

## Oporavak diska iz softverskog RAID1 polja



Prije nego što se na Open Media Vault NAS počnu kopirati podaci, postavlja se pitanje: Što će se dogoditi u slučaju kvara diska s operacijskim sustavom, matične ploče ili ispada nekog od diskova iz softverskog RAID-a? Kako u tom slučaju izvući podatke s NAS-a? RAID1 koji se koristi u ovom primjeru nije backup, nego hardverska redundancija sistema, ukoliko se pokvari jedan od dva diska u RAID1 polju bez većih zastoja se može napraviti zamjena diska i oporavak RAID1 polja. Ako vam je stalo do podataka, uz to ćete raditi još i rezervnu kopiju nekim od programa za tu namjenu.

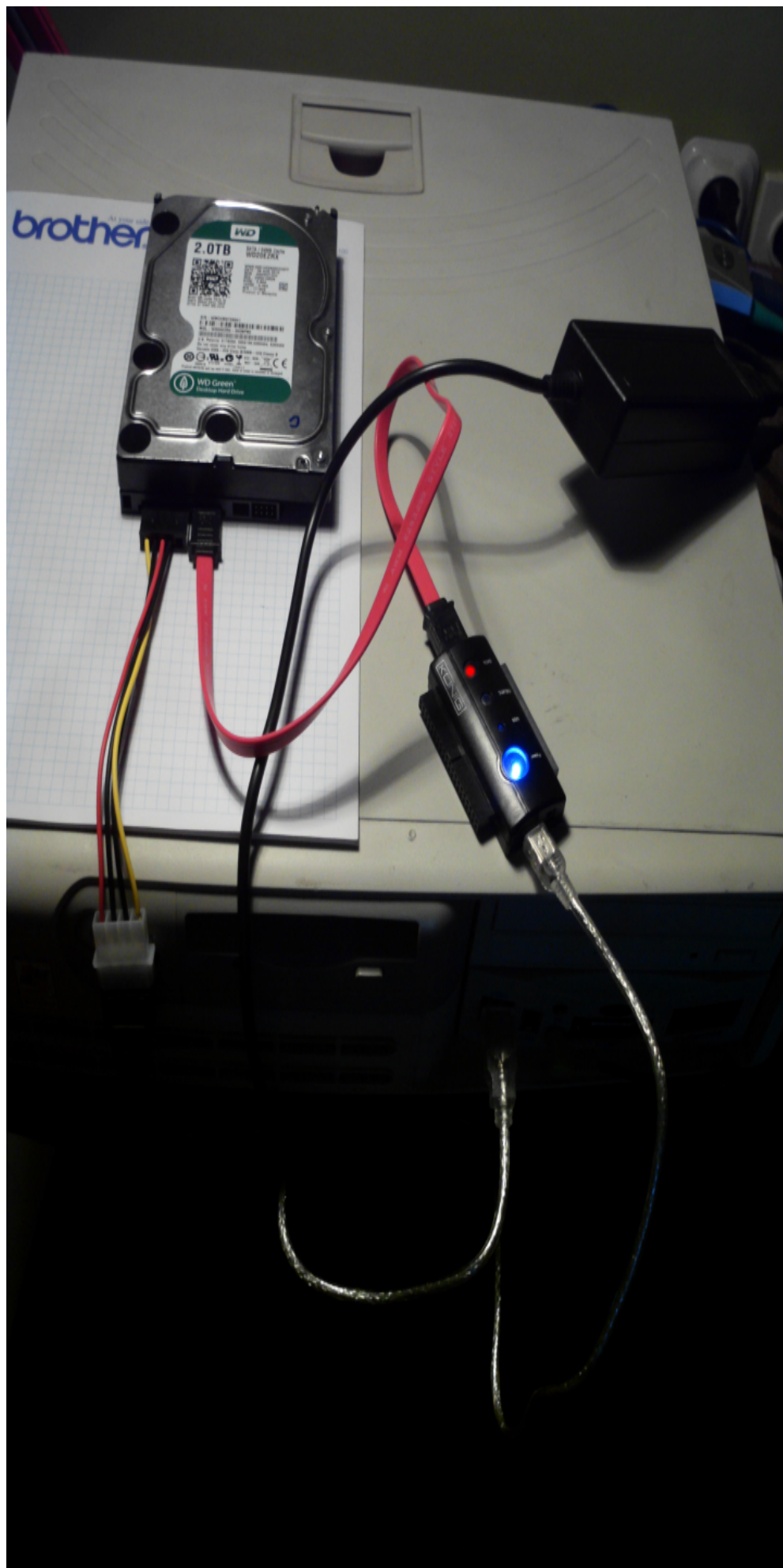
Sve to dobro zvuči u teoriji, ali kad se havarija dogodi u praksi možda scenarij neće biti idealan, nećemo imati najsvježiji backup, matična ploča se neće moći brzo zamijeniti i slično. Kako opraviti RAID1 polje u slučaju zamjene jednog od diskova, kako čitati podatke sa diskova na nekom drugom računalu? Kad se dogode ti "crni" scenariji nemamo vremena za učenje. Zbog toga sam pokušao simulirati takvu situaciju na "jeftilen" hardveru i testnim podatcima. Za početak sam iskapčanjem jednog od diskova prouzrokovao "raspad" RAID1 polja.

