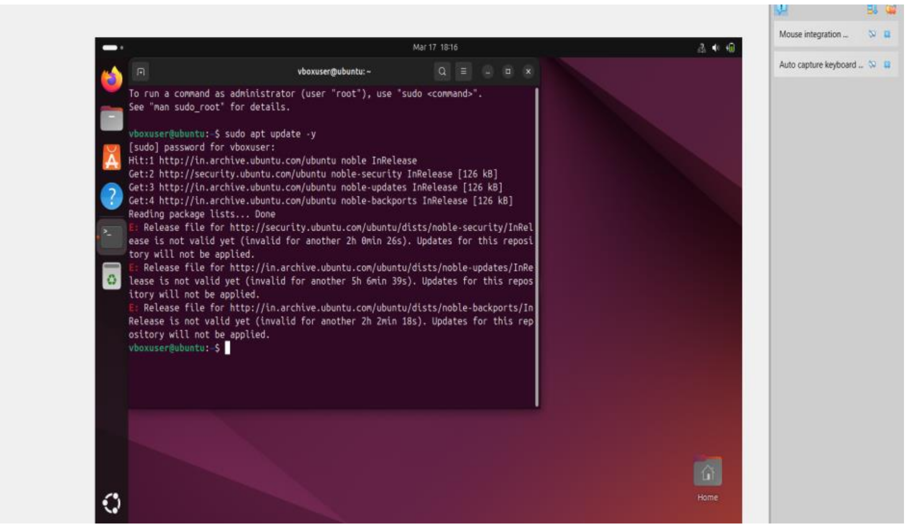
DevOps Training-Day-1

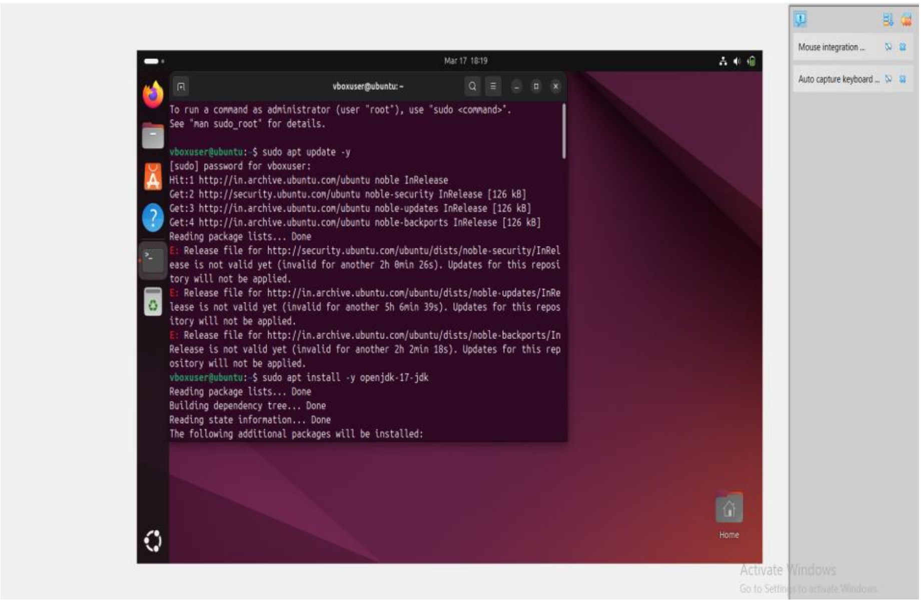
Step-by-step guide to creating a Freestyle Job in Jenkins to install Nginx on a local Ubuntu VM

1. Updates the package lists to ensure the latest version of packages.



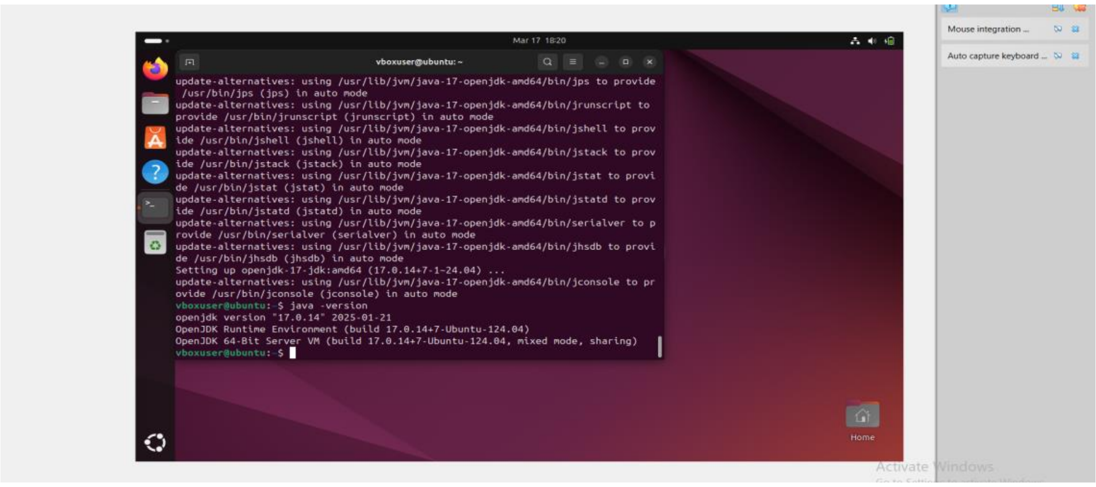
```
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

vboxuser@ubuntu:~$ sudo apt update -y
[sudo] password for vboxuser:
Hit:1 http://in.archive.ubuntu.com/ubuntu noble InRelease
Get:2 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:3 http://in.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:4 http://in.archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Reading package lists... Done
E: Release file for http://security.ubuntu.com/ubuntu/dists/noble-security/InRel
ease is not valid yet (invalid for another 2h 0min 26s). Updates for this reposi
tory will not be applied.
E: Release file for http://in.archive.ubuntu.com/ubuntu/dists/noble-updates/InRe
lease is not valid yet (invalid for another 5h 6min 39s). Updates for this repos
itory will not be applied.
E: Release file for http://in.archive.ubuntu.com/ubuntu/dists/noble-backports/In
Release is not valid yet (invalid for another 2h 2min 18s). Updates for this rep
ository will not be applied.
vboxuser@ubuntu:~$
```

