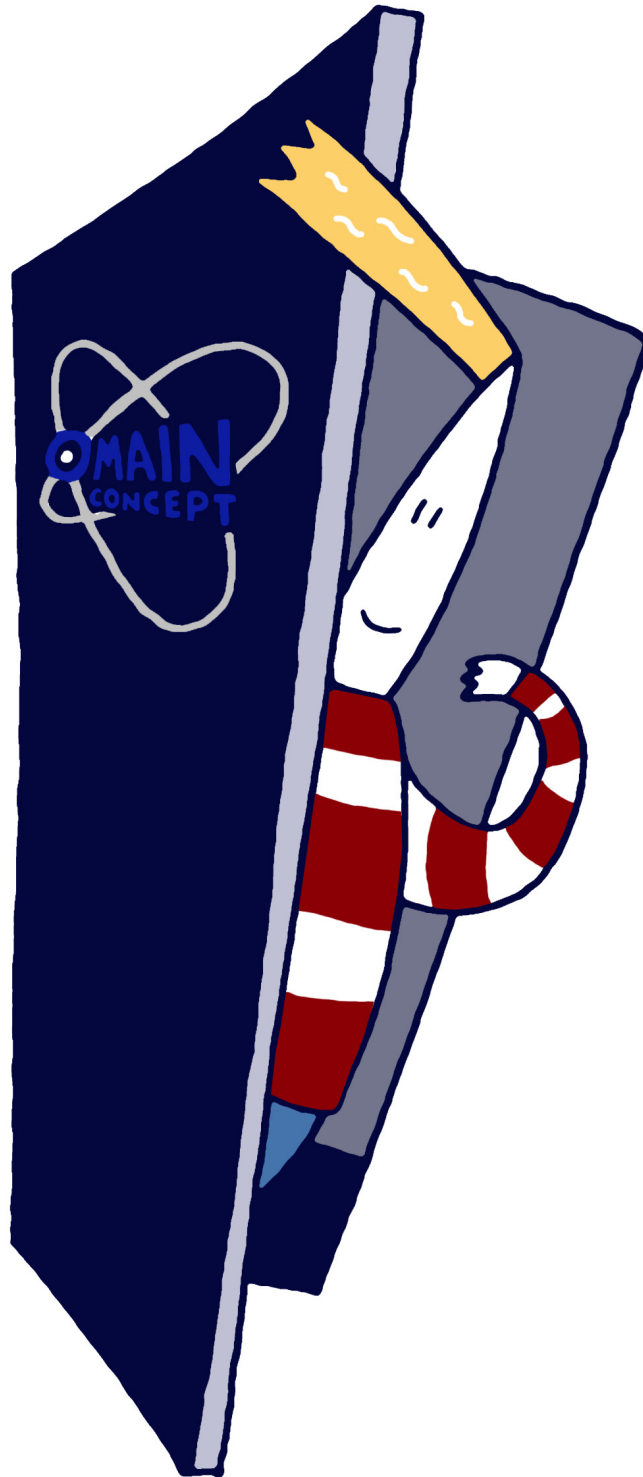


Welcome to the MainConcept AVCHD Transcoder



MainConcept AVCHD Transcoder v2.1

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Dolby Digital codec manufactured under license from Dolby Laboratories.

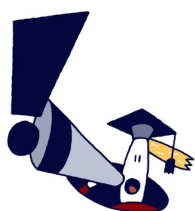
Dolby and the double-D symbol are trademarks of Dolby Laboratories.

Edition: November 28, 2008

Introduction

Congratulations!

The MainConcept AVCHD Transcoder application enables you to transcode the AVCHD files into P2-based DVCPRO HD (also known as DVCPRO100) or standard definition DV AVI. The DVCPRO output from this application is fully compliant with the SMPTE 370M standard and the Panasonic P2 file format specification. The SD DV output is compliant with the IEC-61834 standard and the OpenDML AVI file format.



Please note that this application will only transcode footage that has been shot with a Panasonic AVCHD camera. Material from other manufacturer's devices cannot be transcoded.

Transcoding to SD DV is only possible from footage that has been shot in 1080 format.

The AVCHD Transcoder has a simple GUI and is easy to use. This manual is designed to get you up and running quickly.

If you want more information about the MainConcept Products, visit our website at www.mainconcept.com.

And now we wish you a lot of fun working with our MainConcept AVCHD Transcoder, and of course, with reading this manual.

What's new?

Version 1.2:

- Supports combination of spanned clips to a continuous output clip.
- Fixes a compatibility issue for the transcoded clips' metadata with Panasonic 'P2 Content Management Software'.

Version 2.0:

- Supports newly developed Panasonic AVCHD PH mode including 720p format and AVCHD metadata of AG-HMC150 camera.
- Improved transfer speed.

Version 2.1:

- Support for transcoding of 1080 AVCHD to standard definition DV AVI.

Getting Started

System Requirements

AVCHD to DVCPRO transcoding is very resource-intensive. To achieve acceptable speeds, we recommend at least these minimum specifications:

Operating system: Microsoft® Windows® XP or Windows® Vista

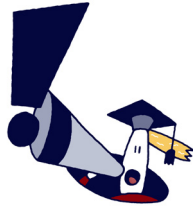
Processor: Intel® Pentium® 4 processor 3.06 GHz or faster with Hyper Threading Technology. A Dual Core or higher CPU is recommended.

