MediaWiki Setup and Backup Strategy on LAMP Stack

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Description: Complete installation and backup guide for MediaWiki using a LAMP stack

Table of Contents Page No

1. Introduction

MediaWiki is a powerful and widely used open-source wiki software platform that powers websites like Wikipedia. It enables collaborative editing of content directly from a web browser, making it ideal for knowledge bases, project documentation, and community-driven portals. By installing MediaWiki on your own server, you gain full control over your data, customization, and access permissions.

This manual covers the complete process of setting up MediaWiki on a **LAMP stack** inside a Linux virtual machine. The guide is tailored for beginners, explaining each step in detail for installation of MediaWiki using LAMP stack.

Additionally, you will learn how to create an **automated backup system** for both the MediaWiki database and file uploads, ensuring that your wiki remains safe and can be restored in case of server failure or accidental data loss. This backup mechanism will run daily without manual intervention, making it a practical and professional solution for maintaining your site.

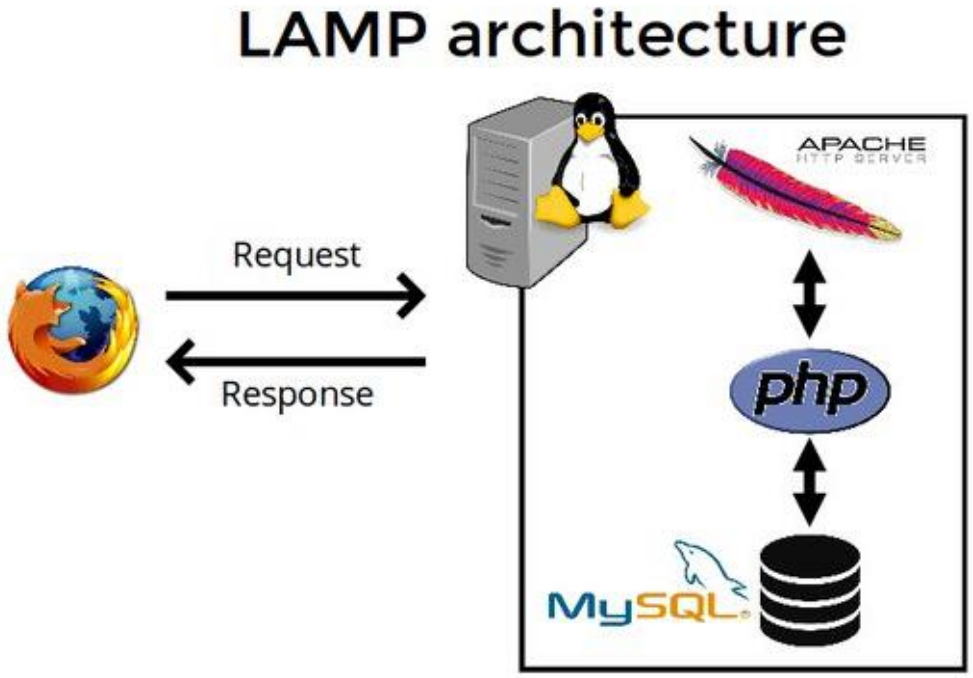
Whether you are setting up MediaWiki for a small team, an educational institution, or a public project, this guide will provide you with the fundamental skills needed to install, configure, and maintain your wiki platform successfully.

By the end of this guide, you will have:

- A fully functional MediaWiki installation running on a LAMP server.
- A scheduled daily backup process to protect your content.
- The knowledge to troubleshoot common setup and operational issues.

2. What is MediaWiki and LAMP?

- **MediaWiki**: Open-source wiki platform used for collaborative knowledge sharing.
- **LAMP**: A stack consisting of Linux (OS), Apache (web server), MySQL/MariaDB (database), and PHP (server-side scripting).



A. SETUP PHASE

3.Installation Steps

3.1 Create the Virtual Machine

- Tool Used: VirtualBox (Free and open-source)
- OS ISO Used: Ubuntu Server (LTS version recommended)

Step-by-step Guide: Download and Install VirtualBox and Ubuntu ISO (For Windows Users).

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.

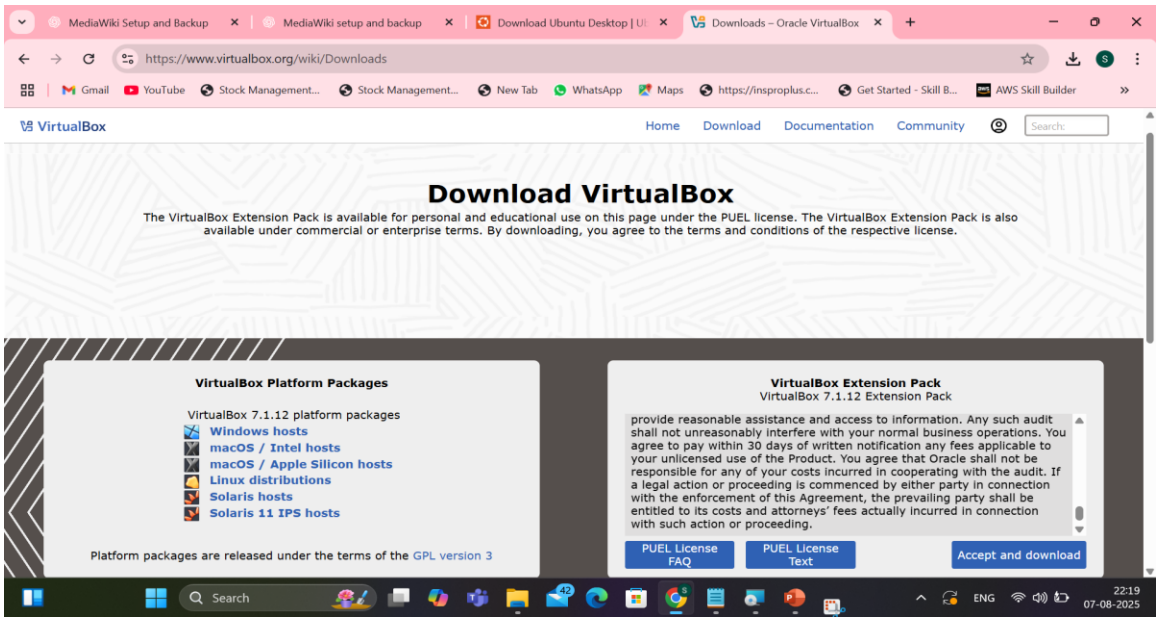


Figure 3.1.1

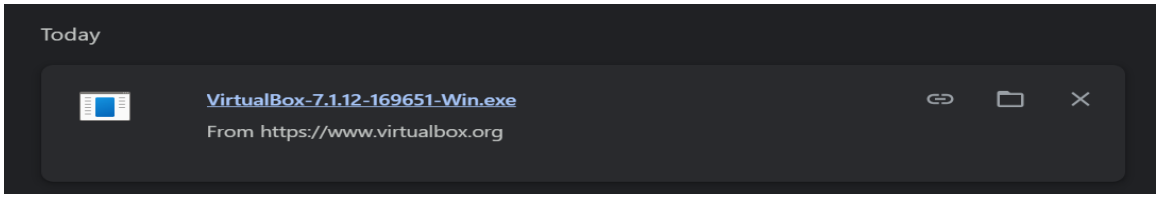


Figure 3.1.2

- 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.

