



# Picture Yourself Here: Getting started with disk image processing

Jana Grazley  
City of Vancouver Archives  
AMIA 2016  
11 November 2016



Total archives - 60% public (CoV)/40% private

- 3.5km textual records
- 1.5M photos
- 61k architectural plans
- 7k maps
- 20k published items
- 1.7k audio recordings
- 2.6k moving images
- 70TB born-digital records

## 8 FTE + temp and aux staff

- City Archivist
- 3x Digital Archivists
- 1x Archivist
- 1x Digital Conservator
- 1x Archives Assistant
- 1x Office Administrator

**2004-2006** VanRIMS (Classification Schema)

**2008-2009** VanDOCS (ERDMS)

**2009-2010** VANOC (Olympic Legacy Project)

Digital forensics image ingest ... x Forensic imaging steps for 1... x Archivematica Dashboard - Tr... +

cvan105.vancouver.ca/transfer/ Search

RAD LC DigiFormats OAIS Dataset preservation Geospatial Data Pres... NDSA geo working gr... GeoMAPP archivematicaGoogle... BitCuratorGoogleGroup bulk\_extractor-users ... The Nature of Geogra...

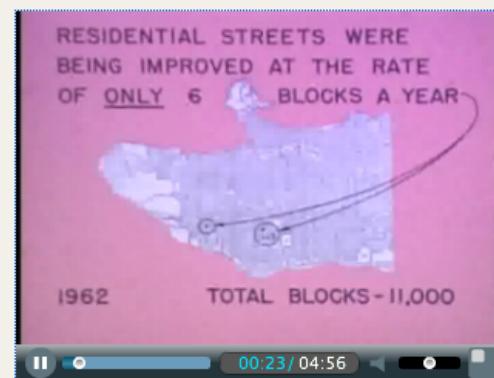
archivematica Transfer Ingest Archival storage Preservation planning Access Administration Jana Connected

Type Standard Transfer name Accession no. /home/artefactual/archivematica- Browse Start transfer

Transfer	UUID	Transfer start time
<input checked="" type="checkbox"/> cats30Aug1529	a438901f-ed85-4653-b3d9-c6ab4d67da4f	2016-08-30 15:30
► Micro-service: Create SIP from Transfer		
► Micro-service: Complete transfer		
► Micro-service: Examine contents		
► Micro-service: Characterize and extract metadata		
► Micro-service: Validation		
► Micro-service: Update METS.xml document		
► Micro-service: Extract packages		
► Micro-service: Identify file format		
► Micro-service: Clean up names		
► Micro-service: Generate transfer structure report		
► Micro-service: Scan for viruses		
► Micro-service: Quarantine		
► Micro-service: Generate METS.xml document		
► Micro-service: Verify transfer checksums		
► Micro-service: Reformat metadata files		
► Micro-service: Assign file UUIDs and checksums		
► Micro-service: Include default Transfer processingMCP.xml		
► Micro-service: Rename with transfer UUID		
► Micro-service: Verify transfer compliance		
► Micro-service: Approve transfer		
<input checked="" type="checkbox"/> TEST1_aug4_cvan013upload	c14f43ec-bf91-4bd5-8ae6-67c6d97e5c75	2016-08-05 10:22
► Micro-service: Create SIP from Transfer		
► Micro-service: Complete transfer		
► Micro-service: Examine contents		

[Browse](#) Search[Advanced search »](#)[Holdings](#)[Quick search](#)[▼ Fonds PUB – City publications collect...](#)[3400 more...](#)[Item : PD 2100.4 – Zoning Map: City ...](#)[Item : PD 2100.3 – Zoning Map: City ...](#)[Item : PD 2100.2 – Zoning Map: City ...](#)[Item : PD 2100.1 – Zoning Map: City ...](#)[Item : MI-27 – Vancouver low cost st...](#)[Item : 2013-011.1 – Carnegie newsle...](#)[Item : 2013-011.2 – Carnegie newsle...](#)[Item : 2013-011.3 – Carnegie newsle...](#)[Item : 2012-011.4 – Carnegie newsle...](#)[26 more...](#)

