

Network Management & Monitoring

Smokeping - Part I

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0.1 Exercises

In this exercise you will install Smokeping and get it to monitor various devices in the class network.

Since most of the tasks in this exercise require you to be “root”, the first thing you should do is to connect to your PC and start a root shell.

```
$ sudo -s
#
```

0.2 1. Install Smokeping

```
# apt-get install smokeping
```

For Ubuntu 14.04: you need to install a symlink to the apache2 config

```
# ln -s /etc/smokeping/apache2.conf /etc/apache2/conf-available/smokeping.conf
# a2enconf smokeping
```

Also, the CGI module needs to be enabled in Apache:

```
# a2enmod cgi
```

Finally, reload the Apache configuration:

```
# service apache2 reload
```

Then point your web browser at

```
http://pcN.ws.nsrc.org/smokeping/smokeping.cgi
```

(replace “pcN” with your own PC) to check that it is running.

0.3 2. Initial Configuration

```
# cd /etc/smokeping/config.d
# ls -l
```

```
-rwxr-xr-x 1 root root 578 2010-02-26 01:55 Alerts
-rwxr-xr-x 1 root root 237 2010-02-26 01:55 Database
-rwxr-xr-x 1 root root 413 2010-02-26 05:40 General
-rwxr-xr-x 1 root root 271 2010-02-26 01:55 pathnames
-rwxr-xr-x 1 root root 859 2010-02-26 01:55 Presentation
-rwxr-xr-x 1 root root 116 2010-02-26 01:55 Probes
-rwxr-xr-x 1 root root 155 2010-02-26 01:55 Slaves
-rwxr-xr-x 1 root root 8990 2010-02-26 06:30 Targets
```

The files that you’ll need to change, at a minimum, are:

- Alerts
- General
- Probes
- Targets

Now open the General file (note the first capital letter)

```
# editor General
```

Change the following lines:

```
owner      = NOC
contact    = sysadm@localhost
mailhost   = localhost
cgiurl     = http://localhost/smokeping/smokeping.cgi
# specify this to get syslog logging
syslogfacility = local5
```

Save the file and exit. Now let's restart the Smokeping service to verify that no mistakes have been made before going any further:

```
# service smokeping stop
# service smokeping start
```

A quicker way to do this is:

```
# service smokeping restart
```

We'll use this for the rest of the exercises, or we'll just use the "reload" directive as this is all you need for Smokeping to see configuration file changes.

Now open the Alerts file (note the first capital letter)

```
# editor Alerts
```

Change the following lines:

```
to = root@localhost
from = smokeping-alert@localhost
```

Save the file and exit. Restart Smokeping:

```
# service smokeping reload
```

0.4 3. Configure monitoring of devices

The majority of your time and work configuring Smokeping will be done in the file `/etc/smokeping/config.d/Targets`.

For this class please do the following:

Use the default FPing probe to check:

- some of the student PCs
- classroom NOC
- switches
- routers

You can use the classroom Network Diagram on the classroom wiki to figure out addresses for each item, etc.

Create some hierarchy to the Smokeping menu for your checks. For example, the Targets file is already partially preconfigured. To start we are going to add some entries to this file. Start with:

```
# cd /etc/smokeping/config.d
# editor Targets
```

You can take the section from ***** Targets ***** to the end of the LocalMachine and make it look something like this. Feel free to use your own “remark”, “menu” text and titles. Note that we remove the commented lines `#parents = owner:/Test/James location:/`, and the “Alerts” line.

