



Enabling Digital Forensics Practices in Libraries, Archives and Museums: The BitCurator Experience

By

Christopher Lee and Kam Woods

Presented At

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Enabling Digital Forensics Practices in Libraries, Archives and Museums: The BitCurator Experience

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School of Information and Library Science
University of North Carolina, Chapel Hill

Digital Forensics Research Workshop
August 3-6, 2014
Denver, CO

BitCurator



UNC
SCHOOL OF INFORMATION
AND LIBRARY SCIENCE

Goals of Libraries, Archives and Museums (LAMs) When Acquiring Materials

- Ensure integrity of materials
- Allow users to make sense of materials and understand their context
- Prevent inadvertent disclosure of sensitive data

Fundamental Archival Principles

Provenance

- Reflect “life history” of records
- Records from a common origin or source should be managed together as an aggregate unit

Original Order

Organize and manage records in ways that reflect their arrangement within the creation/use environment

Chain of Custody

- “Succession of offices or persons who have held materials from the moment they were created”¹
- Ideal recordkeeping system would provide “an unblemished line of responsible custody”²

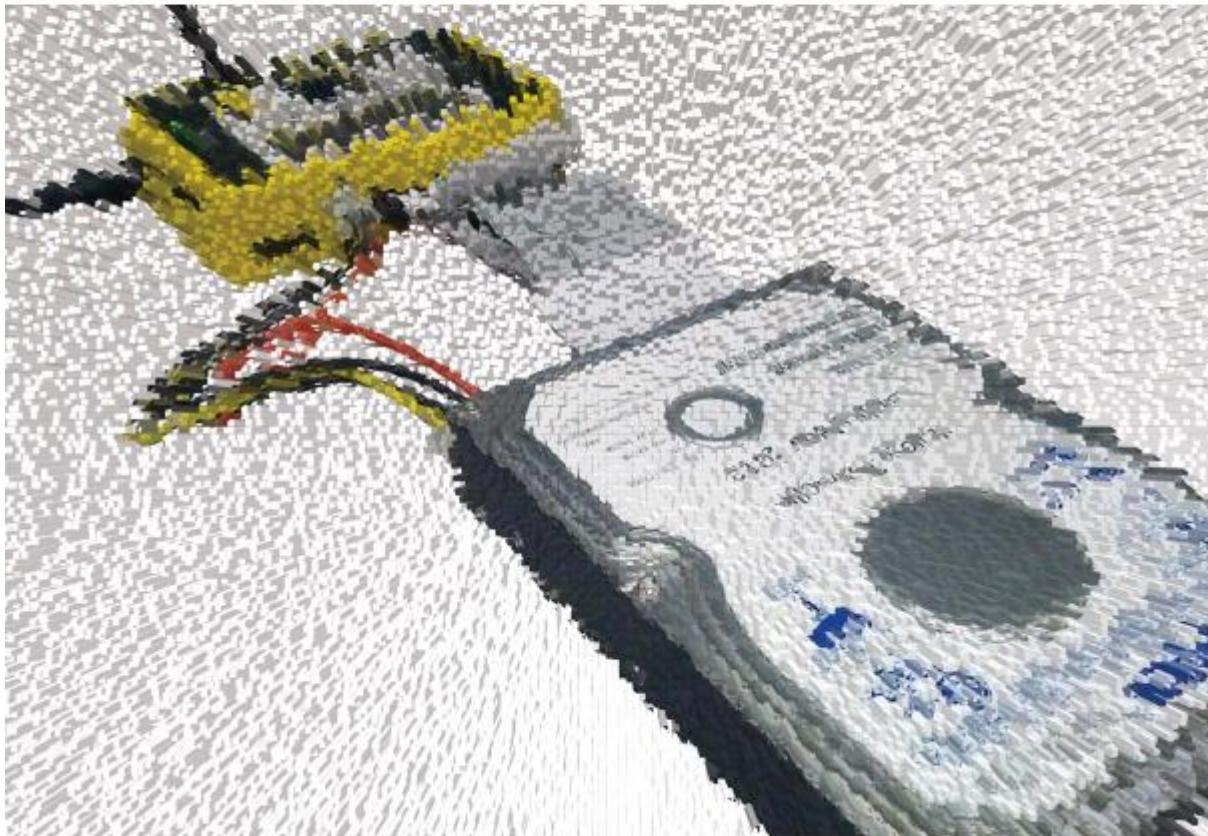
1. Pearce-Moses, Richard. *A Glossary of Archival and Records Terminology*. Chicago, IL: Society of American Archivists, 2005.
2. Hilary Jenkinson, *A Manual of Archive Administration: Including the Problems of War Archives and Archive Making* (Oxford: Clarendon Press, 1922), 11.

Digital Forensics Can Help to Fulfill Archival Principles

- | | |
|-----------------------------------|---|
| Provenance | <ul style="list-style-type: none">• Identify, extract and save essential information about context of creation |
| Original Order | <ul style="list-style-type: none">• Reflect original folder structures, files associations, related applications and user accounts |
| Chain of Custody | <ul style="list-style-type: none">• Documentation of how records were acquired and any transformations to them• Use well-established hardware and software mechanisms to ensure that data haven't been changed inadvertently |
| Identifying Sensitive Information | <ul style="list-style-type: none">• Identify personally identifying information, regardless of where it appears• Flag for removal, redaction, closure or restriction |

From Bitstreams to Heritage:

Putting Digital Forensics into Practice
in Collecting Institutions



Christopher A. Lee, Kam Woods, Matthew Kirschenbaum, and Alexandra Chassanoff

<http://www.bitcurator.net/docs/bitstreams-to-heritage.pdf>

Digital Forensics Lab @ UNC School of Information and Library Science



Digital Forensics in LAMs

- In recent years, LAMs have discovered the value of applying various digital forensics methods, for example:
 - use of write blockers
 - generation of disk images
 - applying cryptographic hashes to files
 - capture of Digital Forensics XML (DFXML)
 - scanning bitstreams for personally identifying information

Need for Adaptation of Tools and Tasks for LAM Users

- While existing digital forensics tools provide valuable functionality, they don't always fit well into primary workflows of LAMs.
- For example, LAMs are particularly concerned with:
 - structure and persistence of metadata
 - provisions for providing public access to data
 - support for older technologies (e.g. floppy disks, HFS)

BitCurator



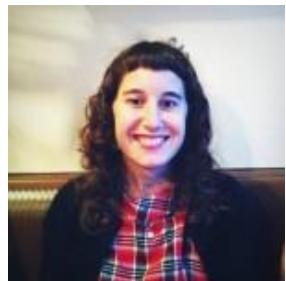
- Funded by Andrew W. Mellon Foundation
 - Phase 1: October 1, 2011 – September 30, 2013
 - Phase 2 – October 1, 2013 – September 30, 2014
- Partners: SILS at UNC and Maryland Institute for Technology in the Humanities (MITH)

BitCurator Goals

- Develop a system for collecting professionals that incorporates the functionality of open-source digital forensics tools
- Address two fundamental needs not usually addressed by the digital forensics industry:
 - incorporation into the workflow of archives/library ingest and collection management environments
 - provision of public access to the data

Core BitCurator Team

- Cal Lee, PI
- Matt Kirschenbaum, Co-PI
- Kam Woods, Technical Lead
- Porter Olsen, Community Lead
- Alex Chassanoff, Project Manager
- Sunitha Misra, Software Developer (UNC)
- Kyle Bickoff, GA (MITH)



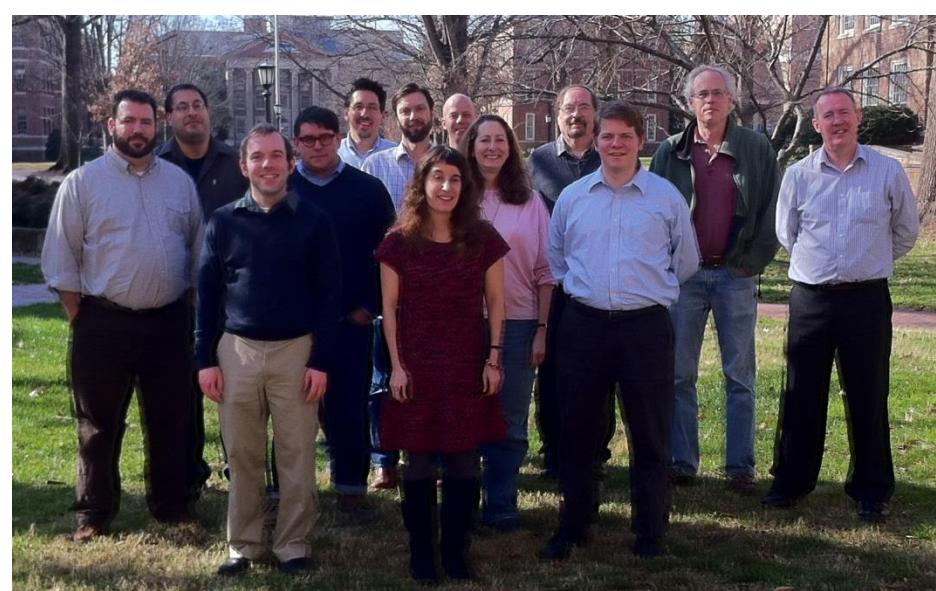
Two Groups of Advisors

Professional Experts Panel

- Bradley Daigle, University of Virginia Library
- Erika Farr, Emory University
- Jennie Levine Knies, University of Maryland
- Jeremy Leighton John, British Library
- Leslie Johnston, US National Archives and Records Administration
- Naomi Nelson, Duke University
- Erin O'Meara, Gates Archive
- Michael Olson, Stanford University Libraries
- Gabriela Redwine, Beinecke, Yale University
- Susan Thomas, Bodleian Library, University of Oxford

