

# Performance Monitoring

From Matchi Wiki

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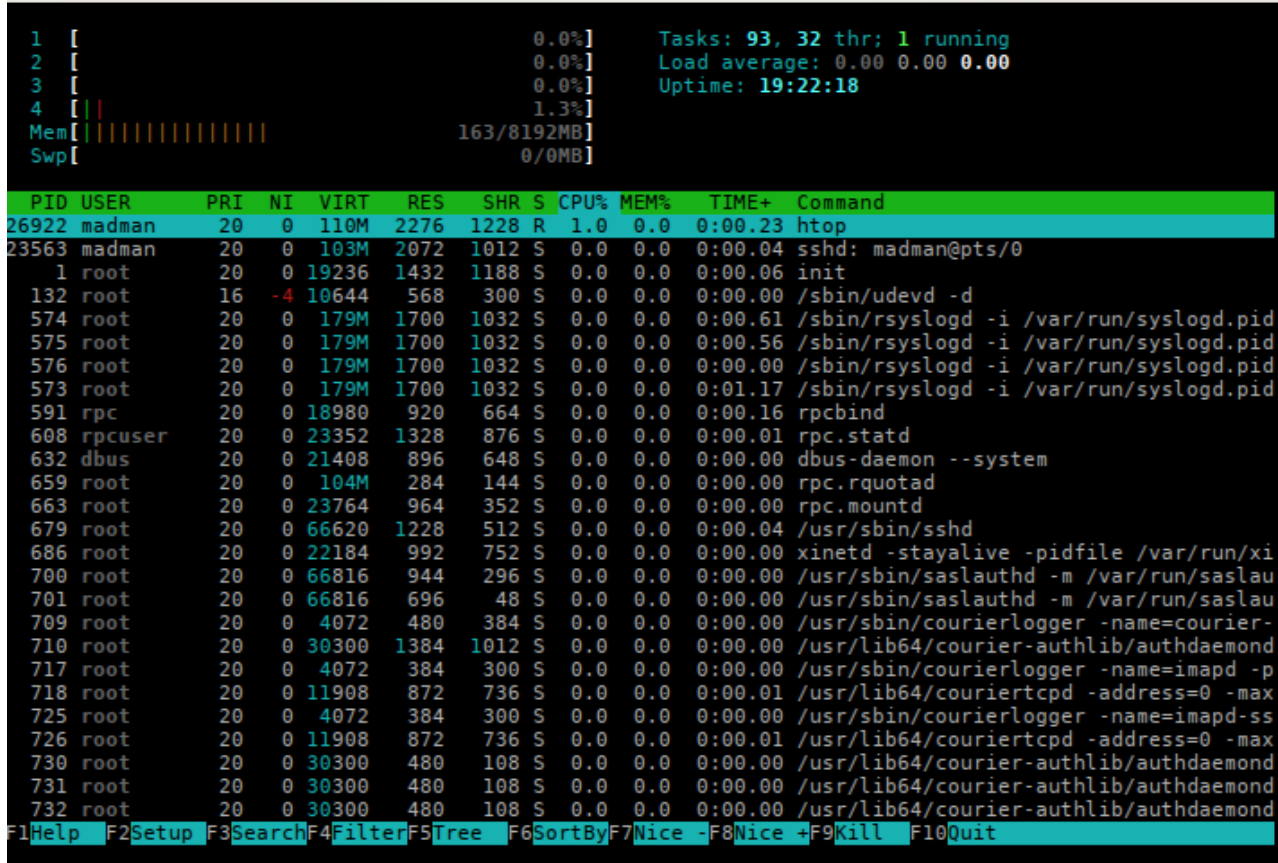
## Basic tools for spot-checking system behaviour

This describes tools for observing and monitoring basic performance metrics. Correcting and fine-tuning are described elsewhere.

### HTOP Performance Monitoring Tool

HTOP does not come with the standard Red Hat distribution so it needs to be installed if not there already (described here: [http://wiki.matchi.info/index.php?title=Server\\_Build#Install\\_HTOP](http://wiki.matchi.info/index.php?title=Server_Build#Install_HTOP))

- **Command:** htop
- **Purpose:** This utility displays the following useful metrics:
  - Server uptime
  - CPU usage
  - Memory usage
  - Details of currently-running processes
- **Usage:** It is possible to arrange the order of display using the function key shortcuts. Hit F10 or 'Q' to quit.



