Creating Bootable Windows XP, 7, 8 & 10 USB Flash Drive Installers

by Robert Tanner and Rob Williams on October 7, 🖨️
2015 in Software

As time passes, more and more PCs are being
built without an optical drive. When the time
comes to reinstall or upgrade Windows, an issue
can arise: Where does that setup DVD go? The
answer: On a flash drive. Find out the different
ways to get Windows XP through Windows 10
onto a bootable flash drive – and enjoy the speed
benefits that come with it.

For a long time, Microsoft didn't sell Windows install media in the form of bootable USB flash drives. Instead, it prefered to stick to old-school DVD media, despite the fact that many notebooks today are too small to even include an optical drive, and many DIYers are building PCs which forego one on purpose.

However, things have moved on, and for the first time, Microsoft has begun to sell **Windows 10 on pre-configured USB drives**. Previous versions of the OS (XP, 7 and 8.1), all require the user to create their own bootable USB drive.
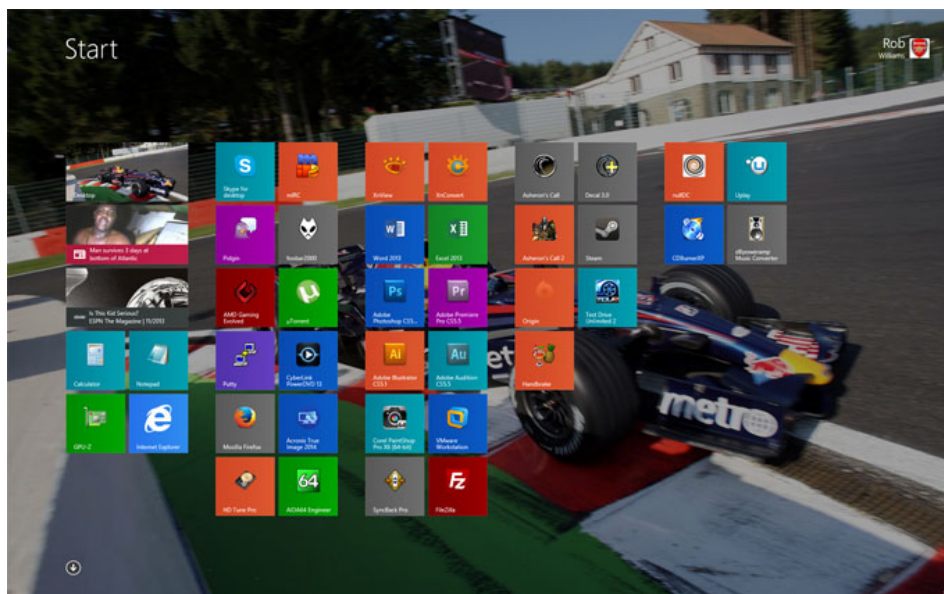
Creating a bootable Windows USB drive used to be a chore, but today, one solution can pretty-well suit most people. However, there *are* times when a flash drive has some quirk that prevents it from working with a particular solution, so for that reason, this article takes a look at **five** different methods.

Guide Index:

Benefits of USB Install Media

Even if the target desktop or notebook has an optical drive, there are a couple of reasons to consider first creating a USB-based installer. Admittedly, the time and effort of creating the drive might make it best-suited for system builders, but for people like us, who juggle test machines, USB is a no-brainer.

To start, USB media is more durable than disc-based media. Discs can be easily scratched, while well-built USB flash drives can generally handle a bit of abuse. Then, there's the convenience. Ever walk around with a disc in your pocket? It looks a bit odd.

For us, performance and reliability are the key reasons why we've opted to use USB-based installers in lieu of discs. Even if a DVD has been burned at the highest commercial speeds, it won't be able to compete with flash memory which offers far improved IOPS performance (operations per second) – it's the same reason why SSDs are much faster for booting an OS and loading applications than a mechanical hard drive; the seek times are minuscule in comparison.

While it's beyond the scope of this article, those who *truly* want a fast install experience can slipstream USB 3.0 support into the install media,

which on current chipsets and an SSD target can allow you to install Windows 7 or 8 in under 4 minutes flat.

