



**StorTrends®
Plug-in for
VMware® vSphere™ client
User's Guide**

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Revision History

12/30/2010	Preproduction Release
04/15/2011	Removed Maximum Physical and Theoretical Capacity Information
04/22/2011	Updated term from Controller to Controller

NOTE:

All screen captures are for representative purposes only. Your actual screen may look different. You may have a newer version and build of the StorTrends Dual Controller IP-SAN software and/or a different hardware configuration; such as a different StorTrends Dual Controller IP-SAN Storage Appliance. However, the basic usage remains the same.

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Web Site

We invite you to visit the StorTrends website at:

<http://www.stortrends.com/>

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Chapter 1 Getting Started

Requirements

Before you install StorTrends® Plug-in, make sure that your computer system has the following specifications or better.

Operating System

- Microsoft® Windows 2003 operating system (Service Pack 2 or newer)
- Microsoft® Windows XP operating system (Service Pack 3 or newer)
- Microsoft® Windows Vista operating system (Service Pack 1 or newer)
- Microsoft® Windows 7 operating system

System Memory

- 512 MB or above

Processor

- Intel® Pentium III (600 MHz) or higher

Application for the Plug-in

- VMware® vSphere™ client version 4.1.0

Microsoft System Component Software

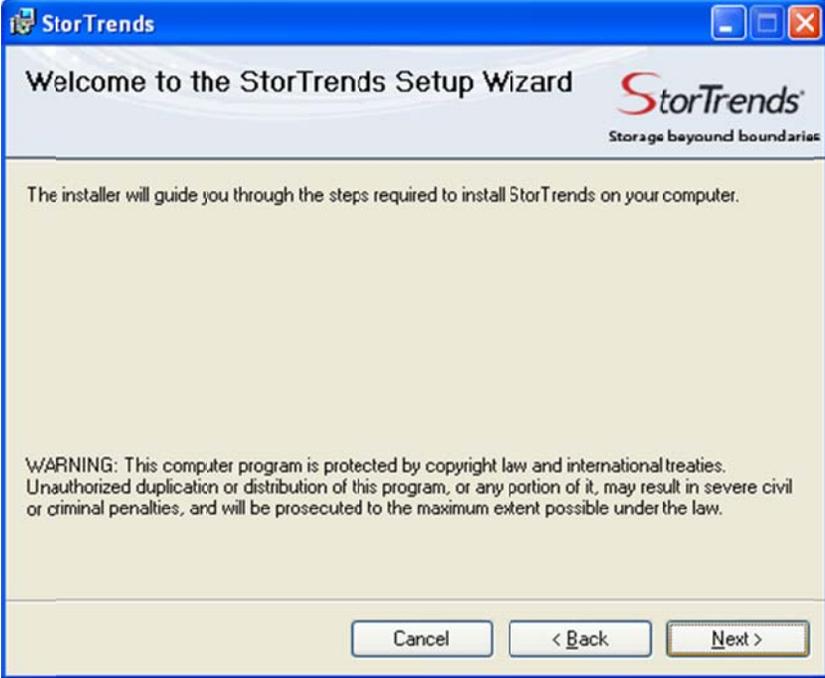
- Microsoft® .NET Framework v 3.5 or newer

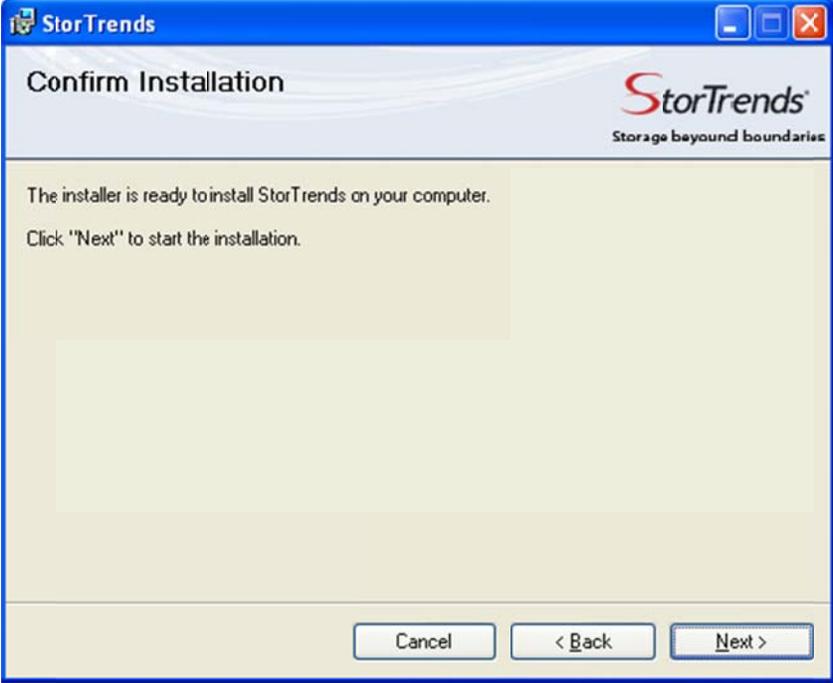
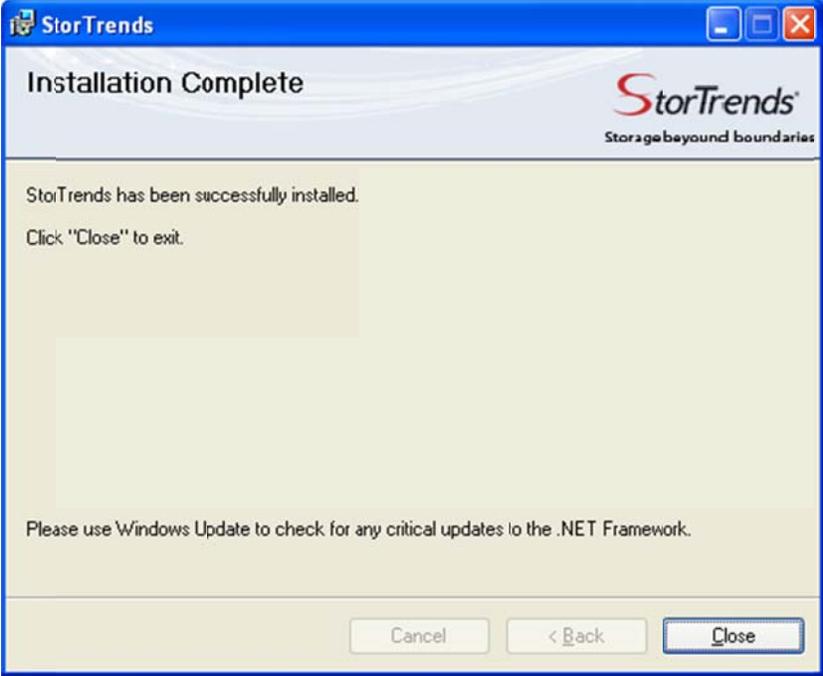
Installing StorTrends® Plug-in

NOTE:

Install VMware® vSphere™ client, before installing the StorTrends® Plug-in.

