END POINT SOFTWARE OR APPLICATION MANAGEMENT PORTAL

Project Guide : Mrs. A.R. Joshi

Group No: 201

Group members:

Tushar Dahibhate	B120234243
Sushant Dharmadhikari	B120234259
Krish Gambhir	B120234272
Shruti Kothari	B120234321

Sponsor:

Persistent Systems Ltd.

Introduction

- Endpoint Software/Application management portal will work as a platform to manage software and applications on any endpoint. It will be used to automate the process of software installation.
- It will reduce the manual efforts required during installationofasoftwaresuchas-extraction,installation,post-configurations,etc. and will also be time saving. The goals and objective of this project are:
- Goal:

To install softwares and applications on any endpoint.

Install multiple softwares on a single endpoint in parallel.

Install a single software on multiple endpoints in parallel.

Need

- The conventional method of software installation comes with a lot of overheads .
  - It is also difficult for a person with less technical knowledge to find correctly the software of his interest and perform the subsequent steps that follow.
- Hence to overcome these overheads this project automates the process of software installation and is thus faster.

Objective and Problem Statement

- OBJECTIVE:

  This project will work as Software as a Service platform(SaaS) to manage softwares and applications on any endpoint.

- Develop a solution which will work as a SaaS platform to provide softwares on any endpoint accessible.

Scope

- Endpoint Software/Application Management Portal will work as a platform to manage software and applications on any endpoint.
- It will be used to automate the process of software installation. It will reduce the manual efforts required during installation of a software such as- extraction, installation, post-configurations, etc. and will also be time saving.
- Using this portal we can deploy web applications by installing and packaging all the dependencies inside an isolated container. Endpoint Software/Application Management Portal,being a web based tool, availability of internet is a must.

Literature Study

- Rest API:

  Representational State Transfer Application Program Interface.

- Chef:

  An automation platform that configures and manages the infrastructure.

- Docker:

  An open-source project that automates the deployment of applications inside software containers.

Functional and Non-Functional Requirements

- FUNCTIONAL:
  - To accept the software details and end point details from user.
  - To check if the software exists in repository
    - If available run the recipes at back end
    - If not ,get the credentials from the user and create the recipe and store it in the repository.
    - Installation of the software or application by running the recipes and improve the speed.

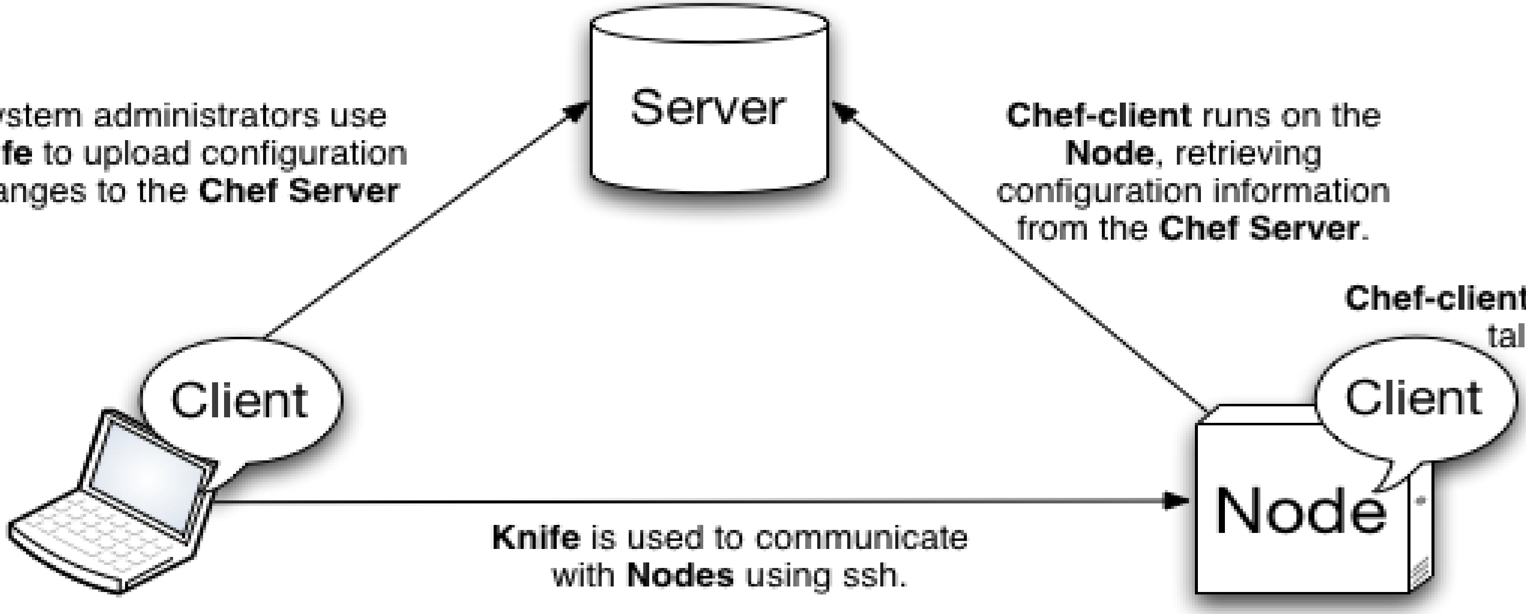
- NON-FUNCTIONAL:
  - Parallel installation of software’s on multiple endpoints.
  - Parallel installation of multiple software's on a single endpoint.

Hardware and Software Requirements

- Chef tool.
- Docker tool.
- Linux OS.
- Chef Server
- Nodes/Endpoints
- Dual core processor with 2GB RAM and Internet Connection.

Chef Workflow

The **Chef Server** is the centralized store of your infrastructure's configuration.



System administrators use **Knife** to upload configuration changes to the **Chef Server**

Chef-client runs on the **Node**, retrieving configuration information from the **Chef Server**.

Chef-client and **Knife** use **API Clients** to talk to the **Chef Server**.

Knife is used to communicate with **Nodes** using ssh.

Chef Workstation

A **Chef Workstation** is simply a computer with a local **Chef repository** and a properly configured **Knife.**

Systems managed by Chef are called **Nodes.**

Docker Implementation

- Docker-engine will get installed on the endpoint.
- User will select the OS and the required development environment.
- User will provide the path of the executable (.java, .c , .cpp) file which he/she wants to execute.
- According to the environment selected, required image will be built.
- The image will then be run inside a container.

