

CO513: Advanced Computer Communication Networks - Lab 01

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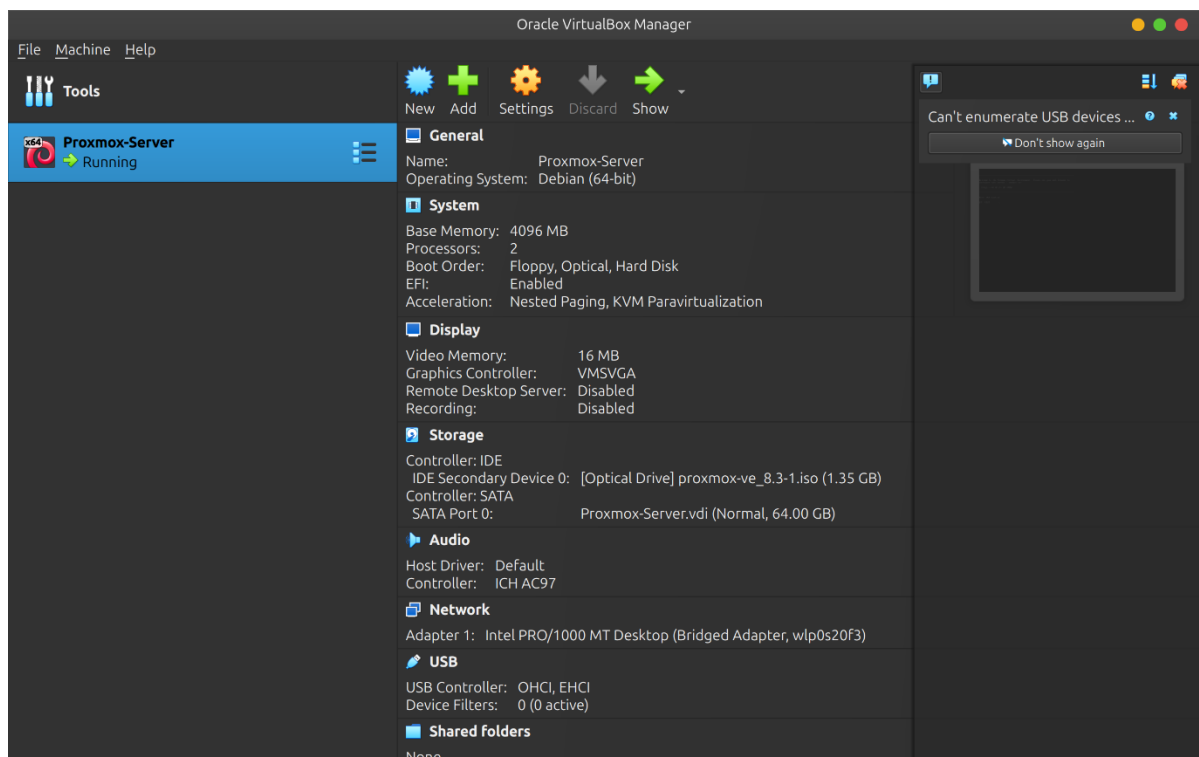
Installation Steps Summary

To install Proxmox VE, I began by downloading and installing VirtualBox 7.1 on my laptop. I then downloaded the latest Proxmox VE ISO and created a virtual machine with 8 GB RAM, 64 GB disk space, 2 CPUs, and bridged networking. After mounting the ISO, I proceeded with the Proxmox installation, configuring the timezone, root password, and network settings. Once installation was complete, I rebooted the VM to access the Proxmox web interface using the assigned IP address.

