

StarWind Virtual SAN: Set Up Challenge-Handshake Authentication Protocol (CHAP)

2024

TECHNICAL PAPERS



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StarWind is a pioneer in virtualization and a company that participated in the development of this technology from its earliest days. Now the company is among the leading vendors of software and hardware hyper-converged solutions. The company's core product is the years-proven StarWind Virtual SAN, which allows SMB and ROBO to benefit from cost-efficient hyperconverged IT infrastructure. Having earned a reputation of reliability, StarWind created a hardware product line and is actively tapping into hyperconverged and storage appliances market. In 2016, Gartner named StarWind “Cool Vendor for Compute Platforms” following the success and popularity of StarWind HyperConverged Appliance. StarWind partners with world-known companies: Microsoft, VMware, Veeam, Intel, Dell, Mellanox, Citrix, Western Digital, etc.

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Annotation

Relevant Products

StarWind Virtual SAN (VSAN)

Purpose

This document outlines the implementation and configuration of the Challenge-Handshake Authentication Protocol (CHAP) authentication within StarWind Virtual SAN targets.

Audience

This document is intended for IT professionals, system administrators, and network administrators who are responsible for configuring and managing storage solutions within StarWind Virtual SAN.

Expected Result

The expected result is the successful configuration of CHAP settings in StarWind Virtual SAN. Users should be able to implement CHAP for initiator authentication, ensuring secure access to their storage targets. The document also provides guidance on setting global and individual permissions.

Configuring Chap Settings In Starwind Management Console

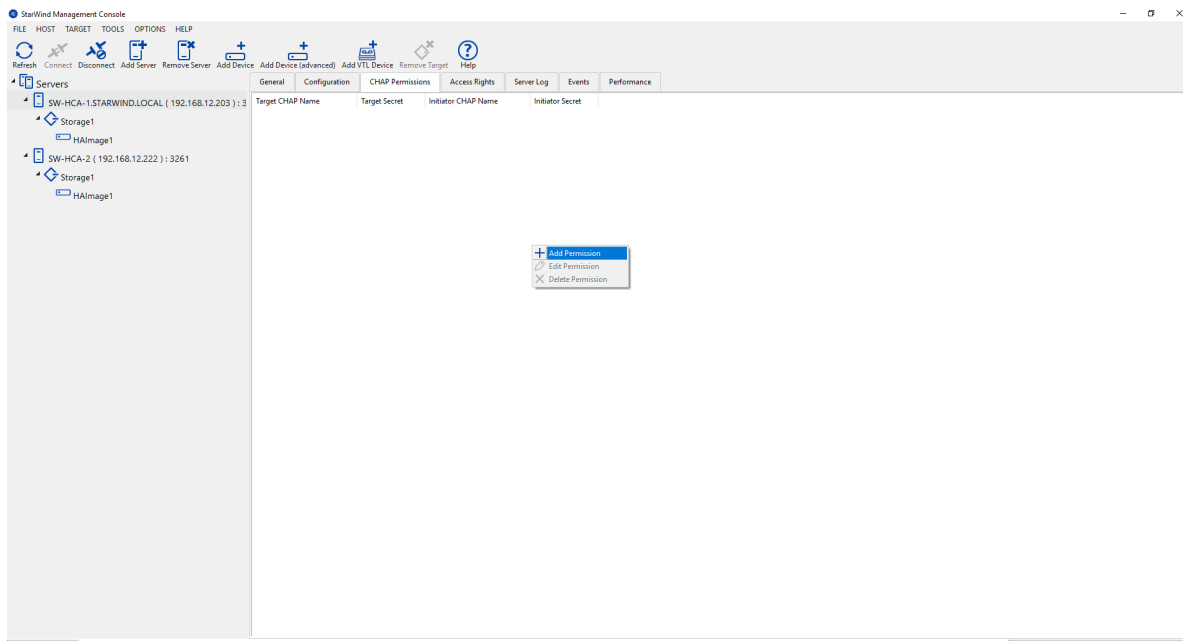
StarWind enables global and individual access CHAP restrictions to targets. Challenge-Handshake Authentication Protocol (CHAP) authenticates a user or network host to an authenticating entity. CHAP provides protection against replay attacks by the peer through the use of an incrementally changing identifier and a variable challenge value. CHAP requires that both client and server know the plain text of the secret, although it is never sent over the network.

