

ITSA1001: Server Administration Fundamentals

WEEK 5 PRACTICAL: WINDOWS FILE AND STORAGE SERVICES

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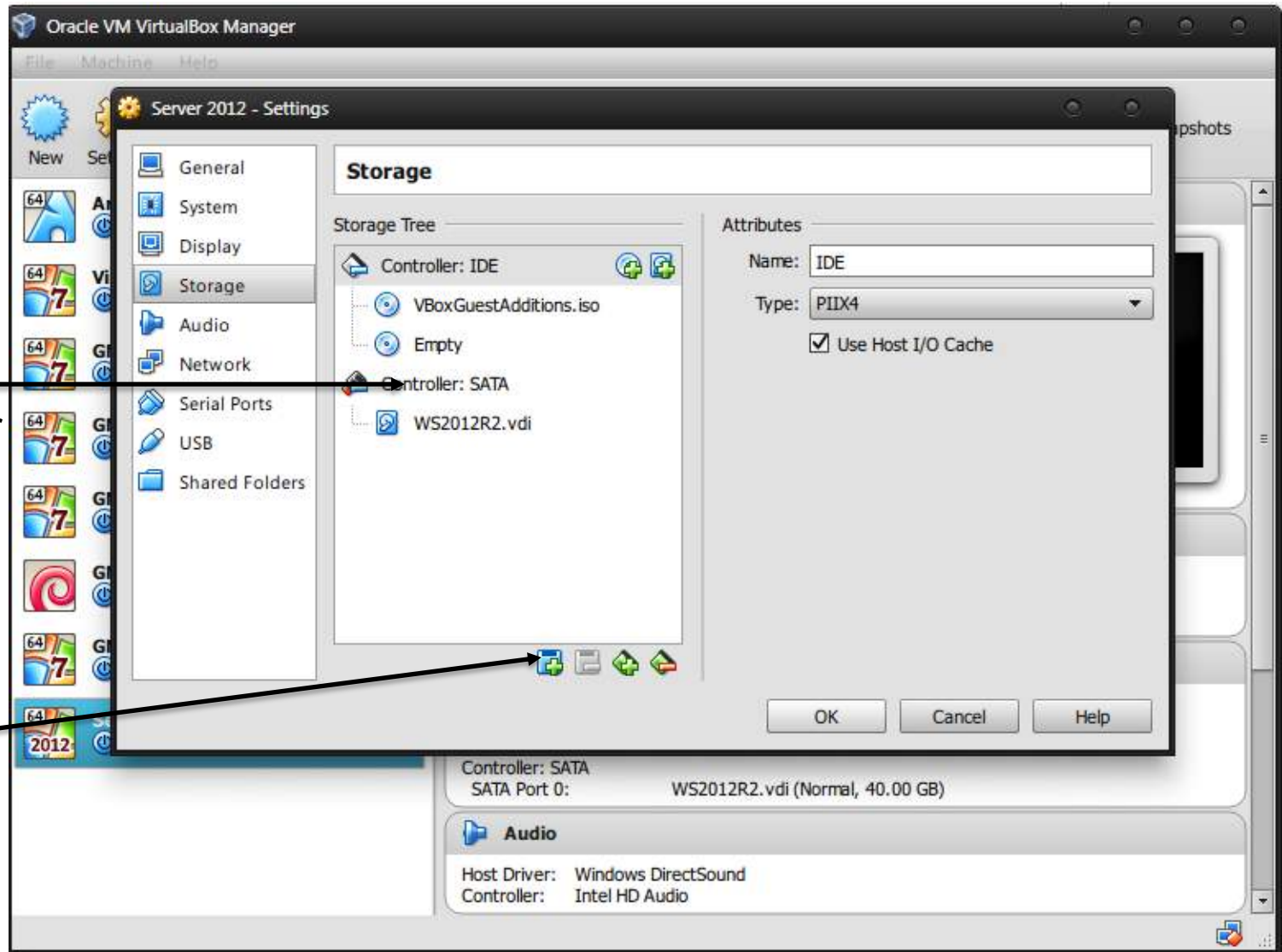
What will be covered

- Installation and configuration of
 - Storage pool and storage space
 - Data de-duplication
 - File sharing
 - Distributed File System

Storage Pool & Storage Space

- Step overview:
 - Create 4 virtual HDD, 5gb each
 - Combine them to create the storage pool
 - Create the storage space

