

HP StorageWorks X1000/X3000 Network Storage Systems

Useful resources in managing NAS environments

Technical white paper

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Overview

The HP StorageWorks X1000/X3000 Network Storage Systems (NSS), referred to as Storage Servers, offer unified storage features that are easy to install, manage, and configure. Built on industry-standard hardware and based on Microsoft Windows Storage Server 2008, the NSS products are powerful storage solutions that support the entire Information Lifecycle Management (ILM) process for data hosted on these servers. This document identifies various tools and resources offered by HP and Microsoft to manage these environments.

Setup, configuration and updates

Quick Restore (QR) DVD

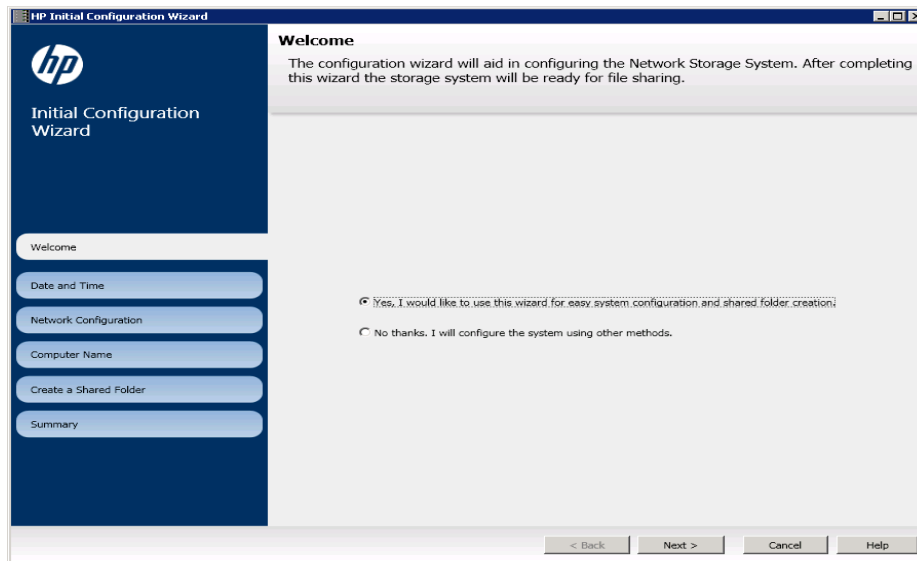
The HP Storage Server comes preinstalled with Microsoft Windows Storage Server 2008 x64 Edition Operating System, which includes Microsoft iSCSI Target and either HP Automated Storage Manager on X1000 Storage Servers or Microsoft Cluster Service license on X3000 Storage Servers.

In the event of an irrecoverable crash, use the QR DVD to restore the Storage Server. The DVD is also available online at (<http://software.hp.com/portal/swdepot/displayProductsList.do?category=NAS>).

Initial Configuration Wizard

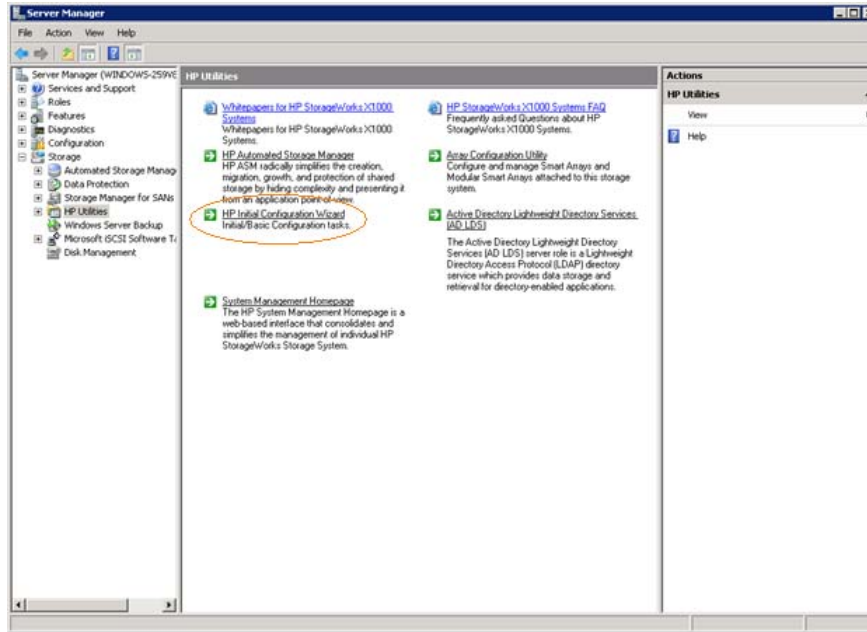
The HP Initial Configuration Wizard provides a quick and easy way of configuring the HP Storage Server by setting up basic system configuration parameters like Date, Time, Network, and Computer Name.

