



aCloud

Linux Booting Issue Troubleshooting Guide

Version 5.8.6



Change Log

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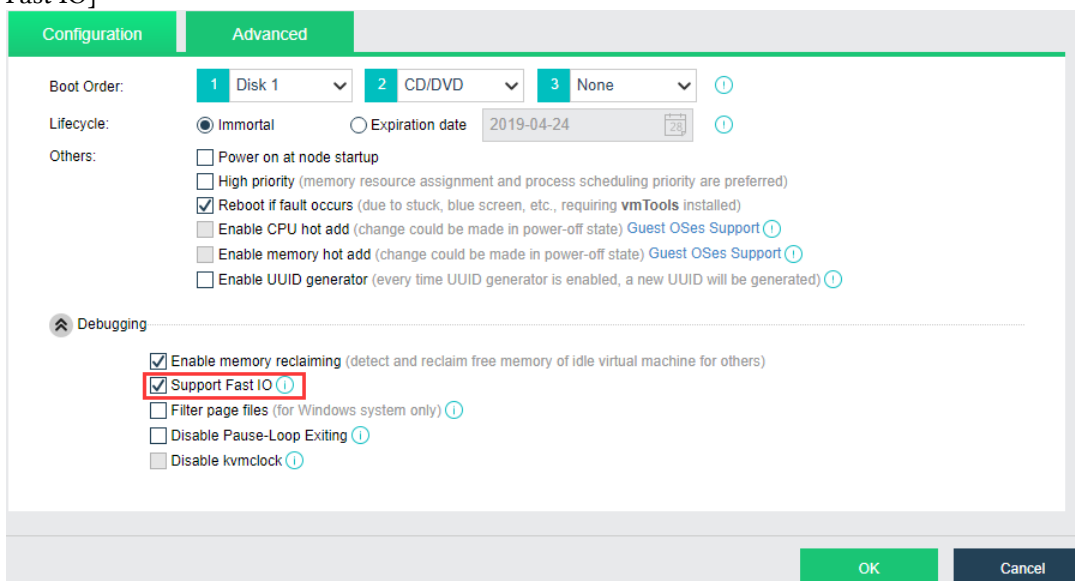
Chapter 1 Background

Linux virtual machine have booting issue after migrated to Sangfor aCloud.

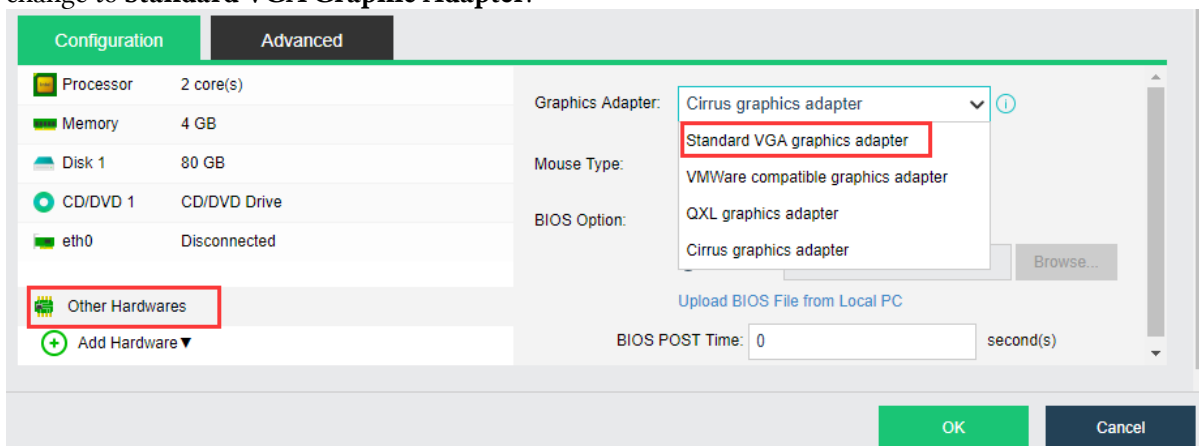
Chapter 2 Common Issue troubleshooting

1.1 Common solution

1. Disable FastIO option under virtual machine. [Edit] virtual machine – [Advanced] – [Support Fast IO]



2. Change VM display adapter types. [Edit] VM – [Other Hardware] – [Graphics Adapter], try change to **Standard VGA Graphic Adapter**.