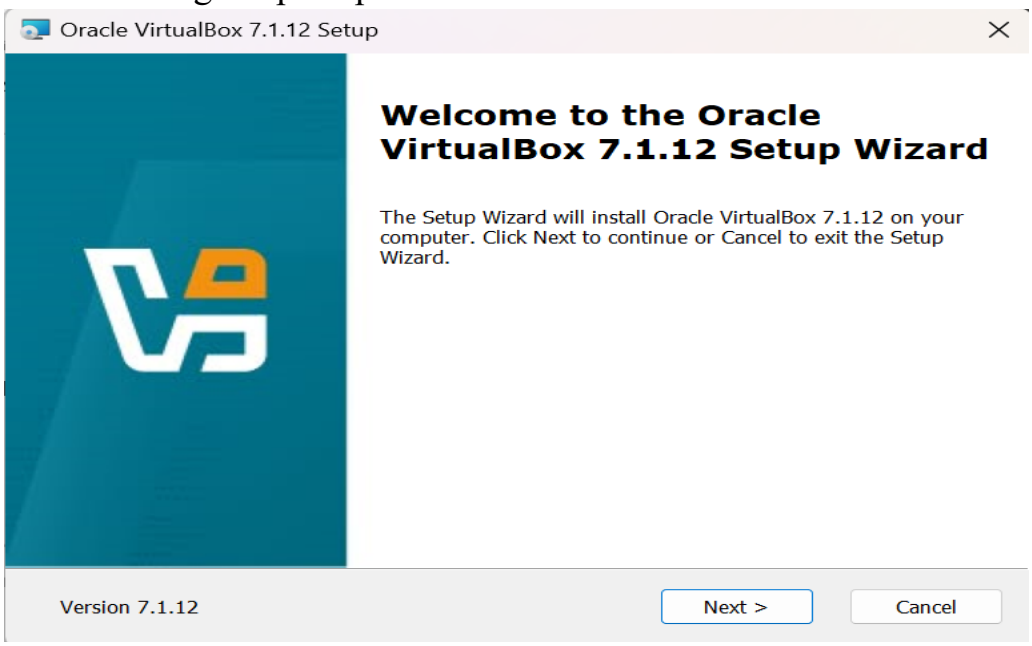


Figure 3.1.3

- Select I accept the terms in the License Agreement and continue Next

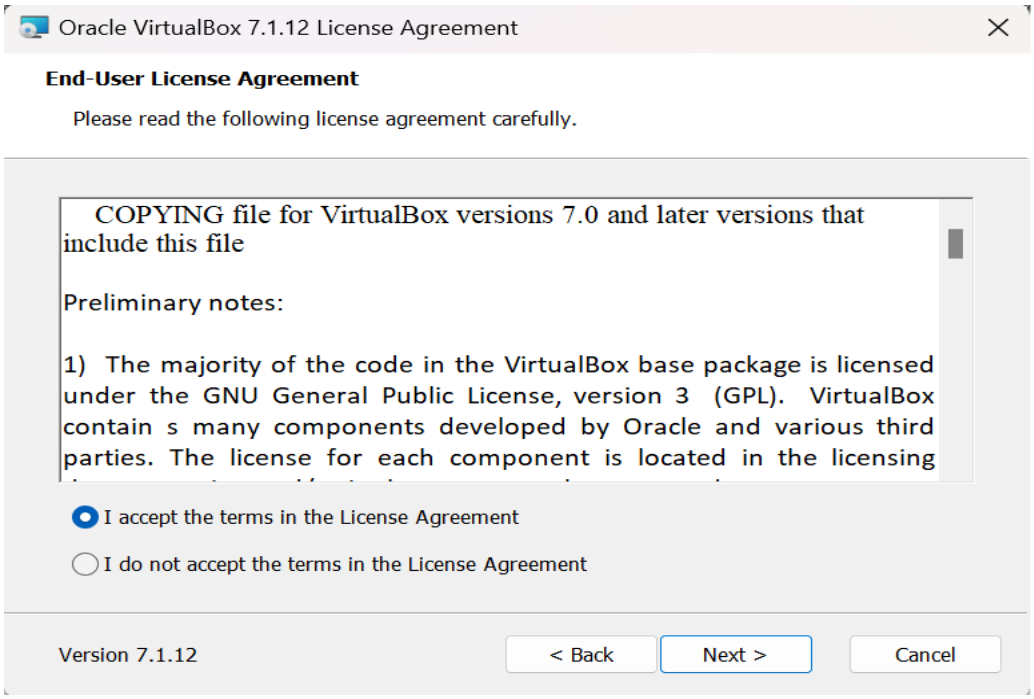


Figure 3.1.4

- Continue by selecting Next

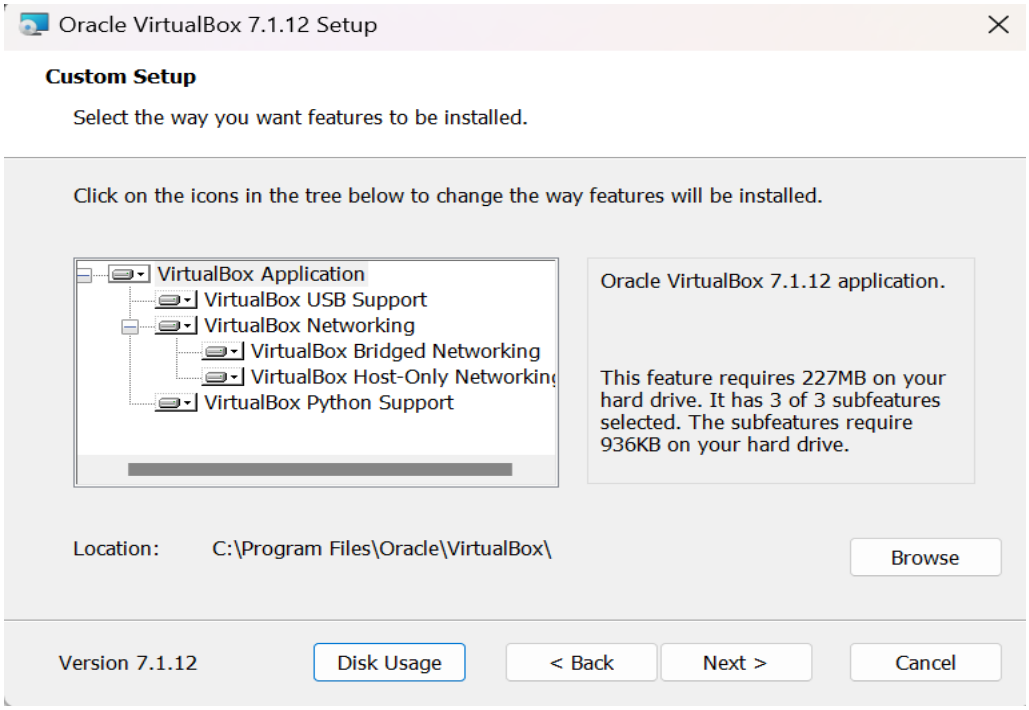


Figure 3.1.5

- Proceed by Yes

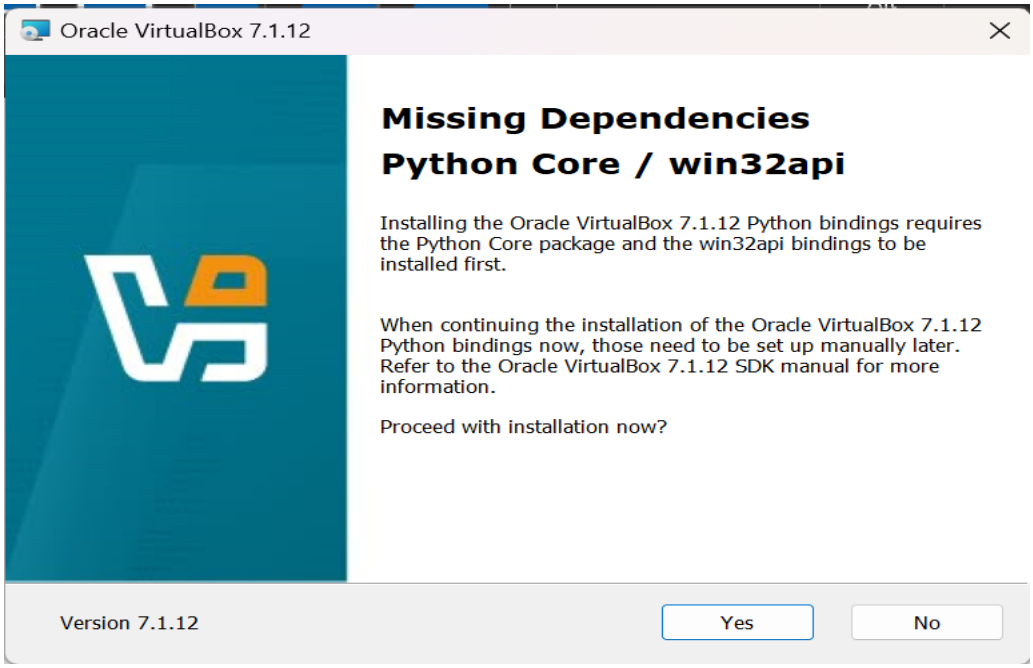


Figure 3.1.6

- Check the required options and select Next

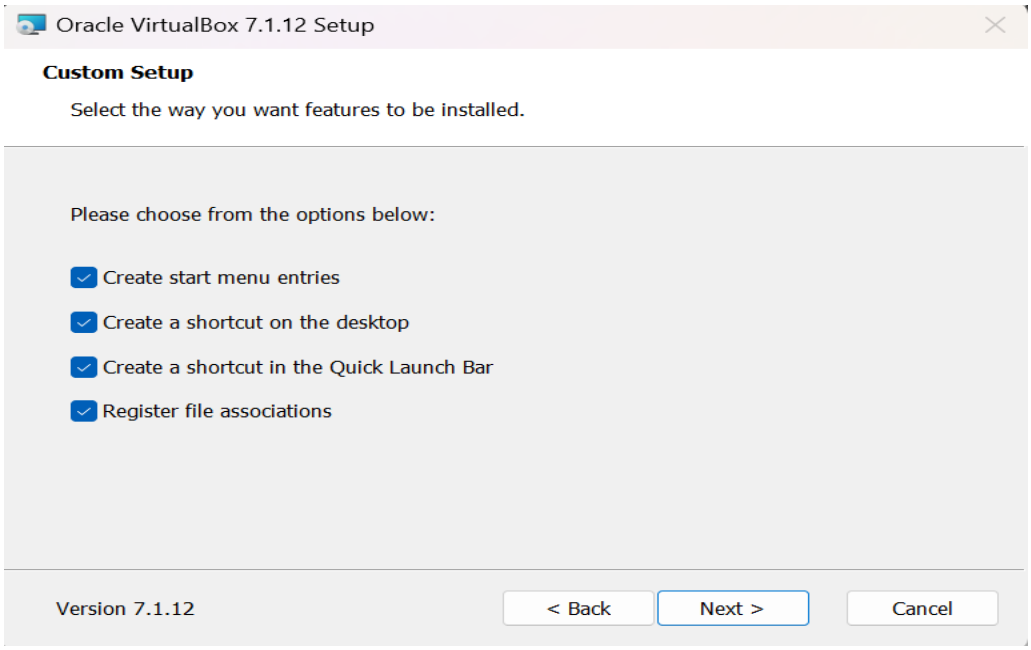


Figure 3.1.7

- Now it is Ready to Install, Continue by selecting Install

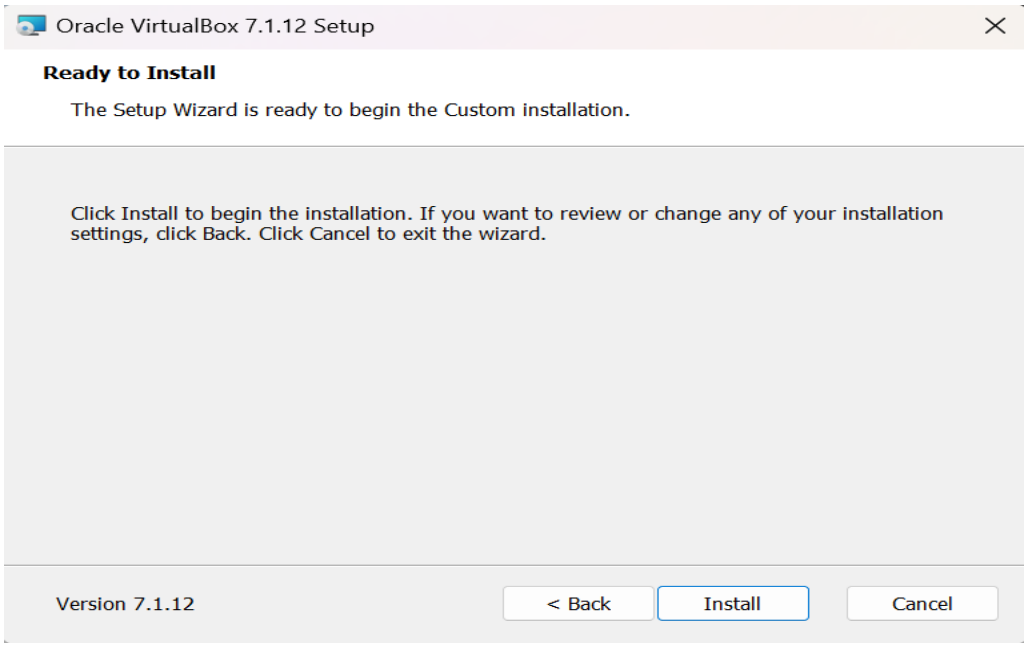


Figure 3.1.8

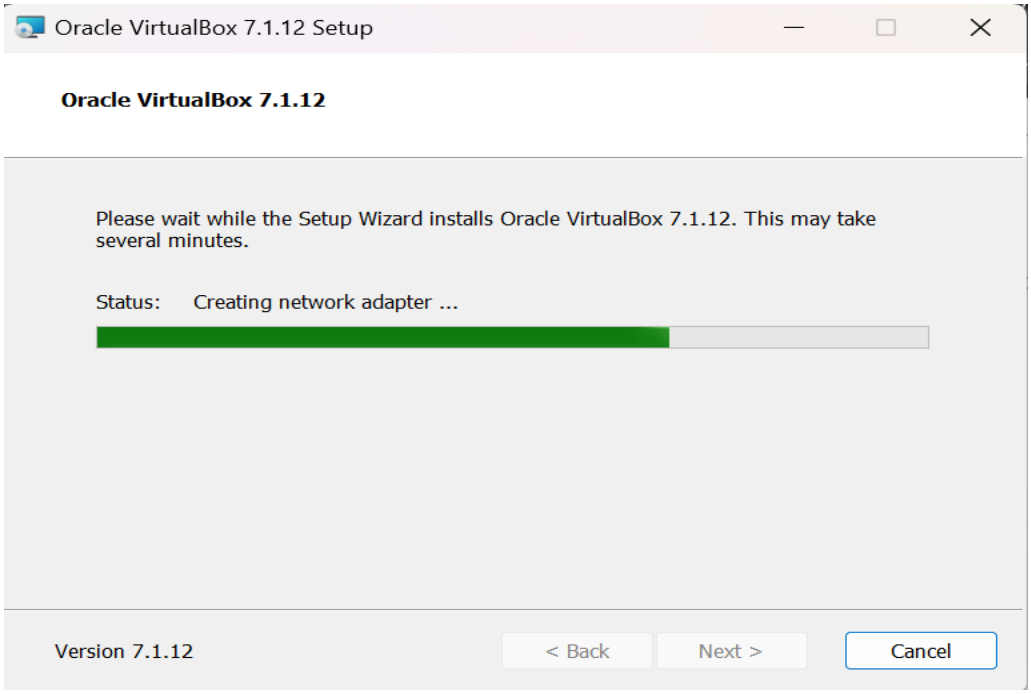


Figure 3.1.9

- Once the installation is Done, Select Finish

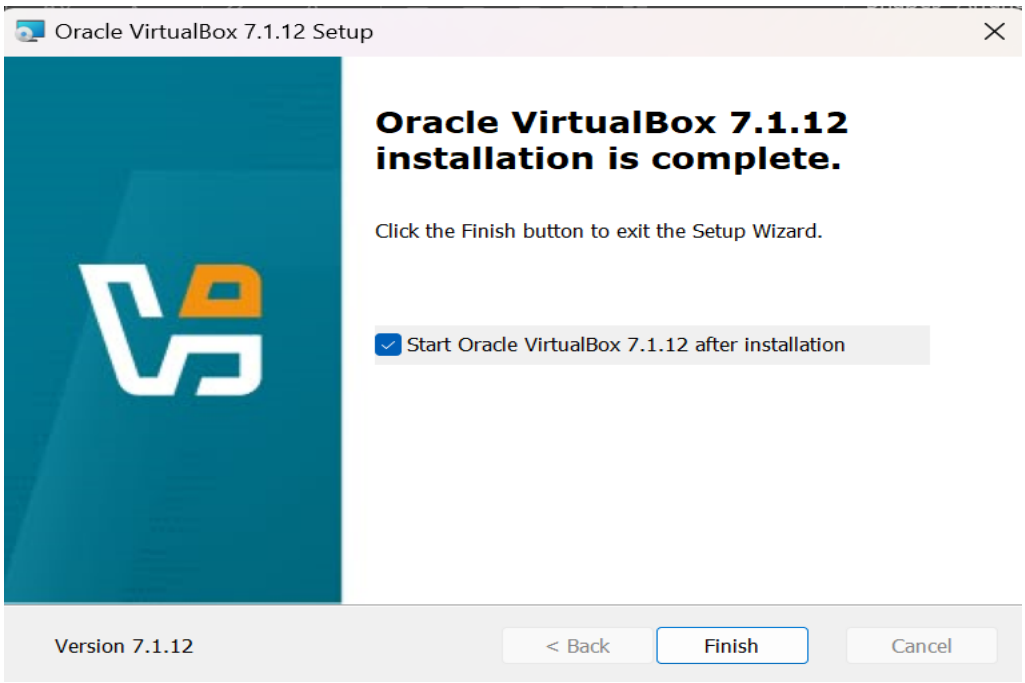


Figure 3.1.10

Step 2: Download Ubuntu Server ISO

- Visit: https://ubuntu.com/download/server
- Click on "Download Ubuntu Server 22.04 LTS" (or the latest LTS version available).
- Choose the manual server installation ISO.

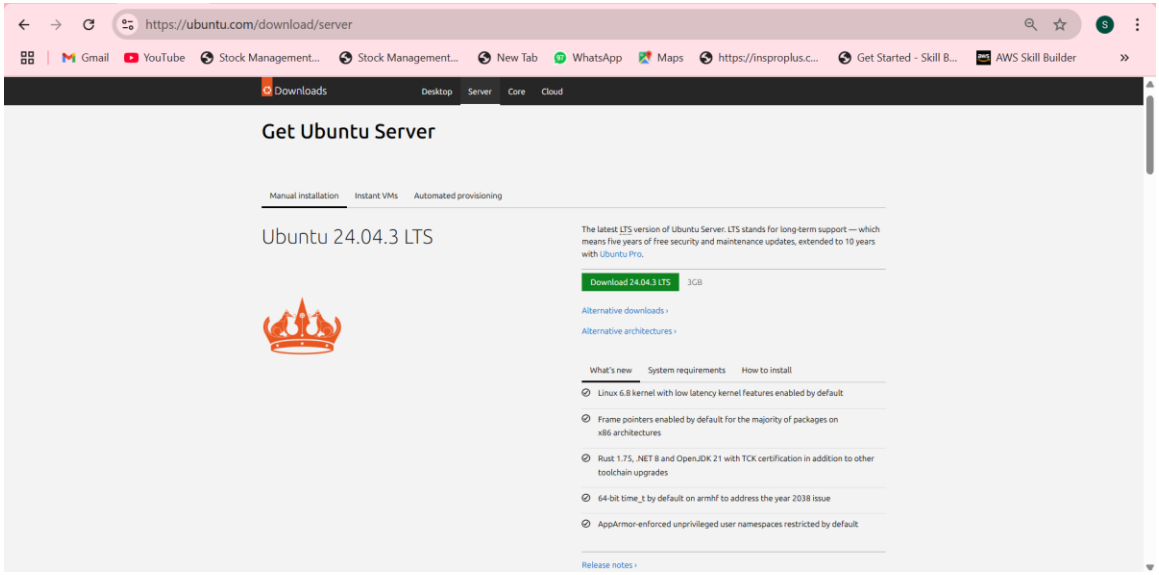


Figure 3.1.11

- 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).

