FSE S1 Lab

(Java/MEAN/MERN stack)

README Document

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About the document

This Readme document provides guidelines to the learner to use or install the software/ frameworks that are needed for Full Stack Engineer – S1 Program – Java/MEAN/MERN Stack.

Lab Storage Drives

The lab has TWO storage drives

1) *C:\ drive*, where all the pre-installed and to be installed software/tools are stored. Please do not store any of your work items in this drive.

   The software are stored in the following folders:

   C:\soft\Academy training

   C:\soft\Academy training\01_NEW_UPDATED_SOFTWARE

2) ***D:\ drive*, Store all your work item in this drive ONLY**

Users of this lab will have administrator rights so that they can download, install the latest version of the software listed below from internet and also run applications as administrators. Please exercise care in installing only the permitted software and no damage is caused to the lab machine or to the lab network. This lab will be continuously monitored and any violation recorded will be considered as security breach.

List of software/framework supported in the lab

Below is the list of software/frameworks that are needed for a Full Stack Web Development using Java/MEAN stack

- Java SE Development Kit 8 (64 bit)
- Spring Tool Suite
- Apache Tomcat
- MySQL Server
- MySQL Workbench
- MySQL Command Line Client
- MySQL connector Python
- MySQL connector Java
- Hibernate
- Spring Framework

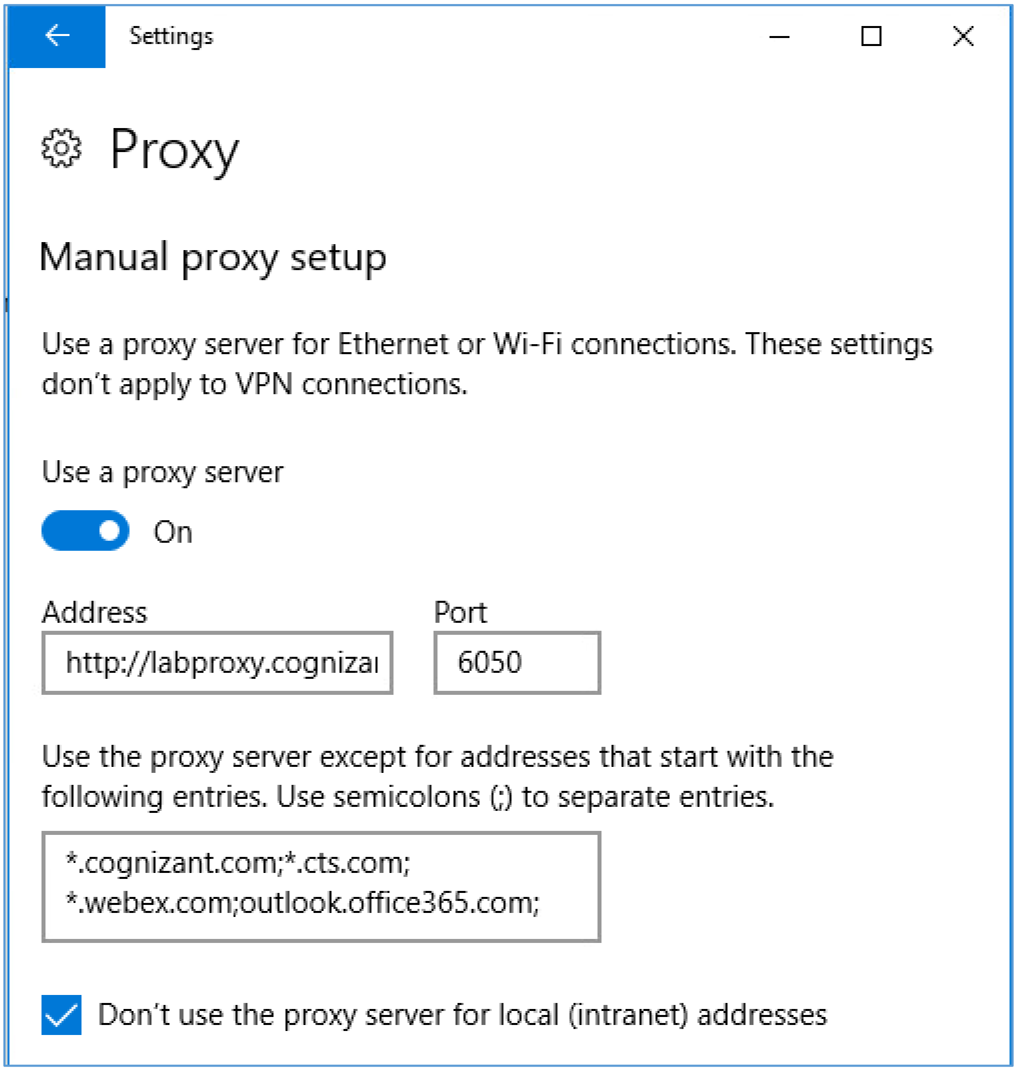
- Python
- Apache Maven
- Jenkins
- Gitlab Runner
- Git
- Egit
- SonarQube
- Docker for Windows
- Postman Client
- Node.js
- Angular
- ReacJS
- EmberJS
- jQuery
- Bootstrap
- MongoDB
- Mongoose
- Visual Studio Code
- Apache Jmeter
- Jasmine
- Notepad++
- XAMPP
- Protractor
- Mockito
- MockMVC
- Istanbul
- Ecl Emma
- JaCoCO
- Enzyme
- Mocha
- Chai
- Grunt
- Gulp
- Webpack
- Microsoft Office Products 2016
- Internet Explorer
- Microsoft Edge
- Google Chrome

- Adobe Acrobat Reader

Proxy Settings

The lab uses the proxy server “http://labproxy.cognizant.com” with the port 6050 to connect to internet.

Configure the proxy via Settings→Network and Internet→Proxy→Manual Proxy Setup



Proxy

Manual proxy setup

Use a proxy server for Ethernet or Wi-Fi connections. These settings don’t apply to VPN connections.

