

# MainConcept XAVC Transcoder

## User Guide

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## 1. Introduction

The MainConcept XAVC Transcoder from the Pro Camera Transcoders for Sony & Panasonic product line is an optimized Docker container for file-based transcoding of media files into professional Sony camera formats like XAVC-Intra, XAVC Long GOP and XAVC-S.

### Features

- File-to-file-based transcoding module
- Profiles for creating the full set of professional Sony XAVC camcorder flavors
- Powered by the industry-leading MainConcept AVC/H.264 Broadcast Codec
- Wide range of ingest file formats

### Presets

- Sony XAVC-Intra
- Sony XAVC Long GOP
- Sony XAVC-S

## 2. Installation

Before installing the MainConcept XAVC Transcoder, please ensure Docker is installed correctly.

### 2.1 Installing Docker

To download and install Docker on your server, please follow the instructions here:

[www.docker.com/community-edition](http://www.docker.com/community-edition)

After successful installation you should be able to run the Docker "hello-world" container.

Example output from the Docker hello-world container:

```
$ docker run hello-world

Hello from Docker!
This message shows that your installation appears to be working correctly.

To generate this message, Docker took the following steps:
1. The Docker client contacted the Docker daemon.
2. The Docker daemon pulled the "hello-world" image from the Docker Hub. (amd64)
3. The Docker daemon created a new container from that image which runs the executable that produces the output you are currently reading.
4. The Docker daemon streamed that output to the Docker client, which sent it to your terminal.
```

If you see different output, please refer to the Docker installation guide.

### 2.2 Resources for Docker

On Windows machines there is a default limitation of resources available for Docker. It could be adjusted in the "Settings > Advanced" section. For more information, please check the official website: [docs.docker.com/docker-for-windows](https://docs.docker.com/docker-for-windows).



### 2.3 Installing the MainConcept XAVC Transcoder

#### 1) Extract the MainConcept XAVC Transcoder package

To install the MainConcept XAVC Transcoder, first unpack the ZIP file you downloaded into a new folder on your computer. The files within the folder depend on the Pro Camera Transcoders for Sony & Panasonic product.

```
total 40
drwxrwxr-x 2 thomas thomas 4096 Apr 10 14:23 docker
-rw-rw-r-- 1 thomas thomas 17835 Apr 10 14:23 EULA.txt
-rw-rw-r-- 1 thomas thomas 77 Apr 10 14:23 info.txt
-rw-rw-r-- 1 thomas thomas 2721 Apr 10 14:23 readme.txt
-rw-rw-r-- 1 thomas thomas 4096 Apr 10 14:23 scripts
-rw-rw-r-- 1 thomas thomas 4096 Apr 10 15:10 volume
~/MainConcept/2GO/mc_2go_xavc_generator_demo# █
```

#### 2) Install the MainConcept XAVC Transcoder docker image

To install the MainConcept XAVC Transcoder image in your local Docker environment, “cd” into the docker folder and run the “install\_image” script:

```
~/MainConcept/2GO/mc_2go_xavc_transcoder_demo# cd docker/
~/MainConcept/2GO/mc_2go_xavc_transcoder_demo/docker# ./install_image.sh
Installing MainConcept 2GO in your local Docker environment...
e6bc3d95b8d4: Loading layer [=====>] 28.87MB/28.87MB
Loaded image: mc_2go_xavc_transcoder_demo:latest
~/MainConcept/2GO/mc_2go_xavc_transcoder_demo# █
```

Verify whether the XAVC Transcoder container is installed properly by using the “docker image ls” command:

```
~/MainConcept/2GO/mc_2go_xavc_transcoder_demo/docker# docker image ls
REPOSITORY          TAG          IMAGE ID      CREATED      SIZE
mc_2go_xavc_transcoder_demo  latest      2e15d1d96bd9  3 hours ago  39.9MB
~/MainConcept/2GO/mc_2go_xavc_transcoder_demo/docker# █
```



#### NOTE:

For using both the demo and full version of the MainConcept XAVC Transcoder, you must allow the server running a connection to <https://taas-reporting-srv.mainconcept.com>.

If you want to use the products offline (i.e. without internet connection), please contact [customer.care@mainconcept.com](mailto:customer.care@mainconcept.com). We will get in touch with you about the necessary steps.