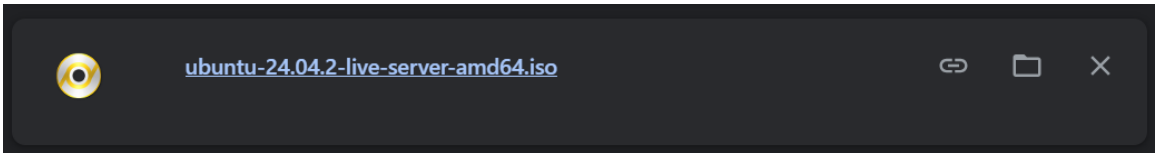


Figure 3.1.12

3.2 Set up the Virtual Machine in VirtualBox

Step:

1. Open VirtualBox and click New.

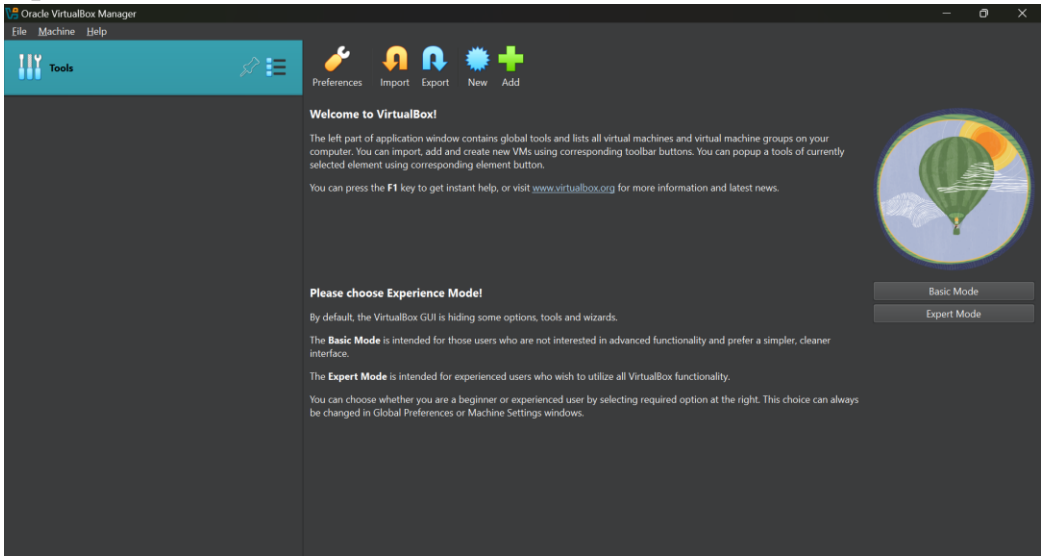


Figure 3.2.1

2. Name the VM (e.g., MediawikiVM), add the .iso file of Ubuntu path to the ISO Image
3. Set Type to Linux and Version to Ubuntu (64-bit).

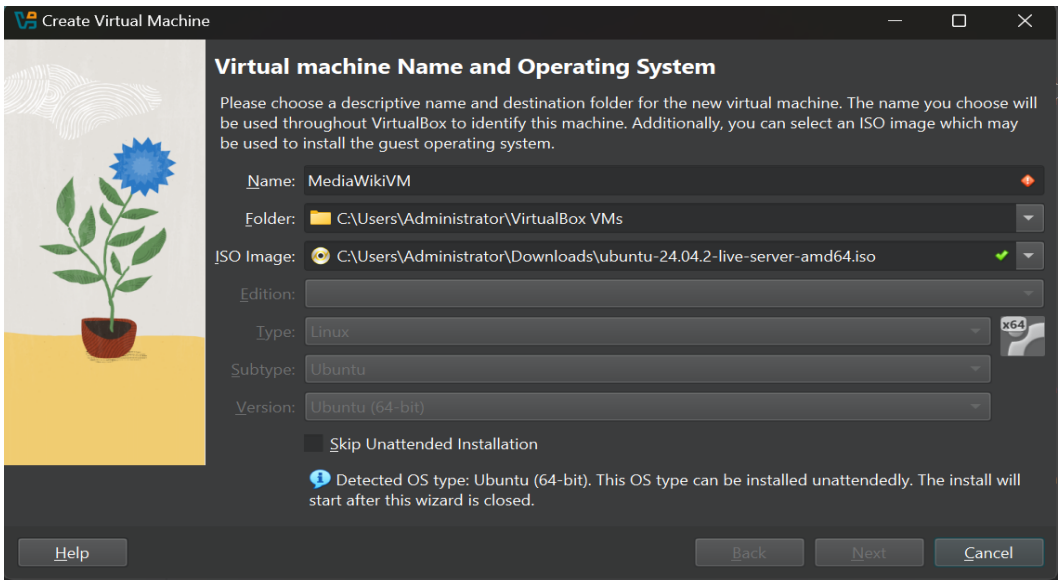


Figure 3.2.2

4. Unattended Guest OS Install Setup.

a. **Set Username & Password**

- Username: mediawikiadmin
- Password: StrongPass123 (avoid something too simple)

b. **Keep Hostname as is**

- MediaWikiVM - computer name inside your VM.

c. **Domain Name**

- You can leave it as myguest.virtualbox.org or set something custom (optional).

d. **Guest Additions**

- Leave **Guest Additions** unchecked. You can install it later after Ubuntu is up.

e. **Continue**

- Once you've filled username/password, click **Next** to proceed with VM creation.

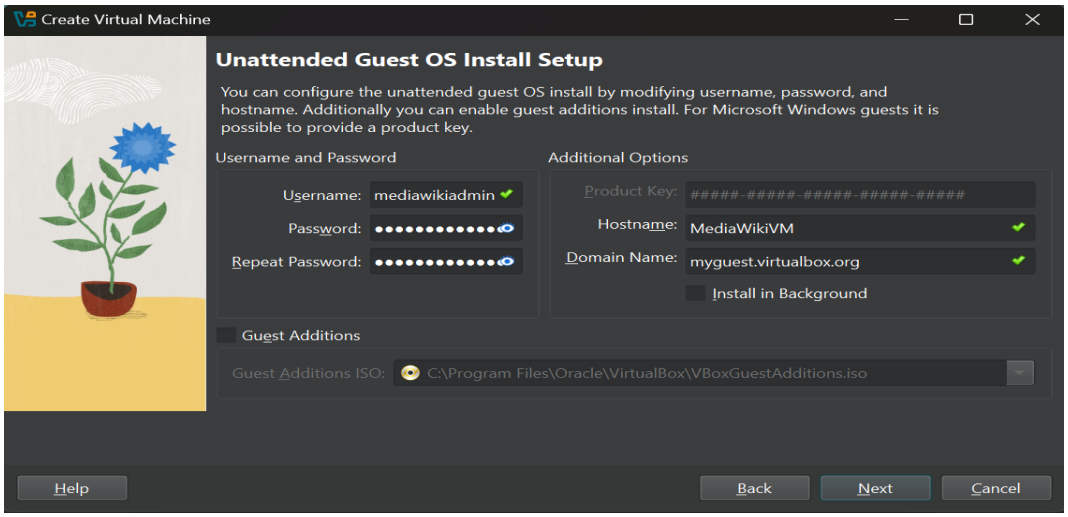


Figure 3.2.3

5. Allocate Base Memory (RAM):

- For Ubuntu Server, 2048 MB is okay for testing, but if you have enough RAM on your laptop, set it to 4096 MB (4 GB) for smoother performance.
- Keep the slider in the green zone to avoid slowing down your Windows host.

  Processors:
- Change from 1 CPU to 2 CPUs for better performance (but keep it in the green zone).

- Don’t allocate more than half your total CPUs to the VM - your laptop has 8, so 2–4 CPUs is safe.
  Enable EFI:
- Leave **unchecked** for Ubuntu Server unless you specifically need UEFI boot (the default BIOS mode works fine).
  Once adjusted, click **Next**.

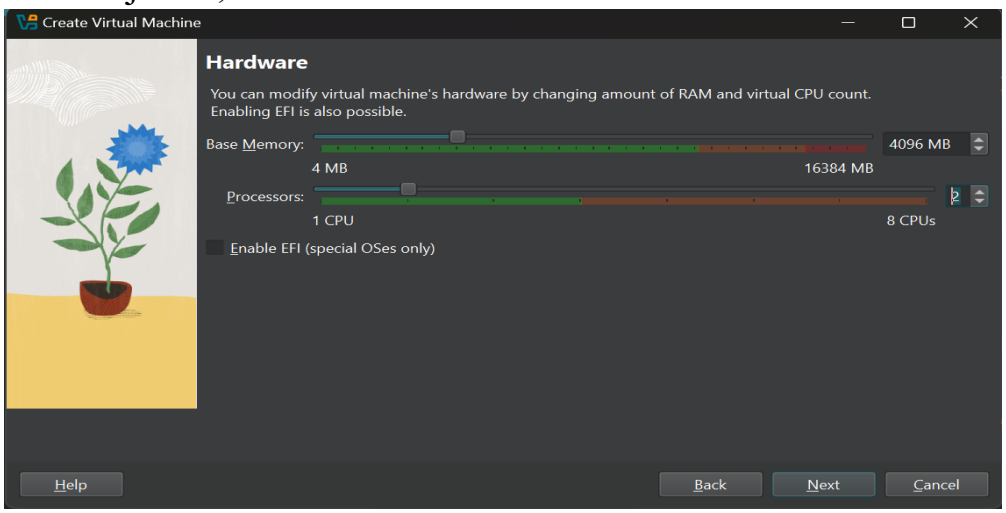


Figure 3.2.4

6. Create a virtual hard disk (VDI):

- Keep "Create a Virtual Hard Disk Now" selected .
- Set Disk Size to 30 GB (slide the bar or type 30.00 in the box).
- Leave "Pre-allocate Full Size" unchecked — this keeps it dynamically allocated so it won’t take up the full space right away.
- Click Next.

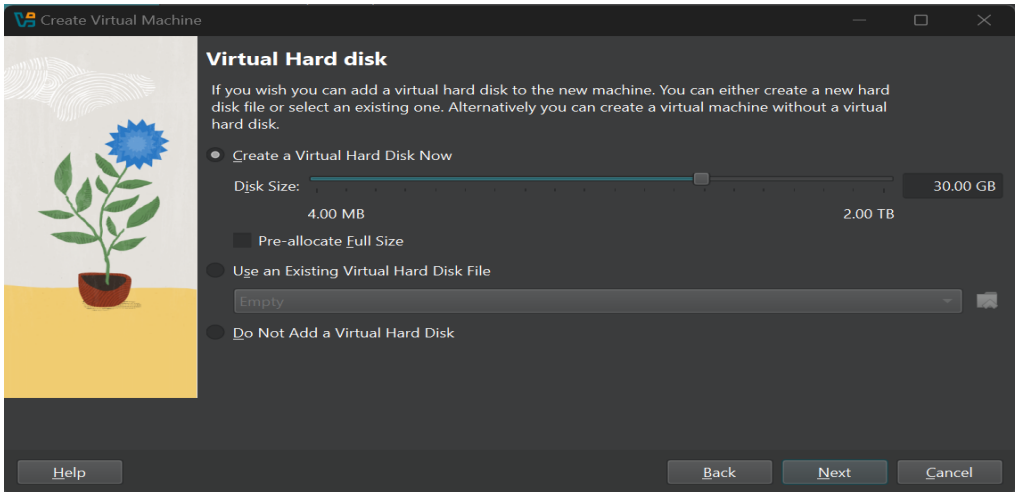


Figure 3.2.5

- Click Finish

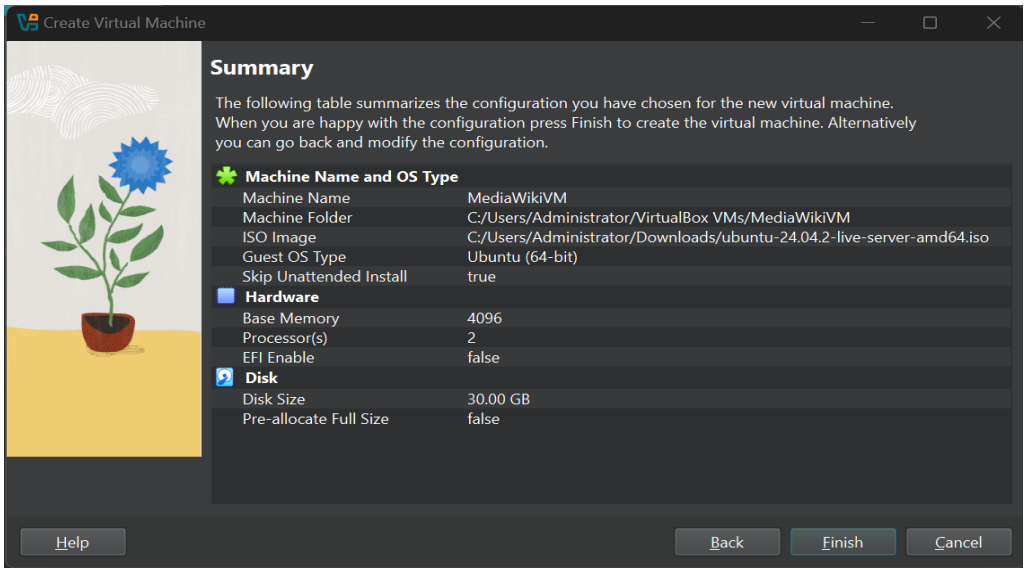


Figure 3.2.6

3.3 Step-by-Step Ubuntu Server installation in VirtualBox

1. Start the VM

- Select your MediaWikiVM in VirtualBox.
- Click Start → It will boot from the Ubuntu Server ISO.

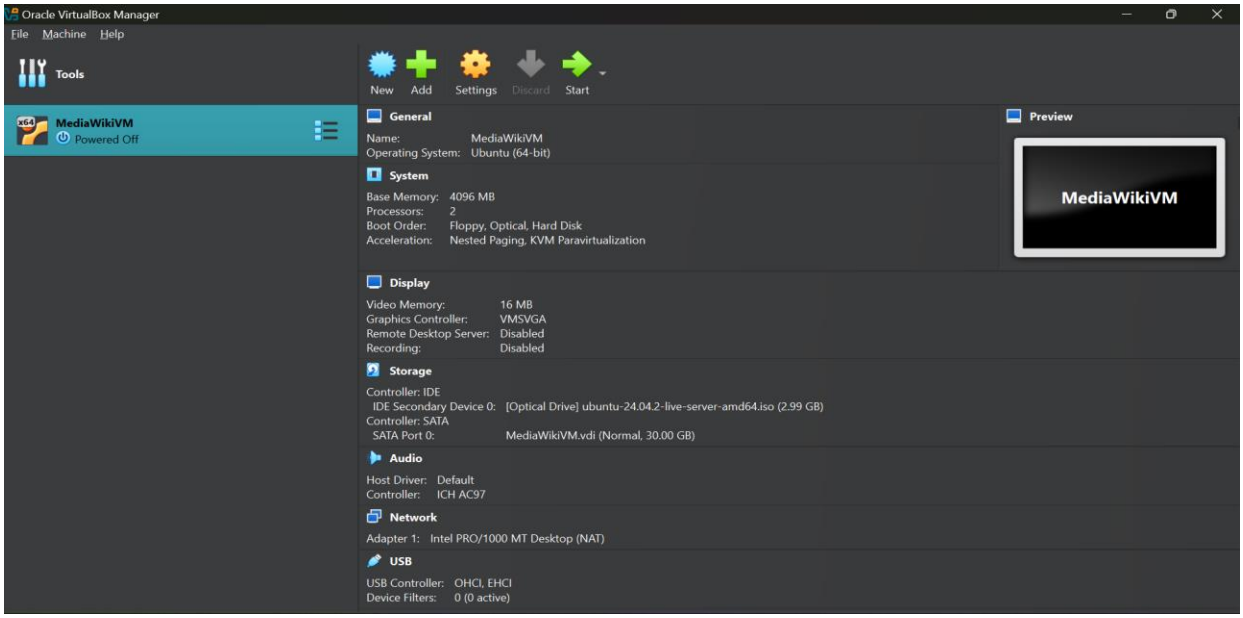


Figure 3.3.1

2. Select Language

Use the arrow keys to pick your language (example: English) → Press Enter.

