IBM TOTALSTORAGE OPEN SOFTWARE FAMILY HANDS-ON WORKSHOP

IBM TotalStorage DS Storage Manager

Basic Configuration of the DS6000/8000

IBM System Group
Technical Marketing and Sales Support
Version .90

Table of Contents

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.

LABORATORY

0

Lab 0. Install the DS Storage Manager Offline Configurator

Introduction

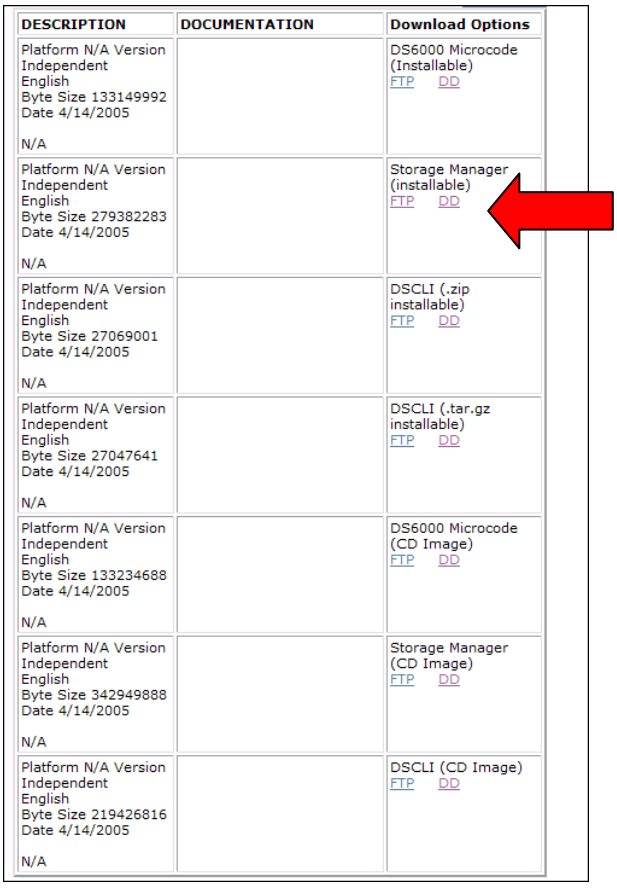
In this lab you will install the DS Storage Manager Offline Configurator. This tool can be used to create a simulation of a real-time DS storage controller. The process will cover the steps required to download and install this tool.

Objectives

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

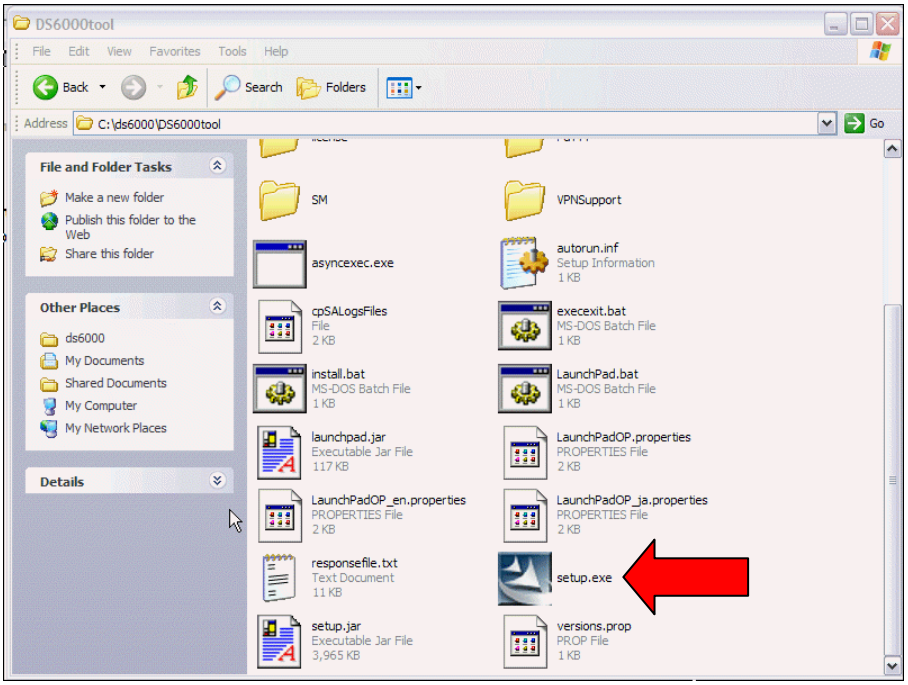
Directions

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: *http://www-1.ibm.com/support/docview.wss?rs=1112&context=HW2A2&dc=D400&q1=ssg1*&uid=ssg1S4000359&loc=en_US&cs=utf-8&lang=en*)

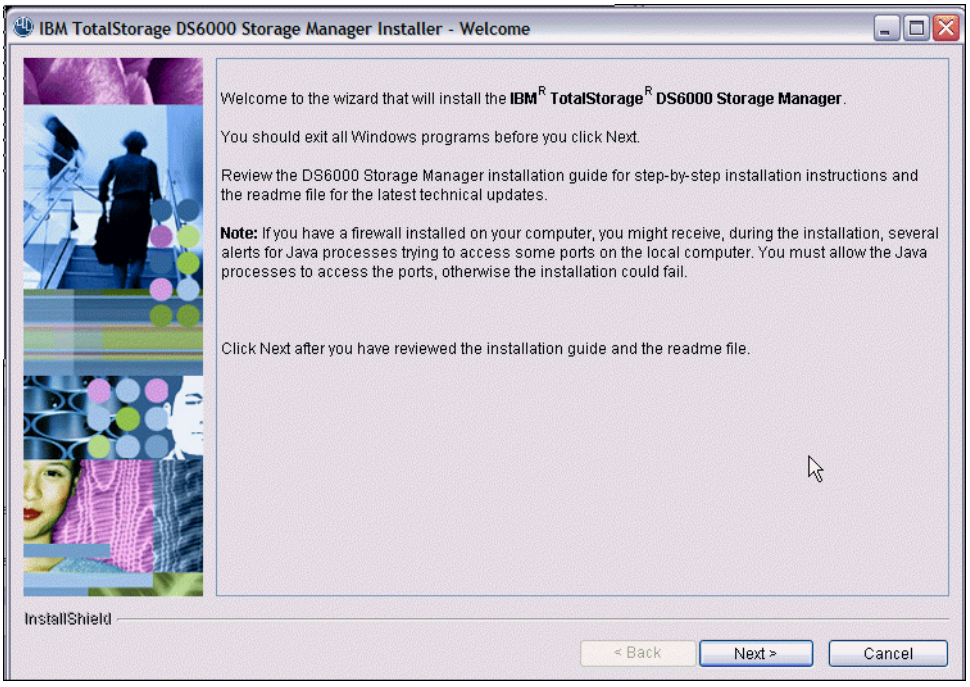


DESCRIPTION	DOCUMENTATION	Download Options
Platform N/A Version Independent English Byte Size 133149992 Date 4/14/2005 N/A		DS6000 Microcode (Installable) FTP DD
Platform N/A Version Independent English Byte Size 279382283 Date 4/14/2005 N/A		Storage Manager (installable) FTP DD
Platform N/A Version Independent English Byte Size 27069001 Date 4/14/2005 N/A		DSCLI (.zip installable) FTP DD
Platform N/A Version Independent English Byte Size 27047641 Date 4/14/2005 N/A		DSCLI (.tar.gz installable) FTP DD
Platform N/A Version Independent English Byte Size 133234688 Date 4/14/2005 N/A		DS6000 Microcode (CD Image) FTP DD
Platform N/A Version Independent English Byte Size 342949888 Date 4/14/2005 N/A		Storage Manager (CD Image) FTP DD
Platform N/A Version Independent English Byte Size 219426816 Date 4/14/2005 N/A		DSCLI (CD Image) FTP DD

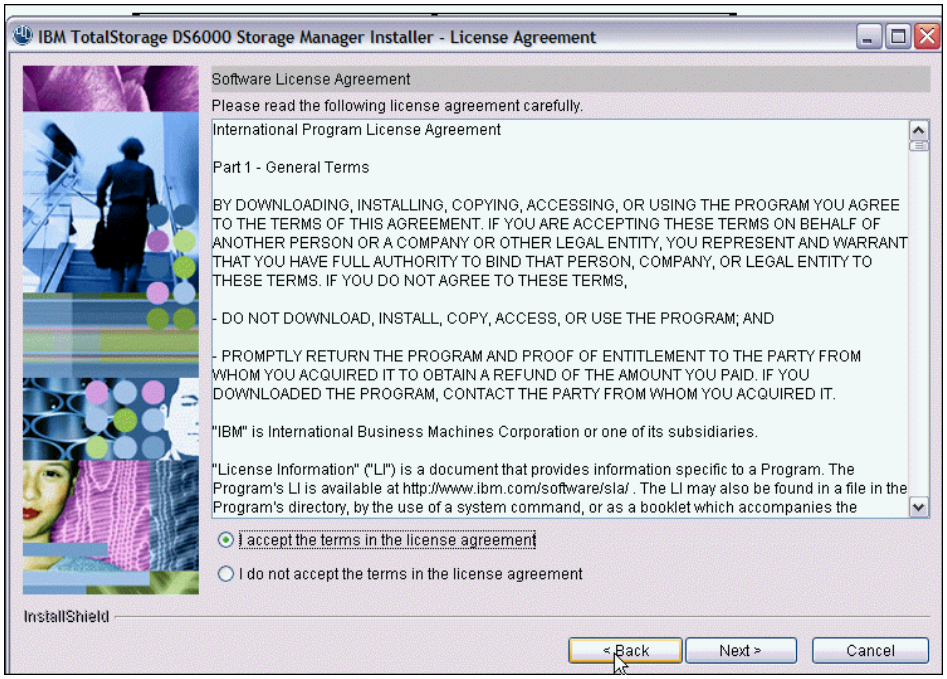
2. Using a zip utility, unzip the file DS6000StorageManager_WIN_0260c.zip into a local directory. Next, to install select setup from the local directory.



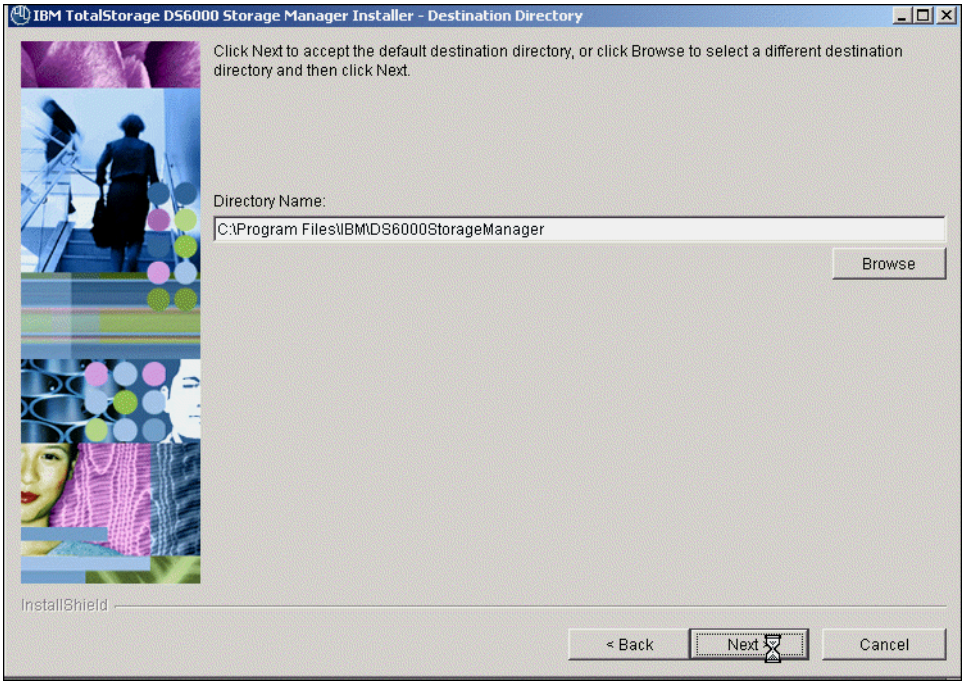
3. The install wizard will run and display the initial install screen. Select Next to continue.



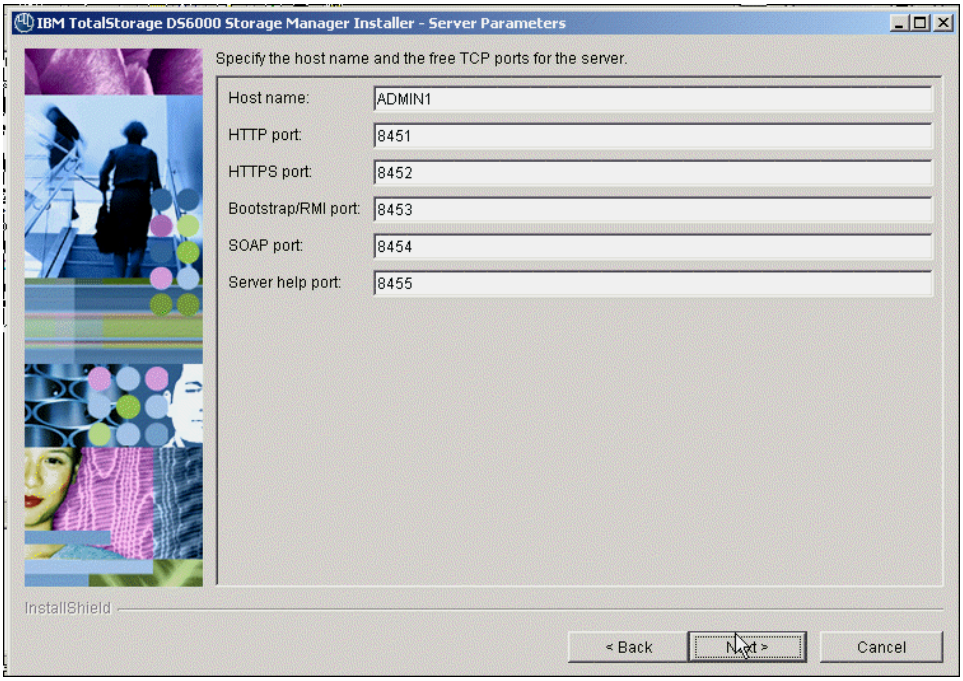
4. Select the option to accept the license agreement.



