Application Note

January 2014

Configuring SnapSAN S5000 AutoCache

Summary

This Application Note describes how to configure the Level 2 Cache (L2) and the benefits of using that L2 Cache with the SnapSAN S5000 array.

Introduction

AutoCache is a feature of the Overland SnapSAN S5000 array in order to help boost application performance by up to 900%. AutoCache caching is a technique that allows the controller inside the storage system to use SSD as a cache in front of traditional disk storage. The controller identifies frequently accessed data, sometimes called "hot data," and automatically moves it to solid-state media. Overland Storage supports using SSD technology in the SnapSAN S5000 with the AutoCache feature. The SSD drives are used as Level 2 cache (L2) for the purpose of improving traditional hard disk drive-based system.

Solid State Drive (SSD) is a high-performance plug-and-play storage device that contains no moving parts. SSD components include DRAM or EEPROM memory boards, a memory bus board, a CPU and a battery card. Since they contain their own CPUs to manage data storage and have no heads or platters, they incur very small seek latencies. Consequently, they are much faster than conventional rotating hard disks. This is how SSD drives produce such high I/O rates.

Required Information, Tools, and Files

Before you begin these procedures, the following information is required.

Prerequisites

Prior to performing these procedures, ensure that you have the following:

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

  SnapSAN S3000/S5000 Disk Array User Guide

  Overland Storage SnapSAN Downloads and Resources web page

* Verify that the following are installed on the server:

  * Java Runtime Environment (JRE)

  * SnapSAN Manager Web Management Interface

* Only SSD can be used as a physical disk for the L2 cache.

* Additional information on SnapSAN S5000 devices can be accessed from Disk Array User Guide.

Versions

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

* Windows Server 2008R2
* Java JRE 7 update 40
* SnapSAN Manager Server version 8.2.060
* SnapSAN S5000 software version 082R.007
* SnapSAN S5000 firmware version U22R.007

Configuring The L2 Cache

This section describes how to configure the L2 cache by using the configuration settings in the SnapSAN Manager Web Management Interface.

The following operations can be done to configure the L2 cache:

1. Bind the L2 Cache (to create the L2 Cache)

2. Change L2 Cache Settings

3. Set the L2 Cache On/Off for a Particular Logical Disk

4. Unbind the L2 Cache (to remove the L2 Cache)

Bind the L2 Cache

Before you bind the L2 Cache, note the following:

- You can create the L2 cache **only once**.
- You cannot use any of the physical disks numbered 0 to 3 that are installed on the SnapSAN S5000 array for the L2 cache.

Perform the following steps to bind the L2 cache:

1. From the SnapSAN Manager Monitor screen, navigate to **Configuration > L2 Cache > L2 Cache Bind**.

2. Select the following details:

- The **L2 Cache Type** to be bound.
- If you want to create the persistent write area, select **Bind a logical disk for Persistent Write Area**. (This is the default selection.)
- Select **Number of physical disks** and **Physical disk capacity** as:
  - **Auto disk selection** – Select the number of physical disks to be used and the capacity per physical disk. The number of physical disks that can be used is two or more for Read/Write and one or more for Read Only.
  - **Manual disk selection** – Click the **Select physical disks** button and manually select the physical disks to be used for the L2 cache.
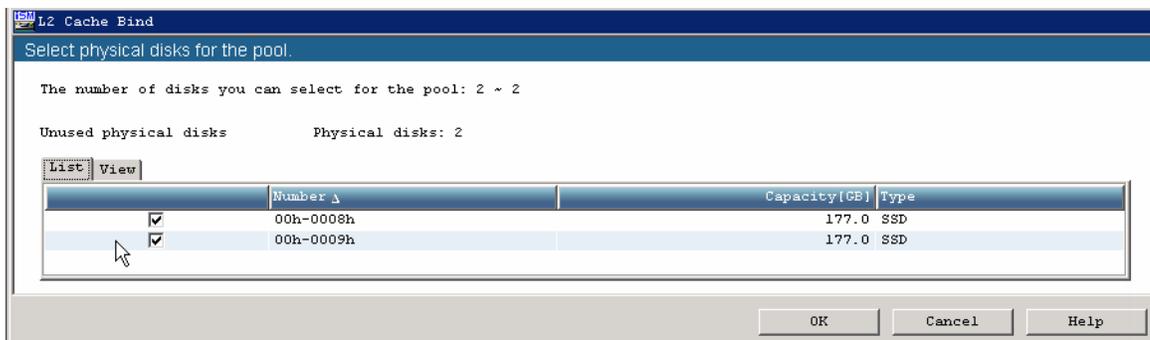
3. Click **OK**.

