

## Virtuozzo Storage

## User's Guide

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#### **CHAPTER 1**

## About Virtuozzo Storage

Virtuozzo Storage is a software-defined storage optimized for storing large amounts of data. It provides data redundancy (replication and erasure coding), high availability, self-healing, and storage sharing.

## 1.1 Supported Storage Types

Your service provider can configure Virtuozzo Storage to keep your data in three storage types:

- S3 object storage for storing an unlimited number of files.
- iSCSI block storage for virtualization, databases, and other needs.
- NFS shares.

The following sections describe the ways to access data in Virtuozzo Storage in detail.

#### **CHAPTER 2**

## Accessing Virtuozzo Storage S3 Buckets

To access Virtuozzo Storage S3, get the following information (credentials) from your system administrator:

- User panel IP address
- DNS name of the S3 endpoint
- Access key ID
- Secret access key

Virtuozzo Storage S3 allows you to access your data in several ways:

- Via Virtuozzo Storage user panel
- Via a third-party S3 application like Cyberduck, Mountain Duck, Backup Exec, etc

This sections describes how to use the aforementioned applications to access data in S3.

### 2.1 Managing Buckets via Virtuozzo Storage User Panel

This section describes how to manage buckets and their contents using Virtuozzo Storage user panel.

### 2.1.1 Logging in to the User Panel

To log in to the Virtuozzo Storage user panel, do the following:

1. On any computer with access to the web interface, in a web browser visit

http://<user\_panel\_IP\_address>:8888/s3/.

Log in
ENDPOINT
✓ Use secure transfer (SSL)
ACCESS KEY ID
SECRET ACCESS KEY
LOG IN

On the Virtuozzo Storage login screen, enter your credentials in the corresponding fields and click LOG IN.

Once you log in to the web interface, you will see the **Buckets** screen with the list of your buckets. From here, you can manage buckets as well as folders and files stored inside the buckets.

To log out, click the user icon in the upper right corner of any screen and click **Log out**.

Buckets	S		
Туре	Name	Creation date	🕂 A Log out
<b>@</b>	bucket1	<b>Jun 29</b> 14:55	🗙 Delete
	bucket2	<b>Jun 29</b> 14:55	

### 2.1.2 Adding, Deleting, and Listing Buckets

On the **Buckets** screen:

• To add a new bucket, click **Add bucket**, specify a name, and click **Add**.

× Add bucket	
Bucket name	
bucket1	
	Add Cancel

Use bucket names that comply with DNS naming conventions. For more information on bucket naming, see *Bucket and Key Naming Policies* on page 20.

- To delete a bucket, select it and click **Delete**.
- To list bucket contents, click a bucket name in the list.

#### 2.1.2.1 Listing Bucket Contents in a Web Browser

You can list bucket contents with a web browser. To do this, visit the URL that consists of the external DNS name for the S3 endpoint that you specified when creating the S3 cluster and the bucket name. For example, mys3storage.example.com/mybucket.

**Note:** You can also copy the link to bucket contents by right-clicking it in CyberDuck, and then selecting **Copy URL**.

### 2.1.3 Creating, Deleting, and Listing Folders

On the bucket contents screen:

• To create a folder, click New folder, specify folder name in the New folder window, and click Add.

× New folder	
Folder name	
folder1	
	Add Cancel

- To delete a folder, select it and click **Delete**.
- To list folder contents, click a folder name.

#### 2.1.4 Uploading and Downloading Files

On the bucket or folder contents screen:

• To upload files to S3, click **Upload** and choose files to upload.

Туре	Name	Size	Last modified	C	New folder
	folder1/			±.	Download file
È	file1.txt	445 bytes	<b>Jun 29</b> 15:03	1	Upload
				0	Get Certificate
				$\odot$	Validate
				×	Delete

db1.db 100 MB

• To download files, select them and click **Download**.

#### 2.1.5 Obtaining and Validating File Certificates

Virtuozzo Storage offers integration with the Acronis Notary service to leverage blockchain notarization and ensure the immutability of data saved in S3 buckets.

