

**INTERNSHIP ON LINUX SYSTEM AND NETWORK
ADMINISTRATION AT BASE IT LTD**

BY

Kazi Aminul Islam

ID: 153-15-6574

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

Supervised By

Abdus Sattar

Assistant Professor
Department of CSE
Daffodil International University



DAFFODIL INTERNATIONAL UNIVERSITY

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APPROVAL

This Project/internship titled “**Internship On Linux System and Network Administration at Base It Ltd.**”, submitted by Kazi Aminul Islam , ID No:153-15-6574 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 and approved as to its style and contents. The presentation has been held on Friday 6th December 2019 .

BOARD OF EXAMINERS



Dr. Syed Akhter Hossain
Professor and Head

Department of Computer Science and Engineering
Faculty of Science & Information Technology
Daffodil International University

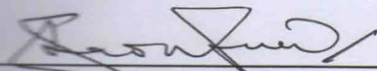
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Senior Lecturer

Department of Computer Science and Engineering
Faculty of Science & Information Technology
Daffodil International University

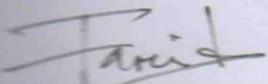
Internal Examiner



Shaon Bhatta Shuvo
Senior Lecturer

Department of Computer Science and Engineering
Faculty of Science & Information Technology
Daffodil International University

Internal Examiner



Dr. Dewan Md. Farid
Associate Professor

Department of Computer Science and Engineering
United International University

External Examiner

DECLARATION

I hereby verify that, this internship report is prepared by me, **Kazi Aminul Isam** to the department of Computer Science and Engineering, Daffodil International University. Under the supervision of **Abdus Sattar, Senior Lecturer, Department of CSE**, Daffodil International University. I also declare that, I put-in information from Base It Ltd, Data Center and Linux Technical Service, System integration, Books and Internet.

Supervised by:



Abdus Sattar
Assistance Professor
Department of CSE
Daffodil International University

Submitted by:



Kazi Aminul Islam
ID:153-15-6574
Department of CSE
Daffodil International University

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I would like to express our heartiest gratitude to **Dr. Syed Akther Hossain, Professor and Head, Department of CSE**, for his kind help to finish my internship and also to other faculty member and the staff of CSE department of Daffodil International University.

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ABSTRACT

The Linux operating system involves a special position in the world of computer science. Unlike the great preponderance of operating systems, which are generated by commercial developers and sold at a value, Linux is produced and managed by a coterie of tireless volunteers and is distributed with no license fees whatsoever. It is available in several versions that run with almost identical looks and feel on various groups of hardware platforms. Linux is famed both for its steadiness and for its efficiency, often running for months, or occasionally years at a time without having to be rebooted, while also achieving excellent performance. It conveys many of the properties of UNIX that have made that operating system highly tourist among computer science professed. Linux reference code is as easily available as the executable code, thus giving users complete independence to change and adapt the operating system to the special demands of their systems. Linux maintains the tradition of openness and voluntarism that originally characterized the UNIX world, while at the same time avoiding the concomitant fragmentation experienced by UNIX into a variety of dialects. Linux is possible to continue to grow in importance.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

Daffodil International University is a good opportunity, which was the internship system. We got it during the last I would like to say that in this internship system I have a lot of practical experience. Semester. It's a big challenge to prove myself, anytime and anywhere. The system's full support is with Daffodil Online Ltd. In the company, I want to gather great technical knowledge. I would like to say on behalf of this region that I was very proud to have the Daffodil International University.

1.2 Motivation

I am presently following my Bachelor's degree in Computer Science Engineering at **Daffodil International University**, I figure-out that it is important to have practical knowledge that complements the knowledge of the textbook and helps the student to gain a broader perspective on topics. IT organizations are much-needed servers that better handle important information, share files, and protect data by backing up employees and customers. When an organization has 9-10 users in its network, it has to really consider investing in a network server. Windows is very expensive to install such a system. So I'm using the free operating system **REDHAT**, which installs this system cost-effectively. In addition, **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.

1.3 Internship Objectives

The final goal of my internship program is to set-up me for a combative job market. So this is very useful in developing know-how. I would like to collect some extra features to give me a qualified person.

The internship will help students move from classroom to work and self-motivating and independent desire to work.

1.4 Introduction to the Company

Bangladesh Advanced Software and Education (BASE) Limited founded in 1999 as a high-end SOFTWARE EDUCATION center presenting GLOBALLY ACCREDITATED vendor certified courses tailored to specific and corporate need and by the process has grown into a pioneer Information and Communication Technology (ICT) solution and full-service Company. BASE believes higher development outcomes can be accomplished by providing the power of Information Technology. The BASE is uniquely located at the crossing of technology and development to fulfill its dedication to bringing innovative and sustainable ICT and development solutions to our clients.

1.5 Report Layout

Chapter 1 discussed the objective, goal, morals of an internship.

Chapter 2 discussed how did perform the internship works, about the company, what are the IT service offered in BASE and what is the part of in job market of Linux.

Chapter 3 I have described daily tasks and activities, Events and Activities and Challenges.

Chapter 4 I have delineated is proficiency Earned, Smart Plan, Reflections.

Chapter 5 I have described is a Conclusion and Future Scope. I discuss Future Scopes of Linux and write predetermination.

CHAPTER 2

ORGANIZATION

2.1 Introduction

The overarching objective of BASE is to donate towards the Development of Digital Bangladesh. BASE started its mission with a vision of creating a proper IT workforce for the IT/ITES industry in Bangladesh and outside. BASE has successfully trained and developed thousands of experienced IT professionals currently hired in the IT/ITES industry in the home and outside. Training Services at BASE are designed to provide trainees with the skills they need to excel a career in IT/ITES industry.

BASE applying state-of-the-art software manners has also positioned itself to accommodate complete IT/ITES solutions. BASE has designed and directed high quality and cost-effective reinforcements for both the private and public sectors. BASE has transformed the businesses for a number of local and international buyers through the art of digitization.

2.2 Product and Market Situation

IT Education is straight connected to our market areas of Application Development and ICT Services In addition to preparing IT specialists with the vendor certified training, BASE is involved in developing IT workforce to match the demand of today's necessary. On the other hand, our ICT Services help our buyers to execute the Application Products developed by BASE and give them post-implementation co-operation to ensure secure and smooth.

IT Services

- Application Development and Maintenance.
- Outsourcing.
- Domain registration and webhosting.

- Linux Technical Service.
- Business Intelligence and Data Warehousing.
- Content Management
- Package Implementation.
- System Integration.
- Tasting Service.
- Web Service.

