

# Acronis

## Acronis Storage 2.4

User's Guide

July 18, 2018

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# Contents

- 1. About Acronis Storage . . . . . 1**
  - 1.1 Supported Storage Types . . . . . 1
  
- 2. Accessing S3 Buckets . . . . . 2**
  - 2.1 Managing Buckets via the Acronis Storage User Panel . . . . . 2
    - 2.1.1 Logging in to the Acronis Storage User Panel . . . . . 2
    - 2.1.2 Adding, Deleting, and Listing S3 Buckets . . . . . 4
      - 2.1.2.1 Listing S3 Bucket Contents in a Browser . . . . . 4
    - 2.1.3 Creating, Deleting, and Listing Folders . . . . . 4
    - 2.1.4 Uploading and Downloading Files . . . . . 5
    - 2.1.5 Obtaining and Validating File Certificates . . . . . 6
  - 2.2 Accessing S3 Storage with CyberDuck . . . . . 6
    - 2.2.1 Managing S3 Bucket Versions . . . . . 8
  - 2.3 Mounting S3 Storage with Mountain Duck . . . . . 9
    - 2.3.1 Creating S3 Buckets on Mounted S3 Storage . . . . . 12
  - 2.4 Configuring Backup Exec to Keep Backups in S3 Storage . . . . . 12
  - 2.5 S3 Bucket and Key Naming Policies . . . . . 19
  
- 3. Accessing iSCSI Targets . . . . . 21**
  - 3.1 Accessing iSCSI Targets from CentOS 6 . . . . . 21
  - 3.2 Accessing iSCSI Targets from Microsoft Windows Server 2012 R2 . . . . . 21
  - 3.3 Accessing iSCSI Targets from VMware ESXi . . . . . 28
  - 3.4 Accessing iSCSI Targets from Citrix XenServer 6.2 . . . . . 28
  - 3.5 Accessing iSCSI Targets from Microsoft Hyper-V . . . . . 29
  
- 4. Accessing NFS Shares . . . . . 31**
  - 4.1 Mounting NFS Exports on Linux . . . . . 31

4.2 Mounting NFS Exports on MacOS . . . . . 32

## CHAPTER 1

# About Acronis Storage

Acronis Storage is a software-defined storage solution that allows you to quickly and easily transform low-cost commodity storage hardware and network equipment into protected enterprise-grade storage like SAN or NAS.

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

Acronis Storage offers integration with the Acronis Notary service to leverage blockchain notarization and ensure the immutability of data saved in object storage clusters. The notary service timestamps the data and stores data fingerprints in a public blockchain ledger, not owned by Acronis, ensuring data immutability. As a result, blockchain notarization is well suited for and commonly used to maintain authenticity of such data as property and medical records, chain-of-evidence for court documents, police video or security camera footage, intellectual property bound documents, long-term archiving that could be subject to IT audits, and 'consortium' data storage, where multiple entities or individuals need to securely store and exchange massive amounts of data and information.

## 1.1 Supported Storage Types

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

- S3 object storage for storing an unlimited number of objects (files).
- iSCSI block storage for virtualization, databases, and other needs.
- NFS shares for storing an unlimited number of files via a distributed filesystem.

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

## CHAPTER 2

# Accessing S3 Buckets

To access Acronis Storage S3 buckets, 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.

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

- via Acronis Storage user panel;
- via a third-party S3 application like Cyberduck, Mountain Duck, Backup Exec, etc.

## 2.1 Managing Buckets via the Acronis Storage User Panel

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

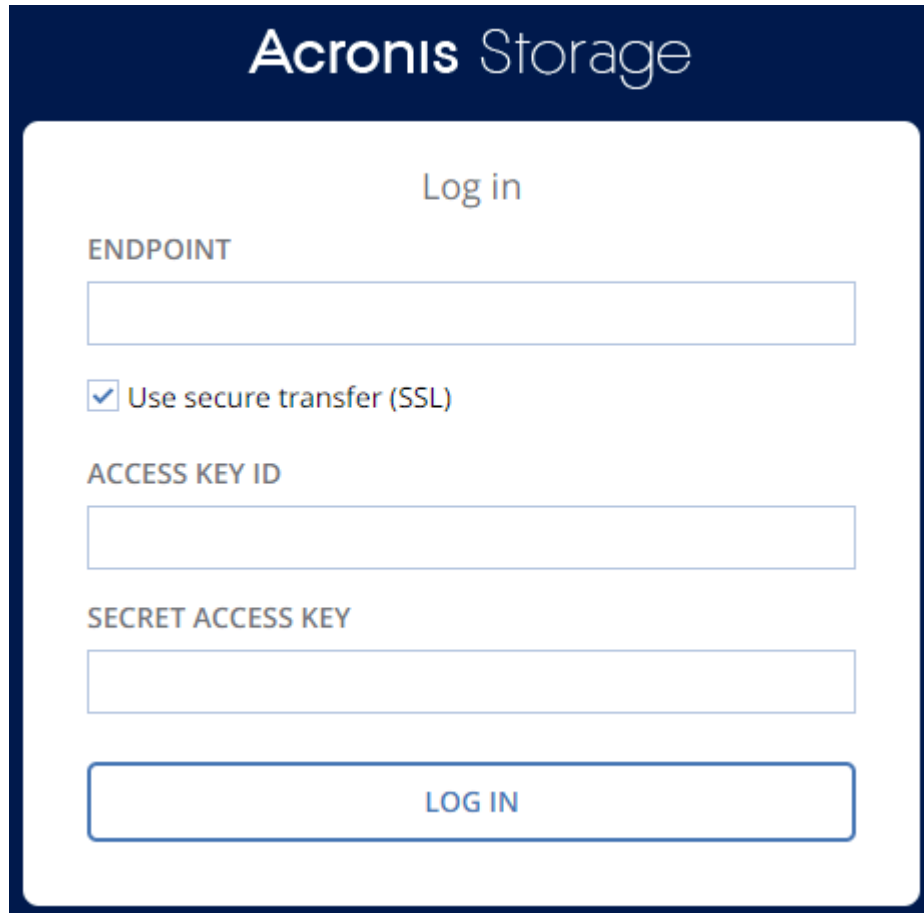
### 2.1.1 Logging in to the Acronis Storage User Panel

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

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

## 2.1. Managing Buckets via the Acronis Storage User Panel

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

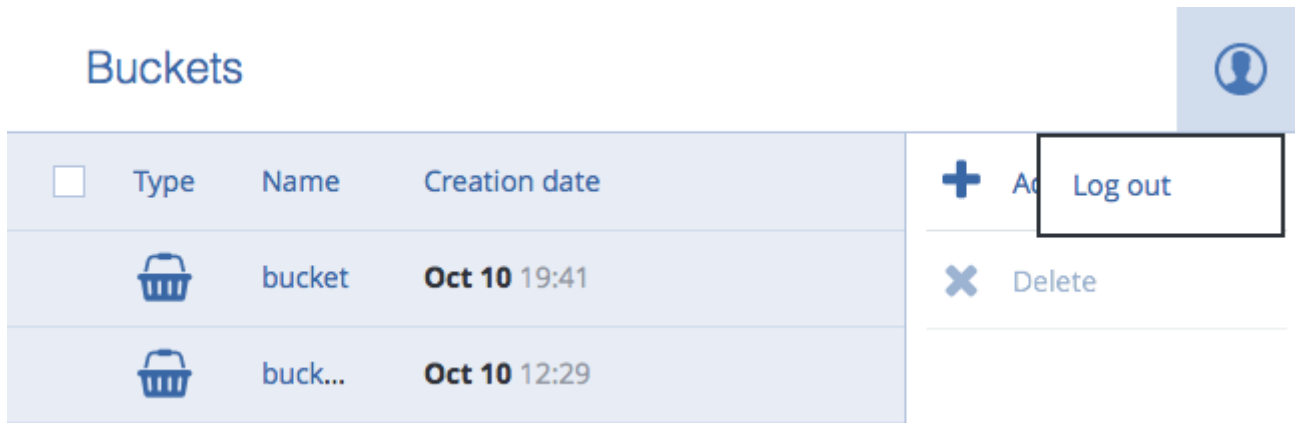


The image shows the Acronis Storage login interface. It features a dark blue header with the 'Acronis Storage' logo. Below the header is a white login form with the title 'Log in'. The form contains three input fields: 'ENDPOINT', 'ACCESS KEY ID', and 'SECRET ACCESS KEY'. A checkbox labeled 'Use secure transfer (SSL)' is checked. At the bottom of the form is a large blue button labeled 'LOG IN'.



2. On the Acronis 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**.



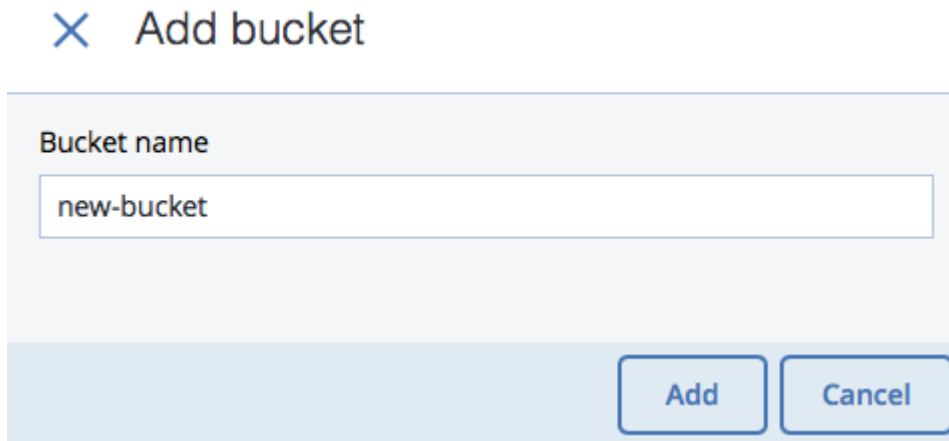
The image shows the 'Buckets' management interface. It features a table with columns for 'Type', 'Name', and 'Creation date'. There are two rows of buckets listed. To the right of the table is a user profile icon in the top right corner. Below the icon is a dropdown menu with options: '+ Add' (with a plus icon), 'Log out' (highlighted with a black box), and 'Delete' (with an 'x' icon).