To certify files stored in your buckets, ask your system administrator to enable the Acronis Notary service for the buckets.

On the bucket's or folder's contents screen:

- To get a notarization certificate for a file, select it and click **Get Certificate**.
- To check the validity of a file's certificate, click **Validate**.

	ERTIFIES EXPERIENCE ERIFIES CERTIFICATE
NAME	db1.db
DATE UPLOADED	Jun 29, 2017, 03:33 PM
SIZE	100 MB
SIGNED BY	https://notary.acronis.com
	DONE

## 2.2 Accessing S3 Storage with CyberDuck

To access Virtuozzo Storage with CyberDuck, do the following:

- 1. In CyberDuck, click **Open Connection**.
- 2. Specify your credentials:
  - The DNS name of the S3 endpoint.
  - The Access Key ID and, the Password field, the secret access key of an object storage user.

Open Connection	8
Amazon S3	<b>•</b>
Server:	s3.dns.name.com Port: 443
URL:	https://a23859c7af2951f1H8YF@s3.dns.name.com
Access Key ID:	a23859c7af2951f1H8YF
Password:	
	Anonymous Login
SSH Private Key:	None Choose
	Save Password
	Connect Cancel
More Option	15

By default, the connection is established over HTTPS. To use CyberDuck over HTTP, you must install a special S3 profile from https://trac.cyberduck.io/wiki/help/en/howto/s3.

3. Once the connection is established, click **File** > **New Folder** to create a bucket.

🔒 Create new	folder
	Enter the name for the new folder bucket1
	Create Cancel

4. Specify a name for the new bucket, and then click **Create**. Use bucket names that comply with DNS naming conventions. For more information on bucket naming, see *Bucket and Key Naming Policies* on page 20.

The new bucket will appear in CyberDuck. You can manage it and its contents.

### 2.2.1 Managing Bucket Versions

Versioning is a way of keeping multiple variants of an object in the same bucket. You can use versioning to preserve, retrieve, and restore every version of every object stored in your S3 bucket. With versioning, you can easily recover from both unintended user actions and application failures. For more information about bucket versioning, refer to the Amazon documentation.

Bucket versioning is turned off by default. In CyberDuck, you can turn it on by selecting a checkbox in bucket properties. For example:

Info - folder1					
General Per	missions Metadata Distribution (CDN)				
Location US East (Northern Virginia)					
Storage Class	Regular Amazon S3 Storage 🔹				
Encryption	Unknown				
Transfer	Transfer Acceleration				
Logging	Bucket Access Logging				
	Write access logs to selected container.				
	None				
Analytics	Read Access for Qloudstat				
Open the URL to setup log analytics with Qloudstat.					
Versioning	Bucket Versioning				
	You can view all revisions of a file in the browser by choosing View $\rightarrow$ Show Hidden Files.				
	Multi-Factor Authentication (MFA) Delete				
Lifecycle	Transition to Glacier				
	after 1 Days 👻				
Delete files					
	after 1 Days 🔹				

## 2.3 Mounting S3 Storage with Mountain Duck

Mountain Duck enables you to mount and access an S3 cluster in Virtuozzo Storage as a regular disk drive. Do the following:

1. If your service provider has provided you with an SSL certificate, install it.

2. In Mountain Duck, click **New Bookmark**.

	New Bookmark
	Sort By
	No Bookmarks
٩	History •
	About
	Help
	Quit

- 3. In the properties window, select **Amazon S3** profile from the first drop-down list and specify the following parameters:
  - Nickname of the disk drive,
  - endpoint DNS name in the **Server** field,
  - access key ID in the **Username** field;

and click **Connect**.

