

Implement User Data Management for Hitachi NAS Platform Using Northern Storage Suite

Implementation Guide

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Implement User Data Management for Hitachi NAS Platform Using Northern Storage Suite

Implementation Guide

This implementation guide provides step-by-step instructions to prepare Hitachi NAS Platform 4100 for monitoring by Northern Storage Suite. Using Northern Storage Suite support for Hitachi NAS Platform, you can do the following:

- Gain insight into user-generated data
- Identify potential efficiency gains
- Understand data growth patterns
- Change user data storage behavior

The solution in this implementation guide uses the following:

- Hitachi Unified Storage 130
- Hitachi NAS Platform 4100
- Hitachi Compute Rack 220H servers
- VMware ESXi
- Northern Storage Suite
- Microsoft® SQL Server®
- Microsoft Windows Server® 2012 virtual machines

This implementation guide assumes that Northern Storage Suite and Microsoft SQL Server have already been installed and configured on your site.

Unstructured data growth continues to accelerate with the total amount of world data doubling every couple of years. Enterprises have liability or responsibility for 85% of that unstructured data. It is important to report on, forecast, and control user data storage patterns. The challenges of rapid data growth include storage costs, operational risks, and compliance risks.

This implementation guide helps storage and system administrators to configure Hitachi NAS Platform for use with Northern Storage Suite. You need to have the following:

- Basic server, storage, SAN configuration experience
- Basic Microsoft Windows Server administration

Note — These procedures were developed in a lab environment. Many things affect production environments beyond prediction or duplication in a lab environment. Follow recommended practice by conducting proof-of-concept testing for acceptable results before implementing this solution in your production environment. Test the implementation in a non-production, isolated test environment that otherwise matches your production environment.

Tested Solution Components

This solution consists of the following:

- A VMware High Availability cluster running on two Hitachi Compute Rack 220H servers
- Hitachi NAS Platform 4100
- Hitachi Unified Storage 130
- Brocade 6510 SAN switches

Northern Storage Suite and Microsoft SQL Server are installed on individual Microsoft Windows Server 2012 R2 Standard virtual machines, each with 8 GB memory and 8 vCPUs.

All hardware and software components need to be at the tested version or a newer version, as found in Hardware Components and Software Components.

Figure 1 on page 4 is an overview of the hardware, basic SAN connectivity, and API communication between Northern Storage Suite and the several enterprise virtual servers (EVS) on Hitachi NAS Platform.

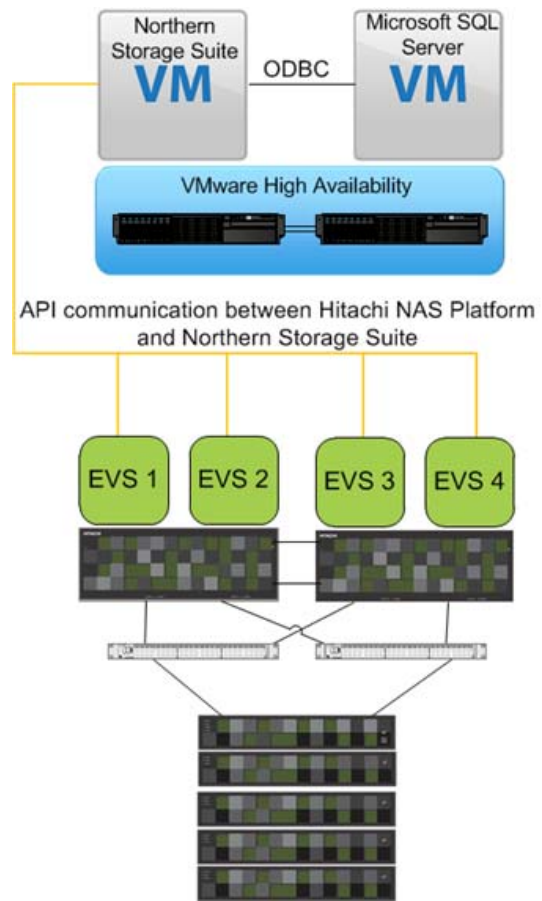


Figure 1

Hardware Components

Table 1 shows the key hardware components used in this solution.

