“IMPLEMENTATION OF MULTI-ROUTER TRAFFIC MONITRING”

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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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APPROVAL

This project titled “**Implementation of Multi-router Traffic Monitoring**” submitted by Md. Zubayer Chowdhury & Kazi Aftabul Islam & Shamimuzzaman, 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 5th May 2018.

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DECLARATION

We hereby declare that, this project report has been done by us under the supervision of **Ms. Farah Sharmin**, **Senior Lecturer**, **Department of Computer Science and Engineering**. We are declaring that any part of this project has been not submitted elsewhere for an award of any degree or diploma.

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Finally, we must acknowledge our parents for their constant support, patience and unconditional love.

ABSTRACT

In today's competitive world, every business organization is dependent on computer based system. Networking is one of the most important part of any organization. Every organization tries to implement such kind of network which is very clear and where data can be transferred faster. But in real life it is not always possible to get such kind of network because of its traffic issue. As we find traffic in roads because of huge pressure of vehicles, same way we can have low rate of data transfer because of traffic in a network system at the period of data transfer. When a router works in active mode, it takes its nearby router's information to work that's how it can cause problem in data transfer. So, here our aim is to monitor that traffic in a particular network of an organization at a specific time frame. Linux server and its various command made it a bit easy. In our project, we will be able to monitor where traffic is happening so that we can easily fix that problem manually as soon as possible.

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CHAPTER 1

Introduction

1.1 Introduction

Our day to day life is fully dependent on technology these days. Large amount of organization uses information technology for this better operation. Internet became an essential part of today’s world. Different internet service providers are providing internet facilities to home users and to various organizations.

Networking and management of different networks have become a very crucial part of a business organization. A network where data is transferred fast is considered to be ideal but in real life it is quiet impossible. Router, traffic, delay are the things that should be kept under monitoring all the time for better management.

There in this project, we worked on Multi-router traffic monitoring system by using Negios traffic Monitoring Software. This software will make it easier to detect traffic quickly, diagnose & resolve performances issues, so that different organizations can handle that traffic to get smoother data transfer rate.

.

1.2 Motivation

Day by day the whole world is becoming increasingly dependent on the internet. Almost in every field there is a must involvement of networking. An organization always try to monitor all of his branch office but sometimes it is not that easier to monitor because of traffic during data transfer. To get rid of this problem we became motivated to find a solution to identify the reason and the location of that traffic so that user will be able control the bandwidth and will be able to know if there is any loss of bandwidth or not and also will be able to increase data transfer rate by controlling traffic. It will be easier, faster and less costly for the user.

1.2 Objective of the project

The main objectives of this project are as follows:

- To monitor every branch office from head office of an organization.
- Every branch office will be connected with each other.
- Give service at any time within a very short period.
- Identify quickly if there is any problem found in service.
- Administrator will be able to know about the loss of bandwidth, will be able to control traffic and increase data transfer rate.
- There will be an internal connection so that data will remain safe from the other user from the internet.
- There will be a very low risk of losing data.

1.4 Benefit for the User

The main benefit for the user is as follows

- The user will be able to monitor all the branch office from head office.
- The user will be able to know instantly if there any fault occurs.
- The user will be able to take action and control the bandwidth.
- The user will be able to know about the loss of bandwidth.
- The user will know the location of traffic during information sharing.
- The user will be able to increase the data transfer rate by controlling traffic.

1.5 Requirements for this project

The requirements need to complete this project are as follows:

- Laptop
- Router
- Switch
- Internet
- Windows
- GNS3
- CentOS
- VMware workstation.
- Negios
- Etc

1.6 Developments and Implementation

To develop this project we are using **GNS3** simulator for the **Topology Network.** We have taken windows as our main operating system and we have also used VMware workstation so that we can use another operating system where we have installed CentOS to install our Nagios server there. Here we have connected Nagios with GNS3 so that we can monitor our network topology.

1.7 Conclusion

This project is all about monitoring the traffic on router from the head office during information sharing, easily knows the location of traffic so that the the administrator can control the traffic and can increase the rate of data transfer.

CHAPTER 2

System in project

2.1 System

A computer system is the most important software that runs in a computer that manages computer’s memory and processes. It allows us to communicate with the computer where we don’t need to know the language of the computer. Most of the time there can be different computer program running at the same time where they all need to access our computer’s central processing unit or CPU & storage.

Here an operating system maintains all of the programs to make sure that each program can get what it needs to operate. So in short it is easy to say a computer is just useless without an operating system. The top three most using operating systems for personal computers are Microsoft Windows, Mac OS and Linux.

Three systems we used in our project, **Windows & CentOS.**

2.1.1 Windows

The window is a computer operating system (OS). First version was developed in 1985 which was developed by Microsoft Corporation to run PCs which features with the 1st graphical user interface (GUI) for IBM. It was started dominated the market from then and now almost 90% of modern PCs running in some version of windows [1].

Microsoft Windows has a very large user base, easy and very much comfortable for the user to use. In recent years Microsoft has made great security improvements so it is the most vulnerable to the viruses, malware and other various attacks. Most of the hardware company support windows drivers for their products.

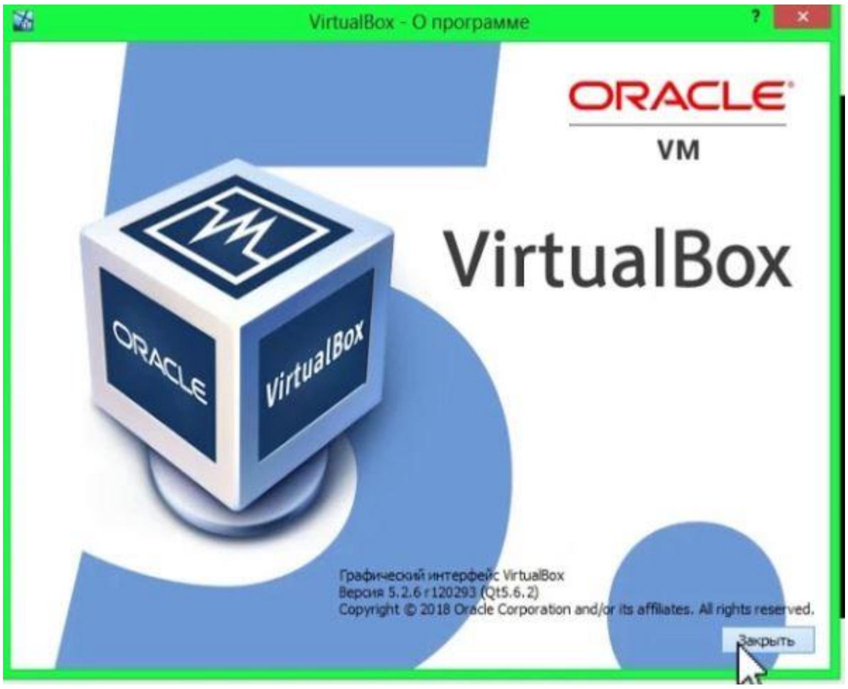
We are using Windows platform as our main platform for our project.

Figure 2.1: Windows

2.1.2 VMware

VMware (virtual machine) workstation was made in 1998 and produced many products for virtualization. VMware Workstation was launched by VMware in 2001 [2].
VMware Workstation allows for the installation of various things of different operating systems, including client and server operating systems. It helps system or the network administrators to test, verify and check the client server environment [2]. Administrator can switch between different virtual machines at same time.

We used VMware workstation (Oracle version 5.2.6) in this project to use CentOS so that we can take its advantages and moreover VMware reduce our cost for the need of more PCs.



Графический интерфейс VirtualBox
Версия 5.2.6 r120293 (Qt5.6.2)
Copyright © 2018 Oracle Corporation and/or its affiliates. All rights reserved.

Figure 2.2: Oracle VMware workstation version 5.2.6

2.1.3 Cent OS

CentOS is an operating system and distro of Linux. The CentOS Linux distribution is a stable, predictable, manageable and reproducible platform derived from the sources of Red Hat Enterprise Linux (RHEL).

We used CentOS because it is easy to use. We are using CentOS in our project for server administration and we have created our server in CentOS such as Nagios.

Figure 2.3: CentOS

2.2 Tools

In every way to develop anything or to achieve a goal we used to take help from some material that can be a software or hardware that is actually known as tools. We have used some software based tools for the need and betterment for our project.

2.2.1 GNS3

GNS3 means Graphical Network Simulator-3 this is a network software emulator first came in 2008 what shows the combination of virtual & real devices.GNS3 used to simulate complex networks. Now many large companies like EXXON, WALMART, AT&T, NASA is using GNS3 [3].

It is also rapidly becoming popular to the network engineers because it gives real life environment feel this is why we have also used this simulator in our project.

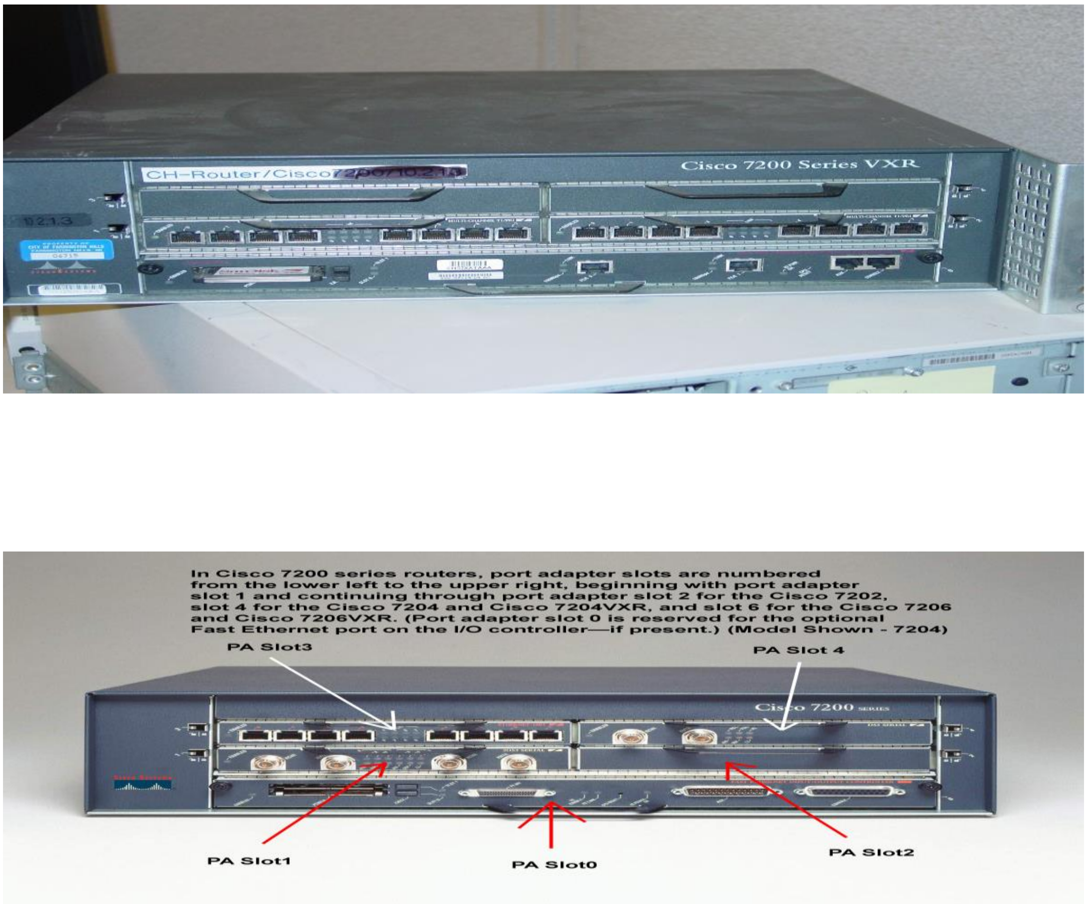
Figure 2.4: GNS3

2.2.2 Cisco Router c7200

A router’s main job is to share internet signal between various devices. A router let other device to be connected with the same internet signal.

CISCO is the largest and leading router manufacturer and networking company that is founded in December 1984.Cisco routers are very well-known and reliable to the people of the world [4].

We have used Cisco Router c7200 for our project’s internal infrastructure design. This is new invented router from Cisco what gives us much more secure connection then other router.



In Cisco 7200 series routers, port adapter slots are numbered from the lower left to the upper right, beginning with port adapter slot 1 and continuing through port adapter slot 2 for the Cisco 7202, slot 4 for the Cisco 7204 and Cisco 7204VXR, and slot 6 for the Cisco 7206 and Cisco 7206VXR. (Port adapter slot 0 is reserved for the optional Fast Ethernet port on the I/O controller—if present.) (Model Shown - 7204)

Figure 2.5: Cisco Router c7200

2.2.3 Switch

In a network a switch is a computer networking device that connects devices together by packet switching to send, to process, to receive data packet from or to the source or destination device. It also can be called as switching hub or bridging hub [4].

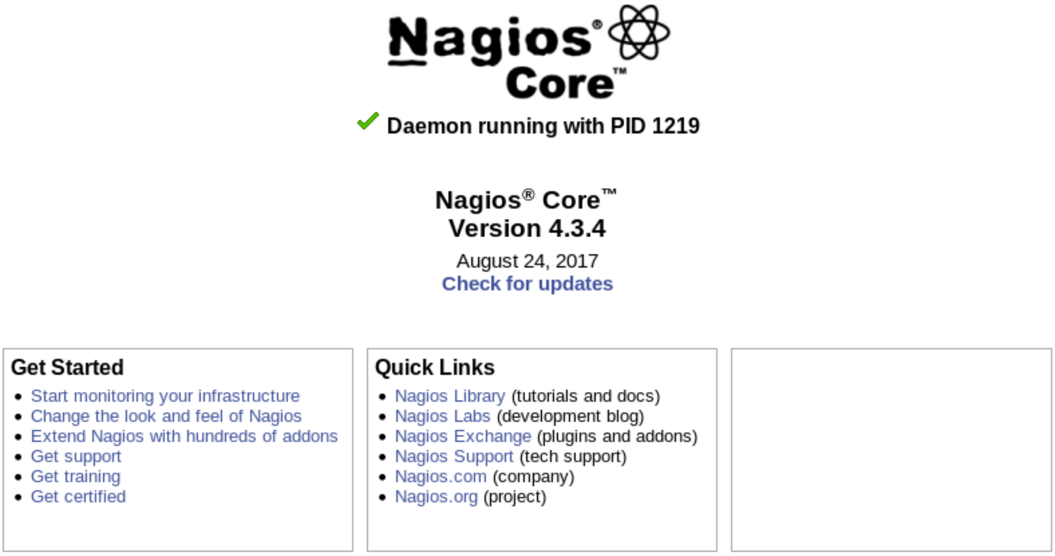
Generally in router we get very few port so if we don't use switch we have to pay more and more router for big project that is really expensive but if we use a switch we can have more port to connect with device so that will reduce our cost more because price of a switch is really very low compare to a router.

In our project we have used Ethernet switch to connect more device in a network that makes our project easier and cost effective.

Figure 2.6: Net-Gear Switch

2.2.4 Nagios Server

Nagios is a network monitoring tools from **Nagios Enterprise,** the company which developed and designed uncountable tools to monitor networks, servers & application [5]. Nagios is a free and open source application. It made things easier for staff members and Administrator.



Nagios® Core™

✓ Daemon running with PID 1219

Nagios® Core™
Version 4.3.4

August 24, 2017
Check for updates

Get Started

- Start monitoring your infrastructure
- Change the look and feel of Nagios
- Extend Nagios with hundreds of addons
- Get support
- Get training
- Get certified

Quick Links

- Nagios Library (tutorials and docs)
- Nagios Labs (development blog)
- Nagios Exchange (plugins and addons)
- Nagios Support (tech support)
- Nagios.com (company)
- Nagios.org (project)

Figure 2.7: Nagios Server version 4.3.4

2.3 Security

Security is a process to protect unauthorized access in any device or system. Now a day this is the most important things to ensure security in each level. Security system protects our PCs or our system from hackers, malwares, viruses and harmful things. In a network system to ensure data security we used firewall.

2.3.1 Firewall

Firewall is a network security device that are manages incoming and outgoing network traffic and decides to allow or blocking. This is actually hardware and software both. We used firewall in our network infrastructure to protect unauthorized access and to give security. Firewall typically established with three zones.

- Trusted / Inside zone
- Outside zone
- DMZ

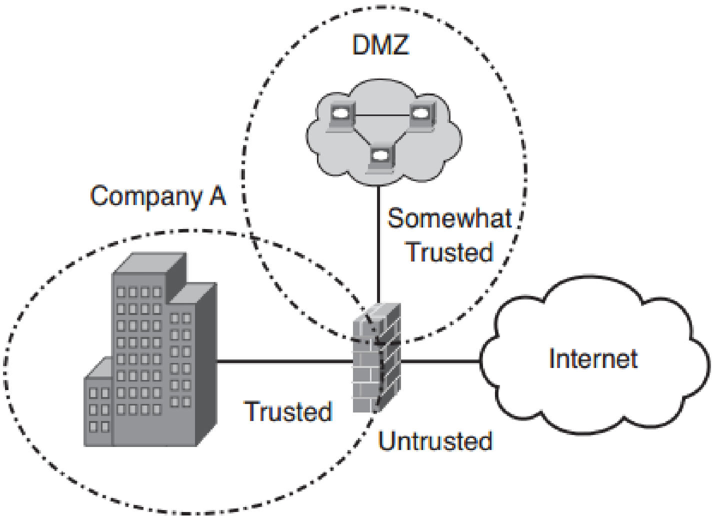


Figure 2.8: Firewall

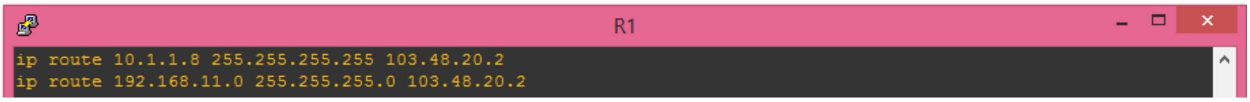
CHAPTER 3

Topology Configuration

We designed this project’s topology using some Branch Office (LAN) & server to connect with internet (ISP) for communication each other. We configured our branch office by using routing protocol to connect with internet. We used Nagios monitoring tools to monitor our network infrastructure. We used firewall in our network infrastructure to protect unauthorized access.

