American Megatrends

SnapTrends™ User's Guide

MAN-SNAP-UG
12/21/2012

Revision History

12/21/2012   Initial release

Table of Contents

Thank You

Thank you for purchasing the SnapTrends. Please take a few minutes to review this User's Guide before beginning the installation process. If you require a further explanation of any item covered in this guide, please refer to the installation instructions on your CD.

This manual is written for the end-user to get up and running with the unit as quickly as possible. Installation and maintenance should be performed by experienced technicians only.

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Preface

Purpose of This Document

This user manual aims to guide the end users with some of the usage and processes of the SnapTrends software.

Definitions, Acronyms and Abbreviations

Abbreviation	Description
VSS	Volume Shadow Copy Service
ISCSI	Internet Small Computer System Interface
SAN	Storage Area Network

Chapter 1   Introduction

SnapTrends is Microsoft Windows host software that provides application integrated snapshot management for AMI StorTrends servers. It provides ability to create application-consistent snapshots for windows applications. For Microsoft Shadow Copy Service (VSS) aware applications, it provides a tight integration to VSS to create application consistent snapshots. It further provides an ability to schedule and review these snapshots.

This software also provide mechanisms to configure AMI StorTrends Server related settings for windows to make sure, the system communicates with storage servers in optimized way.

Chapter 2   Installation/Setup

Requirements

This section provides information about the SnapTrends system requirements.

Note:

Before installing SnapTrends for iTX 2.7, please make sure previous version of HAK is uninstalled.

The computer on which you intend to install SnapTrends should have the following configurations,

- Microsoft Windows OS (Windows XP / Windows Vista/ Windows 7 / Windows 8 / Windows 2003 Server or R2 / Windows 2008 Server or R2 / Windows Server 2012)
- Microsoft.NET Framework 4.0 Client Profile
- Microsoft VC++ Redistributable 2010
- Microsoft iSCSI initiator 2.0 or later