Professional Training Services

- Red Hat Certified System Administrator (RHCSA).
- Red Hat Certified Engineer (RHCE-7).
- Red Hat Certified Virtualization Administration (RHCVA).
- Red Hat Enterprise Clustering and Storage Management (RH436).
- Red Hat Open Stack Administration (RHCL210).
- Red Hat Server Hardening (RH413).
- Red Hat Enterprise Deployment and systems Management (RH401).
- Cisco Certified Network Associate (CCNA).
- Cisco Certified Network Professional (CCNP).
- Cisco Certified Network Associate Security (CCNA Security).
- Cisco Certified Network Professional Security (CCNP Security).
- Oracle 11g Database Administration (OCP, DBA).
- Oracle 11g: Application Developer.
- Oracle Application Express (Apex).
- Oracle Database 11g: RAC Administration.
- Oracle Database 11g Data Guard Administration.
- Oracle Application Development Frame work (ADF).
- Certified Information Systems Auditor (CISA).
- Certified Information Systems Security Professional (CISSP).
- Certified Ethical Hacking (CEH).
- Windows Server 2016.
- Microsoft SQL Server 2014.

- ASP.net MVC 5.
- C# .Net.
- PHP & My SQL.

2.3 Target Group

The company's customer base has all customers and all small and medium-sized companies, including start-ups. The company expects to focus on SOHO customers as these are the absolute targets for our new high-speed contract-offer and have the company's largest growth potential. Web Solutions believes that these market lengths have unique pricing and service needs and create a dedicated, more positive customer.

2.4 SWOT Analysis

SWOT analysis (alternatively SWOT matrix) is an opening for forces, tendencies, possibilities, and warnings—and is a structured planning method that estimates those four components of a project or business venture. A SWOT inquiry can be carried out for an outcome, place, industry, or person.

Strengths

- What advantages does your organization have?
- What do you do better than anyone else?
- What unique or lowest-cost resources can you draw upon that others can't?
- What do people in your market see as your strengths?

Weaknesses

- What could you improve?
- What should you avoid?
- What are people in your market likely to see as weaknesses?

- What factor lose you sales?

Opportunities

- Changes in technology and markets on both a broad and narrow scale.
- Changes in social patterns, population profiles, lifestyle changes, and so on.
- Local events.

Threats

The Economic critical

- Homeowner less likely to increase their Broadband Subscriptions Stock

Market's lack of confidence in the digital-communications market.

- It continues to be seen how far consumers can be persuaded to embrace the Internet

2.5 Organizational Structure

Organizational Structure of Base It Ltd. Shown below in fig 2.5:



Figure 2.5.1: Organizational structures of Base IT Ltd

CHAPTER 3

TASKS, PROJECTS and ACTIVITIES

3.1 Daily Task and Activities

Month - 1: The first month of internship on Base it Ltd I have scholarly and performed the following tasks:

- Understanding about Network Components.
- Understanding Basics of Linux.
- Understanding Linux HDD Partitions.
- Understanding Linux Run Level.
- Linux (Redhat) Installation.

Month - 2: The second month of internship on Base It Ltd I have scholarly and performed the following tasks:

- Basic Redhat Commands.
- Linux User and Password Monitoring.
- Know About logged in users and also no logged user.
- File and Directory Accessing.
- To Copy and Move File and Directories and files.
- Compressed and Decompressed File and Directories.
- Mount Unmounts Drive.

Month – 3: The third month of internship on Base it Ltd I have scholarly and performed the following tasks:

- File and Directory Permissions and changes also.
- Install, Updating and Removing Package Using YUM.
- Concept of IP Addressing.

- Configuring IP Address in Redhat.

Month – 4: The last month of internship on Base It Ltd I have scholarly and performed the following tasks:

- Understanding and configuring FTP Server.
- Understanding and configuring WEB Server.
- Understanding and configuring SAMBA Server.

3.2 Events and Activities

- Observe and Maintain Computer Systems and Network.
- Surroundings up user accounts, permissions and passwords.
- Troubleshooting servers and routers.
- Troubleshooting local area networks and switches.
- Up keep network faults.
- Technical sponsor for people using the network.
- Day to day admin also monitoring of network use.
- Idea IT solutions to business problems.
- Client Support over the phone or Physical move to client Ends.

3.3 Project Task and Activities

First install Red hat operating system.

3.4 Creating Linux (red hat) Partition

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

3.4.1 Root Partition: Root

A Root structure is where “/” The root directory has located all files (except in “/”) are on the root structure. Minimum 5 GB HDD Space needed.

3.4.2 Boot Partition:/boot

The structure boot (100 MB): the partition mounted on /boot/ contains the operating system kernel (which allows your system to boot Linux), along with trademark used during the bootstrap process. Due to limitations, creating a native ext3 structure to hold these files is required. For most users, a 100 MB boot partition is adequate.

3.4.3 Partition: swap/Ram

The structure is 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 artistic-style.

init 2 = Multi User artistic-style.

init 3 = Full Multi User artistic-style. # init 4 =Unused.

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

3.6 The Basic Command of Linux Redhat

Shut down system = shutdown

Reboot system = reboot systemctl reboot.

Logout = log the current user off the system.

Show-off a calendar = \$cal, \$cal 2017, \$cal 28 1993

Show-off or change date or time = date --utc.

Present Working Directory = cd ../pwd.

Create a blank file = touch mnt{newfolder,Ashiq,workfolder}.

Create a directory = mkdir Ashiq (new).

List information about file = ls -lh /mnt

Change Working Directory = cd /root/Desktop.

3.7 User Create and Password Management

Adding a user = useraddashiq(username).

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

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

Delete a user = userdelashiq(username).

Delete a user with home book-of-facts = userdel --rahim(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 Vim Editor

Modify a File = vim Ashiq (file name)

Insert Text mode = press i

Delete the fictitious-character = press dd

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

Paste mode = press p for paste.

Set line number mode = set nu

Delete 3line number = 3dd

Save file = x + Enter, wq + enter.

Save and quit=wq + enter

Search something = :%s/abc for search abc

Search and Replace word= %s/searching word/replacing word.

Go top of the lines = :0

Go bottom of the lines = :\$

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

3.11 Installing/Updating/Removing Packages in Redhat OS

- Installing a package using install yum

Installing Yum (packetname)

yum install vim-y

- Uninstall a packet using Yum

yum removeing (packet name)

e.g. yum remove samba-y

- Update a packet using Yum

yum updateing (packetname)

e.g. yum update firefox

- Search a packet using Yum

yum searching some (packetname)

e.g. yum search firefox

- Display Additional Information about a Package
yum information (packetname)
e.g. yum info firefox
- View All Available packet
yum list | less
- View Already Installed packet
yum list installed
- List of all available software group
yum group list
- Install an ad-hoc soft group
yum group install DNS name server

3.12 How to Change/Add/Delete/Display IP Address in Red hat

IP Address: ipconfig and ipconfig eth0 shown below figure 3.1 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 3.1.1: IP address in Red hat

3.13 Server Configuration

Server configuration is a very important part in network system. Without configuration server can't data transfer? Server selection is also important part server service. Many server content Linux OS like as DNS, FTP, MAIL, DHCP, NFS, WAB, SAMBA servers, NAGIOS server Internet Service benefactor can be configured.

3.13.1 FTP Server

FTP (File Transfer Protocol)

File Transfer Protocol (FTP) is a conventional Internet protocol for transmitting files between computers on the Internet over TCP/IP connections. FTP is a client-server protocol where a client will request for a file, and a local or distant server will provide it.

