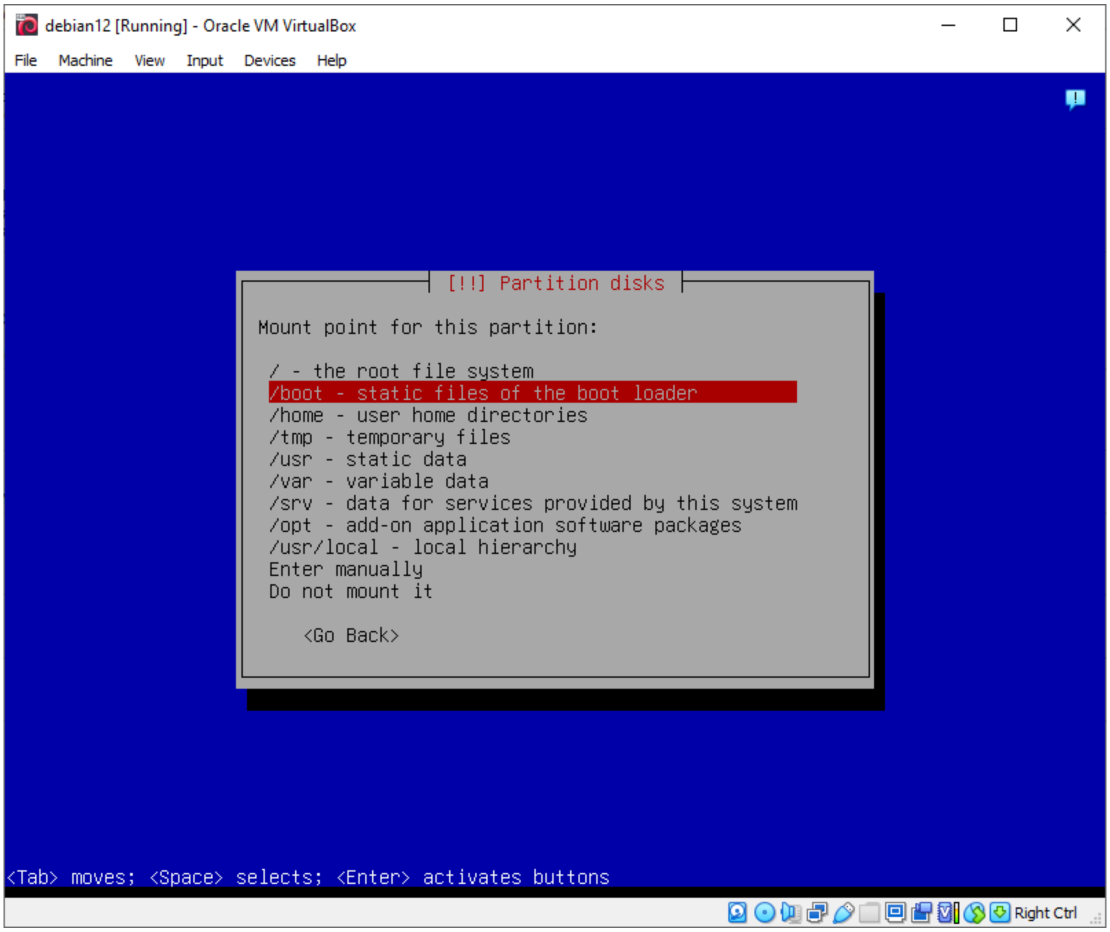
```
[!!] Partition disks

Please choose whether you want the new partition to be created at the beginning or at the
end of the available space.

Location for the new partition:

                        Beginning
                        End

   <Go Back>

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

Select the Mount point and press enter


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

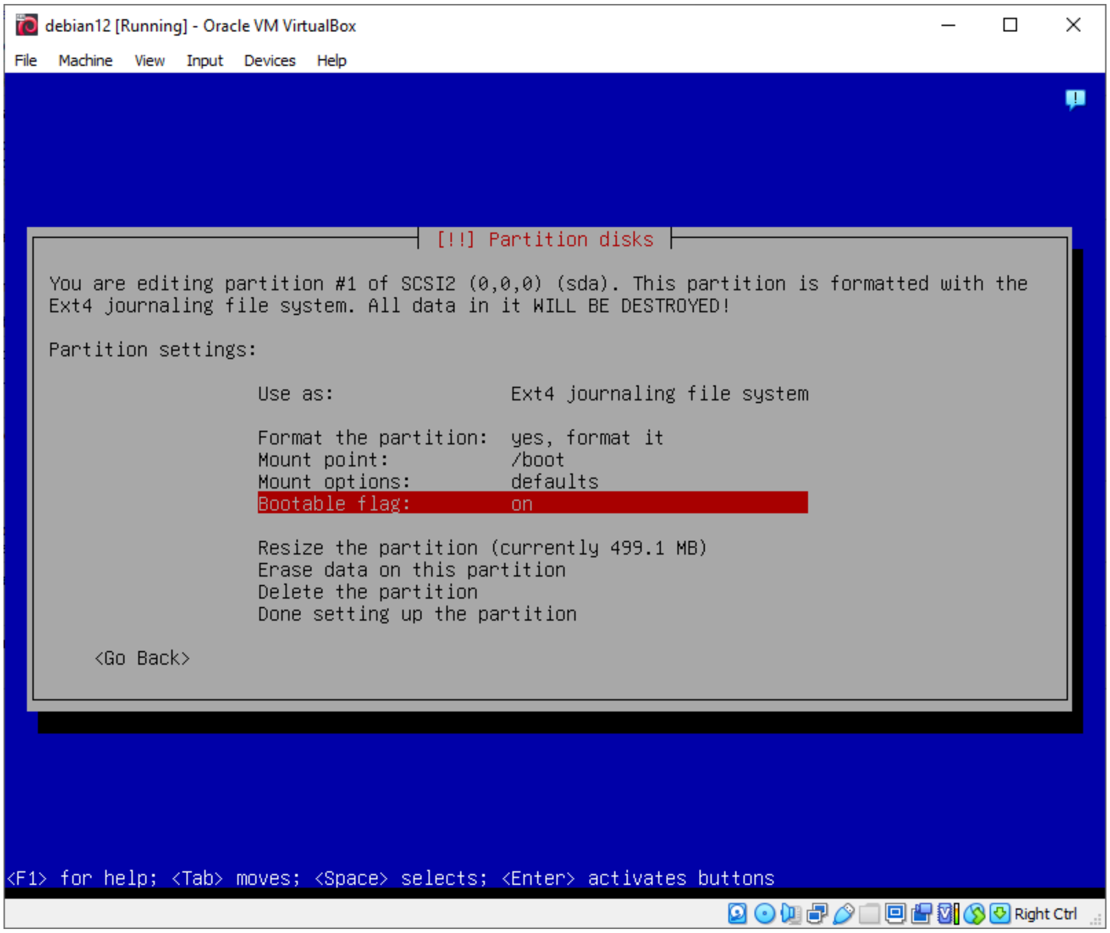
```
[!!] Partition disks

You are editing partition #1 of SCSI2 (0,0,0) (sda). No existing file system was detected
in this partition.

Partition settings:

             Use as:           Ext4 journaling file system

             Mount point:      /
             Mount options:    defaults
             Label:            none
             Reserved blocks:  5%
             Typical usage:    standard
             Bootable flag:    off

             Delete the partition
             Done setting up the partition

   <Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```

Select /boot and press enter



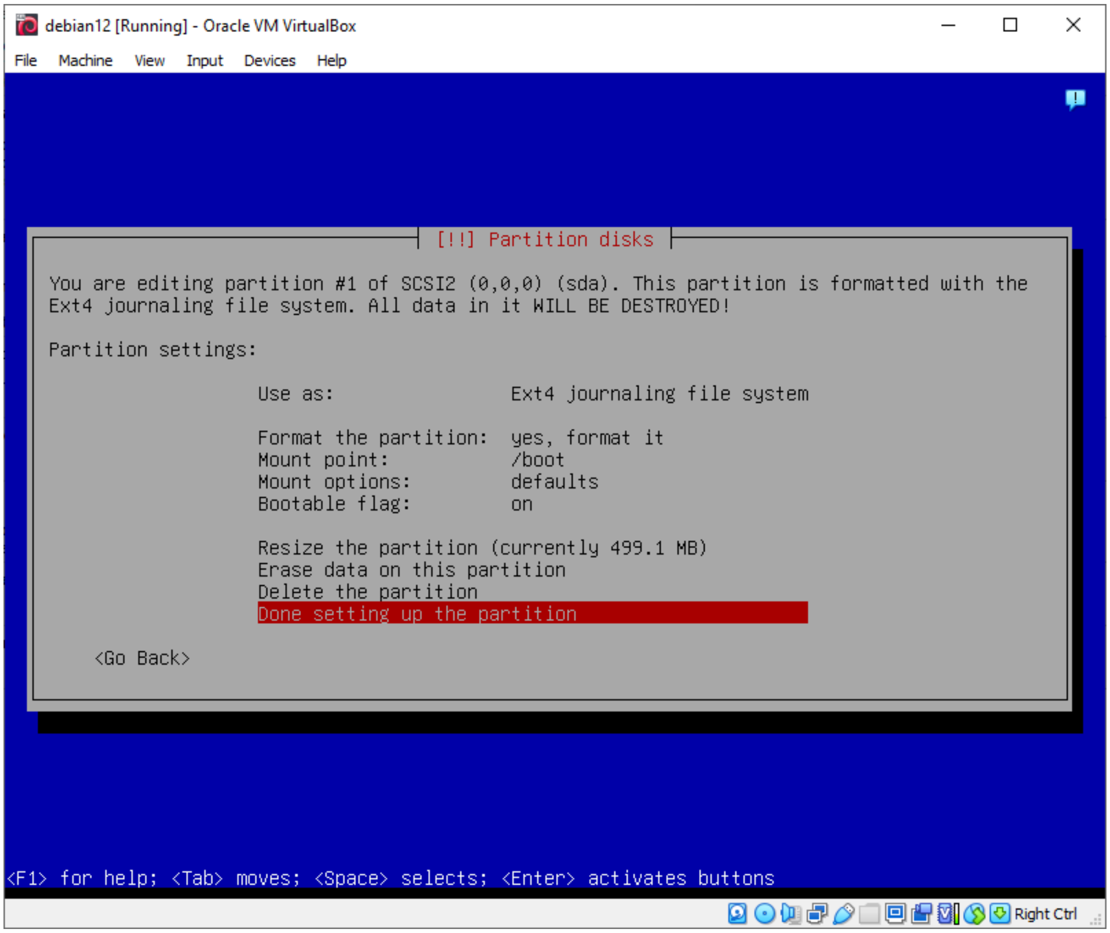
```
[!!] Partition disks

Mount point for this partition:

 / - the root file system
 /boot - static files of the boot loader
 /home - user home directories
 /tmp - temporary files
 /usr - static data
 /var - variable data
 /srv - data for services provided by this system
 /opt - add-on application software packages
 /usr/local - local hierarchy
 Enter manually
 Do not mount it

    <Go Back>

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

Select Bootable flag and press enter (makes partition bootable)

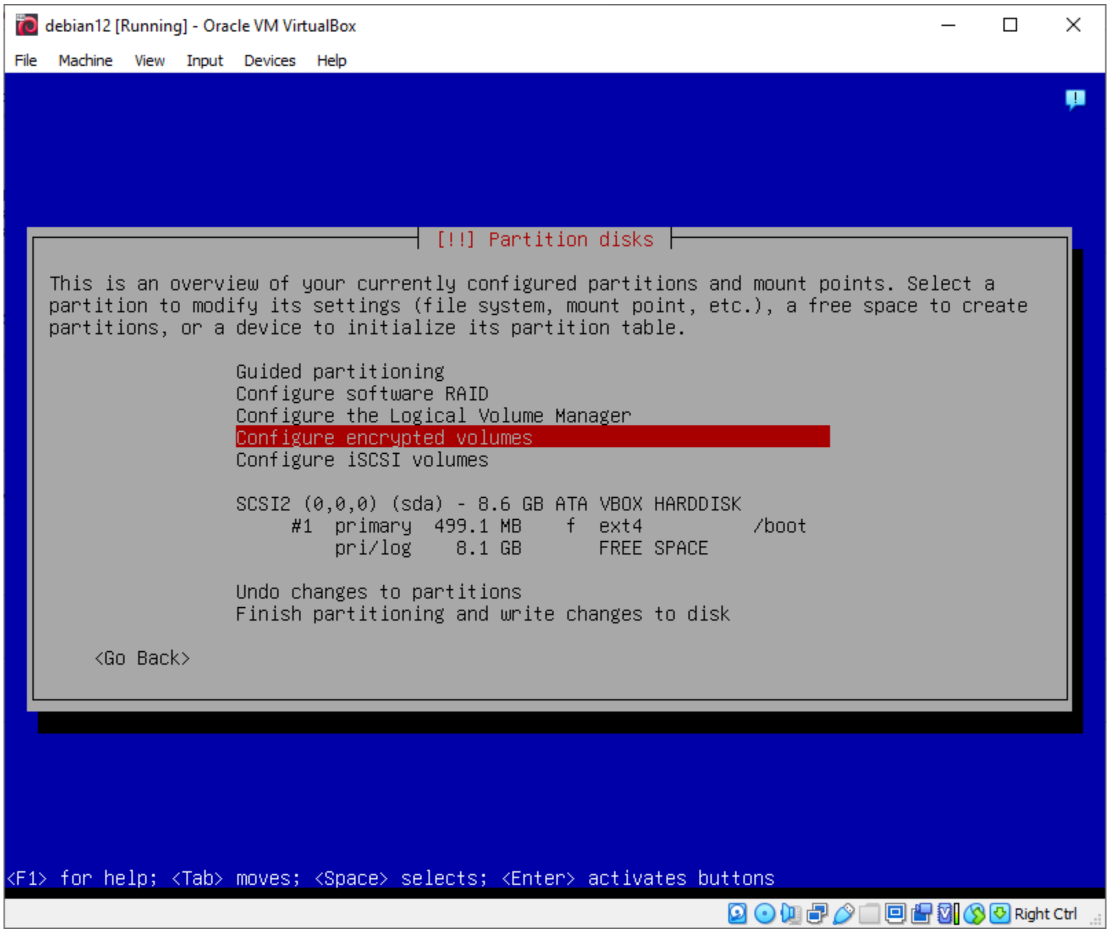


```
[!!] Partition disks

You are editing partition #1 of SCSI2 (0,0,0) (sda). This partition is formatted with the
Ext4 journaling file system. All data in it WILL BE DESTROYED!

Partition settings:

                   Use as:                Ext4 journaling file system

                   Format the partition:  yes, format it
                   Mount point:           /boot
                   Mount options:         defaults
                   Bootable flag:         on

                   Resize the partition (currently 499.1 MB)
                   Erase data on this partition
                   Delete the partition
                   Done setting up the partition

    <Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```

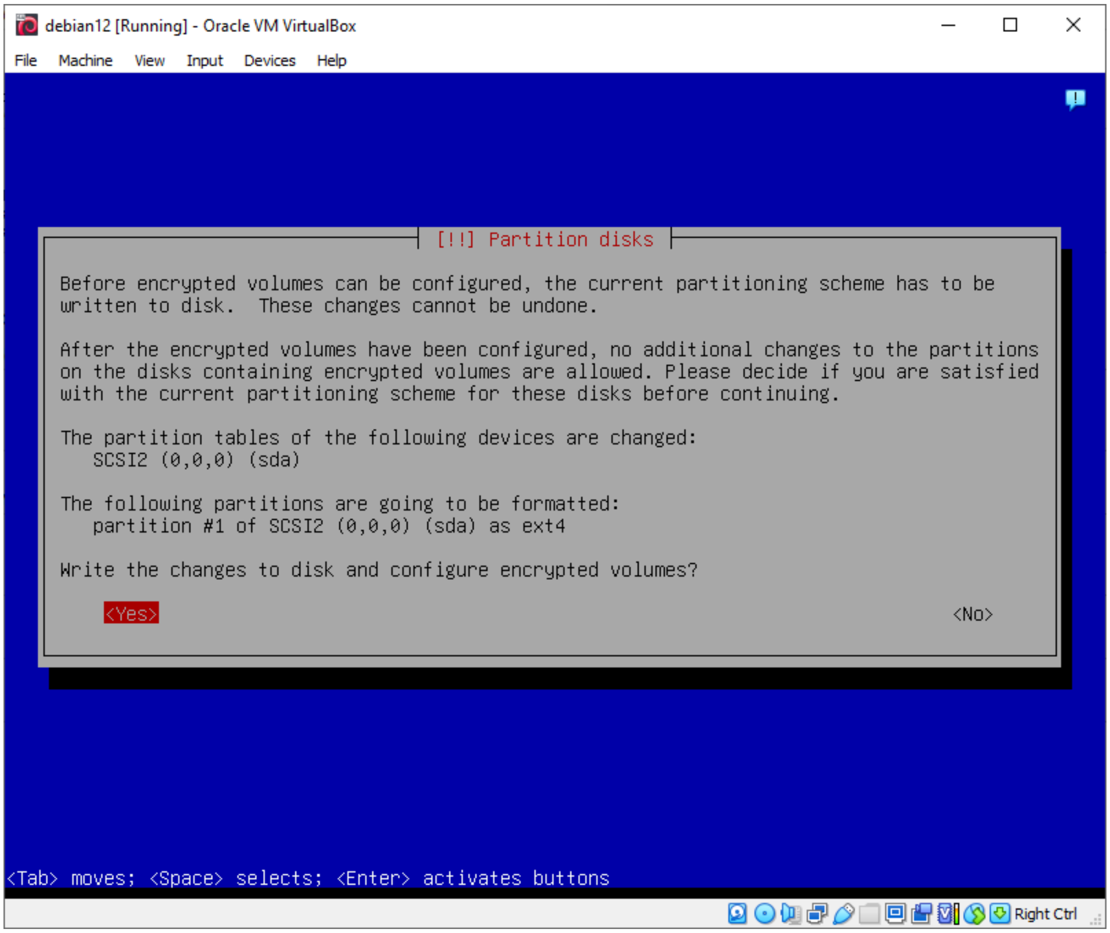
Select Done and press enter


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

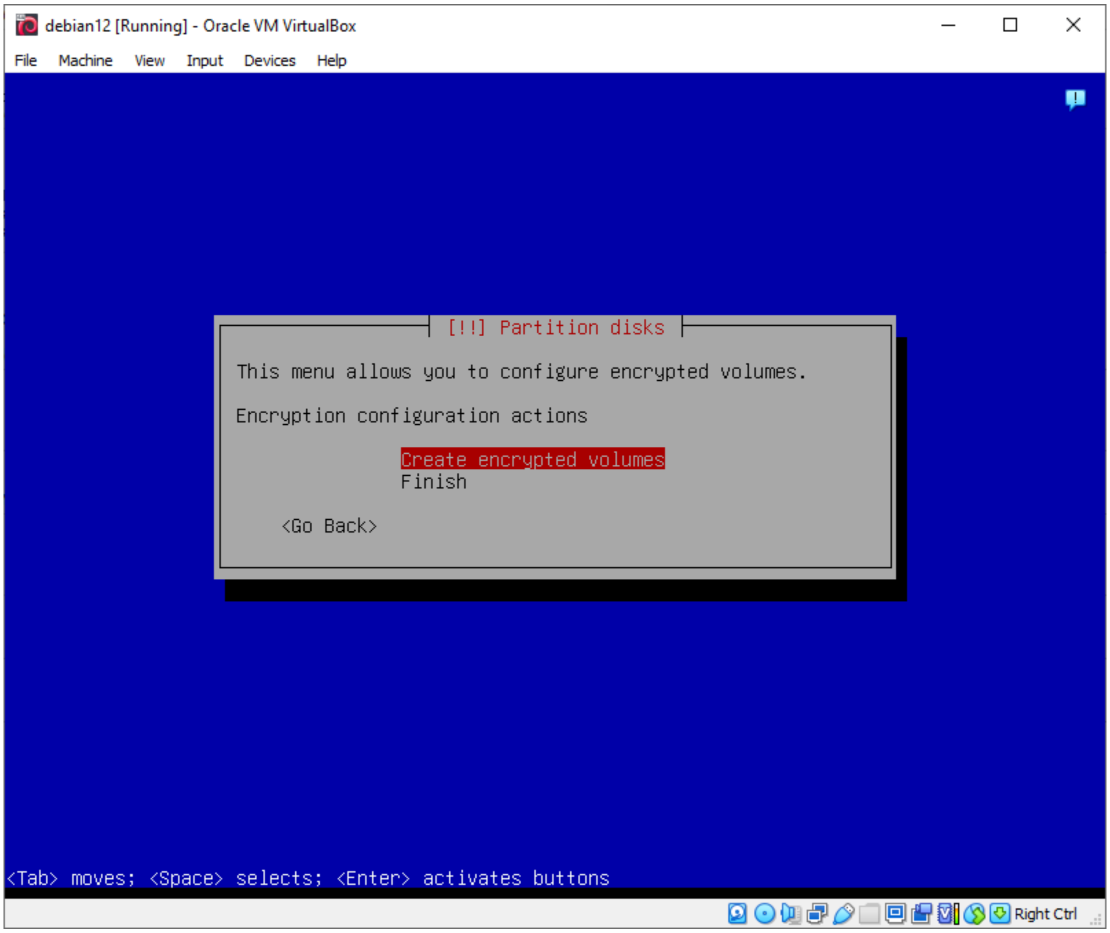
```
                        [!!] Partition disks

You are editing partition #1 of SCSI2 (0,0,0) (sda). This partition is formatted with the
Ext4 journaling file system. All data in it WILL BE DESTROYED!

Partition settings:

                  Use as:                Ext4 journaling file system

                  Format the partition:  yes, format it
                  Mount point:           /boot
                  Mount options:         defaults
                  Bootable flag:         on

                  Resize the partition (currently 499.1 MB)
                  Erase data on this partition
                  Delete the partition
                  Done setting up the partition

    <Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
                        [!!] Partition disks

This is an overview of your currently configured partitions and mount points. Select a
partition to modify its settings (file system, mount point, etc.), a free space to create
partitions, or a device to initialize its partition table.

                Guided partitioning
                Configure software RAID
                Configure the Logical Volume Manager
                Configure encrypted volumes
                Configure iSCSI volumes

                SCSI2 (0,0,0) (sda) - 8.6 GB ATA VBOX HARDDISK
                     #1  primary  499.1 MB    f  ext4          /boot
                         pri/log    8.1 GB       FREE SPACE

                Undo changes to partitions
                Finish partitioning and write changes to disk

    <Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```

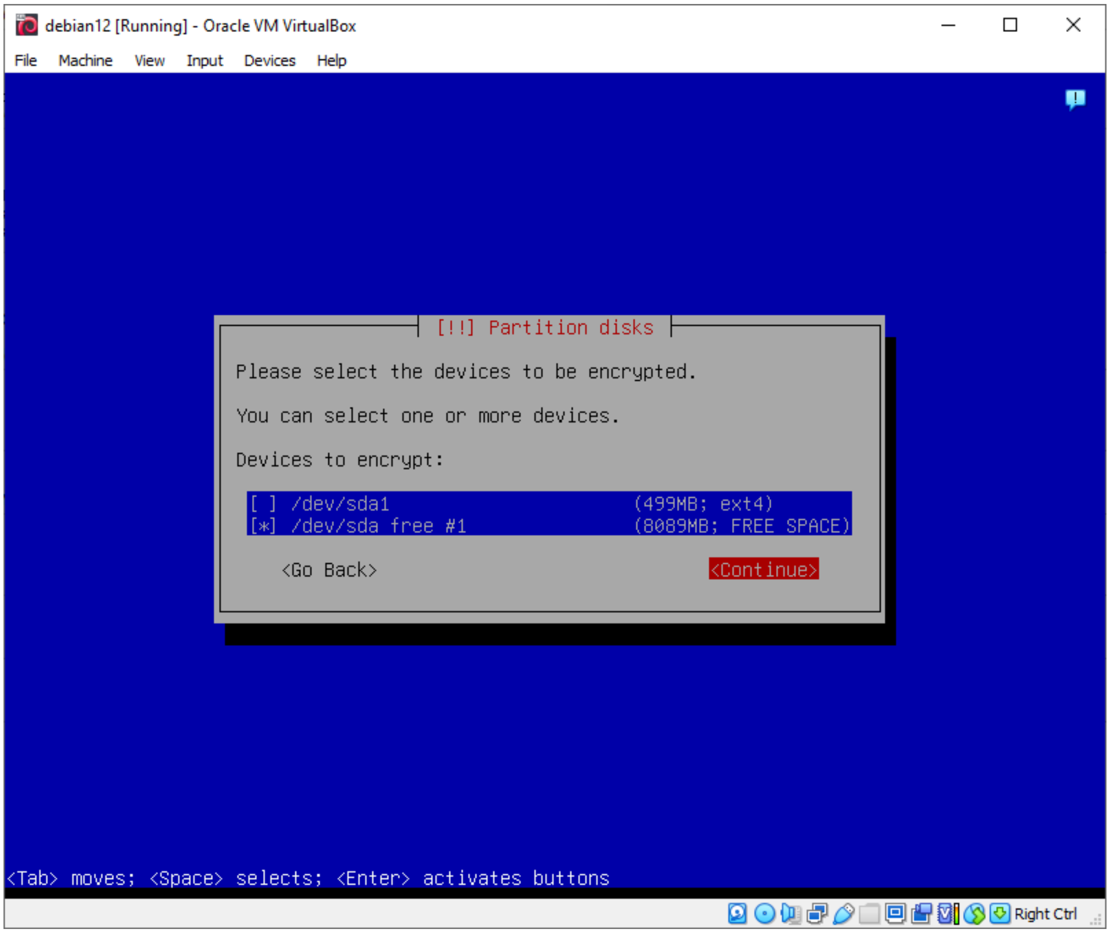

debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[!!] Partition disks

Before encrypted volumes can be configured, the current partitioning scheme has to be
written to disk.  These changes cannot be undone.

After the encrypted volumes have been configured, no additional changes to the partitions
on the disks containing encrypted volumes are allowed. Please decide if you are satisfied
with the current partitioning scheme for these disks before continuing.

The partition tables of the following devices are changed:
   SCSI2 (0,0,0) (sda)

The following partitions are going to be formatted:
   partition #1 of SCSI2 (0,0,0) (sda) as ext4

Write the changes to disk and configure encrypted volumes?

    <Yes>                                                               <No>

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

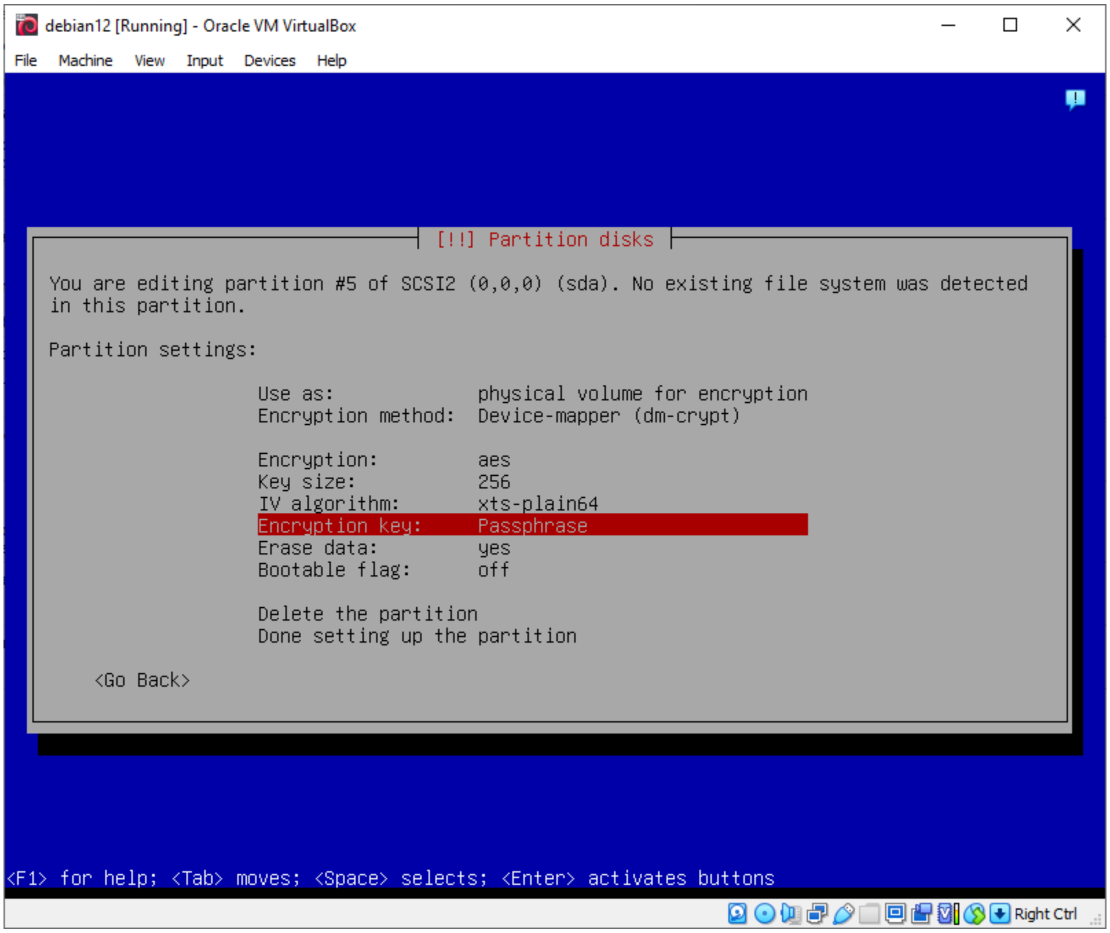

debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[!!] Partition disks

This menu allows you to configure encrypted volumes.

Encryption configuration actions

               Create encrypted volumes
               Finish

    <Go Back>

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

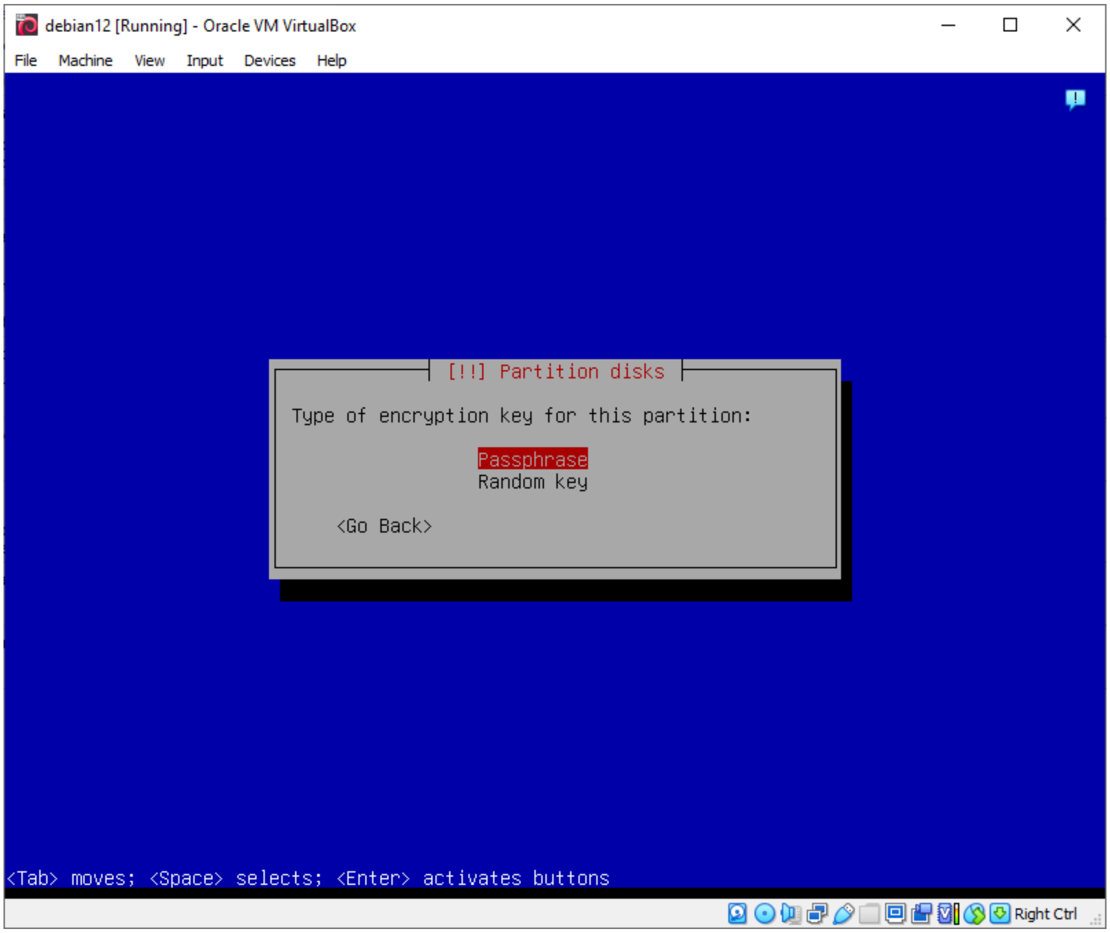
Select the free space



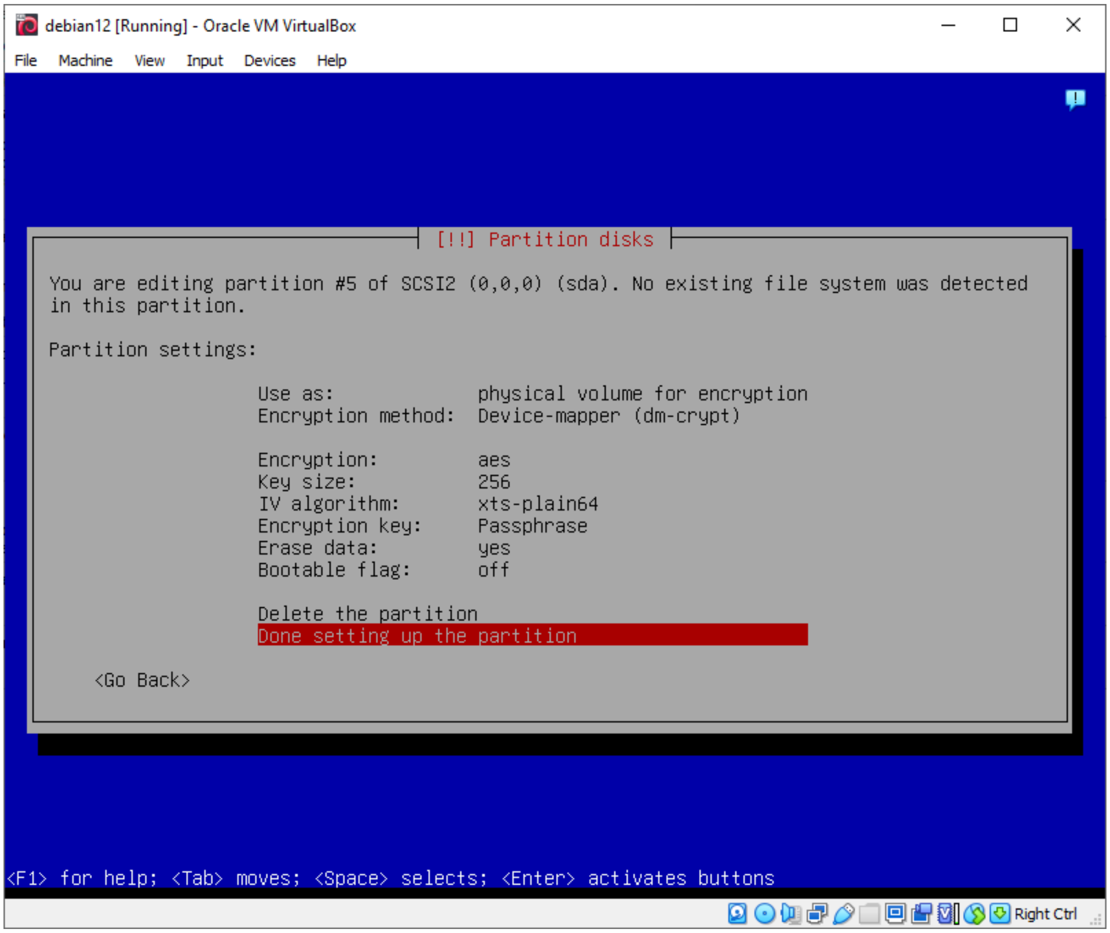
```
[!!] Partition disks

Please select the devices to be encrypted.

You can select one or more devices.

Devices to encrypt:

 [ ] /dev/sda1                          (499MB; ext4)
 [*] /dev/sda free #1                   (8089MB; FREE SPACE)

    <Go Back>                                    <Continue>

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



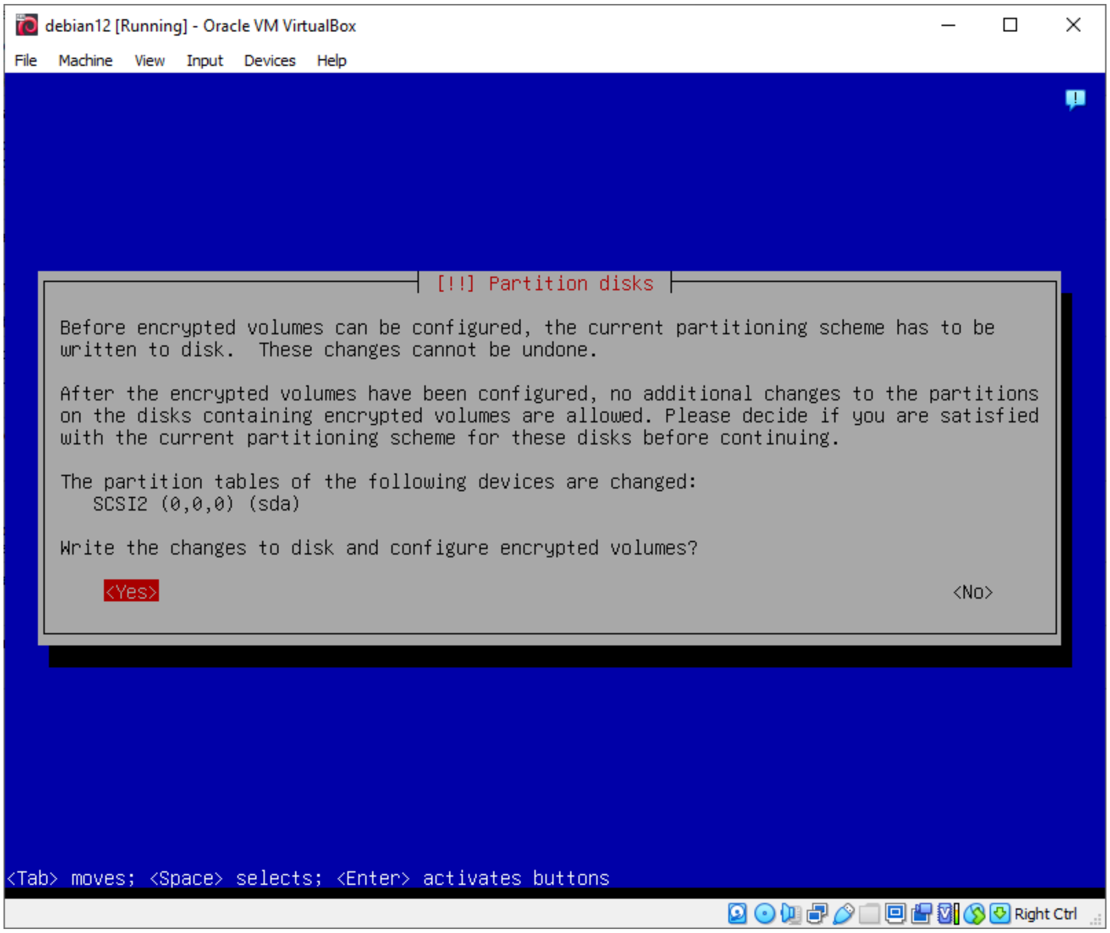
```
[!!] Partition disks

You are editing partition #5 of SCSI2 (0,0,0) (sda). No existing file system was detected
in this partition.

Partition settings:

                    Use as:              physical volume for encryption
                    Encryption method:   Device-mapper (dm-crypt)

                    Encryption:          aes
                    Key size:            256
                    IV algorithm:        xts-plain64
                    Encryption key:      Passphrase
                    Erase data:          yes
                    Bootable flag:       off

                    Delete the partition
                    Done setting up the partition

    <Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

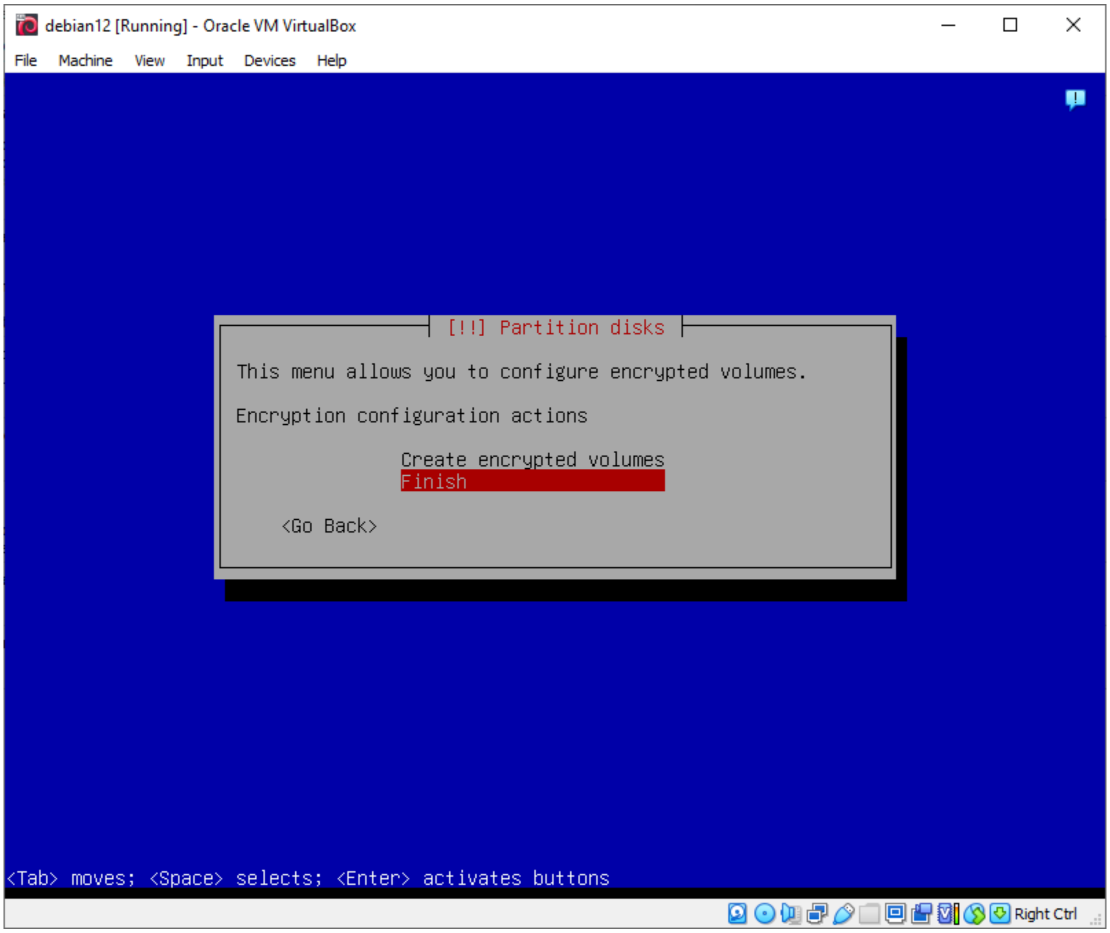
```
[!!] Partition disks

Type of encryption key for this partition:

                    Passphrase
                    Random key

    <Go Back>

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


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

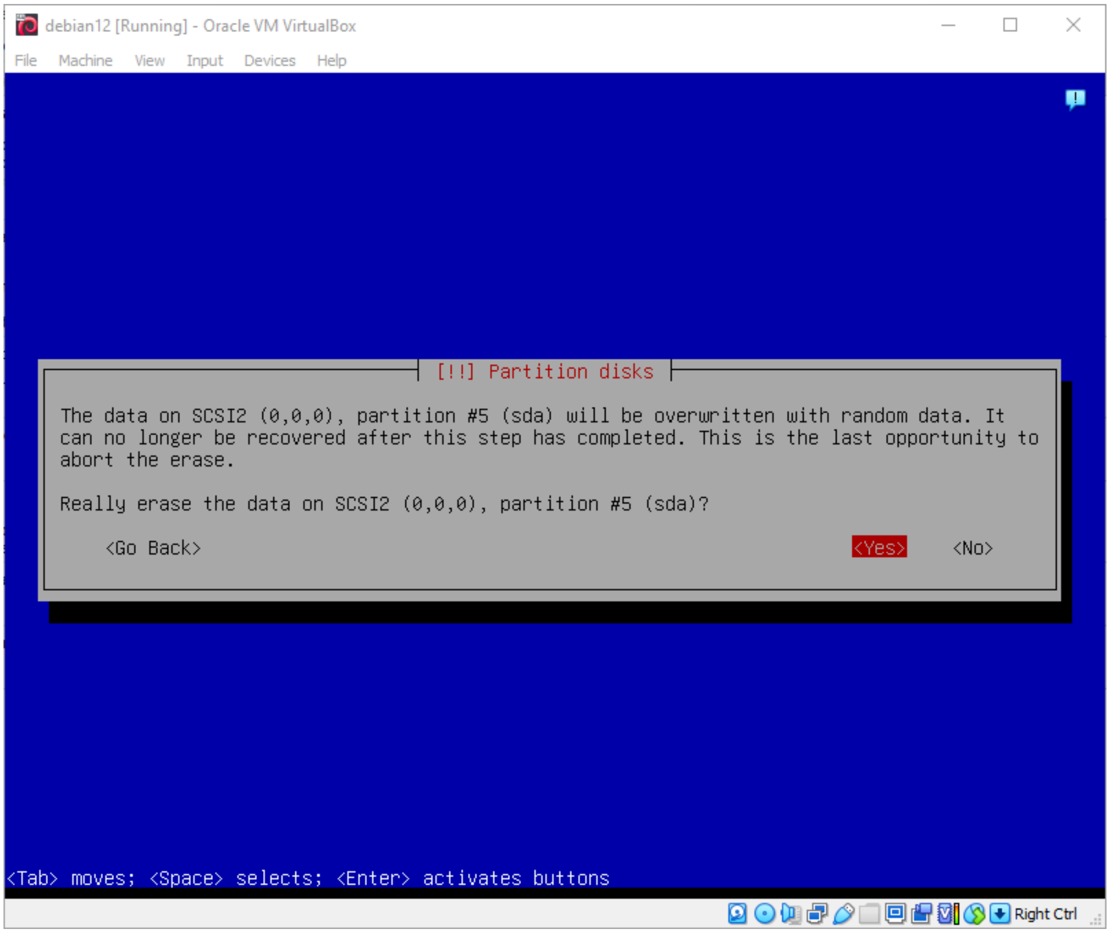
```
[!!] Partition disks

You are editing partition #5 of SCSI2 (0,0,0) (sda). No existing file system was detected
in this partition.

Partition settings:

                   Use as:               physical volume for encryption
                   Encryption method:    Device-mapper (dm-crypt)

                   Encryption:           aes
                   Key size:             256
                   IV algorithm:         xts-plain64
                   Encryption key:       Passphrase
                   Erase data:           yes
                   Bootable flag:        off

                   Delete the partition
                   Done setting up the partition

    <Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[!!] Partition disks

Before encrypted volumes can be configured, the current partitioning scheme has to be
written to disk.  These changes cannot be undone.

After the encrypted volumes have been configured, no additional changes to the partitions
on the disks containing encrypted volumes are allowed. Please decide if you are satisfied
with the current partitioning scheme for these disks before continuing.

The partition tables of the following devices are changed:
   SCSI2 (0,0,0) (sda)

Write the changes to disk and configure encrypted volumes?

     <Yes>                                                                       <No>

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

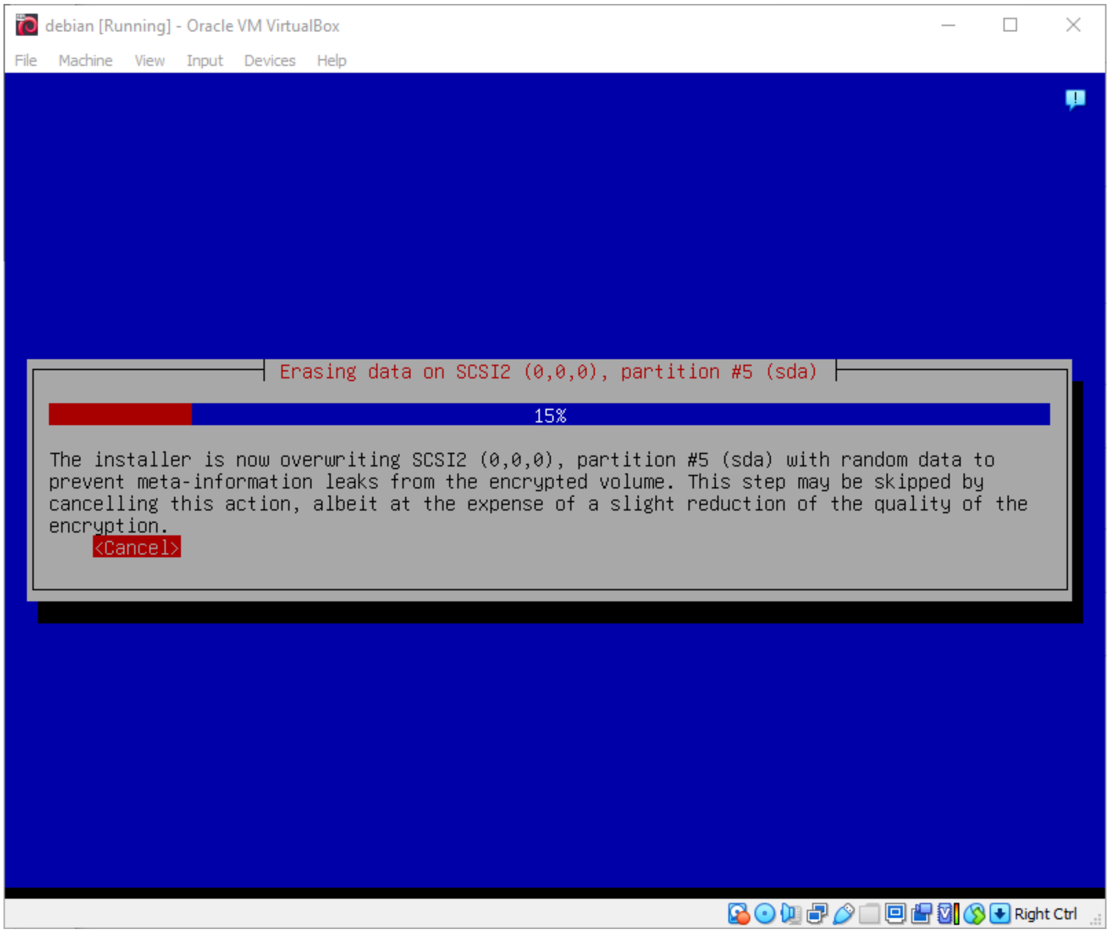

debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[!!] Partition disks

This menu allows you to configure encrypted volumes.

Encryption configuration actions

               Create encrypted volumes
               Finish

    <Go Back>

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


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[!!] Partition disks

The data on SCSI2 (0,0,0), partition #5 (sda) will be overwritten with random data. It
can no longer be recovered after this step has completed. This is the last opportunity to
abort the erase.

Really erase the data on SCSI2 (0,0,0), partition #5 (sda)?

    <Go Back>                                                     <Yes>      <No>

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

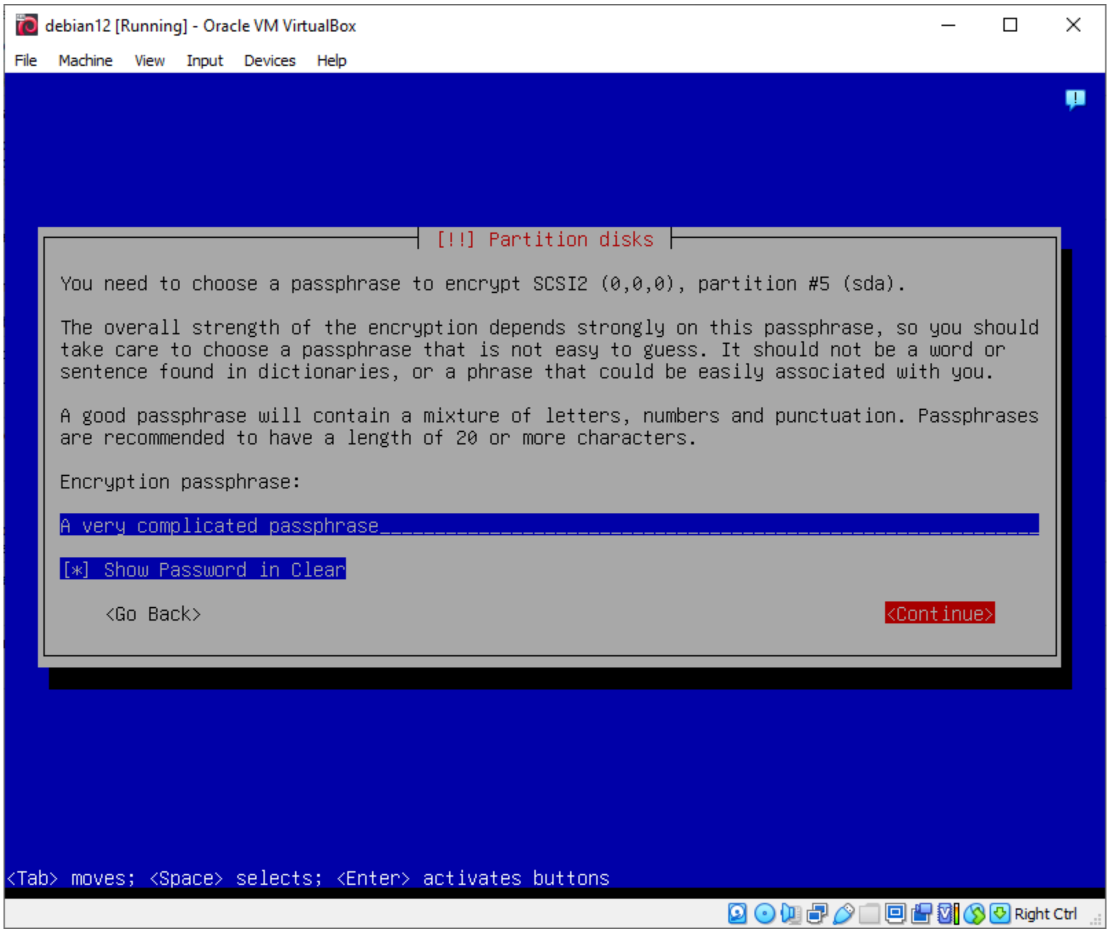
Virtual disk is erased first


debian [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

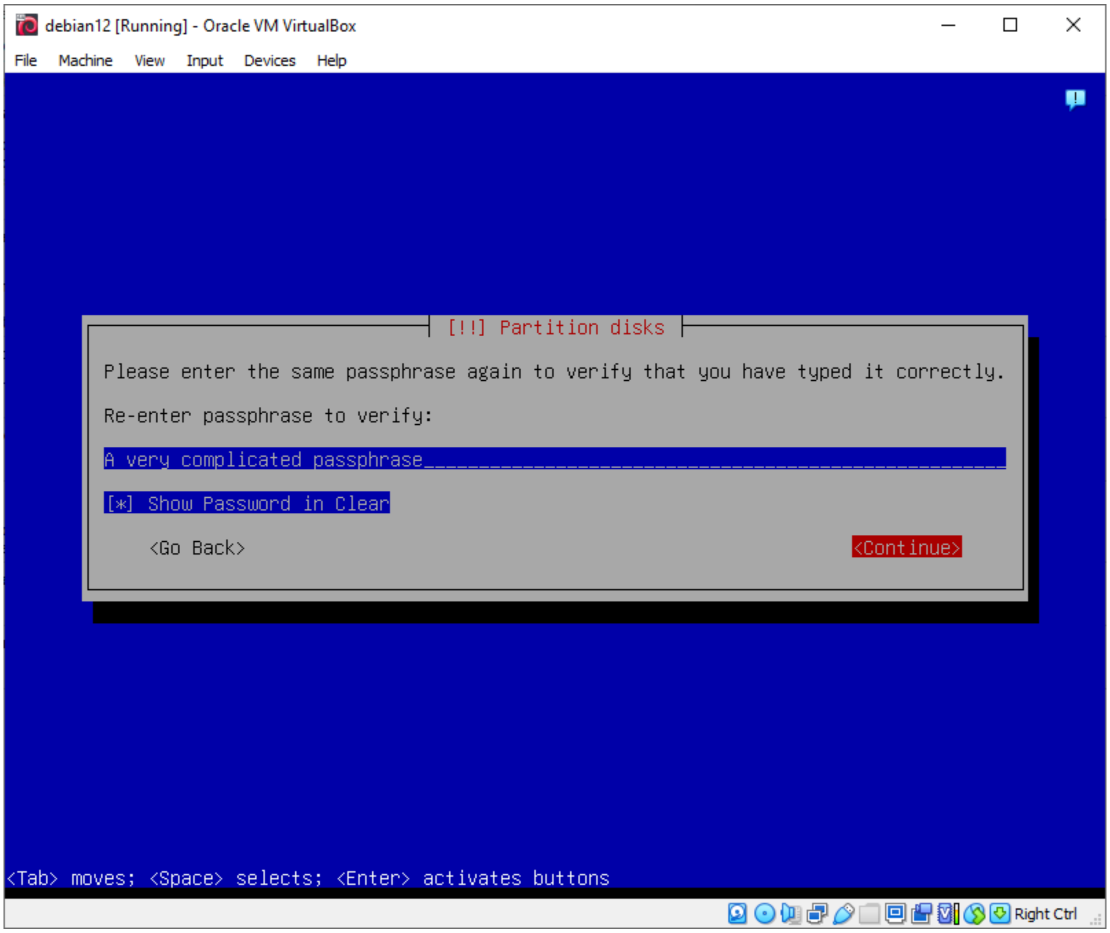
```
Erasing data on SCSI2 (0,0,0), partition #5 (sda)

                                   15%

The installer is now overwriting SCSI2 (0,0,0), partition #5 (sda) with random data to
prevent meta-information leaks from the encrypted volume. This step may be skipped by
cancelling this action, albeit at the expense of a slight reduction of the quality of the
encryption.
    <Cancel>
```

Specify a passphrase to be used for encrypting the volume - this is needed at boot time to decrypt the volume!

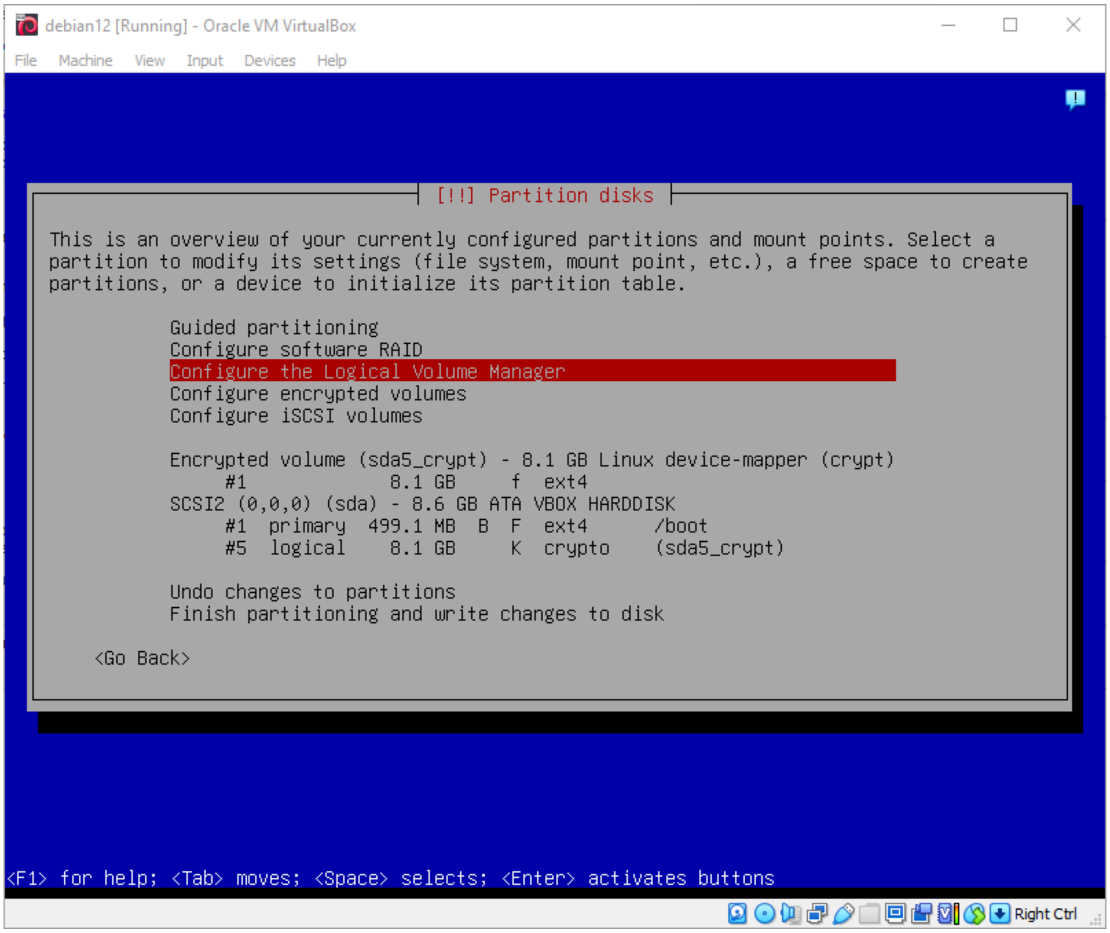
A very complicated passphrase


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

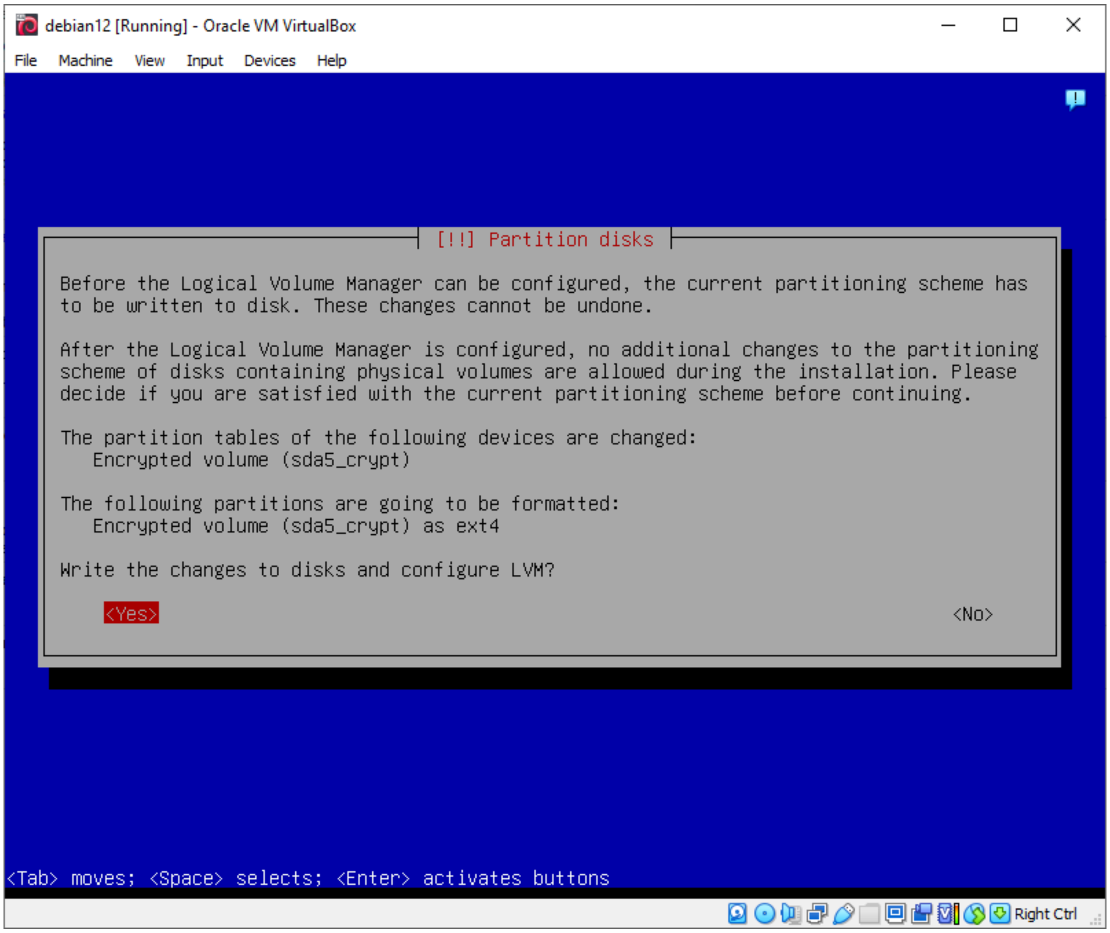
```
[!!] Partition disks

You need to choose a passphrase to encrypt SCSI2 (0,0,0), partition #5 (sda).

The overall strength of the encryption depends strongly on this passphrase, so you should
take care to choose a passphrase that is not easy to guess. It should not be a word or
sentence found in dictionaries, or a phrase that could be easily associated with you.

A good passphrase will contain a mixture of letters, numbers and punctuation. Passphrases
are recommended to have a length of 20 or more characters.

Encryption passphrase:

A very complicated passphrase_______________________________________________________

[*] Show Password in Clear

    <Go Back>                                                                <Continue>

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


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

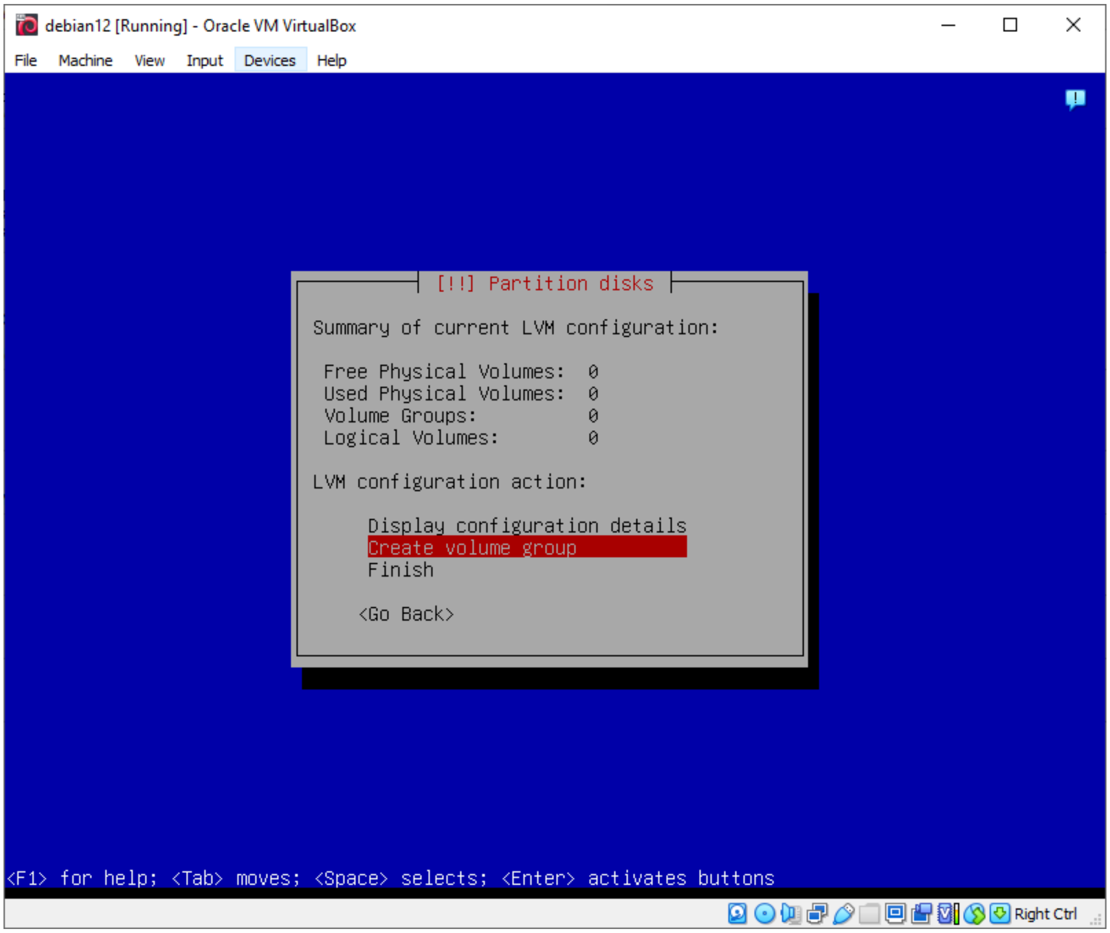
```
[!!] Partition disks

Please enter the same passphrase again to verify that you have typed it correctly.

Re-enter passphrase to verify:

A very complicated passphrase_____________________________________________________

[*] Show Password in Clear

    <Go Back>                                                          <Continue>

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


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

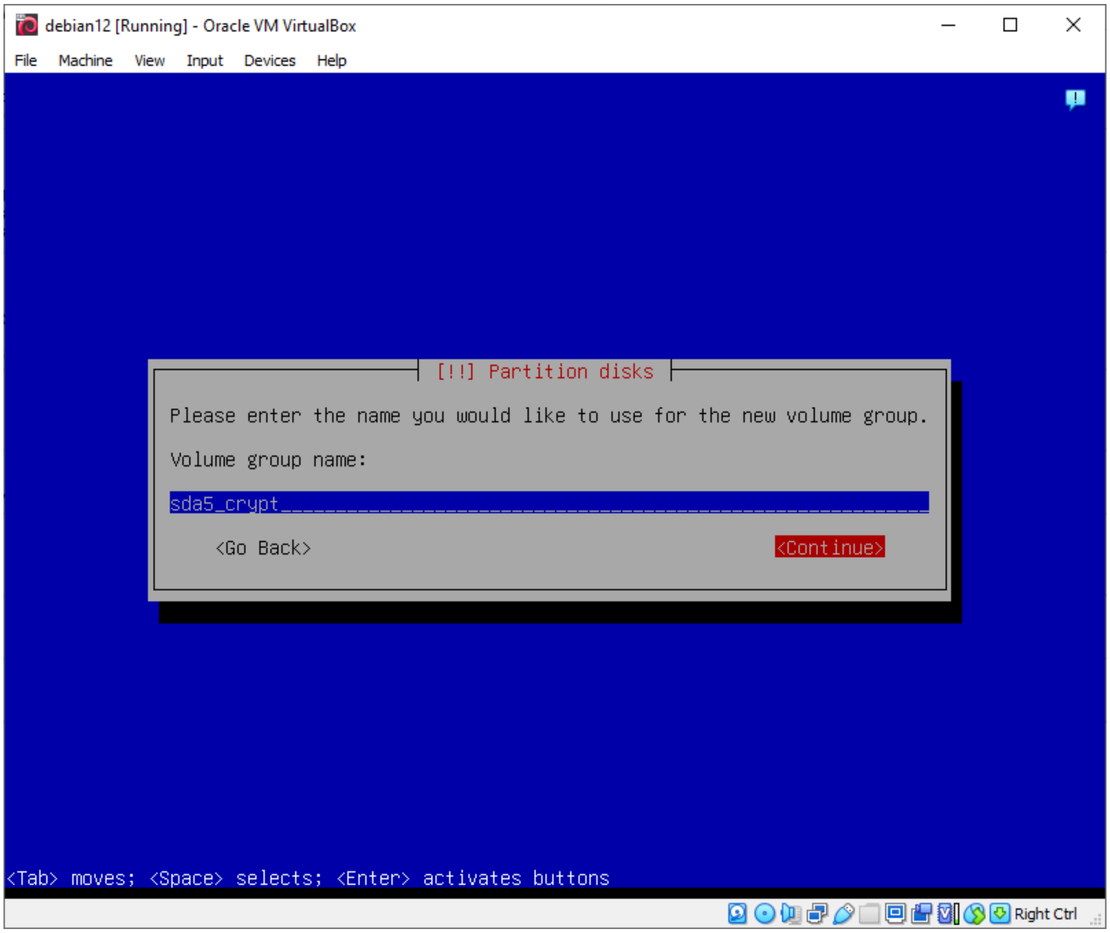
```
[!!] Partition disks

This is an overview of your currently configured partitions and mount points. Select a
partition to modify its settings (file system, mount point, etc.), a free space to create
partitions, or a device to initialize its partition table.

          Guided partitioning
          Configure software RAID
          Configure the Logical Volume Manager
          Configure encrypted volumes
          Configure iSCSI volumes

          Encrypted volume (sda5_crypt) - 8.1 GB Linux device-mapper (crypt)
               #1              8.1 GB     f  ext4
          SCSI2 (0,0,0) (sda) - 8.6 GB ATA VBOX HARDDISK
               #1  primary  499.1 MB  B  F  ext4      /boot
               #5  logical    8.1 GB     K  crypto    (sda5_crypt)

          Undo changes to partitions
          Finish partitioning and write changes to disk

    <Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[!!] 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:
   Encrypted volume (sda5_crypt)

The following partitions are going to be formatted:
   Encrypted volume (sda5_crypt) as ext4

Write the changes to disks and configure LVM?

    <Yes>                                                                   <No>

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

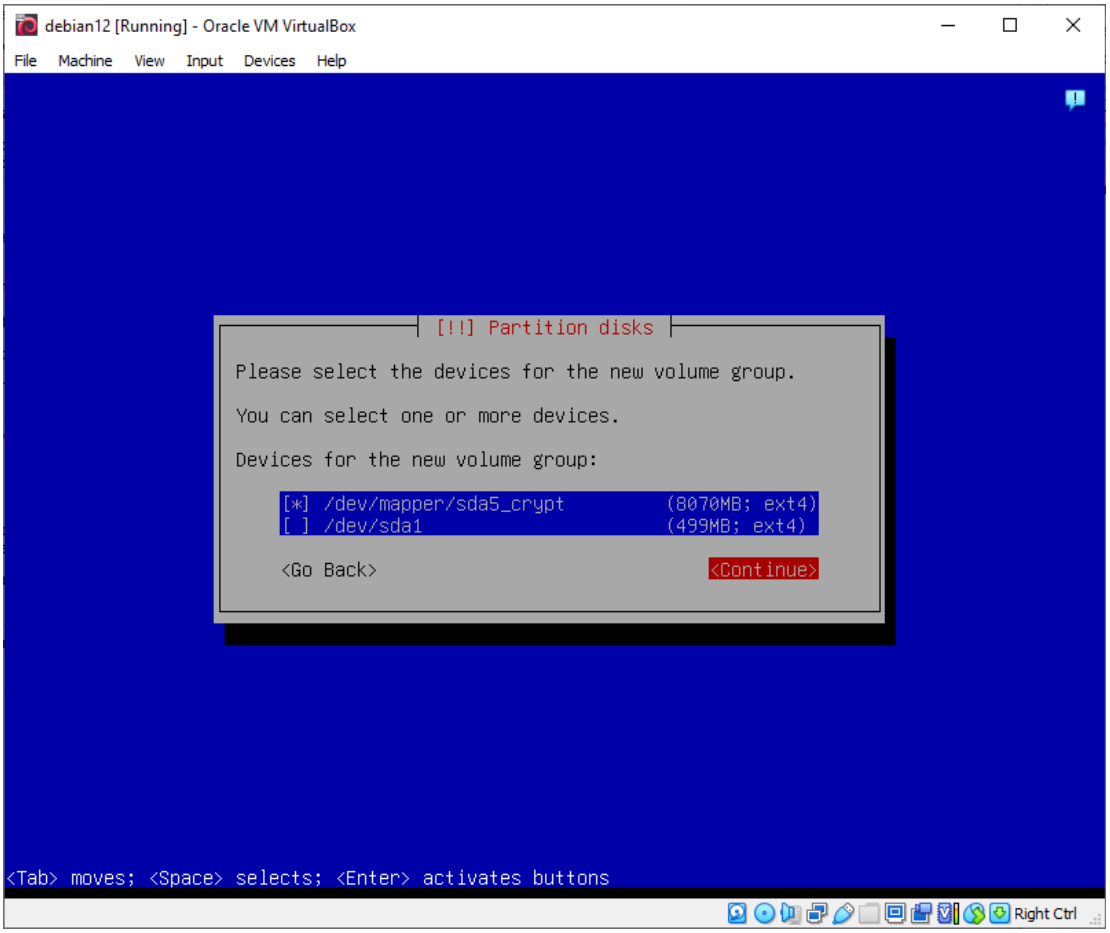

debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[!!] Partition disks

Summary of current LVM configuration:

 Free Physical Volumes:  0
 Used Physical Volumes:  0
 Volume Groups:          0
 Logical Volumes:        0

LVM configuration action:

     Display configuration details
     Create volume group
     Finish

    <Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```

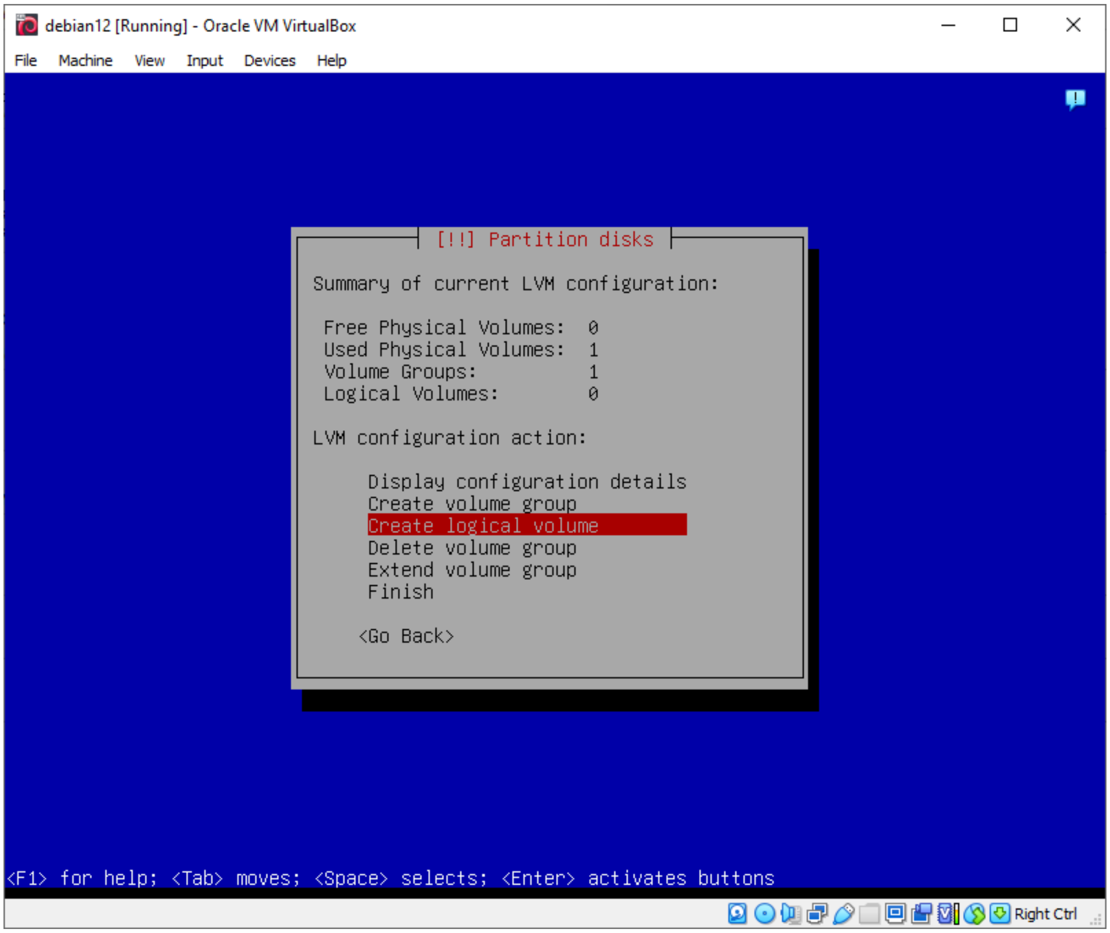

debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[!!] Partition disks

Please enter the name you would like to use for the new volume group.

Volume group name:

sda5_crypt

    <Go Back>                                             <Continue>

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

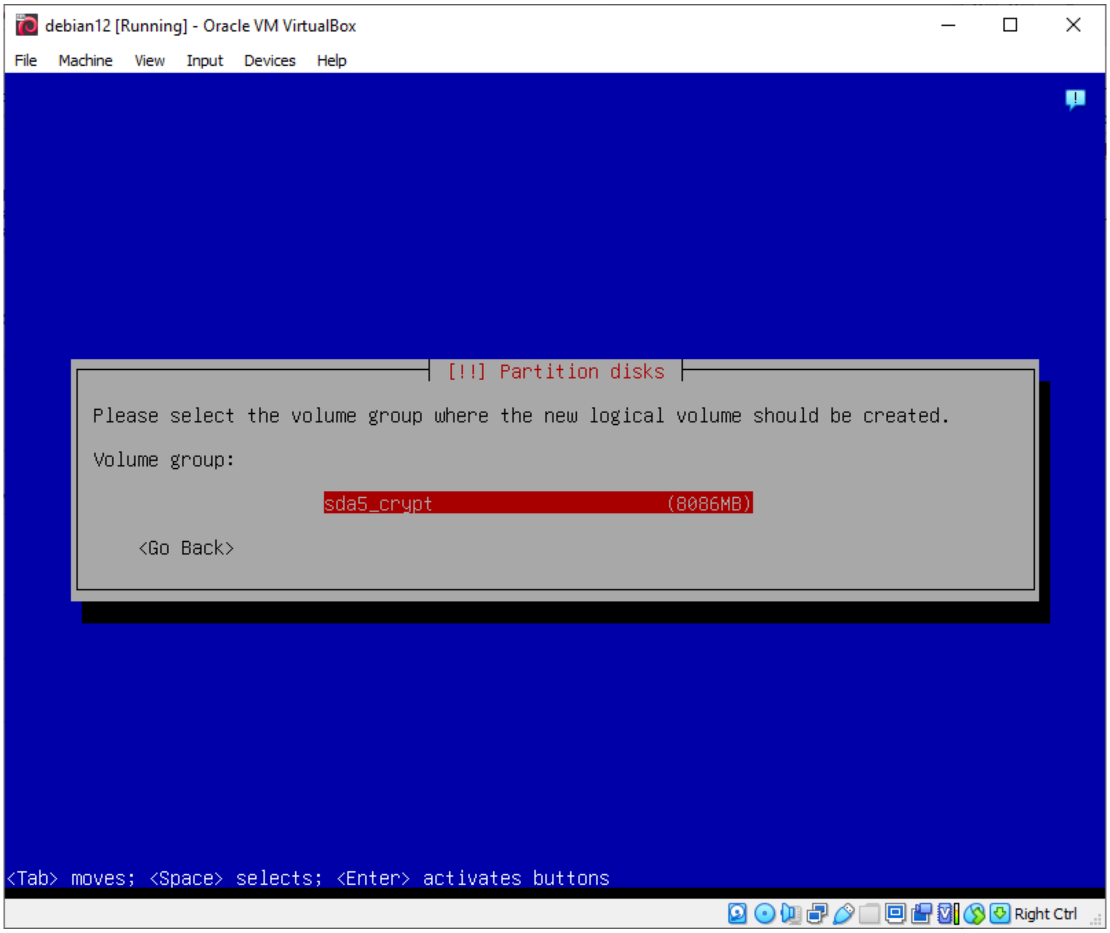
Select /dev/mapper/sda5_crypt



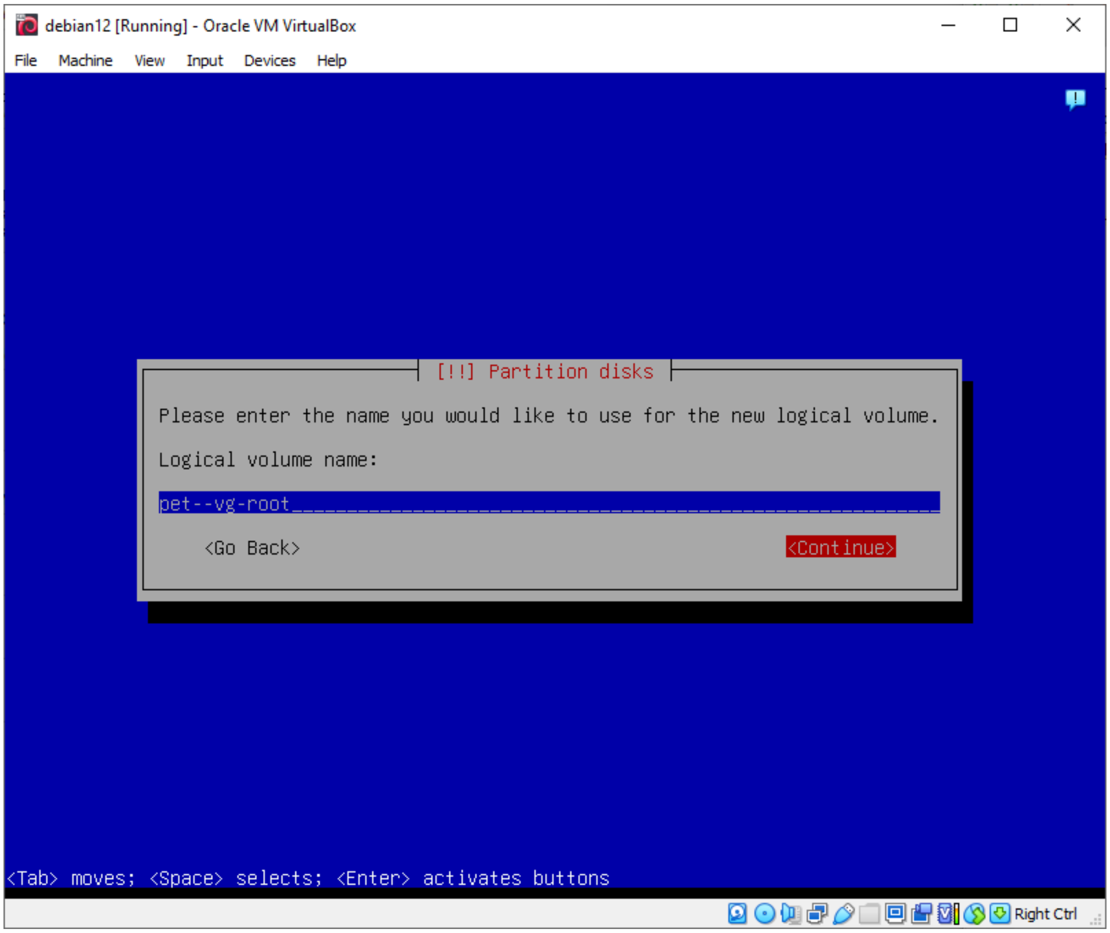
```
[!!] Partition disks

Please select the devices for the new volume group.

You can select one or more devices.

Devices for the new volume group:

    [*] /dev/mapper/sda5_crypt            (8070MB; ext4)
    [ ] /dev/sda1                         (499MB; ext4)

    <Go Back>                                <Continue>

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



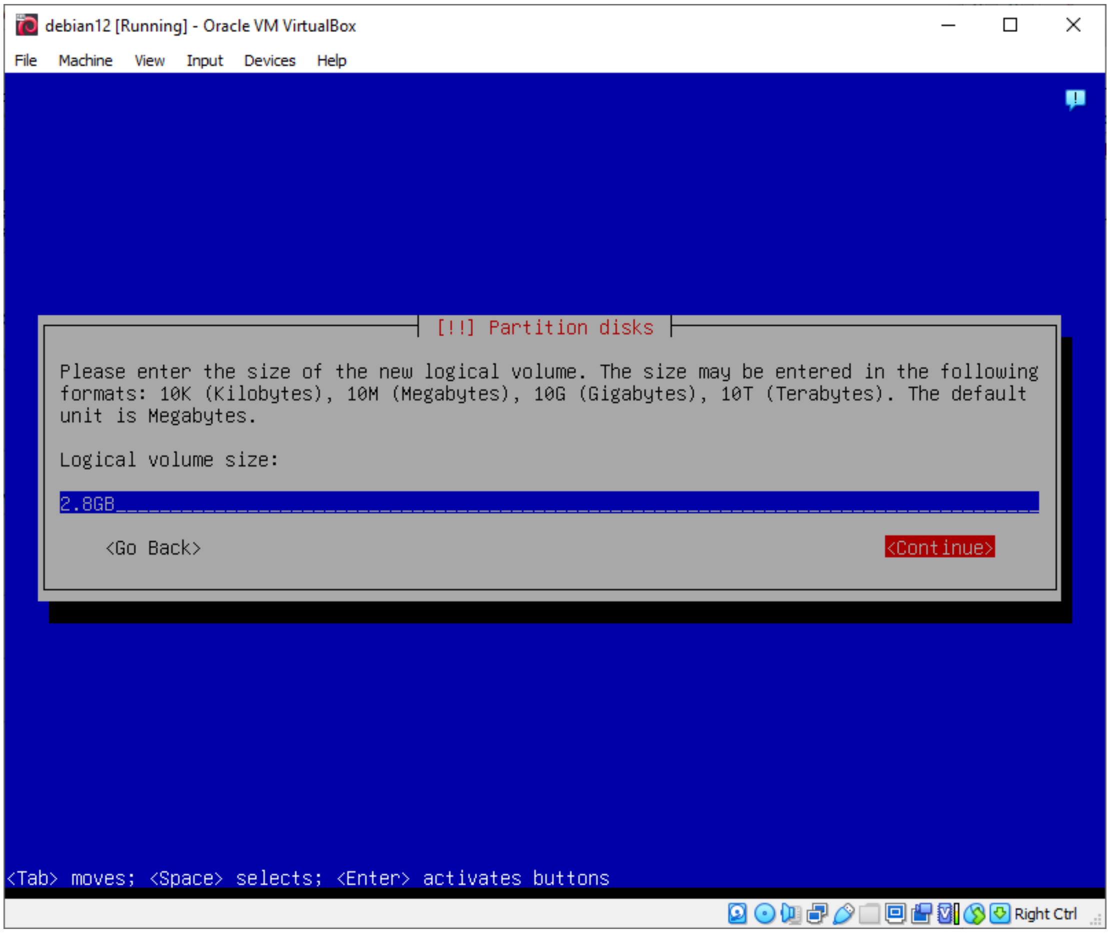
```
[!!] Partition disks

Summary of current LVM configuration:

 Free Physical Volumes:  0
 Used Physical Volumes:  1
 Volume Groups:          1
 Logical Volumes:        0

LVM configuration action:

     Display configuration details
     Create volume group
     Create logical volume
     Delete volume group
     Extend volume group
     Finish

    <Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

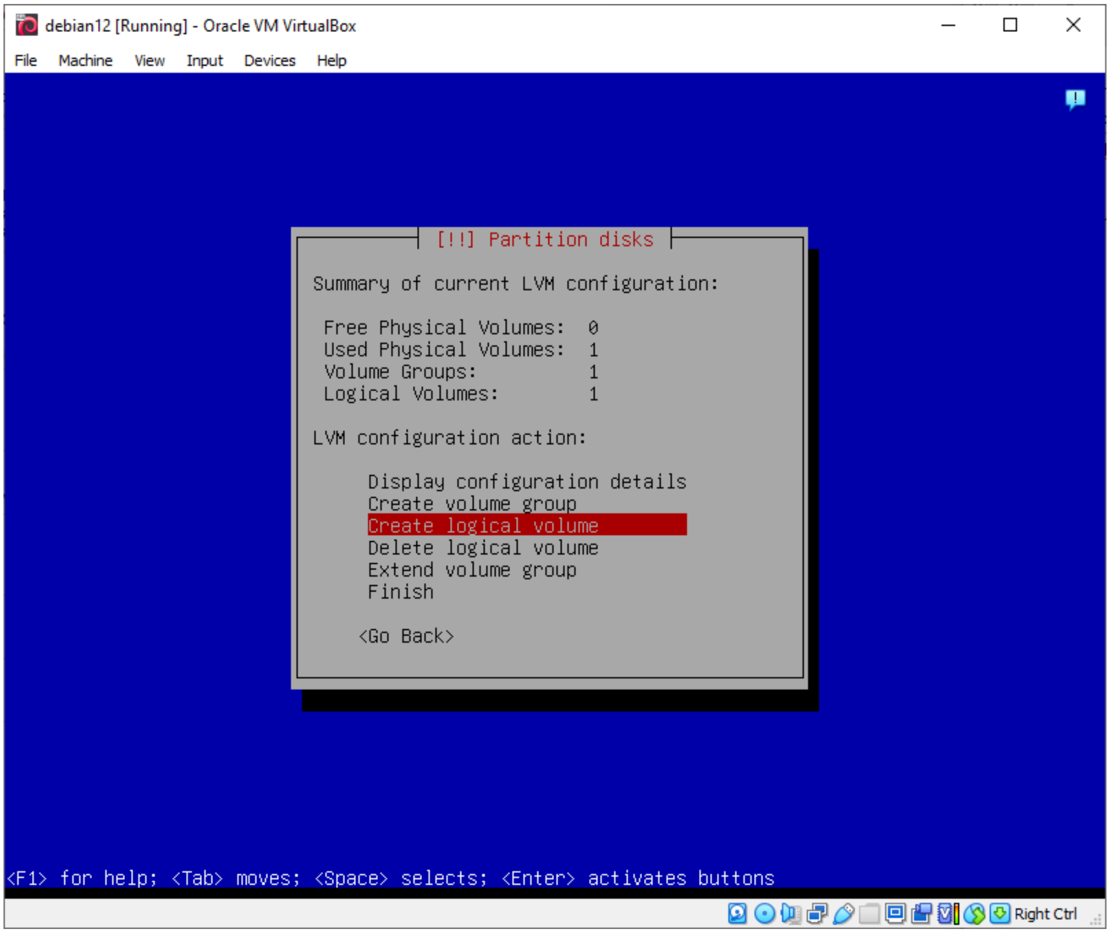
```
[!!] Partition disks

Please select the volume group where the new logical volume should be created.

Volume group:

                sda5_crypt                     (8086MB)

    <Go Back>

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


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

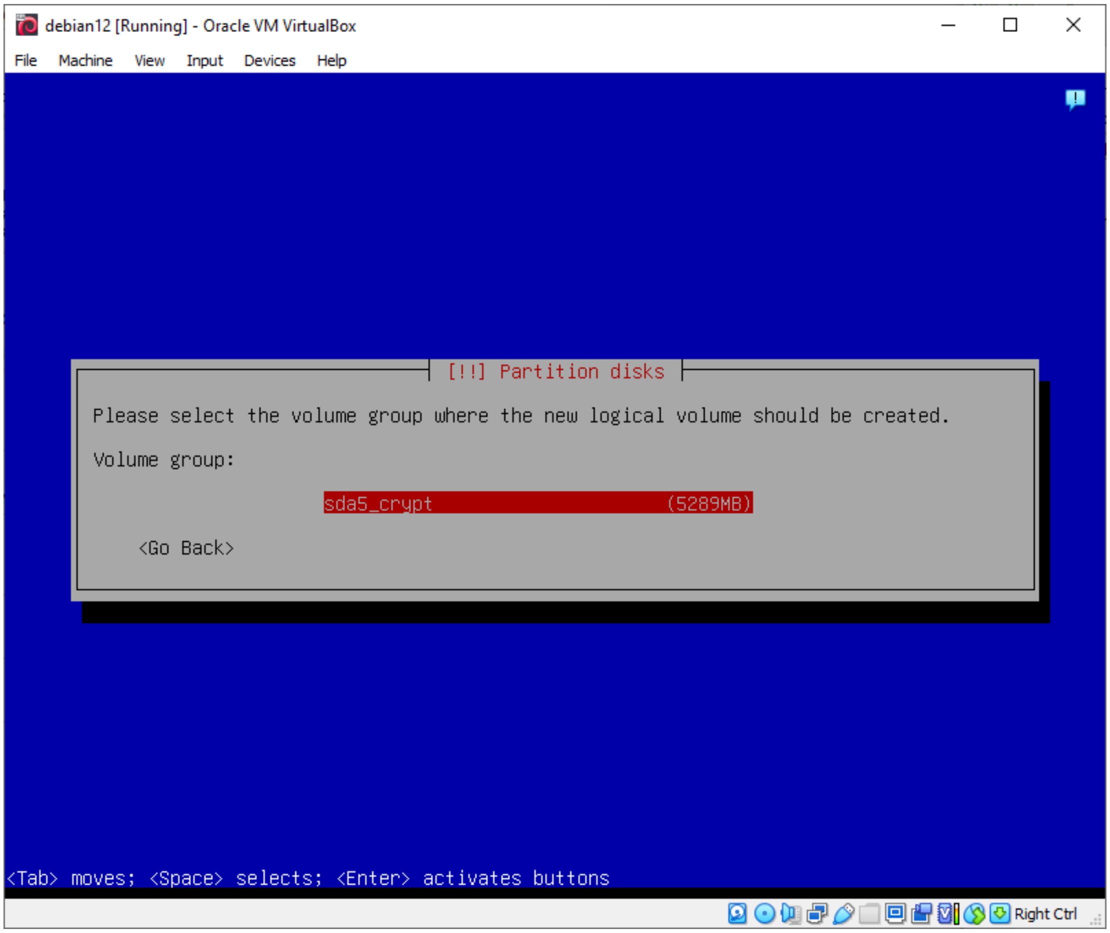
```
[!!] Partition disks

Please enter the name you would like to use for the new logical volume.

