# Answers: 6.1.4.2 Lab - Hard Drive Maintenance in Windows 7 and Vista

## Introduction

In this lab, you will examine the results of using Disk Check and Disk Defragmenter on a hard drive.

## **Recommended Equipment**

- A computer running Windows 7 or Vista
- Two or more partitions on the hard drive.

#### Step 1: Run the Error-checking Tool on a disk volume

- a. Log on to Windows as an administrator.
- b. Click Start > Computer. Right-click New Volume (G:) > Properties > Tools > Check Now.

Note: Substitute the volume name and drive (G:) for those used in your computer.

00	▶ Computer ► New Volume (G:)	✓ 4 <sub>9</sub> Search New Volume (G:	<u>× □ –</u>
File	> New Volume (G:) Properties		
Organ	Security Previous Versions Quota Customize		E 🕶 🔲 🔞
	General Tools Hardware Shanng  Error-checking  This option will check the drive for errors.  Check Disk New Volume (G:)  Check disk options  Automatically fix file system errors  Scan for and attempt recovery of bad sectors  Bac  Start Cancel	L Date modified Type	Size
Q N	OK Cancel Apply		

c. Make sure there are no check marks in either checkbox. Click Start.

d. The Your device or disk was successfully scanned window opens. Click the expand button next to See details.

hecking Disk New Volume (G:)	
Your device or disk was successfully scan	ned
No problems were found on the device or disk. It is rea	dy to use.
If you removed the device or disk before all files were f back to the source and recopy those files to your devic	ully written to it, parts of some files might still be missing. If so, go e or disk.
Hide details	Close
Volume label is New Volume.	
CHKDSK is verifying files (stage 1 of 3)	
256 file records processed.	
File verification completed.	
0 large file records processed.	
0 bad file records processed.	
0 EA records processed.	
0 reparse records processed.	
CHKDSK is verifying indexes (stage 2 of 2)	
280 index entries processed.	
Index verification completed.	
CHKDSK is verifying security descriptors (stage 3 of 3)	
256 file SDs/SIDs processed.	
Security descriptor verification completed	
12 data files processed.	
Windows has sharked the file system and found no pr	ableme
windows has checked the file system and round no pr	obiens.
511999 KB total disk space.	
349268 KB in 8 files.	
10 KB in 14 indexes.	
4608 KB occupied by the log file	
157420 KB available on disk.	
4096 bytes in each allocation unit	
127999 total allocation units on disk.	
39355 allocation units available on disk.	

How many stages were processed?

- e. Click Close.
- f. Select the **Tools** tab, and then click **Check Now**.

g. Remove the check mark next to Automatically fix file system errors. Place a check mark in the checkbox next to Scan for and attempt recovery of bad sectors and click Start.

Check <mark>disk</mark> optic	ins
Automatically	/ fix file system errors
Scan for and	attempt recovery of bad sectors
	Start Cancel

h. The Your device or disk was successfully scanned window opens. Click the expand button next to See details.

Checking Disk New Volume (G:)
Your device or disk was successfully scanned
No problems were found on the device or disk. It is ready to use.
If you removed the device or disk before all files were fully written to it, parts of some files might still be missing. If so, go back to the source and recopy those files to your device or disk.
Hide details
Volume label is New Volume.
CHKDSK is verifying files (stage 1 of 5) 256 file records processed.
File verification completed.
u large file records processed.
0 bad file records processed.
0 EA records processed.
0 reparse records processed.
CHKDSK is verifying indexes (stage 2 of 5)
280 index entries processed.
Index verification completed.
CHKDSK is verifying security descriptors (stage 3 of 5) 256 file SDs/SIDs processed.
Security descriptor verification completed. 12 data files processed.
CHKDSK is verifying free space (stage 5 of 5) 39355 free clusters processed.
Free space verification is complete.
Windows has checked the file system and found no problems.
511999 KB total disk space. 340268 KB in 8 filer
16 KB in 14 indexes.
5295 KB in use by the system.
157420 KB available on disk.
4096 bytes in each allocation unit.
127999 total allocation units on disk.
39355 allocation units available on disk.

What stages were processed?

- i. Click Close.
- j. Select the **Tools** tab **> Check Now**.
- k. Place a check mark in both checkboxes. Click Start.