Use a proxy server

On

Address: http://labproxy.cognizai

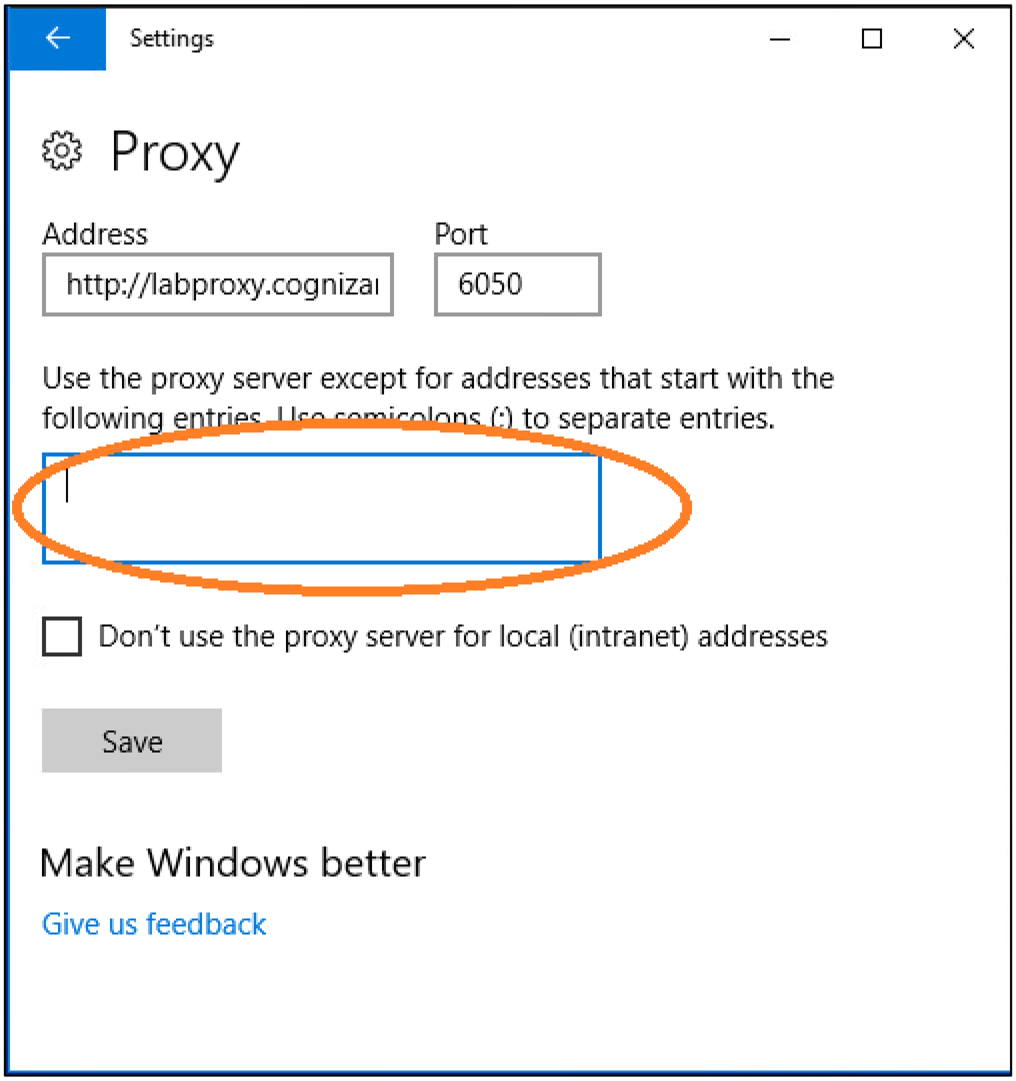
Port: 6050

Use the proxy server except for addresses that start with the following entries. Use semicolons (;) to separate entries.

.cognizant.com;.cts.com;
*.webex.com;outlook.office365.com;

☑ Don’t use the proxy server for local (intranet) addresses

Remove all the address separated by semicolon in the text area and Save.



Proxy

Address: http://labproxy.cognizai

Port: 6050

Use the proxy server except for addresses that start with the following entries. Use semicolons (;) to separate entries.

□ Don't use the proxy server for local (intranet) addresses

Make Windows better

Java SE Development Kit 8 (64 bit) (Installed)

Installed Path: C:\Program Files\Java\jdk1.8.0_131

Spring Tool Suite 3.6.4 (Installed)

Installed Path: C:\soft\Academy training\STS3.6.4

Apache Tomcat 9.0 (Installed)

Installed Path: C:\soft\Academy training\01_NEW-UPDATED_SOFTWARE\apache_tomcat_9.0.20

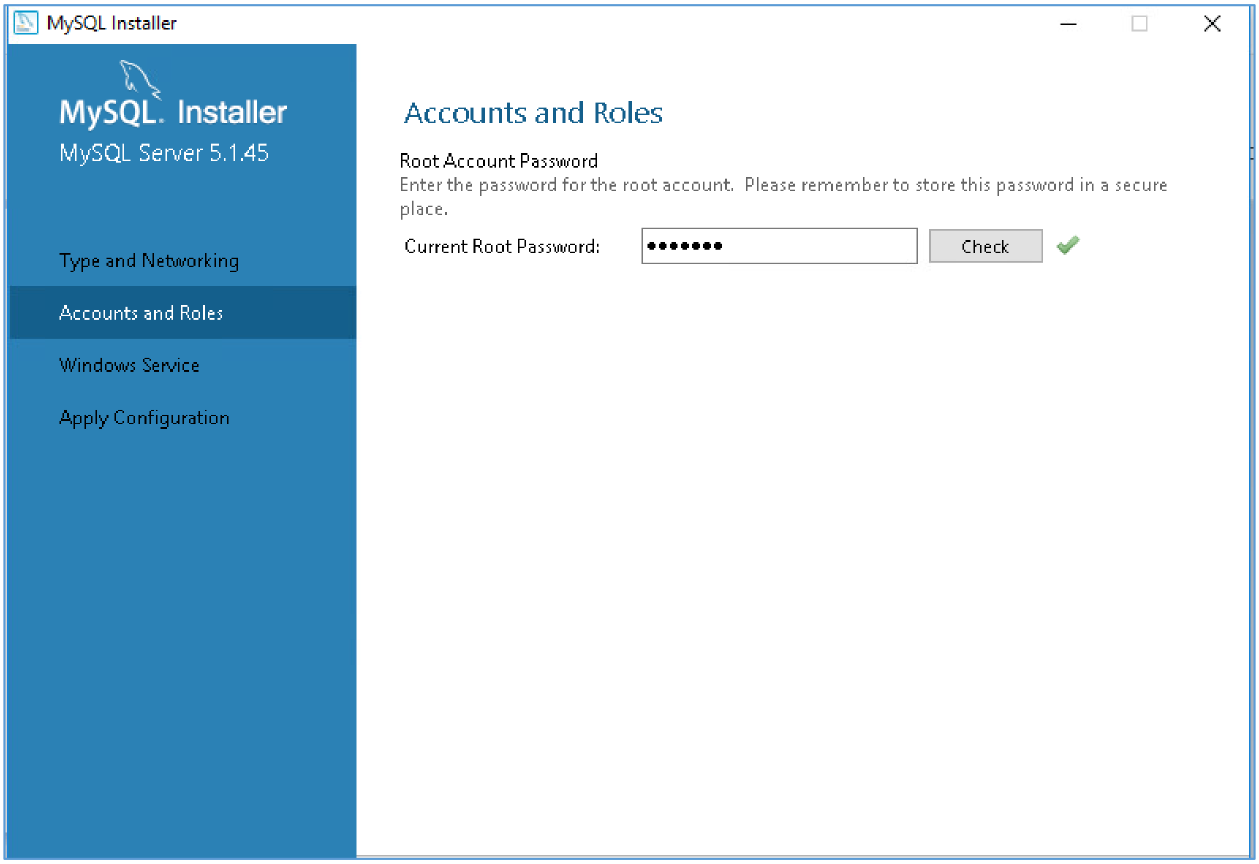
Configure the server http listening port to other than 8080 (say 9080) as Jenkins is already configured to listen at 8080

MySQL Server 5.1.45 (Installed)

Installed Path: C:\Program Files (x86)\MySQL\MySQL Server 5.1

First time access:

i) Open MySQL Installer and click on the Quick Action "Reconfigure" for the product "MySQL Server". Update only the Current Root Password as root123 under Accounts and Roles. Under Apply Configuration, click Execute