3.1 LAN: LAN means Local Area Network. We configured our topology by using five branch offices. Every branch stays under a LAN connection. Each LAN consists with a Switch to Connect with host and Router. Each router is configured by static routing protocol. We use static protocol for intranet. We used IP address 192.168.10.0/24 and subnet mask 255.255.255.0 for host PC or local user PC.

3.1.1 Routing Configuration: When we configured static routing protocol we needed to declare network, subnet mask and next hope address. For example we used Network 192.168.131.0 subnet mask 255.255.255.0 and next hope address 103.48.20.2

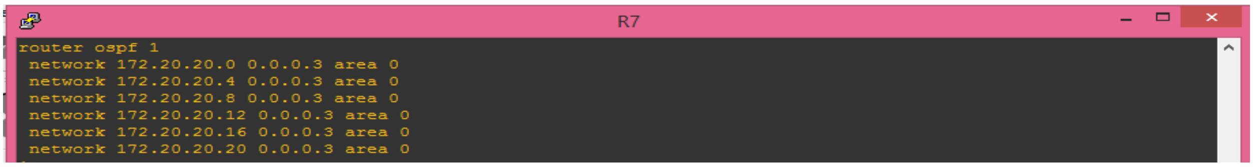


```
ip route 10.1.1.8 255.255.255.255 103.48.20.2
ip route 192.168.11.0 255.255.255.0 103.48.20.2
```

Figure 3.1: Static Routing Protocol

3.2 Internet: We connected our difference branch office with internet because it is too much difficult to connect all branch using a wire. Wire connection is unreliable and cost effective. Using internet we minimize cost. This way we can connect each branch one another and all user can also access data from internet. In this topology we showed some ISP as an internet or media. We configured ISP router as an OSPF protocol. We used this protocol that’s why data can transfer on the internet over shortest path and short time.

3.2.1 Routing Configuration: When we configure OSPF we needed to declare network, wildcard mask and area. For example we used Network 172.16.20.0/30 and wildcard mask 0.0.0.3 area 0.



```
router ospf 1
 network 172.20.20.0 0.0.0.3 area 0
 network 172.20.20.4 0.0.0.3 area 0
 network 172.20.20.8 0.0.0.3 area 0
 network 172.20.20.12 0.0.0.3 area 0
 network 172.20.20.16 0.0.0.3 area 0
 network 172.20.20.20 0.0.0.3 area 0
```

Figure 3.2: OSPF Routing Protocol

3.2.2 Advantages of OSPF: OSPF means Open Shortest Path First .OSPF using SPF algorithm to transfer data from one LAN or Router to another Router. OSPF gives us advantage to routing data on the internet. These advantages are –

- OSPF using link state algorithm.
- OSPF supports VLSM.
- OSPF is hierarchical, using area 0 as the top as the hierarchy.
- OSPF uses multicasting within areas.

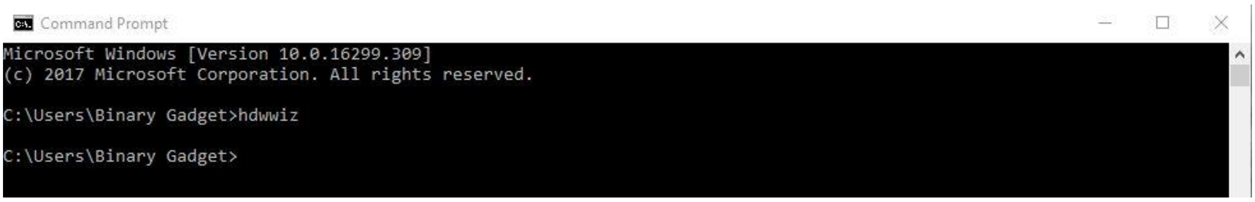
3.3 Loopback Interface: Loopback interface is a logical interface, in Cisco this is used as virtually. This is not like as physical interface First Ethernet or Gigabyte Ethernet. Loopback interface doesn't default interface like physical interface, User or Network administrator needs to create it as her criteria. It is easy to create loopback interface. Generally loopback interface uses for diagnostics, troubleshooting and connect the server with local PC.

We used loopback interface in our project to connect server with. We used IP address 10.1.1.0/32 and subnet mask 255.255.255.255 for loopback address connection with server to router. We created loopback interface into the router. The process of loopback for each router is same.

3.3.1 Loopback Creation and Configuration: Steps for loop back creation and configuration is in below step by step.

3.3.2 Steps of Loopback Creation and Configuration

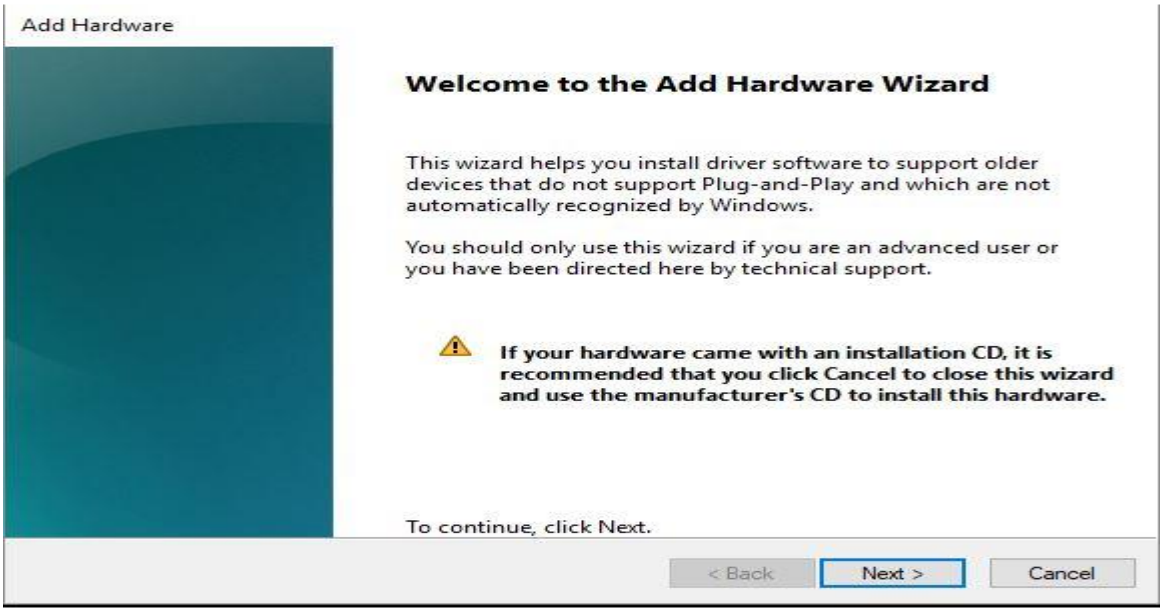
Step1: Go to Run → cmd → hdwwiz



```
Microsoft Windows [Version 10.0.16299.309]
(c) 2017 Microsoft Corporation. All rights reserved.

C:\Users\Binary Gadget>hdwwiz

C:\Users\Binary Gadget>
```

Figure 3.3: Loopback Start Command

Step2:



Add Hardware

Welcome to the Add Hardware Wizard

This wizard helps you install driver software to support older devices that do not support Plug-and-Play and which are not automatically recognized by Windows.

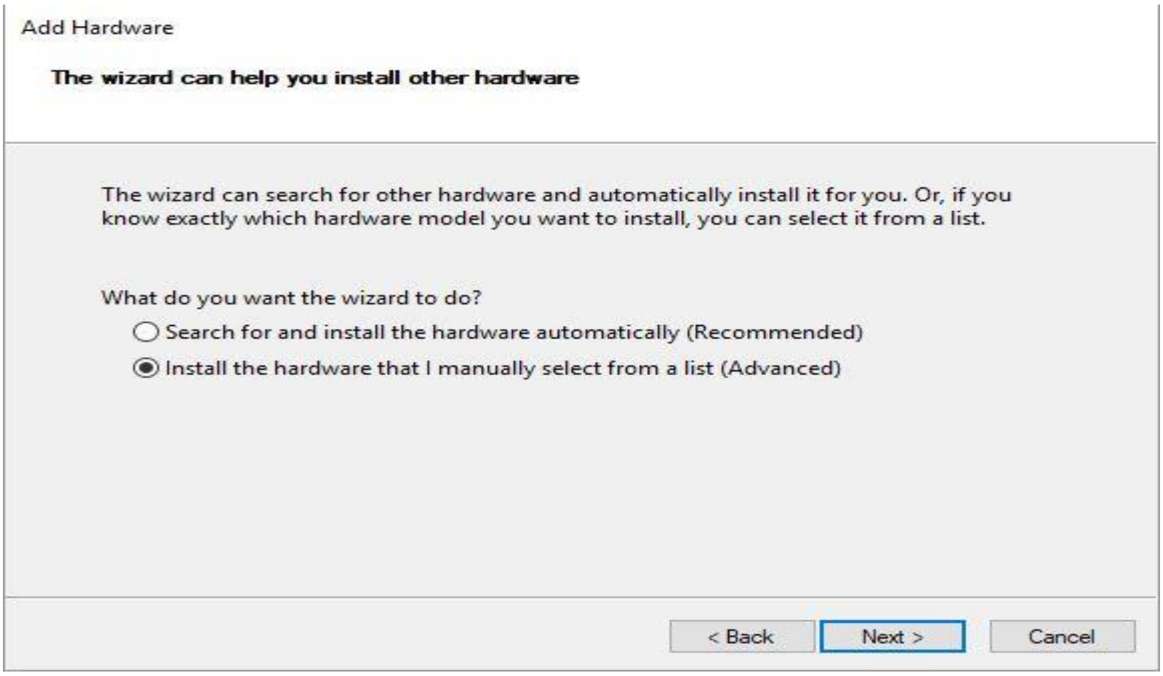
You should only use this wizard if you are an advanced user or you have been directed here by technical support.

⚠ **If your hardware came with an installation CD, it is recommended that you click Cancel to close this wizard and use the manufacturer's CD to install this hardware.**

To continue, click Next.

Figure 3.4: Add hardware

Step3:



Add Hardware

The wizard can help you install other hardware

The wizard can search for other hardware and automatically install it for you. Or, if you know exactly which hardware model you want to install, you can select it from a list.

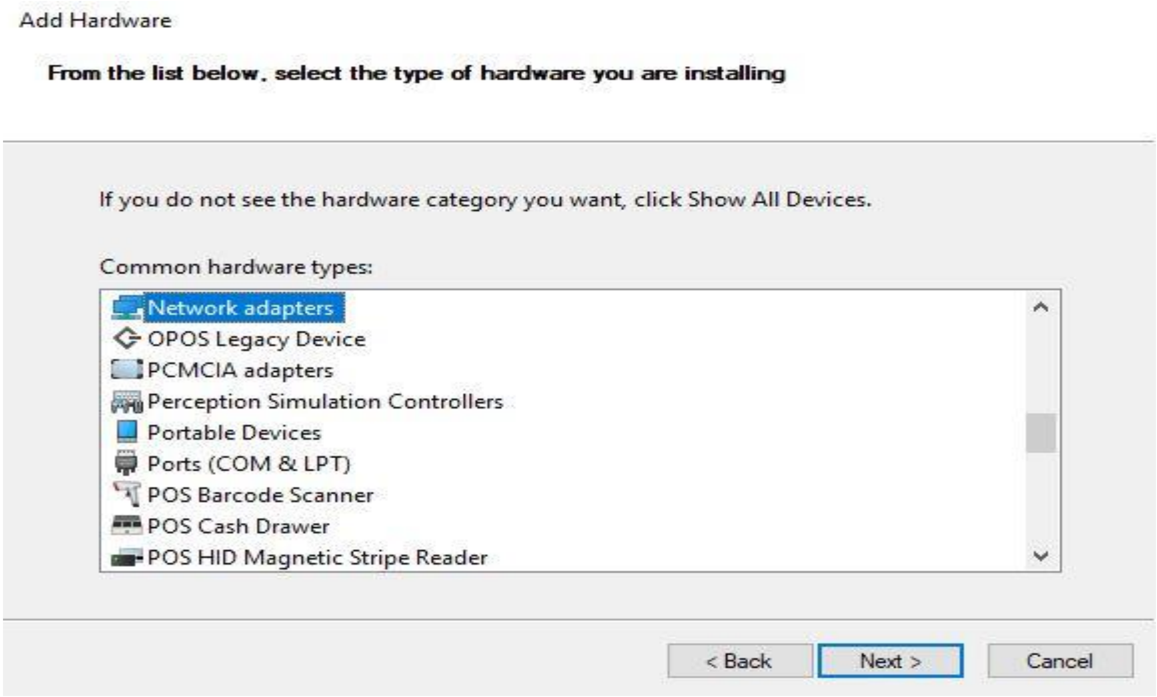
What do you want the wizard to do?

○ Search for and install the hardware automatically (Recommended)

● Install the hardware that I manually select from a list (Advanced)

Figure 3.5: Install Loopback

Step4:



Add Hardware

From the list below, select the type of hardware you are installing

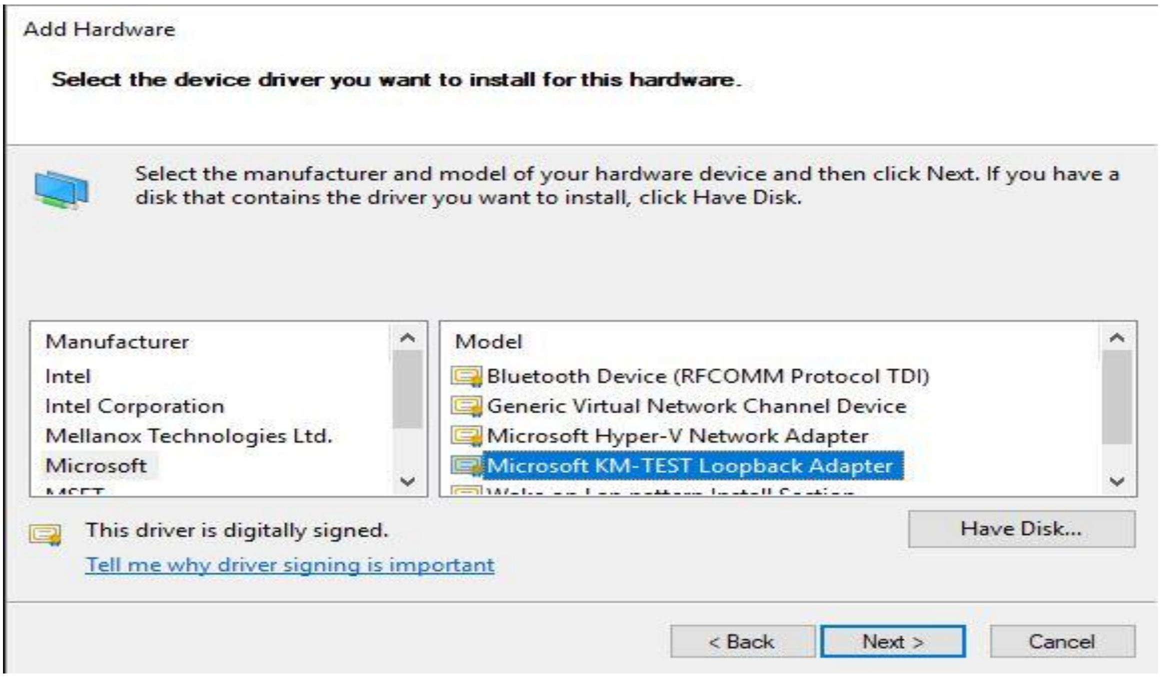
If you do not see the hardware category you want, click Show All Devices.

Common hardware types:

- Network adapters
- OPOS Legacy Device
- PCMCIA adapters
- Perception Simulation Controllers
- Portable Devices
- Ports (COM & LPT)
- POS Barcode Scanner
- POS Cash Drawer
- POS HID Magnetic Stripe Reader

Figure 3.6: Select Network Adaptor

Step5:



Add Hardware

Select the device driver you want to install for this hardware.

Select the manufacturer and model of your hardware device and then click Next. If you have a disk that contains the driver you want to install, click Have Disk.

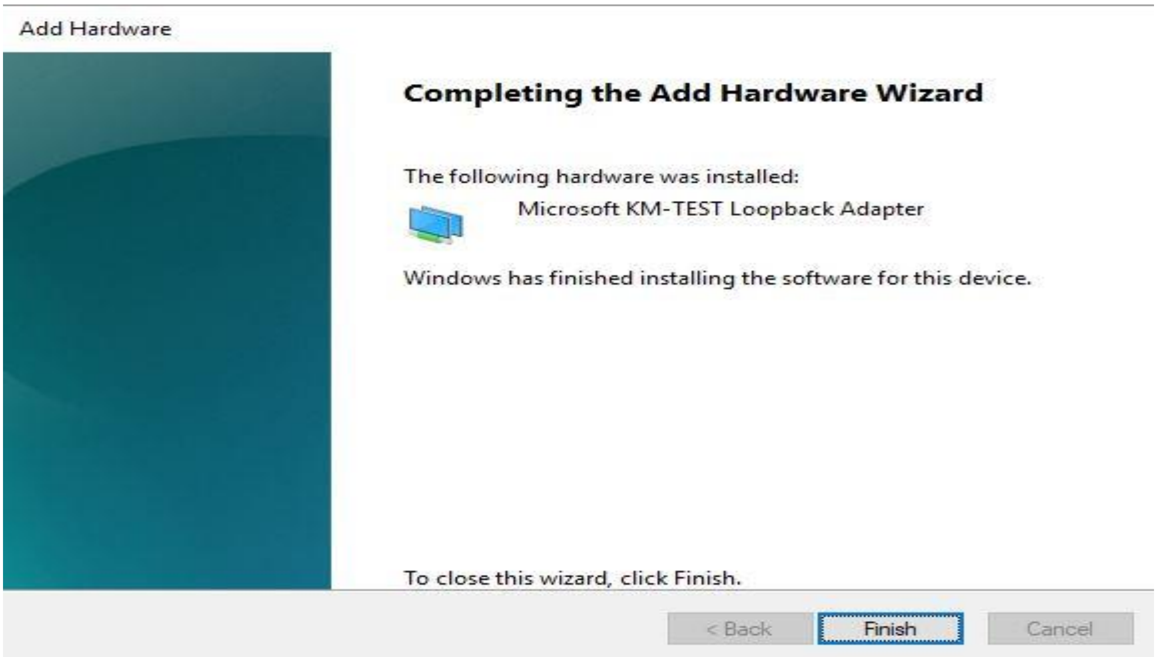
Manufacturer	Model
Intel	Bluetooth Device (RFCOMM Protocol TDI)
Intel Corporation	Generic Virtual Network Channel Device
Mellanox Technologies Ltd.	Microsoft Hyper-V Network Adapter
Microsoft	Microsoft KM-TEST Loopback Adapter

This driver is digitally signed.