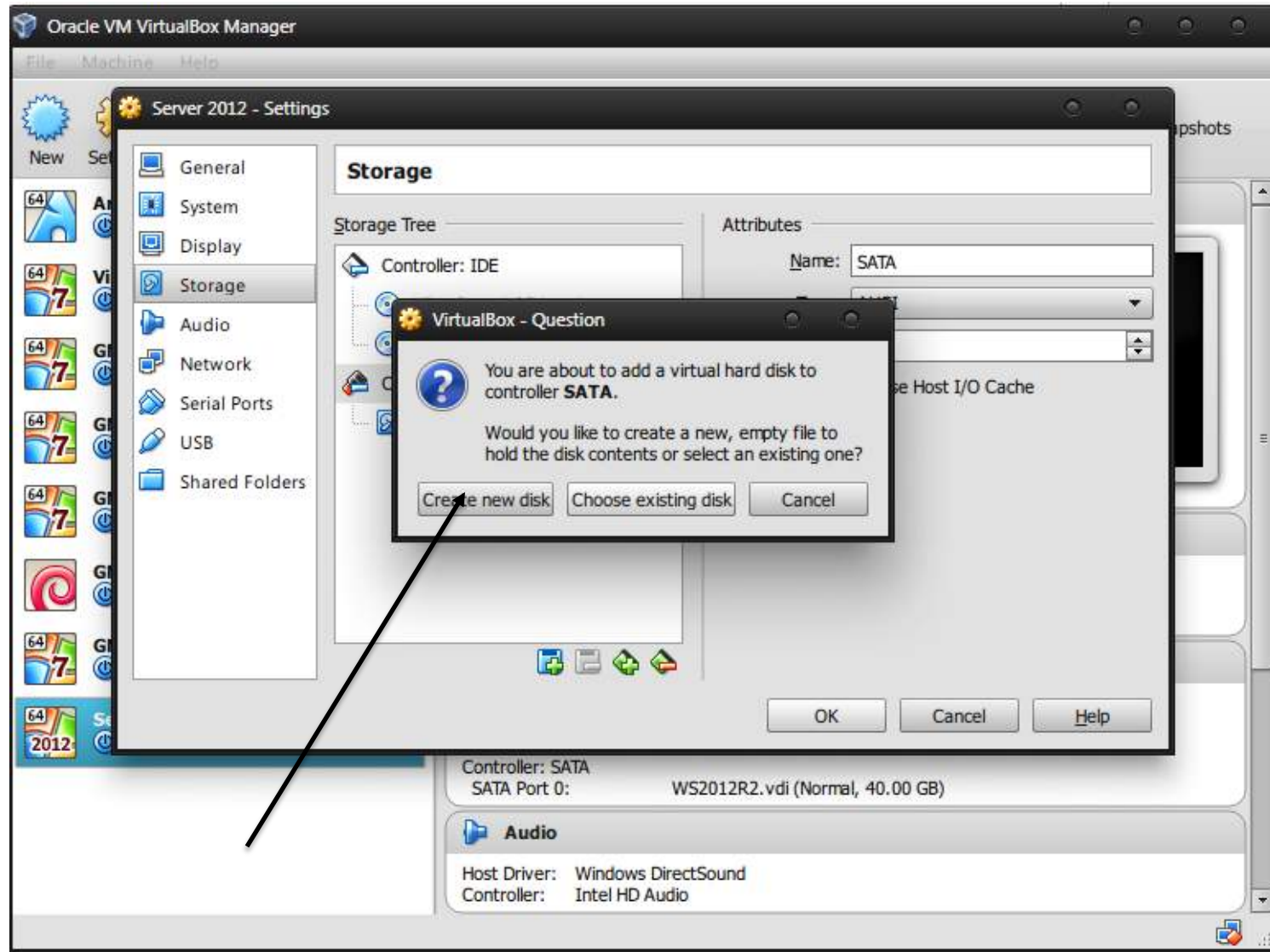
Storage Pool & Storage Space



Select the
SATA controller

Add Hard
Disk

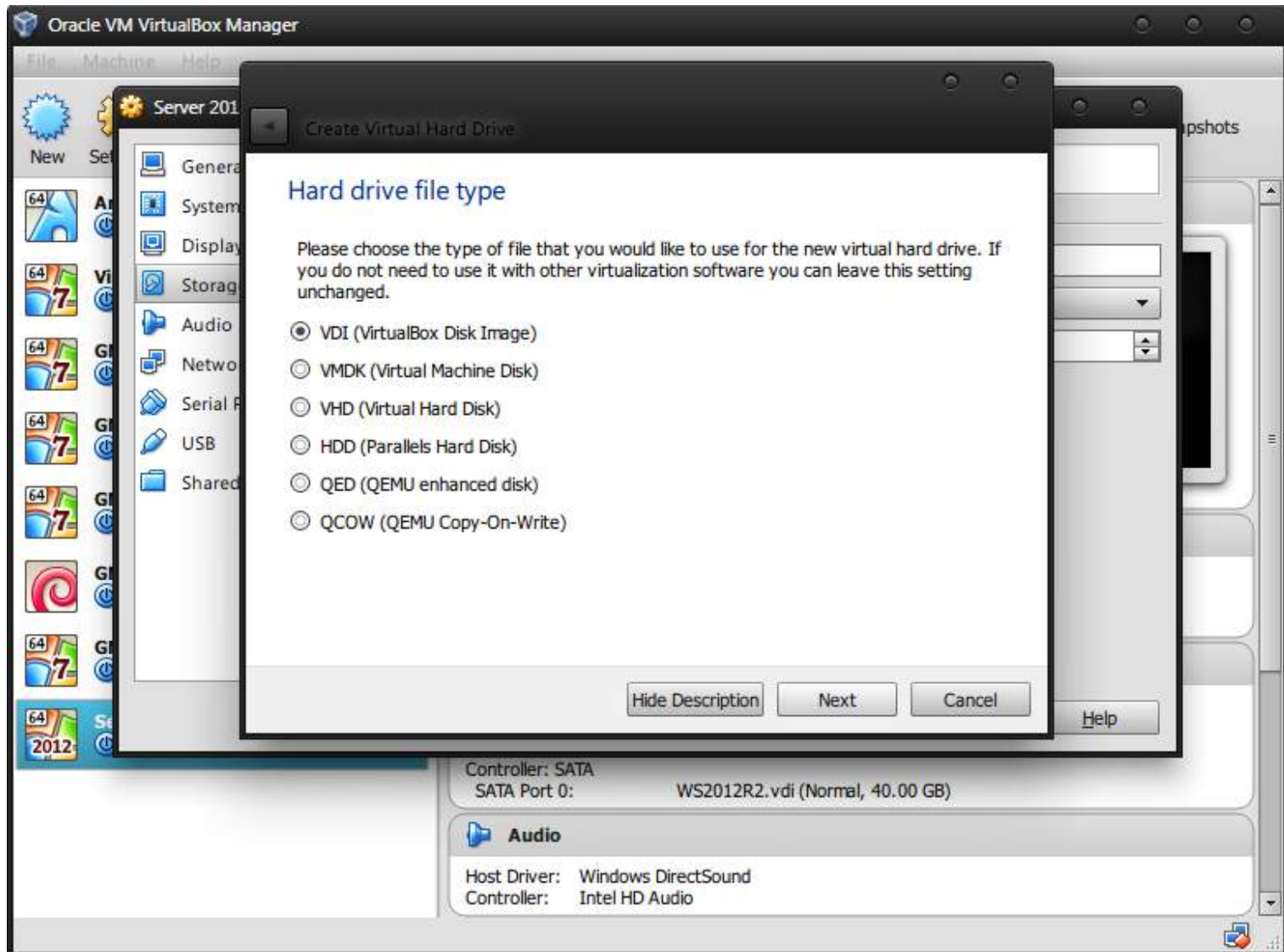
Storage Pool & Storage Space



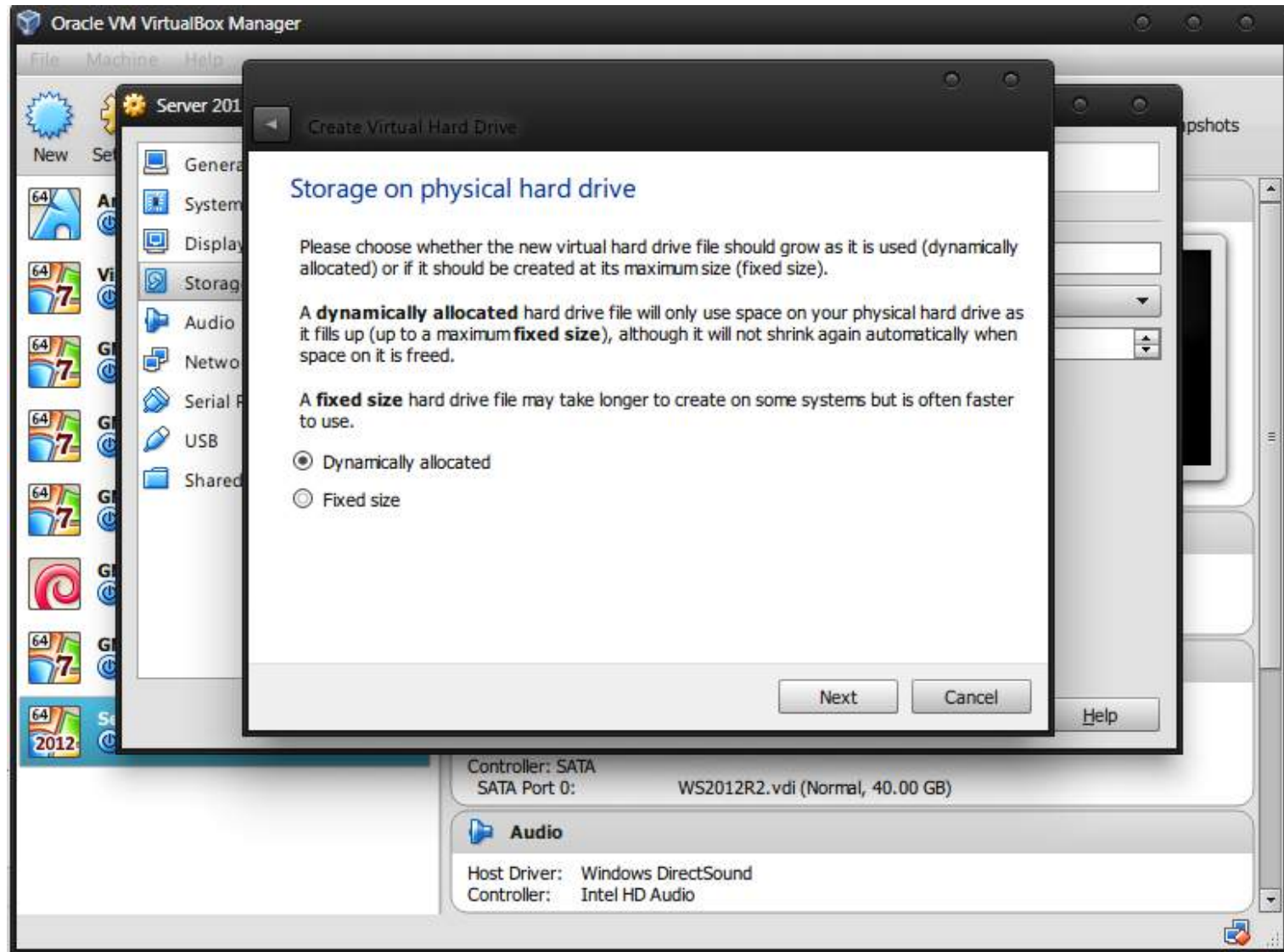
Storage Pool & Storage Space

- Hard Drive File Type: VDI
- Storage Type: Dynamically allocated
- Size: **5GB**
- Repeat this step until you have 4 **5GB** HDD

