

Streamline Your HDV and DV Editing Workflows With Sony's File Recording Solutions

Product Outline

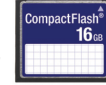
HVR-DR60 Hard Disk Recording Unit

The HVR-DR60 is an optional hard disk recording unit for Sony's professional HDV™ and DVCAM™ camcorders. Via a simple i.LINK cable connection, the HVR-DR60 can record HDV, DVCAM or DV streams from the camcorder and store them as video files. The internal hard disk drive (HDD) offers a large capacity of 60 GB, which translates into a long recording time of approximately 4.5 hours (270 minutes) for HDV, DVCAM and DV formats. Images can even be recorded to HDD and tape simultaneously. This hybrid recording operation ensures quick non-linear editing (NLE) and secure tape archiving.



HVR-MRC1K Memory Recording Unit (supplied with the HVR-Z7 and HVR-S270)

Supplied as standard with the HVR-Z7 and HVR-S270 camcorders, the Memory Recording Unit can be connected directly to these camcorders without cabling. The widely available standard CompactFlash® (CF) card*1 is used for HDV, DVCAM and DV file recording, with a 16 GB card providing approximately 72 minutes and an 8 GB card providing approximately 36 minutes of recording time. The Memory Recording Unit also offers a hybrid recording operation, as well as the HVR-DR60.



Memory Recording Unit (the CF card is not supplied)

*1 At least 133x speed and 2-GB capacity is required. The following CF cards were tested for use in the Memory Recording Unit. (As of July, 2009)

SanDisk Extreme III Series 8GB/16GB Extreme IV Series 8GB/16GB	Lexar Media Lexar Professional Series 8GB Lexar Professional UDMA Series 8GB/16GB
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This does not mean that Sony will guarantee the usage of all CF cards provided by the manufacturers mentioned above. For specified information and latest CF products, please contact the CF card manufacturer. With commonly-used CF cards, there may be rare occasions when data will not be recorded correctly depending on the products. If you first use a CF card, it is advisable to test it in advance in the following way.

- 1) Format the CF card in the Memory Recording Unit.
- 2) Shoot more than 20 pieces of footage of about 10 seconds each in HDV recording mode.
- 3) Import the files into your nonlinear editing software to check if it can be edited properly.

File Type

For HDV1080i recording

■ M2T file

This is a file created by the HVR-DR60 or Memory Recording Unit. It has the file extension ".M2T". The video, audio and auxiliary data are contained in an MPEG2-TS file format. The file conforms to the HDV1080i specification in which MPEG-2 MP@H-14 is used for its video codec, and either MPEG-1 Audio Layer2 (for 2 ch) or MPEG-2 Audio Layer2 (for 4 ch) is used for the audio codec.

For DVCAM and DV recording

There are two options for DVCAM/DV file recording:

■ AVI file (DV type1)

This file has the extension ".AVI" and can be played by the standard movie player software of both Windows® and Macintosh® operating systems. Using this file type for DVCAM/DV recording is useful because it is compatible with many types of application software.

■ RawDV file

You can also choose this file type for DVCAM/DV recording, if needed. It has the file extension ".DV" and contains raw DVCAM or DV data. This file type can be played back via the QuickTime Player on the Macintosh operating system. A compatible player may be needed for playback on the Windows operating system.

FAT32 File System

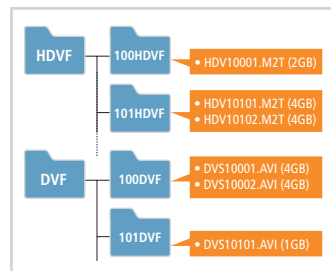
The HVR-DR60 and Memory Recording Unit use FAT32 for their file system. Thanks to FAT32, your Windows or Macintosh computer can recognize the recording media as an external drive without having to install any driver software. The maximum recording file size allowed with FAT32 is approximately 4 GB, which provides a recording time of around 20 minutes. Should your recording exceed this, the subsequent footage will be recorded as a separate new file. However, the Sony Recording Unit Utility software and compatible NLE software can connect the divided M2T files so they can be edited precisely in your NLE as a single file without any pauses.

File Name and Folder Structure

HVR-DR60

The HVR-DR60 creates a folder (e.g., "100HDVF") when recording begins and stores recorded video within it as a movie file (e.g., "HDV10001.M2T").

Any subsequent files divided FAT32, are stored in the same folder (e.g., "HDV10002.M2T"). When a new recording is made, a new folder (e.g., "101HDVF") is created and a new file (e.g., "101HDVF") is stored within it.



The folder structure and file name in the HVR-DR60

Memory Recording Unit (HVR-MRC1K)

In the Memory Recording Unit, all files are stored in one folder.

Each file is named in line with the following format:

xx_nnnn_YYYY-MM-DD_HHMMSS.extension

(e.g., 01_0001_2007-10-01_134510.M2T)

xx:

This is a two-digit number (00 - 99) that you can set via the "CAM No." menu of the Memory Recording Unit. This prefix number is useful when multiple CF cards are used.

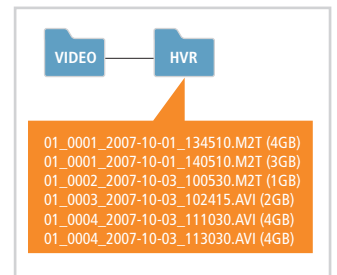
nnnn:

This is a sequential clip number. It is incremented by one as each new recording begins.

YYYY-MM-DD_HHMMSS:

These numbers refer to the date and time of the recording (which are derived from the date and time data settings of the camcorder)*2.

