DS3000 Storage Manager Demo Guide

Storage Manager 2.70

Demo Guide Revision 1.9

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Disclaimer

The intent of the DS3000 Storage Manager Demo software and this Demo Guide is to provide administrators a tool to become familiar with the features, functions and power of the DS3000 Storage Manager software.

At the time these tools are released and internally distributed, there may be minor errors, yet do not result in intentional misrepresentation of the DS3000 Storage Manager or DS3000 disk system's capability. However, the Demo is not tested, updated, nor maintained to the extent of the actual products offered for customer use. As a result, certain features and functionality may differ from a production release of the DS3000 Storage Manager.

Technical questions should be verified through official published documents, support resources, or directed to appropriate Systems Engineers, field support or customer service personnel.

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Getting Started

Audience

Welcome to the DS3000 Storage Manager Demo Guide.

The audience for this demo guide is technically-oriented administrators who desire to understand more about the features and capabilities of the DS3000 Storage Manager.

Background Information

The DS3000 Storage Manager Demo software is designed for use in testing environments as a stand-alone simulator of DS3000 Storage Manager's functions. To prevent accidental access or corruption of critical data, the Storage Manager Demo does not have the ability to access actual storage disk systems.

Prerequisites

The Storage Manager Demo software runs on Windows 2003 or XP environments. Other environments have not been tested, nor are they approved for use.

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Terminology

To ensure you are familiar with the terminology in this Demo Guide, we will provide you with a short summary of terms.

Array: A set of physical drives logically grouped together with an assigned RAID level. Arrays can vary in the number of drives to meet required data protection, capacity, or performance requirements (the more physical drives in an array, the higher the performance capability of the array).

FlashCopy: This feature provides the ability to create a point-in-time image of a logical drive. It is very useful for as a data source for backup applications.

Host-to-Logical-Drive-Mappings: When there are several hosts and many logical drives to associate to these hosts, Host-to-Logical-Drive-Mappings are utilized to configure a set of logical drives to each host server. We use the partitioning feature to assist in this process

Logical Drive: This is the basic storage unit that is created on the DS3000 and presented to a host server. It is synonymous with LUN and is a drive letter (H: for example) in Windows environments.

Partition: This premium feature logically divides a single disk system into multiple systems by defining which host or host group can access each logical drive. This enables a range of hosts with different capacity, performance, or data protection demands to effectively share a single storage system.

Storage subsystem: This term will be used interchangeably with disk system. Both refer to the DS3000 series disk systems which are managed by the DS3000 Storage Manager

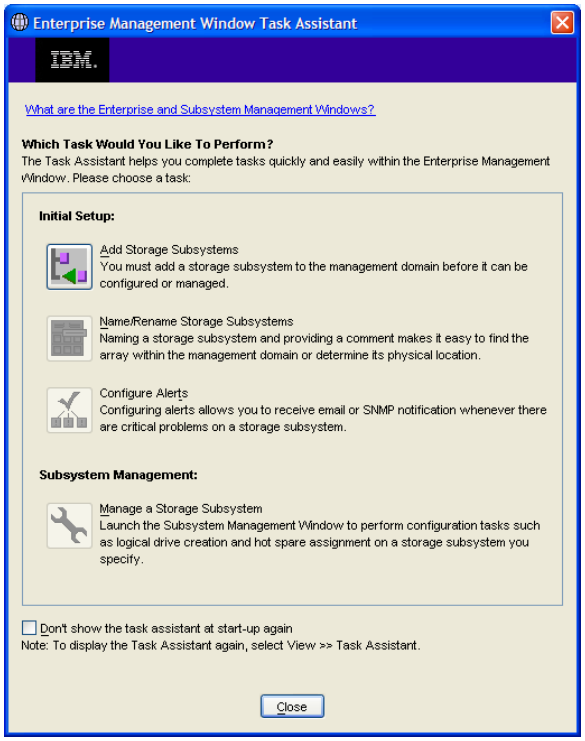
VolumeCopy: This feature provides the ability to create an independent copy of another logical drive or FlashCopy. This term is also used interchangeably with logical drive copy.

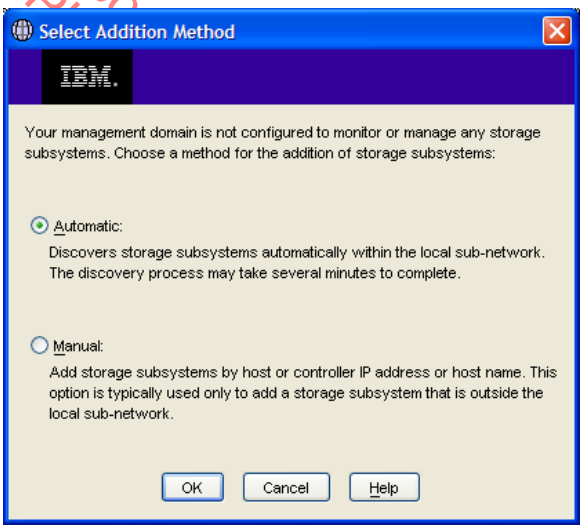
Loading the Software

The Demo is a zip file with the following name: DS3KSM_270_V9.zip. Save this zip file into a folder of your choice. Then, extract the zip file within this same folder. Within this folder will be the **DEMO** folder. Simply navigate there and execute the batch file named *Start_Demo.bat.* And you are ready to go!

Exploring the DS3000 Storage Manager Demo

Executing the *Start_Demo.bat* initiates a Java session with the Storage Manager Demo program. You will see the following screens – the DS3000 Storage Manager splash screen identifying the Storage Manager Demo and the Enterprise Management Window screens.





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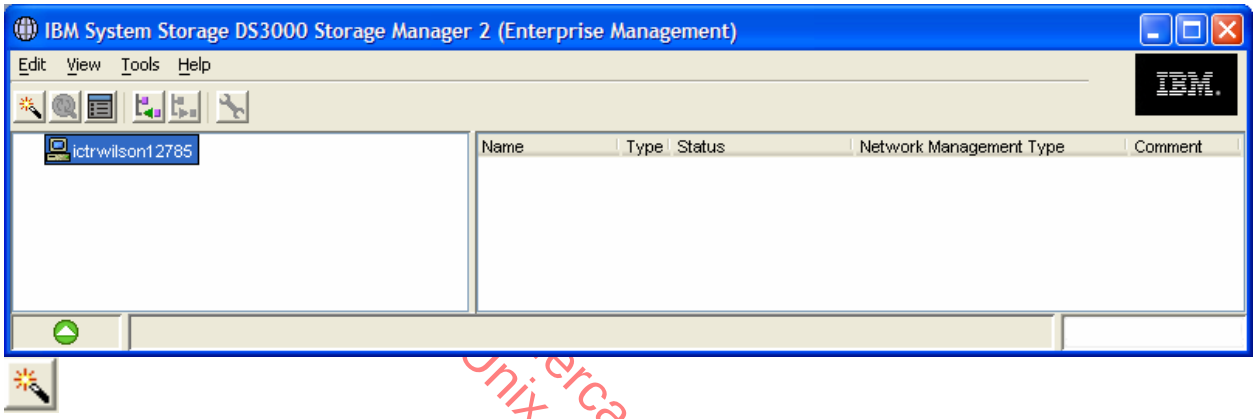
The **Enterprise Management Window Task Assistant** is a series of wizards that helps you install and manage your new DS3000 disk system. The **Task Assistant** helps with common tasks such as:

- Add Storage Subsystems
- Name/Rename Storage Subsystems
- Configure Alerts
- Manage a Storage Subsystem

Feel free to explore the **Task Assistant**. You can auto-discover the storage subsystems by selecting **Add Storage Subsystem** from the **Task Assistant**, or closing the **Task Assistant** window and clicking on the leftmost icon button in the **Enterprise Management Window**.



Note: In subsequent sessions, the storage subsystems may not need to be rediscovered. However, if the subsystem status is "unresponsive," simply delete the systems and rediscover them.

In the right panel of the **Enterprise Management** window, you will see three preconfigured storage systems: 1) the DS3200, 2) the DS3300, and 3) the DS3400.

With various systems to choose from, you can select the appropriate subsystem to view and leverage the features you wish:

1) The ***DS3200*** is ideal for an in-depth exploration of the DS3000 Storage Manager feature set. Nothing is pre-defined for the subsystem, so it can serve as a basis for configuring all the arrays, logical drives and host-to-volume mappings.
2) The ***DS3300*** is suitable for a comprehensive tour of the DS3000 Storage Manager features. It includes a number of defined arrays and logical drives.
3) The ***DS3400*** is also suitable for a comprehensive tour of the DS3000 Storage Manager features. It includes a number of defined arrays and logical drives.

Each configuration includes a total of 48 SAS and SATA drives and 3 EXP3000 drive trays. In addition, all premium features, FlashCopy, VolumeCopy and partitioning, are enabled.

It is important to note that the DS3200, DS3300 and DS3400 are identical in their functionality. The features and tasks presented in this guide can be used interchangeably.

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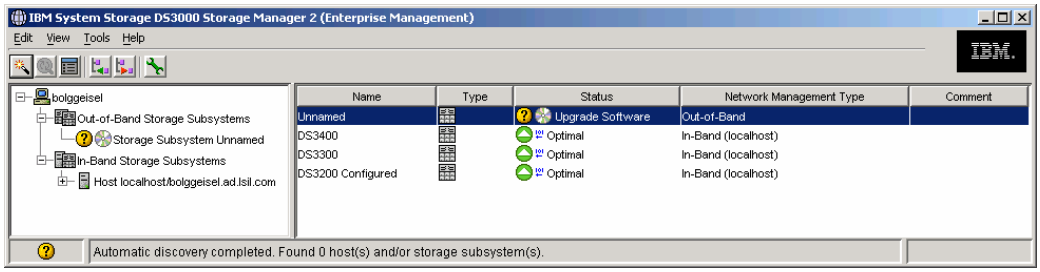
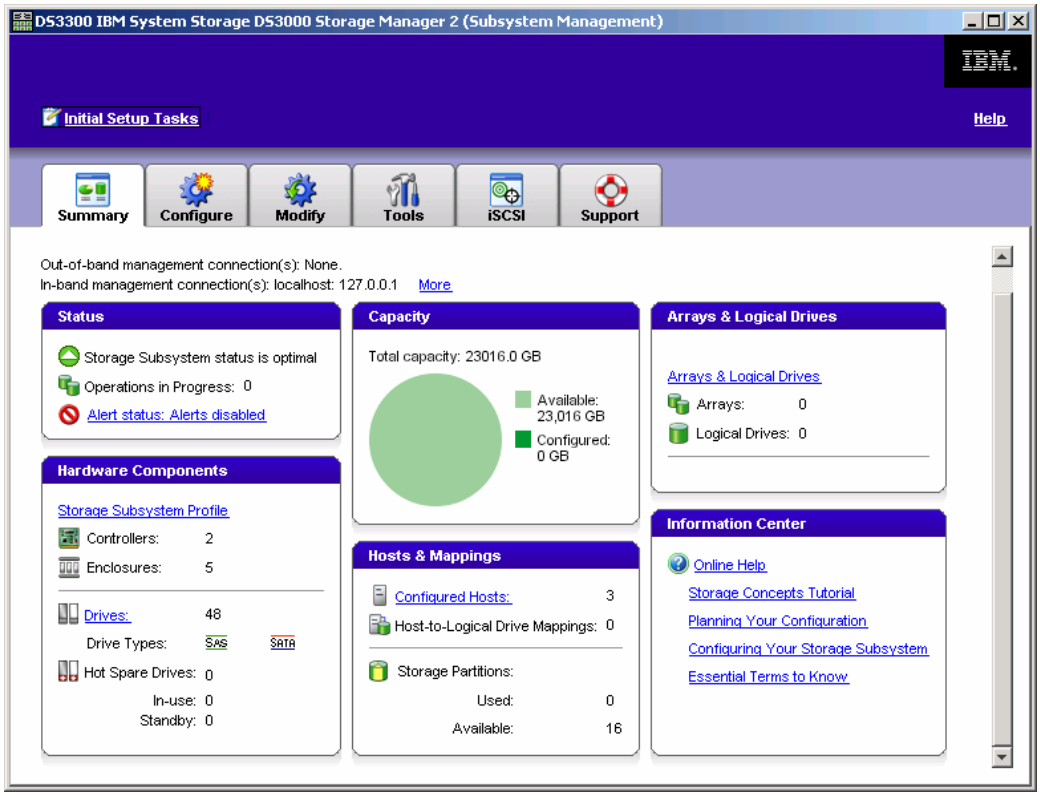
Tab Bar Screen Views

For this initial exploration of the Storage Manager Demo, we will use the DS3300 disk system configuration.



Select the **DS3300** system by double-clicking it in the right panel. This displays the DS3000 Subsystem Management window *(*SMW).

The SMW provides access to most components and functions of the DS3000 series disk systems.



There are six tabs in the SMW view.

- The **Summary** tab provides access to:

  - Initial Setup Tasks link
  - Recovery Guru - This is the automatic discovery tool for systems problems
  - Hardware components - profile and drive location
  - Locate arrays and logical drives - Drive group and disk system targets (LUNS)
  - Host and mappings - The attachment of LUNs to servers
  - Information center and online help

- The **Configure** tab provides access to:

  - Configure host access – Automatic or manual
  - Create host group – A group of servers or cluster
  - Automatic storage configuration
  - Configure Hot Spares
  - Create logical drives (including FlashCopy logical drives)
  - Create host-to-logical drive mappings – Server to LUN

- The **Modify** tab provides access to:

  - Edit host topology - Servers using LUNs
  - Rename or delete logical drives
  - Add free capacity - Drive space available in the arrays and not yet assigned to a logical-drive)
  - Change logical drive ownership (preferred path) - Route from/to server and disk system
  - Modify FlashCopy logical drives - Drive used for FlashCopy
  - Manage logical drive copies - Premium feature of VolumeCopy or logical drive copy
  - Edit host-to-logical drive mappings

- The **Tools** tab provides access to:

  - Rename storage subsystem
  - Set or change password
  - Change media scan settings - System data block check done in the background
  - Turn on indicator lights for various components to identify them physically (e.g. locate a drive)
  - View/enable premium features
  - Change enclosure ID numbers - Identification number assigned to a expansion unit
  - Synchronize controller clocks
  - Change controller network configuration - Set IP address information
  - Reset battery age - Days until battery replacement should be made
  - Inherit system settings – Leverage already existing array configurations

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- The **iSCSI** tab manages DS3300 IP SAN configurations such as:
    - Change Target Authentication
    - Enter Mutual Authentication Permissions
    - Change Target Identification
    - Change Target Discovery
    - Configure iSCSI Host Ports
    - View/End iSCSI Sessions
    - View iSCSI Statistics

- The **Support** tab provides troubleshooting and maintenance access to:
    - Recover from failure
    - View event log
    - Gather support information
    - View storage subsystem profile
    - Download firmware
    - Manage controllers
    - View online help

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Touring the DS3000 Storage Manager Simulator

Selecting a disk system for your organization can be a difficult decision as there are various requirements in your selection process. The DS3000 Storage Manager Simulator is useful for discovering which features are most important to you and why.

In addition, the simulator is a valuable tool for training your staff who will be administering the IBM DS3000 disk systems. They can quickly come up to speed on managing the DS3000 Storage Manager, become familiar with its ease-of-use, as well as address any of their concerns about learning a new software system. Stressing the task-oriented user interface and its simplicity, training your staff can be tailored to their specific needs:

- Initial set-up and configuration
- Basic operations for your particular environment
- Advanced premium features
- Specific operations for growing the disk system
- Application specific tips and techniques

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Scenarios

The following sections will provide some real-world scenarios so you can become familiar with the DS3000 Storage Manager functions in relation to specific business issues.

Scenario 1: “This is my first external storage system. What do I do?”

Initial Setup Tasks dialog box

The DS3000 Storage Manager’s **Initial Setup Tasks** dialog box provides step-by-step instructions on setting up a DS3000 disk system. As a task-based user interface, it provides a more obvious starting point for setting-up and managing the disk system.

The **Initial Setup Tasks** window offers a step-by-step process of tasks to complete an initial configuration. It comes up automatically when the SMW is first brought up, or can be launched by selecting **Perform Initial Setup Tasks** from the summary tab of the SMW.

The steps listed as initial setup tasks include:

1. Locate the storage subsystem
2. Rename the storage subsystem
3. Set a storage subsystem password
4. Configure iSCSI host ports
5. Configure host access
6. Configure the storage subsystem

In this scenario, we will cover each step in the **Initial Setup Tasks** list.

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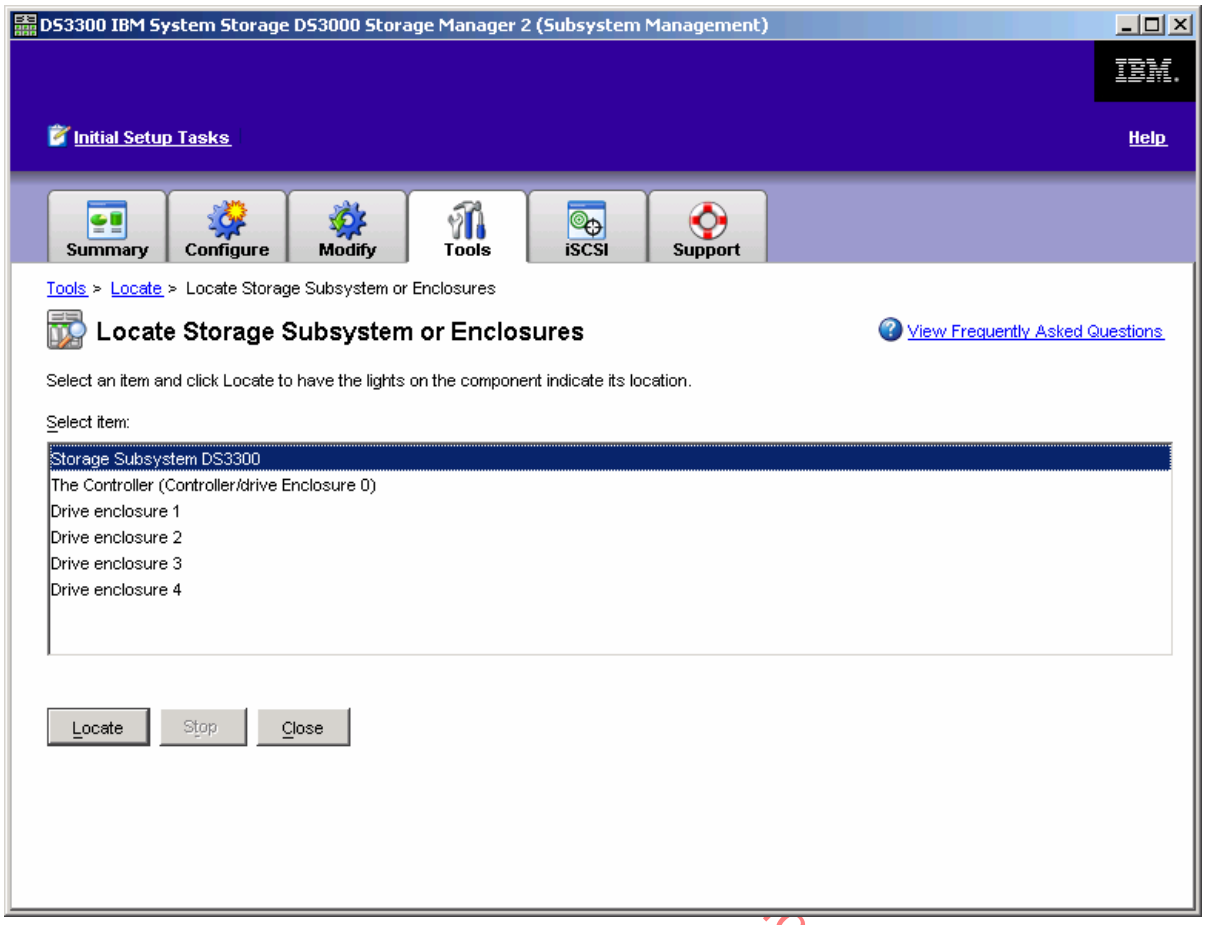
Step 1: Locate the Disk System

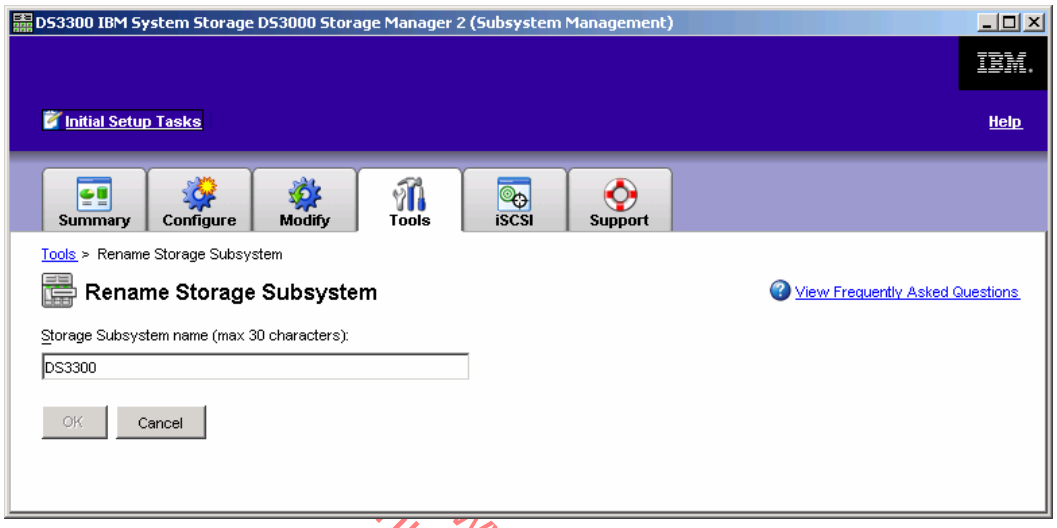
This optional step helps locate the subsystem if it is in a data center or room with other systems. Click on **Locate the Storage Subsystem** to view the following screen:



From this screen, select an item and click **Locate** to have the lights on the DS3000 disk system indicate its location. This allows you to locate the physical location of the disk system in your network. The disk system can then be identified with a label.