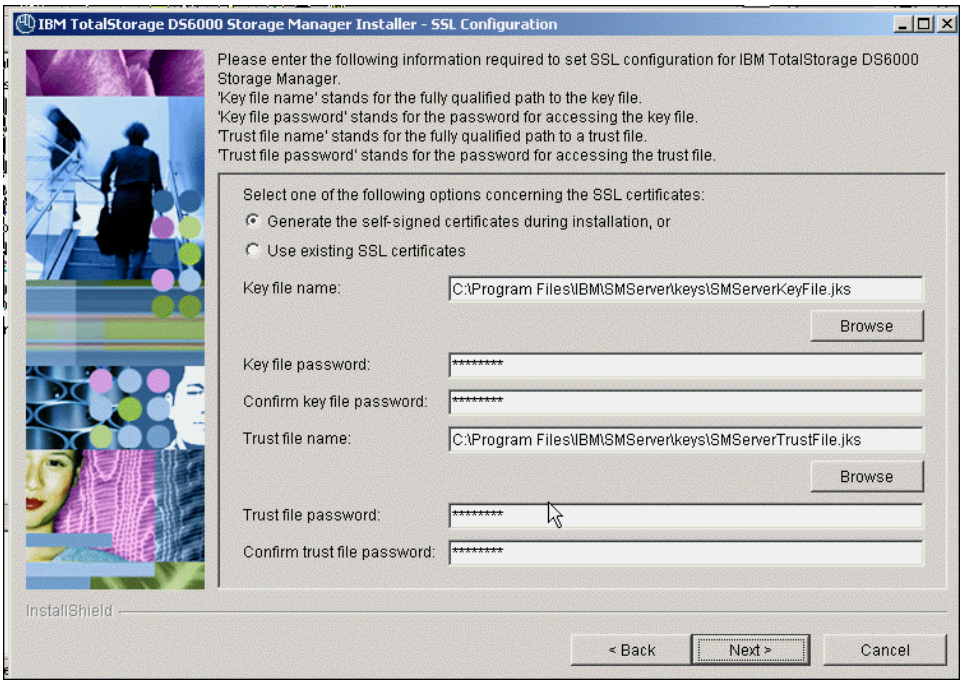
5. Select Next to accept the default destination directory.



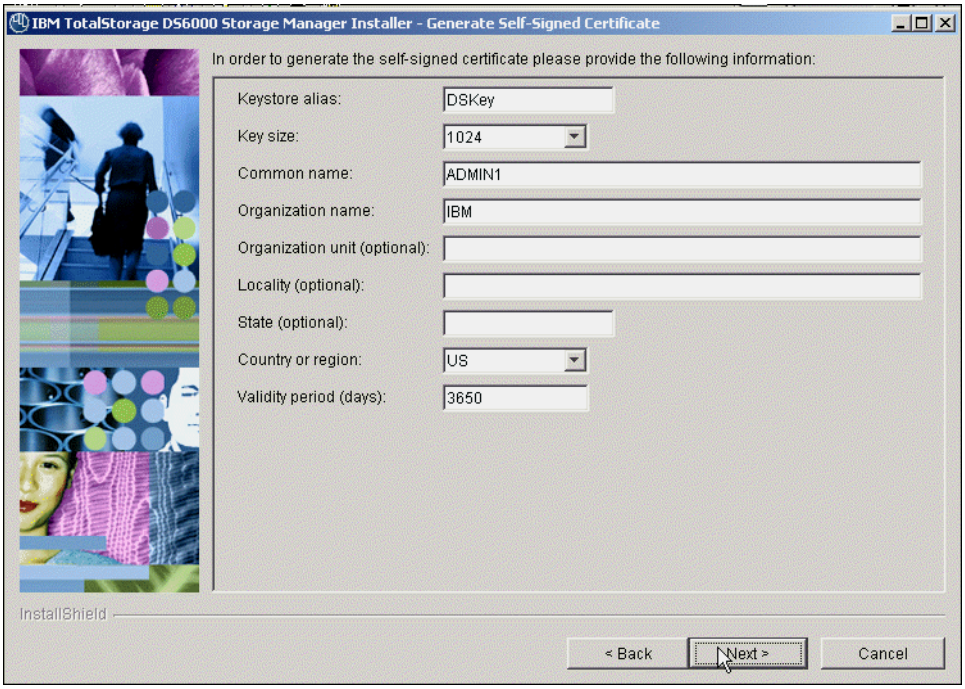
6. Accept the default hostname and ports (unless you are aware of any conflicts). Select Next.



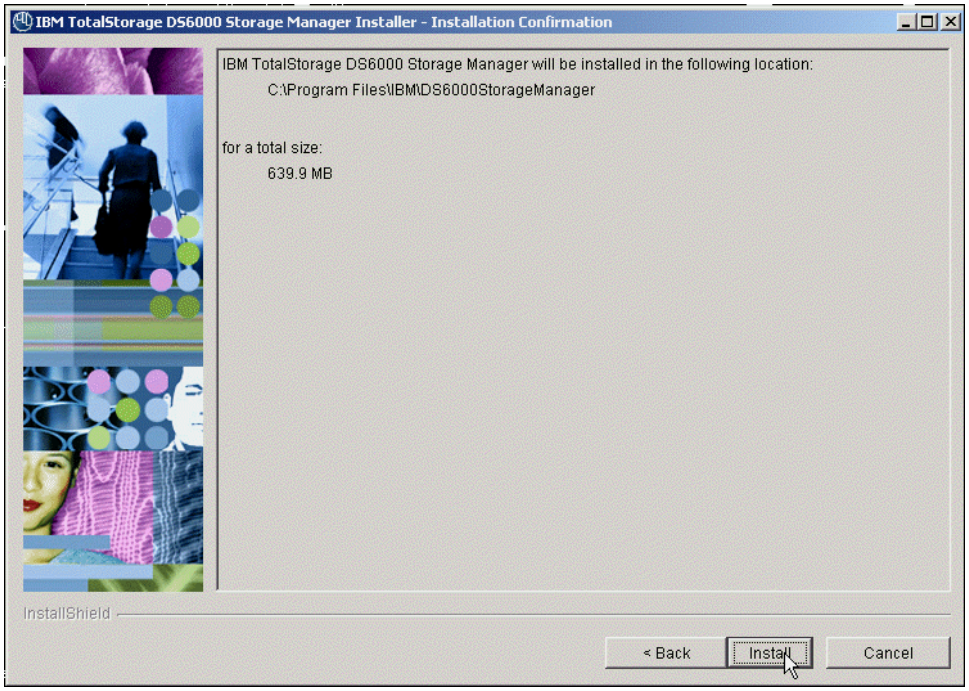
7. Since this is an initial install, select the option to generate new SSL certificates. Enter a key file and trust file password (e.g. *password*).



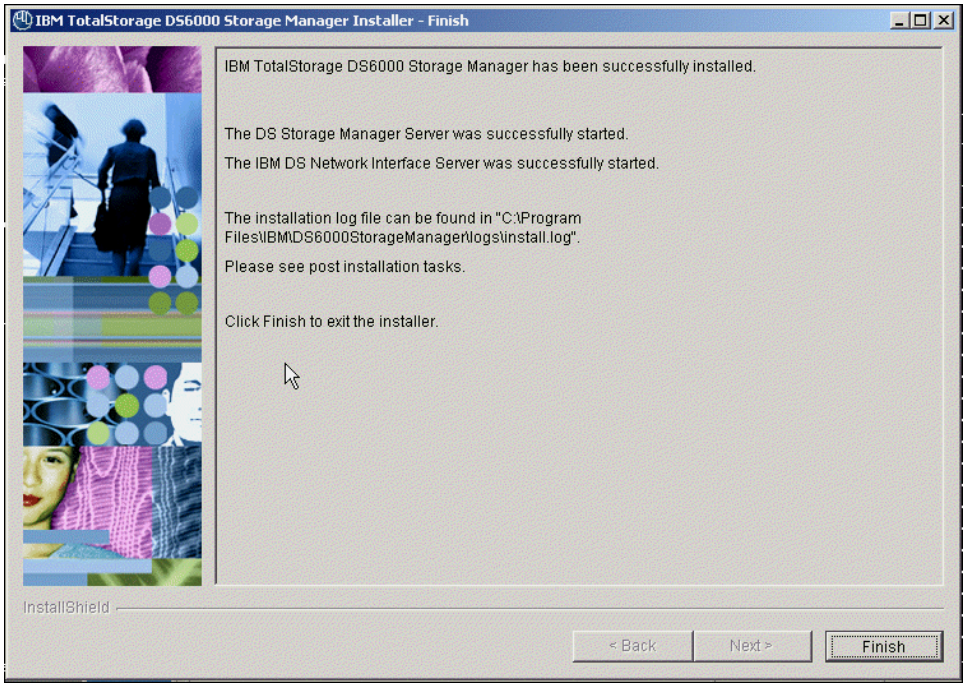
8. Accept the defaults, the information is optional. Select Next.



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.

LABORATORY

1

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

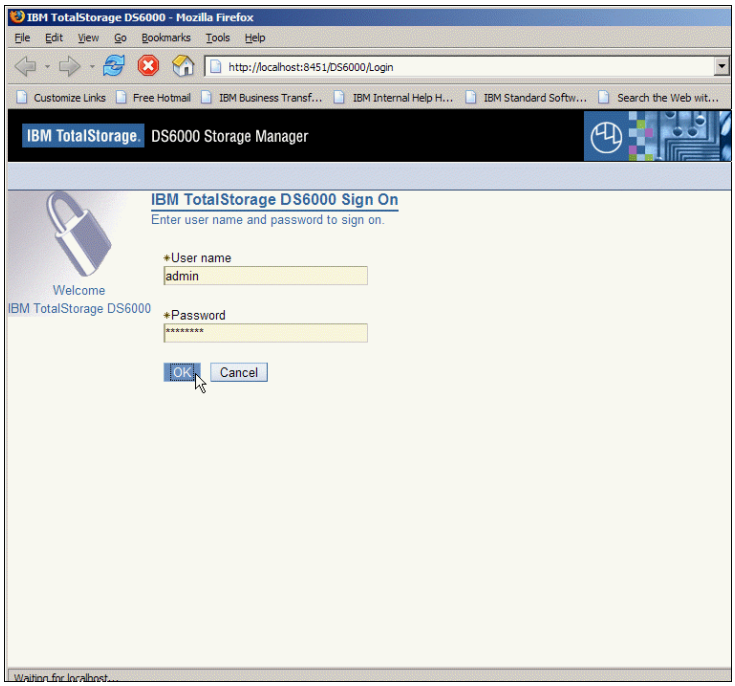
Using the Storage Manager application, you will perform the following tasks :

- Create a default storage system complex.

Directions

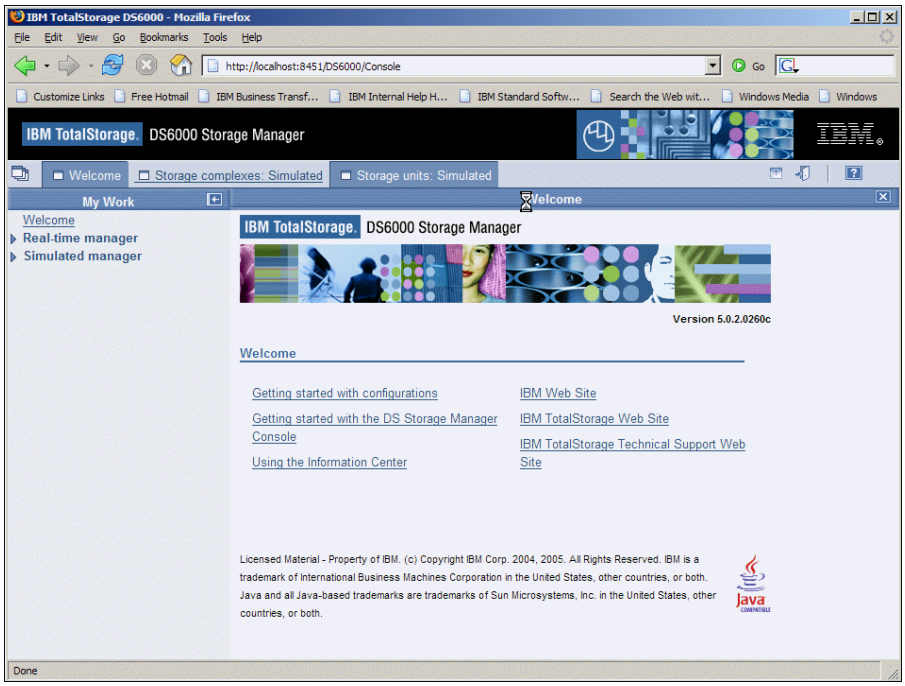
1. On the Windows workstation, select "Start…Programs…IBM TotalStorage DS6000 StorageManager…Open DS Storage Manager".

2. When the application window appears, logon as **admin/admin**.



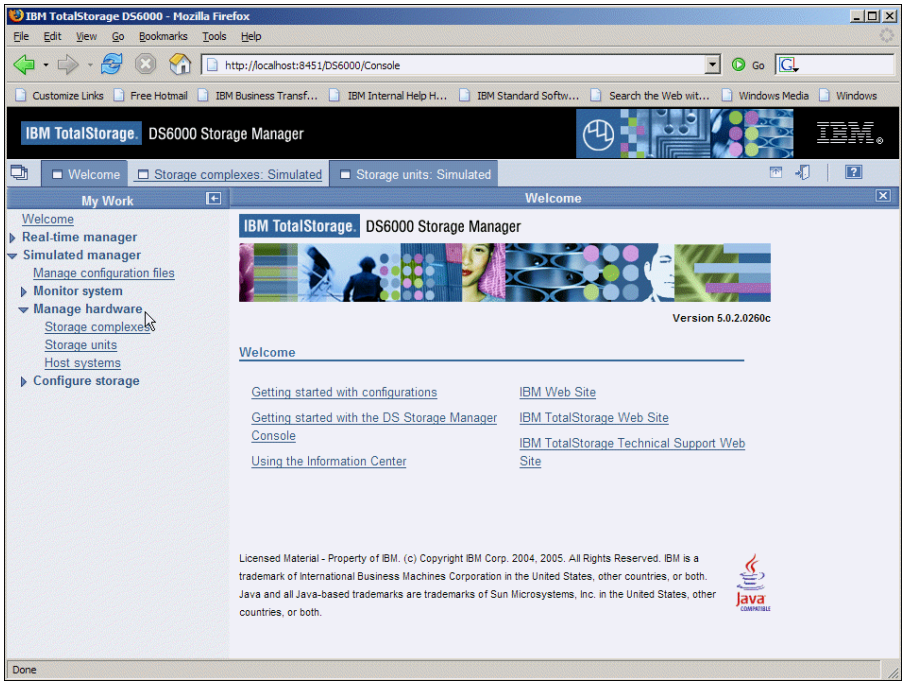
3. This DS6000 Storage Manager application can create a real-time configuration or be used for simulation. This set of lab exercises are based on the simulation feature of the application which will not require any storage system hardware.

