Ki Pro GO Series

Approved Media

Introduction

While the Ki Pro GO Series (Ki Pro GO and Ki Pro GO2) supports standard USB and SSD drives and encodes content to relatively low bitrates (up to 25 Mbps), the instantaneous performance requirements of the media are significantly higher than that. This is especially true for longer file segment durations, as longer duration files have larger headers which require much higher burst performance during the beginning of each file.

During recording, when the Ki Pro GO Series detects that the media is unable to keep up with recording speed requirements, a "Media Too Slow" alarm is shown on the WebUI. This may result, eventually, in the recording being aborted.

Listed below are USB / SSD drives whose performance has been verified by AJA along with some general information on drive parameters that have significant bearing on system performance.

Media and Configuration Information for USB / SSD Drives

Media Formatting

For the best results, AJA Video Systems recommends formatting all media to exFAT prior to use with the Ki Pro GO Series, due to file size constraints with other formats.

In some cases, drives ship formatted as NTFS. Those drives MUST be reformatted to exFAT prior to use, and this is indicated with Notes in this document.

Supported USB Thumb Drives (Single Channel Recordings)

Transcend JetFlash 780

- Transcend JetFlash 64GB = TS64GJF780
- Transcend JetFlash 128GB = TS128GJF780
- Transcend JetFlash 256GB = TS256GJF780

Transcend JetFlash 910

- Transcend JetFlash 128GB = TS128GJF910
- Transcend JetFlash 256GB = TS256GJF910

Transcend JetFlash 920

- Transcend JetFlash 920 128GB = TS128JF920

- Transcend JetFlash 920 256GB = TS256JF920

Transcend JetFlash 930C

- Transcend JetFlash 930C 128GB = TS128GJF930C
- Transcend JetFlash 930C 256GB = TS256GJF930C

Corsair Flash Voyager GTX

- Corsair Flash Voyager GTX128GB = CMFVYGTX3C-128GB
- Corsair Flash Voyager GTX256GB = CMFVYGTX3C-256GB
- Corsair Flash Voyager GTX512GB = CMFVYGTX3C-512GB
- Corsair Flash Voyager GTX1TB = CMFVYGTX3C-1TB

NOTE: These drives MUST be formatted as exFAT before use.

OWC Envoy Pro Mini

- OWC Envoy Pro Mini 500GB = OWCENVPMCA05
- OWC Envoy Pro Mini 1TB = OWCENVPMCA10

NOTE: OWC drives ship pre-formatted in Apple's APFS format. To be able to be used with the Ki Pro GO Series or Windows PC, they must be re-formatted as ExFAT volumes. This is accomplished on a Mac via Apple's Disk Utility or through the use of the free "OWC Drive Guide" plug-in available for Windows available from OWC. See OWC Drive Formatting for Non-Apple OS Platforms for more information.

Supported SSD Drives (Multi Channel/Redundant Recordings)

AJA PAK Dock Pro

- External dock for use with AJA PAK media.
- All PAK media from rev2 and above are supported, ExFAT format required.

Samsung Portable SSD T5

- Samsung T5 500GB: MU-PA500B
- Samsung T5 1TB: MU-PA1T0B
- Samsung T5 2TB: MU-PA2T0B

Samsung Portable SSD T7

The last letter in the part numbers only indicates the color of the unit.

- Samsung T7 500GB: MU-PC500(T,R or H)
- Samsung T7 1TB: MU-PC1T0(T,R or H)
- Samsung T7 2TB: MU-PC2T0(T,R or H)

Samsung Portable SSD T7 Shield

The last letter in the part numbers only indicates the color of the unit.

- Samsung T7 Shield 1TB: MU-PE1T0 (KR or S)
- Samsung T7 Shield 2TB: MU-PE2T0 (KR or S

Samsung Portable SSD T7 Touch

NOTE: For these units, security MUST be set up before they can be used by the Ki Pro GO Series

The last letter in the part numbers only indicates the color of the unit.