🔼 S3 Storage			<b>- - X</b>			
🛃 Amazon S3 🔹 👻						
Nickname:	e: S3 Storage					
URL:	https://e5afdeeb012d44d3RRFD@s3.dns.name.com					
Server:	s3.dns.name.com	Port:	443 🗘			
Username:	Username: e5afdeeb012d44d3RRFD					
	Anonymous Login					
SSH Private Key:	None	~	Choose			
Client Certificate:	None		~			
Path:						
Encoding:	UTF-8		~			
Notes:						
Timezone:	UTC		~			
Drive Letter:	Auto		~			
Mount Options:	Read Only					
	Con	nect	Delete			

4. In the login window, specify **Secret Access Key** and click **Login**.

🔼 Login s3.dns.na	me.com
a	Login s3.dns.name.com
	Login s3.dns.name.com with username and password. No login credentials could be found in the Keychain.
Access Key ID:	e5afdeeb012d44d3RRFD
Secret Access Key	•••••
	Anonymous Login
SSH Private Key:	None   Choose
Save Passwor	rd Login Cancel

Mountain Duck will mount the S3 storage as a disk drive. On the disk, you can manage buckets and store files in them.

#### 2.3.1 Creating Buckets on Mounted S3 Storage

Windows and Mac OS X, operating systems supported by MountainDuck, treat buckets as folders in case the S3 storage is mounted as a disk drive. In both operating systems, the default folder name contains spaces. This violates bucket naming conventions (see *Bucket and Key Naming Policies* on page 20), therefore you cannot create a new bucket directly on the mounted S3 storage. To create a bucket on a mounted S3 storage, create a folder with a name complying with DNS naming conventions elsewhere and copy it to the root of the mounted S3 storage.

# 2.4 Configuring Backup Exec to Keep Backups in S3 Storage

To store Backup Exec backups in S3 storage, do the following:

- 1. Create a bucket to store backups either using the Virtuozzo Storage user panel or another application.
- 2. Install Backup Exec. During installation, make sure so select all the components of Backup Exec and check all the updates.

- 3. Run CLILauncher located in C:\Program Files\Veritas\Backup Exec.
- 4. In the Backup Exec command-line prompt, run the following command:

<pre># New-BECloudInstance -Name "cloud: -ServiceHost "<s3_dns_name>" -SslMo</s3_dns_name></pre>			
<b>e</b>	Windows PowerShel	I .	_ 🗆 X
Welcome to the Backup Exec Mana	gement Command Lin	e Interface	^
To get a list of Backup Exec co	mmands, type:		=
Get-BECommand			
To launch the Backup Exec Manag	ement Command Line	Interface Help, t	уре:
Show-BEHe 1p			
Copyright (C) 2017 Veritas Tech oduct is subject to license ter BEMCLI> New-BECloudInstance -Na ost "S3.DNS.name" -Ss1Mode "Dis Name : cloudinstance Id : 03353052-2567-4c5 Provider : cloudian ServiceHost : s3.dns.name Ss1Mode : Disabled UrlStyle : Path HttpPort : 80 HttpsPort : 443 Endpoint :	ms. me "cloudinstance" abled" -UrlStyle "	-Provider "cloudi Path"	
BEMCLI>			~

5. In Backup Exec, click **Configure Cloud Storage** on the **Storage** tab.

0	Veritas B	ackup Exec™ 16 (Centi	al Administration	Server)	_ <b>D</b> X
	Rackup and Restore		rage Repor	Aum	Central inistration Server
Compact Sort and Filter •	Pause Disable Offline Storage		noot Delete Share	Inventory Catalog Inventory and Catalog now	Restore
Views	State	Configure		Storage Operations	Media Operations

6. In the **Configure storage...** window, specify a name for Virtuozzo Storage S3 and click **Next**.

Că 👘	Configure storage on WIN-1UMMOBTT4JM	_		x
What na device?	ame and description do you want to use for the cloud stora	ge		
Name:	83			
Description:	Storage			
	Next >	Car	ncel	

