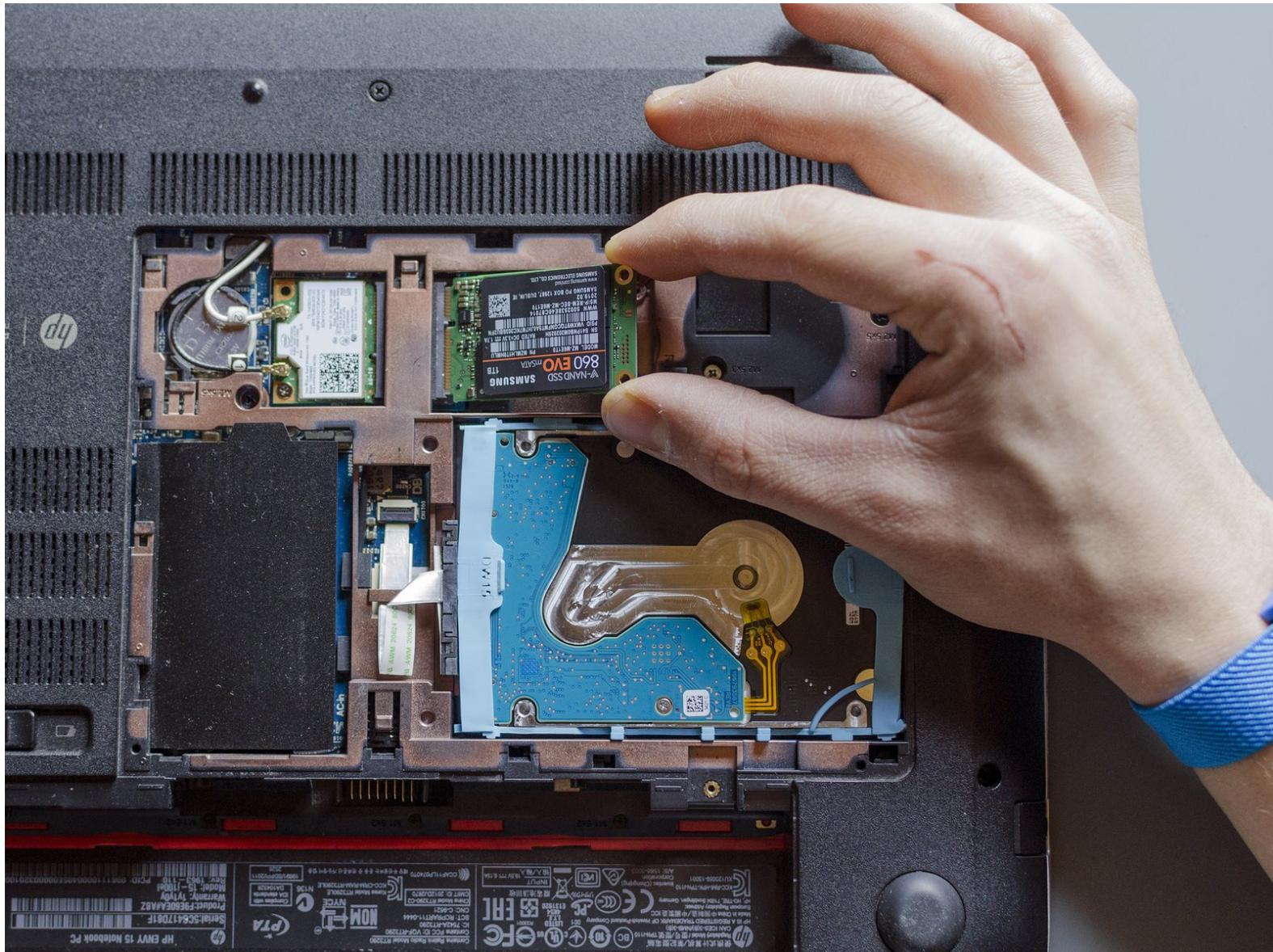




Install an mSATA SSD for the OS and keep the HDD as storage

Install an SSD for the OS in the mSATA slot and keep the original HDD (or install a new one) as storage inside your laptop.

