Application Note

August 2013

Assigning SnapSAN S3000/S5000 FC Logical Disks to AIX 5.3 Server
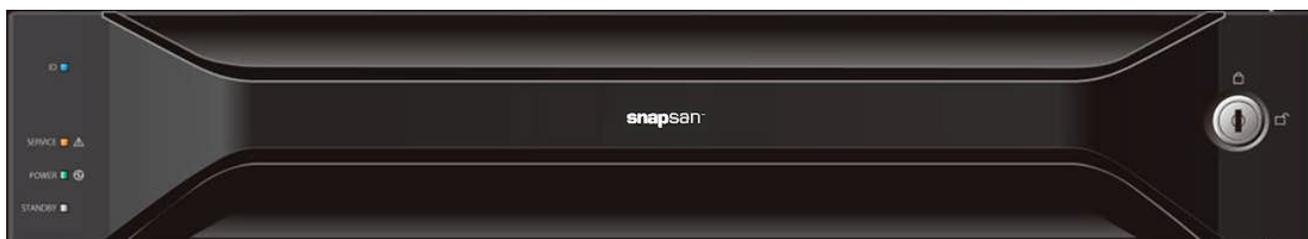
Summary

This application note describes how to assign a fibre channel logical disk to an AIX 5.3 Server using SnapSAN Manager Server software.

Required Information, Tools, and Files

Before beginning this procedure, the following information, tools, and files are required.

Prerequisites

1. Overland Storage SnapSAN S3000/S5000 Disk Array must be installed and configured. You can get additional technical support on the Internet at http://support.overlandstorage.com, or by contacting Overland Storage using the information found on the Contact Us page on our web site.

2. Verify:

   • **Java Runtime Environment** (JRE) is installed prior to running the SnapSAN Manager Server application.

   • **SnapSAN Manager Server** Web Management Interface is installed on the management server.

3. This document assumes that the Storage Pool and Logical Disk have already been created. Additional information on Binding a Pool and Logical Disks can be found in the *SnapSAN S3000/S5000 Disk Array User Guide* available at:

   http://docs.overlandstorage.com/snapsan.

Versions

The test environment used for illustration in this document uses the following versions:

   • AIX 5.3ML6U1 / IBM pSeries Model 630 (7028-6C4)
   • IBM 7028-6239 – 2Gb PCI-X Fibre HBA (FCS0)
   • Java JRE 7 update 13
   • SnapSAN Manager Server 7.4.151
   • SnapSAN S3000/S5000 at firmware U14B.007

Collecting Fibre Channel WWN Information

1. Run the following command in order to identify the Fibre Channel adapters making note of the Fibre Channel entry listed in the far left column:

   # lsdev –Cc adapter

   The example shown depicts **fcs0** as the fibre channel HBA in the AIX server.

```
#
# lsdev -Cc adapter
ent0      Available 1L-08    10/100 Mbps Ethernet PCI Adapter II (1410ff01)
ent1      Available 14-08    10/100 Mbps Ethernet PCI Adapter II (1410ff01)
fcs0      Available 11-08    FC Adapter
fda0      Available 01-D1    Standard I/O Diskette Adapter
ide0      Available 1G-19    ATA/IDE Controller Device
lai0      Available 1W-00    GXT135P Graphics Adapter
ppa0      Available 01-R1    CHRP IEEE1284 (ECP) Parallel Port Adapter
sa0       Available 01-S1    Standard I/O Serial Port
sa1       Available 01-S2    Standard I/O Serial Port
sa2       Available 01-S3    Standard I/O Serial Port
scsi0     Available 1S-08    Wide/Ultra-3 SCSI I/O Controller
scsi1     Available 1S-09    Wide/Ultra-3 SCSI I/O Controller
sioka0    Available 01-K1-00 Keyboard Adapter
siokma0   Available 01-K1    Keyboard/Mouse Adapter
sioma0    Available 01-K1-01 Mouse Adapter
sisscsia0 Available 1D-08    PCI-XDDR Dual Channel Ultra320 SCSI Adapter
#
#
```