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

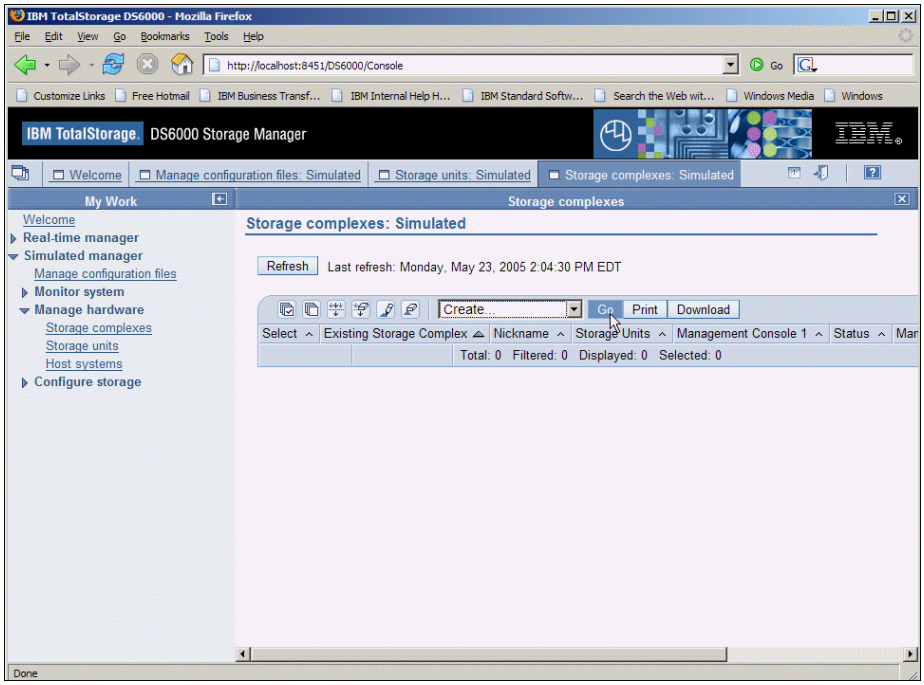


4. Select the link on the left side of the window called **Simulated manager**. The link called **Manage configuration files** provides the capability for naming and organizing specific storage system configurations for saving using a unique name. You can choose to define a configuration filename or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

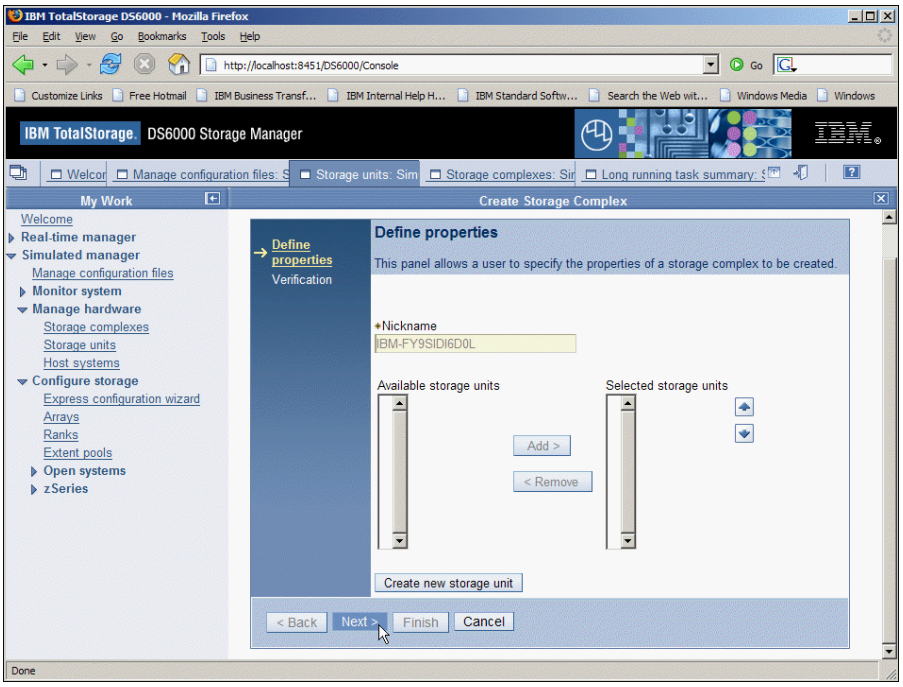
5. Select the link called **Manage hardware** .



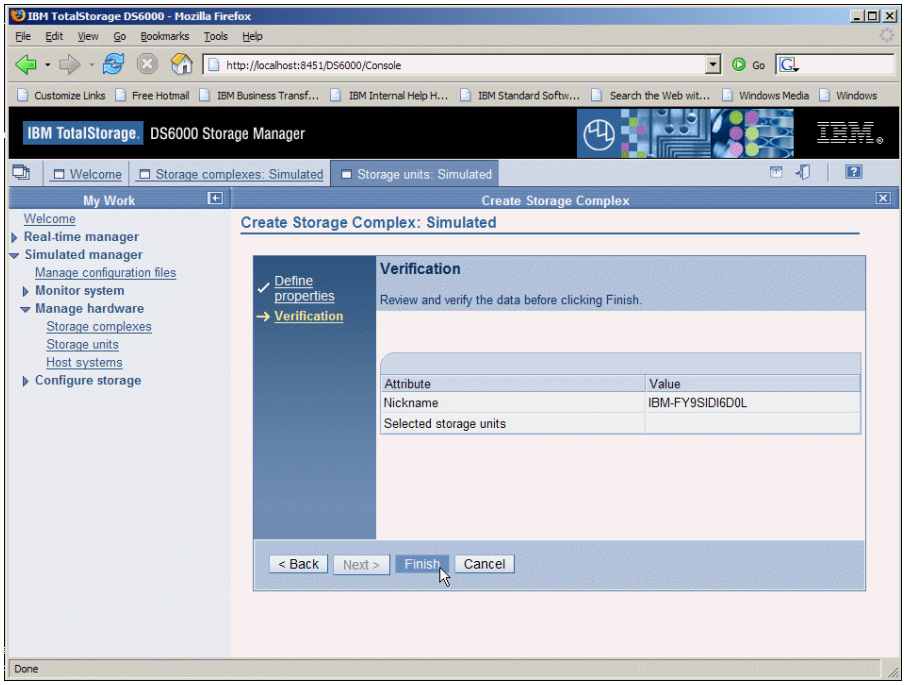
6. Select the link called **Storage complexes** then from the listbox on the right side of the window, select **Create** and then select **Go**.



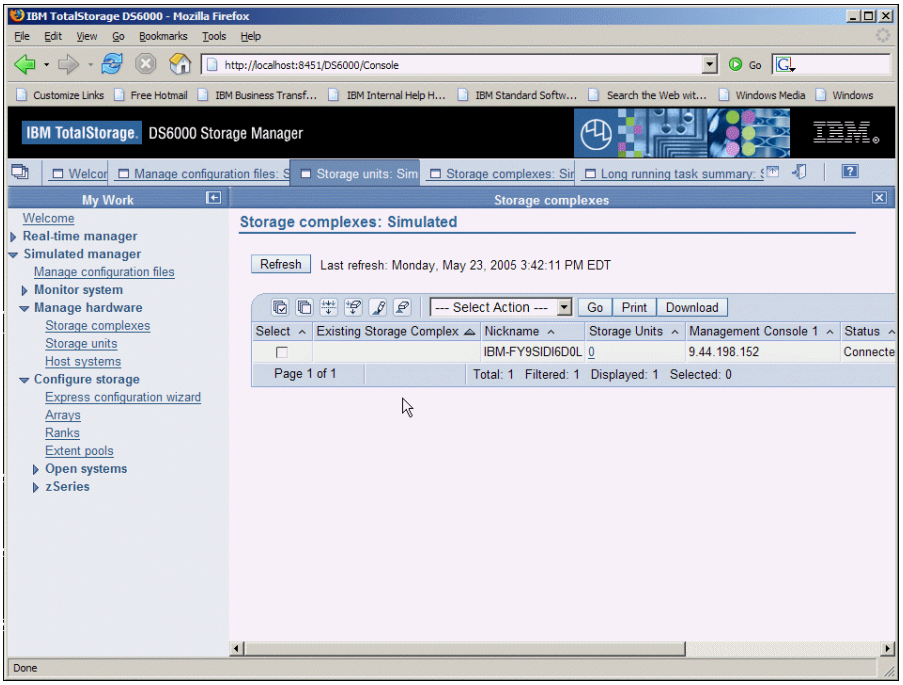
7. A default storage system based on your Windows hostname is given automatically. From the **Define properties** panel displayed, select **Next**.



8. Select **Finish** to complete the creation steps.



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



You have completed Lab 1.

LABORATORY

2

Lab 2. Create Storage Units

Introduction

Now 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.

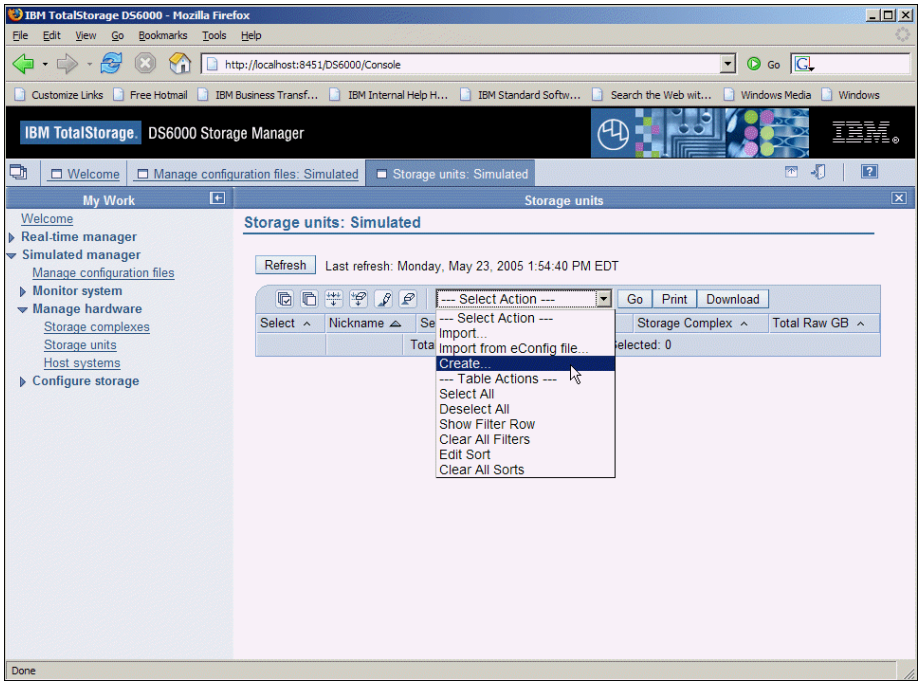
1. From the Start menu on the Desktop, start the Storage Manager application.

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.

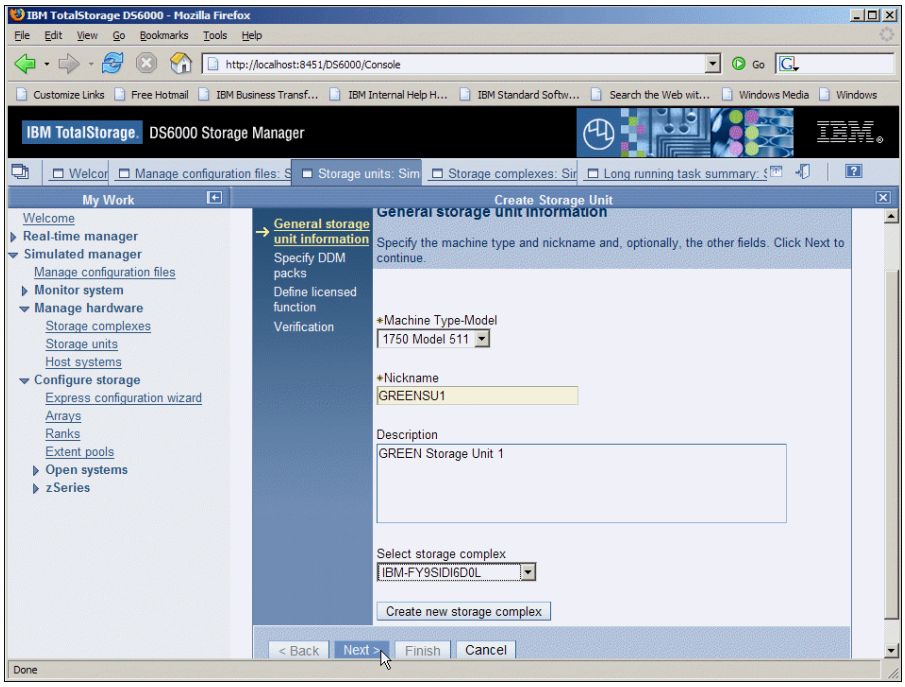
4. Select the link on the left side of the Storage Manager window called **Storage units.**

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



6. For **General storage unit information**, from the listbox choose the only entry Machine Type-Model of **1750 Model 511** from the top listbox.

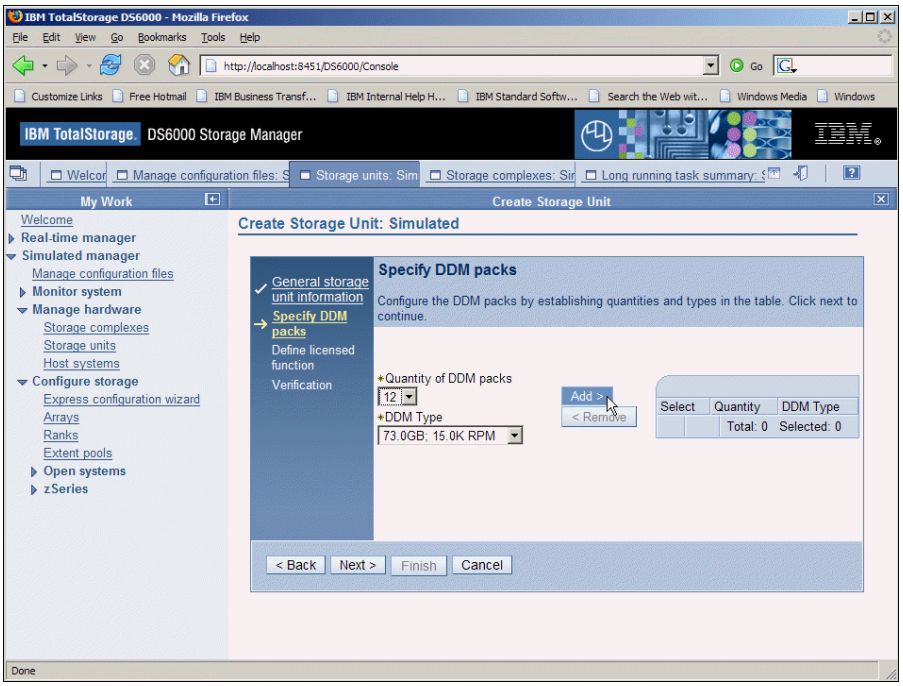
7. Type a **Nickname** of ***COLORSU1*** and a **Description** of ***COLOR* Storage Unit 1**.