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INTRODUCTION

Usually, when we install an SSD, the latter one takes the place of the HDD but in some laptops of the HP ENVY 15 series there is also a further possibility. These PC are indeed provided with an mSATA slot intended to host - as cache drive only - an SSD of max 64 GB. Users have nonetheless found out that in this slot it's possible to use an mSATA SSD of larger capacity as main boot drive. In other words, in the j100el model this mSATA slot is empty and it's possible to install both drives inside this laptop, an SSD with the OS and an HDD as storage.

Before the beginning:

- **update the BIOS to the latest version**
- **create a backup of your personal files in an external drive**
- **create a bootable USB stick with the OS installer**. You can find step-by-step guides in internet if you don't know how to create it. I am going to install Windows. A stick of 8GB or more is enough to host the installer. It is important that, when it will be written, the USB stick will be formatted with FAT32 file system because the BIOS does not recognise NTFS bootable drives.
- **get an mSATA SSD**. No other restrictions here besides the mSATA interface. Mine was 1TB large. If you are going to install a used SSD, format it completely before you start.
- **get a Phillips PM2.0×2.5 screw**

Basically we are going to remove the HDD, to install an SSD and the OS, and to eventually reinsert the HDD.

Before reinserting the HDD in the laptop we need to be sure that all the boot information of the old OS are gone from it. When we turn the pc on indeed, the HDD is always going to be booted before the SSD and if there is an OS installed in the former, that OS is the one which is always going to be loaded as first, i.e. the new OS won't never show up. We could easily solve this issue if we could change the boot order of the drives before the start of the OS but the BIOS by HP is not that customisable.

For these reasons,

ifixers#1: if you want to keep the original HDD,

before you insert it again you have to wipe all the data off the HDD, or, if you keep only your personal files in a single partition, you could format all but this partition.

In order to format the HDD after the installation of the SSD you can externally connect it to the laptop using a data transfer cable (that's ok: being connected through USB, the old OS won't mess up with the new one) or you can install your HDD in its internal slot, and, using another bootable USB stick in which you installed Rescatux before the beginning of this guide, format the HDD before the start of the new OS, using the Gparted software integrated in Rescatux.

ifixers#2: if you want to install a new HDD,

you're all set and ready to go, the new hard disk is obviously already empty. Once that everything is done, you could use a data transfer cable as well to transfer the files between the HDDs or you could transform the original HDD in an external drive.

TOOLS:

- Spudger (1)
- Tweezers (1)
- Phillips #00 Screwdriver (1)
- iFixit Opening Tools (1)
- iFixit Opening Picks set of 6 (1)
- Crucial Easy Laptop Data Transfer Cable for 2.5-inch SSDs (1)

PARTS:

- mSATA SSD (1)
- Philips PM 2.0x2.5 screw (1)
- new 2.5 inch internal HDD (optional) (1)

Step 1 — Remove the battery



- Turn the laptop upside down and gently lay it down on a flat surface.
- Slide the battery release latch to the right and the battery will pop up slightly.
- While keeping the latch slid with one hand, grab the battery with the other hand and remove it by pivoting it upward.