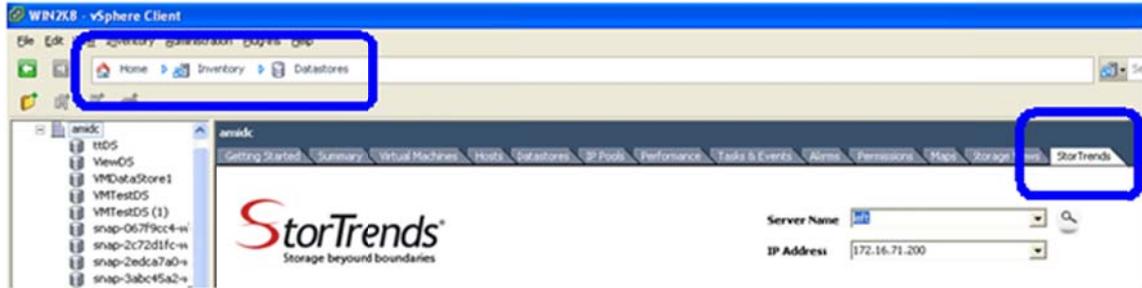
Step	Description
1	<p>When you run the StorTrends® Plug-in setup, you will see the following screen. Click on <i>Next</i> to proceed with StorTrends® Plug-in installation.</p> 

Step	Description
2	<p>The <i>StorTrends® Plug-in Setup Welcome</i> screen appears, click on <i>Next</i> to continue.</p> 
3	<p>The <i>License Agreement</i> window appears. Accept the license agreement by selecting "I Agree" and click on <i>Next</i> to continue.</p> 

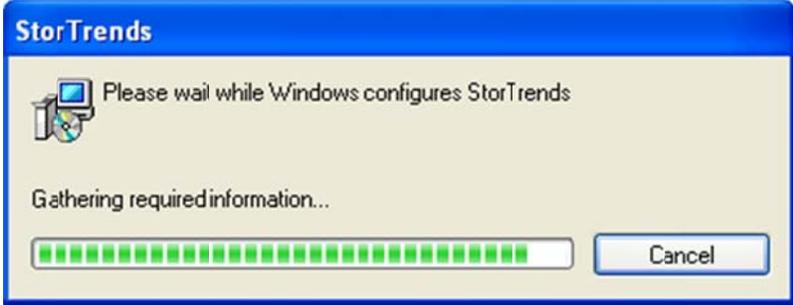
Step	Description
4	<p>Next, the <i>Install confirmation screen</i> appears. Click on <i>Next</i>. The plug-in will be installed in the default location.</p> 
5	<p>A message will be displayed after you have successfully installed StorTrends® Plug-in.</p> 

Navigating to StorTrends® Plug-in

- Start the VMware® vSphere™ client application.
- Move to StorTrends® Plug-in tab menu, which is accessible on the Datastore or Host and Clusters page of the vSphere™ client. It could be accessible from the context menu of Datacenter and Host nodes of the vSphere™ client application.



Removing StorTrends® Plug-in

Step	Description
1	Go to the system <i>Control Panel</i> .
2	Select <i>Add or Remove Programs</i> .
3	After the <i>Add or Remove Programs</i> window opens, scroll down and highlight StorTrends. NOTE: Make sure that you select <i>Change or Remove Programs</i> if it is not already selected.
4	Click on <i>Remove</i> .
5	A <i>Confirmation</i> dialog opens asking, "Are you sure you want to uninstall?" Click <i>Yes</i> to uninstall. 
6	The StorTrends® Plug-in will be removed from your system.

Chapter 2 StorTrends® Plug-In

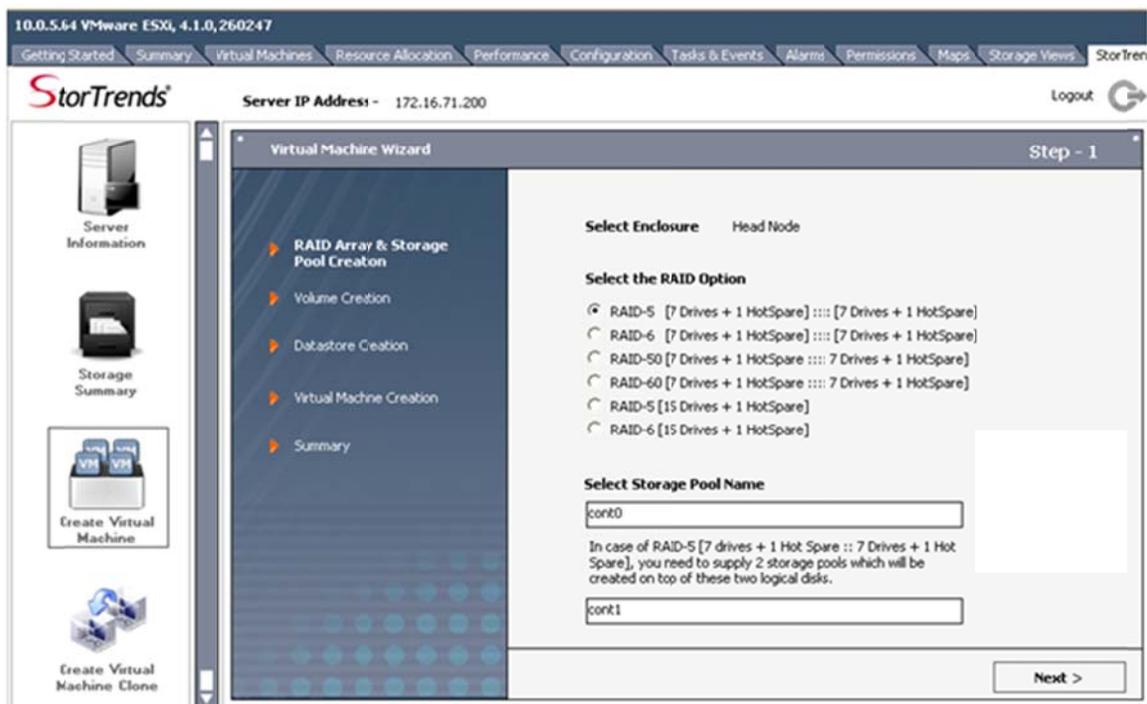
Overview

StorTrends® Plug-in is exclusively developed for StorTrends® administrators to create/clone virtual machine in an easy stream-lined manner. Creation/cloning of virtual machine is no more a tedious process in vSphere client, since StorTrends® Plug-in provides a single point creation/cloning of virtual machines.