Table 1. Key Hardware Components

<i>Component</i>	<i>Description</i>	<i>Firmware</i>	<i>Quantity</i>
Hitachi NAS Platform 4100	<ul style="list-style-type: none"> ■ 2 node cluster 	12.3.3826.00	1
Hitachi Compute Rack 220H Server	<ul style="list-style-type: none"> ■ Form Factor 2U (rack mountable) ■ 2 Intel Xeon E5-2620 processors, 6 Core, 2.0 GHz CPU ■ 128 GB, 1333 MHz DDR3 LV RDIMM ■ LSI MegaRAID SAS 9267-8i FW package 23.2.1-0057 ■ Onboard Broadcom 1000Base-T NetXtreme 5721C1 (dual port) 	BIOS: MH.1.06	2
Hitachi Unified Storage 130	<ul style="list-style-type: none"> ■ 32 GB cache ■ 9 trays of 600 GB 10k RPM SAS HDD ■ Hitachi Dynamic Provisioning enabled 	0977/A-S	1
Brocade SAN Switch	<ul style="list-style-type: none"> ■ Brocade 6510 	7.0.1a	2

Hitachi NAS Platform

[Hitachi NAS Platform](#) is an advanced and integrated network attached storage (NAS) solution. It provides a powerful tool for file sharing, file server consolidation, data protection, and business-critical NAS workloads.

- Powerful hardware-accelerated file system with multi-protocol file services, dynamic provisioning, intelligent tiering, virtualization, and cloud infrastructure
- Seamless integration with Hitachi SAN storage, [Hitachi Command Suite](#), and [Hitachi Data Discovery Suite](#) for advanced search and index
- Integration with [Hitachi Content Platform](#) for active archiving, regulatory compliance, and large object storage for cloud infrastructure

Hitachi Unified Storage

[Hitachi Unified Storage](#) is a midrange storage platform for all data. It helps businesses meet their service level agreements for availability, performance, and data protection.

The performance provided by Hitachi Unified Storage is reliable, scalable, and available for block and file data. Unified Storage is simple to manage, optimized for critical business applications, and efficient.

Using Unified Storage requires a smaller capital investment. Deploy this storage, which grows to meet expanding requirements and service level agreements, for critical business applications. Simplify your operations with integrated set-up and management for a quicker time to value.

Unified Storage enables extensive cost savings through file and block consolidation. Build a cloud infrastructure at your own pace to deliver your services.

Hitachi Unified Storage 130 is a symmetric active/active midrange storage platform. It has broad interoperability for critical data and application needs through the flexibility of Fibre Channel or iSCSI support.

There is a wide range of disk RAID configurations supported on the Hitachi Unified Storage 130, using SAS, SATA, and SSD drives. It has the capacity to scale up to 960 total drives using 2U or 4U expansion trays.

Hitachi Compute Rack

Hitachi Compute Rack 220H is a midrange rack mountable server platform, providing advanced systems management and redundancy options. It is data center friendly, with a 2U footprint, while delivering the performance that is required to meet enterprise level challenges.

The benefits of Hitachi Compute Rack 220H are the following:

- Web-based management interface
- RAID level configuration, with up to six 3.5 inch internal drives
- Sustainable power-saving capabilities
- 2 socket Intel based server
- Configuration flexibility to meet business needs
- Dense 2U rack mountable design

Brocade SAN Switches

Brocade and Hitachi Data Systems partner to deliver storage networking and data center solutions. These solutions reduce complexity and cost, as well as enable virtualization and cloud computing to increase business agility.

Software Components

Table 2 shows the key software components used in this solution.

