



**Passerelles
numériques**
A Gateway for Life

OS & Maintenance

Chapter 2 – Bootable Media

Objective

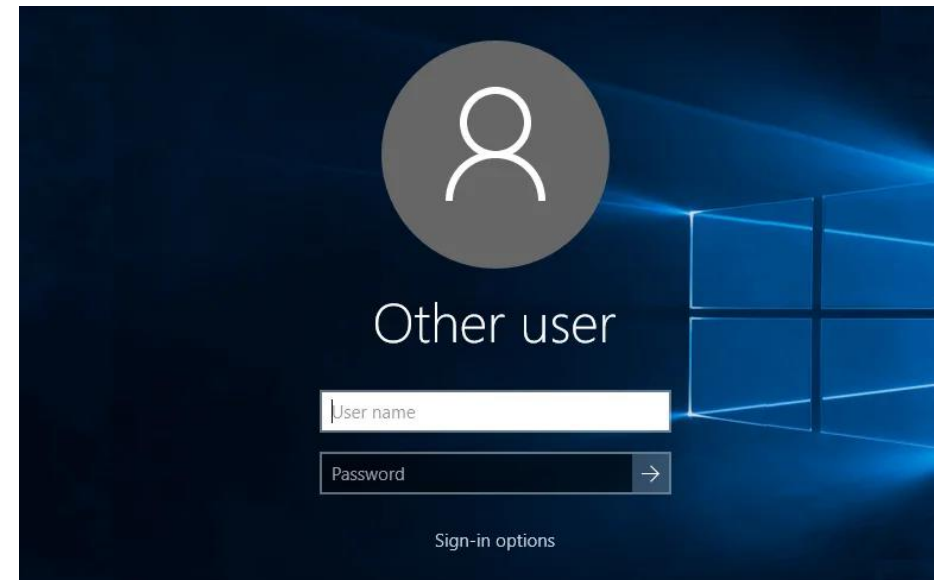
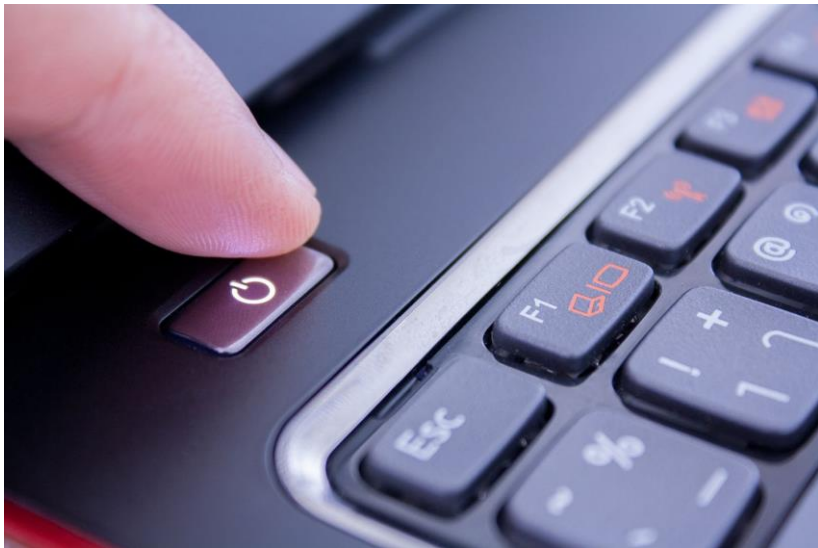
After finish this lesson students will be able to understand:

- PC Booting Process
- What is Bootable Media & BIOS?
- Tools for bootable media
- How to create bootable media
- How to change boot order in BIOS

PC Booting Process

What is **Boot**?

A “Boot” (as a verb; also "to boot up") a computer is to load an [operating system](#) into the computer's main memory or random access memory ([RAM](#)).



PC Booting Process



- **How can your computer start and load OS into RAM?**

There are two **UEFI** and **BIOS** are low-level software that starts and booting your operating system.

- **What is BIOS?**

BIOS is short for *Basic Input-Output system*. It's low-level software that resides in a chip on your computer's motherboard.

The BIOS loads when your computer starts up, and the BIOS is responsible for:

- Waking up your computer's hardware components, *ensures they're functioning properly*,
- And runs the bootloader that boots Windows or whatever other operating system you have installed.