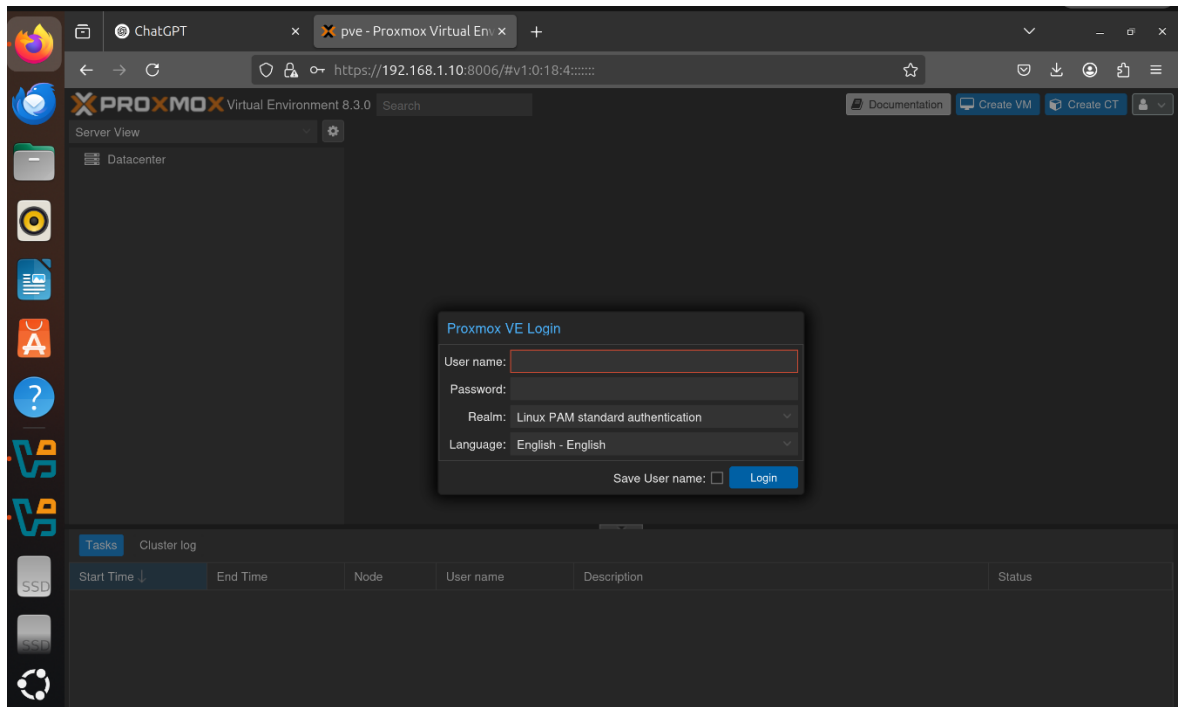
I did encounter a network-related issue during the process, as Proxmox by default configured a static IP and gateway during installation process, which caused connectivity problems when switching between networks (ie: from Uni WIFI network to Home WIFI). This was resolved by editing the `/etc/network/interfaces` file inside the Proxmox VM to enable DHCP, allowing it to obtain a valid IP address dynamically.

Screenshots

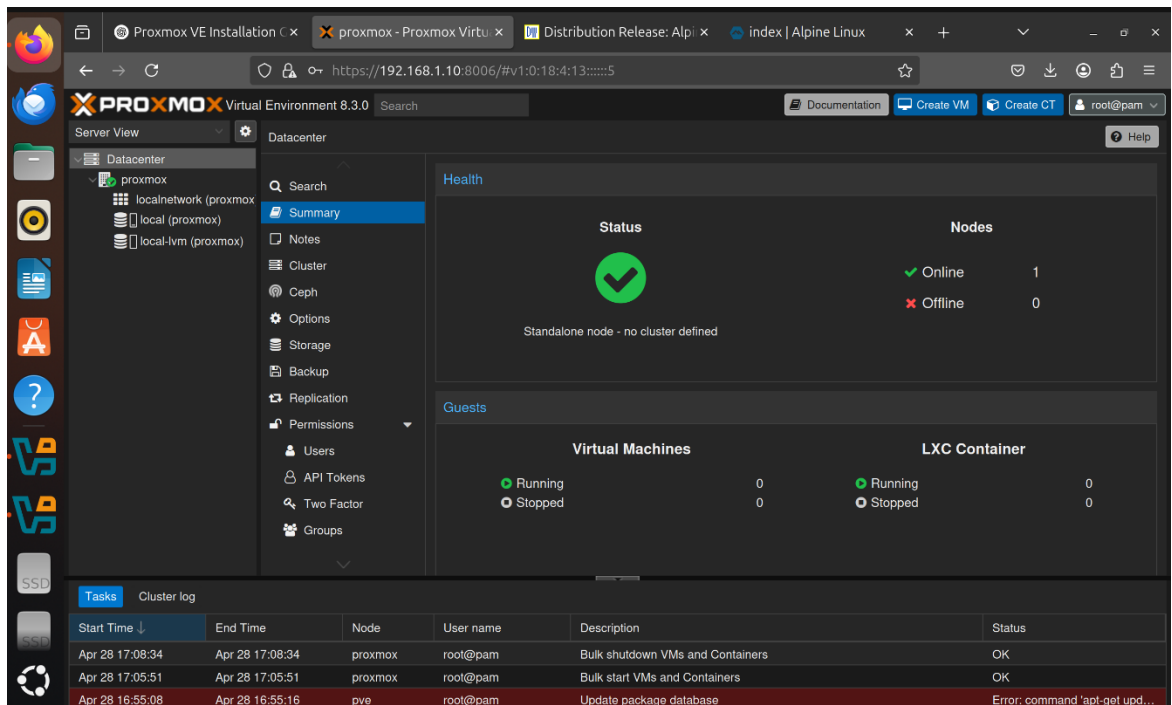
- VirtualBox settings for the Proxmox VM.



