

A beginner's guide to setting up Proxmox

 xda-developers.com/proxmox-guide

June 6, 2024



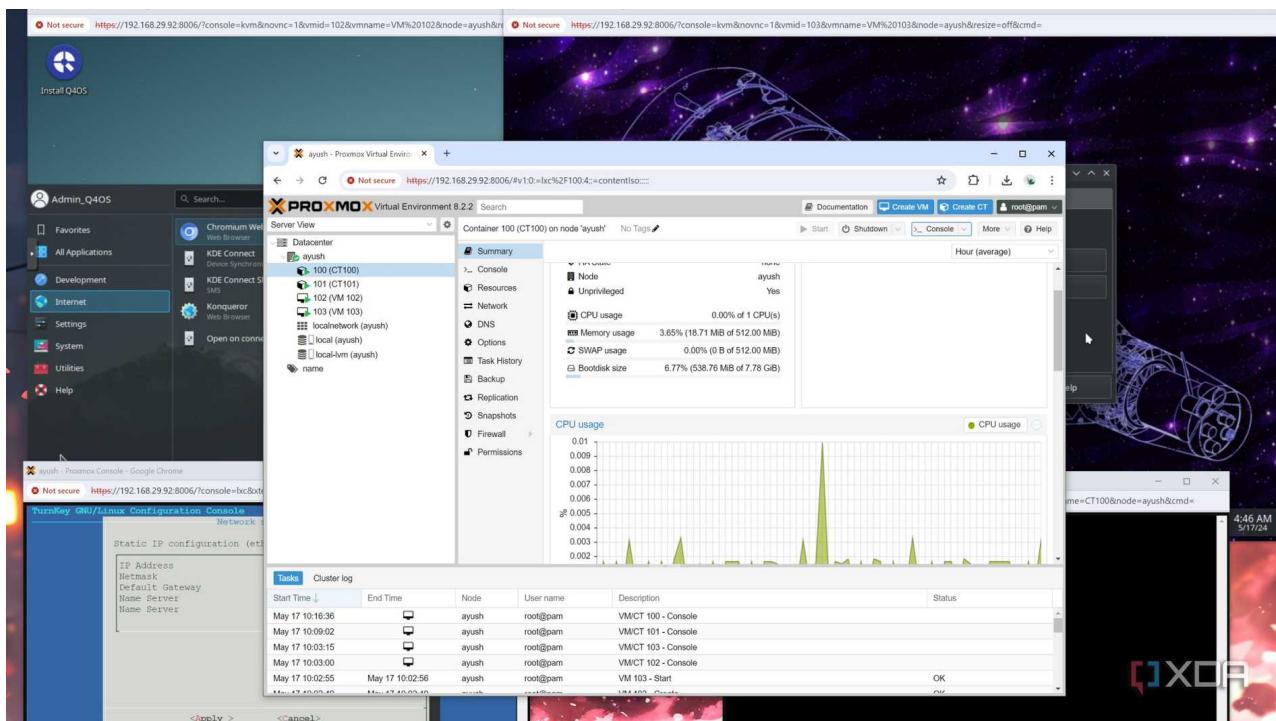
By [Ayush Pande](#)

Updated Oct 16, 2024

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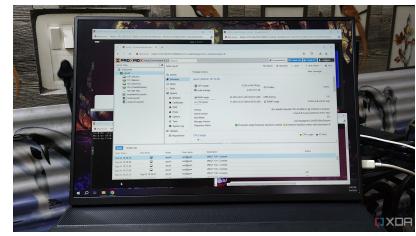
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Virtual machines and containers are perfect for those who enjoy experimenting with different operating systems and self-hosting services on local hardware. While you could run VirtualBox or VMware Workstation Pro/Fusion Pro on your daily driver, bare metal hypervisors are better for advanced virtualization workloads.

If you have a spare PC lying around, you can leverage Proxmox to turn it into a dedicated home lab. In this detailed guide, we'll explain everything you need to know about Proxmox.

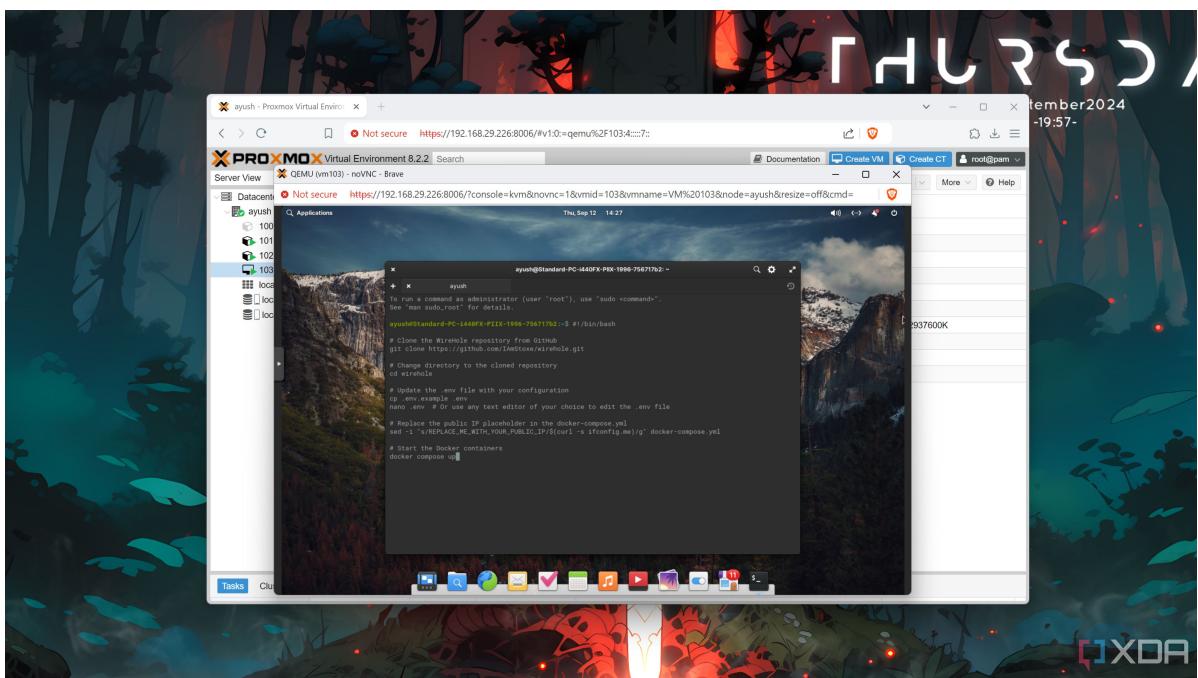
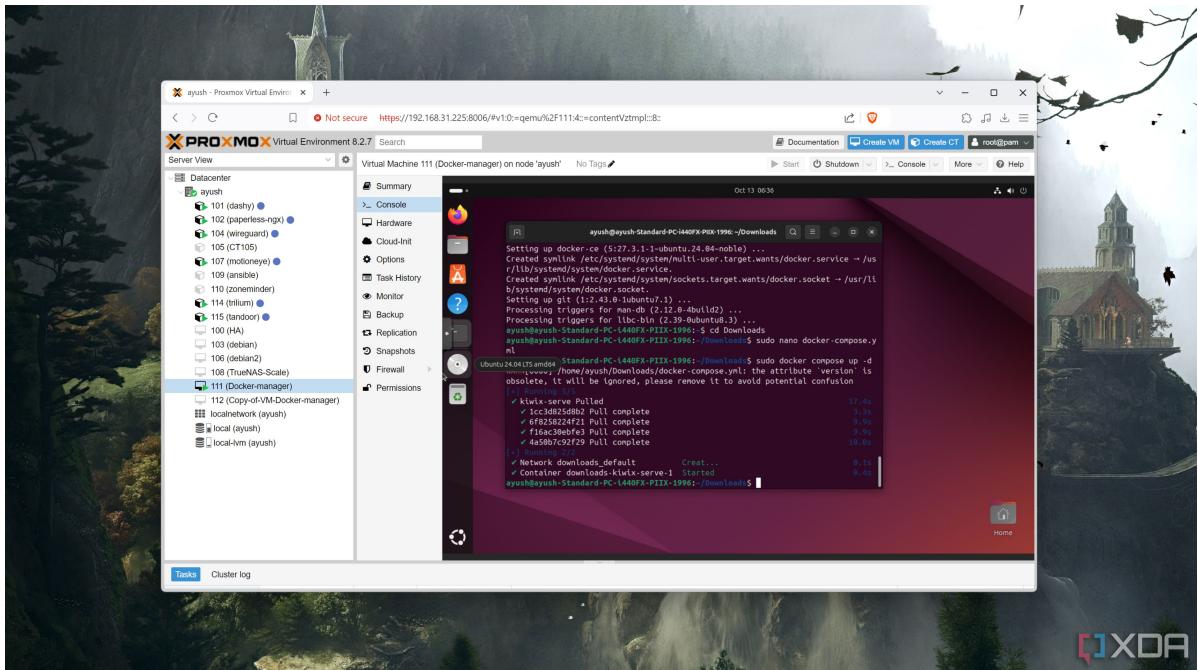
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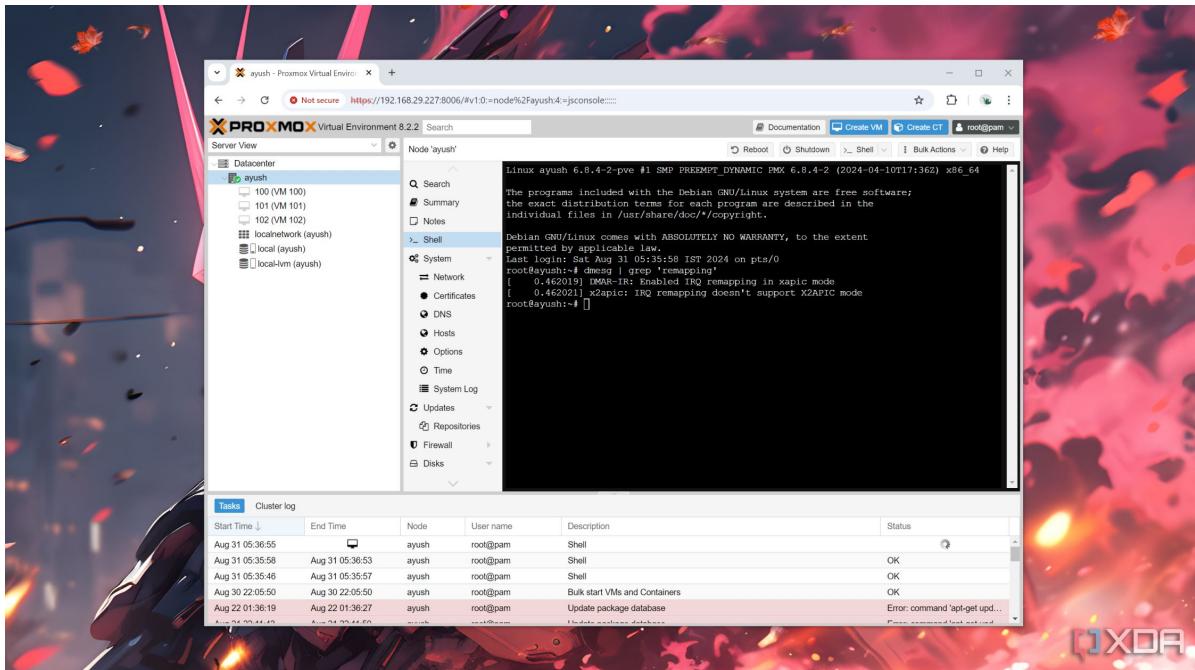


What's Proxmox?

Creating a Tandoor Container using the above advanced settings
✓ Using debian for Container Storage.
✓ using local-lvm for Containers Storage.
✓ updated LXC Template List
✓ LXC Container 115 was successfully created.

Type	Description	Disk usage...	Memory us...	CPU usage	Uptime	Host CPU ...	Host Mem...
lxc	101 (dashy)	32.1 %	0.0 % of 2 ...	-	-	0.0 % of 48 ...	-
lxc	102 (paperless-nginx)	-	-	-	-	-	-
lxc	104 (wireguard)	-	-	-	-	-	-
lxc	105 (CT105)	-	-	-	-	-	-
lxc	107 (motioneye)	-	-	-	-	-	-
lxc	109 (ansible)	-	-	-	-	-	-
lxc	110 (zoneminder)	-	-	-	-	-	-
lxc	113 (grafana)	-	-	-	-	-	-
lxc	114 (trilium)	-	-	-	-	-	-
lxc	115 (tandoor)	-	-	-	-	-	-
lxc	116 (calibre-web)	-	-	-	-	-	-
node	ayush	55.3 %	2.8 %	0.2 % of 48 ...	00:00:58	-	-
qemu	100 (HA)	-	-	-	-	-	-
qemu	103 (debian)	-	-	-	-	-	-
qemu	106 (debian2)	-	-	-	-	-	-
qemu	108 (TrueNAS-Scale)	-	-	-	-	-	-
qemu	111 (Docker-manager)	-	-	-	-	-	-
sdn	localnetwork (ayush)	-	-	-	-	-	-
storage	local (ayush)	55.3 %	-	-	-	-	-
storage	local-lvm (ayush)	18.5 %	-	-	-	-	-

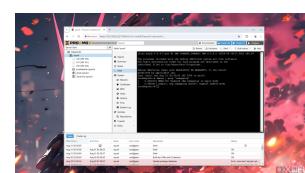
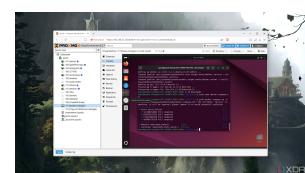
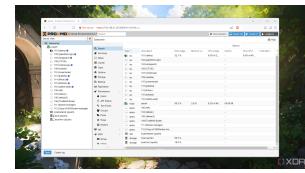
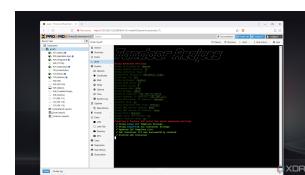




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In the simplest terms, Proxmox is a virtualization platform that allows you to set up virtual machines and containers on your PC. Unlike VirtualBox and other Type-2 hypervisors, Proxmox leverages the Kernel Virtual Machine (KVM) module of Linux, meaning you'll need to install it directly on the host system, rather than download it on top of an existing OS. While experts may argue about the exact classification, you can think of Proxmox as a Type-1 hypervisor wrapped in a neat Debian distro, which provides better performance and a myriad of virtualization features than its Type-2 rivals.

