

IBM OpenPower Linux

- [?? RedHat Linux for Power](#)
- [???????????](#)
- [?????????????](#)
- [????-StorCLI](#)


```
wget https://sourceforge.net/projects/ipmitool/files/latest/download
bzip2 -d ipmitool-1.8.15.tar.bz2
tar xvf ipmitool-1.8.15.tar
cd ipmitool-1.8.15
./configure
```

????

```
ipmitool -I lanplus -H ipmi-ip-address -U ADMIN -P ADMIN fru
```

??????????????

sdb	EMPTY	NVMe	EMPTY
sde	sdc	EMPTY	EMPTY
sda	sdd	EMPTY	NVMe

??????????

(
https://www.ibm.com/support/knowledgecenter/en/SST55W_4.3.0/liaca/liaca_config_os_yum_repos.html)

???? FTP/NFS/WWW ???

```
mount -o loop rhel-server-7.3-ppc64le-dvd.iso /mnt/DVD
cp -r /mnt/DVD/* /mnt/tpeitpfs02_nas/redhat_7.3_ppc64_le/
```

????????????????

?? Linux ????????????????? /etc/yum.repos.d/rhel-media.repo

```
[rhel-media]
name=name=Red Hat Enterprise Linux $releasever - Media
baseurl=ftp://10.10.1.115/LINUX_REPO/redhat_7.3_ppc64_le/
gpgcheck=1
enabled=1
gpgkey=file:///etc/pki/rpm-gpg/RPM-GPG-KEY-redhat-beta,file:///etc/pki/rpm-gpg/RPM-GPG-KEY-redhat-release
```

????

```
yum repolist
```

?: ??????????????

????????????????

```
mkdir /mnt/tpeitpfs02_nas/redhat_7.3_ppc64_le/optional/Packages
cp your-packages.rpm /mnt/tpeitpfs02_nas/redhat_7.3_ppc64_le/optional/Packages
createrepo /mnt/tpeitpfs02_nas/redhat_7.3_ppc64_le/optional
```

??????????

???OpenPOWER Linux ?????????????? PPC PReP Boot ????? Software Raid
??
??

????????????????????????????????

“ TIP: PPC PReP Boot ??? IBM Power ?????????????? x86 ??? MBR?

????????<https://access.redhat.com/discussions/2158911>

?????

????????????????????????????

```
# fdisk -l /dev/sda

Disk /dev/sda: 960.2 GB, 960197124096 bytes, 1875385008 sectors
Units = sectors of 1 * 512 = 512 bytes
Sector size (logical/physical): 512 bytes / 4096 bytes
I/O size (minimum/optimal): 4096 bytes / 4096 bytes
Disk label type: dos
Disk identifier: 0x000e7231

   Device Boot      Start         End      Blocks   Id  System
/dev/sda1    *          2048        22527        10240   41  PPC PReP Boot
/dev/sda2                22528        2121727       1049600   fd  Linux raid autodetect
/dev/sda3           2121728       1875384319       936631296   fd  Linux raid autodetect
```

“ sda1 Power ??? (?????????????)
sda2 Linux ??? /boot (?? Raid 1)


```
□□□□□□
t > 1 > 41      PPC PReP Boot
t > 2 > fd      Linux raid
t > 3 > fd      Linux raid
```

```
□□□□#1 □□□□□□
a > 1
```

```
□□□□□□
p
```

```
□□□□□□
w
```

???????? sdb ? sda

```
dd if=/dev/sdb1 of=/dev/sda1 bs=512 conv=noerror,sync
```

?? Raid

```
# cat /proc/mdstat
Personalities : [raid1] [raid6] [raid5] [raid4]
md126 : active raid1 sdb2[1]
        1049536 blocks super 1.0 [2/1] [_U]
        bitmap: 1/1 pages [64KB], 65536KB chunk

md127 : active raid6 sdb3[1] sdd1[3] sde1[4] sdc[5]
        2809500672 blocks super 1.2 level 6, 512k chunk, algorithm 2 [5/4] [_UUUU]
        bitmap: 1/1 pages [64KB], 65536KB chunk

unused devices: <none>

# mdadm --detail /dev/md126
/dev/md126:
    Version : 1.0
    Creation Time : Mon Feb 20 23:30:01 2017
    Raid Level : raid1
    Array Size : 1049536 (1024.94 MiB 1074.72 MB)
    Used Dev Size : 1049536 (1024.94 MiB 1074.72 MB)
    Raid Devices : 2
```

Total Devices : 1
Persistence : Superblock is persistent

Intent Bitmap : Internal

Update Time : Fri Feb 24 19:55:16 2017
State : clean, degraded

Active Devices : 1
Working Devices : 1
Failed Devices : 0
Spare Devices : 0

Name : localhost.localdomain:boot
UUID : 1b78d1ea:f5380532:4fe25553:20ef8396
Events : 44

Number	Major	Minor	RaidDevice	State	
-	0	0	0	removed	
1	8	18	1	active sync	/dev/sdb2

mdadm --detail /dev/md127
/dev/md127:

Version : 1.2
Creation Time : Mon Feb 20 23:30:10 2017
Raid Level : raid6
Array Size : 2809500672 (2679.35 GiB 2876.93 GB)
Used Dev Size : 936500224 (893.12 GiB 958.98 GB)
Raid Devices : 5
Total Devices : 4
Persistence : Superblock is persistent

