# Project 2: Deployment of WordPress Environment

Caltech | *Center for Technology & Management Education* | Simpl¡Learn
Post Graduate Program in DevOps
PG DO - Configuration Management with Ansible and Terraform

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- Github repo: gitansalaza/devops/course_03/project_02/project_02_deployment_of_wordpress_environment.md

# DESCRIPTION

You are a DevOps engineer at XYZ Ltd. Your company is working mostly on WordPress projects. A lot of development hours are lost to perform WordPress setup with all dependencies like PHP, MySQL, etc. The Company wants to automate it with the help of a configuration management tool so that they can follow a standard installation procedure for WordPress and its components whenever a new requirement or client comes in. The below mentioned components should be included:

- PHP
- Nginx/Apache Web Server
- MySQL
- WordPress

# Steps to perform

## Summary

- Establish configuration management master connectivity with the WordPress server.
- Validate the connectivity from the master to the worker machine.
- Prepare IaC scripts to install WordPress and its dependent components.
- Execute scripts to install the entire WordPress environment.
- Validate installation using the public IP of VM by accessing the WordPress application.

## Preliminaries

- ### Establish configuration management master connectivity with WordPress server

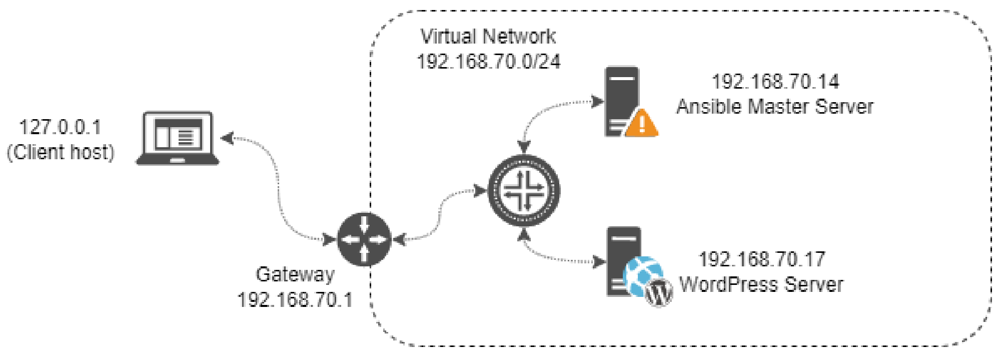
  First define the infrastructure capable of connecting at least two virtual machines.

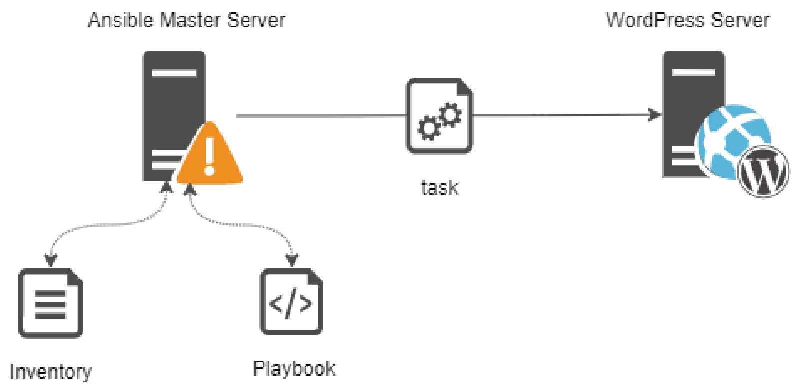
  1. The Ansible **master** server.
  2. The **WordPress** server.

The document named 'Building a home laboratory' shows a simple method to connect the virtual machines.

In summary the architecture of the project is shown by the picture below:

## Project - Architecture





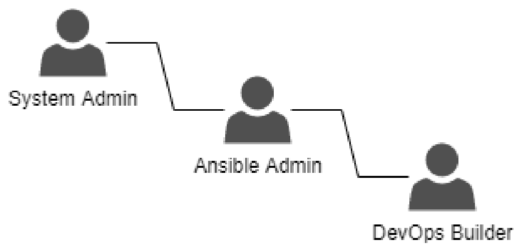
- ## Validate connectivity from master to slave machine

Let us imagine a scenario where there are three different OS user accounts:

a) The **system administrator** user with full privileges.
b) An **Ansible admin** user account used for administrating the Ansible controller (master) server.
c) And the **DevOps Builder** user account assigned to run ansible playbooks.

The system administrator creates and grants privileges to the **Ansible admin** user, which is capable of creating and giving rights to the **DevOps builder** user account.

## User Management



## Solution steps summary

1. Download the script code from github repository to the master host.

```
# as root
apt-get update && apt-get install git -y ;
cd ~/ && git clone --branch scripts
https://github.com/gitansalaza/devops.git ;
```

2. Create the Ansible **admin** user on the master host.

```
cd devops/course_03/project_02 ;
chmod +x * ;
./setup_user.sh ;
```

3. **Repeat** the same **steps 1 and 2** on the **wordpress** host.