UI Screens

- Dockers(Application Deployment)
- Chef(Software installation)

UML Diagrams

- Architecture Diagram
- Activity Diagram
- Use case Diagram 1
- Use case Diagram 2
- Deployment Diagram

Testing

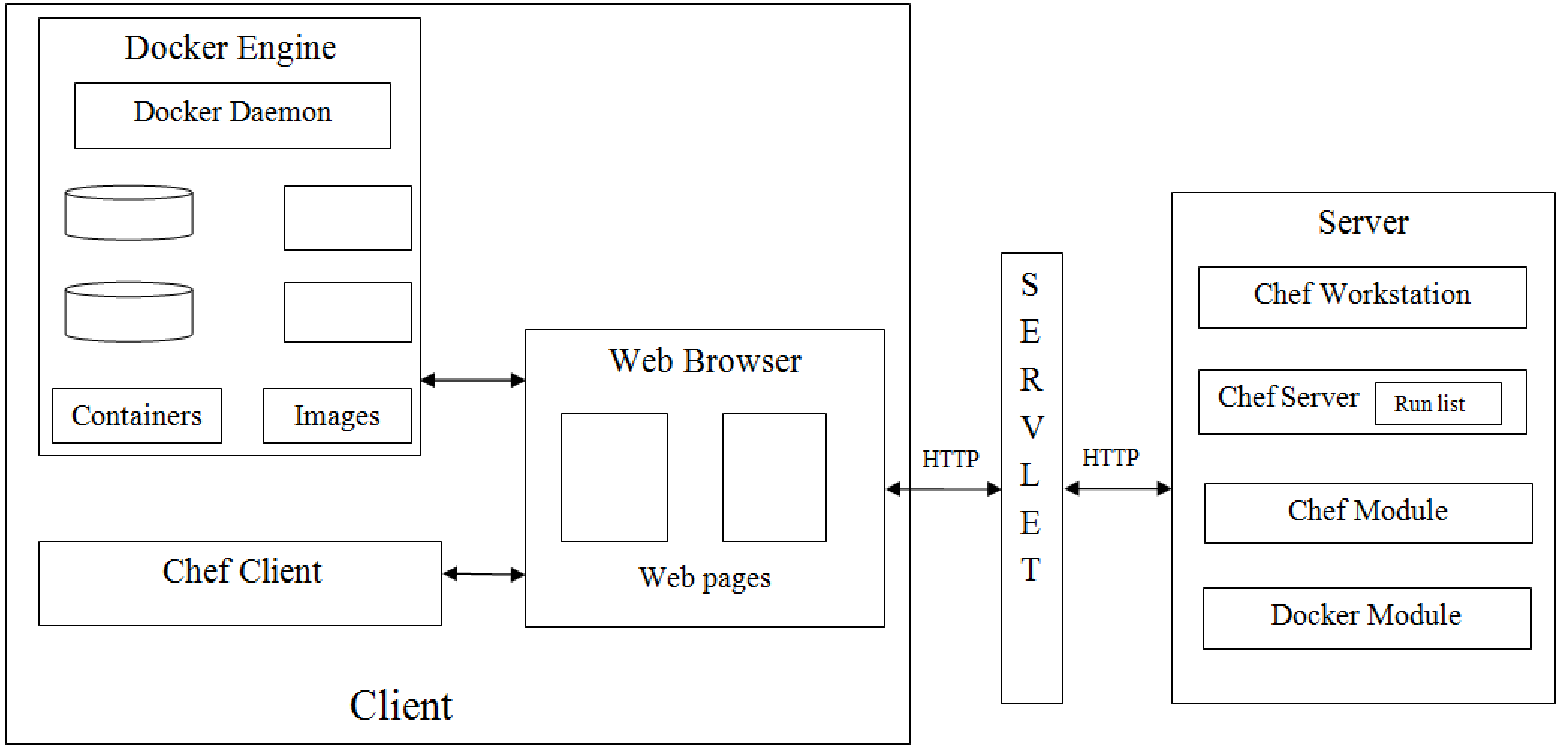
- Acceptance testing
- Unit testing
- Chef Module
- Docker Module

References

- www.wikipedia.org
- www.youtube.com
- www.Learn.chef.io
- Steven c. MarkeyREST in the cloud www.ibm.com
- docs.docker.com
- www.digitalocean.com/community/tags/docker?type=tutorials
- blog.flux7.com/blogs/docker/docker-tutorial-series-part-1-an-introduction

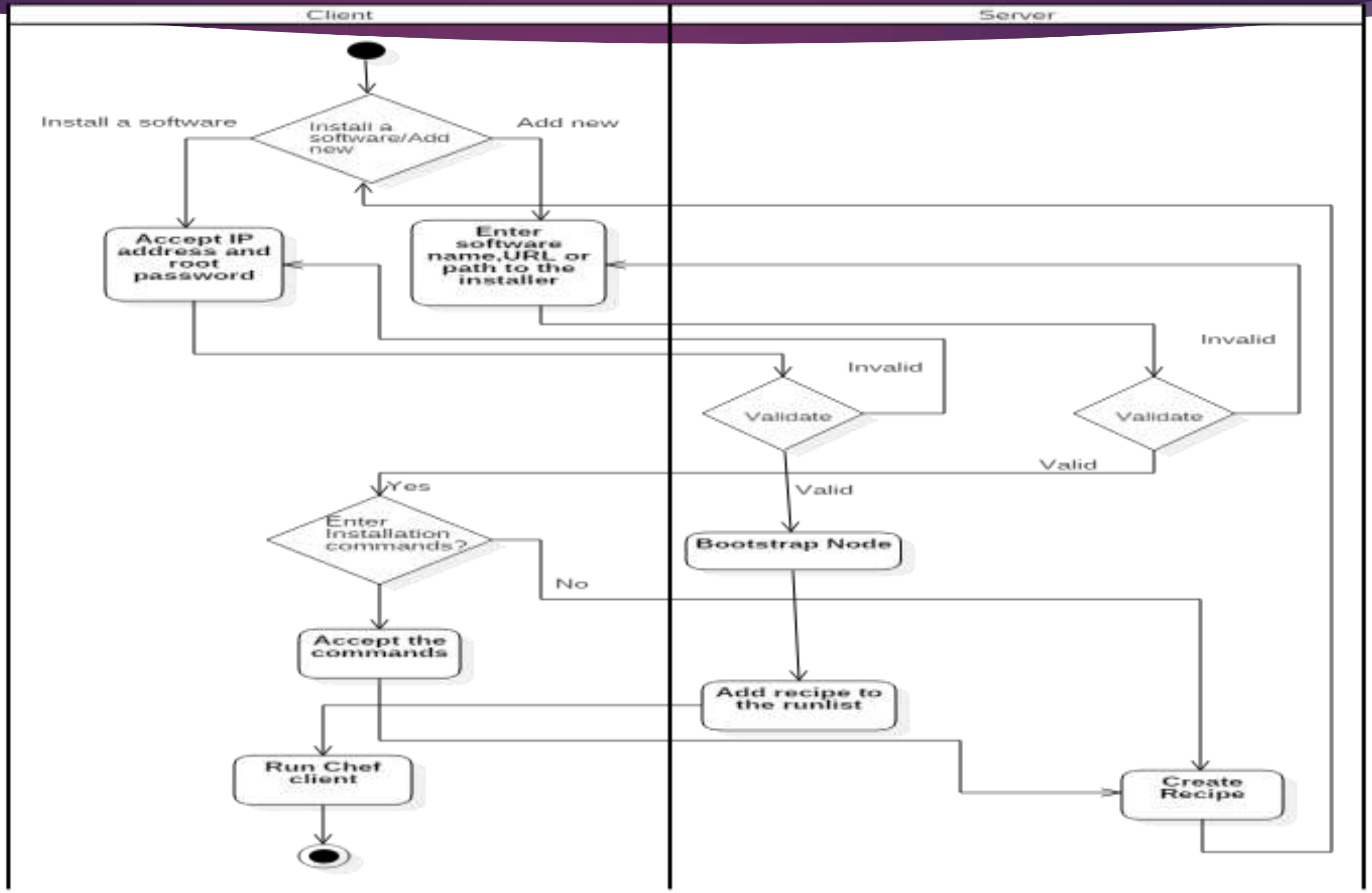
THANK YOU!!