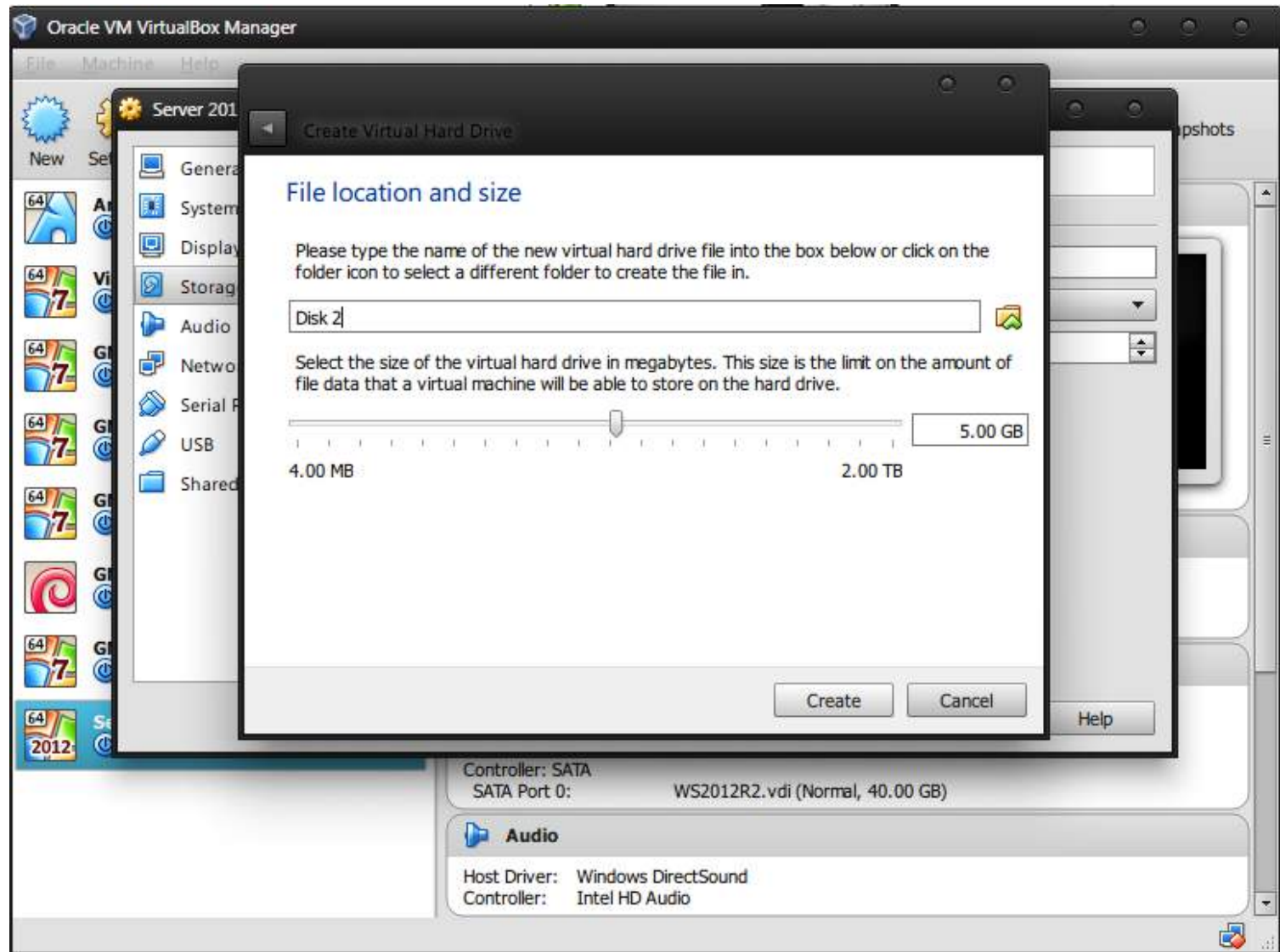
Storage Pool & Storage Space



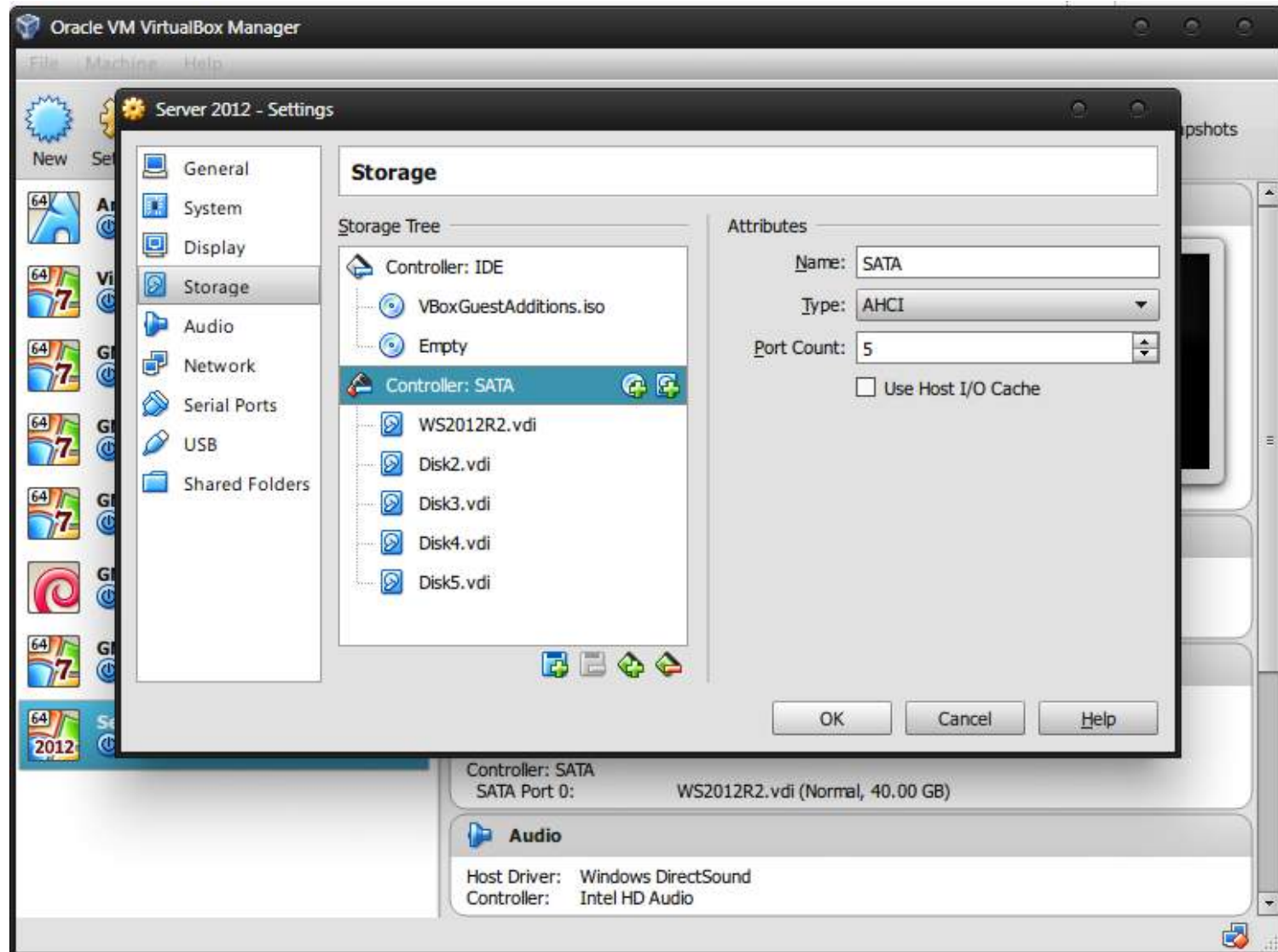
Storage Pool & Storage Space



Storage Pool & Storage Space



Storage Pool & Storage Space



Storage Pool & Storage Space

The screenshot displays the Server Manager Dashboard. The left-hand navigation pane shows the following items: Dashboard, Local Server, All Servers, DHCP, DNS, and File and Storage Services. A black arrow points to the 'File and Storage Services' item. The main content area is titled 'WELCOME TO SERVER MANAGER' and contains a 'QUICK START' section with a numbered list of tasks: 1. Configure this local server, 2. Add roles and features, 3. Add other servers to manage, and 4. Create a server group. Below this is the 'ROLES AND SERVER GROUPS' section, which shows four cards: DHCP, DNS, File and Storage Services, and Local Server. Each card lists its components: Manageability, Events, Services, Performance, and BPA results. The 'Local Server' card also shows a red '2' next to Events and a red '3' next to Services. At the bottom of the dashboard, there is an 'All Servers' card with a red header and a list of components: Manageability, Events, Services, Performance, and BPA results. The Windows taskbar at the bottom shows the time as 3:51 AM on 4/13/2016.

Storage Pool & Storage Space

The screenshot shows the Server Manager console with the 'Storage Pools' section selected in the left-hand navigation pane. An arrow points to this section. The main area displays a table of servers and a list of events.

SERVERS
All servers | 1 total

Server Name	IPv4 Address	Manageability	Last Update	Windows Activation
WIN-1234	192.168.123.1	Online - Performance counters not started	4/13/2016 3:50:57 AM	Not activated

EVENTS
All events | 2 total

Server Name	ID	Severity	Source	Log	Date and Time
WIN-1234	8193	Error	VSS	Application	4/13/2016 3:50:27 AM
WIN-1234	8193	Error	VSS	Application	4/13/2016 3:40:52 AM

BEST PRACTICES ANALYZER
Warnings or Errors | 0 of 0 total

Filter applied. X Clear All

Server Name	Severity	Title	Category
No matches found.			

Storage Pool & Storage Space

The screenshot displays the Windows Server Manager interface for 'File and Storage Services' > 'Volumes' > 'Storage Pools'. The 'STORAGE POOLS' section shows a table with one storage space, 'Primordial', managed by 'Available Disks' on server 'WIN-1234'. A context menu is open over the table, showing options: 'New Storage Pool...', 'Rescan Storage', and 'Refresh'. Below, the 'VIRTUAL DISKS' section is empty, and the 'PHYSICAL DISKS' section shows a table of four disks, each with 5.00 GB capacity and SATA bus.

