

INSTALLING UBUNTU WITH SOFTWARE RAID1

Note : Contoh instalasi dilakukan di proxmox ve.

Untuk set Raid1 mirror > 2 hdd (config di sesuaikan).

Kelebihan : mirroring (data hdd1 di sync ke hdd2) jika hdd1 rusak akan di backup oleh hdd2.

Kekurangan : tidak menambah space hdd (2x15GB ≠ 30 GB).

proses penulisan data ke hdd lebih lama karena data hdd1 di sync ke hdd2 dan sebaliknya.

1. buat vm ubuntu.

The screenshot shows the Proxmox Virtual Environment (VE) web interface in Mozilla Firefox. The browser address bar shows the URL: `https://192.168.100.10:8006/#v1:0=qemu%2F101:4:::7::2`. The interface is logged in as 'root@pam'. The left sidebar shows the 'Server View' with a tree structure: 'Datacenter' > 'raisa' > '101 (raid1)'. The main panel displays the configuration for 'Virtual Machine 101 (raid1)' on node 'raisa'. The configuration is divided into several tabs: Summary, Hardware, Options, Task History, Monitor, Backup, Snapshots, and Permissions. The 'Hardware' tab is active, showing the following settings:

- Keyboard Layout: Default
- Memory: 1.00GB/2.00GB
- Processors: 2 (1 sockets, 2 cores)
- Display: Default
- Hard Disk (ide0): local:101/vm-101-disk-1.qcow2,format=qcow2,size=15G
- CD/DVD Drive (ide2): local:iso/ubuntu-14.04-server-amd64.iso,media=cdrom
- Network Device (net0): e1000=72:08:6E:86:BD:44,bridge=vbr0

At the bottom of the interface, there is a 'Tasks' tab with a table showing the history of operations:

Start Time	End Time	Node	User name	Description	Status
Jul 09 09:29:20	Jul 09 09:29:21	raisa	root@pam	VM 101 - Create	OK
Jul 09 08:49:44	Jul 09 09:21:33	raisa	root@pam	VM/CT 100 - Console	OK
Jul 09 08:49:27	Jul 09 08:49:37	raisa	root@pam	VM/CT 100 - Console	Error: command 'bin/hc -l -p 5900 -...
Jul 09 08:48:13	Jul 09 08:48:34	raisa	root@pam	VM/CT 100 - Console	OK
Jul 09 08:47:43	Jul 09 08:47:53	raisa	root@pam	VM/CT 100 - Console	Error: command 'bin/hc -l -p 5900 -...
Jul 09 08:47:33	Jul 09 08:47:35	raisa	root@pam	VM 100 - Start	OK
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2. pada bagian hardware tambahkan 1 hardisk dengan config yg sama.

The screenshot shows the Proxmox Virtual Environment interface in a Mozilla Firefox browser. The URL is <https://192.168.100.10:8006/#v1:0:=qemu%2F101:4:::7::2>. The user is logged in as 'root@pam'. The interface displays the configuration for Virtual Machine 101 ('raid1') on node 'raisa'. The 'Hardware' tab is selected, showing the following configuration:

- Hard Disk: Default
- CD/DVD Drive: 1.00GB/2.00GB
- Network Device: Default
- Hard Disk (ide0): local:101/vm-101-disk-1.qcow2,format=qcow2,size=15G
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The 'Tasks' tab is also visible, showing a list of tasks performed on the VM. The tasks include creating the VM, starting the console, and creating the VM again.

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3. sehingga vm ubuntu memiliki 2 hdd yg identik (pada contoh ada 2x15GB).

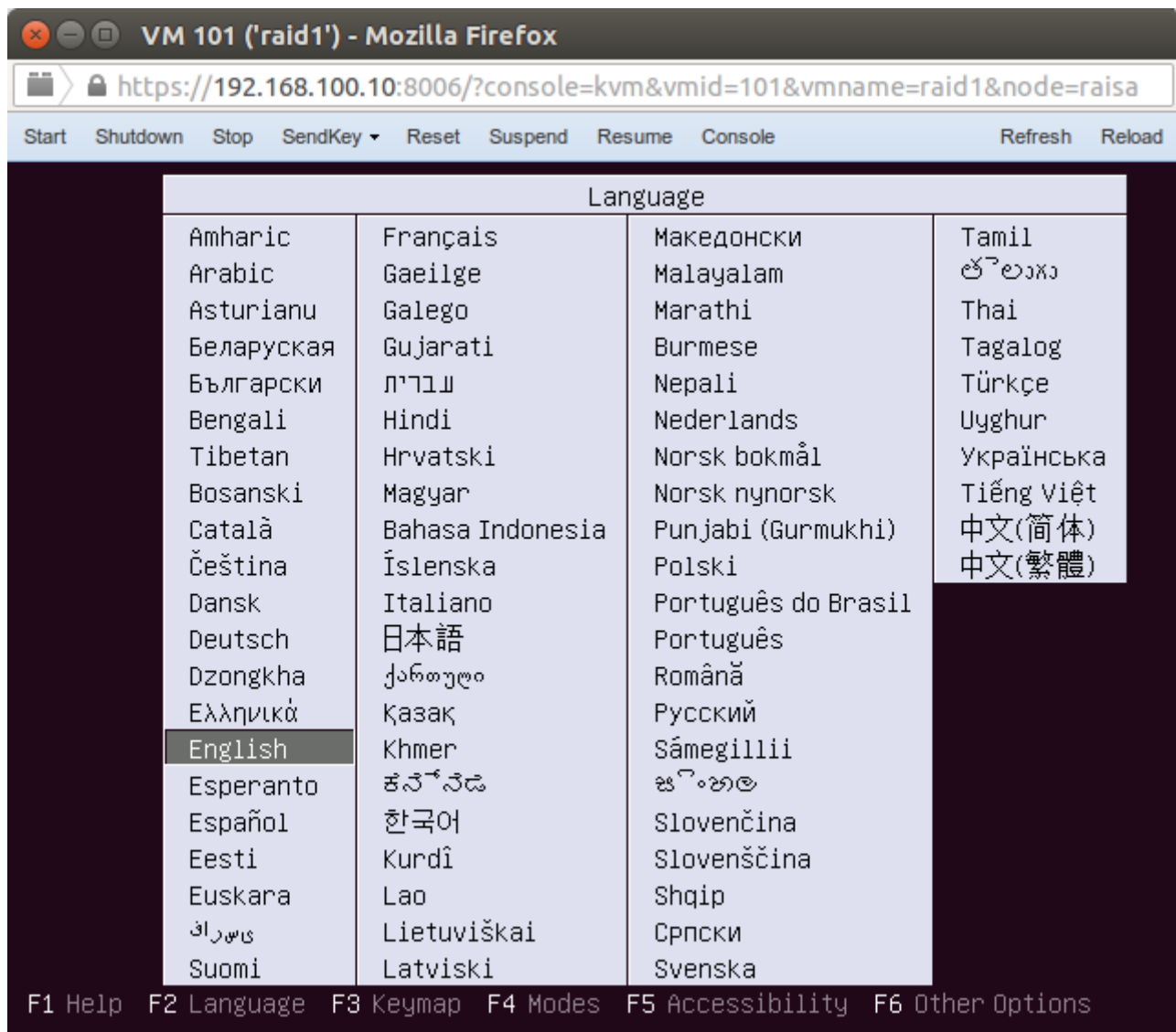
The screenshot shows the Proxmox Virtual Environment interface in a Mozilla Firefox browser. The URL is <https://192.168.100.10:8006/#v1:0:=qemu%2F101:4:::7::2>. The user is logged in as 'root@pam'. The interface displays the configuration for Virtual Machine 101 ('raid1') on node 'raisa'. The 'Hardware' tab is selected, showing the following configuration:

- Keyboard Layout: Default
- Memory: 1.00GB/2.00GB
- Processors: 2 (1 sockets, 2 cores)
- Display: Standard VGA (std)
- Hard Disk (ide0): local:101/vm-101-disk-1.qcow2,format=qcow2,size=15G
- Hard Disk (ide1): local:101/vm-101-disk-2.qcow2,format=qcow2,size=15G
- CD/DVD Drive (ide2): local:iso/ubuntu-14.04-server-amd64.iso,media=cdrom
- Network Device (net0): e1000=72:0B:6E:86:BD:44,bridge=vbr0

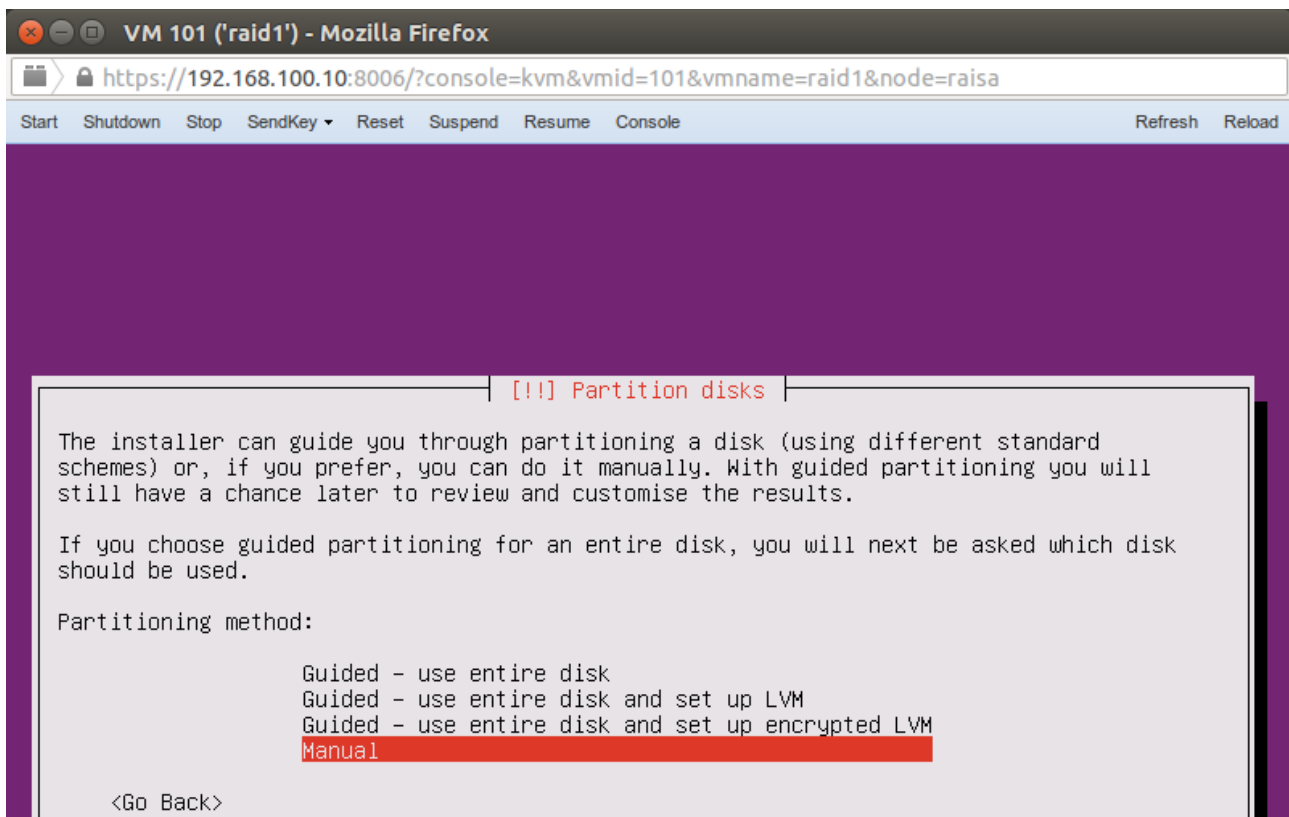
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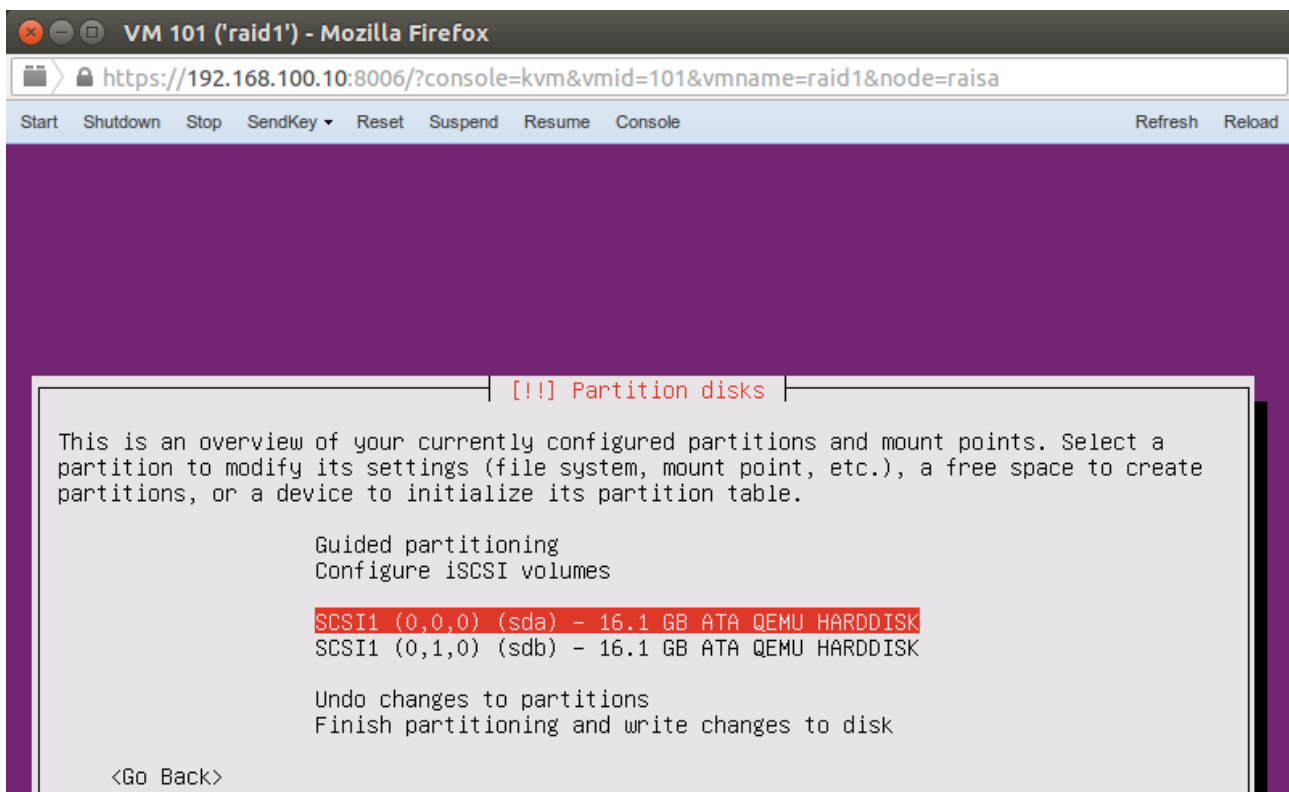
4. booting vm & install ubuntu.



5. set partisi disk manual.