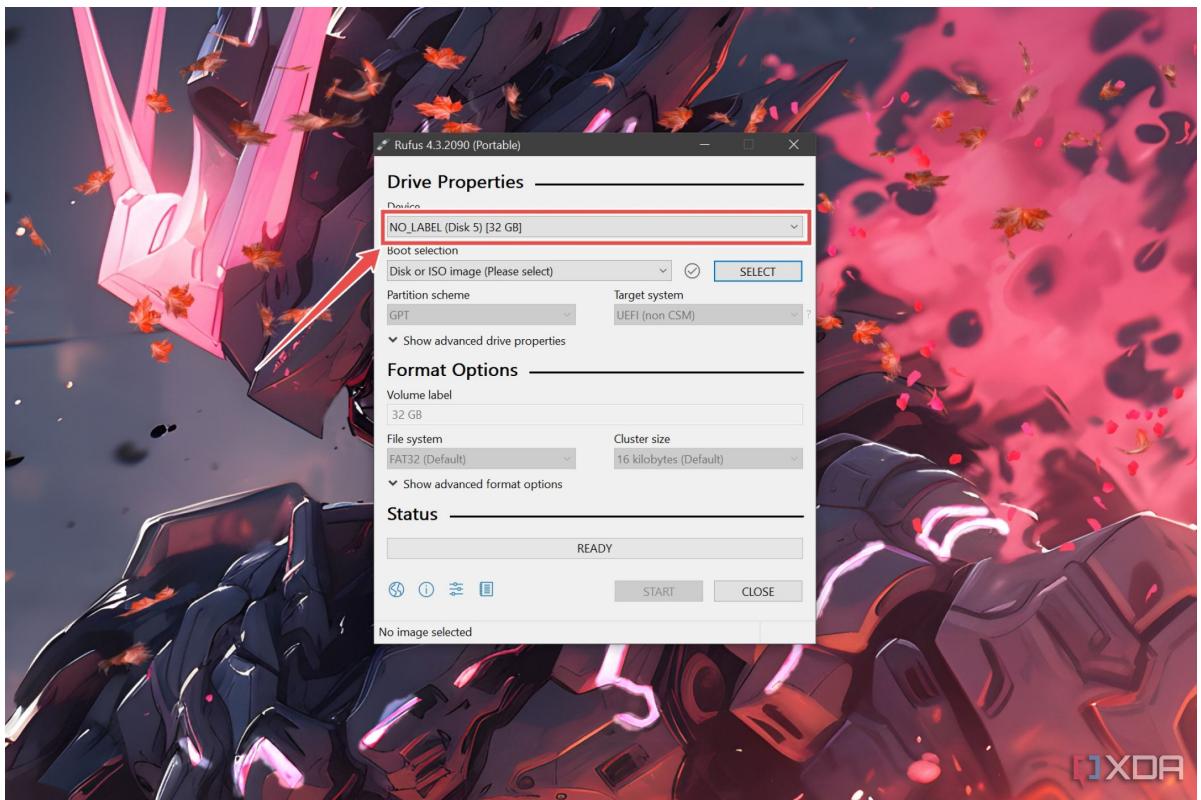
What's more, Proxmox also supports Linux Containers (LXC). For the uninitiated, containers can be thought of as simplified, toned-down versions of virtual machines. Instead of replicating an entire OS, containers only include the bare minimum code and an OS environment to run a specific application. This makes them a lot faster, smaller, and more flexible than their VM counterparts.



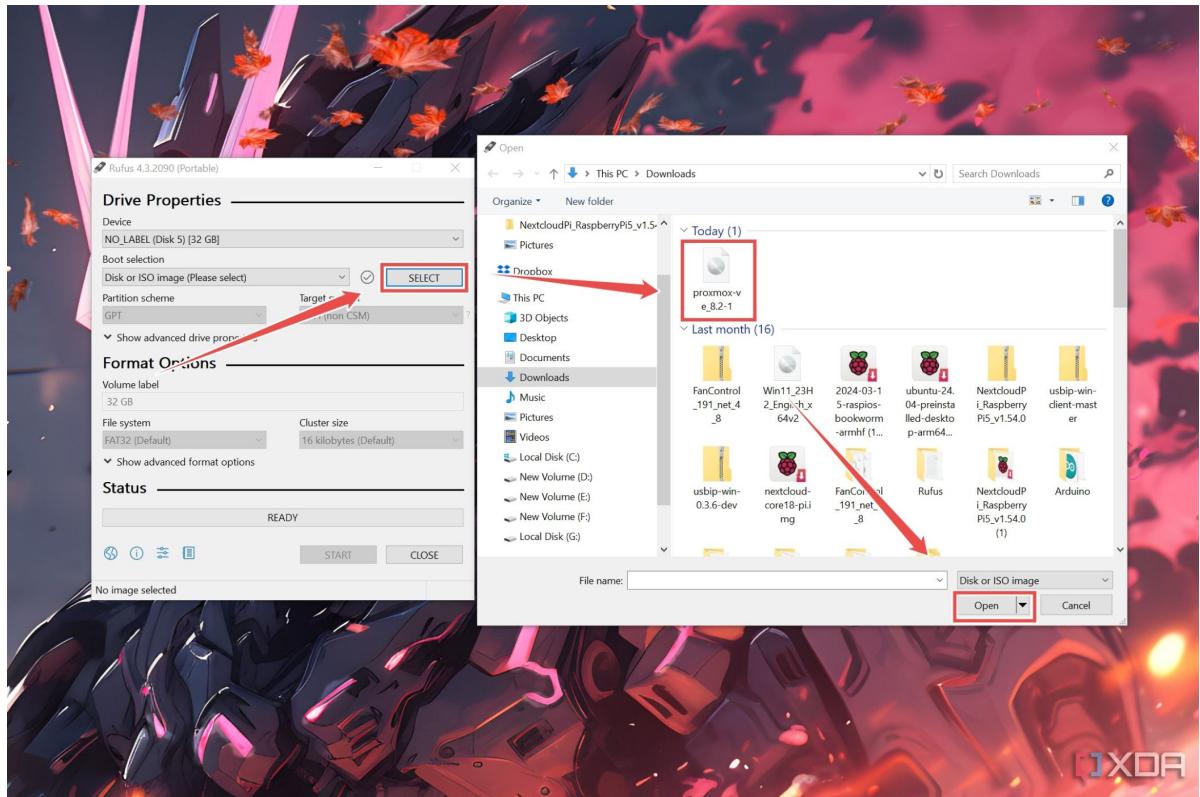
Creating a bootable USB drive

Now that you know the basics of Proxmox, it's time to begin the installation procedure. The first step involves writing Proxmox's ISO file onto an external USB drive with the help of a flashing utility, like Rufus.

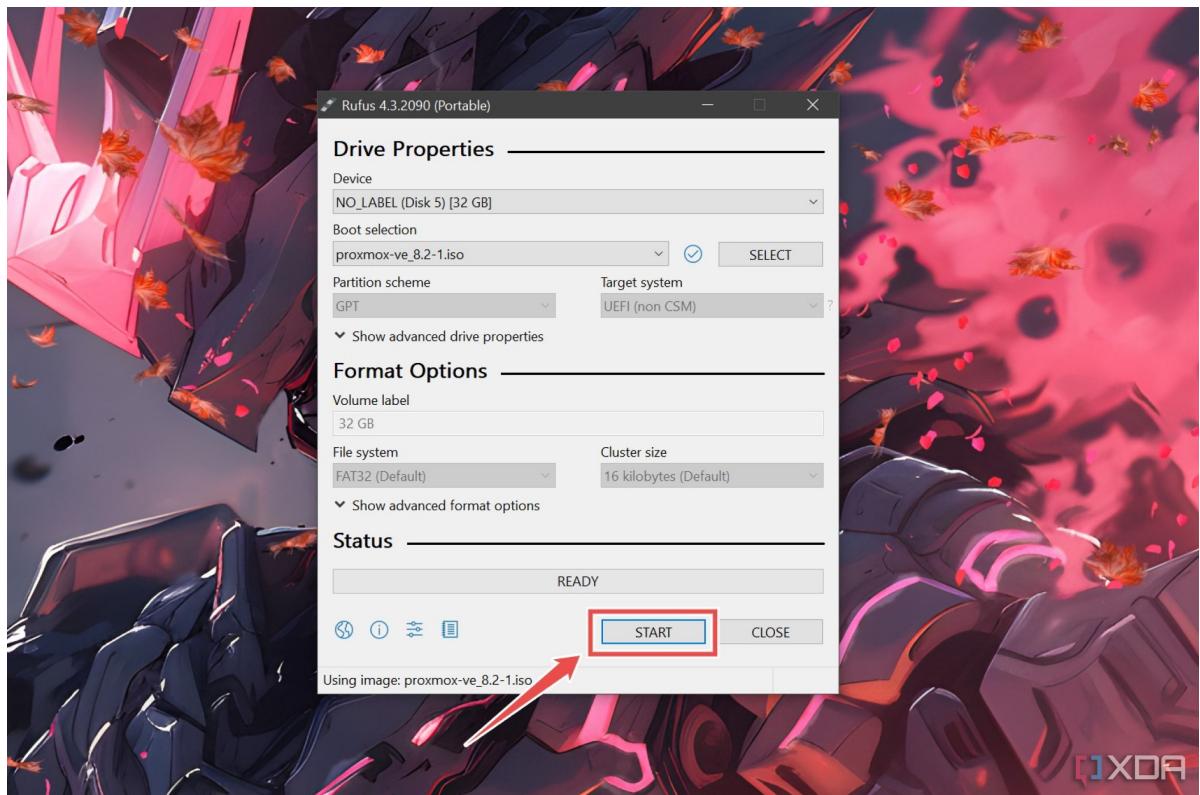
1. Download the portable version of Rufus from the [official link](#).
2. Head to [Proxmox's website](#) and download its latest ISO file.
3. Run Rufus as an admin and choose your **USB drive** as the **Device**.



4. Click on the **Select** button under boot selection, pick the **Proxmox ISO** you downloaded earlier, and tap **Open**.



5. Press **Start** and wait for Rufus to write the Proxmox files on your USB drive.



Changing the boot priority in the BIOS

Once Rufus is done creating the bootable USB drive, you can unplug it from your system and insert it into the spare PC. But before you can install Proxmox, you'll need to modify the boot order in the BIOS to ensure your PC uses the newly flashed USB drive to launch into the Proxmox installer wizard.

1. Power on your PC and mash the **Del** key as it boots up to enter the BIOS menu.
2. Navigate to the **Advanced Settings** section and select the **Boot Priority/Boot Order** option.
3. Ensure that the **USB drive** is selected as **Boot Option #1**.



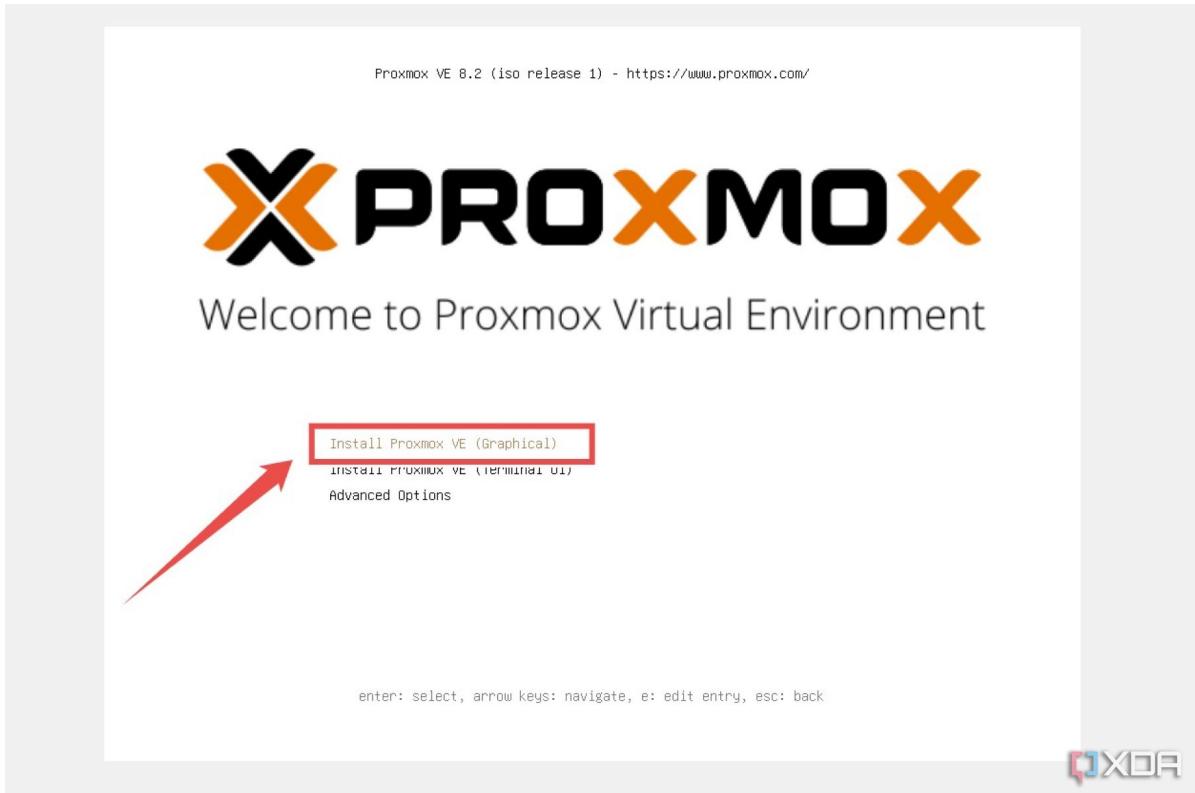
4. Exit the BIOS after saving the changes made to the boot settings.