Note:
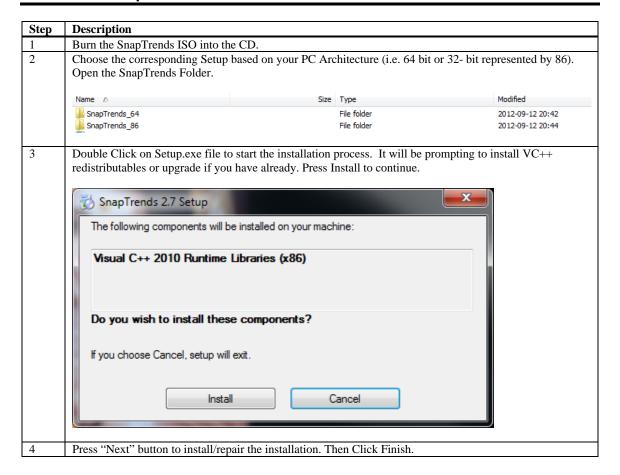
Please make sure that your system is updated properly using Windows Update. If the system does not have Microsoft.NET Framework or VC++ redistributables installed, SnapTrends will automatically install those during the installation.
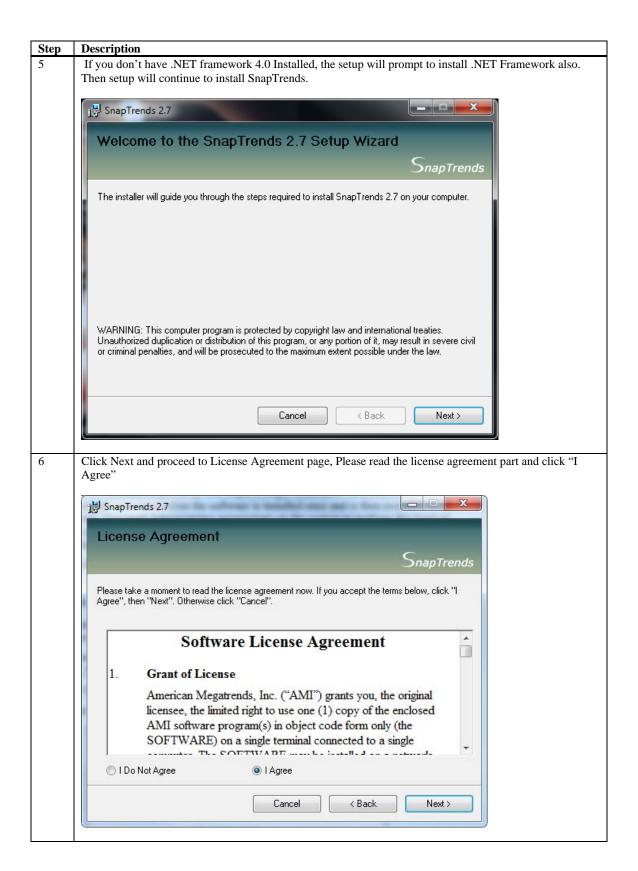
Hardware Requirements
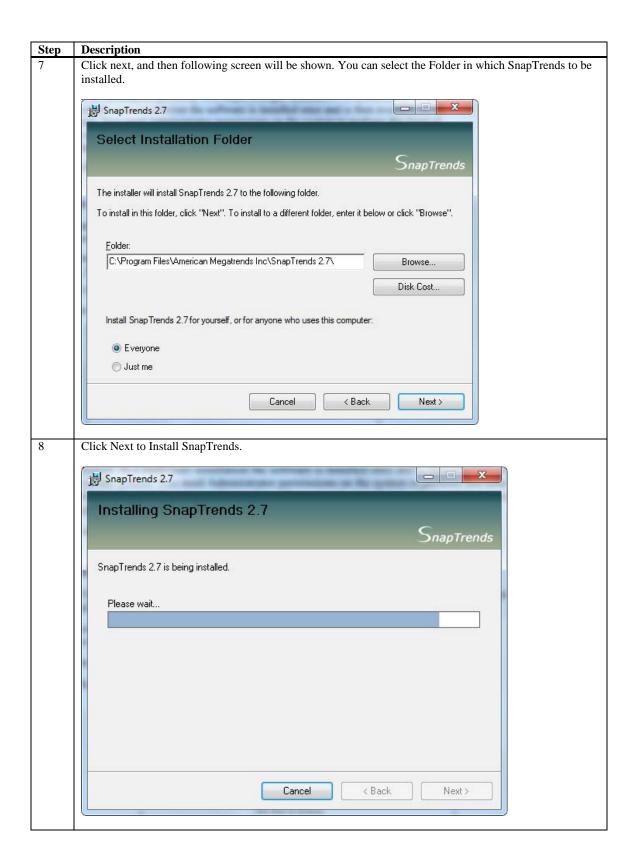
These specifications represent a bare minimum to use SnapTrends.
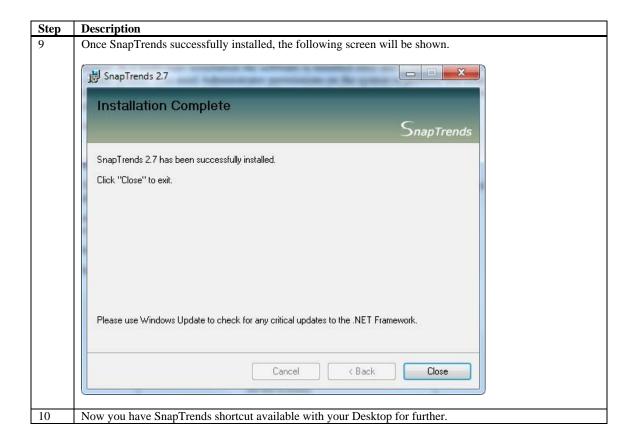
- StorTrends ITX 2.7 on StorTrends 1300i/2200i/3200i/2400i/2401i
- Microsoft Windows Initiator (Windows 2008 Enterprise Edition or R2/Windows 2003 Enterprise Edition / Windows Server 2012 / Windows 2003 R2 /Standard Edition/Windows Vista/Windows 7/ Windows 8 / Windows XP with the latest service packs.)
- 1 GHZ Processor or higher
- 512 MB RAM or higher

Installation Steps

Step	Description
1	Burn the SnapTrends ISO into the CD.
2	Choose the corresponding Setup based on your PC Architecture (i.e. 64 bit or 32- bit represented by 86). Open the SnapTrends Folder.
3	Double Click on Setup.exe file to start the installation process. It will be prompting to install VC++ redistributables or upgrade if you have already. Press Install to continue.
4	Press "Next" button to install/repair the installation. Then Click Finish.