2. Installs OpenJDK 17, required for running Jenkins.



```
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

vboxuser@ubuntu:~$ sudo apt update -y
[sudo] password for vboxuser:
Hit:1 http://in.archive.ubuntu.com/ubuntu noble InRelease
Get:2 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Get:3 http://in.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:4 http://in.archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Reading package lists... Done
E: Release file for http://security.ubuntu.com/ubuntu/dists/noble-security/InRel
ease is not valid yet (invalid for another 2h 0min 26s). Updates for this reposi
tory will not be applied.
E: Release file for http://in.archive.ubuntu.com/ubuntu/dists/noble-updates/InRe
lease is not valid yet (invalid for another 5h 6min 39s). Updates for this repos
itory will not be applied.
E: Release file for http://in.archive.ubuntu.com/ubuntu/dists/noble-backports/In
Release is not valid yet (invalid for another 2h 2min 18s). Updates for this rep
ository will not be applied.
vboxuser@ubuntu:~$ sudo apt install -y openjdk-17-jdk
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
```

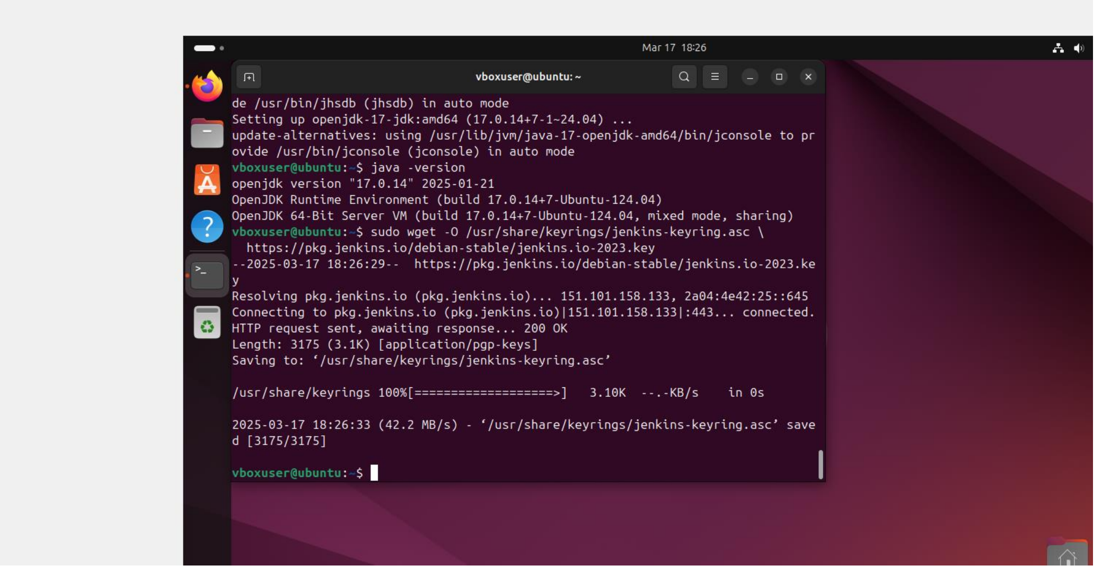
3. Checks the installed Java version.



```
update-alternatives: using /usr/lib/jvm/java-17-openjdk-amd64/bin/jps to provide
 /usr/bin/jps (jps) in auto mode
update-alternatives: using /usr/lib/jvm/java-17-openjdk-amd64/bin/jrunscript to
provide /usr/bin/jrunscript (jrunscript) in auto mode
update-alternatives: using /usr/lib/jvm/java-17-openjdk-amd64/bin/jshell to prov
ide /usr/bin/jshell (jshell) in auto mode
update-alternatives: using /usr/lib/jvm/java-17-openjdk-amd64/bin/jstack to prov
ide /usr/bin/jstack (jstack) in auto mode
update-alternatives: using /usr/lib/jvm/java-17-openjdk-amd64/bin/jstat to provi
de /usr/bin/jstat (jstat) in auto mode
update-alternatives: using /usr/lib/jvm/java-17-openjdk-amd64/bin/jstatd to prov
ide /usr/bin/jstatd (jstatd) in auto mode
update-alternatives: using /usr/lib/jvm/java-17-openjdk-amd64/bin/serialver to p
rovide /usr/bin/serialver (serialver) in auto mode
update-alternatives: using /usr/lib/jvm/java-17-openjdk-amd64/bin/jhsdb to provi
de /usr/bin/jhsdb (jhsdb) in auto mode
Setting up openjdk-17-jdk:amd64 (17.0.14+7-1-24.04) ...
update-alternatives: using /usr/lib/jvm/java-17-openjdk-amd64/bin/jconsole to pr
ovide /usr/bin/jconsole (jconsole) in auto mode
vboxuser@ubuntu:~$ java -version
openjdk version "17.0.14" 2025-01-21
OpenJDK Runtime Environment (build 17.0.14+7-Ubuntu-124.04)
OpenJDK 64-Bit Server VM (build 17.0.14+7-Ubuntu-124.04, mixed mode, sharing)
vboxuser@ubuntu:~$
```

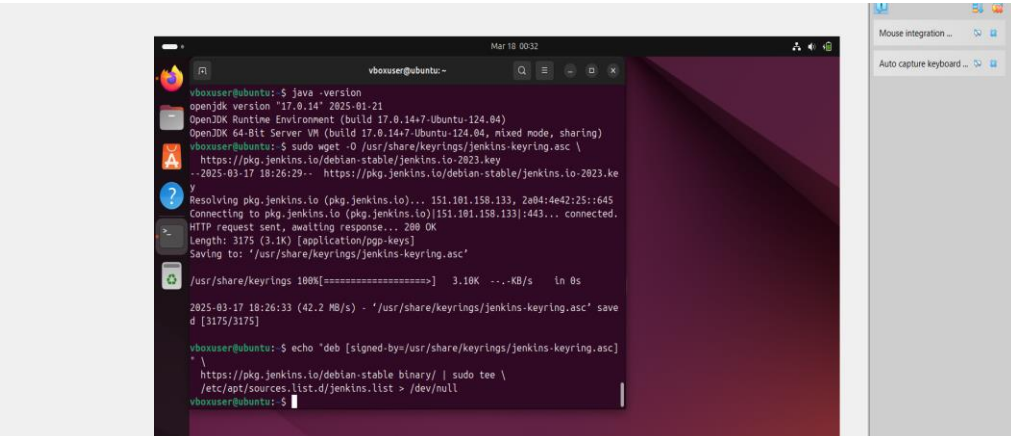
Adding Jenkins Repository:

4. Downloads and stores the Jenkins GPG key securely.



```
de /usr/bin/jhsdb (jhsdb) in auto mode
Setting up openjdk-17-jdk:amd64 (17.0.14+7-1~24.04) ...
update-alternatives: using /usr/lib/jvm/java-17-openjdk-amd64/bin/jconsole to pr
ovide /usr/bin/jconsole (jconsole) in auto mode
vboxuser@ubuntu:~$ java -version
openjdk version "17.0.14" 2025-01-21
OpenJDK Runtime Environment (build 17.0.14+7-Ubuntu-124.04)
OpenJDK 64-Bit Server VM (build 17.0.14+7-Ubuntu-124.04, mixed mode, sharing)
vboxuser@ubuntu:~$ sudo wget -O /usr/share/keyrings/jenkins-keyring.asc \
  https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key
--2025-03-17 18:26:29--  https://pkg.jenkins.io/debian-stable/jenkins.io-2023.ke
y
Resolving pkg.jenkins.io (pkg.jenkins.io)... 151.101.158.133, 2a04:4e42:25::645
Connecting to pkg.jenkins.io (pkg.jenkins.io)|151.101.158.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 3175 (3.1K) [application/pgp-keys]
Saving to: ‘/usr/share/keyrings/jenkins-keyring.asc’

/usr/share/keyrings 100%[===================>]   3.10K  --.-KB/s    in 0s

2025-03-17 18:26:33 (42.2 MB/s) - ‘/usr/share/keyrings/jenkins-keyring.asc’ save
d [3175/3175]

vboxuser@ubuntu:~$
```

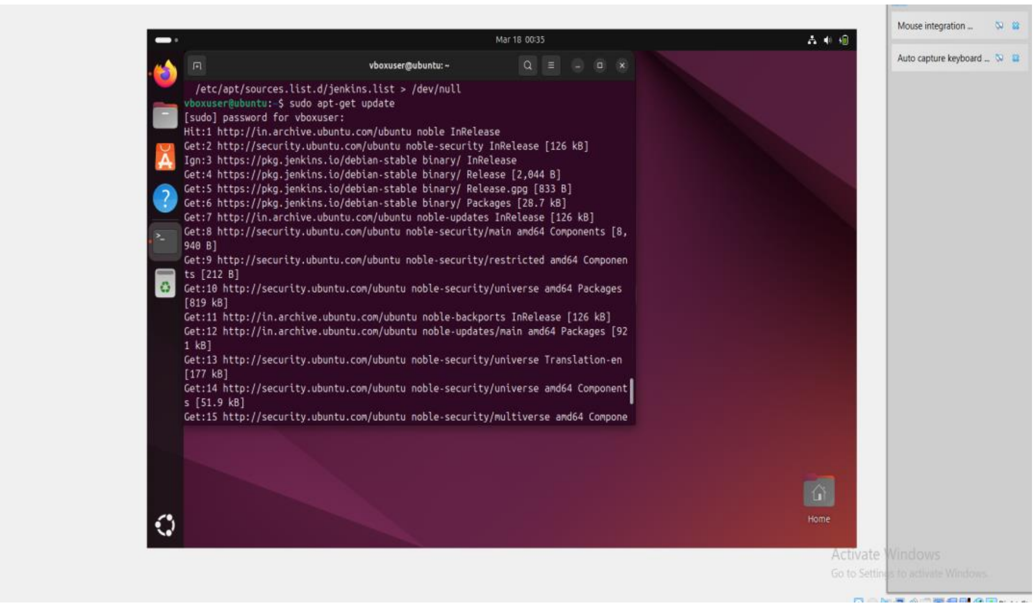
5.Adds the Jenkins repository to your system for package management.



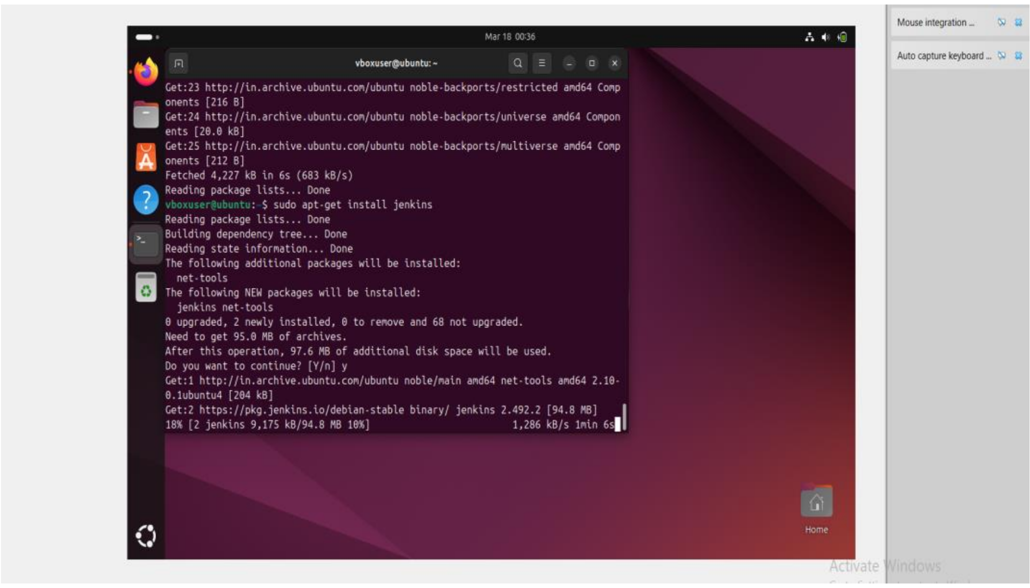
```
vboxuser@ubuntu:~$ java -version
openjdk version "17.0.14" 2025-01-21
OpenJDK Runtime Environment (build 17.0.14+7-Ubuntu-124.04)
OpenJDK 64-Bit Server VM (build 17.0.14+7-Ubuntu-124.04, mixed mode, sharing)
vboxuser@ubuntu:~$ sudo wget -O /usr/share/keyrings/jenkins-keyring.asc \
  https://pkg.jenkins.io/debian-stable/jenkins.io-2023.key
--2025-03-17 18:26:29--  https://pkg.jenkins.io/debian-stable/jenkins.io-2023.ke
y
Resolving pkg.jenkins.io (pkg.jenkins.io)... 151.101.158.133, 2a04:4e42:25::645
Connecting to pkg.jenkins.io (pkg.jenkins.io)|151.101.158.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 3175 (3.1K) [application/pgp-keys]
Saving to: '/usr/share/keyrings/jenkins-keyring.asc'

/usr/share/keyrings 100%[===================>]   3.10K  --.-KB/s    in 0s

2025-03-17 18:26:33 (42.2 MB/s) - '/usr/share/keyrings/jenkins-keyring.asc' save
d [3175/3175]

vboxuser@ubuntu:~$ echo "deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc]
" \
  https://pkg.jenkins.io/debian-stable binary/ | sudo tee \
  /etc/apt/sources.list.d/jenkins.list > /dev/null
vboxuser@ubuntu:~$
```