<input type="checkbox"/>	Type	Name	Creation date
	bucket		Oct 10 19:41
	buck...		Oct 10 12:29

## 2.1.2 Adding, Deleting, and Listing S3 Buckets

On the **Buckets** screen:

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



Use bucket names that comply with DNS naming conventions. For more information on bucket naming, see *S3 Bucket and Key Naming Policies* on page 19.

- 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 S3 Bucket Contents in a 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**.



## 2.1. Managing Buckets via the Acronis Storage User Panel

✕ New folder

Folder name

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.

Buckets > bucket 👤

<input type="checkbox"/>	Type	Name	Size	Last modified	
<input type="checkbox"/>	Folder	New fol...			New folder
<input type="checkbox"/>	File	Acronis ...	6.2 MB	Oct 10 10:23	Download file
<input type="checkbox"/>	File	storage_...	907 bytes	Oct 10 15:36	Upload
<input type="checkbox"/>	File	wB069n...	27.7 KB	Oct 10 12:32	Get Certificate
<input type="checkbox"/>	File	Переез...	7.9 MB	Oct 10 19:41	Validate
<input type="checkbox"/>					Delete

Uploading file 2 of 2

Total size 11.3 MB

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

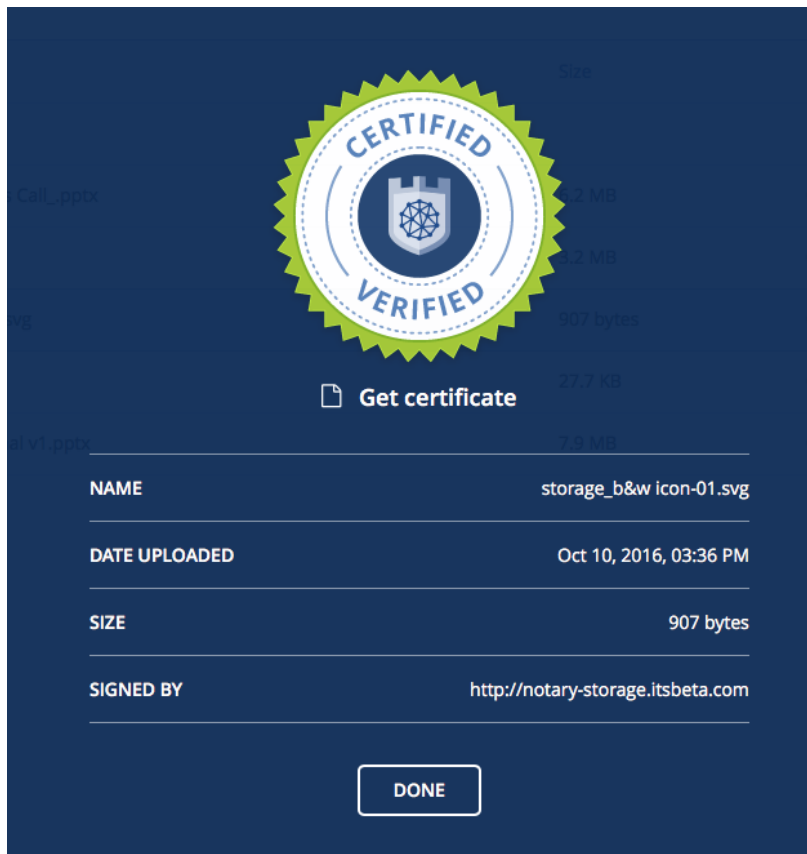
## 2.1.5 Obtaining and Validating File Certificates

Acronis 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**.

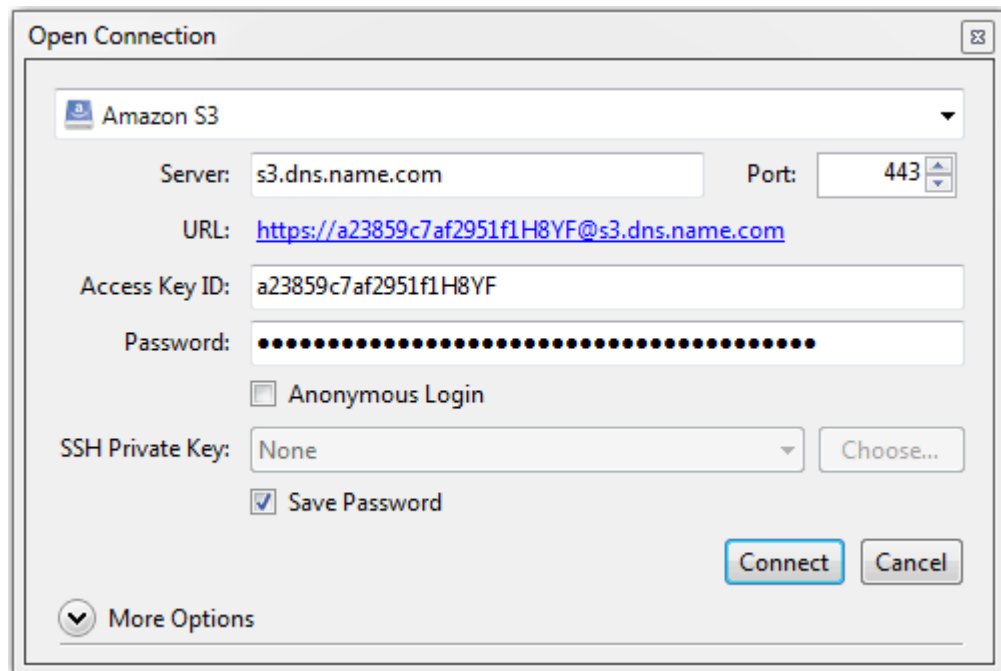


## 2.2 Accessing S3 Storage with CyberDuck

To access Acronis Storage with CyberDuck, do the following:

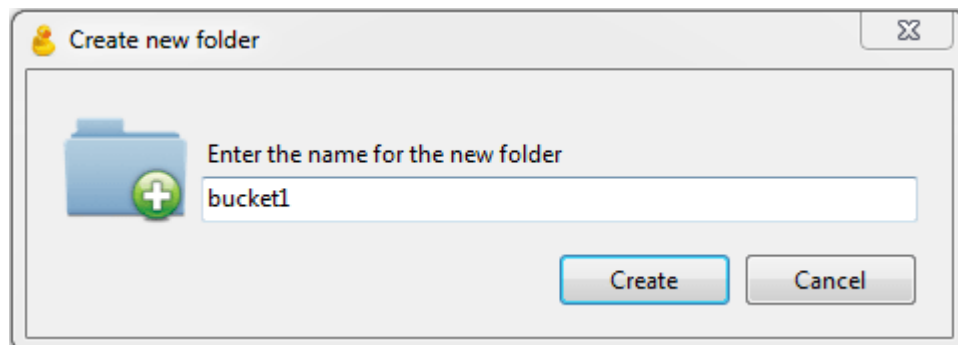
## 2.2. Accessing S3 Storage with CyberDuck

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.



By default, the connection is established over HTTPS. To use CyberDuck over HTTP, you must install a special S3 profile.

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



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 *S3 Bucket and Key Naming Policies* on page 19.

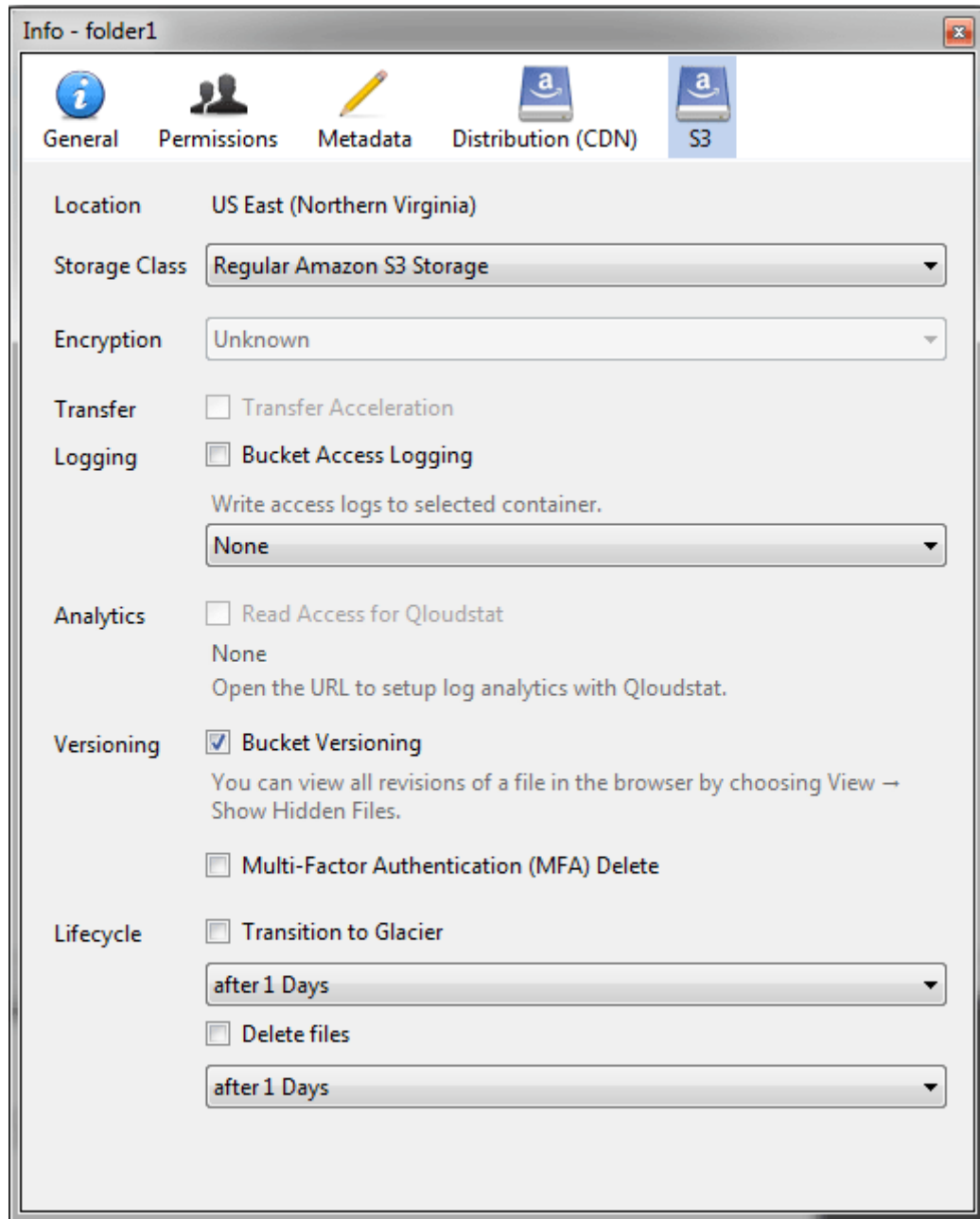
The new bucket will appear in CyberDuck. You can manage it and its contents.