2. Use the following command to display the WWPN for the Fibre HBA (Network Address), making careful note of the information:

   # lscfg –vl fcs0

   Collecting this information is required in order to bind the logical disk to the AIX server.

```
#
# lscfg -vl fcs0
  fcs0              U0.1-P2-I4/Q1  FC Adapter

        Part Number................80P4381
        EC Level...................A
        Serial Number..............1F4520ADBC
        Manufacturer...............001F
        Device Specific.(CC).......5704
        FRU Number................. 80P4382
        Device Specific.(ZM).......3
        Network Address............10000000C9443A0B
        ROS Level and ID...........02E01871
        Device Specific.(Z0).......2003806D
        Device Specific.(Z1).......00000000
        Device Specific.(Z2).......00000000
        Device Specific.(Z3).......03000909
        Device Specific.(Z4).......FF601231
        Device Specific.(Z5).......02E01871
        Device Specific.(Z6).......06631871
        Device Specific.(Z7).......07631871
        Device Specific.(Z8).......20000000C9443A0B
        Device Specific.(Z9).......HS1.81X1
        Device Specific.(ZA).......H1D1.81X1
        Device Specific.(ZB).......H2D1.81X1
        Device Specific.(YL).......U0.1-P2-I4/Q1
```

Adding Host To The Storage Array

1. From the SnapSAN Manager Monitor screen, navigate to **Configuration > Host > Host Operation > Host Information Collection.**

2. Select the **Use the Create Host Information Manually** and click **Next**.

3. Set the following **interface options**:
   - Select **FC** interface.
   - Enter a **host name**.
   - Select the **platform** (for an S5000, **AIX**(AX); for an S3000, **LX**).
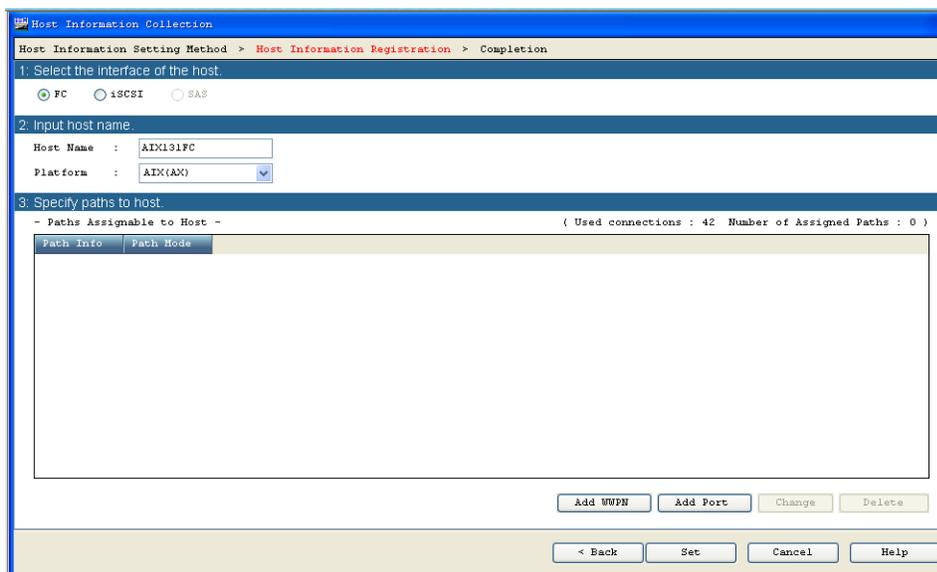
4. Click **Add WWPN.**

