Microsoft PowerPoint® and Multimedia

Preface

This tutorial or FAQ doesn't take the traditional format of Q & A. I've tried to write it in that format, and have found there is too much information to convey in that manner. To understand multimedia use in PowerPoint we need a clear understanding of its interactions with the operating system (Windows). Not to worry, most of the information presented is easily understood, and well within the average users' ability to master. As an added bonus, we may just be able to solve some of those "other" multimedia problems you've been having with your system.

Before going further I have to take a moment to thank all those folks who have played such an important role in getting me to commit this information to written form. To all the folks in the newsgroup, microsoft.public.powerpoint, the Microsoft MVPs and their willingness to go the extra distance, and most certainly to the MVP support folks at Microsoft, thank you each and everyone. A very special thanks to the folks who devoted their time, and computers, to testing this information.

Folks, if I can give you just one piece of valuable advice, visit the newsgroup. I can't think of a better place to learn the inner workings of PowerPoint. Simply put, there isn't a better place to interact with some of the most knowledgeable and friendly folks you'll ever meet. Do yourself a favor and drop in.

Return to Index

Definition of Multimedia and File Formats

Everyone knows what multimedia is, right? For the purposes of this discussion we will be addressing two specific forms of multimedia - sounds and movies, and their role in PowerPoint. PowerPoint has the ability to insert and play the following type of files.

Video (Movies)

QuickTime files (*.mov, or *.qt) created with versions 1 and 2 of QuickTime (versions 3 and 4 are not supported).

Audio Video Interleave (*.avi)

Motion Picture Experts Group (*.mpg, *. mpeg, *.m1v, *.mp2, *.mpa, *.mpe)

Microsoft Streaming Format (*.asf, *.asx, *.wmv)

Animated GIF (*.gif) While animated GIFs are not movies, they come close enough for discussion in this document (Note: Only PPT2000 supports animated GIFs).

While other, less popular video formats exist, these are the most common and most likely to be used in PowerPoint. Should you need to use one of

the less popular formats I strongly suggest converting it to an avi or mpg format.

Sounds

Audio Interchange File Format (*.aiff, *.aif, *.aifc)

Motion Pictures Expert Group Layer-3 (*.mp3, *.m3u) (Note: may only be inserted with PowerPoint 2000 but may be played back with PowerPoint 97 or the 32-bit PowerPoint Viewer.)

Musical Instrument Digital Interface (*.midi, *.mid, *.rmi)

Unix Environment (*.au, *.snd)

Microsoft Wave (*.wav)

Microsoft Streaming Format (*.asf, *.asx, *.wma)

CD Audio (*.cda)

Again, there are less common formats, but these are the ones most users will be using.

Return to Index

Operating Systems and PowerPoint Versions Discussed

For purposes of this discussion we will be working with PowerPoint 2000. Most, if not all, of the information in this document will also apply to PowerPoint 97 and I will try to make a special note when there is a difference.

Operating systems discussed are Windows 98, Windows ME, and Windows 2000. Again, most of the information presented will apply to the other Windows Operating Systems such as Windows 95 and Windows NT. However I don't have access to computers running these Operating Systems where I can "experiment" with them.

What about Mac users? Sorry folks, I've never worked with the Mac so there isn't much I can contribute in this area. However, if there are any Mac types out there that would like to contribute their experience please, by all means, contact me so we can include it.

Return to Index

How PowerPoint Handles Multimedia

How does PowerPoint handle multimedia? The short answer, it doesn't, it calls upon the Windows system services to get the job done. Let me say that again, PowerPoint does very little with multimedia other than hand it over to Windows for playback.

Why is this important? Because we could "fidget" all day with PowerPoint trying to correct a problem when the real problem is in how Windows has been installed, setup, and modified. Almost every multimedia problem in PowerPoint has its roots in the operating environment, (Windows).

So lets start with how Windows handles multimedia. A common misconception is that it uses the Windows Media Player. It does not! Instead it uses a group of Advanced Programming Instructions (API) that is commonly referred to as the Multimedia Control Interface (MCI). These are a part of Windows Operating System and are present regardless of the installation or non-installation of Media Player.

As an example of the MCIs use, consider that you can assign sounds to events or actions like starting or closing an application. Windows doesn't start Media Player every time to "play" the sound; the function is built in to Windows itself.