STORAGE POOLS
All storage pools | 1 total

Filter

Name	Type	Managed by	Available to	Read-Write Server	Capacity	Free Space	Percent Allocated
Primordial	Available Disks	WIN-1234	WIN-1234	WIN-1234			

Last refreshed on 4/13/2016 3:51:16 AM

VIRTUAL DISKS
No related data is available.

No related virtual disks exist.

To create a virtual disk, start the New Virtual Disk Wizard.

PHYSICAL DISKS
Primordial on WIN-1234

Slot	Name	Status	Capacity	Bus	Usage	Chassis	Med
	PhysicalDisk1 (WIN-1234)		5.00 GB	SATA	Automatic		Unkr
	PhysicalDisk3 (WIN-1234)		5.00 GB	SATA	Automatic		Unkr
	PhysicalDisk2 (WIN-1234)		5.00 GB	SATA	Automatic		Unkr
	PhysicalDisk4 (WIN-1234)		5.00 GB	SATA	Automatic		Unkr

Go to Disks Overview >

3:53 AM
4/13/2016

Storage Pool & Storage Space

- Storage Pool
 - Name: (student-number)_Pool
 - Description: Your name
 - Select **ALL** disks

Storage Pool & Storage Space

The screenshot displays the Server Manager interface. A 'New Storage Pool Wizard' dialog box is open, titled 'Specify a storage pool name and subsystem'. The wizard has a sidebar with steps: 'Before You Begin', 'Storage Pool Name', 'Physical Disks', 'Confirmation', and 'Rebuild'. The 'Storage Pool Name' step is active, showing input fields for 'Name' and 'Description'. Below these fields is a table for selecting available disks:

Managed by	Available to	Subsystem	Primordial Pool
WIN-1234	WIN-1234	Storage Spaces	Primordial

At the bottom of the wizard are buttons for '< Previous', 'Next >', 'Create', and 'Cancel'. The background shows the 'PHYSICAL DISKS' overview, which states 'No storage pool is selected' and includes a link to 'Go to Disks Overview >'. The Windows taskbar at the bottom shows the time as 2:51 PM on 4/13/2016.

Storage Pool & Storage Space

Server 2012 (Running) - Oracle VM VirtualBox

Machine View Devices Help

Server Manager

Manage Tools View Help

New Storage Pool Wizard

Select physical disks for the storage pool

Before You Begin
Storage Pool Name
Physical Disks
Confirmation
Results

Select physical disks for the storage pool, and choose whether any disks should be allocated as hot spares that replace failed disks.

Slot	Name	Capacity	Bus	RPM	Model	Allocation	Chassis	Media Type
<input checked="" type="checkbox"/>	PhysicalDisk1 (...)	5.00 GB	SATA		VBOX HARDDISK	Automatic		Unknown
<input checked="" type="checkbox"/>	PhysicalDisk2 (...)	5.00 GB	SATA		VBOX HARDDISK	Automatic		Unknown
<input checked="" type="checkbox"/>	PhysicalDisk3 (...)	5.00 GB	SATA		VBOX HARDDISK	Automatic		Unknown
<input checked="" type="checkbox"/>	PhysicalDisk4 (...)	5.00 GB	SATA		VBOX HARDDISK	Automatic		Unknown

Total selected capacity: 20.0 GB
Selecting these disks will create a local pool.

< Previous Next > Create Cancel

Go to Disks Overview >

PHYSICAL DISKS

No storage pool is selected.

Select a storage pool to display its related physical disks.

2:52 PM
4/13/2016

Storage Pool & Storage Space

Server 2012 (Running) - Oracle VM VirtualBox

Machine View Devices Help

Server Manager

Manage Tools View Help

New Storage Pool Wizard

Confirm selections

Before You Begin
Storage Pool Name
Physical Disks
Confirmation
Results

Confirm that the following are the correct settings, and then click Create.

STORAGE POOL LOCATION

Server:	WIN-1234
Cluster role:	Not Clustered
Storage subsystem:	Storage Spaces

STORAGE POOL PROPERTIES

Name:	Name
Description:	Description
Capacity:	20.0 GB

PHYSICAL DISKS

PhysicalDisk1 (WIN-1234)	Automatic
PhysicalDisk3 (WIN-1234)	Automatic
PhysicalDisk2 (WIN-1234)	Automatic
PhysicalDisk4 (WIN-1234)	Automatic

< Previous Next > Create Cancel

Go to Disks Overview >

PHYSICAL DISKS

No storage pool is selected.

Select a storage pool to display its related physical disks.

TASKS

TASKS

2:52 PM
4/13/2016

Storage Pool & Storage Space

Server Manager

Server Manager > File and Storage Services > Servers

New Storage Pool Wizard

View results

Before You Begin
Storage Pool Name
Physical Disks
Confirmation
Results

You have successfully completed the New Storage Pool Wizard.

Task	Progress	Status
Gather information	<div style="width: 100%;"></div>	Completed
Create storage pool	<div style="width: 100%;"></div>	Completed
Update cache	<div style="width: 100%;"></div>	Completed

Create virtual disk when this wizard closes

< Previous Next > Close Cancel

BEST PRACTICES ANALYZER

Warnings or Errors | 0 of 0 total

Filter

Filter applied. × Clear All

Server Name	Severity	Title	Category
No matches found.			

3:55 AM
4/13/2016

Storage Pool & Storage Space

- Virtual Disk
 - Name: (student-number)_Vdisk
 - Description: Your name
 - Storage layout: Parity
 - Provision type: Thin
 - Size: Maximum Size

Storage Pool & Storage Space

The screenshot displays the Windows Server Manager interface. A 'New Virtual Disk Wizard' dialog box is open, showing the 'Select the storage pool' step. The wizard lists available storage pools in a table:

Pool Name	Managed by	Available to	Capacity	Free Space	Subsystem
WIN-1234	WIN-1234	WIN-1234	17.0 GB	16.0 GB	Storage Spaces

The background shows the 'Storage Pools' overview page, which includes a table of storage pools:

Pool Name	Capacity	Free Space	Percent Allocated	Status
WIN-1234	17.0 GB	16.0 GB	<div style="width: 94%;"></div>	OK

Below this, the 'PHYSICAL DISKS' section is visible, indicating that no storage pool is selected for display.

Storage Pool & Storage Space

The screenshot displays the Windows Server Manager interface. In the foreground, the 'New Virtual Disk Wizard' dialog box is open, showing the 'Specify the virtual disk name' step. The 'Name' field contains 'Name' and the 'Description' field contains 'Description'. A checkbox for 'Create storage tiers on this virtual disk' is unchecked. Below the wizard, a message states: 'To use storage tiers, the storage pool requires a minimum of one automatically allocated physical disk of each media type (SSD and HDD)'. The background shows the 'Storage Pools' overview page with a table of storage pools:

Read-Write Server	Capacity	Free Space	Percent Allocated	Status
WIN-1234	17.0 GB	10.0 GB	<div style="width: 41%;"></div>	

Below the table, the 'PHYSICAL DISKS' section indicates 'No storage pool is selected' and prompts the user to 'Select a storage pool to display its related physical disks.' The Windows taskbar at the bottom shows the time as 2:53 PM on 4/13/2016.

Storage Pool & Storage Space

The screenshot displays the Server Manager interface with the 'New Virtual Disk Wizard' open. The wizard is at the 'Storage Layout' step, where the 'Parity' layout is selected. The background shows the 'Storage Pools' overview with a table of storage spaces.

New Virtual Disk Wizard - Select the storage layout

Layout:

- Simple
- Mirror
- Parity**

Descriptions:

- Simple:** Data and parity information are striped across physical disks, increasing reliability, but somewhat reducing capacity. This storage layout requires at least three disks to protect you from a single disk failure and at least seven disks to protect you from two disk failures.

Storage Pools Overview:

Read-Write Server	Capacity	Free Space	Percent Allocated	Status
WIN-1234	17.0 GB	16.0 GB	<div style="width: 94%;"></div>	

PHYSICAL DISKS: No storage pool is selected. Select a storage pool to display its related physical disks.

Storage Pool & Storage Space

The screenshot displays the Server Manager interface with the 'New Virtual Disk Wizard' open. The wizard is at the 'Specify the provisioning type' step, where the 'Fixed' option is selected. The background shows a storage pool table with one entry, 'WIN-1234', and a 'PHYSICAL DISKS' section that is currently empty.