StorTrends® Plug-in establishes a connection with StorTrends® server. Thus user can do all the operations such as creating container, volume and virtual machine together from a single point. Also one can view the important aspects of StorTrends® server such as System health, Event log, server information and the list of storage pools, volumes from this Plug-in itself.

Graphical User Interface Sections

On successful Login to StorTrends® server the following screen will get displayed (For information on Login refer “Connecting to StorTrends® Server” section). StorTrends® Plug-in has four sections.



Section	Description
Information Panel	This section displays the details about the StorTrends® server along with logout option from the UI.
Toolbox Panel	This section holds the toolbox icons required to carry out various tasks.
Main Panel	This is the main task area where all the information related to each task is displayed.
Scroll Bar Panel	It helps to scroll the toolbox panel up and down.

Toolbox Panel

Toolbox Panel holds various icons to manage and configure StorTrends® Plug-in in the vSphere Client.

Icon	Tools	Description
	Server Information	It is used to view the details of currently logged in StorTrends® server.
	Storage Summary	It displays storage summary details like storage pools, volumes present on the server along with its usage statistics. It also displays the virtual memory statistics of the storage.
	Create Virtual Machine	It guides you through the task of creating storage pools, volumes, Datastore and virtual machine.
	Create Virtual Machine Clone	It helps you to clone an existing virtual machine.
	Expand Datastore	It paves way to increase the size of the Datastore in a single step.
	Event Log	It is used to inspect the various events that occur in the logged in server.
	Control Panel	It is used to configure, setup and view the server information such as system health, power control, network statistics, iSCSI statistics, portal settings and iSCSI sessions.
	Hardware Health	It displays overall health condition of the server connected.

Chapter 3 StorTrends® Exclusive Services

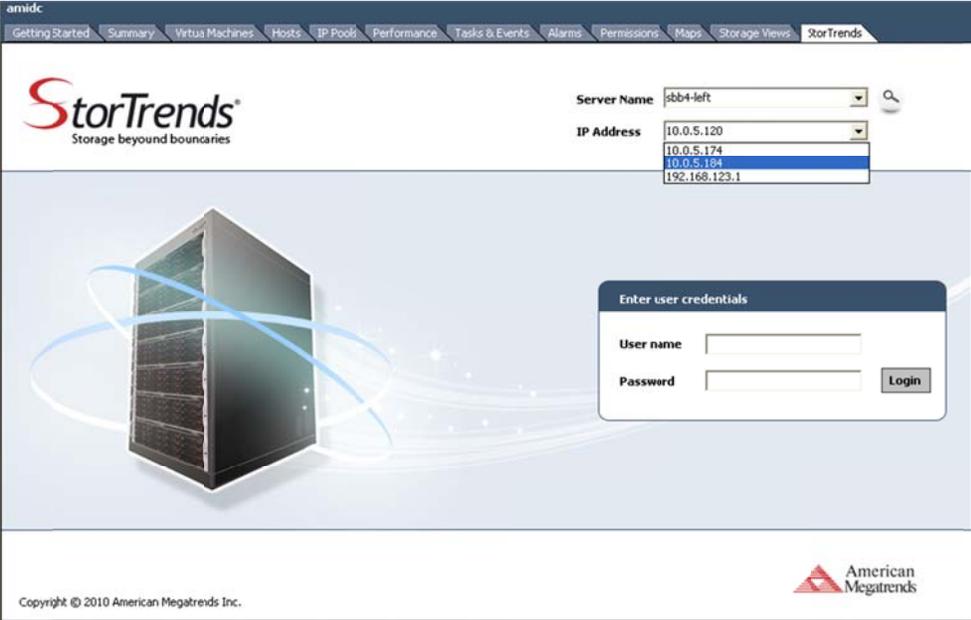
Discovering StorTrends® Servers

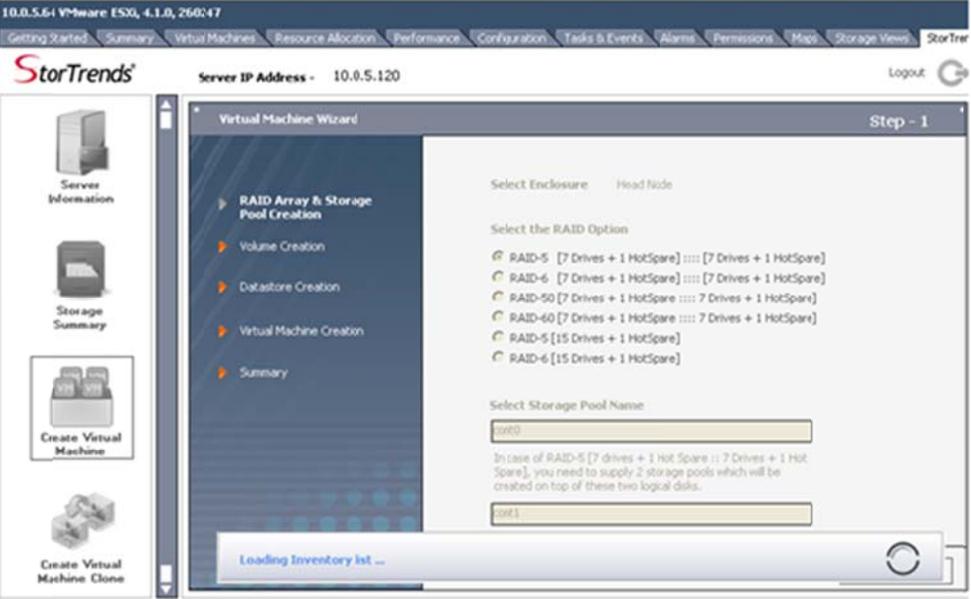
StorTrends® has a special feature of discovering other StorTrends® server available in the network. This is achieved using SLP. The Service Location Protocol (SLP) is a service discovery protocol that allows computers and other devices to find services in a local area network without prior configuration. StorTrends® Plug-in list all the available servers using this service in the login screen.

Connecting to StorTrends® Server

Step	Description
1	Navigate to the StorTrends® Plug-in tab.
2	Wait until the discovery service fetches the list of available StorTrends® servers from the current network.

The screenshot shows the StorTrends® web interface. At the top, there is a navigation menu with tabs: Getting Started, Summary, VirtualMachines, Hosts, IP Pools, Performance, Tasks & Events, Alarms, Permissions, Maps, Storage Views, and StorTrends. The StorTrends tab is selected. Below the navigation menu, the StorTrends® logo is displayed with the tagline "Storage beyond boundaries". To the right of the logo, there is a message "Please wait while discovering servers..." and two dropdown menus for "Server Name" and "IP Address". Below this, there is a large graphic of a server rack with blue and white light trails. To the right of the server rack, there is a "Enter user credentials" box with fields for "User name" and "Password", and a "Login" button. At the bottom left, there is a copyright notice: "Copyright © 2010 American Megatrends Inc.". At the bottom right, there is the American Megatrends logo.