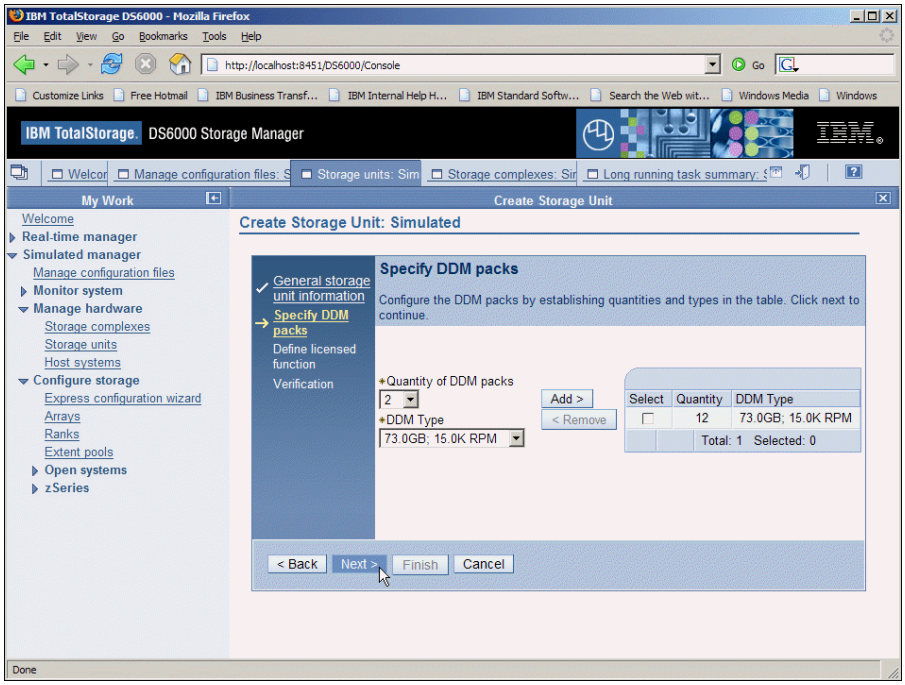
8. Select the storage complex name created in the previous lab exercise which is automatically derived from your Windows system hostname.

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.

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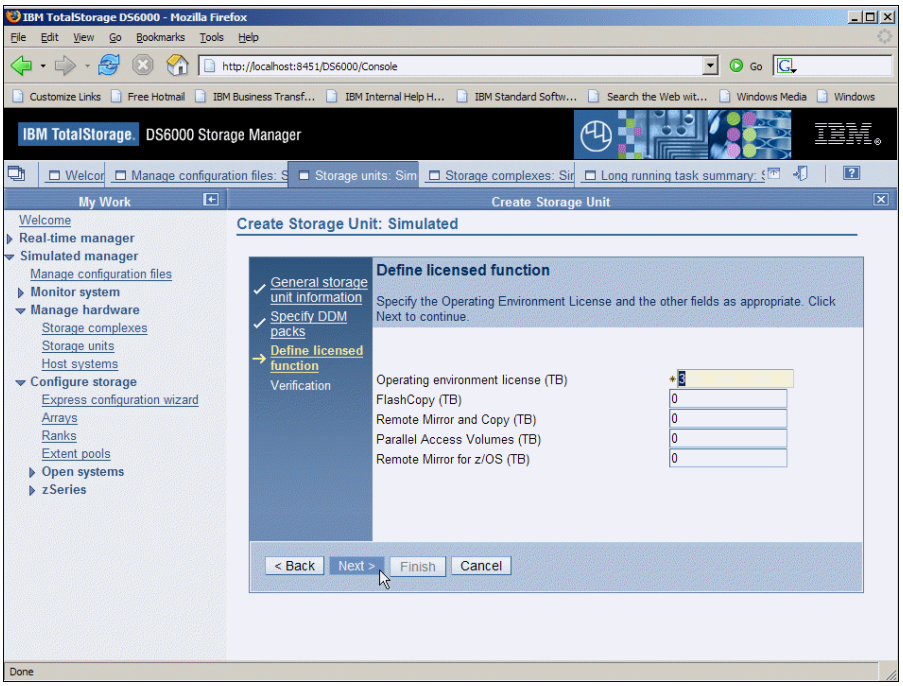
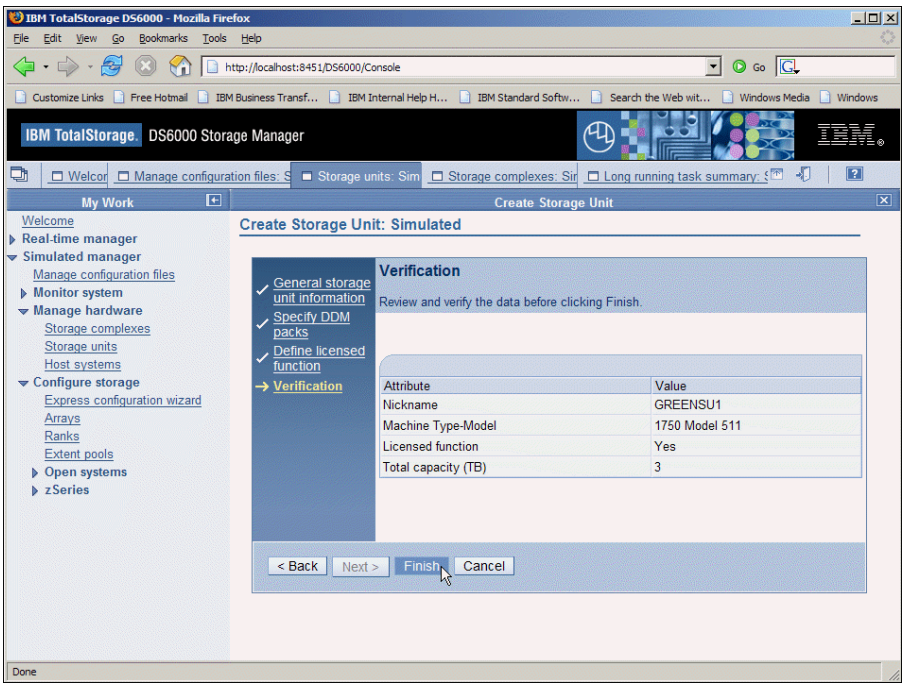
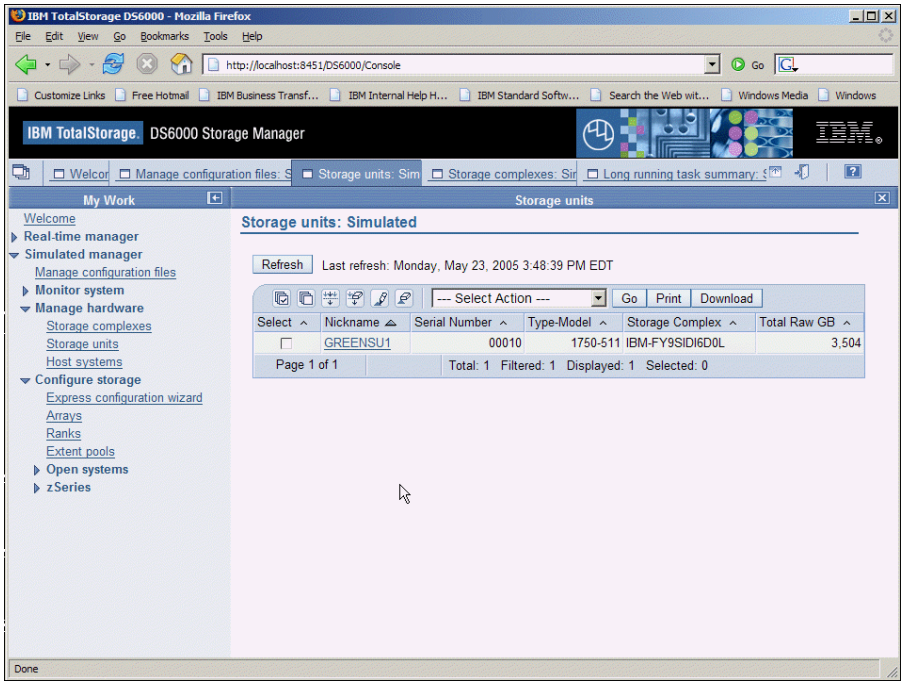


14. On the **Verification** panel, verify the correctly entered information and select **Finish**.



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



You have completed Lab 2.

LABORATORY

3

Lab 3. Create Host Objects

Introduction

Now 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.

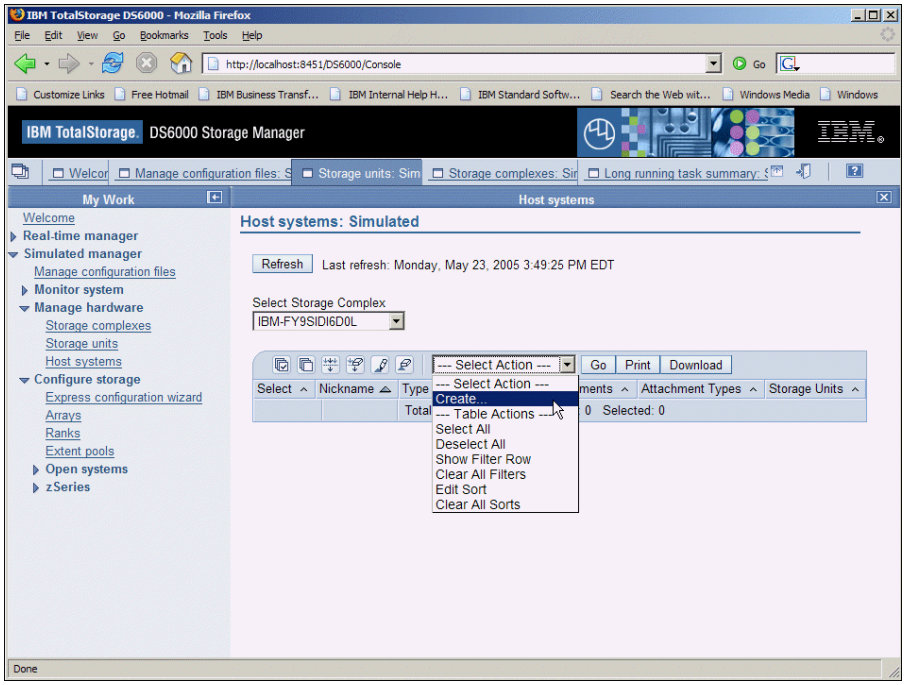
1. From the Windows workstation, start the **Storage Manager** application.

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.



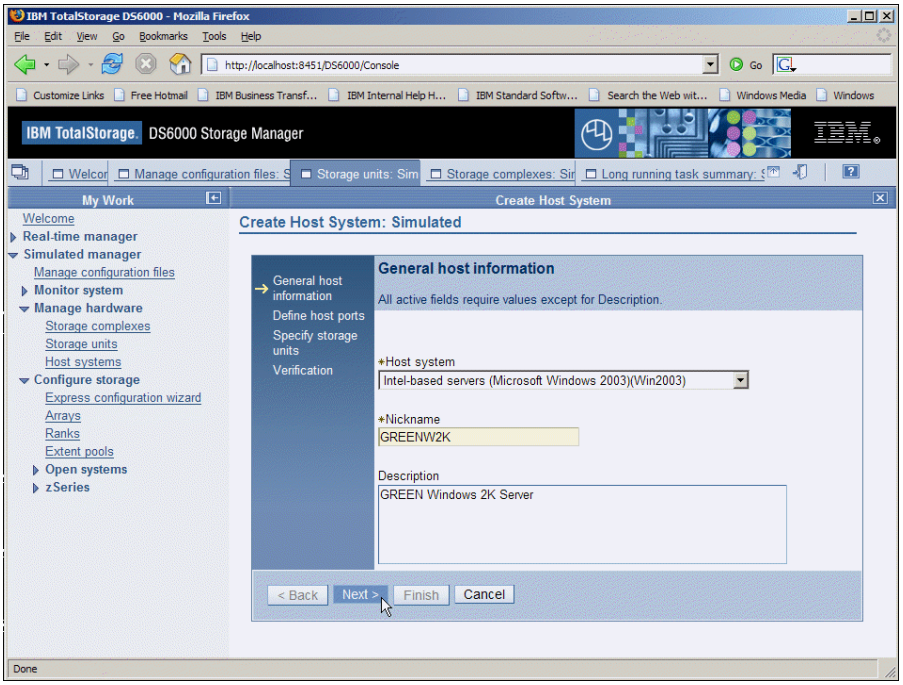
Creating Host Attachments

1. From the **General host information** pane, select the listbox entry for a **Windows 2003 Intel server**.

2. In the Nickname box, type ***COLORW2K***.

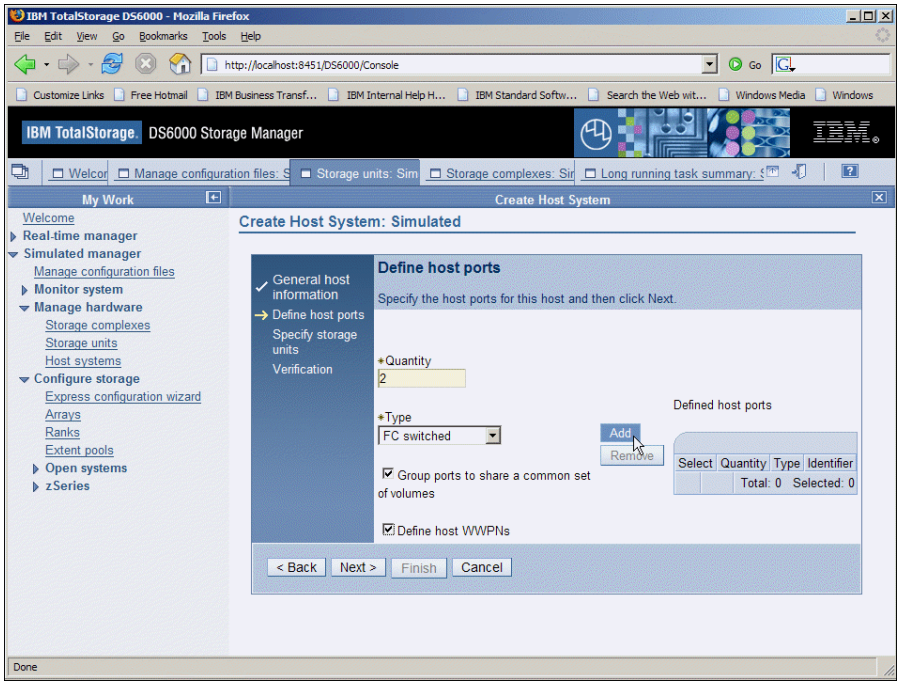
3. In the Description box, enter ***COLOR* Windows 2K Server**.