Step	Description
5	If you don't have .NET framework 4.0 Installed, the setup will prompt to install .NET Framework also. Then setup will continue to install SnapTrends.
6	Click Next and proceed to License Agreement page, Please read the license agreement part and click "I Agree"

SnapTrends™ User's Guide

Step	Description
7	Click next, and then following screen will be shown. You can select the Folder in which SnapTrends to be installed.
8	Click Next to Install SnapTrends.

SnapTrends™ User's Guide

Step	Description
9	Once SnapTrends successfully installed, the following screen will be shown.
10	Now you have SnapTrends shortcut available with your Desktop for further.

SnapTrends™ User's Guide

Uninstallation

Step	Description
1	Go to Add/Remove Programs (typically under Settings > Control Panel)
2	Scroll down in the list of currently installed programs and select SnapTrends 2.7
3	Click the Remove button on the right. Click Yes on the message box asking if you are sure you want to remove SnapTrends from your computer.
4	Removal may take few minutes based on the system speed.

Configuration

SnapTrends doesn't need any major configuration or settings. Before using SnapTrends user must mount the StorTrends SAN Volume using ISCSI Initiator and format it.

Chapter 3   SnapTrends

This section provides overall architecture and components of SnapTrends.
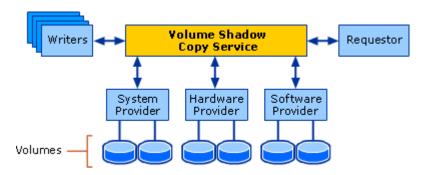
Snapshots

A snapshot is a point-in-time, read-only copy of an AMI iSCSI disk (SAN Volume connected to HOST). Snapshots are useful for backups and for data mining. Snapshots offer the following advantages:

- Snapshots can be scheduled to be created automatically.
- Snapshots are space-efficient because they are differential copies.
- Snapshots are useful for fast system recovery of files and volumes, in case of accidental data deletion by a user, overwritten data, or data corruption resulting from a malicious program.
- Snapshots can be mounted locally or exported to facilitate backup and recovery operations.
- Snapshots do not require that you close files or stop programs when you create them, so application servers can continue servicing clients without disruption.

Volume Shadow Copy Service (VSS)

The Volume Shadow Copy Service (VSS) is a set of COM interfaces that implements a framework to allow volume backups to be performed while applications on a system continue to write to the volumes.

Microsoft Volume Shadow Copy Service Components

VSS provides the ability to create snapshots, or point-in-time (PIT) copies of volumes. These snapshots are images of the data as it looks at a particular instance in time. By maintaining these timely images of data, users and administrators can quickly recover individual files or whole volumes directly from disk as they appeared at the time the snapshot was taken; similar to restore from tape but much faster.

To create an application-consistent snapshot, the snapshot must be created from the iSCSI initiator computer by using the iTX Volume Shadow Copy Service Hardware Provider and third-party backup software that works with Volume Shadow Copy Service.

Hardware-based Providers

Hardware-based shadow copy providers act as an interface between the Volume Shadow Copy Service and the hardware level by working in conjunction with a hardware storage adapter or controller. The work of creating the shadow copy is performed by a host adapter, storage appliance, or RAID controller outside of the operating system. Hardware providers always take the shadow copy of an entire LUN, but the Volume Shadow Copy Service will only expose the shadow copy of the volume or volumes that were requested.

While a hardware-based shadow copy provider makes use of the Volume Shadow Copy Service functionality that defines the point in time, allows data synchronization, manages the shadow copy, and provides a common interface with backup applications, the Volume Shadow Copy Service does not specify the underlying mechanism by which the hardware-based provider produces and maintains shadow copies.

