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Stanford University LIBRARIES & ACADEMIC INFORMATION RESOURCES

Using Forensic Software to Assign Metadata to Born Digital Archives

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Metadata and Digital Object Roundtable (MDOR) Meeting
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Challenge – File Formats Identification

- JHOVE and other similar tools designed for digital preservation can only identify very limited file formats.
- DROID cannot recognize the 3,574 WordPerfect files in the Robert Creeley Collection (333,557 files total).

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Challenge – View File

- Can we assign descriptive metadata without knowing the contents? (similar to a letter in an unopened envelope).
- Many files in born digital collections were created years ago with obsolete software (e.g. WordPerfect, Lotus 1-2-3, etc.)
- QuickView Plus

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Challenge – Annotate

- How we going to record the metadata we assigned to files (database, spreadsheet, xml, etc.)?
- No annotation function in QuickView Plus

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Challenge – Search

- MS Search 4.0 (recognize MS Office documents, PDF, ASCII files; Not WordPerfect, Lotus 1-2-3)
- No pattern search (social security number, credit card number, etc.)

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Challenge – Report

- Reports, if any, from several independent software to interface with the delivery and preservation platform.

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Need

- An integrated tool to perform
  - Identify hundreds of file formats
  - View Files with obsolete file format
  - Annotate metadata to individual/group of files
  - Search for sensitive information in files with obsolete file format
  - Report to access & delivery and preservation platforms

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AccessData FTK

- Identify ~300 file formats
  - http://accessdata.com/downloads/media/Recognized%20File%20Types%20FTK2%20%207-28-08.pdf
- Embedded viewer.
- Bookmark and label functions.
- Full text and pattern search.

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AccessData FTK

- The XML report from FTK is in fact a XSL-FO document containing all the formatting scripts for a XSL formatter to output the file to PDF.
- A XSLT program was written to transform the XSL-FO output from FTK to XML content document. A Ruby program was written to ingest the XML content document, original files, and the display derivatives to Fedora.

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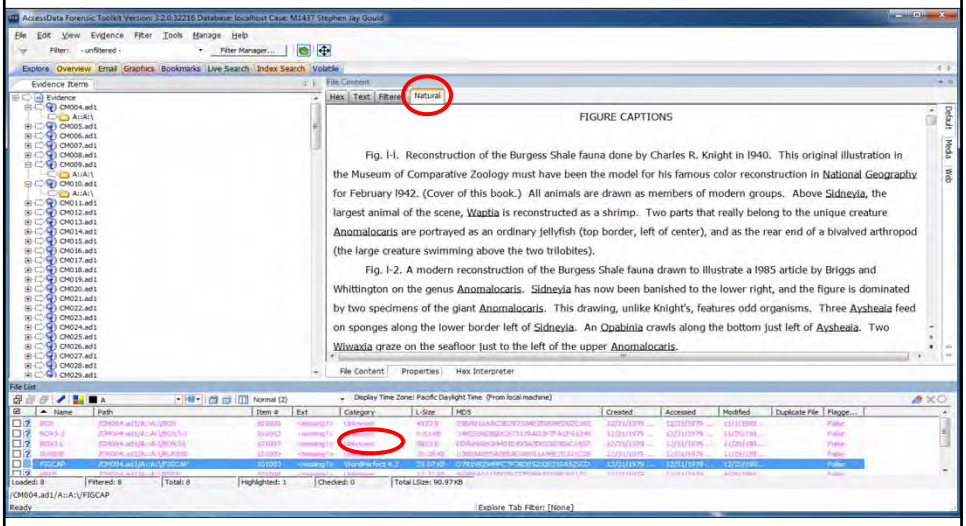
File Format Identification

