
Installing an Actifio Sky Appliance on a Hyper-V Server

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Preface

This guide provides step-by-step instructions on how to install Actifio Sky on Hyper-V Manager or on SCVMM.

Your Actifio appliance's Documentation Library contains detailed, step-by-step, application-specific instructions on how to protect and access your data. Each guide is in PDF format and may be viewed, downloaded, and printed on demand. The following guides will be of particular interest:

- ***Getting Started with Actifio Copy Data Management***
- ***Setting Up Users and Roles With the Domain Manager***
- ***Configuring Resources and Settings With the Domain Manager***
- ***Planning and Developing Service Level Agreements***
- ***Virtualizing and Protecting Copy Data with the Application Manager***
- ***Managing Copy Data with the Application Manager***

Actifio Appliances

Unless otherwise specified, all features and functions described in this document apply to all Actifio appliances.

The ActifioNOW Customer Portal

During the configuration and initialization of your Actifio appliance your Actifio representative provided you with a user name and password for the ActifioNOW customer portal.

From the ActifioNOW customer portal you can obtain detailed reports about your Actifio appliance, access the Actifio product documentation, including release notes, and search the knowledge base for answers to specific questions.

To log into the ActifioNOW customer portal:

1. Go to: <https://now.actifio.com>.
2. When prompted, enter the user name and password provided by your Actifio representative.

Actifio Support Centers

To contact an Actifio support representative, you can:

- Send email to: support@actifio.com
- Call:
 - From anywhere:** +1.315.261.7501
 - US Toll-Free:** +1.855.392.6810
 - Australia:** 0011 800-16165656
 - Germany:** 00 800-16165656
 - New Zealand:** 00 800-16165656
 - UK:** 0 800-0155019

1 Before You Begin

The Actifio Sky appliance is a virtual machine installed on a Hyper-V hypervisor. Before you begin, your Actifio representative will provide:

- The latest Actifio Sky appliance VHDX file.
- An Actifio Sky appliance license key.

Use this table to compare the capabilities that you get with and the requirements to support these licenses.

License	1TB	5TB*	10TB	30TB	50TB
Cores required. Can be spread across multiple CPUs. Minimum 2 GHz per core.	1	2	4	8	12
Cores required for encryption at rest. Can be spread across multiple CPUs. Minimum 2 GHz/core. Multiple CPUs provide slightly better performance.	2	4	6	10	15
Static Memory	6GB	10GB	16GB	48GB	72GB
Disk space for Primary Pool	400GB (Fixed Size)				
Disk space for Snapshot Pool	10GB (Fixed Size)				
Disk space for Dedup Pool	1TB (Fixed Size)				
SSD minimums	Opt: 11GB	Opt: 52GB	Opt: 103GB	Req: 308GB	Req 512GB
Maximum Actifio VDIs	1000			3000	5000
Actifio Workflow	Additional license required			Included in base license	

Note: The 5TB license is used for evaluations. It cannot be increased. If you decide to purchase an Actifio Sky appliance you can either keep the current 5TB appliance or install a new, separate, larger Actifio Sky appliance.

2 Installing an Actifio Sky Appliance Using SCVMM

This chapter details:

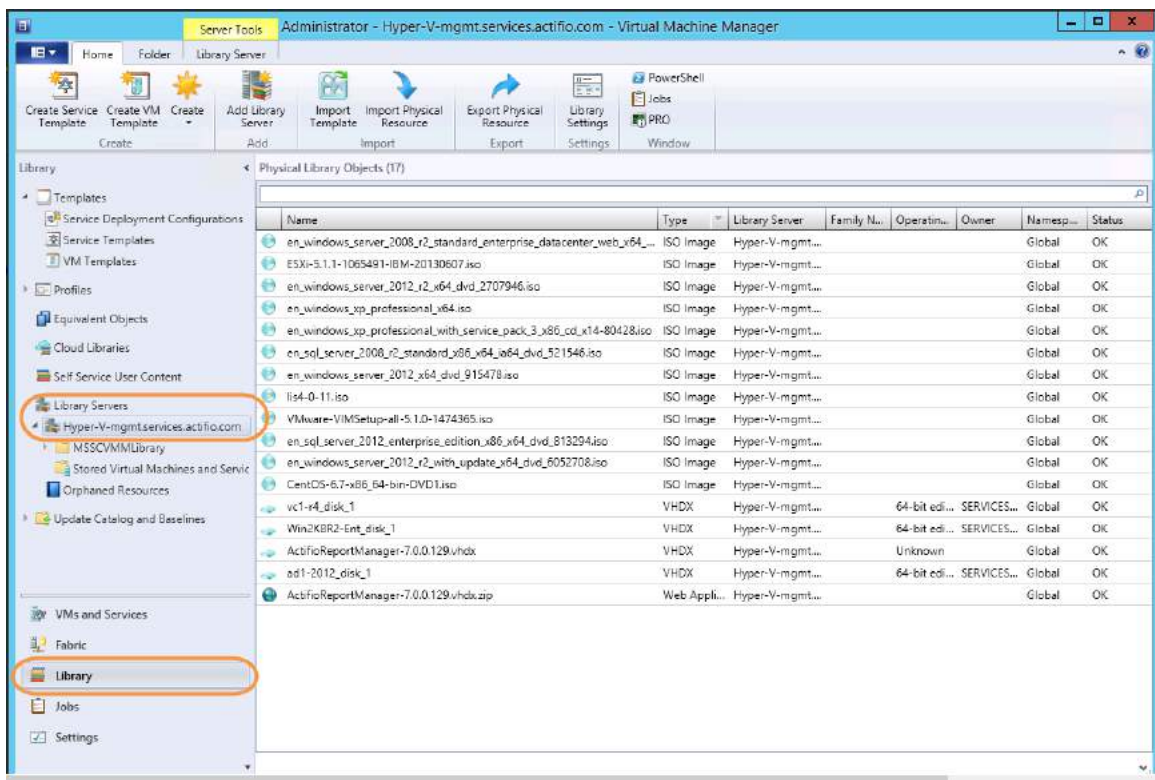
[Deploying the Actifio VHDX in SCVMM on page 3](#)

[Configuring the Actifio Sky VM in SCVMM on page 7](#)

Deploying the Actifio VHDX in SCVMM

You deploy the Actifio VHDX in SCVMM like any other Hyper-V VM. The following steps show SCVMM running on Windows 2012 R2.

