Utrains : Jenkins Installation

In this part we will carry out the installation process using two methods:

- **Vagrant** : here we will use a bash script to configure a Jenkins server using **Centos 7 OS**.
- **AWS EC2** : here we will create an EC2 instance in AWS and then through a script, install Jenkins

Install Jenkins using Centos 7 (Vagrant) and AWS EC2 (Red Hat Enterprise)

` We will describe the process using scripts for install Jenkins.

The different steps we will use to install Jenkins are the following:

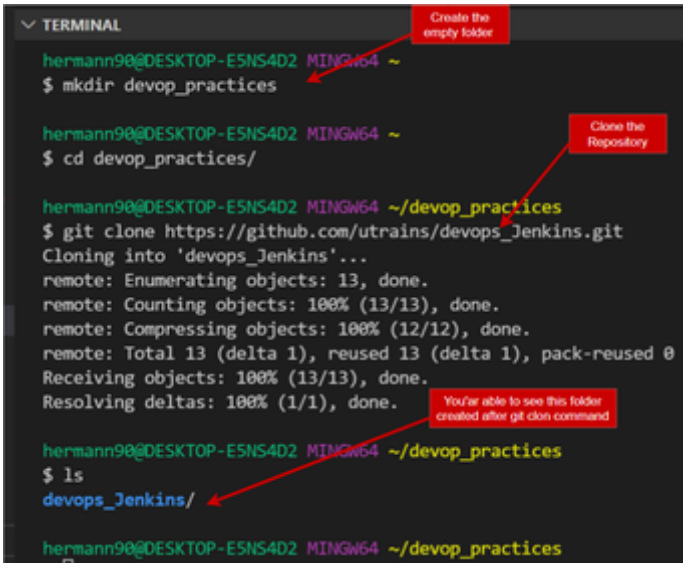
- **Step 1 :** clone the scripts for the quick installation in the **Utrains repository**
- **Step 2 :** install Jenkins using a **Vagrant Box** and the **Centos 7 image**
- **Step 3 :** create an **EC2** instance in AWS with the Red Hat Enterprise image
- **Step 4 :** install Jenkins using our **EC2** instance created in step 2
- **Step 5 :** configure the Jenkins web interface

Getting Started

Step 1 : Clone the script from the Utrains Repository to your local machine

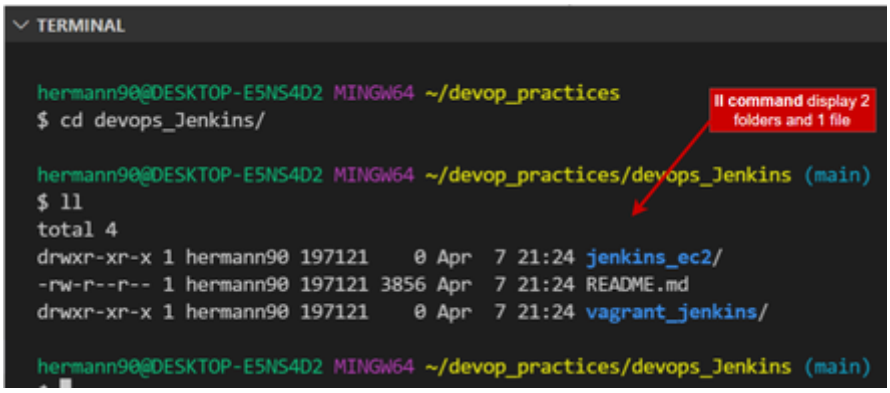
here we will use the **git clone command** to clone the installation scripts the Utrains repository
1- open a terminal, create a working directory and enter this empty folder.
2- use git clone to clone the project that contains our Jenkins installation scripts

```
$ mkdir devop_practices
$ cd devop_practices
$ git clone https://github.com/utrains/devops_Jenkins.git
```



enter the folder that is created after the **git clone command** then make **ls**. you can see **2 folders** (one is for install Jenkins using vagrant, anther is for EC2), and one **README** file.

```
$ cd devops_Jenkins
$ ll
```



Felicitation : at this level, you already have the **scripts** available on your local machine for the fast installation of Jenkins.