- Samsung T7 Touch 500GB: MU-PC500(K or S)
- Samsung T7 Touch 1TB: MU-PC1T0(K or S)
- Samsung T7 Touch 2TB: MU-PC2T0(K or S)

OWC Envoy Pro Elektron

- Envoy Pro Elektron 1TB = OWCENVPK01
- Envoy Pro Elektron 2TB = OWCENVPK02

NOTE: OWC drives ship pre-formatted in Apple's APFS format. To be able to be used with the Ki Pro GO Series or Windows PC, they must be re-formatted as ExFAT volumes. This is accomplished on a Mac via Apple's Disk Utility or through the use of the free "OWC Drive Guide" plug-in available for Windows available from OWC. See OWC Drive Formatting for Non-Apple OS Platforms for more information.

SanDisk Professional PRO-BLADE SSD Mag

- 1TB PRO-Blade SSD Mag = SDPM1NS-001T-GBAND
- 2TB PRO-Blade SSD Mag = SDPM1NS-002T-GBAND
- 4TB PRO-Blade SSD Mag = SDPM1NS-004T-GBAND

NOTE: SanDisk Professional PRO-BLADE SSD Mags must be installed into a PRO-BLADE TRANSPORT for connection to a Ki Pro GO Series recorder.

G-Tech SSD

NOTE: These drives MUST be formatted as ExFAT before use.

Description	Model Number	SKU	UPC
G-DRIVE mobile SSD 500GB	GDRRUCWWA5001SDB	0G06052	705487206142
G-DRIVE mobile SSD 1TB	GDRRUCWWA10001SDB	0G06053	705487206159
G-DRIVE mobile SSD 2TB	GDRRUCWWA20001SDB	0G06054	705487206166

General Recommendations

The Ki Pro GO Series supports Extended File Allocation Table (exFAT) file systems on USB thumb drives and SSD drives. USB and SSD media can also be formatted as exFAT by the Ki Pro GO Series. AJA recommends that all USB thumb drives and SSD drives should be freshly formatted according to these specifications:

- Master Boot Record (MBR) scheme
- exFAT file system
- No EFI system partition

No EFI Partition

AJA recommends that you delete EFI system partitions that are on your media because they offer no value for the Ki Pro GO Series. Some media come pre-formatted with EFI system partitions that the Ki Pro GO Series does not recognize.

The EFI partition is a FAT system for making a bootable disk. It is part of the globally unique identifier (GUID) partition scheme whenever GUID is chosen during partitioning.

See *"Eliminating the EFI Partition on macOS using Terminal" on page 6* and *"Eliminating the EFI Partition on Windows with the DiskPart Utility" on page 7* for EFI removal procedures on macOS and Windows.

exFAT Preferred over FAT

The Ki Pro GO Series operates best using exFAT formatted media. The Ki Pro GO Series formats media as exFAT internally. While it is possible for the Ki Pro GO Series to use FAT media that has been formatted externally, performance is not guaranteed. FAT file systems also have a maximum file size limit of 4 GB, whereas exFAT file systems do not put any limit on file size.

Supported Formatting of Storage Media

The Ki Pro GO Series is designed to only recognize FAT or exFAT (preferred) volumes for storage media. Attempting to use unsupported volume formatting such as Apple File System (APFS) or Windows NTFS will result in system warnings or improper functionality.

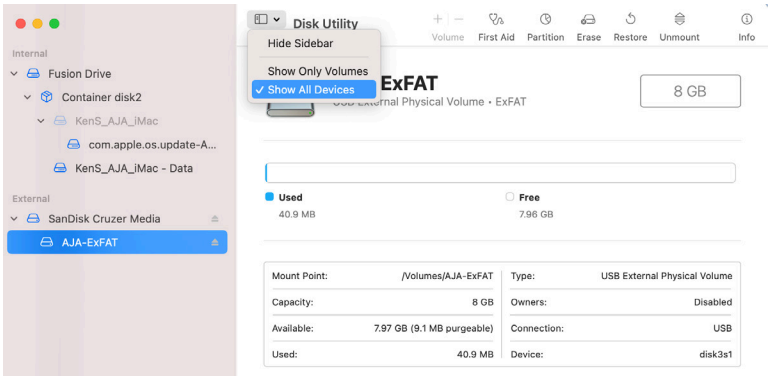
NOTE: When a USB or SSD drive is formatted on a Mac using the Apple File System (APFS), a small FAT volume is also created on the storage device. The Ki Pro GO Series *will correctly ignore the APFS volume, but the FAT volume will be recognized and mounted for recording. As the FAT partition is only 200MB, it will quickly be filled and recordings will fail without any messages to users as to the cause.*