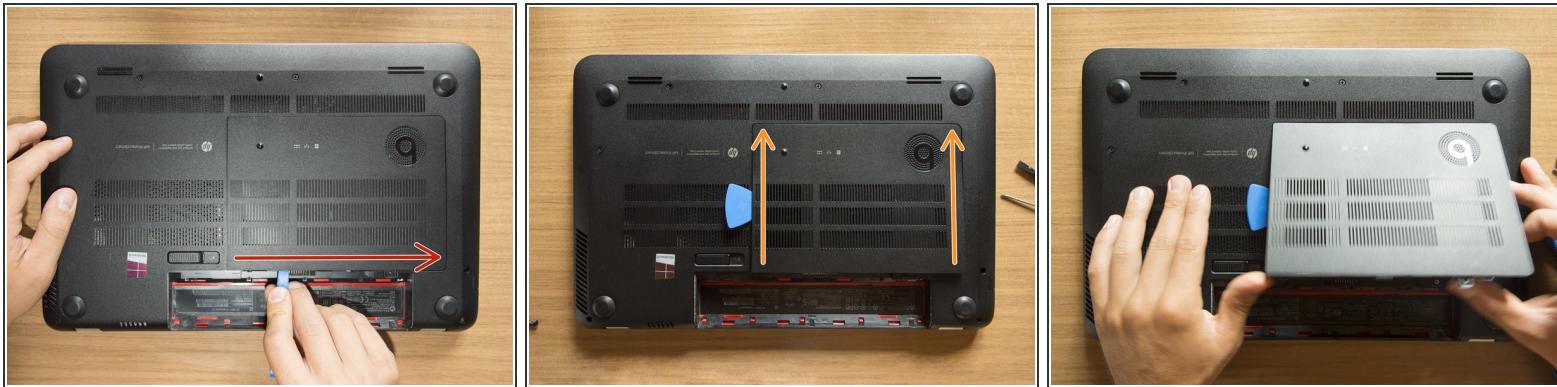
(i) At this point some users would turn the laptop upside down once again and press the power button a couple of times. They say that this should help dissipating all of the remaining electricity around the device. Up to you :)

Step 2 — Remove the captive screw of the service door



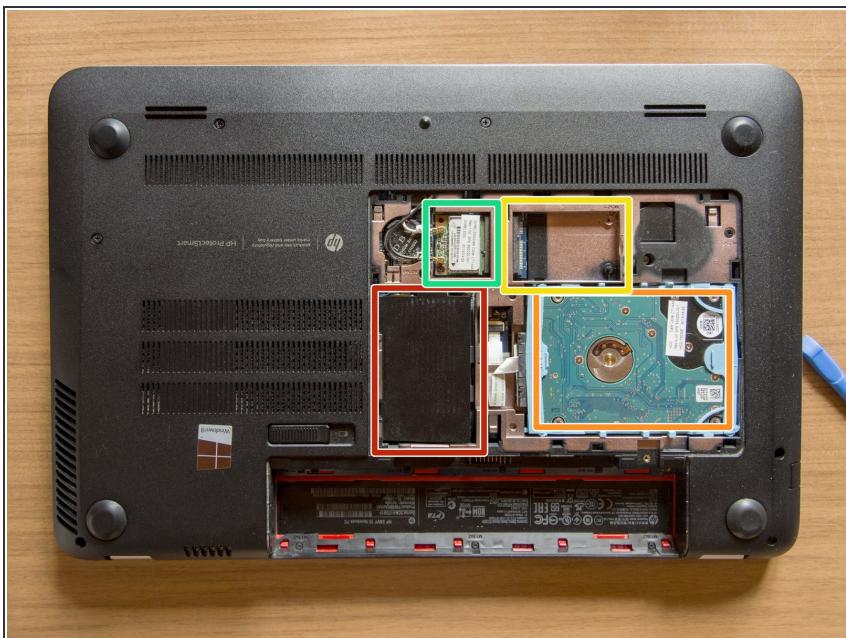
- Remove the Phillips PM2.0×4.0 screw using a PH#00 screwdriver.

