MRTG and RRDTool
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Notes:
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* Commands preceded with "$" imply that you should execute the command as
  a general user - not as root.
* Commands preceded with "#" imply that you should be working as root.
* Commands with more specific command lines (e.g. "GW-RTR>" or "mysql>")
  imply that you are executing commands on remote equipment, or within
  another program.
* If a command line ends with "\" this indicates that the command continues
  on the next line and you should treat this as a single line.

Exercises Part I
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0. Log in to your PC/VM or open a terminal window as the sysadm user.

1. Install MRTG

We will install MRTG and graph input/output data for the network interfaces on our classroom
routers - i.e. how much traffic is flowing across the router.

        $ sudo apt-get install mrtg

When asked whether the file should be owned and readable only by root choose "<No>" as it
does need to be readable by RRDTool later on.

2. Create the /etc/mrtg directory

        $ sudo mkdir /etc/mrtg

3. SNMP RO Community string: "NetManage"

You will need this information later.

4. Find the IP and Name of the Device

You will do this exercises against your router. So, name and IP is

        name: rtrX.ws.nsrc.org
        IP: 10.10.X.254

So, for Group 3 the information would be:

        name: rtr3.ws.nsrc.org
        IP: 10.10.3.254

You need this information for step 5 (below).

5. Run cfgmaker (the command below all on one line!)

Let's become the root user at this point:

        $ sudo bash

You are now root and your prompt should have a "#" at the end to indicate this.

        # mkdir -p /var/www/mrtg

        # /usr/bin/cfgmaker --output=/etc/mrtg/device.mrtg --global 'workdir: /var/www/mrtg' \
          --global 'options[_]: growright,bits' NetManage@10.10.X.254

View the mrtg configuration file created by cfgmaker, you can make changes and see the results,
if you want (/etc/mrtg/device.mrtg). For now, however, leave the file as it is.

6. Use indexmaker to create HTML files (all on one line!)

        # /usr/bin/indexmaker --output=/var/www/mrtg/device.html /etc/mrtg/device.mrtg

7. Run MRTG command. Do this THREE TIMES! Really, THREE TIMES

        # LANG=C /usr/bin/mrtg /etc/mrtg/device.mrtg

You will see some WARNING messages. Ignore these and repeat the command. After the third time you
should not see any more warnings.

8. Put the above command in a script

        # echo 'LANG=C /usr/bin/mrtg /etc/mrtg/device.mrtg' >/etc/mrtg/mrtgscript

Make the script executable:

        # chmod +x /etc/mrtg/mrtgscript

9. Edit the crontab and insert the command to be run every 5 minutes
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        # crontab -e

If prompted for what editor to use pick the one you prefer.

add:

        0-59/5 * * * * /etc/mrtg/mrtgscript

to the bottom of the file. Save the file and exit.

10. Run the mrtg script once manually to make sure we have some initial graphs
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        # /etc/mrtg/mrtgscript

10. Load the browser through webserver

View the MRTG output in a browers. Point to your PC (pc1 through pc32):

http://pcX.ws.nsrc.org/mrtg/device.html

You will not see any results for a while - up to 10 minutes. At that point your
graph should be moving.

RRDTool
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1. Install the Required Pieces

        # apt-get install rrdtool librrdp-perl librrds-perl

This may take a while.

```
2. Add in your MRTG Configuration file
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        # vi /etc/mrtg/device.mrtg
```

Look for the following near the top of the file:

```
        #   for Debian
        WorkDir: /var/www/mrtg
```

Add a line just below the "WorkDir" line that reads:

```
        LogFormat: rrdtool
```

Exit and save the file.

Force quick, initial creation of the rrd files in /var/www/mrtg:

```
        # /etc/mrtg/mrtgscript
```

Look at /var/www/mrtg and notice that there are now files named *.rrd:

```
        # ls /var/www/mrtg
```

But what about graphs?

```
3. Install mrtg-rrd
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        # apt-get install mrtg-rrd
        # cd /usr/lib/cgi-bin
        # ln -s mrtg-rrd.cgi 14all.cgi
```

```
4. Run indexmaker again
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        # /usr/bin/indexmaker --output=/var/www/mrtg/device.html /etc/mrtg/device.mrtg
```

```
5. Create /etc/mrtg-rrd.conf
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        # echo '/etc/mrtg/device.mrtg' >/etc/mrtg-rrd.conf
```

```
4. Make /var/www/mrtg writeable for the Web server
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        # chown www-data /var/www/mrtg
```

```
5. Remove the old PNG files for the MRTG graphs
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        # rm /var/www/mrtg/10.10*.png
```

```
6. Look at the webpage (http://pcX.ws.nsrc.org/mrtg/device.html) again
----------------------------------------------------------------------
```

You now have links to the graphs. Click on each one to see the new graphs. They look different, but contain the same information.

Graphs are generated dynamically using RRD vs. being stored as separate PNG files every five minutes.

You can adjust the look of pages, text on the pages, etc. by hand-editing the various files
if you wish, but it is rather tedious...

        /etc/mrtg/device.mrtg
        /var/www/mrtg/device.html

etc.