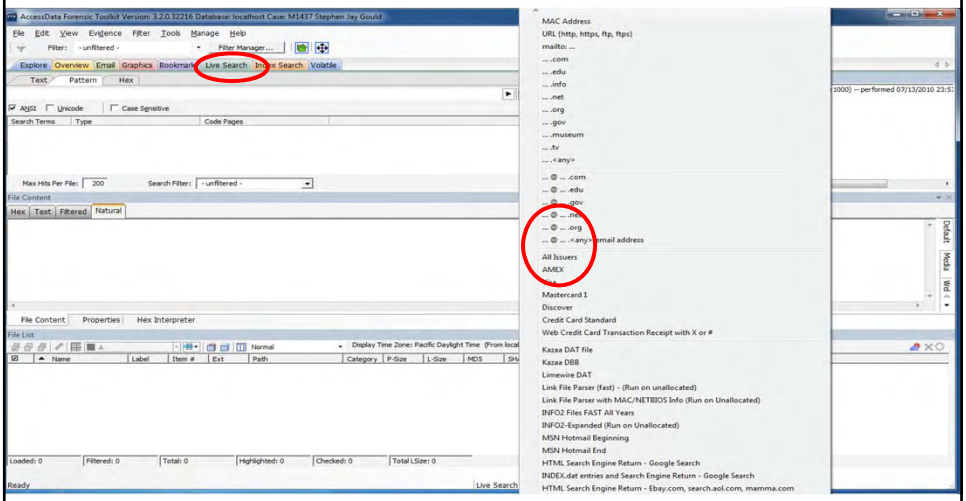
SUMURI

View Files in “obsolete” File Formats



SUMURI

Pattern Search



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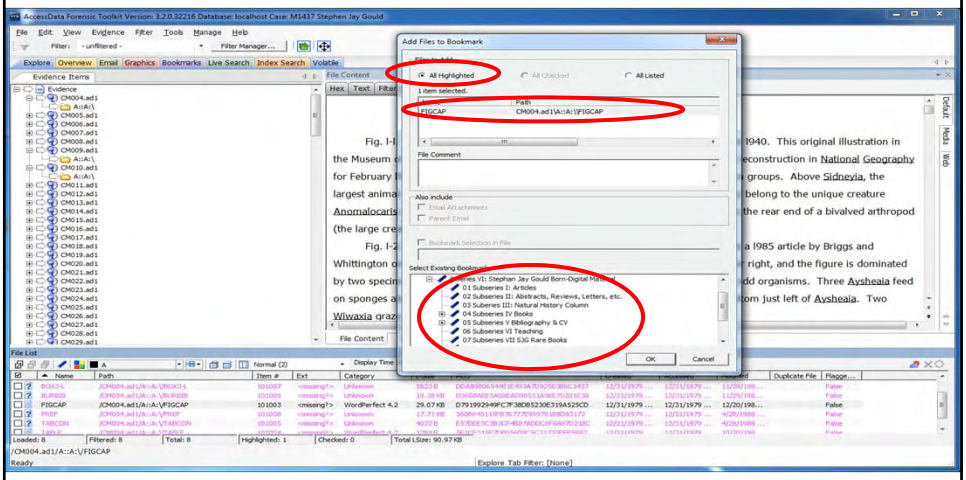
Bookmark Function



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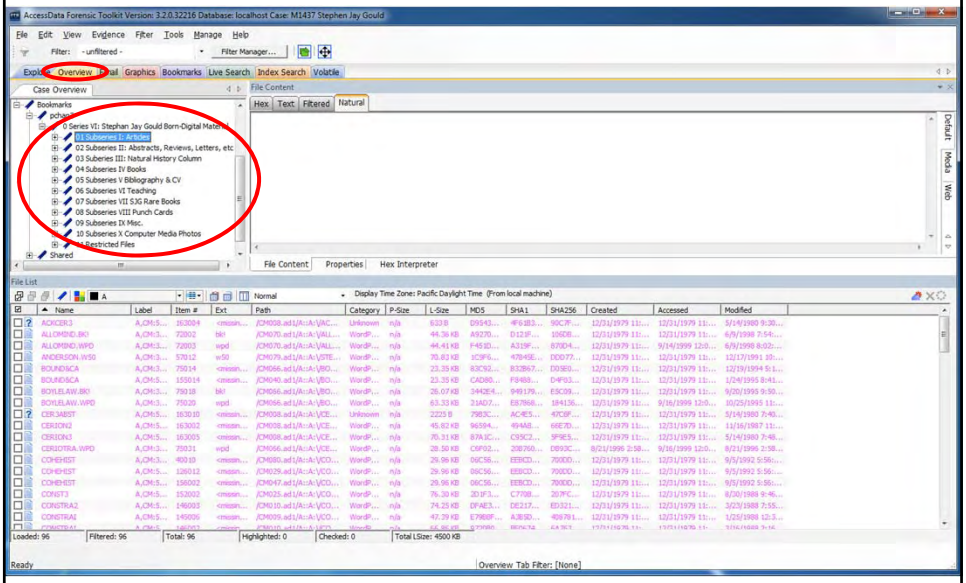

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Assigning Administrative and Descriptive Metadata Using Label Function

- Use "Labels" to represent access restrictions, document types, computer media, and subject headings. When files are exported to access repository (Hypatia), they will carry the labels with them.

Access restrictions:
AR:Owner
AR:Archivist
AR:Invited person
AR:Public
AR:Reading room

File types:
FT:Document
FT:Spreadsheet
FT:Email
FT:Image
FT:Video
FT:Sound

Computer media:

CM:5.25 Floppy	5.25 inch. floppy diskettes
CM:3.5 Floppy	3.5 inch. floppy diskettes
CM:Punch Card	Punch cards
CM:Tape	Open reel (0.5, 0.25, 0.125, etc.); cartridge ; DAT, etc. tape

All Subject Headings start with "S:".

