

Harmonic Rhozet Carbon Coder Format Support

This document provides a complete list of the supported import and export formats for Harmonic Rhozet Carbon products. In order to transcode from one format to another, Carbon must be able to both decode the input format and then encode into the output format. For example, if you are converting from a QuickTime DV25 file into a GXF MPEG-2 Long-GOP format, then Carbon Coder needs to be able to both decode QuickTime DV25 files and encode GXF MPEG-2 Long-GOP files. You can use the table on the next pages to determine if your particular import/export requirements are supported. The table lists each format, and indicates whether that format is supported for import and/or export. The table further indicates whether a particular codec is included with Carbon Coder. In addition to the codecs that ship with Carbon Coder, you can also install most DirectShow or QuickTime codecs for use with the product. If a particular codec in the list is not included with Carbon Coder, we have provided links for downloading that codec. Some codecs are available for free and some require an additional purchase from the codec developer. If you do not see a particular format that you need in the list, please contact support via www.rhozet.com/support. We are continually updating our product with new features and want your feedback.

The formats in the table are organized according to container and then by codec. A container (also known as a “wrapper”) is a defined structure for how video data, audio data, and metadata are multiplexed into a final file. This is different from a codec, which only defines how video or audio data are compressed. Keep in mind that just because two devices read the same codec that does not mean they are compatible. It is possible to have the exact same codec being wrapped in non-compatible containers. For example, an MPEG-2 codec may be used to compress video that is then put into a MPEG-2 Transport Stream, a MPEG-2 Elementary Stream, a DVD VOB, a MXF file, or an AVI file. When you look up formats in the following list, make sure that you are looking at the required combination of container and codec.

For more information about containers and codecs, we recommend the following sources:

Overview of Video Codecs:

http://en.wikipedia.org/wiki/Video_codecs

Video Compression (Includes Table of Compression and Container Formats)

http://en.wikipedia.org/wiki/Video_compression

Comparison of Video Container Formats

http://en.wikipedia.org/wiki/Comparison_of_container_formats

Introduction to Video Compression:

<http://www.videsignline.com/howto/showArticle.jhtml?articleID=185301351>

Quantel Digital Factbook

http://www.quantel.com/site/en.nsf/html/library_dfb

MPEG-2

<http://en.wikipedia.org/wiki/MPEG-2>

MPEG-4

<http://en.wikipedia.org/wiki/MPEG-4>

Video Streaming White Papers

<http://whitepapers.zdnet.com/search.aspx?kw=Video+Streaming>

Container	Codec / Compliance	Import	Export	Incl.	Comments
<i>3GPP and 3GPP2</i>					
3GPP	H.263	Y	Y	Y	
3GPP	MPEG-4 Part 2 video (ISO/IEC 14496-2)	Y	Y	Y	
3GPP	MPEG-4 Part 10 video (ISO/IEC 14496-10 ITU-T H.264)	Y	Y	Y	
<i>AVI</i>					
AVI	AJA v210	Y	Y	N	http://www.aja.com
AVI	Blackmagic HD 10-bit 4:2:2	Y	Y	N	http://www.blackmagic-design.com
AVI	Blackmagic HD 10-bit 4:4:4	Y	Y	N	http://www.blackmagic-design.com
AVI	Blackmagic HD 8-bit 4:2:2	Y	Y	N	http://www.blackmagic-design.com
AVI	Canopus DV	Y	Y	Y	DVCPRO25, AVI 1.0 and 2.0 (Open DML)
AVI	Canopus HQ	Y	Y	N	http://www.canopus.com
AVI	Cinepak	Y	Y	Y	Not included on all Windows Platforms
AVI	DivX	Y	Y	N	http://www.divx.com/divx/windows/
AVI	DPS	Y	Y	N	http://www.leitch.com/custserv/webdl.nsf/FD/DPS_AVI_Codec15.exe
AVI	Indeo R3.2	Y	Y	Y	
AVI	Indeo Video 4.5	Y	Y	Y	
AVI	Indeo Video 5.1	Y	Y	Y	
AVI	Intel IYUV	Y	Y	Y	
AVI	Matrox AXIO	Y	Y	N	http://www.matrox.com
AVI	Microsoft DV	Y	Y	Y	DVCPRO25, AVI 1.0 and 2.0 (Open DML), DV Type 1 and Type 2
AVI	Microsoft Video 1	Y	Y	Y	
AVI	Motion JPEG	Y	Y	Y	
AVI	Uncompressed RGB	Y	Y	Y	
AVI	xVID	Y	Y	N	http://www.xvid.org
<i>Flash</i>					
F4V	Flash 9	Y	Y	Y	
FLV	Flash 8 (VP6)	N	Y	Y	
FLV	Flash 7	Y	Y	Y	
F4A	Flash 9 audio only	Y	Y	Y	Use H.264 Exporter to create Flash 9 audio only files.
<i>GXF – Grass Valley</i>					
GXF	DV25 525	Y	Y	Y	DVCAM or DVCPRO
GXF	DV25 625	Y	Y	Y	DVCAM or DVCPRO
GXF	DV50	Y	N	Y	
GXF	MPEG-2 I-frame 525	Y	Y	Y	720x512i - 29.97 Generic MPEG, 720x480i - 29.97 Generic MPEG, 720x512i - 29.97 D10/IMX
GXF	MPEG-2 I-frame 625	Y	Y	Y	720x608i - 25 Generic MPEG, 720x576i - 25, Generic MPEG, 720x608i - 25 D10/IMX
GXF	MPEG-2 I-frame HD	Y	Y	Y	1920x1080i - 29.97, 1920x1080i - 25, 1280x720 - 59.94
GXF	MPEG-2 IPB 525	Y	Y	Y	720x512i - 29.97 Generic MPEG, 720x480i - 29.97 Generic MPEG, 720x512i - 29.97 D10/IMX

Container	Codec / Compliance	Import	Export	Incl.	Comments
GXF	MPEG-2 IPB 625	Y	Y	Y	720x608i - 25 Generic MPEG, 720x576i - 25, Generic MPEG, 720x608i - 25 D10/IMX
GXF	MPEG-2 IPB HD	Y	Y	Y	1920x1080i - 29.97, 1920x1080i - 25, 1280x720 - 59.95
<i>Image Sequences</i>					
Image Seq.	BMP	Y	Y	Y	
Image Seq.	DPX	Y	N	Y	
Image Seq.	JPEG	Y	Y	Y	
Image Seq.	JPEG2000	N	Y	Y	
Image Seq.	MacPaint	N	Y	Y	
Image Seq.	Photoshop	N	Y	Y	
Image Seq.	PICT	N	Y	Y	
Image Seq.	PNG	Y	Y	Y	
Image Seq.	QT Image	N	Y	Y	
Image Seq.	SGI	N	Y	Y	
Image Seq.	TGA	Y	Y	Y	
Image Seq.	TIFF	Y	Y	Y	
<i>LXF – Leitch/Harris</i>					
LXF	DV25	Y	Y	Y	DVCAM or DVCPRO
LXF	MPEG-2 I-frame	Y	Y	Y	4:2:0, 4:2:2, SD, and HD
LXF	MPEG-2 Long GOP	Y	Y	Y	
<i>MPEG Elementary Streams</i>					
MPEG ES	MPEG-1	Y	Y	Y	Proxy
MPEG ES	MPEG-2	Y	Y	Y	SP@MP, MP@LL, MP@ML, MP@HL, MP@H14, HP@ML, HP@HL, HP@H14, 422P@ML, 422@HL
<i>MPEG Program Streams</i>					
MPEG PS	DVD	Y	Y	Y	
MPEG PS	MPEG-2	Y	Y	Y	SP@MP, MP@LL, MP@ML, MP@HL, MP@H14, HP@ML, HP@HL, HP@H14, 422P@ML, 422@HL
MPEG PS	SVCD	Y	Y	Y	
MPEG PS	Avid MediaStream	Y	Y	Y	Supports some features of MediaStream 8000. No other systems are supported.
<i>MPEG Transport Streams</i>					
MPEG TS	MPEG-4 Part 10 video (ISO/IEC 14496-10 ITU-T H.264)	Y	Y	Y	
MPEG TS	HDV HD-1	Y	Y	Y	MP@ML,MP@H-14, MP@HL (1280x720, 720x480, 720x576)
MPEG TS	HDV HD-2	Y	Y	Y	MP@ML,MP@H-14, MP@HL (1440)
MPEG TS	MPEG-2	Y	Y	Y	SP@MP, MP@LL, MP@ML, MP@HL, MP@H14, HP@ML, HP@HL, HP@H14, 422P@ML, 422@HL, 302M Audio
MPEG TS	ATSC (A/53)	Y ⁱ	Y	Y	Incl. Dolby Digital (AC-3)
MPEG TS	CableLabs	Y ⁱ	Y	Y	SD and HD, Incl. Dolby Digital (AC-3)
MPEG TS	DVB	Y ⁱ	Y	Y	ETSI TR 101 154, Incl. Dolby Digital (AC-3)
<i>MPEG-1 System Streams</i>					

