

# The PREFORMA Challenge

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Centre of Expertise in Digital Heritage

PREFORMA – Networking session  
I Community Forum, Helsinki, 21/5/2014



Empower memory institutions to gain full control over the technical properties of digital content intended for long-term preservation.



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# Challenge R&D



i.e. container, encoding,  
embedded metadata,  
etc.

Empower memory institutions to gain full control over the **technical properties** of digital content intended for long-term preservation.



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Empower researchers to gain full control over the technical properties of **digital content** intended for long-term preservation.

i.e. text, image, sound and moving image



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Empower memory institutions to gain full control over the technical properties of **digital content** intended for long-term preservation

i.e. deposited & digitized content



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Empower memory institutions to gain full control over the technical properties of digital content intended for **long-term preservation.**

i.e. developing a preservation strategy (transformation, re-packaging, emulation)



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# Challenge R&D



i.e. targeting people that control the software for producing preservation files

Empower memory institutions to **gain full control** over the technical properties of digital content intended for long-term preservation by memory institutions.



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- ❑ Develop an **open source conformance checker** that:
  - checks if a file complies with standard specifications
  - checks if a file complies with the acceptance criteria of the memory institution
  - reports back to human and software agents
  - perform simple fixes
  
- ❑ Establish an ecosystem around an **open source reference implementation** that:
  - generates useful feedback for those who control software
  - advances improvement of the standard specification
  - advances development of new business cases for managing preservation files





# File formats



Content type	Standard specifications
TEXT	ISO 32000-1:2008 (PDF 1.7) ISO 19005-1:2005 (PDF/A-1) ISO 19005-2:2011 (PDF/A-2) ISO 19005-3:2012 (PDF/A-3)
IMAGE	ISO 12234-2:2001 (TIFF/EP) ISO 12369:2004 (TIFF/IT)
MOVING IMAGE	<p><b>Open standard:</b></p> <ul style="list-style-type: none"><li>• maintained by a not-for-profit organization,</li><li>• available either freely or at a nominal charge.</li><li>• IPR made irrevocably available on a royalty-free basis.</li><li>• no constraints on re-use</li></ul> <p>Capture AV-files that comply with the set of <b>minimum technical parameters</b></p>



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# Preservation Formats

MXF | MPEG | IMX | XDCAM HD422 |  
DPX | DCP | JPEG2000 | MOV |  
MPEG2 | AVI | MPEG4 | AVC | PDF 1.4  
| PDF/A1 | TIFF 6.0 | JPEG | RAW |  
AS-07 | MPEG|AF | PDF | MKV |  
FFV1 | OGG | Dirac | PNG | WebM |  
VP8 | OGG | Theora | PDF/A2 |  
PDF/A3 | LPCM

# Sustainability analysis

- Has the format been adopted by digital preservationists?
- Has the format been adopted by PREFORMA stakeholders?
- Has the format been adopted by service providers?
- Does the license of the format allow for developing open source software?
- Is the standard specification document available either freely or at a nominal charge?

	AUDIO VISUAL			TEXT	IMAGE
	broadcast	film	Consumer		
PREFORMA stakeholders	MPEG-IMX (MXF/MPEG2) XDCAM HD422 (MXF/MPEG4)	DPX DCP (MXF/JPEG2000)	MOV/MPEG2 AVI/MPEG2 MPEG/MPEG2 MPEG/MPEG4-AVC	PDF 1.4 PDF/A1	TIFF 6.0 JPEG JPEG2000 RAW
Industry standards	AS-07 (MXF/MPEG2) (MXF/JPEG2000) FIMS (MXF/MPEG2)	DCDM (TIFF 6.0) DCP (MXF/JPEG2000) IMF (MXF/MPEG4)	MPEG-AF	PDF	JPEG2000 TIFF
Open standards	MKV/FFV1 OGG/Dirac	PNG	WebM/VP8 OGG/Theora	PDF/A1 PDF/A3 PDF/A3	PNG
PREFORMA	MKV   OGG JPEG2000   FFV1   Dirac LPCM			PDF/A	TIFF 6.0

uncompressed/ lossless?	AUDIO VISUAL			TEXT	IMAGE
	broadcast	film	Consumer		
PREFORMA stakeholders	MPEG-IMX (MXF/MPEG2) XDCAM HD422 (MXF/MPEG4)	DPX DCP (MXF/JPEG2000)	MOV/MPEG2 AVI/MPEG2 MPEG/MPEG2 MPEG/MPEG4 -AVC	PDF 1.4 PDF/A1	TIFF 6.0 JPEG JPEG2000 RAW
Industry standards	AS 07 (MXF/MPEG2) (MXF/JPEG2000) FIMS (MXF/MPEG2)	DCDM (TIFF 6.0) DCP (MXF/JPEG2000) IMF (MXF/MPEG4)	MPEG-AF	PDF	JPEG2000 TIFF
Open standards	MKV/FFV1 OGG/Dirac	PNG	WebM/VP8 OGG/Theora	PDF/A1 PDF/A3 PDF/A3	PNG
PREFORMA	<b>MKV   OGG</b> <b>JPEG2000(?)   FFV1   Dirac</b> <b>LPCM</b>			<b>PDF/A</b>	<b>TIFF 6.0</b>

adoption?	AUDIO VISUAL			TEXT	IMAGE
	broadcast	film	Consumer		
PREFORMA stakeholders	MPEG-IMX (MXF/MPEG2) XDCAM HD422 (MXF/MPEG4)	DPX DCP (MXF/JPEG2000)	MOV/MPEG2 AVI/MPEG2 MPEG/MPEG2 MPEG/MPEG4-AVC	PDF 1.4 PDF/A1	TIFF 6.0 JPEG JPEG2000 RAW
Industry standards	AS 07 (MXF/MPEG2) (MXF/JPEG2000) FIMS (MXF/MPEG2)	DCDM (TIFF 6.0) DCP (MXF/JPEG2000) IMF (MXF/MPEG4)	MPEG-AF	PDF	JPEG2000 TIFF
Open standards	MKV/FFV1 OGG/Dirac	PNG	WebM/VP8 OGG/Theora	PDF/A1 PDF/A3 PDF/A3	PNG
PREFORMA	MKV   OGG <b>JPEG2000</b>   FFV1   Dirac LPCM			<b>PDF/A</b>	<b>TIFF 6.0</b>

Open standard?	AUDIO VISUAL			TEXT	IMAGE
	broadcast	film	Consumer		
PREFORMA stakeholders	MPEG-IMX (MXF/MPEG2) XDCAM HD422 (MXF/MPEG4)	DPX DCP (MXF/JPEG2000)	MOV/MPEG2 AVI/MPEG2 MPEG/MPEG2 MPEG/MPEG4-AVC	PDF 1.4 PDF/A1	TIFF 6.0 JPEG JPEG2000 RAW
Industry standards	AS 07 (MXF/MPEG2) (MXF/JPEG2000) FIMS (MXF/MPEG2)	DCDM (TIFF 6.0) DCP (MXF/JPEG2000) IMF (MXF/MPEG4)	MPEG-AF	PDF	JPEG2000 TIFF
Open standards	MKV/FFV1 OGG/Dirac	PNG	WebM/VP8 OGG/Theora	PDF/A1 PDF/A3 PDF/A3	PNG
PREFORMA	<b>MKV (?)   OGG</b> <b>JPEG2000 (?)   FFV1   Dirac</b> <b>LPCM (?)</b>			<b>PDF/A</b>	<b>TIFF 6.0 (?)</b>