

StoneFly SCVM[™] Deployment Guide for VMware ESXi

Storage Concentrator[™] Virtual Machine Software-Defined Virtual Storage Appliance

Revision 2017.1

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1. Scope of the document

The purpose of this document is to guide user though the steps required to deploy a Storage Concentrator Virtual Machine (SCVM) on VMWare ESXi 5.x and 6.x systems. The installation described in this document is for a base SCVM.

2. Requirement before installation

The following are the prerequisites for installing a new SCVM:

- 1- This document assumes that VMware ESX 5.x/6.x is already installed on the node on which the SCVM is to be deployed. vSphere Client is used to configure the ESXi hypervisor.
- 2- 4 GB or more of free memory for use by the SCVM.
- 3- Powerful CPU(s) (Intel Xeon or equivalent is recommended).
- 4- A minimum of 24 GB of storage for loading the StoneFly StoneFusion is required.
- 5- Two virtual networks defined in VMware ESXi server: One for the LAN, and another for the SAN. There must be at least one physical interface reserved for each network.
- 6- Additional storage space (internal or external) to be managed by the SCVM.
- 7- SCVM package (SCVM software CD, documents, and additional files).

3. Deploying SCVM

1) Login to VSphere or VCenter. Select the host to add new virtual machine to. Right click and select **New Virtual Machine**.

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2) Select Typical and click on **Next**.

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Configuration Configuration Name and Location Configuration Storage Create a new virtual machine with the most common devices and configuration options. Network Create a Disk Ready to Complete Create a virtual machine with additional devices or specific configuration options.

3) Enter a system name in the "Name:" field and click on Next.



Select a Data Store to use for the System OS disk. This selection will vary depending on the specific configuration. If this is a standalone configuration a local data store can be selected. If this is an ESXi Cluster configuration a shared data store would be used so migration is possible. In this example a standalone configuration is being used.

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4) Check the **Linux** radio button then select **Centos 4/5/6/7 (64-bit)** from the dropdown menu. Once selection is made, click **Next** to continue.

🕝 Create New Virtual Machin	e	_		×
Guest Operating System Specify the guest operating	ng system to use with this virtual machine	Virtual M	lachine Vers	sion: 11
Configuration Name and Location Storage Guest Operating System Network Create a Disk Ready to Complete	Guest Operating System: Windows Linux Other Version: CentOS 4/5/6/7 (64-bit) Identifying the guest operating system here allows the wizard to provide the operating system installation.	▼ he appropriate	defaults fo	
	< Back	Next >	Can	cel

5) Enter 2 for "How many NIC's do you want to connect?". For "NIC 1:" select management network. For "NIC 2:" select data network. Select "Adapter" from the dropdown menu. Check both check boxes to "Connect at Power On". The order of the NIC's is important. Click on Next to continue.

🕝 Create New Virtual Machine	_		×
Network Which network connections will be used by the virtual machine?	Virtual N	Machine Vers	ion: 11
Configuration Name and Location Storage Guest Operating System Network Create a Disk Ready to Complete NIC 1: M Network NIC 2: VM Data Network VMXNET NIC 2: VM Data Network VMXNET NIC 2: VM Data Network VMXNET VMXNET NIC 2: VM Data Network VMXNET Ready to Complete VMXNET VMXNET	3 •	Connect at Power On er the er the cy. Consult cadapters	
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6) The minimum OS disk size is 24GB for a base system. Features that require larger OS disk sizes are Deduplication and NAS Volumes. Select the "Virtual disk size". Click on the **Thick Provision Lazy Zeroed** radio button and click **Next** to continue.

🕝 Create New Virtual Machine	2			-		×
Create a Disk Specify the virtual disk size	and provisioning policy			Virtual M	achine Vers	sion: 11
Configuration Name and Location Storage Guest Operating System Network Create a Disk Ready to Complete	Datastore: Available space (GB): Virtual disk size: Thick Provision Lazy : Thick Provision Eager Thin Provision	ESX01-LocaIDS 853.1 24 - GB • Zeroed Zeroed				
			< Back	Next >	Can	:el

7) Check the "Edit the virtual machine settings before completion" box. Click on **Continue** to continue.

