



Passerelles numériques

A Gateway for Life

OS & Maintenance

Chapter 2 – Bootable Media

O b j e c t i v e

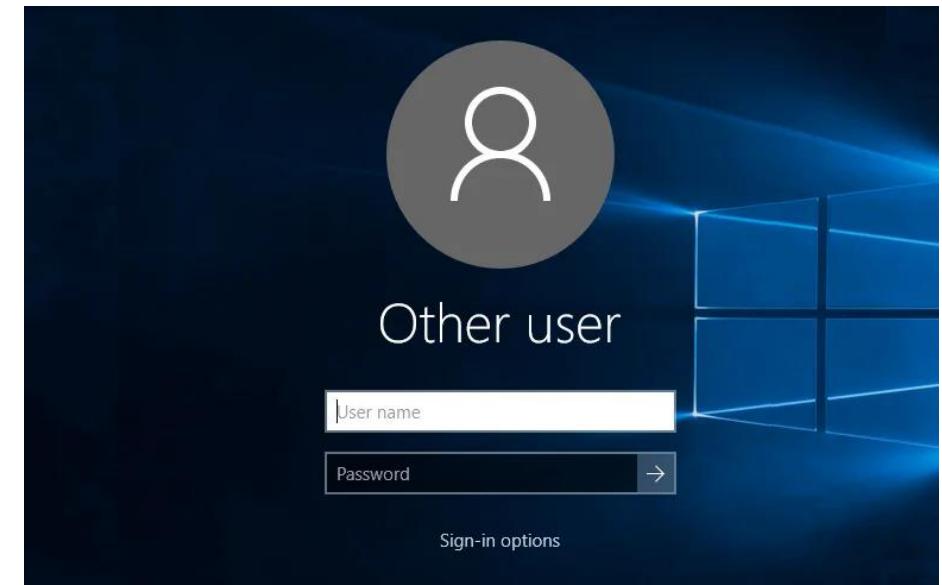
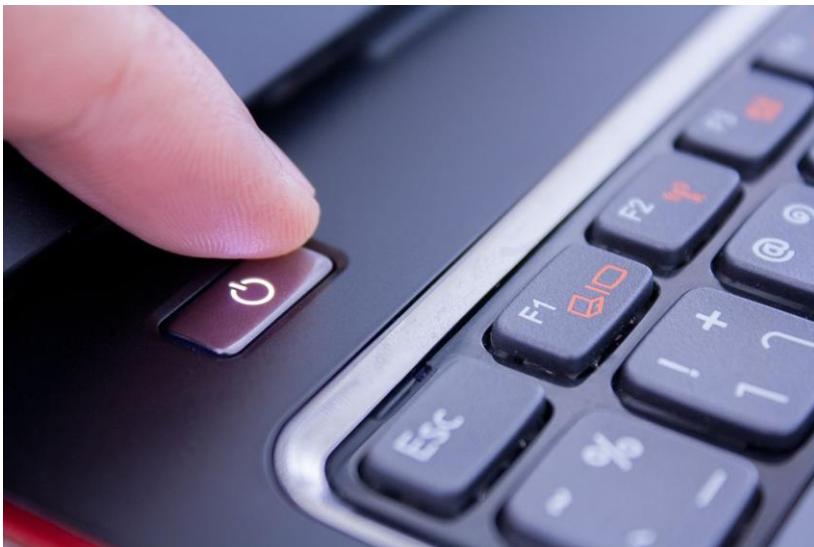
After finish this lesson students will be able to understand:

- 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

English ▾

BIOS Version : 0304

Build Date : 10/21/2010

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

Speed : 3100 MHz

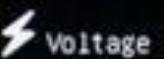
Total Memory : 2048 MB (DDR3 1333MHz)