Figure 1: Initial Configuration Wizard



This wizard is launched by default every time the system is restarted. This tool may also be accessed from the HP Server Manager, as shown below.

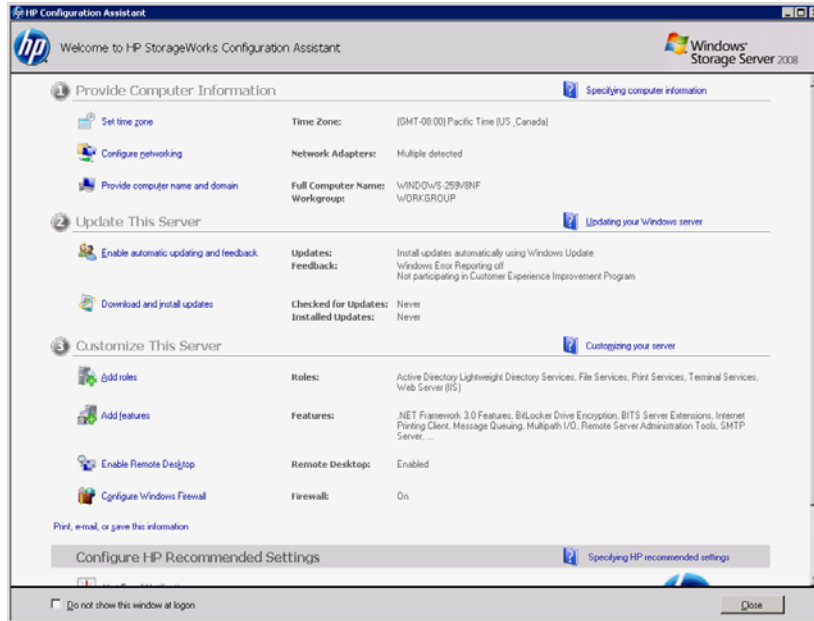
Figure 2: Accessing the Initial Configuration Manager from the HP Server Manager



HP Initial Configuration Assistant

The HP Initial Configuration Assistant may also be used to configure the HP Storage Server. The HP Initial Configuration Assistant provides a step-by-step approach to configuring the server. This tool is launched by default at system startup, and may also be launched by typing `oobe` from command prompt.

Figure 3: HP Configuration Assistant



Latest product updates

HP Service Release

HP Service Release offers complete updates for HP Storage Servers. The HP Service Release provides the following:

- Firmware and driver updates for the HP Storage Server hardware
- Microsoft Security Patch and Hotfix updates
- HP Software updates including HP Automated Storage Manager (ASM) updates
- Third party software updates (if any)

To retrieve HP Service Release go to [HP Business Support Center](#) and then select the “Download drivers and software” for the server.

HP Automated Storage Manager (ASM) update

HP Automated Storage Manager for HP StorageWorks X1000 Network Storage System enables simple storage management for applications like Exchange, SQL. HP highly recommends updating this frequently, as each update release may have critical bug fixes and/or new storage management features. This update is available from HP Business Support Center by selecting **Download drivers and software** for the server.