Install Jenkins:

6.Installs Jenkins after updating the package lists.

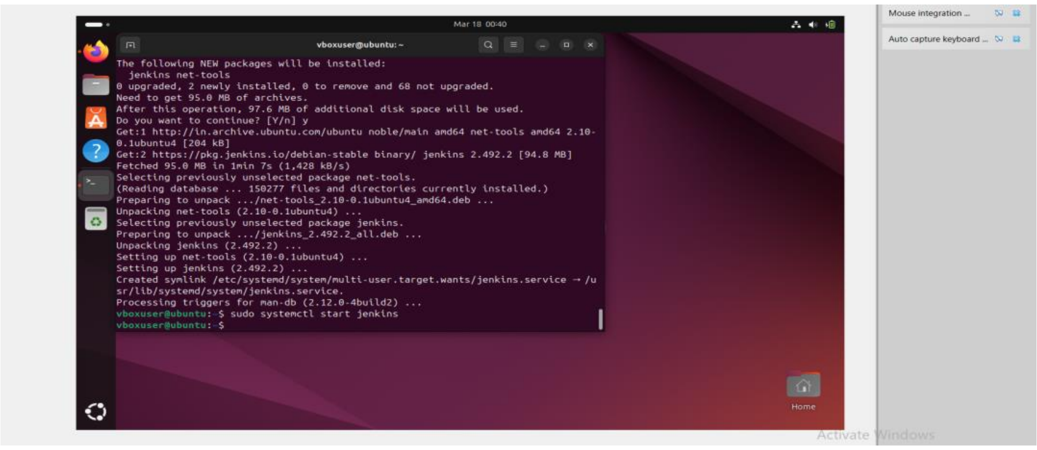


```
  /etc/apt/sources.list.d/jenkins.list > /dev/null
vboxuser@ubuntu:~$ sudo apt-get update
[sudo] password for vboxuser:
Hit:1 http://in.archive.ubuntu.com/ubuntu noble InRelease
Get:2 http://security.ubuntu.com/ubuntu noble-security InRelease [126 kB]
Ign:3 https://pkg.jenkins.io/debian-stable binary/ InRelease
Get:4 https://pkg.jenkins.io/debian-stable binary/ Release [2,044 B]
Get:5 https://pkg.jenkins.io/debian-stable binary/ Release.gpg [833 B]
Get:6 https://pkg.jenkins.io/debian-stable binary/ Packages [28.7 kB]
Get:7 http://in.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]
Get:8 http://security.ubuntu.com/ubuntu noble-security/main amd64 Components [8,
940 B]
Get:9 http://security.ubuntu.com/ubuntu noble-security/restricted amd64 Componen
ts [212 B]
Get:10 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Packages
[819 kB]
Get:11 http://in.archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]
Get:12 http://in.archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [92
1 kB]
Get:13 http://security.ubuntu.com/ubuntu noble-security/universe Translation-en
[177 kB]
Get:14 http://security.ubuntu.com/ubuntu noble-security/universe amd64 Component
s [51.9 kB]
Get:15 http://security.ubuntu.com/ubuntu noble-security/multiverse amd64 Compone
```

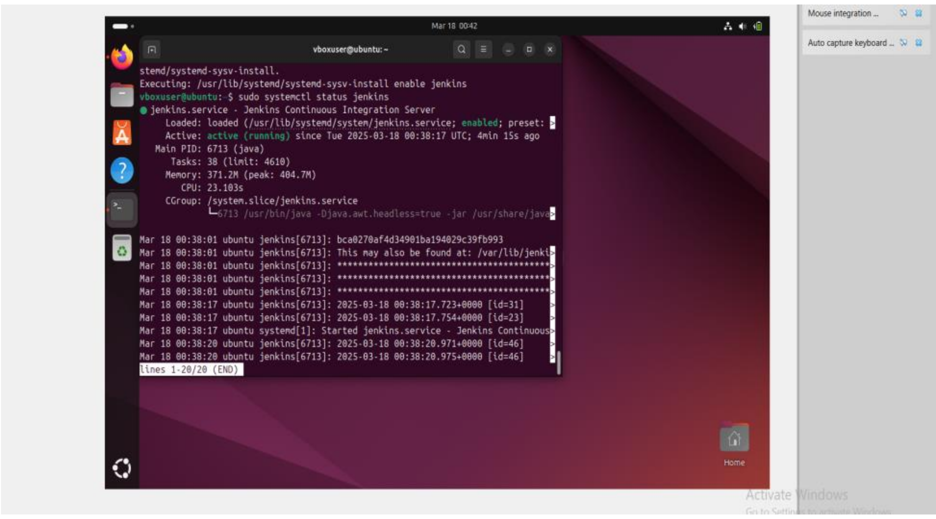


```
Get:23 http://in.archive.ubuntu.com/ubuntu noble-backports/restricted amd64 Comp
onents [216 B]
Get:24 http://in.archive.ubuntu.com/ubuntu noble-backports/universe amd64 Compon
ents [20.0 kB]
Get:25 http://in.archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 Comp
onents [212 B]
Fetched 4,227 kB in 6s (683 kB/s)
Reading package lists... Done
vboxuser@ubuntu:~$ sudo apt-get install jenkins
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
  net-tools
The following NEW packages will be installed:
  jenkins net-tools
0 upgraded, 2 newly installed, 0 to remove and 68 not upgraded.
Need to get 95.0 MB of archives.
After this operation, 97.6 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://in.archive.ubuntu.com/ubuntu noble/main amd64 net-tools amd64 2.10-
0.1ubuntu4 [204 kB]
Get:2 https://pkg.jenkins.io/debian-stable binary/ jenkins 2.492.2 [94.8 MB]
18% [2 jenkins 9,175 kB/94.8 MB 10%]                        1,286 kB/s 1min 6s
```

