

Application Note

December 2013

Installing and Configuring SnapSAN VASA Provider



Summary

This Application Note describes how to install and configure the SnapSAN VASA Provider with a fibre or iSCSI attached SAN Array. This makes use of the VMware vCenter server and vSphere Client in an ESXi 5.1 environment.

Introduction

The vStorage APIs for Storage Awareness (VASA) is a set of application program interfaces that enables VMware vSphere vCenter to recognize the capabilities of the SnapSAN storage arrays. Such capabilities, including RAIDs and native thin provisioning are made visible within vCenter.

The visibility makes it easier for virtualization and storage administrators can make decisions about how data stores should be maintained. For example, determining which SnapSAN logical disk should host a particular virtual machine.

The Overland SnapSAN VASA provider software gets installed on the same system that hosts the SnapSAN Manager Server.

Required Information, Tools, and Files

Before you begin these procedures, the following information, tools, and files are required.

Prerequisites

Prior to performing these procedures, ensure that you have the following:

- Overland Storage SnapSAN S3000/S5000 Disk Array must be installed and configured. You can get additional technical support from our website at http://support.overlandstorage.com, or by contacting Overland Storage using the information found on the <u>Contact Us</u> page on our web site.
- Verify that the following are installed on the Server:
 - Java Runtime Environment (JRE)
 - SnapSAN Manager Server Web Management Interface
 - VMware vCenter Server.
- The VASA Provider is installed on the SnapSAN Manager Server (iSMS). In order for VASA to configure with VMware vCenter, it needs to be registered with the SnapSAN Manager Server.
- This document assumes that vCenter Server is already installed and running, and that the reader has a general understanding and familiarity with the VMware ESXi environment. Any and all additional information can be attained through the VMware Knowledge Center.
- Execute java and keytool from a DOS shell in a directory other than where the JRE is installed. If there is a problem, see JRE Configuration for keytool.

JRE Configuration for keytool

When executing java and keytool, if the following message is shown it means the path configuration is not correctly set for JRE:

```
C:\keytool
'keytool' is not recognized as an internal or external command, operable program
or batch file.
```

In this case, the Windows path in Environment Variables needs to be modified:

- 1. Navigate to Start > Control Panel. Double-click the System feature (or right-click System and select Open).
- 2. From the Advanced tab, click Environment Variables.
- 3. Select Path or PATH from the System Variables section, and click Edit.

- 4. Verify that the Variable Name is either Path or PATH.
- 5. In the Variable Value field at the end of the existing variable value, you need to append to it a semicolon (;), followed by the location of the directory where JRE is installed, and "\bin". For example, if the location of the directory where JRE is installed is C:\Program Files (x86)\Java\jre6, then append ";C:\Program Files (x86)\Java\jre7\bin" the end of the existing variable value.

NOTE: Do not edit the existing Variable Value, just add a semicolon followed by the location of the directory where JRE is installed and "\bin" to the end of it.

- 6. Click OK to confirm the addition.
- 7. Verify if the **path configuration** is correctly set for JRE.
- 8. Open a new DOS command prompt and execute java and keytool commands.

If the error previously documented does not appear, the path is then correctly configured:

```
C:\java
Usage: java [-options] class [args...]
:
C:\keytool
keytool usage
:
```

Versions

The test environment used for illustration in this document uses the following versions:

- Java JRE version 7 update 40
- SnapSAN Manager Server version 8.2.060
- SnapSAN S5000 software version 082R.007
- SnapSAN S5000 firmware version U22R.007
- SnapSAN VASA Provider version 1.1.001
- VMware ESXi, 5.1, 799733
- VMware vCenter Server, 5.1, 799733
- VMware vSphere Web Client 5.1.0, Build 786111

VASA Provider Installation

- 1. Login to the Windows system as an Administrator account.
- **2.** From the VASA provider installation package, double-click the installation **setup file** to start the installation.
- 3. When the Installation Wizard launches, click Next.
- 4. Accept the license agreement, and click Next.
- 5. Browse the **path** for installation, and click **Next**.
- 6. Provide the Port Numbers (1, 2, 3, and 4) you want to use for the plug-in, and click Next.
- 7. Provide the credentials and click on Next.
 - NOTE: You can save the User Name and Password configured here, as you may need them to register the VASA provider with vCenter Server.

8. Click Finish.

VASA Provider Configuration

After installing the VASA Provider, the next steps are to configure the SnapSAN Array. Perform the following tasks:

- Register the Disk Array.
- Restart the VASA Provider.
- Restart the SnapSAN Manager.