# Item : MI-27 – Vancouver low cost street program

 [SHARE](#)[City publications collection](#) » [Vancouver low cost street program](#)[Download movie](#)[Reports](#)[Browse as list](#)[Browse digital objects](#)[Export](#)[Dublin Core 1.1 XML](#)[EAD 2002 XML](#)[Related people and organizations](#)[Lawson, G.H. \(Author\)](#)[Container name](#)[Box: 721-B-1, folder 3](#)[\(Reference DVD 3\), DVD reference copy](#)[Box: 709-B-2, folder 3](#)[\(DVD 3\), MPEG2 folders on DVD](#)[Box: 708-B-1, Tape 3](#)[Duplicate, IN 21:33:30:00, OUT 23:15:29:00, digital betacam duplicate](#)[Box: 726-B-1, Tape 3](#)[Master, IN 21:33:30:00, OUT 23:15:29:00, digital](#)

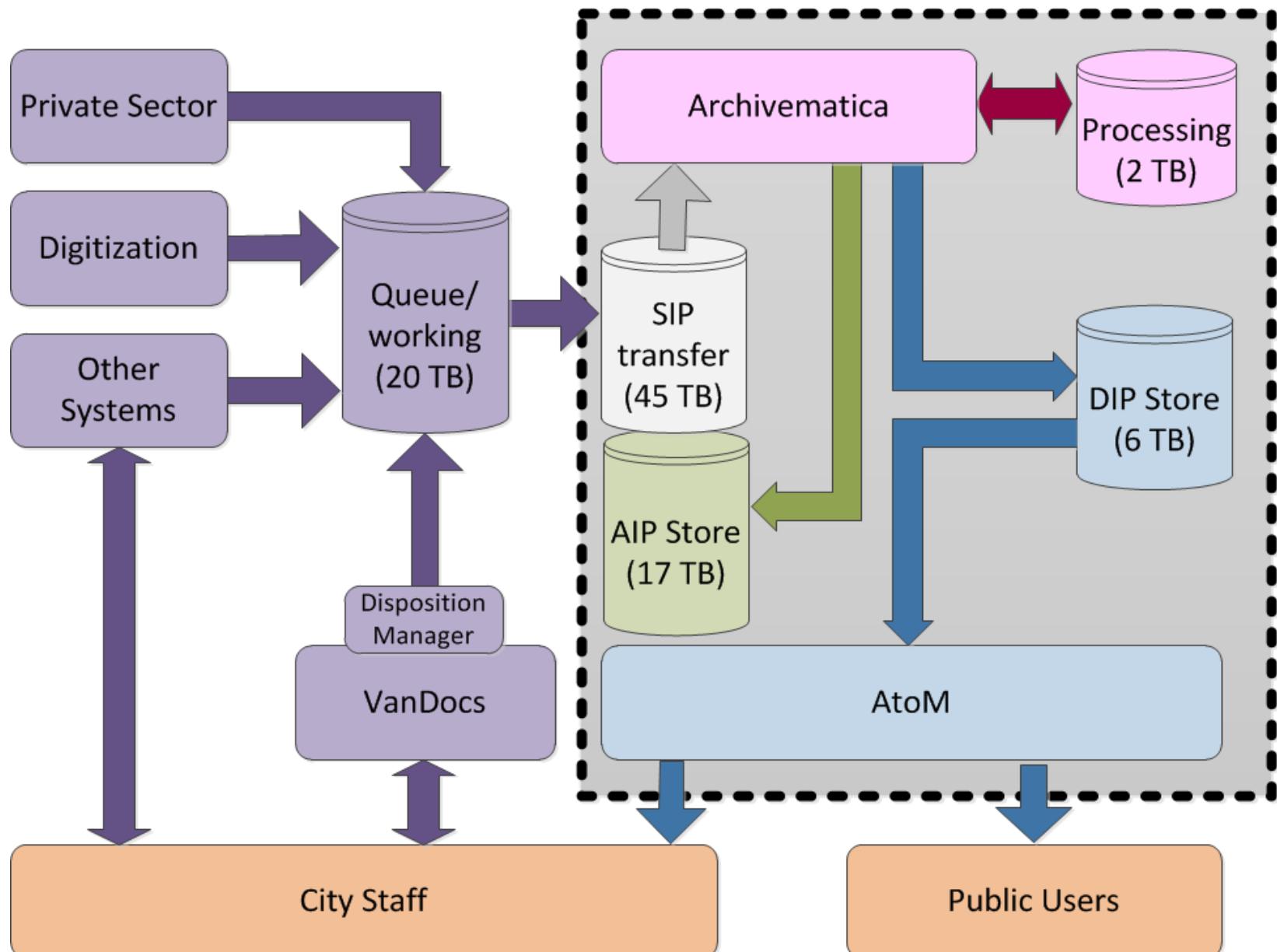
## Title and statement of responsibility area

<b>Title proper</b>	Vancouver low cost street program
<b>General material designation</b>	<ul style="list-style-type: none"> <li>Moving images</li> </ul>
<b>Title statements of responsibility</b>	produced by G.H. Lawson
<b>Level of description</b>	Item
<b>Reference code</b>	PUB-: MI-27

## Dates of creation area

Data entry | [Edit this page](#)

# Infrastructure



# Delays, macro- and micro-



A photograph of a sunset over a body of water. In the foreground, the dark silhouette of a large tree stands on a grassy bank. Several people are sitting on a wooden dock extending into the water. The sky is a warm orange and yellow, transitioning to a darker blue at the top. The water reflects the colors of the sunset.

