MEDIAWIKI INSTALLATION AND BACKUP SETUP ON LAMP VM

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1.Introduction

This document details the process of setting up a fully functional MediaWiki installation on a virtual machine running a Linux operating system with a LAMP stack. MediaWiki is an open-source wiki platform widely used in collaborative environments. The goal is to demonstrate the installation, configuration, and successful deployment of MediaWiki, as well as to implement a backup mechanism to safeguard the wiki's data and files. Throughout this process, I will detail each step taken, the reasoning behind it, and any obstacles encountered and how they were overcome. This thorough documentation will provide clear insights into the setup procedure and can serve as a professional reference for future installations.

The guide includes:

- VM setup
- Installation and configuration of Linux, Apache, MySQL, PHP
- Installing MediaWiki
- Setting up daily automated backups
- Troubleshooting and lessons learned

2. System Requirements

Host System Requirements:

- **Operating System:** Windows 10/11
- **RAM:** Minimum 4GB (2GB allocated to VM)
- **Storage:** 30GB free space
- **Processor:** 64-bit with virtualization support

Virtual Machine Specifications:

- **OS:** Ubuntu Server 24.04 LTS
- **CPU**: 2 cores
- **RAM:** 2GB
- **Storage:** 20GB
- **Network:** NAT/Bridged Adapter

Software Requirements:

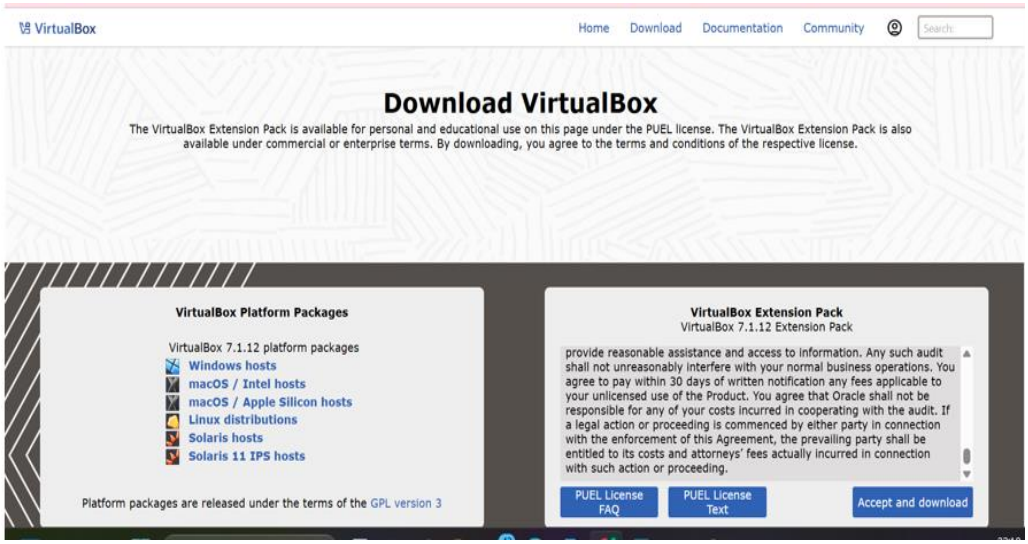
- VirtualBox 7.x
- Ubuntu Server ISO
- Web browser for testing

3. VIRTUAL MACHINE SETUP

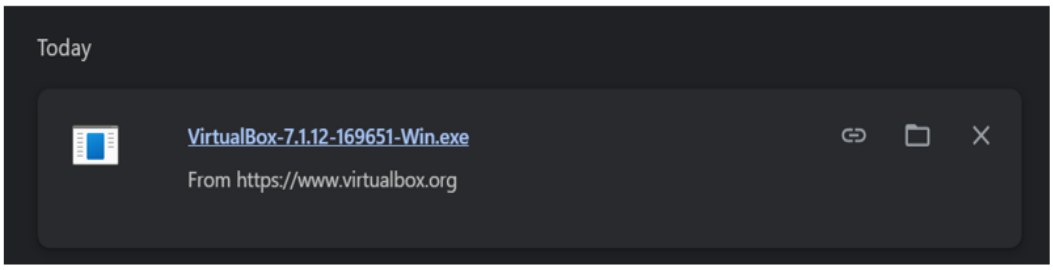
3.1 Choose and Create VM

Step 1: Download and Install VirtualBox on Windows

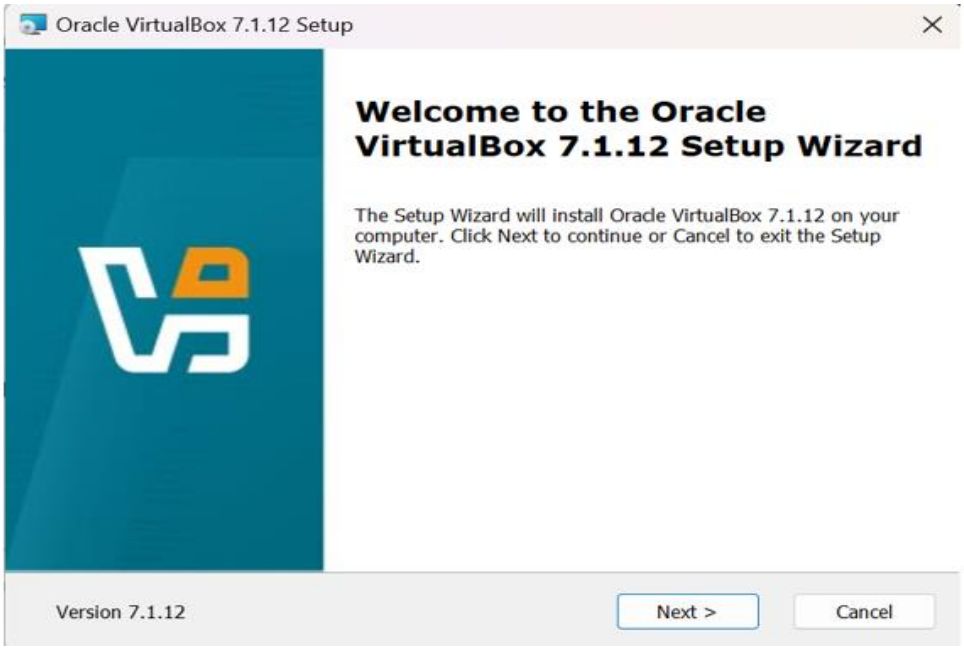
- Visit the official website: https://www.virtualbox.org
- Click on "**Downloads**" from the left menu.



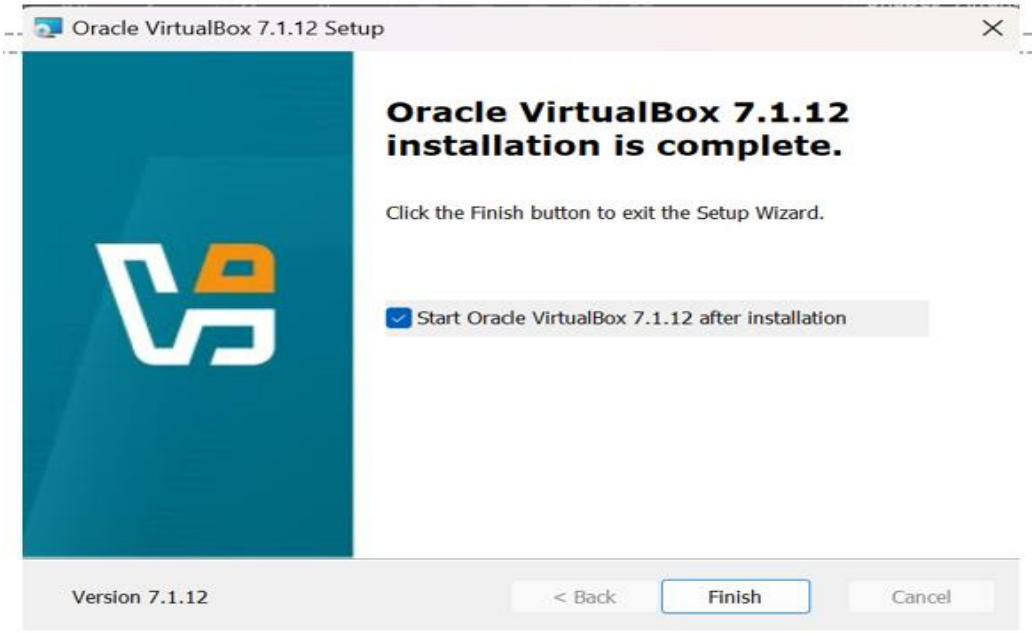
- Under **"VirtualBox platform packages"**, click **Windows hosts** to download the .exe installer.



- Run the downloaded file and follow the installation wizard (keep default settings unless you know what to change).



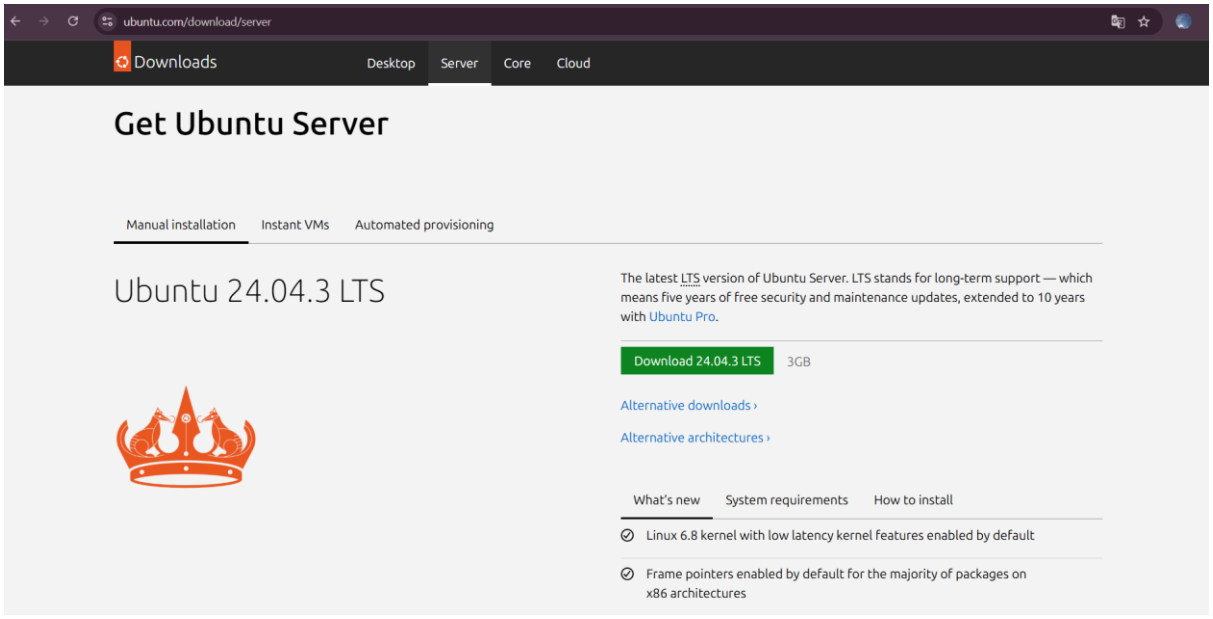
- After installation, launch VirtualBox from the Start menu.
- Download and install the VirtualBox software by running the installer and following the prompts.



3.2: Download Ubuntu Server ISO

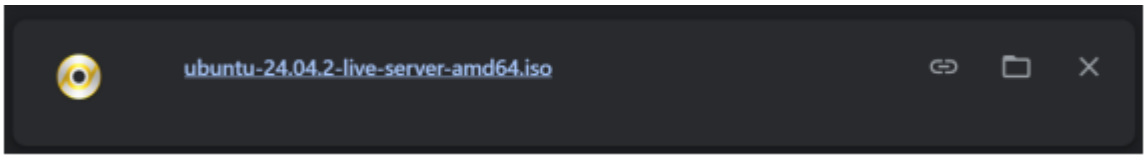
Visit: https://ubuntu.com/download/server

Click on "Download Ubuntu Server 24.04.3 LTS" (or the latest LTS version available).



Choose the manual server installation ISO.

Save the .iso file to a known location (e.g., Downloads folder) — you will use this file to boot your VM. (used later as the installation disk for the virtual machine).

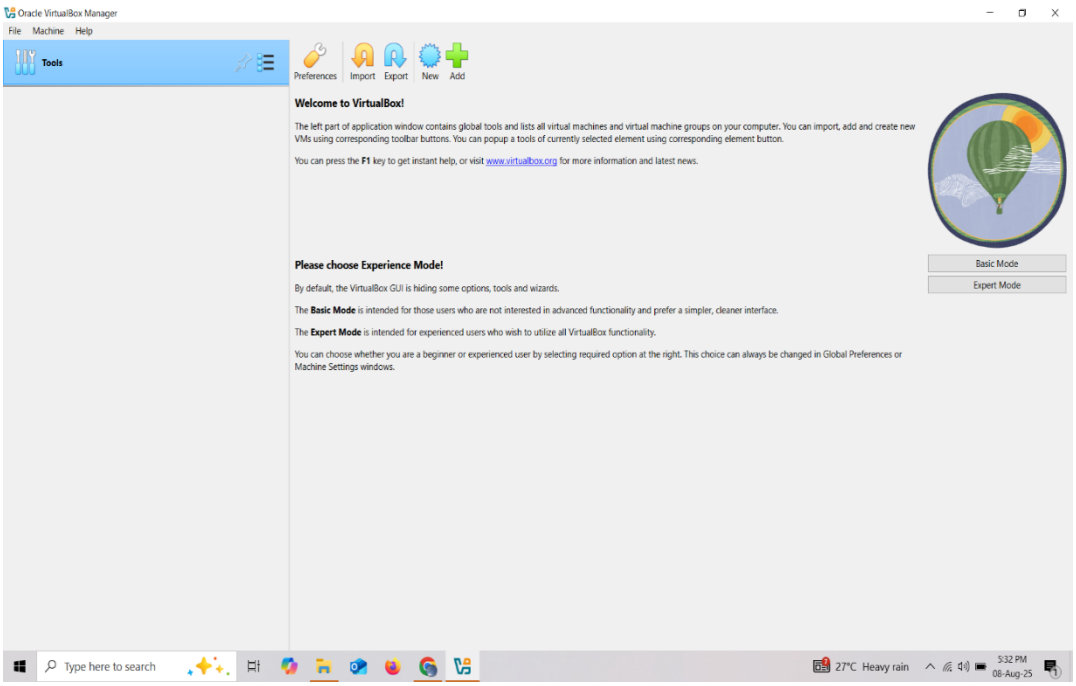


After downloading the .iso file:

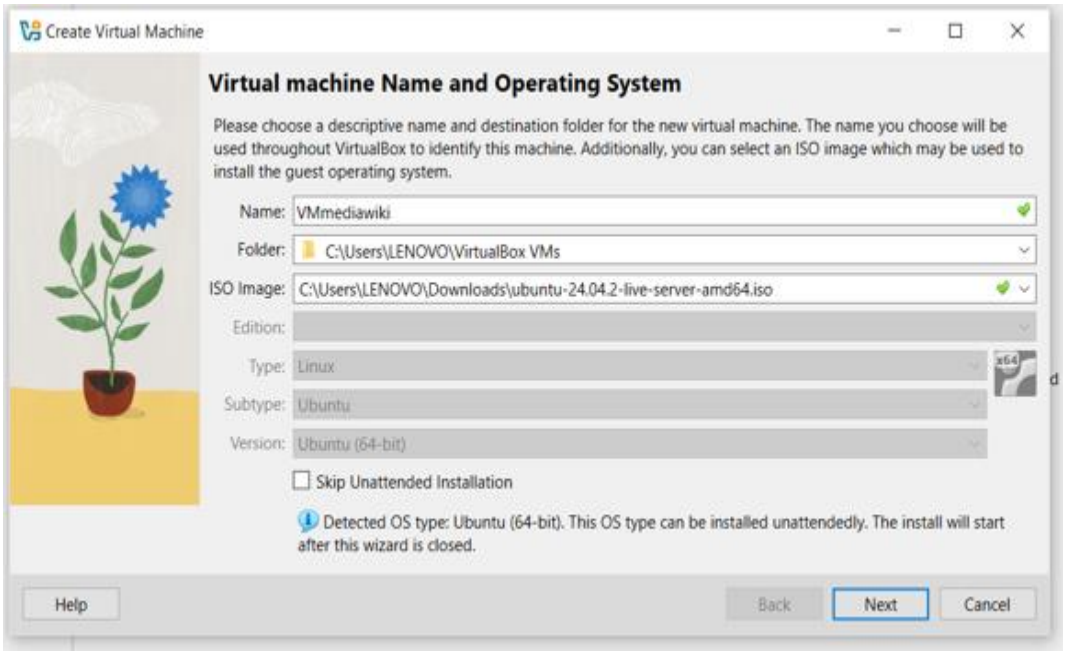
Set Up the Virtual Machine in VirtualBox

