1 Document Revisions

Revision Number	Date	Author(s)	Change Description
R1	Oct 3 rd , 2013	Pasquale Monardo	Document creation
R2	Jan 6 th , 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.

olume Properties				
General		Format		
Datastore Name: datastore1	Rename	File System:	VMFS 5.54	
Total Capacity: 292 75 CB	Increase	Maximum File Size:	2.00 TB	
	Increasem	Block Size:	1 MB	
VMFS file system can span multiple hard disk par	rtitions, or	The extent selected on th	e left resides on t	ne LUN or physical
xtents, to create a single logical volume.		disk described below.		
xtents, to create a single logical volume. Extent	Capacity	disk described below. Device		Capacity
xtents, to create a single logical volume. Extent Local ATA Disk (naa.50014ee157e195c5):3	Capacity 144.13 GB	disk described below. Device Local ATA Disk (naa. S	50014ee15	Capacity 149.01 GB
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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

🚱 aw-1.dnoclab.dv - Virtual Mac	hine Properties		
Hardware Options Resources			Virtual Machine Version: 8
Show All Devices	Add	Remove	Disk File [datastore 1] aw-1.dnoclab.dv/aw-1.dnoclab.dv.vmdk
Hardware Memory CPUs Video card VMCI device SCSI controller 0 Hard disk 1 CD/DVD drive 1 Network adapter 1 Floppy drive 1	Summary 8192 MB 2 Video card Restricted LSI Logic P Virtual Disl Client Devi VM Networ Client Devi	Parallel k ice rk ice	Disk Provisioning Type: Thin Provision Provisioned Size: 80 • GB • Maximum Size (GB): 357.16 Virtual Device Node SCSI (0:0) Hard disk 1 • Mode Independent Independent disks are not affected by snapshots. • • Persistent Changes are immediately and permanently written to the disk. •
Help			OK Cancel

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

💽 💽 🏠 Home 🕨 🚮 Inv	ventory 🕨 🗊 Inventory		
 II I I	10 📴 🅪 🧇 🧼		
□ □ 172.30.59.32	aw-1.dnoclab.dv 💿 CD/DVD drive 1 🕨	Connect to E:	
aw-1.dhoclab.dv	Getting Started Summary Resource Allocation	Connect to ISO image on local disk	3
	Number of active connections has changed. There	Connect to host device	
		Connect to ISO image on a datastore	
		1	root@aw-1 mercury]#
		l I	root@aw-1 mercury]# root@aw-1 mercury]#
		ſ	root@aw-1 mercury]#
		Ĺ	root@aw-1 mercury]# root@aw-1 mercury]# _
(1) 0			×
open			
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Organize 🔻 New folder			ii 🔹 🗍 🔞
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Downloads	oproxmox-ve_3.1-e1f08ccd-6		
Recent Places	0 ubuntu-12.04.3-desktop-amdb4		
Desktop			
📜 Libraries			
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n Computer			
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•			
File <u>n</u> ame: u	ubuntu-12.04.3-desktop-amd64	•	ISO Image files (*.iso) 🔻
			Open Cancel

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 1^{st} boot device.



Save and reboot

Then Ubuntu begins to load Choose language of your choice

	Lar	iguage	
Amharic	Gaeilge	Malayalam	Thai
Arabic	Galego	Marathi	Tagalog
Asturianu	Gujarati	Nepali	Türkçe
Беларуская	עברית	Nederlands	Uyghur
Български	Hindi	Norsk bokmål	Українська
Bengali	Hrvatski	Norsk nynorsk	Tiếng Việt
Bosanski	Magyar	Punjabi(Gurmukhi)	中文(简体)
Català	Bahasa Indonesia	Polski	中文(繁體)
Čeština	Íslenska	Português do Brasil	
Dansk	Italiano	Português	
Deutsch	日本語	Română	
Dzongkha	ქართული	Русский	
Ελληνικά	Қазақ	Sámegillii	
English	Khmer	ສ`´• ທ ©	
Esperanto	ಕನೆ ನೆಡ	Slovenčina	
Español	한국어	Slovenščina	
Eesti	Kurdî	Shqip	
Euskara	Lao	Српски	
ىسراف	Lietuviškai	Svenska	
Suomi	Latviski	Tamil	
Français	Македонски	ප වාහා 55 රංශයෙන් ද්රා ද්රා දිර ව	there outlines
F1 Heip F2 Language F;	s keymap ⊢4 Modes ∣	F5 Accessibility F6 0	ther Uptions



It begins to load:



Once it loads, go into the GPARTED program.

airwave-test-resizing							
Getting Started Summary Resource Allocation Performance Events Console Permissions							
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	S gparced						
1200	Applications						
T-del	roddor o'r regel						
	GParted Partition						
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You will now see an unallocated section of HD Space