Tell me why driver signing is important

Figure 3.7: Device Selection

Step6:



Add Hardware

Completing the Add Hardware Wizard

The following hardware was installed:

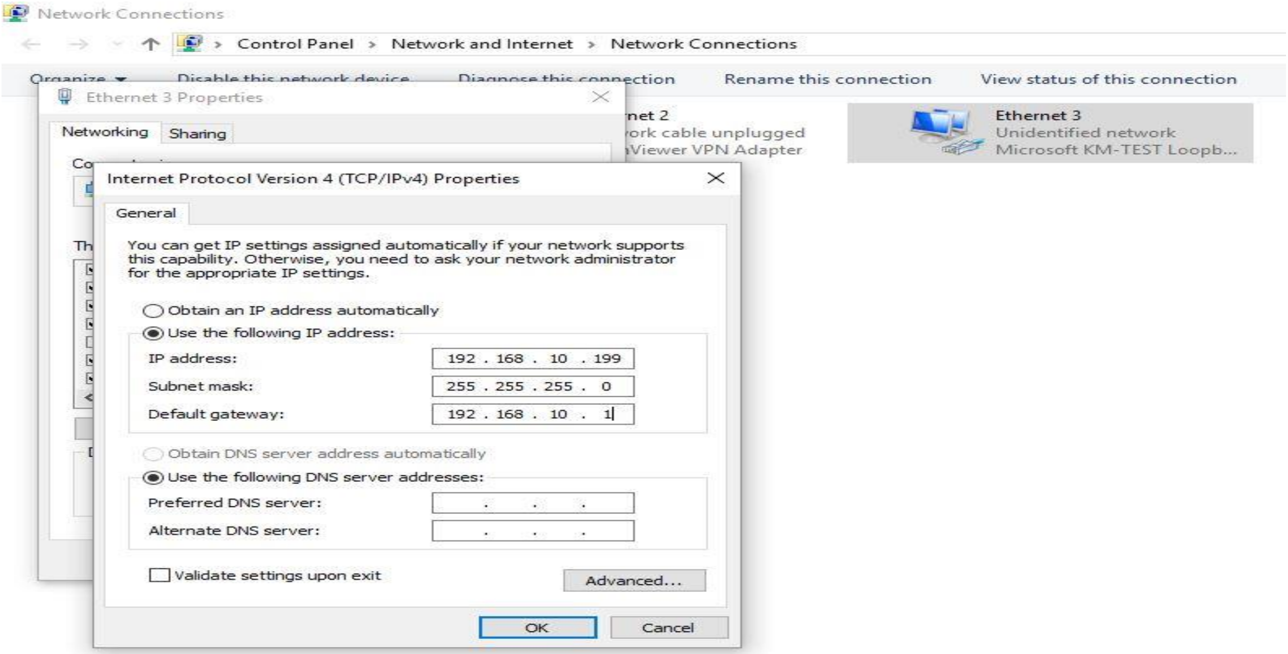
Microsoft KM-TEST Loopback Adapter

Windows has finished installing the software for this device.

To close this wizard, click Finish.

Figure 3.8: Complete Installation

Step7:



Network Connections
Control Panel > Network and Internet > Network Connections
Organize
Disable this network device
Diagnose this connection
Rename this connection
View status of this connection
Ethernet 3 Properties
Networking
Sharing
Ethernet 3
Unidentified network
Microsoft KM-TEST Loopb...

Internet Protocol Version 4 (TCP/IPv4) Properties

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

○ Obtain an IP address automatically

● Use the following IP address:

IP address: 192 . 168 . 10 . 199

Subnet mask: 255 . 255 . 255 . 0

Default gateway: 192 . 168 . 10 . 1

○ Obtain DNS server address automatically

● Use the following DNS server addresses:

Preferred DNS server: . . .

Alternate DNS server: . . .

□ Validate settings upon exit

Figure 3.9: Add Loopback IP Address

3.4 SNMP: SNMP means Simple Network Management Protocol. It works on application layer. SNMP is a protocol of internet standard. This protocol used for collecting and organizing information about the managed device. That typical support SNMP includes modem, switch, router, workstation, server etc.

SNMP is a component of internet protocol suits as defined by the internet engineering task force (IETP)[6].

We used SNMP to connect server with router by loopback interface and monitoring the topology. SNMP monitors and organizes the device information. To monitor router's traffic SNMP is the most important protocol.

CHAPTER 4

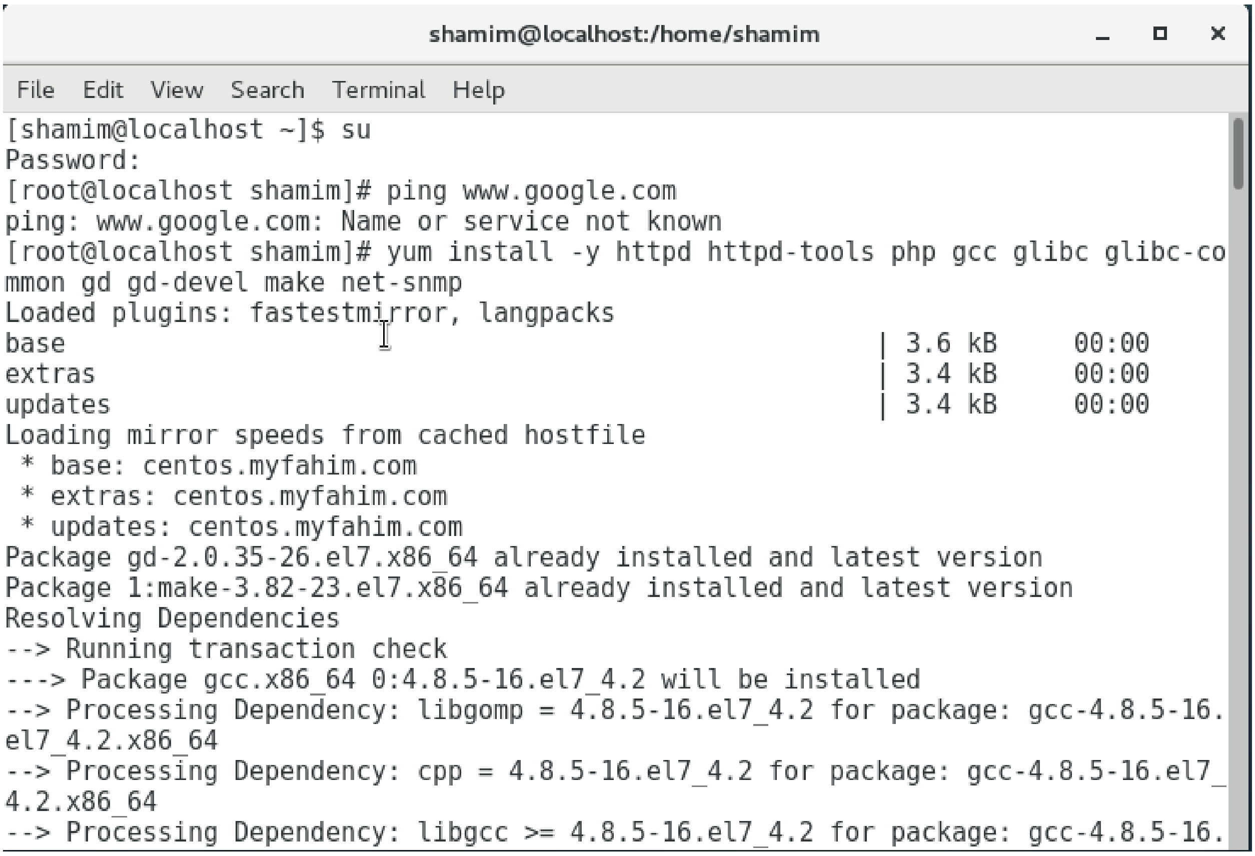
Server Configuration

4.1 Installation of Nagios

Installation process of Nagios is given is below step by step.

4.1.1 Steps of Installation of Nagios

Step 1: At first check ping google.com then install the package #yum install httpd php gcc glibc glibc-common gd gd-devel make net-snmp –snmp

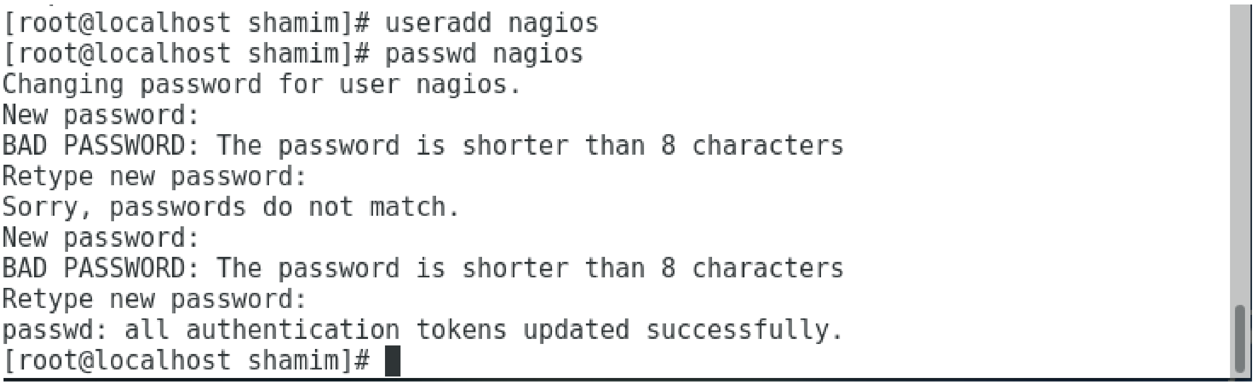


shamim@localhost:/home/shamim
File Edit View Search Terminal Help

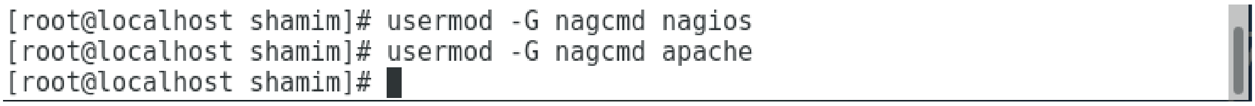
```
[shamim@localhost ~]$ su
Password:
[root@localhost shamim]# ping www.google.com
ping: www.google.com: Name or service not known
[root@localhost shamim]# yum install -y httpd httpd-tools php gcc glibc glibc-co
mmon gd gd-devel make net-snmp
Loaded plugins: fastestmirror, langpacks
base                                                     | 3.6 kB     00:00
extras                                                   | 3.4 kB     00:00
updates                                                  | 3.4 kB     00:00
Loading mirror speeds from cached hostfile
 * base: centos.myfahim.com
 * extras: centos.myfahim.com
 * updates: centos.myfahim.com
Package gd-2.0.35-26.el7.x86_64 already installed and latest version
Package 1:make-3.82-23.el7.x86_64 already installed and latest version
Resolving Dependencies
--> Running transaction check
---> Package gcc.x86_64 0:4.8.5-16.el7_4.2 will be installed
--> Processing Dependency: libgomp = 4.8.5-16.el7_4.2 for package: gcc-4.8.5-16.
el7_4.2.x86_64
--> Processing Dependency: cpp = 4.8.5-16.el7_4.2 for package: gcc-4.8.5-16.el7_
4.2.x86_64
--> Processing Dependency: libgcc >= 4.8.5-16.el7_4.2 for package: gcc-4.8.5-16.
```

Figure 4.1: Installing Nagios package.

Step 2: Then add a user # useradd nagios and passwd nagios.Then groupadd nagcmd



```
[root@localhost shamim]# useradd nagios
[root@localhost shamim]# passwd nagios
Changing password for user nagios.
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
Sorry, passwords do not match.
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: all authentication tokens updated successfully.
[root@localhost shamim]#
```

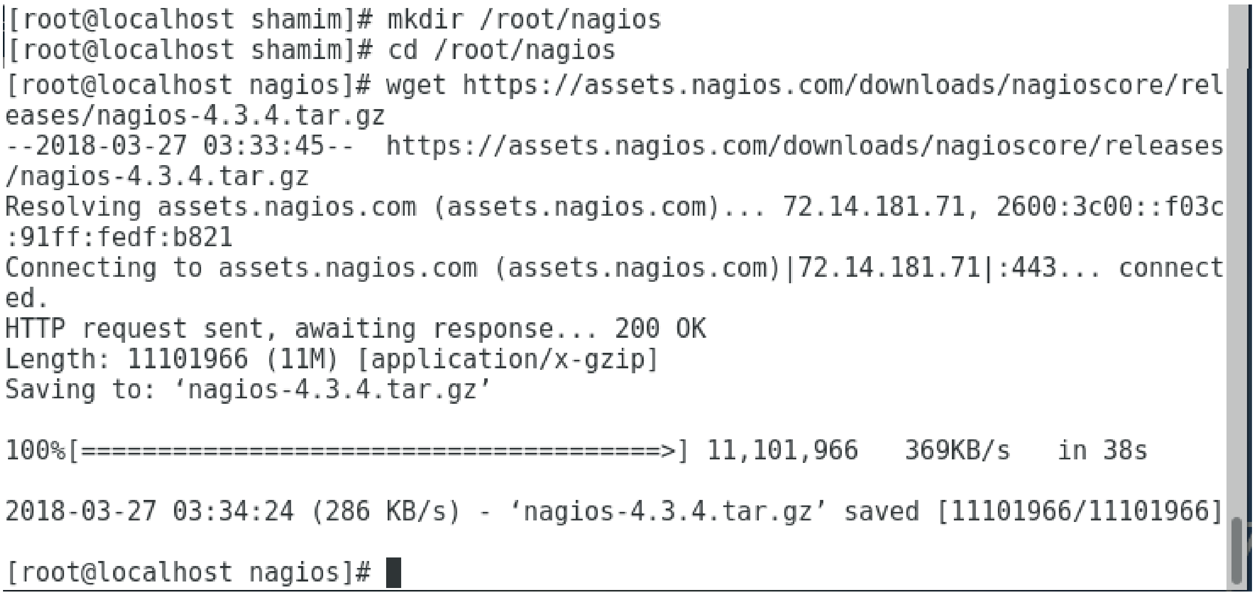


```
[root@localhost shamim]# usermod -G nagcmd nagios
[root@localhost shamim]# usermod -G nagcmd apache
[root@localhost shamim]#
```

Figure 4.2: Add a User and Group.

Step 3: then# mkdir /root/nagios then # cd /root/Nagios

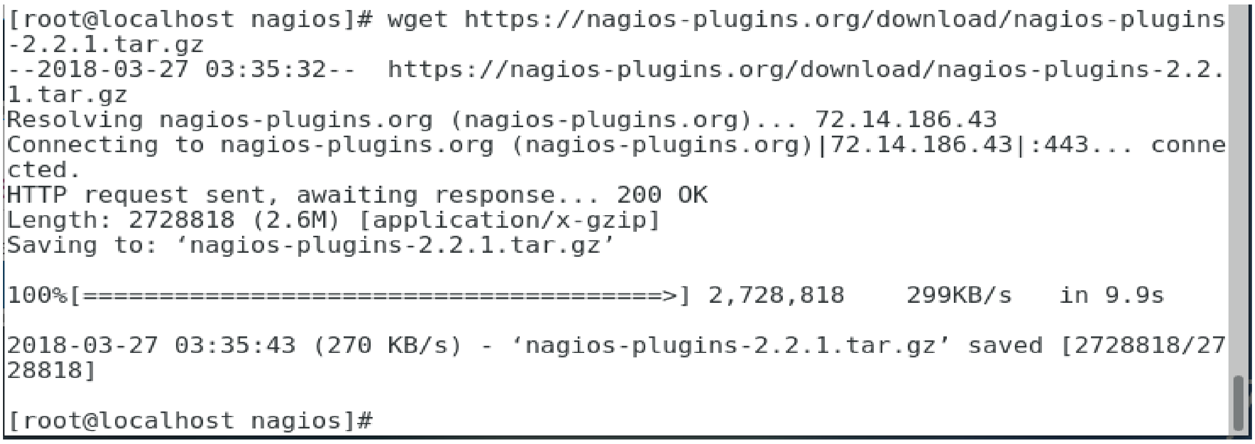
Then # wget https://assets.nagios.com/downloads/nagioscore/releases/nagios-4.3.4.tar.gz



```
[root@localhost shamim]# mkdir /root/nagios
[root@localhost shamim]# cd /root/nagios
[root@localhost nagios]# wget https://assets.nagios.com/downloads/nagioscore/rel
eases/nagios-4.3.4.tar.gz
--2018-03-27 03:33:45--  https://assets.nagios.com/downloads/nagioscore/releases
/nagios-4.3.4.tar.gz
Resolving assets.nagios.com (assets.nagios.com)... 72.14.181.71, 2600:3c00::f03c
:91ff:fedf:b821
Connecting to assets.nagios.com (assets.nagios.com)|72.14.181.71|:443... connect
ed.
HTTP request sent, awaiting response... 200 OK
Length: 11101966 (11M) [application/x-gzip]
Saving to: ‘nagios-4.3.4.tar.gz’

100%[======================================>] 11,101,966   369KB/s   in 38s

2018-03-27 03:34:24 (286 KB/s) - ‘nagios-4.3.4.tar.gz’ saved [11101966/11101966]

[root@localhost nagios]# 
```