Steps:

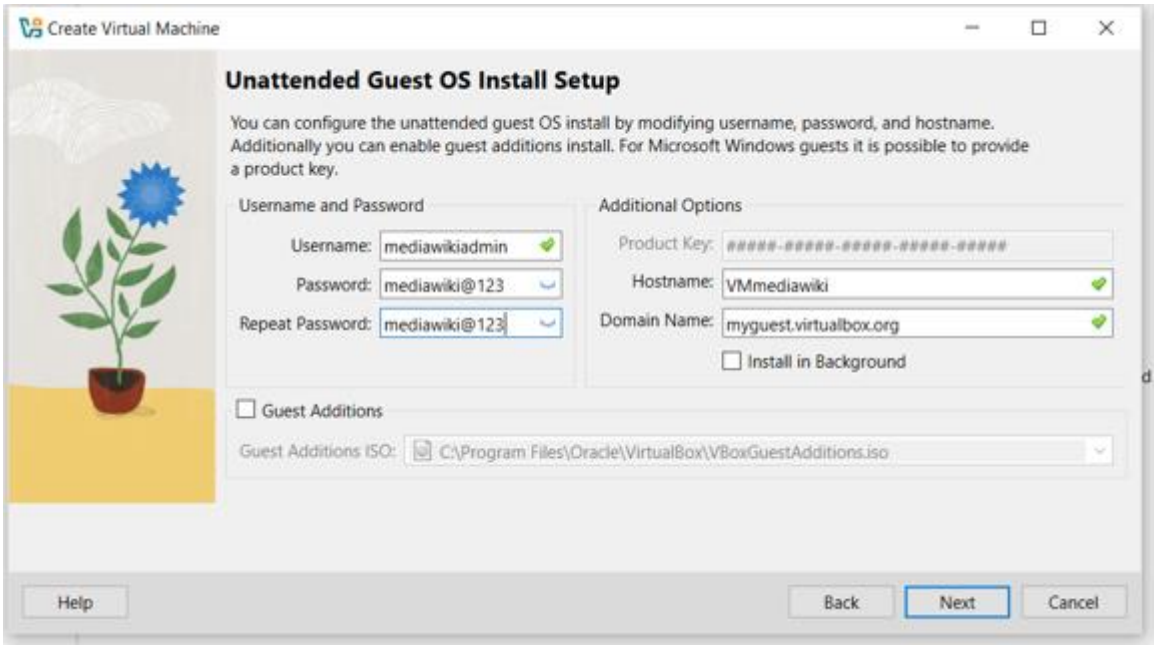
1. Open VirtualBox and click New.



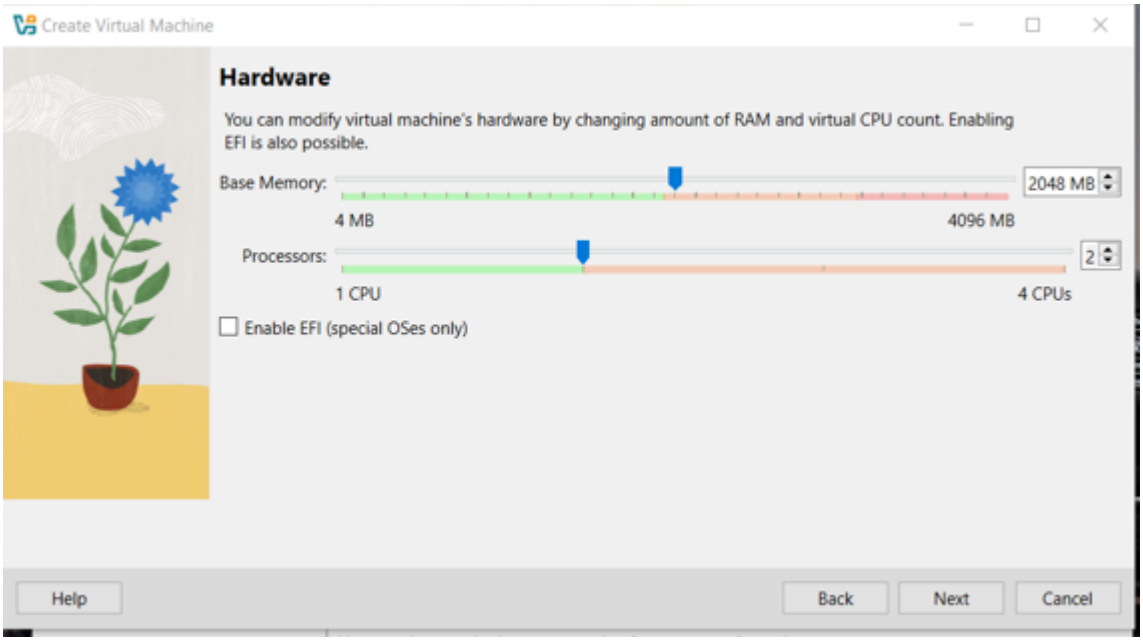
2. Name the VM (e.g., mediawikivm).
3. Set Type to Linux and Version to Ubuntu (64-bit).



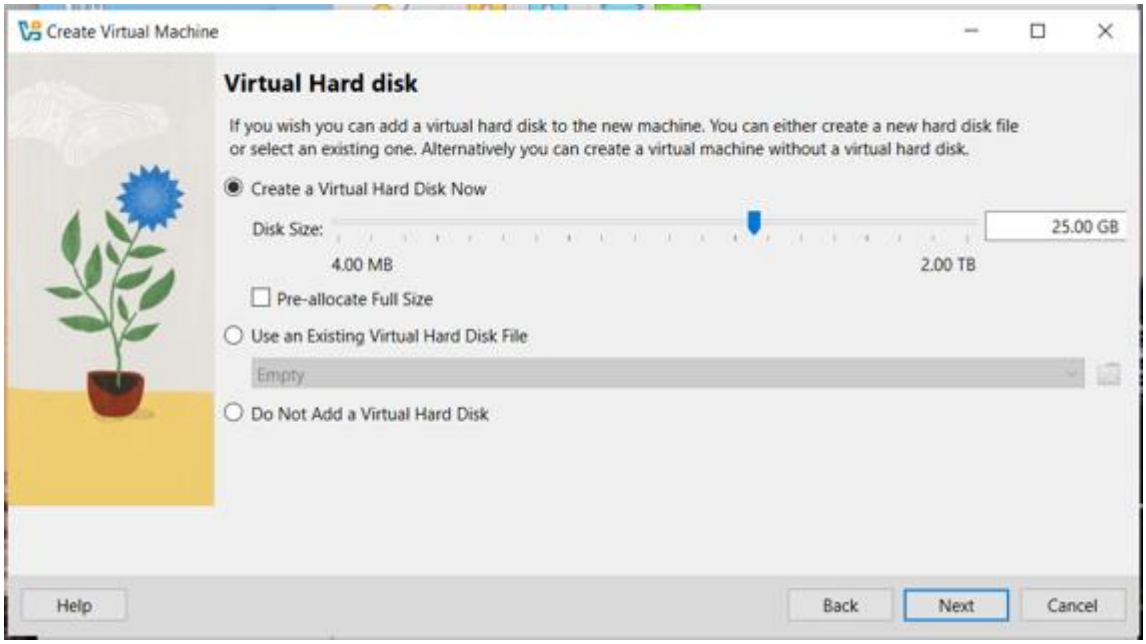
4. Set the username and password.



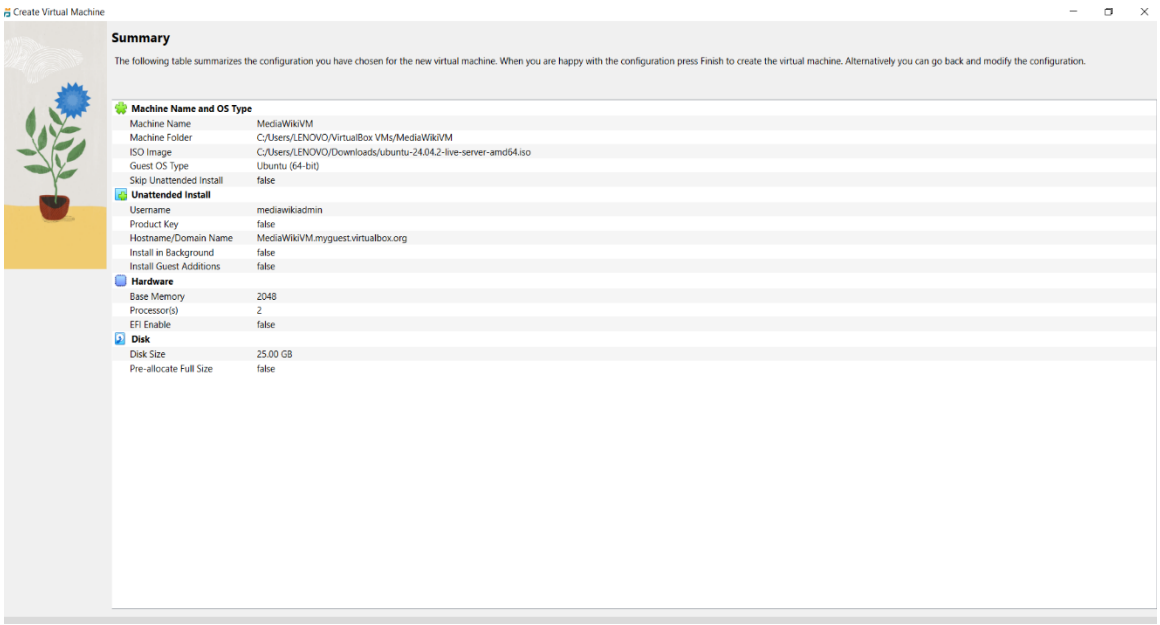
5. Allocate memory: Minimum 2048 MB (2 GB).
6. Allocate CPU: 2 cores.



7. Create a virtual hard disk (VDI) with at least 25 GB of dynamically allocated storage.



8.Click next and read the summary of the specifications, then click finish.

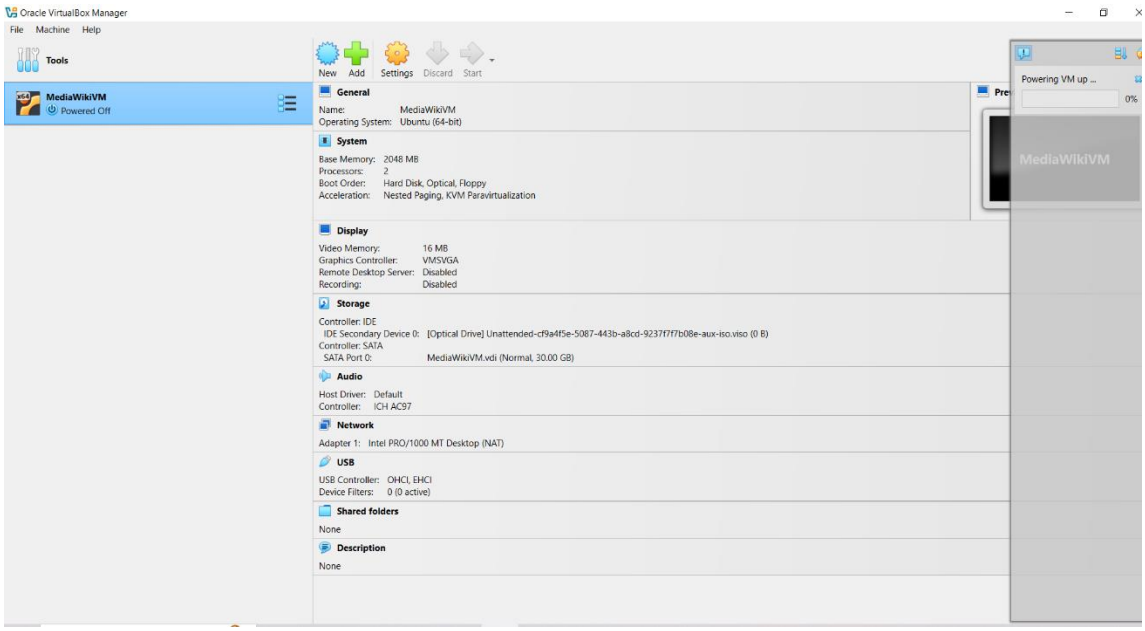


9.And then it will take us to the Virtual box Launch Home screen.

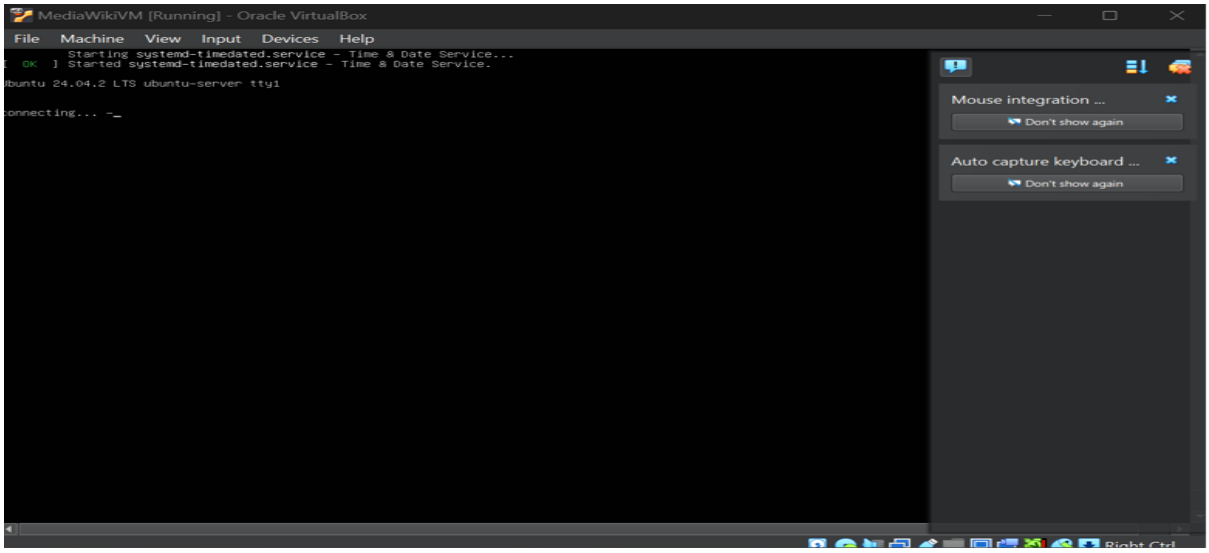
10.Select the newly created VM, click Settings > Storage.

11.Under "Controller: IDE", click the empty CD icon and then click the disk icon to "Choose a disk file..."

12.Select the downloaded Ubuntu Server ISO.