Step 3 — Remove the service door



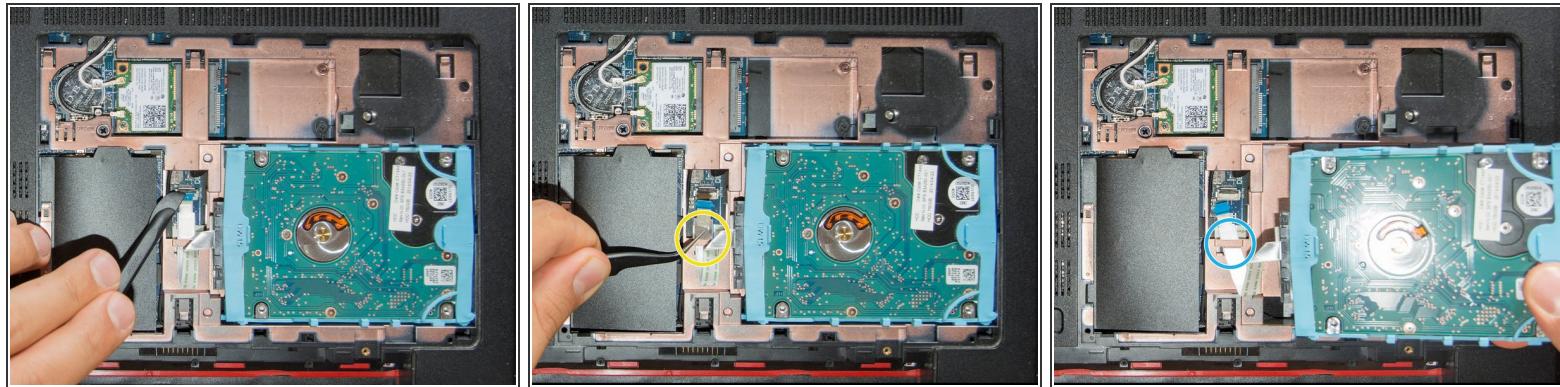
- With an opening tool pry off the tabs that secure the service door to the base enclosure. Start with the long edge.
- Continue along the short edges.
- Once you have pried the service door off as it is in pic#3, it will come out of the rear edge very easily.

Step 4 — Identify the components



- RAM memory modules
- HDD (Hard Disk Drive)
- mSATA SSD slot
- Wifi & BT module (Wireless card)

Step 5 — Remove the hard disk



- [Are you grounded?](#) If yes, using a spudger, flip up the small black locking flap of the hard disk's ZIF connector.
- Afterwards, using a pair of tweezers, grab the HDD's SATA cable at the transparent tab and simply lift its end up, out of the connector.
- By levering with an opening tool, pry the HDD out of its bay. Once it is on your hand, release its cable from its retaining hole obtained on the base enclosure and finally leave the HDD aside.

Step 6 — Insert the mSATA SSD in its slot



- Are you grounded? If yes, grab the SSD as it is shown in pic#1 and align it to its connector holding it at an angle of +/- 40°.
- Now start to gently push the SSD inside, maintaining its inclination. Follow the light blue arrow's direction and go slowly.
- On top of the previous movement - and always maintaining the SSD tilted - you have to lightly move the module back and forward as the blue arrows show: think of a pendulum.
- **STOP** when you feel you can not go any further and you can see that most of the yellow part of the connector is inside.
- Now, pushing in the middle of it with a finger, slowly press the SSD down. The small black plastic wedge depicted has to pass through the bottom hole of the SSD in order to centre its position.

! When pushing down, if you see that this wedge does not pass through the bottom hole of SSD, it means that you need to push the SSD further inside! (*please go back to the movement of the blue arrows*)

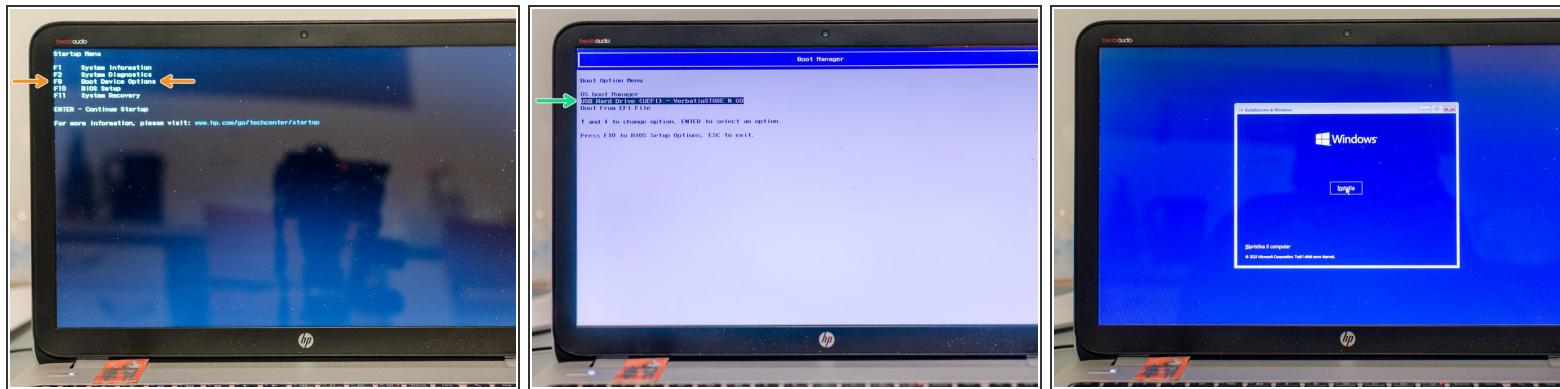
- **STOP** when you feel you can't push the module any further. You should notice that the SSD is not perfectly horizontally laid, that is good. Now, using a PH#00 screwdriver and the Phillips PM 2.0x2.5 screw you got before starting this guide, secure the SSD to the base enclosure of the laptop, don't overtighten this screw.