Step 2: Rename the Storage Subsystem

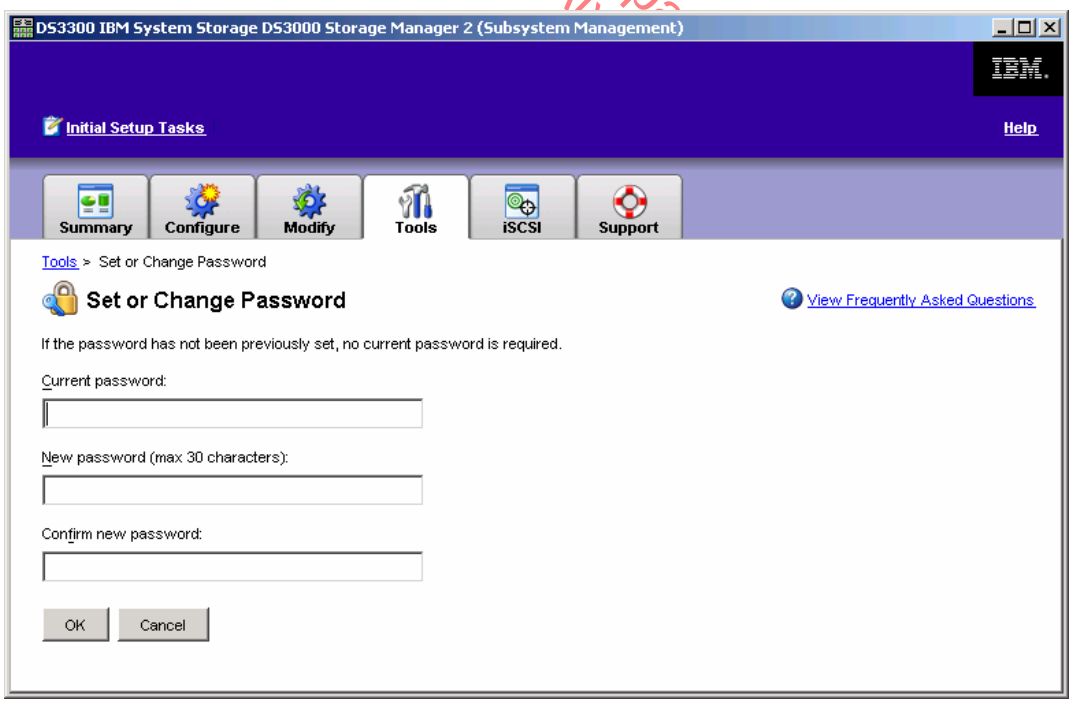
This optional step allows you to rename the subsystem. Click on **Rename the Storage Subsystem** to view the following screen:



Enter the new subsystem name and click OK.

Step 3: Set a Storage Subsystem Password

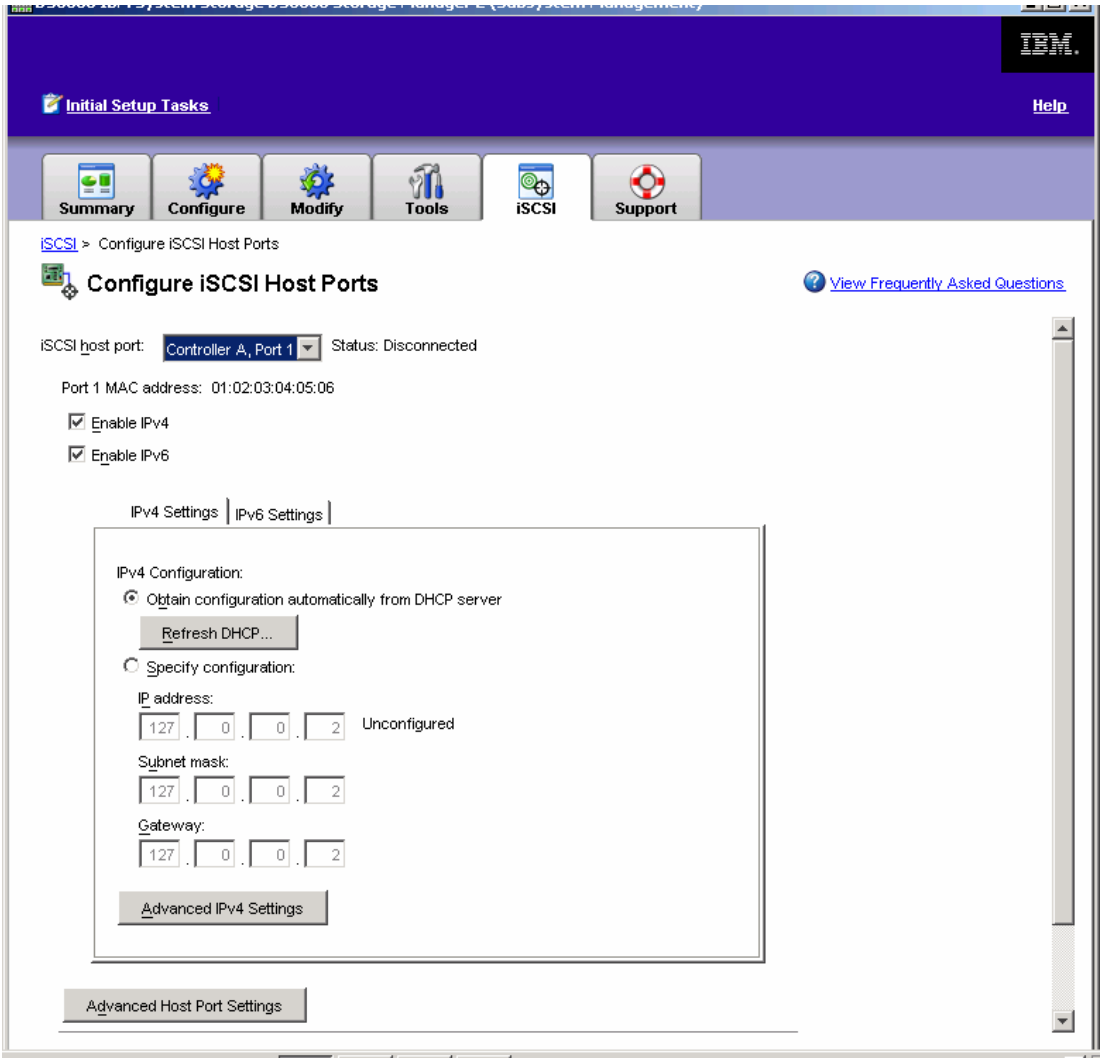
This optional step allows you to set a password for the subsystem, so that unauthorized users can not make changes. Click on **Set a Storage Subsystem Password** to go to the following screen:



Enter the current password (if applicable) and the new password twice, then click **OK.** You will receive confirmation that your new password has been set up.

Step 4: Configure iSCSI Host Ports (DS3300 only)

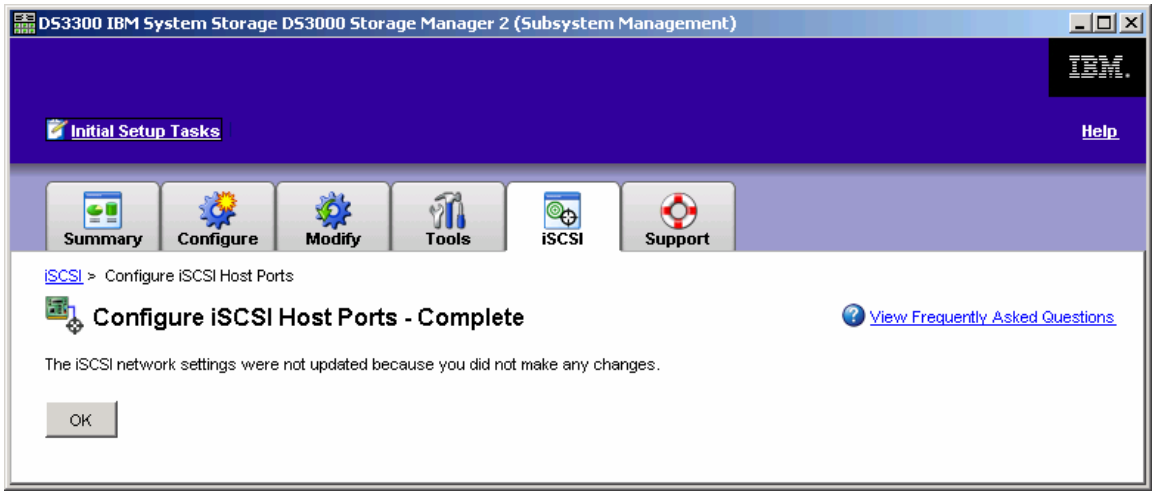
This step allows you to configure network parameters for the iSCSI host ports on the DS3300 controller module(s). From the **Initial Setup Tasks** window, select **Configure iSCSI Host Ports.** Once at the **iSCSI Host Ports** window, you can see that each host port is identified and configured by the controller number and port location. Select one of the ports. After the port is chosen, you have the option of obtaining the configuration automatically from the DHCP server or the IP address can be manually entered.



For this example, select the automatic configuration option.

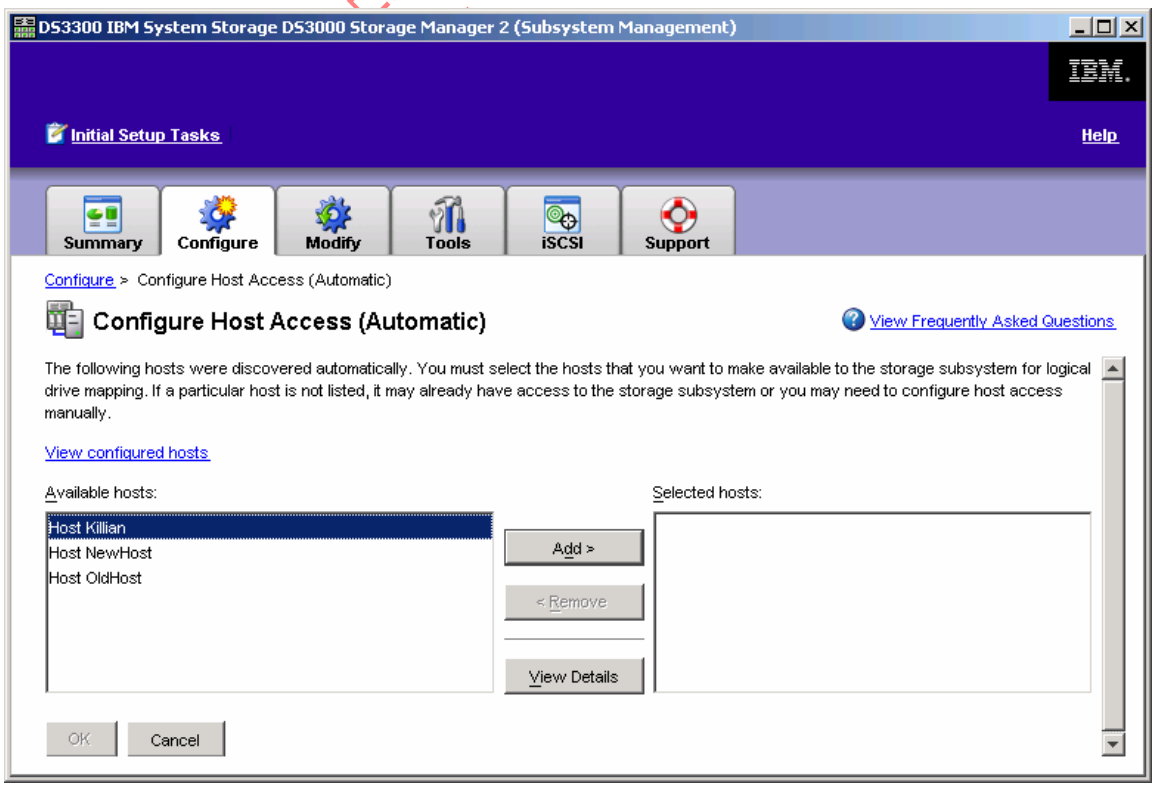
The ***ICMP PING responses*** have now been enabled. The Internet Control Message Protocol (ICMP) is one of the core protocols of the Internet protocol suite. The operating systems of networked computers use this protocol to send messages. ICMP contains a ping tool, which sends ICMP Echo Request messages (and receives Echo Response messages). These ICMP messages determine whether a host is reachable and how long it takes to get packets to and from that host. Whether enabled or disabled, this selection will apply to all iSCSI host ports in the DS3300.

Select **OK.** You will then receive confirmation that the configuration of the iSCSI host port has been completed.

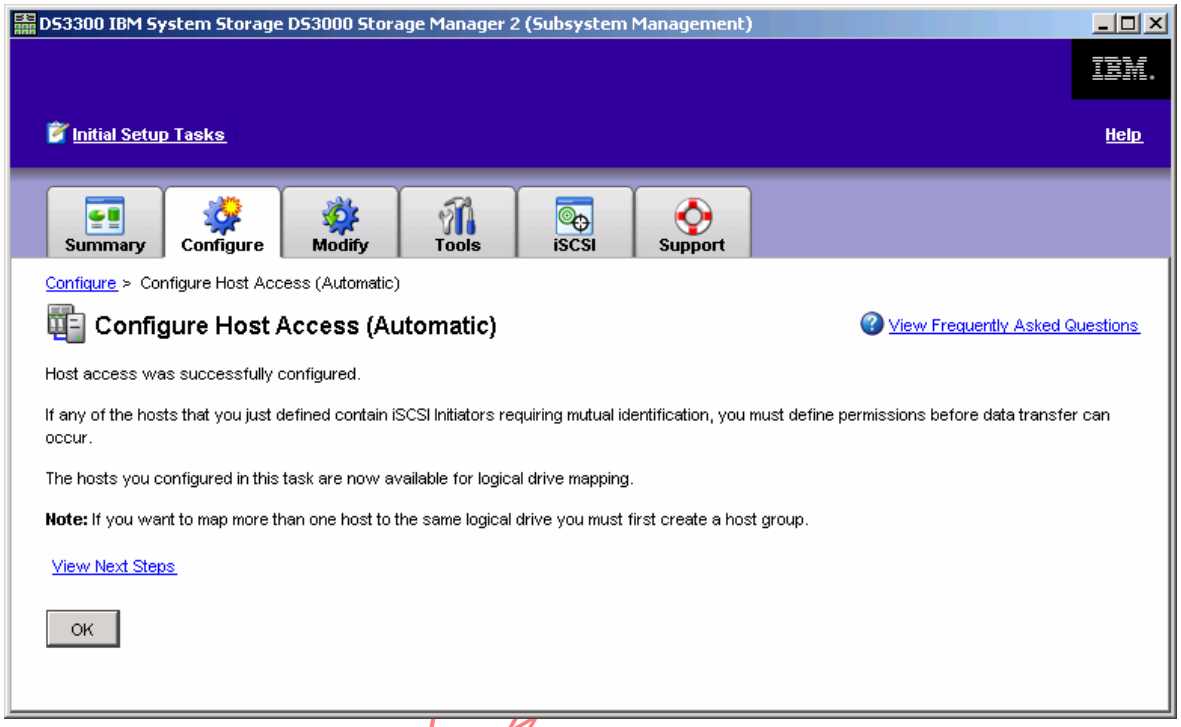


Step 5: Configure Host Access

This step allows you to provide one or more hosts to access the subsystem. Select **Configure Host Access,** which will direct you to the following window:



After selecting the appropriate host, click **Add** and then **OK.** You will then receive confirmation of host access.



Note: In the Demo, several hosts have been pre-configured for access.

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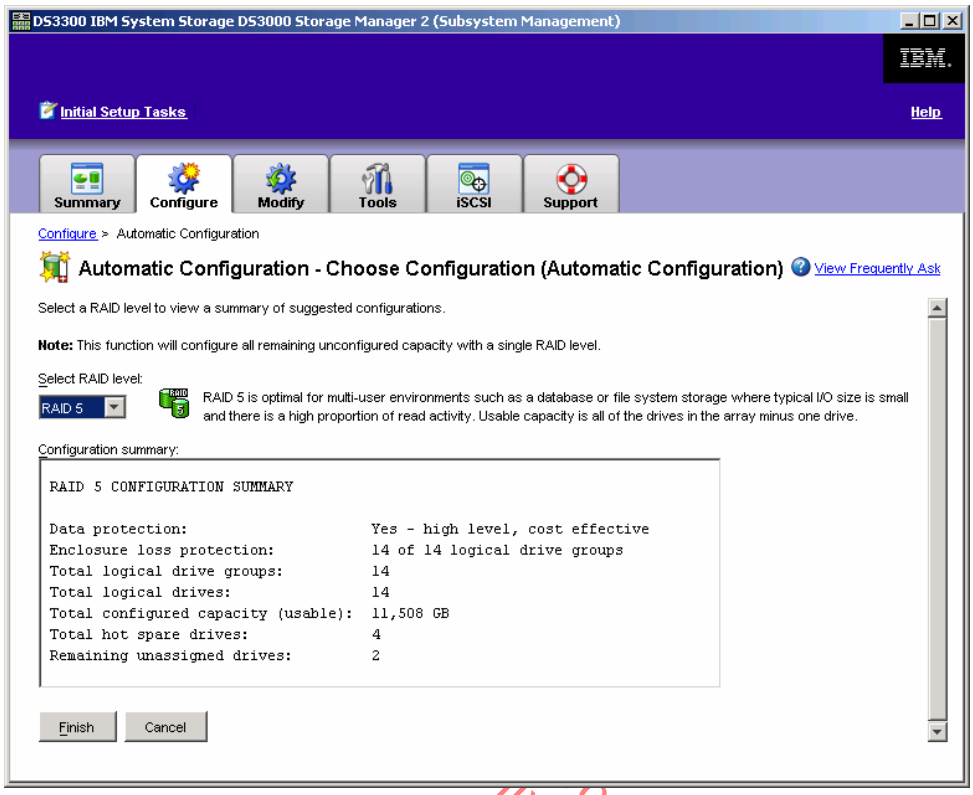
Step 6: Configure the Storage Subsystem

This step has two options: the **Automatic (Simple)** option and the **Manual (Advanced)** option. The **Automatic (Simple)** option is the quickest and easiest, but provides limited control over your configuration. It will be covered in this scenario. The **Manual (Advanced)** option still provides some automated assistance, yet allows the user to have more control of the configuration and will likely be preferred in most situations. It will be covered in Scenario 2 with the creation of logical drives.

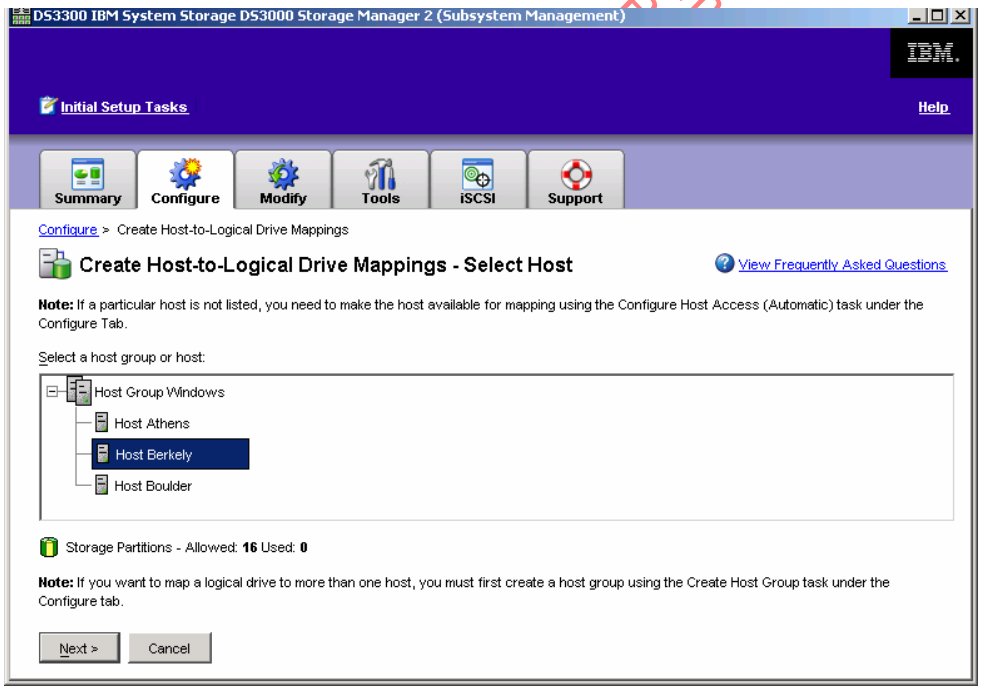
Automatic (Simple) Configuration

Select the **Automatic (Simple)** option under **Configure the Storage Subsystem** and select **Step 1: Automatic Configuration.** This will open the **Automatic Configuration** window. You will proceed to choose a RAID level and click **Finish**. Storage Manager will then configure the entire subsystem into multiple arrays based on the selected RAID level and create a single logical drive within each array.

