IBM TotalStorage SAN File System
(based on IBM Storage Tank™ technology)

Basic Configuration for Quick Start

Version 2 Release 2

GX27-4058-01

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Note
Before using this information and the product it supports, read the information in "Notices."

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About this guide

This book provides information to perform a basic configuration to quickly start and gain some experience with SAN File System after installation. To use this book, you should be familiar with basic IBM® TotalStorage® SAN File System concepts.

For more detailed information about managing SAN File System for your installation, see *IBM TotalStorage SAN File System Administrator's Guide and Reference*. Also, to learn about any changes that were not available at the time this publication was produced, see *IBM TotalStorage SAN File System Release Notes*, available at: www.ibm.support.com/storage/support.

Creating a storage pool

Perform the following steps to create a storage pool.

1. Using your Web browser, connect to the SAN File System console.
2. In the My Work frame, click **Manage Storage** → **Create a Storage Pool**. View the list of steps to create a storage pool and click **Next**.
3. Under **Pool Settings** in the Create a Storage Pool panel, fill in the **Name** field (for example, My_New_Pool) and the **Description** field (for example, A pool I created). Optionally, select **Logical Partition Size**, **Allocation Size** and **Usage Threshold**. Click **Next**.
4. Under **Select Client**, select a client and a fetch method to gather the available LUNs information for the next step, adding volumes to the storage pool. The default fetch method is to gather the LUN information from cache; you could also choose to rediscover the LUNs by selecting the Rediscover button. Click **Next**.
5. Under **Add Volumes**, select a LUN (for example, vpd83naa5=12234678) from the table. Click **Next**.
6. Under **Volume Settings**, fill in the **Volume Name Prefix** field (for example, My_New_Pool), and click **Next**.
7. Verify your settings, and then click **Finish**.

Creating a fileset for AIX

Perform the following steps to create a fileset for AIX®.

1. In the My Work frame, click **Manage Filing** → **Create a Fileset**.
   - In the Create a Fileset panel:
   a. Fill in the **Name** field (AIX_Fileset), the **Description** field (for example, A fileset for AIX-only files), and select a server (for example, ST0) from the drop-down list.
   b. Under **Attach Point**, fill in the **Directory Path** field (for example, sanfs) and the **Directory Name** field (for example, aix51). Click **OK**.
   - Optionally, select a **Server Assignment Method** and **Quota Options**.
2. Click **Manage Filing** → **Filesets**. Verify your new fileset in the list.
3. Grant root privileges to the client by clicking **Manage Servers and Clients** → **Client Sessions**.
   a. In the Client Sessions panel, Select a client, select **Grant Clients Root Privileges** from the drop-down list, and then click **Go**.
4. On the IBM AIX client machine, switch to the SAN File System mount point, and change to the global fileset directory.

```
# pwd
/mnt/SAN_FS_MOUNTPT/sanfs
# ls
total 8
d-------- 2 1000000 1000000 4096 July 3 10:21 aix51
dr-xr-xr-x 2 1000000 1000000 4096 July 3 10:08 .flashcopy
dr-xr-xr-x 2 1000000 1000000 4096 July 3 10:08 lost+found#
```

5. Change the ownership and permissions of the fileset.

```
# chown root:system aix51
# chmod 755 aix51
# ls
total 8
drwxr-xr-x 2 root    system  4096 July 3 10:21 aix51
dr-xr-xr-x 2 1000000 1000000 4096 July 3 10:08 .flashcopy
#
```

Creating a fileset for Linux

Perform the following steps to create a fileset for Red Hat Linux™ Advanced Server 3.0.

