

**INTERNSHIP ON LINUX SYSTEM AND NETWORK  
ADMINISTRATION AT DAFFODIL ONLINE LIMITED.**

**BY**

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This Report Presented in Partial Fulfillment of the Requirements for  
the Degree of Bachelor of Science in Computer Science and  
Engineering

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**DAFFODIL INTERNATIONAL UNIVERSITY**

**DHAKA, BANGLADESH**

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## **APPROVAL**

This Internship titled “**Internship On Linux System And Network Administration At Daffodil Online Limited.**”, submitted by **Md. Rkonuzzaman** to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering (BSc) and approved as to its style and contents. The presentation has been held on December 09 2018.

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## DECLARATION

I hereby declare that, this internship report is prepared under the supervision of **Fahad Faisal Senior Lecturer, Department of CSE**, Daffodil International University. I also declare that neither this internship report nor any part of this internship report has been submitted elsewhere for award of any Degree or Diploma. I also declare that, I collect information from Daffodil Online Limited (DOL), Data Center and Internet Service Provider (ISP) Based Company, Books and Internet.

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I would like to thank our entire course mate in Daffodil International University, who took part in this discuss while completing the course work.

Finally, I must acknowledge with due respect the constant support and patients of our parents.

## ABSTRACT

The Linux, the open source Operating System, or Linux OS, is a freely distributable, cross-platform operating system based on Unix that can be installed on PCs, laptops, net books, mobile and tablet devices, video game consoles, servers, supercomputers and more. This Linux logo was suggested by Linux Torvalds in 1996. Just like Windows XP, Windows 7, Windows 8, and Mac OS X, Linux is an operating system. Linux is also distributed under an open source license. In fact, most versions of Linux offer what is called a Live distribution – which means you run the operating system from either a CD/DVD or USB flash drive without making any changes to your hard drive. Anyone can get the full functionality without having to commit to the installation. Once you've tried it out, and decided you wanted to use it, you simply double-click the “Install” icon and walk through the simple installation wizard.

Actually, The Large or medium organizations need a server system to maintain their complex IT infrastructure. Day by day in every peer, networks make problematic in the way of security and resource sharing for medium or large size organizations. Since the server is slightly costly, here I have tried to design a cost effective server system of this type of organization. Hopefully, this system provides almost all the service needed by an organization to maintain their infrastructure and this system will increase the reliability and network security for their network. This is the design which is implemented by using VMware Workstation 10.0 and CentOS 6.5. After implementing of all services, this system is tested in different stages and it works successfully as a prototype. Perhaps, In the near future I need to improve centralize login system to get better performance for windows users.

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# **CHAPTER 1**

## **Introduction**

### **1.1 Introduction**

Daffodil International University, a famous private university in Bangladesh, providing excellent opportunity for the internship program. I have heard about it during the last session. I would like to express that for this internship I have a lot of practical experience. Besides, I think It's a big challenge to prove myself, anytime and anywhere. By completing this internship providing by Daffodil Online Ltd. In the company, I want to enrich my technical knowledge. Now I want to say on behalf of this area that I am very proud to have Daffodil International University.

### **1.2 Motivation**

I was especially interested in the focus of Linux servers on providing technical health and safety solutions. Actually I prefer CENTOS a, a free operating system to windows. Moreover, Linux has its own shields to protect it from viruses, so we do not have to buy antivirus protection to protect the system. That is why I use Linux to implement this system. I also have experience in computer science. Last summer I worked as a web developer in a small Internet business in Dhaka. I was responsible for maintaining and updating a number of company's web apps, and the main developer was a restructuring of the online application. I used Microsoft Access to develop these database applications. This internship has helped me develop with the end of the users to develop solutions. I believe I can make a positive and productive contribution to your organization.

### **1.3 Internship Objectives**

To obtain a professional position in the industry or company utilizing my relevant experience, technical expertise, and problem solving skills is my primary goal for internship. Besides, I want to prepare me for a competitive job market and to collect some extra features to make me a qualified one.

When students are still in school, coordinate work experience with academic education, and help students move from classroom to work at this time I would like to Participate in a computer-based design designed to offer work experience.

#### **1.4 Introduction to the Company**

Daffodil Online Limited is one of the leading Bangladeshi Network ISP providers. They are the oldest and the most experienced IT companies. In fact, they really have the business ethics and maintaining long-term relationships experience with customers. Now a day's growth has been exploring and They are very proud of their results, and even more joyful that they are looking forward to build a promising future. It is known to all that they have started their business in 2002 and expanded the operating service portfolio in line with recommendations of customers about time delivery. In recent years, in conjunction with many national projects and international organizations and has become famous. Generally, they use the latest technology and update services where they are needed. They are Corporate Network Solution, which offers high-tech network and data communications very technical solutions team of experts.

#### **1.5 Report Layout**

In the first chapter, I set the goal of the internship, stimulating integrity and introduction to the company.

In the past, I have described the method of my internship. And this chapter provides information about the place where the pedigree had to execute this program. It also includes information on how to work in practice, about the company, which services are offered at IT to DOL, and what jobs are in the Linux labor market.

Then I reflected the daily role and activities, events, activities, and challenges.

In the fourth chapter, I received the competitions, the smart plan, the circumstances.

## **CHAPTER 2**

### **Organization**

#### **2.1 Introduction**

Daffodil Online Ltd. (DOL) is proud to be one of the trailblazers and oldest ISP/ASPs in Bangladesh and providing one stop integrated ICT services and solution since July 2002. It has its own optical fiber infrastructure and the WAN, which businesses operate, small and medium-sized businesses and individual clients. The institute has worked with many national projects and international organizations with high prizes of all interested parties. It uses the latest technology and provides all-switching services everywhere.

Corporate Network Providers can offer telephone solutions and a modern network with a team of highly efficient technical professionals. DOL has certified a very strong professional and management team and is associated with SUN, Cisco, Microsoft, Linux, and Oracle and is active in leading computers, such as IEEE, ACM, ACS, BCS, and PMI. Corporate social responsibility strengthens the understanding of the community, workstation, placement, and market. As a group, DOL offers its programs and services by promoting important platforms such as education, government, and the environment [1].

#### **2.2 Product and Market Situation**

Daffodil Online Ltd is one of the leading national ISPs in Bangladesh. The most exciting and oldest IT companies have a long-term relationship with clients based on business. Look at the growth of the decades since its inception, our results have been very proud, and even so much in our opinion of the future meanings. Daffodil Online Ltd provides a variety of IT services and training services. These are given below.

IT Services:

- Internet business solution
- Security solution.
- Domain registration and webhosting.
- Website design & development.

- Open source app solution.
- Internet Service Provider
- State of the Art Data Centers.
- Hi speed Wi-Fi Zone.
- Data Connectivity, Data center & Co-Location.
- Bulk SMS Service.
- Proxy & DNS Server solution, Mail Server Solution.
- And all computer accessories
- Professional course and trainings

#### Professional Training Services:

- ISP Setup and administration using Linux.
- Training Course on Certified Ethical Hacking (CEH).
- ISP Setup and Administration using MikroTik.
- Web site Development with Joomla.
- PHP and MYSQL for Website Development.
- E-commerce & Open source Joomla Virtue Mart.
- Red Hat Certified Security Specialist (RHCSS).
- Red Hat Certified Engineer (RHCE).

### **2.3 Target Group**

The company's customer base includes all consumers and all small and medium-sized businesses, including start-ups. The company affects SOHO customers as they are the perfect goals for the new and high-speed cycling, which can grow the business. Websites believe these market parties have special price and service and make more reliable and special customers.

## 2.4 SWOT Analysis

The SWOT analysis is a technique used to detect your strengths and weaknesses and identify the chances you have and the threats you are doing.

### Strengths:

- Communication between people separated by distance (at home and within the work place)
- Working at home easy
- Make online business
- Gathering information (valuable asset in business)

### Weaknesses:

- Newcomers need to take into account the skills required to survive the market
- Large sums of money required to set up businesses
- Competition for small resellers
- Numerous pricing tariffs and service options

### Opportunities:

- Age structure of the population changing
- Number of households in the UK increasing
- Introduction of simpler tariffs
- Revision of regulatory framework

### Threats:

- The Economic Crisis - Householders less likely to increase their Broadband Subscriptions  
Stock Market's lack of confidence in the digital-communications market.
- It remains to be seen how far consumers can be persuaded to embrace Internet access.

## 2.5 Organizational Structure

Organizational Structure of Daffodil Online Ltd. Shown below in fig 2.5:



Figure 2.5: Organizational structure of Daffodil Online Limited

## CHAPTER 3

### Tasks, Projects and Activities

#### 3.1 Daily Task and Activities

Month - 1: In the first month of internship on daffodil online limited I have learned and performed the following tasks:

- Learning & understanding About Network Components.
- Learning & understanding Basics of Linux.
- Understanding Linux HDD Partitions.
- Learning & understanding Linux Run Level.
- Linux Installation.

Month - 2: In the second month of internship on daffodil online limited I have learned and performed the following tasks:

- Basic Centos Commands.
- Linux User and Password Management.
- Know About logged in users.
- File and Directory Accessing.
- To Copy and Move File and Directories.
- Compressed and Decompressed File and Directories.
- Mount Unmount Drive.

Month – 3: In the third month of internship on daffodil online limited I have learned and performed the following tasks:

- File and Directory Permissions.
- Install, Update and Remove Package Using YUM.
- Concept of IP Addressing.
- Configuring IP Address in Centos.

Month – 4: The last month of internship on daffodil online limited I have learned and performed the following tasks:

- Learning, understanding and configuring FTP Server.
- Learning, understanding and configuring WEB Server.



- Learning, understanding and configuring SAMBA Server.

