

# Tugas Minggu 4 IF421

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1. Buatlah tiga buah hard disk virtual pada mesin virtual anda yang masing-masing berukuran 1 GB. Tambahkan virtual hard disk tersebut pada virtual machine anda. Periksa apakah hard disk tersebut sudah terpasang atau belum menggunakan perintah fdisk -l

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```
cristovrm@cristov:~$ sudo fdisk -l
[sudo] password for cristovrm:
Disk /dev/sda: 40 GiB, 42949672960 bytes, 83886080 sectors
Disk model: VBOX HARDDISK
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: gpt
Disk identifier: F0E583FD-95EB-425D-8FF7-404571FF16EF

Device      Start      End  Sectors  Size Type
/dev/sda1    2048      4095     2048    1M BIOS boot
/dev/sda2    4096  4198399  4194304    2G Linux filesystem
/dev/sda3  4198400 83884031 79685632   38G Linux filesystem

Disk /dev/sdb: 1 GiB, 1073741824 bytes, 2097152 sectors
Disk model: VBOX HARDDISK
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/sdc: 1 GiB, 1073741824 bytes, 2097152 sectors
Disk model: VBOX HARDDISK
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/sdd: 1 GiB, 1073741824 bytes, 2097152 sectors
Disk model: VBOX HARDDISK
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/mapper/ubuntu--vg-ubuntu--lv: 19 GiB, 20396900352 bytes, 39837696 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
cristovrm@cristov:~$
```

2. Membuat partisi dengan tipe fd pada setiap harddisk (fd partition type). Tipe fd berguna untuk mengatur partisi hard disk sebagai Linux RAID autodetect. Gunakan perintah fdisk

untuk masing-masing hardisk : Contoh : fdisk /dev/sdb Ikuti petunjuk yang ada di layar, ulangi juga untuk /dev/sdc dan /dev/sdd

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```
Disklabel type: gpt
Disk identifier: F9E583FD-95E8-425D-8FF7-40451FF16EF

Device      Start      End  Sectors Size Type
/dev/sda1    2048        4095      2048  1M BIOS boot
/dev/sda2    4096  4198399  4194304  2S Linux filesystem
/dev/sda3  4198400  83884031 79685632 38G Linux filesystem

Disk /dev/sdb: 1 GiB, 1073741824 bytes, 2097152 sectors
Disk model: VBOX HARDDISK
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0xabcfc61

Device      Boot Start      End  Sectors  Size Id Type
/dev/sdb1                2048 2097151 2095104 1023M fd Linux raid autodetect

Disk /dev/sdc: 1 GiB, 1073741824 bytes, 2097152 sectors
Disk model: VBOX HARDDISK
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0xe8aa2f40

Device      Boot Start      End  Sectors  Size Id Type
/dev/sdc1                2048 2097151 2095104 1023M fd Linux raid autodetect

Disk /dev/sdd: 1 GiB, 1073741824 bytes, 2097152 sectors
Disk model: VBOX HARDDISK
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x65677417

Device      Boot Start      End  Sectors  Size Id Type
/dev/sdd1                2048 2097151 2095104 1023M fd Linux raid autodetect

Disk /dev/mapper/ubuntu--vg-ubuntu--lv: 19 GiB, 20396900352 bytes, 3987696 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
cristovrm@cristov:~$
```

3.Membuat raid 5 dengan menggunakan command mdadm. Jika belum tersedia, install dulu aplikasi mdadm pada server anda

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```
cristovrm@cristov:~$ sudo mdadm --create --verbose /dev/md0 --level=5 --raid-devices=3 /dev/sdb1 /dev/sdc1 /dev/sdd1
mdadm: layout defaults to left-symmetric
mdadm: layout defaults to left-symmetric
mdadm: chunk size defaults to 512K
mdadm: size set to 1045504K
mdadm: Defaulting to version 1.2 metadata
mdadm: array /dev/md0 started.
cristovrm@cristov:~$
```

```
mdadm: array /dev/md0 started.
crisovrm@crisov:~$ cat /proc/mdstat
Personalities : [raid0] [raid1] [raid6] [raid5] [raid4] [raid10]
md0 : active raid5 sdd1[3] sdc1[1] sdb1[0]
      2091008 blocks super 1.2 level 5, 512k chunk, algorithm 2 [3/3] [UUU]

unused devices: <none>
crisovrm@crisov:~$ sudo mdadm --detail /dev/md0
/dev/md0:
   Version : 1.2
  Creation Time : Thu Apr 24 20:32:53 2025
   Raid Level : raid5
   Array Size : 2091008 (2042.00 MiB 2141.19 MB)
  Used Dev Size : 1045504 (1021.00 MiB 1070.60 MB)
   Raid Devices : 3
  Total Devices : 3
 Persistence : Superblock is persistent

   Update Time : Thu Apr 24 20:33:05 2025
     State : clean
   Active Devices : 3
 Working Devices : 3
  Failed Devices : 0
   Spare Devices : 0

    Layout : left-symmetric
   Chunk Size : 512K

Consistency Policy : resync

           Name : crisov:0 (local to host crisov)
           UUID : 1e6730d5:42cd444e:92f28cf6:f8365233
           Events : 18

   Number   Major   Minor   RaidDevice State
    0         8       17         0   active sync  /dev/sdb1
    1         8       33         1   active sync  /dev/sdc1
    3         8       49         2   active sync  /dev/sdd1
crisovrm@crisov:~$
```

## 4. Periksa raid5 yang sudah anda buat dengan perintah fdisk -l

```
/dev/sda3  4198400 83884031 79685632  38G Linux filesystem

Disk /dev/sdb: 1 GiB, 1073741824 bytes, 2097152 sectors
Disk model: VBOX HARDDISK
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0xabcfbcb1

Device      Boot Start      End Sectors  Size Id Type
/dev/sdb1   2048 2097151 2095104 1023M fd Linux raid autodetect

Disk /dev/sdc: 1 GiB, 1073741824 bytes, 2097152 sectors
Disk model: VBOX HARDDISK
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0xe8aa2f40

Device      Boot Start      End Sectors  Size Id Type
/dev/sdc1   2048 2097151 2095104 1023M fd Linux raid autodetect

Disk /dev/sdd: 1 GiB, 1073741824 bytes, 2097152 sectors
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I/O size (minimum/optimal): 512 bytes / 512 bytes
Disklabel type: dos
Disk identifier: 0x65677417

Device      Boot Start      End Sectors  Size Id Type
/dev/sdd1   2048 2097151 2095104 1023M fd Linux raid autodetect

Disk /dev/mapper/ubuntu--vg-ubuntu--lv: 19 GiB, 20396900352 bytes, 39837696 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes

Disk /dev/md0: 1.99 GiB, 2141192192 bytes, 4182016 sectors
Units: sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 524288 bytes / 1048576 bytes
crisovrm@crisov:~$
```