

Appliance fails to boot after power outage

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Overview

This article describes how to recover from an unclean shut down of a Swivel hardware or VM appliance. An unclean shut down can occur as a result of a power outage.

Symptoms

The symptom of failing to boot can include prevention of startup, due to an fsck disk check request. It can also include a very rapid (abnormal) boot sequence which leads to a prompt where you are asked for a root password.

In both instances you need to follow the instructions below to perform an fsck of the partitions.

Remote access to the Swivel hardware appliances can be made using the DRAC, see [DRAC Card How To Guide](#)

Solution

Boot from the Sysrescue CD

Our recommended method for performing a fsck is by downloading the free sysrescuecd.

This can be obtained from <http://www.sysresccd.org>, select downloads and then follow the link to download, this will usually be an iso image which for Swivel hardware appliances can be burnt to a CD from the image. VM's should be able to mount the iso image as CD and allow the image to be booted from CD, the boot from CD option may need to be selected for the Swivel server.

You do not need a root password using this method. Its also a requirement that the filesystem is not mounted by the operating systems when you scan it.

Once you've downloaded and burnt to disc (or mounted the ISO file as a CD if using vmware) you can boot from the disc, select 1). default boot options

SYSTEM-RESCUE-CD 2.1.1 (www.sysresccd.org)

- 1) SystemRescueCd: default boot options
- 2) SystemRescueCd: all files cached to memory (docache)
- 3) SystemRescueCd: framebuffer console in high resolution
- 4) SystemRescueCd: do not ask for keyboard, use US keymap
- 5) SystemRescueCd: directly start the graphical environment
- 6) SystemRescueCd: 64bit kernel with default options

- A) Standard 32bit kernel (rescuecd) with more choice... >
- B) Standard 64bit kernel (rescue64) with more choice... >
- C) Alternative 32bit kernel (altker32) with more choice... >
- D) Alternative 64bit kernel (altker64) with more choice... >
- E) Boot an existing Linux OS installed on the disk... >
- F) Run system tools from floppy disk image... >

- *) Boot from first hard disk
- *) Boot from second hard disk

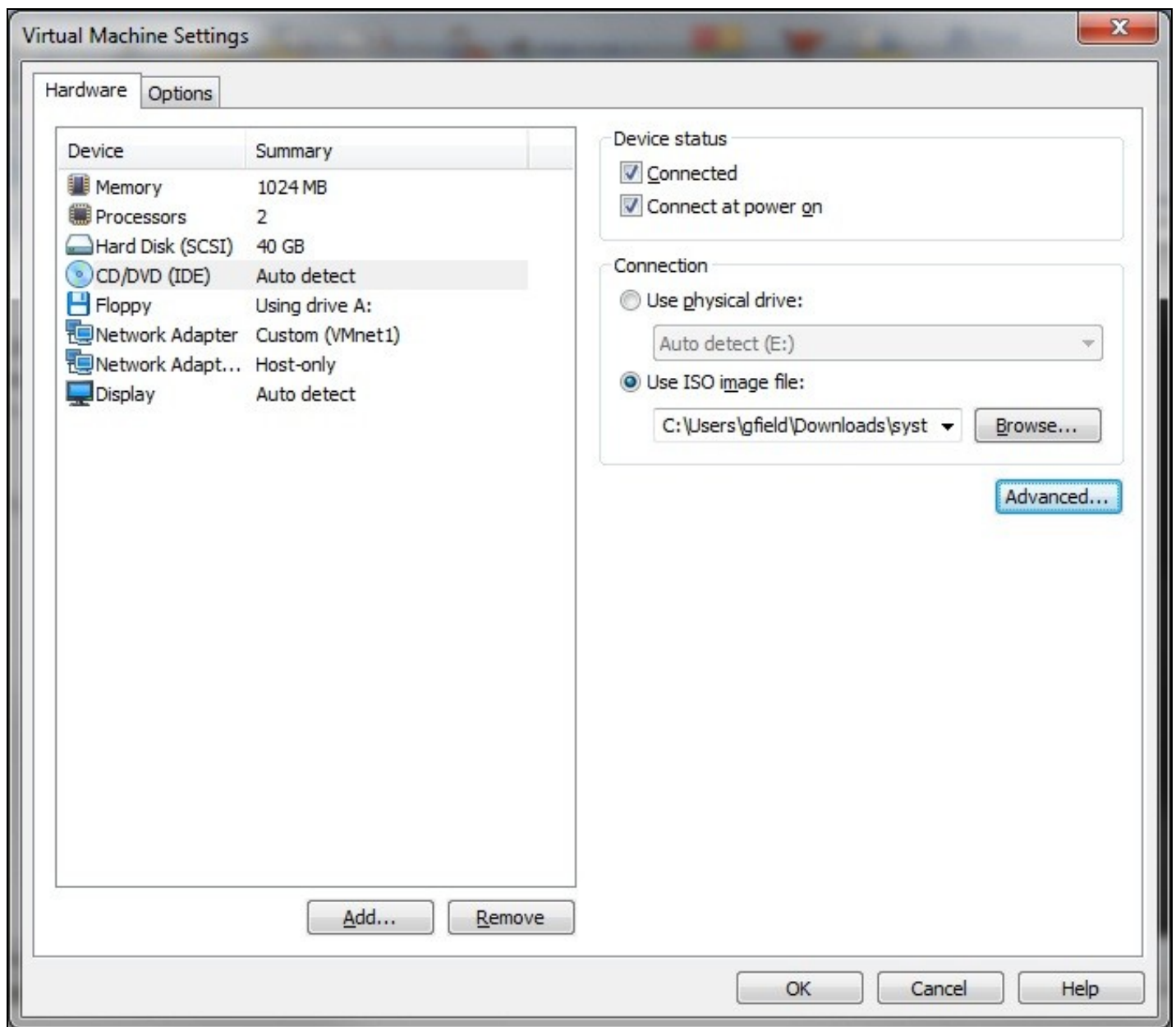
Automatic boot in 77 seconds...

