# Solution M5: System Startup and Processes Management

One possible solution could be:

1. Change the **GRUB** configuration

[lsauser@centos ~]$ **sudo vi /etc/default/grub**

And change the following parameters:

* 1. **GRUB\_TIMEOUT=60**
  2. Remove **quiet** from the **GRUB\_CMDLINE\_LINUX** option

Save and close the file and execute

[lsauser@centos ~]$ **sudo grub2-mkconfig -o /boot/grub2/grub.cfg**

1. Extract the messages from the **Kernel** ring buffer

[lsauser@centos ~]$ **dmesg -H -P | tac > boot-extract.txt**

1. Extract the required information from the **sshd.service** unit

[lsauser@centos ~]$ **grep After /usr/lib/systemd/system/sshd.service > sshd-after.txt**

1. Create the process tree (requires **psmisc** package)

[lsauser@centos ~]$ **pstree -p 1 > processes-tree.txt**

1. Extract the free space

[lsauser@centos ~]$ **df -B GB > free-space.txt**

1. Extract the used space

[lsauser@centos ~]$ **sudo du -d 1 -h / | sort -h -r > used-space.txt**

1. Do the requested measurements (requires **sysstat** package)

[lsauser@centos ~]$ **pidstat 5 5 > stat-output.txt**

1. Extract the list of open files in **/etc** if any (requires **lsof** package)

[lsauser@centos ~]$ **sudo lsof +D /etc > open-files.txt**

[lsauser@centos ~]$ **echo 'sudo lsof +D /etc' >> open-files.txt**

1. Do the requested measurements

[lsauser@centos ~]$ **top -b -d 5 -n 5 > process-monitoring.txt**

*Self-check Script Output:*

[lsauser@centos ~]$ **curl -s https://courses.zahariev.pro/m5.sh | sudo bash**

\* Working on RHEL-based machine (BIOS)

\* Testing if GRUB timeout is set to 60 ...

... PASS

\* Testing if no quiet is appended to the Kernel command line ...

... PASS

\* Testing if the GRUB configuration changes were applied ...

... PASS

\* Testing for the boot-extract.txt file ...

... PASS

\* Testing for the After clause of the sshd.service ...

... PASS

\* Testing for the processes-tree.txt file ...

... PASS

\* Testing for the free-space.txt file ...

... PASS

\* Testing for the used-space.txt file ...

... PASS

\* Testing for the stat-output.txt file ...

... PASS

\* Testing for the open-files.txt file ...

... PASS

\* Testing for the process-monitoring.txt file ...

... PASS

{"message":"Your solution report is available here: https:\/\/courses.zahariev.pro\/check.php?20220122095854IYwebzn6U3","status":true}