## 3. Settings

### 3.1 Supported Input Codecs & Formats

The MainConcept XAVC Transcoder supports the following input codecs and formats:

- **Video:** MPEG-1/2, MPEG-4 Part 2, H.263, VC-1, HEVC/H.265, AVC/H.264, DV / DVCPRO, JPEG 2000, Apple ProRes, DNxHD, DNxHR
- **Audio:** PCM / LPCM, MPEG Layer 1/2/3, AAC / HE-AAC, WMA, AMR, RAW / WAV, DV, AC-3, E-AC-3
- **Container:** Elementary Streams, MPEG-2 Program Stream / Transport Stream, MP4, 3GP, F4V, ASF, DV, DIF, MJ2, MXF, RAW, MOV

### 3.2 Supported Output Formats

The MainConcept XAVC Transcoder supports the following output formats:

- Sony XAVC-Intra
- Sony XAVC Long GOP
- Sony XAVC-S

### 3.3 Included Presets

Several built-in presets are included in the product for direct usage.

XAVC Intra	XAVC_Intra_HD_CBG_50
	XAVC_Intra_HD_CBG_100
	XAVC_Intra_2K_CBG_100
	XAVC_Intra_4K_CBG_300
	XAVC_Intra_QFHD_CBG_300
	XAVC_Intra_4K_CBG_480
	XAVC_Intra_QFHD_CBG_480
	XAVC_Intra_2K_VBR_100
	XAVC_Intra_4K_VBR_300
	XAVC_Intra_QFHD_VBR_300
	XAVC_Intra_4K_VBR_480
	XAVC_Intra_QFHD_VBR_480
XAVC Long GOP	XAVC_QFHD_LONG



	XAVC_QFHD_LONG422
	XAVC_HD_LONG422
XAVC-S	XAVC_S_HD

If you need to manually tune presets there is an \*.mps file for each built-in preset located in the "volume/presets". To specify a manually edited preset, use the PRESET parameter.

## 4. Configuration

With Docker installed most of the MainConcept XAVC Transcoder configuration is complete. However, some Pro Camera Transcoders for Sony & Panasonic products require shared folders, or specific parameters at startup.

### 4.1 Configuring shared folders

To read and write files located on the host computer, the MainConcept XAVC Transcoder uses shared volumes to access the filesystem of the host. Docker uses mounted volumes to share host folders with containers.

The "run" convenience script in the scripts folder runs the MainConcept XAVC Transcoder container and automatically maps the required folders from your host computer into the container.

## 5. Usage

### 5.1 Starting MainConcept XAVC Transcoder

Make sure you have successfully installed your MainConcept Pro Camera Transcoders for Sony & Panasonic product on the computer by following the Installation instructions.

The "run" script inside the scripts folder makes starting the MainConcept XAVC Transcoder easy and lets you understand how docker containers are actually run. If you plan to run MainConcept XAVC Transcoder through container management tools like Docker Compose, Kubernetes or Docker Swarm, it is recommended that you understand the parameters required for the XAVC Transcoder container by reading the "run" script.

MainConcept Pro Camera Transcoders for Sony & Panasonic products require passing configuration parameters to the container at startup. These can include input and output filenames, serial keys, shared volume folders or external URLs. These parameters can be specified in a properties file or via the command line.



### 5.2 Using job description file

The MainConcept XAVC Transcoder introduces a REST API and provides users an interface that is more suitable for integration with their existing environment or tools. This API covers functionality to create jobs and query their status using standard REST API over HTTP. A job description file is posted to the endpoint, which must be in JSON format. This JSON file must contain all the necessary parameters required for the submitted jobs.

