**How to Add Linux Host to Nagios Monitoring Server Using NRPE Plugin**

**What is NRPE?**

The **NRPE** (**Nagios Remote Plugin Executor**) plugin allows you to monitor any remote **Linux**/**Unix** services or network devices. This **NRPE** add-on allows **Nagios** to monitor any local resources like **CPU load**, **Swap**, **Memory usage**, **Online users**, etc. on remote Linux machines. After all, these local resources are not mostly exposed to external machines, an **NRPE** agent must be installed and configured on the remote machines.

**Note**: The **NRPE** addon requires that **Nagios Plugins** must be installed on the remote Linux machine. Without these, the **NRPE** daemon will not work and will not monitor anything.

**Installation of NRPE Plugin**

To use the **NRPE**, you will need to do some additional tasks on both the **Nagios Monitoring Host** and **Remote Linux Host** that the NRPE installed on. We will be covering both the installation parts separately.

We assume that you are installing the **NRPE** on a host that supports **TCP wrappers** and **Xinted** daemon installed on it. Today, most of the modern Linux distributions have these two installed by default. If not, we will install it later during the installation when required.

**On Remote Linux Host**

Please use the below instructions to install **Nagios Plugins** and **NRPE** daemon on the **Remote Linux Host**.

**Step 1: Install Required Dependencies**

We need to install required libraries like **gcc**, **glibc**, **glibc-common** and **GD** and its development libraries before installing.

[root@tecmint]# **yum install -y gcc glibc glibc-common gd gd-devel make net-snmp openssl-devel**

-------------- **On Fedora** --------------

[root@tecmint]# **dnf install -y gcc glibc glibc-common gd gd-devel make net-snmp openssl-devel**

**Step 2: Create Nagios User**

Create a new nagios user account and set a password.

[root@tecmint]# useradd nagios

[root@tecmint]# passwd nagios

**Step 3: Install the Nagios Plugins**

Create a directory for installation and all its future downloads.

[root@tecmint]# cd /root/nagios

Now download latest **Nagios Plugins 2.1.2** package with [wget command](https://www.tecmint.com/10-wget-command-examples-in-linux/" \t "_blank).

[root@tecmint nagios~]# wget https://www.nagios-plugins.org/download/nagios-plugins-2.1.2.tar.gz

**Step 4: Extract Nagios Plugins**

Run the following [tar command](https://www.tecmint.com/18-tar-command-examples-in-linux/) to extract the source code tarball.

[root@tecmint nagios~]# tar -xvf nagios-plugins-2.1.2.tar.gz

After, extracting one new folder will appear in that directory.

[root@tecmint nagios ~]# ls -l

total 2640

drwxr-xr-x. 15 root root 4096 Aug 1 21:58 **nagios-plugins-2.1.2**

-rw-r--r--. 1 root root 2695301 Aug 1 21:58 nagios-plugins-2.1.2.tar.gz

**Step 5: Compile and Install Nagios Plugins**

Next, compile and install using the following commands

[root@tecmint nagios]# cd nagios-plugins-2.1.2

[root@tecmint nagios-plugins-2.1.2]# ./configure

[root@tecmint nagios-plugins-2.1.2]# make

[root@tecmint nagios-plugins-2.1.2]# make install

Set the permissions on the plugin directory.

[root@tecmint nagios-plugins-2.1.2]# chown nagios.nagios /usr/local/nagios

[root@tecmint nagios-plugins-2.1.2]# chown -R nagios.nagios /usr/local/nagios/libexec

**Step 6: Install Xinetd**

Most of the systems, it is by default installed. If not, install **xinetd** package using following **yum** command.

[root@tecmint nagios-plugins-2.1.2]# yum install xinetd

-------------- **On Fedora** --------------

[root@tecmint nagios-plugins-2.1.2]# dnf install xinetd

**Step 7: Install NRPE Plugin**

Download latest **NRPE Plugin 3.2** packages with **wget** command.

[root@tecmint nagios-plugins-2.1.2]# cd /root/nagios

[root@tecmint nagios]# wget https://github.com/NagiosEnterprises/nrpe/releases/download/nrpe-3.2.1/nrpe-3.2.1.tar.gz

Unpack the NRPE source code tarball.

[root@tecmint nagios]# tar xzf nrpe-3.2.1.tar.gz

[root@tecmint nrpe-3.2]# cd nrpe-3.2.1

Compile and install the NRPE addon.

[root@tecmint nrpe-3.2.1]# ./configure

[root@tecmint nrpe-3.2.1]# make all

Next, install the NRPE plugin daemon, and sample daemon config file.

[root@tecmint nrpe-3.2]# make install-plugin

[root@tecmint nrpe-3.2.1]# make install-daemon

[root@tecmint nrpe-3.2.1]# make install-daemon-config

Install the NRPE daemon under xinetd as a service.

