

# VM creation and OS installation manual

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Montserrat Flores Castillo

CS475: Capstone Seminar

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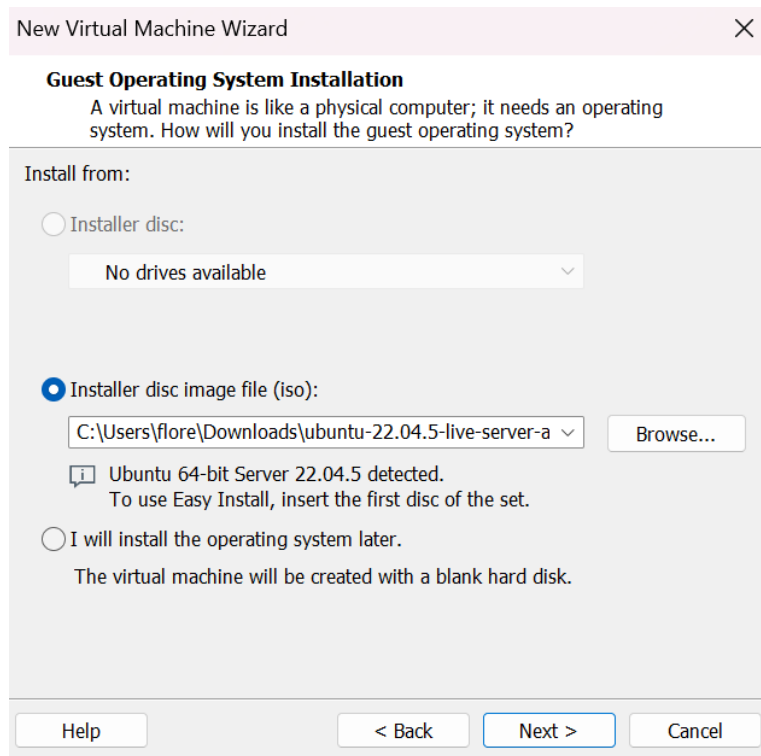
## 1. Creation of VM in VMware

For this project we need to create a VM machine where we are going to locate our vSOC.

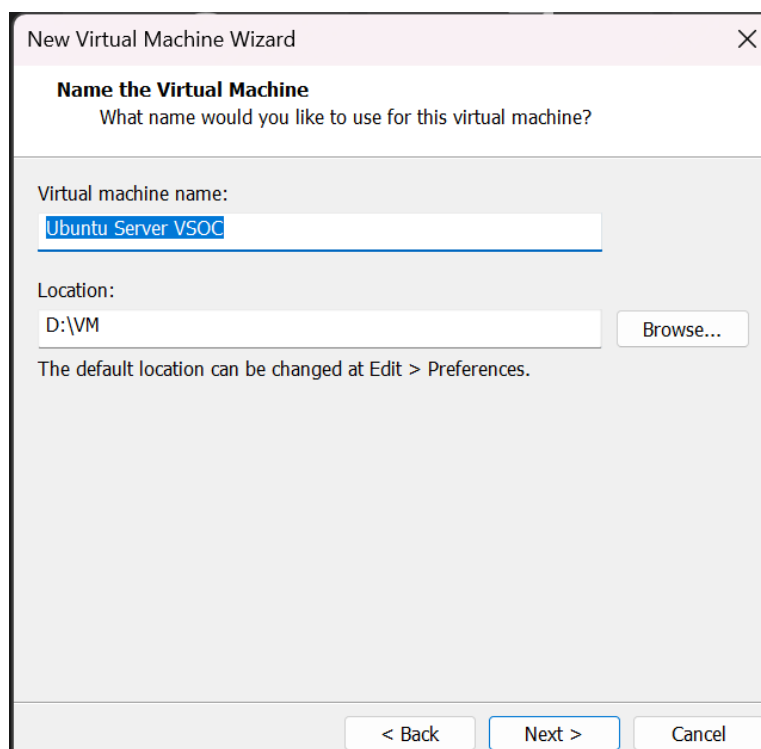
The creation of the VM in VMware is very straightforward, we will use the recommended option for the creation of our VM.



In this section we need to choose the image iso (single file that contains an entire optical disc), in this project we are using Ubuntu Server 22.05 LTS.