RAM: 1 GB or more (2 GBs recommended)

The MainConcept AVCHD Transcoder will work on many systems not meeting these specifications, although rendering speed will be slower.

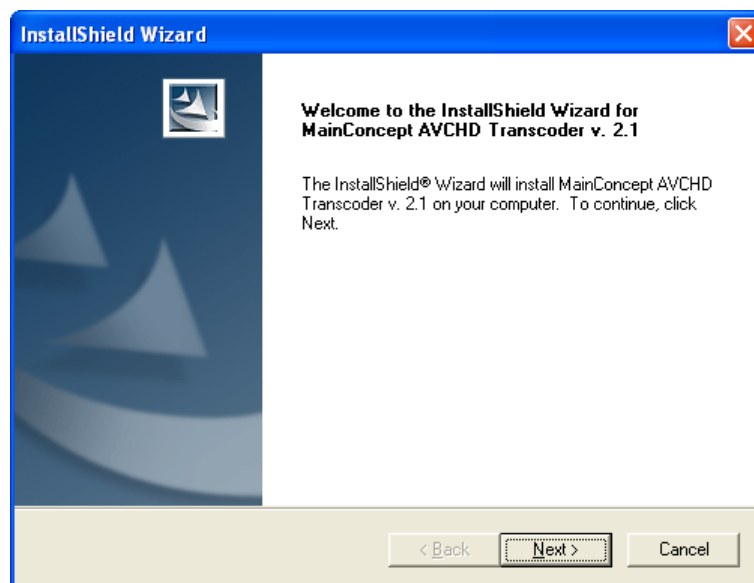
Installation

If you received the MainConcept AVCHD Transcoder on a CD, follow the included installation instructions. If you downloaded it, follow these steps:



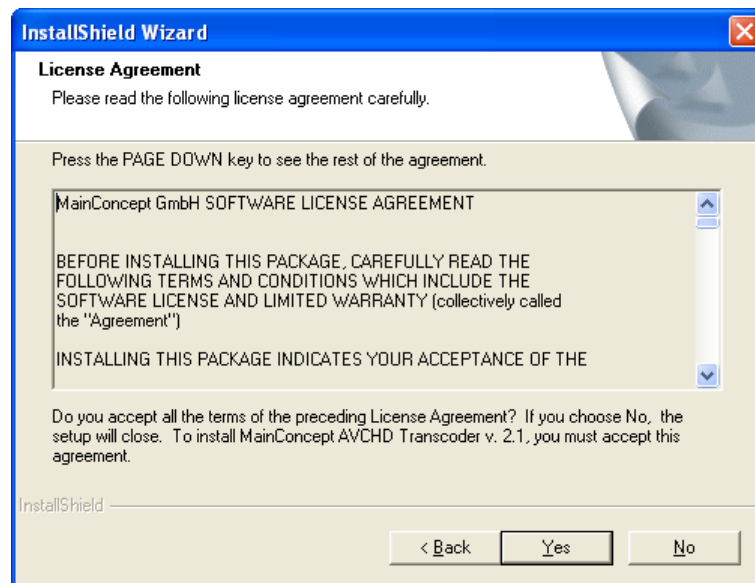
Before you install a new version of the Transcoder, please uninstall any previously installed version of the application. **Open Control Panel** of your Windows operating system, double-click **Add or Remove Programs** and locate and select **MainConcept AVCHD to DVC PRO Transcoder** from the list of installed programs. Press the **Change/Remove** button and follow the instructions on the screen, in order to remove the application. On Windows Vista, if the following warning “*Windows needs your permission to continue*” appears, press **Continue** button.

- 1 Double-click on the **Setup** file. A progress indicator will appear. It may take a few moments until the installation process begins. Then the **Welcome** dialog appear on the screen. Click **Next** to proceed.



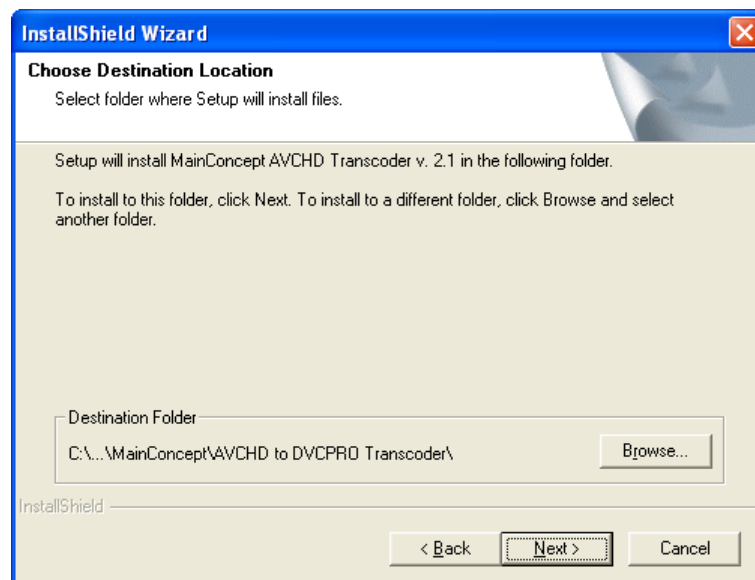
On Windows Vista, if the following warning “*An unidentified program wants access to your computer*” appears on the screen, press the **Allow** button.