PC Booting Process



The BIOS goes through a **POST**, or Power-On Self Test, before booting your operating system. It checks to ensure your hardware configuration is valid and working properly.

What is UEFI?

UEFI (Unified Extensible Firmware Interface) is a more modern solution, supporting larger hard drives, faster boot times, more security features, and—conveniently—graphics and mouse cursors.

▶ **Standard CMOS Features**

▶ Advanced BIOS Features

▶ Advanced Chipset Features

▶ Integrated Peripherals

▶ Power Management Setup

▶ PnP/PCI Configurations

▶ PC Health Status

▶ **Frequency/Voltage Control**

Load Fail-Safe Defaults

Load Optimized Defaults

Set Supervisor Password

Set User Password

Save & Exit Setup

Exit Without Saving

Esc : Quit

↑ ↓ → ← : Select Item

F10 : Save & Exit Setup

Time, Date, Hard Disk Type...

06:06

Tuesday[11/16/2010]

P8P67 DELUXE

BIOS Version : 0304

CPU Type : Intel(R) Core(TM) i5-2400 CPU @ 3.10GHz

Total Memory : 2048 MB (DDR3 1333MHz)

English

Build Date : 10/21/2010

Speed : 3100 MHz



Temperature

CPU +116.6°F/+47.0°C



MB +96.8°F/+36.0°C



Voltage

CPU 1.200V 5V 5.120V

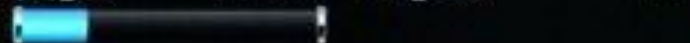


3.3V 3.408V 12V 12.288V



Fan Speed

CPU_FAN 1834RPM PHR_FAN1 N/A



CHA_FAN1 N/A CHA_FAN2 N/A



System Performance

Quiet



Performance

Energy Saving



Normal



Boot Priority



Use the mouse to drag or keyboard to navigate to decide the boot priority.

Boot Menu(F8)

Default(F5)

PC Booting Process

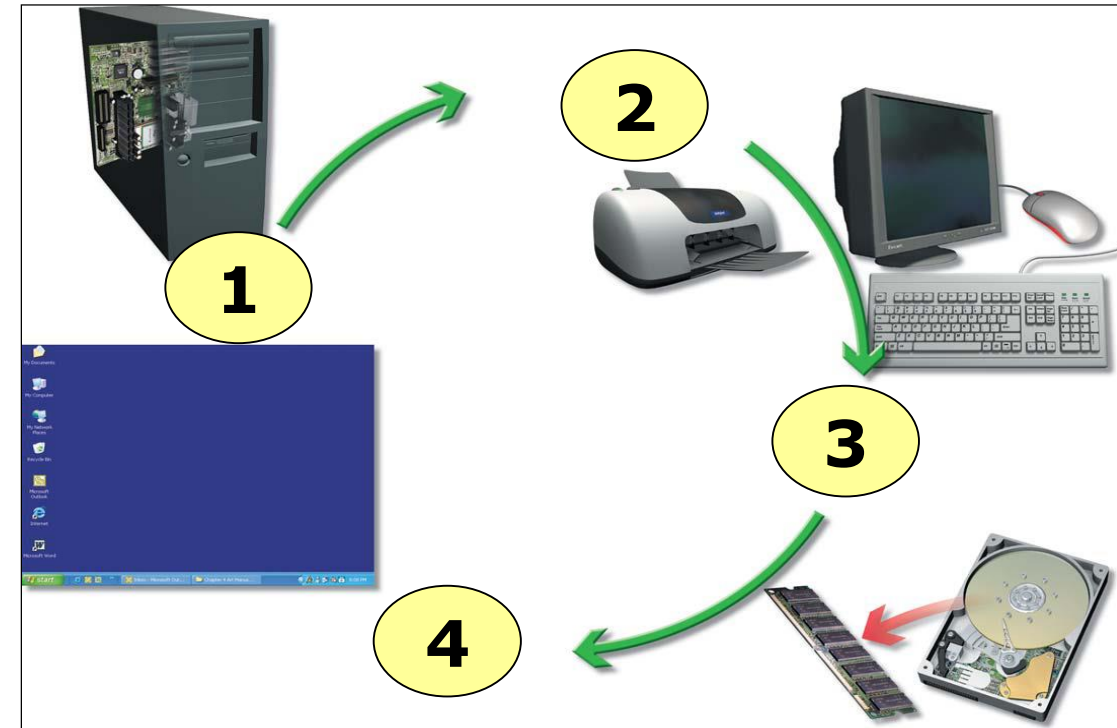
Computer Booting Process

Step 1: The basic input/output system (BIOS) is activated (*Press on power button*)

Step 2: A Power-on self-test (POST) checks attached hardware to make sure it works

Step 3: The operating system loads into memory from **boot device** (*from HDD by default*)

Step 4: Configuration and customization settings are checked



What is Bootable media?

