Linux 系统运维之 Nagios 监控

UNIXHOT 开源社区

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修订历史记录

日　　期	版　　本	说　　明
2010-06-01	V1.0	创建文档
2010-07-26	V1.1	添加 第八章 自动化批量部署
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Linux 系统运维之 Nagios 监控

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实验目的：通过实验掌握运维监控平台的应用部署和管理维护。

实验环境：Red Hat Enterprise Linux Server release 5.4

实验步骤：

实验简介：

　　UNIXHOT 开源社区致力于为想成为系统运维工程师、系统集成工程师、系统架构师、MySQL DBA 和 Oracle DBA 的互联网朋友们创造一个开源的、共享的、完整的、创新的、一站式的学习和交流平台。欢迎大家加入，让我们成为一个圈子。

实验内容：

第一章 Nagios 简介

1.1 什么是Nagios

Nagios 是一款用于系统和网络监控的应用程序。它可以在你设定的条件下对主机和服务进行监控，并根据管理员所设置的报警阀值和报警方式在监控对象报警时和恢复时通知管理员。

1.2 Nagios 的特性

1> 监控网络服务（SMTP、POP3、HTTP、NNTP、PING 等）。

2> 监控主机资源（处理器负荷、磁盘利用率等）。

3> 简单地插件设计使得用户可以方便地扩展自己服务的检测方法。

4> 并行服务检查机制。

5> 具备定义网络分层结构的能力， 用"parent"主机定义来表达网络主机间的关系，这种关系被用来发现和明晰主机宕机或不可达状态。

6> 当服务或主机问题产生与解决 时将告警发送给联系人（通过 EMail、短信、用户定义方式）。

7> 具备定义事件句柄功能，它可以在主机或服务的事件发生时获取更多问题定位。

8> 自动的日志回滚。

9> 可以支持并实现对主机的冗余监控。

10> 可选的 WEB 界面用于查看当前的网络 状态、通知和故障历史、日志文件等。

1.3 Nagios 体系结构
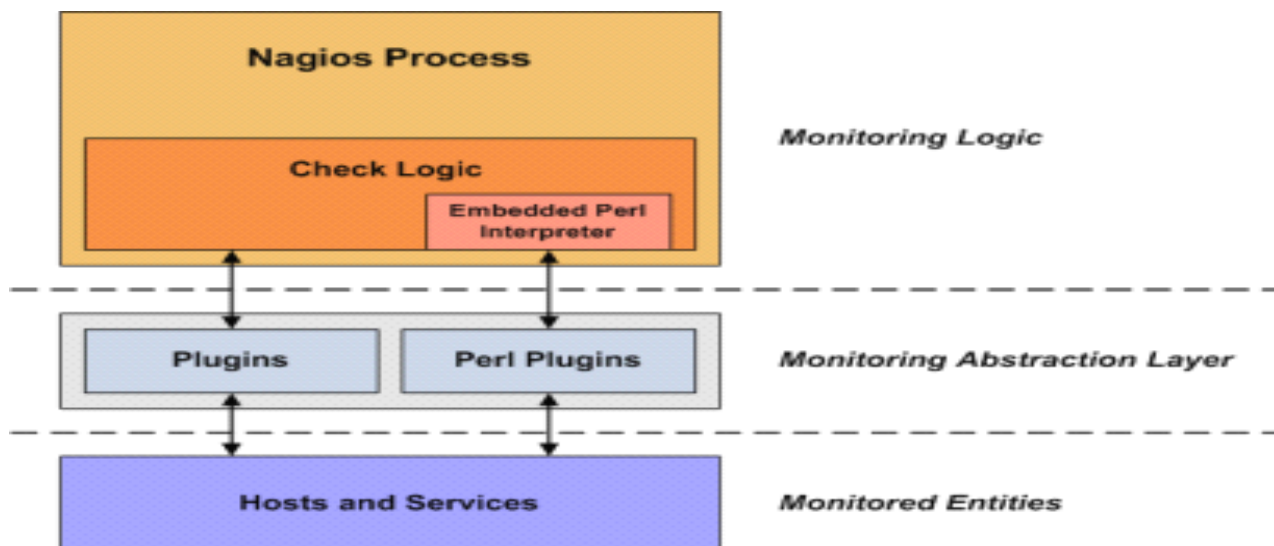
1.4 Nagios 相关资源

1> Nagios 官方网站：http://www.nagios.org/

2> Nagios 官方文档：http://support.nagios.com/knowledgebase/officialdocs

3> Nagios 中文文档：http://nagios-cn.sourceforge.net/nagios-cn/

1.5 其它开源监控软件

1> http://www.zenoss.com/

2> http://www.zabbix.com/

3> http://www.cacti.net/

4> http://ganglia.sourceforge.net/

5> http://munin-monitoring.org/

第二章 Nagios 服务器端部署

2.1 下载所需的软件包

[root@Nagios-Server ~]# cd /usr/local/src

[root@Nagios-Server src]# wget （Nagios 主程序）

http://prdownloads.sourceforge.net/sourceforge/nagios/nagios-3.2.1.tar.gz

[root@Nagios-Server src]# wget （Nagios 插件）

http://prdownloads.sourceforge.net/sourceforge/nagiosplug/nagios-plugins-1.4.14.tar.gz

[root@Nagios-Server src]# wget （代理检测程序用来执行远程的 Nagios 插件）

http://prdownloads.sourceforge.net/sourceforge/nagios/nrpe-2.12.tar.gz

[root@Nagios-Server src]# wget （部署冗余和分布式 Nagios 的设置）

http://prdownloads.sourceforge.net/sourceforge/nagios/nsca-2.7.2.tar.gz

[root@Nagios-Server src]# wget （导入当前和历史的监控数据到 MySQL 数据库）

http://prdownloads.sourceforge.net/sourceforge/nagios/ndoutils-1.4b9.tar.gz

2.2 安装环境准备

注意：建议配置 Yum 仓库来安装缺失的软件包，不然 rpm 的依赖会让你头疼的。可以参阅 http://www.unixhot.com/unixhot/1.htm 来快速创建 Yum 仓库。

```
[root@Nagios-Server src]# rpm -q httpd php gcc glibc glibc-common gd gd-devel
[root@Nagios-Server src]# useradd nagios
```

#创建一个用户组名为 nagcmd 用于从 Web 接口执行外部命令。

```
[root@Nagios-Server src]# groupadd nagcmd
[root@Nagios-Server src]# usermod -a -G nagcmd nagios
[root@Nagios-Server src]# usermod -a -G nagcmd apache
[root@Nagios-Server src]# passwd nagios
```

