

**AVID Guide for
AMA Workflow**

AVCHD

Media Composer 6.0
Symphony 6.0
NewsCutter 10.0

Avid Editing Systems

AMA for AVCHD

Features in Media Composer 6,
Symphony 6, NewsCutter 10 and later.

ACKNOWLEDGEMENTS

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CORRECTIONS AND SUGGESTIONS

Feedback, advice and corrections are always appreciated.
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Be sure to visit
WWW.AVID.COM/AMA

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AVCHD Introduction

AMA (Avid Media Access) is the Avid architecture for linking to file based media rather than ingesting it, allowing direct access to material without a transcode, capture, or import prior to editorial. This document is specifically about linking to AVCHD files (from camera systems such as NX CAM from Sony, AVCCAM from Panasonic and VIXIA from Canon) in your Avid Editing Environment.

This is the *second* Workflow guide you should consult. AMA is described and its workflows and features explored in the *AMA Master Guide*. This current document assumes you have read that guide, which contains most of the detail about how to perform AMA operations. The guide you are reading now covers the specifics of AVCHD within the AMA architecture.

OTHER AMA RESOURCES

You have many other resources for AMA information. Apart from the AMA Master Guide and this document, you may consult:

- **AVCHD PLUGIN GUIDE**
The PLUGIN, which you must install, has an accompanying guide with details for its use. Available from www.avid.com/AMA
- **Avid Editing Guide for your Editing System**
This came with your editing system, or can be downloaded from the Avid Knowledgebase, www.avid.com/support
- **Avid Editing Application HELP**
This is, in effect, the Avid Application manual online at your editing computer. The HELP contains all the information in the official manual, and is easily accessible to answer your questions.

WHO AM I?

I am Paul Sampson, a freelance trainer, an Avid Certified Instructor (ACI) and an Avid Certified Support Rep (ACSR) living in Canada. I have experience with many clients, different environments and a variety of hardware. Every week I am at a different facility assisting with training and workflow within the Avid environment.

AVCHD AVID AVCHD Support

AVCHD is not natively supported by the Avid Editing Systems. AVCHD is played back using an external Codec. This is added to your system by installing the AVCHD AMA Plugin, available from www.avid.com/AMA. But you know that, because you read the AMA Master Guide, right?

You may link to AVCHD material using `Link To AMA Volume`, and also link to individual files using `Link To AMA File(s)...` You may also Import AVCHD material.

You may not Consolidate (Copy) AVCHD content into your Avid Editing system. If you try, you will get an error referring to 'foreign compression types'. AVCHD is not a compression type which can be stored in the Avid MediaFiles folder, so it cannot be copied there. It is not an Avid native codec. Render to AVCHD format is also not allowed, for the same reason.

You can however Transcode AVCHD content into your Editing System, and in some cases, as you will see, you should.