Architecture Diagram



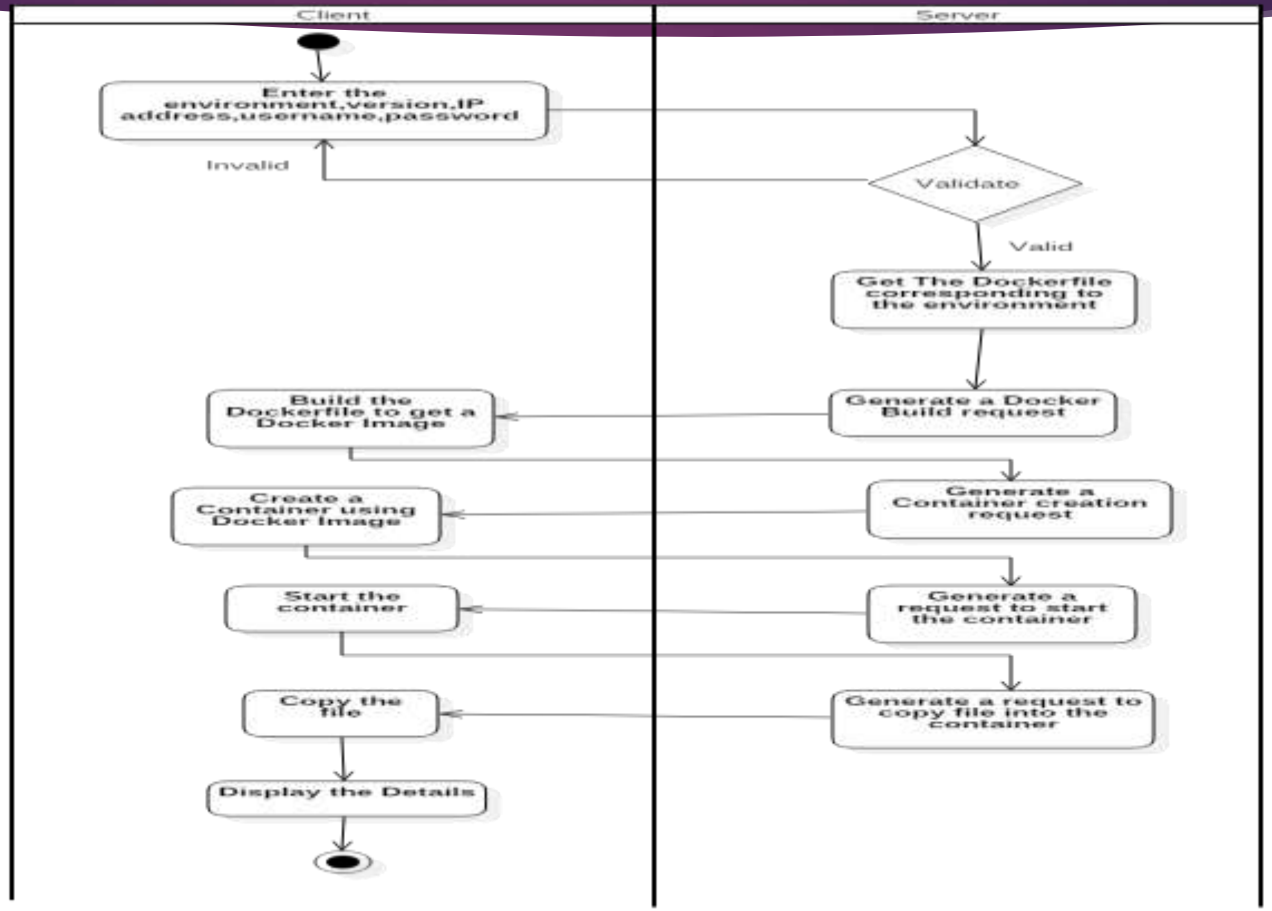
Return→

Activity Diagram


Client
Server
Install a software
Install a software/Add new
Add new
Accept IP address and root password
Enter software name,URL or path to the installer
Invalid
Invalid
Validate
Validate
Valid
Yes
Valid
Enter Installation commands?
No
Bootstrap Node
Accept the commands
Add recipe to the runlist
Run Chef client
Create Recipe

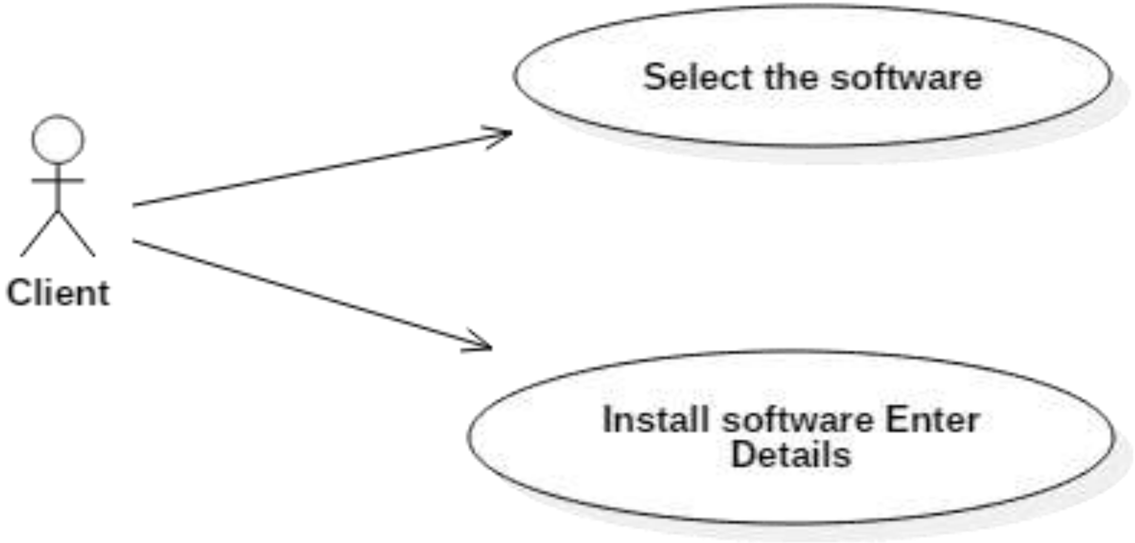
Return→

Activity Diagram


Client
Server
Enter the environment,version,IP address,username,password
Invalid
Validate
Valid
Get The Dockerfile corresponding to the environment
Generate a Docker Build request
Build the Dockerfile to get a Docker Image
Generate a Container creation request
Create a Container using Docker Image
Generate a request to start the container
Start the container
Generate a request to copy file into the container
Copy the file
Display the Details