Temperature

CPU +116.6°F/+47.0°C

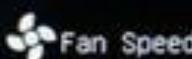
MB +96.8°F/+36.0°C



Voltage

CPU 1.200V 5V 5.120V

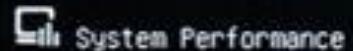
3.3V 3.408V 12V 12.288V



Fan Speed

CPU_FAN 1834RPM PWR_FAN1 N/A

CHA_FAN1 N/A CHA_FAN2 N/A



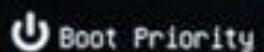
Quiet

Performance

Energy Saving



Normal



UEFI

UEFI



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

PC Booting Process

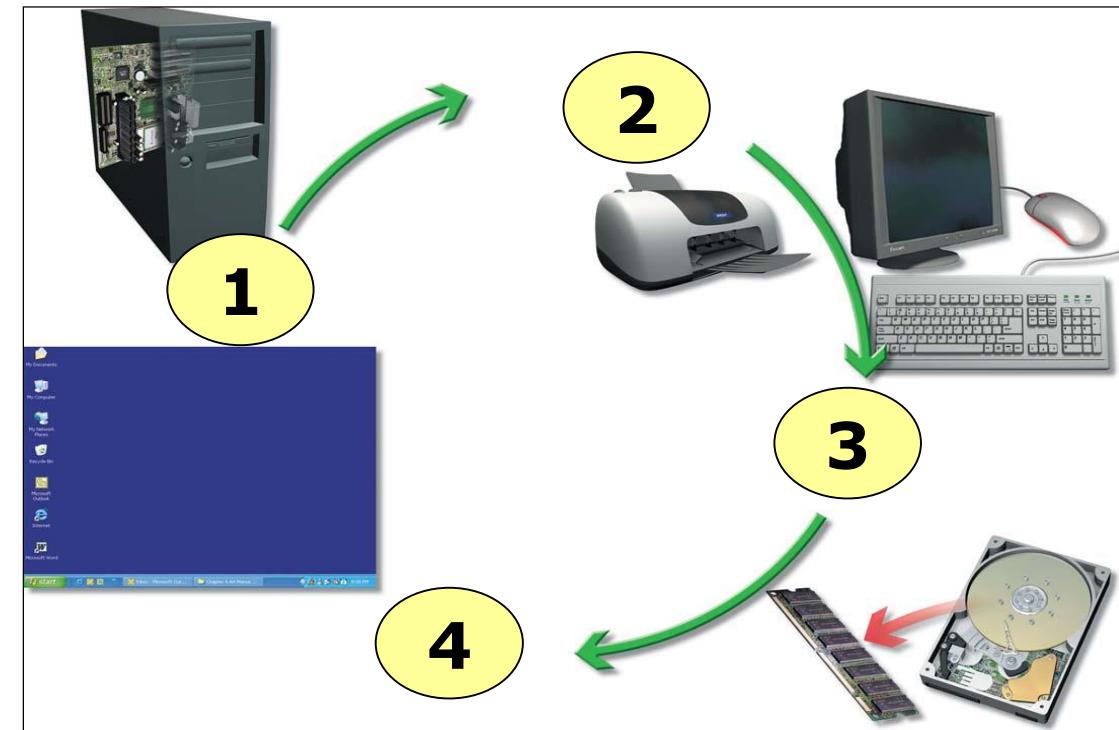
Computer Booting Process

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



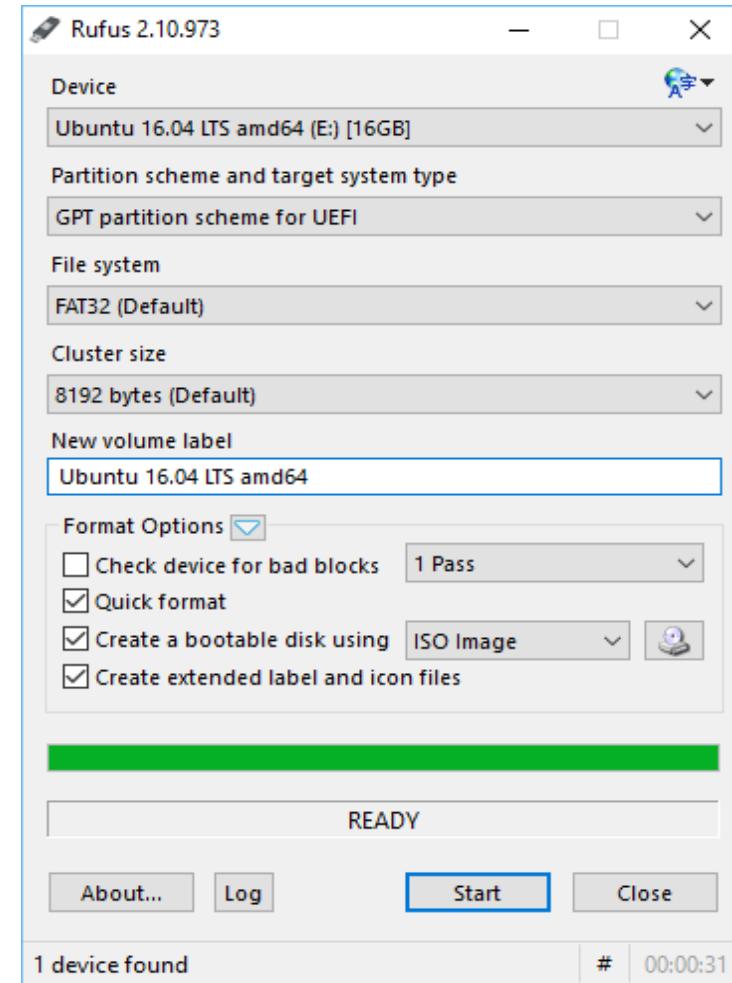
How to create bootable media



Bootable USB Flash drive by software (Rufus)

- Download: <https://rufus.akeo.ie/>
- Open executable file
- Insert USB flash drive
- Browse 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