What is **Bootable Media**?

“Bootable media” is storage device that contains special files required for the computer to [boot](#) into an operating system. Bootable media can be Hard disk, USB flash, CD, DVD, external hard disk etc.



Tools for Bootable media



- Material for creating bootable media
 - ❖ USB Flash drive / CD or DVD
 - ❖ OS image file (ISO)
 - ❖ Software for creating bootable media

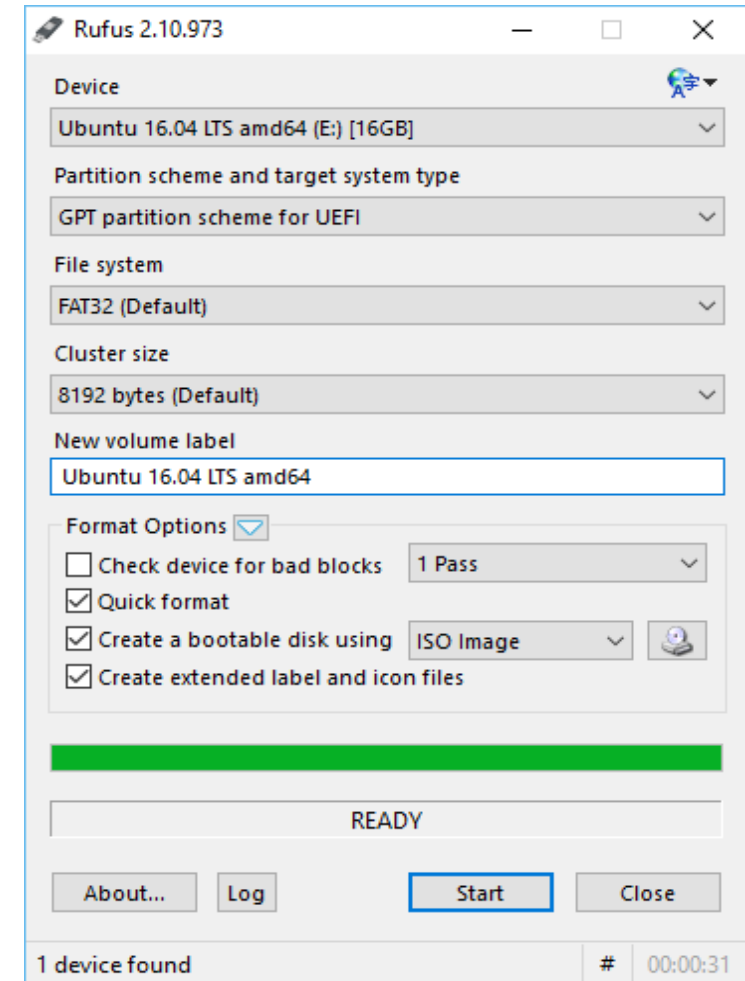


How to create bootable media

Bootable **USB Flash** drive by software (Rufus)

- Download: <https://rufus.akeo.ie/>
- Open executable file
- Insert USB flash drive
- Brows ISO image
- Click start button

➤ **Note:** USB will be formatted



How to create bootable media



Bootable **CD\DVD** by *Windows7 USB/DVD download tool*

- Insert CD\DVD drive
- Setup Win7 download tool
- Choose ISO file
- Select USB/DVD
- Copy ISO file and run boot



