

Proxmox

VE

9.2

Integration Guide

ESKM

8.54.0

Imprint

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1 About This Guide

This guide describes how to deploy and configure the ESKM virtual appliance on Proxmox Virtual Environment (Proxmox VE). It provides the required procedures for provisioning the ESKM virtual machine, configuring the necessary virtual hardware resources, network settings, and performing the initial setup to prepare ESKM for operation within a Proxmox VE environment.

1.1 Target Audience

This guide is intended for Proxmox VE administrators, virtualization engineers, and ESKM administrators responsible for deploying and managing ESKM virtual appliances in enterprise environments.

1.2 Purpose of the Integration

Deploying ESKM on Proxmox VE enables organizations to host and operate ESKM within a cost-effective, open-source virtualization platform while maintaining the security and reliability required for cryptographic key management.

The deployment provides a flexible virtualized environment for running ESKM and allows organizations to leverage Proxmox VE's virtualization capabilities for managing ESKM infrastructure.

1.3 Abbreviations

Abbreviation	Meaning
HSM	Hardware Security Module
PKI	Public Key Infrastructure
TDE	Transparent Data Encryption
PKCS	Public Key Cryptography Standards

Abbreviation	Meaning
PKCS#11	PKCS Part 11: The Cryptographic Token Interface Standard
SO	The PKCS#11 cryptographic slot Security Officer
DB	Database
JRE	Java Runtime Environment
MBK	Master backup key
P11CAT	the PKCS#11 graphical interface tool
CXI	Cryptographic eXtended Interface
FIPS	Federal Information Processing Standards
VE	Virtual Environment
ESKM	Enterprise Secure Key Manager

Table 1: Abbreviations

1.4 Document Conventions

The following conventions are used in this guide:

Convention	Use	Example
Bold	Items of the Graphical User Interface (GUI), e.g., menu options	Press OK
<code>Monospaced</code>	Code that is given for explanation or as an example, file paths	<code>chsm-create</code>
<i>Italic</i>	References and important terms	See <i>Sample Chapter</i> in the <i>CryptoServer - Sample Manual</i>

Table 2: Document conventions

We use special icons to highlight the most important notes and information.



Here you will find important safety information that should be followed.



Here you will find additional notes or supplementary information.



This message indicates the expected result after the successful execution of an instruction.

2 Product Overview

2.1 Overview of the Partner Product

Proxmox VE is an open-source virtualization platform that enables the creation, deployment, and management of virtual machines through a centralized web-based interface. In this guide, Proxmox VE serves as the virtualization platform used to host the Utimaco ESKM virtual appliance.

2.2 Overview of ESKM

ESKM is a centralized key management solution that securely stores, distributes, and manages encryption keys throughout their lifecycle. It supports industry standards, including the KMIP, enabling integration with various enterprise applications and storage systems.

2.3 Joint Value Proposition

Deploying ESKM on Proxmox VE provides organizations with a flexible virtualization platform for hosting ESKM as a virtual appliance. This deployment enables organizations to leverage Proxmox VE infrastructure while utilizing ESKM for centralized cryptographic key management and data protection.

3 Integration Requirements and Prerequisites

3.1 Tested Versions

Operating System	Partner Product	Utimaco ESKM Version
Debian GNU/Linux 13.5 "Trixie" (Linux kernel 7.0)	Proxmox VE 9.2.2	8.54.0

Table 3: Tested versions

3.2 Supported Platforms

- Utimaco ESKM hardware appliance.
- Utimaco ESKM virtual/cloud appliance.

3.3 Hardware and Software Requirements

Software	Software Requirements
Utimaco ESKM	8.54.0
Proxmox VE	9.2.2

Table 4: Hardware and software requirements

3.4 Prerequisites

1. Utimaco ESKM version 8.54.0 or later.
2. Admin access to Utimaco ESKM.

3. Admin access to Proxmox VE 9.2.2

4 Installing and Configuring Proxmox VE

4.1 Deploy Proxmox VE

1. Install Proxmox VE 9.2.2 on a machine/VM.
2. Refer to the official documentation – [Installing Proxmox VE](#) – to install Proxmox.
3. Note down the user ID and password during the installation which will be used to login to the web UI of the Proxmox.

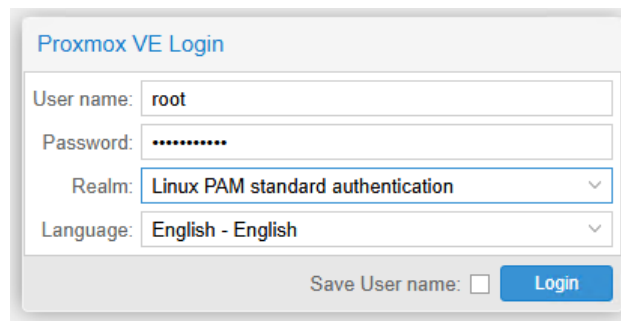


Figure 1 : Proxmox Login screen

4. To create an empty VM, click on the **Create VM** button in the top right corner.

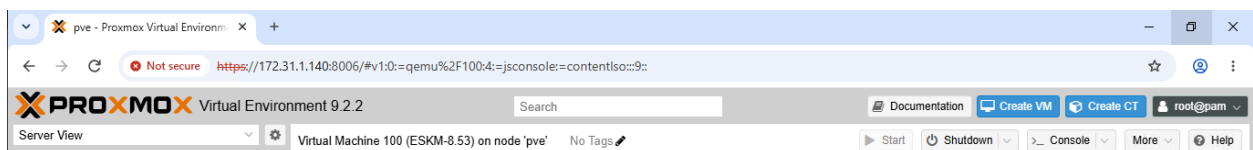


Figure 2 : Crete VM button at top right

5. Enter the below values in the **Create Virtual Machine** window.

- Name: Eskm
- VM ID: 103

6. Click on the **Next** button.

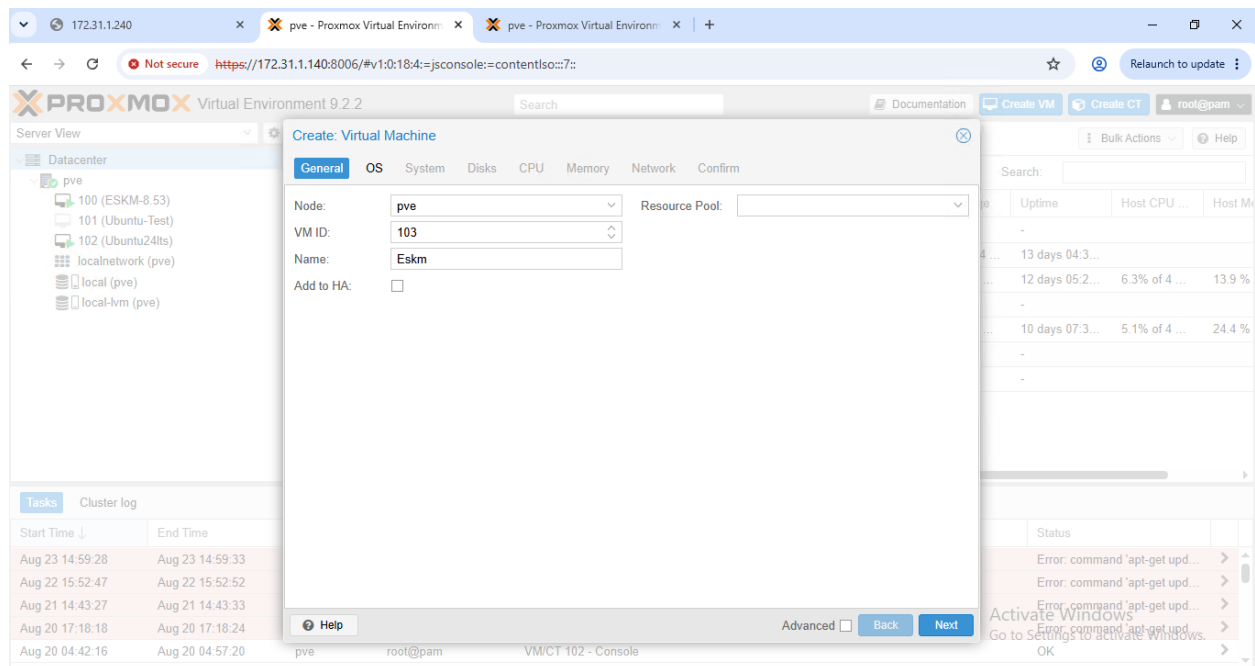


Figure 3 : Create virtual machine general tab

- **OS:** Do not use any media
- **OS Type:** Linux
- **Version:** 7.x - 2.6 Kernel