- Proxmox web login page.



- Proxmox dashboard (Datacenter view).



- Storage overview.

The screenshot shows the Proxmox VE Storage overview page. The left sidebar displays the Datacenter tree with 'proxmox' selected. The main content area shows a table of storage configurations:

ID	Type	Content	Path/Target	Shared	Enabl...	Bandwidth Limit
local	Direct...	VZDump backup file, ISO im...	/var/lib/vz	No	Yes	
local-lvm	LVM...	Disk image, Container		No	Yes	

The bottom section shows the Cluster log with the following entries:

Start Time	End Time	Node	User name	Description	Status
Apr 28 17:08:34	Apr 28 17:08:34	proxmox	root@pam	Bulk shutdown VMs and Containers	OK
Apr 28 17:05:51	Apr 28 17:05:51	proxmox	root@pam	Bulk start VMs and Containers	OK
Apr 28 16:55:08	Apr 28 16:55:16	pve	root@pam	Update package database	Error: command 'apt-get upd...

- Network settings page.

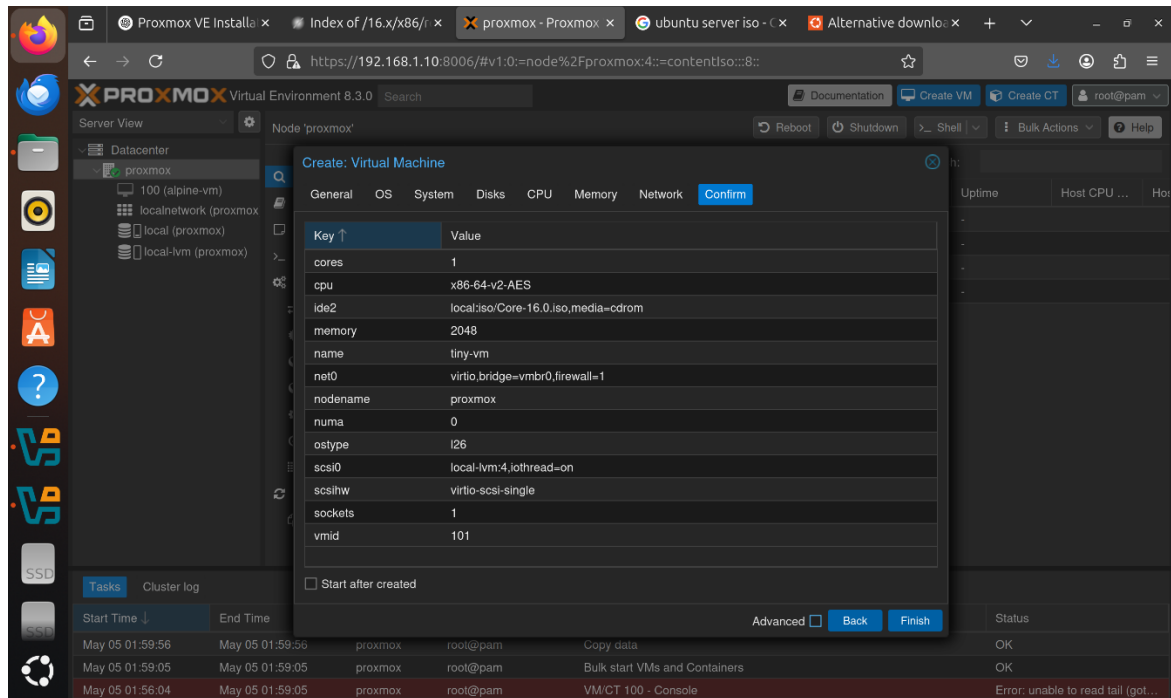
The screenshot shows the Proxmox VE Network settings page for node 'proxmox'. The left sidebar displays the Datacenter tree with 'proxmox' selected. The main content area shows a table of network configurations:

Name	Type	Active	Autostart	VLAN a...	Ports/Slaves	Bond Mode	CIDR	Gal
enp0s3	Network Device	Yes	No	No				
vmbr0	Linux Bridge	Yes	Yes	No	enp0s3			