I. The Your device or disk was successfully scanned window opens. Click the expand button next to See details.

Checking Disk New Volume (G:)
Your device or disk was successfully scanned
No problems were found on the device or disk. It is ready to use.
If you removed the device or disk before all files were fully written to it, parts of some files might still be missing. If so, go back to the source and recopy those files to your device or disk.
A Hide details
Volume dismounted. All opened handles to this volume are now invalid. Volume label is New Volume.
CHKDSK is verifying files (stage 1 of 5) 256 file records processed.
File verification completed. 0 large file records processed.
0 bad file records processed.
0 EA records processed.
0 reparse records processed.
CHKDSK is verifying indexes (stage 2 of 5) 280 index entries processed.
Index verification completed.
CHKDSK is verifying security descriptors (stage 3 of 5) 256 file SDs/SIDs processed.
Security descriptor verification completed. 12 data files processed.
CHKDSK is verifying file data (stage 4 of 5) 240 files processed.
File data verification completed. CHKDSK is verifying free space (stage 5 of 5) 121275 free clusters processed.
Free space verification is complete. Windows has checked the file system and found no problems.
511999 KB total disk space. 21588 KB in 7 files. 16 KB in 14 indexes. 5291 KB in use by the system. 4608 KB occupied by the log file. 485104 KB available on disk.
4096 bytes in each allocation unit. 127999 total allocation units on disk. 121276 allocation units available on disk.

What stages were processed? What is being verified in each of the stages?

Were any problems found with the volume?

If so, what are they?

m. Click Close and close all open windows.

#### Step 2: Check the Event Viewer for the Chkdsk log

a. Click Start > Control Panel > Administrative Tools > Event Viewer.



b. In the left pane, expand **Windows Logs** and click **Application**. Double-click the top event in the middle pane.

Details				
Performance cou Record Data in th	nters for the WmiApRpI (Wm e data section contains the n	iiApRpl) service we ew index values as	re loaded successfully. The signed to this service.	-
Log Name:	Application			
Source:	LoadPerf	Logged:	9/25/2012 5:01:33 AM	
Event ID:	1000	Task Category:	None	~
Level:	Information	Keywords:		
User:	SYSTEM	Computer:	Student01	
OpCode:	Info			
More Information	Event Log Online Help			

c. If the displayed event is not Chkdsk, click the **black down arrow** until the Chkdsk event appears.

Chkdsk was executed in read/writ	e mode.	
Checking file system on G:		
Volume dismounted. All opened	handles to this volume are now invalid.	
Volume label is New Volume.		
CHKDSK is verifying files (stage 1	of 5)	
256 file records processed.	File verification completed.	
0 large file records processed.	0 bad file records processed.	0 EA records
processed.	0 reparse records processed.	CHKDSK is verifying indexes (stage 2
of 5)		
280 index entries processed.	Index verification completed.	
12 data files processed.	CHKDSK is verifying file data (stag	ge 4 of 5)
240 files processed. CHKDSK is verifying free space (st 121275 free clusters processed. Windows has checked the file syst	rife data verification completed. age 5 of 5) Free space verification is co tem and found no problems.	mplete.
240 files processed. CHKDSK is verifying free space (st 121275 free clusters processed. Windows has checked the file syst 511999 KB total disk space.	rife data verification completed. age 5 of 5) Free space verification is co tem and found no problems.	mplete.
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Which stages are shown as completed?

d. Close all open windows.

#### Step 3: Disk defragmenter

**Note**: Do not perform this step if your computer has an SSD drive. It is unnecessary to defragment SSD drives.

- a. Click Start > Computer, then right-click drive (C:) and select Properties. Click Tools > Defragment Now.
- b. Click Local Disk (C:) > Analyze disk.

What percentage of the disk is fragmented?

c. The **Disk Defragmenter** window opens, click **Defragment disk**.

Scheduled defragment	ation is turned on	Configure schedule	
Run at 1:00 AM every Wednesday Next scheduled run: 12/29/2010 2:33 AM			
rrent status:	Look Durg	D	
Isk	12/22/2010 9.45 AM (09/ fragme	Progress	
	Never rup	ienteu)	
New Volume (F:)	Never run		
New Volume (G:)	Never run		
(H:)	Never run		
System Reserved	12/22/2010 8:44 AM (0% fragmented)		
hy disks that can be defrag	imented are shown		

Note: In Windows Vista, an option window opens, click **Defragment now...** In the **Disks to defragment:** window, check only (C:) > OK.

d. You should be able to watch the progress of the defragmentation process in the **Disk Defragmenter** window.

Scheduled defragment	ation is turned on	Configure schedule
Pup at 1:00 AM even We	addesday	Configure schedule
Kun at 1:00 Aivi every we		
Next scheduled run: 12/2	29/2010 2:32 AM	
rrent status:		
isk	Last Run	Progress
Local DIsk (C:)	Running	42% analyzed
🗃 (E:)	Never run	
New Volume (F:)	Never run	
BNew Volume (G:)	Never run	
(H:)	Never run	
System Reserved	12/22/2010 8:44 AM (0% fragmented)	
h diala akar akar kara kara kara kara kara k		
ly disks that can be defrac	amented are shown.	

**Note**: Windows Vista Disk Defragmenter does not show the progress of the defragmentation process. What is the first process during defragmenting (see Progress column)?

What are the three tasks performed for each pass (see Progress column)?

How many passes did it take to defragment drive C:?

- e. When defragmenting is completed, click **Close**.
- f. Close all windows.

**Note**: It is not possible to view the detail of the defragmented hard drive through the GUI version of defragmenter.