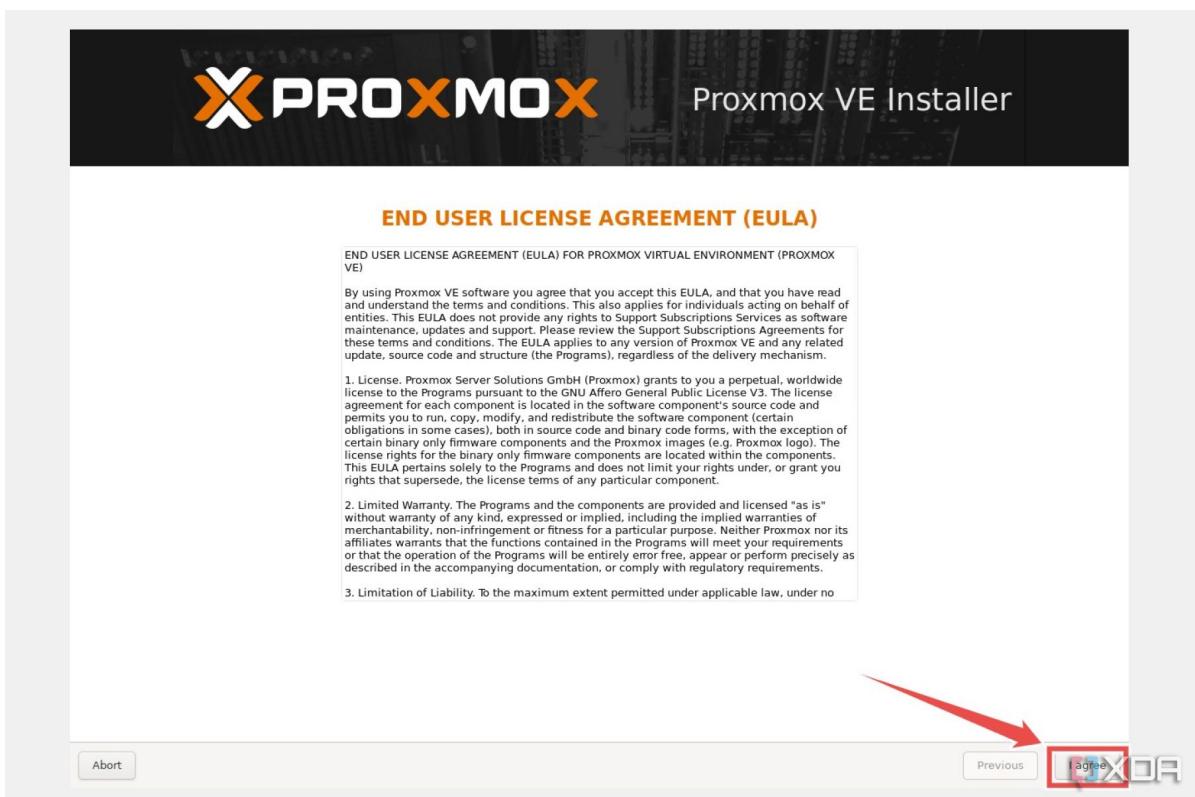
Installing Proxmox

When the PC reboots, you'll be greeted with the installation screen for Proxmox.

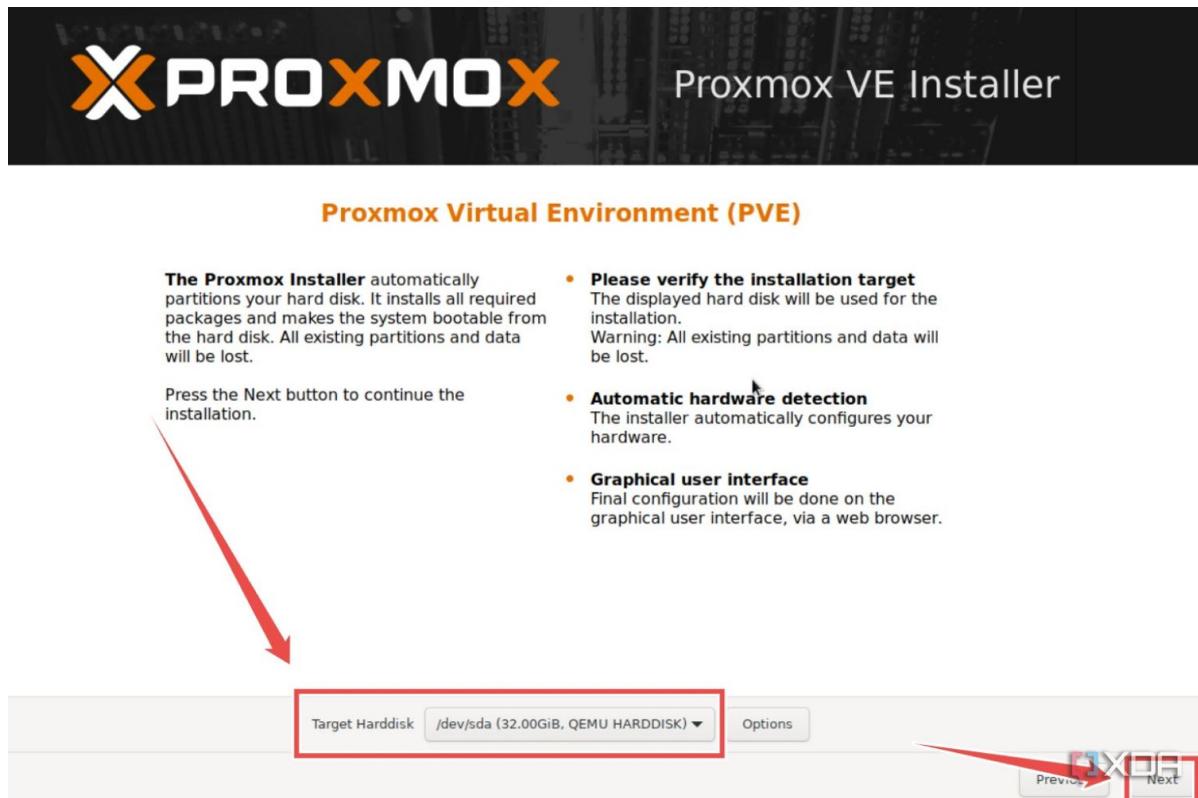
1. Select Install Proxmox VE (Graphical).



2. Hit I agree when Proxmox displays the EULA terms.

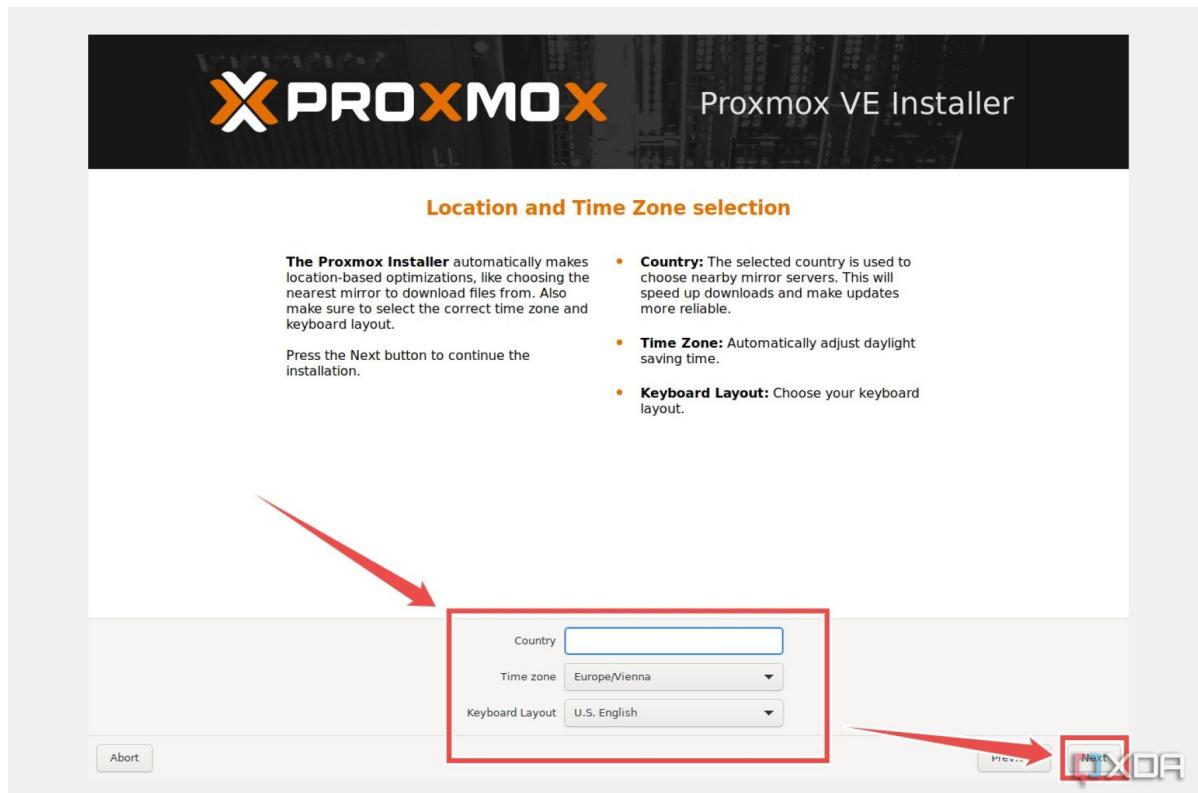


3. Choose your **Storage drive** and click **Next**.

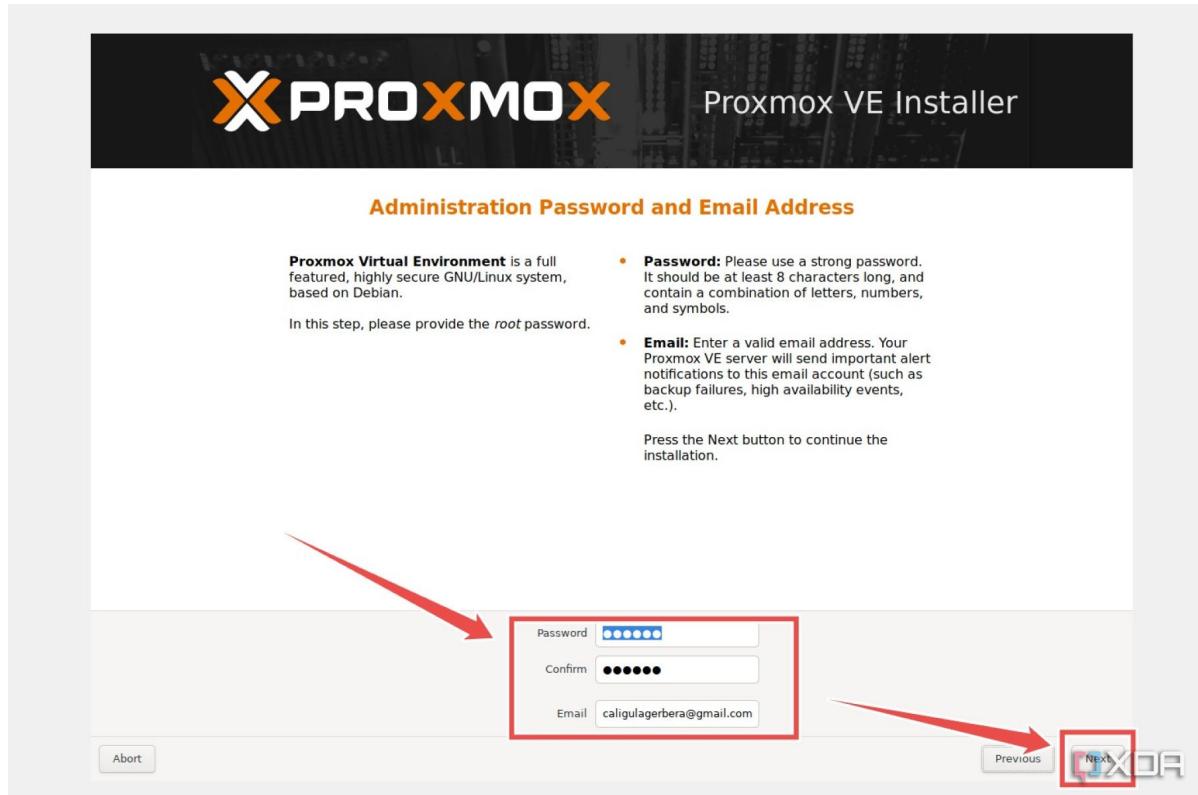


Be sure to hit **Next** after each step from here on out.