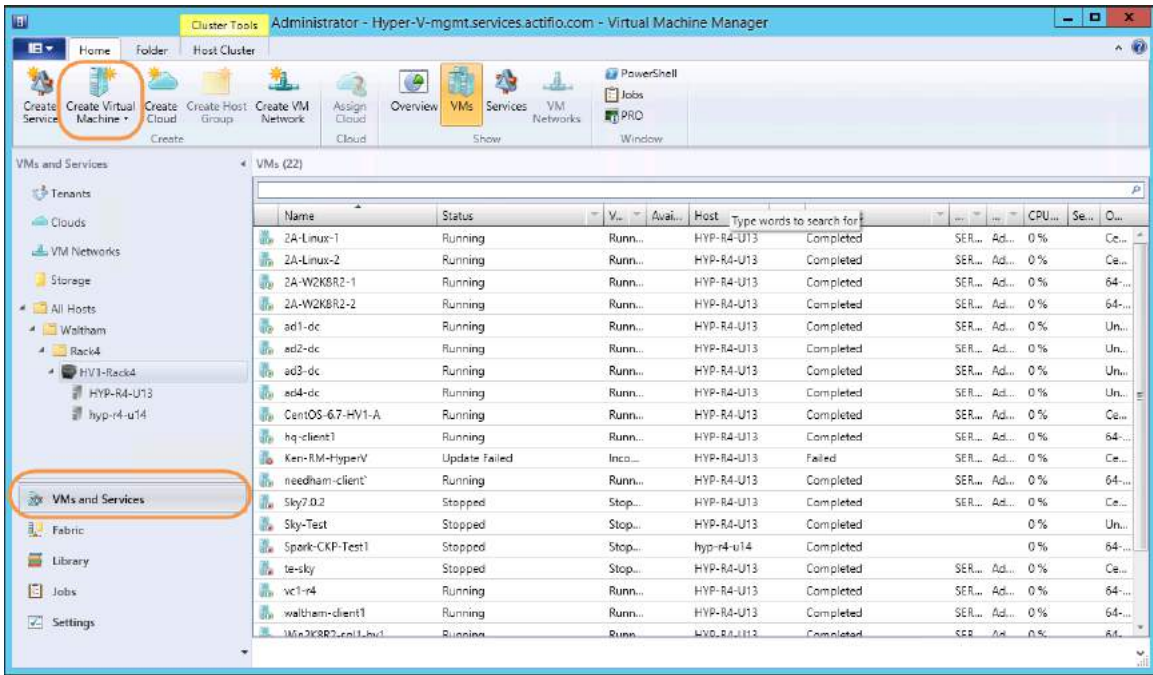
1. Get the Sky appliance VHDX file from Actifio Support and copy it into the VMM Library location.
2. Launch SCVMM.
3. Select **Library** in bottom left pane, then select **Library Servers**. Right-click the server and click **Refresh**.



Refreshing the Library

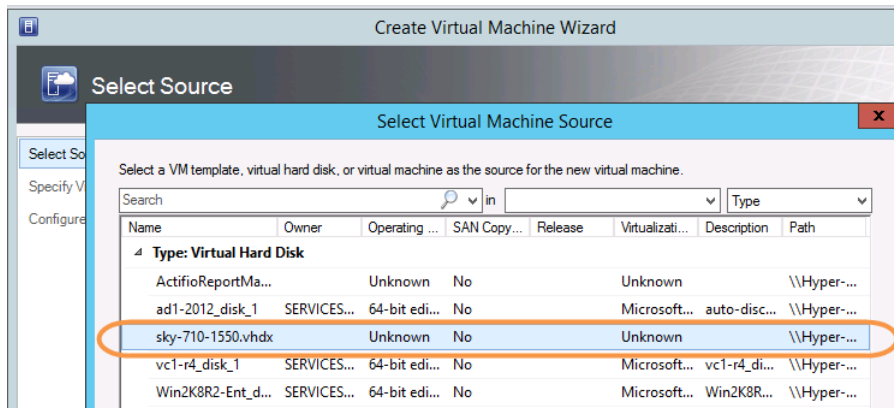
4. Select **VMs and Services** in the bottom left pane.

- On the top tab, select **Create Virtual Machine**.



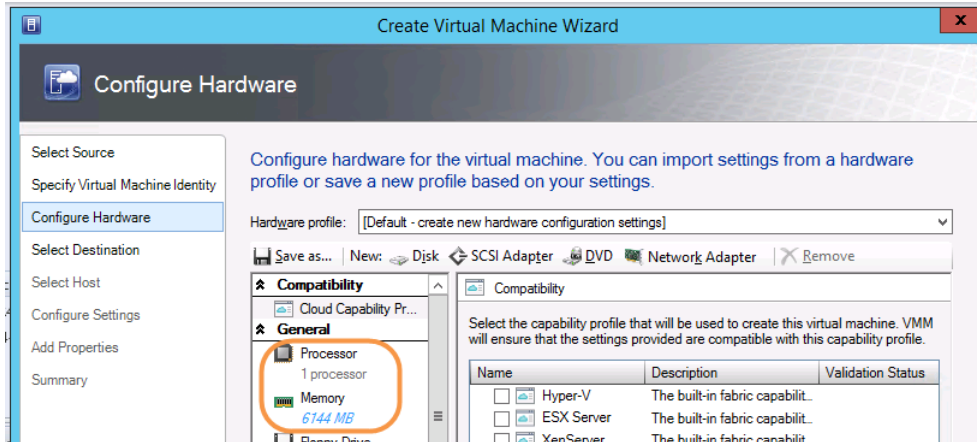
Creating the VM

- In the Select Source section, browse to select the Sky VHDX file from the Library and select **Next**.