   *In this example the username is **ansibleadm***

- Suppress the python version warnings from ansible playbook executions

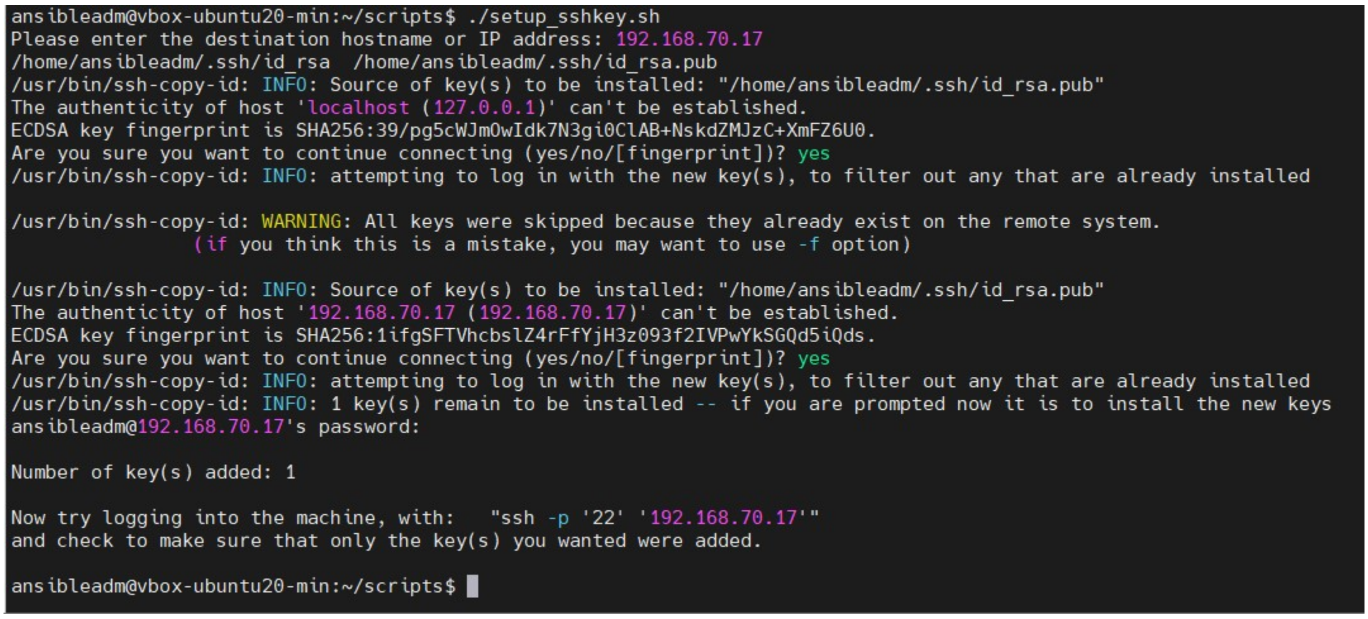
```
pywarn=`grep -E '^interpreter_python=auto_silent' /etc/ansible/ansible.cfg |
wc -l`;
if [ $pywarn -eq 0 ]; then
  sed '/^\[defaults\]/a interpreter_python=auto_silent'
/etc/ansible/ansible.cfg > /etc/ansible/ansible.cfg.new ;
 mv /etc/ansible/ansible.cfg.new /etc/ansible/ansible.cfg ;
fi ;
```

4. Switch to admin user and setup the **SSH** trusted connections between the **master** and **wordpress** hosts.

```
su - $admin_username
cd ~/ ;
```

```
sudo cp -r /root/devops/course_03/project_02/ scripts ;
sudo chown -R $USER:$USER ./scripts ;
cd scripts ;
./setup_sshkey.sh ;
```

*Enter the wordpress name or IP address. After that, accept saving the fingerprint.*



```
ansibleadm@vbox-ubuntu20-min:~/scripts$ ./setup_sshkey.sh
Please enter the destination hostname or IP address: 192.168.70.17
/home/ansibleadm/.ssh/id_rsa  /home/ansibleadm/.ssh/id_rsa.pub
/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/home/ansibleadm/.ssh/id_rsa.pub"
The authenticity of host 'localhost (127.0.0.1)' can't be established.
ECDSA key fingerprint is SHA256:39/pg5cWJmOwIdk7N3gi0ClAB+NskdZMJzC+XmFZ6U0.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any that are already installed

/usr/bin/ssh-copy-id: WARNING: All keys were skipped because they already exist on the remote system.
                (if you think this is a mistake, you may want to use -f option)

/usr/bin/ssh-copy-id: INFO: Source of key(s) to be installed: "/home/ansibleadm/.ssh/id_rsa.pub"
The authenticity of host '192.168.70.17 (192.168.70.17)' can't be established.
ECDSA key fingerprint is SHA256:1ifgSFTVhcbslZ4rFfYjH3z093f2IVPwYkSGQd5iQds.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
/usr/bin/ssh-copy-id: INFO: attempting to log in with the new key(s), to filter out any that are already installed
/usr/bin/ssh-copy-id: INFO: 1 key(s) remain to be installed -- if you are prompted now it is to install the new keys
ansibleadm@192.168.70.17's password:

Number of key(s) added: 1

Now try logging into the machine, with:   "ssh -p '22' '192.168.70.17'"
and check to make sure that only the key(s) you wanted were added.

ansibleadm@vbox-ubuntu20-min:~/scripts$
```

5. Test the Ansible connection between the master and wordpress servers.

```
ansible all -i wp_servers.inv -m ping
```

6. Create the admin user variables and vault key.

```
./setup_vars.sh
ansible-vault encrypt setup_vars.yaml --vault-password-file=.stvltkey 2>
error.txt ;
err=`grep 'ERROR! input is already encrypted' error.txt | wc -l` ;
if [ $err -eq 1 ]; then
  ansible-vault decrypt setup_vars.yaml --vault-password-file=.stvltkey;
fi
ansible-vault encrypt setup_vars.yaml --vault-password-file=.stvltkey;
ansible-vault view setup_vars.yaml --vault-password-file=.stvltkey;
```

7. Create the **DevOps builder** user account.

```
ansible-playbook setup_user.yaml -i wp_servers.inv --extra-vars "server=all"
--vault-password-file=.stvltkey ;
```

*to verify the user creation, run the command below on each host* `id $username`.

8. Copy the WordPress server installtion scripts to the **DevOps builder** user home directory.

```
ansible-playbook setup_copy_scripts.yaml -i wp_servers.inv --extra-vars
"server=master" --vault-password-file=.stvltkey ;
```

9. Switch to **devops builder** user.

```
su - $build_username
```

10. Test the connection between master and wordpress servers

```
cd ~/scripts ;
ansible all -i wp_servers.inv -m ping
```

11. Encrypt the **wp_vars.yaml** variables file.

```
./wp_vars.sh
ansible-vault encrypt wp_vars.yaml --vault-password-file=.bldkey;
ansible-vault view wp_vars.yaml --vault-password-file=.bldkey;
```

12. Install WorkPress on the destination wordpress host.

```
ansible-playbook wp_install.yaml -i wp_servers.inv --extra-vars
"server=wp_server" --vault-password-file=.bldkey
```

13. Validate installation using the public IP of VM by accessing WordPress application

# Detailed solution steps

## Creating the **Ansible admin** user account

1. Create an administrator user account in the Ansible Master server and the WordPress working machine accordingly.

```
# as root
read -p 'Please enter the username: ' user ;
read -p "Please enter the $user password: " -s password ;
useradd -p $(openssl passwd -crypt $password) $user -m -s /bin/bash ;
```

