

# PROCESSING OF TRANSPARENCIES AND VIDEOS

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## Abstract

Since 2005 SPMS has included functionality to process transparencies for publication to the JACoW archive as PDF slideshows. This was later revised in spring 2010 as reported at the 2012 JACoW Team Meeting with a presentation titled, “UPDATE ON TRANSPARENCY PROCESSING”[1].

As the media types available to presentation authors has advanced and become more common, the continued maturing of the JACoW processing has been inclusive where these features are available in the software tools.

This paper will summarise the locations of available information on transparency processing, and provide suggested tools and processes to embed animations within PDF slideshow documents.

## SCOPE OF TRANSPARENCY PROCESSING

The scope of work required in the processing of transparencies has 3 main aspects;

1. Managing transparency process status within SPMS.
2. Editing slides to “split” animations, and
3. production of pdf file, and embedding of multimedia for upload to SPMS.

## Resources

Detailed guidelines for Transparency Editors step by step instructions can be located on the JACoW website (jacow.org) under (tab) “For Organizers” > (side menu) “During the Conference” > “Proceedings Production” > “Processing Talks” (see Fig. 1).

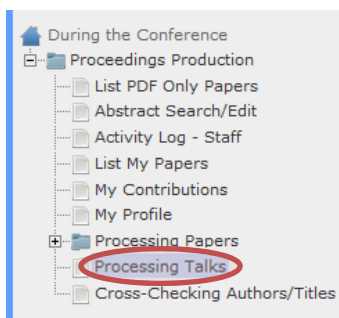


Figure 1: Primary resource location on the JACoW website for Transparency Processing guidelines [2].

Within the guidelines page you can find the following guidance documents and tools;

- **Transparency Manual [Version 3.0 from June 2012.]** (Details the processing procedure for transparencies, split animation usage and general pdf generation information)
- **How to embed movies in pdf files** presentation and corresponding paper, (Details methods for embedding movies/videos into pdf documents)
- **Transparency Processing Management** presentation from 2010, (Details the SPMS operation through the transparency processing)
- **Split Animation Macro** (Required “add-in” to generate multiple slides stepping through animations in PowerPoint presentations).

These documents along with the supplementary information within this paper are to assist Transparency Editors. The documents supplied on the guidelines web page should be first reviewed to gain base level understanding of the process.

## SPMS FUNCTIONALITY

The complete functionality for processing transparencies within the SPMS has been revised in 2010. Conference editors need additional login privileges provided by the SPMS administrator for each conference. A folder “Presentations Management” containing four subfolders named “Agenda”, Transparency List”, Transparency Processing” and Transparency Status Maintenance” is the basis for slide processing editors. All slides can be accessed via the menu shown in Figure 2.

## IPAC 2012 Transparency Maintenance

Day	Invited Oral					Contributed Oral				
	Total	Assignable	Assigned			Total	Assignable	Assigned		
Monday	5	5	5	0	0	5	18	18	18	0
Tuesday	12	12	12	1	1	10	18	18	0	0
Wednesday	18	18	18	0	0	18	12	12	0	0
Thursday	15	15	15	0	0	15	0	0	0	0
Friday	9	9	9	0	0	9	0	0	0	0
Totals	59	59	59	1	1	57	48	48	0	0

Get Next Transparency

List My Active Transparencies

List All My Transparencies

Figure 2: Starting point for slide processing editors within the SPMS.

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The conference transparencies are separated by day. Editors can upload and download slides, add comments for the authors and set the slide status to green/yellow/red independent of the paper status. For further details please see the manual for processing transparencies [3] which is available on the JACoW website [4].

## TRANSPARENCY PROCESSING

Authors are advised to upload their talks as PowerPoint slides or as a PDF slide file. The procedure of processing slides is to convert the provided PowerPoint material to PDF, the platform independent portable data format. Prior to the conversion every slide needs to be checked carefully for

- overlapping elements, e.g. due to animation
- strange or missing characters
- images or text appearing outside the slide

In case overlapping contents has been detected the editor needs to fix it by separating the overlaps manually or by using the so-called split animations macro written by Raphael Müller [5]. The macro splits annoying overlaps on one slide into separate slides. It acts like a PowerPoint Add-In and can be downloaded from the JACoW website. The installation is described in the manual for processing transparencies as well.

