IBM TOTALSTORAGE OPEN SOFTWARE FAMILY HANDS-ON WORKSHOP

# IBM TotalStorage DS Storage Manager

# Basic Configuration of the DS6000/8000



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# INTRODUCTION

# Introduction to the Lab Guide

The following guide is a sample configuration of DS6000 or DS8000. This is using the DS Storage Manager Offline Configurator. This tool will enable you to practice creating a basic DS6000 configuration. The following exercises will guide you through the creation of a DS storage unit, host attachments and volumes. This is not meant to be used to create an actual configuration, but to become acquainted with the user interface and DS storage concepts.



# Lab 0. Install the DS Storage Manager Offline Configurator

Introduction

In this lab you will install the DS Storage Manager Offline Configurator. This tool can be used to create a simulation of a real-time DS storage controller. The process will cover the steps required to download and install this tool.

### **Objectives**

Download the DS Storage Manager configuraitons Perform the intial step to configure the simulator tool. Install the DS Storage Manager Off-line configurator.

### **Directions**

1. Download the DS Storage Manager from the IBM support website. From your web browser navigate to IBM -> Support and Downloads -> Disk Systems -> DS6800. Select Downloads and then the latest microcode. There will be a list of downloadable files. Select the Storage Manager to download. Save the file to a local directory. (On May 24,2005 the following link was usable: <u>http://www-</u>

<u>1.ibm.com/support/docview.wss?rs=1112&context=HW2A2&dc=D400&q1=ssg1\*</u> &uid=ssq154000359&loc=en\_US&cs=utf-8&lang=en )



2. Using a zip utility, unzip the file

DS6000StorageManager\_WIN\_0260c.zip into a local directory. Next, to install select setup from the local directory.



3. The install wizard will run and display the initial install screen. Select Next to continue.



4. Select the option to accept the license agreement.



5. Select Next to accept the default destination directory.



6. Accept the default hostname and ports (unless you are aware of any conflicts). Select Next.

() IBM TotalStorage D56000	) Storage Manager In	nstaller - Server Parameters	
	Specify the host name	e and the free TCP ports for the server.	
	Host name:	ADMIN1	
	HTTP port:	8451	
	HTTPS port:	8452	
	Bootstrap/RMI port:	8453	
	SOAP port:	8454	_
	Server help port:	8455	-
InstallShield			
		< Back Nat Cancel	

7. Since this is an initial install, select the option to generate new SSL certificates. Enter a key file and trust file password (e.g. *password*).

(1) IBM TotalStorage DS60	00 Storage Manager Installer - S	SL Configuration	
	Please enter the following inform Storage Manager. 'Key file name' stands for the ful 'Key file password' stands for the Trust file name' stands for the ful Trust file password' stands for t	nation required to set SSL configuration for IBM TotalStorage D: ly qualified path to the key file. e password for accessing the key file. Jly qualified path to a trust file. he password for accessing the trust file.	36000
	Select one of the following o	ptions concerning the SSL certificates: certificates during installation, or	
	C Use existing SSL certific:	ates	
	Key file name:	C:\Program Files\IBM\SMServer\keys\SMServerKeyFile.jks	
		Brow	se
	Key file password:	*****	
	Confirm key file password:	*****	
	Trust file name:	C:\Program Files\IBM\SMServer\keys\SMServerTrustFile.jks	
		Brow	se
	Trust file password:	*******	
	Confirm trust file password:	******	
InstallShield	1		
		< Back Next > Ca	ancel

7

8. Accept the defaults, the information is optional. Select Next.

(1) IBM TotalStorage D56000 Stor	age Manager Installer - G	enerate Self-Signed	Certificate	
In ord	er to generate the self-sign	ied certificate please	provide the following informati	on:
Ke	eystore alias:	DSKey		
	ey size:	1024	1	
Caller Caller	ommon name:	ADMIN1		
Or	ganization name:	IBM		
Or Or	ganization unit (optional):			
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St	ate (optional):			
Co	ountry or region:	US 💌	1	
Va	ilidity period (days):	3650		
InstallShield				
			< Back	Cancel

9. Select install to initiate the installation.



10. Wait for the install to complete (approximately 20 minutes). Select Finish.



11. You have completed the DS6000 Storage Manager Install.



# Lab 1. Create Storage in the Storage Complex

# Introduction

The DS6000 simulator provides the opportunity to create a storage system to support the configuration steps that would be used on real DS6000 hardware. This lab exercise will describe the steps necessary to create the storage system.