7. Click on the **Next** button.

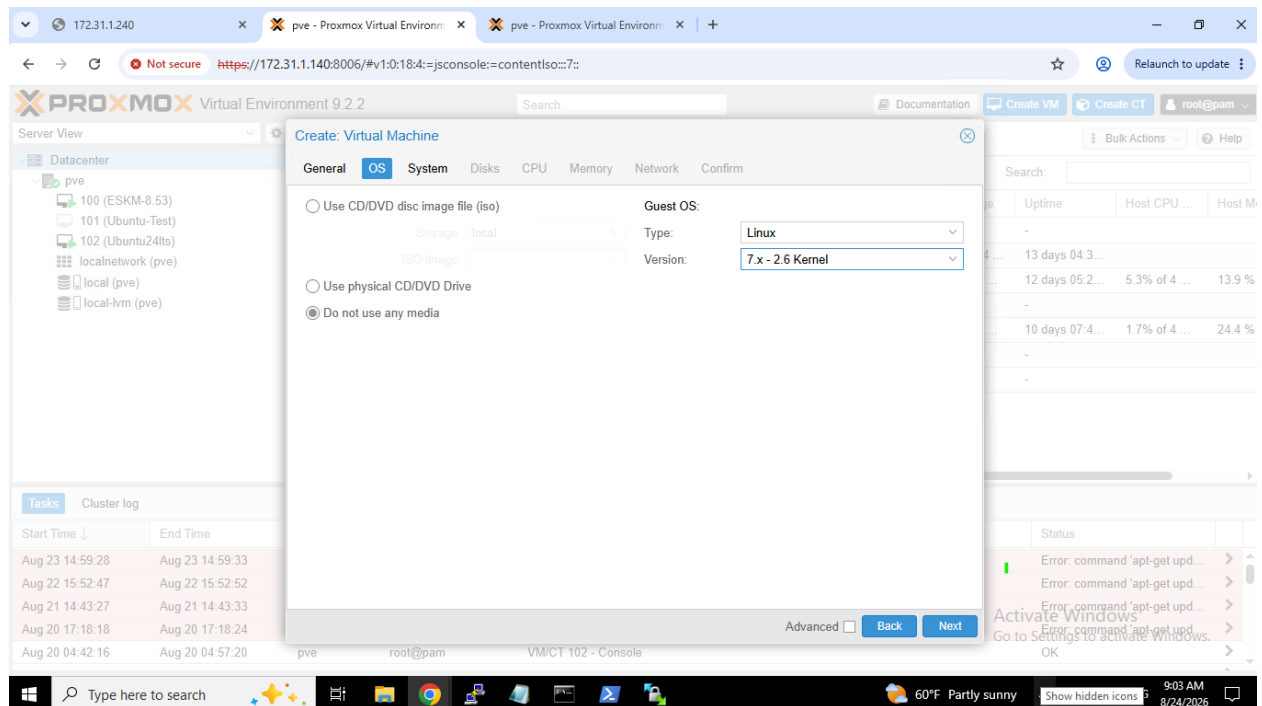


Figure 4 : OS specification

- Machine Type: i440fx
- BIOS: SeaBIOS
- SCSI Controller : VirtIO SCSI Single

8. Click on the **Next** button.

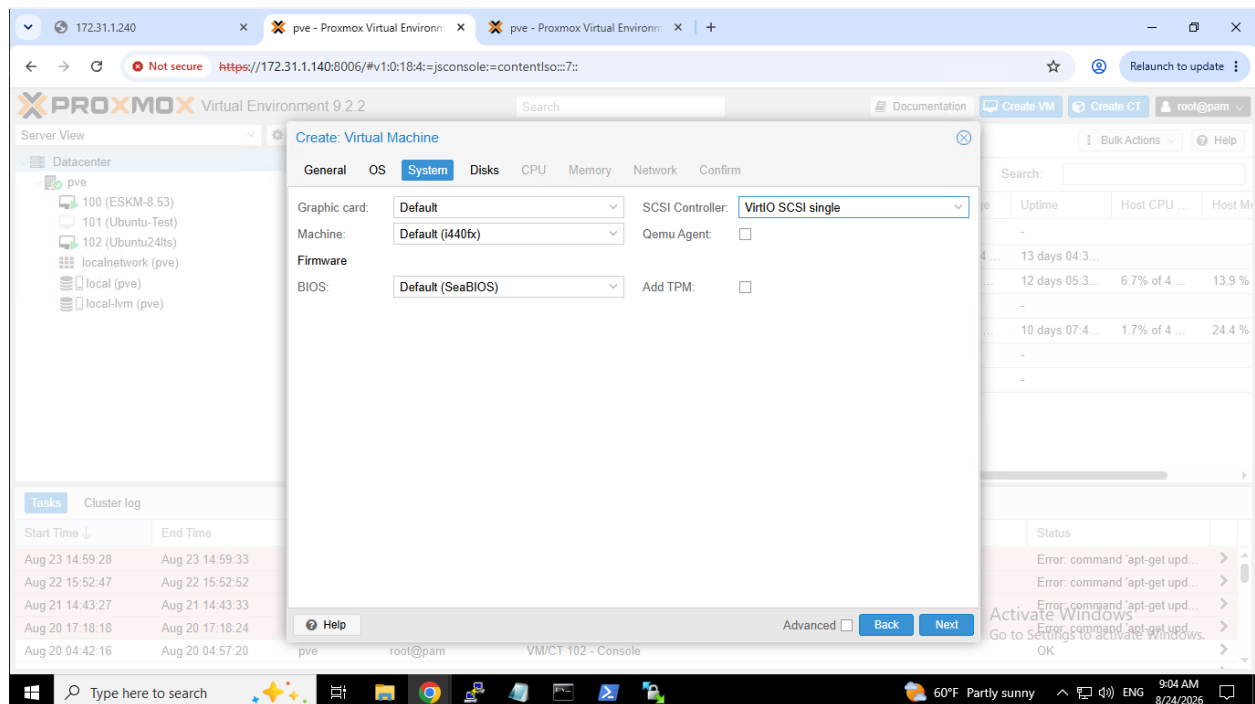


Figure 5 : Hardware Specification

- Select No Disk.
- Click on the **Next** button.