4. Click **Next**.

5. Verify the basic **settings**.
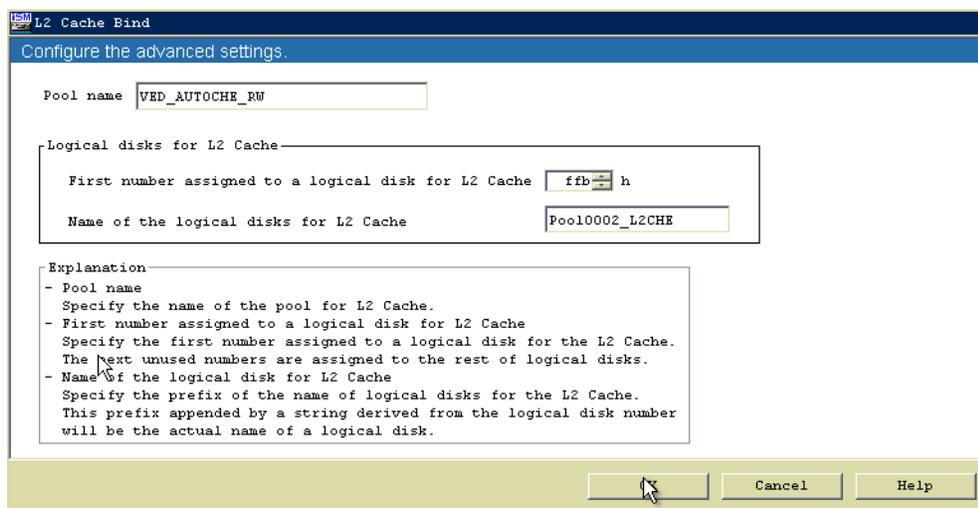
To modify the default settings, click **Advanced Settings**, enter the **Pool name** and **Logical disks for the L2 Cache** details, then click **OK**.

6. Click **Set**.

7. Click **Yes**.

8. Click **Finish**.

Change L2 Cache Settings

After initial creation of the L2 cache, the option **Change of Settings** is available to use. This option allows you to disable the L2 cache mode and set the L2 cache initial value, pool and logical disk names.

1. Perform **any** of the following:

 • From the SnapSAN Manager Monitor screen, navigate to **Configuration > L2 Cache > Change of Settings**.

 • From the L2 Cache Bind finish page, click **Change of Settings**.
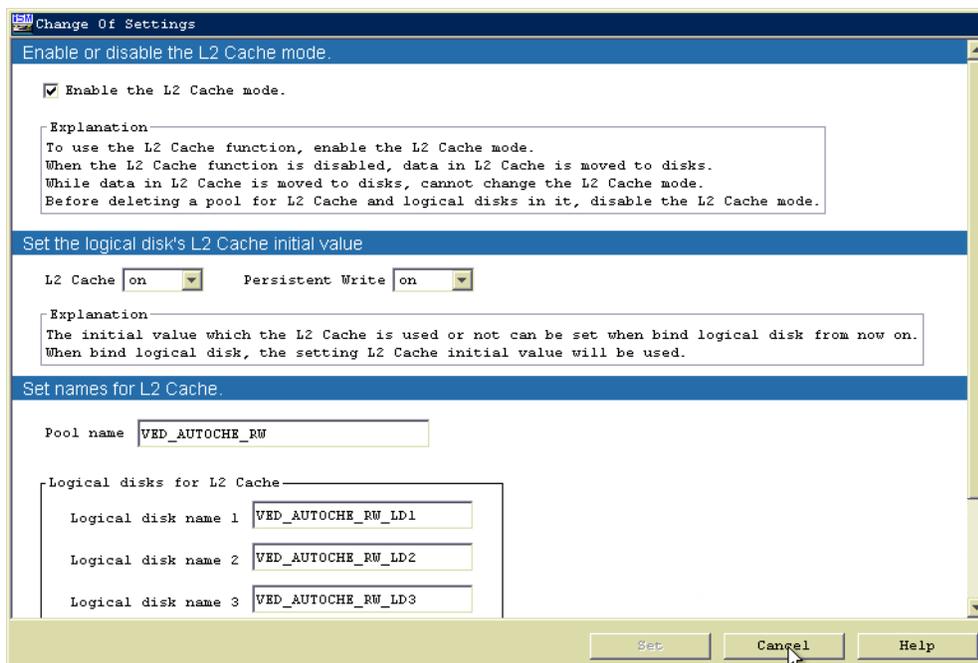
This graphic shows that the L2 cache mode is enabled by default.

