1 Document Revisions

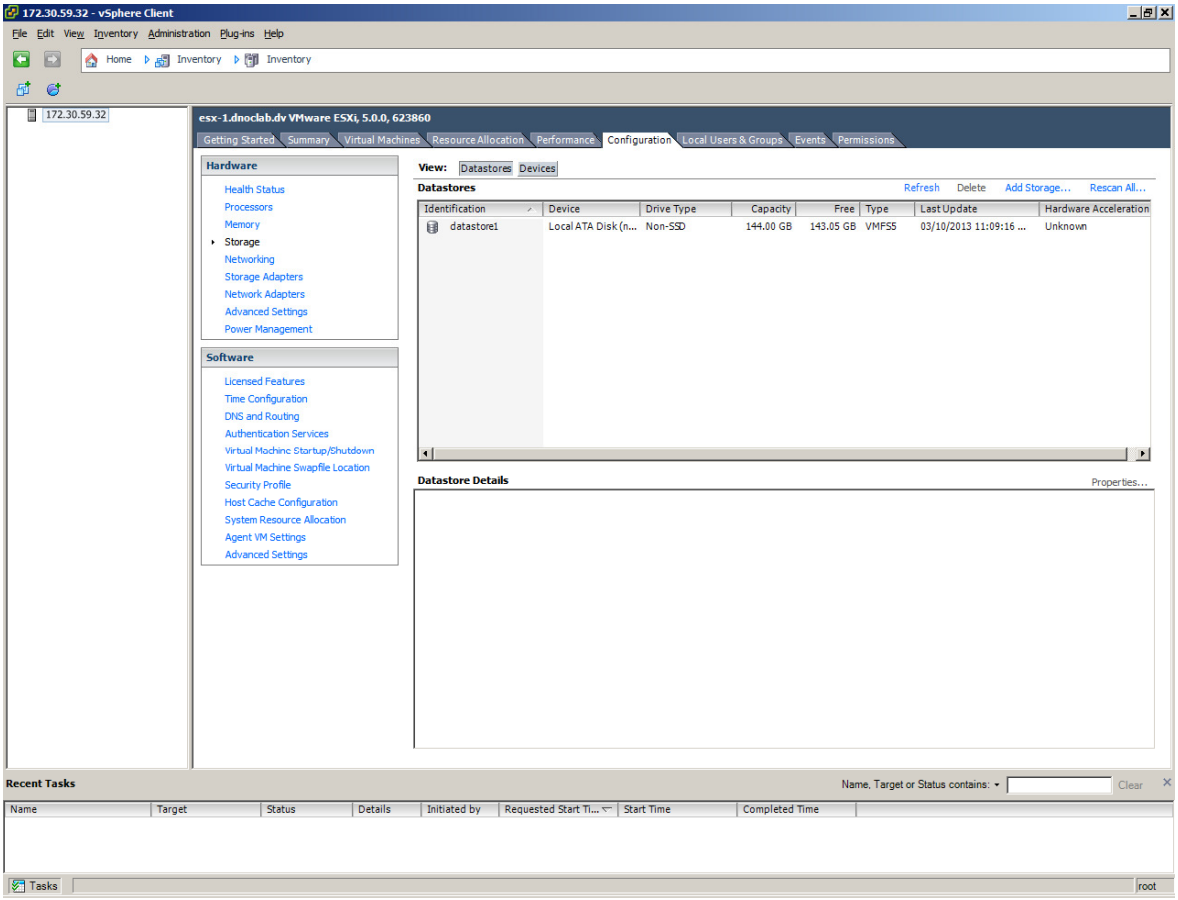
Revision Number	Date	Author(s)	Change Description
R1	Oct 3rd, 2013	Pasquale Monardo	Document creation
R2	Jan 6th, 2014	Pasquale Monardo	Fixed Formatting and spelling mistakes

2 Purpose of document

To be able to extend the hard drive space of an Airwave server deployed on a Virtual Machine using VMWare.

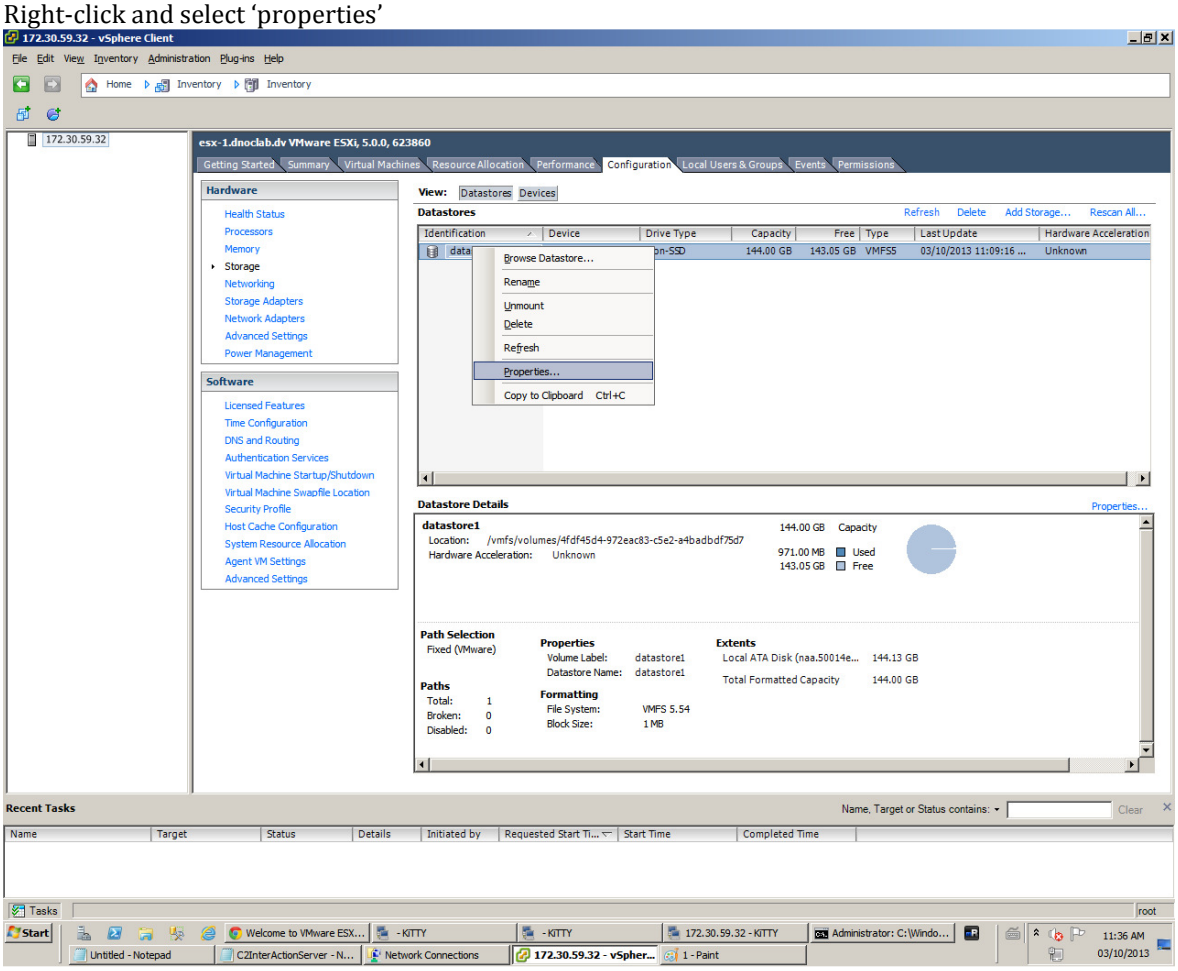
3 How to add a new SATA drive to an VMWare ESXi Server

- Insert new drive into spare slot on the server, connect all cables required
- Boot Airwave server
- Log into your vSphere application.
- Navigate to the Configuration section as per below