## EMBEDDING VIDEOS IN PDF SLIDES

### Supported Video Formats

Several speakers like to present multimedia material as audio and video files in their talks which is no problem in PowerPoint. Adobe Reader Pro 9 and later versions support Flash® (the files that end with .SWF or .FLV) and mpeg-4 (.MP4) video formats if H.264 encoded (*Note: I have not been able to find the plugins for this to work in the standard versions*). Additional formats for Acrobat versions 10 and 11 are .MOV, and .3GP .3G2 likewise H.264 encoded, these supported formats can be seen in table 1. Unsupported formats like .AVI or .WMV need to be converted with a transcoding tool, this step may still be required to be completed on supported formats such as .MP4 files which are not H.264 encoded. Note that during testing while researching this paper Adobe Acrobat Pro X was used.

Table 1: Video Formats  
(Acrobat XI Pro and Acrobat X Pro)

Format	Transcoding	URL Streaming <sup>1</sup>	Direct Placement Without Transcoding <sup>1</sup>	Legacy Placement <sup>2</sup>
Flash (.flv, .f4v)	N/A	Yes	Yes	No
Shockwave Flash (.swf)	N/A	Yes	Yes	Yes
QuickTime Movie (.mov)	Yes	Yes	Yes, if H.264 encoded	Yes
MPEG (.mp4, .m4v)	Yes	Yes	Yes, if H.264 encoded	Yes (except .m4v)
3GPP Movie (.3gp, .3g2)	Yes	Yes	Yes, if H.264 encoded	No

You can place these file formats in Acrobat X Pro PDFs for playback in Acrobat X and Adobe Reader X.

- 1) Direct placement without transcoding is supported in Acrobat X Pro.
- 2) Playback is compatible with earlier versions of Adobe Reader. [6]

For the purpose of legacy support I would recommend that .MP4 with H.264 encoding should be used.

### The Procedure for Editors

In my recent testing it appears that there maybe a few ways the video files maybe embedded into the final pdf document. Firstly the base standard method will be discussed, followed by video editing and transcoding tools, and then more recent investigation into alternative method of embedding with Adobe Media Encoder CC. Additional tools for converting animated gif images into videos for imbedding will be detailed.

### Standard Method Video Embedding

The standard procedure for conference editors can be described in four steps:

- Step 1: Generate the PDF slide file first by converting the PowerPoint presentation to PDF as described in the manual[3].
- Step 2: Convert the corresponding movie to a supported video format. (see section: *Video Transcoding and Editing Tools*)
- Step 3: Start Acrobat and select the slide where the movie should be embedded. Use the mouse to draw a placeholder around the image which indicates the movie (see section: THE ACROBAT MULTIMEDIA TOOL)
- Step 4: Embed the movie by using the appropriate Acrobat tool and define the launch settings.

Microsoft PowerPoint .PPTX (MS Office 2010) files unlike .PPT files are an archive which can be un-zipped with win-zip tool as to access media associated with the PowerPoint presentation. See Fig. 4 below which shows the un-zipped stricter when I unzipped file “Processing of Transparencies and Videos.pptx”.

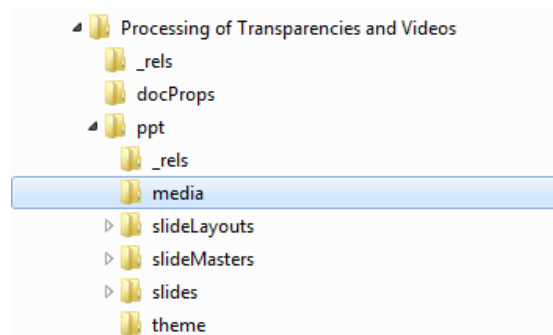


Figure 4: Unzipped content of a PowerPoint .PPTX file (Processing of Transparencies and Videos.pptx). Note that the video and other media files can be located in the “media” folder indicated above.

When working with the older .PPT files the media files will have to be downloaded from the SPMS should the author have uploaded then, otherwise the author will have to be prompted to supply them.

## Video Transcoding and Editing Tools

### HandBrake – a free converter tool

HandBrake is a multiplatform, multithreaded video transcoder, available for Mac OS, Linux and Windows. The software can be downloaded from the web [7] and a manual is available as well.

The software is easy to use. After the program start the source file and a destination folder need to be entered in the HandBrake menu and as a preset the default “Normal” is recommended. After encoding a message appears at the bottom of the menu. Figure 5 shows a screenshot of the HandBrake user environment.

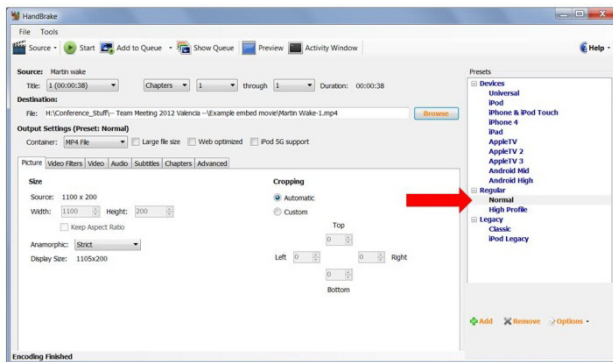


Figure 5: HandBrake user environment.

