IMPLEMENTASI DAN ANALISIS NESTED VIRTUALIZATION DENGAN PROXMOX VE PADA INFRASTRUKTUR MIKROTIK

Dosen Pengampu:

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Laporan ini dibuat untuk memenuhi tugas Proyek mata kuliah:

Sistem Operasi

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PRODI TEKNIK INFORMATIKA

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DAFTAR ISI

ABSTRAK

Untuk membangun laboratorium virtual yang terhubung ke internet dan terisolasi, proyek ini berhasil menerapkan arsitektur Nested Virtualization. Konfigurasi router Mikrotik untuk membuat jaringan iiiingk 192.168.9.0/24 dengan akses NAT ke internet iiiingka iiiingkat pertama dalam implementasi. Dengan mengaktifkan fitur AMD-V Nested, VirtualBox digunakan untuk menyiapkan hypervisor iiiingkat pertama. Pada VirtualBox juga diinstal hypervisor iiiingkat kedua, Proxmox VE, yang dikonfigurasi dengan IP statis dalam jaringan Mikrotik. Sebuah Virtual Machine Guest berbasis Ubuntu Server kemudian dipasang di dalam Proxmox.

Pengujian fungsional menunjukkan bahwa integrasi multilayer berhasil. Ini ditunjukkan dengan koneksi jaringan antara host fisik dan Guest VM Ubuntu. Selain itu, fitur manajemen virtualisasi Proxmox, seperti Snapshot/Rollback dan Backup, diuji dan beroperasi dengan baik. Analisis performa menunjukkan bahwa nested virtualization dapat digunakan pada hardware terbatas dengan alokasi sumber daya yang tepat. Ini menunjukkan overhead CPU yang wajar (~40% saat beban) dan penggunaan RAM yang efisien. Projek ini memberikan model untuk membangun lingkungan yang fleksibel dan terisolasi untuk pengembangan, pengujian, dan pembelajaran.

BAB I
PENDAHULUAN

1.1 Latar Belakang

Dengan memfasilitasi konsolidasi server, efisiensi sumber daya, dan isolasi lingkungan, virtualisasi telah menjadi komponen penting dalam manajemen infrastruktur TI kontemporer. Konsep Nested Virtualization membawa gagasan ini ke tingkat yang lebih tinggi, di mana sebuah hypervisor (tingkat kedua) berjalan di dalam virtual machine (VM) yang dihosting oleh hypervisor lain (tingkat pertama). Teknik ini sangat berguna untuk pelatihan, pengujian, dan lab pengembangan teknologi virtualisasi, cloud, dan container tanpa memerlukan banyak server fisik.

Laporan ini mendokumentasikan implementasi lengkap sebuah lingkungan nested virtualization. Tumpukan teknologi yang digunakan meliputi Mikrotik sebagai router dan gateway, Oracle VirtualBox sebagai hypervisor tingkat pertama (L1), Proxmox VE sebagai hypervisor tingkat kedua (L2), dan Ubuntu Server sebagai guest VM. Implementasi ini bertujuan untuk menciptakan sebuah lingkungan yang terisolasi secara jaringan, memiliki akses internet, dan mampu menunjukkan kemampuan penuh manajemen virtualisasi modern.

1.2 RUMUSAN MASALAH & TUJUAN PROJECT

Solusi Masalah:

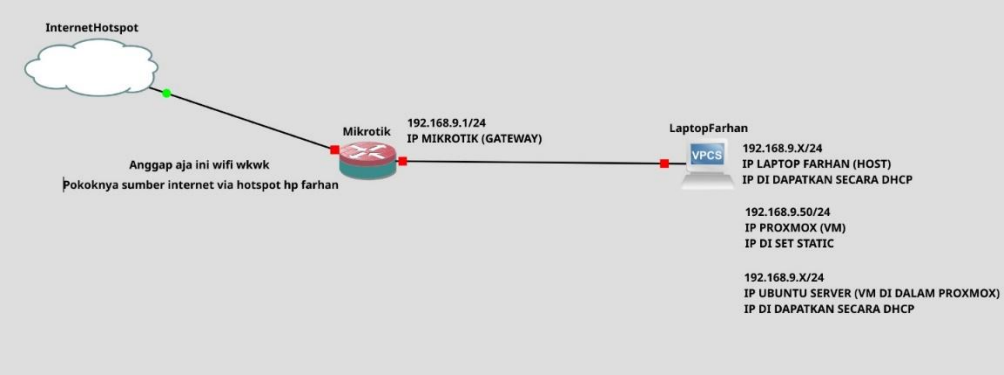
1. Bagaimana cara menggunakan router Mikrotik untuk membangun jaringan laboratorium virtual (192.168.9.0/24) yang terisolasi dan mendapatkan akses internet?
2. Bagaimana cara mengkonfigurasi VirtualBox untuk mendukung nested virtualization dan membridge jaringan fisik ke VM Proxmox?
3. Bagaimana saya dapat menginstal dan mengkonfigurasi Proxmox VE sebagai hypervisor L2 di VirtualBox?

4. Bagaimana cara menguji konektivitas, snapshot, dan backup untuk menunjukkan bahwa seluruh lapisan arsitektur (Fisik, VirtualBox, Proxmox, dan Guest VM) terintegrasi dengan baik?

Tujuan pekerjaan:

1. Mikrotik digunakan untuk membuat jaringan terisolasi 192.168.9.0/24 dan memungkinkan akses internet melalui jaringan nirkabel.
2. Menyediakan Virtual Machine (VM) di virtualbox yang memiliki kemampuan untuk menjalankan virtualisasi berurutan (Proxmox).
3. Instalasi dan pengaturan Proxmox VE dengan IP statis di jaringan lab.
4. Mengaktifkan Virtual Machine Guest (Ubuntu Server) di Proxmox.
5. Melakukan analisis performa dan pengujian fungsional untuk memastikan keberhasilan implementasi.

BAB II
PERANCANGAN ARSITEKTUR



2.1 Penjelasan Desain

1. Sumber Internet: Hotspot dari HP Farhan.
2. Router/Gateway: Mikrotik dengan IP 192.168.9.1/24.
3. Jaringan Lokal: Subnet 192.168.9.0/24 yang terisolasi.
4. Host: Laptop Farhan mendapat IP via DHCP dari Mikrotik.
5. Hypervisor L2: Proxmox VE di-set dengan IP statis 192.168.9.50.
6. Guest VM: Ubuntu Server di dalam Proxmox mendapat IP via DHCP dari Mikrotik.

2.2 Konsep Konektivitas

1. Mikrotik menghubungkan jaringan lokal ke internet via hotspot.
2. Semua perangkat (host, VM, nested VM) berada dalam subnet yang sama.
3. VirtualBox di-bridge ke jaringan fisik via USB LAN dongle.
4. Proxmox dan Ubuntu dapat diakses langsung dari host laptop.

2.3 Spesifikasi Resource

1. VirtualBox VM: 6 GB RAM, 2 Core CPU, 50 GB Disk.
2. Proxmox VE: IP Static 192.168.9.50.
3. Guest VM (Ubuntu): 2 GB RAM, 2 Core CPU (Type: Host).

BAB III
IMPLEMENTASI

3.1 KONFIGURASI ROUTER (MIKROTIK)

Tujuan: Membuat jaringan terisolasi 192.168.9.0/24 yang memiliki akses internet via Wi-Fi.

3.1.1 Setup Koneksi Internet (WLAN1)

1) **Security Profile:**
   - Menu Wireless -> Tab Security Profiles -> Tambah (+).
   - Name: (bebas nama nya). Mode: dynamic keys. Centang WPA/WPA2 PSK.
   - Isi password Wi-Fi sumber. Apply & OK.
2) **Interface Setup:**
   - Menu Wireless -> Tab WiFi Interfaces.
   - Double click wlan1.
   - Tab Wireless -> Mode: station. SSID: (Scan dan pilih Wi-Fi sumber). Profile: (Isi yang sudah ko buat di langkah pertama). Apply & OK.
   - Indikator: Pastikan ada huruf R (Running) di samping wlan1.
3) **DHCP Client:**
   - Menu IP -> DHCP Client -> Tambah (+).
   - Interface: wlan1. Add Default Route: yes. Apply & OK.
   - Indikator: Status Bound.

3.1.2 Setup Jaringan Lokal (Ether3/4/5 bebas asalkan jangan ether 2&1)

1) **IP Address:**
   - Menu IP -> Addresses -> Tambah (+).
   - Address: 192.168.9.1/24. Interface: ether5. Apply & OK.
2) **DHCP Server:**
   - Menu IP -> DHCP Server -> Klik DHCP Setup.
   - Interface: ether5 -> Next terus sampai sukses.
3) **NAT (Masquerade)**

3.2 KONFIGURASI HOST HYPERVISOR (VIRTUALBOX)

Tujuan: Menyiapkan Virtual Machine yang mampu menjalankan virtualisasi bertingkat (Nested).

3.2.1 Pemasangan Kabel & Verifikasi

1) Sambungkan Mikrotik Port 5 -> USB LAN Dongle -> Laptop.
2) Matikan Wi-Fi Laptop.
3) Cek CMD: ipconfig. Pastikan Ethernet dapat IP 192.168.9.xxx.

3.2.2 Pembuatan VM

1) New VM: Name Proxmox-Lab. Type Linux (Debian 64-bit).
2) Resource: RAM 6144 MB (6GB). CPU 2 Core. Disk 50 GB.
3) FINISH.

3.2.3 Network Bridging (Krusial)

1) Settings VM -> Network.
2) Adapter 1: Bridged Adapter.
3) Name: [Pilih Nama USB LAN Dongle] (Contoh: Realtek USB GbE). Jangan pilih Wi-Fi Adapter!
4) Promiscuous Mode: Allow All.

3.2.4 Memasukkan ISO (Mounting)

1) Settings VM -> Storage.
2) Klik Empty (gambar CD).
3) Klik ikon CD biru di kanan -> Choose a disk file.
4) Pilih ISO Proxmox VE.

3.2.5 Aktivasi AMD-V Nested (CLI)

1) Tutup VirtualBox Total.
2) Buka CMD Sebagai Administrator, ketik:

```
cd "C:\Program Files\Oracle\VirtualBox"
VBoxManage modifyvm "Proxmox-Lab" --nested-hw-virt on
```

3) ENTER.

3.3 INSTALASI & CONFIG PROXMOX

Tujuan: Menginstall OS Hypervisor dengan IP Statis yang sesuai topology Mikrotik.

3.3.1 Proses Instalasi

1) Start VM. Pilih Install Proxmox VE.
2) Ikuti wizard (EULA, Disk, Timezone, Password).
3) Network Setup:
   - Interface: (Default).
   - Hostname: pve.lab
   - IP Address: 192.168.9.50 (CIDR /24).
   - Gateway: 192.168.9.1 (IP Mikrotik).
   - DNS1: 192.168.9.1.
   - DNS2: 8.8.8.8.
4) Install & Reboot.

3.3.2 Akses & Upload

1) Buka Browser Laptop: https://192.168.9.50:8006.
2) Login root.
3) Upload ISO Ubuntu Server ke menu local (pve) -> ISO Images.

3.4 IMPLEMENTASI GUEST VM (UBUNTU)

Tujuan: Membuktikan Nested Virtualization berfungsi.

1) Create VM di Proxmox.
2) OS: Pilih ISO Ubuntu Server.
3) System: Centang Qemu Agent.
4) CPU: Core 2, Type: Host (Wajib!).
5) Memory: 2048 (2GB).
6) Start VM -> Install Ubuntu (Mode Minimized, Install OpenSSH).

BAB IV
PENGUJIAN & ANALISIS

4.1 PENGUJIAN (OUTPUT AKHIR PROYEK)

4.1.1 Uji Integrasi Jaringan (Output A)

1) Skenario: Ping dari Terminal Laptop (Windows) ke IP VM Ubuntu.
2) Langkah:
    - Cek IP Ubuntu (via Console ip a). Misal dapat 192.168.9.253.
    - Buka CMD Laptop: ping 192.168.9.253.
3) Hasil: Reply from .....
4) Kesimpulan: Topologi Mikrotik -> VirtualBox Bridge -> Proxmox Bridge -> Ubuntu berhasil tersambung.

4.1.2 Uji Snapshot & Rollback (Output B)

1) Skenario: Mengembalikan file yang terhapus.
2) Langkah:
    - Di Ubuntu: echo "Abdul Ganteng" > fakta.txt.
    - Di Proxmox: Menu VM Ubuntu -> Snapshot -> Take Snapshot (Nama: Aman).
    - Di Ubuntu: rm skripsi.txt (Hapus file).
    - Di Proxmox: Menu Snapshot -> Pilih Aman -> Rollback.
    - Di Ubuntu: Cek ls.
3) Hasil: File fakta.txt muncul kembali.

4.1.3 Uji Backup (Output B)

1) Skenario: Full Backup VM.
2) Langkah:
    - Matikan VM Ubuntu.
    - Menu Backup -> Backup Now -> Mode Stop, Kompresi Zstd.
3) Hasil: Log menunjukkan TASK OK. File backup muncul di storage list.

4.1.4 Laporan Performa (Output C)

1) Analisis:

- CPU Overhead: Saat Ubuntu idle, CPU Proxmox hanya terpakai ~2-4%. Saat Ubuntu update, naik ke ~40%. Ini wajar untuk Nested Virt.
- RAM: Proxmox menggunakan total ~3.5GB (System + Guest), masih aman di alokasi 6GB.

BAB V
KESIMPULAN

Berdasarkan seluruh tahapan implementasi dan pengujian, dapat disimpulkan bahwa:

1. Implementasi Nested Virtualization Berhasil: Setiap lapisan arsitektur, termasuk konfigurasi jaringan Mikrotik, persiapan VirtualBox dengan virtualisasi nested, instalasi Proxmox VE, dan penyebaran Virtual Machine Guest Ubuntu, berhasil dilaksanakan sesuai perencanaan.
2. Fungsionalitas Terbukti: Pengujian konektivitas jaringan (ping) berjalan dengan baik, yang menunjukkan integrasi yang solid. Selain itu, fitur manajemen hypervisor kontemporer seperti snapshot, rollback, dan backup Proxmox berfungsi dengan baik di lingkungan nested.
3. Kinerja Dapat Diterima: Analisis performa menunjukkan bahwa nested virtualization dapat bekerja dengan baik pada hardware terbatas, seperti laptop, dengan overhead sumber daya yang wajar dan dapat diprediksi, asalkan sumber daya (khususnya RAM dan CPU type host) dialokasikan dengan tepat.

Sebuah laboratorium virtual yang lengkap, terisolasi, dan terhubung ke internet telah dibuat oleh proyek ini. Laboratorium ini dapat digunakan untuk eksperimen, pembelajaran, atau pengembangan lebih lanjut di bidang virtualisasi, jaringan, dan komputasi awan.

BAB VI
DAFTAR PUSTAKA

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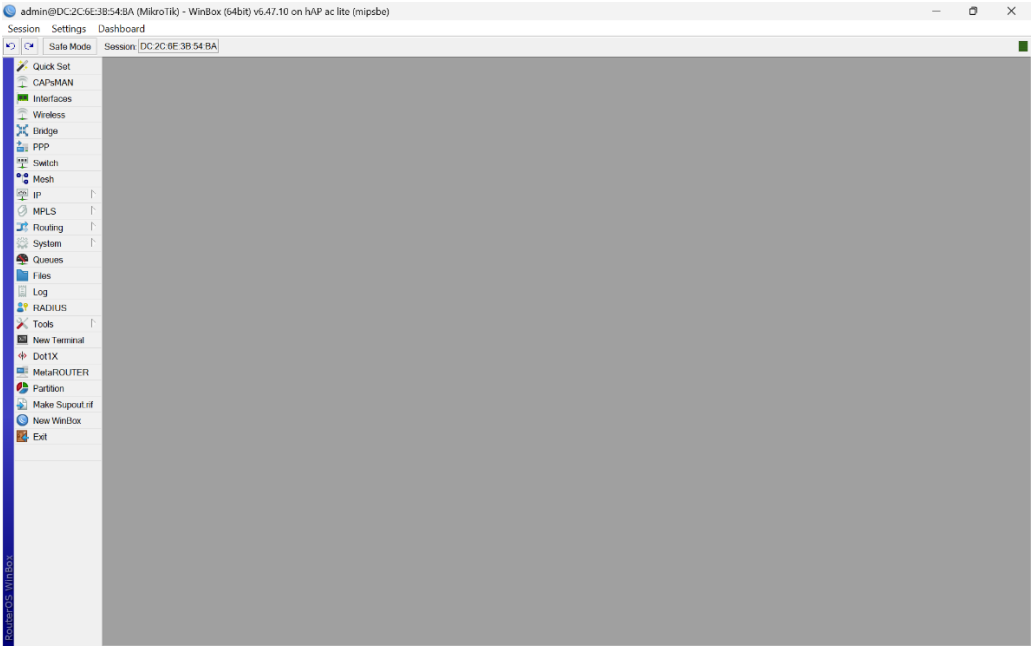
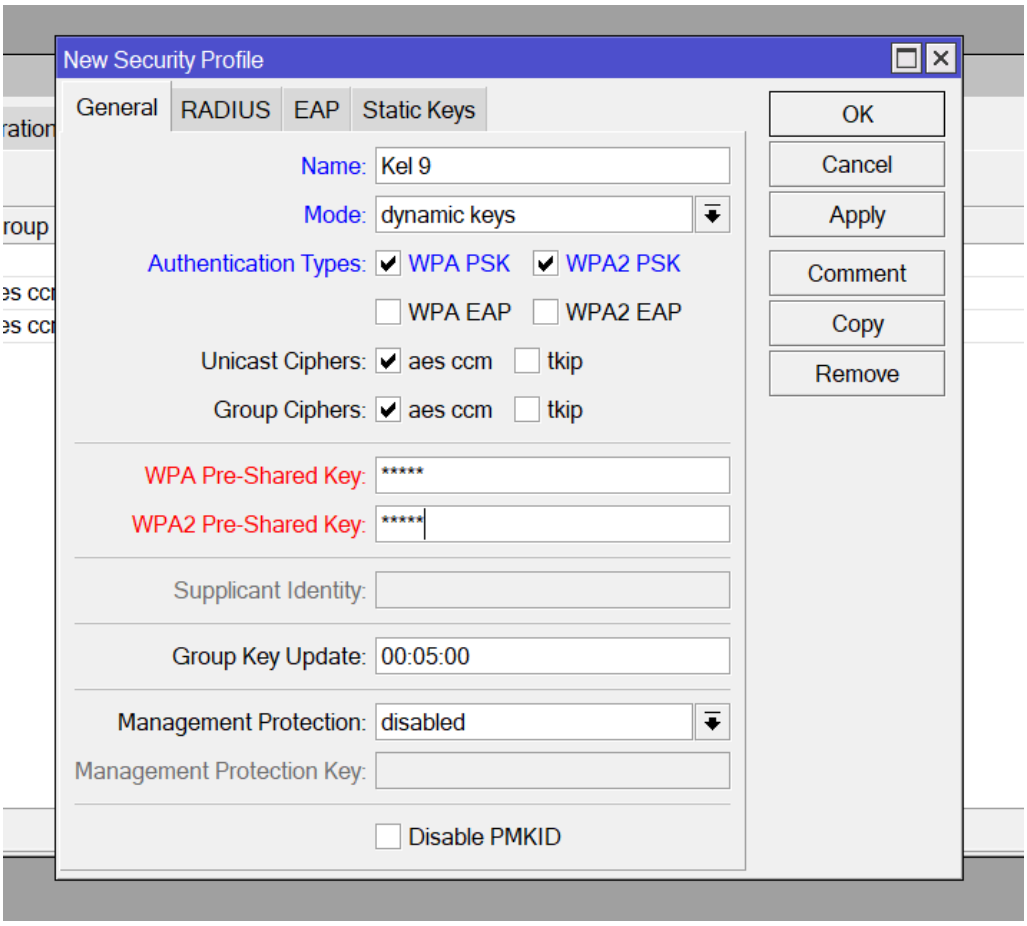
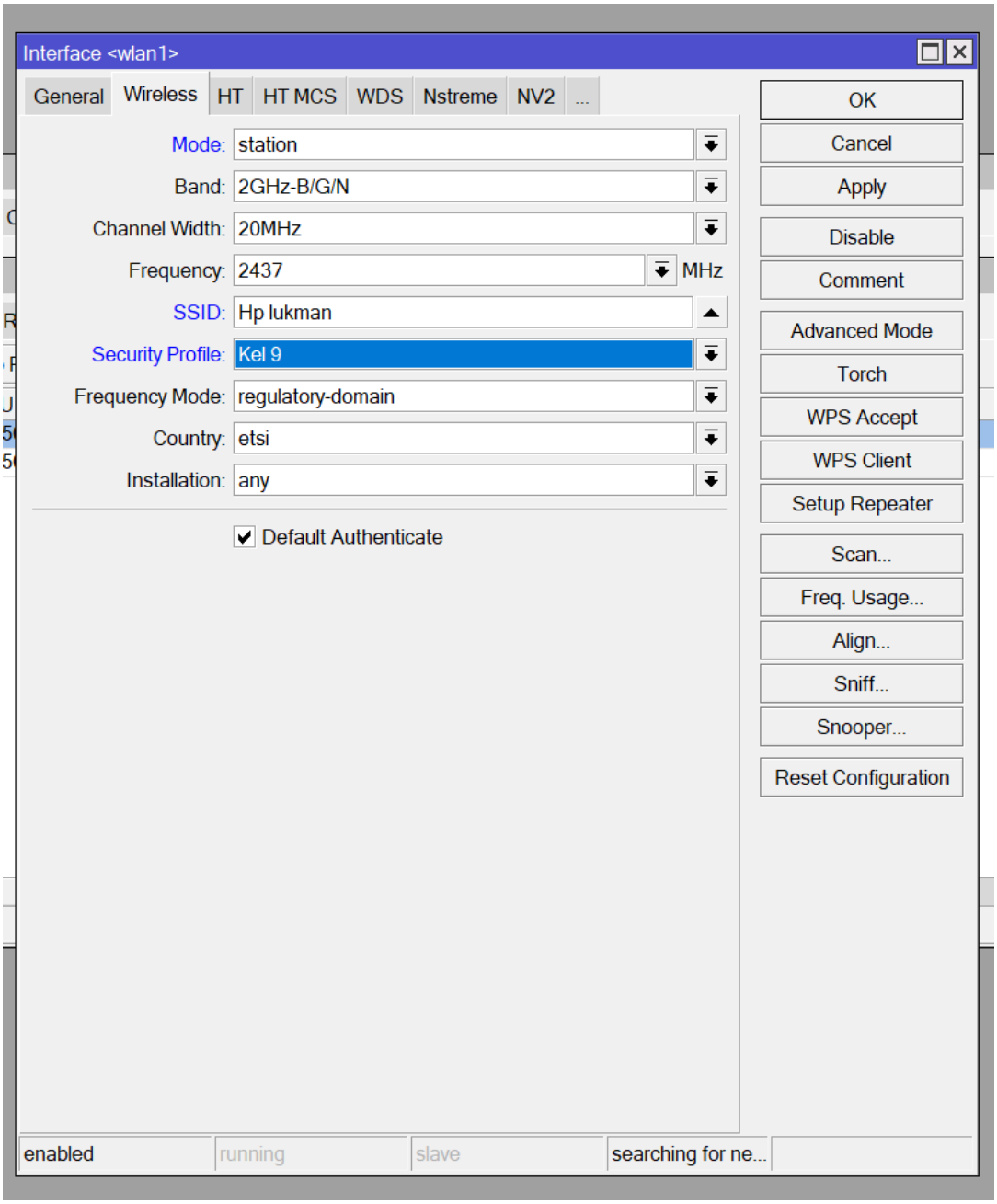
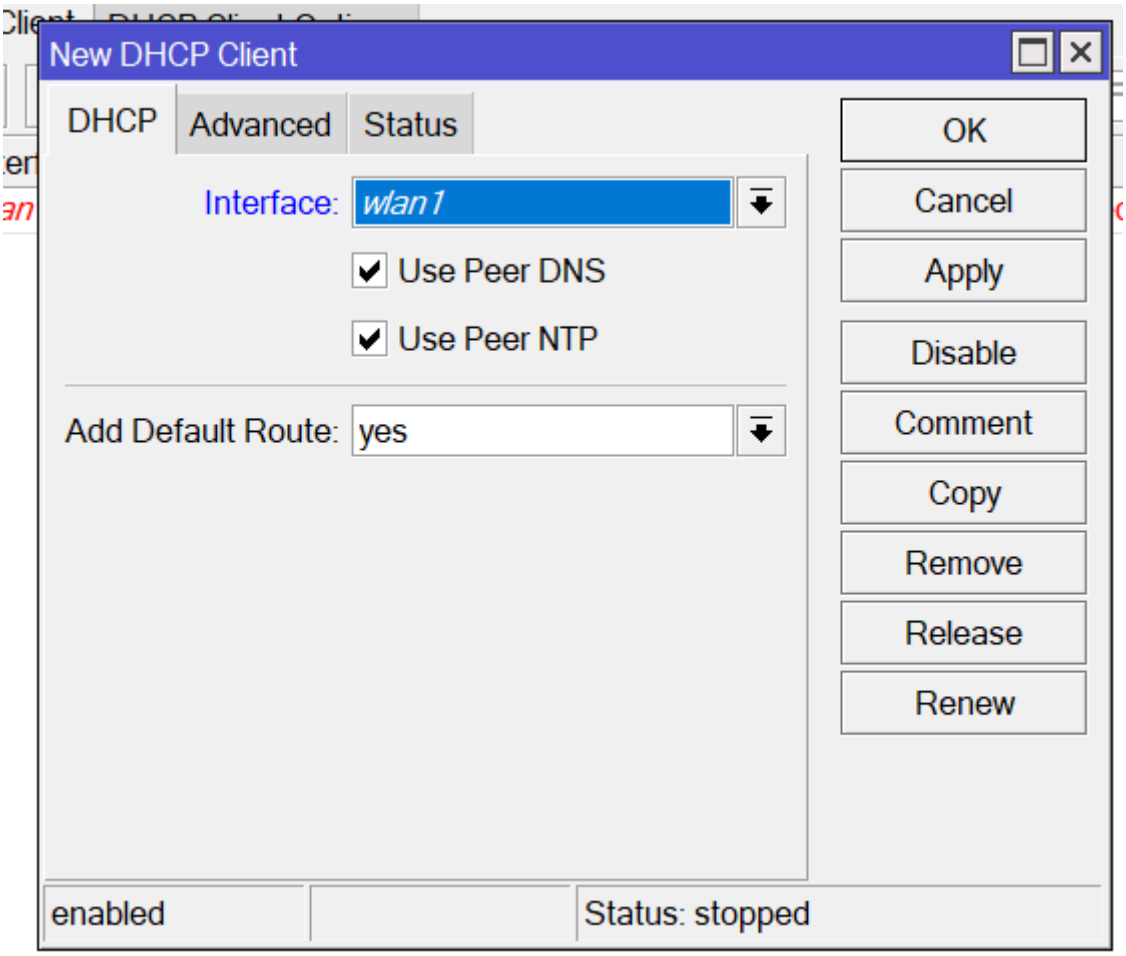
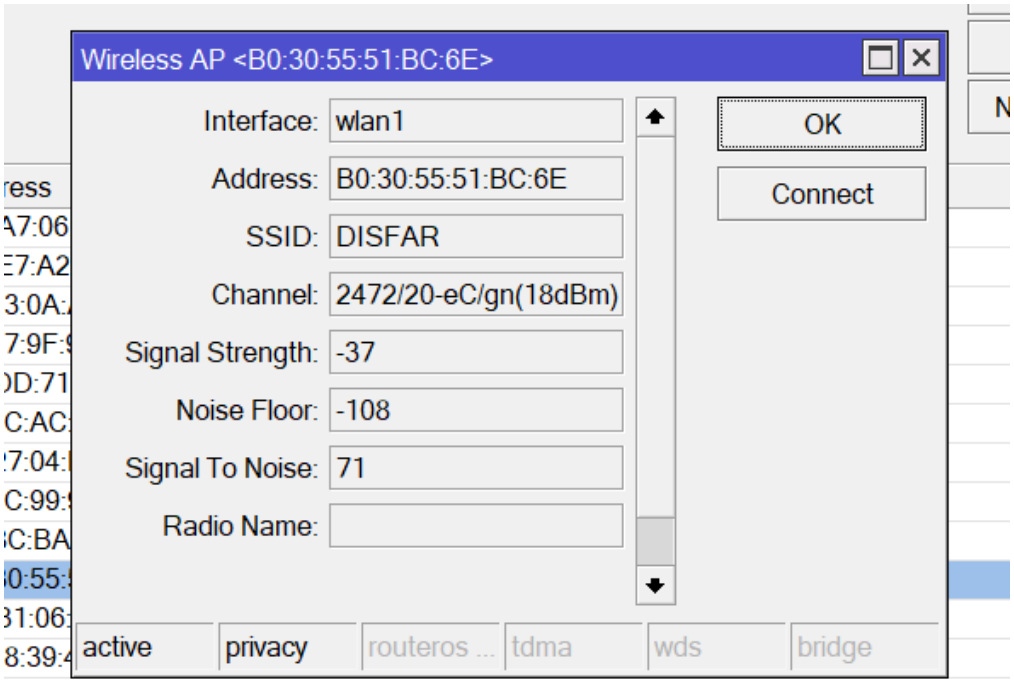
BAB VII
LAMPIRAN