- 2 When the license agreement appears on the screen, review it carefully, then click **Yes** if you agree to the terms and you want to continue the installation.



If you do not click **Yes**, the installation process will be aborted.

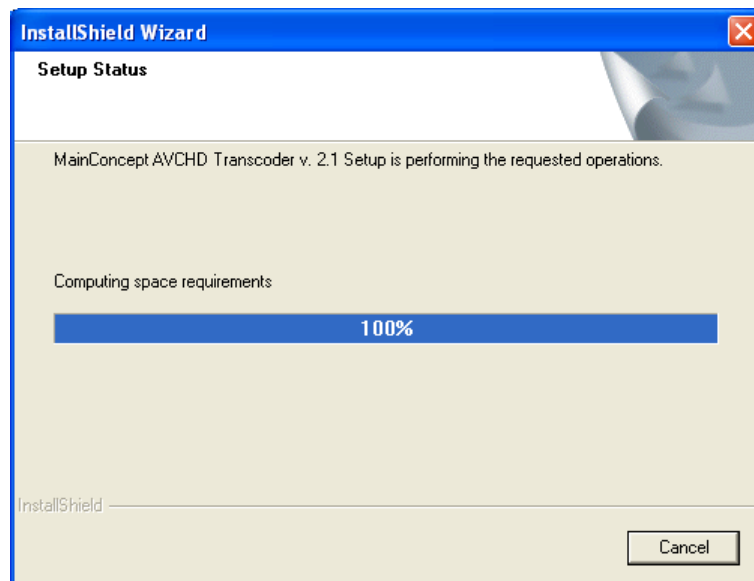
- 3 In the following dialog box, you can choose the location where the software files will be stored on your computer.



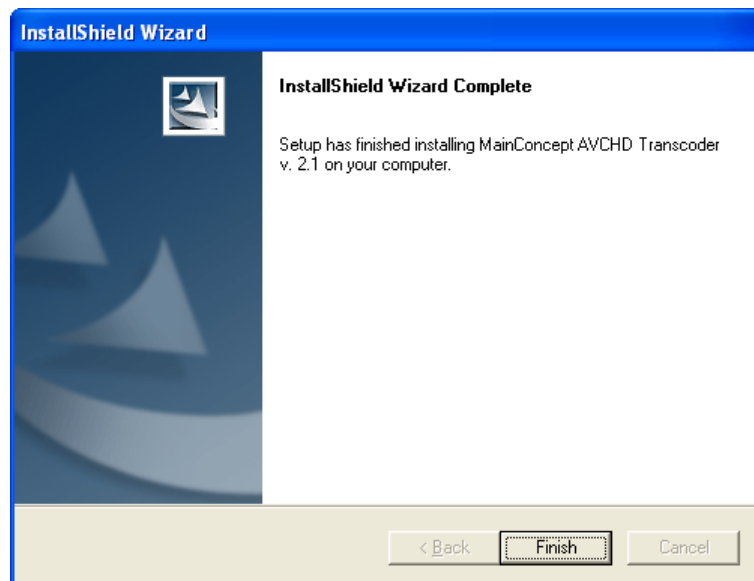
You can accept the default settings or click the **Browse...** button and select a different destination directory. Click **Next** to proceed.

You can accept the default settings, enter a new folder name or select any existing folder. Then click **Next**.

- 4 Now the installation starts. An indicator will show the installation process.

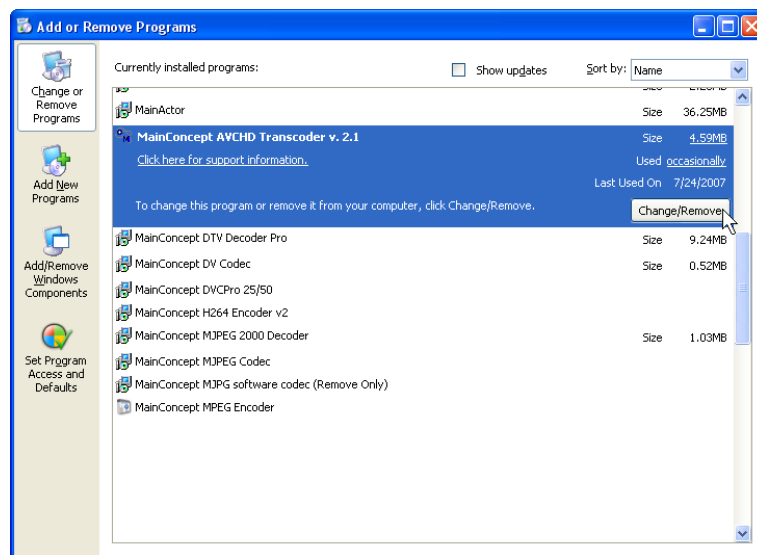


- 5 When the following dialog box appears, click **Finish** to complete the setup.