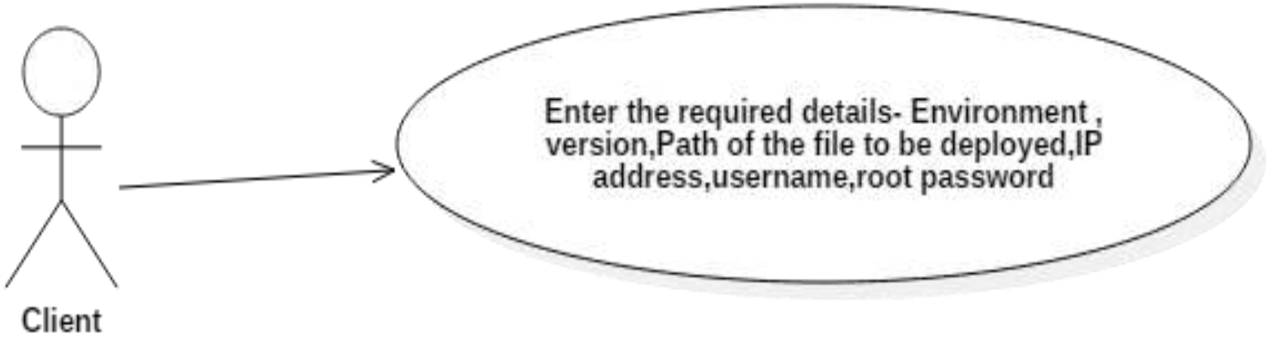
Return→

Use case Diagram Chef



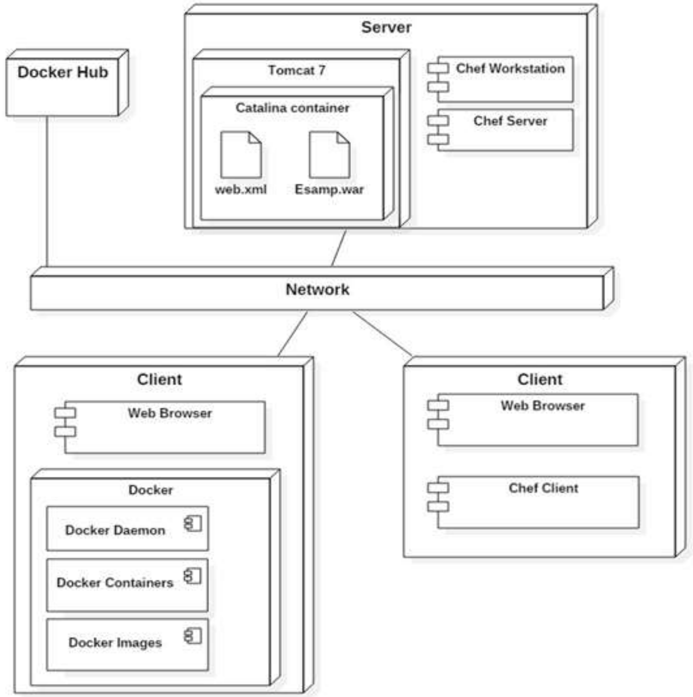
Return→

Use case Diagram Docker

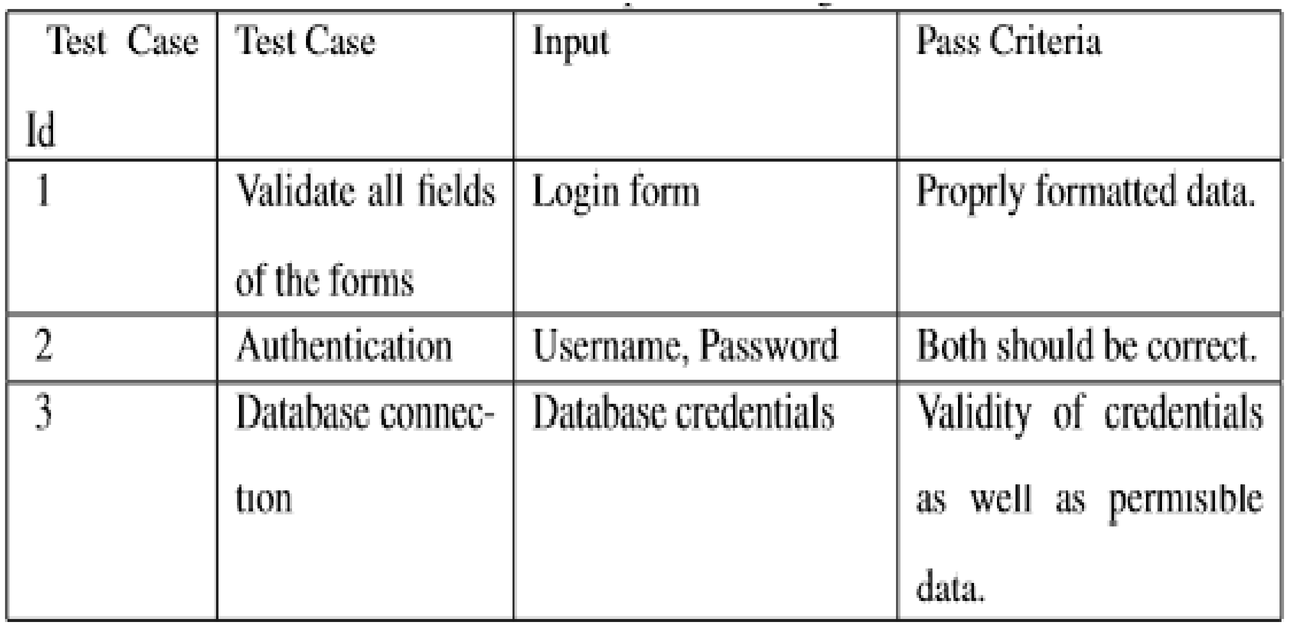

Enter the required details- Environment , version,Path of the file to be deployed,IP address,username,root password
Client

Return→

Deployment Diagram



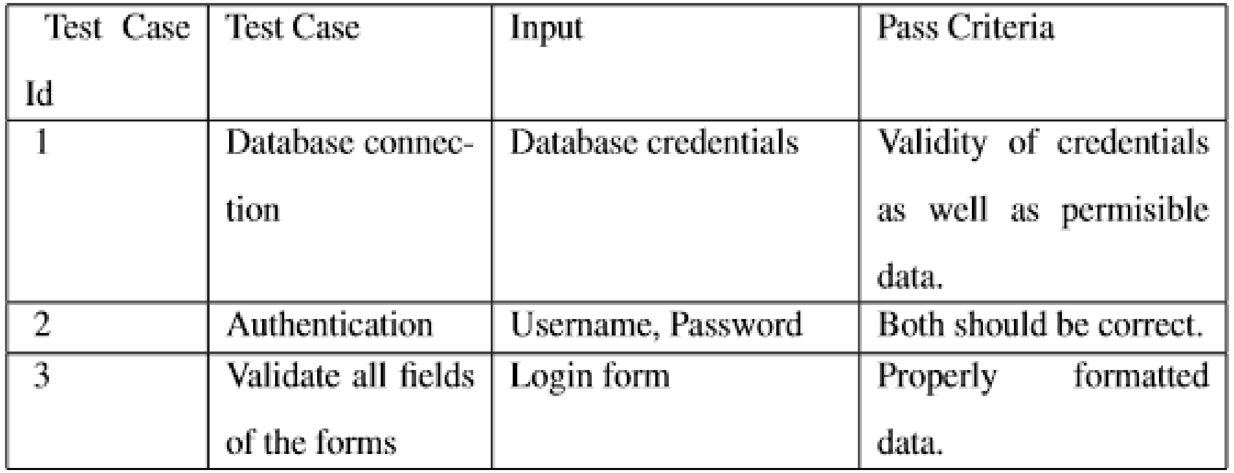
Return→



Test Case Id	Test Case	Input	Pass Criteria
1	Validate all fields of the forms	Login form	Proprly formatted data.
2	Authentication	Username, Password	Both should be correct.
3	Database connection	Database credentials	Validity of credentials as well as permisible data.