Development Advisory Group

- Barbara Guttman, National Institute of Standards and Technology
- Jerome McDonough, University of Illinois
- Mark Matienzo, Digital Public Library of America
- Courtney Mumma, Artefactual Systems
- David Pearson, National Library of Australia
- Doug Reside, New York Public Library
- Seth Shaw, University Archives, Duke University
- William Underwood, Georgia Tech

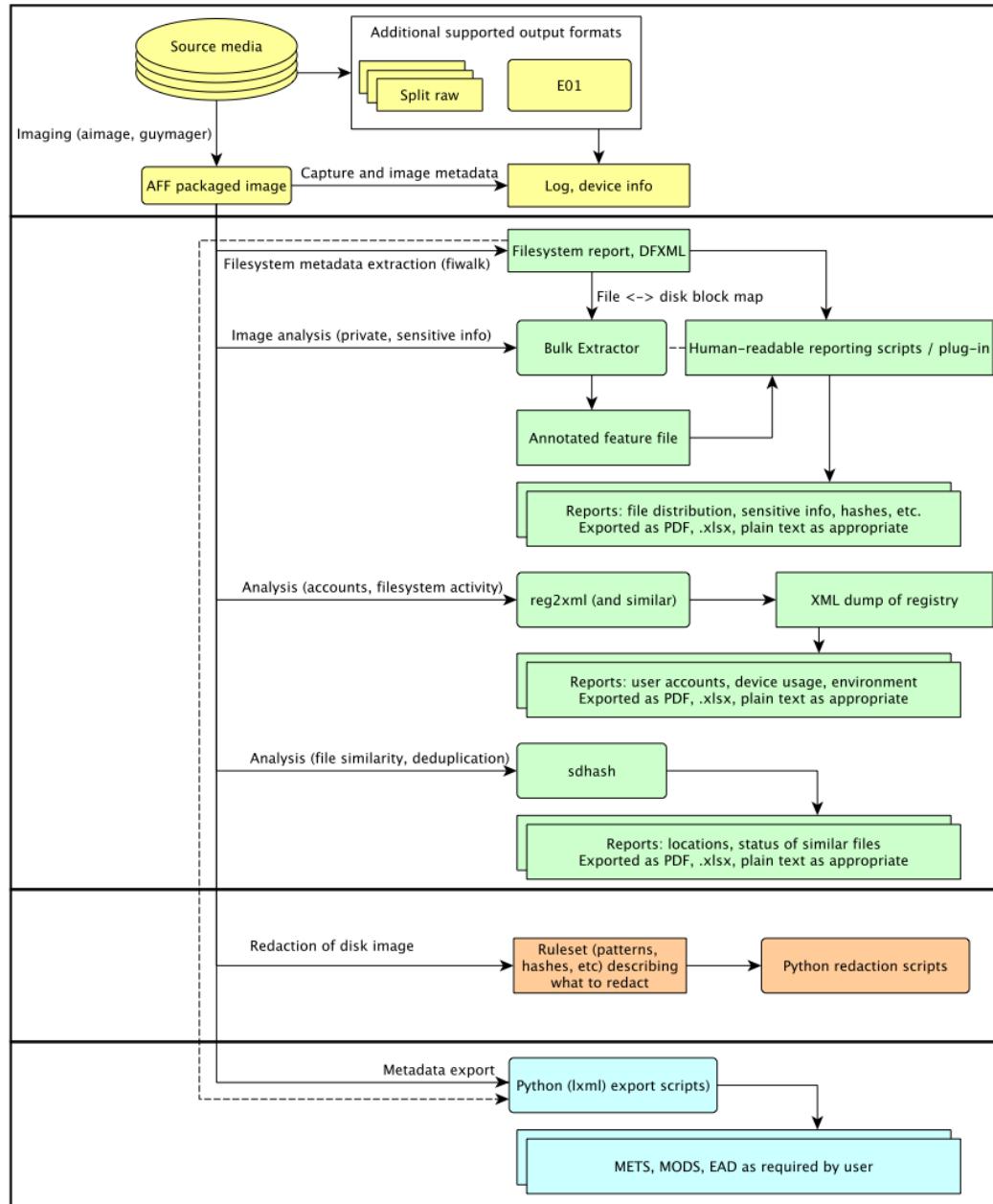


BitCurator Environment*

- Bundles, integrates and extends functionality of open source software: fiwalk, bulk_extractor, Guymager, The Sleuth Kit, sdhash and others
- Can be run as:
 - Self-contained environment (based on Ubuntu Linux) running directly on a computer (download installation ISO)
 - Self-contained Linux environment in a virtual machine using e.g. Virtual Box or VMWare
 - As individual components run directly in your own Linux environment or (whenever possible) Windows environment

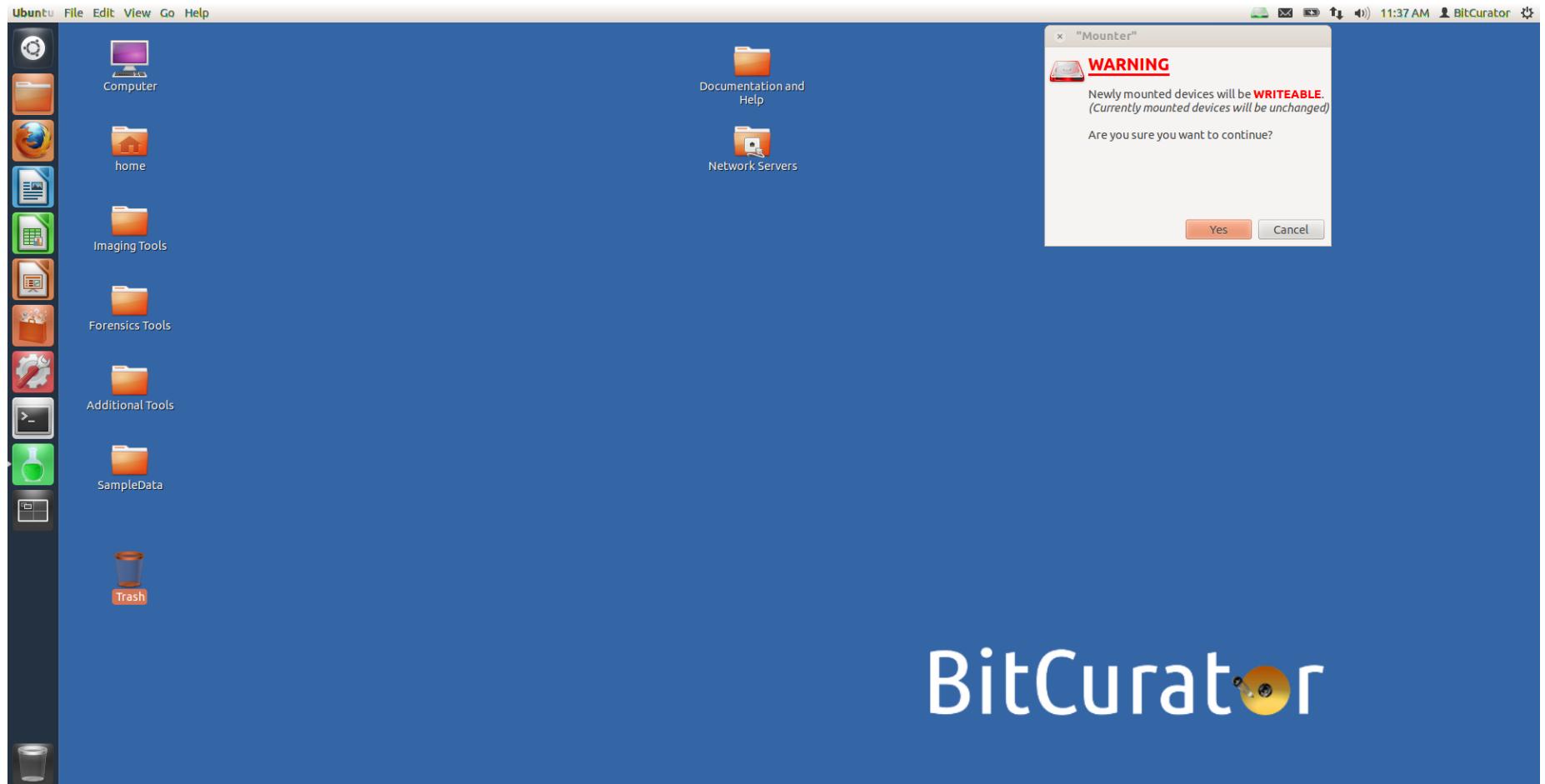
*To read about and download the environment, see: <http://wiki.bitcurator.net/>

