# MRTG + FireDaemon
(HOWTO)

## Introduction

Multi Router Traffic Grapher (MRTG) is a tool to monitor the traffic load on network-links. It achieves this by examining the various OID's of SNMP enabled devices that you specify to produce a range of excellent graphs.

It is relatively easy to setup MRTG to run as a service under NT/2K. However, before you begin we recommend that your read ALL the documentation shipped with MRTG and available from the MRTG master web site: http://ee-staff.ethz.ch/~oetiker/webtools/mrtg/

Detailed documentation on configuring MRTG under NT can be found here: http://ee-staff.ethz.ch/~oetiker/webtools/mrtg/nt-guide.html

We also strongly recommend that your get MRTG going manually before attempting to run it as a service (ie. make it the last step in your installation process). The example that we give below is very simple and concentrates on configuring MRTG and FireDaemon correctly.

Finally, if you haven't patched your server yet we strongly recommend you do so. For Windows NT 5.0 (2000) (Professional, Server, Advanced Server) install Service Pack 2, Internet Explorer 5.5 SP1 or later, perform a Windows Update and install all Critical Updates plus the High Encryption Pack. For Windows NT 4.0 (Workstation and Server) install Service Pack 6 plus any relevant post SP6 hotfixes and Internet Explorer 5.5 SP1 or later.

## Hardware

In this example we are using an IBM T21 (PIII 800Mhz w/ 512Mb) laptop running SuSE LINUX 7.1. Win2K Professional SP1 is being run under a VMware virtual machine. This machine is connected on the same ethernet segment to a Foundry ServerIronXL (24 x FastEthernet, 2 x GigabitEthernet).

## Software

We downloaded and installed the following software. **NOTE - NOTE - NOTE**. We noticed that MRTG sometimes falls over when installed in a directory with a space in the name (eg. C:\Program Files). This ONLY occurs when run as a service and it has something to do with Perl and Windows directory 8.3 name mangling. If you figure it out, the please let us know! We recommend that you place MRTG in a "safer" directory structure as described below.

| Software | Version | URL | Installation Location |
|---|---|---|---|
| MRTG | v2.9.17 | http://ee-staff.ethz.ch/~oetiker/webtools/mrtg/ | C:\apps\mrtg-2.9.17 |
| ActiveState Perl | v5.6.0.623 | http://www.activestate.com/Products/ActivePerl/ | C:\apps\perl |
| FireDaemon | v0.09c | http://www.firedaemon.com | C:\apps\firedaemon |
| VIM | v5.7 | http://www.vim.org | C:\apps\vim57 |
| Apache | v1.3.20 | http://www.apache.org/httpd/ | C:\apps\apache |

## MRTG Configuration

Your MRTG configuration will undoubtably differ. However, this is what we did:

Setup a simple SNMP configuration under SW: 07.1.15T12 on the ServerIronXL:

```
snmp-server community public ro
snmp-server community private rw
snmp-server contact James Bourne
snmp-server location Sydney, Australia
```

We also recommend that you name your interfaces as appropriate using the commands as follows:

```
int e 1
port-name Interface 1
int e 2
port-name Interface 2
write mem
```

Then we created a configuration file as follows:

```
mkdir c:\apps\apache\htdocs\mrtg
cd c:\apps\mrtg-2.9.17\bin
perl cfgmaker public@10.1.251.1 --global "WorkDir: C:\Apps\Apache\htdocs\mrtg" --output foundry.cfg
```

Then edited foundry.cfg:

```
vim router.cfg
```

And appended the lines at the end of the file as follows:

RunAsDaemon: yes
Interval: 5

Note that setting your Interval to less than 5 minutes will cause an error. Now run MRTG manually to test your configuration as follows (you might have to kill off MRTG via the Task Manager since it has been daemonised):

```
perl mrtg --logging mrtg.log foundry.cfg
```

Check your workdir (c:\apps\apache\htdocs\mrtg) and confirm that the various HTML and PNG files have been generated and that there are no errors in the log file (mrtg.log).

## FireDaemon Configuration

Once you are satisfied that your MRTG configuration is doing what you want and generating the appropriate graphs you need to set it up as a service with FireDaemon. This is what we did:

```
c:
cd \apps\firedaemon
firedaemon -p (or firedaemonui if it is installed)
```

Now answer the FireDaemon questions exactly as follows (your paths might differ depending on where you installed Perl and MRTG):

```
Service Name --> mrtg
Application Working Directory --> c:\apps\mrtg-2.9.17\bin
Application Executable --> c:\apps\perl\bin\perl.exe
Application Options --> mrtg --logging mrtg.log foundry.cfg
Auto Restart Application --> y
Processor Affinity Mask --> 0
Process Priority --> 0
Interact With Desktop --> n
Auto Start Service --> y
```

If you want to be really smart you can run multiple instances of MRTG on the same machine. Just ensure that you change the service name (eg. mrtg1, mrtg2 etc.). Also you might want to modify the working directory in the configuration file so that the HTML etc. are written to differing directories. Finally, start the service:

```
net start mrtg
```

Check that the service has been started correctly by examining your process list in the Task Manager and that the MRTG statistics are being updated (point your browser at http://localhost/mrtg/). You can also check the NT/2K event log for FireDaemon events and errors.