### 2.2.1 Managing S3 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 enable it in bucket properties. For example:

## 2.3. Mounting S3 Storage with Mountain Duck

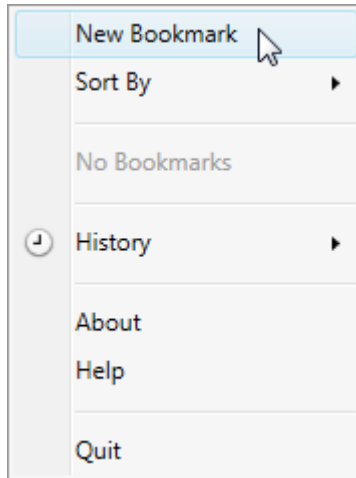


## 2.3 Mounting S3 Storage with Mountain Duck

Mountain Duck enables you to mount and access Acronis Storage S3 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**.

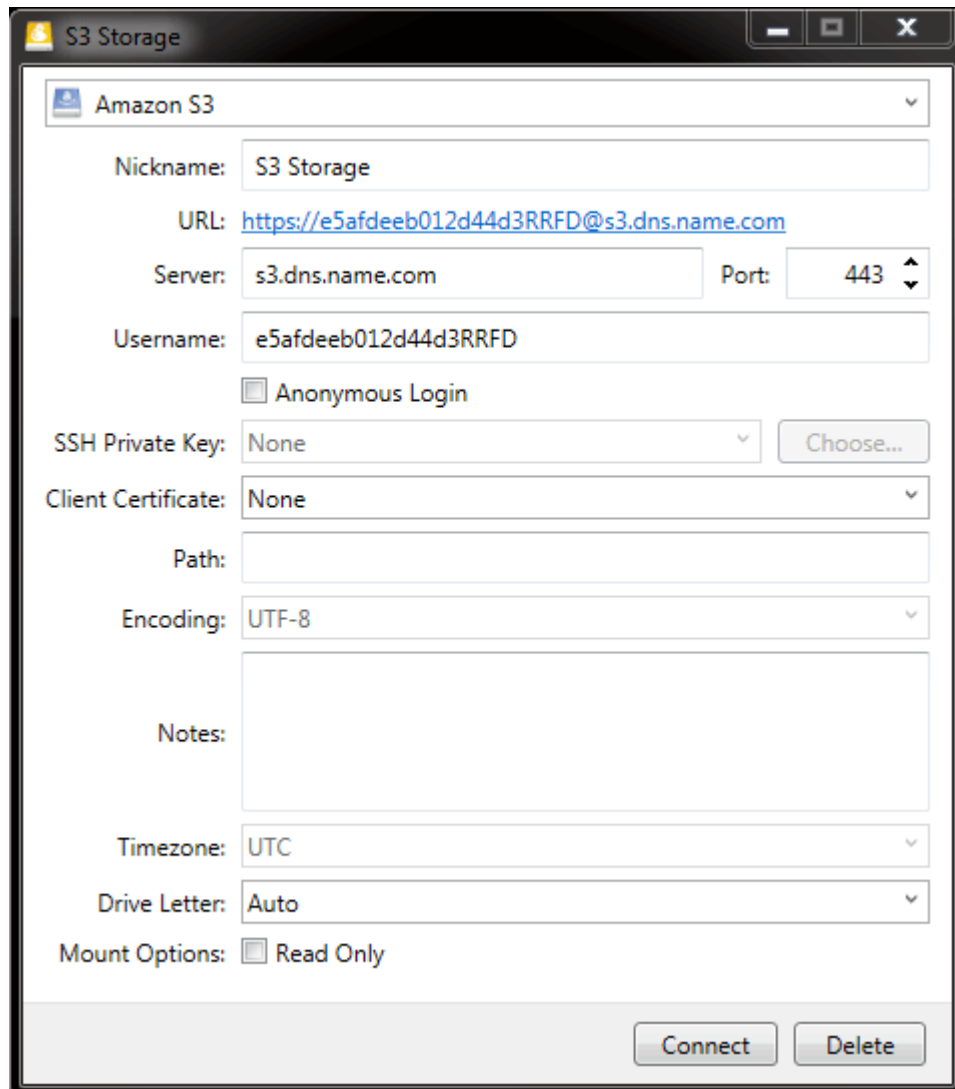


3. In the properties window, select **Amazon S3** profile from the first drop-down list and specify the following parameters:

- **Nickname** of the disk drive,
- endpoint DNS name in the **Server** field,
- access key ID in the **Username** field;

and click **Connect**.

## 2.3. Mounting S3 Storage with Mountain Duck

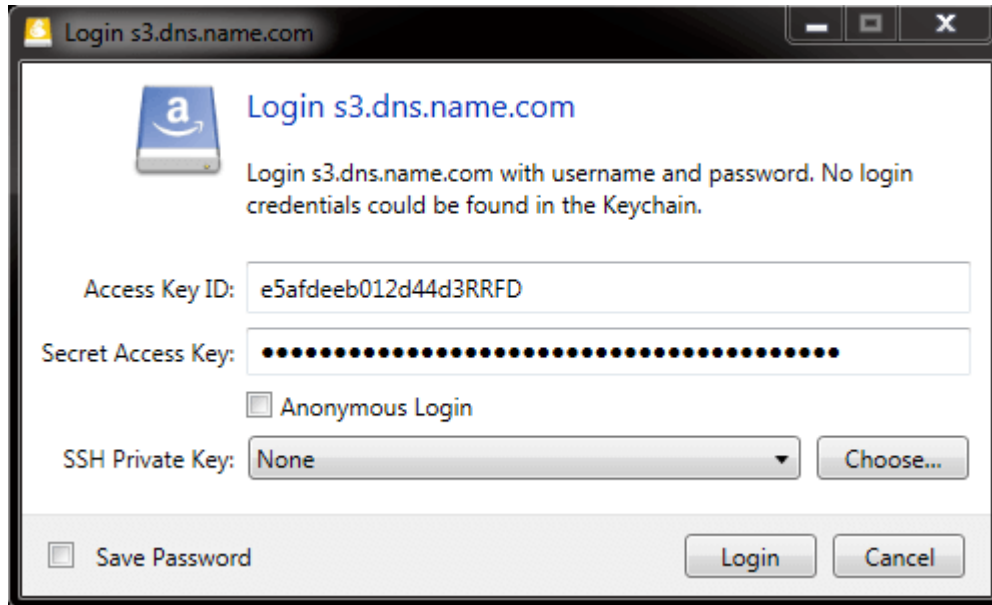


The image shows a configuration window titled "S3 Storage" for Amazon S3. The window contains the following fields and options:

- Amazon S3** (dropdown menu)
- Nickname:** S3 Storage
- URL:** <https://e5afdeeb012d44d3RRFD@s3.dns.name.com>
- Server:** s3.dns.name.com
- Port:** 443
- Username:** e5afdeeb012d44d3RRFD
- Anonymous Login
- SSH Private Key:** None (with a "Choose..." button)
- Client Certificate:** None
- Path:** (empty text field)
- Encoding:** UTF-8
- Notes:** (empty text area)
- Timezone:** UTC
- Drive Letter:** Auto
- Mount Options:**  Read Only

At the bottom right, there are two buttons: "Connect" and "Delete".

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



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 S3 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 *S3 Bucket and Key Naming Policies* on page 19), 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 Acronis Storage user panel or another application.
2. Install Backup Exec. During installation, make sure so select all the components of Backup Exec and



## 2.4. Configuring Backup Exec to Keep Backups in S3 Storage

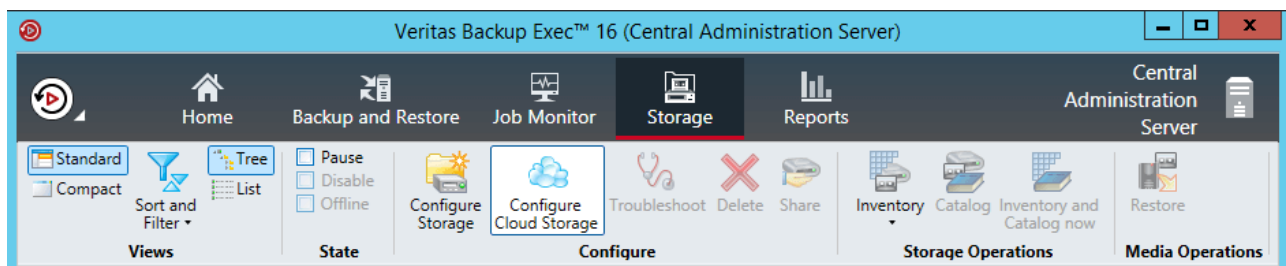
check all the updates.