### **3.2 Events and Activities**

- Monitor and Maintain Computer Systems and Network.
- Setting up user accounts, permissions and passwords.
- Troubleshooting servers and routers.
- Troubleshooting local area networks and switches.
- Fixing network faults.
- Technical support for people using the network.
- Day to day admin and monitoring of network use.
- Suggesting IT solutions to business problems.
- Client Support over the phone or Physical move to client Ends.

### **3.3 Project Task and Activities**

Centos Install

### **3.4 Creating Linux Partition**

For Installation of Linux we have to create at least 3 partitions root (/), /boot, and swap.

#### **3.4.1 Root Partition: /**

A Root Partition there is where “/” The root directory is located all files (except in /boot) are on the root partition. Minimum 5 GB HDD Space Required.

#### **3.4.2 Boot Partition: /boot**

The partition boot (100 MB): The partition is installed on / boot / the operating system of the kernel (which can run the Linux system), and also the files used during the bootstrap process. Through the edges, you have to divide an ext3 slide to keep these files. For most users, many 100 MB segments are sufficient.

#### **3.4.3 Swap Partition: swap**

Partitions are used to support virtual memory. In other words, the data is written to the replacement utility when there is not enough RAM to process information about your system.

However, the introduction of particulates must have 2x physical RAM for 2 GB of physical RAM and then 1x of extra physical RAM for each sum greater than 2 GB but may be less than 32 MB. [2]

### **3.5 Linux Run-Level Used by Centos**

# init 0 = Shut Down.

# init 1 = Single User Mode.

# init 2 = Multi User Mode.

# init 3 = Full Multi User Mode. # init 4 =Unused.

# init 5 = X-Window (GUI Mode) # init 6 =Reboot.

### **3.6 The Basic Command of Linux Centos**

Shut down = power off, init 0, shutdown -h

now. Reboot = reboot or init6.

Logout = log the current user off the system.

Display a calendar = Cal, cal 2017, cal 28 1993

Display or change date or time = date.

Present Working Directory = pwd.

Create a blank file = touch rimon (File name).

Create a directory = mkdir rimon1 (directory name).

List information about file = lsrimon

Change Working Directory = cd /root/Desktop (directory path).

### **3.7 User Create and Password Management**

Adding a user = useraddrimon(username).

Set a Password to New User = passwdrimon(username).

Password Disable/Remove = passwd -d rimon(username).

Delete a user = userdelrimon(username).

Delete a user with home directory = userdel -rhelal(username).

### 3.8 To Know About the Logged In User

w

who

who am i

### 3.9 To Copy or Move a File

Copy = cp filename destination example: cp -r /daffodil/root/desktop

Move = mv filename destination example: mv /root/desktop/class1

### 3.10 ViEditor

To Edit A File = vi filename(file name)

To insert Text = press i

To delete the character = press dd

To copy line = press esc key and type 5yy to copy 5 line.

To paste = press p for paste.

To set line number = :set nu

To delete 3line number = 3dd

Search something = /abc for search abc

ForGo top of the lines = :0

For Go bottom of the lines = :\$

For Go Specific Line = :50 to go 50 no line.

To save the document = :wq! {save the current changes and exits vi editor}

= :w! {save the current changes but does not exist vi editor}

= :q! {exits vi editor without saving any changes}

### 3.11 Install/Update/Remove Packages in Centos

- Install a package using yum install

Yum install (packagename)

e.g. yum install vim-y

- Uninstall a package using yum

yum remove (packagename)

e.g. yum removesamba-y

- Update a package using yum

yum update (packagename)

e.g. yum updatefirefox

- Search a package using yum

yum search (packagename)

e.g. yum search firefox

- Display Additional Information about a Package

yum info (packagename)

e.g. yum info firefox

- View All Available Package

yum list |less

- View Already Installed Package

yum list installed

- List of all available software group

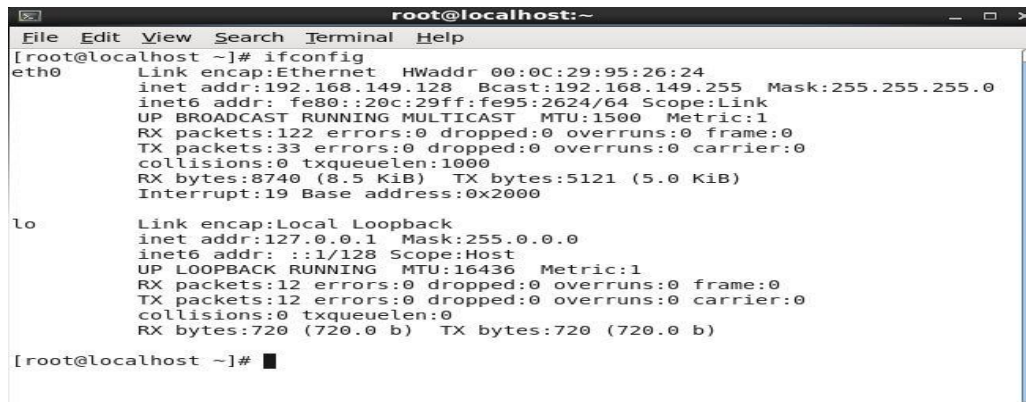
yum group list

- Install a specific soft group

yum group install dns name server

### 3.12 How to Add/Change/Delete and Display IP Address in Centos

To see ip address: ifconfig or ifconfig eth0 figure 3.1 shown below in ip address



```
root@localhost:~  
File Edit View Search Terminal Help  
[root@localhost ~]# ifconfig  
eth0      Link encap:Ethernet  HWaddr 00:0C:29:95:26:24  
          inet addr:192.168.149.128  Bcast:192.168.149.255  Mask:255.255.255.0  
          inet6 addr: fe80::20c:29ff:fe95:2624/64 Scope:Link  
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1  
          RX packets:122 errors:0 dropped:0 overruns:0 frame:0  
          TX packets:33 errors:0 dropped:0 overruns:0 carrier:0  
          collisions:0 txqueuelen:1000  
          RX bytes:8740 (8.5 KiB)  TX bytes:5121 (5.0 KiB)  
          Interrupt:19 Base address:0x2000  
  
lo        Link encap:Local Loopback  
          inet addr:127.0.0.1  Mask:255.0.0.0  
          inet6 addr: ::1/128 Scope:Host  
          UP LOOPBACK RUNNING  MTU:16436  Metric:1  
          RX packets:12 errors:0 dropped:0 overruns:0 frame:0  
          TX packets:12 errors:0 dropped:0 overruns:0 carrier:0  
          collisions:0 txqueuelen:0  
          RX bytes:720 (720.0 b)  TX bytes:720 (720.0 b)  
  
[root@localhost ~]#
```

Figure 3.1: IP address in centos

IP address amd Mac address I n command ifconfig eth0 by shown below figure 3.2



```
root@localhost:~  
File Edit View Search Terminal Help  
[root@localhost ~]# ifconfig eth0  
eth0      Link encap:Ethernet  HWaddr 00:0C:29:95:26:24  
          inet addr:192.168.149.128  Bcast:192.168.149.255  Mask:255.255.255.0  
          inet6 addr: fe80::20c:29ff:fe95:2624/64 Scope:Link  
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1  
          RX packets:44070 errors:0 dropped:0 overruns:0 frame:0  
          TX packets:25909 errors:0 dropped:0 overruns:0 carrier:0  
          collisions:0 txqueuelen:1000  
          RX bytes:52682095 (50.2 MiB)  TX bytes:2180856 (2.0 MiB)  
          Interrupt:19 Base address:0x2000  
  
[root@localhost ~]#
```

Figure 3.2: Address in eth0 port



### 3.13 Server Configuration

In ISP server configuration is a very important goal. A server option is important for all server services. Many servers have a Linux operating system. Within these servers, DF, DHCP, FTP, NFS, MAIL, WEB, SAMBA, and the Nagios Internet Services [ISP] configure.

#### 3.13.1 FTP Server

FTP (File Transfer Protocol)

The File Transfer Protocol (FTP) is a standard network protocol used for the transfer of computer files between a client and server on a computer network. FTP is built on client-server model architecture and uses separate control and data connections between the client and the server. Many casual Internet users expect to download directly from their web browser with https. FTP is still used to support legacy applications and work flows with very specific needs. If you have a choice of what protocol to use, consider exploring the more modern options. When you do need FTP, however, vsftpd (very secure FTP daemon) is an excellent choice. Optimized for security, performance, and stability, vsftpd offers strong protection against many security problems found in other FTP servers and is the default for many Linux distributions. We'll show you how to configure vsftpd to allow a user to upload files to his home directory using FTP with login identify secured by SSL/TLS [3].

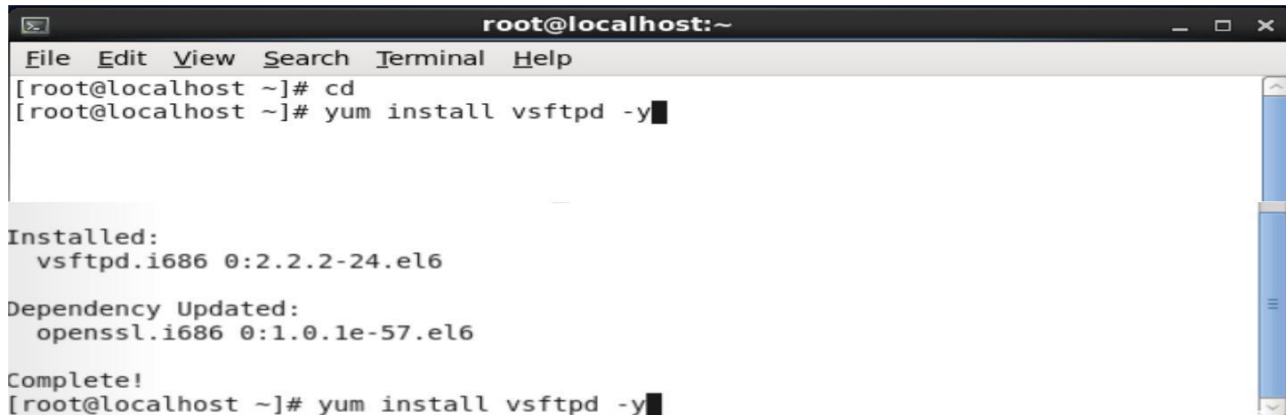
Configuring FTP Server Step by Step

Package Name: VSFTPD

Default Port: 20 (To transfer the data),

21 (To make control connection).