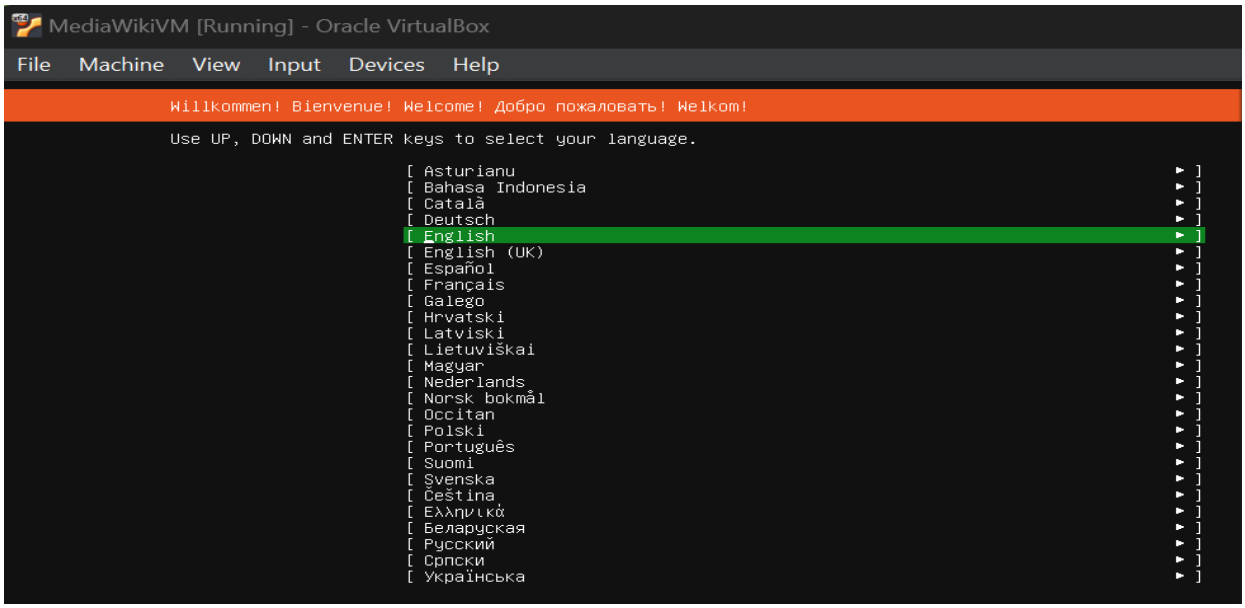


Figure 3.3.2

3. Keyboard Layout

Select your keyboard layout (usually English (US)) → Press Enter.

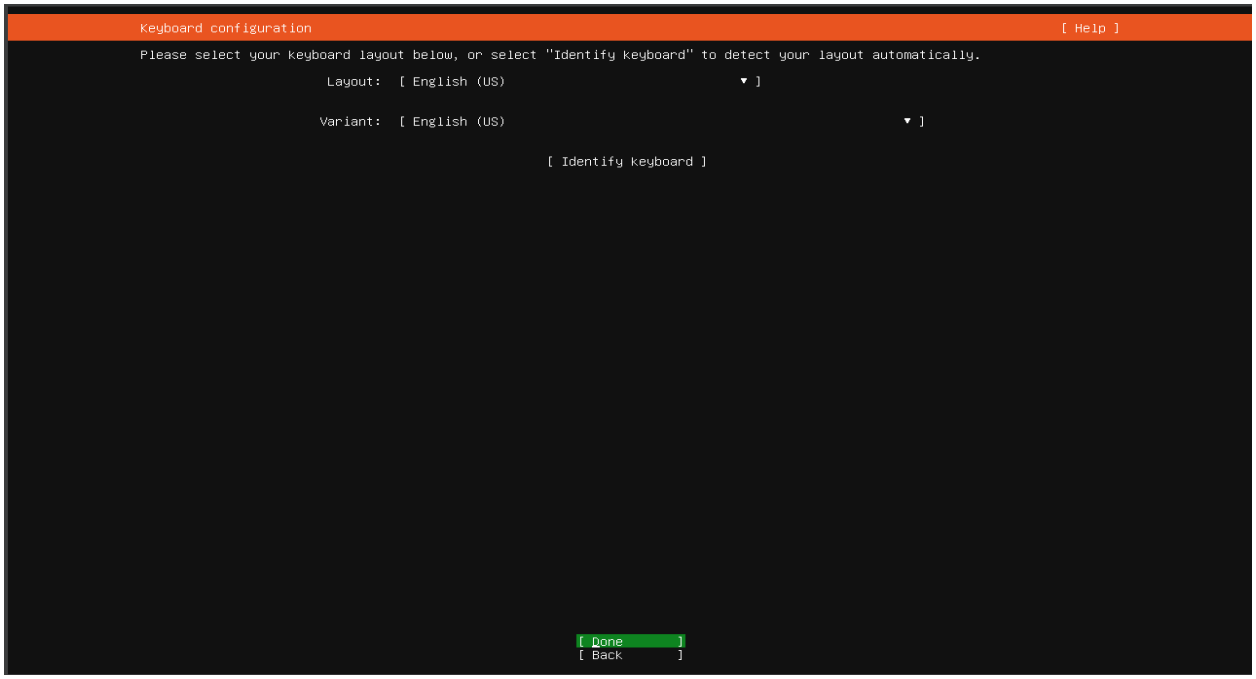


Figure 3.3.3

4. Choose Installation Type

Pick Install Ubuntu Server (not minimal, unless you want fewer packages).

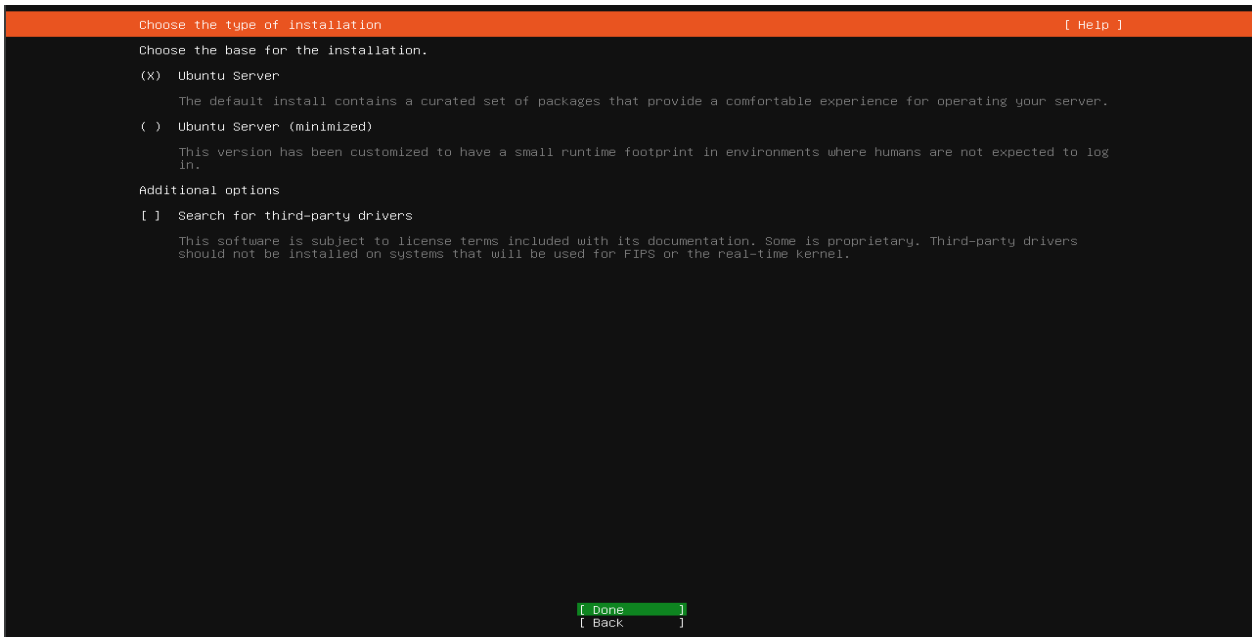


Figure 3.3.4

5. Network Setup

If it detects your internet, just press Done to continue.

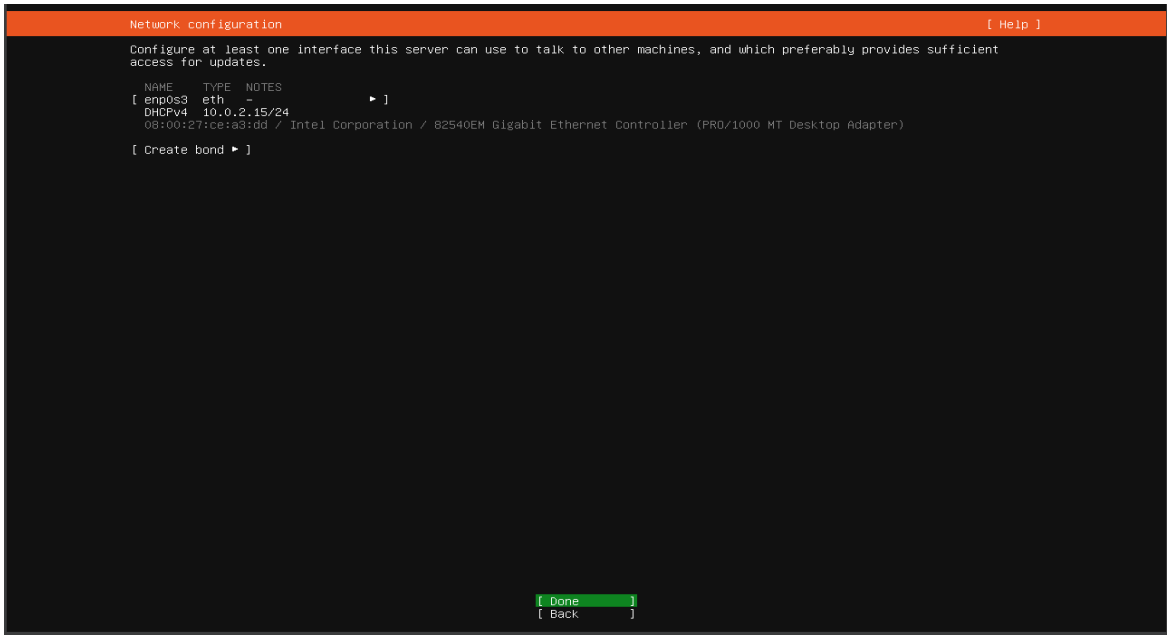


Figure 3.3.5

If offline, select “Continue without network” (you can set it up later).

6. Configure Proxy (Optional)

If you don’t use a proxy, leave it blank → Press Enter.

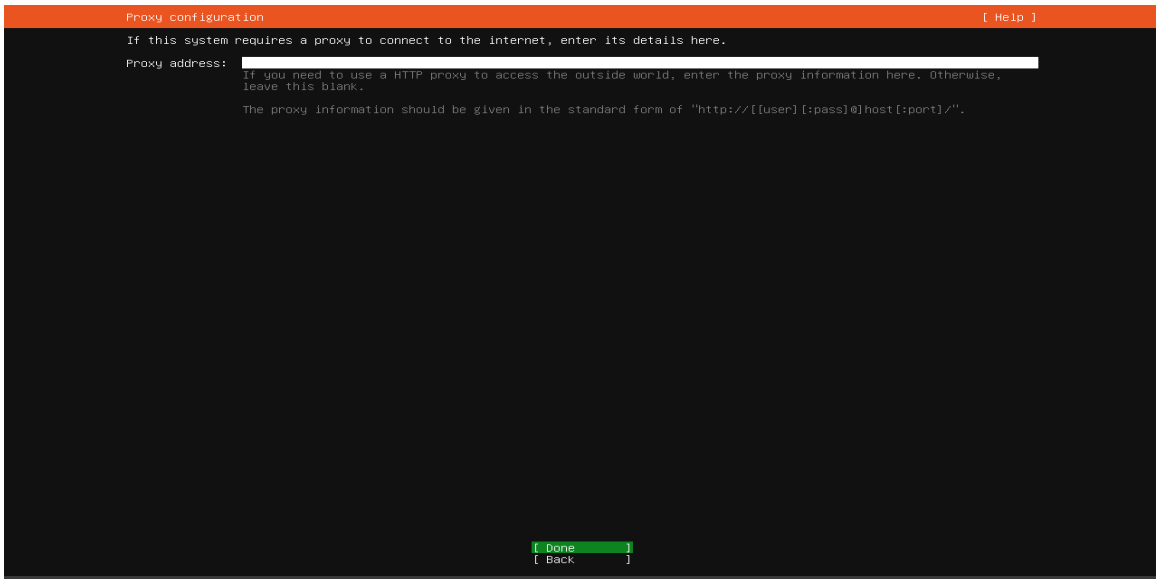


Figure 3.3.6

7. Ubuntu Archive Mirror

Leave default and press Enter (it helps for package updates).