Step 7 — Reassemble the service door and the battery



- Now, starting from step 3 and going backward, follow the instructions in order to reassemble the service door and the battery.
- Then turn the laptop to its upright position and connect it to the electricity.

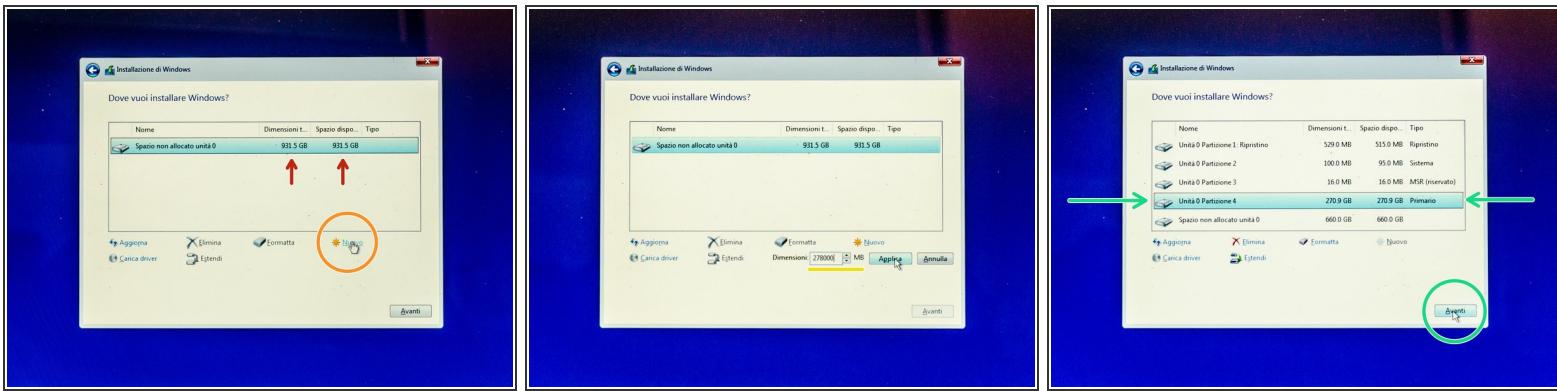
Step 8 — Plug in the USB stick and launch the OS installer



- Plug in the bootable USB stick you prepared with the OS installer and turn the laptop on. As soon as you have pressed the power button, start to repeatedly press **esc**. STOP when the BIOS startup menu appears.
- Now press **F9** in order to access *Boot Device Options* and open the Boot Manager.
- Using the up and down buttons, select the entry *USB Hard Drive - name of your drive* and press **enter**: the OS installer should automatically show up after some seconds.