Option	Sample value	Description
INPUT	8MBit.mp4	Source filename for audio conversion; must be in or under SHARED_PATH_IN
OUTPUT	out_8Mbit.mxf	Target filename for encoded output; you also need to add the file extension; must be in or under SHARED_PATH_OUT  File Extension (XAVC): *.mxf File Extension (XAVC-S): *.mp4
PRESETNAME	XAVC_LongGOP_4K_422	Preset name for XAVC generation when using original MainConcept preset(s) included with the Docker container. Note: When PRESETNAME is used, PRESET must not be used.
PRESET	<folder_in_shared_path>/XAVC_LongGOP_4K_422.mps	Custom preset file(s) (MPS); must be in or under SHARED_PATH_IN volume outside of the Docker container. Note: When PRESET is used, PRESETNAME must not be used.
VERBOSITY	SILENT	Sets verbose level. Available options are: <ul style="list-style-type: none"><li>• SILENT (0) - Prints only error messages</li><li>• DEFAULT (1) - Default level if verbose level is not specified. Prints information about input file, output file, preset. Prints information about REST API calls (target URLs with parameters, no BODY info).</li><li>• FULL (2) - Prints all available information, including processing status, file transfer, REST API calls (target URLs with parameters with BODY info), complete information from processing step.</li></ul>
KEEP_CONTENT	TRUE, FALSE	Prevents deletion of temporary content (e.g. downloaded, transcoded). Default value is FALSE.
TRIM_IN	3.330s	In point in seconds (e.g. 3.330s) or in frames (e.g. 250f). Regarded as the start point if specified.



TRIM_OUT	250f	Out point in seconds (e.g. 3.330s) or in frames (e.g. 250f). Regarded as the end point if specified.
LOGO_PATH		Path to the file. Overlays PNG image onto video stream.  Note: Path to local file should be relative to SHARED_PATH_IN.
LOGO_OFFSET_LEFT	123	Horizontal offset from left-top corner of the frame in pixels.
LOGO_OFFSET_TOP	45	Vertical offset from left-top corner of the frame in pixels.
LOGO_BEGIN_TIME	3.330s	The time from which the logo appears in seconds (e.g. 3.330s).
LOGO_END_TIME	8.330s	The time from which the logo disappears in seconds (e.g. 8.330s).
RES	SOURCE	Specifies how the video's resolution setting should be applied when using an MPS preset file: <ul style="list-style-type: none"> <li>• PRESET: Uses the resolution that is specified in the MPS preset file (default).</li> <li>• SOURCE: Applies the same resolution as in the source file. Please note that this value cannot be applied for some presets if it is not supported by the official specifications. In this case, the PRESET values are applied.</li> <li>• CLOSEST: Uses the resolution that matches the one closest to the allowed resolution for the specified preset.</li> </ul>
FPS	CLOSEST	Specifies how the video's framerate setting should be applied when using an MPS preset file: <ul style="list-style-type: none"> <li>• PRESET: Uses the framerate that is specified in the MPS preset file (default).</li> <li>• SOURCE: Applies the same framerate as in the source file. Please note that this value cannot be applied for some presets if it is not supported by the official specifications. In this case, the PRESET values are applied.</li> <li>• CLOSEST: Uses the framerate that matches the one closest to the allowed framerate for the specified preset.</li> </ul>
ASPECT	PRESET	Specifies how the video's aspect ratio setting should be applied when using an MPS preset file: <ul style="list-style-type: none"> <li>• PRESET: Uses the aspect ratio that is specified in the MPS preset file (default).</li> <li>• SOURCE: Applies the same aspect ratio as in the source file. Please note that this value cannot be applied for some presets if it is</li> </ul>



		<p>not supported by the official specifications. In this case, the PRESET values are applied.</p> <ul style="list-style-type: none"> <li>• CLOSEST: Uses the aspect ratio that matches the one closest to the allowed aspect ratio for the specified preset.</li> </ul>
--	--	---

To edit the parameters of the JSON file, use a text editor. Here are some examples:

```
{
  "INPUT": "ftp://10.144.41.202:2121/test.mp4",
  "OUTPUT": "ftp://10.144.41.202:2121/test/xavc_intra.mxf",
  "PRESETNAME": "XAVC_LongGOP_4K_422",
  "KEEP_CONTENT": "TRUE",
  "VERBOSITY": "FULL"
}

{
  "INPUT": "/volume/test.mp4",
  "OUTPUT": "/volume_out/xavc_intra.mxf",
  "PRESET": "XAVC_LongGOP_4K_422.mps",
  "KEEP_CONTENT": "TRUE",
  "VERBOSITY": "FULL"
}
```