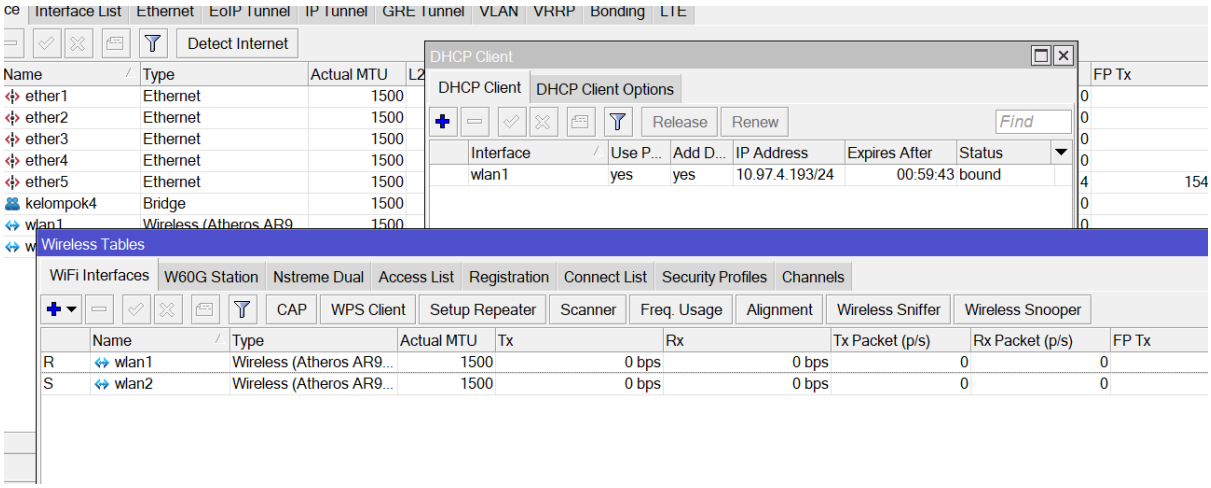


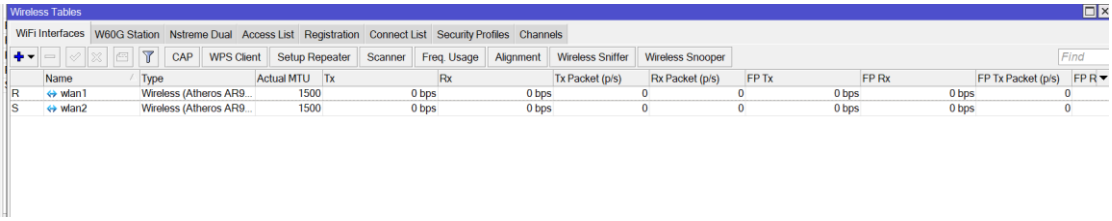


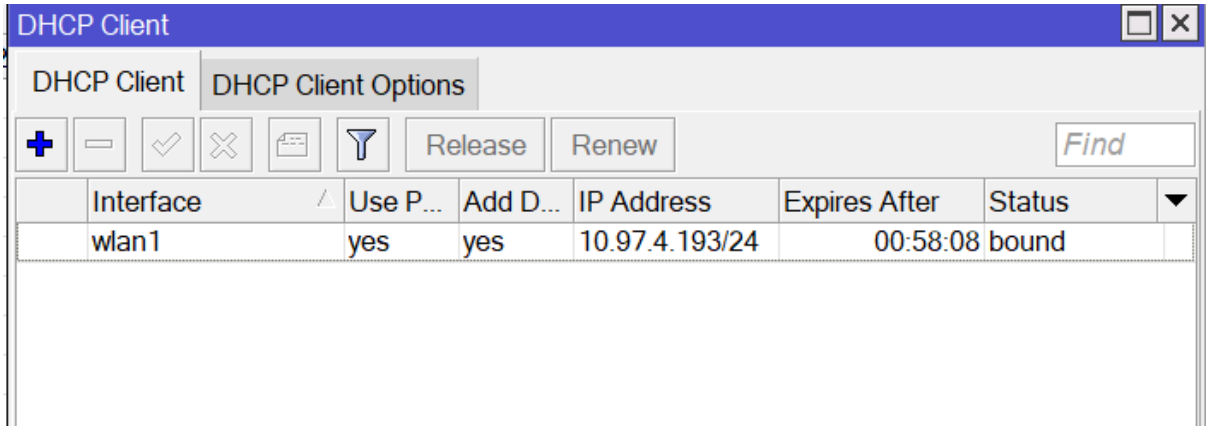

Interface <wlan1>
General
Wireless
HT
HT MCS
WDS
Nstreme
NV2
...
Mode: station
Band: 2GHz-B/G/N
Channel Width: 20MHz
Frequency: 2437 MHz
SSID: Hp lukman
Security Profile: Kel 9
Frequency Mode: regulatory-domain
Country: etsi
Installation: any
Default Authenticate
OK
Cancel
Apply
Disable
Comment
Advanced Mode
Torch
WPS Accept
WPS Client
Setup Repeater
Scan...
Freq. Usage...
Align...
Sniff...
Snooper...
Reset Configuration
enabled
running
slave
searching for ne...

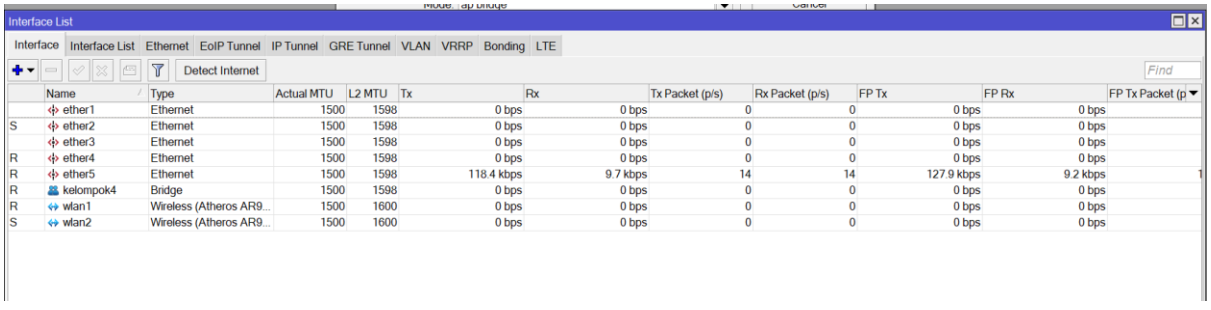

New DHCP Client
DHCP
Advanced
Status
Interface: wlan1
Use Peer DNS
Use Peer NTP
Add Default Route: yes
OK
Cancel
Apply
Disable
Comment
Copy
Remove
Release
Renew
enabled
Status: stopped

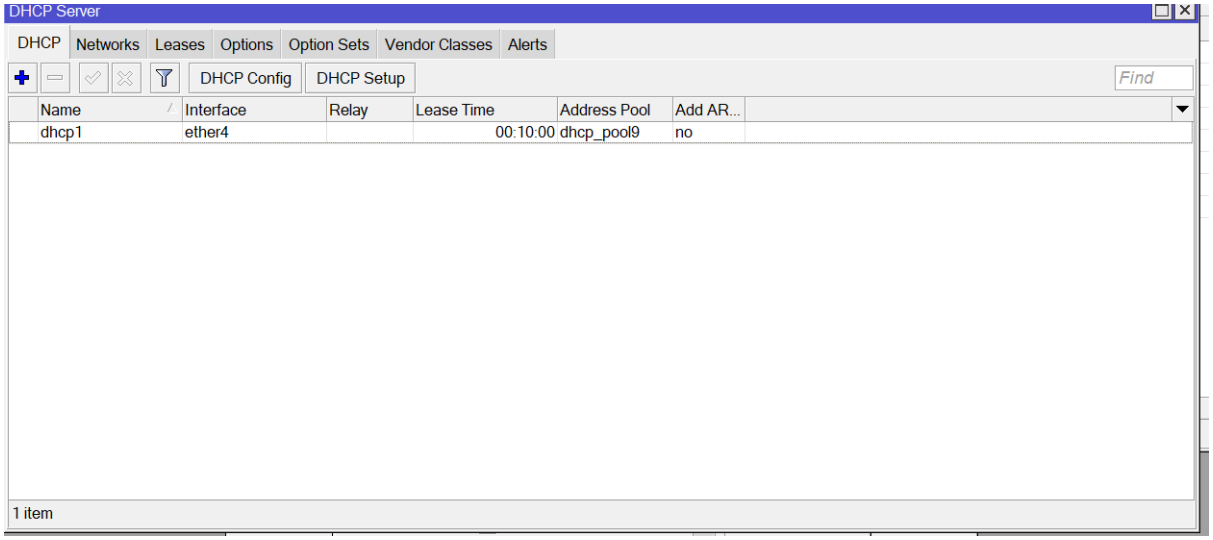

Wireless AP <B0:30:55:51:BC:6E>
Interface: wlan1
Address: B0:30:55:51:BC:6E
SSID: DISFAR
Channel: 2472/20-eC/gn(18dBm)
Signal Strength: -37
Noise Floor: -108
Signal To Noise: 71
Radio Name:
OK
Connect
active
privacy
routeros ...
tdma
wds
bridge

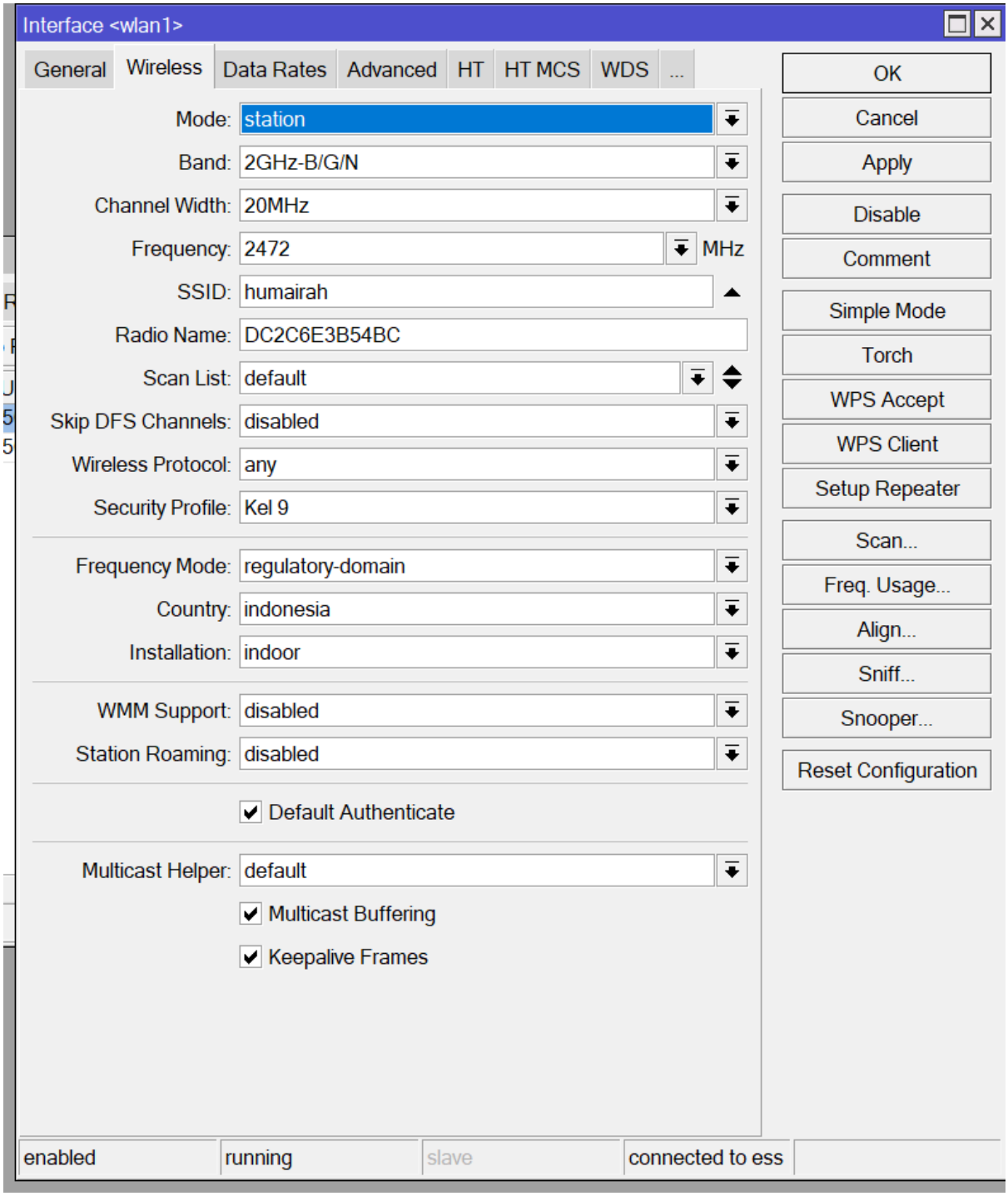

Interface List
Ethernet
EoIP Tunnel
IP Tunnel
GRE Tunnel
VLAN
VRRP
Bonding
LTE
Detect Internet
Name
Type
Actual MTU
ether1 Ethernet 1500
ether2 Ethernet 1500
ether3 Ethernet 1500
ether4 Ethernet 1500
ether5 Ethernet 1500
kelompok4 Bridge 1500
wlan1 Wireless (Atheros AR9 1500
DHCP Client
DHCP Client
DHCP Client Options
Release
Renew
Find
Interface
Use P...
Add D...
IP Address
Expires After
Status
wlan1 yes yes 10.97.4.193/24 00:59:43 bound
FP Tx
Wireless Tables
WiFi Interfaces
W60G Station
Nstreme Dual
Access List
Registration
Connect List
Security Profiles
Channels
CAP
WPS Client
Setup Repeater
Scanner
Freq. Usage
Alignment
Wireless Sniffer
Wireless Snooper
Name
Type
Actual MTU
Tx
Rx
Tx Packet (p/s)
Rx Packet (p/s)
FP Tx
R wlan1 Wireless (Atheros AR9... 1500 0 bps 0 bps 0 0
S wlan2 Wireless (Atheros AR9... 1500 0 bps 0 bps 0 0

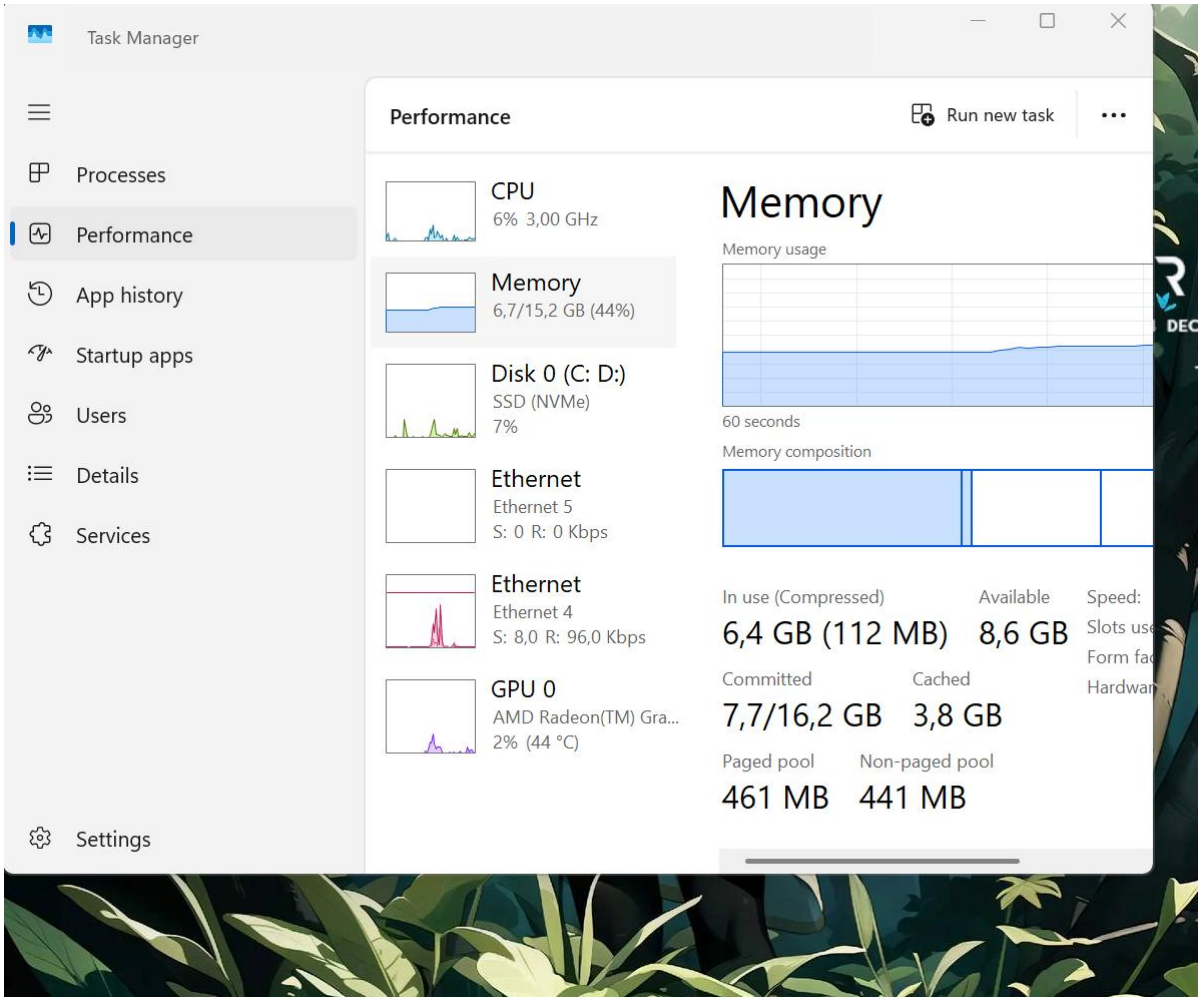

Wireless Tables
WiFi Interfaces
W60G Station
Nstreme Dual
Access List
Registration
Connect List
Security Profiles
Channels
CAP
WPS Client
Setup Repeater
Scanner
Freq. Usage
Alignment
Wireless Sniffer
Wireless Snooper
Find
Name
Type
Actual MTU
Tx
Rx
Tx Packet (p/s)
Rx Packet (p/s)
FP Tx
FP Rx
FP Tx Packet (p/s)
R wlan1 Wireless (Atheros AR9... 1500 0 bps 0 bps 0 0 0 bps 0 bps 0
S wlan2 Wireless (Atheros AR9... 1500 0 bps 0 bps 0 0 0 bps 0 bps 0

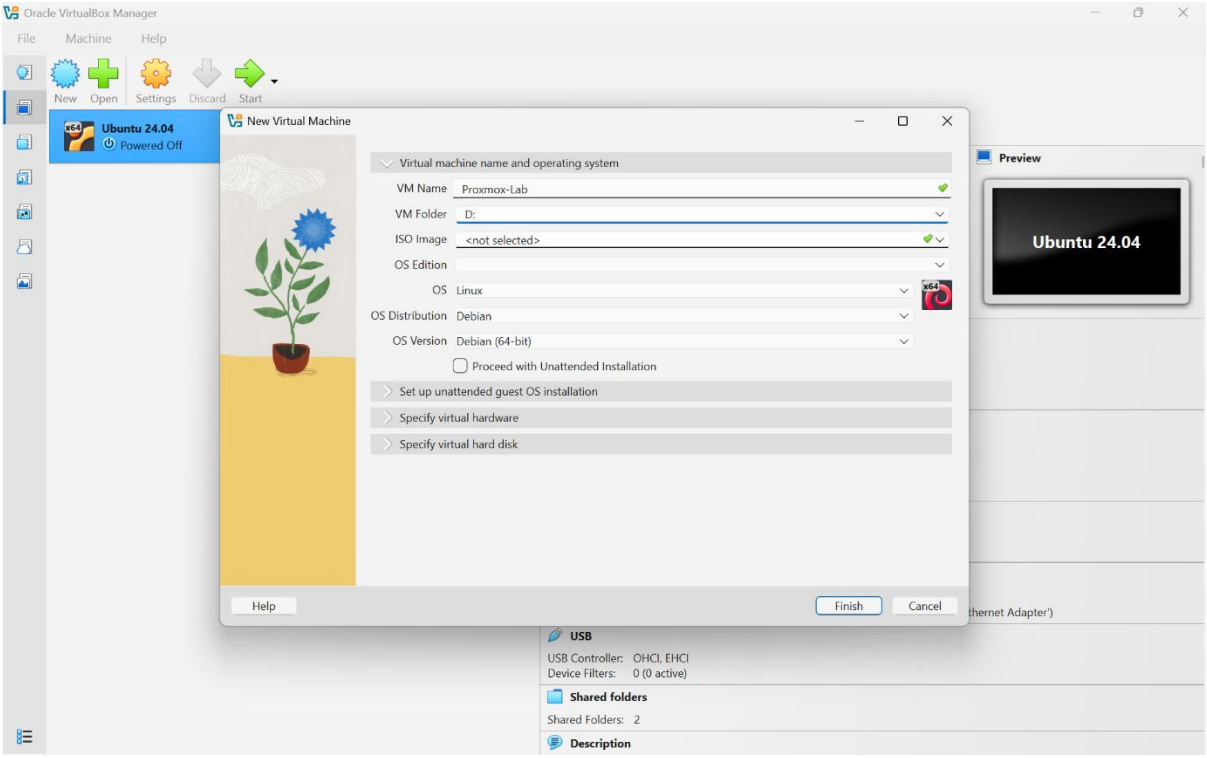

DHCP Client
DHCP Client
DHCP Client Options
Release
Renew
Find
Interface
Use P...
Add D...
IP Address
Expires After
Status
wlan1 yes yes 10.97.4.193/24 00:58:08 bound

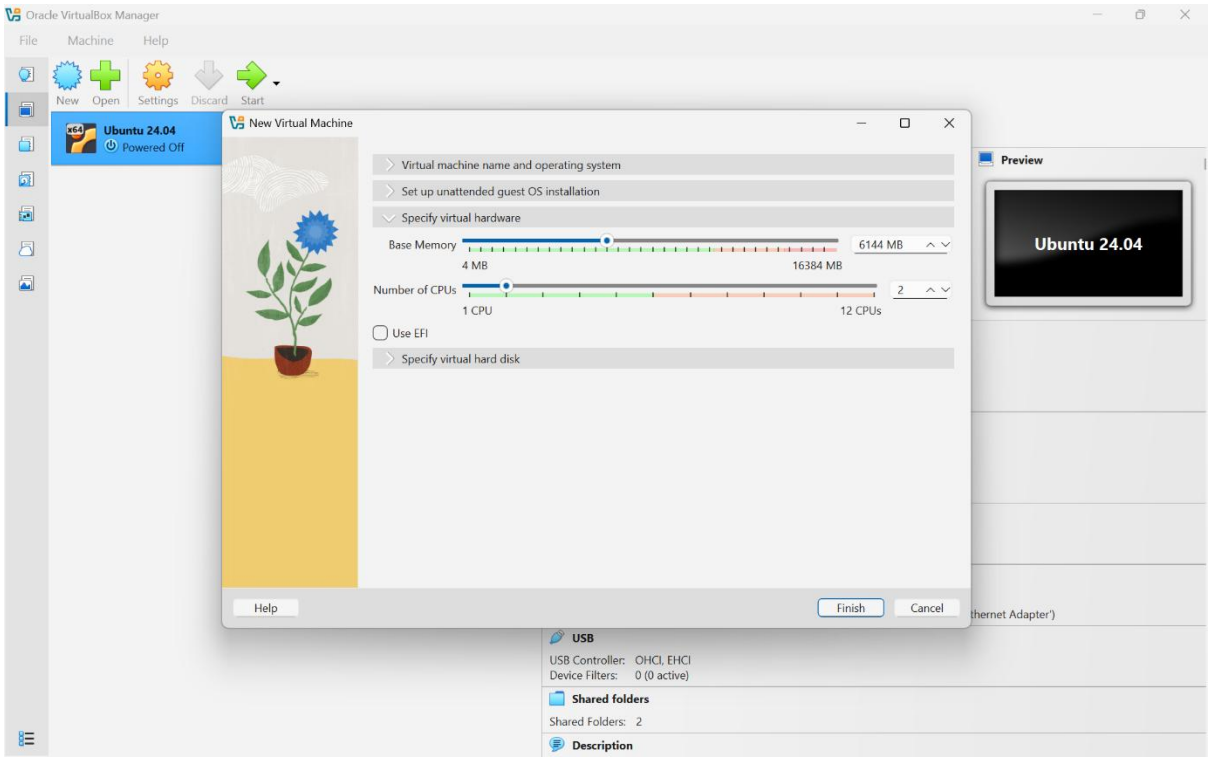

Interface List
Interface
Interface List
Ethernet
EoIP Tunnel
IP Tunnel
GRE Tunnel
VLAN
VRRP
Bonding
LTE
Detect Internet
Find
Name
Type
Actual MTU
L2 MTU
Tx
Rx
Tx Packet (p/s)
Rx Packet (p/s)
FP Tx
FP Rx
ether1 Ethernet 1500 1598 0 bps 0 bps 0 0 0 bps 0 bps
S ether2 Ether 1500 1598 0 bps 0 bps 0 0 0 bps 0 bps
ether3 Ethernet 1500 1598 0 bps 0 bps 0 0 0 bps 0 bps
R ether4 Ethernet 1500 1598 0 bps 0 bps 0 0 0 bps 0 bps
R ether5 Ethernet 1500 1598 118.4 kbps 9.7 kbps 14 14 127.9 kbps 9.2 kbps
R kelompok4 Bridge 1500 1598 0 bps 0 bps 0 0 0 bps 0 bps
R wlan1 Wireless (Atheros AR9... 1500 1600 0 bps 0 bps 0 0 0 bps 0 bps
S wlan2 Wireless (Atheros AR9... 1500 1600 0 bps 0 bps 0 0 0 bps 0 bps

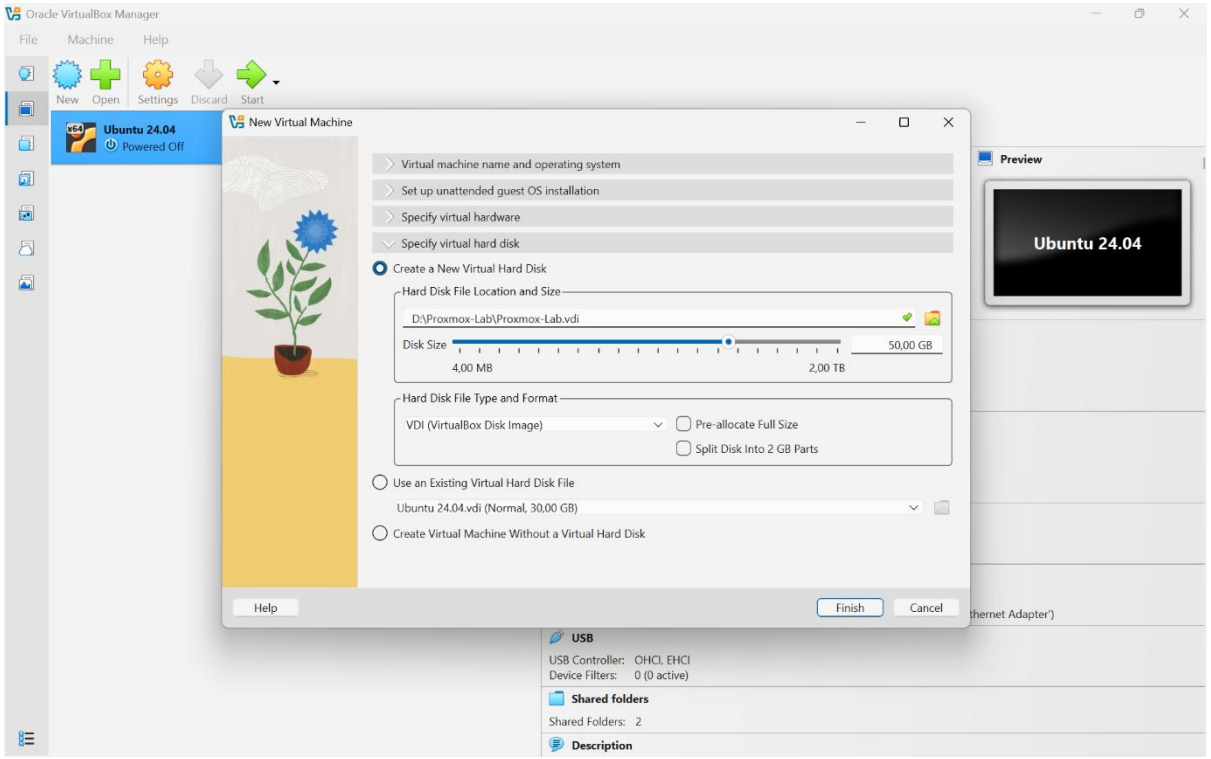

DHCP Server
DHCP
Networks
Leases
Options
Option Sets
Vendor Classes
Alerts
DHCP Config
DHCP Setup
Find
Name
Interface
Relay
Lease Time
Address Pool
Add AR...
dhcp1
ether4
00:10:00
dhcp_pool9
no
1 item