5. Select **Type In** and enter the WWPN information previously documented, then click **OK.**
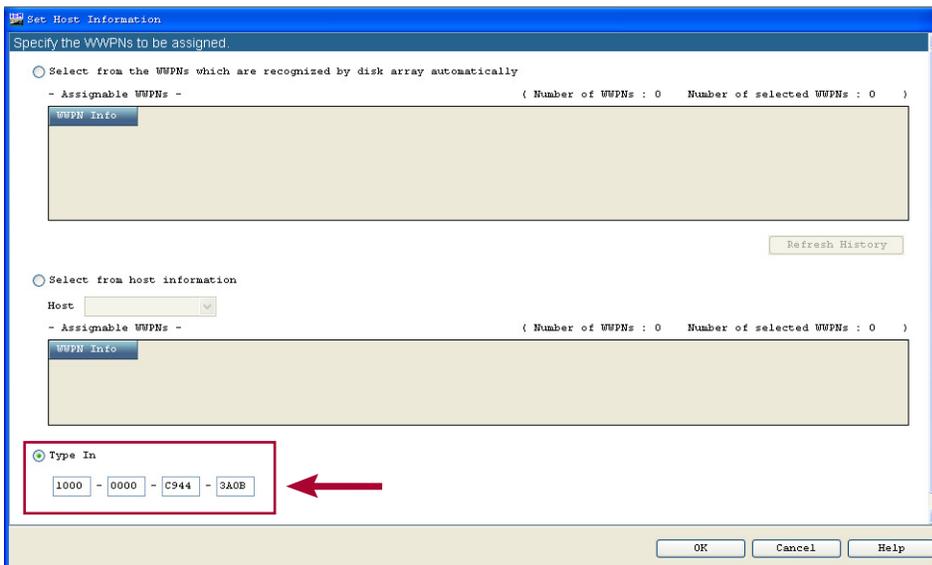
6. Click **Set.**

7. Click **Finish.**

Assigning Logical Disks To The Host

1. From the SnapSAN Manager Monitor screen, navigate to the **Configuration > Host > Host Assignment of Logical Disk** page.
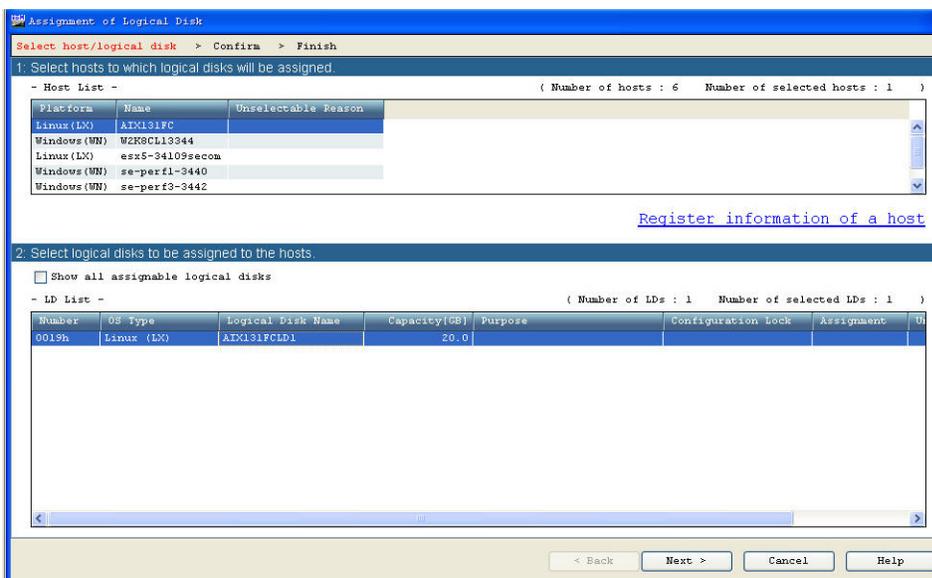
2. Select both the **Host** and the **Logical Disk.**

3. Click **Next.**

4. Click **Set.**

5. At the confirmation page, click **Yes**.

6. Click **Finish.**

7. Click **Yes**.

Verifying Logical Disks in AIX

1. Use the following command to rescan AIX for **new devices**.

   ```
   # cfgmgr –v –l fcs0
   ```


2. Use the command to list the disks that are found in AIX.

   ```
   # lsdev –Cc disk
   ```

   The output shows the new hdisk2 device.