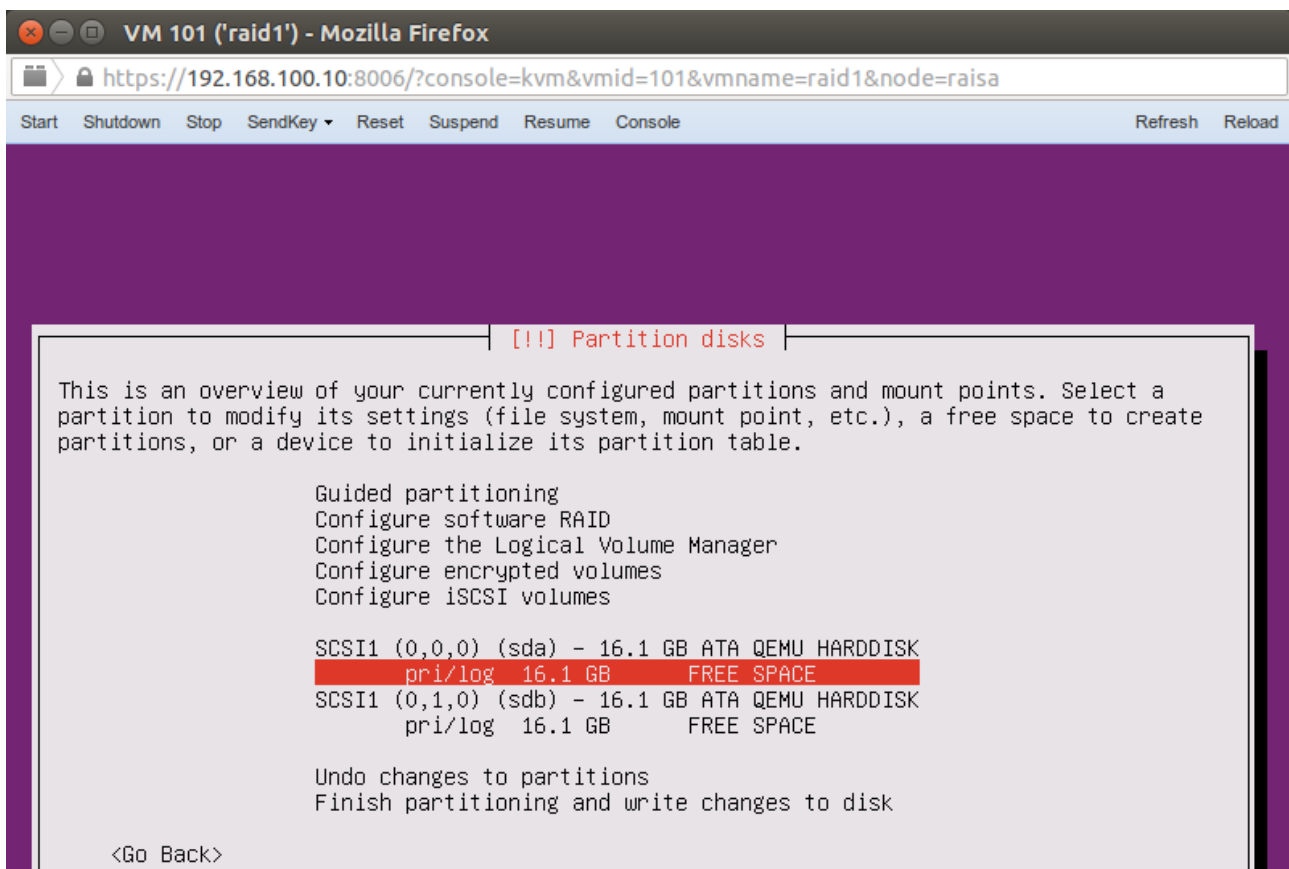
6. pada hdd1.



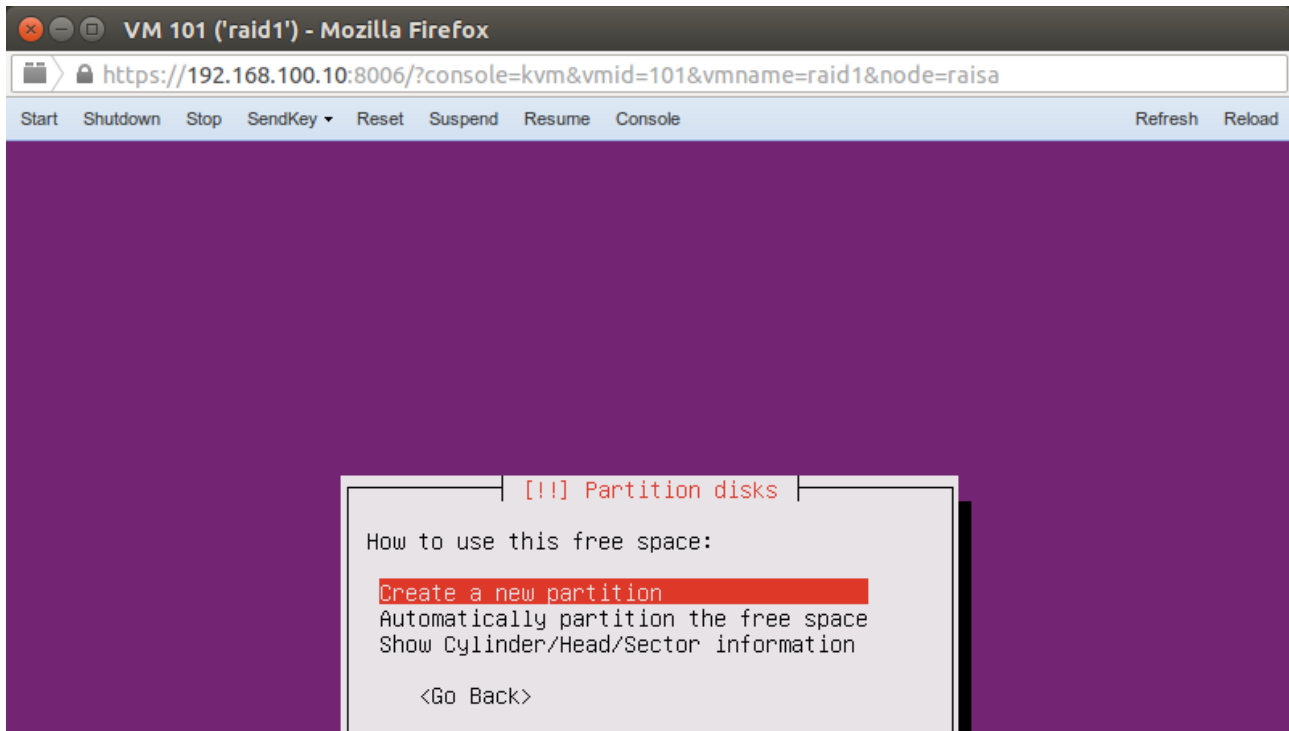
7. create new table partisi.



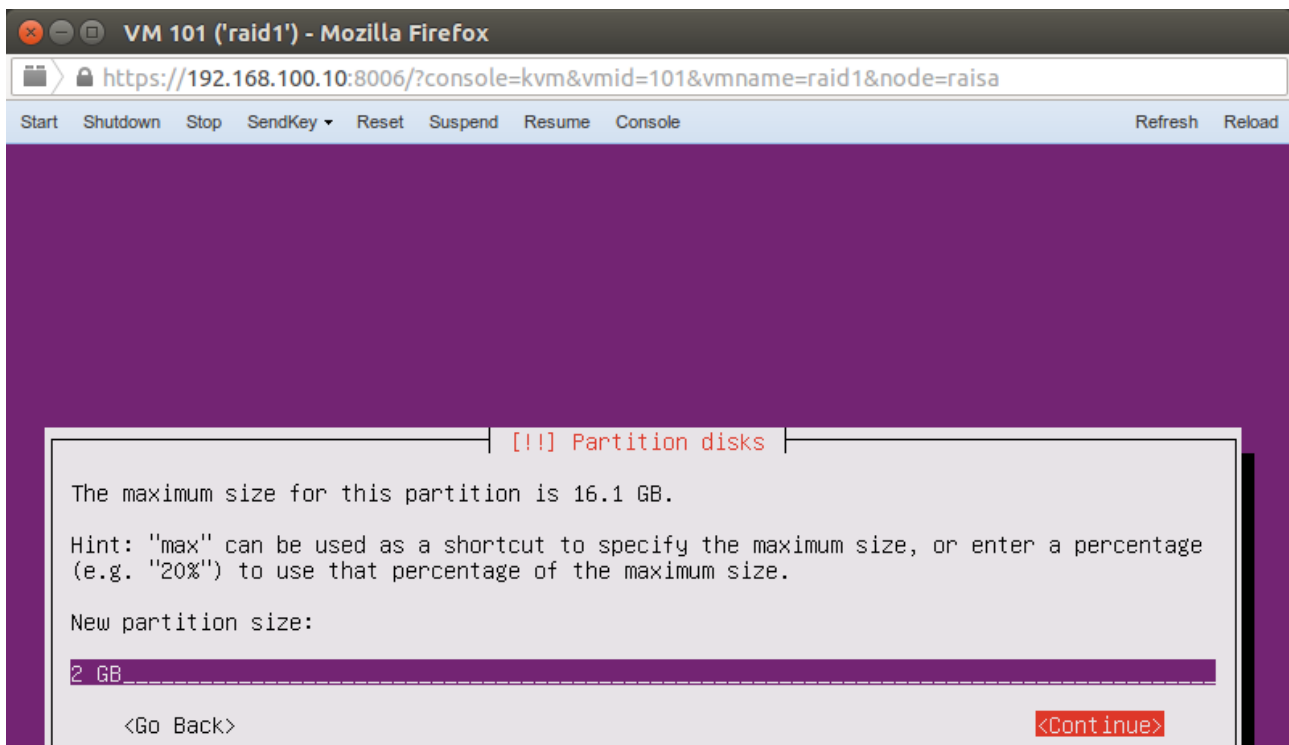
8. lakukan hal yg sama pada hdd2.



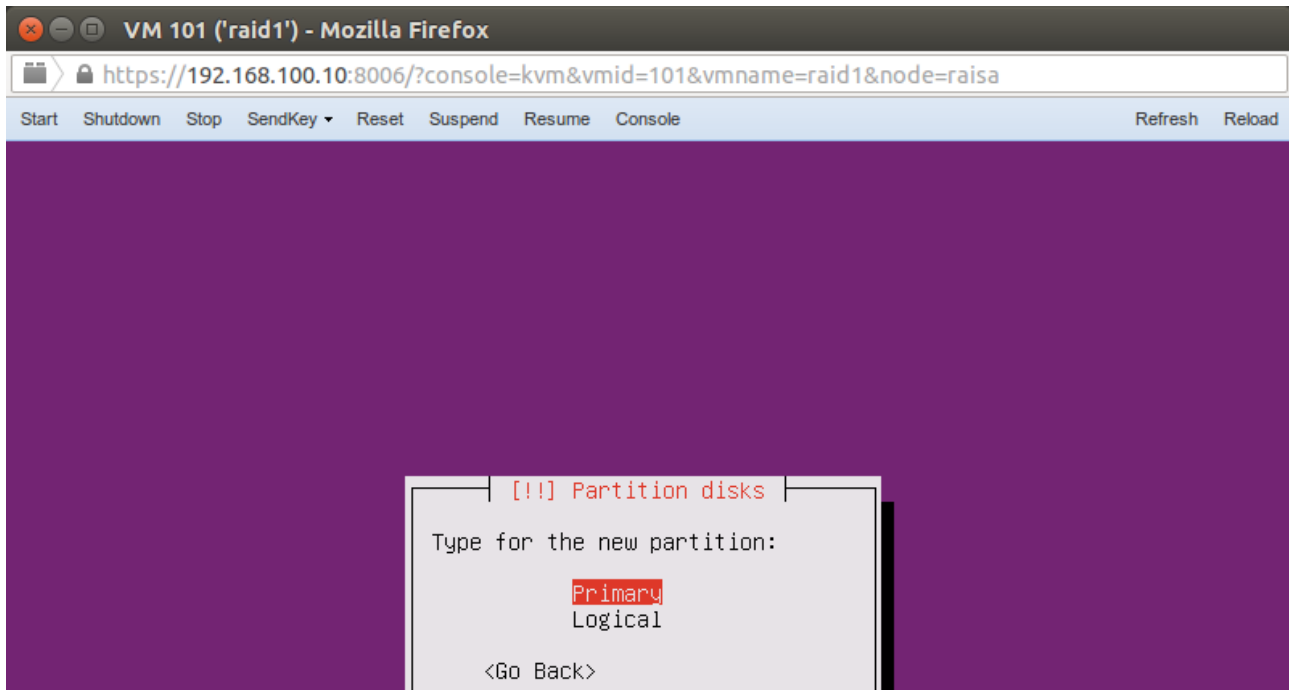
9. set hdd1 buat partisi baru.



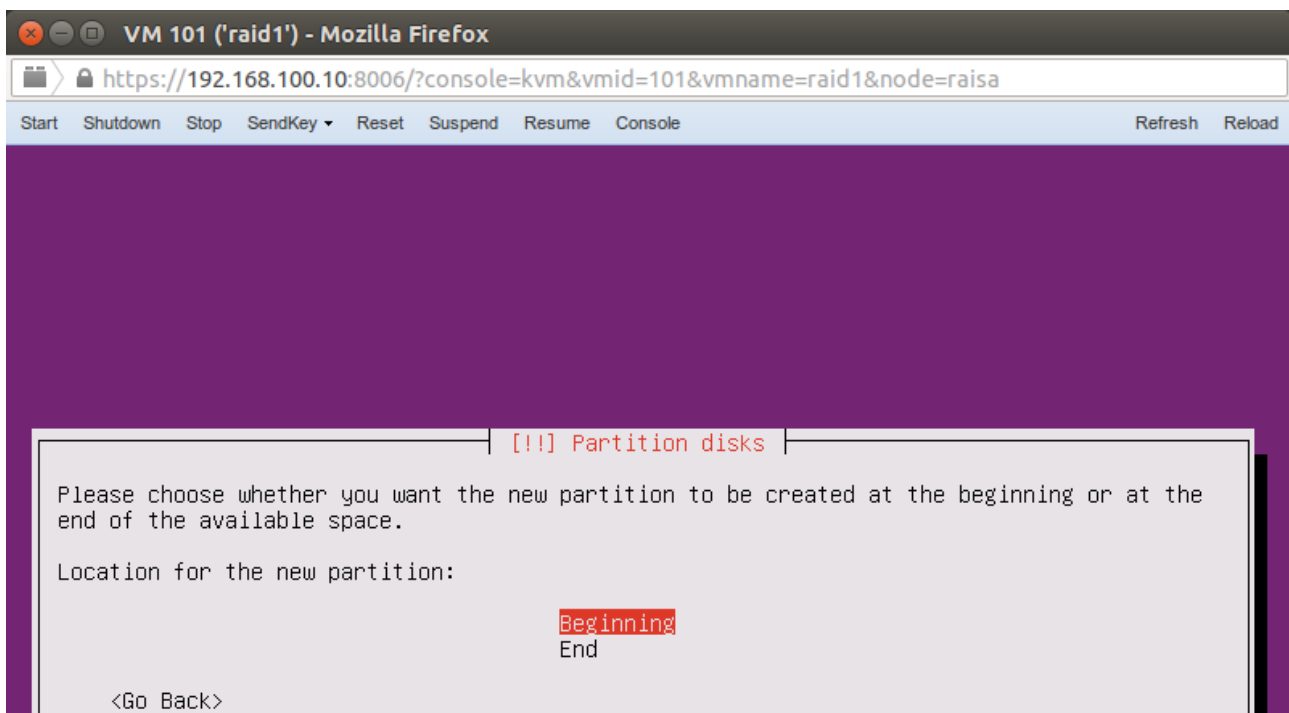
10. set 2 GB.