Return→

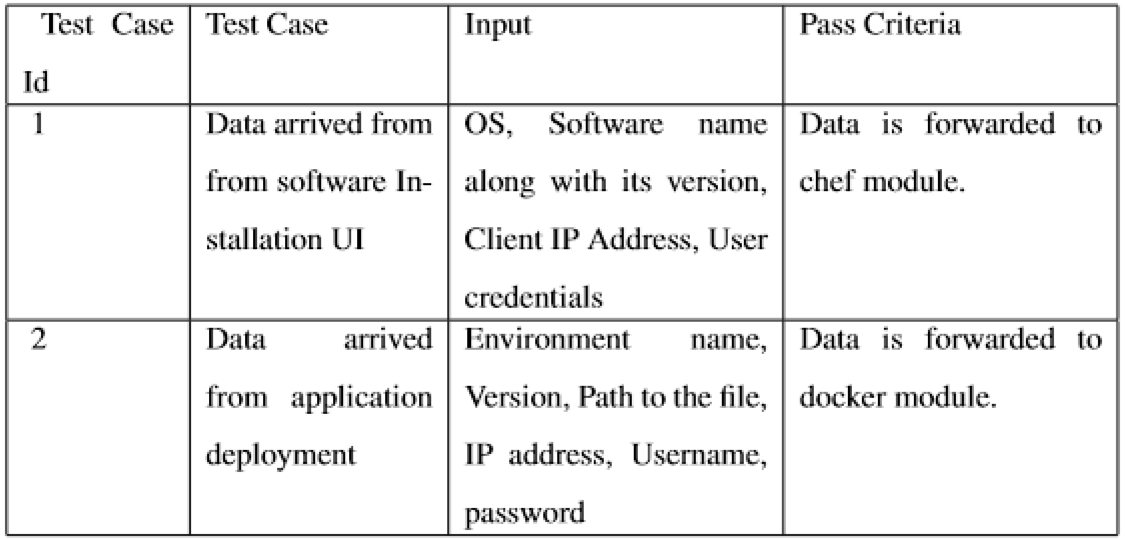
- GUI Testing



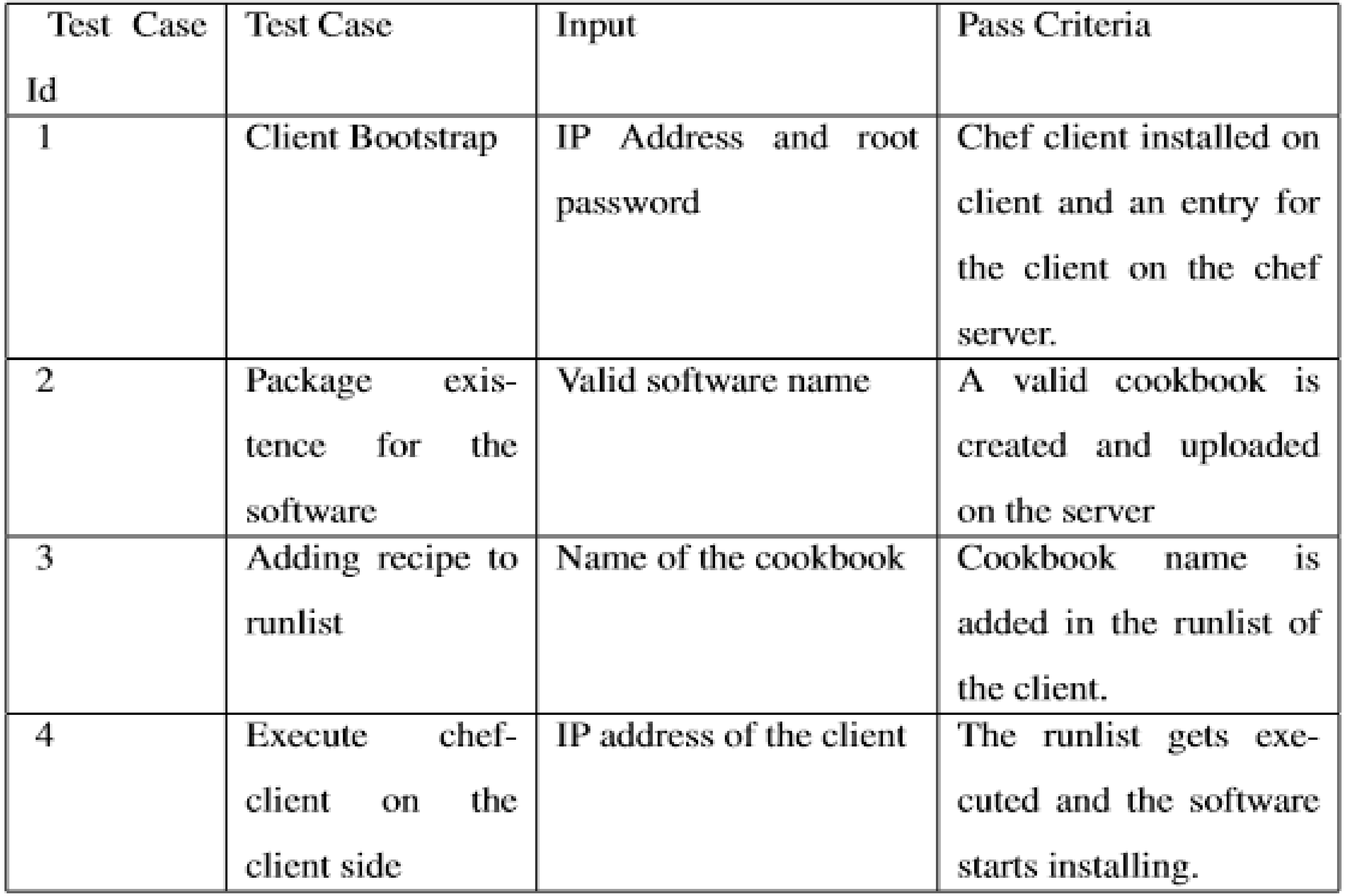
Test Case Id	Test Case	Input	Pass Criteria
1	Database connection	Database credentials	Validity of credentials as well as permisible data.
2	Authentication	Username, Password	Both should be correct.
3	Validate all fields of the forms	Login form	Properly formatted data.