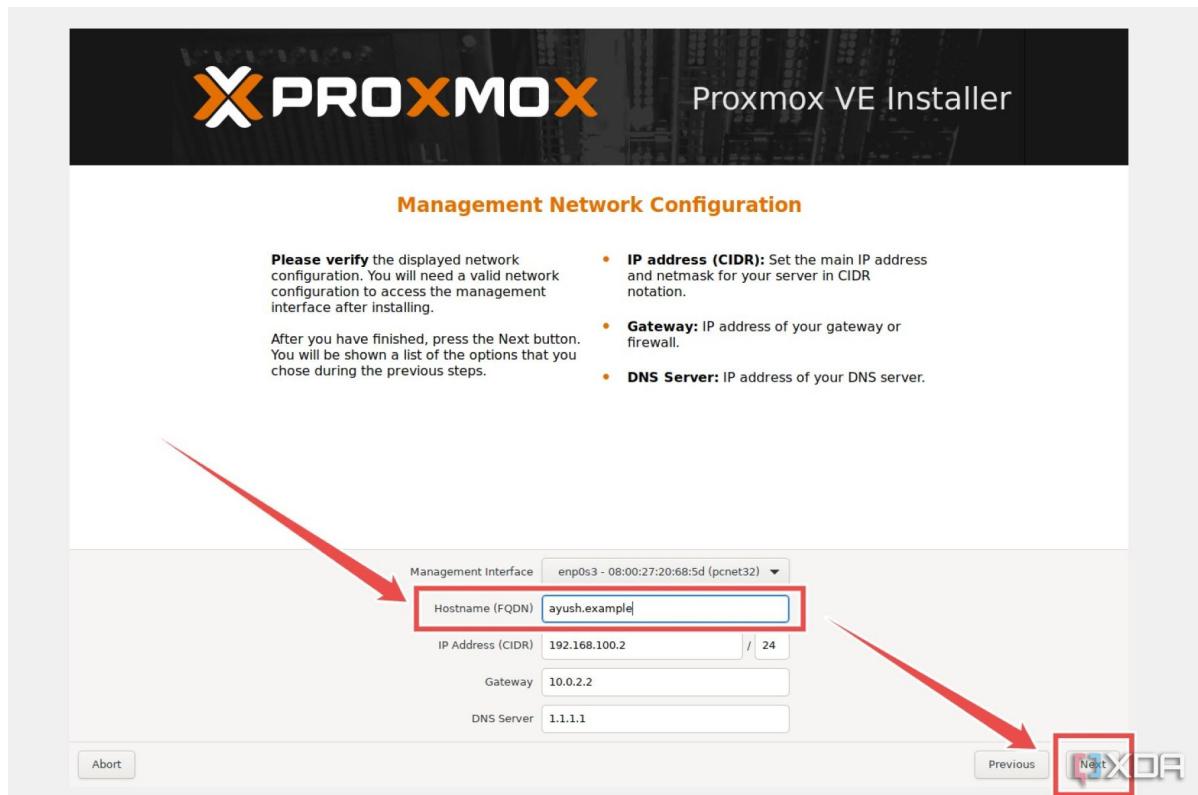
4. Pick your **Country**, **Time-zone**, and **Keyboard layout** settings.



5. Enter a suitable **password** alongside your **email address**.

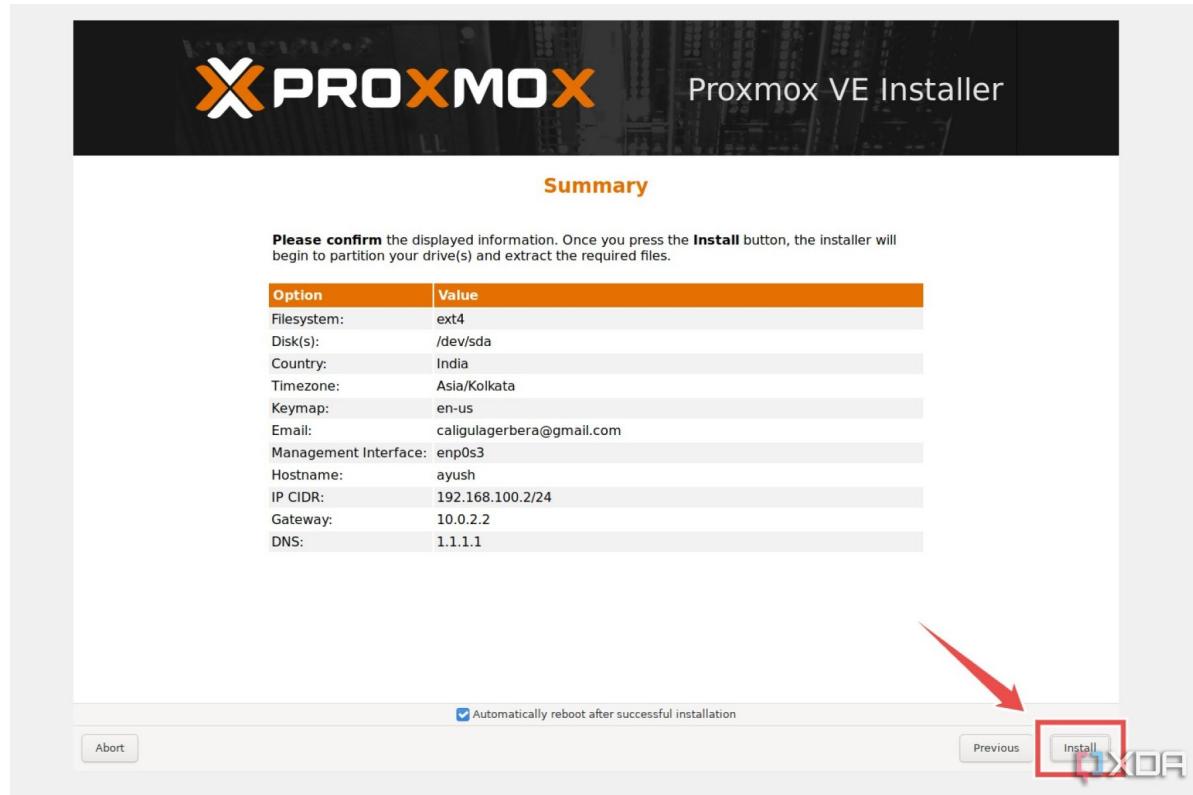


6. Type the **Hostname (FQDN)** for your Proxmox server and leave the other settings be.



If you have more than one networking device (like a WLAN card and a LAN interface) active during installation, make sure you pick the correct device under the Management Interface option.

7. Double-check everything on the **Summary** page and press **Install**.

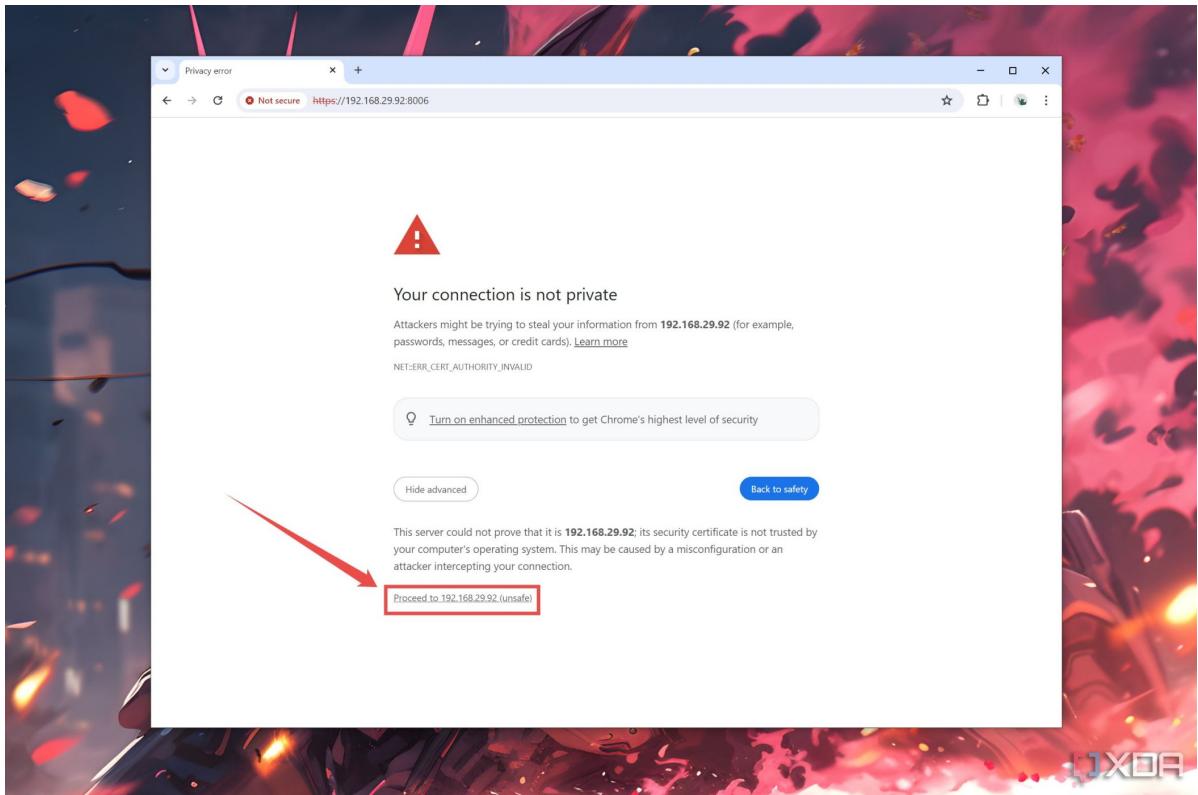


Launching the Proxmox web UI

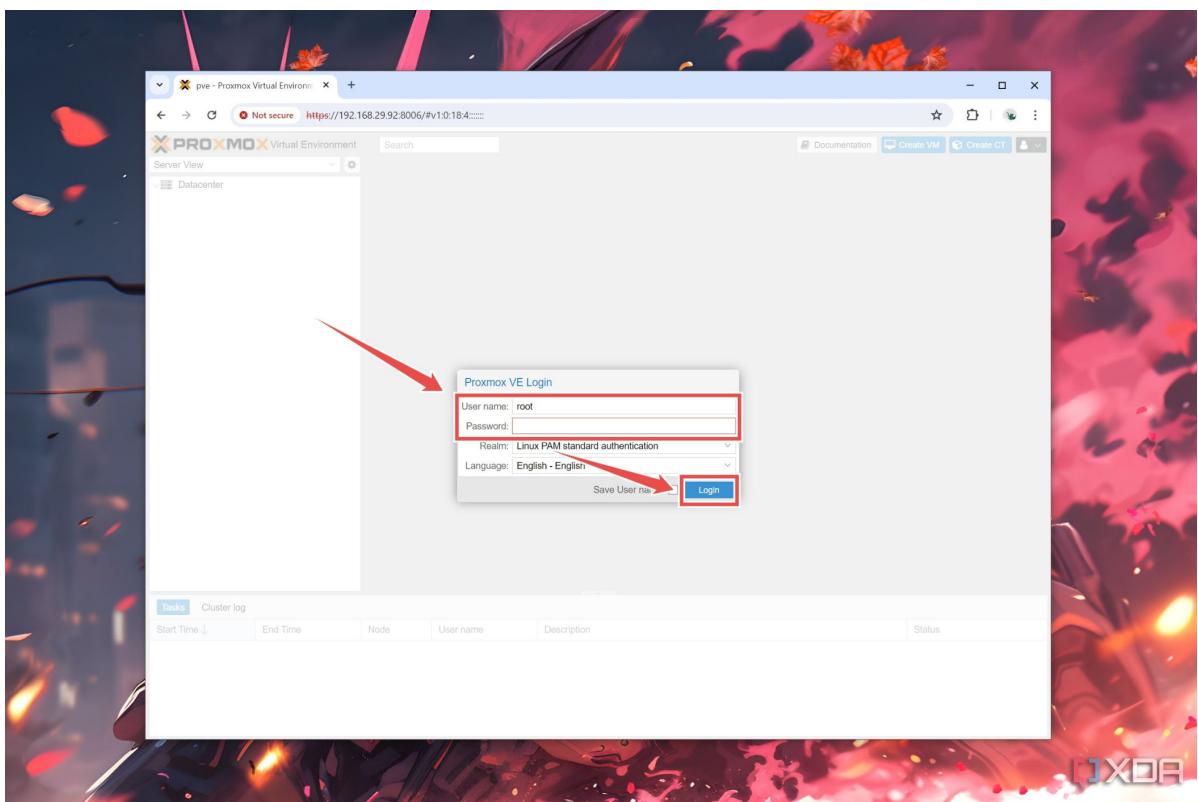
Once Proxmox has finished installing, your PC will reboot into the newly-installed OS. Now's the time to switch to your other system and access the Proxmox web UI.

1. Launch your favorite web browser and type the **IP address** of your spare PC followed by a : (colon) and port number **8006** into the Address Bar.
If you're having trouble finding the IP address of your Proxmox server, you can use a network scanner like Nmap or Fing.

2. Agree to **proceed to the URL** when your web browser cautions you about the connection not being private.



3. Enter **root** as the **Username** and type the **Password** you set in the installation wizard before clicking on the **Log in** button.

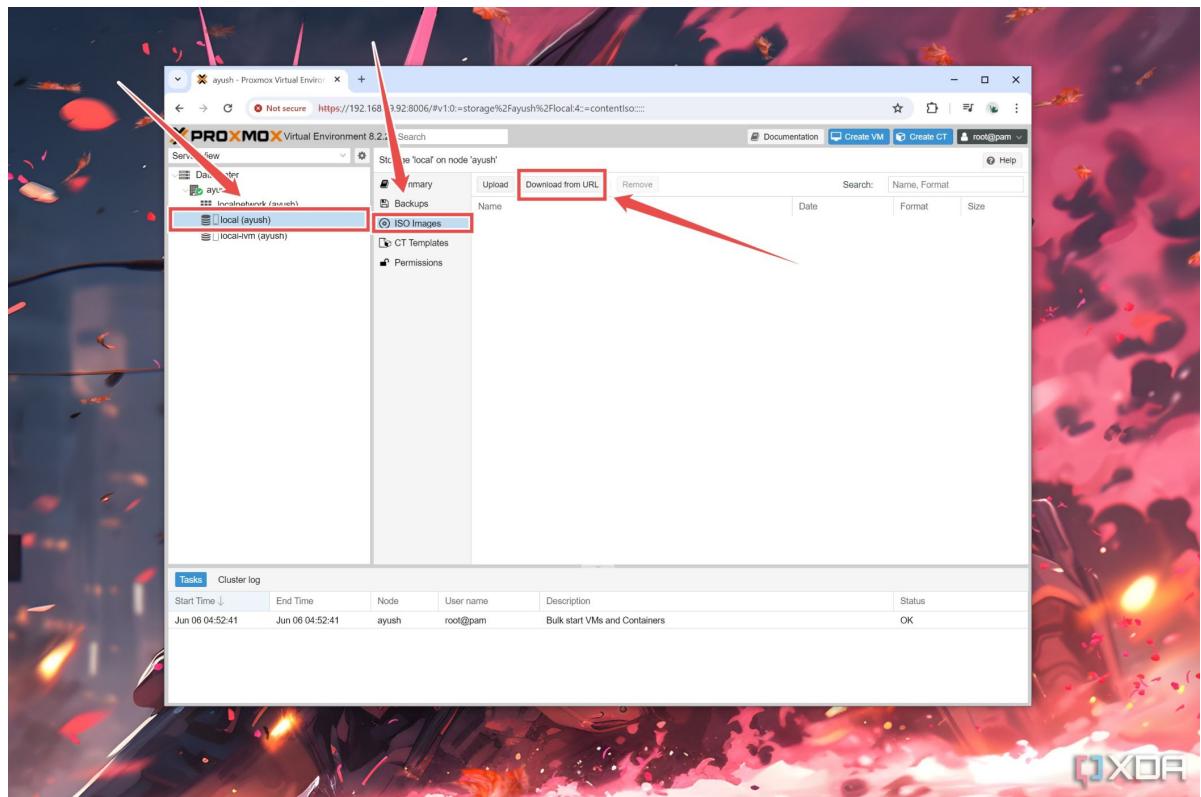


Assuming you followed all the steps properly, the Proxmox Dashboard will appear on your web browser.