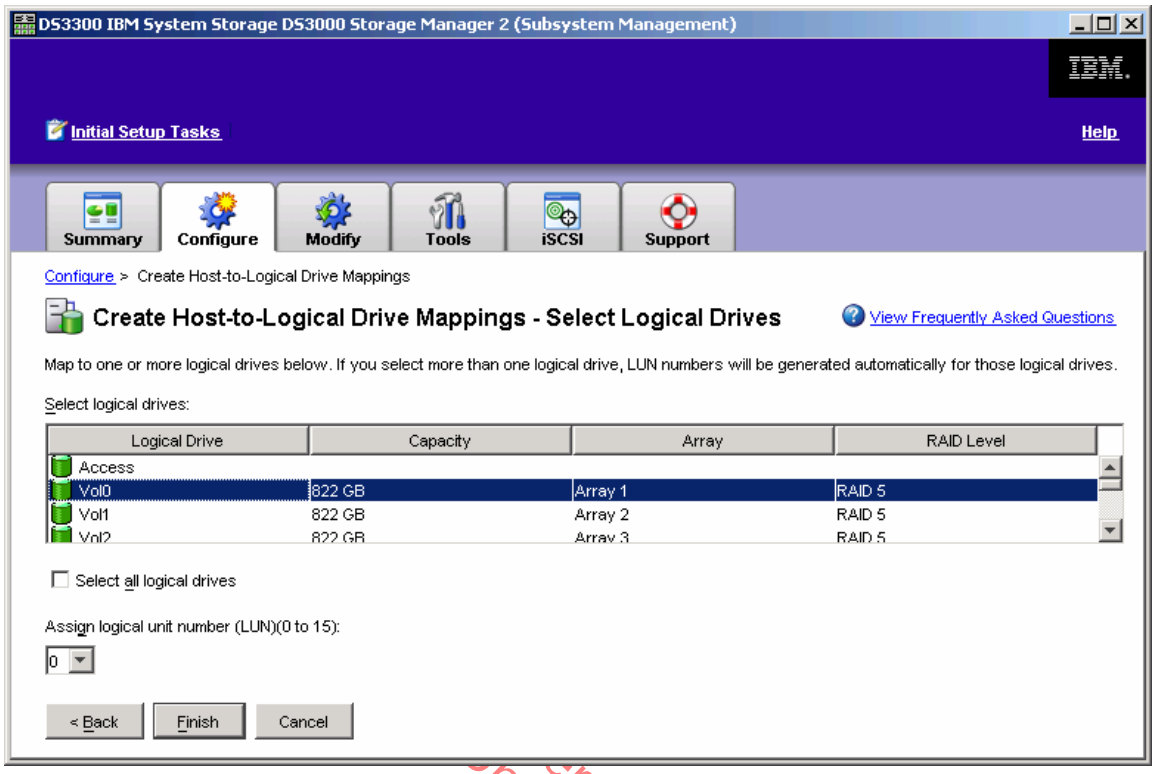
Note: If you wish to define the number of drives in each array, and the number and size of the logical drives in each array, select the **Create Logical Drives** option.



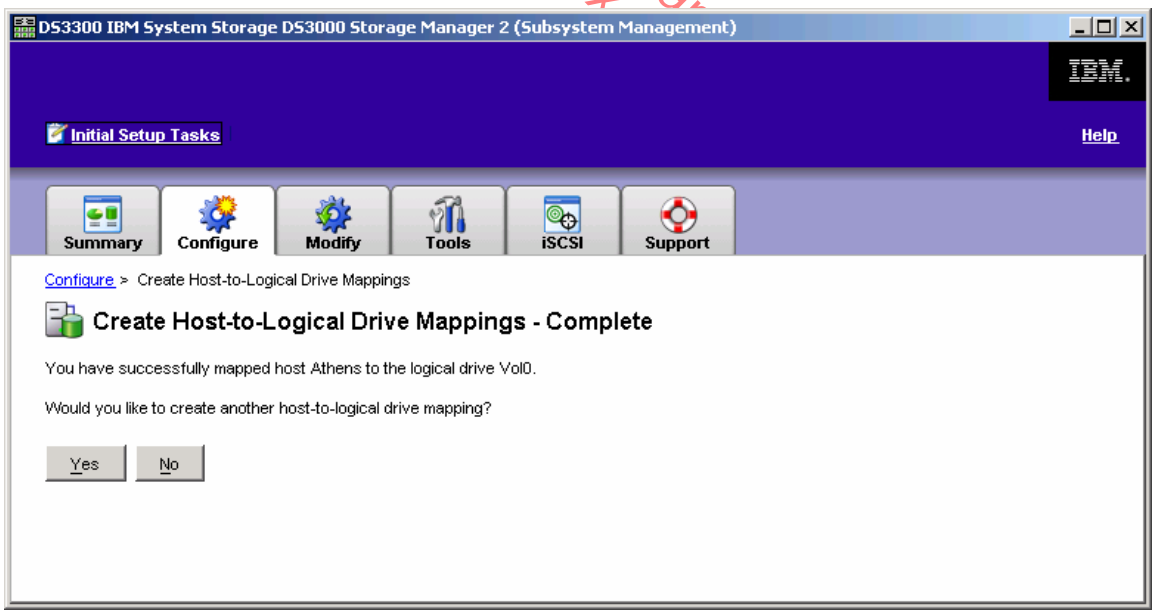
After reviewing your configuration options with RAID 5, return to the task window and select **Step 2: Create Host-to-Logical Drive Mappings.** This will open the **Create Host-to-Logical Drive Mappings** window. Select the host you would like to map and click **Next**.



Select the logical drives you want to be mapped to the host and click **Finish**. If more than one logical drive is selected, the logical unit number will be assigned automatically. If only one logical drive is selected, you will also be prompted to assign it a logical unit number (see below).



After this process has been completed, click **OK** and you will be notified that you have successfully mapped the host to a logical drive. You will be given the option to map another host-to-logical drive. For this example, select **NO**.



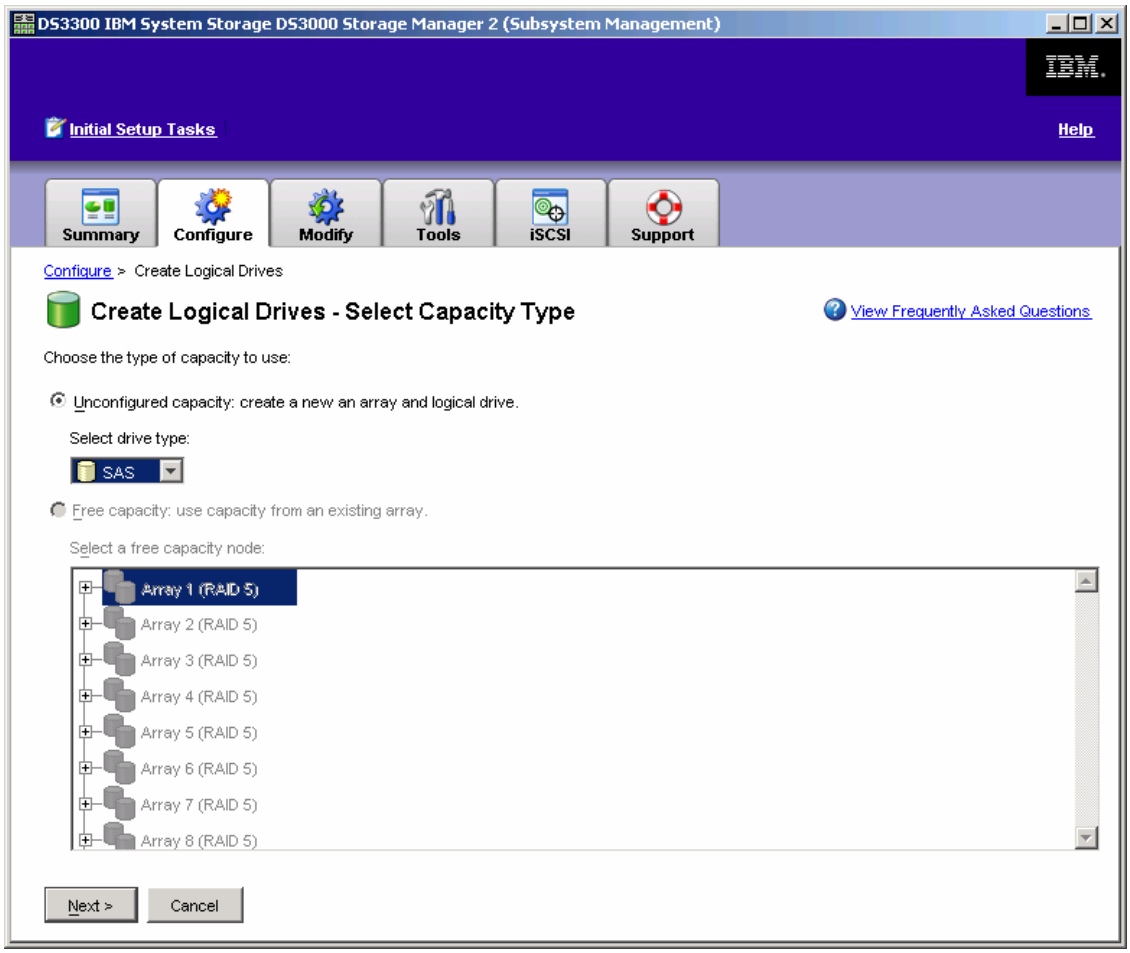
You have successfully created arrays, logical drives and mapped logical drives to a host with the simple **Automatic** option.

Scenario 2: “I have newly added drives that I would like configure.”

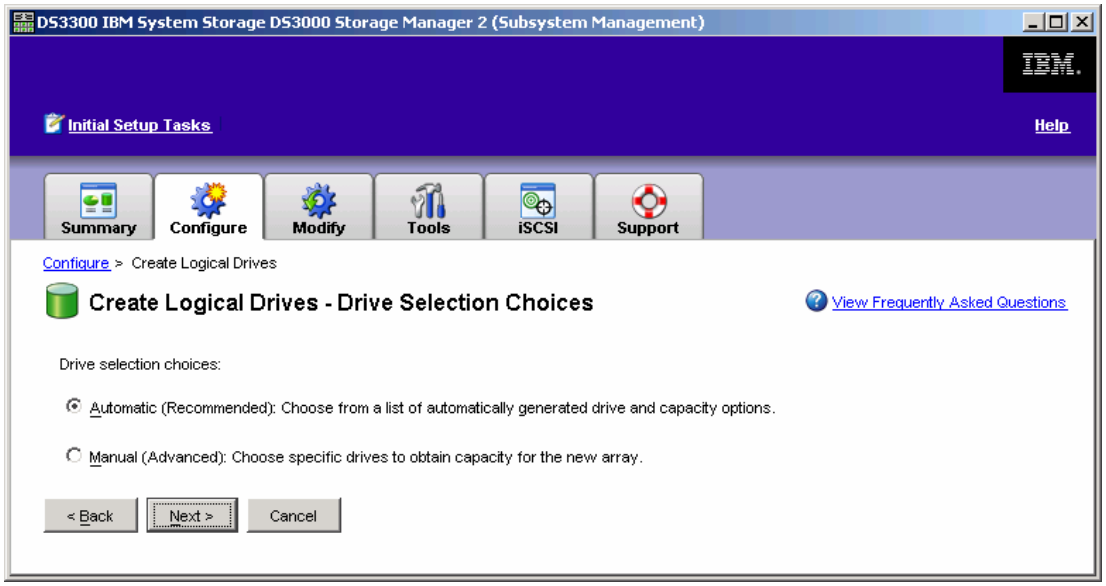
Logical Drive Creation

Like many configuration tasks within Storage Manager, logical drive creation can be an **Automatic** or **Manual** task. In this scenario, the **Automatic** (recommended) option will be covered. The **Manual** option is covered in the Advanced Scenarios section on page 43.

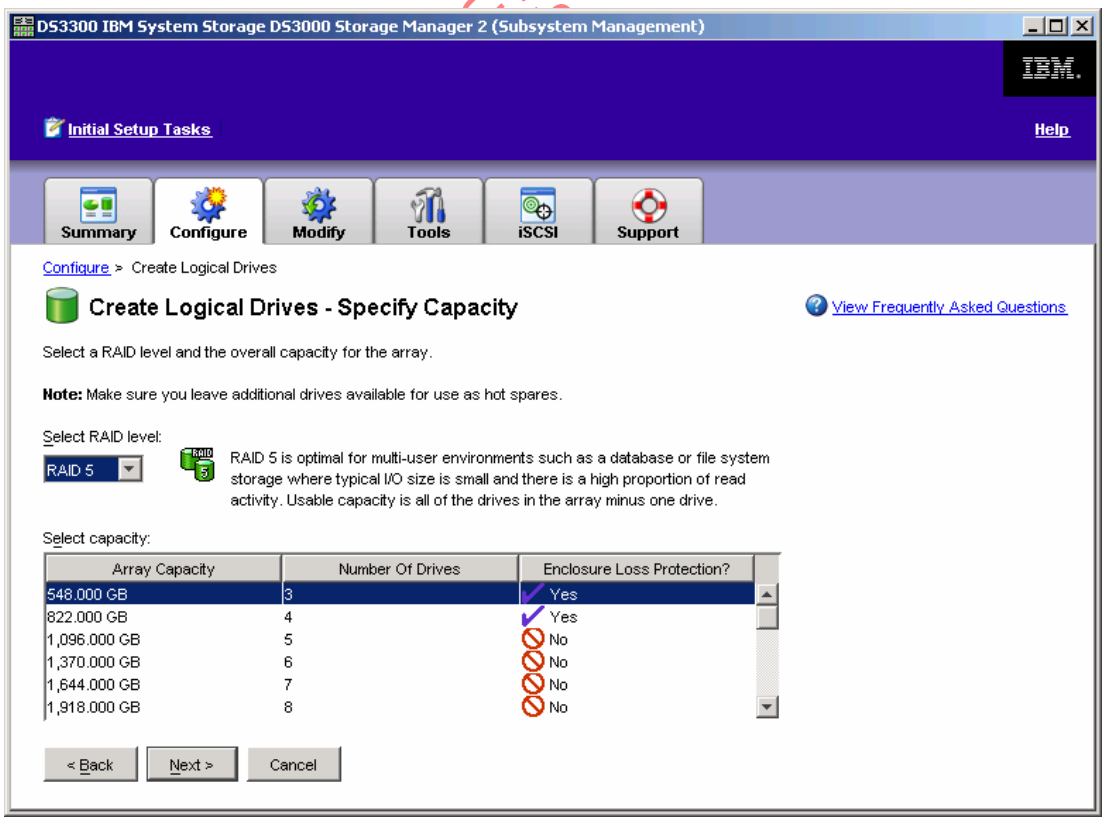
From the **Configure** tab, or from the **Initial Setup Tasks** window under the **Manual** (advanced) option, select **Create Logical Drives.** This will take you to the **Create Logical Drives – Select Capacity Type** window to decide which drive type and capacity you prefer.



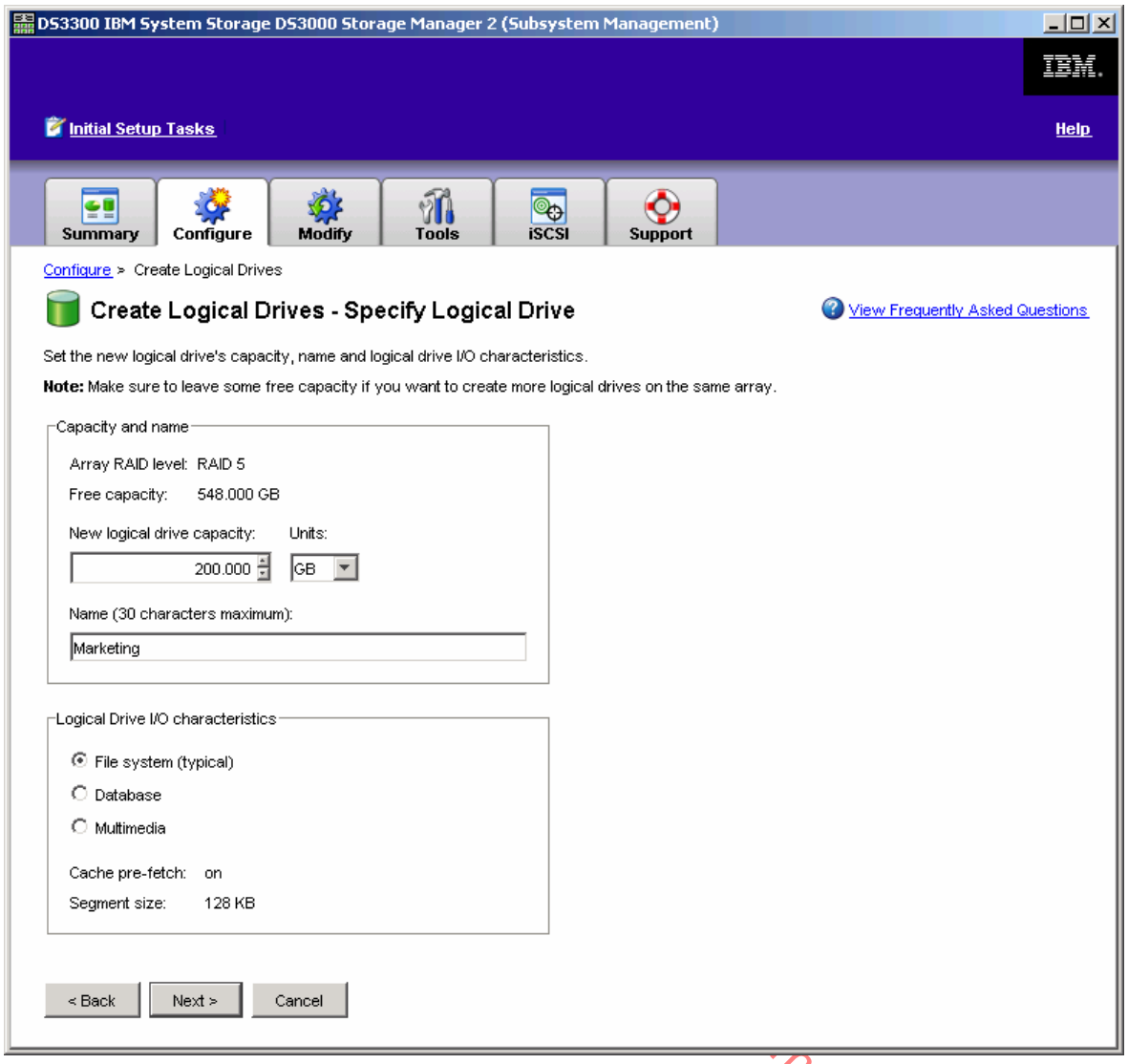
Select **Unconfigured Capacity, SAS drives,** and click **Next. Automatic** or **Manual** configuration options will appear. Select **Automatic** and **Next.**



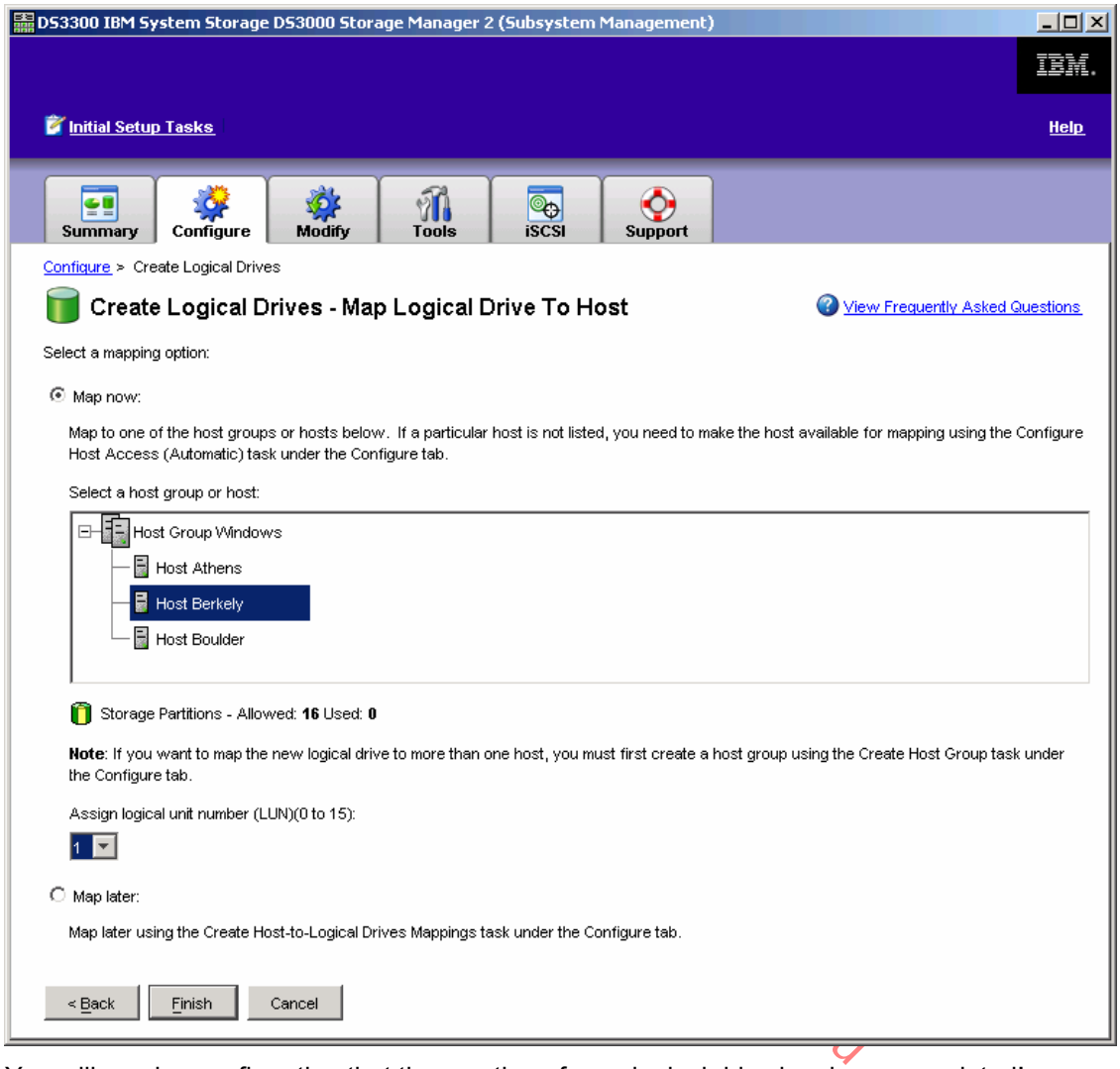
At the **Create Logical Drives – Specify Capacity** window, first select the RAID level desired. Then, choose an array from the list of array options based on the number and type of drives in the configuration. Click **Next**.