The screenshot shows the OpenMediaVault web interface. The left sidebar contains a navigation menu with categories like Certificates, Cron Jobs, Update Manager, Plugins, Storage, Physical Disks, S.M.A.R.T., RAID Management, Filesystems, Access Rights Management, User, Group, Shared Folders, Services, FTP, NFS, Rsync, SMB/CIFS, SNMP, SSH, TFTP, Diagnostics, and System Information. The main content area is titled 'Storage | RAID Management' and displays a table of RAID arrays. The table has columns for Name, Device, State, Level, Capacity, and Devices. One array, named 'OMV-BAZA', is shown with device '/dev/md127' in a 'clean, degraded' state, level 'Mirror', capacity '1.82 TiB', and devices '/dev/sdb'. Above the table are buttons for '+ Create', 'Grow', 'Recover', 'Detail', and 'Delete'. At the bottom of the interface, it says 'Page 1 of 1' and 'Displaying items 1 - 1 of 1'.

Name	Device	State	Level	Capacity	Devices
OMV-BAZA	/dev/md127	clean, degraded	Mirror	1.82 TiB	/dev/sdb

Kao što vidimo na gornjem prikazu stanje je "degraded", disk `/dev/sda` nije vidljiv. Sustav i dalje funkcionira disk `/dev/sdb` je u "clean" stanju.

Slijedeće što nas zanima kako do podataka na `/dev/sda` disku. Izvadimo disk `/dev/sda` spojimo ga sa USB 2.0 /S-ATA adapterom na računalu, u mom slučaju je to Debian Wheezy desktop PC.



Kada smo spojili USB kabel na desktop računalo, s root ovlastima pokrenemo:

```
# lsusb
Bus 001 Device 001: ID 1d6b:0002 Linux Foundation 2.0 root hub
Bus 002 Device 001: ID 1d6b:0001 Linux Foundation 1.1 root hub
Bus 003 Device 001: ID 1d6b:0001 Linux Foundation 1.1 root hub
Bus 001 Device 003: ID 152d:2338 JMicron Technology Corp. / JMicron USA Technology Corp. JM20337 Hi-Speed USB to SATA & PATA Combo Bridge
```

Vidimo da je uredno prepoznat naš USB 2.0 / S-ATA kontroler.

Pokrenemo zatim naredbu :

```
# fdisk -l
.....
Disk /dev/sdc: 2000.4 GB, 2000398934016 bytes
255 heads, 63 sectors/track, 243201 cylinders, total 3907029168 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 identifier: 0x00000000
Disk /dev/sdc doesn't contain a valid partition table
```