NOTE: More information about CHAP can be found [here](#).

Setting global permissions

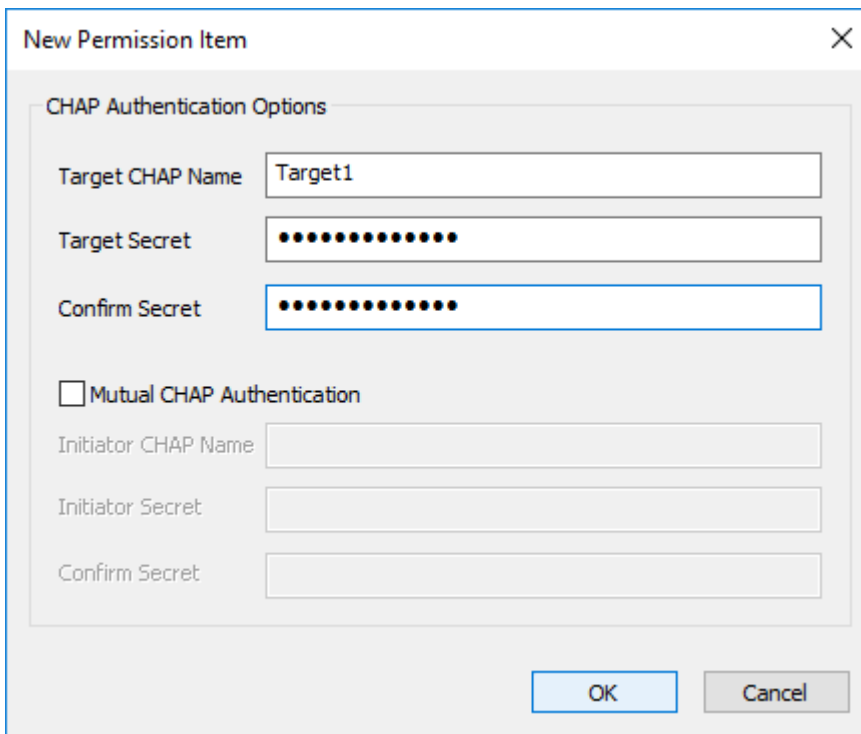
1. Select one of the hosts in the StarWind Management Console tree.

2. Click the CHAP Permissions tab. Right-click the main tab area and select Add Permission from the shortcut menu.



3. In New Permission Item, specify the required settings:

- Target CHAP name: is a name used by CHAP for initiator authentication.
- Target secret: is a secret that is used by CHAP for initiator authentication.
- Initiator CHAP name: is a name for the CHAP mutual authentication.
- Initiator secret: is a secret for the CHAP mutual authentication.



The dialog box titled "New Permission Item" contains a section for "CHAP Authentication Options". It includes three text input fields: "Target CHAP Name" with the value "Target1", "Target Secret" with masked characters, and "Confirm Secret" with masked characters. Below these is an unchecked checkbox labeled "Mutual CHAP Authentication". Underneath the checkbox are three more text input fields: "Initiator CHAP Name", "Initiator Secret", and "Confirm Secret", all of which are currently empty. At the bottom right of the dialog are "OK" and "Cancel" buttons.

Click OK.