The MCI dates back a decade or so and was first introduced with Windows 3.x when Microsoft worked with a number of companies to develop a standard way to implement Multimedia on the PC. The MCI itself is built in a modular fashion so that newer, and improved modules or components could be added.

Of course the biggest advantage to this is that software vendors could simply call upon the MCI to do multimedia functions without having to write new program code to do the job. This is exactly how PowerPoint is designed to work. Like everything, there is a downside. If a vendor wants more functionality then is provided by the MCI standard, they must write their own program to do it. Apple decided to do this with the release of QuickTime 3 and all later versions. That's why only versions 1 and 2 work with PowerPoint. Or more specifically, they work with the Windows MCI.

So if this functionality is built in, why doesn't it work on my system? There are a number of reasons this problem occurs. Remember when I said that the MCI is modular in nature? The most common problem is that one (or more) of these modules wasn't installed with Windows, was removed, damaged, overwritten, or redirected.

How could that happen? The installation part is easy. When Windows is installed you are given the option of installing Multimedia Tools. It may be that none or only parts of it were installed. To determine this go in to "Control Panel" and start the Add/Remove program and then select "Windows Setup". Here you can scroll through the components of

Windows that are installed. Make certain the Multimedia is checked and that all the Multimedia components are selected. Click OK and any missing components are installed. (Note: A re-boot may be needed for the changes to take effect.)

What other things can cause these problems? The answer is, installation of third party applications. Remember we are talking about a "standard" way to deal with Multimedia? Unfortunately, some vendors don't want to follow the standard and in an effort to make their application "better", replace certain modules of the MCI. These modules can be drivers, *.dll files, or codecs. I guess the thinking goes something like, "Hey we have the best player out there so why would a user want to use anything else, go ahead and change it." Well, at least I prefer this idea to thinking the competition would deliberately scramble the MCIs use for everyone else.

What software does this? There are a bunch of them but the more common ones I have tested and know cause problems are, QuickTime 3, 4 and 5, Xing Player and Encoder, Real Player, WinAmp, and several of the video authoring programs. In most cases the changes made by these programs can be corrected without any ill effect. Notice I said "most" of the time. There are situations where by restoring the MCI to its original condition, you will not be able to use the third party software.

Wouldn't it be nice if there were a handy way to test the MCI to make certain everything is in place and a specific file will play correctly before trying to use it in PowerPoint? Turns out there is one. When you installed

all of the multimedia components with Windows, you also installed a version of Media Player that works directly with the MCI. Wait! Do NOT confuse this with the "Windows Media Player". Boy do I wish Microsoft had given them different names.

Windows Media Player versions 6.x and 7.x are available as a download from the Microsoft web site. These players have nothing to do with PowerPoint or the MCI, other than they too use certain modules for functionality.

If you have a Multimedia file you want to test for compatibility try using the MCI Media Player. To do so click Start – Run, and in the command line type "mplayer.exe" (or "mplayer32.exe" for WinNT) and click OK. This starts the MCI Media Player. Yes, it's the same one you were used to in earlier versions of Windows. Remember, I said the MCI has been around a long time. Now with File – Open, navigate to the file you want to test and see if it plays properly. If it does, it should work in PowerPoint just fine, if it doesn't play correctly it will NOT work in PowerPoint. Folks it's a simple test and can save you from hours of hair pulling and low level cursing.

All right, we understand PowerPoint uses the MCI, how do I set it up properly? We have been talking about the MCI and it's modules, we need to get into it a bit deeper to see how the modules are used. As the MCI dates back to Win 3.x its "settings" are kept in two files (win.ini and system.ini) that are read at boot up. Each of these files has sections that

determine how the MCI will work and interact with your computer system. We need to edit them and make certain they follow the "standard" established by Microsoft.

STOP! Before going any further, PLEASE back up your system. Nuff said!

Using a text editor (Notepad works fine) open the win.ini file. Scroll down to the heading [MCI Extensions] and compare them to the following. If they are different, correct them, if there are lines or entries missing add them, if there are duplicate entries remove one of them. The entries ARE case sensitive. After you are done, "Save" the file back to its original location. Do the same for the system.ini file. (Note: a re-boot is required for the changes to take effect.)