1.2 Classic Issue Troubleshooting

1.2.1 Unable to find UUID

Source virtual machine disk types is LVM.

Checking physical volume with command “pvs”, found some device labeled as unknown device.

```
[root@root ~]# pvs
Couldn't find device with uuid 'YvAzil-mIMA-IDxA-s07H-2ou2-ykvt-zDbww7'.
Couldn't find device with uuid 'YvAzil-mIMA-IDxA-s07H-2ou2-ykvt-zDbww7'.
Couldn't find device with uuid 'YvAzil-mIMA-IDxA-s07H-2ou2-ykvt-zDbww7'.
Couldn't find device with uuid 'YvAzil-mIMA-IDxA-s07H-2ou2-ykvt-zDbww7'.
Couldn't find device with uuid 'YvAzil-mIMA-IDxA-s07H-2ou2-ykvt-zDbww7'.
PV          VG          Fmt Attr PSize  PFree
/dev/sda2    VolGroup01 lvm2 a-    1.97G  0
/dev/sda3    VolGroup00 lvm2 a-    5.88G  0
/dev/sda4    VolGroup00 lvm2 a-    1.97G  0
/dev/sdb     VolGroup01 lvm2 a-    3.97G  0
unknown device VolGroup00 lvm2 a-    19.97G 7.97G
[root@root ~]#
```

Checking LVM status with command “pvs”, “vgs” or “lvs”.

Try to fix the LVM with following command.

```
*** 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):
(Repair filesystem) 1 # mount -o remount,rw /
(Repair filesystem) 2 # cd /etc/
(Repair filesystem) 3 # grep /etc/lvm/
archive/ backup/ cache/ lvm.conf
(Repair filesystem) 3 # cat /etc/lvm/backup/VolGroup00 | grep ww7
id = "YvAzil-mIMA-IDxA-s07H-2ou2-ykvt-zDbww7"
(Repair filesystem) 4 # pvcreate -ff --uuid YvAzil-mIMA-IDxA-s07H-2ou2-ykvt-zDbww7 --restorefile /etc/lvm/backup/VolGroup00 /dev/hdc1
Couldn't find device with uuid 'YvAzil-mIMA-IDxA-s07H-2ou2-ykvt-zDbww7'.
Physical volume "/dev/hdc1" successfully created
(Repair filesystem) 5 # pvs
PV          VG          Fmt Attr PSize  PFree
/dev/hda2    VolGroup01 lvm2 a-    1.97G  0
/dev/hda3    VolGroup00 lvm2 a-    5.88G  0
/dev/hda4    VolGroup00 lvm2 a-    1.97G  0
/dev/hdb     VolGroup01 lvm2 a-    3.97G  0
/dev/hdc1    VolGroup00 lvm2 a-    19.97G 7.97G
(Repair filesystem) 6 # sync
(Repair filesystem) 7 # sync;reboot -f
```

mount -o remount, rw /

cd /etc

grep /etc/lvm/

cat /etc/lvm/backup/VolGroup00 | grep ww7

pvcreate -ff --uuid YvAzil-mIMA-IDxA-s07H-2ou2-ykvt-zDbww7 --restorefile /etc/lvm/backup/VolGroup00 /dev/hdc1

pvs

sync

reboot -f

1.2.2 Stuck on SUSE desktop environment (runlevel 5)

```

Starting CRON daemon
Starting smartd gdm[3188]: WARNING: GdmDisplay: display lasted 0.163648 seconds
gdm[3188]: WARNING: GdmDisplay: display lasted 0.842434 seconds
gdm[3188]: WARNING: GdmDisplay: display lasted 0.832459 seconds
gdm[3188]: WARNING: GdmDisplay: display lasted 0.828245 seconds
gdm[3188]: WARNING: GdmDisplay: display lasted 0.827351 seconds
gdm[3188]: WARNING: GdmLocalDisplayFactory: maximum number of X display failures
reached: check X server log for errors

Cannot get device channel parameters
: Operation not supported
irqbalance is in effect, try to stop it
  _41 --- 8 --- 1_
  _42 --- 1 --- 2_
Master Resource Control: runlevel 5 has been
Failed services in runlevel 5:
Skipped services in runlevel 5:

Welcome to SUSE Linux Enterprise Server 11 SP3 (x86_64) - Kernel 3.0.76-0.11-de
fault (tty1).

pan login: _