4. Check the new CHAP Permission tab.

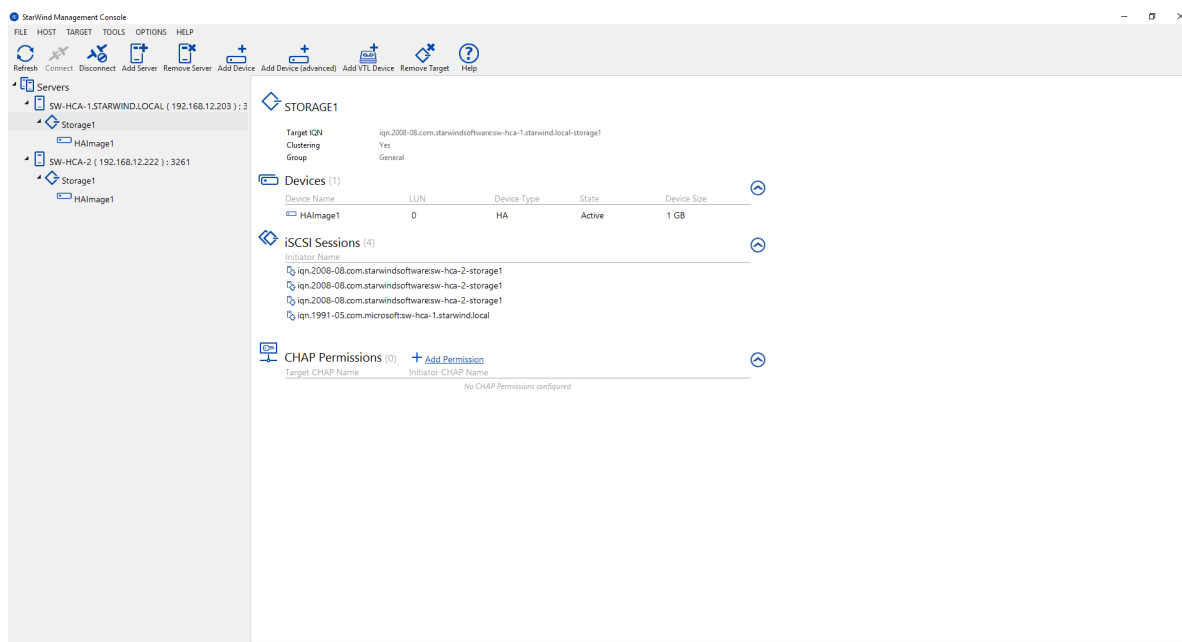
General	Configuration	CHAP Permissions	Access Rights	Server Log	Events
Target CHAP Name		Target Secret	Initiator CHAP Name	Initiator Secret	
Target1		*****			

NOTE: Repeat this step to add as many permissions as needed. Now all clients need to provide CHAP settings to access any target on this server.

NOTE: If the partner authentication settings are not changed, StarWind will not be able to synchronize HA devices to the partner node after the service restart.

Setting individual target permissions

1. Select the required target in the StarWind Management Console tree.
2. Click Add Permission in the CHAP Permissions area.

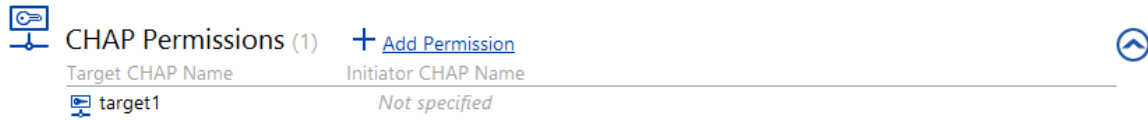


3. In the New Permission Item window, specify the required settings:

- Target CHAP name: is a name used by CHAP for initiator authentication.
- Target secret: is a secret that is used by CHAP for initiator authentication.
- Initiator CHAP name: is a name for the CHAP mutual authentication.
- Initiator secret: is a secret for the CHAP mutual authentication.

Click OK.