Logical volume name:

pet--vg-root___________________________________________________________

    <Go Back>                                              <Continue>

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



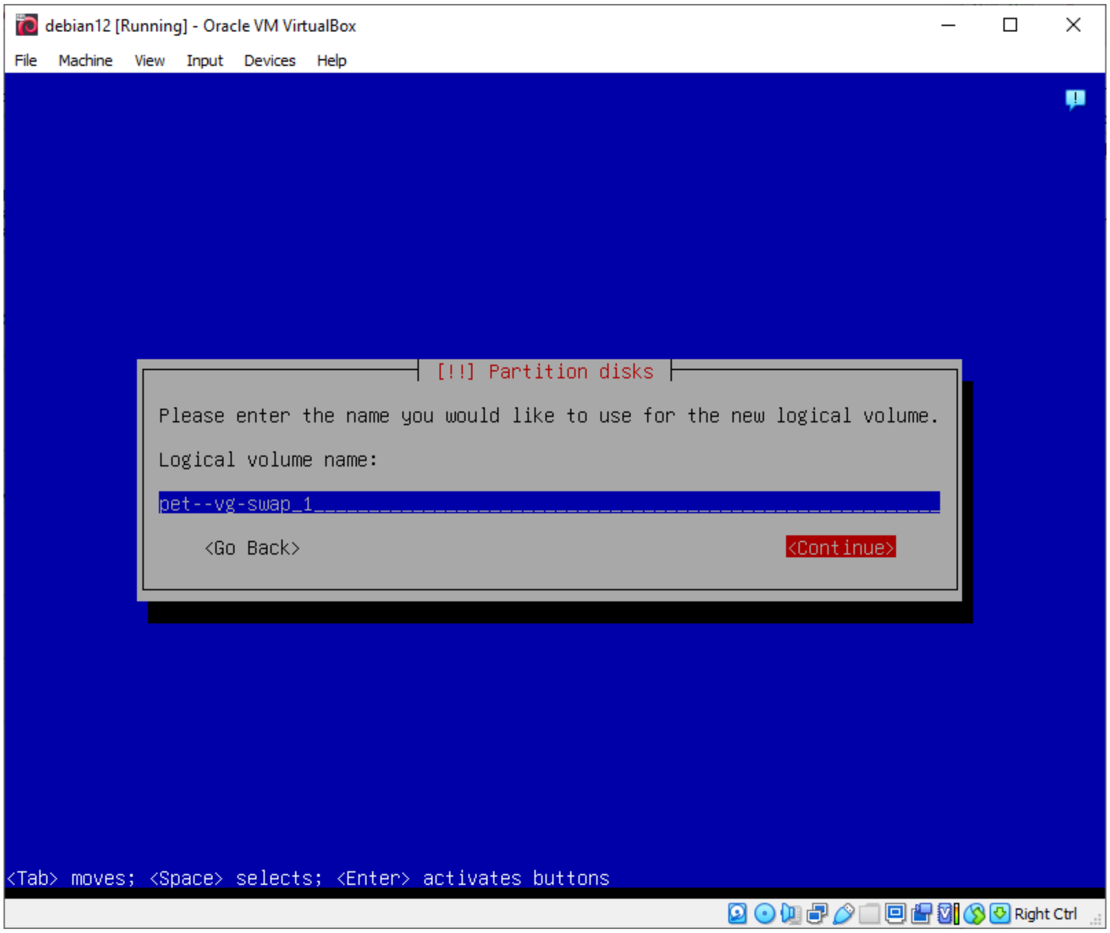
```
[!!] Partition disks

Please enter the size of the new logical volume. The size may be entered in the following
formats: 10K (Kilobytes), 10M (Megabytes), 10G (Gigabytes), 10T (Terabytes). The default
unit is Megabytes.

Logical volume size:

2.8GB

    <Go Back>                                                                  <Continue>

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



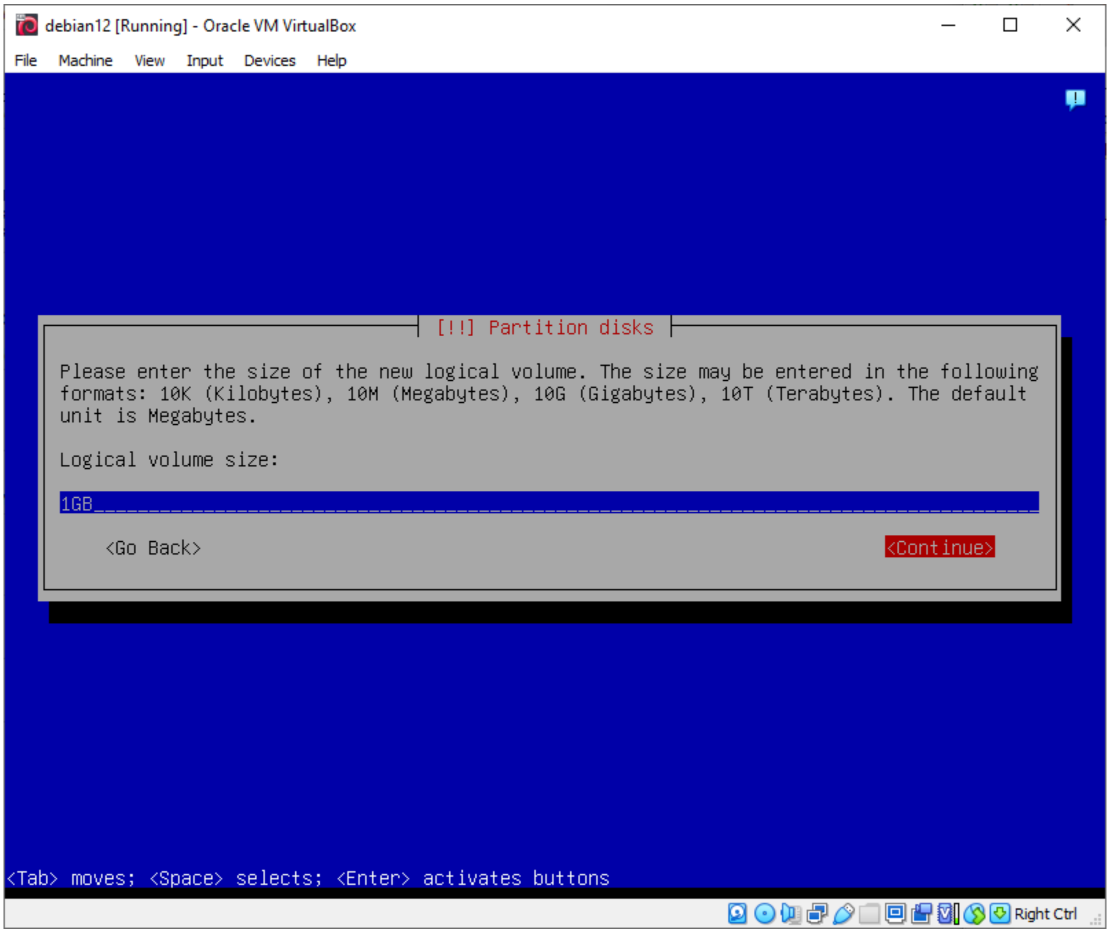
```
[!!] Partition disks

Summary of current LVM configuration:

 Free Physical Volumes:  0
 Used Physical Volumes:  1
 Volume Groups:          1
 Logical Volumes:        1

LVM configuration action:

     Display configuration details
     Create volume group
     Create logical volume
     Delete logical volume
     Extend volume group
     Finish

    <Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

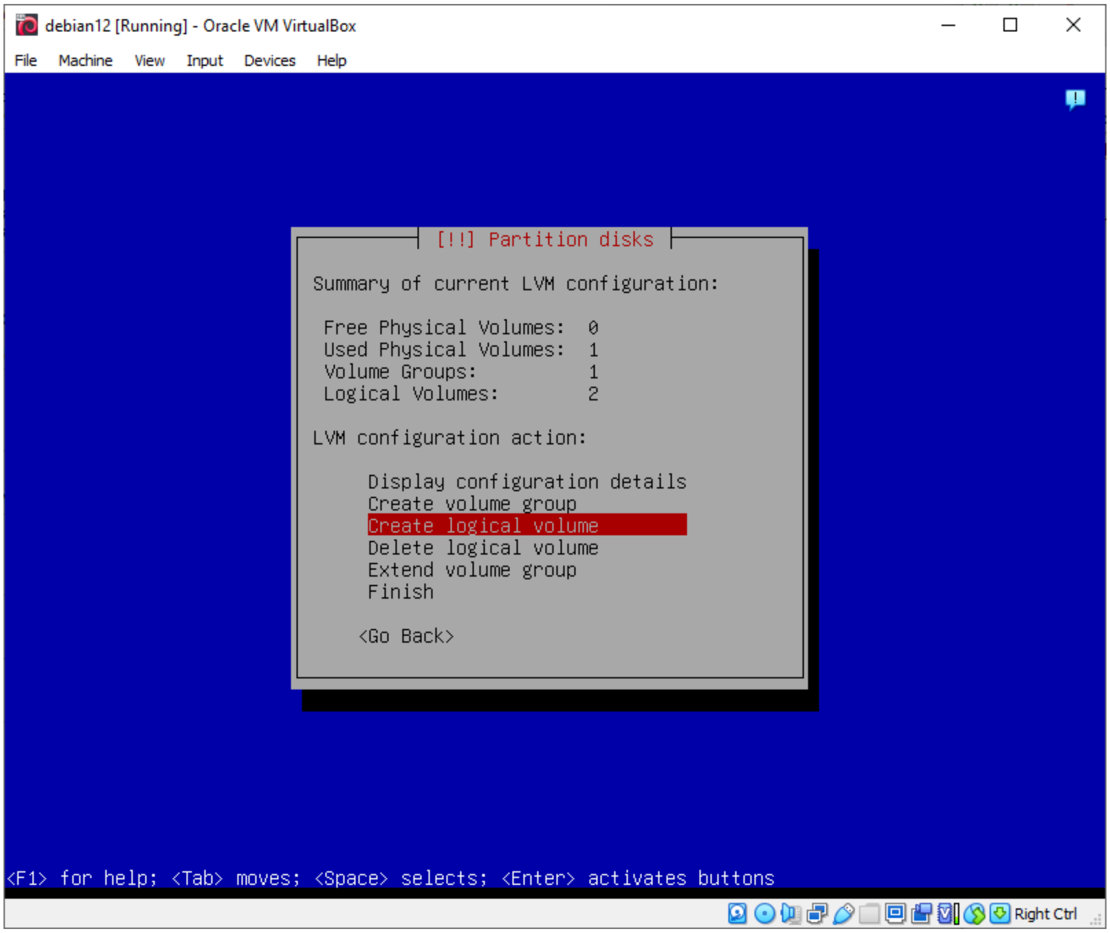
```
[!!] Partition disks

Please select the volume group where the new logical volume should be created.

Volume group:

              sda5_crypt                 (5289MB)

    <Go Back>

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


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

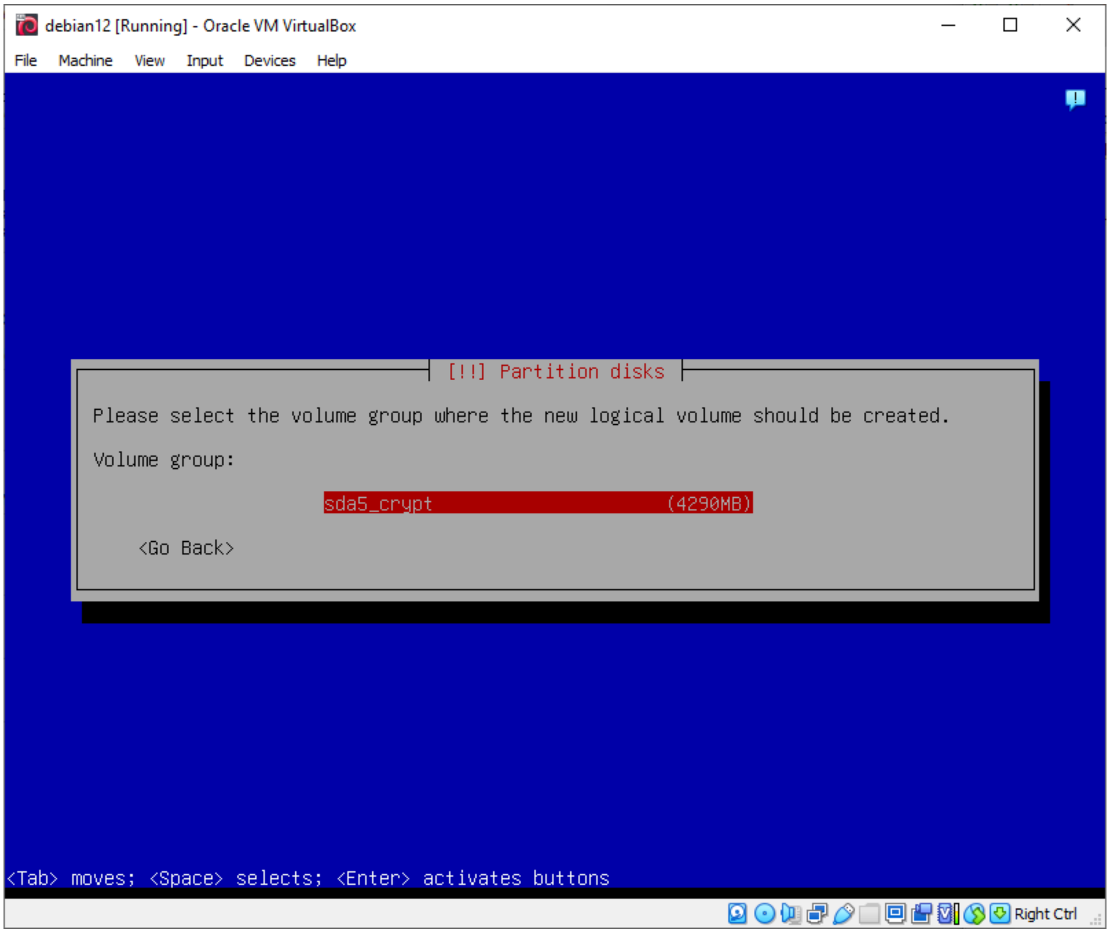
```
[!!] Partition disks

Please enter the name you would like to use for the new logical volume.

Logical volume name:

pet--vg-swap_1_______________________________________________

    <Go Back>                                    <Continue>

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


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

```
[!!] Partition disks

Please enter the size of the new logical volume. The size may be entered in the following
formats: 10K (Kilobytes), 10M (Megabytes), 10G (Gigabytes), 10T (Terabytes). The default
unit is Megabytes.

Logical volume size:

1GB_______________________________________________________________________________________

    <Go Back>                                                                 <Continue>

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

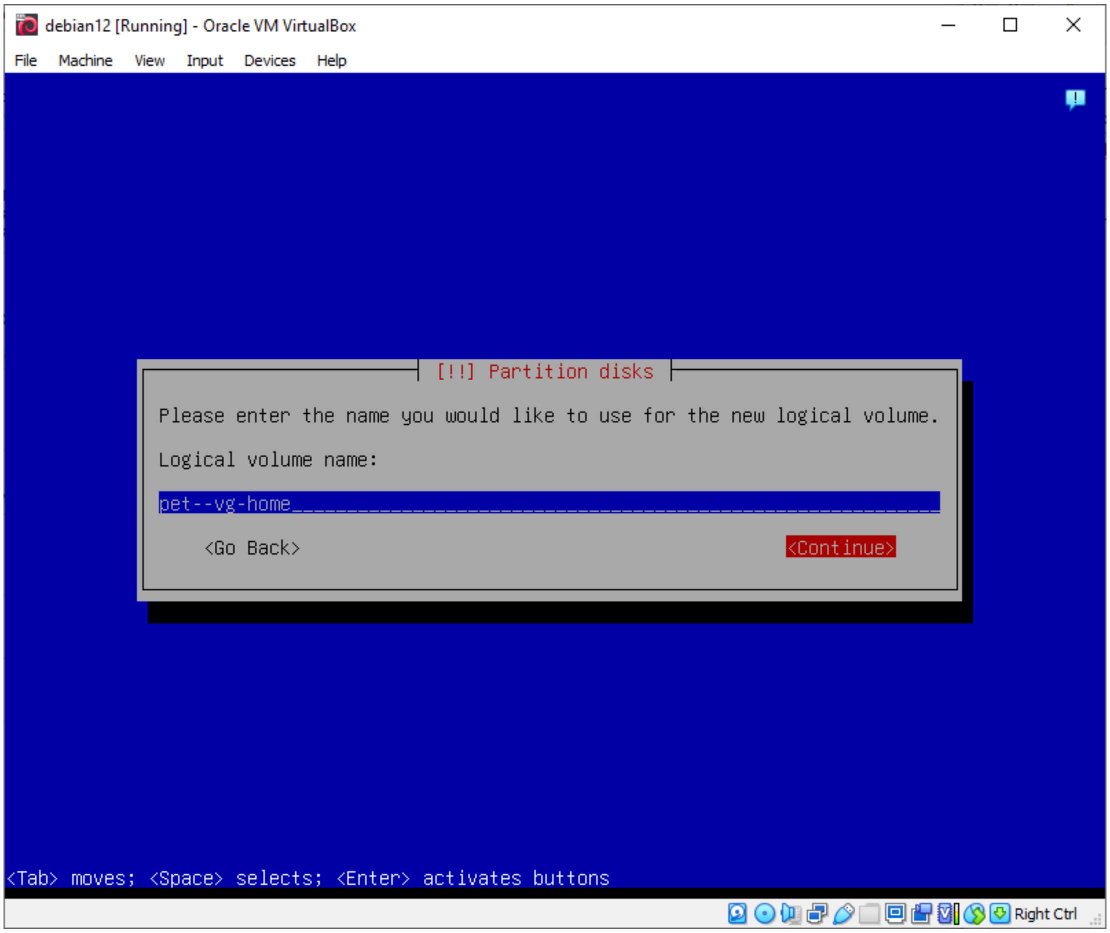

debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

```
[!!] Partition disks

Summary of current LVM configuration:

 Free Physical Volumes:  0
 Used Physical Volumes:  1
 Volume Groups:          1
 Logical Volumes:        2

LVM configuration action:

     Display configuration details
     Create volume group
     Create logical volume
     Delete logical volume
     Extend volume group
     Finish

    <Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

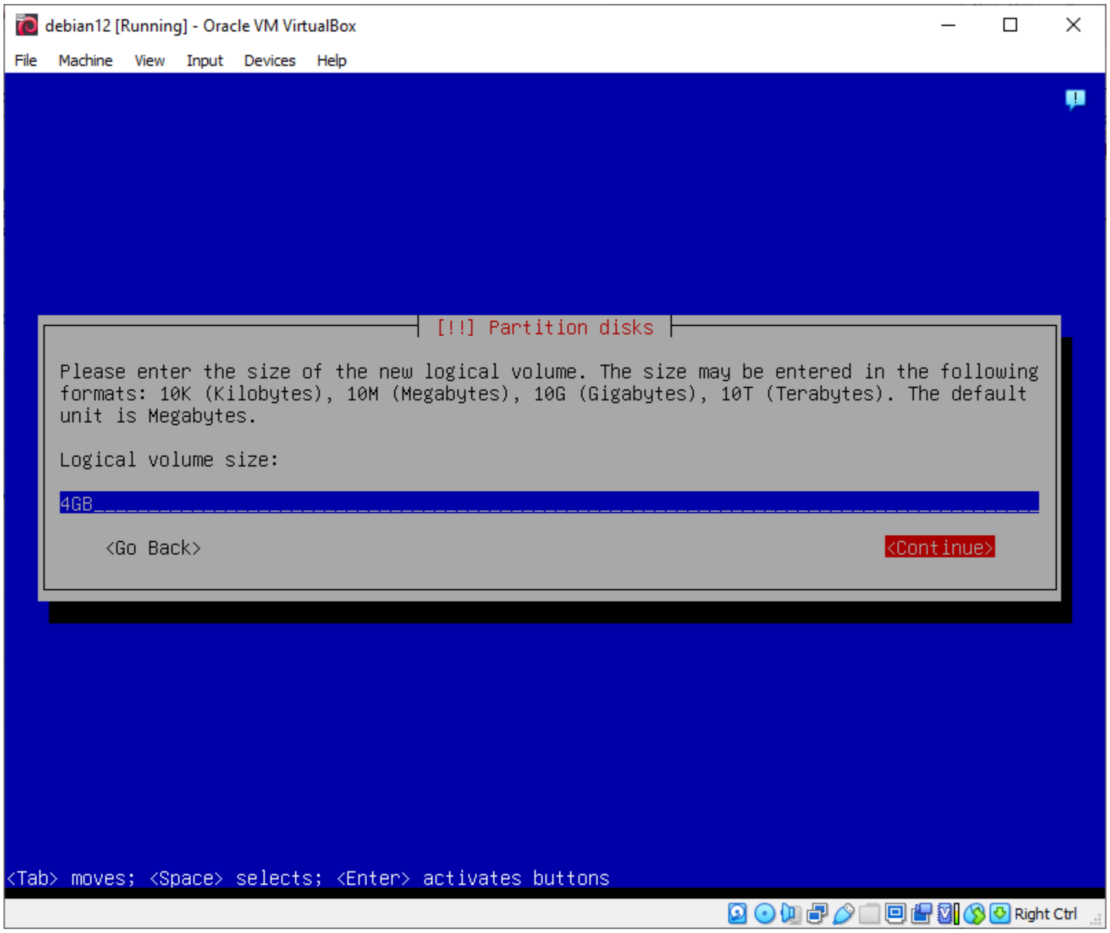
```
[!!] Partition disks

Please select the volume group where the new logical volume should be created.

Volume group:

                  sda5_crypt                    (4290MB)

     <Go Back>
```

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


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

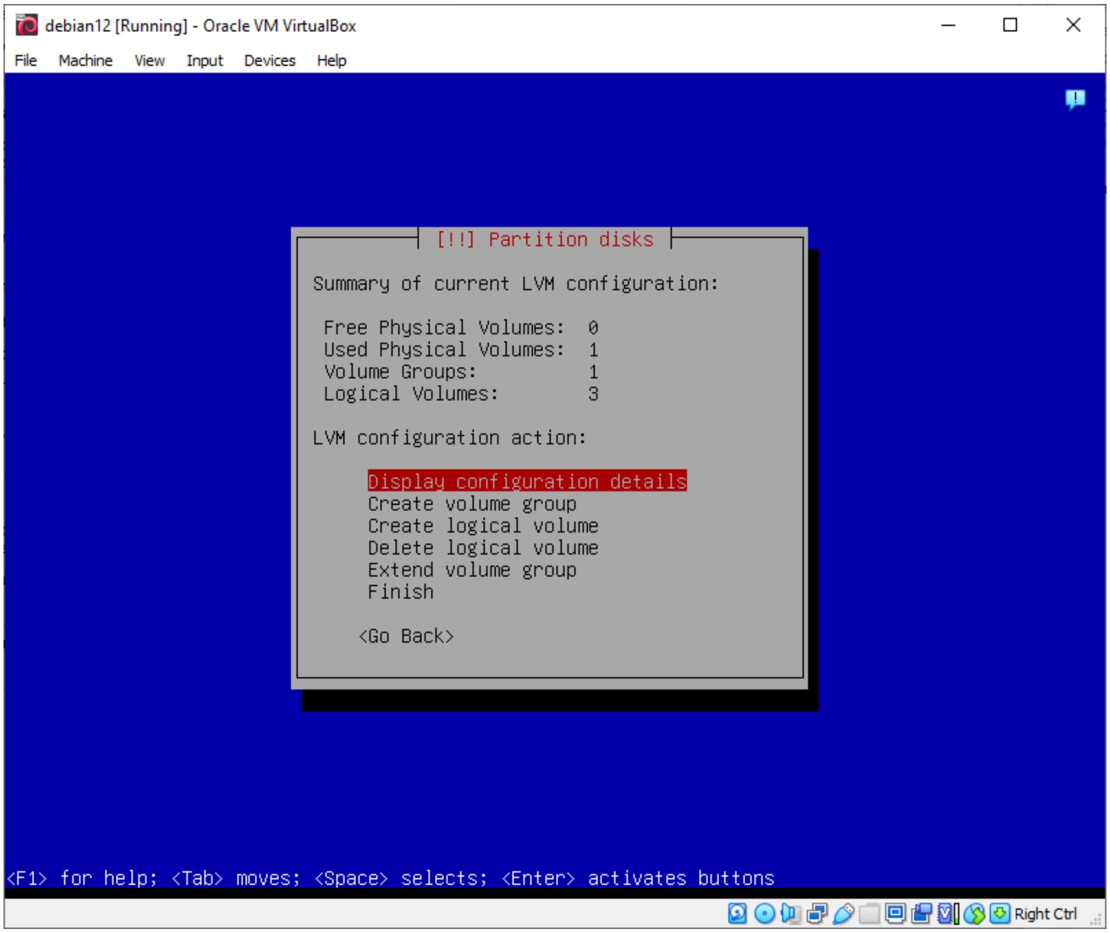
```
[!!] Partition disks

Please enter the name you would like to use for the new logical volume.

Logical volume name:

pet--vg-home_______________________________________________________

     <Go Back>                                            <Continue>
```

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

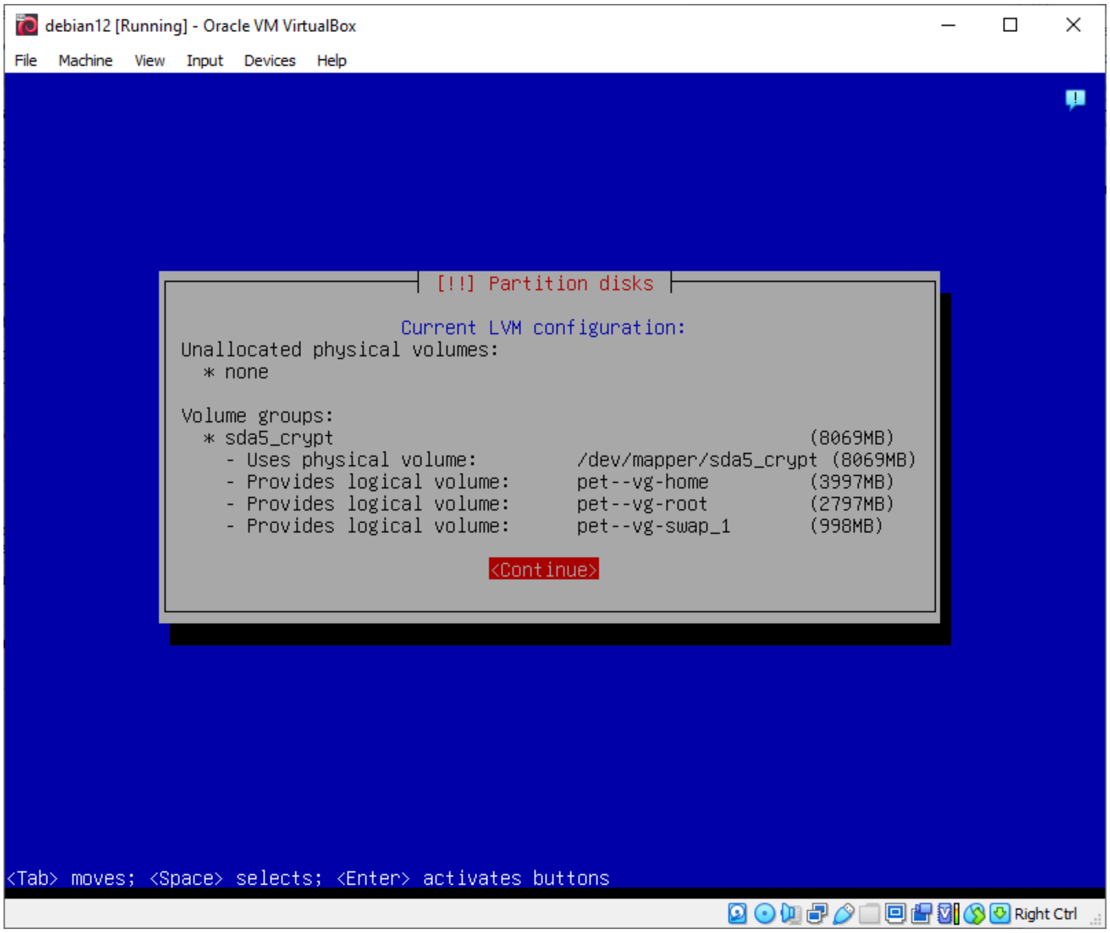


```
[!!] Partition disks

Please enter the size of the new logical volume. The size may be entered in the following
formats: 10K (Kilobytes), 10M (Megabytes), 10G (Gigabytes), 10T (Terabytes). The default
unit is Megabytes.

Logical volume size:

4GB

    <Go Back>                                                              <Continue>

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

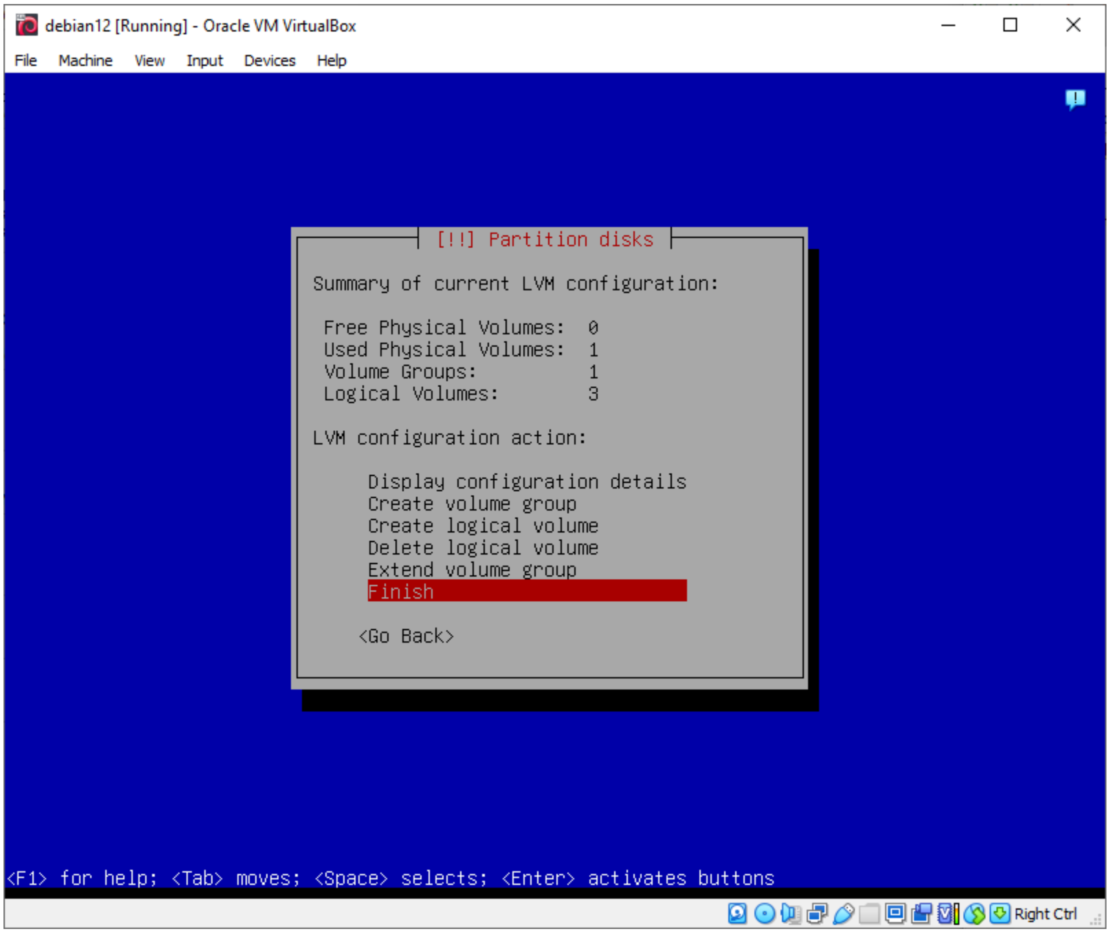
Display configuration values to verify configuration



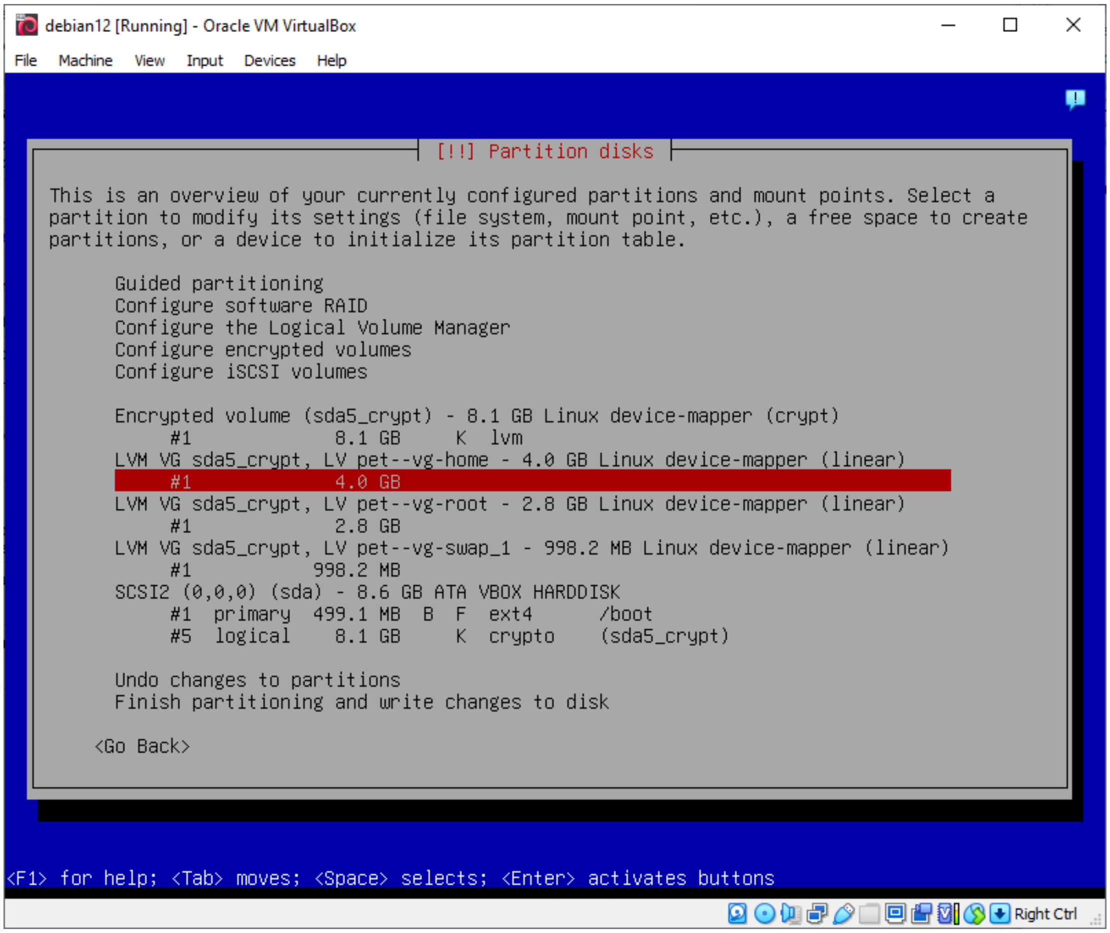
```
[!!] Partition disks

Summary of current LVM configuration:

 Free Physical Volumes:  0
 Used Physical Volumes:  1
 Volume Groups:          1
 Logical Volumes:        3

LVM configuration action:

     Display configuration details
     Create volume group
     Create logical volume
     Delete logical volume
     Extend volume group
     Finish

    <Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

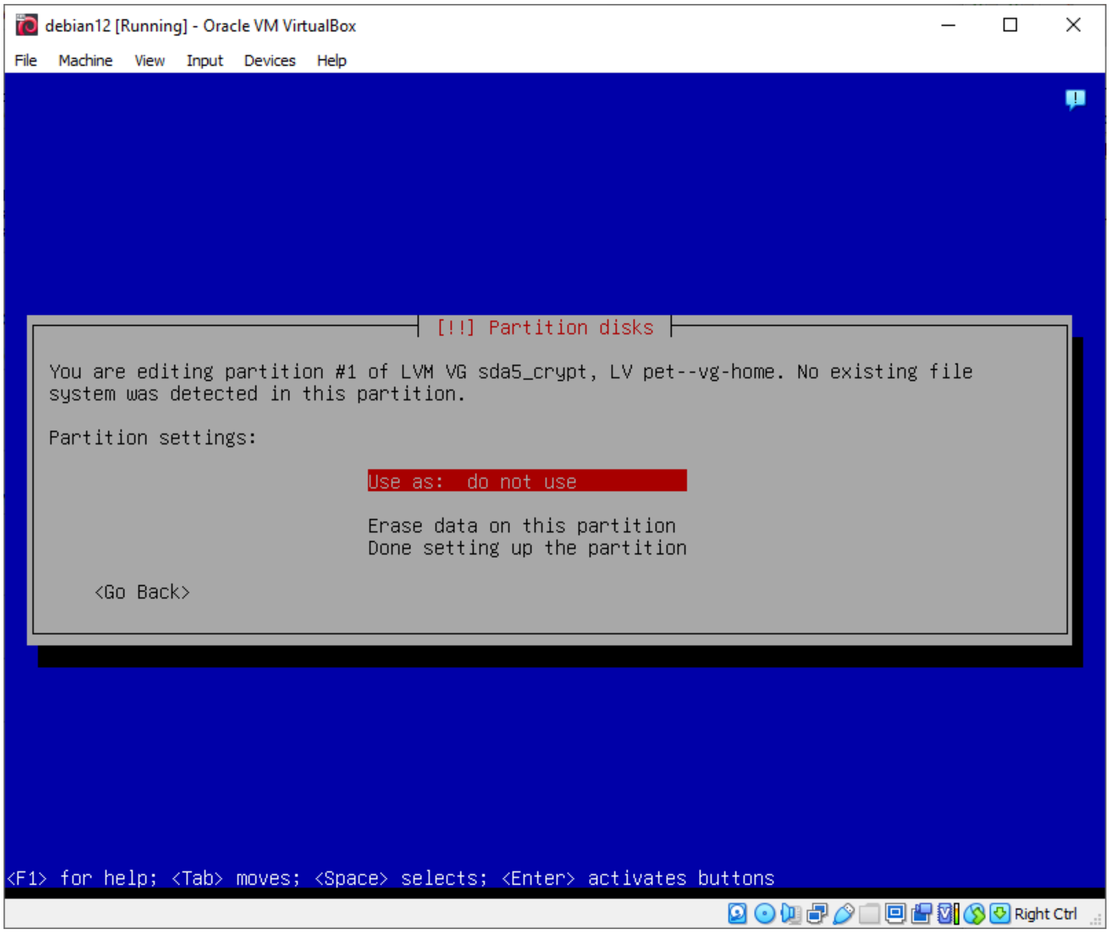
```
[!!] Partition disks

                  Current LVM configuration:
Unallocated physical volumes:
  * none

Volume groups:
  * sda5_crypt                                          (8069MB)
    - Uses physical volume:        /dev/mapper/sda5_crypt  (8069MB)
    - Provides logical volume:     pet--vg-home            (3997MB)
    - Provides logical volume:     pet--vg-root            (2797MB)
    - Provides logical volume:     pet--vg-swap_1          (998MB)

                          <Continue>

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


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

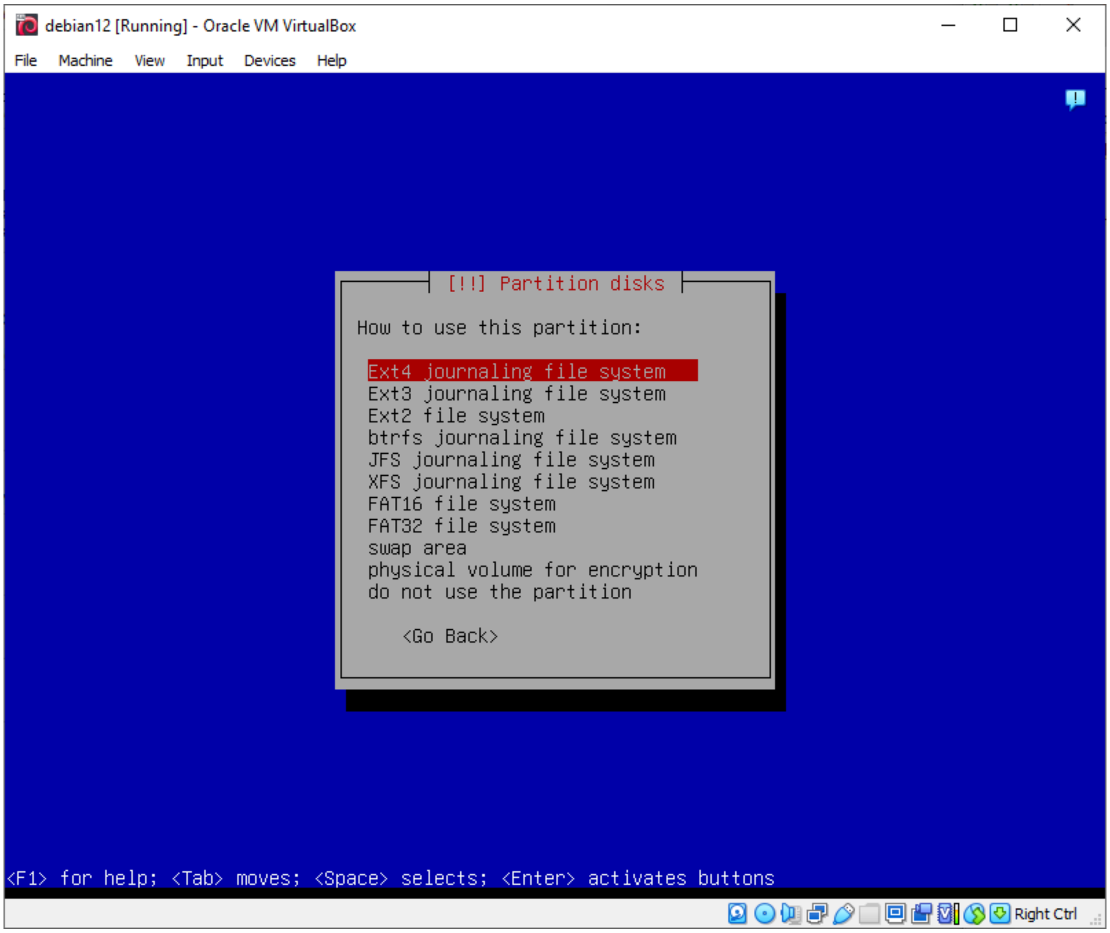
```
[!!] Partition disks

Summary of current LVM configuration:

 Free Physical Volumes:  0
 Used Physical Volumes:  1
 Volume Groups:          1
 Logical Volumes:        3

LVM configuration action:

     Display configuration details
     Create volume group
     Create logical volume
     Delete logical volume
     Extend volume group
     Finish

    <Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
                         [!!] Partition disks

This is an overview of your currently configured partitions and mount points. Select a
partition to modify its settings (file system, mount point, etc.), a free space to create
partitions, or a device to initialize its partition table.