24-hour Historical Plots

The following performance plots are available and can be run directly from the command line on each of the servers. If you have correctly connected with your X11 session open, the plots are visible on your desktop and you can scale then at will. The data in the plots is based on samples taken in 5 minute intervals through a *cron* job and logged to the /var/log directory. The *cron* job that creates the samples is set up on each server in the /etc/crontabfile:

```
SHELL=/bin/bash
PATH=/sbin:/bin:/usr/sbin:/usr/bin
MAILTO=sysadmin@matchi.biz
HOME=/

# For details see man 4 crontabs

# Example of job definition:
# .----- minute (0 - 59)
# | .----- hour (0 - 23)
# | | .----- day of month (1 - 31)
# | | | .----- month (1 - 12) OR jan,feb,mar,apr ...
# | | | | .---- day of week (0 - 6) (Sunday=0 or 7) OR sun,mon,tue,wed,thu,fri,sat
# | | | | |
# * * * * * user-name command to be executed
* * * * * /root/t.sh

# Record processor loading every 5 minutes
*/5 * * * * root /usr/bin/uptime | /bin/awk '{if($6=="min,"){print $11 $12 $13}else{print $10 $11 $12}}' | sed -e 's/,/ /g' | /usr/bin/xargs -I {} /bin/date +%m-%d-%H-%M-%S > /var/log/processor_loading.log

# Record TCP Connections every 5 minutes
*/5 * * * * root /bin/netstat -nt | /bin/grep ESTABLISHED | /usr/bin/tail -n +3 | /usr/bin/wc -l | /usr/bin/xargs -I {} /bin/date +%m-%d-%H-%M-%S > /var/log/tcp_connections.log

# Record memory consumption every 5 minutes
*/5 * * * * root /usr/bin/free | /usr/bin/head -2 | /usr/bin/tail -1 | /bin/awk '{print $3/$2*100}' | /usr/bin/xargs -I {} /bin/date +%m-%d-%H-%M-%S > /var/log/memory_consumption.log

# Record number of page faults
*/5 * * * * root /usr/bin/vmstat | /usr/bin/head -3 | /usr/bin/tail -n +3 | /bin/awk '{print strftime("%m %d %H %M", systime()) " " $1}' | /usr/bin/xargs -I {} /bin/date +%m-%d-%H-%M-%S > /var/log/page_faults.log
```

There is also a corresponding log-rotate configuration in the /etc/logrotate.d/matchi, that creates a weekly archive, keeps 5 weeks of archives, and deletes anything older:

```
/var/log/pagefaults {
    missingok
}
```

```
notifempty
create 0640 madman adm
copytruncate
rotate 5
weekly
}

/var/log/connections {
missingok
notifempty
create 0640 madman adm
copytruncate
rotate 5
weekly
}

/var/log/memory {
missingok
notifempty
create 0640 madman adm
copytruncate
rotate 5
weekly
}

/var/log/uptime {
missingok
notifempty
create 0640 madman adm
copytruncate
rotate 5
weekly
}
```

## TCP connections

- **Command:** showconnections.sh
- **Purpose:** This shows the number of active TCP connections on the server. The sample data is held in /var/log/connections.
- **Interpretation:** This number of connections are not only Web connections, but can also include SSH connections. An usual number or a spike in connections means that the server may be under a web-session attack or an SSH attack.