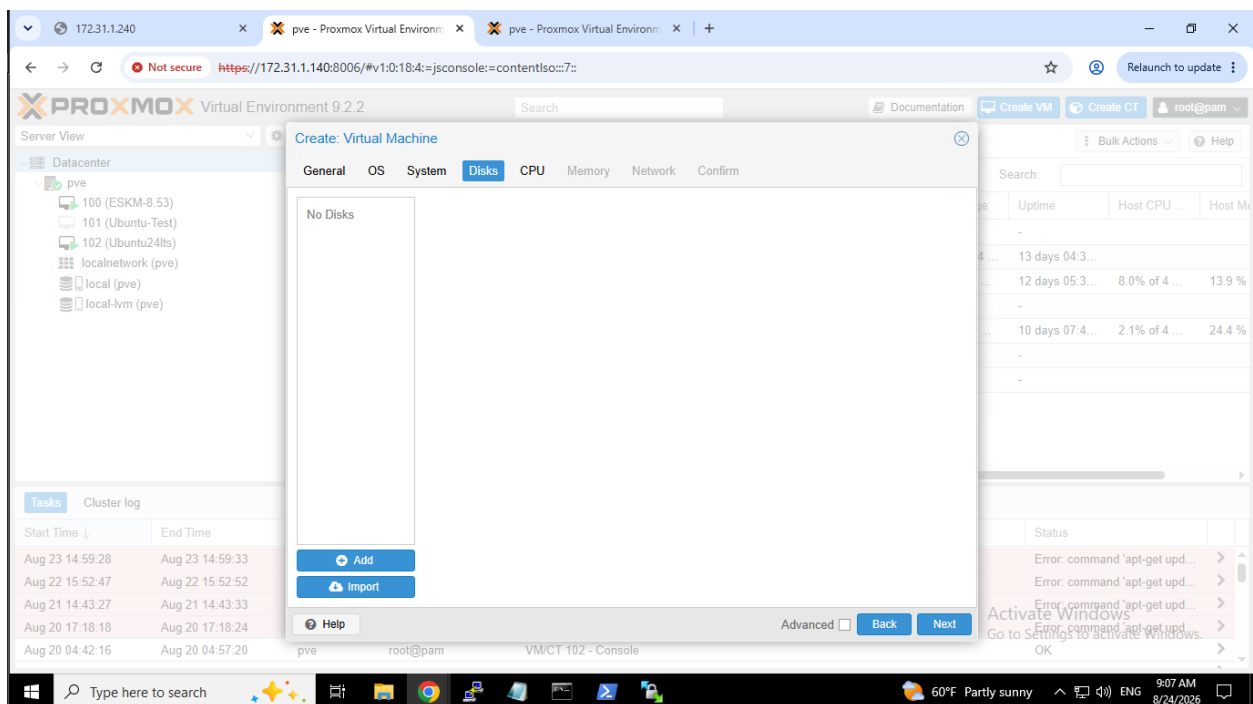


Figure 6 : No Disk selected

- CPU Type: host
- Sockets: 1
- Cores: 4

9. Click on the **Next** button.

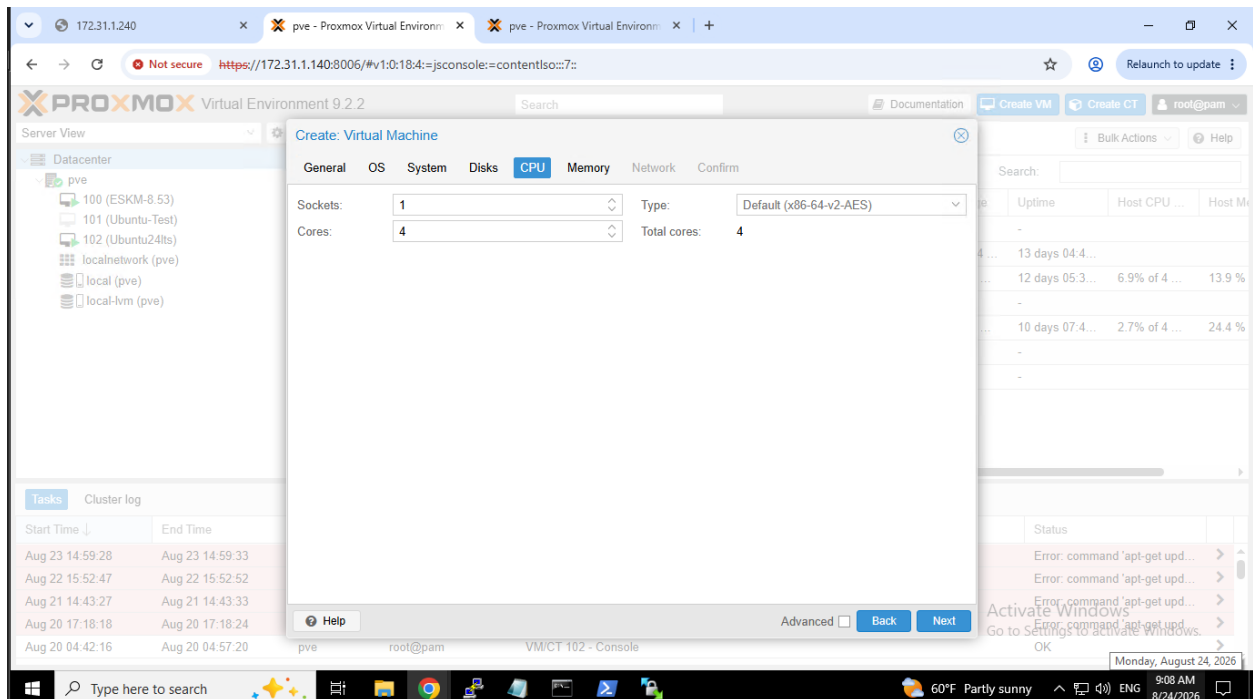


Figure 7 : CPU Specifications

- **Memory:** 8192 MB.

