

RAMDISK and SWAP TUTORIAL

- 1) RAM is quite fast – if one know what is doing, he or she should be able to fit in RAM memory with whole system, programs and so on.
- 2) RAMDISK is temporal – in case of power supply shutdown all data from current session will be lost (cheap UPS for oversensitive users will be a great solution!). These configurations are robust for restart and intended shutdown. It is auto mounted at startup.
- 3) RAMDISK 1.5GB – create folder:

```
# mkdir /home/XXXXXX/RAMDISK
# sudo mount -t tmpfs -o size=1536M,mode=777 tmpfs /home/XXXXXX/RAMDISK
```
- 4) add mount at startup append to file:

```
#sudo vim /etc/fstab
# tmpfs /home/XXXXXX/RAMDISK tmpfs rw,size=1536M,mode=777 0 0
```
- 5) RAMDISK flush on shutdown/on restart folder

```
# mkdir /home/XXXXXX/RAMFLUSHDISK
# sudo chmod 777 RAMFLUSHDISK
```
- 6) script: /home/XXXXXX/flushRAMDISK.sh – it is copying RAMDISK folder RAM content on HDD to adjacent folder (force, recursive and updating copy):

```
#!/bin/sh
# #cp -ruf /home/XXXXXX/RAMDISK/* /home/XXXXXX/RAMFLUSHDISK/
# #exit 0
```
- 7) add script execution at restart and shutdown of system:
 - 7a) shutdown:

```
# sudo cp flushRAMDISK.sh /etc/rc0.d/K99_flushRAMDISK
# sudo chmod 777 /etc/rc0.d/K99_flushRAMDISK
# sudo chmod +x /etc/rc0.d/K99_flushRAMDISK
```
 - 7b) restart:

```
# sudo cp flushRAMDISK.sh /etc/rc6.d/K99_flushRAMDISK
# sudo chmod 777 /etc/rc6.d/K99_flushRAMDISK
# sudo chmod +x /etc/rc6.d/K99_flushRAMDISK
```

SWAP:

- 1) there are examples of ultra-high RAM amounts demands. It could be easily resolved with hard drive RAM memory extension called SWAP. Consider making a disk array in such scenario:
 - multiple hardware SSD (smaller are faster in terms of kIOPS/GB) RAID 0 controllers, or multiple M.2 disks in HBA's (PCIe adaptor)
 - single software RAID 0 on above,please refer to LINUX mdadm manpages.
- 2) create swap area on mdadm RAID 00, and obtain its UUID (LINUX disks),
- 3) configure mount point at system startup:

```
#sudo vi /etc/fstab
        UUID=obtainedNumber none swap sw
#sudo mount -a
```
- 4) check if it is mounted:

```
#htop
```
- 5) delete old swap file from system

Post Scriptum: RAMDISK is not an ideal solution, like a whole system in-RAM distro. Most popular solution is to start an operating system from liveCD (at boot-up push down Tab and add "toram" instead of „splash quiet"). In case of older hardware (< 1GB RAM) obtaining dedicated lightweight distribution (f.e. Puppy LINUX) would be better idea, than full editions like Ubuntu Server/Desktop 64bit.

Post Post Scriptum: **There are some other (slow) tricks like mounting remote Samba file server, using Dropbox, using git repositories (saving work redundantly) for obtaining additional disk space.** Permanently one should make SSD RAID 0 (up to 4-8 harddrives) or SSD RAID 50 (RAID 0 on 2-3xRAID5; up to 8-12 harddrives) disk array as solution for saving data. With composition of Samba server; InfiniBand IB card (few computers) or 10GbE card + 10GbE switch hub (computation cluster) it should provide data handling solution. Note that there are non-network computation interconnections solutions (saving whole data locally and synchronizing changes only):

```
rsync      -u      -v      --progress      -e      ssh      /home/user/pathToSourceFolder/*  
user@IPAddr:/home/user/pathToDestinationFolder
```