Note:

For more information, please visit
http://technet.microsoft.com/enus/library/cc738819(v=ws.10)

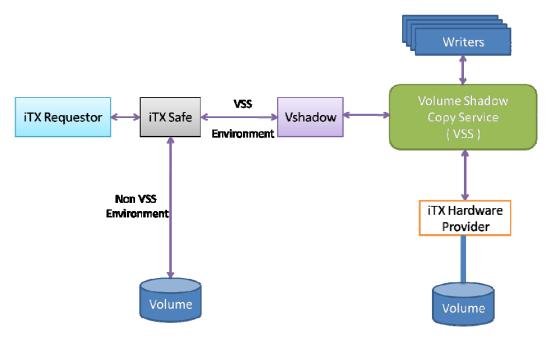## SnapTrends Components

In host side (Windows Initiator):

Step	Description
1	iTX Scheduler Service
2	iTX Safe Console
3	iTX VSS Hardware provider
4	SnapTrends Configurator

SnapTrends™ User's Guide

In iTX Core side:

Step	Description
1	Snapshot Monitoring Application a.k.a SMA

Architecture of Host Attachment Kit that takes Snapshots

iTX Scheduler Service

This service takes care communicating with StorTrends devices and get the schedule for SAN Volumes connected to the host using LUN(s). Based on the schedule information found in the server, it invokes iTXSafe application to take the snapshot for that disk.

iTXSafe Console

ITXSAFE is a window command line tool that allows users to create snapshots for StorTrends ITX SAN volumes. It choses either VSS Mode or Non-VSS mode based on the configuration set by the user. In VSS Mode, iTXSafe will transfer the control to the Microsoft Volume shadow copy service to take snapshots of the SAN Volumes. In Non-VSS Mode, iTXSafe itself will take snapshots of the SAN Volumes based on the configuration. User has to manually stop the custom writers using pre-script and post script. Only batch files are accepted as script files in this version.

iTX VSS Hardware Provider

iTX Volume Shadow Copy Service (VSS) Hardware Provider service on host computer (Initiator) works with the local VSS service to provide application consistent snapshots of AMI iSCSI disks on the computer that runs SnapTrends.

ISCSI initiator

The iSCSI initiator is sometimes referred to as the client. AMI StorTrends® provides the storage to the iSCSI initiator, which acts as a disk controller for the disks that are hosted by the target. All versions of Windows Server 2008, including Windows Storage Server 2008, include the Microsoft iSCSI Initiator to enable them to connect as a client to an iSCSI target. Other Windows version also supports Microsoft iSCSI Initiator which is available for download at following location http://www.microsoft.com/en-us/download/details.aspx?id=18986

SnapTrends Configurator

SnapTrends UI provides simple to use configuration for the administrator to perform various configurations

Step	Description
1	Set/View/ Modify/delete the snapshot schedule for the connected AMI ISCSI disks
2	Set Mode of snapshots. i.e. Either VSS mode or Non-VSS mode
3	Review all the snapshots taken and mount for restore purposes.

Customized VSHADOW

VShadow is a command-line tool that you can use to create and manage volume shadow copies. The VShadow tool uses command-line options and optional flags to identify the work to perform. When used without any command-line options, the VShadow command creates a new shadow copy set.
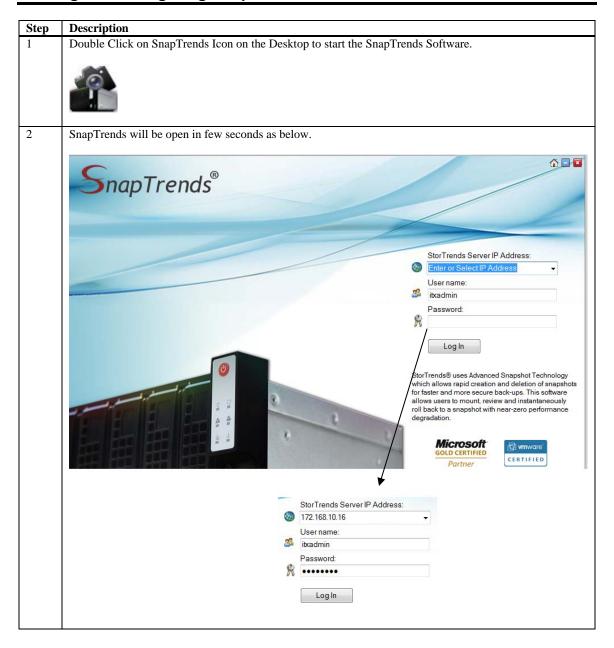
VShadow which comes integrated with SnapTrends has been customized to take level parameter to support multiple levels of Snapshots on the same volume.