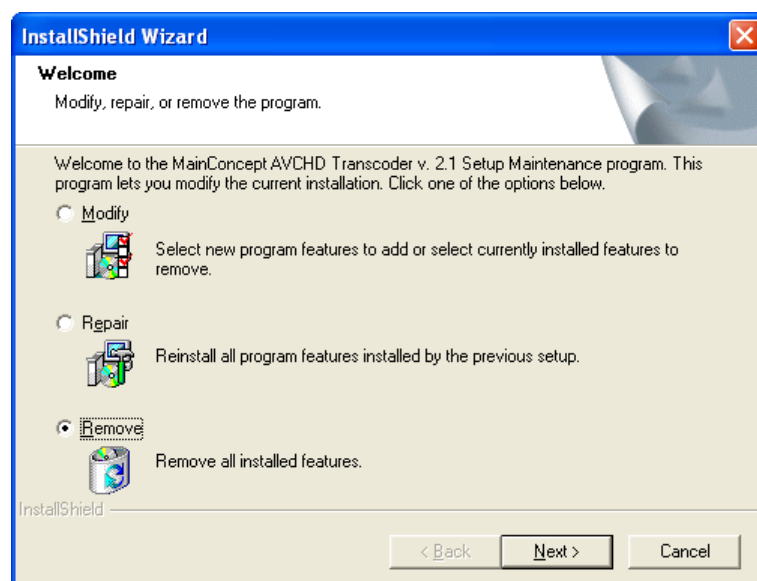
The MainConcept AVCHD Transcoder is now installed on your computer. You can launch it from your Windows start menu or from the shortcut on your Windows desktop.

If you ever need to uninstall the program, you can launch the uninstaller from the **Add or Remove Programs** option in the Windows **Control Panel**.



Or, you can launch the uninstaller by running the **Setup** program again.

Enable the **Remove** option and click **Next** to uninstall the MainConcept AVCHD Transcoder from your system. Then follow the on-screen prompts.



You will need to confirm that you want to remove the MainConcept AVCHD Transcoder. Click **OK** to start the uninstall process.

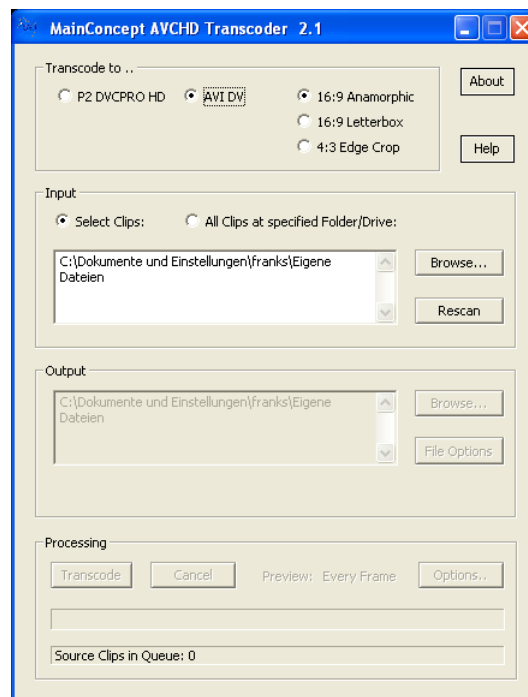
You will be notified when uninstallation is complete. Click **Finish**.

The AVCHD Transcoder

Choosing the Target Format

Before you start choosing the target format in the **Transcode to..** field, please refer to the table below to find out which AVCHD formats you can transcode in each of these transcoder modes. The options are **P2 DVCPRO HD** or **AVI DV**.

When you selected **AVI DV** additional **Aspect Ratio Options** will become available which allow you to specify how the AVCHD Transcoder will handle the sources in 16:9 format when downscaling to DV format.



- Choose **16:9 Anamorphic** here for a full frame 16:9 Image. The image will be squeezed into a DV 4:3 frame, but the decoder will receive a flag which is a hint for the display renderer to stretch the image to 16:9 ratio again.
- Choose **16:9 Letterbox** for a 4:3 image with the 16:9 image width been fit horizontally and with black bars on top and bottom to fill the vertical size. (Note that Windows Media Player is not able to display this correctly.)
- The third option is **4:3 Edge Crop**. Here the height of the image is kept, but the source image gets cut at the left and the right to fit into the 4:3 image. Note that in this mode you will loose some source image information. Take that into account when you shoot scenes in AVCHD with the intention of later 4:3 cropping.

Importing Clips

This transcoder version 2.1 only accepts AVCHD clips with the format described in the following table.