```

1. Change graphic adapter to vmware compatible.
2. Regenerate Xorg config file and replace with old config.
 - a. `xorg -configure` #This command will create a file `xorg.conf.new` in `/root`
 - b. `cp xorg.conf.new /etc/X11/xorg.conf` #This command used to replace X11 config file.
 - c. `Startx` #Manually start X11 desktop environment
3. Reboot the virtual machine.
4. More information can reference <https://www.linuxidc.com/Linux/2013-06/86707.htm>

1.2.3 Unable to boot UEFI linux

For UEFI operating system that have boot issue can reference troubleshooting guideline as below.

http://community.sangfor.com/plugin.php?id=sangfor_databases:index&mod=viewdatabase&tid=1098

1.2.4 FreeBSD failed to boot (stuck on mountroot> CLI)

FreeBSD operating system stuck on `mountroot>` as shown in diagram 1a.

```

uhub3: 6 ports with 6 removable, self powered
ugen0.3: <SANGFOR> at usb0
Trying to mount root from ufs:/dev/mfid0p2 [rw]...
mountroot: waiting for device /dev/mfid0p2 ...
Mounting from ufs:/dev/mfid0p2 failed with error 19
Loader variables:
  ufs.root.mountfrom=ufs:/dev/mfid0p2
  ufs.root.mountfrom.options=rw
Manual root filesystem specification:
<fstype>:<device> [options]
  Mount <device> using filesystem <fstype>
  and with the specified (optional) option list.
eg. ufs:/dev/da0s1a
    zfs:tank
    cd9660:/dev/acd0 ro
    (which is equivalent to: mount -t cd9660 -o ro /dev/acd0 /)
?          List valid disk boot devices
.          Yield 1 second (for background tasks)
<empty line> Abort manual input
mountroot>

```

Diagram 1

From diagram 1b, it show system failed to mount partition /dev/mfid0p2

```

Yield 1 second (for background tasks)
<empty line> Abort manual input

mountroot> ?

List of GEOM managed disk devices:
diskid/DISK-6769999683648-1 gptid/6253e469-6006-11e5-b574-40f2e998654a gptid/6
24fe1c0-6006-11e5-b574-40f2e998654a ufsid/55ff67ee5fa03879 gptid/624f76fd-6006-1
1e5-b574-40f2e998654a diskid/DISK-6769999683648-0p3 diskid/DISK-6769999683648-0p
2 diskid/DISK-6769999683648-0p1 ada1 ada0p3 ada0p2 ada0p1 diskid/DISK-6769999683
648-0 ada0
1
mountroot> ufs:/dev/ada0p2 2