Step	Description
3	<p>Now select any StorTrends® server by selecting a name from the Server Name drop down list, its corresponding IP address will be selected in the IP address list box automatically. Otherwise if you know the IP address of the StorTrends® server just type in the IP address and provide its credential and then click on login button.</p> 

4	<p>After successful login please wait for few minutes until the inventory of the vCenter/ESXi server gets loaded. During this operation you cannot access any other StorTrends® Plug-in features.</p> 
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Server Information

Server Information tool retrieves the server's system information to the main panel. Here you can configure the name of the StorTrends® server. It also exhibits the System Name, Version Number, Build Date, Manufacturer, System Uptime, System Date and Time information and even provides the IP Address(s) of the StorTrends® storage appliance.

The screenshot displays the StorTrends web interface. At the top, a navigation bar includes tabs for Getting Started, Summary, Virtual Machines, Resource Allocation, Performance, Configuration, Tasks & Events, Alarms, Permissions, Maps, Storage Views, and StorTrends. The main header shows the StorTrends logo, the text "Server IP Address- 10.0.5.120", and a "Logout" button with a refresh icon. A left sidebar contains icons for "Server Information", "Storage Summary", "Create Virtual Machine", and "Create Virtual Machine Clone". The main content area is titled "System Settings" and features a "System Information" window. This window contains a form with the following fields:

System Name	SBB-PRI-RIGHT	Change
Version	2.8.0000	
Revision	1.6	
Build Date	Thursday, December 09, 2010	
Manufacturer	AMI	
Usable Memory	3915 MB	
System Uptime	1 days, 18 hours, 10 minutes and 30 seconds.	
System Date	Wednesday, December 22, 2010	
System Time	8:28:51 AM	

Below the form is a table listing IP addresses and their corresponding MAC addresses:

IP Address	MAC Address
10.0.5.120	00:25:90:13:5d:8a
10.0.5.17	00:25:90:13:5d:8a
192.168.123.3	00:25:90:13:5d:8c

Storage Summary

Storage Summary tool gets the Storage Summary information of the logged in StorTrends® server. You can view the statistics of various storage pools, volumes that are created on the StorTrends® server. Also you can manage the storage pools and volumes by clicking the corresponding links available.

The screenshot shows the StorTrends web interface. The top navigation bar includes: 10.0.5.64 VMware ESXi, 4.1.0, 260247; Getting Started; Summary; Virtual Machines; Resource Allocation; Performance; Configuration; Tasks & Events; Alarms; Permissions; Maps; Storage Views; StorTrends. The main header shows the StorTrends logo, Server IP Address: 10.0.5.120, and a Logout button. The left sidebar contains icons for: Server Information, Storage Summary, Create Virtual Machine, and Create Virtual Machine Clone. The main content area is titled 'Volume Wizard' and 'Storage Information'. It features a 'Virtual Space Statistics' section with a 3D pie chart and a table showing Capacity (262144 GB), Used Space (15 GB), and Available Space (262129 GB). Below this is a 'Storage Pools' section with a table for 'StoragePool'.

Name	Capacity	Exact Space	Available Space	Status
StoragePool1	5940.38 GB	15 GB	5925.38 GB	Online

At the bottom, there is a 'SAN Volumes' section with a 'Volume Count: 1'.

Event Log

When you click on Event Log tool icon, events generated in StorTrends® server will be listed. Here you can inspect the required StorTrends® server events based on the date/time and category [Information/Warning/Critical].

The screenshot displays the StorTrends Event Log interface. The top navigation bar includes tabs for 'Getting Started', 'Summary', 'Virtual Machines', 'Resource Allocation', 'Performance', 'Configuration', 'Tasks & Events', 'Alarms', 'Permissions', 'Maps', 'Storage Views', and 'StorTrends'. The 'Event Log' icon is selected in the left sidebar. The main window shows the 'Event List' section with the following filters:

- Select Date (Optional):** From: (mm/dd/yyyy), To: (mm/dd/yyyy)
- Select Time (Optional):** Start Time: (hh:mm), End Time: (hh:mm)
- Select Category:** System, Volume, Health, OS (all checked)
- Select Type:** Information, Warning, Fatal (all checked)
- Select Controller:** Left Controller, Right Controller (both checked)

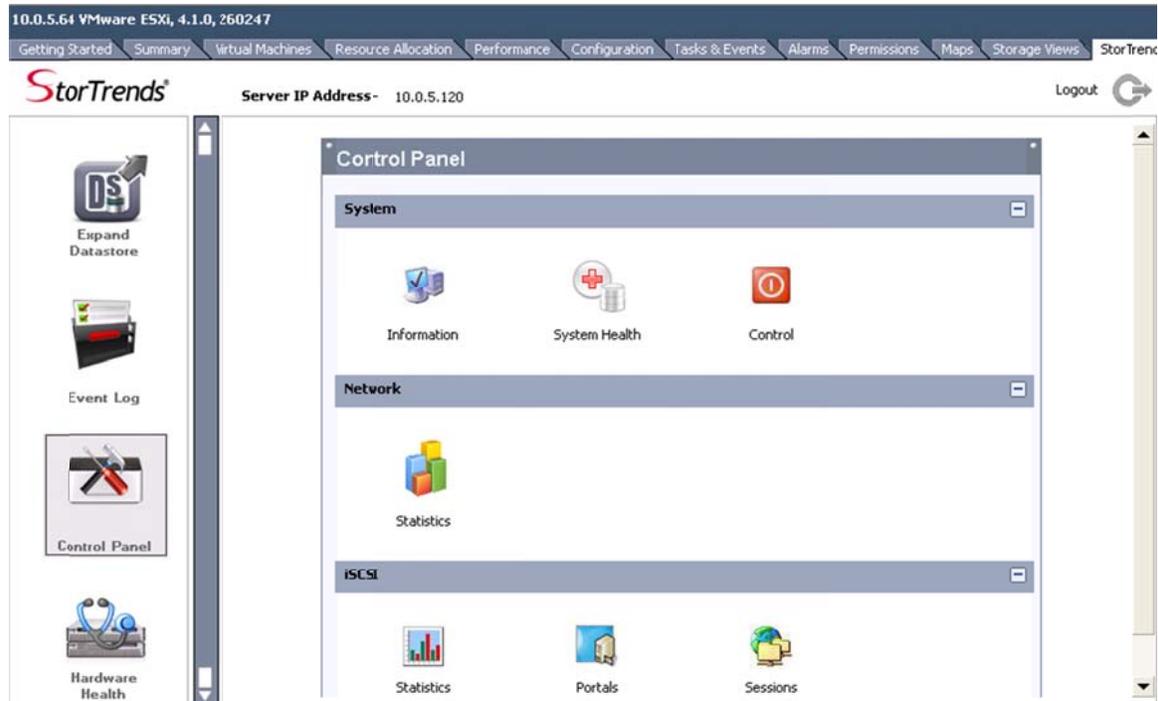
Below the filters, it indicates 'Total number of events found : 197' and a 'Modify Page Size : 25' dropdown. A 'Get Events' button is present. The event list table is as follows:

Type	Date	Time	Message
Information	December, 22, 2010	00:33:08	[LC]Snapshot schedule for [c0_cg0] is [0:0:0].
Information	December, 21, 2010	22:06:31	[RC]Target [r.datastorevolumeclone1] enabled
Information	December, 21, 2010	22:06:30	[RC]Lun [j/dev/mapper/c1_DataStoreVolumeClone1] added to target [r.datastorevolumeclone1]
Information	December, 21, 2010	22:06:27	[RC]Volume [c1/DataStoreVolumeClone1 : 20 GB] Created
Information	December, 21, 2010	21:46:23	[RC]Volume [c1/DataStoreVolume] expanded successfully to [20 GB]
Information	December, 21, 2010	21:44:54	[LC]Snapshot schedule for [c0_cg0] is [0:0:0].
Information	December, 21, 2010	21:37:48	[RC]Target [r.datastorevolumetgt] enabled
Information	December, 21, 2010	21:37:48	[RC]Lun [j/dev/mapper/c1_DataStoreVolume] added to target [r.datastorevolumetgt]
Information	December, 21, 2010	21:37:47	[RC]Volume [c1/DataStoreVolume : 15 GB] Created

Fields	Description
From and To fields	Enter the From date and the To date and left click 'Get Events' button to get a list of alert messages for the dates specified.
Select Category	Select Categories like System, Volume, Health and OS (Operating System) to refine the filtering for event log.
Select Type	Select events based on severity like Information, Warning and fatal.
Select Controller	Select events based on Controller i.e. Left Controller and/or Right Controller.
Get Events button	This button allows you to get a list of alert messages for the dates specified.
Get Events	This button allows you to get a list of alert messages for the dates specified.
Save as XML button	This button allows you to export the event log as an XML file so that you can import it in any XML aware application. For example, Microsoft® Office® Excel® program.
Save as Text button	This button allows you to export the event log as a plain text file so that you can view it in a standard word processor application.
Refresh button	When you select this button StorTrends® Plug-in queries the event logs and lists any new events.
Clear All button	This button deletes all event logs present in the StorTrends® Plug-in.

Control Panel

Control Panel tool lists all the available StorTrends® server tools that can be used to control the server. Here you can contrive the System, Network and iSCSI information by clicking on the corresponding icons.



Icons	Description
Information	The System Information page displays the System Name, Version Number, Build Date, Manufacturer, System Uptime, System Date and Time information. This page also lists the IP Address(s) of the StorTrends® storage appliance.
System Health	The System Hardware Health Information page displays the usage and capacity of the StorTrends® storage appliance and of its individual components.
Control	
Network Statistics	The Network Statistics displays the Ethernet statistics like Receiving/Transmission details and Errors for the selected network interface.
iSCSI Statistics	The Target Statistics page displays the Device Statistics and the Error Statistics.
Portals	An iSCSI portal is a target's IP and TCP port number pair. This page allows the user to enable and disable the portal by specifying the portal tag. The portal tag value can range from 1 to 16383.
Sessions	iSCSI session is a communication between an initiator and a target occurs over one or more TCP connections i.e. a group of TCP connections that link an iSCSI initiator with a target. The iSCSI Session Management page displays the Session List.

Hardware Health

Click on Hardware Health tool icon, you will get hardware health statistics of the currently logged in StorTrends® server in the main panel. Here you can view all of the current status information of the system's fans, temperatures and motherboard voltages and monitor the disk status, spare status, network status, etc.



Field/Item	Description
Name	This field displays the name of the hardware.
Controller	This field displays name and status of the controller. <ul style="list-style-type: none"> Name - This field displays the name of the controller i.e. Right Controller or Left Controller. Status - This field displays the overall status of the controller i.e. Normal, Warning, Critical or Failed.
CPU	This field displays the No., temperature and status of the CPU. <ul style="list-style-type: none"> No. - It displays the no. of the CPU when multiple CPU's are present. Temperature - It displays the temperature status of the CPU i.e. Good or Bad. Status - It displays the overall status of the CPU i.e. Good or Bad.
NIC	This field displays the No., IP Address and Link status of the network interface card (NIC). <ul style="list-style-type: none"> Slot Index - It displays the slot index where the disk is physically located. Capacity - It displays the capacity of the disk in GB. Available Space - It displays the overall available space in the disk that can be used. Status - It displays the running status of the disk which can be Ready, Offline, Online, Faulty, Missing, Rebuilding, Transforming or Spare.
Sensors	This field displays the name, status and value of various sensors i.e. CPU temperature, System temperature, Voltages, System fans and Power supply in the entire controller. <ul style="list-style-type: none"> Name - It displays the name of the sensor in a particular controller. Status - It displays the status of the sensor that can be Uninitialized, Normal, Warning, Critical, Failed, Good or Bad. Value - It displays the exact value of the sensor in a particular controller.

Chapter 4 Virtual Machine Creation

Create Virtual Machine Overview

Create Virtual Machine wizard offers single step solution to create storage pools, volumes, Datastore and virtual machines on the StorTrends® server. This is the most important wizard available in StorTrends® plug-in.

RAID Array & Storage Pool Creation

Step	Description
1	Select a RAID option required for the storage pool creation from the available list.
2	Enter a name for your Storage Pool, in the storage pool name field. The name must be alphanumeric, should not have any spaces and should be between 1 and 63 characters in length.
3	Click on Next to continue.

The screenshot shows the 'Virtual Machine Wizard' window at 'Step - 1'. On the left is a navigation pane with the following steps: RAID Array & Storage Pool Creation (selected), Volume Creation, Datastore Creation, Virtual Machine Creation, and Summary. The main area is titled 'Select Enclosure Head Node'. Under 'Select the RAID Option', there are six radio button options: RAID-5 [7 Drives + 1 HotSpare] ::: [7 Drives + 1 HotSpare] (selected), RAID-6 [7 Drives + 1 HotSpare] ::: [7 Drives + 1 HotSpare], RAID-50 [7 Drives + 1 HotSpare ::: 7 Drives + 1 HotSpare], RAID-60 [7 Drives + 1 HotSpare ::: 7 Drives + 1 HotSpare], RAID-5 [15 Drives + 1 HotSpare], and RAID-6 [15 Drives + 1 HotSpare]. Below this is the 'Select Storage Pool Name' section with two text input fields. The first field contains 'StoragePool0' and the second contains 'StoragePool1'. A note below the fields states: 'In case of RAID-5 [7 drives + 1 Hot Spare :: 7 Drives + 1 Hot Spare], you need to supply 2 storage pools which will be created on top of these two logical disks.' At the bottom right is a 'Next >' button.