GVTV

# Accessioning born-digital, 2010-style

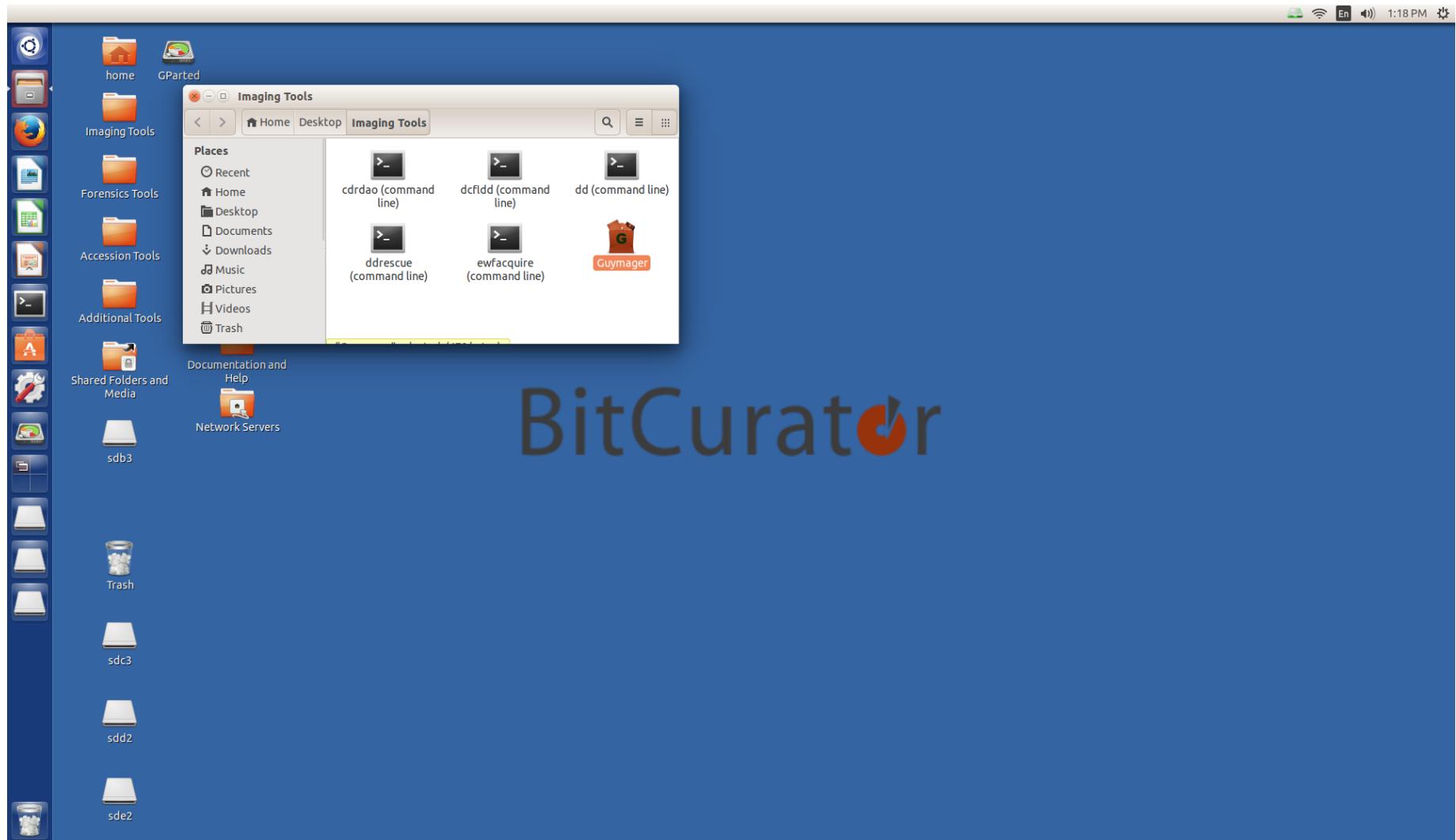


<b>Accession number</b>	2010-021
<b>Acquisition date</b>	2010-3-4
<b>Location information</b>	Stacks – 808 D, E, F; 809 B, C, D, E, F; 632-B-1
<b>Acquisition type</b>	Transfer
<b>Resource type</b>	Public body
<b>Title</b>	GVTV production records
<b>Scope and content</b>	Tapes, DVDs, hard drives, iomega Jaz tapes, and paper records transferred as part of the wrapping up of City's GVTV (Greater Vancouver Television) productions. Paper records are story research files (5 boxes). Tapes, DVDs and hdds are footage and completed programs.  Tapes include: <ul style="list-style-type: none"><li>• -216 x Betacam SP</li><li>• -2 x Umatic</li><li>• -38 x MiniDV</li><li>• -523 x DVCAM</li></ul> Tapes are in boxes numbered from 1-15. 