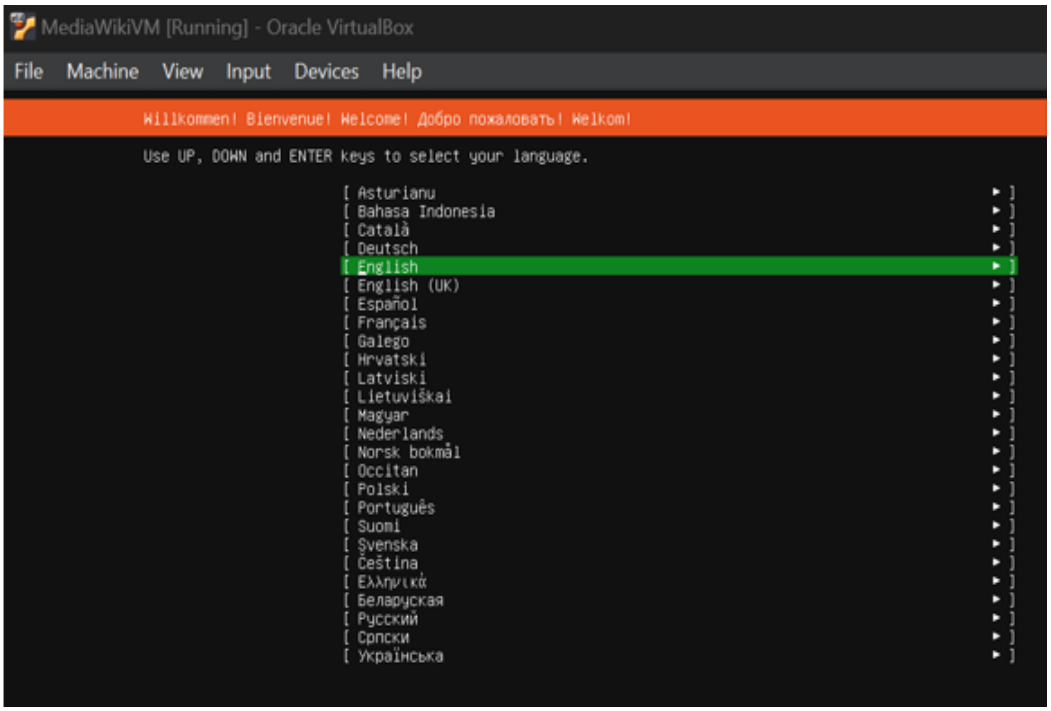


13.Start the VM and follow the on-screen instructions:

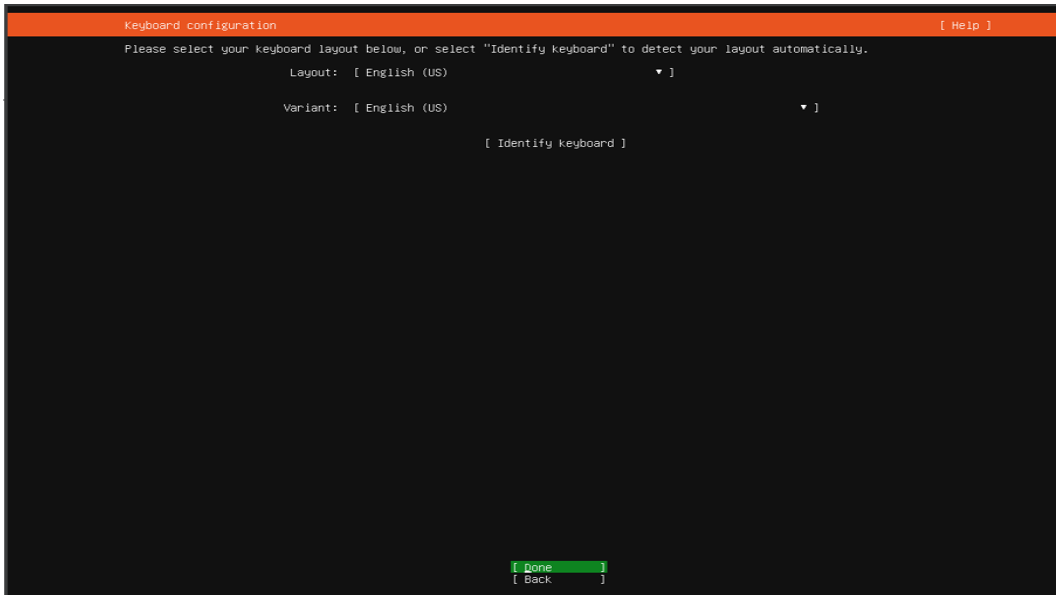


Boot from ISO and follow installation:

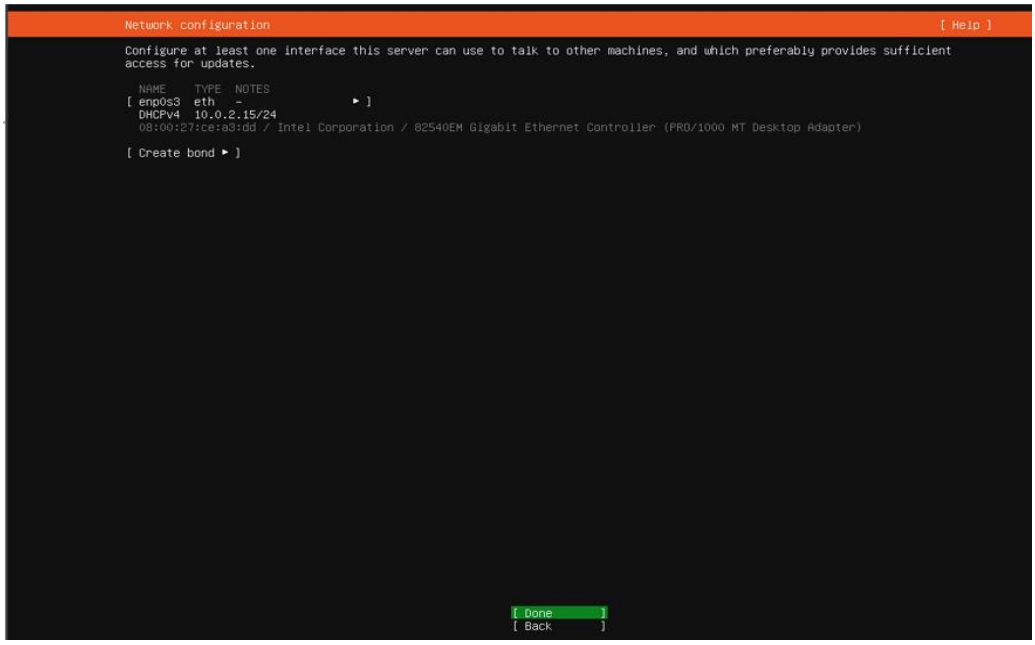
1. Language Selection:
2. - Choose: English



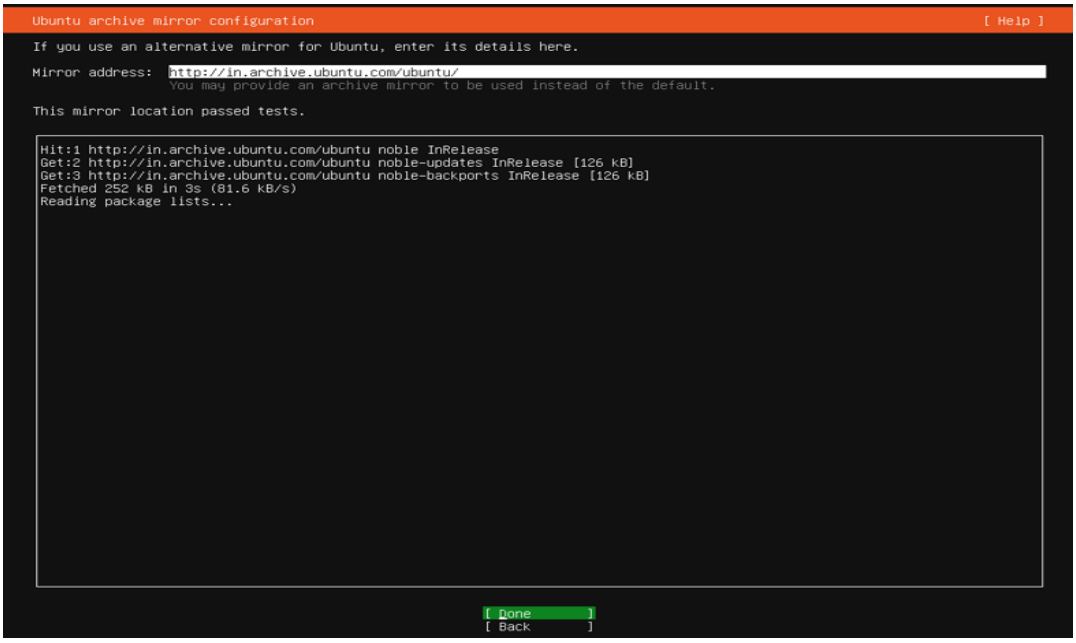
3. Keyboard Configuration:
4. Select your keyboard layout (usually English (US)) → Press Enter.



5. Network Configuration:
6. - If it detects your internet, just press Done to continue.



7. Proxy Configuration:
8. - Leave blank (no proxy)
9. Mirror Configuration:
10. - Accept default Ubuntu archive mirror



11. **Storage Configuration:**

12. Guided Storage Configuration:

13. - Use entire disk: ✓

14. - Set up disk as LVM group: ✓

15. Partition Layout (Auto-generated):

Select the 30 GB virtual disk you created → Press Enter, Confirm changes → Select Continue

Storage configuration summary → Press Enter and Continue

16. **Profile Setup:**

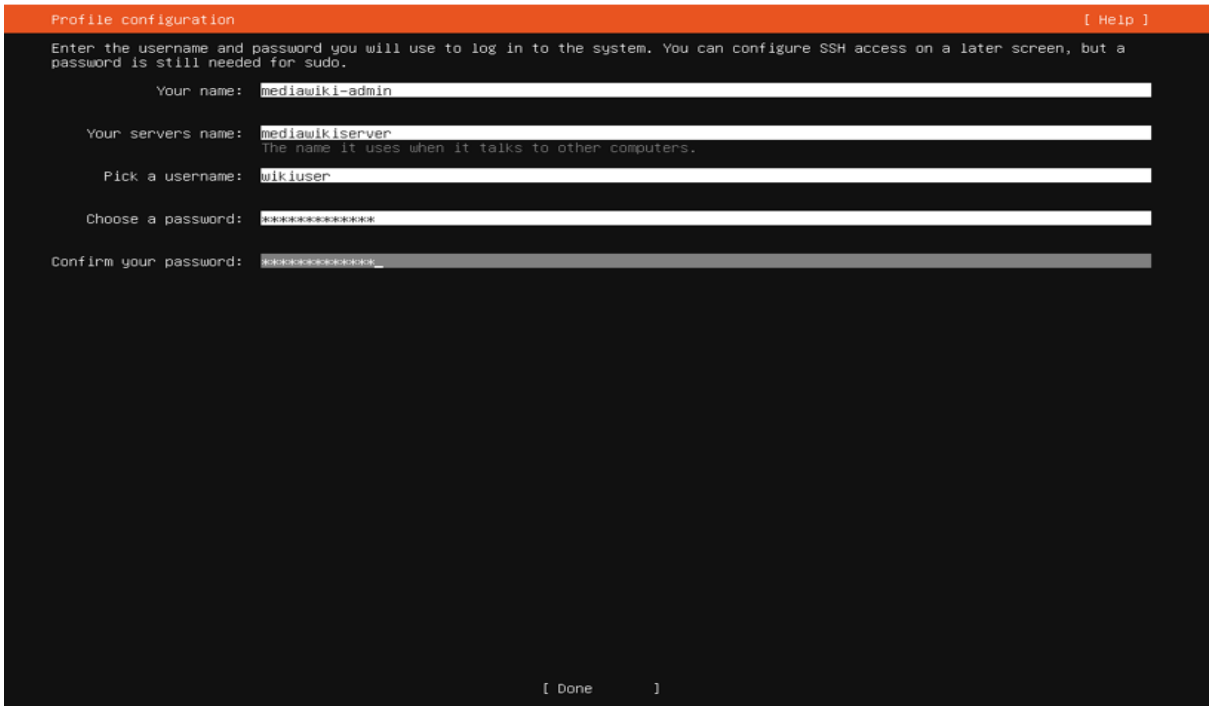
17. Server Profile Configuration:

18. - Your name: mediawiki.admin

19. - Server name: mediawiki-server

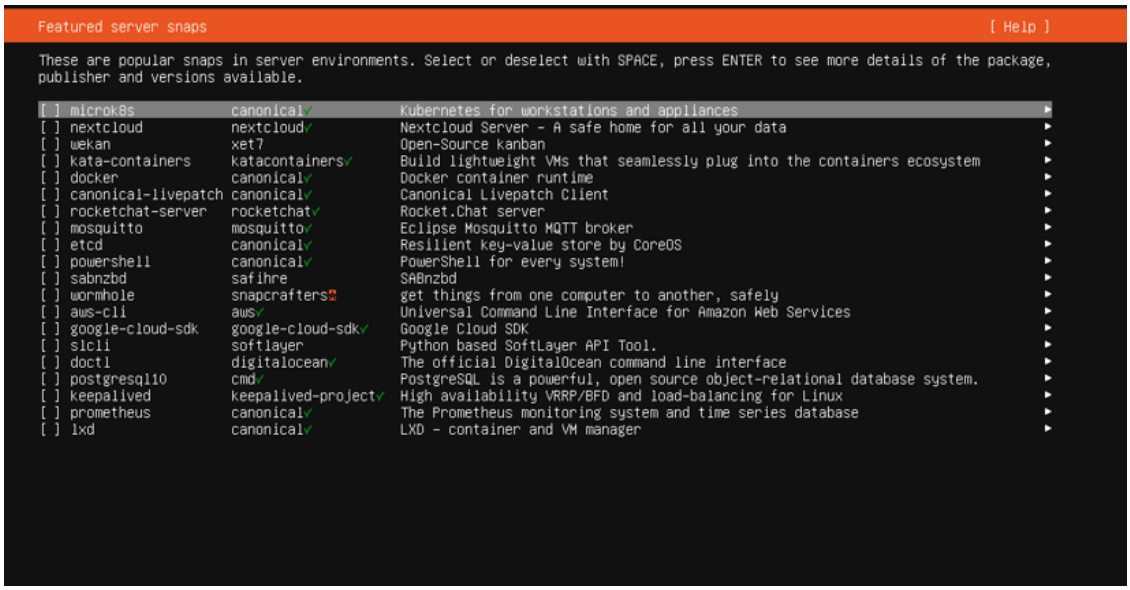
20. - Username: wikiuser

21. - Password: [Strong Password - Document Securely]



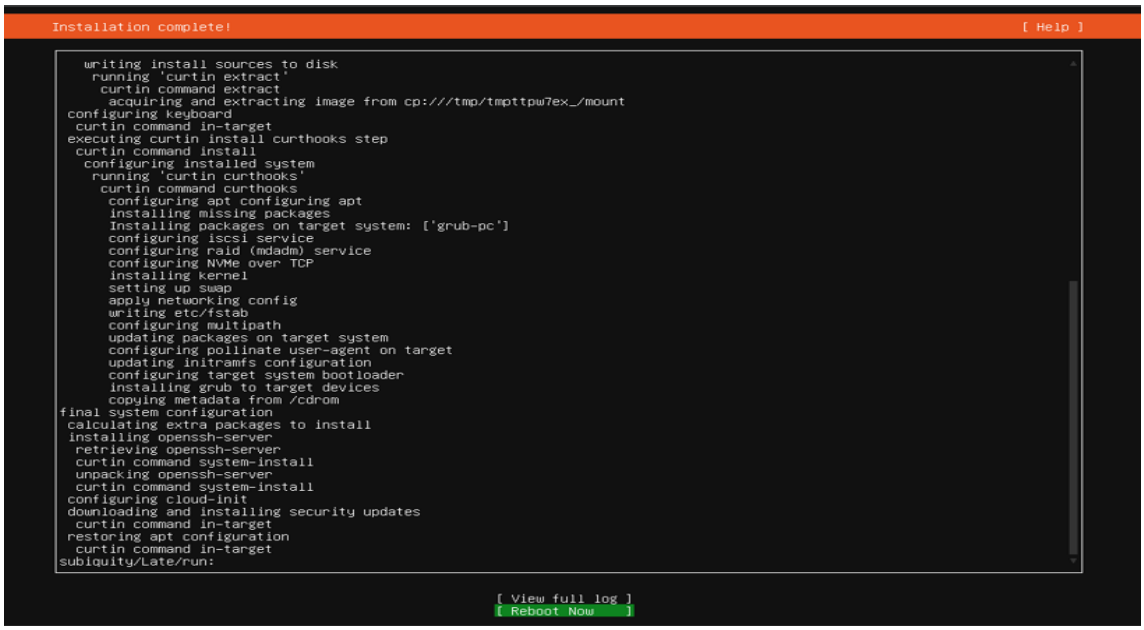
Featured Server Snap:

22. Additional Packages:



You can skip unless you want specific software pre-installed.