The end-users machine is typically called the localhost machine, which is connected via the internet to the remote host, which the second machine is running the FTP software.

Anonymous FTP is a type of FTP that allows users to enter files and other data without needing an ID or password. Some websites will enable visitors to use a customer ID or password- anonymous FTP allows this.

Although several file transfer is now handled using HTTP, FTP is yet commonly used to transfer files "after the scenes" for other applications -- e.g., hidden back the user interfaces of banking, a service that assists make a website, such as Wix or Square Space, or other services. It is also used, via Web browsers, to download different applications.

Configuring FTP Server Step by Step

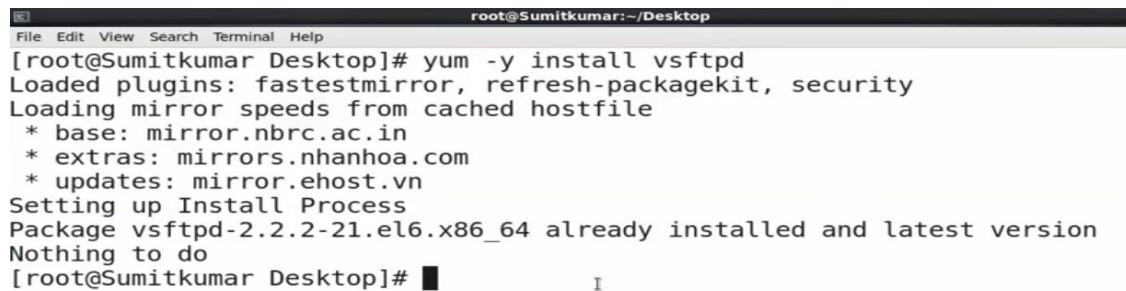
Package Name: VSFTPD

Default Port: 20 (To transfer the data),

21 (To make control connection).

Step 1

Install the package vsftpd by using `#yum -y install vsftpd`.



```
root@Sumitkumar:~/Desktop
File Edit View Search Terminal Help
[root@Sumitkumar Desktop]# yum -y install vsftpd
Loaded plugins: fastestmirror, refresh-packagekit, security
Loading mirror speeds from cached hostfile
 * base: mirror.nbrc.ac.in
 * extras: mirrors.nhanhoa.com
 * updates: mirror.ehost.vn
Setting up Install Process
Package vsftpd-2.2.2-21.el6.x86_64 already installed and latest version
Nothing to do
[root@Sumitkumar Desktop]# █
```

Figure 3.5.1: Install the package vsftpd

Step 2

Edit the Configuration file by using `#vi /etc/vsftpd/vsftpd.conf`

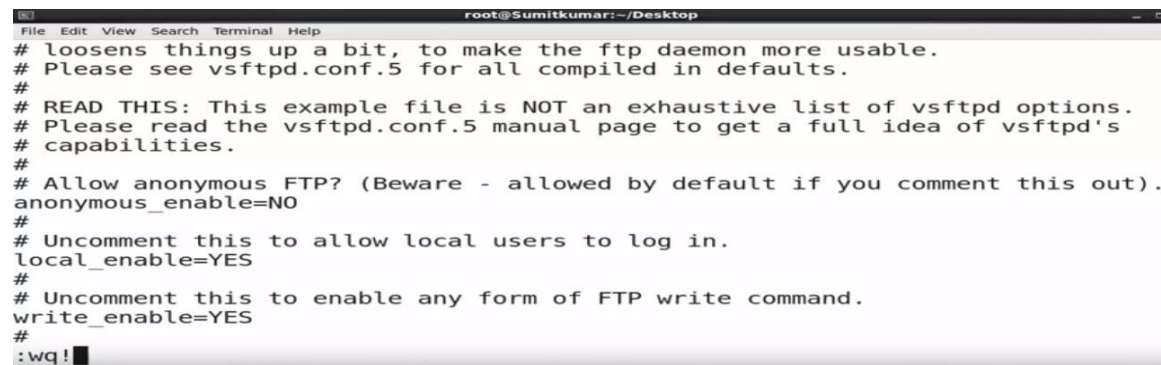


```
root@Sumitkumar:~/Desktop
File Edit View Search Terminal Help
[root@Sumitkumar Desktop]# yum -y install vsftpd
Loaded plugins: fastestmirror, refresh-packagekit, security
Loading mirror speeds from cached hostfile
 * base: mirror.nbrc.ac.in
 * extras: mirrors.nhanhoa.com
 * updates: mirror.ehost.vn
Setting up Install Process
Package vsftpd-2.2.2-21.el6.x86_64 already installed and latest version
Nothing to do
[root@Sumitkumar Desktop]# vi /etc/vsftpd/vsftpd.conf █
```

Figure 3.6.1: Configuration file location

Step 3

Go the line 12 and change the line anonymous Enable= No



```
root@Sumitkumar:~/Desktop
File Edit View Search Terminal Help
# 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
#
:wq! █
```

Figure 3.7.1: Change the line anonymous Enable

Step 4

Now make a directory called (ftp).

```
root@Sumitkumar:~/Desktop
File Edit View Search Terminal Help
[root@Sumitkumar Desktop]# yum -y install vsftpd
Loaded plugins: fastestmirror, refresh-packagekit, security
Loading mirror speeds from cached hostfile
 * base: mirror.nbrc.ac.in
 * extras: mirrors.nhanhoa.com
 * updates: mirror.ehost.vn
Setting up Install Process
Package vsftpd-2.2.2-21.el6.x86_64 already installed and latest version
Nothing to do
[root@Sumitkumar Desktop]# vi /etc/vsftpd/vsftpd.conf
[root@Sumitkumar Desktop]# mkdir /ftp
[root@Sumitkumar Desktop]# █
```

Figure 3.8.1: Make a directory using #mkdir /ftp

Step 5

Added a user and create a password using #useradd -d/ftp/user name

```
[root@Sumitkumar Desktop]# mkdir /ftp
[root@Sumitkumar Desktop]# useradd -d /ftp/Aravind Aravind
[root@Sumitkumar Desktop]# passwd Aravind
Changing password for user Aravind.
New password:
Retype new password:
passwd: all authentication tokens updated successfully.
[root@Sumitkumar Desktop]# █
```

Figure 3.9.1: Create user name and password.

Step 6

Service start and check configuration and make test directory.

```
#service vsftpd start
```

```
#chconfig --level 235 vsftpd on
```

```
#cd /ftp/Aravind
```

```
#mkdir {test1, test2, test3}.
```

```
[root@Sumitkumar Desktop]# service vsftpd start
Starting vsftpd for vsftpd: [ OK ]
[root@Sumitkumar Desktop]# chkconfig --levels 235 vsftpd on
[root@Sumitkumar Desktop]# cd /ftp/Aravind/
[root@Sumitkumar Aravind]# ls
[root@Sumitkumar Aravind]# mkdir test-1
[root@Sumitkumar Aravind]# mkdir test-2
[root@Sumitkumar Aravind]# mkdir test-3
[root@Sumitkumar Aravind]# █
```

Figure 3.10.1: Service start and check configuration and make test directory

Step 7

Open the browser and given ftp://172.18.0.103 and show this username and password.
Here write user name and password.