4 x iomega Jaz tapes (1 GB each) 1 box of paper records (loose and in binders) labeled box # 5 boxes of story research records labelled: "GVTV story file" 14 HDDs (including 2 contained in 2-Bay RAID system) Creator: Vancouver (B.C.). Office of the City Clerk
<b>Received extent units</b>	DVDs (count): 3 ; Other Materials (count): 14 HDDs ; Textual (count): 5
<b>Processing notes</b>	Registered by: Glenn Dingwall Last Item #: n/a CS Record ID: 973 Classification #: 04-2200-40 04-2200-41



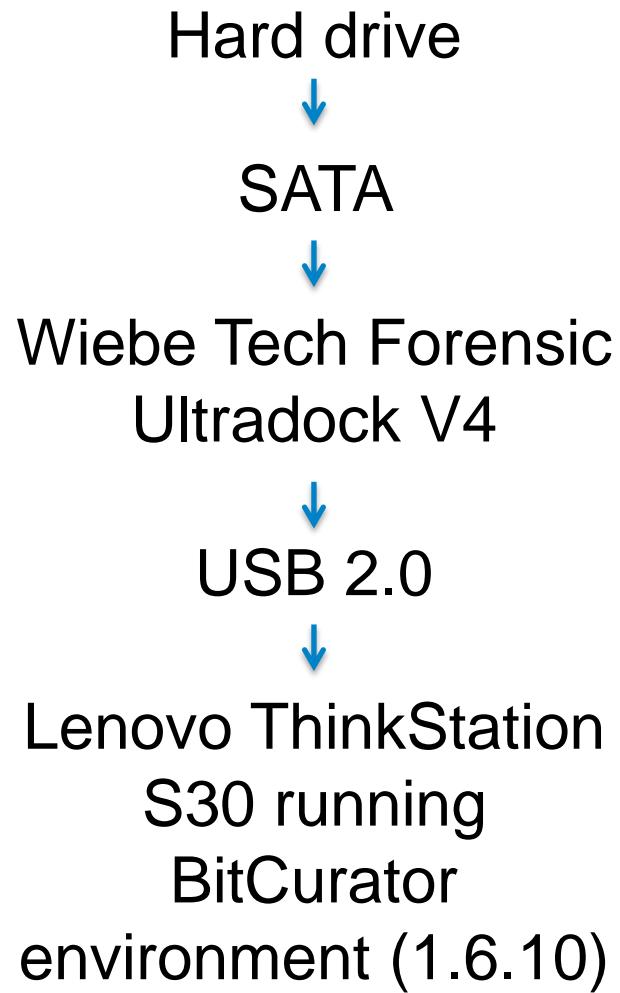
# Six years later...





- Bit-level preservation of exactly what was received
- Analysis and human-readable reports
- Support future emulation efforts
- Opportunity to assess BitCurator's utility for processing audiovisual content