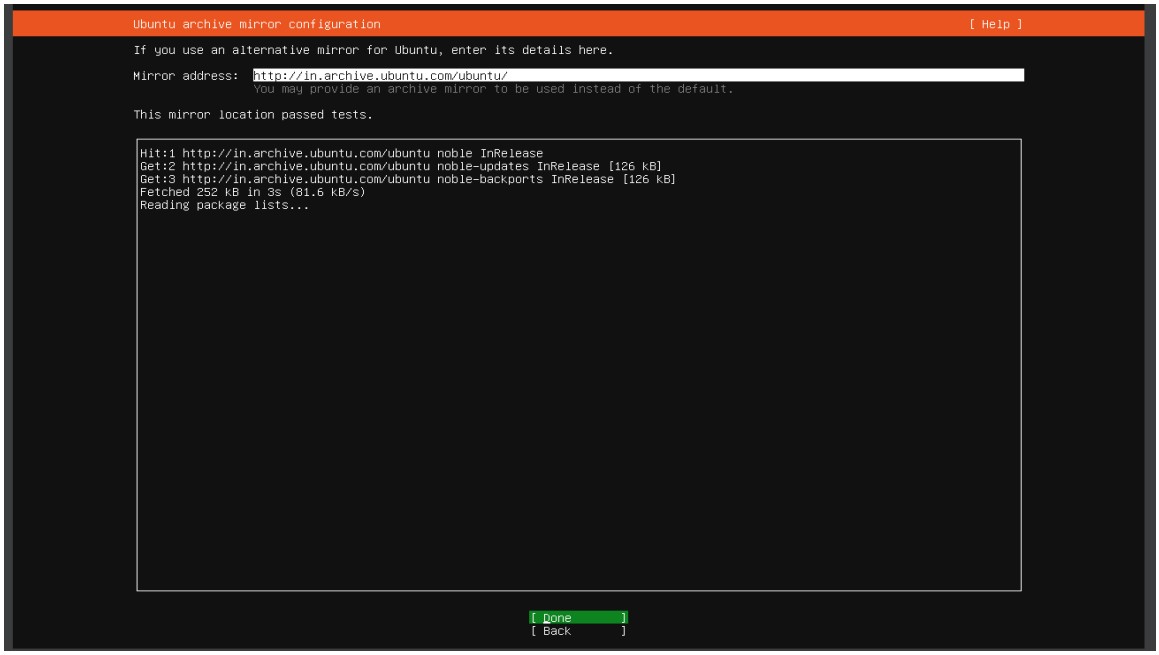


Figure 3.3.7

8. Storage Configuration

Choose Use an entire disk.

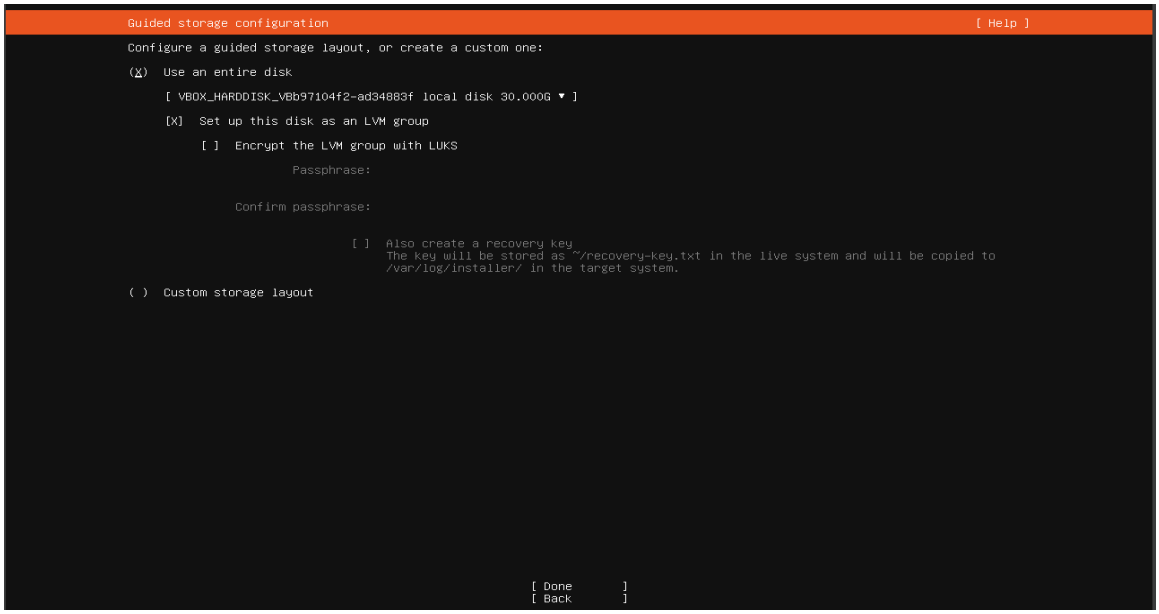


Figure 3.3.8

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

9. Storage configuration summary → Press Enter and Continue.

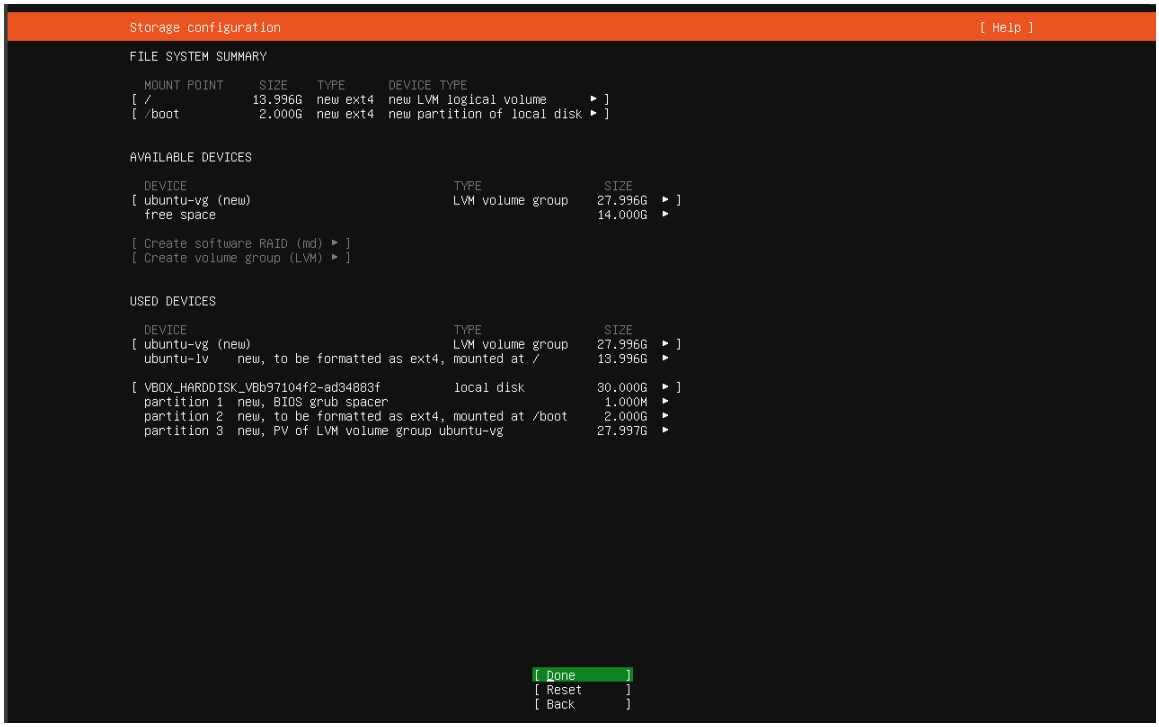


Figure 3.3.9

10. Profile Setup

Fill in:Your Name → e.g., mediawiki-admin, Server Name → mediawikiserver, Username → wikiuser, Password → Choose a strong one, Press Enter.

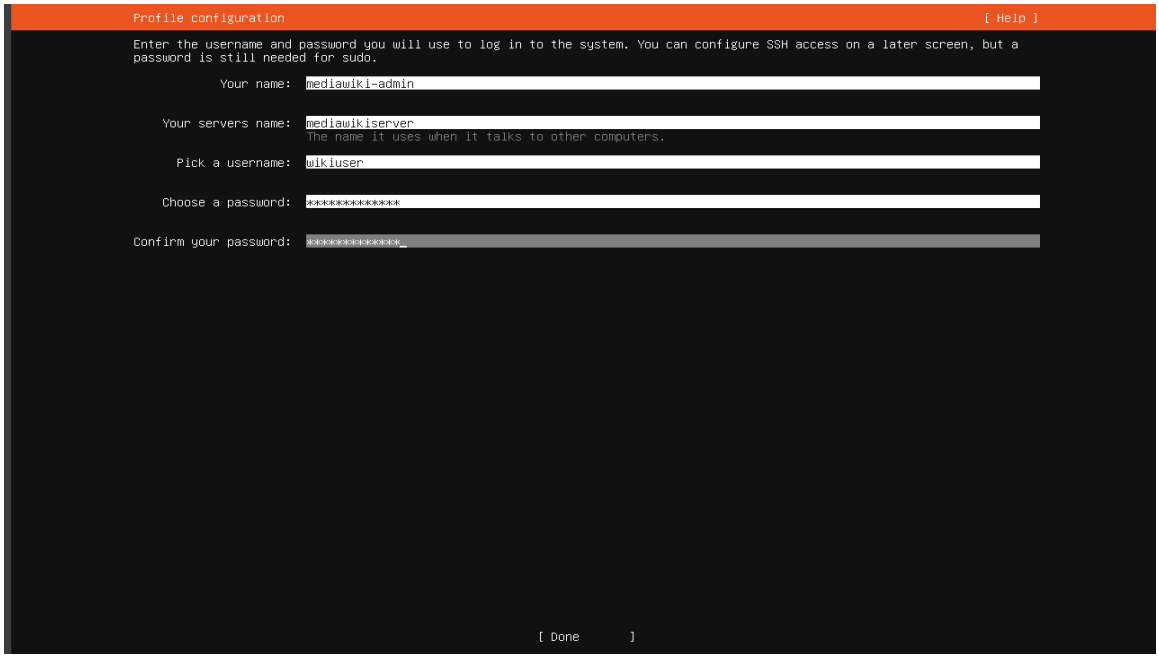


Figure 3.3.10

11. SSH Access

If you want remote access later:

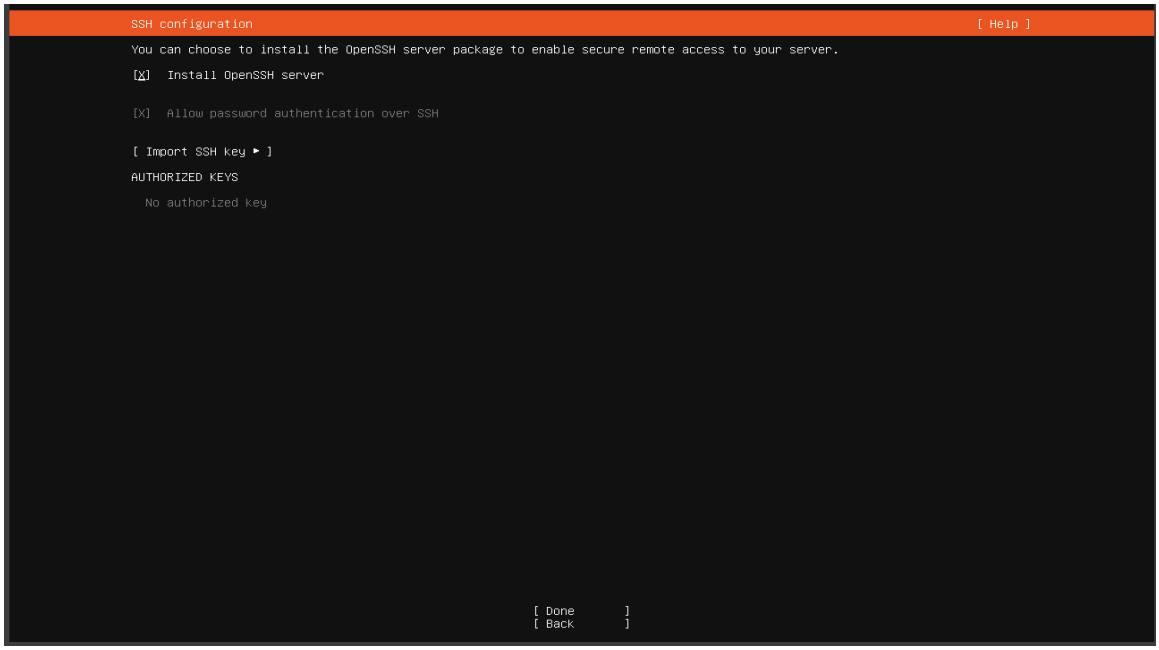


Figure 3.3.11

Select Install OpenSSH server → Press Space to check it, Continue.