4. Click **Next** to proceed.



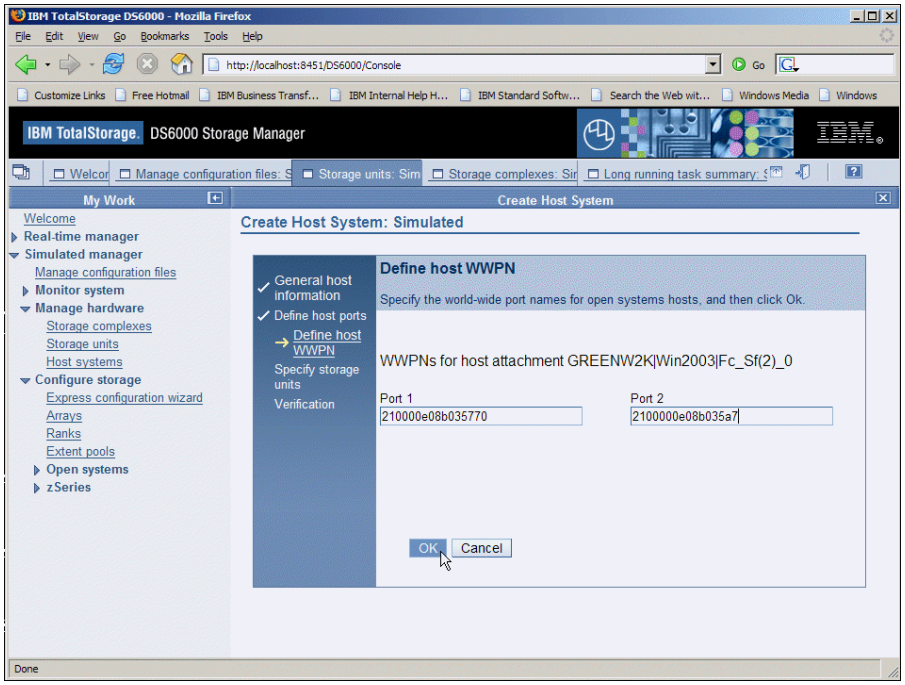
5. From the **Define Host ports** panel, do the following:

   - 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



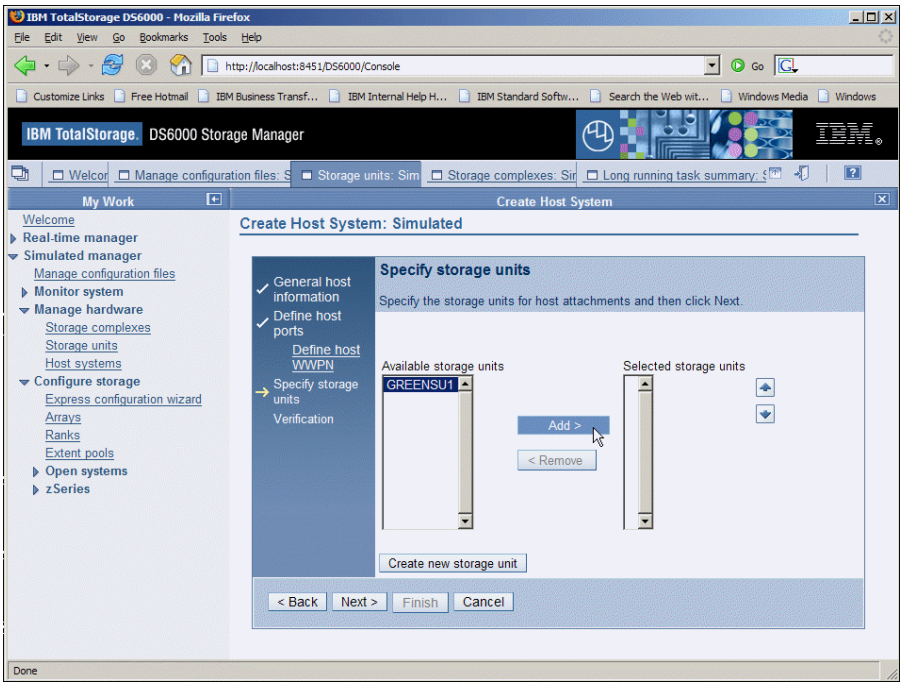
- Click the **Next** button to proceed.

- **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

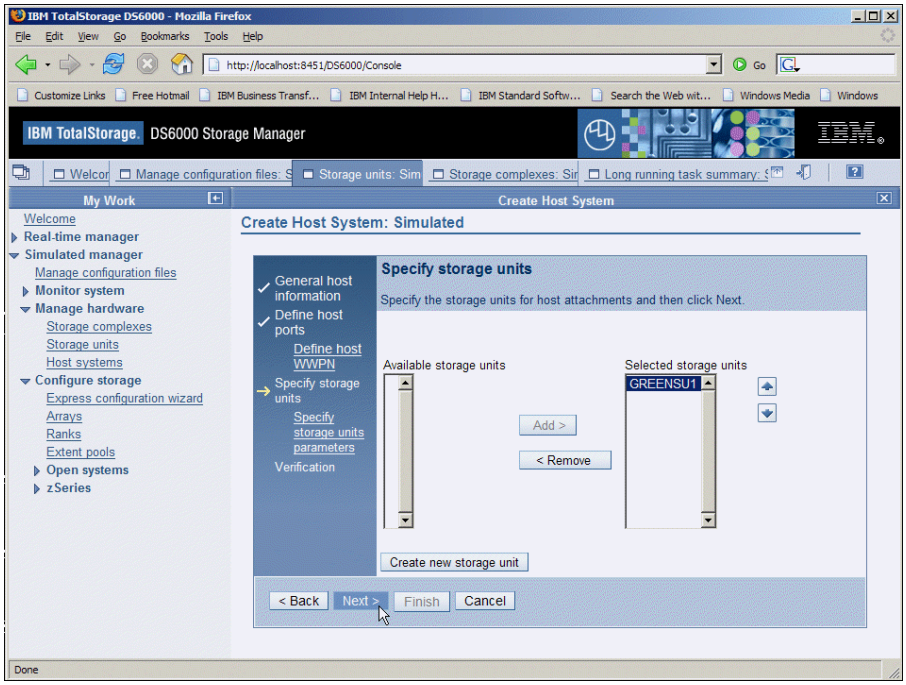


- Select **OK** to proceed.

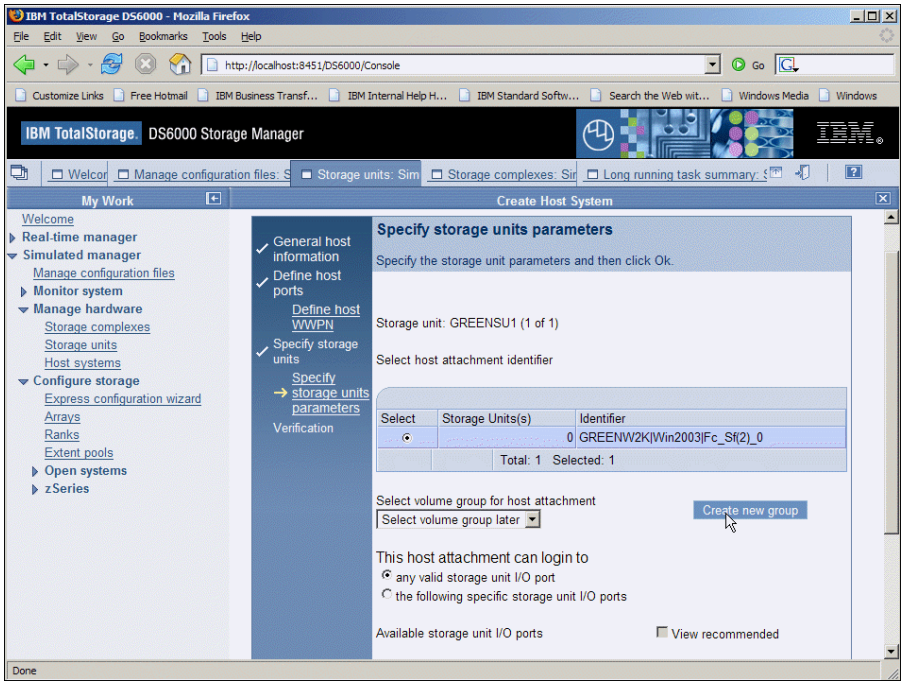
- Specify the desired Storage Units for access by this host by selecting and clicking on **Add** to confirm the highlighted named storage unit.



- Select Next to proceed.



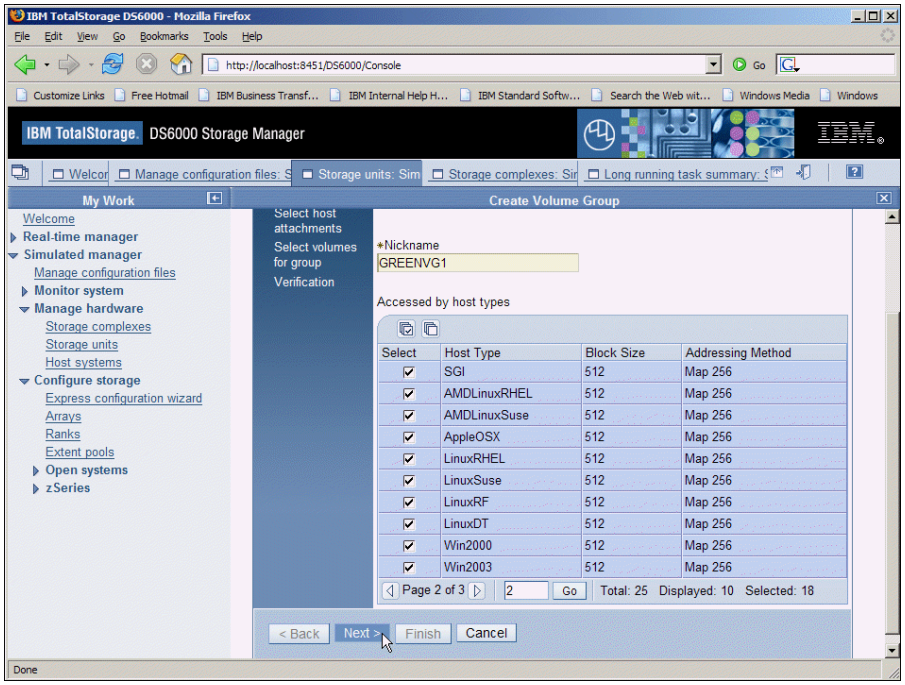
- At this point we can create an empty volume group to associate with this host. Later we will add volumes to this group for this host to access. To specify storage unit parameters for a new volume group, select **Create new group**



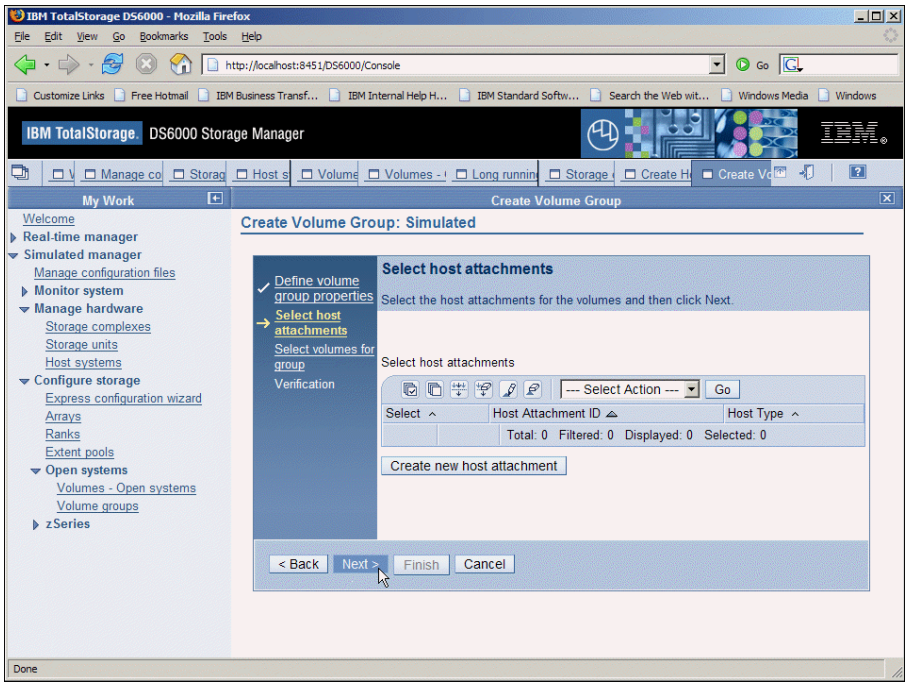
- Change the group name to ***COLORVG1***.

- 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.

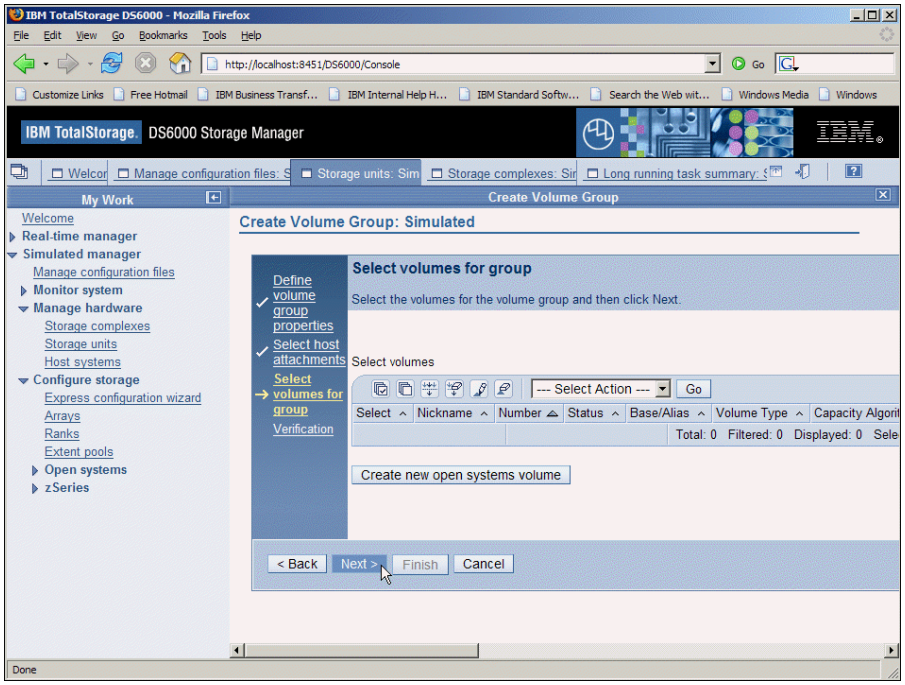
- Click **Next** to proceed.