WIN.INI
[MCI Extensions]

mid=Sequencer
rmi=Sequencer
wav=waveaudio
midi=Sequencer
avi=AVIVideo
qt=MPEGVideo
mov=MPEGVideo
dat=MPEGVideo
mpg=MPEGVideo
mpa=MPEGVideo
mpv=MPEGVideo
enc=MPEGVideo
m1v=MPEGVideo
mp2=MPEGVideo
mpe=MPEGVideo
mpeg=MPEGVideo
mpm=MPEGVideo
au=MPEGVideo
snd=MPEGVideo
aif=MPEGVideo
aiff=MPEGVideo
aifc=MPEGVideo

SYSTEM.INI
[mci]

cdaudio=mcicda.drv
sequencer=mciseq.drv
waveaudio=mciwave.drv
avivideo=mciavi.drv
videodisc=mcipionr.drv
vcr=mcivisca.drv
MPEGVideo=mciqtz.drv

Codecs are a Must – Find Them Here

What the heck is a Codec and why do I need them? Codec stands for COmpressor / DECompressor and it does pretty much what the name implies. They are used to compress Multimedia files for transfer and storage, and then to reverse the process for play back. If you have ever used "Zip" to compress a file you have the general idea.

Why are there so many different codecs? Different forms of Multimedia compress very differently depending upon their contents. Consider the difference in the sound of a car engine running and a full orchestra playing music. The engines sound is of a very low frequency and repetitive, while the orchestra produces a full frequency of sound with little repetition. Obviously the engine sound would compress much differently than would the orchestra music. So we use a different tool or codec to get the job done. The same analogy holds true for video. Codecs are constantly being upgraded and the technology envelope pushed in order to compress the file smaller without loosing quality during playback.

The good news is that Microsoft foresaw the need for future codecs and built the MCI so we can simply install them as needed. In plain terms, a codec is just another module of the MCI and the MCI makes it available to other software, in our case, PowerPoint.

There are literally hundreds (thousands?) of codecs in use today and no one would have all of them installed on their machine. However there are

the "common" ones that should be on every machine. In order to determine which codecs are install on your machine go into Control Panel and double click Multimedia. Click on the Devices Tab and look for "Audio Compression Codecs" and "Video Compression Codecs". Click on either of these to see a list of the codecs installed. Here is a list of some of the most common codecs:

DSP Group
TrueSpeech Software Audio Codec

Intel
Indeo R3.1 Video Codec
Indeo R3.2 Video Codec
Indeo 5.04 Video Codec

Microsoft Audio Codices
ADPCM Audio Codec
CCITT G.711 A-Law and u-Law Audio Codec
GSM 6.10 Audio Codec
IMA ADPCM Audio Codec

Microsoft Video Codices
RLE Video Codec
Video 1 Video Codec

SuperMatch
Cinepak Video Codec

Fraunhofer
Fraunhofer IIS MPEG Layer-3 Codec

In putting this information together I have tried to track down sites where codecs could be downloaded. I found two things: First, folks that create codecs tend to play it very close to the chest. That is you won't find much in the way of web sites that have lots of them for down load. And second, the companies change the URLs to their sites on a regular basis so placing them in this document is a waste of time. So the best advice I can give is to use your favorite search and go hunting on the web.

[Return to Index](#)

Bringing it Altogether

OK, we have the win.ini and system.ini files straightened out, and we have the standard codecs installed, now what? Next come driver issues. The most common problem I've seen in Multimedia and PowerPoint is problems in the video drivers.

If you are experiencing a situation where PowerPoint allows you to insert the multimedia file but it doesn't play as expected the chances are it's a video problem. What can be done about it? Before "fixing" the problem

lets try to determine that it is in fact a video problem. To do this, restart your computer in Safe Mode and run the presentation. It won't be pretty but the question to be answered is, did it play properly? If the answer is yes then it's almost certain you have a video driver issue. There are three basic "fixes" for this situation.

First, go to the web site of your video card manufacture and see if there is an updated driver for it. If you aren't certain which driver to use, most manufactures provide a small utility to examine your system and give you this information. You might also be able to get this information from Control Panel – System – Device Manager. Look for "Display Adapter".

Second, change your display color depth. I wish I had a magic formula to tell you which optional setting to use but it depends upon your particular system. So, simply try different settings to see if one works properly when you play your presentation.