10. Click on the **Next** button.

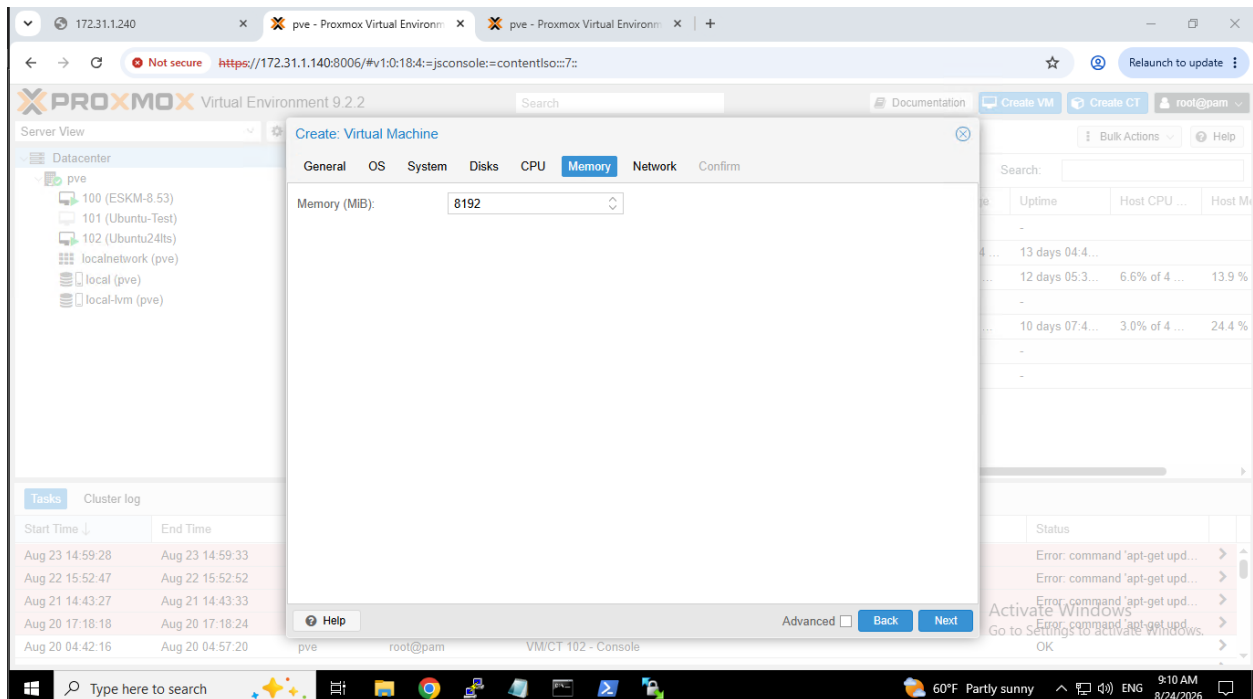


Figure 8 : Memory Specifications

- Network Model: VirtIO
- Bridge: vmbro
- Firewall: No

11. Click on the **Next** button.

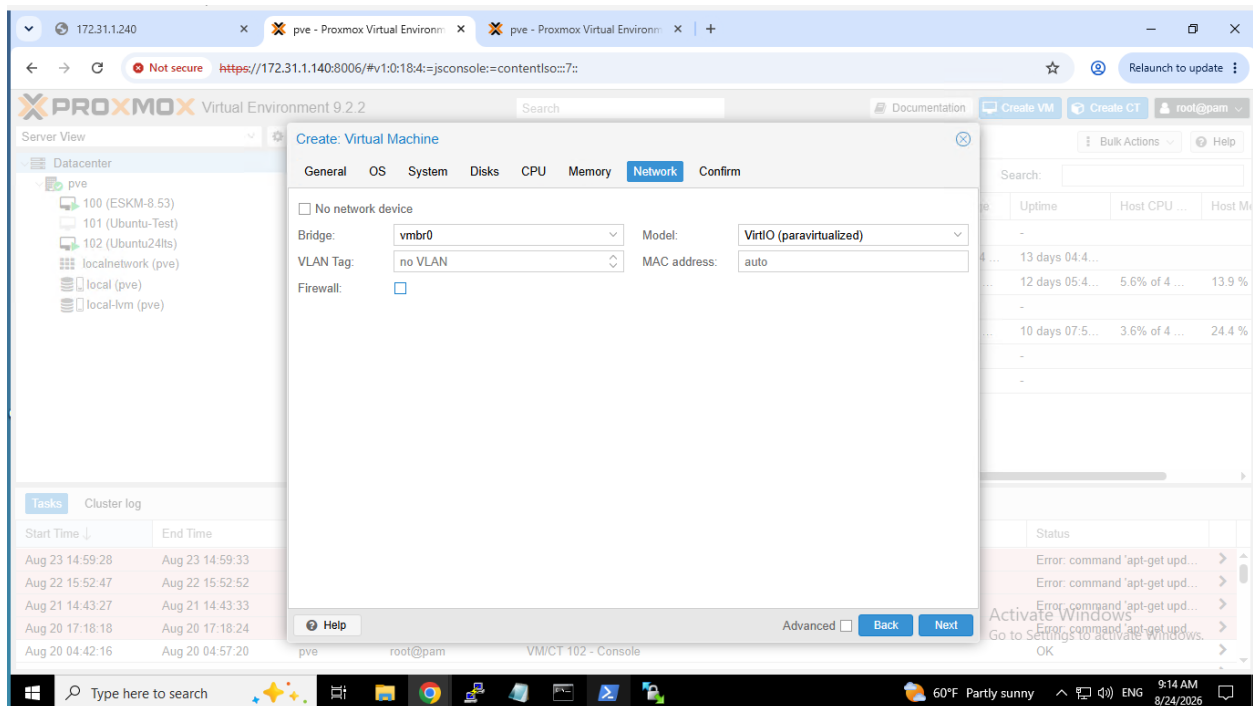


Figure 9 : Network specifications

12. Leave the **Start after created** checkbox unchecked before clicking **Finish** button.
13. Complete VM creation by clicking the **Finish** button.

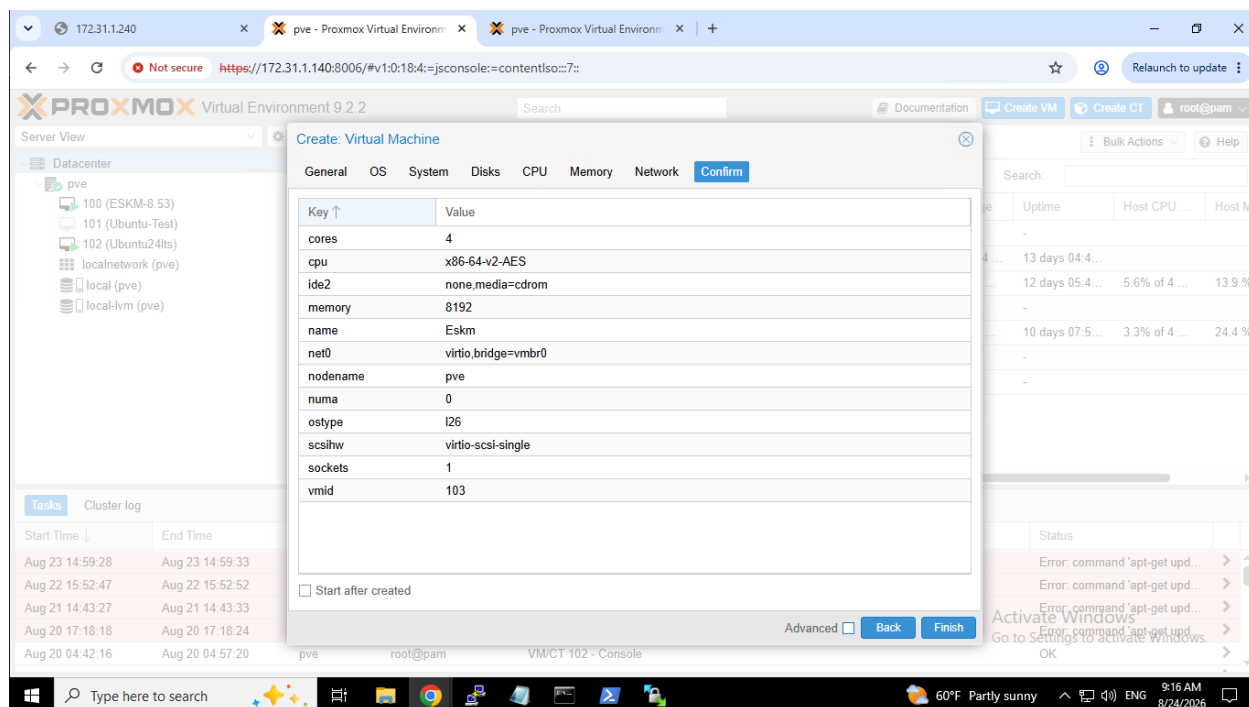


Figure 10 : Overview of the VM configurations

5 Installing and Configuring ESKM in Proxmox

The following section outlines the procedures required to configure ESKM.

For detailed configuration steps, refer to the "[ESKM_Installation and Replacement_Guide_8.54.0](#)".

After successfully installing and configuring ESKM, log in to the ESKM appliance as described in the final step of this section.

The following steps explain the installation of ESKM in Proxmox.

5.1 Import QCOW2 Disk into local-lvm

- Before the import, observe that no disk is available in the VM's hardware configs as we have created the VM without disk in the previous step.

