

Working with Figures



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[KWF Editorial](#)

At six months following the annual ISMTE North American Conference, we thought it would be a good time for a refresher on figure handling for those struggling with this daunting task in the new year. My colleague, Lindsey Mitchell, and I presented on working with authors to improve their figures at the conference. Here are our best tips for getting the high-quality images you want for your publication.

Raster Versus Vector Images and the Basics of Resolution

Raster images are made up of pixels, or individual points. When we talk about “dpi,” we are referring to “dots per inch.” This gives a measure of the quality, or resolution, for the figure and is literally the number of pixels per inch in the digital image to be printed. (Technically, dpi refers to printer dots per inch. Today, the term is often misused because we really mean ppi, or pixels per inch. When we say we want a photo that is 300 dpi, we really mean 300 ppi.¹ But because dpi is the more commonly used term, I have retained it here.) The more points, the better, leading to higher resolution for a figure. Common file types for pixel-based figures are TIFF, JPG, PNG, BMP, and GIF.

If you take that figure and expand it to a larger size, the individual points will stretch. Therefore, the fewer number of points you have to expand, the lower the resolution of the image once it is expanded. This is called artificially inflating the resolution of an image because while you have made the figure bigger, you have not actually improved the quality.

Often, authors do not understand this concept. When you ask them for a better figure, they just send you a bigger image. But if all they did was stretch the original image, which was at a low resolution (or fewer dots per inch) to begin with, all they have done is given you a poorer-quality version of the

original image. A low-quality image cannot be made into a high-quality image. Instead, they need to export the figure from its original source at a higher resolution, or more dots per inch, increasing the dpi of the figure, and therefore the quality.

Vector images, on the other hand, are not made up of points but rather individual shapes. The great thing about vector images is that they can be resized, or expanded, without losing quality. Because of this, these types of files are often preferred. The most common file type for vector images is EPS, and they can also be created in, and therefore exported from, PowerPoint (PPT) and PDF.

Compression and Quality

File types that are not preferred are often those that undergo compression, by nature of the file type, when the file is created, making it harder to enlarge the figures and retain quality. These are often file types used on the Internet where compressed files are ideal. The most common compressed file types are JPG, PNG, BMP, and GIF, all of which are pixel-based images. TIFFs, however, are not compressed, and that is why, if you have a pixelated image, this file type is preferred because it is not automatically compressed when the file is made, making it possible to enlarge the figure for print without losing quality.

The kind of software you’ll want to use for working with figures will depend on the figure itself. If you are working with a rasterized image (pixels), you’ll want to use Adobe Photoshop or GIMP, which are designed to work with raster images. If you use software designed for raster images on a vector image, the program will “rasterize” the vector image and can reduce quality. Software designed for vector images includes Adobe Illustrator, Adobe Acrobat, IrfanView, or EPS Viewer. These will retain the individual shapes the image is made of.

Choosing the Right Software and Converting File Types

Adobe Photoshop, Illustrator, and Acrobat DC are programs for which a license must be obtained. They can be expensive, have lots of editing tools, and will likely have more features than most editorial offices need, but there is a robust support network, and the software is continually updated or improved by Adobe.

¹ For more information, see “[What is DPI?](#),” a page contained in an online digital photography resource.

Free programs include GIMP, IrfanView, and EPS Viewer, which have fewer tools but probably enough for editorial office needs. The downside is possibly the lack of support available from the developers, and updates are not as common to improve existing features. As such, they often require additional plug-ins or drivers for added functionality.

Because understanding the nature of figure quality can be confusing for authors, who may manually inflate the dpi of a photo in a program like Photoshop thinking that will satisfy the resolution needs of a journal, it is always best practice to use the zoom function to expand the figure and look closely at image quality. Once the figure is blown up to 200% or more, if the lines are not crisp and clear but are instead blurry and fuzzy, you do not have a high-quality image.