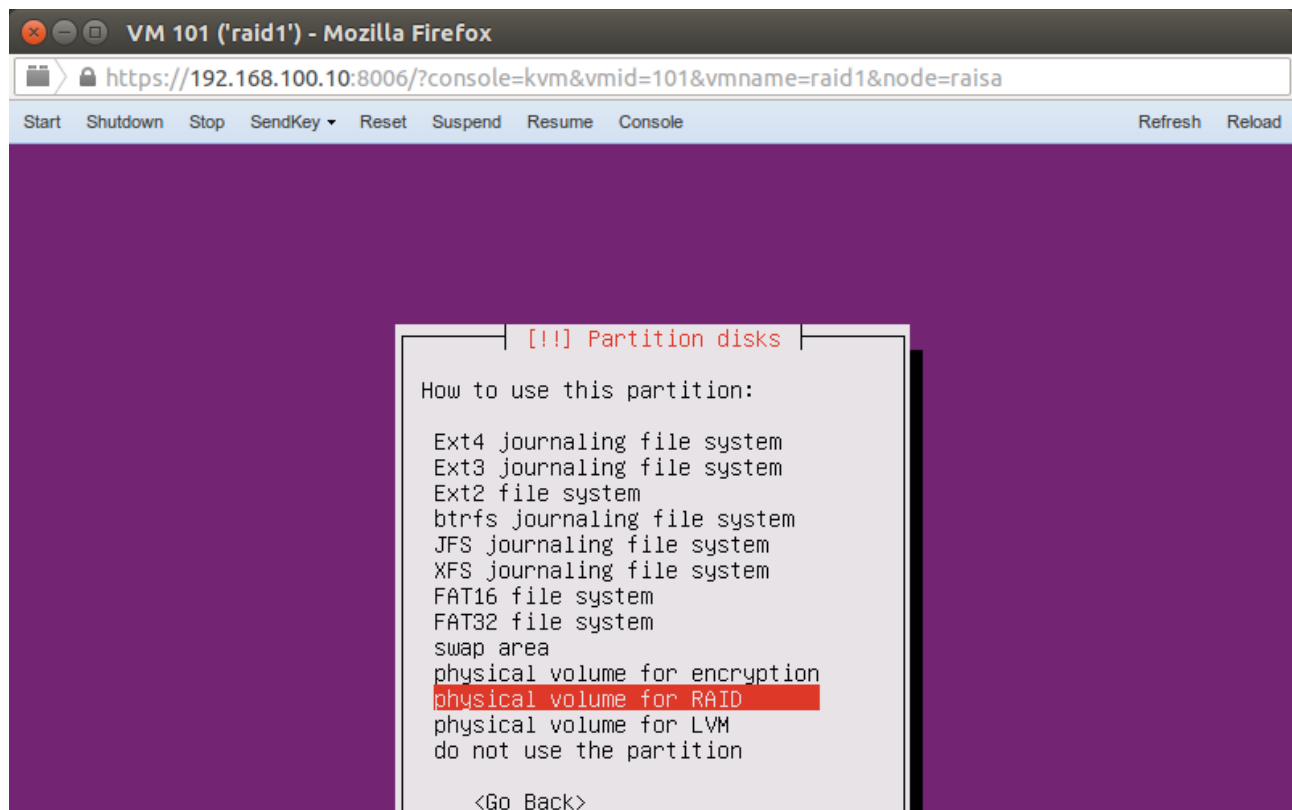
11. set primary.



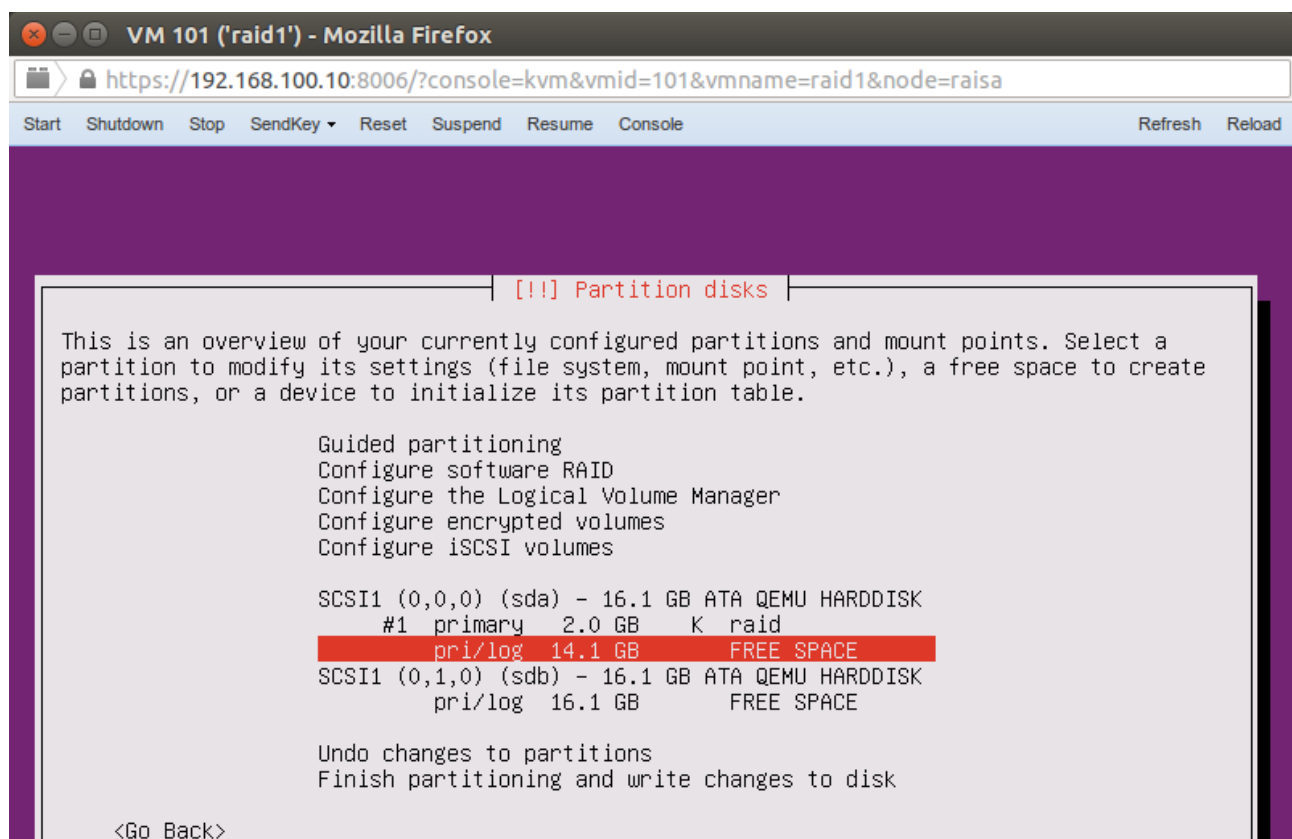
12. set beginning.



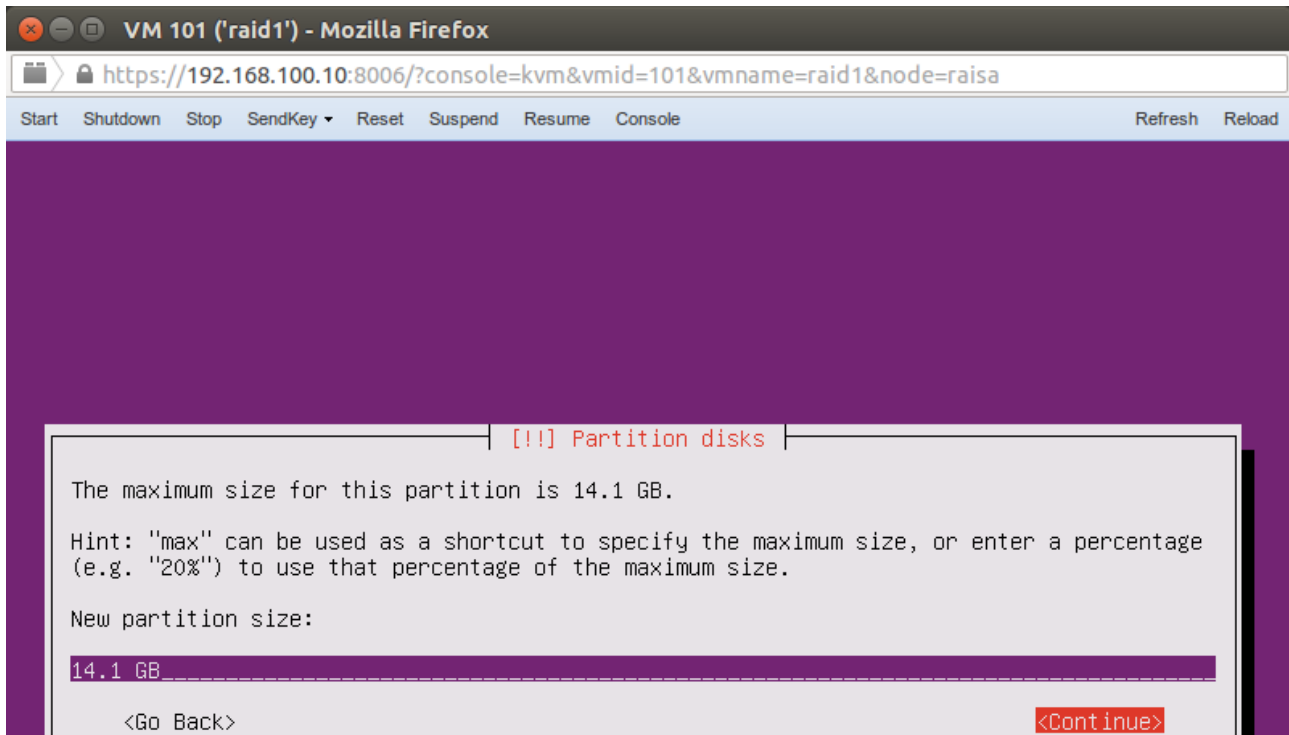
13. set partisi disk for raid.



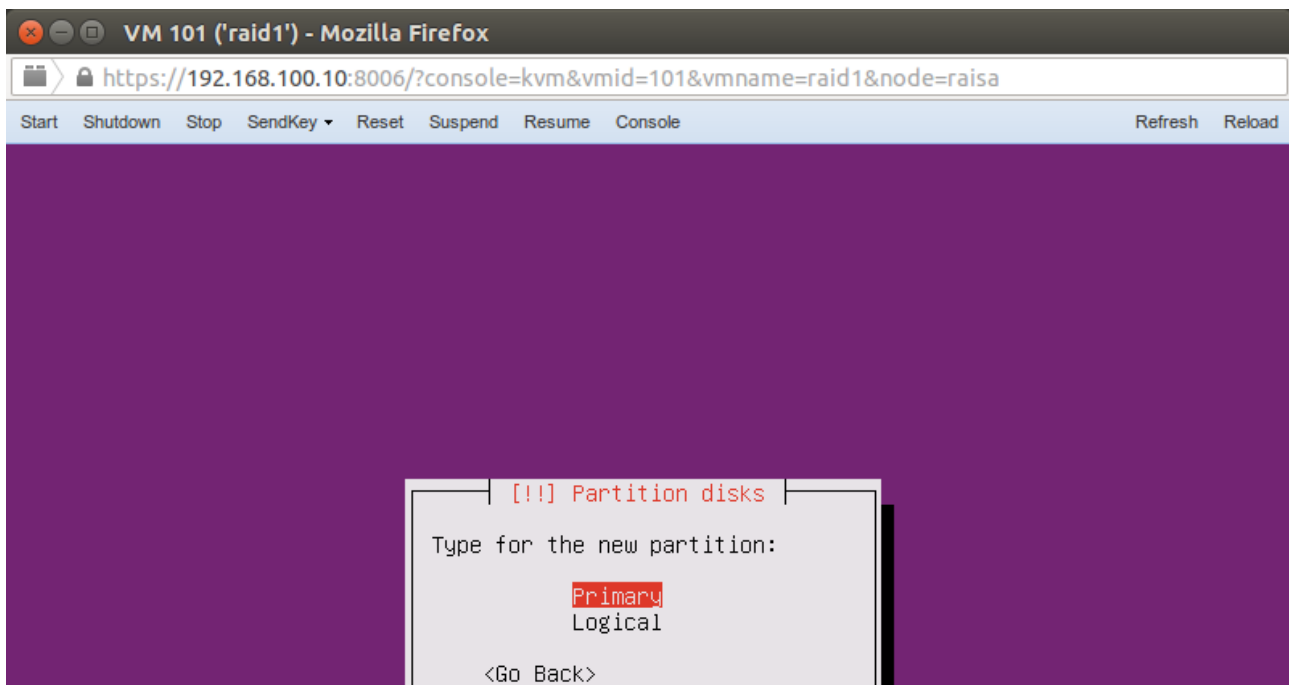
14. pada hdd1 drive 2.



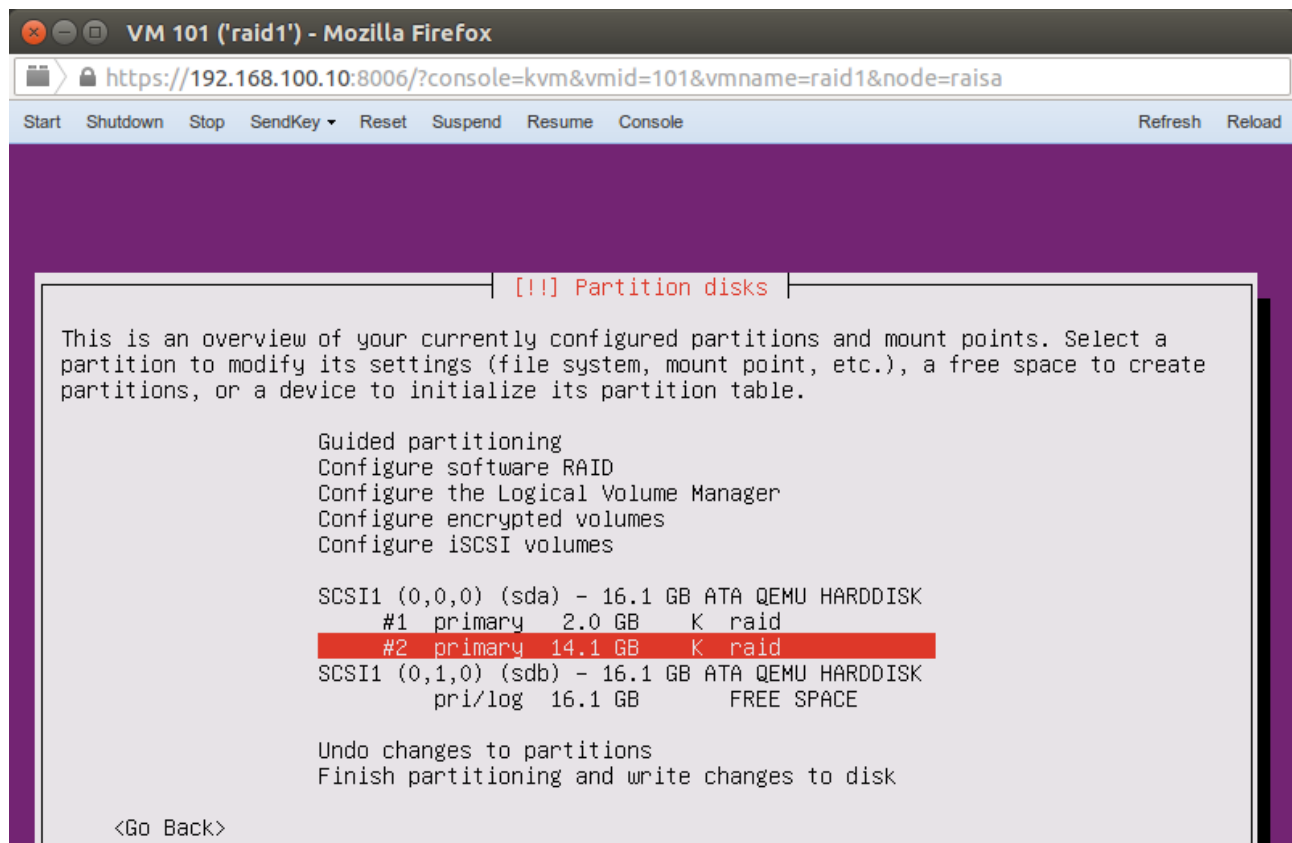
15. set new partisi 14 GB.



