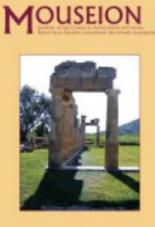
Best Practices for Managing Digitized and Born Digital Scholarly and Cultural Resources

Slavko Manojlovich Associate University Librarian (Information Technology) Memorial University of Newfoundland



TOTAL LINE-MAD



Marine Energy Harvesting from Low Cut-in Speeds Horizontal Axis Ocean Current Turbine: Design, Optimization and Analysis of the Rotor

By

A thesis submitted to the School of Graduate Studies In partial fulfillment of the Requirements for the degree of Master of Engineering

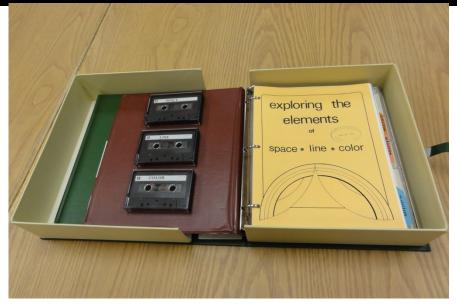
Department of Engineering and Applied Science Memorial University of Newfoundland

> June 2012 St. John's, Newfoundland, Canada



- Digitized (analog) versus born digital content
- Preservation Planning
- Digitizing the Mouseion Journal
- Managing born digital electronic theses
- Q and A

Digitized Analog Content









Born Digital Content

- Text documents (word, PDF, html, etc.)
- Spreadsheets
- Web sites
- Databases
- Twitter
- Multimedia files (audio/video)



<u>English</u>

Français

Digitized (analog) vs. Born Digital

Digitized (analog) Content You control what digital file format(s) to use when digitizing analog content for access and long-term preservation. Making a wellinformed decision at this stage will significantly reduce the ongoing maintenance associated with the preservation of and long term access to these files.

Digitized (analog) vs. Born Digital

Born Digital Content

The curation and preservation of born digital content is much more labour intensive and involves dealing with issues associated with provenance, file identification and validation in addition to access and long-term preservation.

Digitized (analog) vs. Born Digital

- Memorial's Digital Archive Platforms
 - Digitized (analog) content
 - CONTENTdm (OCLC) used to manage the Digital Archives Initiative (DAI) since 2007.
 - Born Digital Content

EPrints (Southampton University) used to manage the Research Repository.

 Summon Discovery Service includes OAI-PMH harvested content from CONTENTdm and the Research Repository.

Also known as "Format Policies", the MTPP determines what file formats to use for digitizing analog content and preserving born digital content. It is created from the intersection of supported media and file formats and their associated significant characteristics, the needs and expectations of our users and the underlying technological environment.

MTPP Digital Preservation Goals

- Provide long-term meaningful access to file formats across all browsers, operating systems and devices.
- Enable the display/play of the original look, feel, experience (colour, layout, etc.).
- Support reuse of born digital objects.

Caveat: to the extent possible

Initial Steps

- Media Type: perform an inventory of media types and file formats in your physical collection/digital repository.
 - a) File extensions don't provide enough information regarding a file (e.g. .pdf could be PDF or PDF/A)
 - b) Use a file identification / validation tool like DRIOD or JHOVE2.

Initial Steps

1. Media Type: perform an inventory of media types and file formats in the digital archive/repository.





- Initial Steps
 - 2. Use Google Analytics or other web site tools to determine the predominant devices, operating systems and browsers used to access your services.

	Operating System	Visits	% Visits	
1.	Windows	12,253		73.10%
2.	Macintosh	2,162	12.90%	
3.	iOS	1,638	9.77%	
	Android	282	1.68%	
5.	(not set)	166	0.99%	
6.	Linux	159	0.95%	
7.	BlackBerry	80	0.48%	
8.	FreeBSD	6	0.04%	
9.	SymbianOS	4	0.02%	
10.	Windows Phone	4	0.02%	

Browser	Visits % Visits
1. Internet Explorer	5,853 34.92%
2. Chrome	4,326 25.81%
3. Safari	2,918 17.41%
4. Firefox	2,865 🚺 17.09%
5. Android Browser	232 1.36%
6. Safari (in-app)	161 0.96%
7. Opera Mini	117 0.70%
8. Opera	96 0.57%
9. Mozilla Compatible Agent	69 0.41%
10. BlackBerry	57 0.34%