Container	Codec / Compliance	Import	Export	Incl.	Comments
MPEG-1 SS	MPEG-1	Y	Y	Y	VideoCD, Proxy
<i>MPEG-4</i>					
Container	Codec / Compliance	Import	Export	Incl.	Comments
MPEG-4	MPEG-4 Part 10 video (ISO/IEC 14496-10 ITU-T H.264)	Y	Y	Y	
MPEG-4	MPEG-4 Improved	Y	Y	Y	ISMA Profile 1 -- MPEG-4 ASP
MPEG-4	MPEG-4-Basic	Y	Y	Y	ISMA Profile 0
MPEG-4	XDCAM EX	Y	N	Y	
MP4/M4V/M4A	H.264	Y	Y	Y	Use H.264 Exporter to create output files.
<i>MXF (Material Exchange Format)</i>					
MXF (OP1a)	D10 (IMX)	Y	Y	Y	30, 40, 50 Mbit. Includes support for Quantel and XDCAM
MXF (OP1a)	DV25	Y	N	Y	
MXF (OP1a)	DV50	Y	N	Y	
MXF (OP1a)	DVCPProHD	Y	N	Y	
MXF	AS02	Y	Y	Y	
MXF	EVS Motion JPEG	Y	N	Y	
MXF (OP1a)	JPEG 2000	Y	N	Y	Supported with WAV
MXF (OP1a)	MPEG-2 I-frame	Y	N	Y	
MXF (OP1a)	MPEG-2 Long GOP	Y	N	Y	
MXF (OPAtom)	DV25	Y	N	Y	WAV only
MXF (OPAtom)	DV50	Y	N	Y	
MXF (OPAtom)	DVCPProHD	Y	N	Y	
MXF (OPAtom)	Avid DNxHD	Y	N	N	Requires that the MXF file follows the OPATOM standard and Avid Codec Pack ²
MXF (OP1A)	Avid DNxHD	N	Y	Y	Avid MXF Exporter creates DNxHD MXF OP1A files. Only some of these files can be imported, this is not a full Avid MXF OP1A Importer.
MXF (OP1A)	Avid DVCAM, DVCPRO 25/50/100, IMX 30/40/50, JFIF, XDCAM	N	Y	Y	Avid MXF Exporter uses the Avid Media Toolkit to create these Avid compliant MXF OP1A files. Only some of these files can be imported, this is not a full Avid MXF OP1A Importer.
MXF (OPAtom)	JPEG 2000	Y	N	Y	DVS Clipster formats
MXF	XDCAM 4:2:0	Y	Y	Y	SD and HD
MXF (OP1A)	XDCAM MPEG-2 4:2:2	Y	Y	Y	MXF OP1A MPEG-2 HD 4:2:2
MXF	XDCAM MPEG-4 Proxy	N	Y	Y	
MXF	Panasonic P2	Y	Y	Y	DV, DVCPPro, DVCPPro HD, and AVC-Intra
<i>Omneon (both MXF and QuickTime)</i>					
Omneon	OP1a IMX (MXF)	Y	Y	Y	720x512i, 720x608i
Omneon	DV	Y	Y	Y	720x486i, 720x576i
Omneon	IMX	Y	Y	Y	720x512i, 720x608i
Omneon	MPEG-2 IBP	Y	Y	Y	720x480i, 720x512i, 720x576i, 720x608i, 1280x720p, 1920x1080i
Omneon	MPEG-2 I-frame	Y	Y	Y	720x480i, 720x512i, 720x576i, 720x608i, 1280x720p, 1920x1080i

