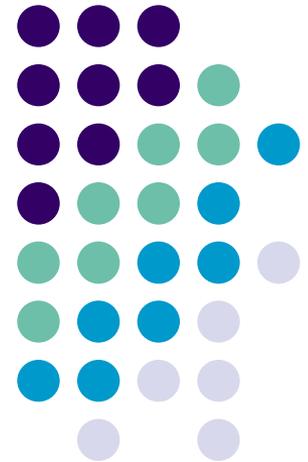


DIGITAL TOOLS & APPS

CHRIS ERICKSON
2014





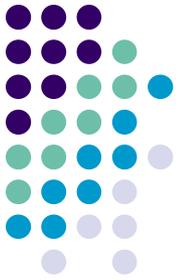
SOME USEFUL TOOLS

There are many useful and free tools available for working with digital materials.

- Copy & Transfer Tools
- Rename Tools
- Integrity & Fixity Tools
- File Editing Tools
- File Format Tools

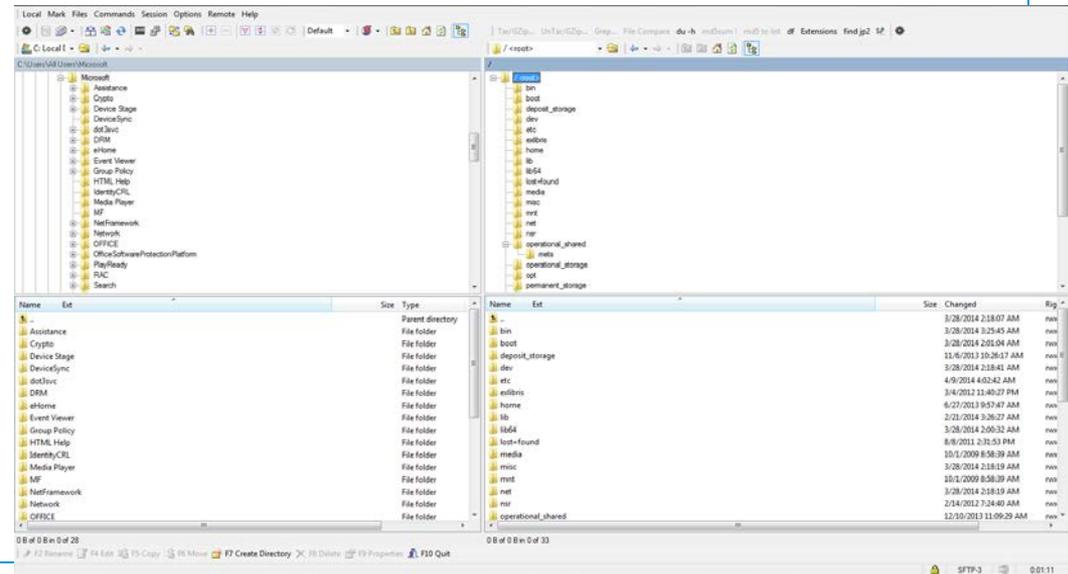
Here are some I use . . .

TOOLS: COPY & TRANSFER

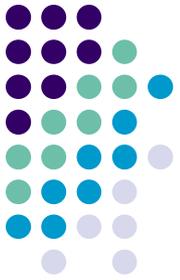


● WinSCP

- <http://sourceforge.net/projects/winscp/>
- WinSCP is a SFTP client and FTP client for Windows
- Main function: secure file transfer between a local and a remote computer
- Very useful for transferring between Windows and Linux system
- Programmable commands

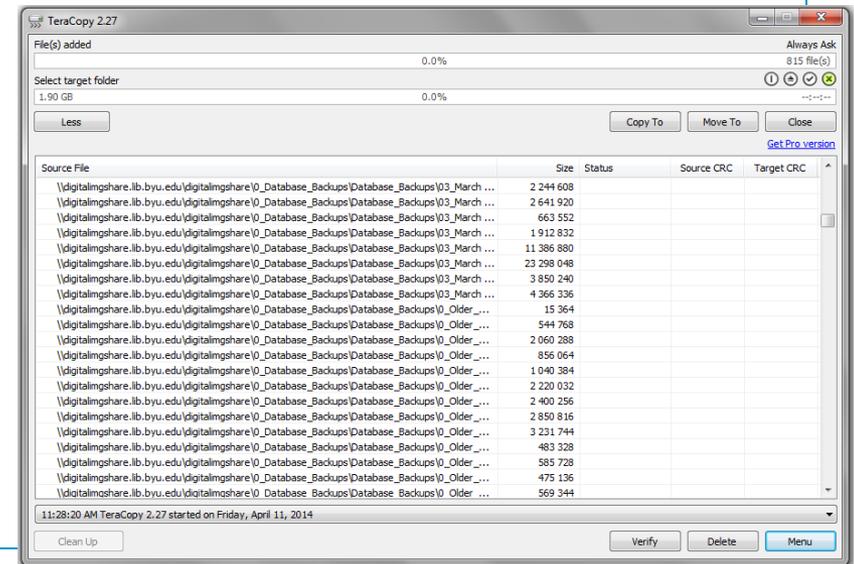


TOOLS: COPY & TRANSFER

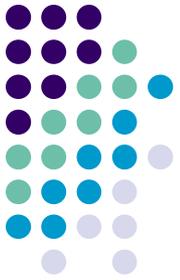


● Teracopy

- <http://codesector.com/teracopy>
- Copy and move files at the maximum possible speed
- Uses checksum to automatically check for copy errors
- Skips bad files then displays them at the end of the transfer
- Integrates with Windows Explorer's right-click menu
- Can be set as the default copy handle