Configure The Logical Disks in AIX

1. Use this command to verify the **disk signatur**e before adding the disk to a Volume Group:

   # **lspv —p hdisk2**

   The example indicates that hdisk2 does not have a valid disk signature.

   ```
   #
   # lspv -p hdisk2
   0516-304 : Unable to find device id 00000000000000000000000000000000 in the Device
           Configuration Database.
   #
   #
   ```

2. Use this command to write a signature to the **new disk**:

   # **chdev —l hdisk2 —a pv=yes**

   Verify the disk signature using the previous command (# **lspv -p hdisk2**).

   ```
   #
   # chdev -l hdisk2 -a pv=yes
   hdisk2 changed
   #
   #
   #
   # lspv -p hdisk2
   0516-320 : Physical volume 00560fba03fe0da60000000000000000 is not assigned to
           a volume group.
   #
   #
   ```

3. Use the command to create a **Volume Group** (VG).

   # **mkvg —f —y snapsanvg hdisk2**

   The example used is snapsanvg.

   ```
   #
   # mkvg -f -y snapsanvg hdisk2
   snapsanvg
   #
   #
   ```

4. Use the command to view the **details** of the new VG.

   # **lsvg snapsanvg**

   Identify the TOTAL PPs and make note of the value provided. Each TOTAL PP is different for the size of a logical disk created and configured in AIX. The example listed is a 20GB logical disk with a TOTAL PP of 639.

   ```
   #
   #
   # lsvg snapsanvg
   VOLUME GROUP:        snapsanvg                VG IDENTIFIER:  00560fba00004c000000013d03fff
   fc5
   VG STATE:            active                   PP SIZE:        32 megabyte(s)
   VG PERMISSION:       read/write               TOTAL PPs:      639 (20448 megabytes)
   MAX LVs:             256                      FREE PPs:       639 (20448 megabytes)
   LVs:                 0                        USED PPs:       0 (0 megabytes)
   OPEN LVs:            0                        QUORUM:         2
   TOTAL PVs:           1                        VG DESCRIPTORS: 2
   STALE PVs:           0                        STALE PPs:      0
   ACTIVE PVs:          1                        AUTO ON:        yes
   MAX PPs per VG:      32512
   MAX PPs per PV:      1016                     MAX PVs:        32
   LTG size (Dynamic): 256 kilobyte(s)           AUTO SYNC:      no
   HOT SPARE:           no                       BB POLICY:      relocatable
   #
   #
   ```

5. Use the command to create a **Logical Volume** (LV).

    ```
    # mklv —y snapsanlv  snapsanvg  638
    ```

    The example listed is snapsanlv.

    NOTE: Use the TOTAL PPs size previously documented and subtract one for the new value.

    ```
    #
    # mklv -y snapsanlv snapsanvg 638
    snapsanlv
    #
    #
    ```

6. Use the command to verify the **new Logical Volume** in the Volume Group.

    ```
    # lsvg —l  snapsanvg
    ```

    ```
    #
    #
    # lsvg -l snapsanvg
    snapsanvg:
    LV NAME              TYPE        LPs   PPs   PVs  LV STATE       MOUNT POINT
    snapsanlv            jfs         638   638   1    closed/syncd  N/A
    #
    #
    ```

7. Create a **mount point** to mount the new disks filesystem.

    ```
    # mkdir  /mnt/ssmount
    ```

Create a Partition with AIX SMIT Utility

1. Use the following command to run **SMIT Filesystem**.

    ```
    # smit  fs
    ```

2. Use the arrow keys and select **Add / Change /Show / Delete File Systems**.

    ```
                                File Systems

    Move cursor to desired item and press Enter.

      List All File Systems
      List All Mounted File Systems
      Add / Change / Show / Delete File Systems
      Mount a File System
      Mount a Group of File Systems
      Unmount a File System
      Unmount a Group of File Systems
      Verify a File System
      Backup a File System
      Restore a File System
      List Contents of a Backup
      Create and back up a snapshot
    ```

3. Arrow down and select **Journaled File Systems**.

    ```
                        Add / Change / Show / Delete File Systems

    Move cursor to desired item and press Enter.