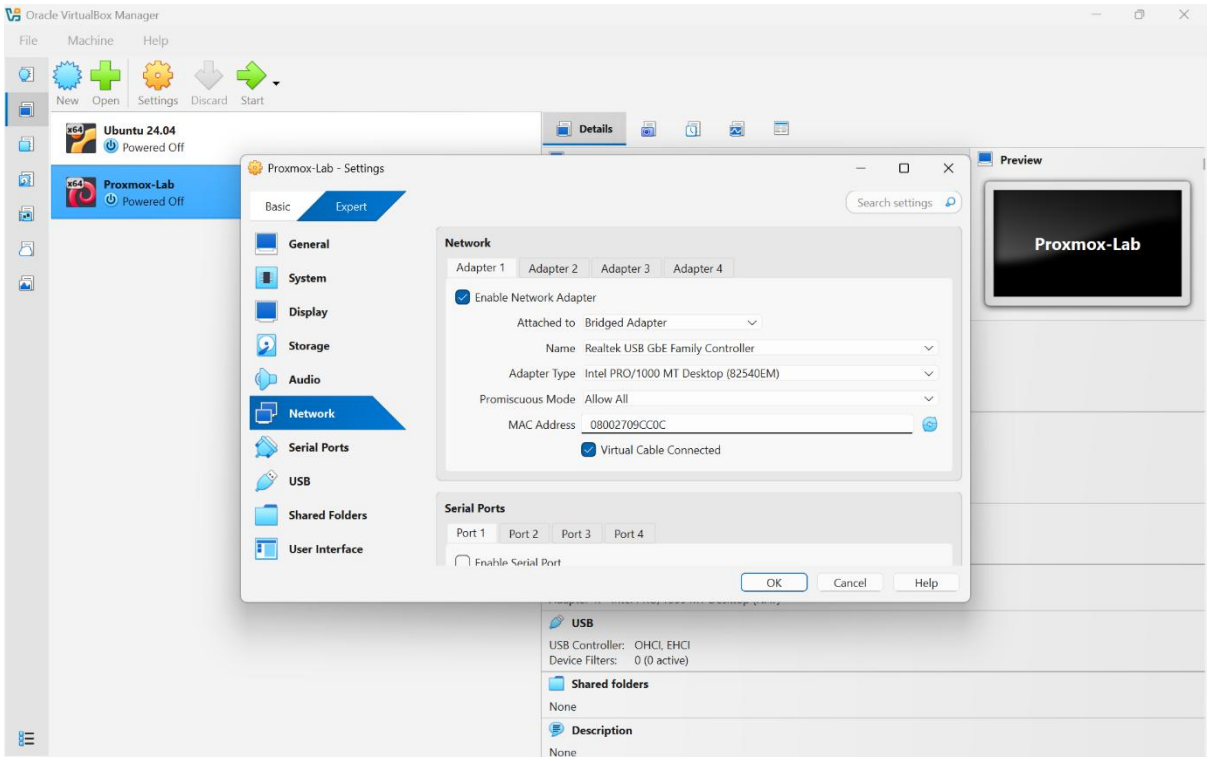

Interface <wlan1>
General
Wireless
Data Rates
Advanced
HT
HT MCS
WDS
...
Mode: station
Band: 2GHz-B/G/N
Channel Width: 20MHz
Frequency: 2472 MHz
SSID: humairah
Radio Name: DC2C6E3B54BC
Scan List: default
Skip DFS Channels: disabled
Wireless Protocol: any
Security Profile: Kel 9
Frequency Mode: regulatory-domain
Country: indonesia
Installation: indoor
WMM Support: disabled
Station Roaming: disabled
Default Authenticate
Multicast Helper: default
Multicast Buffering
Keepalive Frames
OK
Cancel
Apply
Disable
Comment
Simple Mode
Torch
WPS Accept
WPS Client
Setup Repeater
Scan...
Freq. Usage...
Align...
Sniff...
Snooper...
Reset Configuration
enabled
running
slave
connected to ess

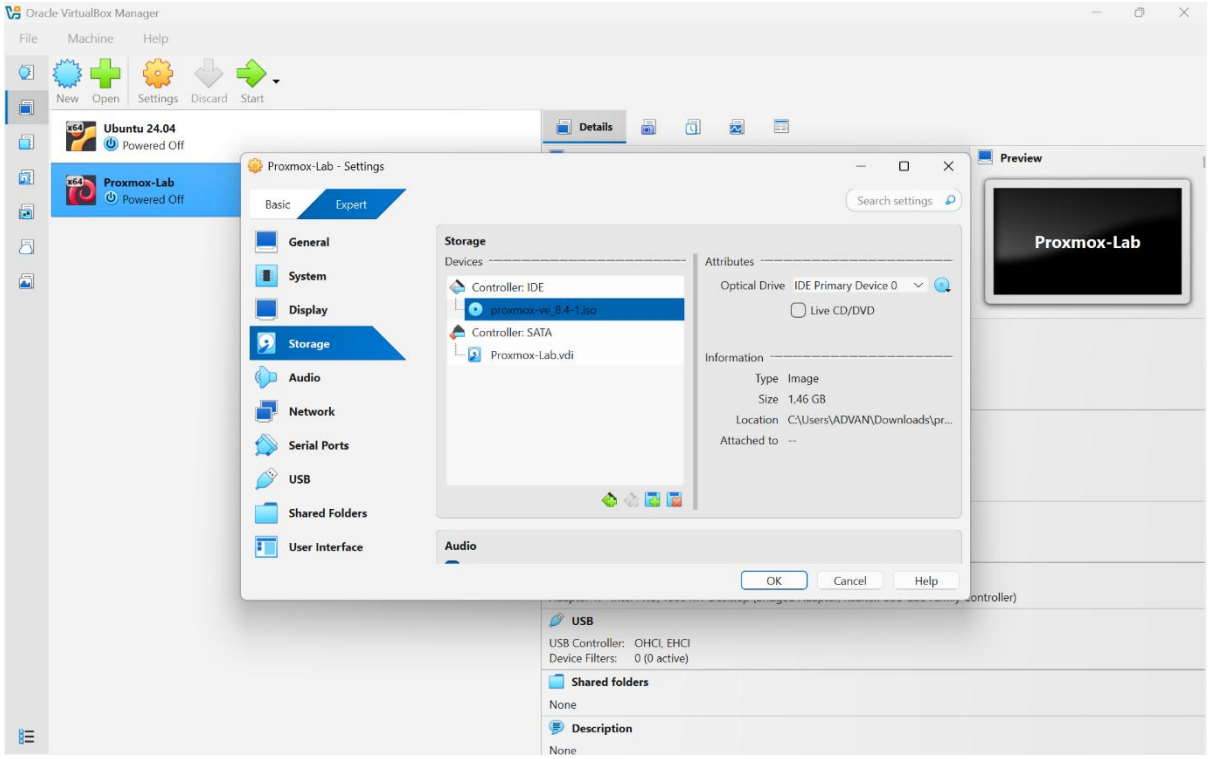

Task Manager
Performance
Run new task
Processes
Performance
App history
Startup apps
Users
Details
Services
Settings
CPU
6% 3,00 GHz
Memory
6,7/15,2 GB (44%)
Disk 0 (C: D:)
SSD (NVMe)
7%
Ethernet
Ethernet 5
S: 0 R: 0 Kbps
Ethernet
Ethernet 4
S: 8,0 R: 96,0 Kbps
GPU 0
AMD Radeon(TM) Gra...
2% (44 °C)
Memory
Memory usage
60 seconds
Memory composition
In use (Compressed)
6,4 GB (112 MB)
Available
8,6 GB
Committed
7,7/16,2 GB
Cached
3,8 GB
Paged pool
461 MB
Non-paged pool
441 MB

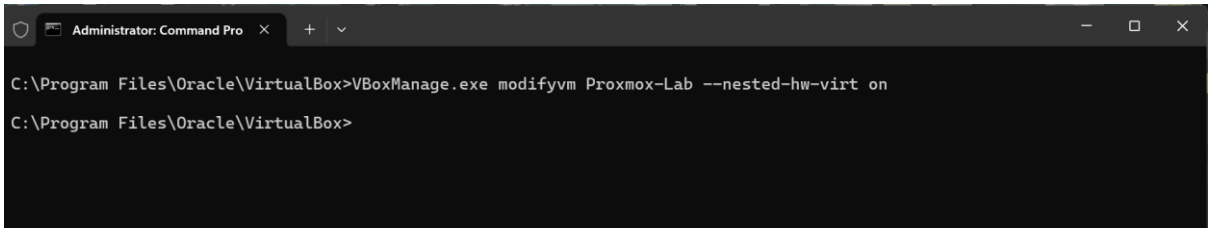

Oracle VirtualBox Manager
File
Machine
Help
New
Open
Settings
Discard
Start
Ubuntu 24.04
Powered Off
New Virtual Machine
Virtual machine name and operating system
VM Name
Proxmox-Lab
VM Folder
D:
ISO Image
<not selected>
OS Edition
OS
Linux
OS Distribution
Debian
OS Version
Debian (64-bit)
Proceed with Unattended Installation
Set up unattended guest OS installation
Specify virtual hardware
Specify virtual hard disk
Help
Finish
Cancel
Preview
Ubuntu 24.04
USB
USB Controller: OHCI, EHCI
Device Filters: 0 (0 active)
Shared folders
Shared Folders: 2
Description

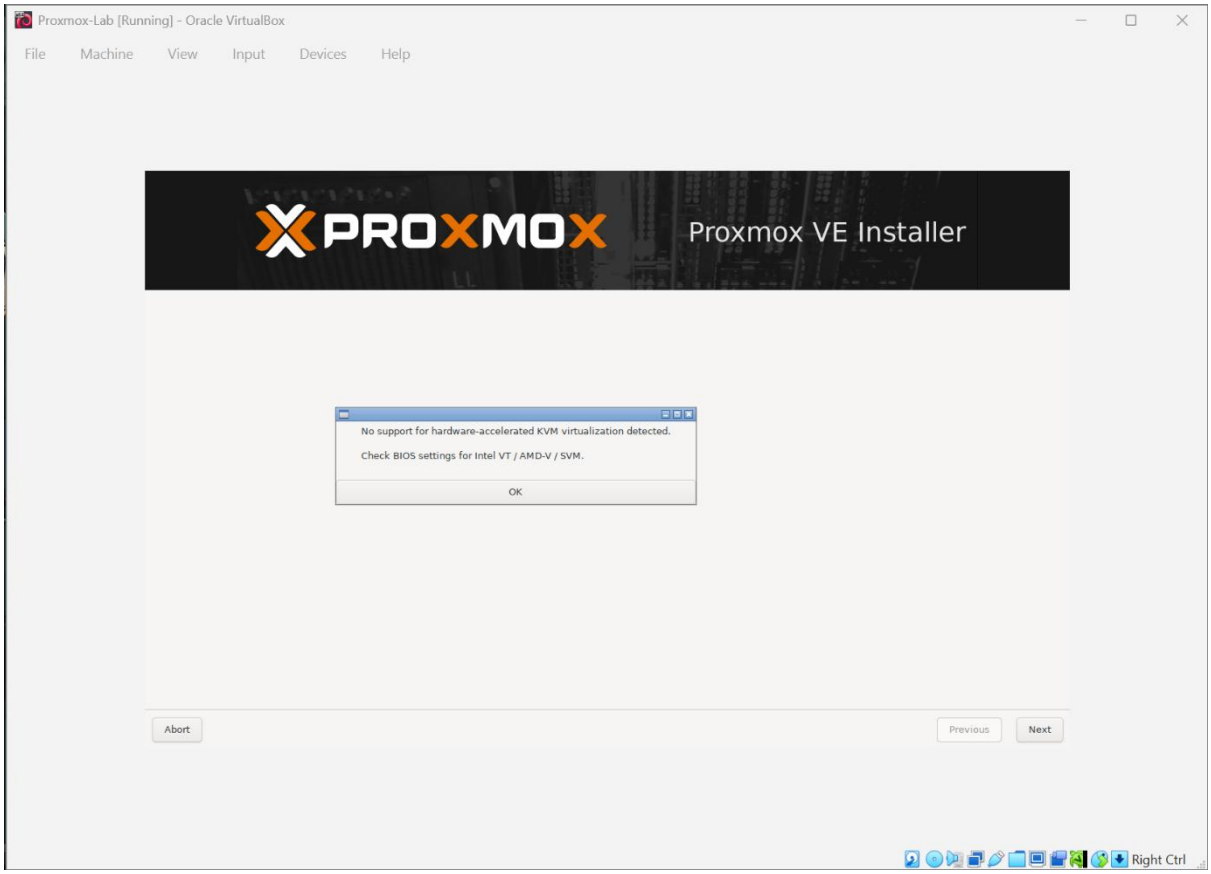

Oracle VirtualBox Manager
File
Machine
Help
New
Open
Settings
Discard
Start
Ubuntu 24.04
Powered Off
New Virtual Machine
Virtual machine name and operating system
Set up unattended guest OS installation
Specify virtual hardware
Base Memory
6144 MB
4 MB
16384 MB
Number of CPUs
2
1 CPU
12 CPUs
Use EFI
Specify virtual hard disk
Help
Finish
Cancel
Preview
Ubuntu 24.04
USB
USB Controller: OHCI, EHCI
Device Filters: 0 (0 active)
Shared folders
Shared Folders: 2
Description

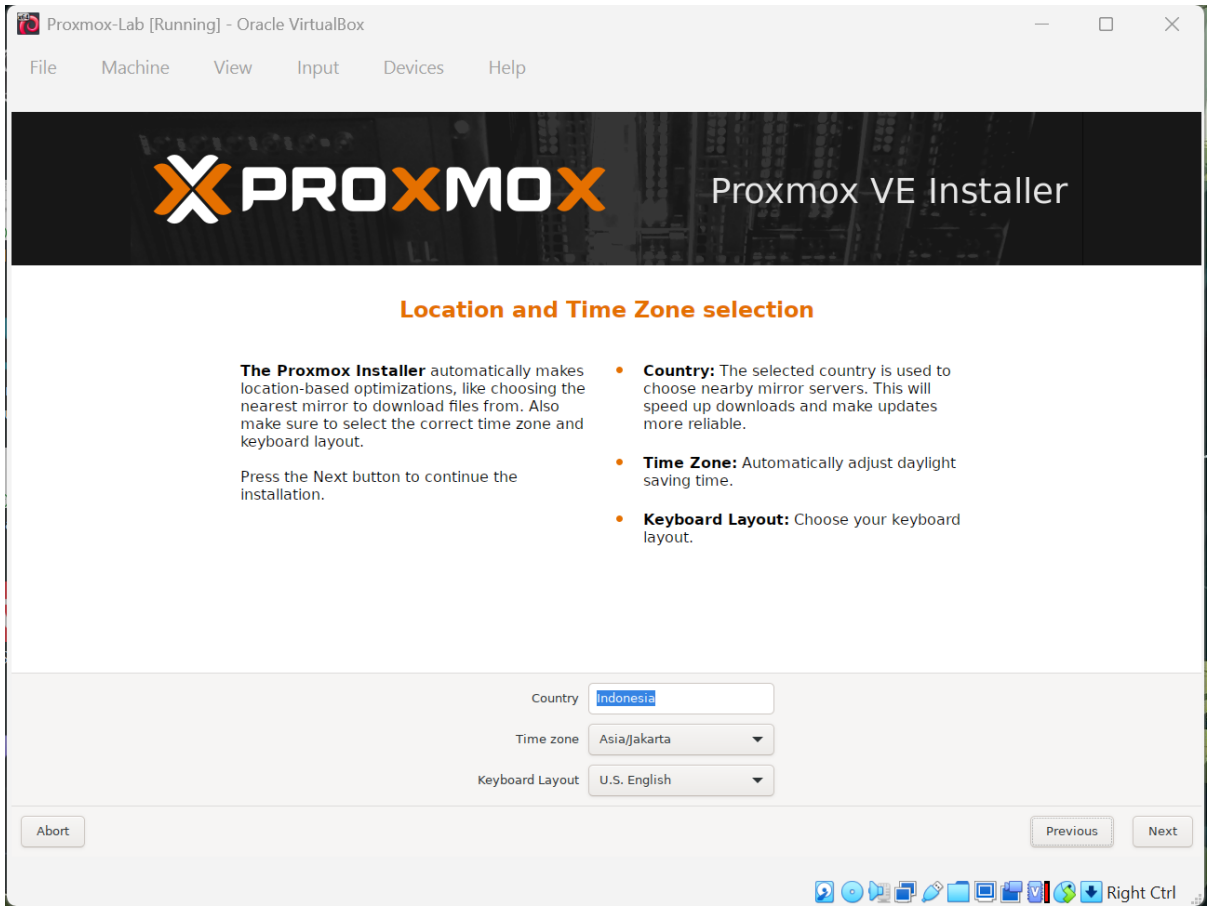

Oracle VirtualBox Manager
File
Machine
Help
New
Open
Settings
Discard
Start
Ubuntu 24.04
Powered Off
New Virtual Machine
Virtual machine name and operating system
Set up unattended guest OS installation
Specify virtual hardware
Specify virtual hard disk
Create a New Virtual Hard Disk
Hard Disk File Location and Size
D:\Proxmox-Lab\Proxmox-Lab.vdi
Disk Size
50,00 GB
4,00 MB
2,00 TB
Hard Disk File Type and Format
VDI (VirtualBox Disk Image)
Pre-allocate Full Size
Split Disk Into 2 GB Parts
Use an Existing Virtual Hard Disk File
Ubuntu 24.04.vdi (Normal, 30,00 GB)
Create Virtual Machine Without a Virtual Hard Disk
Help
Finish
Cancel
Preview
Ubuntu 24.04
USB
USB Controller: OHCI, EHCI
Device Filters: 0 (0 active)
Shared folders
Shared Folders: 2
Description

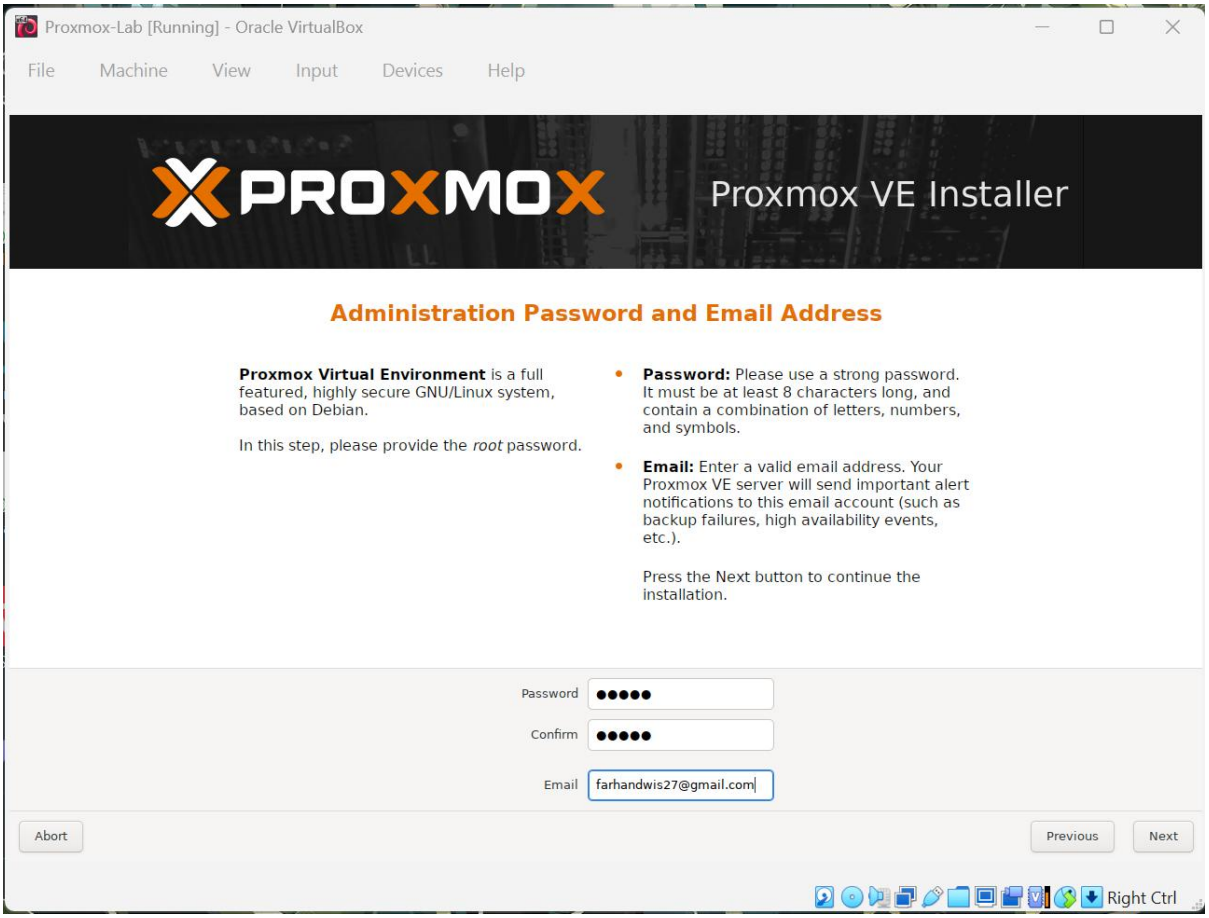

Oracle VirtualBox Manager
File
Machine
Help
New
Open
Settings
Discard
Start
Ubuntu 24.04
Powered Off
Proxmox-Lab
Powered Off
Details
Preview
Proxmox-Lab - Settings
Basic
Expert
Search settings
General
System
Display
Storage
Audio
Network
Serial Ports
USB
Shared Folders
User Interface
Network
Adapter 1
Adapter 2
Adapter 3
Adapter 4
Enable Network Adapter
Attached to
Bridged Adapter
Name
Realtek USB GbE Family Controller
Adapter Type
Intel PRO/1000 MT Desktop (82540EM)
Promiscuous Mode
Allow All
MAC Address
08002709CC0C
Virtual Cable Connected
Serial Ports
Port 1
Port 2
Port 3
Port 4
Enable Serial Port
OK
Cancel
Help
USB
USB Controller: OHCI, EHCI
Device Filters: 0 (0 active)
Shared folders
None
Description
None

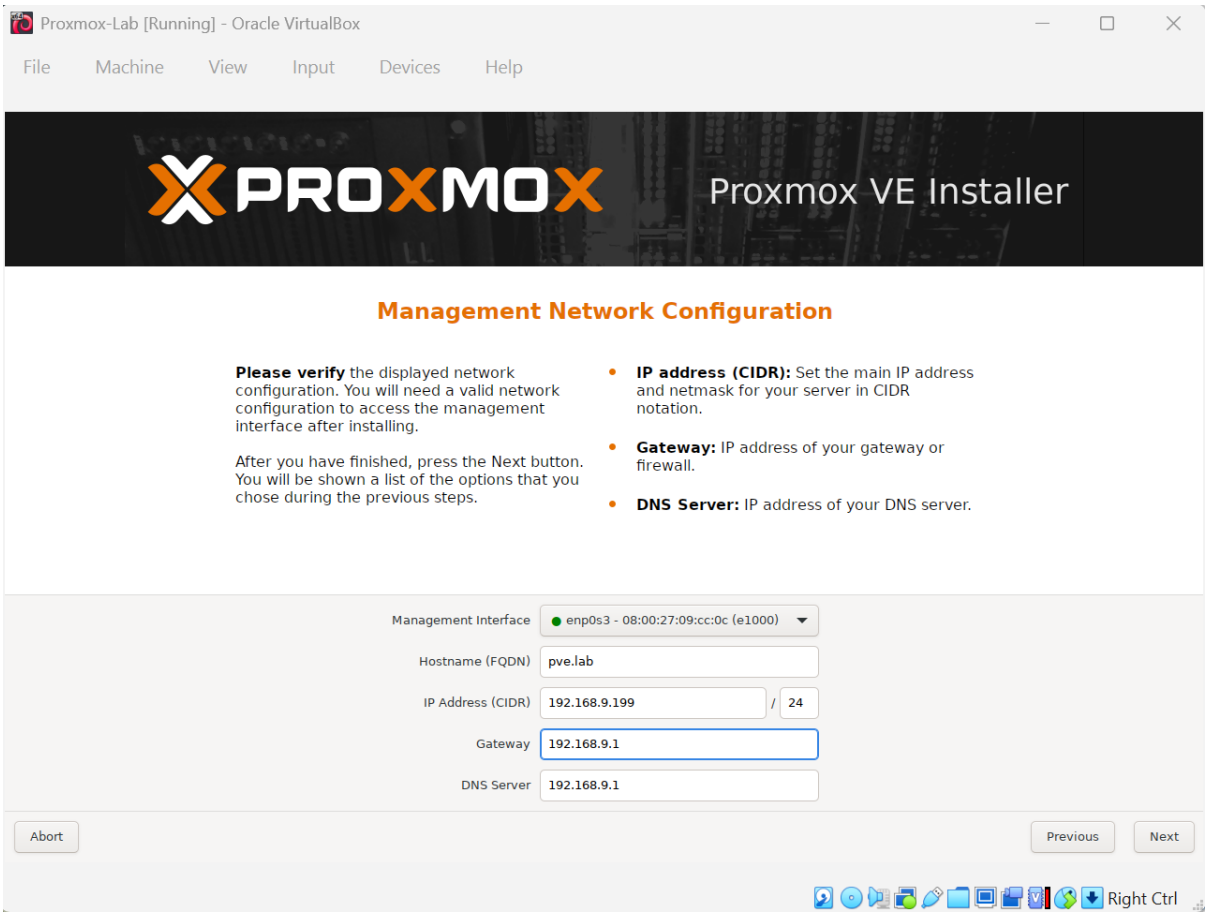

Oracle VirtualBox Manager
File
Machine
Help
New
Open
Settings
Discard
Start
Ubuntu 24.04
Powered Off
Proxmox-Lab
Powered Off
Details
Preview
Proxmox-Lab - Settings
Basic
Expert
Search settings
General
System
Display
Storage
Audio
Network
Serial Ports
USB
Shared Folders
User Interface
Storage
Devices
Controller: IDE
proxmox-ve_8.4-1.iso
Controller: SATA
Proxmox-Lab.vdi
Attributes
Optical Drive
IDE Primary Device 0
Live CD/DVD
Information
Type Image
Size 1,46 GB
Location C:\Users\ADVAN\Downloads\pr...
Attached to --
Audio
OK
Cancel
Help
USB
USB Controller: OHCI, EHCI
Device Filters: 0 (0 active)
Shared folders
None
Description
None