New Virtual Disk Wizard - Specify the provisioning type

Before You Begin
Storage Pool
Virtual Disk Name
Storage Layout
Provisioning
Size
Confirmation
Results

Provisioning type:
 Thin
The volume uses space from the storage pool as needed, up to the volume size.
 Fixed
The volume uses space from the storage pool equal to the volume size.

< Previous Next > Create Cancel

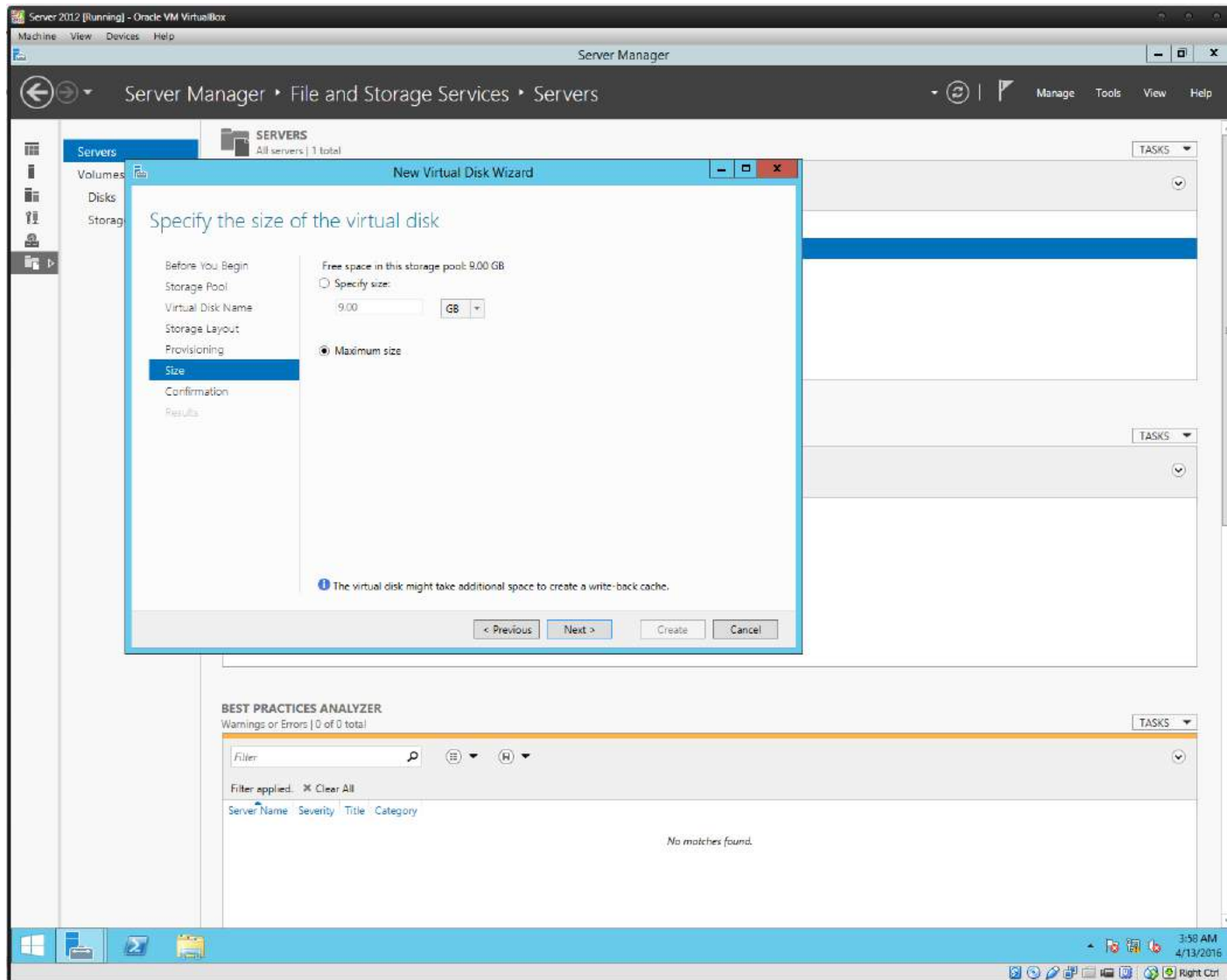
Storage Pools

Read-Write Server	Capacity	Free Space	Percent Allocated	Status
WIN-1234	17.0 GB	16.0 GB	<div style="width: 94%;"></div>	

PHYSICAL DISKS
No storage pool is selected.
Select a storage pool to display its related physical disks.

Go to Disks Overview >

Storage Pool & Storage Space



Storage Pool & Storage Space

Server Manager

Server Manager > File and Storage Services > Servers

SERVERS
All servers | 1 total

View results

Before You Begin
Storage Pool
Virtual Disk Name
Storage Layout
Provisioning
Size
Confirmation
Results

The New Virtual Disk Wizard successfully completed.

Task	Progress	Status
Gather information	██████████	Completed
Create virtual disk	██████████	Completed
Rescan disks	██████████	Completed
Initialize disk	██████████	Completed
Update cache	██████████	Completed

Create a volume when this wizard closes

< Previous Next > Close Cancel

BEST PRACTICES ANALYZER
Warnings or Errors | 0 of 0 total

Filter

Filter applied. × Clear All

Server Name	Severity	Title	Category
No matches found.			

3:58 AM
4/13/2016

Storage Pool & Storage Space

- Volume
 - Name: (student-number)_Volume
 - Description: Your name
 - **Volume size: See available capacity**
 - Leave other settings as default

Storage Pool & Storage Space

The screenshot displays the Windows Server Manager interface. A 'New Volume Wizard' dialog box is open, showing the 'Server and Disk' step. The wizard lists the server 'WIN-1234' and a disk 'Disk 5' with a capacity of 9.00 GB and 8.97 GB of free space. The background shows the 'Storage Spaces' overview, which is currently empty as no storage pool is selected.

New Volume Wizard - Select the server and disk

Before You Begin

- Server and Disk
- Size
- Drive Letter or Folder
- File System Settings
- Confirmation
- Results

Server:

Provision to	Status	Cluster Role	Destination
WIN-1234	Online	Not Clustered	Local

Refresh Rescan

Disk:

Disk	Virtual Disk	Capacity	Free Space	Subsystem
Disk 5	Name	9.00 GB	8.97 GB	Storage Spaces

< Previous Next > Create Cancel

Storage Spaces Overview

PHYSICAL DISKS

No storage pool is selected.

Select a storage pool to display its related physical disks.

Storage Pool & Storage Space

The screenshot displays the Server Manager interface. A 'New Volume Wizard' dialog box is open, showing the 'Specify the size of the volume' step. The wizard has a sidebar with steps: 'Before You Begin', 'Server and Disk', 'Size', 'Drive Letter or Folder', 'File System Settings', 'Confirmation', and 'Results'. The 'Size' step is active, showing 'Available Capacity: 8.97 GB', 'Minimum size: 8.00 MB', and 'Volume size: 89 GB'. Two black arrows point to the '8.97 GB' and the '89' in the volume size field. The background shows the 'Physical Disks' section with a table of disks and a message: 'No storage pool is selected. Select a storage pool to display its related physical disks.'

Read-Write Server	Capacity	Free Space	Percent Allocated	Status
WIN-1234	17.0 GB	3.00 GB	<div style="width: 10%;"></div>	

Storage Pool & Storage Space

The screenshot displays the Windows Server Manager interface. A 'New Volume Wizard' dialog box is open, showing the 'Assign to a drive letter or folder' step. The wizard has a sidebar with steps: 'Before You Begin', 'Server and Disk', 'Size', 'Drive Letter or Folder' (selected), 'File System Settings', 'Confirmation', and 'Results'. The main area of the wizard contains the following text: 'Select whether to assign the volume to a drive letter or a folder. When you assign a volume to a folder, the volume appears as a folder within a drive, such as D:\UserData.' Below this, there are three options: 'Drive letter: F:' (selected), 'The following folder:' (with a 'Browse...' button), and 'Don't assign to a drive letter or folder.' At the bottom of the wizard are buttons for '< Previous', 'Next >', 'Create', and 'Cancel'. In the background, the 'Server Manager' console is visible. It shows a table of storage spaces:

Read-Write Server	Capacity	Free Space	Percent Allocated	Status
WIN-1234	17.0 GB	3.00 GB	<div style="width: 100%;"></div>	

Below the table, the 'PHYSICAL DISKS' section is visible, showing the message: 'No storage pool is selected. Select a storage pool to display its related physical disks.' The Windows taskbar at the bottom shows the time as 2:56 PM on 4/13/2016.

Storage Pool & Storage Space

The screenshot displays the Windows Server Manager interface. A 'New Volume Wizard' dialog box is open, showing the 'File System Settings' step. The wizard is configured with the following settings:

- File system: NTFS
- Allocation unit size: Default
- Volume label: New Volume
- Generate short file names (not recommended)

Below the settings, a note states: 'Short file names (8 characters with 3-character extensions) are required for some 16-bit applications running on client computers, but make file operations slower.'