**Free Video Flip and Rotate** – a Free video rotation tool comes with “Free Studio” published by dvdvideosoft.com, during installation of this free software the installer should be vigilant to avoid installing co-bundled software. Some video sources rely on Meta data to provide information about the orientation of a video, PowerPoint generally is very good at identifying this meta data and displaying the orientation correctly. During testing of transcoding videos it was found that this Meta data can be lost, and when embedding video clips into the pdf Acrobat it may play the video in the wrong orientation. Most editors investigated which rotate the video do not preserve the original frame aspect ratio and putting black or grey bars at the edges of the video frame to create a standard aspect ratio. With “Free Video and Rotate” editor I was successful at making the orientation correction and preserving the frame aspect, this can be seen in Fig. 6. Note this correction should take place before the transcoding step.

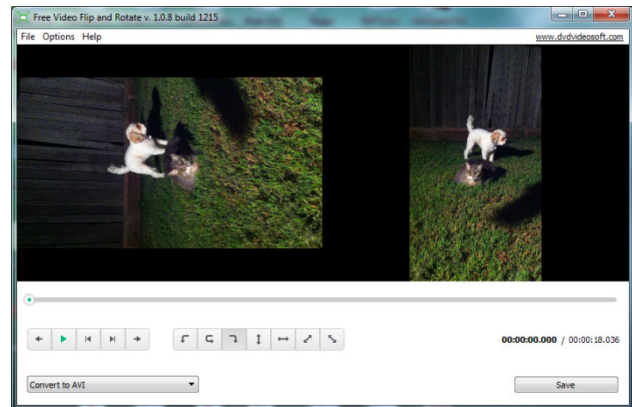


Figure 6: Screen capture of utilising the Free Video and Rotate editor published by dvdvideosoft.com [8].

**Adobe Media Encoder CC** – is part of “Adobe Creative Cloud”, the version used during the investigation of this paper was 2014 trail version [9], see Fig. 7. Adobe Media Encoder functions as an encoding engine for Adobe Premiere Pro, Adobe After Effects, and Adobe Prelude. You can also use Adobe Media Encoder as a stand-alone encoder [10]. This transcoding package has the advantage that it can process the video files utilising the meta data and preforms the same steps that HandBrake and Free Video and Rotate preform together in 2 steps. The package also has the advantage of integrating into the existing Adobe software. After installing this onto my system when producing the pdf version of the slide show with the Adobe plugin within PowerPoint the pdf generated tries to directly embed the video files. Note thought that the videos embed may still suffer from aspect ratio issues, and separate transcoding and manual embedding may still need to take place.

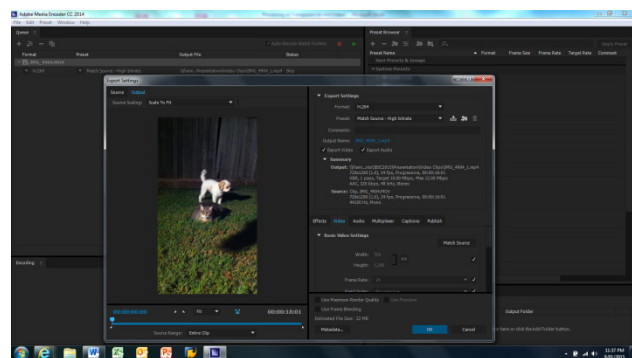


Figure 7: Screen shot of Adobe Media Encoder CC 2014 preforming transcoding on test video.

**VirtualDub** – is a free tool from generating AVI files from animated GIFs [11]. Previous to the Dresden IPAC’14 animated gifs were discarded in place of the static image. This tool was used successfully to generate AVI files which were further transcoded with HandBrake to preserve the animation in to final pdf. Figure 8 shows the process of using the editor to generate a video file from a test image [12].



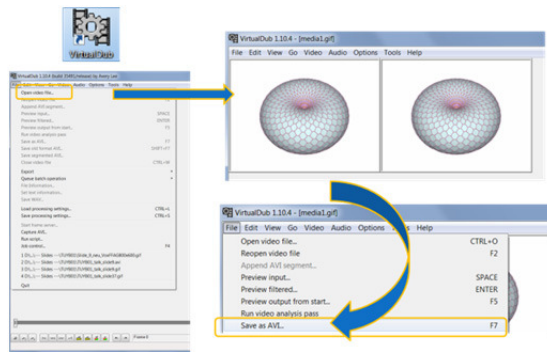


Figure 8: Demonstration of converting an animated gif file [12] into an AVI video file for further transcoding.