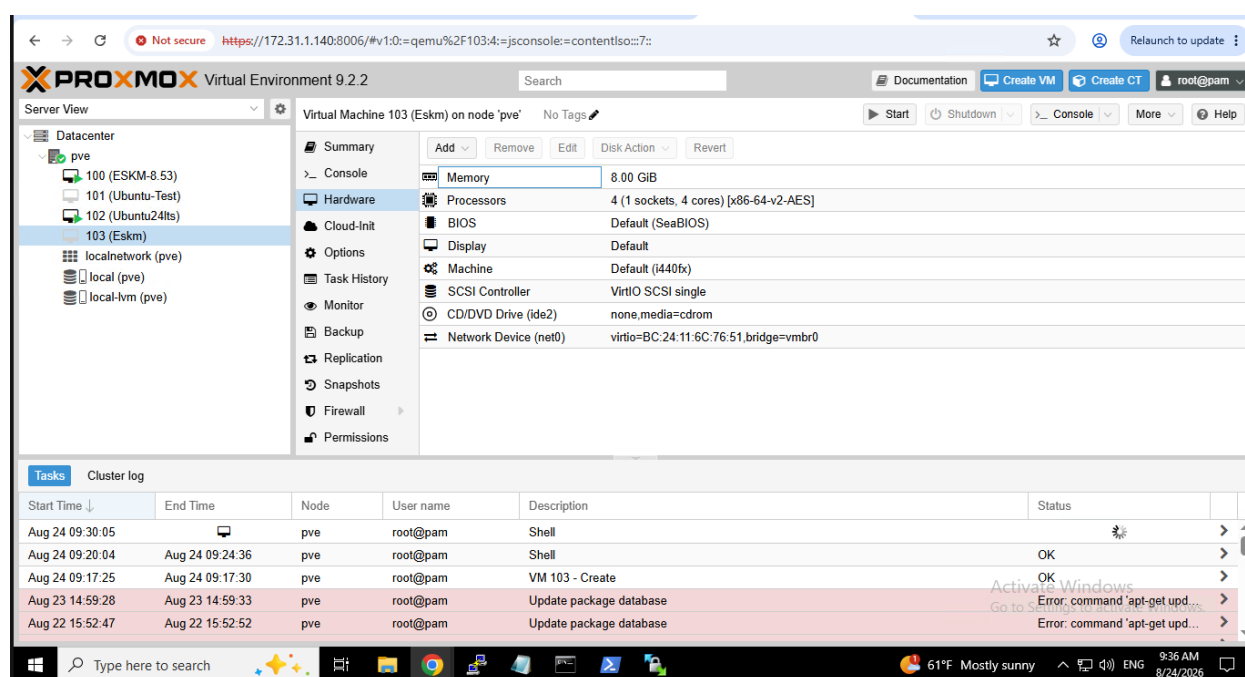


Figure 11 : No disk available in the Hardware configurations

- Import appliance disk.
- `/qcow2_xtrakt/vESKM_8.53.qcow2` is the path that we have used to import the disk for this integration.

```
qm importdisk 100 /qcow2_xtrakt/vESKM_8.53.qcow2 local-lvm
```

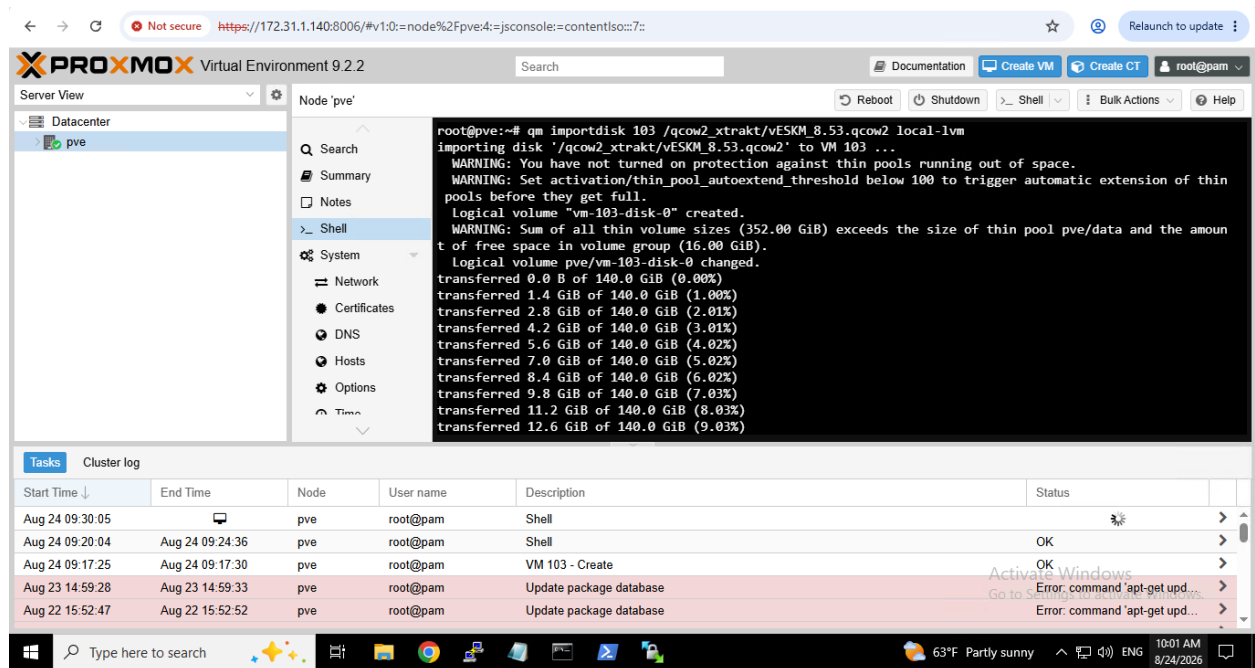


Figure 12 : Importing qcow2 image

- Wait for the import to complete to 100%.