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

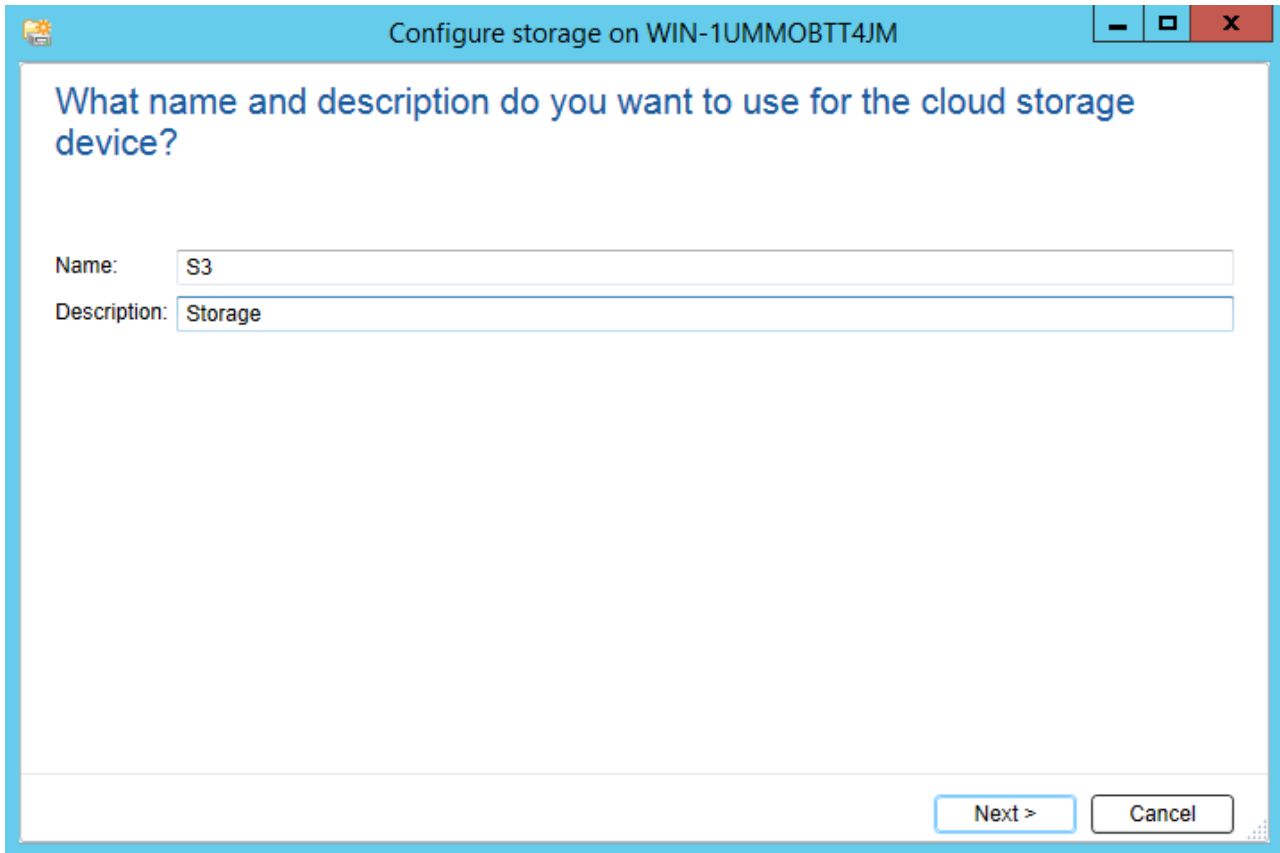
```
# New-BECloudInstance -Name "cloudinstance" -Provider "cloudian" \  
-ServiceHost "<S3_DNS_name>" -SslMode "Disabled" -UrlStyle "Path"
```

```
Windows PowerShell  
Welcome to the Backup Exec Management Command Line Interface  
To get a list of Backup Exec commands, type:  
Get-BECommand  
To launch the Backup Exec Management Command Line Interface Help, type:  
Show-BEHelp  
Copyright (C) 2017 Veritas Technologies LLC. All rights reserved. Use of this product is subject to license terms.  
BEMCLI> New-BECloudInstance -Name "cloudinstance" -Provider "cloudian" -ServiceHost "s3.dns.name" -SslMode "Disabled" -UrlStyle "Path"  
Name : cloudinstance  
Id : 03353052-2567-4c5e-b928-52242763b868  
Provider : cloudian  
ServiceHost : s3.dns.name  
SslMode : Disabled  
UrlStyle : Path  
HttpPort : 80  
HttpsPort : 443  
Endpoint :  
BEMCLI>
```