Intent Bitmap : Internal

Update Time : Fri Feb 24 14:42:10 2017
State : clean, degraded

Active Devices : 4
Working Devices : 4
Failed Devices : 0
Spare Devices : 0

```
Layout : left-symmetric
Chunk Size : 512K
```

```
Name : localhost.localdomain:pv00
UUID : f7a62cb2:b269daa9:29f8025f:6fcef40f
Events : 4769
```

Number	Major	Minor	RaidDevice	State	
-	0	0	0	removed	
1	8	19	1	active sync	/dev/sdb3
5	8	32	2	active sync	/dev/sdc
3	8	49	3	active sync	/dev/sdd1
4	8	65	4	active sync	/dev/sde1

?? Raid

```
# fdisk -l /dev/sda
```

```
Disk /dev/sda: 960.2 GB, 960197124096 bytes, 1875385008 sectors
```

```
Units = sectors of 1 * 512 = 512 bytes
```

```
Sector size (logical/physical): 512 bytes / 4096 bytes
```

```
I/O size (minimum/optimal): 4096 bytes / 4096 bytes
```

```
Disk label type: dos
```

```
Disk identifier: 0x000e7231
```

Device	Boot	Start	End	Blocks	Id	System
/dev/sda1	*	2048	22527	10240	41	PPC PReP Boot
/dev/sda2		22528	2121727	1049600	fd	Linux raid autodetect
/dev/sda3		2121728	1875385007	936631640	fd	Linux raid autodetect

```
# mdadm /dev/md126 --add /dev/sda2
```

```
# mdadm /dev/md127 --add /dev/sda3
```

????-StorCLI

????? Local Disks ???????? MegaRAID (MegaRAID SAS-3 3108) ?????????????? Linux
????????? lshw ????????????

```
“ ??? Raid ???????? Raid?? Petitboot ?????????? storcli ????? Raid ???  
?????: Resources already in use
```

???? StorCLI

????? <https://www.broadcom.com/support/download-search/?pg=&pf=&pn=&po=&pa=&dk=storcli>

StorCLI for Linux ?????????????? storcli (storcli64 for 64-bit) ?????????????? RPM ? DEB
??? PPC64LE for RedHat????? PPC64LE for
Ubuntu (*.deb)????????????? Windows ? Linux ??? *.deb ?????????????? `storcli64` ?

????????????????????? RedHat Linux ??????

```
“ storcli64 ????? Petitboot????? scp ? wget ??????????
```

? Linux ??? MegaRAID ??

```
# lshw  
  
...  
*-raid  
  description: RAID bus controller  
  product: MegaRAID SAS-3 3108 [Invader]  
  vendor: LSI Logic / Symbios Logic  
  physical id: 0  
  bus info: pci@0001:03:00.0  
  logical name: scsi0  
  version: 02  
  width: 64 bits
```

```
clock: 33MHz
capabilities: raid pm pciexpress vpd msi msix bus_master cap_list rom
configuration: driver=megaraid_sas latency=0
resources: irq:507 memory:3fe080200000-3fe08020ffff memory:3fe080000000-3fe0800fffff
memory:3fe080100000-3fe0801fffff
*-enclosure UNCLAIMED
    description: SCSI Enclosure
    product: SAS3x28
    vendor: LSI
    physical id: 0.8.0
    bus info: scsi@0:0.8.0
    version: 0601
    configuration: ansiversion=5
*-disk:0
    description: ATA Disk
    product: SDLF1DAR-960G-1H
    physical id: 0.9.0
    bus info: scsi@0:0.9.0
    logical name: /dev/sda
    version: ZH06
    serial: A008676A
    size: 894GiB (960GB)
    capacity: 894GiB (960GB)
    capabilities: 15000rpm partitioned partitioned:dos
    configuration: ansiversion=6 logicalsectorsize=512 sectorsize=4096 signature=000e7231
*-volume:0
    description: PPC PReP Boot partition
    physical id: 1
    bus info: scsi@0:0.9.0,1
    logical name: /dev/sda1
    capacity: 10MiB
    capabilities: primary bootable boot
*-volume:1
    description: Linux raid autodetect partition
    physical id: 2
    bus info: scsi@0:0.9.0,2
    logical name: /dev/sda2
    capacity: 1025MiB
    capabilities: primary multi
*-volume:2
```

description: Linux raid autodetect partition

physical id: 3

bus info: scsi@0:0.9.0,3

logical name: /dev/sda3

capacity: 893GiB

capabilities: primary multi

*-disk:1

description: ATA Disk

product: SDLF1DAR-960G-1H

physical id: 0.a.0

bus info: scsi@0:0.10.0

logical name: /dev/sdb

version: ZH06

serial: A0086638

size: 894GiB (960GB)

capacity: 894GiB (960GB)

capabilities: 15000rpm partitioned partitioned:dos

configuration: ansiversion=6 logicalsectorsize=512 sectorsize=4096 signature=0003819f

*-volume:0

description: PPC PReP Boot partition

physical id: 1

bus info: scsi@0:0.10.0,1

logical name: /dev/sdb1

...