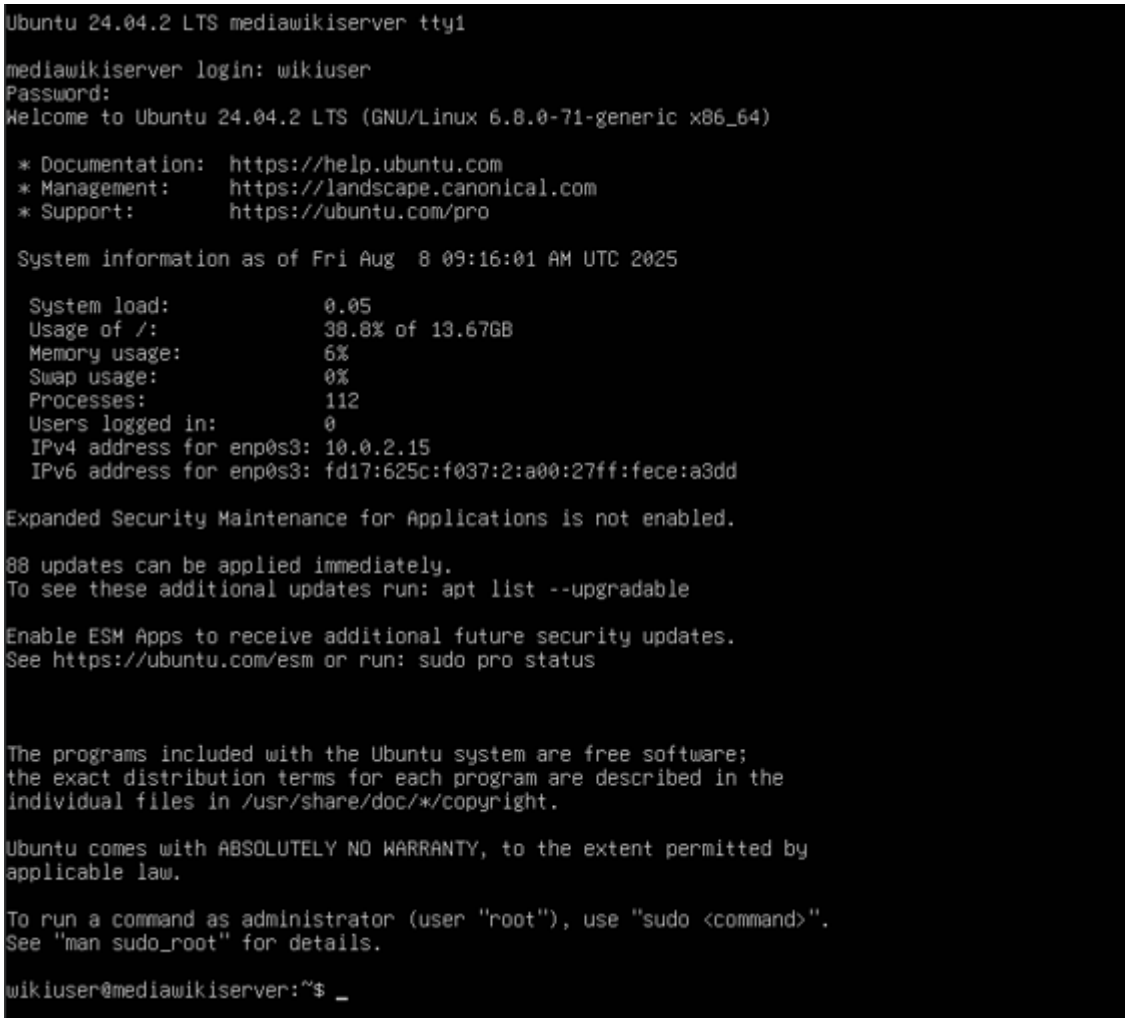
23. - Install minimal system



Wait while it installs Ubuntu Server (~5–15 min).

Complete Installation

1. **Installation Progress:**
    - Wait for package installation completion
    - System will automatically reboot
    - Remove installation media when prompted
2. **First Login:**
3. Username: admin
4. Password: [Previously configured password]



Advanced VM Configuration

Steps: System Settings

1. **Access VM Settings (VM → Settings)**
2. **Motherboard Settings:**

   - Boot Order: Optical, Hard Disk (Network disabled)

3. **Network Configuration:**
4. Adapter 1:
5. - Enable Network Adapter: ✓
6. - Attached to: NAT
7. - Adapter Type: Intel PRO/1000 MT Desktop
8. - Advanced → Port Forwarding:
9. * Rule Name: HTTP-MediaWiki
10. * Protocol: TCP
11. * Host Port: 8080
12. * Guest Port: 80

4. LAMP Stack Installation

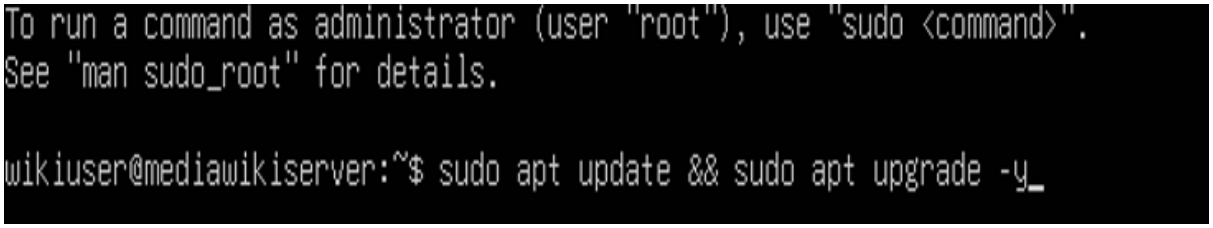
4.1 Update System

System Preparation and Updates

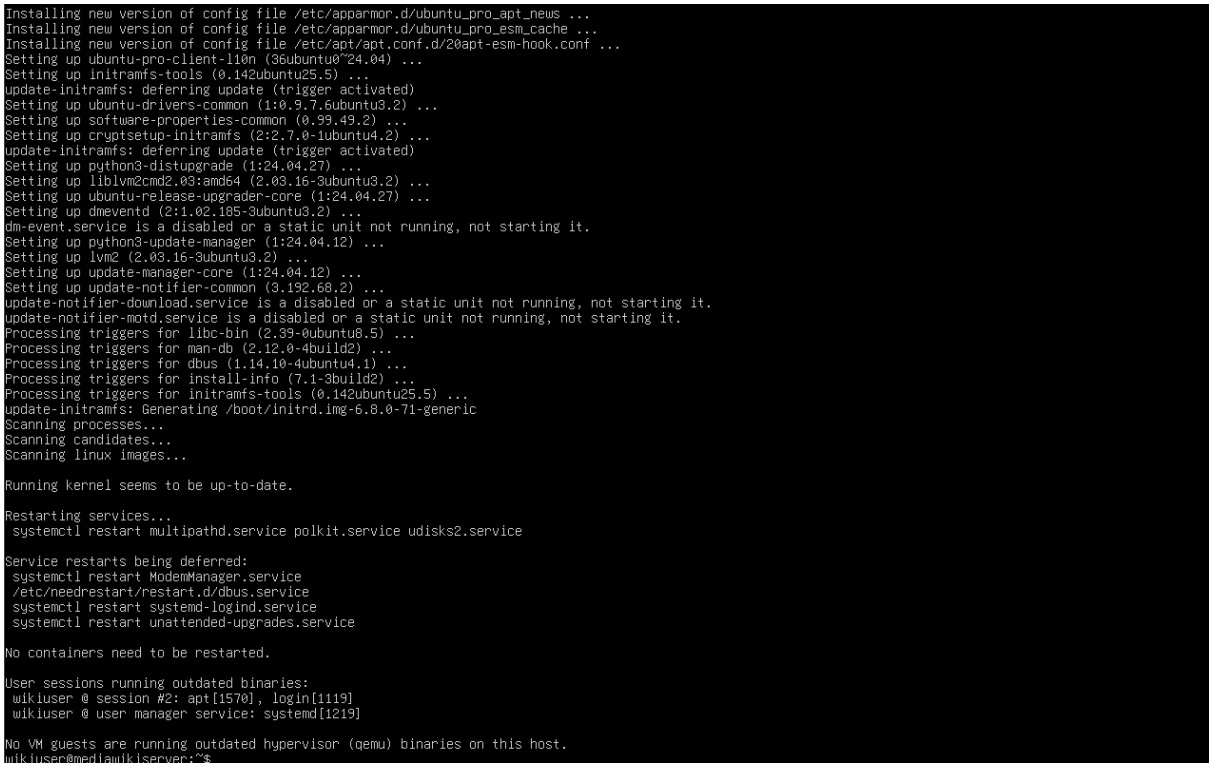
Step 1: Complete System Update

• In your VM terminal, run:

$ sudo apt update && sudo apt upgrade -y



• This step is required to identify or check the system and ensure the packages are installed and up-to-date.



4.2 Install Apache

Apache Web Server Installation and Configuration

Step 1: Install Apache

Install Apache web server

To install Apache web server on Linux system we use the package manager, run the below mentioned commands.

$sudo apt install apache2 -y

Step 2: Configure Apache Service

Enable Apache to start on boot

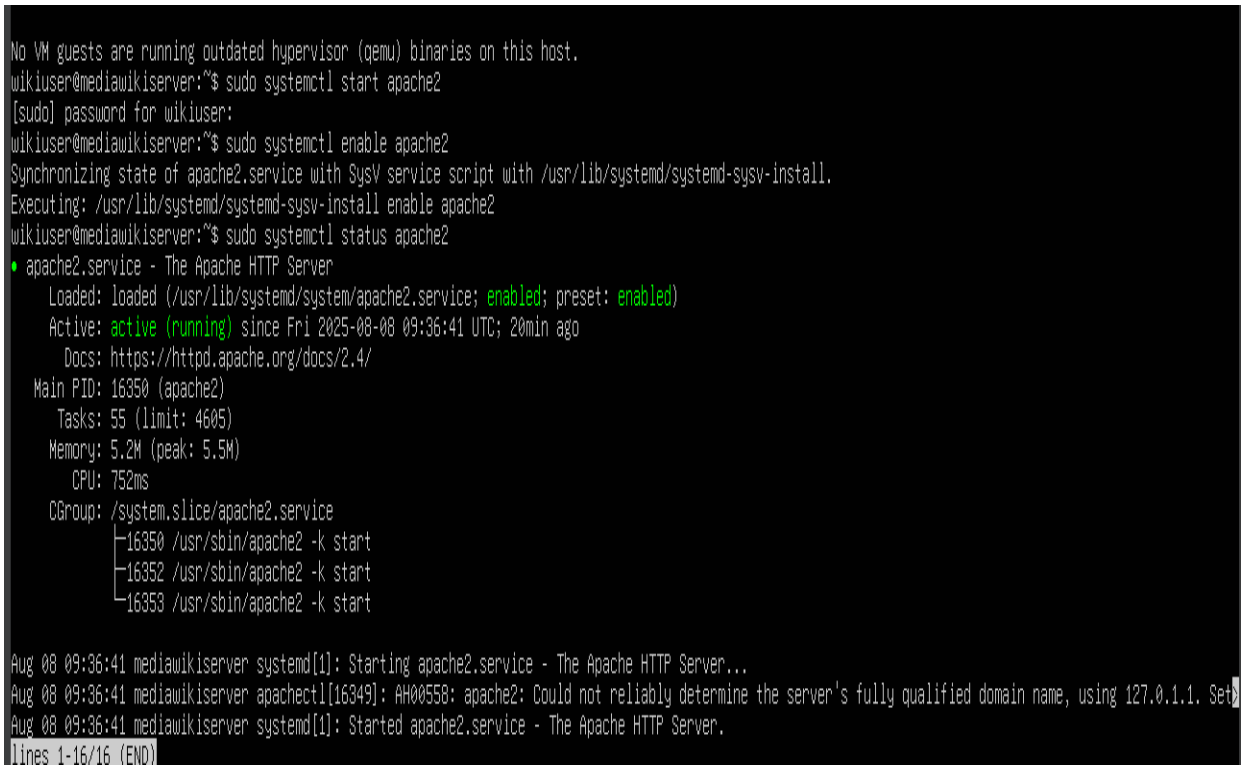
$sudo systemctl enable apache2

Start Apache service

$sudo systemctl start apache2

Check service status

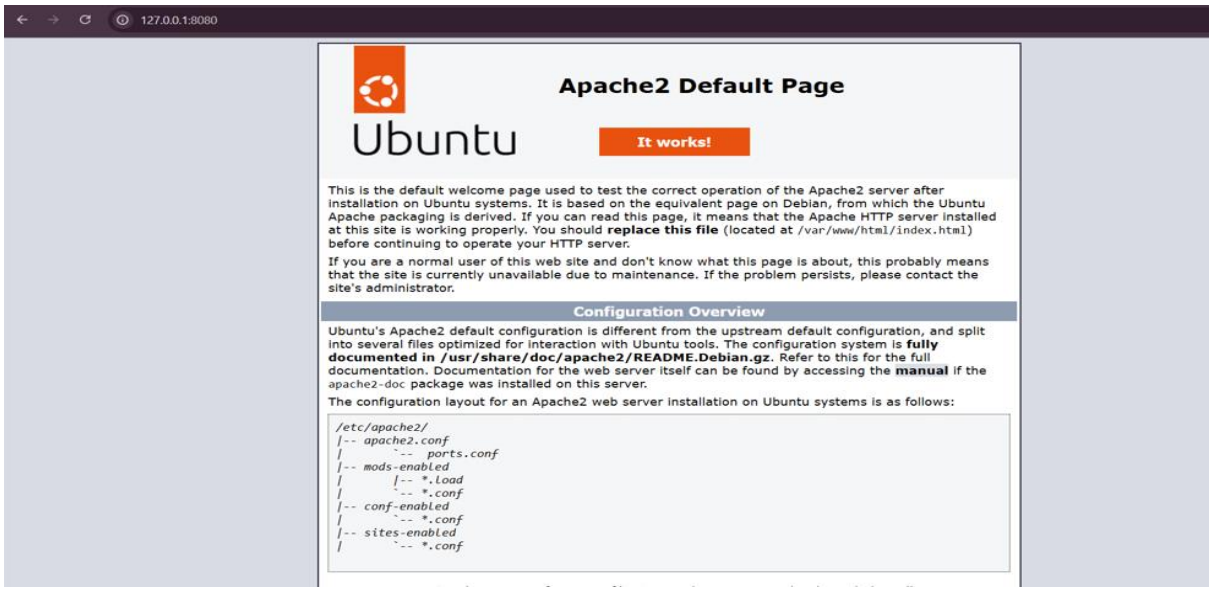
$sudo systemctl status apache2



Step 3: Test Apache Installation

Test Apache locally

• Next, we can test by opening your VM's IP in a browser — if you see the "Apache2 Ubuntu Default Page," the web server is ready.



4.3 Install MySQL

MySQL Database Server Installation

Step 1: Install MySQL Server

Install MySQL server package

• To install MySQL open terminal and run the following commands.