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

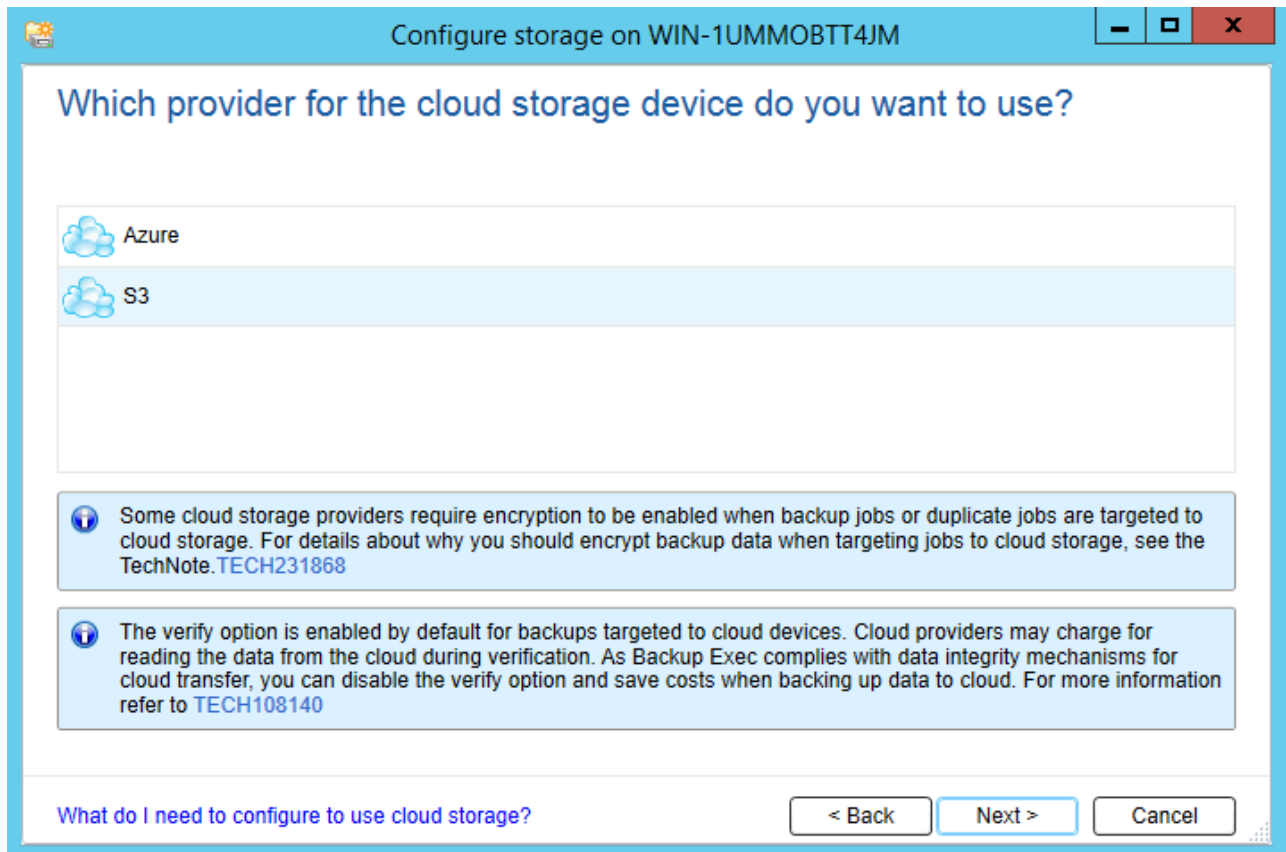


6. In the **Configure storage...** window, specify a name for Acronis Storage S3 and click **NEXT**.

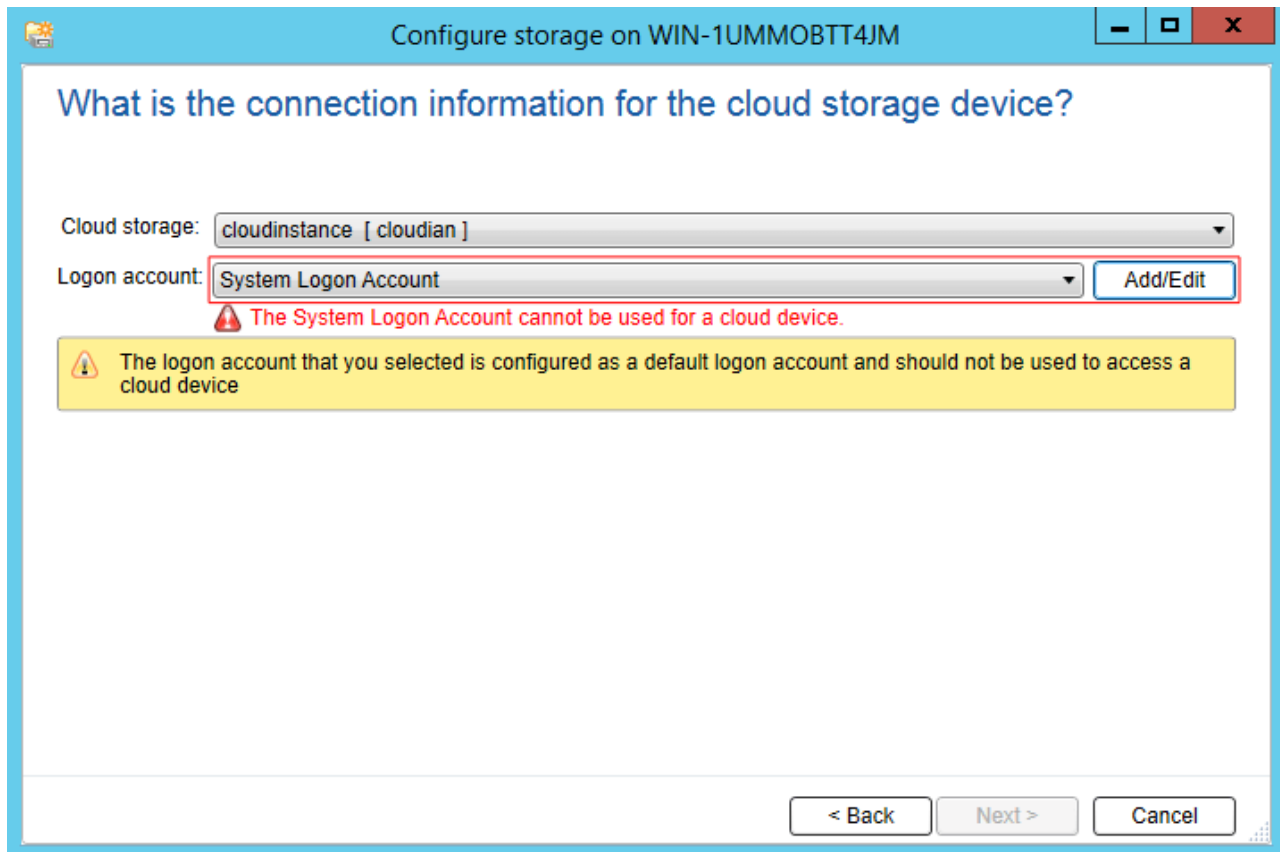


7. Select the **S3** device and click **NEXT**.

## 2.4. Configuring Backup Exec to Keep Backups in S3 Storage

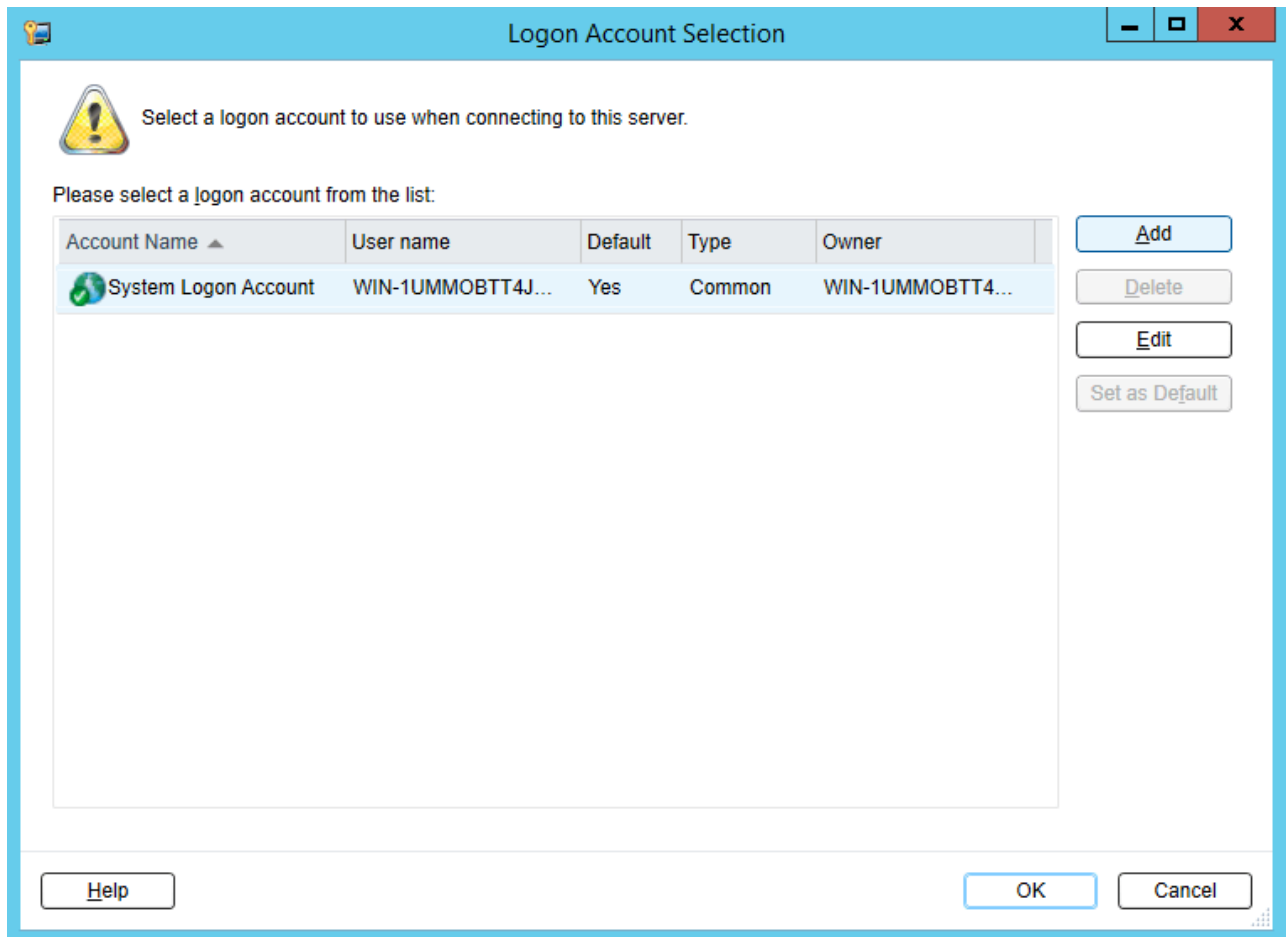


8. Select cloudinstance [cloudian] from the **Cloud storage** drop-down list.



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

## 2.4. Configuring Backup Exec to Keep Backups in S3 Storage



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.

**Add Logon Credentials**

Account credentials


User name: e5afdeeb012d44d3RRFD

Password: .....

Confirm password: .....

Account name: s3user1@example.com

Notes:

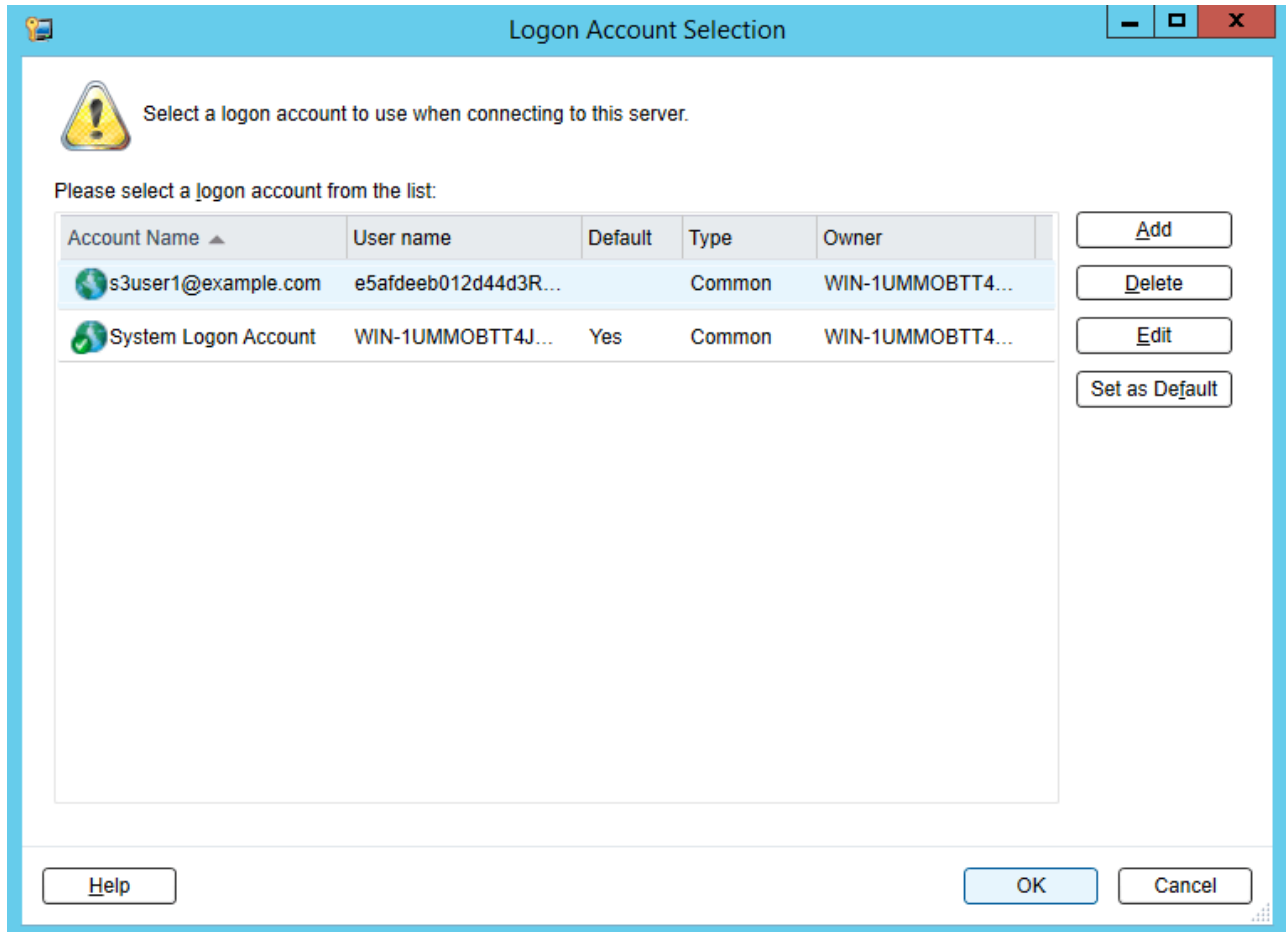
  This is a restricted logon account.

This is my default account.