12. Snap & Featured Server Software

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

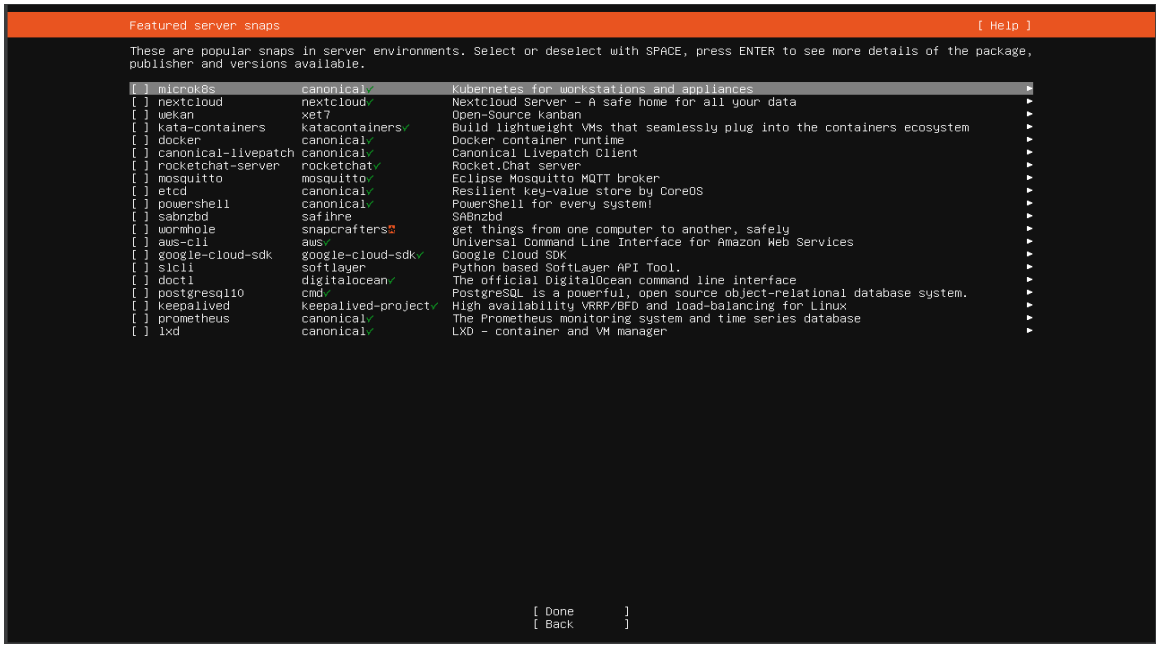


Figure 3.3.12

13. Installation

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

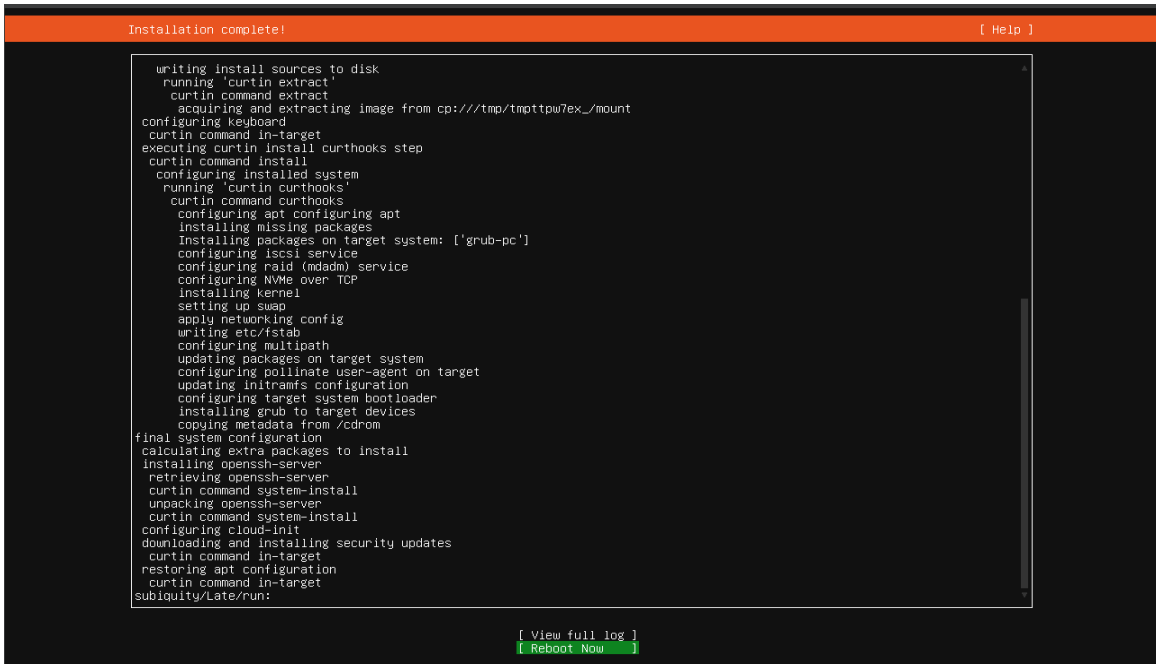


Figure 3.3.13

When done, select Reboot Now.

14. Remove ISO: When prompted, remove the ISO from the VirtualBox VM (Machine → Settings → Storage → remove Ubuntu ISO) so it boots into your installed system.

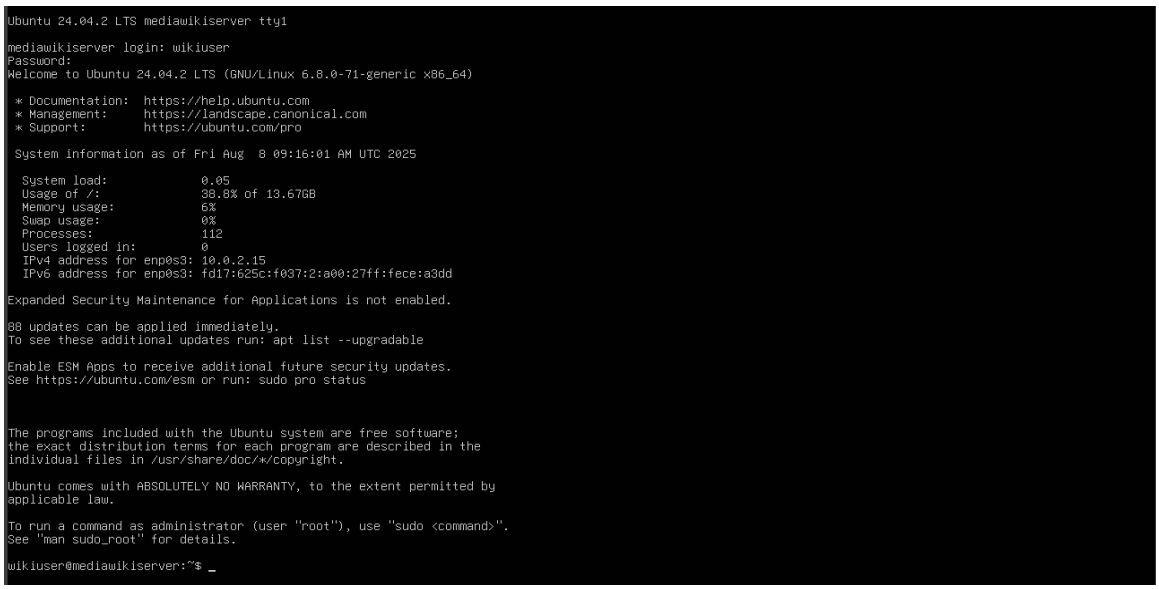


Figure 3.3.14

3.4 Install Apache, MySQL, PHP (LAMP Stack)

3.4.1 Update your system

- In your VM terminal, run:

```
$ sudo apt update && sudo apt upgrade -y
```

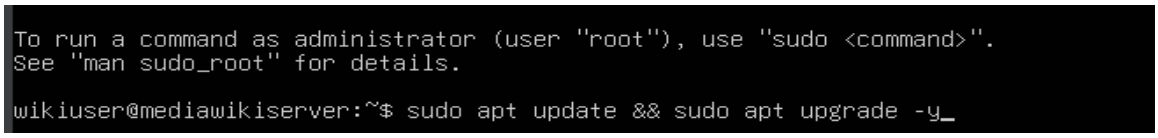


Figure 3.4.1

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

3.4.2 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
```

Figure 3.4.2

- After installation, start the service and enable it to run automatically at boot

```
$ sudo systemctl start apache2
$ sudo systemctl enable apache2
$ sudo systemctl status apache2
```

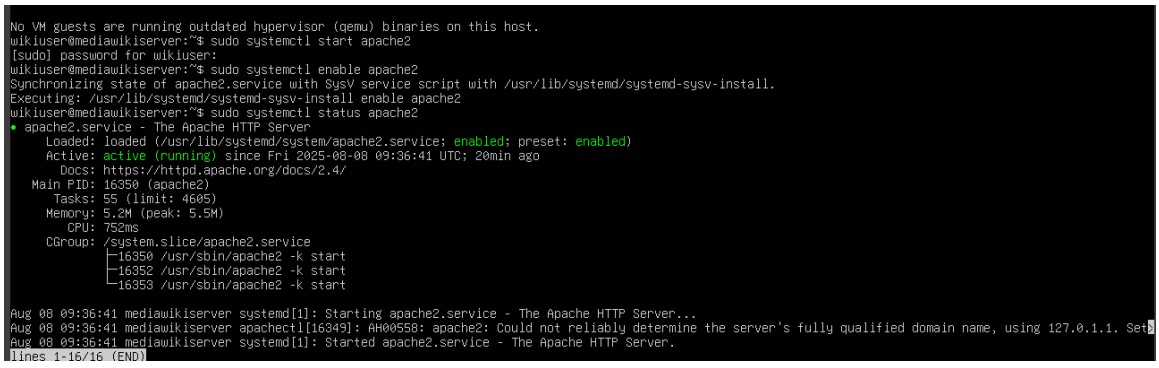


Figure 3.4.3

- 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.

Figure 3.4.4

3.4.3 Install MySQL (Database)

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

$ Sudo apt install mysql-server

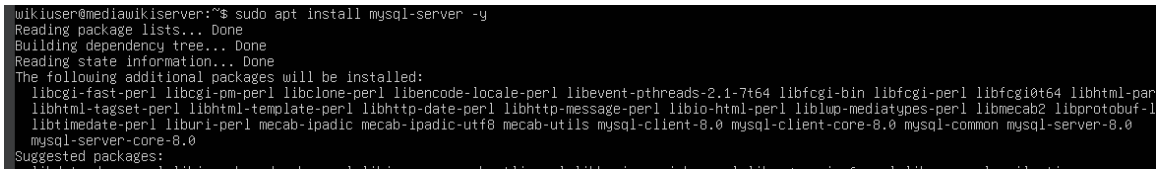


Figure 3.4.5

- After installation, start the service and enable it to run automatically at boot:

$ sudo systemctl start mysql

$ sudo systemctl enable mysql

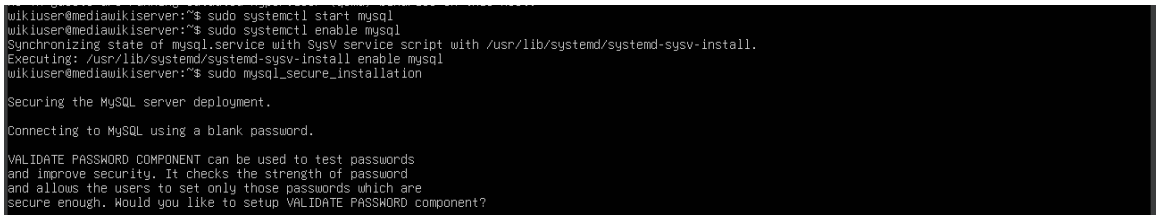


Figure 3.4.6

- After installation, it is recommended to secure our MySQL server using the below command

```
$ sudo mysql_secure_installation
```

Choose:

- Validate password plugin → No (optional)
- New root password → set one
- Remove anonymous users → Yes
- Disallow root remote login → Yes
- Remove test database → Yes
- Reload privilege tables → Yes

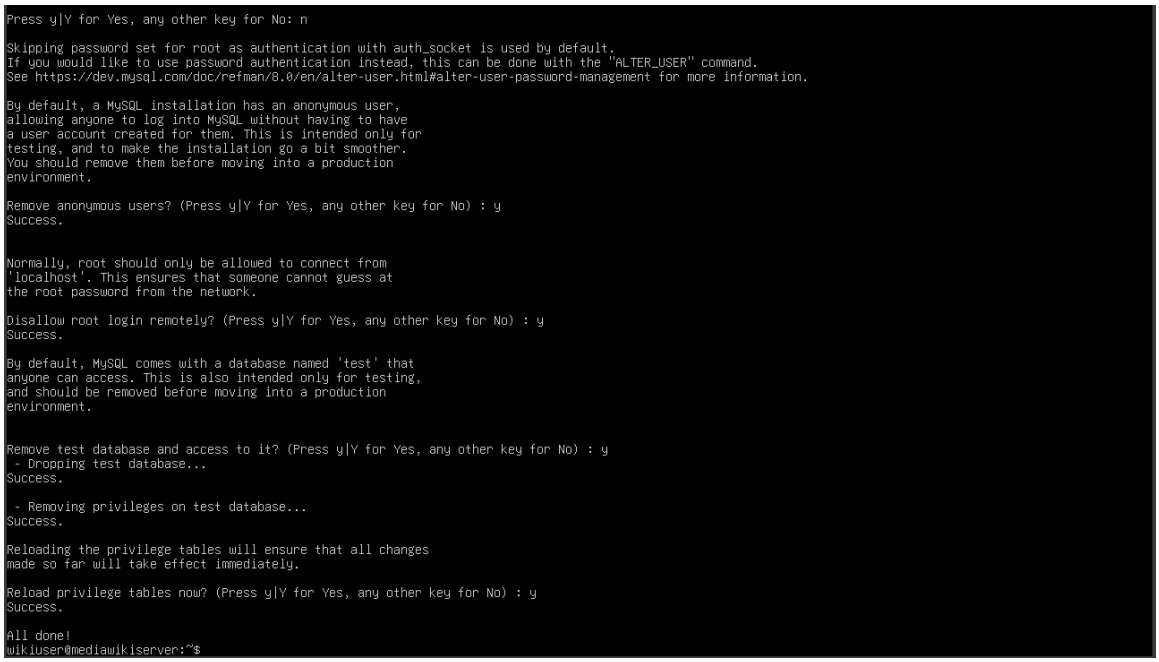


Figure 3.4.7

3.4.4 Install PHP

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

```
$ sudo apt install php -y
```

- After installing PHP, restart the Apache web server to activate the PHP module, to restart the web server.

$ sudo systemctl restart apache2

$ sudo systemctl status apache2

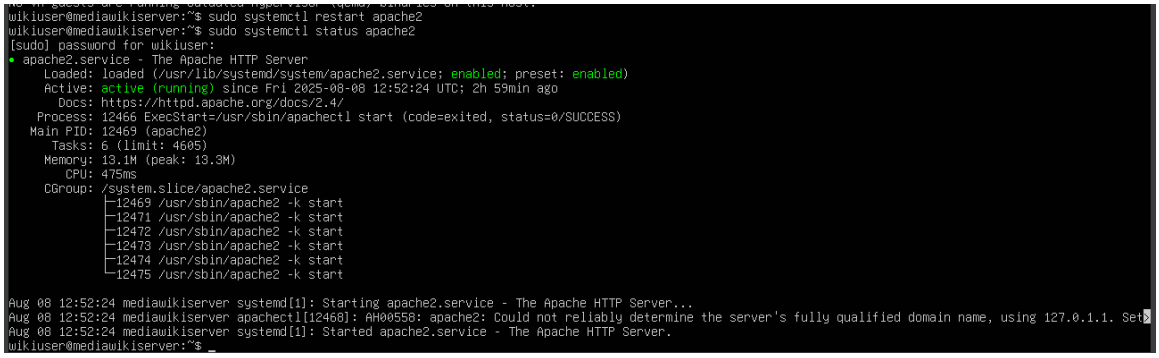


Figure 3.4.8

- Test PHP
  In your VM, create a test file:
  $ echo "<?php phpinfo(); ?>" | sudo tee /var/www/html/info.php
  In your browser, visit: http://<VM-IP>/info.php

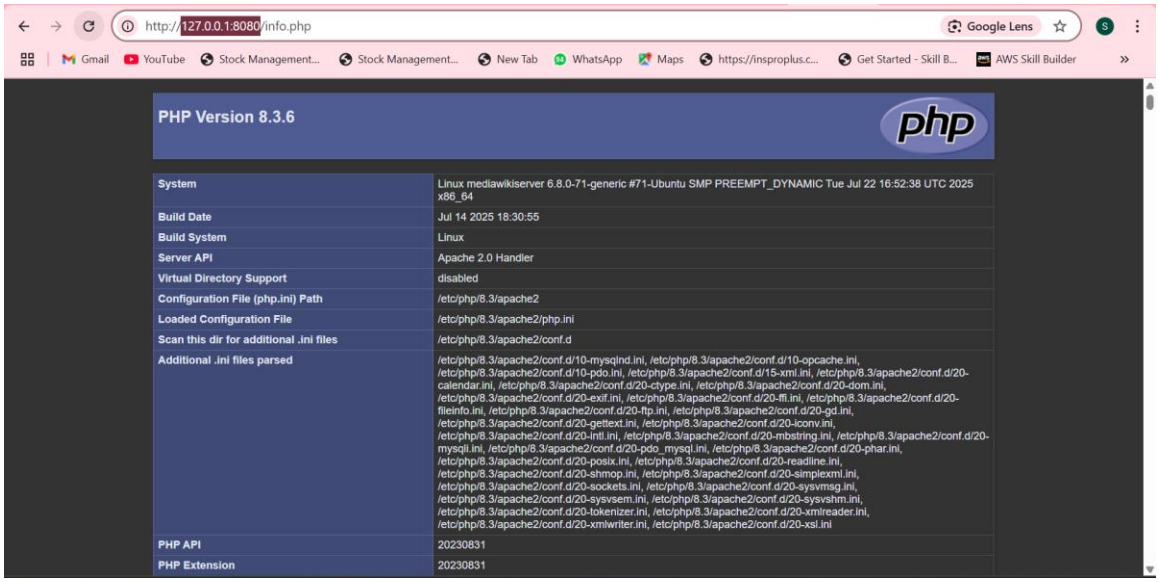


Figure 3.4.9

4. Download and Configure MediaWiki

- Go to temporary folder to safely download files.