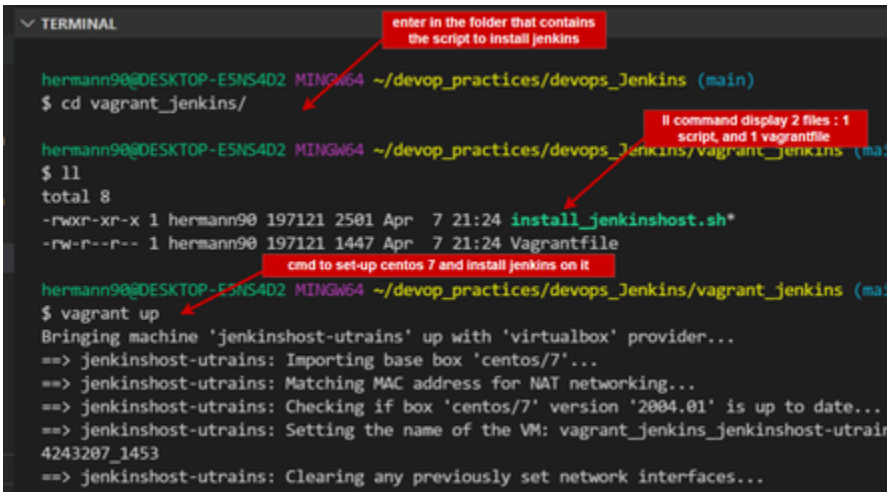
Step 2 : install Jenkins using a **Vagrant Box** and the Centos 7 image

After **step 1**, you have a **folder (devops_jenkins)** that contains two **folders (jenkins_ec2** and **vagrant_jenkins)**

1- you just have to enter the **vagrant_jenkins** folder, make **ls** command to see that it contains 2 files (**vagrantfile** and **install_jenkinshost.sh**)

2- then in this folder type the command **vagrant up** to install a **centos 7** server with Jenkins

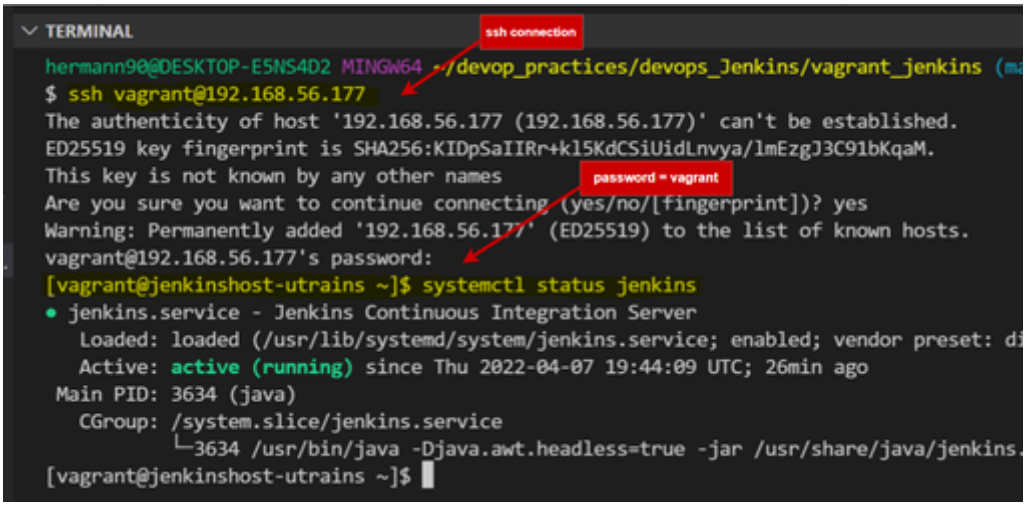
```
cd vagrant_jenkins
vagrant up
```



3- After sometimes, your **Jenkins server** is still being installed.

at the end of the previous command, we will connect via **ssh** on this server, then check if Jenkins is correctly installed with **systemctl** command

```
ssh vagrant@192.168.56.107
systemctl status jenkins
```



Congratulations, you have just installed **Jenkins** on your **Centos 7 server using vagrant and a script** written entirely by the Utrains team.

Note : We still have to configure the web interface of Jenkins (see step 5).