      Guided partitioning
      Configure software RAID
      Configure the Logical Volume Manager
      Configure encrypted volumes
      Configure iSCSI volumes

      Encrypted volume (sda5_crypt) - 8.1 GB Linux device-mapper (crypt)
           #1              8.1 GB     K  lvm
      LVM VG sda5_crypt, LV pet--vg-home - 4.0 GB Linux device-mapper (linear)
           #1              4.0 GB
      LVM VG sda5_crypt, LV pet--vg-root - 2.8 GB Linux device-mapper (linear)
           #1              2.8 GB
      LVM VG sda5_crypt, LV pet--vg-swap_1 - 998.2 MB Linux device-mapper (linear)
           #1            998.2 MB
      SCSI2 (0,0,0) (sda) - 8.6 GB ATA VBOX HARDDISK
           #1  primary  499.1 MB  B  F  ext4      /boot
           #5  logical    8.1 GB     K  crypto    (sda5_crypt)

      Undo changes to partitions
      Finish partitioning and write changes to disk

    <Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```

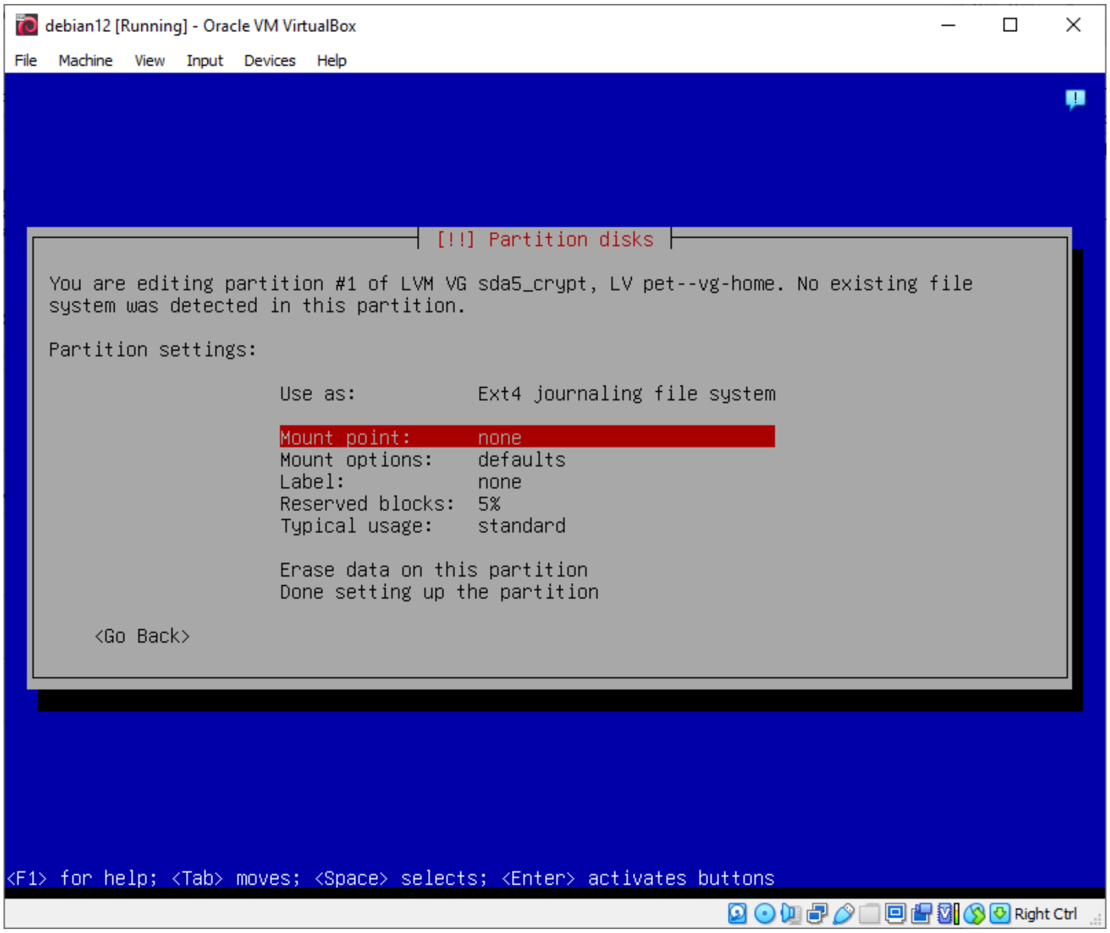

debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
                         [!!] Partition disks

You are editing partition #1 of LVM VG sda5_crypt, LV pet--vg-home. No existing file
system was detected in this partition.

Partition settings:

                             Use as:  do not use

                             Erase data on this partition
                             Done setting up the partition

    <Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```

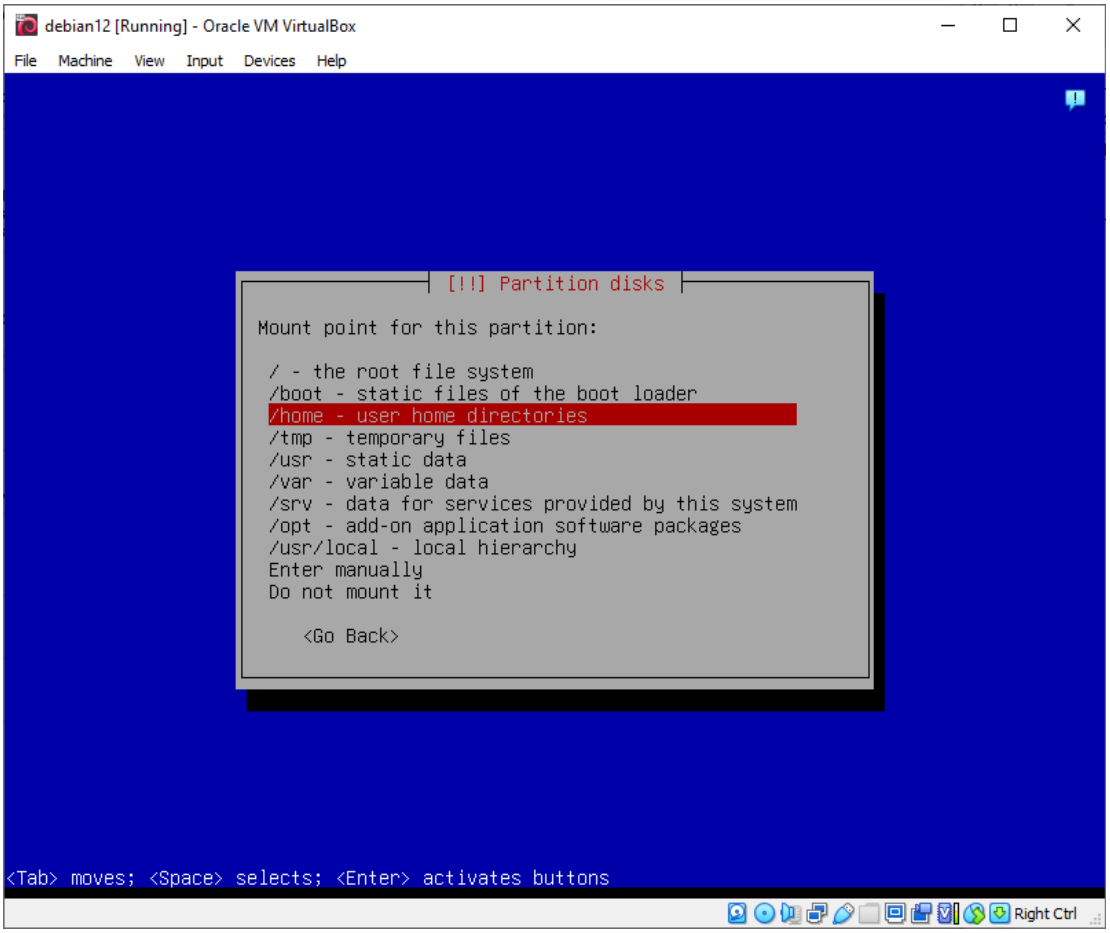

debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[!!] Partition disks

How to use this partition:

 Ext4 journaling file system
 Ext3 journaling file system
 Ext2 file system
 btrfs journaling file system
 JFS journaling file system
 XFS journaling file system
 FAT16 file system
 FAT32 file system
 swap area
 physical volume for encryption
 do not use the partition

    <Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```

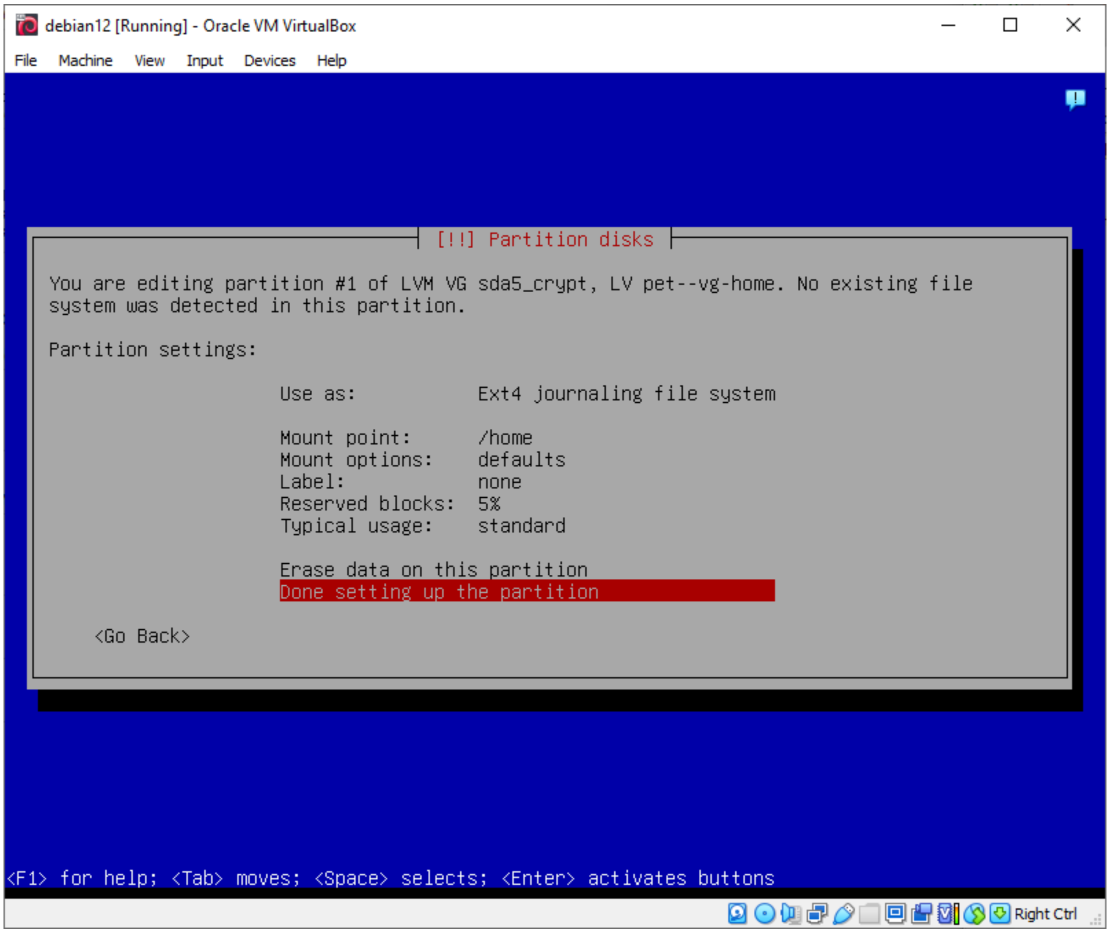
Select Mount Point and set to /home


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[!!] Partition disks

You are editing partition #1 of LVM VG sda5_crypt, LV pet--vg-home. No existing file
system was detected in this partition.

Partition settings:

                     Use as:           Ext4 journaling file system

                     Mount point:      none
                     Mount options:    defaults
                     Label:            none
                     Reserved blocks:  5%
                     Typical usage:    standard

                     Erase data on this partition
                     Done setting up the partition

    <Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```

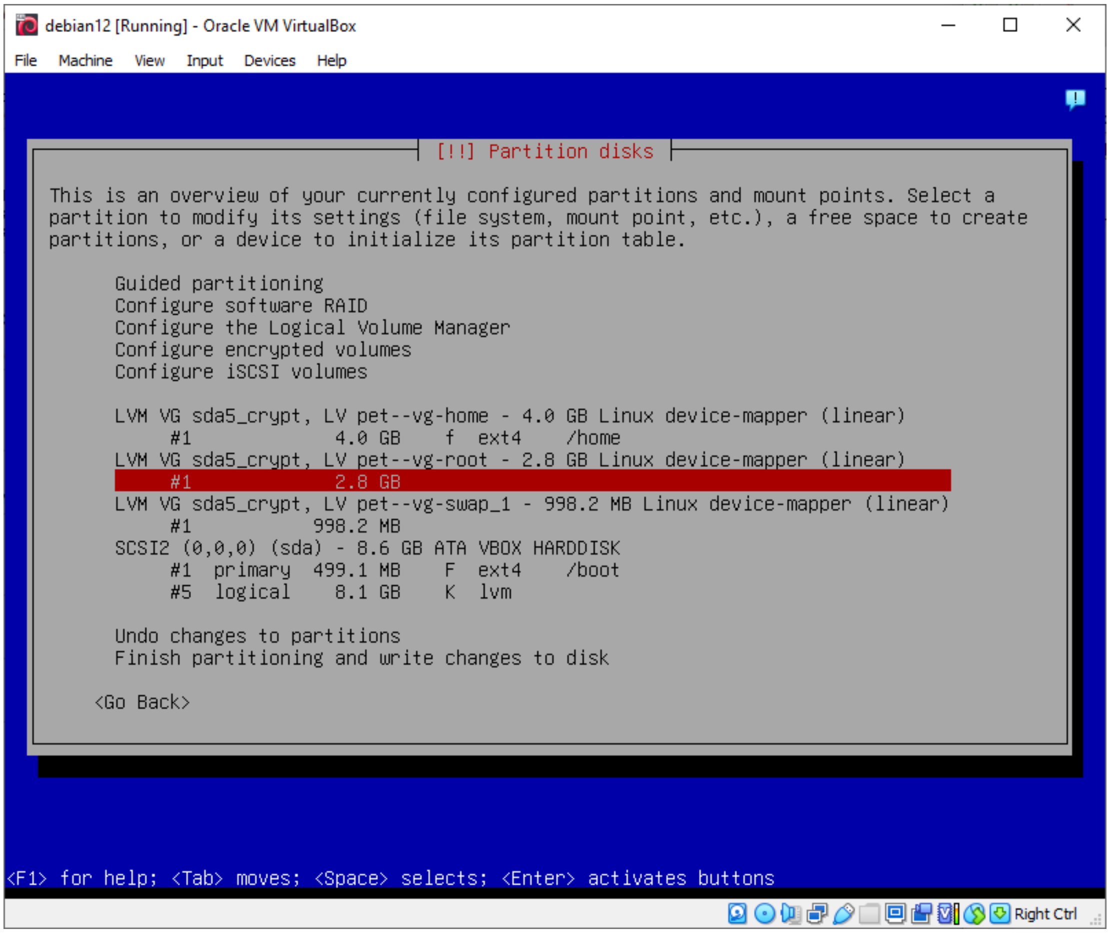


```
[!!] Partition disks

Mount point for this partition:

 / - the root file system
 /boot - static files of the boot loader
 /home - user home directories
 /tmp - temporary files
 /usr - static data
 /var - variable data
 /srv - data for services provided by this system
 /opt - add-on application software packages
 /usr/local - local hierarchy
 Enter manually
 Do not mount it

    <Go Back>

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

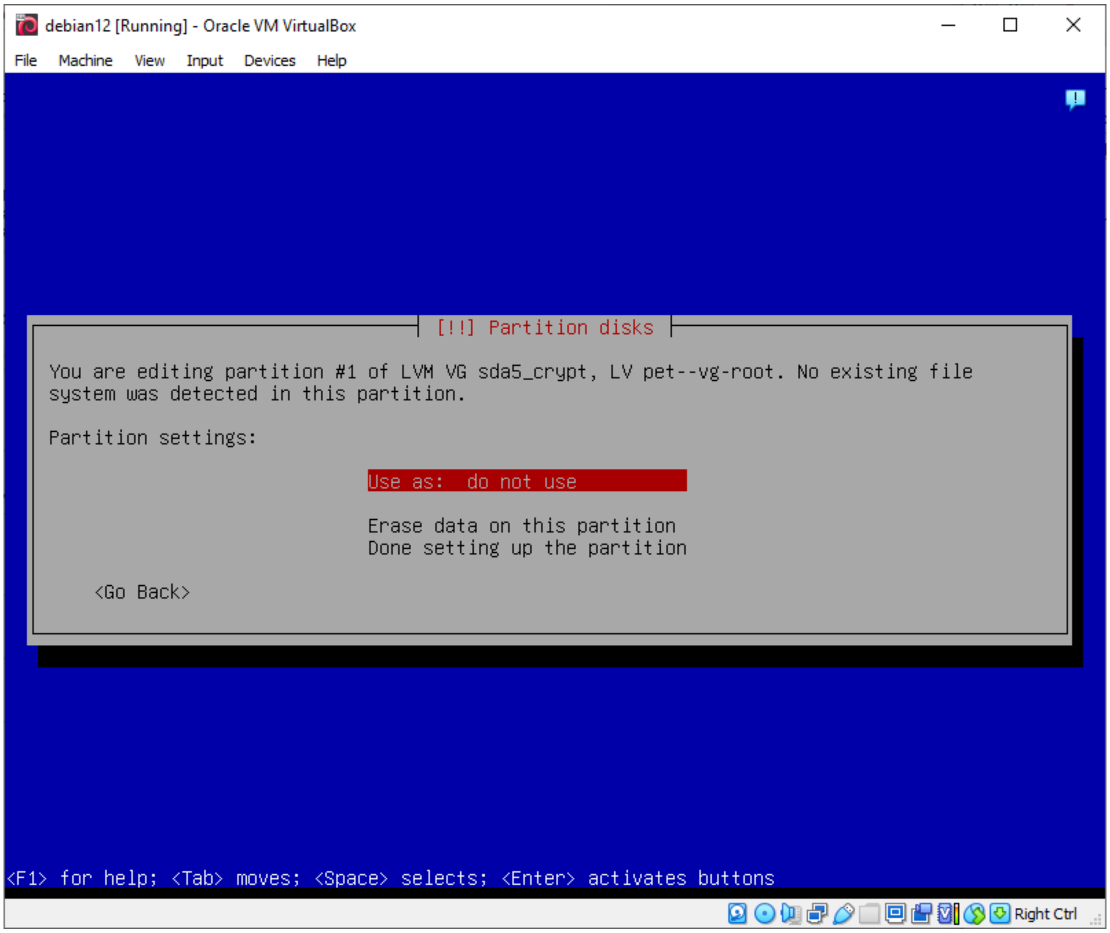


```
[!!] Partition disks

You are editing partition #1 of LVM VG sda5_crypt, LV pet--vg-home. No existing file
system was detected in this partition.

Partition settings:

                     Use as:          Ext4 journaling file system

                     Mount point:     /home
                     Mount options:   defaults
                     Label:           none
                     Reserved blocks: 5%
                     Typical usage:   standard

                     Erase data on this partition
                     Done setting up the partition

     <Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```

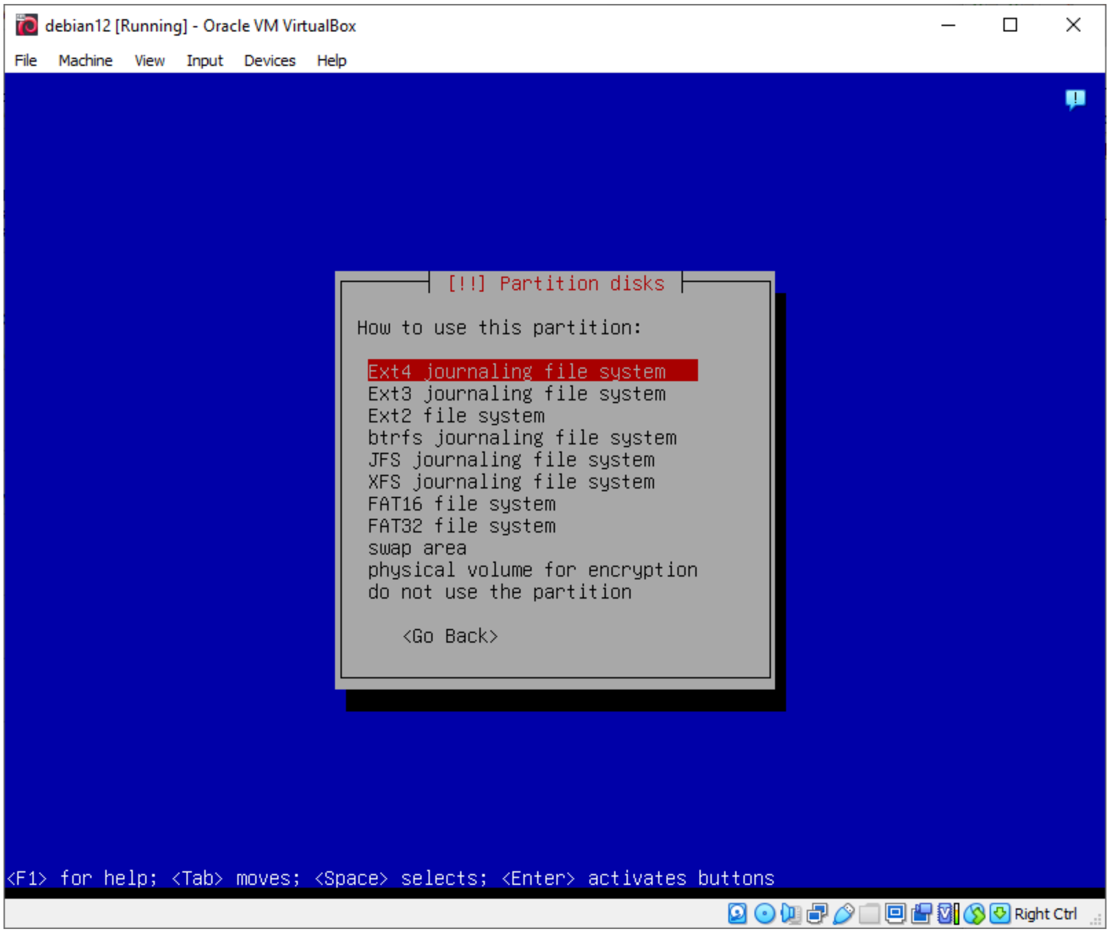
/ (root file system)


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
                              [!!] Partition disks

This is an overview of your currently configured partitions and mount points. Select a
partition to modify its settings (file system, mount point, etc.), a free space to create
partitions, or a device to initialize its partition table.

      Guided partitioning
      Configure software RAID
      Configure the Logical Volume Manager
      Configure encrypted volumes
      Configure iSCSI volumes

      LVM VG sda5_crypt, LV pet--vg-home - 4.0 GB Linux device-mapper (linear)
           #1              4.0 GB     f  ext4     /home
      LVM VG sda5_crypt, LV pet--vg-root - 2.8 GB Linux device-mapper (linear)
           #1              2.8 GB
      LVM VG sda5_crypt, LV pet--vg-swap_1 - 998.2 MB Linux device-mapper (linear)
           #1            998.2 MB
      SCSI2 (0,0,0) (sda) - 8.6 GB ATA VBOX HARDDISK
           #1  primary   499.1 MB     F  ext4     /boot
           #5  logical     8.1 GB     K  lvm

      Undo changes to partitions
      Finish partitioning and write changes to disk

    <Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```

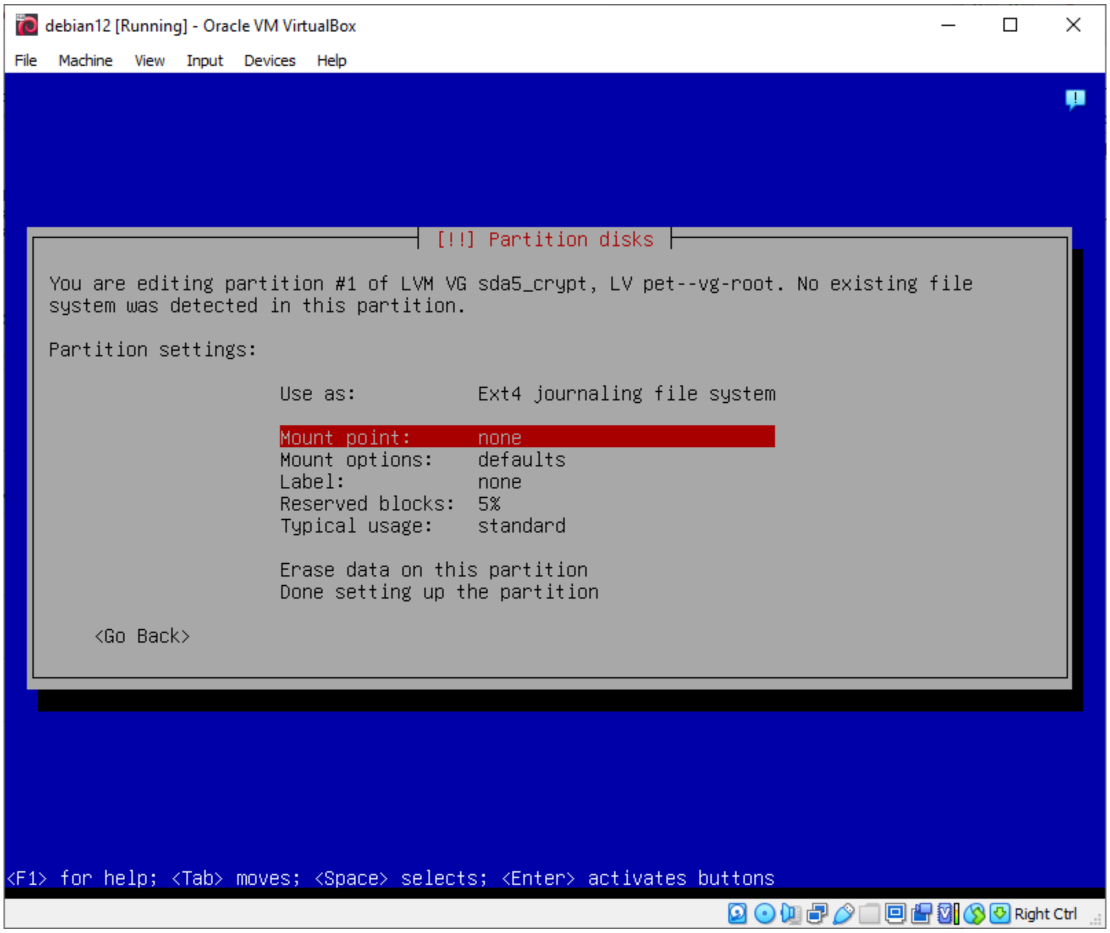

debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
                              [!!] Partition disks

You are editing partition #1 of LVM VG sda5_crypt, LV pet--vg-root. No existing file
system was detected in this partition.

Partition settings:

                             Use as:  do not use

                             Erase data on this partition
                             Done setting up the partition

    <Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```

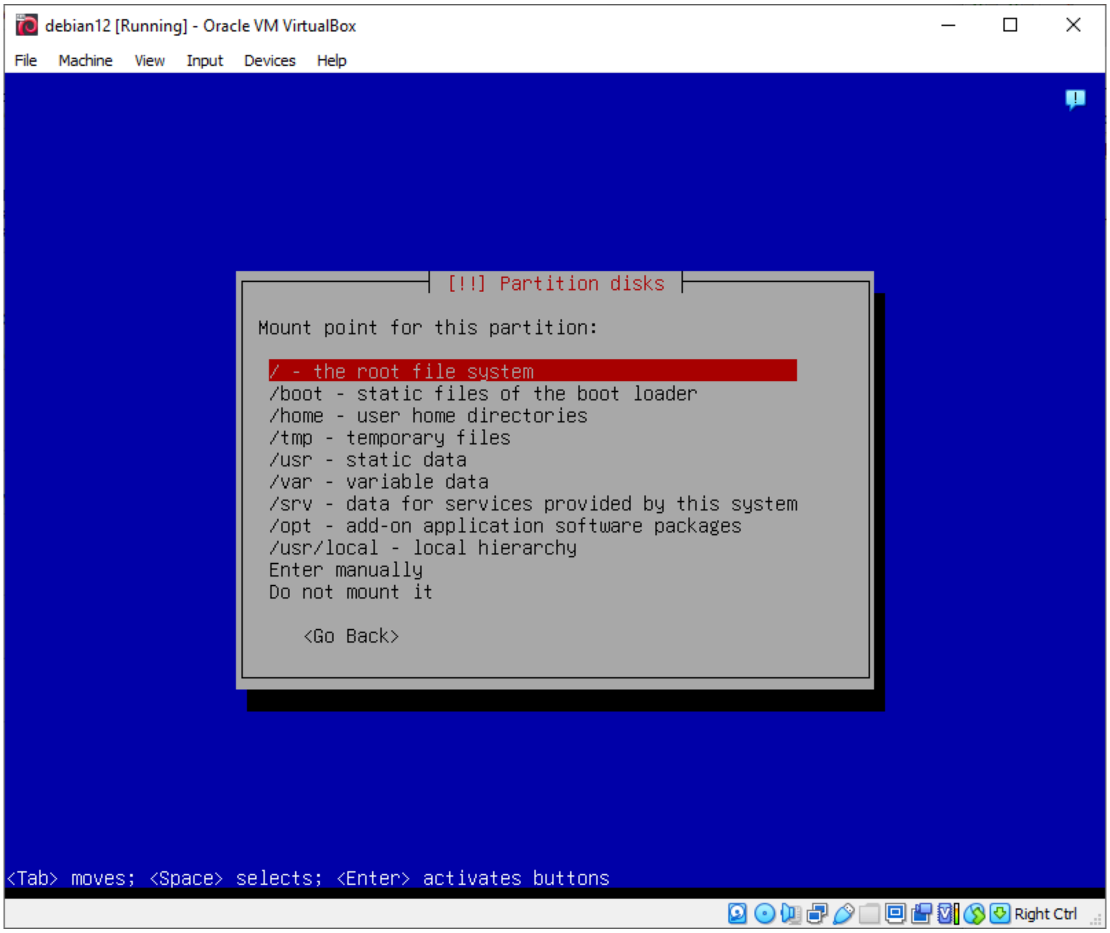


```
[!!] Partition disks

How to use this partition:

 Ext4 journaling file system
 Ext3 journaling file system
 Ext2 file system
 btrfs journaling file system
 JFS journaling file system
 XFS journaling file system
 FAT16 file system
 FAT32 file system
 swap area
 physical volume for encryption
 do not use the partition

    <Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```

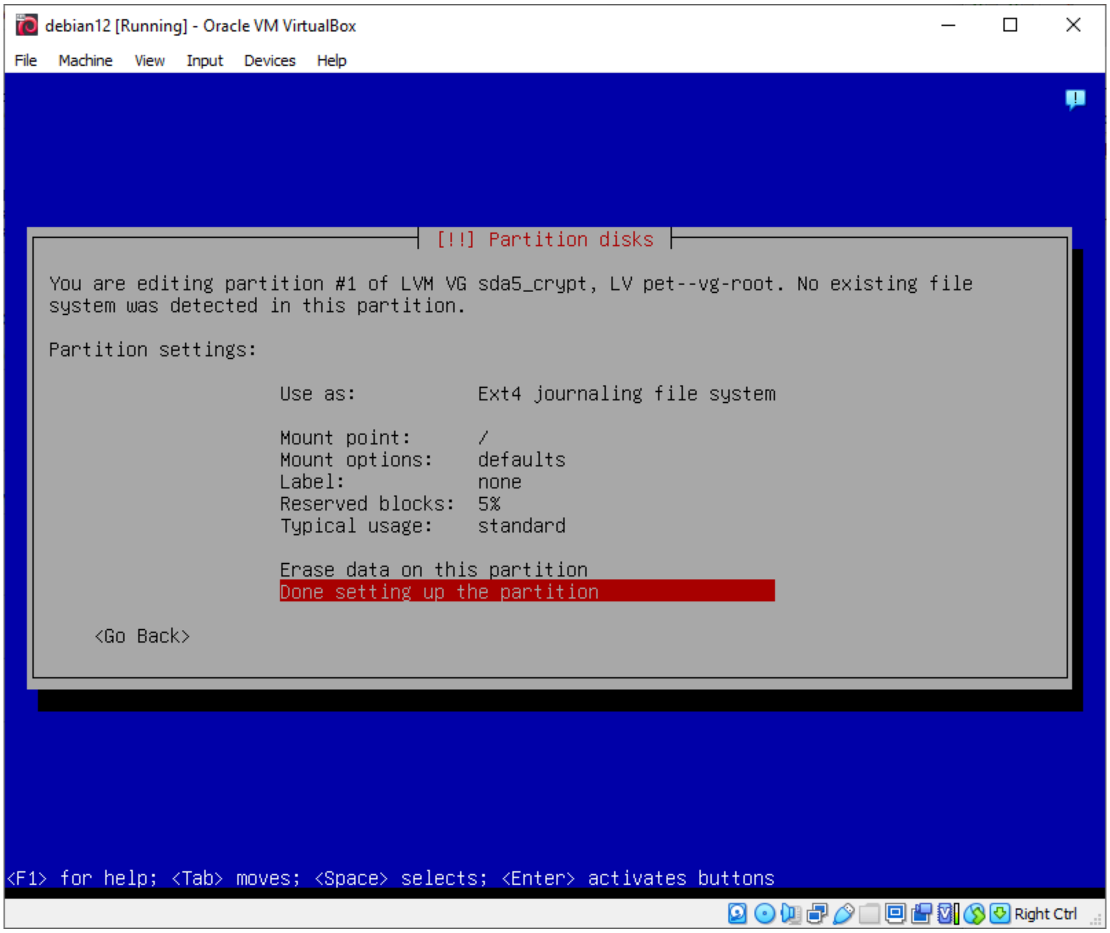
Select Mount point and set as / (root file system)



```
[!!] Partition disks

You are editing partition #1 of LVM VG sda5_crypt, LV pet--vg-root. No existing file
system was detected in this partition.

Partition settings:

                     Use as:           Ext4 journaling file system

                     Mount point:      none
                     Mount options:    defaults
                     Label:            none
                     Reserved blocks:  5%
                     Typical usage:    standard

                     Erase data on this partition
                     Done setting up the partition

    <Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```

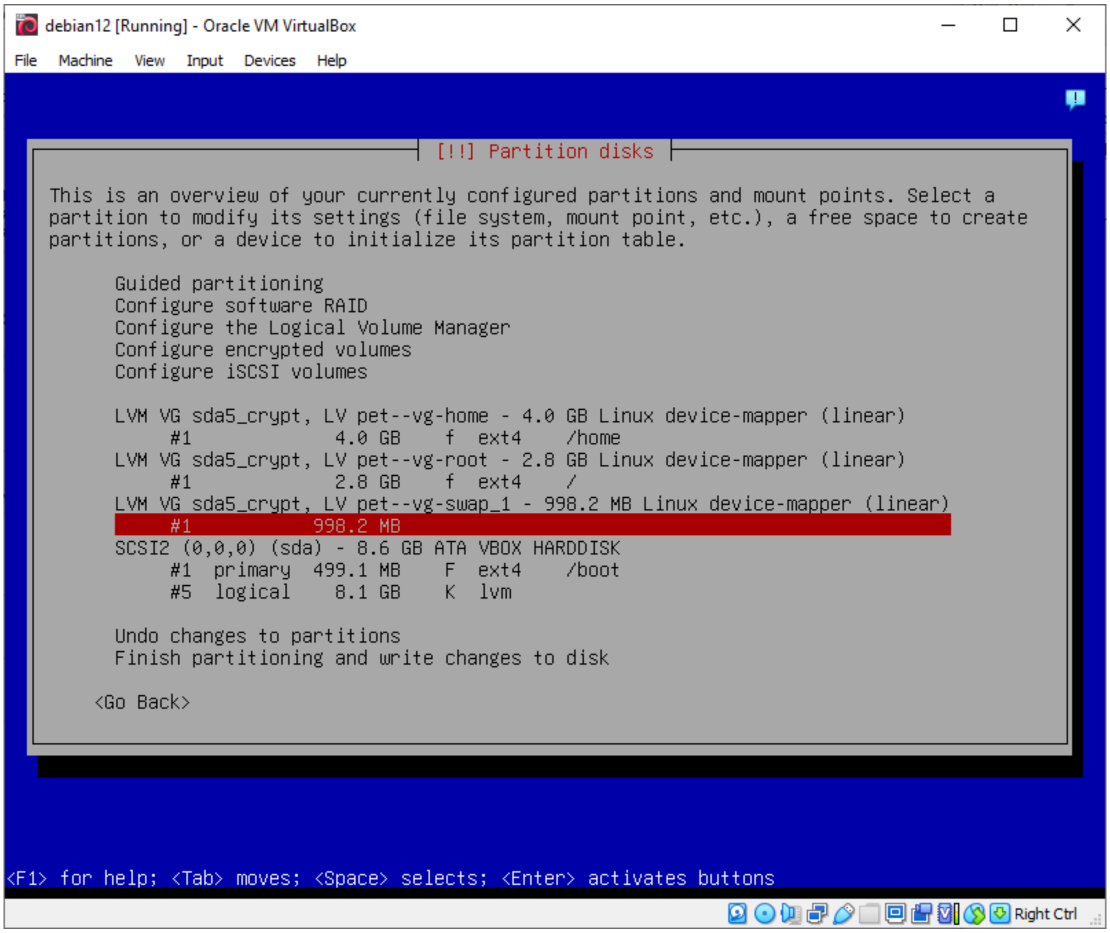

debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[!!] Partition disks

Mount point for this partition:

 / - the root file system
 /boot - static files of the boot loader
 /home - user home directories
 /tmp - temporary files
 /usr - static data
 /var - variable data
 /srv - data for services provided by this system
 /opt - add-on application software packages
 /usr/local - local hierarchy
 Enter manually
 Do not mount it

    <Go Back>

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

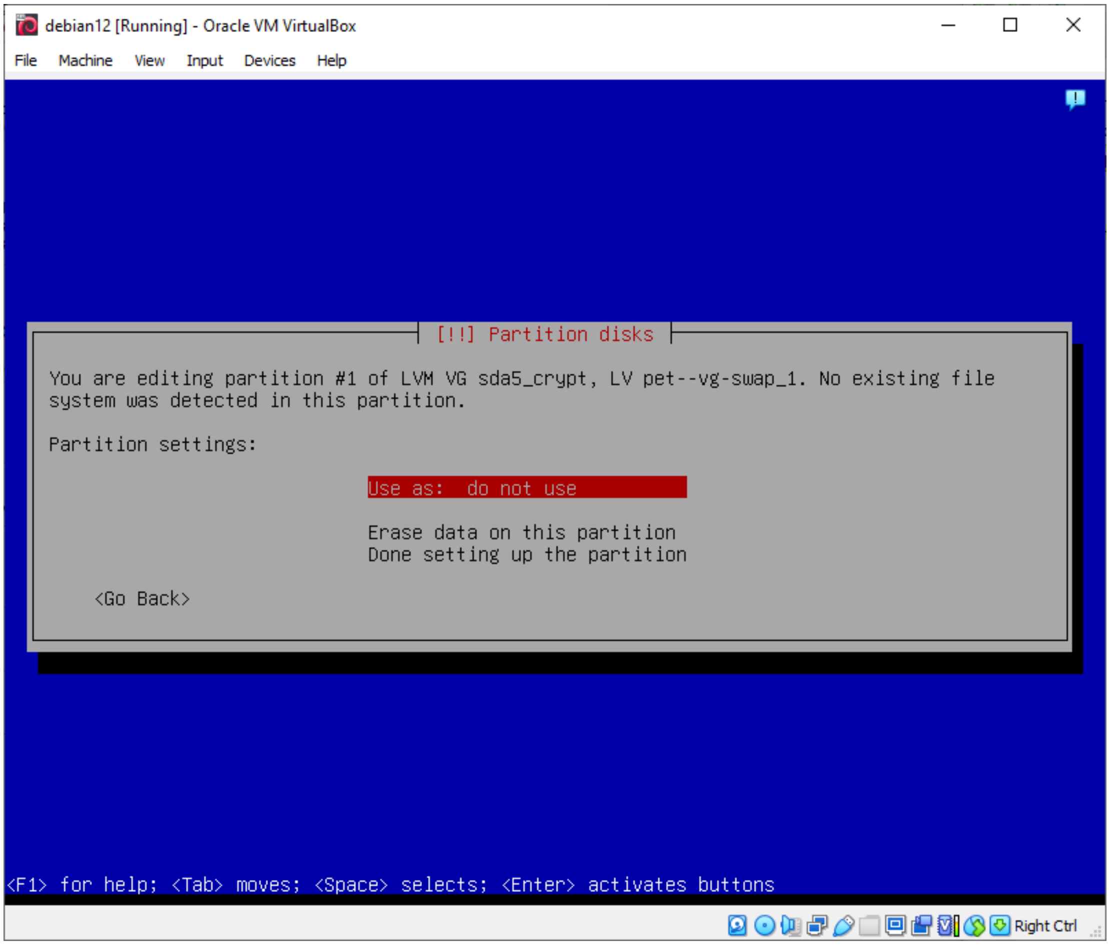

debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[!!] Partition disks

You are editing partition #1 of LVM VG sda5_crypt, LV pet--vg-root. No existing file
system was detected in this partition.

Partition settings:

                     Use as:            Ext4 journaling file system

                     Mount point:       /
                     Mount options:     defaults
                     Label:             none
                     Reserved blocks:   5%
                     Typical usage:     standard

                     Erase data on this partition
                     Done setting up the partition

     <Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```

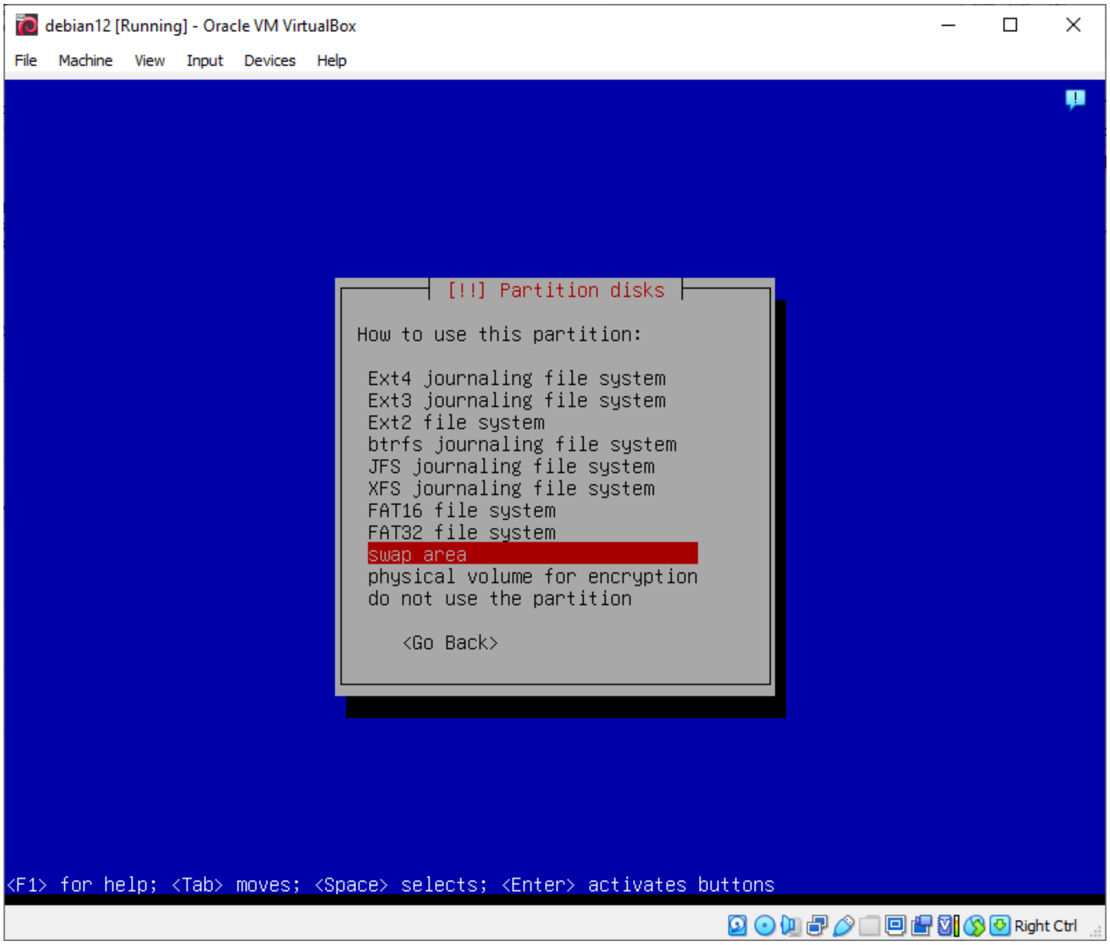
SWAP



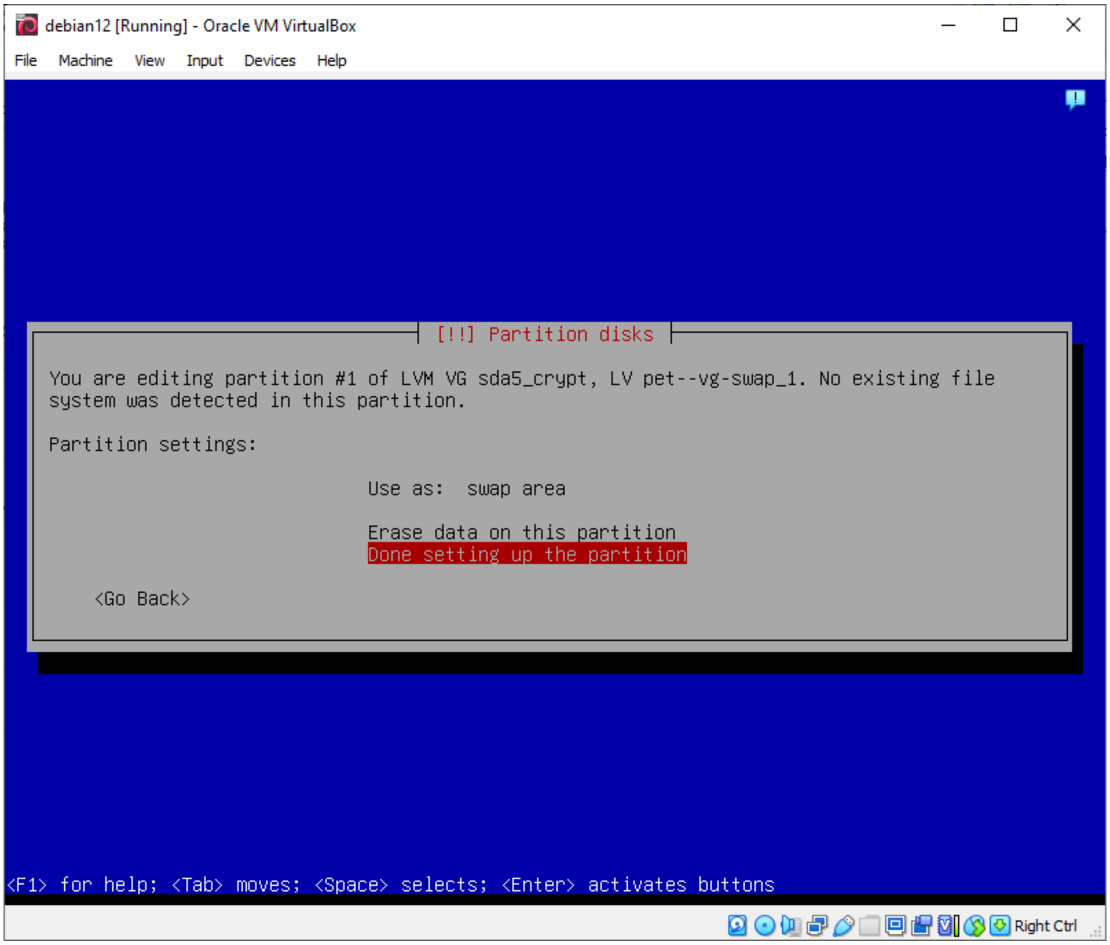
```
[!!] Partition disks

This is an overview of your currently configured partitions and mount points. Select a
partition to modify its settings (file system, mount point, etc.), a free space to create
partitions, or a device to initialize its partition table.

      Guided partitioning
      Configure software RAID
      Configure the Logical Volume Manager
      Configure encrypted volumes
      Configure iSCSI volumes

      LVM VG sda5_crypt, LV pet--vg-home - 4.0 GB Linux device-mapper (linear)
           #1              4.0 GB     f  ext4     /home
      LVM VG sda5_crypt, LV pet--vg-root - 2.8 GB Linux device-mapper (linear)
           #1              2.8 GB     f  ext4     /
      LVM VG sda5_crypt, LV pet--vg-swap_1 - 998.2 MB Linux device-mapper (linear)
           #1            998.2 MB
      SCSI2 (0,0,0) (sda) - 8.6 GB ATA VBOX HARDDISK
           #1  primary  499.1 MB     F  ext4     /boot
           #5  logical    8.1 GB     K  lvm

      Undo changes to partitions
      Finish partitioning and write changes to disk

    <Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```



```
[!!] Partition disks

You are editing partition #1 of LVM VG sda5_crypt, LV pet--vg-swap_1. No existing file
system was detected in this partition.