      Enhanced Journaled File Systems
      Journaled File Systems
      CDROM File Systems
      Network File System (NFS)
    ```

4. Arrow down and select **Add a Journaled File System** on a Previously Defined Logical Volume.

```
                        Journaled File Systems

Move cursor to desired item and press Enter.

  Add a Journaled File System
  Add a Journaled File System on a Previously Defined Logical Volume
  Change / Show Characteristics of a Journaled File System
  Remove a Journaled File System
  Defragment a Journaled File System
```

5. Press **Enter** at **Add a Standard Journaled File System**.

```
          Add a Journaled File System on a Previously Defined Logical Volume

Move cursor to desired item and press Enter.

  Add a Standard Journaled File System
  Add a Compressed Journaled File System
  Add a Large File Enabled Journaled File System
```

6. Arrow down to LOGICAL VOLUME **name** and press **F4** to list the Logical Volumes available.

```
                        Add a Standard Journaled File System

Type or select values in entry fields.
Press Enter AFTER making all desired changes.


                                                  [Entry Fields]
* LOGICAL VOLUME name                                                          +
* MOUNT POINT                                     []
  Mount AUTOMATICALLY at system restart?           no                          +
  PERMISSIONS                                       read/write                 +
  Mount OPTIONS                                    []                          +
  Start Disk Accounting?                            no                         +
  Fragment Size (bytes)                             4096                       +
  Number of bytes per inode                         4096                       +
  Allocation Group Size (MBytes)                    8                          +
  Logical Volume for Log                                                       +
```

7. Select the Logical Volume previously created and press **Enter**.

```
                        LOGICAL VOLUME name

  Move cursor to desired item and press Enter.

    snapsanlv
    lvspace
    lv00

  F1=Help                 F2=Refresh              F3=Cancel
  F8=Image                F10=Exit                Enter=Do
  /=Find                  n=Find Next
```

8. Arrow down and select **MOUNT POINT**, enter the mount point previously documented, and press **Enter** to create the Journaled File System.

```
                        Add a Standard Journaled File System

Type or select values in entry fields.
Press Enter AFTER making all desired changes.


                                             [Entry Fields]
* LOGICAL VOLUME name                         snapsanlv                            +
* MOUNT POINT                                [/mnt/ssmount]
  Mount AUTOMATICALLY at system restart?      no                                   +
  PERMISSIONS                                 read/write                           +
  Mount OPTIONS                              []                                    +
  Start Disk Accounting?                      no                                   +
  Fragment Size (bytes)                       4096                                 +
  Number of bytes per inode                   4096                                 +
  Allocation Group Size (MBytes)              8                                    +
  Logical Volume for Log                                                           +
```

9. When the following Completion status appears, press **F10** to exit SMIT FS.

```
                            COMMAND STATUS

Command: OK            stdout: yes           stderr: no

Before command completion, additional instructions may appear below.

Based on the parameters chosen, the new /mnt/ssmount JFS file system
is limited to a maximum size of 134217728 (512 byte blocks)

New File System size is 41811968
```

10. Use the commands to mount and list the new disk:

   `#  mount  /mnt/ssmount`
   `#  df  -m`

```
#
# mount /mnt/ssmount
#
#
#
# df -m
Filesystem     MB blocks      Free %Used    Iused %Iused Mounted on
/dev/hd4          128.00     57.30   56%     2425    16% /
/dev/hd2         2880.00    165.29   95%    47847    54% /usr
/dev/hd9var        64.00     25.74   60%      573     9% /var
/dev/hd3          128.00    125.29    3%      324     2% /tmp
/dev/hd1           64.00     63.63    1%        9     1% /home
/proc                 -         -    -         -     -  /proc
/dev/hd10opt     2496.00   1951.86   22%     4598     2% /opt
/dev/lv00         128.00    123.52    4%       21     1% /audit
/dev/lvspace    12800.00   4849.26   63%     2082     1% /space
/dev/snapsanlv  20416.00  19775.15    4%       17     1% /mnt/ssmount
#
#
```