Step 3 : create an **EC2** instance in AWS with the Red Hat Enterprise image

for do this step2, just follow this link : **Create EC2 in AWS using Red Hat Enterprise image**

Step 4 : install Jenkins using our **EC2** instance created in Step 2.

To install **Jenkins** on our **EC2** instance **created** in **AWS**, we will **create a file in a directory of our EC2 instance**. In this file, we will put a shell script for the installation of Jenkins.

Finally, we will simply run this script on the remote server.

- connect you to the EC2 instance, using ssh command
- in the EC2, create a folder called **jenkins_ec2**
- enter in this folder, using the **cd** command
- create the file called **install_jenkins_ec2.sh,** copy the **script bellow** and **paste** in this file**, then save and quit**
- give the execute privilege's on this file using **chmod** command
- run this script using sudo access. **(sudo ./install_jenkins_ec2.sh)**

```
$ ssh -i "C:\Users\hermann90\Downloads\jenkins_keys.pem" ec2-user@ec2-
54-161-173-21.compute-1.amazonaws.com
$ mkdir jenkins_ec2
$ cd jenkins_ec2
$ vi install_jenkins_ec2.sh
## put the insert mode by cliquing in the i
```

✅ **ssh command explication:**

	ssh command parameters	explanation
1	**"C:\Users\hermann90\Downloads\jenkins_keys.pem"**	path where the download key is located when creating EC2
2	**Jenkins_ec2**	folder that we want to copy to our remote server
3	**ec2-user@54.161.173.21**	default user (**ec2-user**)of our remote server followed by the **public IP Address** (**54.161.173.21**) of our server
4	**.compute-1.amazonaws.com**	resolver host for aws

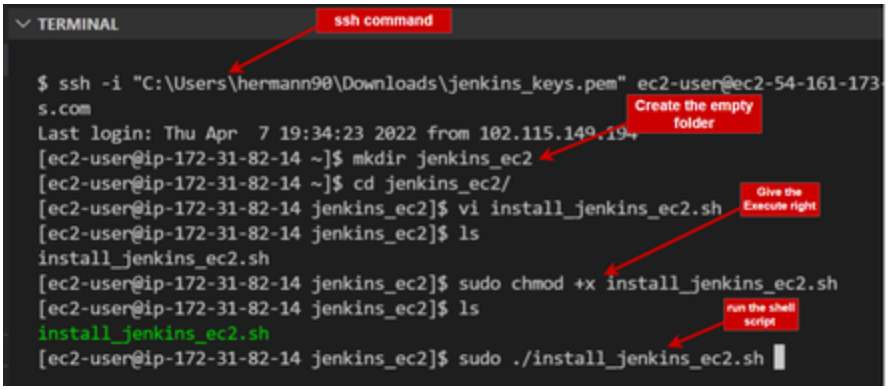
- script that you're paste in the **install_jenkins_ec2.sh** file

```
#!/bin/bash
#------------------------------------------------------------------------
----------------------------------------#
# @Autor : Utrains
# Description : This is the script that will take care of the
installation of Java,
#               Jenkins server and some utilitiess
# Date : 03/22/2022
#------------------------------------------------------------------------
----------------------------------------#
## Recover the ip address and update the server
IP=$(hostname -I | awk '{print $2}')
echo "START - install jenkins - "$IP
echo "=====> [1]: updating ...."
sudo yum update -y

## Prerequisites tools(Wget, ...) for Jenkins
echo "=====> [2]: install prerequisite tools for Jenkins"

sudo yum install -y yum-presto
# Although not needed for Jenkins, I like to use vim, so let's make
sure it is installed:
sudo yum install -y vim

# The Jenkins setup makes use of wget, sshpass and gnupg2
sudo yum install -y wget
sudo yum install -y sshpass
sudo yum install -y gnupg2

# Let's make sure that we have the EPEL and IUS repositories installed.
# This will allow us to use newer binaries than are found in the
standard CentOS repositories.
```

```
sudo wget -N http://dl.iuscommunity.org/pub/ius/stable/CentOS/7/x86_64
/ius-release-1.0-13.ius.centos7.noarch.rpm
sudo rpm -Uvh ius-release*.rpm

# gnupg2 openssl :
sudo yum install -y openssl

# Jenkins on CentOS requires Java, but it won't work with the default
(GCJ) version of Java. So, let's remove it:
sudo yum remove -y java

# install the OpenJDK version of Java 8:
sudo yum install -y java-1.8.0-openjdk-devel

# Let's now install Jenkins:
echo "=====> [3]: installing Jenkins ...."
sudo wget -O /etc/yum.repos.d/jenkins.repo http://pkg.jenkins-ci.org
/redhat-stable/jenkins.repo
sudo rpm --import https://pkg.jenkins.io/redhat/jenkins.io.key
sudo yum install -y jenkins

echo "=====> [4]: updating server after jenkins installation ...."
sudo yum update -y

echo "=====> [5]: Start Jenkins Daemon and Enable ...."
sudo systemctl start jenkins
sudo systemctl enable jenkins

echo "=====> [6]: Ajust Firewall ...."
sudo yum install -y firewalld
sudo firewall-cmd --permanent --zone=public --add-port=8080/tcp
sudo firewall-cmd --reload

echo "END - install jenkins"
```