Partition settings:

                         Use as:  do not use

                         Erase data on this partition
                         Done setting up the partition

    <Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```

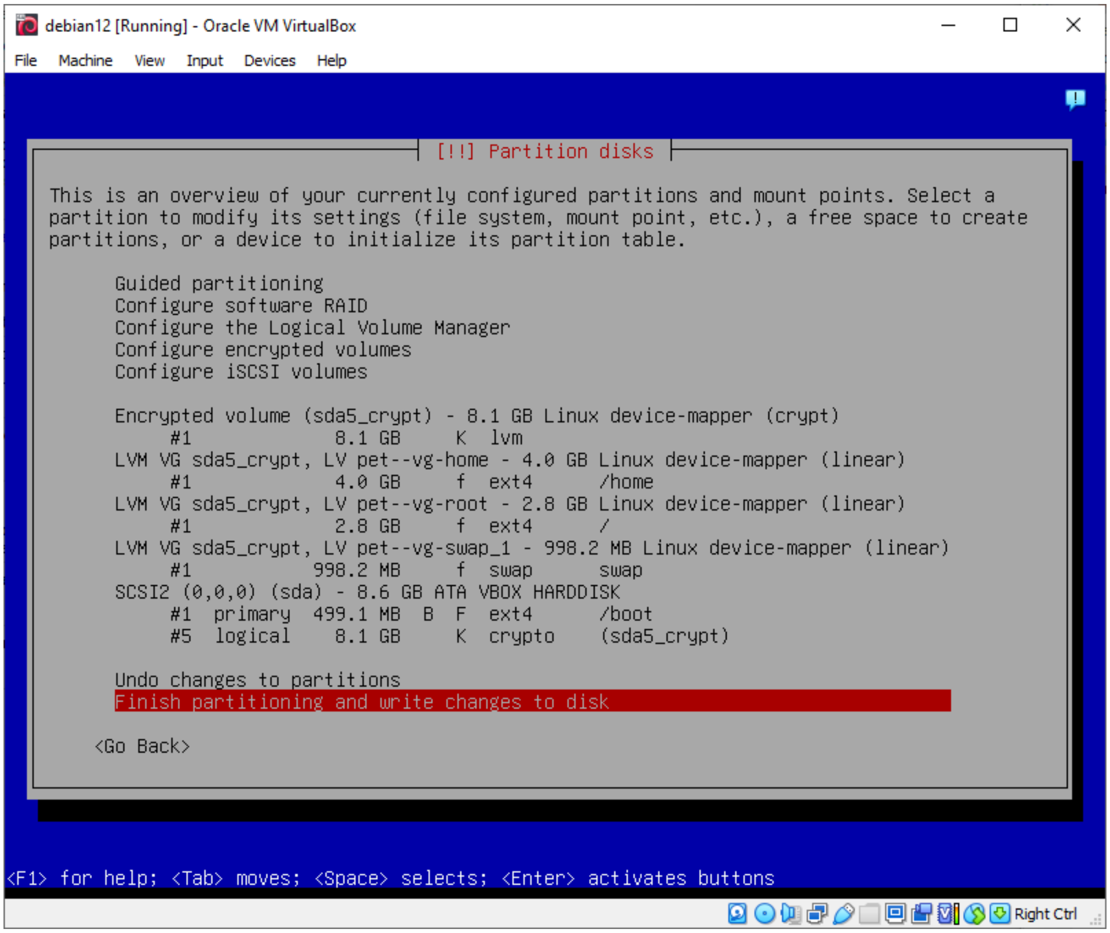

debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[!!] Partition disks

How to use this partition:

 Ext4 journaling file system
 Ext3 journaling file system
 Ext2 file system
 btrfs journaling file system
 JFS journaling file system
 XFS journaling file system
 FAT16 file system
 FAT32 file system
 swap area
 physical volume for encryption
 do not use the partition

    <Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```

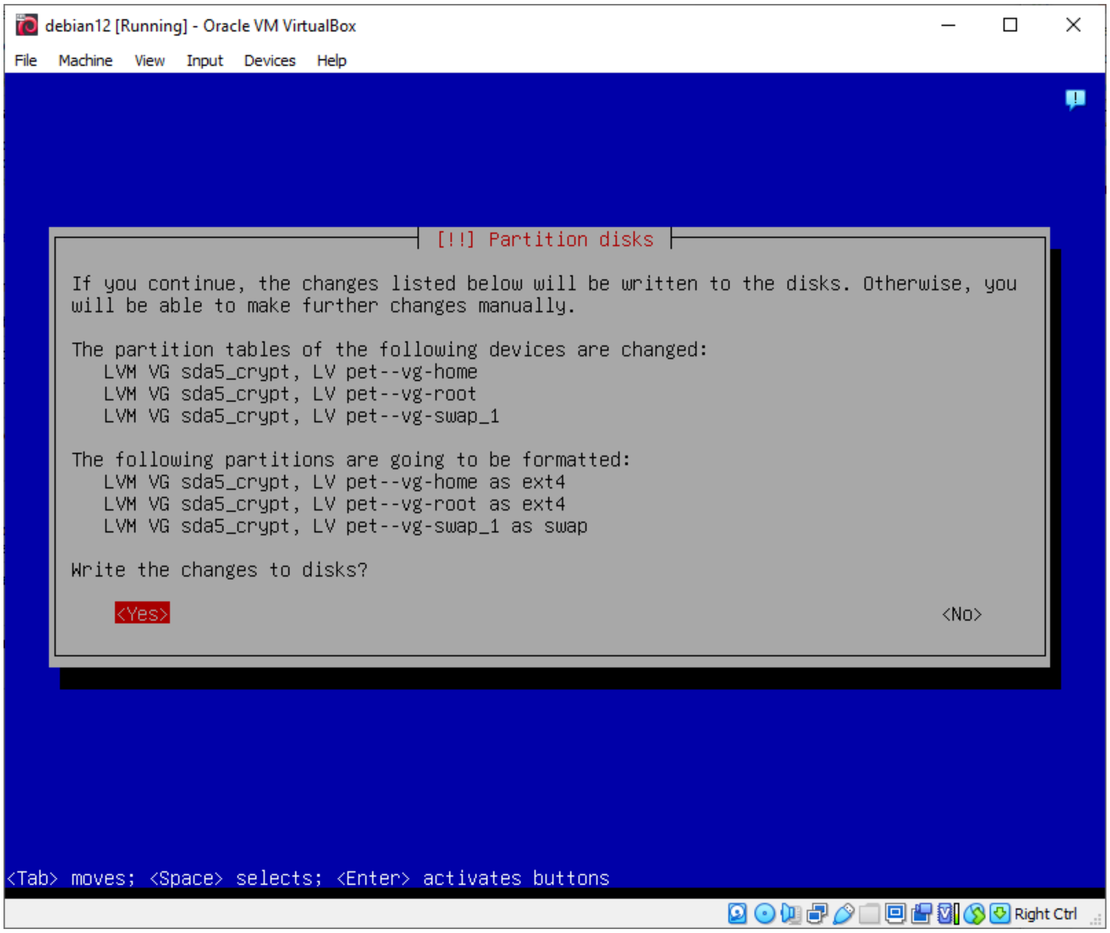

debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[!!] Partition disks

You are editing partition #1 of LVM VG sda5_crypt, LV pet--vg-swap_1. No existing file
system was detected in this partition.

Partition settings:

                             Use as:  swap area

                             Erase data on this partition
                             Done setting up the partition

     <Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```

Write partition info to the disk

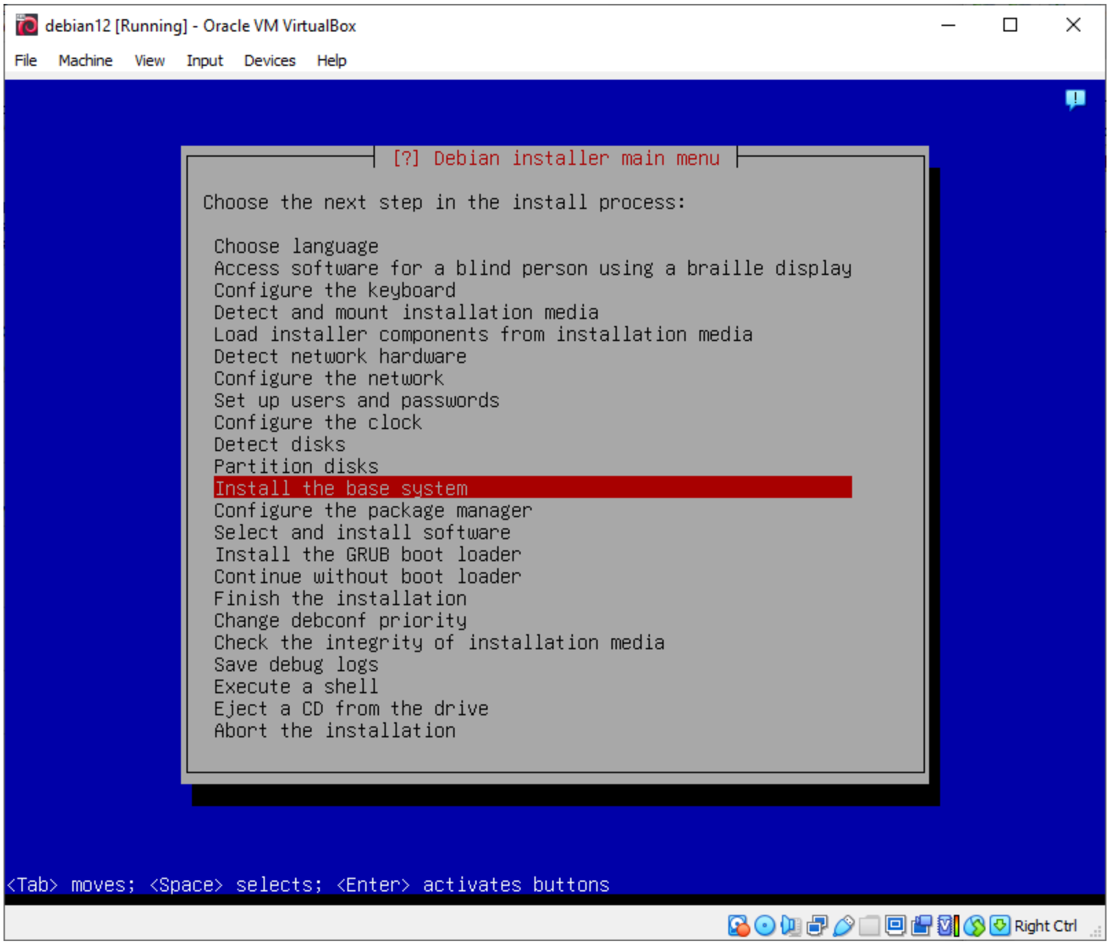

debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[!!] Partition disks

This is an overview of your currently configured partitions and mount points. Select a
partition to modify its settings (file system, mount point, etc.), a free space to create
partitions, or a device to initialize its partition table.

      Guided partitioning
      Configure software RAID
      Configure the Logical Volume Manager
      Configure encrypted volumes
      Configure iSCSI volumes

      Encrypted volume (sda5_crypt) - 8.1 GB Linux device-mapper (crypt)
           #1              8.1 GB     K  lvm
      LVM VG sda5_crypt, LV pet--vg-home - 4.0 GB Linux device-mapper (linear)
           #1              4.0 GB     f  ext4       /home
      LVM VG sda5_crypt, LV pet--vg-root - 2.8 GB Linux device-mapper (linear)
           #1              2.8 GB     f  ext4       /
      LVM VG sda5_crypt, LV pet--vg-swap_1 - 998.2 MB Linux device-mapper (linear)
           #1            998.2 MB     f  swap       swap
      SCSI2 (0,0,0) (sda) - 8.6 GB ATA VBOX HARDDISK
           #1  primary  499.1 MB  B  F  ext4       /boot
           #5  logical    8.1 GB     K  crypto     (sda5_crypt)

      Undo changes to partitions
      Finish partitioning and write changes to disk

    <Go Back>

<F1> for help; <Tab> moves; <Space> selects; <Enter> activates buttons
```

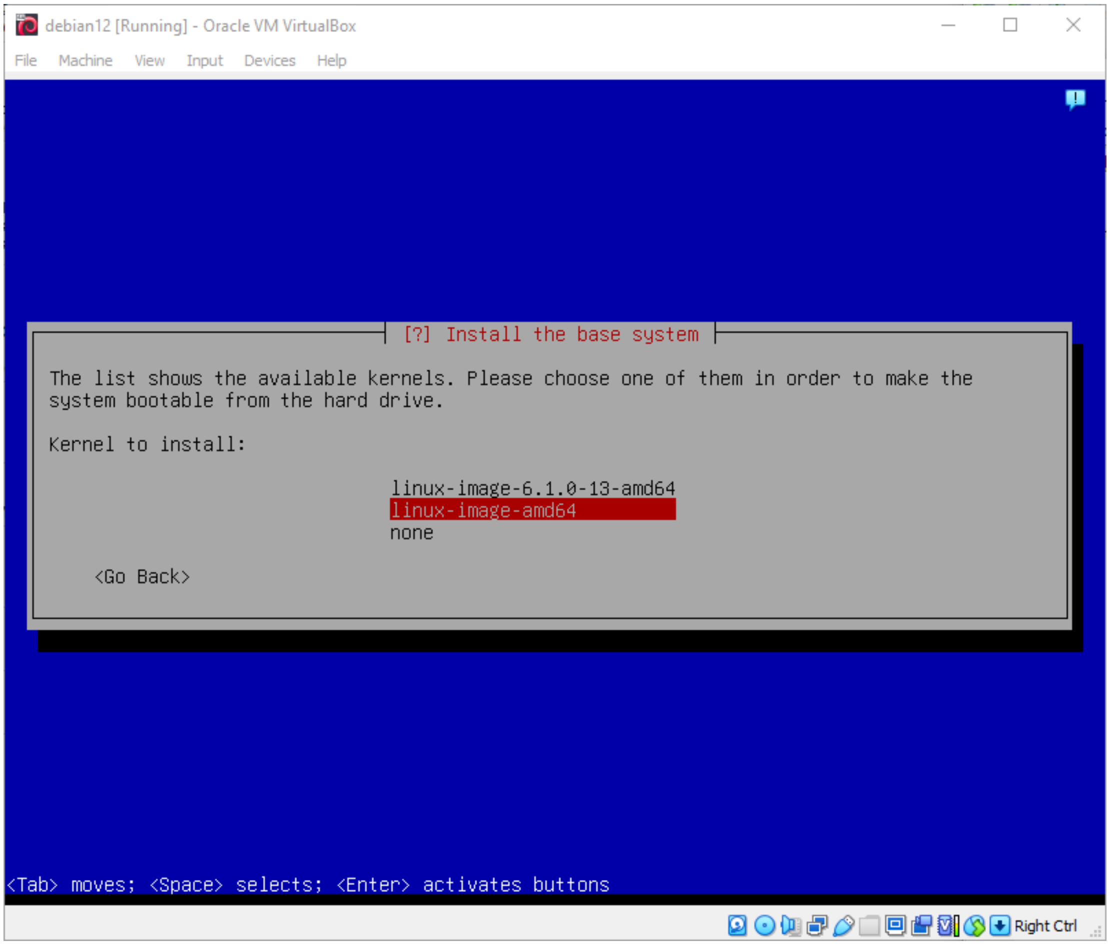

debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[!!] Partition disks

If you continue, the changes listed below will be written to the disks. Otherwise, you
will be able to make further changes manually.

The partition tables of the following devices are changed:
   LVM VG sda5_crypt, LV pet--vg-home
   LVM VG sda5_crypt, LV pet--vg-root
   LVM VG sda5_crypt, LV pet--vg-swap_1

The following partitions are going to be formatted:
   LVM VG sda5_crypt, LV pet--vg-home as ext4
   LVM VG sda5_crypt, LV pet--vg-root as ext4
   LVM VG sda5_crypt, LV pet--vg-swap_1 as swap

Write the changes to disks?

    <Yes>                                                                  <No>

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

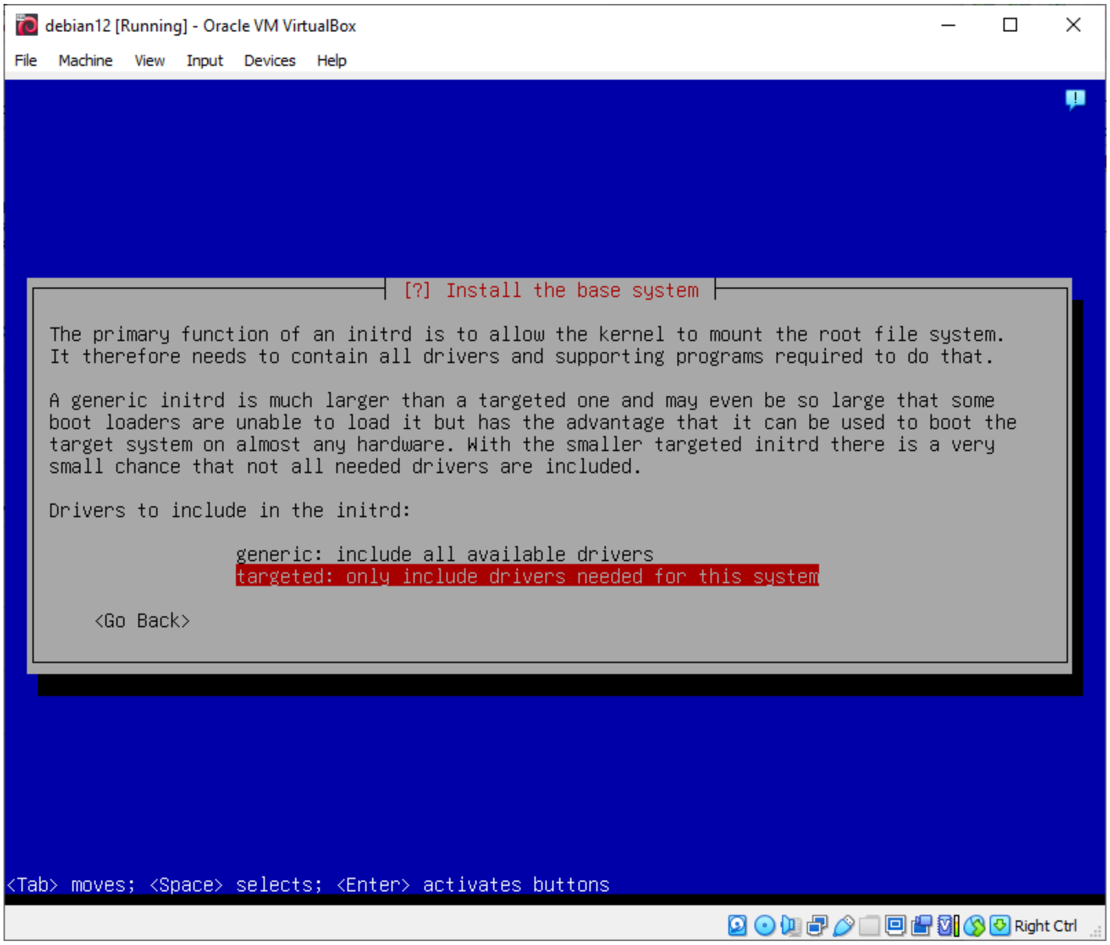
Install system software


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

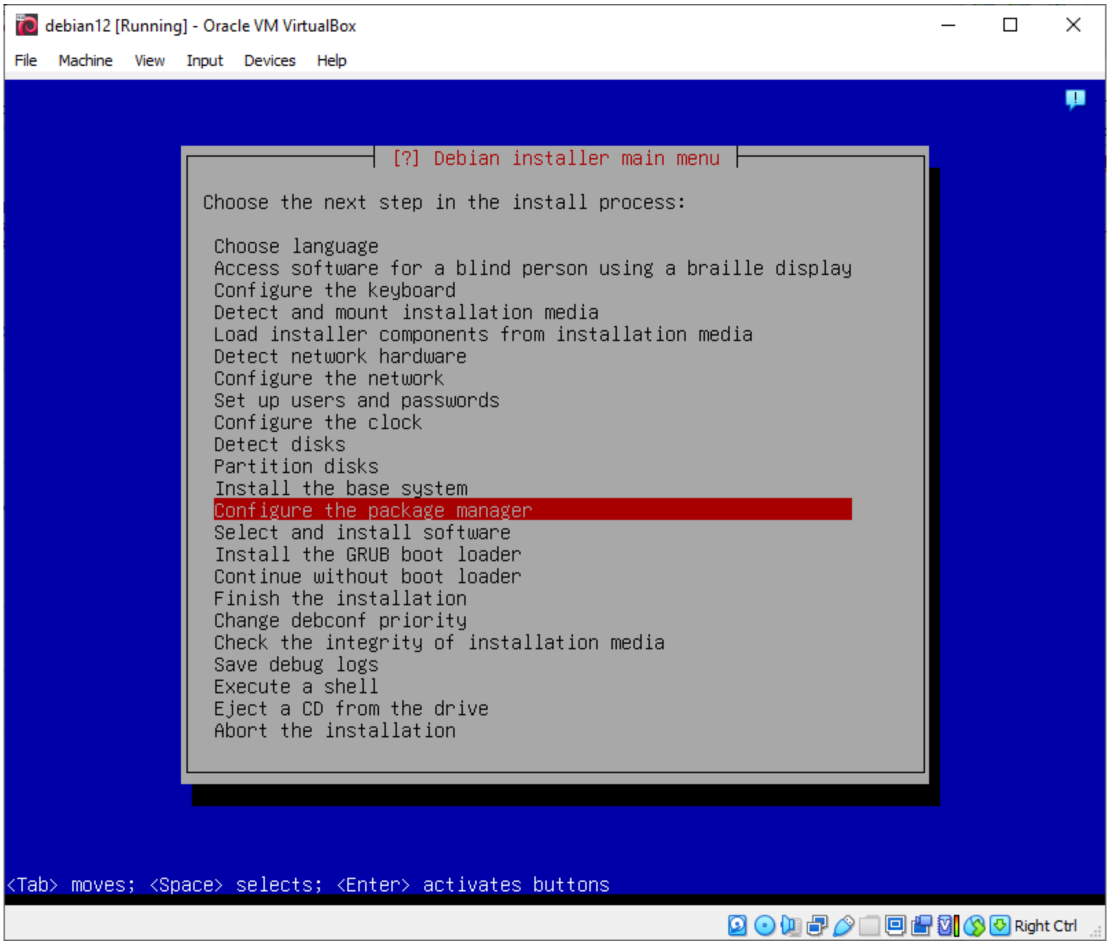
```
[?] Debian installer main menu

Choose the next step in the install process:

 Choose language
 Access software for a blind person using a braille display
 Configure the keyboard
 Detect and mount installation media
 Load installer components from installation media
 Detect network hardware
 Configure the network
 Set up users and passwords
 Configure the clock
 Detect disks
 Partition disks
 Install the base system
 Configure the package manager
 Select and install software
 Install the GRUB boot loader
 Continue without boot loader
 Finish the installation
 Change debconf priority
 Check the integrity of installation media
 Save debug logs
 Execute a shell
 Eject a CD from the drive
 Abort the installation

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


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

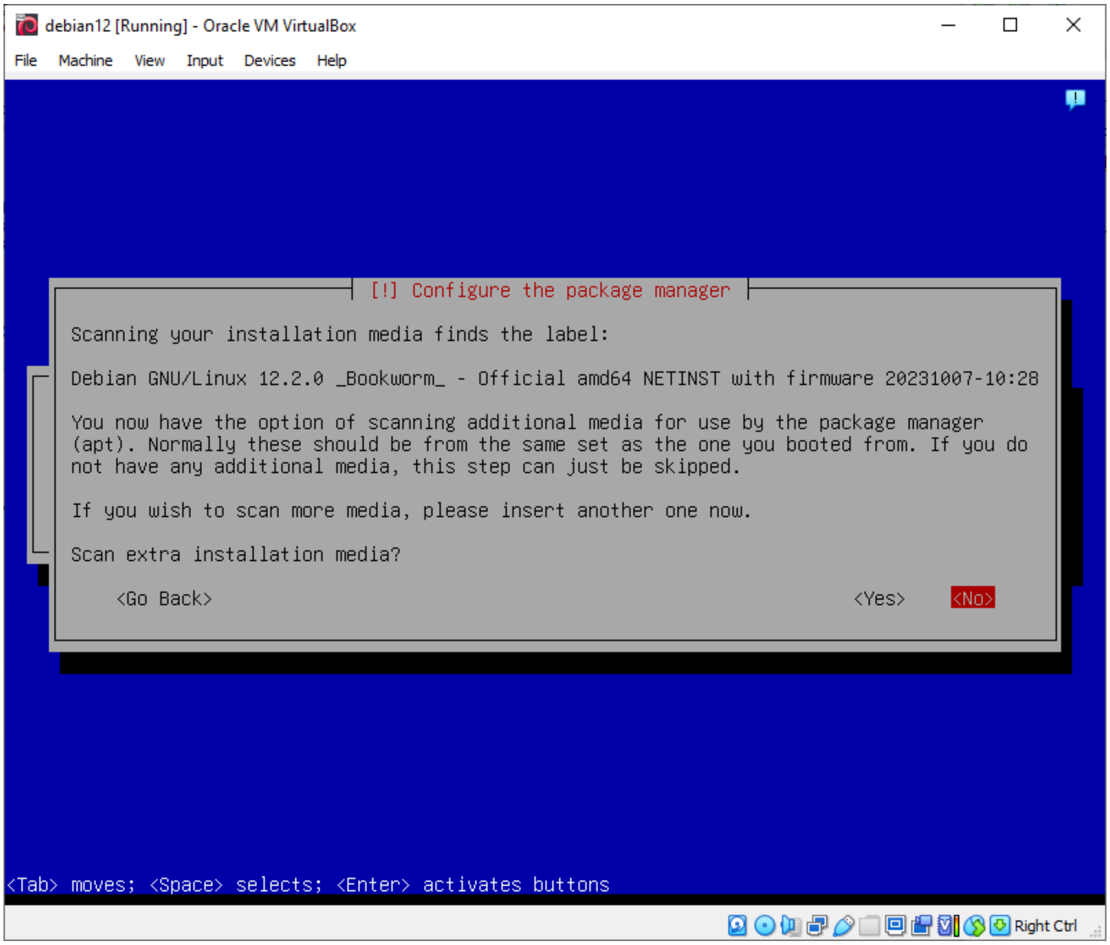
```
[?] Install the base system

The list shows the available kernels. Please choose one of them in order to make the
system bootable from the hard drive.

Kernel to install:

                              linux-image-6.1.0-13-amd64
                              linux-image-amd64
                              none

    <Go Back>

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



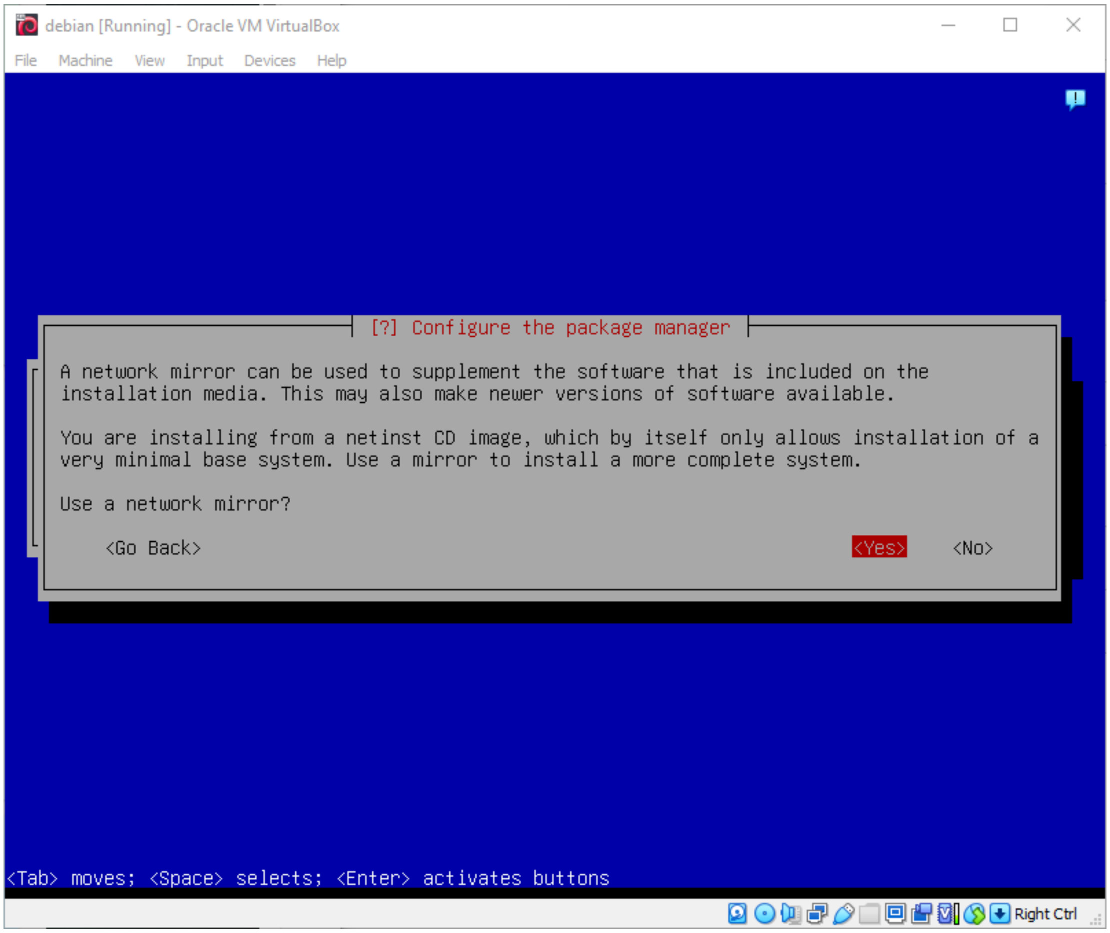
```
[?] Install the base system

The primary function of an initrd is to allow the kernel to mount the root file system.
It therefore needs to contain all drivers and supporting programs required to do that.

A generic initrd is much larger than a targeted one and may even be so large that some
boot loaders are unable to load it but has the advantage that it can be used to boot the
target system on almost any hardware. With the smaller targeted initrd there is a very
small chance that not all needed drivers are included.

Drivers to include in the initrd:

                 generic: include all available drivers
                 targeted: only include drivers needed for this system

    <Go Back>

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



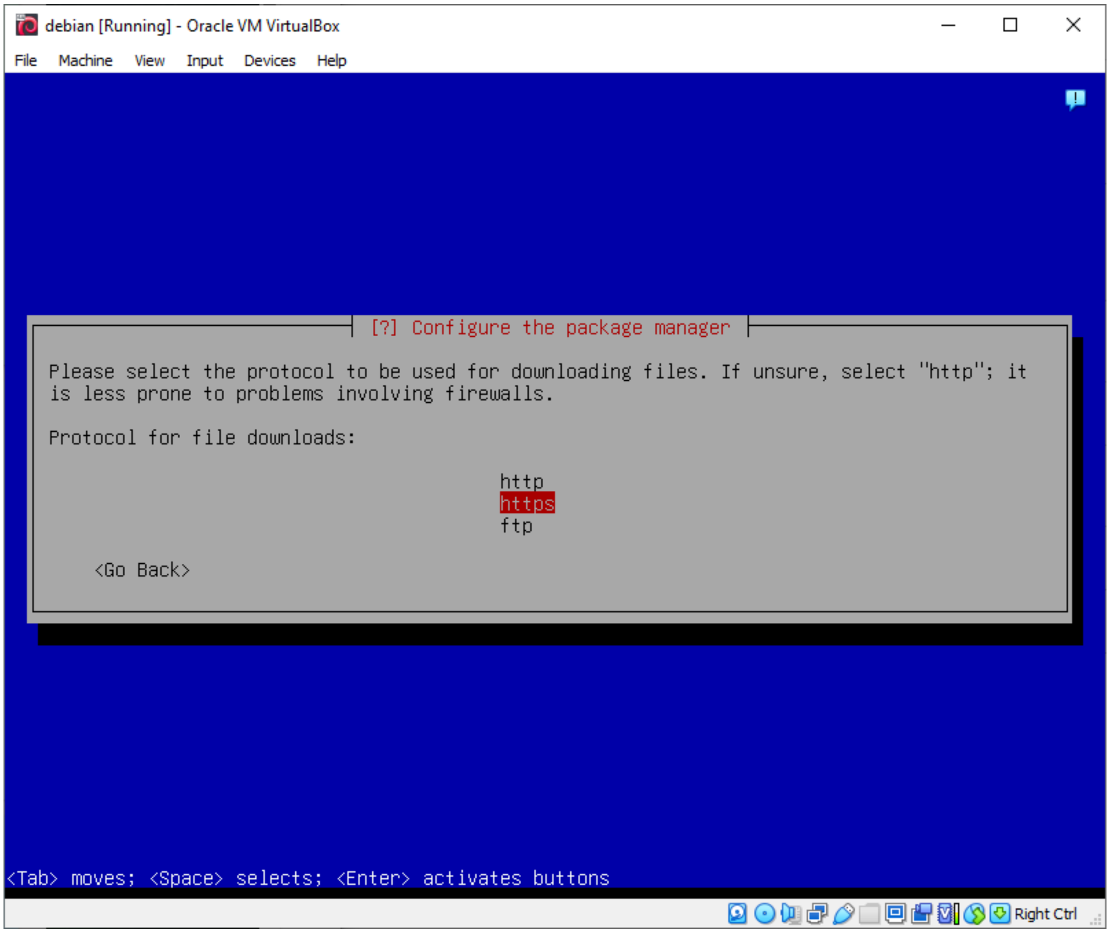
```
[?] Debian installer main menu

Choose the next step in the install process:

 Choose language
 Access software for a blind person using a braille display
 Configure the keyboard
 Detect and mount installation media
 Load installer components from installation media
 Detect network hardware
 Configure the network
 Set up users and passwords
 Configure the clock
 Detect disks
 Partition disks
 Install the base system
 Configure the package manager
 Select and install software
 Install the GRUB boot loader
 Continue without boot loader
 Finish the installation
 Change debconf priority
 Check the integrity of installation media
 Save debug logs
 Execute a shell
 Eject a CD from the drive
 Abort the installation

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


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

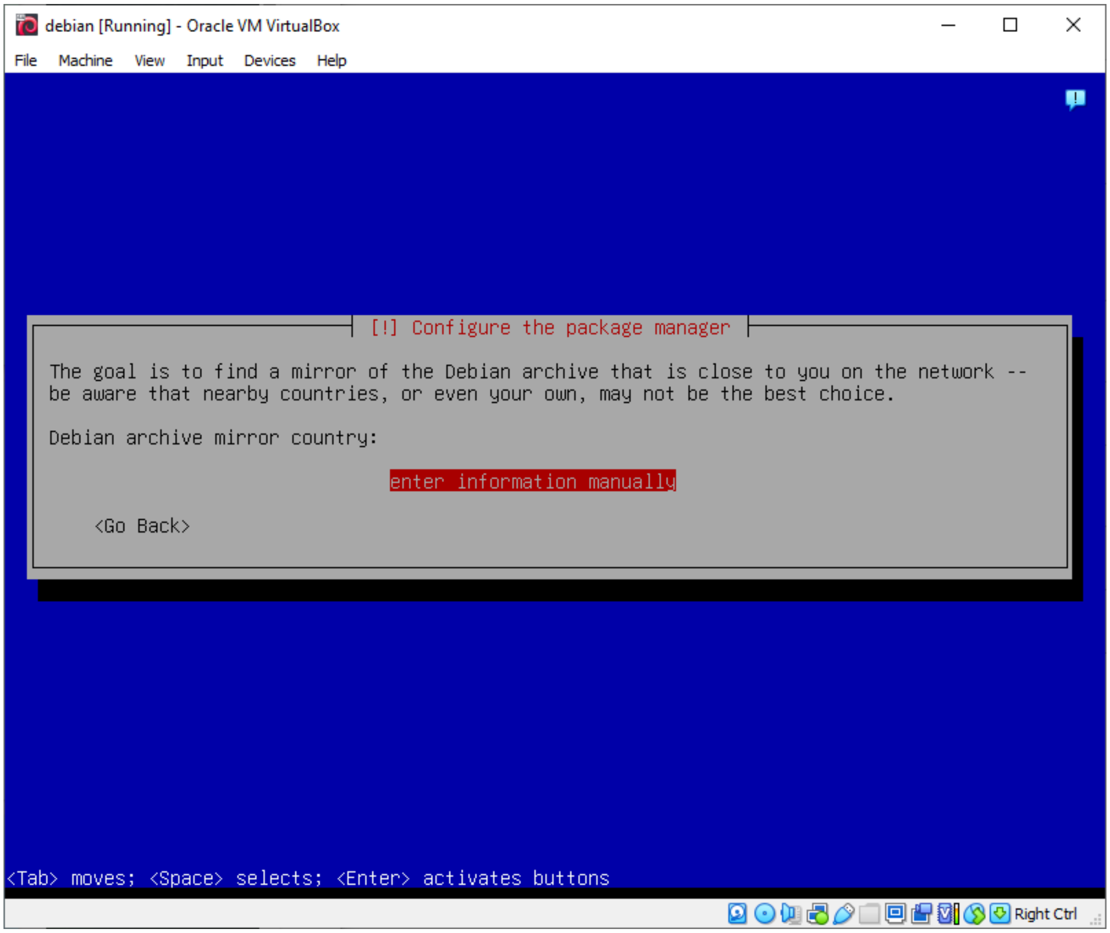
```
[!] Configure the package manager

Scanning your installation media finds the label:

Debian GNU/Linux 12.2.0 _Bookworm_ - Official amd64 NETINST with firmware 20231007-10:28

You now have the option of scanning additional media for use by the package manager
(apt). Normally these should be from the same set as the one you booted from. If you do
not have any additional media, this step can just be skipped.

If you wish to scan more media, please insert another one now.

Scan extra installation media?

    <Go Back>                                                   <Yes>    <No>

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


debian [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

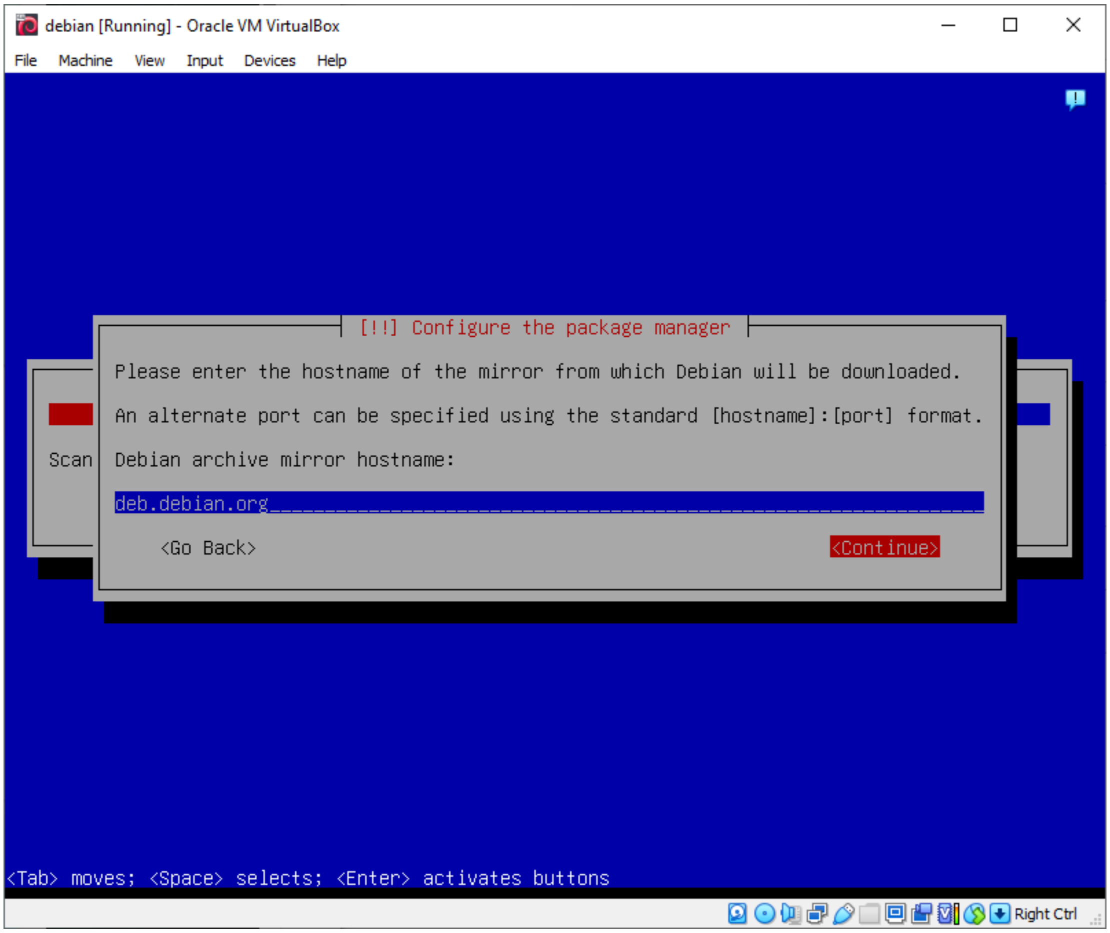
```
[?] Configure the package manager

A network mirror can be used to supplement the software that is included on the
installation media. This may also make newer versions of software available.

You are installing from a netinst CD image, which by itself only allows installation of a
very minimal base system. Use a mirror to install a more complete system.

Use a network mirror?

    <Go Back>                                                   <Yes>    <No>

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



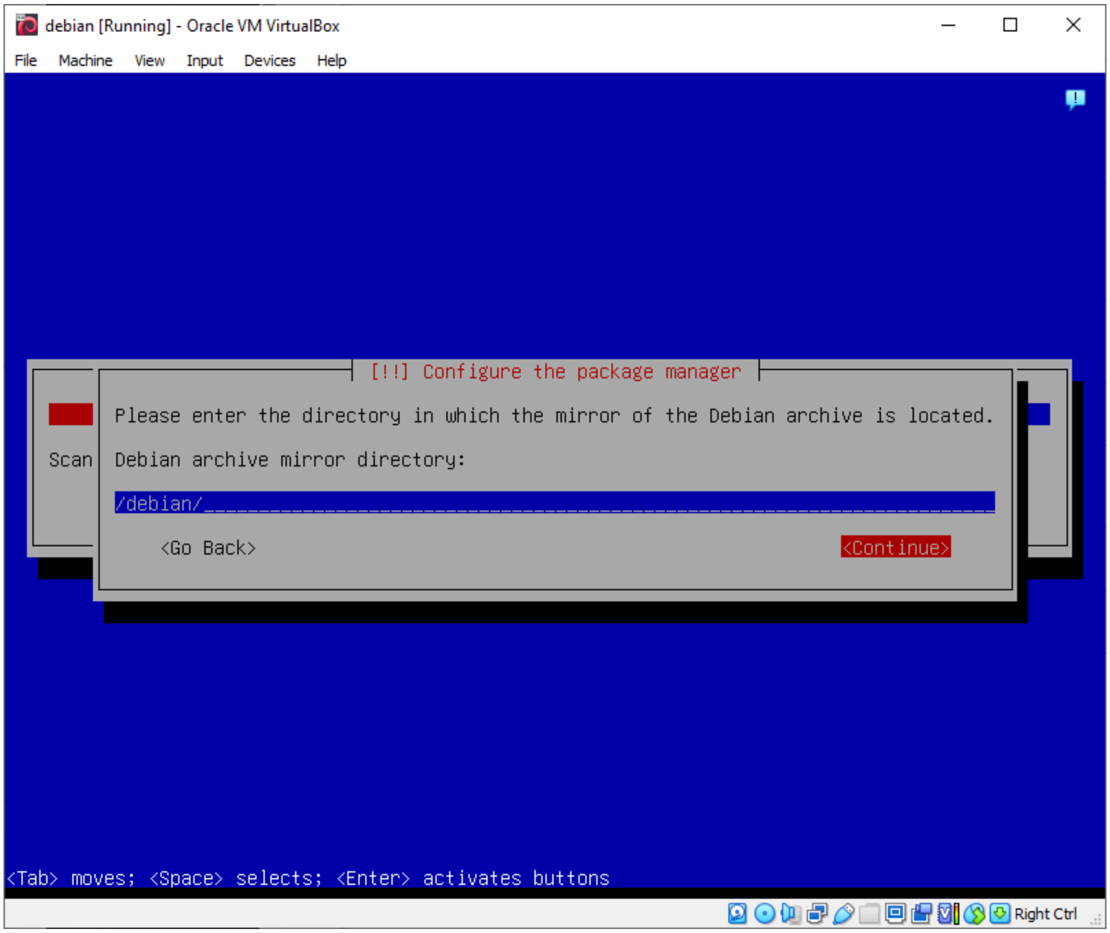
```
[?] Configure the package manager

Please select the protocol to be used for downloading files. If unsure, select "http"; it
is less prone to problems involving firewalls.