7. Select the **S3** device and click **Next**.

Configure storage on WIN-1UMMOBTT4JM
Which provider for the cloud storage device do you want to use?
Azure
53 S3
Some cloud storage providers require encryption to be enabled when backup jobs or duplicate jobs are targeted to cloud storage. For details about why you should encrypt backup data when targeting jobs to cloud storage, see the TechNote.TECH231868
The verify option is enabled by default for backups targeted to cloud devices. Cloud providers may charge for reading the data from the cloud during verification. As Backup Exec complies with data integrity mechanisms for cloud transfer, you can disable the verify option and save costs when backing up data to cloud. For more information refer to TECH108140
What do I need to configure to use cloud storage? < Back Next > Cancel

8. Select cloudinstance [cloudian] from the  ${\mbox{Cloud storage}}$  drop-down list.

e	Configure storage on WIN-1UMMOBTT4JM
What is th	e connection information for the cloud storage device?
Cloud storage:	cloudinstance [ cloudian ]
Logon account:	System Logon Account   Add/Edit
	A The System Logon Account cannot be used for a cloud device.
The logon cloud devi	account that you selected is configured as a default logon account and should not be used to access a ce
	< Back Next > Cancel

- 9. Click **Add/Edit** next to the **Logon account** drop-down list.
- 10. In the Logon Account Selection window, click Add.

3	Logor	n Account	Selection		_ 🗆 🗙
Select a logon accour	nt to use when connecting t	to this serve	er.		
Please select a logon account fi	rom the list: User name	Default	Туре	Owner	Add
System Logon Account	WIN-1UMMOBTT4J	Yes	Common	WIN-1UMMOBTT4	Delete
-					<u>E</u> dit
					Set as De <u>f</u> ault
<u>H</u> elp				0	Cancel

- 11. In the **Account credentials** section, specify your credentials:
  - 11.1. S3 access key ID in the **User name** field.
  - 11.2. S3 secure access key in the **Password** field and confirm it.
  - 11.3. The username of your account in the **Account name** field.

8		Add Logon Credentials	x
(	Account credentials		
	User name:	e5afdeeb012d44d3RRFD	
	Password:	•••••	
	Confirm password:	•••••	
			J
	Account name:		_
	s3user1@example.co	om	_
N	Notes:		_
		-	
	This is	s a restricted logon account.	
	🖤 🔲 This is	s my default account.	
C	Help	OK Cancel	

- 12. Uncheck all the checkboxes and click **OK**.
- 13. Back in the **Logon Account Selection** window, make sure the newly added user account is selected and click **OK**.

	Logor	n Accoun	t Selection		
Select a logon accoun	t to use when connecting	to this serve	er.		
Please select a <u>l</u> ogon account fr	om the list:				
Account Name 🔺	User name	Default	Туре	Owner	Add
S3user1@example.com	e5afdeeb012d44d3R		Common	WIN-1UMMOBTT4	Delete
🔊 System Logon Account	WIN-1UMMOBTT4J	Yes	Common	WIN-1UMMOBTT4	<u>E</u> dit
					Set as De <u>f</u> ault
					·
Help				ОК	Cancel

- 14. Back in the **Configure storage...** window, click **Next**.
- 15. Select a bucket and click **Next** twice.
- 16. On the summary screen, click **Finish**, **OK**, and **Yes**.

Once the Backup Exec services are restarted, the S3 storage will appear in the list on the **Storage** tab. Now you can create backup jobs and specify the S3 storage as destination.

## 2.5 Bucket and Key Naming Policies

It is recommended to use bucket names that comply with DNS naming conventions:

- 3 to 63 characters long.
- Start and end with a lowercase letter or number.
- Contain lowercase letters, numbers, periods (.), hyphens (-), and underscores (\_).

• Can be a series of valid name parts (described previously) separated by periods.

An object key can be a string of any UTF-8 encoded characters up to 1024 bytes long.

#### **CHAPTER 3**

## Accessing Virtuozzo Storage iSCSI Targets

This section describes ways to attach Virtuozzo Storage iSCSI targets to a number of operating systems and third-party virtualization solutions.