Note:

Windows Server 2003, Standard Edition and Windows Server 2003, Web Edition: Transportable shadow copies are not supported. All editions of Windows Server 2003 with Service Pack 1 (SP1) support transportable shadow copies.

Chapter 4   Usage Instructions
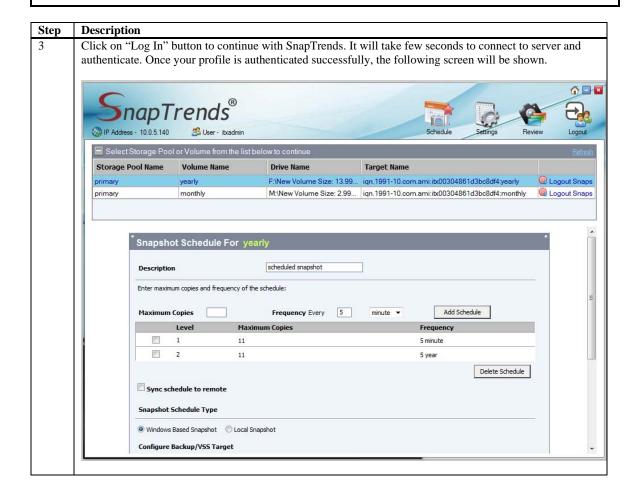
Starting and Configuring SnapTrends

Step	Description
1	Double Click on SnapTrends Icon on the Desktop to start the SnapTrends Software.
2	SnapTrends will be open in few seconds as below.

SnapTrends™ User's Guide

Field/Item	Description
StorTrends Server IP Address	IP address of the StorTrends server from which your volume is mounted. This field lists all the Servers connected to this machine.
User Name	Registered user name who is authenticated to access the AMI StorTrends server.
Password	Password for the corresponding user.
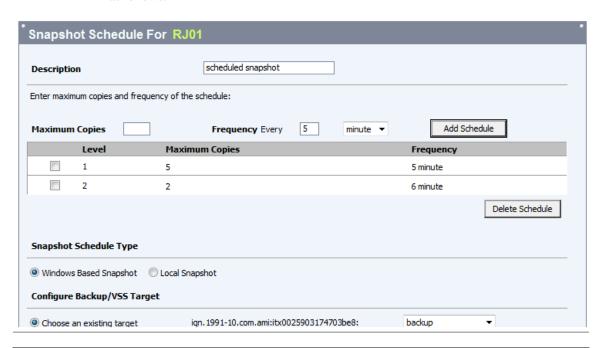
Note:

To Manage different StorTrends server, you have to log in using that AMI StorTrends Server IP Address.

Step	Description
3	Click on "Log In" button to continue with SnapTrends. It will take few seconds to connect to server and authenticate. Once your profile is authenticated successfully, the following screen will be shown.

Above picture gives information about what are all the volumes connected to this Host Machine from logged in StorTrends server. Clicking on particular volume on the above grid will give you the detailed information on SnapShot Schedule for the selected volume as follows.

| Field/Item	Description
Description	Description about the snapshot schedule. By default it would be scheduled snapshot.
Maximum Copies	In Maximum Copies field, enter the number of snapshots you want to maintain for the particular schedule. You can have a maximum of eight schedules/levels assigned.
Frequency	You can set the rate of recurrence for when a Snapshot is generated. Type a numeric value for the rate of recurrence in the Frequency field and select a time unit from the dropdown menu.
Level	The 'Level' field denotes the schedule level and StorTrends™ iTX supports a maximum of 8 levels. Level number can be correlated with the snapshot name, example Vs412885f2e4a60100SchdL1T101 wherein L1 denotes a Level 1 snapshot and so on.
SnapShot Schedule Type	This should be windows Based Snapshot since we are trying to use SnapTrends.