## THE ADOBE MULTIMEDIA TOOL

To embed movies in PDF files Acrobat offers a multimedia tool. Conference editors using Acrobat Version X must select the slide where the movie should be embedded followed by mouse clicks on the buttons named Tools > Content > Multimedia as shown in Fig. 9. The cursor will change to a crosshair and Acrobat expects to draw a rectangle as a placeholder for the movie. Figure 10 illustrates the dialog box which will appear.

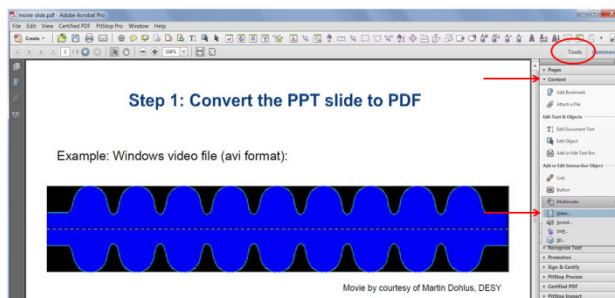


Figure 9: Acrobat tools to embed multimedia files.

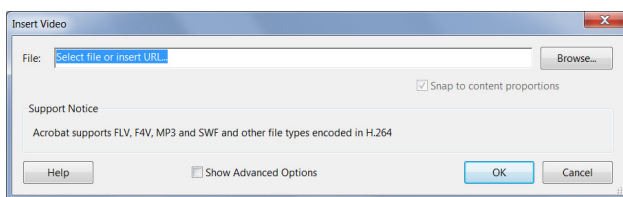


Figure 10: Acrobat dialog box to embed movies.

A URL can be provided pointing to a video in the internet which does not embed the video in the PDF permanently. To play the movie an internet connection is needed.

Or, a file can be provided which will finally be embedded in the PDF document. To play the movie an appropriate video player, like Quicktime [13] or the Windows Media Player [14] needs to be installed on the local computer.

### Video Launch and Control Settings in Acrobat

There are several possibilities to launch the embedded video. It can be enabled when the content is clicked or

when the page is opened or when the page is visible. The video can be disabled when the page is not visible or closed. The playback style can be defined as well which means to play the contents on page or in a separate window.

Control buttons can be modified and the color and the opacity of the control bar can be set as demonstrated in figure 11.

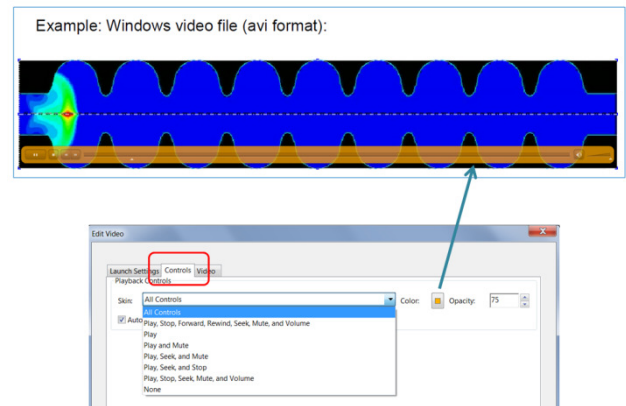


Figure 11: Video launch and control settings in Acrobat.

## SUMMARY

It is not a mystery to embed multimedia material in PDF documents. The Adobe Reader 9 and later support FLASH® and MPEG-4 video formats. Unsupported video formats need to be converted. A free converter tool is HandBrake, and trial software such as Adobe Media Encoder CC can be used. Users must install an appropriate application, such as Quicktime or the Windows Media Player to play the multimedia contents.

## REFERENCES

- [1] M. Marx, THAA4, Proc. Team Meeting 2012, IFIC, Valencia, Spain, <http://jacow.org/>
- [2] <http://jacow.org/index.php?n=Editors.ProcessingTalks>
- [3] "Processing transparencies – a step by step guide", [http://accelconf.web.cern.ch/accelconf/JACoW/Documents/Transparency\\_Processing/Slides\\_Processing\\_Manual\\_V3.pdf](http://accelconf.web.cern.ch/accelconf/JACoW/Documents/Transparency_Processing/Slides_Processing_Manual_V3.pdf)
- [4] [www.jacow.org](http://www.jacow.org)
- [5] Raphael Müller, GSI, Darmstadt, Germany
- [6] <http://helpx.adobe.com/acrobat/kb/supported-file-formats-acrobat-reader.html>
- [7] Visit the website for details at: <http://handbrake.fr>
- [8] <http://www.dvdvideosoft.com/>
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