2.3 安装 Nagios 主程序

```
[root@Nagios-Server src]# chmod +x *
[root@Nagios-Server src]# tar zxvf nagios-3.2.1.tar.gz
[root@Nagios-Server src]# cd nagios-3.2.1
[root@Nagios-Server nagios-3.2.1]# ./configure --with-command-group=nagcmd \
> --with-nagios-user=nagios \
> --with-nagios-group=nagios
[root@Nagios-Server nagios-3.2.1]# make all
[root@Nagios-Server nagios-3.2.1]# make install
[root@Nagios-Server nagios-3.2.1]# make install-init        #生成 init 启动脚本
[root@Nagios-Server nagios-3.2.1]# make install-commandmode  #设置相应的目录权限
[root@Nagios-Server nagios-3.2.1]# make install-config       #生成模板配置文件
[root@Nagios-Server nagios-3.2.1]# make install-webconf      #生成 apache 配置文件
[root@Nagios-Server nagios-3.2.1]# htpasswd -c /usr/local/nagios/etc/htpasswd.users
nagiosadmin #为 apache 创建一个登陆用户，注意用户名是 nagiosadmin
```

注意：第一次添加用户用-c 选项，以后再添加千万别在用这个选项了，会覆盖以前的所有用户。

2.4 添加开机自动启动

```
[root@Nagios-Server ~]# chkconfig --add nagios
```

```
[root@Nagios-Server ~]# chkconfig nagios on

[root@Nagios-Server ~]# chkconfig httpd on
```

2.5 修改 SELinux

两种方法：

第一种最直接，关闭 SELinux，对于 SELinux 不是很熟悉的用户，请选择此。

```
[root@Nagios-Server ~]# cat /etc/sysconfig/selinux

SELINUX=disabled
```

第二种给打上正确的安全脉络。

```
chcon -R -t httpd_sys_content_t /usr/local/nagios/sbin/

chcon -R -t httpd_sys_content_t /usr/local/nagios/share/
```

2.6 安装 Nagios 插件 nagios-plugins

```
[root@Nagios-Server ~]# cd /usr/local/src

[root@Nagios-Server src]# tar zxvf nagios-plugins-1.4.14.tar.gz

[root@Nagios-Server src]# cd nagios-plugins-1.4.14

[root@Nagios-Server nagios-plugins-1.4.14]# ./configure --prefix=/usr/local/nagios

--with-nagios-user=nagios --with-nagios-group=nagios

[root@Nagios-Server nagios-plugins-1.4.14]# make && make install
```

2.7 启动 Nagios

```
[root@Nagios-Server ~]# /etc/init.d/httpd start

Starting httpd:                                            [  OK  ]

[root@Nagios-Server ~]# /etc/init.d/nagios start

Starting nagios: done.
```

2.8 登陆 Nagios

接着可以使用 http://Nagios 服务器 IP/nagios/

并输入你设置的账号 nagiosadmin 和密码登陆 Nagios。

第三章 Nagios 配置文件简介

3.1 配置文件概述

如果按照本文的步骤，安装完成后，配置文件在安装时放在了**/usr/local/nagios/etc/**目录下。

```
[root@Nagios-Server ~]# ls -l /usr/local/nagios/etc/
total 88
-rw-rw-r-- 1 nagios nagios 11408 May 29 02:09 cgi.cfg            #CGI 配置文件
-rw-r--r-- 1 root   root      22 May 29 02:13 htpasswd.users    #Apache 验证密码文件
-rw-rw-r-- 1 nagios nagios 43776 May 29 02:09 nagios.cfg        #Nagios 主配置文件
drwxrwxr-x 2 nagios nagios  4096 May 29 02:09 objects           #监控对象定义文件目录
-rw-rw---- 1 nagios nagios  1340 May 29 02:09 resource.cfg      #Nagios 资源配置文件
```

3.2 主配置文件

主配置文件包括了一系列的设置，它们会影响 Nagios 守护进程。不仅是 Nagios 守护进程要使用主配置文件，CGIs 程序组模块也需要，在主配置文件里，我们可以指定主机、主机组、服务、服务组、命令、通知人、通知人组等配置文件的位置。

主配置文件参数众多，在这里只修改小部分，确保 Nagios 可以正常运行。

```
[root@Nagios-Server ~]# vi /usr/local/nagios/etc/nagios.cfg
# You can specify individual object config files as shown below:
cfg_file=/usr/local/nagios/etc/objects/commands.cfg     #命令配置文件
cfg_file=/usr/local/nagios/etc/objects/contacts.cfg     #联系人配置文件
cfg_file=/usr/local/nagios/etc/objects/timeperiods.cfg
cfg_file=/usr/local/nagios/etc/objects/templates.cfg
cfg_file=/usr/local/nagios/etc/objects/contactgroups.cfg  #联系组定义文件
cfg_file=/usr/local/nagios/etc/objects/hosts.cfg          #增加主机配置文件
cfg_file=/usr/local/nagios/etc/objects/hostgroups.cfg     #增加主机组配置文件
```

```
cfg_file=/usr/local/nagios/etc/objects/services.cfg          #增加服务配置文件
cfg_file=/usr/local/nagios/etc/objects/servicegroups.cfg     #增加服务组配置文件
# Definitions for monitoring the local (Linux) host
#cfg_file=/usr/local/nagios/etc/objects/localhost.cfg          #注释掉
```

3.3 资源配置文件

资源文件可以保存用户自定义的宏。资源文件的一个主要用处是用于保存一些敏感的配置信息如系统口令等不能让 CGIs 程序模块获取到的东西。

3.4 对象定义文件

对象定义文件是管理员经常需要修改的配置文件，用于定义主机、服务、主机组、服务组、联系人、联系人组、命令等等，也就是要定义监控的对象和监控的方法。

对象定义文件有两种基本写法，例如监控一台 Linux 服务器。

方法一：将该主机写入主机定义文件，将要监控的服务写到服务定义文件中，前提是在 Nagios 的主配置文件里需要定义这两个配置文件。

方法二：将该主机的配置写入到一个如【主机名】.cfg 文件里，然后再 Nagios 的主配置文件里定义这个配置文件。

这两种方法的选择要根据实际情况，方法一由于主机数的增加会增加配置文件的管理难度，文件内容多，容易出现配置错误等问题。

方法二由于是每个监控主机一个配置文件，这样虽然清晰明了，但对于想结构化管理的用户不太方便。

3.5 CGI 配置文件

CGI 配置文件包含了一系列的设置，它们会影响 CGIs 程序模块。还有一些保存在主配置文件之中，因此 CGI 程序会知道你是如何配置的 Nagios 并且在哪里保存了对象定义。