USB Installer Tools & Successes

Over the course of this article, we're going to be looking at five different solutions that accomplish the exact same thing: Creating a USB-based Windows installer; if one doesn't work, the next one should (at least, that's the hope). To give an overview of what to expect from each solution, refer to this success table:

	Windows 10	Windows 8	Windows 7	Windows XP
Rufus	Yes*	Yes	Yes	Yes
UNetbootin	Yes	Yes	Yes	No
diskpart	Yes	Yes	Yes	No
Microsoft USB Tool	Yes	Yes	Yes	No
Media Creation Tool	Yes	No	No	No

* Requires Rufus 2.1.6 or later.

Given the fact that Windows XP has reached end-of-life status, we're including a mention of it here because we're *sure* someone down the road will be able to make use of this information. There are a couple of things to bear in mind where that OS is concerned, though.

For starters, modern UEFI-equipped machines are not designed to support such an aged OS, so chances are good that it will not even install. If the motherboard in question happens to support a legacy BIOS mode, then you should be fine; otherwise, it's not happening. Also, we could not successfully create the USB installer with the latest version of Rufus, but rather had to backtrack to 1.2.0. We suspect that this is due to changes in the codebase to support UEFI. It's something to bear in mind, especially as Rufus was the *only* solution of the five that worked

for XP.

What about Windows **Vista**? Like Windows 7 and 8, Vista too can be installed from USB media with these same methods, but due to that fact that most have moved on from it in favor of 7, 8.1 and 10, it's not a big focus.

We mentioned Rufus above, and that's the tool we're going to lead in here with, as we consider it to be the simplest to use, and the most effective. We discussed the same tool in an article from summer 2012 called '**Creating a Bootable DOS Flash Drive the Easy Way**', as it allows for simple creation of bootable MS-DOS flash drives, as the title suggests.

After the look at Rufus, we'll continue on to UNetbootin, Microsoft's diskpart (a tool built into Windows), and then a quick mention of another official Microsoft tool, but one the company no longer promotes. But first…

Acquiring a Disc Image (ISO)

Four of the five solutions listed on this page require a Windows disc image (.iso) to be present. The exception is 'diskpart', as the disc's files will need to be transferred over manually (it doesn't matter if they come from a mounted ISO or a drive in an actual DVD-ROM).

ISOs are available from a number of sources, but most people will acquire them after purchasing the OS online through Microsoft, or through some other related Microsoft service. If you don't have an ISO, or a disc for that matter, you'll need to acquire one from a friend or elsewhere on the Web.

There are multiple editions of any given Windows version, but we're going to list the exact ISOs we used along with their MD5 checksums in case they prove useful. **MD5 Checksums**

- ▶ **Windows XP Pro** (Service Pack 3): F424A52153E6E5ED4C0D44235CF545D5
- ▶ **Windows 7 Ultimate** (Service Pack 1): 56A26636EC667799F5A7F42F142C772D
- ▶ **Windows 8 Pro**: 0E8F2199FAE18FE510C23426E68F675A
- ▶ **Windows 8.1** (MSDN; multi-version): CDADC5A76634651770A365F457702803

Windows 10 install media can be downloaded directly from Microsoft using the **Media Creation tool**, which also allows you to create the bootable USB drive at the same time. This process is covered later in

the article, which you can read about **here**.

For those who *have* a Windows setup DVD, a free tool like CDBurnerXP or ImgBurn can be used to rip it into an .iso file. Other tools exist that accomplish the same thing, but these are the only ones we can personally recommend. For *mounting* an ISO image, we'd recommend Virtual CloneDrive, as it's free, and not the "free but a total nag" kind of free.

NOTE: Some anti-virus applications might interfere with the USB creation process due to the autorun properties involved, so if issues are experienced, we'd recommend temporarily disabling the anti-virus until the process is complete.

Using Rufus

Both **Rufus** and UNetbootin are simple tools for this task, and outside of Rufus' Windows XP support, both work just the same. However, we prefer Rufus because we find it loads a *lot* quicker, and feels a bit faster, too.