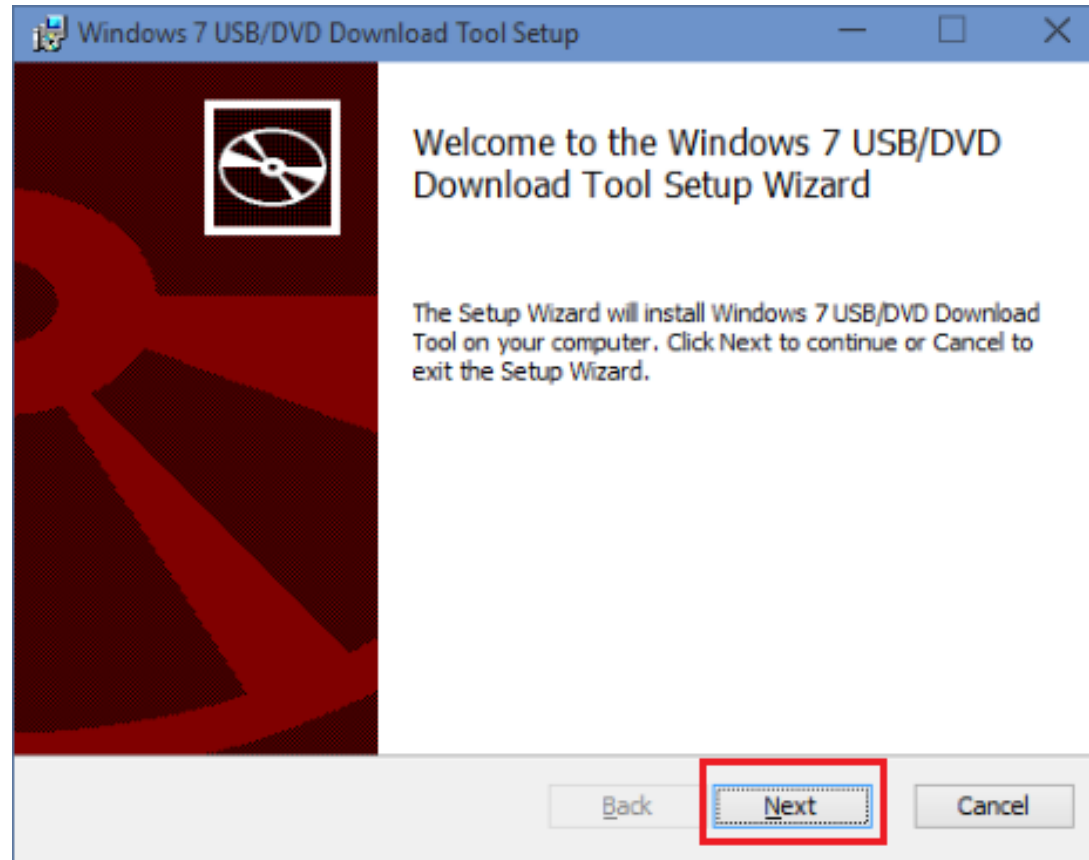
How to create bootable media

➤ Step 1



How to create bootable media

➤ Step 2



How to create bootable media

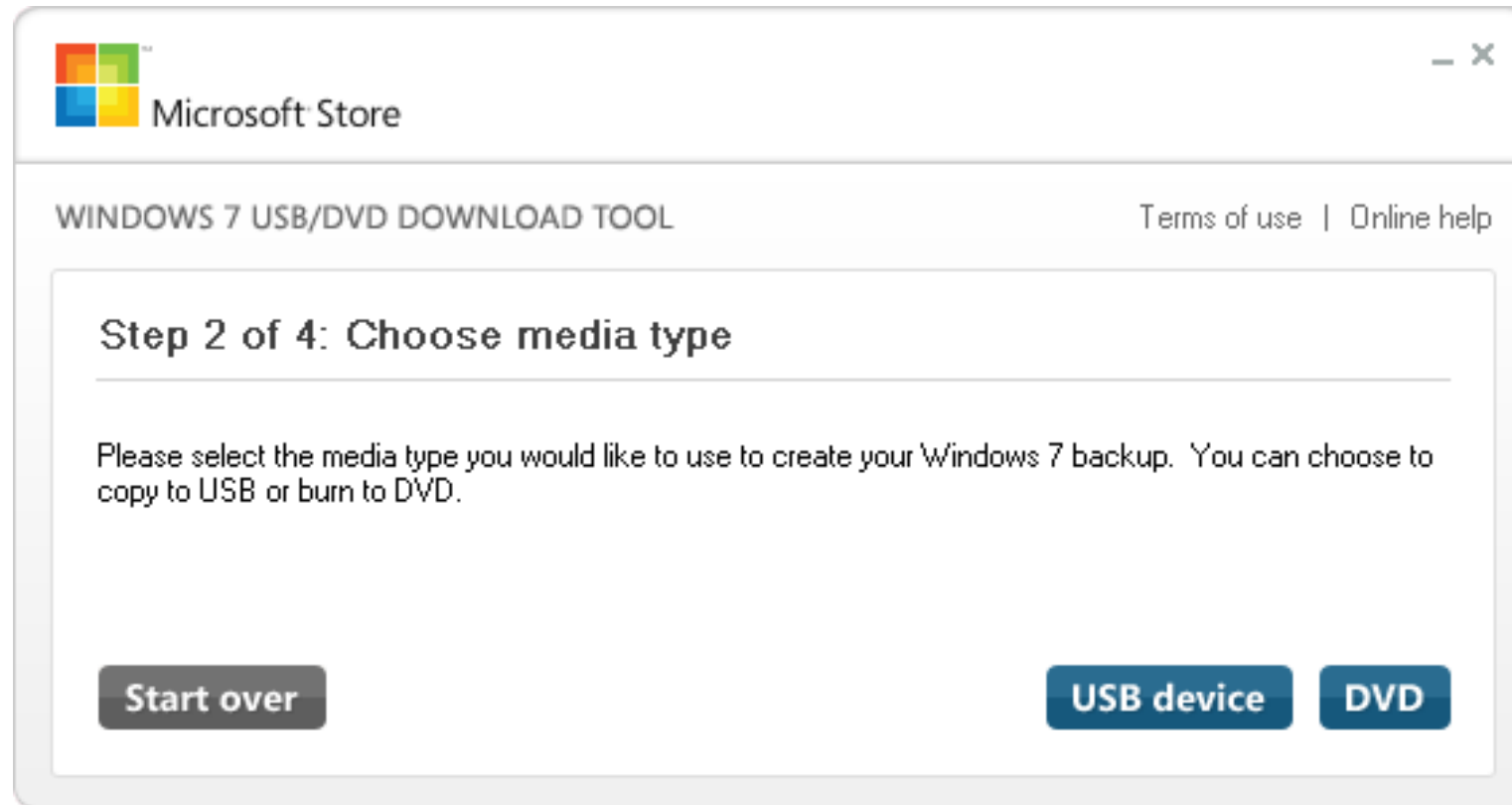


➤ Step 3

The screenshot shows the 'Windows 7 USB/DVD Download Tool' window. At the top left is the Microsoft logo and the text 'Microsoft Store'. Below this, the title 'WINDOWS 7 USB/DVD DOWNLOAD TOOL' is displayed on the left, and 'Terms of use | Online help' is on the right. The main content area is titled 'Step 1 of 4: Choose ISO file'. It features a 'Source file:' label followed by a text box containing the path 'D:\Virtualbox\7600.16385.090713-1255_x86fre_enterprise_en-us_EVAL_E'. To the right of the text box is a 'Browse' button. At the bottom right of the main area is a green 'Next' button.