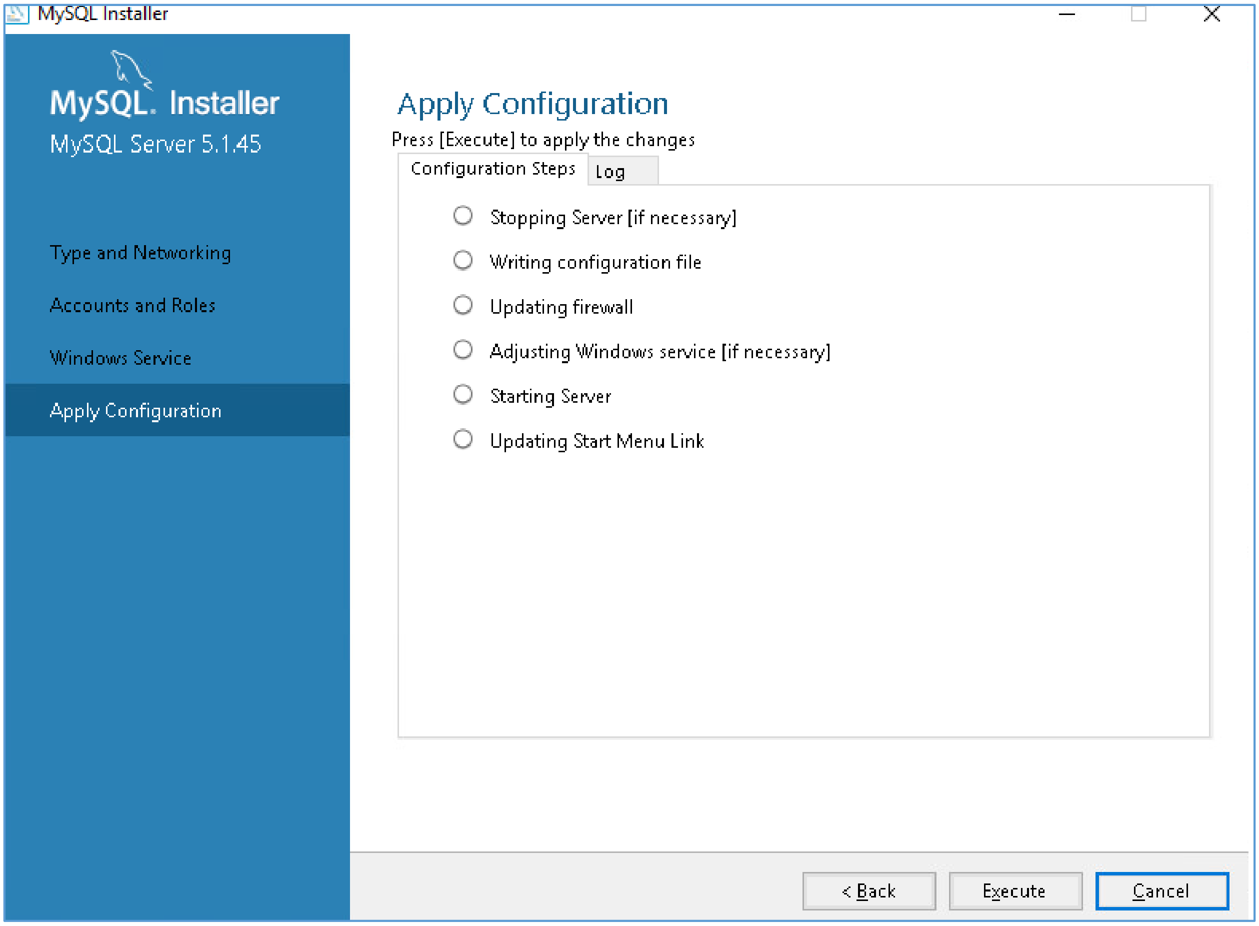


Accounts and Roles

Root Account Password

Enter the password for the root account. Please remember to store this password in a secure place.

Current Root Password: ●●●●●●● ✓



Apply Configuration

Press [Execute] to apply the changes

○ Stopping Server [if necessary]

○ Writing configuration file

○ Updating firewall

○ Adjusting Windows service [if necessary]

○ Starting Server

○ Updating Start Menu Link

ii) Start MySQL Command Line Client or WorkBench with password "root123"

From second time access:

Use MySQL Command Line Client or WorkBench from windows start menu

MySQL connector for Java (Installed)

Use the jar at C:\soft\Academy Training\NEW_UPDATED_SOFTWARE\mysql-connector-java-8.0.16.jar

Python 3.7.3 (To be installed by the user)

Install using C:\soft\Academy training\01_NEW_UPDATED_SOFTWARE\python-3.7.3(Installer).exe

Use Visual Studio Code to code your python programs. Refer the section Visual Studio Code below for installing Visual Studio Code. After installing Visual Studio Code install Python extension from https://marketplace.visualstudio.com/items?itemName=ms-python.python

MySQL connector for Python (To be installed by the user)

Open Command Prompt as an administrator and install MySQL connector using below command at command prompt

python -m pip install mysql-connector

Apache Maven 3.5.0 (Installed)

Installed Path: C:\soft\Academy training\apache-maven-3.5.0-bin\apache-maven-3.5.0

Configuration:

i)Add the maven bin path C:\soft\Academy training\apache-maven-3.5.0-bin\apache-maven-3.5.0\bin to the environmental variable PATH.

ii) In command prompt execute the command *mvn install*. This will create .m2 folder in the folder *D:\Users\<<your id>>*

i) In STS, Window->Preferences->Maven->Uncheck “Do not automatically update dependencies from remote repositories"

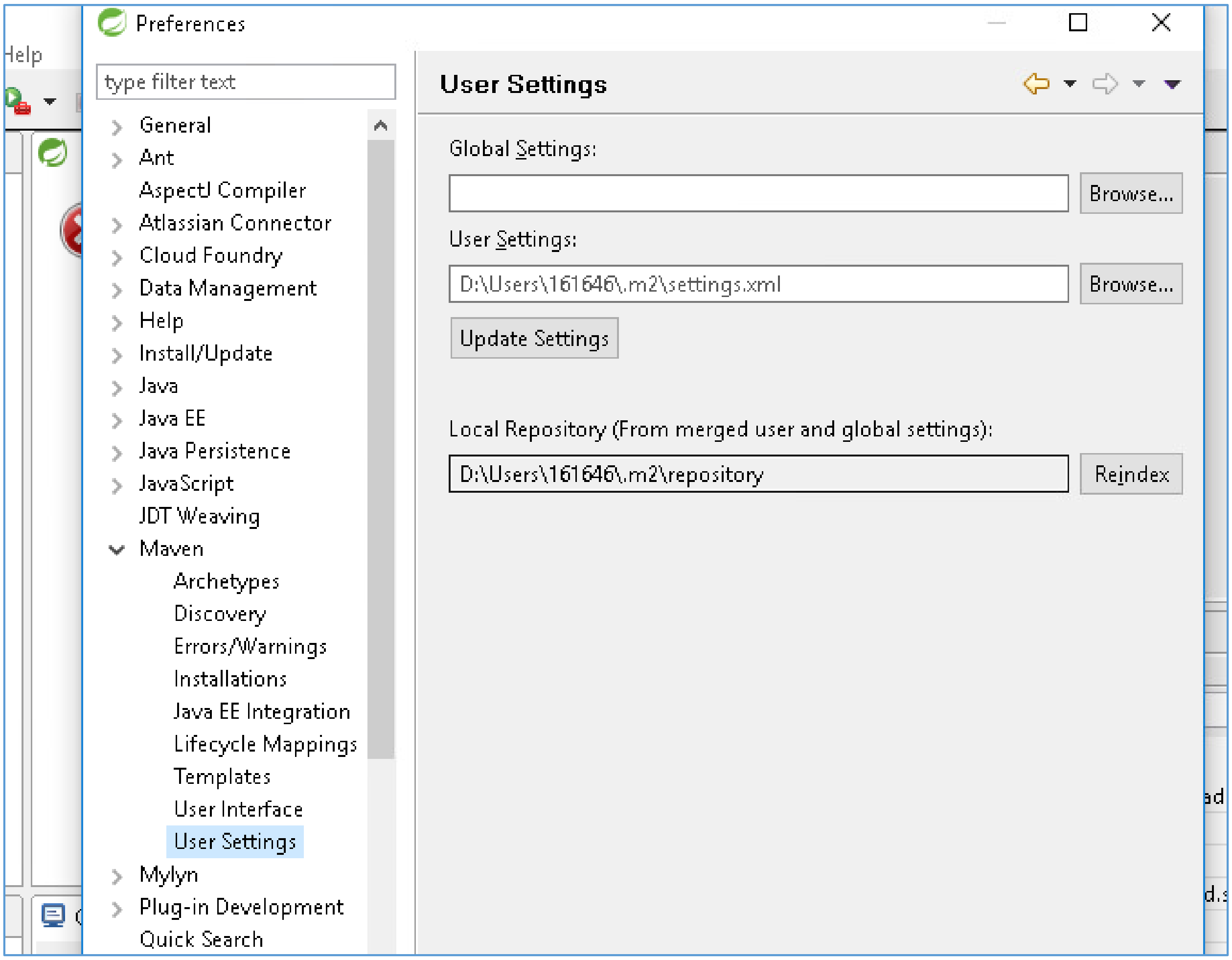
ii) In STS, Window->Preferences->Maven->Installations-> Add Maven installation folder and keep that alone selected.