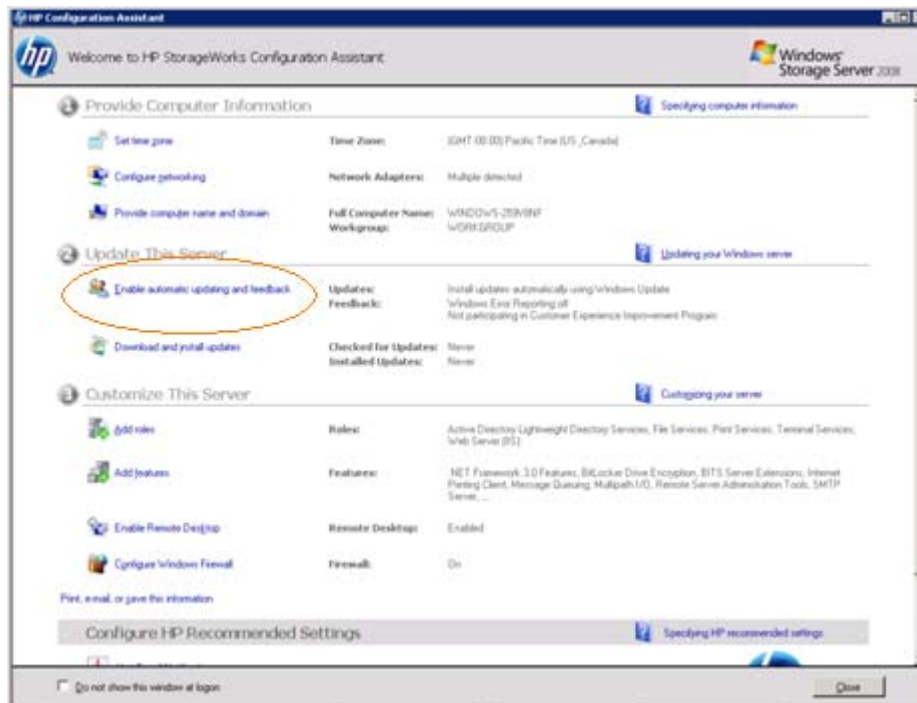
VDS Hardware Provider updates

ASM and Microsoft tools like Storage Manager for SAN, Share and Storage Management, and Logical Disk Manager use the VDS Hardware Provider to configure storage. To obtain the latest updates go to [HP Business Support Center](#) and select the “Download drivers and software” for the server.

Microsoft Auto Update

The HP Storage Servers are based on the Microsoft Windows Storage Server 2008 operating system, which belongs to the Windows Server 2008 family. Enabling the Microsoft Auto Update on the Storage Server ensures the installation of the latest Microsoft Security patches either automatically or at the user's convenience. To configure the auto update use the HP Initial Configuration Assistant, or select **Windows Update** from the **Control Panel** as shown below.

Figure 4: Auto Update



Component distribution location

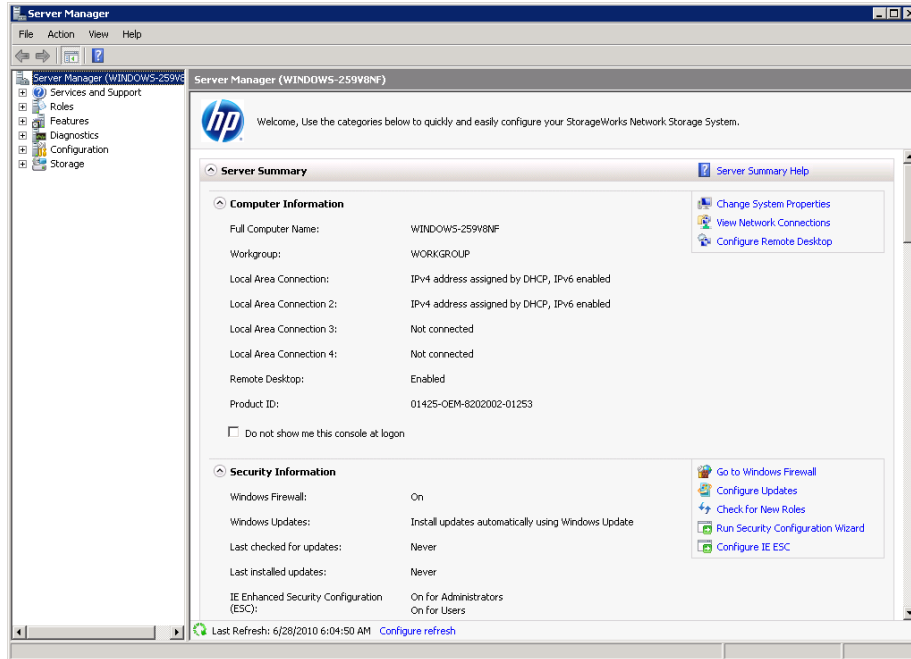
By default, all components installed on the HP Storage Server are also available as a package in the C:\hpnas\Components folder.