7. Starts the Jenkins service and enables it to start at boot.

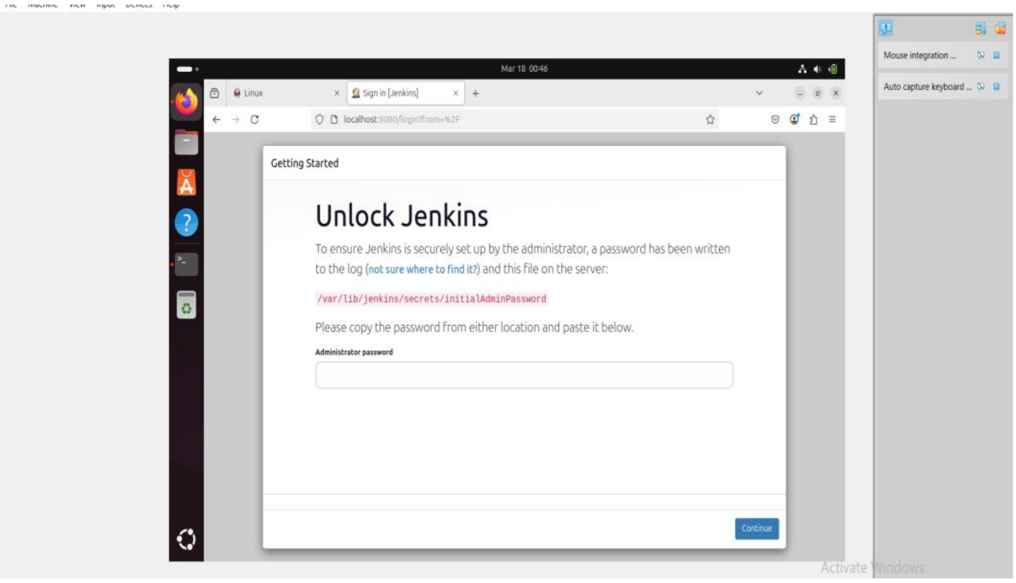


```
The following NEW packages will be installed:
  jenkins net-tools
0 upgraded, 2 newly installed, 0 to remove and 68 not upgraded.
Need to get 95.0 MB of archives.
After this operation, 97.6 MB of additional disk space will be used.
Do you want to continue? [Y/n] y
Get:1 http://in.archive.ubuntu.com/ubuntu noble/main amd64 net-tools amd64 2.10-
0.1ubuntu4 [204 kB]
Get:2 https://pkg.jenkins.io/debian-stable binary/ jenkins 2.492.2 [94.8 MB]
Fetched 95.0 MB in 1min 7s (1,428 kB/s)
Selecting previously unselected package net-tools.
(Reading database ... 150277 files and directories currently installed.)
Preparing to unpack .../net-tools_2.10-0.1ubuntu4_amd64.deb ...
Unpacking net-tools (2.10-0.1ubuntu4) ...
Selecting previously unselected package jenkins.
Preparing to unpack .../jenkins_2.492.2_all.deb ...
Unpacking jenkins (2.492.2) ...
Setting up net-tools (2.10-0.1ubuntu4) ...
Setting up jenkins (2.492.2) ...
Created symlink /etc/systemd/system/multi-user.target.wants/jenkins.service → /u
sr/lib/systemd/system/jenkins.service.
Processing triggers for man-db (2.12.0-4build2) ...
vboxuser@ubuntu:~$ sudo systemctl start jenkins
vboxuser@ubuntu:~$
```



```
stemd/systemd-sysv-install.
Executing: /usr/lib/systemd/systemd-sysv-install enable jenkins
vboxuser@ubuntu:~$ sudo systemctl status jenkins
● jenkins.service - Jenkins Continuous Integration Server
     Loaded: loaded (/usr/lib/systemd/system/jenkins.service; enabled; preset: >
     Active: active (running) since Tue 2025-03-18 00:38:17 UTC; 4min 15s ago
   Main PID: 6713 (java)
      Tasks: 38 (limit: 4610)
     Memory: 371.2M (peak: 404.7M)
        CPU: 23.103s
     CGroup: /system.slice/jenkins.service
             └─6713 /usr/bin/java -Djava.awt.headless=true -jar /usr/share/java>

Mar 18 00:38:01 ubuntu jenkins[6713]: bca0270af4d34901ba194029c39fb993
Mar 18 00:38:01 ubuntu jenkins[6713]: This may also be found at: /var/lib/jenki>
Mar 18 00:38:01 ubuntu jenkins[6713]: *****************************************>
Mar 18 00:38:01 ubuntu jenkins[6713]: *****************************************>
Mar 18 00:38:01 ubuntu jenkins[6713]: *****************************************>
Mar 18 00:38:17 ubuntu jenkins[6713]: 2025-03-18 00:38:17.723+0000 [id=31]     >
Mar 18 00:38:17 ubuntu jenkins[6713]: 2025-03-18 00:38:17.754+0000 [id=23]     >
Mar 18 00:38:17 ubuntu systemd[1]: Started jenkins.service - Jenkins Continuous>
Mar 18 00:38:20 ubuntu jenkins[6713]: 2025-03-18 00:38:20.971+0000 [id=46]     >
Mar 18 00:38:20 ubuntu jenkins[6713]: 2025-03-18 00:38:20.975+0000 [id=46]     >
lines 1-20/20 (END)
```

8.Views Jenkins logs to verify if it's fully up and running.