*Execute the commands above in both servers: the Master and the WordPress one.*

2. Grant *sudo* privilege to the **admin** user account:

```
# debian like family
usermod -aG sudo $user ;

# rhel/fedora like family
usermod -aG wheel $user  ;

# add the admin user account to the /etc/sudoers file
is_user_sudoer=`grep -E "^$user" /etc/sudoers | wc -l` ;

if [ $is_user_sudoer -eq 1 ]; then
    sed "s/^${user}.*/$user\tALL=(ALL:ALL)\tNOPASSWD\:ALL/g" /etc/sudoers > 
/etc/sudoers.new ;
else
    sed "/^root.*/a $user\tALL=(ALL:ALL)\tNOPASSWD\:ALL" /etc/sudoers > 
/etc/sudoers.new ;
fi
mv /etc/sudoers.new /etc/sudoers ;
```

3. Allow the **admin** account connecting through SSH.

```
find_allow_users=`grep -E '^AllowUsers' /etc/ssh/sshd_config | wc -l` ;
if [ $find_allow_users -eq 0 ]; then
    echo "AllowUsers $USER" >> /etc/ssh/sshd_config ;
else
    sed "/^AllowUsers.*/ s/$/\ $user/" /etc/ssh/sshd_config > 
/etc/ssh/sshd_config.new ;
    mv /etc/ssh/sshd_config.new /etc/ssh/sshd_config ;
fi
```

4. Restart the SSHD service.

```
systemctl restart sshd ;
```

5. *Repeat steps 1 to 4 on the WorkPress server host on a different terminal.*

6. Login with the **admin** user account just created.

```
su - $user
```

7. Create the **admin** user SSH key.

```
ssh-keygen -b 4096 -t rsa -f ~/.ssh/id_rsa -q -N "" ;
ls -l ~/.ssh/id_rsa* ;
```

8. Add the SSH key to the *authorized_key* and *known_hosts* files.

```
cat .ssh/id_rsa.pub >> .ssh/authorized_keys ;
ssh localhost -p 22 ;
exit ;
```

9. Now append the SSH key to the WordPress host (*Replace the IP with your host's IP or server name accordingly*)

```
host=192.168.70.17 ;
ssh-copy-id ${host} -p 22 ;
exit ;
```

- Creating the **ansible admin** by the *setup_user.sh* automated script

    1. Copy the scripts logger.sh and setup_user.sh to your ~/scripts directory.

    2. Run the script as **root** or with **sudo** privileges.

    ```
    # as root
    ./setup_user.sh

    # or with sudo privileges
    sudo ./setup_user.sh
    ```

    3. The script will prompt for the **admin** username and its password.

    4. After running the script on the **master** and **destination** hosts, switch to the new admin user. `su - $user`

    - Copy and run the setup_sshkey.sh script.

## Prepare IaC scripts to install WordPress and its dependent components

1. Create the inventory file.

```
# as ansible admin user
mkdir -p ~/scripts
```

```
cd ~/scripts
tee wp_servers.inv 0<<EOF
[master]
192.168.70.14

[wp_server]
192.168.70.17
EOF

cat wp_servers.inv ;
```

2. Test the ansible connection between the master and WordPress servers.

```
ansible all -i wp_servers.inv -m ping
```

3. Create the ansible *vault key* file used to run the next following ansible playbooks.

   - Enter the following values:
   - The ansible vault password. (*save it and keep it safe*)

   ```
   read -p "1) Enter the 'Vault Password': " -s vault_password ;
   echo "$vault_password" | sed 's/./*/g';
   ```

   - Admin user account credentials.

   ```
   echo  "2) The admin user is: $USER" ;
   read -p "3) Enter the $USER user password: " -s admin_password ;
   echo "$admin_password" | sed 's/./*/g';
   ```

   - Devops user account credentials.

   ```
   read -p '4) Enter the build username: ' build_username ;
   read -p "5) Enter the $build_username user password: " -s
   build_password ;
   echo "$build_password" | sed 's/./*/g';
   ```

   - WordPress server hostname, IP address, or ansible group name (set up by the inventory).

   ```
   read -p '6) Enter the destination host: [name | IP | group ]: '
   dest_host ;
   ```

   - Now create and encrypt the vault key

```
[ -f .stvltkey ] && rm -f .stvltkey ;
echo "$vault_password" > .stvltkey ;
chmod 400 .stvltkey ;
unset vault_password ;
```

4. Create and encrypt the *setup_vars.yaml* variables file.

   - Create the variables file used by the admin and devops user accounts.

```
echo "---" > setup_vars.yaml ;
echo "admin_username: ${USER}" >> setup_vars.yaml ;
echo "admin_password: ${admin_password}" >> setup_vars.yaml ;
echo "build_username: ${build_username}" >> setup_vars.yaml ;
echo "build_password: ${build_password}" >> setup_vars.yaml ;
echo "..." >> setup_vars.yaml ;
```

   - Build the first part of the variables file used to set up the WordPress server.

```
echo "---" > wp_vars.yaml ;
echo "build_username: ${build_username}" >> wp_vars.yaml;
echo "build_password: ${build_password}" >> wp_vars.yaml ;
```

   - Finally encrypt the setup_vars.yaml variables file.

```
ansible-vault encrypt setup_vars.yaml --vault-password-file=.stvltkey;
```

*Notice The steps above can be executed by the setup_vars.sh automated script.*

5. Prepare the setup_user.yaml playbook to create the devops (build_user) user.

```
---
  - name: Setup the {{ build_username }} build user account on the {{ server
}} host(s)
    hosts: "{{ server }}"
    gather_facts: yes
    vars_files: ~/scripts/setup_vars.yaml
    vars:
      ansible_become: yes
      ansible_become_method: sudo
      ansible_become_pass: "{{ admin_password }}"
      group_name: "{{ 'sudo' if ansible_os_family == 'Debian' else 'wheel'
}}"

    tasks:
      - name: Create the {{ build_username }} user and generate the ssh key
        user:
          name: "{{ build_username }}"
          password: "{{ build_password | password_hash('sha512') }}"
          groups: "{{ group_name }}"
          state: present
          append: yes
          createhome: yes
          shell: /bin/bash
          generate_ssh_key: yes
          ssh_key_type: rsa
          ssh_key_bits: 4096
          ssh_key_file: /home/{{ build_username }}/.ssh/id_rsa

      - name: Create /home/{{ build_username }}/.ssh directory
        file:
          path: /home/{{ build_username }}/.ssh
          state: directory
          mode: 0755

      - name: Deploy SSH Public Key
        authorized_key:
          user: "{{ build_username }}"
          state: present
          key: "{{ lookup('file', '/home/{{ build_username
}}/.ssh/id_rsa.pub') }}"

      - name: Allow user {{ build_username }} to log in
        shell: |
          find_allow_users=`grep -E '^AllowUsers' /etc/ssh/sshd_config | wc
-l` ;

          if [ $find_allow_users -eq 0 ]; then
            echo "AllowUsers {{ build_username }}" >> /etc/ssh/sshd_config ;
          else
            sed "/^AllowUsers.*/ s/$/\ {{ build_username }}/"
/etc/ssh/sshd_config > /etc/ssh/sshd_config.    new > ;
            mv /etc/ssh/sshd_config.new /etc/ssh/sshd_config ;
          fi ;

          exit 0
        args:
          executable: /bin/bash

      - name: Restart SSHD service
        service:
          name: sshd
          state: restarted
...
```