Figure 4.3: Download Nagios Core 4.3.4 and Nagios Plug-in 2.2.1

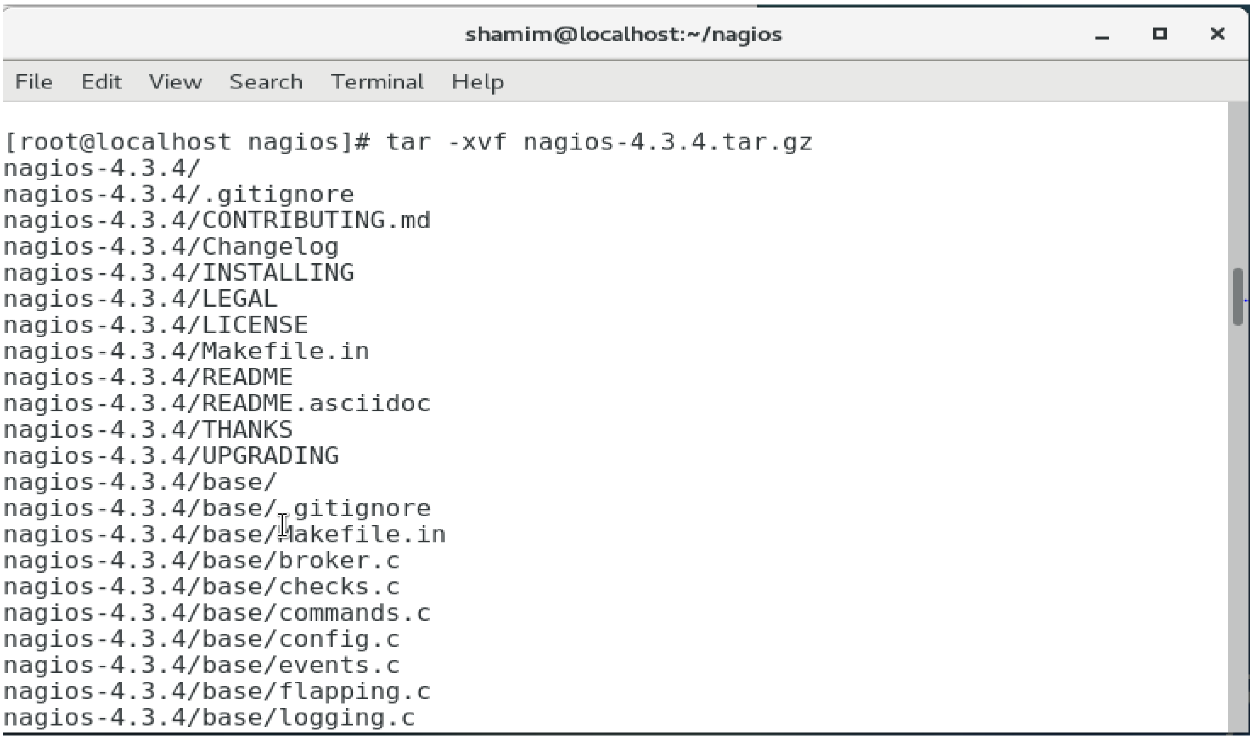
Step 4: then # wget https://nagios-plugins.org/download/nagios-plugins-2.2.1.tar.gz



```
[root@localhost nagios]# wget https://nagios-plugins.org/download/nagios-plugins
-2.2.1.tar.gz
--2018-03-27 03:35:32--  https://nagios-plugins.org/download/nagios-plugins-2.2.
1.tar.gz
Resolving nagios-plugins.org (nagios-plugins.org)... 72.14.186.43
Connecting to nagios-plugins.org (nagios-plugins.org)|72.14.186.43|:443... conne
cted.
HTTP request sent, awaiting response... 200 OK
Length: 2728818 (2.6M) [application/x-gzip]
Saving to: ‘nagios-plugins-2.2.1.tar.gz’

100%[=====================================>] 2,728,818    299KB/s   in 9.9s

2018-03-27 03:35:43 (270 KB/s) - ‘nagios-plugins-2.2.1.tar.gz’ saved [2728818/27
28818]

[root@localhost nagios]#
```

Figure 4.4: Download Nagios Core 4.3.4 and Nagios Plug-in 2.2.1

Step 5: then # tar -xvf nagios-4.3.4.tar.gz then # tar -xvf nagios-plugins-2.2.1.tar.gz

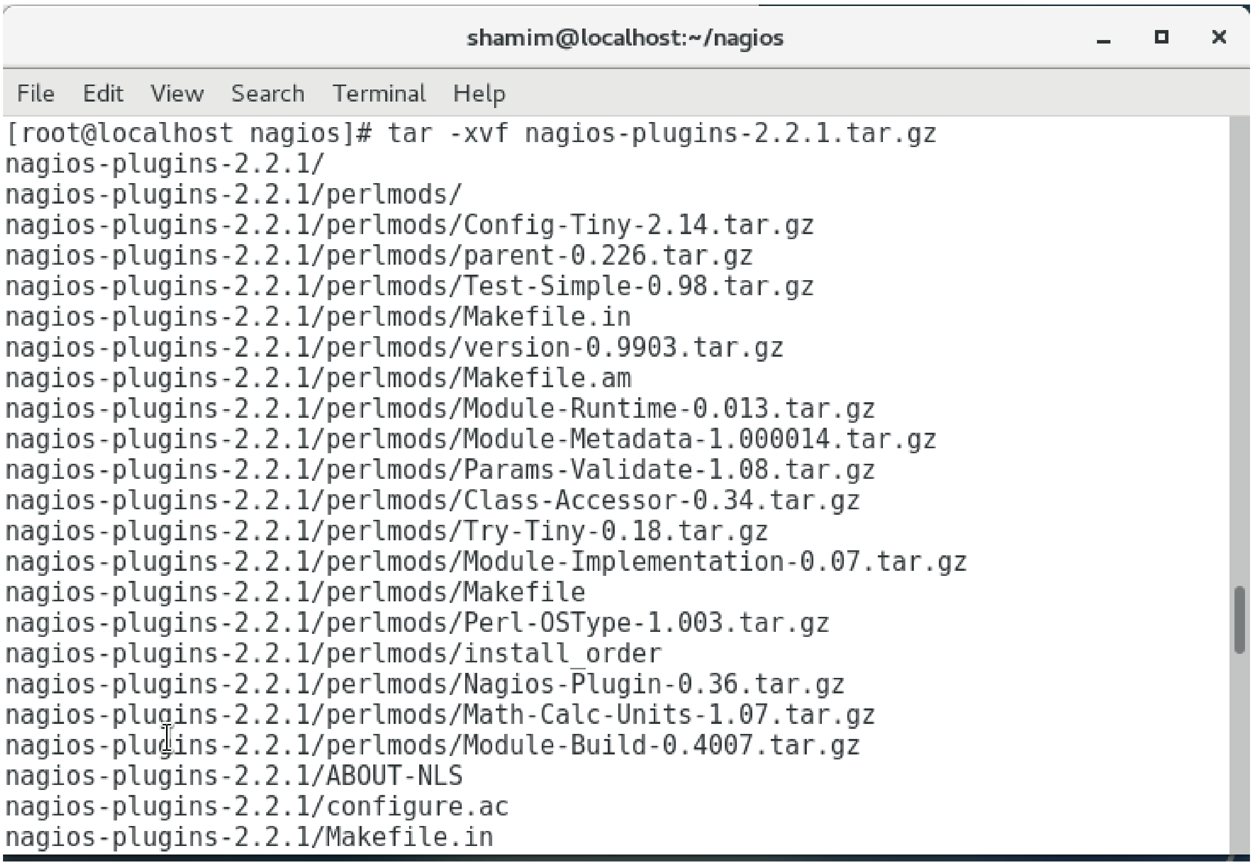


shamim@localhost:~/nagios
File Edit View Search Terminal Help

```
[root@localhost nagios]# tar -xvf nagios-4.3.4.tar.gz
nagios-4.3.4/
nagios-4.3.4/.gitignore
nagios-4.3.4/CONTRIBUTING.md
nagios-4.3.4/Changelog
nagios-4.3.4/INSTALLING
nagios-4.3.4/LEGAL
nagios-4.3.4/LICENSE
nagios-4.3.4/Makefile.in
nagios-4.3.4/README
nagios-4.3.4/README.asciidoc
nagios-4.3.4/THANKS
nagios-4.3.4/UPGRADING
nagios-4.3.4/base/
nagios-4.3.4/base/.gitignore
nagios-4.3.4/base/Makefile.in
nagios-4.3.4/base/broker.c
nagios-4.3.4/base/checks.c
nagios-4.3.4/base/commands.c
nagios-4.3.4/base/config.c
nagios-4.3.4/base/events.c
nagios-4.3.4/base/flapping.c
nagios-4.3.4/base/logging.c
```

Figure 4.5: Download Nagios Core 4.3.4 and Nagios Plug-in 2.2.1

Step 5: then # tar -xvf nagios-plugins-2.2.1.tar.gz



shamim@localhost:~/nagios
File Edit View Search Terminal Help

```
[root@localhost nagios]# tar -xvf nagios-plugins-2.2.1.tar.gz
nagios-plugins-2.2.1/
nagios-plugins-2.2.1/perlmods/
nagios-plugins-2.2.1/perlmods/Config-Tiny-2.14.tar.gz
nagios-plugins-2.2.1/perlmods/parent-0.226.tar.gz
nagios-plugins-2.2.1/perlmods/Test-Simple-0.98.tar.gz
nagios-plugins-2.2.1/perlmods/Makefile.in
nagios-plugins-2.2.1/perlmods/version-0.9903.tar.gz
nagios-plugins-2.2.1/perlmods/Makefile.am
nagios-plugins-2.2.1/perlmods/Module-Runtime-0.013.tar.gz
nagios-plugins-2.2.1/perlmods/Module-Metadata-1.000014.tar.gz
nagios-plugins-2.2.1/perlmods/Params-Validate-1.08.tar.gz
nagios-plugins-2.2.1/perlmods/Class-Accessor-0.34.tar.gz
nagios-plugins-2.2.1/perlmods/Try-Tiny-0.18.tar.gz
nagios-plugins-2.2.1/perlmods/Module-Implementation-0.07.tar.gz
nagios-plugins-2.2.1/perlmods/Makefile
nagios-plugins-2.2.1/perlmods/Perl-OSType-1.003.tar.gz
nagios-plugins-2.2.1/perlmods/install_order
nagios-plugins-2.2.1/perlmods/Nagios-Plugin-0.36.tar.gz
nagios-plugins-2.2.1/perlmods/Math-Calc-Units-1.07.tar.gz
nagios-plugins-2.2.1/perlmods/Module-Build-0.4007.tar.gz
nagios-plugins-2.2.1/ABOUT-NLS
nagios-plugins-2.2.1/configure.ac
nagios-plugins-2.2.1/Makefile.in
```

Figure 4.6: Extract Nagios Core and Its Plug-in

Step 6: then # ls -l

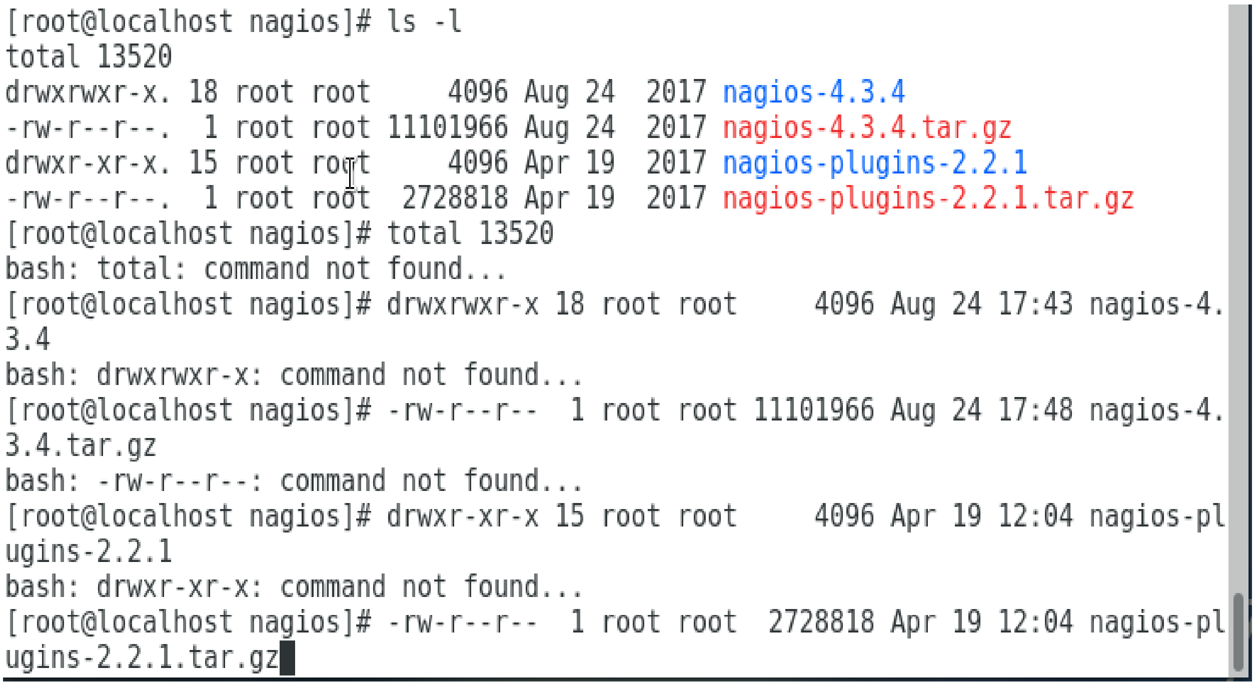
total 13520

drwxrwxr-x 18 root root   4096 Aug 24 17:43 nagios-4.3.4

-rw-r--r-- 1 root root 11101966 Aug 24 17:48 nagios-4.3.4.tar.gz

drwxr-xr-x 15 root root   4096 Apr 19 12:04 nagios-plugins-2.2.1

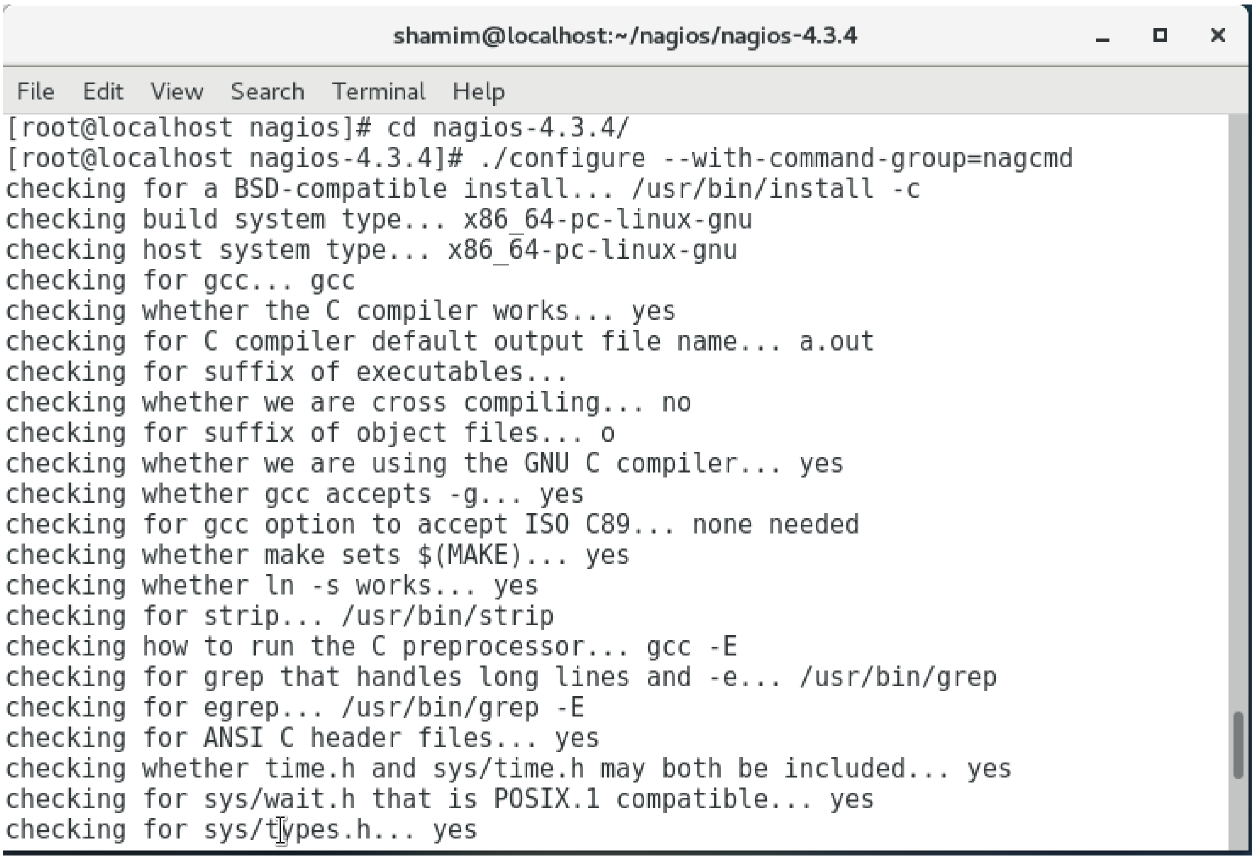
-rw-r--r-- 1 root root 2728818 Apr 19 12:04 nagios-plugins-2.2.1.tar.gz



```
[root@localhost nagios]# ls -l
total 13520
drwxrwxr-x. 18 root root     4096 Aug 24  2017 nagios-4.3.4
-rw-r--r--.  1 root root 11101966 Aug 24  2017 nagios-4.3.4.tar.gz
drwxr-xr-x. 15 root root     4096 Apr 19  2017 nagios-plugins-2.2.1
-rw-r--r--.  1 root root  2728818 Apr 19  2017 nagios-plugins-2.2.1.tar.gz
[root@localhost nagios]# total 13520
bash: total: command not found...
[root@localhost nagios]# drwxrwxr-x 18 root root     4096 Aug 24 17:43 nagios-4.
3.4
bash: drwxrwxr-x: command not found...
[root@localhost nagios]# -rw-r--r--  1 root root 11101966 Aug 24 17:48 nagios-4.
3.4.tar.gz
bash: -rw-r--r--: command not found...
[root@localhost nagios]# drwxr-xr-x 15 root root     4096 Apr 19 12:04 nagios-pl
ugins-2.2.1
bash: drwxr-xr-x: command not found...
[root@localhost nagios]# -rw-r--r--  1 root root  2728818 Apr 19 12:04 nagios-pl
ugins-2.2.1.tar.gz
```