First, choose the appropriate drive under the "Device" menu, and make sure that the file system is NTFS (not FAT32). The other options shouldn't matter too much, although if you're planning to install Windows 8 as an official EFI OS, you may wish to peruse the options under the "Partition scheme and target system type" menu.
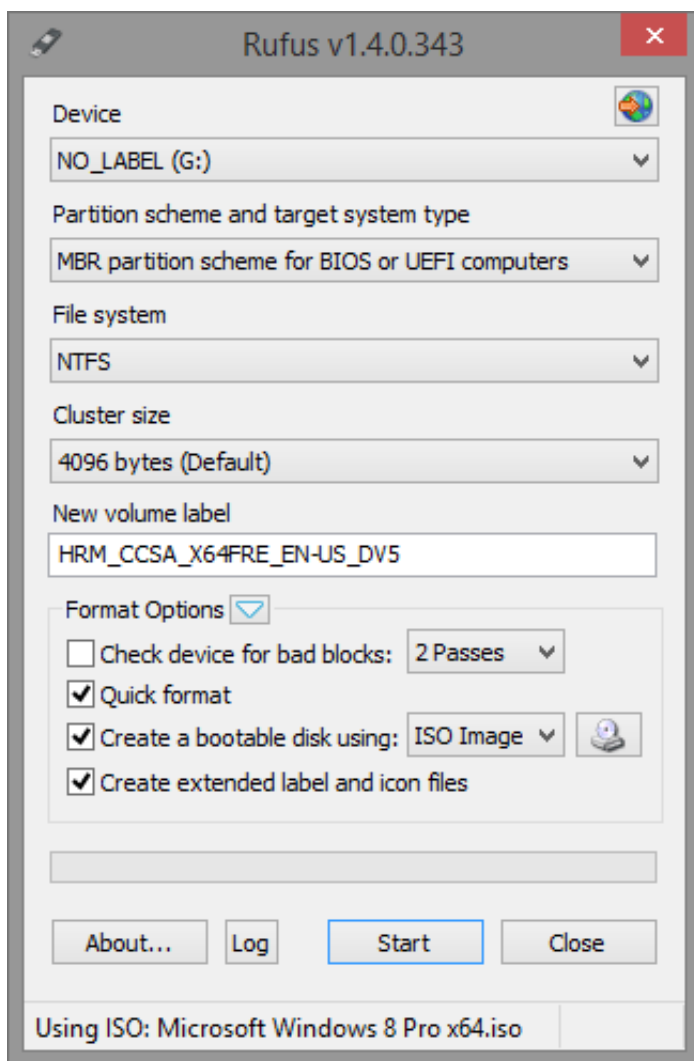
To load the Windows .iso file, the small CD icon to the absolute right of "Create a bootable disk using:" option can be clicked. After perusing the file manager for the ISO image and accepting it, the "Start" button can be clicked to have the tool work its magic. **NOTE:** As the program will state, doing this will erase all data off of the flash drive – **so backup first**.

If you have any issues, be sure to check out our **Common Problems** section below.