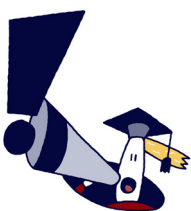
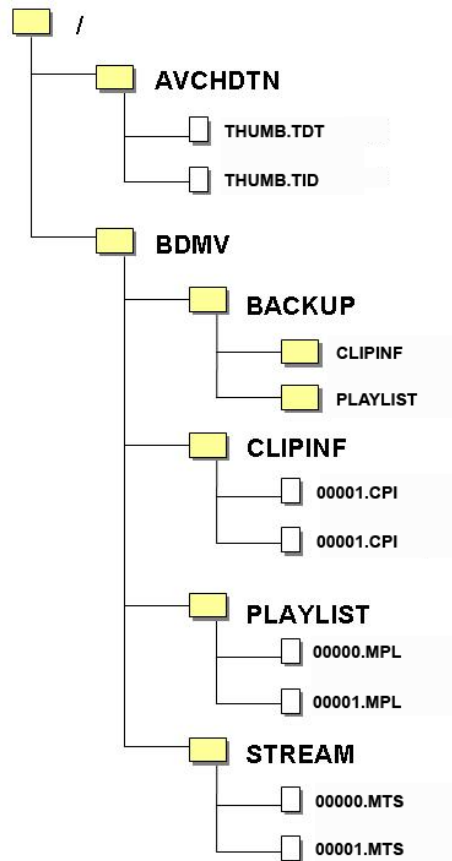
Table 1: Supported AVCHD Format

AVCHD Format	AVCHD mode (approx bit rate) Number of pixels							Converted DVCPRO HD Format	Converted DV Format
	PH (21 Mbps) 1920x 1080	HA (17 Mbps) 1920x 1080	HG (13 Mbps) 1920x 1080	HF (13 Mbps) 1440x 1080	HX (9 Mbps) 1920x 1080	HN (9 Mbps) 1440x 1080	HE (6 Mbps) 1440x 1080		
1080/59.94i	Yes	Yes	Yes	Yes	Yes	Yes	Yes	1080/59.94i	486/59.94i
1080/29.97p (over 59.94i)	Yes	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	1080/29.97p (2:2 pulldown)	486/29.9p (2:2 pull-down)
1080/23.98p	Yes	Yes	Yes	(N/A)	(N/A)	(N/A)	(N/A)	1080/23.98pA (2:3:3:2 pull-down)	486/23.98pA (2:3:3:2 pull-down)
720/59.94p	Yes	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	720/59.94p	(N/A)
720/29.97p (over 59.94p)	Yes	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	720/29.97pN (native)	(N/A)
720/23.98p	Yes	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	720/23.98pN (native)	(N/A)
1080/50i	Yes	Yes	Yes	Yes	Yes	Yes	Yes	1080/50i	576/50i
1080/25p (over 50i)	Yes	Yes	Yes	(N/A)	(N/A)	(N/A)	(N/A)	1080/25p (2:2 pulldown) or 1080/50i (*1)	576/25p (2:2 pull-down)
720/50p	Yes	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	720/50p	(N/A)
720/25p (over 50p)	Yes	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	(N/A)	720/25pN (native)	(N/A)

(N/A): Format not supported by Panasonic camera.

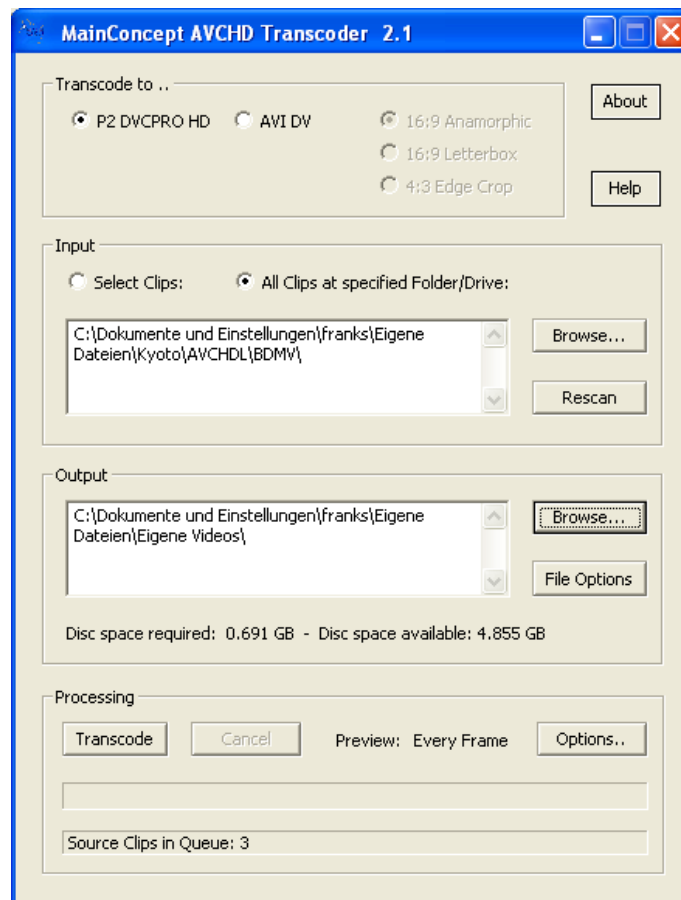
(*1): 1080/25p PH mode created by AG-HMC150 series camera is converted to DVCPRO HD 1080/25p 2:2 pulldown, and others are converted to 1080/50i.