The next window, **Create Logical Drives – Specify Logical Drive,** requires you to select the logical drive capacity from the free capacity that is available, name the logical drive and identify its I/O characteristics. We will select 200GB capacity, name the logical drive **Marketing** and select the I/O characteristics based on a file system application.


DS3300 IBM System Storage DS3000 Storage Manager 2 (Subsystem Management)
IBM
Initial Setup Tasks
Help
Summary
Configure
Modify
Tools
iSCSI
Support
Configure > Create Logical Drives
Create Logical Drives - Specify Logical Drive
View Frequently Asked Questions
Set the new logical drive's capacity, name and logical drive I/O characteristics.
Note: Make sure to leave some free capacity if you want to create more logical drives on the same array.
Capacity and name
Array RAID level: RAID 5
Free capacity: 548.000 GB
New logical drive capacity:
Units:
200.000
GB
Name (30 characters maximum):
Marketing
Logical Drive I/O characteristics
File system (typical)
Database
Multimedia
Cache pre-fetch: on
Segment size: 128 KB
< Back
Next >
Cancel

The **Create Logical Drives – Map Logical Drive to Host** window will allow you to map your logical drive to a host group or individual host. We will map it to Host *Berkley* and assign it one LUN. Click **Finish**.



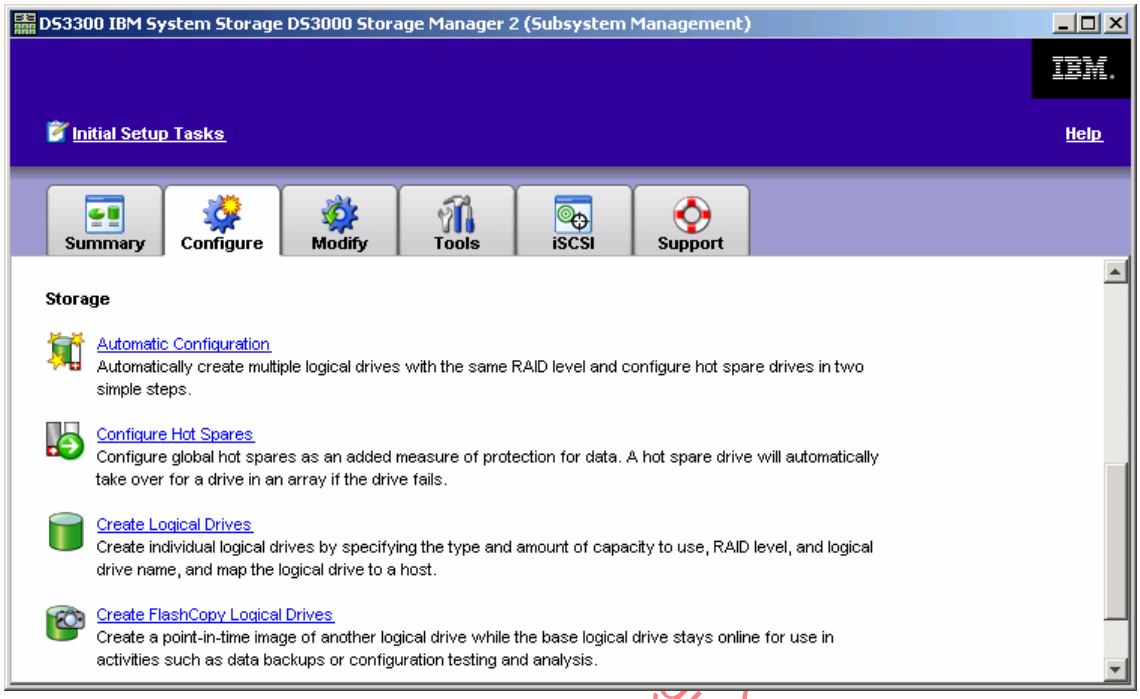
You will receive confirmation that the creation of your logical drive has been completed!

Scenario 3: “I want to protect against a failed drive.”

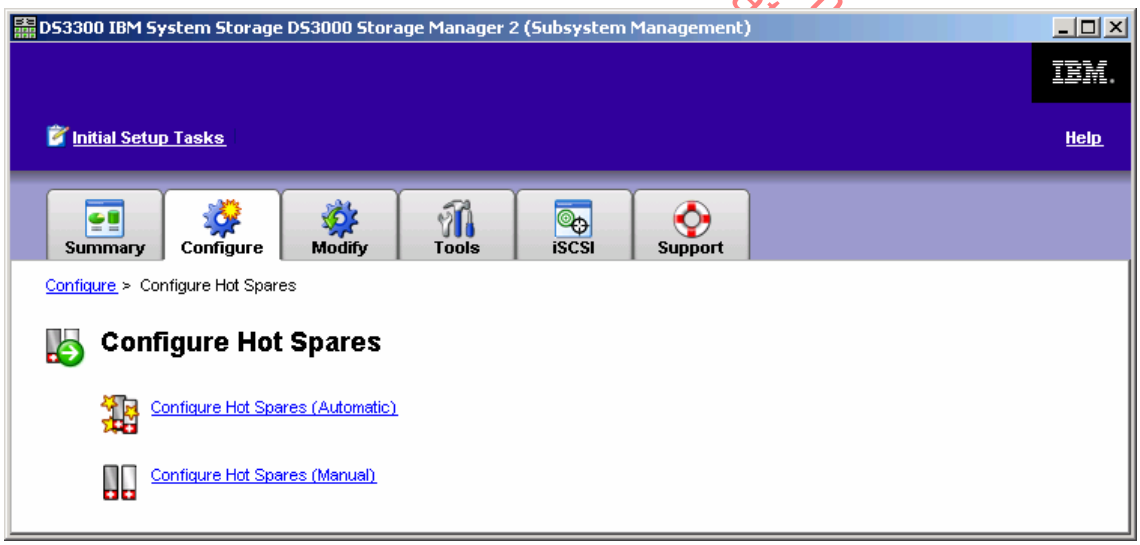
Automatic Hot Spare Drive Configuration

A Hot Spare Drive is an unassigned drive that automatically replaces a drive if a drive fails. The Hot Spare Drive adds another level of data protection by acting as a “reserve” drive in the instance of a drive failure.

From the **Configure** tab, select **Configure Hot Spares.**

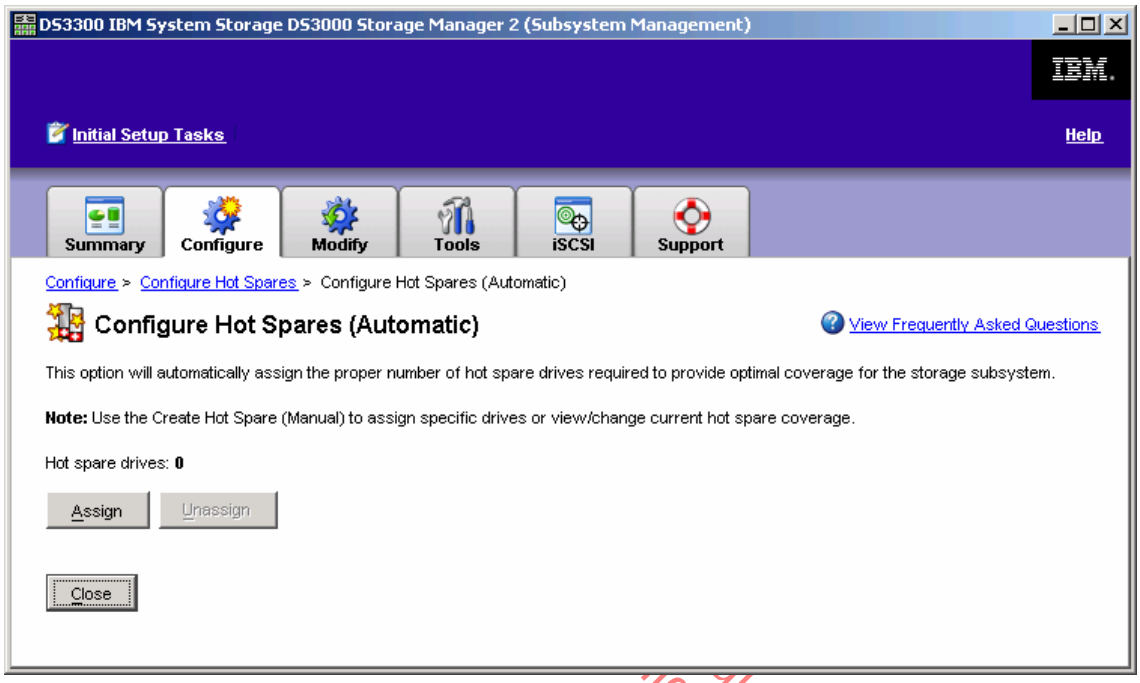


For this scenario, select **Configure Hot Spares (Automatic).**

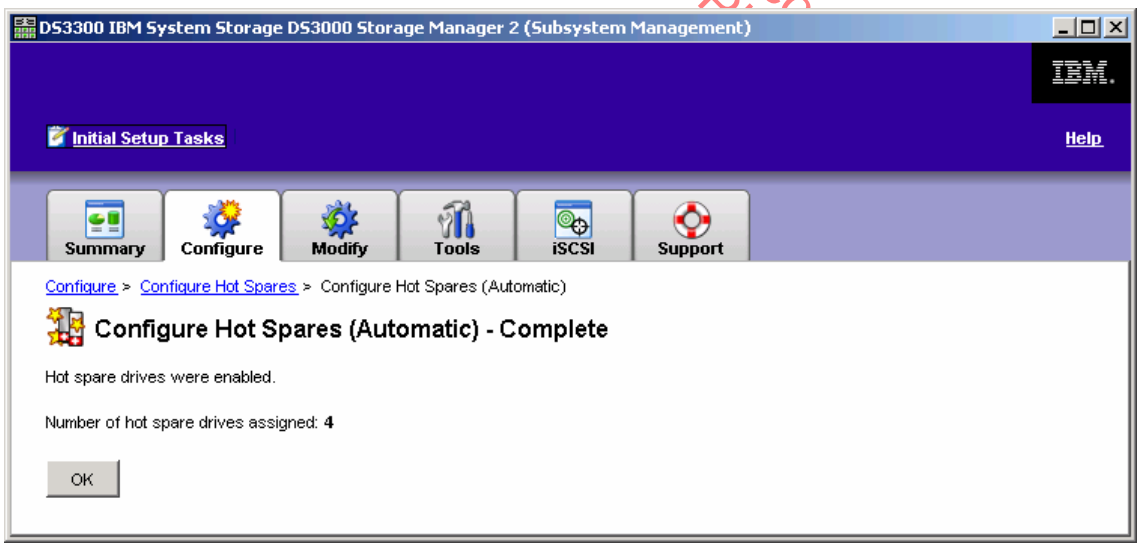


Note: Use the **Create Hot Spare (Manual)** when assigning specific drives or viewing/making changes to the current hot spare coverage. The manual process is covered in the Advanced Scenarios section on page 41.

At the **Configure Hot Spares (Automatic)** window, the proper number of hot spare drives required to provide optimal coverage for the storage array will automatically be assigned.



Select **Assign**.



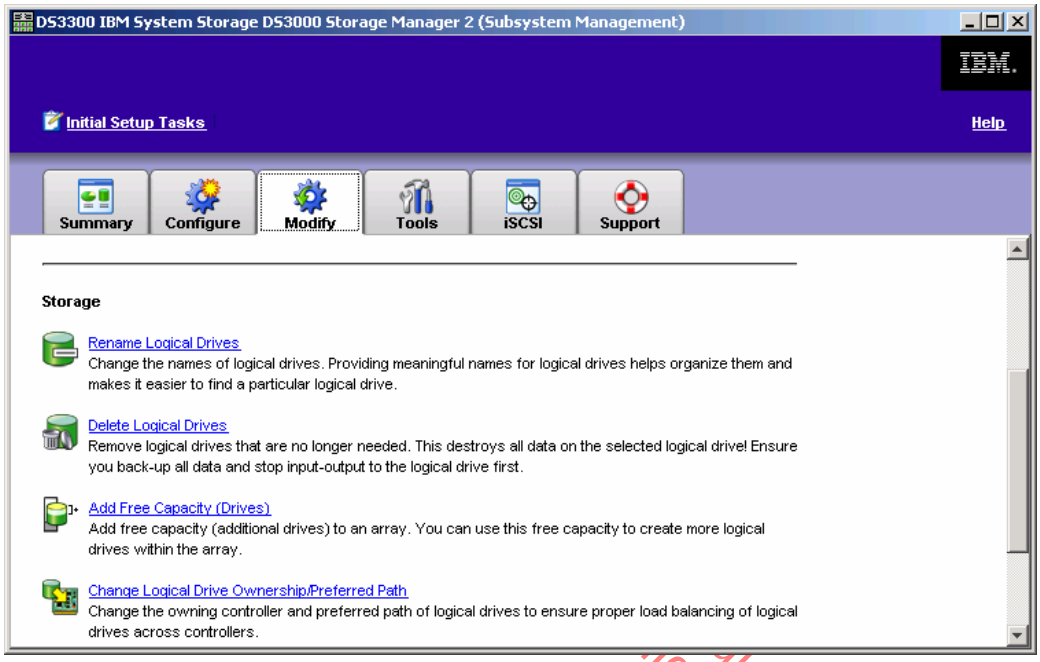
You will receive confirmation of the number of hot spares that have been configured successfully.

Scenario 4: “How do I add capacity to an array?”

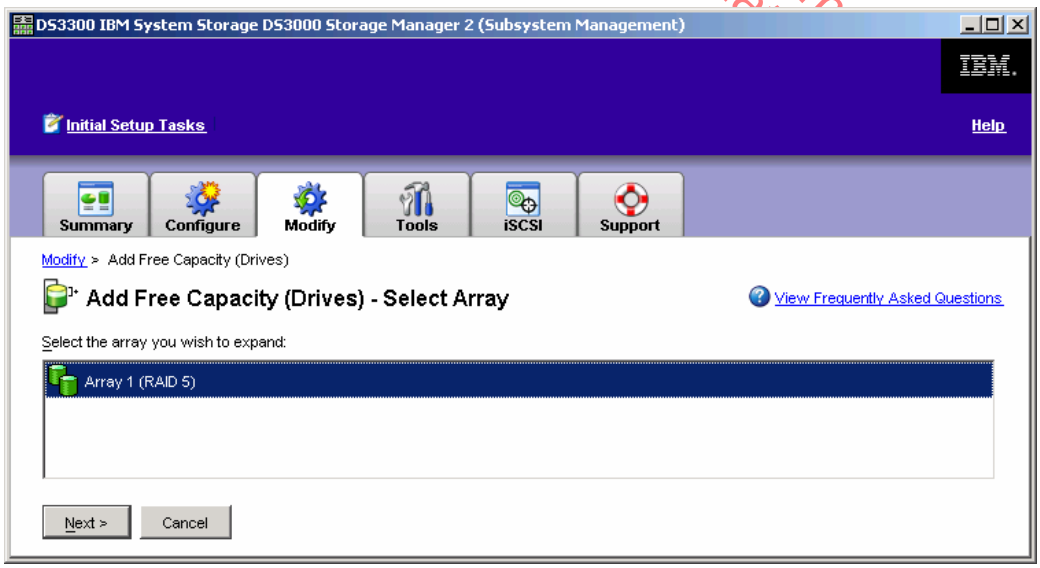
Expanding Drive Capacity (Dynamic Array Expansion)

The DS3000 Storage Manager provides a simple method of expanding the capacity of an array by adding more drives to it. This increases performance and capacity of the disk system.

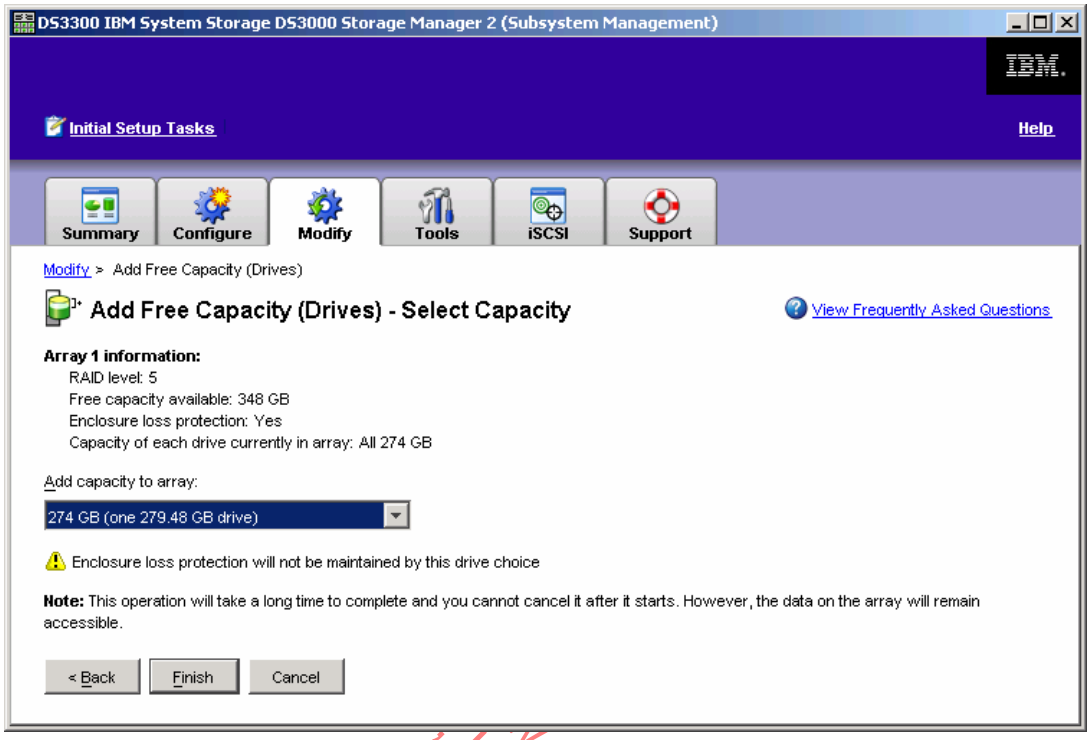
First, select the **Modify** tab. Click **Add Free Capacity (Drives).**



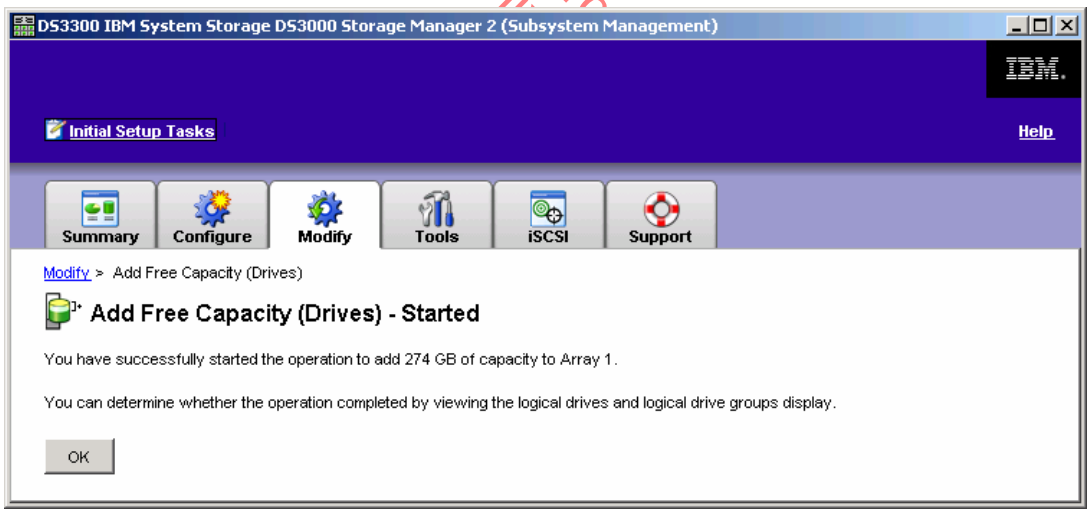
The window **Add Free Capacity (Drives) – Selected Array** will then prompt you to select the desired array to add drives to. Click **Next.**



You are almost there! At the **Add Free Capacity (Drives) – Select Capacity** screen, the DS3000 Storage Manager will provide some status information about the array you selected. From here you can add one or two drives to the existing disk system. (Note: this process can be repeated if desired). Click **Finish.**



The process of adding free capacity starts.



Note: This operation will take an extended period of time to complete and you cannot cancel it once it starts. However, the data on the volume group will remain accessible.