Table 2. Key Software Components

<i>Component</i>	<i>Description</i>	<i>Version</i>
Northern Storage Suite	User Data Management	9.61.16723
Microsoft SQL Server	Database for Northern Storage Suite	2012 Standard with SP1
Microsoft Windows Server	Operating system for Northern Storage Suite and Microsoft SQL Server	2012 R2 Standard

Northern Storage Suite

Northern Storage Suite is a software solution for controlling the use of storage resources. It helps shape the way in which users consume storage. Northern Storage Suite provides the tools needed to control user behavior that leads to storage misuse; changing user attitudes towards storing private, duplicate, triplicate, obsolete, and other low value files.

Microsoft SQL Server

[Microsoft SQL Server](#) provides enhanced enterprise-class manageability for large database deployments. When used with [Hitachi Unified Storage](#), SQL Server provides a scalable, high-performance database engine for any midrange to enterprise-level application.

Microsoft Windows Server

[Microsoft Windows Server](#) is a multi-purpose server that increases the reliability and flexibility of your server or private cloud infrastructure.

Solution Implementation

Do the following actions to implement Northern Storage Suite on Hitachi NAS Platform.

Configure Hitachi NAS Platform

For Northern Storage Suite to work with Hitachi NAS Platform, the following must happen:

- Create a CIFS server name. Join this CIFS server name to the same domain as the Northern Storage Suite server.
- Enable file-filtering on each enterprise virtual server on NAS Platform monitored by Northern Storage Suite.
- Give each enterprise virtual server to be monitored by Northern Storage Suite an IPv4 address.
- Add a domain user to the **Backup Users** group on **Local Groups** on the **File Services** menu. Depending on the security context of the enterprise virtual server, the user will be added either to the Global Security context or on a per-enterprise virtual server basis. The domain user must be the same user as the Log On As user for the named NSS quota server service in Windows Services.

Create a CIFS Server Name

Complete this procedure for each enterprise virtual server to be monitored by Northern Storage Suite:

To create a CIFS server name for an enterprise virtual server, do the following.

1. From the **Home** menu, click **File Services** and then click **CIFS Setup**.
 2. To open the **Add CIFS Server Names** dialog box (Figure 2 on page 9), click **Add**.
 3. To add the server to the list, do the following:
 - (1) Type the name in the **CIFS Server Names** box.
 - (2) Click the **Add** down arrow.
-

4. To add the user information, do the following:
 - (1) In the **ADS** area, click the **ADS** option.
 - (2) In the **IP address** box, type the value.
 - (3) In the **DC Admin User** box, type the user name.
 - (4) In the **DC Admin Password** box, type the password.
 - (5) Do not type values for **Folder** or **DNS Suffix**.
 - (6) Click **OK**.

File Services [Home](#) > [File Services](#) > [CIFS Setup](#) > Add CIFS Server Names

Add CIFS Server Names

EVS: EVS2914

CIFS Server Names: Add

EVS2914

Overwrite name and change folder on ADS server. (applies to ADS mode only)

Domain

NT4 NT4
Domain Name: JSVLAB

ADS ADS

IP Address: 172.17.38.222

DC Admin User: Administrator

DC Admin Password: *****

Folder:

DNS Suffix:

OK cancel

Figure 2

Enable File Filtering

File filtering can be enabled for a single enterprise virtual server on Hitachi NAS Platform, or for all enterprise virtual servers.

To enable file filtering for a single enterprise virtual server, do the following:

1. Access the command line interface on Hitachi NAS Platform as manager.
 - Use PuTTY or SSH.
2. To determine the ID of the enterprise virtual server, type this at the command line prompt:

```
evs list
```

Record the ID of the enterprise virtual server for use in the next step.

3. To execute file-filtering commands against the enterprise virtual server, switch the enterprise virtual server context by typing the following:

```
console-context --evs <id>
```

<id> is the ID recorded in the previous step.