$sudo apt install mysql-server -y

• After installation, check the status of mysql:

$ sudo systemctl status mysql

Step 2: Secure MySQL Installation

Run security script

sudo mysql_secure_installation

Follow prompts:

VALIDATE PASSWORD COMPONENT: n

Remove anonymous users: y

Disallow root login remotely: y

Remove test database: y

Reload privilege tables: y

Step 3: Configure MySQL Service

Enable MySQL to start on boot

sudo systemctl enable mysql

Start MySQL service

sudo systemctl start mysql

MySQL Root Access Configuration

Step 3: Configure Root User

Access MySQL as root

$sudo mysql

Configure root user authentication

$ALTER USER 'root'@'localhost' IDENTIFIED WITH mysql_native_password BY 'SecureRootPassword123!';

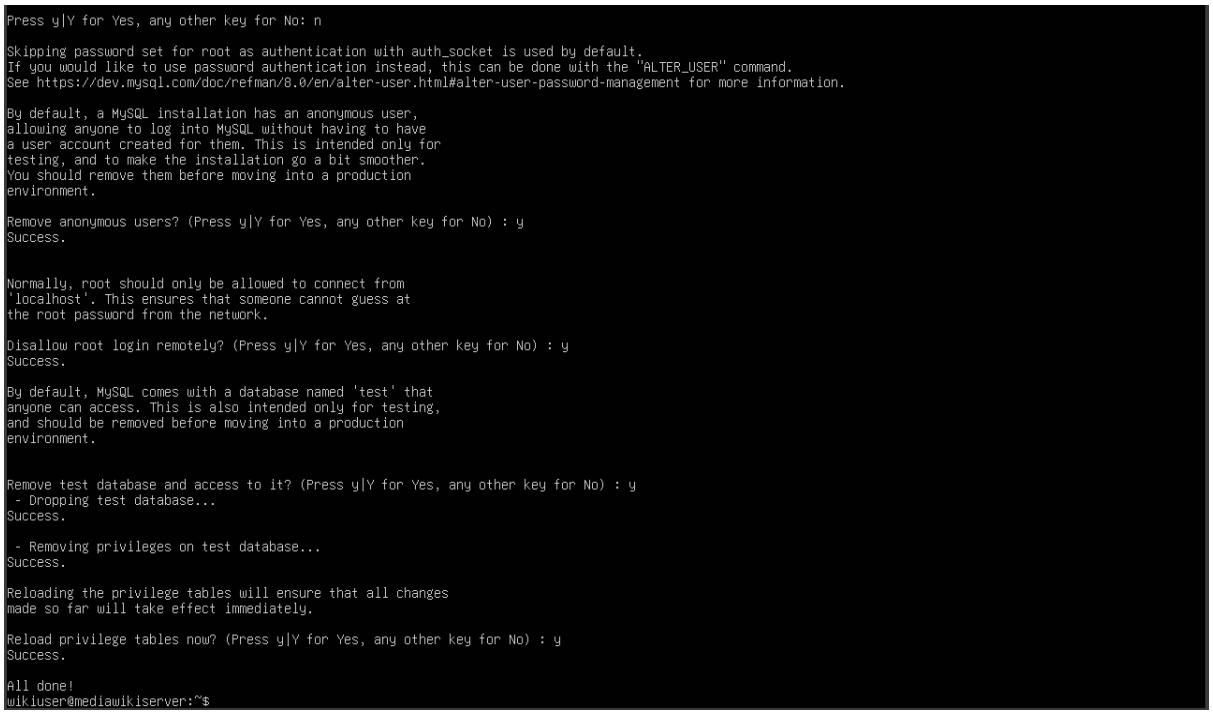
$FLUSH PRIVILEGES;

$EXIT;

Test root login

$mysql -u root -p

Enter password: SecureRootPassword123!



4.4 Install PHP

PHP Installation and Configuration

Step 1: Install PHP and Extensions

Install PHP and required modules for MediaWiki

• To install PHP open terminal ad run the below command.

$ sudo apt install php -y

```
wikiuser@mediawikiserver:~$ sudo apt install php libapache2-mod-php php-mysql php-xml php-mbstring php-intl php-gd php-cli unzip -y
[sudo] password for wikiuser:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  libapache2-mod-php8.3 php-common php8.3 php8.3-cli php8.3-common php8.3-gd php8.3-intl php8.3-mbstring php8.3-mysql php8.3-opcache php8.3-readline
  php8.3-xml
Suggested packages:
  php-pear zip
The following NEW packages will be installed:
  libapache2-mod-php libapache2-mod-php8.3 php php-cli php-common php-gd php-intl php-mbstring php-mysql php-xml php8.3 php8.3-cli php8.3-common php8.3-gd
  php8.3-intl php8.3-mbstring php8.3-mysql php8.3-opcache php8.3-readline php8.3-xml unzip
0 upgraded, 21 newly installed, 0 to remove and 0 not upgraded.
Need to get 6,063 kB of archives.
After this operation, 25.8 MB of additional disk space will be used.
Get:1 http://in.archive.ubuntu.com/ubuntu noble/main amd64 php-common all 2:93ubuntu2 [13.9 kB]
Get:2 http://in.archive.ubuntu.com/ubuntu noble-updates/main amd64 php8.3-common amd64 8.3.6-0ubuntu0.24.04.5 [740 kB]
Get:3 http://in.archive.ubuntu.com/ubuntu noble-updates/main amd64 php8.3-opcache amd64 8.3.6-0ubuntu0.24.04.5 [371 kB]
Get:4 http://in.archive.ubuntu.com/ubuntu noble-updates/main amd64 php8.3-readline amd64 8.3.6-0ubuntu0.24.04.5 [13.5 kB]
Get:5 http://in.archive.ubuntu.com/ubuntu noble-updates/main amd64 php8.3-cli amd64 8.3.6-0ubuntu0.24.04.5 [1,915 kB]
Get:6 http://in.archive.ubuntu.com/ubuntu noble-updates/main amd64 libapache2-mod-php8.3 amd64 8.3.6-0ubuntu0.24.04.5 [1,851 kB]
45% [6 libapache2-mod-php8.3 0 B/1,851 kB 0%]
```

Restart Apache to load new PHP configuration

Type the command:

$sudo systemctl restart apache2

For checking the status:

$sudo systemctl status apache2

```
wikiuser@mediawikiserver:~$ sudo systemctl restart apache2
wikiuser@mediawikiserver:~$ sudo systemctl status apache2
[sudo] password for wikiuser:
● apache2.service - The Apache HTTP Server
     Loaded: loaded (/usr/lib/systemd/system/apache2.service; enabled; preset: enabled)
     Active: active (running) since Fri 2025-08-08 12:52:24 UTC; 2h 59min ago
       Docs: https://httpd.apache.org/docs/2.4/
    Process: 12466 ExecStart=/usr/sbin/apachectl start (code=exited, status=0/SUCCESS)
   Main PID: 12469 (apache2)
      Tasks: 6 (limit: 4605)
     Memory: 13.1M (peak: 13.3M)
        CPU: 475ms
     CGroup: /system.slice/apache2.service
             ├─12469 /usr/sbin/apache2 -k start
             ├─12471 /usr/sbin/apache2 -k start
             ├─12472 /usr/sbin/apache2 -k start
             ├─12473 /usr/sbin/apache2 -k start
             ├─12474 /usr/sbin/apache2 -k start
             └─12475 /usr/sbin/apache2 -k start

Aug 08 12:52:24 mediawikiserver systemd[1]: Starting apache2.service - The Apache HTTP Server...
Aug 08 12:52:24 mediawikiserver apachectl[12468]: AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 127.0.1.1. Set>
Aug 08 12:52:24 mediawikiserver systemd[1]: Started apache2.service - The Apache HTTP Server.
wikiuser@mediawikiserver:~$
```

Step 2: Test PHP Installation

Create PHP info file for testing

echo "<?php phpinfo(); ?>" | sudo tee /var/www/html/info.php

```
wikiuser@mediawikiserver:~$ echo "<?php phpinfo(); ?>"|sudo tee /var/www/html/info.php
<?php phpinfo(); ?>
wikiuser@mediawikiserver:~$ ls -l /var/www/html/
total 16
-rw-r--r-- 1 root root 10671 Aug  8 09:36 index.html
-rw-r--r-- 1 root root    20 Aug  8 15:59 info.php
wikiuser@mediawikiserver:~$
```

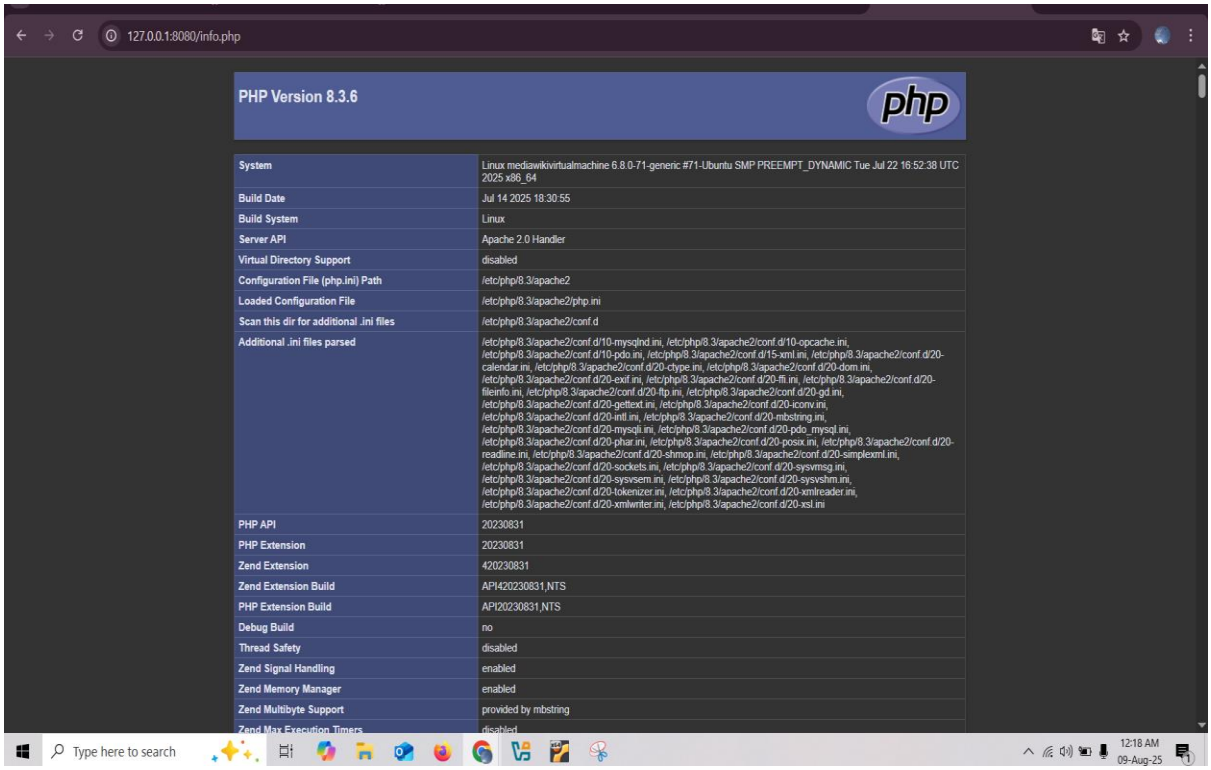
Restart Apache to load new PHP configuration

sudo systemctl restart apache2

Step 3: Web-based PHP Testing

Access via port forwarding from host browser:

http://localhost:8080/info.php



5. Database Configuration

MediaWiki Database Setup

Database and User Creation

Step 1: Create MediaWiki Database

Login to MySQL as root

$sudo mysql -u root -p

Execute the following SQL commands:

• Create a new database named 'wikidb' for MediaWiki.

$ CREATE DATABASE wikidb;

• Create a new MySQL user 'wikiuser' with a secure password.

$ CREATE USER 'wikiuser'@'localhost' IDENTIFIED BY 'strongpassword’;

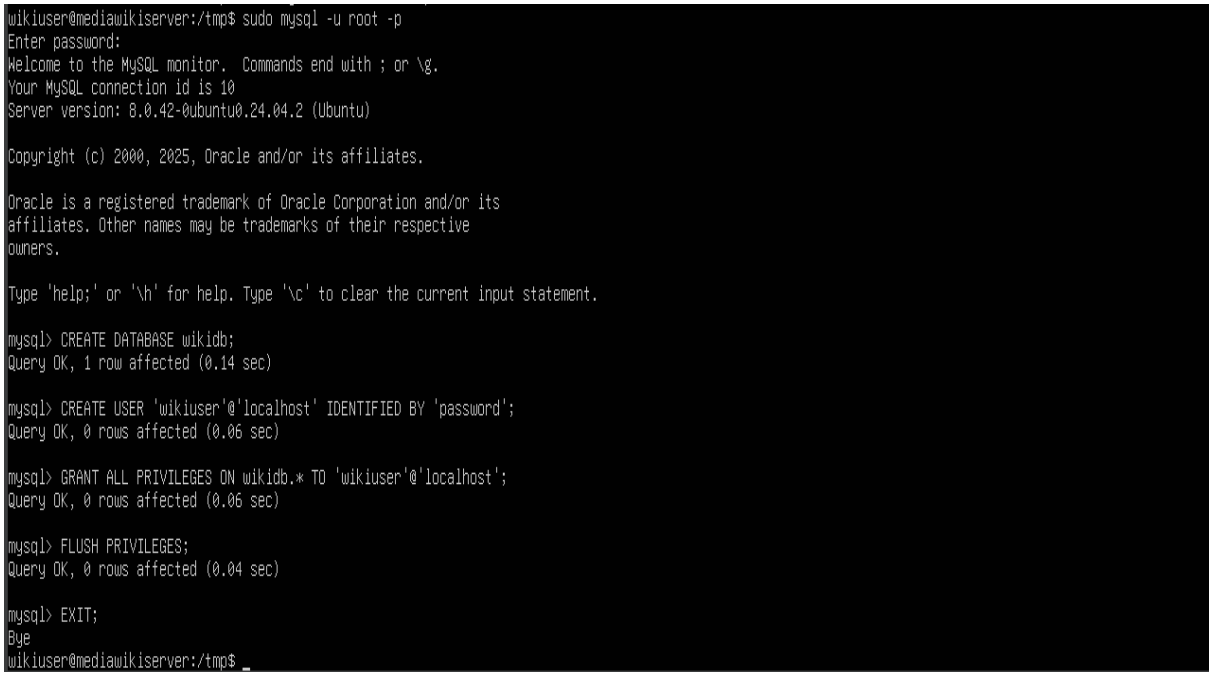
• Give full access to 'wikiuser' on the 'wikidb' database.

$ GRANT ALL PRIVILEGES ON wikidb.* TO 'wikiuser'@'localhost’;

• Apply changes and exit the MySQL console.