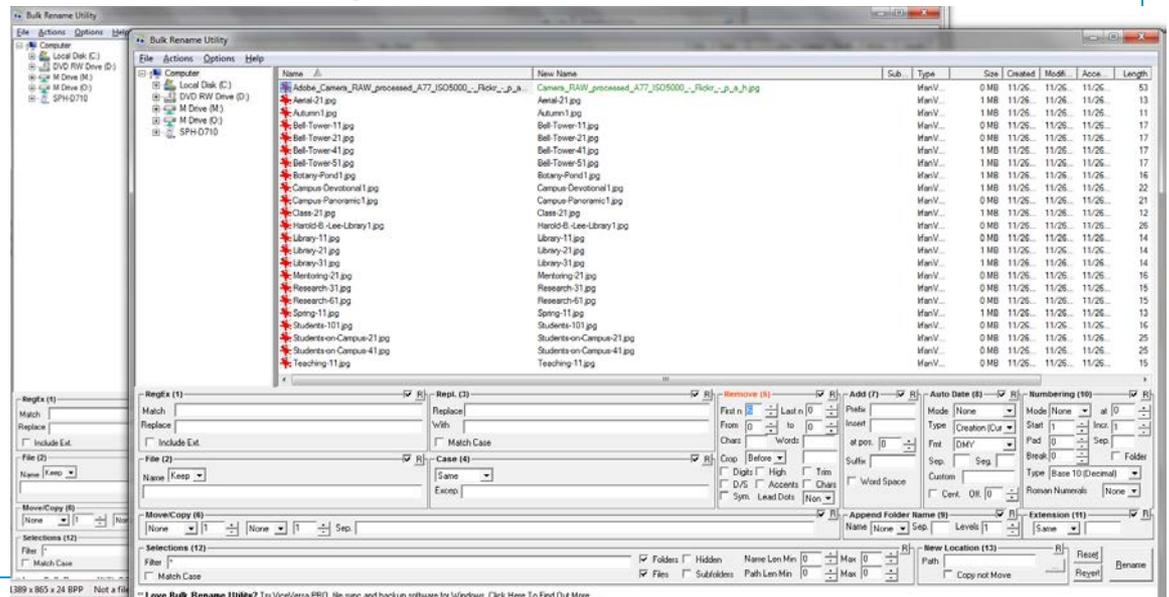


TOOLS: FILE RENAME



● Bulk Rename Utility

- <http://www.bulkrenameutility.co.uk/>
- A free file renaming software for Windows.
- Easily rename files and entire folders based upon **extremely flexible** criteria
- Add date/time stamps, replace numbers, insert text, convert case, add auto-numbers, process folders and sub-folders, etc.

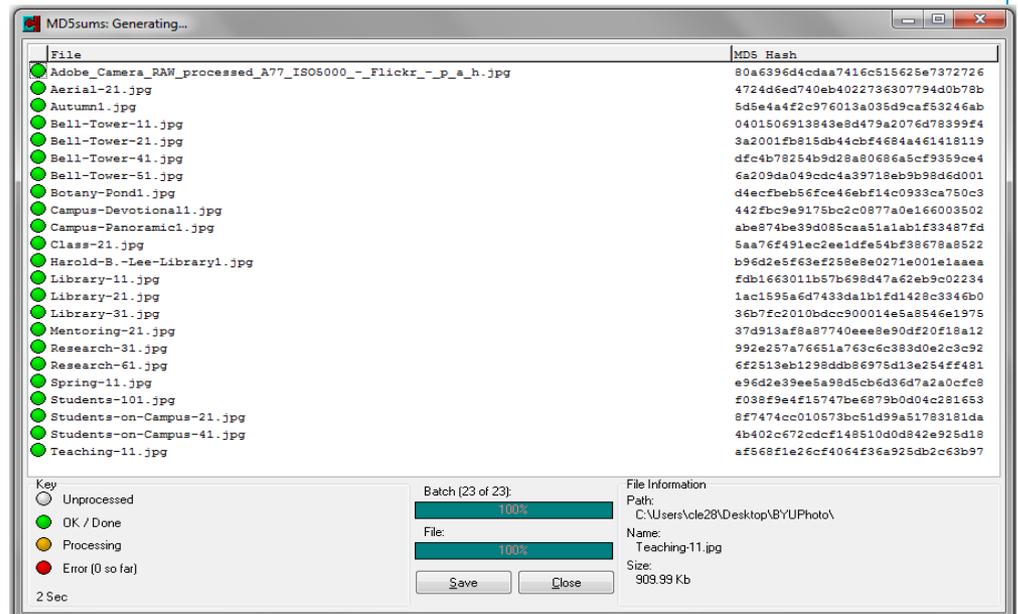


TOOLS: INTEGRITY & FIXITY



● MD5Summer

- <http://www.md5summer.org/>
- Windows application; generates and verifies md5 checksums
- Saves a list that can be used to verify files at any time
- Output file is compatible with Linux