🕝 Create New Virtual Machin	e		-		×
Ready to Complete Click Finish to start a task	that will create the new virtual mac	hine	Virtual N	lachine Ver	sion: 11
Configuration Name and Location Storage Guest Operating System Network Greate a Disk Ready to Complete	Settings for the new virtual mac Name: Host/Cluster: Datastore: Guest OS: NICS: NIC 1 Network: NIC 1 Type: Disk provisioning: Virtual Disk Size:	thine: SCVM-Demo ESX01.local ESX01.localDS CentOS 4/5/6/7 (64-bit) 2 VM Network VMXNET 3 Thick Provision Lazy Zeroed 24 GB tings before completion			
	Creation of the virtual mac system. Install a guest OS	chine (VM) does not include automatic installation on the VM after creating the VM.	on of the gue	est operatir	ng
2		< Back	Continue	Can	cel

8) Click on "Memory" and adjust to 4GB for a base system. Use 6GB for systems using encryption. Systems using deduplication require a larger memory size. This setting can be changed at any time as needed.



9) Click on CPUs and select number of CPU's to use. Number of CPU's will have an effect on performance. This can be monitored and changed later. 2 CPU's are recommended for a base system. This can be set using "Number of virtual sockets:" and "Number of cores per socket:" fields.



10) Click on "Add..." button.



11) Select **Hard Disk** and click on **Next**.

🕝 Add Hardware			×
Device Type What sort of device do	you wish to add to your virtual machin	≥?	
Device Type Select a Disk Create a Disk Advanced Options Ready to Complete	Choose the type of device you v Serial Port Parallel Port CD/DVD Drive USB Controller USB Device (unavailable) USB Device (unavailable) CD/DVD Drive USB Device (unavailable) CSCSI Device (unavailable)	/ish to add.	
		< Back Next > Canc	el

- 🛃 Add Hardware × Select a Disk Device Type A virtual disk is composed of one or more files on the host file system. Together these files appear as a single hard disk to the guest operating system. Select a Disk Create a Disk Select the type of disk to use. Advanced Options Ready to Complete -Disk Create a new virtual disk O Use an existing virtual disk Reuse a previously configured virtual disk. C Raw Device Mappings Give your virtual machine direct access to SAN. This option allows you to use existing SAN commands to manage the storage and continue to access it using a datastore. < Back Next > Cancel
- 12) Click on Create a new virtual disk radio button and click on Next.

13) SCVM uses the first 64KB of any disk added. Make sure to add this to the required space when creating a new disk. Enter a "disk size". In this example 100.1GB disk will be created. This allows for 100GB of usable disk plus the overhead. Set "Disk Provisioning" to **Thick Provision Lazy Zeroed**. Select "Specify a Datastore or Datastore cluster" and click on **Browse**... to select the Datastore to use. In this example the data store selected is "iSCSI-DataStore". Click on **Next** to continue.

Create a Disk Specify the virtual disk	size and provisioning policy	Ŷ
Device Type Select a Disk Create a Disk Advanced Options Ready to Complete	Capacity Disk Size: 100.1 . GB Disk Provisioning C Thick Provision Lazy Zeroed C Thick Provision Eager Zeroed C Thin Provision Location	
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ē	iSCSI-DataStore	Non-SSD	999.75 G	B 76.97 GB	922.78 GB	VMFS5	Supported		
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14) Select "Virtual Device Node" SCSI and. This is usually the default setting. Select **Independent** for the "Mode" and click **Next** to continue.

🕝 Add Hardware		×
Advanced Options These advanced options d	lo not usually need to be changed.	
Device Type Select a Disk Create a Disk Advanced Options Ready to Complete	Specify the advanced options for this virtual disk. These options do not normally need to be changed. Virtual Device Node SCSI (0:1) SCEI (0:0) IDE (0:0) Mode Independent Independent Changes are immediately and permanently written to the disk. C Nonpersistent Changes to this disk are discarded when you power off or revert to the snapshot.	
	< Back Next > Canc	el

15) Review the settings and click **Finish** to continue.

