Actifio Sky On-Premises Deployment Guide

Updated April 10, 2023



Actifio GO

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1 Requirements for Installing an Actifio Sky Appliance on VMware

The following sections provide the requirements for installing an Actifio Sky Appliance on a VMware server:

- vSphere Server Requirements on page 1
- Actifio Sky Appliance Memory Requirements on page 3
- Actifio Sky Appliance Storage Requirements on page 4
- Actifio Sky Appliance Networking Requirements on page 5

vSphere Server Requirements

An Actifio Sky Appliance must be installed on a vSphere server configured specifically for a Sky Appliance.

Ensure the vSphere host has **sufficient memory and CPUs/Cores reserved** to accommodate your Actifio Sky model. See Actifio Sky Appliance Memory Requirements on page 3 for details.

Do not share the Actifio Sky Appliance's resources with other VMs. See the A VMware vCenter Administrator's Guide to Actifio GO section on Permissions.

Sky Appliances on Licensed/Unlicensed vSphere Host

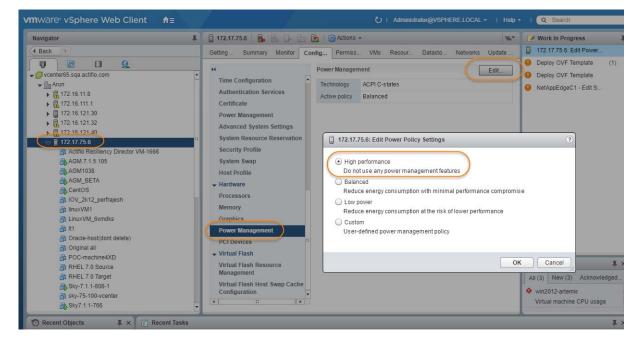
If an appliance is installed on an unlicensed (free) vSphere host, the Policy Templates for that Sky Appliance **CANNOT** capture other VMs and applications installed on that vSphere host.

If an appliance is installed on an unlicensed (free) vSphere host, the Policy Templates for that Sky Appliance **CAN** capture and access VMs and applications on licensed vSphere hosts and applications on physical servers.

If an appliance is installed on a licensed vSphere host, the Policy Templates for that Sky Appliance **CAN** capture VMs and applications on the vSphere host on which the Sky Appliance is installed. Policy Templates for that Sky Appliance can also capture VMs and applications on other licensed vSphere hosts and applications on physical servers.

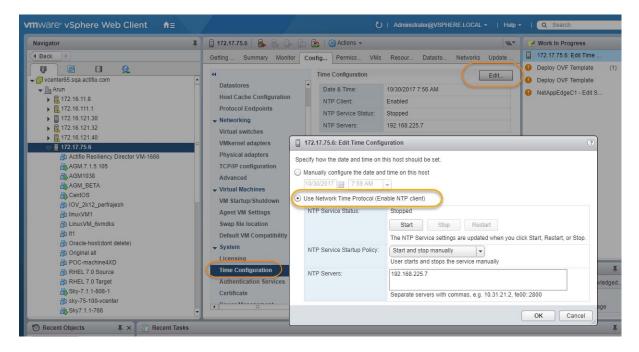
vSphere Host Power Management Off

Power management can interfere with the operation of a Sky Appliance. Ensure that power management for the ESX host is set to **High Performance**.



vSphere NTP

Do not use VMware Tools periodic time synchronization for the Sky Appliance's VM. Use NTP instead.



Actifio Sky Appliance Memory Requirements

This table allows you to compare the requirements and capabilities of Sky models.

Requirement	Model				
	60ТВ	120TB	200ТВ		
CPUs required. ^a	4	6	8		
CPUs required for encryption at rest. ^a	8	10			
Ainimum Reserved Memory 16GiB 32GiB					
Minimum Disk Space for Primary Pool ^b	k Space for Primary Pool ^b 200GiB				
Minimum Disk Space for Snapshot Pool					
Required Disk Space for Dedup Pool		100GiB			
Maximum VDisks		10,000			

- a. Minimum 2 GHz per CPU. The CPUs **must be reserved** and the balloon driver must be turned off. Any paging or swapping will cause significant performance impact and in some cases result in the appliance deadlocking.
- b. See Actifio Sky Appliance Storage Requirements on page 4. Must be Thick Provision Eager Zeroed.

Actifio Sky Appliance Storage Requirements

The Sky Appliance uses three storage pools: Primary Pool, Snapshot Pool, and the Dedup Pool. Each pool **MUST:**

- Reside on a separate RAID-6 array that supports at least 100 IOPS per disk.
- Use 7200 RPM disks, 10,000 RPM disks are preferred.
- Have a performance profile of 35 random reads per second per TB with 64KB read size or 10 random writes per second per TB with 64 KB write size.

Note: Run the IOPerf tool prior to Sky Appliance installation to ensure adequate performance. ActifioNOW contains documentation on how to run IOP.

Use Thick Provision Eager Zero disks.

Note: Using thin provisioned disks can result in data loss.

To size a Sky Appliance, you must consider the amount of data to be captured, its type, change rate, growth, and how long it will be retained. These variables and others are considered in the VDP solution sizing tool.

The sizing tool will recommend how to allocate space for at least three **Thick Provisioned Eager Zero** disks:

- **Primary Pool:** One 200 GiB disk used by the Actifio Sky Appliance.
- **Snapshot Pool:** Accommodates the full copies (snapshots) to be retained, plus enough space for future growth. A minimum of 10 GiB is required. You can add additional disks in vSphere to accommodate growth. The Snapshot Pool requires its own SCSI controller set to VMware Paravirtual. See Adding SCSI Controllers on page 16 for details.
- **Dedup Pool:** A minimum of 100 GiB is required. You can add additional disks in vSphere to accommodate growth.