Prepoznat je naš 2 TB disk sa oznakom */dev/sdc*, ali sa nemamo mogućnost čitanja zapisanih podataka. Za to nam je potreban paket *mdadm* iz Debian repozitorija koji na Linuxu služi za upravljanje softverskim RAID uređajima. Instaliramo ga sa:

```
# apt-get install mdadm
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following NEW packages will be installed:
  mdadm
0 upgraded, 1 newly installed, 0 to remove and 110 not upgraded.
Need to get 566 kB of archives.
After this operation, 1,098 kB of additional disk space will be used.
Get:1 http://ftp.carnet.hr/debian/ wheezy/main mdadm i386 3.2.5-5 [566 kB]
Fetched 566 kB in 1s (466 kB/s)
Preconfiguring packages ...
Selecting previously unselected package mdadm.
(Reading database ... 154592 files and directories currently installed.)
Unpacking mdadm (from .../mdadm_3.2.5-5_i386.deb) ...Processing triggers for man-db ...
Setting up mdadm (3.2.5-5) ...
Generating array device nodes... done.
Generating mdadm.conf... done.
update-initramfs: deferring update (trigger activated)
[ ok ] Assembling MD array mdBAZA...done (degraded [1/2]).
[ ok ] Generating udev events for MD arrays...done.
[ ok ] Starting MD monitoring service: mdadm --monitor.
Processing triggers for initramfs-tools ...
update-initramfs: Generating /boot/initrd.img-3.2.0-4-686-pae
```

Već pri podizanju servisa nakon instalacije primjećujemo da je prepoznao *mdBAZA* (*md-multiple*)

device). Ponovo pokrećemo prepoznavanje diskova:

```
# fdisk -l
.....
Disk /dev/sdc: 2000.4 GB, 2000398934016 bytes
255 heads, 63 sectors/track, 243201 cylinders, total 3907029168 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 identifier: 0x00000000
Disk /dev/sdc doesn't contain a valid partition table
Disk /dev/md127: 2000.4 GB, 2000397746176 bytes
2 heads, 4 sectors/track, 488378356 cylinders, total 3907026848 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 identifier: 0x00000000
```

Sada vidimo da je prepoznat *md* uređaj */dev/md127*. Pokrećemo *mdadm* servis sa slijedećim opcijama:

```
# mdadm --assemble --scan --run
mdadm: /dev/md/BAZA has been started with 1 drive (out of 2).
```

Time dolazimo do punog naziva uređaja kojeg želimo montirati. Zatim jednostavno ručno montiramo uređaj sa datotečnim sistemom *ext4* u kojem smo formatirali uređaj (vidi članak ["Kako do vlastitog oblaka"](#) [1]).

```
# mount -t ext4 /dev/md/BAZA /mnt
```

Potražimo naše testne podatke u direktoriju "Proba".

```
#cd /mnt
# ls
aquota.group  aquota.user  lost+found  Proba
/mnt# cd Proba
/mnt/Proba
# ls
deb_conf.dv
Slike-sken
video_finale.mpg
```