When using the AVCHD Transcoder, you can import the transport streams in AVCHD compatible directory structure, by manually selecting either *.m2ts or *.MTS files from '\BDMV\STREAM' directory of the AVCHD structure. Furthermore, the application has functionality to automatically import all clips found in a specified directory. The AVCHD compatible directory structure is defined as follows:



The data structure in \BDMV folder must remain consistent. If you delete or move metadata files or folders, or move video data files from \STREAM to a different location and try to import them from there the import will fail.

When the AVCHD Transcoder has finished scanning of imported clips, it will display the number of clips in transcoding queue which are ready to be processed in the footer bar.



Manually Select Clips for Import

If you want to select import clips manually, tick the **Select Clips** option in the **Input** field and press the **Browse...** button to select *.m2ts or *.MTS files manually from hard disk or camera drive. If multiple clips are selected, the AVCHD Transcoder will display the actual number and the total number of clips being scanned in the footer bar.

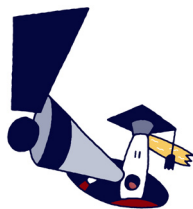
If you try to transcode AVCHD clips of an SD memory card in a card reader, after replacing a card your selection has become invalid and you need to update it. Please press the **Browse...** button and select files again.

Automatically Scan a Location

If you want the Transcoder application to automatically scan all existing clips from any hard disk or camera drive location, in the **Input** field, please enable the **All Clips at specified Folder/Drive** option and click the **Browse...** button to specify the appropriate directory. The directories which can be specified are as follows:

- The parent directory of '\BDMV' (root directory).
- The '\BDMV' directory itself.
- The '\BDMV\STREAM' directory.

Then the MainConcept AVCHD Transcoder will automatically scan for any existing clips inside the specified directory structure and select them for transcoding. During the scanning process the application will display the actual number and the total number of clips being scanned in the footer bar.



If you change the target transcoding format any previous clip selections will become invalid. Please select the source clips again. Only 1080 AVCHD clips will be detected in AVI DV target mode!

Rescan Button

You have also the opportunity to specify the imported clip or directory by directly typing in the name or destination in the input box. After entering the complete directory path or file-name, click the **Rescan** button, so that the Transcoder will start the scanning process.

Spanned Clips

SD cards have a FAT32 file system, thus the maximum file size is limited to 4 GB. If you use SD cards larger than 4 GB and do long time recordings which exceed the file size limit the recording will automatically be split by your camera into files of 4 GB or less. This is called 'spanned' recording.

When the Transcoder detects spanned clips it will combine them and treat them as one clip, so that the transcoding result becomes one continuous output clip again.

If you let the transcoder scan and transcode a whole directory automatically, the combination of spanned clips will happen behind the scenes without notification. You might only notice that the number of 'Clips in Queue' shown in the status bar will be lower than the actual number of *.m2ts or *.MTS files in the \STREAM folder, because combined clips are counted as one clip.

!Special attention has to be paid when you select one or more clips manually!

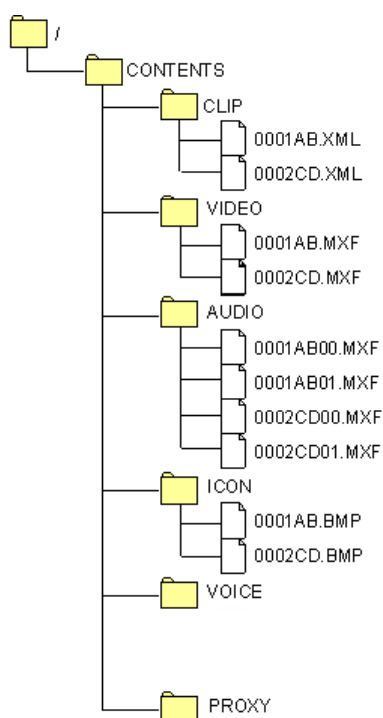
For example, there are four clips in \STREAM: 00000, 00001, 00002, 00003 and clips 00001 and 00002 are spanned clips belonging to one recording. If you select one of the spanned clips for import, you will be prompted with the information that it belongs to a group of spanned clips and are asked to allow a combination. It is recommended to answer **YES** here! If you do not allow a combination, and the selected clip is not head of the recording, you will get distorted frames in the beginning of the transcoded result, because the first frames in such follow-up clip have references to frames in the previous clip and for that reason cannot be decoded correctly without combination. If you manually select more than one clip and have both spanned clips included, a combination will happen silently and you will not be prompted.

When the Target format is AVI DV make sure to always specify an empty output location before you start transcoding to avoid that previously transcoded clips are overwritten. The AVI files always get the same name as the source clips, which are typically the same on each source media.

Transcode to DVCPRO

The MainConcept AVCHD Transcoder can transcode an 1080/50i, 60i, 24p, 25p, 30, or 720/50p, 60p, 24p, 25, 30p AVCHD source clip into 1080 50i, 60i, 24pa, 25p, 30p or 720/50p, 60p, 24pN, 25pN, 30pN DVCPRO HD. The frame rate of the output clip will be automatically chosen by the application, according to the source clips frame rate. If there are multiple files in the transcoding queue, the output frame rate will be automatically updated later for each clip during transcoding process. Please refer to *Table 1* for supported AVCHD format.