Media Formatting Instructions

Mac Procedure

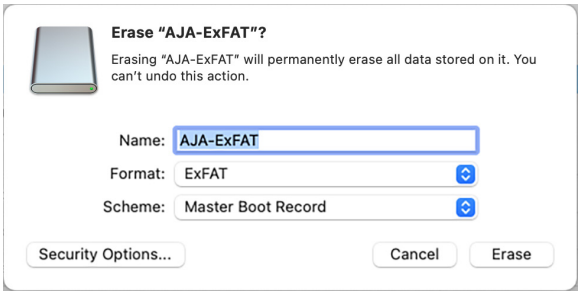
On the Mac, media must be formatted as exFAT with MBR, not GUID.

1. Insert media into your Mac.
2. From Applications, open the Utilities folder.
3. Launch Disk Utility.
4. From the View drop-down control, select Show All Devices.



5. Select the device, then click the Erase button. A window displays with formatting options.

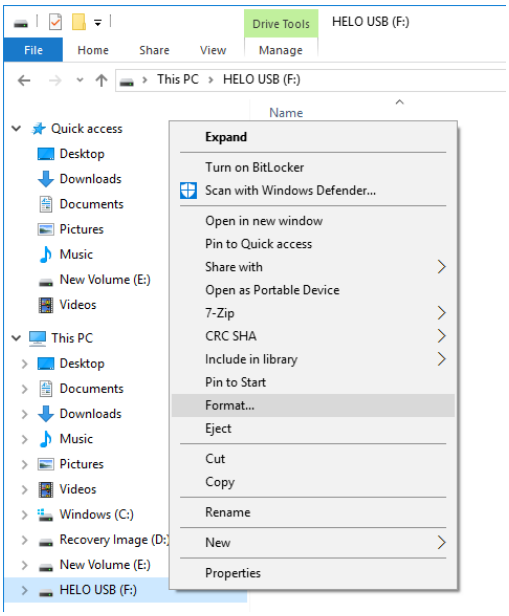
WARNING: ***To avoid losing data, make sure that you identify the correct device that corresponds to the media you intend to format.***



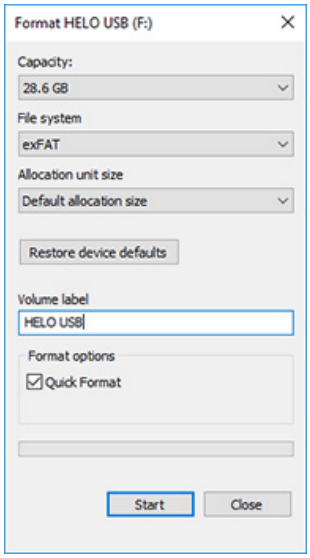
6. Select "ExFAT" format (and Master Boot Record for Scheme if visible), then click Erase. Disk Utility erases the content of the media, and the media will now be formatted as MBR exFAT.
7. Close Disk Utility and eject the media from your Mac. The media is now ready to use with the Ki Pro GO Series.

Windows Procedure

1. Insert media into your Windows machine.
2. From File Explorer, right-click on the volume, and select "Format" from the pop-up menu.



3. From the File system menu, select exFAT.
4. From the Allocation unit size menu, select "Default allocation size."
5. Enter a name for Volume label.
6. Make sure that the Quick Format checkbox is selected.



7. Click Start. A Warning window displays.

WARNING: ***To avoid losing data, make sure that you identify the correct device that corresponds to the media you intend to format.***

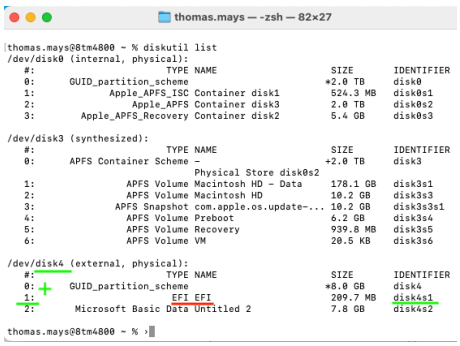
8. If you are certain that you are working with the correct media volume, select OK.
9. A message window displays "Format Complete." Click OK. The media is now ready to use with the Ki Pro GO Series.

