Rutgers University Libraries

Calculating All that Jazz

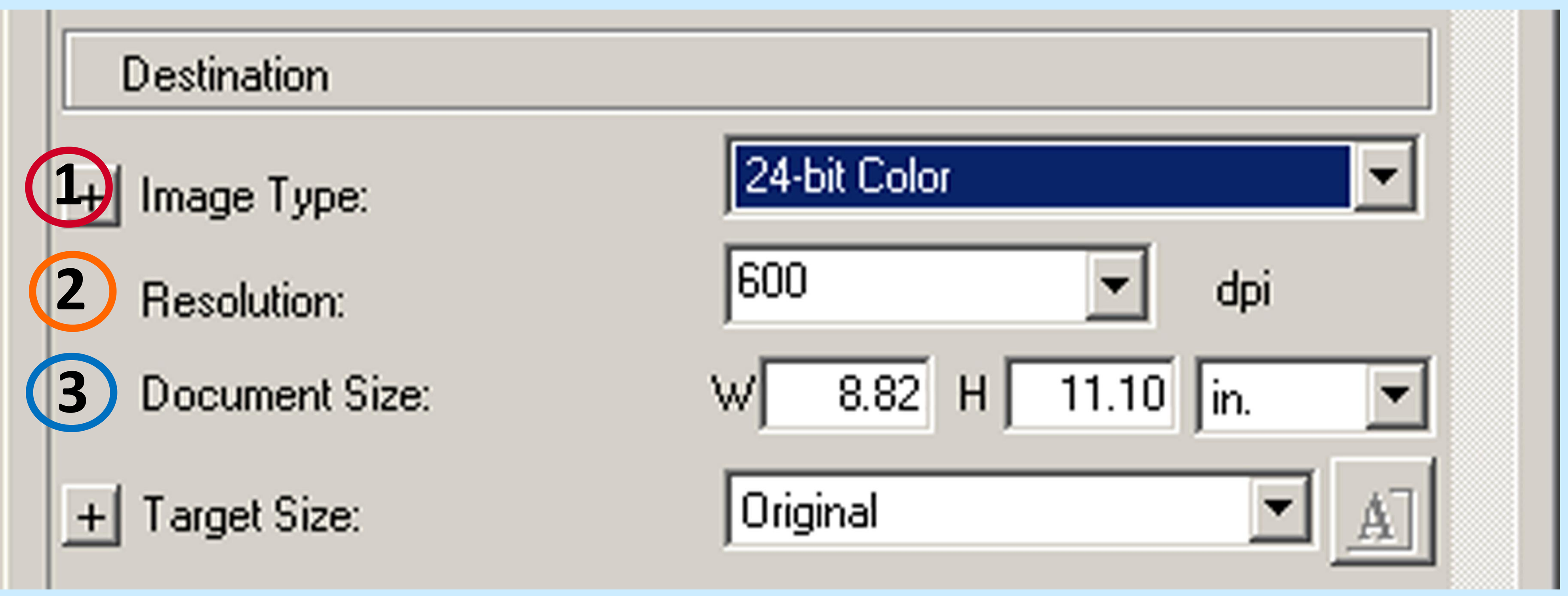
Linking Technical Specifications to the Management of Digitization Projects

Krista White, Digital Humanities Librarian

Equation for Calculating Digital File Size in Bytes from Analog Image and Document Collections

$$\frac{\text{image width} \times \text{image height} \times \text{resolution}^2 \times \text{bit depth}}{8}$$