# **Objectives**

Using the Storage Manager application, you will perform the following tasks :

• Create a default storage system complex.

### **Directions**

- On the Windows workstation, select "Start...Programs...IBM TotalStorage DS6000 StorageManager...Open DS Storage Manager".
- 2. When the application window appears, logon as admin/admin.

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	C http://localhost:8451/DS6000/Login
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	M TotalStorage DS6000 Sign On ter user name and password to sign on.
Welcome	iUser name admin
IBM TotalStorage DS6000	Password
1	OK Cancel
Waiting for localhost	

3. This DS6000 Storage Manager application can create a realtime configuration or be used for simulation. This set of lab exercises are based on the simulation feature of the application which will not require any storage system hardware.

The Welcome window is displayed. Select the "Simulated manager" link in the left side of the window.



- 4. Select the link on the left side of the window called Simulated manager. The link called Manage configuration files provides the capability for naming and organizing specific storage system configurations for saving using a unique name. You can choose to define a configuration filename or just ignore this link and use the default configuration file name.
- 5. Select the link called Manage hardware .



6. Select the link called **Storage complexes** then from the listbox on the right side of the window, select **Create** and then select **Go**.



7. A default storage system based on your Windows hostname is given automatically. From the **Define properties** panel displayed, select **Next**.



8. Select Finish to complete the creation steps.

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Welcome	Create Storage Co	mplex: Simulated	
Real-time manager			
Manage configuration files Monitor system Manage hardware Storage complexes Storage units Heat warkeme	✓ <u>Define</u> <u>properties</u> → <u>Verification</u>	Verification Review and verify the data before c	licking Finish.
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p comigate storage		Nickname	IBM_FY9SIDI6D01
		Selected storage units	IDWA 1301DIODVE
	< Back Next	> Finish Cancel	
Done			

9. The Created storage complex item is represented as a table entry in the panel.



You have completed Lab 1.



# Lab 2. Create Storage Units

Introduction

ow the simulator allows for creation of individual DS6000 storage units. This information can be input manually or imported from an eConfig file. For the lab, we will manually create DS6000 storage units. With a real DS6000 storage system, the configuration could be imported into the simulator.

# **Objectives**

Using the Storage Manager, you will perform the following tasks :

- Manually Create a Storage Unit.
- Verify Storage Unit Creation.

### **Directions**

If you have the Storage Manager session already opened, skip to step 4, otherwise continue to step 1.

- 1. From the Start menu on the Desktop, start the Storage Manager application.
- 2. Logon as **admin/admin** to which the **Welcome** window is displayed.
- 3. Select the **Manage hardware** link to reveal the link for creating Storage units.
- 4. Select the link on the left side of the Storage Manager window called **Storage units**.

5. From the listbox, choose Create and then select Go



- For General storage unit information, from the listbox choose the only entry Machine Type-Model of 1750 Model 511 from the top listbox.
- 7. Type a Nickname of *COLOR*SU1 and a Description of *COLOR* Storage Unit 1.

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Done	М	- In

- 8. Select the storage complex name created in the previous lab exercise which is automatically derived from your Windows system hostname.
- 9. Click Next> to proceed.

10. On the **Specify DDM packs panel**, choose a value of 12 for Quantity of DDM packs, accept the default value for DDM Type, and select the **Add** button to show these packs as selected.



11. The DDM packs selected is shown as a table entry on the right of the panel.



12. Click on the Next> button to proceed.

•

13. The value in the top entry is the amount of total TB of storage defined. Under **Define licensed function**, accept the defaults and select **Next** to proceed.