Note: Do not resize disks for Snapshot Pools. If additional storage is needed, add disks.

When creating disks, ensure that the Mode is set to Independent and Persistent.

Actifio Sky Appliance Networking Requirements

Sky Appliances require the following network settings:

- Static IPs: You must provide static IPs for all NICs on Sky Appliances.
- **VMXNET3**: Sky Appliance models 30, 50, 120, and 200 must use the VMXNET3 Ethernet adapter. These adapters enable 10GB performance.
- Adding NICs: By default, the Sky Appliance comes with a single NIC. To add additional NICs, see Adding and Configuring Additional Network Interfaces on page 25.

Actifio Sky Network Protocol support

Actifio Sky supports storage presentation (as part of backup/recovery and mount operations) over iSCSI or NFS. The configuration requirements for each of these protocols is detailed below

- **NFS**: As long as you have a network connection from both the Sky Appliance and the vSphere host that the VM resides on, all backups and mounts using NFS will proceed normally. You can use NFS over your network without configuring iSCSI.
- **iSCSI**: The Sky Appliance uses iSCSI to mount data. Ensure that iSCSI is turned on for the Sky Appliance's vSphere host, and for the servers that host the data the Sky Appliance will capture and manage.

When capturing an entire vSphere VM, iSCSI does not need to be configured on the vSphere host that hosts the VM to be captured. Once the VM has been captured, to present the VM to another vSphere host, including the vSphere host from which it was captured, the vSphere host must have iSCSI configured.

When capturing individual applications on a VM, rather than capturing the entire VM, iSCSI must be configured on the VM's vSphere host.

The Snapshot pool and the Dedup pool must each have their own SCSI controller set to VMware Paravirtual.

2 Actifio Appliance VMware vSAN Requirements

If the Actifio Sky Appliance will use VMware's vSAN storage, then you must consider the VMware vSAN storage policy used when you deploy the Sky Appliance OVA. The best practice is to use the vSAN Default Storage Policy.

VMware provides detailed step-by-step instructions on how to create and modify VMware vSAN storage polices.

1. From a vSAN data center's top bar drop down menu, select Policies and Profiles:



2. From VM Storage Policies, either create a new policy or select and edit an existing policy:



3. The vSAN policy sets the rules for fault tolerance (Primary level of failures to tolerate). You must consider how the fault tolerance settings will impact storage.

A policy with a Primary level of failures to tolerate set to 1 or more will allow the Sky Appliance fault tolerant operations across the ESX cluster. Setting the value of Primary level of failures to tolerate to a value of "n" will increase the storage requirements "n" times. For example, if a policy has 100 GB of storage and a level of 1, then it will require 200 GB of storage.

From the policy editor, set Primary level of failures to tolerate to the required level. Pay attention to how your setting impacts storage.

vmware vSphere Web Client	t fill			U Administrator@V
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				OK Cancel

- 4. Make other settings as needed.
- 5. Click **OK** and the policy is complete.

3 Deploying the Actifio Sky Appliance OVA

This chapter provides instructions for deploying and configuring the Sky Appliance Open Virtual Appliance (OVA) using the best practices detailed in Chapter 1, Requirements for Installing an Actifio Sky Appliance on VMware.

Deploying the Sky Appliance OVA on page 10 Configuring CPUs and Memory on page 12 Adding SCSI Controllers on page 16 Adding Disks on page 17 Adding Network Interfaces on page 18 Turning the Balloon Driver Off on page 19

Note: At this point the VM must be powered down. Later on, you will power on the VM.

Downloading the OVA

Before you can install a Sky appliance, you must download the OVA file from the portal. To download the OVA, open the dashboard and click **Download Sky OVA**.

actifiogo	Hybrid Mode	Dankhbrann Monitor Need Help? - bodab+131 (sqoogle.com -
Looking to backup workloads	running in GCP? Please check	cout Google Cloud's Backup and DR service
Using Actific GO for on-premi	ses workloads.	
Actifio GO requires a dedicate backups of on-premises work		remise workloads. Google managed AGM does not support managing
OVA files can be downloaded	using the link below.	
Download AGM OVA	oad AGM md5	
Download SKY OVA	and SKY mdS	
Please refer to the AGM, SKV	deployment guide to understa	nd the next steps that need to be taken after downloading OVA files.
In case you encounter any iss include your ActifioGO user na		les, please send an email to Actifio80-cs@google.com. Request you to please in the email.

Deploying the Sky Appliance OVA

Once you have obtained a copy of the Sky Appliance OVA:

- 1. From the vSphere web client, select the host for the Sky Appliance VM.
- 2. From the vSphere web client's Actions drop-down menu, select Deploy OVF Template.

Navigator	I 172.17.75.6 🔒 🔒 🕞 🛅	💽 🔯 Actions 👻 📃 💌 Work	k in Progress
C Back ▶ ² vcenter65 sga.actifu.com ² Nonter65 sga.actifu.com ² Interference	G., Su., M., C., Pe., V What is a Host? A host is a computer that uses virtue software, such as ESX and ESX), to machines. Hosts provide the CPU a memory resources that virtual mach and give virtual machines access to and network connectivity.		1 - Edit S

- 3. Browse to the OVA file.
- 4. Complete the deployment like any other OVF template including:
 - o Enter a name for the Sky Appliance.
 - o Select the cluster/host to store the Sky Appliance.