Application of Digitization Standards: RUcore Color Photos and Documents



Transcript Files

22,495 Uncompressed Archival Master Pages

8.82 x 11.10 inches

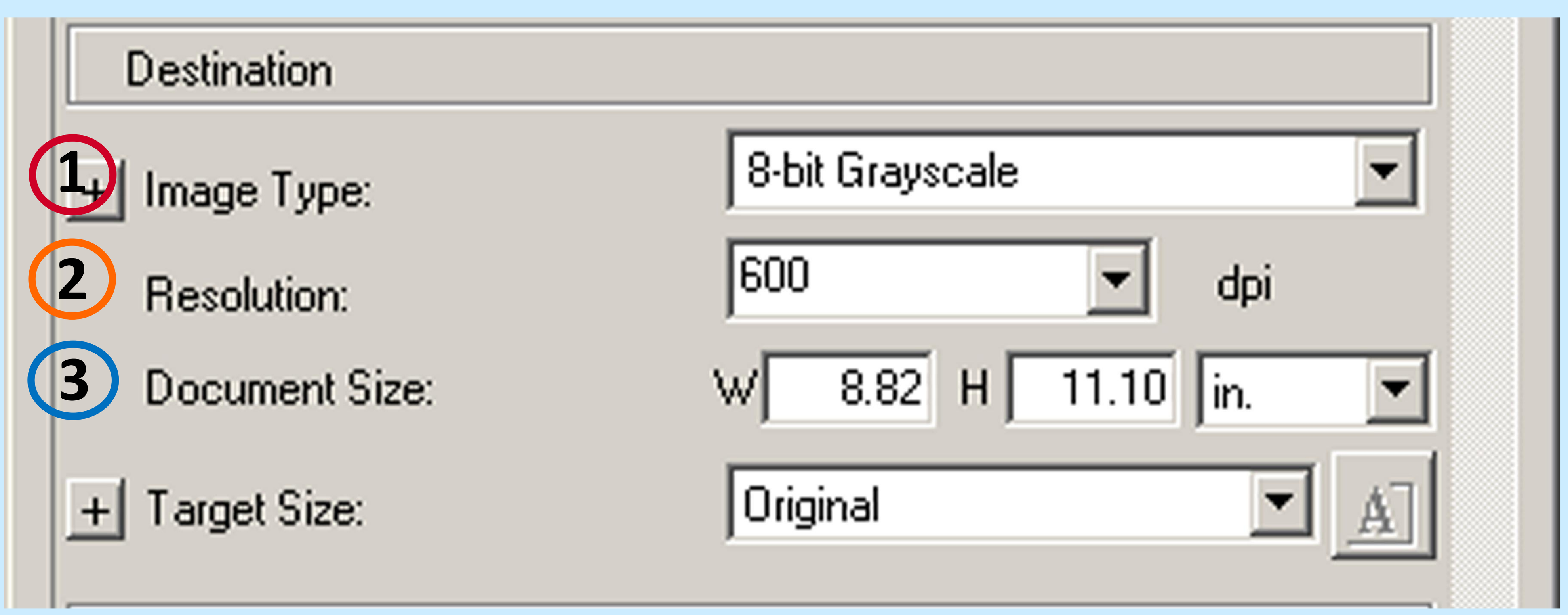
24 bit color

600 ppi

100.84 MB/Page

22,495 Pages = 2.16TB

Application of Digitization Standard: RUcore Grayscale Photos and Documents



Transcript Files

22,495 Uncompressed Archival Master Pages

8.82 x 11.10 inches

8bit grayscale

600 ppi

33.6 MB/Page

22,495 Pages = 738GB

References

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Research Overview

Libraries and archives maintain collections of objects that, once digitized and made available online, can benefit scholars on a global scale. Calculating the necessary amount of digital storage to house as-yet un-digitized objects is a vital element of project management for digitization initiatives.

The research I present in "Calculating All that Jazz" streamlined procedures for digitizing **22,495 pages of transcripts** from the **Jazz Oral History Project**. I introduce **a formula for calculating digital file sizes** from analog documents and photographs. I explain how the **elements of the equation** contribute to the quality and the size of digital image files. I also demonstrate how **applying digitization standards** to the equation for calculating digital file sizes enables project managers to accurately predict the quantity of digital storage needed for preserving and making available items in pre-digital formats. Using and understanding the formula and its elements helps project managers determine the best **application of digitization standards** to suit the goals of the institution, the goals of each project, and the budgetary realities faced by the organization.

Elements Contributing to the Quality and File Size of Scanned Images

1 **Bit Depth** is the amount of information the computer or camera stores about each pixel of **Resolution.** Higher bit depth increases digital image quality and increases file size

2 **Resolution** is the number of points of information a scanner or camera records about an image. More points of information equates to higher quality and increases file size.

3 **Document Size** contributes to the overall size of digital files in that there is more area about which the computer or camera must store information.

Application of the Research to the Management of Digitization Projects

Calculate total storage needs for digital collections

- Strategic planning
- Grant proposals

Evaluate digitization best practices/standards

- Determine which practices are realistic given storage needs and budgetary constraints
- Determine which practices will provide the best possible quality to meet institutional and project goals

Evaluate hardware and software for project purchases

- Choose equipment that allows adherence to chosen quality standards