The screenshot shows the 'New Virtual Machine Wizard' window, specifically the 'Guest Operating System Installation' step. The window title is 'New Virtual Machine Wizard' with a close button (X). The subtitle is 'Guest Operating System Installation' followed by the text 'A virtual machine is like a physical computer; it needs an operating system. How will you install the guest operating system?'. The 'Install from:' section has three radio button options: 'Installer disc:' (unselected), 'Installer disc image file (iso):' (selected), and 'I will install the operating system later.' (unselected). The 'Installer disc image file (iso):' option has a text box containing 'C:\Users\floré\Downloads\ubuntu-22.04.5-live-server-a' and a 'Browse...' button. Below the text box is an information icon and the text 'Ubuntu 64-bit Server 22.04.5 detected. To use Easy Install, insert the first disc of the set.' The 'I will install the operating system later.' option has the text 'The virtual machine will be created with a blank hard disk.' At the bottom are four buttons: 'Help', '< Back', 'Next >', and 'Cancel'.



The screenshot shows the 'New Virtual Machine Wizard' window, specifically the 'Name the Virtual Machine' step. The window title is 'New Virtual Machine Wizard' with a close button (X). The subtitle is 'Name the Virtual Machine' followed by the text 'What name would you like to use for this virtual machine?'. The 'Virtual machine name:' section has a text box containing 'Ubuntu Server VSOC'. The 'Location:' section has a text box containing 'D:\VM' and a 'Browse...' button. Below the text box is the text 'The default location can be changed at Edit > Preferences.' At the bottom are three buttons: '< Back', 'Next >', and 'Cancel'.

Naming of the machine and where we are to locate this VM in our case into a USB driver.

We added a standard size for installing the operating system in the VM, but we can add more disk space anytime during the project in case is more needed.

New Virtual Machine Wizard

Specify Disk Capacity

How large do you want this disk to be?

The virtual machine's hard disk is stored as one or more files on the host computer's physical disk. These file(s) start small and become larger as you add applications, files, and data to your virtual machine.

Maximum disk size (GB):

Recommended size for Ubuntu 64-bit: 20 GB

☐ Store virtual disk as a single file

☒ Split virtual disk into multiple files

Splitting the disk makes it easier to move the virtual machine to another computer but may reduce performance with very large disks.

Help

< Back

Next >

Cancel

New Virtual Machine Wizard

Ready to Create Virtual Machine

Click Finish to create the virtual machine and start installing Ubuntu 64-bit.

The virtual machine will be created with the following settings:

Name:	Ubuntu Server VSOC
Location:	D:\VM
Version:	Workstation 17.5 or later
Operating System:	Ubuntu 64-bit
Hard Disk:	40 GB, Split
Memory:	4096 MB
Network Adapter:	NAT
Other Devices:	2 CPU cores, CD/DVD, USB Controller, Sound Card

Customize Hardware...

☒ Power on this virtual machine after creation

< Back

Finish

Cancel

Summary of our virtual machine specifications.