To specify the output location, press the **Browse...** button in the Output field, or directly type it in the output location input prompt. If the specified path does not yet contain any existing P2 directory structure, the Transcoder will create a new P2 directory structure automatically. But if the specified path already contains an existing P2 directory structure (i.e. if the specified path is the parent directory of 'CONTENTS', or the 'CONTENTS' directory itself), the application will reuse that P2 structure automatically. However, you are not allowed to specify any directories under 'CONTENTS' (i.e. 'CLIPS', 'ICON', 'VIDEO', 'AUDIO'). The P2 directory structure is defined as follows:



AVCHD TS file names start from 00000, on the other hand P2 files start from 0001. Therefore, the transcoder automatically adds 1000 to TS files and eliminates the first digit.

The generated output file name will be used for all metadata *.XML, thumbnails *.BMP and essence *.MXF files. For example, the input TS file: "00000.MTS" may result in output files name: "1000AB.XML", "1000AB.BMP", "1000AB.MXF".

In case you import a clip that has been renamed and does not follow the naming rules of the AVCHD standard, the transcoder will use a random number for the output clip name and you have to identify your clips by visual content.

When the transcoder detects a FAT32 file system on the specified target volume (P2 cards are FAT32), it will automatically split files at the 4 GB boundary. No spanned clip link information will be created in the metadata. You will need to sort split output clips by visual content later. All split clips names will have the same first four digits as described above, but the 5th and 6th digit will vary, e.g. 1000AB, 1000F3, 1000YX.

The Transcoder application will display the amount of disk space required as well as the available space on target device in the Output field. Please make sure that you have enough disk space available before starting the transcoding process.

You start the transcoding process by clicking the **Transcode** button in the **Processing** field. You can pause the transcoding process any time you like by pressing the corresponding button. If you hit the **Cancel** button and prompt with **Yes** the transcoding stops. If part of the frames of the actual source clip already have been processed, you will receive a fully functional but truncated output clip.

Transcode to AVI DV

The AVCHD Transcoder can transcode 1440x1080 or 1920x1080 AVCHD source clips to 720x480 NTSC or 720x576 PAL AVI DV. The target's video standard, frame size, frame rate and pulldown mode will be chosen automatically according to the source clips format. If there are multiple files in the transcoding queue, the output format will be automatically updated later for each clip during transcoding process. Please refer to *Table 1* for supported AVCHD formats. The resulting DV AVI files will be of 'DV Type 2' format, with one DV DIF stream and a separate PCM audio stream. The PCM Audio Stream will be of 2 or 6 Channels. In case of 6 channels the PCM format header will be of type *WAVE_FORMAT_EXTENSIBLE* with a channel mask. See *Table 2* for the channel assignment. The filename of the target AVI file will match the source clip name, e.g. 00001.M2T will become 00001.avi.

Dolby Digital 5.1 Channel Routing

The 5.1 channels are assigned to six PCM mono channels using the following pattern.

Table 2: Dolby Digital 5.1 channel routing

AVCHD DD 5.1 Channel	P2 PCM Channel	AVI PCM Channel (WAVE_FORMAT_EXTENSIBLE)
Left	0	1 (SPEAKER_FRONT_LEFT)
Center	1	3 (SPEAKER_FRONT_CENTER)
Right	2	2 (SPEAKER_FRONT_RIGHT)
Left Surround	3	5 (SPEAKER_BACK_LEFT)
Right Surround	4	6 (SPEAKER_BACK_RIGHT)
Sub / LFE	5	4 (SPEAKER_BACK_FREQUENCY)

Metadata Information

This transcoder version 2.1 is able to transfer AVCHD metadata recorded by Panasonic camera AG-HMC150 series to P2 metadata. Please refer to the operation manual of AG-HMC150 series about metadata. No metadata will be transferred to AVI DV.

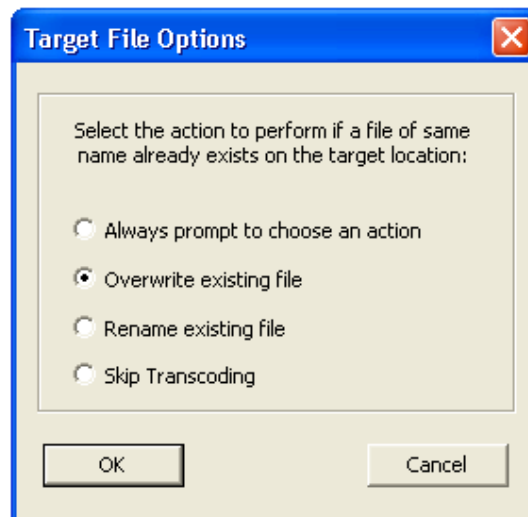
Table 3: Supported AVCHD metadata of HMC150 series

Clip Name				
Global Clip ID				
User Clip Name				
Duration				
(Video & Audio)	Video Codec	Frame Rate	Pulldown	Aspect Ratio
	Audio Sampling	Timecode	UsersBit	
(Access)	Creator	Creation Date	Last Update Person	Last Update Date
(Device)	Device Manufacturer	Device Model Number	Device Serial No.	
(Shoot)	Shooter	Start Date	End Date	Place Name
(Scenario)	Program Name	Scene No.	Take No.	
(News)	Reporter	Purpose	Object	
(Memo)	Person	Text		