HP Server Manager

HP Server Manager provides a wide range of capabilities to configure the server and storage of the HP Storage Server. HP Server Manager is also available through web in the following ways:

- <http://<servername>:3201>
- <https://<servername>:3202>

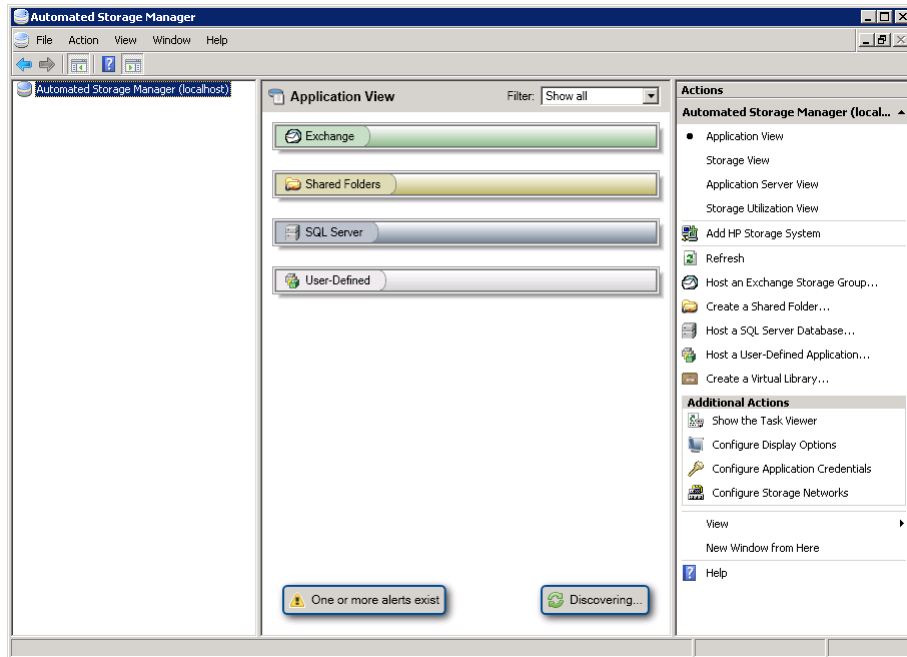
Figure 5: HP Server Manager



HP Automated Storage Manager

HP ASM simplifies the creation, migration, growth, protection of shared storage by hiding complexity and presenting an application point of view. Included with all HP StorageWorks X1000 Network Storage Systems, this software is designed for those with little or no storage expertise and includes tools to easily migrate and manage data using automated best practice logic. It also saves time for storage experts. Wizards require only a few mouse clicks to expertly set up and protect files and/or iSCSI storage, and make the move to unified network storage a quick and painless experience for anyone. To access ASM from the Desktop, select the **Programs menu**, then under **Storage**, select **Server Manager**.

Figure 6: Automated Storage Manager



File sharing

HP Storage Servers offer wide support of file sharing to distribute operating systems primarily through the support of CIFS, NFS, HTTP, and FTP file sharing protocols. These protocols are supported in Microsoft Windows Storage Server 2008. For more information, see the following websites:

- Windows (CIFS, SMB): [http://technet.microsoft.com/en-us/library/cc753175\(W.S.10\).aspx](http://technet.microsoft.com/en-us/library/cc753175(W.S.10).aspx)
- Unix (NFS): [http://technet.microsoft.com/en-us/library/cc770406\(W.S.10\).aspx](http://technet.microsoft.com/en-us/library/cc770406(W.S.10).aspx)

Creating Windows, Unix File Share

To enable access to files and/or directories hosted on HP Storage Servers for external clients, create a file share using one of the following are some methods.