```
$ cd /tmp
```

- Download MediaWiki archive from the official website.

```
$ wget https://releases.wikimedia.org/mediawiki/1.41/mediawiki-1.41.1.tar.gz
```

- Extract the downloaded compressed archive.

```
$ tar -xvzf mediawiki-1.41.1.tar.gz
```

- Move extracted files to Apache's web directory.

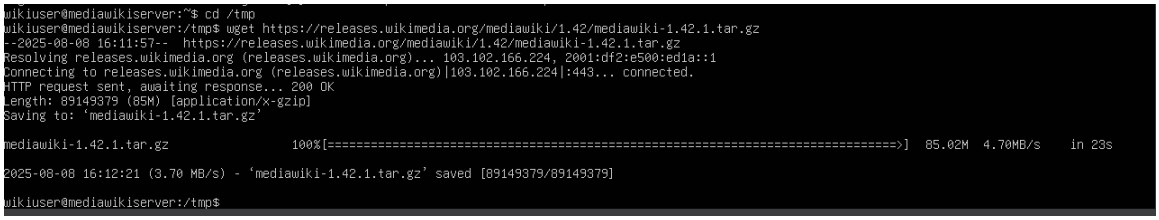
```
$ sudo mv mediawiki-1.41.1 /var/www/html/mediawiki
```

- Set Apache as the owner so it can access and modify files.

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

- Restart Apache server to apply changes and load MediaWiki.

```
$ sudo systemctl restart apache2
```



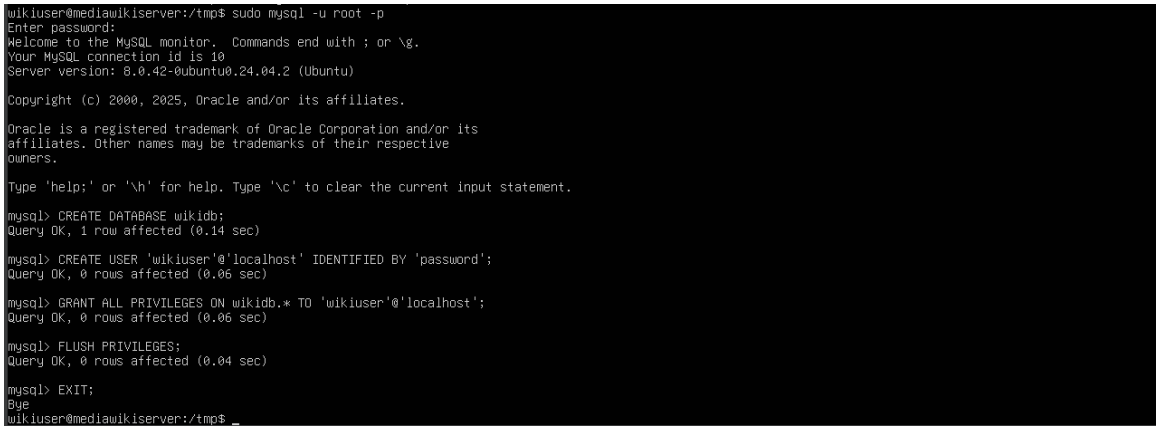


Figure 4.1

5. Create MySQL Database for MediaWiki

- Open MySQL command-line as root (you'll enter your password).

  $ sudo mysql -u root –p

- 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;

Figure 5.1

6. Complete MediaWiki Setup via Browser

- Access the MediaWiki setup wizard from your web browser using the VM's IP address.

  Open browser → http://<vm-ip>/mediawiki

Figure 6.1

- Fill in database details, create admin account, and finish setup.

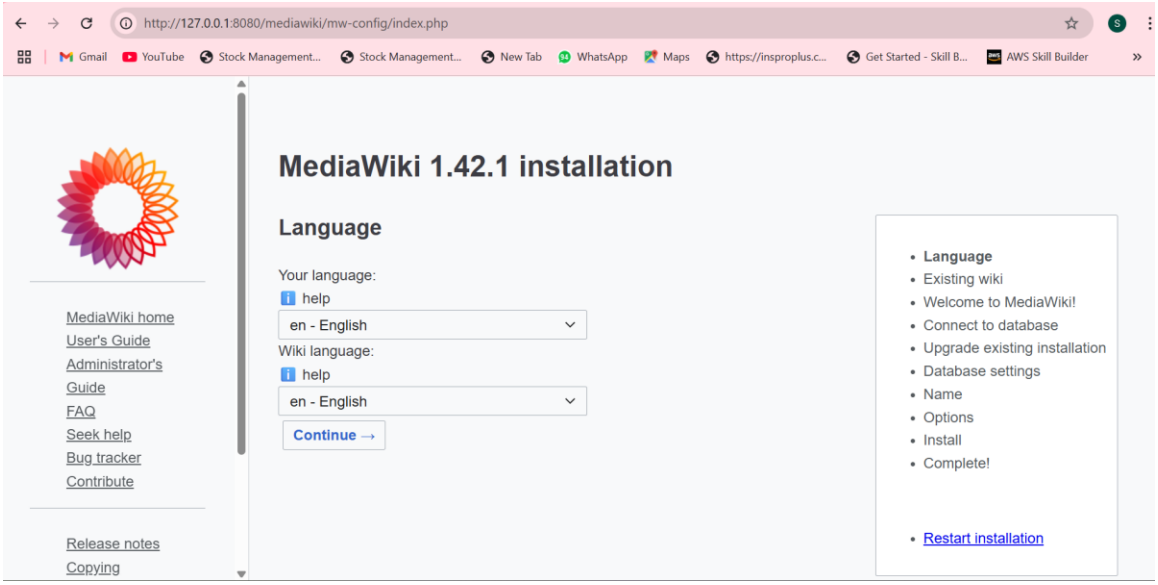


Figure 6.2

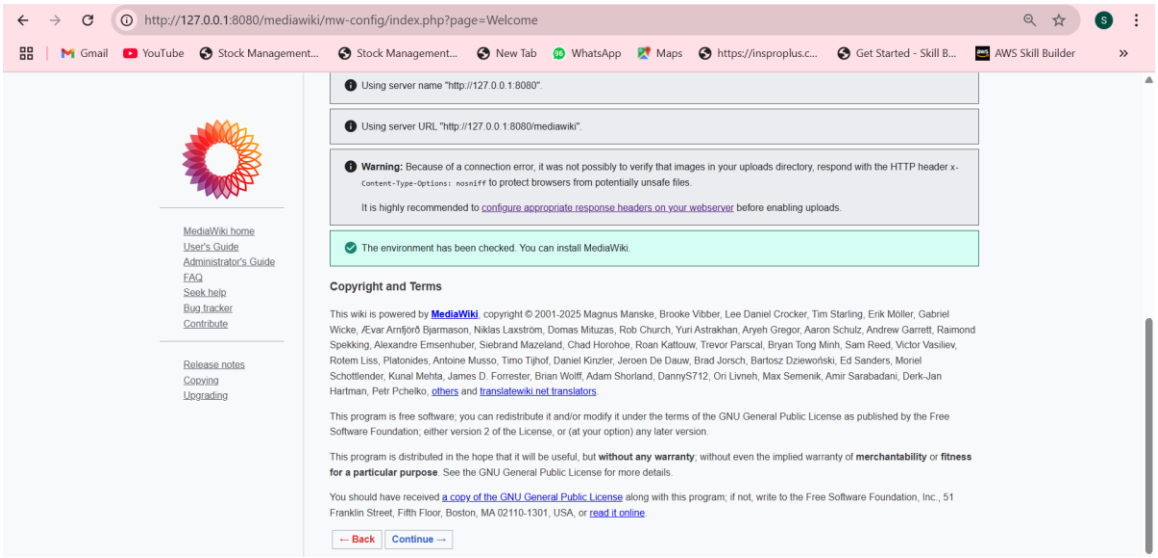


Figure 6.3

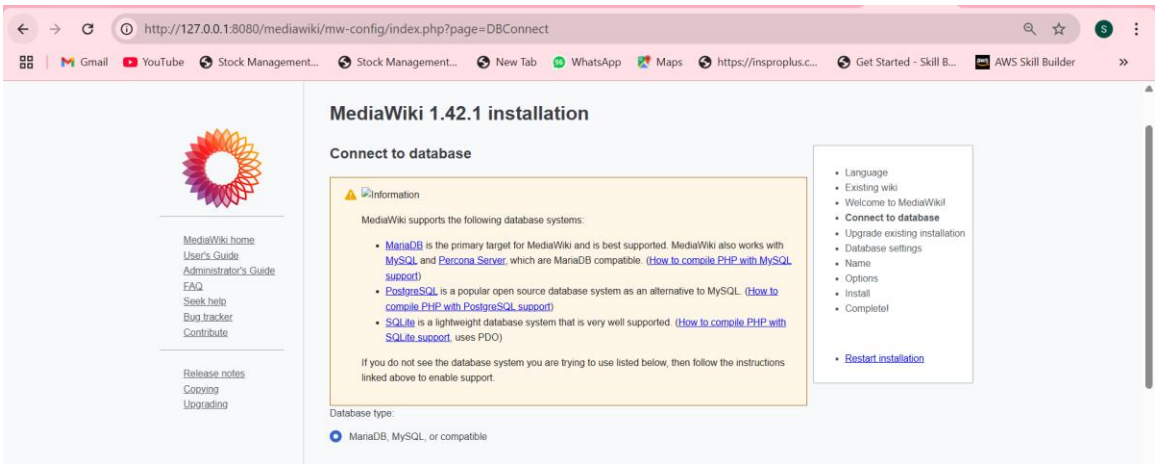


Figure 6.4

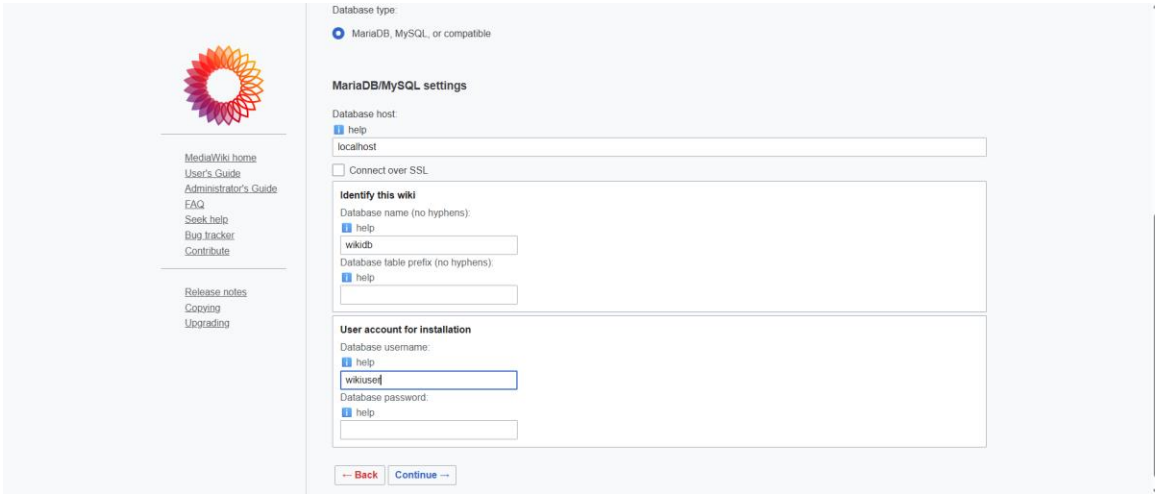


Figure 6.5

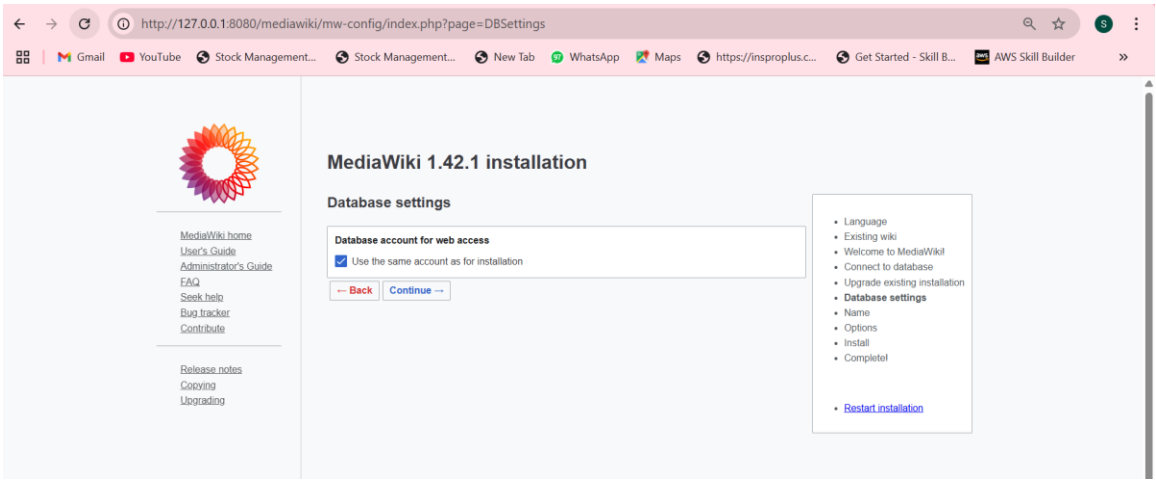


Figure 6.6

Figure 6.7

Figure 6.8

Figure 6.9

Figure 6.10

- At the end, download the configuration file (LocalSettings.php).

  Follow setup and download LocalSettings.php

- Move the downloaded file to the MediaWiki folder so it can load settings properly.

  Place it inside /var/www/html/mediawiki/