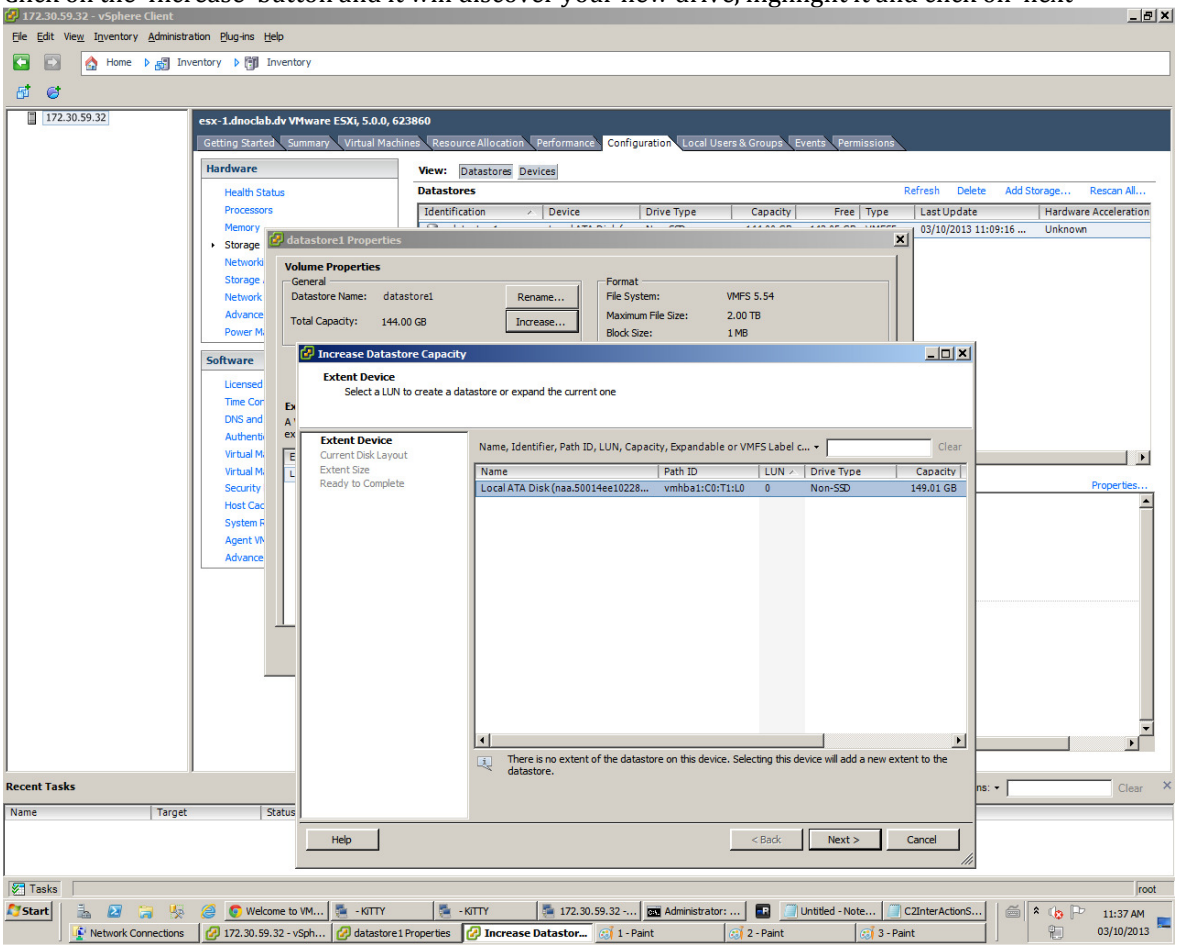


Highlight the desired datastore where AMP is installed on.

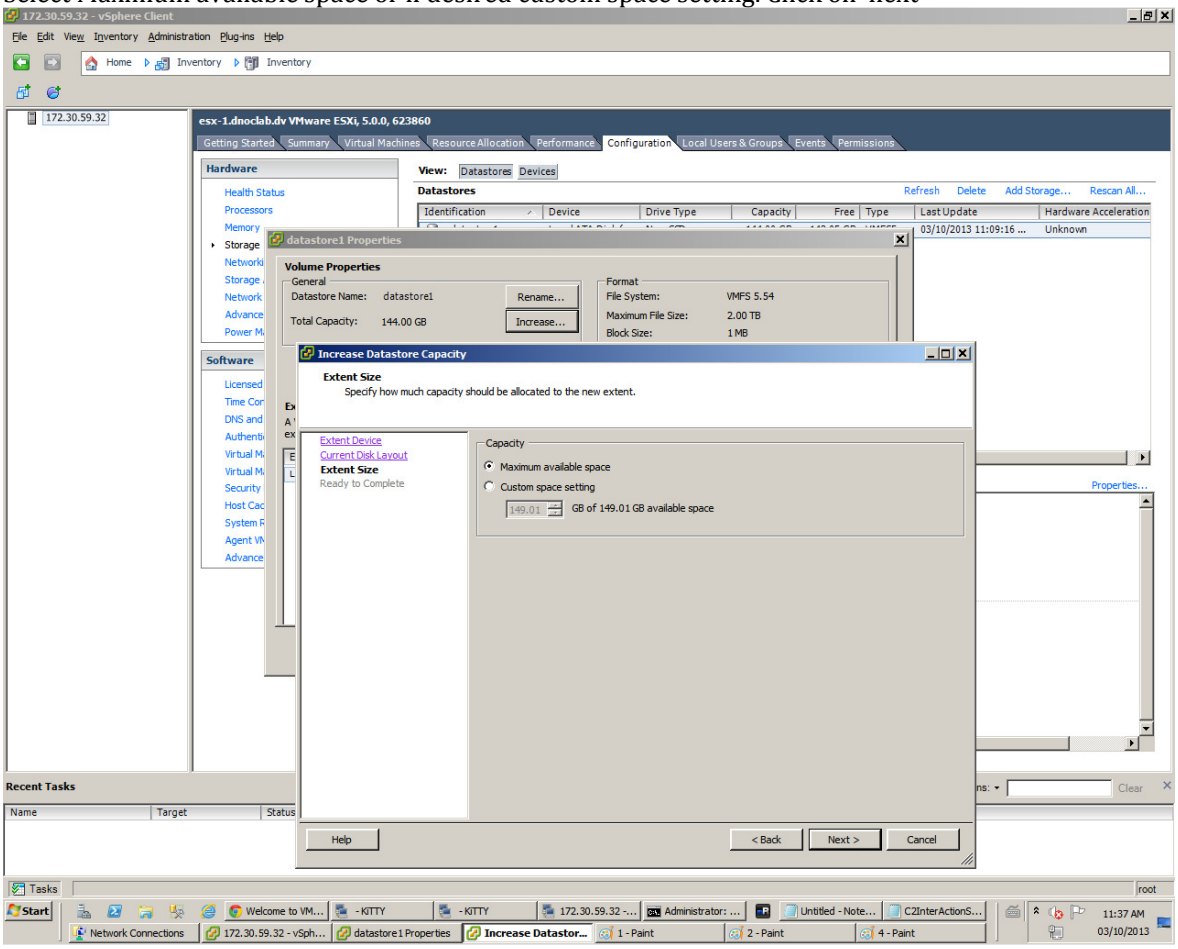
Right-click and select ‘properties’