(i) *If the latter thing doesn't happen, it likely means that the bootable USB stick doesn't function correctly. You will have to rewrite it. Investigate online and try to find out if you took up some wrong options accidentally before encoding the USB stick (FAT32, exc)*

Step 9 — Create a new partition in the SSD for Windows



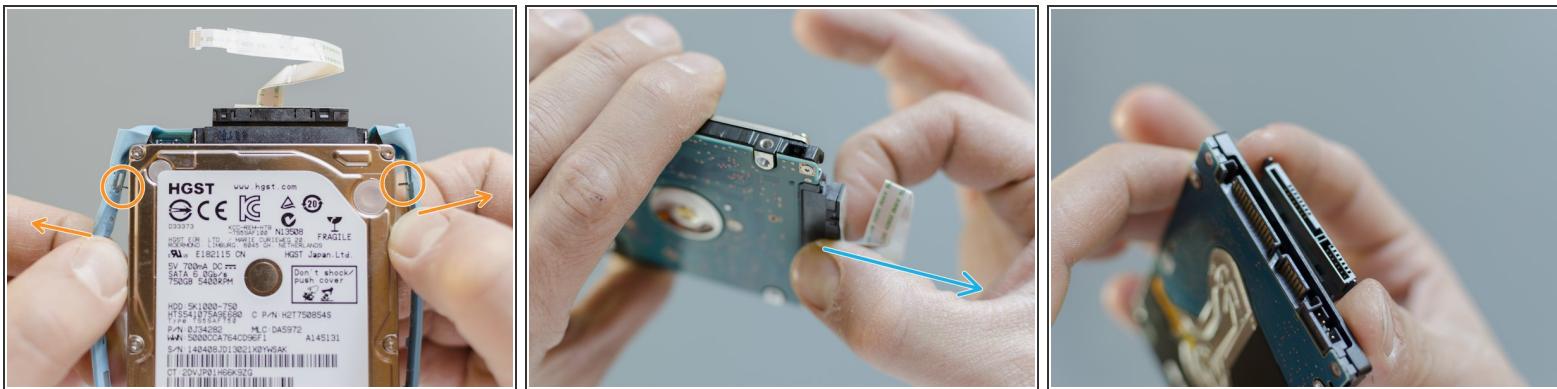
- After some clicks you should reach this page and see the whole capacity of the SSD as a single unallocated space - the entries *Total dimensions* and *Available space* should match each other - if not, e.g. some previously hidden partitions appear, click on **Format** and wipe them away until you obtain a single unallocated volume.
- (i) Using the format button provided by the WIN installer we could have formatted the HDD directly here. We did disassemble it because when I tried to make this upgrade for the first time, I had both of the drives inside, the SSD and a fresh new, completely empty, HDD, and once the laptop turned on, after the installation of Windows in the SSD, **
- (i) * this message appeared: **Boot Device Not Found - please install an operating system on your hard disk** and the system, though present in the SSD, would never turn on. I don't know why, but I only managed to carry this upgrade out by connecting the hard disk later, once that everything was done.*
- Now we are about to create the partition to host Windows, namely the (C:) drive. Click on **New**
- Choose the size of your forthcoming (C:) drive, type it in MB and then click on **Apply** (according to your needs, you can think of leaving an amount of unallocated space in the SSD for another partition that you will create later, for personal files for example)
- If it doesn't remain selected, select the partition you chose the size of, which has just been created (it should be labelled as *primary* or *main*), and then click on **Next: the installation of Windows begins.**

Step 10 — Install and configure Windows



- Once the installer has finished its job, Windows should power on automatically ...
- If strange screens about errors or boot devices do not appear and you managed to reach something similar to pic#2, that's it: your laptop is now completely booting Windows off the mSATA SSD!*
- You are then asked to configure Windows (services, Cortana, privacy, exc). Once you have finished that and you managed to see explorer for the first time, eject the USB stick and power off the laptop. We are going to reinsert the HDD in its slot.

Step 11 — Replace the original HDD with the new one (ifixers #1 skip this step)



Are you grounded? If yes ...

- ... take the original HDD and pry the light blue rubber case off of it using your hands and following the arrows' direction. Starting from the top, make the two small metal plates which centre and secure the case to the HDD come off. Repeat the operation for the two metal plates which are in the bottom and release the HDD from its rubber case.
- Now hold firmly the HDD with one hand and, with the other one, grab the SATA connector in the middle - leaving freedom of movement to its cable - and pull it out straightly and forcefully!
- Following backwards the previous two paragraphs of this step, take now your new HDD and assemble it with the case and with the SATA connector you just disconnected.