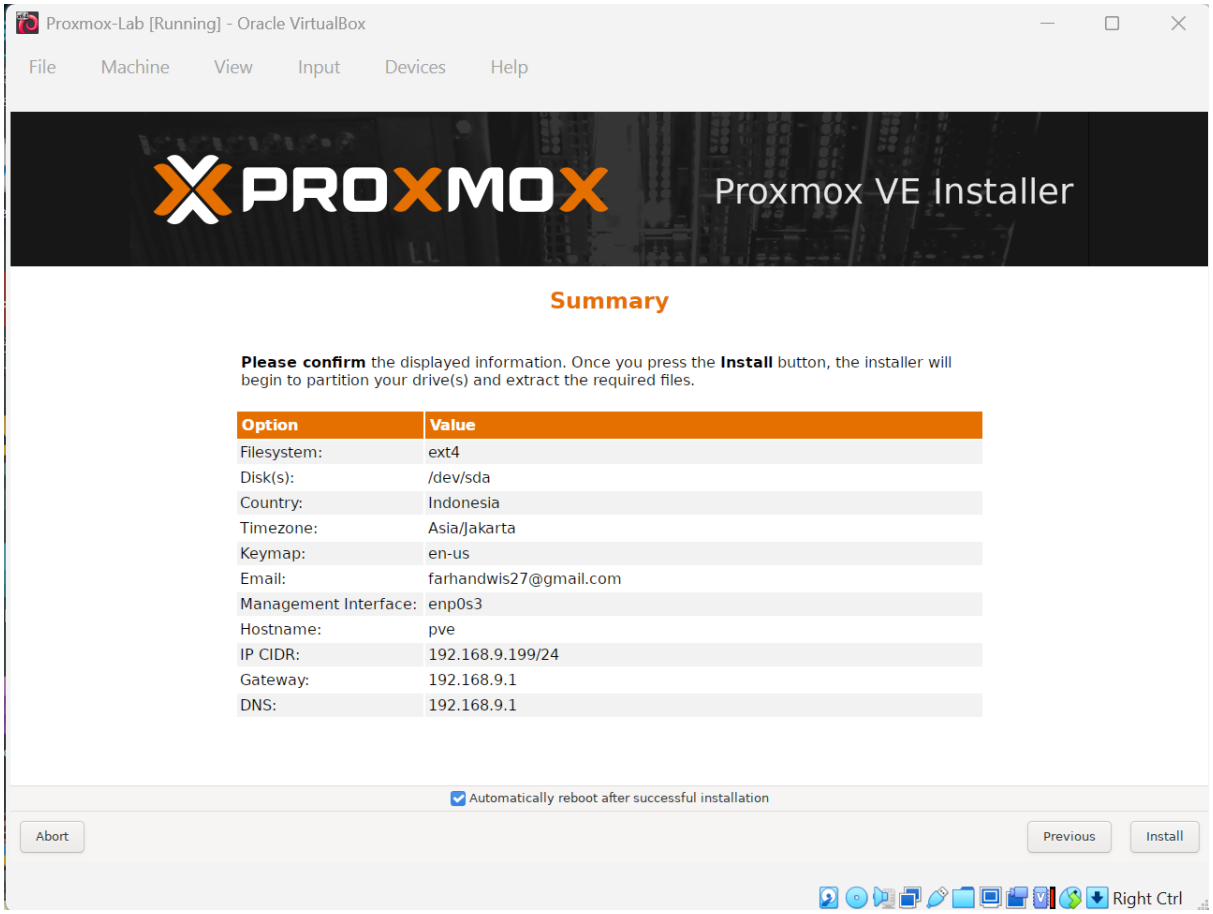

Administrator: Command Pro
C:\Program Files\Oracle\VirtualBox>VBoxManage.exe modifyvm Proxmox-Lab --nested-hw-virt on
C:\Program Files\Oracle\VirtualBox>

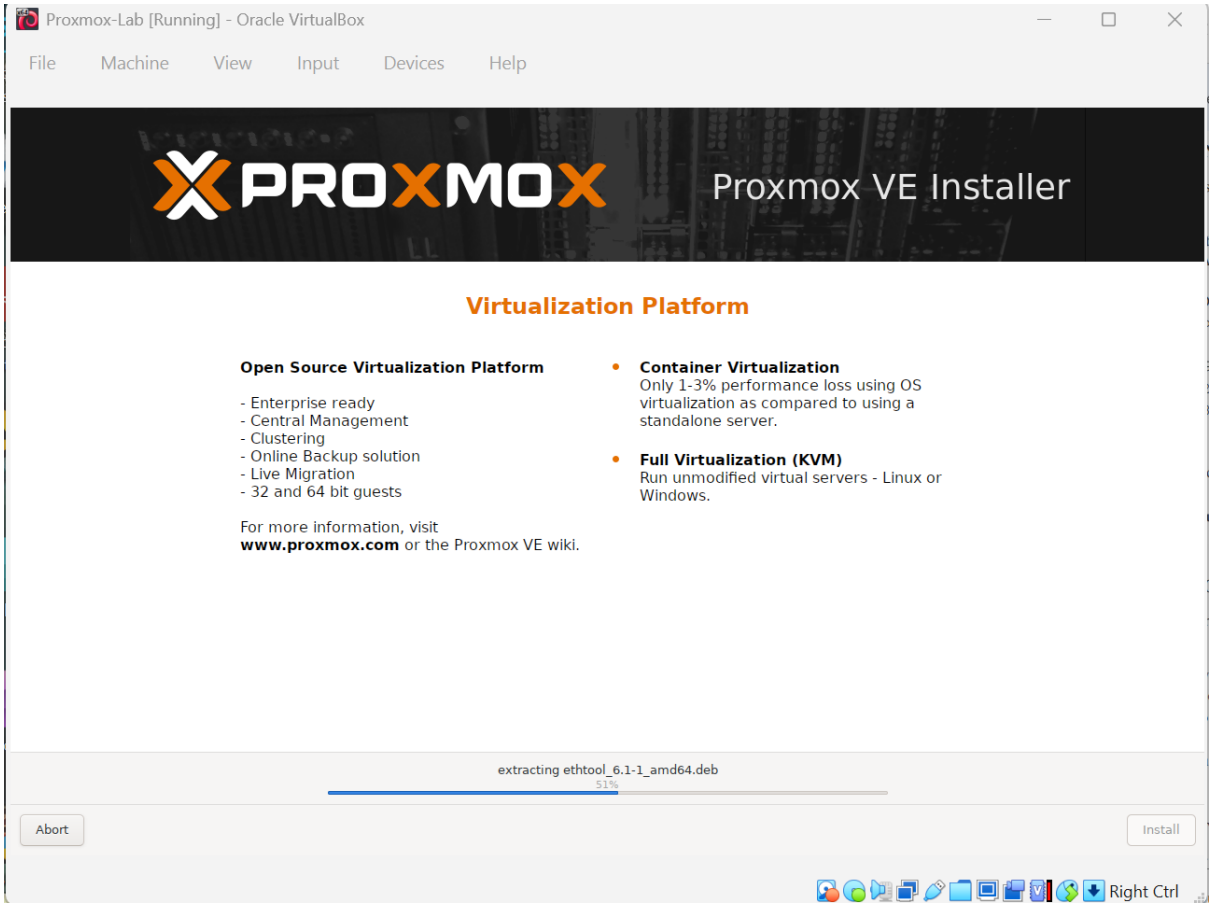

Proxmox-Lab [Running] - Oracle VirtualBox
File
Machine
View
Input
Devices
Help
PROXMOX
Proxmox VE Installer
No support for hardware-accelerated KVM virtualization detected.
Check BIOS settings for Intel VT / AMD-V / SVM.
OK
Abort
Previous
Next
Right Ctrl

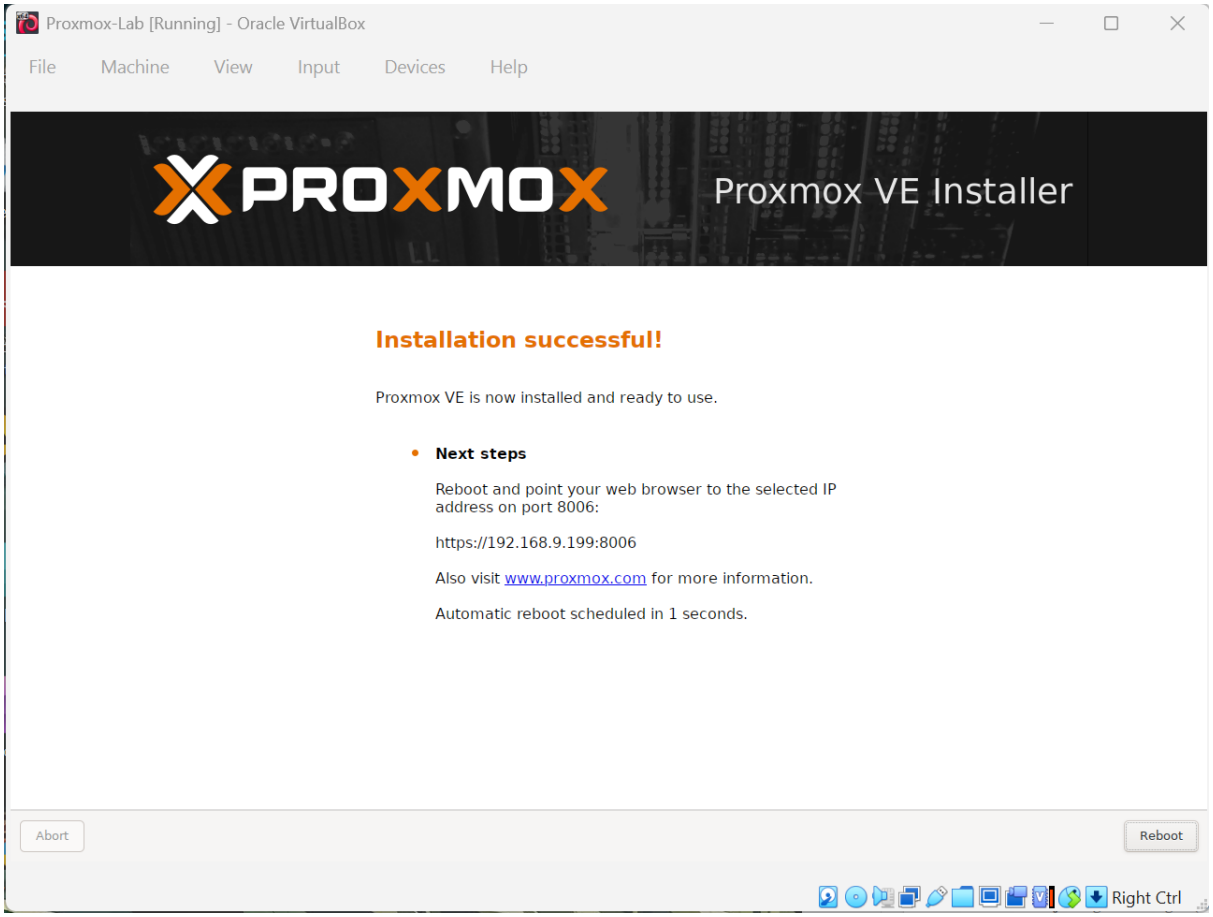

Proxmox-Lab [Running] - Oracle VirtualBox
File
Machine
View
Input
Devices
Help
PROXMOX
Proxmox VE Installer
Location and Time Zone selection
The Proxmox Installer automatically makes location-based optimizations, like choosing the nearest mirror to download files from. Also make sure to select the correct time zone and keyboard layout.
Press the Next button to continue the installation.
Country: The selected country is used to choose nearby mirror servers. This will speed up downloads and make updates more reliable.
Time Zone: Automatically adjust daylight saving time.
Keyboard Layout: Choose your keyboard layout.
Country
Indonesia
Time zone
Asia/Jakarta
Keyboard Layout
U.S. English
Abort
Previous
Next
Right Ctrl

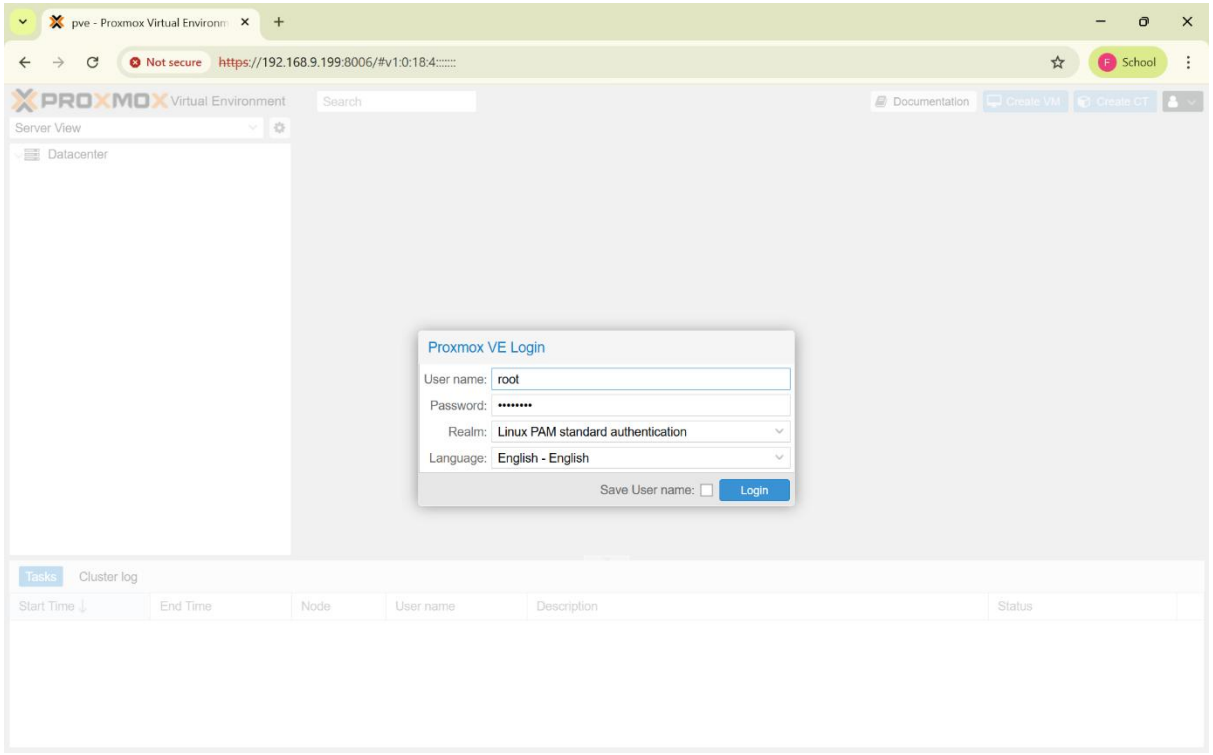

Proxmox-Lab [Running] - Oracle VirtualBox
File Machine View Input Devices Help
PROXMOX
Proxmox VE Installer
Administration Password and Email Address
Proxmox Virtual Environment is a full featured, highly secure GNU/Linux system, based on Debian.
In this step, please provide the root password.
Password: Please use a strong password. It must be at least 8 characters long, and contain a combination of letters, numbers, and symbols.
Email: Enter a valid email address. Your Proxmox VE server will send important alert notifications to this email account (such as backup failures, high availability events, etc.).
Press the Next button to continue the installation.
Password
Confirm
Email
farhandwis27@gmail.com
Abort
Previous
Next
Right Ctrl

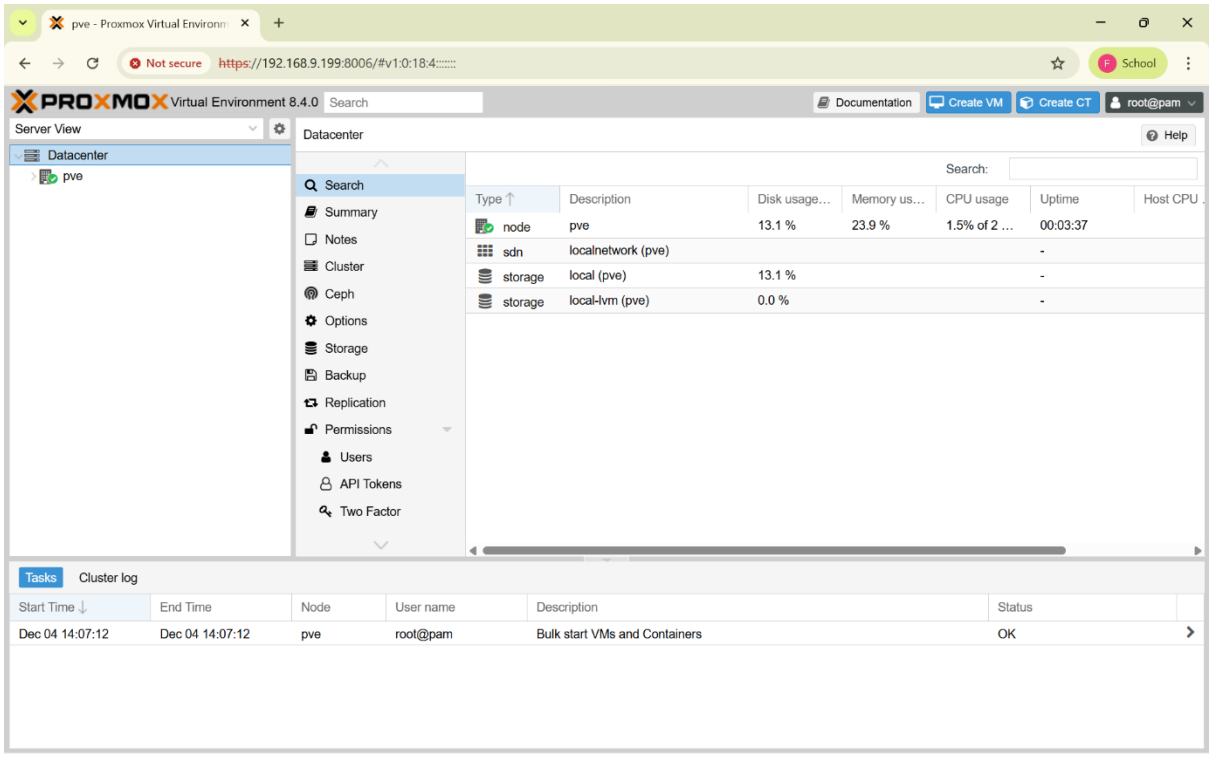

Proxmox-Lab [Running] - Oracle VirtualBox
File Machine View Input Devices Help
PROXMOX
Proxmox VE Installer
Management Network Configuration
Please verify the displayed network configuration. You will need a valid network configuration to access the management interface after installing.
After you have finished, press the Next button. You will be shown a list of the options that you chose during the previous steps.
IP address (CIDR): Set the main IP address and netmask for your server in CIDR notation.
Gateway: IP address of your gateway or firewall.
DNS Server: IP address of your DNS server.
Management Interface
enp0s3 - 08:00:27:09:cc:0c (e1000)
Hostname (FQDN)
pve.lab
IP Address (CIDR)
192.168.9.199
/ 24
Gateway
192.168.9.1
DNS Server
192.168.9.1
Abort
Previous
Next
Right Ctrl

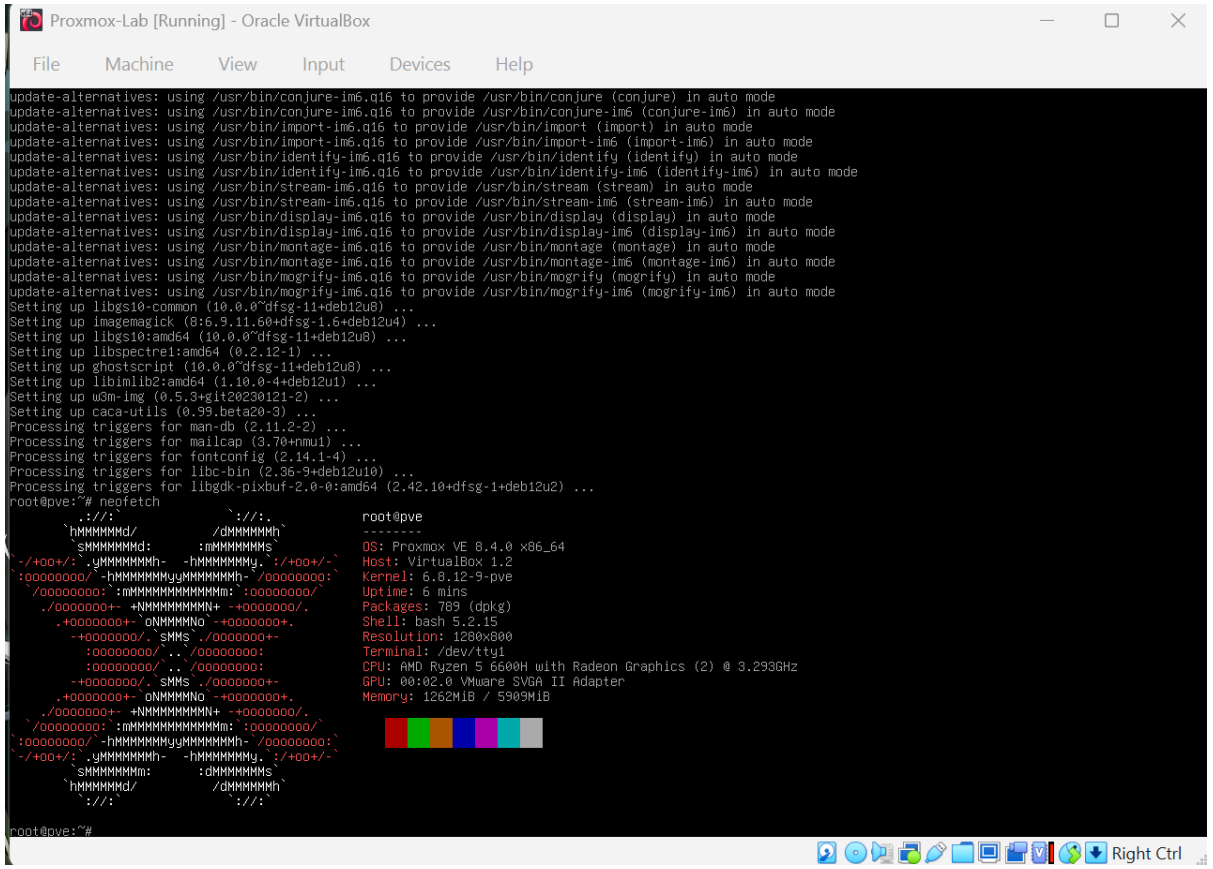

Proxmox-Lab [Running] - Oracle VirtualBox
File Machine View Input Devices Help
PROXMOX
Proxmox VE Installer
Summary
Please confirm the displayed information. Once you press the Install button, the installer will begin to partition your drive(s) and extract the required files.
Option Value
Filesystem: ext4
Disk(s): /dev/sda
Country: Indonesia
Timezone: Asia/Jakarta
Keymap: en-us
Email: farhandwis27@gmail.com
Management Interface: enp0s3
Hostname: pve
IP CIDR: 192.168.9.199/24
Gateway: 192.168.9.1
DNS: 192.168.9.1
Automatically reboot after successful installation
Abort
Previous
Install
Right Ctrl

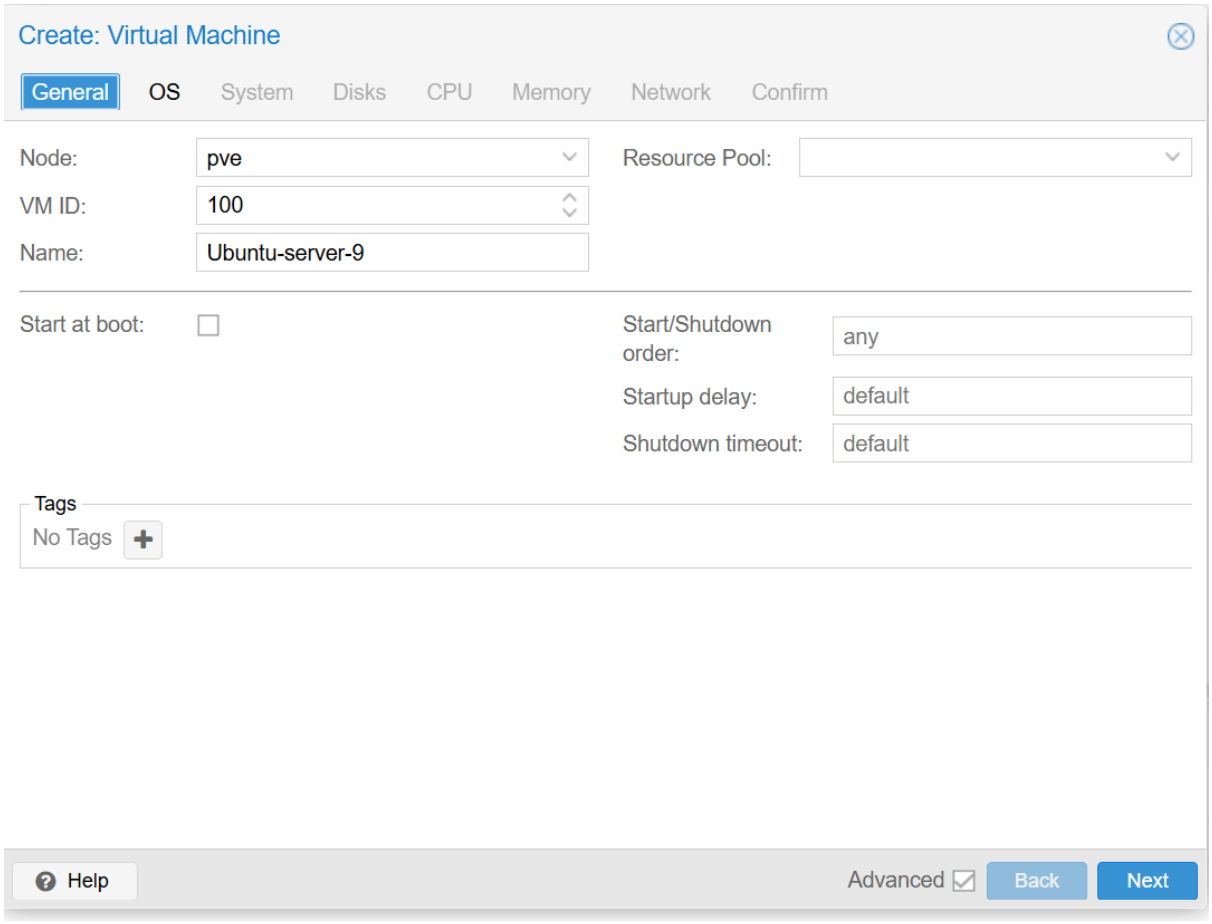

Proxmox-Lab [Running] - Oracle VirtualBox
File Machine View Input Devices Help
PROXMOX
Proxmox VE Installer
Virtualization Platform
Open Source Virtualization Platform
- Enterprise ready
- Central Management
- Clustering
- Online Backup solution
- Live Migration
- 32 and 64 bit guests
For more information, visit
www.proxmox.com or the Proxmox VE wiki.
Container Virtualization
Only 1-3% performance loss using OS virtualization as compared to using a standalone server.
Full Virtualization (KVM)
Run unmodified virtual servers - Linux or Windows.
extracting ethtool_6.1-1_amd64.deb
51%
Abort
Install
Right Ctrl

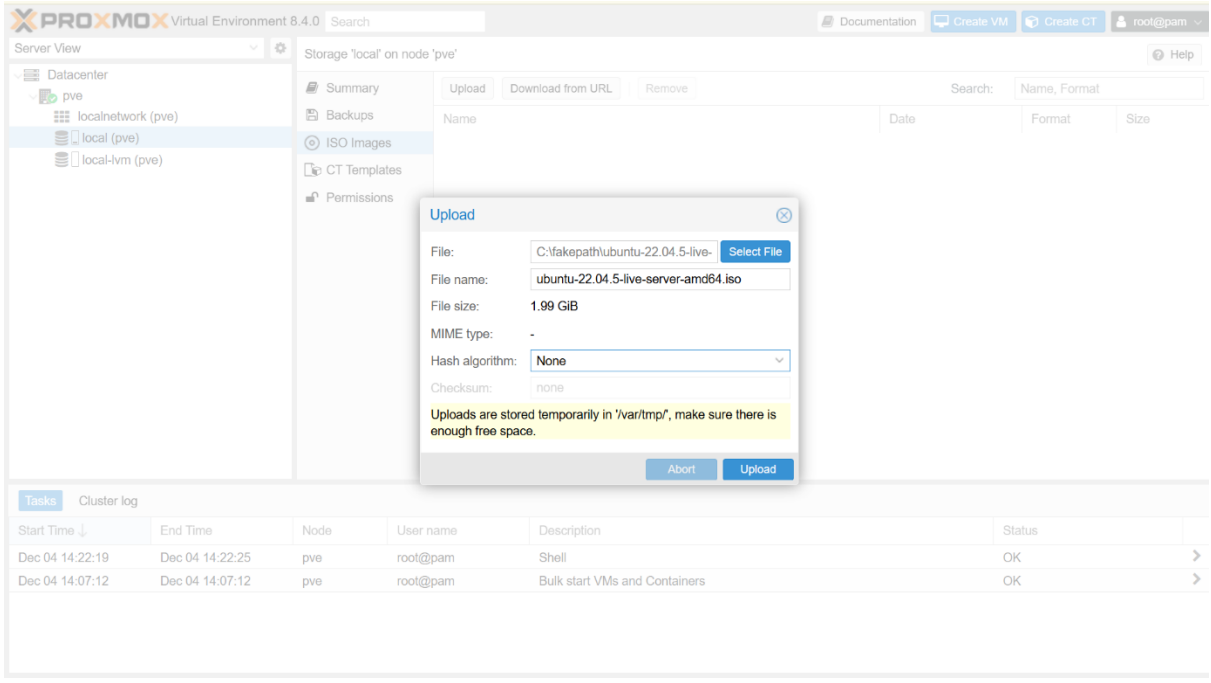

Proxmox-Lab [Running] - Oracle VirtualBox
File
Machine
View
Input
Devices
Help
PROXMOX
Proxmox VE Installer
Installation successful!
Proxmox VE is now installed and ready to use.
Next steps
Reboot and point your web browser to the selected IP address on port 8006:
https://192.168.9.199:8006
Also visit www.proxmox.com for more information.
Automatic reboot scheduled in 1 seconds.
Abort
Reboot
Right Ctrl