14. On the **Verification** panel, verify the correctly entered information and select **Finish**.

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Express configuration wizard	Nickname	GREENSU1
Arrays	Machine Type-Model	1750 Model 511
Extent pools	Licensed function	Yes
Open systems	Total capacity (TB)	3
▶ zSeries	Back Next > Finish Cancel	
Done		

15. Now the the newly created storage unit is displayed as a table entry in the panel.



You have completed Lab 2.

# LABORATORY

# Lab 3. Create Host Objects

Introduction

ow that the DS6000 storage units are created in the storage complex, the hosts can be created for accessing to the storage units.

**Objectives** 

Using the DS6000 Storage Manager, you will perform the following tasks:

- Define a Windows 2K host attachment
- Define a AIX host attachment

### **Directions**

If you have a **Storage Manager** session already opened, skip to step 4, otherwise continue to step 1.

- 1. From the Windows workstation, start the **Storage Manager** application.
- 2. Logon as admin/admin
- 3. The Welcome window is displayed. From the links on the left side of the Storage Manager window, select Manage hardware.
- 4. Under the Manager hardware link, select the link called Host systems.

5. From the scroll listbox on the right side panel, select **Create**, and click on the **Go** button to proceed.



### **Creating Host Attachments**

- 1. From the **General host information** pane, select the listbox entry for a **Windows 2003 Intel server**.
- 2. In the Nickname box, type COLORW2K.
- 3. In the Description box, enter COLOR Windows 2K Server.
- 4. Click Next to proceed.

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Done				

- 5. From the **Define Host ports** panel, do the following:
  - Enter 2 for the number of host ports.
  - In the Type box, select FC switched.
  - Select Add to confirm the selections. The 2 host ports will be listed as a table entry on the right side of the window.
  - Check the checkboxes called
     Group ports to share a common set of volumes
     and
     Define host WWPNs

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zSeries		of volumes	Total: 0 Selected: 0
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- Click the **Next** button to proceed.
- Define host WWPN. The Define host WWPN panel is presented. Using the LAB worksheet information (or using 2 unique self-defined 16 hex character string value to represent the host adapters) for this host, enter the WWPN addresses.

Example: 210000e08b035a70 and 210000e08b035a71



• Select OK to proceed.

• Specify the desired Storage Units for access by this host by selecting and clicking on **Add** to confirm the highlighted named storage unit.



#### • Select Next to proceed.



 At this point we can create an empty volume group to associate with this host. Later we will add volumes to this group for this host to access. To specify storage unit parameters for a new volume group, select Create new group



- Change the group name to COLORVG1.
- Locate and select the Windows 2003 host type by checking the appropriate check box. Multiple check boxes of the same system type with respect to storage will become selected automatically as you check the specific system type check box.
- 😻 IBM TotalStorage DS6000 Mozilla Firefox - 🗆 × Eile Edit View Go Bookmarks Tools Help ▼ O Go G. 🖹 Customize Links 📗 Free Hotmail 📄 IBM Business Transf... 📄 IBM Internal Help H... 📄 IBM Standard Softw... 📄 Search the Web wit 📄 Windows Media 📘 (4) IBM TotalStorage. DS6000 Storage Manager TRM. 🕲 📴 Welcor 🗈 Manage configuration files: S 🗖 Storage units: Sim 💼 Storage complexes: Sir 🗈 Long running task summary: 🕬 -0 ? Create Volume Group Select host attachments Welcome - Real-time manager
   Simulated manager Select volumes \*Nickname for group GREENVG1 Manage configuration files Verification Monitor system
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  Open systems LinuxRHEL 512 Map 256 LinuxSuse 512 Map 256 ▶ zSeries V LinuxRF 512 Map 256 V LinuxDT 512 Map 256 Win2000 512 Map 256 Win2003 512 Map 256 < Back Next > Finish Cancel Done
- Click Next to proceed.