Getting Started

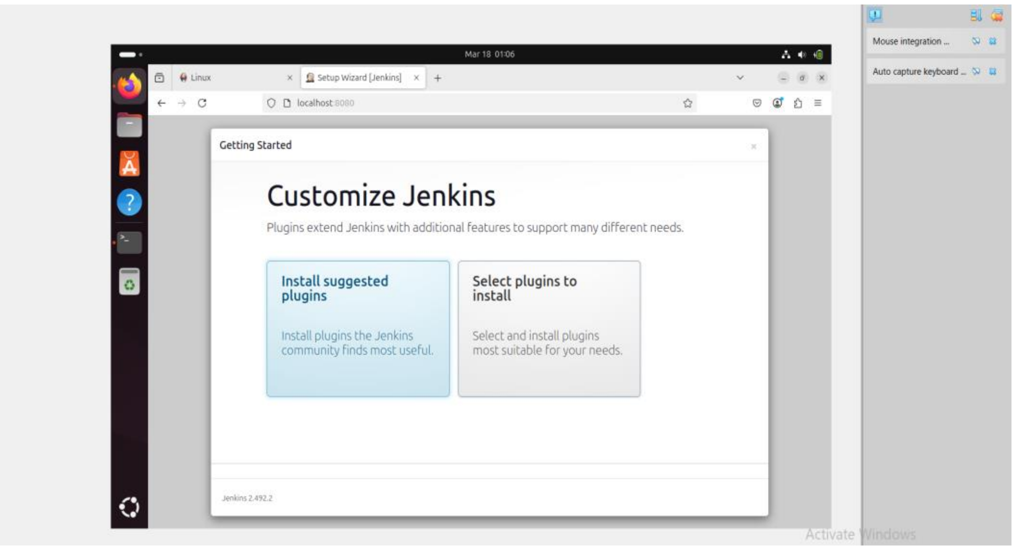
Unlock Jenkins

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



Getting Started

Customize Jenkins

Plugins extend Jenkins with additional features to support many different needs.

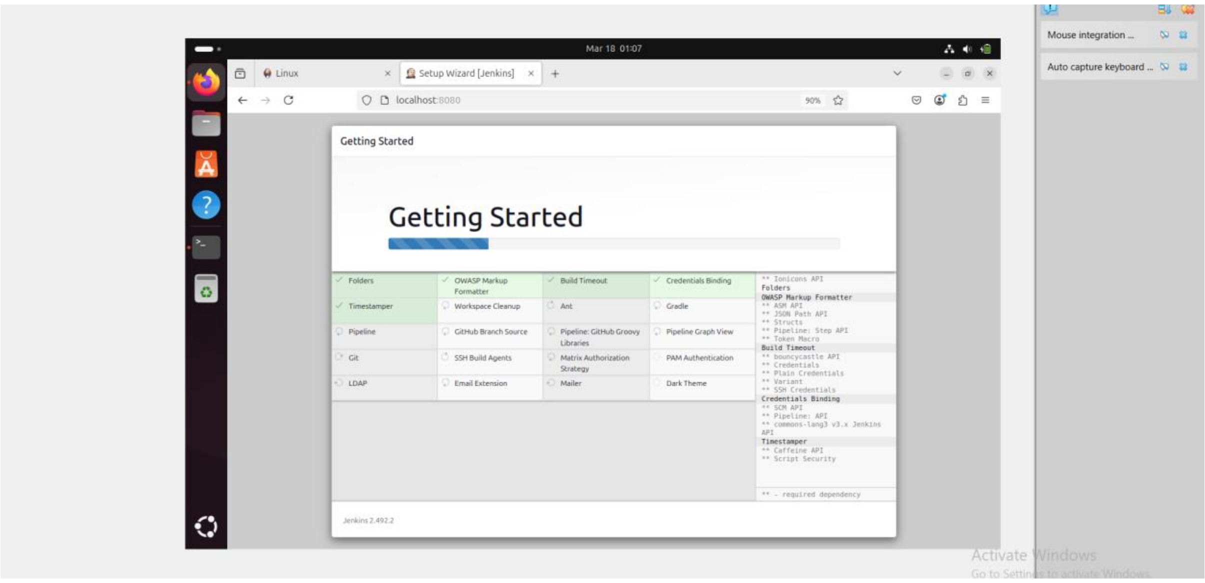
Install suggested plugins

Install plugins the Jenkins community finds most useful.

Select plugins to install

Select and install plugins most suitable for your needs.