1 Select template 2 Select name and location	Select storage Select location to store the fil								
		les for the deployed template.							
3 Select a resource	Select virtual disk format:	Thick provision eager zeroed	I •]						
4 Review details	VM storage policy:	Show datastores from Storage DRS clusters							
5 Select storage	Show datastores from St	orage DRS clusters							
6 Select networks									
7 Customize template									
8 Ready to complete	Datastores Datastore C	lusters		_					
			C	🖲 茨 🍱 🔍 Filt	ter •				
8 Ready to complete	Name	1 🛦 Status	VM storage policy	Capacity	Free				
	 Image: Image: vsanDatastore 	Normal	VM Encryption P	14.55 TB	9.74 TB				

- 5. When selecting storage: Select *Thick provisioned eager zero* and ensure that the storage selected has enough room to accommodate the 130 GB OS Volume.
- 6. If the Sky Appliance uses VMware vSAN (recommended), then select the vSAN policy created for the appliance's fault tolerance requirements. See Actific Appliance VMware vSAN Requirements on page 7 for details.
- 7. Select the network for the management interface. For appliances that require multiple networks, you will add those networks after the Sky Appliance is completely installed.
- 8. For network settings, enter a static IP, Gateway, DNS, and Netmask. DO NOT use DHCP.
- 9. Click **Next** and review your settings:

Navigator	¥ 🖪	172.17.75.6 🔒 🛃 🕞 👔 🍪 Actions 👻 🚍 Work In Progress
4 Rack		Den M. C. C. M. C. D. N. M. Pallov OVF Template
🍘 Deploy OVF Template		(?)
 1 Select template 	Ready to complete Review configuration data.	
2 Select name and location	Newew configuration data.	
3 Select a resource	Name	Sky8.0.0-1576
4 Review details	Source VM name	Sky8.0.0-1576
✓ 5 Select storage	Download size	4.2 GB
✓ 6 Select networks	Size on disk	130.0 GB
 7 Customize template 	Folder	Discovered virtual machine
8 Ready to complete	Resource	172.17.75.6
	 Storage mapping 	1
	 Network mapping 	1
	 IP allocation settings 	IPv4, Static - Manual
	Properties	DNS = 172.16.1.10 Default Gateway = 172.16.1.1 Network 1 H Address = 172.16.216.33 Network 1 Netmask = 255.255.55.0
		Network 1 Netmask = 255.255.0
		Back Next Finish Cancel

You can use the Back button to go back and make changes.

10. Click **Finish** and your Sky Appliance VM will be deployed.

Configuring CPUs and Memory

Once the VM has been deployed, reserve and configure its CPUs and memory according to your license requirements. See Actifio Sky Appliance Memory Requirements on page 3 for details.

- Configuring Memory Reservation
- Configuring CPU Reservation
- Configuring CPU Cores Per Socket

Configuring Memory Reservation

1. Select the Actifio Sky VM.

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Back Image: Constraint of the second se	•	Getti Sum Monitor Confl Perm What is a Virtual Machine? A virtual machine is a software computer that, like a physical computer, runs an operating system and applications. An operating system installed on a virtual machine is called a guest operating system. Because every virtual machine is an isolated computing environment, you can use virtual machines a desktop or vorkstation environments, as testing environments, or to consolidate server applications. In vCenter Server, virtual machines run on	Actions - Sky8.0 0DocTest Power Guest OS Snapshots Open Console Migrate Clone Template Fault Tolerance VM Policies Compatibility Export System Loss	Deploy OVF Template NetAppEdgeC1 - Edit S
	• • •	hosts or clusters. The same host can run many virtual machines.	Edit Resource Settings Edit Resource Settings Move To Rename Edit Notes Tags & Custom Attributes Add Permission Alarms	Alarms I

2. From the **Actions** drop down menu, select **Edit Settings**. The Edit Settings dialog box is open to the Virtual Hardware tab:

Virtual Hardware VM Options	SDRS Rules vApp Options
r 🔲 CPU	2 0
Memory	16384 V MB V
Hard disk 1	130 GB V
▶ ☑ SCSI controller 0	LSI Logic Parallel
Metwork adapter 1	VM Network
Video card	Specify custom settings
VMCI device	
 Other Devices 	
 Upgrade 	Schedule VM Compatibility Upgrade
New device:	Select Add
Compatibility: ESX/ESXi 4.0 and	later (VM version 7) OK Cancel

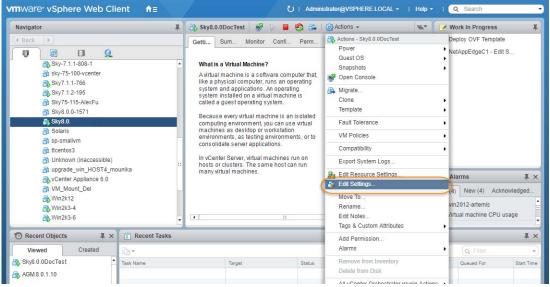
3. Expand Memory and check Reserve all guest memory (All locked).

Virtual Hardware	/M Options	SDRS Rules	vAp	Options			
CPU	2		-	0			
Memory	_						
RAM	1024	40	-	MB	-		
Reservation (1024	10	+	MB	+		
	R	eserve all guest	memo	ry (All locks	ed)		
Limit	Unlin	mited	-	MB	-		
Shares	Norr	nal	-	102400	-		
Memory Hot P	ug 🔲 Er	able					
Hard disk 1	130		*	GB	-		
SCSI controlle	0 LSIL	ogic Parallel					
Network adapt	er 1 PRIV	ATE NETWOR	K FOR	RAC	-	Connect	
Video card	Spe	cify custom setti	ngs		-		
WMCI device					_		
Other Devices							
Upgrade	Sc	hedule VM Com	patibi	ity Upgrad	e		
New de	vice:	Select			•	Add	

- 4. Select OK.
- 5. Review the Hardware Summary to ensure you have properly reserved memory.

