

## Module 2: Imaging Objects

### Module 2E: Image Processing

Task ID	Task Name	Explanations and Comments	Resources
T1	Process image stacks (if required, or not previously done).	This step applies to specimens for which more than a single image was recorded at varying focal ranges to achieve greater depth of field.	Note: The stacking process might discard IPTC and some EXIF metadata that are recorded with or added to the image prior to stacking. Hence, such data is better added to the archival results of the stacking process.
T2	Batch image processing.	<p>To increase efficiency, image processing should be accomplished in pre-configured batch processes that might include but not limited to or ordered as:</p> <ul style="list-style-type: none"><li>• metadata editing,</li><li>• inserting scale bar,</li><li>• rotating,</li><li>• cropping,</li><li>• resizing,</li><li>• modifying saturation,</li><li>• adjusting color balance,</li><li>• adjusting white balance.</li></ul> <p>Caution: The goal of image processing is to produce an image that accurately reflects the physical appearance of the specimen. Over processing should be</p>	<p>See <i>Avoiding twisted pixels: ethical guidelines for the appropriate use and manipulation of scientific digital images</i>, by D. W. Cromey, <i>Science and engineering ethics</i> 16 (4) p. 639-67.</p> <p><a href="http://www.ncbi.nlm.nih.gov/pubmed/20567932#">http://www.ncbi.nlm.nih.gov/pubmed/20567932#</a></p>

		avoided.	
<b>T3</b>	Document adjustments made to image, including the values applied during batch processing.	Enter image adjustments into database with media record or image metadata (IPTC) to alert users to changes made and to the availability of original, untouched images.	
<b>T4</b>	Manual image processing for fine editing.	If additional modifications are made to image files, document changes carefully.	
<b>T5</b>	Apply file names and associate the files with the collection objects they represent.	If file names have not been applied previously, they should be applied here. Some institutions use an automated process that joins images and data records based on electronic examination of image files. Others use scripts that rename files to catalog numbers.	File naming strategies and time of execution varies by institution and is governed by institutional policy or in some cases database parameters.
<b>T6</b>	Archive original images and create derivatives.	Derivatives may include jpeg images for web display or use as thumbnails for database records; publication quality images; and high quality tiff images of type specimens.  Archiving may mean moving RAW or unedited TIFF images to an off-site server, cloud storage service,	

		or a Digital Asset Management System.	
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