iii) Copy "settings.xml" from <Maven Home>\conf to D:\Users\<<your login name>>\.m2

iii) Add the proxy details in the copied settings.xml file with your network id and password

```
<proxy>
  <id>optional</id>
  <active>true</active>
  <protocol>http</protocol>
  <username>proxyuser</username>
  <password>proxypass</password>
  <host>labproxy.cognizant.com</host>
  <port>6050</port>
  <nonProxyHosts>local.net</nonProxyHosts>
 </proxy>
```

iii) In STS, under Windows→Preferences→Maven→User Setting→><<add the path to the updated settings.xml file path>>



User Settings

Global Settings:

User Settings: D:\Users\161646\.m2\settings.xml

Local Repository (From merged user and global settings): D:\Users\161646\.m2\repository

iv) In STS, create a Sample Spring Starter project. If the project creation is successful then the maven configuration is valid.

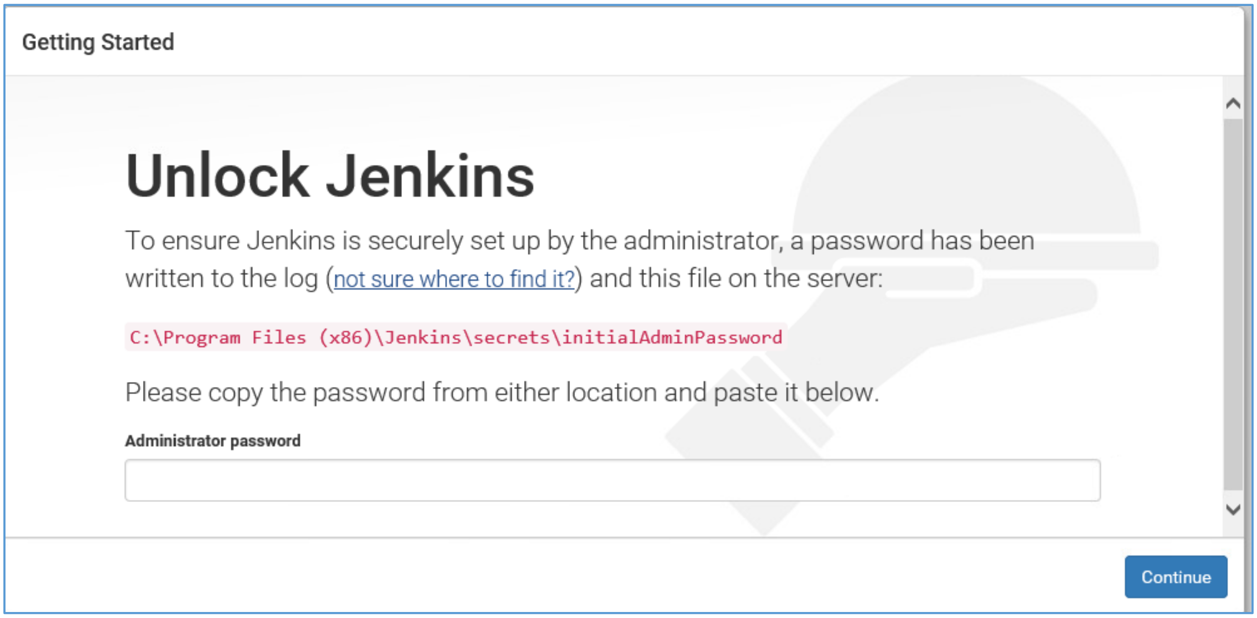
Jenkins 2.73 (Installed)

Installed Path - C:\Program Files (x86)\Jenkins

First time access:

i) Open http://localhost:8080 using a browser

ii) Provide initial admin password (copy form the file C:\Program Files (x86)\Jenkins\secrets\initialAdminPassword)



Getting Started

Unlock Jenkins

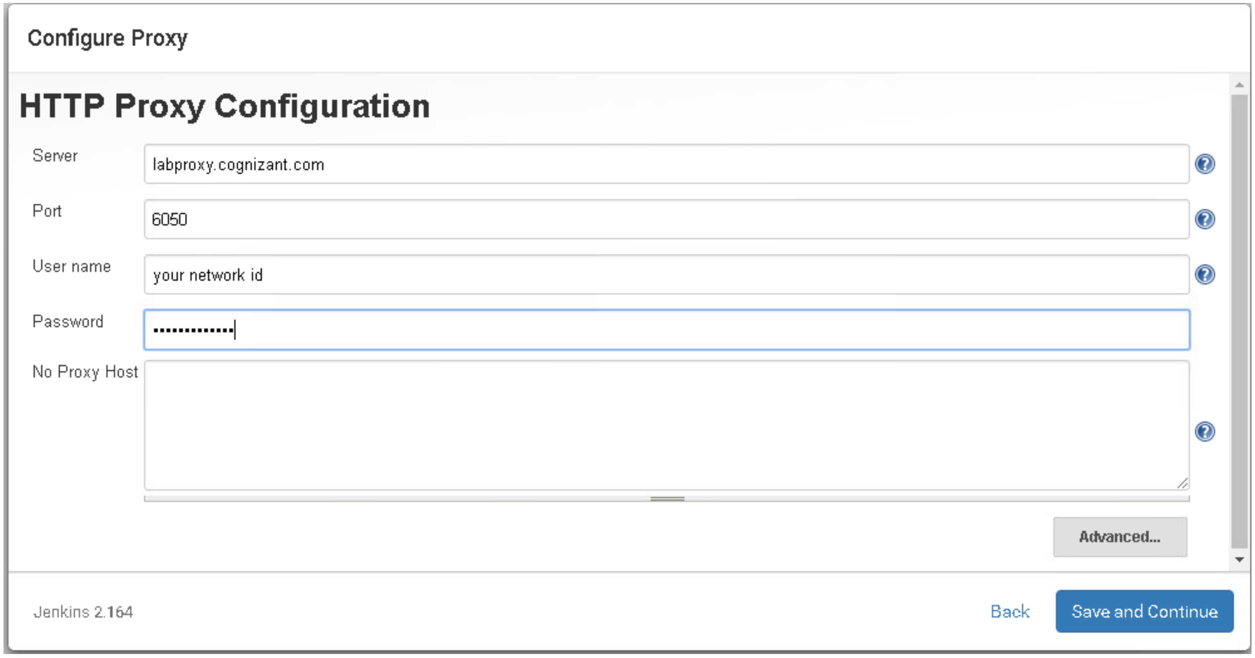
To ensure Jenkins is securely set up by the administrator, a password has been written to the log (not sure where to find it?) and this file on the server:

```
C:\Program Files (x86)\Jenkins\secrets\initialAdminPassword
```