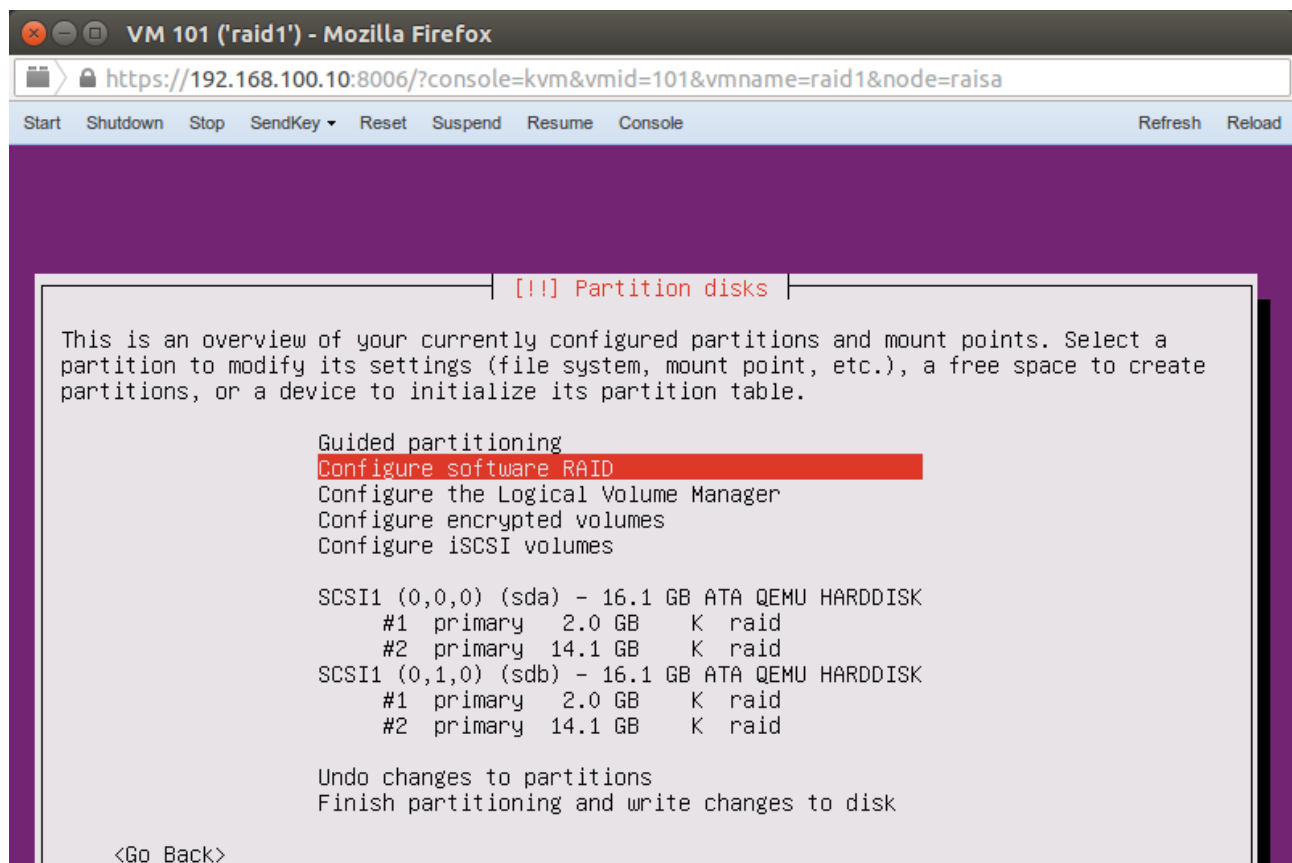
16. set primary.



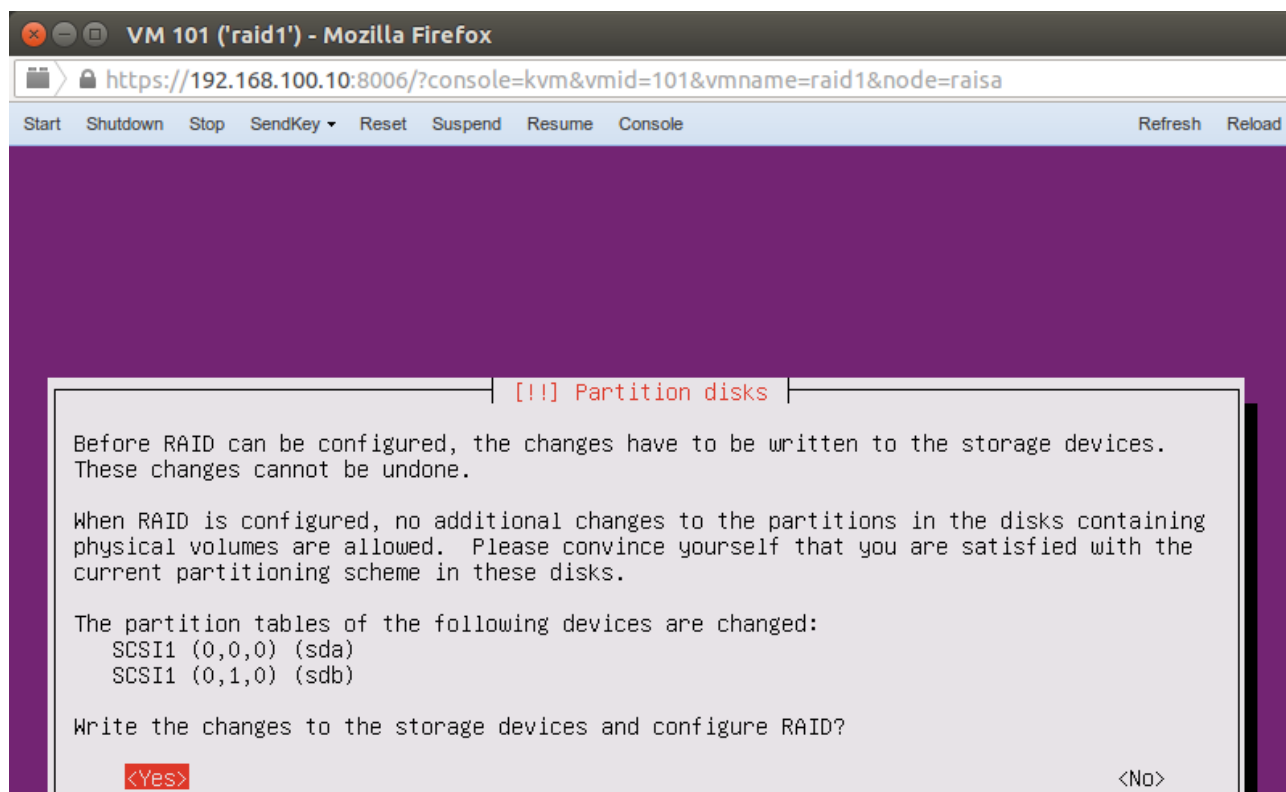
17. sehingga seperti gambar.



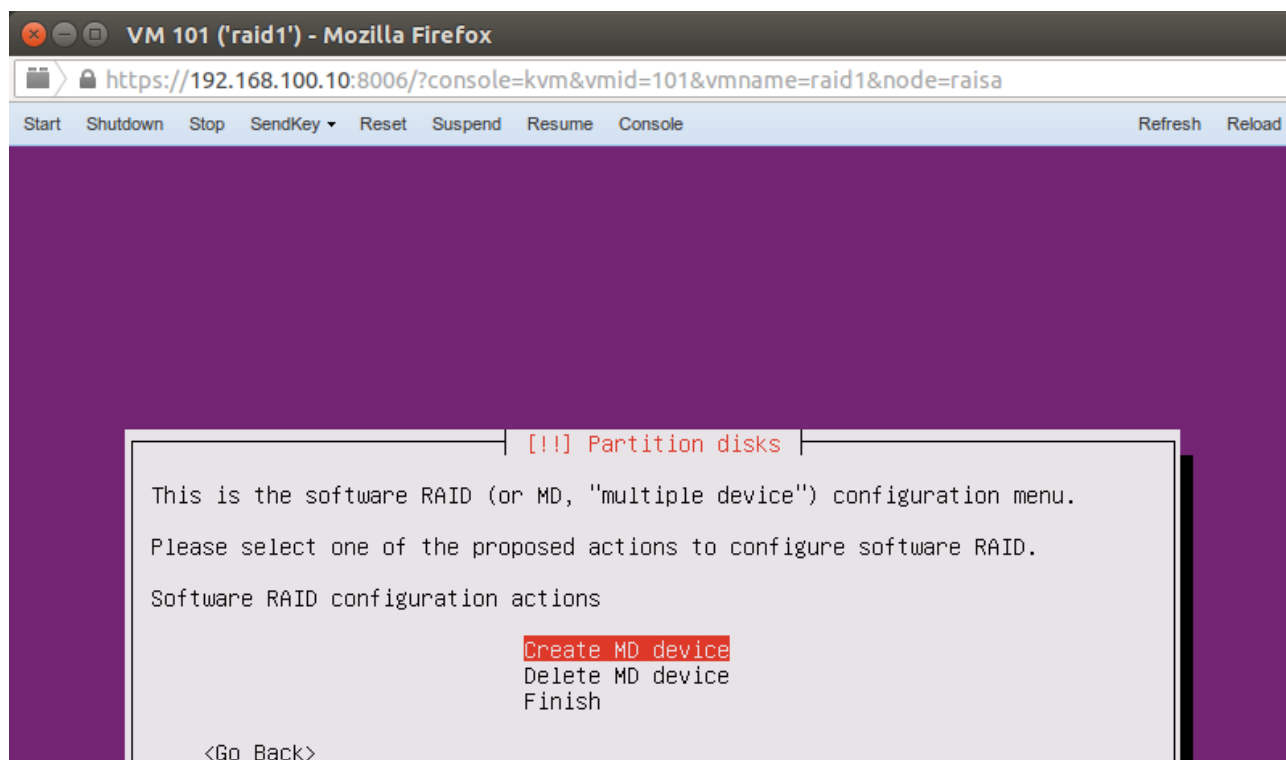
18. lakukan hal yg sama pada hdd2 sehingga seperti gambar & config software raid.



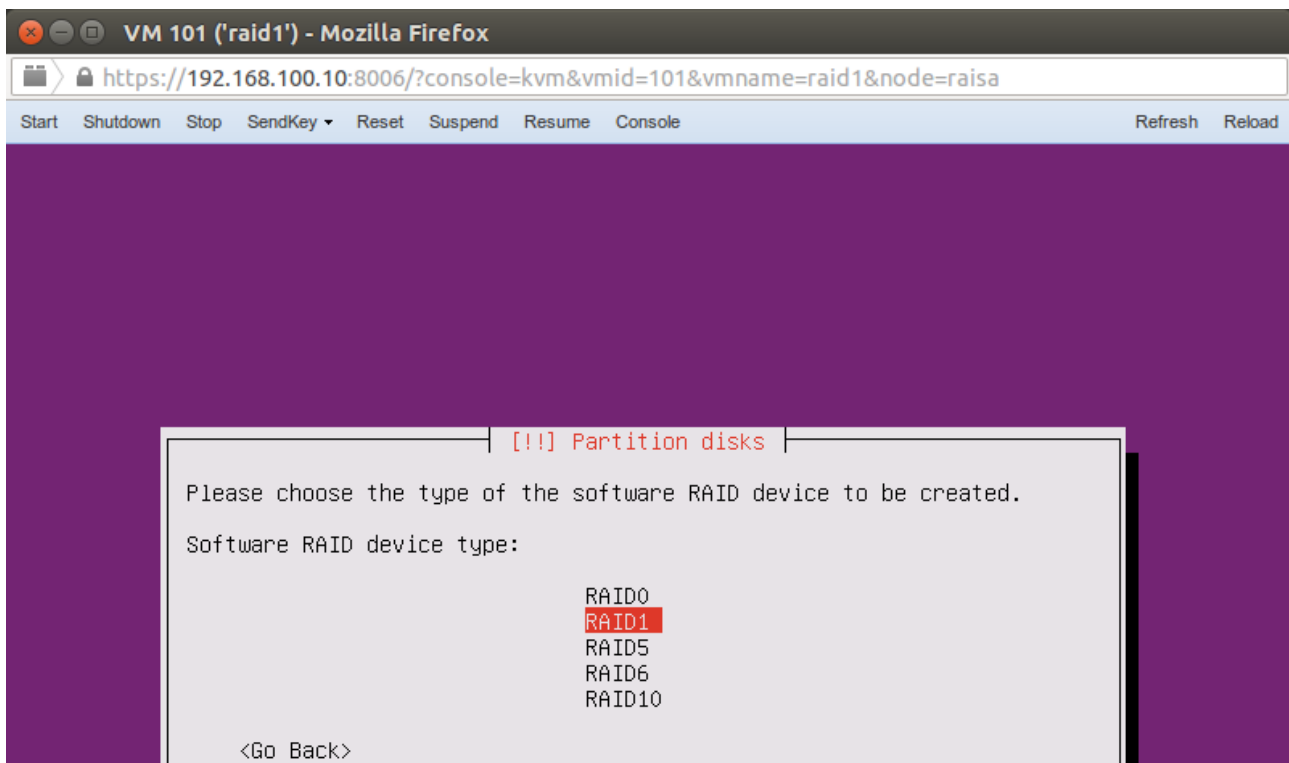
19. set yes.



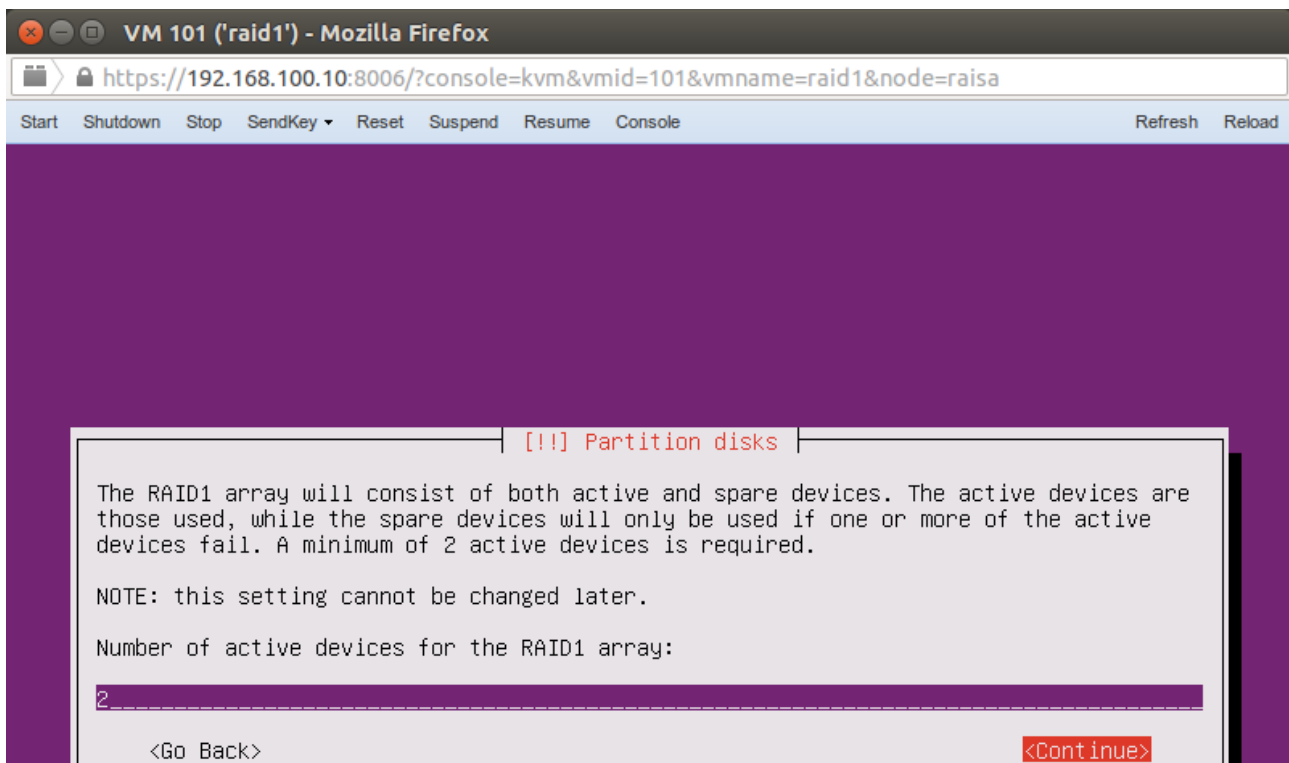
20. create md.