BitCurator-Supported Workflow Elements



- Acquisition
- Reporting
- Redaction
- Metadata Export

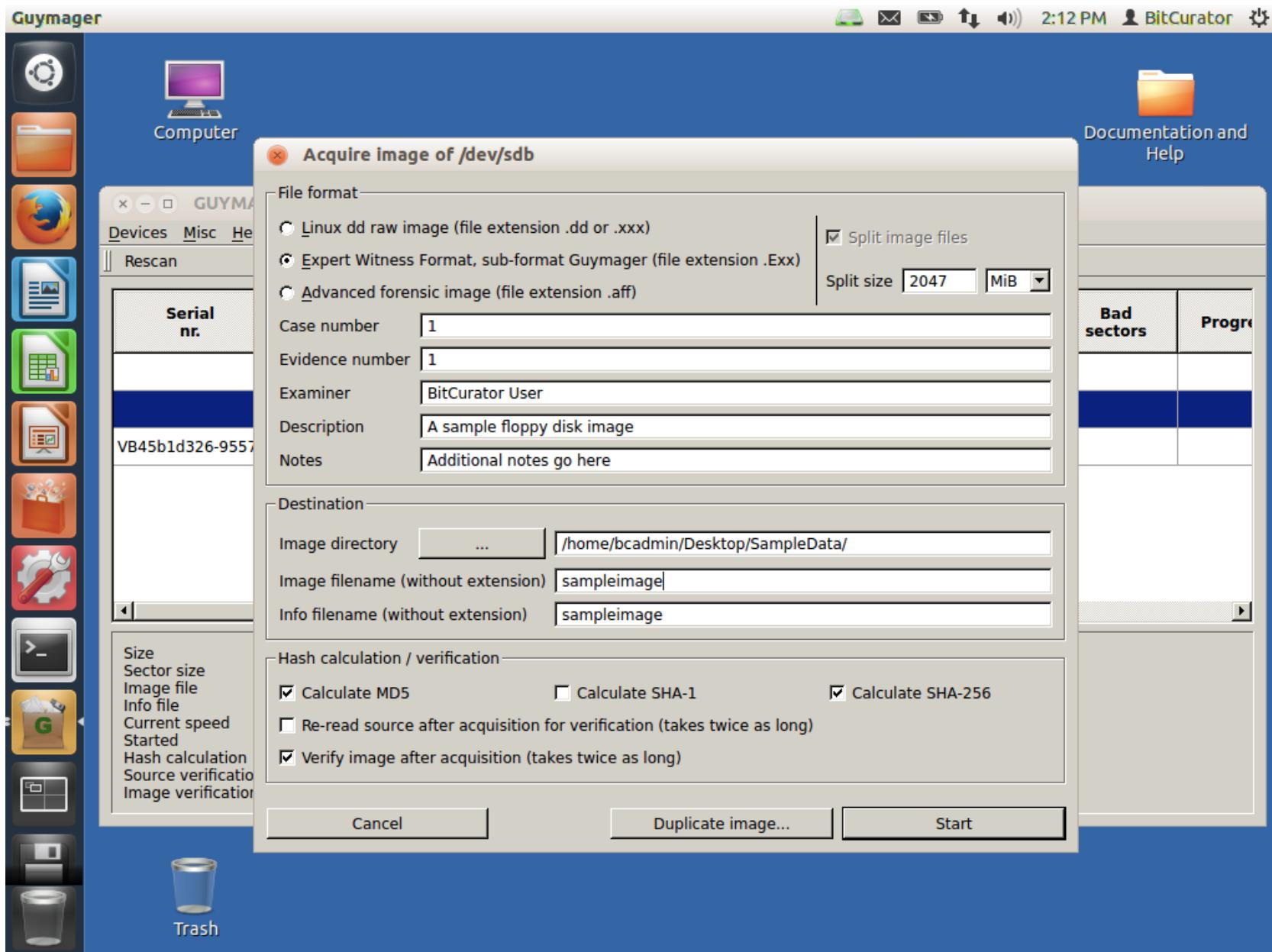
Mounted Devices set to Read-Only by Default*



BitCurator

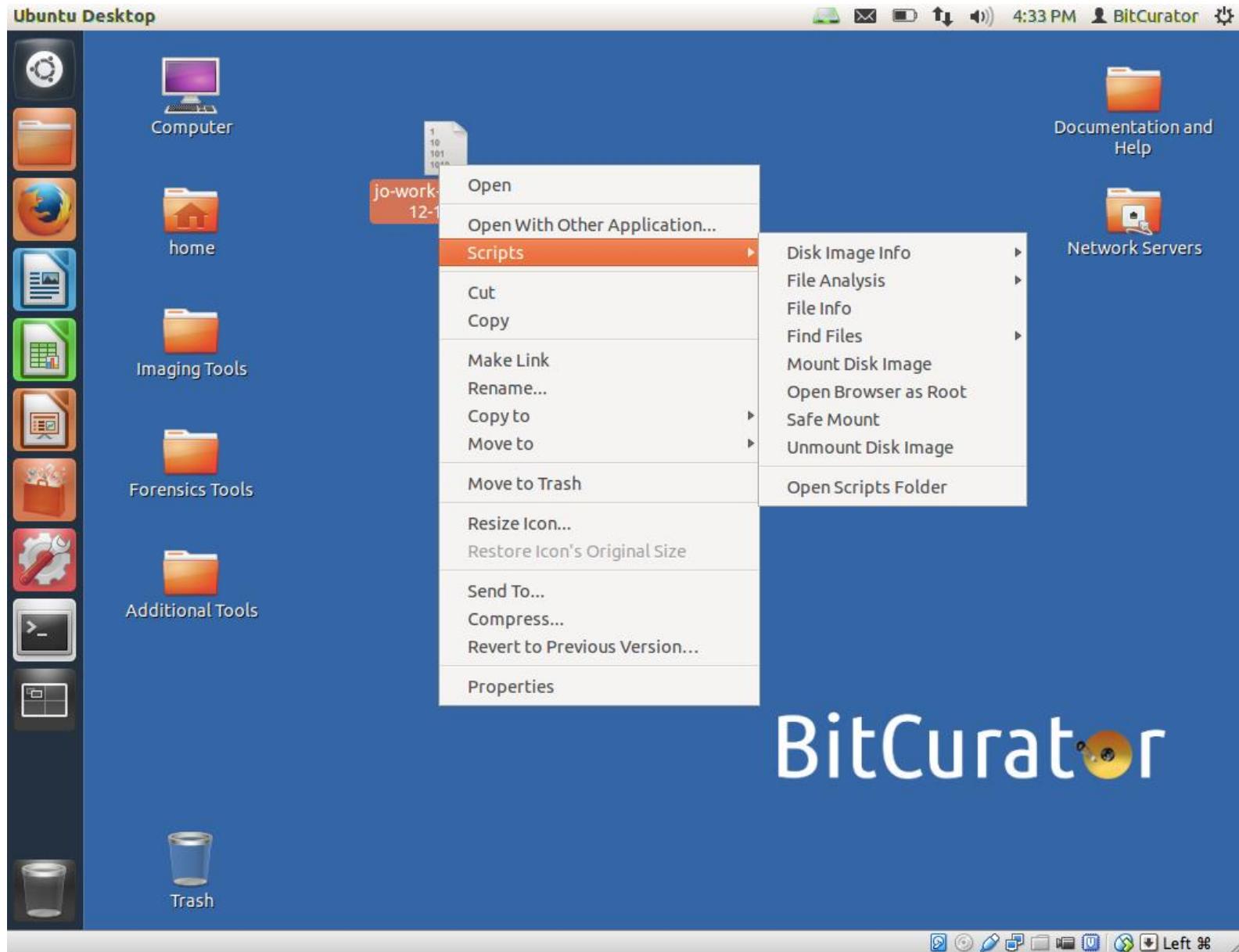
*Not to replace hardware-based write blocking, but useful for various purposes