Eliminating the EFI Partition on macOS using Terminal

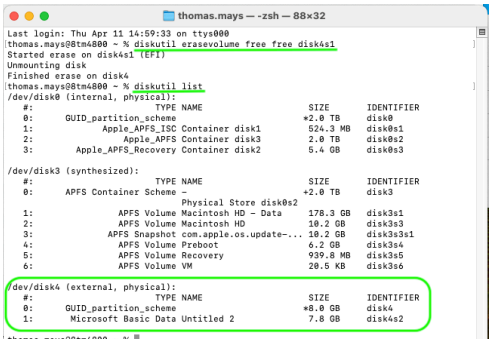
There may be instances in which there is a hidden EFI volume that the standard macOS formatting process described above doesn't eliminate. In those cases, use the macOS Terminal CLI with specified commands.

WARNING: ***Use extreme caution when attempting to delete the EFI volume using Terminal. Selection of the wrong disk or volume for deletion may render your system inoperable. Examples that follow refer to included screenshots but your values will be different.***

1. Insert your USB media into your macOS machine.
2. From the Applications menu, under Utilities select Terminal. Enter ***diskutil list*** then press Return.
3. This will display a list of available storage devices for your system. Identify your USB storage device. In the examples below, the USB device is listed as *disk4*.
4. If your USB media is improperly formatted, there will be an entry for EFI. This volume, in this example indicated by the number 1, must be removed.



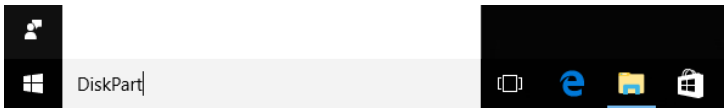
5. In Terminal, prepare to erase the EFI volume by specifying the disk/partition to remove. For the screenshot above (see underlined examples), you would enter the following ***diskutil eraseVolume free free disk4s1*** then press Return.
6. Allow the process to complete. Run ***diskutil list*** again to verify that the EFI volume is no longer present.



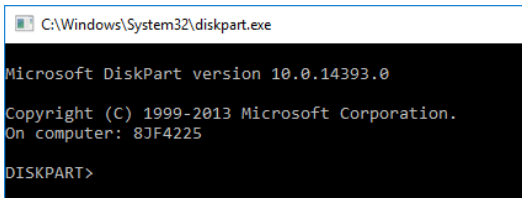
Eliminating the EFI Partition on Windows with the DiskPart Utility

There may be instances in which there is a hidden partition that the standard Windows formatting process described above doesn't eliminate. In those cases, use the Windows "DiskPart" utility.

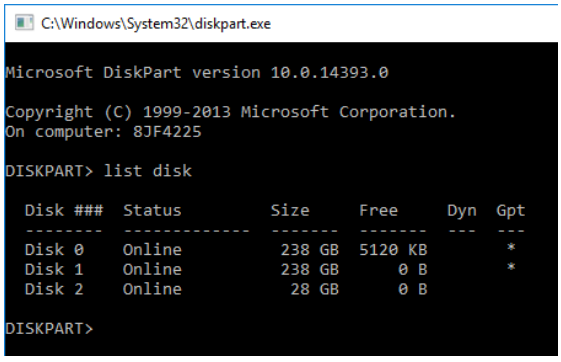
1. Insert media into your Windows machine.
2. From the Search Windows field, enter ***DiskPart*** then press Enter.



3. The DiskPart run command prompt displays.
4. Click on the prompt to launch DiskPart. A message displays asking if you want to allow DiskPart to make changes to your device.
5. Select Yes. The DiskPart console window opens.