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

Administrator password

iii) Provide proxy settings with your network credentials. Save and continue

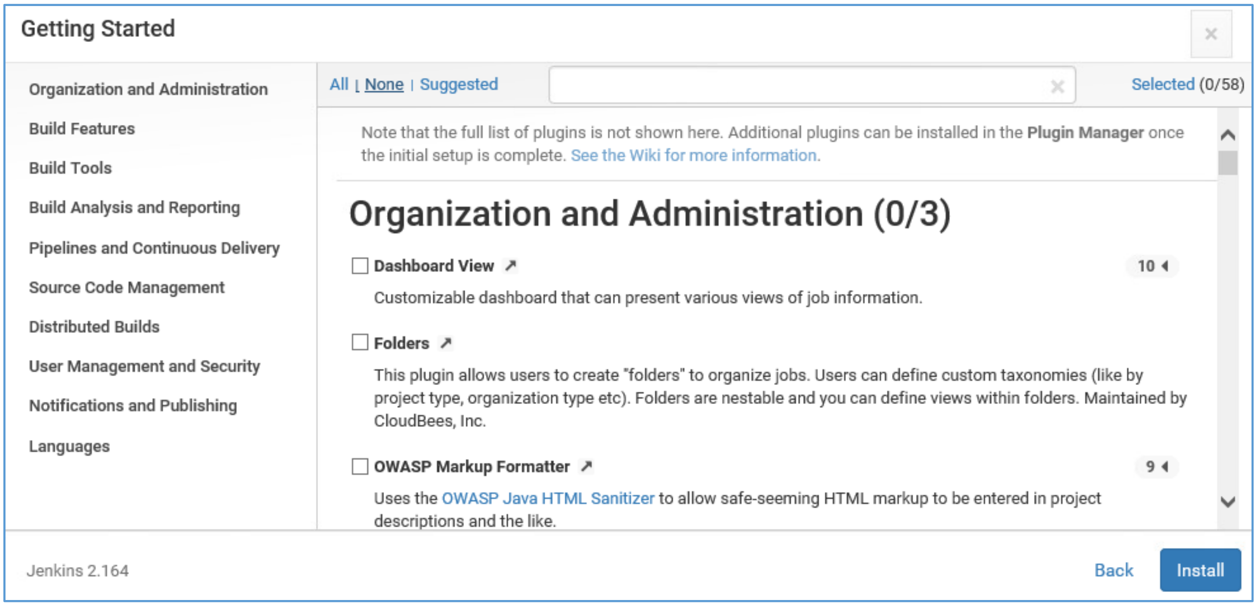


Configure Proxy

HTTP Proxy Configuration

Server	labproxy.cognizant.com
Port	6050
User name	your network id
Password	....
No Proxy Host	

iv) Select Plugins to install and deselect all (or select none) and click install. You can install plugins later based on the need using “Manage Jenkins” option



Getting Started

Organization and Administration
Build Features
Build Tools
Build Analysis and Reporting
Pipelines and Continuous Delivery
Source Code Management
Distributed Builds
User Management and Security
Notifications and Publishing
Languages

All | None | Suggested

Selected (0/58)

Note that the full list of plugins is not shown here. Additional plugins can be installed in the **Plugin Manager** once the initial setup is complete. See the Wiki for more information.

Organization and Administration (0/3)

□ **Dashboard View** ↗ 10

Customizable dashboard that can present various views of job information.

□ **Folders** ↗

This plugin allows users to create "folders" to organize jobs. Users can define custom taxonomies (like by project type, organization type etc). Folders are nestable and you can define views within folders. Maintained by CloudBees, Inc.

□ **OWASP Markup Formatter** ↗ 9

Uses the OWASP Java HTML Sanitizer to allow safe-seeming HTML markup to be entered in project descriptions and the like.

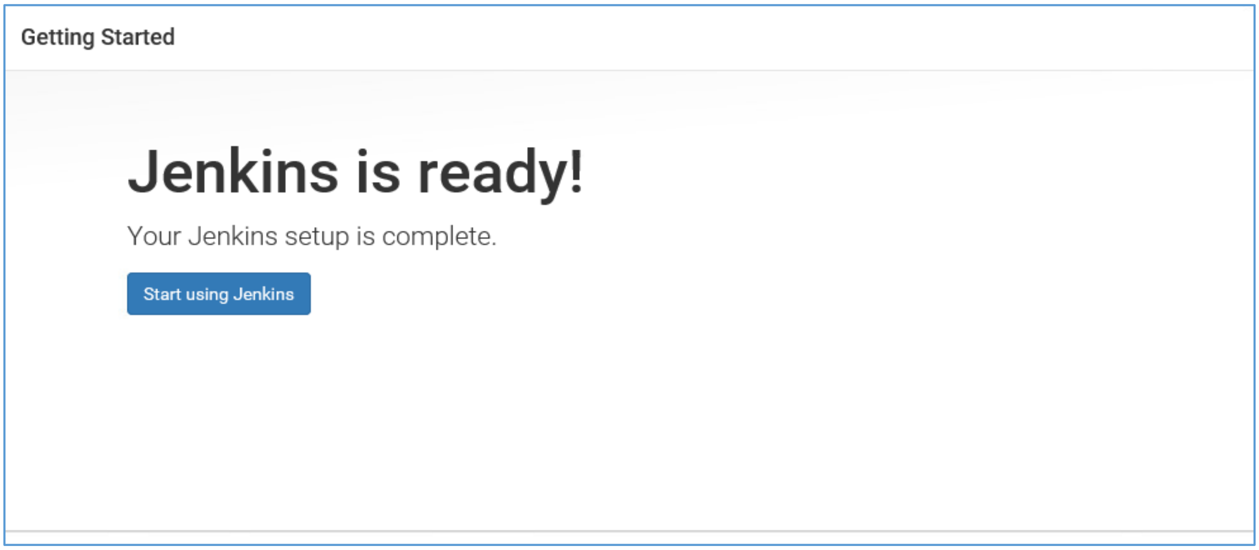
Jenkins 2.164

Back

Install

v) Create first admin user with user name **admin** and password as **admin** and **name** as **your name, save and continue**

vi) Jenkins is ready to use. Start using Jenkins



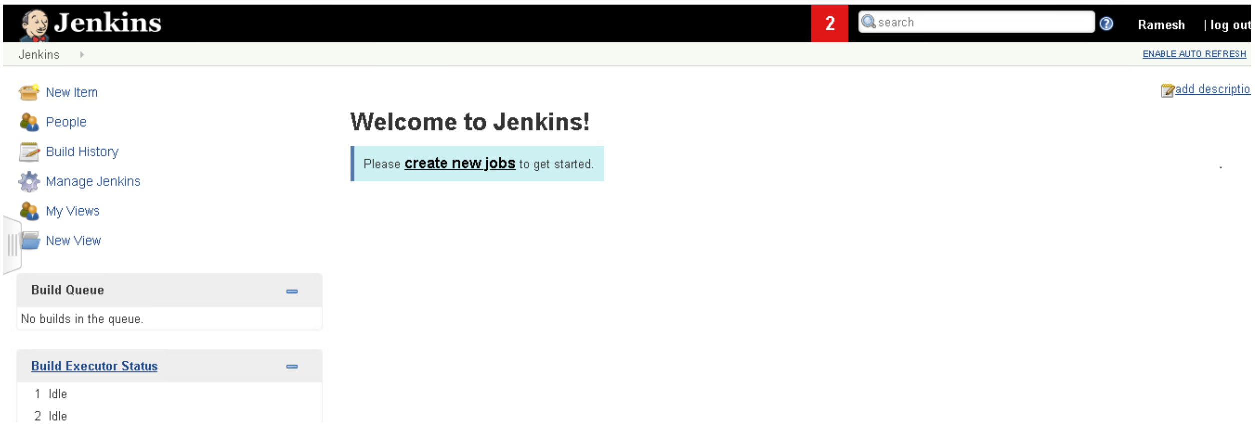
Getting Started

Jenkins is ready!