Creating a Disk Image in Guymager*

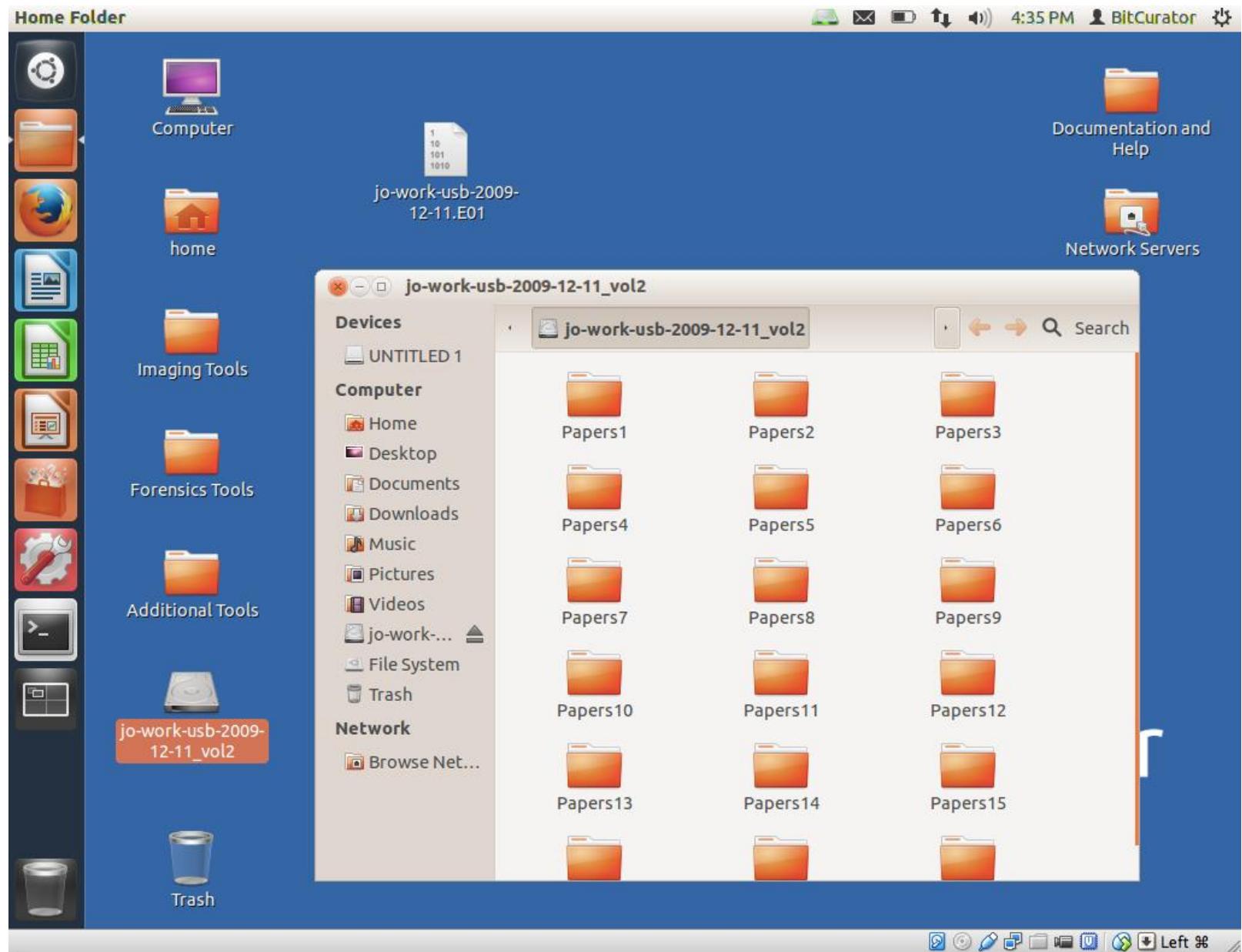


*Developed by Guy Voncken

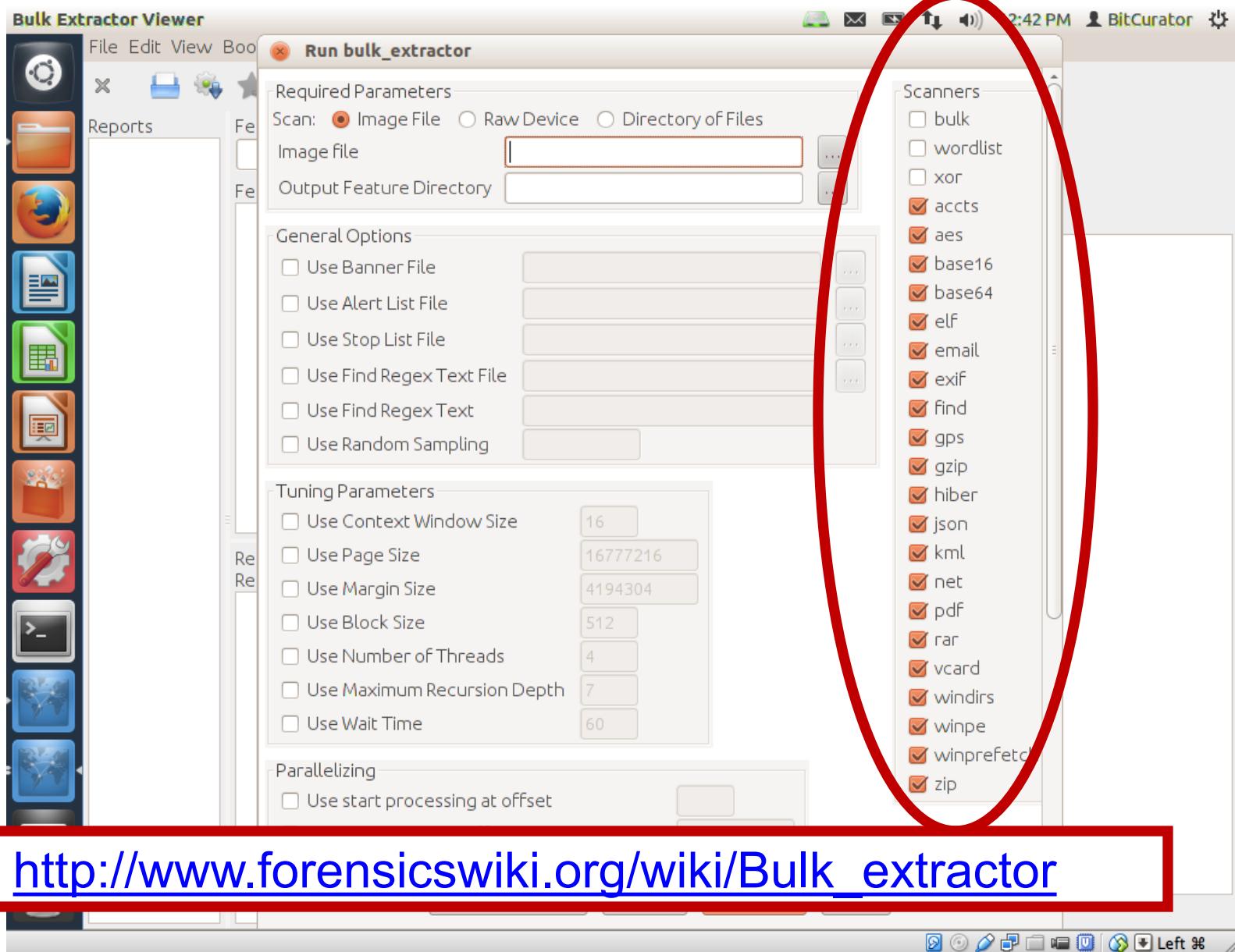
Mounting a Disk Image to Browse the Contents



Mounting a Disk Image to Browse the Contents



Bulk Extractor* – Identifying Potentially Sensitive Information



See: http://www.forensicswiki.org/wiki/Bulk_extractor

Histogram of Email Addresses (Specific Instances in Context on Right)

BitCurator-0.2.0 [Running]

File Edit View Tools Help

Highlight: Match case

Reports

- beoutput
- domain.txt
- domain_histogram
- email.txt
- email_histogram.txt**
- ether.txt
- ether_histogram.txt
- json.txt
- packets.pcap
- rfc822.txt
- tcp.txt
- tcp_histogram.txt
- url.txt
- url_histogram.txt
- url_services.txt
- windirs.txt
- winpe.txt

Feature Filter Match case

Navigation

sampleimage.E01, 42273785, privacy@Motorola.com

Image File sampleimage.E01

Feature File email.txt

Feature Path 42273785

Feature privacy@Motorola.com

Image

42271936 your credit card number, so this information can only be viewed
42272000 by Motorola. Motorola uses Secure Sockets Layer (SSL) encrypti
42272064 on technology, the highest level of security on the Internet. Th
e SSL protocol provides server authentication, data integrity, a
nd privacy on the Web. This security measure helps ensure that n
o impostors, eavesdroppers, or vandals get your personal informa
tion. SSL not only encrypts your personal and financial informat
ion transmitted, including credit card information, but also ver
ifies the identity of the server and that the original message a
rrives safely at its destination. However, no data transmission
over the Internet can be guaranteed to be 100% secure. As a res
ult, while we strive to protect your personal information, Motor
ola cannot ensure or warrant the security of any information you
transmit to us or from our Web site, and therefore you use our
site at your own risk. Once we receive your transmission, we use
our best effort to ensure its security on our systems. .000200
0007AE000038B6.7A8,As a global company Motorola has internationa
l sites and users all over the world. When you give Motorola per
sonal information, that information may be sent electronically t
o servers outside of the country where you originally entered th
e information. In addition, that information may be used, stored
and processed outside of the country where you entered that inf
ormation. Whenever Motorola handles personal information, regard
less of where this occurs, it takes steps to ensure that your in
formation is treated securely and in accordance with the relevan
t Terms of Use and this Privacy Policy. How can I correct or ch
ange my personal information? If you would like to review, corr
ect or change any personal information you have provided, or rem
ove your name from our mailing list, please e-mail us at **privacy**
@Motorola.com. If you have established a "user profile" on a Mot
orola website, you may change the information you provided at an

Text Hex

Left

BitCurator Reporting Tool

BitCurator Reporting Tool

12:53 PM BitCurator

Bitcurator Reports

Run All Fiwalk XML Annotated Features Reports File Access

Run fiwalk, annotate the bulk_extractor output, and generate Office / PDF reports.
If you haven't run bulk_extractor yet, use the button to the right to launch and run it first.