The background shows the 'Storage Spaces' overview page. It features a table of storage pools:

Read-Write Server	Capacity	Free Space	Percent Allocated	Status
WIN-1234	17.0 GB	3.00 GB	<div style="width: 17.6%;"></div>	

Below the table, the 'PHYSICAL DISKS' section is visible, indicating that 'No storage pool is selected' and providing a prompt to 'Select a storage pool to display its related physical disks.'

Data Deduplication

The screenshot displays the Windows Server Manager interface. At the top, the title bar reads "Server 2012 [Running] - Oracle VM VirtualBox". Below it, the "Server Manager" window title is visible. The main dashboard area is titled "WELCOME TO SERVER MANAGER" and contains a "QUICK START" section with four numbered steps:

- 1 Configure this local server
- 2 Add roles and features ← (indicated by a black arrow)
- 3 Add other servers to manage
- 4 Create a server group

Below the quick start section is the "ROLES AND SERVER GROUPS" section, which shows a summary of installed roles and server groups. The summary indicates: Roles: 3 | Server groups: 1 | Servers total: 1.

Role/Server Group	Count	Manageability	Events	Services	Performance	BPA results	Last Updated
DHCP	1	Manageability	Events	Services	Performance	BPA results	
DNS	1	Manageability	Events	Services	Performance	BPA results	
File and Storage Services	1	Manageability	Events	Services	Performance	BPA results	
Local Server	1	Manageability	3 Events	Services	Performance	BPA results	4/13/2016 2:58 PM
All Servers	1	Manageability	3 Events	Services	Performance	BPA results	4/13/2016 2:58 PM

The Windows taskbar at the bottom shows the system tray with the time 3:00 PM and date 4/13/2016.

Data Deduplication

The screenshot displays the Windows Server Manager interface. A dialog box titled "Add Roles and Features Wizard" is open, showing the "Select installation type" step. The wizard is for a "DESTINATION SERVER" with ID "WN-1234". Two installation options are presented:

- Role-based or feature-based installation**
Configure a single server by adding roles, role services, and features.
- Remote Desktop Services installation**
Install required role services for Virtual Desktop Infrastructure (VDI) to create a virtual machine-based or session-based desktop deployment.

An arrow points to the "Role-based or feature-based installation" option. The wizard includes a "Before You Begin" section and a "Server Selection" section. At the bottom of the wizard are buttons for "< Previous", "Next >", "Install", and "Cancel".

The background shows the Server Manager dashboard with a list of servers. Two server cards are visible:

- Local Server** (1)
 - Manageability (1)
 - Events (3)
 - Services
 - Performance
 - BPA results
 - 4/13/2016 2:58 PM
- All Servers** (1)
 - Manageability (1)
 - Events (3)
 - Services
 - Performance
 - BPA results
 - 4/13/2016 2:58 PM

Data Deduplication

Server Manager - Dashboard

DESTINATION SERVER WIN-1234

Select destination server

Before You Begin
Installation Type
Server Selection
Server Roles
Features
Confirmation
Results

Select a server or a virtual hard disk on which to install roles and features.

Select a server from the server pool
 Select a virtual hard disk

Server Pool

Filter:

Name	IP Address	Operating System
WIN-1234	192.168.123.1	Microsoft Windows Server 2012 R2 Standard

1 Computer(s) found
This page shows servers that are running Windows Server 2012, and that have been added by using the Add Servers command in Server Manager. Offline servers and newly-added servers from which data collection is still incomplete are not shown.

< Previous Next > Install Cancel

Local Server 1
Manageability
3 Events
Services
Performance
BPA results
4/13/2016 2:58 PM

All Servers 1
Manageability
3 Events
Services
Performance
BPA results
4/13/2016 2:58 PM

3:01 PM 4/13/2016

Data Deduplication

The screenshot displays the Windows Server Manager interface. The 'Add Roles and Features Wizard' is open, showing the 'Select server roles' step for a server named 'DESTINATION SERVER W/N-1234'. The 'Data Deduplication' role is selected under 'File and Storage Services'. A black arrow points to the 'Data Deduplication' checkbox. The wizard also shows a description: 'Data Deduplication saves disk space by storing a single copy of identical data on the volume.' The background shows the Server Manager dashboard with 'Local Server' and 'All Servers' tiles, each displaying 'Manageability' and 'Events' counts. The taskbar at the bottom shows the time as 3:02 PM on 4/13/2016.

Data Deduplication

The screenshot displays the Windows Server Manager interface. A 'Server Manager' window is open, showing a 'Dashboard' with navigation icons and a 'Server Manager' title bar. Overlaid on this is the 'Add Roles and Features Wizard' window, titled 'Confirm installation selections'. The wizard is for a 'DESTINATION SERVER W/N-1234'. It shows a list of selected roles and features: 'File and Storage Services', 'File and iSCSI Services', 'Data Deduplication', and 'File Server'. A checkbox labeled 'Restart the destination server automatically if required' is checked, with an arrow pointing to it. Below the list, there are 'Export configuration settings' and 'Specify an alternate source path' options. At the bottom of the wizard are 'Previous', 'Next', 'Install', and 'Cancel' buttons. In the background, the Server Manager dashboard shows 'Local Server' and 'All Servers' with various status indicators and a 'BPA results' section.

Data Deduplication

The screenshot displays the Windows Server Manager interface. The top navigation bar includes 'Server Manager' and 'Dashboard'. A left-hand navigation pane lists 'Local Server', 'All Servers', 'DHCP', 'DNS', and 'File and Storage Services'. An arrow points to 'File and Storage Services'. The main content area features a 'WELCOME TO SERVER MANAGER' section with a 'QUICK START' list: 1. Configure this local server, 2. Add roles and features, 3. Add other servers to manage, and 4. Create a server group. Below this is the 'ROLES AND SERVER GROUPS' section, which shows five server group cards: DHCP, DNS, File and Storage Services, Local Server, and All Servers. Each card lists 'Manageability', 'Events', 'Services', 'Performance', and 'BPA results'. The 'Local Server' and 'All Servers' cards have a red header and a '3' in a red box next to 'Events'. The bottom of the screen shows the Windows taskbar with the time 3:15 PM on 4/13/2016.

Data Deduplication

Server Manager

Server Manager ▶ File and Storage Services ▶ Volumes ▶

VOLUMES
All volumes [3 total]

Volume	Status	File System Label	Provisioning	Capacity	Free Space	Deduplication Rate	Deduplication Savings	Percent Used
WIN-1234 (3)								
W:\Volume{64F...	System Reserved		Fixed	350 MB	88.3 MB			
C:	Fixed		Fixed	39.7 GB	30.9 GB			
F:	New Volume		Fixed	8.97 GB	8.93 GB			

Right click, select configure data deduplication

Shares: No related shares are available. No related shares exist.

DISK: F:\ on WIN-1234
Microsoft Storage Space Device
Capacity: 9.00 GB
100% Allocated (9.00 GB Allocated, 0.00 B Unallocated)
Status: Online
Bus Type: Storage Spaces
Subsystem: Storage Spaces
Virtual Disk: Name

iSCSI VIRTUAL DISKS: No related iSCSI virtual disks are available.
To use iSCSI virtual disks, the iSCSI Target Server role service must be installed.
To install iSCSI Target Server, start the Add Roles and Features Wizard.

Data Deduplication

The screenshot displays the Windows Server Manager interface. A dialog box titled "New Volume (F:) Deduplication Settings" is open, showing the following configuration:

- Data deduplication:** General purpose file server
- Deduplicate files older than (in days):** 3
- Default file extensions to exclude:** edb, jrs
- Custom file extensions to exclude:** (empty)
- Buttons:** Add..., Remove, Set Deduplication Schedule..., OK, Cancel, Apply

The background interface shows the "DISK" section for "F:\ on WIN-1234", which is a Microsoft Storage Space Device with a capacity of 9.00 GB. The disk is 100% allocated (9.00 GB allocated, 0.00 B unallocated). The status is Online, and the subsystem is Storage Spaces.