```

Diagram 2

1. Under mountroot> enter character “?” to check on current detected disk label/partition. As shown in diagram 2, determine ada0p2 actually is partition mfid0p2 in diagram 1 (partition label changed).
2. Try mount partition with command “ufs:/dev/ada0p2” as shown in diagram 2
3. Use command “ls” to list file directory on /dev/ada0p2. If ada0p2 is correct root partition, it will show Linux file system (Eg: etc, dev, proc etc)
4. If root partition mounted successfully, check on the fstab via command “cat /etc/fstab”

```

root@FlowStrongMotion:/dev # ls
acpi          bpsm0         led            sysmouse      ufssuspend
ad0           console       log            ttyv0         ugen0.1
ad0p1         consolectl    md0            ttyv1         ugen0.2
ad0p2         ctty          mdctl          ttyv2         ugen0.3
ad0p3         devctl        mem            ttyv3         ugen1.1
ad1           devstat       midistat       ttyv4         ugen2.1
ada0          diskid        nfslock        ttyv5         ugen3.1
ada0p1        fd            null           ttyv6         ugen4.1
ada0p2        fido          pass0          ttyv7         uhid0
ada0p3        geom.ctl      pass1          ttyv8         urandom
ada1          gptid         pci            ttyv9         usb
apm           io            psm0           ttyva         usbctl
apmctl        kbd0          random         ttyvb         xpt0
atkbd0        kbd1          sndstat        ttyvc         zero
audit         kbdmux0       stderr         ttyvd
bpf           klog          stdin          ttyve
bpf0          kmem          stdout         ttyvf

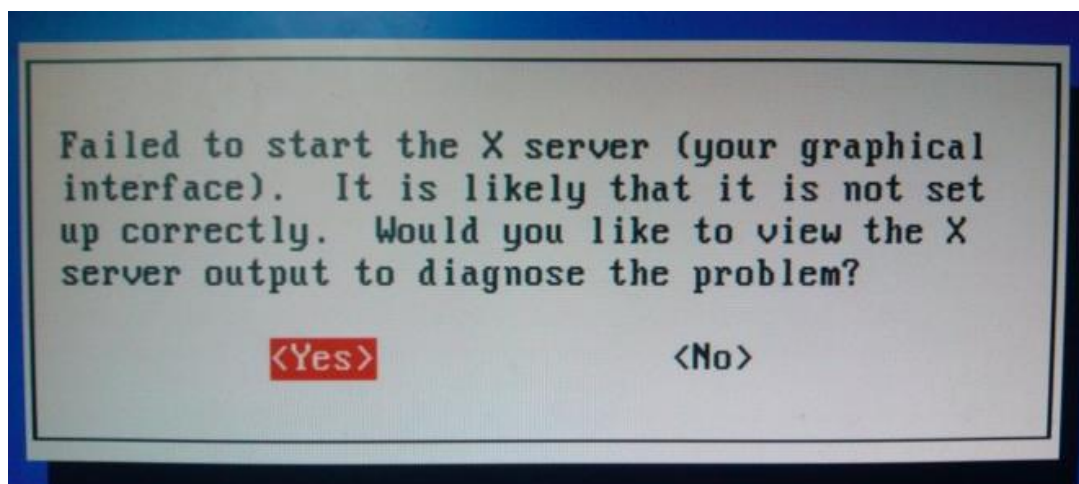
root@FlowStrongMotion:/dev # cat /etc/fstab
# Device      Mountpoint    FStype  Options  Dump  Pass#
/dev/mfid0p2  /              ufs     rw       1     1
/dev/mfid0p3  none          swap    sw       0     0
/dev/md0      /online       ufs     rw,async 0     0

root@FlowStrongMotion:/dev # a

```

5. From output of fstab, we can see that root partition is named as different partition (/dev/mfid0p2). Change the device partition from /dev/mfid0p2 to current partition /dev/ada0p2. Reboot VM and it show able to boot successfully.

1.2.5 Redhat unable to startup desktop environment: Failed to start X server



1. Change graphic adapter to vmware compatible adapter.
2. Replace or add new xorg.conf config file under /etc/X11/xorg.conf, config file can download as below.



xorg.conf

3. Further detail can referenced following links
<https://forums.linuxmint.com/viewtopic.php?t=105156>

1.2.6 Redhat booting error: The superblock could not be read or does not describe a correct ext2 filesystem

```
Command succeed.
Successfully initiated sector mapping in driver.
Block device detected. Getting device size before trying to read it.
Successfully read 6241124352 bytes of file /dev/mapper/VolGroup00-LogVol01 directly.
Successfully terminated sector mapping in driver.

Command succeed.
Checking filesystems
/dev/VolGroup00/LogVol00: clean, 478173/50888704 files, 22000042/50872320 blocks
fsck.ext3: No such file or directory while trying to open /dev/sda1
/dev/sda1:
The superblock could not be read or does not describe a correct ext2
filesystem. If the device is valid and it really contains an ext2
filesystem (and not swap or ufs or something else), then the superblock
is corrupt, and you might try running e2fsck with an alternate superblock:
    e2fsck -b 8193 <device>

[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): _
```

1. After V2V migration, virtual machine hardware information changed (Eg: Hard disk partition changed from /dev/sda to /dev/hda). However, /etc/fstab (boot up mount point) written /dev/sda as boot partition, hence OS unable to find hard disk after boot up.
2. Boot linux live ISO to enter rescue mode. Add CD Rom to virtual machine, browse linux live ISO and change boot order to CD Rom.
3. Start Linux live CD, choose third option “Rescue installed system”.