Jenkins 2.492.2



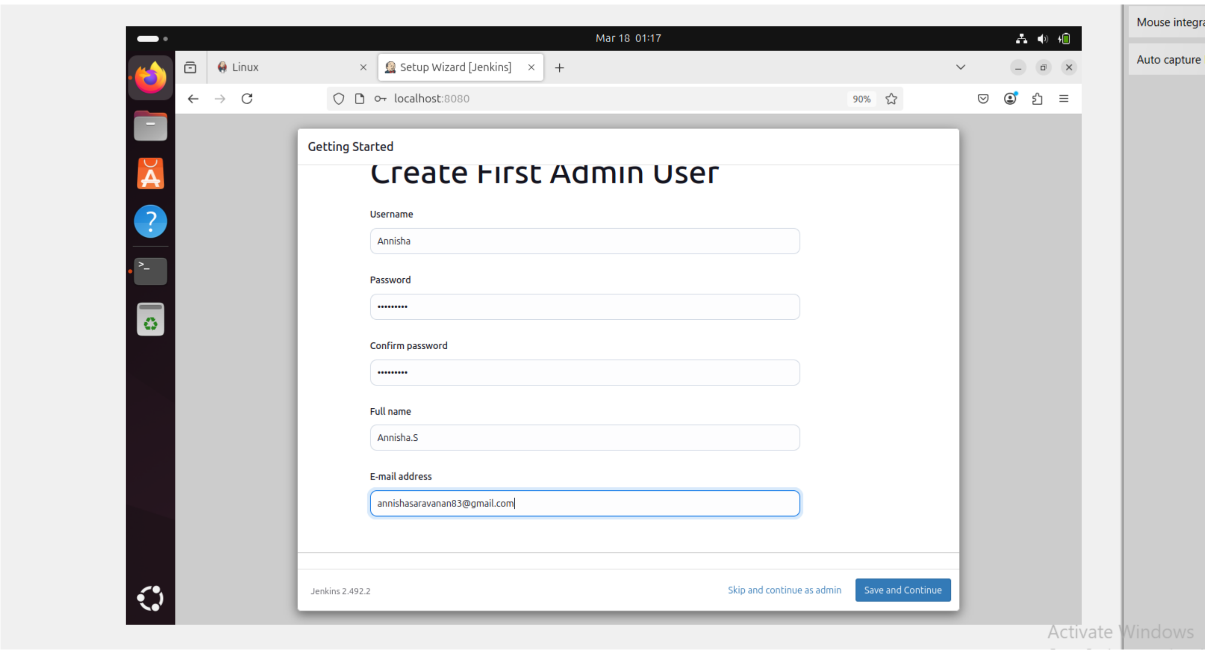
Getting Started

Getting Started

✓ Folders	✓ OWASP Markup Formatter	✓ Build Timeout	✓ Credentials Binding
✓ Timestamper	Workspace Cleanup	Ant	Gradle
Pipeline	GitHub Branch Source	Pipeline: GitHub Groovy Libraries	Pipeline Graph View
Git	SSH Build Agents	Matrix Authorization Strategy	PAM Authentication
LDAP	Email Extension	Mailer	Dark Theme

```
** Ionicons API
Folders
OWASP Markup Formatter
** ASM API
** JSON Path API
** Structs
** Pipeline: Step API
** Token Macro
Build Timeout
** bouncycastle API
** Credentials
** Plain Credentials
** Variant
** SSH Credentials
Credentials Binding
** SCM API
** Pipeline: API
** commons-lang3 v3.x Jenkins
API
Timestamper
** Caffeine API
** Script Security

** - required dependency
```

Jenkins 2.492.2



Getting Started

Create First Admin User

Username: Annisha

Password: ••••••••••

Confirm password: ••••••••••

Full name: Annisha.S

E-mail address: annishasaravanan83@gmail.com

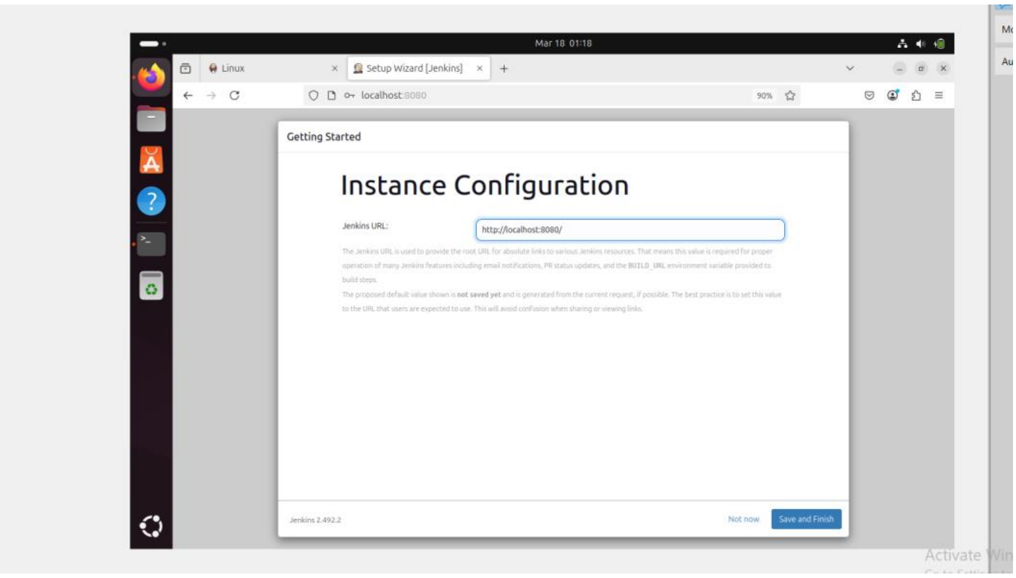
Jenkins 2.492.2

Skip and continue as admin

Save and Continue

9. **Create a New Freestyle Job:**Navigate to Jenkins Dashboard → New Item → Enter Job Name → Select "Freestyle Project".