TOOLS: INTEGRITY & FIXITY



● MD5sums 1.2

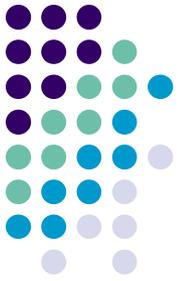
- <http://www.pc-tools.net/win32/md5sums/>
- Generate MD5 checksum for one or more files
- Command line interface that can check multiple files
- Can be used as drag-and-drop to check a file quickly
- UNIX compatible

A screenshot of a Windows command prompt window titled "C:\Users\Desktop\md5sums.exe". The window displays the following text:

```
MD5sums 1.2 freeware for Win9x/ME/NT/2000/XP+
Copyright (C) 2001-2005 Jen Berkes - http://www.pc-tools.net/
Type C:\Users\Desktop\md5sums.exe -h for help

[Path] / filename                MD5 sum
-----
[C:\]
Bell Tower 1.jpg                 46595877bcdd708f89e850f0b72f2bf6
Press ENTER to exit_
```

TOOLS: INTEGRITY & FIXITY



Quick Hash

- <http://sourceforge.net/projects/quickhash/>
- Linux & Windows File Hashing GUI Tool
- A selected source folder can be hashed, copied & hashed again for verification
- Allows selection and hashing of text, files or folders
- Output copied to clipboard or file
- MD5, SHA1, SHA256, SHA512

Quick Hash v2.2.0 by Ted Smith - The easy and convenient way to hash data in both Linux and Windows

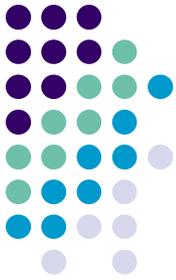
Hash Test | Hash File | Hash Files Recursively | Hash_Copy_Hash (Recursively)

Choose Hash Algorithm?
 MD5
 SHA-1
 SHA256
 SHA512

Directory Hashing (recursive by default)
 Save to CSV log file, too? Save to HTML log file, too? # Files in Dir: 23 Started at: 12:25:10
 Ignoring sub-directories? Flag Duplicates? Files Examined: 23 23.07 MiB
Select Directory Stop Clipboard Results % Complete: 100% Time taken: 0:00:01

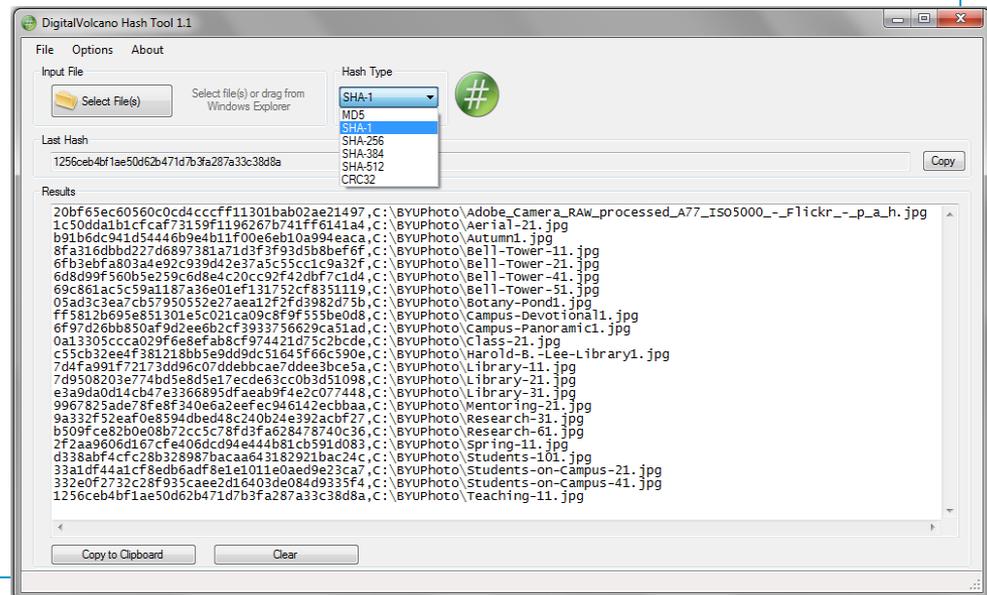
	File Name	Hash Value	File Size (on Disk)	Duplicate?
6	C:\BYUPhoto\Bell-Tower-41.jpg	608D99F56085E259C6D8E4C20CC92F42DBF7C1D4	1274044 bytes (1.22 MiB)	
7	C:\BYUPhoto\Bell-Tower-51.jpg	69C861AC5C9A1187A36E01EF131752CF8351119	1281712 bytes (1.22 MiB)	
8	C:\BYUPhoto\Botany-Pend1.jpg	05AD3C3EA7C7B57950552E27A6A12F2FD3982D758	1431998 bytes (1.37 MiB)	
9	C:\BYUPhoto\Campus-Devotional1.jpg	FF58128695E851301E5C021CA09C8F9F555E0E08	1206663 bytes (1.15 MiB)	
10	C:\BYUPhoto\Campus-Panoramic1.jpg	6F97D2688850AF9D2E6682CF393756629CA51AD	813983 bytes (794.91 KiB)	
11	C:\BYUPhoto\Class-21.jpg	0A13305CCC0A29F6E8EFA8CF974421D75C28CDE	1121463 bytes (1.07 MiB)	
12	C:\BYUPhoto\Harold-B.-Lee-Library1.jpg	C55CB32EE4F3812188B5E9D9D0C51645P66C590E	703733 bytes (687.24 KiB)	
13	C:\BYUPhoto\Library-11.jpg	7D4FA991F72173DD96C07DDEB8CAE7DDEE38C85A	973703 bytes (952.83 KiB)	
14	C:\BYUPhoto\Library-21.jpg	7D9508203E7748D5E805E17E0DE63C083D51098	1090780 bytes (1.04 MiB)	
15	C:\BYUPhoto\Library-31.jpg	E8A9D40D14C847E3368895DFAEAB9F4E2C077448	1913853 bytes (1.83 MiB)	
16	C:\BYUPhoto\Mentoring-21.jpg	9967825AD78FBF340E6A2EEFFC096142EC08AA	668299 bytes (652.64 KiB)	
17	C:\BYUPhoto\Research-11.jpg	9A332F52EAF0E854D8ED48C24082AE392AC8F77	997048 bytes (973.68 KiB)	
18	C:\BYUPhoto\Research-61.jpg	8509FC8200E08B72CC5C78FD3FA628478740C36	747381 bytes (729.86 KiB)	
19	C:\BYUPhoto\Spring-11.jpg	2F2AA0606D167CFE406DCD94E444B81C8591D083	1244660 bytes (1.19 MiB)	
20	C:\BYUPhoto\Students-101.jpg	D328ABF4CFC28B3289878ACA6431829221BAC24C	865693 bytes (845.4 KiB)	
21	C:\BYUPhoto\Students-on-Campus-21.jpg	33A1DF44A1CF8ED86ADF8E1E1011E0AE9E23CA7	764585 bytes (746.67 KiB)	
22	C:\BYUPhoto\Students-on-Campus-41.jpg	332E0F2732C28F935CAEE2D16403D0E84D9335F4	764953 bytes (747.02 KiB)	
23	C:\BYUPhoto\Teaching-11.jpg	1256CE84B1AE50D62B471D783FA287A33C38DBA	931825 bytes (909.99 KiB)	