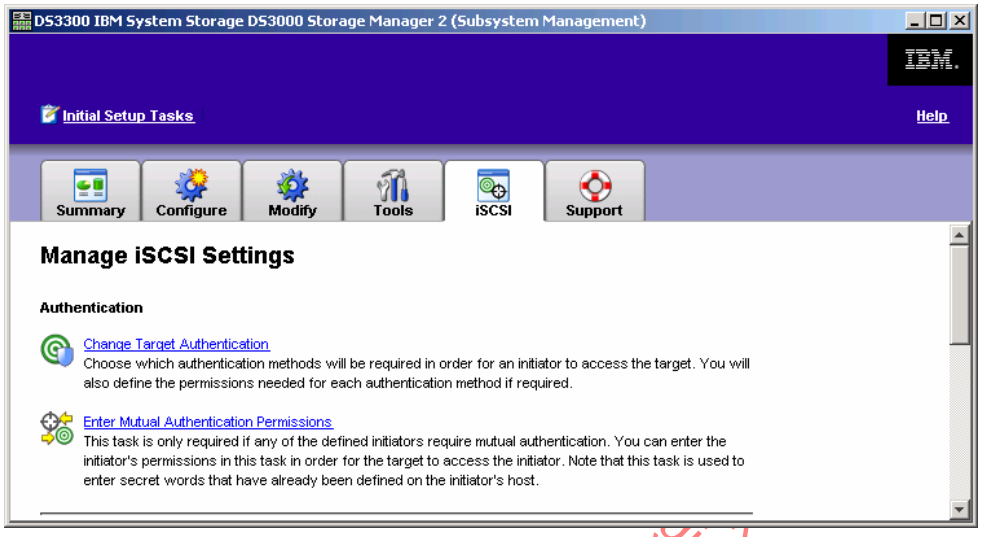
You can monitor the process of this operation by viewing the volume and array displays.

Scenario 5: “I would like to add additional security to my IP SAN (DS3300 only).”

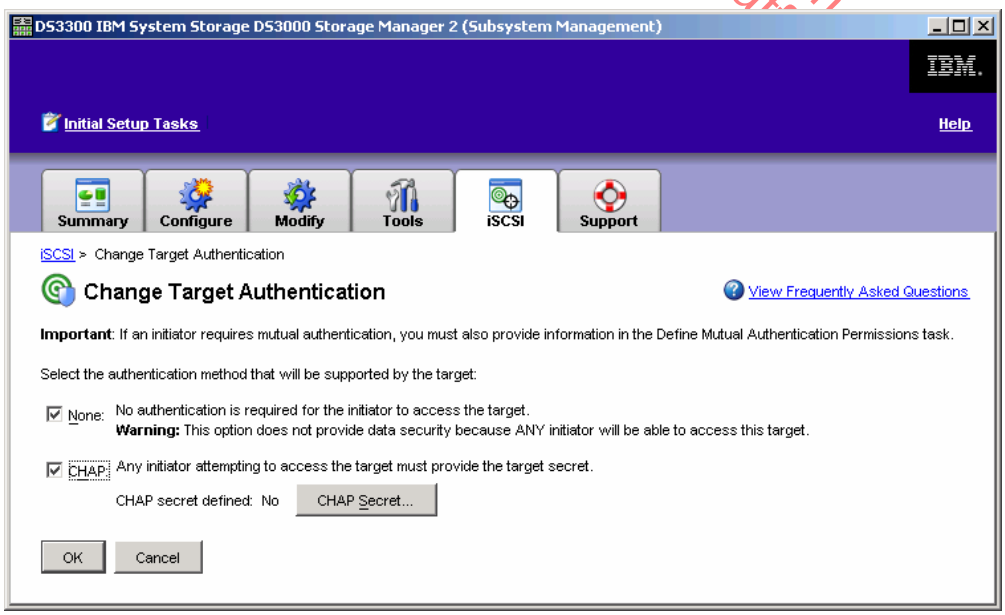
Change Target Authentication

A best practice for an IP SAN is to separate storage traffic from normal LAN traffic by deploying IP storage traffic to a physically separate network. In addition to maintaining an IP SAN separate from the rest of network, iSCSI inherently provides its own protection which can be leveraged as an additional security measure. An example of this protection is CHAP (Challenge Handshake Authentication Protocol), which is used to verify the identity of iSCSI host systems that are attempting to access storage targets in which the iSCSI initiator and iSCSI target share a predefined secret. If the secret values match, the initiator is authenticated and a session can begin.

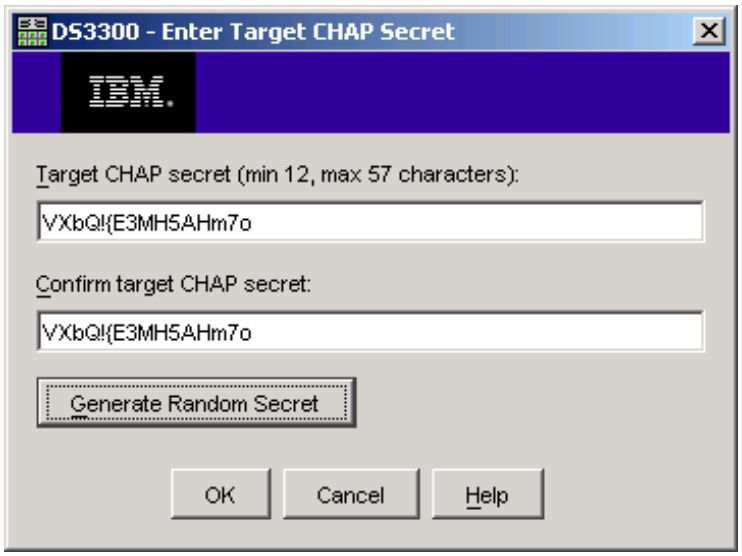
To enable CHAP, go to the **iSCSI** tab and select **Change Target Authentication.**



At the **Change Target Authentication** window, CHAP is disabled by default. For this example, we would like to enable CHAP.



Click the CHAP prompt and then click the **CHAP Secret** button. This will open the CHAP secret prompt.



Enter the target CHAP secret, re-enter for confirmation and select **OK.** The target CHAP secret can also be randomly created by selecting the **Generate Random Secret** tab. You will then return to the **Change Target Authentication** window. Click **OK** to receive confirmation that a CHAP secret has been enabled.

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Scenario 6: ‘How do I achieve tiered storage within a single enclosure?”

Today, the growth of applications and the need for 24x7 availability are likely reasons your organization is experiencing increased data requirements. In addition, new laws requiring extensive archiving of corporate information also fuel this demand.

The dilemma is how to keep more data online while keeping costs down.

The DS3000 series of systems offer a unique solution to this predicament. A key attribute of the DS3000 series of disk systems is the integration of SAS and SATA technologies within the same enclosure. SAS drives are notable for high availability and typically utilized for mainstream transaction-based applications while SATA technology is generally deployed for near-line data and can drastically reduce the cost of a storage investment when cost/GB is the most important factor. By optimizing the right workload demand with the appropriate drive technology, the DS3000 disk system can cost effectively support your organization’s entire range of data capacity requirements.

The DS3000 series of disk systems are an ideal platform with up to 9.0TB in a compact 2U package that offers the lowest cost per MB and capacity expansion up to 36.0TB. It is an ideal blend of capacity, performance, manageability, and reliability. Its ability to solve business problems with an appealing cost advantage makes it an excellent storage solution for applications such as:

- Keeping more information online for quicker access
- Online backups to disk for faster recovery
- Moving data from online databases to data warehouse applications, datamarts and decision support systems

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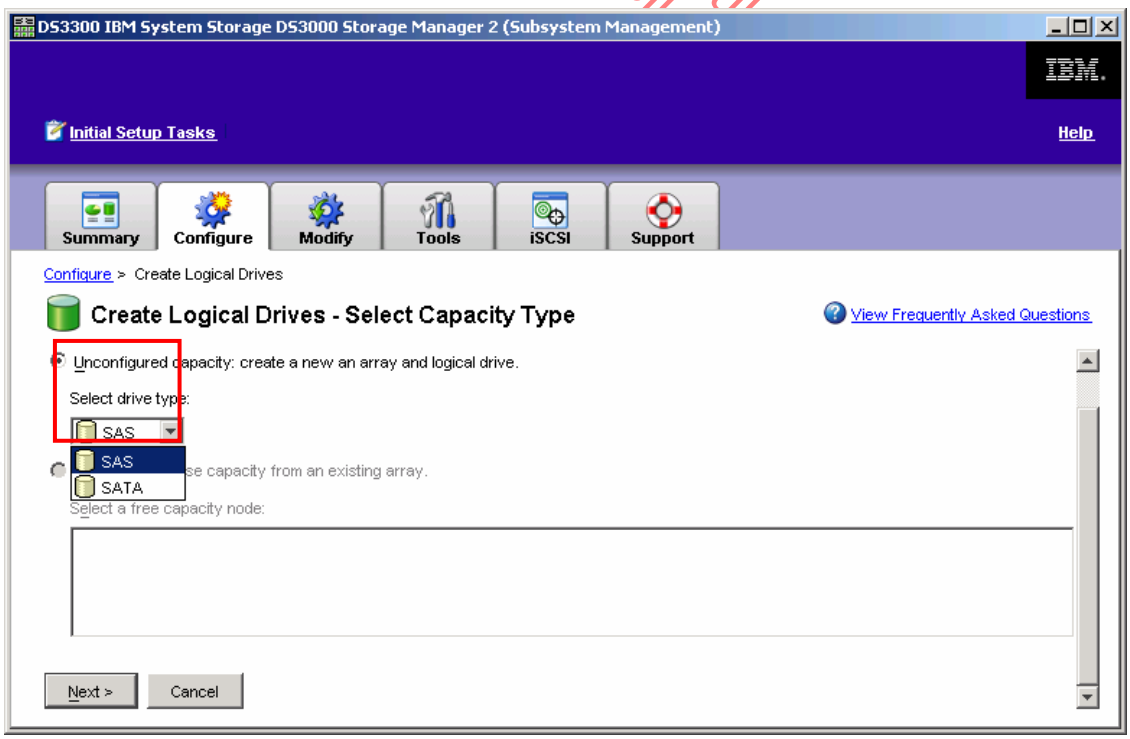
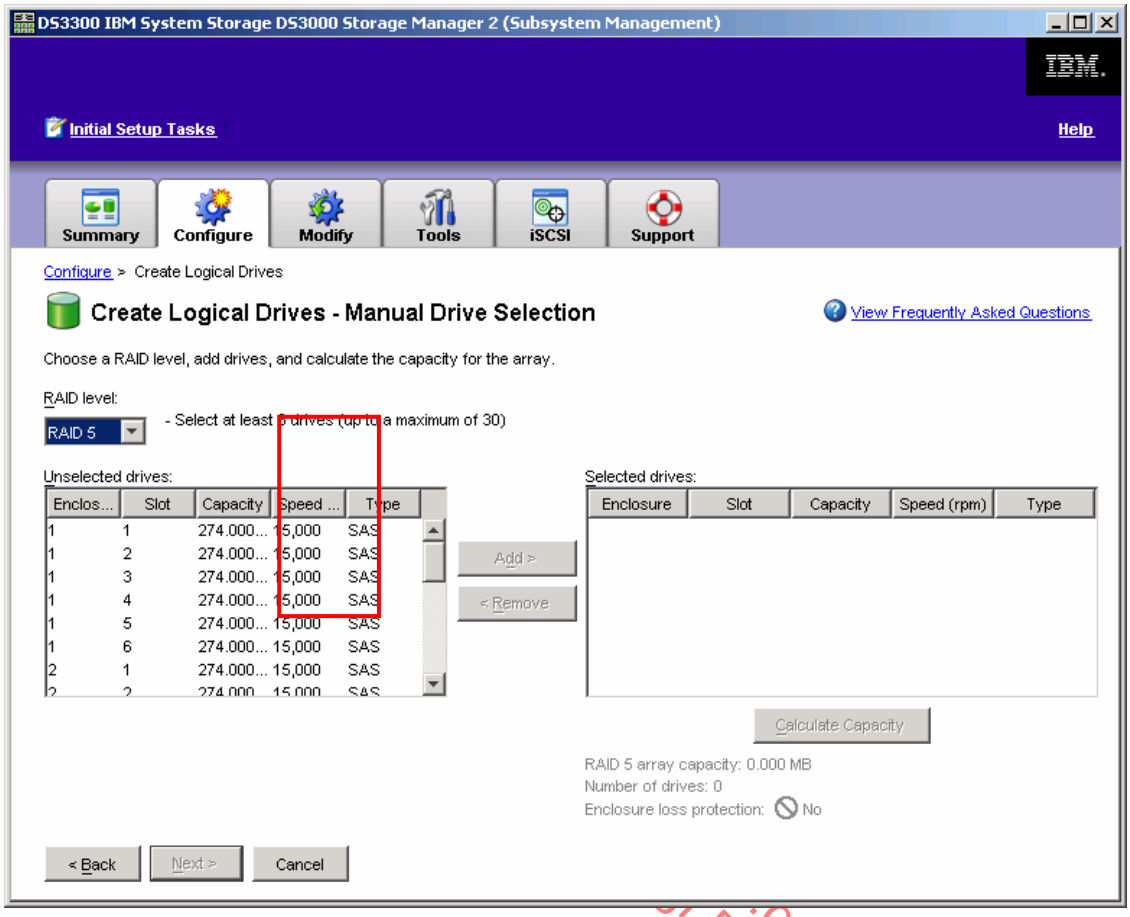
As volume/RAID groups can only be created with same drive types, the DS3000 Storage Manager ensures that such a configuration cannot be created. When creating logical in the automatic mode the user is prompted to select from same-type drive groups..



In manual mode only same-type drives are allowed to be added to the volume/RAID group.



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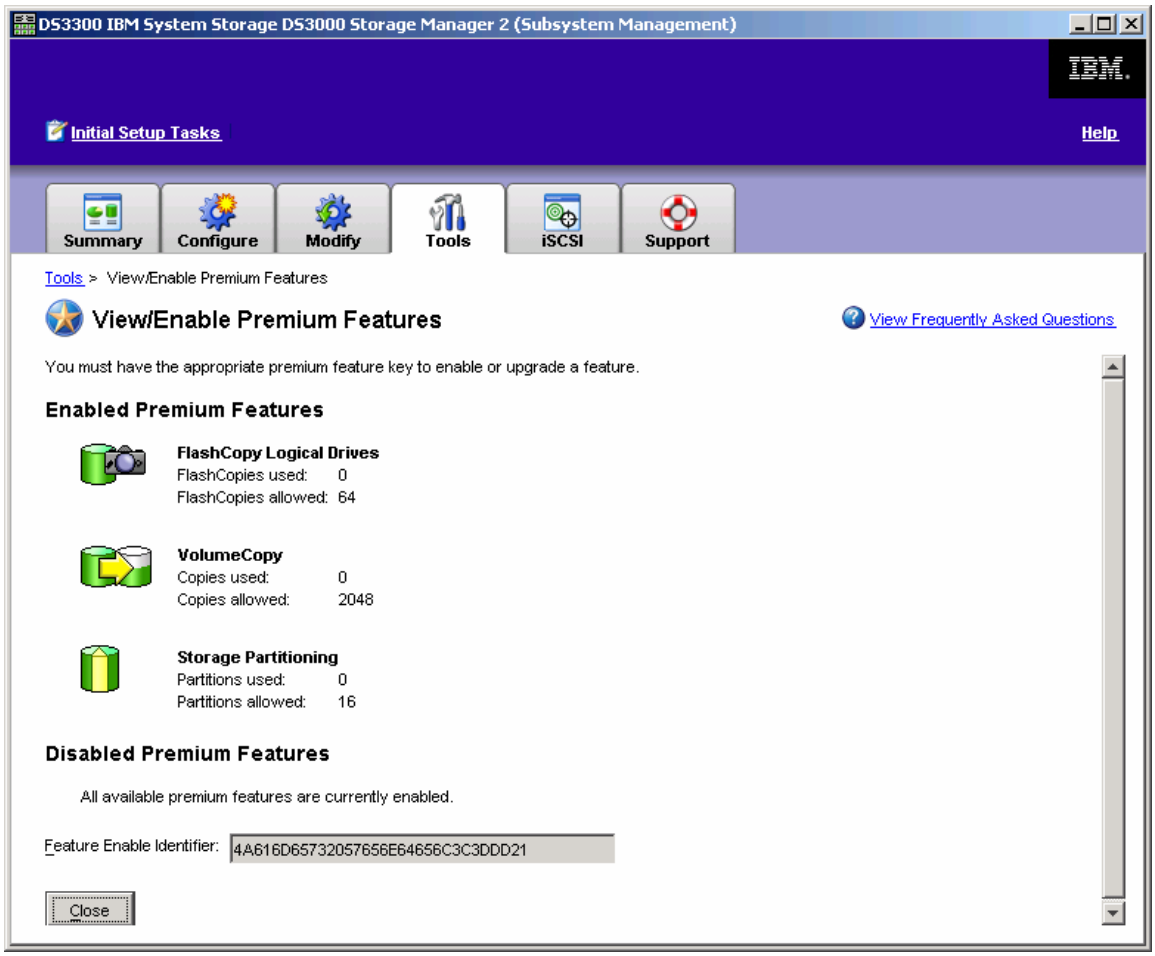
DS3000 Storage Manager Premium License Features

The Premium Feature Licenses offered with the DS3000 Storage Manager includes Partitioning, FlashCopy and VolumeCopy.

These features can be viewed and enabled by accessing the **Tools** tab on the main tool bar.

As you can see in the following window, all Premium Features have been enabled. For these Premium Features to be enabled, a Feature Enable Identifier was entered. This Feature Enable Identifier is provided when a one of the following Premium Features are purchased.



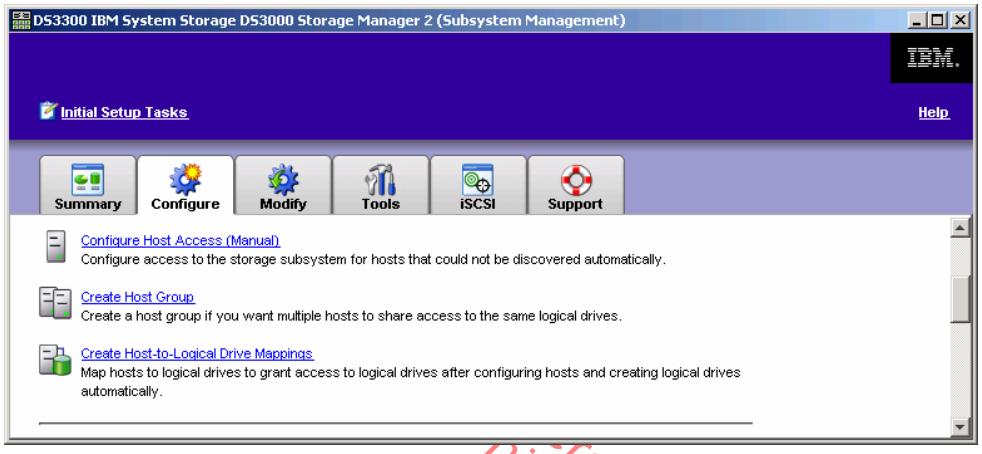
The following scenarios will familiarize you with the premium features of the DS3000 Storage Manager.

Premium Feature Scenario 1: “How can I share capacity across my hosts?”

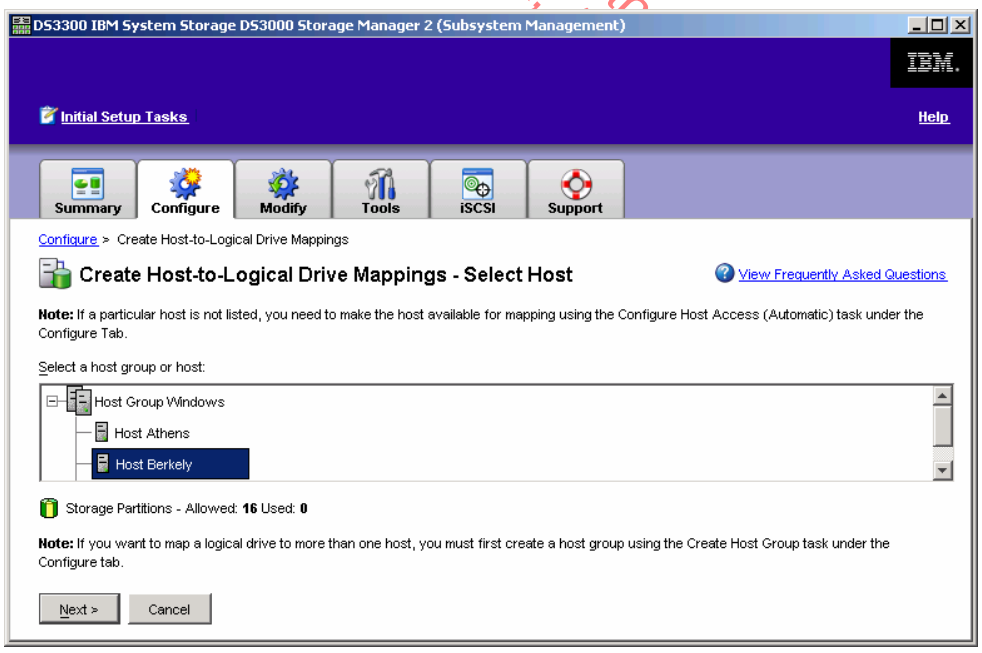
Storage Partitioning

Storage partitions are created when you define **Host-to-logical Drive Mappings.** Partitioning allows you to create multiple virtual systems from a single DS3000 series disk system. Each partition represents a virtual disk system and consists of one or more logical drives assigned to an individual server or group of servers.