### 5.3 Using properties file

The easiest way to start the MainConcept XAVC Transcoder is by editing the “properties.txt” file to your needs and then executing the “run” script with this file.

```
~/MainConcept/2GO/mc_2go_xavc_transcoder_demo# ./scripts/run.sh scripts/properties.txt
```

The MainConcept XAVC Transcoder supports the following configuration options:

Option	Sample value	Description
ACCEPT_EULA	YES	Required
CUSTOMER_ID		User's unique identifier, provided by MainConcept after purchase. Customer ID parameter can also be specified more concisely as `CID`
SHARED_PATH_IN	/path/source_folder	Optional: Folder where the input file is located
SHARED_PATH_OUT	/path/target_folder	Optional: Folder for the encoded output file
JOBS	/path/to/json_file	Optional: Specify a job JSON file for immediate processing
PORT	8082	Specify port for REST API. Default value is 8080.





AUTOSTART	TRUE, FALSE	Disable/enable job queue processing when Docker runs. FALSE sets the service to a stopped state after the Docker runs. Default value is TRUE.
VERBOSITY	SILENT	Sets verbose level. Available options are: <ul style="list-style-type: none"> <li>SILENT (0) - Prints only error messages</li> <li>DEFAULT (1) - Default level if verbose level is not specified. Prints out the copyright/version information</li> <li>FULL (2) - Higher verbose level. Prints all available information including command-line parameters INPUT / OUTPUT / PRESETS / SERIAL.</li> </ul>
TRIM_IN	3.330s	In point in seconds (e.g. 3.330s) or in frames (e.g. 250f). Regarded as the start point if specified.
TRIM_OUT	250f	Out point in seconds (e.g. 3.330s) or in frames (e.g. 250f). Regarded as the end point if specified.
LOGO_PATH		Path to the file. Overlays PNG image onto video stream.  Note: Path to local file should be relative to SHARED_PATH_IN.
LOGO_OFFSET_LEFT	123	Horizontal offset from left-top corner of the frame in pixels.
LOGO_OFFSET_TOP	45	Vertical offset from left-top corner of the frame in pixels.
LOGO_BEGIN_TIME	3.330s	The time from which the logo appears in seconds (e.g. 3.330s).
LOGO_END_TIME	8.330s	The time from which the logo disappears in seconds (e.g. 8.330s).
RES	SOURCE	Specifies how the video's resolution setting should be applied when using an MPS preset file: <ul style="list-style-type: none"> <li>PRESET: Uses the resolution that is specified in the MPS preset file (default).</li> <li>SOURCE: Applies the same resolution as in the source file. Please note that this value cannot be applied for some presets if it is not supported by the official specifications. In this case, the PRESET values are applied.</li> <li>CLOSEST: Uses the resolution that matches the one closest to the allowed resolution for the specified preset.</li> </ul>



FPS	CLOSEST	<p>Specifies how the video's framerate setting should be applied when using an MPS preset file:</p> <ul style="list-style-type: none"><li>• PRESET: Uses the framerate that is specified in the MPS preset file (default).</li><li>• SOURCE: Applies the same framerate as in the source file. Please note that this value cannot be applied for some presets if it is not supported by the official specifications. In this case, the PRESET values are applied.</li><li>• CLOSEST: Uses the framerate that matches the one closest to the allowed framerate for the specified preset.</li></ul>
ASPECT	PRESET	<p>Specifies how the video's aspect ratio setting should be applied when using an MPS preset file:</p> <ul style="list-style-type: none"><li>• PRESET: Uses the aspect ratio that is specified in the MPS preset file (default).</li><li>• SOURCE: Applies the same aspect ratio as in the source file. Please note that this value cannot be applied for some presets if it is not supported by the official specifications. In this case, the PRESET values are applied.</li><li>• CLOSEST: Uses the aspect ratio that matches the one closest to the allowed aspect ratio for the specified preset.</li></ul>

To edit the parameters, use a text editor:

```
1 ACCEPT_EULA=Y
2 SHARED_PATH_IN=~/.MainConcept/2GO/mc_2go_xavc_transcoder_demo/volume
3 SHARED_PATH_OUT=~/.MainConcept/2GO/mc_2go_xavc_transcoder_demo/volume
4 JOBS=~/.path/to/json_file
5 PORT=8082
6 AUTOSTART=TRUE
7 CUSTOMER_ID=xxx
8 VERBOSITY=DEFAULT
```