```
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
```

Figure 6.11

MediaWiki post-install checklist and create your first page

1. Log in as Admin

- Go to:

  http://<your-vm-ip>/mediawiki

- Click **Log in** (top right).
- Use the **Admin username & password** you created in setup.

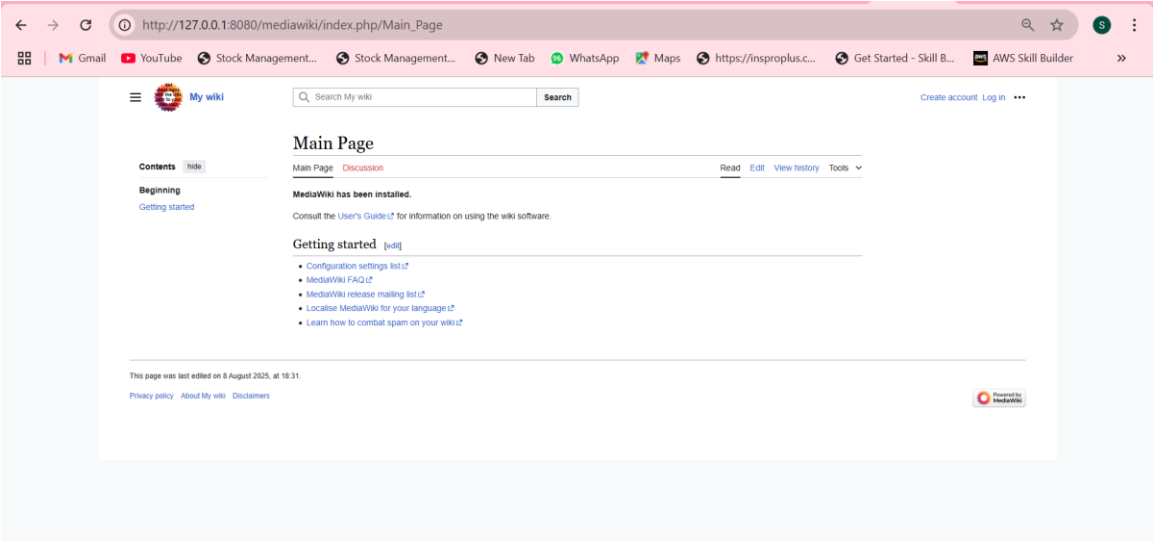


Figure 6.12

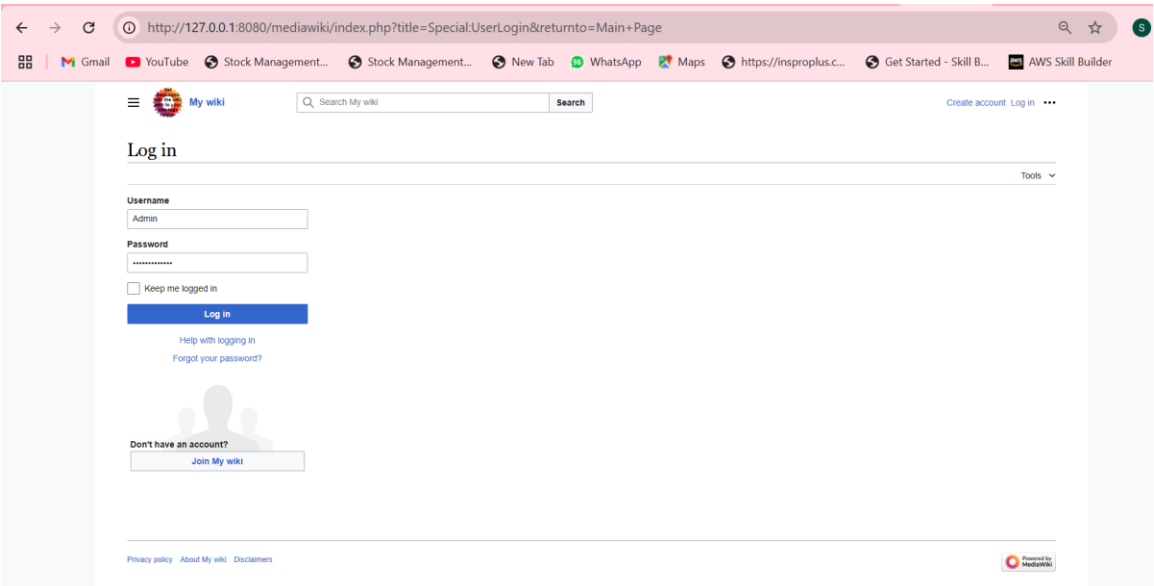


Figure 6.13

2. 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!

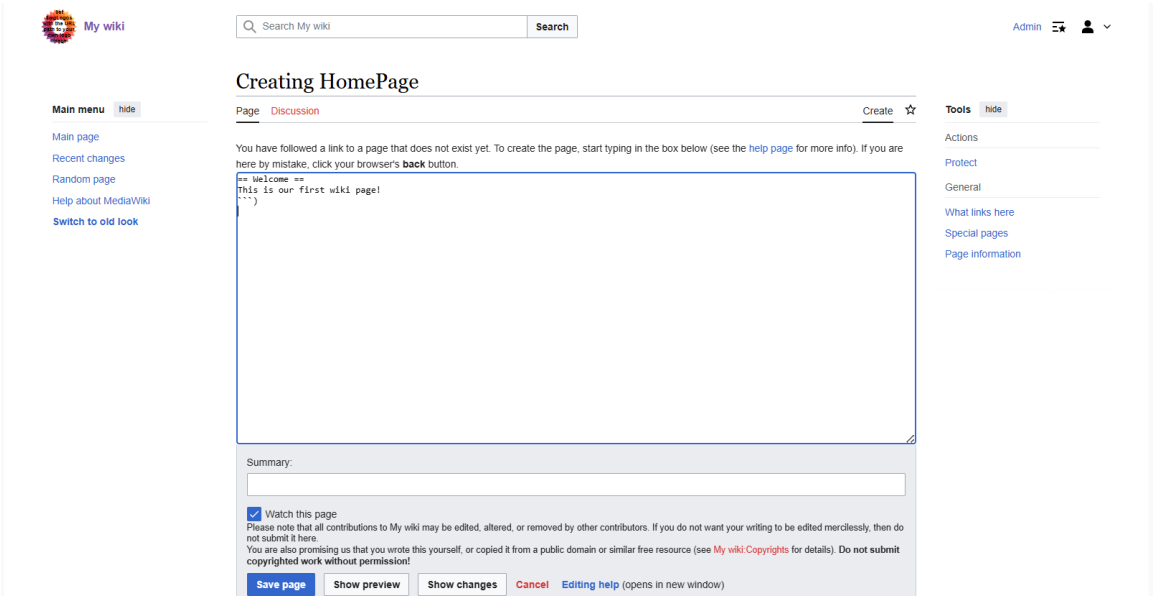


Figure 6.14

- Click **Save page**.

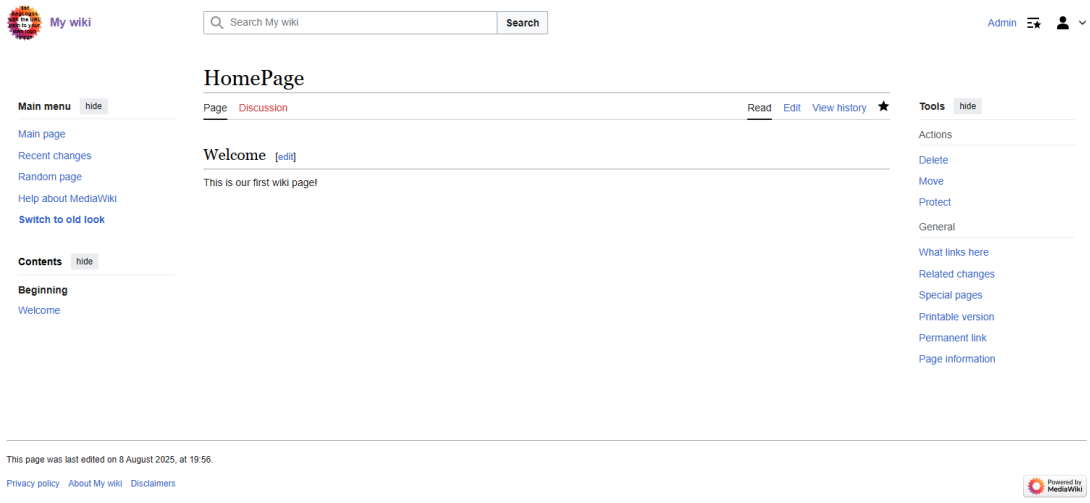


Figure 6.15

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.

B. BACKUP MECHANISM SETUP

8. What Needs to be Backed Up?

- MediaWiki Database (MySQL)
- Uploaded files and configuration (LocalSettings.php, images folder, extensions, etc.)

9. Backup Strategy

- Type: Daily Incremental Backup
- Method: Shell script + Cron Job

10. 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"
```

Figure 10.1

- Make it executable:

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

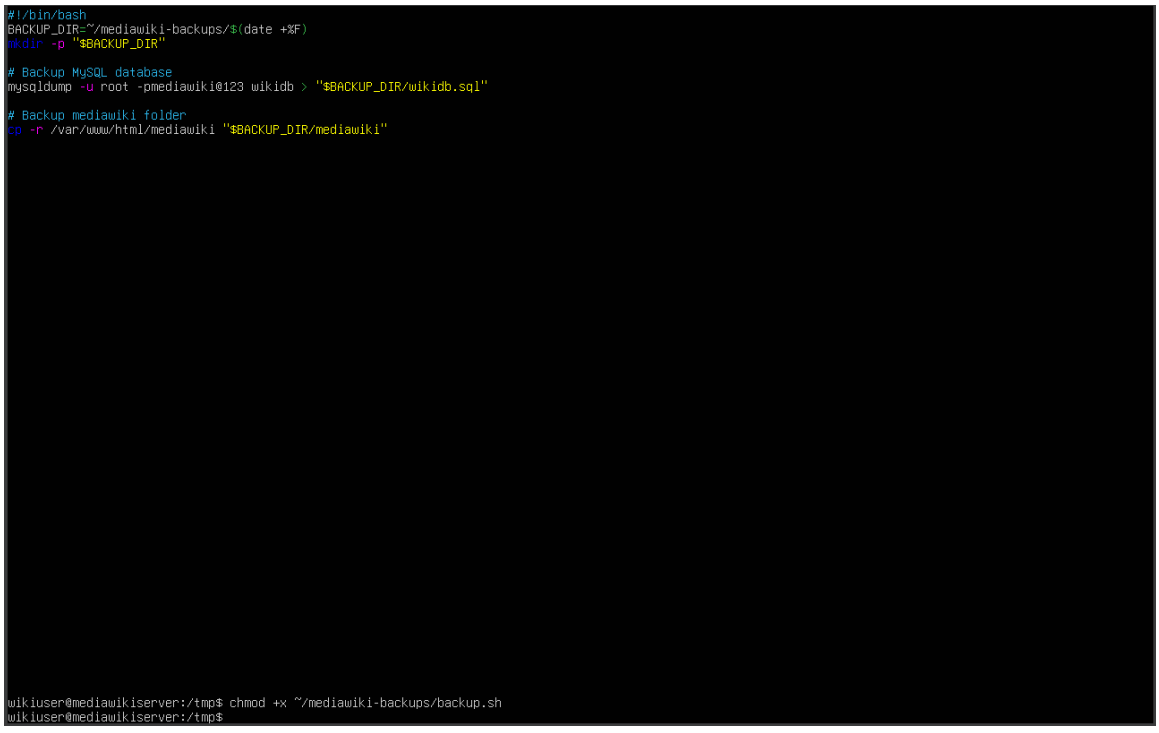


Figure 10.2

11. Automate with Cron

$ crontab-e

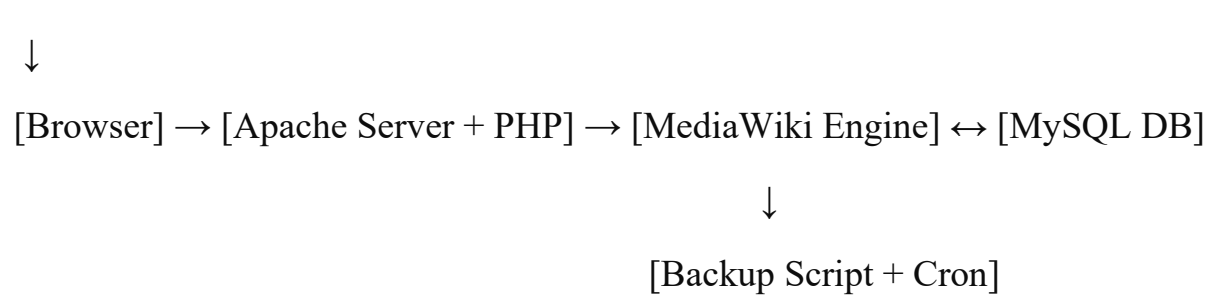
Figure 11.1

- Add this line for daily backup at 2AM:

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

C. ARCHITECTURE

- Client Browser → accesses MediaWiki using IP/domain
- Apache Web Server → serves the PHP MediaWiki pages
- PHP Engine → interprets MediaWiki PHP scripts
- MySQL Database → stores page content, user data, and settings
- Backup System → daily job saves database + uploads



D. TROUBLESHOOTING TIPS

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

E. 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.

CONCLUSION

This guide ensures a full deployment of MediaWiki on a Linux-based VM using the LAMP stack, and offers a reliable daily backup system. The setup process is also documented for WAMP in case Linux installation fails. Clear troubleshooting and restore instructions help maintain continuity and disaster recovery readiness. Additionally, the step-by-step approach ensures that even beginners can follow along without prior server administration experience. The inclusion of both backup and restoration strategies provides long-term reliability, minimizing the risk of data loss. Overall, this guide empowers users to confidently install, maintain, and safeguard their MediaWiki environment in diverse operating conditions.

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7. PHP Official Documentation - https://www.php.net/docs.php
8. Cron How-To - https://help.ubuntu.com/community/CronHowto
9. Stack Overflow - https://stackoverflow.com/
10. ChatGPT - OpenAI conversational AI platform - https://chat.openai.com/