Figure 3.11.1: Screen print of a Name and Password.

Step 8

At last I have to press ok and show this result



Figure 3.12.1: Screen print of a result.

3.13.2 WEB SERVER

A Web server is a program that uses HTTP (Hypertext Transfer Protocol) to serve the files that form Web pages to users, in answer to their inquiries, which are transmitted by their computers' HTTP clients. Dedicated computers and appliances may be applied to Web servers as well.

- 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.

Configuring Web Server Step by Step -

Package Name

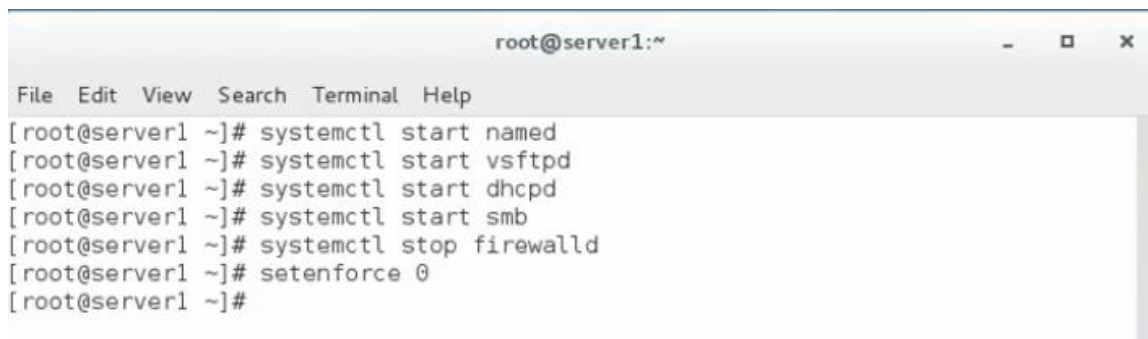
httpdDefault http

port: 80 Default https

port: 443

Step 1

At first running the service #systemctl start name, #systemctl start vsftpd, #systemctl start dhcpd, #systemctl start smd, #systemctl stop firewalld, #setenforce 0.

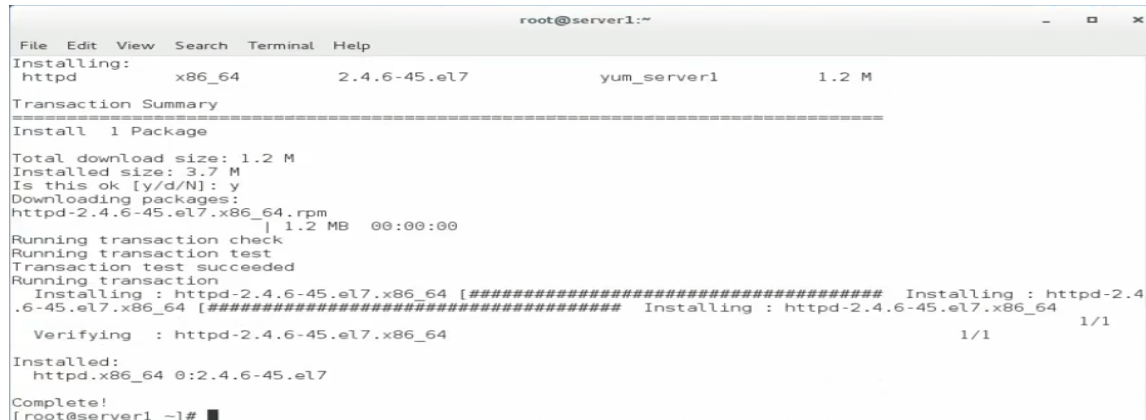
A terminal window titled 'root@server1:~' with a menu bar containing 'File Edit View Search Terminal Help'. The terminal shows the following commands and their outputs:

```
[root@server1 ~]# systemctl start named
[root@server1 ~]# systemctl start vsftpd
[root@server1 ~]# systemctl start dhcpd
[root@server1 ~]# systemctl start smb
[root@server1 ~]# systemctl stop firewalld
[root@server1 ~]# setenforce 0
[root@server1 ~]#
```

Figure 3.13.1: Shown a command

Step 2

Now install an httpd package by yum install- #yum install httpd

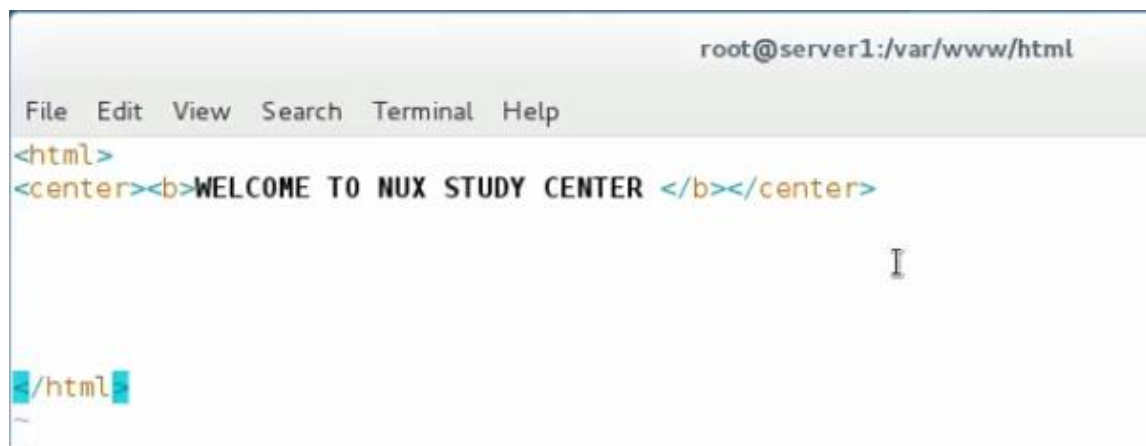


```
root@server1:~  
File Edit View Search Terminal Help  
Installing:  
httpd      x86_64      2.4.6-45.el7      yum_server1      1.2 M  
Transaction Summary  
-----  
Install 1 Package  
Total download size: 1.2 M  
Installed size: 3.7 M  
Is this ok [y/d/N]: y  
Downloading packages:  
httpd-2.4.6-45.el7.x86_64.rpm | 1.2 MB  00:00:00  
Running transaction check  
Running transaction test  
Transaction test succeeded  
Running transaction  
Installing : httpd-2.4.6-45.el7.x86_64 [#####] Installing : httpd-2.4  
.6-45.el7.x86_64 [#####] Installing : httpd-2.4.6-45.el7.x86_64 1/1  
Verifying  : httpd-2.4.6-45.el7.x86_64 1/1  
Installed:  
httpd.x86_64 0:2.4.6-45.el7  
Complete!  
[root@server1 ~]#
```