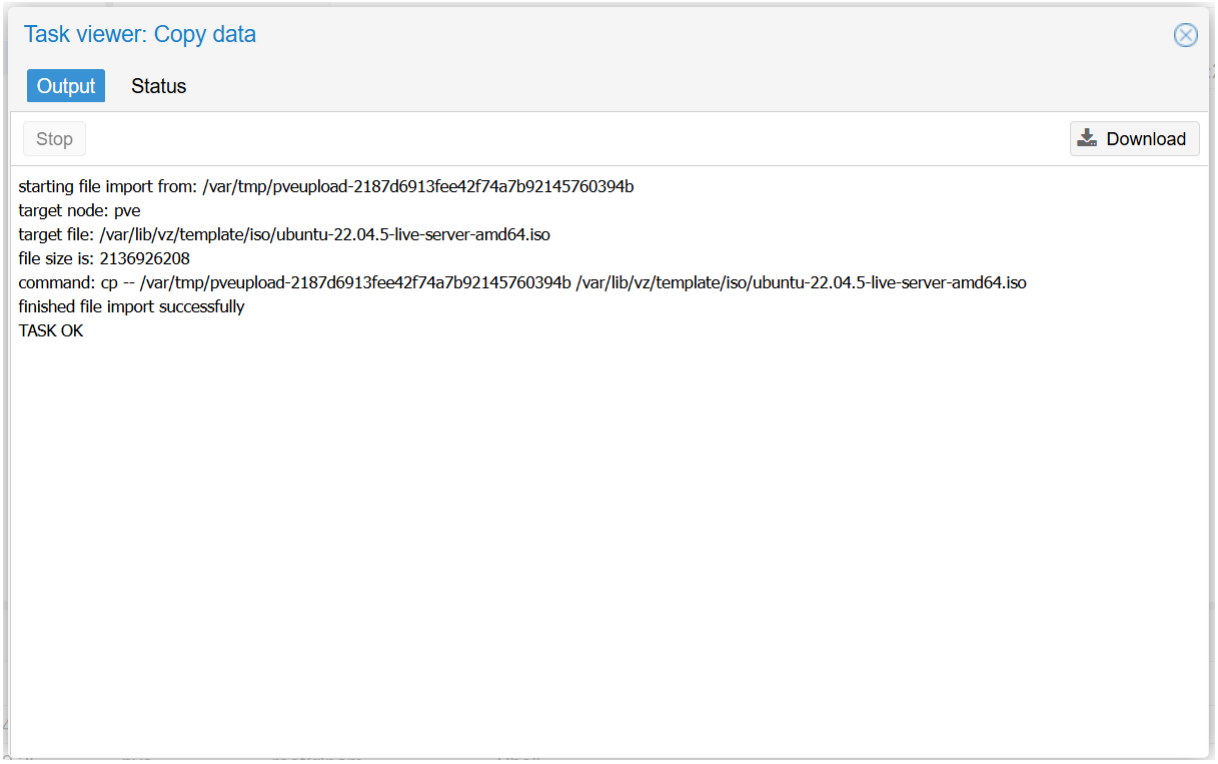

pve - Proxmox Virtual Environ
Not secure
https://192.168.9.199:8006/#v1:0:18:4:::::
School
PROXMOX Virtual Environment
Search
Documentation
Create VM
Create CT
Server View
Datacenter
Proxmox VE Login
User name: root
Password:
Realm: Linux PAM standard authentication
Language: English - English
Save User name:
Login
Tasks
Cluster log
Start Time
End Time
Node
User name
Description
Status

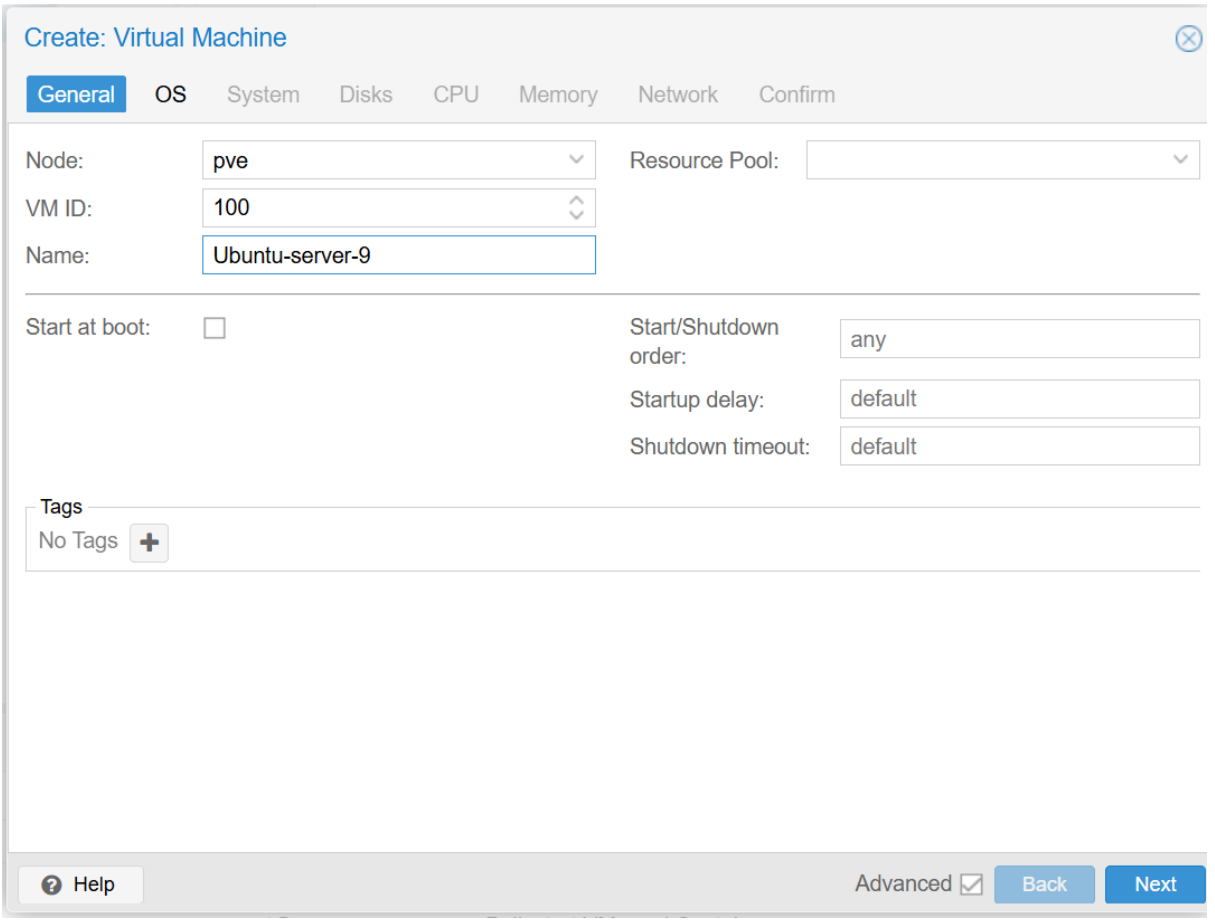

pve - Proxmox Virtual Environ
Not secure
https://192.168.9.199:8006/#v1:0:18:4:::::
School
PROXMOX Virtual Environment 8.4.0
Search
Documentation
Create VM
Create CT
root@pam
Server View
Datacenter
pve
Help
Search:
Search
Summary
Notes
Cluster
Ceph
Options
Storage
Backup
Replication
Permissions
Users
API Tokens
Two Factor
Type
Description
Disk usage...
Memory us...
CPU usage
Uptime
Host CPU
node pve 13.1 % 23.9 % 1.5% of 2 ... 00:03:37
sdn localnetwork (pve) -
storage local (pve) 13.1 % -
storage local-lvm (pve) 0.0 % -
Tasks
Cluster log
Start Time
End Time
Node
User name
Description
Status
Dec 04 14:07:12 Dec 04 14:07:12 pve root@pam Bulk start VMs and Containers OK

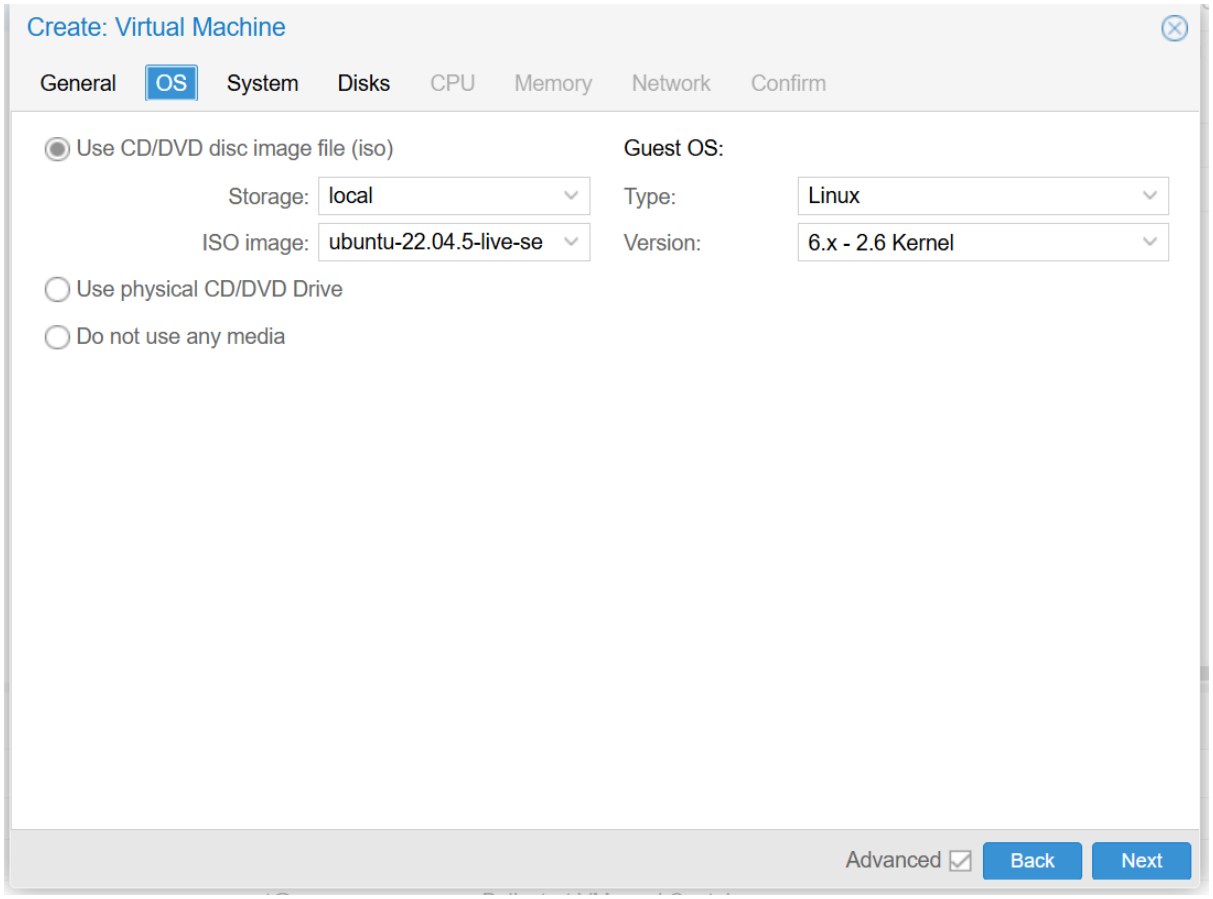

Proxmox-Lab [Running] - Oracle VirtualBox
File
Machine
View
Input
Devices
Help
update-alternatives: using /usr/bin/conjure-im6.q16 to provide /usr/bin/conjure (conjure) in auto mode
update-alternatives: using /usr/bin/conjure-im6.q16 to provide /usr/bin/conjure-im6 (conjure-im6) in auto mode
update-alternatives: using /usr/bin/import-im6.q16 to provide /usr/bin/import (import) in auto mode
update-alternatives: using /usr/bin/import-im6.q16 to provide /usr/bin/import-im6 (import-im6) in auto mode
update-alternatives: using /usr/bin/identify-im6.q16 to provide /usr/bin/identify (identify) in auto mode
update-alternatives: using /usr/bin/identify-im6.q16 to provide /usr/bin/identify-im6 (identify-im6) in auto mode
update-alternatives: using /usr/bin/stream-im6.q16 to provide /usr/bin/stream (stream) in auto mode
update-alternatives: using /usr/bin/stream-im6.q16 to provide /usr/bin/stream-im6 (stream-im6) in auto mode
update-alternatives: using /usr/bin/display-im6.q16 to provide /usr/bin/display (display) in auto mode
update-alternatives: using /usr/bin/display-im6.q16 to provide /usr/bin/display-im6 (display-im6) in auto mode
update-alternatives: using /usr/bin/montage-im6.q16 to provide /usr/bin/montage (montage) in auto mode
update-alternatives: using /usr/bin/montage-im6.q16 to provide /usr/bin/montage-im6 (montage-im6) in auto mode
update-alternatives: using /usr/bin/mogrify-im6.q16 to provide /usr/bin/mogrify (mogrify) in auto mode
update-alternatives: using /usr/bin/mogrify-im6.q16 to provide /usr/bin/mogrify-im6 (mogrify-im6) in auto mode
Setting up libgs10-common (10.0.0~dfsg-11+deb12u8) ...
Setting up imagemagick (8:6.9.11.60+dfsg-1.6+deb12u4) ...
Setting up libgs10:amd64 (10.0.0~dfsg-11+deb12u8) ...
Setting up libspectre1:amd64 (0.2.12-1) ...
Setting up ghostscript (10.0.0~dfsg-11+deb12u8) ...
Setting up libimlib2:amd64 (1.10.0-4+deb12u1) ...
Setting up w3m-img (0.5.3+git20230121-2) ...
Setting up caca-utils (0.99.beta20-3) ...
Processing triggers for man-db (2.11.2-2) ...
Processing triggers for mailcap (3.70+nmu1) ...
Processing triggers for fontconfig (2.14.1-4) ...
Processing triggers for libc-bin (2.36-9+deb12u10) ...
Processing triggers for libgdk-pixbuf-2.0-0:amd64 (2.42.10+dfsg-1+deb12u2) ...
root@pve:~# neofetch
root@pve
OS: Proxmox VE 8.4.0 x86_64
Host: VirtualBox 1.2
Kernel: 6.8.12-9-pve
Uptime: 6 mins
Packages: 789 (dpkg)
Shell: bash 5.2.15
Resolution: 1280x800
Terminal: /dev/tty1
CPU: AMD Ryzen 5 6600H with Radeon Graphics (2) @ 3.293GHz
GPU: 00:02.0 VMware SVGA II Adapter
Memory: 1262MiB / 5909MiB
root@pve:~#
Right Ctrl

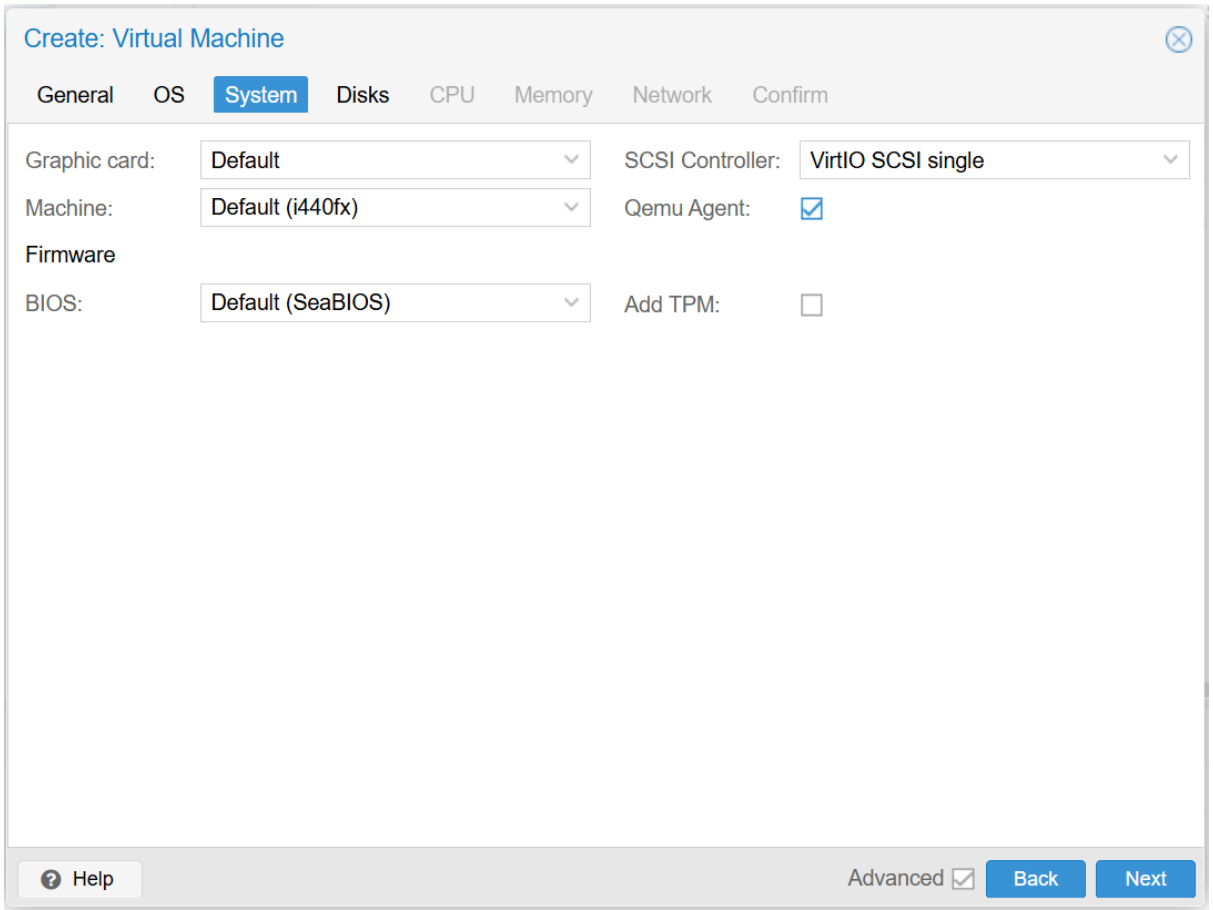

Create: Virtual Machine
General
OS
System
Disks
CPU
Memory
Network
Confirm
Node:
pve
Resource Pool:
VM ID:
100
Name:
Ubuntu-server-9
Start at boot:
Start/Shutdown order:
any
Startup delay:
default
Shutdown timeout:
default
Tags
No Tags
Help
Advanced
Back
Next

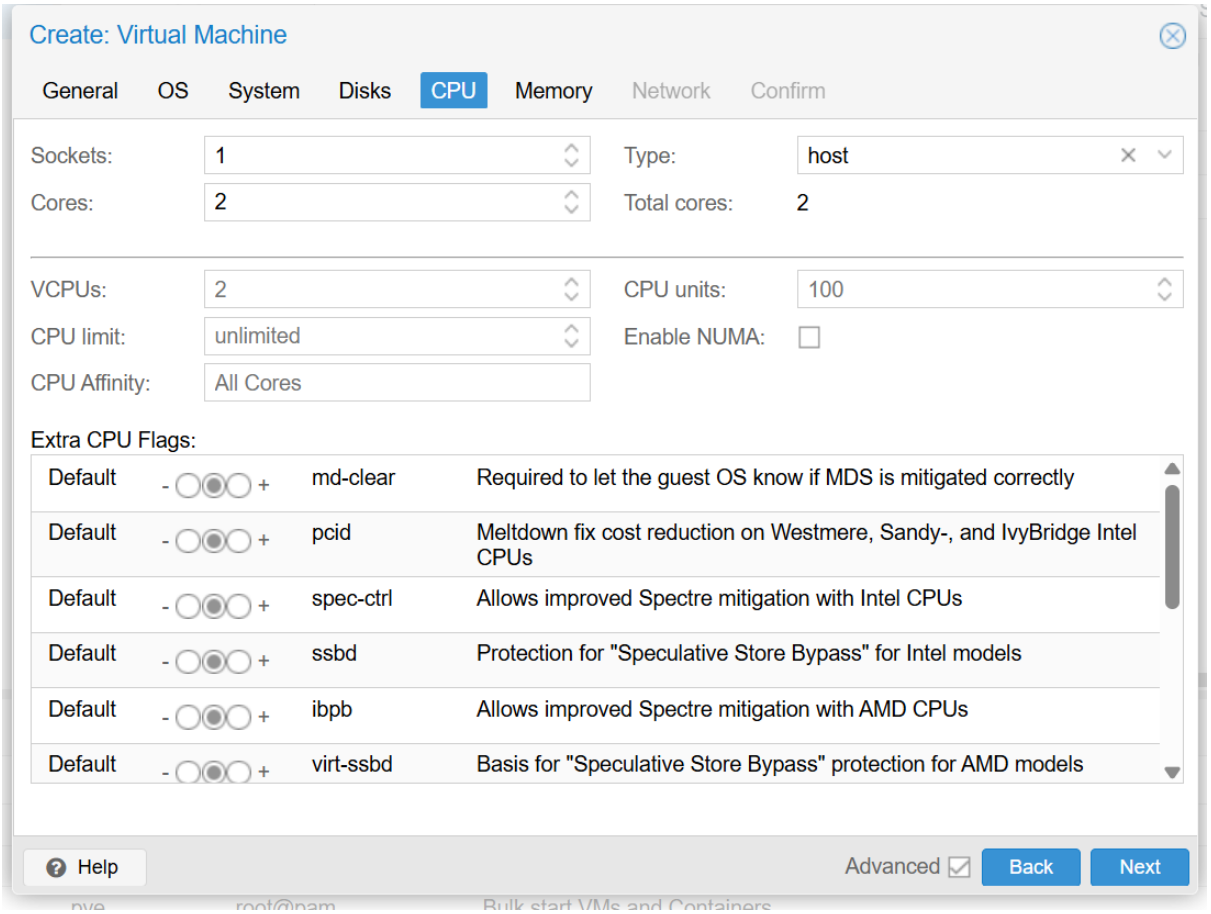

PROXMOX Virtual Environment 8.4.0
Search
Documentation
Create VM
Create CT
root@pam
Server View
Datacenter
pve
localnetwork (pve)
local (pve)
local-lvm (pve)
Storage 'local' on node 'pve'
Summary
Backups
ISO Images
CT Templates
Permissions
Upload
Download from URL
Remove
Search:
Name, Format
Name
Date
Format
Size
Upload
File:
C:\fakepath\ubuntu-22.04.5-live-
Select File
File name:
ubuntu-22.04.5-live-server-amd64.iso
File size:
1.99 GiB
MIME type:
-
Hash algorithm:
None
Checksum:
none
Uploads are stored temporarily in '/var/tmp/', make sure there is enough free space.
Abort
Upload
Tasks
Cluster log
Start Time
End Time
Node
User name
Description
Status
Dec 04 14:22:19
Dec 04 14:22:25
pve
root@pam
Shell
OK
Dec 04 14:07:12
Dec 04 14:07:12
pve
root@pam
Bulk start VMs and Containers
OK

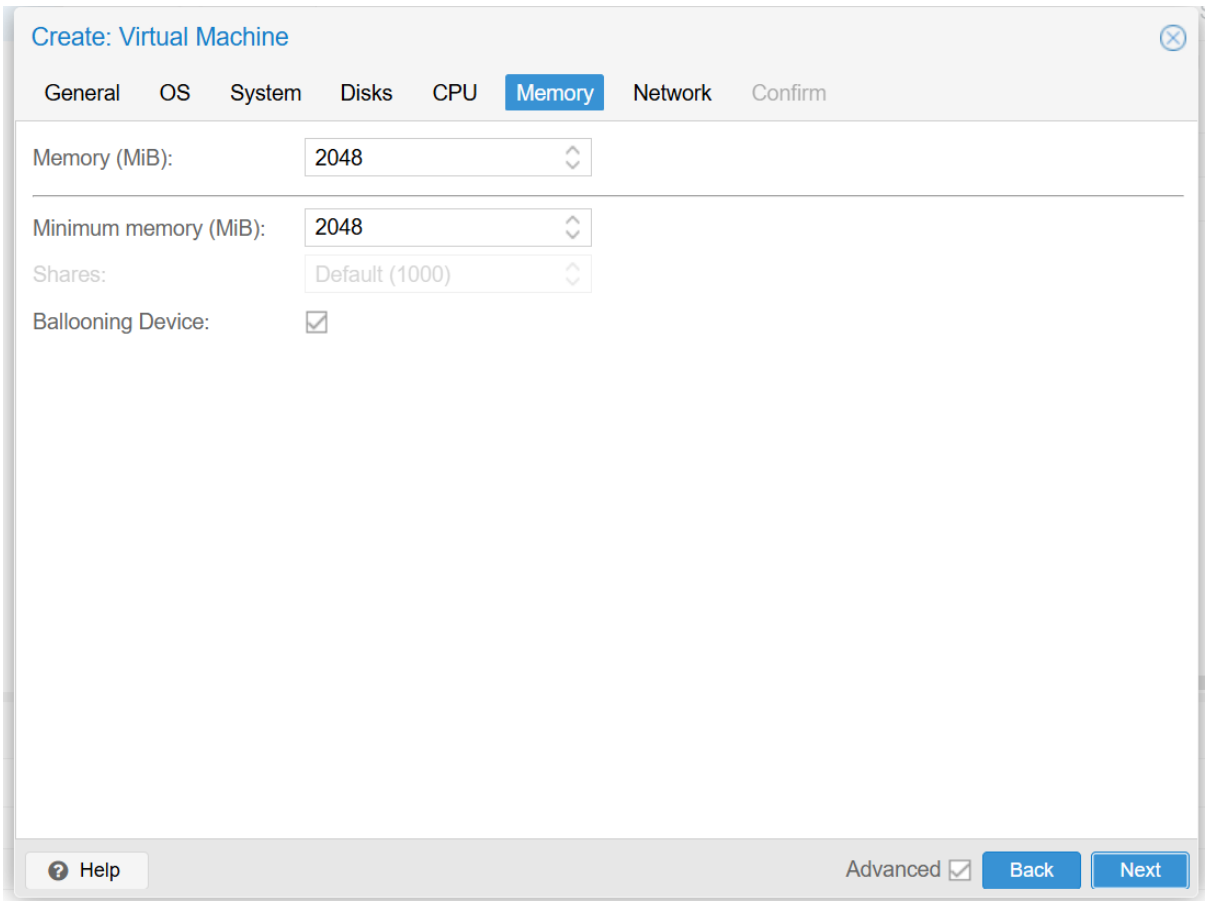

Task viewer: Copy data
Output
Status
Stop
Download
starting file import from: /var/tmp/pveupload-2187d6913fee42f74a7b92145760394b
target node: pve
target file: /var/lib/vz/template/iso/ubuntu-22.04.5-live-server-amd64.iso
file size is: 2136926208
command: cp -- /var/tmp/pveupload-2187d6913fee42f74a7b92145760394b /var/lib/vz/template/iso/ubuntu-22.04.5-live-server-amd64.iso
finished file import successfully
TASK OK

