Lab - Create a Partition in Windows

Introduction

In this lab, you will create a FAT32 formatted partition on a disk. You will convert the partition to NTFS. You will then identify the differences between the FAT32 format and the NTFS format.

Recommended Equipment

Computer running Windows

Un-partitioned space of at least 1 GB on the hard disk drive

Instructions

Part 1:   Open Disk Management.

Disk Management is located inside the **Computer Management** utility. Disk Management is a utility to manage disk drives installed in the computer, such as internal and external hard drives and flash drives.

Right-click **Start** and select **Disk Management**.

Part 2:   Create free space as necessary.

If the hard drive does not already have at least 2 GB of unpartitioned space, then perform the following steps to create free space which can be partitioned. In this lab, the default C: drive is used as the example.

a. Right-click the C: drive NTFS volume and select **Shrink Volume** from the menu.

b. In the Shrink C: window enter an amount of **2048** in the **Enter the amount of space to shrink in MB**: box and then click **Shrink**. You should now see 2 GB of **Unallocated** disk space.

Part 3:   Create a new disk volume in the free space

a. Right-click the block of **Free Space** or **Unallocated** space. Click **New Simple Volume**.

b. The New Simple Volume Wizard window opens. Click **Next**.

c. Type **2048** or all the maximum disk space in the **Simple volume size in MB** field, and click **Next**.

d. Click the **Assign the following drive letter:** radio button. Select **I** from the drop-down menu. Click **Next** to continue.

Note: You may need to substitute different drive letters for the letters shown in this lab.

e. Click the **Format this volume with the following settings:** radio button. Select **FAT32** from the File system drop-down menu and click **Next**.

f. Click **Finish** to complete the New Simple Volume Wizard.

g. The **Disk Management** window will display the status of the **NEW VOLUME**. Close the **Disk Management** window.

Part 4:   Open the This PC window to review information about the new disk partition.

a. Open **File Explorer** and click **This PC** to view the list of the devices and drives.

b. Right-click on the **NEW VOLUME (I:)** drive and then select **Properties** from the drop-down menu.

Question:

What type of File System is used on the NEW VOLUME (I:)?

FAT 32

How much Free Space is shown?

1.89 GB

List the tabs found in the **NEW VOLUME (I): Properties** window?

General, Tools, Hardware, Sharing.

c. On the **General** Tab, rename the volume from **NEW VOLUME** to **ITE**, and then click **OK**.

Part 5: Create a text document and save it to the ITE drive.

a. Double-click on the **ITE (I:)** disk icon to view the contents of the drive. You should see a message in the middle of the screen stating that this folder is empty. Right-click anywhere in the white space below that message to bring up a drop-down menu. Click **New>Text Document**.

b. Rename the New Text Document to **ITE Test Document** and press **Enter**.

c. Right-click on the **ITE Test Document** and choose **Properties**. This opens the **ITE Test Document Properties** window.

What tabs are listed in the ITE Test Document Properties window?

[General tab] |
│ Type of file: Text Document (.txt) |
│ Opens with: Notepad [Change...] |
│ Location: I:\ |
│ Size: 0 bytes (or a few bytes) |
│ Size on disk: 0 bytes (or a few KB) |
│ Created: <date/time> |
│ Modified: <date/time> |
│ Accessed: <date/time> |
│ Attributes: [ ] Read-only [ ] Hidden |
│ [Advanced...]

d. Click **OK** to close the **ITE Test Document Properties** window. Close the **ITE (I:)** window.

Part 6: Convert the ITE volume from FAT32 to NTFS without losing data.

In this step, you will convert the ITE volume from FAT32 to NTFS using the command line. The file system conversion can be done using the Disk Management tool. Unfortunately, the conversion requires the reformat of the drive and all the data will be lost. By using the command line, the file system can be changed from FAT32 to NTFS without losing data.

Note: In a production environment, the data should always be backed up before attempted to change the file system to prevent data loss.

a. Click **Start**, then type **cmd** (the search field will pop up as soon as you start typing). Right-click the **Command Prompt** program that appears, and then click **Run as administrator**.
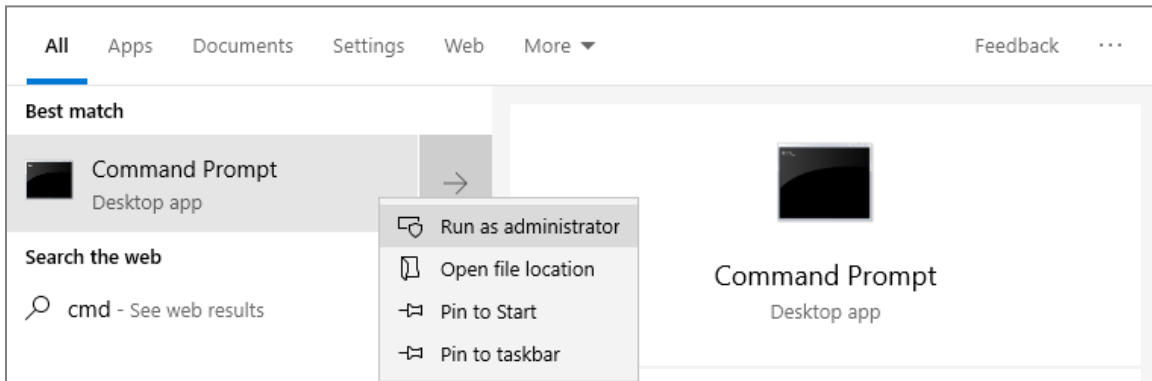
b. The **User Account Control** window opens asking if you want to allow the following program to make changes to this computer. Click **Yes**.

c. In the Administrator: Command Prompt window, type **convert I: /fs:NTFS** at the prompt.

What happens if you do not run as administrator when you open the command prompt?

The convert command needs elevated (Administrator) rights, so the file system won't be converted unless you run Command Prompt as admin.

d. You will be prompted to enter the current volume label for drive **I**:. Type **ITE** and press **Enter**.

e. Review the information displayed by the convert command. When finished, enter **exit** at the prompt to exit the command prompt window.

Part 7:   Open the This PC window to work with the ITE Volume.

a. Open **File Explorer** and click **This PC**.

b. Right-click the ITE (I:) volume, and select **Properties** from the drop-down menu.

What type of File System is used for the ITE (I:) drive?

NTFS

What are the tabs in the ITE (I:) Properties window?

General, Tools, Hardware, Sharing, Security, Previous Versions, Quota

When the volume was FAT32, there were six tabs. What are the names of the new tabs that were added after the volume was converted to NTFS?

New tabs added after converting from FAT32 to NTFS
Security and Quota

c. Click **Cancel** to close the ITE (I:) **Properties** window.

Part 8:   Display the properties of the ITE Test Document.

a. Open the ITE (I:) drive. Right-click on the **ITE Test Document**, then select **Properties** from the drop-down menu.

What are the tabs in the **ITE Test Document Properties** window?

General, Security, Details, Previous Versions

When the volume was FAT32, there were three tabs. What is the name of the new tab that was added after the volume was converted to NTFS?

Security (NTFS adds file permissions/ACLs)

b. Close all open windows.

Reflection Question

Why is there an additional Security tab in the properties window of documents stored on an NTFS volume?

Because **NTFS supports file-level security**, Windows adds the **Security** tab to let you view and change permissions.

- NTFS stores a **security descriptor** on every file/folder (owner + ACLs with allow/deny rights, inheritance, and optional auditing).
- The Security tab is the UI to manage those permissions (who can read, write, modify, etc.).
- **FAT32** doesn't support ACLs, so there's nothing to manage hence no Security tab on FAT32.