# Attempted forensic imaging



# I never thought it would happen to me...

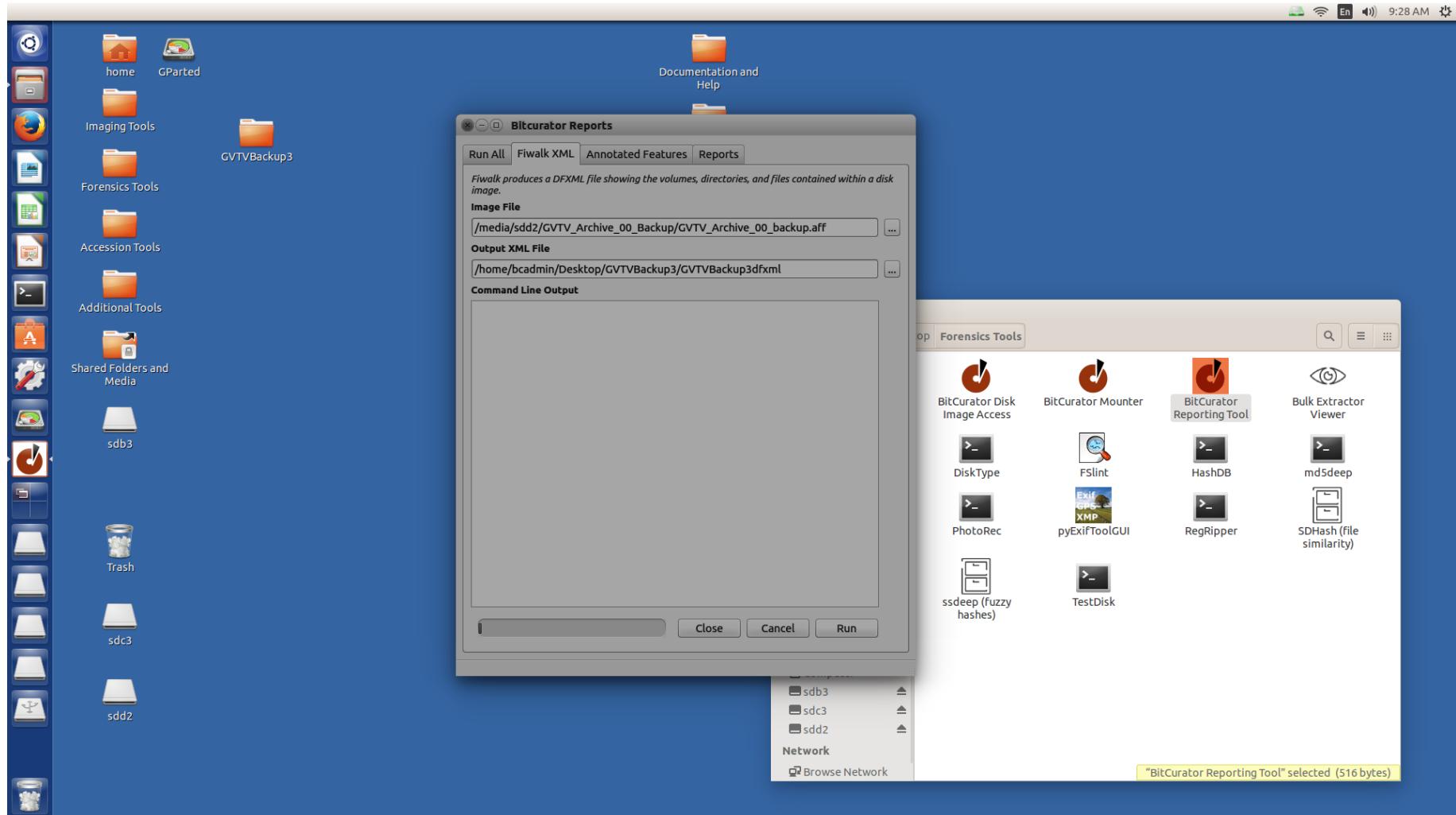


- Report of all formats represented
  - Codecs too!
- Total number of files
- Identify duplicates
- Identify empty directories
- Duration of video and audio files
- Dates created, modified
- Identify all files named according to a given convention (functionally significant)