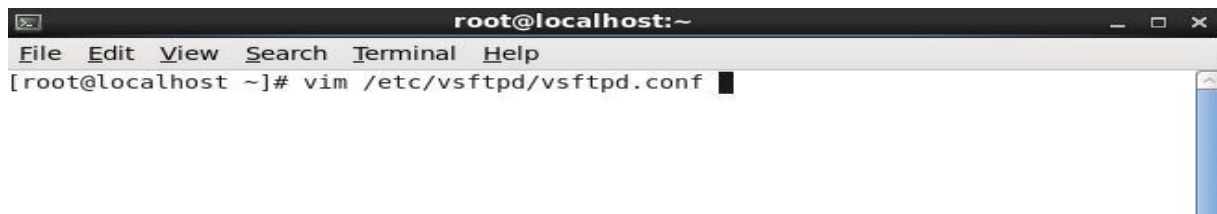
**Step 1:** Install the package vsftpd by using `#yum install vsftpd -y`



```
root@localhost:~  
File Edit View Search Terminal Help  
[root@localhost ~]# cd  
[root@localhost ~]# yum install vsftpd -y  
  
Installed:  
vsftpd.i686 0:2.2.2-24.el6  
  
Dependency Updated:  
openssl.i686 0:1.0.1e-57.el6  
  
Complete!  
[root@localhost ~]# yum install vsftpd -y
```

Figure 3.5: Installing the package vsftpd

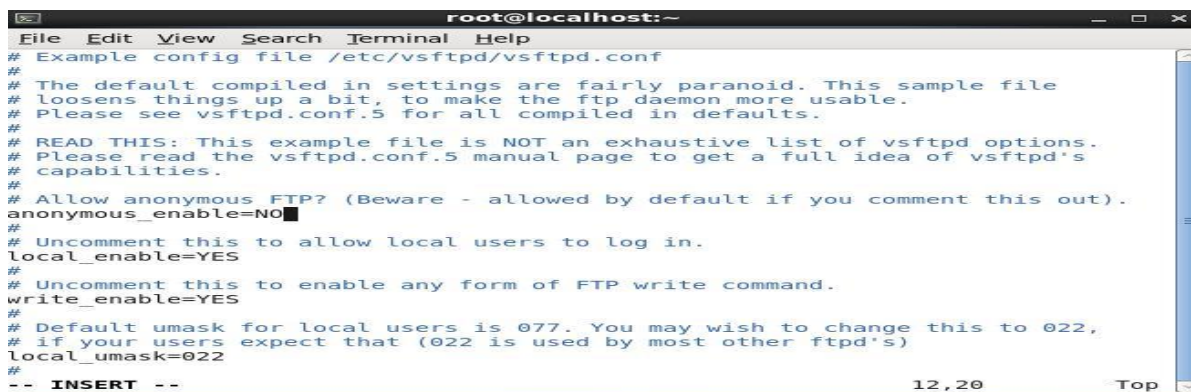
**Step 2:** Now Edit the Configuration file by using `#vim /etc/vsftpd/vsftpd.conf`



```
root@localhost:~  
File Edit View Search Terminal Help  
[root@localhost ~]# vim /etc/vsftpd/vsftpd.conf
```

Figure 3.6: Configuration file location

**Step 3:** Go the line 12 and change the line `anonymous Enable=Yes` to `No`

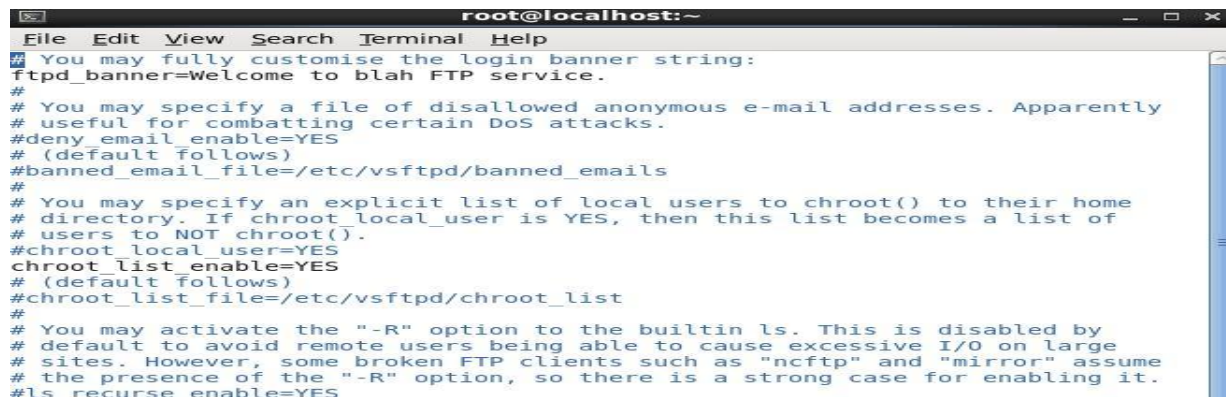


```
root@localhost:~  
File Edit View Search Terminal Help  
# Example config file /etc/vsftpd/vsftpd.conf  
##  
# The default compiled in settings are fairly paranoid. This sample file  
# loosens things up a bit, to make the ftp daemon more usable.  
# Please see vsftpd.conf.5 for all compiled in defaults.  
##  
# READ THIS: This example file is NOT an exhaustive list of vsftpd options.  
# Please read the vsftpd.conf.5 manual page to get a full idea of vsftpd's  
# capabilities.  
##  
# Allow anonymous FTP? (Beware - allowed by default if you comment this out).  
anonymous_enable=NO  
##  
# Uncomment this to allow local users to log in.  
local_enable=YES  
##  
# Uncomment this to enable any form of FTP write command.  
write_enable=YES  
##  
# Default umask for local users is 077. You may wish to change this to 022,  
# if your users expect that (022 is used by most other ftpd's)  
local_umask=022  
##  
-- INSERT -- 12,20 Top
```

Figure 3.7: Change the line anonymous Enable



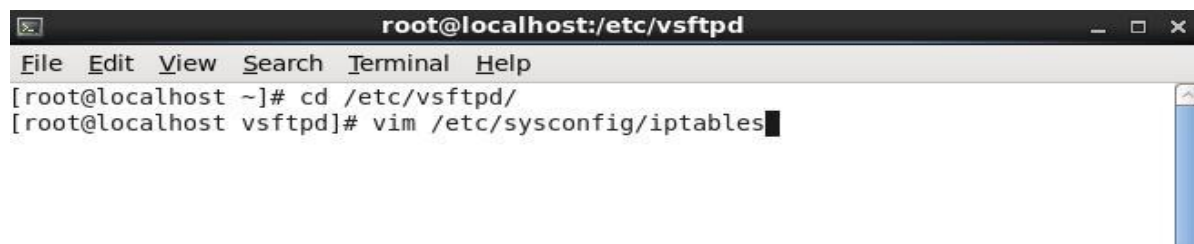
**Step 4:** Go to line 85 and 97 active the line by deleting #



```
root@localhost:~
File Edit View Search Terminal Help
# You may fully customise the login banner string:
ftpd_banner=Welcome to blah FTP service.
#
# You may specify a file of disallowed anonymous e-mail addresses. Apparently
# useful for combatting certain DoS attacks.
#deny_email_enable=YES
# (default follows)
#banned_email_file=/etc/vsftpd/banned_emails
#
# You may specify an explicit list of local users to chroot() to their home
# directory. If chroot_local_user is YES, then this list becomes a list of
# users to NOT chroot().
#chroot_local_user=YES
chroot_list_enable=YES
# (default follows)
#chroot_list_file=/etc/vsftpd/chroot_list
#
# You may activate the "-R" option to the builtin ls. This is disabled by
# default to avoid remote users being able to cause excessive I/O on large
# sites. However, some broken FTP clients such as "ncftp" and "mirror" assume
# the presence of the "-R" option, so there is a strong case for enabling it.
#ls_recurse_enable=YES
```

Figure 3.8: Activating the line 85 and 97.

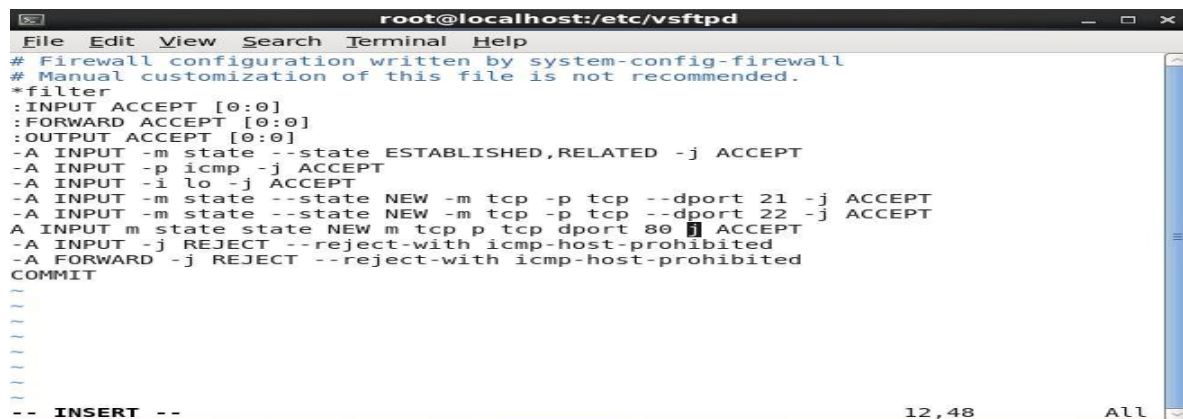
**Step 5:** Now Edit the Configuration file by using #vim /etc/sysconfig/iptables



```
root@localhost:/etc/vsftpd
File Edit View Search Terminal Help
[root@localhost ~]# cd /etc/vsftpd/
[root@localhost vsftpd]# vim /etc/sysconfig/iptables
```

Figure 3.9: Configuration file location.