Figure 3.14.1: Screen print of a yum installation

Step3

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



```
root@server1:/var/www/html  
File Edit View Search Terminal Help  
<html>  
<center><b>WELCOME TO NUX STUDY CENTER </b></center>  
I  
/html
```

Figure 3.15.1: 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 #vi httpd.conf.

```
[root@server1 ~]#  
[root@server1 ~]# cd /etc/httpd/  
[root@server1 httpd]# ls  
conf  conf.d  conf.modules.d  logs  modules  run  
[root@server1 httpd]# cd conf  
[root@server1 conf]# ls  
httpd.conf  magic  
[root@server1 conf]# vi httpd.conf
```



```
root@server1:/etc/httpd/conf  
File Edit View Search Terminal Help  
# ServerAdmin: Your address, where problems with the server should be  
# e-mailed. This address appears on some server-generated pages, such  
# as error documents. e.g. admin@your-domain.com  
#  
ServerAdmin root@nux.com  
#  
# ServerName gives the name and port that the server uses to identify itself.  
# This can often be determined automatically, but we recommend you specify  
# it explicitly to prevent problems during startup.  
#  
# If your host doesn't have a registered DNS name, enter its IP address here.  
#  
ServerName www.nux.com:80  
#  
# Deny access to the entirety of your server's filesystem. You must  
# explicitly permit access to web content directories in other  
# <Directory> blocks below.  
#  
<Directory />  
    AllowOverride none  
    Require all denied  
</Directory>  
#  
-- INSERT --
```

Figure 3.16.1: Screen Print of a vim configuration.

Step 5

At last open browser and write `http://192.168.20.1` and show my web page.



Figure 3.17.1: Web page result

3.13.3 SAMBA SERVER

Samba is the regular Windows interoperability series of programs for Linux and UNIX. Provides file and print distribution for windows clients from Linux servers. By supporting this protocol, By supporting this protocol, Samba enables computers running UNIX to get in on the action, interacting with the same networking protocol as Microsoft Windows and looking at another Windows system on the network from the prospect of a Windows client.


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 configure the server side and installing server side package #yum insall samba samba-common samba-client




```
root@server:~  
File Edit View Search Terminal Help  
[root@server ~]# yum install samba samba-common samba-client  
Loaded plugins: fastestmirror, langpacks  
local | 2.9 kB 00:00  
Loading mirror speeds from cached hostfile  
Package samba-common-4.4.4-9.el7.noarch already installed and latest version  
Resolving Dependencies  
--> Running transaction check  
--> Package samba.x86_64 0:4.4.4-9.el7 will be installed  
--> Processing Dependency: samba-libs = 4.4.4-9.el7 for package: samba-4.4.4-9.e  
l7.x86_64  
--> Processing Dependency: samba-common-tools = 4.4.4-9.el7 for package: samba-4  
.4.4-9.el7.x86_64  
--> Processing Dependency: samba-common-libs = 4.4.4-9.el7 for package: samba-4.  
4.4-9.el7.x86_64  
--> Processing Dependency: libxattr-tdb-samba4.so(SAMBA_4.4.4)(64bit) for packag  
e: samba-4.4.4-9.el7.x86_64  
--> Processing Dependency: libpopt-samba3-samba4.so(SAMBA_4.4.4)(64bit) for pack  
age: samba-4.4.4-9.el7.x86_64  
--> Processing Dependency: libxattr-tdb-samba4.so()(64bit) for package: samba-4.  
4.4-9.el7.x86_64  
--> Processing Dependency: libpopt-samba3-samba4.so()(64bit) for package: samba-  
4.4.4-9.el7.x86_64  
--> Package samba-client.x86_64 0:4.4.4-9.el7 will be installed
```

Figure 3.18.1: installing server side package.

Step 2

Create a directory to name share and permission to directory and also change the se linux context the directory. restore the share directory and check the se linux context on the directory.

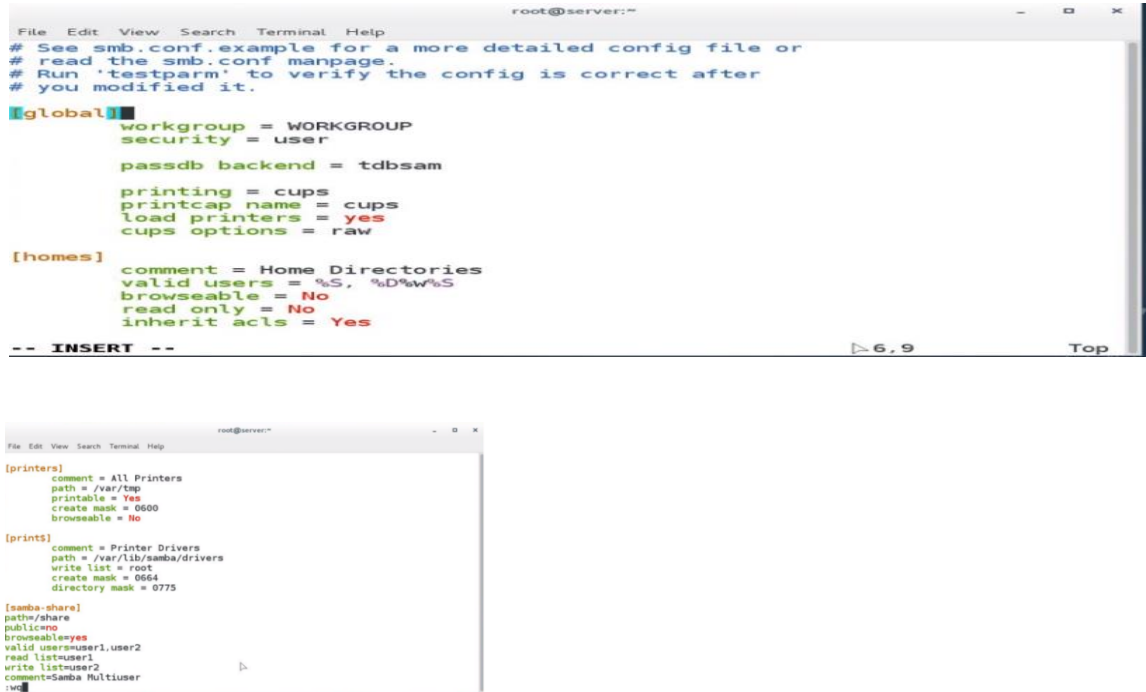


```
root@server:~  
File Edit View Search Terminal Help  
Running transaction  
Installing : samba-common-4.4.4-9.el7.noarch 1/3  
Installing : samba-client-4.4.4-9.el7.x86_64 2/3  
Installing : samba-4.4.4-9.el7.x86_64 3/3  
Verifying : samba-client-4.4.4-9.el7.x86_64 1/3  
Verifying : samba-common-4.4.4-9.el7.noarch 2/3  
Verifying : samba-4.4.4-9.el7.x86_64 3/3  
Installed:  
samba.x86_64 0:4.4.4-9.el7 samba-client.x86_64 0:4.4.4-9.el7  
samba-common.noarch 0:4.4.4-9.el7  
Complete!  
[root@server ~]# mkdir /share  
[root@server ~]# chmod 777 /share/  
[root@server ~]# ls -ldZ /share/  
drwxrwxrwx. root root unconfined_u:object_r:default_t:s0 /share/  
[root@server ~]# semanage fcontext -a -t samba_share_t '/share(/.*)?'  
[root@server ~]# restorecon -vvRF /share  
restorecon reset /share context unconfined_u:object_r:default_t:s0->system_u:obj  
ect_r:samba_share_t:s0  
[root@server ~]# ls -ldZ /share/  
drwxrwxrwx. root root system_u:object_r:samba_share_t:s0 /share/  
[root@server ~]#
```

Figure 3.19.1: Taka permission and change se linux context and check it.