Help OK Cancel

12. Clear 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**.

## 2.5. S3 Bucket and Key Naming Policies



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 S3 Bucket and Key Naming Policies

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

- can be from 3 to 63 characters long,
- must start and end with a lowercase letter or number,

- can 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 iSCSI Targets

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

## 3.1 Accessing 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:

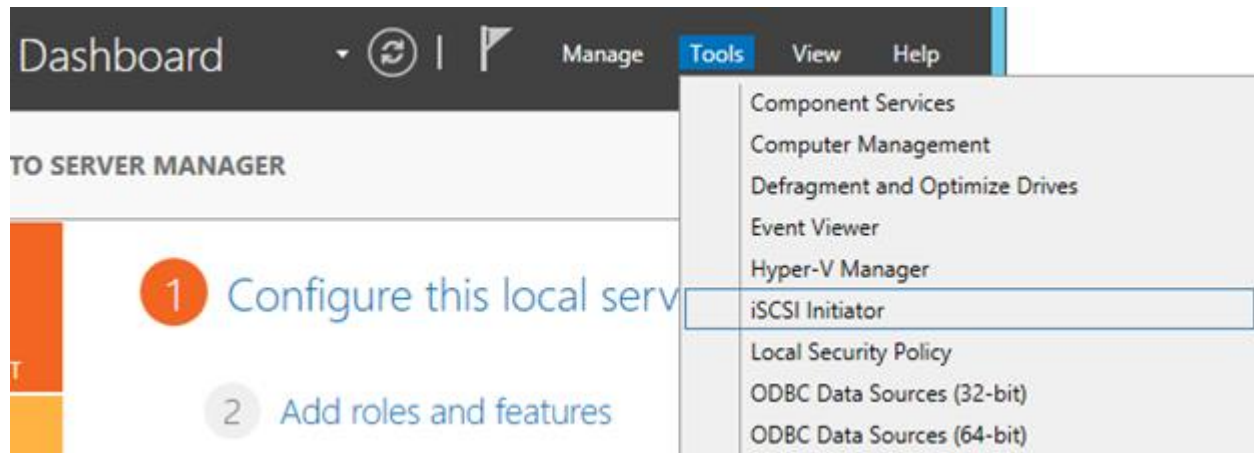
```
# service iscsi restart
```

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

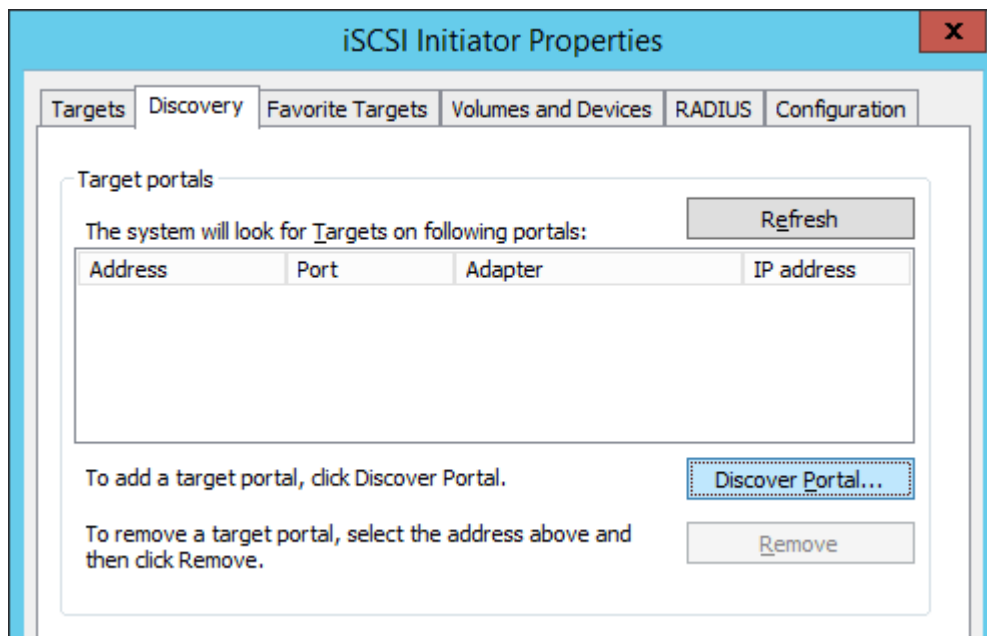
For more information, see the [Red Hat Enterprise Linux Storage Administration Guide](#).

## 3.2 Accessing 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**.

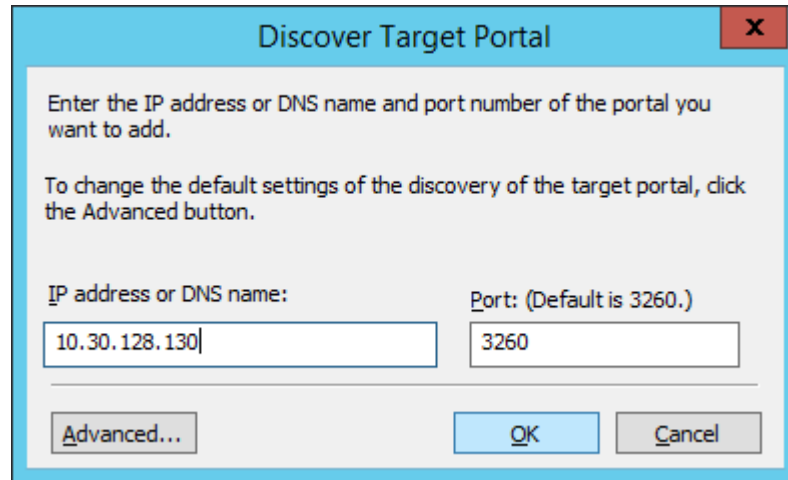


2. In the **iSCSI Initiator Properties**, switch to the **Discovery** tab and click **Discover Portal...**



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

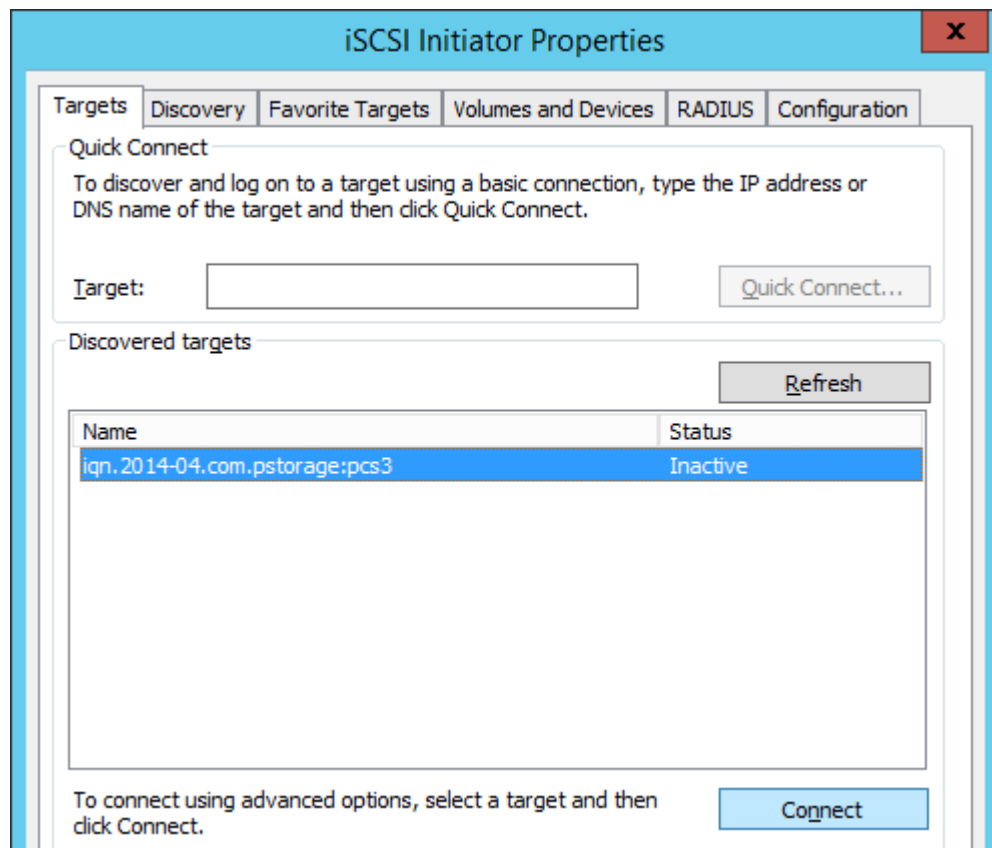
## 3.2. Accessing iSCSI Targets from Microsoft Windows Server 2012 R2



The Discover Target Portal dialog box is shown with a blue title bar and a close button (X) in the top right corner. The main area contains instructions: "Enter the IP address or DNS name and port number of the portal you want to add." and "To change the default settings of the discovery of the target portal, click the Advanced button." Below this, there are two input fields: "IP address or DNS name:" with the value "10.30.128.130" and "Port: (Default is 3260.)" with the value "3260". At the bottom, there are three buttons: "Advanced...", "OK", and "Cancel".

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

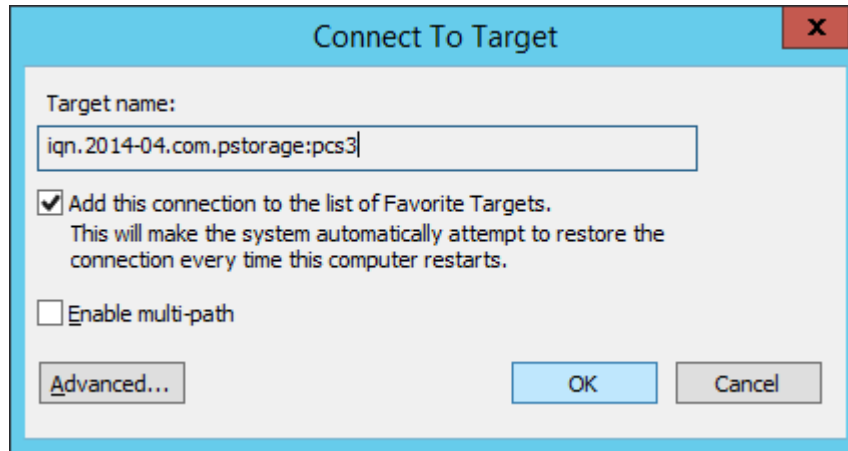
4. On the **iSCSI Initiator Properties > Targets** tab, select the new target in the **Discovered targets** section and click **Connect**.