Third, Lower your video hardware acceleration. Again go into Control Panel – System – Performance. You will see a button labeled "Graphics". Click it and you are presented with a slide control, which may be used to set the acceleration level. Move it down one "notch" at a time and try the presentation.

One or a combination of these things should fix the problem. However, I will note that I have run into problems with certain new video cards that I wasn't able to resolve. The answer at that point was to replace the video

card. As a side note, many of the video cards that have video capture or "video in" tend to install their own proprietary codecs. These will work fine on your machine but if you move the file to another machine it may not work at all. Just a word to the wise…

These same issues are applicable to sound playback. First make certain the win.ini and system.ini files are correct, then make certain the required codecs are in place, and then play the file in "mplayer.exe" (mplayer32.exe for winNT). If you are unable to play the sound in this manner there are problems with your sound subsystem.

The fixes are the same as for video issues. Make certain you have the latest driver for your sound card from the manufacture. Next make certain your playback settings match or exceed the quality level of your file. As an example, if you have your system set to produce only 8-bit mono playback and the file is 16-bit stereo the quality of the sound will obviously suffer, or may not play at all. And the last area to look at is the audio hardware acceleration. Again try adjusting it gradually and try playing the presentation after each adjustment.

All the audio adjustments are made in Control Panel – Multimedia – Audio.

Return to Index

Alternative Methods

Up to this point we have been dealing with how to play multimedia "natively" in PowerPoint. By that I mean using the standard method of, Insert – Sound/Movie – From File. There are a number of other ways to do this, and the following are some examples.

If you use "drag and drop" to place a multimedia file on a slide, an instance of "Windows Media Player" is created. At that point Media Player is in control of the playback.

To play a Non-supported file format (QuickTime, Real Media,) you may Insert – Object – Create From File and navigate to the file and insert it. This will call the player that is associated with that file type. This of course assumes you have the correct player installed on your system.

You may also hyperlink to the file. Select the object or text you want to assign the hyperlink to, and Insert – Hyperlink. In the "Link To" window select Existing File or Web Page, and then navigate to the desired file. Again the player associated with the file type will be called. I happen to like using this method when giving a presentation because it allows me to have control of when the movie is played.

There are a number of additional methods to play multimedia in PowerPoint using Visual Basic for Applications, Active X controls, or Visual Basic controls already existing in PowerPoint. However, they are

well beyond the scope of this document and are best left to the programmer types.

There is one last method that I should mention. If you have an OLE compliant application, it to may be inserted as an Object. One place this might come in handy is the playback of DVD movies. Neither PowerPoint nor Windows Media Player is equipped to handle this format.

Portability of Presentations

I've included this section as many users ask why their presentation works on one machine and not another. As you can see from all the above information it isn't so much a PowerPoint problem as it is an environment (Windows Setup) problem. We simply have no way of knowing in advance how the receiving user has his/her machine setup.

What can be done to maximize success in transporting presentations?

Don't create a presentation with critical timing on a fast machine and expect it to work the same way on lesser machines. If you have a video playing, don't add to the computers workload by having other animations happening at the same time. It's also a good practice to

place a couple of seconds between slide transitions and the start of a video.

Use Multimedia file formats that are likely to be found on most machines. For video this is the AVI format using the Cinepak codec or the (preferred) MPEG format. For audio use the Microsoft wav format. I can hear the grumbling already about quality and file size. Folks, if you want to distribute the presentation to others you have to use the lowest common denominator. Remember, a big file that plays properly is a lot better than a small file that doesn't play at all.

Be certain that you include any multimedia files along with the presentation. Because Microsoft uses the word "Insert" we tend to think the file has been inserted into the presentation. Unfortunately this isn't true, the Multimedia file has been "linked" to the presentation and it is called when needed. PowerPoint expects to find the file in the same place it was originally linked from.

Closing Remarks

That about covers the "generic" information on using PowerPoint and Multimedia. I'm certain there are a number of issues that are specific to your machine and presentation, but I couldn't possibly cover all of them in this document.

If you have read through this information, made the suggested changes, and still encounter problems or issues I urge you to visit the PowerPoint newsgroup, microsoft.public.powerpoint where I and a bunch of wonderful folks hang out working together to get the most out of PowerPoint.

Heck, don't wait until you have problems, just stop in and say hello. You never know what you might learn or teach others.

Happy Presentations,

Austin Myers
Microsoft PowerPoint MVP

Return to Index