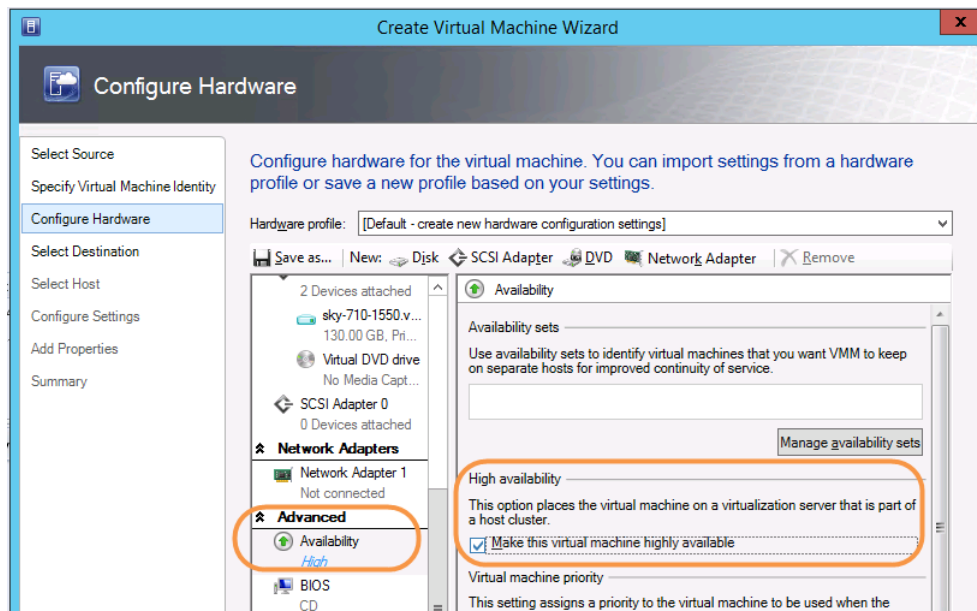
Selecting the VHDX

- Name your virtual machine and select **Next**.
- Set up the CPU/Processors and memory based on the Sky license (see [Chapter 1, Before You Begin](#)) and select **Next**.



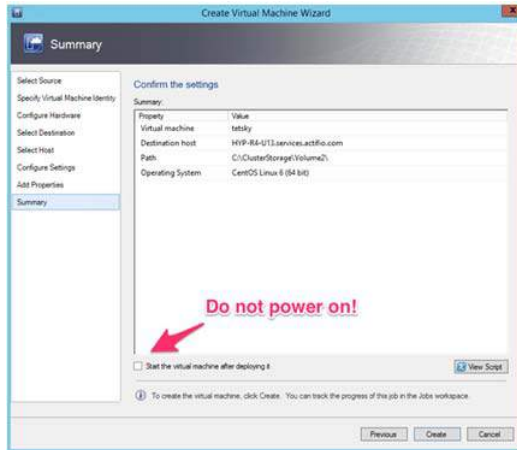
Creating the VM

9. Select **Availability** under Advanced and select **Make this virtual machine highly available**.



Creating the VM

10. Click **Next**.
11. Under **Select Destination**, place the virtual machine where you want it to reside and select **Next**.
12. Under **Select Host**, select the Hyper-V server and select **Next**.
13. Select the **Storage location** for the OS and select **Next**.
14. Select **CentOS Linux 6 (64 bit)** for operating system and select **Next**.
15. Uncheck **Start the virtual machine after deploying it** and click **Create**.



Creating the VM

Configuring the Actifio Sky VM in SCVMM

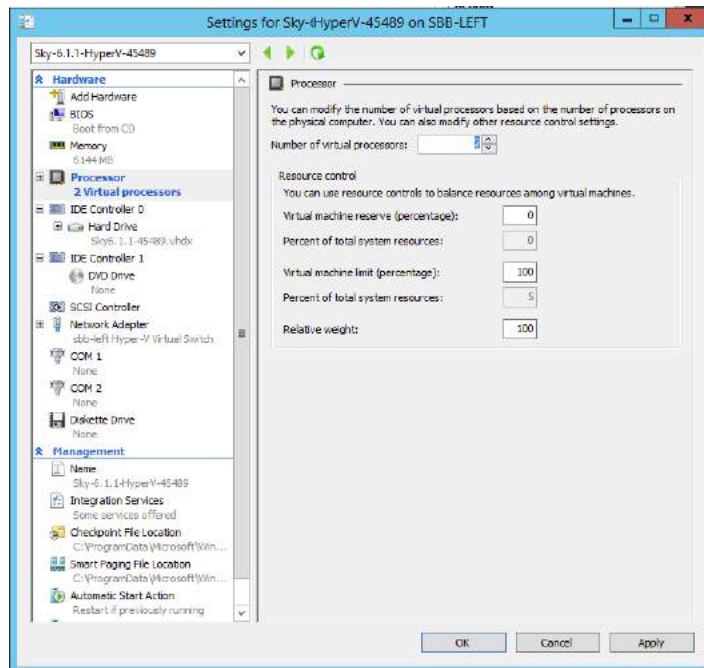
Once the Actifio Sky appliance VM has been deployed:

[Configure CPUs and Memory on page 7](#)

[Configure Disks on page 8](#)

Configure CPUs and Memory

The VM's CPUs and memory are configured from the hardware summary page:



Configure the number of CPUs and memory to meet your Actifio Sky appliance license requirements. See [Chapter 1, Before You Begin](#) for details.

Note: *If you configured the startup memory to match your license memory requirements, you will not have to adjust the memory allocation here.*

Configure Disks

Note: The pool names associated with these disks will be used in [Chapter 5, Configuring the Actifio Sky Appliance](#).

16. Run the New Virtual Hard Disk Wizard three times to define three new blank virtual hard disks on separate RAID-6 arrays:

Disk Name	Minimum Size	SCSI	Location
Primary Pool The Primary Pool is used by the Actifio Sky appliance.	400GB	Own SCSI	0:1
Snapshot Pool The Snapshot Pool accommodates the full copies (snapshots) to be retained, plus enough space for future growth.	10GB	Own SCSI	1:0
Dedup Pool The Dedup Pool accommodates the deduplicated data to be retained, plus enough space for future growth.	1TB	Own SCSI	2:0

Caution: Do not resize disks for Snapshot and Dedup Pools. If additional storage is needed, add new disks.

17. The next step is adding SCSI adapters, detailed in [Chapter 4, Adding SCSI Adapters](#).

3 Installing an Actifio Sky Appliance using Hyper-V Manager

This chapter details:

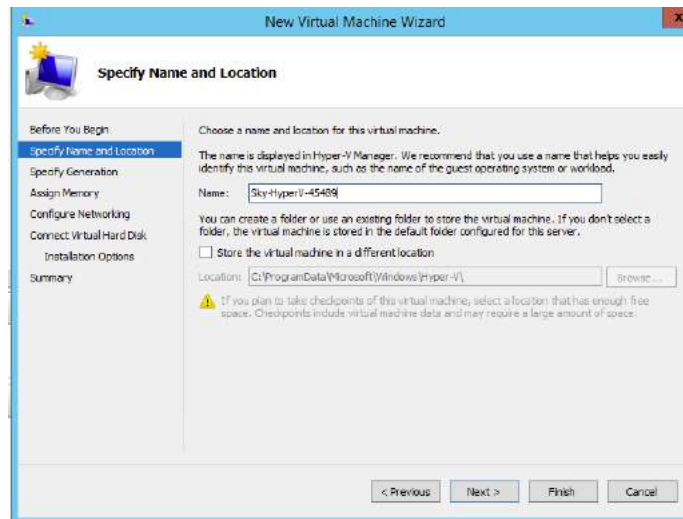
[Deploying the Actifio VHDX in Hyper-V Manager](#) on page 9