Step 3

Configuration samba file. change the work group and share the directory or create single user and multi user.



```
root@server:~#
File Edit View Search Terminal Help
# See smb.conf.example for a more detailed config file or
# read the smb.conf manpage.
# Run 'testparm' to verify the config is correct after
# you modified it.

[global]
    workgroup = WORKGROUP
    security = user

    passdb backend = tdbsam

    printing = cups
    printcap name = cups
    load printers = yes
    cups options = raw

[homes]
    comment = Home Directories
    valid users = %S, %D%w%S
    browseable = No
    read only = No
    inherit acls = Yes

-- INSERT --
6,9 Top

root@server:~#
File Edit View Search Terminal Help

[printers]
    comment = All Printers
    path = /var/tmp
    printable = Yes
    create mask = 0600
    browseable = No

[prints]
    comment = Printer Drivers
    path = /var/lib/samba/drivers
    write list = root
    create mask = 0664
    directory mask = 0775

[samba-share]
    path=/share
    public=no
    browseable=yes
    valid users=user1,user2
    read list=user1
    write list=user2
    comment=Samba Multiuser
:~#
```

Figure 3.20.1: Create workgroup and user.

Step 4

Create user name and password.

```
[root@server ~]# vim /etc/samba/smb.conf
[root@server ~]# useradd user1
[root@server ~]# useradd user2
[root@server ~]# smbpasswd -a user1
New SMB password:
Retype new SMB password:
Mismatch - password unchanged.
Unable to get new password.
[root@server ~]# smbpasswd -a user1
New SMB password:
Retype new SMB password:
[root@server ~]# smbpasswd -a user2
New SMB password:
Retype new SMB password:
[root@server ~]# █
```

Figure 3.21.1: user name and password.

Step 5

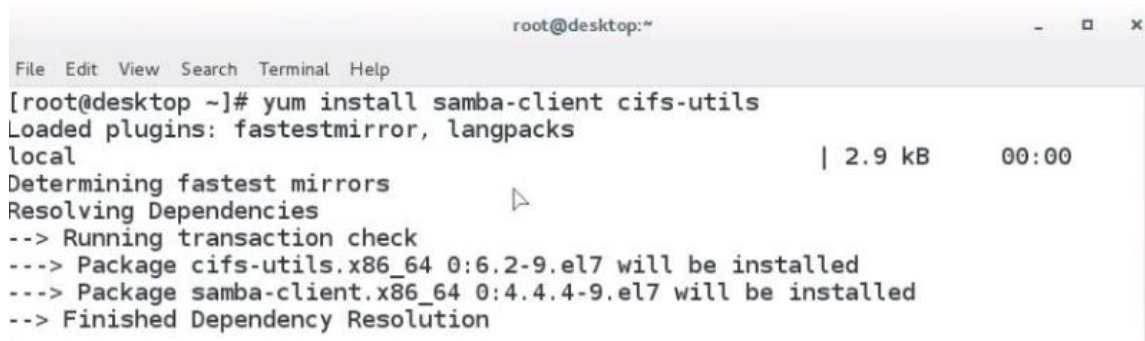
Start service for using (systemctl start smb nmb). enable the service for using (systemctl enable smb nmb) and apply the firewall rule for using (firewall-cmd --permanent --add-service=samba)

```
[root@server ~]# systemctl start smb nmb
[root@server ~]# systemctl enable smb nmb
Created symlink from /etc/systemd/system/multi-user.target.wants/smb.service to /usr/lib/systemd/system/smb.service.
Created symlink from /etc/systemd/system/multi-user.target.wants/nmb.service to /usr/lib/systemd/system/nmb.service.
[root@server ~]# firewall-cmd --permanent --add-service=samba
success
[root@server ~]# █
```

Figure 3.22.1: Start service enable service and permit the firewall.

Step 6

For Client side we have to install to packages like (yum install samba-client cifs-utils)

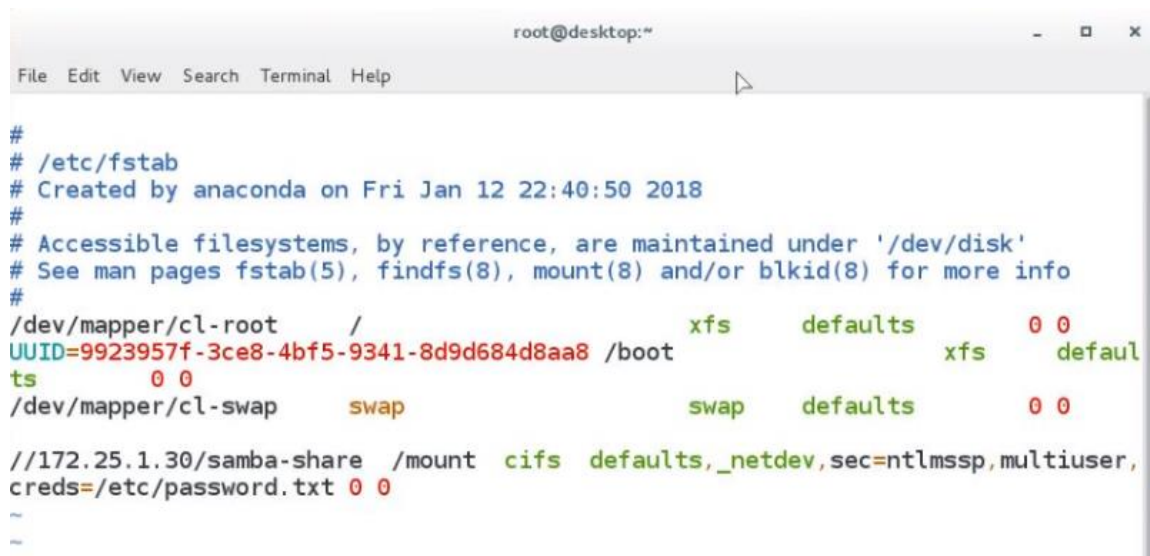


```
root@desktop:~  
File Edit View Search Terminal Help  
[root@desktop ~]# yum install samba-client cifs-utils  
Loaded plugins: fastestmirror, langpacks  
local | 2.9 kB 00:00  
Determining fastest mirrors  
Resolving Dependencies  
--> Running transaction check  
---> Package cifs-utils.x86_64 0:6.2-9.el7 will be installed  
---> Package samba-client.x86_64 0:4.4.4-9.el7 will be installed  
--> Finished Dependency Resolution
```

Figure 3.23.1: Installing client side package.

