Choosing and using file types

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There are so many different file types and you have to make sure you choose the right one. You can't put a high quality .wav file up as a podcast – they are huge files which your audience will struggle to download. Some formats can only be used with certain programs. Sometimes you'll lose audio quality.

One thing to avoid is converting your file many times. Every time you change your work from one format to another, you're going to lose quality. You might not be able to hear it, but when you save your work as an mp3 for example, it's compressing the audio into a smaller file size. It will take out the frequencies which the human ear probably won't hear and it will cut out some of the background depth from even a simple voice recording.

We've created a table here of the most common video and audio file types. It's not exhaustive – if you come across a file type that you don't know, just look it up on the internet. Even the pros get really confused!

AUDIO FILE FORMATS			
Type	**Used for**	**Size (range)**	**Info**
.wav .aif	High quality uncompressed audio	Large	WAVE (windows) and AIFF (mac) are very large, very high quality audio files. You can use these files for most purposes and you should keep your files in these formats for editing if you can. If your computer is a little older, it might struggle to work with the large files, in which case, convert to mp3. Don't post these large files on the internet, email or podcasts.
.mp3	Everything!	Small-large	Most common online audio format and very useful. Easily transferrable, compatible with almost all programs and you can use mp3 for editing radio work. It comes in a range of quality and sizes – best quality is 320kbps, but for online use and podcasts, use 128kps. For your music, probably use about 192kpbs, unless it's something that you want to preserve in the highest quality.

.aac	Apple – iTunes	Small	Default iPod and iPhone audio format. About the same size as an mp3, but slightly higher quality. Good for your iPod, playable with other programs, but not good for editing. You can usually convert to mp3 in iTunes, unless it's a track that you've bought from the iTunes store.
.m4a .mp4	Apple – iTunes		Sometimes also named .aac, but a different format – this is Apple's 'lossless' format – reasonably small files with little loss of audio quality. Not compatible with many audio players other than iTunes.
.wma	Windows Media Player	Medium	This is the default Windows Media Player file type. If you rip a CD into WMP, most likely it'll be in this format. You should be able to convert to mp3 in Windows Media Player or iTunes, unless it's a track you've bought online, in which case it will be protected.
.ra .rm	Real Audio, Real Media	small	Relatively compact, small but high quality files. It's often used for internet streaming. Only usable with the Real Media software packages. Very fiddly to convert to any other format. Totally self-contained format, which means that it will work on any computer.
.mid	Old-school way to encode digital music	Small	Midi saves music as actual notes, not sound, and recreates it as if a musician was playing it. It will often sound very different on different computers. Still often used for royalty free music and show media.
.cda	CD audio track	Large	This is how the music tracks on an audio CD are saved. You have to convert to another format before you can transfer or edit – easily done using iTunes or Windows Media Player.

As video file sizes vary depending on a vast range of factors (the codec/format used, the length of the video, the dimensions of your export etc.), we've only provided size indications for some formats.

VIDEO FILE FORMATS		
Type	**Used for**	**Info**
.flv	Online video, video as part of Flash presentations.	Flash video. Commonly used to display online video. If you've ripped a video from online for authorised/fair use elsewhere, there are FLV converters available, such as QuickTime Pro, which will export the video in a format easier to edit with.
.avi	Adobe Premiere files are commonly compressed as .avi files.	AVI is a 'Container' format, meaning the video within the file could have been compressed with one of many codecs. Sizes vary as some codecs, such as DivX, compress quite a lot while other AVI files may be entirely uncompressed, such as captured video in Adobe Premiere.
DV	SD camcorders	Large file size. Format used to record standard definition digital video, used in camcorders and recordable to MiniDV tape. SD footage captured into iMovie or Final Cut Pro will be saved with the extension .dv which is widely compatible with editing programs.
HDV	HD camcorders	Very large file size. Format used to record high definition digital video, used in HDV cameras, also recordable to MiniDV tape. Must be captured into an editing program using the HDV camera or an HDV deck. HD video requires much more computing power to edit with than SD – make sure your setup can cope.
.mov	Must have Quicktime software installed	Designed by Apple, files of this type are not usually compatible with PC editing software such as Adobe Premiere without first being converted.
.wmv	Windows Media Video (add-on is available for Mac)	Designed to be played using Windows Media Player. Compatible with Adobe Premiere, but not Final Cut Pro. WMV can be played and converted using Quicktime Pro with the Flip4Mac add-on installed.