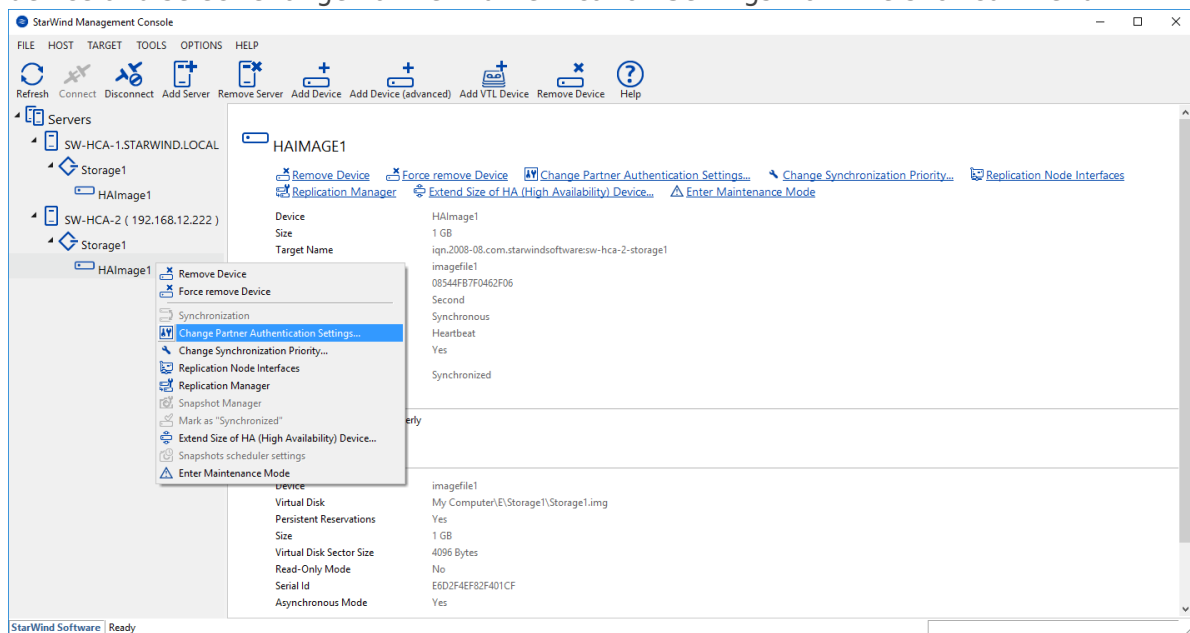
NOTE: Repeat this step to add as many permissions as needed. Now all clients need to provide CHAP settings to access target on this server.



NOTE: If the partner authentication settings are not changed, StarWind will not be able to synchronize HA devices to the partner node after the service restart.

Setting permissions for HA target

1. Open StarWind Management Console.
2. Choose partner device. Click Change Partner Authentication Settings or right-click the device and select Change Partner Authentication Settings from the shortcut menu.



3. Select CHAP in Authentication Type.

Partner Authentication Settings

Authentication Parameters

Partner

Authentication Type

Local Name

Local Secret

Peer Name

Peer Secret

OK Cancel

4. In

dicte Local Name and Local Secret. Click OK.

