



UNIVERSITY OF HARTFORD

Faculty Center for Learning Development

Taming the File Size Monster

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Overview

The incorporation of multimedia elements such as graphics, images, video, and audio in presentations, web pages, and course sites has been shown to enhance learning. However, these enhancements pose manageability issues related to increased file sizes. These issues relate to exceeding e-mail and web quotas, as well as difficulty transporting, transferring, and printing files these extra-large media-enhanced files.

The purpose of this document is to provide specific methods for controlling the size of the most problematic file types:

- Scanned PDF documents
- PowerPoint Presentations
- Images
- Digital Audio and Video

Managing File Size in Scanned PDF documents

Goal: Keep file sizes small by controlling scan settings.

Best Practice:

- Scan in black-and-white for text only.
- Scan in grayscale for text with some images.
- Keep resolution (dpi or ppi) as low as possible.
- Scan at 300 dpi if you need high quality printing, around 150-200 dpi for web applications.

For scanned documents, file size is determined by the *resolution* and *output type* scan settings. Resolution refers to dots per inch (dpi) for dots of ink on paper or pixels per inch (ppi) for single point of graphic image on a digital screen such as a monitor. Output type refers to the kind of document you need from your scan, such as paper, digital file, and whether or not it includes text, images, or both.

In order to determine the best possible combination of these settings, determine the ultimate use for the document being scanned.

- Are you scanning a text-only document to upload to your Blackboard course? Most likely the document will be printed by the student for reading/studying. Try setting your scanner for 200 dpi, text only, black-and-white – a good setting for printing from a scan.
- Are you scanning a document that includes text and images to upload to your Blackboard course? If the images do not need to be detailed and the student will be printing, then you can use the setting above. If the images need a little more detail on the printout, try setting your scanner for 200 dpi, text-with-image, grayscale (sometimes called ‘256 grayscale’)
- Are you scanning the document so you can upload it to your Blackboard course or a web site and it will be primarily viewed on-line? Most computer screens display information between 72 and 100 dpi, therefore you can use a lower scan setting than would be the case if you needed to print the material. Try 150 dpi to start.
- Does the scanned document need to be in color? In general, the lower the color setting, the lower the file size will be. Avoid scanning in ‘millions of colors’ unless absolutely necessary.

There are no set rules for scanning but guidelines to get you started are listed below:

- Scan documents with plain text in black and white 100 – 200 dpi.
- Scan color documents or printed copies with pictures in 256 grayscale with a resolution of 100-300 dpi, depending on the quality of detail needed.
- Avoid scanning in ‘millions of colors’ or resolutions higher than 300 dpi!
- Don’t rely on the screen view to determine print quality. Print a copy of your scanned document to see how it looks before you adjust your scan settings.
- Start low and adjust settings higher as needed for quality.
- Best case: create a PDF directly from the digital copy.

Managing File Size in PowerPoint Presentations

Goal: Keep PowerPoint file size manageable by using image formatting options. Also, consider converting large files to PDF or streaming java with Acrobat or Impatica software.

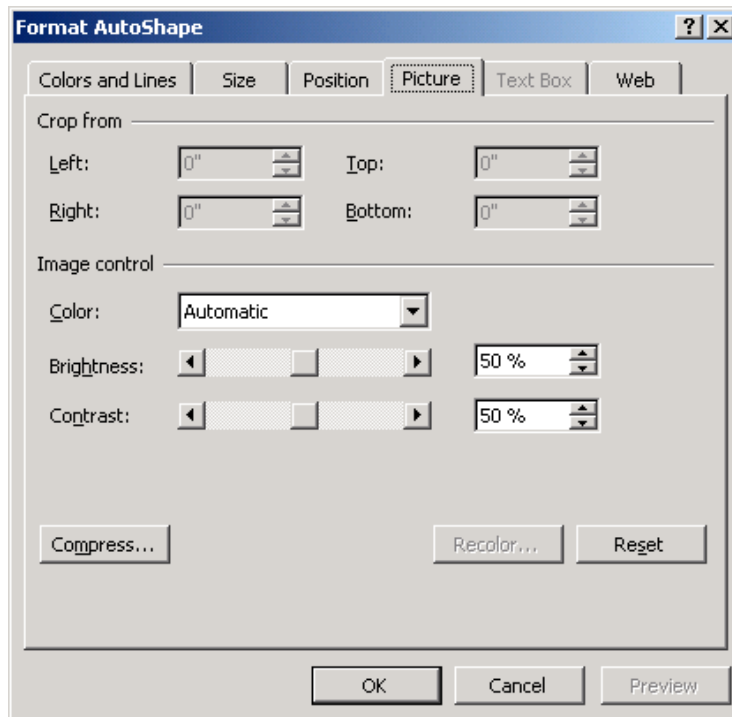
Best Practices:

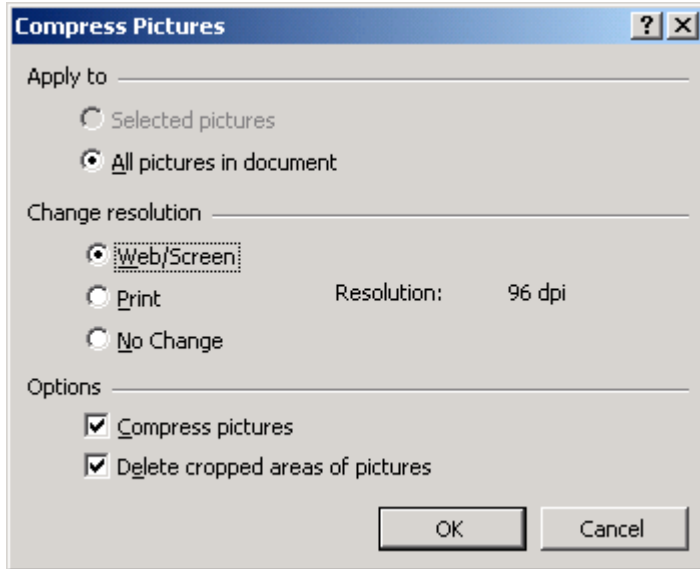
- Compress all images in your presentation.
- Set to web resolution (96 dpi).
- Delete the cropped area of pictures.
- If your presentation is still too large, consider saving the outline only in Word, or using Acrobat or Impatica (FCLD can provide this) to convert it to handouts or streaming java.

Inserting images, especially those from digital cameras, can cause the size of your PowerPoint Presentation to swell dramatically. Since most digital images are captured at a resolution appropriate for printing, they can be reduced and compressed for presentations that take place on a computer screen.

You can format the resolution and compression of all images in your presentation in a single step by following the instructions below:

- Double click on any picture in your presentation.
- Select the *Picture* tab in the *Format AutoShape* dialog box.
- Click the button marked *Compress..*

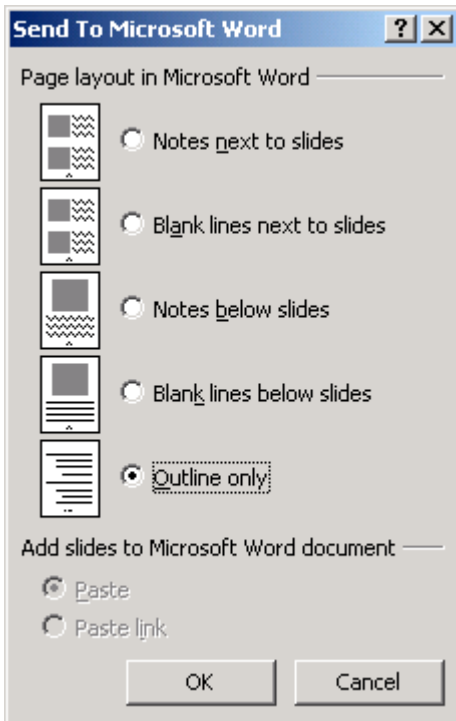




In the *Compress Pictures* dialog box, use the following settings:

- Apply to: *All pictures in document.*
- Change resolution: *Web/Screen.*
- Options: check both boxes *Compress pictures* and *Delete cropped area of pictures.*

If this does not reduce the size of your PowerPoint Presentation significantly, and you presentation is very large, you may want to consider converting it to an Outline in Microsoft Word. To do this:



- Send the outline of your presentation to Microsoft Word.
- From your Power Point presentation, go to **File** → **Send To**, and then click *Microsoft Word*.
- The Send to Microsoft Word Dialog box appears with several options (see image at left).
- Choose the *Outline only* option. (Note: Sending the whole presentation, rather than just the outline, will result in a document with a larger file size than the original PowerPoint presentation).
- Word will open with your outline.
- Save as you would any Word document.

However, if you have a large presentation and you need students to see all of the images and graphics in your presentation, you can reduce the file size by converting your presentation to an Adobe PDF file with Acrobat or to a streaming format with Impatica. Please contact FCLD for information on the licensing and availability of these software programs.

Managing File Size in Scanned/Saved Images

Goal: Choose the right format when scanning or saving pictures

Best Practice: For images that do not need extensive editing and will only be viewed on the web, choose a .jpg or .gif file format.

When scanning or editing a picture, there are several file formats available for saving your image. Each of these formats differs in the way that they compress the information in the picture, as well as in the number of colors they display. The format you choose should depend upon the way in which you are going to use the image. Below is a summary of compression, usage and file sizes for the most popular picture formats:

File Type	Reason for Choosing	Compression	File Size
TIFF	Best for printing	Lossless	1,305 KB
BMP	Compatibility with windows Wallpaper	Lossless	1,140 KB
PNG	Transparent (though, some problems w/ PNG transparency on web) 16million colors Good choice for Line Art	Lossless	1,024 KB
GIF	256 colors transparent, animated. Good choice for Line Art, Text NOT for photographs	Lossless	181 KB
JPG	Optimized for photographs Compression is adjustable Universal/long term Image will degrade over multiple edits	Lossy	145 KB

Delivering Digital Audio and Video via the Internet

Goal: To avoid having students have to download excessively large files to their computers.

Best Practice: Use streaming audio and video. If you cannot stream, use high compression rates or less than 30 frames per second. Tell dial-up students to view them in a lab.

Video files are some of the very largest files in the computer world because each second of video is approximately 30 pictures. The math is easy to figure out. This means your students can go eat dinner by the time a 10 minute video has downloaded on to a computer. Streaming video avoids this by avoiding having to wait for the entire file to download. Instead, the video is streamed a few seconds at a time to the student's computer, and the student can watch those few seconds as they arrive. Here's how it works. You create a streaming video and upload this to a streaming server. Then, you point to the file from your website or Blackboard course with a link. When the student clicks on the link, the video begins streaming. This topic is too involved for the purposes here, but FCLD can work with you individually to help you learn how to stream. FCLD has access to a campus streaming server that faculty may use.

Instructional Technology at the University of Hartford

Faculty Center for Learning Development (FCLD)

FCLD provides consulting and support to faculty and staff who are using technology in instruction. FCLD provides instruction and support on Blackboard and has a faculty lab equipped with PCs, Macs, scanners, and projectors as well as support staff.

Phone: 768-4661 **Email:** feld@hartford.edu **Website:** <http://uhaweb.hartford.edu/fclد>

Information Technology Services (ITS)

ITS Help Desk – Computing Center

For general computer and Internet/network support questions (not directly related to the classroom but rather passwords, Internet/email problems, printer not working, banner, facebook, and grades). ITS provides technical support on the Blackboard Course Management System.

Phone: 768-5999 **Email:** its@hartford.edu **Website:** <http://uhaweb.hartford.edu/its/>

Media Technology Services (MTS) – Harry Jack Gray Center 111A

Faculty should contact MTS for assistance scheduling or implementing classroom technology (2-way video classrooms, Smart Podiums, COWS, laptops, etc.) or for scheduling and instruction for media equipment, etc.

Phone: 768-4643 (Main) or 768-4662 (Tech Line) **Website:** www.hartford.edu/mts