Configuring CPU Reservation

1. Select the Actifio Sky VM.



2. From the **Actions** drop down menu, select **Edit Settings**. The Edit Settings dialog box is open to the Virtual Hardware tab:

Vitual Hardware VM Options SDRS Rules vApp Options Image: CPU 2 • Image: CPU Image: CPU Image: Memory 16384 • MB • Image: CPU 130 Image: CPU Image: CPU Image: CPU Image: CPU 130 Image: CPU Image: CPU Image: CPU Image: CPU Image: CPU Image: CPU Image: CPU Image: CPU Image: CPU Image: CPU Image: CPU Image: CPU Image: CPU Image: CPU Image: CPU Image: CPU Image: CPU Image: CPU Image: CPU Image: CPU	🔁 Sky8.0.0DocTest - Edit Settings				
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Image: Section of the section of t	🕨 🖬 CPU	2 0			
G SCSI controller 0 LSI Logic Parallel Metwork adapter 1 VM Network VM Network Specify custom settings VMCI device Other Devices Upgrade Schedule VM Compatibility Upgrade	Memory	16384 • MB •			
Metwork adapter 1 VM Network VM Network VM Closs Other Devices Upgrade Schedule VM Compatibility Upgrade	Hard disk 1	130 GB V			
Wideo card Specify custom settings > @ VMCI device > Other Devices > Upgrade Schedule VM Compatibility Upgrade	 القي SCSI controller 0 	LSI Logic Parallel			
WMCI device Other Devices Upgrade Schedule VM Compatibility Upgrade	Network adapter 1	VM Network			
Other Devices Upgrade Schedule VM Compatibility Upgrade	Video card	Specify custom settings			
Upgrade CSchedule VM Compatibility Upgrade	VMCI device				
	 Other Devices 				
New device: Select Y Add	Upgrade	Schedule VM Compatibility Upgrade			
New device: Select Y Add					
Compatibility: ESX/ESXi 4.0 and later (VM version 7) OK Cancel					

3. Expand CPU, specify the CPU's reservation value and units.

irtual Hardware	VM Options	SDRS Rules	vApp Opt	0.000	-			Ī
intual Haruware	VIVI Options	SDRS Rules	whh ohr	Olis				
CPU *CPU		4	-	0				ŀ
Cores per S	iocket (*)	4	-	Sockets	: 1			
CPU Hot Plu	g	Enable CPU	J Hot Add					
* Reservation	n (*)	0	-	MHz	-			
Limit		Current value: 0 MHz MHz						
Shares		Minimum: 0 MHz		4000 👻				
CPUID Mask	CPUID Mask		Maximum: 47544 M		-	Advanced		
Hardware vi	rtualization	Expose har	dware assiste	are assisted virtualization to the guest OS				
Performance	counters	Enable virtu	alized CPU	performan	ce co	unters		
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		hardware supp and the virtual the automatics Note: If a select	oort for virtual machine. Ho selection can cted setting is rtual machine	ization ba wever, for provide b not supp s settings,	sed o some orter	al machine should use n the processor type a workloads, overriding performance. by the host or conflicts etting is ignored and the		

- 4. Select **OK**.
- 5. Review the Hardware Summary to ensure you have properly reserved CPU.

Configuring CPU Cores Per Socket

1. Select the Actifio Sky VM.

Navigator	Ŧ	🚯 Sky8.0.0DocTest 🛛 💕 🕞 📕	🙆 Actions 👻 🔫	💵 📝 Work In Progress
Back Image: Constraint of the second se		Getti Sum Monitor Confi Perm What is a Virtual Machine? Avirtual machine is a software computer that, like a physical computer, runs an operating system installed on a virtual machine is called a guest operating system Because every virtual machine is an isolated computing environment, sa testing environments, or to	Actions - Sty8 0.0DocTest Power Guest OS Snapshots Open Console Migrate Cione Template Fault Tolerance VM Policies	Deploy OVF Template NetAppEdgeC1 - Edit S
() sp-smallvm () totentos3 () Unknown (inaccessible) () upgrade_win_HOST4_mounika () vocenter Appliance 6.0 () W1_Mount_Del () W1_M0210_1		consolidate server applications. In vCenter Server, virtual machines run on hosts or clusters. The same host can run many virtual machines.	Compatibility Export System Logs Edit Resource Settings Control Settings Move To Rename.	Alarms I (4) New (4) Acknowledged wip2012-artemis
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Viewed Created			Add Permission Alarms	• (Q Filter
Slog 0 0DocTest			Remove from Inventory	

2. From the **Actions** drop down menu, select **Edit Settings**. The Edit Settings dialog box is open to the Virtual Hardware tab:

tual Hardware	VM Options	SDRS Rules	vApp Options)	
CPU		2	• 0		
Memory		16384	• MB	Ŧ	
🔜 Hard disk 1		130	🔹 GE	3 🗸)
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📑 Network ada;	oter 1	VM Network		-	Connected
Video card		Specify custon	n settings	Ŧ	
🔅 VMCI device					
Other Devices					
Upgrade		Schedule VI	A Compatibility U	pgrade	

3. Expand **CPU**, click **Cores per Socket** and select the number of cores from the drop down list.

							(? H
Virtual Hardware	VM Options	SDRS Rules	vApp Opti	ons			
- 🔲 •СРU 🗲		4		0			-
Cores per S	ocket (*)	4	-	Sockets	: 1		
CPU Hot Plu	g	Enable CPU	Hot Add				
Reservation	ŧ.	0	-	MHz	-		
Limit	1	Unlimited	-	MHz	-		
Shares		Normal	-	4000	*		
CPUID Mask		Expose the NX	/XD flag to g	guest	-	Advanced	

- 4. Select **OK**.
- 5. Review the Hardware Summary to ensure you have properly reserved cores.