6. Prepare the wp_install.yaml playbook.

```
# Name:        wp_install.yaml
# Description: install WordPress server
# Author:      Antonio Salazar (antonio.salazar@ymail.com)
# Date:        2022-04-30
---
  - name: Setup the WordPress Server on {{ server }} host
    hosts: "{{ server }}"
    gather_facts: yes
    vars_files: ~/scripts/wp_vars.yaml
    vars:
      ansible_become: yes
      ansible_become_method: sudo
      ansible_become_pass: "{{ build_password }}"

    tasks:
      - name: Install Apache Web Server package on Debian OS family
        apt: name=apache2 state=present update_cache=yes
        when: ansible_os_family=="Debian"

      - name: Install Apache Web Server package on RHEL OS family
        yum:  name=httpd state=present
        when: ansible_os_family=="RedHat"

      - name: Install PHP packages on Debian OS family
        apt: name={{ item }} update_cache=yes state=latest
        loop:
          - libapache2-mod-php
          - php
          - php-common
          - php-mysql
          - php-tidy
          - php-xml
          - php-xmlrpc
          - php-mbstring
          - php-memcached
          - php-curl
          - php-zip
          - php-pear
          - php-cgi
          - php-net-socket
          - php-gd
          - php-xml-util
          - php-php-gettext
          - php-bcmath
          - unzip
          - wget
          - git
          - python3
          - python3-pip
          - python3-mysqldb
        when: ansible_os_family=="Debian"

      - name: Install PHP packages on RHEL OS family
```

```
          yum: name={{ item }} state=latest
          loop:
            - libapache2-mod-php
            - php
            - php-common
            - php-mysql
            - php-tidy
            - php-xml
            - php-xmlrpc
            - php-mbstring
            - php-memcached
            - php-curl
            - php-zip
            - php-pear
            - php-cgi
            - php-net-socket
            - php-gd
            - php-xml-util
            - php-php-gettext
            - php-bcmath
            - unzip
            - wget
            - git
            - python3
            - python3-pip
            - python3-mysqldb
          when: ansible_os_family=="RedHat"

        - name: Install PyMySQL package
          pip:
            name: pymysql
            state: present

        - name: Setup MariaDB repository
          shell: curl -sS
https://downloads.mariadb.com/MariaDB/mariadb_repo_setup | bash warn=False

        - name: Install MariaDB latest on Debian OS family
          apt: name={{ item }} update_cache=yes state=latest
          loop:
            - mariadb-server
            - mariadb-client
          when: ansible_os_family=="Debian"

        - name: Install MariaDB latest RHEL OS family
          yum: name={{ item }} state=latest
          loop:
            - mariadb-server
            - mariadb-client
          when: ansible_os_family=="RedHat"

        - name: Restart MariaDB service
          service:
            name: mysql
            state: restarted

        - name: Verify if /home/{{ build_username }}/scripts if exists
          stat:
            path: "/home/{{ build_username }}/scripts"
          register: stat_result

        - name: Create /home/{{ build_username }}/scripts if does not exist
          file:
            path: "/home/{{ build_username }}/scripts"
            state: directory
          when: stat_result.stat.exists == False

        - name: Setup the mysql_secure_installation.sql DB init script
          copy:
            dest: "/home/{{ build_username
  }}/scripts/mysql_secure_installation.sql"
            remote_src: yes
            content: |
              # Make sure that NOBODY can access the server without a password
              ALTER USER 'root'@'localhost' IDENTIFIED BY '{{ root_passwd }}';
              # Kill the anonymous users
              DELETE FROM mysql.user WHERE User='';
              # disallow remote login for root
              DELETE FROM mysql.user WHERE User='root' AND Host NOT IN
  ('localhost', '127.0.0.1', '::1');
              # Kill off the demo database
              DROP DATABASE IF EXISTS test;
              DELETE FROM mysql.db WHERE Db='test' OR Db='test\\_%';
              # Make our changes take effect
              FLUSH PRIVILEGES;
              exit

        - name: Execute the mysql_secure_installation.sql DB init script
          shell: |
            mysql -uroot -p"{{ root_passwd }}" --connect-expired-password <
  /home/{{ build_username }}/scripts/ > mysql_secure_installation.sql;
          args:
            executable: /bin/bash

        - name: Setup the mysql_create_db.sql DB script
          copy:
            dest: "/home/{{ build_username }}/scripts/mysql_create_db.sql"
            remote_src: yes
            content: |
              CREATE DATABASE {{ db_name }};
              GRANT ALL PRIVILEGES ON {{ db_name }}.* to '{{ db_user
  }}'@localhost identified by '{{ db_passwd }  > }';
              SHOW DATABASES;
              FLUSH PRIVILEGES;
              exit
              EOF

        - name: Execute the mysql_create_db.sql DB script
```

```
        shell: |
          mysql -uroot -p"{{ root_passwd }}" < /home/{{ build_username
}}/scripts/mysql_create_db.sql;
        args:
          executable: /bin/bash

      - name: Concantenate the install and directory into 'path' single
variable
        set_fact:
          path: "{{ install_path }}/{{ app_name }}"

      - name: Ensure that installation directory {{ path }} exists
        file:
          path: "{{ path }}"
          state: directory

      - name: Install WordPress when {{ path }}/wordpress/index.php is not
found
        stat:
          path: "{{ path }}/wordpress/index.php"
        register: stat_result

      - name: Download WordPress to {{ path }}
        shell: |
          cd {{ path }}
          wget https://wordpress.org/latest.zip
          unzip latest.zip
        args:
          executable: /bin/bash
        when: stat_result.stat.exists == False

      - name: Remove {{ path }}/latest.zip
        file:
          path: "{{ path }}/latest.zip"
          state: absent
        when: stat_result.stat.exists == False

      - name: Fetch random salts for WordPress config
        local_action: command curl https://api.wordpress.org/secret-
key/1.1/salt/
        register: "wp_salt"
        become: no
        become_method: sudo

      - name: Copy WordPress {{ path }}/wordpress/wp-config-sample.php file
to {{ path }}/wordpress/wp-config.  > php
        copy:
          src: "{{ path }}/wordpress/wp-config-sample.php"
          dest: "{{ path }}/wordpress/wp-config.php"
          remote_src: yes
          owner: www-data
          group: www-data

      - name: Ensure {{ path }}/wordpress/wp-config.php exists
```

```
        stat:
          path: "{{ path }}/wordpress/wp-config.php"
        register: stat_result
        when: stat_result.stat.exists == True

      - name: Set up the DB {{ db_name }} name on {{ path }}/wordpress/wp-
config.php
        replace:
          path: "{{ path }}/wordpress/wp-config.php"
          regexp: 'database\_name\_here'
          replace: "{{ db_name }}"
          backup: yes

      - name: Set up the DB {{ db_user }} user on {{ path }}/wordpress/wp-
config.php
        replace:
          path: "{{ path }}/wordpress/wp-config.php"
          regexp: 'username\_here'
          replace: "{{ db_user }}"
          backup: yes

      - name: Finish the DB set up
        replace:
          path: "{{ path }}/wordpress/wp-config.php"
          regexp: 'password\_here'
          replace: "{{ db_passwd }}"
          backup: yes

      - name: Change ownership of installation directory
        file:
          path: "{{ path }}"
          owner: www-data
          group: www-data
          state: directory
          recurse: yes
          setype: httpd_sys_content_t
...
```