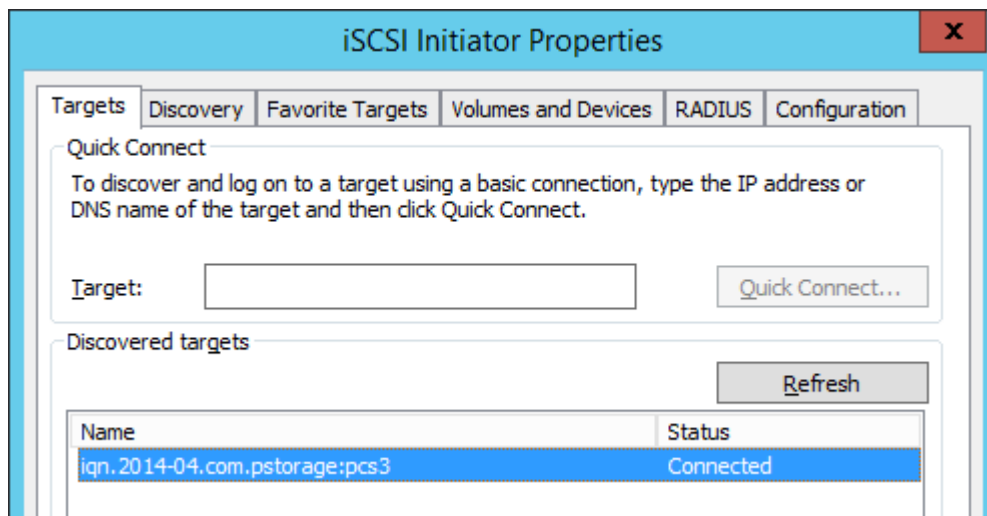
The iSCSI Initiator Properties dialog box is shown with a blue title bar and a close button (X) in the top right corner. It has several tabs: "Targets", "Discovery", "Favorite Targets", "Volumes and Devices", "RADIUS", and "Configuration". The "Targets" tab is selected. Under "Quick Connect", there is a "Target:" input field and a "Quick Connect..." button. Below that is the "Discovered targets" section, which includes a "Refresh" button and a table with two columns: "Name" and "Status". The table contains one entry: "iqn.2014-04.com.pstorage:pcs3" with a status of "Inactive". At the bottom, there is a "Connect" button and a note: "To connect using advanced options, select a target and then click Connect."

Name	Status
iqn.2014-04.com.pstorage:pcs3	Inactive

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

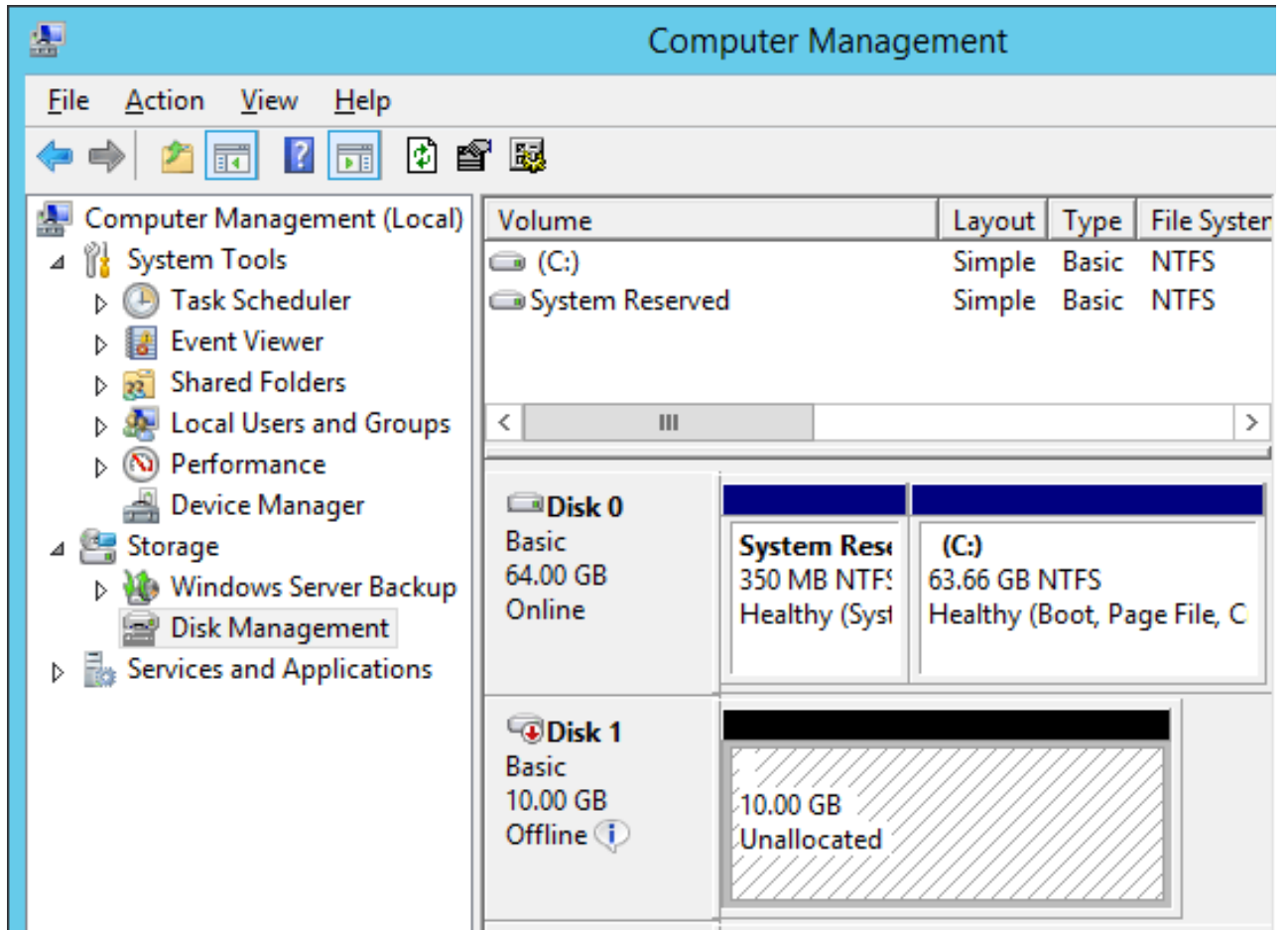


6. Target's **Inactive** status will change to **Connected**.

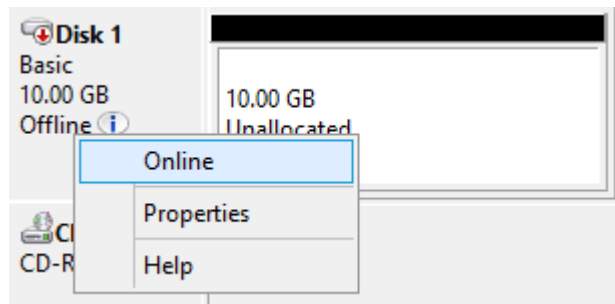


7. The newly attached disk will appear in **Server Manager Dashboard > Computer Management > Storage > Disk Management**.

### 3.2. Accessing iSCSI Targets from Microsoft Windows Server 2012 R2

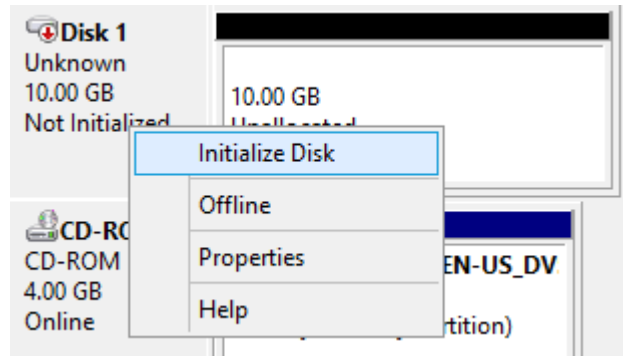


8. Right-click the disk information section and select **Online**.

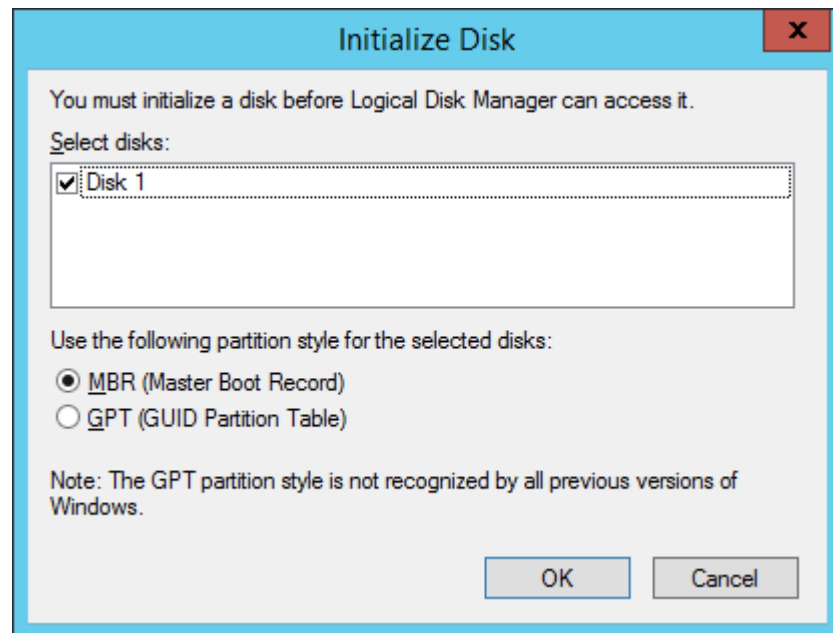


The disk status will change to **Online**.