[root@tecmint nrpe-3.2.1]# make install-xinetd

OR

[root@tecmint nrpe-3.2.1]# make install-inetd

Now open **/etc/xinetd.d/nrpe** file and add the **localhost** and **IP address** of the **Nagios Monitoring Server**.

only\_from = 127.0.0.1 **localhost** **<nagios\_ip\_address>**

Next, open**/etc/services** file add the following entry for the **NRPE** daemon at the bottom of the file.

nrpe 5666/tcp NRPE

Restart the xinetd service.

[root@tecmint]# service xinetd restart

**Step 8: Verify NRPE Daemon Locally**

Run the following command to verify the NRPE daemon working correctly under xinetd.

[root@tecmint]# netstat -at | grep nrpe

tcp 0 0 \*:nrpe \*:\* LISTEN

If you get output similar to above, means it working correctly. If not, make sure to check the following things.

1. Check you’ve added nrpe entry correctly in **/etc/services** file
2. The **only\_from** contains an entry for “**nagios\_ip\_address**” in the **/etc/xinetd.d/nrpe** file.
3. The **xinetd** is installed and started.
4. Check for the errors in the **system log** files for about **xinetd** or**nrpe** and fix those problems.

Next, verify the NRPE daemon is functioning properly. Run the “**check\_nrpe**” command that was installed earlier for testing purposes.

[root@tecmint]# /usr/local/nagios/libexec/check\_nrpe -H localhost

You will get a following string on the screen, it shows you what version of NRPE is installed:

NRPE v3.2

**Step 9: Configure Firewall Rules**

Make sure that the **Firewall** on the local machine will allow the **NRPE** daemon to be accessed from remote servers. To do this, run the following iptables command.

-------------- **On RHEL/CentOS 6/5 and Fedora** --------------

[root@tecmint]# iptables -A INPUT -p tcp -m tcp --dport 5666 -j ACCEPT

-------------- **On RHEL/CentOS 8/7 and Fedora 19 Onwards** --------------

[root@tecmint]# firewall-cmd --permanent --zone=public --add-port=5666/tcp

Run the following command to Save the new iptables rule so it will survive at system reboots.

-------------- **On RHEL/CentOS 6/5 and Fedora** --------------

[root@tecmint]# service iptables save

**Step 10: Customize NRPE commands**

The default NRPE configuration file that got installed has several command definitions that will be used to monitor this machine. The sample configuration file located at.

[root@tecmint]# vi /usr/local/nagios/etc/nrpe.cfg

The following are the default command definitions that are located at the bottom of the configuration file. For the time being, we assume you are using these commands. You can check them by using the following commands.

# /usr/local/nagios/libexec/check\_nrpe -H localhost -c check\_users

USERS OK - 1 users currently logged in |users=1;5;10;0

# /usr/local/nagios/libexec/check\_nrpe -H localhost -c check\_load

OK - load average: 3.90, 4.37, 3.94|load1=3.900;15.000;30.000;0; load5=4.370;10.000;25.000;0; load15=3.940;5.000;20.000;0;

# /usr/local/nagios/libexec/check\_nrpe -H localhost -c check\_hda1

DISK OK - free space: /boot 154 MB (84% inode=99%);| /boot=29MB;154;173;0;193

# /usr/local/nagios/libexec/check\_nrpe -H localhost -c check\_total\_procs

PROCS CRITICAL: 297 processes

# /usr/local/nagios/libexec/check\_nrpe -H localhost -c check\_zombie\_procs

PROCS OK: 0 processes with STATE = Z

You can edit and add new command definitions by editing the NRPE config file. Finally, you’ve successfully installed and configured NRPE agent on the **Remote Linux Host**. Now it’s time to install a **NRPE** component and add some services on your **Nagios Monitoring Server**…

**On Nagios Monitoring Server**

Now login into your **Nagios Monitoring Server**. Here you will need to do the following things:

1. Install the **check\_nrpe** plugin.
2. Create a **Nagios command definition** using the **check\_nrpe** plugin.
3. Create **Nagios host** and **add service definitions** for monitoring the **remote Linux host**.

**Step 1: Install NRPE Plugin**

Go to the nagios download directory and download the latest **NRPE Plugin** with **wget** command.

[root@tecmint]# cd /root/nagios

[root@tecmint]# wget https://github.com/NagiosEnterprises/nrpe/releases/download/nrpe-3.2.1/nrpe-3.2.1.tar.gz

Unpack the NRPE source code tarball.

[root@tecmint]# tar xzf nrpe-3.2.1.tar.gz

[root@tecmint]# cd nrpe-3.2

Compile and install the NRPE addon.

[root@tecmint]# ./configure

[root@tecmint]# make all

[root@tecmint]# make install-daemon

**Step 2: Verify NRPE Daemon Remotely**

Make sure that the **check\_nrpe** plugin can communicate with the **NRPE** daemon on the remote **Linux** host. Add the **IP address** in the command below with the IP address of your R**emote Linux** host.