# 3.1 Accessing Virtuozzo Storage iSCSI Targets from CentOS 6

- 1. Make sure that the iscsi-initiator-utils package is installed.
- 2. Discover the required target by its IP address. For example:

# iscsiadm --mode discovery --type sendtargets --portal 192.168.10.100

3. Restart the iscsid service to rescan for newly added drives:

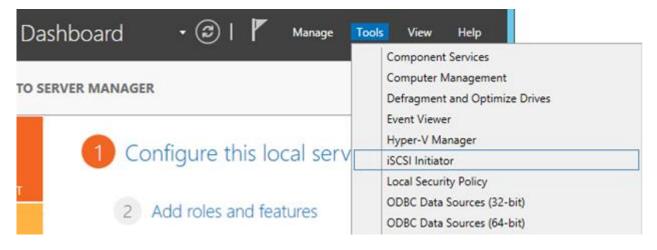
# service iscsi restart

To check that the new drive has appeared in the system, use fdisk, parted or similar tools.

For more information, see the Red Hat Enterprise Linux Storage Administration Guide.

# 3.2 Accessing Virtuozzo Storage iSCSI Targets from Microsoft Windows Server 2012 R2

1. In the **Server Manager Dashboard**, click the **Tools** menu in the toolbar and select **iSCSI Initiator**.



2. In the **iSCSI Initiator Properties**, switch to the **Discovery** tab and click **Discover Portal...**.

iSCSI Initiator Properties					
Targets	Discovery	Favorite Targets	Volumes and Devices	RADIUS	Configuration
_	portals	ok for <u>T</u> argets on fo	llowing portals:		R <u>e</u> fresh
Addre	-	Port	Adapter	I	P address
To add a target portal, click Discover Portal.       Discover Portal         To remove a target portal, select the address above and then click Remove.       Remove					

3. In the **Discover Target Portal** window, enter the portal IP address and click **OK**.

Discover Targ	et Portal
Enter the IP address or DNS name and p want to add.	ort number of the portal you
To change the default settings of the disa the Advanced button.	covery of the target portal, click
IP address or DNS name:	Port: (Default is 3260.)
10.30.128.130	3260
<u>A</u> dvanced	<u>O</u> K <u>C</u> ancel

The newly added portal will appear in the **Target portals** section.

4. On the **iSCSI Initiator Properties** > **Targets** tab, select the new target in the **Discovered targets** section and click **Connect**.

		ISCSI IN	itiator Properties	;	
argets	Discovery	Favorite Targets	Volumes and Devices	RADIUS	Configuration
Quick C	onnect				
		on to a target usin arget and then click	g a basic connection, to Quick Connect	ype the IP	address or
DING HE	ine or the te	arget and then thek	Quick Connect.		
<u>T</u> arget	:			Qu	iidk Connect
Discove	ered targets				
0.00070	and the <u>q</u> ets				Refresh
Name				Status	<u></u>
		pstorage:pcs3		Inactive	
To con click Co		dvanced options, se	elect a target and then		Connect

5. In the **Connect to Target** window, click **OK**.

Connect To Target
Target name: iqn.2014-04.com.pstorage:pcs3
Add this connection to the list of Favorite Targets. This will make the system automatically attempt to restore the connection every time this computer restarts.
Enable multi-path
Advanced OK Cancel

Target's **Inactive** status will change to **Connected**.

iSCSI Initiator Properties							
Targets         Discovery         Favorite Targets         Volumes and Devices         RADIUS         Configuration           Quick Connect							
	Target:     Quick Connect       Discovered targets						
<u>R</u> efresh							
	Name         Status           ign.2014-04.com.pstorage:pcs3         Connected						
Iqn. 20	14-04.com.	ostorage:pcs3		Connected	4		

The newly attached disk will appear in **Server Manager Dashboard** > **Computer Management** > **Storage** > **Disk Management**.