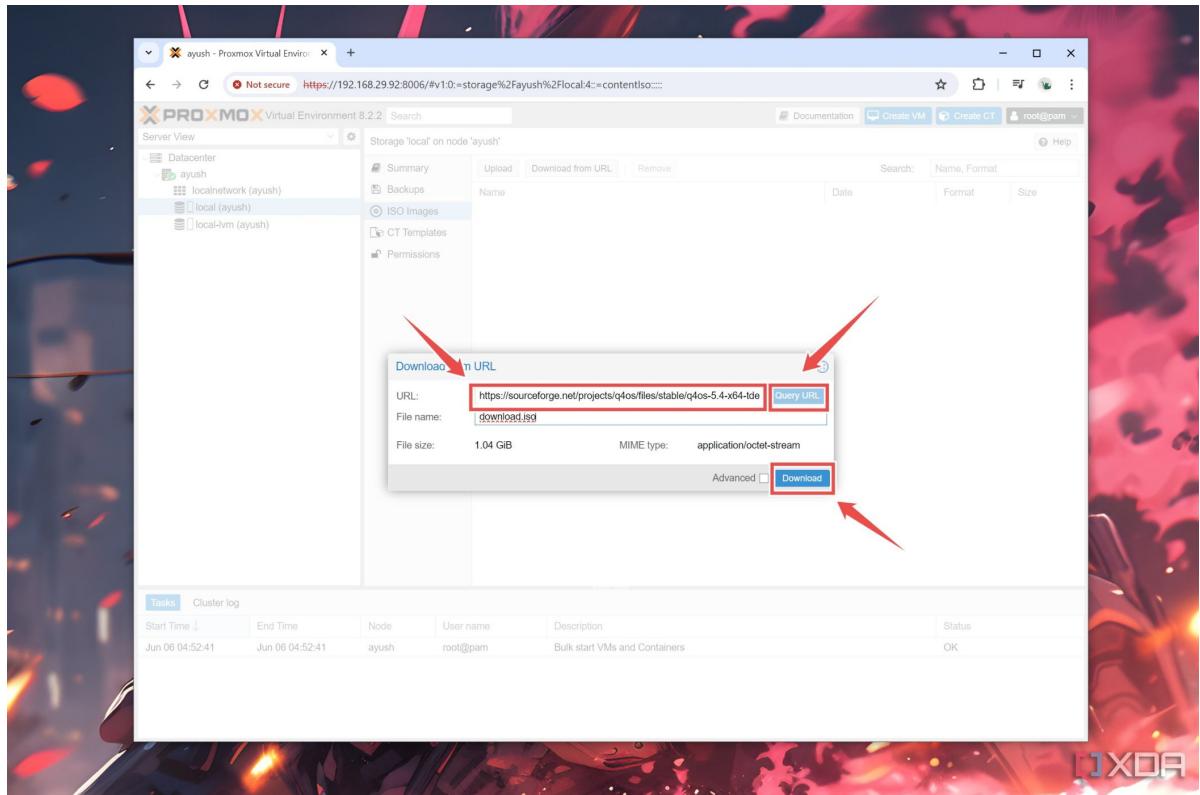
Creating virtual machines in Proxmox

Setting up virtual machines inside your Proxmox server may sound a little intimidating if you're only familiar with Type-2 hypervisors. But you'll be surprised at how easy it is to create your VMs in Proxmox.

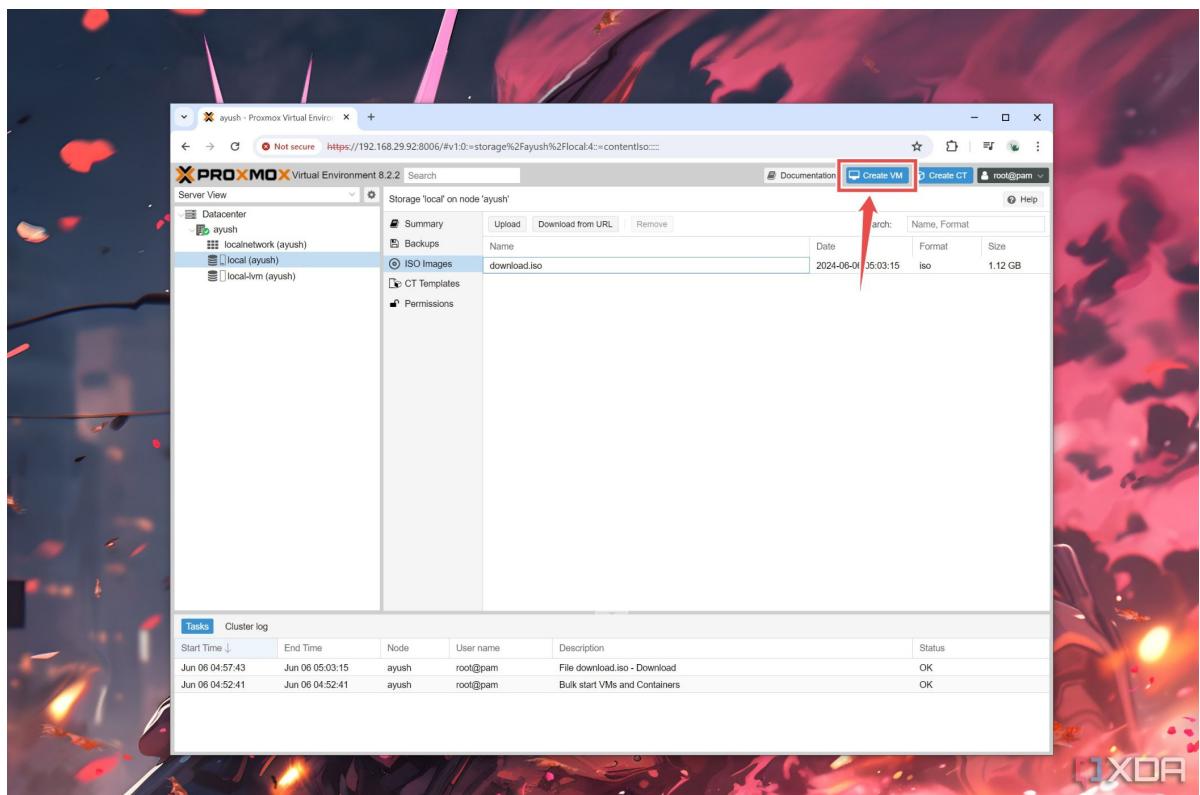
1. Click on **local (user_name) storage** under the **primary node**, select the **ISO Images** option, and press **Download from URL**.



2. Paste the **URL** of the web page containing the ISO file of the OS you wish to use with the virtual machine, hit **Query**, and press **Download**.