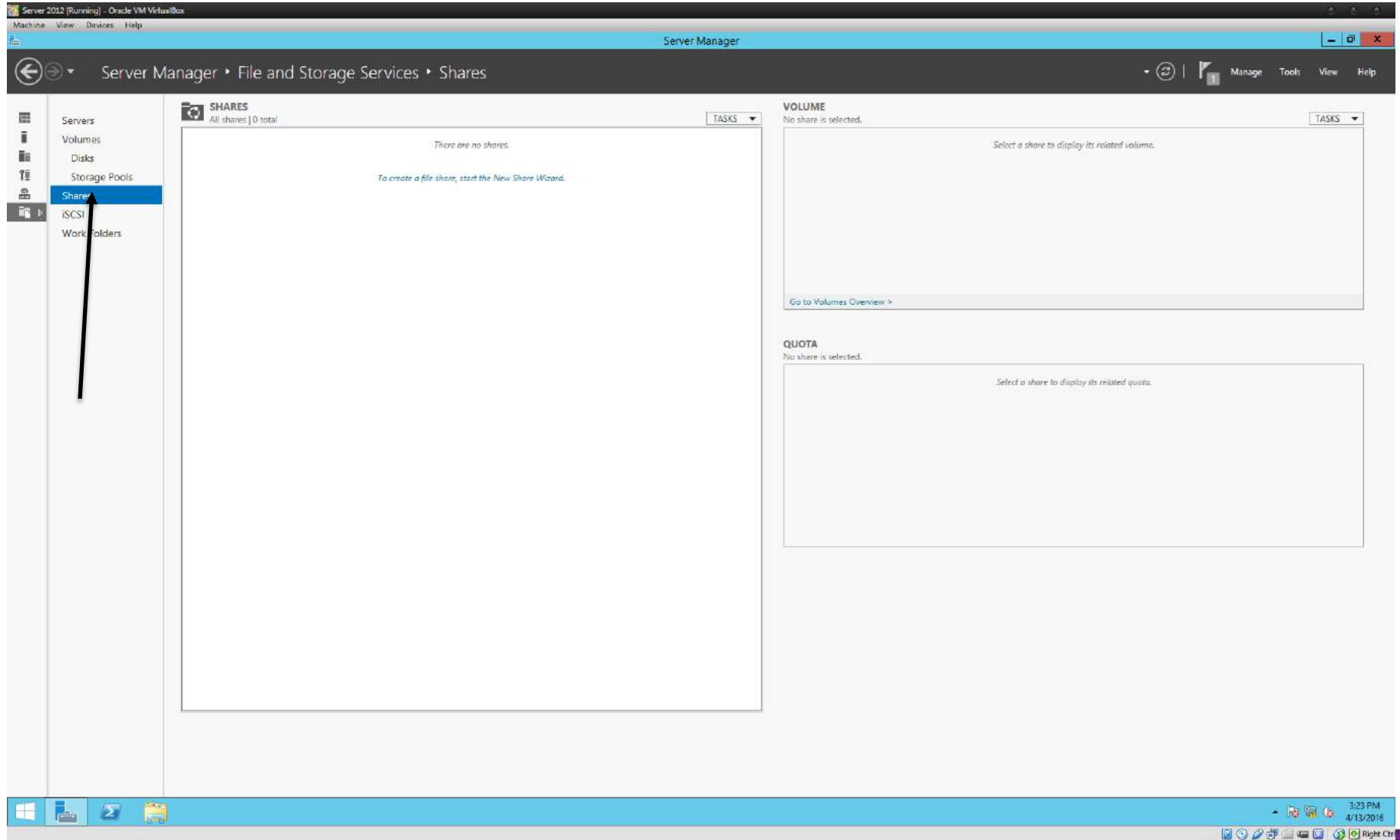
Data Deduplication

The screenshot displays the Windows Server Manager interface for a virtual machine named 'WIN-1234'. A dialog box titled 'WIN-1234 Deduplication Schedule' is open, showing configuration options for data deduplication. The dialog is divided into two main sections:

- Enable background optimization:** This section is checked. It includes a description: 'Regularly run data deduplication at low priority and pause data deduplication when the system is busy to minimize the impact on system performance.'
- Enable throughput optimization:** This section is also checked. It includes a description: 'During the specified hours, run data deduplication at normal priority and consume the resources required to maximize performance.' Below this, there are checkboxes for days of the week (Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday) and a start time of 12:00 AM with a duration of 6 hours.

An arrow points to the 'Enable throughput optimization' section. Below these sections, there is an option to 'Create a second schedule for throughput optimization', which is currently unchecked. The background of the Server Manager shows a table with columns for 'Space', 'Deduplication Rate', 'Deduplication Savings', and 'Percent Used'. A 'DISK' properties window is also visible, showing 'F:\ on WIN-1234' with a capacity of 9.00 GB, 100% allocated, and 9.00 GB allocated. The system tray at the bottom right shows the time as 3:17 PM on 4/13/2016.

File Sharing



File Sharing

The screenshot displays the Windows Server Manager interface. The main window is titled "Server Manager" and shows the "File and Storage Services" > "Shares" path. A "New Share Wizard" dialog box is open, titled "New Share Wizard" and "Select the profile for this share". The wizard has a left-hand navigation pane with options: "Select Profile", "Share Location", "Share Name", "Other Settings", "Permissions", "Confirmation", and "Results". The "Select Profile" pane is active, showing a list of "File share profile" options: "SMB Share - Quick", "SMB Share - Advanced", "SMB Share - Applications", "NFS Share - Quick", and "NFS Share - Advanced". The "SMB Share - Quick" profile is selected. To the right of the list is a "Description" box that reads: "This basic profile represents the fastest way to create an SMB file share, typically used to share files with Windows-based computers." Below the description is a bulleted list: "• Suitable for general file sharing" and "• Advanced options can be configured later by using the Properties dialog". At the bottom of the wizard are buttons for "< Previous", "Next >", "Create", and "Cancel".

In the background, the "VOLUME" section is visible, showing "No share is selected." and a prompt "Select a share to display its related volumes." Below this is a link "Go to Volumes Overview >". The "QUOTA" section also shows "No share is selected." and a prompt "Select a share to display its related quota." The Windows taskbar at the bottom shows the system tray with the time "3:25 PM" and date "4/13/2016".

File Sharing

The screenshot shows the Server Manager interface with the 'New Share Wizard' dialog box open. The wizard is at the 'Share Location' step, where a server named 'WIN-1234' is selected. Under 'Share location', the 'Select by volume' option is chosen, and a table of available volumes is displayed. An arrow points to the 'F:' volume in this table. The 'VOLUME' and 'QUOTA' sections on the right are currently empty, indicating no share is selected.

Volume	Free Space	Capacity	File System
C:	30.9 GB	39.7 GB	NTFS
F:	8.93 GB	8.97 GB	NTFS

Use your virtual volume

File Sharing

The screenshot displays the Windows Server Manager interface. The main window is titled "Server Manager" and shows the "File and Storage Services" > "Shares" path. A "New Share Wizard" dialog box is open, currently on the "Specify share name" step. The wizard has a left-hand navigation pane with options: "Select Profile", "Share Location", "Share Name" (selected), "Other Settings", "Permissions", "Confirmation", and "Results".

The "Specify share name" step contains the following fields:

- Share name:** A text box containing "Share_(student_number_here)".
- Share description:** A text box containing "Your_name_here".
- Local path to share:** A text box containing "F:\Shares\Share_(student_number_here)".
- Remote path to share:** A text box containing "\\WIN-1234\Share_(student_number_here)".

Below the fields, there is a note: "If the folder does not exist, the folder is created." At the bottom of the wizard are buttons for "< Previous", "Next >", "Create", and "Cancel".

To the right of the wizard, the "VOLUME" and "QUOTA" sections are visible. Both sections indicate "No share is selected" and provide instructions to "Select a share to display its related volume/quota".

The Windows taskbar at the bottom shows the system tray with the time "3:27 PM" and date "4/13/2016".

File Sharing

The screenshot displays the Windows Server Manager interface. The main window shows the 'Shares' section under 'File and Storage Services'. A 'New Share Wizard' dialog box is open, titled 'Configure share settings'. The wizard has several steps: 'Select Profile', 'Share Location', 'Share Name', 'Other Settings', 'Permissions', 'Confirmation', and 'Results'. The 'Other Settings' step is currently selected and shows the following options:

- Enable access-based enumeration**
Access-based enumeration displays only the files and folders that a user has permissions to access. If a user does not have Read (or equivalent) permissions for a folder, Windows hides the folder from the user's view.
- Allow caching of share**
Caching makes the contents of the share available to offline users. If the BranchCache for Network Files role service is installed, you can enable BranchCache on the share.
 - Enable BranchCache on the file share**
BranchCache enables computers in a branch office to cache files downloaded from this share, and then allows the files to be securely available to other computers in the branch.
- Encrypt data access**
When enabled, remote file access to this share will be encrypted. This secures the data against unauthorized access while the data is transferred to and from the share. If this box is checked and grayed out, an administrator has turned on encryption for the entire server.

At the bottom of the wizard, there are buttons for '< Previous', 'Next >', 'Create', and 'Cancel'. To the right of the wizard, the 'VOLUME' and 'QUOTA' sections are visible, both showing 'No share is selected.' and a prompt to 'Select a share to display its related volumes.' and 'Select a share to display its related quota.' respectively. The taskbar at the bottom shows the system clock as 3:28 PM on 4/13/2016.