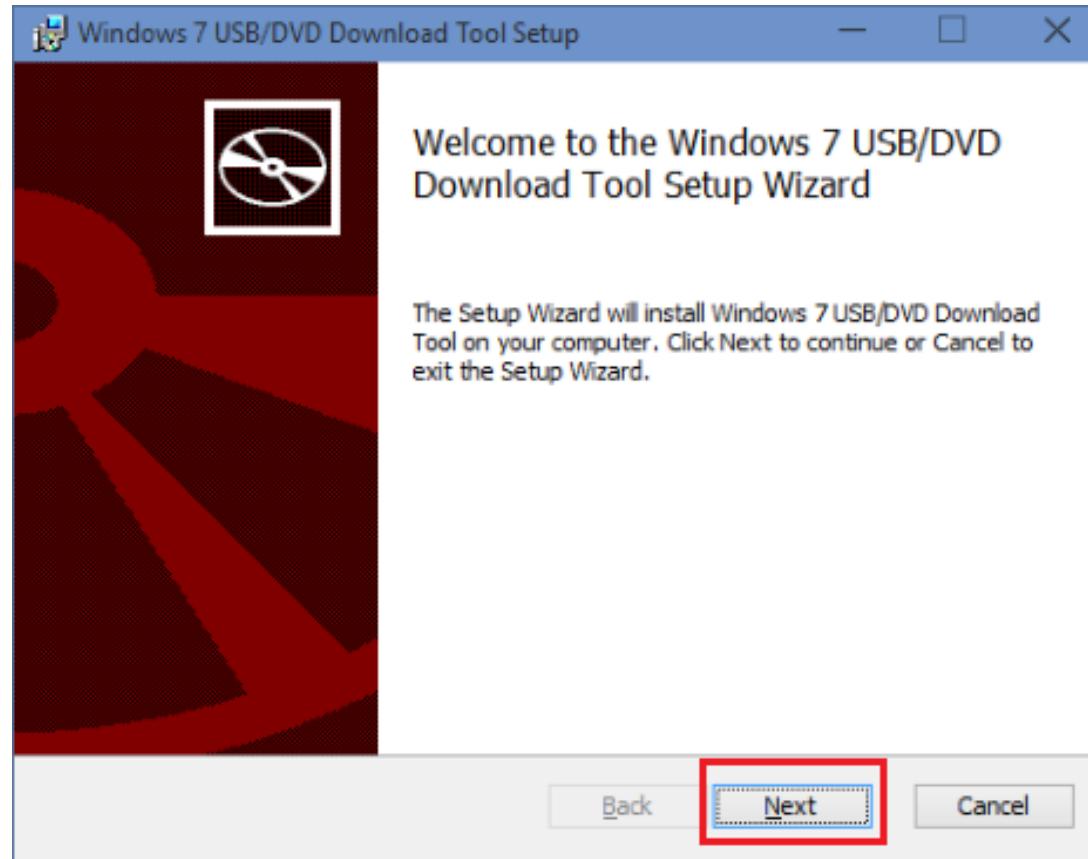
How to create bootable media

➤ Step 1



How to create bootable media

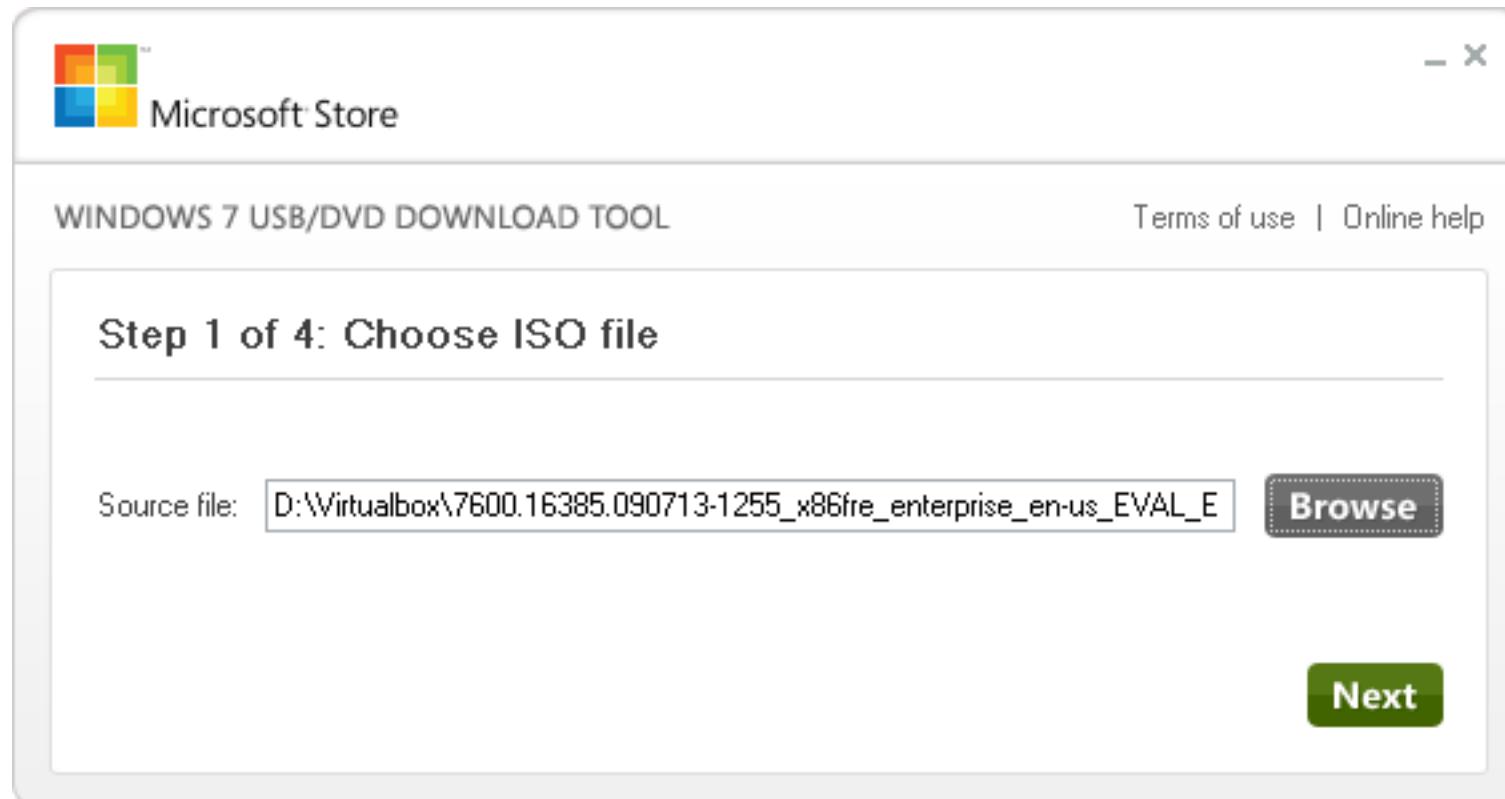
➤ Step 2



How to create bootable media



➤ Step 3



How to create bootable media



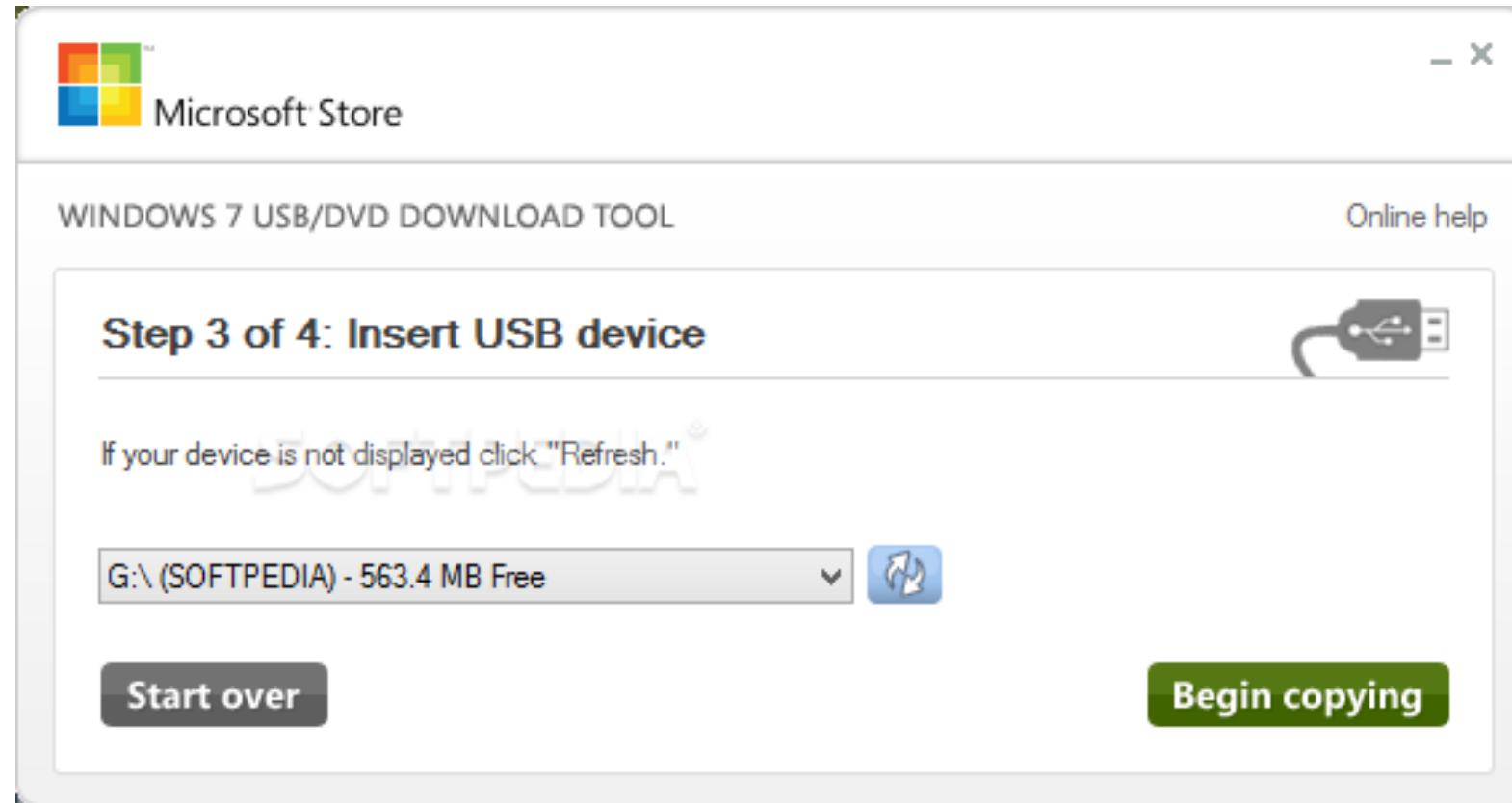
➤ Step 4

The screenshot shows a window titled "WINDOWS 7 USB/DVD DOWNLOAD TOOL" from the Microsoft Store. At the top left is the Microsoft Store logo, and at the top right are minimize, maximize, and close buttons. Below the title, it says "Step 2 of 4: Choose media type". A descriptive text box states: "Please select the media type you would like to use to create your Windows 7 backup. You can choose to copy to USB or burn to DVD." At the bottom left is a "Start over" button, and at the bottom right are two buttons: "USB device" (which is highlighted in blue) and "DVD".