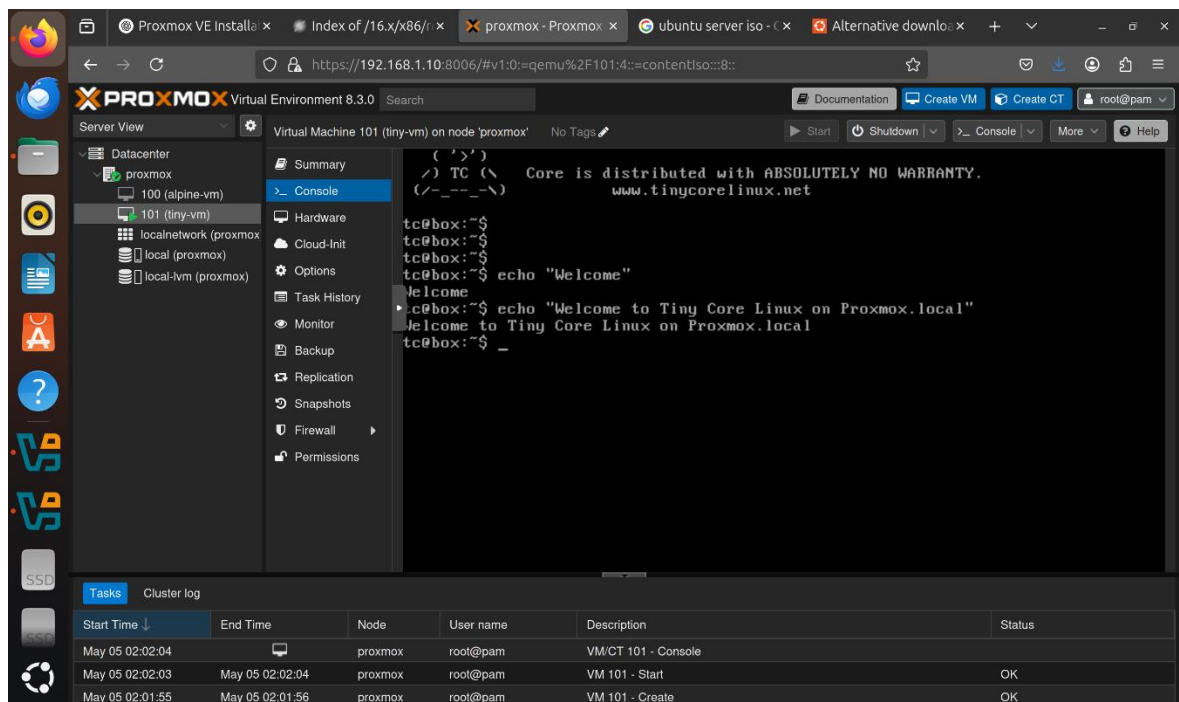
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- Create VM wizard (summary before creating VM).



- Console with the new VM booting or installing an OS. (Used a Linux distro called tiny-core linux)



Observations

1. Installation:

The installation process was straightforward and well-documented in the Proxmox installer. I noticed that the installer automatically detected and configured the virtual disk and network interface, which made setup easier. No unexpected issues occurred during this step.

2. Configuration:

During configuration, the Proxmox interface allowed me to set the timezone, password, and network settings with minimal input. The system automatically obtained a valid IP address via DHCP, and the user interface provided clear confirmation of successful configuration. I was pleasantly surprised by how fast the web interface was available just after the configuration and reboot.

3. VM Creation:

Creating a virtual machine inside Proxmox was intuitive, with a guided wizard that made the process straightforward. The ability to allocate resources and mount an ISO during setup was particularly convenient. I initially attempted to use an Alpine Linux ISO, but encountered issues where both the VM and the host machine would crash during the initial boot. Due to this instability, I switched to a lighter Linux distribution, Tiny Core Linux, which booted smoothly and ran reliably.

Interestingly, the VM creation process in Proxmox felt quite similar to other Type 2 hypervisors like VirtualBox, despite Proxmox itself being a Type 1 hypervisor, unlike more complex platforms such as VMware ESXi.

Deployment

To transform the Proxmox installation into a fully deployed cloud environment, several additional steps are necessary.

1. First, storage should be configured properly using either local disks, LVM, or network-based storage like NFS or Ceph, depending on the intended scale.
2. Next, networking should be refined by setting up static IPs, VLANs, or bridges for better isolation and connectivity.

3. User and role management must be implemented to control access securely across different VMs or containers.
4. Finally, enabling features like backups, high availability (HA), and clustering (if multiple nodes are available) would complete the transition from a basic setup to a production-ready private cloud infrastructure.

Bonus Task

For the bonus task, I accessed the [official Tiny Core Linux download page](#) and downloaded the appropriate ISO file. Using this ISO, I successfully created my first virtual machine inside Proxmox VE, as shown in the last two screenshots provided in the **Screenshots** section.