- Communication Module

Return→

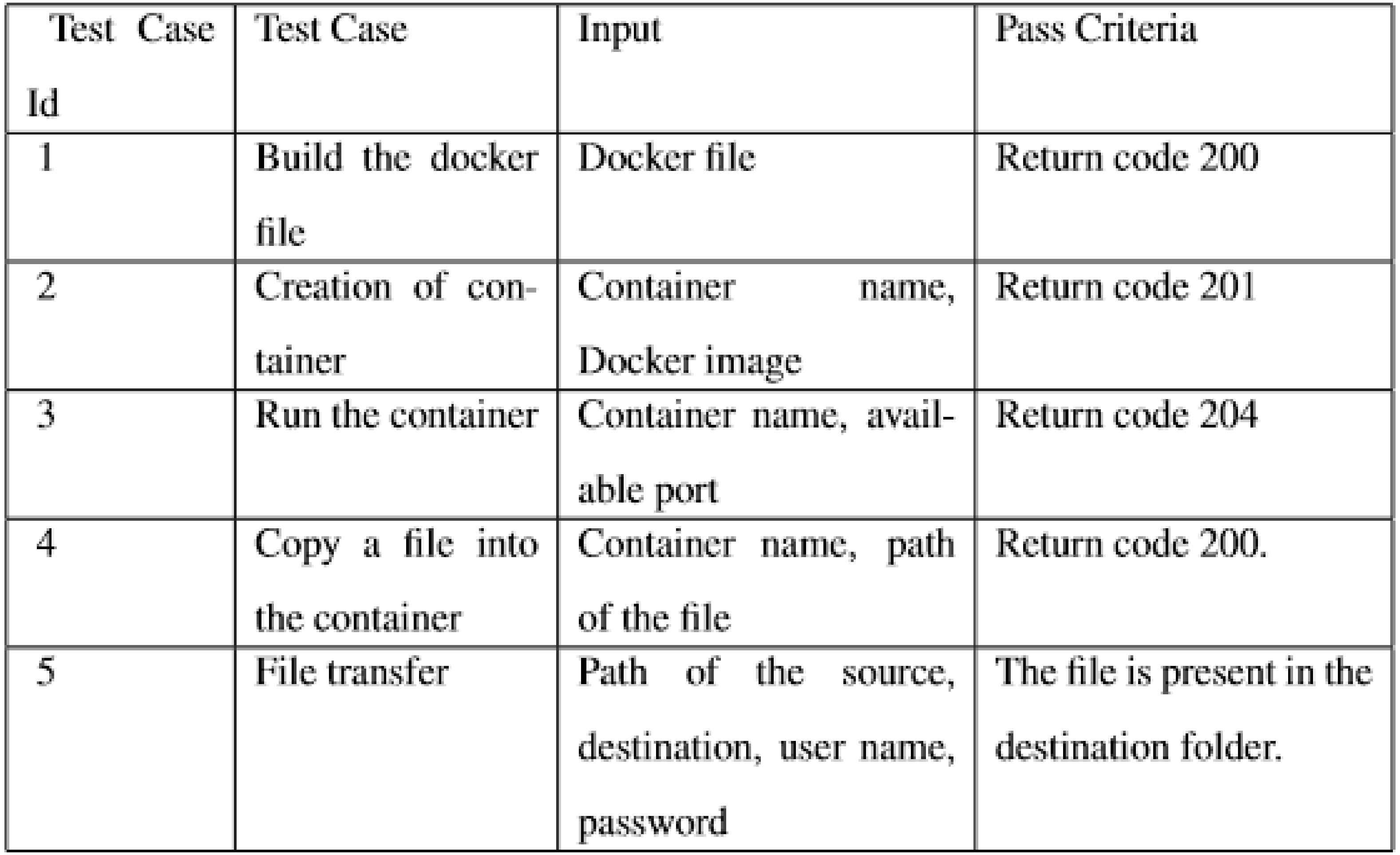


Test Case Id	Test Case	Input	Pass Criteria
1	Data arrived from from software Installation UI	OS, Software name along with its version, Client IP Address, User credentials	Data is forwarded to chef module.
2	Data arrived from application deployment	Environment name, Version, Path to the file, IP address, Username, password	Data is forwarded to docker module.



Test Case Id	Test Case	Input	Pass Criteria
1	Client Bootstrap	IP Address and root password	Chef client installed on client and an entry for the client on the chef server.
2	Package existence for the software	Valid software name	A valid cookbook is created and uploaded on the server
3	Adding recipe to runlist	Name of the cookbook	Cookbook name is added in the runlist of the client.
4	Execute chef-client on the client side	IP address of the client	The runlist gets executed and the software starts installing.

Return→

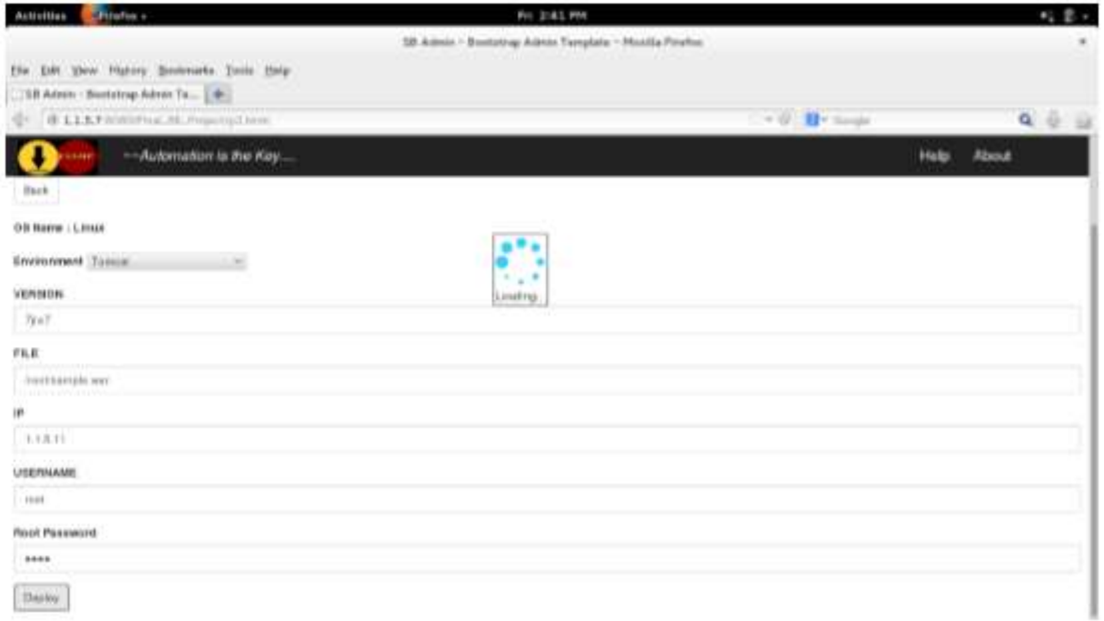


Test Case Id	Test Case	Input	Pass Criteria
1	Build the docker file	Docker file	Return code 200
2	Creation of container	Container name, Docker image	Return code 201
3	Run the container	Container name, available port	Return code 204
4	Copy a file into the container	Container name, path of the file	Return code 200.
5	File transfer	Path of the source, destination, user name, password	The file is present in the destination folder.