Container	Codec / Compliance	Import	Export	Incl.	Comments
<i>Quantel</i>					
Quantel	MXF OP1a IMX	Y	Y	Y	40Mbit NTSC. 30 Mbit PAL.
Quantel	DVCPProHD	Y	Y	Y	720p, 1080i
<i>QuickTime</i>					
QuickTime	Apple Animation	Y	Y	Y	
QuickTime	Apple BMP	Y	Y	Y	
QuickTime	Apple Cinepak	Y	Y	Y	
QuickTime	Apple Component Video - YUV 422	Y	Y	Y	
QuickTime	Apple DV/DVCPRO	Y	Y	Y	
QuickTime	Apple Graphics	Y	Y	Y	
QuickTime	Apple H.261	Y	Y	Y	
QuickTime	Apple Motion JPEG A	Y	Y	Y	
QuickTime	Apple Motion JPEG B	Y	Y	Y	
QuickTime	Apple MPEG-4	Y	Y	Y	
QuickTime	Apple None	Y	Y	Y	
QuickTime	Apple Photo - JPEG	Y	Y	Y	
QuickTime	Apple Planar RGB	Y	Y	Y	
QuickTime	Apple PNG	Y	Y	Y	
QuickTime	Apple TGA	Y	Y	Y	
QuickTime	Apple TIFF	Y	Y	Y	
QuickTime	Apple Video	Y	Y	Y	
QuickTime	Avid DNxHD	Y	Y	Y	Requires Avid Codec Pack ⁱⁱ
QuickTime	Avid Media Composer Meridian 1:1	Y	Y	N	
QuickTime	Avid Media Composer Meridian JFIF	Y	Y	N	
QuickTime	HDV	Y	Y	Y	
QuickTime	IMX	Y	Y	Y	
QuickTime	BlackMagic 10-bit	Y	Y	N	http://www.blackmagic-design.com/support/software/
QuickTime	BlackMagic RGB 10-bit	Y	Y	N	http://www.blackmagic-design.com/support/software/
QuickTime	DVCPPro 50	Y	Y	Y	
QuickTime	DVCPPro 100/HD	Y	Y	Y	
QuickTime	H.263	Y	Y	Y	
QuickTime	H.264	Y	Y	Y	
QuickTime	Intel Indeo Video 4.4	Y	Y	Y	
QuickTime	JPEG 2000	Y	Y	Y	
QuickTime	Omneon	Y	Y	Y	See Omneon container section for more detail
QuickTime	Sorenson Video	Y	Y	Y	
QuickTime	Sorenson Video 3	Y	Y	Y	

