ANNEX A · PRACTICAL 2.8 — A DATACENTRE IN A VM

NAME _____ **DATE** _____

Shut down **every other VM** of yours first: the class server is shared by the whole class. You need your plan from Friday, and your password slip. Write what you see: it is the evidence for your report.

TASKS 1–2 · 30 MIN

TASK 1 The middle doll: the VM pve

In virt-manager, on your connection to the class server: **New VM** → Local install media → type `/srv/isos/proxmox-ve_9.2-1.iso` (not Browse Local). Network: Bridge device, `virbr0`. If it cannot detect the system, untick the detection and type `Debian 13`. Memory **4096**, CPUs **2**, disk **32 GB**, name `pve`. Tick **Customize configuration before install** → **Finish**.

In the window that opens: **CPUs** → tick **Copy host CPU configuration (host-passthrough)** → **Apply** → **Begin Installation**.

Why does `pve` need the real CPU model?

_____

_____

DONE WHEN you see the Proxmox VE boot menu.

TASK 2 Install Proxmox VE

Choose **Install Proxmox VE (Graphical)**. Then, screen by screen:

1. Accept the licence.
2. Target disk: the 32 GB disk.
3. Country **Spain**, time zone **Europe/Madrid**, keyboard **Spanish**.
4. Password: one of your own that you will remember (not the slip's). E-mail: your own address.
5. Hostname `pve.lab.internal`. Leave the address, gateway and DNS as proposed.
6. Read the summary → **Install**. Start your report while it copies.

Address proposed for `pve`: _____

When it restarts, the black screen shows an address for your browser. Copy it exactly:

_____

DONE WHEN the console of `pve` shows a `login:` line under that address. If the installer comes back instead, call the teacher.

TASKS 3–4 · 20 MIN

TASK 3 First login

`pve` lives behind NAT on the server: your PC cannot reach its address directly. Open a Terminal on your PC and dig a tunnel, with **your** `pve` address (leave this terminal open):

```
ssh -L 8006:192.168.122.x:8006 <user>@<server>
```

In **Firefox on your PC**, open `https://localhost:8006`. Accept the warning (Advanced). User `root`, your own password, **Realm: Linux PAM standard authentication**. Press OK on the subscription box.

Click the node **pve** → **Summary**. Version of Proxmox VE: _____ CPUs: _____ RAM: _____

Node → **Shell**:

```
cat /etc/os-release
uname -r
```

Which Linux distribution is under Proxmox VE?

Kernel of the node:

_____

DONE WHEN you wrote a kernel version. Look at how it ends.

TASK 4 A container

Left tree: **local (pve)** → **CT Templates** → **Templates** → choose the one that starts with `debian-13-standard` → **Download**.

Top right: **Create CT**. Hostname `box1`, a password (twice), template: the one you downloaded, disk 4 GB, 1 core, 512 MB, network **IPv4: DHCP**. **Finish**. Select `box1` → **Start**. Seconds until it runs: _____

`box1` → **Console** → press Enter → log in as `root`:

```
cat /etc/os-release
uname -r
```

Kernel inside the container:

_____

Compare it with the node's kernel. What do you notice?

_____

_____

DONE WHEN you can say whose kernel `box1` is using.

TASK 5 · 20 MIN

TASK 5 A VM inside the VM

local (pve) → ISO Images → Download from URL → type the address on the board **→ Query URL → Download.**

Create VM. Name `vm1`, the ISO you downloaded, disk **1 GB**, **1** core, **512 MB**. **Finish.** Select `vm1` **→ Start → Console.** At `login:` type `root`.

```
uname -r
```

Kernel inside the VM:

	pve	box1	vm1
Kernel ends in			
System			
Made from			
Start time	—		

DONE WHEN the table is full and one row shows the difference between a container and a VM.

TASK 6 · 6 MIN

TASK 6 Shut down from the inside out

1. `vm1` **→ Stop** (a live system: nothing to save). `box1` **→ Shutdown.**
2. Node **pve → Shutdown** (top right).
3. Wait until virt-manager shows `pve` as Shutoff.
4. In virt-manager: `pve` **→ View → Snapshots → + →** `clean`.

DONE WHEN `pve` is off and has a snapshot called `clean`.

Hand in on Classroom, by Friday 20/11 at 23:59: `practical-2.8-surname.md`. Sections: the plan (your Friday table), the installation (each screen and your choice), the container, the VM, the comparison table, and five lines: what is the difference between a container and a VM, and how did I prove it?

Marking (10): `pve` created and installed, with evidence 3 · container created, kernel evidence 2 · VM created, kernel evidence 2 · comparison table and the five lines 2 · clear Markdown 1.

EXIT TICKET

1. Why did you tick Copy host CPU configuration for `pve`?

- ☐ **A** To give it more memory
- ☐ **B** So that `pve` can run virtual machines itself
- ☐ **C** To make the installer faster
- ☐ **D** To connect it to the classroom network

2. `uname -r` shows the same kernel on the node and inside `box1`. Why?

- ☐ **A** A container uses the kernel of the node
- ☐ **B** Both were installed from the same ISO
- ☐ **C** It is a coincidence of versions
- ☐ **D** The container copied the kernel when it was created

3. Which guest could run Windows 11 on a Proxmox node?

- ☐ **A** A container made from a template
- ☐ **B** A container with more RAM
- ☐ **C** Neither a VM nor a container
- ☐ **D** A virtual machine

4. The right order to switch everything off:

- ☐ **A** Close the virt-manager window
- ☐ **B** Node, then guests
- ☐ **C** Guests, then the node
- ☐ **D** Force off the VM `pve`

5. Why does your PC need an ssh tunnel to open `pve`'s web page?

- ☐ **A** `pve` is behind NAT on the server; your PC cannot reach `192.168.122.x`
- ☐ **B** Firefox cannot open port 8006 without ssh
- ☐ **C** Proxmox only accepts connections from Windows
- ☐ **D** The address of `pve` changes every minute