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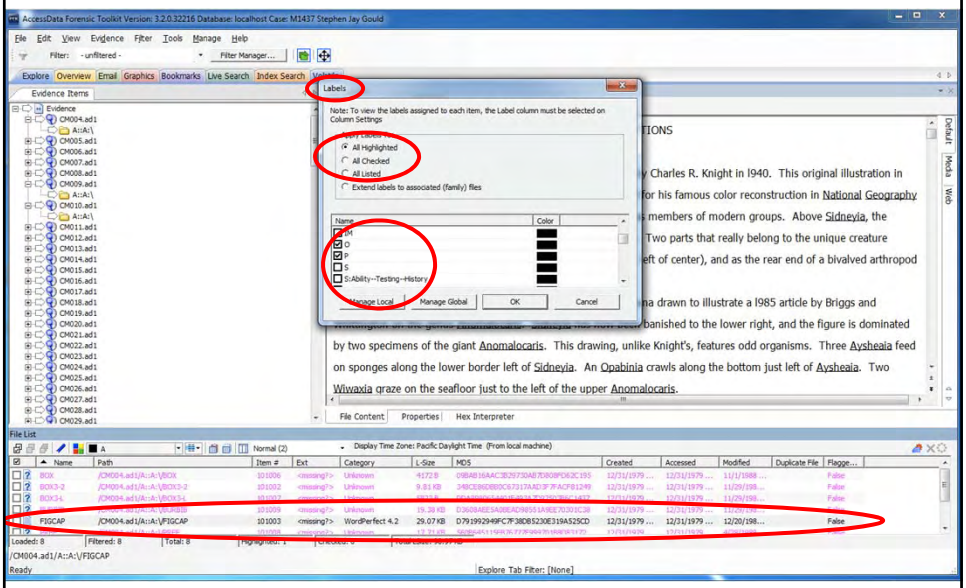

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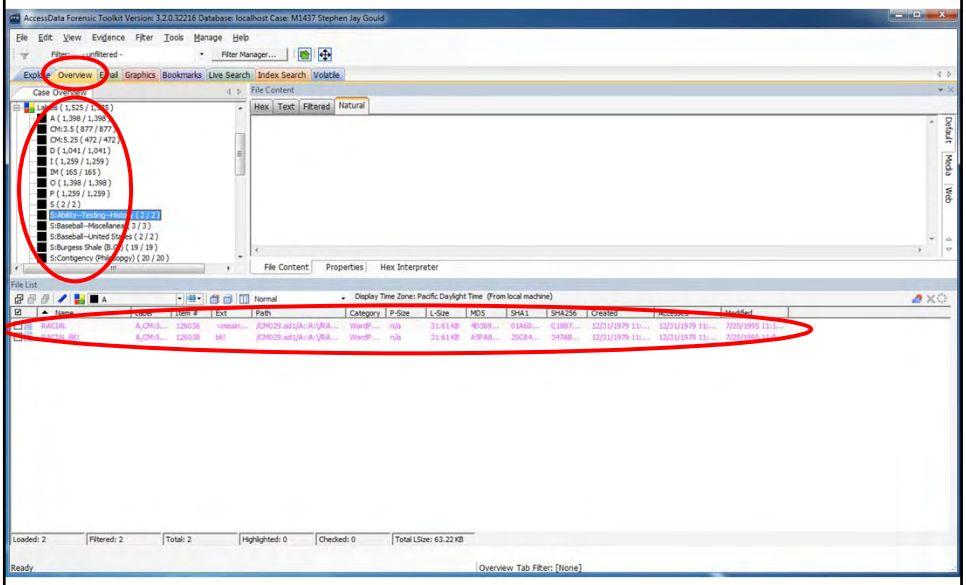