AVCHD Format

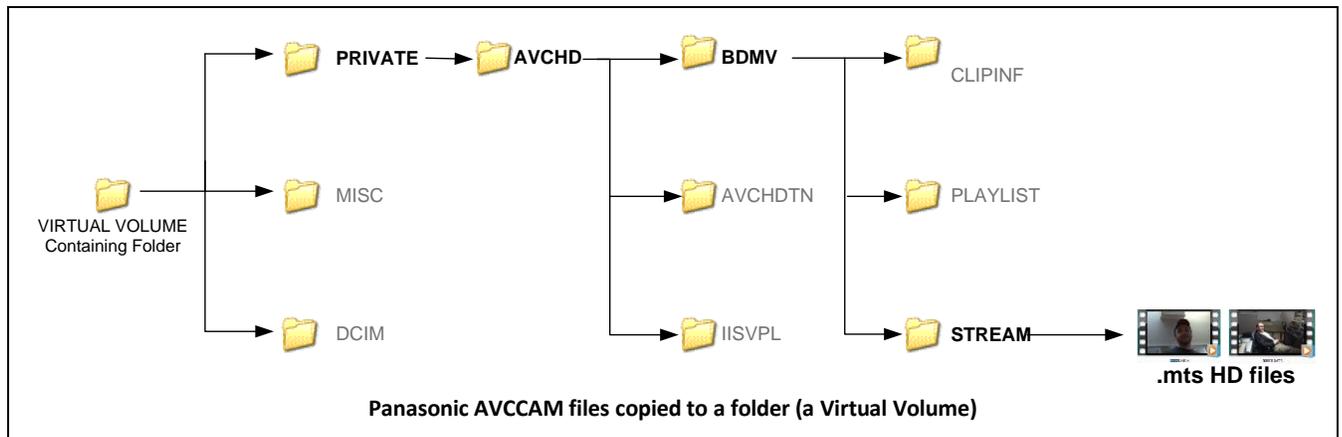
Professional Devices

AVCHD is a file based codec only – there are no AVCHD tapes. The HD files are of type `.MTS`, designed to use half the bitrate of MPEG 2 codecs and deliver similar quality. Recordings could arrive at your door as 1080i, 1080p or 720p at various frame rates.

Some camera systems also record SD files at the same time. In these cases the SD files are `.MPG` - MPEG-4 AVC/H.264. Avid editing systems will **not** link to or import the SD video from these cameras! These files cannot be part of a Proxy workflow. They may also be difficult to play in standard media players because of their uniqueness.

For the higher end cameras, the file structure is like a Blu-ray disc. For these devices, the typical path to the HD media (`.mts` files) would be:

PRIVATE > AVCHD > BDMV > STREAM > (MTS FILES HERE)



You need to know this location to perform a `Link to AMA File(s)...`

`MTS` files in this format will not exceed 2 GB. Long recordings will automatically span multiple files if the camera supports spanned clips. If you have a long recording (exceeding about 10 minutes using AVCHD 24Mbps 1920x1080/60i) the recording will break into separate files. AMA will link to spanned clips if all recordings are online at the same time. If you were to Import the files instead, you would need to edit together multiple files to recreate the full recording.

AVCHD Cameras

AVCHD stands for *Advanced Video Coding High Definition* and is based on the MPEG-4 AVC/H.264 standard. This is a format jointly developed by Sony and Panasonic to support their line of Prosumer video gear. Current Camera suppliers include Sony, Panasonic, Canon and JVC.

This equipment offers very good quality at a reasonable price, but some lack the options available in more expensive Broadcast formats and form factors. The cameras range from small, consumer style Handycams, to full film style units with interchangeable lenses and film format features.

The recording medium depends on your device, but alternatives include internal camera memory, SD/SDHC/SDXC Memory Cards and various Sony Memory sticks. The devices connect to your computer via USB.



Sony NEXFS100UK
NXCAM



Panasonic AG-AF100
AVCCAM



Canon XA-10

AVCHD What Cameras Work With This Plugin?

It is not possible to test all devices which record AVCHD files. You can be sure all cameras which carry the logos for Panasonic AVCCAM and Sony NXCAM will be compatible. From Canon the XA-10 is compatible.

The AVCHD AMA Plugin will work for many other devices as well. In theory, any device carrying the AVCHD logo should produce compatible files and a compatible folder structure if their recordings are compliant with the specification. These devices may allow you to use both `AMA Link To Volume...` and `AMA Link To File(s) ..`

Sometimes you will find the files are compliant, but the device may not show them in a proper AVCHD file folder structure. In this case `AMA Link To Volume` will not work. You may still be able to use the files with `AMA Link To File(s) ..` to access the recordings.



CONSUMER DEVICES

Many devices record AVCHD files, including many digital still cameras. Whether you can link to them or not depends on the manufacturer. If their files are truly AVCHD compliant, then you should be able to link to them.



`Link To AMA Volume...` will not always work. The files on these devices are stored in various folders and may not have all the support files that are required to make it a volume. In this case try `AMA Link to File(s)...` instead.