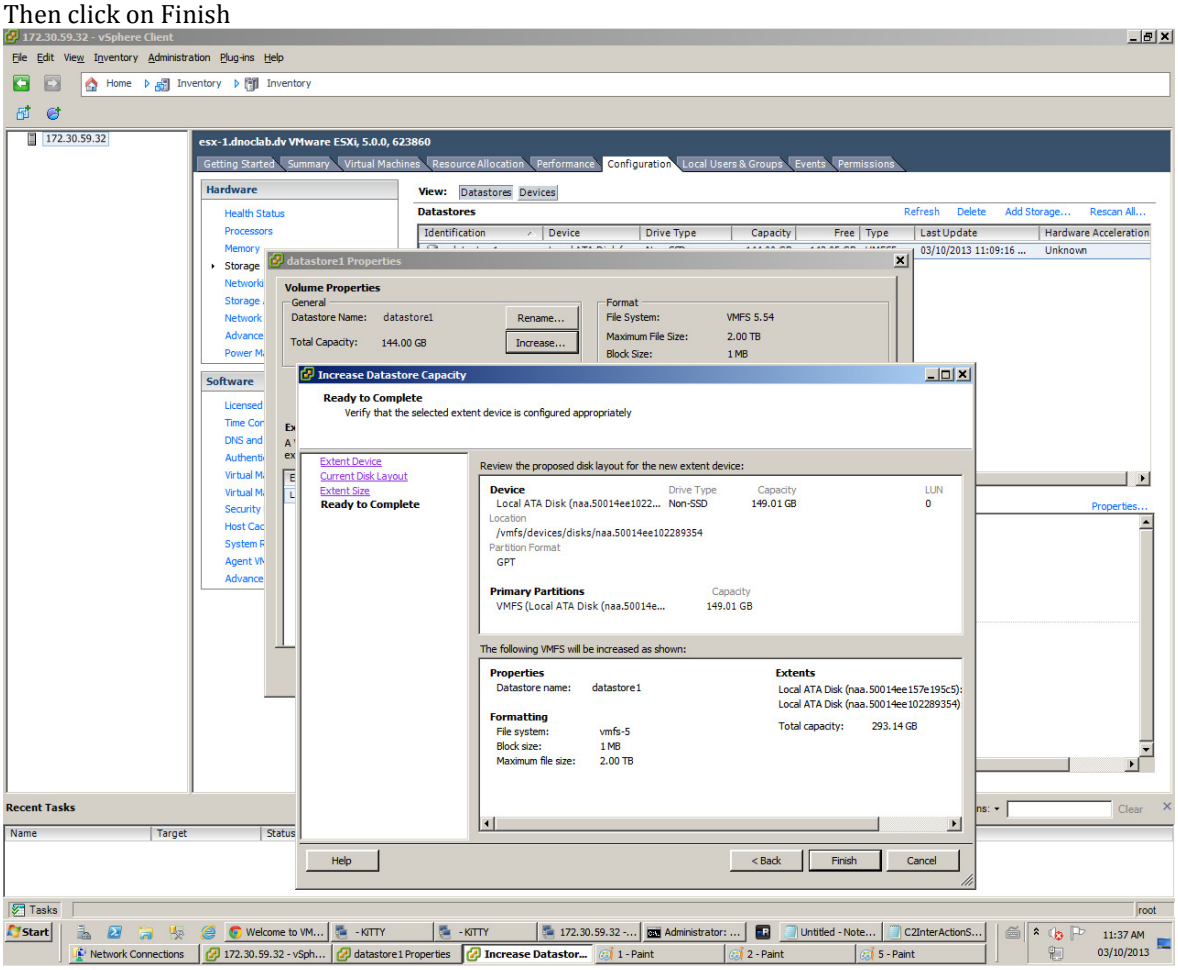
Click on the ‘Increase’ button and it will discover your new drive, highlight it and click on ‘next’



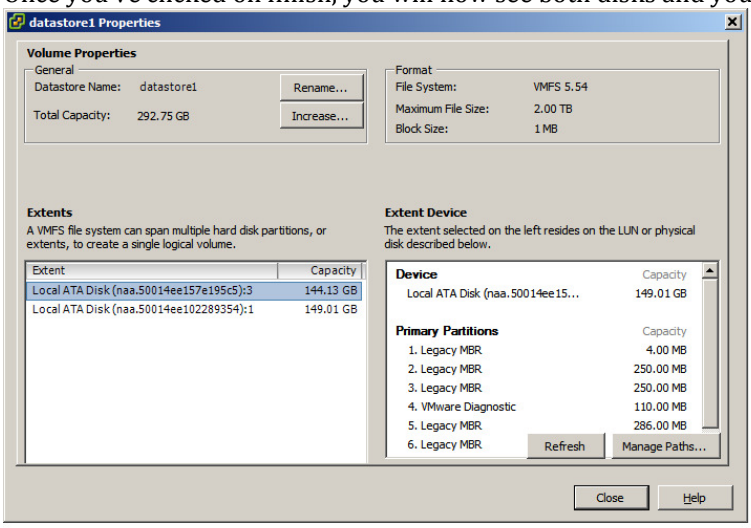
Select Maximum available space or if desired custom space setting. Click on ‘next’



Then click on Finish



Once you've clicked on finish, you will now see both disks and your total capacity changed.



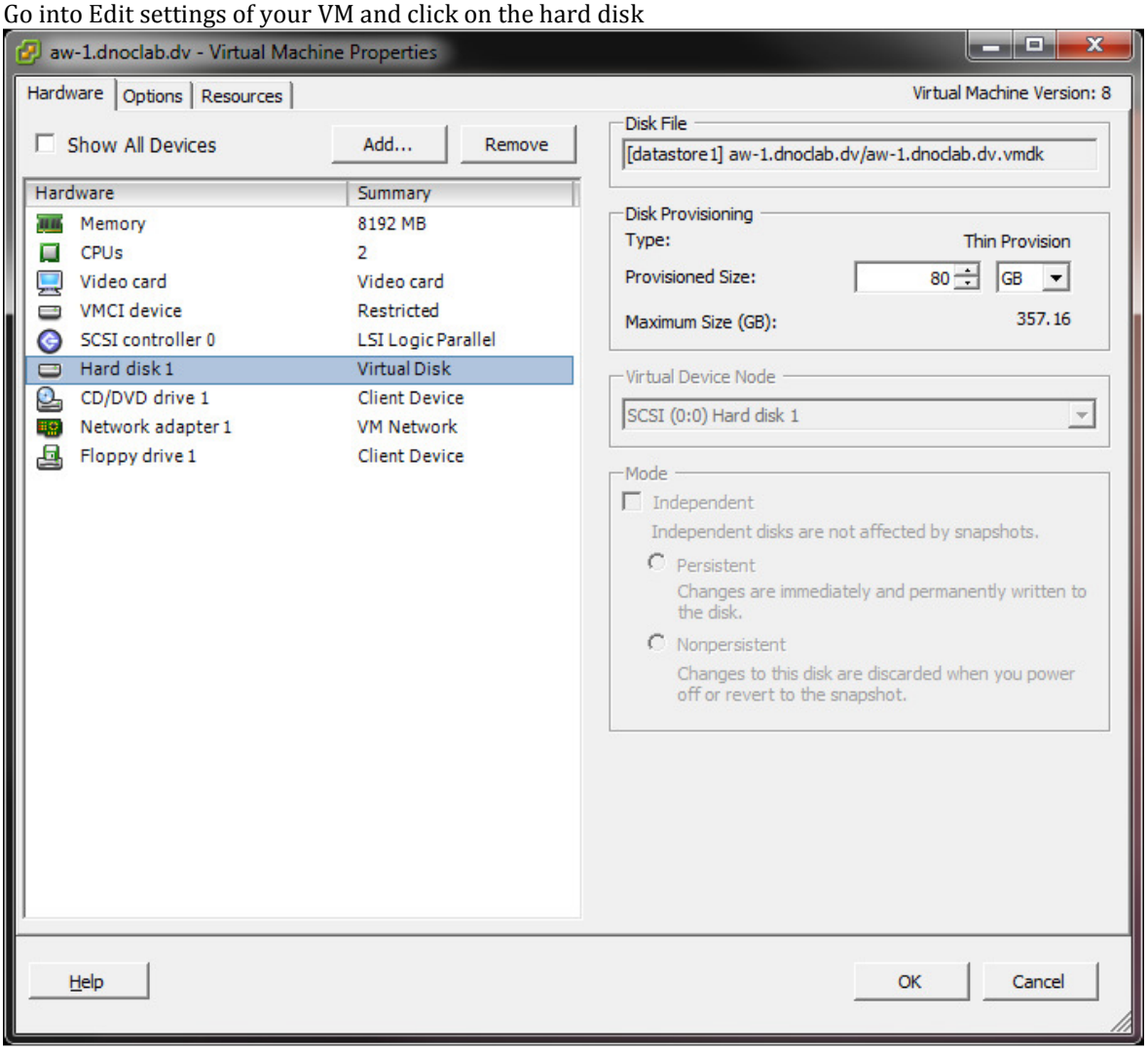
You can click on close.

You have now added the new sata drive to your existing datastore.

4 Modification to the Airwave VM

Next step is to have Airwave recognize this new hard drive.