## 2. Installation of the OS (Ubuntu Server)

At the beginning of the installation we will see this prompt which can take couple minutes until it pop you up the installation of the operating system.

```
[ 12.822540] overlayfs: null uuid detected in lower fs '/', falling back to xino=off,index=off,nfs_export=off.
Begin: Running /scripts/casper-premount ... done.
done.
done.
Begin: Creating debconf-communicate fifo mechanism ... done.
Begin: Running /scripts/casper-bottom ... Begin: Moving mount points... .. done.
Begin: Configuring fstab... .. done.
Begin: Setting up locales... .. done.
Begin: Setting up automatic login... .. done.
Begin: Disabling systemd's GPT auto generator... .. done.
Begin: Setting hostname... .. done.
Begin: Setting up console keyboard... .. done.
Begin: Applying desktop settings... .. done.
Begin: Regenerating SSL certificate... .. done.
Begin: Loading preseed file... .. done.
Begin: Adding live session user... .. passwd: password expiry information changed.
done.
Begin: Setting up init... .. done.
Begin: Configuring accessibility options... .. done.
Begin: Disabling update-notifier... .. done.
Begin: Configuring power management... .. done.
Begin: Enabling detection of crashes... .. done.
Begin: Disabling unnecessary KDE services... .. done.
Begin: Fixing language selector... .. done.
Begin: Disabling trackend... .. done.
Begin: Adding APT-CDROM source... .. Using CD-ROM mount point /cdrom/
Identifying... [8b08e7359c62d3be5f1e15a61d26f8d4-2]
Scanning disc for index files...
Found 2 package indexes, 0 source indexes, 0 translation indexes and 1 signatures
Found label 'Ubuntu-Server 22.04.5 LTS _Jammy Jellyfish_ - Release amd64 (20240911.4)'
This disc is called:
'Ubuntu-Server 22.04.5 LTS _Jammy Jellyfish_ - Release amd64 (20240911.4)'
Copying package lists...done.
Begin: Running /scripts/nfs-bottom ... done.
Begin: Running /scripts/init-bottom ... [ 18.238755] loop4: detected capacity change from 0 to 299944
[ 18.251993] loop5: detected capacity change from 0 to 611736
[ 18.268233] overlayfs: "xino" feature enabled using 32 upper inode bits.
done.
[ 18.905069] systemd[1]: Inserted module 'autofs4'
[ 19.028024] systemd[1]: systemd 249.11-0ubuntu3.12 running in system mode (+PAM +AUDIT +SELINUX +APPARMOR +IMA +SMACK +SECCOMP +GCRYPT +GNUTLS +OPENSSL +ACL
+BLKID +CURL +ELFUTILS +FIDO2 +IDN2 -IDN -IPTC +KMOD +LIBCRYPTSETUP +LIBFDISK +PCRE2 -PAQUALITY -P11KIT -QRENCODE +B2IP2 +LZ4 +XZ +ZLIB +ZSTD -XKBCOMMON +UTMP +
SYSVINIT default-hierarchy=unified)
[ 19.031123] systemd[1]: Detected virtualization vmware.
[ 19.031787] systemd[1]: Detected architecture x86_64.

Welcome to Ubuntu 22.04.5 LTS!
```