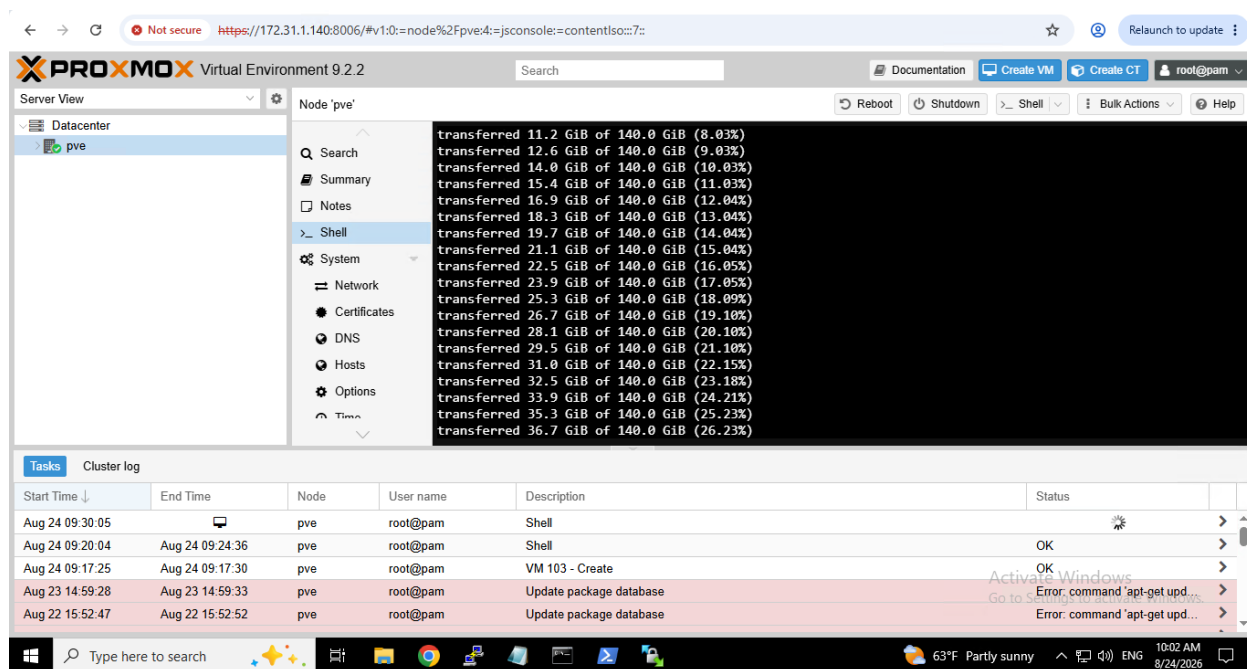


Figure 13 : Import in progress

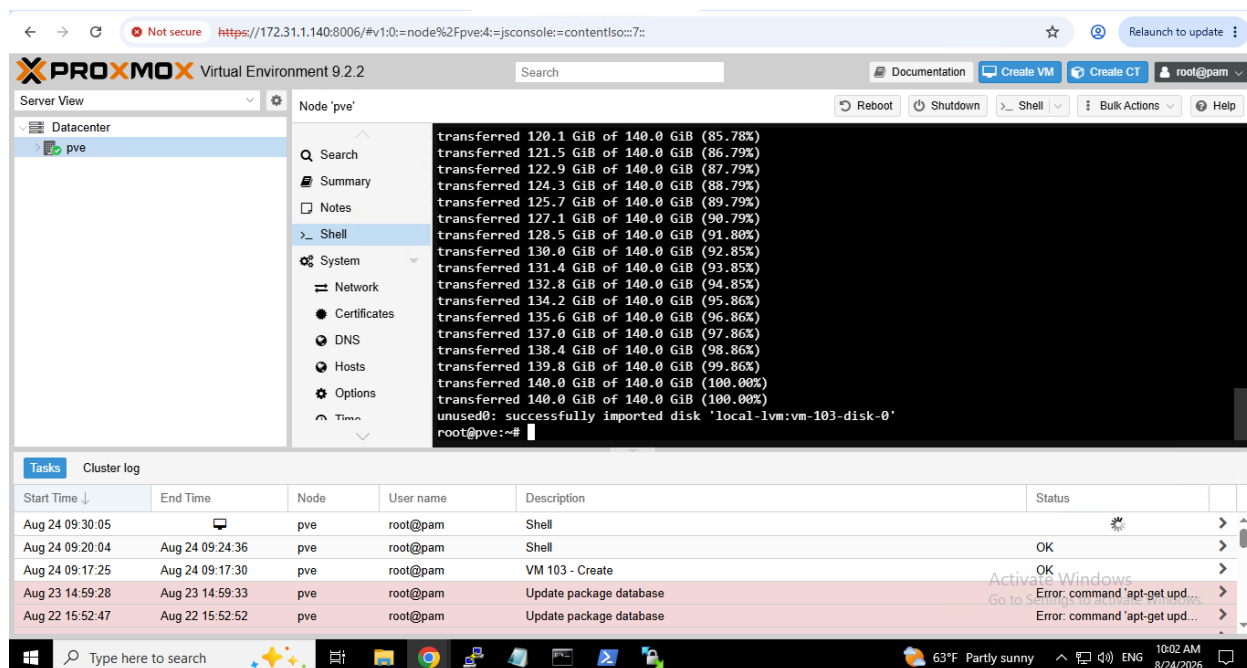


Figure 14 : Qcow2 import completed

- Verify that an unused disk is detected.

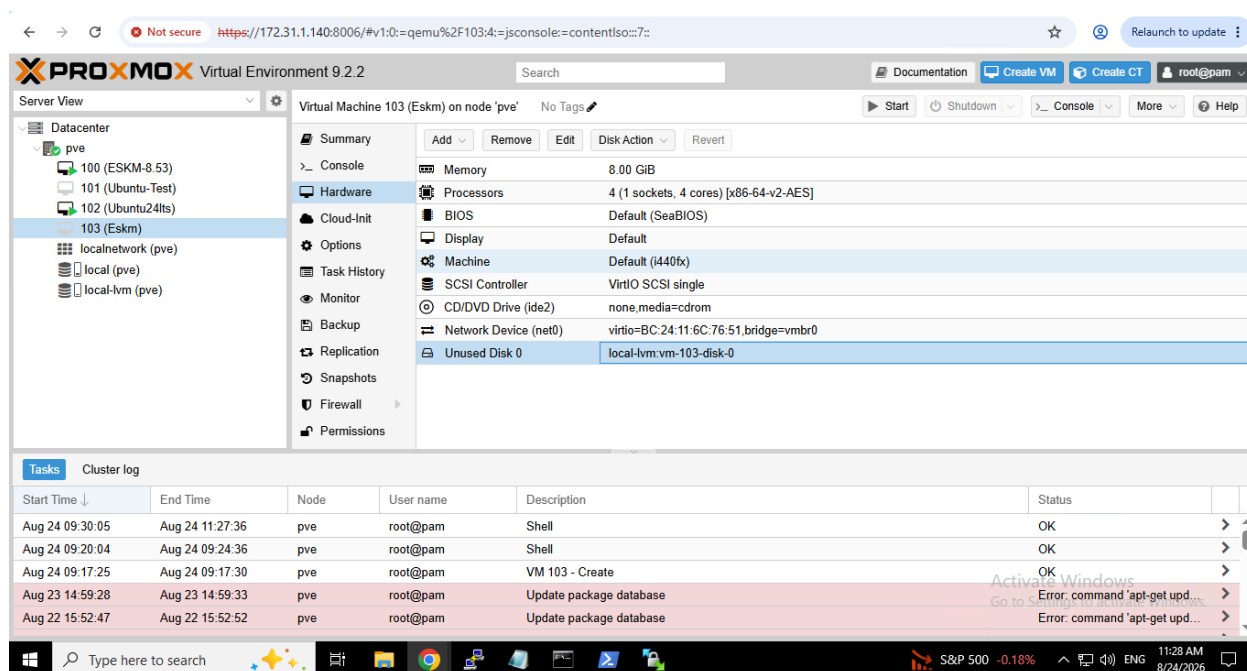


Figure 15 : Unused disk appears after successful import

5.2 Attach Imported Disk

- Navigate to:
 - VM 103
 - Hardware
 - Unused Disk
- Add Disk:
 - Bus/Device: SATA0

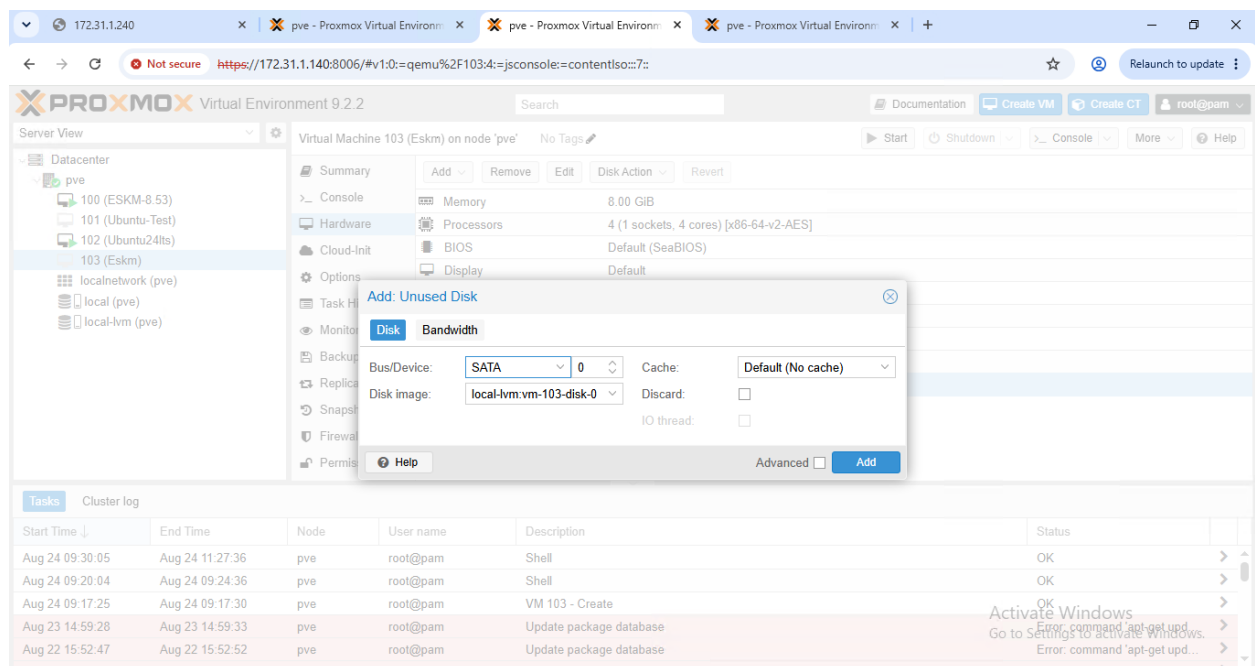


Figure 16 : Attaching the disk as SATA



NOTE: Do not attach the imported disk as SCSI0.

5.3 Configure Boot Order

- Set the boot order to:

```
sata0
ide2
net0
```

- Ensure SATA0 is first.