Protocol for file downloads:

                                   http
                                   https
                                   ftp

    <Go Back>

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



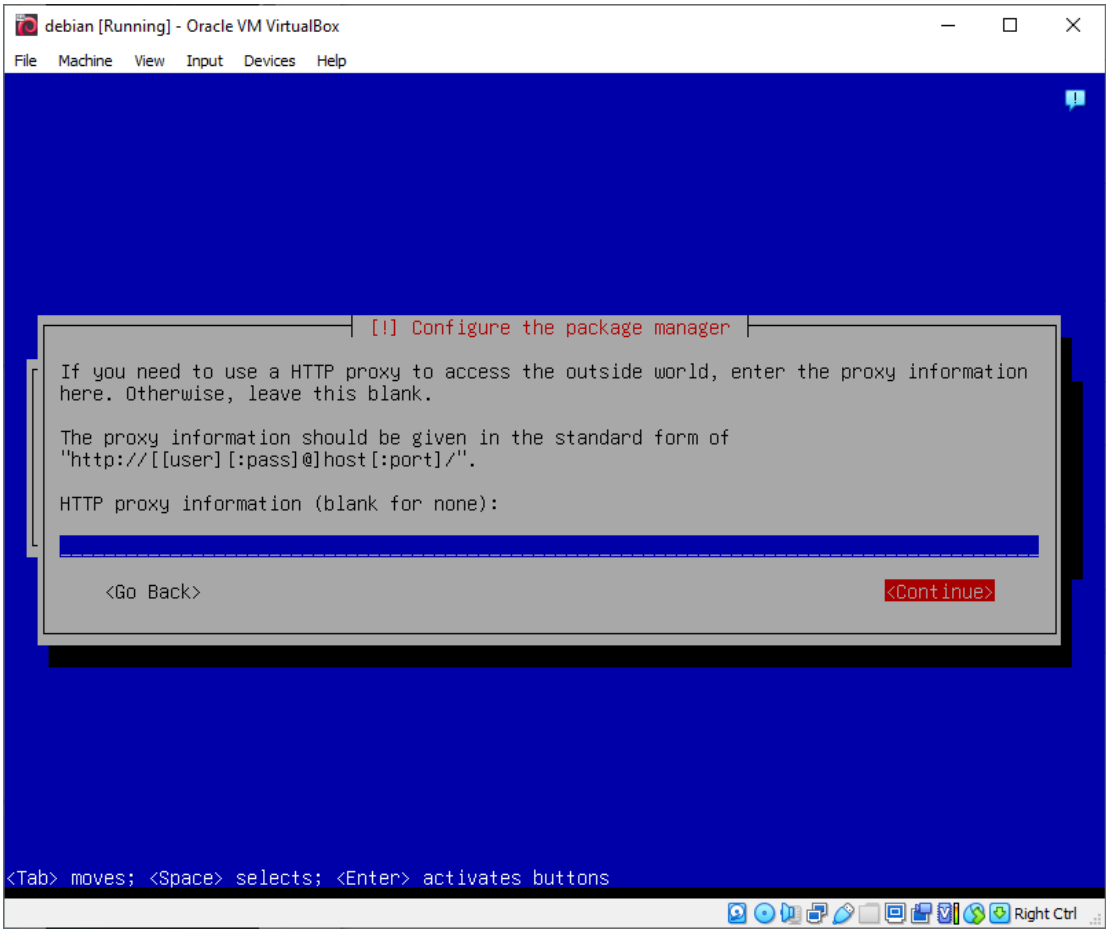
```
[!] Configure the package manager

The goal is to find a mirror of the Debian archive that is close to you on the network --
be aware that nearby countries, or even your own, may not be the best choice.

Debian archive mirror country:

                             enter information manually

    <Go Back>

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



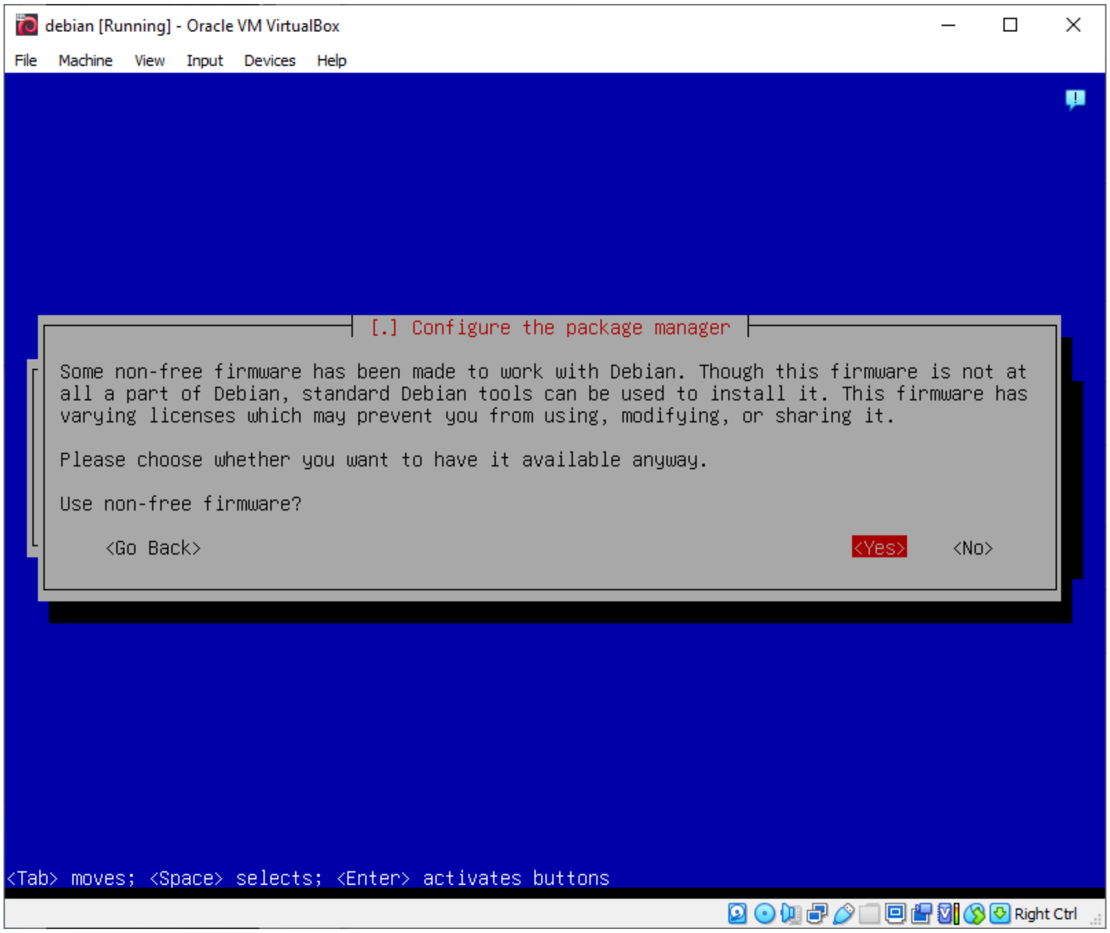
```
[!!] Configure the package manager

Please enter the hostname of the mirror from which Debian will be downloaded.

An alternate port can be specified using the standard [hostname]:[port] format.

Debian archive mirror hostname:

deb.debian.org

     <Go Back>                                                    <Continue>

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



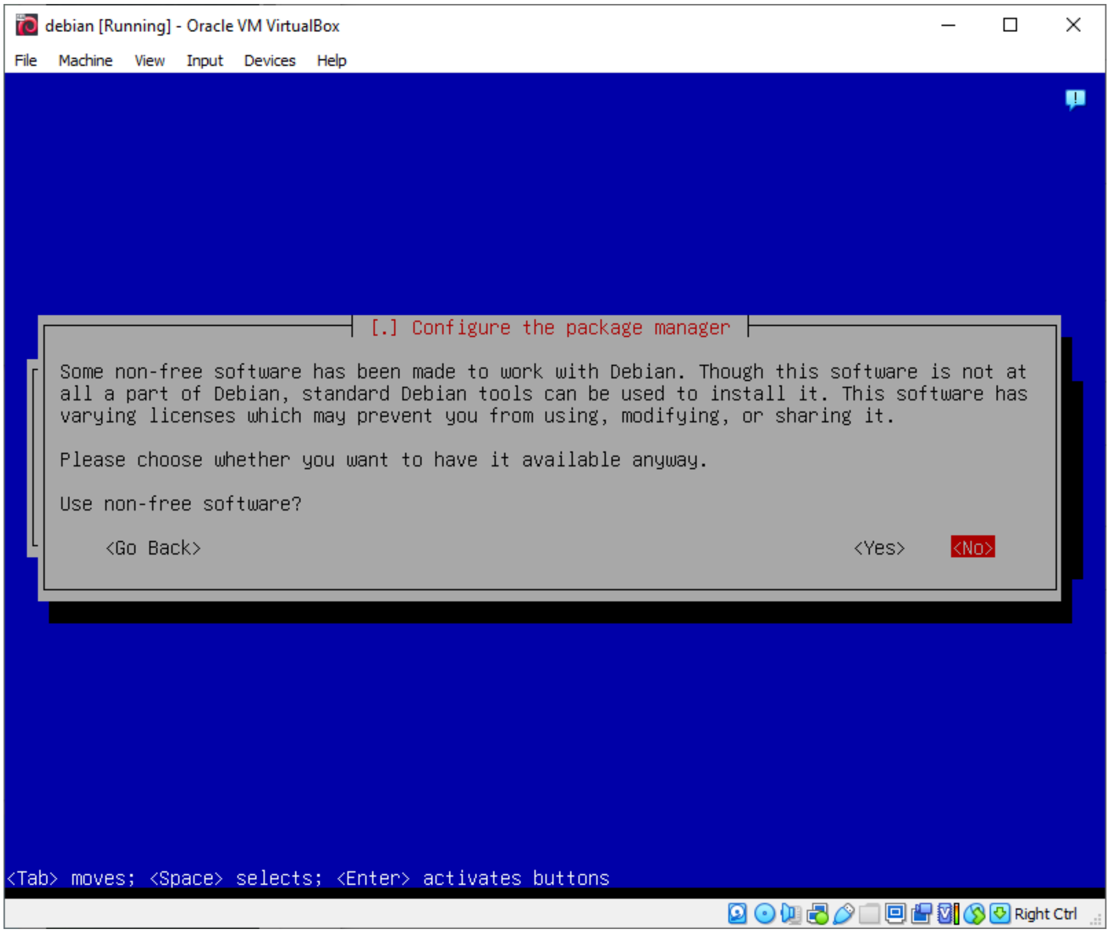
```
[!!] Configure the package manager

Please enter the directory in which the mirror of the Debian archive is located.

Debian archive mirror directory:

/debian/

     <Go Back>                                                    <Continue>

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


debian [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

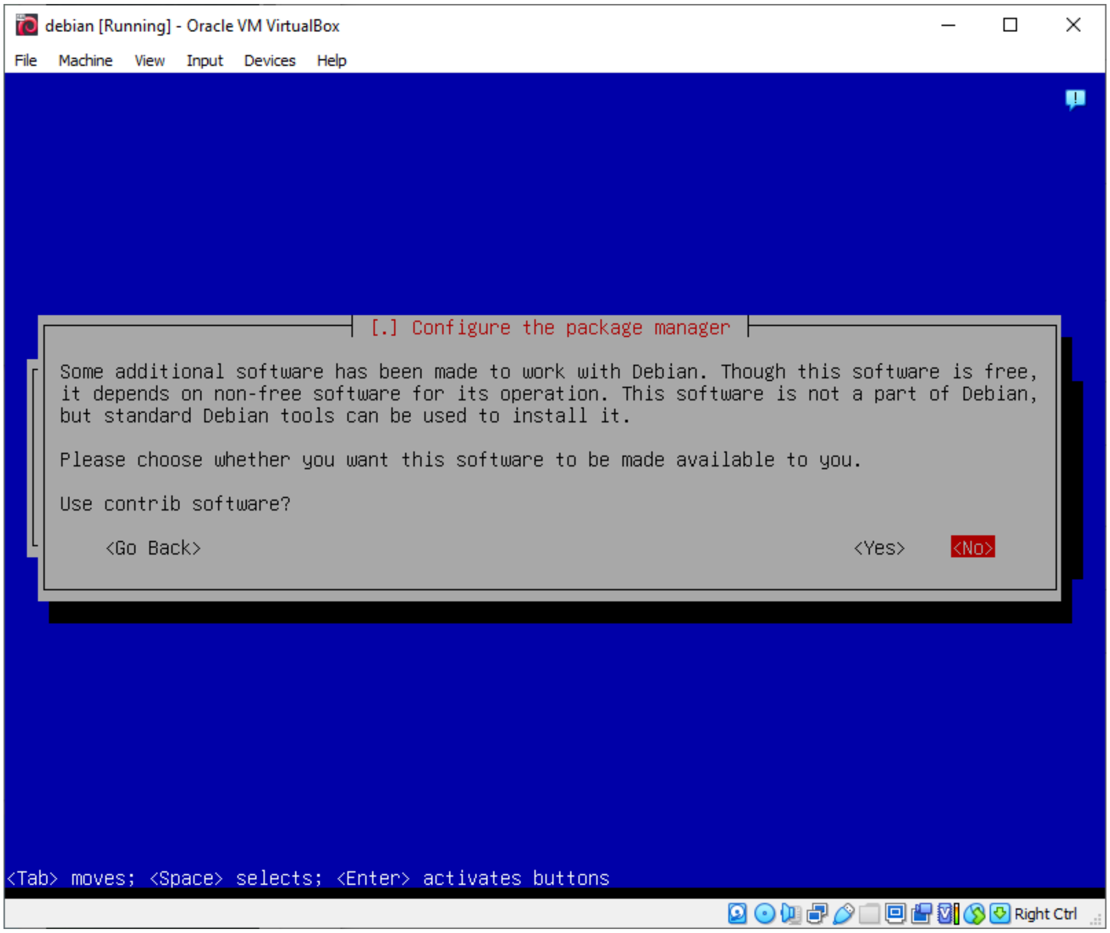
```
[!] Configure the package manager

If you need to use a HTTP proxy to access the outside world, enter the proxy information
here. Otherwise, leave this blank.

The proxy information should be given in the standard form of
"http://[[user][:pass]@]host[:port]/".

HTTP proxy information (blank for none):

____________________________________________________________________________________

    <Go Back>                                                            <Continue>

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


debian [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

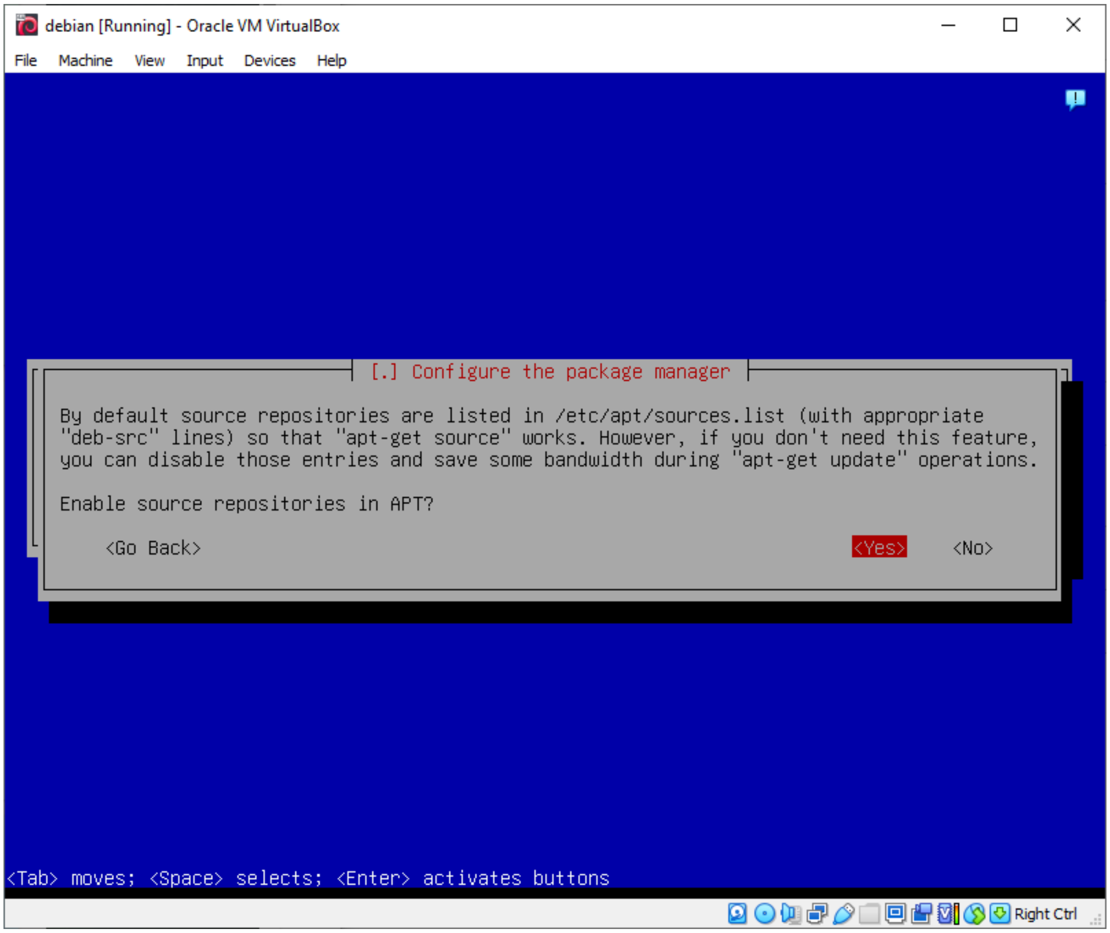
```
[.] Configure the package manager

Some non-free firmware has been made to work with Debian. Though this firmware is not at
all a part of Debian, standard Debian tools can be used to install it. This firmware has
varying licenses which may prevent you from using, modifying, or sharing it.

Please choose whether you want to have it available anyway.

Use non-free firmware?

    <Go Back>                                                      <Yes>    <No>

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


debian [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[.] Configure the package manager

Some non-free software has been made to work with Debian. Though this software is not at
all a part of Debian, standard Debian tools can be used to install it. This software has
varying licenses which may prevent you from using, modifying, or sharing it.

Please choose whether you want to have it available anyway.

Use non-free software?

    <Go Back>                                                          <Yes>    <No>

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

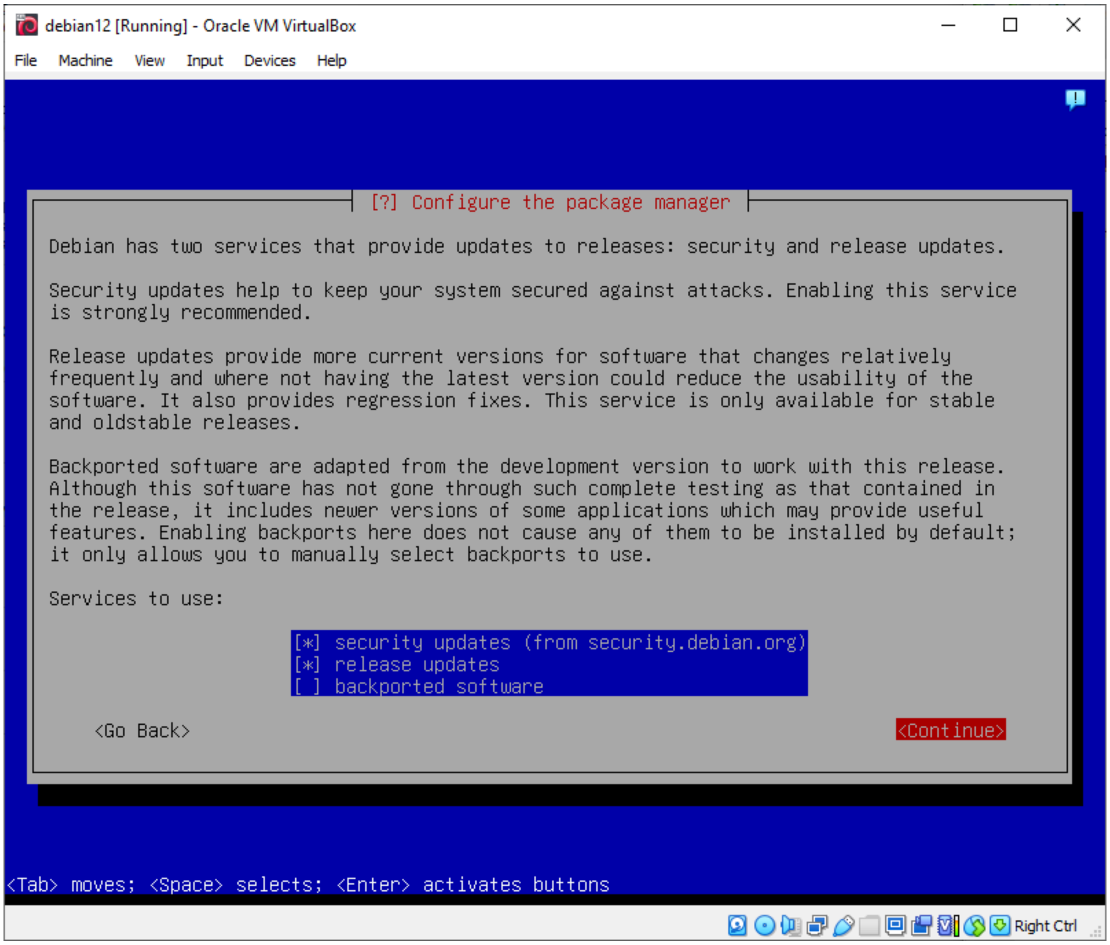

debian [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[.] Configure the package manager

Some additional software has been made to work with Debian. Though this software is free,
it depends on non-free software for its operation. This software is not a part of Debian,
but standard Debian tools can be used to install it.

Please choose whether you want this software to be made available to you.

Use contrib software?

    <Go Back>                                                          <Yes>    <No>

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



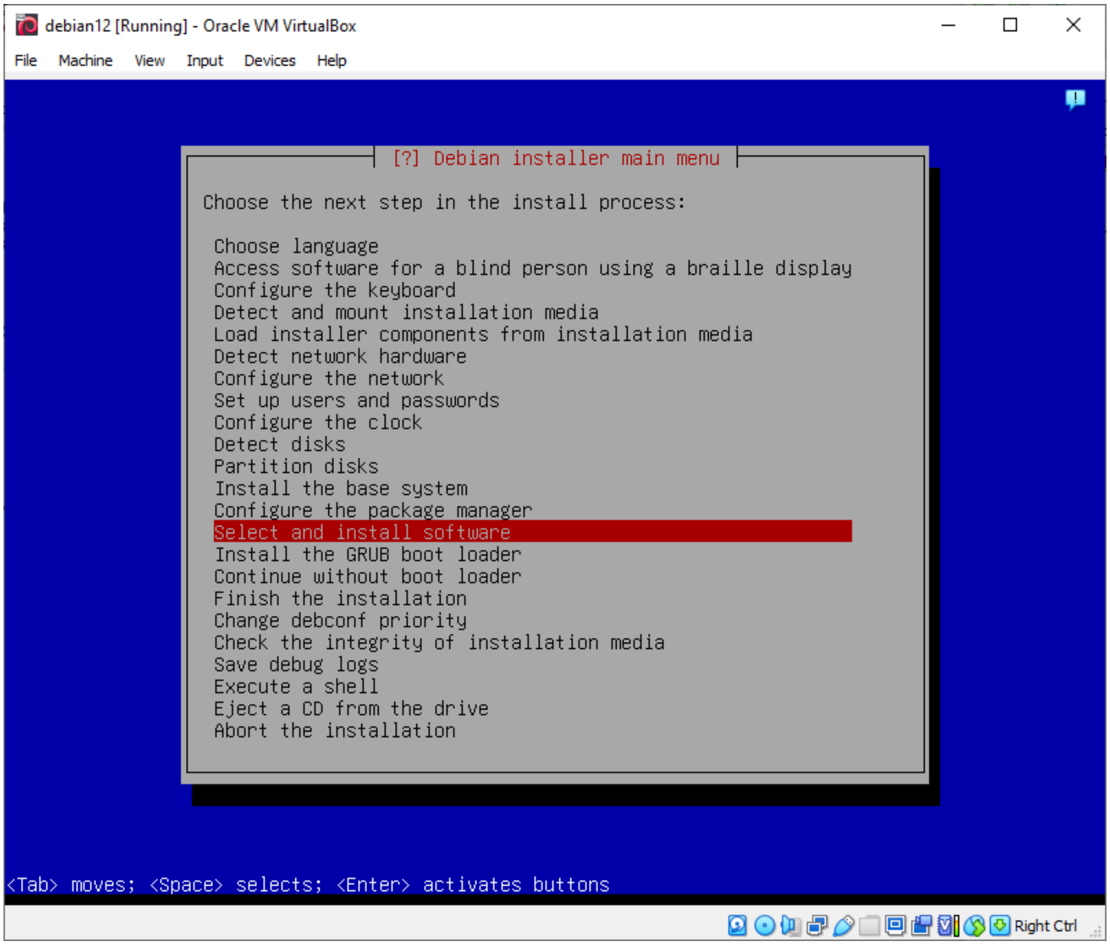
debian [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[.] Configure the package manager

By default source repositories are listed in /etc/apt/sources.list (with appropriate
"deb-src" lines) so that "apt-get source" works. However, if you don't need this feature,
you can disable those entries and save some bandwidth during "apt-get update" operations.

Enable source repositories in APT?

    <Go Back>                                                     <Yes>      <No>

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

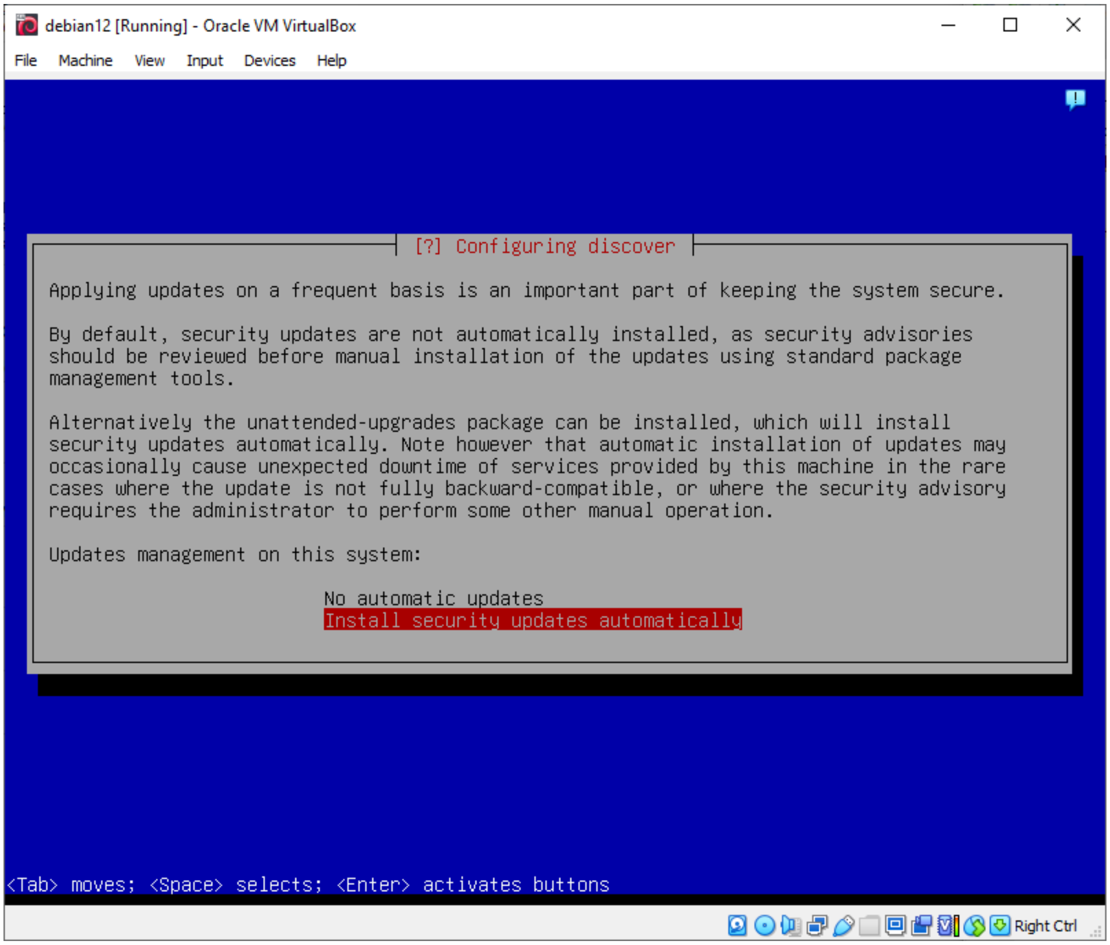


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

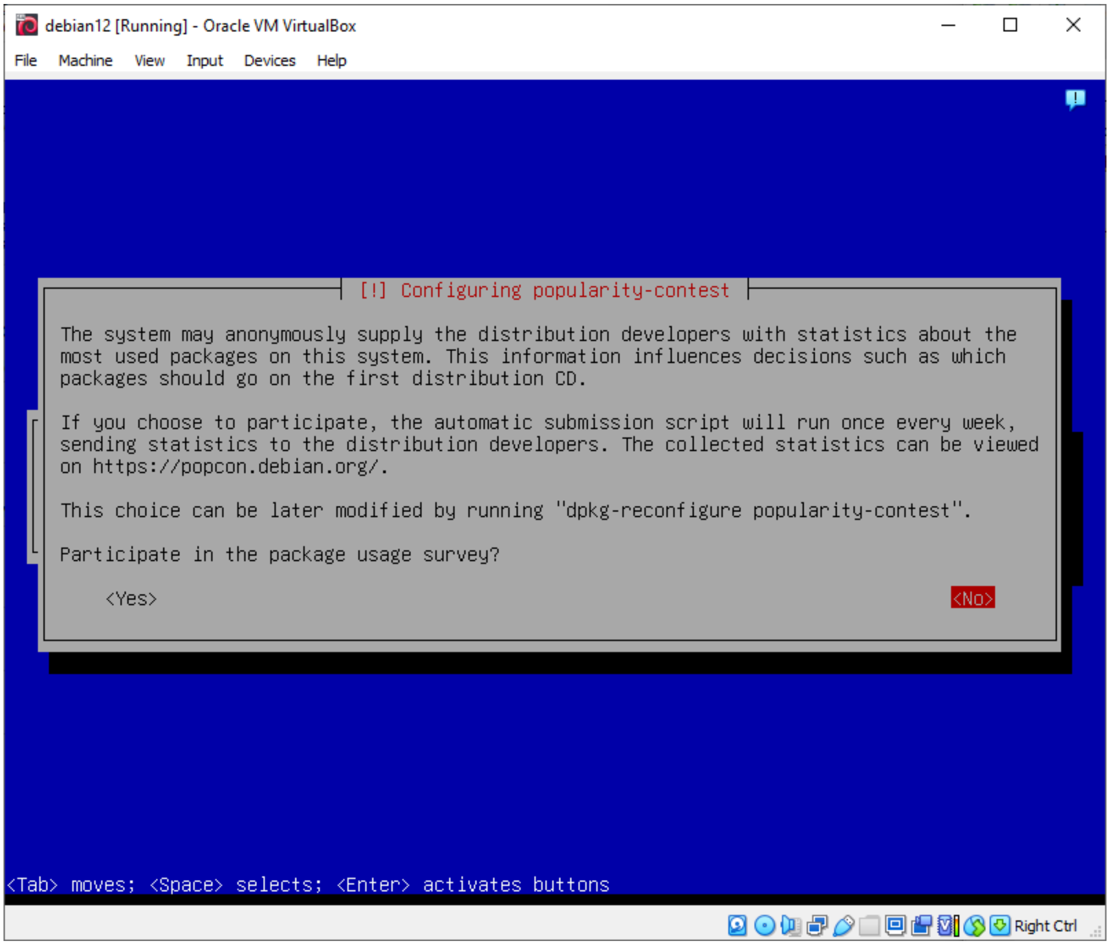
```
[?] Configure the package manager

Debian has two services that provide updates to releases: security and release updates.

Security updates help to keep your system secured against attacks. Enabling this service
is strongly recommended.

Release updates provide more current versions for software that changes relatively
frequently and where not having the latest version could reduce the usability of the
software. It also provides regression fixes. This service is only available for stable
and oldstable releases.

Backported software are adapted from the development version to work with this release.
Although this software has not gone through such complete testing as that contained in
the release, it includes newer versions of some applications which may provide useful
features. Enabling backports here does not cause any of them to be installed by default;
it only allows you to manually select backports to use.

Services to use:

                      [*] security updates (from security.debian.org)
                      [*] release updates
                      [ ] backported software

     <Go Back>                                                         <Continue>

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



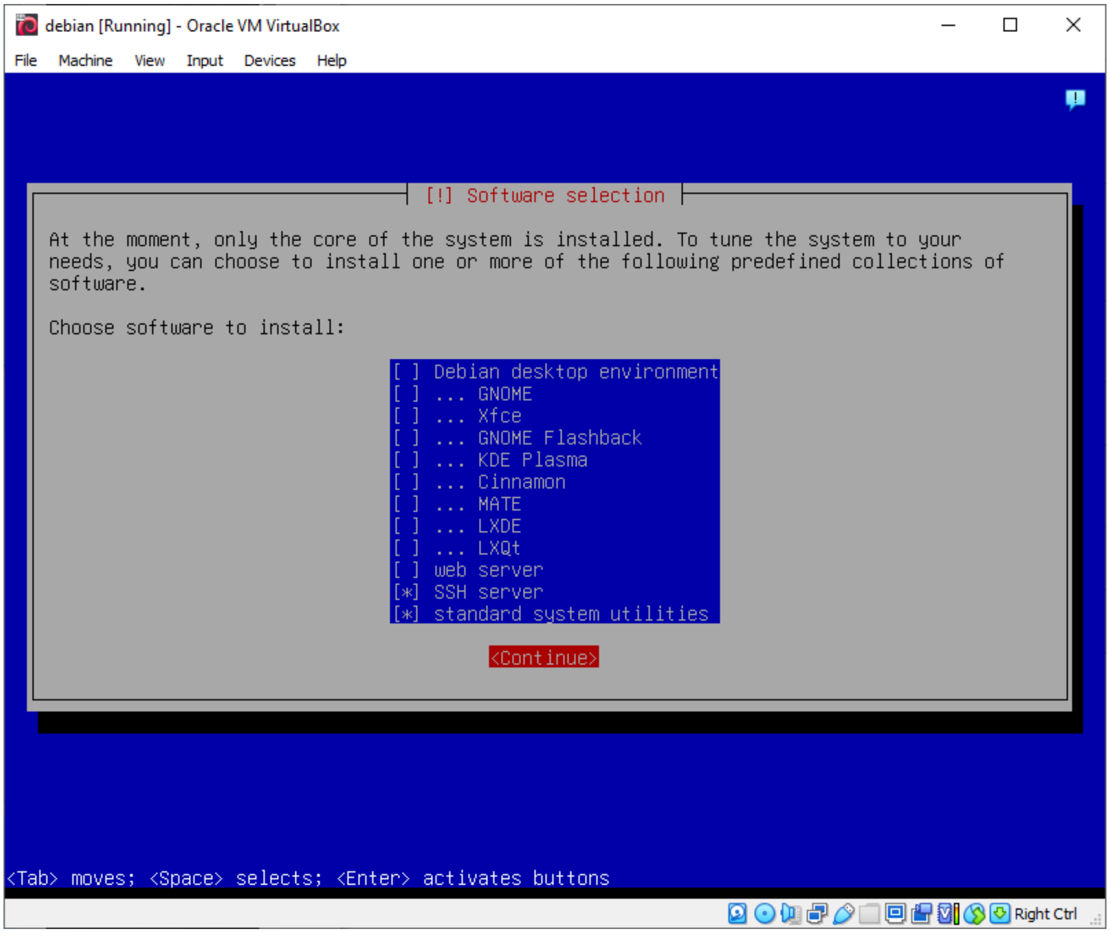
```
                  [?] Debian installer main menu

Choose the next step in the install process:

 Choose language
 Access software for a blind person using a braille display
 Configure the keyboard
 Detect and mount installation media
 Load installer components from installation media
 Detect network hardware
 Configure the network
 Set up users and passwords
 Configure the clock
 Detect disks
 Partition disks
 Install the base system
 Configure the package manager
 Select and install software
 Install the GRUB boot loader
 Continue without boot loader
 Finish the installation
 Change debconf priority
 Check the integrity of installation media
 Save debug logs
 Execute a shell
 Eject a CD from the drive
 Abort the installation

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



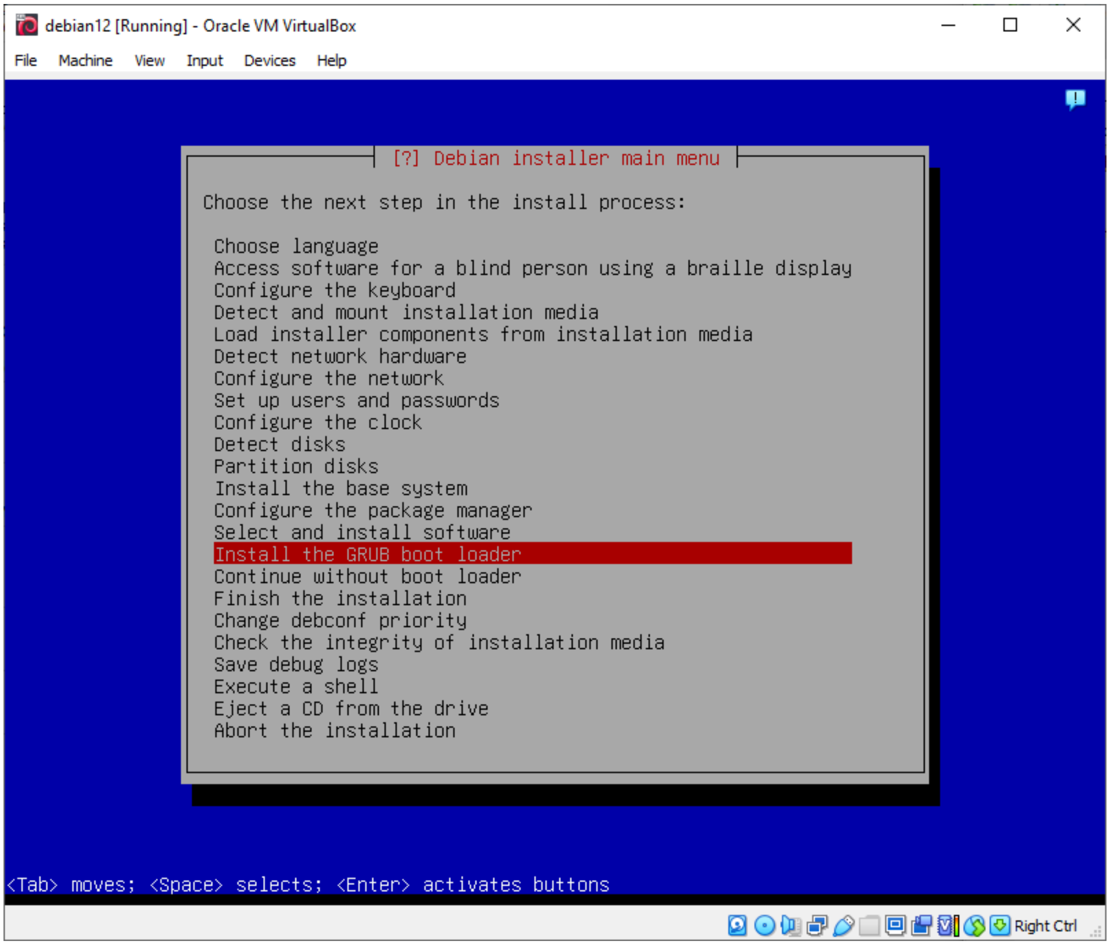
```
                       [?] Configuring discover

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

By default, security updates are not automatically installed, as security advisories
should be reviewed before manual installation of the updates using standard package
management tools.

Alternatively the unattended-upgrades package can be installed, which will install
security updates automatically. Note however that automatic installation of updates may
occasionally cause unexpected downtime of services provided by this machine in the rare
cases where the update is not fully backward-compatible, or where the security advisory
requires the administrator to perform some other manual operation.

Updates management on this system:

                         No automatic updates
                         Install security updates automatically

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


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

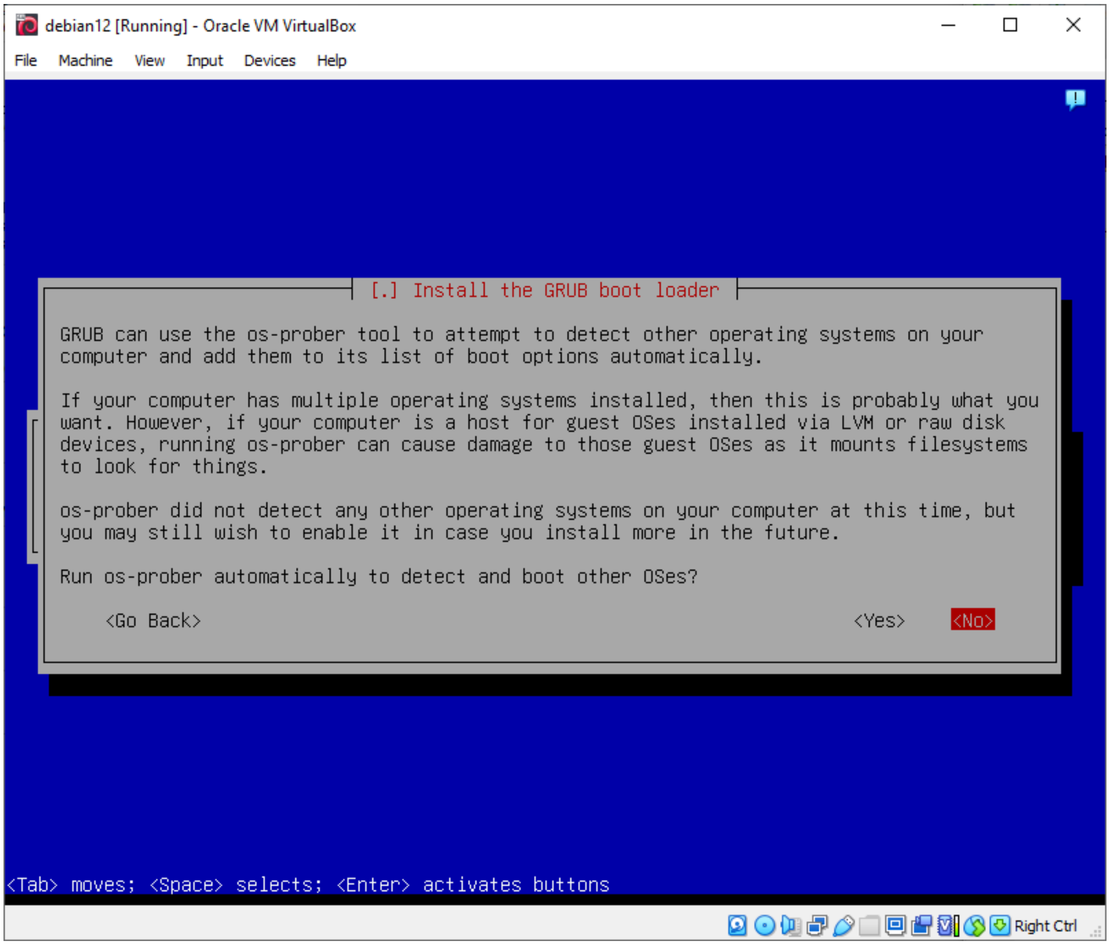
```
[!] Configuring popularity-contest

The system may anonymously supply the distribution developers with statistics about the
most used packages on this system. This information influences decisions such as which
packages should go on the first distribution CD.

If you choose to participate, the automatic submission script will run once every week,
sending statistics to the distribution developers. The collected statistics can be viewed
on https://popcon.debian.org/.

This choice can be later modified by running "dpkg-reconfigure popularity-contest".

Participate in the package usage survey?

    <Yes>                                                                     <No>

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


debian [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

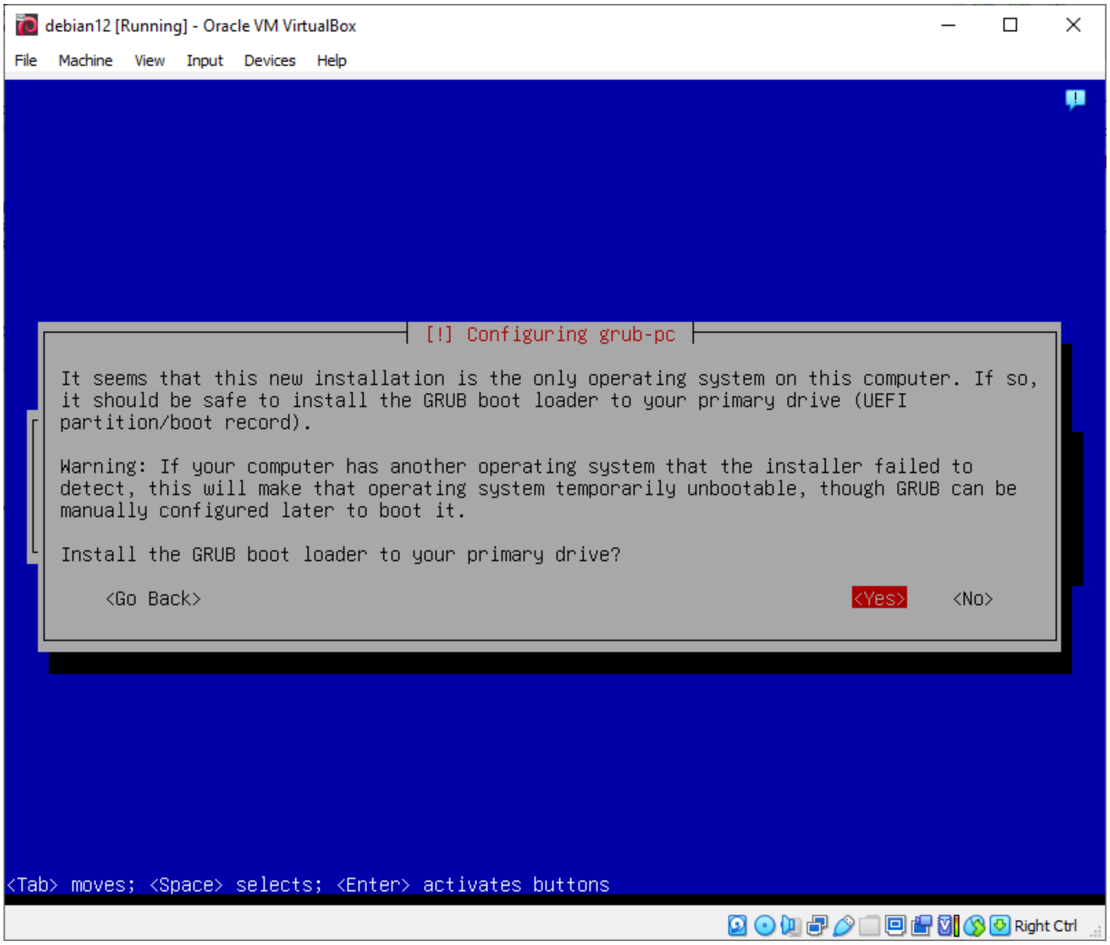
```
[!] Software selection

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:

                              [ ] Debian desktop environment
                              [ ] ... GNOME
                              [ ] ... Xfce
                              [ ] ... GNOME Flashback
                              [ ] ... KDE Plasma
                              [ ] ... Cinnamon
                              [ ] ... MATE
                              [ ] ... LXDE
                              [ ] ... LXQt
                              [ ] web server
                              [*] SSH server
                              [*] standard system utilities

                                     <Continue>

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



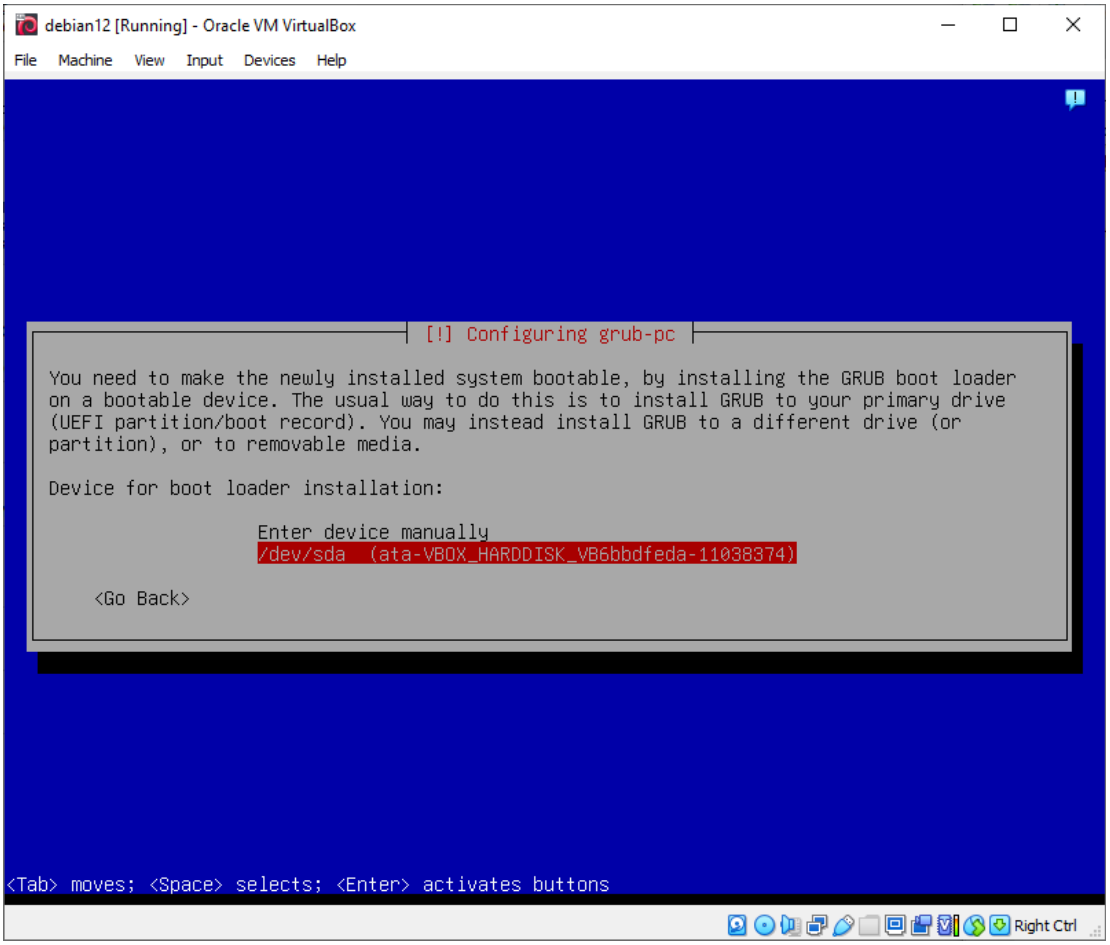
```
[?] Debian installer main menu

Choose the next step in the install process:

 Choose language
 Access software for a blind person using a braille display
 Configure the keyboard
 Detect and mount installation media
 Load installer components from installation media
 Detect network hardware
 Configure the network
 Set up users and passwords
 Configure the clock
 Detect disks
 Partition disks
 Install the base system
 Configure the package manager
 Select and install software
 Install the GRUB boot loader
 Continue without boot loader
 Finish the installation
 Change debconf priority
 Check the integrity of installation media
 Save debug logs
 Execute a shell
 Eject a CD from the drive
 Abort the installation

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



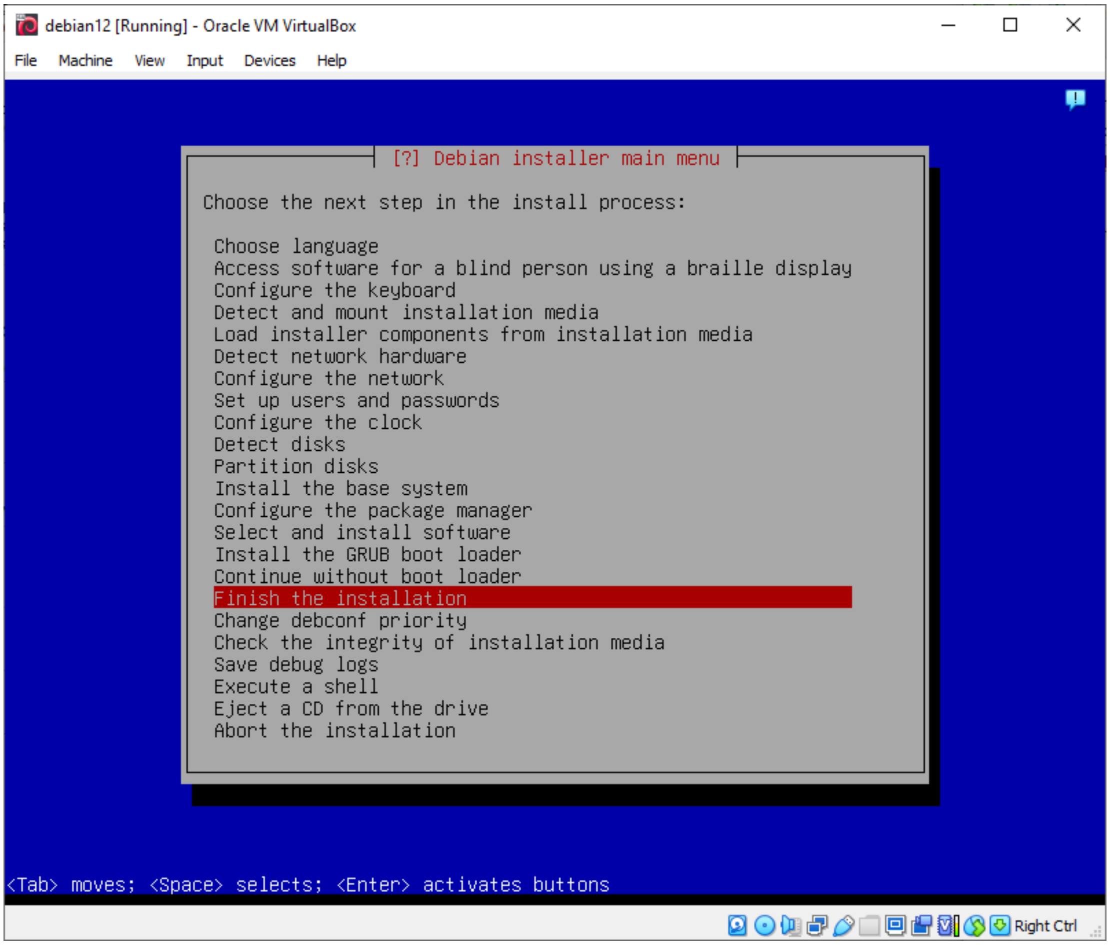
```
[.] Install the GRUB boot loader

GRUB can use the os-prober tool to attempt to detect other operating systems on your
computer and add them to its list of boot options automatically.