Figure 4.7: Extract Nagios Core and Its Plug-in

Step7: then # cd nagios-4.3.4/ then # ./configure --with-command-group=nagcmd

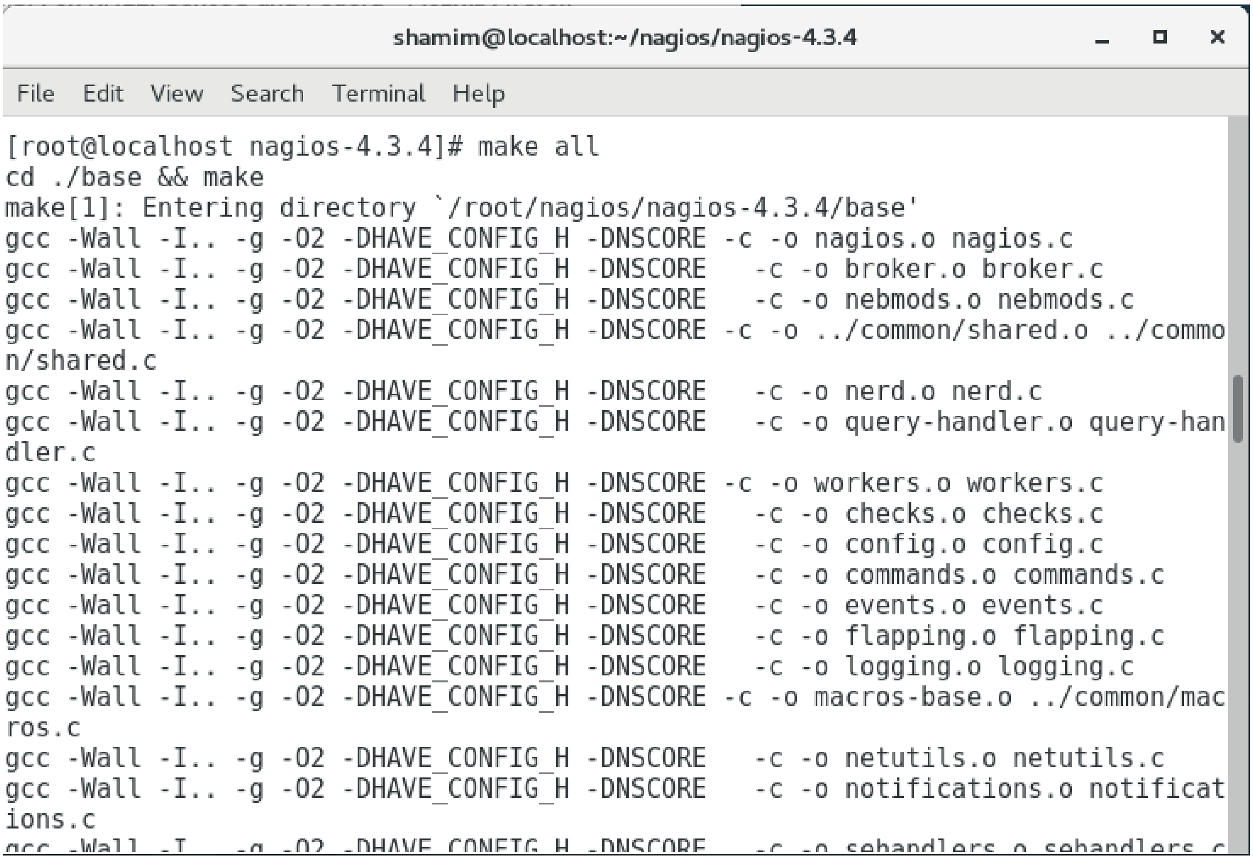


shamim@localhost:~/nagios/nagios-4.3.4
File Edit View Search Terminal Help

```
[root@localhost nagios]# cd nagios-4.3.4/
[root@localhost nagios-4.3.4]# ./configure --with-command-group=nagcmd
checking for a BSD-compatible install... /usr/bin/install -c
checking build system type... x86_64-pc-linux-gnu
checking host system type... x86_64-pc-linux-gnu
checking for gcc... gcc
checking whether the C compiler works... yes
checking for C compiler default output file name... a.out
checking for suffix of executables...
checking whether we are cross compiling... no
checking for suffix of object files... o
checking whether we are using the GNU C compiler... yes
checking whether gcc accepts -g... yes
checking for gcc option to accept ISO C89... none needed
checking whether make sets $(MAKE)... yes
checking whether ln -s works... yes
checking for strip... /usr/bin/strip
checking how to run the C preprocessor... gcc -E
checking for grep that handles long lines and -e... /usr/bin/grep
checking for egrep... /usr/bin/grep -E
checking for ANSI C header files... yes
checking whether time.h and sys/time.h may both be included... yes
checking for sys/wait.h that is POSIX.1 compatible... yes
checking for sys/types.h... yes
```

Figure 4.8: Configure Nagios Core

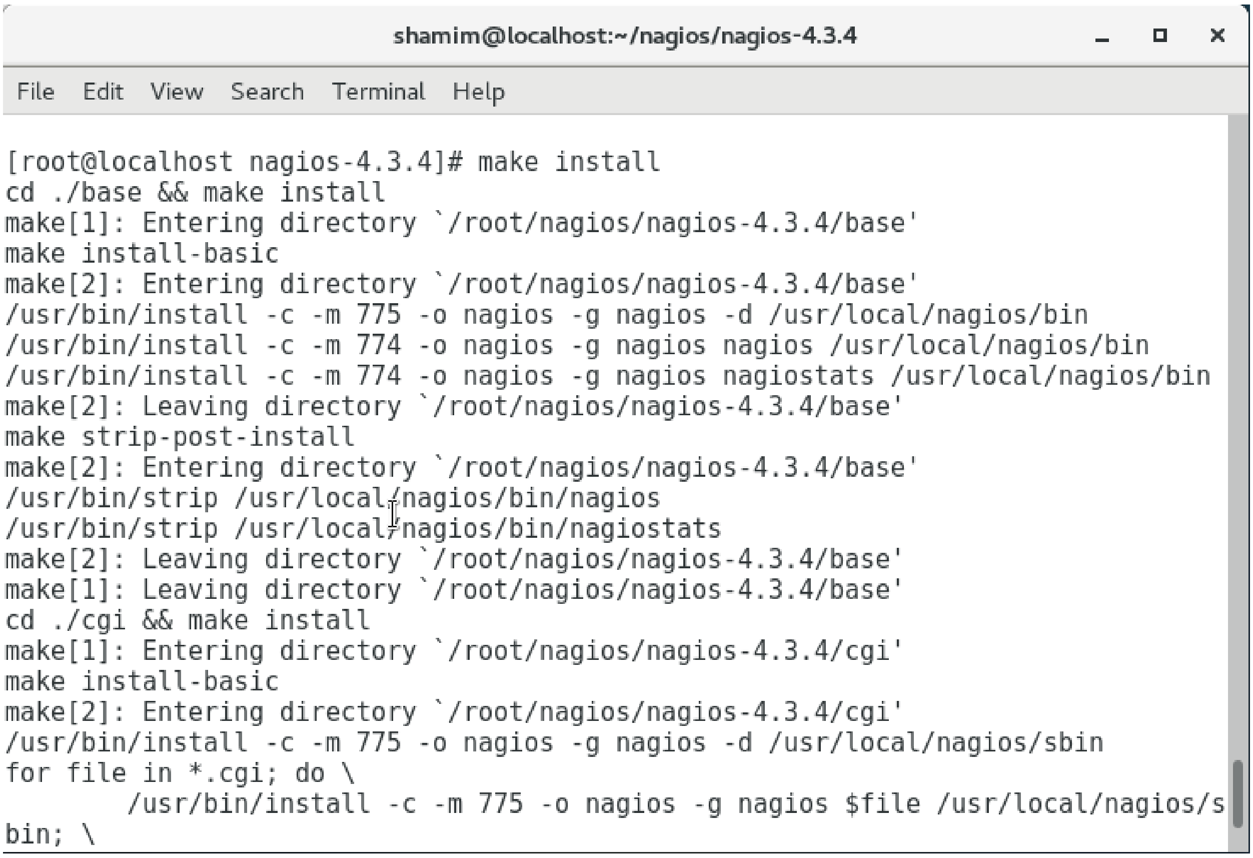
Step 8: then # make all then


shamim@localhost:~/nagios/nagios-4.3.4
File Edit View Search Terminal Help

```
[root@localhost nagios-4.3.4]# make all
cd ./base && make
make[1]: Entering directory `/root/nagios/nagios-4.3.4/base'
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE -c -o nagios.o nagios.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE   -c -o broker.o broker.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE   -c -o nebmods.o nebmods.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE -c -o ../common/shared.o ../commo
n/shared.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE   -c -o nerd.o nerd.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE   -c -o query-handler.o query-han
dler.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE -c -o workers.o workers.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE   -c -o checks.o checks.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE   -c -o config.o config.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE   -c -o commands.o commands.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE   -c -o events.o events.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE   -c -o flapping.o flapping.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE   -c -o logging.o logging.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE -c -o macros-base.o ../common/mac
ros.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE   -c -o netutils.o netutils.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE   -c -o notifications.o notificat
ions.c
gcc -Wall -I.. -g -O2 -DHAVE_CONFIG_H -DNSCORE   -c -o sehandlers.o sehandlers.c
```

Figure 4.9: Configure Nagios Core

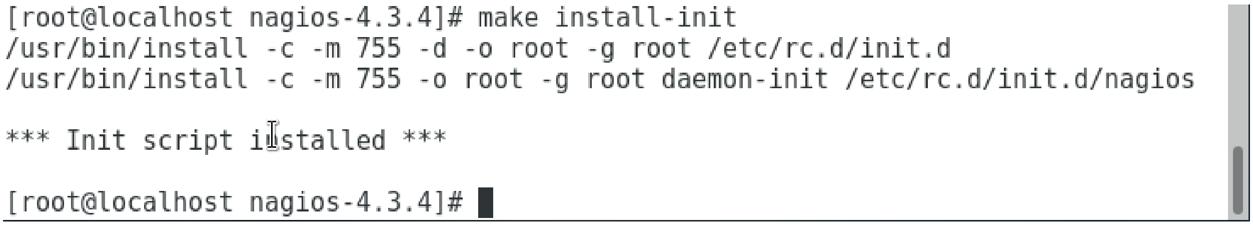
Step 9 : then # make install


shamim@localhost:~/nagios/nagios-4.3.4
File Edit View Search Terminal Help

```
[root@localhost nagios-4.3.4]# make install
cd ./base && make install
make[1]: Entering directory `/root/nagios/nagios-4.3.4/base'
make install-basic
make[2]: Entering directory `/root/nagios/nagios-4.3.4/base'
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/bin
/usr/bin/install -c -m 774 -o nagios -g nagios nagios /usr/local/nagios/bin
/usr/bin/install -c -m 774 -o nagios -g nagios nagiostats /usr/local/nagios/bin
make[2]: Leaving directory `/root/nagios/nagios-4.3.4/base'
make strip-post-install
make[2]: Entering directory `/root/nagios/nagios-4.3.4/base'
/usr/bin/strip /usr/local/nagios/bin/nagios
/usr/bin/strip /usr/local/nagios/bin/nagiostats
make[2]: Leaving directory `/root/nagios/nagios-4.3.4/base'
make[1]: Leaving directory `/root/nagios/nagios-4.3.4/base'
cd ./cgi && make install
make[1]: Entering directory `/root/nagios/nagios-4.3.4/cgi'
make install-basic
make[2]: Entering directory `/root/nagios/nagios-4.3.4/cgi'
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/sbin
for file in *.cgi; do \
        /usr/bin/install -c -m 775 -o nagios -g nagios $file /usr/local/nagios/s
bin; \
```

Figure 4.10: Configure Nagios Core

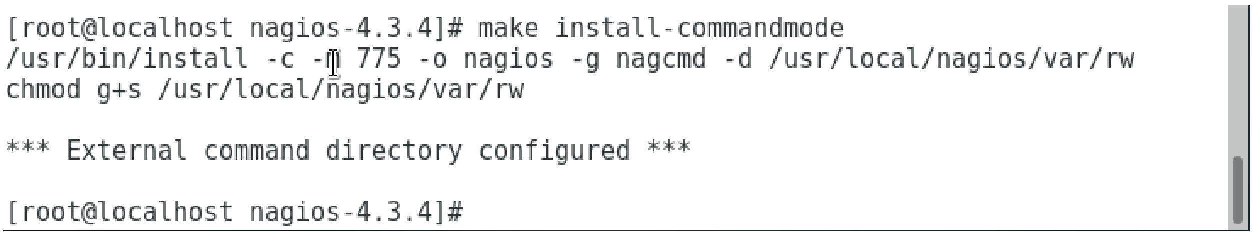
Step 10 : then # make install-init



```
[root@localhost nagios-4.3.4]# make install-init
/usr/bin/install -c -m 755 -d -o root -g root /etc/rc.d/init.d
/usr/bin/install -c -m 755 -o root -g root daemon-init /etc/rc.d/init.d/nagios

*** Init script installed ***

[root@localhost nagios-4.3.4]# 
```

Figure 4.11: Install the Init Scripts for Nagios.

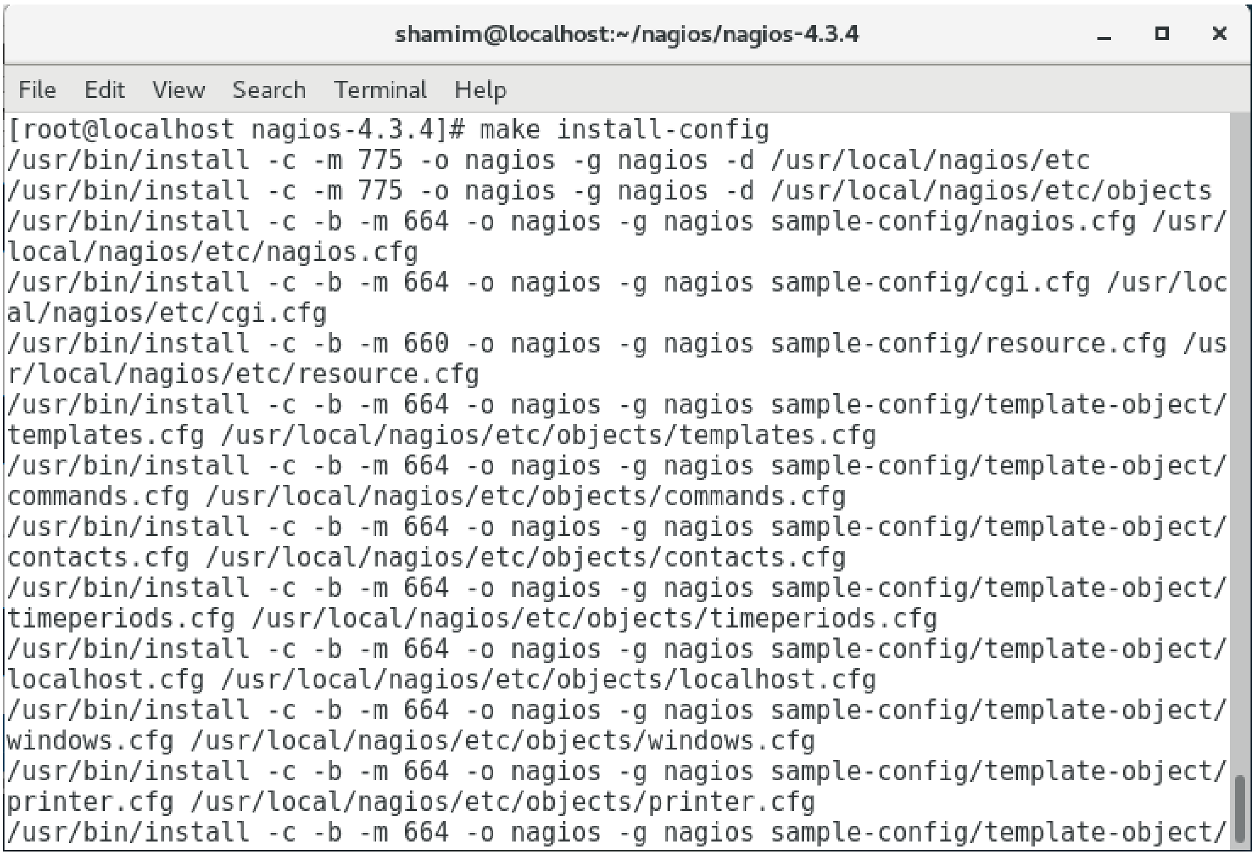
Step 11: then # make install-commandmode



```
[root@localhost nagios-4.3.4]# make install-commandmode
/usr/bin/install -c -m 775 -o nagios -g nagcmd -d /usr/local/nagios/var/rw
chmod g+s /usr/local/nagios/var/rw

*** External command directory configured ***

[root@localhost nagios-4.3.4]#
```

Figure 4.12: Configure Nagios Core

Step 12: then # make install-config



```
[root@localhost nagios-4.3.4]# make install-config
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/etc
/usr/bin/install -c -m 775 -o nagios -g nagios -d /usr/local/nagios/etc/objects
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/nagios.cfg /usr/
local/nagios/etc/nagios.cfg
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/cgi.cfg /usr/loc
al/nagios/etc/cgi.cfg
/usr/bin/install -c -b -m 660 -o nagios -g nagios sample-config/resource.cfg /us
r/local/nagios/etc/resource.cfg
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/
templates.cfg /usr/local/nagios/etc/objects/templates.cfg
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/
commands.cfg /usr/local/nagios/etc/objects/commands.cfg
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/
contacts.cfg /usr/local/nagios/etc/objects/contacts.cfg
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/
timeperiods.cfg /usr/local/nagios/etc/objects/timeperiods.cfg
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/
localhost.cfg /usr/local/nagios/etc/objects/localhost.cfg
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/
windows.cfg /usr/local/nagios/etc/objects/windows.cfg
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/
printer.cfg /usr/local/nagios/etc/objects/printer.cfg
/usr/bin/install -c -b -m 664 -o nagios -g nagios sample-config/template-object/
```