Volume Creation

Step	Description
1	Cull out the storage pool under which the volume is to be created from 'Select Storage Pool' drop down list.
2	In the name field under Enter Volume Information, enter a name for your SAN volume. The SAN volume name must be alphanumeric, should not have any spaces and should be between 1 and 63 characters in length.
3	Select the provision type as either Thin or Exact.

NOTE:

Thin Provisioning

If you select Thin, the volume can be assigned a size greater than the actual physical size of the storage device.

Exact Provisioning

If you select Exact, the volume size cannot exceed the actual physical space available in the storage device.

Step	Description
4	In the Size field, enter the size (GB) or (MB) for your SAN volume.
5	Fill in a name for your SAN volume target in the name field under 'Enter Target Details'. The target name must be alphanumeric, not have any spaces and be between 1 and 221 characters in length.
6	Set the status of the target to either Enable or Disable.
7	Click on Next to continue.

Datastore Creation

Step	Description
1	Pick out the Datacenter from datacenter list available.
2	From the host list draw a host for the virtual machine where you want to create the virtual machine.
3	In the 'Enter Datastore Name' field, specify a name for the Datastore. Datastore name must be alphanumeric, should not possess any spaces and can be between 1 and 42 characters in length.
4	You can use refresh button to repopulate the datacenter and host list.
5	Click on Next to continue.

Virtual Machine Wizard Step - 3

RAID Array & Storage Pool Creation

Volume Creation

Datastore Creation

Virtual Machine Creation

Summary

Enter Datacenter Name: amdc

Enter Host Name: 10.0.5.64

Enter Datastore Name: [VMDatastore1]

Refresh

< Back Next >

Virtual Machine Creation

Step	Description
1	Furnish a name for the virtual machine that may contain up to 80 characters and it must be unique within each vCenter and host.
2	Cull out the OS from drop down, the wizard does not install the guest operating system for you. The Create Virtual Machine wizard uses this information to select appropriate default values, such as the amount of memory needed.
3	Give the number of CPUs required in 'Enter CPU Count' field.
4	Supply the disk size in mega bytes or kilo bytes required, in Enter Disk Size field.
5	Provide the RAM memory size required in mega bytes or kilo bytes.
6	Click on Next to continue.

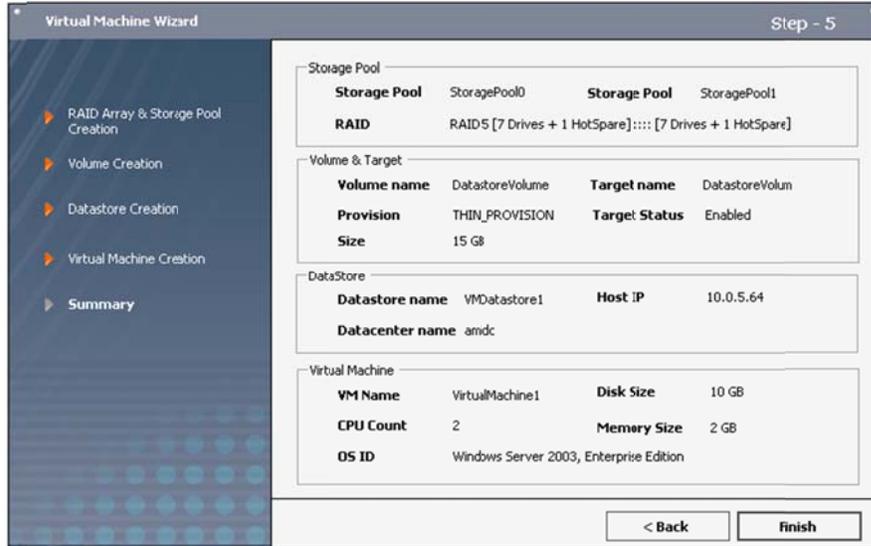
The screenshot shows the 'Virtual Machine Wizard' window at 'Step - 4'. On the left is a navigation pane with the following steps: RAID Array & Storage Pool Creation, Volume Creation, Datastore Creation, Virtual Machine Creation (highlighted), and Summary. The main area contains the following fields:

- Enter Virtual Machine Name:** Text input field containing 'VirtualMachine1'.
- Enter Guest OS ID:** Dropdown menu showing 'Windows Server 2003, Enterp'.
- Enter CPU Count:** Text input field containing '2'.
- Enter Disk Size:** Text input field containing '10' and a unit dropdown menu set to 'GB'.
- Enter Memory Size:** Text input field containing '2' and a unit dropdown menu set to 'GB'.

At the bottom right, there are two buttons: '< Back' and 'Next >'.

Summary

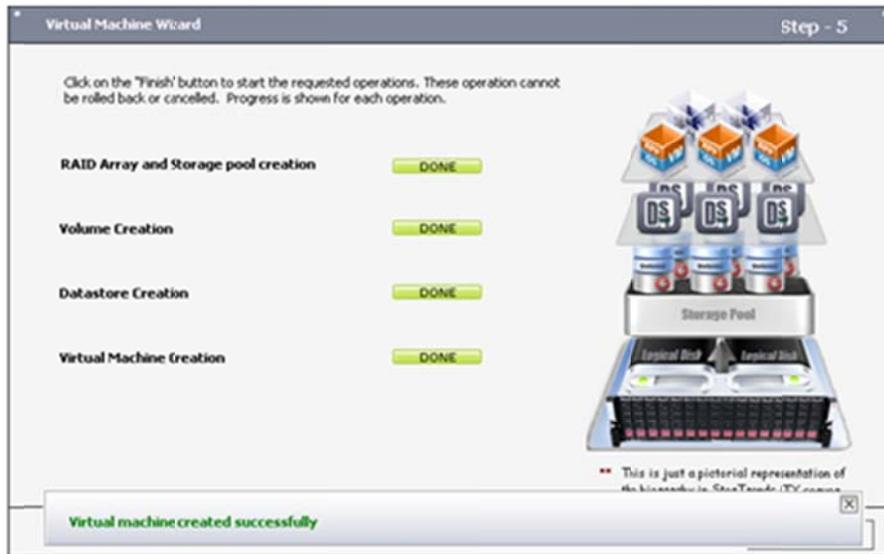
This step will show all the configurations that was made earlier for Virtual Machine creation. Click on Finish to complete the wizard.



After that, progress screen will be displayed. Currently ongoing operation will be shown in both text and pictorial formats.



Success message will be displayed on successful creation of the virtual machine.