If your computer has multiple operating systems installed, then this is probably what you
want. However, if your computer is a host for guest OSes installed via LVM or raw disk
devices, running os-prober can cause damage to those guest OSes as it mounts filesystems
to look for things.

os-prober did not detect any other operating systems on your computer at this time, but
you may still wish to enable it in case you install more in the future.

Run os-prober automatically to detect and boot other OSes?

    <Go Back>                                                         <Yes>    <No>

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


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

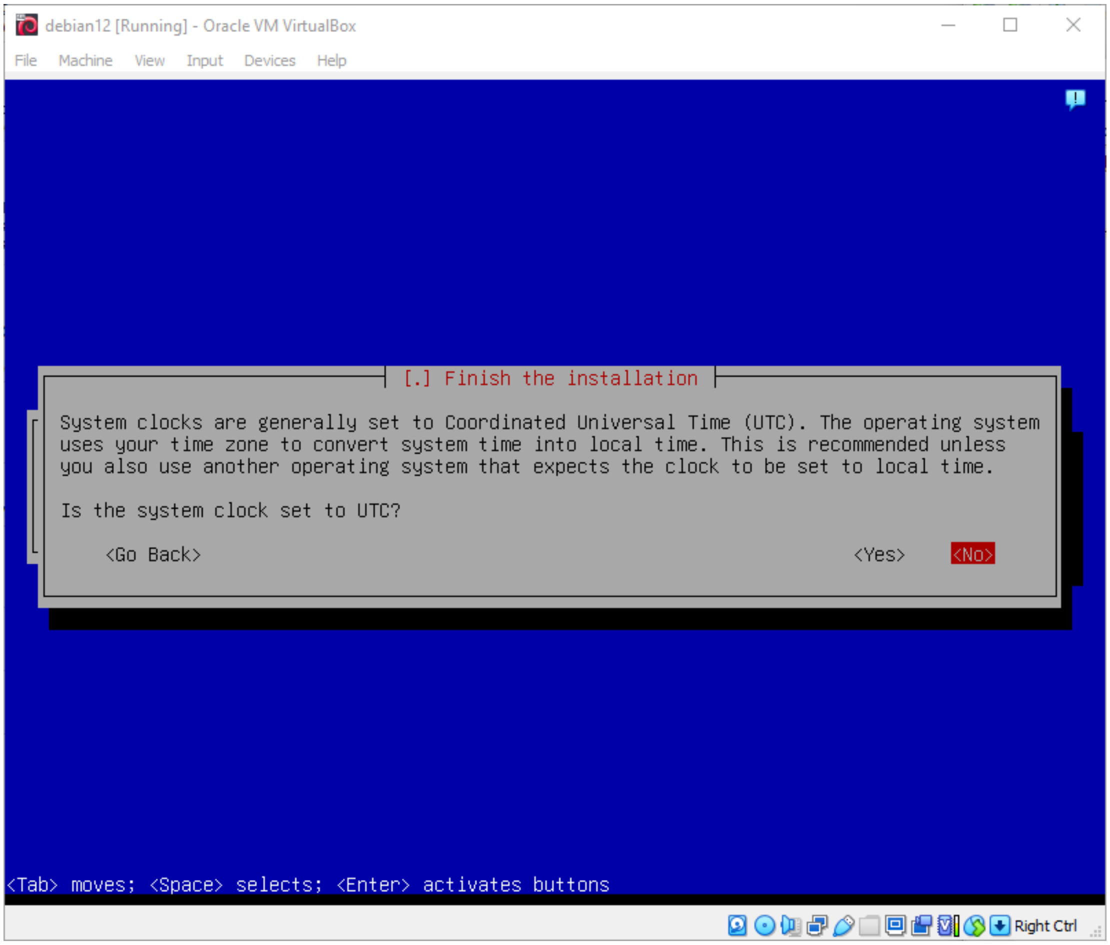
```
[!] Configuring grub-pc

It seems that this new installation is the only operating system on this computer. If so,
it should be safe to install the GRUB boot loader to your primary drive (UEFI
partition/boot record).

Warning: If your computer has another operating system that the installer failed to
detect, this will make that operating system temporarily unbootable, though GRUB can be
manually configured later to boot it.

Install the GRUB boot loader to your primary drive?

    <Go Back>                                                        <Yes>     <No>

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


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[!] Configuring grub-pc

You need to make the newly installed system bootable, by installing the GRUB boot loader
on a bootable device. The usual way to do this is to install GRUB to your primary drive
(UEFI partition/boot record). You may instead install GRUB to a different drive (or
partition), or to removable media.

Device for boot loader installation:

                   Enter device manually
                   /dev/sda  (ata-VBOX_HARDDISK_VB6bbdfeda-11038374)

    <Go Back>

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

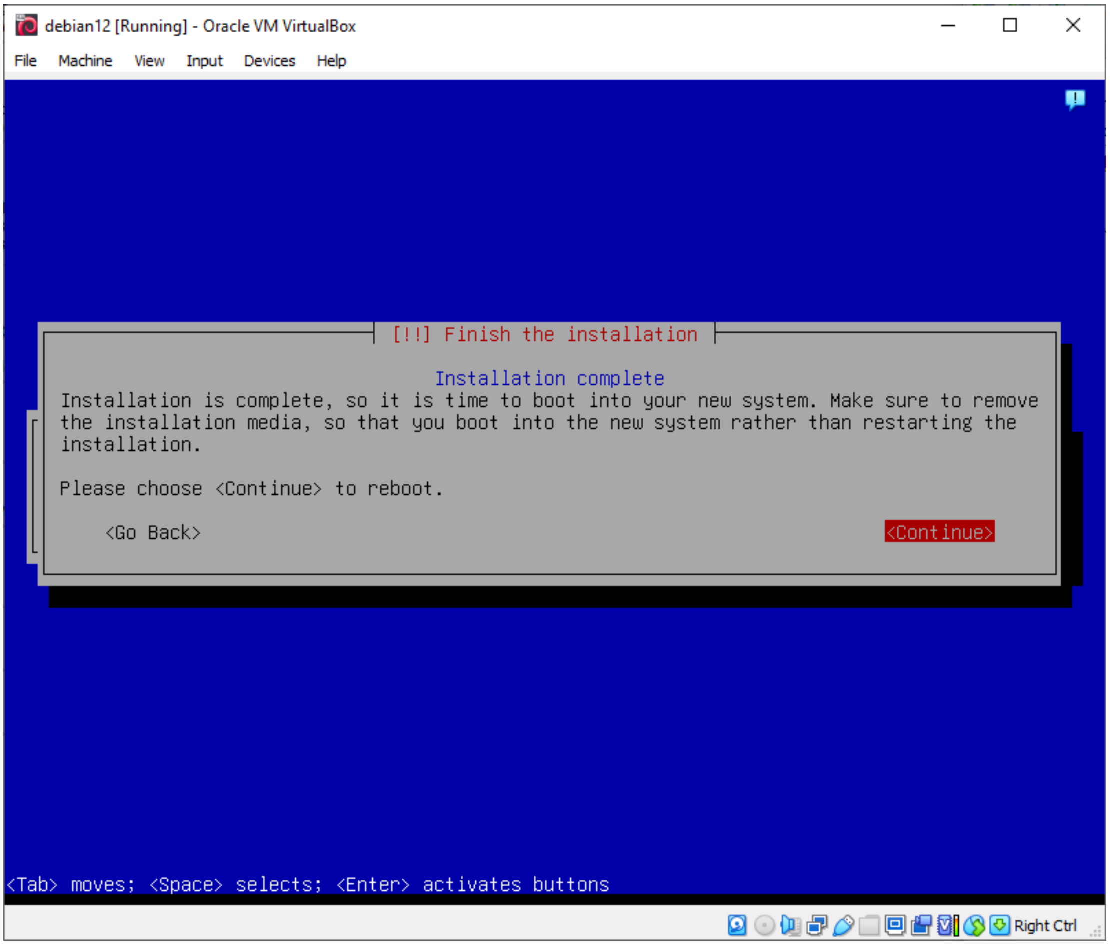

debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
[?] Debian installer main menu

Choose the next step in the install process:

 Choose language
 Access software for a blind person using a braille display
 Configure the keyboard
 Detect and mount installation media
 Load installer components from installation media
 Detect network hardware
 Configure the network
 Set up users and passwords
 Configure the clock
 Detect disks
 Partition disks
 Install the base system
 Configure the package manager
 Select and install software
 Install the GRUB boot loader
 Continue without boot loader
 Finish the installation
 Change debconf priority
 Check the integrity of installation media
 Save debug logs
 Execute a shell
 Eject a CD from the drive
 Abort the installation

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


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

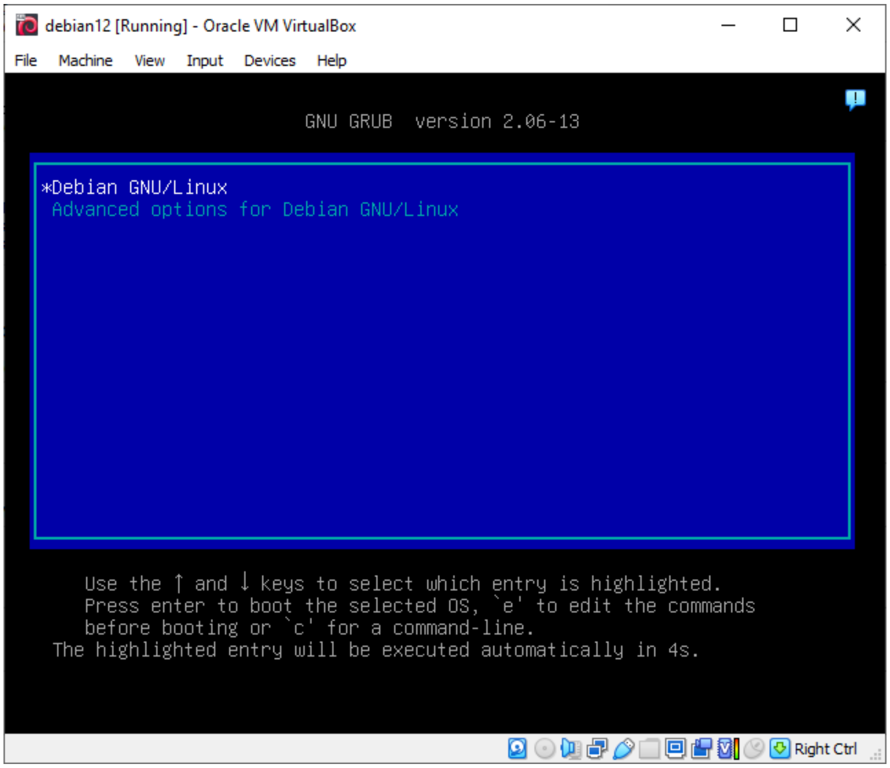
```
[.] Finish the installation

System clocks are generally set to Coordinated Universal Time (UTC). The operating system
uses your time zone to convert system time into local time. This is recommended unless
you also use another operating system that expects the clock to be set to local time.

Is the system clock set to UTC?

    <Go Back>                                                        <Yes>    <No>

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

The ISO image is automatically unmounted


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

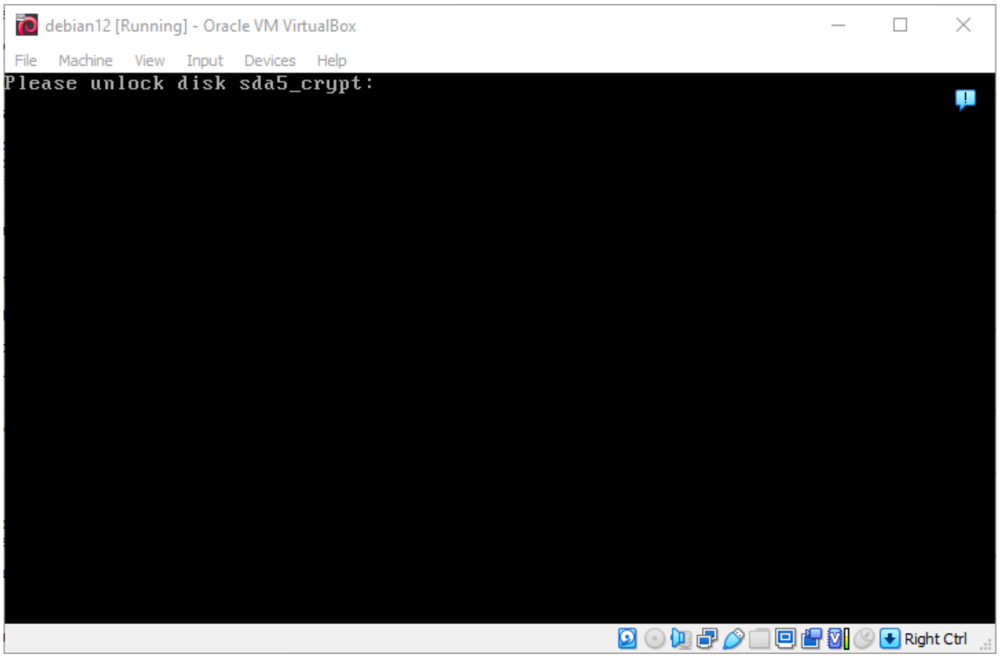
```
[!!] Finish the installation

Installation complete
Installation is complete, so it is time to boot into your new system. Make sure to remove
the installation media, so that you boot into the new system rather than restarting the
installation.

Please choose <Continue> to reboot.

    <Go Back>                                                          <Continue>

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

Rebbot

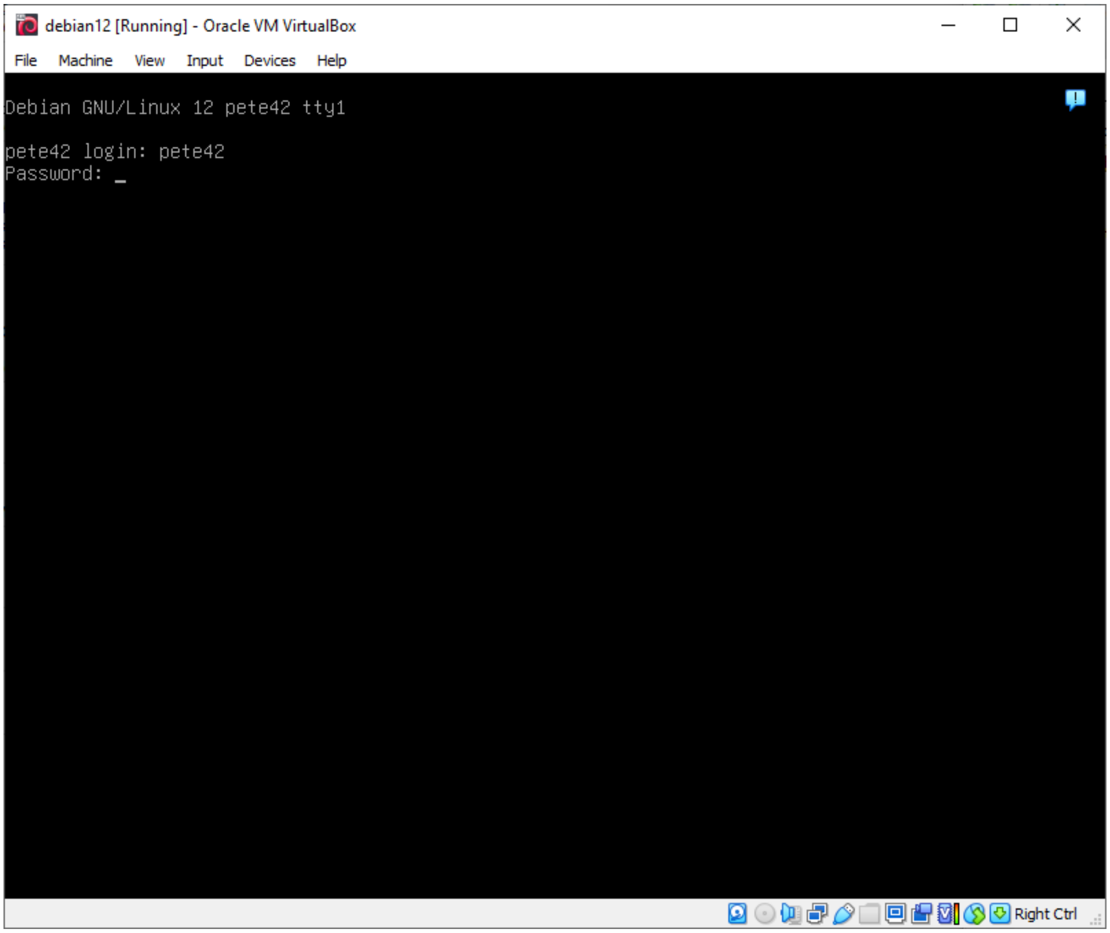

debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
                    GNU GRUB  version 2.06-13

*Debian GNU/Linux
 Advanced options for Debian GNU/Linux

      Use the ↑ and ↓ keys to select which entry is highlighted.
      Press enter to boot the selected OS, `e' to edit the commands
      before booting or `c' for a command-line.
   The highlighted entry will be executed automatically in 4s.
```

Enter your passphrase when prompted e.g. A very complicated passphrase

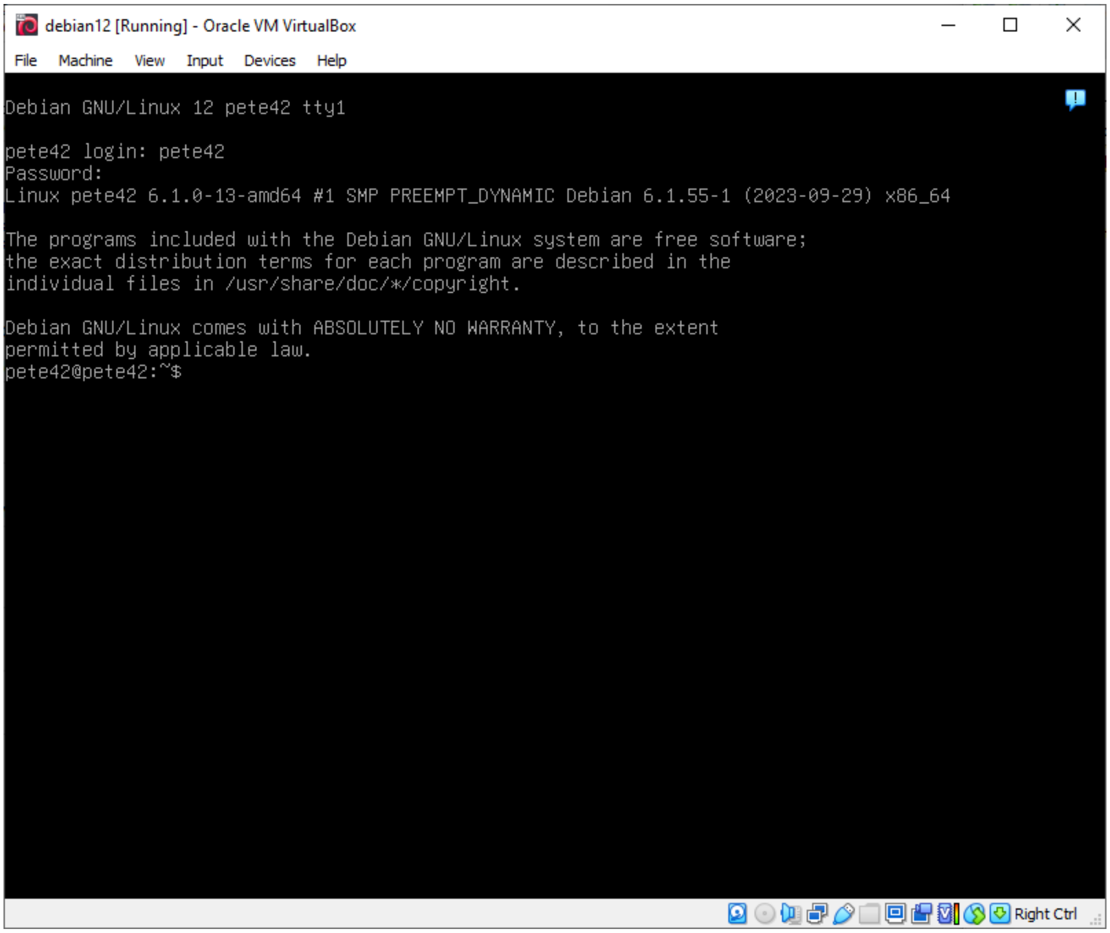

debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

```
Please unlock disk sda5_crypt:
```


debian12 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Right Ctrl

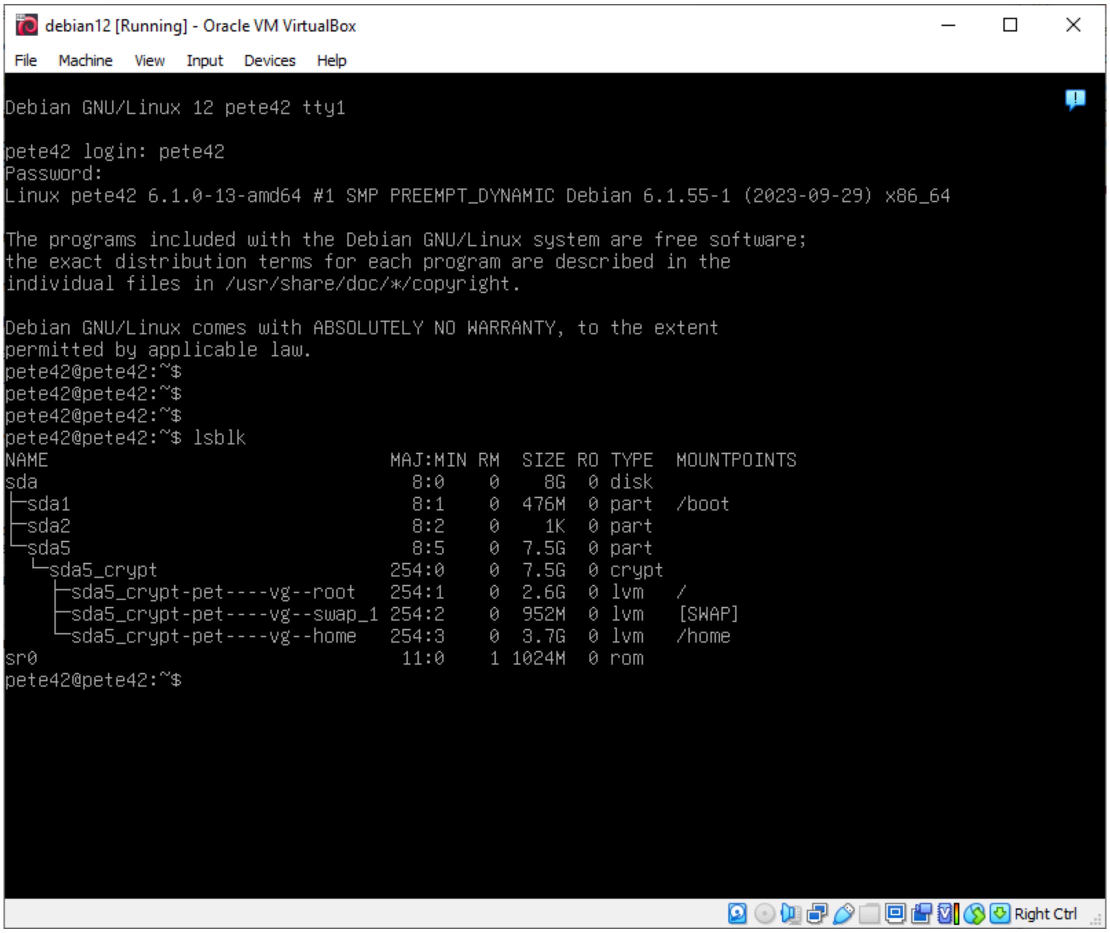
```
Debian GNU/Linux 12 pete42 tty1

pete42 login: pete42
Password: _
```

After login



```
Debian GNU/Linux 12 pete42 tty1

pete42 login: pete42
Password:
Linux pete42 6.1.0-13-amd64 #1 SMP PREEMPT_DYNAMIC Debian 6.1.55-1 (2023-09-29) x86_64

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

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
pete42@pete42:~$
```

Check disk partition layout



```
Debian GNU/Linux 12 pete42 tty1

pete42 login: pete42
Password:
Linux pete42 6.1.0-13-amd64 #1 SMP PREEMPT_DYNAMIC Debian 6.1.55-1 (2023-09-29) x86_64

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the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
pete42@pete42:~$
pete42@pete42:~$
pete42@pete42:~$
pete42@pete42:~$ lsblk
NAME                           MAJ:MIN RM  SIZE RO TYPE  MOUNTPOINTS
sda                              8:0    0    8G  0 disk
├─sda1                           8:1    0  476M  0 part  /boot
├─sda2                           8:2    0    1K  0 part
└─sda5                           8:5    0  7.5G  0 part
  └─sda5_crypt                 254:0    0  7.5G  0 crypt
    ├─sda5_crypt-pet----vg--root 254:1    0  2.6G  0 lvm   /
    ├─sda5_crypt-pet----vg--swap_1 254:2    0  952M  0 lvm   [SWAP]
    └─sda5_crypt-pet----vg--home 254:3    0  3.7G  0 lvm   /home
sr0                             11:0    1 1024M  0 rom
pete42@pete42:~$
```
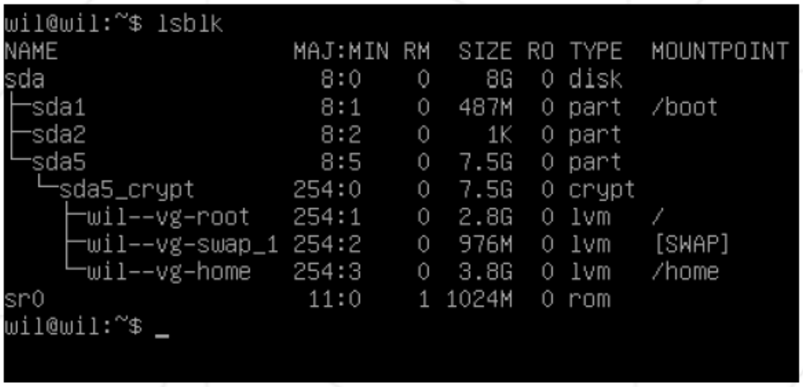
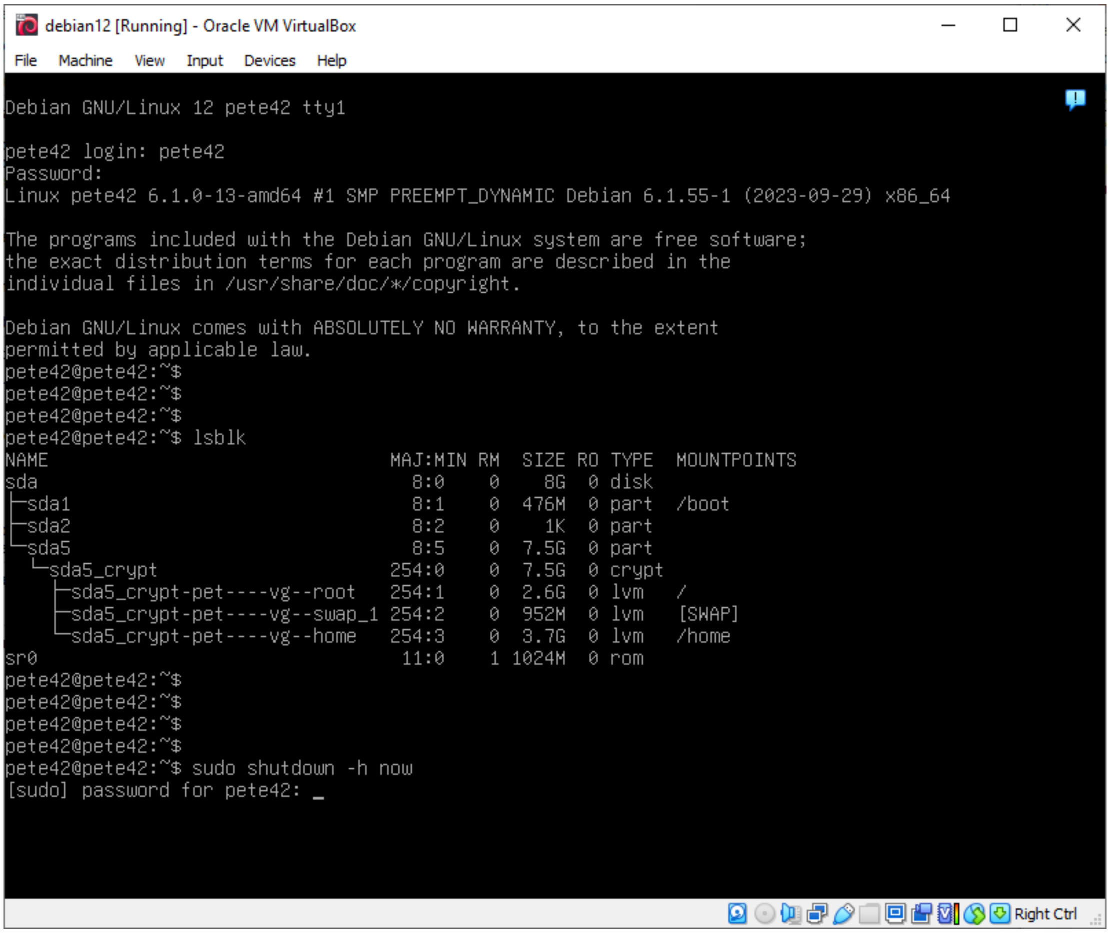

versus documented disk layout



```
wil@wil:~$ lsblk
NAME                    MAJ:MIN RM  SIZE RO TYPE  MOUNTPOINT
sda                       8:0    0    8G  0 disk
├─sda1                    8:1    0  487M  0 part  /boot
├─sda2                    8:2    0    1K  0 part
└─sda5                    8:5    0  7.5G  0 part
  └─sda5_crypt          254:0    0  7.5G  0 crypt
    ├─wil--vg-root      254:1    0  2.8G  0 lvm   /
    ├─wil--vg-swap_1    254:2    0  976M  0 lvm   [SWAP]
    └─wil--vg-home      254:3    0  3.8G  0 lvm   /home
sr0                      11:0    1 1024M  0 rom
wil@wil:~$ _
```

Shutdown VM

Use command "sudo shutdown -h now" and enter your password to shutdown the VM



```
Debian GNU/Linux 12 pete42 tty1

pete42 login: pete42
Password:
Linux pete42 6.1.0-13-amd64 #1 SMP PREEMPT_DYNAMIC Debian 6.1.55-1 (2023-09-29) x86_64

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

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
pete42@pete42:~$
pete42@pete42:~$
pete42@pete42:~$
pete42@pete42:~$ lsblk
NAME                               MAJ:MIN RM  SIZE RO TYPE  MOUNTPOINTS
sda                                  8:0    0    8G  0 disk
├─sda1                               8:1    0  476M  0 part  /boot
├─sda2                               8:2    0    1K  0 part
└─sda5                               8:5    0  7.5G  0 part
  └─sda5_crypt                     254:0    0  7.5G  0 crypt
    ├─sda5_crypt-pet----vg--root   254:1    0  2.6G  0 lvm   /
    ├─sda5_crypt-pet----vg--swap_1 254:2    0  952M  0 lvm   [SWAP]
    └─sda5_crypt-pet----vg--home   254:3    0  3.7G  0 lvm   /home
sr0                                 11:0    1 1024M  0 rom
pete42@pete42:~$
pete42@pete42:~$
pete42@pete42:~$
pete42@pete42:~$
pete42@pete42:~$ sudo shutdown -h now
[sudo] password for pete42: _
```

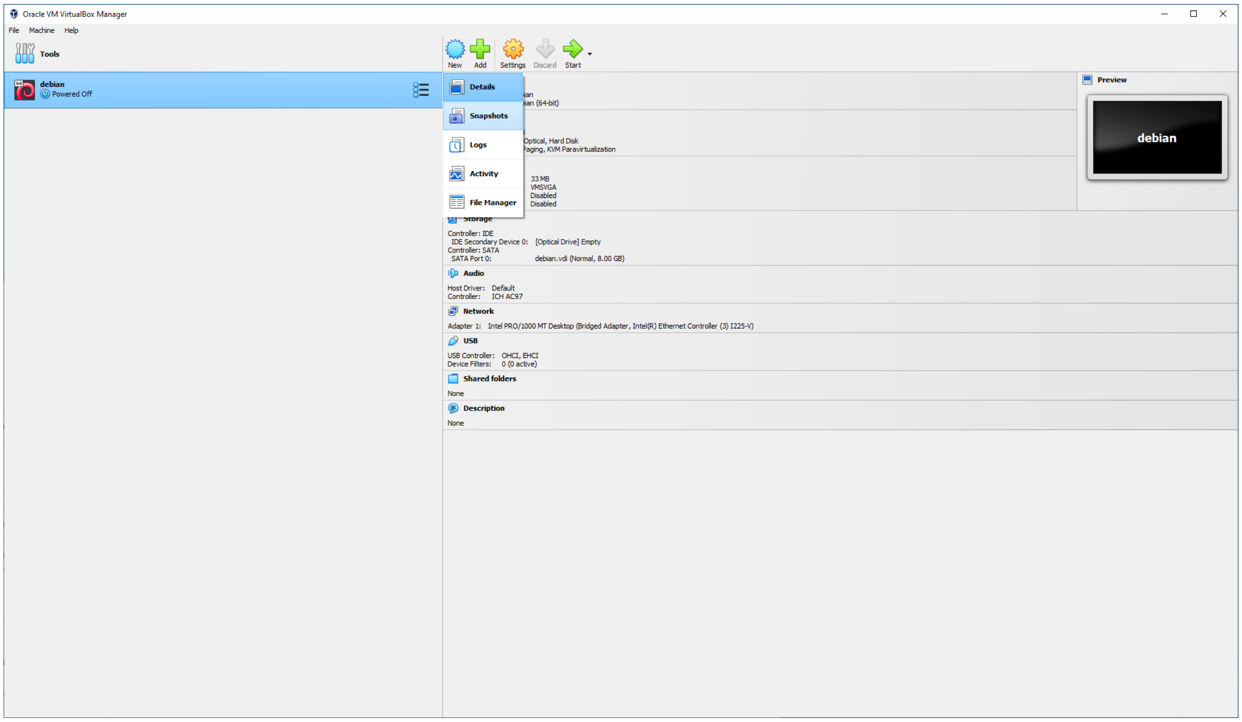
Some (hopefully) useful information

This section has some hints and tips for setting up VirtualBox to be more useful as well as configuring the VM to meet the Born2beroot requirements.

Snapshot the VM

IMPORTANT before starting any customisation or configuration it is a very good idea to take a snapshot of the VM in it's current state which allows you to roll-back the VM to the status of the snapshot should things get screwed up because things have not gone to plan

Take a snapshot as shown below - it is best to do this when the VM is powered off as that ensures there is not activity that could result in data corruption!



ian
ian (64-bit)

Optical, Hard Disk
Paging, KVM Paravirtualization

33 MB
VMSVGA
Disabled
Disabled

Storage

```
Controller: IDE
 IDE Secondary Device 0:   [Optical Drive] Empty
Controller: SATA
 SATA Port 0:              debian.vdi (Normal, 8.00 GB)
```

Audio

```
Host Driver:   Default
Controller:    ICH AC97
```

Network

```
Adapter 1:   Intel PRO/1000 MT Desktop (Bridged Adapter, Intel(R) Ethernet Controller (3) I225-V)
```

USB

```
USB Controller:   OHCI, EHCI
Device Filters:   0 (0 active)
```

Shared folders

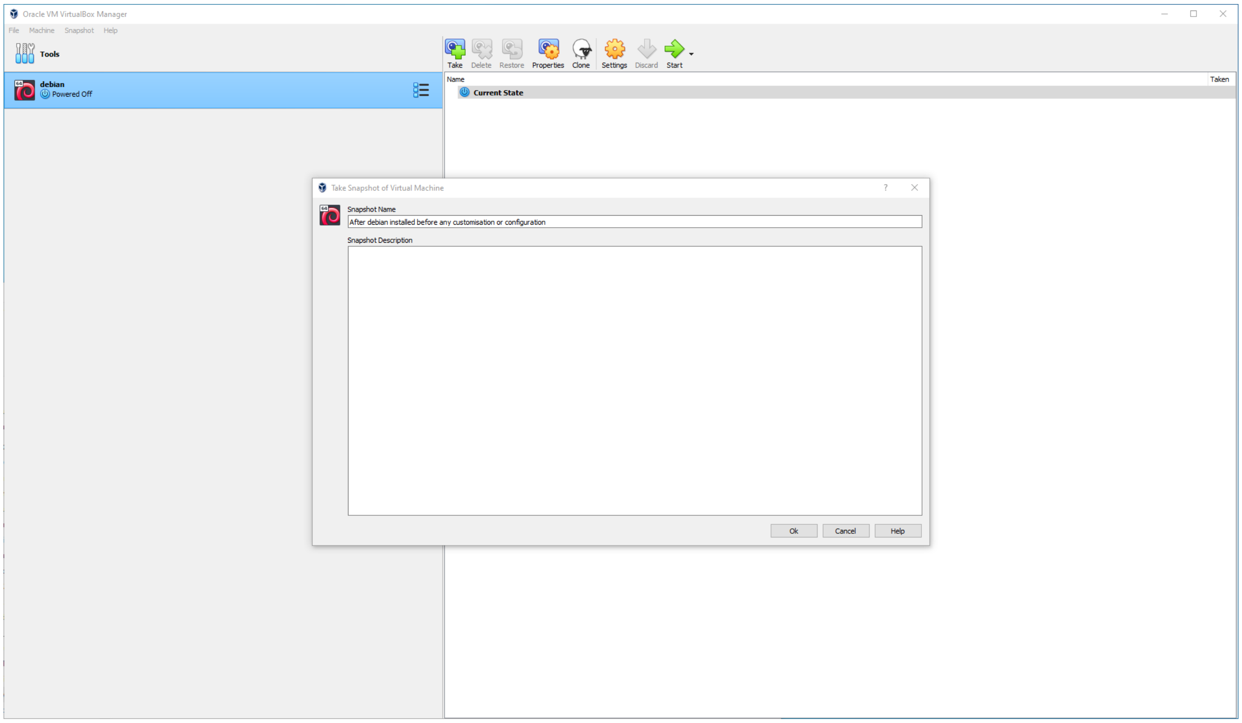
None

Description

None

Click the Take button in the menu bar and add details of what the snapshot contains - provide a reasonable amount of information as it is easy to forget what the status in when you have multiple snapshots and need to roll back to a specific status!!!!

Click OK to take the snapshot



Snapshot Name: After debian installed before any customisation or configuration

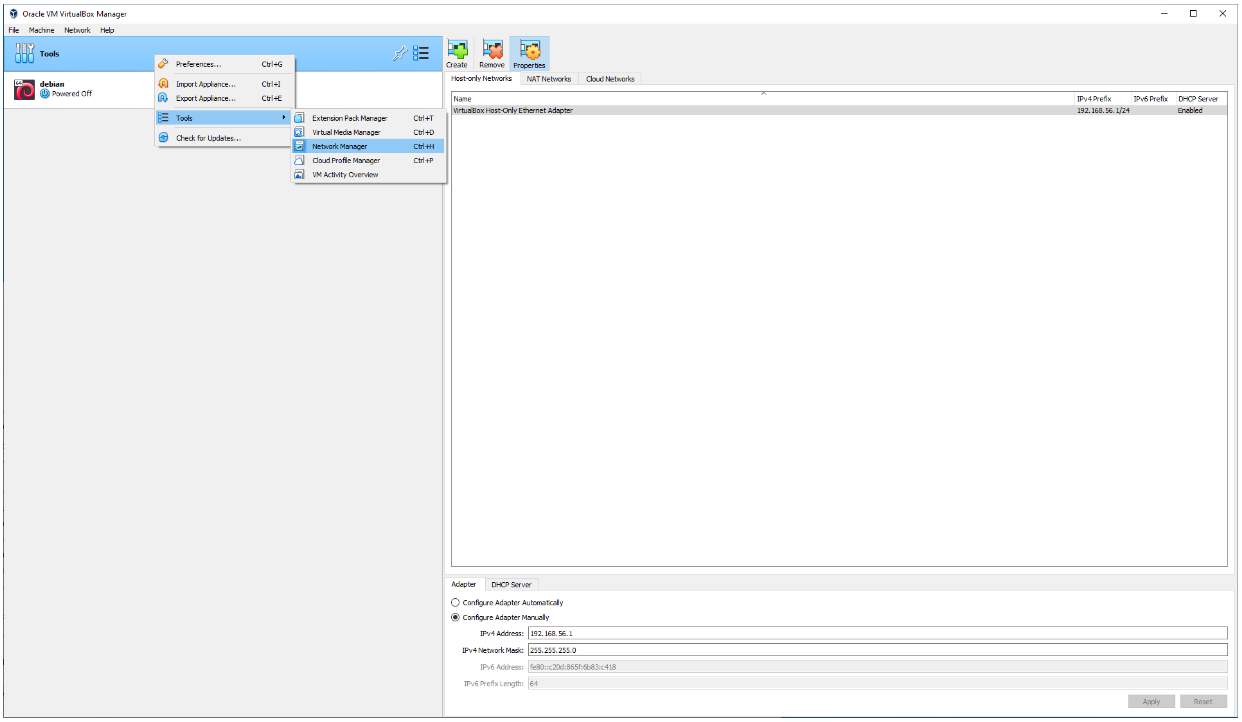
Snapshot Description

Remember to shutdown the VM and take a snapshot before you start doing anything dodgy or high risk - it will avoid a lot of grief.
YOU HAVE BEEN WARNED

Host-only Network

This is not required unless you need multiple VMs running in parallel to be able to communicate on thier own internal virtual network.