Partner Authentication Settings

Authentication Parameters

Partner

Authentication Type

Local Name

Local Secret

Peer Name

Peer Secret

OK Cancel

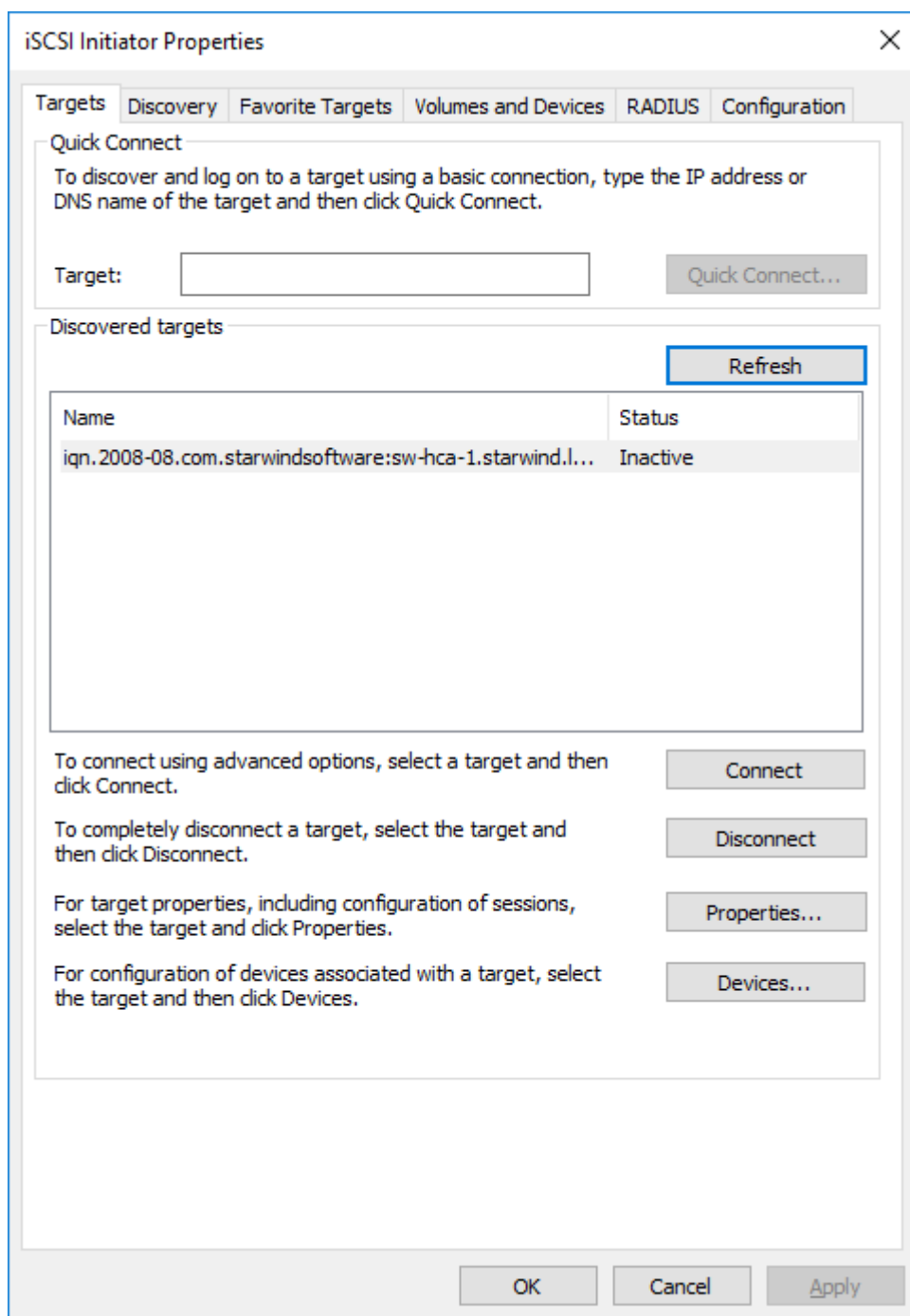
Selecting The Hypervisor

Please select the required option:

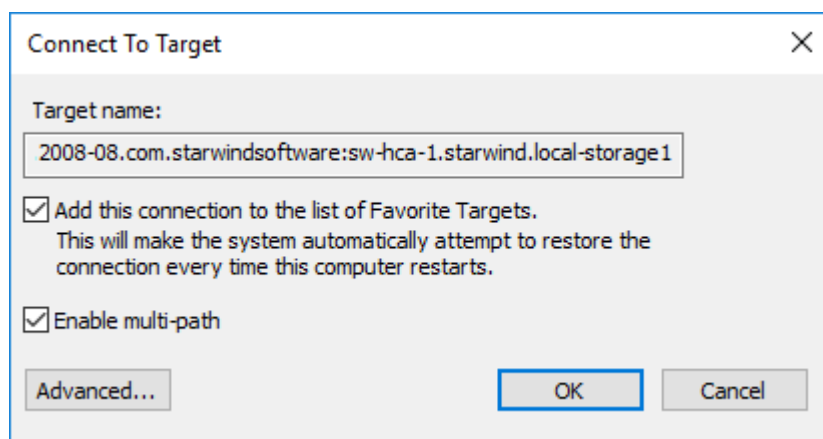
Configuring Chap Settings On Hyper-V

Setting target permissions

1. Open iSCSI Initiator.
2. Select Target in the Discovered targets area. Click Connect.



3. Click Advance



d... 4. To enable CHAP, select the Enable CHAP log on checkbox.

5. Indicate Name and Target secret. Click OK.

Advanced Settings ? X

General **IPsec**

Connect using

Local adapter: Microsoft iSCSI Initiator

Initiator IP: Default

Target portal IP: 127.0.0.1 / 3260

CRC / Checksum

☐ Data digest ☐ Header digest

☒ Enable CHAP log on

CHAP Log on information

CHAP helps ensure connection security by providing authentication between a target and an initiator.