First step is to increase the amount of Hard Drive space the VM will be using
Go into Edit settings of your VM and click on the hard disk



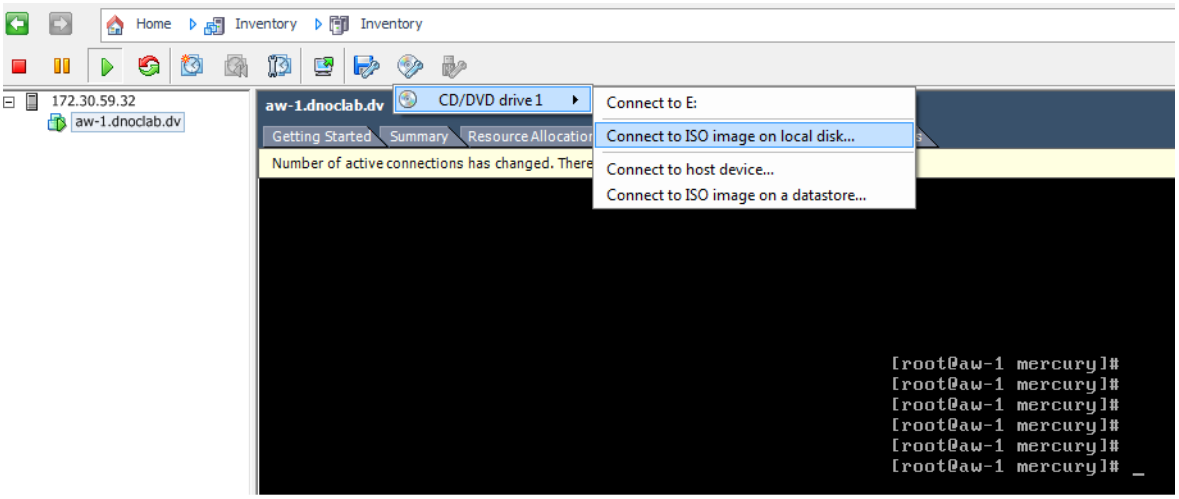
Make it whatever size you want (depends on the datastore) and click ok,

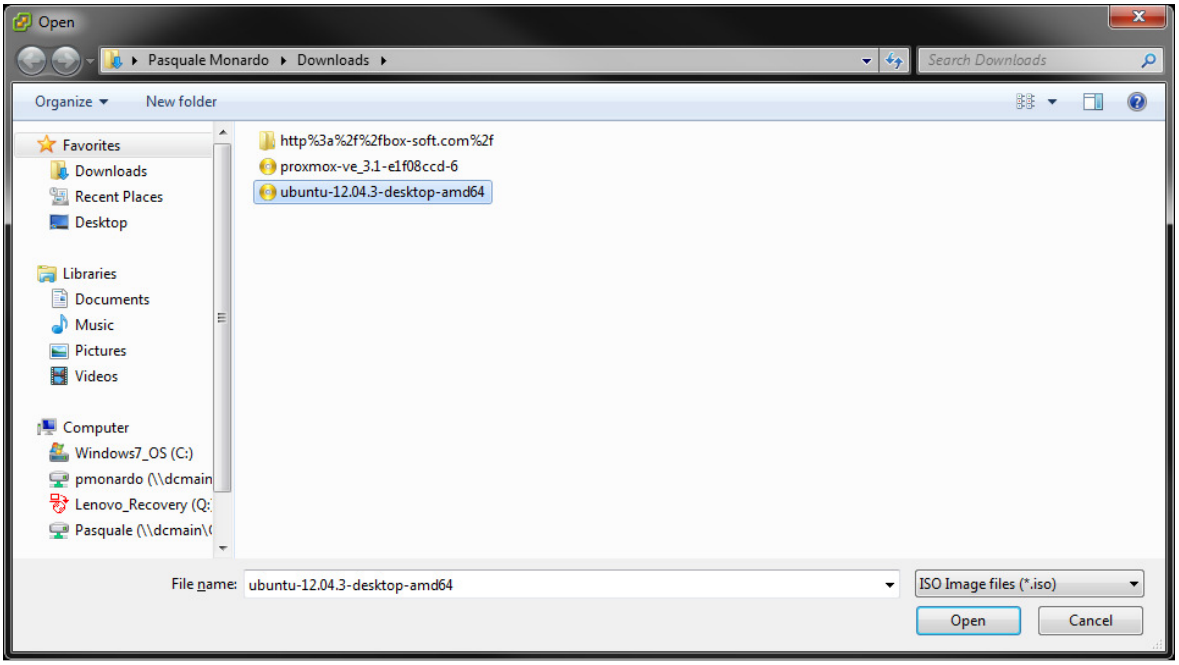
Now let's make AMP recognize the new HD Space.

There are multiple ways to accomplish this but I found this to be the easiest.

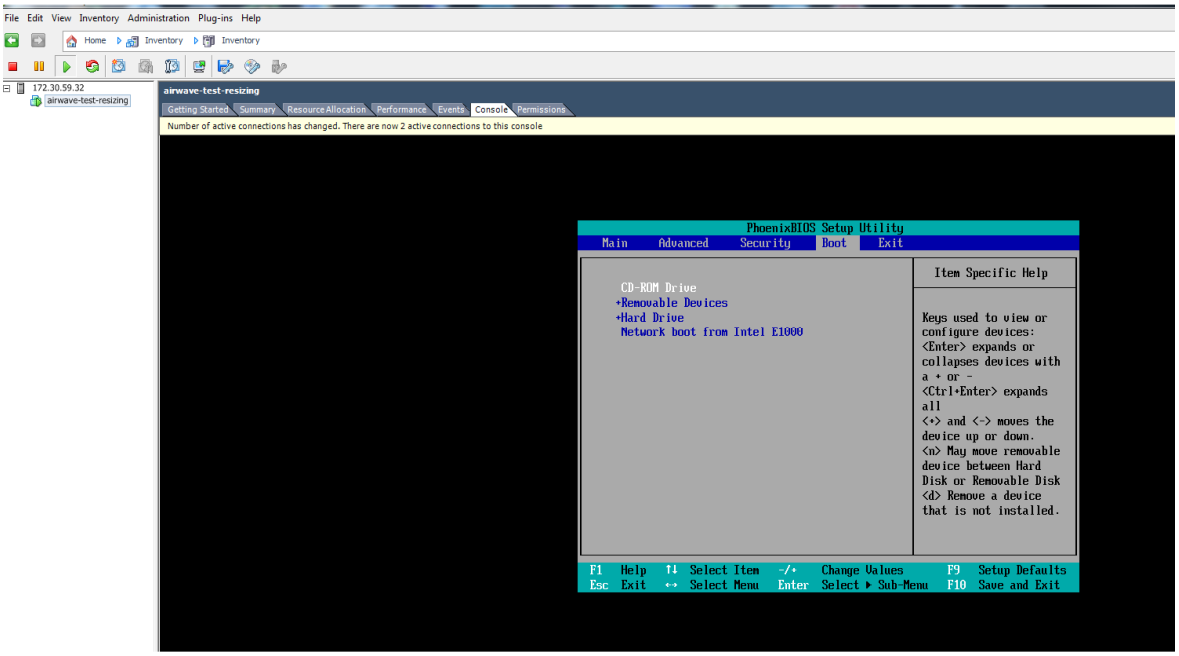
Download a LIVE CD version of Ubuntu Desktop and save the ISO