$ FLUSH PRIVILEGES;

$ EXIT;



6. MediaWiki Installation

6.1 Download and Extract

MediaWiki Source Download

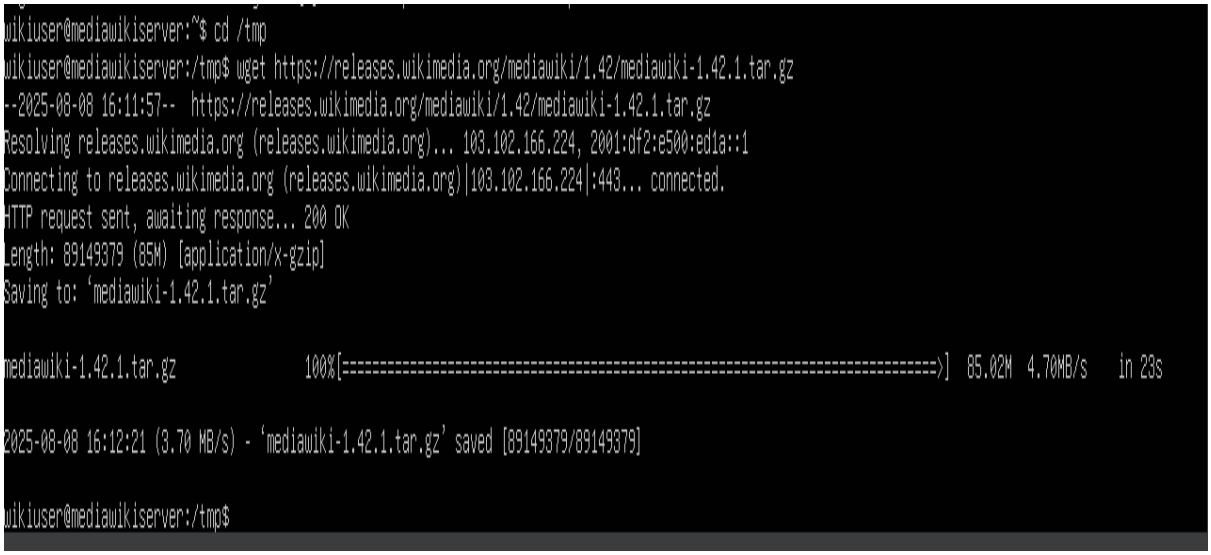
Step 1: Download MediaWiki

Navigate to temporary directory

cd /tmp

Download latest stable MediaWiki

wget https://releases.wikimedia.org/mediawiki/1.39/mediawiki-1.39.5.tar.gz



Step 2: Extract and Install MediaWiki

Extract MediaWiki archive

$tar -xzf mediawiki-1.39.5.tar.gz

Move to web directory

$sudo mv mediawiki-1.39.5 /var/www/html/mediawiki

Set proper ownership

$sudo chown -R www-data:www-data /var/www/html/mediawiki

Set appropriate permissions

sudo chmod -R 755 /var/www/html/mediawiki

Verify installation

ls -la /var/www/html/mediawiki/

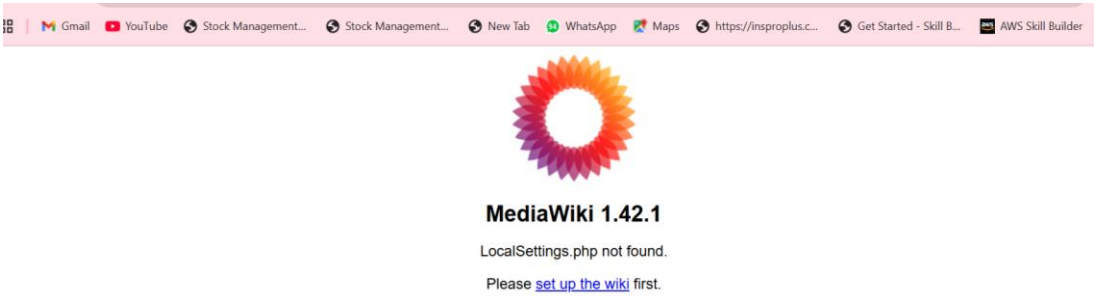
```
wikiuser@mediawikiserver:/tmp$ sudo mv mediawiki-1.42.1 /var/www/html/mediawiki
wikiuser@mediawikiserver:/tmp$ sudo chown -R www-data:www-data /var/www/html/mediawiki
wikiuser@mediawikiserver:/tmp$ sudo chmod -R 755 /var/www/html/mediawiki
wikiuser@mediawikiserver:/tmp$ sudo systemctl restart apache2
```

6.2 Complete Web Installation

MediaWiki Web-based Setup

Step 1: Access MediaWiki Setup

1. **Open web browser and navigate to:**
    - Local VM: http://localhost/mediawiki/
    - From host (port forwarding): http://localhost:8080/mediawiki/
2. **Click "set up the wiki" link**



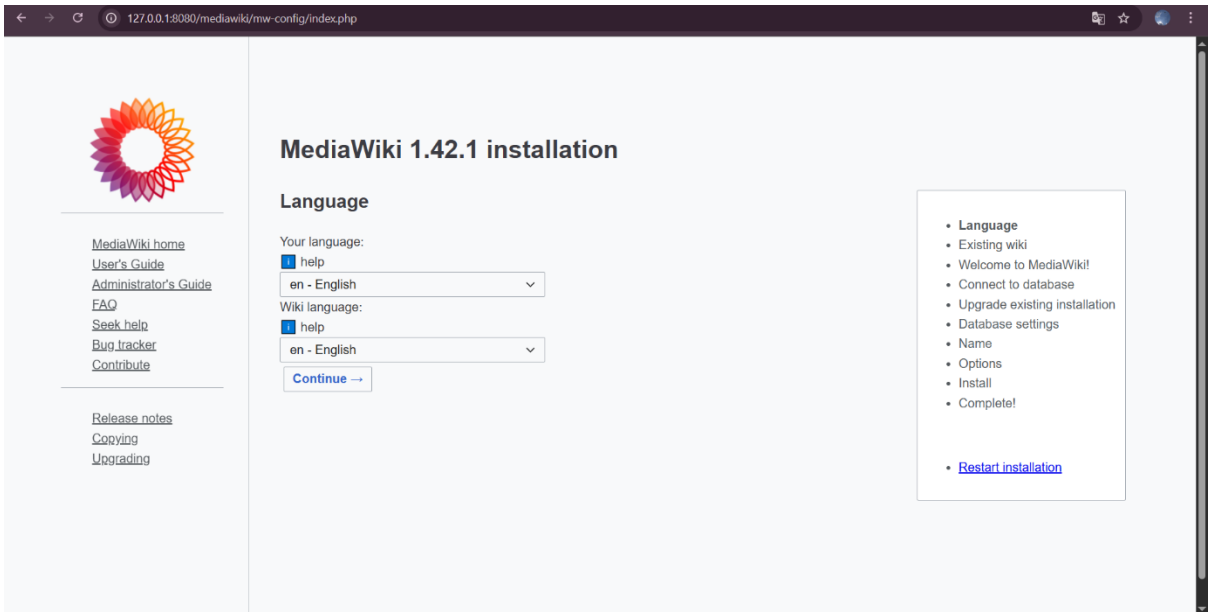
Step 2: Follow Setup Wizard

Language Selection:

Wiki language: English

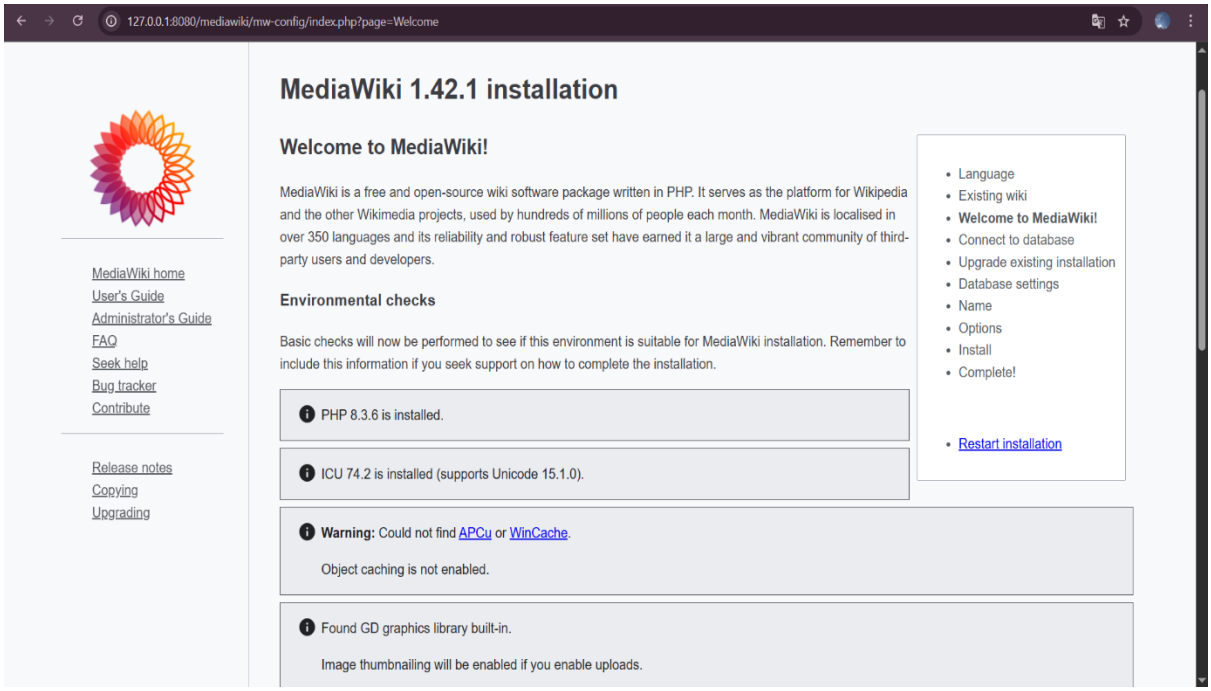
Your language: English

→ Continue



Environment Check:

- Verify all requirements show green checkmarks:
  - PHP 7.4.x ✓
  - MySQL connectivity ✓
  - Required PHP extensions ✓



- → Continue

Database Configuration:

Database Settings:

- Database type: MySQL (or compatible)

- Database host: localhost

- Database name: mediawiki_db

- Database table prefix: mw_

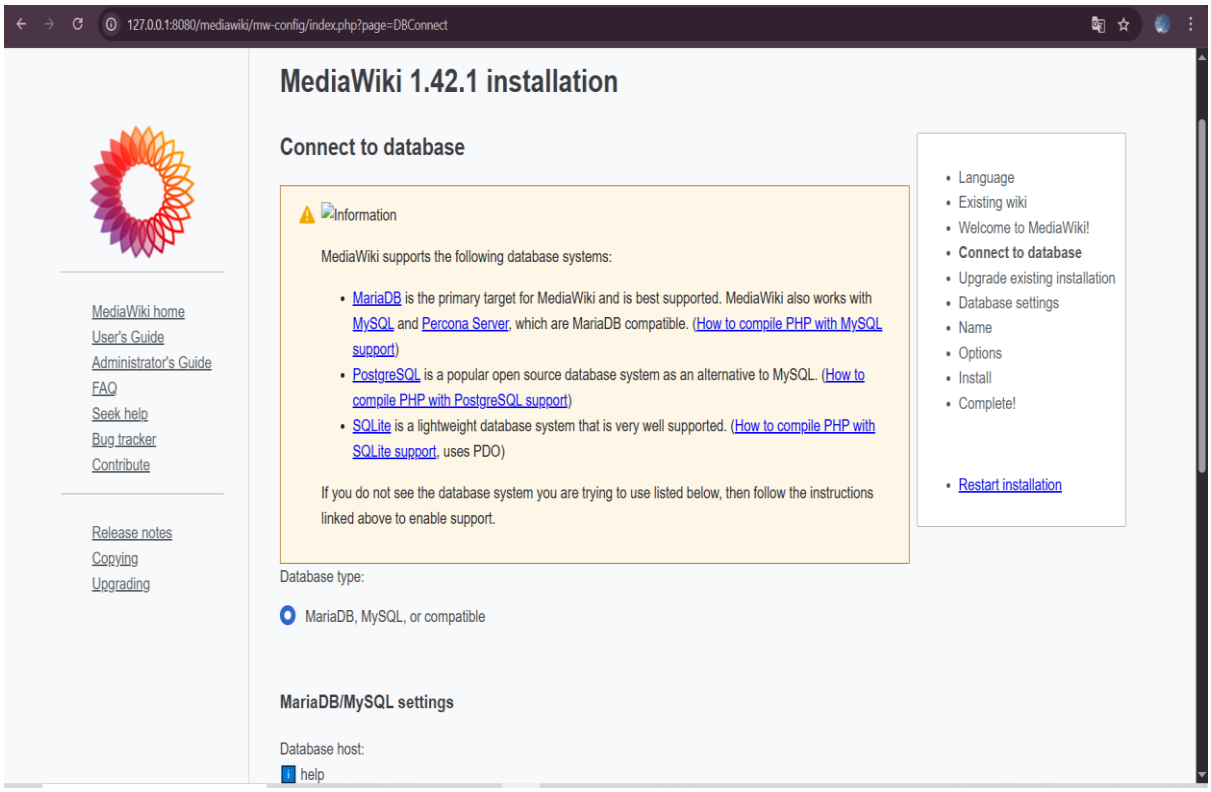
- Database username: mediawiki_user

- Database password: MediaWikiSecurePass123!

Advanced Settings:

- Database character set: UTF-8

- Storage engine: InnoDB



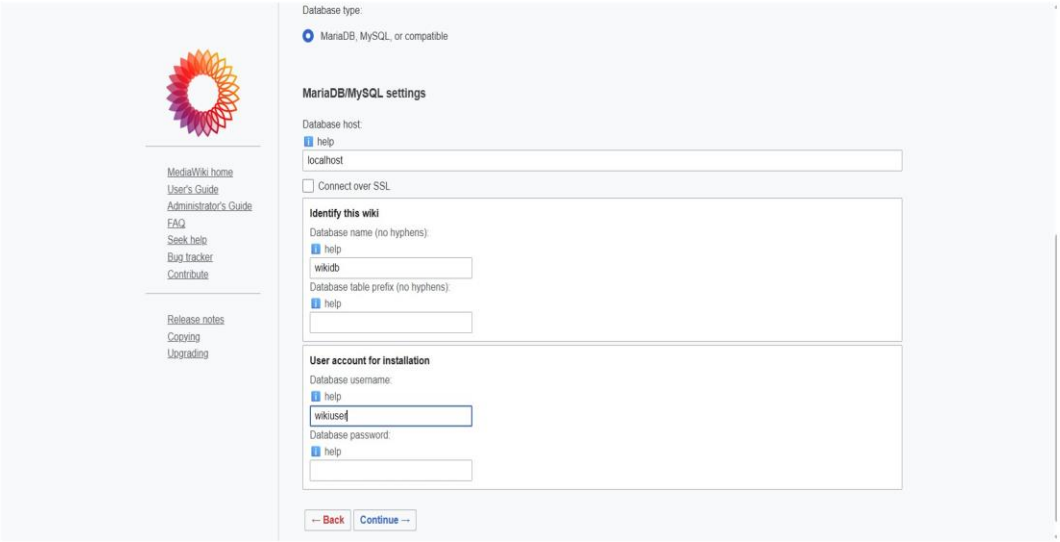
→ Continue

Database Settings:

Installation Options:

- Use same account for installation: Yes

- Create database if it doesn't exist: No (already created)



→ Continue

Name and Administrator Account:

Wiki Configuration:

- Name of wiki: [Company Name] Knowledge Base

- Project namespace: Same as wiki name

Administrator Account:

- Username: admin

- Password: [Strong Administrator Password]

- Password confirm: [Repeat Password]

- Email address: admin@company.local

→ Continue

Options:

Additional Settings:

- Ask me more questions: No (use defaults)