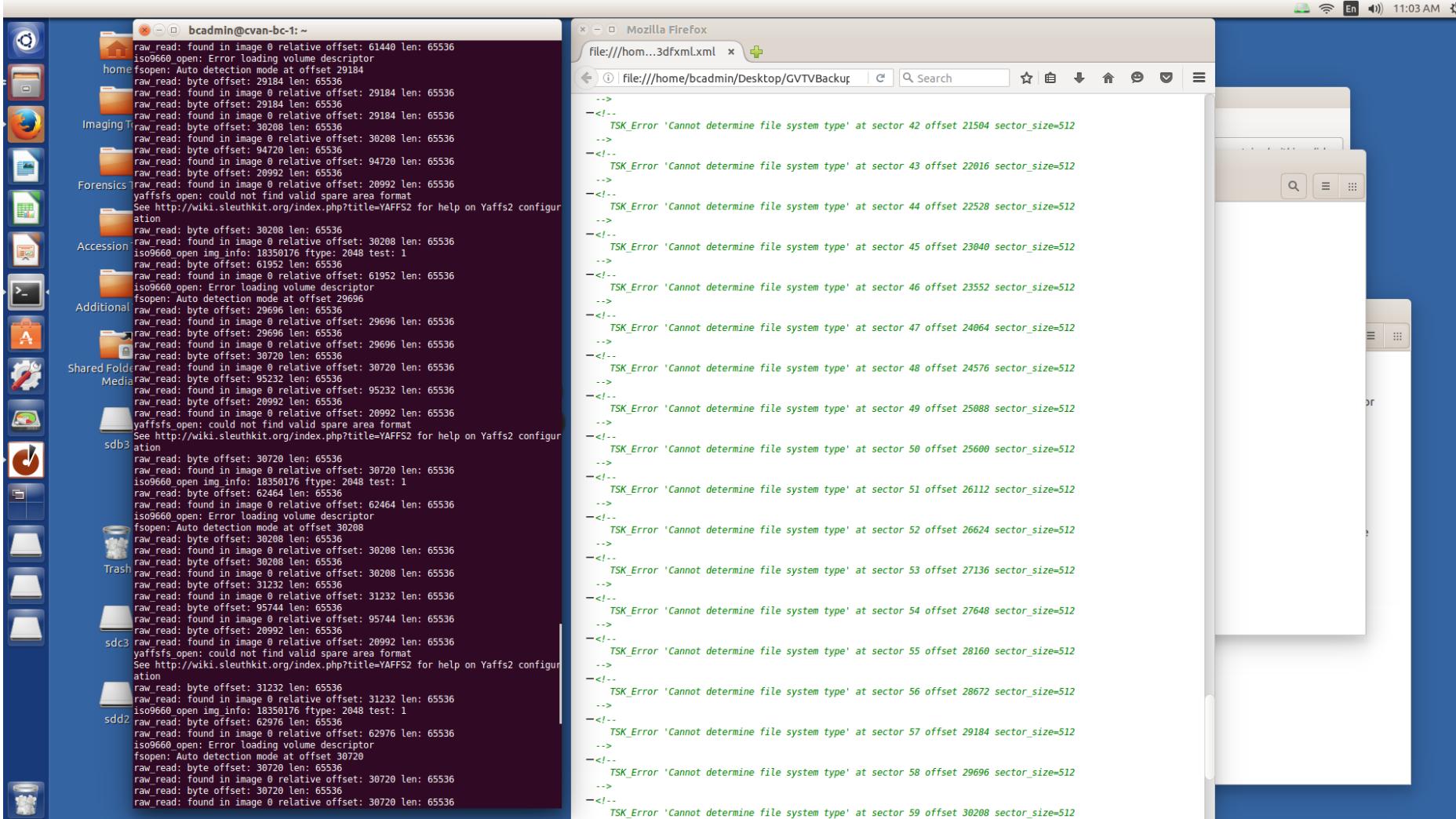
# New [information] has come to light!

Name	Ext	Size	Changed	Rights
..			9/2/2016 11:13:54 ...	rwxrwxrwx
GVTV_Archive00			11/25/2014 1:30:3...	r-xr-xr-x
GVTV_Archive01			11/25/2014 1:30:3...	r-xr-xr-x
GVTV_Archive02			11/25/2014 1:30:3...	r-xr-xr-x
GVTV_Archive03			11/25/2014 1:30:3...	r-xr-xr-x
GVTV_Archive04			11/25/2014 1:30:3...	r-xr-xr-x
GVTV_Archive05			11/25/2014 1:30:3...	r-xr-xr-x
GVTV_Archive06			11/25/2014 1:30:3...	r-xr-xr-x
GVTV_Archive07			11/25/2014 1:30:3...	r-xr-xr-x
GVTV_Archive08			11/25/2014 1:30:3...	r-xr-xr-x
GVTV_Archive09			11/27/2012 4:55:4...	r-xr-xr-x
GVTV_Archive10			12/3/2012 3:23:35 PM	r-xr-xr-x
GVTV_Archive11			12/4/2012 9:28:56 ...	r-xr-xr-x