4. After rescue system loaded, it will have following options.
 - Choose language, English
 - Keyboard type, US
 - Setup networking, no
 - Rescue
 - i. **Continue** (Rescue system will detect linux partition and mount to /mnt/sysimage directory)
 - ii. **Read Only** (Rescue system will detect linux partition and mount to /mnt/sysimage directory with read only permission)
 - iii. **Skip** (Rescue system will skip mounting linux partition)
 - iv. **Advance** (Enable shell for complicated process)
5. Rescue mode usually will mount linux root partition under /mnt/sysimage

- After mounted, it will return bash CLI, enter command “chroot /mnt/sysimage” to change root environment to linux partition.

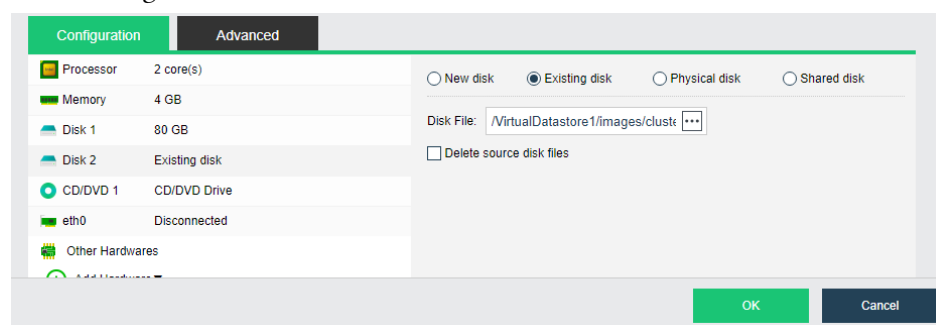
```
bash-4.1# ls /mnt/sysimage/
bin  dev  etc  lib      media  opt  root  selinux  sys  usr
boot dira home lost+found mnt    proc sbin  srv     tmp  var
bash-4.1# chroot /mnt/sysimage/
sh-4.1# ls
bin  dev  etc  lib      media  opt  root  selinux  sys  usr
boot dira home lost+found mnt    proc sbin  srv     tmp  var
```

- Edit /etc/fstab with vi command, change sdx to hdx and exit with saving.
- (Optional) If Linux VM configured LVM, it may not activated even boot with rescue disk. To solve this issue, you can execute LVM command “**lvscan**” to check on current LVM name. If it show inactive, then need to use LVM command “**vgchange -ay**” to activate, finally mount with rescue disk.

1.2.7 SUSE unable to boot up, notify unable to find disk

```
PIIX3: not 100% native mode: will probe irqs later
   ide0: BM-DMA at 0xc1a0-0xc1a7, BIOS settings: hda:pio, hdb:pio
   ide1: BM-DMA at 0xc1a8-0xc1af, BIOS settings: hdc:pio, hdd:pio
hda: SANGFOR HARDDISK, ATA DISK drive
ide0 at 0x1f0-0x1f7,0x3f6 on irq 14
hda: max request size: 512KiB
hda: 251658240 sectors (128849 MB) w/256KiB Cache, CHS=16383/255/63, (U)DMA
hda: cache flushes supported
   hda: hda1 hda2 hda3 hda4
hdc: SANGFOR DVD-ROM, ATAPI CD/DVD-ROM drive
ide1 at 0x170-0x177,0x376 on irq 15
Loading mptbase
Fusion MPT base driver 3.03.07
Copyright (c) 1999-2005 LSI Logic Corporation
Loading mptscsih
Loading mptspi
Fusion MPT SPI Host driver 3.03.07
Loading processor
Loading thermal
Loading fan
Loading reiserfs
resume device /dev/sda1 not found (ignoring)
Waiting for device /dev/sda2 to appear: .....not found
-- exiting to /bin/sh
$
```