Mobile

Operating System	Visits	% Visits
1. iOS	1,638	81.4
2. Android	282	14.02%
3. BlackBerry	80	3.98%
4. Symbianos	4	0.20%
5. Windows Phone	4	0.20%
6. Nokia	3	0.15%
7. Samsung	1	0.05%

Mobile

Screen Resolution	Visits % Visits
1. 768x1024	1,127 56.01%
2. 320x480	426 21.17%
3 320x568	77 3.83%
4. 720x1280	45 2.24%
5. 1280x800	40 1.99%
6. 1024x600	37 1.84%
7. 480x800	23 1.14%
8. 1280x1024	12 0.60%
9. 320x240	12 0.60%
10. 540x960	12 0.60%

- Initial Steps
 - 3. Monitor the high-tech environment for changes which may impact your services.

Steve Would Be Proud: How Apple Won The War Against Flash



Saturday, June 30th, 2012

64 Comments



Late Thursday, an extraordinary thing happened: Adobe announced in a blog post that it would **not provide Flash Player support for devices running Android 4.1**, and that it would pull the plugin from the Google Play store on August 15. The retreat comes five years after the introduction of the iPhone, the device which thwarted Flash's mobile ambitions, almost even before they began.

Audio> element format support [ed							
nis table doc	is table documents the current support for audio codecs by the <audio> element.</audio>						
Formats su			rmats sup	oported by different web browsers			
Browser	Operating system	Ogg Vorbis ♦	WAV PCM ◆	MP3 ¢	AAC ¢	WebM Vorbis ◆	Ogg Opus ≑
Google Chrome	All supported	9	Yes	Yes	Yes	Yes	25
Internet Explorer	Windows	No	No	9.0	9.0	No	No
Mozilla Firefox	All supported	3.5	3.5	21.0, Windows only	21.0, Windows only	4.0	15.0
Opera	All supported	10.50	11.00	No	No	10.60	No
Safari	OS X	No	3.1	3.1	3.1	No	No

Blackberry Z10 Supported File Formats

Image formats	BMP, WBMP, JPG, GIF, PNG, TIFF, SGI, TGA
Audio & video formats	3GP, 3GP2, M4A, M4V, MOV, MP4, MKV, MPEG-4, AVI, ASF, WMV, WMA, MP3, MKA, AAC, AMR, F4V, WAV, MP2PS, MP2TS, AWB, OGG, FLAC
Audio & video encoding/decoding	H.264, MPEG-4, H.263, AAC-LC, AAC+, eAAC, MP3, PCM, Xvid, AMR-NB, WMA 9/10, WMA10 professional, WMA-LL, VC-1, VP6, SPARK, PCM, MPEG-2, MJPEG (mov), AC-3, AMR-WB, QCELP, FLAC, VORBIS

- Initial Steps
 - 4. Monitor communications within the digital preservation community regarding recommended long-term preservation file formats.

Sustainability of Digital Formats Planning for Library of Congress Collections

Introduction Sustainability Factors Content Categories Format Descriptions Contact

The Digital Formats Web site provides information about digital content formats. The analyses and resources presented here will increase and be updated over time. The compilers, Caroline R. Arms and Carl Fleischhauer, invite <u>feedback</u> on the content.

Introduction

Background information and overview: What is a format? How shall we evaluate formats? What projects in other organizations are addressing these questions? >> Overview | Formats, Evaluation Factors, and Relationships | Papers and Presentations | Related Resources

Sustainability Factors

What affects the ability of the Library to preserve content in a given format? These sustainability factors apply to all formats. >>

Disclosure | Adoption | Transparency | Self-documentation | External Dependencies | Impact of Patents | Technical Protection Mechanisms

Content Categories

The evaluation of formats must take into account quality and functionality. These factors vary according to the type of content under consideration and the categories will be expanded as time passes. >>

Format Descriptions

Documents with more information about specific formats. >>

Still Image | Sound | Textual | Moving Image | Web Archive | Datasets | Geospatial | Generic

