How to Format a WD hard drive to exFAT or FAT32 File System

A Western Digital external hard drive can be used on both Windows and macOS. This is useful if a drive is being used under both *Operating System (OS)* to move files between the two environments. Most WD Drives come formatted in the *NTFS (Windows)* or *HFS+ (macOS)* format.
For a hard drive to be able to be read from and written to on both a Windows and macOS computer, it must be formatted to *ExFAT* or *FAT32* file format. FAT32 has several limitations, including a 4 GB per-file limit. This is a file system limitation that affects both macOS's and Window's, and the only workaround is to format the drive to exFAT. For more information about what these limitations are please see Answer ID 20778: File and partition size limitations using the FAT32 file system (Windows and Mac).
The easiest way to format the drive to *FAT32* or *ExFAT* is by using macOS's built-in **Disk Utility** for **FAT32**, or both macOS and Windows' built-in tools, **Disk Utility** or **Disk Management** respectively for exFAT.

> **Critical:** **The instructions in the article below are designed to help repartition and format a hard drive. This process is Data Destructive and cannot be undone. Once the process begins,** *ALL THE DATA ON THE DRIVE WILL BE LOST!*

> **Critical:** **Never attempt to connect any external drive to multiple computers at the same time. This could quickly damage the drive's partition and corrupt the data on the drive.**

How to Check if your system supports a WD Black PCIe Solid State Drive

There are both hardware and software requirements for WD Black PCIe SSDs. On hardware side, the motherboard must include an M.2 connector that supports PCIe and NVMe SSDs. On software side, it is important to know, the *drivers* are a function of the host *BIOS* and Chip set on the motherboard and *Operating System (OS)* installed must support PCIe NVMe SSDs. It is best to contact the motherboard or PC manufacturer for possible updates to the **BIOS** and **Chip set** and ensure the operating system is current with the latest patches and updates prior to installation of new hardware. These requirements are further explained in the sections below.

Physical Size Requirement
The WD Black PCIe SSD is an M.2 2280 form factor. It is a standard 22mm wide x 80 mm long, and up to 2.4mm tall.All M.2 NVMe SSDs are a standard 22mm, however, other products may vary in length as 30, 42, 60, 80 or 110 mm.

A longer slot space can generally accommodate a shorter device. Thus, the WD Black PCIe SSD can fit into a M.2 2280 or larger slot. However in both cases, it must be securely screwed down with an appropriate retaining screw.

M.2 Connector Requirement
To help plug in the correct peripheral type into the target M.2 connector, the standard defines keys A through M on the connector and corresponding notches A through M on the device.

An SSD M.2 connector for SSD uses keys in position B and M to prevent a non-SSD device from being plugged into it. However, the specification allows the SSD connector to be implemented to support the following:

A SATA only SSD
A SATA or NVMe SSD.
An M.2 SSD connector can have B+M key, or an M key only.
The table and figures below shows mechanical compatibility between the SSD connector types and SSD devices.

	WD Black PCIe SSD	SATA SSD (such as WD Blue SSD)
Physical M.2 connector	M notch only	B + M notches
B+M keys (Socket 2)	No	Yes
M key only (Socket 3)	Yes	Yes

Figure 1: SATA M.2 2280 SSD with B+M notches

Figure 2: NVMe M.2 2280 SSD with M notchs

To support a WD Black PCIe SSD, the system must have an **M.2 connector with only an M key**. The WD Black PCIe SSD does not have a B notch and therefore, the B key on the SSD connector will prevent it from being inserted.
See Figure 3 below for reference related to the M Key connector on motherboard

Figure 3: M.2 Connector with M key

BIOS NVMe Support
Even if the M.2 connector with only an M key can accept a SATA SSD or a PCIe NVMe SSD, the system BIOS must also be capable of supporting a PCIe NVMe SSD. You will need to refer to the technical manual of your system to ensure that a Gen 3 x 4 lane PCIe NVMe SSD is supported in that system.

If you wish to install Windows operating system, the BIOS should be configured as UEFI mode with Legacy support disabled. You will also need to boot from UEFI mode for successful Windows installation.

OS requirement
Windows 10 and Windows 8.1 have native support for PCIe NVMe SSDs. Their installation packages includes in-box driver that supports PCIe NVMe drives, or allows installation of Intel iRST driver (version 14.8 or newer) to support a PCIe NVMe SSD.

Similarly, new versions of Ubuntu and other flavors of Linux support PCIe NVMe SSDs using the newer storage drivers.

Windows 7 does not natively support PCIe NVMe SSDs. Using the default Windows 7 installation package and attempting to install Windows 7 on a system with a PCIe NVMe SSD will fail because no SSDs will be detected. To install Windows 7 on a PCIe NVMe SSD-based system, please consult with

Microsoft for more information

Driver level requirement
The WD Black PCIe SSD does not require any special drivers. It supports standard Windows (8.1 and above) in-box, Intel iRST or Linux NVMe storage drivers.

While not required as part of installation or normal operation, WD provides a monitoring and FW update tool called WD SSD Dashboard that you can download and install. This tool will allow you to check the health of the drive and perform SSD firmware update, in case a new firmware is released to enhance the stability of the SSD. To learn more about the **WD SSD Dashboard**, please visit the WD SSD Dashboard Download page.

How to Partition and Format a WD Drive on Windows and macOS

External hard drives and external solid state drives come pre-formatted and ready for use. Internal HDD and internal SSD drives do not ship pre-formatted and will need to be Partitioned and formatted before being used.
Please note the instructions do not differ when formatting different capacity sizes, this is not capacity specific.

> **Critical: The instructions in the article below are designed to help repartition and format a hard drive. This process is Data Destructive and cannot be undone. Once the process begins, *ALL THE DATA ON THE DRIVE WILL BE LOST!***

> **Important:** Please note if this is the first time connecting an external device to a macOS, there is a Reformatting Required for Mac OS Compatibility, please see Answer ID 3879: Reformatting Required for Mac OS Compatibility.

Western Digital does not recommend multiple partitions due to potential corruption of the Partition table. The partition table is used to display each partition within the Operating System and if this becomes corrupted it will lead to data loss. Please contact Microsoft or Apple for more support.
APFS formatted volumes can be read by a macOS High Sierra (10.13), but not by a macOS Sierra (10.12) or earlier.
For more information, please refer to Apple KBA ID HT208018 - Prepare for APFS in macOS High Sierra

If the following message occurs during the format procedure, **MediaKit reports not enough space on device for requested operation. Operation failed...**, please refer to Answer ID 20270: macOS Disk Utility Error "MediaKit reports not enough space on device for requested operation"

For instructions to convert a drive to (APFS) Apple File System Format on macOS High Sierra (10.13), please refer to Answer ID 9968: How to Convert a WD External Drive to Apple File System (APFS) Format

Important: If at any time an error occurs stating that the drive can not be *dismounted* or *unmounted*, this is not caused by an issue with the hard drive. Please see Answer ID 18670: When formatting or partitioning a drive, an error occurs stating the drive cannot be dismounted or unmounted for additional information on this particular issue.