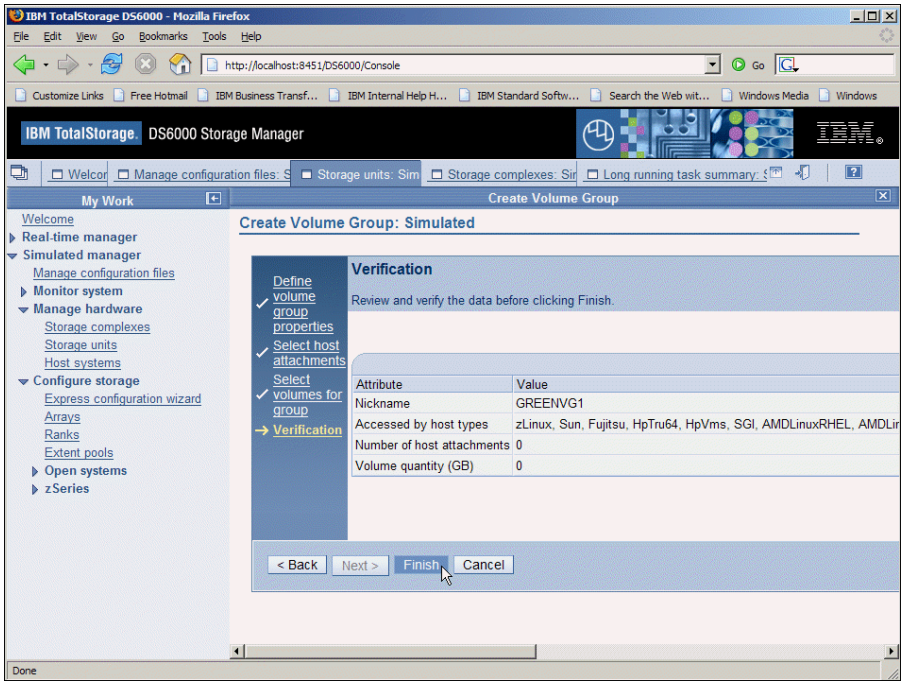
- On the **Select host attachments** panel, proceed by clicking **Next**



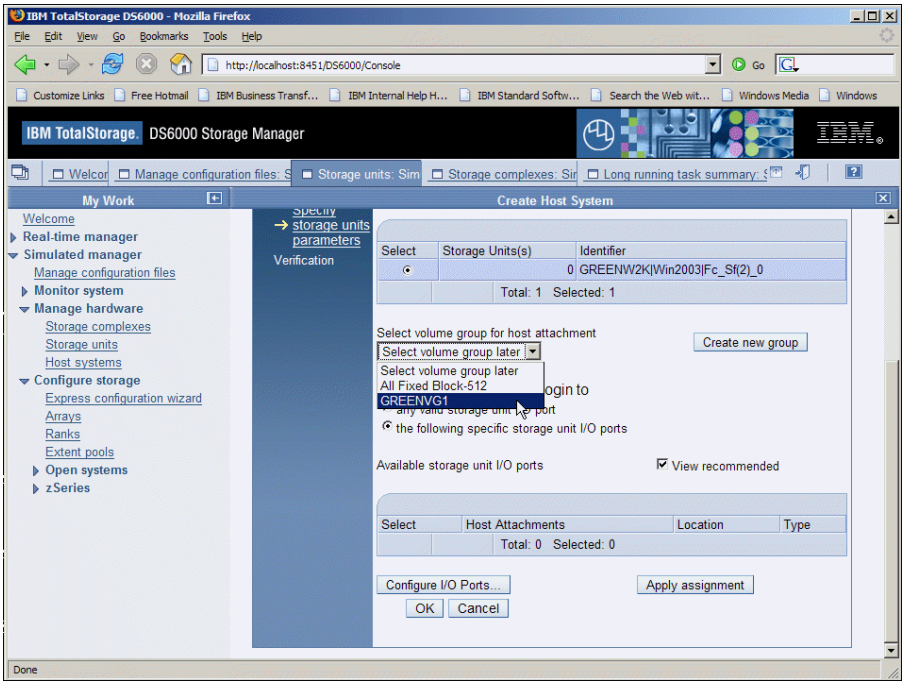
- On the **Select volumes for group** panel, click **Next** (do not select the button called **Create new open system volume** as the simulator gives unpredictable results)



- On the **Verification** panel, review the configuration and select **Finish**.

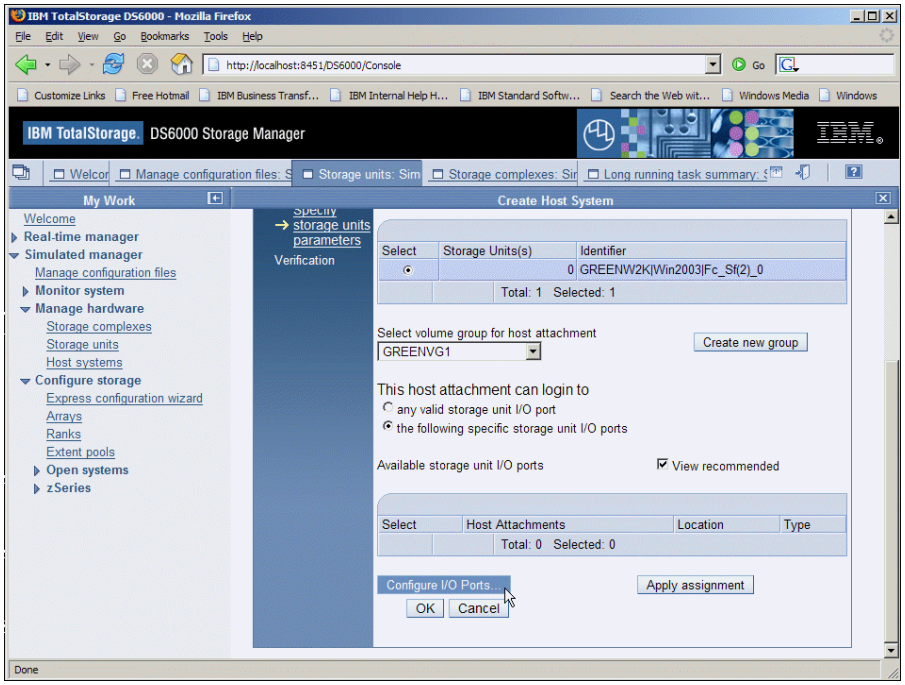


- Select Volume group ***COLORVG1*** just created and Apply the host attachments on the storage unit to the host by checking the checkbox called
  the following specific storage unit I/O ports.

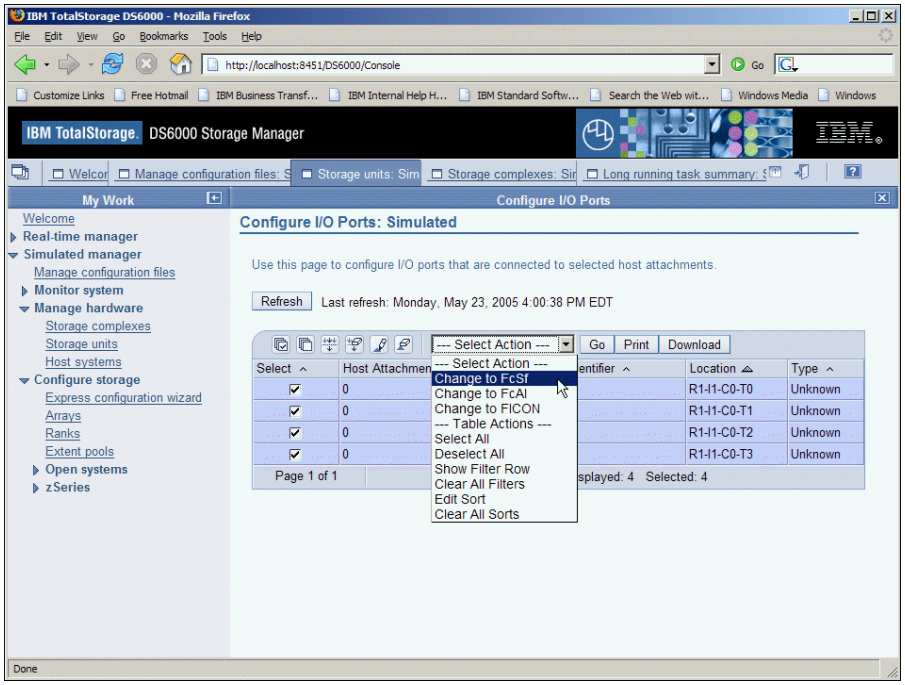


- Select the **Configure I/O Ports** button and then select ports by checking the check box for the desired ports listed.

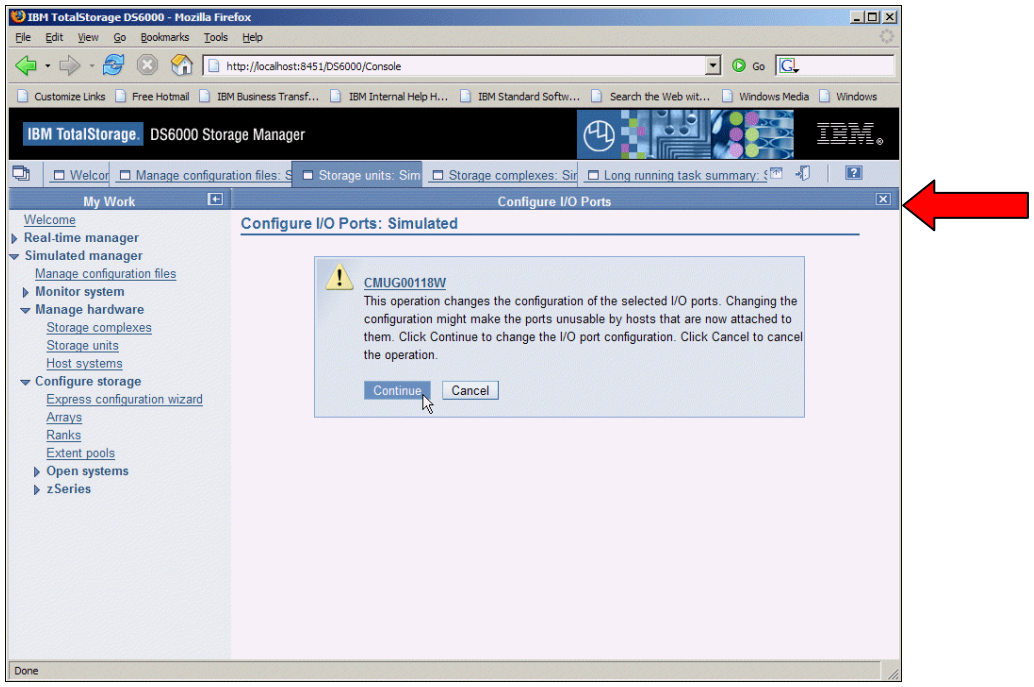
- Select **OK**.



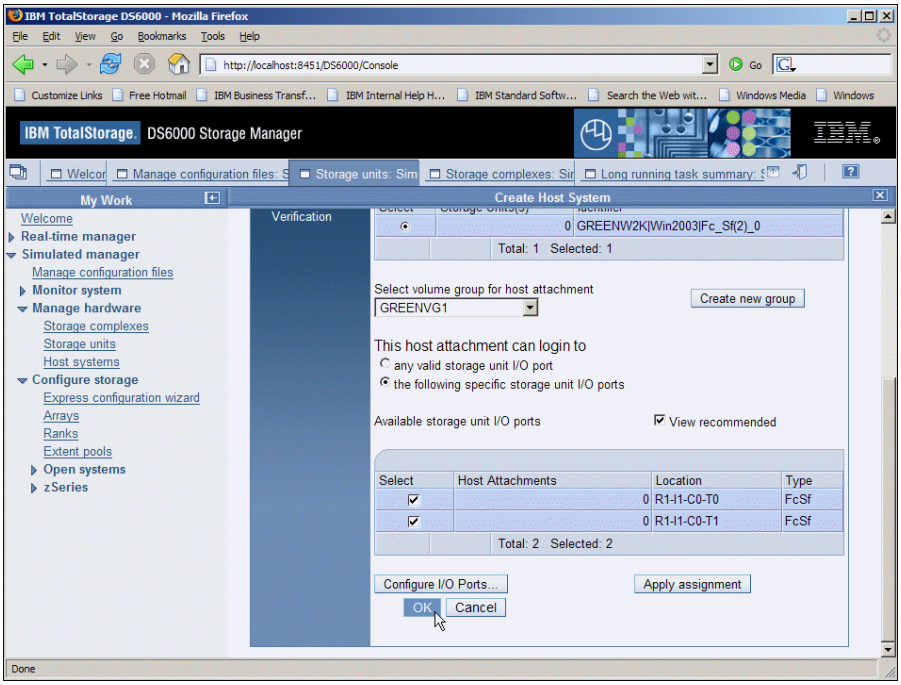
- From the **Select Action** listbox, choose **Change to FcSf** (since the storage unit is assumed to be attached to a fibrechannel switched fabric) and then click on **Go**.



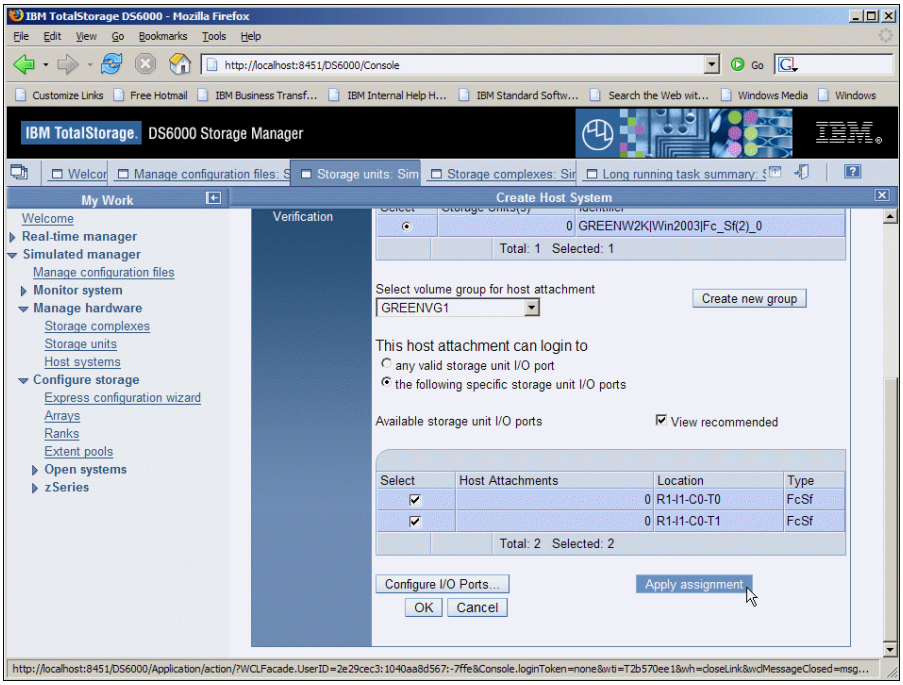
- Click on **Continue** to confirm the configuration. You must manually close this panel by clicking on the X indicated by the RED arrow when this step is completed.



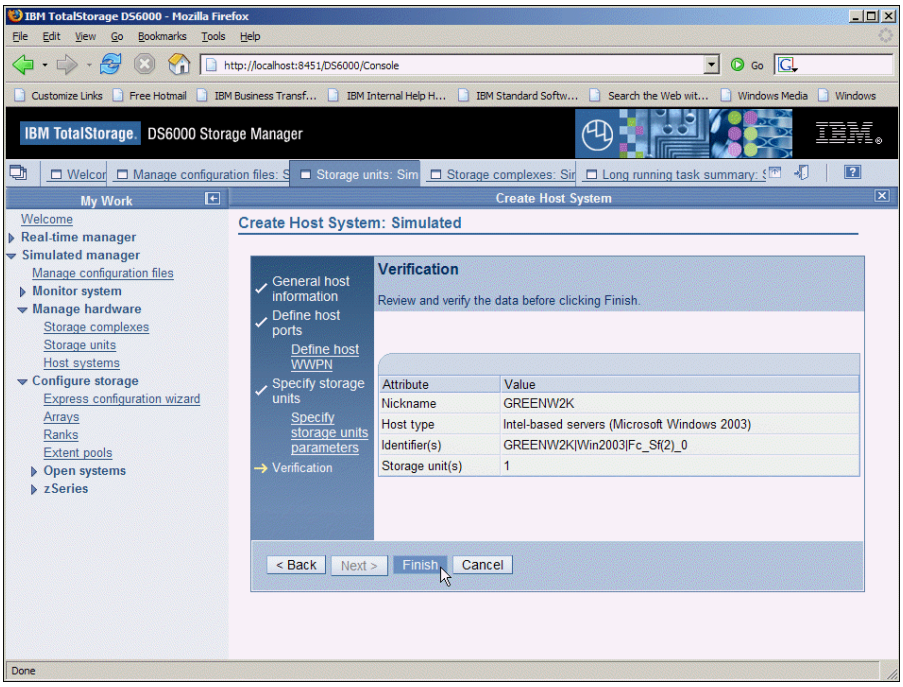
- Click **OK** to complete the configuration of host to storage unit configuration.