Create Host-to-Logical Drive Mapping can be administered by going to the **Configure** tab. At the **Configure** window, select **Create Host-to-Logical Drive Mappings.**

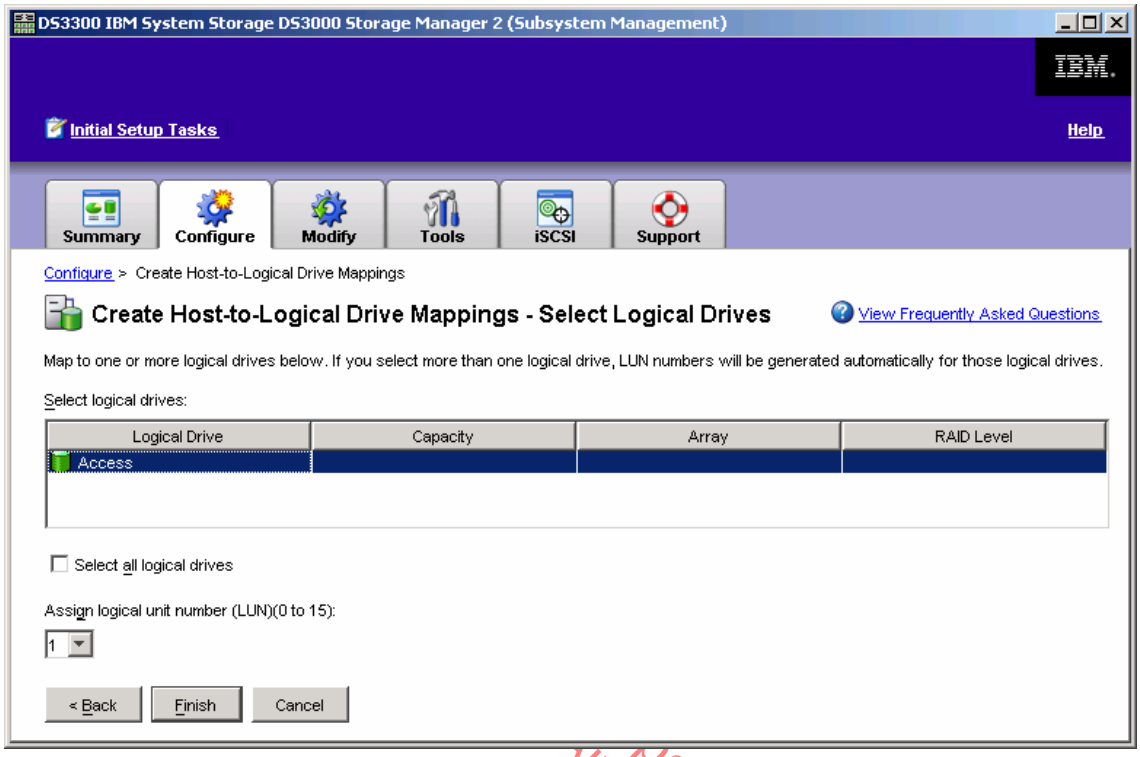


This will open the **Create Host-to-Logical Drive Mappings - Select Host** window.



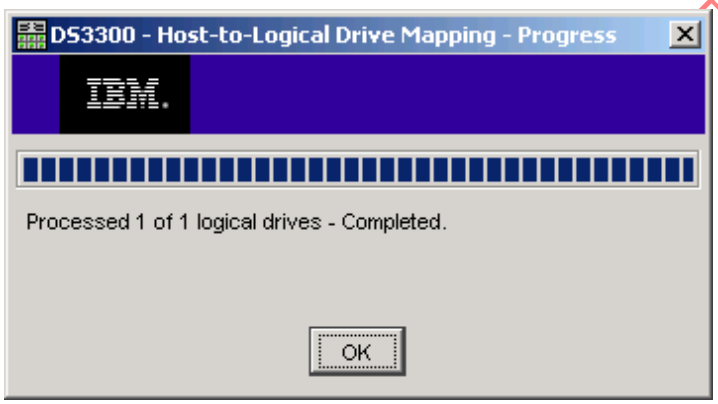
Select the host you would like to map and click **Next**. This will take you to the **Create Host-to-Logical Drive Mappings – Select Logical Drives** screen. You then select the logical drive(s) you wish to be mapped to the host.

Note: Unmapped logical drives will need to be created to reveal this feature.



If more than one logical drive is selected, the logical unit numbers will be assigned automatically. If only one logical drive is selected, you will also be prompted to assign it a logical unit number.

Select **Finish** following your logical drive selection.



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After this process has been completed, click **OK.** You will then be notified if the host-to-logical drive mapping was a success and asked if you would like to map another host-to-logical drive. For this example, select **NO**.

You have successfully mapped a host to a logical drive!

Premium Feature Scenario 2: "How do I improve my application service levels with hot backups?"

FlashCopy

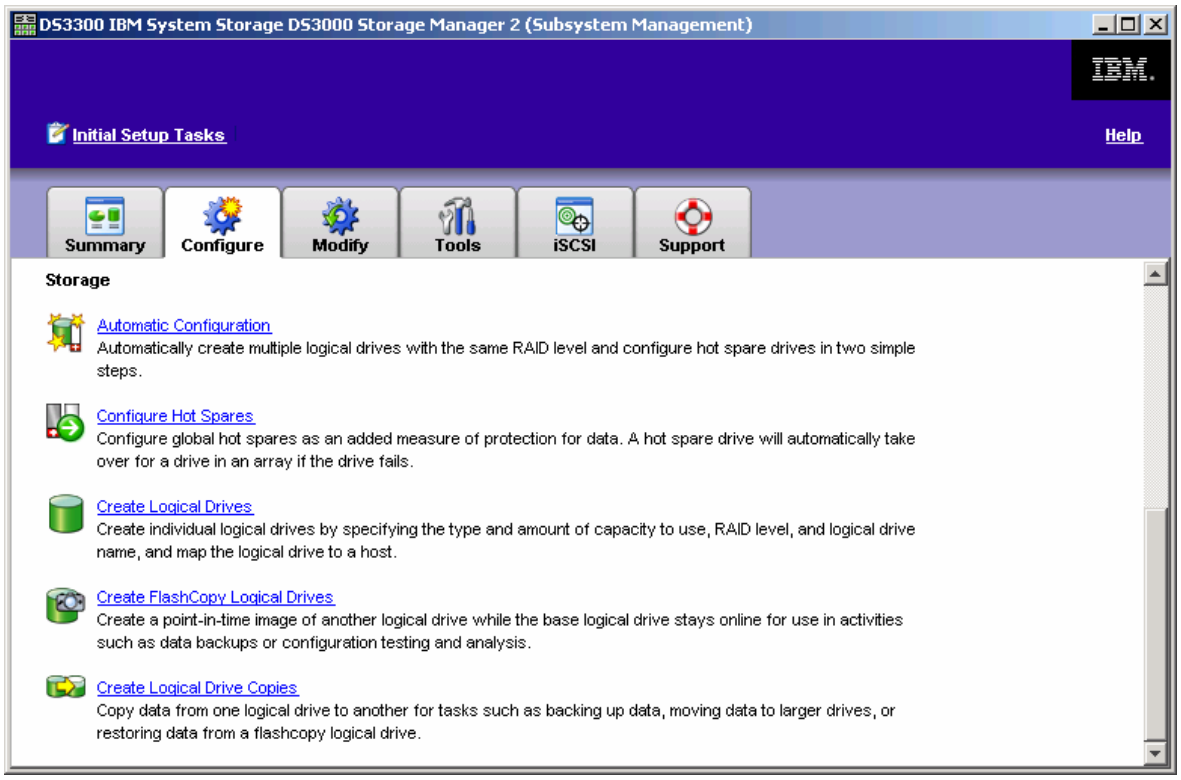
One significant business problem that the IBM DS3000 Storage Manager helps eliminate is the ever-increasing amount of time it takes to complete a backup of applications. As data grows, the time to back it up also grows. The difficulty of provisioning time for backups in a 24x7 environment can be a challenge.

The DS3000 Storage Manager's **FlashCopy** feature minimizes the amount of time the application I/O must be suspended, or the amount of time the application is in hot backup mode.

Instead of impacting the application for the length of the backup process, FlashCopy is used to create a nearly instantaneous image of the source data. The application can then come out of hot backup mode and resume normal processing while the backup application begins copying the point-in-time FlashCopy to the desired target.

FlashCopy can be used to create a point-in-time image of any standard logical drive at any time, as long as there are no tasks (such as rebuilds or expansions) in process on that logical drive.

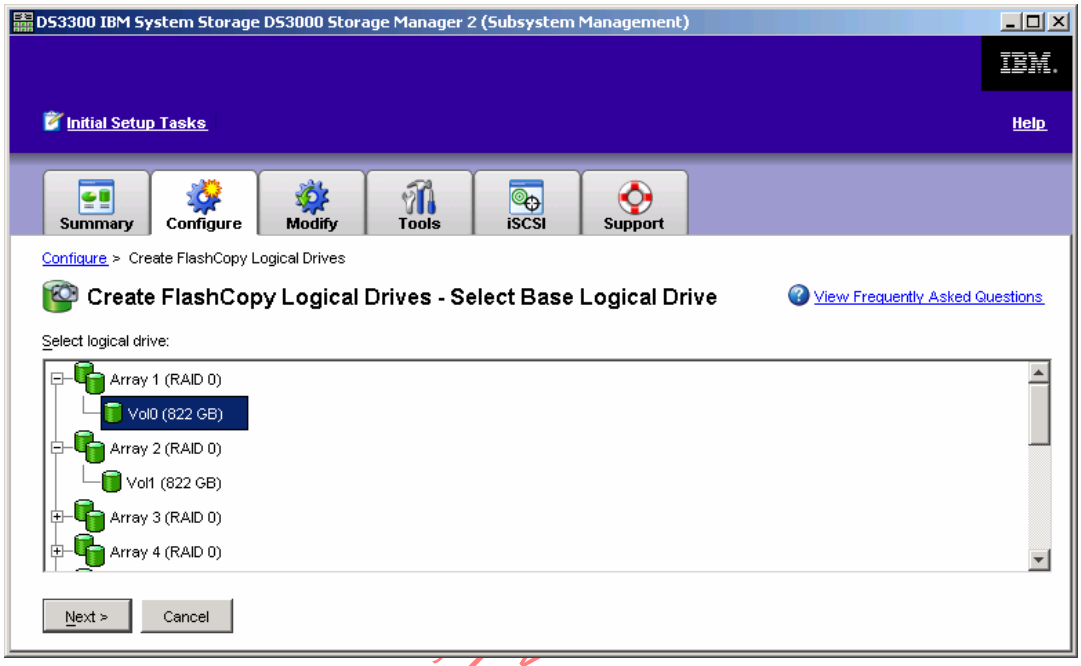
Touring the DS3000 Storage Manager's FlashCopy function will show the reduction in backup length.



Once the FlashCopy feature is enabled (see page 31), go to the **Configure** tab and select **Create FlashCopy Logical Drives.**

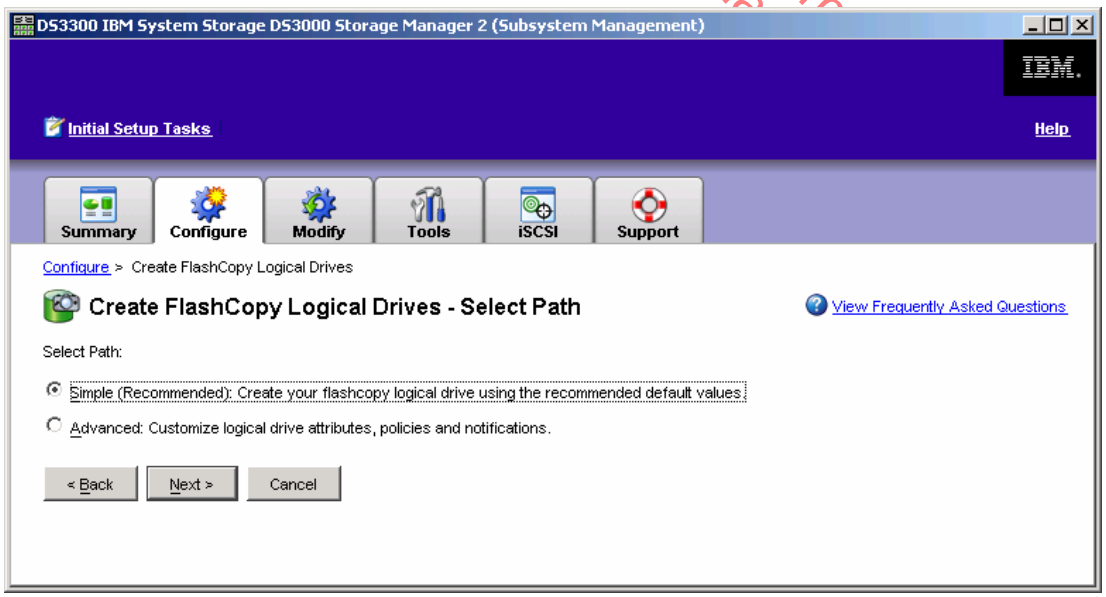
Note: You must refer to the specific instructions in online help for your host OS before creating a FlashCopy. Failure to complete the steps listed for your host OS may result in loss of FlashCopy data consistency. You will also receive a dialog box reminding you of this before you proceed.

At the **Create FlashCopy Logical Drives - Select Base Logical Drive** window, select the logical drive that you want to create a FlashCopy image of.

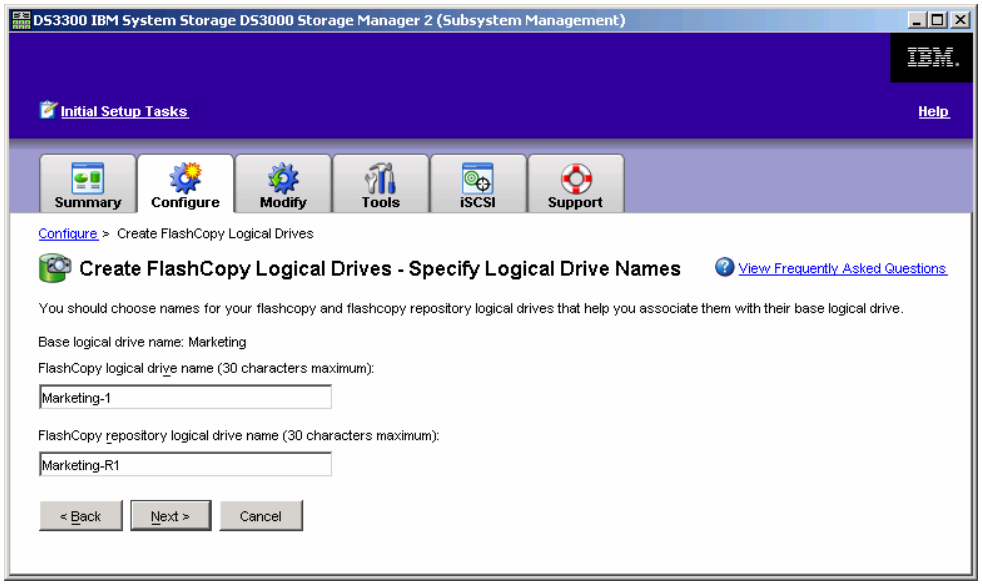


Also note that when you create a FlashCopy logical drive, you automatically create a FlashCopy Repository logical drive. A FlashCopy Repository logical drive stores information about the data that has changed since the FlashCopy logical drive was created. Repository logical drives are reserved for DS3000 Storage Manager use. For example, you cannot select a FlashCopy Repository logical drive for use as a base logical drive or as a target logical drive in a FlashCopy or VolumeCopy operation.

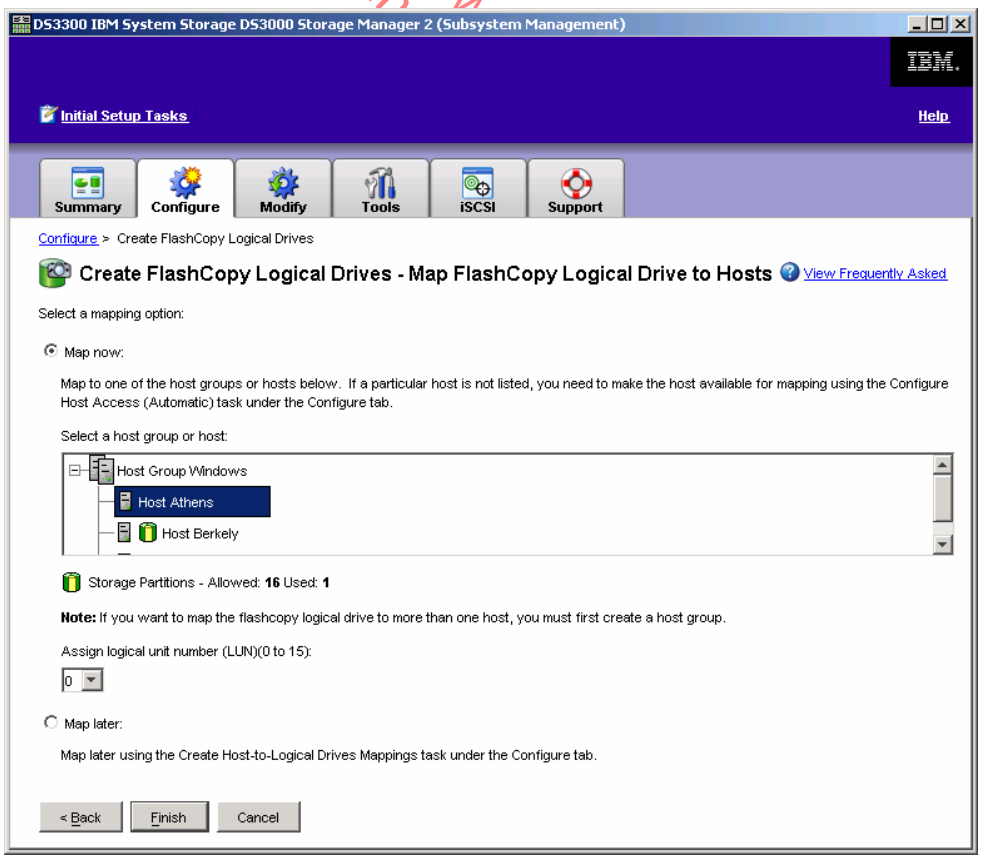
After your logical drive selection, you will be asked to select a path. You have the choice of taking the **Simple** setup, or the **Advanced** setup for more control over the FlashCopy parameters. For this example, we will select the **Simple** option.



You will then be able to change the default logical drive names if desired.



Once you specify the appropriate names and click **Next**, you will select which host or host groups you would like the FlashCopy mapped to.



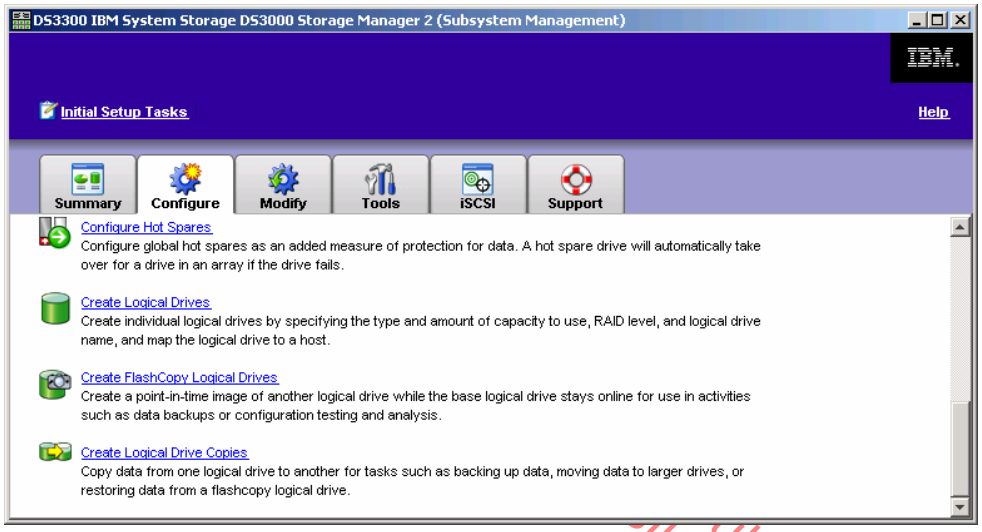
After selecting the host or host group mapping, assign a LUN and **Finish**. This will complete your FlashCopy logical drive creation. A **Summary** screen will open which shows summary information regarding the logical drive and the FlashCopy point-in-time image.

Premium Feature Scenario 3: "How can I create an independent copy of my data?"

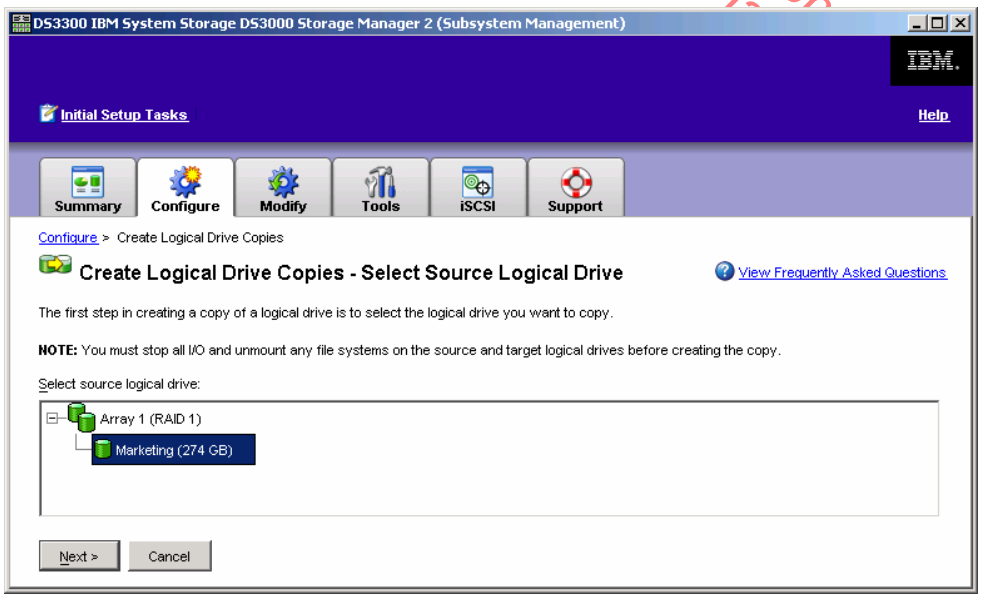
VolumeCopy

Another premium feature of the DS3000 Storage Manager is VolumeCopy. VolumeCopy creates a complete physical copy, or a clone, of a logical drive within a disk system. The clone is a unique entity that can be assigned to any host and used by applications requiring a point-in-time (PiT) copy of production data without affecting the performance of that production data. This feature is typically used in conjunction with FlashCopy to provide an independent copy of a point-in-time FlashCopy logical drive.