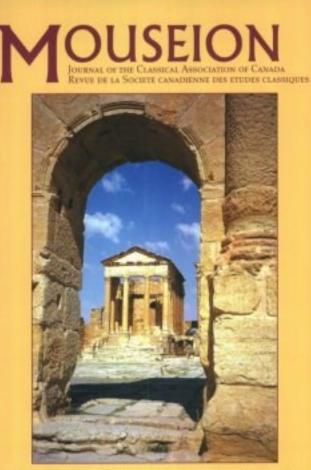
Browse categories | Browse alphabetical list

- Sustainability Factors for Long-Term Preservation Formats:
 - Disclosure: open specifications and validation tools.
 - Adoption: widely adopted, bundled with OS.
 - Transparency: open to direct analysis with basic tools.
 - Self-documentation: metadata embedded in file.
 - External dependencies: the fewer the better.
 - Impact of patents: licenses and royalty fees.
 - Technical protection mechanisms: the fewer the better.

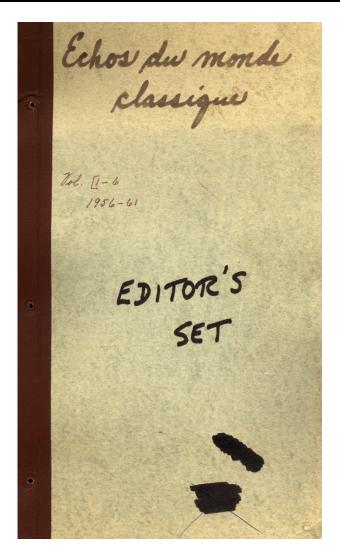
- MUN Format Policy for Audio
 - **1**. Media Type: Audio.
 - Supported ingest format extensions: MP3, WMA, WAV
 - 3. Long-term preservation format(s): WAV (LPCM)
 - 4. Access format(s): MP3, WAV
 - 5. Normalization tool: Soundforge Audio Studio Version 10
 - 6. Analog digitization / born digital preservation audio standards

 Analog digitization / born digital preservation audio standards:

Category	File Format	Resolution	Notes
Long-term preservation high resolution standard	-Linear PCM bit stream -Uncompressed .WAV	24 Bit @ 48 KHz (minimum), mono/dual or mono/stereo, interleaved	Higher resolutions encouraged if possible.
Deliverable "hard copy" standard (CD)	-Linear PCM bit stream -Uncompressed .WAV	16 Bit @ 44.1 KHz Stereo Interleaved only	Derive from original
Deliverable Web- based access/download standard	MP3, WAV	Minimum of 128 Kbps @ 44.1 KHz mono or 256 Kbps @ 44.1 Kbps stereo	Derive from original



anciennement/formerly Echos du Monde Classique/Classical Views L – Series III, Vol.6, 2006 No. 2 ISSN 1496-9343



History

- Professor Brad Levett, Memorial University, current editor
- Project Muse: 2007-2010 issues, requires subscription
- 1951 2008 backfiles are being digitized for Project Muse and for open access in MUN's Digital Archive.
- Completed digitizing 1982-2008 (81 issues, 13,000 pages)
- Recently received the 1956 1981 issues.

1956, Number 1, page 1

The Classical Association of Canada - Association canadienne des Studes classiques CLASSICAL NEWS AND VIEWS ut res et sententias inter se communicent létterarum atque humanitatis fautores Reb. 156 Ne. 1 VINT RIDE Standing by Ganada's memorial at Yiny Ridge in 1950, I watched a workman out-ting names into the limetons bass. I expressed admirstion at the beauty and fex-ture of the construction of the formed or exciting admired the formed or excitation of the construction of the state which was bold beauty and for all over Burges for a stone which was bold beauty and the searched all over Burges for a stone which was bold beauty and the stone which was channes he had come upen an ancient palese, built by the Baparon Blood have than all the stone upen an ancient palese, built by the Baparon Blood have than aixteen centuries with so little deburg ALD. The stone was taken, it, Allward acquit with an little deburg quarties from which the stone was taken. Here, then, a stock-pile from which Canada's tribute to her war dead Mars & be Rahloned. Here you have a store of the stone of large, Hunipeg.