TOOLS: INTEGRITY & FIXITY

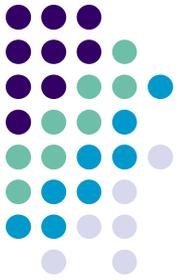


● Hash Tool

- <http://www.digitalvolcano.co.uk/hash.html>
- Calculate MD5, SHA-1, SHA-256, CRC-32 and more
- Select multiple files, or drag direct from Windows explorer
- Save results to a text file/csv, or copy to the clipboard
- Customizable results window



TOOLS: FILE EDITING



● Babelpad

- <http://www.babelstone.co.uk/Software/BabelPad.html>
- BabelPad is a free Unicode text editor for Windows that supports the proper rendering of most complex scripts
- BabelPad supports the most recent version of the Unicode Standard
- Useful for finding problem characters

A screenshot of the BabelPad text editor window. The title bar reads 'mets.xml [UTF-8] - BabelPad'. The menu bar includes 'File', 'Edit', 'Convert', 'Insert', 'Input', 'Tools', 'Options', 'Layout', 'View', 'Window', and 'Help'. The toolbar contains various icons for file operations and editing. The main text area displays XML code for a digital object, including metadata such as title, creator, description, date, publisher, and subject.

```
<?xml version="1.0" encoding="UTF-8"?>
<mets:mets xmlns:mets="http://www.loc.gov/METS/" xmlns:xlink="http://www.w3.org/1999/xlink">
  <mets:dmdSec ID="fe-dmd">
    <mets:mdWrap MDTYPE="DC">
      <mets:xmlData>
        <dc:record xmlns:dc="http://purl.org/dc/elements/1.1/"
          xmlns:dcterms="http://purl.org/dc/terms/">
          <dc:identifier>MSS P 4 # 2045aa</dc:identifier>
          <dc:title>May Burt</dc:title>
          <dc:creator>Huntington, Elsie, 1868-1949; Bagley, Joseph Daniel, 1874-1936</dc:creator>
          <dc:description>A studio 3/4-length portrait of a woman wearing a white dress, sitting at a table with an open book.</dc:description>
          <dc:description>Electronic reproduction;</dc:description>
          <dc:date>ca. 1927-1939</dc:date>
          <dc:date>1927; 1928; 1929; 1930; 1931; 1932; 1933; 1934; 1935; 1936; 1937; 1938; 1939</dc:date>
          <dc:publisher>L. Tom Perry Special Collections, Harold B. Lee Library, Brigham Young University</dc:publisher>
          <dc:description>Gelatin silver print from a gelatin dry plate negative; 12.70 x 10.2 cm. (5 x 4 in.)</dc:description>
          <dc:source>Brigham Young University</dc:source>
          <dc:subject>Photographs; Portraits</dc:subject>
          <dc:subject>Burt family--Photographs; Women--Portraits; Books</dc:subject>
          <dc:subject>Burt family--Photographs; Women--Portraits; Books</dc:subject>
          <dc:relation>Huntington Bagley Photograph Collection</dc:relation>
          <dc:rights>http://lib.byu.edu/about/copyright/special_collections.php</dc:rights>
          <dc:rights>Public Domain; Courtesy L. Tom Perry Special Collections, Harold B. Lee Library, Brigham Young University</dc:rights>
          <dc:rights>Public</dc:rights>
          <dc:type>Image</dc:type>
          <dc:format>Image/jpeg</dc:format>
          <dc:format>1202.303 KB</dc:format>
          <dc:identifier>MSS_P_4_2045aa.jpg</dc:identifier>
          <dc:terms:PartOf>HuntBag</dc:terms:PartOf>
        </dc:record>
      </mets:xmlData>
    </mets:mdWrap>
  </mets:dmdSec>
</mets:mets>
```

