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## Format usb best allocation unit size

If you've already formatd a hard drive or USB thumb drive, you may have seen the Allocation Drive Size setting. This is set by default, but you can change it if you want. Should you? If yes, why should you set it up? What does the size of the allocation unit mean? There are several answers to the above questions, simple and not so simple. The two-word answer to any of them can be depends. What does the size of the allocation unit mean? Depending on who you are talking to, the size of the allocation unit can also be referred to as cluster size. Anyway, it's pretty simple. This is the smallest piece of data possible on your drive. Basically, even a completely empty file will be the size of the size of your allocation unit. Each time a file grows, no matter how big or small that file may be, it will be at least like that. How big should you use the allocation unit? The optimal size of the allocation unit for your unit will often depend on which operating system you are using and how large the drive is. As an example, Microsoft has a list of the default sizes for various versions of Windows available on its website. Generally, using what is the standard for your system is the best choice, but it is not always the case. If, for example, you have tons of smaller files, a larger allocation unit size will consume your drive space a little faster. For everyday computing, this is not likely. Using allocation unit sizes larger than necessary can create unnecessary fragmentation on the drive. This is more of a problem for hard drives, since solid state drives (SSDs) are not as prone to performance issues as a result of fragmentation. In most cases, Microsoft recommends an allocation unit size of 4 KB. That's what the company says works best for standard users. If you need a non-standard size, you probably already know this and why you need it. Should you use different sizes for SSD or hard drives? As mentioned above, fragmentation does not present the same problems on an SSD as it does with a hard drive. Because of this, you could theoretically use larger allocation unit sizes without the performance achieved. Would that really speed things up? The answer is probably no. So far there has been no real example of larger allocation unit sizes leading to any performance changes in SSDs. Larger drive sizes can lead to more writes over time, which would lead to more wear on your SSD. Some of the same examples we've seen with standard hard drives apply here as well. Games and other applications that often read and write very small files (less than 4 KB) could benefit from a smaller cluster size. Even so, it is unlikely that you any measurable difference in performance. Conclusion As you probably noticed, you are generally safe by adhering to the size of the default allocation unit. Unless you're preparing a computer for a very specific use case, it's not even something you should spend a lot of time thinking about. There are always exceptions, but this is usually the If you're worried about wearing your SSD early, this won't have much to do with it. Instead, take a look at our list of things you shouldn't do with solid state drives. Is this article useful? Formatting a USB drive is almost like formatting any other drive. You can go with the default settings or you can find out what the various options mean and use the ones that best suite your use case. We'll help you with the latter, so you can select the optimal settings when formatting your USB drive. How to format a USB drive in Windows If you are running Windows XP, Windows 7, Windows 8.1, or Windows 10, the steps are essentially the same. Plug in the USB drive. Open Windows File Explorer and go to this PC (also known as Computer or My Computer). Right-click on the unit and select Format... The formatting options that you can customize are file system, allocation unit size, volume label, and format options. You can also restore device defaults in case your custom settings don't work. To format your drive, just make your selection, click Start, followed by OK to confirm that you really want to delete all the data and the drive will be formatted. However, before you proceed with formatting, you'll want to understand what each of these options really means. So let's go through them one by one. Which file system to choose? In Windows 10, you'll see a maximum of four different file systems: NTFS, FAT, FAT32, and exFAT. You won't see FAT and FAT32 if your drive is larger than 32 GB. So what is the difference between these file systems and which one you should choose? Let's see the benefits of each. NTFS Compared to FAT & FAT32: Read/write files larger than 4 GB and up to maximum partition size create larger partitions than 32 GB compression files and save better disk space management = less fragmentation allows more clusters on larger drives = less wasted space add user permissions to individual files and folders (Windows Professional) on-the-fly file file using Encrypting File System (EFS) encryption Windows Professional) FAT & FAT32 Compared to NTFS: Compatible with virtually all operating systems takes up less space on the USB drive less disk burning operations = faster and less exFAT memory usage compared to FAT & FAT32 Read/write files larger than 4 GB create drive partitions larger than 32 GB better space management = less fragmentation Due to their nature, FAT or better, but FAT32 are suitable for drives smaller than 32 GB and in an environment where you never need to store files larger than 2 or 4 GB, respectively. In other words, any regular-sized hard drive (60 GB+) must be formatted Ntfs. However, due to the way NTFS works, it is not recommended for thumb drives, even when they are larger than 32 GB. This is where ExFAT comes in. It combines the benefits of FAT (small, fast) and NTFS (large supported file size) in a perfect way for thumb drives. Keep in mind that FAT and FAT32 are the only file systems are compatible with cross-platforms. NTFS is supported on Linux, but requires a hack or a third-party application to work on a Mac. exFAT, on the other hand, is supported from OS X 10.6 (Snow Leopard), but you need drivers to read it on Linux. If for compatibility or speed reasons you want to go with FAT or FAT32, always go with FAT32 unless you are dealing with a device of 2 GB or smaller. Which allocation unit size works best? Hard disks are organized into clusters, and the size of the allocation drive describes the size of a single cluster. The file system records the state of each cluster, that is, free or busy. Once a file or a part of a file is written to a cluster, the cluster is occupied, even if there is space remaining. Thus, larger clusters can lead to more wasted or loose space. With smaller clusters, however, the drive becomes slower as each file is divided into smaller chunks, and it takes much longer to draw them all together when the file is accessed. Therefore, the optimal size of the allocation unit depends on what you want to do with your USB drive. If you want to store large files on this drive, a large cluster size is better because the drive will be faster. If, however, you want to store small files or run programs outside your flash drive, a smaller cluster size will help preserve space. Golden rule: large drive and/or large files = large allocation unit size (and vice versa) For a 500 MB USB flash drive, select 512 bytes (FAT32) or 32 kilobytes (FAT). On a 1TB external hard drive select 64 kilobytes (NTFS). What is a volume label? The volume label is the name of the drive. It's optional and you can basically name your unit whatever you want. However, there are a few rules to follow, depending on the file system. NTFS maximum of 32 characters on the tabs can display both upper case and lowercase FAT characters maximum of 11 characters none of the following characters: \* ? , ; : / \ | + = &lt; &gt; [ ] tabs will be displayed as all uppercase you can use spaces regardless of file system. What format options do we recommend? A full format removes file records and scans the drive for bad sectors. The Quick Format option skips the scan, making it much faster. If you're dealing with a healthy or new drive, if you don't plan to put important data on it, or if you're pressed for time, choose Quick Format. Otherwise, remove the check mark. Note: No option actually overrides or deletes files; both just clean up the index file from the drive, i.e. the Master File Table (MTF). If you want to delete data safely and permanently on your USB drive, formatting will not, you will have to replace the with a tool like DBAN. If you found this article useful, you may also want to know how to fix write protection errors, how to reform an external hard drive without losing data, or how to format a write-protected USB drive. And if you need a new USB drive, here are the fastest USB flash drives that money can buy. Image credit: image: 20 free ways to download any internet video Download videos off the internet is surprisingly easy. Here are free ways to grab any video you want. About Author Tina Sieber (824 published articles) More from Tina Sieber Sieber