Using UNetbootin

UNetbootin is a well-known tool as it's become a *de facto* choice for turning a bootable Linux live CD into a bootable Linux live flash drive – for that purpose, it still excels. Little do most people realize, it can handle Windows ISOs as well (but as the table at the top of this page shows, it doesn't support creating a bootable Windows XP drive).
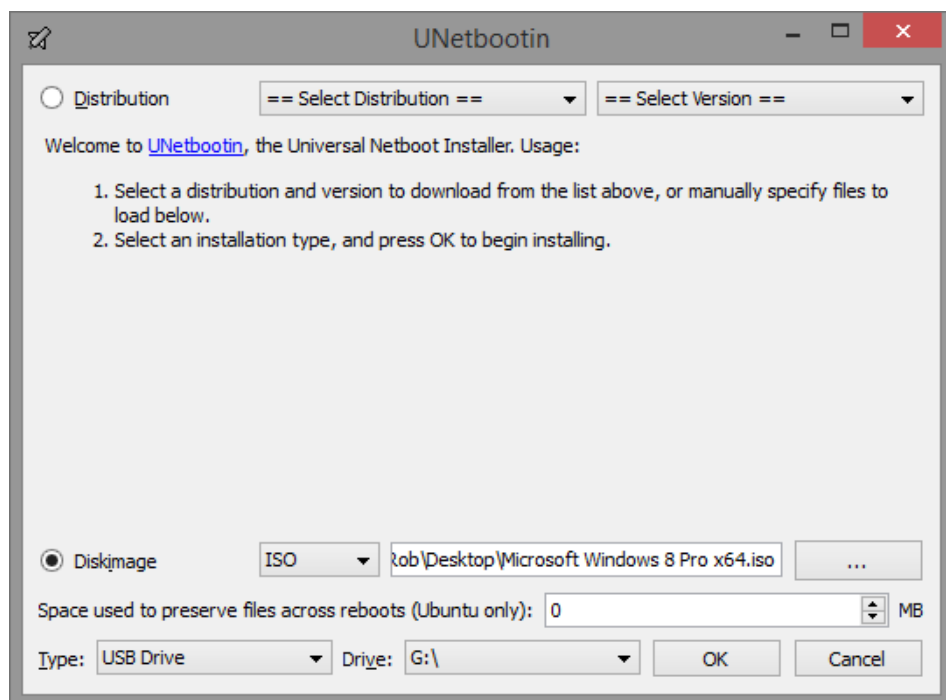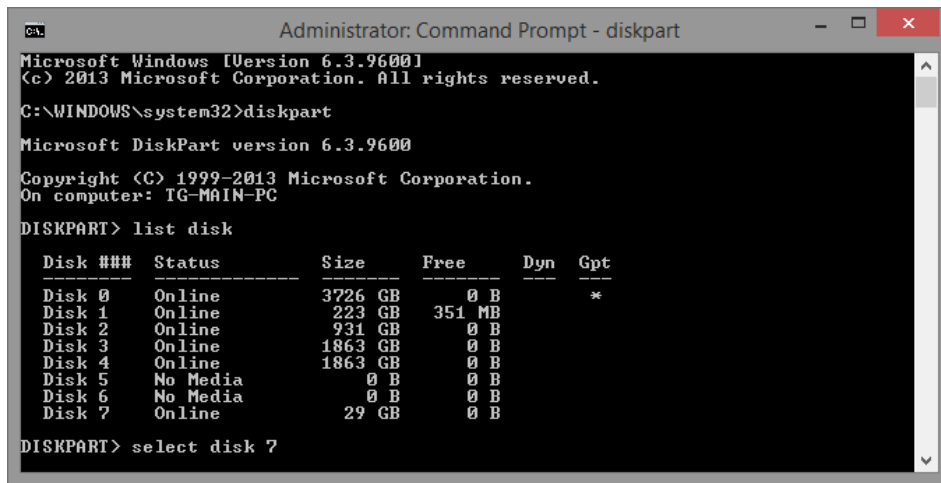
Like with Rufus, the appropriate drive should be selected from the "Drive:" menu at the bottom, and then the "…" button to the right of the largest text field can be clicked to search for and accept the required ISO. At this point, the "OK" can be clicked, and the process will get underway.

Unlike Rufus, UNetbootin doesn't erase the flash drive first, so data remains intact – *however*, if you're repeatedly writing new ISOs to the drive using the tool, it's recommended you format after each one, so as to not leave unused scrap files around the drive. **NOTE:** We'd still recommend backing up personal data before writing an ISO to it *just in case*.

Using Microsoft diskpart

For those who don't have an ISO, but rather a DVD, diskpart is the solution for you. It *does* require some command-line usage, but as you'll see, it's not too complicated. **NOTE:** This method will delete the entire flash drive, so be sure to **back up personal data first**.

To make proper use of diskpart, you'll need to open a command prompt with administrator rights (head to "Start", type in 'cmd', right-click it, and choose 'Open as Administrator'). Once the prompt is opened, type in 'diskpart' to load the tool, and then 'list disk' to figure out which # relates to your flash drive.

External storage should appear at the end of the list, and in our case, it did (we're using a 32GB flash drive, which appears here as 29GB). Once the appropriate drive is figured-out, it can be chosen using the 'select disk #' command. Once selected, it needs to be wiped clean, have a partition created, and then be formatted. The entire command process is summed-up in this block:

list disk – shows avaialble disks, look carefully for the one that looks like your flash drive
select disk # – change **#** to the disk (flash drive) you wish to use
clean – removes existing partions
create partition primary
select partition 1
active
format fs=ntfs quick
assign
exit

For those who might want to see this in action, we provide this screenshot:

Note that "quick" can be removed off of the format command to run a full format, but that might take minutes to tens of minutes depending on the drive (as it's more thorough).
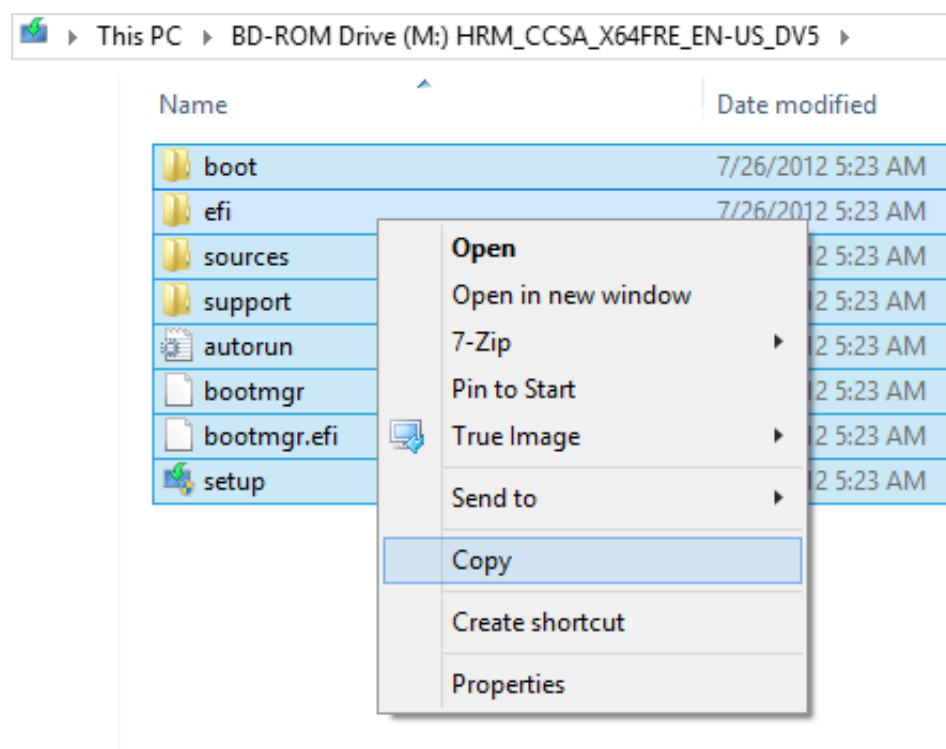

At this point, the Windows setup DVD can be inserted into the drive, or the ISO mounted, and its files copied over to the root folder of the flash drive. After the process is done, opening up the flash drive in the file manager should mirror the contents of the Windows DVD/ISO.
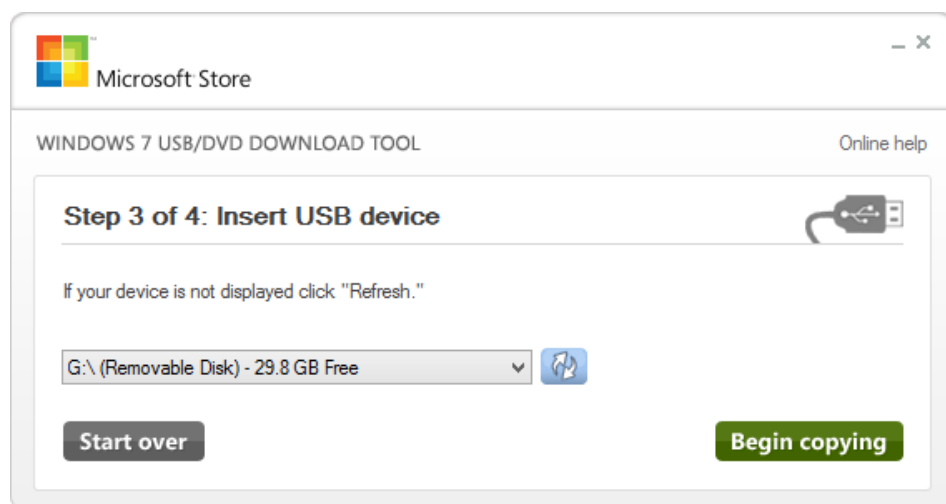
Using Microsoft Windows 7 USB/DVD Tool

After the Windows 7 launch, Microsoft released its own USB creator tool that supported its official ISOs. While the company no longer promotes the tool, it supports both 7 and 8 just fine, so some might prefer to use it over the other solutions.