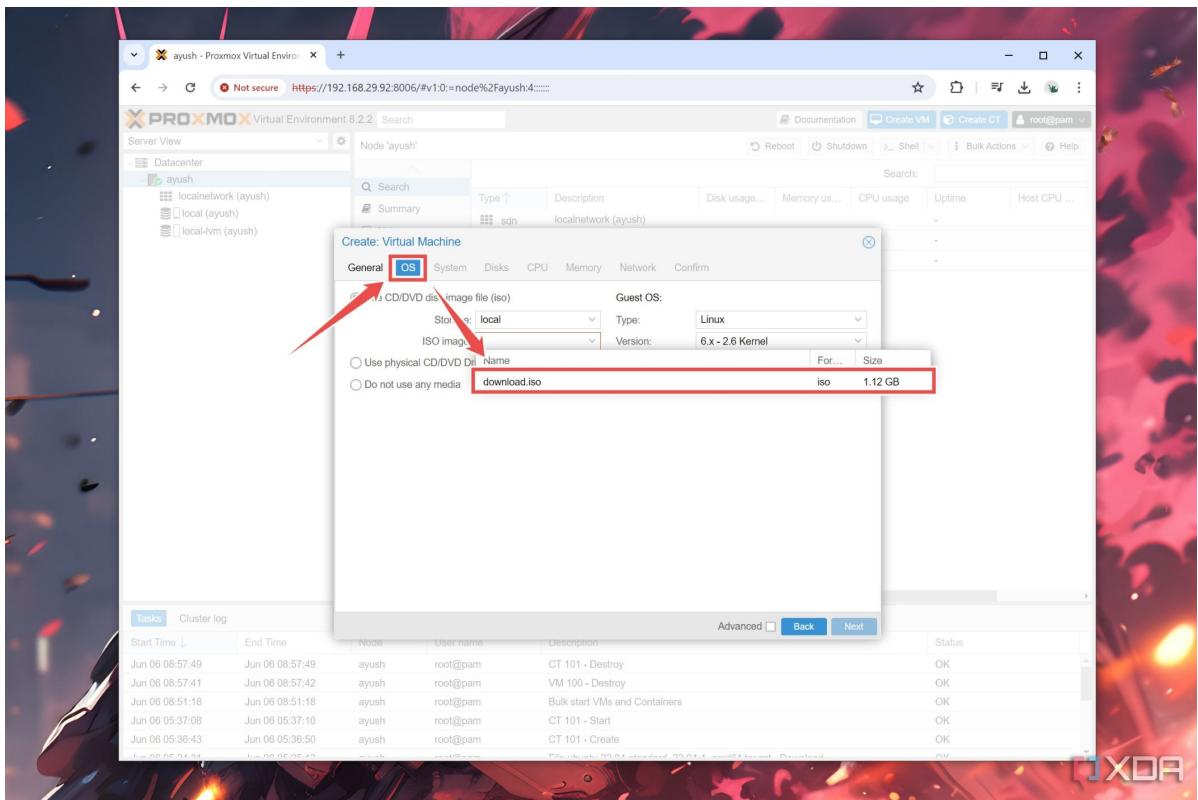


3. Once the ISO file has finished downloading, click on the **Create VM** button.

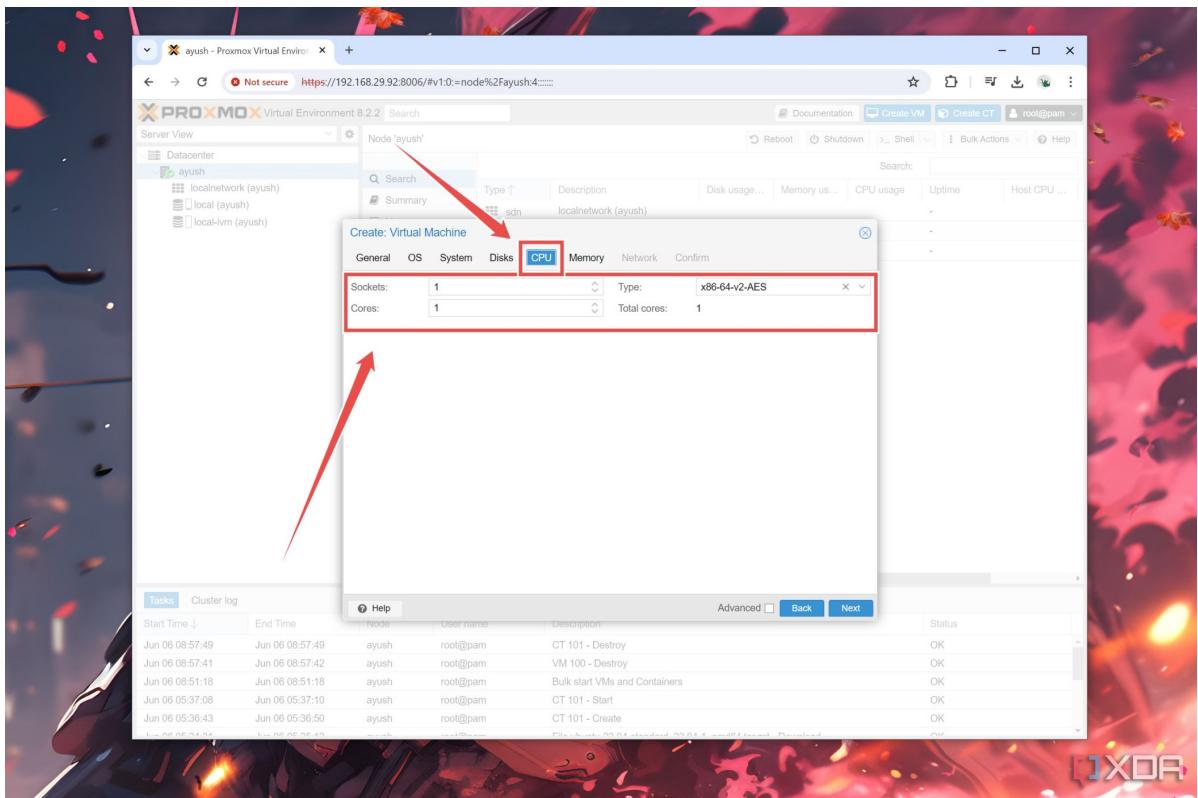


4. Hit **Next** inside the **General** tab.

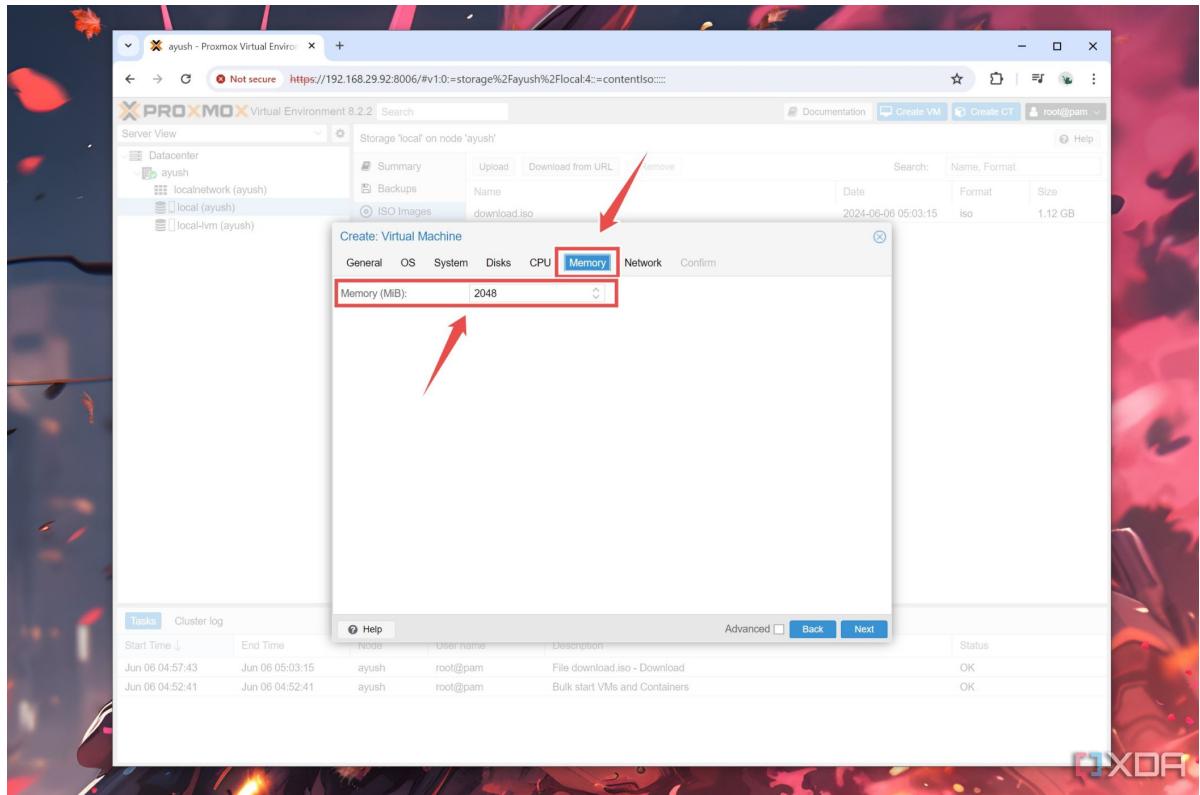
5. Under the **OS** settings, choose the **ISO file** you downloaded earlier.



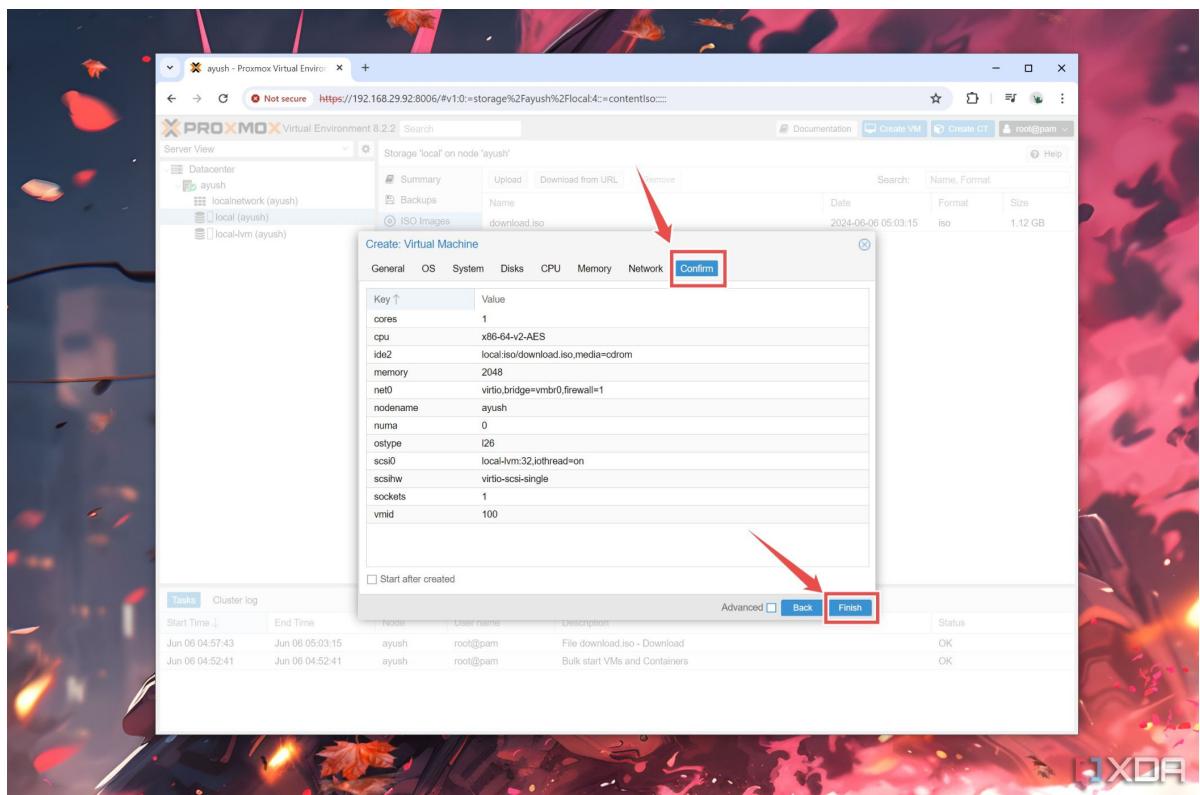
6. Skip to the **CPU** tab and pick the number of **Cores**, **Sockets**, and other processor-related settings for the virtual machine.



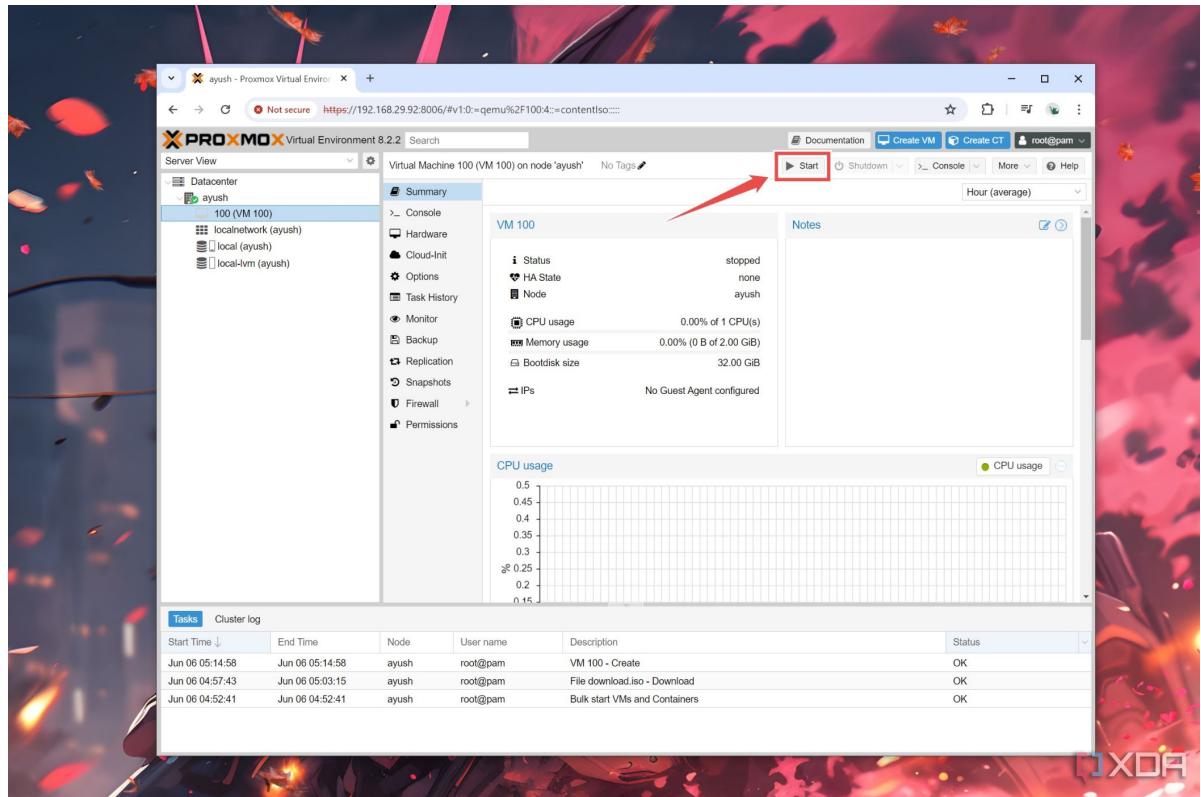
7. Inside the **Memory** section, enter the amount of **RAM** you wish to allocate to the VM instance.



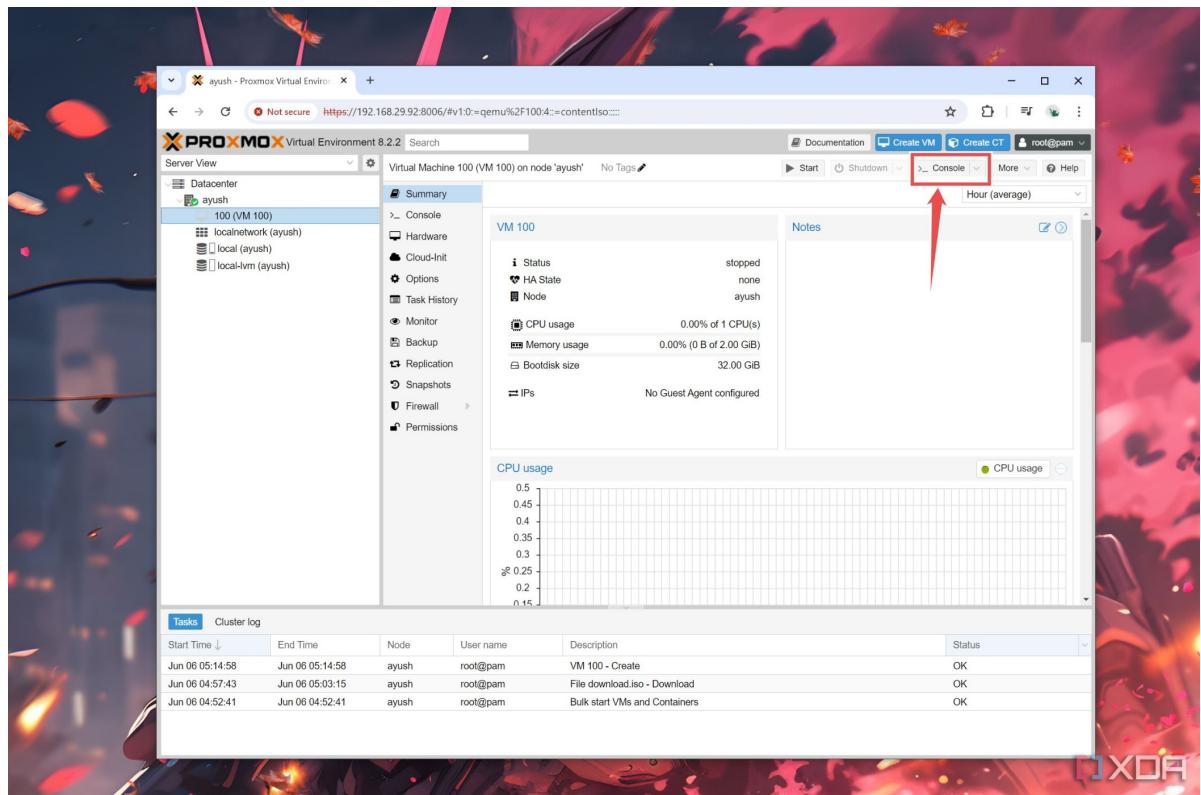
8. Skip to the **Confirm** section and tap the **Finish** button.