7. Create the **DevOps builder** user account in the master and WordPress servers running the *setup_user.yaml* playbook.

```
ansible-playbook setup_user.yaml -i wp_servers.inv --extra-vars "server=all"
--vault-password-file=.stvltkey ;
```

8. Copy the WordPress server installtion scripts to the **DevOps builder** user home directory.

   - Prepare the setup_copy_scripts.yaml playbook

```
---
  - name: Copy the wp_server.inv, wp_vars.sh, wp_vars.yaml, and
wp_install.yaml > playbook to /home/{{ build_username }}/scripts on the
{{ server }} host
    hosts: "{{ server }}"
    vars_files: ~/scripts/setup_vars.yaml
    vars:
      ansible_become: yes
      ansible_become_method: sudo
      ansible_become_pass: "{{ admin_password }}"

    tasks:
      - name: Create /home/{{ build_username }}/scripts directory
        file:
          path: /home/{{ build_username }}/scripts
          state: directory
          owner: "{{ build_username }}"
          group: "{{ build_username }}"
          mode: 0775

      - name: Copy the wp_server.inv , wp_vars.yaml, and
wp_install.yaml files > tothe  /home/{{ build_username }}/scripts
directory
        copy:
          src: ~/scripts/{{ item }}
          dest: /home/{{ build_username }}/scripts
          owner: "{{ build_username }}"
          group: "{{ build_username }}"
          mode: 0755
          follow: yes
        loop:
          - wp_servers.inv
          - wp_vars.sh
          - wp_vars.yaml
          - wp_install.yaml
...
```

9. Run the setup_copy_scripts.yaml playbook as the **ansible admin** user.

```
ansible-playbook setup_copy_scripts.yaml -i wp_servers.inv --extra-vars
"server=master" --vault-password-file=.stvltkey ;
```

10. Switch to **devops builder** user.

```
su - $build_username
```

*Substitute the $build_username with the DevOps builder username*

11. Test the connection between the servers.

```
ansible all -i wp_servers.inv -m ping
```

12. Encrypt the **wp_vars.yaml** file.

   - Enter the vault password.

```
read -p "Please input the 'Vault Password': " -s vault_password ;
echo "$vault_password" | sed 's/./*/g';
```

   - Enter the database name.

```
read -p 'Please enter the DB name: ' db_name ;
```

   - Enter the database username.

```
read -p 'Please enter the DB user: ' db_username ;
```

   - Enter the database user password.

```
read -p "Please enter the DB $db_username user password: " -s
db_password ;
echo "$db_password" | sed 's/./*/g';
```

   - Create the vault password file for the devops build user account.

```
[ -f .bldkey ] && rm -f .bldkey ;
echo "$vault_password" > .bldkey ;
chmod 400 .bldkey ;
unset vault_password ;
```

   - Complete creating the wp_vars.yaml variables file.

```
echo "db_user:   ${build_username}" >> wp_vars.yaml ;
echo "db_passwd: ${build_username}" >> wp_vars.yaml ;
echo "db_name:   ${build_password}" >> wp_vars.yaml ;
echo "..." >> wp_vars.yaml ;
```

- Encrypt the wp_vars.yaml file.

> ```
> ansible-vault encrypt setup_vars.yaml --vault-password-file=.bldkey;
> ```

*Notice The steps above can be executed by the wp_vars.sh automated script.*

## Execute scripts to perform installation of complete WordPress environment

Run the wp_install.yaml playbook.

> ```
> ansible-playbook wp_install.yaml -i wp_servers.inv --extra-vars
> "server=wp_server" --vault-password-file=.bldkey
> ```

Play book steps explanation summarized:

1. **Header:** read the variables
    - {{Server}} -> destination server set up in the inventory where to install the wordpress application.
    - ~/scripts/wp_vars.yaml -> WordPress variables encrypted file by the ansible vault.
    - Allow to run the playbook with sudo capabilities using the **devops builder** account credentials
2. **Tasks:**
    - Install Apache WebServer.
    - Install PHP with all the libraries and pakages it needs.
    - Install PIP PyMySQL package.
    - Install and setup MariaDB, which is a flavor of MySQL server.
    - Set up the MariaDB root user password, deletes the test DB and disables the anonymous login capability.
    - Creates a new database taking the DB name from the wp_vars.yaml encrypted file.
    - Install the latest version of WordPress on to /var/www/html/<app name>. (where the app name is setup by the wp_vars.sh script and dropped to the wp_vars.yaml encrypted file)
    - Setup the wp-config.php by setting the DB name, DB credentials and host.