3.6 通过实例介绍配置文件

下面通过监控一台服务器是否存活的实例来介绍相关配置文件的用法。

3.3.1 主机定义文件

定义你要监控的对象，这里定义的 host_name 被应用到其它的所有配置文件中，这个是我们配置 Nagios 必须修改的配置文件。

[root@Nagios-Server ~]# vi /usr/local/nagios/etc/objects/hosts.cfg

define host{

        host_name   Nagios-Server   #设置主机的名字，该名字会出现在 hostgroups.cfg 和 services.cfg 中。

        alias   Nagios Server   #别名

        address   192.168.140.128   #主机的 IP 地址

        check_command   check-host-alive   #检查的命令

        check_interval   5   #检测的时间间隔

        retry_interval   1   #检测失败后重试的时间间隔

        max_check_attempts   5   #最大重试次数

        check_period   24x7   #检测的时段

        process_perf_data   0

        retain_nonstatus_information   0

        contact_groups   sagroup   #联系组

        notification_interval   30   #通知的时间间隔

        notification_period   24x7   #通知的时间段

        notification_options   d,u,r   #通知的选项

                                    #w—报警(warning)，u—未知(unkown)

                                    #c—严重(critical)，r—从异常情况恢复正常

}

define host{

        host_name   Nagios-Client

        alias   Nagios Client

        address   192.168.140.129

check_command	check-host-alive
check_interval	5
retry_interval	1
max_check_attempts	5
check_period	24x7
process_perf_data	0
retain_nonstatus_information	0
contact_groups	sagroup
notification_interval	30
notification_period	24x7
notification_options	d,u,r

}

3.3.2 主机组定义文件

将刚才定义的两个主机加入到主机组中，针对生产环境就像把所有的 MySQL 服务器加到一个
MySQL 主机组里，方便管理和查看。
[root@Nagios-Server ~]# vi /usr/local/nagios/etc/objects/hostgroups.cfg
define hostgroup {

    hostgroup_name Nagios-Example #主机组名字

    alias   Nagios Example #主机组别名

    members   Nagios-Server,Nagios-Client #主机组成员，用逗号隔开

}

3.3.3 服务定义文件

服务定义文件定义你需要监控的对象的服务，比如本例子为检测主机是否存活，在后面会讲到如
何监控其它服务，比如服务器负载、内存、磁盘等。
[root@Nagios-Server ~]# vi /usr/local/nagios/etc/objects/services.cfg
define service {

    host_name   Nagios-Server #主机名

```
        service_description    check-host-alive  #服务描述

        check_period           24x7  #检测的时间段

        max_check_attempts     4

        normal_check_interval  3

        retry_check_interval   2

        contact_groups         sagroup

        notification_interval  10

        notification_period    24x7

        notification_options   w,u,c,r

        check_command          check-host-alive

        }

define service {

        host_name              Nagios-Client

        service_description    check-host-alive

        check_period           24x7

        max_check_attempts     4

        normal_check_interval  3

        retry_check_interval   2

        contact_groups         sagroup

        notification_interval  10

        notification_period    24x7

        notification_options   w,u,c,r

        check_command          check-host-alive

        }
```

3.3.4 服务组定义文件

```
[root@Nagios-Server ~]# vi /usr/local/nagios/etc/objects/servicegroup.cfg

define servicegroup{

    servicegroup_name        Host-Alive
```

```
        alias                   Host Alive
        members                 Nagios-Server,check-host-alive,Nagios-Client,check-host-alive
}
```

3.3.5 联系人定义文件

```
[root@Nagios-Server ~]# vi /usr/local/nagios/etc/objects/contacts.cfg
define contact{
        contact_name            nagiosadmin
        use                     generic-contact
        alias                   System Administrator
        email                   nagios@localhost
}
```

3.3.6 联系人组定义文件

```
[root@Nagios-Server ~]# vi /usr/local/nagios/etc/objects/contactgroups.cfg
define contactgroup{
        contactgroup_name       sagroup
        alias                   Nagios Administrators
        members                 nagiosadmin
}
```

3.3.7 启动 Nagios

1> 修改配置文件所有者

```
[root@Nagios-Server ~]# chown -R nagios:nagios /usr/local/nagios/etc/objects/
```
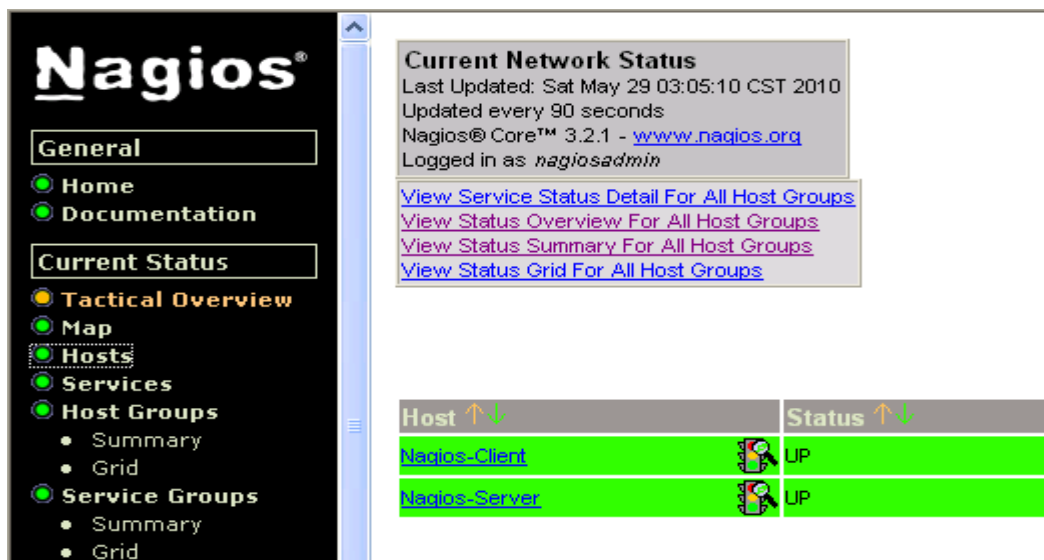
2> 检测配置是否正确

```
[root@Nagios-Server ~]# /usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg
```

