### **DevOps Training-Day-1**

# **Installing Ubuntu on VirtualBox**

# **Step 1: Download Required Files**

- 1. **Download VirtualBox** from the official website:
  - ↑ https://www.virtualbox.org/
- 2. **Download Ubuntu ISO** from the official Ubuntu website:
  - https://ubuntu.com/download/desktop

# **Step 2: Install VirtualBox**

- 1. Open the downloaded **VirtualBox** installer and follow the on-screen instructions to install it.
- 2. Once installed, launch VirtualBox.

# **Step 3: Create a New Virtual Machine**

- 1. Click "New" in VirtualBox.
- 2. Enter a name (e.g., "Ubuntu VM").
- 3. Choose **Type**: **Linux**
- 4. Choose **Version**: **Ubuntu** (64-bit)
- 5. Click Next.

# **Step 4: Allocate Memory (RAM)**

- Assign at least **2GB** (**4096 MB**) RAM (Recommended: 4GB or more).
- Click Next.

# **Step 5: Create a Virtual Hard Disk**

- 1. Choose "Create a virtual hard disk now" → Click Create.
- 2. Select **VDI** (VirtualBox Disk Image)  $\rightarrow$  Click Next.
- 3. Select **Dynamically allocated**  $\rightarrow$  Click **Next**.
- 4. Set at least **25GB** storage (Recommended: 50GB or more).
- 5. Click Create.

# **Step 6: Attach Ubuntu ISO**

- 1. Select the created VM from the list.
- 2. Click **Settings**  $\rightarrow$  **Storage**.
- 3. Under Controller: IDE, click Empty.
- 4. Click the **CD icon** on the right  $\rightarrow$  **Choose a disk file**.
- 5. Select the downloaded **Ubuntu ISO** file.
- 6. Click OK

# **Step 7: Start the Virtual Machine**

- 1. Select your **Ubuntu VM**  $\rightarrow$  Click **Start**.
- 2. Ubuntu installer will launch.

# Step-by-Step Guide to Creating a Freestyle Job in Jenkins to Install Nginx on a Local Ubuntu VM

# Prerequisites for Setting Up a Freestyle Job to Install Nginx in Jenkins

Before creating the Freestyle Job, ensure that the following prerequisites are met:

# 1. Install Jenkins on Ubuntu (If Not Installed)

If Jenkins is not installed on your Ubuntu VM, follow these

steps:

Step 1: Update Package Lists sudo apt update -y

Step 2: Install Java (Required for

**Jenkins**) sudo apt install -y openjdk-17-jdk

Step 3: Verify Java Version java -version

Step 4: Add Jenkins Repository Key

(Note: The apt-key add command is deprecated in newer Ubuntu versions. Use the correct method below.)

**Correct Way to Add Jenkins Repository (Without apt-key)** 

# Step 4.1: Add Jenkins GPG Key

wget -q -O- https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key | sudo tee /usr/share/keyrings/jenkinskeyring.asc > /dev/null

# **Step 4.2: Add Jenkins Repository**

echo "deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc] https://pkg.jenkins.io/debianstable binary/" |

sudo tee /etc/apt/sources.list.d/jenkins.list >

/dev/null **Step 5: Install Jenkins** sudo apt update -y

sudo apt install -y jenkins

# **Step 6: Start and Enable Jenkins**

**Service** sudo systemctl start jenkins sudo

systemctl enable Jenkins

# Step 7: Check Jenkins Status sudo

systemctl status jenkins

# 2. Access Jenkins Web Interface

Jenkins will be available at http://<VM\_IP>:8080

# To Get the Jenkins Server URL, Follow These Steps:

#### **Check the Default URL**

By default, Jenkins runs on port 8080. Open in a browser: http://<your-server-

ip>:8080

If you're on the same machine as Jenkins, use:

http://localhost:8080

# 3. Access Jenkins Web Interface and Log In

- 1. Open a browser and go to http://<JENKINS\_SERVER\_IP>:8080
- 2. Enter the username (admin) and the admin password retrieved from the following command:

sudo cat /var/lib/jenkins/secrets/initialAdminPassword

3. Choose *Install Suggested Plugins* (recommended) or manually select plugins.

# 4. Ensure Sudo Access for Jenkins User

Jenkins runs as a system user (jenkins). If your script requires sudo, allow Jenkins to execute commands without a password:

sudo visudo

Add the following line at the end of the file: jenkins ALL=(ALL) NOPASSWD: ALL Save and exit.

# Step-by-Step Guide to Creating a Freestyle Job in Jenkins to Install Nginx

# **Step 1: Create a New Freestyle Job**

- 1. Click on **New Item** from the Jenkins Dashboard.
- 2. Enter a name for the job, e.g., *Install-Nginx*.
- 3. Select **Freestyle project**.
- 4. Click **OK**.