What you see can also vary by OS. On a camera from a major manufacturer, when plugged into the PC movies are displayed inside a simple folder with the date of the recording. No PRIVATE folder or Blu-ray like folder structures are present. While you cannot perform a link to the Volume, `Link To AMA File(s)...` may work.

When the same camera is plugged into a MAC, three volumes mount, and in one the AVCHD folder structure is seen. On the MAC this same camera was capable of `AMA Link to Volume...` as well as `AMA Link to File(s)...`

SPECIAL PC CONSIDERATION

On the PC, we recommend you *DO NOT link to AVCHD files* on those pieces of equipment which mount as devices rather than hard drives. Look in My Computer and see if you see the icon for a hard drive or the icon for a consumer device (like a camera).

If the device links as a consumer device rather than as a hard drive, selecting `FILE > AMA Link to File(s)...` will cause the files to be automatically transferred into a hidden user folder on the PC. Only after this copy is complete is the link made to the *copied* files, not to the file on the original device. If the device is unplugged, the media will remain linked for a short period of time. This means if you link to 10 files on a consumer device on the PC, the link will be delayed while these 10 files are transferred into a hidden system folder on the PC first.

If your device did mount as a consumer device instead of as a hard drive, there is a simple solution. If they will be copied to your PC anyway, better for you to copy the `.MTS` files off the device to a folder of your choice, and then link to them there.

AVCHD Copying AVCHD Files From A Device

When copying recordings from your record media, copy all the files to a hard drive. Copy ALL files and folders from the camera, even the ones you may think you can do without. Place the files from each device/card/stick in a folder separate from all other recordings. This creates what we call a Virtual Volume.

Do not place any recording at the root of the hard drive. If you do, this will cause the recording to mount automatically every time the drive is connected to the computer. Since most drives will contain multiple Virtual Volumes, this is not usually the desired behavior.

Organize your folders in a tree structure, so that by linking to various branches of the tree you can link to one or to multiple volumes. Remember your Avid editing system will find volumes two folders down from the one you select for the link.

When copying your media files, you need to be aware that some formats have hidden files or folders in their paths. The recording root directory for NXCAM contains a hidden folder `AVF_INFO`. Hidden folders also exist for other formats, like CANON. To be safe, make all copies of original media with `SHOW HIDDEN FILES/FOLDERS/DRIVES` turned ON.

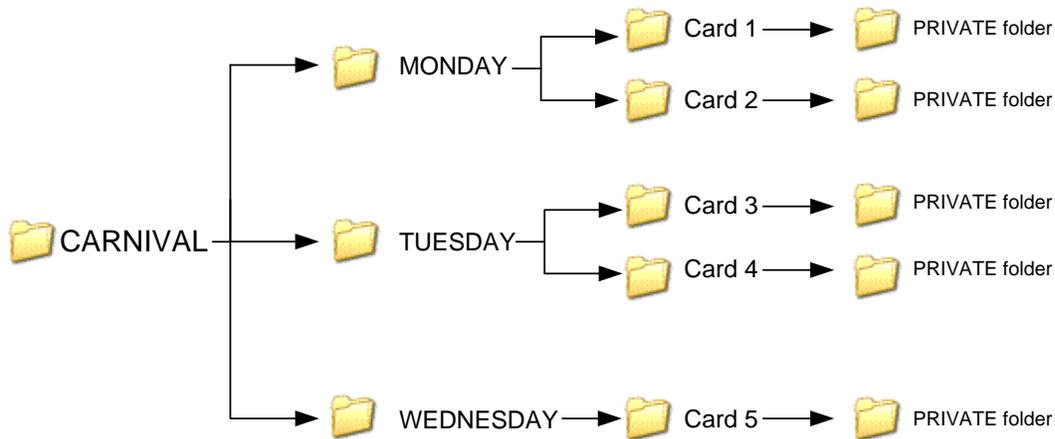
AVCHD Performance

This is a codec designed for field acquisition, where the priorities are to record a high quality picture in a small amount of storage space. As a good field acquisition codec, it records a high quality but a highly compressed image. The compression is so compact that it requires a lot of computing power to play AVCHD back.

