UNIT 1
BEGINNER TUTORIAL

Web Applications Deployment
CFGS DAW

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License

Nomenclature

During this unit we are going to use special symbols to distinct some important elements. This symbols are:

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1. INTRODUCTION

Due to CEEDCV organization particularity there is an amount of people inscribed in this subject without any previous knowledge about first course or Linux systems. Moreover, first activity is based on prior Linux systems, using graphical network manager and "interfaces", both of them disabled in current versions of Ubuntu Server, we'll be using netplan instead.

So this little tutorial is pretended to be of use for this people to start with this subject and give a minimal base of knowledge of Virtual Machines, Ubuntu and Terminal usage. Be aware that this document is just a tiny collection of tips and beginner instructions for starters and not a full guide, as any further help could be found on the Internet

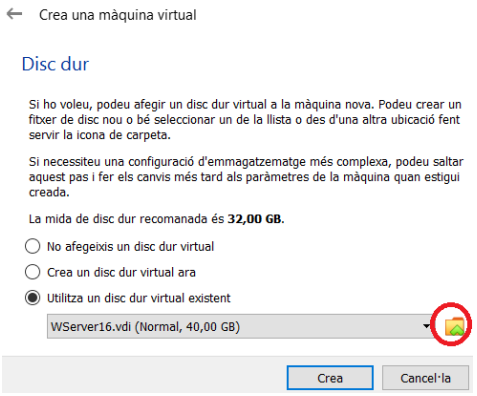
2. VIRTUAL BOX

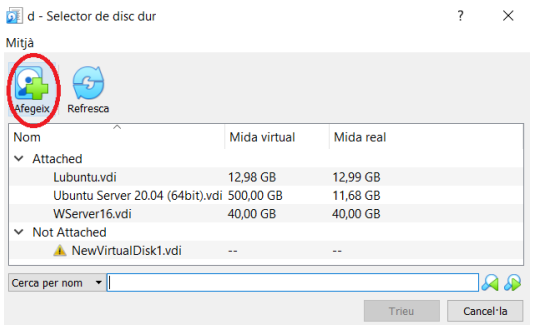
Usage of Virtual Box it's really intuitive and fully documented. Just a few tips.

- To install a SO you can download CD images to do it as usual or you can download virtual disk images directly to skip this. The website https://www.osboxes.org/ contains many disk images of free SO as Ubuntu server/desktop for virtual box (.vdi).

  User: osboxes Password: osboxes.org

- To use vdi disks, create a VM (choose Linux system), select your desired RAM and choose to use an existing virtual disk. Prior to add it for use, move the vdi archive to the VM directory (usually /users/*username*/VirtualBox Vms/*vmname*). Then add it and select for use.



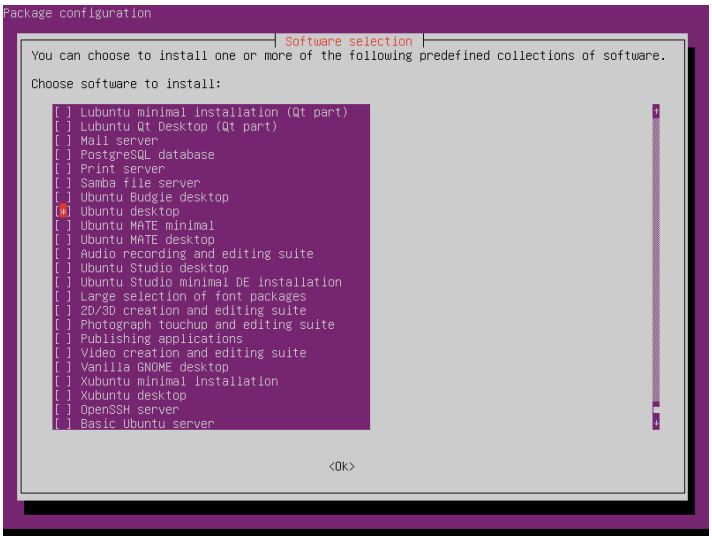


- Instead of shut down a VM it's possible to keep a savestate and just return to that point on start, just select the option after click the close icon ON THE WINDOW, not on the SO of the VM itself. Just be aware to not doing this during an installation or while executing some process, as it will probably fail on restart

3. INSTALL A GUI

By default server versions don't have a graphical user interface installed, as frequently servers are mounted on racks and will be managed over SSH just with commands. As we won't work that way (unless it's your choice), you can install a desktop:

1. Update the system
   ```
   sudo apt-get update
   sudo apt-get upgrade
   ```
2. Select a display manager, I'll recommend slim
   ```
   sudo apt-get install slim
   ```
3. Install tasksel and run it as sudo
   ```
   sudo apt-get install tasksel
   sudo tasksel
   ```
4. Move to your desired desktop, select it (with space bar), tab to move to "ok" option and "intro". Activity captures are made with ubuntu-desktop; lubuntu or xubuntu are lightweight and less resource demanding. Minimal desktop options won't install many unneeded software tools, so they are recommendable, BUT DON'T install lubuntu minimal, terminal seems bugged.