[root@tecmint]# /usr/local/nagios/libexec/check\_nrpe -H **<remote\_linux\_ip\_address>**

You will get a string back that shows you what version of NRPE is installed on the remote host, like this:

NRPE v3.2

If your receive a plugin time-out error, then check the following things.

1. Make sure your firewall isn’t blocking the communication between the **remote host** and the **monitoring host**.
2. Make sure that the **NRPE** daemon is installed correctly under **xinetd**.
3. Make sure that the r**emote Linux** host firewall rules blocking the **monitoring server** from communicating to the **NRPE** daemon.

**Adding Remote Linux Host to Nagios Monitoring Server**

To add a remote host you need to create a two new files “**hosts.cfg**” and “**services.cfg**” under “**/usr/local/nagios/etc/**” location.

[root@tecmint]# cd /usr/local/nagios/etc/

[root@tecmint]# touch hosts.cfg

[root@tecmint]# touch services.cfg

Now add these two files to main Nagios configuration file. Open **nagios.cfg** file with any editor.

[root@tecmint]# vi /usr/local/nagios/etc/nagios.cfg

Now add the two newly created files as shown below.

# You can specify individual object config files as shown below:

cfg\_file=/usr/local/nagios/etc/hosts.cfg

cfg\_file=/usr/local/nagios/etc/services.cfg

Now open **hosts.cfg** file and add the **default host template name** and **define remote hosts** as shown below. Make sure to replace **host\_name**, **alias** and **address** with your remote host server details.

[root@tecmint]# vi /usr/local/nagios/etc/hosts.cfg

## Default Linux Host Template ##

define host{

name linux-box ; Name of this template

use generic-host ; Inherit default values

check\_period 24x7

check\_interval 5

retry\_interval 1

max\_check\_attempts 10

check\_command check-host-alive

notification\_period 24x7

notification\_interval 30

notification\_options d,r

contact\_groups admins

register 0 ; DONT REGISTER THIS - ITS A TEMPLATE

}

## Default

define host{

use linux-box ; Inherit default values from a template

**host\_name tecmint ; The name we're giving to this server**

**alias CentOS 6 ; A longer name for the server**

**address 5.175.142.66 ; IP address of Remote Linux host**

}

Next open **services.cfg** file and add the following services to be monitored.

[root@tecmint]# vi /usr/local/nagios/etc/services.cfg

define service{

use generic-service

host\_name tecmint

service\_description CPU Load

check\_command check\_nrpe!check\_load

}

define service{

use generic-service

host\_name tecmint

service\_description Total Processes

check\_command check\_nrpe!check\_total\_procs

}

define service{

use generic-service

host\_name tecmint

service\_description Current Users

check\_command check\_nrpe!check\_users

}

define service{

use generic-service

host\_name tecmint

service\_description SSH Monitoring

check\_command check\_nrpe!check\_ssh

}

define service{

use generic-service

host\_name tecmint

service\_description FTP Monitoring

check\_command check\_nrpe!check\_ftp

}

Now NRPE command definition needs to be created in **commands.cfg** file.

[root@tecmint]# vi /usr/local/nagios/etc/objects/commands.cfg

Add the following NRPE command definition at the bottom of the file.

###############################################################################

# NRPE CHECK COMMAND

#

# Command to use NRPE to check remote host systems

###############################################################################

define command{

command\_name check\_nrpe

command\_line $USER1$/check\_nrpe -H $HOSTADDRESS$ -c $ARG1$

}

Finally, verify Nagios Configuration files for any errors.

[root@tecmint]# /usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg

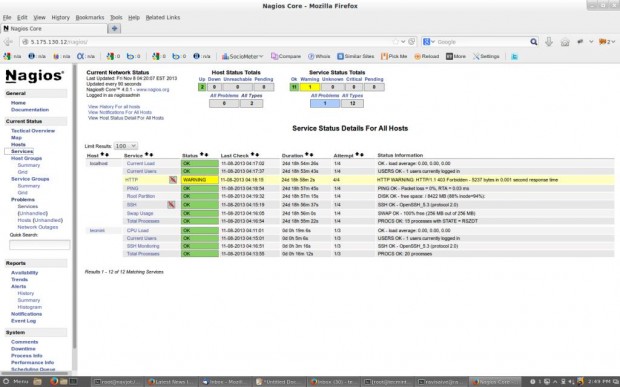
Total Warnings: 0

Total Errors: 0

Restart Nagios:

[root@tecmint]# service nagios restart

That’s it. Now go to **Nagios Monitoring Web** interface at “**http://Your-server-IP-address/nagios**” or “**http://FQDN/nagios”** and Provide the username “**nagiosadmin**” and **password**. Check that the **Remote Linux Host** was added and is being monitored.

[](https://www.tecmint.com/wp-content/uploads/2013/11/Add-Linux-Host-to-Nagios.jpeg)Nagios Remote Host Monitoring