Cehos der monde classique

BOMAIN EXAMP. The New York Times reports that engineers have been studying Roman reads in their starst to construct highways that will bear up under the stream of modern traffic. American engineers, after a survey of the Apilan Way, only beause of the is in better condition than many modern highways and scions, scmetimes over 40 paintaking construction and the activative science of the science of the inching from base to top. All the many ready science of the science of the science of the science of the Semi ready science of the Semi read science of the Semi read construction principles of the Seman reads are now being applied to medern read construction from the science of the Seman reads are now being applied to medern read building.

LATINITAS The New York Times for March 8, 1953, announced the first issue of LATINITAS, a quarterly entirely in Latin, sublished by the Vatican Library Frees under the di-restion of Magr. Antonio Bacol (yearly museriptical a contest spanned by LATINI-More resently (Aug. 4, 1965) the Theor warse, an a wristy of topics including TAS for compositions in Latin, is and Peacoful Uses". One composition is for teach "Atomic Peace and its and one for arrester. A gold media and 00,000 Takina library a state of the second. Manuscripts must reach Vatican (ity by Amary 7). The July issue of LATINITAS (1965) has an article "De Berum Menner" in Lad-rious Mackey G Galiforniam Studiorum Universitate, a former professor at U.S.C. and the University of Toronto.

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1956, Number 1, page 1

Echos du monde classique The Classical Association of Canada - Association canadienne des Etudes classiques CLASSICAL NEWS AND VIEWS ut res et sententias inter se communicent Feb. 156 letterarum atque humanitatis fautores

Nc. 1

VIMY RIDGE

Standing by Canada's memorial at Vimy Ridge in 1930, I watched a workman cutting names into the limestone base. I expressed admiration at the beauty and texture of the stone. The workman said that Walter S. Allward, the Toronto architect and artist who designed and supervised the erection of the memorial, had searched

The Process

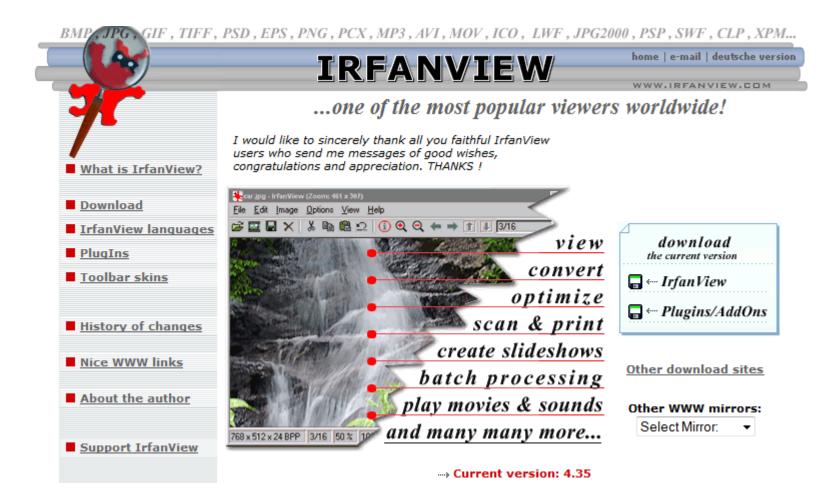
- Removed the spine in order to feed issues through a Kodak two-sided sheet feed scanner.
- Scanned in colour to create 600 dpi jpegs.
- Initial quality control review of images by a graduate student assistant revealed a black outline, light green stripes (possibly due to a dirty scanner) and discoloured edges caused by light leakage. This was not acceptable.

Original Scan

JUDITH FLETCHER

2

their hands to perform actions without fully understanding their significance; they commit violent deeds devised by others, or they are driven by forces beyond reason. Despite this rather grim depiction of human will and agency, the *Trachiniae* does in its final moments move towards a more salutary and rational use of the hands, a pledge symbolized and ratified by the *dexiosis*. This thematic evolution is the inverse of the hand's significance in the *Medea* where Medea's right hand, which has exchanged pledges with Jason and "represents trust and amity at at the beginning of the play, becomes the instrument of bloody revenge by the end."⁴ By examining the motif of the hand



- All issues were gray-scale except for the colour cover.
- Examined options to rescanning.
- Used IRFANVIEW software to batch correct problems:
 - Grey-scale wash removed green stripes and light leakage.
 - 100 pixel white edge wash removed black outline.