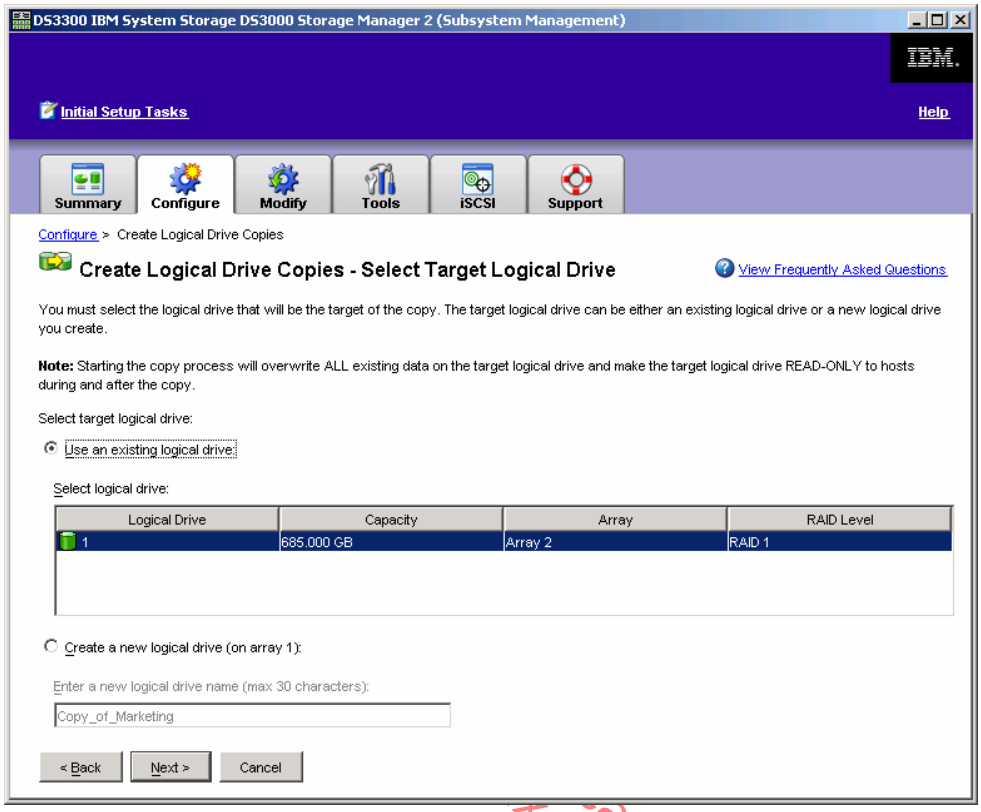
Once the VolumeCopy feature is enabled (see page 31), go to the **Configure** tab and select **Create Logical Drive Copies**.



At the **Create Logical Drive Copies – Select Source Logical Drive** window, select the logical drive you wish to copy.

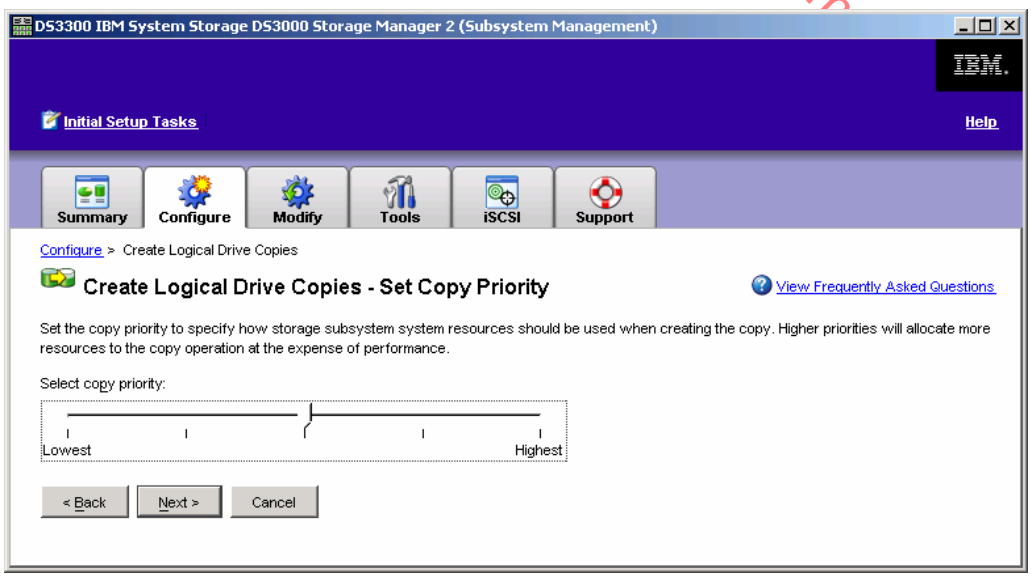


You will then be directed to the **Create Logical Drive Copies – Select Target Logical Drive**. Select the logical drive that will be the target copy and click **Next.**



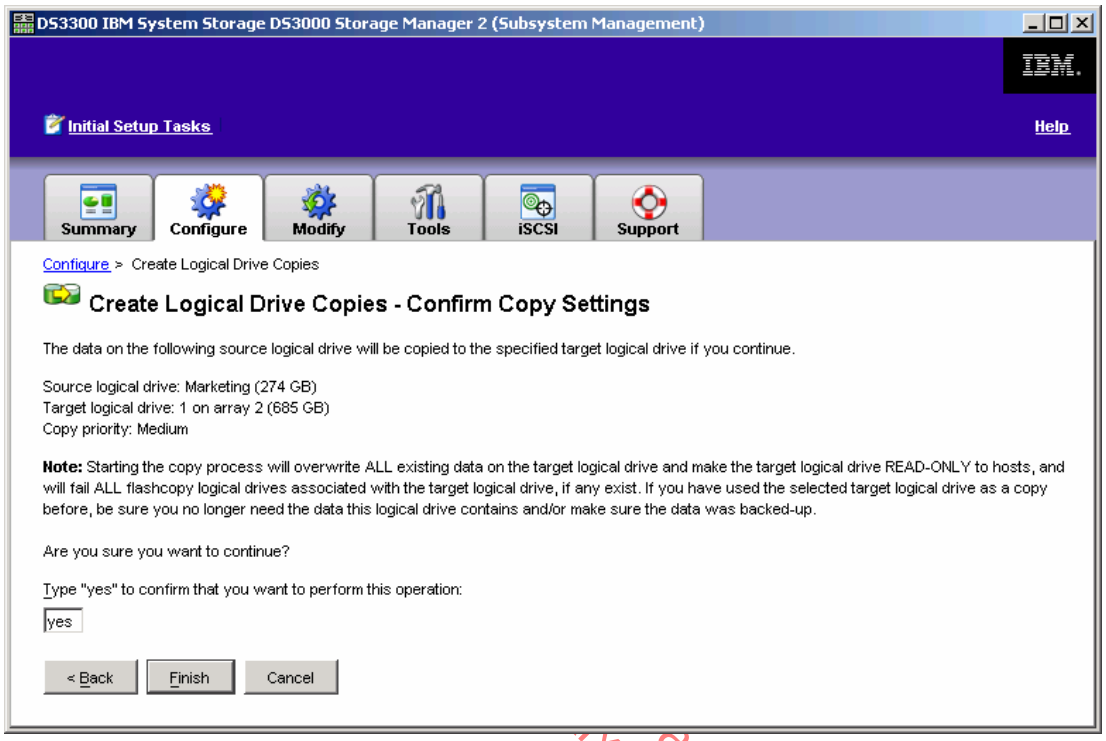
Note: Starting the copy process will overwrite all existing data on the target logical drive and the logical drive will go into READ-ONLY mode during the copy. Therefore, the best practice is to copy a FlashCopy image, which will maintain access to the production data.

The **Create Logical Drive Copies – Set Copy Priority** window will then appear so you can change the copy priority to designate how the disk resources should be used when creating the copy. This gives you the option to minimize copy time or the overall I/O impact to your disk system.

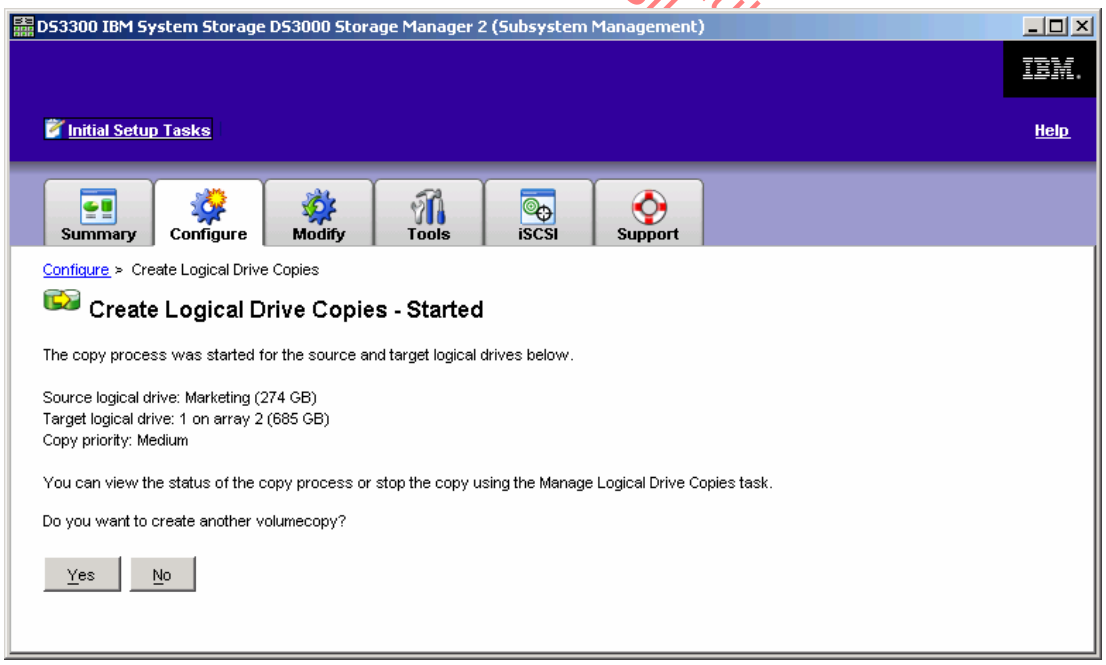


Move the priority bar between **Lowest** and **Highest** and click **Next**.

The final window, **Create Logical Drive Copies – Confirm Copy Settings**, reviews the source logical drive, target logical drive and priority settings you have selected. As this will overwrite all existing data on the target logical drive and make the source logical drive Read-Only while it is being copied, it is important to ensure that these settings are correct.



At the available prompt, type **yes** and select **Finish**. The VolumeCopy finishes in a short period of time.



And your VolumeCopy has been created!

Advanced Features and Manual Functions

This section of the DS3000 Storage Manager Demo Guide is intended to highlight some of the more advanced and manual features that the Storage Manager offers.

You may find that your organization will not have a need for these advanced features. However, as the complexity of your organization grows, you may decide to take advantage of these features or “take the wheel” by creating the specific configurations you have in mind versus a pre-set configuration that is offered through the automatic options.

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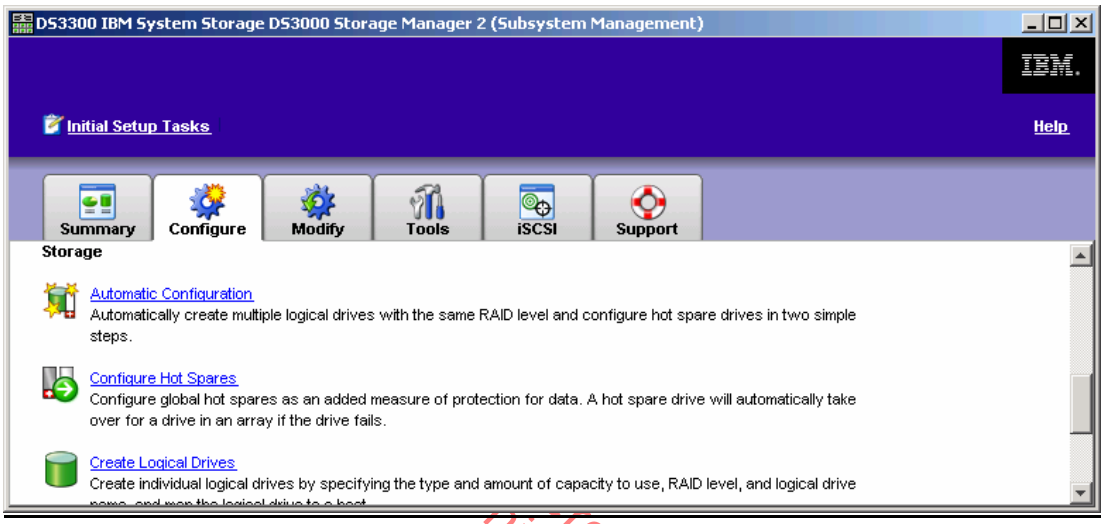
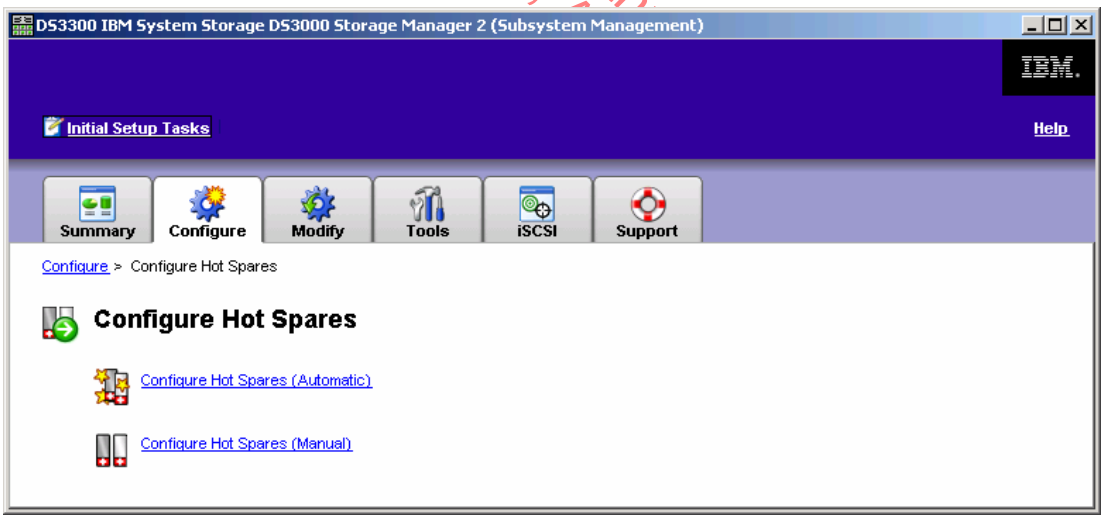
Manual Hot Spare Configuration

The manual Hot Spare configuration option is especially useful for assigning specific drives or viewing and making changes to the current hot spare coverage.

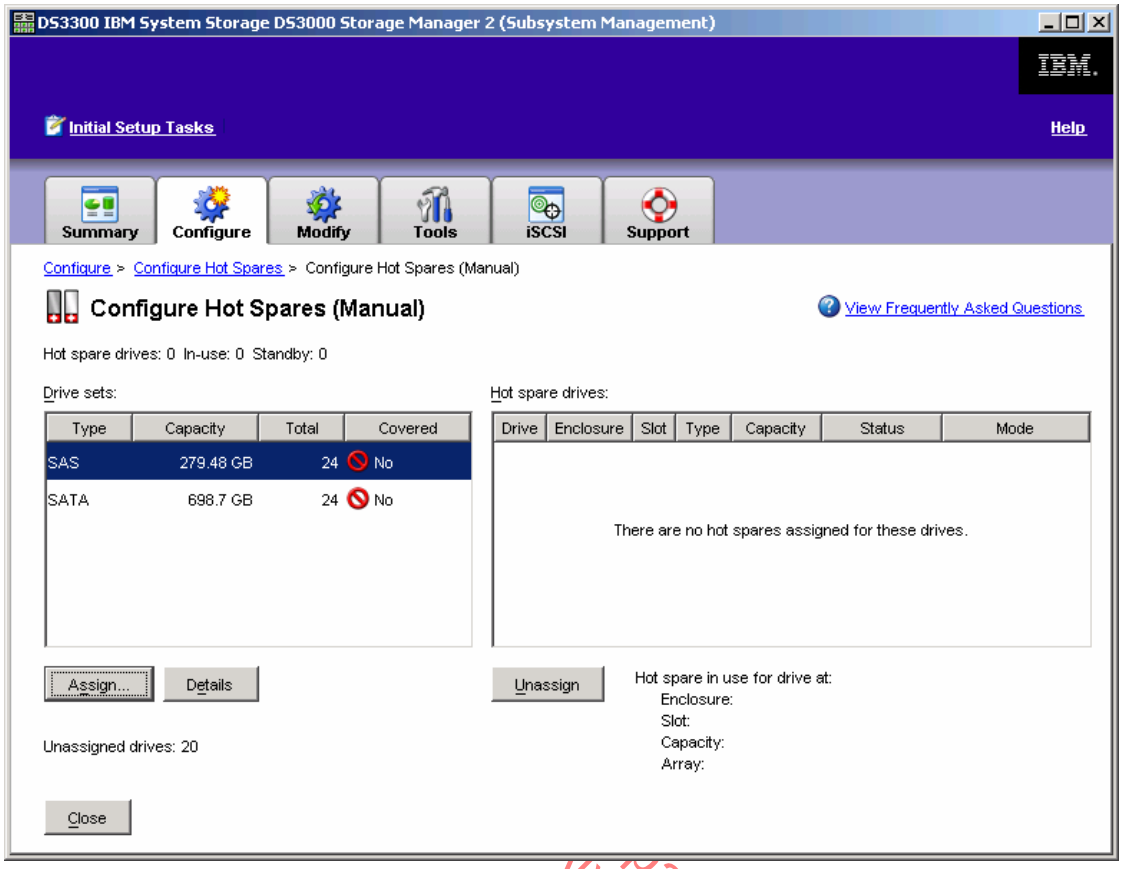
From the **Configure** tab, select **Configure Hot Spares.** You will then be directed to the **Configure Hot Spares** window.



Select **Configure Hot Spares (Manual).**

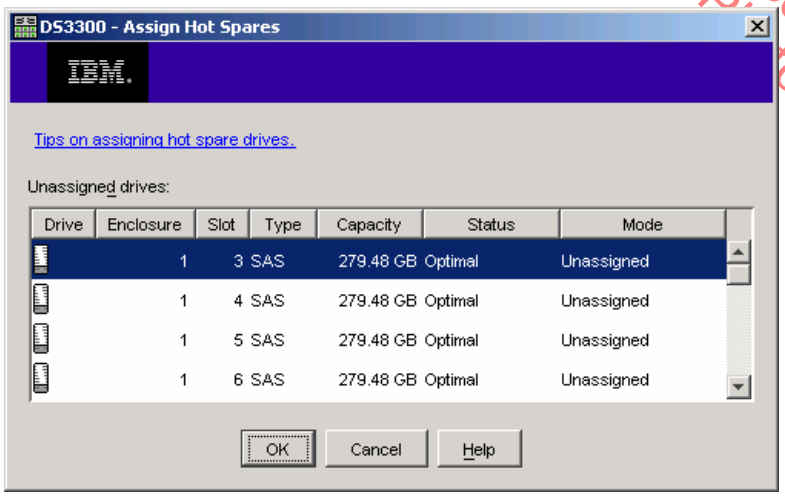


The **Configure Hot Spares (Manual)** screen provides the current hot spare drives in use and prompts you to select the drive type you wish to assign as the new hot spare drive.



For this example, select the SAS drive capacity, and click **Assign**.

The **Assign Hot Spares** window will provide the available disk drives and fit the type of drive and capacity you specified. Select the desired drive and click **OK.**

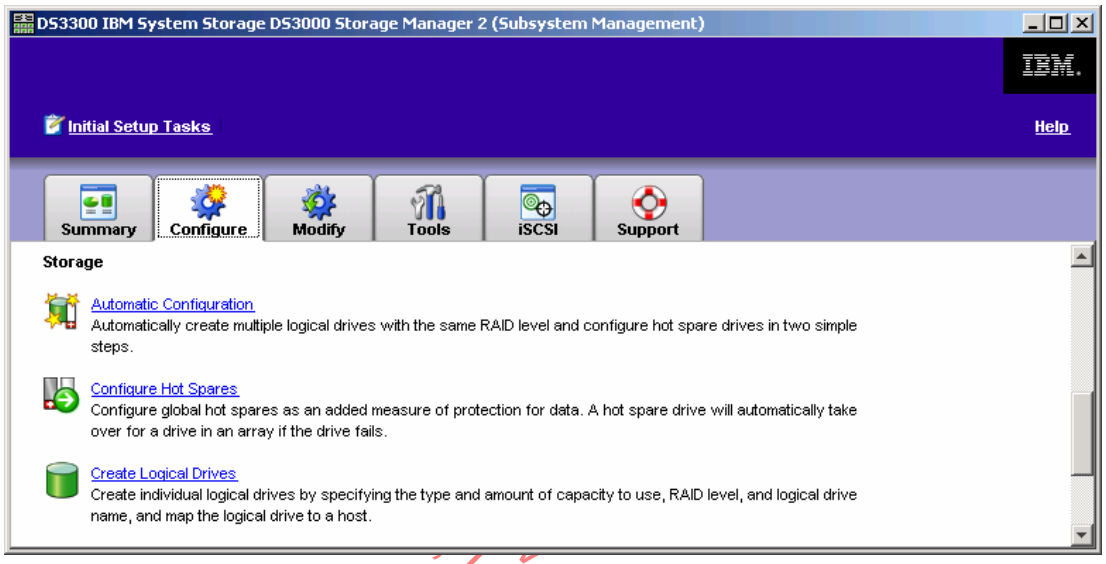


You have completed the manual configuration of a Hot Spare drive.