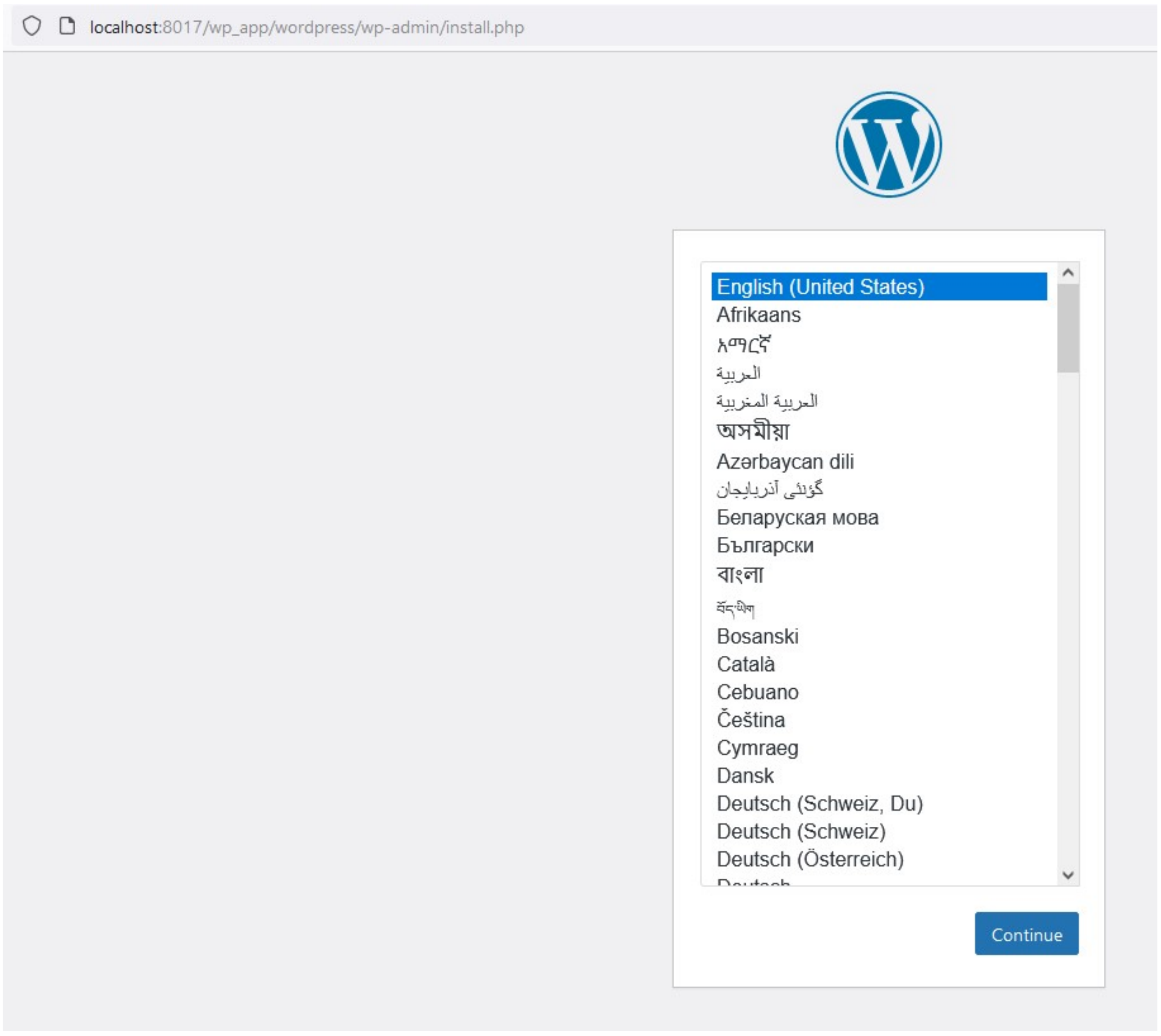
## Validate installation using the public IP of VM by accessing WordPress application

### Final steps

1. Open a broswer with the URL: http://localhost:8017/$app_name/wordpress/
    - *replace the <app name> with the name of the application you set up during the installation process*
    - Notice the *localhost:8017* is forwarded to the *192.168.70.17:8080* VM address/

- More details are explained in the project_00_building_a_home_lab.md

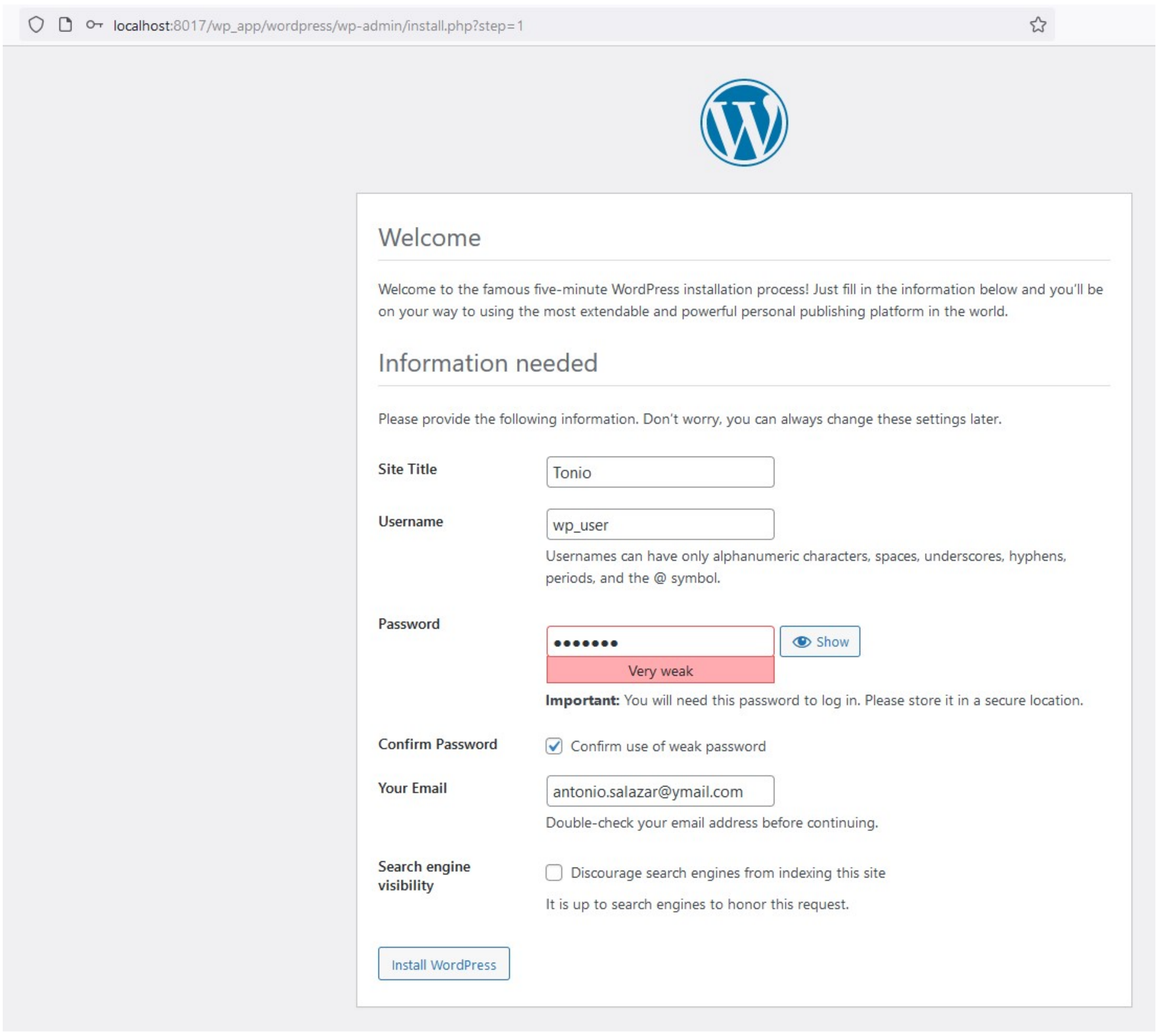
2. The first time it opens the WordPress set up page. Select language.