Your Jenkins setup is complete.

Start using Jenkins

vii) Use the admin credentials (admin/admin) to log in to Jenkins



Welcome to Jenkins!

Please **create new jobs** to get started.

No builds in the queue.

GitLab Runner 10.0.0 (Installed)

Installed Path - C:\soft\Academy training\01_NEW_UPDATED_SOFTWARE\gitlab-runner-10(Installed - Use this)

Configuration:

i) Open command prompt as administrator

ii) Set the proxy using the command

```
set HTTP_PROXY=http://yournetworkid:yourpassword@labproxy.cognizant.com:6050

set HTTPS_PROXY=http://yournetworkid:yourpassword@labproxy.cognizant.com:6050
```

Git 2.21.0 (Installed)

Installed Path - C:\Program Files\Git

Configuration:

iii) Open gitbash from <<git install path>>/bin

iv) Execute the command *git config --global http.proxy* *http://networkid:password@labproxy.cognizan.com:6050*

v) Check the proxy setting using the command *git config --global --get http.proxy*

vi) When you get SSL certificate issue while connecting with GitLab/GitHub execute the command *git config --global http.sslVerify false*

SonarQube 7.7 (Installed)

Installed Path - C:\soft\Academy training\01_NEW_UPDATED_SOFTWARE\sonarqube-7.7(Installed – Use this)

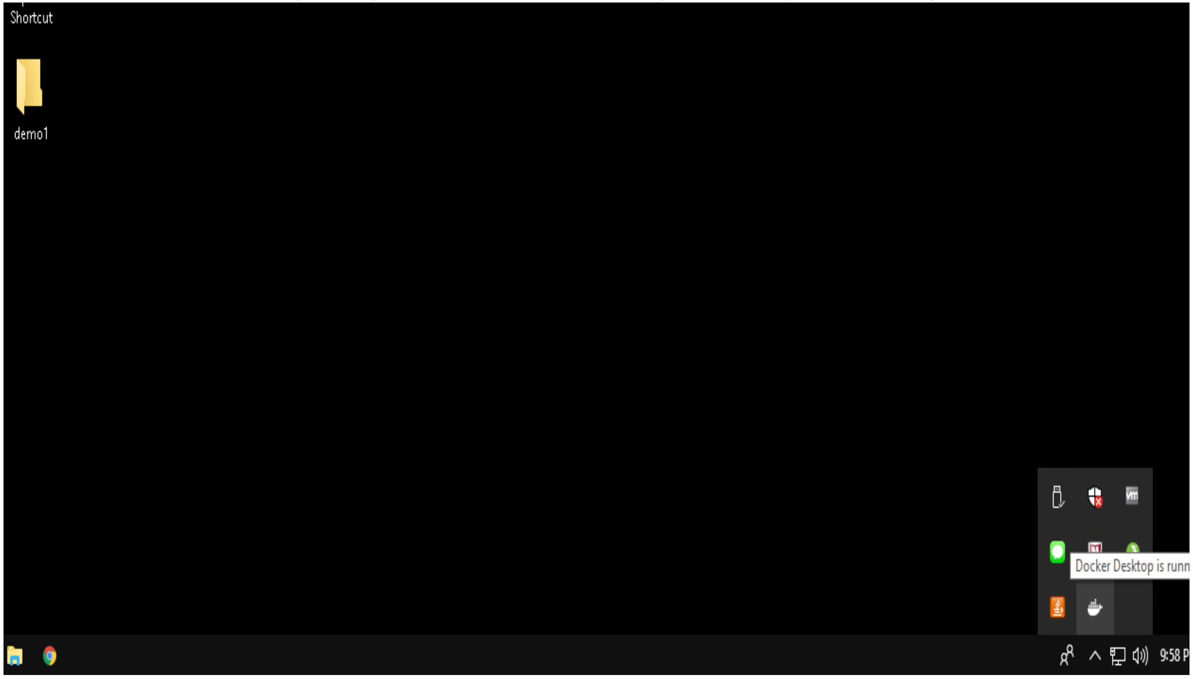
Docker for Windows (Installed)

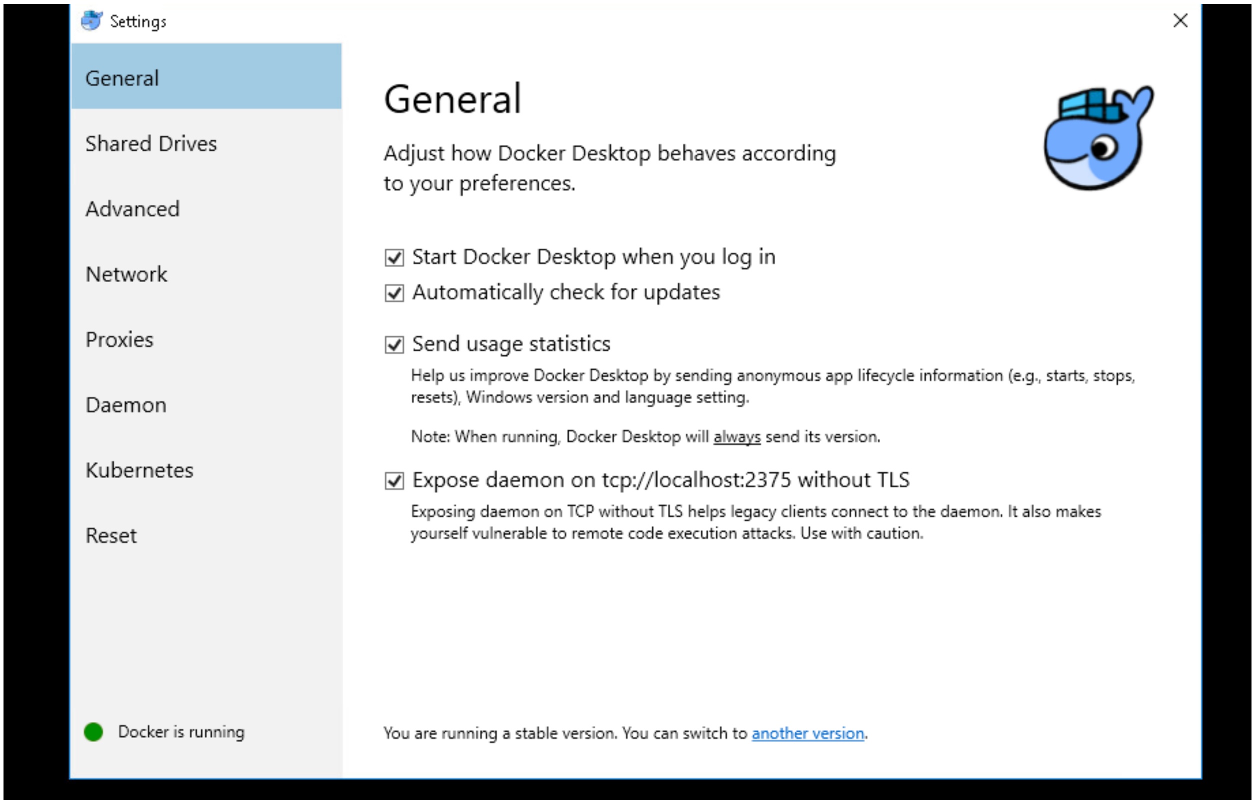
Installed Path - C:\Program Files\Docker\Docker

Configuration:

i) Start Docker by running the application *Docker Desktop* from Windows program

ii) Once started, enable the option "Expose daemon on tcp://localhost:2375 without TLS in the Docker settings (right click Docker in system tray → settings)





General

Adjust how Docker Desktop behaves according to your preferences.