Select Ubuntu as the ISO for the CDROM Drive



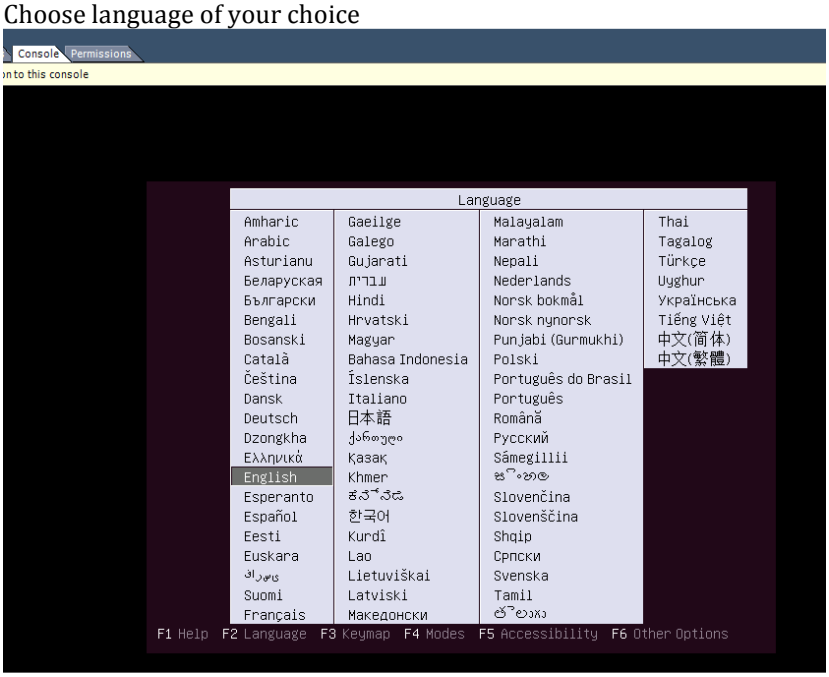


Reboot AMP and press F2 when prompted to go into the boot screen, choose CDROM as the 1st boot device.

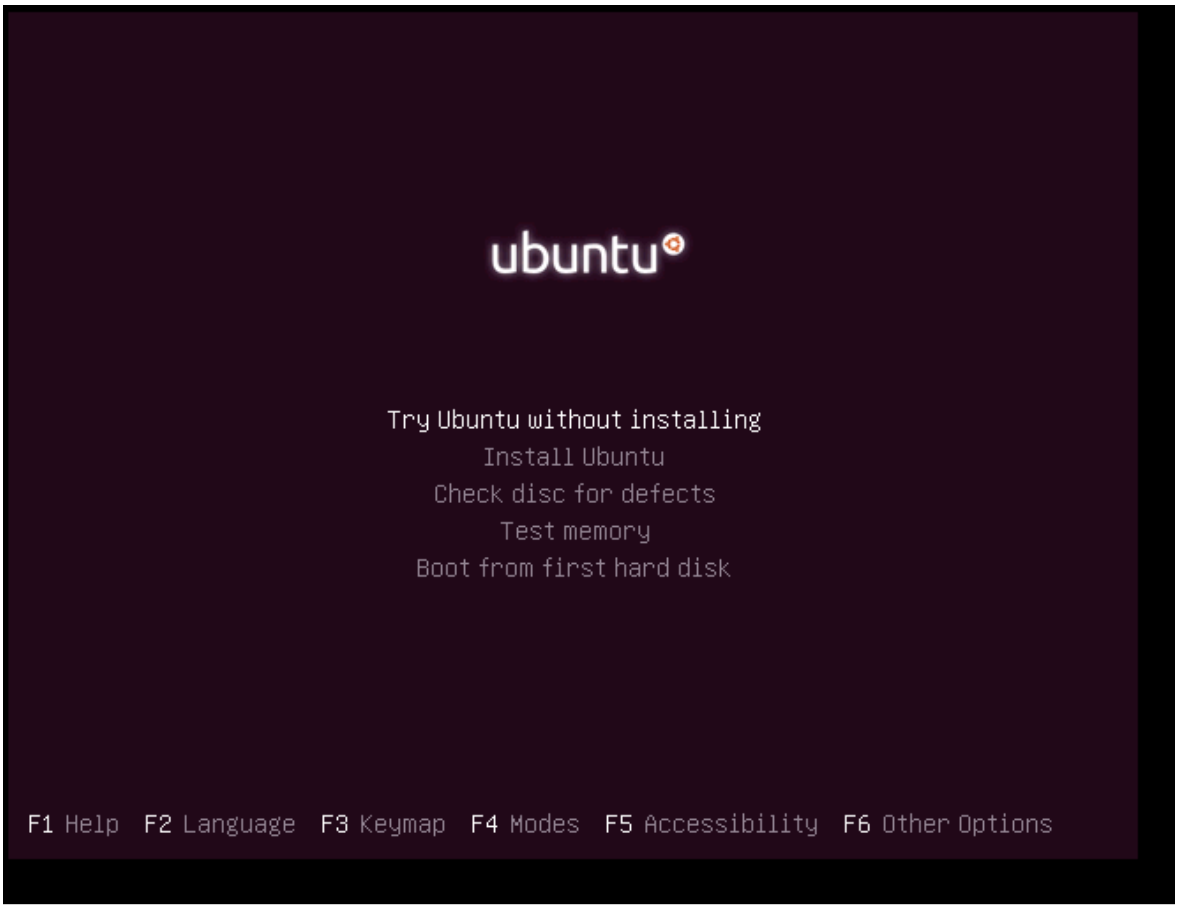


Save and reboot

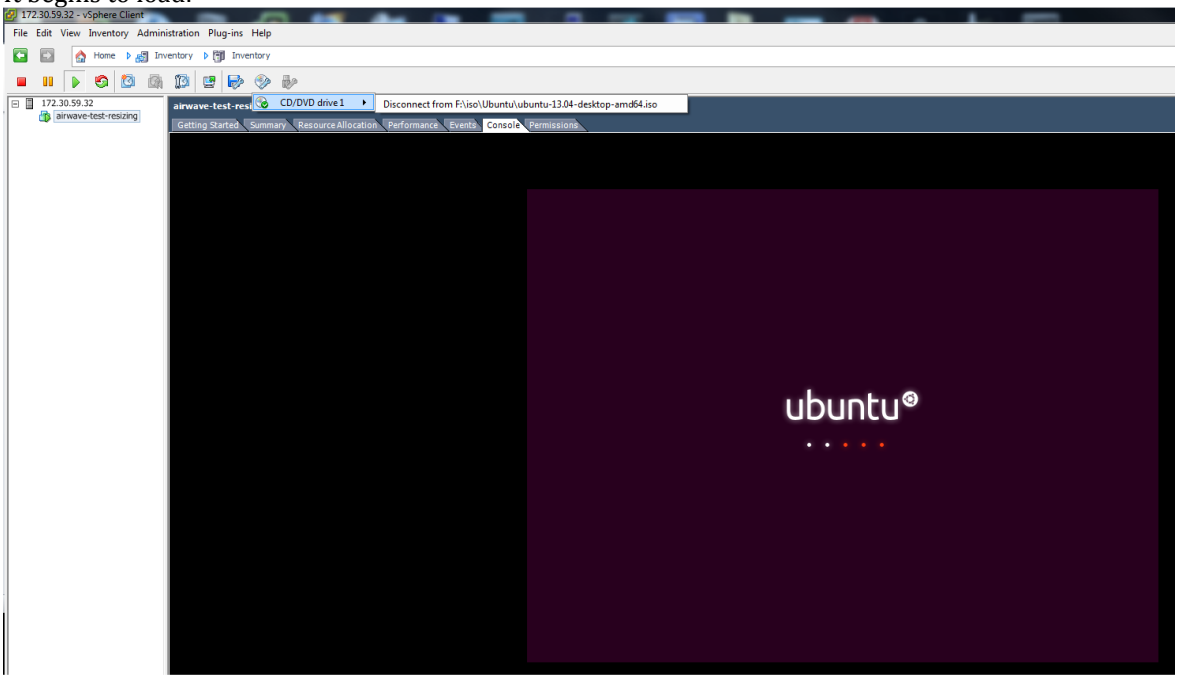
Then Ubuntu begins to load
Choose language of your choice