TOOLS: FILE EDITING

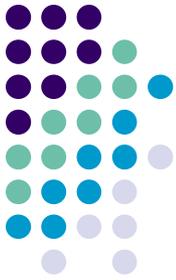


● Notepad++

- <http://notepad-plus-plus.org/>
- Notepad++ is a free source code editor and Notepad replacement that supports several languages for Windows
- Syntax Highlighting
- Open multiple files

```
1 <?xml version="1.0" encoding="UTF-8"?>
2 <metsets:metsets xmlns:metsets="http://www.loc.gov/METS/" xmlns:xlink="http://www.w3.org/1999/xlink">
3   <metsets:dmdSec ID="ie-dmd">
4     <metsets:mdWrap MDTYPE="DC">
5       <metsets:xmlData>
6         <dc:record xmlns:dc="http://purl.org/dc/elements/1.1/"
7           xmlns:dcterms="http://purl.org/dc/terms/"
8           <dc:identifier>MSS P 4 # 2045aa</dc:identifier>
9           <dc:title>May Burt</dc:title>
10          <dc:creator>Huntington, Elfie, 1868-1949; Bagley, Joseph Daniel, 1874-1936</dc:creator>
11          <dc:description>A studio 3/4-length portrait of a woman wearing a white dress, sitting at a table with an open
12          book.</dc:description>
13          <dc:description>Electronic reproduction;</dc:description>
14          <dc:date>ca. 1927-1939</dc:date>
15          <dc:date>1927; 1928; 1929; 1930; 1931; 1932; 1933; 1934; 1935; 1936; 1937; 1938; 1939;</dc:date>
16          <dc:publisher>L. Tom Perry Special Collections, Harold B. Lee Library, Brigham Young University</dc:publisher>
17          <dc:description>Gelatin silver print from a gelatin dry plate negative; 12.70 x 10.2 cm. (5 x 4 in.)</dc:description>
18          <dc:source>Brigham Young University</dc:source>
19          <dc:subject>Photographs; Portraits;</dc:subject>
20          <dc:subject>Burt family--Photographs; Women--Portraits; Books;</dc:subject>
21          <dc:subject>Burt family--Photographs; Women--Portraits; Books;</dc:subject>
22          <dc:relation>Huntington Bagley Photograph Collection</dc:relation>
23          <dc:rights>http://lib.byu.edu/about/copyright/special_collections.php</dc:rights>
24          <dc:rights>Public Domain; Courtesy L. Tom Perry Special Collections, Harold B. Lee Library, Brigham Young
25          University</dc:rights>
26          <dc:rights>Public</dc:rights>
27          <dc:type>Image</dc:type>
28          <dc:format>Image/jp2</dc:format>
29          <dc:format>1202.303 KB</dc:format>
30          <dc:identifier>MSS_P_4_2045aa.jpg</dc:identifier>
31          <dc:dcterms:isPartOf>HuntBag</dc:dcterms:isPartOf>
32        </dc:record>
33      </metsets:xmlData>
34    </metsets:mdWrap>
35  </metsets:dmdSec>
36 </metsets:metsets>
```