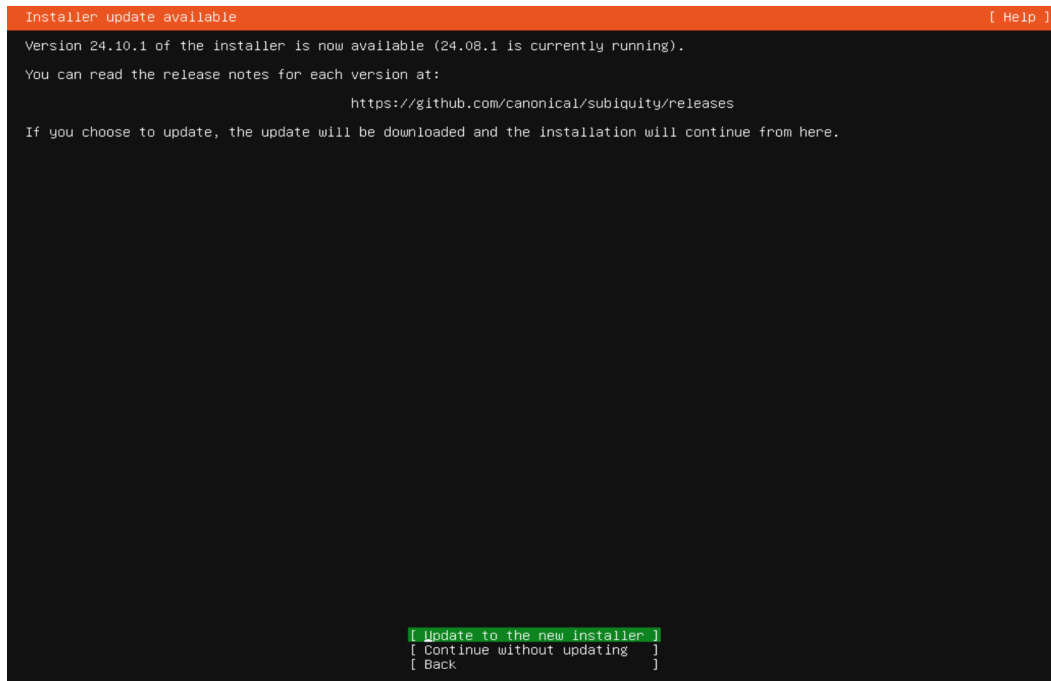
In this section we will need to choose the language of the system:

```
Willkommen! Bienvenue! Welcome! Добро пожаловать! Welkom! [ Help ]

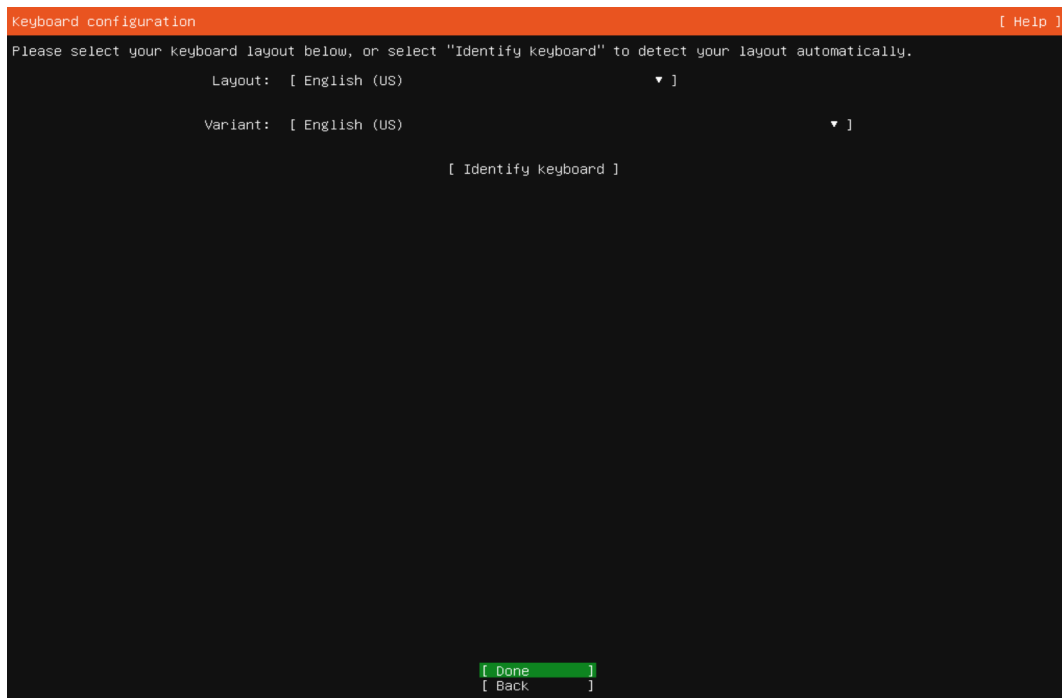
Use UP, DOWN and ENTER keys to select your language.

[ Asturianu                                     ▶ ]
[ Bahasa Indonesia                             ▶ ]
[ Català                                       ▶ ]
[ Deutsch                                       ▶ ]
[ English                                       ▶ ]
[ English (UK)                                 ▶ ]
[ Español                                       ▶ ]
[ Français                                     ▶ ]
[ Galego                                       ▶ ]
[ Hrvatski                                     ▶ ]
[ Latviski                                     ▶ ]
[ Lietuviškait                                 ▶ ]
[ Magyar                                       ▶ ]
[ Nederlands                                  ▶ ]
[ Norsk bokmål                                  ▶ ]
[ Occitan                                      ▶ ]
[ Polski                                       ▶ ]
[ Português                                   ▶ ]
[ Suomi                                       ▶ ]
[ Svenska                                      ▶ ]
[ Čeština                                      ▶ ]
[ Ελληνικά                                    ▶ ]
[ Беларуская                                   ▶ ]
[ Русский                                     ▶ ]
[ Српски                                       ▶ ]
[ Українська                                   ▶ ]
```