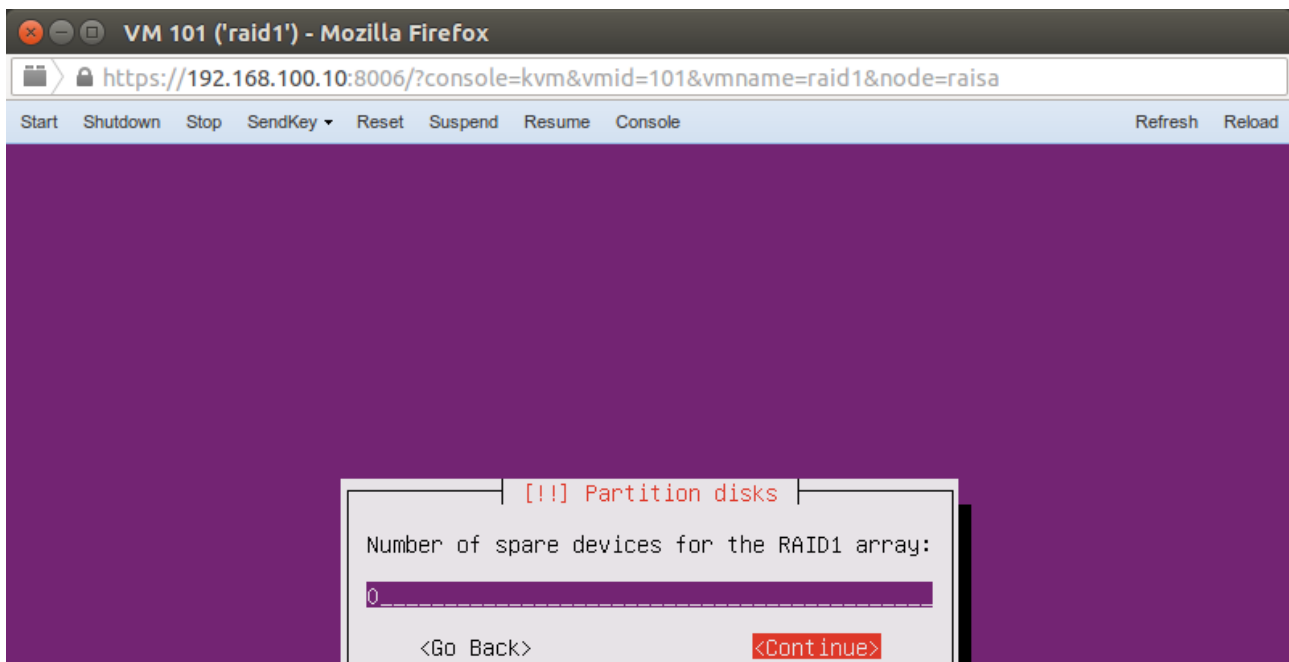
21. set raid1.



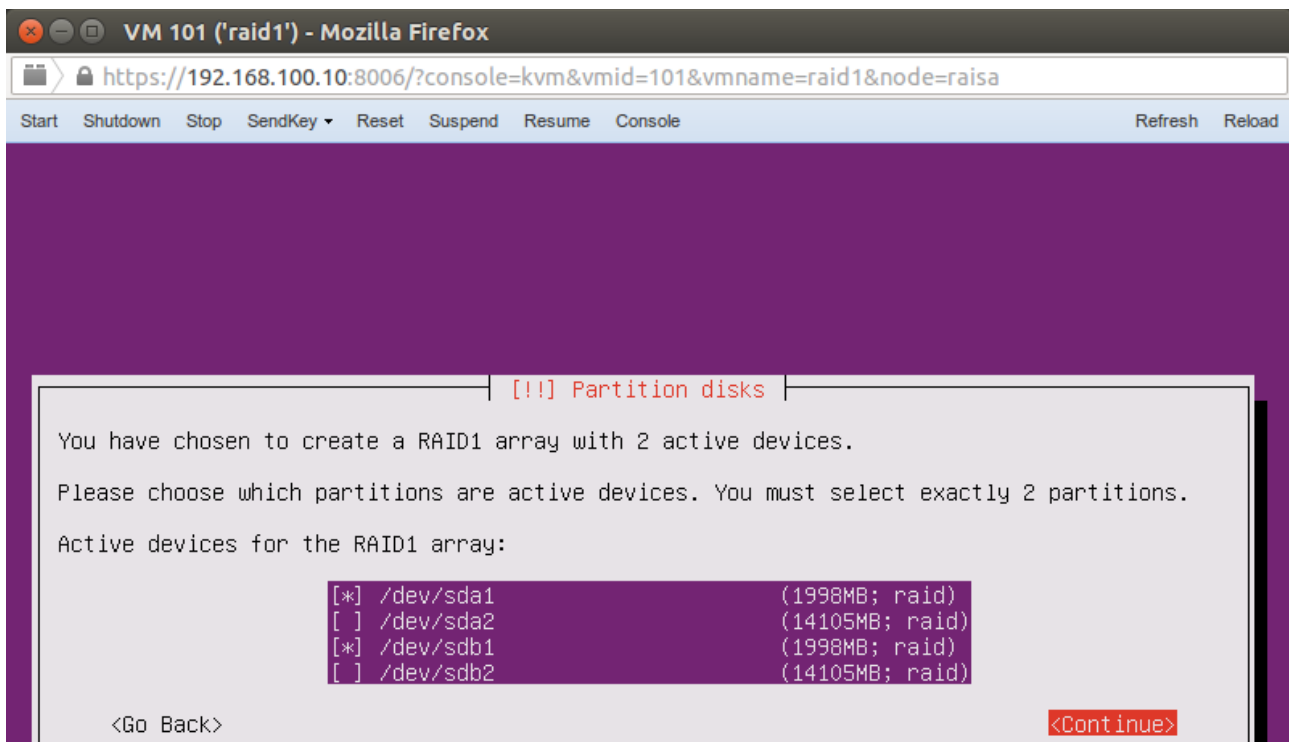
22. set 2.



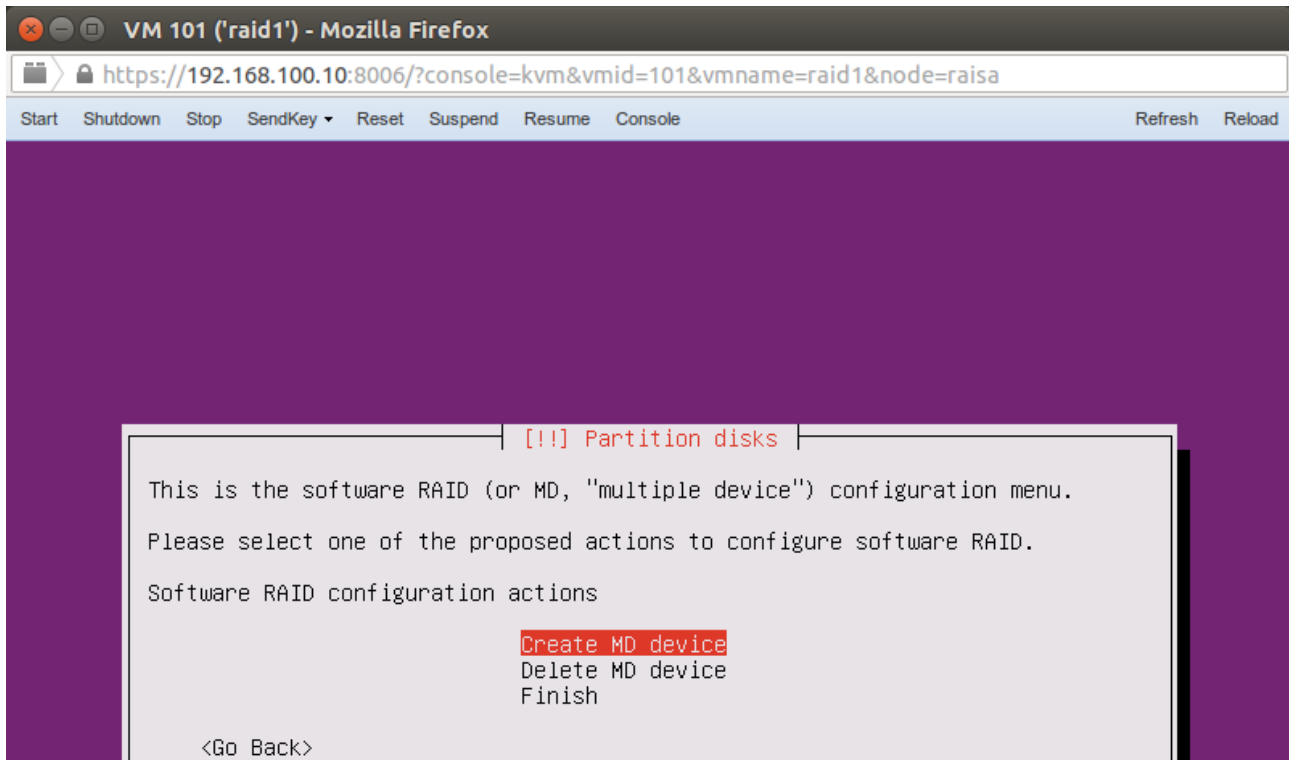
23. set 0.



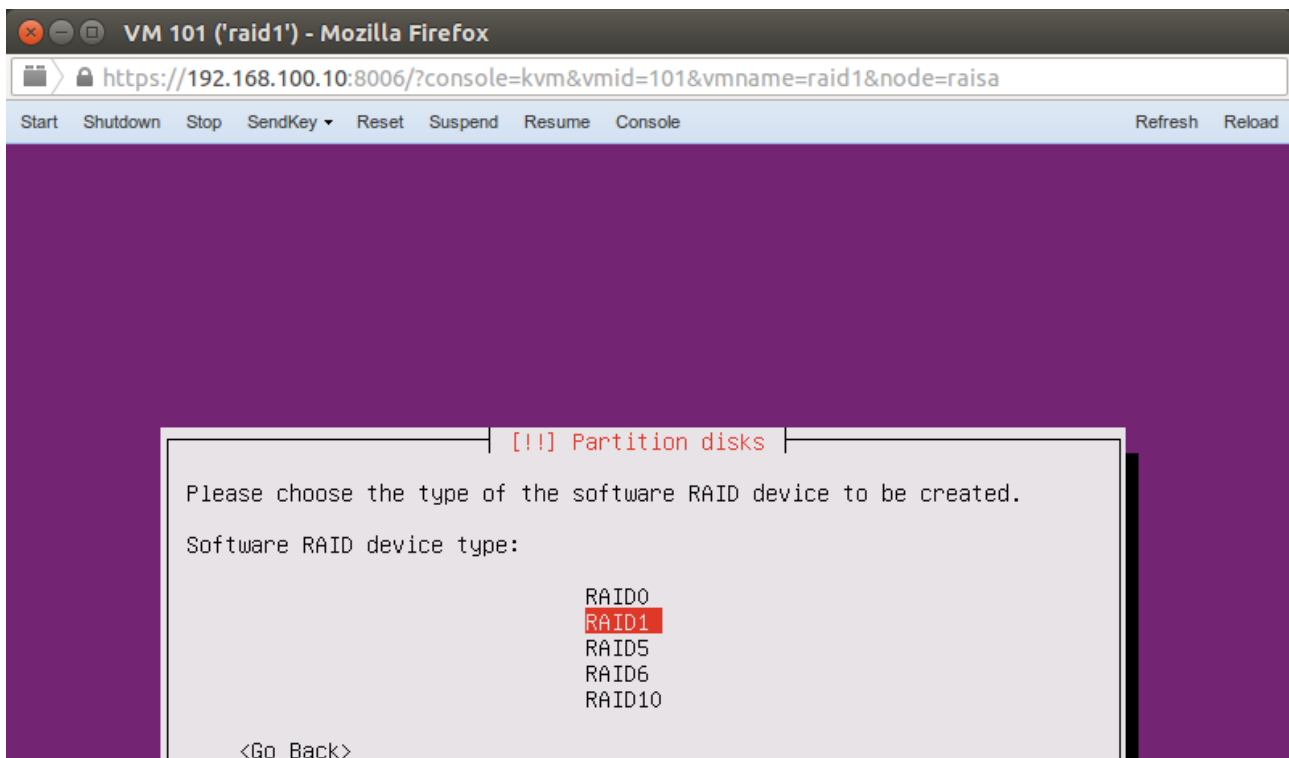
24. set seperti gambar.



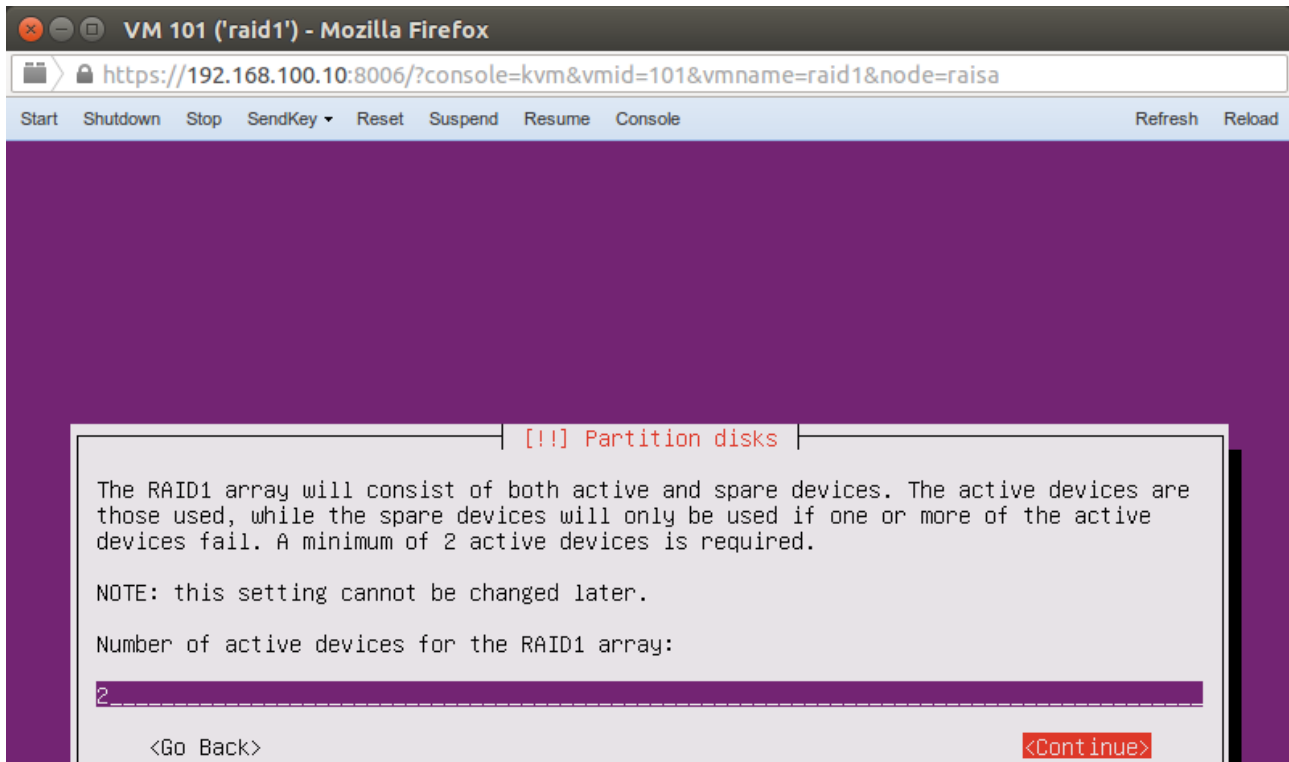
25. buat md lagi.