2. Click **Set** to change the settings.

3. Click **Yes**.

4. Click **Yes** to confirm.

5. Click **Cancel** to continue.

Set the L2 Cache On/Off for a Particular Logical Disk

The option to turn the L2 cache On or Off for a specific Logical Disk is available. Use the following steps to achieve this.

1. From the SnapSAN Manager Monitor screen, navigate to **Configuration > Logical Disk > Logical Disk Management > Change of Settings**.
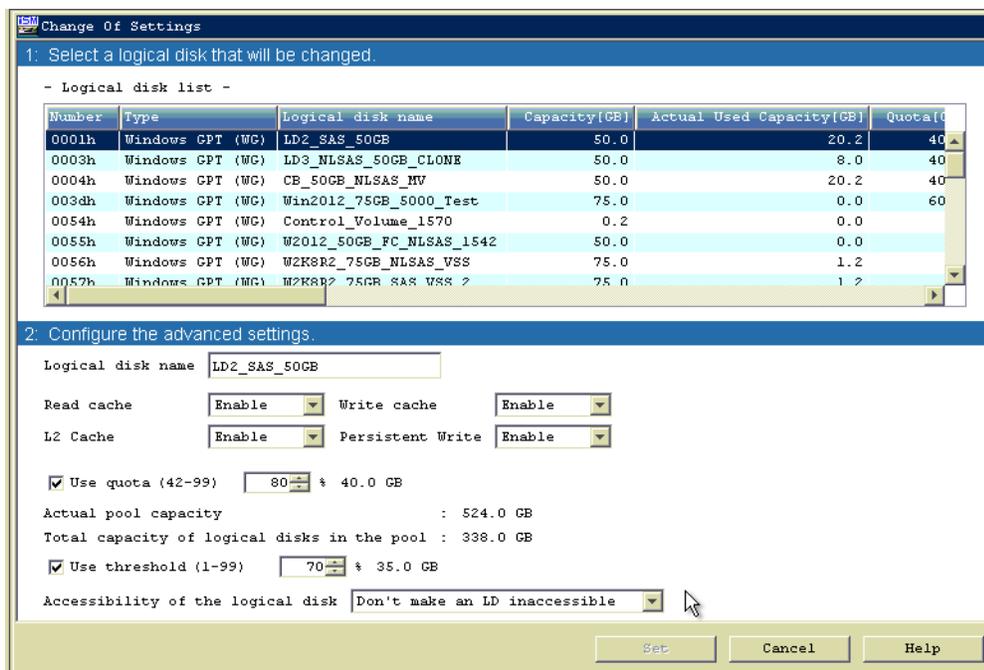
1. Select the **Logical disk**.

2. Change the **advanced settings** as required.

3. Click **Set**.

4. Click **Yes**.

5. Click **Cancel**.

6. Click **OK**.

Unbind the L2 Cache

The following steps allow you to remove the L2 cache. The first step is to disable the L2 cache mode from the **Change of Settings** page and then unbind the L2 cache as the following:

From the SnapSAN Manager Monitor screen, navigate to **Configuration > L2 Cache > L2 Cache Unbind**.
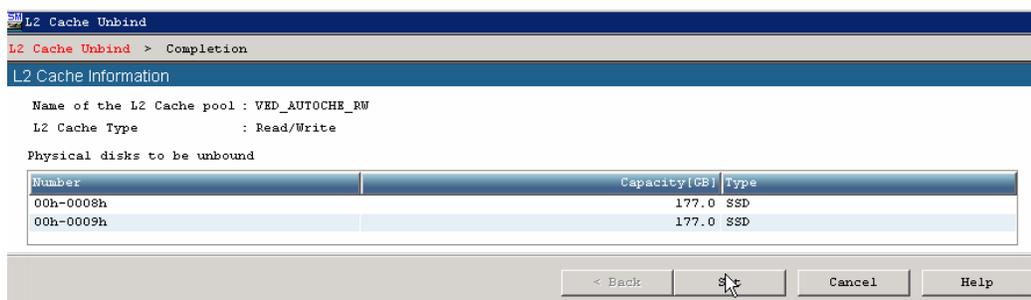
1. Click **Set**.

2. Click **Yes**.

3. Click **Finish**.