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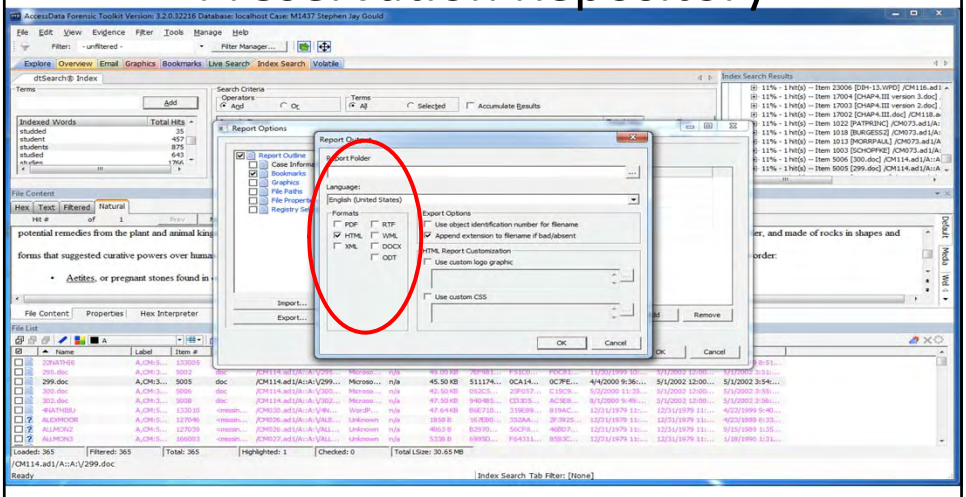
Interface with Access / Preservation Repository



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XML-FO

```
<?xml version="1.0" encoding="UTF-8"?>
<fo:root xmlns:xs="http://www.w3.org/2001/XMLSchema" font-family="arial unicode ms" font-size="10pt"
    xmlns:fo="http://www.w3.org/1999/XSL/Format">
    <fo:layout-master-set>
        <fo:simple-page-master master-name="TOC">
            <fo:region-body region-name="body" margin-top="0.5in" margin-bottom="1in"
                margin-left="0.5in" margin-right="0.5in"/>
            <fo:region-before extent="0.5in"/>
            <fo:region-after extent="0.5in"/>
        </fo:simple-page-master>
        <fo:simple-page-master master-name="caseInfoPage">
            <fo:region-body region-name="body" margin-top="0.5in" margin-bottom="1in"
                margin-left="0.5in" margin-right="0.5in"/>
            <fo:region-before extent="0.5in"/>
            <fo:region-after extent="0.5in"/>
        </fo:simple-page-master>
        <fo:simple-page-master master-name="bookmarksPage">
            <fo:region-body region-name="body" margin-top="0.5in" margin-bottom="1in"
                margin-left="0.5in" margin-right="0.5in"/>
            <fo:region-before extent="0.5in"/>
            <fo:region-after extent="0.5in"/>
        </fo:simple-page-master>
        <fo:simple-page-master master-name="index">
            <fo:region-body region-name="body" margin-top="0.5in" margin-bottom="1in"
                margin-left="0.5in" margin-right="0.5in" column-count="2" column-gap="2pc"/>
            <fo:region-before extent="0.5in"/>
            <fo:region-after extent="0.5in"/>
        </fo:simple-page-master>
    </fo:layout-master-set>
    <fo:page-sequence master-reference="TOC">
        <fo:flow flow-name="body">
            <fo:block text-align-last="justify" space-before="12pt"><fo:basic-link color="blue"
                    font-weight="bold" text-decoration="underline"
                    internal-destination="CaseSummaryMainSection" font-size="14pt">Case
                        Summary<fo:leader leader-pattern="space" leader-alignment="reference-area"
                            /><fo:page-number-citation ref-id="CaseSummaryMainSection"
                    /></fo:leader></fo:basic-link></fo:block>
```

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XSLT Transformation – XML Content

```
<?xml version="1.0" encoding="UTF-8"?>
<ftk_report xmlns:fo="http://www.w3.org/1999/XSL/Format">
    <series>Series 13: Computer Files</series>
    <collection_title>Robert Creeley papers</collection_title>
    <callnumber>M0662</callnumber>
    <did>
        <unittitle>creeley.wmv</unittitle>
        <unitid>209002</unitid>
        <filepath>M0662 CM050.ad1/D::D:\/creeley.wmv</filepath>
        <num>CM050</num>
        <extent>90738025 B</extent>
        <unitdate>4/3/2002 4:06:28 AM (2002-04-03 12:06:28 UTC)</unitdate>
        <accessrestrict>False</accessrestrict>
        <scopecontent>[event]Poetry Reading at Albright-Know Gallery</scopecontent>
        <physdesc>Windows Media Video</physdesc>
        <export_path>files\creeley.wmv</export_path>
    </did>
    <did>
        <unittitle>Arakawa.JPG</unittitle>
        <unitid>212167</unitid>
        <filepath>M0662 CM048.ad1/D::D:\/Photo/arakawa/Arakawa.JPG</filepath>
        <num>CM048</num>
        <extent>195103 B</extent>
        <unitdate>11/29/2000 9:45:44 AM (2000-11-29 17:45:44 UTC)</unitdate>
        <accessrestrict>False</accessrestrict>
        <scopecontent>[subject]Family Photos</scopecontent>
        <physdesc>JPEG EXIF</physdesc>
        <export_path>files\Arakawa.JPG</export_path>
    </did>
```