1. In the My Work frame, click **Manage Filing** → **Create a Fileset**.
   - In the Create a Fileset panel:
   a. Fill in the **Name** field (Linux_Fileset) and the **Description** field (for example, "a fileset for only Linux files"). Then, select a metadata server from the drop-down list (for example, ST0).
   b. Under **Attach Point**, fill in the **Directory Path** field (for example, sanfs) and the **Directory Name** field (for example, linux30). Click **OK**.
   - Optionally, select a **Server Assignment Method** and **Quota Options**.
2. Click **Manage Filing** → **Filesets**. Verify your new fileset in the list.
3. Grant root privileges to the client by clicking **Manage Servers and Clients** → **Client Sessions**.
   a. In the Client Sessions panel, select a client, select **Grant Clients Root Privileges** from the drop-down list, and then click **Go**.
4. On the Red Hat Linux client machine, switch to the SAN File System mount point, and change to the global fileset directory.

```
# pwd
/mnt/SAN_FS_MOUNTPT/sanfs
# ls
total 8
d--------- 2 1000000 1000000 4096  July 3 10:21 linux
dr-xr-xr-x 2 1000000 1000000 4096  July 3 10:08 .flashcopy
dr-xr-xr-x 2 1000000 1000000 4096 July 3 10:08 lost+found#
```

5. Change the ownership and permissions of the fileset.

```
# chown root: linux
# chmod 755 linux
# ls
total 8
drwxr-xr-x 2 root    root    4096 July 3 10:21 linux
dr-x-xr-x  2 1000000 1000000 4096 July 3 10:08 .flashcopy
#
```

Creating a fileset for Solaris

Perform the following steps to create a fileset for Solaris.

1. In the My Work frame, click **Manage Filing** → **Create a Fileset**.
   - In the Create a Fileset panel:
   a. Fill in the **Name** field (Solaris_Fileset), the **Description** field (for example, "A fileset for only Solaris files"), and select a server (for example, ST0) from the drop-down list.
   b. Under **Attach Point**, fill in the **Directory Path** field (for example, sanfs) and the **Directory Name** field (for example, solaris9). Click **OK**.
   - Optionally, select a **Server Assignment Method** and **Quota Options**.
2. Click **Manage Filing** → **Filesets**. Verify your new fileset in the list.
3. Grant root privileges to the client by clicking **Manage Servers and Clients** → **Client Sessions**.
   a. In the Client Sessions panel, Select a client, select **Grant Clients Root Privileges** from the drop-down list, and then click **Go**.
4. On the Solaris client machine, switch to the SAN File System mount point, and change to the global fileset directory.

```
# pwd
/mnt/SAN_FS_MOUNTPT/sanfs
# ls
total 8
d--------- 2 1000000 1000000 4096  July 3 10:21 solaris
dr-xr-xr-x 2 1000000 1000000 4096  July 3 10:08 .flashcopy
dr-xr-xr-x 2 1000000 1000000 4096 July 3 10:08 lost+found#
```

5. Change the ownership and permissions of the fileset.

```
# chown root: solaris
# chmod 755 solaris
# ls
total 8
drwxr-xr-x 2 root    root    4096 July 3 10:21 solaris
dr-x-xr-x  2 1000000 1000000 4096 July 3 10:08 .flashcopy
#
```

Creating a fileset for Windows

Perform the following steps to create a fileset for Windows®.

1. In the My Work frame, click **Manage Filing → Create a Fileset**.
   - In the Create a Fileset panel, fill in the **Name** field (for example, Win_Fileset), the **Description** field (for example, A fileset for Windows files), and select a server (for example, ST0) from the drop-down list.
   - Optionally, select a **Server Assignment Method** and **Quota Options**. Under **Attach Point**, fill in the **Directory Path** field (for example, sanfs) and the **Directory Name** field (for example, win2k), and then press **OK**.
2. Click **Manage Filing → Filesets**. Verify your new fileset in the list.
3. Grant root privileges to the client by clicking **Manage Servers and Clients → Client Sessions**. In the Client Sessions panel, select a client, select **Grant Clients Root Privileges** from the drop-down list, and then click **Go**.
4. To define the fileset owner, follow these steps:
   a. Open Microsoft® Windows Explorer, expand the SAN File System drive letter, and then select the fileset you just created (for example, win2k).
   b. Set the owner by right-clicking and selecting **Properties**.
   c. Click the **Security** tab.
   d. Click **Advanced** , and then click the **Owner** tab.
   e. Select an owner from the **Change owner to** list and click **OK**.
5. Set permissions by selecting the folder that contains the fileset (for example, win2k) and right-clicking and selecting **Properties**. Click the **Security** tab. Click **Advanced**, and then click the **Permissions** tab. Select a permission, and then click **Apply** and **OK**. Click **OK** again.