## Relative CPU-loading

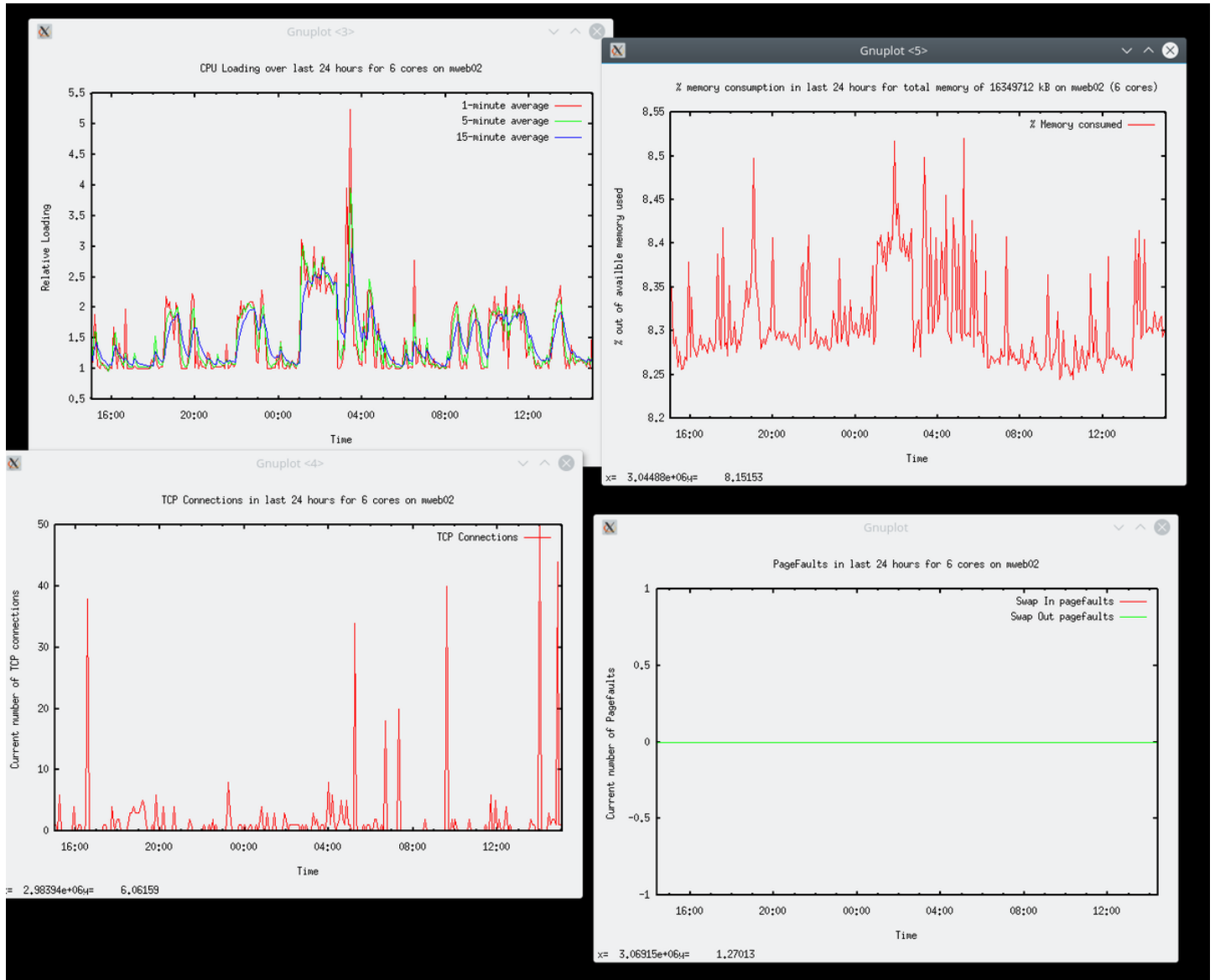
- **Command:** showcpuload.sh
- **Purpose:** This shows the relative CPU-loading on the server. The sample data is held in /var/log/uptime.
- **Interpretation:** Load averages are not normalized for the number of CPUs in a system, so a load average of 1 means a single CPU system is loaded all the time while on a 4 CPU system it means it was idle 75% of the time. On a 6 CPU server, when the load average is 1, it means that the CPU's are idle 83% of the time. The relative loads are averaged over a sampling windows of 1 minute, 5 minutes and 15 minutes.

## Memory Usage

- **Command:** showmemory.sh
- **Purpose:** This shows the relative memory consumption on the server. The sample data is held in /var/log/memory.
- **Interpretation:** When memory usage is high, it may mean that there could be some run-away processes. This processed can be identified using the htop command, if that is the case. Constant high-memory usage may lead to page-faults. High memory usage tends to show up other system short-comings too. In principle, there is nothing wrong with high memory usage - you paid for it, you should be able to use it after all.

## Page-Faults

- **Command:** `showpagefaults.sh`
- **Purpose:** This shows the number of page-faults being experienced at the time of the data sample. The sample data is held in `/var/log/pagefaults`.
- **Interpretation:** Page-faults happen when there is insufficient memory, or when the memory is too fragmented, to allocate a contiguous block of memory when a process requests it. Some existing memory content is written to the swap partition (on physical servers it is often an actual partition on a hard disk) and the freed up space is then used to service the original memory request. This is a Swap-Out page-fault. Likewise, when the swapped-out memory is written back into physical memory because it's owner process required, a Swap-In page-fault happens.



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Category: Pages with syntax highlighting errors

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