[Configuring the Actifio Sky VM in Hyper-V Manager](#) on page 12

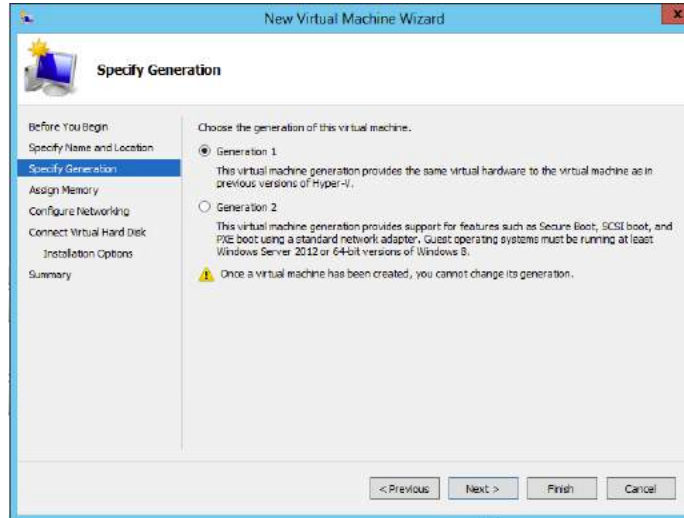
Deploying the Actifio VHDX in Hyper-V Manager

1. Get a copy of the Actifio VHDX file from your Actifio representative and put it in a location accessible by the Hyper-V hypervisor that will host the Actifio Sky appliance.
2. Deploy the Actifio VHDX like any other Hyper-V VM.

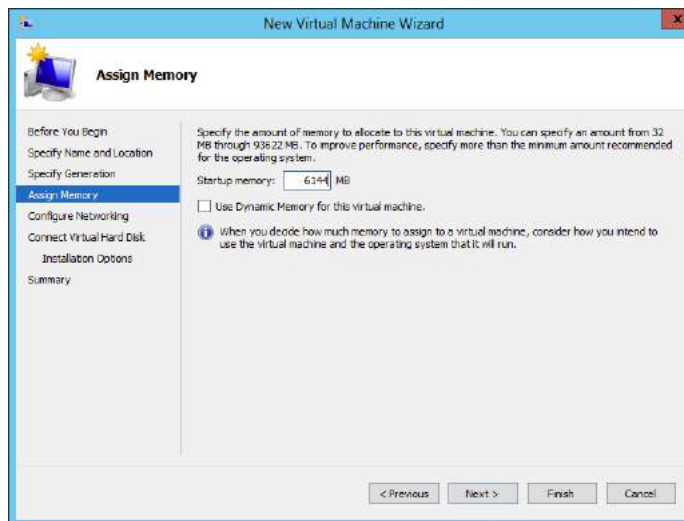
Note: Because the Actifio appliance is deployed like any other VHDX, only the steps in the deployment procedure of particular interest to the Actifio Sky installer are called out.



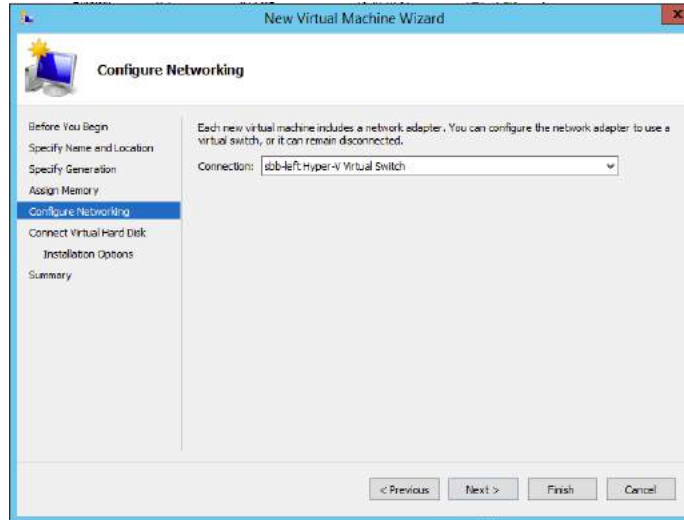
3. When prompted, give the virtual machine a unique name. This is the name Hyper-V will use. It is not the name displayed in the Actifio Sky user interface.



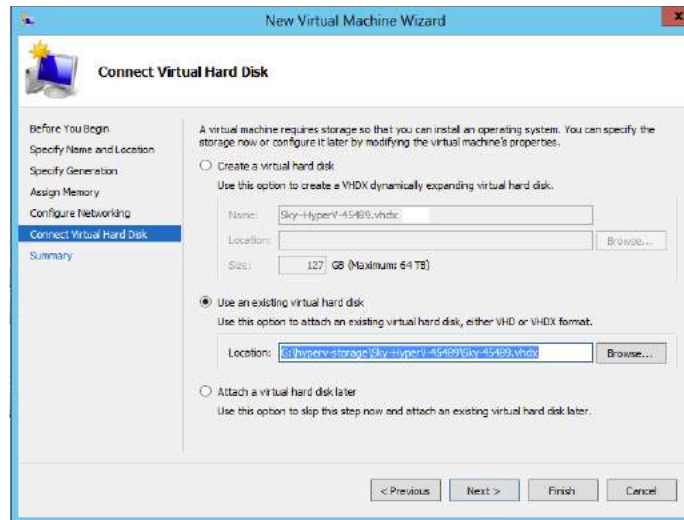
4. When prompted to specify a Generation, select **Generation 1**.



5. Set **Startup Memory** to match that of your license requirements. See [Before You Begin](#) on page 1 for details.
6. Uncheck **Use Dynamic Memory for this virtual machine**. Dynamic memory will render the Actifio Sky unstable.



- To configure networking, use a Hyper-V virtual switch that grants access to your production data.



- When prompted to **Connect Virtual Hard Disk**, use the Actifio Sky VHDX as the boot image:
 Select **Use an existing virtual hard disk**
 For location, browse to or enter the path to the Actifio Sky VHDX image.

Note: After system boot, you will not be able to move this disk.

- Click **Finish**.