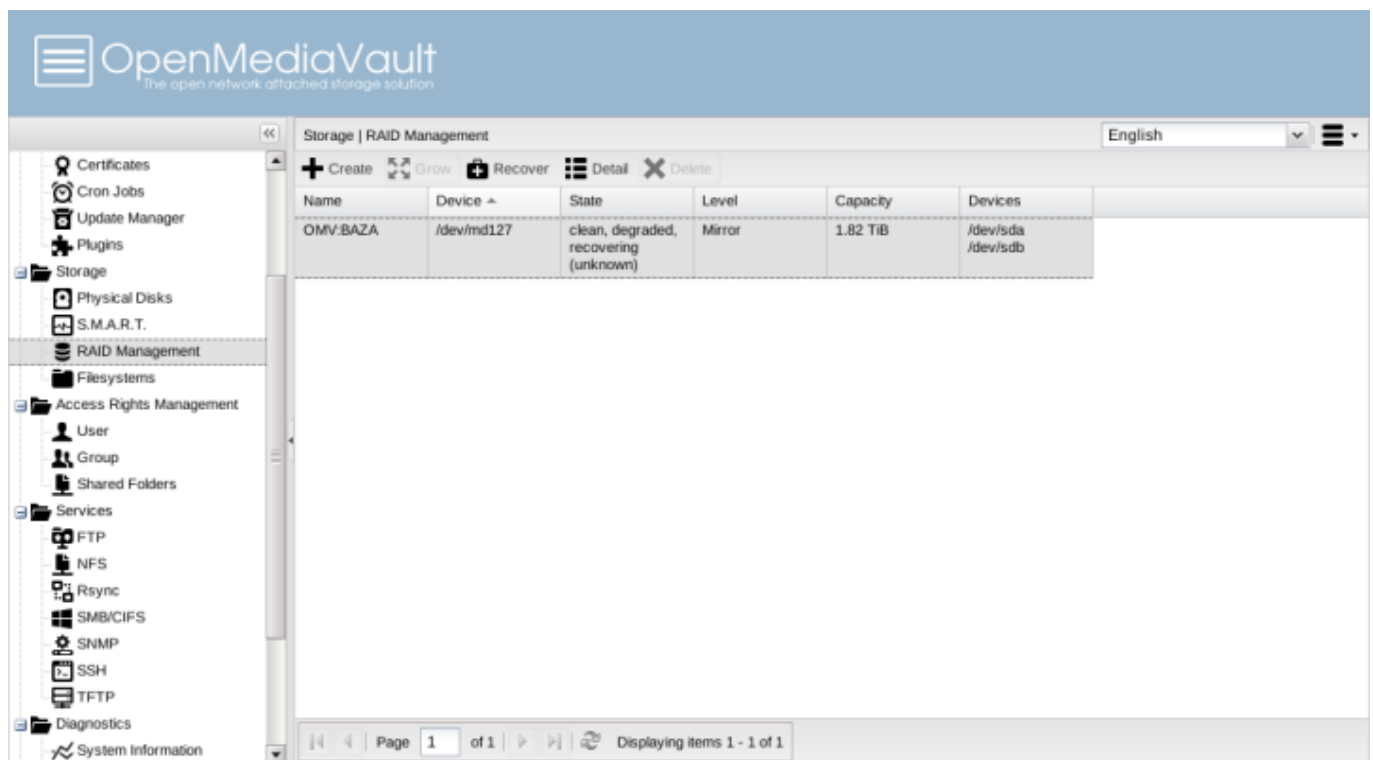
Proba čitanja podataka je uspjela Izademo iz montiranog direktorija i zaustavimo servis.

```
/mnt/Proba# cd ..
/mnt# cd ..
/
# umount /dev/md/BAZA
# mdadm --stop /dev/md/BAZA
mdadm: stopped /dev/md/BAZA
```

Ostaje povratak "degraded", "pokvarenog" diska u "Mirror". Situacija bez jednog diska izgleda ovako:

```
Version : 1.2
Creation Time : Tue Jan 14 19:35:31 2014
Raid Level : raid1
Array Size : 1953513424 (1863.02 GiB 2000.40 GB)
Used Dev Size : 1953513424 (1863.02 GiB 2000.40 GB)
Raid Devices : 2
Total Devices : 1
Persistence : Superblock is persistent
Update Time : Thu Jan 16 18:59:06 2014
State : clean, degraded
Active Devices : 1
Working Devices : 1
Failed Devices : 0
Spare Devices : 0
Name : OMV:BAZA (local to host OMV)
UUID : 27519df7:3f313df6:2121ebaf:370bbe44
Events : 550
Number  Major   Minor   RaidDevice State
0         0         0         0         removed
1         8        16         1         active sync    /dev/sdb
```

Uređaj `/dev/sda` je maknut, "removed" `/dev/sdb` je "active". Nakon što prikopčamo "maknuti", "zamjenski" disk, napravimo još "Wipe" kojim ga brišemo tako da odgovara novom praznim disku i zatim iz OMV web GUI pokrenemo "Recover", odaberemo `/dev/sda` i krenemo sa oporavkom polja.