Appendix

The File Option Settings

In this dialog, you can select the action to perform in case a file of the same name already exists on your target location. To open the window, click **File Options** button in the **Output** field:

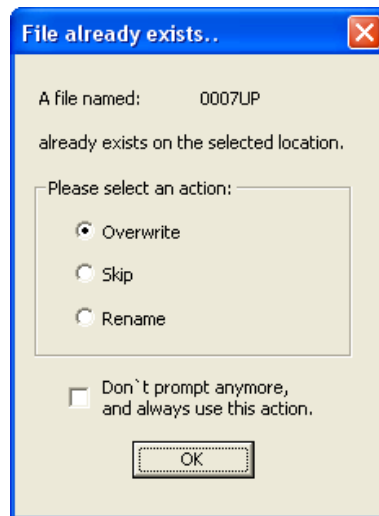


If you want to overwrite any existing file without notice, enable the **Overwrite existing file** option.

If you want to make a backup of any existing file without notice, check **Rename existing file** option. Then the AVCHD Transcoder will rename the old file as a backup file and create a new output file. You can generate up to 100 backup files, e.g. 0001AB.xml will be renamed to 0001AB_bak00.XML, 0001AB_bak01.XML, ... 0001AB_bak99.XML. When the number of backups reaches 100, the Transcoder application will notify you and overwrite the most recent backup. This indicates that it is time to clean up the target volume

If you want to skip the transcoding without notice, i.e. in case a file already exists, you can enable the **Skip Transcoding** option.

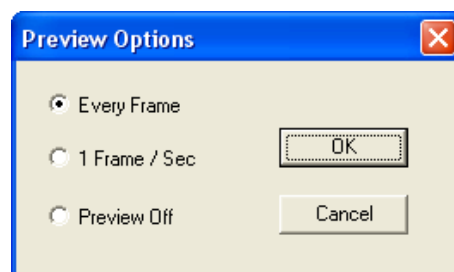
If you want to be asked for an action every time when the system finds the same output file name, tick the **Always prompt to choose an action** option. Then the MainConcept AVCHD Transcoder will always prompt the following dialog when a file already exists:



If you do not want to be asked for an action in the dialog above anymore, select the action you like to perform without notice, and check the **Don't prompt anymore, and always use this action** option. The application will then perform this defined action when it encounters a next file that already exists.

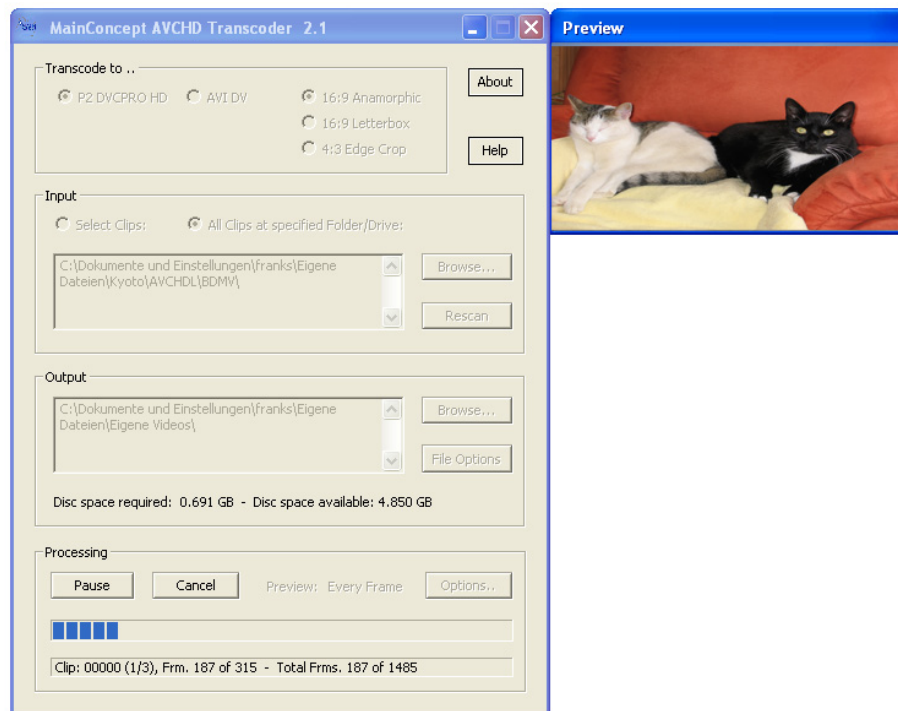
The Preview Settings

In this dialog, you can specify how to preview the exported clip. The MainConcept AVCHD Transcoder will show a preview during transcoding process in a separate window. In the **Processing** field of the main window, press **Options...** button to enable/disable the preview as well as set some more preview options:



If you want to preview all frames of the export clip, check the **Every Frames** option.

If you want to preview just one frame per second, enable the **1 Frame/Sec** option.



If you do not want the Transcoder to show a preview at all, tick the **Preview Off** option.



Note that the display of a preview consumes some CPU cycles. On slow systems, it is recommended to switch off the preview to speed up the transcoding process.