If a Host-Only network is required, right-click the Tools and view the Network Manager to access details of IP subnet etc. (as shown below)



Name	IPv4 Prefix	IPv6 Prefix	DHCP Server
VirtualBox Host-Only Ethernet Adapter	192.168.56.1/24		Enabled

○ Configure Adapter Automatically

● Configure Adapter Manually

IPv4 Address: 192.168.56.1

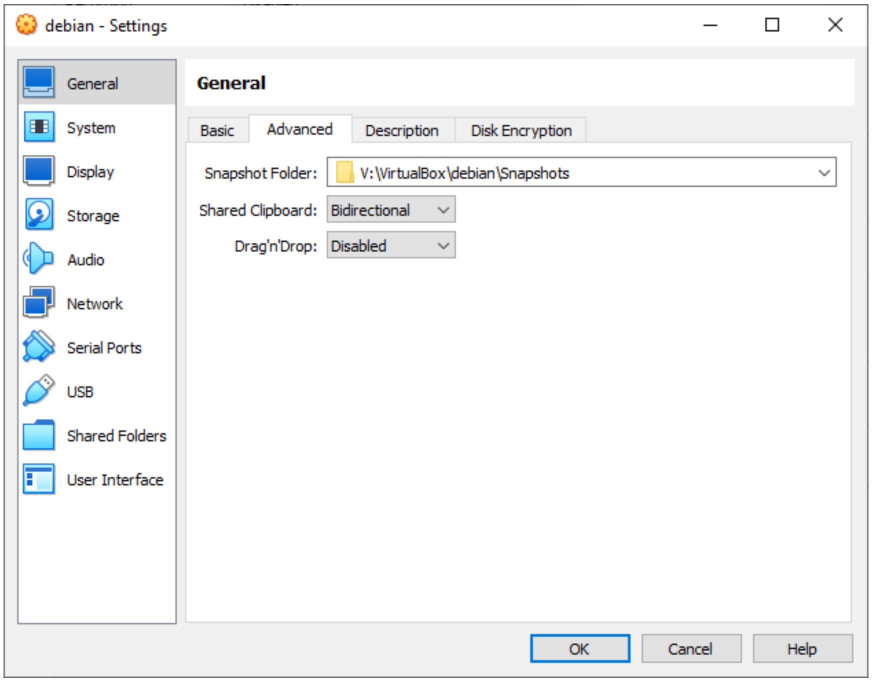
IPv4 Network Mask: 255.255.255.0

IPv6 Address: fe80::c20d:865f:6b83:c418

IPv6 Prefix Length: 64

Shared Clipboard

Enable the shared clipboard to be able to copy/paste from the VM to the host desktop/laptop by clicking the Settings button (while the VM is selected on the left) and enbling the General-> Advanced - Shared Clipboard option



Snapshot Folder: V:\VirtualBox\debian\Snapshots

Shared Clipboard: Bidirectional

Drag'n'Drop: Disabled

Debian vs Rocky

Choice of debian over Rocky linux because documentation recommended it for "beginners" - Rocky is a derivative of Red Hat and is more common in enterprise use as it is owned by IBM. Debian is a community supported Linux distribution with a wide variety of use from typical office functions and email through to games and networking.

SELinux vs AppArmour

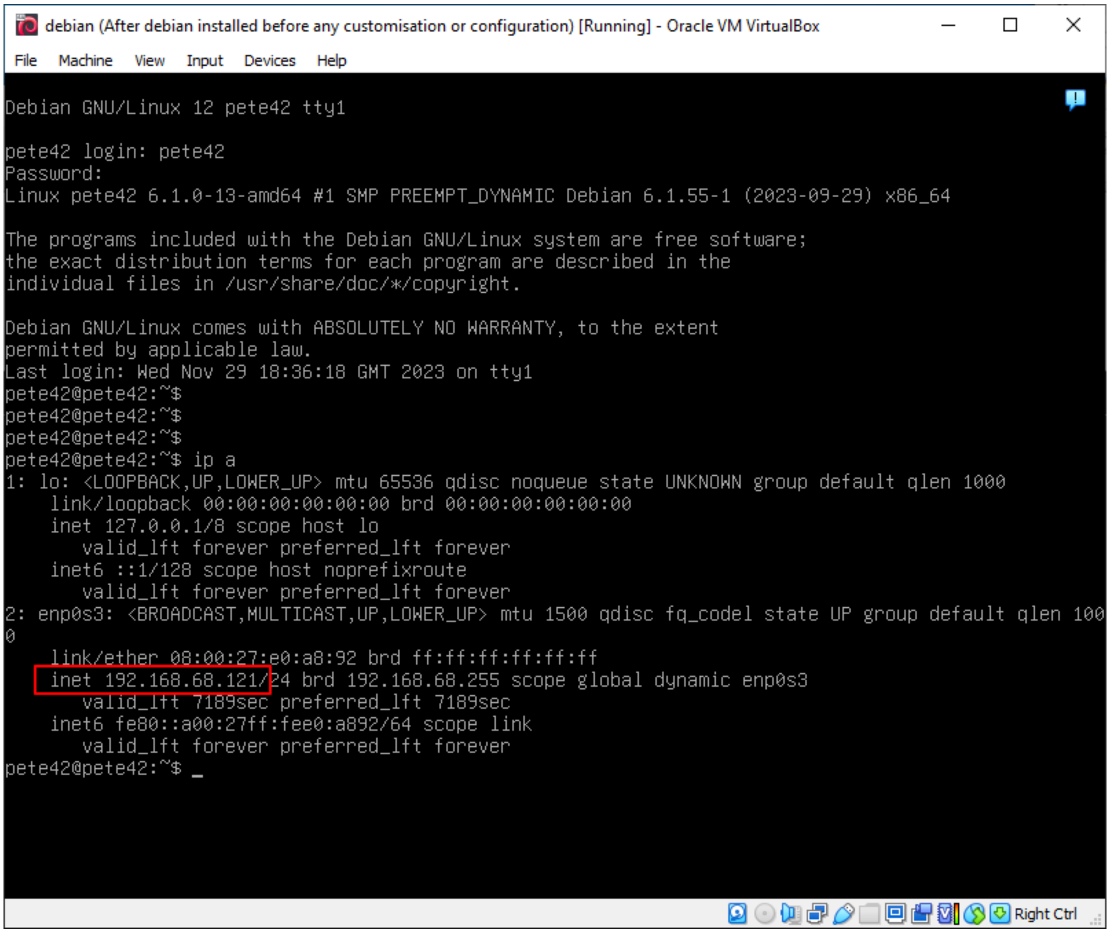
SELinux is the Rocky/Red Hat/Fedora and others for additional security configurations whilst AppArmour is used by debian/ubuntu/and others for the same purpose. This article provides a good description and comparison of each https://www.techtarget.com/searchdatacenter/tip/Compare-two-Linux-security-modules-SELinux-vs-AppArmor#:~:text=It's%20important%20to%20understand%20that,Ubuntu%2FDebian%20derivatives%20use%20AppArmor.

Terminal access

VirtualBox has it's own terminal that pops up whne the VM is started. Whilst it is functional a much better terminal is available that support SSH and copy/paste etc. between host desktop/laptop and the VM. You can download a version of MobaXterm Home edition from from here https://mobaxterm.mobatek.net/download-home-edition.html

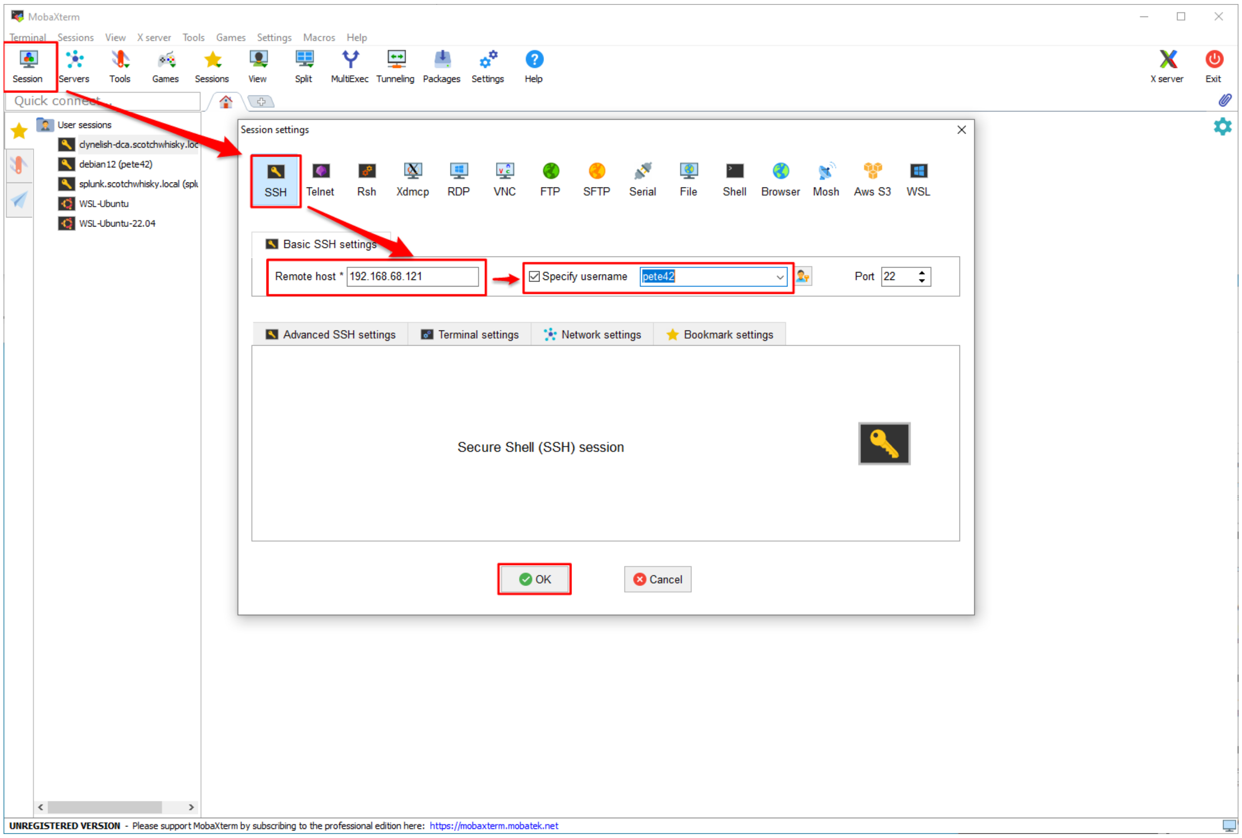
After installing that you can access the VM using MobaXterm following the steps below

Find the IP address assigned ti the VM from the VirtualBox terminal widown with the command: ip a
(a for address) - the IP address is outline in red below


debian (After debian installed before any customisation or configuration) [Running] - Oracle VM VirtualBox
File
Machine
View
Input
Devices
Help
Right Ctrl

```
Debian GNU/Linux 12 pete42 tty1

pete42 login: pete42
Password:
Linux pete42 6.1.0-13-amd64 #1 SMP PREEMPT_DYNAMIC Debian 6.1.55-1 (2023-09-29) x86_64

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

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Wed Nov 29 18:36:18 GMT 2023 on tty1
pete42@pete42:~$
pete42@pete42:~$
pete42@pete42:~$
pete42@pete42:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
       valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host noprefixroute
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 100
0
    link/ether 08:00:27:e0:a8:92 brd ff:ff:ff:ff:ff:ff
    inet 192.168.68.121/24 brd 192.168.68.255 scope global dynamic enp0s3
       valid_lft 7189sec preferred_lft 7189sec
    inet6 fe80::a00:27ff:fee0:a892/64 scope link
       valid_lft forever preferred_lft forever
pete42@pete42:~$ _
```

Start the MobaXterm program and start a new session as shown below



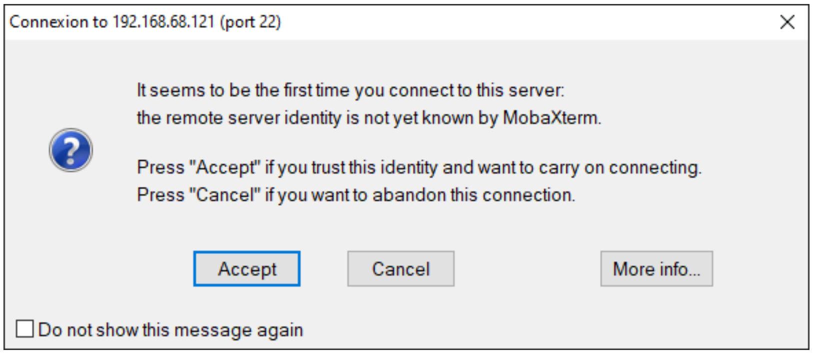
Remote host * 192.168.68.121

☑ Specify username pete42

Port 22

UNREGISTERED VERSION - Please support MobaXterm by subscribing to the professional edition here: https://mobaxterm.mobatek.net

The first time you connect to a new system using SSH it prompts you to save the signature of the system - click Accept



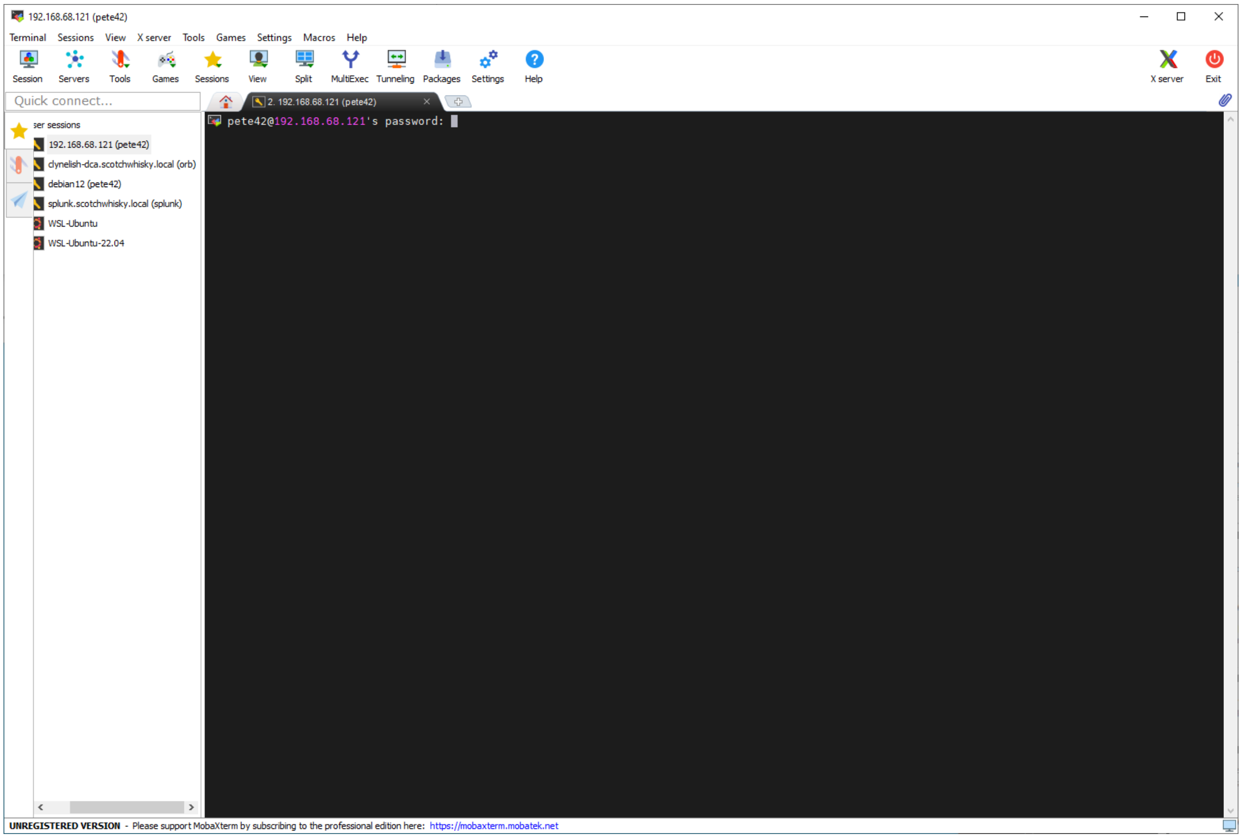
Connexion to 192.168.68.121 (port 22)

It seems to be the first time you connect to this server:
the remote server identity is not yet known by MobaXterm.

Press "Accept" if you trust this identity and want to carry on connecting.
Press "Cancel" if you want to abandon this connection.

□ Do not show this message again

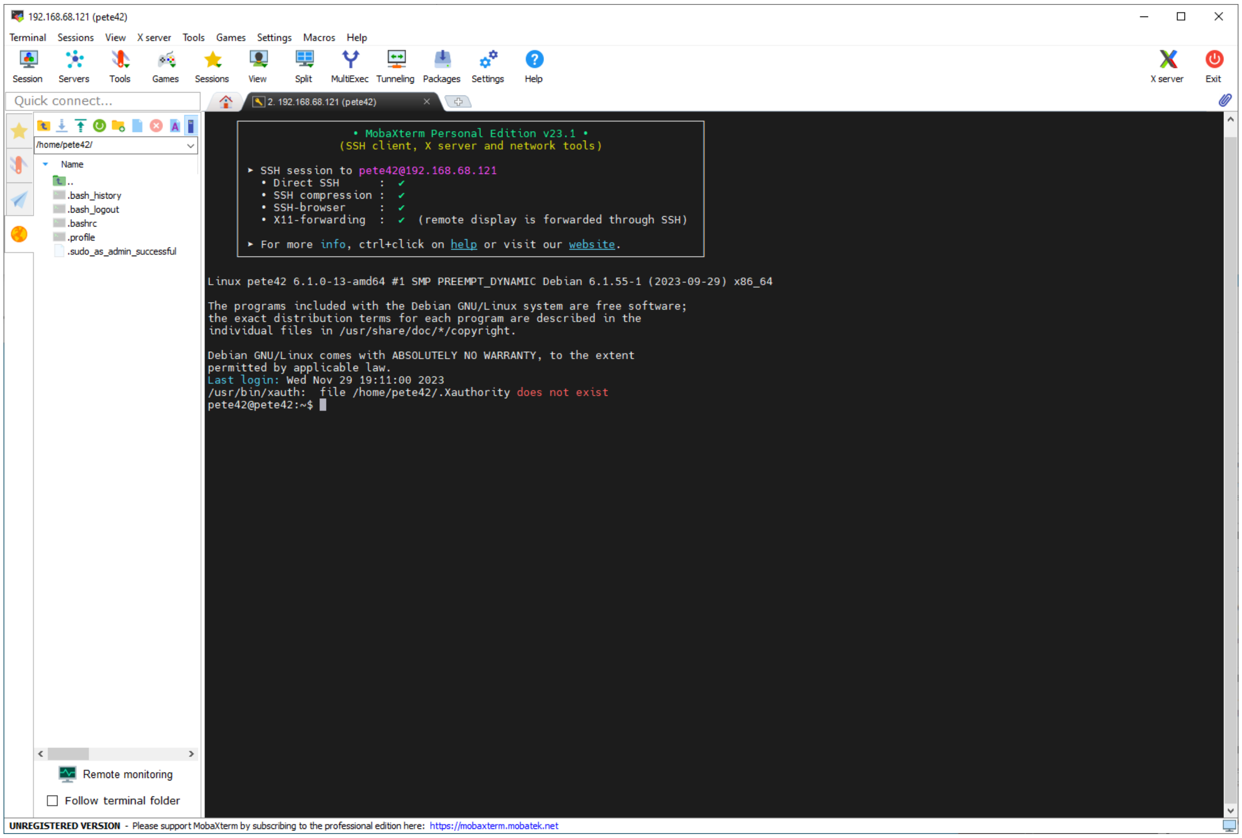
Next enter your password



```
pete42@192.168.68.121's password: 
```

UNREGISTERED VERSION - Please support MobaXterm by subscribing to the professional edition here: https://mobaxterm.mobatek.net

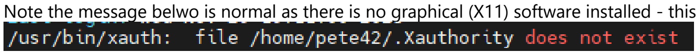
You will be asked if you want to save the password - your choice and then you will be logged into the VM


192.168.68.121 (pete42)
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help
X server Exit
Quick connect...
2. 192.168.68.121 (pete42)
/home/pete42/
Name
..
.bash_history
.bash_logout
.bashrc
.profile
.sudo_as_admin_successful
Remote monitoring
Follow terminal folder
UNREGISTERED VERSION - Please support MobaXterm by subscribing to the professional edition here: https://mobaxterm.mobatek.net

```
                • MobaXterm Personal Edition v23.1 •
              (SSH client, X server and network tools)

 ▸ SSH session to pete42@192.168.68.121
   • Direct SSH      :  ✓
   • SSH compression :  ✓
   • SSH-browser     :  ✓
   • X11-forwarding  :  ✓  (remote display is forwarded through SSH)

 ▸ For more info, ctrl+click on help or visit our website.

Linux pete42 6.1.0-13-amd64 #1 SMP PREEMPT_DYNAMIC Debian 6.1.55-1 (2023-09-29) x86_64

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

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Wed Nov 29 19:11:00 2023
/usr/bin/xauth:  file /home/pete42/.Xauthority does not exist
pete42@pete42:~$ 
```

Now that MobaXterm is used to access the VM the remaining instructions will include the commands used as text instead of the screenshots used previously.

Note the message belwo is normal as there is no graphical (X11) software installed - this is a requirement of Born2beroot



```
/usr/bin/xauth:  file /home/pete42/.Xauthority does not exist
```

Install Firewall

Debian Uncomplicated FireWall (ufw) setup - more detail here https://www.cyberciti.biz/faq/set-up-a-firewall-with-ufw-on-debian-12-linux/

Use sudo to install the firewall software as shown below

First check for any updates

```
pete42@pete42:~$ sudo apt update
[sudo] password for pete42:
Hit:1 http://security.debian.org/debian-security bookworm-security InRelease
Hit:2 https://deb.debian.org/debian bookworm InRelease
Hit:3 https://deb.debian.org/debian bookworm-updates InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
All packages are up to date.
pete42@pete42:~$
```

Install ufw

```
pete42@pete42:~$ sudo apt install ufw
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  iptables libip6tc2 libnetfilter-conntrack3 libnfnetlink0
Suggested packages:
  firewalld rsyslog
The following NEW packages will be installed:
  iptables libip6tc2 libnetfilter-conntrack3 libnfnetlink0 ufw
0 upgraded, 5 newly installed, 0 to remove and 0 not upgraded.
Need to get 603 kB of archives.
After this operation, 3,606 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 https://deb.debian.org/debian bookworm/main amd64 libip6tc2 amd64 1.8.9-2 [19.4 kB]
Get:2 https://deb.debian.org/debian bookworm/main amd64 libnfnetlink0 amd64 1.0.2-2 [15.1 kB]
Get:3 https://deb.debian.org/debian bookworm/main amd64 libnetfilter-conntrack3 amd64 1.0.9-3 [40.7 kB]
Get:4 https://deb.debian.org/debian bookworm/main amd64 iptables amd64 1.8.9-2 [360 kB]
Get:5 https://deb.debian.org/debian bookworm/main amd64 ufw all 0.36.2-1 [168 kB]
Fetched 603 kB in 0s (6,460 kB/s)
Preconfiguring packages ...
```

```
Selecting previously unselected package libip6tc2:amd64.
(Reading database ... 29028 files and directories currently installed.)
Preparing to unpack .../libip6tc2_1.8.9-2_amd64.deb ...
Unpacking libip6tc2:amd64 (1.8.9-2) ...
Selecting previously unselected package libnfnetlink0:amd64.
Preparing to unpack .../libnfnetlink0_1.0.2-2_amd64.deb ...
Unpacking libnfnetlink0:amd64 (1.0.2-2) ...
Selecting previously unselected package libnetfilter-conntrack3:amd64.
Preparing to unpack .../libnetfilter-conntrack3_1.0.9-3_amd64.deb ...
Unpacking libnetfilter-conntrack3:amd64 (1.0.9-3) ...
Selecting previously unselected package iptables.
Preparing to unpack .../iptables_1.8.9-2_amd64.deb ...
Unpacking iptables (1.8.9-2) ...
Selecting previously unselected package ufw.
Preparing to unpack .../archives/ufw_0.36.2-1_all.deb ...
Unpacking ufw (0.36.2-1) ...
Setting up libip6tc2:amd64 (1.8.9-2) ...
Setting up libnfnetlink0:amd64 (1.0.2-2) ...
Setting up libnetfilter-conntrack3:amd64 (1.0.9-3) ...
Setting up iptables (1.8.9-2) ...
update-alternatives: using /usr/sbin/iptables-legacy to provide /usr/sbin/iptables (iptables) in auto mode
update-alternatives: using /usr/sbin/ip6tables-legacy to provide /usr/sbin/ip6tables (ip6tables) in auto mode
update-alternatives: using /usr/sbin/iptables-nft to provide /usr/sbin/iptables (iptables) in auto mode
update-alternatives: using /usr/sbin/ip6tables-nft to provide /usr/sbin/ip6tables (ip6tables) in auto mode
update-alternatives: using /usr/sbin/arptables-nft to provide /usr/sbin/arptables (arptables) in auto mode
update-alternatives: using /usr/sbin/ebtables-nft to provide /usr/sbin/ebtables (ebtables) in auto mode
Setting up ufw (0.36.2-1) ...

Creating config file /etc/ufw/before.rules with new version

Creating config file /etc/ufw/before6.rules with new version

Creating config file /etc/ufw/after.rules with new version

Creating config file /etc/ufw/after6.rules with new version
Created symlink /etc/systemd/system/multi-user.target.wants/ufw.service → /lib/systemd/system/ufw.service.
Processing triggers for libc-bin (2.36-9+deb12u3) ...
Processing triggers for man-db (2.11.2-2) ...
pete42@pete42:~$
```

configure fw

```
pete42@pete42:~$ sudo ufw status
Status: inactive
pete42@pete42:~$
pete42@pete42:~$
pete42@pete42:~$
pete42@pete42:~$ sudo ufw allow 22/tcp     ## SSH default port
Rules updated
Rules updated (v6)
pete42@pete42:~$
pete42@pete42:~$
pete42@pete42:~$ sudo ufw enable           ## enable fw
Command may disrupt existing ssh connections. Proceed with operation (y|n)? y
Firewall is active and enabled on system startup
pete42@pete42:~$
pete42@pete42:~$
pete42@pete42:~$ sudo ufw reload           ## reload fw
Firewall reloaded
pete42@pete42:~$
pete42@pete42:~$
pete42@pete42:~$ sudo ufw status verbose   ## fw status
Status: active
Logging: on (low)
Default: deny (incoming), allow (outgoing), disabled (routed)
New profiles: skip

To                         Action      From
--                         ------      ----
22/tcp                     ALLOW IN    Anywhere
22/tcp (v6)                ALLOW IN    Anywhere (v6)

pete42@pete42:~$
```

Test you can still connect by entering CTRL+d (logoff) to disconnect from the terminal session in MobaXterm
then type "r" to restart the session

Now open port 4242 for SSSH as required by the Born2beroot

```
pete42@pete42:~$ sudo ufw allow 4242/tcp   ## SSH required port
Rule added
Rule added (v6)
pete42@pete42:~$ sudo ufw reload           ## reload fw
Firewall reloaded
pete42@pete42:~$ sudo ufw status verbose   ## fw status
Status: active
Logging: on (low)
Default: deny (incoming), allow (outgoing), disabled (routed)
New profiles: skip

To                         Action      From
--                         ------      ----
```

```
22/tcp                     ALLOW IN    Anywhere
4242/tcp                   ALLOW IN    Anywhere
22/tcp (v6)                ALLOW IN    Anywhere (v6)
4242/tcp (v6)              ALLOW IN    Anywhere (v6)

pete42@pete42:~$
```

Hostname

Hostname of the VM must be set to login name ending in 42 e.g. pete42.
This was set at install time so doesn't need changing.

Born2beroot documentation says you will need to change the hostname during your evaluation.

Use the command

```
pete42@pete42:~$ sudo hostnamectl hostname                  ## display current hostname
pete42
pete42@pete42:~$ sudo hostnamectl hostname andrew42         ## change hostname to andrew42
pete42@pete42:~$ sudo hostnamectl hostname                   ## display current hostname
sudo: unable to resolve host andrew42: Name or service not known
andrew42
pete42@pete42:~$ sudo hostnamectl hostname pete42            ## change hostname back to pete42
sudo: unable to resolve host andrew42: Name or service not known
pete42@pete42:~$ sudo hostnamectl hostname                   ## display current hostname
pete42
pete42@pete42:~$ ping pete42                                 ## display current hostname
PING pete42.scotchwhisky.local (127.0.1.1) 56(84) bytes of data.
64 bytes from pete42.scotchwhisky.local (127.0.1.1): icmp_seq=1 ttl=64 time=0.026 ms
64 bytes from pete42.scotchwhisky.local (127.0.1.1): icmp_seq=2 ttl=64 time=0.104 ms
^C                                                           ## CTRL+c to interrupt command
--- pete42.scotchwhisky.local ping statistics ---
2 packets transmitted, 2 received, 0% packet loss, time 1024ms
rtt min/avg/max/mdev = 0.026/0.065/0.104/0.039 ms
pete42@pete42:~$
```

SSH (Secure SHell)

SSH (Secure SHell) is used to access most Linux/UNIX systems as it uses an encrypted connection between the client and target system. Default port for SSH is port 22. It needs to be configured for port 4242 to meet requirements.

/etc/ssh/sshd_config contains the SSH daemon configuration - make sure you edit ssh**d**_config and not ssh_config
Change the line

#Port 22

to

Port 4242

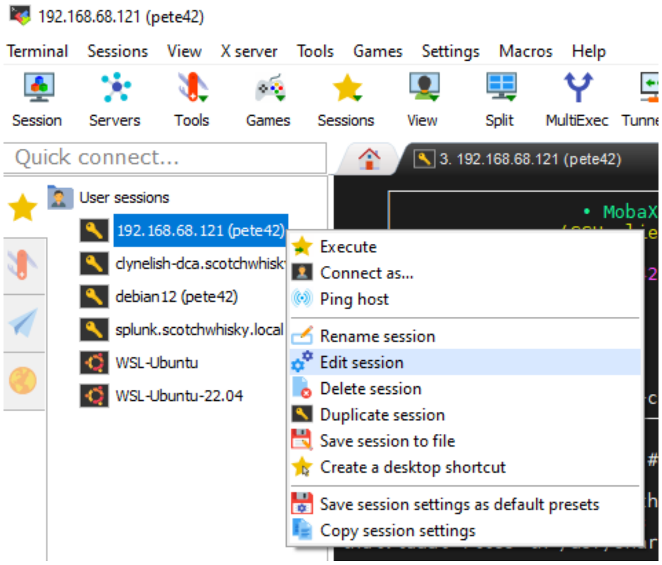
and save the changes.

Restart the SSH daemon to make the change effective

```
pete42@pete42:~$ sudo systemctl restart sshd
pete42@pete42:~$ sudo systemctl status sshd
● ssh.service - OpenBSD Secure Shell server
     Loaded: loaded (/lib/systemd/system/ssh.service; enabled; preset: enabled)
     Active: active (running) since Thu 2023-11-30 15:47:30 GMT; 10s ago
       Docs: man:sshd(8)
             man:sshd_config(5)
    Process: 1453 ExecStartPre=/usr/sbin/sshd -t (code=exited, status=0/SUCCESS)
   Main PID: 1454 (sshd)
      Tasks: 1 (limit: 2338)
     Memory: 1.4M
        CPU: 9ms
     CGroup: /system.slice/ssh.service
             └─1454 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Nov 30 15:47:30 pete42 systemd[1]: Starting ssh.service - OpenBSD Secure Shell server...
Nov 30 15:47:30 pete42 sshd[1454]: Server listening on 0.0.0.0 port 4242.
Nov 30 15:47:30 pete42 sshd[1454]: Server listening on :: port 4242.
Nov 30 15:47:30 pete42 systemd[1]: Started ssh.service - OpenBSD Secure Shell server.
pete42@pete42:~$
```

Close your MobaXterm session and restart it

The restart doesn't work because the SSH daemon is now listening on port 4242 - edit the MobaXterm session settings and change the port 22 to 4242 and then try again to connect



Now remove the port 22 rule from the firewall so that nothing can connect on port 22

```
pete42@pete42:~$ sudo ufw status numbered
Status: active

     To                         Action      From
     --                         ------      ----
[ 1] 22/tcp                     ALLOW IN    Anywhere
[ 2] 4242/tcp                   ALLOW IN    Anywhere
[ 3] 22/tcp (v6)                ALLOW IN    Anywhere (v6)
[ 4] 4242/tcp (v6)              ALLOW IN    Anywhere (v6)

pete42@pete42:~$ sudo ufw delete 1
Deleting:
allow 22/tcp
Proceed with operation (y|n)? y
Rule deleted
pete42@pete42:~$ sudo ufw status numbered
Status: active

     To                         Action      From
     --                         ------      ----
[ 1] 4242/tcp                   ALLOW IN    Anywhere
[ 2] 22/tcp (v6)                ALLOW IN    Anywhere (v6)
[ 3] 4242/tcp (v6)              ALLOW IN    Anywhere (v6)

pete42@pete42:~$ sudo ufw delete 2
Deleting:
allow 22/tcp
Proceed with operation (y|n)? y
Rule deleted (v6)
pete42@pete42:~$ sudo ufw reload          ## reload fw
Firewall reloaded
pete42@pete42:~$ sudo ufw status verbose
Status: active
Logging: on (low)
Default: deny (incoming), allow (outgoing), disabled (routed)
New profiles: skip

To                         Action      From
--                         ------      ----
4242/tcp                   ALLOW IN    Anywhere
4242/tcp (v6)              ALLOW IN    Anywhere (v6)

pete42@pete42:~$
```

Now SSH can only be accessed over port 4242

sudo configuration

sudo (**s**witch **u**ser and **do**) allows a user to execute privileged commands i.e. as if they were the root user
You are prompted for your own user password the first time you use the sudo command and thereafter you will not be prompted on every sudo command (depends upon session timeouts etc.)

sudo is controlled by the file /etc/sudoers - it should not be edited directly, but instead should use the visudo command (which uses the nano editor to edit the file and it is syntax checked before being updated)
Other Linux flavours use the vi editor hence the name for the command visudo

As I don't know how to use nano and I prefer vi/vim you can change the edit as follows

```
pete42@pete42:~$ sudo update-alternatives --config editor
There are 2 choices for the alternative editor (providing /usr/bin/editor).
```

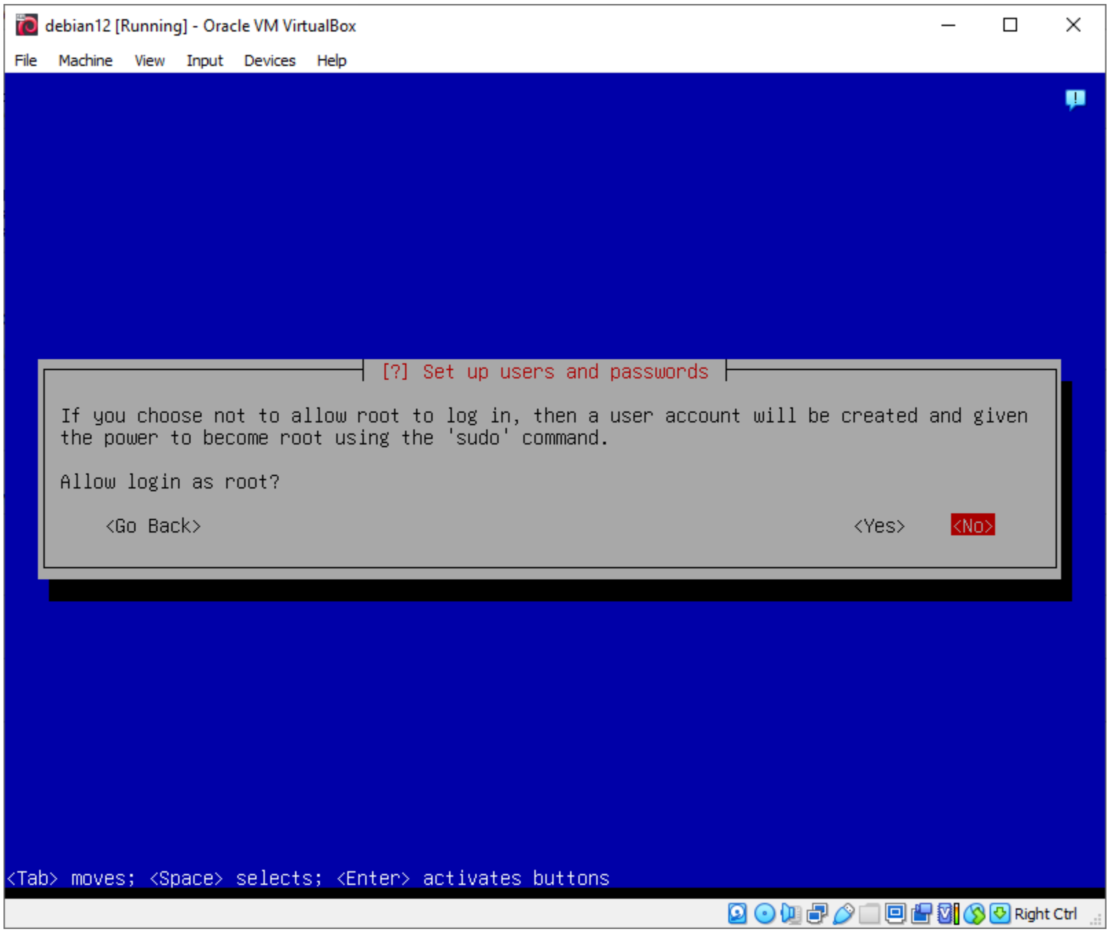
```
  Selection    Path                Priority   Status
------------------------------------------------------------
* 0            /bin/nano            40        auto mode
  1            /bin/nano            40        manual mode
  2            /usr/bin/vim.tiny    15        manual mode

Press <enter> to keep the current choice[*], or type selection number: 2
update-alternatives: using /usr/bin/vim.tiny to provide /usr/bin/editor (editor) in manual mode
pete42@pete42:~$
```

The visudo command will now use the vi/vim editor from now on ☺

Use the visudo command to edit the sudoers file - upon doing so we can see the following lines

```
# Allow members of group sudo to execute any command
%sudo   ALL=(ALL:ALL) ALL
```

This allows all members of the sudo group to execute privileged commands and was configured automatically because the option to not allow root user login was selected at installation time (as shown below)



```
[?] Set up users and passwords

If you choose not to allow root to log in, then a user account will be created and given
the power to become root using the 'sudo' command.

Allow login as root?

    <Go Back>                                                       <Yes>    <No>

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

????????? Need to add sudo configuration steps here ???????????

The same configuration option caused my user (pete42) to be added to the sudo group which can be verified as follows

```
pete42@pete42:~$ id
uid=1000(pete42) gid=1000(pete42)
groups=1000(pete42),24(cdrom),25(floppy),27(sudo),29(audio),30(dip),44(video),46(plugdev),100(users),106(netdev)
pete42@pete42:~$
```

Add user to group

Born2beroot requires that your user (pete42) is a member of both the sudo group (as seen above) and the group **user42**
The list of groups that user pete42 belongs to does not include the user42 group so it needs to be created and the user pete42 added to it.

```
pete42@pete42:~$ sudo grep user42 /etc/group      ## check if group user42 exists
pete42@pete42:~$
pete42@pete42:~$ sudo cat /etc/group              ## list groups that exist
root:x:0:
daemon:x:1:
bin:x:2:
sys:x:3:
adm:x:4:
tty:x:5:
disk:x:6:
lp:x:7:
```

```
mail:x:8:
news:x:9:
uucp:x:10:
man:x:12:
proxy:x:13:
kmem:x:15:
dialout:x:20:
fax:x:21:
voice:x:22:
cdrom:x:24:pete42
floppy:x:25:pete42
tape:x:26:
sudo:x:27:pete42
audio:x:29:pete42
dip:x:30:pete42
www-data:x:33:
backup:x:34:
operator:x:37:
list:x:38:
irc:x:39:
src:x:40:
shadow:x:42:
utmp:x:43:
video:x:44:pete42
sasl:x:45:
plugdev:x:46:pete42
staff:x:50:
games:x:60:
users:x:100:pete42
nogroup:x:65534:
systemd-journal:x:999:
systemd-network:x:998:
crontab:x:101:
input:x:102:
sgx:x:103:
kvm:x:104:
render:x:105:
netdev:x:106:pete42
messagebus:x:107:
systemd-timesync:x:997:
_ssh:x:108:
pete42:x:1000:
pete42@pete42:~$
```

Create the user42 group

```
pete42@pete42:~$ sudo groupadd user42
pete42@pete42:~$ sudo grep user42 /etc/group     ## check if group user42 exists
user42:x:1001:
pete42@pete42:~$
```

Add the user (pete42) to the group user42

```
pete42@pete42:~$ id                                    ## list current groups
uid=1000(pete42) gid=1000(pete42)
groups=1000(pete42),24(cdrom),25(floppy),27(sudo),29(audio),30(dip),44(video),46(plugdev),100(users),106(netdev)
pete42@pete42:~$ sudo usermod -a -G user42 pete42      ## add user to group
pete42@pete42:~$ id                                    ## list groups but not present - need to login again!
uid=1000(pete42) gid=1000(pete42)
groups=1000(pete42),24(cdrom),25(floppy),27(sudo),29(audio),30(dip),44(video),46(plugdev),100(users),106(netdev)
pete42@pete42:~$ su - pete42                           ## login user pete42 again
Password:
pete42@pete42:~$ id                                    ## now group user42 is present :-)
uid=1000(pete42) gid=1000(pete42)
groups=1000(pete42),24(cdrom),25(floppy),27(sudo),29(audio),30(dip),44(video),46(plugdev),100(users),106(netdev),1001(user42)
pete42@pete42:~$
logout
pete42@pete42:~$
```

Create a new user and add to a group

Born2beroot requires during evaluation the creation of a new user and add the user to a group

????????????????????????????????? TO BE COMPLETED ?????????????????????????

Password policy

This would be a good time to take a snapshot backup in case you screw up the password complexity rules and get locked out!!!!!!!!

Set password policy rules - see here for more details https://www.server-world.info/en/note?os=Debian_12&p=pam&f=1

Install password quality check library

```
pete42@pete42:~$ sudo apt install libpam-pwquality
```

```
[sudo] password for pete42:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  cracklib-runtime libcrack2 libpwquality-common libpwquality1
The following NEW packages will be installed:
  cracklib-runtime libcrack2 libpam-pwquality libpwquality-common libpwquality1
0 upgraded, 5 newly installed, 0 to remove and 0 not upgraded.
Need to get 264 kB of archives.
After this operation, 1,401 kB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 https://deb.debian.org/debian bookworm/main amd64 libcrack2 amd64 2.9.6-5+b1 [44.0 kB]
Get:2 https://deb.debian.org/debian bookworm/main amd64 cracklib-runtime amd64 2.9.6-5+b1 [143 kB]
Get:3 https://deb.debian.org/debian bookworm/main amd64 libpwquality-common all 1.4.5-1 [51.3 kB]
Get:4 https://deb.debian.org/debian bookworm/main amd64 libpwquality1 amd64 1.4.5-1+b1 [12.8 kB]
Get:5 https://deb.debian.org/debian bookworm/main amd64 libpam-pwquality amd64 1.4.5-1+b1 [12.9 kB]
Fetched 264 kB in 0s (2,110 kB/s)
Selecting previously unselected package libcrack2:amd64.
(Reading database ... 29354 files and directories currently installed.)
Preparing to unpack .../libcrack2_2.9.6-5+b1_amd64.deb ...
Unpacking libcrack2:amd64 (2.9.6-5+b1) ...
Selecting previously unselected package cracklib-runtime.
Preparing to unpack .../cracklib-runtime_2.9.6-5+b1_amd64.deb ...
Unpacking cracklib-runtime (2.9.6-5+b1) ...
Selecting previously unselected package libpwquality-common.
Preparing to unpack .../libpwquality-common_1.4.5-1_all.deb ...
Unpacking libpwquality-common (1.4.5-1) ...
Selecting previously unselected package libpwquality1:amd64.
Preparing to unpack .../libpwquality1_1.4.5-1+b1_amd64.deb ...
Unpacking libpwquality1:amd64 (1.4.5-1+b1) ...
Selecting previously unselected package libpam-pwquality:amd64.
Preparing to unpack .../libpam-pwquality_1.4.5-1+b1_amd64.deb ...
Unpacking libpam-pwquality:amd64 (1.4.5-1+b1) ...
Setting up libpwquality-common (1.4.5-1) ...
Setting up libcrack2:amd64 (2.9.6-5+b1) ...
Setting up cracklib-runtime (2.9.6-5+b1) ...
Setting up libpwquality1:amd64 (1.4.5-1+b1) ...
Setting up libpam-pwquality:amd64 (1.4.5-1+b1) ...
Processing triggers for libc-bin (2.36-9+deb12u3) ...
Processing triggers for man-db (2.11.2-2) ...
pete42@pete42:~$
```

Password age control are configured in various files as shown in this section

Edit the file /etc/login.defs and set the values indicated below in red

```
#
# Password aging controls:
#
#       PASS_MAX_DAYS   Maximum number of days a password may be used.              30
#       PASS_MIN_DAYS   Minimum number of days allowed between password changes.    2
#       PASS_WARN_AGE   Number of days warning given before a password expires.     7
#
```

The above changes only affect new users, for existing users issue the command below once for each user i.e. pete42 and root

```
chage -M 30 pete42              ## existing user pwd expiration days
chage -m 2 pete42               ## existing user min days for pwd change
chage -W 7 pete42               ## existing user warn days of expiry
chage -M 30 root                ## existing user pwd expiration days
chage -m 2 root                 ## existing user min days for pwd change
chage -W 7 root                 ## existing user warn days of expiry
```

Edit the file /etc/security/pwquality.conf and set the values indicated below

```
#
#       minlen          Minimum number of characters for password                 10
#       minclass        digits, uppercase, lowercase, others                       3
#       maxrepeat       max repeat characters                                      3
#       usercheck       username contained in password                             1
#       difok           Num chars in new pwd not present in old pwd                7
#       dcredit         Minimum 1 numeric digit                                   -1
#       ucredit         Minimum 1 uppercase character                             -1
#       enforce_for_root  - uncomment to enforce policy for root user
#
```

The above changes only affect new users, for existing users issue the command below once for each user i.e. pete42 and root

```
pete42@pete42:~$ sudo passwd pete42
[sudo] password for pete42:
New password:
BAD PASSWORD: The password contains less than 1 uppercase letters
New password:
Retype new password:
passwd: password updated successfully
pete42@pete42:~$
```

NOTE pete42 password changed to orbData_00

NOTE root password should be set as well - it will need to follow the above password policy!!!!!