4. To enable file-filtering, type the following:

```
file-filtering-on
```

5. To confirm file filtering is enabled, type the following:

```
file-filtering-state
```

To enable file-filtering for all enterprise virtual server on the HNAS:

1. Access the command line interface on Hitachi NAS Platform as manager.
 - Use PuTTY or SSH.
2. To start file filtering for every enterprise virtual server, type this at the command line prompt:

```
for-each-evs file-filtering-on
```

3. To verify file filtering is enabled for every enterprise virtual server, type this:

```
for-each-evs file-filtering-state
```

Configure a Local User

Add the same domain user used as **Log On As** for Northern Storage Suite services, the named NSS core server, and the named NSS quota server as a backup operator of the local groups on Hitachi NAS Platform.

To add a domain user as a backup operator of the local groups on Hitachi NAS Platform, do the following:

1. On the system management unit, from the **Home** menu, click **File Services**, and then click **Local Groups**.
2. Depending on the security context of the enterprise virtual server, click one of the following:
 - **Global Configuration**
 - The individual enterprise virtual server ("EVS" in the NAS Platform user interface)
3. At the bottom of the page, click **Add**.
4. On the **Add a Local Group** page, do the following:
 - (1) Click the **Use existing local group** option. Then, from the list, click **Backup Operators**.
 - (2) In the **Members** box, type the domain user name. Then, to add the member, click the **Add** arrow.

Figure 3 shows the **Add Local Group** dialog box on NAS Platform.

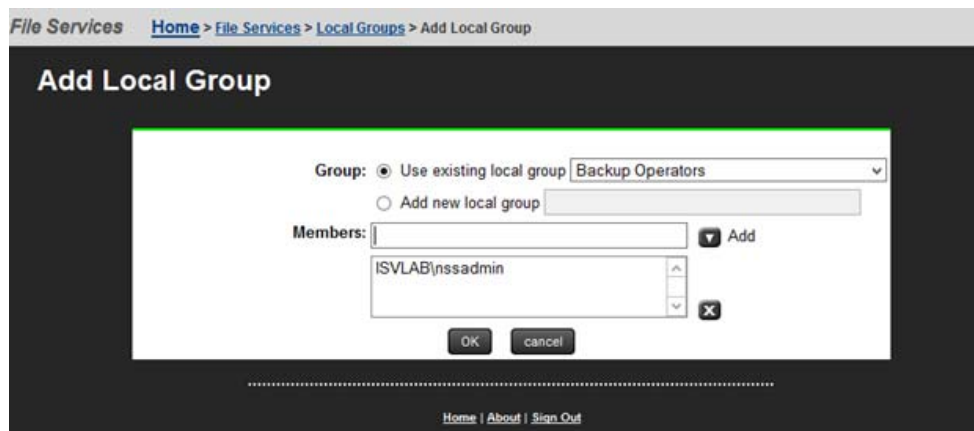


Figure 3

Configure Northern Storage Suite

These implementation procedures require a previous installation of Northern Storage Suite on your site.

These procedures also require configuration of the quota server service to run as a domain user. Use the same domain user for the quota server service that was added to the local group on Hitachi NAS Platform in “Configure a Local User” on page 11.

Figure 4 shows the named NSS quota server service running with the same user added to the local group for backup operators.

Network Store Interface Service	This service ...	Running	Automatic	Local Service
NSS Core Server		Running	Automatic	ISVLAB\nssadmin
NSS Quota Server		Running	Automatic	ISVLAB\nssadmin
Optimize drives	Helps the c...		Manual	Local System

Figure 4

Local Security Policy Settings

To configure the local security policy settings on the Northern Storage Suite server, do the following.

1. Open the **Local Security Policy** dialog box.
2. On the left pane under **Security Settings**, expand **Local Policies** and then click **Security Options**. See Figure 5.