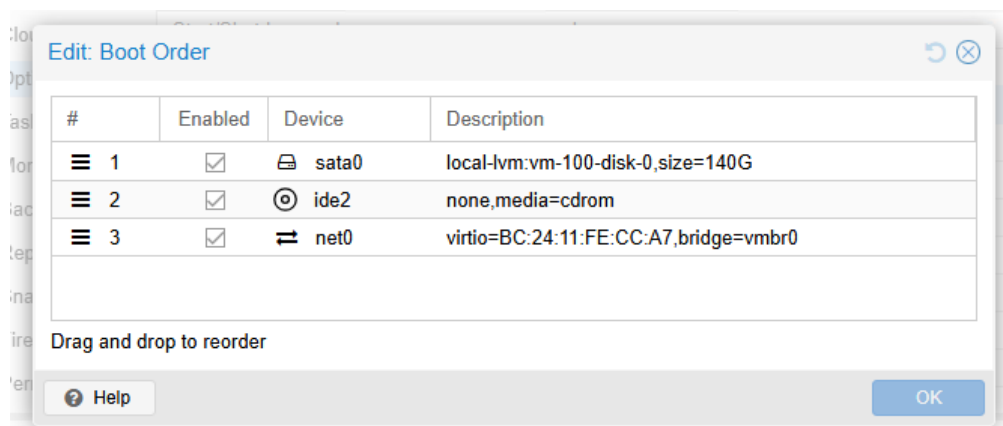


Figure 17 : Setting up the boot order

5.4 Start ESKM Appliance

- Power on the VM.
- Open the Console.
- Wait for the ESKM initialization wizard and complete the ESKM configuration.

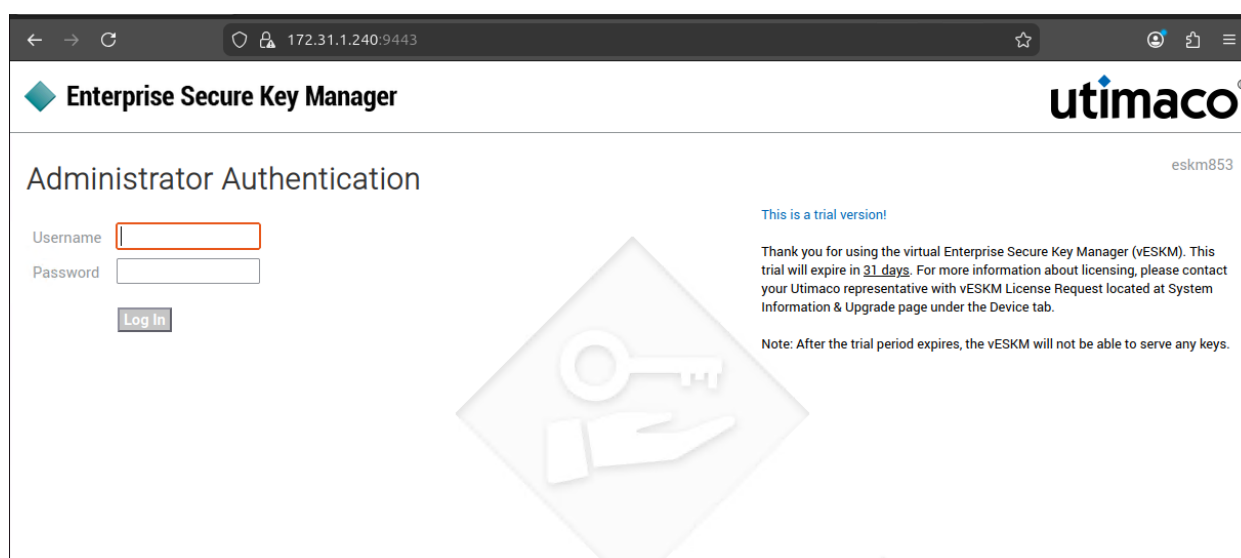


Figure 18 : ESKM login page

- If an older QCOW2 image was used, then upgrade ESKM to the latest version using the upgrade package provided by Utimaco. User can download the latest update file from the Utimaco Support Portal. To upgrade the package, login to the ESKM and navigate to the **Maintenance** → **System Information & Upgrade** section. Click on the **Upgrade/Install** button and select the upgrade file.

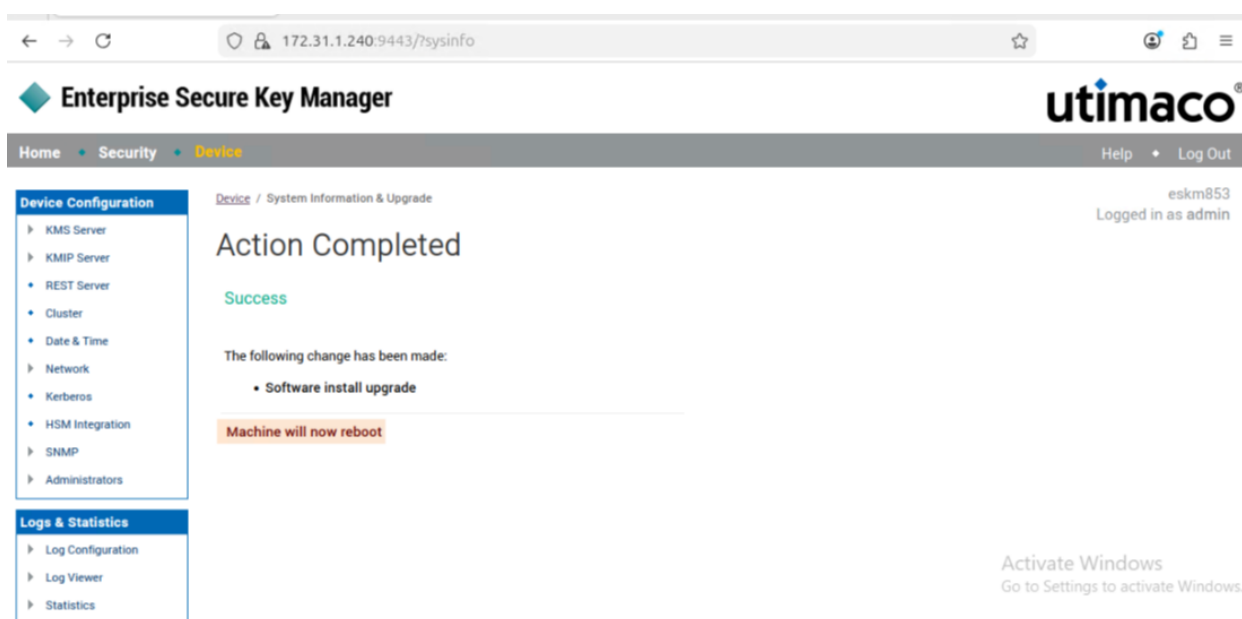
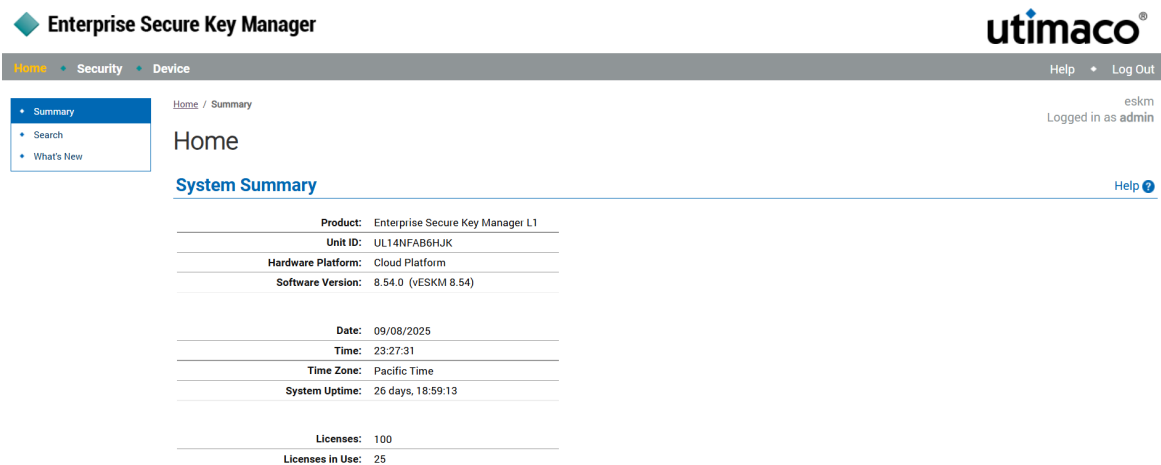


Figure 19 : Upgrade completed



The screenshot displays the Enterprise Secure Key Manager (ESKM) web interface. The top navigation bar includes 'Home', 'Security', and 'Device'. The left sidebar shows 'Summary', 'Search', and 'What's New'. The main content area is titled 'Home' and 'System Summary'. The 'System Summary' section provides the following information:

Product:	Enterprise Secure Key Manager L1
Unit ID:	UL14NFAB6HJK
Hardware Platform:	Cloud Platform
Software Version:	8.54.0 (vESKM 8.54)
Date:	09/08/2025
Time:	23:27:31
Time Zone:	Pacific Time
System Uptime:	26 days, 18:59:13
Licenses:	100
Licenses in Use:	25

Figure 20 : ESKM home page after upgrade

6 Verification and Testing

6.1 Functional Testing

Access the ESKM URL from a host from the same or an accessible network after the ESKM installation in Proxmox in order to verify if the ESKM is accessible.