To use, specify the same name and CHAP secret that was configured on the target for this initiator. The name will default to the Initiator Name of the system unless another name is specified.

Name: Target1

Target secret:

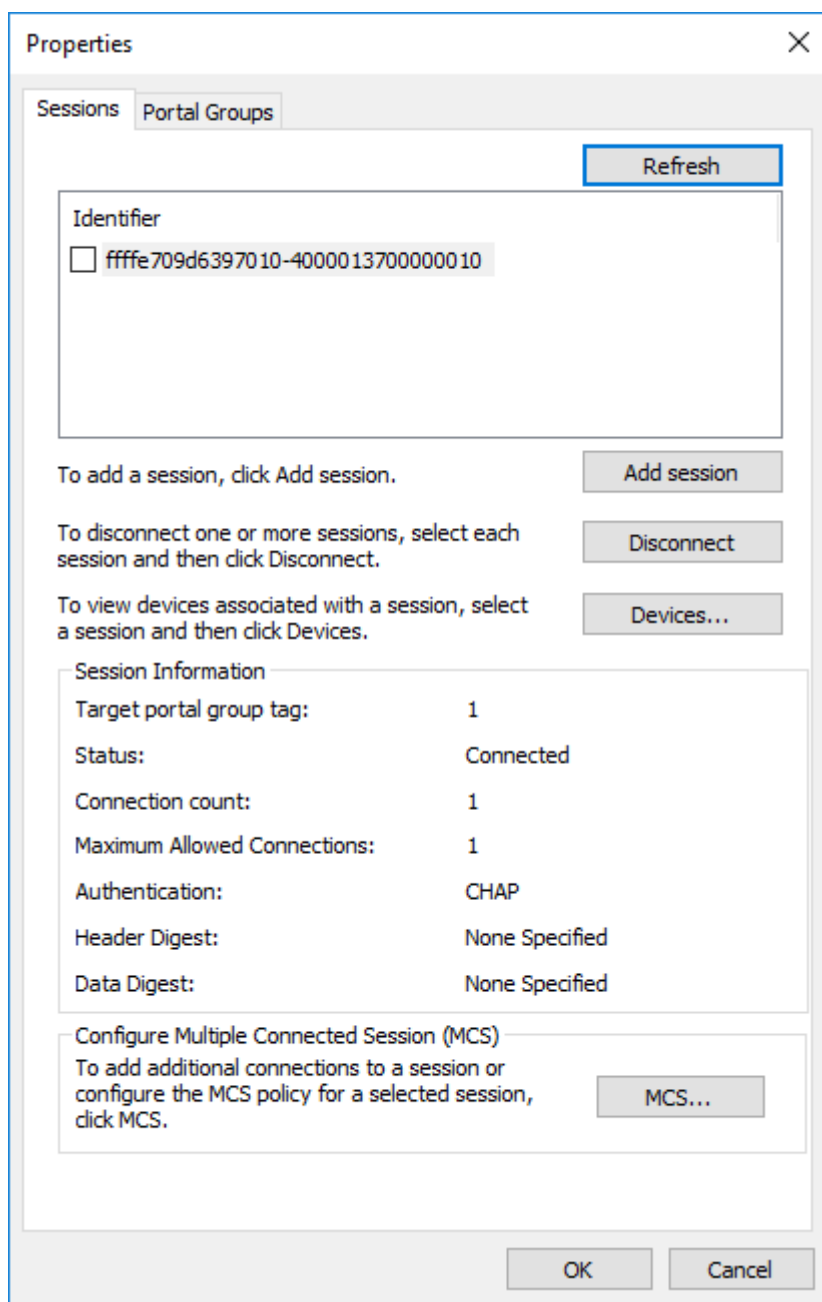
☐ Perform mutual authentication
To use mutual CHAP, either specify an initiator secret on the Configuration page or use RADIUS.