5. Reboot

4. TERMINAL TIPS

- *cd* to change directory, as in MSDOS
- *ls* to view directory contents, as *dir* in MSDOS
- tab key will auto complete names and commands. If there's many options, pressing tab a couple times show them.
- Arrows up and down bring commands previously used. It remains after close/restart.

- *sudo* before a command is used to obtain root permissions.
- *sudo su* change to root user, so you will execute all commands as sudo; it is not recommended.
- *ip a l* shows network cards and ip configuration

```
osboxes@LinuxServer:~$ ip a l
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group d
t 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
       valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state
oup default qlen 1000
    link/ether 08:00:27:96:58:3b brd ff:ff:ff:ff:ff:ff
    inet 192.168.1.141/24 brd 192.168.1.255 scope global enp0s3
       valid_lft forever preferred_lft forever
    inet6 fe80::a00:27ff:fe96:583b/64 scope link
       valid_lft forever preferred_lft forever
```

- *resolvectl status* shows the DNS configured (you must press down arrow to see all info)

```
                                30.172.in-addr.arpa
                                31.172.in-addr.arpa
                                corp
                                d.f.ip6.arpa
                                home
                                internal
                                intranet
                                lan
                                local
                                private
                                test

Link 2 (enp0s3)
      Current Scopes: DNS
DefaultRoute setting: yes
       LLMNR setting: yes
MulticastDNS setting: no
  DNSOverTLS setting: no
      DNSSEC setting: no
    DNSSEC supported: no
  Current DNS Server: 192.168.1.1
         DNS Servers: 192.168.1.141
                      192.168.1.1
lines 23-45/45 (END)
```

- *systemctl status servicename* shows the status of a service, you can *stop*, *start* and *restart* it changing *status* for this words (with sudo permissions).

```
osboxes@LinuxServer:~$ systemctl status bind9
● named.service - BIND Domain Name Server
     Loaded: loaded (/lib/systemd/system/named.service; enabled; vendor preset:>
     Active: active (running) since Wed 2020-10-21 10:03:19 UTC; 1 weeks 2 days>
       Docs: man:named(8)
   Main PID: 792 (named)
      Tasks: 5 (limit: 2277)
     Memory: 20.6M
     CGroup: /system.slice/named.service
             └─792 /usr/sbin/named -f -u bind

Oct 30 11:18:38 LinuxServer named[792]: network unreachable resolving '_.com/A/>
Oct 30 11:18:42 LinuxServer named[792]: network unreachable resolving '_.com/A/>
Oct 30 11:18:44 LinuxServer named[792]: network unreachable resolving '_.com/A/>
Oct 30 11:18:45 LinuxServer named[792]: network unreachable resolving '_.com/A/>
Oct 30 11:18:46 LinuxServer named[792]: network unreachable resolving '_.com/A/>
Oct 30 11:18:46 LinuxServer named[792]: network unreachable resolving '_.com/A/>
Oct 30 11:18:49 LinuxServer named[792]: network unreachable resolving '_.com/A/>
Oct 30 11:18:49 LinuxServer named[792]: network unreachable resolving '_.com/A/>
Oct 30 11:18:49 LinuxServer named[792]: network unreachable resolving '_.com/A/>
```

- Ctrl+c will stop a running process (as the above mentioned).

5. NETPLAN

We'll use Netplan to configure static IP for Server (in desktop version of client you can do it in the graphical manager instead). Static IP are necessary as we will be configuring DNS to link certain IPs and PCs, so they cannot change.

1. The file */etc/netplan/ 01-network-manage-all.yaml* (archive name could differ, but it will be the only file in the directory) manages the configuration of the network, so open it with text editor gedit (or the one your desktop uses by default)

   sudo gedit /etc/netplan/ 01-network-manage-all.yaml

   (remember, if the name is different you can press tab after type /etc/netplan/ and it will auto complete)
2. Edit the file to fit the following leads:

```
# Set static ip address for enp1s0 interface
network:
  version: 2
  ethernets:
    enp0s3:
      dhcp4: false
      addresses: [192.168.0.50/24]
      gateway4: 192.168.0.1
      nameservers:
        addresses: [192.168.0.50,8.8.8.8]
```

   After first addresses write the static IP you want, it's not necessary to be .50; depending on your router could be 192.168.**1**.50, it should match the automatic IP you previously had, consider this for all IP in gateway and DNS.
   The IP of the DNS servers must be, the first the same as static IP from server, the last the same as the gateway or 8.8.8.8 (google's DNS).

   Beware that yaml doesn't accept tabulations, indentation(horizontal positioning of text lines) must be done with space bar
3. Apply the changes *sudo netplan apply*
4. Now you can check the ip and DNS servers with *ip a l* and *resolvectl status*