The below image shows the ESKM home page after accessing the IP URL, which is configured after the complete installation of ESKM in Proxmox. Note the IP URL in the address bar.

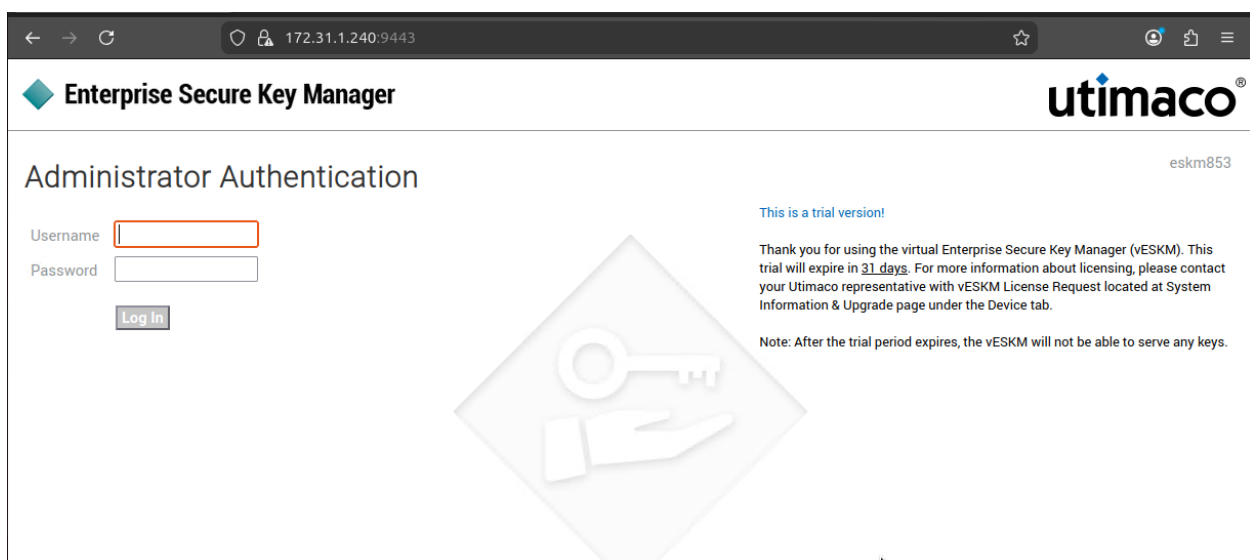


Figure 21 : ESKM Login page

6.2 Logs and Validation Steps

The ESKM logs can be viewed in **Log Viewer** -> **Audit page** under **Logs & Statistics** section.

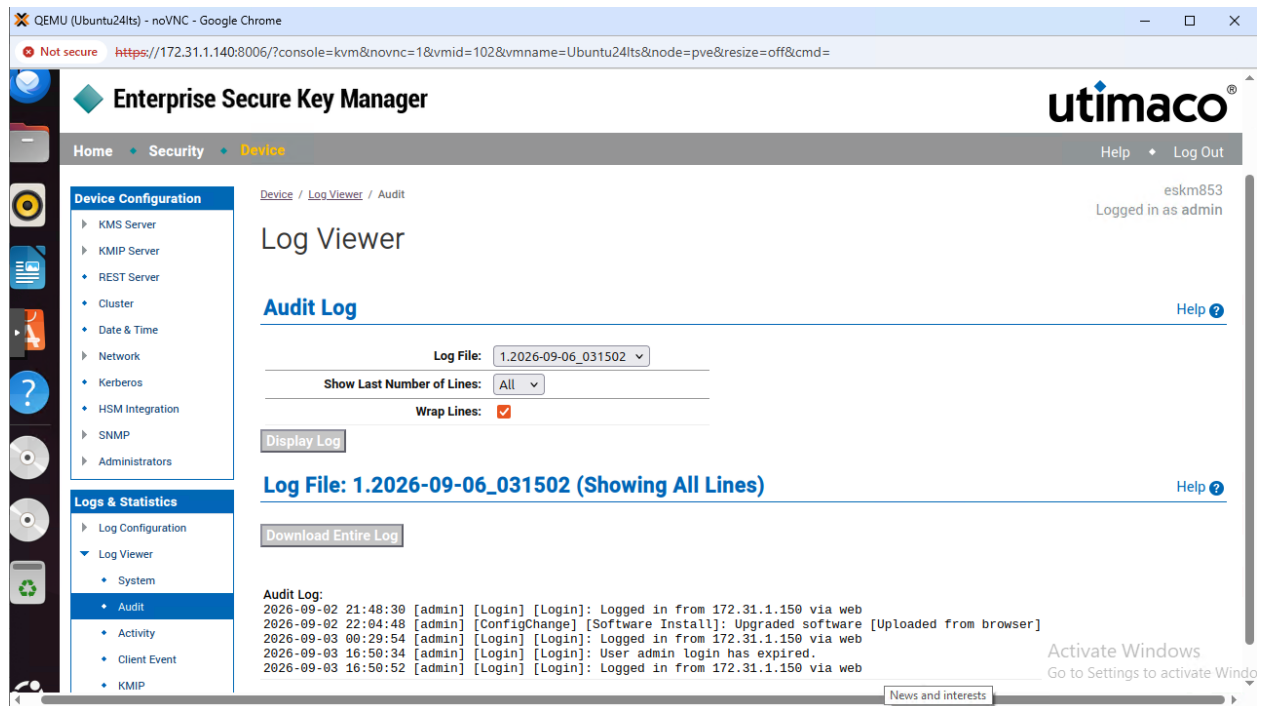


Figure 22 : ESKM log viewer

7 Contact and Support Information

You can reach us from Monday to Friday, 09.00 a.m. to 05.00 p.m., Central European Time (CET).

Utimaco IS GmbH
Krefelder Str. 220
52070 Aachen
Germany

RMA Query

If you need to send the device back to Utimaco IS GmbH, please open a new RMA case (Return Merchandise Authorization). We request that you use the following web address. RMA cases cannot be opened by email or phone.

<https://support.hsm.utimaco.com/support/rma/new>

Other Support Queries

- Mail (preferred contact method)
support@utimaco.com
Attach the diagnostic information to your email.
- Web portal
<https://support.hsm.utimaco.com/support/cases/new/>
The diagnostic information will be requested in our response if necessary.
- By phone
AMERICAS +1-844-UTIMACO (+1 844-884-6226)
EMEA +49 800-627-3081
APAC +81 800-919-1301
The diagnostic information will be requested in our response if necessary.

8 Appendices

8.1 References

Title	Description	Document/Link
Proxmox VE Installation Guide	Official installation documentation	Installing Proxmox VE
ESKM Installation and Replacement Guide	ESKM deployment guide	ESKM Installation and Replacement Guide 8.54.0

Table 5: References

8.2 Command Summary (CLI commands used)

Command	Purpose
<pre>qm importdisk 100 /<path>/ vESKM_<version>.qcow2 local-lvm</pre>	Import the ESKM appliance QCOW2 disk into the Proxmox <code>local-lvm</code> storage for VM 100.

Table 6: Command summary