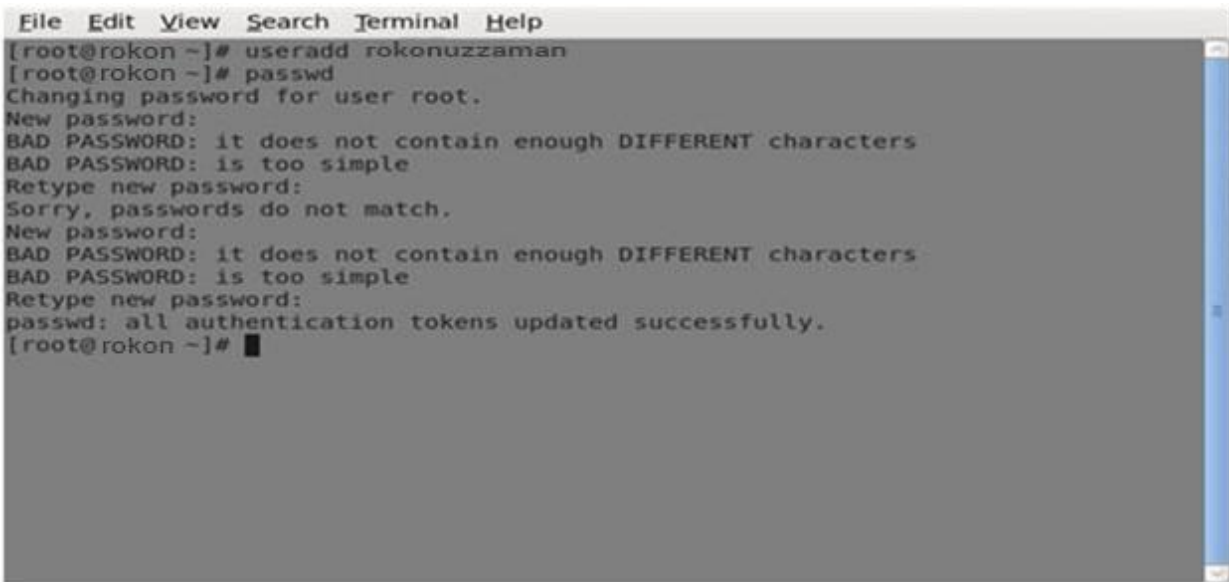
**Step 6:** Now the Configuration and write those things.



```
root@localhost:/etc/vsftpd
File Edit View Search Terminal Help
# Firewall configuration written by system-config-firewall
# Manual customization of this file is not recommended.
*filter
:INPUT ACCEPT [0:0]
:FORWARD ACCEPT [0:0]
:OUTPUT ACCEPT [0:0]
-A INPUT -m state --state ESTABLISHED,RELATED -j ACCEPT
-A INPUT -p icmp -j ACCEPT
-A INPUT -i lo -j ACCEPT
-A INPUT -m state --state NEW -m tcp -p tcp --dport 21 -j ACCEPT
-A INPUT -m state --state NEW -m tcp -p tcp --dport 22 -j ACCEPT
A INPUT m state state NEW m tcp p tcp dport 80 ACCEPT
-A INPUT -j REJECT --reject-with icmp-host-prohibited
-A FORWARD -j REJECT --reject-with icmp-host-prohibited
COMMIT
~
~
~
~
~
-- INSERT --
12,48 All
```

Figure 3.10: Editing the Configuration.

**Step 7:** Now I have to write #adduser for FTP user and #passwd for password.



```
File Edit View Search Terminal Help
[root@rokon ~]# useradd rokonuzzaman
[root@rokon ~]# passwd
Changing password for user root.
New password:
BAD PASSWORD: it does not contain enough DIFFERENT characters
BAD PASSWORD: is too simple
Retype new password:
Sorry, passwords do not match.
New password:
BAD PASSWORD: it does not contain enough DIFFERENT characters
BAD PASSWORD: is too simple
Retype new password:
passwd: all authentication tokens updated successfully.
[root@rokon ~]# █
```

Figure 3.11: Creating Ftp User and Password.

**Step 8:** Now I have to open browser and given ftp://192.168.0.225 and show this page. Here I have write user name and password.

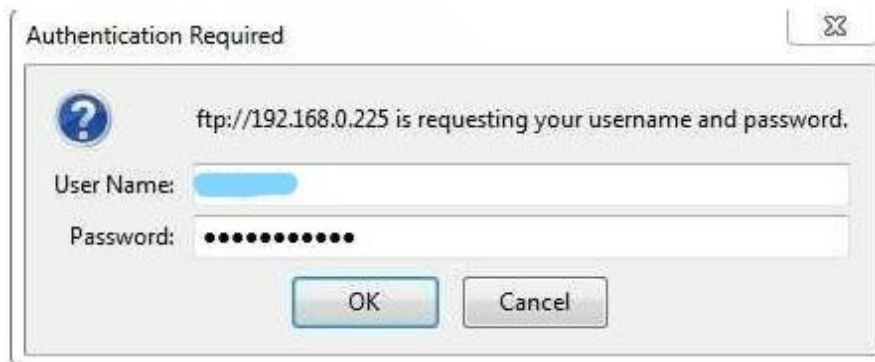


Figure 3.12: Screen print of a Name and Password.

**Step 9:** At last I have to press ok and show this result.

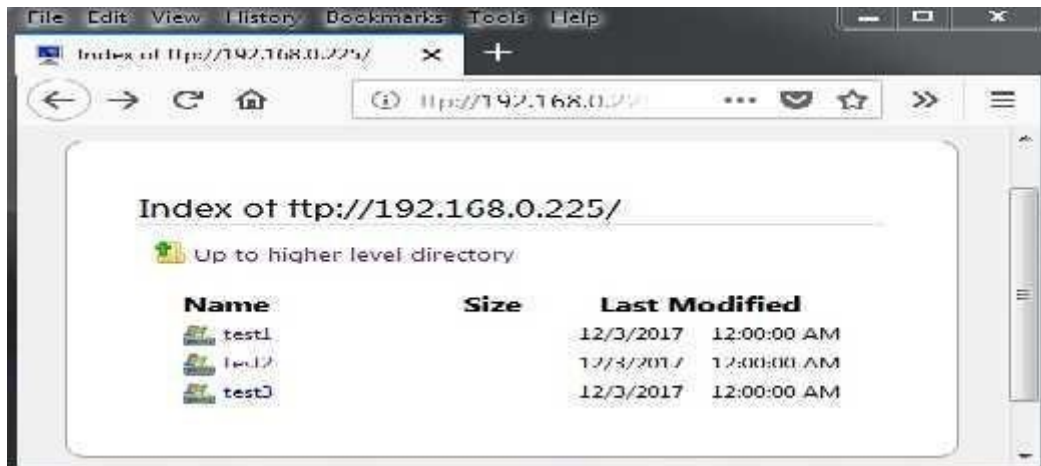


Figure 3.13: Screen print of a result.

### 3.13.2 WEB SERVER

The Apache HTTP server is a most popular web server across the entire World Wide Web. Apache server support Perl, Python, Tcl and PHP. Most popular authentication module like: cryptography (mod\_ssl), proxy/gateway server (mod\_proxy), URL rewriting mod rewrite, filtering support (mod\_include and mod\_ext\_filter) etc are supported by Apache HTTP server.

#### - Virtual Hosts

Virtual hosts can serve more than one domain from on same Apache server. There are mainly two type of Apache Virtual host configuration-

1. IP based virtual host
2. Name based virtual host

#### - IP Based Virtual Host

In this type of configuration, two websites (with different IP addresses) on the server have been configured with two different IP addresses. The disadvantages of this technique are that the server needs a different IP address for every website. This increases the administrative overhead.

## - Name Based Virtual Host

Enables the virtual server to respond one or more alternate host names when used with name based virtual host. This allows a web-server hosting multiple sites using only one IP address to deliver the requested website [4].