Launch BEViewer

Image File
/home/bcadmin/Desktop/SampleData/sampleimage.E01

Bulk Extractor Feature Directory
/home/bcadmin/Desktop/SampleData/bulk-extractor-output

Output Directory (fiwalk output, annotated features, and reports will appear in here)
/home/bcadmin/Desktop/SampleData/reporting-output

Config File (Optional)
/Path/To/File

Command Line Output

```
1) /home/bcadmin/Desktop/SampleData/reporting-output/reports/bc_format_bargraph.pdf
2) /home/bcadmin/Desktop/SampleData/reporting-output/reports/format_table.pdf
3) /home/bcadmin/Desktop/SampleData/reporting-output/reports/FiwalkReport.pdf
4) /home/bcadmin/Desktop/SampleData/reporting-output/reports/FiwalkDeletedFiles.pdf
5) /home/bcadmin/Desktop/SampleData/reporting-output/reports/BeReport.pdf
Generating Excel report /home/bcadmin/Desktop/SampleData/reporting-output/reports/fiwalk-output.xlsx

>> Success!!! BitCurator Reports generated in the directory:
o /home/bcadmin/Desktop/SampleData/reporting-output/reports
```

Close Cancel Run

Computer home Imaging Tools Forensics Tools Additional Tools Trash Documentation and Help Network Servers

The screenshot shows the BitCurator Reporting Tool window open on a desktop environment. The left sidebar contains icons for various tools: Computer, home, Imaging Tools, Forensics Tools, Additional Tools, and Trash. The main window is titled 'Bitcurator Reports' and includes tabs for 'Run All', 'Fiwalk XML', 'Annotated Features', 'Reports', and 'File Access'. It displays instructions to run 'fiwalk' and 'bulk_extractor', and a 'Launch BEViewer' button. The 'Image File' field contains the path '/home/bcadmin/Desktop/SampleData/sampleimage.E01'. The 'Bulk Extractor Feature Directory' field contains '/home/bcadmin/Desktop/SampleData/bulk-extractor-output'. The 'Output Directory' field contains '/home/bcadmin/Desktop/SampleData/reporting-output'. The 'Config File (Optional)' field contains '/Path/To/File'. The 'Command Line Output' section lists five PDF reports and one Excel report generated by the process. The output ends with a success message indicating reports were generated in the specified directory. The desktop background features a large 'BitCurator' watermark.

Various Specialized BitCurator Reports

BitCurator-Demo-0.3.4 [Running]

Document Viewer

format_table.pdf

Thumbnails

Report: File System Statistics and Files

File Format Table

Disk Image: sampleimage.E01

Format	Short Form	Files
data	dat_ata	31
news or mail, ASCII text, with CRLF line terminators	new_ors	1
PCX image data	PCX_ata	1
PDF document, version 1.4	PDF_1-4	6
MS Windows icon resource - 21 icons, 3x, 4-colors	MS_ors	1
x86 boot sector; code offset 0x2, O_ctors 1, dos < 40 BootSector (0x0)	x86_x0-	1
SysFile - GreyMatter	Sys_ata	1
empty (Zip archive data, at least v1.0 to extract)	emp_st-	2
TIF image data little-endian	TIF_jan	2
ASCII text, with no line terminators (OpenDocument Text)	ASC_xt-	1
JPEG image data, JIF standard 1.01	JPE_01	4
PE32 executable (GUI) Intel 80386, f..., InnoSetup self-extracting archive	PE3_jse	1
JPEG image data, JIF standard 1.01...25\0C276\05C32ne\5C0115\05C261"	JPE_61-	2
ios	ASC_ors	40
summary info	Com_nfo	1
data, at least v2.0 to extract)	emp_psy	9
	ASC_ct-	1

bc_format_bargraph.pdf

Thumbnails

Disk Image: sampleimage.E01 File counts (by format)

Counts

Format	Counts
dat_ata	31
new_ors	9
PDF_1-4	6
emp_st-	4
PE3_jse	2
emp_psy	2
ios	1
Com_nfo	1
emp_ct-	1
ASC_xt-	1
JPE_01	1
sys_ata	1
emp_st-	1
TIF_jan	1
ASC_ors	1
ASC_ct-	1

Page 1

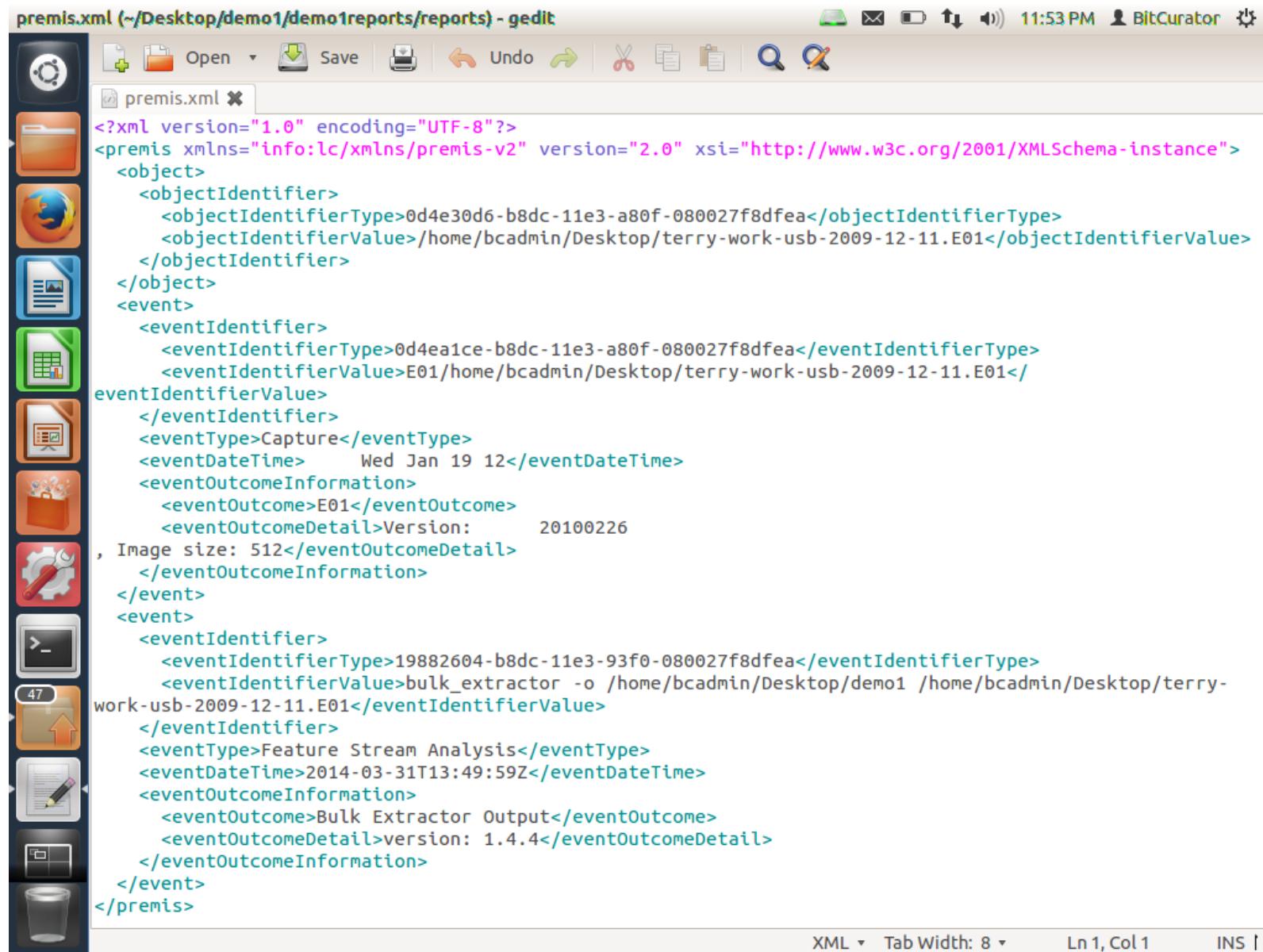
Look Familiar? Filesystem Metadata - Output from fiwalk*

```
<fileobject>
    <filename>Documents and Settings/All Users/Documents/
                  My Pictures/Sample Pictures/Blue hills.jpg
    </filename>
    ...
    <filesize>28521</filesize>
    <alloc>1</alloc>
    <used>1</used>
    <inode>6245</inode>
    ...
    <uid>0</uid>
    <gid>0</gid>
    <mtime>1208174400</mtime>
    <ctime>1257729636</ctime>
    <atime>1257729636</atime>
    <crtime>1257729636</crtime>
    <seq>2</seq>
    <libmagic>JPEG image data, JFIF standard 1.02</libmagic>
    <byte_runs>
        <run file_offset='0' fs_offset='0' img_offset='363200512'
             len='0'/>
    </byte_runs>
    <hashdigest type='MD5 '>
        6fb2a38dc107eachb41cf1656e899cf70
    </hashdigest>
    <hashdigest type='SHA1 '>
        4eee44b18576e84de7b163142b537d2fe6231845
    </hashdigest>
</fileobject>
```