Adding SCSI Controllers

The Sky Appliance VM requires two disks, each with its own SCSI controller:

- The VM's operating system and the Primary pool disk can both use the 0:0 controller.
- The Snapshot Pool uses the 1:0 controller. Disks assigned to the Snapshot Pool will use 1:x. The controller for the Snapshot Pool must be set to VMware Paravirtual.

A controller can accommodate up to 16 disks. If you find it necessary to create more than 15 disks for a pool, you will need to define a new controller.

To add SCSI controllers as VMware Paravirtual:

- 1. Select the Sky Appliance VM.
- 2. From the Actions drop-down menu, select **Edit Settings.** The Edit Settings dialog box is open to the **Virtual Hardware** tab.
- 3. From the New Device drop down-menu at the bottom of the dialog box, select **SCSI controller**.

Virtual Hardware	VM Options	SDRS Rules	vApp Optic	ons
CPU		2	•	0
Memory		16384	-	MB
Hard disk 1		130	*	GB 🖵
SCSI control	ler 0	LSI Logic Parall	el	
🕨 🗾 Network ada	pter 1	VM Network		Connected
Video card		Specify custom	settings	-
VMCI device				
Other Devices				
 Upgrade 		Schedule VN	I Compatibili	ity Upgrade
News	Jevice:	SCSI CO	ntroller	Add

- 4. Click Add and the options for the SCSI controller are displayed.
- 5. Expand the options under the New SCSI Controller. Select **VMware Paravirtual** and then click **OK**.

Virtual Hardware VM Option	ons SDRS Rules vApp Options
> 🔲 CPU	2 • •
Memory	16384 v MB v
Hard disk 1	130 G B v
▶ I SCSI controller 0	LSI Logic Parallel
Metwork adapter 1	VM Network
Video card	Specify custom settings
VMCI device	
 Other Devices 	
 Upgrade 	Schedule VM Compatibility Upgrade
- C. New SCSI controller	VMware Paravirtual
SCSI Bus Sharing	None 🔹 🖬
Change Type	VMware Paravirtual

- 6. Add another SCSI Controller as needed.
- 7. Click **OK** to close the Edit Settings dialog box.

Once you have defined the controllers, you can add disks and assign them to their respective controllers. See Adding Disks on page 17.

Adding Disks

Once the SCSI controllers are created and are configured, configure the VM's disks as follows.

Note: The disks defined here will be placed into storage pools later.

1. On the Virtual Hardware tab, select Add:

Virtual Hardware VM Options	SDRS Rules vApp Options
> 🔲 CPU	2 • 0
Memory	16384 v MB v
+ 🛄 Hard disk 1	130 GB V
▶ SCSI controller 0	LSI Logic Parallel
SCSI controller 1	VMware Paravirtual
Network adapter 1	VM Network 🖉 Connected
Video card	Specify custom settings
VMCI device	
 Other Devices 	
▶ Upgrade	Schedule VM Compatibility Upgrade
👻 🛄 New Hard disk	400 GB V
Maximum Size	7.10 TB
VM storage policy	Datastore Default
Location	Store with the virtual machine
Disk Provisioning	Thick provision eager zeroed 🛛 👻
Sharing	Unspecified v
Shares	Normal - 1,000
Limit - IOPs	Unlimited •
Disk Mode	Independent - Per 💌 🛈
Virtual Device Node	SCSI controller 1 V SCSI(1:1)
New device:	Add
Compatibility: ESX/ESXi 4.0 and	later (VM version 7) OK Cancel

2. In the Add Hardware dialog, select **Hard Disk**.

Note: Disks **MUST BE THICK PROVISIONED EAGER ZEROED**. Thin provisioned disks may cause capture operations to fail and the loss of data.

3. Your Sky Appliance requires at least three **Thick Provision Eager Zeroed** disks.

To size your Sky Appliance, you considered the amount of data to be captured, its type, change rate, growth and how long it would be retained. This same information is required to allocate space for the Sky Appliance's disks.

- o One 200 GiB disk for the Primary Pool. This disk is used by the Sky Appliance.
- o One disk for the Snapshot Pool. Allocate enough space to accommodate the full copies (snapshots) to be retained, plus enough space for growth. A minimum of 10 GiB is required. You can add additional disks in vSphere to accommodate growth.
- o One 100 GiB disk for the Dedup Pool. This disk is used by the Sky Appliance.

Note: The pool names for these disks are used in Configuring an Actifio Sky Appliance.

- 4. For the disks that will be assigned to the Snapshot Pool from the Virtual Device Node drop down menu, select the SCSI controller 1:x.
- 5. Under Mode, check **Independent** and accept the default of **Persistent**.
- 6. Click **OK** and the disk is configured. Once you have finished configuring all of the disks, you can power up the VM.

Note: Do not resize disks for pools. If additional storage is needed, add disks.

Adding Network Interfaces

Once the Sky Appliance is up and running, you can add additional network interfaces. For environments that require multiple NICs (for example, one NIC for data storage and another NIC for management), you must manually add network adapters to the Sky Appliance VM and then configure the additional adapters through the System Management user interface. See Adding and Configuring Additional Network Interfaces on page 25 for details.

For Sky Appliance network requirements, see Actifio Sky Appliance Networking Requirements on page 5.