Configuring the Actifio Sky VM in Hyper-V Manager

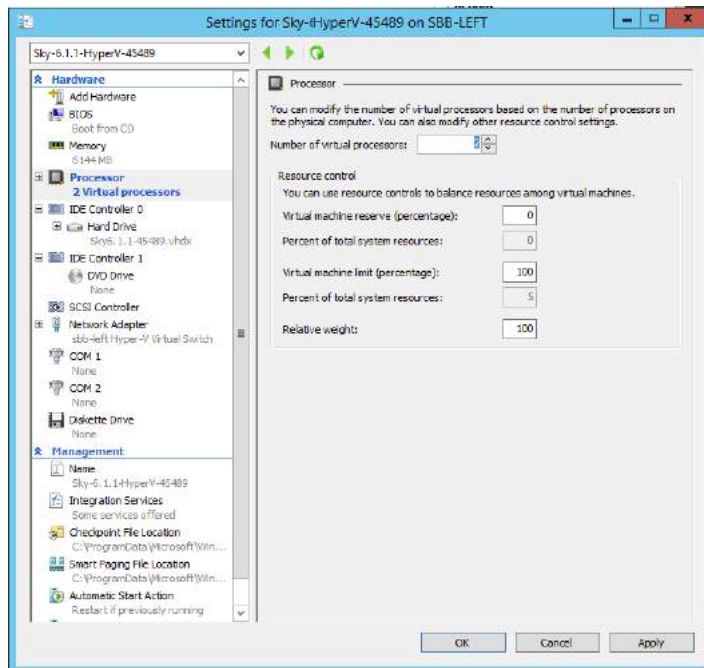
Once the Actifio Sky appliance VM has been deployed:

[Configure CPUs and Memory](#) on page 12

[Configure Disks](#) on page 13

Configure CPUs and Memory

Configure the VM's CPUs and memory from the hardware summary page:



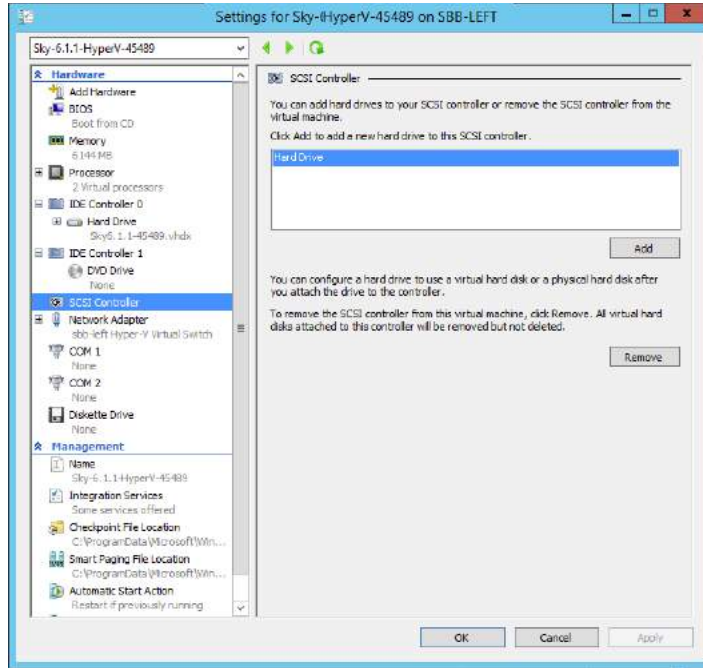
Configure the number of CPUs and memory to meet your Actifio Sky appliance license requirements. See [Before You Begin](#) on page 1 for details.

Note: If you configured the startup memory to match your license memory requirements, you will not have to adjust the memory allocation here.

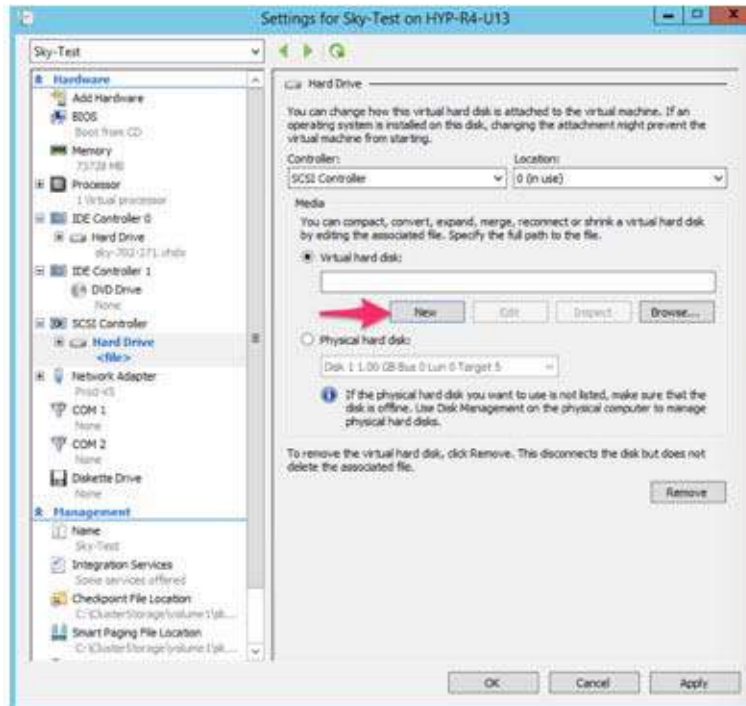
Configure Disks

To size your Actifio appliance, your Actifio representative 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 Actifio appliance's disks.

1. From the VM's summary page left-hand navigation, select **SCSI Controller**.



2. Click **Add** and the Disk Wizard will begin. You will add three disks.
3. Click **New** to open the New Virtual Hard Disk Wizard.

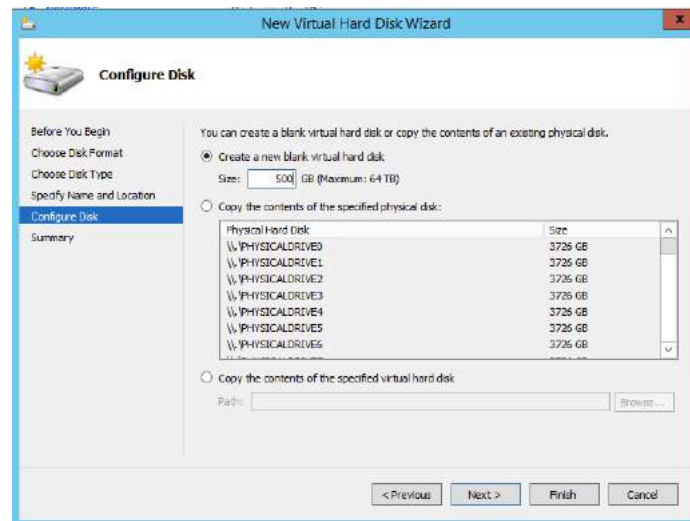


- Use the New Virtual Hard Disk Wizard to create three VHDX fixed-size hard disks using their own SCSI.