Step 7

For Permanently mounted we use (vim /etc/fstab) and set ip and share name like (//192.168.0.105/samba-share /mount cifs defaults, _netdev, sec=ntlmssp, multiuser, creds=/etc/abc.txt 0 0) and (//192.168.0.105/samba-share /mount cifs defaults, _netdev, sec=ntlmssp, multiuser, creds=/etc/password.txt 0 0)



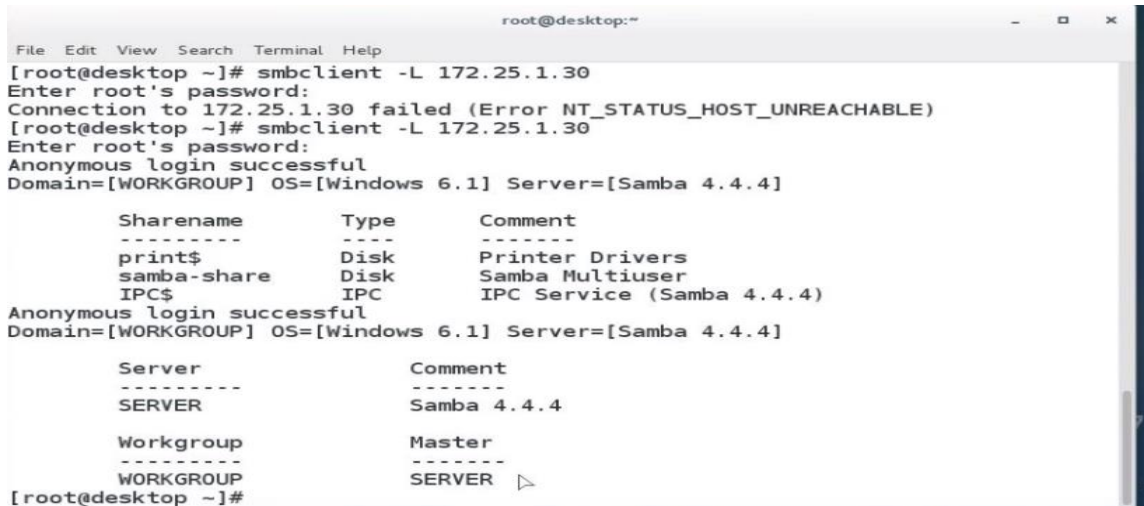
```
root@desktop:~  
File Edit View Search Terminal Help  
#  
# /etc/fstab  
# Created by anaconda on Fri Jan 12 22:40:50 2018  
#  
# Accessible filesystems, by reference, are maintained under '/dev/disk'  
# See man pages fstab(5), findfs(8), mount(8) and/or blkid(8) for more info  
#  
/dev/mapper/cl-root / xfs defaults 0 0  
UUID=9923957f-3ce8-4bf5-9341-8d9d684d8aa8 /boot xfs default  
ts 0 0  
/dev/mapper/cl-swap swap swap defaults 0 0  
  
//172.25.1.30/samba-share /mount cifs defaults,_netdev,sec=ntlmssp,multiuser,  
creds=/etc/password.txt 0 0  
~  
~
```

Figure 3.24.1: permanently mounted IP and share folder and create user name and password.

Step 8

Set the server ip using (smbclient -L 172.25.1.30) and connected to the server pc.

and using (mount -a) to mounted.



```
root@desktop:~  
File Edit View Search Terminal Help  
[root@desktop ~]# smbclient -L 172.25.1.30  
Enter root's password:  
Connection to 172.25.1.30 failed (Error NT_STATUS_HOST_UNREACHABLE)  
[root@desktop ~]# smbclient -L 172.25.1.30  
Enter root's password:  
Anonymous login successful  
Domain=[WORKGROUP] OS=[Windows 6.1] Server=[Samba 4.4.4]  


| Sharename   | Type | Comment                   |
|-------------|------|---------------------------|
| print\$     | Disk | Printer Drivers           |
| samba-share | Disk | Samba Multiuser           |
| IPC\$       | IPC  | IPC Service (Samba 4.4.4) |

  
Anonymous login successful  
Domain=[WORKGROUP] OS=[Windows 6.1] Server=[Samba 4.4.4]  


| Server | Comment     |
|--------|-------------|
| SERVER | Samba 4.4.4 |


| Workgroup | Master |
|-----------|--------|
| WORKGROUP | SERVER |

  
[root@desktop ~]#
```

Figure 3.25.1: connected to the server pc.

Step 9: Putting ip address and also put user and password for enter the server directory.

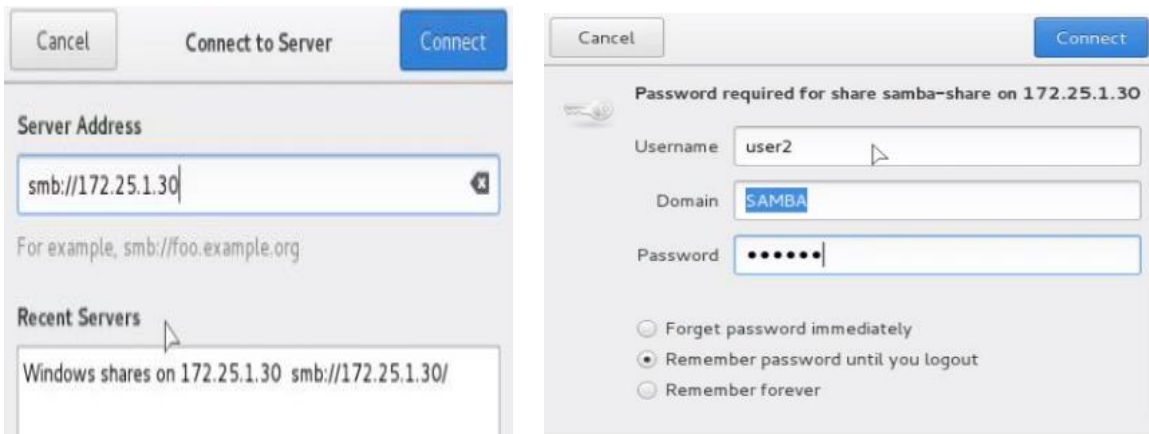


Figure 3.26.1: Enter the server directory.

3.13.4 Nagios Server

Nagios is a free and open-source computer software application that controls system networks and the entire IT foundation. Nagios monitors the 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@Jinnat:~  
File Edit View Search Terminal Help  
[root@Jinnat-]# 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 3.27.1: 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 3.28.1: 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 3.29.1: 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 3.30.1: 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.