You may find that for simple editing you may remain AMA linked and perform basic edits. If your editing is more demanding, involving multiple layers and lots of edits, you are advised to Transcode the AVCHD video into an AVID Native codec. You should consider an Avid DNxHD codec for High Definition recordings.

AVCHD What Folder to Link To

When performing a `Link to AMA Volume` with AVCHD, it is possible to choose the `PRIVATE` folder at the target for the link. If you have copied your media to a media drive, you may link as many as three folders UP from the `PRIVATE` folder for better organization. Avid suggests you never place the `PRIVATE` folder directly at the root of the media drive itself. This might cause that Virtual Volume to unintentionally mount when the Editing system sees the drive.



In the example above, the preferred link point would be the `CARNIVAL` folder if you want to mount five cards at once, or link to the `MONDAY` folder to link to the two Monday cards, or link to the `CARD 1` folder if that is the only card you wish to mount.

AVCHD Audio Recording

Audio for AVCHD is recorded most commonly as Stereo Dolby AC3. On some cameras stereo uncompressed 16 bit LPCM (Linear pulse-code modulation) is available. There are two audio considerations.

Editing performance will be better if you record LPCM audio. This audio is uncompressed and easier to process. LPCM audio recording is only an option on the more expensive camera systems, and then only when recording at their higher end formats and bit rates. If it is an option, LPCM is a better choice for performance.

The very first time you link to a file using Dolby AC-3 within the Avid Editing System, the Dolby AC3 codec must be licensed for the Avid Editing Application. If you are connected to the Internet this is automatic and happens in the background. If you are not, a dialogue will appear to lead you through the process of licensing the codec. This is not an error and there is no charge.

AVCHD Production Support

SCREENING on a PC

Most **Windows 7** versions are able to play AVCHD video natively having files with extensions **M2TS**, **MTS** and **M2T** pre-registered in the system. Windows 7 Starter Edition does not. Windows Explorer is able to create thumbnails for each clip. If you are using a Windows version which does not support playback of AVCHD files consider:

ffdshow is an Open Source collection of codecs, including an AVCHD decoder. It is available for free from

<http://sourceforge.net/projects/ffdshow-tryout/>

CoreAVC is an H.264 decoder for Windows, which can decode AVCHD and a variety of other H.264 formats. It is available for about \$12.95 at

<http://corecodec.com/products/coreavc/>

VLC Media Player will also play AVCHD files. It is available for free from

<http://www.videolan.org/vlc/>

SCREENING ON A MAC

The MAC will not play .MTS files natively. Consider the following free software to make playback possible:

VLC Media Player, available for free from <http://www.videolan.org/vlc/>

PRODUCTION SOFTWARE SUPPORT

SONY CMU (Content Management Utility) is a Windows software application for transferring to local hard drive storage, and for previewing the recordings either on the camera or the copy on the hard drive. You can use the CMU to:

- Transfer clips from camera or a memory card to local hard disk storage
- Use the CMU to browse and select the desired clips, which could then be imported into the Avid bin. Screening in CMU is more efficient than using the built in Windows player.

CMU changes the file extension to **.m2ts** when making copies. It will also join any recordings which contain spanned 2GB clips into a single file of the type **.m2ts**.

This software is available from the Sony NXCAM Micro Site (see below) and *requires a connected NXCAM device to install!*

AVCHD References

Sony Microsite	http://pro.sony.com/bbsc/ssr/micro-nxcamsite/
Panasonic Microsite	http://www.panasonic.com/business/provideo/AVCCAM-solid-state-camcorder.asp
AVCHD Organization	http://www.avchd-info.org/
VIMIO Samples Site	http://vimeo.com/groups/nxcam
Wikipedia	http://en.wikipedia.org/wiki/AVCHD#NXCAM