## Configuring Web Server Step By Step -

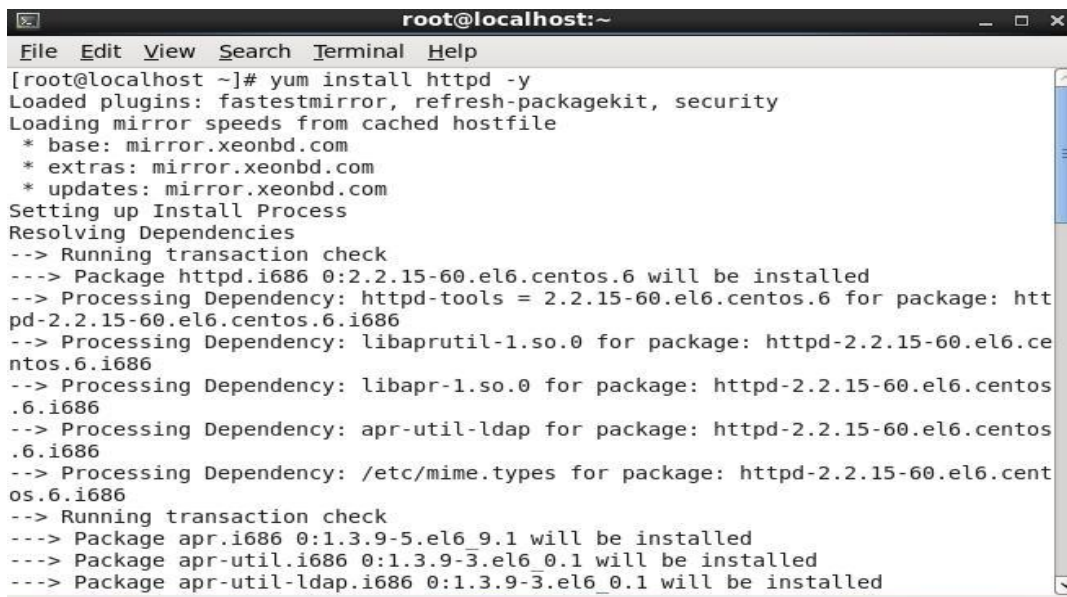
Package Name:

**httpd**Default http

port: 80 Default https

port: 443

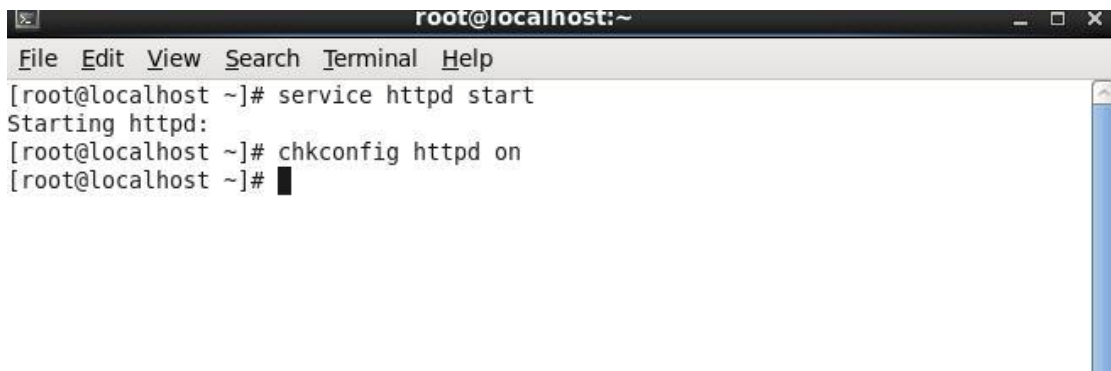
**Step 1:** At first install a httpd package by yum install- #yum install httpd -y



```
root@localhost:~  
File Edit View Search Terminal Help  
[root@localhost ~]# yum install httpd -y  
Loaded plugins: fastestmirror, refresh-packagekit, security  
Loading mirror speeds from cached hostfile  
* base: mirror.xeonbd.com  
* extras: mirror.xeonbd.com  
* updates: mirror.xeonbd.com  
Setting up Install Process  
Resolving Dependencies  
--> Running transaction check  
--> Package httpd.i686 0:2.2.15-60.el6.centos.6 will be installed  
--> Processing Dependency: httpd-tools = 2.2.15-60.el6.centos.6 for package: httpd-2.2.15-60.el6.centos.6.i686  
--> Processing Dependency: libaprutil-1.so.0 for package: httpd-2.2.15-60.el6.centos.6.i686  
--> Processing Dependency: libapr-1.so.0 for package: httpd-2.2.15-60.el6.centos.6.i686  
--> Processing Dependency: apr-util-ldap for package: httpd-2.2.15-60.el6.centos.6.i686  
--> Processing Dependency: /etc/mime.types for package: httpd-2.2.15-60.el6.centos.6.i686  
--> Running transaction check  
--> Package apr.i686 0:1.3.9-5.el6_9.1 will be installed  
--> Package apr-util.i686 0:1.3.9-3.el6_0.1 will be installed  
--> Package apr-util-ldap.i686 0:1.3.9-3.el6_0.1 will be installed
```

Figure 3.14: Screen print of a yum installation

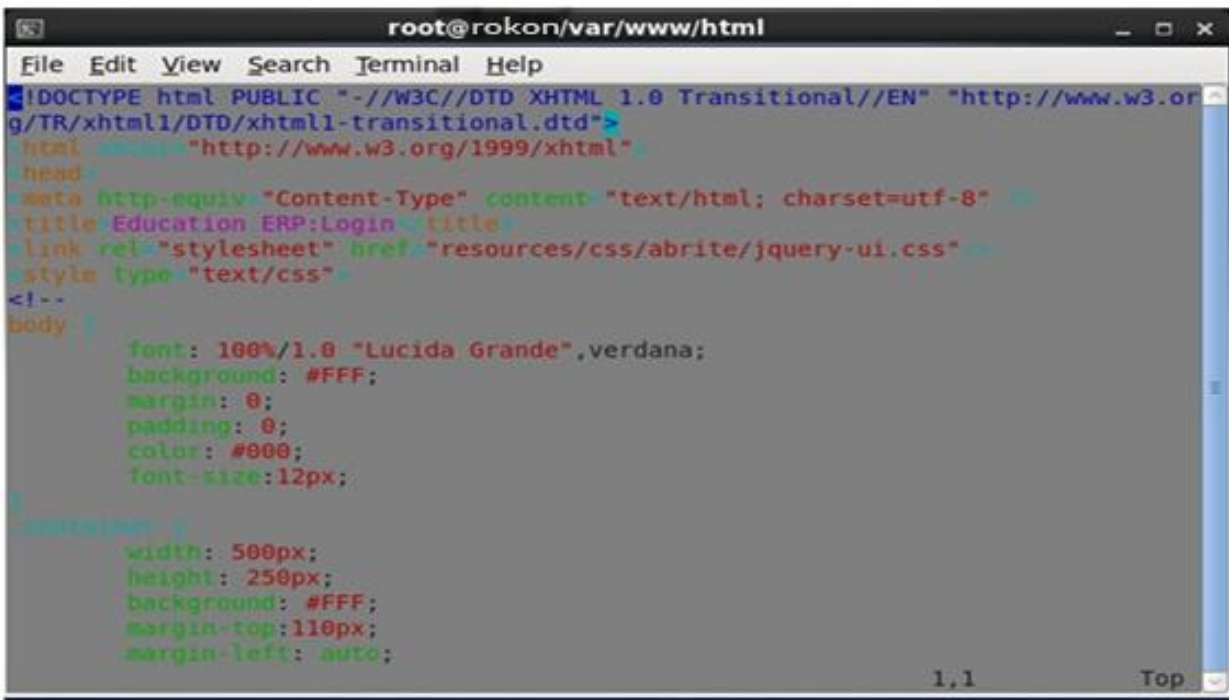
**Step 2:** Now command of #service httpd start then #chkconfig httpd on



```
root@localhost:~  
File Edit View Search Terminal Help  
[root@localhost ~]# service httpd start  
Starting httpd:  
[root@localhost ~]# chkconfig httpd on  
[root@localhost ~]#
```

Figure 3.15: Shown a command

**Step3:** Now default location and this command is #cd /var/www/html then creating a Static command is #vim index.html



```
root@rokon/var/www/html  
File Edit View Search Terminal Help  
!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">  
html <!-- "http://www.w3.org/1999/xhtml" -->  
<head <meta http-equiv="Content-Type" content="text/html; charset=utf-8" />  
<title Education ERP:Login </title>  
<link rel="stylesheet" href="resources/css/abrite/jquery-ui.css" />  
<style type="text/css">  
<!--  
body {  
    font: 100%/1.0 "Lucida Grande",verdana;  
    background: #FFF;  
    margin: 0;  
    padding: 0;  
    color: #000;  
    font-size: 12px;  
    <!--  
<div style="width: 500px;  
    height: 250px;  
    background: #FFF;  
    margin-top: 110px;  
    margin-left: auto;
```

Figure 3.16: Static Site Creating.

**Step 4:** Now use file location this command is `#cd /etc/httpd/conf`

Then vim configures file location and this command is `#vim httpd.conf`.



```
root@rokon:/etc/httpd/conf
File Edit View Search Terminal Help
#
# Use name-based virtual hosting.
#
#NameVirtualHost *:80
#
# NOTE: NameVirtualHost cannot be used without a port specifier
# (e.g. :80) if mod_ssl is being used, due to the nature of the
# SSL protocol.
#
#
# VirtualHost example:
# Almost any Apache directive may go into a VirtualHost container.
# The first VirtualHost section is used for requests without a known
# server name.
#
#<VirtualHost *:80>
#   ServerAdmin webmaster@dummy-host.example.com
#   DocumentRoot /www/docs/dummy-host.example.com
#   ServerName dummy-host.example.com
#   ErrorLog logs/dummy-host.example.com-error_log
#   CustomLog logs/dummy-host.example.com-access_log common
#</VirtualHost>
1009,1 Bot
```

Figure 3.17: Screen Print of a vim configuration.