## What If It All Goes Horribly Wrong?

OK, so you have installed MRTG, tested the installation to the n-th degree and you now notice that your Application Event Log is filling up with a three FireDaemon error messages:

- The FireDaemon Process was Started
- The Service Failed To Shutdown Correctly ...
- SubProcess Monitoring Failed ...

The error messages are generated by FireDaemon's Service Monitoring Facility (SMF). In a nutshell: MRTG is dying because of a misconfiguration. So how do you debug your configuration? There are several approaches but you are going to need: a text editor that handles Unix end of line characters (eg. VIM), your trusty Perl reference manual and some patience.

MRTG from versions 2.9.17 onwards include a command line switch: --logging, which allows all debugging and other output to be written to a file.

The most common error we have run across is that the MRTG configuration file is broken. For example, spaces in front of configuration directives (as listed above) will break your MRTG installation. The next most common error we have encountered is that MRTG is installed into a directory with a space in the name (eg. C:\Program Files). Because of MRTG's Unix heritage it sometimes doesn't handle directories with spaces in the name particularly well. So install it in a sensible directory like C:\Apps. Also if you are writing your output to a directory located on a network drive (which we _DONT_ recommend) then you are going to have to setup your service to run as a local or domain user with relevant logon scripts to remount the network drives.

This is the approach we use to track down MRTG errors.

- Ensure that your MRTG Service has been stopped: net stop mrtg
- Ensure that you have read ALL the MRTG documentation
- Ensure that you have followed the configuration HOWTO to letter above
- Open a console window (command prompt)
- Change directory to your MRTG bin folder (eg. C:\apps\mrtg-2.9.17\bin)
- Edit the file 'mrtg' with your text editor (eg. vim mrtg)
- Look for the following line: @main::DEBUG=qw();
- Modify this line to read the following: @main::DEBUG=qw(base);
- Save and quit out of your text editor
- Now attempt to run MRTG damonised manually: perl mrtg --logging mrtg.log foundry.cfg
- If you want even more debugging: perl -w mrtg --logging mrtg.log foundry.cfg (or -W)
- Any configuration or processing errors will be easy to spot
- Review the contents of your log file is you specified the --logging option

If your MRTG configuration is good then you should see something like this in the log file:

```
2001-06-09 10:24:45 -- Started mrtg
2001-06-09 10:24:45 -- --base: Creating Lockfiles foundry.cfg_l,foundry.cfg_l_1636
2001-06-09 10:24:45 -- --base: Reading Config File: foundry.cfg
2001-06-09 10:24:45 -- --cfg: foundry.cfg[1]: # Created by
2001-06-09 10:24:45 -- --cfg: foundry.cfg[2]: # cfgmaker public@10.1.251.1 --global 'WorkDir: C:\Apps\Apache\htdocs\mrtg' --output foundry.cfg
2001-06-09 10:24:45 -- --cfg: foundry.cfg[3]:
```

Search throught this file looking for any errors. For example:

```
2001-06-09 10:35:43 -- ERROR: CFG Error in "Interval": should be at least 5 Minutes at C:/Apps/mrtg-2.9.17/bin\..\lib\mrtg2/MRTG_lib.pm line 642.
```

**Network Drives ...** If your working directory or configuration file is located on a network drive then providing a mapped drive letter path is not going to work (eg.

d:\somepath). You are going to have to use a UNC path (ie. \\someserver\someshare). The reason for this is that mapped drives are only re-established at logon. In order to get this to work properly you might have to run MRTG in a different security context (eg. DOMAIN\user for a domain or SERVER\user for a workgroup). We suggest you experiment with this one.

Now attempt to restart your MRTG Service: net start mrtg. If you are still seeing error messages in your Application Event Log then review your debug log files. Also it is highly likely that the arguments you stipulated when you installed MRTG as a service with FireDaemon are erroneous. We suggest you do the following:

- Remove your existing service: firedaemon -u mrtg
- Reinstall the service with FireDaemon checking that the arguments you are passing to it are correct.

For example, if your MRTG configuration file is myrouter.cfg then when you specify your Application Options type: mrtg myrouter.cfg. DON'T TYPE: mrtg foundry.cfg because THIS WILL NOT WORK because you do not have a configuration file called foundry.cfg.

In summary, MRTG is a comprehensive yet complicated product. Breaking it via misconfiguration is extremely easy. We urge you to read the MRTG documentation carefully and fully test your configuration of MRTG in daemonised and non-daemonised modes employing the debugging tips listed above before attempting to convert it to a service with FireDaemon.

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