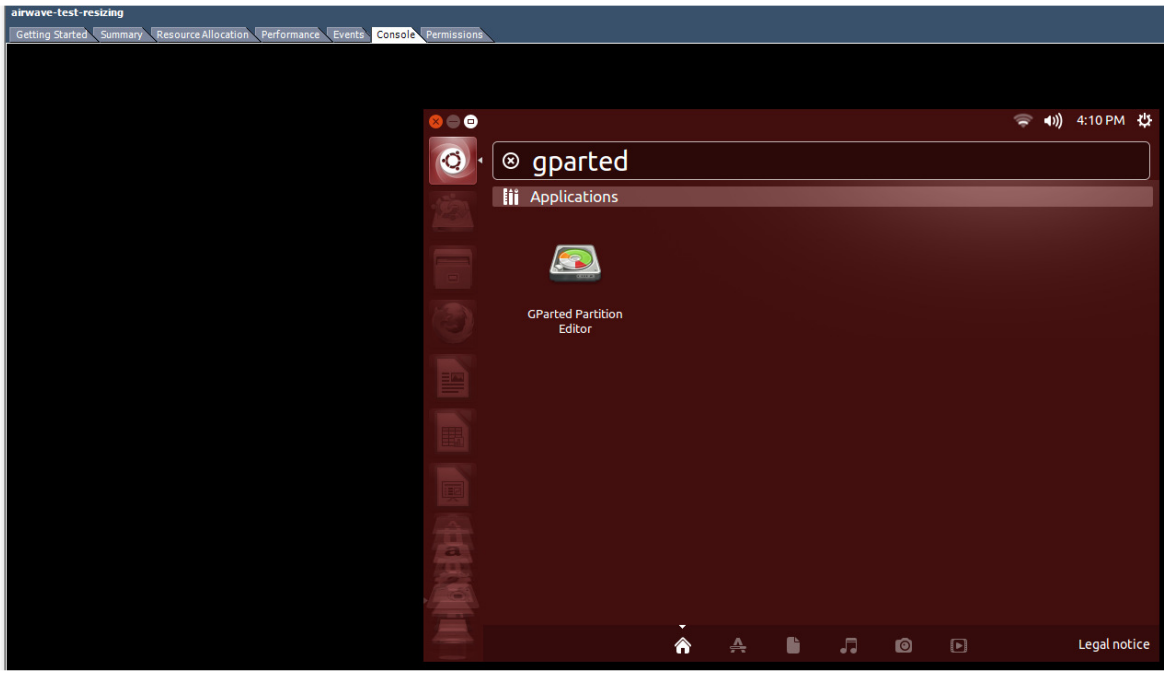
Select ‘Try Ubuntu without installing’



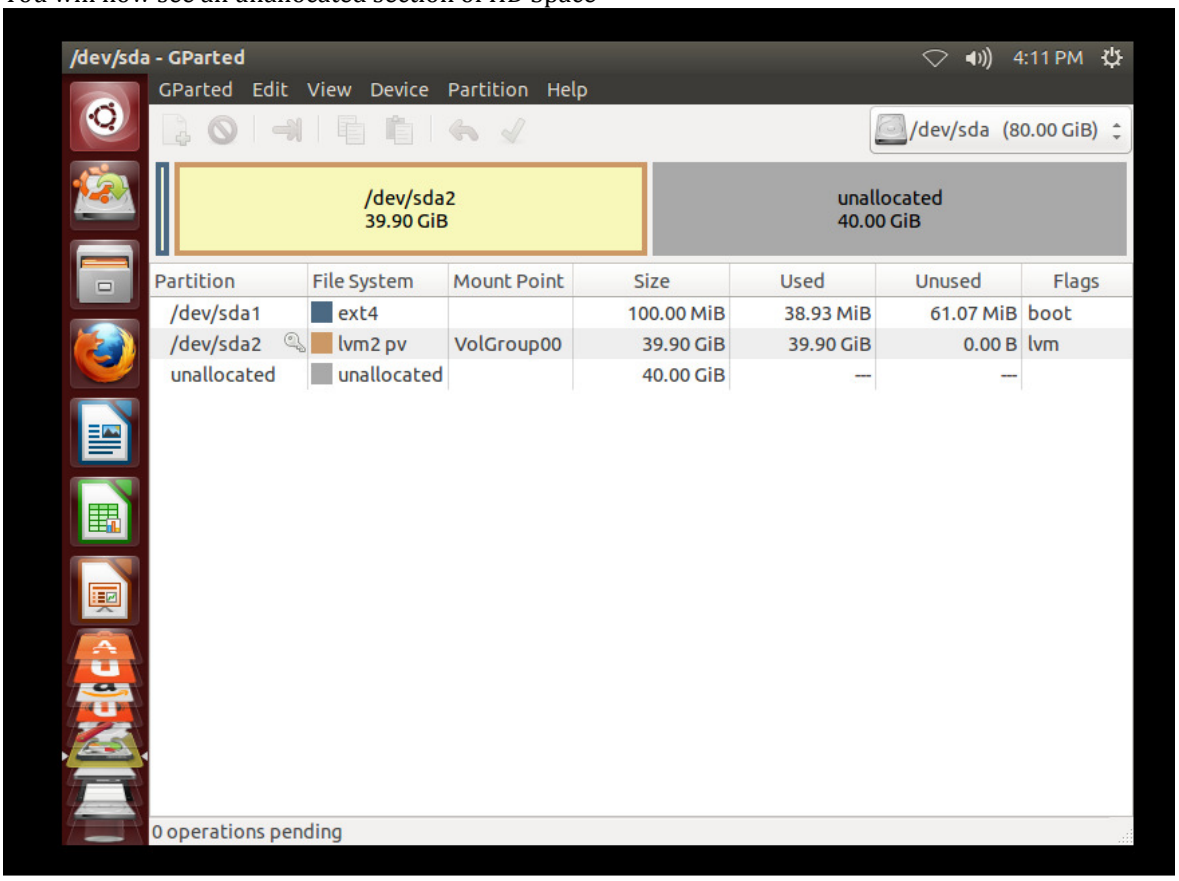
It begins to load:



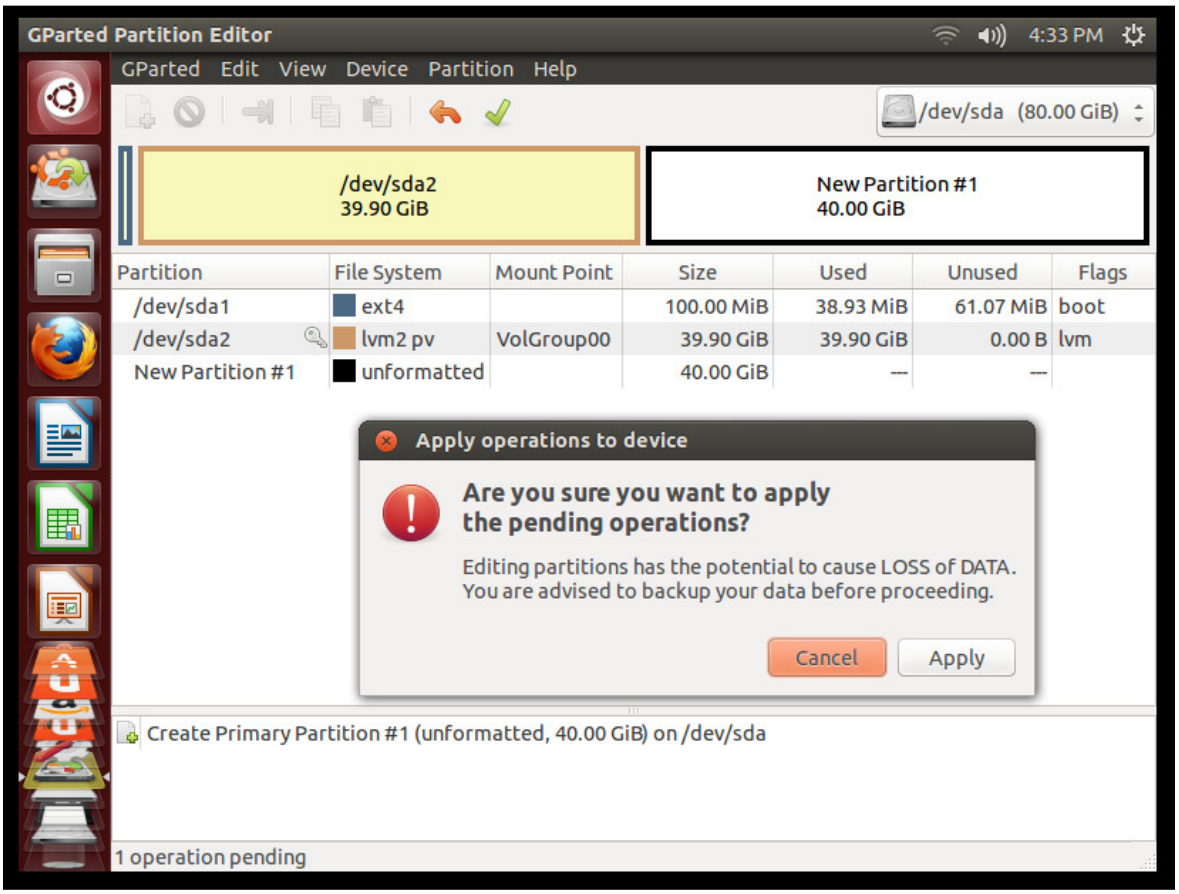
Once it loads, go into the GPARTED program.