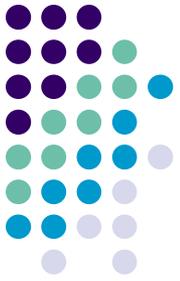

TOOLS: FILE EDITING



● ExifTool

- <http://www.sno.phy.queensu.ca/~phil/exiftool/>
- Platform-independent, command-line application for reading, writing and editing meta information in a wide variety of files
- Read, Write and/or Create meta information in Tif & JPEG images
- Supports many metadata formats
- There is also a gui version

```
File Name      : MSS_P_3_0004.tif
Directory     :
File Size     : 41 MB
File Modification Date/Time : 2007:11:09 12:52:09-07:00
File Access Date/Time   : 2014:04:11 14:29:28-06:00
File Creation Date/Time : 2014:04:11 14:29:28-06:00
File Permissions : rw-rw-rw-
File Type     : TIFF
MIME Type     : image/tiff
Exif Byte Order : Big-endian (Motorola, MM)
Subfile Type  : Full-resolution Image
Image Width   : 5442
Image Height  : 3954
Bits Per Sample : 16
Compression   : Uncompressed
Photometric Interpretation : BlackIsZero
Strip Offsets : 31960
Orientation   : Horizontal (normal)
Samples Per Pixel : 3954
Rows Per Strip : 43035336
Strip Byte Counts : 800.0001
X Resolution  : 800.0001
Y Resolution  : 800.0001
Resolution Unit : inches
Software      : Adobe Photoshop CS3 Macintosh
Modify Date   : 2007:11:09 11:52:08
XMP Toolkit   : Adobe XMP Core 4.1-c036 46.276720, Mon Feb 19 2007 22:13:43
Date/Time Original : 071109139
Native Digest : 36864.40960.40961.37121.37122.40962.40963.37510.40964.36867.36868.37382.37383.37384.37385.37386.37396.41483.41484.41486.41487.41488.41492.41493.41495.41728.41729.41730.4296.41996.42016.0.2.4.5.6.7.8.9.10.11.12.13.14.15.16.17.18.20.22.23.24.25.26.27.28.30;857E0678956085
Keywords      :
Media Type    : Negative
Original Type : Transparent
Scan Quality  : Standard
Crop Size H   : 128.800003051758
Crop Size V   : 194.69291689453
Resolution    : 31.4960651397795
Scale Factor  : 100
Analog Light Factor :
Depth        : 16
Creator Tool  : Adobe Photoshop CS3 Macintosh
Create Date   : 2007:11:09 11:52:08-07:00
Metadata Date : 2007:11:09 11:52:08-07:00
Format        : image/tiff
Color Mode    : Grayscale
History       :
Derived From  :
Instance ID   :
Document ID   :
Current IPTC Digest :
Application Record Version :
IPTC Digest   : e8f15cf32fc118a1a27b67adc564d5ba
Displayed Units X : inches
Displayed Units Y : inches
Global Angle  : 30
Global Altitude : 30
Copyright Flag : False
Photoshop Thumbnail : <Binary data 6414 bytes, use -b option to extract>
Color Space   : Uncalibrated
Exif Image Width : 5442
Exif Image Height : 3954
Image Size    : 5442x3954
```



TOOLS: FILE EDITING

BWF MetaEdit

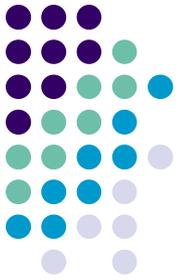
- <http://bwfmetaedit.sourceforge.net/>
- Developed by the Federal Agencies Digitization Guidelines Initiative (FADGI)
- Embed, edit, and export metadata in Broadcast WAVE Format (BWF) files
- Windows, Mac, Linux

File Name	File Size	Format	Codec ID	Channels	Sample Rate	Bit Rate	Bit Per Sample	Duration	Unsupported Chunks	bst	INFO	XMP	aXML	iXML	MDS Stored	MDS Generated	Errors	Information	
1 Debbie_S2.WAV	14037036	Wave	0001	2	44100	1411200	16	00:01:19.574		No	No	No	No	No					
2 40214088.WAV	26810																	invalid Wave truncated	

```
Federal Agencies Digitization Guidelines Initiative (FADGI)
BWF MetaEdit 1.3.1
Usage: "bwfmetaedit [--Options...] FileName1 [FileName2...]"

Options:
--Help, -h          Display this help and exit
--Version           Display ADUG BWF MetaEdit version and exit
=====
Object file if:
  -i: Input file
  -o: Output file
  -w: Write to BWF4 is requested
  -r: Rewrite of existing data(only add)
  -e: Error file
  -s: Section name
  -t: Tag name
  -c: Chunk name
  -d: Description
  -D: Displaying if:
  -E: Error in one or more input files
  -O: Output options:
  -E: Error expanded chunks at the end of the file
  -D: Display details about modified values
  -O: Only (no write)
  -E: Escaped as an escape char (e.g. '\r' and '\n')
=====
Physical Metadata to:
Physical data
File in CSV format
=====
with:
  -c: Core file
  -r: Remove last and INFO
  -d: Description
  -O: Originator
  -O: Originator reference
  -O: Originator date
  -O: Originator time
  -O: Time reference
  -O: UNID
  -O: Loudness value
  -O: Loudness range
  -O: Max true peak level
  -O: Max momentary loudness
  -O: Max short term loudness
  -O: History
  -O: ISM
  -O: ISFT
  -O: XXXX...
=====
File Document to:
File (with:out) in CSV format
File in CSV format
File in CSV format
=====
--out-core-xml filename.core.xml (1 output per file) in XML format
=====
--in-XMP= Insert XMP from the specified file
--in-XMP-remove Remove XMP
--in-XMP-xml Insert XMP from filename_PMM.xml
--out-XMP-xml Save XMP in filename_PPM.xml
=====
```

TOOLS: FILE EDITING



● BWAV Reader

- <http://www.quesosoft.com/reader.html>
- Commercial program; Must purchase the editor
- Embed, edit, and export metadata in Broadcast WAVE Format (BWF) files
- Mac

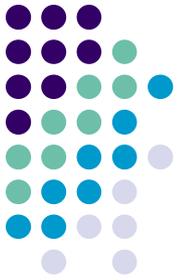
The screenshot displays the BWAV Reader application window titled "1563_01.wav". The interface is divided into several sections:

- Metadata:** Shows "Chunk ID: bext, Chunk Length: 959, Chunk Position: 36". The description field contains "King Interview: 8/21/1973; Tad Jones, Earl King". Other fields include "Origination Date: 2013-10-14", "Origination Time:", "Timecode Start: 00:00:00.00", "Originator: Tulane University Library", and "Originator Ref: 1563". The "Coding History" section contains a list of audio processing parameters.
- File Data:** Shows "Total File Length: 336907888", "Chunk ID: fmt, Chunk Length: 16, Chunk Position: 12", "Format: PCM, 44100Hz, 16bit, Stereo", "Data Rate: 176 K bytes/sec", "Block Align: 4", "B Size: 25954", and "Duration: 31:49".
- Chunks:** A table listing the file's chunks:

Chunk	Location	Length
fmt	12	16
bext	36	959
^FL	1003	4194386

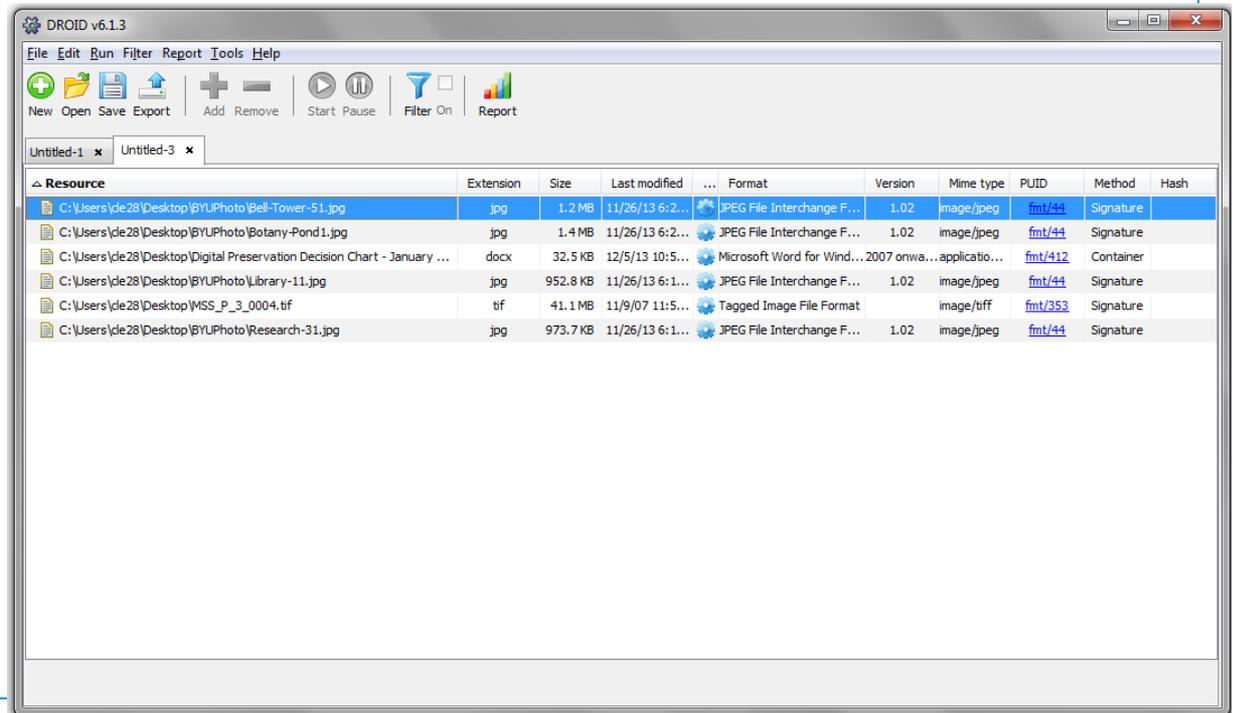
At the bottom, there is a "Reveal File" button, a red text prompt "If you'd like to edit this file please check out BWAV Writer", and a "Play | Stop" button with the URL <http://www.quesosoft.com> and a "Hide Chunks" button. The footer text reads "Drop a file on this window or choose Open from the File Menu" and "V1.1".

TOOLS: FILE FORMAT

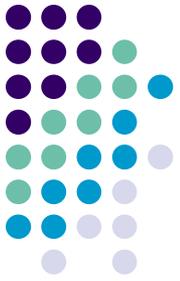


● DROID (Digital Record Object Identification)

- <http://digital-preservation.github.io/droid/>
- Identifies the precise format of digital objects
- Link identification to the PRONOM technical registry service