Specialized BitCurator Reports

File	Content
bc_format_bargraph.pdf	histogram of file formats found on the volume
bulk_extractor_report.pdf	high-level overview of feature locations on disk
fiwalk_deleted_files.pdf	shows paths to any deleted materials found in a given partition
fiwalk-output.xml.xlsx	Excel converted DFXML output (file system metadata)
fiwalk_report.pdf	high-level overview of file system characteristics
format_table.pdf	long-form file format names for formats shown in bar graph
premis.xml	PREMIS preservation metadata

Maybe Less Familiar? PREMIS (Preservation) Metadata Generated from Running BitCurator Tools – Recorded as PREMIS Events

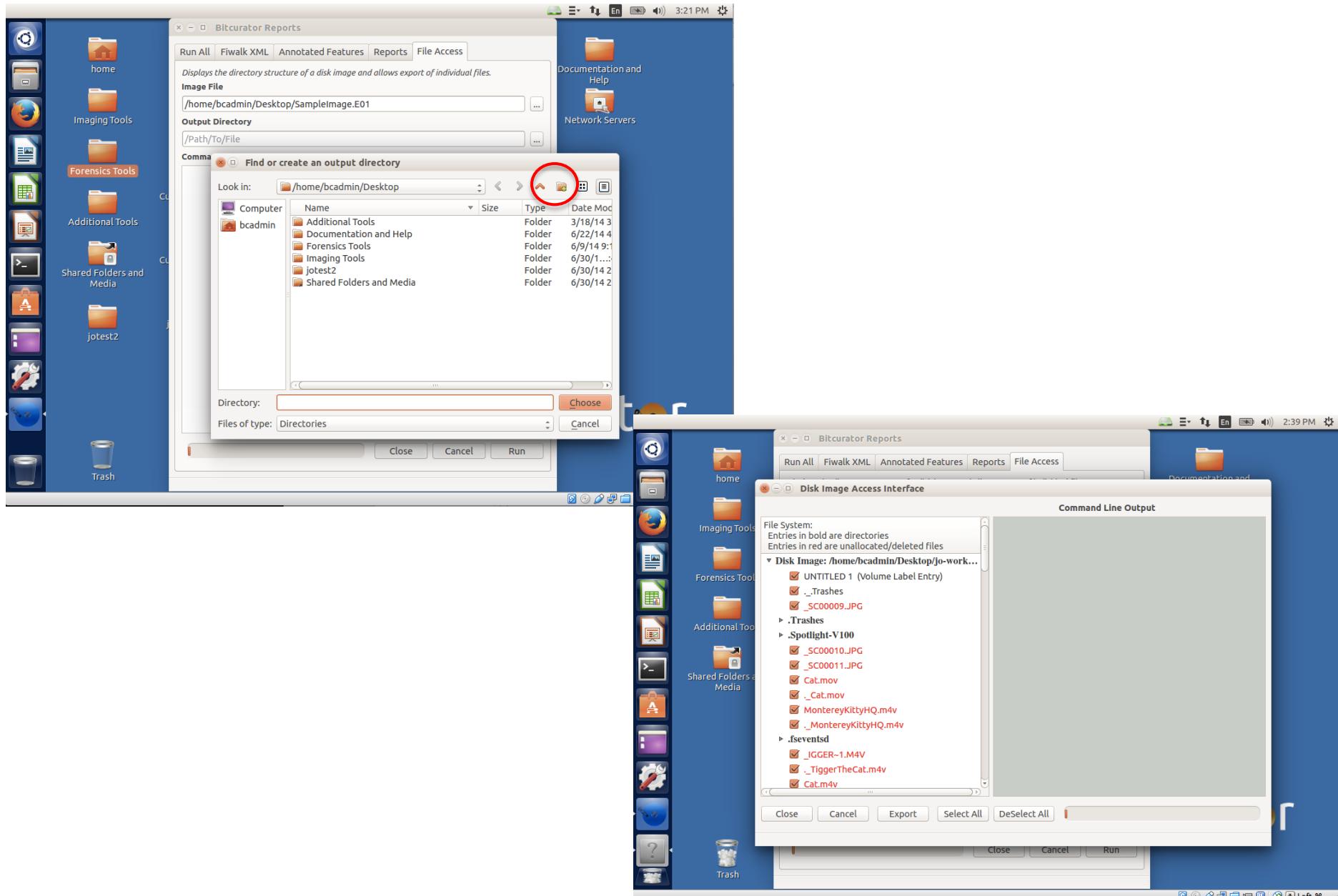


The screenshot shows a GIMP interface window titled "premis.xml (~/Desktop/demo1/demo1reports/reports) - gedit". The window displays a block of PREMIS XML code. The XML describes two events: one for a capture operation and one for a feature stream analysis. The capture event is associated with a specific file and includes details like the event identifier, type (Capture), date (Wed Jan 19 12), and outcome (Image size: 512). The feature stream analysis event is associated with a "bulk_extractor" tool and includes details like the event identifier, type (Feature Stream Analysis), date (2014-03-31T13:49:59Z), and outcome (Bulk Extractor Output).

```
<?xml version="1.0" encoding="UTF-8"?>
<premis xmlns="info:lc/xmlns/premis-v2" version="2.0" xsi="http://www.w3c.org/2001/XMLSchema-instance">
  <object>
    <objectIdentifier>
      <objectIdentifierType>0d4e30d6-b8dc-11e3-a80f-080027f8dfa</objectIdentifierType>
      <objectIdentifierValue>/home/bcadmin/Desktop/terry-work-usb-2009-12-11.E01</objectIdentifierValue>
    </objectIdentifier>
  </object>
  <event>
    <eventIdentifier>
      <eventIdentifierType>0d4ea1ce-b8dc-11e3-a80f-080027f8dfa</eventIdentifierType>
      <eventIdentifierValue>E01/home/bcadmin/Desktop/terry-work-usb-2009-12-11.E01</eventIdentifierValue>
    </eventIdentifier>
    <eventType>Capture</eventType>
    <eventDateTime>Wed Jan 19 12</eventDateTime>
    <eventOutcomeInformation>
      <eventOutcome>E01</eventOutcome>
      <eventOutcomeDetail>Version: 20100226, Image size: 512</eventOutcomeDetail>
    </eventOutcomeInformation>
  </event>
  <event>
    <eventIdentifier>
      <eventIdentifierType>19882604-b8dc-11e3-93f0-080027f8dfa</eventIdentifierType>
      <eventIdentifierValue>bulk_extractor -o /home/bcadmin/Desktop/demo1 /home/bcadmin/Desktop/terry-work-usb-2009-12-11.E01</eventIdentifierValue>
    </eventIdentifier>
    <eventType>Feature Stream Analysis</eventType>
    <eventDateTime>2014-03-31T13:49:59Z</eventDateTime>
    <eventOutcomeInformation>
      <eventOutcome>Bulk Extractor Output</eventOutcome>
      <eventOutcomeDetail>version: 1.4.4</eventOutcomeDetail>
    </eventOutcomeInformation>
  </event>
</premis>
```