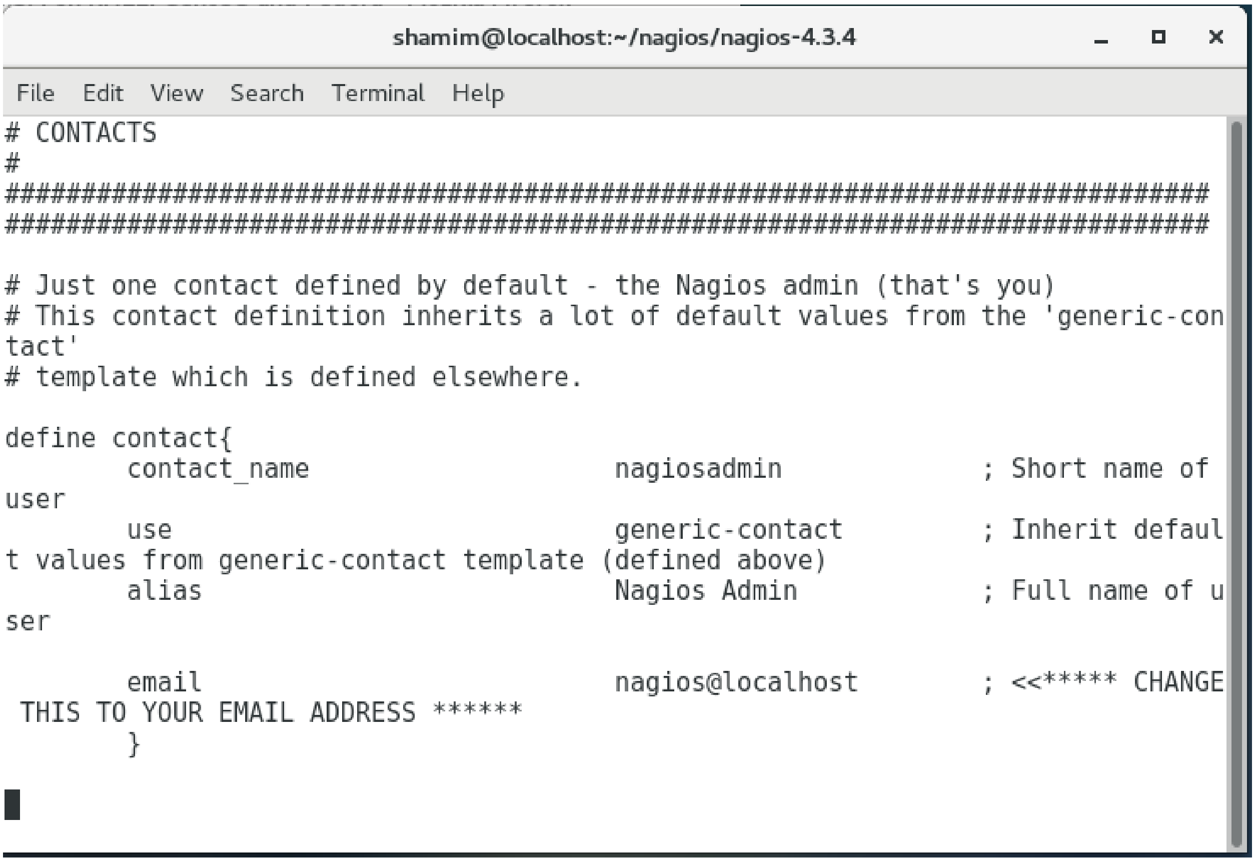
Figure 4.13: Install Sample Nagios Files

Step 12 :then # htpasswd -s -c /usr/local/nagios/etc/htpasswd.users nagiosadmin

New password:

Re-type new password:

Adding password for user Nagios admin

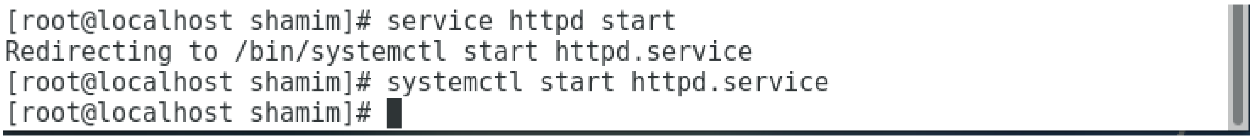


shamim@localhost:~/nagios/nagios-4.3.4
File Edit View Search Terminal Help

```
# CONTACTS
#
###############################################################################
###############################################################################

# Just one contact defined by default - the Nagios admin (that's you)
# This contact definition inherits a lot of default values from the 'generic-con
tact'
# template which is defined elsewhere.

define contact{
        contact_name                    nagiosadmin             ; Short name of
user
        use                             generic-contact         ; Inherit defaul
t values from generic-contact template (defined above)
        alias                           Nagios Admin            ; Full name of u
ser

        email                           nagios@localhost        ; <<***** CHANGE
 THIS TO YOUR EMAIL ADDRESS ******
        }

```

Figure 4.14: Install and Configure Web Interface for Nagios

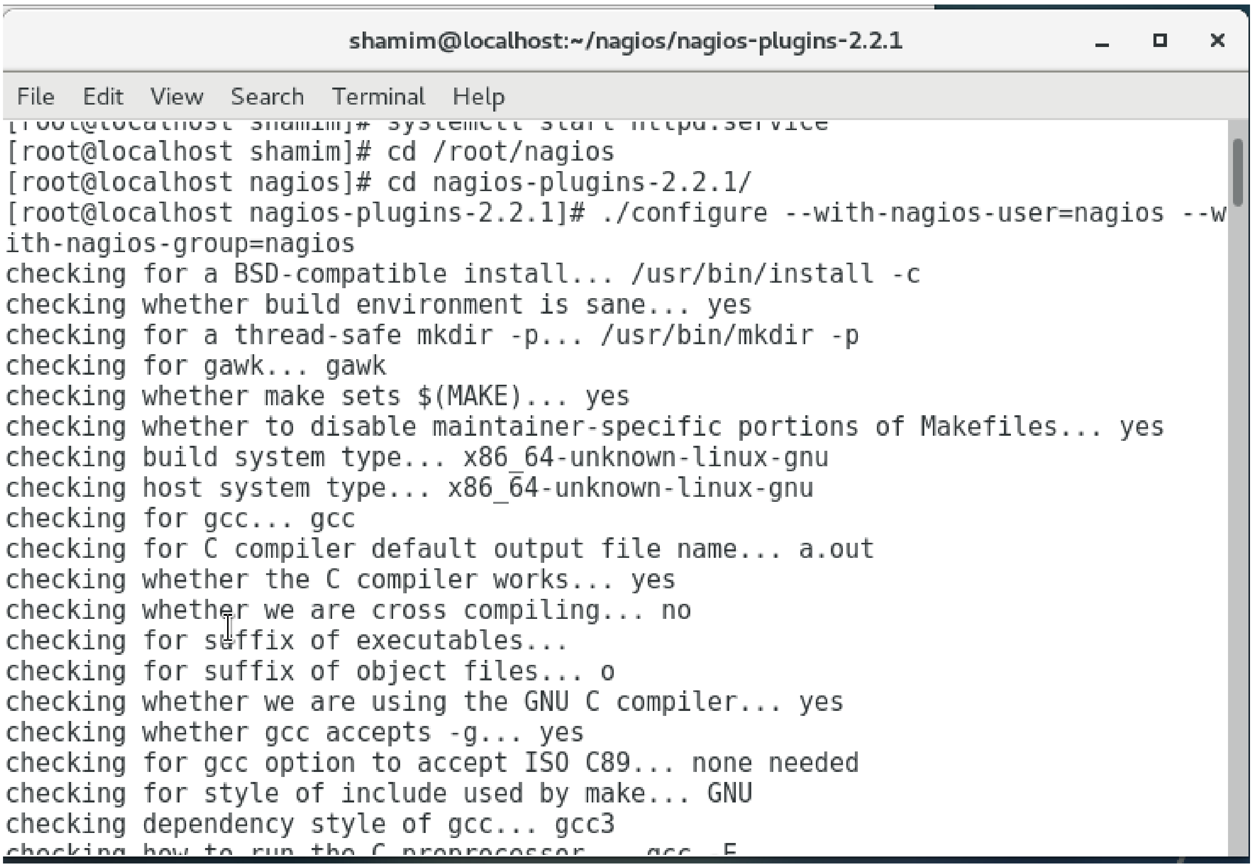
Step 13: then # systemctl start httpd.service



```
[root@localhost shamim]# service httpd start
Redirecting to /bin/systemctl start httpd.service
[root@localhost shamim]# systemctl start httpd.service
[root@localhost shamim]# 
```

Figure 4.15: Restart Apache

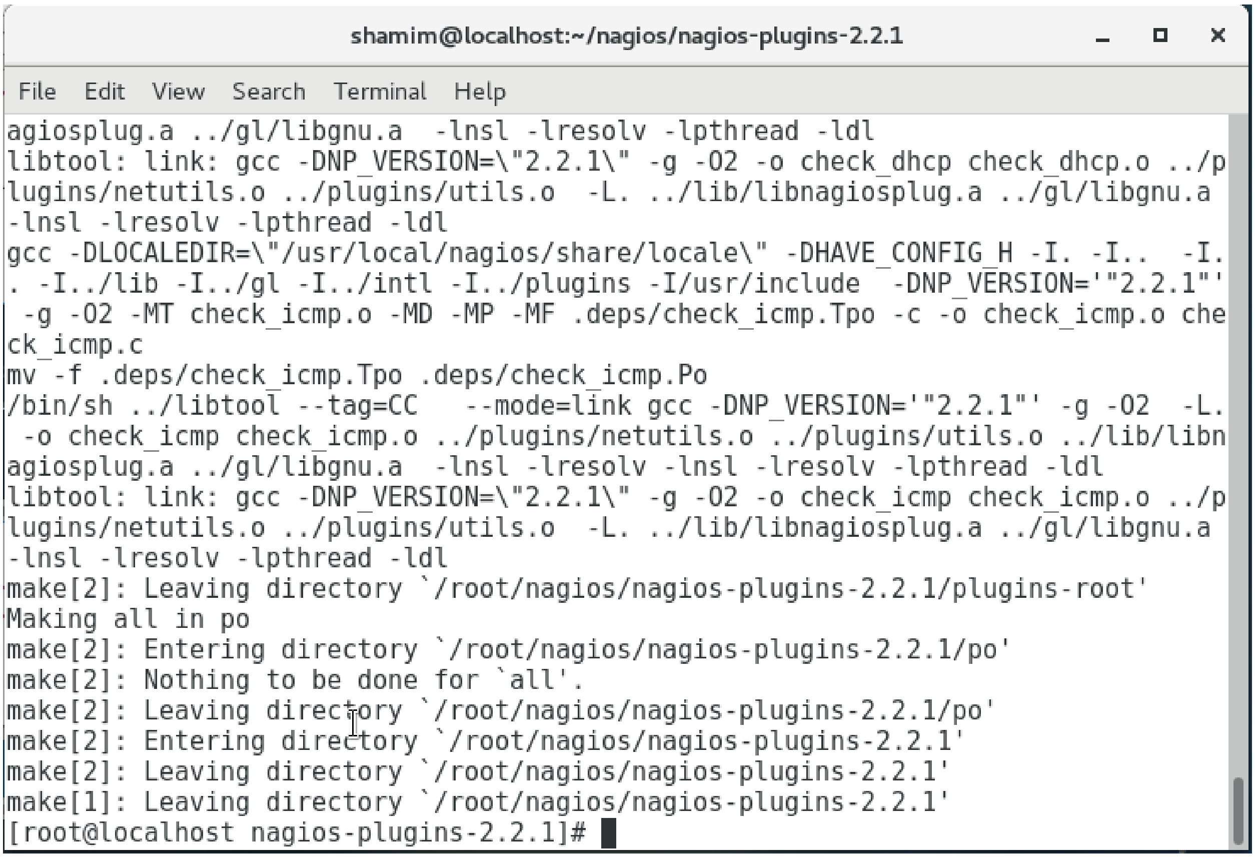
Step 14: then # cd /root/nagios then # cd nagios-plugins-2.2.1/ then # ./configure --with-nagios-user=nagios --with-nagios-group=nagios



```
[root@localhost shamim]# systemctl start httpd.service
[root@localhost shamim]# cd /root/nagios
[root@localhost nagios]# cd nagios-plugins-2.2.1/
[root@localhost nagios-plugins-2.2.1]# ./configure --with-nagios-user=nagios --w
ith-nagios-group=nagios
checking for a BSD-compatible install... /usr/bin/install -c
checking whether build environment is sane... yes
checking for a thread-safe mkdir -p... /usr/bin/mkdir -p
checking for gawk... gawk
checking whether make sets $(MAKE)... yes
checking whether to disable maintainer-specific portions of Makefiles... yes
checking build system type... x86_64-unknown-linux-gnu
checking host system type... x86_64-unknown-linux-gnu
checking for gcc... gcc
checking for C compiler default output file name... a.out
checking whether the C compiler works... yes
checking whether we are cross compiling... no
checking for suffix of executables...
checking for suffix of object files... o
checking whether we are using the GNU C compiler... yes
checking whether gcc accepts -g... yes
checking for gcc option to accept ISO C89... none needed
checking for style of include used by make... GNU
checking dependency style of gcc... gcc3
checking how to run the C preprocessor... gcc -E
```

Figure 4.16: Compile and Install Nagios Plug-in

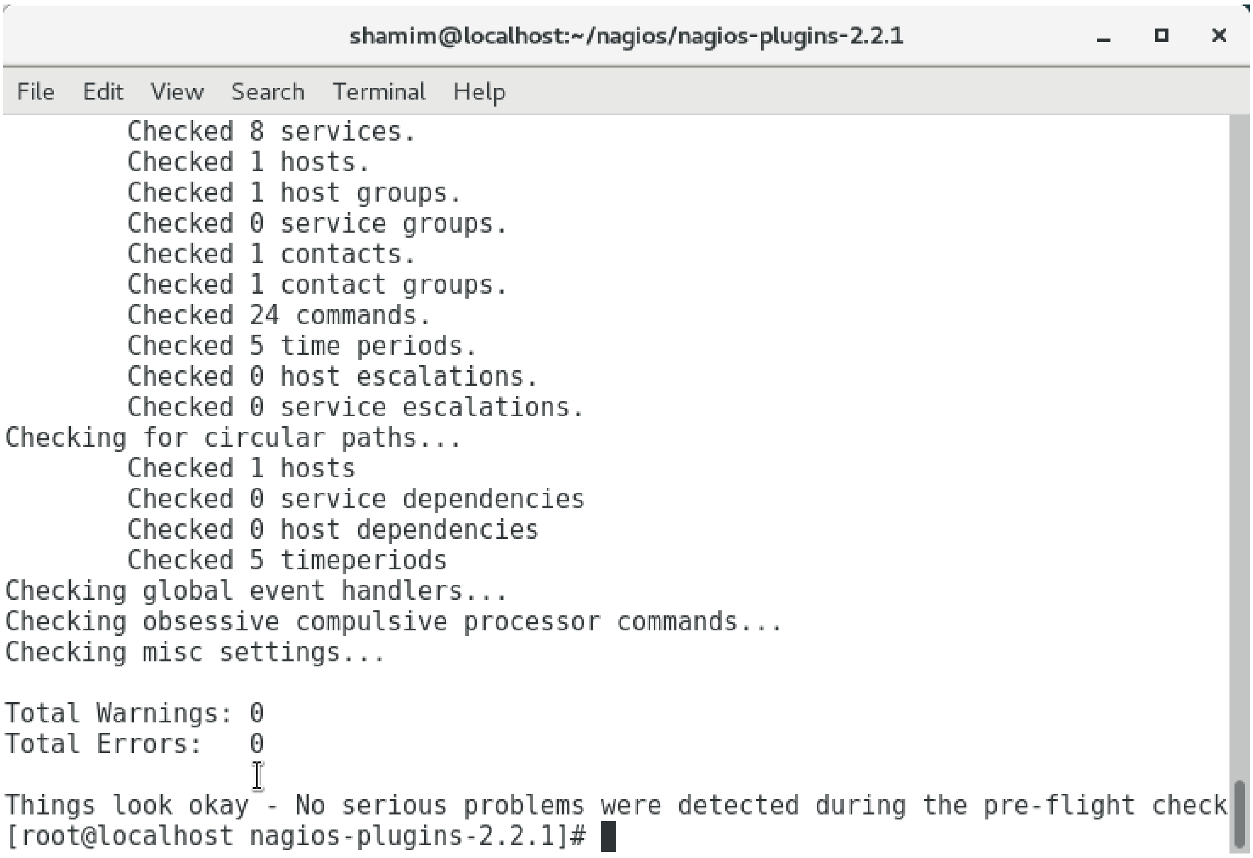
Step 15: then # make then # make install



shamim@localhost:~/nagios/nagios-plugins-2.2.1
File Edit View Search Terminal Help

```
agiosplug.a ../gl/libgnu.a  -lnsl -lresolv -lpthread -ldl
libtool: link: gcc -DNP_VERSION=\"2.2.1\" -g -O2 -o check_dhcp check_dhcp.o ../p
lugins/netutils.o ../plugins/utils.o  -L. ../lib/libnagiosplug.a ../gl/libgnu.a
-lnsl -lresolv -lpthread -ldl
gcc -DLOCALEDIR=\"/usr/local/nagios/share/locale\" -DHAVE_CONFIG_H -I. -I..  -I.
. -I../lib -I../gl -I../intl -I../plugins -I/usr/include  -DNP_VERSION='"2.2.1"'
 -g -O2 -MT check_icmp.o -MD -MP -MF .deps/check_icmp.Tpo -c -o check_icmp.o che
ck_icmp.c
mv -f .deps/check_icmp.Tpo .deps/check_icmp.Po
/bin/sh ../libtool --tag=CC   --mode=link gcc -DNP_VERSION='"2.2.1"' -g -O2  -L.
 -o check_icmp check_icmp.o ../plugins/netutils.o ../plugins/utils.o ../lib/libn
agiosplug.a ../gl/libgnu.a  -lnsl -lresolv -lnsl -lresolv -lpthread -ldl
libtool: link: gcc -DNP_VERSION=\"2.2.1\" -g -O2 -o check_icmp check_icmp.o ../p
lugins/netutils.o ../plugins/utils.o  -L. ../lib/libnagiosplug.a ../gl/libgnu.a
-lnsl -lresolv -lpthread -ldl
make[2]: Leaving directory `/root/nagios/nagios-plugins-2.2.1/plugins-root'
Making all in po
make[2]: Entering directory `/root/nagios/nagios-plugins-2.2.1/po'
make[2]: Nothing to be done for `all'.
make[2]: Leaving directory `/root/nagios/nagios-plugins-2.2.1/po'
make[2]: Entering directory `/root/nagios/nagios-plugins-2.2.1'
make[2]: Leaving directory `/root/nagios/nagios-plugins-2.2.1'
make[1]: Leaving directory `/root/nagios/nagios-plugins-2.2.1'
[root@localhost nagios-plugins-2.2.1]#
```