Container	Codec / Compliance	Import	Export	Incl.	Comments
QuickTime	XDCAM MPEG-2 4:2:2	Y	Y	Y	
<i>Raw</i>					
Raw	FLC	Y	Y	Y	
Raw	Raw DV (DIF)	Y	Y	Y	
Raw	H.264	Y	Y	Y	
Raw	VC-1	Y	Y	Y	
<i>Real</i>					
Real	Real Video 10	N	Y	Y	
Real	Real Video 9	N	Y	Y	
Real	Real Video 8	N	Y	Y	
<i>VOB</i>					
VOB	MPEG-2	Y	Y	Y	Requires an AC-3 audio decoder if embedded AC-3 is present on input side
<i>WMV/ASF</i>					
WMV/ASF	Window Media Video 9	Y	Y	Y	
WMV/ASF	Windows Media Video 8	Y	Y	Y	
WMV/ASF	Windows Media Video 7	Y	Y	Y	
WMV/ASF	WMV 9 Adv. Profile	Y	Y	Y	
WMV/ASF	VC-1	Y	Y	Y	
<i>YUV – Uncompressed</i>					
YUV	I420	Y	Y	Y	
<i>Audio Codecs</i>					
	AAC	Y	Y	Y	
	HE-AAC	Y	Y	Y	
	AES3-302	Y	Y	Y	
	AES3-331	Y	Y	Y	
	AIFF	Y	Y	Y	
	Broadcast WAV	Y	Y	Y	
	Dolby Digital (AC-3) ¹	Y ¹	Y	Y	MPEG-2 & H.264 Exporters
	Dolby Digital Plus (E-AC-3) ¹	Y ¹	Y	Y	MPEG-2 & H.264 Exporters
F4V, F4A, M4A, MP4	AAC, HE-AACv1, MP3	Y	N	Y	Added Support for the import of audio only files
F4V, MPEG-4 System Stream	AAC, HE-AACv1, Dolby Digital (AC-3), Dolby Digital Plus (E-AC-3), MP3	N	Y	Y	Allow creation of audio only files in the H.264 exporter in F4V containers and MPEG-4 System Streams
MPEG-2 Transport Stream	MPEG-1 Layer II, MPEG-2 Layer II, AAC, HE-AACv1, Dolby Digital (AC-3), Dolby Digital Plus (E-AC-3), MP3	N	Y	Y	Allow creation of audio only files in the H.264 exporter in MPEG-2 Transport Streams
	MPEG Audio	Y	Y	Y	
	MP3	Y	Y	Y	
	MPEG-1 Layer II	N	Y	Y	Use the MP3 Audio Exporter to create MPEG-1 Layer II elementary audio output files.
	PCM	Y	Y	Y	

Container	Codec / Compliance	Import	Export	Incl.	Comments
	μLAW	Y	Y	Y	
	WAV	Y	Y	Y	

<i>Other Compatible File Types</i>	
SCC	Carbon supports the import of SCC files to insert Closed Caption data into Line 21 or alternative carriers, such as MPEG User Data.
XML	Carbon supports insertion of Subtitling, Metadata, and Titling information via a structured XML file. Carbon also supports the extraction of Line 21 Closed Captioning information into an XML file.
STL	Carbon supports reading and writing STL files.
Microsoft Smooth Streaming	The Microsoft Smooth Streaming Exporter creates compliant files that can be streamed with the appropriate 3rd-party servers.
HTTP Live Streaming	The HTTP Live Streaming Exporter creates compliant files that can be streamed with the appropriate 3rd-party servers.

1: DOLBY (R) DIGITAL (TM) & DOLBY (R) DIGITAL PLUS(TM) DECODE RESTRICTION. The use of the Dolby Digital (AC-3) & Dolby Digital Plus (E-AC-3) decoder is limited to verification of media created with Carbon's Dolby Digital (AC-3) & Dolby Digital Plus (E-AC-3) encoder.

2: Link to download Avid codec pack: http://avidtechnology.custhelp.com/cgi-bin/avidtechnology.cfg/php/enduser/fattach_get.php?p_sid=gMZG-Eaj&p_li=&p_accessibility=0&p_redirect=&p_file_id=2248&p_tbl=9&p_id=75079&p_created=1201627416&p_olh=0