When you are done, the fileset is now ready for use on the Windows 2000 operating system.

Implementing file sharing - Windows fileset on a UNIX client

You must have Administrator privileges on a Windows client to perform this task.

This task is not applicable if you are using user mapping.

Perform the following steps to share Windows filesets on a UNIX® client:

1. Ensure that you are logged on to a Windows client as an administrator or a member of the administrator's group.
2. Open Windows Explorer.
3. Take ownership of the Windows fileset.
   a. Select the attached fileset.
   b. Right-click and select **Properties**.
   c. Select the **Security** tab.
   d. Set the permissions on Windows for the "everyone" group.
   e. Click **Advanced** and select the **Owner** tab.
   f. Click **Apply**.
   g. Click **OK** and click **OK** again.

Implementing file sharing - UNIX fileset on a Windows client

You must have root privileges on a UNIX client to perform this task.

This task is not applicable if you are using user mapping.

Perform the following steps to share UNIX filesets on a Windows client:

1. Ensure that you are logged on to a UNIX client with root privileges.
2. Take ownership of the UNIX fileset with the **chown** command.
3. Run the **ls –l** command to list the permissions.
4. Issue the **chmod** command at the client prompt to set the UNIX permissions to 755.

   Now the owner (root) has read, write, and execute permissions, members of the system group have read and execute permissions, and everyone else (including Windows clients) has read and execute permissions.

Implementing a simple policy

Perform the following steps to implement a simple policy.

1. From the SAN File System console, click **Manage Filing → Create a Policy** in the My Work frame. Click **Next**. In the Create a Policy pane:
   a. Under **High-Level settings**, fill in the **Name** field (for example, TxtExePolicy) and the **Description** field (for example, Move .txt and .exe to a specific pool), then click **Next**.
2. Under **Add Rules**, fill in the **Rules Description** field with a description of the rule about .txt files (for example, Move .txt files to My_New_Pool). Select a storage pool from the **Storage Pool Assignment** drop-down list (for example, My_New_Pool). Select the **File name** checkbox. Select **ends with** in the drop-down list, and then fill in the adjacent field (for example, .txt). Click **New Rule**, and repeat this step for .exe. Click **Next** when finished.
3. In the Edit Rules for Policy pane, verify the rules. Edit if necessary, and then click **Finish**.
4. Click **Manage Filing → Policies**. Select the policy (for example, TxtExePolicy). Click **Activate** from the drop-down list, then click **Go**. Verify the activation.

This policy is now active. Any new files created with an extension of ″txt″ or ″exe″ will be stored in My_New_Pool.

Verifying file placement by policy

Perform the following steps to verify file placement by policy.

1. From the AIX client machine, create sample .txt and .exe files (for example, file1.txt and file2.exe). Because only the file name is examined, not the content, the files may contain anything.

```
# pwd
/mnt/SAN_FS_MOUNTPT/sanfs/aix51
# cat /etc/hosts >file1.txt
# cat /etc/hosts >file2.exe
# ls -1
total 9
-rw-r--r-- 1 root    system 149 July 3 13:06 file1.txt
-rw-r--r-- 1 root    system 149 July 3 13:06 file2.exe
d--------- 2 1000000 1000000  2 July 3 10:03 .flashcopy
```

2. Run **statfile** to display file placement and other metadata information about the files that you created.

```
sfscli> statfile sanfs/AIX_Fileset:aix51/file1.txt sanfs/AIX_Fileset:aix51/file2.exe
Name   Pool    Fileset   Size(MB)  Server
=====================================================
file1.txt My_New_Pool AIX_Fileset 0.7    ST1
file2.exe My_New_Pool AIX_Fileset 3.6    ST1

File Modified
=============
Oct 15, 2003 1:22:22PM
Oct 25, 2003 5:19:03PM
```

   This shows that the sample files (file1.txt and file2.exe) are in the AIX_Fileset fileset and are located on server ST1.