Press <TAB> to edit options or <F2>, <F3>, <F4>, <F5>, <F6>, <F7> for help

Boot standard 32bit kernel with default options (should always work)
You should use this entry if you don't know which one to use

Mounting a VM CD/ISO image

For VMware it is possible to specify the CDROM to use an ISO image, then when the system boots up, hitting Esc will bring up the Virtual BIOS menu and allow the CD-ROM Drive to be selected as a boot device.



Run the file system checks

The commands to run once you get to the command line of sysrescued are:

```
fsck /dev/sdX1 -y
fsck /dev/sdX2 -y
fsck /dev/sdX3 -y
fsck /dev/sdX5 -y
fsck /dev/sdX7 -y
```

Please Note: Constitute **X** in the above commands with the actual device e.g /dev/sda1 or /dev/sdb1.

For more recent appliances *sda4* and *sda6* do not exist and can be safely ignored. Older appliances with sdX4 and sdX6 should have these checked.

```
fsck /dev/sdX4 -y
fsck /dev/sdX6 -y
```

Running the fsck from the command line

```
===== SystemRescue-Cd ----- 2.8.0 ===== tty1/6 ==
                        http://www.sysresccd.org/

* You should stop the Network-Manager service if you want to configure
  the network by hand. Just run this command: /etc/init.d/NetworkManager stop
* Type net-setup eth0 to specify ethernet configuration.
* If your PC is on an ethernet local network, you can configure by hand:
  - ifconfig eth0 192.168.x.a (your static IP address)
  - route add default gw 192.168.x.b (IP address of the gateway)
* To be sure there is an ssh server running, type /etc/init.d/sshd start.
  You will need to create an user or to change the root password with passwd.
* Available console text editors : nano, vim, qemacs, joe.
* Web browser in the console: elinks www.web-site.org.
* Ntfs-3g : If you need a full Read-Write NTFS access, use Ntfs-3g.
  Mount the disk: ntfs-3g /dev/sda1 /mnt/windows
* Graphical environment : use either Xorg or Xfbdev.
  Type wizard to run the graphical environment (or startx but it may fail)
  X.Org comes with the XFCE environment and several graphical tools:
  - Partition manager:..gparted
  - Web browsers:.....midori
  - Text editors:.....gvim and geany

root@sysresccd /root % fsck /dev/sda1 -y_
```