HP ASM

Open ASM, and select the **Create a Shared Folder Wizard**, and then select the Windows and/or UNIX share option as shown below.

Figure 7: Starting the Create a Shared Folder Wizard

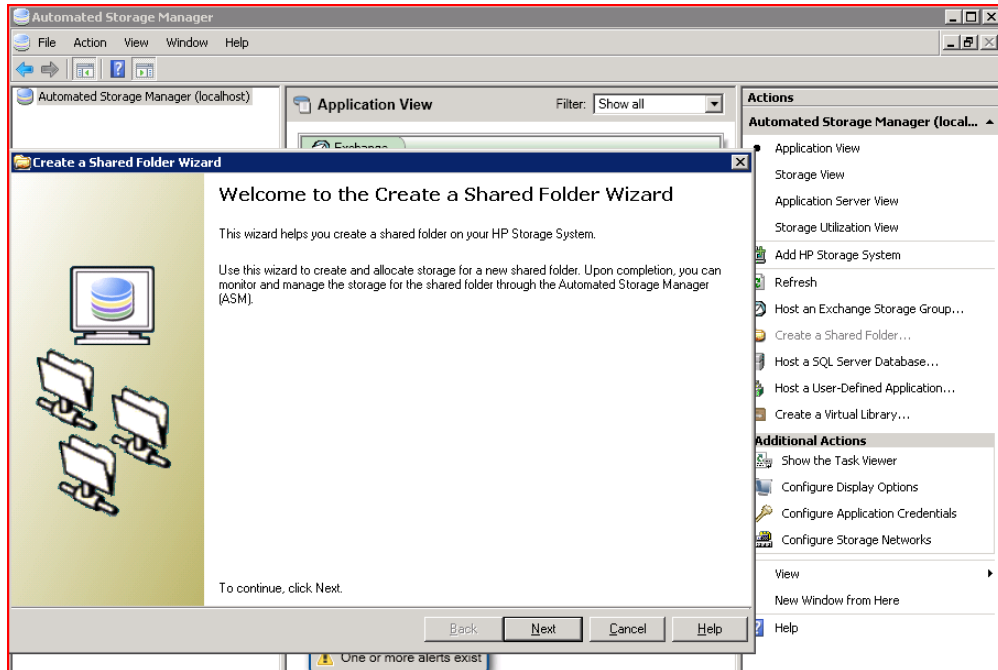
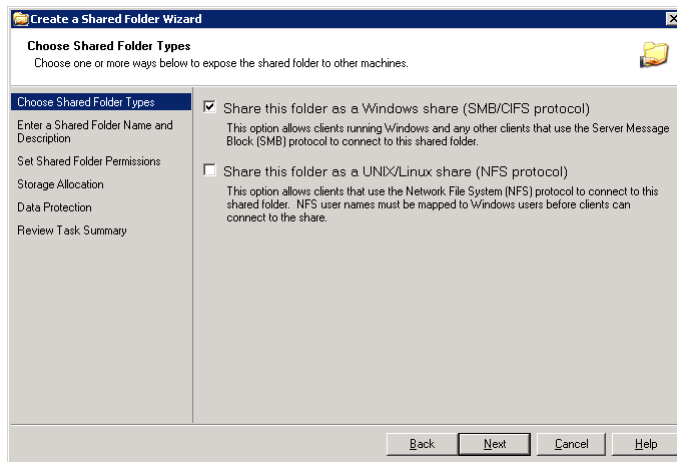