☑ Start Docker Desktop when you log in

☑ Automatically check for updates

☑ Send usage statistics

Help us improve Docker Desktop by sending anonymous app lifecycle information (e.g., starts, stops, resets), Windows version and language setting.

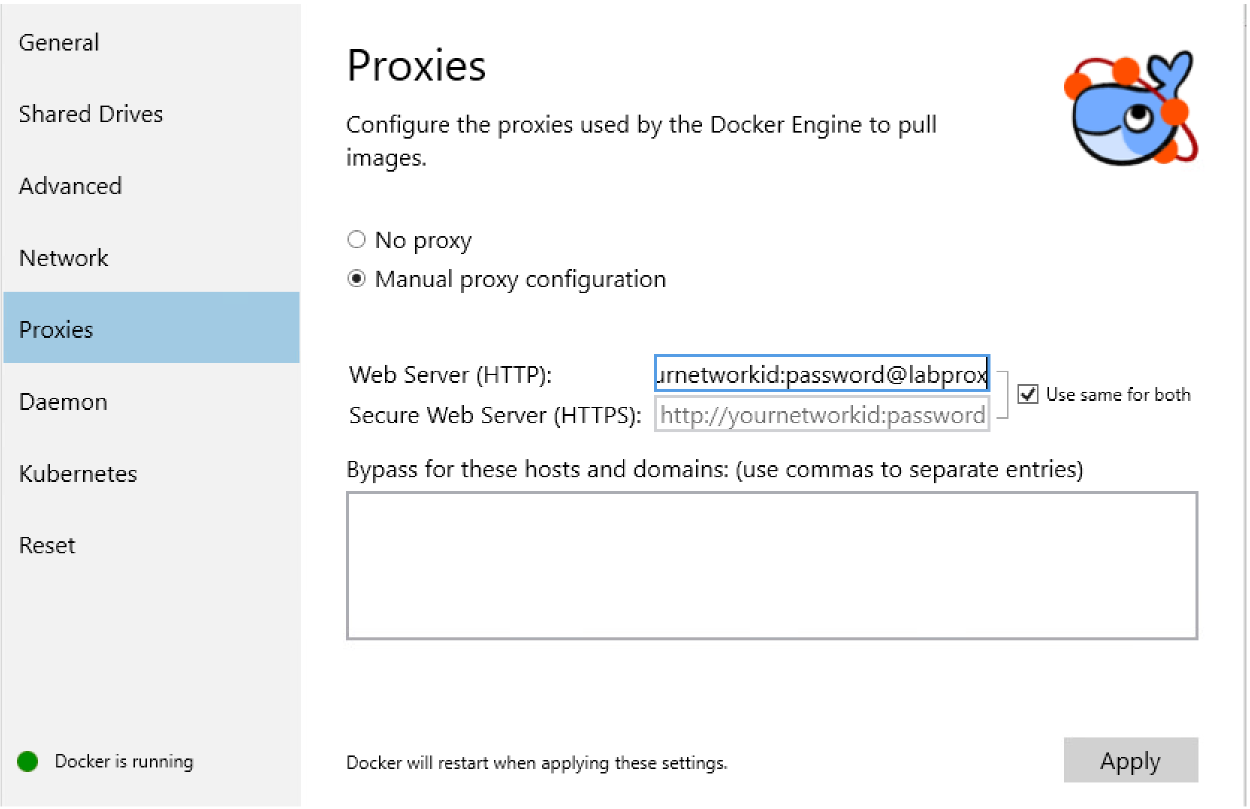
Note: When running, Docker Desktop will always send its version.

☑ Expose daemon on tcp://localhost:2375 without TLS

Exposing daemon on TCP without TLS helps legacy clients connect to the daemon. It also makes yourself vulnerable to remote code execution attacks. Use with caution.

You are running a stable version. You can switch to another version.

iii) Set the proxy to Manual
Web server
→http://yournetoworkid:yourpassword@labproxy.cognizant.com:6050
And select use same for both and Apply



Proxies

Configure the proxies used by the Docker Engine to pull images.

○ No proxy
● Manual proxy configuration

Web Server (HTTP): urnetworkid:password@labprox
Secure Web Server (HTTPS): http://yournetworkid:password
☑ Use same for both

Bypass for these hosts and domains: (use commas to separate entries)

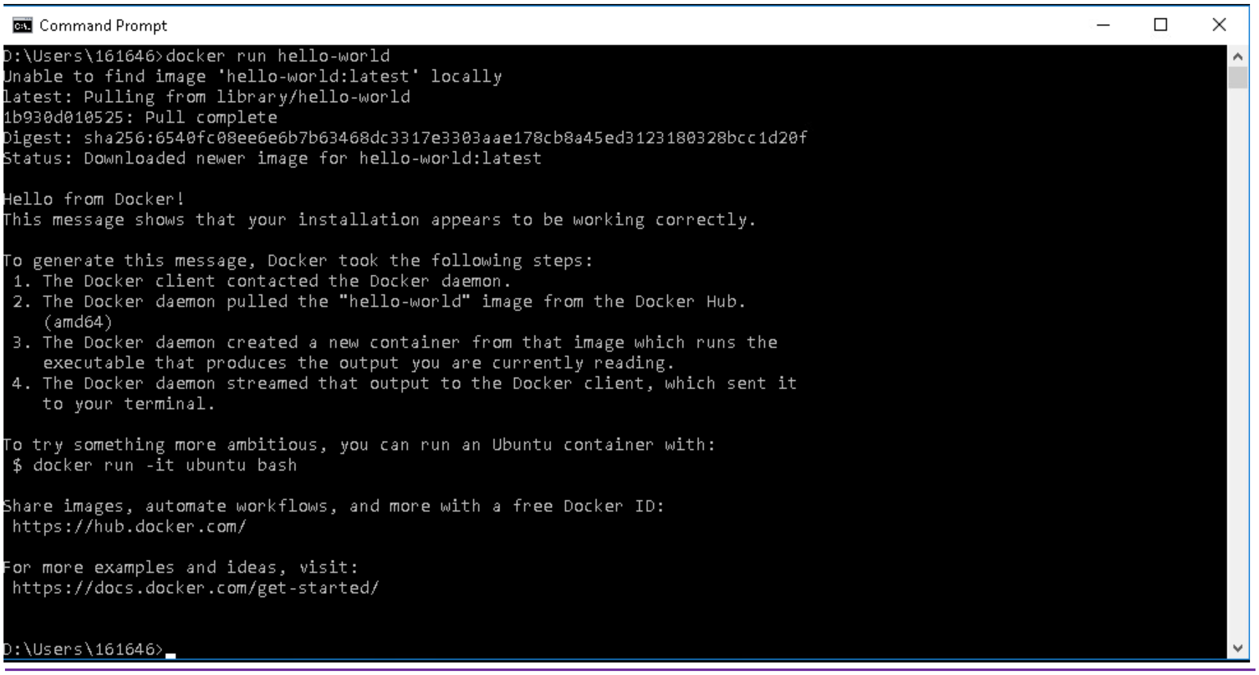
Docker will restart when applying these settings.