10. Configure Build Step - Execute Shell: Add a build step using the following script:



Getting Started

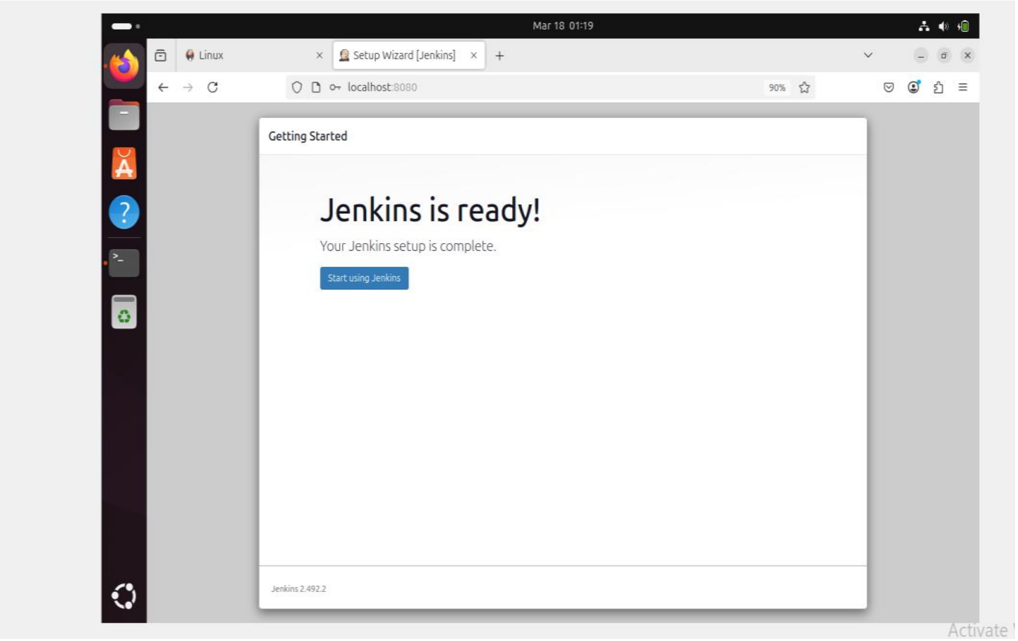
Instance Configuration

Jenkins URL: http://localhost:8080/

The Jenkins URL is used to provide the root URL for absolute links to various Jenkins resources. That means this value is required for proper operation of many Jenkins features including email notifications, PR status updates, and the BUILD_URL environment variable provided to build steps.

The proposed default value shown is **not saved yet** and is generated from the current request, if possible. The best practice is to set this value to the URL that users are expected to use. This will avoid confusion when sharing or viewing links.

Jenkins 2.492.2

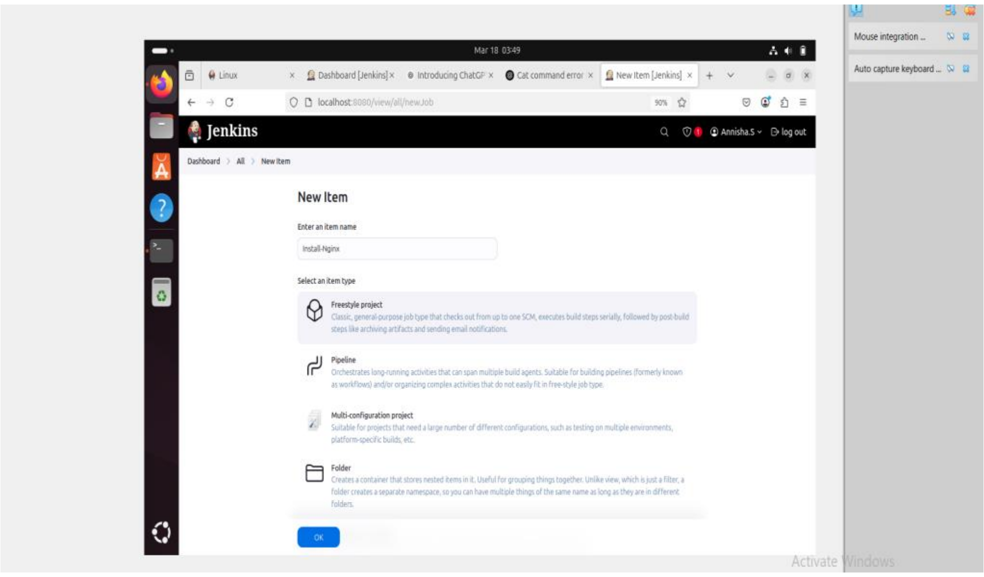


Getting Started

Jenkins is ready!

Your Jenkins setup is complete.

Jenkins 2.492.2



New Item

Enter an item name

Install-Nginx

Select an item type

Freestyle project
Classic, general-purpose job type that checks out from up to one SCM, executes build steps serially, followed by post-build steps like archiving artifacts and sending email notifications.

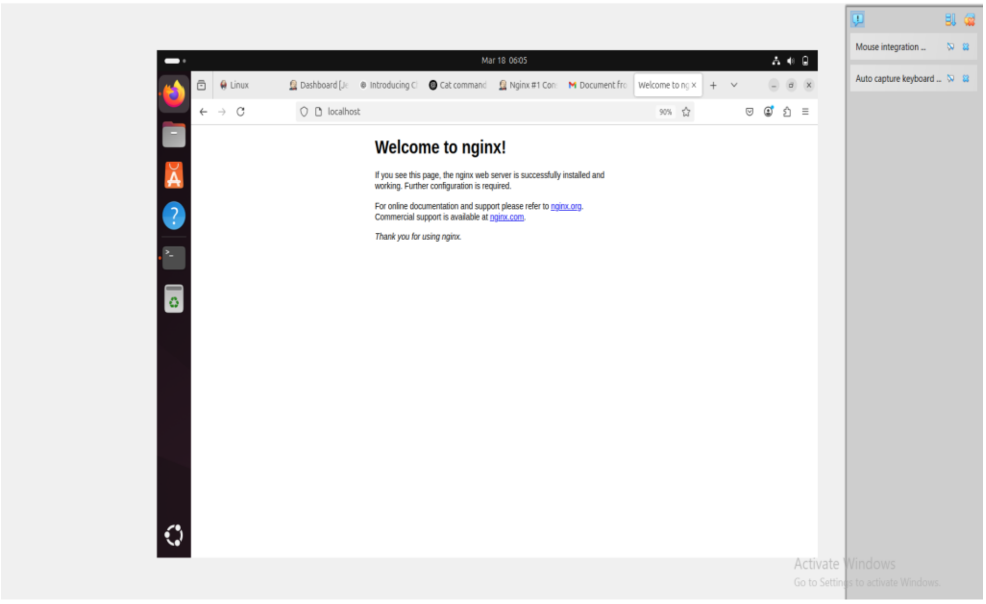
Pipeline
Orchestrates long-running activities that can span multiple build agents. Suitable for building pipelines (formerly known as workflows) and/or organizing complex activities that do not easily fit in free-style job type.

Multi-configuration project
Suitable for projects that need a large number of different configurations, such as testing on multiple environments, platform-specific builds, etc.

Folder
Creates a container that stores nested items in it. Useful for grouping things together. Unlike view, which is just a filter, a folder creates a separate namespace, so you can have multiple things of the same name as long as they are in different folders.

OK

11.Check if the firewall is blocking port 80.



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 nginx.org.
Commercial support is available at nginx.com.

Thank you for using nginx.

Conclusion :

The process involved setting up Jenkins, configuring a build step to run shell commands, and verifying the successful installation of Nginx.