# Attempted analysis : fiwalk in BitCurator GUI



# Attempted analysis : fiwalk in command line

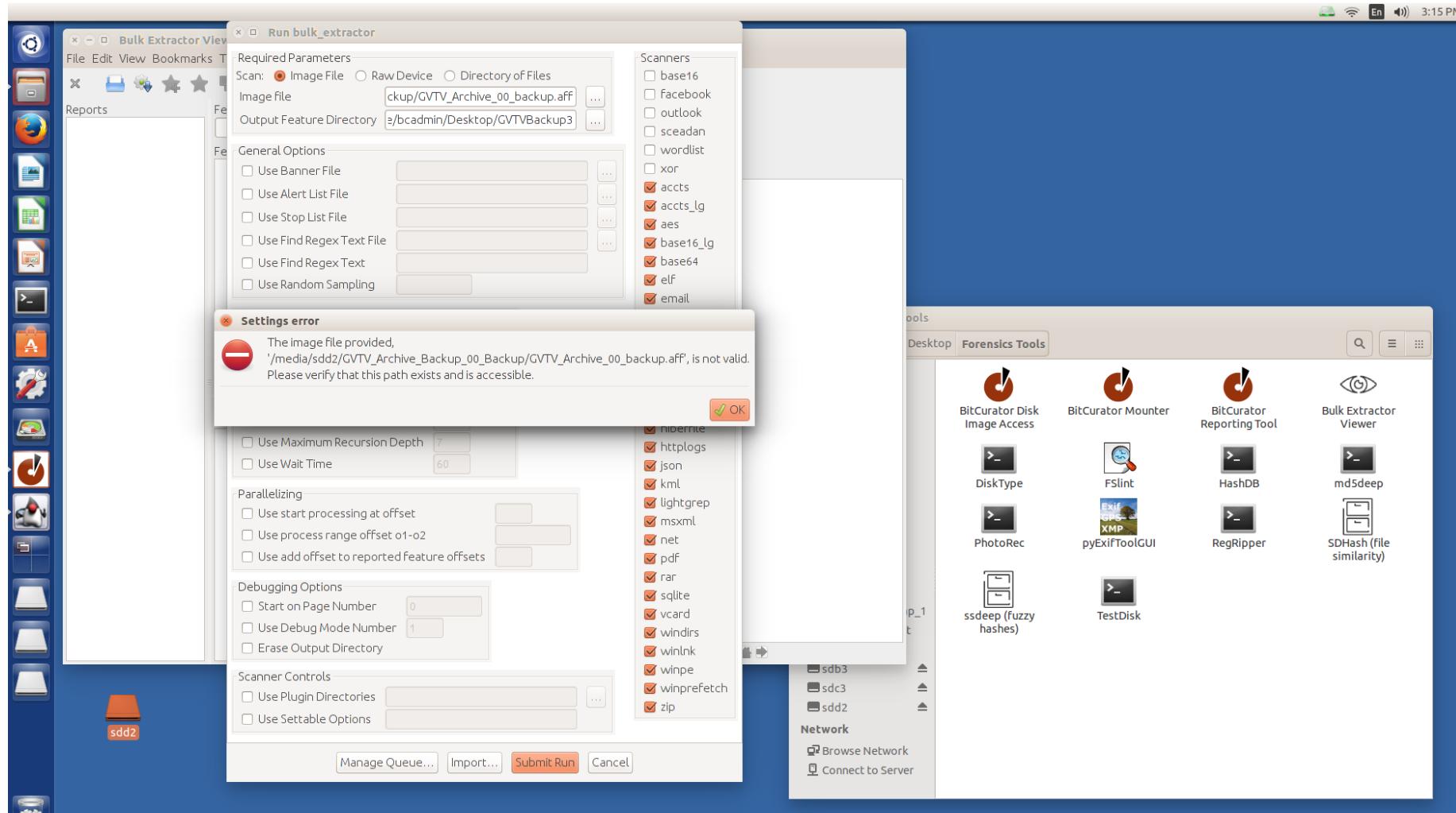


# Attempted analysis : BulkExtractor



A screenshot of a Linux desktop environment. The desktop background is blue. In the top right corner, there is a system tray with icons for battery, signal strength, and volume. The bottom right corner shows the date and time as 3:39 PM. A dock on the left side contains various application icons, including a terminal, file manager, and web browser. Three windows are open: 1) "Bulk Extractor Viewer" window showing settings for "Feature Filter" and "Image File" (GVTV\_Archive\_00\_backup.aff). 2) A small window titled "bulk\_extractor Scan" showing command-line parameters: "bulk\_extractor -o /home/bcadmin/Desktop/GVTVBackup3/BE\_data /media/sde2/GVTV\_Archive\_00\_Backup/GVTV\_Archive\_00\_backup.aff". 3) A "bulk\_extractor output" window which is currently empty. The desktop also shows two mounted drives: "sdd2" and "sde2".