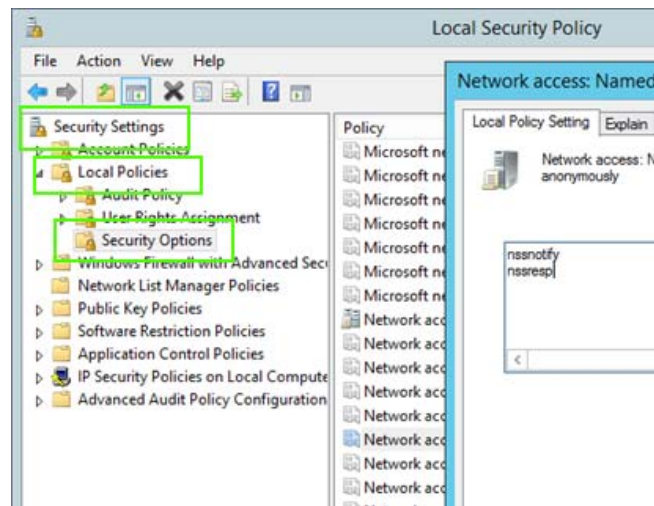


Figure 5

3. Update **Network access: Named Pipes that can be accessed anonymously** settings.
 - (1) On the right pane, click **Network access: Named Pipes that can be accessed anonymously**.
 - (2) On the **Local Policy Setting** tab, type the following in the text box:

nssresp

nssnoti fy
 - (3) Click **OK**.

Figure 6 shows the **Local Policy Setting** tab of the **Network access: Named Pipes that can be accessed anonymously** dialog box.

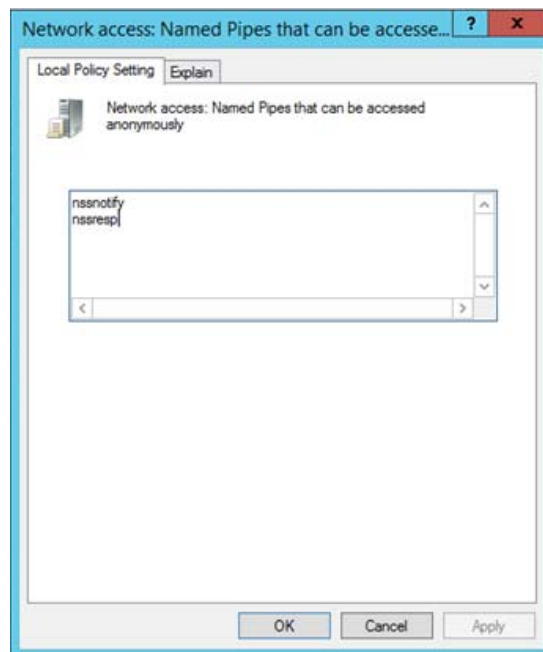


Figure 6

4. Update **Network access: Restrict anonymous access to Named Pipes and Shares** settings.
 - (1) On the right pane, click **Network access: Restrict anonymous access to Named Pipes and Shares**.
 - (2) Clear the **Network access: Restrict anonymous access to Named Pipes and Shares** check box so that this is not available.
 - (3) Click **OK**.

5. Update **Network access: Shares that can be accessed anonymously** settings.
 - (1) On the right pane, click **Network access: Shares that can be accessed anonymously**.
 - (2) Type the following in the text box: I PC\$
 - (3) Click **OK**.

Northern Storage Suite Quota Server Settings

To add an enterprise virtual server to the Northern Storage Suite quota server, do the following.