Once **downloaded** and opened, an ISO must be chosen. After that, the "USB Device" option needs to be clicked (this same tool can also burn straight to a DVD).
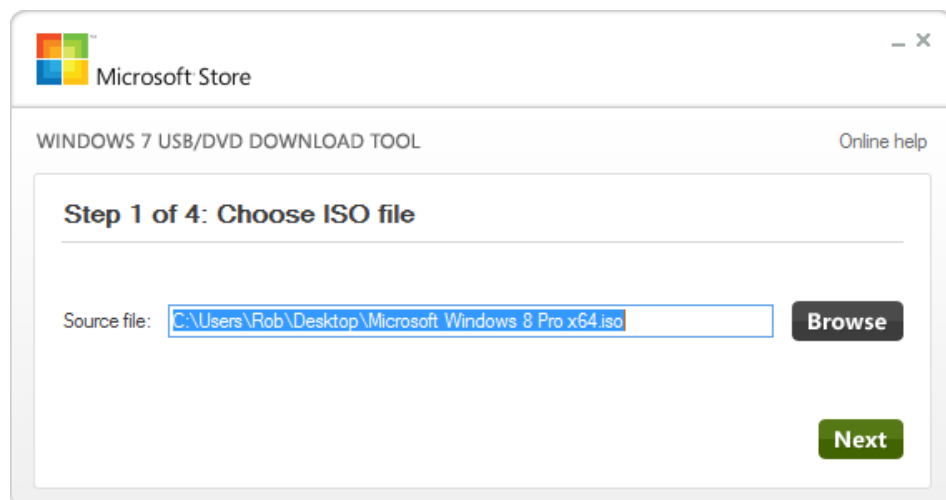
At the last screen, the appropriate flash dive needs to be selected from the menu, and after hitting "Begin copying", the entire process will be complete after just a couple of minutes.

Truthfully, Microsoft's tool here might be the easiest of them all to use, but because the company isn't promoting it in any way, shape, or form (note that it's called the Windows 7 USB/DVD tool, and not Windows 7 & 8 USB/DVD tool), we feel that it's right to quicker recommend the other (often updated) solutions first.

Using Windows 10 Media

Creation Tool

Optical is so last century! Our boot media of choice has switched to much faster flash drives, namely with USB 3.0 and 3.1. If you plan to install Windows 10 on a new system, use it to recover an existing system, or upgrade a previous install of Windows 7 or 8, creating a bootable flash drive is the first step.

The process with Windows 10 is not much different from Windows 7 and 8/8.1. It's incredibly simple and straight forward, as there are very few steps involved.

The whole process for creating a Windows 10 bootable USB drive can be done by using the **Media Creation Tool**; most systems these days will use the 64-bit version, so grab that.

Once you've downloaded the tool, run it and you'll be presented with the media creation process. The gallery below outlines each step of the process for the basic method. There are a few things you might need to check first. Depending on where you plan to install Windows 10, you need to check which version you require, Home or Pro. **Note**: The contents of the USB flash drive will be erased, so make sure you back it up first.