🕝 Add Hardware				×
Ready to Complete Review the selected opt	tions and click Finish to add	the hardware.		
Device Type Select a Disk	Options:			
Create a Disk Advanced Options Ready to Complete	Hardware type: Create disk: Disk capacity: Disk provisioning: Datastore: Virtual Device Node: Disk mode:	Hard Disk New virtual disk 100. 1 GB Thick Provision Lazy Zeroed iSCSI-DataStore SCSI (0:1) Persistent		
1			< Back Finish	Cancel

16) Review the settings and click on **Finish**.

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17) Select the new virtual machine and power it on.

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Image: Source of the second	SCVI-Demo Getting Started Samma What is a Virtual M A virtual machine is physical computer, appications. An ope machine is called a Because every virtu environment, you cz vorkstation environ consolidate server a Virtual machines run many virtual machine Basic Tasks Power Off the Suspend the Edit virtual machines	tachine? a software comput uns an operating is guest operating system inst guest operating system in use virtual machine is an is pipilations. to in bosts. The sar es. virtual machine wirtual machine achine settings	er that, like a system and siled on a virtual stem. Olated computing ines as desktop or invironments, or to me host can run	Consola Permission Virtual Ma Virtual Ma visphere C	chines	close tab 🗈		
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K Tasks						Eve	sluation Mode: 2 days rem	Not a statement of the statement of t

18) Click on the CD ICON in the VSphere Client and select the source for either CD or IOS. In this example the ISO image is selected for the install.



19) Click on the **Console** tab for console access. Use Ctrl + Alt _Insert keys to start boot. The screen below shows when the installation starts.



20) After the installation has completed, the message "Please remove CD-ROM manually, then press enter" will be shown at the bottom of the console. Click on the CD Icon and disconnect from the drive or ISO. Accept the VMWare disconnect messages and click on console pane and press the **enter** key. The system will boot, wait for the boot to complete.



21) Wait for the system to complete booting. Login to the user console menu using UserID: console and Password: coni100o. This starts the user service menu. Enter 2 at the -> prompt to configure the Network. Adjust settings as needed then Save the changes. Enter "q" at the command prompt to exit back to the service menu. Enter "q" again to exit out of the user console service.



The default settings are shown below.



Adjusted settings are shown below.



Back to console login screen.



4. SCVM Configuration

1) Open a browser page and navigate to the IP address configured in the user console menu. The login screen will display.

Login using **User ID:** stonefly and **Password:** stonefly.

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2) The default User ID's are stonefly for administrative users and demo for observer. The default passwords should be changed on first login to secure the system. To change the passwords navigate to Users->detail page, Select User and enter the new password and click on Submit. This should be performed for both default User IDs.

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3) Navigate to System->Network->Local iSCSI Data Port page. Enter the "Local Host GbE IP Address" and click on Submit. Review the popups and click on accept. The Data network must not be the same network as the one used on the management network.

nyI				Evaluation	<u>45 days leit</u>	Home	Support	Log Out
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Changing the iSCSI Data Port settings could af logged onto volumes. Continue with setting change? If so, update affected hosts of the new setting	ffect hosts that a s at 192.168.101	are currently 1.101:3260.
Prevent this page from creating additional	l dialogs.	
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4) Navigate to Resources->Summary page. A list of available resources will be displayed. The "Use Type" must be set before a resource can be used. Use Type of Managed is the most common, this allows for iSCSI and NAS volume creation plus Advanced Features based upon licensing. Pass Thru is only used when migrating existing data into a StoneFly volume and should only be used temporarily. Flash Cache is only used when higher speed storage is available to cache write operation for a slower speed resource. NAS_Managed can only be used to create NAS volumes and cannot be split into multiple volumes. In most cases the "Use Type" of Managed should be selected. Select the "Use Type" and click on the Submit button.

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The configuration is complete at this point. iSCSI or NAS volumes can be created as needed.

5. Available Features

The Storage Concentrator User Guide is available to discover more features available. Some of the available features are listed below.

High availability Cluster

This feature allows for the creation of an Active-Active Cluster of 2 SCVM's. This allows for maintenance on 1 system while the other remains active for host utilization.

Scale Out

This feature allows for expanding NAS volumes while distributing workloads between multiple Storage Concentrators. Scale Out node can be created across SCVM and physical hardware.

iSCSI

iSCSI volumes can have snapshots, sync mirroring, Async replication, thin volumes, encryption and deduplicated volumes.

NAS

NAS volumes can be configured with snapshots.



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