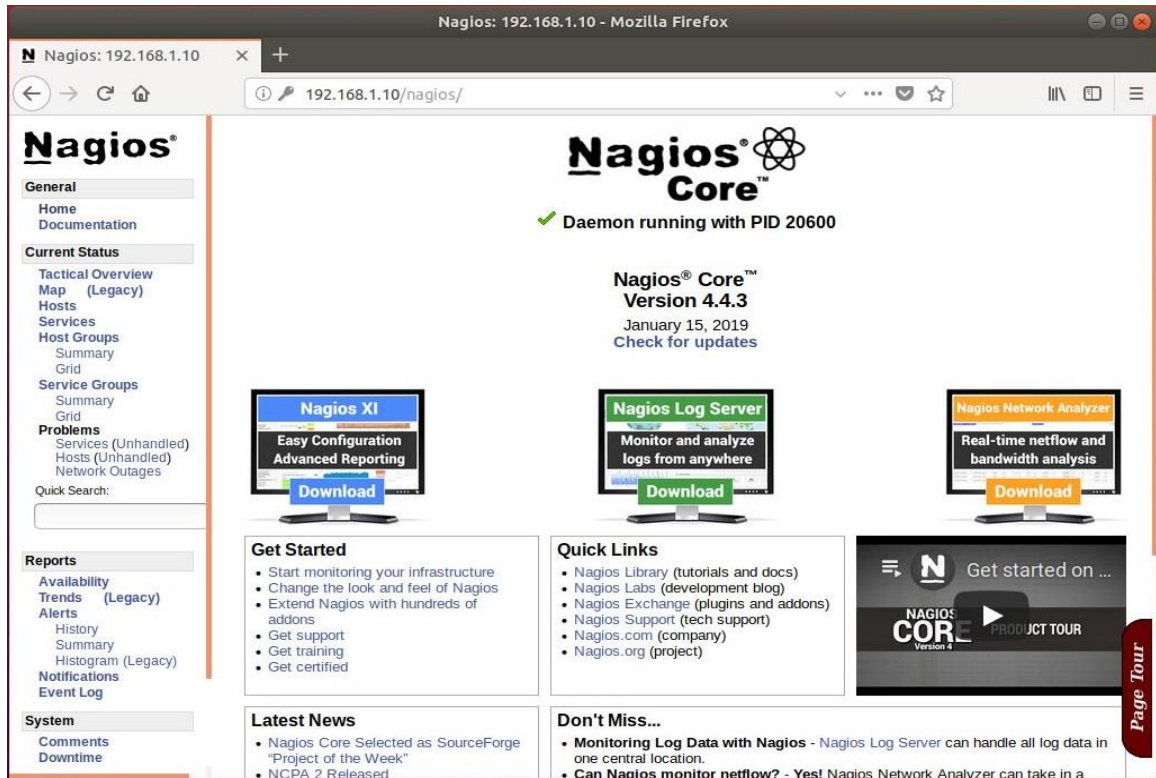


Figure 3.31.1: Access the nagios server.

3.14 Challenges

The work is not a challenge, but after a while, I shared four-month practical experience and friends, happily, I understand that the trainees are a common challenge. I think the prisoner has three things: excellent/provisional and experience. Sometimes I do not have enough work, I do not have enough work. I'm tired, I dropped, I got my fingers on the board and I want to go to Facebook. Too much work: When a trainee is ready to go to the door, some jobs can be useful for young workers by giving them a long, boring and repetitive time. I'm afraid I ask you questions: it's a sudden job, and finally, Competition with another person internally: Fortunately, he was a trainee; we believe that we can easily combine projects that have worked together in team relationships. The next post trainee does not open or recommend a good competitive round in other office situations that they could not be as 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 REDHAT, is tailored to program learning final-result, field evaluations, and internships. Internalization Objectives Run and set-up programs and updates; Install, set-up, 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

To support efficient and sustainable development by ensuring the best possible outcomes for projects in local government, healthcare, education, power and force, and public finance in both the public and private areas. 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

Bangladesh Advanced Software and Education (BASE) Limited founded in 1999 as a high-end SOFTWARE EDUCATION center providing GLOBALLY ACCREDITATED vendor certified courses tailored to the individual and corporate demand and by the way has evolved into a pioneer Information and Communication Technology (ICT) solution and full-service Company. BASE accepts superior development outcomes can be achieved by harnessing the power of Information Technology.

CHAPTER 5

CONCLUSION AND FUTURE CAREER

5.1 Discussion and Conclusion

Review this internship has been a great and rewarding experience. I have seen the future and I can help me with the opportunity to establish contact with many who have been able to confirm it. Through this practice, I learned one of the most important problems and time skills and self-motivation. When I started, it was eight hours a day, six days a week I could sit in the office, and did not believe it. When I realized what I had to do, my emotions did not overlap, I arranged my daily work. Organized and it was time to get a clear answer to the questions that need to be learned. This internship and time spent working hours, I had to learn to motivate myself. 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 University of Bangladesh in the world. I enjoy this job. I continue my work hard and hope that the student will learn about the industry and meet new people. It was a great experience and I hope that another trainee has gained a good-deal of profit.

5.2 Scope for Further Career

There is a career performance in different areas of Linux. Professional opportunities in Linux not only mention the Linux platform, but cover many different areas, such as Desktop Software Development, Peripherals, and Core Drivers Nowadays, their strong open source software and open source engineers many companies have moved to Linux and free software. A company such as Google, Yahoo, Boeing, Lufthansa, wiki.org has moved many limited-company to a cost-effective open source solution. LINUX professionals have strong demand.

REFERENCES

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- [3]. Get Concept about FTP server, Available at <<<http://opensourecsoftwareandme.blogspot.com>>>/1016/88/sharing-ftp-server-between-un.html, last accessed on 27January 2018, 10.45pm.
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APPENDICES

Appendix A: Internship Reflection

The main objective of internship in a no recreational environment, practicable solutions to Global problems involve applying the information in the classroom. Appropriate skills and relationships in the professional environment, learn to master new knowledge, skills, and ability to decide on refining and developing plans. Add to the network with other professional managers and professional relationships. To do the exercises I use correctly business etiquette. Mission / vision for establishing a humanitarian organization, how to contacting co-worker, how power is mutual, how it is organized, how decision share, how to apprehend the professional organization's culture and how much responsibility and feedback to the organization. Assessment after internships and internships personally conferences offer the opportunity to make professional opinions. Internship experience preparing to live in a worldwide stratum, activity and work, my gift-horse to practice it.

Appendix B: Company Detail



Head Office

COMPANY NAME -	Base IT Limited
COMPANY ADDRESS -	147/D (2nd Floor & 4th Floor), Green Road, Dhaka - 1205, Bangladesh
TELEPHONE -	+880-2-9139581-2
E-MAIL -	info@baseltd.com
WEBSITE -	http://www.baseltd.com
TYPE OF ORGANIZATION -	Nationwide Internet Service Provider (ISP)

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