XML ▾ Tab Width: 8 ▾ Ln 1, Col 1 INS ↴

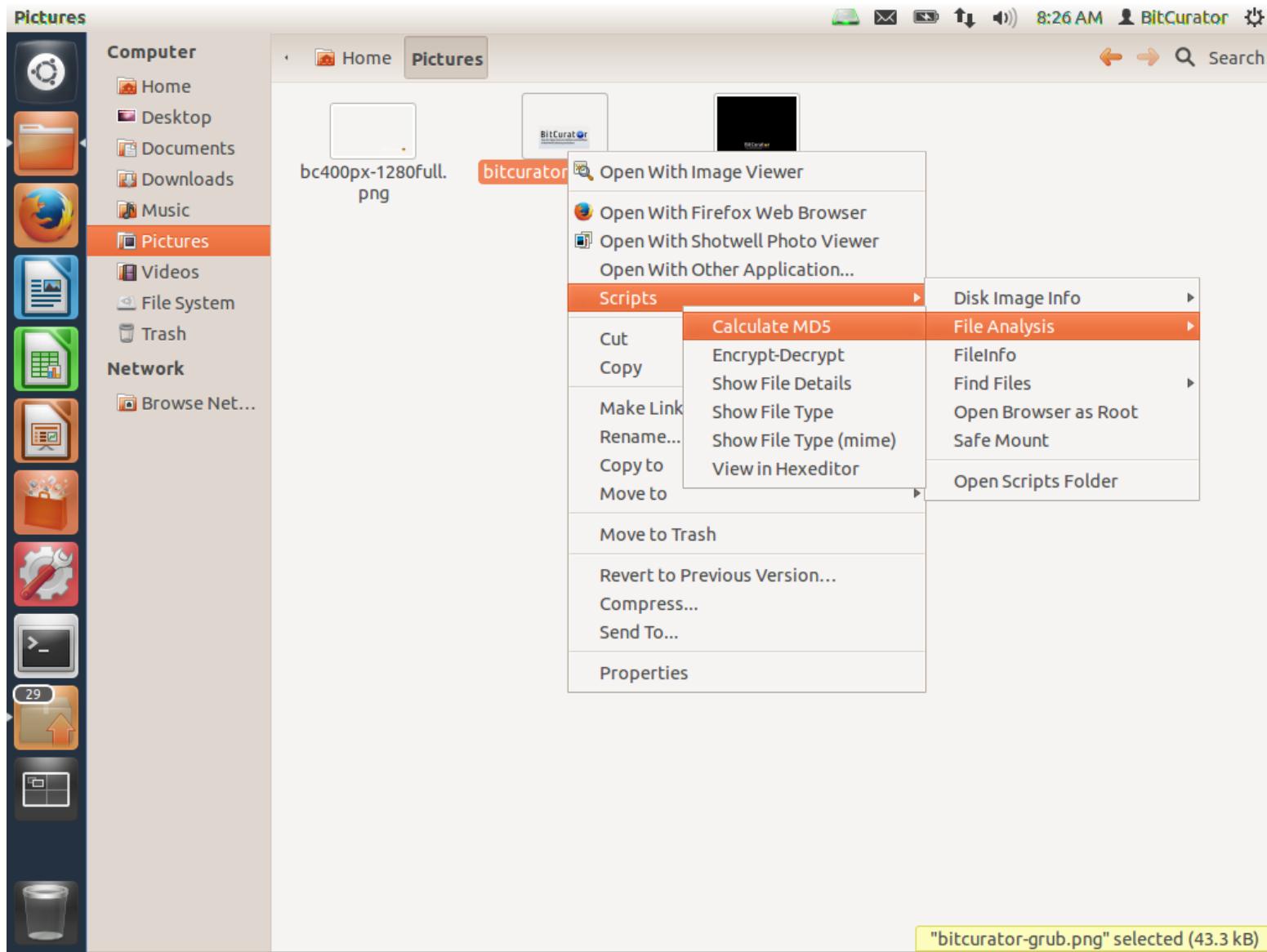
Exporting Files from a Disk Image

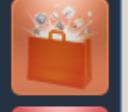


Nautilus Scripts

- Scripts that can be run using Nautilus (GNOME file manager)
- Most provide more convenient access (right click and menu selection) to functions performed by applications that could also be run directly

Right Click on File or Directory and Calculate MD5





Home Pictures

bc400px-1280full.
png

bitcurator-grub.png

bitcurator-grub-
new.png**Calculate MD5 (Files and Directories)**

Please choose the way you want the MD5 hash to be presented:
(1 file(s) selected)

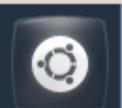
Handling

- Display on screen
 Save to file (the selected filename + .md5 extension)

Cancel

OK

"bitcurator-grub.png" selected (43.3 kB)



Computer

- Home
- Desktop
- Documents
- Downloads
- Music
- Pictures

Network

- Browse Net...

Home Pictures



bc400px-1280full.
png



bitcurator-grub.png



bitcurator-grub-
new.png

Calculate MD5 (Files and Directories)

The MD5 hash of the selected file:

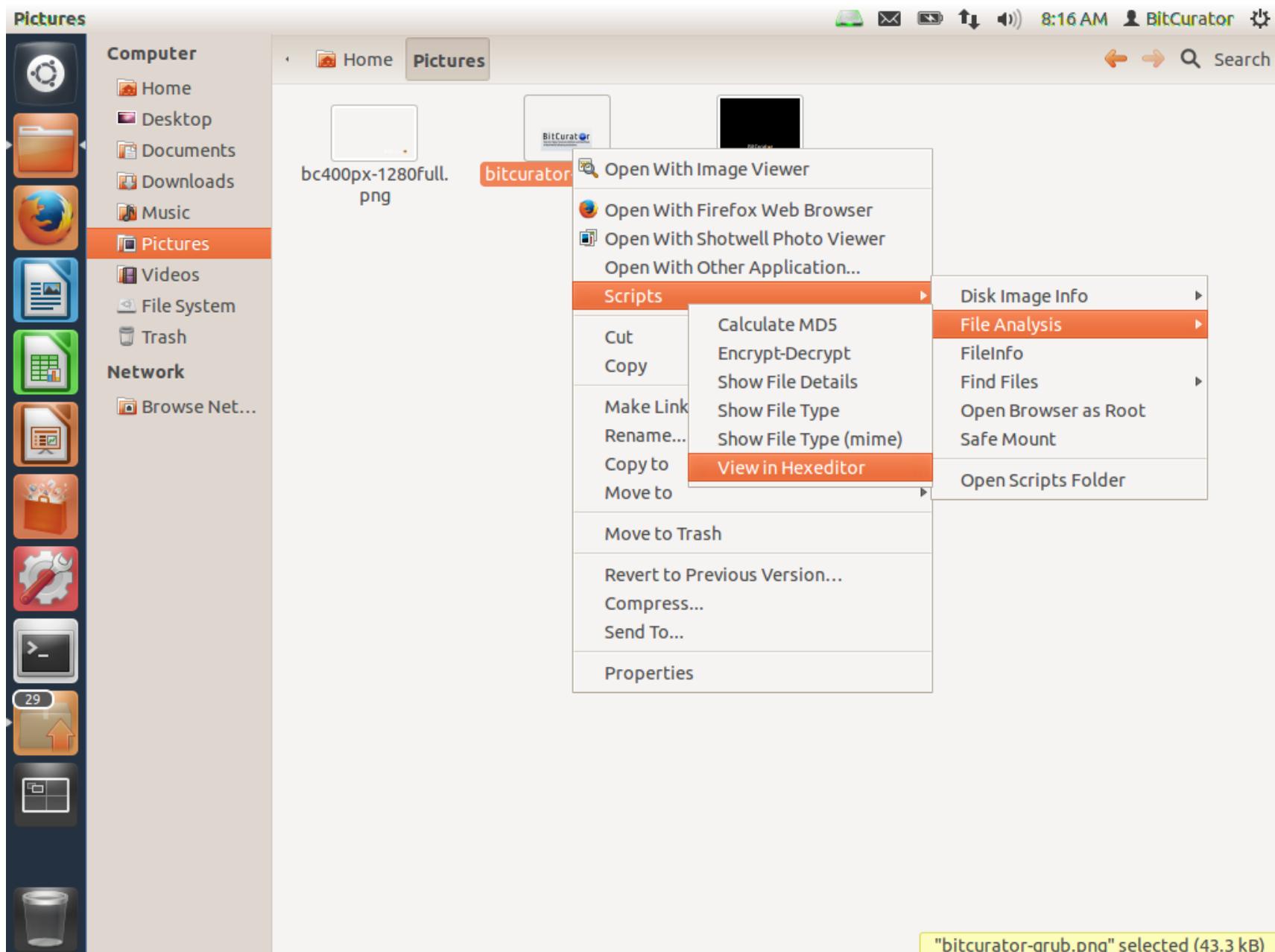
```
ceb2622125be1231b0fc9babee27942d /home/bcadmin/Pictures/bitcurator-grub.png
```