localhost:8017/wp_app/wordpress/wp-admin/install.php

English (United States)
Afrikaans
አማርኛ
العربية
العربية المغربية
অসমীয়া
Azərbaycan dili
گؤنئی آذربایجان
Беларуская мова
Български
বাংলা
བོད་ཡིག
Bosanski
Català
Cebuano
Čeština
Cymraeg
Dansk
Deutsch (Schweiz, Du)
Deutsch (Schweiz)
Deutsch (Österreich)

3. Set up the Site name, user credentials and email notification address.


localhost:8017/wp_app/wordpress/wp-admin/install.php?step=1

Welcome

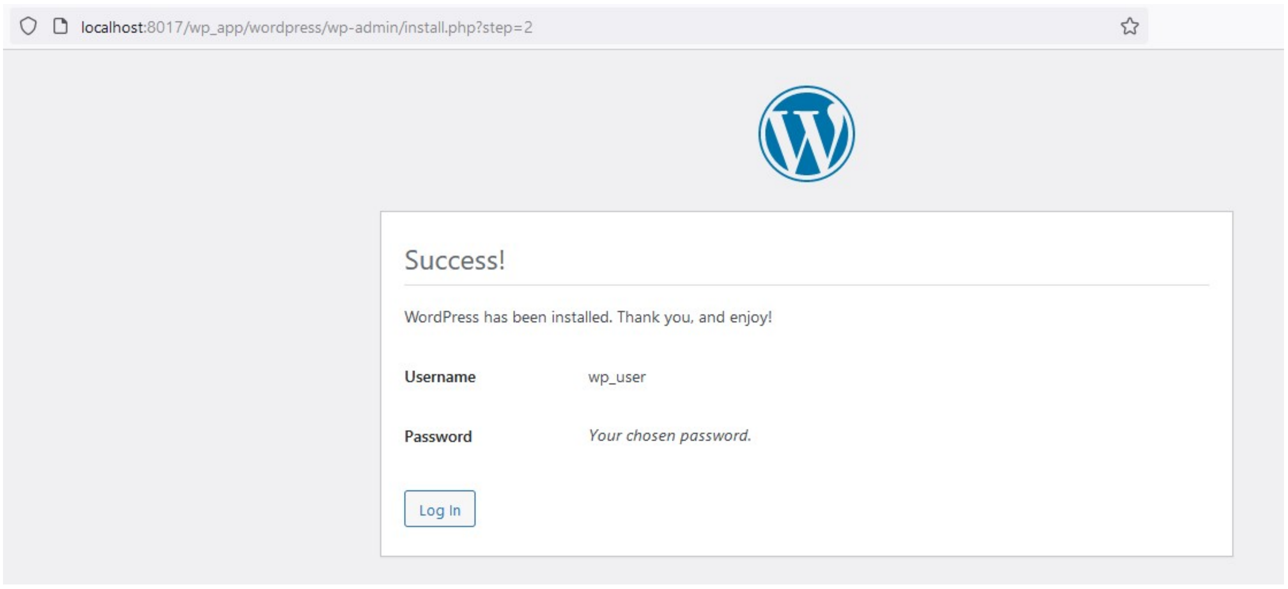
Welcome to the famous five-minute WordPress installation process! Just fill in the information below and you'll be on your way to using the most extendable and powerful personal publishing platform in the world.

Information needed

Please provide the following information. Don't worry, you can always change these settings later.

| | |
|---|---|
| Site Title | Tonio |
| Username | wp_user<br>Usernames can have only alphanumeric characters, spaces, underscores, hyphens, periods, and the @ symbol. |
| Password | ••••••• Show<br>Very weak<br>**Important:** You will need this password to log in. Please store it in a secure location. |
| Confirm Password | ✓ Confirm use of weak password |
| Your Email | antonio.salazar@ymail.com<br>Double-check your email address before continuing. |
| Search engine visibility | ☐ Discourage search engines from indexing this site<br>It is up to search engines to honor this request. |