Select 'Create installation media for another PC' to begin the process.
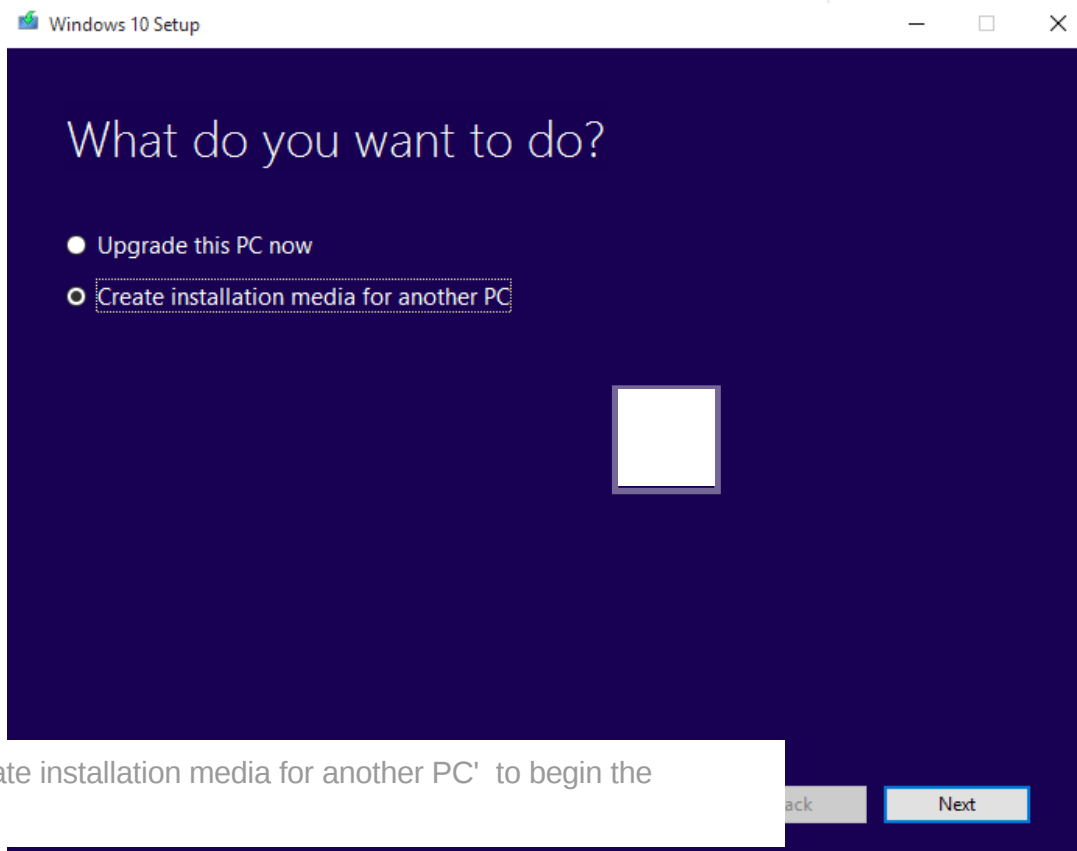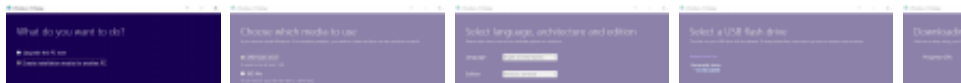
Most systems will likely use the Home edition; only get Pro if you know you have a key for it or if you are upgrading Windows 7 Pro/Ultimate or Windows 8/8.1 Pro. The N version of each OS type is for the EU compliant version, but truth be told, there isn't anything different about it at this time. You can pick 64-bit as well, or both 32/64-bit if you are unsure or plan on using the bootable flash drive on different systems.

The Media Creation Tool can can be used to just download the ISO image of Windows 10, which can then be used with something like Rufus to create the bootable USB drive. This offers the advantage of being able to keep a backup of the ISO image, as well as create multiple boot drives without having to download the image each time. If you run into problems with the Media Creation Tool when it comes to creating the bootable flash drive, you can use the following method.
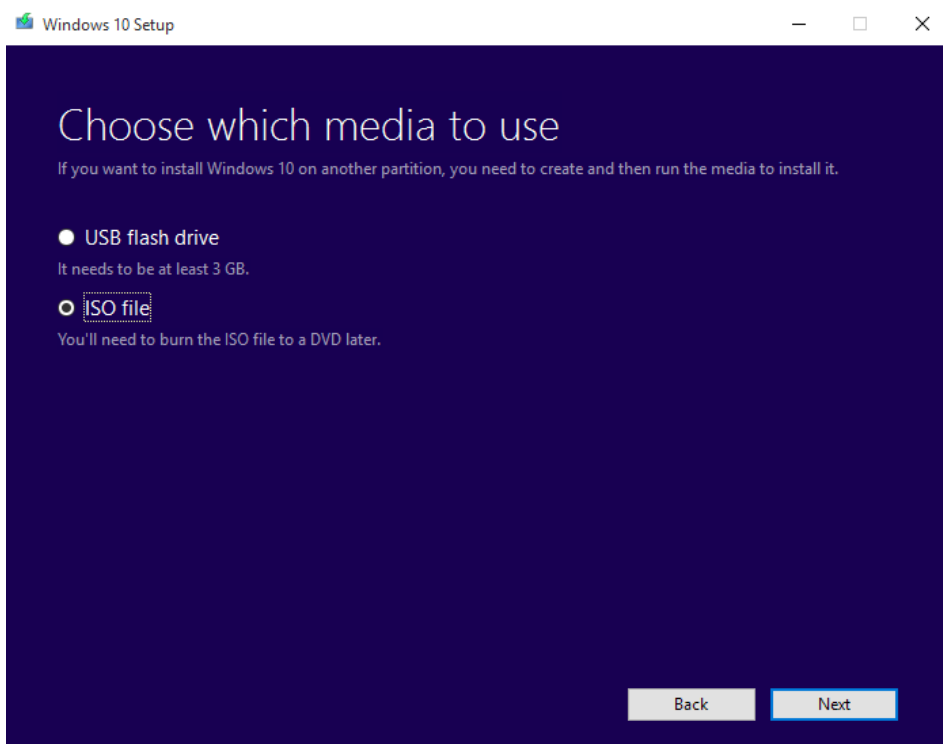
Instead of selecting USB Flash Drive in the **Media Creation Tool**, just select ISO File instead, choose a location to save the file, and after it's downloaded, follow the steps outlined in the **Rufus guide above**. In general, we found this method more reliable than using the Media Creation Tool to create the Windows 10 bootable flash drive.