Fsck running

```

/boot primary superblock features different from backup, check forced.
Pass 1: Checking inodes, blocks, and sizes
Pass 2: Checking directory structure
Pass 3: Checking directory connectivity
Pass 4: Checking reference counts
Pass 5: Checking group summary information

/boot: ***** FILE SYSTEM WAS MODIFIED *****
/boot: 42/32128 files (11.9% non-contiguous), 17804/128488 blocks
root@sysresccd /root % fsck /dev/sda2 -y
fsck from util-linux 2.20.1
e2fsck 1.42.3 (14-May-2012)
Adding dirhash hint to filesystem.

/ primary superblock features different from backup, check forced.
Pass 1: Checking inodes, blocks, and sizes
Pass 2: Checking directory structure
Pass 3: Checking directory connectivity
Pass 4: Checking reference counts
Pass 5: Checking group summary information

/: ***** FILE SYSTEM WAS MODIFIED *****
/: 74017/1573728 files (0.6% non-contiguous), 654235/3146731 blocks
root@sysresccd /root % _

```

Fsck with sda4 absent

```

Pass 5: Checking group summary information

/: ***** FILE SYSTEM WAS MODIFIED *****
/: 74017/1573728 files (0.6% non-contiguous), 654235/3146731 blocks
root@sysresccd /root % fsck /dev/sda3 -y
fsck from util-linux 2.20.1
e2fsck 1.42.3 (14-May-2012)
Adding dirhash hint to filesystem.

/backups primary superblock features different from backup, check forced.
Pass 1: Checking inodes, blocks, and sizes
Pass 2: Checking directory structure
Pass 3: Checking directory connectivity
Pass 4: Checking reference counts
Pass 5: Checking group summary information

/backups: ***** FILE SYSTEM WAS MODIFIED *****
/backups: 1593/524288 files (2.2% non-contiguous), 226805/1048241 blocks
root@sysresccd /root % fsck /dev/sda4 -y
fsck from util-linux 2.20.1
e2fsck 1.42.3 (14-May-2012)
fsck.ext2: Attempt to read block from filesystem resulted in short read while tr
ying to open /dev/sda4
Could this be a zero-length partition?
root@sysresccd /root % _

```

Fsck repairing file system


```

Pass 4: Checking reference counts
Pass 5: Checking group summary information
Free blocks count wrong for group #0 (23915, counted=23916).
Fix? yes

Free blocks count wrong (506901, counted=506902).
Fix? yes

Inode bitmap differences:  -19
Fix? yes

Free inodes count wrong for group #0 (16372, counted=16373).
Fix? yes

Free inodes count wrong (262128, counted=262129).
Fix? yes

/tmp: ***** FILE SYSTEM WAS MODIFIED *****
/tmp: 15/262144 files (0.0% non-contiguous), 17210/524112 blocks
root@sysresccd /root % fsck /dev/sda6 -y
fsck from util-linux 2.20.1
fsck: fsck.swap: not found
fsck: error 2 while executing fsck.swap for /dev/sda6
root@sysresccd /root % _

```

Restart the system

Restart the Swivel appliance and ensure that it boots correctly.

Retrieving backups

Should the worst happen and the appliance is not recoverable, you can mount the backups directory to scp the contents from within it to a safe location:

```
mount /dev/sda2 /root/temp
```

An example scp command to retrieve the files would be:

```
scp /root/temp root@anothermachine:/home/admin
```

Where anothermachine is another linux machine with a username of root and a destination directory of /home/admin

If this doesn't work

If it's not possible to fix the problem with the sysrescuecd solution above, you should consider retrieving Swivel backups (as mentioned in the solution) from your broken appliance and deploying them into a freshly deployed VM. If you have not retained the VM you downloaded from us you may need to contact your reseller for a reissue of the download.

Further Troubleshooting

Check the /var/spool/clientmqueue or /var/log/tomcat folders for large numbers of files, this has been seen to prevent booting.

inode too big

Make a note of any inode numbers given as errors and these can be used to find problems if any partitions can be mounted. To search using an inode use:

```
find / -inum <inode_number>
```

Example:

```
find / -inum 722421
```

Sample Boot error log

Your system appears to have shut down uncleanly.

Press N within 1 second to not force file system integrity check...
Checking root filesystem
Inode 295605 is too big.

/:UNEXPECTED INCONSISTENCY; RUN fsck MANUALLY

[FAILED]

*** An error occurred during the file system check
*** Dropping you to a shell; the system will reboot
*** when you leave the shell.
Give root password for maintenance
(or type Control-D to continue):

Hardware Fault

If the cause is a hardware fault then it may be necessary to contact Dell Hardware support, see [Dell Maintenance](#)

Did you take a backup?

It's important to take backups for these occasions. Some other articles related to backup methods for the Swivel appliance can be found here:

[Automated FTP Backups](#)

[Recovery Disk for Appliances How to Guide](#)