# Capture and Ingest for Image Collections Online

Many collections will need to be digitized, and all collections (whether the images are already digitized or not) will need to be ingested into Image Collections Online (ICO). This page provides information about the ingestion process, and also provides recommendations and guidelines for image capture.

**We recommend that collection managers consult with staff from Digital Collections Services (DCS) prior to scanning (email Kara Alexander, kale xand@indiana.edu) to ensure conformance with ICO before beginning digitization.**

- Archival File Guidelines
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## Archival File Guidelines

Select specifications required for each collection will be determined by the content of the collection, others are universal across all ICO collections.

All scanned images should be saved as **uncompressed TIFF files**. Where color content does not exist or is not deemed significant, produce eight-bit grayscale TIFF files (for example, text-only materials: books, newspapers, some manuscripts). Where color information exists, or where the artifactual value is extremely important, produce twenty-four bit color TIFF image files (Rare books, maps, photographs, and some manuscripts are within this category.)

Completeness requires presentation of the entire original sheet, photograph, slide, page, etc.. In no event shall the actual document be cropped. In addition, a "border zone" of approximately 1/4-inch or less of the surface behind the scanned or photographed object shall be provided whenever possible. The background surface should provide some contrast with the scanned object, again when possible. For negatives or other transmitted light items, each digital image shall reproduce that item's actual-image area, the border on the film that surrounds the image area, and a portion of the background (light box or scanner top) beyond the edge of the film. A similar approach shall be followed for reflected-light items; the whole print, whole mount, and a portion of the background (beyond the mount) shall be maintained.

Color images should be placed in standard RGB (AdobeRGB1998) color space. The transformation of color into RGB space may require that some imaged colors be adjusted to fit within the limits of the color space. Color images should be saved as a 24-bit TIFF file with an attached ICC color profile placed in the TIFF 34675 tag. The ICC color profile is essential for any user hoping to display reasonably accurate color.

When digitizing the items, care should be taken that no clipping (= loss of details) in either the highlights or the shadows occurs, while matching as close as possible the color/tonal range of the original items.

**A minimum resolution of 400 ppi is considered standard practice** with 300 ppi generally only used for large format materials where lower resolution is mandated by device limitations and stitching is not practical or desirable. For Rare Book and other special materials the standard is a minimum of 400 ppi and may be higher dependent on the source material being digitized. Based on the original size of the materials, a minimum 4000 pixel length on the longest side is desired for the final digitized file (if the hardware is capable of capturing the detail optically).

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## Equipment Requirements for Archival Capture

When collections are digitized outside of the Digital Collections Services, equipment should be evaluated to ensure high quality images.

In general, archival standards expect imaging equipment set to yield images at 1:1 using optical resolution without resampling. Interpolation of spatial resolution to achieve higher ppi values shall not be permitted. Each object shall be digitized according to its type to the stated resolution appropriate for the material being scanned. The resolution requirement will be specified in pixels-per-inch (ppi) or dots-per-inch (dpi) and shall be achieved utilizing the optical resolution capabilities of the equipment employed to capture the image.  The spatial resolution requirements are anticipated to range from 200 ppi to 5000 ppi dependent upon the source materials.

## Born-Digital Images

ICO is able to take born-digital images.  We tend to evaluate those on a case-by-case basis, but in general, we are able to accommodate digital images that are captured in an **uncompressed TIFF** format with a minimum capture resolution of **3,000-5,000 pixels on a side**.  If the camera can only capture images in JPEG, we recommend JPEG capture with as little compression as possible.  Files captured in RAW will also need to be converted to uncompressed TIFF before upload. The camera menu will provide options for pixel dimensions and size of file (e.g., low, medium, high, maximum or original size).  Every camera model is different so consulting the specifications section of the camera manual is the best place to start.

## Delivering Scanned Files to IU Libraries

There are a couple of ways of uploading content to ICO collections using the ICO Cataloger/Photocat tool.  We recommend that collection managers or their designated catalogers upload records individually in the corresponding ICO collection as a way to ensure quality control. First, create a record in ICO Cataloger/Photocat, the upload an image (or multiple images, if you have admin rights) to that record. The system will automatically name the files for you as they are ingested, so you don't need to change file names locally before attaching them to a record.  Collection managers will receive reports from the ICO system for both successful and failed file uploads.

In cases for which batch uploading images makes sense, we will discuss that option with you during a consultation.

## Quality Control for the Images

ICO has automatic quality control checks in place, configured per collection.  When files are uploaded to the ICO system, the following parameters are checked automatically:

- correct filetype
- embedded color profile
- resolution
- compression
- not a multi-page TIF

If a file does not meet the parameters established per collection, the collection managers will receive a report that details the failure.  You should have sufficient information to re-scan the files that erred before re-uploading to ICO.

**Before uploading images to ICO**, you should conduct a visual inspection of your images. Make sure the images:

- look like a reasonable surrogate of the original item
- are in the correct orientation/neat/straight/in focus/correct color or greyscale for the item
- named correctly and consistently, according to your local file naming conventions