9. You can boot the VM by clicking on its **Name** under your primary node and pressing **Start**.



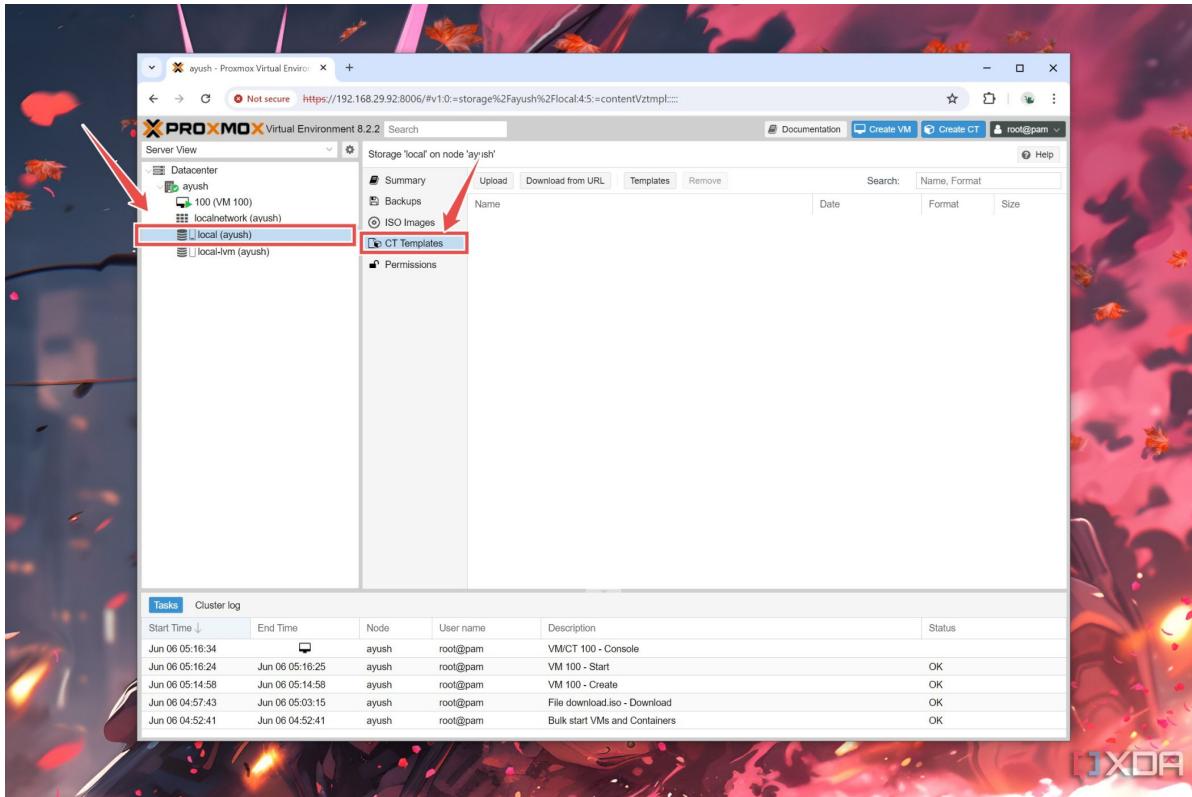
10. To use the virtual machine, click on **Console**.



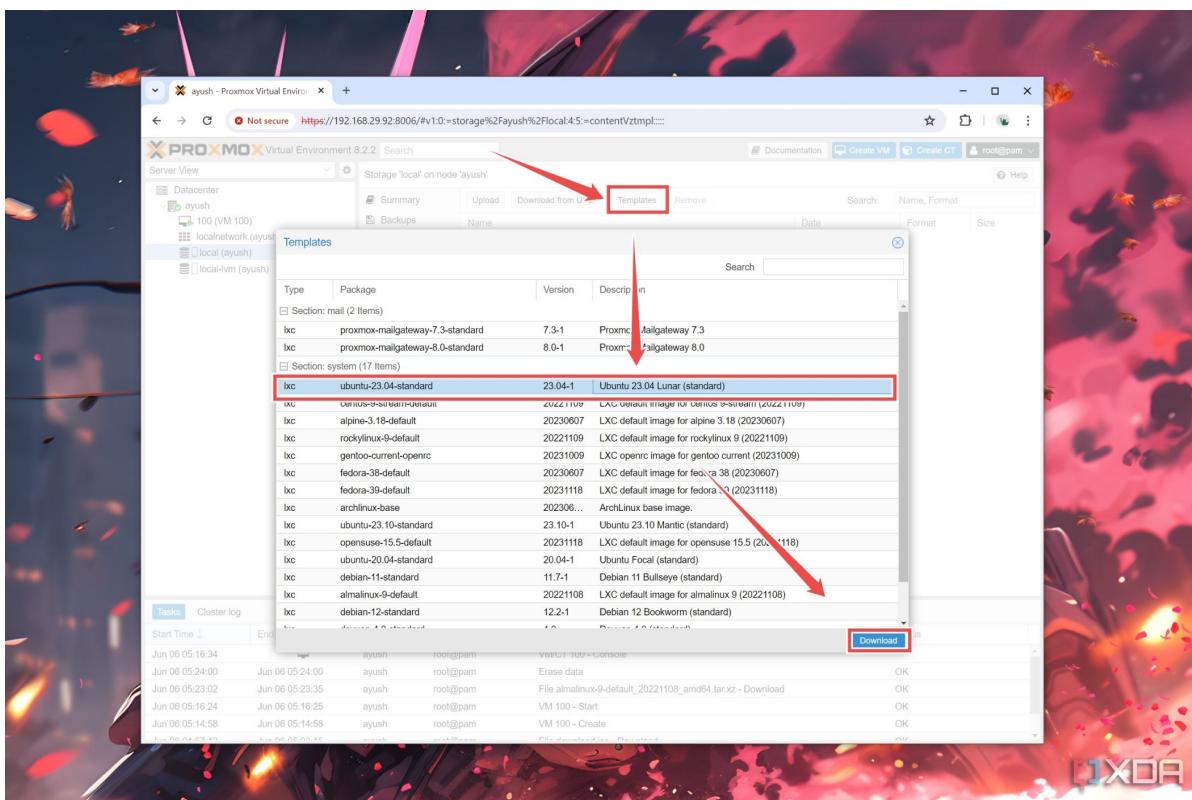
Creating containers in Proxmox

Similar to virtual machines, setting up containers on your Proxmox server is a pretty straightforward process. All you have to do is:

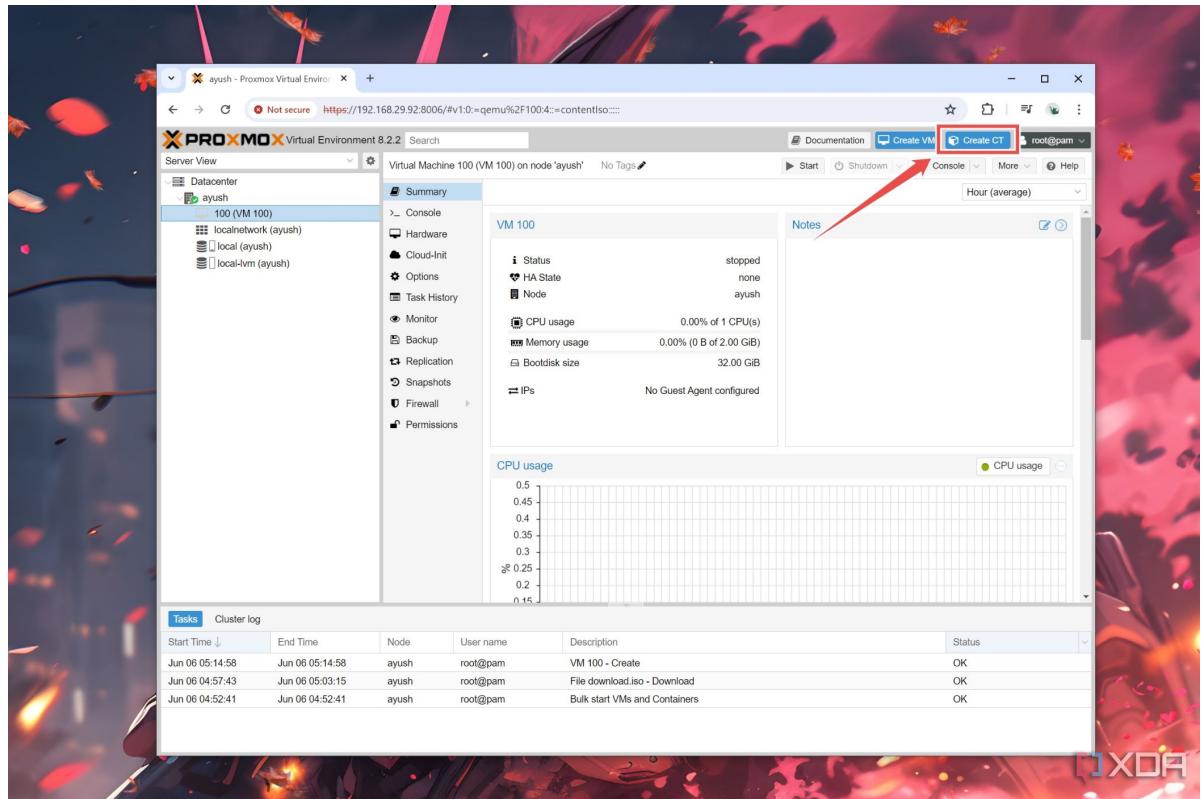
1. Head back to the **Local (user_name)** storage pool and enter the **CT Templates** tab.



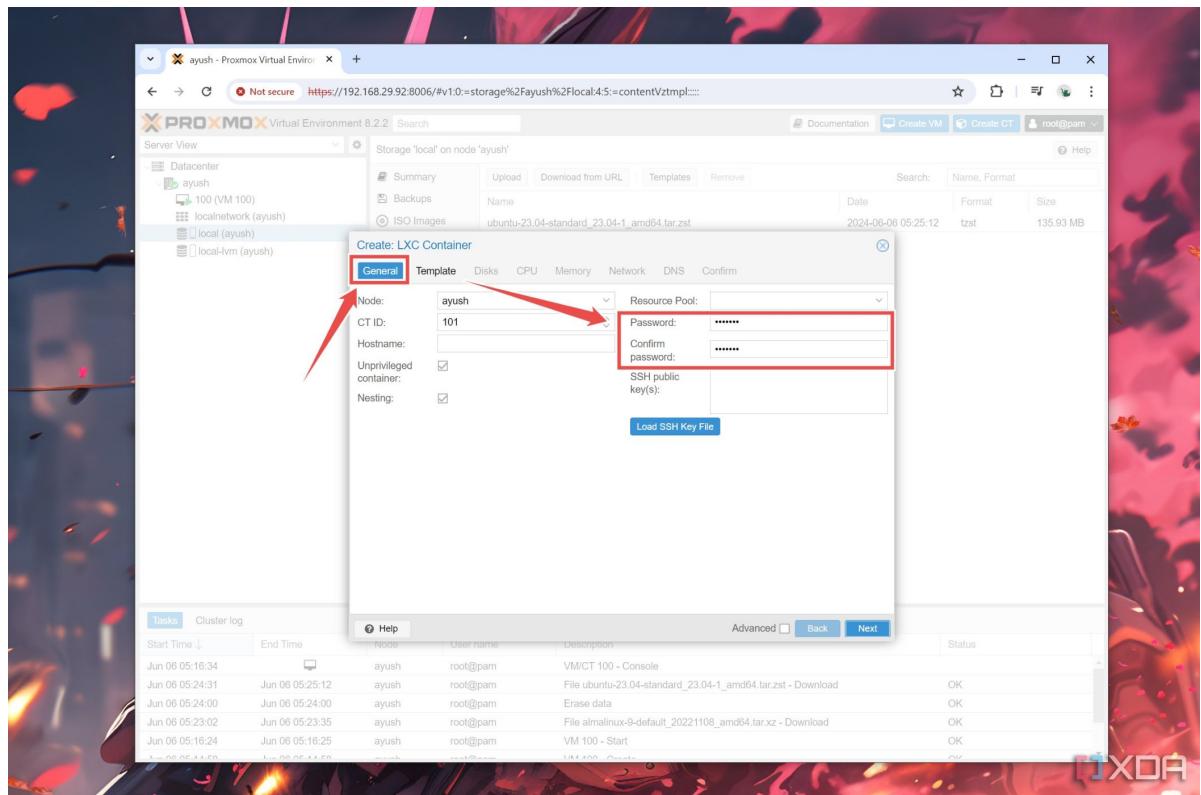
2. Click on **Templates** and press **Download** after selecting your preferred container template.



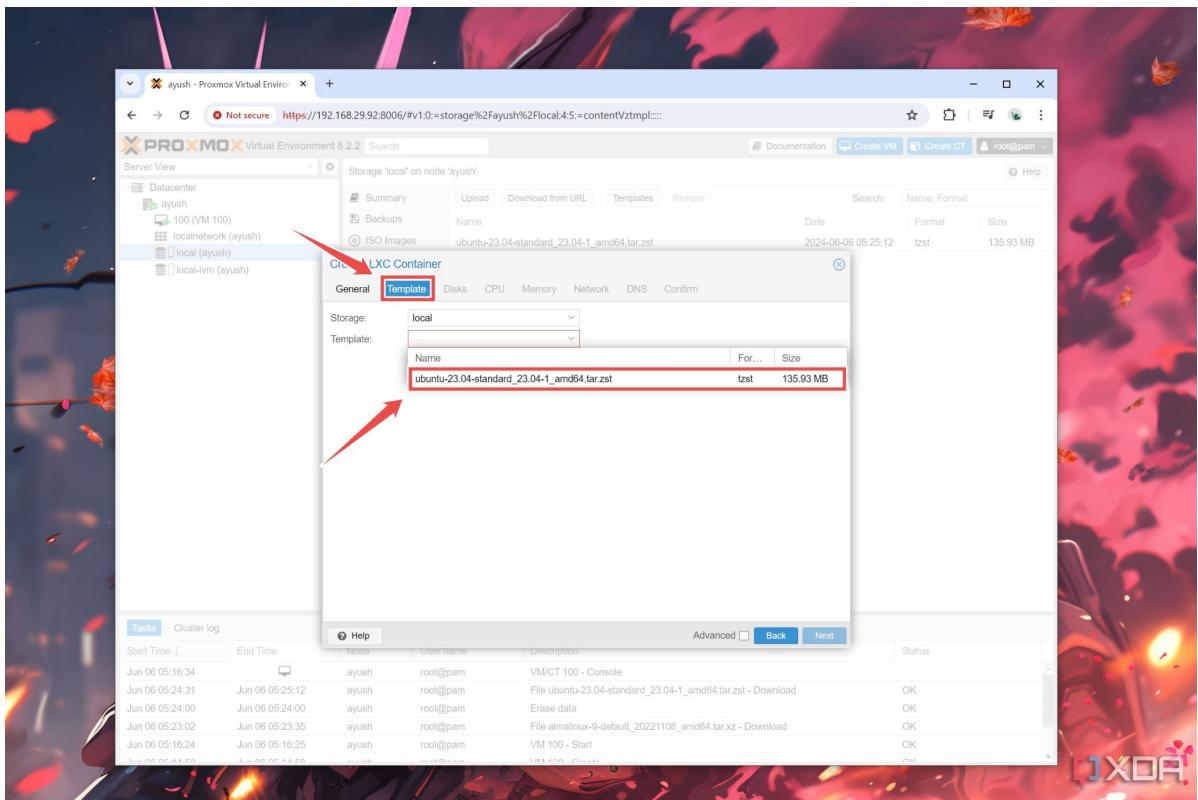
3. After Proxmox has finished downloading the template, click on the **Create CT** button.