 On the Select host attachments panel, proceed by clicking Next



• On the Select volumes for group panel, click Next (do not select the button called Create new open system volume as the simulator gives unpredictable results)

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	< Back Next > Finish Cancel	
-	•	<u> </u>
Done		1.

• On the Verification panel, review the configuration and select Finish.



 Select Volume group *COLORVG1* just created and Apply the host attachments on the storage unit to the host by checking the checkbox called

the following specific storage unit I/O ports.



- Select the Configure I/O Ports button and then select ports by checking the check box for the desired ports listed.
- Select OK.



• From the Select Action listbox, choose Change to FcSf (since the storage unit is assumed to be attached to a fibrechannel switched fabric) and then click on Go.

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Done					1.

 Click on Continue to confirm the configuration. You must manually close this panel by clicking on the X indicated by the RED arrow when this step is completed.



• Click **OK** to complete the configuration of host to storage unit configuration.



• Select **Apply assignment** to assign host ports to the storage unit.



 $\circ$  Click on  $\mbox{Finish}$  to complete the configuration.

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• Perform these same steps again to add an AIX host with attachment to the same volume group.

You have completed Lab 3.



# Lab 4. Configure Storage

# Introduction



Ow that the physical storage unit is conifgured, we can allocate storage to use with our defined hosts.

# **Objectives**

Using the DS6000, you will perform the following tasks:

• Use the Express configuration wizard to allocate storage volumes

### **Directions**

If you have an **Storage Manager** session already opened, skip to step 4, otherwise continue to step 1.

- 1. From the Windows workstation, start the **Storage Manager** application.
- 2. Logon as admin/admin
- 3. The **Welcome** window is displayed. From the links on the left side of the Storage Manager window, select **Manage hardware**.

4. Under the **Configure storage** link, select the link called **Express configuration wizard**. Select the **COLORSU1** storage unit from the listbox.



5. Select **Next** to proceed.

- 6. The wizard based on the administrators input will define arrays, create ranks, extent pools and volumes. To begin the process, select 2 of the 3 parameters to calculate the allocation method.
  - Select RAID5 for RAID type
  - Set volume size of 4 (GB)
  - Set volume quantity to 100
  - Select Calculate
  - UNcheck Create host checkbox

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- 7. Click Next to proceed.
- 8. View and verify the summary panel. The panel will indicate that the process is in progress. When the panel indicates that the process has completed, select **Close and View summary button** to close the panel.

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# Lab 5. Assign Volumes to Volume Group

## Introduction

Now that volumes are defined and the volume group is defined, we can assign volumes to the volume group.

# Objective

Assign defined storage volumes to defined volume group.

### Instructions

1. Select the Volume groups link on the left of the window under Open Systems.



2. Select the listed volume group *COLORVG1* by clicking the check box.



3. From the listbox, select Modify and click on Go.

**4**. View the volume group properties and click on **Next** to proceed.

Image configuration files   Welcome <ul> <li>Select host</li> <li>Select host</li> <li>Select volumes</li> <li>Select volumes</li></ul>	) IBM TotalStorage DS6000 - Mozilla Firefox ile Edit View Go Bookmarks Tools H	elp						
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- 6. Select the displayed host attachment previously configured.
- 7. Click on Next to proceed.



8. From the volumes listed, select the first 5 volumes to include in this volume group by clicking on the check boxes.

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9. Click Next to proceed.

10. Verify the resulting configuration.



11. Click on Finish to complete the steps.

You have completed Lab 5.

The following pages show the results of the action of the Express configuration wizard executed earlier.

12. Select the link called **Arrays** under **Configure storage** on the left side of the window. Shown are the **Express configuration wizard** generated arrays.

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13. Select the link called **Ranks** under **Configure storage** on the left side of the window. Shown are the wizard generated ranks.

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14. Select the link called **Extent pools** under **Configure storage** on the left side of the window. Shown is the wizard generated extent pool.



This is the end of the panels showing results of the **Express configuration wizard**.