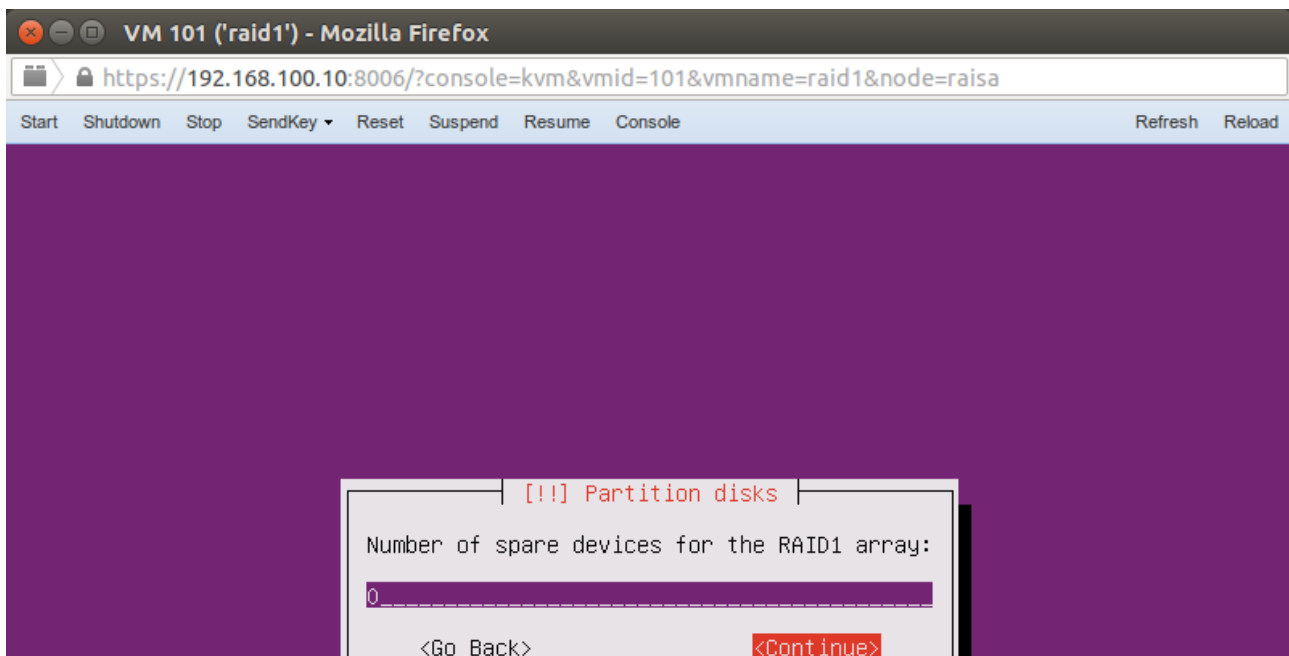
26. set raid1 lagi.



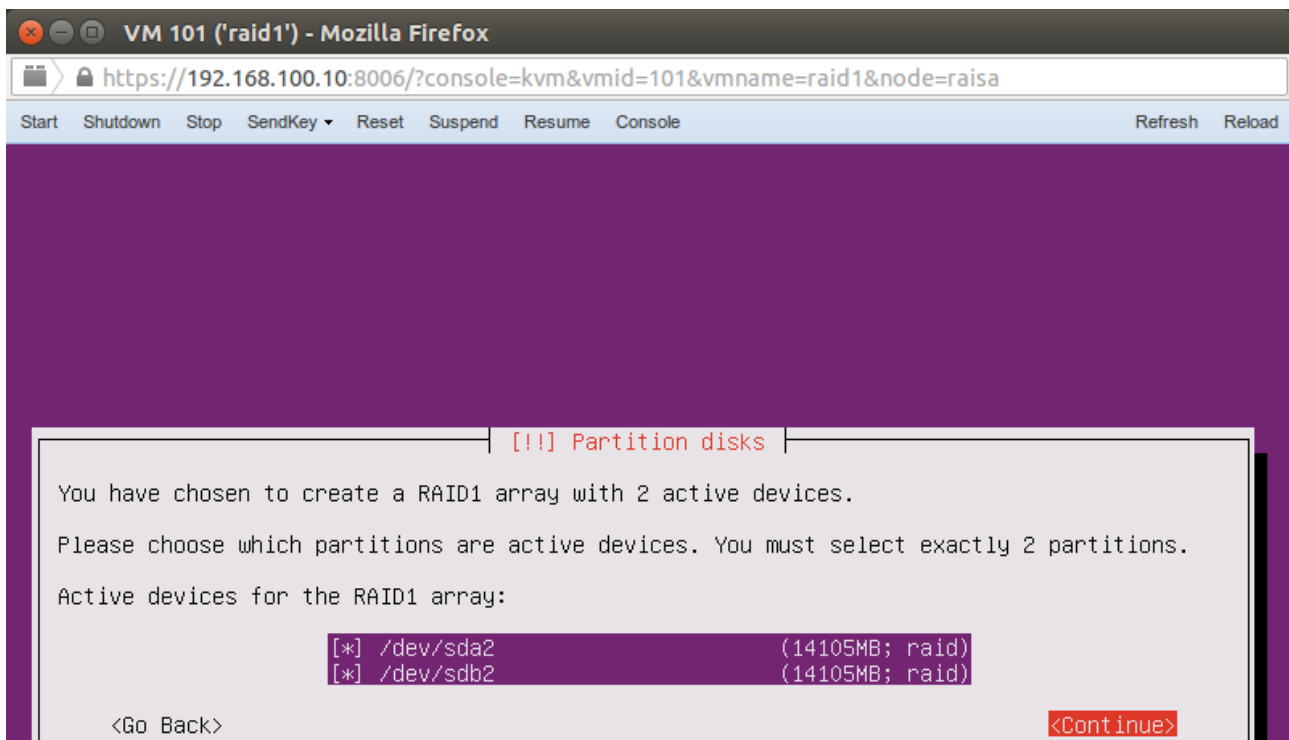
27. set 2 lagi.



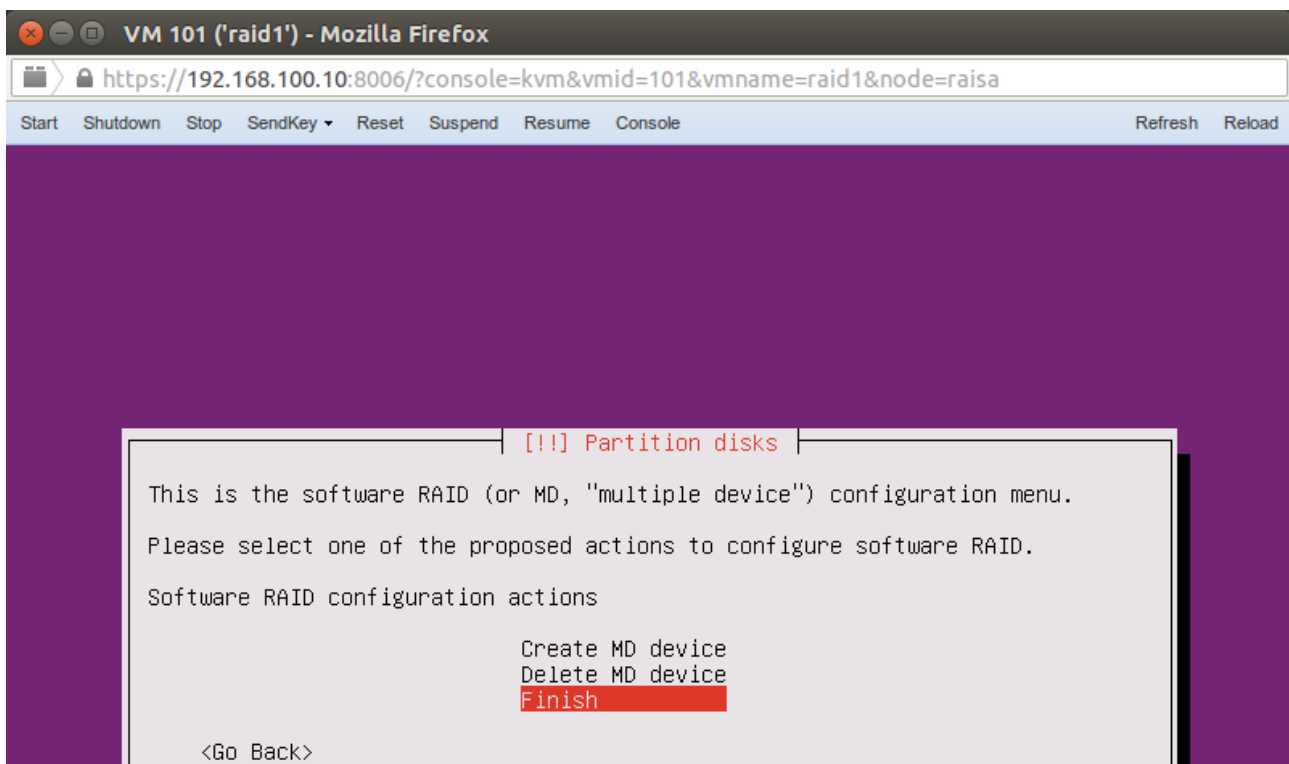
28. set 0 lagi.



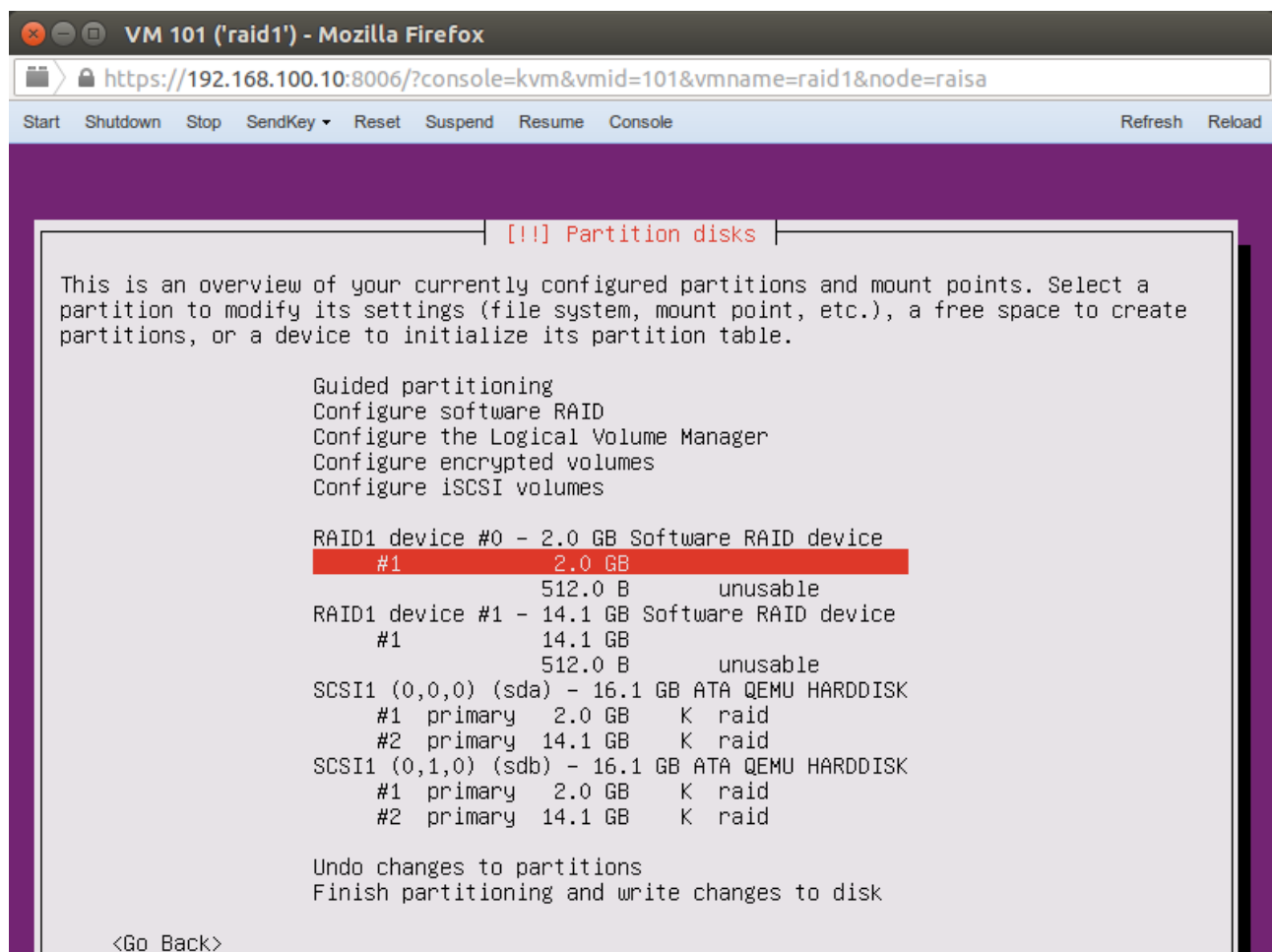
29. set seperti gambar.



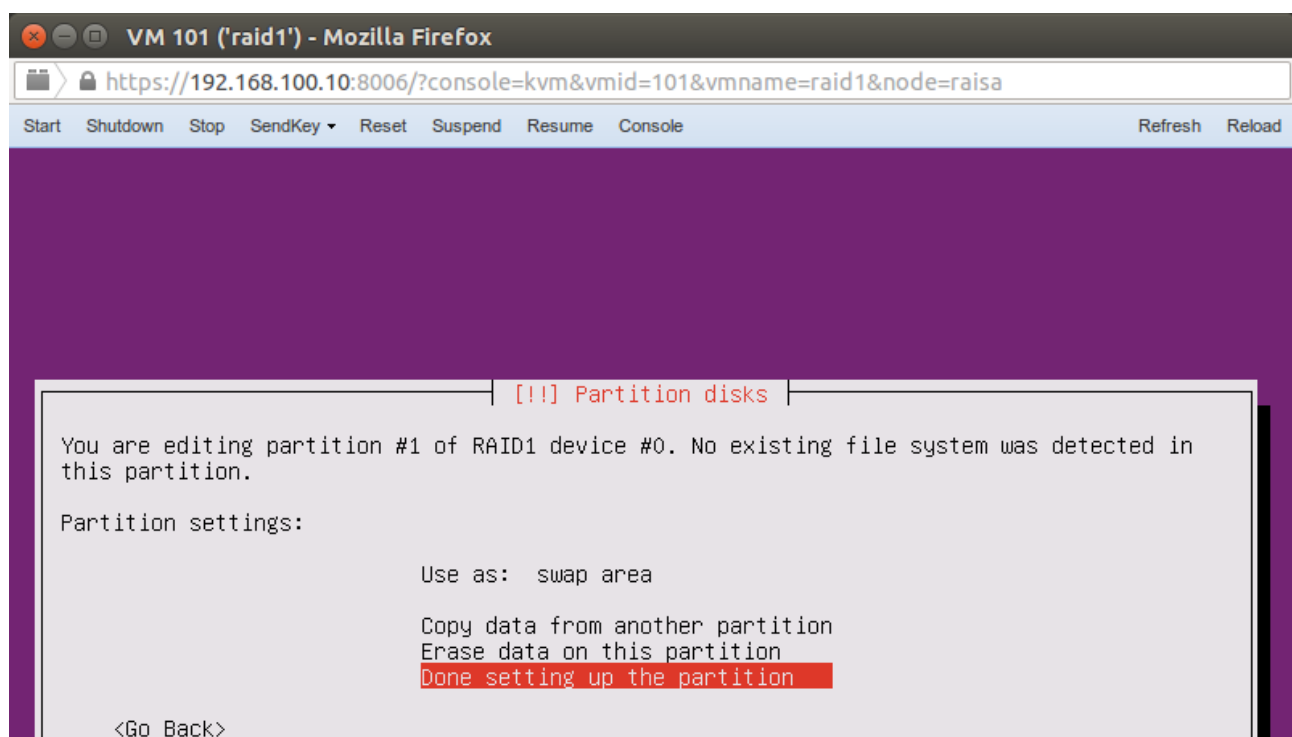
30. finish.