# **Step 2: Configure the Job**

# **Add Build Step**

- 1. Scroll down to **Build**  $\rightarrow$  Click *Add build step*  $\rightarrow$  Select **Execute shell**.
- 2. Paste the following script in the command box: #!/bin/bash

```
echo "Updating package lists..."
sudo apt update -y
```

```
sudo apt install -y nginx
echo "Starting Nginx service..."
```

echo "Installing Nginx..."

sudo systemctl start nginx

```
echo "Enabling Nginx to start on boot..." sudo systemctl enable nginx
```

echo "Nginx Installation Completed!"

# **Step 3: Save and Run the Job**

1. Click Save.

- 2. Click **Build Now**.
- 3. Check the **Console Output** to verify the installation.

# **Step 4: Verify the Installation**

# 1. Check Nginx Status

systemctl status nginx

If running, you should see output like "active (running)".

# 2. Open Nginx in Browser

http://<VM\_IP>

You should see the default Nginx welcome page.

#### **Getting Started**

# **Unlock Jenkins**

To ensure Jenkins is securely set up by the administrator, a password has been written to the log (not sure where to find it?) and this file on the server:

/var/lib/jenkins/secrets/initialAdminPassword

Please copy the password from either location and paste it below.

Administrator password

Continue

# **Getting Started**

# **Getting Started**

✓ Folders	✓ OWASP Markup Formatter	✓ Build Timeout	✓ Credentials Binding	** Plain Credentials  ** Variant  ** SSH Credentials	
✓ Timestamper		O Ant	€ Gradle	** SSM Credentials Binding  ** SCM API  ** Pipeline: API  ** commons-lang3 v3.x Jenkins  API  Timestamper  ** Caffeine API  ** Script Security  ** JavaBeans Activation  Framework (JAF) API  ** JAXB	
Pipeline	CitHub Branch Source	<ul> <li>Pipeline: GitHub Groovy Libraries</li> </ul>	Pipeline Graph View		
🖔 Git	🖔 SSH Build Agents	<ul> <li>Matrix Authorization</li> <li>Strategy</li> </ul>	PAM Authentication		
Ů LDAP	Email Extension	* Mailer	O Dark Theme		
				** SnakeYAML API  ** JSON Api  ** Jackson 2 API  ** commons-text API  ** Pipeline: Supporting APIs  ** Plugin Utilities API  ** Font Awesome API  ** - required dependency	

Jenkins 2.492.2

# Jenkins is ready! You have skipped the configuration of the Jenkins URL. To configure the Jenkins URL, go to "Manage Jenkins" page. Your Jenkins setup is complete. Start using Jenkins

**Getting Started** 

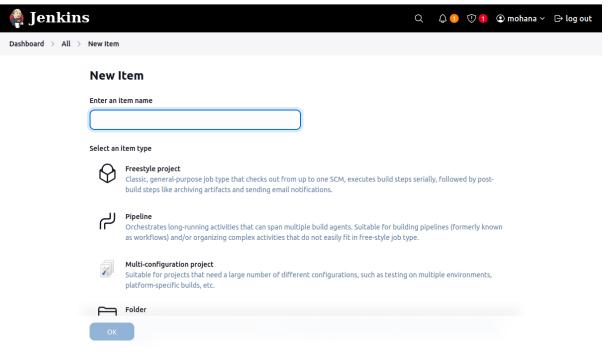
Jenkins 2.492.2

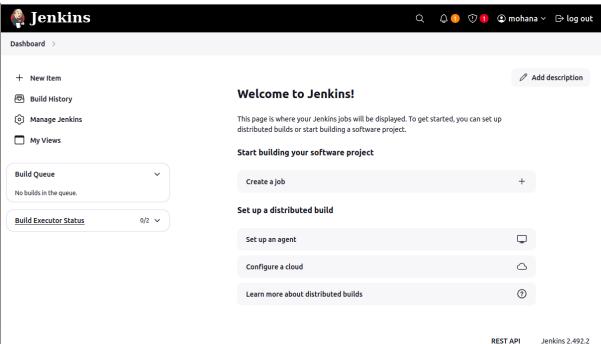
# Create First Admin User

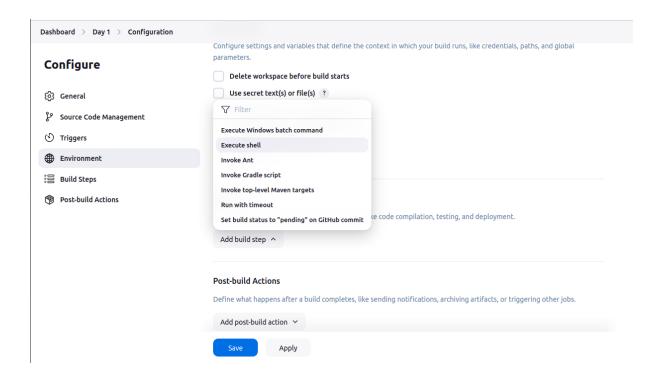
Username		
Password		
Confirm password		
Full name		

Jenkins 2.492.2 Skip and continue as admin

Save and Continue







# Welcome to nginx!

If you see this page, the nginx web server is successfully installed and working. Further configuration is required.

For online documentation and support please refer to  $\underline{nginx.org}$ . Commercial support is available at  $\underline{nginx.com}$ .

Thank you for using nginx.