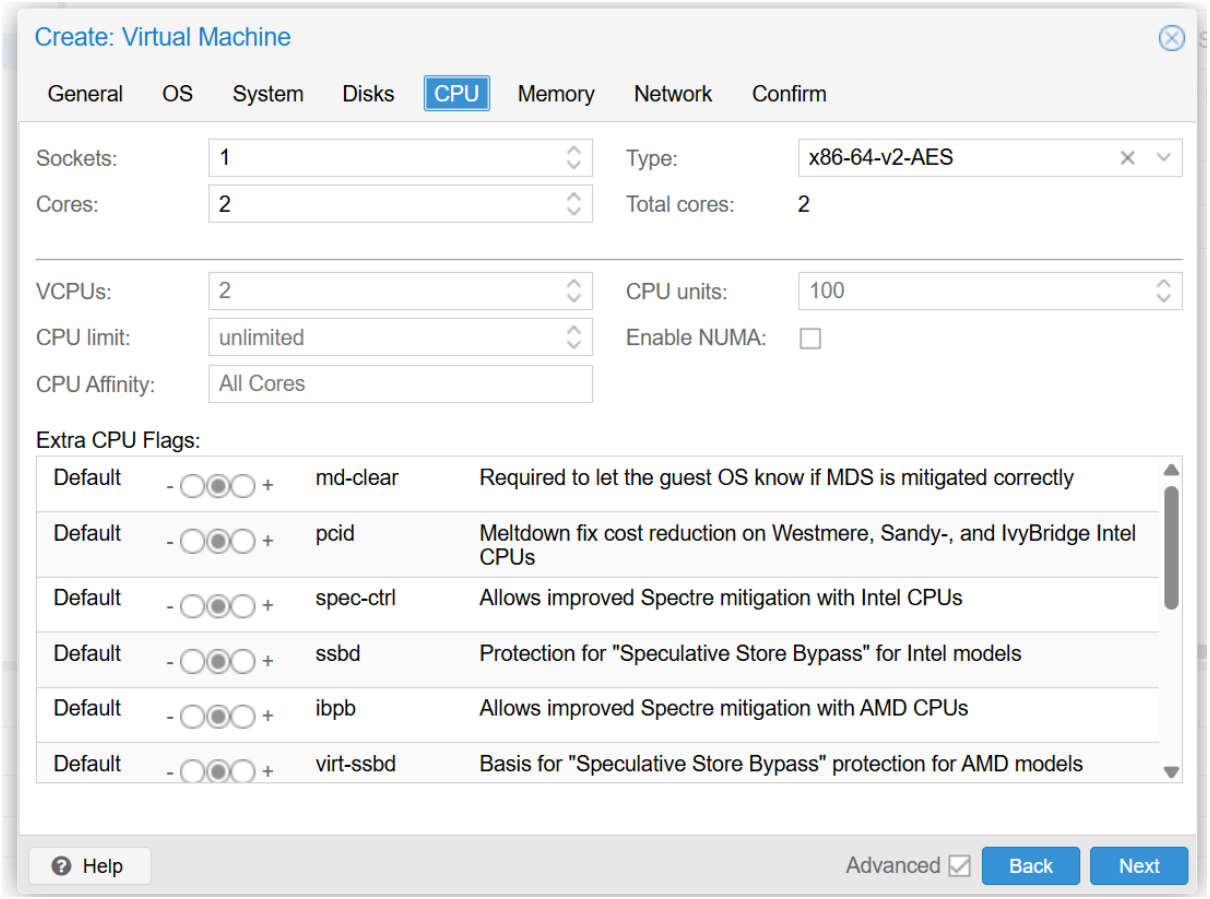

Create: Virtual Machine
General
OS
System
Disks
CPU
Memory
Network
Confirm
Node:
pve
Resource Pool:
VM ID:
100
Name:
Ubuntu-server-9
Start at boot:
Start/Shutdown order:
any
Startup delay:
default
Shutdown timeout:
default
Tags
No Tags
Help
Advanced
Back
Next

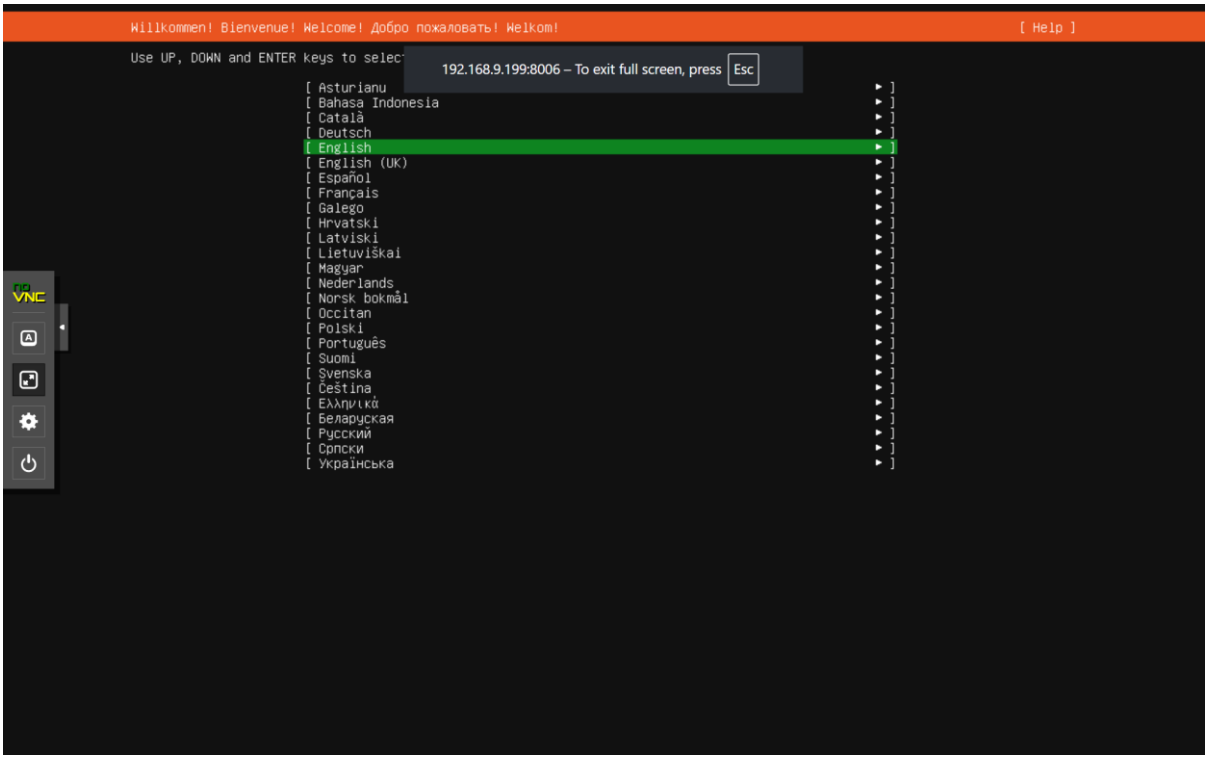

Create: Virtual Machine
General
OS
System
Disks
CPU
Memory
Network
Confirm
Use CD/DVD disc image file (iso)
Storage:
local
ISO image:
ubuntu-22.04.5-live-se
Use physical CD/DVD Drive
Do not use any media
Guest OS:
Type:
Linux
Version:
6.x - 2.6 Kernel
Advanced
Back
Next

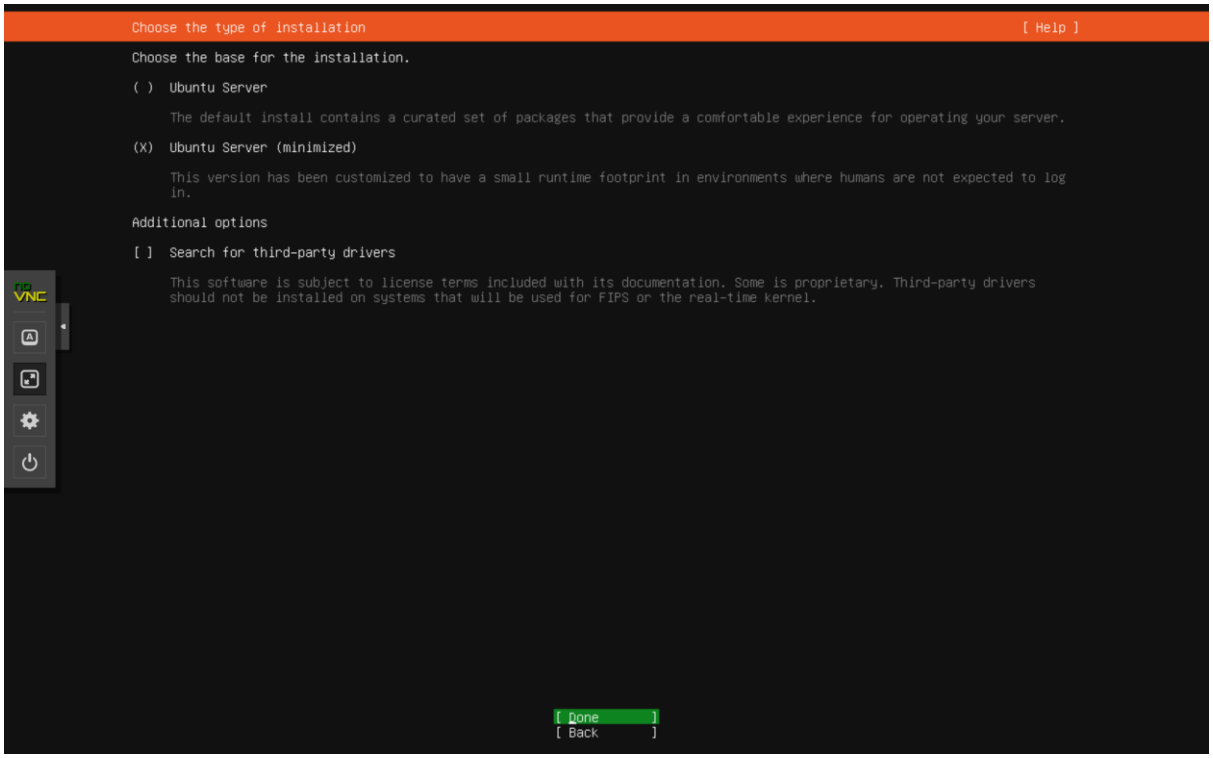

Create: Virtual Machine
General
OS
System
Disks
CPU
Memory
Network
Confirm
Graphic card:
Default
Machine:
Default (i440fx)
Firmware
BIOS:
Default (SeaBIOS)
SCSI Controller:
VirtIO SCSI single
Qemu Agent:
Add TPM:
Help
Advanced
Back
Next

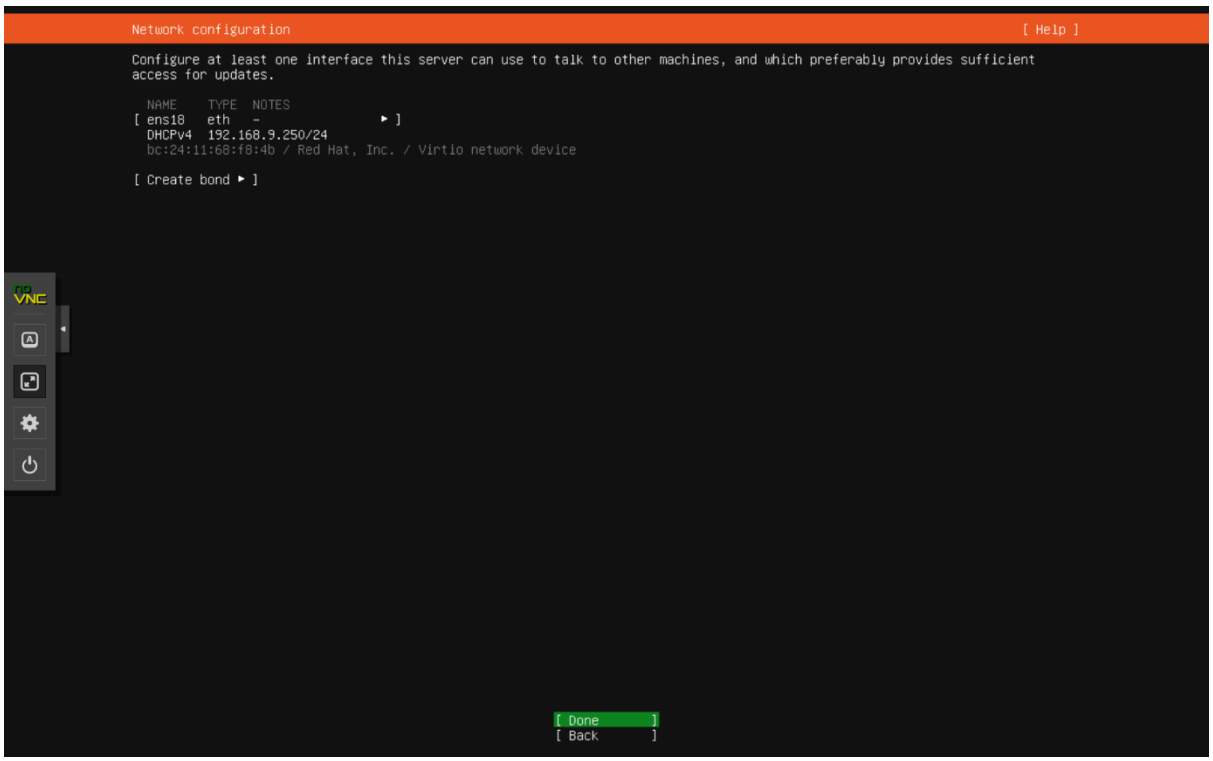

Create: Virtual Machine
General
OS
System
Disks
CPU
Memory
Network
Confirm
Sockets:
1
Type:
host
Cores:
2
Total cores:
2
VCPUs:
2
CPU units:
100
CPU limit:
unlimited
Enable NUMA:
CPU Affinity:
All Cores
Extra CPU Flags:
Default
md-clear
Required to let the guest OS know if MDS is mitigated correctly
Default
pcid
Meltdown fix cost reduction on Westmere, Sandy-, and IvyBridge Intel CPUs
Default
spec-ctrl
Allows improved Spectre mitigation with Intel CPUs
Default
ssbd
Protection for "Speculative Store Bypass" for Intel models
Default
ibpb
Allows improved Spectre mitigation with AMD CPUs
Default
virt-ssbd
Basis for "Speculative Store Bypass" protection for AMD models
Help
Advanced
Back
Next

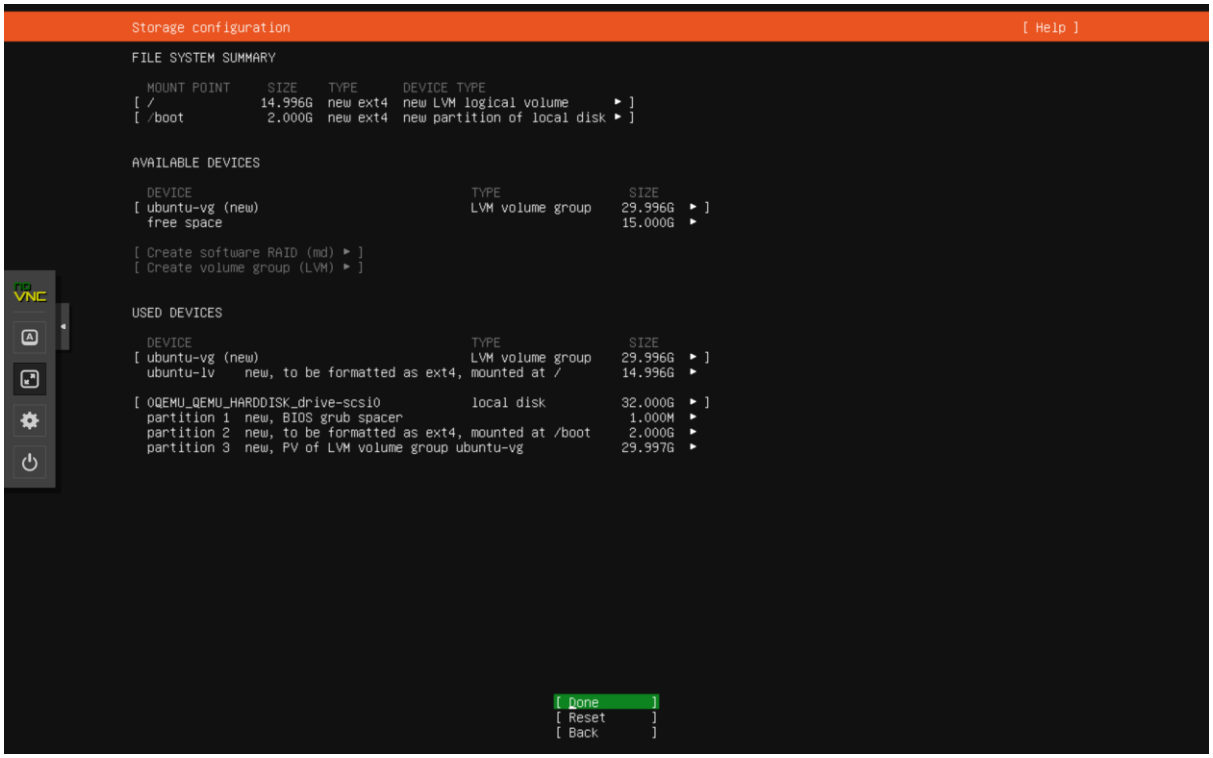

Create: Virtual Machine
General
OS
System
Disks
CPU
Memory
Network
Confirm
Memory (MiB):
2048
Minimum memory (MiB):
2048
Shares:
Default (1000)
Ballooning Device:
Help
Advanced
Back
Next

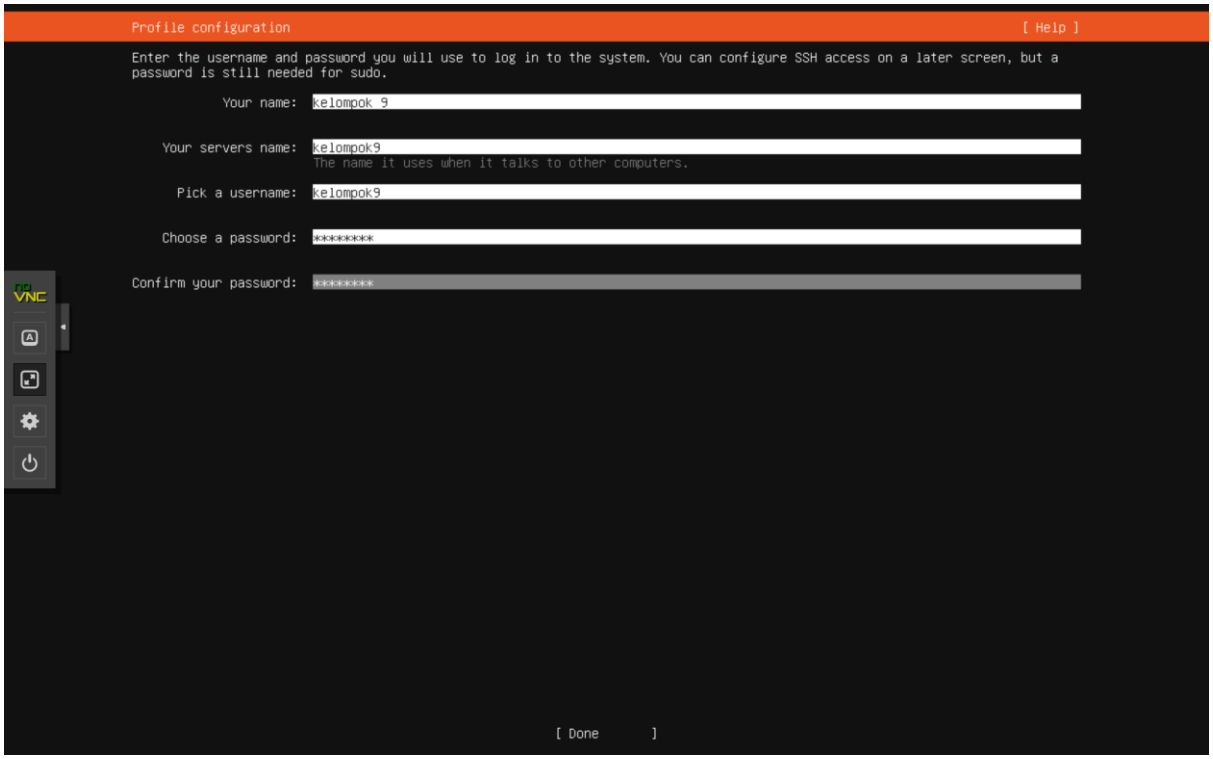

Create: Virtual Machine
General
OS
System
Disks
CPU
Memory
Network
Confirm
Sockets:
1
Type:
x86-64-v2-AES
Cores:
2
Total cores:
2
VCPUs:
2
CPU units:
100
CPU limit:
unlimited
Enable NUMA:
CPU Affinity:
All Cores
Extra CPU Flags:
Default
md-clear
Required to let the guest OS know if MDS is mitigated correctly
Default
pcid
Meltdown fix cost reduction on Westmere, Sandy-, and IvyBridge Intel CPUs
Default
spec-ctrl
Allows improved Spectre mitigation with Intel CPUs
Default
ssbd
Protection for "Speculative Store Bypass" for Intel models
Default
ibpb
Allows improved Spectre mitigation with AMD CPUs
Default
virt-ssbd
Basis for "Speculative Store Bypass" protection for AMD models
Help
Advanced
Back
Next

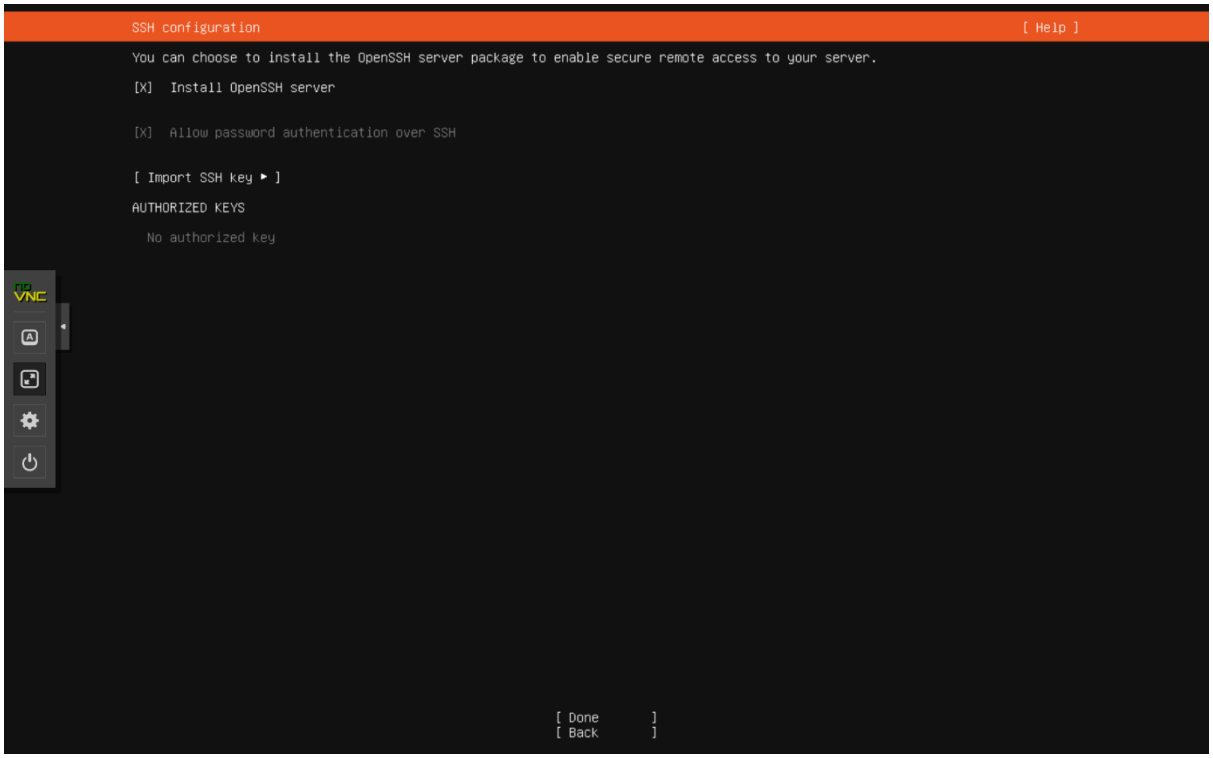

Willkommen! Bienvenue! Welcome! Добро пожаловать! Welkom!
[Help]
Use UP, DOWN and ENTER keys to selec
192.168.9.199:8006 – To exit full screen, press Esc
[Asturianu]
[Bahasa Indonesia]
[Català]
[Deutsch]
[English]
[English (UK)]
[Español]
[Français]
[Galego]
[Hrvatski]
[Latviski]
[Lietuviškai]
[Magyar]
[Nederlands]
[Norsk bokmål]
[Occitan]
[Polski]
[Português]
[Suomi]
[Svenska]
[Čeština]
[Ελληνικά]
[Беларуская]
[Русский]
[Српски]
[Українська]

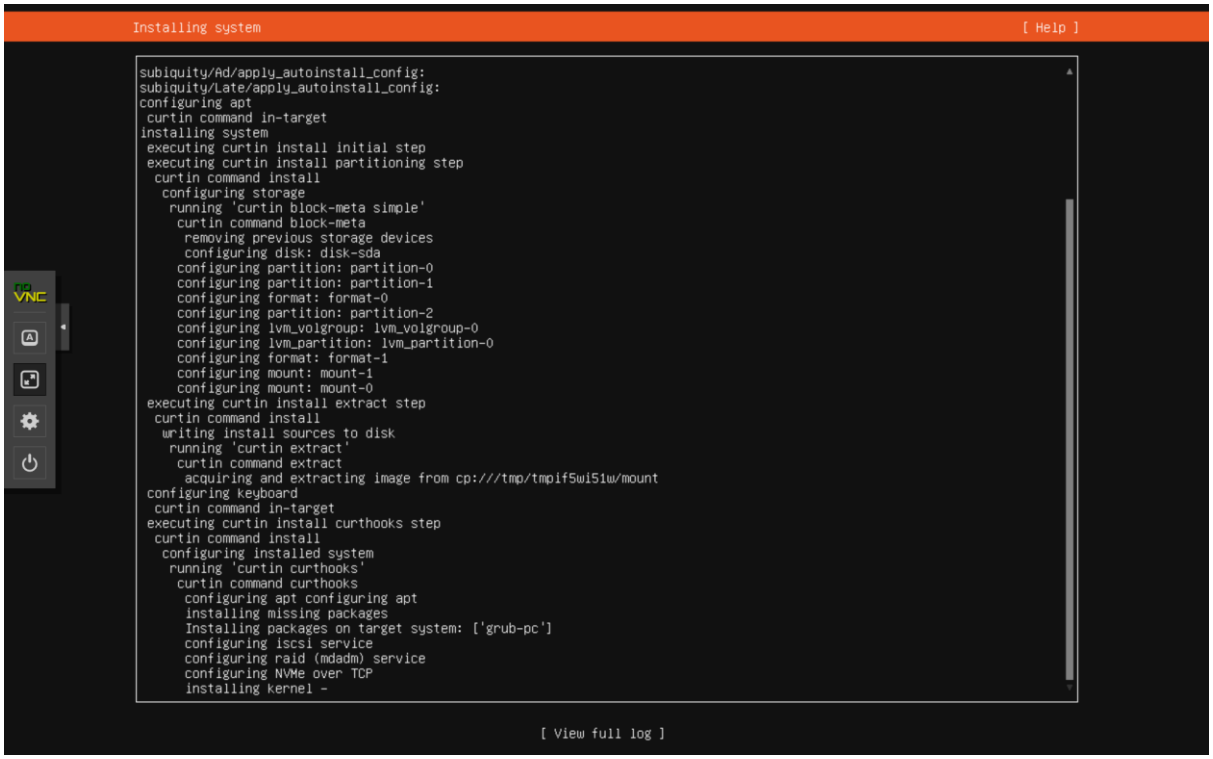

Choose the type of installation
[Help]
Choose the base for the installation.
( ) Ubuntu Server
The default install contains a curated set of packages that provide a comfortable experience for operating your server.
(X) Ubuntu Server (minimized)
This version has been customized to have a small runtime footprint in environments where humans are not expected to log in.
Additional options
[ ] Search for third-party drivers
This software is subject to license terms included with its documentation. Some is proprietary. Third-party drivers should not be installed on systems that will be used for FIPS or the real-time kernel.
[Done]
[Back]