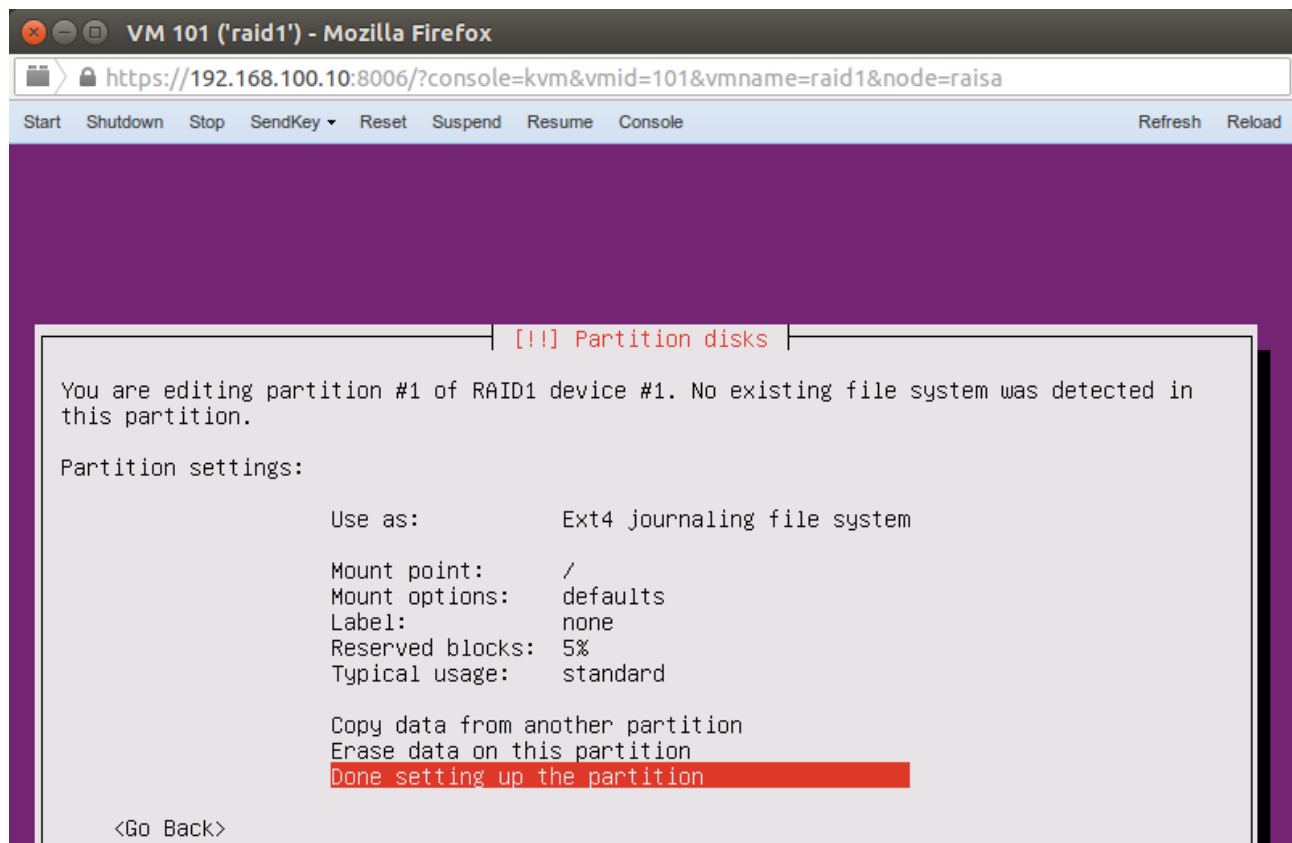
31. pada space 2 GB.



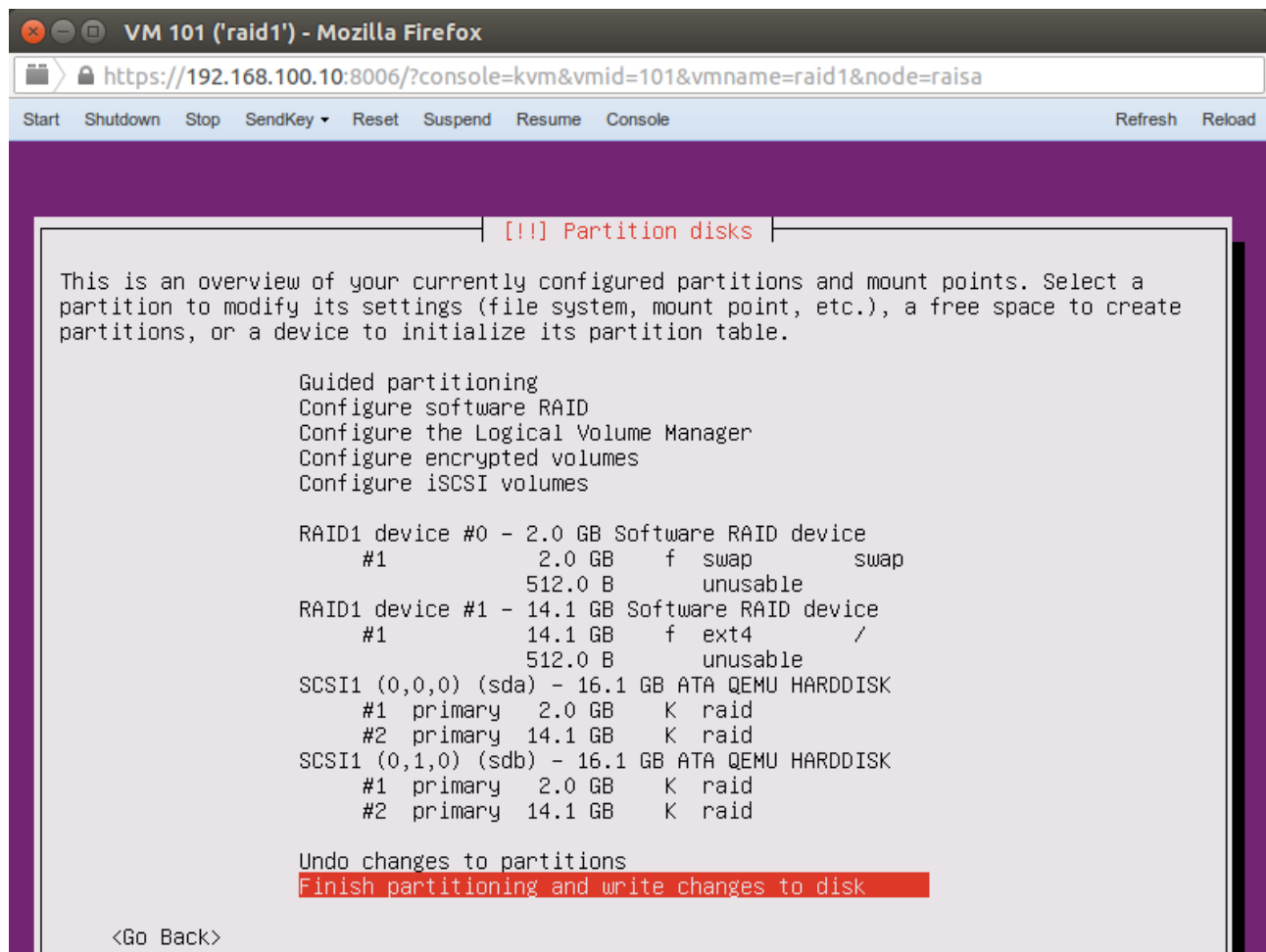
32. set swap.



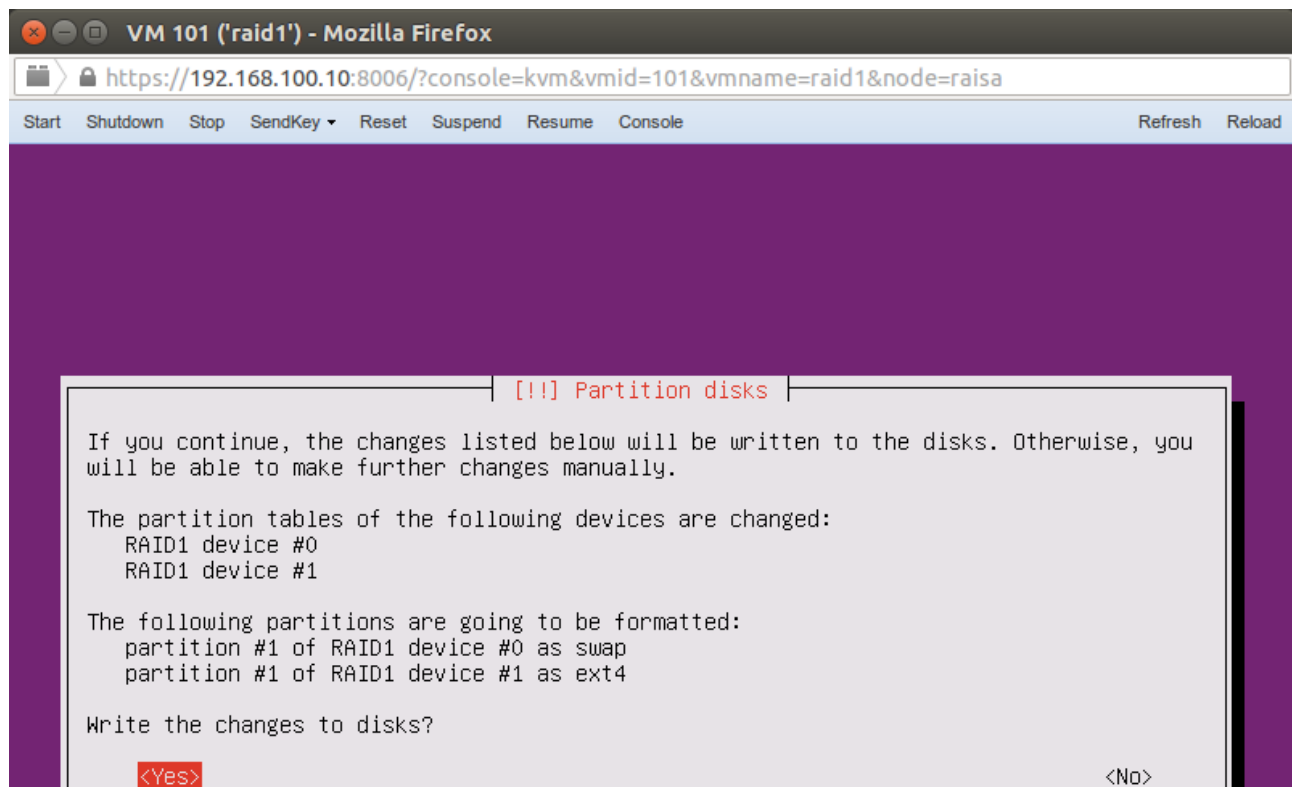
33. set space 14 GB as ext4 & mount point /.



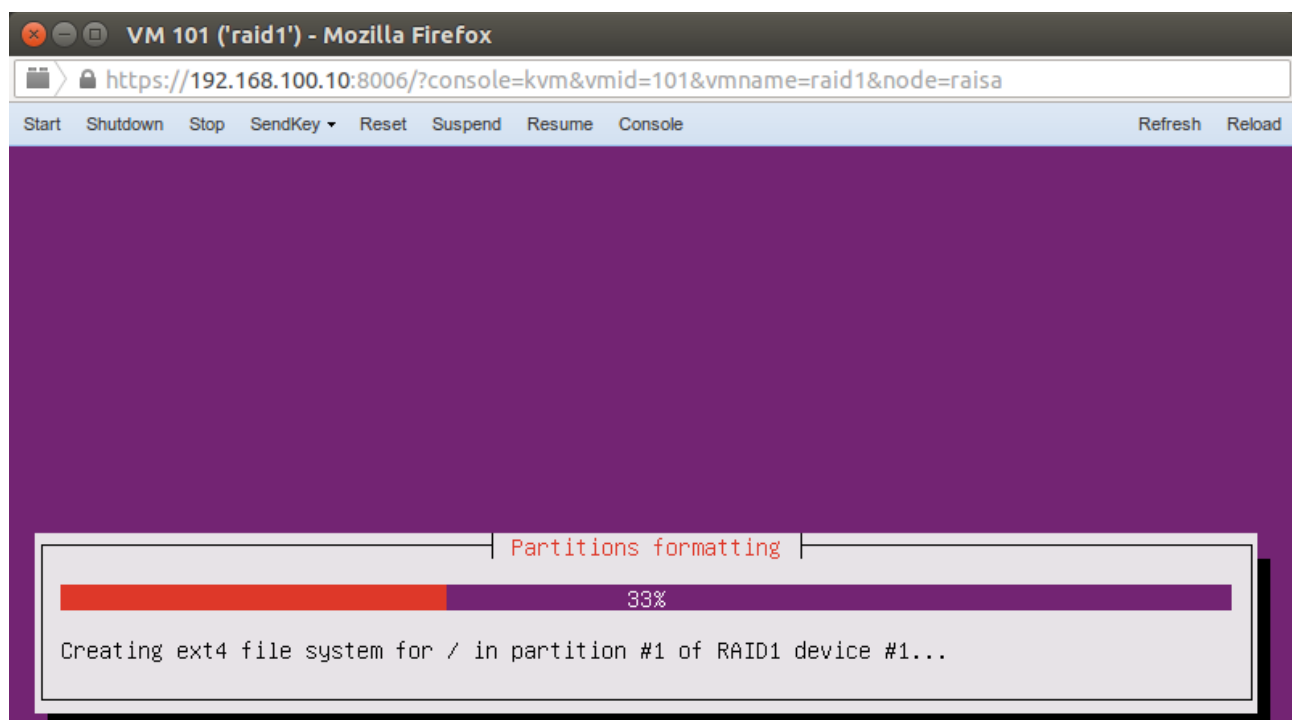
34. sehingga seperti gambar & finish.



35. set yes.



36. proses installasi.



37. booting vm & cek.

```
VM 101 ('raid1') - Mozilla Firefox
https://192.168.100.10:8006/?console=kvm&vmid=101&vmname=raid1&node=raisa
Start Shutdown Stop SendKey Reset Suspend Resume Console Refresh Reload

padli@uli:~$ free -m
              total        used        free      shared    buffers      cached
Mem:           2001         162        1839           0           9          95
-/+ buffers/cache:          57        1944
Swap:          1904           0        1904

padli@uli:~$ df -h
Filesystem      Size  Used Avail Use% Mounted on
/dev/md1        13G   1.1G   12G   10% /
none            4.0K   0     4.0K   0% /sys/fs/cgroup
udev            991M   4.0K   991M   1% /dev
tmpfs           201M   384K   200M   1% /run
none            5.0M   0     5.0M   0% /run/lock
none           1001M   0    1001M   0% /run/shm
none            100M   0     100M   0% /run/user

padli@uli:~$
```

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https://192.168.100.10:8006/?console=kvm&vmid=101&vmname=raid1&node=raisa
Start Shutdown Stop SendKey Reset Suspend Resume Console Refresh Reload

padli@uli:~$ grep /dev/md /etc/fstab
# / was on /dev/md1 during installation
# swap was on /dev/md0 during installation
padli@uli:~$ df -h / /home/
Filesystem      Size  Used Avail Use% Mounted on
/dev/md1        13G   1.2G   12G   10% /
/dev/md1        13G   1.2G   12G   10% /
padli@uli:~$ more /proc/mdstat
Personalities : [linear] [multipath] [raid0] [raid1] [raid6] [raid5] [raid4] [raid10]
md1 : active raid1 sdb2[1] sda2[0]
      13766528 blocks super 1.2 [2/2] [UU]

md0 : active raid1 sdb1[1] sda1[0]
      1950656 blocks super 1.2 [2/2] [UU]

unused devices: <none>
padli@uli:~$
```

```
VM 101 ('raid1') - Mozilla Firefox
https://192.168.100.10:8006/?console=kvm&vmid=101&vmname=raid1&node=raisa
Start Shutdown Stop SendKey Reset Suspend Resume Console Refresh Reload

padli@uli:~$ sudo mdadm --query --detail /dev/md0
[sudo] password for padli:
/dev/md0:
    Version : 1.2
  Creation Time : Thu Jul  9 09:42:36 2015
    Raid Level : raid1
    Array Size : 1950656 (1905.26 MiB 1997.47 MB)
  Used Dev Size : 1950656 (1905.26 MiB 1997.47 MB)
    Raid Devices : 2
  Total Devices : 2
 Persistence : Superblock is persistent

 Update Time : Thu Jul  9 09:47:25 2015
   State : clean
 Active Devices : 2
Working Devices : 2
 Failed Devices : 0
  Spare Devices : 0

    Name : uli:0 (local to host uli)
   UUID : a75fa535:9d8f7036:c84c6d64:06f57acb
   Events : 17