SnapTrends™ User's Guide

<div style="border:1px solid black; padding:10px">

Note:

Please refer to ManageTrends help for more information.

</div>

Users can create snapshot schedule from this page itself by providing above fields and press "Add Schedule" Button.

Please scroll down the page further to set CHAP Authentication.

CHAP Authentication

Target User Name (optional)

Target Secret (optional)   (Minimum 12 characters)

<div style="border:1px solid black; padding:10px">

Note:

This user name and fields will be used for authentication purposes. Please refer ManageTrends Help for more information.

</div>

Click on the "Apply" button at the end of the page to save the schedule to the server.

Apply

This above procedure helps to configure the snapshots for the specified SAN Volume using SnapTrends.

Remove Schedule
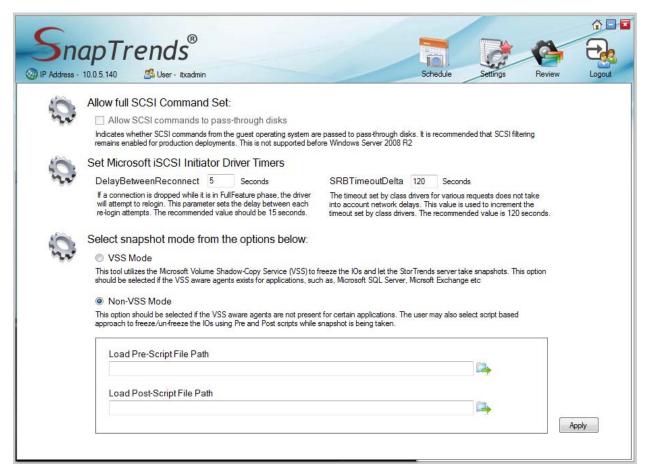
	Level	Maximum Copies	Frequency
☐	1	3	5 minute
☐	2	5	5 minute
☑	3	2	6 minute
			Delete Schedule

You can also remove schedule by selecting specified level and Clicking "Delete Schedule" Button.

SnapTrends™ User's Guide

Chapter 5   SnapTrends Settings

Following page allows you to configure the settings for taking snapshot like snapshot type, pass through etc.

Field/Item	Description
Allow Full SCSI Command Set	Indicates whether SCSI commands from the guest operating system are passed to pass-through disks. It is recommended that SCSI filtering remains enabled for production deployments.
Delay Between Reconnect	If a connection is dropped while it is in Full Feature phase, the driver will attempt to re-login. This parameter sets the delay between each re-login attempts.
SRB Timeout Delta	The timeout set by class drivers (such as disk.sys, etc) for various requests does not take into account network delays. This value is used to increment the timeout set by class drivers.

SnapTrends™ User's Guide

Recommended Settings for iSCSI Initiator timeouts

Situation	Recommendation
VMWare	• For software iSCSI Adapter set the Configuration->Software iSCSI Adapter->Properties->Advanced->Session recovery timeout to 120 seconds.
Windows	• This value should be set for both virtual and physical machines whose underlying drive is a StorTrends iSCSI drive even if passed through a hypervisor. • The registry key HKEY_LOCAL_MACHINE/SYSTEM/CurrentControlSet/Services/Disk/TimeOutValue needs to be set to 190 seconds (BE in hex) in all Windows versions. If it is not present, please create the DWORD entry.
Windows directly connected to the StorTrends appliance via the iSCSI Initiator	• These additional registry key changes for both physical and virtual machines that have Microsoft iSCSI Initiator installed and will be connecting to StorTrends targets. All other registry settings related to the Microsoft iSCSI Initiator should be left to the default settings. Please refer the Microsoft iSCSI initiator User Guide for default values. These values may occur multiple times in the registry please set all of them to be the same. • Set MaxRequestHoldTime and LinkDownTime to 180 seconds (B4 as hex). • Set SrbTimeoutDelta to the default 15 seconds (F as hex).