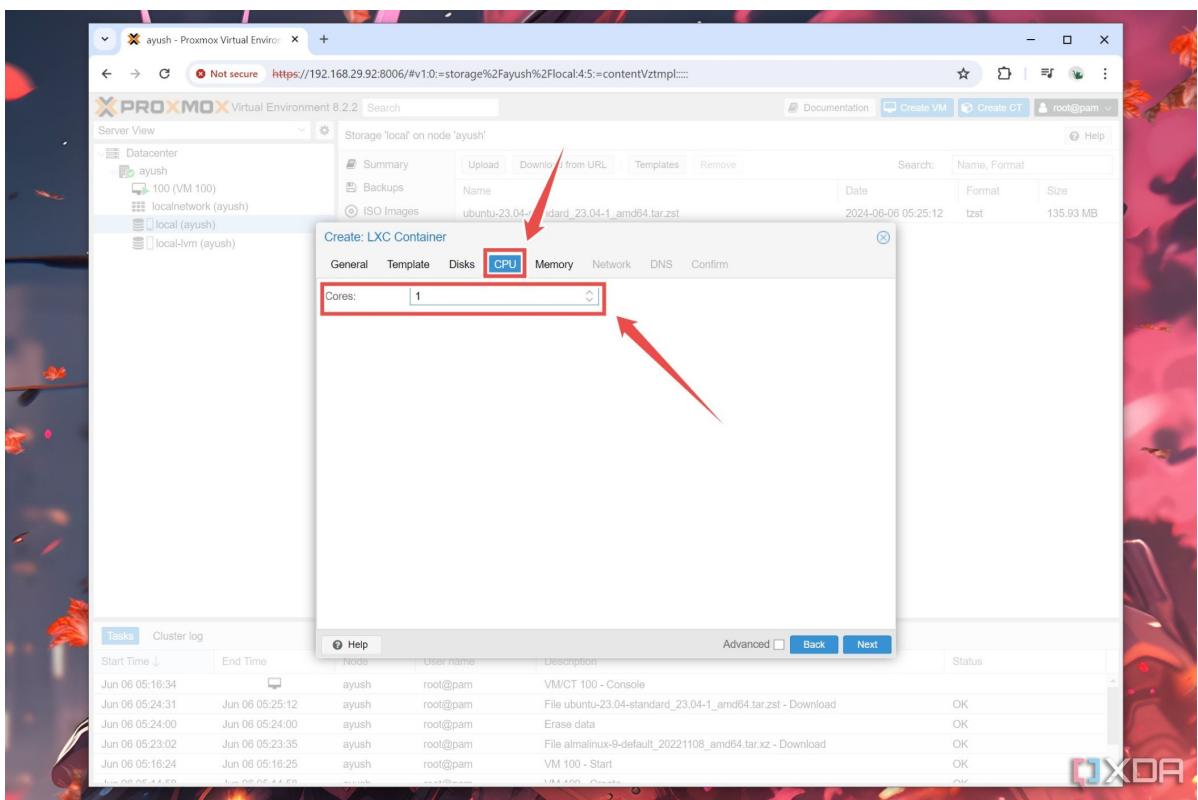
4. Set a **Password** for the container in the General tab.



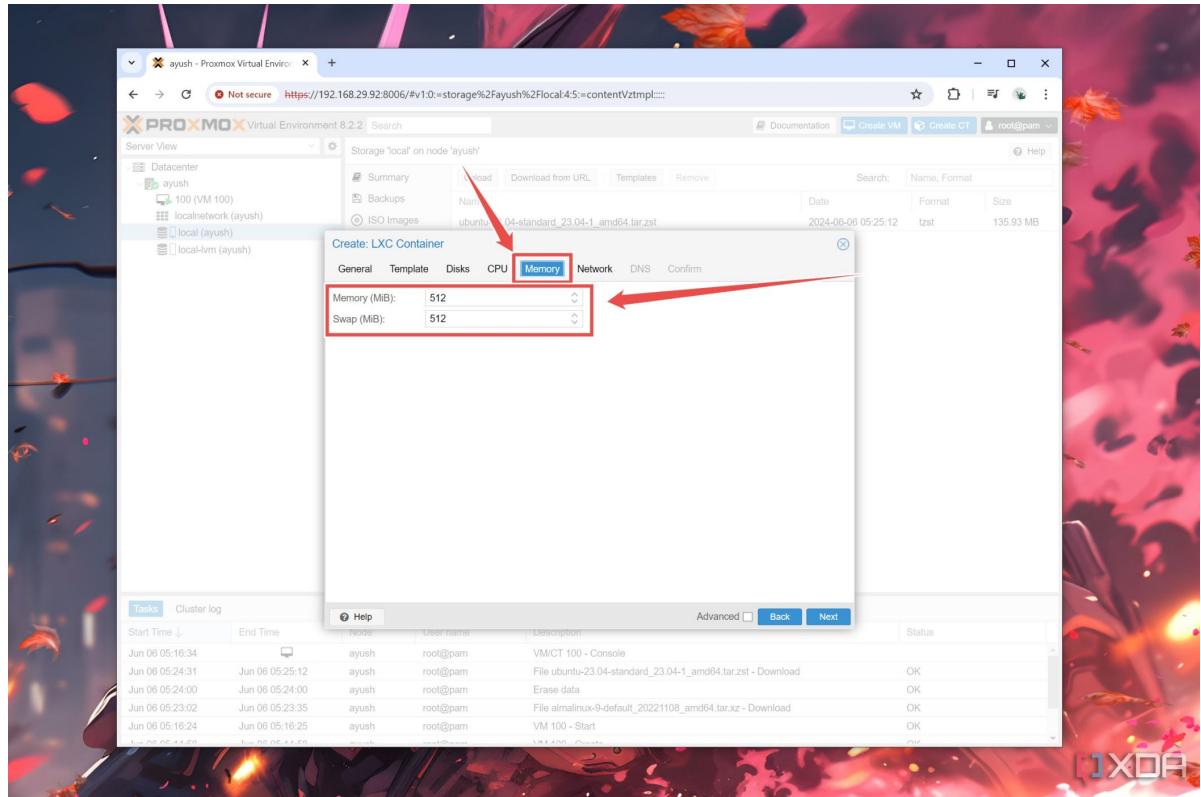
5. Choose the **Template's ISO file** you just downloaded inside the **Template** section.



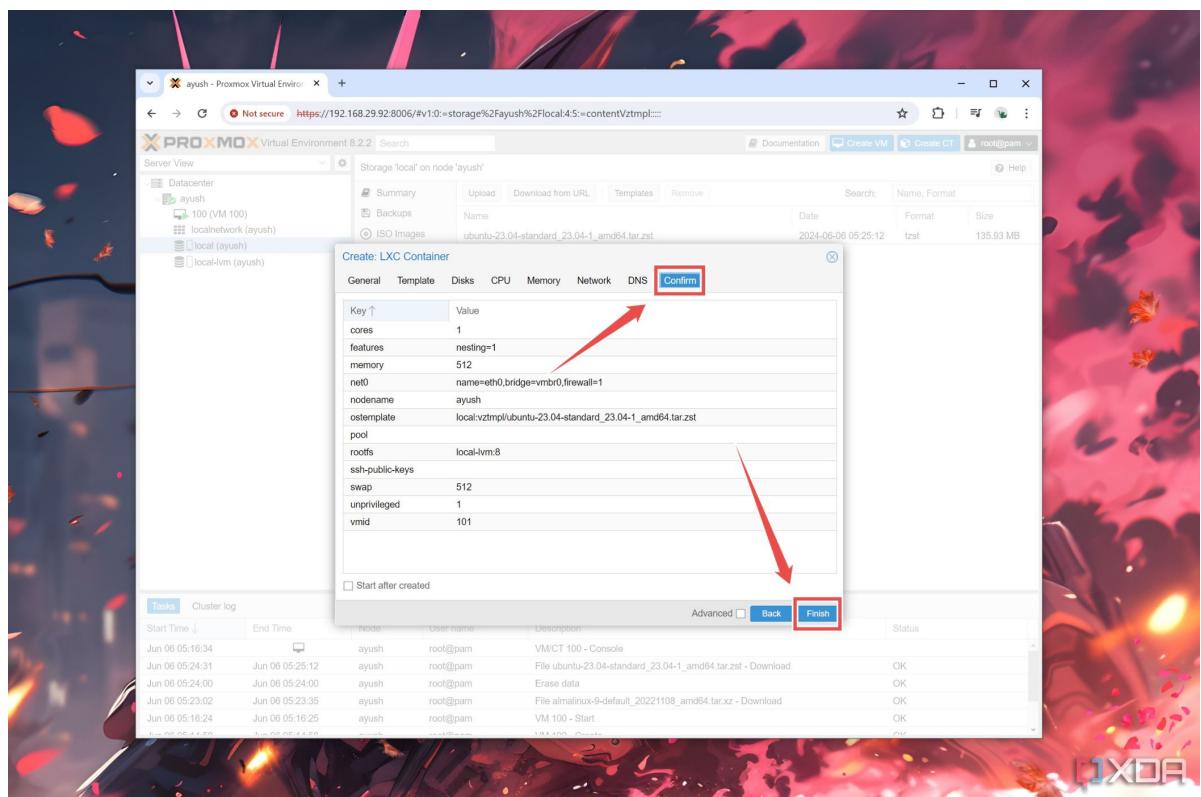
6. Skip to the **CPU** tab and allocate the ideal number of **Cores** for the container.



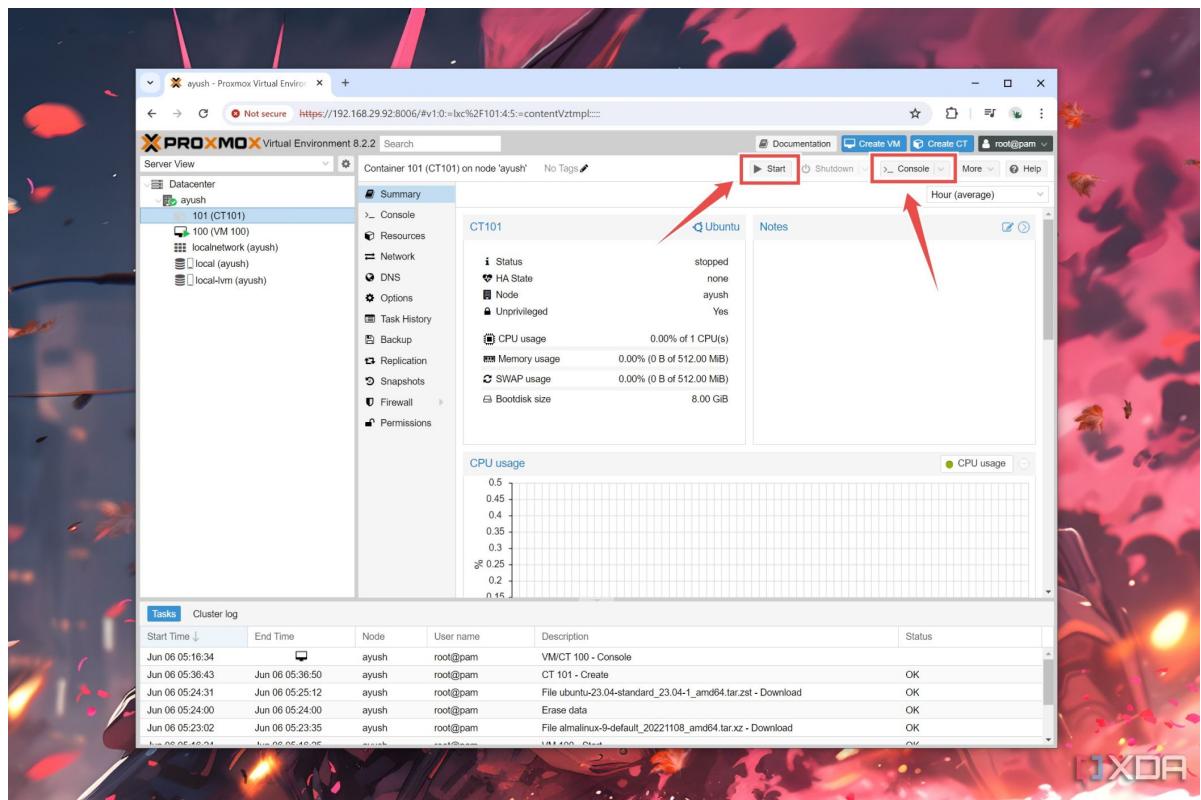
7. Similarly, set the amount of **RAM** the container will use in the **Memory** section.



8. Switch to the **Confirm** section and click on **Finish**.



- Like the VM instance, select the **container** before launching it via the **Start** button and accessing it with the **Console**.



Managing your home lab with Proxmox

When I first started using Proxmox a few weeks ago, I was blown away by how useful the platform really is. So far, I've been able to simultaneously access multiple VMs and containers on my aged Ryzen 5 1600 processor, a feat I considered impossible when using Type-2 hypervisors. That said, switching to an equally outdated [dual-Xeon](#) system helped, as the extra cores and memory provided even more headroom for all my [self-hosted apps](#).

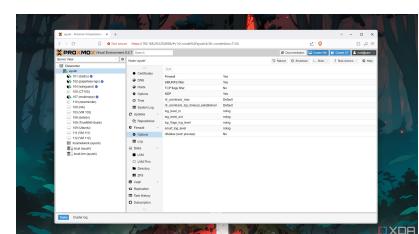
All that said, if you're a complete beginner, then VirtualBox or VMWare Workstation Pro might be the better option. While they lack the superior performance and capabilities of a dedicated server, they're quite simple to set up and work well for lighter workloads. For containers, you can try checking out [CasaOS](#), which provides an easy UI for Docker-powered workloads.

Related

[7 things you should do to secure your Proxmox home lab](#)

Prevent hackers and malware from tampering with your Proxmox server by following these seven tips

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