## Using command line options

Instead of editing a properties file, all configuration parameters can also be specified on the command line directly.

```
~/MainConcept/2GO/mc_2go_xavc_transcoder_demo/docker# ./scripts/run.sh \  
> ACCEPT_EULA=Y \  
> SHARED_PATH_IN=~/.MainConcept/2GO/mc_2go_xavc_transcoder_demo/volume \  
> SHARED_PATH_OUT=~/.MainConcept/2GO/mc_2go_xavc_transcoder_demo/volume \  
> JOBS=~/.path/to/json_file \  
> PORT=8082 \  
> AUTOSTART=TRUE \  
> CUSTOMER_ID=xxx \  
> VERBOSITY=DEFAULT
```



### Using docker-compose

Docker Compose lets you start multiple replicas of the same image. It also significantly simplifies starting the MainConcept Pro Camera Transcoders for Sony & Panasonic products.

Docker Compose is a separate tool that must be installed in addition to Docker. Please refer to the documentation about how to install and setup Compose: [docs.docker.com/compose/](https://docs.docker.com/compose/)

To run the MainConcept XAVC Transcoder with Docker Compose you create a compose file in YAML. All parameters to run the product via Docker Compose are specified inside this YAML file. To simplify deployment of MainConcept Pro Camera Transcoders for Sony & Panasonic containers, setting environment variables for the configuration and then using them in the YAML file is recommended.

This is a basic "docker-compose.yml" file showing how to configure the XAVC Transcoder.

```
1 version: '2.2'
2 services:
3   2go:
4     image: 2go_xdcam_transcoder_demo
5     network_mode: host
6     volumes:
7     - ${2GO_VOLUME}:/volume
8     environment:
9     - 2GO_PARAMS=${2GO_PARAMS}
```

It uses two environment variables 2GO\_VOLUME and 2GO\_PARAMS. These must be set before starting docker-compose.

```
~# export 2GO_VOLUME=~/.MainConcept/2GO/mc_2go_xavc_transcoder_demo/volume/
~# export 2GO_PARAMS="INPUT=avchd_camera_testfile.mts OUTPUT=out_file
PRESETNAME=XAVC_Intra_4K_VBR_480 CUSTOMER_ID=xxx"
```

After that starting the XAVC Transcoder using Docker Compose is as easy as:

```
~/MainConcept/2GO/mc_2go_xavc_transcoder_demo# docker-compose up -d
Starting mc2goxavctranscoderdemo_2go_1 ...
Starting mc2goxavctranscoderdemo_2go_1 ... done
~/MainConcept/2GO/mc_2go_xavc_transcoder_demo#
```



## 5.5 Stopping MainConcept XAVC Transcoder execution

MainConcept Pro Camera Transcoders for Sony & Panasonic containers should be stopped using the convenience “stop” script provided in the scripts folder.

To execute the script on an active container you first need to know the container ID. This can be found from the first column of the docker ps command:

```
~/MainConcept/2GO/mc_2go_xavc_transcoder_demo# docker ps
CONTAINER ID   IMAGE                                COMMAND                                CREATED
bc45686deb0e  mc_2go_xavc_transcoder_demo        "/opt/bin/reporting ..."          4seconds ago
```

Then use the convenience “stop” script in the scripts folder to abort the XAVC Transcoder execution:

```
~/MainConcept/2GO/mc_2go_xavc_transcoder_demo# ./scripts/stop.sh bc45686deb0e
Stopping the XAVC Transcoder...
XAVC Transcoder stopped.
~/MainConcept/2GO/mc_2go_xavc_transcoder_demo# █
```

If you are using the REST API, you also have the opportunity to shut down the container by using DELETE /service. If a job is currently active, the container is not shut down and this function is ignored. In this case you need to abort the job first using POST /jobs/{jobID}/abort

## 6. Technical Support

If you need additional assistance, the MainConcept Technical Support team is standing by to help. Send an e-mail to [apps.support@mainconcept.com](mailto:apps.support@mainconcept.com) or go to the [MainConcept Support page](#) and we'll assist you as quickly as possible.



## 7. Credits

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