**Step 5:** At last open browser and write `http://192.168.0.225` and show my web page.

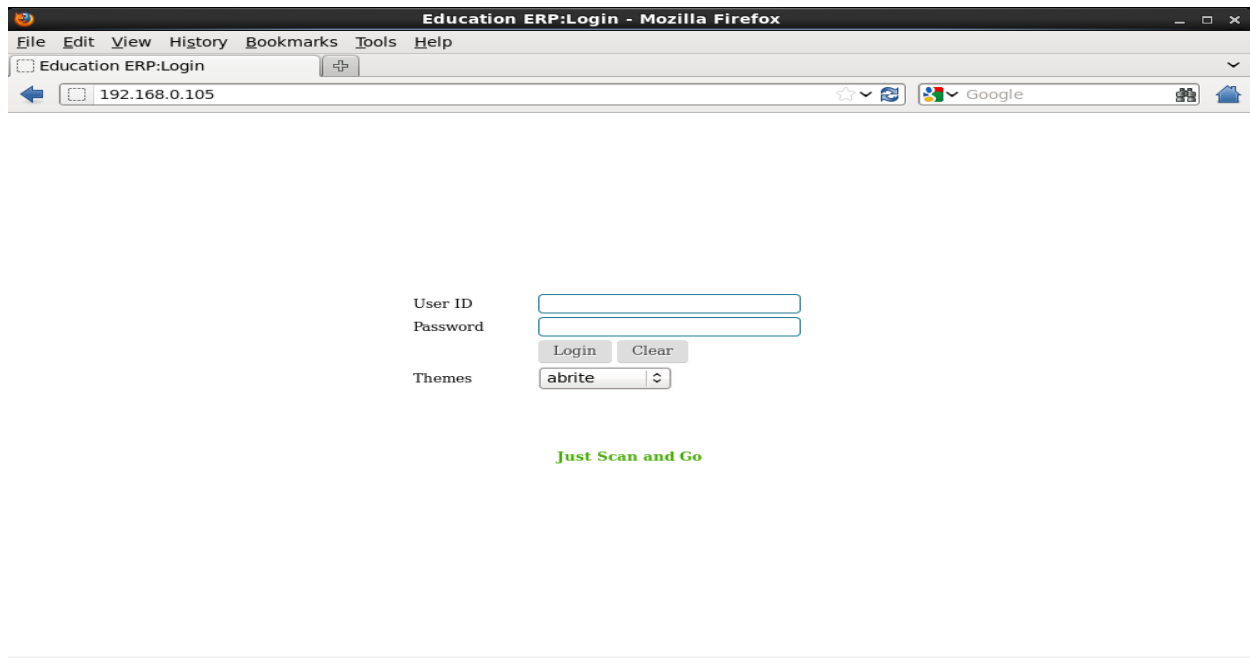


Figure 3.18: Web page result

### 3.13.3 SAMBA SERVER

Samba is the standard windows interoperability suite of programs for Linux and UNIX. Provides file and print sharing for windows clients from Linux servers. By supporting this protocol, Samba enables computers running UNIX to get in on the action, communicating with the same networking protocol as Microsoft Windows and appearing as another Windows system on the network from the perspective of a Windows client [5].

Why SAMBA?

In this system, I implement the SAMBA server to share the printer and other important files to all clients such as Windows, Linux, and UNIX. I can run the SAMBA directory and add a samba password. By using this directory, all authorized users can share information or print them to other authorized users.

- Configuring Samba Server Step By Step

**Step 1:** At first check ping google.com then installing package #yum insall samba Samba client. Now package check this command #rpm -qa | grep samba.



```
root@rokon:~  
File Edit View Search Terminal Help  
[root@rokon~]# rpm -qa |grep samba  
samba-common-3.6.23-46el6_9.i686  
samba-client-3.6.23-46el6_9.i686  
samba-winbind-clients-3.6.23-46el6_9.i686  
samba-3.6.23-46el6_9.i686  
samba-winbind-3.6.23-46el6_9.i686  
[root@rokon~]# █
```

Figure 3.19: Installing samba package.

**Step 2:** Now package start #service smb start #service nmb start then status check #service smb status #service nmb status then permanently on #chkconfigsmb on #chkconfignmb on.

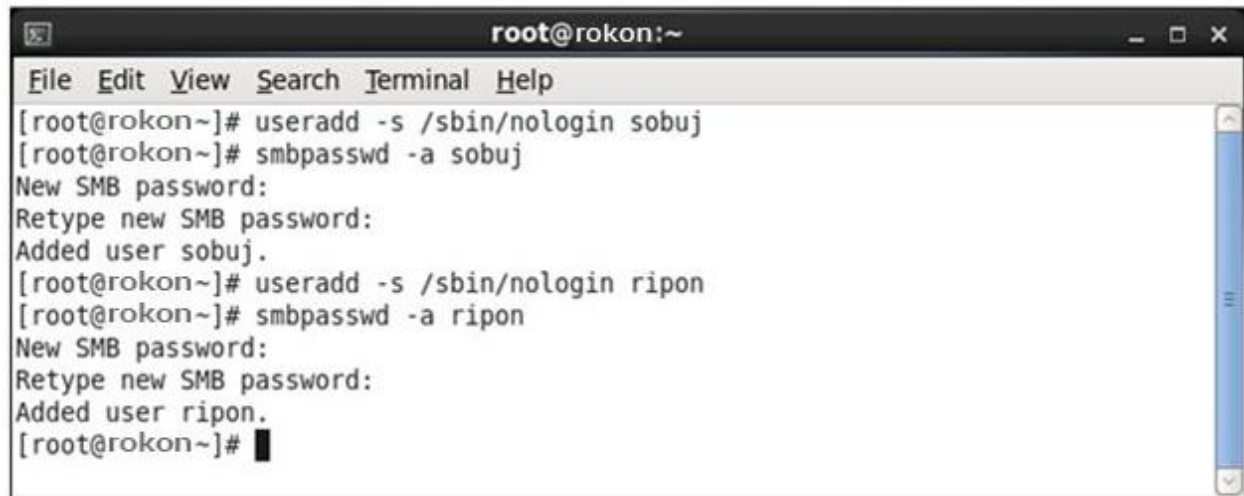


```
root@rokon:~  
File Edit View Search Terminal Help  
[root@rokon ~]# service smb start  
Starting SMB services: [ OK ]  
[root@rokon ~]# service nmb start  
Starting NMB services: [ OK ]  
[root@rokon ~]# service smb status  
smbd (pid 7523) is running...  
[root@rokon ~]# service nmb status  
nmbd dead but pid file exists  
[root@rokon ~]# chkconfig nmb on  
[root@rokon ~]# chkconfig smb on  
[root@rokon ~]# █
```

Figure 3.20: Screen print of configuration result.



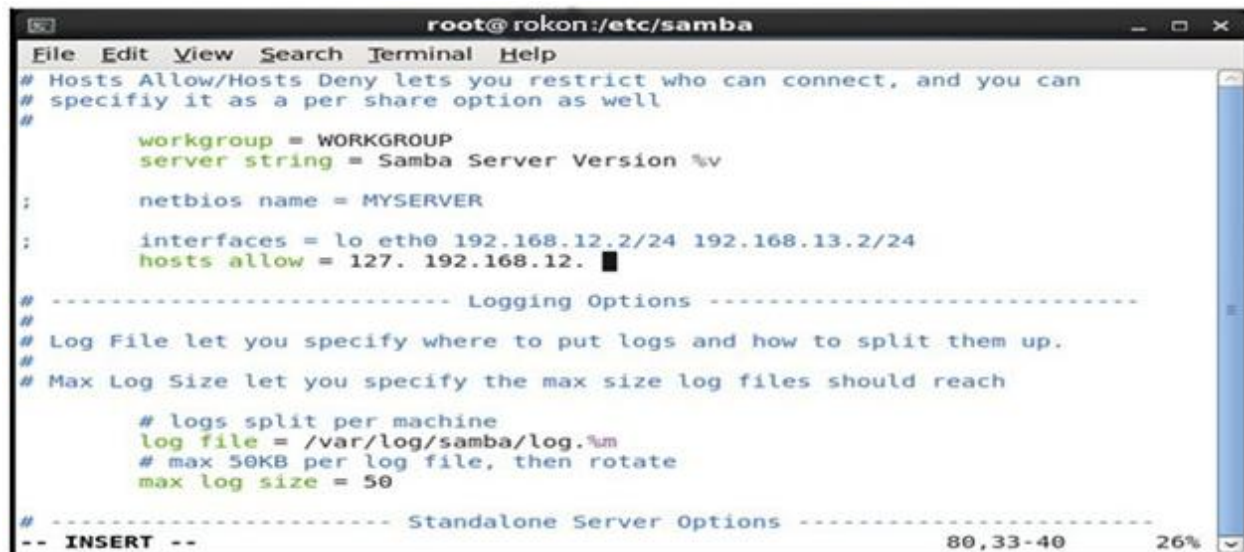
**Step 3:** Now add two users then one to read/write permission and other user to write Permission. #useradd -s /sbin/nologin/harry then #useradd -s /sbin/nologin/saraThen check SE linux enable or disable this command #getenforce.



```
root@rokon:~  
File Edit View Search Terminal Help  
[root@rokon~]# useradd -s /sbin/nologin sobuj  
[root@rokon~]# smbpasswd -a sobuj  
New SMB password:  
Retype new SMB password:  
Added user sobuj.  
[root@rokon~]# useradd -s /sbin/nologin ripon  
[root@rokon~]# smbpasswd -a ripon  
New SMB password:  
Retype new SMB password:  
Added user ripon.  
[root@rokon~]#
```

Figure 3.21: User adds command.

**Step 4:** Now I write vim editor and the command is #vim smb.conf then go to line 74 and edit workgroup=WORKGROUP then go to line 80 remove (;) and write IP Address like as 192.168.0.