- This issue have to edit /etc/fstab and /boot/grub/menu.lst and change hard disk name. Try access with Linux rescue mode, however unable to mount original Linux file system. Hence, following instruction will use alternative method to edit the fstab file.
- Add Linux virtual hard disk that have issue to another Linux virtual machine (Recommend same types/version). Start another Linux virtual machine and mount hard disk to perform modification.
- Procedure:
 - VM A (booting issue)
VM B (Normal VM)
 - Add existing disk in VM B and browse for VM A virtual disk.



- Start VM B, execute command “lsblk” and it should output 2 hard disk. In this example, /dev/vdb is hard disk of VM A. Mount /dev/vdb system partition to

/mnt/linux. (Diagram below show root partition is part of LVM)

```
[root@localhost ~]# lsblk
NAME                                MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sr0                                  11:0    1 342.3M  0 rom
vda                                  252:0    0   80G  0 disk
├─vda1                              252:1    0   500M  0 part /boot
└─vda2                              252:2    0  79.5G  0 part
   ├─vg_localhost-lv_root (dm-0) 253:0    0   50G  0 lvm /
   ├─vg_localhost-lv_swap (dm-1) 253:1    0   3.9G  0 lvm [SWAP]
   └─vg_localhost-lv_home (dm-5) 253:5    0  25.6G  0 lvm /home
vdb                                  252:16   0   80G  0 disk
├─vdb1                              252:17   0   500M  0 part
└─vdb2                              252:18   0  79.5G  0 part
   ├─VolGroup-lv_root (dm-2) 253:2    0   50G  0 lvm
   ├─VolGroup-lv_home (dm-3) 253:3    0  25.6G  0 lvm
   └─VolGroup-lv_swap (dm-4) 253:4    0   3.9G  0 lvm
[root@localhost ~]# mount /dev/VolGroup/lv_root /mnt/linux/
[root@localhost ~]# cd /mnt/linux/
[root@localhost linux]# ls
bin  dev  home  lib64  media  opt  root  selinux  sys  usr
boot  etc  lib  lost+found  mnt  proc  sbin  srv  tmp  var
```

- d. After modify /mnt/linux/etc/fstab and /mnt/linux/boot/grub/menu.lst (Change hda to sda), umount the system partition and power off VM B.

```
[root@localhost mnt]# mount /dev/vdb1 /mnt/linux1
[root@localhost mnt]# cd /mnt/linux1/grub/
[root@localhost grub]# pwd
/mnt/linux1/grub
[root@localhost grub]# vi menu.lst
```

```
[root@localhost ~]# umount /dev/vdb1
[root@localhost ~]# umount /dev/VolGroup/lv_root
[root@localhost ~]# lsblk
NAME                                MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sr0                                  11:0    1 342.3M  0 rom
vda                                  252:0    0   80G  0 disk
├─vda1                              252:1    0   500M  0 part /boot
└─vda2                              252:2    0  79.5G  0 part
   ├─vg_localhost-lv_root (dm-0) 253:0    0   50G  0 lvm /
   ├─vg_localhost-lv_swap (dm-1) 253:1    0   3.9G  0 lvm [SWAP]
   └─vg_localhost-lv_home (dm-5) 253:5    0  25.6G  0 lvm /home
vdb                                  252:16   0   80G  0 disk
├─vdb1                              252:17   0   500M  0 part
└─vdb2                              252:18   0  79.5G  0 part
   ├─VolGroup-lv_root (dm-2) 253:2    0   50G  0 lvm
   ├─VolGroup-lv_home (dm-3) 253:3    0  25.6G  0 lvm
   └─VolGroup-lv_swap (dm-4) 253:4    0   3.9G  0 lvm
```

- e. Remove VM A existing hard disk and re-add new existing disk. Browse VM B directory path and select vm disk-2.qcow2 (virtual disk that fixed)
- f. Reboot VM A and it should boot successfully.



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