NOTE: We strongly recommend that you COPY and PASTE text from these exercises directly in to the Targets file. Typing all this by hand will take too long.

```
*** Targets ***

probe = FPing

menu = Top
title = Network Latency Grapher
remark = Smokeping Latency Grapher for Network Monitoring \
        and Management Workshop.

+Local

menu = Local Network Monitoring and Management
title = Local Network

++LocalMachine

menu = Local Machine
title = This host
host = localhost
```

Now, below the “localhost” we start with the configuration of items for our class. We can start simple and add just the first 4 PCs that are in Group 1 as well as an entry for our classroom NOC.

```
#
# ***** Classroom Servers *****
```

```
#

+Servers

menu = Servers
title = Network Management Servers

++noc

menu = noc
title = Workshop NOC
host = noc.ws.nsrc.org

#
# ***** Student Machines (VMs) *****
#

+PCs

menu = Lab PCs
title = Virtual PCs Network Management

++pc1

menu = pc1
title = Virtual Machine 1
host = pc1.ws.nsrc.org

++pc2

menu = pc2
title = Virtual Machine 2
host = pc2.ws.nsrc.org

++pc3

menu = pc3
title = Virtual Machine 3
host = pc3.ws.nsrc.org

++pc4

menu = pc4
```

```
title = Virtual Machine 4
host = pc4.ws.nsrc.org
```

OK. Let's see if we can get Smokeping to stop and start with the changes we have made, so far. Save and exit from the Targets file. Now try doing:

```
# service smokeping reload
```

If you see error messages, then read them closely and try to correct the problem in the Targets file. In addition, Smokeping is now sending log message to the file `/var/log/syslog`. You can view what Smokeping is saying by typing:

```
# tail /var/log/syslog
```

If you want to see all smokeping related messages in the file `/var/log/syslog` you can do this:

```
# grep smokeping /var/log/syslog
```

If there are no errors you can view the results of your changes by going to:

```
http://pcN.ws.nsrc.org/cgi-bin/smokeping.cgi
```

When you are ready you can edit the Targets file again and continue to add machines. At the bottom of the file you can add the next group of PCs:

```
++pc5
```

```
menu = pc5
title = Virtual Machine 5
host = pc5.ws.nsrc.org
```

```
++pc6
```

```
menu = pc6
title = Virtual Machine 6
host = pc6.ws.nsrc.org
```

```
++pc7
```

```
menu = pc7
```

```
title = Virtual Machine 7
host = pc7.ws.nsrc.org
```

```
++pc8
```

```
menu = pc8
title = Virtual Machine 8
host = pc8.ws.nsrc.org
```

Add as many PCs as you want, then Save and exit from the Targets file and verify that the changes you have made are working:

```
# service smokeping reload
```

You can continue to view the updated results of your changes on the Smokeping web page. It may take up to 5 minutes before graphs begin to appear.

```
http://pcN.ws.nsrc.org/cgi-bin/smokeping.cgi
```

0.5 4. Configure monitoring of routers and switches

Once you have configured as many PCs as you want to configure, then it's time to add in some entries for the classroom routers and switch(es).

```
# cd /etc/smokeping/config.d      (just to be sure :-))
# editor Targets
```

Go to the bottom of the file and add in some entries for routers and switches:

```
#
# ***** Classroom Backbone Switch *****
#
```

```
+Switches
```

```
menu = Switches
title = Switches Network Management
```

```
++sw
```

```
menu = sw
title = Backbone Switch
```

```
host = sw.ws.nsrc.org

#
# ***** Virtual Routers: Cisco 7200 images *****
#

+Routers

menu = Routers
title = Virtual and Physical Routers Network Management

++gw

menu = gw
title = Gateway Router
host = gw.ws.nsrc.org

++router1

menu = router1
title = Virtual Router 1
host = rtr1.ws.nsrc.org

++router2

menu = router2
title = Virtual Router 2
host = rtr2.ws.nsrc.org

++router3

menu = router3
title = Virtual Router 3
host = rtr3.ws.nsrc.org
```

If you wish you can continue and add in entries for routers 4 to 6, or up to 9 if there are that many in your class. When you are ready Save and Exit from the Targets file and verify your work:

```
# service smokeping reload
```

If you want you might consider adding the Wireless Access Point:

```
# editor Targets
```



```
#  
# Classrom Wireless Access Point  
#
```

```
++ap1
```

```
menu = ap1  
title = Wireless Access Point 1  
host = ap1.ws.nsrc.org
```

Save and Exit from the file and reload the Smokeping service:

```
# service smokeping reload
```