How to create bootable media

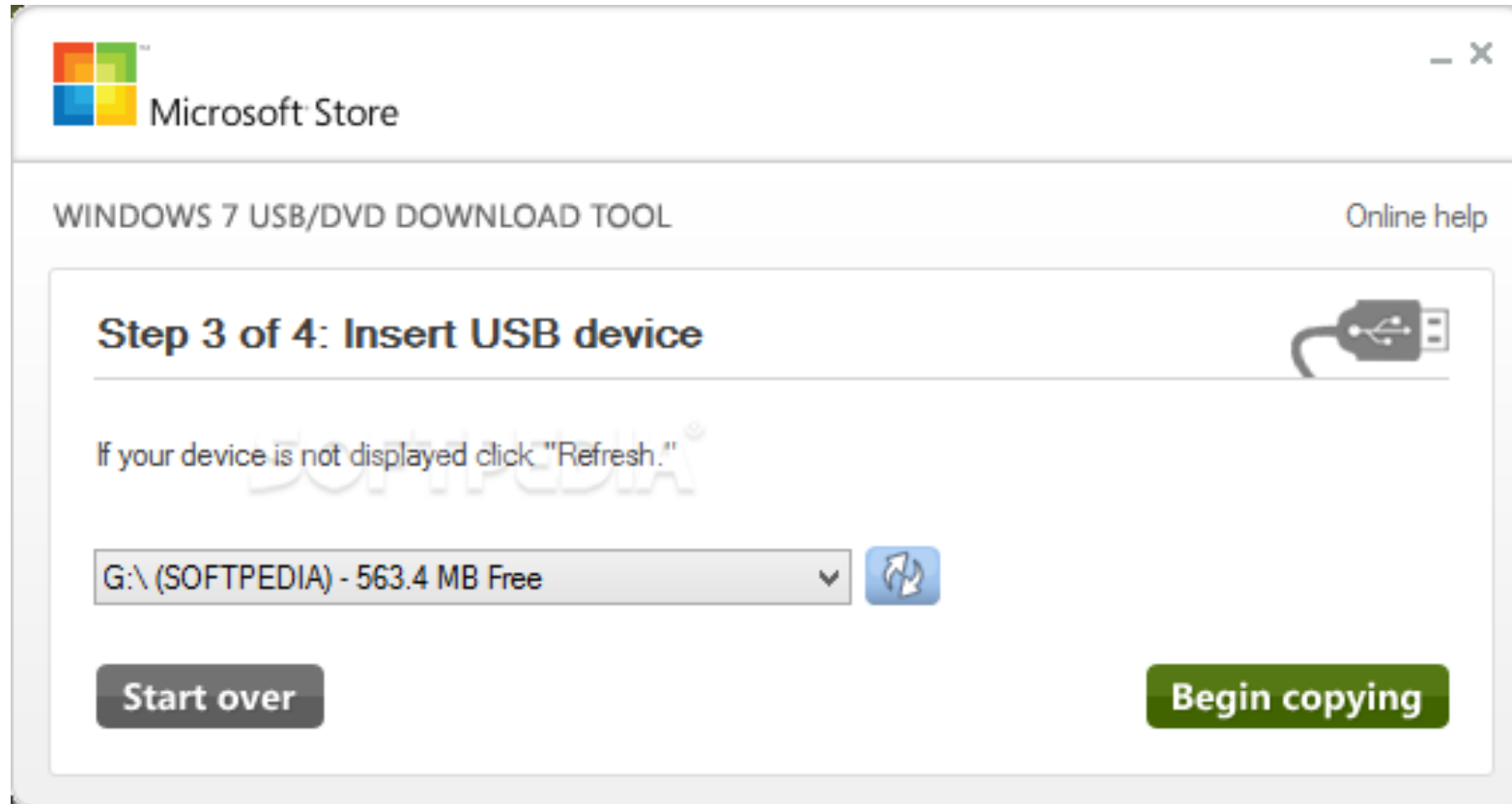
➤ Step 4



How to create bootable media



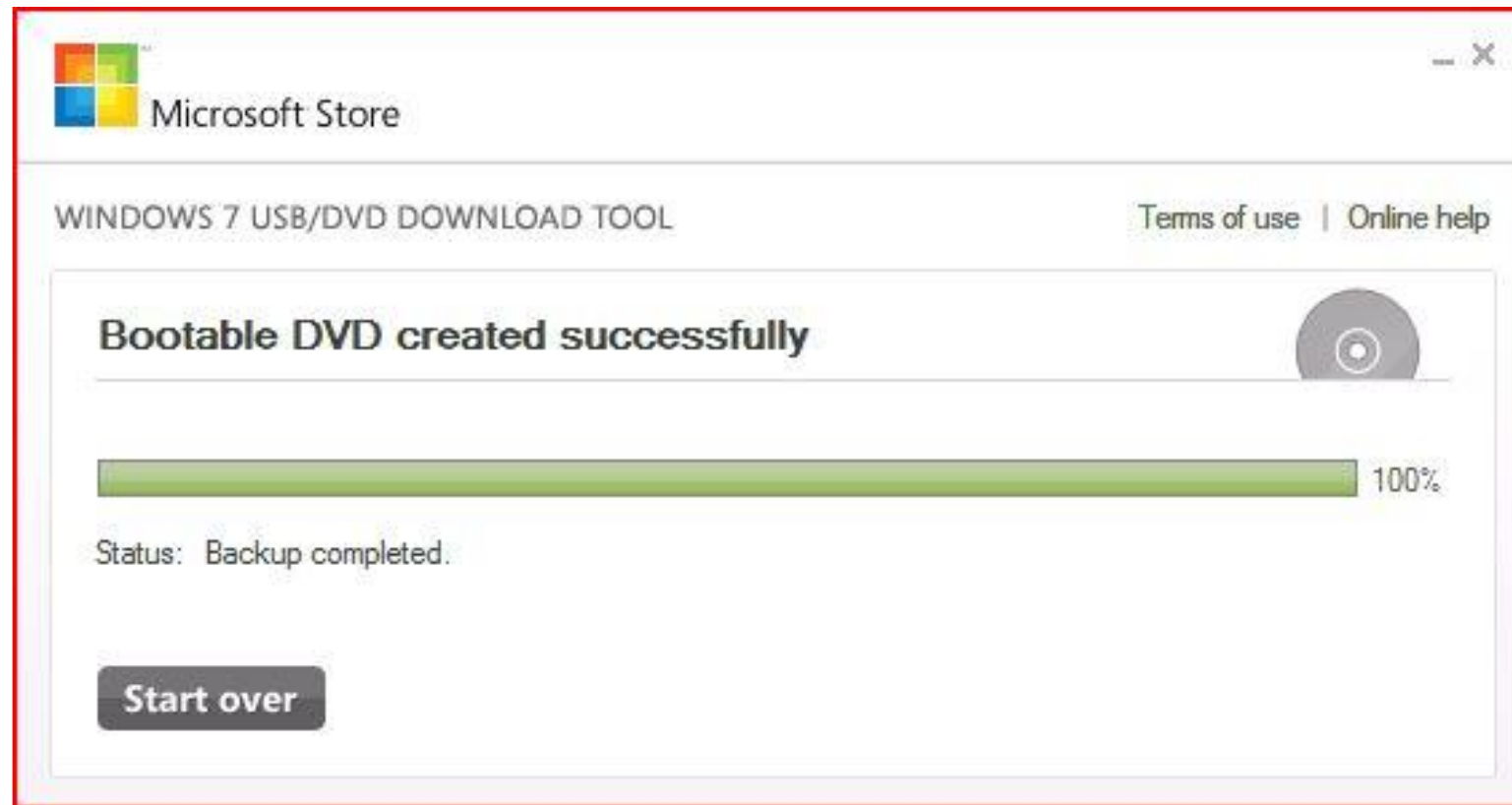
➤ Step 5



How to create bootable media



➤ Step 6



How to change boot order in BIOS



Many computers allow choosing the boot device without entering **BIOS/UEFI** by pressing **F8** key before Windows (or any other operating system) starts, but most common ones are **F9** on **HP**, **F10** on **Sony**, **F11** on **MSI**, **F12** on **Lenovo**, **Dell** and **Acer**, and **ESC** on **ASUS**.



How to change boot order in BIOS



To boot from a **CD/DVD** or a **USB** drive, you must insert or connect the media first and then restart or turn on your computer.

Dell computers always display the "**F12 Boot Options**" message on top right of screen for a few seconds, so you have to act quick and press the **F12** key.



How to change boot order in BIOS



Now you can use arrow keys to navigate in the menu and press Enter to boot your PC from the selected device.

Please note that you have to plug in your USB stick or drive before restarting or turning on your PC to see the USB Storage Device option. This applies to all computers, not only Dells.