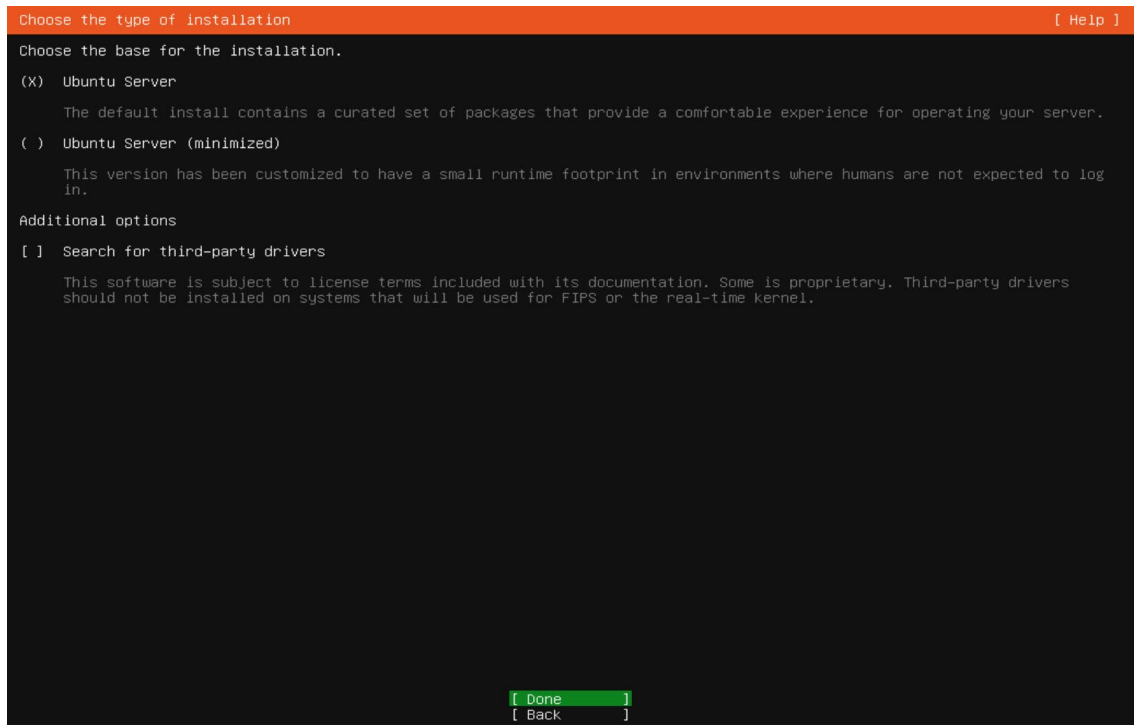
Indicates we have a new update available so is recommended to install the operating system with the newest version:



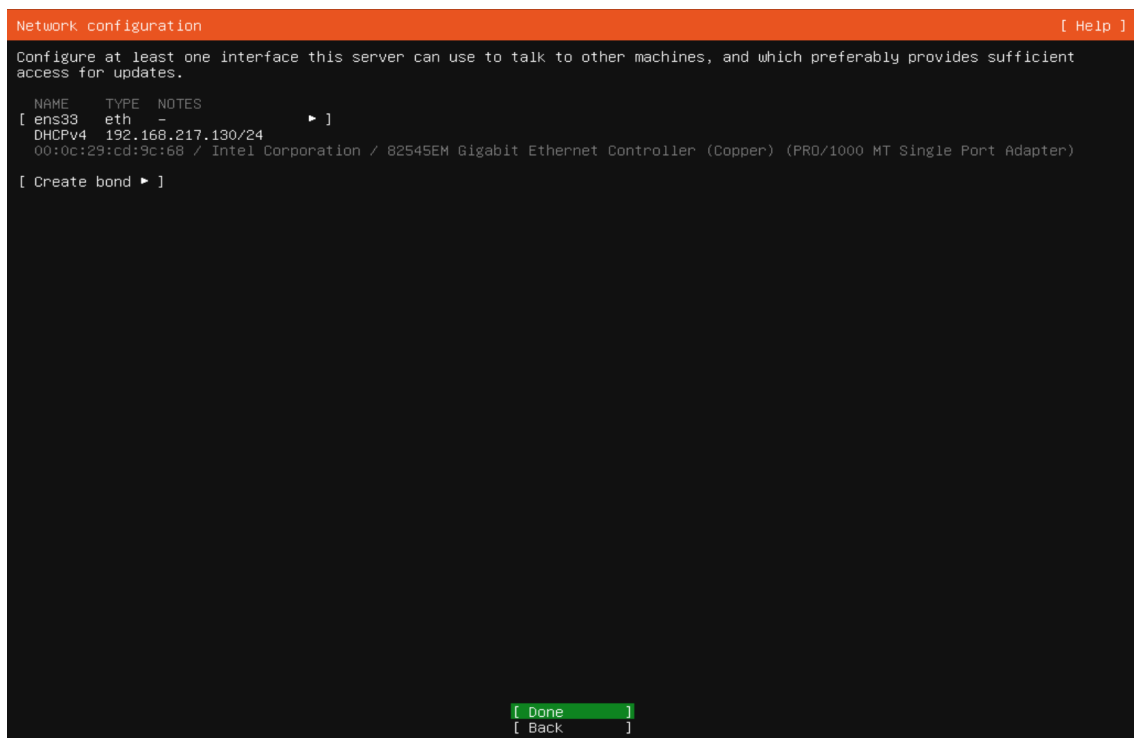
Choose the language of the keyboard and layout of the keyboard:



Here we indicate which kind of installation of Ubuntu Server we want, in our case the normal installation of Ubuntu Server:

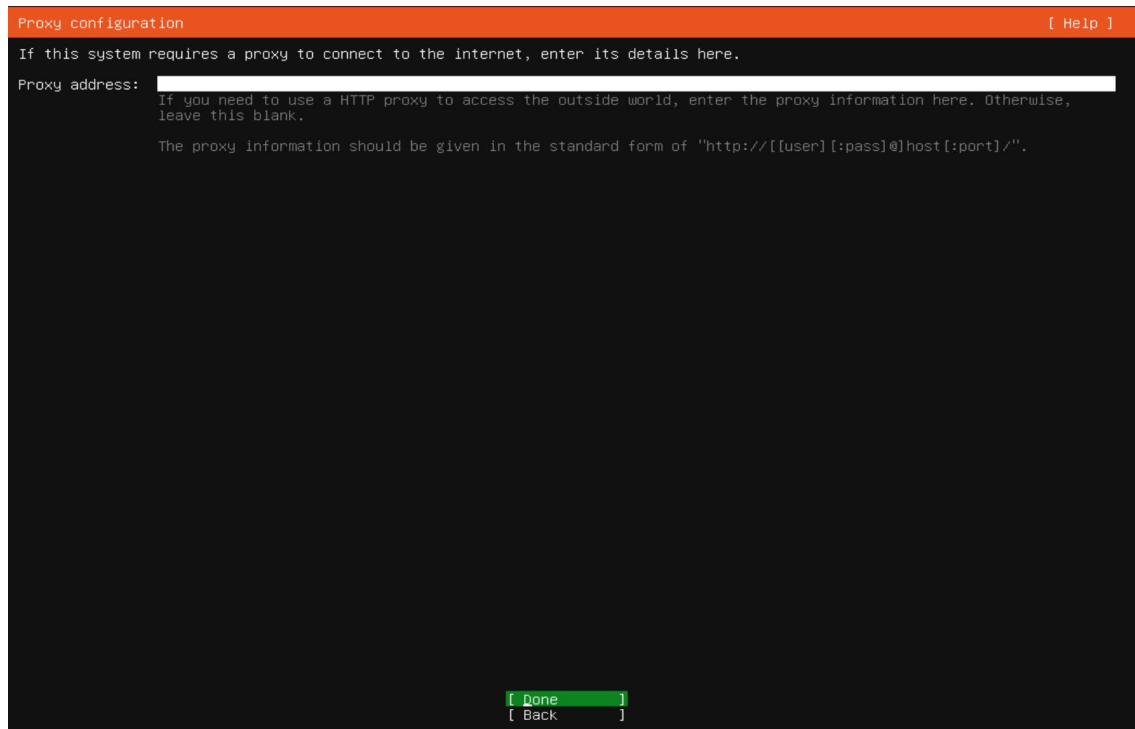


The network configuration we leaved in the default configuration until we need to configure it in the future:



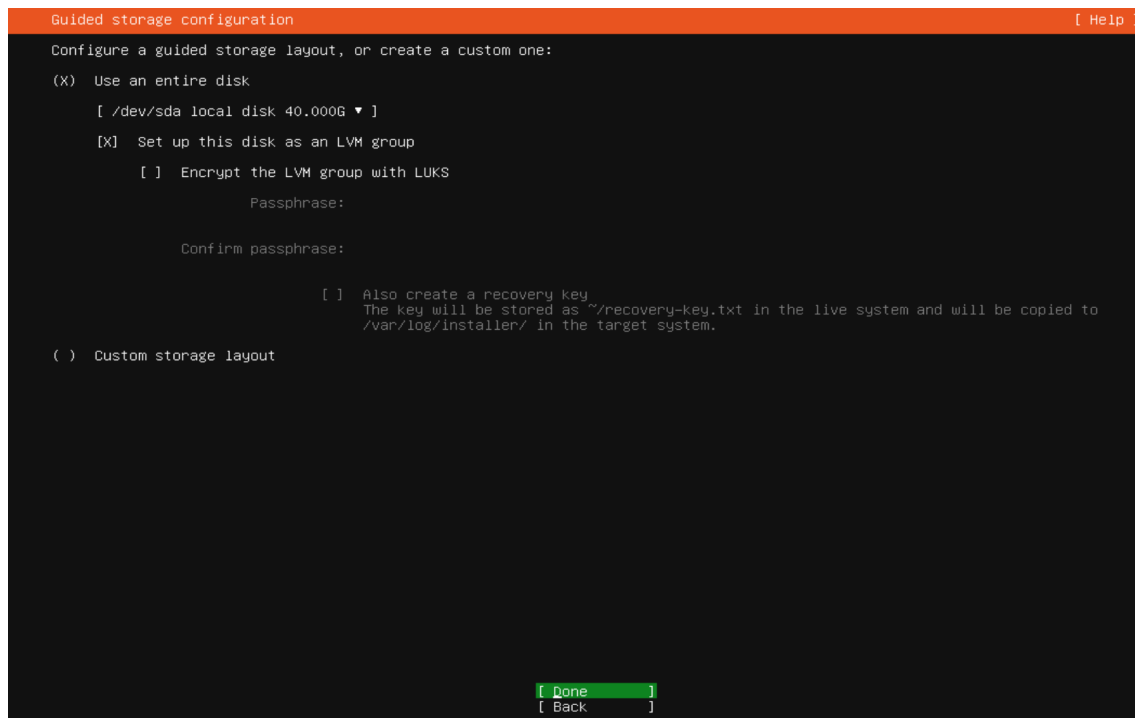


We left in the default configuration empty until we configure our own proxy:

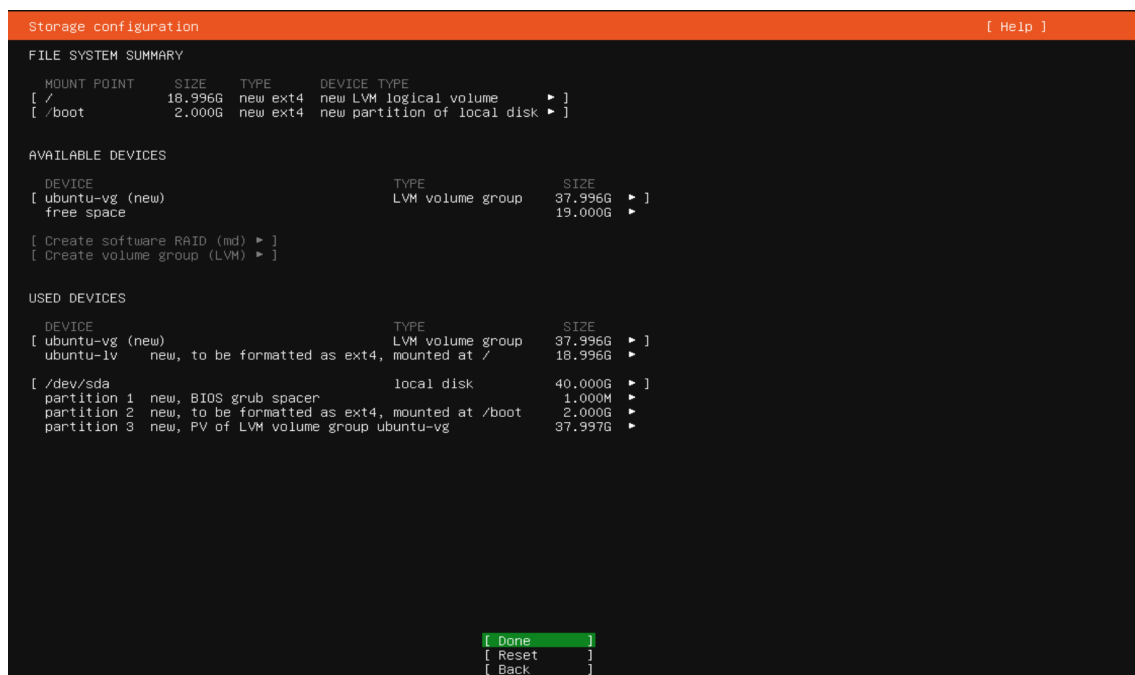


The screenshot shows a terminal window titled "Proxy configuration" with an orange header bar. The header bar contains the title "Proxy configuration" on the left and a "[ Help ]" link on the right. The main content area is black with white text. It starts with the instruction "If this system requires a proxy to connect to the internet, enter its details here." followed by the label "Proxy address:" and a white input field. To the right of the input field, there is explanatory text: "If you need to use a HTTP proxy to access the outside world, enter the proxy information here. Otherwise, leave this blank." and "The proxy information should be given in the standard form of 'http://[[user][:pass]@]host[:port]/'". At the bottom center, there are two green buttons: "[ Done ]" and "[ Back ]".

The storage configuration we leave by default here we can change where we want to locate the installation of the ubuntu server.



More extra configuration we can leave in default, like where is locate the /boot or the root system /:



Creation of superuser and user of your ubuntu server.

Profile configuration

[ Help ]

Enter the username and password you will use to log in to the system. You can configure SSH access on a later screen, but a password is still needed for sudo.

Your name:

Your servers name:   
The name it uses when it talks to other computers.

Pick a username:

Choose a password:

Confirm your password:

[ Done ]

## Installation process:

Installing system

[ Help ]

```
subiquity/load_cloud_config/extract_autoinstall:
subiquity/Early/apply_autoinstall_config:
subiquity/Reporting/apply_autoinstall_config:
subiquity/Error/apply_autoinstall_config:
subiquity/Userdata/apply_autoinstall_config:
subiquity/Package/apply_autoinstall_config:
subiquity/Debconf/apply_autoinstall_config:
subiquity/Kernel/apply_autoinstall_config:
subiquity/KernelCrashDumps/apply_autoinstall_config:
subiquity/Zdev/apply_autoinstall_config:
subiquity/Ad/apply_autoinstall_config:
subiquity/Late/apply_autoinstall_config:
configuring apt
  curtin command in-target
installing system
executing curtin install initial step
executing curtin install partitioning step
  curtin command install
    configuring storage
      running 'curtin block-meta simple'
      curtin command block-meta
      removing previous storage devices
      configuring disk: disk-sda
      configuring partition: partition-0
      configuring partition: partition-1
      configuring format: format-0
      configuring partition: partition-2
      configuring lvm_volgroup: lvm_volgroup-0
      configuring lvm_partition: lvm_partition-0
      configuring format: format-1
      configuring mount: mount-1
      configuring mount: mount-0
    executing curtin install extract step
      curtin command install
      writing install sources to disk
      running 'curtin extract'
      curtin command extract
      acquiring and extracting image from cp:///tmp/tmpgdlio3bn/mount /
```

[ View full log ]

After installing the operating system is always recommended to check for last updates and upgrades. Using the command: ( `sudo apt update`, `sudo apt upgrade`):

```
root@vsoc:/home/vsoc# apt update
Get:1 http://security.ubuntu.com/ubuntu jammy-security InRelease [129 kB]
Hit:2 http://us.archive.ubuntu.com/ubuntu jammy InRelease
Get:3 http://us.archive.ubuntu.com/ubuntu jammy-updates InRelease [128 kB]
Hit:4 http://us.archive.ubuntu.com/ubuntu jammy-backports InRelease
Fetched 257 kB in 1s (176 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
26 packages can be upgraded. Run 'apt list --upgradable' to see them.
root@vsoc:/home/vsoc# apt upgrade
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
The following NEW packages will be installed:
  python3-packaging
The following packages will be upgraded:
  cloud-init distro-info-data dmidecode gir1.2-packagekit-glib-1.0 libmbim-glib4 libmbim-proxy
  libmm-glib0 libpackagekit-glib2-18 libpam-modules libpam-modules-bin libpam-runtime libpam0g
  libpcap0.8 modemmanager packagekit packagekit-tools snapd sosreport ubuntu-advantage-tools
  ubuntu-minimal ubuntu-pro-client ubuntu-pro-client-110n ubuntu-server ubuntu-server-minimal
  ubuntu-standard xfsprogs
26 upgraded, 1 newly installed, 0 to remove and 0 not upgraded.
Need to get 32.5 MB of archives.
After this operation, 5,667 kB of additional disk space will be used.
Do you want to continue? [Y/n] Y_
```