- Email settings: Skip for now

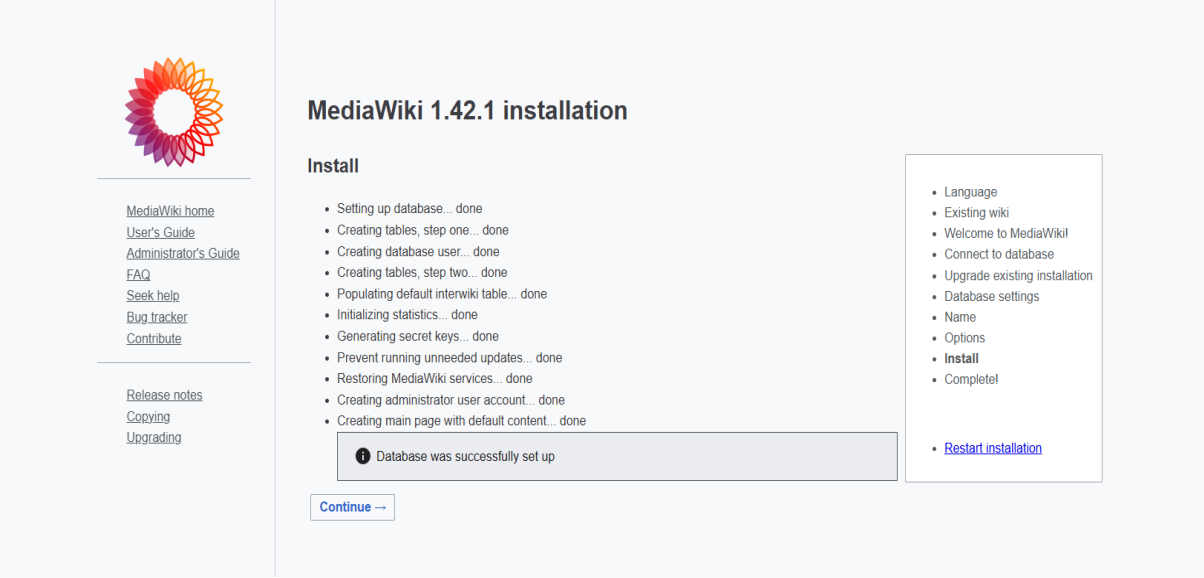
- Extensions: Skip for now

- Images and file uploads: Enable file uploads ✓

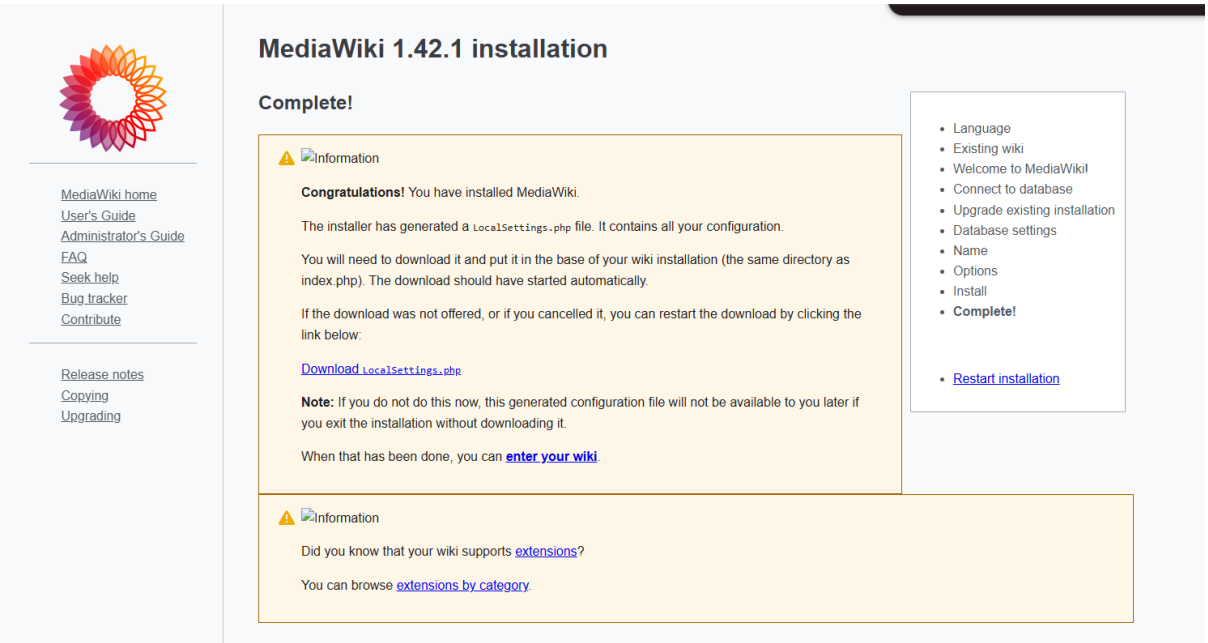
- Logo: Skip (can be configured later)

- Advanced configuration: Skip

→ Continue



→ Continue



Installation completed.

Step 3: Download and Install LocalSettings.php

1. **Download LocalSettings.php file** when prompted
2. **Transfer file to VM using one of these methods:**

Method A: Shared Folder (Recommended)

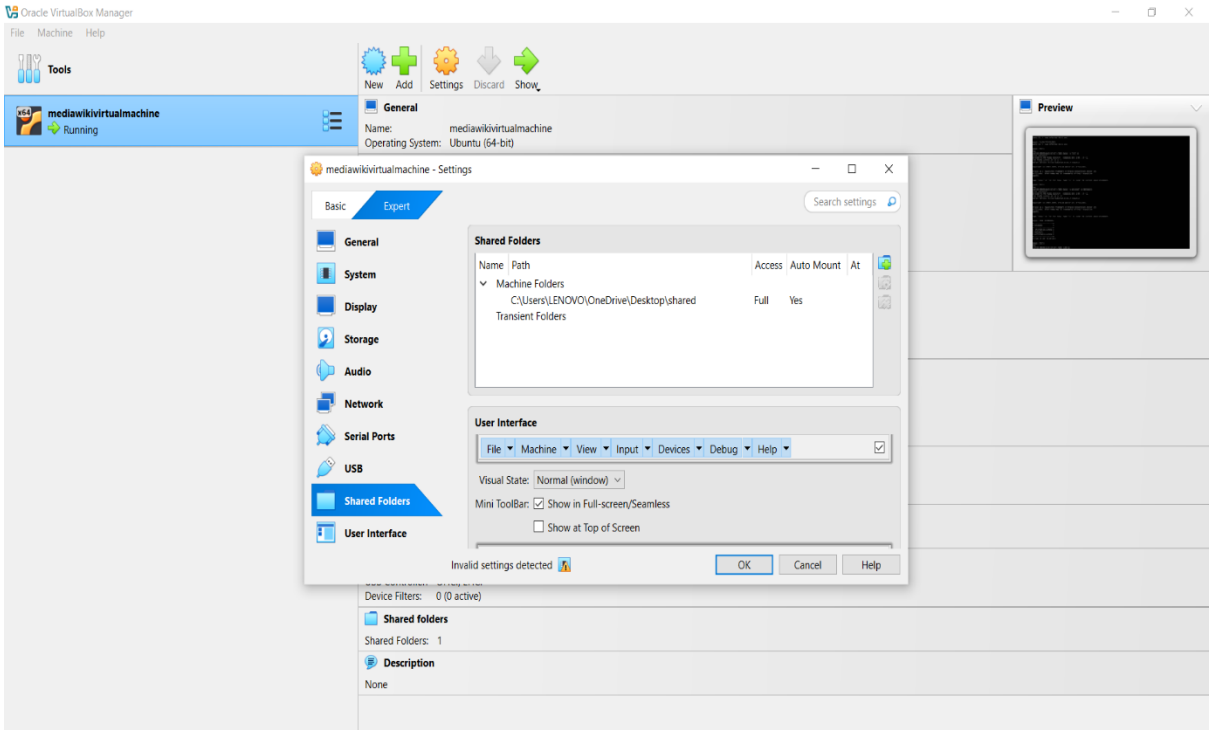
On host: Create shared folder

1. Create folder on Desktop: VM-Shared

2. Copy LocalSettings.php to this folder

3. In VirtualBox: Devices → Shared Folders → Shared Folder Settings

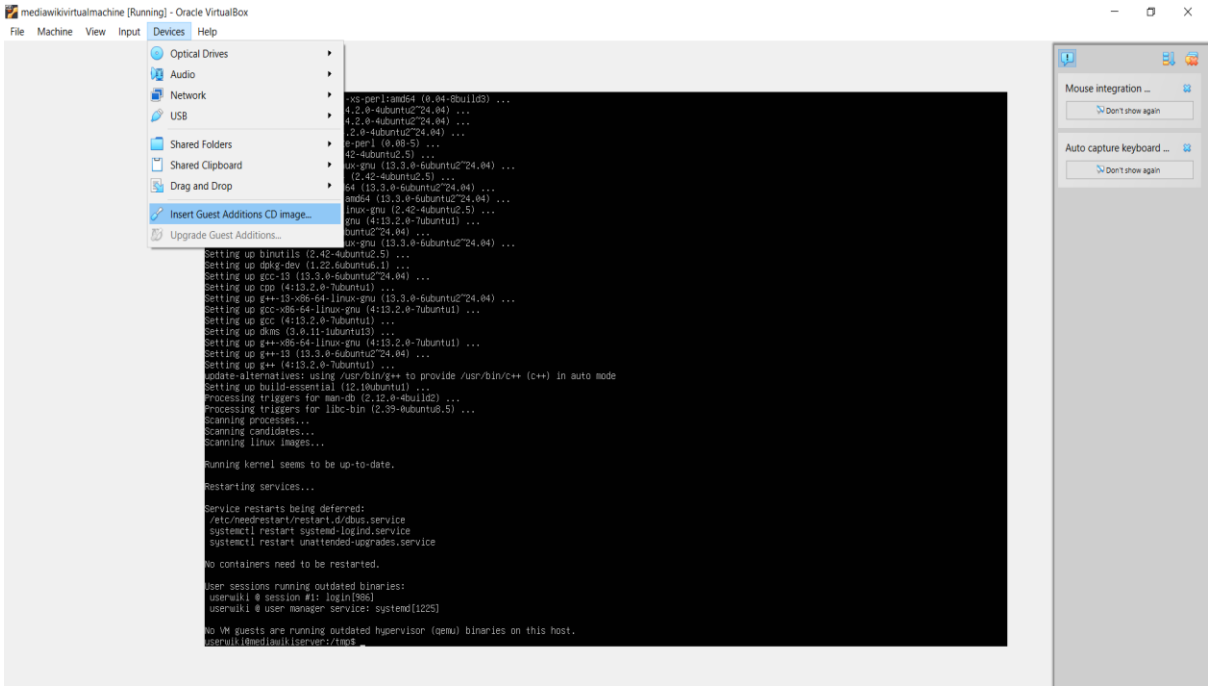
4. Add folder: Path=Desktop\VM-Shared, Name=shared, Auto-mount=✓



In VM: Install Guest Additions

$sudo apt install build-essential dkms linux-headers-$(uname -r) -y

Insert Guest Additions CD via VirtualBox menu



$sudo mkdir /mnt/cdrom

$sudo mount /dev/cdrom /mnt/cdrom

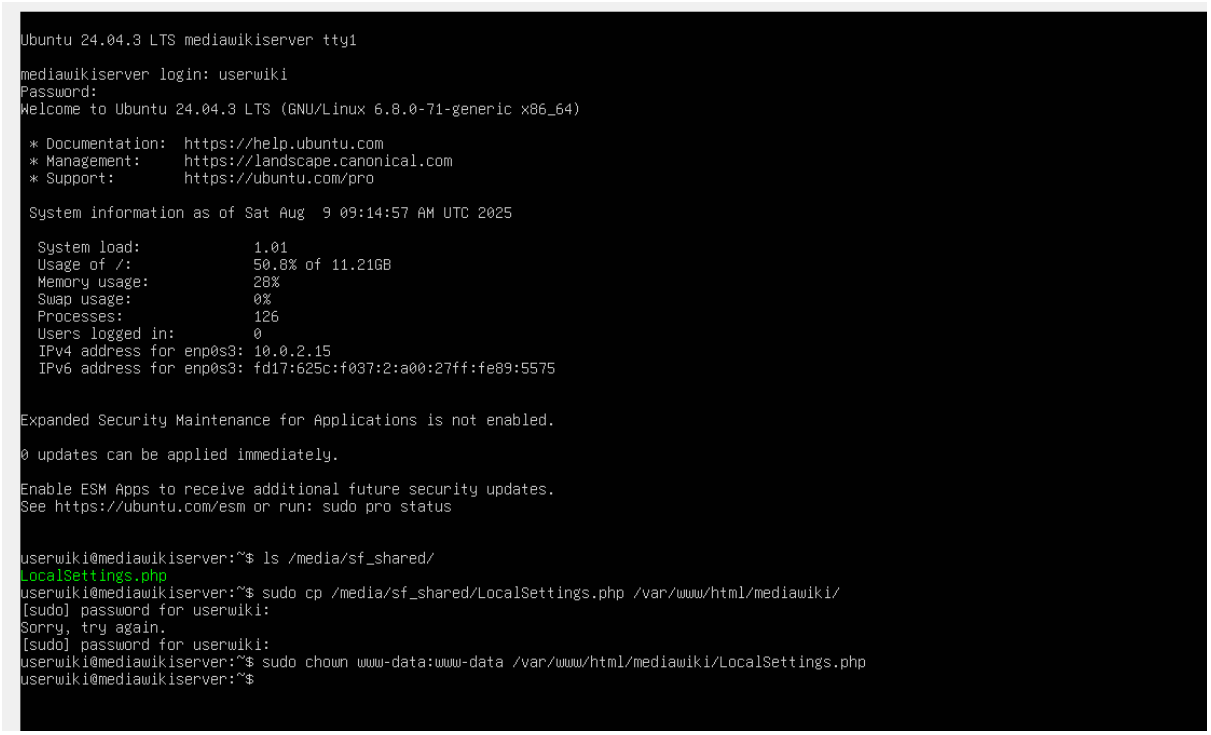
$cd /mnt/cdrom

$sudo ./VBoxLinuxAdditions.run

Reboot VM

sudo reboot

After reboot, copy LocalSettings.php



$sudo cp /media/sf_shared/LocalSettings.php /var/www/html/mediawiki/

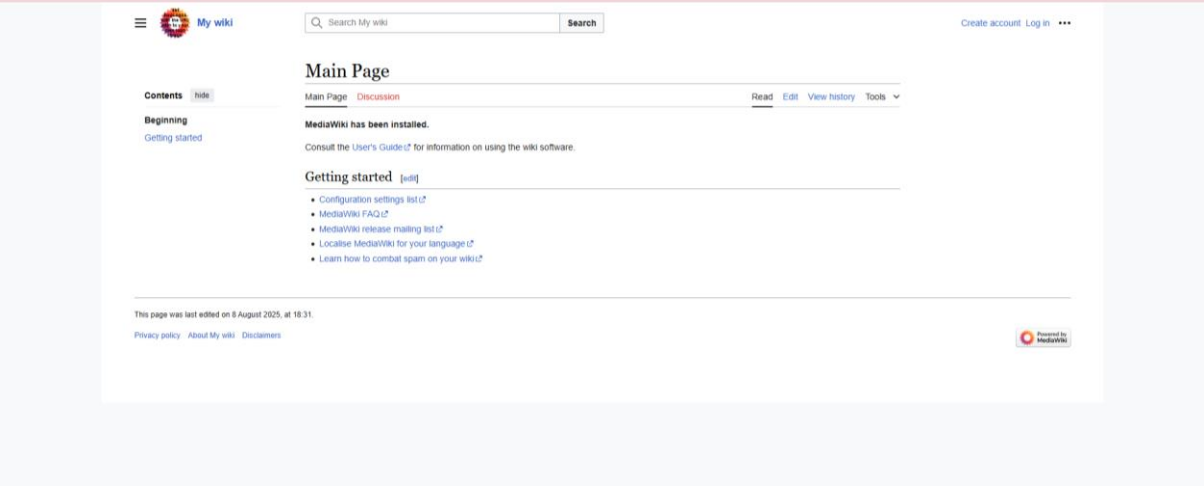
$sudo chown www-data:www-data /var/www/html/mediawiki/LocalSettings.php