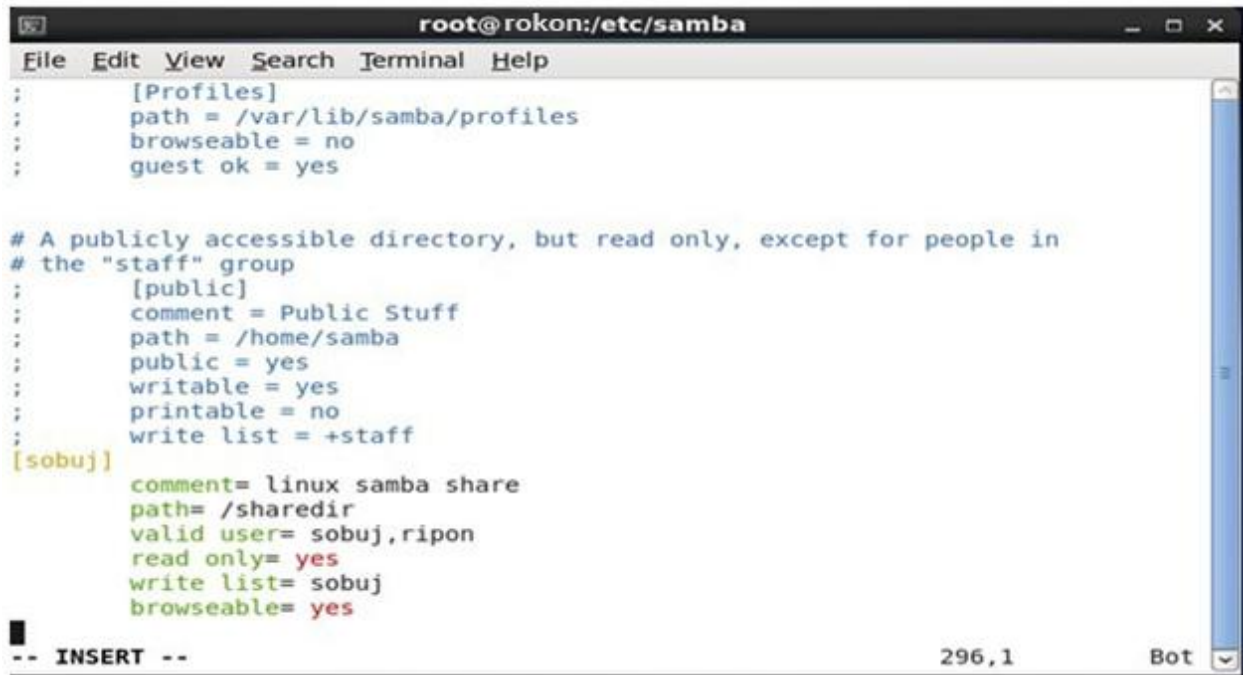


```
root@rokon:/etc/samba  
File Edit View Search Terminal Help  
# Hosts Allow/Hosts Deny lets you restrict who can connect, and you can  
# specify it as a per share option as well  
#  
workgroup = WORKGROUP  
server string = Samba Server Version %v  
;  
netbios name = MYSERVER  
;  
interfaces = lo eth0 192.168.12.2/24 192.168.13.2/24  
hosts allow = 127. 192.168.12. █  
# ----- Logging Options -----  
#  
# Log File let you specify where to put logs and how to split them up.  
#  
# Max Log Size let you specify the max size log files should reach  
# logs split per machine  
log file = /var/log/samba/log.%m  
# max 50KB per log file, then rotate  
max log size = 50  
# ----- Standalone Server Options -----  
-- INSERT -- 80,33-40 26%
```

Figure 3.22: Screen print of smb.conf.

Then Shift+G go to last line write the following command:

[ROKON] then path= /sharedir then valid users=harry,sara then read only=yes



```
root@rokon:/etc/samba
File Edit View Search Terminal Help
; [Profiles]
; path = /var/lib/samba/profiles
; browseable = no
; guest ok = yes
;

# A publicly accessible directory, but read only, except for people in
# the "staff" group
; [public]
; comment = Public Stuff
; path = /home/samba
; public = yes
; writable = yes
; printable = no
; write list = +staff
[sobuj]
comment= linux samba share
path= /sharedir
valid user= sobuj,rison
read only= yes
write list= sobuj
browseable= yes

-- INSERT --                               296,1                               Bot
```

Figure 3.23: Edit the smb.conf.

**Step 5:** Now #service smb restart then #service nmb restart and then go to Computer click Map Network Drive. Then IP address then click to finish

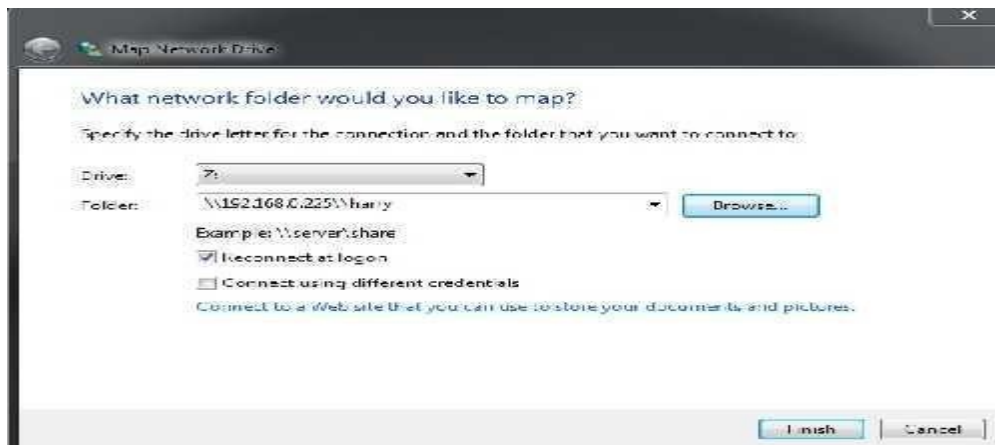


Figure 3.24: Screen print of Map Network Drive.

Then show this windows security then write user name and password.

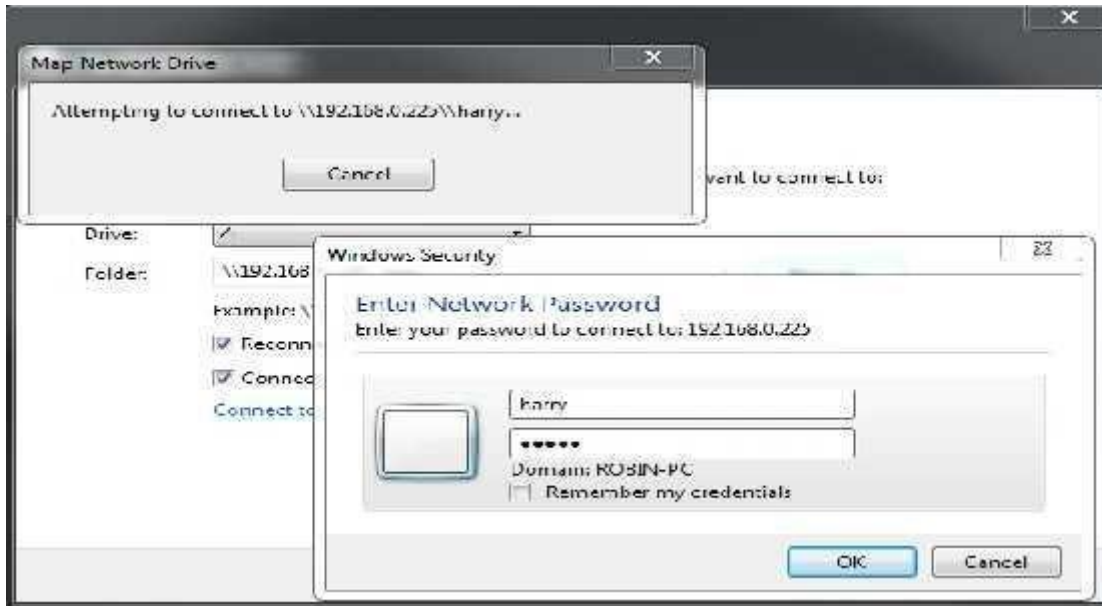


Figure 3.25: Screen print of windows security.

**Step 6:** Finally completed this step and show the samba driver

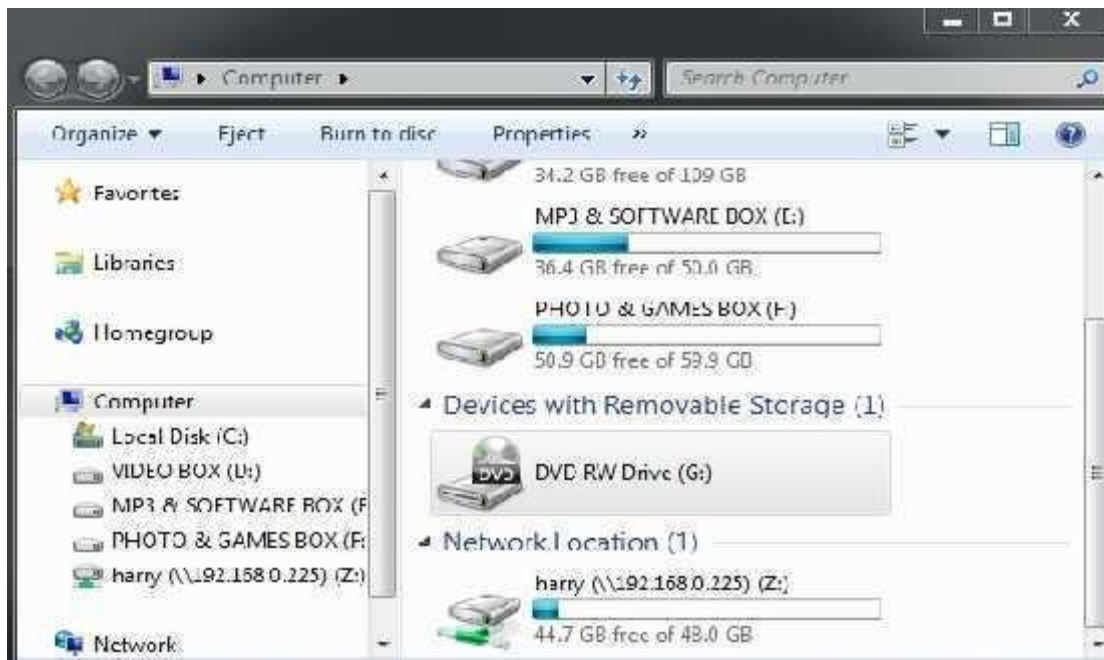


Figure 3.26: Screen print of samba Drive.

### 3.13.4 Nagios Server

Nagios is a free and open source computer software application that monitors system networks and entire IT infrastructure. Nagios monitors entire infrastructure to ensure systems servers, switches, applications, services and business processes are functioning properly.