Chapter 5 Cloning

Cloning Virtual Machine Overview

Virtual Machine clone wizard offers you to clone the volume, Datastore and virtual machine on StorTrends® server in a single step.

Clone Selection

Step	Description
1	Select the clone type as Data Clone or Instant Clone. Use Instant clone when immediate cloning is required.

NOTE:

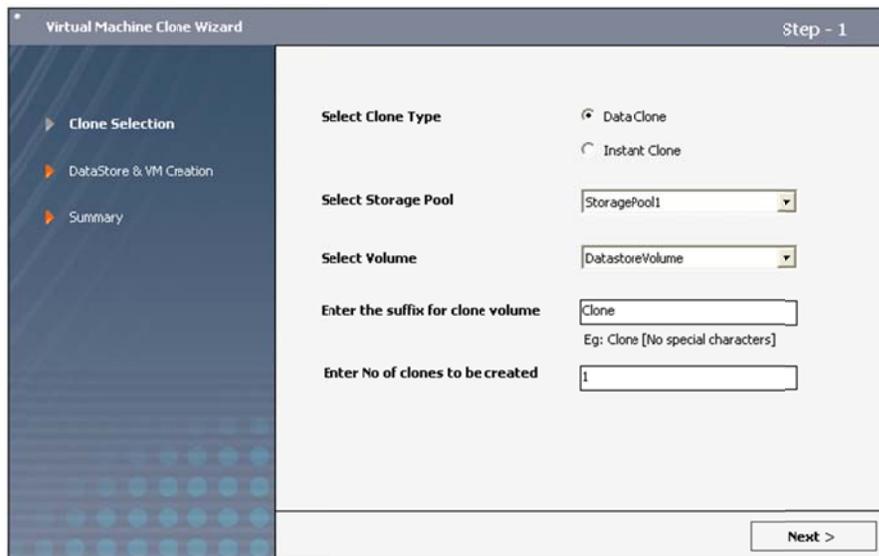
Data Cloning

Data cloning refers to the cloning of the original volume. In this type of cloning, the volume that is used for virtual machine will be actually cloned. i.e., a new volume will be created and the data available in the actual source volume will be copied to the newly created volume. The data will actually contain the copy of the Datastore and the virtual machine also. So these copies of Datastore and virtual machine will be resignatured and registered as a new virtual machine.

Instant Cloning

Instant cloning refers to the immediate cloning in which volume will not be created. Instead, a read-only snapshot will be taken for the source volume and a corresponding writeable snapshot will be taken. Then the writeable snapshot will be used for cloning of the Datastore and the virtual machine.

Step	Description
2	Pick out the storage pool associated with the virtual machine that is to be cloned from the 'Select Storage Pool' field.
3	Next for 'Select Volume field', choose the volume associated with the virtual machine that is to be cloned.
4	In enter the suffix for clone volume field, type in a suffix to be used for cloned volume being created.
5	In Enter No. of clones to be created field, specify the number of clones that are required.
6	Click on Next to continue.



Datastore & VM Creation

Step	Description
1	Cull out the datacenter that has the virtual machine which is to be cloned from the enter datacenter name field.
2	In Enter Host Name field, select the Host IP address under which you have your virtual machine that is to be cloned.
3	You can use Refresh button to repopulate the dropdown list boxes.
4	Click Next to continue.

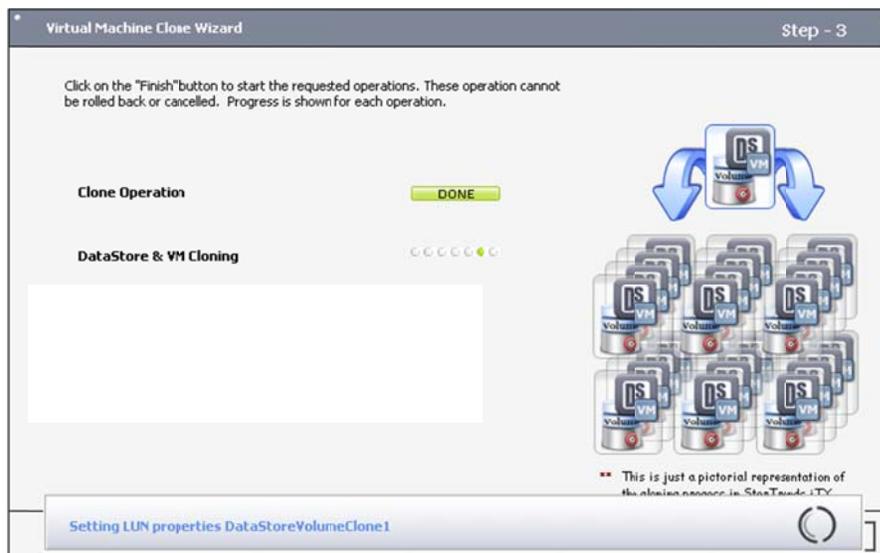


Summary

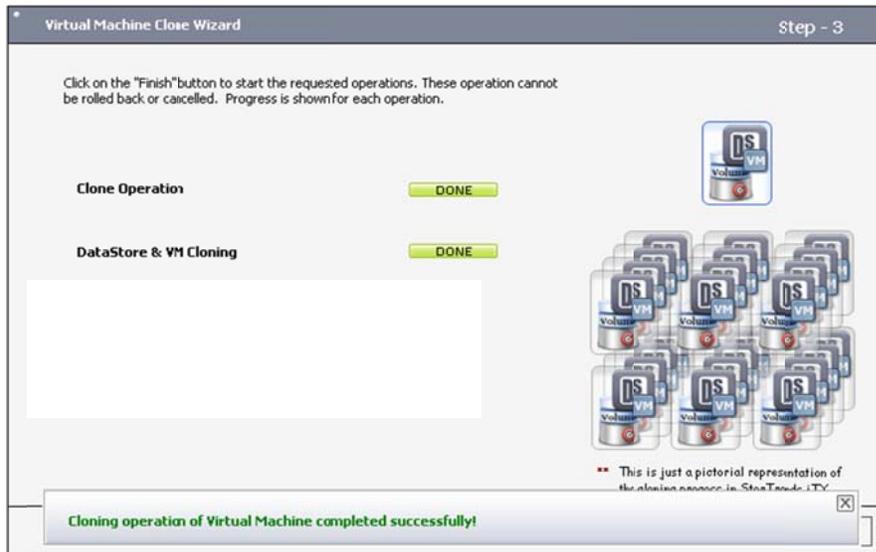
This step will show all the configurations that were made earlier for cloning the virtual machine. Click on Finish to complete the wizard.



After that, progress screen will be displayed. Currently ongoing operation will be shown in both text and pictorial formats.



Success message will be displayed on successful cloning of virtual machine.