Return→

Input Form

Return→


Activities
Firefox
Fri 2:41 PM
SB Admin - Bootstrap Admin Template - Mozilla Firefox
File Edit View History Bookmarks Tools Help
SB Admin - Bootstrap Admin Te...
Google
--Automation is the Key....
Help
About
Back
Loading

OS Name : Linux

Environment Tomcat

VERSION

7jre7

FILE

/root/sample.war

IP

1.1.5.11

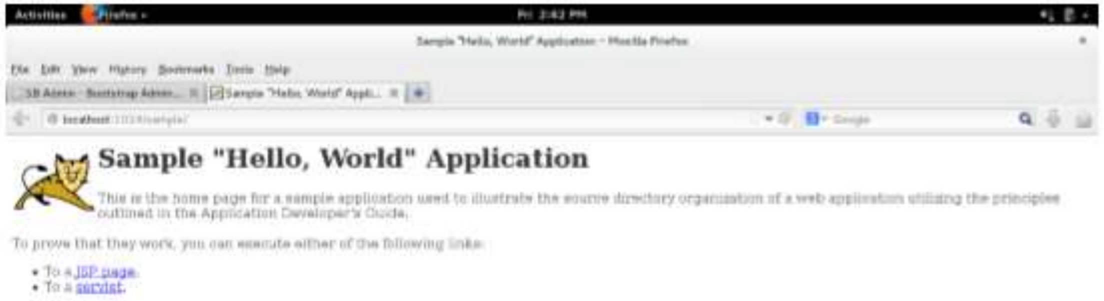
USERNAME

root

Root Password

****

Deploy

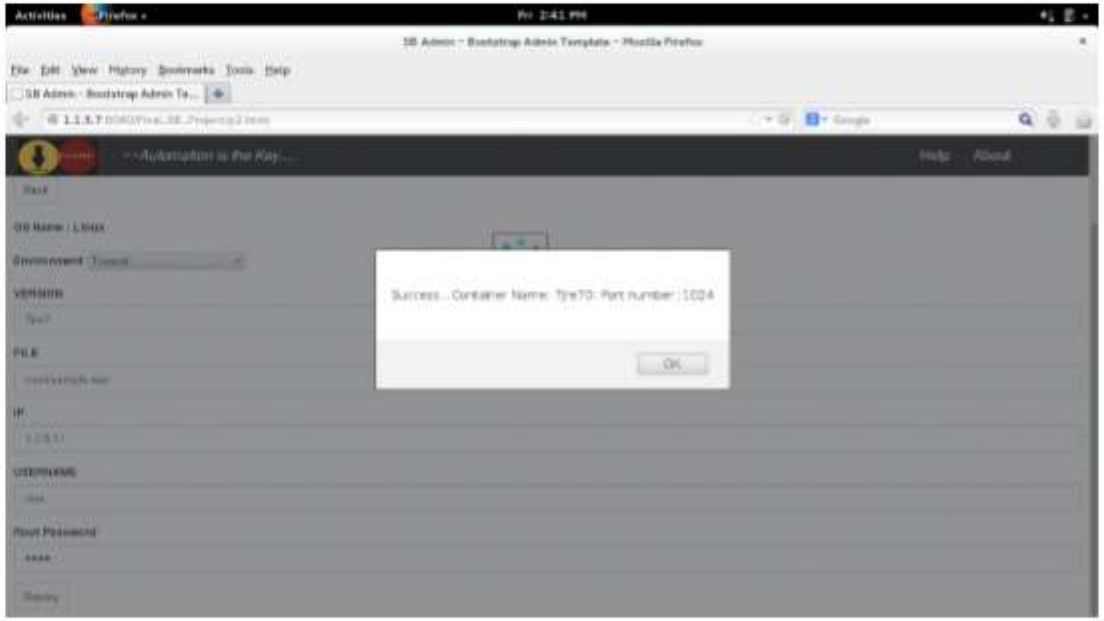

Activities
Firefox
Fri 2:42 PM
Sample "Hello, World" Application - Mozilla Firefox
File Edit View History Bookmarks Tools Help
SB Admin - Bootstrap Admin...
Sample "Hello, World" Appli...
localhost:1024/sample/
Google

Sample "Hello, World" Application

This is the home page for a sample application used to illustrate the source directory organization of a web application utilizing the principles outlined in the Application Developer's Guide.

To prove that they work, you can execute either of the following links:

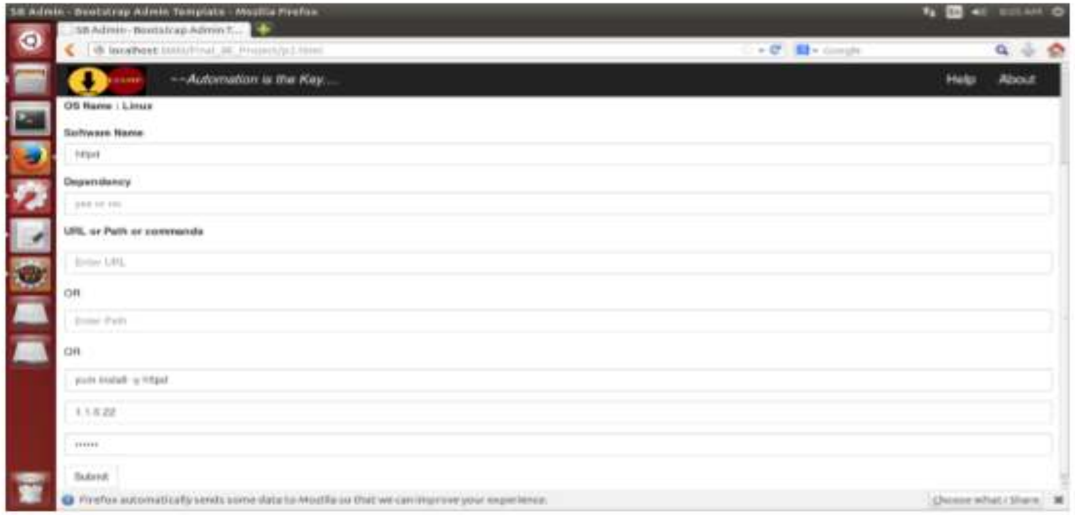
- To a JSP page.
- To a servlet.