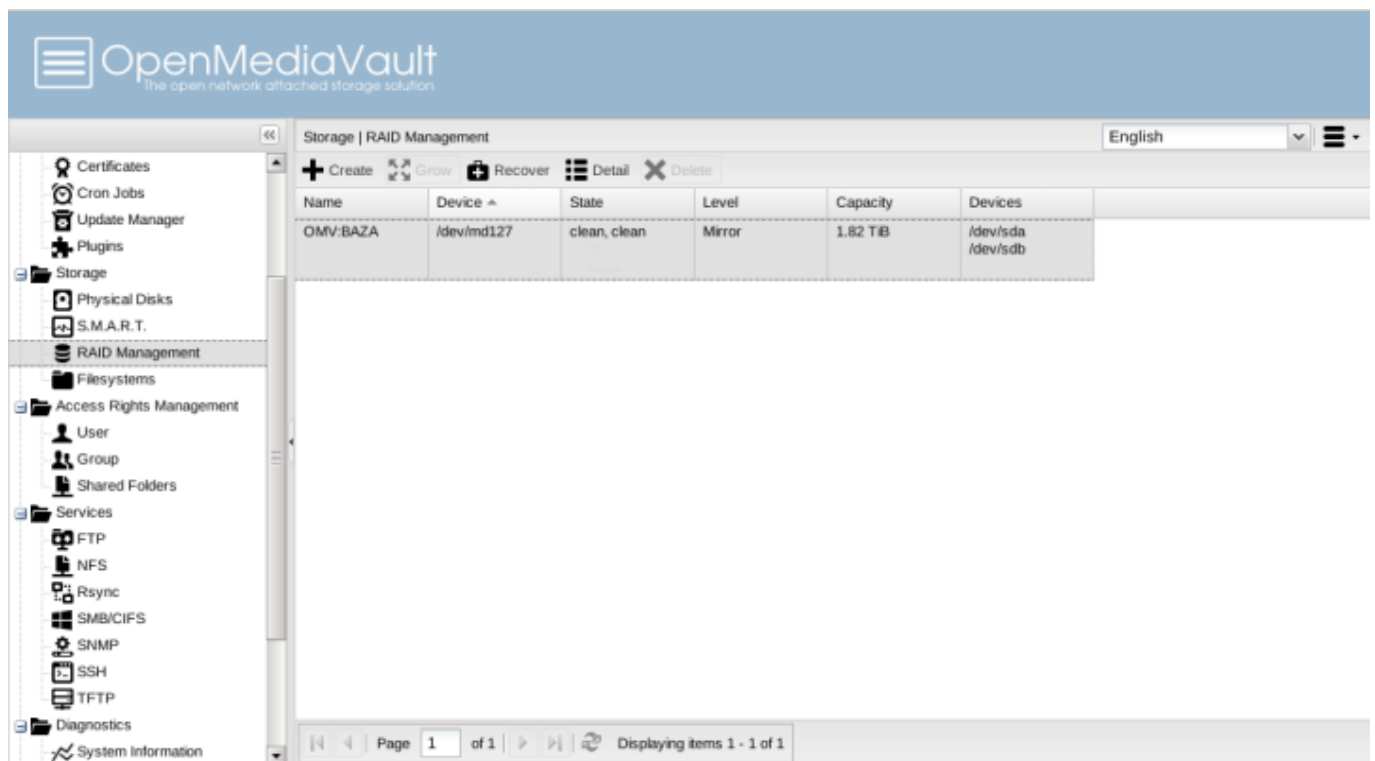


U tekst modu to izgleda ovako:

```
Version : 1.2
Creation Time : Tue Jan 14 19:35:31 2014
Raid Level : raid1
Array Size : 1953513424 (1863.02 GiB 2000.40 GB)
Used Dev Size : 1953513424 (1863.02 GiB 2000.40 GB)
Raid Devices : 2
Total Devices : 2
```

```
Persistence : Superblock is persistent
Update Time : Thu Jan 16 19:15:54 2014
State : clean, degraded, recovering
Active Devices : 1
Working Devices : 2
Failed Devices : 0
Spare Devices : 1
Rebuild Status : 1% complete
Name : OMV:BAZA (local to host OMV)
UUID : 27519df7:3f313df6:2121ebaf:370bbe44
Events : 1294
Number    Major    Minor    RaidDevice State
2         8         0         0      spare rebuilding   /dev/sda
1         8        16         1      active sync        /dev/sdb
```

Nakon što će oporavak potrajati neko vrijeme kad sve završi dobijemo opet "*clean, clean*" stanje kao na slici.



Naš NAS sustav je opet u punoj funkciji nakon oporavka.

ned, 2014-03-02 12:22 - Goran ŠljivićKuharice: [Linux](#) [2]  
**Vote:** 5

Vaša ocjena: Nema Average: 5 (1 vote)

**Source URL:** <https://sysportal.carnet.hr/node/1362>

## Links

- [1] <https://sysportal.carnet.hr/node/1356>
- [2] <https://sysportal.carnet.hr/taxonomy/term/17>