 *The SATA connector can only be mounted in one way. In order to start off the assembling of the new HDD on the right foot, you could align it with the SATA connector as it is shown in pic#3. In this way you should be able to recognise on which side they do match: both, the long and the short sections of the connector have to face each other*

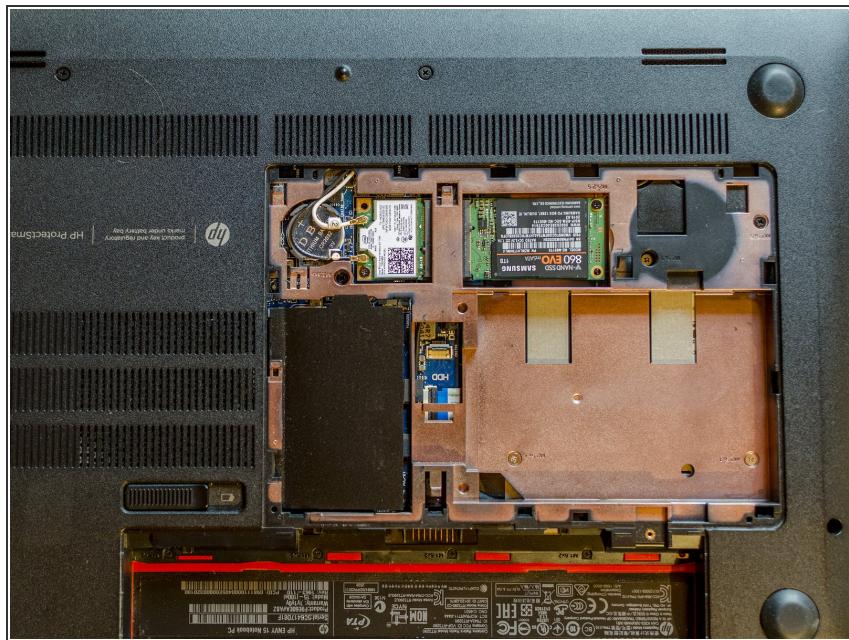
Step 12 — Format the original HDD (ifixers #2 skip this step)



- Quoting the introduction: *In order to format the HDD after the installation of the SSD you can externally connect it to the laptop using a SATA --> USB data transfer cable (that's ok: being connected through USB, the old OS won't mess up with the new one) and then you could use the windows' partition tool **Disk Management***
- *or you can go ahead to the next step of this guide, install the original HDD in its internal slot (as it is, with all of the partitions) and, using another bootable USB stick in which you installed **Rescatux** before the beginning of this guide, format the HDD before the start of the new OS, using the Gparted software integrated in Rescatux.*

! In any case, before you mount the original HDD, format it! All the boot information it was containing must be gone before you power on the laptop for the second time, after the SSD install, otherwise either only the old OS installed on the HDD would show up or neither the old nor the new OS would boot up!

Step 13 — Disassemble the battery and the service door ...



ⓘ ... one more time

Step 14 — Reinsert the HDD in its bay



- [Are you grounded?](#) If yes, make the SATA cable pass through its retaining hole on the base enclosure.
- Lay down the HDD. Grabbing the plastic tab of the SATA cable with a pair of tweezers, move it in order to properly lay its blue final part in the ZIF connector: *its two blue bottom corners should match the white squares of the connector.*
- Now keep the final part of the cable correctly positioned with the tweezers and using a spudger with the other hand, flip down the small black locking flap of the hard disk's ZIF connector.
- Finally, using your hands, gently push the HDD down in its bay.

It's over, you made it! Good job. By this time you know how to remount the service door and the battery, so, it's done, enjoy the upgrade!

P.S. It could be possible that afterward you installed the HDD, when you power on the system for the first time, Windows won't launch. It happened, don't panic :) reboot once and it will work.

[All the credits for this method go to the **user bwillet** who managed to make this hardware upgrade already seven years ago, thanks!](#)