Final Version

JUDITH FLETCHER

2

their hands to perform actions without fully understanding their significance; they commit violent deeds devised by others, or they are driven by forces beyond reason. Despite this rather grim depiction of human will and agency, the *Trachiniae* does in its final moments move towards a more salutary and rational use of the hands, a pledge symbolized and ratified by the *dexiosis*. This thematic evolution is the inverse of the hand's significance in the *Medea* where Medea's right hand, which has exchanged pledges with Jason and "represents trust and amity at at the beginning of the play, becomes the instrument of bloody revenge by the end."⁴ By examining the motif of the hand throughout the *Trachiniae* I would like to suggest that quite the opposite occurs, a suggestion which might help to defend this drama against charges of unmitigated pessimism and offer a glimmer of hope for its outcome.⁵

- Adobe Professional: OCR and create PDF/A-2b files for long-term preservation.
- OCR process includes page straightening.
- Final PDF/As sent to Project Muse.
- PDF/As did not meet Project Muse standards due to substandard OCR.
- Further investigation revealed that the pixel width of the OCR image was related to the quality of the OCR.

Pixel width and file size for a 200 page issue:

Pixel Width (ppi)	File Size
Original: 3500	Original: 175 MB
Downsized: 2000	72.4 MB
Downsized: 1600	50.6
Downsized: 1200	34.9

Mouseion - Classical Views - Echos du Monde Classique (1956-present)

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Mouseion - Classical Views - Echos du Monde Classique (1956-present)

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Moust:iun aims to be a distinctively compn:hensive Canadian journal of Classical Studies. publishing anicles and teviews in both French and English. One issue annually is normally d~::voted to atechaeologica I topics.

including field repm·ts. finds analysis. and the histm·y of at·t in antiquity.

The othe1 \cdot two issues welcome w(Wk in all areas of interest to scholars: this includes both traditional and innovative rtseat'ch in philology.

history. philosophy. pedagogy. and reception studies. as well as original wotk in and translations into Greek and Latin

Mouseion - Classical Views - Echos du Monde Classique (1956-present)

Pixel width and OCR quality (2000 ppi):

Mouseion aims to be a distinctively comprehensive Canadian journal of Classical Studies, publishing articles and reviews in both French and English. One issue annually is normally devoted to archaeological topics,

including field reports, finds analysis, and the history of art in antiquity. The other two issues welcome work in all areas of interest to scholars; this includes both traditional and innovative research in philology,

history, philosophy, pedagogy, and reception studies, as well as original work in and translations into Greek and Latin.

Mouseion - Classical Views - Echos du Monde Classique (1956-present)

We face OCR challenges with the older issues!!!!

The Classical Association of Canada - Association canadienne des Etudes classiques

CLASSICAL NEWS AND VIEWS

ut res et sententias inter se communicent letterarum atque humanitatis fautores

Feb. 156

Echos du monde classique

No. 1

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Electronic Theses (E-Theses)

Marine Energy Harvesting from Low Cut-in Speeds Horizontal Axis Ocean Current Turbine: Design, Optimization and Analysis of the Rotor

By

© Reza Chini

A thesis submitted to the School of Graduate Studies In partial fulfillment of the Requirements for the degree of Master of Engineering

Department of Engineering and Applied Science Memorial University of Newfoundland

> June 2012 St. John's, Newfoundland, Canada

Electronic Theses (E-Theses)

- Library and Archives Canada
 - "By 2014, LAC will only accept theses and dissertations from Canadian universities in electronic form..."
- Requires change in Graduate Studies policy which mandates electronic submission.
- Additional instruction in e-thesis preparation.
- Development of an e-thesis submission and processing workflow.

