

3 in1 Disk Monitring / Add new Swap / boot system without any physical media

Written by Syed Asim Abbas

Tuesday, 08 June 2010 16:35 - Last Updated Monday, 27 December 2010 11:03

By:Syed Asim Abbas

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Disk Monitring with SMART.

Many system administrators don't know that Self-Monitoring, Analysis and Reporting Technology systems (SMART) are built in to most modern ATA and SCSI hard disks.

```
[root@power root]# fdisk -l
```

```
Disk /dev/sda: 60.0 GB, 60011642880 bytes
255 heads, 63 sectors/track, 7296 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes
Disk identifier: 0x3f443f43
```

```
Device Boot      Start        End      Blocks  Id System
/dev/sda1 *          1       1276   10243768+  c W95 FAT32 (LBA)
Partition 1 does not end on cylinder boundary.
/dev/sda2          1277       6246   39921525  83 Linux
/dev/sda3          6247       6376   1044225   82 Linux swap / Solaris
```

Output of disk information

```
[root@power root]# smartctl -i /dev/sda
smartctl version 5.38 [i386-redhat-linux-gnu] Copyright (C) 2002-8 Bruce Allen
Home page is http://smartmontools.sourceforge.net/
```

=== START OF INFORMATION SECTION ===

```
Device Model:     ST960812A
Serial Number:    5PJ1KKV4
Firmware Version: 3.05
User Capacity:    60,011,642,880 bytes
Device is:        Not in smartctl database [for details use: -P showall]
ATA Version is:   6
ATA Standard is:  ATA/ATAPI-6 T13 1410D revision 2
Local Time is:    Sun Dec 13 22:51:17 2009 PKT
SMART support is: Available - device has SMART capability.
SMART support is: Enabled
```

To check the disk Health

```
[root@power root]# smartctl -Hc /dev/sda
smartctl version 5.38 [i386-redhat-linux-gnu] Copyright (C) 2002-8 Bruce Allen
Home page is http://smartmontools.sourceforge.net/
```

=== START OF READ SMART DATA SECTION ===

```
SMART overall-health self-assessment test result: FAILED!
Drive failure expected in less than 24 hours. SAVE ALL DATA.
```

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Failed Attributes:

```
ID# ATTRIBUTE_NAME      FLAG  VALUE WORST THRESH TYPE   UPDATED
WHEN_FAILED RAW_VALUE
 5 Reallocated_Sector_Ct 0x0033 001 001 036  Pre-fail Always  FAILING_NOW 39184
```

Ohh God my drive shows the error Disk Failure. I have to replace the drive :(

The most important part to see the disk error

```
[root@power root]# smartctl -l error /dev/sda
smartctl version 5.38 [i386-redhat-linux-gnu] Copyright (C) 2002-8 Bruce Allen
Home page is http://smartmontools.sourceforge.net/
```

=== START OF READ SMART DATA SECTION ===

SMART Error Log Version: 1

No Errors Logged

Disk Self test

```
[root@power root]# smartctl -t short /dev/sda
smartctl version 5.38 [i386-redhat-linux-gnu] Copyright (C) 2002-8 Bruce Allen
Home page is http://smartmontools.sourceforge.net/
```

=== START OF OFFLINE IMMEDIATE AND SELF-TEST SECTION ===

Sending command: "Execute SMART Short self-test routine immediately in off-line mode".

Drive command "Execute SMART Short self-test routine immediately in off-line mode"

successful.

Testing has begun.

Please wait 1 minutes for test to complete.

Test will complete after Sun Dec 13 22:57:28 2009

Use smartctl -X to abort test.

```
[root@power root]#
```

By Syed Asim Abbas

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Create/Add New SWAP

Disk /dev/cciss/c0d0: 440.3 GB, 440345714688 bytes

255 heads, 63 sectors/track, 53535 cylinders

Units = cylinders of 16065 * 512 = 8225280 bytes

Device	Boot	Start	End	Blocks	Id	System
/dev/cciss/c0d0p1	*	1	13	104391	83	Linux
/dev/cciss/c0d0p2		14	2563	20482875	83	Linux
/dev/cciss/c0d0p4		4094	53535	397142865	5	Extended
/dev/cciss/c0d0p5		4094	53535	397142833+	83	Linux

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Command (m for help): n

Command action

l logical (5 or over)

p primary partition (1-4)

p

Selected partition 3

First cylinder (2564-53535, default 2564):