Windows XP Notes

If you are attempting to use Windows XP on a USB drive, there are a

couple of things to bear in mind. First off, we strongly recommend **using Rufus** (32-bit version) to setup XP on a USB flash drive over the other methods, as its success rate is much better. If installing with Rufus doesn't work the first time, change the partition mode to MBR for BIOS only. Making XP boot over USB is a little tricky as well, because it's much more sensitive to the age of the hardware.

As far as we know, the 32-bit ISO image of XP is the only compatible version that can be put on a bootable flash drive (success for XP 64-bit was limited). One of the key points though is that you can't use a USB 3.0 port when installing, even with EHCI mode enabled. We also found that a lot of modern hardware refuses to detect the drive.

If you are using an old system, then you should be able to boot Windows XP from a USB flash drive. Just be sure that your particular motherboard supports booting from USB in the first place (it's normally off by default in older system). Check the BIOS boot section and see if USB drives are supported.

Common Problems

No Bootable Device Detected

This can be caused by a number of things. The most common is that your system is not setup to detect or boot from USB devices. You will need to go into your BIOS/EFI and check whether your USB drive is detected at all. If it is, make sure that it's available from the boot menu. If it isn't, then some security option may be enabled that prevents booting from USB devices.

As each BIOS/EFI is different, we can not help with specific options, but check various security and boot menus to make sure that USB support is enabled. If everything appears correct, but still can't be detected, try enabling USB legacy support, or a different USB port, such as a USB 2.0 port instead of USB 3.0.

It's also possible that the install media, or ISO image you have, does not have the boot information available. Try a different ISO image if at all possible.

Windows Installer Starts But Can't Detect Install Media

If the installer starts and lets you pick installation options, but an error occurs that either says it can't detect the DVD or it requests you to insert media with additional drivers, then you need to use a USB 2.0 port.

Windows XP, Vista and 7, do not have native support for USB 3.0 ports. Attempting to install with your flash drive plugged into a USB 3.0 port will

result in the above error. Unplug your USB Flash Drive and insert it into a USB 2.0 port, then begin the process again. You may still use a USB 3.0 Flash drive, but not plugged into a USB 3.0 port.

If no USB 2.0 ports are available (such as with more modern systems), then you will either need to go into the BIOS/EFI and enable forced legacy mode or enable EHCI on the USB ports, or you will need to 'slipstream' the USB 3.0 drivers into your Windows Install Image.

Windows 10 'Something Happened'

Generic and oh-so-helpful error. If you are using the Media Creation Tool to create the bootable USB flash drive, and it's failing on the last step, try the alternative (and recommended) method of using the tool to download the ISO image and then use Rufus to create the boot media. If the Media Creation Tool is failing to download the ISO, then this is likely a network issue with either your local machine or Microsoft's server. Try using a wired/Ethernet connection instead of wireless, or just wait a while and try again later. Failing that, try to download from a different machine if possible.

If you have any questions about any of the steps, please leave a comment below and we'll help you as best we can.

Update: This article was updated August 2015 by Jamie Fletcher, to include **Windows 10**. Originally published December 2013.

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