Register the disk array

Register the disk array that is managed by the VASA Provider.

- NOTE: It is strongly recommended to use the floating IP address for the disk registration. If no floating IP address is set, specify the IP address of either CONTO or CONT1.
- **1.** To **register** the disk array, run the following command:

```
<VASA_Provider_installation_directory>\bin> SetProviderConf -a <IPaddress>
```

For example, if the **VASA Provider installation directory** is *C:\Program Files* (*x86*)*Overland**iSM VASA Provider*, then the command to run for disk array registration would be:

```
C:\Program Files (x86)\Overland\iSM VASA Provider\bin>SetProviderConf -a <IPaddress>
```

A message indicating successful disk array registration appears.

2. To check the registered disk array, you can see a list of registered IP addresses by executing the command **SetProviderConf** with the –l option for the confirmation.

For example:

```
C:\Program Files (x86)\OVERLAND\iSM VASA Provider\bin>SetProviderConf -1
[DISKARRAY]
<IPaddress>
```

```
Administrator: C:\Windows\system32\cmd.exe

Microsoft Windows [Uersion 6.1.7600]

Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\Administrator>setproviderconf -a

Error: Unable to access jarfile SetProviderConf.jar

C:\Users\Administrator>cd C:\Program Files (x86>\Overland\UASA Provider\bin

C:\Program Files (x86>\Overland\UASA Provider\bin>setproviderconf -a

Short of diskarray's IP

C:\Program Files (x86>\Overland\UASA Provider\bin>setproviderconf -1

[DISKARRAY]

C:\Program Files (x86>\Overland\UASA Provider\bin>setproviderconf -a 10.20.34.17

%

ADD sucessflly

C:\Program Files (x86>\Overland\UASA Provider\bin>setproviderconf -1

[DISKARRAY]

C:\Program Files (x86>\Overland\UASA Provider\bin>setproviderconf -1

[DISKARRAY]

C:\Program Files (x86>\Overland\UASA Provider\bin>setproviderconf -1

[DISKARRAY]

(C:\Program Files (x86>\Overland\UASA Provider\bin>setproviderconf -1

[DISKARRAY]
```

- **3.** To **delete** a registered disk array, execute the command **setProviderConf** with the -d option and then specify the IP address of the disk array you want to delete, for the argument. Specifying the option -d deletes a registered IP address. For example:
 - C:\Program Files (x86)\OVERLAND\iSM VASA Provider\bin>SetProviderConf -d <IPaddress>

A message indicating successful delete action appears.

Restart the SnapSAN Manager

- 1. Navigate to Start > Control Panel.
- 2. Navigate to the Administrative Tools > Services window.
- 3. Right-click the service labeled SnapSAN Manager, and select Restart.

Restart the VASA Provider

- 1. Navigate to the Start > Control Panel window.
- 2. Navigate to the Administrative Tools > Services window.
- **3.** Right-click the service labeled **Overland Storage VASA Provider 32-bit iSM_VASA_Provider** and select **Restart**.

🖏 Services						-	
File Action View	Help						
	à 🛃 🛛 📷 🕨 🔳 💷 🕨						
🤹 Services (Local)	🔕 Services (Local)						
	Overland Storage VASA Provider	Name 🔺	Description	Status	Startup Type	Log On As	
	32-bit ISM_VASA_Provider	Overland Storage V	Overland S	Started	Automatic	Local System	i i
	Stop the service	Performance Count	Enables re		Manual	Local Service	
	Restart the service	Performance Logs	Performan		Manual	Local Service	
	- <m< td=""><td>Plug and Play</td><td>Enables a c</td><td>Started</td><td>Automatic</td><td>Local System</td><td></td></m<>	Plug and Play	Enables a c	Started	Automatic	Local System	
	Description:	PnP-X IP Bus Enum	The PhP-X		Disabled	Local System	
	Overland Storage -	Portable Device En	Enforces g	C 1 1	Manual	Local System	
	http://www.overlandstorage.com/	Power	Manages p	Started	Automatic	Local System	
		Print Spooler	Loads files	Started	Automatic	Local System	
		Problem Reports an	This servic	C 1 1	Manual	Local System	
		Protected Storage	Provides pr	Started	Manual	Local System	
		Remote Access Aut	Creates a		Manual	Local System	
		Remote Access Co	Manages di	Charles d	Manual	Local System	
	1	Remote Desktop C	Remote De	Started	Manual	Local System	
	1	Remote Desktop Se	Allows user	Started	Manual	Network 5	
		Remote Desktop Se	Allows the	Started	Manual	Local System	
	1	Remote Procedure	The RPCSS	Started	Automatic	Network 5	
	1	Remote Procedure	In window	Charles	Manual	Network 5	
		Remote Registry	Enables re	Started	Automatic	Local Service	
	1	Resultant Set or Po	Provides a		Manual	Local System	
	1	Routing and Remot	Orrers rout	Charles	Disabled	Local System	
	1	RPC Endpoint Mapper	Resolves R	Started	Automatic	Network 5	
	1	Considerations	Fachles st	Started	Automatic	Network 5	
	1	Secondary Logon	Enables st		Manual	Local System	
		Secure Socket Tun	The startu	Started	Manual	Local Service	_
	Į	Security Accounts	me scartu	Started	Automatic	Local System	•
	Extended Standard						