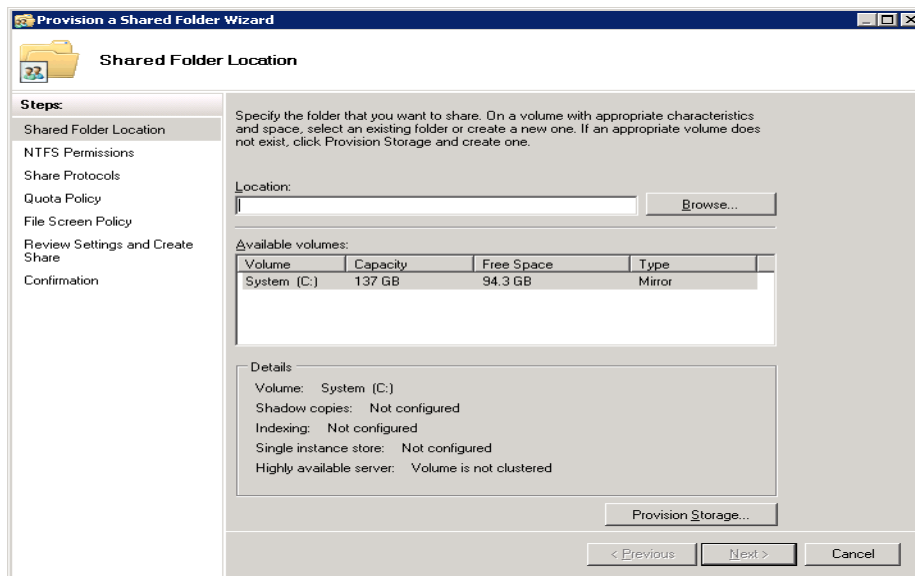
Figure 8: Create a Shared Folder Wizard



Share and Storage Management

You may also create Windows/Unix shares by selecting **Administrative Tools** and then selecting **Share and Storage Management**. To create new shares, select the **Provision a Share**.

Figure 9: Provision a Shared Folder Wizard



Active Directory Lightweight Directory Services (AD LDS)

The AD LDS server is a Lightweight Directory Access Protocol (LDAP) directory service. It provides data storage and retrieval for directory-enabled applications without the dependencies that are required for Active Directory Domain Services (AD DS). NFS protocol requires AD LDS support. The server may have the AD LDS is activated by default. If not, activate by selecting **Server Manager > Features > Add Features**. Once AD LDS is activated, you may configure it with the HP AD LDS tool available in the C:\hpnas\Components\AD LDS folder.

HTTP and FTP

These file sharing protocols are supported through the Internet Information Services 6.0 Manager and may be accessed from the Administrative tools.

File share—OS support matrix

From/To	Windows	Unix/Linux	Mac
CIFS	√	√ ²	√ ²
NFS	√ ¹	√	√
HTTP	√	√	√
FTP	√	√	√

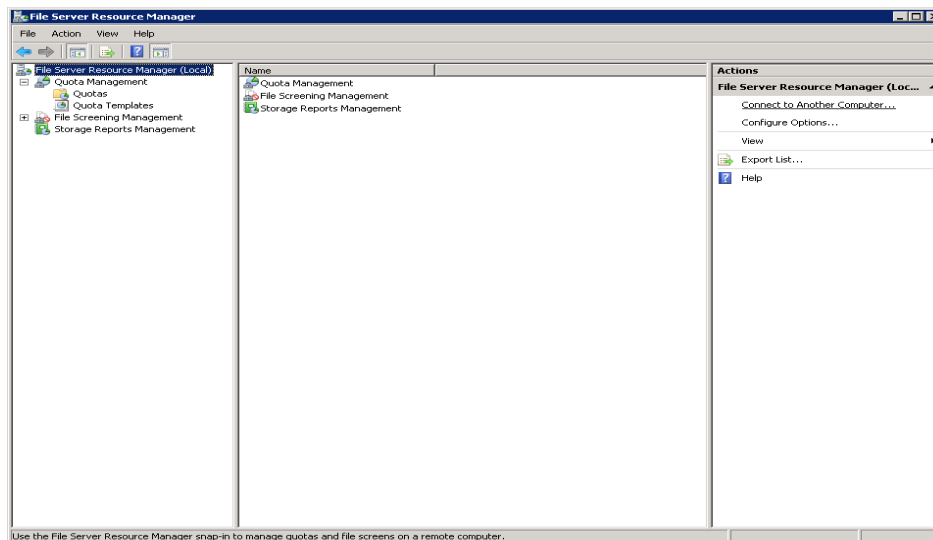
¹ To Access NFS mount points on HP Storage Servers, enable the feature “Subsystem for UNIX based Applications” from the Server Manager.