Activities
Firefox
Fri 2:41 PM
SB Admin - Bootstrap Admin Template - Mozilla Firefox
File Edit View History Bookmarks Tools Help
SB Admin - Bootstrap Admin Te...
Google
--Automation is the Key....
Help
About
Back
OS Name : Linux
Environment
VERSION
FILE
IP
USERNAME
Root Password
Deploy

Success....Container Name: 7jre7D: Port number :1024

OK

Output page


SB Admin - Bootstrap Admin Template - Mozilla Firefox
--Automation is the Key...
Help
About
Submit

OS Name : Linux

Software Name

httpd

Dependency

yes or no

URL or Path or commands

Enter URL

OR

Enter Path

OR

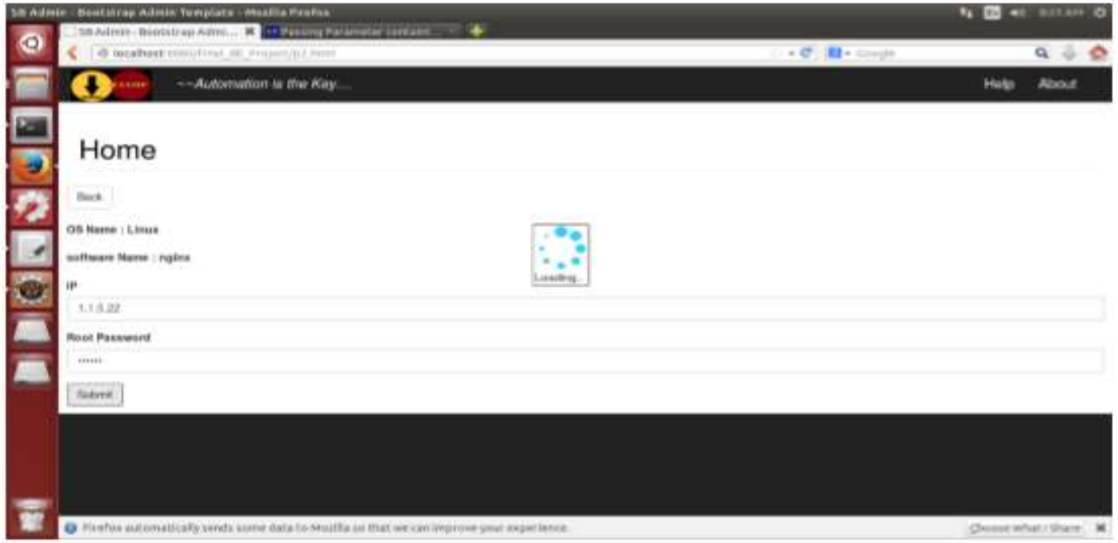
yum install -y httpd

1.1.6.22

••••••

Firefox automatically sends some data to Mozilla so that we can improve your experience.

Adding new software


SB Admin - Bootstrap Admin Template - Mozilla Firefox
--Automation is the Key...
Help
About
Back
Loading...
Submit

Home

OS Name : Linux

software Name : nginx

IP

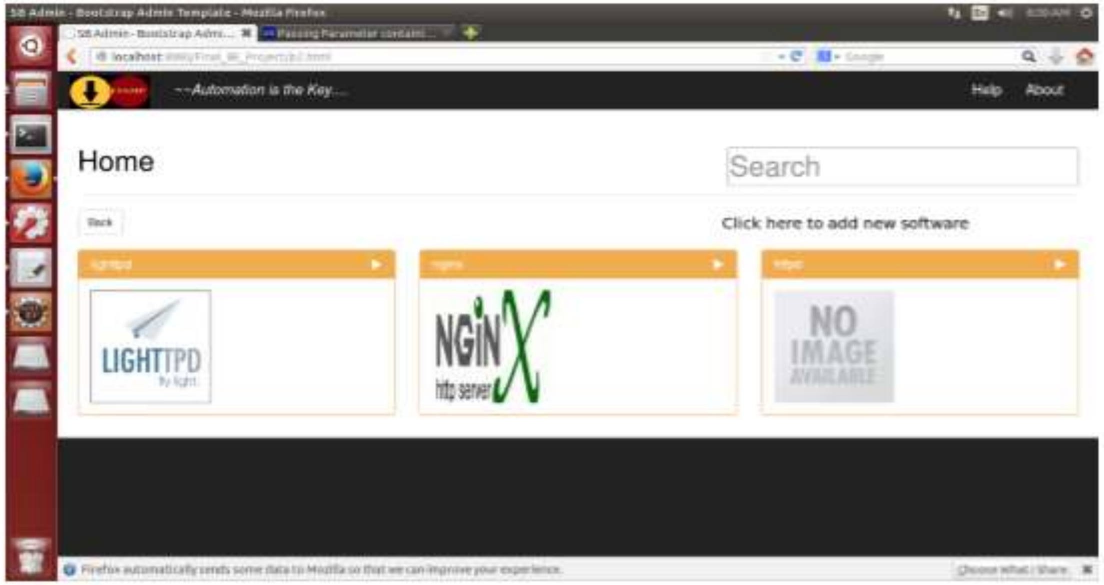
1.1.6.22

Root Password

••••••

Firefox automatically sends some data to Mozilla so that we can improve your experience.

Client Details



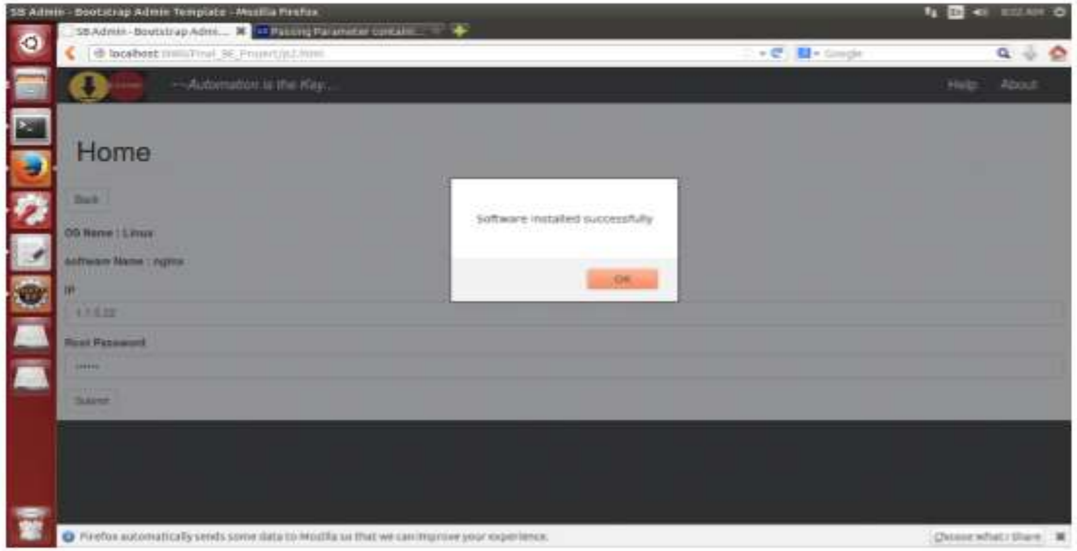
Home

Search

Click here to add new software

Firefox automatically sends some data to Mozilla so that we can improve your experience.

Software List


SB Admin - Bootstrap Admin Template - Mozilla Firefox
--Automation is the Key...
Help
About
Back
OK
Submit

Home

Software installed successfully

OS Name : Linux

software Name : nginx

IP

1.1.6.22

Root Password

••••••

Firefox automatically sends some data to Mozilla so that we can improve your experience.

Installed software

Return→