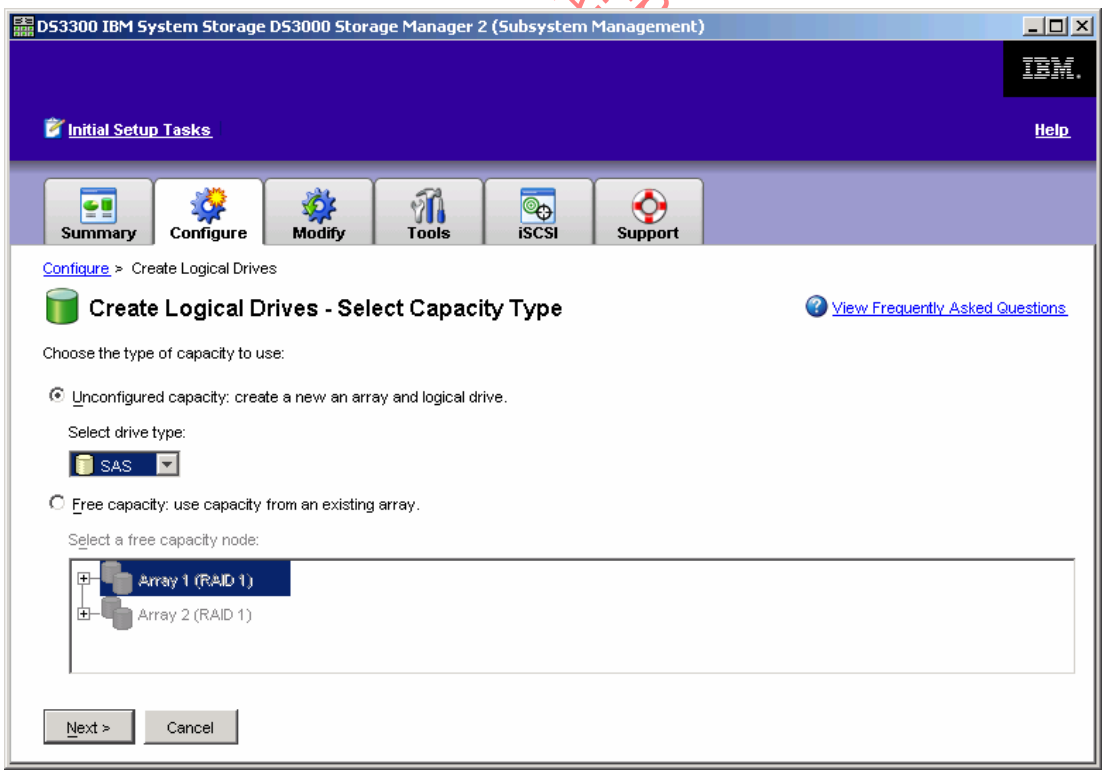
Manual Logical Drive Configuration

As we have previously created logical drives via the **Automatic** option (page 19-22), lets review the **Manual (Advanced)** option.

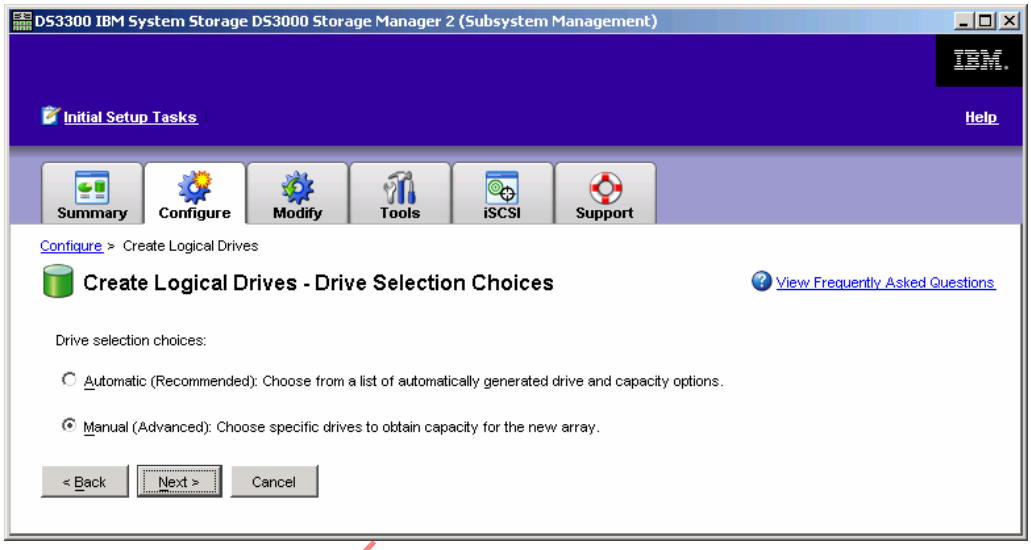
From the **Configure** tab, select **Create Logical Drives.**



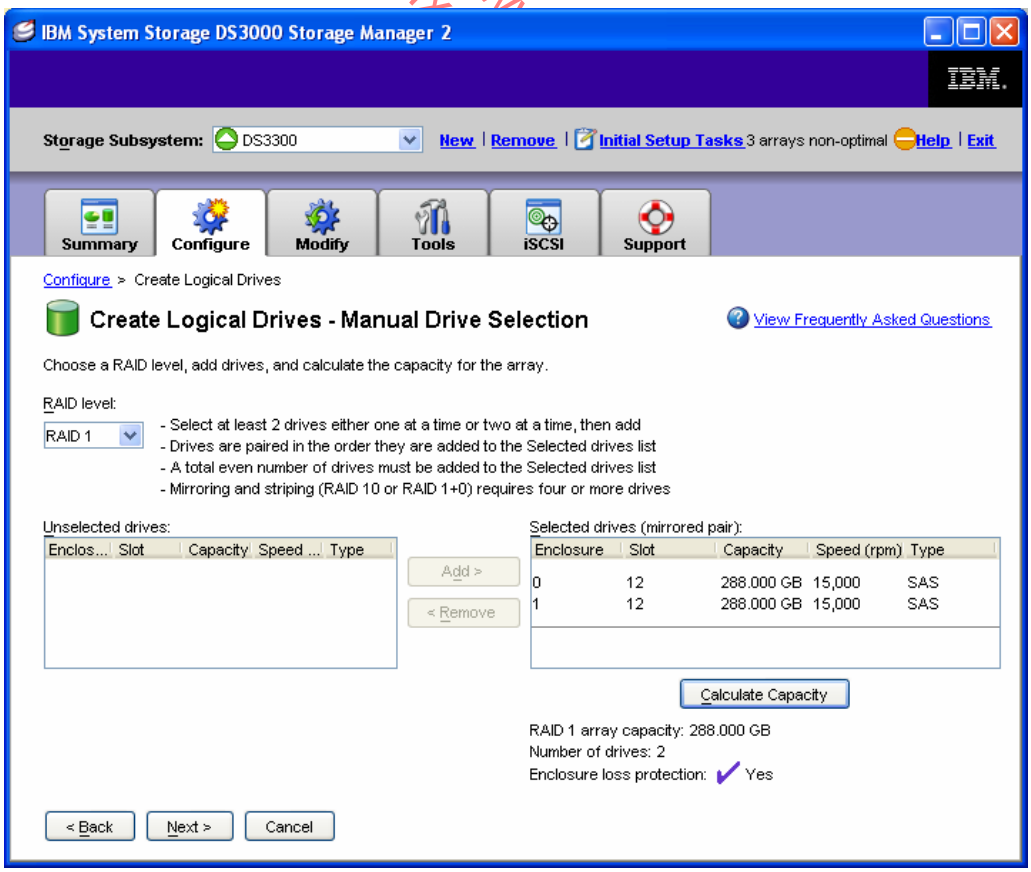
At the **Create Logical Drives – Select Capacity Type** screen, you will choose capacity from either unconfigured capacity or free capacity from an existing array. Select **Unconfigured Capacity** and click **Next.**



From the **Create Logical Drives - Drive Selection Choices** window, select **Manual (Advanced)** and click **Next**.

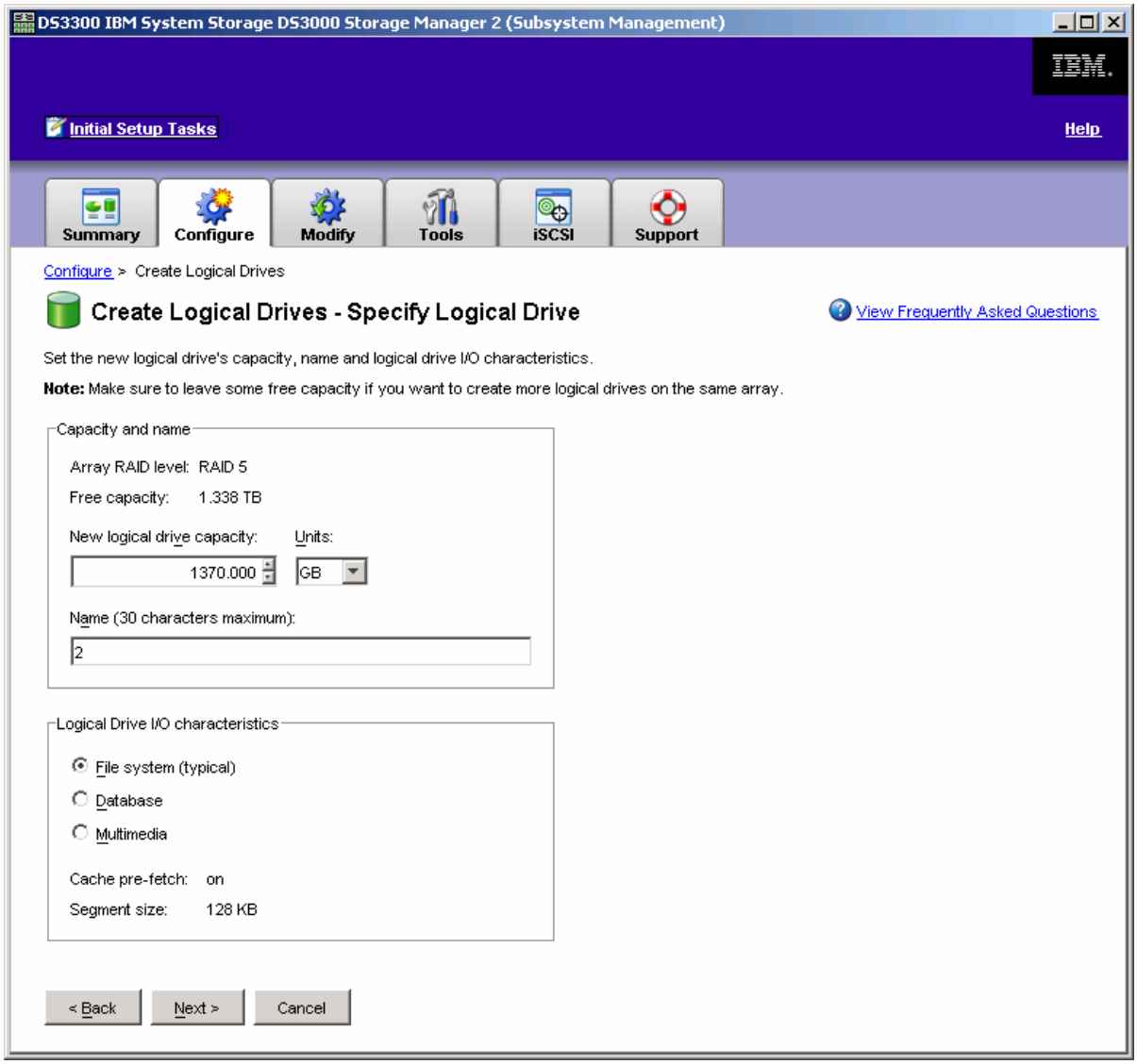


At the **Create Logical Drives - Manual Drive Selection** window, select the desired drives and **Add** them to the array.

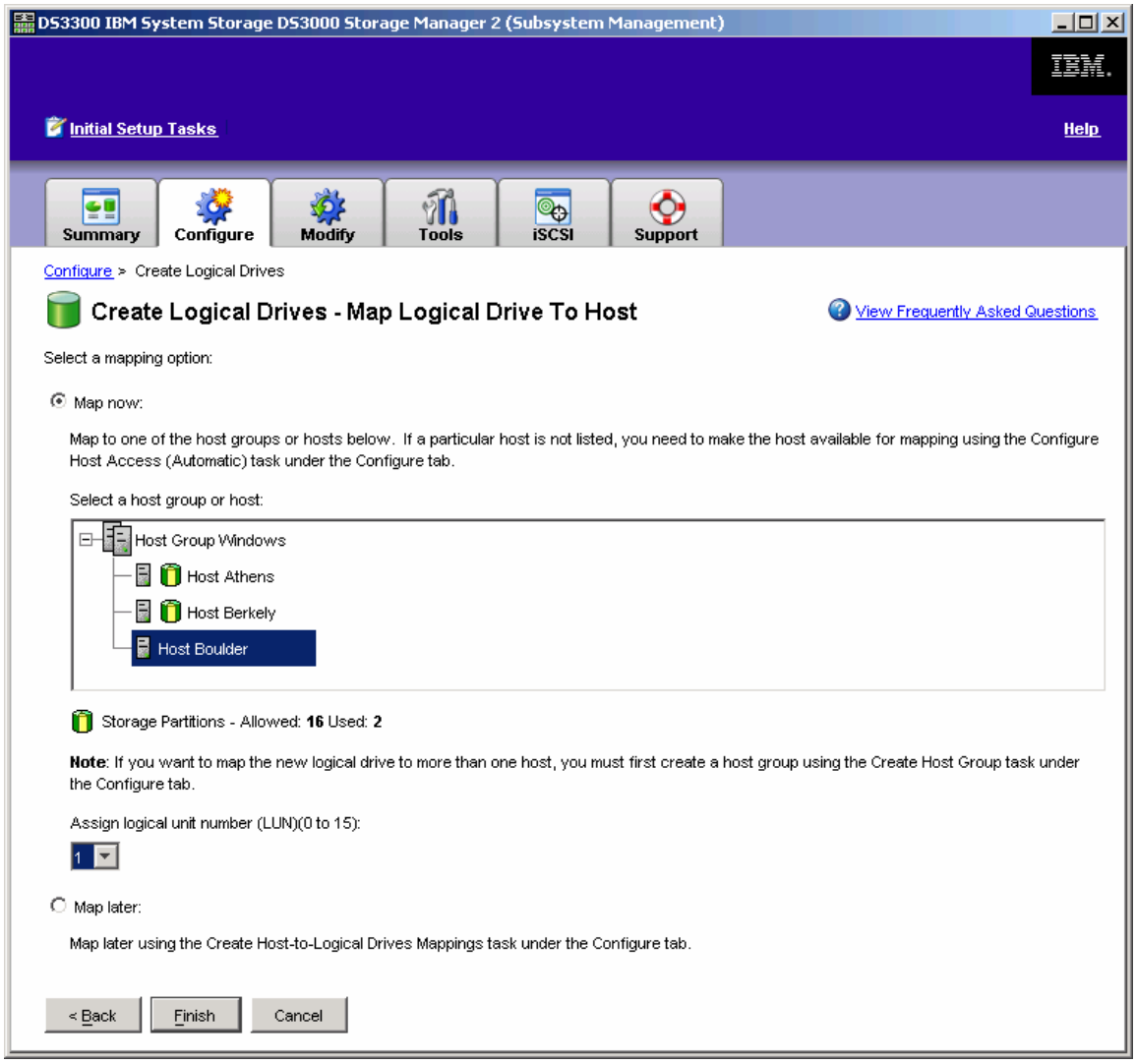


Once all the drives are selected, select **Calculate Capacity** to ensure the proposed array will meet your capacity and channel protection requirements. Click **Next**.

Once the array is created, the **Create Logical Drives – Specify Logical Drive** window will display and the logical drive capacity, name and I/O characteristics are defined.



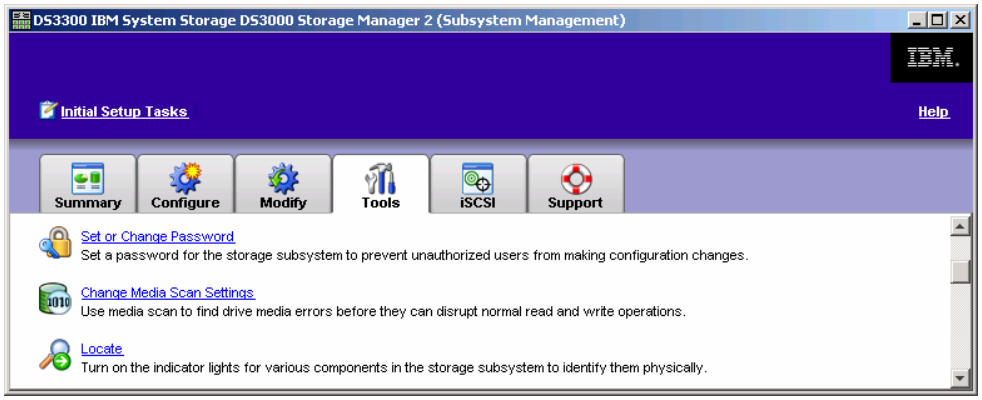
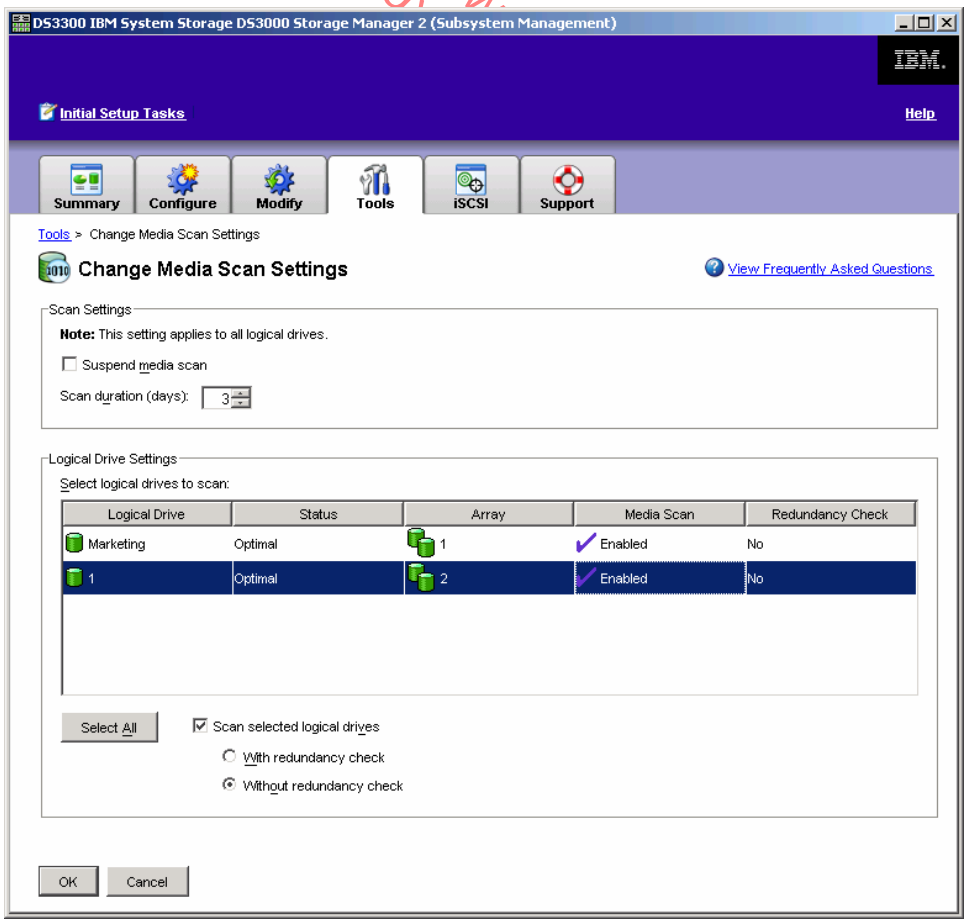
The **Create Logical Drives – Map Logical Drive to Host** window will allow you to map your logical drive to a host group or individual hosts. As this is the first logical drive to be mapped, we will assign it to LUN one. Click **Finish**.



You will receive confirmation that the creation of your logical drive has been completed!

Media Scan Settings

The DS3000 Storage Manager has the ability to perform a background scan of media to ensure data integrity. On the **Tools** tab select **Change Media Scans Settings**.



At the **Change Media Scans Settings** dialog box, select the logical drives to scan (one or more) and select each drives' settings (scan duration and redundancy check). Media scans can also be suspended from this window. Click **OK** and the operation begins.