$sudo chmod 644 /var/www/html/mediawiki/LocalSettings.php

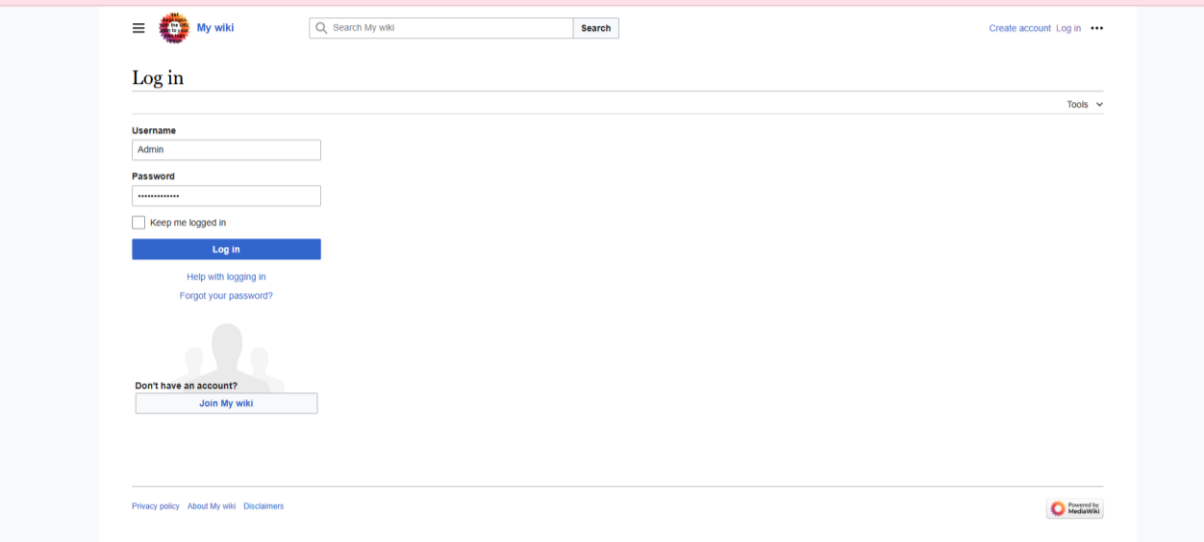
```
wikiuser@mediawikiserver:/tmp$ sudo mkdir -p /mnt/Downloads
[sudo] password for wikiuser:
wikiuser@mediawikiserver:/tmp$ sudo mount -t vboxsf Downloads /mnt/Downloads
wikiuser@mediawikiserver:/tmp$ sudo cp /mnt/Downloads/LocalSettings.php /var/www/html/mediawiki/
wikiuser@mediawikiserver:/tmp$ sudo chown www-data:www-daata /var/www/html/mediawiki/LocalSettings.php
chown: invalid group: 'www-data:www-daata'
wikiuser@mediawikiserver:/tmp$ sudo chown www-data:www-data /var/www/html/mediawiki/LocalSettings.php
wikiuser@mediawikiserver:/tmp$ sudo chmod 644 /var/www/html/mediawiki/LocalSettings.php
```

- After this in the mediawiki site main page do rest of the setup:

Type http://127.0.0.1:8080/mediawiki/index.php in the local machine.



- Login by giving the Admin username and password



Create Your First Wiki Page

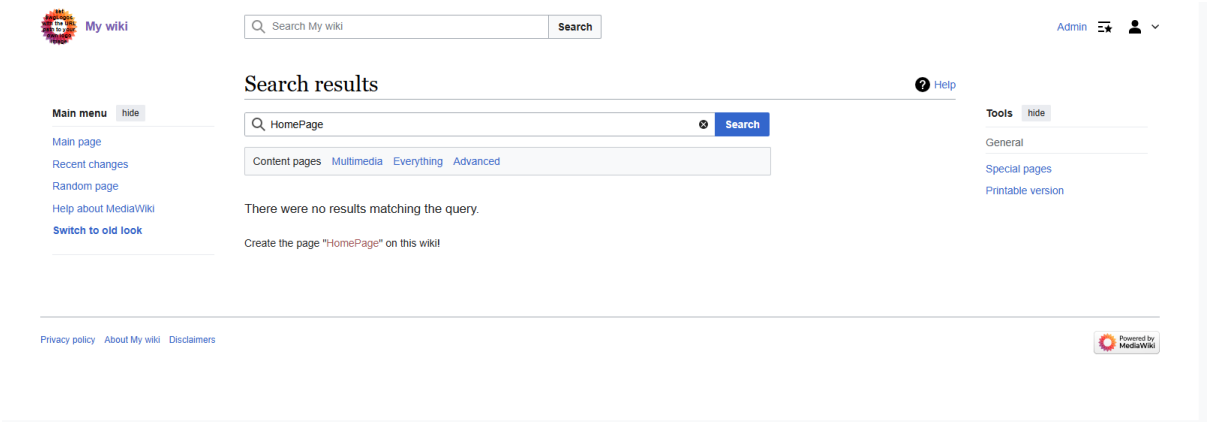
• In the search bar, type a page name (example: HomePage) and press Enter.

• MediaWiki will say the page doesn’t exist — click Create this page.

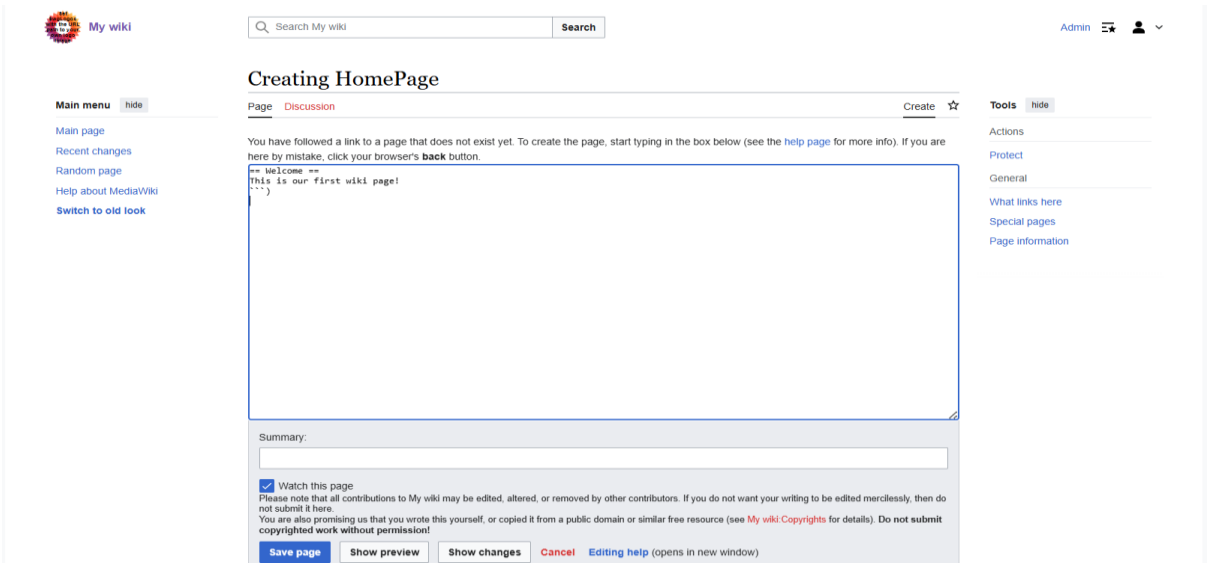
• Type your content

example:

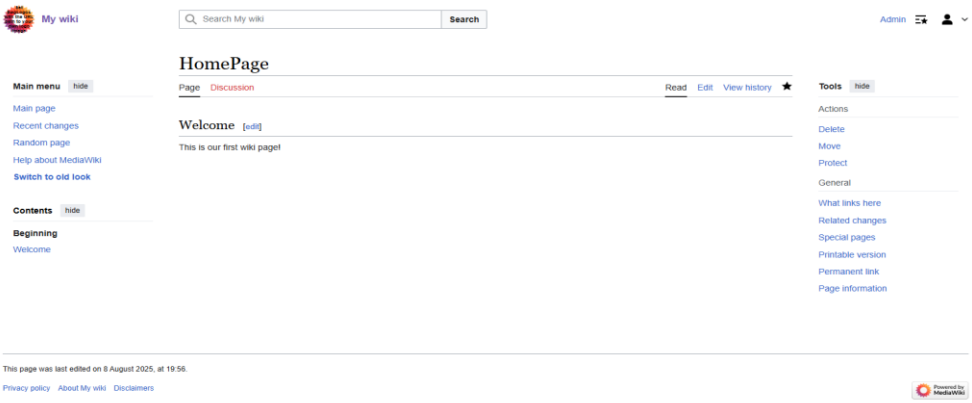
== Welcome == This is our first wiki page!



- Save the home page.



- Mediawiki home page is created.



7.If Linux Fails: Use WAMP on Windows

Steps:

• Download WAMP from https://www.wampserver.com/

• Install and start services.

• Place MediaWiki folder in C:\wamp64\www\mediawiki

• Open http://localhost/mediawiki in browser • Follow same steps as above for setup.

8. Backup Mechanism Setup

8.1 Backup Components

Backup Strategy Overview

Components Requiring Backup:

1. **Database Content:** Complete MediaWiki database with all articles, users, and metadata
2. **File Uploads:** User-uploaded images and media files
3. **Configuration Files:** LocalSettings.php and custom configurations
4. **Apache Configuration:** Virtual host and custom Apache settings

Backup Requirements:

- **Frequency:** Daily automated backups
- **Retention Policy:** 7 daily, 4 weekly, 12 monthly backups
- **Storage Location:** /opt/backups/ with organized subdirectories
- **Verification:** Automated backup integrity checking
- **Logging:** Comprehensive backup operation logging

Backup Mechanism Setup

Understanding Backup Requirements

Backing up MediaWiki involves safeguarding both the database and the wiki's files. The database stores all page content, user data, and metadata, while the file system contains uploaded images and configuration files (notably LocalSettings.php). Losing either would cause loss of data or service interruption.

8.2 Writing a Backup Script

I created a shell script /usr/local/bin/backup_mediawiki.sh to automate backup creation:

Steps to Create Backup Script

• Create a backup folder:

$ mkdir ~/mediawiki-backups

• Create backup script:

$ nano ~/mediawiki-backups/backup.sh

• Contents of backup.sh:

```
#!/bin/bash

 BACKUP_DIR=~/mediawiki-backups/$(date +%F)

 mkdir-p "$BACKUP_DIR"

# Backup MySQL database
 mysqldump-u root-pYOURPASSWORD wikidb >
 "$BACKUP_DIR/wikidb.sql"

 # Backup mediawiki folder
cp-r /var/www/html/mediawiki "$BACKUP_DIR/mediawiki "
```

- Make it executable:

$ chmod +x ~/mediawiki-backups/backup.sh

8.3 Scheduling the Backup

To automate backups, I scheduled the script via cron. I edited the root user's crontab with:

Automate with Cron

$ crontab-e

```
wikiuser@mediawikiserver:/tmp$ crontab -e
no crontab for wikiuser - using an empty one

Select an editor.  To change later, run 'select-editor'.
  1. /bin/nano        <---- easiest
  2. /usr/bin/vim.basic
  3. /usr/bin/vim.tiny
  4. /bin/ed

Choose 1-4 [1]:
```

• Add this line for daily backup at 2AM:

0 2 * * * /home/youruser/mediawiki-backups/backup.sh

- **To view the logs run**

$ ls -l /home/wikiuser/mediawiki-backups

```
wikiuser@mediawikiserver:/tmp$ sudo ls -l /home/wikiuser/mediawiki-backups
total 24
drwxrwxr-x  2 wikiuser wikiuser 4096 Aug  9 11:43 2025-08-09
-rw-rw-r--  1 wikiuser wikiuser 1089 Aug  9 13:17 backup.log
-rwxrwxr-x  1 wikiuser wikiuser  889 Aug  9 13:48 backup.sh
drwxr-xr-x 14 wikiuser wikiuser 4096 Aug  9 12:32 mediawiki_2025-08-09_12-31-57
drwxr-xr-x 14 wikiuser wikiuser 4096 Aug  9 12:37 mediawiki_2025-08-09_12-37-04
drwxr-xr-x 14 wikiuser wikiuser 4096 Aug  9 13:17 mediawiki_2025-08-09_13-17-01
-rw-rw-r--  1 wikiuser wikiuser    0 Aug  9 12:32 wiki_db_2025-08-09_12-31-57.sql
-rw-rw-r--  1 wikiuser wikiuser    0 Aug  9 12:37 wiki_db_2025-08-09_12-37-04.sql
-rw-rw-r--  1 wikiuser wikiuser    0 Aug  9 13:17 wiki_db_2025-08-09_13-17-01.sql
wikiuser@mediawikiserver:/tmp$
```

This instructs the system to run the backup script every day at 2:00 AM and logs output for review.

9. Troubleshooting and Lessons Learned

Common Issues and Solutions

Issue	Possible Cause	Solution
Apache service not starting	Port 80 already in use	Stop conflicting service ($ sudo systemctl stop apache2 on other instance) or change Apache port in /etc/apache2/ports.conf
MediaWiki page not loading	Apache or MySQL service stopped	Restart services: $ sudo systemctl restart apache2 mysql
"Error establishing a database connection"	Incorrect DB username/password in LocalSettings.php	Update credentials in LocalSettings.php and verify MySQL user permissions
phpinfo() not displaying	PHP module not installed or enabled	Install PHP: $ sudo apt install php libapache2-mod-php and restart Apache
Images not uploading	images/ folder permissions issue	Grant correct permissions: $ sudo chown -R www-data:www-data /var/www/html/mediawiki/images
Backup script fails	Missing mysqldump or permission error	Install MySQL client tools, ensure DB user has SELECT privilege
Restore fails	Incorrect backup file path or corrupted file	Verify file path and integrity; re-run backup and restore
WAMP not running on Windows	Port conflict or missing dependencies	Change Apache/MySQL ports in WAMP settings and restart services

Lessons Learned

During the setup, several issues were encountered and resolved:

- **Missing PHP extensions** caused errors during MediaWiki setup; installing php-mbstring and php-intl resolved these.
- **File permissions** needed correction for Apache's user (www-data) to access the MediaWiki directory properly.
- **MySQL connection issues** were due to incorrect credentials or the MySQL service not running; verifying status and correct credentials fixed this.
- **Apache errors (403 or 500)** were resolved by checking error logs at /var/log/apache2/error.log and correcting configuration issues.
- Testing backups by restoring on a test VM confirmed their validity.

These lessons highlight the importance of verifying prerequisites and carefully reviewing logs when errors occur.

10.Restore Guide

To restore from a backup:

Restore database

mysql-u root-p wikidb < /path/to/backup/wikidb.sql

Restore MediaWiki files

cp-r /path/to/backup/mediawiki /var/www/html/

Make sure to reconfigure LocalSettings.php if needed.

11. Conclusion

This document detailed a comprehensive approach to installing and configuring MediaWiki on a Linux VM with a LAMP stack, followed by establishing an automated backup strategy. The instructions included all critical steps, from VM preparation to web installation and backup automation, with troubleshooting tips and alternative solutions for Windows environments.

By following this guide, one can deploy a secure, scalable, and maintainable wiki system suitable for collaborative knowledge sharing within organizations.

12. Appendix: Commands Summary

$sudo apt update && sudo apt upgrade -y

$sudo apt install apache2 mysql-server php libapache2-mod-php php-mysql php-intl php-mbstring php-xml php-gd php-curl -y

$sudo mysql_secure_installation

$sudo mysql -u root -p

$CREATE DATABASE mediawiki;

$CREATE USER 'wikiuser'@'localhost' IDENTIFIED BY 'StrongPassword123!';

$GRANT ALL PRIVILEGES ON mediawiki.* TO 'wikiuser'@'localhost';

$FLUSH PRIVILEGES;

$EXIT;

$cd /var/www/html

$sudo wget https://releases.wikimedia.org/mediawiki/1.39/mediawiki-1.39.3.tar.gz

$sudo tar -xvzf mediawiki-1.39.3.tar.gz

$sudo mv mediawiki-1.39.3 mediawiki

$sudo chown -R www-data:www-data mediawiki

$sudo nano /etc/apache2/sites-available/mediawiki.conf

```
# (Paste apache config here)
$sudo a2ensite mediawiki
$sudo a2enmod rewrite
$sudo systemctl restart apache2

$sudo chmod +x /usr/local/bin/backup_mediawiki.sh

$sudo crontab -e
# Add cron job for backup script
```