- save and exit, give the execute right the execute the file

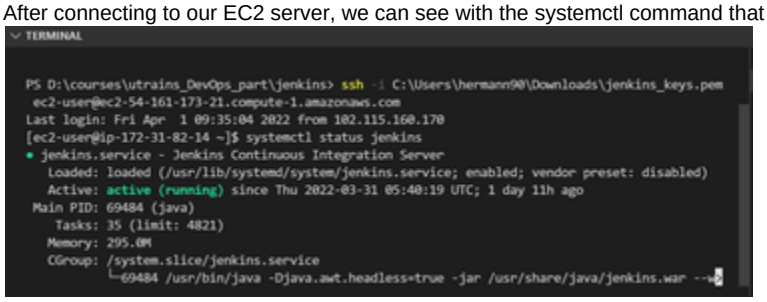
```
$ chmod +x install_jenkins_ec2.sh
$ sudo ./install_jenkins_ec2.sh
```



2- **install Jenkins script : execute** this script on the remote server

To execute the Jenkins installation script, you have to enter the folder (**cd** command) we just copied, then use the **bash** command for the installation.

After connecting to our EC2 server, we can see with the systemctl command that Jenkins has been installed.



At this level, we have just installed Jenkins on two servers using two methods. We still have to configure the **Jenkins web interface** and create an Admin user.

Step 5 : configure the Jenkins web interface

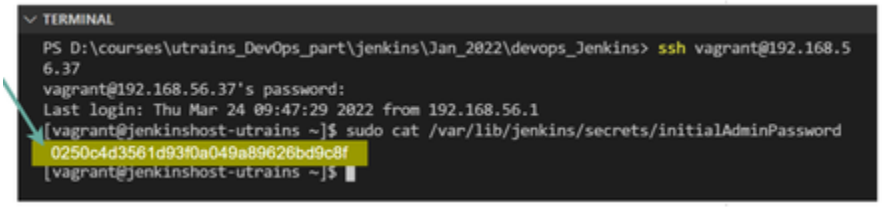
- if you enter the **IP address (192.168.56.37** for server install with **Vagrant** and **54.161.173.21** for server install with **AWS EC2)** of the server followed by port **8080**,

you will see the Jenkins web interface below :

- open the browser and enter the **IP address** followed by port 8080. **http://192.168.56.37:8080/** Or **http://54.161.173.21:8080/**

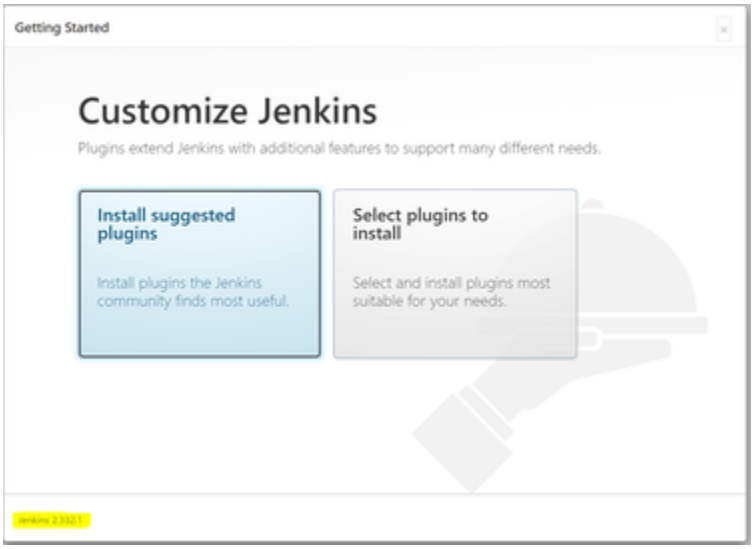
- in the terminal of your server, use the command **cat** to display the server password, then copy the code that appears to put in 2 on this window

```
ssh vagrant@192.168.56.37
password: vagrant
cat /var/lib/jenkins/secrets/initialAdminPassword
```