☐ Use RADIUS to generate user authentication credentials

☐ Use RADIUS to authenticate target credentials

OK Cancel Apply

6. Open Properties... in the iSCSI Initiator and check Authentication of the connected session.



7. Check Favorite Target

Favorite Target Details

Target name: iqn.2008-08.com.starwindsoftware:storage:

<

>

IP address or DNS name: 127.0.0.1

Port: 3260

Local adapter: Microsoft iSCSI Initiator

Source IP: Default

Header digest: Not used

Data digest: Not used

Authentication: CHAP

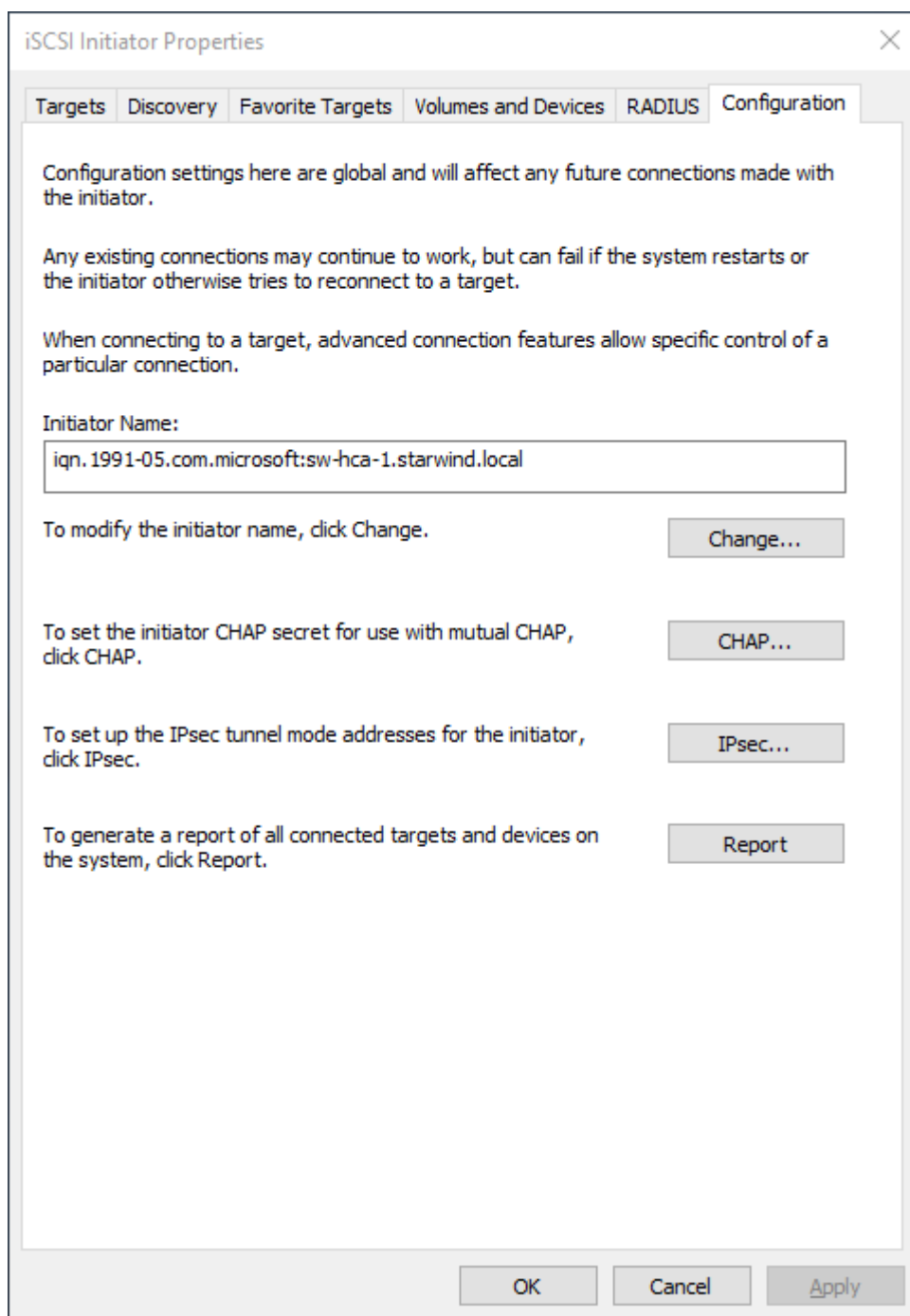
OK

Details.