# Attempted analysis : BulkExtractor



# Archivematica?



test\_space/t ▾

Browse Start transfer Add next

Transfer start time

4d67da4f 2016-08-30 15:30

Error copying /var/archivematica/sharedDirectory/tmp/tmpJRM1Re/GVT\_V\_Archive01\_AFF\_TEST to start of transfer.

OK

A screenshot of the Archivematica user interface. At the top, there's a dropdown menu set to 'test\_space/t' with a dropdown arrow, followed by three buttons: 'Browse', 'Start transfer' (which is green), and 'Add next'. Below these are two small icons: a pencil and a red minus sign. The main area shows a table with one row. The first column contains the ID '4d67da4f' and the second column contains the date and time '2016-08-30 15:30'. To the right of each cell are edit and delete icons. A large modal dialog box is centered over the table, displaying the error message 'Error copying /var/archivematica/sharedDirectory/tmp/tmpJRM1Re/GVT\_V\_Archive01\_AFF\_TEST to start of transfer.' in a white box with a black border. In the bottom right corner of this dialog is an 'OK' button.

# Wait – what? Why?



“Theoretical reflections about a discipline or an established practice typically arise when the practice or the discipline has reached a point in its development when it can no longer be continued exclusively on the basis of the already established or traditional practices. The legitimacy of a particular practice may be questioned by someone outside that practice, or people engaged in the practice may encounter problems for which there are no longer straightforward practical solutions.”

Mortensen, Preben. “The Place of Theory in Archival Practice.” *Archivaria* 47 (Spring 1999): 1-26.

## OAIS Responsibilities:

- Accept submissions from Producer
- Establish control over material
- Implement long-term preservation policies
- Determine who the users are (“Designated Community”)
- Ensure preserved information is understandable to users
- Provide access

Holdings Quick search

▼ Fonds COV – City of Vancouver fonds

▼ Series S667 – Fire Department Films

Item : MI-176 – Stratford Hotel Fire

Item : MI-177 – Leo's Steak House fir...

Item : MI-178 – Fire Prevention Week...

Item : MI-179 – [Apartment building ...

Item : MI-180 – [Fire hose demonstra...

[2 more...](#)

Browse

Search



[Advanced search »](#)



## Item : MI-176 – Stratford Hotel Fire

SHARE

[City of Vancouver fonds](#) » [Fire Department Films](#) » Stratford Hotel Fire



00:03 / 04:15

[Download movie](#)

### Title and statement of responsibility area

<b>Title proper</b>	Stratford Hotel Fire
<b>General material designation</b>	<ul style="list-style-type: none"><li>Moving images</li></ul>
<b>Title notes</b>	<ul style="list-style-type: none"><li>Source of title proper: Title taken from film can.</li></ul>
<b>Level of description</b>	Item
<b>Reference code</b>	COV-S667-: MI-176

### Dates of creation area

<b>Date(s)</b>	<ul style="list-style-type: none"><li>[c. 1968] (Creation)</li></ul>
	Note

Reports

Browse as list

Browse digital objects

### Export

Dublin Core 1.1 XML

EAD 2002 XML

### Related subjects

Vancouver (B.C.)--Fire Department  
Hotels

### Container name

Box: 721-B-1 folder 24,  
DVD

Box: 709-B-2 folder 23,  
MPEG2 folder

Box: 708-B-5 Tape 26, IN  
01:16:16:00, OUT  
01:20:32:00, DigiBeta  
copy

Box: 726-B-5 Tape 26, IN  
01:16:16:00, OUT  
01:20:32:00, DigiBeta  
Master

[Launchpad](#)

	Archival Practice		Technical Knowledge	
	General	Specific	General	Specific
Staff	😊	😊	😐	😐
Parent Body	😢	😢	😊	😢
Consultants	😊	😊	😊	😊
Community	😊	😊	😊	😊

# PRACTICE

Thanks!

jana.grazley@vancouver.ca

File Number:

Volume:

File Name: **Greater Vancouver Archives**

File Opened:

File Closed:

VanRIMS No: **04-2200-40**

VanRIMS Title: Information Management : Communications - Media  
Relations and Broadcasting : GVTV production records

*OPR:* City Clerk - Communications

01.01.05

2006-01

*OPR\_Retention:* EV+0/0/A

*XPR\_Retention:* EV+[0]/0/D

1791

ARCHIVES

gvtv.ca