3> 启动 Nagios

```
[root@Nagios-Server ~]# /etc/init.d/httpd restart
```

[root@Nagios-Server ~]# /etc/init.d/nagios restart

3.3.8 登陆验证配置

第四章 Nagios 监控远程 Linux 服务器

Nagios 监控的方式：

可以把 Nagios 的服务器监控分为两个部分：

第一部分是主机外监控，比如：主机是否存活，WEB 服务是否正常，MySQL 服务是否正常等内容，再主机外通过访问其端口即可得知。这些监控命令再安装 **nagios-plugins-1.4.13.tar.gz** 时已经生成了，再/usr/local/nagios/libexec 目录下。

第二部分是主机内监控，比如：要监控服务器的进程、磁盘使用等功能。这些功能的实现要依靠 nrpe 了，nrpe 的工作模式是 C/S 模式，在被监控主机中，开启 nrpe 监听，当听到监控服务器上所发出的命令，让它检查该服务器上的硬盘使用信息时，它就会执行，并把信息传回，监控服务器，用一个不太恰当的比喻，就是木马的工作模式。

NRPE 是一个可在远程 Linux/Unix 主机上执行的插件的外部构件包。如果你需要监控远程的主机上的本地资源或属性，如磁盘利用率、CPU 负荷、内存利用率等时是很有用的。
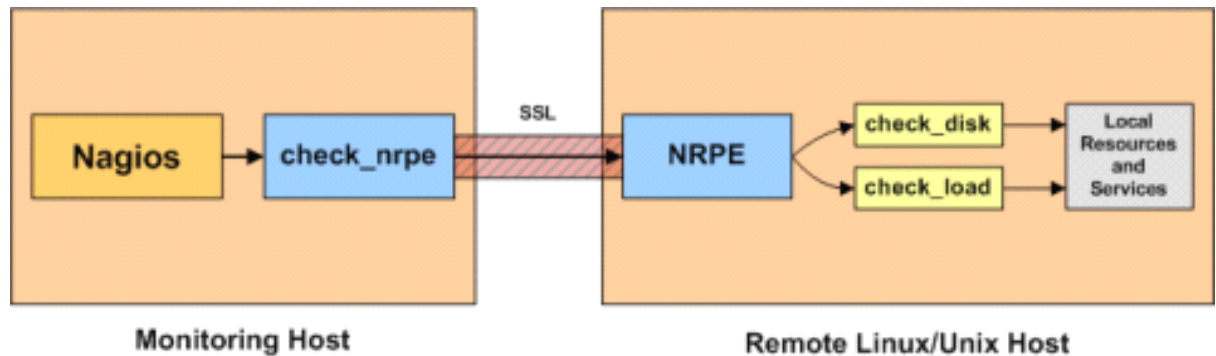
4.1 Nagios 服务器的部署

4.1.1 安装 NRPE

[root@Nagios-Server ~]# cd /usr/local/src/

[root@Nagios-Server src]# tar zxvf nrpe-2.12.tar.gz

[root@Nagios-Server src]# cd nrpe-2.12

[root@Nagios-Server nrpe-2.12]# ./configure && make all

[root@Nagios-Server nrpe-2.12]# make install-plugin

[root@Nagios-Server nrpe-2.12]# make install-daemon

[root@Nagios-Server nrpe-2.12]# make install-daemon-config

[root@Nagios-Server nrpe-2.12]# make install-xinetd

4.1.2 配置 NRPE

[root@Nagios-Server nrpe-2.12]# vi /etc/xinetd.d/nrpe

default: on

description: NRPE (Nagios Remote Plugin Executor)

service nrpe

{

        flags   = REUSE

        socket_type   = stream

        port   = 5666

        wait   = no

```
user            = nagios

group           = nagios

server            = /usr/local/nagios/bin/nrpe

server_args       = -c /usr/local/nagios/etc/nrpe.cfg --inetd

log_on_failure   += USERID

disable         = no

only_from         = 127.0.0.1 192.168.140.129
```

#注意：在 only_from 添加要监控的主机的 IP 地址，中间以空格隔开。

}

4.1.3 添加服务端口

[root@Nagios-Server nrpe-2.12]# vi /etc/services

#在文件末尾添加

nrpe   5666/tcp   #nrpe

4.1.4 重启服务并验证安装

[root@Nagios-Server ~]# /etc/init.d/xinetd restart

[root@Nagios-Server ~]# netstat -na | grep 5666

tcp   0   0 0.0.0.0:5666   0.0.0.0:*

4.1.5 修改命令定义文件

[root@Nagios-Server ~]# vim /usr/local/nagios/etc/objects/commands.cfg

#nrpe set   在文件末尾添加下面命令定义

define command{

        command_name   check_nrpe

        command_line /usr/local/nagios/libexec/check_nrpe -H $HOSTADDRESS$ -c $ARG1$

        }

4.1.6 NRPE 配置文件

[root@Nagios-Server ~]# vi /usr/local/nagios/etc/nrpe.cfg

默认情况下，有五个定义好的检测命令。

command[check_users]=/usr/local/nagios/libexec/check_users -w 5 -c 10

command[check_load]=/usr/local/nagios/libexec/check_load -w 15,10,5 -c 30,25,20

command[check_hda1]=/usr/local/nagios/libexec/check_disk -w 20% -c 10% -p /dev/hda1

command[check_zombie_procs]=/usr/local/nagios/libexec/check_procs -w 5 -c 10 -s Z

command[check_total_procs]=/usr/local/nagios/libexec/check_procs -w 150 -c 200

4.2 受监控 Linux 服务器部署

4.2.1 添加用户名

[root@Nagios-Client ~]# useradd -s /sbin/nologin nagios

4.2.2 安装 Nagios 的插件 nagios-plugin

[root@Nagios-Client ~]# cd /usr/local/src

[root@Nagios-Client src]# wget

 http://prdownloads.sourceforge.net/sourceforge/nagiosplug/nagios-plugins-1.4.14.tar.gz