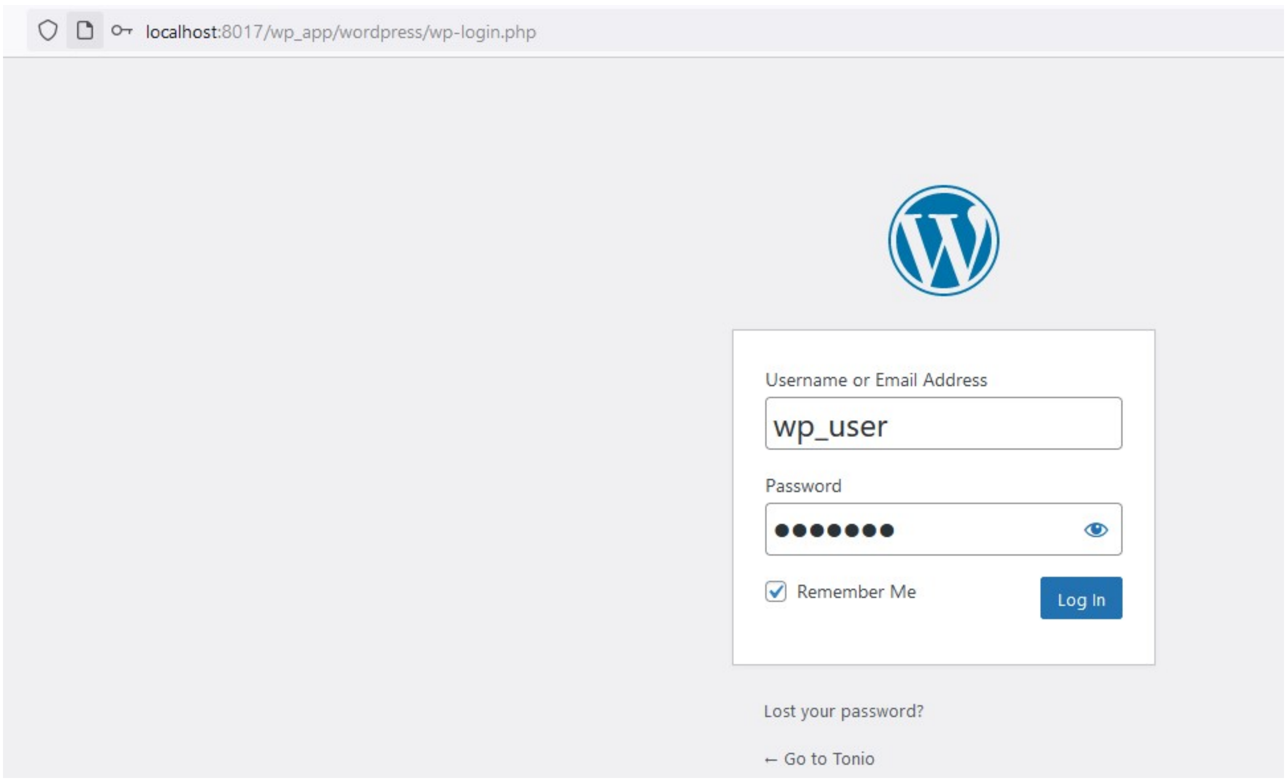
4. Login with the credentials just entered.


localhost:8017/wp_app/wordpress/wp-admin/install.php?step=2

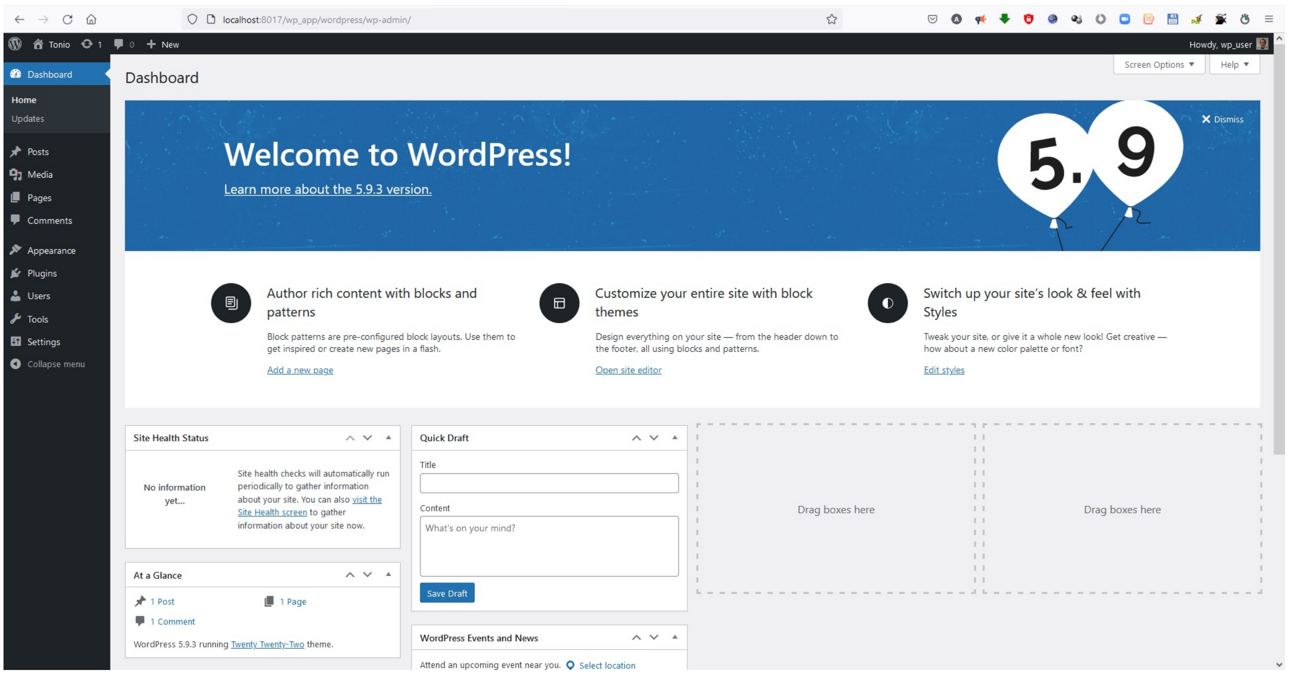
Success!

WordPress has been installed. Thank you, and enjoy!

| | |
|---|---|
| Username | wp_user |
| Password | *Your chosen password.* |


localhost:8017/wp_app/wordpress/wp-login.php
Username or Email Address
wp_user
Password
Remember Me
Log In
Lost your password?
← Go to Tonio

5. The installation is done


localhost:8017/wp_app/wordpress/wp-admin/
Dashboard
Welcome to WordPress!
Learn more about the 5.9.3 version.
Author rich content with blocks and patterns
Customize your entire site with block themes
Switch up your site's look & feel with Styles
Site Health Status
Quick Draft
At a Glance
WordPress Events and News
Drag boxes here

## Videos

Install WordPress with Ansible

## Scripts

They are available at gitansalaza/devops

### BASH

- logger.sh
- setup_sshkey.sh
- setup_user.sh
- setup_vars.sh
- wp_vars.sh

### Inventory

- setup_servers.inv
- wp_servers.inv

### Playbooks

- setup_copy_scripts.yaml
- setup_user.yaml
- wp_install.yaml

Additionally the files below are created on the fly to store the variables:

- setup_vars.yaml
- wp_vars.yaml

## References

- Manage user accounts
- How do I generate encrypted passwords for the user module?
- Create a linux user using ansible
- Lineinfile module
- Conditionals
- drupal-ansible/roles/mariadb/tasks/main.yaml
- Advanced Ansible WordPress Installation on Ubuntu, PHP7