Note:

SrbTimeoutDelta can be as low as 5 seconds. If it is lower than that, initiator will use 15 instead. **SrbTimeoutDelta** gets added to the timeout set by the class driver.

Settings, Continued

You can choose either VSS or NON-VSS mode for taking snapshots

In VSS Mode, iTXSafe will transfer the control to the Microsoft Volume shadow copy service to take snapshots of the SAN Volumes.

In Non-VSS Mode, iTXSafe itself will take snapshots of the SAN Volumes based on the configuration. You have to manually stop the custom writers using pre-script and post script. Only batch files are accepted as script files in this version.

Clicking **Apply** button will save the settings for you.

Chapter 6   Review Snapshots
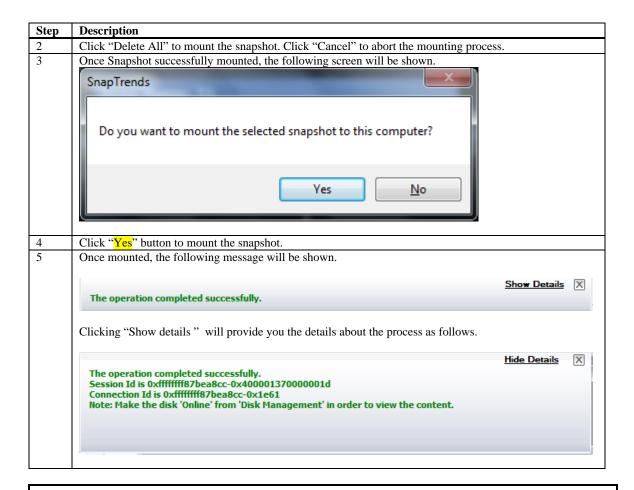
This page allows you to review the snapshots taken on schedule using view which displays lists of snapshots for the selected volume with their time of creation.

You can click "Previous" and "Next" button to navigate and review snapshots.

Review button will mount the selected Snapshot in the Host for review purposes.

Step	Description
1	Click on Review Button to mount the snapshot in the host machine. SnapTrends will prompt the user for deleting Writable snapshots if any.

Step	Description
2	Click "Delete All" to mount the snapshot. Click "Cancel" to abort the mounting process.
3	Once Snapshot successfully mounted, the following screen will be shown.
4	Click "Yes" button to mount the snapshot.
5	Once mounted, the following message will be shown. Clicking "Show details " will provide you the details about the process as follows.

Note:

Not able see Mounted SnapShot?
Even though the SnapShot is mounted, It may not be displayed in "My Computer"
Window. To view the snapshot mounted, you have go to (Computer Management =>
Disk Management)

SnapTrends™ User's Guide

Mounted Snapshot will be shown as Offline Disk as follows.

Disk 5
Basic
20.00 GB
Offline (i)
Help

20.00 GB

To Make it online, Right Click on the Disk, In the context menu, Select Online.

Disk 5
Basic
20.00 GB
Offline
Help

20.00 GB

| Online |
| Properties |
| Help |

CD
DVD (

Now the mounted snapshot will be showing under My Computer window as a drive.

Chapter 7   Un-Mount Snapshot

On **Schedule** or **Review icon** in the top of the SnapTrends.

In the following screen, Click **Logout Snaps** link to view mounted Snapshots. Then Click corresponding **Remove Target** link to un-mount the snapshot.

Storage Pool Name	Volume Name	Drive Name	Target Name	
StoragePool1	RJ01	I:\New Volume Size: 19.99...	iqn.1991-10.com.ami:itx0025903174703be8:rj01	Logout Snaps
StoragePool1	RJ02	L:\New Volume Size: 11.99...		Logout Snaps

Mounted Snapshots Of RJ01

Name	Status	Type	Target Name	
Vs00Bj8981nE0000Y3SchdL1WT2111★	Mounted/In Use	Writable ROW	12122012124627	✕ Remove Target

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Note:

It will take some time for unmounted snapshot drive to disappear from My Computer window.