Chapter 6 Expand Datastore

Expand Datastore Overview

Expand Datastore wizard helps the user to increase the size of Datastore. Actually Datastore resides in a StorTrends® volume, so the volume needs to be expanded first. This wizard will get the volume and the corresponding Datastore from the user and will expand it by calling both expansion command for volume and Datastore.

Volume Expansion

Step	Description
1	Choose the Storage Pool which encloses the Datastore and the volume that is to be expanded from the Select Storage Pool drop down list.
2	Select the volume pertinent with the Datastore that is to be expanded from the Select Volume drop down list.
3	Enter the expansion size in the Expand Volume by field. The expansion size must be greater than the current Datastore size.
4	Click Next to continue.

Expand DataStore Wizard Step - 1

Volume Expansion
DataStore Expansion
Summary

Select Storage Pool StoragePool1

Select Volume DatastoreVolume

Size 15 GB

Expand volume by 20 GB

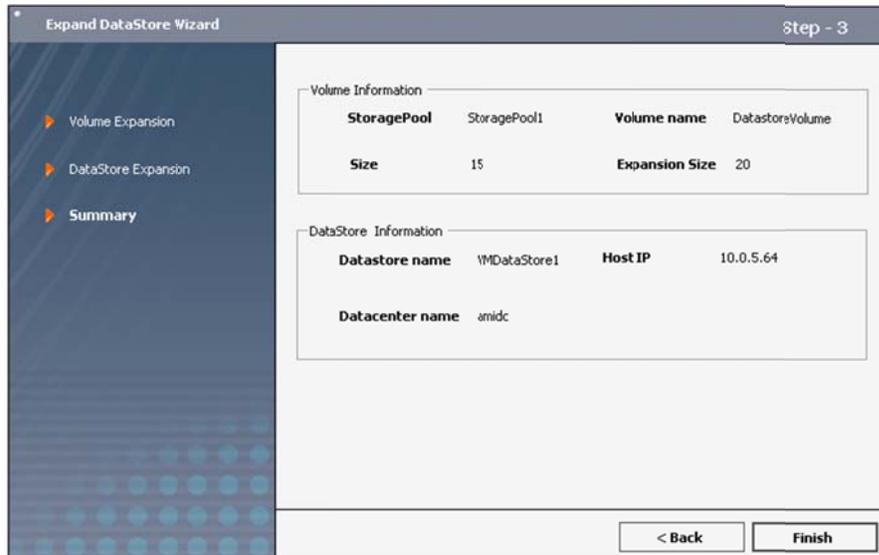
Next >

Step	Description
5	Cull out the Datacenter that is apposite to the Datastore to be expanded from the Enter Datacenter Name field.
6	In Enter Host Name field, choose the host IP under which you have your Datastore that is to be expanded.
7	Select the Datastore that is to be expanded for Enter Datastore Name field.
8	You can use Refresh button to repopulate the datacenter, hosts and Datastores.
9	Click on Next to continue.

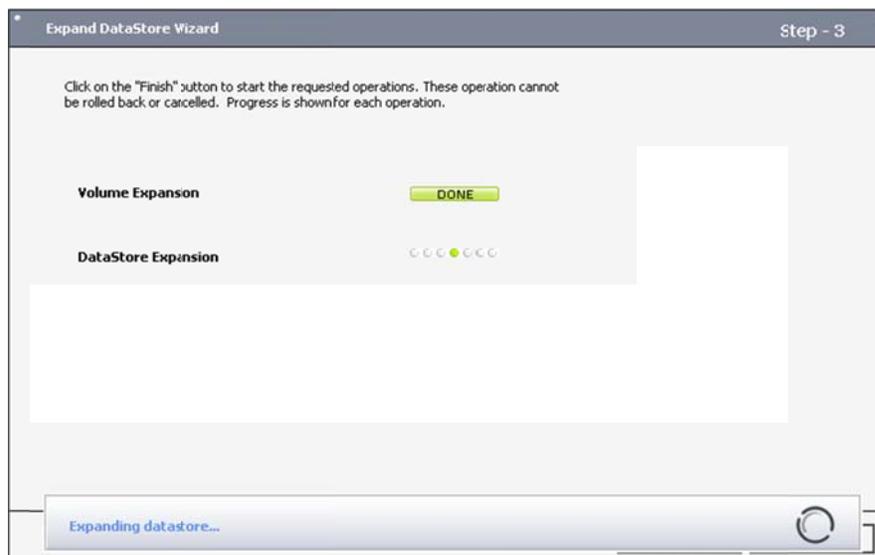
The screenshot shows the 'Expand DataStore Wizard' at Step - 2. The interface includes a sidebar with three steps: 'Volume Expansion', 'DataStore Expansion' (which is the active step), and 'Summary'. The main area of the wizard contains three dropdown menus for configuration: 'Enter Datacenter Name' is set to 'amdc', 'Enter Host Name' is set to '10.0.5.64', and 'Enter Datastore name' is set to 'VMDataStore1'. A 'Refresh' button with a circular arrow icon is positioned to the right of these dropdowns. At the bottom of the wizard, there are two buttons: '< Back' and 'Next >'.

Summary

This step will show all the configurations that were made earlier for expanding the Datastore. Click on Finish to complete the wizard.



After that, progress screen will be displayed. Currently ongoing operation will be shown in text format.



Success message will be displayed on successful expansion of Datastore.



Glossary

Datacenter

A datacenter is a centralized repository, either physical or virtual, for the storage, management, and dissemination of data and information organized around a particular body of knowledge or pertaining to a particular business.

Datastore

A datastore is the base above which the virtual machines are setup.

Virtual Machine

A virtual machine (VM) is a software implementation of a machine (i.e. a computer) that executes instructions like a physical machine.

Cloning

The term refers to the production of multiple copies of a product such as digital media or software.

iSCSI

In computing, iSCSI, is an abbreviation of Internet Small Computer System Interface, an Internet Protocol (IP)-based storage networking standard for linking data storage facilities. By carrying SCSI commands over IP networks, iSCSI is used to facilitate data transfers over intranets and to manage storage over long distances. iSCSI can be used to transmit data over local area networks (LANs), wide area networks (WANs), or the Internet and can enable location-independent data storage and retrieval.

SAN

A storage area network (SAN) is a storage device (such as disk arrays, tape libraries, and optical jukeboxes) accessible to servers so the devices appear as locally attached to the operating system. A SAN typically has its own network of storage devices that are generally not accessible through the regular network by regular devices.

SLP

The Service Location Protocol (SLP, srvloc) is a service discovery protocol that allows computers and other devices to find services in a local area network without prior configuration. SLP is used by devices to announce services on a local network. Each service must have a URL that is used to locate the service. Additionally it may have an unlimited number of name/value pairs, called attributes. Each device must always be in one or more scopes. Scopes are simple strings and are used to group services, comparable to the network neighborhood in other systems. A device cannot see services that are in different scopes.

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