Registering the VASA Provider with the vCenter Server

Prepare the Vendor Provider Certificate

In order to register the VASA Provider with VMware vCenter Server, a certificate is required. Use these steps to copy the certificate file.

1. You need the vendor provider certificate which is a file labeled **ismvasa.cer** which needs to be copied to the system where VMware vSphere Client is activated.

NOTE: This file cannot be reissued.

2. The vendor provider certificate is saved in the directory:

```
<VASA_Provider_installation_directory>\conf\
```

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Organize 👻 Include in libra	ry 🔻 Share with 👻 New folder			= -	0
ጵ Favorites	Name *	Date modified	Туре	Size	
🧮 Desktop	input.dat	3/29/2012 4:09 PM	DAT File	1 KB	
bownloads	🔄 ismvasa	10/3/2013 10:14 PM	Security Certificate	1 KB	
🕍 Recent Places	🔮 UserAccount	10/3/2013 10:14 PM	XML Document	1 KB	
📜 Libraries 📑 Documents	vasaprovider.conf	10/4/2013 5:31 AM	CONF File	1 KB	

Register VASA Provider with vCenter Server

- 1. Start the VMware vSphere Client, and connect to the vCenter Server.
- 2. At the Home and Administration section, double-click Storage Providers.

WIN-LR97AGT	8TOC - vSphere Client				10.20.34	.61	38			_ 8 ×
File Edit View	Inventory Administratio	n Plug-ins Helj	p							
	Home							S	Search Inventory	Q
Inventory										
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Search	Hosts and Clusters	VMs and Templates	Datastores and Datastore Clusters	Networking						
Administration							1			
Roles	Sessions	Service Licensing	System Logs	vCenter Server Settings	vCenter Solutions Manager	Storage Providers	VCenter Service Status			

3. Click the **Add** link option.

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File Edit View Inventory Administration Plug-ins	Help								
🖸 🔝 🏤 Home 🕨 🖗 Administration 🕨	🚯 Storage Providers	WIN-LR97AGT8T00	-			🔊 - Search Inv	rentory		Q
						jidd	Remove	Refresh All	Sync
Vendor Providers						U			
Name	URL		Last Refresh Time	Last Sync Time					

4. Provide the following Vendor Provider information:

Name:	Snapsan Provider
URL:	https://10.20.34.61:9943//i5Mvasa/services/vasaService
Login:	administrator
Password:	****
	unider Cartificate
 Use vendor Pro 	

- Name
- URL in the following format:

https://<IP address of where the server VASA Provider is installed>:<Number configured for 4th Port while installing>/iSMvasa/services/vasaService

For example, if the server's IP address is 10.20.34.61 and the 4th port number is 9943, then the URL will be:

https://10.20.34.61:9943/iSMvasa/services/vasaService

- Login and Password. These are the credentials you used during the installation of VASA.
- Check the Use Vendor Provider Certificate box.
- Browse to the **Certificate location** where you copied the vender provider certificate file (**ismvasa.cer**) from the previous steps.
- 5. Click OK.
- **6.** The registered entry is shown in the Storage Provider window. Right-click it and select the option **Sync Provider**.

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Vendor Providers					Add	Remove	Refresh All	Sync
Name		URL	Last Refresh Time Last Sync Time					
Snapsan Provider	ails	https://10.20.34.61:9943///SM	Add New Provider Remove Provider Sync Pro Jerr Refresh View Column Export List					
Snapsan Provider								_
Provider Name: Provider Status: Provider Version:	Snapsan Provider syncError 1.2.001	API Version : Default Namespace :	1.0 com.overland.jp.ism.vasaprovider					
Supported Vendor IDs		Supported Model IDs		_				
com.overland		SnapSAN 53000						
com.overland		SnapSAN S5000						

The following shows a registered VASA Provider in VMware vCenter Server.