[root@Nagios-Client src]# wget

http://prdownloads.sourceforge.net/sourceforge/nagios/nrpe-2.12.tar.gz

[root@Nagios-Client src]# chmod +x *

[root@Nagios-Client src]# tar zxvf nagios-plugins-1.4.14.tar.gz

[root@Nagios-Client src]# cd nagios-plugins-1.4.14

[root@Nagios-Client nagios-plugins-1.4.14]# ./configure

注意：如果你 RedHat AS4 版本的服务器要添加--enable-redhat-pthread-workaround 选项。

[root@Nagios-Client nagios-plugins-1.4.14]# make && make install

4.2.3 安装 NRPE 代理检测程序

同服务器端的安装，不同的是修改 xinetd 配置文件的时候。

1> 安装 nrpe

```
[root@Nagios-Client ~]# cd /usr/local/src/

[root@Nagios-Client ~]# tar zxvf nrpe-2.12.tar.gz

[root@Nagios-Client ~]# cd nrpe-2.12

[root@Nagios-Client nrpe-2.12]# ./configure && make all

[root@Nagios-Client nrpe-2.12]# make install-plugin

[root@Nagios-Client nrpe-2.12]# make install-daemon

[root@Nagios-Client nrpe-2.12]# make install-daemon-config

[root@Nagios-Client nrpe-2.12]#    make install-xinetd
```

2> 配置 NRPE

```
[root@Nagios-Client nrpe-2.12]# vi /etc/xinetd.d/nrpe

# default: on

# description: NRPE (Nagios Remote Plugin Executor)

service nrpe

{

        flags              = REUSE

        socket_type        = stream

        port        = 5666

        wait               = no

        user               = nagios

        group           = nagios

        server               = /usr/local/nagios/bin/nrpe

        server_args         = -c /usr/local/nagios/etc/nrpe.cfg --inetd

        log_on_failure    += USERID

        disable            = no

    only_from          = 127.0.0.1 192.168.140.128
```

#注意：在 only_from 添加 Nagios 监控服务器的 IP 地址。

}

3> 添加服务端口

[root@Nagios-Client nrpe-2.12]# vi /etc/services

#在文件末尾添加

nrpe   5666/tcp   #nrpe

4> 重启服务并验证安装

[root@Nagios-Client ~]#   /etc/init.d/xinetd restart

[root@Nagios-Client ~]# netstat -na | grep 5666

tcp   0   0 0.0.0.0:5666   0.0.0.0:*

4.2.4 修改权限

[root@Nagios-Client ~]# chown -R nagios:nagios /usr/local/nagios/

4.3 修改受控端 NRPE 配置文件

   修改受控端的 NRPE 配置文件时确定监控的内容和命令，然后再 Nagios 服务器上的服务定义文件中引用来实现对客户端的监控。

```
[root@Nagios-Client ~]# vi /usr/local/nagios/etc/nrpe.cfg

command[check_load]=/usr/local/nagios/libexec/check_load -w 15,10,5 -c 30,25,20

command[check_/]=/usr/local/nagios/libexec/check_disk -w 20% -c 10%

-p /dev/mapper/VolGroup00-LogVol00 #我的 Client 端根分区时 LVM 逻辑卷

command[check_zombie_procs]=/usr/local/nagios/libexec/check_procs -w 5 -c 10 -s Z

command[check_total_procs]=/usr/local/nagios/libexec/check_procs -w 150 -c 200

command[check_swap]=/usr/local/nagios/libexec/check_swap -w 20% -c 10%
```

4.4 修改 Nagios 服务器服务定义文件

```
[root@Nagios-Server ~]# vi /usr/local/nagios/etc/objects/services.cfg
```

添加以下内容：

```
define service {

        host_name               Nagios-Client

        service_description     check-users

        check_period            24x7

        max_check_attempts      4

        normal_check_interval   3

        retry_check_interval    2

        contact_groups          sagroup

        notification_interval   10

        notification_period     24x7

        notification_options    w,u,c,r

        check_command           check_nrpe!check_users

        }

define service {

        host_name               Nagios-Client

        service_description     check-load

        check_period            24x7

        max_check_attempts      4

        normal_check_interval   3

        retry_check_interval    2

        contact_groups          sagroup

        notification_interval   10

        notification_period     24x7

        notification_options    w,u,c,r

        check_command           check_nrpe!check_load

        }



define service {
```

```
        host_name              Nagios-Client

        service_description    check-zombie-procs

        check_period           24x7

        max_check_attempts     4

        normal_check_interval  3

        retry_check_interval   2

        contact_groups         sagroup

        notification_interval  10

        notification_period    24x7

        notification_options   w,u,c,r

        check_command          check_nrpe!check_zombie_procs

}

define service {

        host_name              Nagios-Client

        service_description    check-/

        check_period           24x7

        max_check_attempts     4

        normal_check_interval  3

        retry_check_interval   2

        contact_groups         sagroup

        notification_interval  10

        notification_period    24x7

        notification_options   w,u,c,r

        check_command          check_nrpe!check_/

}


define service {

        host_name              Nagios-Client

        service_description    check-swap
```

check_period	24x7
max_check_attempts	4
normal_check_interval	3
retry_check_interval	2
contact_groups	sagroup
notification_interval	10
notification_period	24x7
notification_options	w, u, c, r
check_command	check_nrpe!check_swap

}

4.5 登陆验证配置

4.5.1 查看配置文件是否正确

[root@Nagios-Server ~]# /usr/local/nagios/bin/nagios -v /usr/local/nagios/etc/nagios.cfg

4.5.2 重新加载配置文件

[root@Nagios-Server ~]# /etc/init.d/nagios reload

4.5.3 用 IE 浏览器登陆验证

| Host ↑↓	Service ↑↓	Status ↑↓	Last Check ↑↓	Duration ↑↓	Attempt ↑↓	Status Information
Nagios-Client	check-/	OK	05-29-2010 04:26:36	0d 0h 1m 12s	1/4	DISK OK - free space: / 7017 MB (79% inode=96%):
	check-host-alive	OK	05-29-2010 04:26:31	0d 1h 28m 17s	1/4	PING OK - Packet loss = 0%, RTA = 0.34 ms
	check-load	OK	05-29-2010 04:27:27	0d 0h 0m 21s	1/4	OK - load average: 0.05, 0.14, 0.11
	check-swap	OK	05-29-2010 04:25:19	0d 0h 2m 29s	1/4	SWAP OK - 100% free (511 MB out of 511 MB)
	check-users	OK	05-29-2010 04:26:10	0d 0h 1m 38s	1/4	USERS OK - 2 users currently logged in
	check-zombie-procs	OK	05-29-2010 04:27:02	0d 0h 0m 46s	1/4	PROCS OK: 0 processes with STATE = Z
Nagios-Server	check-host-alive	OK	05-29-2010 04:25:01	0d 1h 26m 47s	1/4	PING OK - Packet loss = 0%, RTA = 0.09 ms