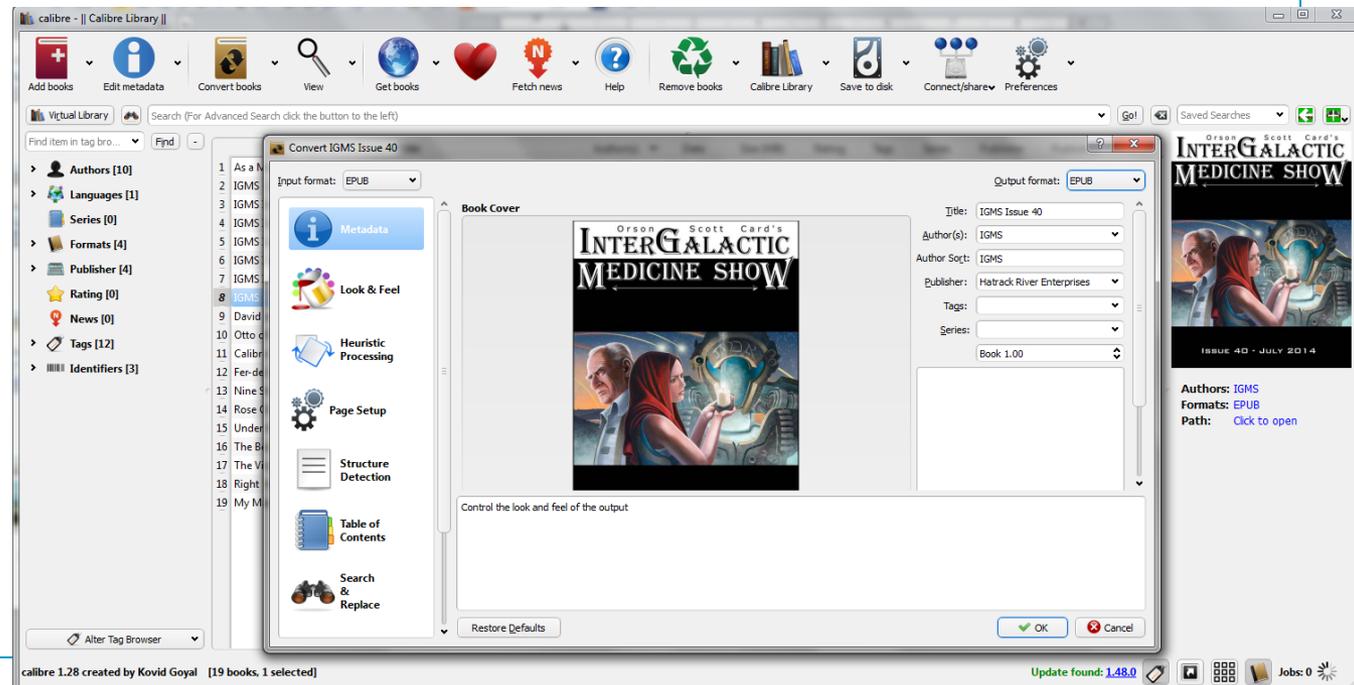


TOOLS: FILE CONVERSION



eBooks

- <http://calibre-ebook.com/>
- Calibre eBook management
- Output to many formats, PDF, MOBI, AZW3, Text, etc.



TOOLS: FILE CONVERSION



● Outlook Email

- Adobe Portfolio

TOOLS: FILE CONVERSION



● To PDF/A

- Adobe Acrobat Pro
- MS Word
- Neevia Technology - <http://convert.neevia.com/pdfconvert/>



TOOLS: OTHERS I USE

- 7-Zip file manager: zip, tar, gz
- Recuva: Recover files
- WinHTTrack: Website copier
- ImgBurn: Burn CDs, DVD, ISO files
- CDBurnerXP: Burn CDs and DVDs, Blu-ray, ISO files
- VirtualCloneDrive: Load ISO files as a drive
- Folder Size: Check size of files on computer
- USBWriteBlocker
- Open Office: Convert office documents
- Jhove: format validation
- VLC: Audio, video viewer; some editing

TOOLS: OTHERS TO CONSIDER



- Bitcurator
- NARA File Analyzer and Metadata Harvester
- Xena: Convert files to open format
 - LibreOffice - Convert office documents to OpenDocument format
 - Tesseract - Create plain text versions of file formats
 - ImageMagick - Convert a subset of image files to PNG
 - Readpst - Convert Microsoft Outlook PST files to XML.
 - FLAC - Convert audio files to FLAC format.
- SysTools Outlook PST Viewer
- RichCopy: Copy large numbers of files
- Karen's Power Tools: directory printer; hash files; etc.
- TIFTags: View Tiff header
- ODIN: Backup of hard drives or drive volumes

TOOLS: OTHERS TO CONSIDER



- PeDALS Email Extractor
- AVPreserve
 - Fixity
 - MDQC: Metadata verification
 - Interstitial: Compares two audio streams
 - AVCC: template for documenting AV collections
- Jpylyzer: verifies jp2k files
- FTK Imager Lite: Create image of drive
- Pdftk Free: Merging and splitting PDF documents
- MFT PictureBox: Catalog /display images in directory & EXIF data
- Duke Data Accessioner: Help migrate files from physical media
- FITS: Identifies, validates and extracts technical metadata
- CUSpider: Find Personally Identifiable Information (PII)



TOOLS: EMAIL TOOLS

- Email backup
 - MailStore Home
 - KLS Mail Backup
 - Safe PST Backup
 - GMail Backup (Softpedia)
 - Gmail Backup (from gmail-backup.com)
 - Gmail Backup Tool (mail2web.com)
 - Gmvault Gmail Backup (<http://gmvault.org/>)

TOOLS: OTHERS?



- More to come
- Others you recommend?



Questions?

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