Vendor Providers					
Name		URL		Last Refresh Time	Last Sync Time
Snapsan Provider		https://10.20.34.61:9943/i5Mvasa/	services/vasa	10/6/2013 10:49:37	10/4/2013 3:49:55
Vendor Provider De	etails				
Snapsan Provider					
Provider Name:	Snapsan Provider	API Version:	1.0		
Provider Status:	online	Default Namespace:	com.overlan	d.jp.ism.vasaprovider	
Provider Version:	1.2.001				
Supported Vendor ID)5	Supported Model IDs			
com.overland		SnapSAN 53000			
com.overland		SnapSAN S5000			

Verifying Storage Information

- 1. Start the VMware vSphere Client, and connect to the vCenter Server.
- 2. Navigate to the Home > Management > VM storage profiles and click Manager Storage Capabilities.

Depending upon the features implemented, the storage capabilities that a storage vendor guarantees are displayed.

🚰 W IN-LR97AG T8T0C - vSphere Client	t		10.20.34.61			₩ - V /		_ 8 ×
File Edit View Inventory Administratio	on Plug-ins	Help						
Home 🕨 💼 Mana	igement 👂 🐚	👉 VM Storage Profiles 👂 🛃	WIN-LR97AG18TUC				Search Inventory	4
🔊 🛃 Create VM Storage Profile 🛛 💀 Edi	it VM Storage I	Profile 👘 🖉 Delete VM Stora	ge Profile 🛛 🦻 Manage Storage Capabilities	🕞 Enable VM S	torage	Profiles		
M Storage Profiler								
Whistorage Provies	Califica Chart							
	Getting Start	ed Summary VM scorage i	Profiles				1	
		🗿 Manage Storage Capabili	ties			×	ab 🔀	
	What is	Storage capabilities are a group	of parameters that a datastore guarantees. Cap	abilities can be syst	tem-del	fined and		
	The VM	user-defined. Supported storag	e systems assign system-defined capabilities to d	atastore and you co with datastores	annot r	modify them. You		
	Client w	can add, remove, and edic aser	-denned storage capabilities, and associate chem	man datastores.				
	storage	Name	Description	Туре	П.			
	Storage	Multi_RAID1_thinprovision	PD Type : Multi, RAID Type : RAID1, thinpr	System	1 -	Add		
	datastor	Multi_RAID1_thinprovision	PD Type : Multi, RAID Type : RAID1, thinpr	System		Remove		
	and so (Multi_RAID1_thinprovision	PD Type : Multi, RAID Type : RAID1, thinpr	System	13	e da		
	datastor	Multi_RAID1_thinprovision	PD Type : Multi, RAID Type : RAID1, thinpr	System		EGIC		
	addotor	Multi_RAID1_replication	PD Type : Multi, RAID Type : RAID1, replicat	System				
	Click Cr	Multi_RAID1_replication	PD Type : Multi, RAID Type : RAID1, replicat	System				
	listing a	Multi_RAID1_snapshot	PD Type : Multi, RAID Type : RAID1, snaps	System				
	insuring a	Multi RAIDI	PD Type : Multi, RAID Type : RAIDI PD Type : Multi, RAID Type : RAIDS, thiopr	System				
		Multi RATDS thinprovision	PD Type : Multi, RAID Type : RAIDS, thinpr	System				
		Multi RAID5 thinprovision	PD Type : Multi, RAID Type : RAID5, thinpr	System				
	Basic I	Multi_RAID5_thinprovision	PD Type : Multi, RAID Type : RAIDS, thinpr	System				
	🗗 Crez	Multi_RAID5_replication	PD Type : Multi, RAID Type : RAID5, replicat	System				
		Multi_RAID5_replication	PD Type : Multi, RAID Type : RAID5, replicat	System				
		Multi_RAID5_snapshot	PD Type : Multi, RAID Type : RAID5, snaps	System				
		Multi_RAID5	PD Type : Multi, RAID Type : RAID5	System				
		Multi_RAID6_thinprovision	PD Type : Multi, RAID Type : RAID6, thinpr	System			es	
		Multi_RAID6_thinprovision	PD Type : Multi, RAID Type : RAID6, thinpr	System			AS	
		Multi DATD6 thinprovision	DD Tune - Multi DATD Tune - DATD6 - thinnr	System	·			
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- **3.** Navigate to the path **Home > Inventory > Datastores and datastore clusters**.
- Select the datastore assigned from Overland Storage. Click the Summary tab and check for the system storage capability in the Storage Capability section. In the following image it shows SAS_RAID1.