Worker Thread Errors

Worker Thread errors such as:

```
2016-05-26 13:21:39.138 INFO Worker_Thread_Job_0593710 SC6164: Error: 1732: Worker thread failed: write failed for "\\?\C:\Windows\act\Staging_584181\SPARK CRM04\F_2016-03-01T211433.vhd": The storage device is unresponsive [0x8003020a]
```

Indicate either:

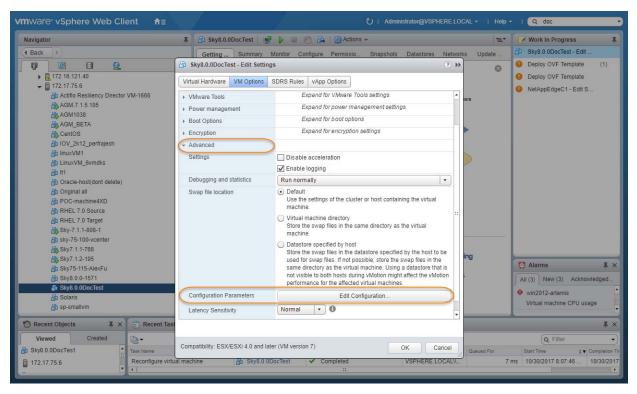
- Memory for the Sky Appliance has been incorrectly allocated.
- The bandwidth for the network on which the Sky Appliance resides is consumed by other devices.

Turning the Balloon Driver Off

Once the VM has been configured, before you can configure the Sky Appliance, you must power down the Sky Appliance VM and turn off the Ballooning Driver. The balloon driver must be turned off because any paging or swapping will cause significant performance impact, and in some cases result in the Sky Appliance deadlocking.

To turn off the ballooning driver:

- 1. Log into the vSphere host as a user with administrative rights.
- 2. Shut down the Sky Appliance.
- 3. From the Actions drop-down menu, select Edit Settings.
- 4. Click the **VM Options** tab.
- 5. On the left-hand side of the VM Options tab, click **Advanced**.
- 6. Click Edit Configuration.



- 7. In the space provided for Name, enter sched.mem.maxmemctl.
- 8. In the space provided for Value, enter **0**.
- 9. Click **Add**. Ballooning is turned off.

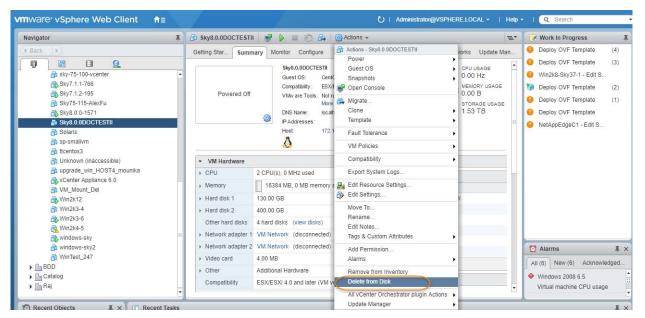
avigator	🖡 👘 Sky8.0.0DocTest	📝 👂 💷 🀑 🚑 🚳 Actions 🗸	=* 📝 Wo	ork in Progress
Back	Getting Summary	Monitor Configure Permissio Snapshots	Datastores Networks Update 🗗 Sky	/8.0.0DocTest - Edit
	🗗 Sky8.0.0DocTest - Edit Sett	lings	(?) 🔊 😵 😃 Dep	ploy OVF Template (
 ▶ 172.16.121.40 ↓ 172.17.75.6 	Virtual Hardware VM Options	SDRS Rules vApp Options	() Dep	ploy OVF Template
Actifio Resiliency Director VM-1666	VMware Tools	Configuration Parameters		x
AGM.7.1.5.105 AGM1038 AGM_BETA	Power management Boot Options	Modify or add configuration parameters as values will be removed (supported on ESXi	needed for experimental features or as instructed by te 6.0 and later).	chnical support. Empty
CentOS	► Encryption		Q FI	ilter 🔹
IOV_2k12_perfrajesh	Advanced	Name	Value	
副 linuxVM1 圖 LinuxVM_6vmdks	Settings	userCPUID.0	0000000d756e65476c65746e49656e65	9
		userCPUID.1	000206d700200800029822030fabfbff	
Dracle-host(dont delete)	Debugging and statistics	userCPUID.80000001	000000000000000000000000000000000000000	0
街 Original all	Swap file location	virtualHW.productCompatibility	hosted	
POC-machine4XD		vmci filter enable	true	
RHEL 7.0 Source RHEL 7.0 Target			(33)43) 76 m	
Sky-7.1.1-808-1		vmci0.pciSlotNumber	32	
a sky-75-100-vcenter		vmotion.checkpointFBSize	4194304	
B Sky7.1.1-766		vmware.tools.internalversion	9216	
Sky7.1.2-195		vmware.tools.requiredversion	9349	
Alexent Sky8.0.0-1571		sched.mem.maxmemctl	0	
F Sky8.0.0DocTest				
Diaris	Configuration Parameters			
an sp-smallvm	Latency Sensitivity	Name:	Value:	Add
Recent Objects I × Recent	Tasi			
Viewed Created				OK Cancel
Viewed Created	Compatibility: ESX/ESXi 4.0 and	later (VM version 7)	OK Cancel Queued For Start T	Con a mon
H	rtual machine 🛛 🖓 Sky8.0	0.0DocTest Completed	Gueuea Por Start I	Time 1 ▼ Comp 0/2017 8:04:36 10/3

- 10. Click **OK** and exit out of the Edit Settings dialog boxes.
- 11. Power up the Sky Appliance VM and continue on to Chapter 4, Configuring an Actifio Sky Appliance.