² Connect the CIFS share from Unix/Linux/Mac with SMB.

Quotas, file screening and storage reports

To access the directory quota, file screening, and storage reports select **Administrative Tools** and then select **File Server Resource Manager**.

Figure 10: File Server Resource Manager



To configure user quotas select **User quotas** under the properties of the specific share through Windows Explorer.

Distributed File Systems (DFS)

Distributed File Systems offer file share consolidation by unifying shares hosted in different servers to a single namespace. DFS also offers file replication across different servers. The DFS roles are enabled by default on all HP Storage Servers. To access DFS roles select **Administrative Tools**, and then select **Distributed File Systems**. For more information see <http://www.microsoft.com/windowsserversystem/dfs/default.aspx>.

Single Instance Storage (SIS) and indexing

SIS consolidates files hosted in single and multiple directories of a volume that has identical contents into a single primary repository, thus reducing the size of hosted storage. SIS can span across shares that are hosted on a volume. Indexing enables a faster search of files hosted on shares. Indexing is typically applied to a volume. To access these features, select either **Windows Explorer** or **Share and Storage Management**, and then select **Advanced** under Volume properties.

For more information on SIS and Indexing, see the following websites.

- Single Instance Storage:
<http://www.microsoft.com/windowsserver2008/en/us/wss08/sis.aspx>
- Indexing:
<http://www.microsoft.com/windows/products/winfamily/desktopsearch/technicalresources/indexing.aspx>

Block Sharing

iSCSI Target

The block storage support on Network Storage Servers is provided using Microsoft iSCSI Target. Microsoft iSCSI Target is accessible from Administrative tools. HP ASM provisions application storage (Exchange, SQL, and User-defined) using iSCSI Storage. For more information on Microsoft iSCSI Target, see the following websites:

- FAQ
<http://www.microsoft.com/windowsserverstorage/iscsifaq.msp>
- User guide
<http://download.microsoft.com/download/A/E/9/AE91DEA1-66D9-417C-ADE4-92D824B871AF/uGuide.doc>

iSCSI Initiator

Network Storage Servers is bundled with a Microsoft iSCSI initiator by default, which is accessible from Administrative tools. iSCSI Initiator may be used to connect external storage through iSCSI protocol.

Remote management

HP Storage Servers offer the following remote management support:

- Connection through Remote Desktop
- Connection through HP Integrated Lights Out
- Management access through the web

Remote Desktop

Remote Desktop enables connection to the HP Storage Servers. To access the Remote Desktop Application, select **All Programs > Accessories** from the Start Menu on all Windows systems operating systems.

HP Integrated Lights Out (iLO)

iLO offers a comprehensive remote management by enabling the console access remotely through web. An iLO configuration tool is available on the HP Storage Server. To access the tool, select **HP Recommended Settings** in the HP Initial Configuration Assistant.

Management access through the web

The HP Server Manager is accessible through Internet Explorer. This feature requires ActiveX, JRE, and JavaScript enabled on the client's Internet Explorer.

Print server

HP Storage Server may also act as a print server by routing print jobs through HP Storage Server. All the latest HP print drivers are available in the C:\hpnas\Components\Print Drivers folder. Once the printers are configured, they may either be shared or made accessible over the internet with Microsoft Internet Information Server 6.0 Manager. For more information on Microsoft Print Services, see [http://technet.microsoft.com/en-us/library/cc732378\(WS.10\).aspx](http://technet.microsoft.com/en-us/library/cc732378(WS.10).aspx) .