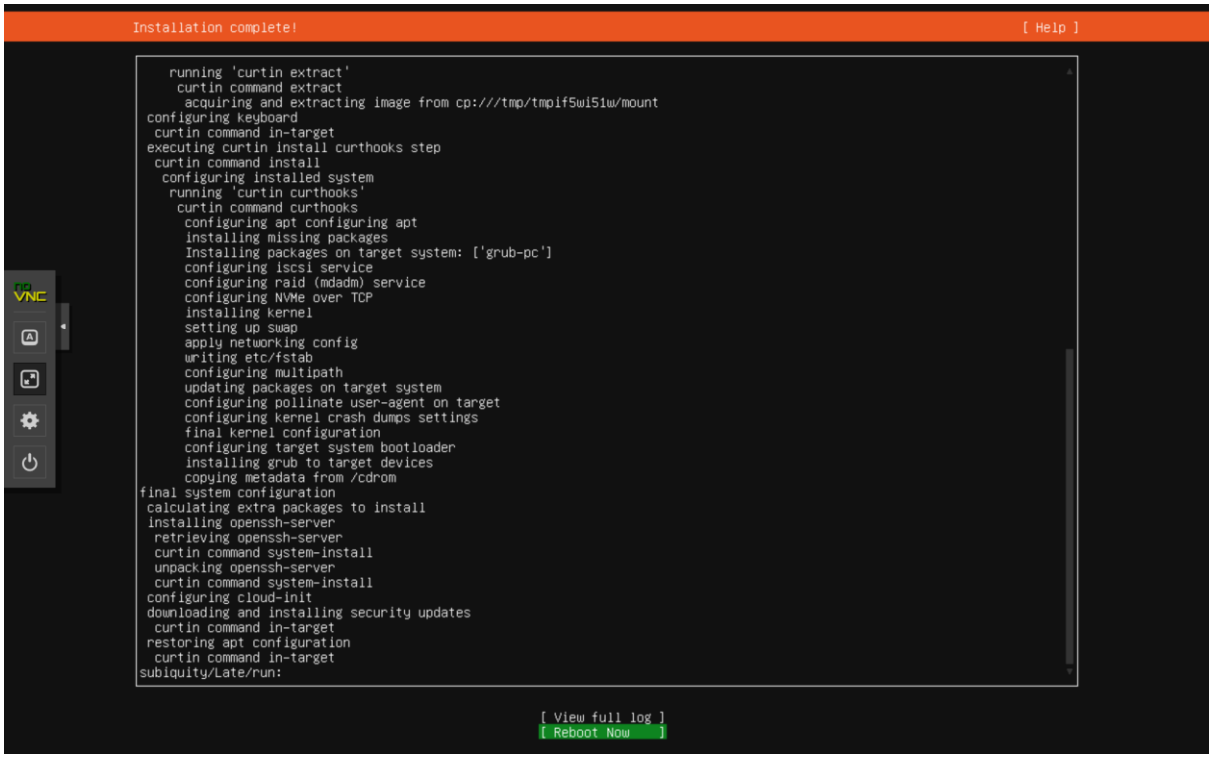

Network configuration
[Help]
Configure at least one interface this server can use to talk to other machines, and which preferably provides sufficient access for updates.
NAME TYPE NOTES
[ens18 eth - ▸]
DHCPv4 192.168.9.250/24
bc:24:11:68:f8:4b / Red Hat, Inc. / Virtio network device
[Create bond ▸]
[Done]
[Back]

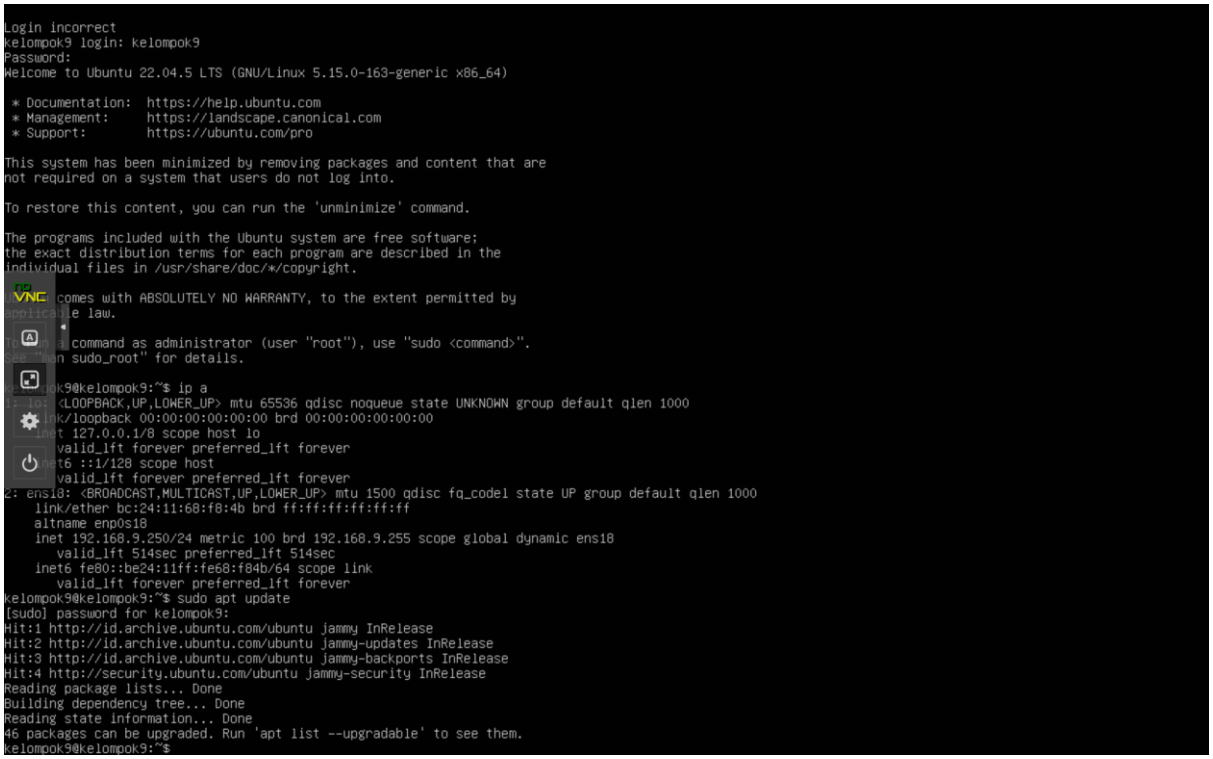

Storage configuration
[Help]
FILE SYSTEM SUMMARY
MOUNT POINT SIZE TYPE DEVICE TYPE
[/ 14.996G new ext4 new LVM logical volume ▸]
[/boot 2.000G new ext4 new partition of local disk ▸]
AVAILABLE DEVICES
DEVICE TYPE SIZE
[ubuntu-vg (new) LVM volume group 29.996G ▸]
free space 15.000G ▸
[Create software RAID (md) ▸]
[Create volume group (LVM) ▸]
USED DEVICES
DEVICE TYPE SIZE
[ubuntu-vg (new) LVM volume group 29.996G ▸]
ubuntu-lv new, to be formatted as ext4, mounted at / 14.996G ▸
[QEMU_QEMU_HARDDISK_drive-scsi0 local disk 32.000G ▸]
partition 1 new, BIOS grub spacer 1.000M ▸
partition 2 new, to be formatted as ext4, mounted at /boot 2.000G ▸
partition 3 new, PV of LVM volume group ubuntu-vg 29.997G ▸
[Done]
[Reset]
[Back]

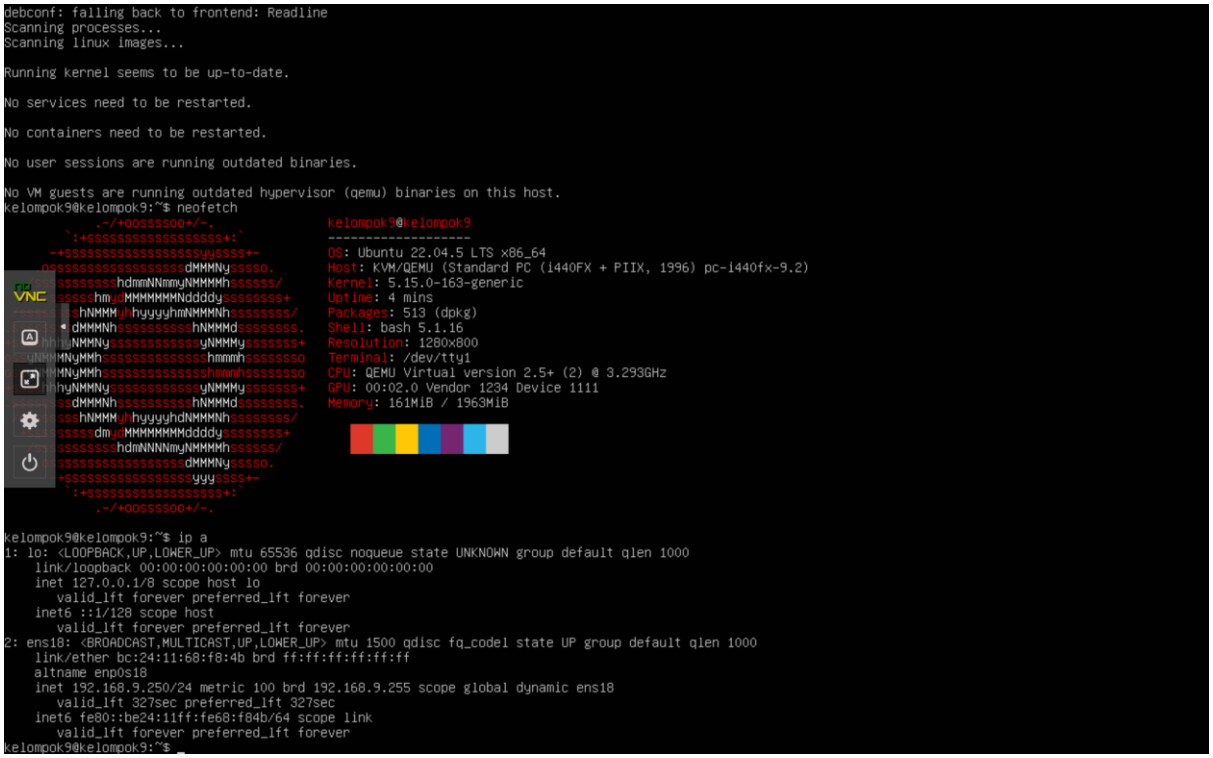

Profile configuration
[Help]
Enter the username and password you will use to log in to the system. You can configure SSH access on a later screen, but a password is still needed for sudo.
Your name: kelompok 9
Your servers name: kelompok9
The name it uses when it talks to other computers.
Pick a username: kelompok9
Choose a password: ********
Confirm your password: ********
[Done]

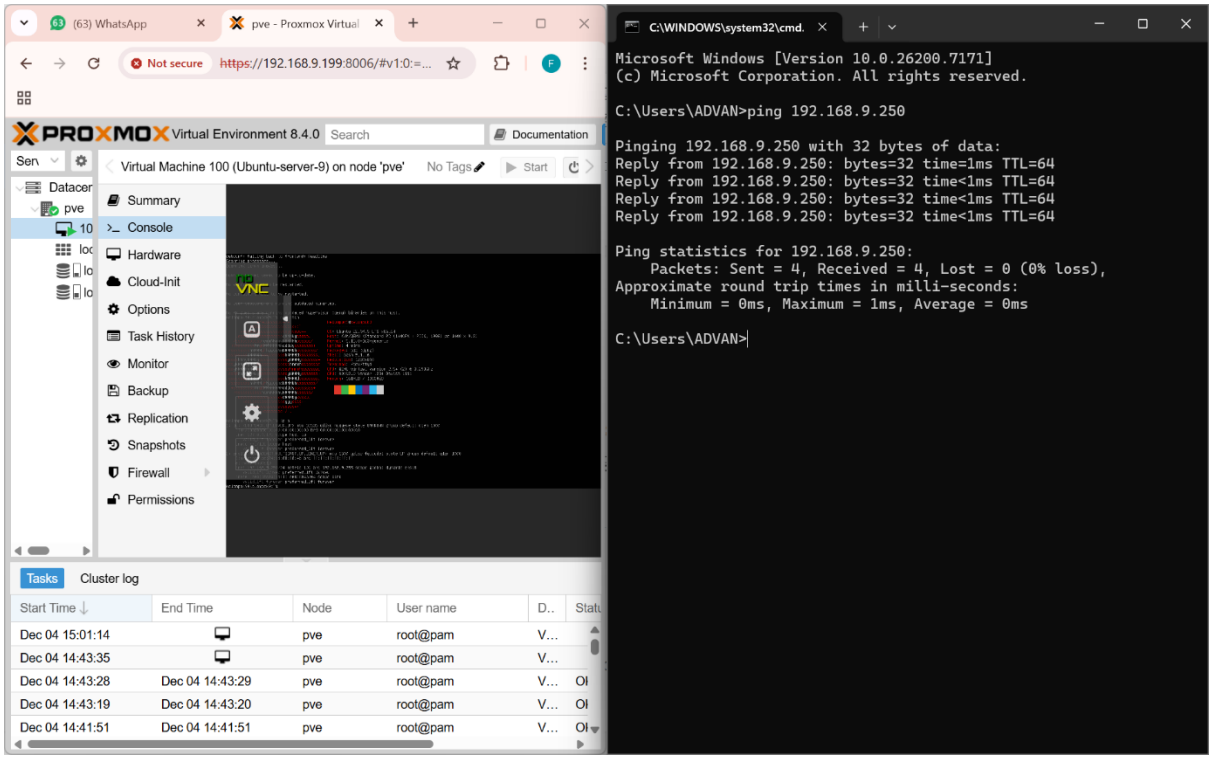

SSH configuration
[Help]
You can choose to install the OpenSSH server package to enable secure remote access to your server.
[X] Install OpenSSH server
[X] Allow password authentication over SSH
[Import SSH key ▸]
AUTHORIZED KEYS
No authorized key
[Done]
[Back]

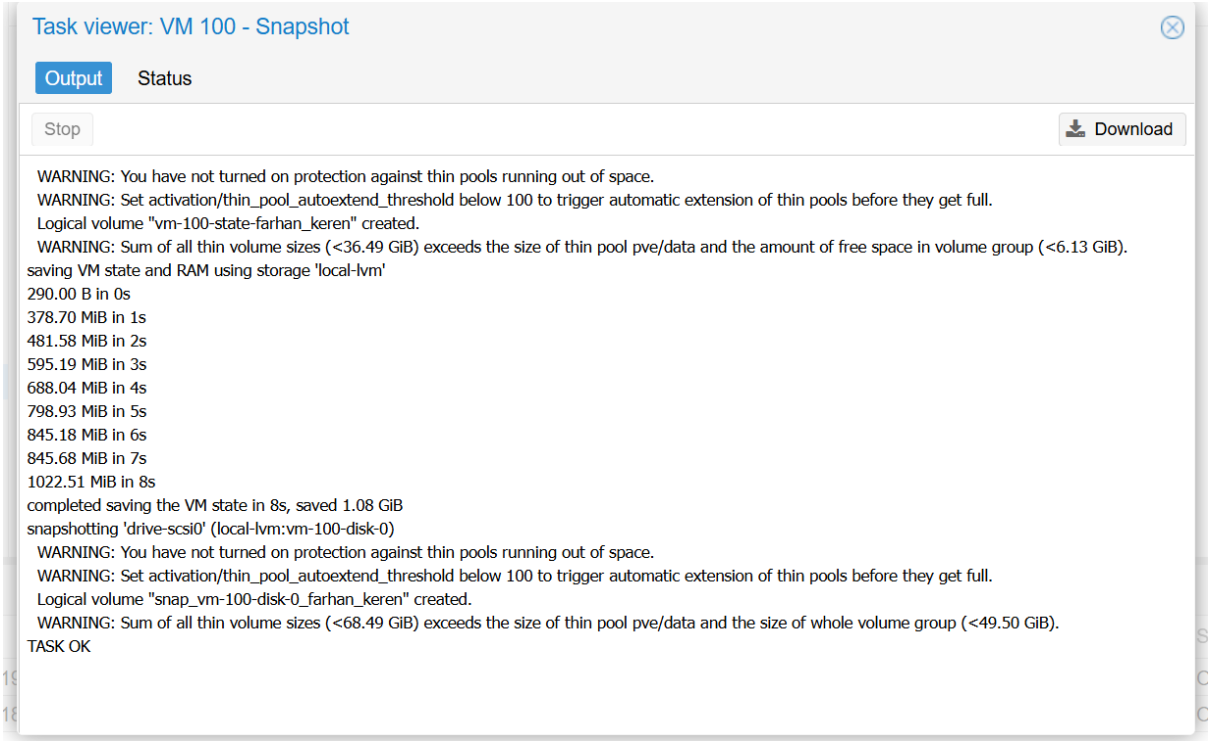

Installing system
[Help]
subiquity/Ad/apply_autoinstall_config:
subiquity/Late/apply_autoinstall_config:
configuring apt
curtin command in-target
installing system
executing curtin install initial step
executing curtin install partitioning step
curtin command install
configuring storage
running 'curtin 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/tmpif5wi51w/mount
configuring keyboard
curtin command in-target
executing curtin install curthooks step
curtin command install
configuring installed system
running 'curtin curthooks'
curtin command curthooks
configuring apt configuring apt
installing missing packages
Installing packages on target system: ['grub-pc']
configuring iscsi service
configuring raid (mdadm) service
configuring NVMe over TCP
installing kernel -
[View full log]

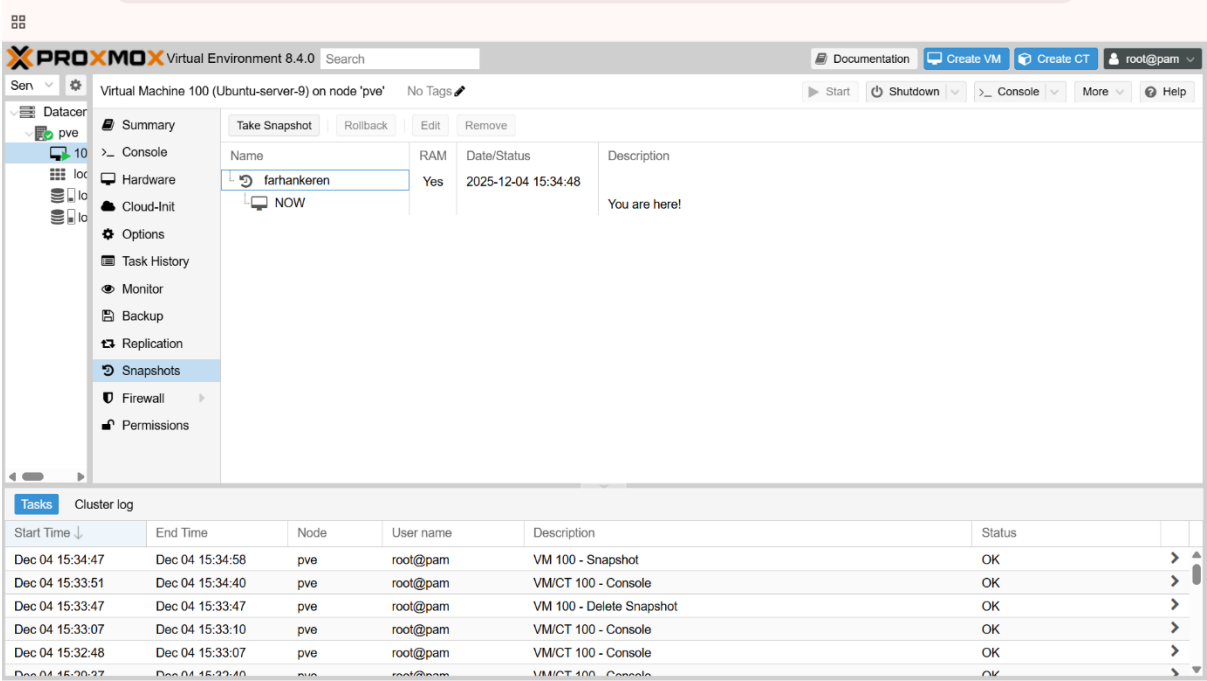

Installation complete!
[Help]
running 'curtin extract'
curtin command extract
acquiring and extracting image from cp:///tmp/tmpif5wi51w/mount
configuring keyboard
curtin command in-target
executing curtin install curthooks step
curtin command install
configuring installed system
running 'curtin curthooks'
curtin command curthooks
configuring apt configuring apt
installing missing packages
Installing packages on target system: ['grub-pc']
configuring iscsi service
configuring raid (mdadm) service
configuring NVMe over TCP
installing kernel
setting up swap
apply networking config
writing etc/fstab
configuring multipath
updating packages on target system
configuring pollinate user-agent on target
configuring kernel crash dumps settings
final kernel configuration
configuring target system bootloader
installing grub to target devices
copying metadata from /cdrom
final system configuration
calculating extra packages to install
installing openssh-server
retrieving openssh-server
curtin command system-install
unpacking openssh-server
curtin command system-install
configuring cloud-init
downloading and installing security updates
curtin command in-target
restoring apt configuration
curtin command in-target
subiquity/Late/run:
[View full log]
[Reboot Now]


Login incorrect
kelompok9 login: kelompok9
Password:
Welcome to Ubuntu 22.04.5 LTS (GNU/Linux 5.15.0-163-generic x86_64)
* Documentation: https://help.ubuntu.com
* Management: https://landscape.canonical.com
* Support: https://ubuntu.com/pro
This system has been minimized by removing packages and content that are
not required on a system that users do not log into.
To restore this content, you can run the 'unminimize' command.
The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.
comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
e law.
command as administrator (user "root"), use "sudo <command>".
sudo_root" for details.
k9@kelompok9:~$ ip a
<LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
k/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
et6 ::1/128 scope host
valid_lft forever preferred_lft forever
2: ens18: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
link/ether bc:24:11:68:f8:4b brd ff:ff:ff:ff:ff:ff
altname enp0s18
inet 192.168.9.250/24 metric 100 brd 192.168.9.255 scope global dynamic ens18
valid_lft 514sec preferred_lft 514sec
inet6 fe80::be24:11ff:fe68:f84b/64 scope link
valid_lft forever preferred_lft forever
kelompok9@kelompok9:~$ sudo apt update
[sudo] password for kelompok9:
Hit:1 http://id.archive.ubuntu.com/ubuntu jammy InRelease
Hit:2 http://id.archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:3 http://id.archive.ubuntu.com/ubuntu jammy-backports InRelease
Hit:4 http://security.ubuntu.com/ubuntu jammy-security InRelease
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
46 packages can be upgraded. Run 'apt list --upgradable' to see them.
kelompok9@kelompok9:~$

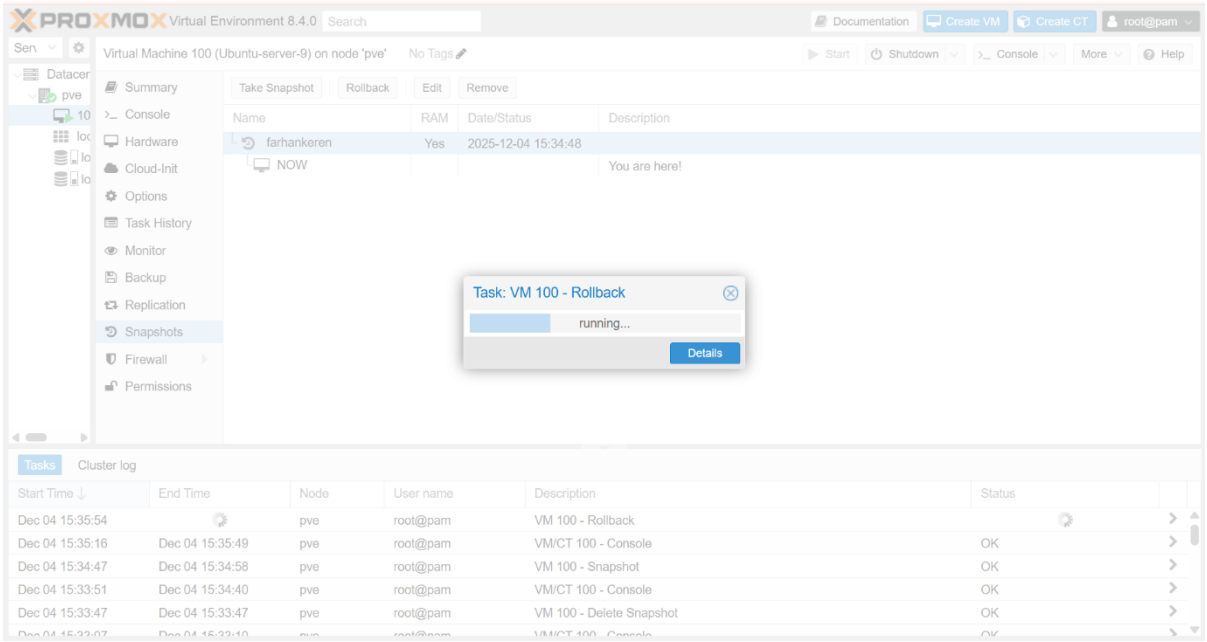

debconf: falling back to frontend: Readline
Scanning processes...
Scanning linux images...
Running kernel seems to be up-to-date.
No services need to be restarted.
No containers need to be restarted.
No user sessions are running outdated binaries.
No VM guests are running outdated hypervisor (qemu) binaries on this host.
kelompok9@kelompok9:~$ neofetch
kelompok9@kelompok9
OS: Ubuntu 22.04.5 LTS x86_64
Host: KVM/QEMU (Standard PC (i440FX + PIIX, 1996) pc-i440fx-9.2)
Kernel: 5.15.0-163-generic
Uptime: 4 mins
Packages: 513 (dpkg)
Shell: bash 5.1.16
Resolution: 1280x800
Terminal: /dev/tty1
CPU: QEMU Virtual version 2.5+ (2) @ 3.293GHz
GPU: 00:02.0 Vendor 1234 Device 1111
Memory: 161MiB / 1963MiB
kelompok9@kelompok9:~$ ip a
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default 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: ens18: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
link/ether bc:24:11:68:f8:4b brd ff:ff:ff:ff:ff:ff
altname enp0s18
inet 192.168.9.250/24 metric 100 brd 192.168.9.255 scope global dynamic ens18
valid_lft 327sec preferred_lft 327sec
inet6 fe80::be24:11ff:fe68:f84b/64 scope link
valid_lft forever preferred_lft forever
kelompok9@kelompok9:~$


(63) WhatsApp
pve - Proxmox Virtual
Not secure
https://192.168.9.199:8006/#v1:0:=...
PROXMOX Virtual Environment 8.4.0
Search
Documentation
Virtual Machine 100 (Ubuntu-server-9) on node 'pve'
No Tags
Start
Summary
Console
Hardware
Cloud-Init
Options
Task History
Monitor
Backup
Replication
Snapshots
Firewall
Permissions
Tasks
Cluster log
Start Time
End Time
Node
User name
Dec 04 15:01:14 pve root@pam
Dec 04 14:43:35 pve root@pam
Dec 04 14:43:28 Dec 04 14:43:29 pve root@pam
Dec 04 14:43:19 Dec 04 14:43:20 pve root@pam
Dec 04 14:41:51 Dec 04 14:41:51 pve root@pam
C:\WINDOWS\system32\cmd.
Microsoft Windows [Version 10.0.26200.7171]
(c) Microsoft Corporation. All rights reserved.
C:\Users\ADVAN>ping 192.168.9.250
Pinging 192.168.9.250 with 32 bytes of data:
Reply from 192.168.9.250: bytes=32 time=1ms TTL=64
Reply from 192.168.9.250: bytes=32 time<1ms TTL=64
Reply from 192.168.9.250: bytes=32 time<1ms TTL=64
Reply from 192.168.9.250: bytes=32 time<1ms TTL=64
Ping statistics for 192.168.9.250:
Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 0ms, Maximum = 1ms, Average = 0ms
C:\Users\ADVAN>