Using default value 2564

Last cylinder or +size or +sizeM or +sizeK (2564-4093, default 4093): +3G

Command (m for help): t

Partition number (1-5): 3

Hex code (type L to list codes): L

0	Empty	1e	Hidden W95 FAT1	80	Old Minix	be	Solaris boot
1	FAT12	24	NEC DOS	81	Minix / old Lin	bf	Solaris
2	XENIX root	39	Plan 9	82	Linux swap / So	c1	DRDOS/sec (FAT-
3	XENIX usr	3c	PartitionMagic	83	Linux	c4	DRDOS/sec (FAT-
4	FAT16 <32M	40	Venix 80286	84	OS/2 hidden C:	c6	DRDOS/sec (FAT-
5	Extended	41	PPC PReP Boot	85	Linux extended	c7	Syrinx
6	FAT16	42	SFS	86	NTFS volume set	da	Non-FS data
7	HPFS/NTFS	4d	QNX4.x	87	NTFS volume set	db	CP/M / CTOS / .
8	AIX	4e	QNX4.x 2nd part	88	Linux plaintext	de	Dell Utility
9	AIX bootable	4f	QNX4.x 3rd part	8e	Linux LVM	df	BootIt
a	OS/2 Boot Manag	50	OnTrack DM	93	Amoeba	e1	DOS access
b	W95 FAT32	51	OnTrack DM6 Aux	94	Amoeba BBT	e3	DOS R/O
c	W95 FAT32 (LBA)	52	CP/M	9f	BSD/OS	e4	SpeedStor
e	W95 FAT16 (LBA)	53	OnTrack DM6 Aux	a0	IBM Thinkpad	hi	eb BeOS fs
f	W95 Ext'd (LBA)	54	OnTrackDM6	a5	FreeBSD	ee	EFI GPT
10	OPUS	55	EZ-Drive	a6	OpenBSD	ef	EFI (FAT-12/16/
11	Hidden FAT12	56	Golden Bow	a7	NeXTSTEP	f0	Linux/PA-RISC b
12	Compaq diagnost	5c	Priam Edisk	a8	Darwin UFS	f1	SpeedStor
14	Hidden FAT16 <3	61	SpeedStor	a9	NetBSD	f4	SpeedStor
16	Hidden FAT16	63	GNU HURD or Sys	ab	Darwin boot	f2	DOS secondary
17	Hidden HPFS/NTF	64	Novell Netware	b7	BSDI fs	fd	Linux raid auto
18	AST SmartSleep	65	Novell Netware	b8	BSDI swap	fe	LANstep
1b	Hidden W95 FAT3	70	DiskSecure Mult	bb	Boot Wizard hid	ff	BBT
1c	Hidden W95 FAT3	75	PC/IX				

Hex code (type L to list codes): 82

Changed system type of partition 3 to 82 (Linux swap / Solaris)

```
root@oratech ~]# mkswap /dev/cciss/c0d0p3
```

```
Setting up swap space version 1, size = 3010445 kB
```

```
[root@oratech ~]# swapon /dev/cciss/c0d0p3
```

```
swapon: /dev/cciss/c0d0p3: Device or resource busy
```

```
[root@oratech ~]#
```

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```
[root@oratech ~]#
[root@oratech ~]# swapoff /dev/cciss/c0d0p3
[root@oratech ~]# mkswap /dev/cciss/c0d0p3
Setting up swap space version 1, size = 3010445 kB
[root@oratech ~]# swapon /dev/cciss/c0d0p3
[root@oratech ~]# free -m
total    used    free   shared  buffers   cached
Mem:      3289    475    2813     0         76    325
-/+ buffers/cache:    73    3215
Swap:     2870     0    2870
```

By Syed Asim Abbas

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To boot system with out cdrom, network or any booting device. Just copy the ISO image on your linux server and perform the following steps.

```
[root@power ~]# mkdir /mnt/tmp
```

mount Iso image.

```
[root@power ~]# mount -o loop /data/fc4/FC4-i386-disc1.iso /mnt/tmp
```

```
[root@power ~]# mkdir /boot/mylinux
```

```
cp /mnt/tmp/isolinux/vmlinuz /boot/mylinux
```

```
cp /mnt/tmp/isolinux/initrd.img /boot/mylinux/initrdMy.img
```

then add following lines to /etc/grub.conf

```
title Fedora Core 4 Installer
root (hd0,0) <<----- boot partition
kernel /mylinux/vmlinuzMy
initrd /mylinux/initrdMy.img
```