You will now see an unallocated section of HD Space

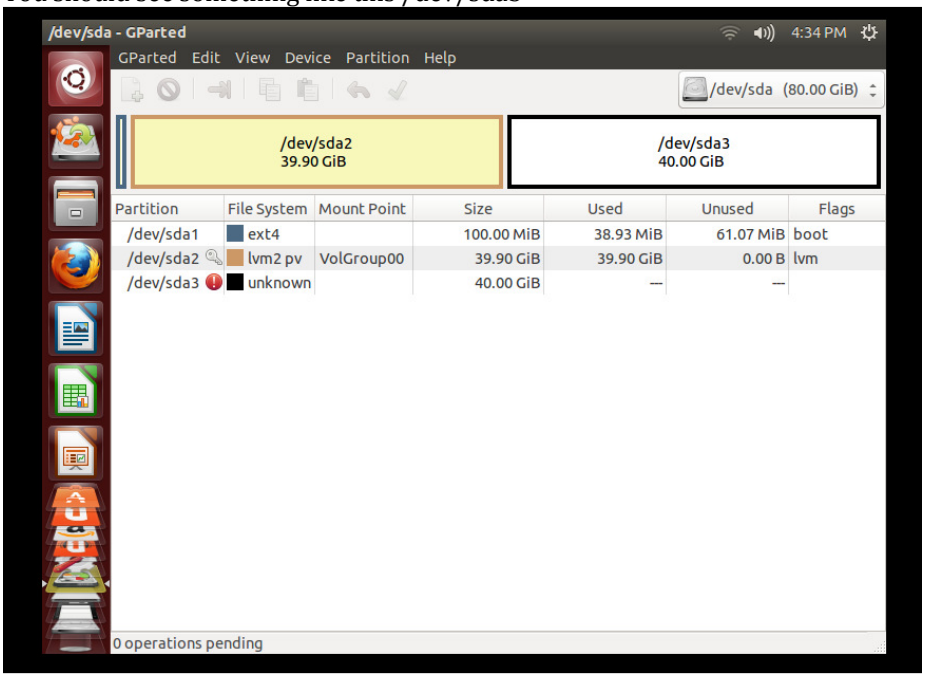


Right-Click on it and create new partition and leave the file system to be unformatted.

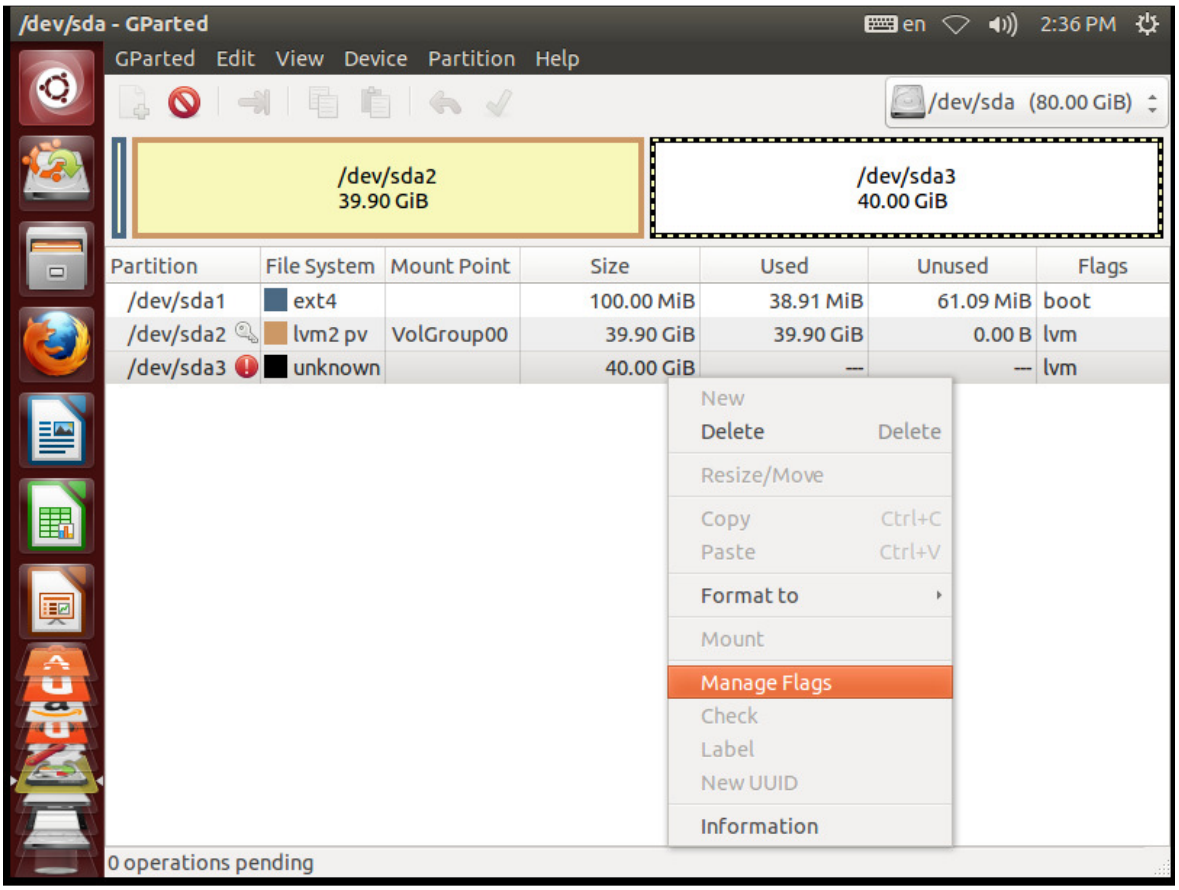


Click Apply.