HP SAN Storage Management Software

HP Storage Servers may act as a gateway to several HP SAN storage products. Also, the HP SAN Storage Management software may be installed on HP Storage Servers. More details on each of them are available below.

- HP Command View for EVA
http://h20000.www2.hp.com/bizsupport/TechSupport/ProductList.jsp?locale=en_US&taskId=135&prodSeriesId=471497&prodTypeId=12169
- HP Command View for XP
http://h20000.www2.hp.com/bizsupport/TechSupport/Home.jsp?locale=en_US&prodTypeId=12169&prodSeriesId=64820&cc=us

- HP P4000 Software downloads:
<https://h20392.www2.hp.com/portal/swdepot/displayProductInfo.do?productNumber=P4000SW>

Storage Solutions

The following software is recommended for hosting storage solutions on HP Storage Server.

Archiving

HP Storage Works Storage Mirroring:

<http://h18006.www1.hp.com/products/storage/software/sm/>

Backup

- HP Data Protector Express (has integrated backup support with HP ASM)
<http://h18000.www1.hp.com/products/storage/software/datapexp/>
- HP Data Protector
<http://h71028.www7.hp.com/enterprise/w1/en/software/information-management-data-protector.html>
- HP StorageWorks D2D Backup Systems -
http://www.compaq.com/storage/disk_storage/disk_to_disk/d2d/index.html

Snapshots

Snapshots on HP Storage Servers are available through the Microsoft Volume Shadow Copy Services (VSS) for both file and block services. HP ASM provides integrated snapshot management.

- For more information on using snapshots with HP ASM, see the user guide
<http://bizsupport1.austin.hp.com/bc/docs/support/SupportManual/c02252381/c02252381.pdf>
- For more information on Microsoft Snapshot capabilities see the Microsoft TechNet:
[http://technet.microsoft.com/en-us/library/cc738819\(WS.10\).aspx](http://technet.microsoft.com/en-us/library/cc738819(WS.10).aspx)

Migration

- HP Storage Works Storage Mirroring
<http://h18006.www1.hp.com/products/storage/software/sm/>
- Microsoft File Server Migration Tool
<http://www.microsoft.com/downloads/details.aspx?FamilyID=d00e3eae-930a-42b0-b595-66f462f5d87b&displaylang=en>

Replication

- HP Storage Works Storage Mirroring
<http://h18006.www1.hp.com/products/storage/software/sm/>
- Microsoft Distribute File (DFS)
<http://www.microsoft.com/windowsserversystem/dfs/default.mspx>

Microsoft DFS is enabled by default on HP Storage Servers.

Clustering

HP StorageWorks X3000 Network Storage Gateways offers High Availability solution through Microsoft Cluster Services (MSCS). For more information on MSCS, see

<http://msdn.microsoft.com/en-us/library/ms952401.aspx>

Virtual Machine

- Hyper-V Storage Support
<http://blogs.technet.com/b/josebda/archive/2009/02/02/step-by-step-using-the-microsoft-iscsi-software-target-with-hyper-v-standalone-full-vhd.aspx>

- VMware Support
<http://www.vmware.com/resources/compatibility/search.php?action=search&deviceCategory=san&productId=1&advancedORbasic=advanced&maxDisplayRows=50&key=X&release%5B%5D=-1&datePosted=-1&partnerId%5B%5D=41&arrayTypeId%5B%5D=1&arrayTypeId%5B%5D=3&isSVA=0&rorre=0>

Event and Errors

- HP System Insight Manager
<http://h18000.www1.hp.com/products/servers/management/hpsim/index.html>
- HP Storage Essentials
<http://www.compaq.com/storage/software/srmgt/index.html>
- Microsoft System Center Operations Manager
<http://www.microsoft.com/systemcenter/opsmgr/>

For more information

All HP Support and Services information is directly accessible from Services and Support of HP Server Manager in HP Storage Servers.

- Microsoft Windows Storage Server 2008
<http://www.microsoft.com/windowsserver2008/en/us/wss08.aspx>
- Microsoft Windows Storage Server Blog
<http://blogs.technet.com/b/storageserver/>

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