- Configuring Nagios server Step by Step

**Step 1:** At first check ping google.com then install the package #yum install httpdphpgccglibc-glibc-common gd gd-devel make net-snmp -y



```
root@rokon:~  
File Edit View Search Terminal Help  
[root@rokon-]# yum install httpd php gcc glibc-common gd gd-devel make net-snmp  
-y  
Loaded plugins: fastestmirror, refresh-packagekit, security  
Loading mirror speeds from cached hostfile  
 * base: mirror.dhakacom.com  
 * extras: mirror.dhakacom.com  
 * updates: mirror.dhakacom.com  
Setting up Install Process  
No package net-snmp available.  
Resolving Dependencies  
--> Running transaction check  
--> Package gcc.i686 0:4.4.7-18.el6_9.2 will be installed  
--> Processing Dependency: libgomp = 4.4.7-18.el6_9.2 for package: gcc-4.4.7-18.  
el6_9.2.i686  
--> Processing Dependency: cpp = 4.4.7-18.el6_9.2 for package: gcc-4.4.7-18.el6_9.2.i686  
--> Processing Dependency: libgcc >= 4.4.7-18.el6_9.2 for package: gcc-4.4.7-18.  
el6_9.2.i686  
--> Processing Dependency: glibc-devel >= 2.2.90-12 for package: gcc-4.4.7-18.el6_9.2.i686  
--> Processing Dependency: cloog-ppl >= 0.15 for package: gcc-4.4.7-18.el6_9.2.i686  
--> Package gd.i686 0:2.0.35-11.el6 will be installed  
--> Processing Dependency: libXpm.so.4 for package: gd-2.0.35-11.el6.i686  
--> Package gd-devel.i686 0:2.0.35-11.el6 will be installed  
--> Processing Dependency: zlib-devel for package: gd-devel-2.0.35-11.el6.i686  
--> Processing Dependency: libpng-devel for package: gd-devel-2.0.35-11.el6.i686  
--> Processing Dependency: libjpeg-devel for package: gd-devel-2.0.35-11.el6.i686
```

Figure 3.27: Installing nagios package.

**Step 2:** Then add a user #useraddnagios and passwdnagios.Thengroupaddnagcmd

```
[root@nagios ~]# useradd nagios
useradd: user 'nagios' already exists
[root@nagios ~]# passwd nagios
Changing password for user nagios.
New password:
BAD PASSWORD: it is based on a dictionary word
BAD PASSWORD: is too simple
Retype new password:
passwd: all authentication tokens updated successfully.
[root@nagios ~]#
```

Figure 3.28: Add a user and group.

**Step 3:** Then #usermod -G nagcmdnagios and usermod -G nagcmdapache.this configure is by default nagios and apache under the group. then check the configure #tail -2 /etc/group.

**Step 4:** Then yum install wget -y and #tar -xvf nagios-4.2.0.tar.gz then cd nagios-4.2.0 then #./configure --with-command-group=nagcmd then make all then yum install unzip -y then make install.

```
- Read the documentation on the Nagios Library at:
  https://library.nagios.com

Before you post a question to one of the mailing lists.
Also make sure to include pertinent information that could
help others help you. This might include:

- What version of Nagios you are using
- What version of the plugins you are using
- Relevant snippets from your config files
- Relevant error messages from the Nagios log file

For more information on obtaining support for Nagios, visit:
  https://support.nagios.com

*****

Enjoy.

[root@nagios nagios-4.2.0]# make install
```

Figure 3.29: Install wget and tar nagios-4.2.0

**Step 5:** Then make install-init, make install-command mode, make install-config, make install-webconf then server for password create #htpasswd -s -c /usr/local/nagios/etc/htpasswd.usersnagiosadmin.then #service httpd restart.

```
*** Nagios/Apache conf file installed ***

[root@nagios nagios-4.2.0]# htpasswd -s -c /usr/local/nagios/etc/htpasswd
New password:
Re-type new password:
htpasswd: password verification error
[root@nagios nagios-4.2.0]# htpasswd -s -c /usr/local/nagios/etc/htpasswd
New password:
Re-type new password:
Adding password for user nagiosadmin
[root@nagios nagios-4.2.0]# service httpd restart
Stopping httpd:                               [ OK ]
Starting httpd:                               [ OK ]
```

Figure 3.30: Restart apache for the setting.

**Step 6:** Then wget link and tar -xvf nagios-plugins-2.1.2.tar.gz then cd nagios- plugins-2.1.2 then #./configure --with-nagios-user=nagios --with-nagios- group=nagios then make then make install then cd.

**Step 7:** Then /usr/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg then service nagios restart then service httpd restart then service iptables stop. Then open a browser to access the nagios server.



Figure 3.31: Access the nagios server.

### 3.14 Challenges

No work may be a challenge, however when four months of sensible expertise and sharing of friends, when a cheerful feeling, I discovered that the intern has common challenges. i feel the unfortunate person has 3 things: unpaid/under temporary, and that they have expertise. typically work isn't enough I've got not been given enough work. I'm bored, belittled, I got my fingers to my table and that i am tempted to travel on Facebook. an excessive amount of work: as a result of the intern is prepared to travel to the door, some jobs will profit young employees by giving them a protracted, boring and repetitive operating time. I'm afraid to question the questions: suddenly there's work, and at last, I've got the chance to prove myself! however i am unsure x, y, z ... I will feel the pressure to be associate freelance and freelance worker however it's higher to clarify the uncertainties! competitive with another intern: as luck would have it, he was a trainee;

we have a tendency to marvel and might simply be part of comes that have worked in groups that have cooperative relationships. Interns in an exceedingly future job gap, or a recommendation for a decent letter are going to be competitive in alternative workplace environments, might not be thus friendly.



## **CHAPTER 4**

### **Competencies and Smart Plan**

#### **4.1 Competencies Earned**

Skills Knowledge as a result or outcome is a statement of what the student is expected to know, understand, or may lead to as a result of the learning process. Installation and disassembly of network and server machines in two data centers. The key role of advanced Linux software, such as LDAPHA, is tailored to program learning outcomes, field evaluations, and internships. The Student Association office funds many student Intern Learning Outcomes: Gathering and organizing information in practice Project Description: Take part in the renewal of the Linux Lab web site. Learning Objectives Run and configure programs and updates; Install, configure, and test network worker services. In addition, the location counselor gives instructions on how the organization works and practices in accordance with the learning objectives.

#### **4.2 Smart Plan**

Every company should have an intelligent plan to succeed. Basically, some of the ordinary things combine an intelligent plan. How to make a secure network can be deployed? Each company must have a specific plan that helps them rise above. Find out your problems and solve them. Be able to take any kind of risk.

#### **4.3 Reflections**

Daffodil Online Ltd. started operations in 2002. In recent years, they have offered their work and service offering on the basis of customer recommendations and have taken into account the time requirements. They have been working with many national projects and international organizations and have received a reputation. They use the latest technology and update the services they need. This is the Corporate Network Solution that provides advanced telecommunication networks and commissions with a highly technical team of experts.

## **CHAPTER 5**

### **Conclusion and Future Career**

#### **5.1 Discussion and Conclusion**

To sum up it can be said that this internship program has been a great and rewarding experience for me. I have seen the future and I can establish with the opportunity to contact with many who have been able to confirm it. Through this practical training, I learned to solve one of the most important problems and time skills and more of self-motivation. Once I did not believe that I will be able to start, to work eight hours a day, six days a week I could sit in the office. When I realized what I had to do, my emotions did not overlap, I arranged myself to perform my daily work, organized and it was time to get a clear answer to the questions that need to be learned. By this internship program and time spent working hours, I had to learn to motivate myself. However, I'm still looking for a variety of suggestions and ideas to use with your business. But the options will continue to be open to new opportunities, and I will continue to work at the Universities of outside Bangladesh. I enjoyed this job. I have continued my hard work and hope that the student will learn about the industry and meet new people. I think It was a great experience and I hope that another trainee has gained a lot of profit.

#### **5.2 Scope for Further Career**

As there are career opportunities in different areas of Linux, professional opportunities in Linux not only mention the Linux platform, but also cover many different areas, such as Peripherals, Desktop Software Development, and Core Drivers. Nowadays, by dint of their open source engineers and their strong open source software many companies have moved to Linux and enjoy free software. Many companies like as Google, Yahoo, Boeing, Lufthansa, wiki.org has moved to a cost-effective open source solution. In this case, LINUX professionals have strong demand.

## References

- [1] Get idea about Daffodil online limited (DOL), Available at <<[http://www.daffodilnet.com/index.php?option=com\\_content&view=article&id=54&Itemid=112](http://www.daffodilnet.com/index.php?option=com_content&view=article&id=54&Itemid=112)>>, last accessed on 11January 2018,10.30pm.
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## Appendices

### Appendix A: Internship Reflection

The primary purpose of receiving internship in a professional environment is practical solutions to Global problems applying the information in the classroom. Distinctive skills and affinity in the professional environment, learn to master new knowledge, skills, and ability to decide on refining and developing plans. It is another opportunity to add to the network with other professional managers and professional relationships. Normally, I use correctly business etiquette to do the exercises. I have learnt the Vision and Mission for creating a humanitarian organization, how to contacting colleagues, how power is shared, how it is structured, how decision share, how to understand the professional organization's culture and how much responsibility and feedback to the organization. It is needless to say that an Assessment after internships and internships personally conferences offer the opportunity to make a professional opinion. My valuable gift to practice Internship experience, preparing to live in a global society, leadership and service.

## Appendix B: Company Detail



### Head Office

Name	Daffodil Online Limited
Address	102, Shukrabad (3rd floor), Mirpur Road, Dhanmondi, Dhaka - 1207, Bangladesh
Telephone	02-9143258-60
Fax	880-2-8116103
E-mail	info@daffodilnet.com
Website	www.daffodilnet.com
Type of Organization	Nationwide Internet Service Provider (ISP)
Employees	15

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