- Make sure **VHDX** is selected and click **Next**.
- Select **Fixed size** and **Next**.
- Assign Disk **Name** and set **Location**:

Disk Name	Minimum Size	SCSI	Location
Primary Pool The Primary Pool is used by the Actifio Sky appliance.	400GB	Own SCSI	0:1
Snapshot Pool The Snapshot Pool accommodates the full copies (snapshots) to be retained, plus enough space for future growth.	10GB	Own SCSI	1:0
Dedup Pool The Dedup Pool accommodates the deduplicated data to be retained, plus enough space for future growth.	1TB	Own SCSI	2:0



- The three disks should be on separate RAID-6 arrays.

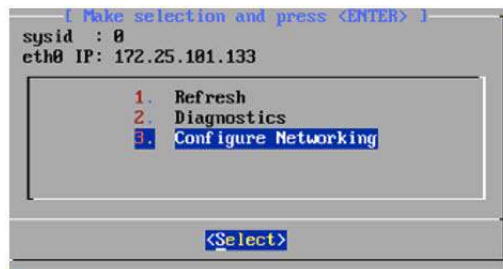
Caution: Do not resize disks for Snapshot and Dedup Pools. If additional storage is needed, add new disks.

- The next step is adding SCSI adapters, detailed in [Chapter 4, Adding SCSI Adapters](#).

4 Adding SCSI Adapters

After deploying and configuring the Sky VM as detailed in [Chapter 2, Installing an Actifio Sky Appliance Using SCVMM](#) or [Chapter 3, Installing an Actifio Sky Appliance using Hyper-V Manager](#), you must add SCSI adapters through the new VM's console:

1. Right-click on the Sky Appliance and select **Power on**.
2. Right-click on the Sky Appliance and select Connect or View ' Connect via Console.
3. Connect to console and enter Alt-F2, select 3 and enter.



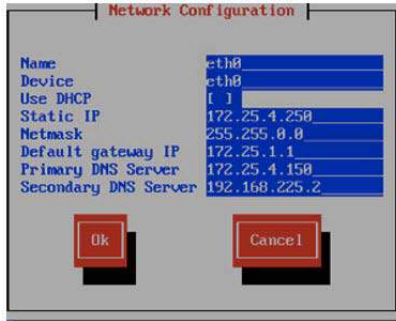
4. Click **Enter** for Device configuration.



5. Click **Enter** for eth0 settings.



6. De-select **Use DHCP** and assign IP address. DHCP is not supported outside of cloud service providers.



7. Select **OK**, select **Save**, and select **Save&Quit**.
8. Use **Alt-F3** to login as **root / actifio2**
9. Run **smartctl -a --scan** (Should see 3 new devices)

```
[root@localhost ~]#
[root@localhost ~]# smartctl -a --scan
/dev/sda -d scsi # /dev/sda, SCSI device
/dev/sdb -d scsi # /dev/sdb, SCSI device
/dev/sdc -d scsi # /dev/sdc, SCSI device
/dev/sdd -d scsi # /dev/sdd, SCSI device
[root@localhost ~]#
```

10. Run **lsblk** to verify the sizes.

```
[root@localhost ~]# lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
sdb         8:16  0    400G  0 disk
sda         8:0    0    150G  0 disk
|-sda1      8:1    0    512M  0 part /boot
|-sda2      8:2    0    100G  0 part /var/crash
|-sda3      8:3    0      8G  0 part [SWAP]
|-sda4      8:4    0      1K  0 part
|-sda5      8:5    0      4G  0 part /tmp
|-sda6      8:6    0      2G  0 part /home
|-sda7      8:7    0      2G  0 part /var
|-sda8      0:8    0      2G  0 part /var/log
|-sda9      8:9    0      2G  0 part /var/log/audit
|-sda10     8:10   0      9.5G  0 part /
sdc         8:32  0      1T  0 disk
sdd         8:48  0      1T  0 disk
sr0        11:0    1 1024M  0 rom
[root@localhost ~]#
```

11. Now point your browser at the IP address to run the installer as detailed in [Chapter 6, Installing the Actifio Desktop](#).
12. Remember to add in the SSDs if required. Instructions are in [Chapter 7, Adding An SSD to an Actifio Sky Appliance](#).

5 Configuring the Actifio Sky Appliance

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

1. Open a browser to the IP address of the Actifio Sky appliance: **http://<VM IP address>/**.
2. The installer opens the first of three tabs:

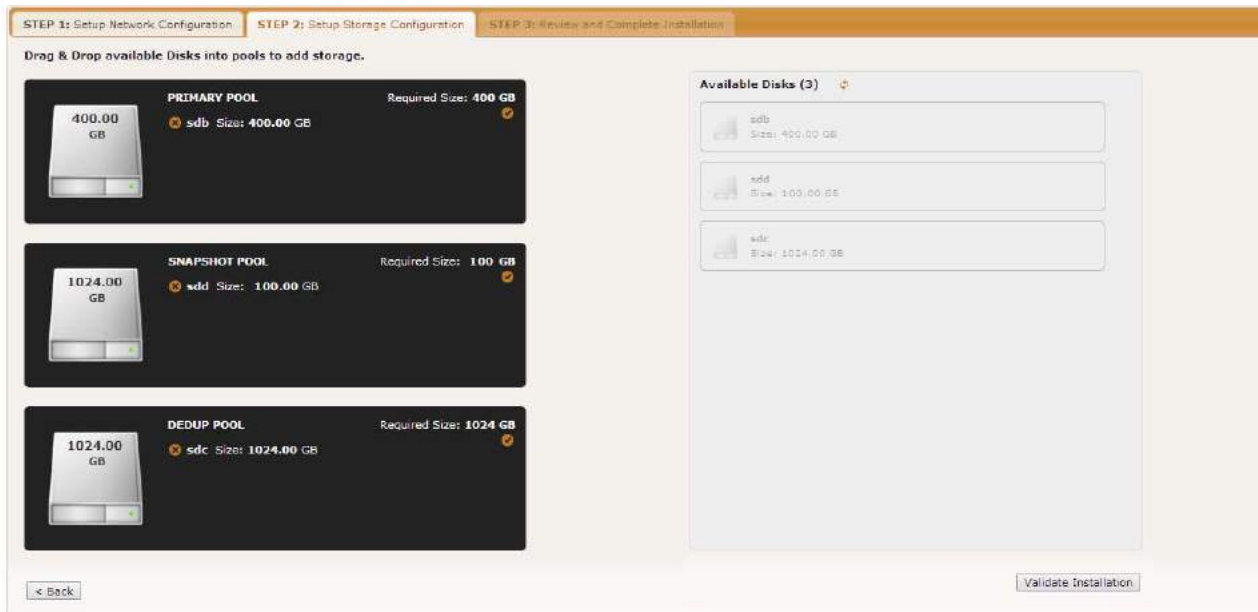
The screenshot shows the 'Actifio Appliance Installer' web interface. The top navigation bar has three tabs: 'STEP 1: Setup Network Configuration' (selected), 'STEP 2: Setup Storage Configuration', and 'STEP 3: Review and Complete Installation'. Below the tabs, a message states: 'All items marked with (*) are required.' The form contains the following fields and options:

- Public IP:** Four empty input boxes for IP address.
- IPV4 address for cloud configuration:** A note above the Appliance IP field.
- Appliance IP (*):** Four input boxes containing '172', '17', '205', and '106'.
- IPV4 address on port 1 for Actifio-Desktop and CLI clients. Also used for joining this appliance with other PMS appliances:** A note above the Appliance IP field.
- Appliance Name (*):** A text input field containing 'localhost.localdom'.
- DNS Server:** A text input field containing '172.17.1.10'.
- Subnet Mask:** Four input boxes containing '255', '255', '0', and '0'.
- Gateway:** Four input boxes containing '172', '17', '1', and '1'.
- NTP Server:** Four empty input boxes.
- Infrastructure:** A dropdown menu with 'VMWare' selected.
- Timezone:** A dropdown menu with 'Africa/Abidjan' selected.
- System uuid (*):** A text input field containing '1415068751:c22a0bd-e7bd-37cc-913e-04a9cf86f4b:a4b7b9d7'.
- License:** A text area containing the text: 'Evaluation license: Dedup pool size is set to 5TB with no encryption for 30 days from the start of installation. Please contact Actifio to upgrade to production licenses.' Below the text area is a 'Validate Licenses' button.
- Create Admin Password (*):** A text input field.
- Confirm Admin Password (*):** A text input field.
- Next >** A button at the bottom right.

3. Ignore the Public IP field, but ensure that the Actifio Sky appliance IP address is correct.
4. In the space provided, enter a name for the Actifio Sky appliance.
5. Ensure that the network IP addresses are correct.
6. From the Infrastructure drop down menu, select the hypervisor or AWS as needed.
7. Set the time zone as needed.

If you are installing the Actifio Sky appliance as a 15-day evaluation, leave the License Number field set to the default setting and click Next and the Step 2 tab contents are displayed. See [Step 13](#).

8. If you are not installing this Actifio Sky appliance as an evaluation, capture the System UUID and pass it on to the Actifio representative. The Actifio representative will use the UUID to generate the Actifio Sky appliance license key.
9. In the space provided, paste a copy of the license key you obtained from the Actifio representative.
10. Click **Validate License** to ensure the validity of the license entered.
If the license is valid, the Managed Data License (MDL) size will be displayed in a popup window. If there are any optional add-ons included in the license they will also be shown here.
11. If you are using an encryption license, a Pass phrase field is displayed. Enter a pass phrase, record the pass phrase and keep it in a secure location.
12. In the spaces provided enter (create) a password for the first Admin user of the Actifio Sky appliance.
13. Click **Next** and to get to Step 2. This is where you assign the disks created for the Primary, Dedup, and Snapshot pools to their respective pools.



14. Select and drag the **Available Disks** to the pools for which they were created.
15. Click **Validate Installation**. The Actifio Sky 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
16. The third tab provides the opportunity to review choices and go back and make changes as needed.

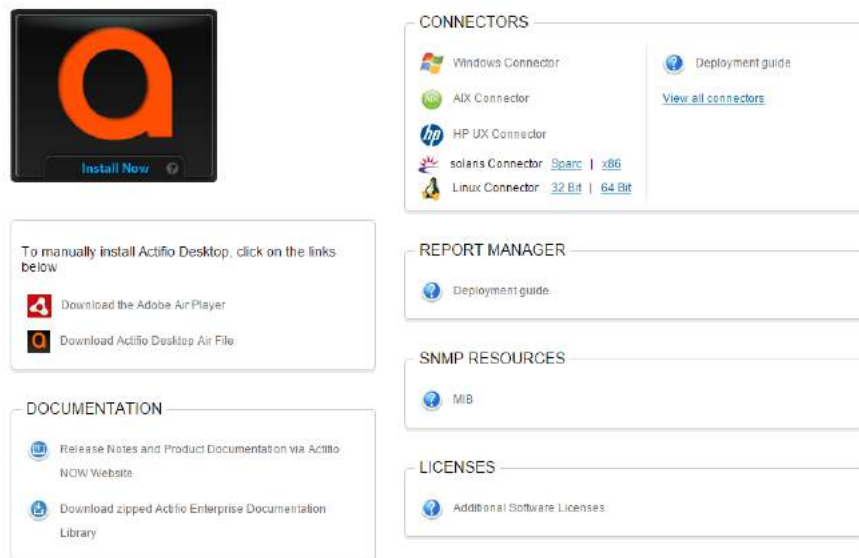


17. Once choices are verified, click **Complete Installation** and the Actifio Sky appliance will reboot.

Note: The reboot may take several minutes. The Actifio 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.

6 Installing the Actifio Desktop

After the Actifio Sky appliance has rebooted, refresh your browser window and the Actifio Resource Center is displayed. To display the Actifio Resource Center in a new browser window, enter the IP address you defined in Step 1 of the Installer:



1. From the Actifio Resource Center, click Install now and the Actifio Sky Desktop will be installed on your machine.
2. When the Actifio Desktop is installed the Actifio Desktop is displayed:



To log in, enter:

3. The user name and password you defined in Step 1 of the Installer.
4. The IP address of the Actifio Sky appliance you defined in Step 1 of the Installer.
5. Click **Sign in** and the Actifio Desktop Dashboard is displayed.

7 Adding An SSD to an Actifio Sky Appliance

Actifio Sky appliances that have licenses of 30TB and greater must use an SSD. Each Actifio Sky license type has its own SSD requirement.