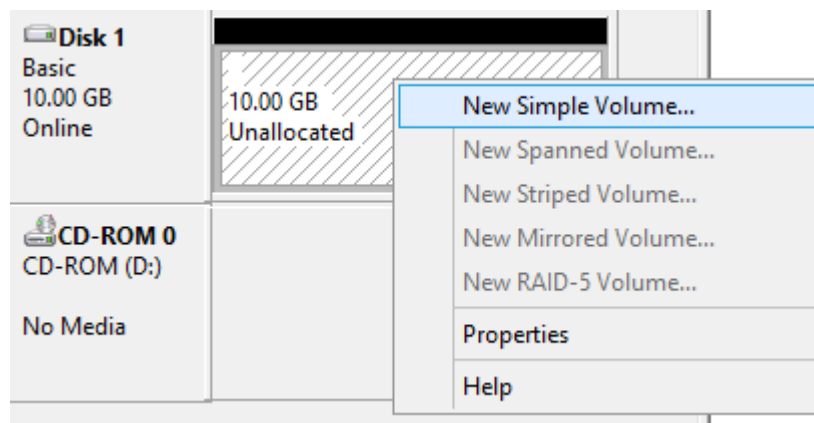
9. Right-click the disk information section and select **Initialize Disk**.



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

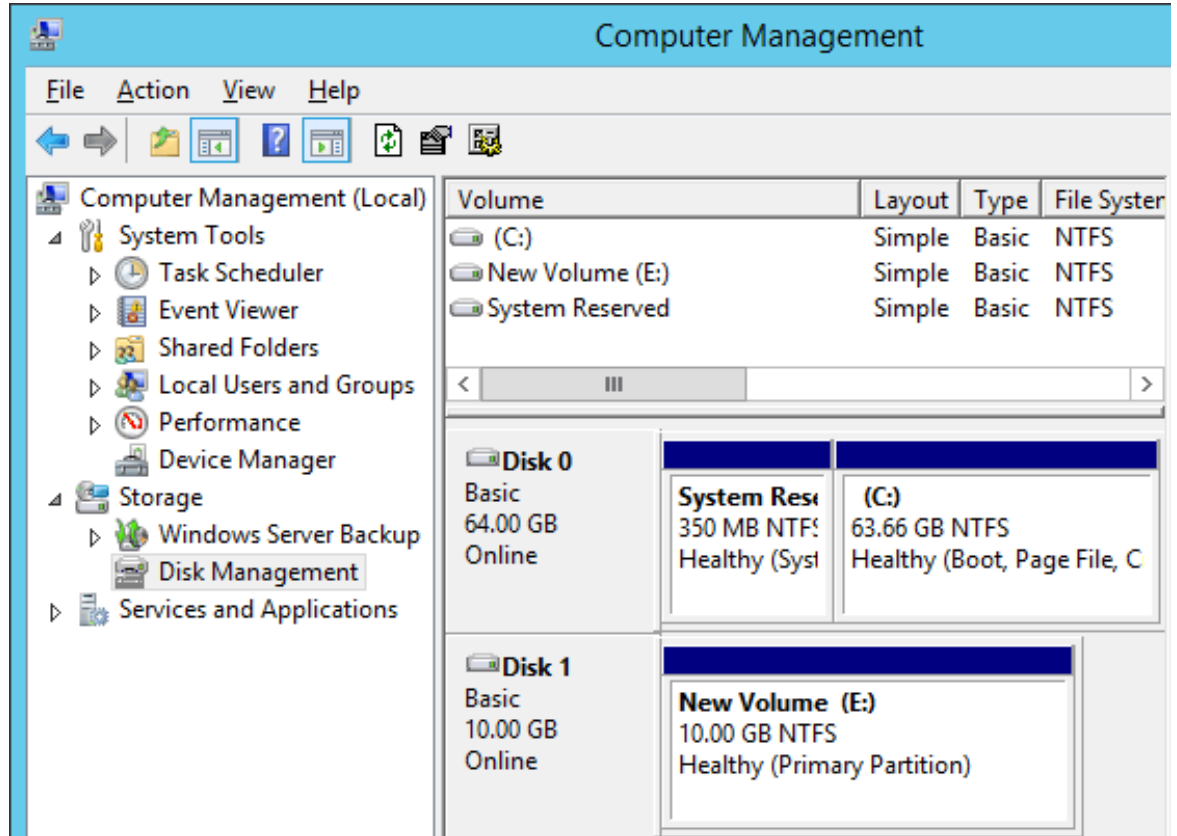


11. Right-click the disk space section, select **New Simple Volume...**, and follow the wizard's instruction to format the new disk to NTFS.

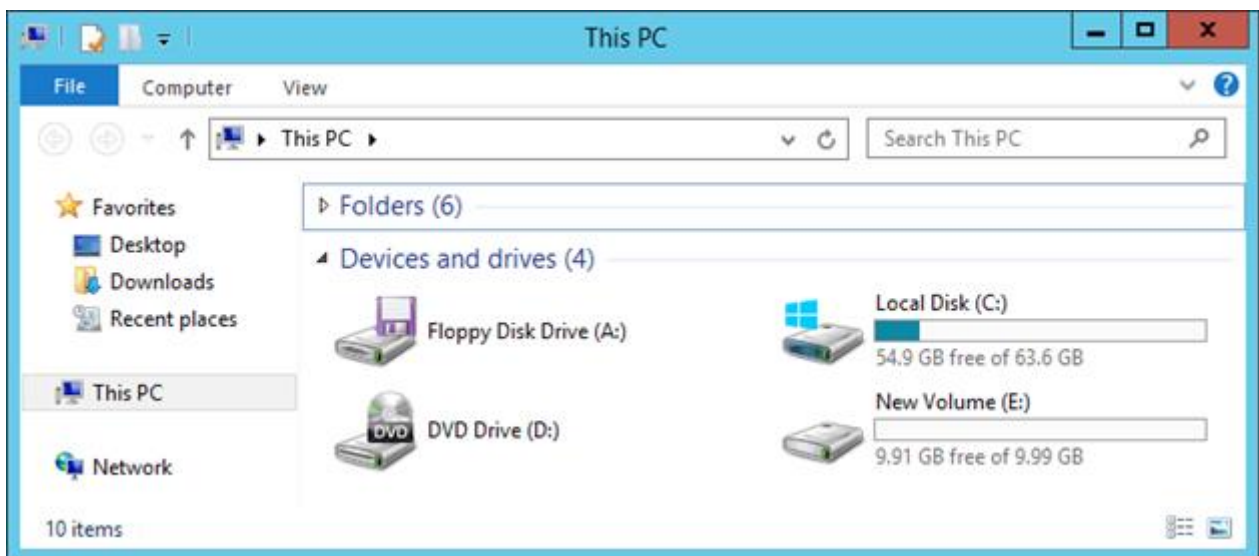


## 3.2. Accessing iSCSI Targets from Microsoft Windows Server 2012 R2

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



The new disk will appear in Windows Explorer.



## 3.3 Accessing 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 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 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:

```
PS C:\Users\Administrator>new-iscsitargetportal \
-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, run:

```
PS C:\Users\Administrator> connect-iscsitarget
cmdlet Connect-IscsiTarget at command pipeline position 1
Supply values for the following parameters:
NodeAddress: iqn.2014-04.com.vstorage:test1
AuthenticationType      : NONE
InitiatorInstanceName   : ROOT\ISCSIPRT\0000_0
InitiatorNodeAddress    : iqn.1991-05.com.microsoft:win-l2dj7g36n7e...
InitiatorPortalAddress  : 0.0.0.0
InitiatorSideIdentifier : 400001370000
IsConnected             : True
IsDataDigest            : False
IsDiscovered            : True
IsHeaderDigest          : False
IsPersistent            : False
NumberOfConnections     : 1
SessionIdentifier       : fffffe00000b5e020-4000013700000005
TargetNodeAddress       : iqn.2014-04.com.vstorage:test1
TargetSideIdentifier    : 0001
.. _PSComputerName     ::
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 the [Microsoft documentation](#).

## CHAPTER 4

# Accessing NFS Shares

This section describes ways to mount Acronis Storage NFS shares on Linux and MacOS.

**Note:** Acronis Storage currently does not support the Windows built-in NFS client.

## 4.1 Mounting NFS Exports on Linux

You can mount an NFS export created in Acronis Storage like any other directory exported via NFS. You will need the share IP address (or hostname) and the volume identifier. For example:

```
# mount -t nfs -o vers=4.0 192.168.0.51:/0200000000000002/ /mnt/nfs
```

where:

- `-o vers=4.0` is the NFS version to use. To use pNFS, change `-o vers=4.0` to `-o vers=4.1`. In all other cases, make sure to always specify NFS version 4.0 or newer.
- `192.168.0.51` is the share IP address. You can also use the share hostname.
- `/0200000000000002/` is the root export path. For user exports, specify their full path, for example: `/0200000000000002/export1`.
- `/mnt/nfs` is an existing local directory to mount the export to.

## 4.2 Mounting NFS Exports on MacOS

You can mount an NFS export created in Acronis Storage like any other directory exported via NFS. You will need the share IP address (or hostname) and the volume identifier. You can mount the export either via a command-line prompt or in Finder:

- In the command-line prompt, run the following command:

```
# mount -t nfs -o vers=4.0 192.168.0.51:/0200000000000002/ /mnt/nfs
```

where:

- `-o vers=4.0` is the NFS version to use.
  - `192.168.0.51` is the share IP address. You can also use the share hostname.
  - `/0200000000000002/` is the root export path. For user exports, specify their full path, for example: `/0200000000000002/export1`.
  - `/mnt/nfs` is an existing local directory to mount the export to.
- In Finder, do the following:
    1. Set the NFS version to 4.0. To do this, add the `nfs.client.mount.options = vers=4.0` line to the `/etc/nfs.conf` file.
    2. In the **Finder** > **Go** > **Connect to server** window, specify `nfs://192.168.0.51:/0200000000000002/` where:
      - `192.168.0.51` is the share IP address. You can also use the share hostname.
      - `/0200000000000002/` is the root export path. For user exports, specify their full path, for example: `/0200000000000002/export1`.
    3. Click **Connect**.

The Finder will mount the export to `/Volumes/0200000000000002/`.