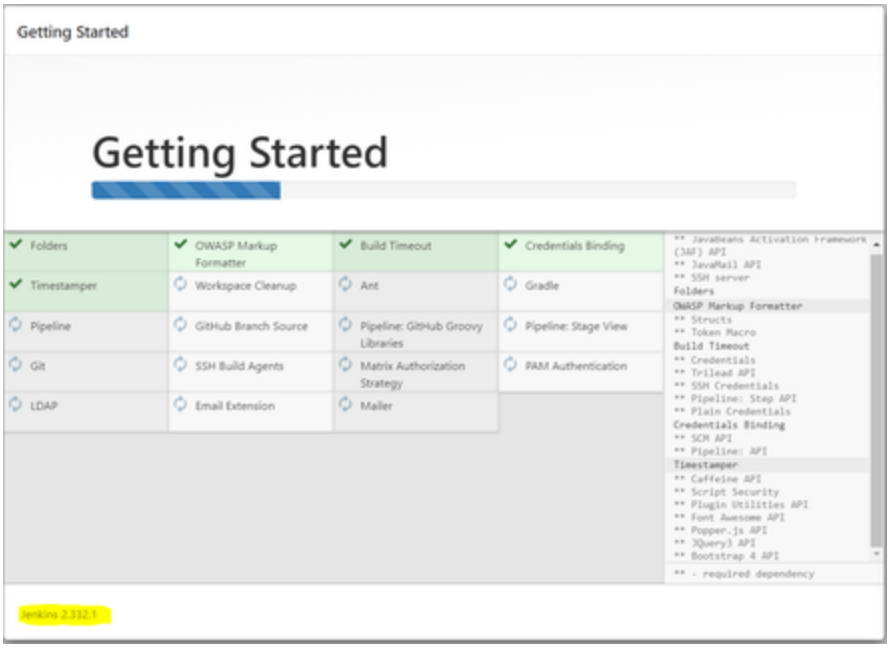


copy the code that appears, then paste it in the web interface of Jenkins in 2. then click on continue to connect

- the installation of **Jenkins**, is almost finished. click on **install suggested plugins**, to install some plugins.