<b>#</b>	Cor	mputer Manag	jement
<u>F</u> ile <u>A</u> ction <u>V</u> iew <u>H</u> elp ← → 2	7 😼		
<ul> <li>Computer Management (Local)</li> <li>✓ System Tools</li> <li>▷ Task Scheduler</li> <li>▷ Event Viewer</li> <li>▷</li></ul>	Volume (C:) System Reserved System Re	ved System Rest 350 MB NTFS Healthy (Syst	Layout Type File Syster Simple Basic NTFS Simple Basic NTFS > (C:) 63.66 GB NTFS Healthy (Boot, Page File, C

6. Right-click the disk information section and select **Online**.

Disk 1 Basic 10.00 GB Offline	ļ	10.00 GB	
Online			
<b>≜</b> CI	Proper	ties	]
CD-R Help			

The disk status will change to **Online**.

7. Right-click the disk information section and select **Initialize Disk**.

<b>⊕Disk 1</b> Unknown 10.00 GB Not Initialize	10.00 GB Initialize Disk	
CD-RC	Offline	
CD-ROM	Properties	EN-US_DV
4.00 GB Online	Help	tition)

8. In the Initialize Disk window, click **OK**.

Initialize Disk ×
You must initialize a disk before Logical Disk Manager can access it. <u>S</u> elect disks: ☑ Disk 1
Use the following partition style for the selected disks:
<ul> <li><u>MBR</u> (Master Boot Record)</li> <li><u>GPT</u> (GUID Partition Table)</li> </ul>
Note: The GPT partition style is not recognized by all previous versions of Windows.
OK Cancel

9. Right-click the disk space section, select **New Simple Volume...**, and follow the wizard's instruction to format the new disk to NTFS.

Basic 10.00 GB	10.00 GB	New Simple Volume		
Online	Unallocated	New Spanned Volume		
		New Striped Volume		
CD-ROM (D:)		New Mirrored Volume		
		New RAID-5 Volume		
No Media		Properties		
		Help		

The disk state will change to **Healthy**.

<b>#</b>	Com	puter Manag	ement	
<u>F</u> ile <u>A</u> ction <u>V</u> iew <u>H</u> elp				
🗢 🔿 📶 🔽 🖬 🗳 🖆	7 😼			
Computer Management (Local)	Volume		Layout Type File Sys	ter
⊿	C:) New Volume (E:	0	Simple Basic NTFS Simple Basic NTFS	
Event Viewer	System Reserve	-	Simple Basic NTFS	
<ul> <li>Rest Shared Folders</li> <li>Rest Local Users and Groups</li> </ul>	<			>
<ul> <li>N Performance</li> <li>Device Manager</li> <li>Storage</li> </ul>	Disk 0 Basic	System Rese	(C:)	-
Windows Server Backup Disk Management	64.00 GB Online	350 MB NTFS Healthy (Syst	63.66 GB NTFS Healthy (Boot, Page File, C	0
Services and Applications			]	
	<b>Disk 1</b> Basic 10.00 GB Online	New Volume 10.00 GB NTFS Healthy (Prima		

The new disk will appear in Windows Explorer.

a∰ 1 💽 🚯 ≠ 1	This PC		_ = X
File Computer	View		~ <b>0</b>
۰ 🔿 🕆 💽	This PC 🔸	✓ ♂ Search Th	nis PC 🔎
<ul> <li>★ Favorites</li> <li>■ Desktop</li> <li>▲ Downloads</li> <li>▲ Recent places</li> </ul>	<ul> <li>Folders (6)</li> <li>Devices and drives (4)</li> <li>Floppy Disk Drive (A:)</li> </ul>	Local Disk	.(C:) ee of 63.6 GB
📲 This PC		New Volum	me (E:)
🙀 Network	DVD Drive (D:)	9.91 GB fre	ee of 9.99 GB
10 items			811 🖬

## 3.3 Accessing Virtuozzo Storage iSCSI Targets from VMware ESXi

- 1. In the **vSphere Client**, switch to the **Configuration** tab, and click **Storage Adapters** in the **Hardware** section.
- 2. If no software iSCSI adapters have been added, do so by right-clicking in the **Storage Adapters** section and selecting **Add Software iSCSI Adapter...**.
- 3. Open the software iSCSI adapter's properties, switch to the **Static Discovery** tab and click **Add...**.
- 4. In the **Add Static Target Server** window, enter the target's IP address and name.
- 5. Close the software iSCSI adapter's properties window and rescan the adapter as prompted.
- 6. The newly added iSCSI target will appear in the **Details** section of the software iSCSI adapter you have configured.