   Number   Major   Minor   RaidDevice State
    -----
      0         8         1         0   active sync  /dev/sda1
      1         8        17         1   active sync  /dev/sdb1

padli@uli:~$
```

38. tes raid1, backup dulu vm.

Proxmox Virtual Environment - Mozilla Firefox

Proxmox Virtual Environment

You are logged in as 'root@pam' Logout Create VM Create CT

Server View Virtual Machine 101 ('raid1') on node 'raisa'

Summary Hardware Options Task History Monitor Backup Snapshots Permissions

Backup now Restore Remove Storage: bk

Task viewer: Backup

Output Status

INFO: status: 88% (28415229950/32212254720), sparse 78% (25314152448), duration 313, 79/0 MB/s
INFO: status: 89% (28727246848/32212254720), sparse 79% (25626169344), duration 317, 78/0 MB/s
INFO: status: 90% (29009641472/32212254720), sparse 80% (2590185816), duration 321, 70/1 MB/s
INFO: status: 91% (29319757804/32212254720), sparse 81% (26211975168), duration 325, 77/0 MB/s
INFO: status: 92% (29712252928/32212254720), sparse 82% (26604470272), duration 330, 78/0 MB/s
INFO: status: 93% (30027939840/32212254720), sparse 83% (26920157184), duration 334, 78/0 MB/s
INFO: status: 94% (30342643712/32212254720), sparse 84% (27234861056), duration 338, 78/0 MB/s
INFO: status: 95% (30656823296/32212254720), sparse 85% (27549040640), duration 342, 78/0 MB/s
INFO: status: 96% (30973100032/32212254720), sparse 86% (27865317376), duration 346, 79/0 MB/s
INFO: status: 97% (31286951936/32212254720), sparse 87% (28179161088), duration 350, 78/0 MB/s
INFO: status: 98% (31602245632/32212254720), sparse 88% (28494454784), duration 354, 78/0 MB/s
INFO: status: 99% (31917015040/32212254720), sparse 89% (28809224192), duration 358, 78/0 MB/s
INFO: status: 100% (32212254720/32212254720), sparse 90% (29104463872), duration 362, 73/0 MB/s
INFO: transferred 32212 MB in 362 seconds (88 MB/s)
INFO: stopping kvm after backup task
INFO: archive file size: 900MB
INFO: Finished Backup of VM 101 (00:06:04)
INFO: Backup job finished successfully
TASK OK

Tasks Cluster log

Start Time	End Time	Node
Jul 09 10:02:02	Jul 09 10:08:06	raisa
Jul 09 09:32:21	Jul 09 10:01:19	raisa
Jul 09 09:32:04	Jul 09 09:32:14	raisa
Jul 09 09:32:00	Jul 09 09:32:01	raisa
Jul 09 09:29:20	Jul 09 09:29:21	raisa
Jul 09 08:49:44	Jul 09 09:21:33	raisa
Jul 09 08:49:27	Jul 09 08:49:37	raisa

root@pam VM/CT 101 - Console
root@pam VM 101 - Start
root@pam VM 101 - Create
root@pam VM/CT 100 - Console
root@pam VM/CT 100 - Console

Status
OK
OK
Error: command 'bin/inc -l-p 5900 -...
OK
OK
Error: command 'bin/inc -l-p 5900 -...

39. remove hdd1.

The screenshot shows the Proxmox Virtual Environment interface in a Mozilla Firefox browser. The URL is `https://192.168.100.10:8006/#v1:0:=qemu%2F101:4:::7::2`. The user is logged in as 'root@pam'. The left sidebar shows the 'Datacenter' view with a tree structure: 'raisa' (containing VMs 100 (raid0), 101 (raid1), bk (raisa), and local (raisa)). The main panel displays the configuration for 'Virtual Machine 101 (raid1) on node raisa'. The 'Hardware' tab is active, showing the following configuration:

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- CD/DVD Drive (ide2): local:iso/ubuntu-14.04-server-amd64.iso,media=cdrom
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Below the configuration, the 'Tasks' tab is active, showing a table of recent tasks:

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Jul 09 10:02:02	Jul 09 10:08:06	raisa	root@pam	Backup	OK
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Jul 09 09:32:04	Jul 09 09:32:14	raisa	root@pam	VM/CT 101 - Console	Error: command 'bin/inc -l-p 5900 -...
Jul 09 09:32:00	Jul 09 09:32:01	raisa	root@pam	VM 101 - Start	OK
Jul 09 09:29:20	Jul 09 09:29:21	raisa	root@pam	VM 101 - Create	OK
Jul 09 08:49:44	Jul 09 09:21:33	raisa	root@pam	VM/CT 100 - Console	OK
Jul 09 08:49:27	Jul 09 08:49:37	raisa	root@pam	VM/CT 100 - Console	Error: command 'bin/inc -l-p 5900 -...

40. hdd1 sudah di remove.

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- CD/DVD Drive (ide2): local:iso/ubuntu-14.04-server-amd64.iso,media=cdrom
- Network Device (net0): e1000=72:0B:6E:86:BD:44,bridge=vmbr0
- Unused Disk 0: local:101/vm-101-disk-1.qcow2

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Jul 09 09:32:00	Jul 09 09:32:01	raisa	root@pam	VM 101 - Start	OK
Jul 09 09:29:20	Jul 09 09:29:21	raisa	root@pam	VM 101 - Create	OK
Jul 09 08:49:44	Jul 09 09:21:33	raisa	root@pam	VM/CT 100 - Console	OK
Jul 09 08:49:27	Jul 09 08:49:37	raisa	root@pam	VM/CT 100 - Console	Error: command 'bin/inc -l-p 5900 -...

41. set options, boot order ke hdd2.

The screenshot shows the Proxmox Virtual Environment web interface in Mozilla Firefox. The browser address bar displays `https://192.168.100.10:8006/#v1:0:=qemu%2F101:4:::9::2`. The user is logged in as 'root@pam'. The left sidebar shows the 'Datacenter' view with a tree structure containing 'raisa', '100 (raid0)', '101 (raid1)', 'bk (raisa)', and 'local (raisa)'. The main panel displays the 'Options' tab for 'Virtual Machine 101 (raid1) on node 'raisa''. The options are as follows:

Option	Value
Name	raid1
Start at boot	No
Start/Shutdown order	order=any
OS Type	Linux 3.X/2.6 Kernel (i26)
Boot order	Disk 'Ide0', CD-ROM, Network
Use tablet for pointer	Yes
ACPI support	Yes
SCSI Controller Type	Default (LSI 53C895A)
KVM hardware virtualization	Yes
CPU units	1000
Freeze CPU at startup	No
Use local time for RTC	No
RTC start date	now

Below the options, the 'Tasks' tab shows a list of operations:

Start Time	End Time	Node	User name	Description	Status
Jul 09 10:02:02	Jul 09 10:08:06	raisa	root@pam	Backup	OK
Jul 09 09:32:21	Jul 09 10:01:19	raisa	root@pam	VM/CT 101 - Console	OK
Jul 09 09:32:04	Jul 09 09:32:14	raisa	root@pam	VM/CT 101 - Console	Error: command 'bin/inc -l-p 5900 -...
Jul 09 09:32:00	Jul 09 09:32:01	raisa	root@pam	VM 101 - Start	OK
Jul 09 09:29:20	Jul 09 09:29:21	raisa	root@pam	VM 101 - Create	OK
Jul 09 08:49:44	Jul 09 09:21:33	raisa	root@pam	VM/CT 100 - Console	OK
Jul 09 08:49:27	Jul 09 08:49:37	raisa	root@pam	VM/CT 100 - Console	Error: command 'bin/inc -l-p 5900 -...

This screenshot shows the same Proxmox VE web interface, but with the 'Edit: Boot order' dialog box open. The dialog box allows the user to modify the boot order for the selected VM. The current settings in the dialog are:

- Boot device 1: Disk 'Ide1'
- Boot device 2: CD-ROM
- Boot device 3: Network

The 'OK' and 'Reset' buttons are visible at the bottom of the dialog. The background interface remains the same, showing the 'Options' tab for VM 101 and the 'Tasks' list.

42. sehingga seperti gambar.

Proxmox Virtual Environment - Mozilla Firefox

Proxmox Virtual Environment

You are logged in as 'root@pam' Logout Create VM Create CT

Server View Virtual Machine 101 ('raid1') on node 'raisa'

Summary Hardware Options Task History Monitor Backup Snapshots Permissions

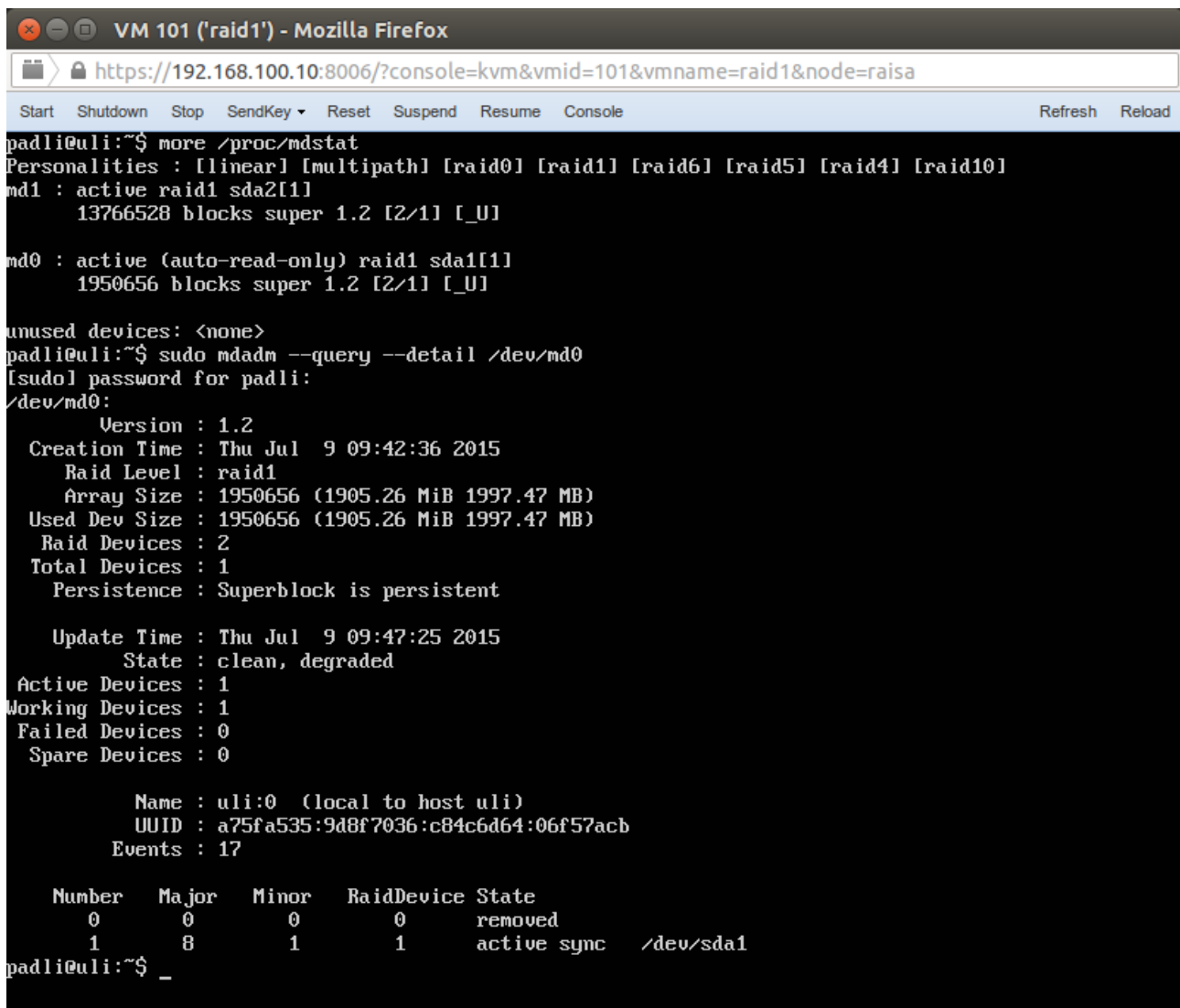
Edit

Name	raid1
Start at boot	No
Start/Shutdown order	order=any
OS Type	Linux 3.X/2.6 Kernel (i26)
Boot order	Disk 'ide1', CD-ROM, Network
Use tablet for pointer	Yes
ACPI support	Yes
SCSI Controller Type	Default (LSI 53C895A)
KVM hardware virtualization	Yes
CPU units	1000
Freeze CPU at startup	No
Use local time for RTC	No
RTC start date	now

Tasks Cluster log

Start Time	End Time	Node	User name	Description	Status
Jul 09 10:02:02	Jul 09 10:08:06	raisa	root@pam	Backup	OK
Jul 09 09:32:21	Jul 09 10:01:19	raisa	root@pam	VM/CT 101 - Console	OK
Jul 09 09:32:04	Jul 09 09:32:14	raisa	root@pam	VM/CT 101 - Console	Error: command '/bin/inc -l -p 5900 -...
Jul 09 09:32:00	Jul 09 09:32:01	raisa	root@pam	VM 101 - Start	OK
Jul 09 09:29:20	Jul 09 09:29:21	raisa	root@pam	VM 101 - Create	OK
Jul 09 08:49:44	Jul 09 09:21:33	raisa	root@pam	VM/CT 100 - Console	OK
Jul 09 08:49:27	Jul 09 08:49:37	raisa	root@pam	VM/CT 100 - Console	Error: command '/bin/inc -l -p 5900 -...

43. boot vm dan cek lagi (proses booting ke hdd2 lancar saat hdd1 down).



The screenshot shows a terminal window titled "VM 101 ('raid1') - Mozilla Firefox". The address bar displays the URL "https://192.168.100.10:8006/?console=kvm&vmid=101&vmname=raid1&node=raisa". The terminal interface includes a menu bar with options: Start, Shutdown, Stop, SendKey, Reset, Suspend, Resume, Console, Refresh, and Reload. The user "padli@uli" runs the command "more /proc/mdstat", which displays the status of RAID devices. It shows "md1" as an active RAID1 device using "sda2" and "md0" as an active (auto-read-only) RAID1 device using "sda1". Both have 1.2 [2/1] [_U] status. Below this, the user runs "sudo mdadm --query --detail /dev/md0", which prompts for a password and then displays detailed RAID information for /dev/md0. This includes the RAID level (raid1), array size (1950656), used device size (1950656), number of devices (2), and total devices (1). It also shows the state as "clean, degraded" and lists active, working, failed, and spare devices. At the bottom, a table lists the RAID devices and their states.

```
padli@uli:~$ more /proc/mdstat
Personalities : [linear] [multipath] [raid0] [raid1] [raid6] [raid5] [raid4] [raid10]
md1 : active raid1 sda2[1]
      13766528 blocks super 1.2 [2/1] [ _U]

md0 : active (auto-read-only) raid1 sda1[1]
      1950656 blocks super 1.2 [2/1] [ _U]

unused devices: <none>
padli@uli:~$ sudo mdadm --query --detail /dev/md0
[sudo] password for padli:
/dev/md0:
  Version : 1.2
  Creation Time : Thu Jul  9 09:42:36 2015
    Raid Level : raid1
    Array Size : 1950656 (1905.26 MiB 1997.47 MB)
  Used Dev Size : 1950656 (1905.26 MiB 1997.47 MB)
    Raid Devices : 2
    Total Devices : 1
 Persistence : Superblock is persistent

    Update Time : Thu Jul  9 09:47:25 2015
      State : clean, degraded
Active Devices : 1
Working Devices : 1
Failed Devices : 0
Spare Devices : 0

     Name : uli:0  (local to host uli)
    UUID : a75fa535:9d8f7036:c84c6d64:06f57acb
    Events : 17

   Number   Major   Minor   RaidDevice State
    0         0         0         0     removed
    1         8         1         1     active sync  /dev/sda1
padli@uli:~$ _
```

44. tes remove hdd2 dan lakukan sperti sebelumnya.

Dok 09/07/2015 padliyulian@ymail.com