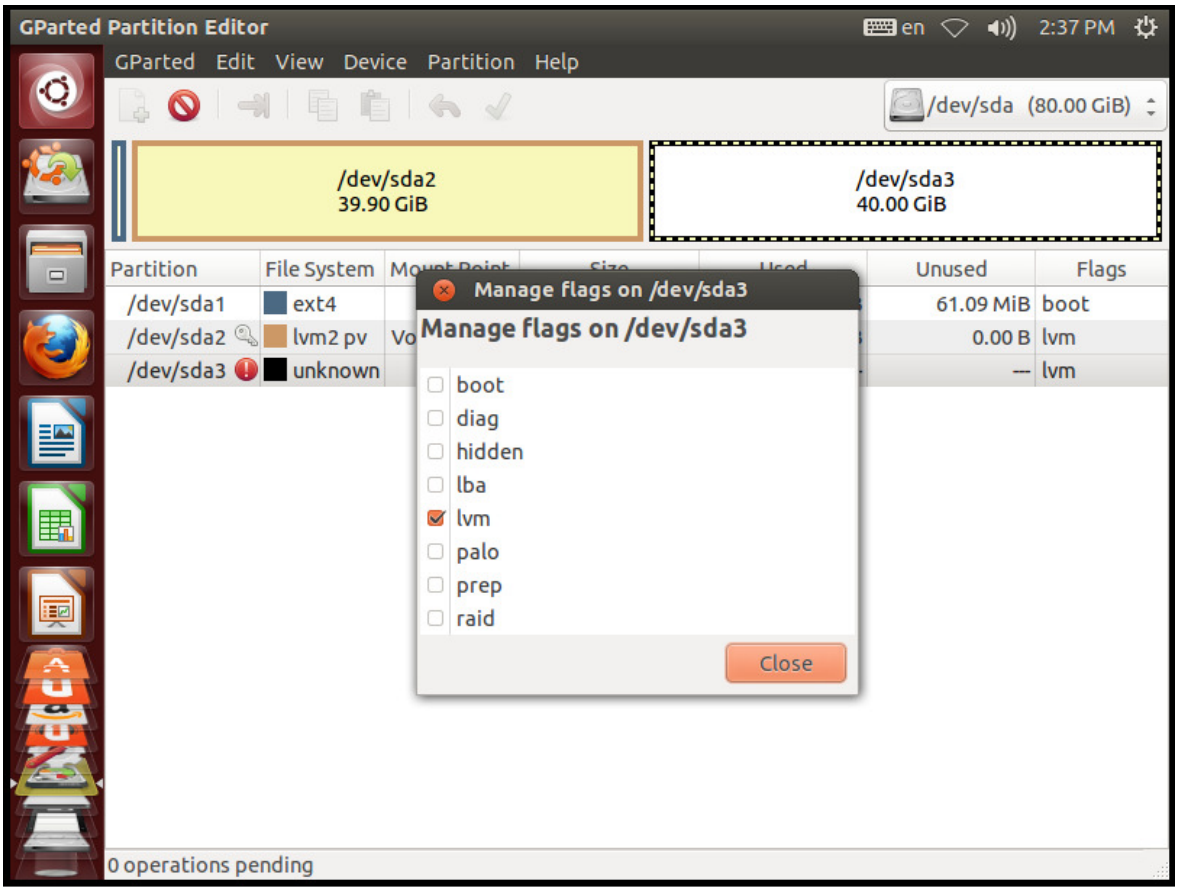
You should see something like this /dev/sda3



Next step is to add the LVM flag to the new drive.
Right-click and click on Manage Flags


/dev/sda - GParted
en
2:36 PM
GParted Edit View Device Partition Help
/dev/sda (80.00 GiB)
/dev/sda2
39.90 GiB
/dev/sda3
40.00 GiB
Partition File System Mount Point Size Used Unused Flags
/dev/sda1 ext4 100.00 MiB 38.91 MiB 61.09 MiB boot
/dev/sda2 lvm2 pv VolGroup00 39.90 GiB 39.90 GiB 0.00 B lvm
/dev/sda3 unknown 40.00 GiB --- --- lvm
New
Delete Delete
Resize/Move
Copy Ctrl+C
Paste Ctrl+V
Format to
Mount
Manage Flags
Check
Label
New UUID
Information
0 operations pending

Select the ‘lvm’ flag



Select LVM and click on close.

At this time, you can shutdown Ubuntu and boot back into AMP (don’t forget to remove the ISO from the CDROM).

5 Configuring CentOS to recognize the new drive

Once AMP has booted up, log in via SSH

Next step is to make sure you see the new drive added

Confirm /dev/sda3 exists or if it gets another name using ‘fdisk –l’

```
[root@aw-1 mercury]# fdisk -l

Disk /dev/sda: 85.9 GB, 85899345920 bytes
255 heads, 63 sectors/track, 10443 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk identifier: 0x0009f7c3

   Device Boot      Start         End      Blocks   Id  System
/dev/sda1   *           1          13      102400   83  Linux
Partition 1 does not end on cylinder boundary.
/dev/sda2              13        5222    41839616   8e  Linux LVM
/dev/sda3            5222       10444    41943040   8e  Linux LVM
```

```
Disk /dev/mapper/VolGroup00-LogVol01: 4294 MB, 4294967296 bytes
255 heads, 63 sectors/track, 522 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk identifier: 0x00000000


Disk /dev/mapper/VolGroup00-LogVol00: 81.4 GB, 81436606464 bytes
255 heads, 63 sectors/track, 9900 cylinders
Units = cylinders of 16065 * 512 = 8225280 bytes
Sector size (logical/physical): 512 bytes / 512 bytes
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk identifier: 0x00000000


[root@aw-1 mercury]#

# SDA3 is our new drive
```

Now we create the physical volume using the command 'pvcreate /dev/sda3'

```
# Create the one physical volume
[root@aw-1 mercury]# pvcreate /dev/sda3
  Writing physical volume data to disk "/dev/sda3"
  Physical volume "/dev/sda3" successfully created
```

We then check the configuration of the volume group using 'vgdisplay'

```
# Check current configuration of the volume group is 1 physical volume
[root@aw-1 mercury]# vgdisplay
  --- Volume group ---
  VG Name               VolGroup00
  System ID
  Format                lvm2
  Metadata Areas        1
  Metadata Sequence No  3
  VG Access             read/write
  VG Status             resizable
  MAX LV                0
  Cur LV                2
  Open LV               2
  Max PV                0
  Cur PV                1
  Act PV                1   #Actual Physical Volumes = 1
  VG Size               39.88 GiB
  PE Size               32.00 MiB
  Total PE              1276
  Alloc PE / Size       1276 / 39.88 GiB
  Free  PE / Size       0 / 0
  VG UUID               56Leag-jwVA-RJOD-0WOm-fltC-2fcI-RAKqB1
```

Add new SDA3 to the LVM Volume group using 'vgextend VolGroup00 /dev/sda3'

```
# 2. Add it to the volume group
[root@aw-1 mercury]# vgextend VolGroup00 /dev/sda3
  Volume group "VolGroup00" successfully extended
```

Validate volume group

```
# Validate size of the volume group
[root@aw-1 mercury]# vgdisplay
  --- Volume group ---
  VG Name               VolGroup00
  System ID
  Format                lvm2
  Metadata Areas        2
  Metadata Sequence No  4
  VG Access             read/write
  VG Status             resizable
  MAX LV                0
  Cur LV                2
  Open LV               2
  Max PV                0
  Cur PV                2
  Act PV                2
  VG Size               79.84 GiB
  PE Size               32.00 MiB
  Total PE              2555
```

```
 Alloc PE / Size       1276 / 39.88 GiB
  Free  PE / Size       1279 / 39.97 GiB
  VG UUID               56Leag-jwVA-RJOD-0WOm-fltC-2fcI-RAKqB1
```

Act PV is now 2 and VG size is doubled

Now let's resize the volume.
This depends on the '**FREE PE / Size**'. You must use the value contained there.
In this case 1279 as indicated above.

Let's resize the space using the command below

```
# Resize the space

[root@aw-1 mercury]# lvextend --resizefs --extents +1279 /dev/VolGroup00/LogVol00
  Extending logical volume LogVol00 to 75.84 GiB
  Logical volume LogVol00 successfully resized
resize2fs 1.41.12 (17-May-2010)
Filesystem at /dev/mapper/VolGroup00-LogVol00 is mounted on /; on-line resizing required
old desc_blocks = 3, new_desc_blocks = 5
Performing an on-line resize of /dev/mapper/VolGroup00-LogVol00 to 19881984 (4k) blocks.
The filesystem on /dev/mapper/VolGroup00-LogVol00 is now 19881984 blocks long.
```

And confirm Free PE / Size is now 0

```
# Confirm the LVM volume group has been extended with the
# new harddrive
[root@aw-1 mercury]# vgdisplay
  --- Volume group ---
  VG Name               VolGroup00
  System ID
  Format                lvm2
  Metadata Areas        2
  Metadata Sequence No  5
  VG Access             read/write
  VG Status             resizable
  MAX LV                0
  Cur LV                2
  Open LV               2
  Max PV                0
  Cur PV                2
  Act PV                2
  VG Size               79.84 GiB
  PE Size               32.00 MiB
  Total PE              2555
  Alloc PE / Size       2555 / 79.84 GiB
  Free  PE / Size       0 / 0
  VG UUID               56Leag-jwVA-RJOD-0WOm-fltC-2fcI-RAKqB1

[root@aw-1 mercury]# df -h
Filesystem            Size  Used Avail Use% Mounted on
/dev/mapper/VolGroup00-LogVol00
                       75G  4.8G   67G   7% /
tmpfs                 3.9G     0  3.9G   0% /dev/shm
/dev/sda1              97M   36M   57M  39% /boot
```

You have now successfully resized AMP to use the extra HD space