Migrating data

Perform the following steps to migrate data.

1. From the AIX client machine, select the directory containing the data to be migrated to SAN File System (for example, /etc on an AIX client).
2. Ensure that you have root privileges by running **lsclient** from the ACLI.

```
sfscli> lsclient
Client     Session ID State   Server Renewals Privilege
=======================================================
aixclient       1     Current  ST0    83        Root
aixclient       1     Current  ST1    83        Root
```

3. On the AIX machine, check the space used by this set of data.

```
# du -sk /etc
8120 /etc
```

4. Invoke the **plan** phase of migration:

```
# /usr/tank/migration/bin/migratedata -log /tmp/log.migrate
-phase plan -destdir /mnt/SAN_FS_MOUNTPT/sanfs /etc
PLAN: Source directory: /etc
PLAN: Number of file objects to migrate: 1658
PLAN: Destination directory: /mnt/SAN_FS_MOUNTPT/sanfs/
_tmp2075226185_
PLAN: On destination space required: 17.343750MB.
Available: 3648MB
PLAN: Number of CPUs: 1. Available memory: 6MB.
IO Blocksize: 1MB
```

5. Invoke the **migrate** phase of migration:

```
# /usr/tank/migration/bin/migratedata -log /tmp/log.migrate
-phase migrate -destdir /mnt/SAN_FS_MOUNTPT/sanfs /etc
PLAN: Source directory: /etc
PLAN: Number of file objects to migrate: 1658
PLAN: Destination directory: /mnt/SAN_FS_MOUNTPT/sanfs
PLAN: On destination space required: 17.343750MB. Available: 3648MB
MIGRATE: Number of CPUs:1. Available Memory:3MB. IO Blocksize:1MB.
MIGRATE: COPY STARTED
MIGRATE: COPY COMPLETE: 4.703488MB copied at 0.145436MB/sec
```

6. Invoke the **verify** phase of migration:

```
# /usr/tank/migration/bin/migratedata -log /tmp/log.migrate
-phase verify -destdir /mnt/SAN_FS_MOUNTPT/sanfs /etc
PLAN: Source directory: /etc
PLAN: Destination directory: /mnt/SAN_FS_MOUNTPT/sanfs
VERIFY: Comparing files started.
VERIFY SUCCEEDED: Comparing files completed with 0 errors and 0 resets
# ls
etc
# pwd
/mnt/SAN_FS_MOUNTPT/sanfs
```

Creating a system metadata backup

Perform the following steps to create a system metadata backup.

Refer to *Maintenance and Problem Determination Guide* for more information.

1. From the SAN File System console, click **Maintain System → Disaster Recovery** in the My Work frame.
2. In the Disaster Recovery panel:
   a. Click **Create** from the **Recovery Files** drop-down list and click **Go**.
   b. Under **Creation method**, create a dump file by typing a file name in the **Create - create new recovery file** field (for example, My_Dump) and click **OK**.
3. From the ACLI, invoke the **lsdrfile** command to verify that the disaster-recovery file exists. Then invoke the **builddrscript** command to create the CLI scripts from the disaster-recovery file.

```
sfscli> lsdrfile
Name     Date and Time              Size (KB)
==========================================
My_Dump  July 23, 2003 1:01:05 AM    1
sfscli> builddrscript My_Dump
CMMNP2172I DR script files for "My_Dump" built.
```

4. Exit sfscli. From the bash prompt, switch to the recovery directory /usr/tank/server/DR and list the files in that directory.

```
mds1:~ # cd /usr/tank/server/DR
mds1:/usr/tank/server/DR # ls
My_Dump.dump    TankSysCLI.attachpoint
TankSysCLI.auto TankSysCLI.volume
```

5. Save all four files (one disaster-recovery and three scripts) with your file data backup. To restore your system metadata, you can use the three CLI scripts to re-create your system metadata.