How to create bootable media

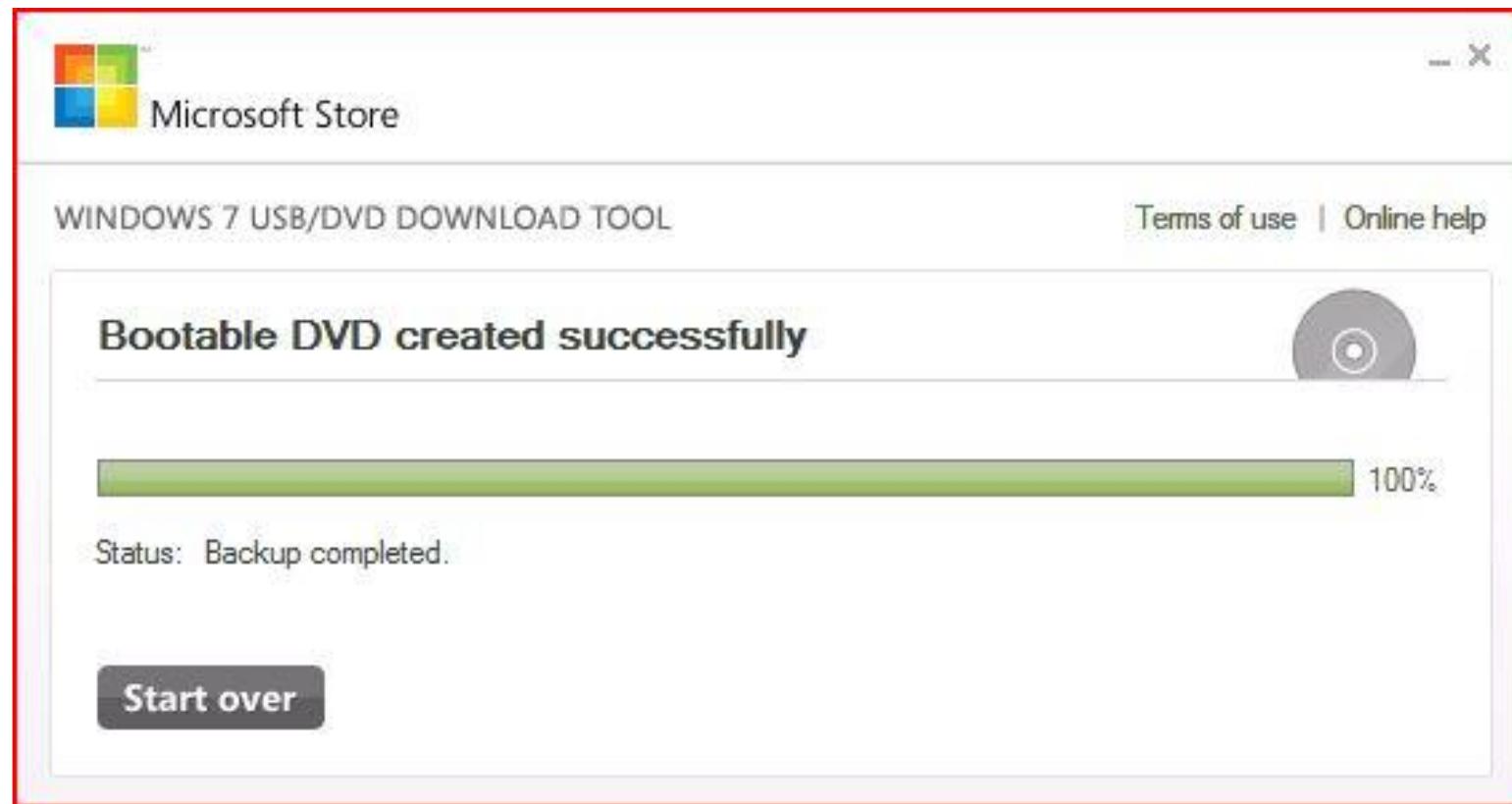


➤ Step 5



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.