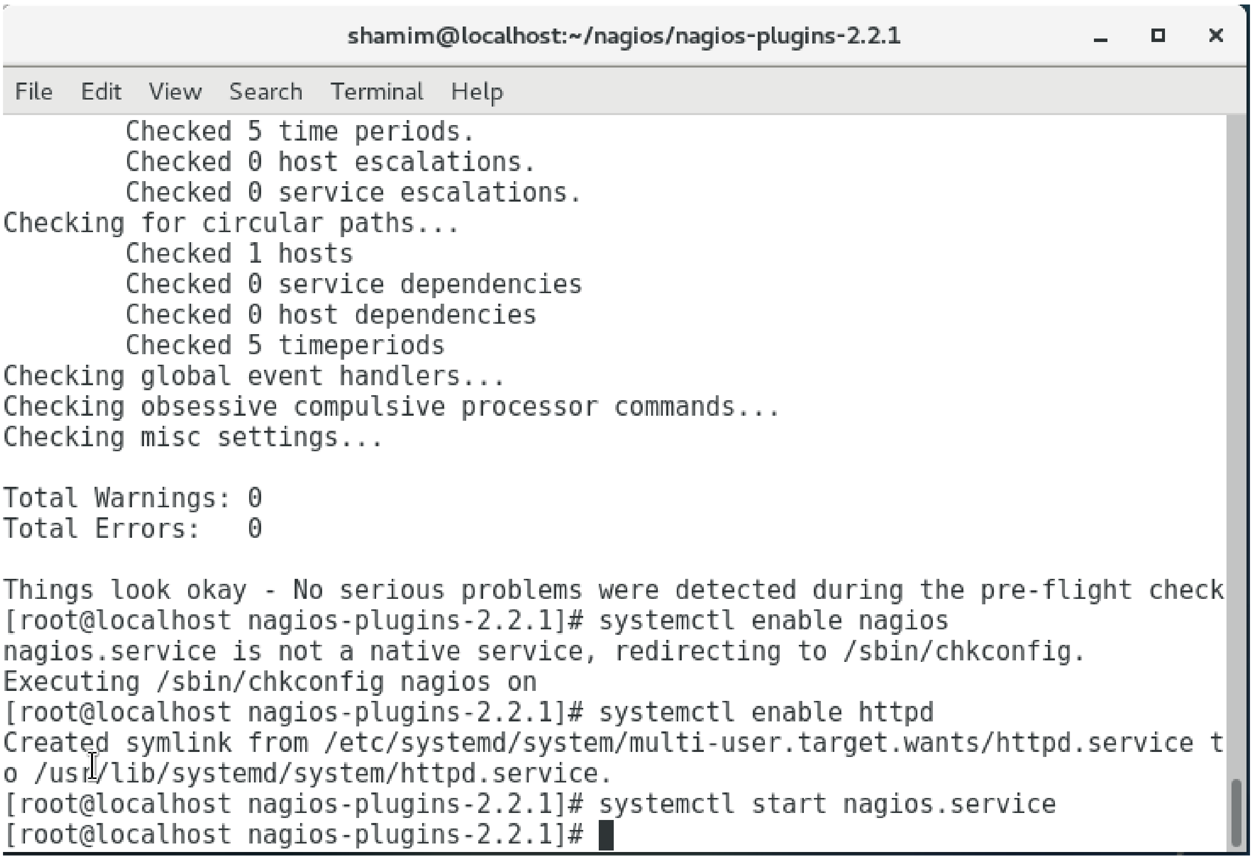
Figure 4.17: Compile and Install Nagios Plug-in


shamim@localhost:~/nagios/nagios-plugins-2.2.1
File Edit View Search Terminal Help

```
        Checked 8 services.
        Checked 1 hosts.
        Checked 1 host groups.
        Checked 0 service groups.
        Checked 1 contacts.
        Checked 1 contact groups.
        Checked 24 commands.
        Checked 5 time periods.
        Checked 0 host escalations.
        Checked 0 service escalations.
Checking for circular paths...
        Checked 1 hosts
        Checked 0 service dependencies
        Checked 0 host dependencies
        Checked 5 timeperiods
Checking global event handlers...
Checking obsessive compulsive processor commands...
Checking misc settings...

Total Warnings: 0
Total Errors:   0

Things look okay - No serious problems were detected during the pre-flight check
[root@localhost nagios-plugins-2.2.1]# 
```

Figure 4.18: Compile and Install Nagios Plug-in

Step 16: then # /usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg then # systemctl enable nagios then # systemctl enable httpd then # systemctl start nagios.service

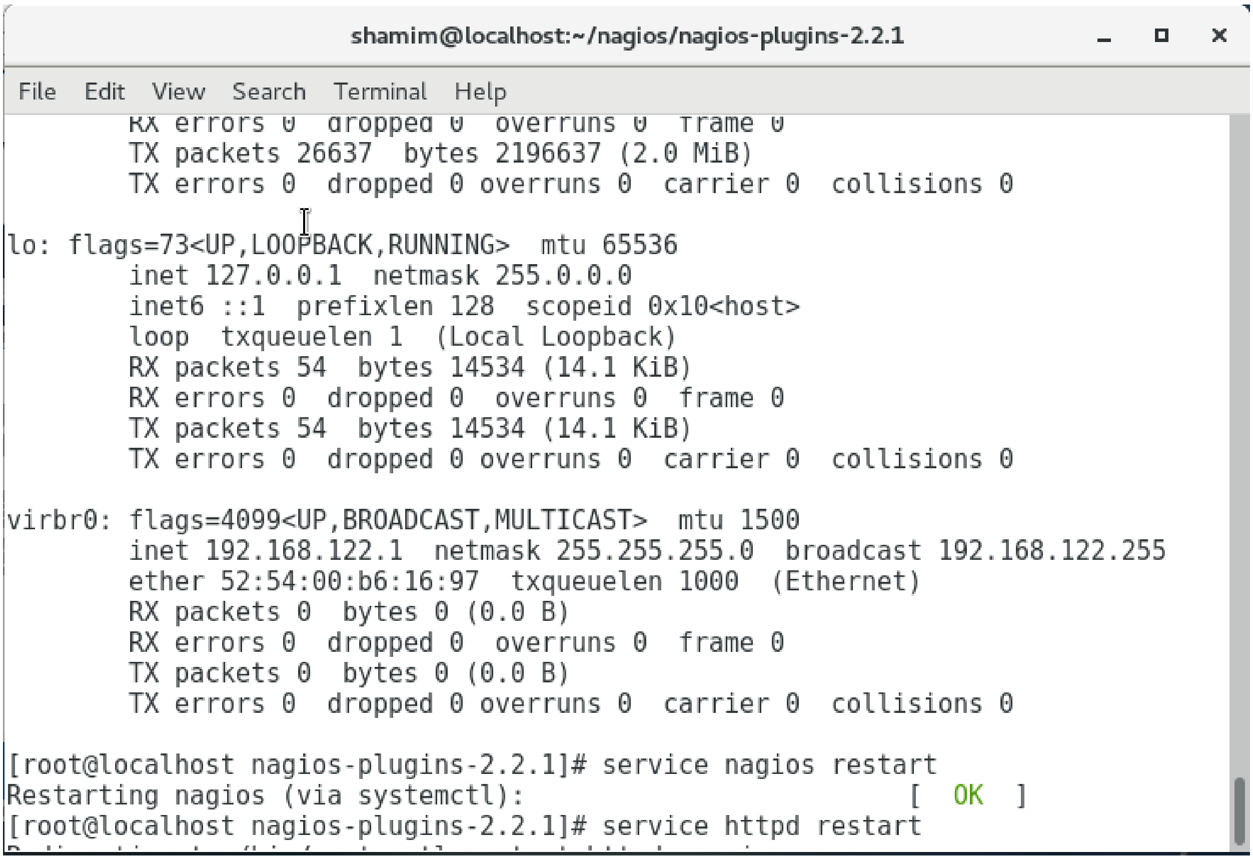


shamim@localhost:~/nagios/nagios-plugins-2.2.1
File Edit View Search Terminal Help

```
        Checked 5 time periods.
        Checked 0 host escalations.
        Checked 0 service escalations.
Checking for circular paths...
        Checked 1 hosts
        Checked 0 service dependencies
        Checked 0 host dependencies
        Checked 5 timeperiods
Checking global event handlers...
Checking obsessive compulsive processor commands...
Checking misc settings...

Total Warnings: 0
Total Errors:   0

Things look okay - No serious problems were detected during the pre-flight check
[root@localhost nagios-plugins-2.2.1]# systemctl enable nagios
nagios.service is not a native service, redirecting to /sbin/chkconfig.
Executing /sbin/chkconfig nagios on
[root@localhost nagios-plugins-2.2.1]# systemctl enable httpd
Created symlink from /etc/systemd/system/multi-user.target.wants/httpd.service t
o /usr/lib/systemd/system/httpd.service.
[root@localhost nagios-plugins-2.2.1]# systemctl start nagios.service
[root@localhost nagios-plugins-2.2.1]# 
```

Figure 4.19: Verify Nagios Configuration Files

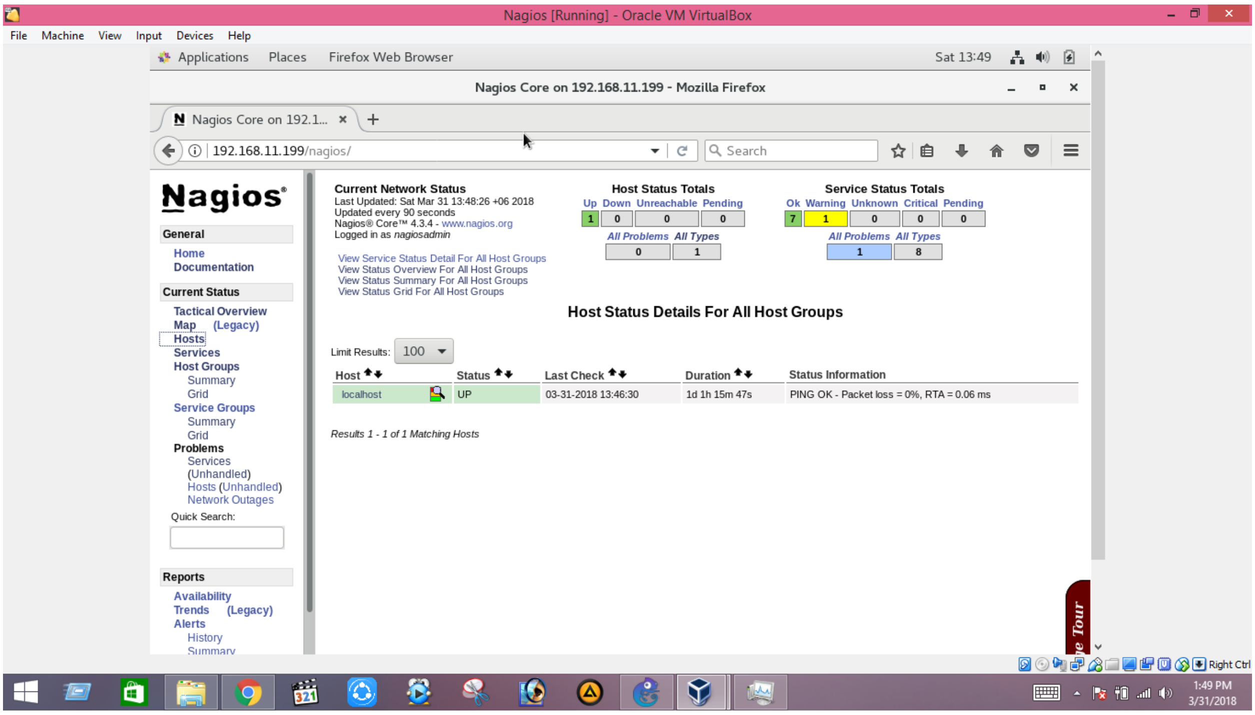
Step 17: then # service nagios restart


shamim@localhost:~/nagios/nagios-plugins-2.2.1
File Edit View Search Terminal Help

```
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 26637  bytes 2196637 (2.0 MiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
        inet 127.0.0.1  netmask 255.0.0.0
        inet6 ::1  prefixlen 128  scopeid 0x10<host>
        loop  txqueuelen 1  (Local Loopback)
        RX packets 54  bytes 14534 (14.1 KiB)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 54  bytes 14534 (14.1 KiB)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

virbr0: flags=4099<UP,BROADCAST,MULTICAST>  mtu 1500
        inet 192.168.122.1  netmask 255.255.255.0  broadcast 192.168.122.255
        ether 52:54:00:b6:16:97  txqueuelen 1000  (Ethernet)
        RX packets 0  bytes 0 (0.0 B)
        RX errors 0  dropped 0  overruns 0  frame 0
        TX packets 0  bytes 0 (0.0 B)
        TX errors 0  dropped 0 overruns 0  carrier 0  collisions 0

[root@localhost nagios-plugins-2.2.1]# service nagios restart
Restarting nagios (via systemctl):                         [  OK  ]
[root@localhost nagios-plugins-2.2.1]# service httpd restart
```

Figure 4.20: Add Nagios Services to System Startup

Step 18: Then open a browser to access the Nagios server.



Current Network Status
Last Updated: Sat Mar 31 13:48:26 +06 2018
Updated every 90 seconds
Nagios® Core™ 4.3.4 - www.nagios.org
Logged in as *nagiosadmin*

View Service Status Detail For All Host Groups
View Status Overview For All Host Groups
View Status Summary For All Host Groups
View Status Grid For All Host Groups

Host Status Totals

Up	Down	Unreachable	Pending
1	0	0	0

All Problems	*All Types*
0	1

Service Status Totals

Ok	Warning	Unknown	Critical	Pending
7	1	0	0	0

All Problems	*All Types*
1	8

Host Status Details For All Host Groups

Limit Results: 100

Host	Status	Last Check	Duration	Status Information
localhost	UP	03-31-2018 13:46:30	1d 1h 15m 47s	PING OK - Packet loss = 0%, RTA = 0.06 ms

Results 1 - 1 of 1 Matching Hosts

Figure 4.21: Login to the Nagios Web Interface

CHAPTER 5

Traffic Configuration

5.1 Topology Design

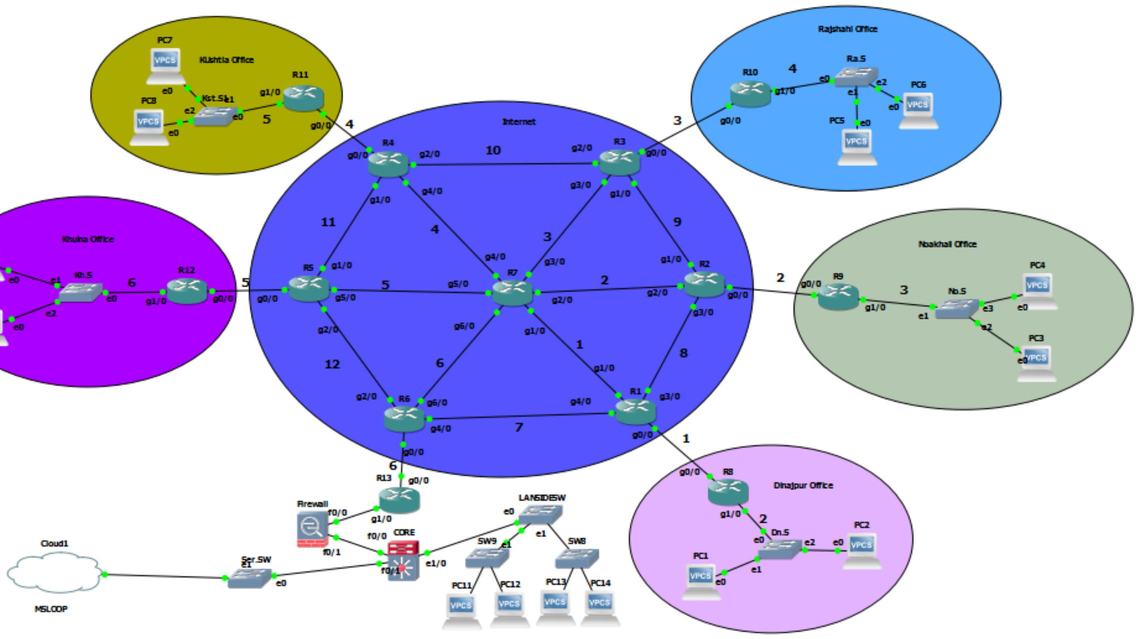
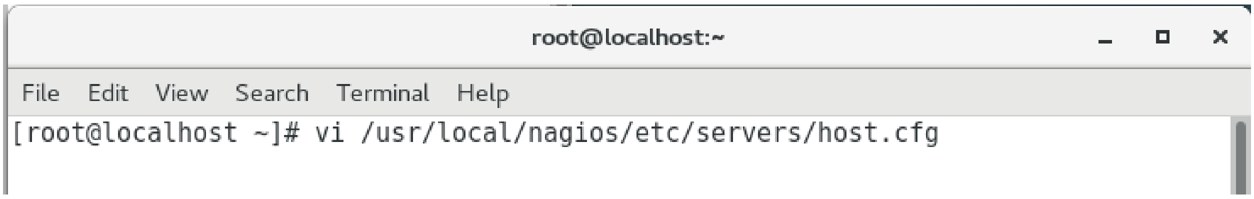


Figure 5.1: Project Topology

5.2 Host Add or Delete

When we want to add user then we need to go # vi/usr local/nagios/etc/servers/host.conf