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



- Click on **Finish** to complete the configuration.



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

You have completed Lab 3.

LABORATORY

4

Lab 4. Configure Storage

Introduction

Now 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

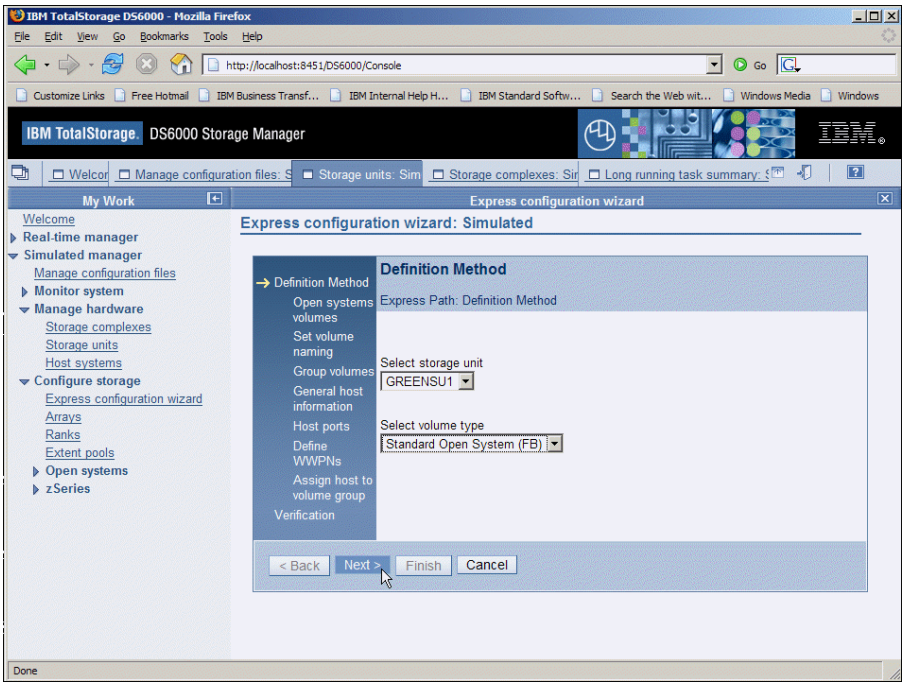
If you have an **Storage Manager** session already opened, skip to step 4, otherwise continue to step 1.

1. From the Windows workstation, start the **Storage Manager** application.

2. Logon as **admin/admin**

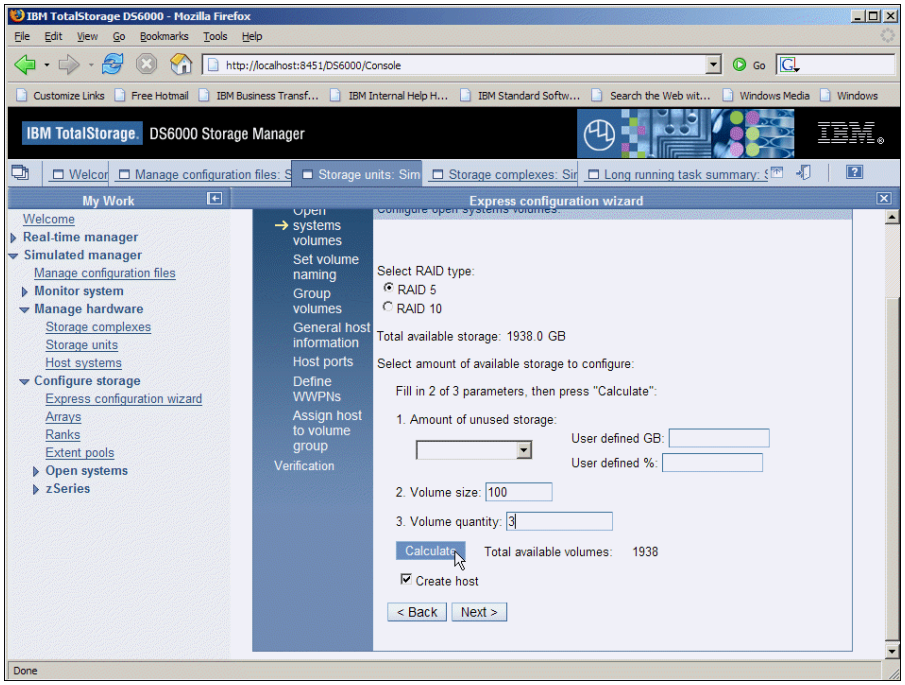
3. The **Welcome** window is displayed. From the links on the left side of the Storage Manager window, select **Manage hardware**.

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



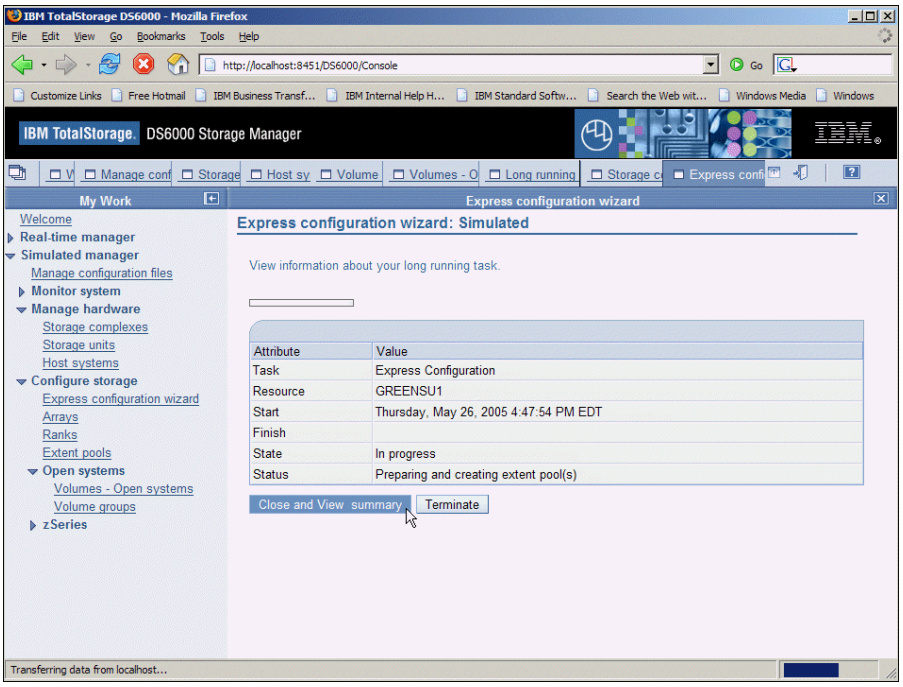
5. Select **Next** to proceed.

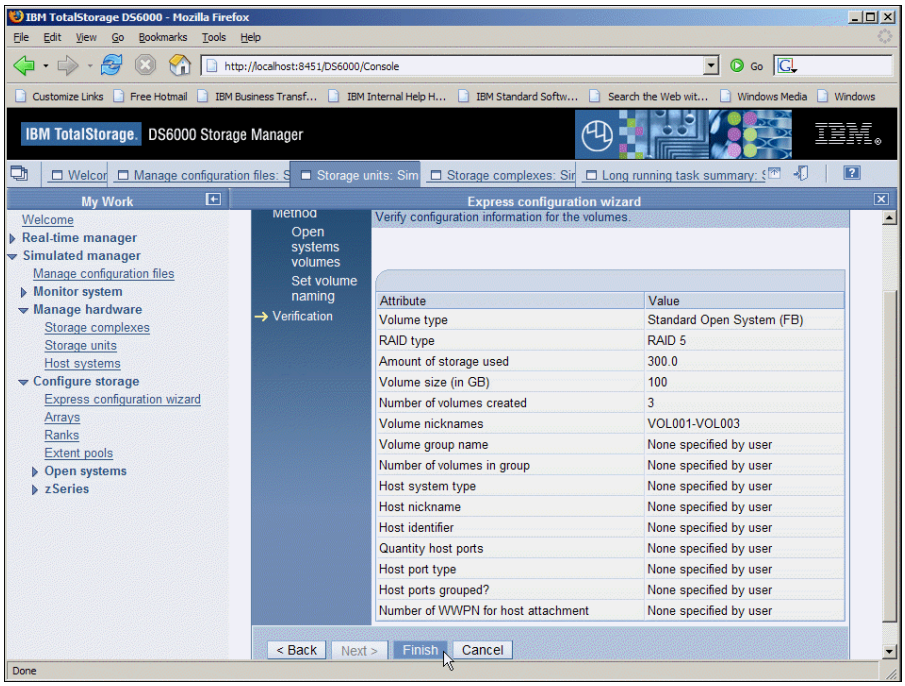
6. The wizard based on the administrators input will define arrays, create ranks, extent pools and volumes. To begin the process, select 2 of the 3 parameters to calculate the allocation method.
    - Select RAID5 for RAID type
    - Set volume size of 4 (GB)
    - Set volume quantity to 100
    - Select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



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.




IBM TotalStorage DS6000 - Mozilla Firefox
File Edit View Go Bookmarks Tools Help
http://localhost:8451/DS6000/Console
IBM TotalStorage. DS6000 Storage Manager
My Work
Welcome
Real-time manager
Simulated manager
Manage configuration files
Monitor system
Manage hardware
Storage complexes
Storage units
Host systems
Configure storage
Express configuration wizard
Arrays
Ranks
Extent pools
Open systems
zSeries
Express configuration wizard
Method
Open systems volumes
Set volume naming
Verification
Verify configuration information for the volumes.
Attribute
Value
Volume type
Standard Open System (FB)
RAID type
RAID 5
Amount of storage used
300.0
Volume size (in GB)
100
Number of volumes created
3
Volume nicknames
VOL001-VOL003
Volume group name
None specified by user
Number of volumes in group
None specified by user
Host system type
None specified by user
Host nickname
None specified by user
Host identifier
None specified by user
Quantity host ports
None specified by user
Host port type
None specified by user
Host ports grouped?
None specified by user
Number of WWPN for host attachment
None specified by user
< Back
Next >
Finish
Cancel
Done

LABORATORY

5

Lab 5. Assign Volumes to Volume Group

Introduction

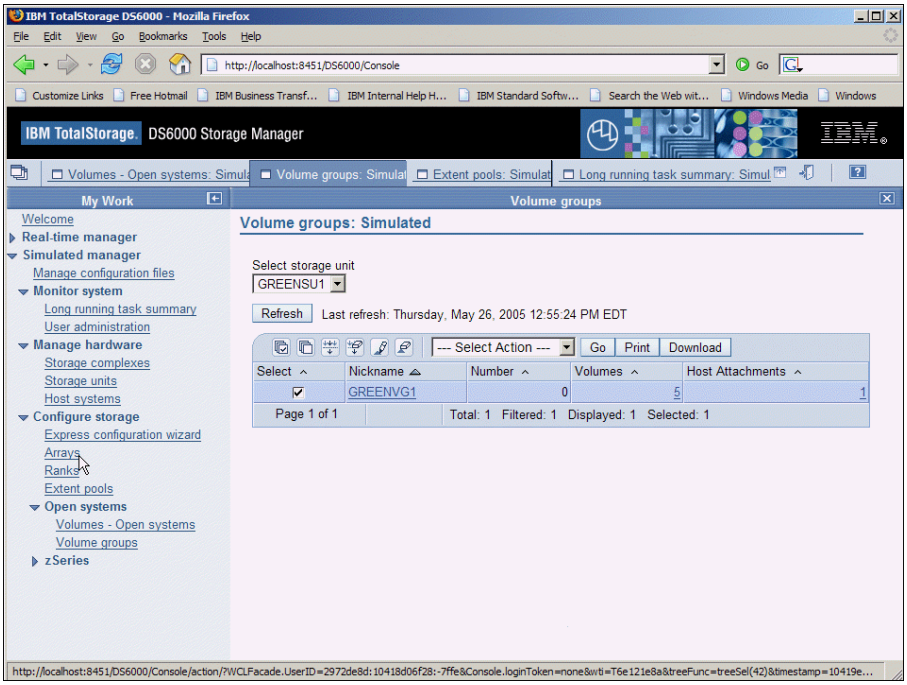
Now that volumes are defined and the volume group is defined, we can assign volumes to the volume group.

Objective

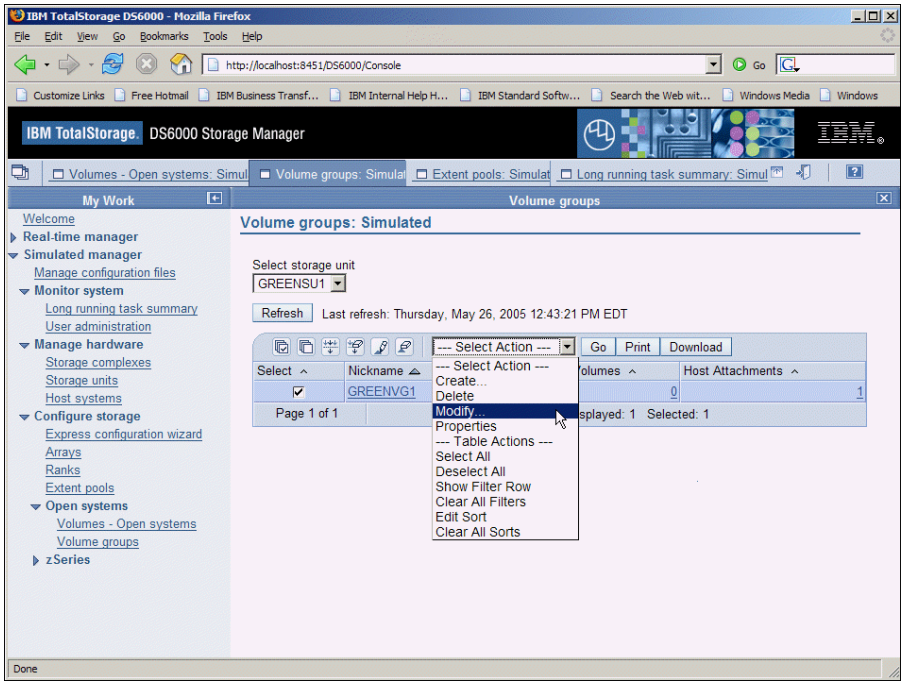
Assign defined storage volumes to defined volume group.