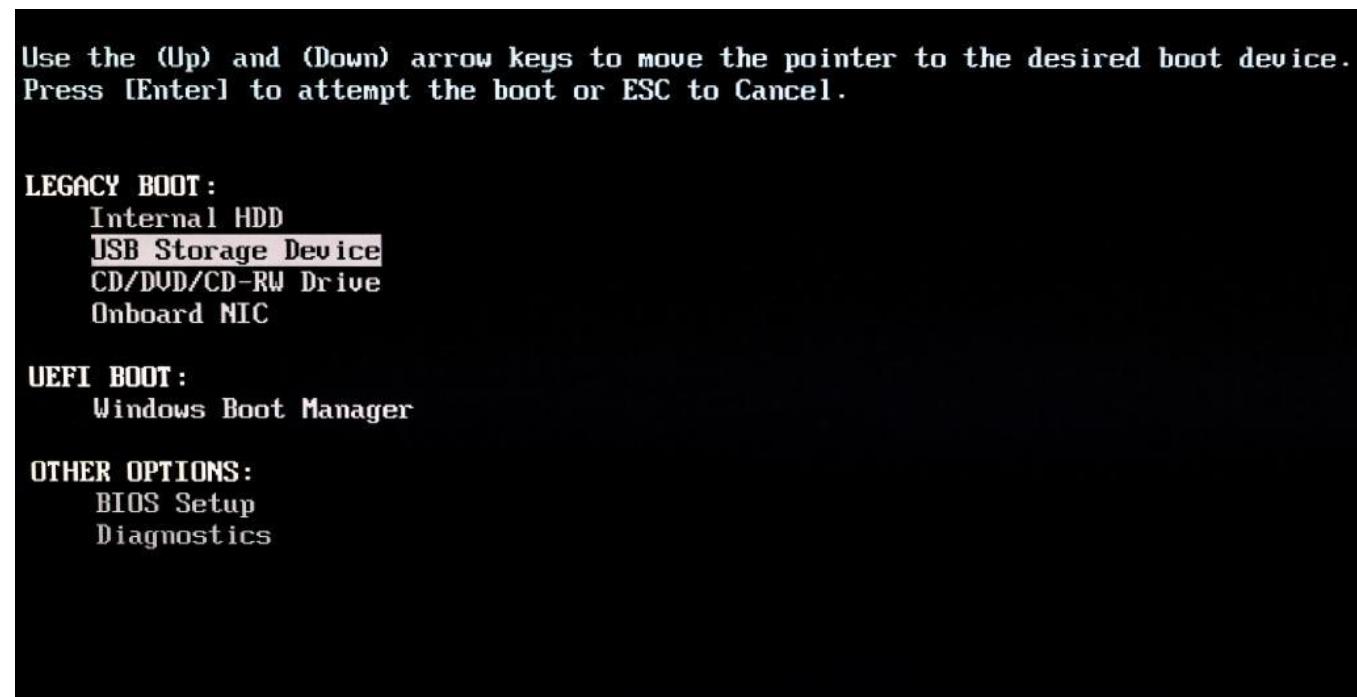
Dell computers always display the "F12 Boot Options" message on top right of screen for a few seconds, so you have to act quick and press the F12 key.



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.

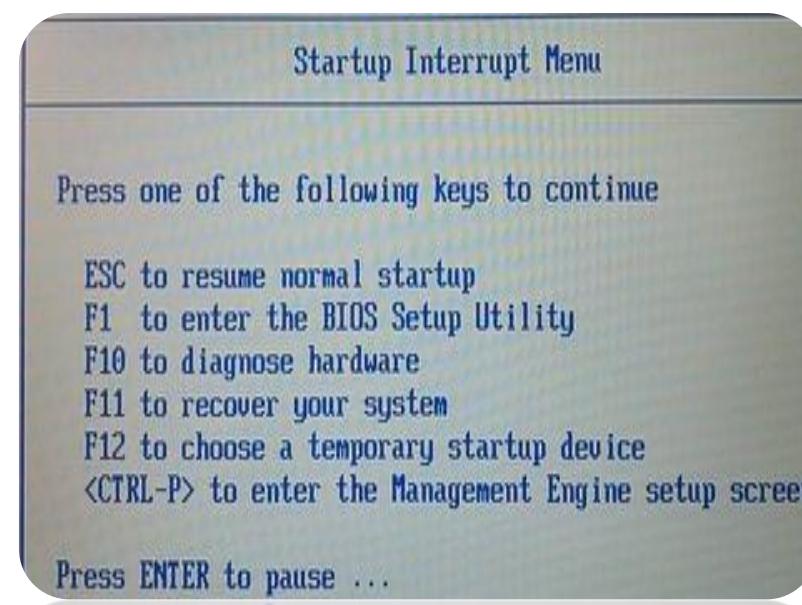
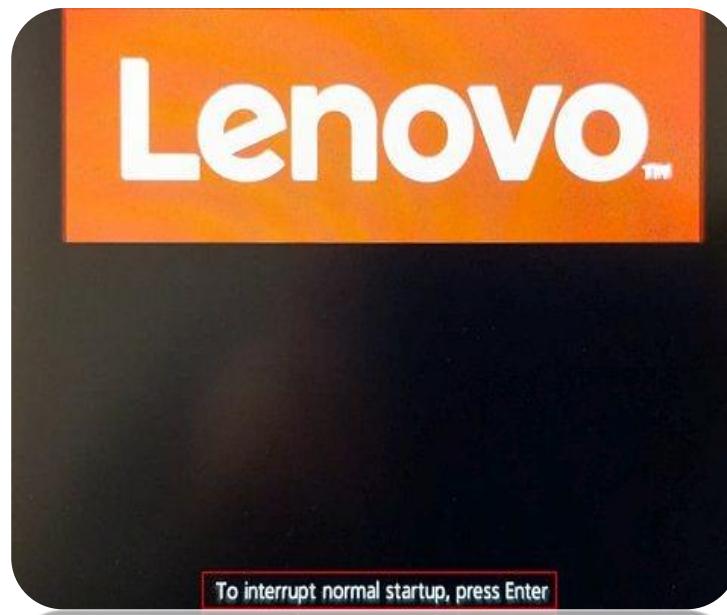