NOTE: Target will not be reconnected after the service restart in case it does not have CHAP Authentication.

Changing CHAP initiator configuration

1. Open iSCSI initiator and click Configuration.



NOTE: Click Change... to modify the initiator name. Click CHAP... to set the initiator CHAP secret.

Configuring Chap Settings On Esxi

1. Click Add dynamic target in Dynamic Targets. Click Edit Settings.

2. Uncheck Inherit from parent.

3. Write Name and Secret in the corresponding fields. Click Save.

4. Click the Save configuration button.

NOTE: Target will not be reconnected after the service restart if it does not have CHAP

Authentication.

Configuring Chap Settings On Xen

1. Open XenCenter and click on the Server tab. Then select Storage tab and click New SR...

Name	Description	Type	Shared	Usage	Size	Virtual allocation
Local storage on sw-sed...	Local storage on s...	LVM	No	83% (32.1 GB used)	38.5 GB	32 GB
SR1	iSCSI SR [172.16.10...	LVM over iS...	Yes	0% (4 MB used)	1012 MB	0 B
DVD drives on sw-sed-b...	Physical DVD drive...	udev	No	100% (652 MB used)	652 MB	652 MB
SR2	Physical DVD drive...	LVM over iS...	Yes	0% (4 MB used)	1012 MB	0 B
Removable storage on s...	Physical removabl...	udev	No	0% (0 B used)	0 B	0 B

New SR... | Reclaim freed space | Properties

2. Select iSCSI as Virtual disk storage and click Next.

New Storage Repository - StarWind

Choose the type of new storage

Type	Virtual disk storage	ISO library
Name	<input type="radio"/> NFS <input checked="" type="radio"/> iSCSI <input type="radio"/> Hardware HBA <input type="radio"/> Software FCoE	<input type="radio"/> Windows File Sharing (SMB/CIFS) <input type="radio"/> NFS ISO
Location	<p>iSCSI</p> <p>iSCSI or Fibre Channel access to a shared LUN can be configured using LVM.</p> <p>Using an LVM for a shared SR provides the same performance benefits as a unshared LVM for local disk storage but also enables VM agility.</p>	

CITRIX

< Previous Next > Cancel

3. Indicate Name in New Storage Repository. Click Next to proceed.

New Storage Repository - StarWind

What do you want to call this Storage Repository?

Type	Name	Description
Name	<p>Provide a name and a description (optional) for your SR.</p> <p>Name: <input type="text" value="iSCSI virtual disk storage"/></p> <p><input checked="" type="checkbox"/> Autogenerate description based on SR settings (e.g., IP address, LUN etc.)</p> <p>Description: <input type="text"/></p>	
Location		

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< Previous Next > Cancel

4. Indicate Target host name/IP address and check Use CHAP. Type username and password. Click Finish.

New Storage Repository - StarWind

Enter a path for your iSCSI storage

Type
Name
Location

Provide a target host for your iSCSI storage, indicating your target IQN and your target LUN before proceeding.

Target host name/IP address: 192.168.10.103 : 3260

☒ Use CHAP

CHAP username: Target1

CHAP password:

Scan Target Host

iSCSI target

Target IQN: [dropdown]

Target LUN: [dropdown]








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< Previous Finish Cancel

Conclusion

By implementing CHAP, users can enhance the security of their storage solution by authenticating users or network hosts and protecting against replay attacks. The document covers both global and individual access CHAP restrictions, ensuring that users have the flexibility to configure authentication settings as needed.

Contacts

US Headquarters	EMEA and APAC
 +1 617 829 44 95	 +44 2037 691 857 (United Kingdom)
 +1 617 507 58 45	 +49 800 100 68 26 (Germany)
 +1 866 790 26 46	 +34 629 03 07 17 (Spain and Portugal)
	 +33 788 60 30 06 (France)

Customer Support Portal: <https://www.starwind.com/support>

Support Forum: <https://www.starwind.com/forums>

Sales: sales@starwind.com

General Information: info@starwind.com



StarWind Software, Inc. 100 Cummings Center Suite 224-C Beverly MA 01915, USA
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