Instructions

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

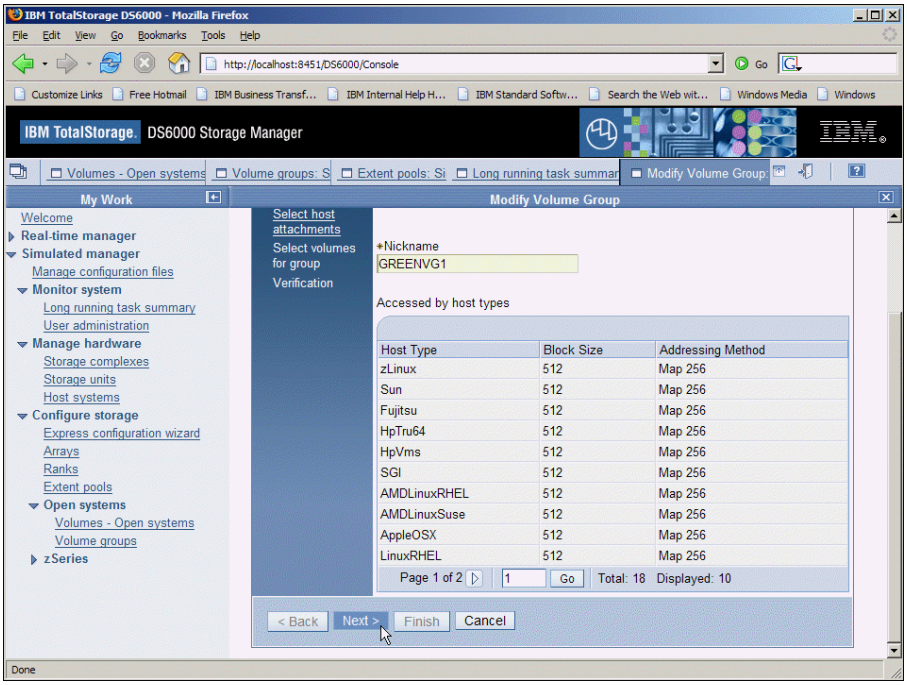


2. Select the listed volume group ***COLORVG1*** by clicking the check box.

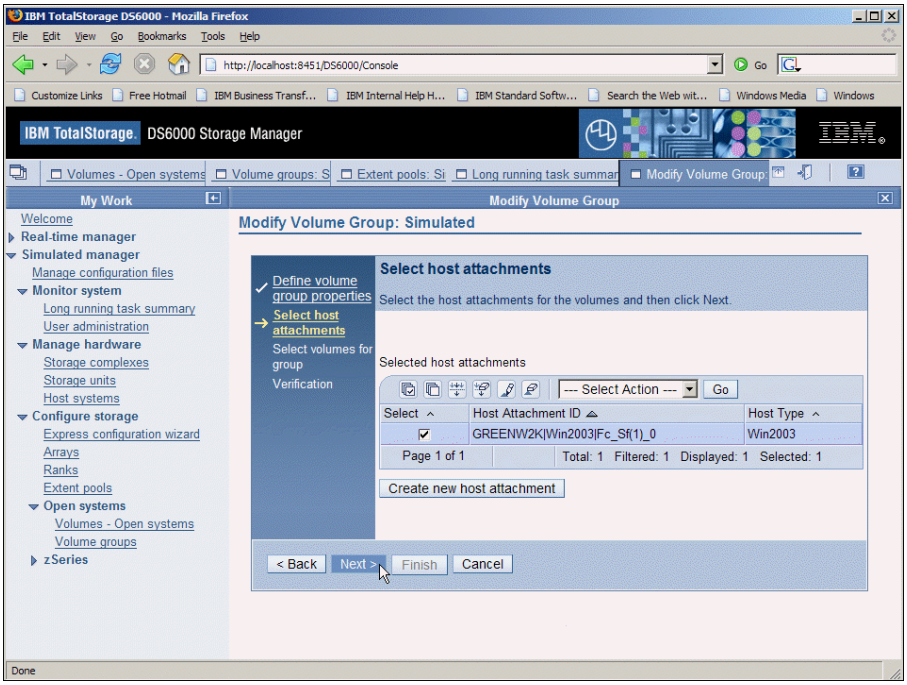


3. From the listbox, select **Modify** and click on **Go**.

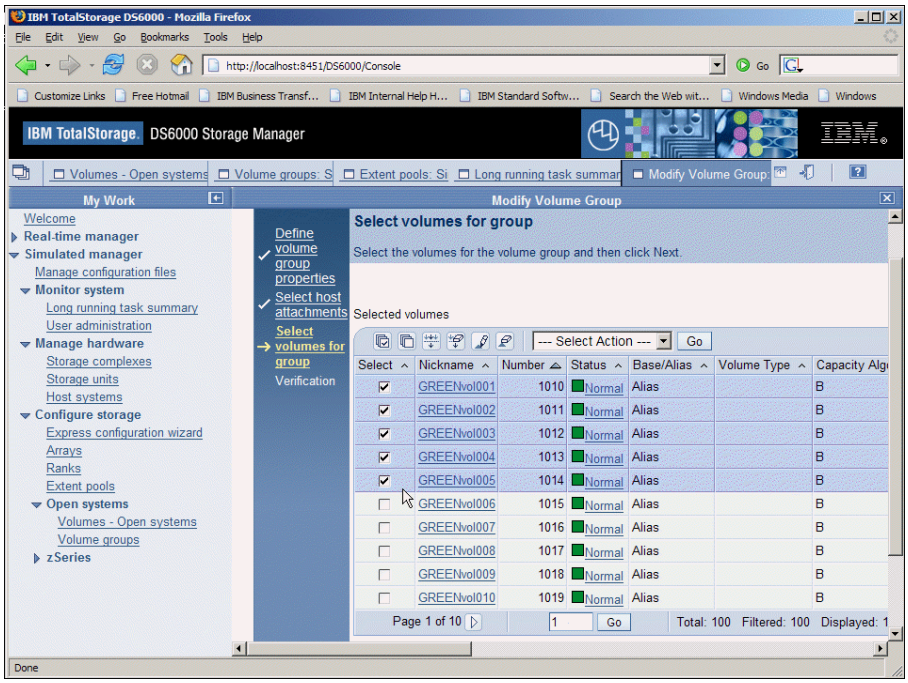
4. View the volume group properties and click on **Next** to proceed.



6. Select the displayed host attachment previously configured.
7. Click on **Next** to proceed.

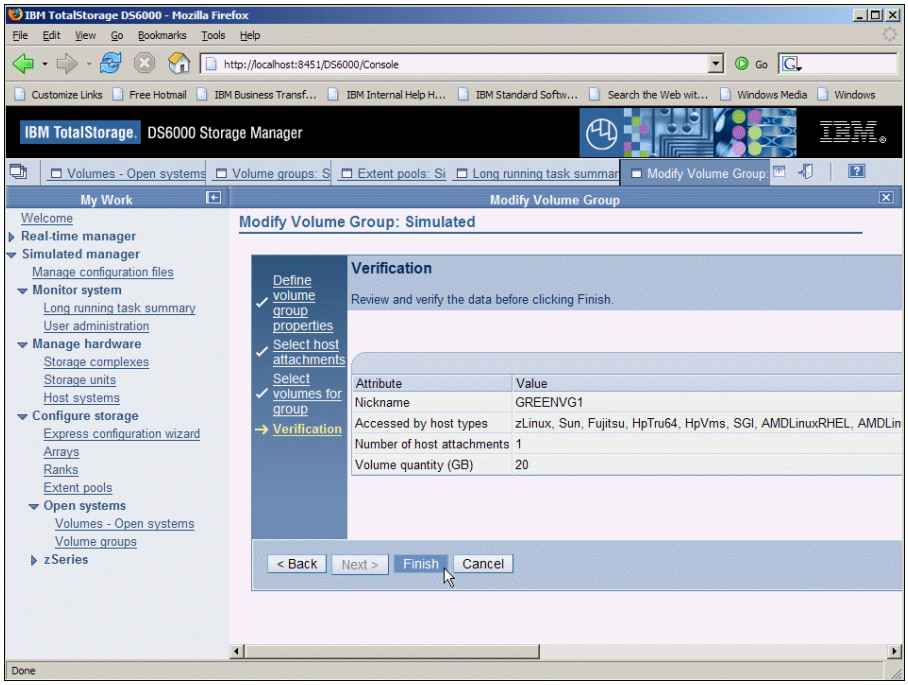


8. From the volumes listed, select the first 5 volumes to include in this volume group by clicking on the check boxes.



9. Click **Next** to proceed.

10. Verify the resulting configuration.

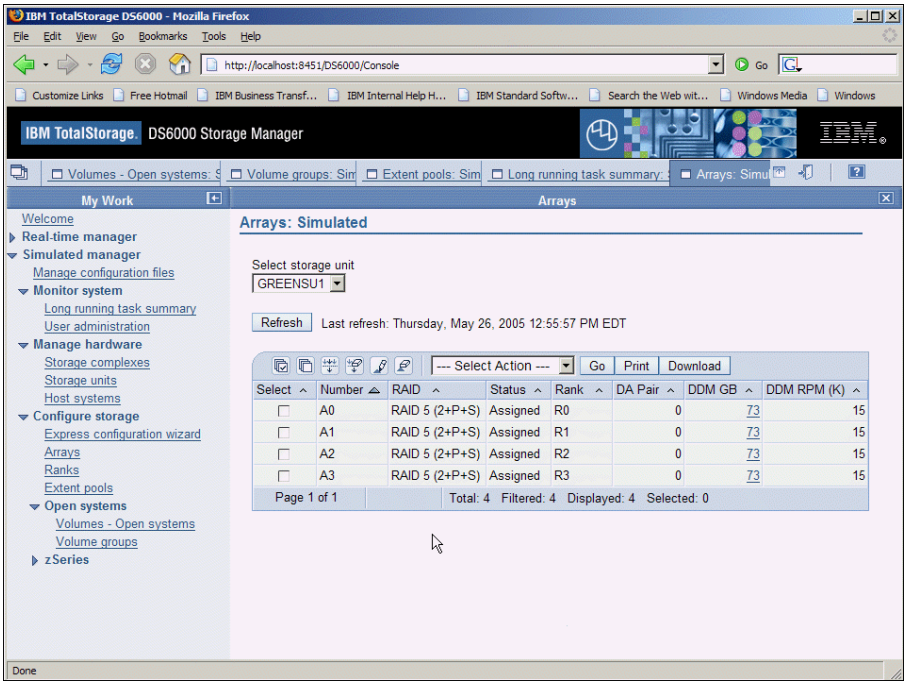


11. Click on **Finish** to complete the steps.

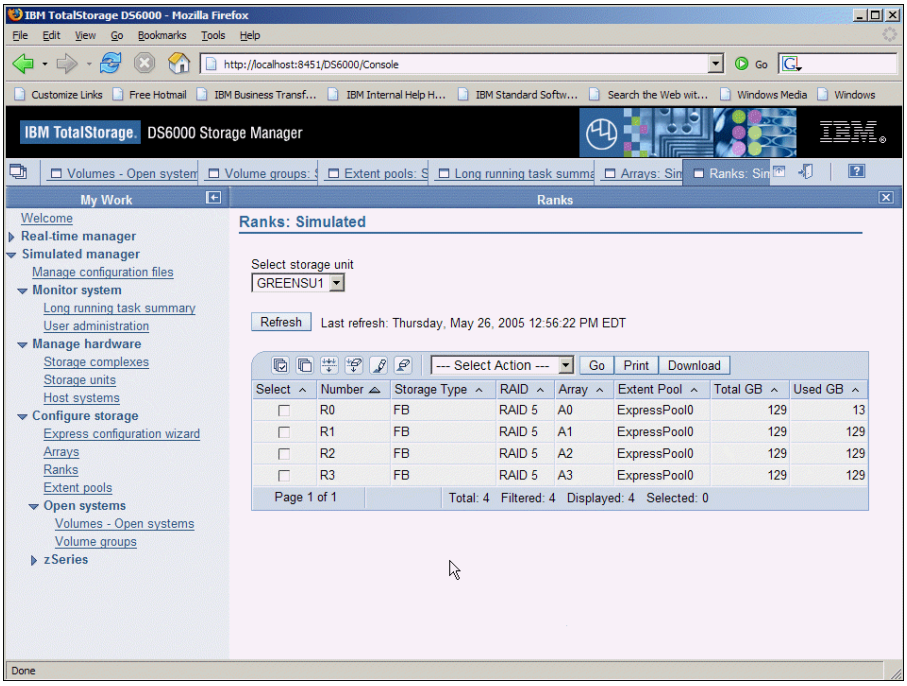
You have completed Lab 5.

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

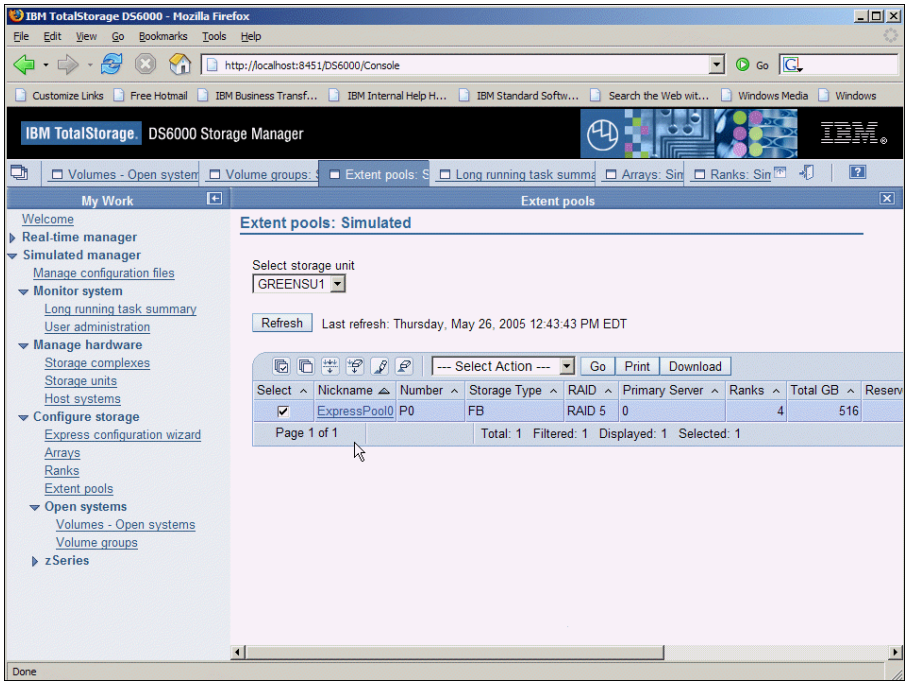
12. Select the link called **Arrays** under **Configure storage** on the left side of the window. Shown are the **Express configuration wizard** generated arrays.



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



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**.