Docker gets restarted

iv) Test the Docker, by executing a hello-world container from command prompt using the command *docker run hello-world*

Please Note:

1) Do not use the IP address allocated to the container(by docker), instead use localhost(like http://localhost:8081)
2) Use only the host port range 32768 to 65535 to map with container ports. Other host port mapping might not work in this lab.
3) Since this lab has to pass through proxy to download the dependencies for building images, you might experience URL blocking sometimes. In that case please do raise a GSD with the URL details (that is getting blocked)



```
D:\Users\161646>docker run hello-world
Unable to find image 'hello-world:latest' locally
latest: Pulling from library/hello-world
1b930d010525: Pull complete
Digest: sha256:6540fc08ee6e6b7b63468dc3317e3303aae178cb8a45ed3123180328bcc1d20f
Status: Downloaded newer image for hello-world:latest

Hello from Docker!
This message shows that your installation appears to be working correctly.

To generate this message, Docker took the following steps:
 1. The Docker client contacted the Docker daemon.
 2. The Docker daemon pulled the "hello-world" image from the Docker Hub.
    (amd64)
 3. The Docker daemon created a new container from that image which runs the
    executable that produces the output you are currently reading.
 4. The Docker daemon streamed that output to the Docker client, which sent it
    to your terminal.

To try something more ambitious, you can run an Ubuntu container with:
 $ docker run -it ubuntu bash

Share images, automate workflows, and more with a free Docker ID:
 https://hub.docker.com/

For more examples and ideas, visit:
 https://docs.docker.com/get-started/


D:\Users\161646>
```

PostMan Client (To be installed by the user)

Install using *C:\soft\Academy training\01_NEW_UPDATED_SOFTWARE\Postman-win64-7.1.1-Setup (Installer).exe*

Node.js 10.15.3(To be installed by the user)

Install using C:\soft\Academy training\01_NEW_UPDATED_SOFTWARE\node-v10.15.3-x64(Installer).msi

Angular (To be installed by the user)

i) Add npm path to environment variable PATH as *c:\>set PATH=%PATH%;C:\Program Files/nodejs;*

ii) Execute the following commands in command prompt

D:\>npm config set registry http://registry.npmjs.org/
D:\>npm config set proxy http://yourid:yourpassword@labproxy.cognizant.com:6050
D:\>npm config set https-proxy http://yourid:yourpassword@labproxy.cognizant.com:6050
D:\>npm config set strict-ssl false

React (To be installed by the user)

Execute the following command in command prompt

npm install -g create-react-app

Ember.js (To be installed by the user)

Execute the following command in command prompt

npm install -g ember-cli

MongoDB 3.3 (Installed)

Installed Path - C:\Program Files\MongoDB

Mongoose (To be installed by the user)

Execute the following command in command prompt

npm install mongoose

Visual Studio Code (To be installed by the user)

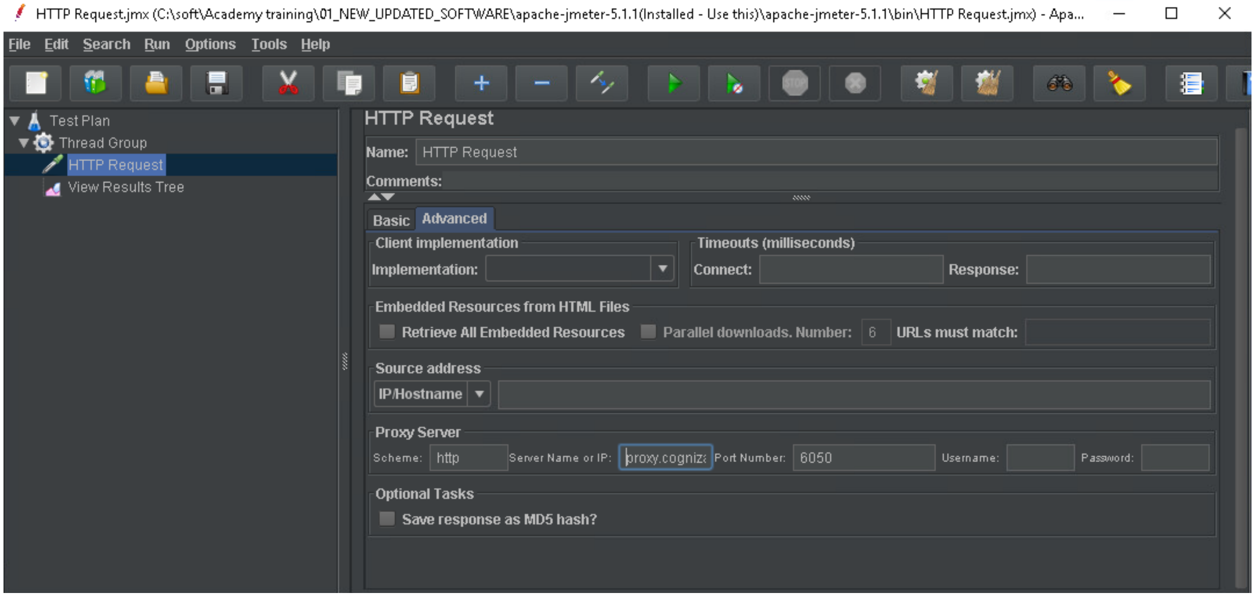
Install using C:\soft\Academy training\01_NEW_UPDATED_SOFTWARE\VSCodeUserSetup-x64-1.34.0 (Installer).exe

Apache Jmeter 5.1.1 (Installed)

Installed Path - C:\soft\Academy training\01_NEW_UPDATED_SOFTWARE\apache-jmeter-5.1.1(Installed - Use this)\apache-jmeter-5.1.1

Congifuration:

I) Set the proxy at ThreadGroup → HTTPRequest→Advanced (Tab)→Proxy Server with schema as “http” server name as "labproxy.cognizant.com" port number as "6050" and username/password as your network credentials



HTTP Request.jmx (C:\soft\Academy training\01_NEW_UPDATED_SOFTWARE\apache-jmeter-5.1.1(Installed - Use this)\apache-jmeter-5.1.1\bin\HTTP Request.jmx) - Apa...

- Test Plan
  - Thread Group
    - HTTP Request
    - View Results Tree

HTTP Request

Name: HTTP Request

Comments:

Client implementation

Implementation:

Timeouts (milliseconds)

Connect: Response:

Embedded Resources from HTML Files

□ Retrieve All Embedded Resources □ Parallel downloads. Number: 6 URLs must match:

Source address

IP/Hostname

Proxy Server

Scheme: http Server Name or IP: proxy.cogniz Port Number: 6050 Username: Password:

Optional Tasks

□ Save response as MD5 hash?

Notepad++ 7.7 (Installed)

Installed Path - C:\soft\Academy training\01_NEW_UPDATED_SOFTWARE\npp.7.7.bin.x64 (Installed - Use this)

XAMPP for Windows 7.3.6 (To be installed by the user)

i) Copy the file xampp-windows-x64-7.3.6-2-VC15-installer[1] From C:\soft\Academy training\01_NEW_UPDATED_SOFTWARE\XAMPP(Install ONLY if REQUIRED) to D:/Users/<<yourid>>/

ii) Run the file xampp-windows-x64-7.3.6-2-VC15-installer[1] as D:/Users/<<yourid>>/ xampp-windows-x64-7.3.6-2-VC15-installer[1]

iii) After successful installation, keep the default selection of servers and languages as it is and change the port of the services (if needed) via XAMPP Control Panel