Below is a step-by-step guide in two sections: **Vault** server install/config and a **WordPress**+**Vault** integration setup. Each part is labeled and all script/command execution is directly through the **bash** shell, no Packer or provisioning tool required. Of course Packer provisioning is possible and will be a bit more labor intensive.

Part 1: Vault Server Install, Initialize, and Policy Setup

Run these scripts and commands directly on your Ubuntu Server.

1. Update System and Install Dependencies

sudo apt update && sudo apt upgrade -y

sudo apt install -y wget unzip gpg firewalld

2. Enable and Configure firewalld for Vault

sudo systemctl enable --now firewalld

sudo firewall-cmd --zone=public --add-port=8200/tcp --permanent

sudo firewall-cmd --reload

3. Add HashiCorp Repo and Install Vault

wget -O- https://apt.releases.hashicorp.com/gpg | sudo gpg --dearmor -o /usr/share/keyrings/hashicorp-archive-keyring.gpg

echo "deb [signed-by=/usr/share/keyrings/hashicorp-archive-keyring.gpg] https://apt.releases.hashicorp.com $(lsb\_release -cs) main" | sudo tee /etc/apt/sources.list.d/hashicorp.list

sudo apt update && sudo apt install -y vault

4. Enable and Start Vault as a System Service

sudo systemctl enable --now vault

5. Set Vault ENV Variables in Shell

echo "export VAULT\_ADDR='https://127.0.0.1:8200'" >> ~/.rc

echo "export VAULT\_SKIP\_VERIFY='true'" >> ~/.rc

source ~/.rc

6. Initialize and Unseal Vault

vault operator init

Unseal Vault by entering at least threshold number (default 3) of the unseal keys:

vault operator unseal <unseal\_key\_1>

vault operator unseal <unseal\_key\_2>

vault operator unseal <unseal\_key\_3>

Add root token to Vault:

vault login <root\_token>

7. Enable kv Secrets Engine and Store Secrets

vault secrets enable -version=2 kv

vault kv put kv/db-secrets DBUSER='your\_db\_user' DBPASS='your\_db\_pass' SSHPASS='your\_ssh\_pass'

8. Create and Apply CRUD Policy

Create a file `myinitials-project.hcl`:

path "kv/data/\*" {

capabilities = ["create", "read", "update", "delete"]

}

Then run:

vault policy write myinitials-project myinitials-project.hcl

9. Generate a 10-Day Token

vault token create -policy="myinitials-project" -ttl="240h"

Part 2: Client Auth Setup and WordPress+Vault Integration

Run these on your Ubuntu client (or WordPress (WP) host server) and inside a script where noted.

10. Set Client Vault ENV Vars

export VAULT\_ADDR='https://<VAULT\_SERVER\_IP>:8200'

export VAULT\_SKIP\_VERIFY="true"

export VAULT\_TOKEN="hvs.CAESI..." # use your generated token

11. Verify Access/Connection (basic check)

Set up vault on Client machine – vault CLI

-Run these commands to install Vault CLI from HashiCorp's official repo:

# Add HashiCorp GPG key

curl -fsSL https://apt.releases.hashicorp.com/gpg | sudo gpg --dearmor -o /usr/share/keyrings/hashicorp-archive-keyring.gpg

# Add official repository

echo "deb [signed-by=/usr/share/keyrings/hashicorp-archive-keyring.gpg] https://apt.releases.hashicorp.com $(lsb\_release -cs) main" | sudo tee /etc/apt/sources.list.d/hashicorp.list

# Update & install vault

sudo apt update && sudo apt install vault

Verify by running:

vault -v

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On macOS (for example if you wish to test run wordpress site):

If you have Homebrew installed, run:

brew tap hashicorp/tap

brew install hashicorp/tap/vault

Verify with:

vault -v

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On Windows (for example if you wish to test run wordpress site):

If using Chocolatey (in Administrator PowerShell):

choco install vault

Or download the Vault binary from HashiCorp's official site and add it to your PATH .

Once Vault CLI is installed and accessible in your terminal shell, you can run the Part 2 commands:

export VAULT\_ADDR='https://<VAULT\_SERVER\_IP>:8200'

export VAULT\_SKIP\_VERIFY="true"

export VAULT\_TOKEN="hvs.CAESI..."

vault kv get kv/db-secrets

WordPress Install and Setup Script: `install\_wordpress.sh`

On a new Ubuntu Server (intended for WordPress) run:

12. Script Preparation

vim install\_wordpress.sh

(Insert the following script, replace `<VAULT\_SERVER\_IP>` and Vault token as needed)

#!/bin/

set -e

sudo apt update && sudo apt upgrade -y

sudo apt install -y wget unzip apache2 mysql-server php php-mysql firewalld vim curl

sudo systemctl enable --now firewalld

sudo firewall-cmd --zone=public --add-port=80/tcp --permanent

sudo firewall-cmd --reload

sudo systemctl enable --now apache2

sudo systemctl enable --now mysql

# Vault CLI install (optional if not present)

if ! command -v vault; then

wget -O- https://apt.releases.hashicorp.com/gpg | sudo gpg --dearmor -o /usr/share/keyrings/hashicorp-archive-keyring.gpg

echo "deb [signed-by=/usr/share/keyrings/hashicorp-archive-keyring.gpg] https://apt.releases.hashicorp.com $(lsb\_release -cs) main" | sudo tee /etc/apt/sources.list.d/hashicorp.list

sudo apt update && sudo apt install -y vault

fi

export VAULT\_ADDR='https://<VAULT\_SERVER\_IP>:8200'

export VAULT\_SKIP\_VERIFY="true"

export VAULT\_TOKEN="hvs.CAESI..."

DBUSER=$(vault kv get -field=DBUSER kv/db-secrets)

DBPASS=$(vault kv get -field=DBPASS kv/db-secrets)

sudo mysql -e "CREATE DATABASE wp;"

sudo mysql -e "CREATE USER 'wp-user'@'localhost' IDENTIFIED BY '$DBPASS';"

sudo mysql -e "GRANT ALL PRIVILEGES ON wp.\* TO 'wp-user'@'localhost';"

sudo mysql -e "FLUSH PRIVILEGES;"

cd /tmp

wget https://wordpress.org/latest.zip

unzip latest.zip

sudo mv wordpress /var/www/html/

sudo cp /var/www/html/wordpress/wp-config-sample.php /var/www/html/wordpress/wp-config.php

sudo sed -i "s/database\_name\_here/wp/" /var/www/html/wordpress/wp-config.php

sudo sed -i "s/username\_here/wp-user/" /var/www/html/wordpress/wp-config.php

sudo sed -i "s/password\_here/$DBPASS/" /var/www/html/wordpress/wp-config.php

sudo chown -R www-data:www-data /var/www/html/wordpress

Make script executable and run it:

chmod +x install\_wordpress.sh

./install\_wordpress.sh

13. Complete WordPress Setup in Browser

- Visit http://<WordPress\_Server\_IP>/wordpress

- Walk through the GUI installer for (blog) site/user creation

- Create a new post with the answers to above steps (no questions), upload the university logo as described in the final summative specs.

Snapshot of initial WP site set up follows.

Click the A blue and white rectangle with a white background

AI-generated content may be incorrect. button at bottom of page to initiate your WP site!

A screenshot of a computer

AI-generated content may be incorrect.