.vob	DVD files	Very large file size. Files on DVD use this extension – the files are MPEG-2 encoded and are usually copy protected, preventing them from being copied and used without being illegally ripped using special software.
MPEG	Stands for Moving Pictures Expert Group, a group of developers that create digital video formats. Some examples are below.	
.mpg/ .mpeg	VCD, DVD, DTV-B	Typically MPEG-1 (VCD quality) or MPEG-2 (DVD and Digital TV quality) compression. MPEG-2 files are used for broadcast at Channel 31 and video recorded using a PVR will generally be in this format. It can be hard to edit with (using Final Cut Pro for example) unless first converted.
.mp4	YouTube, online video	Like AVI, MP4 files can be compressed in a number of ways. One of the most common standards is H.264 which provides good quality video with relatively low file sizes. MP4 is often used for online video sharing including videos on YouTube.
.m4v	Apple – iTunes	Videos using this extension are usually from the iTunes Store. They are like MP4s but can carry proprietary DRM (Digital Rights Management) that can restrict their use. If the file has no DRM, the extension can be renamed to .mp4 so the file will be recognise by other programs.

Tips for using different video files:

Broadcast:

If you're preparing content for broadcast on C31, for example, it's important to maximise video quality at each step of the process. This does not mean filming in High Definition; Channel 31 only broadcasts in Standard Definition.

Any content from external sources should be captured at its highest quality – if using a video from the internet, the best option is often to find a HD version as this will have more than enough information for broadcast quality and you can resize it in your editing program to fit your SD frame.

Edit your content using a 'DV-PAL Anamorphic' project and export the finished product back onto a MiniDV tape for the best results. If burning to a DVD, make sure you aren't compressing the quality of the video in the process. *Always* watch back your tape/DVD before submission to make sure it's top notch and that you haven't missed any mistakes. Otherwise they'll either go to air and you'll be embarrassed, or your show might be rejected!

Online:

Many online video services, such as YouTube and Vimeo, can handle HD video quite well, so you're free to film and edit in HD if you want to. Be aware that this will be taxing on your computer and will use up a lot of disk space. The finished export will also generally be a large file to retain the HD quality.

One thing to keep in mind when exporting for online is **aspect ratio**. When filming/editing in 16:9, you will generally be using an Anamorphic setting. This means that the dimensions are 720x576 pixels, the same as 4:3 footage. When broadcast, this would be played back as 16:9 because of the transmission settings and the shape of widescreen TVs. Online, however, a file with these dimensions will often play back 4:3 because the online video service doesn't know it's meant to be widescreen.

To avoid this, export your work with 16:9 dimensions. You can choose whatever is appropriate, just make sure that the width:height ratio is 16:9. For example, you could export your DV footage as 720x405. (720 ÷ 16 x 9 = 405).

To reduce file size while retaining quality, use a format such as MPEG-4 H.264. If you need to email somebody a sample of something you're working on, you can export your video at a smaller resolution, which will result in a smaller file. Just make sure the dimensions you choose are the in correct aspect ratio or your video will be squished/stretched! Bad!

Video editing software compatibility:

Formats compatible with Adobe Premiere Pro can be seen here:
http://kb2.adobe.com/cps/405/kb405978.html

Formats compatible with Final Cut Pro can be seen here:
http://www.apple.com/finalcutstudio/specs/#finalcutpro

Having trouble playing a particular file type?

If your videos aren't playing right on your computer, you might be missing the right playback codecs. Even if you've got the correct program, sometimes your computer needs a little extra info to decode your file.

Google K-lite codec pack, and make sure you choose a safe-looking download, because some scammers will put up fake copies. That should give you all the codecs you need.

If you're having trouble playing audio, a good option is VLC media player. As you can see from the table, there are a huge variety of proprietary audio formats. VLC is a free audio player which does a pretty good job of playing them all, and most video formats too.

About the writers:

Tamzin Byrne, 26, volunteered at SYN Media for a number of years in various roles including presenter, producer and SYN Radio Programing Manager. In 2009, Tamzin won the Radio Producer of the Year Award at the annual SYN Awards Ceremony for her work as Executive Producer of Panorama.

Tim Kennedy, 20, is a Media and Communications student at RMIT and has been making TV with SYN since 2006. Tim's roles at SYN have included Executive Producer of 1700 and TV Manager. Tim has wrestled with many a digital video in his time and currently works for Channel 31 nit-picking the technical quality of all programs for broadcast.