1. Log on to Northern Storage Suite.
 2. On the dashboard, click **Quotas & Allocation**.
 3. Make the settings for the quota server client:
 - (1) On the left panel, click **System** and then click **Quota Servers**.
 - (2) On the right (main) panel, double-click the populated row in the table. You can now change settings in the tabbed panel at the bottom.
 - (3) In the panel at the bottom, click the **HDS Devices** tab.
 - (4) In the **HDS Devices** text box, type the CIFS name of the enterprise virtual server to be monitored.
 - If more than one enterprise virtual server is to be monitored, type each server name, separated by a semi-colon.
 - (5) Click anywhere outside the bottom panel Quota Server dialog box, and then click **Yes** in the dialog box asking if you want to save the settings.
 - (6) On the middle panel, click the **Network** tab
 - (7) Right-click in the **Network** tab, and then click **Show only connected servers**.
 - Only the enterprise virtual server or servers typed in the **HDS Devices** text box are listed. You can view each enterprise virtual server or servers associated shares.
-

Create a Quota

To create a new quota for Hitachi NAS Platform on Northern Storage Suite, do the following.

1. Open the Northern Storage Suite quota server client.
 - On the Northern Storage Suite dashboard, click **Quotas & Allocation**.
 2. Start the Quota Server Policy wizard.
 - (1) On the left panel, click **Quotas**.
 - (2) Click **File System Quotas**.
 - (3) In the main panel, right-click and then click **New**.
 3. Use the Quota Server Policy wizard to create a quota.
 - (1) To start the wizard, click **Next**.
 - (2) Click **Add Quota** and then click **Next**.
 - (3) Under **Device Type**, click **HDS** and then click **Next**.
 - (4) On the **Quota Type** screen, click the quota type and then click **Next**.
 - (5) On the **Managing Host** screen, click **Next**.
 - (6) On the **Object Path Settings** screen, select the share or directory path to be monitored, and then click **Next**.
 - Use the + (plus) sign to include paths, directories, and subdirectories for monitoring.
 - Use the - (minus) sign to exclude paths, directories, and subdirectories from monitoring.
 - For the **Auto Dir**, **Auto User**, and **Auto Group** quota types, you can select a subdirectory path to exclude.
 - (7) On the **Account Settings** screen, select the users for which the quota applies.
 - Everyone is default.
 - (8) On the **General Quota Settings** screen, set the size for the quota.
 - When on the **General Quota Settings** screen, you can change the number of seconds for the interval (frequency) for the **Interval** quota type under **Advanced Settings**.
-

- (9) On the **Threshold Settings** screen, configure the various thresholds.
 - To lock a directory and prevent adding files when the quotas are exceeded, set the Action to **lock dir** at 100% threshold.
- (10) Click **Next** on the rest of the screens, and complete the wizard by clicking **Finish**.

Create a File Block/Allow

To create a file block or file allow policy, do the following.

1. Open the Northern Storage Suite quota server client.
 - On the Northern Storage Suite dashboard, click **Quotas & Allocation**.
 2. Start the Quota Server Policy wizard.
 - (1) On the left panel, click **Quotas**.
 - (2) Click **File System Quotas**.
 - (3) In the main panel, right-click and then click **New**.
 3. Use the Quota Server Policy wizard to create a file block or file allow policy.
 - (1) To start the wizard, click **Next**.
 - (2) Click **Add Quota** and then click **Next**.
 - (3) Under **Device Type**, click **HDS** and then click **Next**.
 - (4) On the **Quota Type** screen, click either **FileBlock** or **FileAllow**.
 - (5) On the **FileBlock Settings** screen, type the file type extensions to be blocked or allowed.
 - The **Fileblock** Settings screen is used for FileBlock and FileAllow quota type.
 - (6) On the **Managing Host** screen, click **Next**.
 - (7) On the **Object Path Settings** screen, select the share or directory path to be monitored, and then click **Next**.
 - Use the + (plus) sign to include paths, directories, and subdirectories for monitoring.
 - Use the - (minus) sign to exclude paths, directories, and subdirectories from monitoring.
-

- (8) On the **Account Settings** screen, select the users for which the policy applies.
 - Everyone is default.
 - (9) On the **Notification Settings** screen, choose the notification options you want.
 - (10) Click **Next** on the rest of the screens, and complete the wizard by clicking **Finish**.
-

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