第五章 Nagios 监控远程 Windows 服务器

Nagios 监控 Windows 服务器使用的是 NSClient++程序。

5.1 在受监控 Windows 服务器部署

5.1.1 下载 NSClient++

http://sourceforge.net/projects/nscplus/
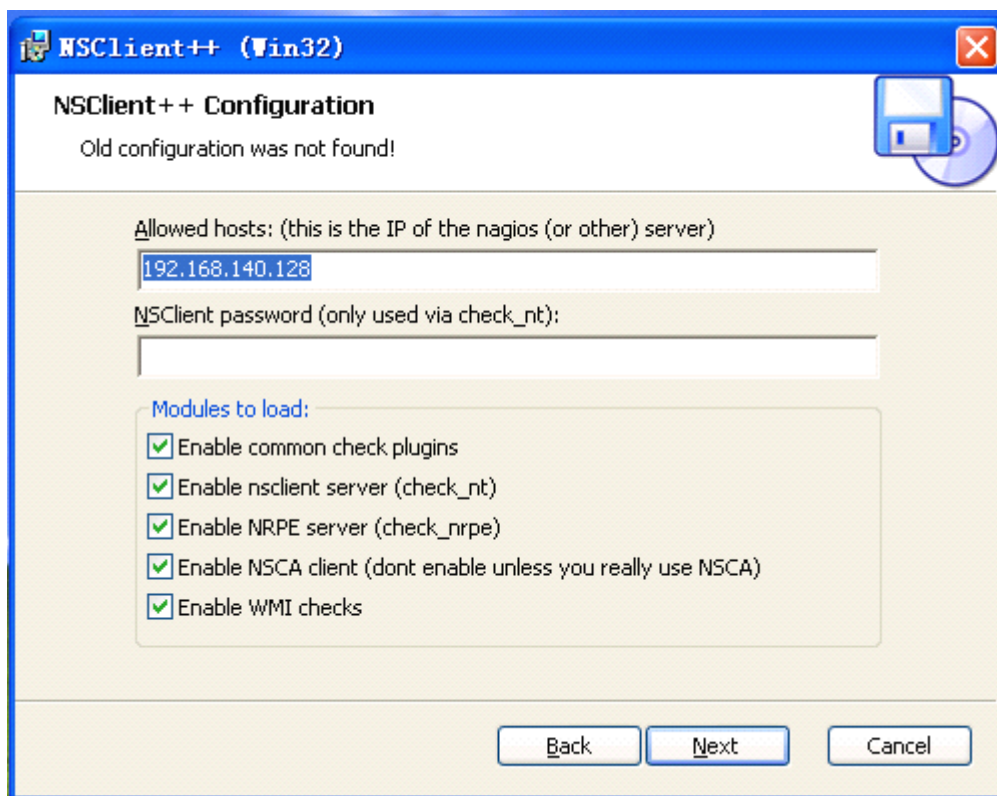
5.1.2 修改 Nagios 服务器配置文件

在这里使用一个配置文件来做，也就是把主机，服务写到一个配置文件里。

[root@Nagios-Server ~]# vi /usr/local/nagios/etc/nagios.cfg

添加：

cfg_file=/usr/local/nagios/etc/objects/Windows-Client.cfg

[root@Nagios-Server ~]# vi /usr/local/nagios/etc/objects/windows-client.cfg

```
define host{
        host_name                    Windows-Client
        alias                        Nagios Server
        address                      172.16.0.168
        check_command                    check-host-alive
        check_interval            5
        retry_interval            1
        max_check_attempts           5
        check_period             24x7
        process_perf_data            0
        retain_nonstatus_information     0
        contact_groups               sagroup
        notification_interval        30
        notification_period          24x7
        notification_options         d,u,r
}
define service {
        host_name                Windows-Client
        service_description      Check-Memory
        check_period             24x7
        max_check_attempts        4
        normal_check_interval    3
        retry_check_interval     2
        contact_groups            sagroup
        notification_interval    10
        notifichation_period     24x7
```

```
          notification_options    w,u,c,r

          check_command                check_nt!MEMUSE!-w 80 -c 90

          }

define service {

          host_name                Windows-Client

          service_description      Check-CPU-Load

          check_period             24x7

          max_check_attempts       4

          normal_check_interval    3

          retry_check_interval     2

          contact_groups           sagroup

          notification_interval    10

          notification_period      24x7

          notification_options     w,u,c,r

          check_command                check_nt!CPULOAD!-l 5,80,90

          }

define service {

          host_name                Windows-Client

          service_description      Check-Disk-C

          check_period             24x7

          max_check_attempts       4

          normal_check_interval    3

          retry_check_interval     2

          contact_groups           sagroup

          notification_interval    10

          notification_period      24x7

          notification_options     w,u,c,r

          check_command                check_nt!USEDDISKSPACE!-l c -w 80 -c 90

          }
```

```
define service {
        host_name                 Windows-Client
        service_description       Check-Disk-D
        check_period              24x7
        max_check_attempts        4
        normal_check_interval     3
        retry_check_interval      2
        contact_groups            sagroup
        notification_interval     10
        notification_period       24x7
        notification_options      w,u,c,r
        check_command             check_nt!USEDDISKSPACE!-l d -w 80 -c 90
        }
```

5.1.3 登陆验证配置

[root@Nagios-Server ~]# /etc/init.d/nagios restart

第六章 监控 Linux 系统内存

在本章，将通过编写一个监控系统内存的检测插件来介绍，系统管理员如何根据业务应用编写 Nagios 支持的插件检测检测脚本。

6.1 如何编写检测脚本

编写 Nagios 的插件可以使用 PERL、SHELL、Python 等脚本语音，管理员可以根据自身情况选择一种来使用。

6.1.1 Nagios 插件编写条件

Nagios 插件的脚本或执行程序必须(至少)要做两件事：

一是退出时给出几种可能的返回值中的一个。

Nagios 用插件的返回值来生成主机或服务的状态。下表里列出了合法的返回值以及对应的服务或主机状态。

插件返回值	服务状态	主机状态
0	正常(OK)	运行(UP)
1	告警(WARNING)	运行(UP)或宕机(DOWN)/不可达(UNREACHABLE)*
2	紧急(CRITICAL)	宕机(DOWN)/不可达(UNREACHABLE)
3	未知(UNKNOWN)	宕机(DOWN)/不可达(UNREACHABLE)

二是至少要给出一条输出内容到标准输出设备(STDOUT)。

例如：DISK OK - free space: / 3326 MB (56%);