Any subsequent files, divided by FAT32, will have new time data, but retain the same clip number.



The folder structure and file name created by the Memory Recording Unit

*2 The date and time digits of the file name will be listed as "0000-00-00_000000" if the i.LINK signal comes from any of the following devices:

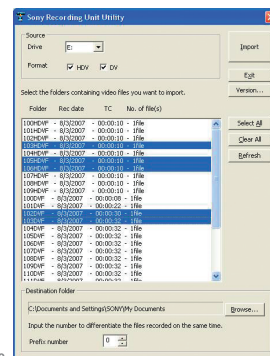
- A camcorder that doesn't have date and time setting
- A camcorder or VCR that is playing back a recorded tape which doesn't contain data and time data
- Other devices that don't output date and time data via an i.LINK stream

Sony Recording Unit Utility Software

This software can be downloaded from Sony's website free of charge. It allows you to transfer the files on your HVR-DR60 and CF card to your Windows-based PC with ease. It can connect M2T files, that were divided by FAT32, back together*, and it will rename HVR-DR60 files to the same style as those from a CF card during transfer.

For further information about the software, please visit the Sony website listed in this document.

* The destination folder needs to be formatted in the NTFS file system.



Sony Recording Unit Utility software



HVR-DR60 computer mode

Before importing, please ensure that your HVR-DR60 or CF card reader is connected to your computer correctly. The HVR-DR60 must be active in the "computer mode". Then please check that these external drives are recognized by the computer.

Windows®-based NLE software

■ Import from the HVR-DR60

HVR-DR60 compatible NLE software
Some NLE software include a dedicated import function for the HVR-DR60, which will gather the distributed stored files in the HVR-DR60 and transfer them to the editing project directly and easily. Grass Valley EDIUS® Pro4.5 and Sony Creative Software Vegas7.0e, plus more recent versions, include this function as standard. For further information, please refer to your software's user manual.

Other NLE software on Windows
Most Windows-based NLE software can edit M2T and DVCAM/DV files, even if they don't have a dedicated import function. For this type of software, it is recommended that you transfer the files in the HVR-DR60 to your computer's HDD by using the Sony Recording Unit Utility software. Then import the transferred files to the editing project.

■ Import from the CF card of the Memory Recording Unit

Sony Recording Unit Utility software supports file transfer not only from the HVR-DR60, but also from a CF card. After the transfer, simply import the transferred files to your NLE project and start editing. For detailed operating instructions of your chosen editing software, please consult your local software reseller.

Final Cut Pro® (Macintosh®)

1. Install the plug-in software

- M2T and DVCAM/DV files stored on the HVR-DR60 and the CF card of the Memory Recording Unit can be imported correctly to your Final Cut Pro project by installing the Sony Recording Unit Plug-in software. This software allows the video and audio stored on these devices to be transferred into Final Cut Pro using the Log and Transfer feature. Please ensure that your version of Final Cut Pro is upgraded to 6.0.2 or higher before installing this plug-in software.
- The plug-in software can be downloaded from Sony's website, as listed in this document.
- For detailed operating instructions of Final Cut Pro and its Log and Transfer window, please ask your local Apple reseller or refer to the "Using the Log and Transfer Window" section of the HD and Broadcast Formats document. This document is available under Final Cut Pro's Help menu.

2. Use the Log and Transfer window

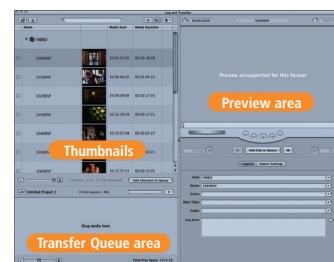
- Choose Final Cut Pro > System Settings, then click the Scratch Disk tab.
- Select a scratch disk or folder to which you want to transfer your media
- Choose File > Log and Transfer.
- The contents and thumbnails of the mounted devices will appear automatically in the Log and Transfer window. If the file structure of the device has been copied into a different location, you can use the "Add Folder" button on the upper left corner. More information on using the

Add Folder button can be found in the Final Cut Pro documentation.

- Please select the files that you want to transfer, then press the "Add Selection to Queue" button or drag and drop them onto the Transfer Queue area.

Note: the preview area is not available for the M2T file transfer.

- The transfer will start and the files will appear in the bin window of the editing project. The transferred files maintain their original quality and their original time code data in the QuickTime® format. The FAT32 divided files are merged during transfer.
- For files recorded in 24A scan mode on the HVR-S270/Z7/V1 (60i models), the Log and Transfer window automatically removes the 2-3 cadences and transcodes the HDV data to the Apple ProRes 422 codec during transfer, in order to edit the footage in the 23.98p timeline. This takes longer than the normal transfer of 60i recordings. For details of the Apple ProRes 422 codec, please refer to the latest version of the Final Cut Pro user manual.



Log and Transfer window

How to Import Recorded Files to Your NLE Project From the HVR-DR60 and the CF Card

Related Sony website

For further information and the latest version of software, please visit:

Japan
<http://www.sony.co.jp/HDV>
USA
<http://www.sony.com/hdv>
Latin America
<http://www.sonypro-latin.com/hdv>

Canada
<http://www.sony.ca/hdv>
Europe, Middle East, Africa
<http://www.sonybiz.net/hdv>
Pacific Asia
<http://www.sony-asia.com/microsite/professional/hdv/>

Korea
<http://bp.sony.co.kr/hdv/>
China
<http://pro.sony.com.cn/hdv>

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