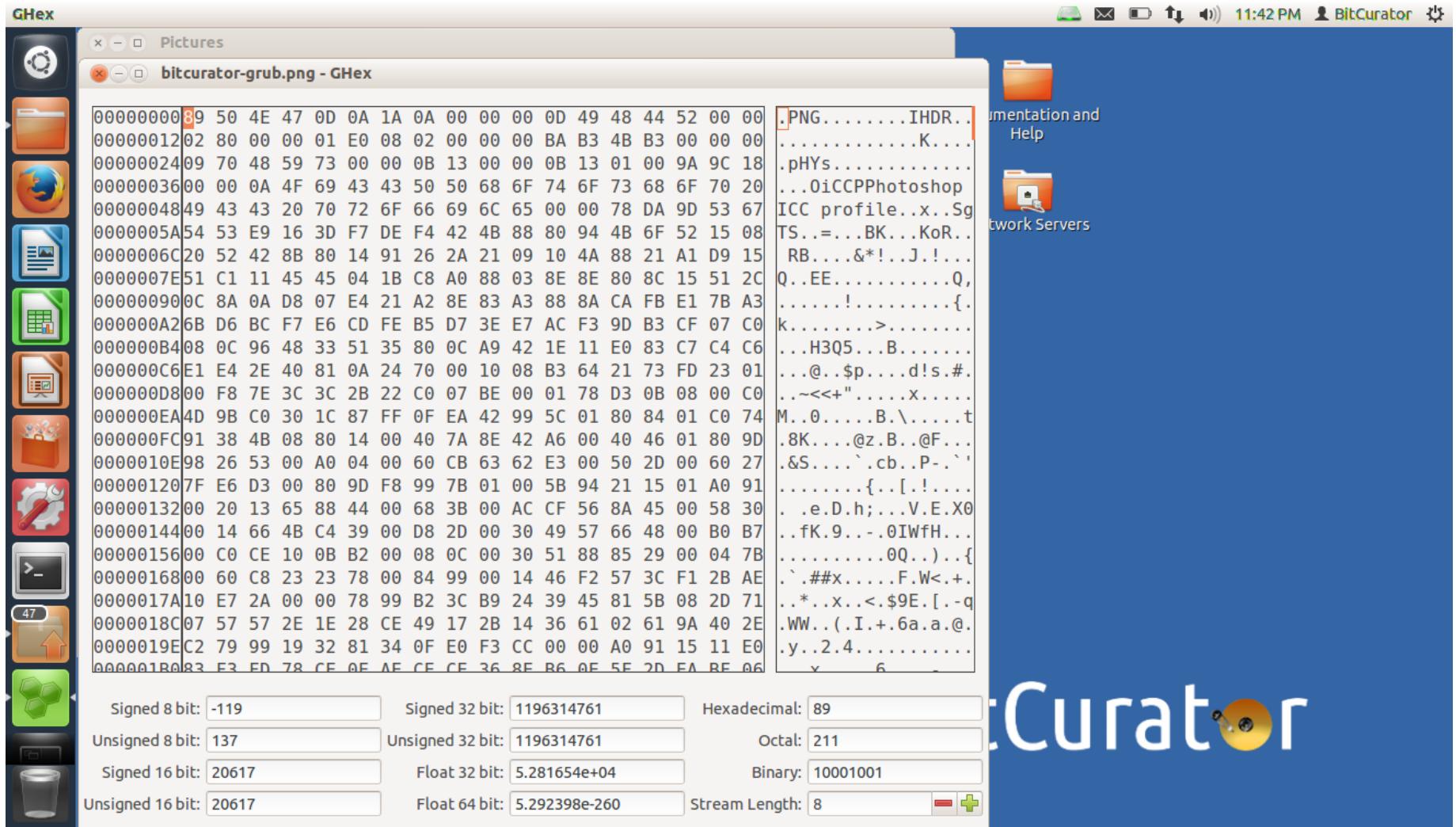
Cancel

OK

"bitcurator-grub.png" selected (43.3 kB)

Quick Access to a Hex View:







Computer

- Home
- Desktop**
- Documents
- Downloads
- Music
- Pictures
- Videos
- File System
- Trash

Network

- Browse Net...

Home Desktop

Search



Additional Tools



Documentation and Help



Forensics



Open

1
10
101
1010

charlie-work-usb-09-12-11.E01

Show AFF Info

Show E01 Info

nps-2010-emails.
E01

Disk Image Info

File Analysis

FileInfo

Find Files

Open Browser as Root

Safe Mount

Open Scripts Folder

Scripts

Cut

Copy

Make Link

Rename...

Copy to

Move to

Move to Trash

Revert to Previous Version...

Compress...

Send To...

Properties



Home Desktop

EnCase Disk Image Info

ewfinfo 20130416

Acquiry information

Acquisition date: Wed Jan 19 12:09:18 2011
System date: Wed Jan 19 12:09:18 2011
Operating system used: Linux
Software version used: 20100226
Password: N/A

EWF information

File format: EnCase 6
Sectors per chunk: 64
Error granularity: 64
Compression method: deflate
Compression level: best compression
Set identifier: 4eb6701d-6cf0-2f4a-a0c6-0cb5d5e20959

Media information

Media type: fixed disk
Is physical: yes
Bytes per sector: 512
Number of sectors: 2068480
Media size: 1010 MiB (1059061760 bytes)

Digest hash information

MD5: 9c0de6c8532d7a66ddcf01861dfb6535

Cancel OK



charlie-work-usb-
2009-12-11.E01

Quick Start Guide
Most recent version always available at:
<http://wiki.bitcurator.net/>

BitCurator

Quick Start Guide v0.9.16

Last updated: August 3, 2014



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MITH MARYLAND INSTITUTE FOR
TECHNOLOGY IN THE HUMANITIES

Other Functionality to Meet Identified LAM Needs:

Function	Tool(s)
Identify duplicate files	FSLint
Characterize files	FITS
Examine, copy and extract information from old Mac disks	HFSExplorer
Package files for storage and/or transfer	BagIt (Java) library
Scan for viruses	ClamTK
Read contents of Microsoft Outlook PST files	readpst
Examine embedded header information in images	pyExifToolGUI
Generate images of problematic disks or particular disk types	dd, dcfldd, ddrescue, cdrdao (in addition to Guymager)
Identify files that are partially similar but not identical	sdhash, ssdeep

Considerable Uptake

- 118 members of the BitCurator Users mailing list
- 640 individuals who have participated in BitCurator-related events (workshops, tutorials, hackathons)
- Numerous publications and reports by library/archives students and professionals about their testing and use of the software
- 934 Twitter followers (whatever that means)

Open Source Development Strategy

- Rapid development with numerous iterations based on several channels of user feedback
- Code released under GPL, v3 (perhaps moving to Apache)
 - available through GitHub
- Existing code incorporated is generally GPL or public domain (government products)
- Packaging elements of the code to be integrated into other environments (e.g. Archivematica)
- Significant community engagement, including work of Community Lead (Porter Olsen)

BitCurator Consortium

- Continuing home for hosting, stewardship and support of BitCurator tools and associated user engagement
- Administrative home: Educopia Institute
- Funding based on membership dues
- Institutions as members, with two categories of membership: Charter and General
- Software and documentation will continue to be free and open source, but membership provides further benefits (e.g. support, training, development priority)

DIMAC (Disk Image Access for the Web)

- Developed by Sunitha Misra and Kam Woods
- To dynamically navigate and download contents of a disk image, without having to download or mount the full image
- See: <https://github.com/kamwoods/dimac>
- Demo at:

<http://www.youtube.com/watch?v=BwiWFqxYzQ8>

See: Sunitha Misra, Christopher A. Lee, and Kam Woods, “A Web Service for File-Level Access to Disk Images,” *Code4Lib Journal*, <http://journal.code4lib.org/articles/9773>.

d/r	Filename	Size	Modified time	Deleted?
r	UNTITLED 1 (Volume Label Entry)	0	2009-11-23T14:58:28Z	No
r	.Trashes	4096	2009-11-20T18:26:12Z	No
r	_SC00009.JPG	334501	2009-11-11T14:16:56Z	Yes
d	.Trashes	2048	2009-11-20T18:26:12Z	No
d	.Spotlight-V100	2048	2009-11-20T18:26:12Z	No
r	_SC00010.JPG	336095	2009-11-11T14:17:18Z	Yes
r	_SC00011.JPG	342041	2009-11-11T14:17:28Z	Yes
r	Cat.mov	5712046	2009-11-20T14:25:26Z	Yes
r	.Cat.mov	4096	2009-11-20T18:31:48Z	Yes
r	MontereyKittyHQ.m4v	25123154	2009-11-20T14:00:00Z	Yes
r	.MontereyKittyHQ.m4v	4096	2009-11-20T18:31:40Z	Yes
d	.fsevents	2048	2009-11-23T14:58:28Z	No
r	_IGGER~1.M4V	12536015	2009-11-18T21:50:54Z	Yes
r	.TiggerTheCat.m4v	4096	2009-11-20T18:35:28Z	Yes
r	Cat.m4v	1077729	2009-11-20T14:12:04Z	Yes
r	.Cat.m4v	4096	2009-11-20T18:35:34Z	Yes

APPLYING FORENSICS TO PRESERVING THE PAST: CURRENT ACTIVITIES AND FUTURE POSSIBILITIES

- Organizers: Cal Lee, Jeremy Leighton John, Susan Thomas
- To be held at Digital Libraries 2014, London, September, 8-12, 2014
- One-day event, split across an afternoon and following morning (Sept 11-12)
- Short papers and talks, group discussion and formation of steps for further action

Thank You!

The screenshot shows the BitCurator project website. The top navigation bar includes links for Support, FAQ, BitCurator Community, Screencasts, About, Archival workflows, Software overview, Source on GitHub, BitCurator.net site, Tools, What links here, Related changes, Special pages, Printable version, Permanent link, and Page information. The main content area features a large text block about BitCurator's purpose and capabilities, followed by a "Get BitCurator" section with download links for a Virtual Machine and Installation ISO, and a "Documentation" section with links to guides and the BitCurator Community.

The screenshot shows the BitCurator Consortium website. The top navigation bar includes links for About, Blog, Research, People, Support, and Community. The main content area features a "News" section with a post about a gathering at Archives*Records - August 12, 2014, and a "Video Spotlight" section featuring a screencast tutorial on installing BitCurator in a virtual machine. The bottom section includes a "Events" section with a link to a BitCurator Webinar on Digital Forensics Metadata - Session.

Get the software
Documentation and technical
specifications
Screencasts
Google Group
<http://wiki.bitcurator.net/>

People
Project overview
Publications
News
<http://www.bitcurator.net/>

Twitter: @bitcurator