How to change boot order in BIOS

Next, let's see a Lenovo

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

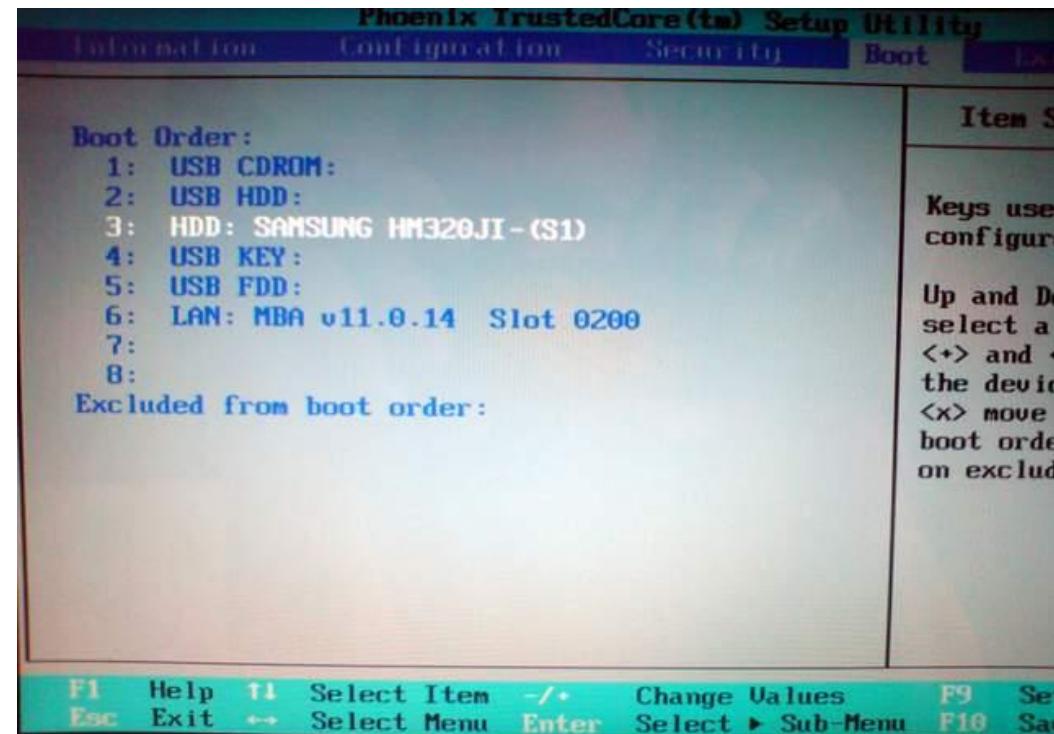
Boot Menu appears, use arrow keys to choose the desired boot device and press Enter to start your device from it.



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.



Practices

- ❖ 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