🖉 WIN-LR97AGT8T0C - vSphere Cli	ient 🖉	10.20.34.61	*		
File Edit View Inventory Administr	ration Plug-ins Help wentory IP 😝 Detastores and Datastore Clusters			Search Invent	ory Q
B B WIN-LR97AGTBOC B TEST G datastore1 G FC 50G G FC Datastore G S7M-S7ASP-TEST-CB (Ina G TEST	FC S0G Getting Startadi Summary Virtual Machines Hotol Performance General Location: ds:///vmfs/volumes/524a5/36-7e5/dbd Type: VMFS Number of Hosts Connected: 1 Virtual Machines and Templates: 0 Commands Image: Command Startage Inter SDRS Maintenance Mode Browse Datastore Image: Assign User-Defined Storage Capability	mance Configuration Tasks & Events Capacity Capacity Capacity: Provisioned Space: Free Space: Last updated on: 10 Storage Capabilities System Storage Capability: User-defined Storage Capabil Storage Name: Descript	Alarms Permissions 250 Refresh 49,75 GB 971.00 MB 48,80 GB /4/2013 3:45:11 AM Refresh RAID1 C Capability Details SAS_RAID1 SAS_RAID1 ion: PD Type : SAS, RJ	AID Type : RAID1	×

- **5.** Navigate to the path **Home > Inventory > Hosts and clusters** and select host from the left pane.
- Click the Configuration tab from the right pane and select the datastore from the Datastores list.

The datastore details are displayed.

60 😂 🚟								
WIN-LR97AGT8TOC WIN-LR97AGT8TOC TEST Mov2K334235 SRM5RA-34231 W2K82-34231 W2K82-3423 W2K82-34231 W2K82-3423 W2K82-3423 W2K82-3423 W2K82-3423 W2K82-3423 W2K82-3423 W2K82-3423 W2K82-342 W2	10.20.34.41 VMware ESXi, 5.1.0, 799733 Getting Started Summary Virtual Machi	ines Resource Allocation	Performance Co	nfiguration Tasks	& Events Alarms	Permissions M.	aps Storage Views	_Hardware St ≬ ≬
	Hardware Processors Memory Storage Networking Storage Adapters Advanced Settings Power Management	View: Datastores Dev Datastores Identification > Construction FC Sog FC Datastore FC Sog FC Datastore FC Sog FC Datastore FC Test	Status Normal Normal Normal Normal Normal	Device Local Adaptec Disk OVERLAND Fibre OVERLAND Fibre OVERLAND Fibre	Drive Type Non-SSD Non-SSD Non-SSD Non-SSD Non-SSD	Refresh Delete Capacity 1.36 TB 49.75 GB 19.50 GB 9.75 GB 9.75 GB	Add Storage Free Type 1.08 TB VMF55 48.00 GB VMF55 18.60 GB VMF55 8.89 GB VMF55	Rescan Al Last Update 10/6/2013 1 10/6/2013 1 9/30/2013 10/6/2013 1
	Software Licensed Features Time Configuration DNS and Routing Ottheritation Services	4						Þ
	Power Management Virtual Machine Startup/Shutdown Virtual Machine Swapfile Location	Datastore Details Kerresin Scorage Capabilit System Storage Capabilit User-defined Storage Ca	iy: SAS_RAID pability: N/A	n 🖆				Properties
	Security Profile Host Cache Configuration System Resource Allocation Agent VM Settings Advanced Settings	Path Selection Most Recently Us Paths Total: 2	Properties Volume Label: Datastore Name: Formatting	FC 50G FC 50G	Extents OVERLAND Fibre (Total Formatted C	Thannel D 50 Japacity 49	Stora).00 GB Disa).75 GB	ige I/O Coni bled

Uninstalling the VASA Provider

- 1. Verify that vCenter Server is running.
- 2. Navigate to the Start > Setting > Control Panel window.
- **3.** Double-click the Add or Remove Programs feature, and the select the program Overland Storage VASA Provider.
- 4. Click Uninstall.
- 5. To start the uninstall process, click Yes.

6. Once uninstall completes, click Finish.

Troubleshooting

To avoid any errors when installing or uninstalling the VASA provider, it is imperative that the vCenter Server services are started and have not stopped.