/dev/sda	- GParted		Dartition Hele			<> ◄))	4:11 PM 伐
0						/dev/sda (8	30.00 GiB) 🗘
		/dev/sda 39.90 GiB	2		unal 40.0	located 0 GiB	
	Partition	File System	Mount Point	Size	Used	Unused	Flags
	/dev/sda1	ext4		100.00 MiB	38.93 MiB	61.07 MiE	B boot
	/dev/sda2 🔍	lvm2 pv	VolGroup00	39.90 GiB	39.90 GiB	0.00 E	8 lvm
	unallocated	unallocated		40.00 GiB			-
	O operations per	dina					
	operations pen	ang					

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

GParted	Parted Partition Editor 🤶 🕪 4:33 PM 🕻									
	GParted Edit View	Device Partiti	on Help							
0		b 🛍 l 📥	√			/dev/sda (80.	00 GiB) 💲			
		/dev/sda2 39.90 GiB			New Partiti 40.00 GiB	ion #1				
	Partition	File System	Mount Point	Size	Used	Unused	Flags			
	/dev/sda1	ext4		100.00 MiB	38.93 MiB	61.07 MiB	boot			
	/dev/sda2 🔍	lvm2 pv	VolGroup00	39.90 GiB	39.90 GiB	0.00 B	lvm			
	New Partition #1	unformatted		40.00 GiB		-				
	Apply operations to device Are you sure you want to apply the pending operations? Editing partitions has the potential to cause LOSS of DATA. You are advised to backup your data before proceeding. Cancel Apply									
	Create Primary Par	tition #1 (unform	natted, 40.00 Gil	8) on /dev/sda						
	1 operation pending									

Click Apply.

You should see something like this /dev/sda3

/dev/sda	- GParted					(in the second s	4:34 PM 🔱
	GParted Ed	lit View Devi	ce Partition	Help			
Q			6 1			/dev/sda (80.00 GiB) 💲
		/dev/ 39.90	/sda2) GiB		/c 40	lev/sda3 D.00 GiB	
-	Partition	File System	Mount Point	Size	Used	Unused	Flags
	/dev/sda1	ext4		100.00 MiB	38.93 MiB	61.07 MiB	boot
	/dev/sda2	🔍 📕 lvm2 pv	VolGroup00	39.90 GiB	39.90 GiB	0.00 B	lvm
	/dev/sda3	🕕 🔳 unknown		40.00 GiB			
I							
	0 operations	ponding					
	o operacións	pending					

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

/dev/sda	- GParted				1	📰 en 🔿 🖣))	2:36 PM 🔱
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		/dev 39.90	/sda2) GiB		/4 4	dev/sda3 0.00 GiB		
	Partition	File System	Mount Point	Size	Used	Unused		Flags
	/dev/sda1	ext4		100.00 MiB	38.91 MiB	61.09	мів	boot
	/dev/sda2 🔍	lvm2 pv	VolGroup00	39.90 GiB	39.90 GiB	0.0	0 B	lvm
	/dev/sda3 🌗	unknown		40.00 GiB	_		-	lvm
					New Delete	Delete		
					Resize/Move			
					Сору	Ctrl+C		
					Paste	Ctrl+V		
					Format to	•		
					Mount			
					Manage Flags			
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Select the 'lvm' flag

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GParted Edit View Dev	rice Partition Help		
Q B 🛇 🖃 🖬 🖞	6	/dev/sda (80.00 GiB) 💲
/dev 39.9	v/sda2 0 GiB	/dev/sda3 40.00 GiB	
Partition File System	Mount Point Size Used	Unused	Flags
/dev/sda1 ext4	😣 Manage flags on /dev/sda3	61.09 MiB	boot
/dev/sda2 🔍 📃 lvm2 pv	_{Vo} Manage flags on /dev/sda3	0.00 B	lvm
/dev/sda3 🕕 🗖 unknown	boot		lvm
	 diag hidden lba lvm palo prep raid 		
0 operations pending			

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 -1
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: 0x0009frc3
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 & Linux LVM
/dev/sda3 5222 10444 41943040 & 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: 0x0000000
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
I/O size (minimum/optimal): 512 bytes / 512 bytes
Disk identifier: 0x0000000
[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
                       lvm2
 Format
 Metadata Areas
                       1
 Metadata Sequence No 3
             read/write
 VG Access
 VG Status
                      resizable
 MAX LV
                      0
 Cur LV
                      2
 Open LV
                       2
 Max PV
                      0
 Cur PV
                     1
 Act PV
                         #Actual Physical Volumes = 1
                      1
 VG Size
                      39.88 GiB
 PE Size
                      32.00 MiB
 Total PE
                      1276
 Alloc PE / Size
                      1276 / 39.88 GiB
                      0 / 0
 Free PE / Size
 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

ŧ	Validate size of the v	/olume group
[r	oot@aw-1 mercury]# vg	display
	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-0W0m-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
              read/write
resizable
  VG Access
  VG Status
 MAX LV
                        0
  Cur LV
                        2
  Open LV
                        2
                       0
 Max PV
  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
                      Size Used Avail Use% Mounted on
Filesystem
/dev/mapper/VolGroup00-LogVol00
                       75G 4.8G
                                   67G
                                          78 /
                              0 3.9G 0% /dev/shm
tmpfs
                       3.9G
                       97M 36M 57M 39% /boot
/dev/sda1
```

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