6.1.2 检测脚本存放目录

```
[root@Nagios-Client ~]# cd /usr/local/nagios/libexec/
```
所有的检测脚本都放在该目录下，

6.2 规划编写一个监控 Linux 内存的插件

```
[root@Nagios-Client ~]# free -m
```

	total	used	free	shared	buffers	cached
Mem:	249	235	14	0	45	143
-/+ buffers/cache:		46	203			

Swap:　　　　　　511　　　　　　0　　　　　　511

第一行的 total 值：系统内存总值

第二行的 free 值：系统可用内存值

系统可用内存值 / 系统内存总值，所得的百分比为目前系统可用的内存百分比。

[root@Nagios-Client ~]# vi /usr/local/nagios/libexec/check_mem

#!/bin/bash

#Written by ZhaoShundong

#This Nagios plugin can be check you system memory status

USAGE_Method="$(basename $0) [-w|--warning] <Free Percent> [-c|--critical] <Free Percent>"

USAGE_Value="WARNING value must be large than CRITICAL value: `basename $0` $*"

STATE_OK=0

STATE_WARNING=1

STATE_CRITICAL=2

STATE_UNKNOWN=3　#设置 Nagios 要求的状态

if [$# -lt 4];then

　　　　echo

　　　　echo "Usage: $USAGE_Method"

　　　　echo

　　　　exit 0

fi

while [$# -gt 0];do

　　　　case "$1" in

　　　　　　　　-w|--warning)

　　　　　　　　shift

　　　　　　　　WARNING=$1

　　　　;;

```
                -c|--critical)

                        shift

                        CRITICAL=$1

        ;;

        esac

        shift

done

if [[ $WARNING -eq $CRITICAL || $WARNING -lt $CRITICAL ]]

then

        echo

        echo "$USAGE_Value"

        echo

        echo "Usage: $USAGE_Method"

        echo

        exit 0

fi

FREE_MEM=$(free -m | grep - | awk -F ' ' '{print $4}')    #取当前未使用的内存，注意是未使用！

TOTAL_MEM=$(free -m | grep Mem | awk -F ' ' '{print $2}') #取当前系统总内存

PERCENT=$(bc <<< "scale=2;$FREE_MEM/$TOTAL_MEM" | tr '^.' ' ') #使用 bc 输出百分比

if [ "$PERCENT" -le "$CRITICAL" ] #如果监测百分比小于等于用户设置的严重错误值，返回 2

        then

                echo "CRITICAL - $FREE_MEM MB ($PERCENT%) Free Memory"

                exit 2

fi

if [ "$PERCENT" -le    "$WARNING" ]    #如果百分比小于等于用户设置的警告值就警告并返回 1

        then

                echo "WARNING - $FREE_MEM MB ($PERCENT%) Free Memory"

                exit 1

fi
```

if ["$PERCENT" -gt "$WARNING"] #如果百分比大于用户设置的警告值就输出 OK 返回 0

    then

        echo "OK - $FREE_MEM MB ($PERCENT%) Free Memory"

        exit 0

fi

6.3 测试插件

6.3.1 本地测试

[root@Nagios-Client ~]# cd /usr/local/nagios/libexec/

[root@Nagios-Client libexec]# chmod +x check_mem

[root@Nagios-Client libexec]# ./check_mem

Usage: check_mem [-w|--warning] <Free Percent> [-c|--critical] <Free Percent>

[root@Nagios-Client libexec]# ./check_mem -w 30 -c 20

OK - 203 MB (81%) Free Memory

6.3.2 服务器端测试

1> 修改客户端的 nrpe.confg

[root@Nagios-Client ~]# vi /usr/local/nagios/etc/nrpe.cfg

添加：

command[check_mem]=/usr/local/nagios/libexec/check_mem -w 20 -c 10

2> 修改服务器端的服务定义文件

[root@Nagios-Server ~]# vi /usr/local/nagios/etc/objects/services.cfg

添加：

```
define service {

        host_name                 Nagios-Client

        service_description       check-mem

        check_period              24x7

        max_check_attempts        4

        normal_check_interval     3

        retry_check_interval      2

        contact_groups            sagroup

        notification_interval     10

        notification_period       24x7

        notification_options      w,u,c,r

        check_command             check_nrpe!check_mem

}
```

3> 重新加载 Nagios

[root@Nagios-Server ~]# /etc/init.d/nagios reload

Running configuration check...done.

Reloading nagios configuration...done

4> 登陆验证

Host ↑↓	Service ↑↓	Status ↑↓	Last Check ↑↓	Duration ↑↓	Attempt ↑↓	Status Information
Nagios-Client	check-/	OK	05-29-2010 13:05:36	0d 8h 40m 31s	1/4	DISK OK - free space: / 7017 MB (79% inode=96%):
	check-host-alive	OK	05-29-2010 13:04:16	0d 10h 7m 36s	1/4	PING OK - Packet loss = 0%, RTA = 0.31 ms
	check-load	OK	05-29-2010 13:05:05	0d 8h 39m 40s	1/4	OK - load average: 0.00, 0.00, 0.00
	check-mem	OK	05-29-2010 13:06:29	0d 0h 3m 38s	1/4	OK - 201 MB (80%) Free Memory
	check-swap	OK	05-29-2010 13:04:19	0d 8h 41m 48s	1/4	SWAP OK - 100% free (511 MB out of 511 MB)
	check-users	OK	05-29-2010 13:06:00	0d 8h 40m 57s	1/4	USERS OK - 2 users currently logged in
	check-zombie-procs	OK	05-29-2010 13:06:55	0d 8h 40m 5s	1/4	PROCS OK: 0 processes with STATE = Z

第七章 监控 **MySQL Replication**

7.1 插件介绍

在上一章已经简单介绍了，如果编写 Nagios 的检测插件，本章针对 MySQL Replication 做监控插件的介绍，如果还不清楚 MySQL Replication 的朋友请在网站查找 http://www.unixhot.com.