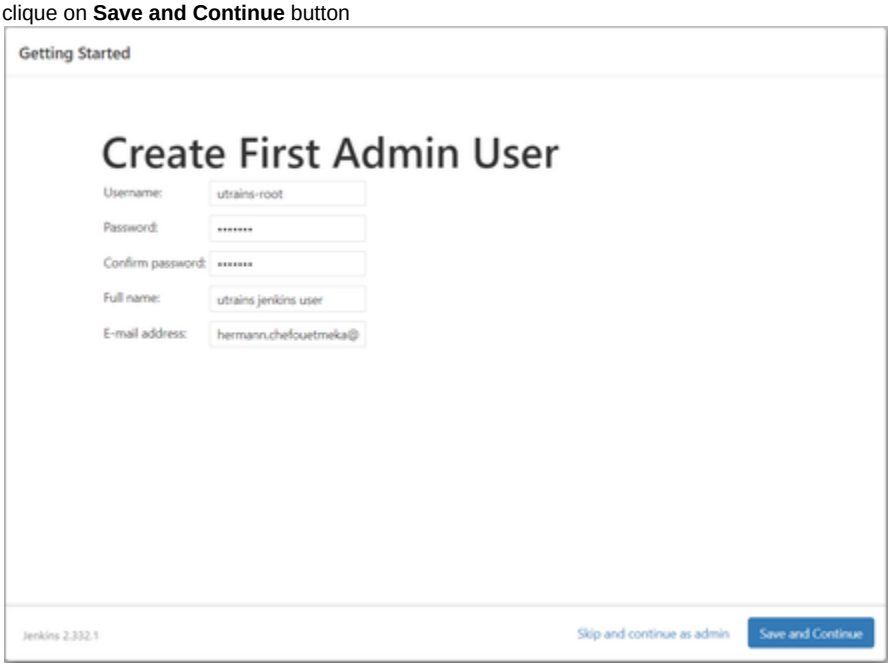
- plugins installation interfaces



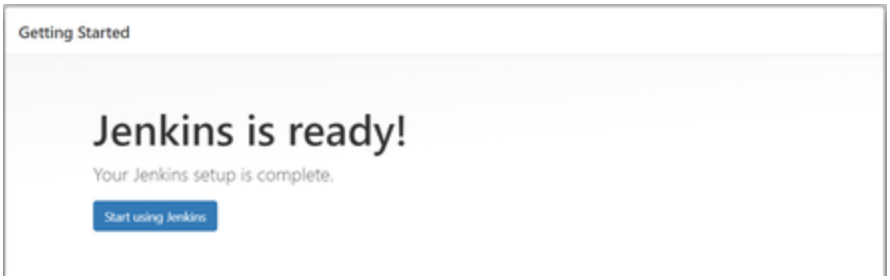
Once these plugins are installed, you have the Jenkins interface. we have the interface to **create a user**. fill this window with the following information :

- Username: **utrains-root**
- Password: **school1**
- Confirm password: **school1**
- Full name: **utrains jenkins user**
- **E-mail address**: **your_email@gmail.com**

clique on **Save and Continue** button

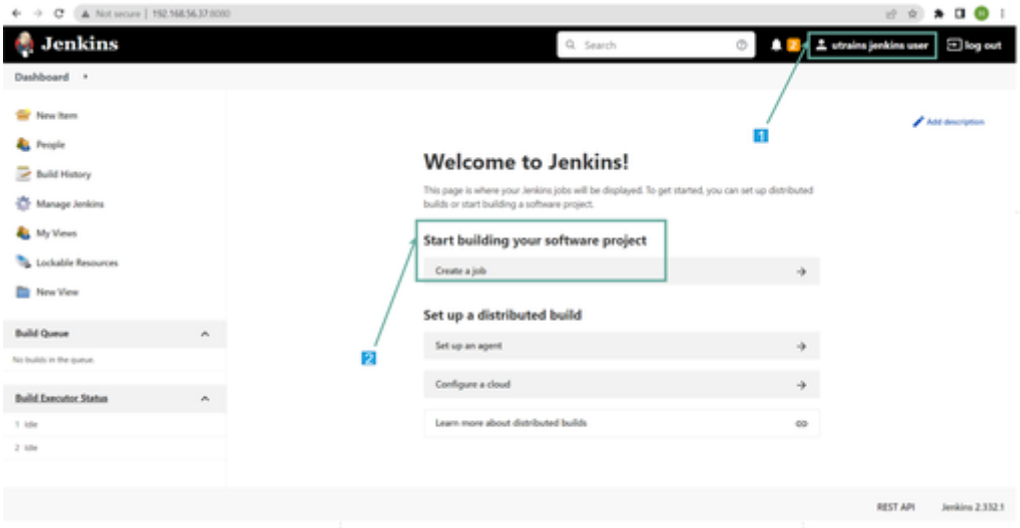


- To finish configuration, click on **Start using Jenkins**



The Jenkins dashboard can display.

- in 1, we see that our admin user is logged
- in 2, we have the tab to create the first job. We will dedicate an entire chapter to the creation of Jenkins jobs



🗓️ Releases

- **1.0 :** build for Utrains Student

🗓️ Date : 01/04/2022

👥 Participants : **hermann.chefouetmeka@utrains.org**

👣 Next steps

- [x] **Begin Jobs creation**
- [ ] **Begin advanced Jenkins utilization like Pipeline for CI|CD, maven and GitHub integration, deploy …**

📈 Link for similar document

- 🔗 **Create EC2 in AWS using Red Hat Enterprise image**