File Sharing

The screenshot displays the Windows Server Manager interface. The main window shows the 'Shares' section under 'File and Storage Services'. A 'New Share Wizard' dialog box is open, titled 'Specify permissions to control access'. The wizard is currently on the 'Permissions' step. It shows 'Share permissions: Everyone Read Only' and 'Folder permissions' for various principals. The 'VOLUME' and 'QUOTA' sections on the right are currently empty, indicating no share is selected.

Permissions to control access

Permissions to access the files on a share are set using a combination of folder permissions, share permissions, and, optionally, a central access policy.

Share permissions: Everyone Read Only

Folder permissions:

Type	Principal	Access	Applies To
Allow	BUILTIN\Users	Special	This folder and subfolders
Allow	BUILTIN\Users	Read & execute	This folder, subfolders, and files
Allow	CREATOR OWNER	Full Control	Subfolders and files only
Allow	NT AUTHORITY\SYSTEM	Full Control	This folder, subfolders, and files
Allow	BUILTIN\Administrators	Full Control	This folder, subfolders, and files
Allow	BUILTIN\Administrators	Full Control	This folder only

Buttons: < Previous, Next >, Create, Cancel

VOLUME
No share is selected.
Select a share to display its related volumes.
Go to Volumes Overview >

QUOTA
No share is selected.
Select a share to display its related quota.

File Sharing

The screenshot displays the Windows Server Manager interface. The main window title is "Server Manager" and the breadcrumb path is "Server Manager > File and Storage Services > Shares". A "New Share Wizard" dialog box is open, showing the "Confirm selections" step. The wizard lists the following settings:

SHARE LOCATION	
Server:	WIN-1234
Cluster roles:	Not Clustered
Local path:	F:\Shares\Share_(student_number_here)

SHARE PROPERTIES	
Share name:	Share_(student_number_here)
Description:	Your_name_here
Protocol:	SMB
Access-based enumeration:	Enabled
Caching:	Enabled
BranchCache:	Disabled
Encrypt data:	Disabled

At the bottom of the wizard are buttons for "< Previous", "Next >", "Create", and "Cancel".

In the background, the "Shares" console tree is visible on the left. On the right, the "VOLUME" and "QUOTA" sections are shown, both indicating "No share is selected." and providing instructions to "Select a share to display its related volumes/quotas."

Install Distributed File System

Server 2012 [Running] - Oracle VM VirtualBox

Machine View Devices Help

Server Manager

Server Manager Dashboard

Manage Tools View Help

Dashboard

- Local Server
- All Servers
- DHCP
- DNS
- File and Storage Services

WELCOME TO SERVER MANAGER

1 Configure this local server

- 2 Add roles and features
- 3 Add other servers to manage
- 4 Create a server group

QUICK START

WHATS NEW

LEARN MORE

ROLES AND SERVER GROUPS

Roles: 3 | Server groups: 1 | Servers total: 1

Role	Count	Components
DHCP	1	Manageability, Events, Services, Performance, BPA results
DNS	1	Manageability, Events, Services, Performance, BPA results
File and Storage Services	1	Manageability, Events, Performance, BPA results
Local Server	1	Manageability, Events (3), Services, Performance, BPA results
All Servers	1	Manageability, Events (3), Services, Performance, BPA results

4/13/2016 2:58 PM

4/13/2016 2:58 PM

3:00 PM 4/13/2016

Right Ctrl

Install Distributed File System

The screenshot displays the Windows Server Manager interface. A dialog box titled "Add Roles and Features Wizard" is open, showing the "Select installation type" step. The wizard is for a "DESTINATION SERVER" named "WN-1234". Two installation options are presented:

- Role-based or feature-based installation**
Configure a single server by adding roles, role services, and features.
- Remote Desktop Services installation**
Install required role services for Virtual Desktop Infrastructure (VDI) to create a virtual machine-based or session-based desktop deployment.

An arrow points to the "Role-based or feature-based installation" option. The wizard includes a "Before You Begin" section and a list of steps: "Installation Type", "Server Selection", "Server Roles", "Features", "Confirmation", and "Results". Navigation buttons at the bottom include "< Previous", "Next >", "Install", and "Cancel".

The background shows the Server Manager dashboard with a list of servers. Two server tiles are visible:

- Local Server** (1): Manageability (1), Events (3), Services, Performance, BPA results. Last updated: 4/13/2016 2:58 PM.
- All Servers** (1): Manageability (1), Events (3), Services, Performance, BPA results. Last updated: 4/13/2016 2:58 PM.

The Windows taskbar at the bottom shows the time as 3:01 PM on 4/13/2016.

Install Distributed File System

Server Manager Dashboard

Server Manager - Dashboard

DESTINATION SERVER WIN-1234

Select destination server

Before You Begin
Installation Type
Server Selection
Server Roles
Features
Confirmation
Results

Select a server or a virtual hard disk on which to install roles and features.

Select a server from the server pool
 Select a virtual hard disk

Server Pool

Filter:

Name	IP Address	Operating System
WIN-1234	192.168.123.1	Microsoft Windows Server 2012 R2 Standard

1 Computer(s) found
This page shows servers that are running Windows Server 2012, and that have been added by using the Add Servers command in Server Manager. Offline servers and newly-added servers from which data collection is still incomplete are not shown.

< Previous Next > Install Cancel

Local Server 1
Manageability
3 Events
Services
Performance
BPA results
4/13/2016 2:58 PM

All Servers 1
Manageability
3 Events
Services
Performance
BPA results
4/13/2016 2:58 PM

Windows Taskbar: 3:01 PM 4/13/2016

Install Distributed File System

The screenshot displays the Windows Server 2012 environment. The main window is the 'Server Manager' dashboard, which includes a navigation pane on the left with options like 'Local Server', 'All Servers', 'DHCP', 'DNS', and 'File and Storage Services'. The central area shows 'WELCOME TO SERVER MANAGER' and a 'Hide' button. Overlaid on this is the 'Add Roles and Features Wizard' for a 'DESTINATION SERVER WIN-1234'. The wizard is at the 'Select server roles' step. The 'Roles' list includes: Active Directory Rights Management Services, Application Server, DHCP Server (Installed), DNS Server (Installed), Fax Server, File and Storage Services (3 of 12 installed), and File and iSCSI Services (2 of 11 installed). Under 'File and Storage Services', 'File Server (Installed)', 'BranchCache for Network Files', 'Data Deduplication (Installed)', 'DFS Namespaces', and 'DFS Replication' are listed. 'DFS Replication' is selected, and a description is provided: 'DFS Replication is a multimaster replication engine that enables you to synchronize folders on multiple servers across local or wide area network (WAN) network connections. It uses the Remote Differential Compression (RDC) protocol to update only the portions of files that have changed since the last replication. DFS Replication can be used in conjunction with DFS Namespaces, or by itself.' The 'Next >' button is highlighted. In the background, the Server Manager dashboard shows two server tiles: 'Local Server' and 'All Servers', both with a '1' in a red box next to the 'Events' link. The system tray at the bottom shows the time as 3:31 PM on 4/13/2016.

Install Distributed File System

The screenshot displays the Windows Server Manager interface. A 'WELCOME TO SERVER MANAGER' banner is at the top. On the left, a navigation pane shows 'Local Server', 'All Servers', 'DHCP', 'DNS', and 'File and Storage Services'. The main area shows a 'Server Manager Dashboard' with two server tiles: 'Local Server' and 'All Servers'. Both tiles show 'Manageability' with a green checkmark and 'Events' with a red '3' icon. Below the tiles, the date and time '4/13/2016 3:28 PM' are visible.

In the foreground, the 'Add Roles and Features Wizard' is open, titled 'Confirm installation selections'. The wizard is for 'DESTINATION SERVER WIN-1234'. It shows the following installation selections:

- Restart the destination server automatically if required
- Optional features (such as administration tools) might be displayed on this page because they have been selected automatically. If you do not want to install these optional features, click Previous to clear their check boxes.

The 'Features' section is expanded to show the following items:

- File and Storage Services
 - File and iSCSI Services
 - DFS Namespaces
 - DFS Replication
- Remote Server Administration Tools
 - Role Administration Tools
 - File Services Tools
 - DFS Management Tools

At the bottom of the wizard, there are buttons for '< Previous', 'Next >', 'Install', and 'Cancel'. The 'Install' button is highlighted.

Your assignment task for this week

- Record date, time
- Record all configuration updates you have made to the server during this practical tasks. Add screen shots to highlight the changes.
 - The screenshot should show your name/student ID
- Report any errors/warnings from the event viewer
- Record the server status at the time you have done everything e.g. running normally or any observable issues.