PDF/A for Preservation of and Access to Text –based Files

- PDF/A file format maximizes:
 - Device independence
 - Self-containment
 - Self-documentation

PDF/A for Preservation of and Access to Text –based Files

PDF/A Constraints

- Audio and video content are forbidden.
- Javascript and executable file launches are prohibited.
- All fonts must be embedded and also must be legally embedded.
- Encryption is disallowed.
- Use of standards-based metadata is mandated.

PDF/A for Preservation of and Access to Text –based Files

PDF/A Fonts

- Avoid the use of proprietary and/or special purpose fonts.
- Recommend the use of Standard 14 Fonts
 - Times (v₃) (in regular, italic, bold, and bold italic)
 - Courier (in regular, oblique, bold and bold oblique)
 - Helvetica (v3) (in regular, oblique, bold and bold oblique)
 - Symbol
 - Zapf Dingbats
- Embed the entire font, not a subset, for reusability.

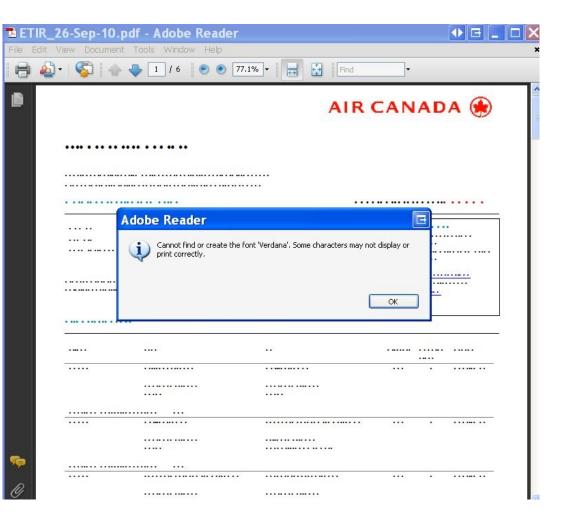
Preserve Look and Feel



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Preserve Look and Feel (missing fonts)





Preserve Look and Feel



You are viewing this document in PDF/A mode.

CLOTHES MOTH FACTS:

The BioCare Clothes Moth Trap attracts and captures adult male webbing clothes moths. Clothes Moths occasionally occur in homes, where the larval stage damages clothing and other personal objects that are made of wool, hair, fur, feathers or other natural fibers.

THIS TRAP SIGNALS WHEN A DAMAGING INFESTATION IS PRESENT: IT DOES NOT CONTROL THE LARVAE WHICH FEED ON CLOTHING. IF MOTHS ARE FOUND IN THE TRAP, TAKE IMMEDIATE MEASURES TO CONTROL THE LARVAE CAUSING THE DAMAGE.



66

POF

Preserve Look and Feel (font substitution for missing fonts)



CLOTHES MOTH FACTS:

The BioCare Clothes Moth Trap attracts and captures adult male webbing clothes moths. Clothes Moths occasionally occur in homes, where the larval stage damages clothing and other personal objects that are made of wool, hair, fur, feathers or other natural fibers.

THIS TRAP SIGNALS WHEN A DAMAGING INFESTATION IS PRESENT: IT DOES NOT CONTROL THE LARVAE WHICH FEED ON CLOTHING. IF MOTHS ARE FOUND IN THE TRAP, TAKE IMMEDIATE MEASURES TO CONTROL THE LARVAE CAUSING THE DAMAGE.



emale moths are especially attracted to oily or soiled fabrics, where they

- Integral part of the thesis.
- Support replication, validation and extension of experiments.
- Support reuse of digital content, for example, images.
- MUN Disciplines: Anthropology, Biology, Chemistry, Computer Science, Earth Sciences, Engineering, Environmental Science, Music, Physics.

Gan, Gregory (2010) To our hopeless affair : a visual anthropology study about women of the Russian Intelligentsia in the post-Soviet era. Masters thesis, Memorial University of Newfoundland.

"A feature-length ethnographic film produced during the period of fieldwork in Moscow and based on participants' memories is appended to the thesis."