7.2 建立 MySQL 检测用户

```
mysql> GRANT REPLICATION CLIENT ON *.* TO nagios@localhost identified by 'nagiosre';
mysql> flush privileges;
```

7.3 编写插件

```
[root@Nagios-Client ~]# vi /usr/local/nagios/libexec/check_slave


#!/bin/bash
MYSQLUSER=nagios
MYSQLPS=nagiosre
MYSQLBIN=/usr/local/mysql/bin/mysql
STATE_OK=0
STATE_WARNING=1
STATE_CRITICAL=2
```

```
STATE_UNKNOWN=3
STATE_NUM=$($MYSQLBIN -u$MYSQLUSER -p$MYSQLPS -e "show slave status\G" | grep Running |
grep Yes | wc -l)
if [ $? -ne 0 ];then
    echo "Please Check the Plugins"
    exit $STATE_UNKNOWN
fi


if [ "${STATE_NUM}" -eq 2 ];then
    echo "Check OK,MySQL Replication is running"
    exit $STATE_OK
else
    echo "Check Critical,MySQL Replication is error"
    exit $STATE_CRITICAL
fi
```

7.4 测试插件

7.4.1 本地测试

```
[root@Nagios-Client ~]# cd /usr/local/nagios/libexec/
[root@Nagios-Client libexec]# chmod +x check_slave
[root@Nagios-Client libexec]# ./check_slave
Check OK,MySQL Replication is running
```

7.4.2 服务器端测试

1> 修改客户端的 nrpe.confg

```
[root@Nagios-Client ~]# vi /usr/local/nagios/etc/nrpe.cfg
```
添加：

command[check_slave]=/usr/local/nagios/libexec/check_slave

2> 修改服务器端的服务定义文件

[root@Nagios-Server ~]# vi /usr/local/nagios/etc/objects/services.cfg

添加：

```
define service {
        host_name              Nagios-Client
        service_description    check-slave
        check_period           24x7
        max_check_attempts     4
        normal_check_interval  3
        retry_check_interval   2
        contact_groups         sagroup
        notification_interval  10
        notification_period    24x7
        notification_options   w,u,c,r
        check_command          check_nrpe!check_slave
}
```

3> 重新加载 Nagios

[root@Nagios-Server ~]# /etc/init.d/nagios reload

Running configuration check...done.

Reloading nagios configuration...done

4> 登陆验证

check-/	OK	05-30-2010 01:33:19	0d 21h 8m 30s	1/4	DISK OK - free space: / 6259 MB (70% inode=95%):
check-host-alive	OK	05-30-2010 01:33:17	0d 22h 35m 35s	1/4	PING OK - Packet loss = 0%, RTA = 0.39 ms
check-load	OK	05-30-2010 01:34:02	0d 21h 7m 39s	1/4	OK - load average: 0.00, 0.00, 0.00
check-mem	OK	05-30-2010 01:34:47	0d 6h 25m 37s	1/4	OK - 197 MB (79%) Free Memory
check-slave	OK	05-30-2010 01:34:36	0d 0h 3m 30s	1/4	Check OK,MySQL Replication is running
check-swap	OK	05-30-2010 01:32:32	0d 21h 9m 47s	1/4	SWAP OK - 100% free (511 MB out of 511 MB)
check-users	OK	05-30-2010 01:33:32	0d 6h 27m 6s	1/4	USERS OK - 2 users currently logged in
check-zombie-procs	OK	05-30-2010 01:34:17	0d 6h 25m 11s	1/4	PROCS OK: 0 processes with STATE = Z

第八章 Nagios 自动化部署

8.1 自动化部署简介

由于服务器数量的不断增加，面对数以千计的需要做 Nagios 监控的客户端，自动化部署就会被提上日程了,自动化部署最简单的是把安装时的命令组合通过脚本组合在一起，再加上一些成功与否的判断，在这里粘贴，本人写的一个简单的自动化部署脚本，此脚本简单易懂，且在不断更新中，需要最新脚本信息，请关注 http://www.unixhot.com。

脚本下载地址 ： http://www.unixhot.com/nagios.zip

8.2 Nagios Server 端部署脚本

（略）暂不推荐使用

8.3 Nagios Client 端部署脚本

```
#/bin/bash
clear
echo "========================================================================"
echo "Welcome to UnixHot Linux Monitor"
echo ""
echo ""
```

```
echo "UHLM v1.0 client by UnixHot "
echo "===================================================================="
echo ""
echo "For more information please visit http://www.unixhot.com/"
echo ""
SOFTWARE_PATH=/usr/local/src
PACKAGE1=gcc
PACKAGE2=glibc
PACKAGE3=xinetd
#PACKAGE4=gd

download(){
    echo "=================Start download Nagios Client package=========="
    cd $SOFTWARE_PATH
    wget
http://prdownloads.sourceforge.net/sourceforge/nagiosplug/nagios-plugins-1.4.14.tar.gz
    wget http://prdownloads.sourceforge.net/sourceforge/nagios/nrpe-2.12.tar.gz
    chmod +x nagios-plugins-1.4.14.tar.gz
    chmod +x nrpe-2.12.tar.gz
    echo "Download packages finished!"
    echo "=============================================================="
}

nagios-plugins(){
    echo "======================install Nagios-plugins==================="
    cd $SOFTWARE_PATH
    useradd -s /sbin/nologin nagios
    tar zxvf nagios-plugins-1.4.14.tar.gz
    cd nagios-plugins-1.4.14
    ./configure
    make && make install
}

nrpe(){
    echo "======================install nrpe============================="
    cd $SOFTWARE_PATH
    tar zxvf nrpe-2.12.tar.gz
    cd nrpe-2.12
    ./configure && make all
    make install-plugin
    make install-daemon
    make install-daemon-config
```

```
        make install-xinetd
}

config(){
        echo "====================Config===================="
        sed -i 's/yes/no/g' /etc/xinetd.d/nrpe
        sed -i 's/127.0.0.1/127.0.0.1 '$Nagios_Server'/g' /etc/xinetd.d/nrpe
        echo "nrpe    5666/tcp    #nrpe" >> /etc/services
        chown -R nagios:nagios /usr/local/nagios
        /etc/init.d/xinetd restart
        sleep 5
        netstat -na | grep 5666
        echo "*******************************************"
        echo "If you look the LISTEN 5666 port,Congratulations, Nagios-Client Install are
successful"
            echo "*******************************************"
}

main(){
        rpm -q $PACKAGE1 $PACKAGE2 $PACKAGE3 > /tmp/rpm.log
        SOFTWARE_STATUS=`grep 'not installed' /tmp/rpm.log`
        if [ -z "$SOFTWARE_STATUS" ];then
            echo "Please input the Nagios Server IP Address"
                read
                echo "The Nagios server ip address is $REPLY"
                Nagios_Server=$REPLY
            download
            nagios-plugins
            nrpe
            config
        else
            echo "Please install the following software first!"
                    echo ""
                    echo ""
                    grep 'not installed' /tmp/rpm.log
                    echo ""
        fi
}

main
```

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