For more information, see the VMware vSphere Storage Guide.

# 3.4 Accessing Virtuozzo Storage iSCSI Targets from Citrix XenServer 6.2

- 1. In XenCenter, switch to the **Storage** tab and click **New SR...**.
- 2. In the New Storage Repository window:
  - 2.1. In the Type section, select the Software iSCSI option,
  - 2.2. In the Name section, provide a name or leave the default,
  - 2.3. In the **Location** section, enter target's IP address in the **Target Host** field, click **Discover IQNs** and select the desired target, then click **Discover LUNs** and select the desired LUN.
- 3. Click **Finish** to format the disk.

The new storage repository will appear in XenCenter.

For more information, see XenCenter documentation.

# 3.5 Accessing Virtuozzo Storage iSCSI Targets from Microsoft Hyper-V

Note: Names of the targets to be mounted must not contain underscore characters.

- 1. Make sure that Microsoft iSCSI Initiator Service, MSiSCSI, is running.
- 2. Discover a new target portal. For example, for the portal 192.168.10.100, run:

<pre>PS C:\Users\Administrator&gt;new-iscsitargetportal \</pre>
-targetportaladdress 192.168.10.100
Initiator Instance Name :
Initiator Portal Address :
IsDataDigest : False
IsHeaderDigest : False
TargetPortalAddress : 192.168.10.100
TargetPortalPortNumber : 3260
PSComputerName ::
PSComputerName :

3. Connect to the desired target. For example, for the target iqn.2014-03.com.vstorage:test1

<pre>cmdlet Connect-IscsiTarg Supply values for the fo NodeAddress: iqn.2014-04 AuthenticationType InitiatorInstanceName InitiatorNodeAddress InitiatorPortalAddress InitiatorSideIdentifier IsConnected IsDataDigest IsDiscovered IsHeaderDigest IsPersistent NumberOfConnections SessionIdentifier TargetNodeAddress</pre>	gen p1] +. ( : : : : : : : : : : : : :	t at command pipeline position 1 lowing parameters: com.vstorage:test1 NONE ROOT\ISCSIPRT\0000_0 iqn.1991-05.com.microsoft:win-l2dj7g36n7e 0.0.0.0
PSComputerName		
	<pre>cmdlet Connect-IscsiTarg Supply values for the for NodeAddress: iqn.2014-04 AuthenticationType InitiatorInstanceName InitiatorNodeAddress InitiatorPortalAddress InitiatorSideIdentifier IsConnected IsDataDigest IsDiscovered IsHeaderDigest IsPersistent NumberOfConnections SessionIdentifier TargetNodeAddress TargetSideIdentifier PSComputerName</pre>	Supply values for the fol NodeAddress: iqn.2014-04.0 AuthenticationType : InitiatorInstanceName : InitiatorNodeAddress : InitiatorPortalAddress : InitiatorSideIdentifier : IsConnected : IsDataDigest : IsDiscovered : IsHeaderDigest : IsPersistent : NumberOfConnections : SessionIdentifier : TargetNodeAddress : TargetSideIdentifier : PSComputerName

4. To check that the disk has been connected, run

PS C:\Users\Administrator> get-disk							
Number Friendly Name	OperationalStatus	Total Size					
1 IET VIRTUAL-DISK SCSI Disk Device	Offline	100 GB RAW					

You can now initialise the newly mounted disk for use in Microsoft Hyper-V.

For more information, see iSCSI Cmdlets in Windows PowerShell.