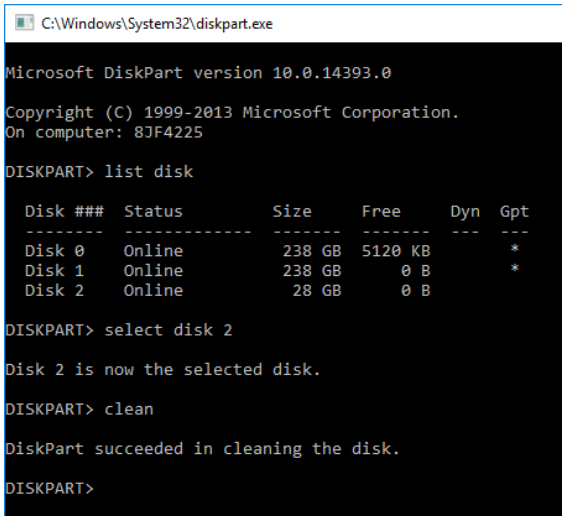


6. From the DISKPART prompt enter ***list disk*** then press Enter. The disks on your machine are listed.



WARNING: ***To avoid losing data, make sure that you identify the correct disk that corresponds to the media you intend to format. A common scenario is that Disk 0 and Disk 1 are internal disks. Carefully note the size of each disk to determine which disk is the media you want to format. In this example, we are formatting Disk 2.***

7. From the DISKPART prompt, enter ***select disk 2*** then press Enter. The message "Disk 2 is now the selected disk" displays.
8. From the prompt, enter ***clean*** then press Enter. The message "DiskPart succeeded in cleaning the disk" displays.



NOTE: In Windows, you cannot format an "unallocated" clean disk immediately to an exFAT format. You must first format the disk as FAT32 before reformatting it for exFAT. Use the following procedures to do this.

Format for FAT32

1. Right-click on the volume from File Explorer and select **Format**. The Format Drive menu displays.
2. Select the file system **FAT32**. For Allocation unit size, select **Default Allocation Size** and click Start. A Warning message displays.
3. Click OK. The message "Format Complete" displays.
4. Click OK.

Format for exFAT

1. Right-click on the volume from File Explorer and select **Format**. The Format Drive menu displays.
2. Select the file system **exFAT**. For Allocation unit size, select **Default Allocation Size** and click Start. A Warning message displays.
3. Click OK. The message "Format Complete" displays.
4. Click OK.

NFS Servers

When using NFS servers, AJA recommends ensuring the server is configured to support an NFS block size limit of 1 MB (1,048,576 bytes). Some servers may have a setting to configure the block size manually, such as NetApp ONTAP 9, but it is typically calculated automatically based on the amount of physical RAM in the

server. In these cases, which include modern Linux kernels, it may be necessary to ensure there is adequate physical RAM in the server. If the server does not have adequate RAM, the NFS server will automatically select a smaller block size limit, which is found to result in insufficient performance.

On Linux, 16 GB of RAM should be sufficient to ensure a 1 MB block size.

AJA has found that the following Linux distributions have NFS servers with the maximum block size set to 1 MB when provisioned with 16 GB of RAM or greater:

- CentOS 7
- Ubuntu 12.04 LTS
- Ubuntu 14.04 LTS
- Ubuntu 16.04 LTS
- Ubuntu 18.04 LTS
- Ubuntu 20.04 LTS
- Ubuntu 22.04 LTS

Some older NFS servers support only smaller block sizes. This may result in performance issues with the Ki Pro GO Series. For example, NFS servers running on CentOS 6 may have a maximum block size of 64 KB, potentially resulting in aborted recordings due to performance issues.

Older versions of NFS are both slower at writing and have a smaller maximum block size. NFSv2 has a maximum block size of only 8 KB (8,192 bytes). AJA recommends using NFSv3 or higher.

Older Linux-based servers may have small hard-coded maximum block sizes or may not be configured to support NFSv3. In these cases, it will be necessary to recompile the kernel, or update to a more modern kernel that supports both a 1 MB maximum block size, and NFSv3.

Network Attached Storage

The speed of the Ethernet connection on Network Attached Storage does not reflect the actual recording capacity of the media in it. Network Attached Storage with 1 Gbps Ethernet connections may have much lower read/write speeds.

Contacting AJA Support or Sales

Please have all pertinent information at hand prior to contacting AJA support or sales.

Support Telephone:	+1.530.271.3190
Support Website:	https://www.aja.com/support/contact
Support Email:	support@aja.com
Sales Email:	sales@aja.com
Shipping Address:	AJA Video Systems 180 Litton Drive Grass Valley, CA 95945, USA