Here is a <u>link</u> to the Gregory Gan thesis and video in Memorial's Research Repository:

http://research.library.mun.ca/1686/

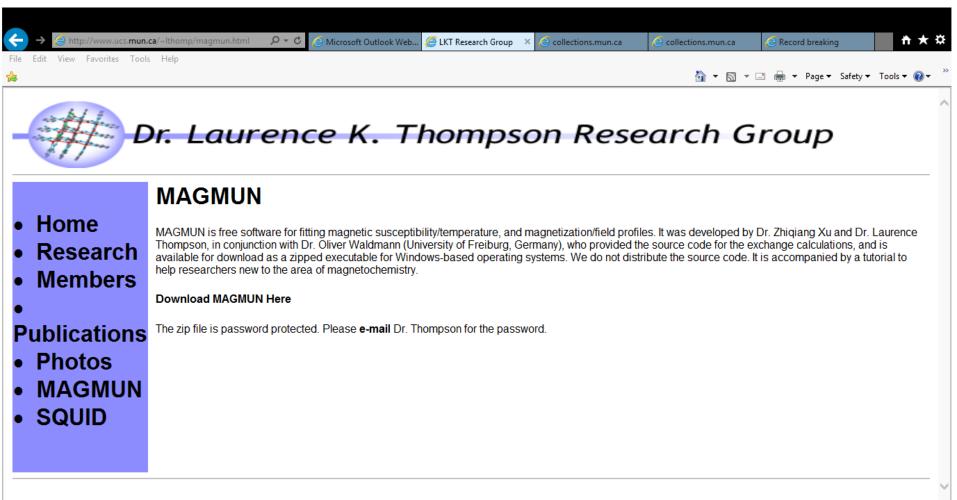
- Types of files submitted with 20 MUN theses:
 - Video: mp4, wmv, avi
 - Image: jpg, tif
 - Spreadsheet: Microsoft Excel
 - Database: Microsoft Access
 - Software: original C#/Fortran code, open source software, links to commercial software.
 - Data: asv CAD/CAM, cif Crystallographic, etc.
 - Documentation: from good to nil.
 - Files may be organized in folders.

- Convert specific files for long term access / preservation based on the MTTP:
 - Video: mp4, wmv, avi
 - Image: jpg, tif
 - Spreadsheet: Microsoft Excel
 - Database: Microsoft Access
 - Software: original C#/Fortran code, open source software, commercial software.
 - Data: asv CAD/CAM, cif Crystallographic, etc.
 - Documentation: from good to nil (readme files).

- Download, test, preserve open source software, compilers, emulators, etc.:
 - Video: mp4, wmv, avi
 - Image: jpg, tif
 - Spreadsheet: Microsoft Excel
 - Database: Microsoft Access
 - Software: original C#/Fortran code, open source software, commercial software.
 - Data: asv CAD/CAM, cif Crystallographic, etc.
 - Documentation: from good to nil (readme files).



Download and preserve the associated software.



Determine sustainability of remaining formats:

- Video: mp4, wmv, avi
- Image: jpg, tif
- Spreadsheet: Microsoft Excel
- Database: Microsoft Access
- Software: original C#/Fortran code, open source software, commercial software.
- Data: asv CAD/CAM, cif Crystallographic, etc.
- Documentation: from good to nil.

Use zip uncompressed to preserve the folder structure:

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🖳 Recent places	Bread Cove Brook Insect Kill	File folder		
	퉬 Louil Hill Insect Kill Squirrels	File folder		
🥽 Libraries	퉬 Newman Sound Coastal Trail	File folder		
Documents	퉬 Ochre Hill Insect Kill Squirrels	File folder		
👌 Music	퉬 Ochre Hill Intact Squirrels	File folder		
Pictures	퉬 Platter's Cove Squirrels	File folder		
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10 items 1 item selected				

- Add descriptive metadata for all associated files and use METS schema to package the thesis, associated files, metadata and preservation actions into a logical whole.
- Submission package will be a zip or Bagit container.
- Work on the development of a METS E-Thesis profile. Current ETD-MS Dublin core profile is inadequate.

- Determine the skill sets required to staff the E-Thesis processing workflow:
 - Metadata specialist: METS, Premis, Dublin Core.
 - Digital Preservation specialist: file identification, validation, access and preservation.
 - Systems Analyst: file migration, crossplatform/browser testing, packaging.
- Important question: will LAC/BAC be able to accommodate E-Theses with associated files?