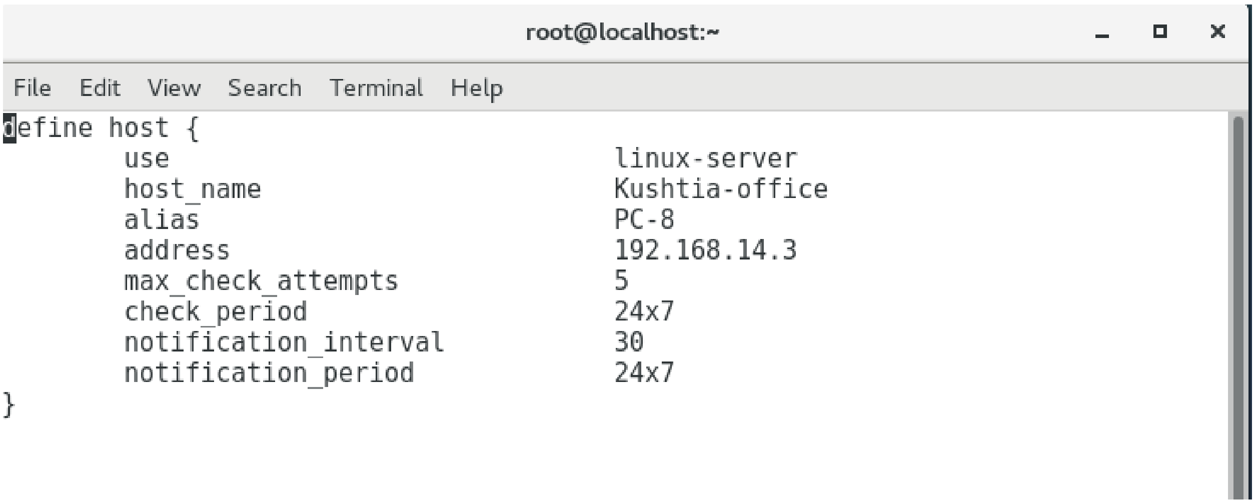


```
[root@localhost ~]# vi /usr/local/nagios/etc/servers/host.cfg
```

Figure 5.2: Host Add Command

Then we need to configure,

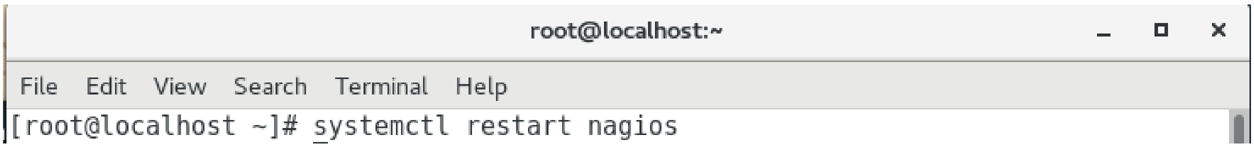
```
define host {
        use                     linux-server
        host_name               yourhost
        alias                   My first Apache server
        address                 1.2.3.4
        max_check_attempts      5
        check_period            24x7
        notification_interval   30
        notification_period     24x7
        }
```



```
define host {
        use                             linux-server
        host_name                       Kushtia-office
        alias                           PC-8
        address                         192.168.14.3
        max_check_attempts              5
        check_period                    24x7
        notification_interval           30
        notification_period             24x7
}
```

Figure 5.3: Host Add Command

Then we give the command # systemctl to restart nagios

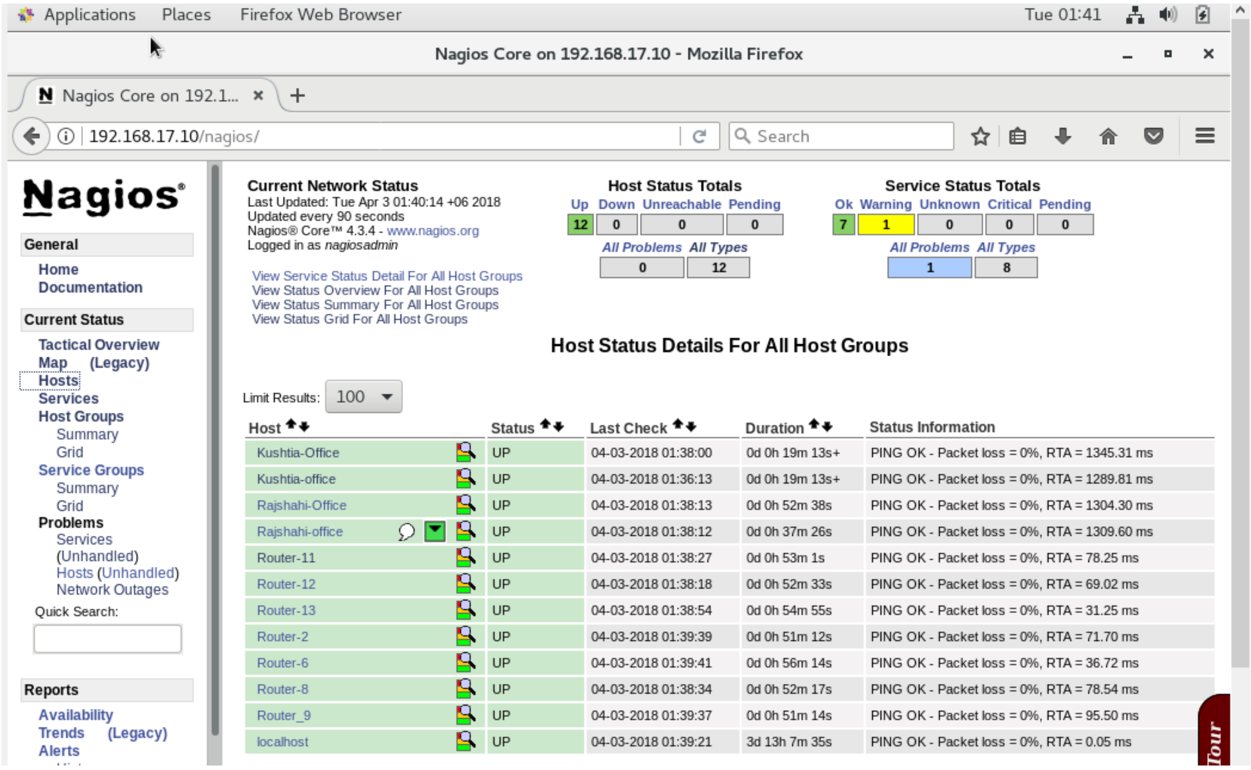


```
[root@localhost ~]# systemctl restart nagios
```

Figure 5.4: Nagios Restart

5.3 Monitoring Router from Nagios Server

We need to go nagios server and monitor the router or pc.



Current Network Status
Last Updated: Tue Apr 3 01:40:14 +06 2018
Updated every 90 seconds
Nagios® Core™ 4.3.4 - www.nagios.org
Logged in as *nagiosadmin*

View Service Status Detail For All Host Groups
View Status Overview For All Host Groups
View Status Summary For All Host Groups
View Status Grid For All Host Groups

Host Status Totals

Up	Down	Unreachable	Pending
12	0	0	0

All Problems	*All Types*
0	12

Service Status Totals

Ok	Warning	Unknown	Critical	Pending
7	1	0	0	0

All Problems	*All Types*
1	8

Host Status Details For All Host Groups

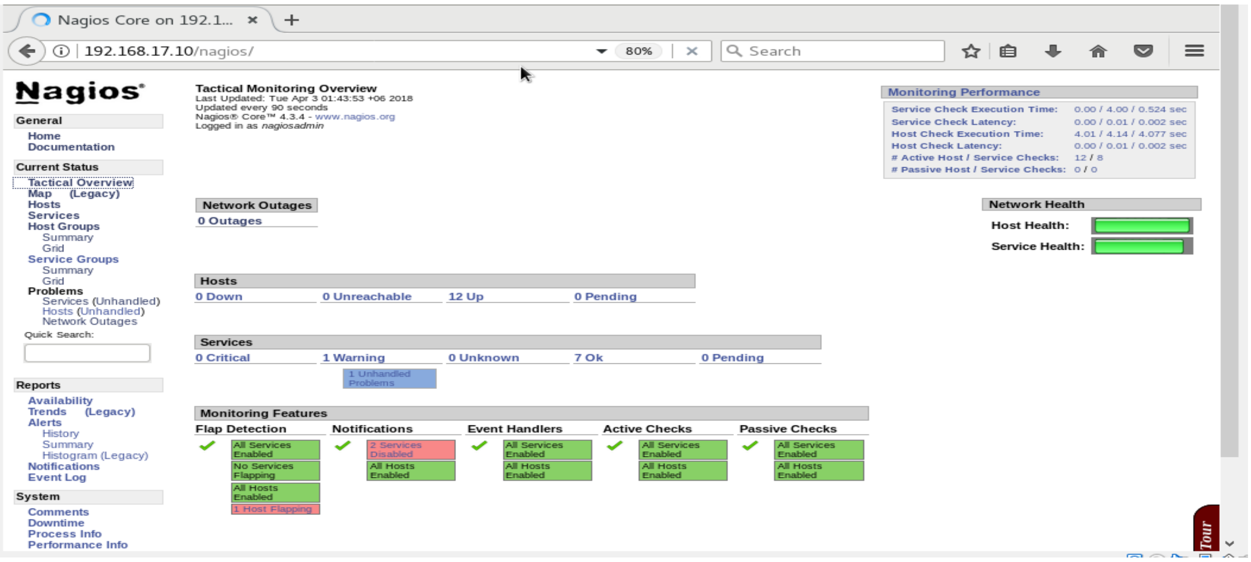
Limit Results: 100

Host	Status	Last Check	Duration	Status Information
Kushtia-Office	UP	04-03-2018 01:38:00	0d 0h 19m 13s+	PING OK - Packet loss = 0%, RTA = 1345.31 ms
Kushtia-office	UP	04-03-2018 01:36:13	0d 0h 19m 13s+	PING OK - Packet loss = 0%, RTA = 1289.81 ms
Rajshahi-Office	UP	04-03-2018 01:38:13	0d 0h 52m 38s	PING OK - Packet loss = 0%, RTA = 1304.30 ms
Rajshahi-office	UP	04-03-2018 01:38:12	0d 0h 37m 26s	PING OK - Packet loss = 0%, RTA = 1309.60 ms
Router-11	UP	04-03-2018 01:38:27	0d 0h 53m 1s	PING OK - Packet loss = 0%, RTA = 78.25 ms
Router-12	UP	04-03-2018 01:38:18	0d 0h 52m 33s	PING OK - Packet loss = 0%, RTA = 69.02 ms
Router-13	UP	04-03-2018 01:38:54	0d 0h 54m 55s	PING OK - Packet loss = 0%, RTA = 31.25 ms
Router-2	UP	04-03-2018 01:39:39	0d 0h 51m 12s	PING OK - Packet loss = 0%, RTA = 71.70 ms
Router-6	UP	04-03-2018 01:39:41	0d 0h 56m 14s	PING OK - Packet loss = 0%, RTA = 36.72 ms
Router-8	UP	04-03-2018 01:38:34	0d 0h 52m 17s	PING OK - Packet loss = 0%, RTA = 78.54 ms
Router_9	UP	04-03-2018 01:39:37	0d 0h 51m 14s	PING OK - Packet loss = 0%, RTA = 95.50 ms
localhost	UP	04-03-2018 01:39:21	3d 13h 7m 35s	PING OK - Packet loss = 0%, RTA = 0.05 ms

Figure 5.5: Status Up

5.4 Tactical Overview & Map Viewing

Here we see the Tactical Overview & and Map Legacy.



Tactical Monitoring Overview
Last Updated: Tue Apr 3 01:43:53 +06 2018
Updated every 90 seconds
Nagios® Core™ 4.3.4 - www.nagios.org
Logged in as *nagiosadmin*

Monitoring Performance	
Service Check Execution Time:	0.00 / 4.00 / 0.524 sec
Service Check Latency:	0.00 / 0.01 / 0.002 sec
Host Check Execution Time:	4.01 / 4.14 / 4.077 sec
Host Check Latency:	0.00 / 0.01 / 0.002 sec
# Active Host / Service Checks:	12 / 8
# Passive Host / Service Checks:	0 / 0

Network Outages
0 Outages

Network Health
Host Health:
Service Health:

Hosts			
0 Down	0 Unreachable	12 Up	0 Pending

Services				
0 Critical	1 Warning	0 Unknown	7 Ok	0 Pending
	1 Unhandled Problems			

Monitoring Features

Flap Detection	Notifications	Event Handlers	Active Checks	Passive Checks
✓ All Services Enabled No Services Flapping All Hosts Enabled 1 Host Flapping	✓ 2 Services Disabled All Hosts Enabled	✓ All Services Enabled All Hosts Enabled	✓ All Services Enabled All Hosts Enabled	✓ All Services Enabled All Hosts Enabled

Figure 5.6: Tactical Overview

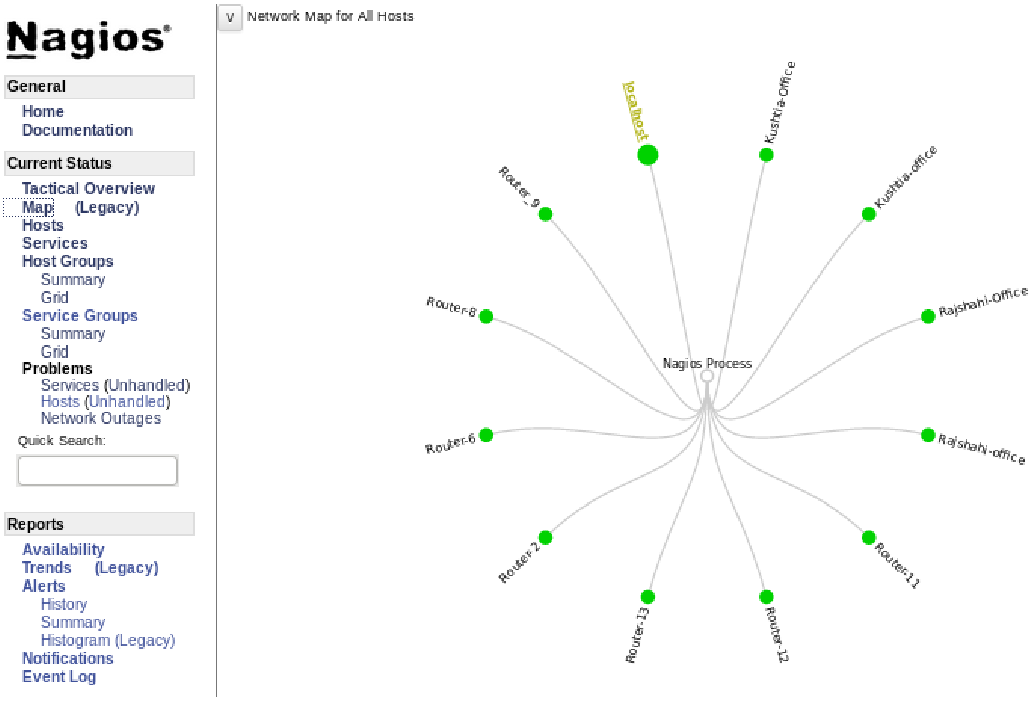


Figure 5.7: Map (legacy)

CHAPTER 6

Conclusion

6.1 CONCLUSION

The report explains the network design, development and implementation of our system in detail. Whole system was implemented using Windows platform as main platform, VMware workstation, Centos, GNS3 & Nagios. In the project GNS3 is been used for our main topology design. We used Nagios monitoring tools to monitor the traffic of our system that is actually our main aim.

In project we made our connection internally so that unauthorized people can’t access that made our system more secure and also there is very low risk of losing data.

Finally, we can say our system will reduce the manual/paper based work and the physical labor and also will reduce cost for a company. This report is full with huge information about different things what we have used and administrator can easily use, handle and maintain it smartly.

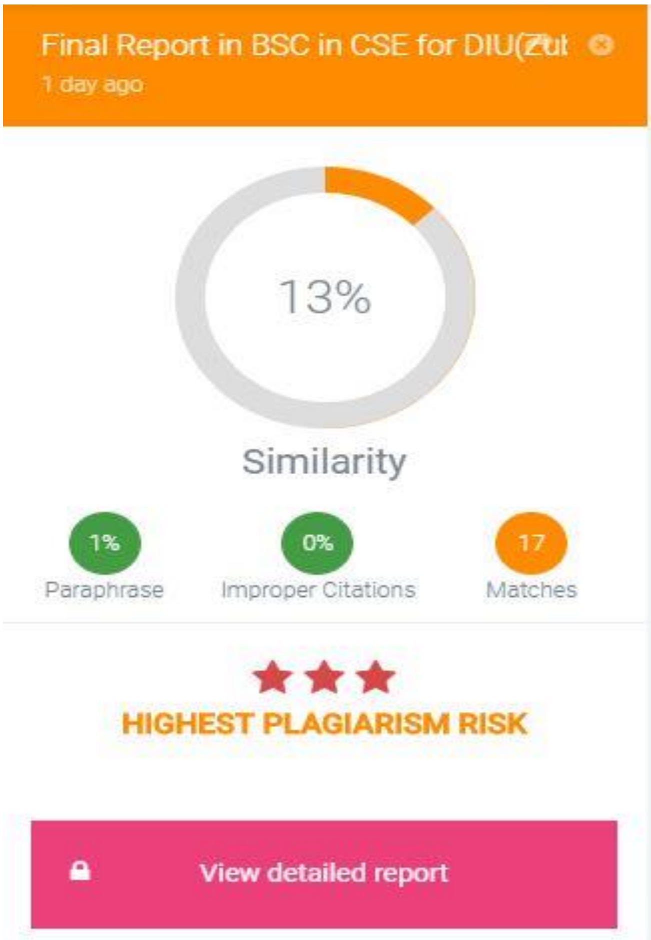
6.2 Limitations

- This is a manual system.
- There is a must need of a administrator to monitor the system 24/7.

6.3 Future Scope

- In near future this project can be developed as responsive system where the system will automatically send e-mail or text to the administrator when problem will occur.

PLAGIARISM



Final Report in BSC in CSE for DIU(Zut

1 day ago

13%

Similarity

1% Paraphrase

0% Improper Citations

17 Matches

HIGHEST PLAGIARISM RISK

Figure 6.1: The Plagiarism Shows The Similarity 13%.

REFERENCE

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