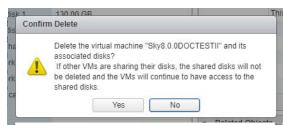
Deleting an Actifio Sky Appliance VM

To delete an Actifio Sky Appliance VM:

- 1. From AGM, power down the Sky Appliance VM.
- 2. From the vSphere Web Client's left-hand navigation frame, select the Sky Appliance VM to be deleted.



- 3. From the VMware Web Client's Action drop down menu, select **Delete from Disk**. This option is only available if the VM is powered down.
- 4. When you click Delete from Disk, a confirmation message is displayed. Ensure that the VM name displayed in the confirmation message is the name of the Sky Appliance VM you want to delete.



5. If the name in the confirmation message matches the name of the Sky Appliance VM that you want to delete, then click **Yes** and the Sky Appliance VM and its disks will be deleted.

4 Configuring an Actifio Sky Appliance

After the VM is configured and powered up, it is ready to be configured as an Actifio Sky Appliance.

Note: For the following procedure you will need the IP address of the VM. The VM's IP is on the VM's vSphere Summary page.

- 1. Open a browser and in the address space, enter the IP of the newly configured Sky Appliance VM: http://<VM IP address>/.
- 2. The installer opens the first of three tabs:

STEP 1: Setup Network Cont	iguration STEP 2: Setup Storage Configura	on STEP 3: Review and Complete Installation	
All Items marked with (*) an	required.		
Public IP			
IPv4 address for cloud config	uration.		
Appliance IP (*)	172 . 17 . 205 . 106		
IPv4 address on port 1 for Ad joining this appliance with ot	tifio Desktop and CLI clients. Also used for her PAS appliances.		
Appliance Name (*)	localhost.localdom		
DNS Server	172.17.1.10		
Subnet Mask	255 . 255 . 0 . 0		
Gateway	172 . 17 . 1 . 1		
NTP Server			
Infrastructure	VMWare T		
Initiastructure	vinware .		
Timezone	Africa/Abidjan		
System uuid (*)	1415068751:c222a0bd-e7bd-37cc-913a- 04a9cfd86f4b:a4b7b9d7		
License	Evaluation license: Dedup pool size is set to 5TB with no encryption for 30 days fram the start of installation. Pleese contact Actifio to upgrade to production licenses.		
Create Admin Password (*) Confirm Admin Password (*)	Validate License	Next >	1

- 3. If your Sky Appliance will sit behind a firewall, enter the Public IP Address in the spaces provided.
- 4. Ensure that the auto-discovered Sky Appliance IP address is correct.
- 5. In the space provided, enter a name for the Sky Appliance.

- 6. Ensure that the auto discovered network IP addresses are correct.
- 7. From the Infrastructure drop down menu, select VMware.
- 8. Set the time zone as needed.
- 9. Capture the system UUID and include it in an email license key request for each install to Actifio Support. Actifio will use the UUID to generate the Sky Appliance license key.
- 10. In the space provided, paste the license key you obtained from the Actifio representative.
- 11. Click Validate License to ensure the validity of the license entered.
- 12. If you are using a Sky model encryption license, a Pass phrase field is displayed. Enter a pass phrase, record the pass phrase and keep it in a secure location.
- 13. In the spaces provided create a password for the first Admin user of the Sky Appliance.
- 14. Click **Next**, and the Step 2 tab contents are displayed:

200	PRIMARY POOL 8 sdb Size: 400.00 GB	Required Size: 400 GB	Available Disks (3) 🗄	
GB			Size: 400.00 GB	
10 GB	SNAPSHOT POOL 😵 sdd Size: 100.00 GB	Required Size: 100 GB	sdc Size: 1024.00 GB	
100 GB	DEDUP POOL 8 sdc Size: 1024.00 GB	Required Size: 1024 GB		

< Back

Validate Installation

- 15. Select and drag the Available Disks to the pools for which they were created.
- 16. Click **Validate Installation**. The Sky Appliance installer validates the settings, and if no issues are encountered, advances to the third tab. Any issues will appear in a yellow field at the top of the page 2.
- 17. The third tab provides the opportunity to review choices and go back to make changes as needed.



18. Once choices are verified, click **Complete Installation** and the Sky Appliance will reboot. The reboot may take several minutes. The user interface will become responsive before the appliance is ready for use. Do not attempt any operations until the Dedup light on the Dashboard shows green.

A Adding and Configuring Additional Network Interfaces

Adding additional network interfaces to an Actifio Sky Appliance requires:

Adding a New Network Adapter Configuring a Sky Appliance VM Network Adapter

Adding a New Network Adapter

To add a new network adapter to a Sky Appliance VM:

1. In vSphere, select the Sky Appliance VM.

vmware [®] vSphere Web Client ते≡		ک ا Admi	inistrator@VSPHERE.LOCAL + Help +	Q Search -
Navigator	🖡 🔠 Sky8	8.0.0DocTest 📝 👂 🔳 🗐 🚑	🔯 Actions 👻 📃 🔤	🛿 Work In Progress 🛛 🗐
▲ ▲ ▲ ▲ ▲ ▲ ■ ▲ ▲ ■ ▲ ▲ ■ ▲ ▲ ■ ▲ ▲ ■ ▲ ▲ ■ ▲ ▲ ■ ▲ ▲ ■ ▲ ▲ ■ ■ ▲ ▲ ■ ■ ▲ ▲ ■ ■ ■ ■ ▲ ■	A virtu like a syste syste called Beca comp mach envire conse	Sum Monitor Confl Perm tis a Virtual Machine? Ual machine is a software computer that, a physical computer, runs an operating em and applications. An operating em installed on virtual machine is d a guest operating system. usue every virtual machine is an isolated puting environment, you can use virtual nines as desktop or workstaton roments, as testing environments, or to iolidate server applications.	Actions - Sky8.0.0DocTest Power Guest OS Snapshots Open Console Migrate Cione Template Fault Tolerance VM Policies Compatibility Export System Logs	Deploy OVF Template NetAppEdgeC1 - Edit S
Win2k3-6 Recent Objects Ventor Appliance 6.0 Win2k3-6 Recent Objects Recent Tas	•	y virtual machines.	Coll Resource Settings Coll Settings Move To Rename Edit Notes Tags & Custom Attributes Add Permission	Alarms I × A New (4) Acknowledged win2012-artemis Artual machine CPU usage
Viewed Created			Alarms	C Filter
Sky8.0.0DocTest Task Name AGM.8.0.1.10 Arun T2.16.121.40 AGM_GA_367 SkHEL68-2 Min2012_electra Catalog		Target Status	Remove from Inventory Delete from Disk All vCenter Orchestrator plugin Actions Update Manager	Queued For Start Time
172.16.133.7				

- 2. From the **Actions** drop-down menu, select **Edit Settings.** The Edit Settings dialog box is open to the Virtual Hardware tab.
- 3. From the **New Device** drop-down menu at the bottom of the page, select **Network**.

	Virtual Hardware VM Options	SDRS Rules vApp Options
	▶ 🔲 CPU	2 • •
	▶ IIII Memory	16384 v MB v
est	► → Hard disk 1	130 GB V
DS DS	► → Hard disk 2	10 GB V
ce	▶ ☑ SCSI controller 0	LSI Logic Parallel
	▶ G SCSI controller 1	VMware Paravirtual
	Metwork adapter 1	VM Network 🗸 🗸 Connect
	▶ Image: Video card	Specify custom settings
	VMCI device	
	 Other Devices 	
	▶ Upgrade	Schedule VM Compatibility Upgrade
	- 属 New Network	VM Network
	Status	Connect At Power On
ed	Adapter Type	VMXNET 3
	MAC Address	Automatic 🖵
	New device:	Metwork
	Compatibility: ESX/ESXi 4.0 and la	ater (VM version 7) OK Cancel

- 4. Click Add.
- 5. Expand the options under the New Network and ensure it is using the **VMXNET3** option.
- 6. Click **OK** on the Edit Settings dialog box and the new network adapter is added.
- 7. Once the network adapter is added, use the System Management user interface to configure the network. You can reach the System Management user interface from the Actifio Resource Center (at the IP address of the Sky Appliance).

Configuring a Sky Appliance VM Network Adapter

The System Management user interface is used to configure Sky Appliance network adapters. You access the System Management user interface from the appliance's Actific Resource Center.

To display the Sky Appliance's resource page:

1. Open a browser to the Sky Appliance's Resource Center HTTP://<appliance IP address>/.

SYSTEM & NETWORK MANAGEMENT	CONNECTORS	
System & Network Management Login Page	🚰 Windows Connector	Opployment guide
	(iii) AIX Connector	View all connectors
DOCUMENTATION	HP-UX Connector	
Release Notes and Product Documentation via the Actific	- Ubuntu Connector	
NOW Website (Login Required)	Solaris Connector SPARC x89	
Download zipped Actific Documentation Library	Linux Connector 32.Br 64.Bit PPC	
	SNMP RESOURCES	
	Ø MB	
	LICENSES	
	Additional Software Licenses	

- 2. Click System & Network Management Login Page.
- 3. Log in using the Sky Appliance's administrator credentials, and the System Management interface is displayed.

ostname, DNS, NTP	IPs & Interfaces	Outbound Policies	Troublesh	ooting Host Resolution
NETWORK	SETTINGS			
DNS Domain *			Primary DNS *	172.25.4.150
DNS Suffix	+ Add DNS Suffix		Secondary	
Search	services.actifio.coi	•	DNS	
			NTP Server *	time.actifio.com

- 4. Ensure that the DNS and NTP settings are correct.
- 5. Click the IPs and Interfaces tab, and the IP and Interfaces settings are displayed:

EM MANAGEMEN					📥 admir	LOGOUT
Hostname, DNS, NTP	IPs & Interfaces	0	utbound Policies	Troubleshoot	ing Host	Resolution
Default Interface	none 🔻	Save	0			
				Add	Modify	Delete
Configured IPs				Add	Modify	Delete
Configured IPs	Node	Interface	IP Address	Add Network Mask	Modify Gateway	Delete MTU

6. Click **Add** and the Configure IP dialog box is displayed:

			👗 admin	LOGOUT
	CONFIGURE IP			
Hostname, DNS, NTP	Туре	node 🔻	Host Res	olution
	Node *	node0 🔻		
Default Interface	Interface *	eth1 🔻		
	IP Address *		_	Delete
Configured IPs	Network Mask *			
γ	Gateway			IP Address 172.25.2.25
	MTU			
		Add Cancel		

- 7. Ensure Type is set to **Node**.
- 8. Ensure Node is set to **Node0**.
- 9. Select the interface you created on the Actifio Sky Appliance VM. In this example it is ethl.
- 10. In the spaces provided enter:
 - o A static IP address
 - o A network mask
 - o A Gateway
 - o MTU (Maximum Transmission Unit) can be used to tune the performance characteristics of traffic on an interface. There are many dependencies to consider when adjusting the MTU, as all network devices and servers involved in passing network traffic must support the specified MTU, and there must be space reserved for protocol overhead. If you are not sure what value to use, leave this at the default value of 1500.
- 11. Click **Add** and the interface is configured.