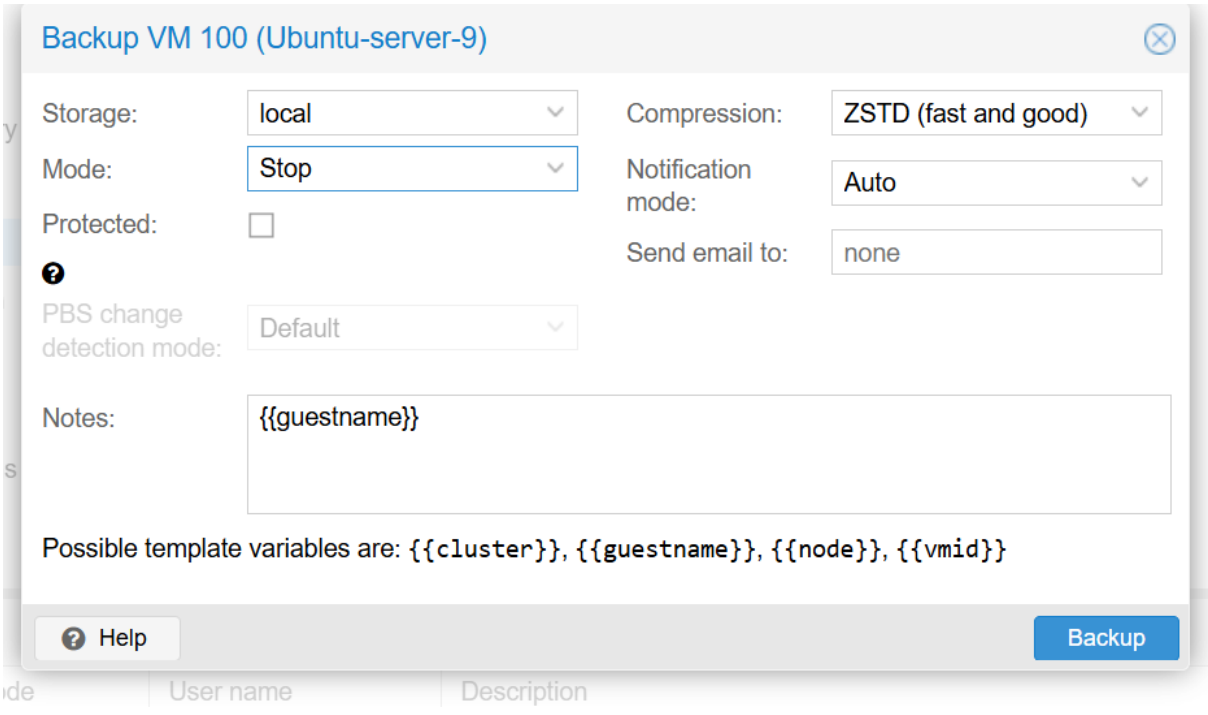

Task viewer: VM 100 - Snapshot
Output
Status
Stop
Download
WARNING: You have not turned on protection against thin pools running out of space.
WARNING: Set activation/thin_pool_autoextend_threshold below 100 to trigger automatic extension of thin pools before they get full.
Logical volume "vm-100-state-farhan_keren" created.
WARNING: Sum of all thin volume sizes (<36.49 GiB) exceeds the size of thin pool pve/data and the amount of free space in volume group (<6.13 GiB).
saving VM state and RAM using storage 'local-lvm'
290.00 B in 0s
378.70 MiB in 1s
481.58 MiB in 2s
595.19 MiB in 3s
688.04 MiB in 4s
798.93 MiB in 5s
845.18 MiB in 6s
845.68 MiB in 7s
1022.51 MiB in 8s
completed saving the VM state in 8s, saved 1.08 GiB
snapshotting 'drive-scsi0' (local-lvm:vm-100-disk-0)
WARNING: You have not turned on protection against thin pools running out of space.
WARNING: Set activation/thin_pool_autoextend_threshold below 100 to trigger automatic extension of thin pools before they get full.
Logical volume "snap_vm-100-disk-0_farhan_keren" created.
WARNING: Sum of all thin volume sizes (<68.49 GiB) exceeds the size of thin pool pve/data and the size of whole volume group (<49.50 GiB).
TASK OK

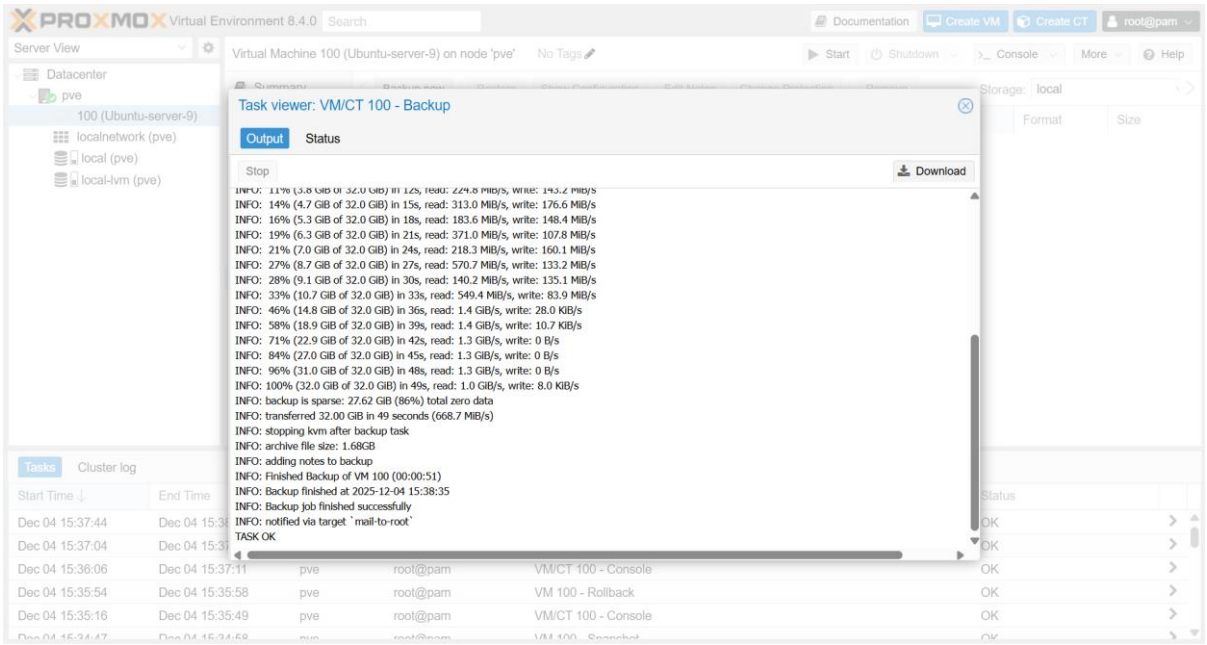

PROXMOX Virtual Environment 8.4.0
Search
Documentation
Create VM
Create CT
root@pam
Virtual Machine 100 (Ubuntu-server-9) on node 'pve'
No Tags
Start
Shutdown
Console
More
Help
Summary
Console
Hardware
Cloud-Init
Options
Task History
Monitor
Backup
Replication
Snapshots
Firewall
Permissions
Take Snapshot
Rollback
Edit
Remove
Name
RAM
Date/Status
Description
farhankeren
Yes
2025-12-04 15:34:48
NOW
You are here!
Tasks
Cluster log
Start Time
End Time
Node
User name
Description
Status
Dec 04 15:34:47 Dec 04 15:34:58 pve root@pam VM 100 - Snapshot OK
Dec 04 15:33:51 Dec 04 15:34:40 pve root@pam VM/CT 100 - Console OK
Dec 04 15:33:47 Dec 04 15:33:47 pve root@pam VM 100 - Delete Snapshot OK
Dec 04 15:33:07 Dec 04 15:33:10 pve root@pam VM/CT 100 - Console OK
Dec 04 15:32:48 Dec 04 15:33:07 pve root@pam VM/CT 100 - Console OK

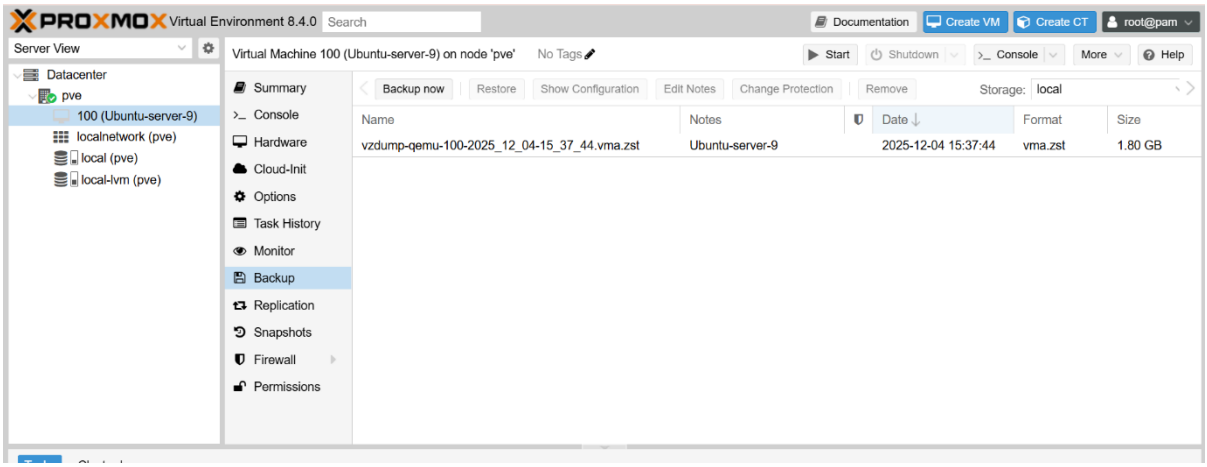

kelompok9@kelompok9:~$ echo "farhankeren" > fakta.txt
kelompok9@kelompok9:~$ rm fakta.txt
kelompok9@kelompok9:~$
VNC


PROXMOX Virtual Environment 8.4.0
Search
Documentation
Create VM
Create CT
root@pam
Virtual Machine 100 (Ubuntu-server-9) on node 'pve'
No Tags
Start
Shutdown
Console
More
Help
Summary
Console
Hardware
Cloud-Init
Options
Task History
Monitor
Backup
Replication
Snapshots
Firewall
Permissions
Take Snapshot
Rollback
Edit
Remove
Name
RAM
Date/Status
Description
farhankeren
Yes
2025-12-04 15:34:48
NOW
You are here!
Task: VM 100 - Rollback
running...
Details
Tasks
Cluster log
Start Time
End Time
Node
User name
Description
Status
Dec 04 15:35:54
pve
root@pam
VM 100 - Rollback
Dec 04 15:35:16
Dec 04 15:35:49
pve
root@pam
VM/CT 100 - Console
OK
Dec 04 15:34:47
Dec 04 15:34:58
pve
root@pam
VM 100 - Snapshot
OK
Dec 04 15:33:51
Dec 04 15:34:40
pve
root@pam
VM/CT 100 - Console
OK
Dec 04 15:33:47
Dec 04 15:33:47
pve
root@pam
VM 100 - Delete Snapshot
OK


kelompok9@kelompok9:~$ ls
fakta.txt
kelompok9@kelompok9:~$
Ctrl
Alt
Esc


Backup VM 100 (Ubuntu-server-9)
Storage:
local
Compression:
ZSTD (fast and good)
Mode:
Stop
Notification mode:
Auto
Protected:
Send email to:
none
PBS change detection mode:
Default
Notes:
{{guestname}}
Possible template variables are: {{cluster}}, {{guestname}}, {{node}}, {{vmid}}
Help
Backup
User name
Description


PROXMOX Virtual Environment 8.4.0
Task viewer: VM/CT 100 - Backup
Output
Status
Stop
Download
INFO: 14% (4.7 GiB of 32.0 GiB) in 15s, read: 313.0 MiB/s, write: 176.6 MiB/s
INFO: 16% (5.3 GiB of 32.0 GiB) in 18s, read: 183.6 MiB/s, write: 148.4 MiB/s
INFO: 19% (6.3 GiB of 32.0 GiB) in 21s, read: 371.0 MiB/s, write: 107.8 MiB/s
INFO: 21% (7.0 GiB of 32.0 GiB) in 24s, read: 218.3 MiB/s, write: 160.1 MiB/s
INFO: 27% (8.7 GiB of 32.0 GiB) in 27s, read: 570.7 MiB/s, write: 133.2 MiB/s
INFO: 28% (9.1 GiB of 32.0 GiB) in 30s, read: 140.2 MiB/s, write: 135.1 MiB/s
INFO: 33% (10.7 GiB of 32.0 GiB) in 33s, read: 549.4 MiB/s, write: 83.9 MiB/s
INFO: 46% (14.8 GiB of 32.0 GiB) in 36s, read: 1.4 GiB/s, write: 28.0 KiB/s
INFO: 58% (18.9 GiB of 32.0 GiB) in 39s, read: 1.4 GiB/s, write: 10.7 KiB/s
INFO: 71% (22.9 GiB of 32.0 GiB) in 42s, read: 1.3 GiB/s, write: 0 B/s
INFO: 84% (27.0 GiB of 32.0 GiB) in 45s, read: 1.3 GiB/s, write: 0 B/s
INFO: 96% (31.0 GiB of 32.0 GiB) in 48s, read: 1.3 GiB/s, write: 0 B/s
INFO: 100% (32.0 GiB of 32.0 GiB) in 49s, read: 1.0 GiB/s, write: 8.0 KiB/s
INFO: backup is sparse: 27.62 GiB (86%) total zero data
INFO: transferred 32.00 GiB in 49 seconds (668.7 MiB/s)
INFO: stopping kvm after backup task
INFO: archive file size: 1.68GB
INFO: adding notes to backup
INFO: Finished Backup of VM 100 (00:00:51)
INFO: Backup finished at 2025-12-04 15:38:35
INFO: Backup job finished successfully
INFO: notified via target `mail-to-root`
TASK OK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Storage: local
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Date
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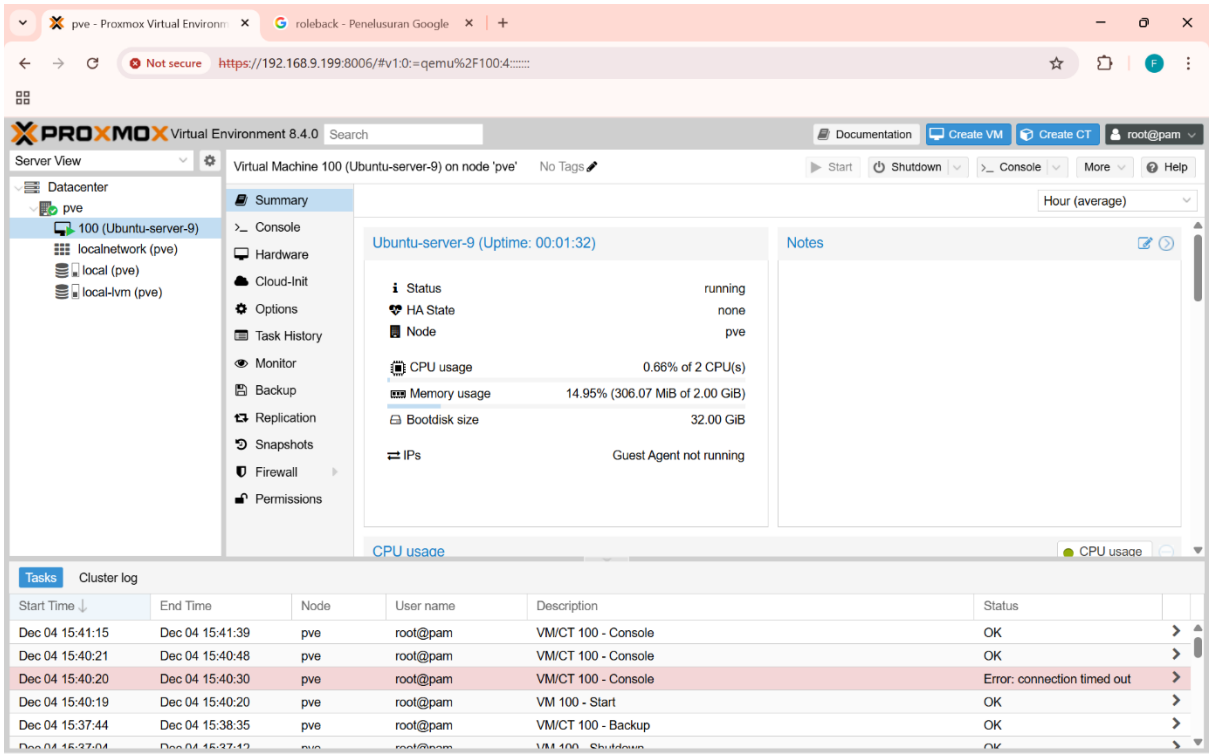
Size
vzdump-qemu-100-2025_12_04-15_37_44.vma.zst
Ubuntu-server-9
2025-12-04 15:37:44
vma.zst
1.80 GB


pve - Proxmox Virtual Environm
roleback - Penelusuran Google
Not secure
https://192.168.9.199:8006/#v1:0:=qemu%2F100:4::::::
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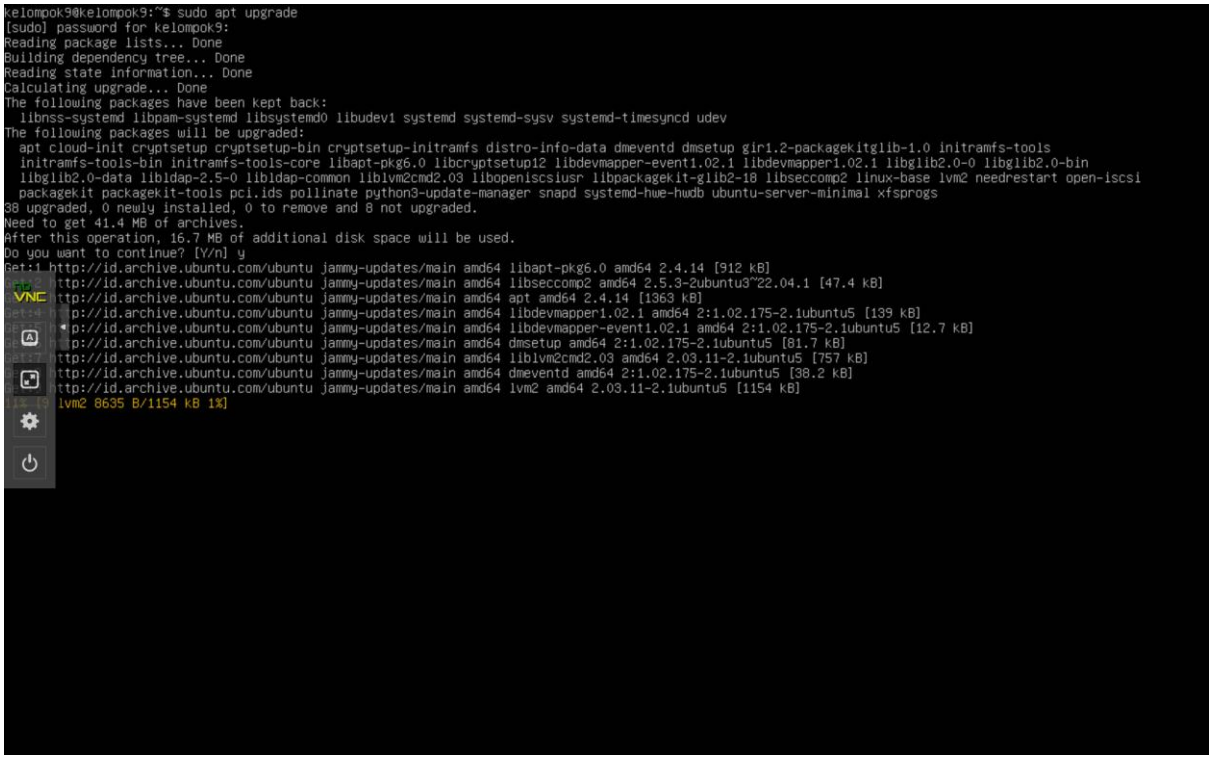
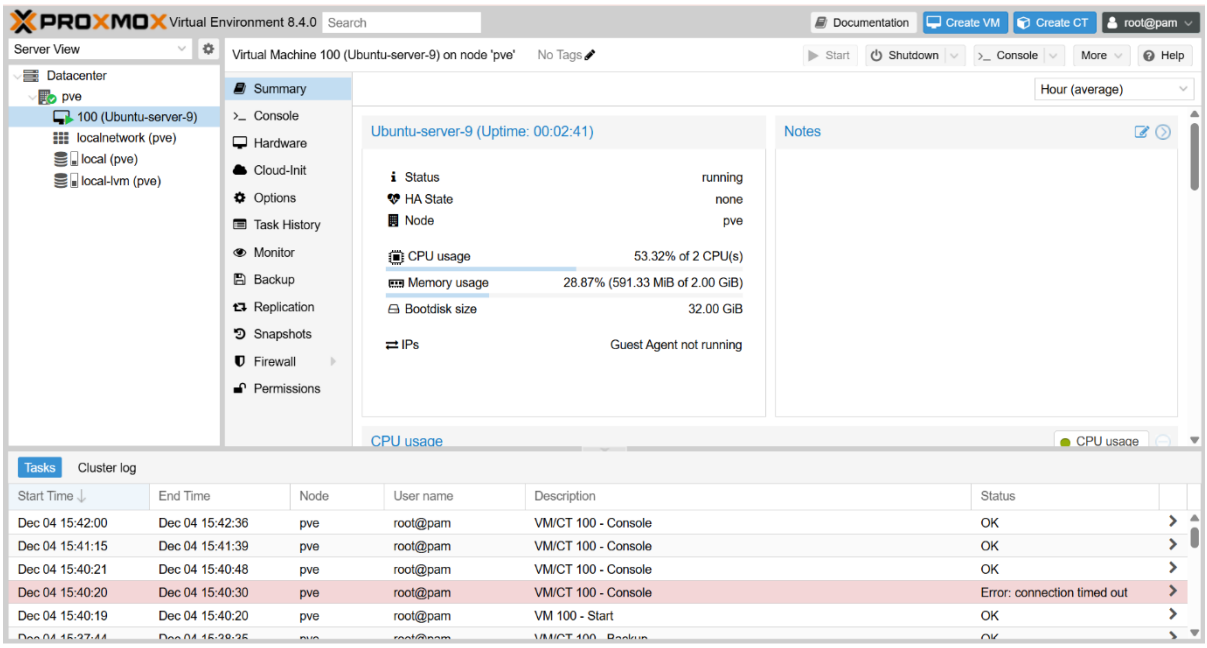
Ubuntu-server-9 (Uptime: 00:01:32)
Notes
Status running
HA State none
Node pve
CPU usage 0.66% of 2 CPU(s)
Memory usage 14.95% (306.07 MiB of 2.00 GiB)
Bootdisk size 32.00 GiB
IPs Guest Agent not running
CPU usage
Tasks
Cluster log
Start Time
End Time
Node
User name
Description
Status
Dec 04 15:41:15 Dec 04 15:41:39 pve root@pam VM/CT 100 - Console OK
Dec 04 15:40:21 Dec 04 15:40:48 pve root@pam VM/CT 100 - Console OK
Dec 04 15:40:20 Dec 04 15:40:30 pve root@pam VM/CT 100 - Console Error: connection timed out
Dec 04 15:40:19 Dec 04 15:40:20 pve root@pam VM 100 - Start OK
Dec 04 15:37:44 Dec 04 15:38:35 pve root@pam VM/CT 100 - Backup OK


kelompok9@kelompok9:~$ sudo apt upgrade
[sudo] password for kelompok9:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
Calculating upgrade... Done
The following packages have been kept back:
libnss-systemd libpam-systemd libsystemd0 libudev1 systemd systemd-sysv systemd-timesyncd udev
The following packages will be upgraded:
apt cloud-init cryptsetup cryptsetup-bin cryptsetup-initramfs distro-info-data dmeventd dmsetup gir1.2-packagekitglib-1.0 initramfs-tools
initramfs-tools-bin initramfs-tools-core libapt-pkg6.0 libcryptsetup12 libdevmapper-event1.02.1 libdevmapper1.02.1 libglib2.0-0 libglib2.0-bin
libglib2.0-data libldap-2.5-0 libldap-common liblvm2cmd2.03 libopeniscsiusr libpackagekit-glib2-18 libseccomp2 linux-base lvm2 needrestart open-iscsi
packagekit packagekit-tools pci.ids pollinate python3-update-manager snapd systemd-hwe-hwdb ubuntu-server-minimal xfsprogs
38 upgraded, 0 newly installed, 0 to remove and 8 not upgraded.
Need to get 41.4 MB of archives.
After this operation, 16.7 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://id.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libapt-pkg6.0 amd64 2.4.14 [912 kB]
http://id.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libseccomp2 amd64 2.5.3-2ubuntu3~22.04.1 [47.4 kB]
http://id.archive.ubuntu.com/ubuntu jammy-updates/main amd64 apt amd64 2.4.14 [1363 kB]
http://id.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libdevmapper1.02.1 amd64 2:1.02.175-2.1ubuntu5 [139 kB]
http://id.archive.ubuntu.com/ubuntu jammy-updates/main amd64 libdevmapper-event1.02.1 amd64 2:1.02.175-2.1ubuntu5 [12.7 kB]
http://id.archive.ubuntu.com/ubuntu jammy-updates/main amd64 dmsetup amd64 2:1.02.175-2.1ubuntu5 [81.7 kB]
http://id.archive.ubuntu.com/ubuntu jammy-updates/main amd64 liblvm2cmd2.03 amd64 2.03.11-2.1ubuntu5 [757 kB]
http://id.archive.ubuntu.com/ubuntu jammy-updates/main amd64 dmeventd amd64 2:1.02.175-2.1ubuntu5 [38.2 kB]
http://id.archive.ubuntu.com/ubuntu jammy-updates/main amd64 lvm2 amd64 2.03.11-2.1ubuntu5 [1154 kB]
lvm2 8635 B/1154 kB 1%]
VNC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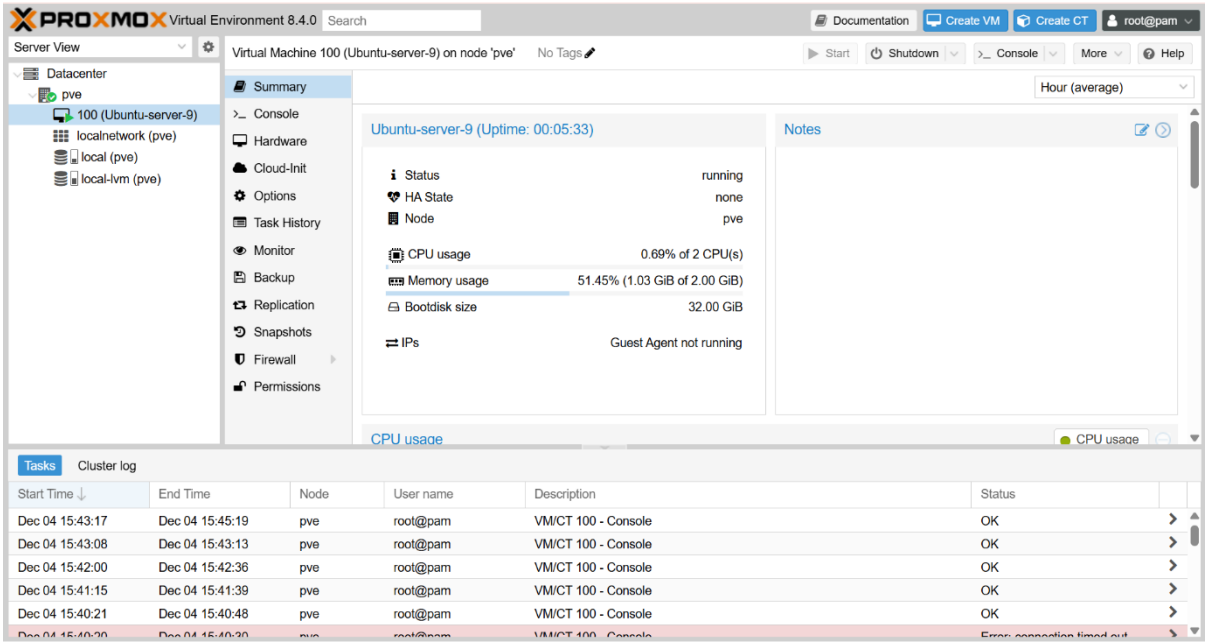
Permissions
Hour (average)
Ubuntu-server-9 (Uptime: 00:02:41)
Notes
Status running
HA State none
Node pve
CPU usage 53.32% of 2 CPU(s)
Memory usage 28.87% (591.33 MiB of 2.00 GiB)
Bootdisk size 32.00 GiB
IPs Guest Agent not running
CPU usage
Tasks
Cluster log
Start Time
End Time
Node
User name
Description
Status
Dec 04 15:42:00 Dec 04 15:42:36 pve root@pam VM/CT 100 - Console OK
Dec 04 15:41:15 Dec 04 15:41:39 pve root@pam VM/CT 100 - Console OK
Dec 04 15:40:21 Dec 04 15:40:48 pve root@pam VM/CT 100 - Console OK
Dec 04 15:40:20 Dec 04 15:40:30 pve root@pam VM/CT 100 - Console Error: connection timed out
Dec 04 15:40:19 Dec 04 15:40:20 pve root@pam VM 100 - Start OK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Hour (average)
Ubuntu-server-9 (Uptime: 00:05:33)
Notes
Status running
HA State none
Node pve
CPU usage 0.69% of 2 CPU(s)
Memory usage 51.45% (1.03 GiB of 2.00 GiB)
Bootdisk size 32.00 GiB
IPs Guest Agent not running
CPU usage
Tasks
Cluster log
Start Time
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Node
User name
Description
Status
Dec 04 15:43:17 Dec 04 15:45:19 pve root@pam VM/CT 100 - Console OK
Dec 04 15:43:08 Dec 04 15:43:13 pve root@pam VM/CT 100 - Console OK
Dec 04 15:42:00 Dec 04 15:42:36 pve root@pam VM/CT 100 - Console OK
Dec 04 15:41:15 Dec 04 15:41:39 pve root@pam VM/CT 100 - Console OK
Dec 04 15:40:21 Dec 04 15:40:48 pve root@pam VM/CT 100 - Console OK


SHOUT
IN
CRISIS