If an SSD is already assigned to an Actifio Sky appliance from a release prior to Actifio 7.0, it cannot be used. If you have an SSD from a release prior to Actifio 7.0 it does not need to be removed. However, if you feel that the SSD must be removed, contact your Actifio representative for assistance.

Use the hypervisor vendor's best practices to physically add an SSD to a hypervisor.

Note: The procedures in this document apply to Actifio Sky's Dedup Pool and are separate from the way SSDs are used with Actifio CDS. If the dedup pool is built entirely from an SSD, then there is no need to add an SSD.

SSD Compatibility

License Type	SSD	Required/Optional
50TB	512GB SSD	Required
30TB	308GB SSD	Required
10TB	103GB SSD	Optional
5TB	52GB SSD	Optional
1TB	11GB SSD	Optional

An SSD already assigned to an Actifio Sky appliance from a release prior to Actifio 7.0 cannot be used. If you have an SSD from a release prior to Actifio 7.0 it does not need to be removed. If you must remove the SSD, contact your Actifio representative for assistance.

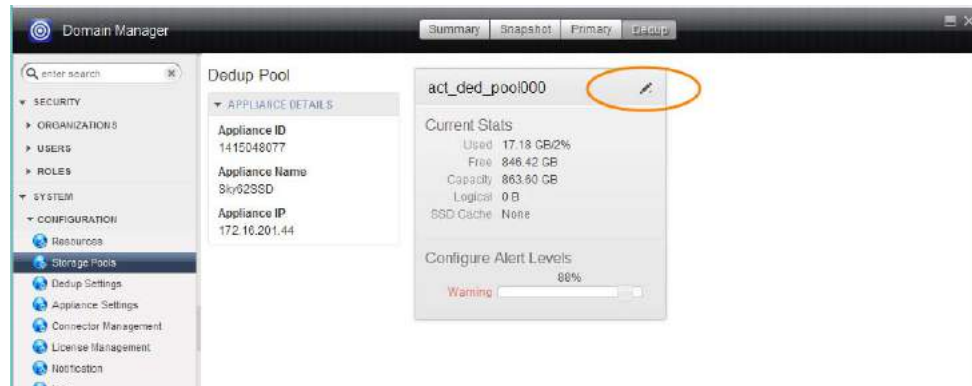
To physically add an SSD, use the hypervisor vendor's best practices for adding an SSD. Once the SSD has been added to the hypervisor, see either:

- [Adding a SSD Via the Actifio Desktop](#) on page 22
- [Adding an SSD Via the Actifio CLI](#) on page 23.

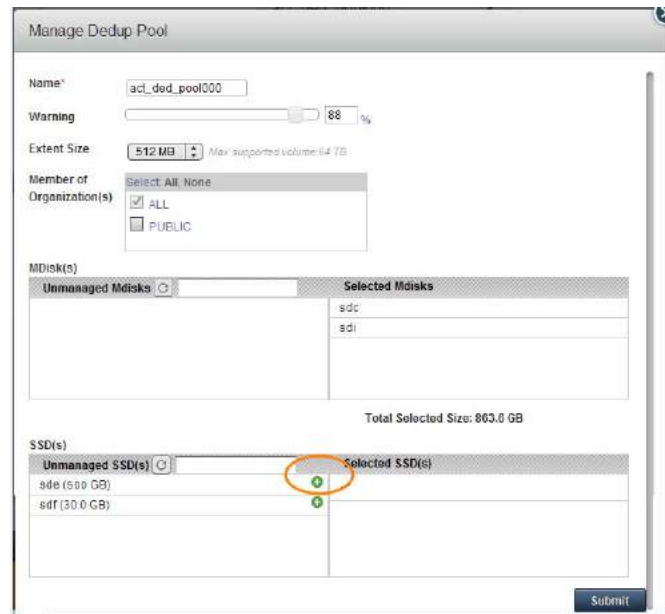
Adding a SSD Via the Actifio Desktop

Once a hypervisor has been updated with the required SSD, modify the Actifio Sky appliance's Dedup Pool as follows:

1. Open **Domain Manager > System > Configuration > Storage Pools**.
2. Select the **Dedup** tab. The Dedup Pool information page opens.



3. Click the pencil icon next to the Dedup Pool name and the Manage Dedup Pool page is displayed:



Note: If your SSD appears in the list of MDisks and not in the list of eligible SSDs, click the Tag disk as SSD option to select the SSD.

4. If necessary, scroll down until the SSD section of the window is displayed.
5. In the Unmanaged SSDs column, click the "plus" sign next to the SSD you added and it will move to the Selected SSD(s) column.
6. Click **Submit** and the SSD is added to the Actifio Sky appliance.

Adding an SSD Via the Actifio CLI

If you cannot add the SSD to your Actifio Sky appliance via the Actifio Sky Desktop, then use the following CLI procedure.

Note: The following procedure requires access to the Actifio CLI. Detailed instructions for accessing the Actifio CLI can be found in the **Setting Up Users and Roles with the Domain Manager** guide. A copy of this guide can be found in the Actifio Desktop online library and on the Actifio Documentation Portal (now.actifio.com).

After adding an SSD to your virtual server, add the SSD to your Actifio Sky appliance's Dedup Pool.

1. Identify the SSD:

```
# udsinfo lsssd
```

```
id wwid                                slot status
- pci-0000:00:10.0-scsi-0:0:4:0         None None
```

2. Add the SSD to the Actifio Sky appliance's Dedup Pool:

```
# udstask addssd pci-0000:00:10.0-scsi-0:0:4:0
```

If the SSD still does not appear in the Actifio Sky appliance's Manage Dedup Pool dialog box, manually add the SSD to the Dedup Pool.

1. Identify the Dedup Pool to which the SSD will be added:

```
# udsinfo lsdiskpool
```

```
id warnpct modifydate                name                safepct mdiskgrp
71    80 2015-07-30 17:19:25.459    act_pri_pool000    90 act_pri_pool000
72    88 2015-07-30 17:19:25.462    act_ded_pool000    100 act_ded_pool000/
act_ded_vdk0000
73    80 2015-07-30 17:19:25.463    act_per_pool000    90 act_per_pool000
```

2. Assign the SSD to the Actifio Sky appliance's dedup pool:

```
# udstask addssd -diskpool act_ded_pool000 pci-0000:03:00.0-scsi-0:0:4:0
```

3. Verify the changes under slot status:

```
# udsinfo lsssd
```

```
id wwid                                slot status
- pci-0000:00:10.0-scsi-0:0:4:0         None act_ded_pool000
```