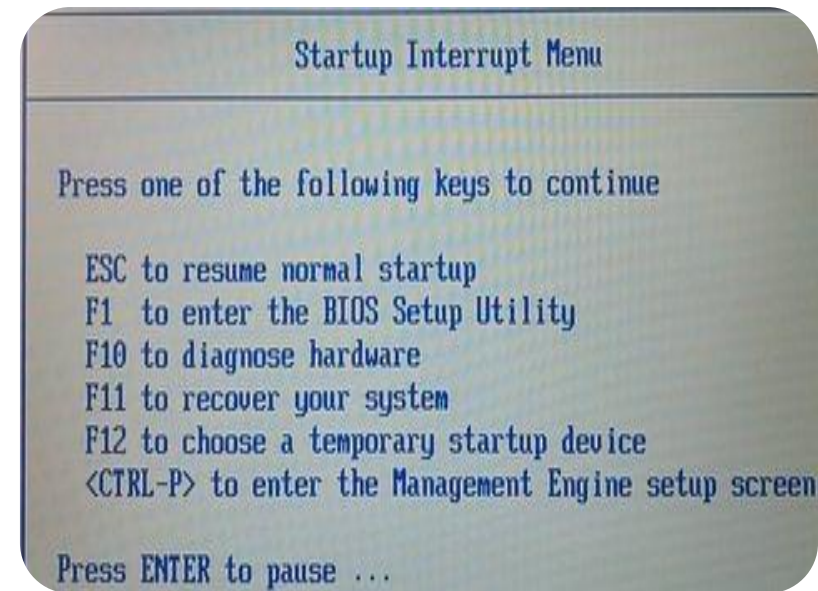
```
Use the (Up) and (Down) arrow keys to move the pointer to the desired boot device.  
Press [Enter] to attempt the boot or ESC to Cancel.  
  
LEGACY BOOT :  
  Internal HDD  
  USB Storage Device  
  CD/DVD/CD-RW Drive  
  Onboard NIC  
  
UEFI BOOT :  
  Windows Boot Manager  
  
OTHER OPTIONS:  
  BIOS Setup  
  Diagnostics
```

How to change boot order in BIOS

Next, let's see a Lenovo

In the menu, press **F12** key to choose a temporary startup device.

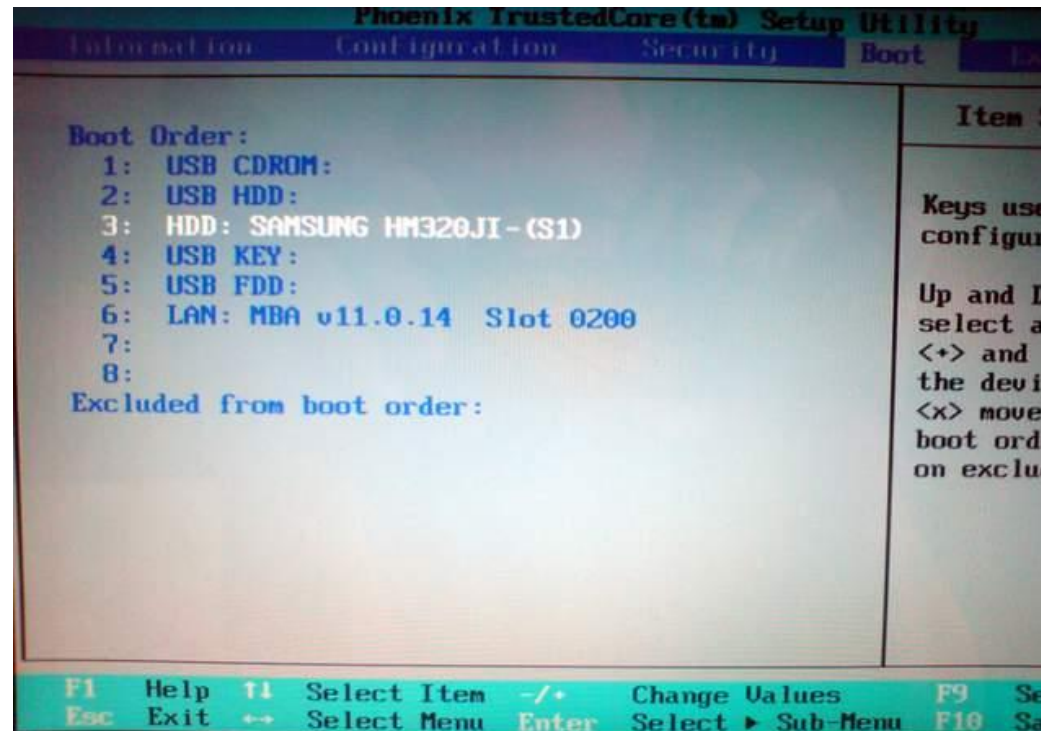
Boot Menu appears, use arrow keys to choose the desired boot device and press Enter to start your device from it.



How to change boot order in BIOS

Next, let's see a Lenovo

Now you can use arrow keys to navigate in the menu and press Enter to boot your PC from the selected device.



- ❖ Create bootable from USB by using any software
- ❖ Change boot order on PC

- ❖ OS for create bootable:
 - Windows 7
 - Windows 8
 - Ubuntu 14
 - CentOS 7
 - Windows 10

Any Question