This is often when editorial offices go back and forth with authors, trying to get better-quality images, either because the staff are overburdened, do not have access to needed software, or have a general policy of not editing content for authors for fear of accidentally changing author-intended meaning. If, however, your editorial office staffing, policies, and access to software allows, it is often quicker and easier to ask the authors for the original figure, in whatever format it

was originally created, and to export the figure at a high resolution to a usable figure type in house. Adobe Acrobat DC (and Acrobat Pro) can convert PDFs to TIFF or EPS images. PDFs are more easily obtained from PowerPoint, Excel, and many other software programs than TIFF or EPS images. So, if you can get the authors to export to PDF, or you can do it yourself, you can use the paid Adobe program to convert the images to TIFF or EPS if either file type is required.

Alternatively, if you ask the authors which program was used, such as statistical graph software, to create the original figure, you can perform an Internet search to see if you can find user instructions for how to export from the software to a PDF or other usable file type. An important step to realize is that the person who created the figure is not always the corresponding author, and if you need a better figure, it is often better to get in touch with the author responsible for creating the figure rather than trying to go through the corresponding author.

We hope this article has helped you, or someone in your editorial office, understand more of the nuances of figure handling. Please feel free to get in touch if you have any questions or would like to learn more about figures.

Who Will You Nominate?

We are now accepting applications for the 2019 International Society of Managing and Technical Editors Awards. As an annual event, the Awards celebrate the success and achievements of editorial office staff. The range of Award categories has been designed to be accessible to all members. The Awards provide an opportunity for businesses, organizations, and individuals to appear in the spotlight and celebrate their editorial achievements. They are a way to give recognition to and motivate fellow members. Nominating is easy to do and all online. Have someone in mind that you would like to nominate? Visit the [website](#) to find out how.

The ISMTE Awards will be offered in four categories:

- ISMTE Award for Achievement or Innovation
- ISMTE Early Career Award
- ISMTE Jason Roberts Founder's Award
- ISMTE Ira Salkin Scholarship

“Innovation Session” Call for Proposals

Does your company provide an innovative product, service, or idea that you want to showcase? Then we want to hear from you!

The ISMTE 2019 North American Conference Planning Committee is seeking proposals for its new “Innovation Session” to be held during the conference on August 1-2, 2019, in Durham, NC. The Innovation Session will feature selected vendors who will present on an innovative product/service/idea that they offer.

To apply to present at this exciting new session, send a one-page description of your product/service/idea and how it relates to what managing and technical editors do all day. This is a great opportunity to get in front of the people who use publishing products and services every day!

Submissions and questions can be sent to Kimberly Retzlaff, Committee Chair, at kretzlaff@awwa.org. Submissions are due by March 15, 2019. Vendors will be selected by committee vote and notified by April 1, 2019.

The session itself will be one hour in duration, and each speaker will have 10-12 minutes to present, followed by a Q&A with the audience. At the session, we’ll have a “people’s choice” award for the most innovative presentation. The winning speaker will walk away with bragging rights and an award that demonstrates their innovativeness.

Writing Your Proposal

Proposals should be brief—no more than one page—and should focus on how the product/service/idea affects the work of ISMTE attendees. Proposals should be clear about how the idea is innovative. Presentations should not be a sales pitch.

Attendees

Breakdown of attendees from 2018:

70% Managing Editor

17% Editorial Assistant/Coordinator

4% Director of Publishing

4% Vendor

2% Associate Editor

2% Graphic Designer

Ira Salkin Scholarship

The application process is open for the 2019 International Society of Managing and Technical Editors Ira Salkin Scholarship.

Ira was one of the founding fathers of ISMTE and sadly passed away in 2016. His goal was to ensure editorial office professionals are educated and vigilant in matters of publishing ethics.

The essay topic for 2019 is “How can editorial offices create proactive policies that make handling publication ethics matters smoother?”

The submission deadline for entries is **May 31, 2019**.

Eligible applicants must be members of ISMTE.

Applicants must include a short cover letter stating their position and some background.

Read the official [Rules and Regulations here](#).

We are looking forward to receiving your entries for the 2019 Ira Salkin Scholarship.