Creating a FlashCopy image

Perform the following steps to create a FlashCopy® image.

1. From the SAN File System console, click **Maintain System → Create FlashCopy Images** in the My Work pane. In the Create FlashCopy Images panel, click **Next**. Under **Select Filesets**, select the filesets of which you want to make a FlashCopy image (for example, AIX_Fileset) and click **Next**. Under **Set Properties**, accept the defaults and click **Next**. Verify your settings, and then click **Finish**.
2. To list the FlashCopy images, click **Maintain System → FlashCopy Images**. The default FlashCopy image name (for example, Image-1) should be listed.
3. Change ownership and permissions on the .flashcopy directory of the fileset to navigate it. The directory contains an entry for each FlashCopy image name.

```
# pwd
/mnt/SAN_FS_MOUNTPT/sanfs/aix51
# ls -1
total 9
-rw-r--r-- 1 root system     149 July 3 13:06 file1.txt
-rw-r--r-- 1 root system     149 July 3 13:06 file2.exe
d--------- 3 1000000 1000000   3 July 3 14:09 .flashcopy
d--------- 3 1000000 1000000 3 July 3 14:09 lost+found
# chown root:system .flashcopy
# chmod 755 .flashcopy
# cd .flashcopy
# ls -1
total 1
drwxr-xr-x 2 root system       4 July 3 14:09 Image-1
```

4. Change the directory representing the image name to view the files as the FlashCopy images are created.

```
# cd Image-1
# ls -1 total 8
-rw-r--r-- 1 root system     149 July 3 13:06 file1.txt
-rw-r--r-- 1 root system     149 July 3 13:06 file2.exe
```

5. Attempting to write to the file will cause an error that states `write error: Read-only file system` to appear. Note that this applies to the .flashcopy directory only.

Accessibility

Accessibility features help a user who has a physical disability, such as restricted mobility or limited vision, to use software products successfully.

Features

These are the major accessibility features in SAN File System:

- You can use screen-reader software and a digital speech synthesizer to hear what is displayed on the screen.

  Note: The SAN File System Information Center and its related publications are accessibility-enabled for the IBM Home Page Reader.
- You can operate all features using the keyboard instead of the mouse.

Navigating by keyboard

You can use keys or key combinations to perform operations and initiate many menu actions that can also be done through mouse actions. You can navigate the SAN File System console and help system from the keyboard by using the following key combinations:

- To traverse to the next link, button or topic, press Tab inside a frame (page).
- To expand or collapse a tree node, press Right Arrow or Left Arrow, respectively.
- To move to the next topic node, press Down Arrow or Tab.
- To move to the previous topic node, press Up Arrow or Shift+Tab.
- To scroll all the way up or down, press Home or End, respectively.
- To go back, press Alt+Left Arrow.
- To go forward, press Alt+Right Arrow.
- To go to the next frame, press Ctrl+Tab. There are quite a number of frames in the help system.
- To move to the previous frame, press Shift+Ctrl+Tab.
- To print the current page or active frame, press Ctrl+P.

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Basic Configuration for Quick Start
Version 2 Release 2

Publication No. GX27-4058-01

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	Very Satisfied	Satisfied	Neutral	Dissatisfied	Very Dissatisfied
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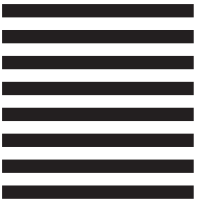

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