The National Software Reference Library

By

Douglas White

Presented At

The Digital Forensic Research Conference

DFRWS 2014 USA Denver, CO (Aug 3rd - 6th)

DFRWS is dedicated to the sharing of knowledge and ideas about digital forensics research. Ever since it organized the first open workshop devoted to digital forensics in 2001, DFRWS continues to bring academics and practitioners together in an informal environment. As a non-profit, volunteer organization, DFRWS sponsors technical working groups, annual conferences and challenges to help drive the direction of research and development.

http:/dfrws.org

National Software Reference Library

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Disclaimer / Disclosure

Trade names and company products are mentioned in the text or identified. In no case does such identification imply recommendation or endorsement by the National Institute of Standards and Technology, nor does it imply that the products are necessarily the best available for the purpose.

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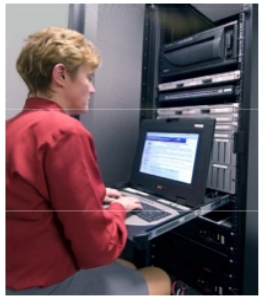
National Software Reference Library

National Software Reference Library

Physical purchases

Physical software library



Database of file metadata

File name, size, path, dates, SHA-1, MD5, etc. are recorded

Reference data for investigative use

Data can be imported into many commercial digital forensics tools

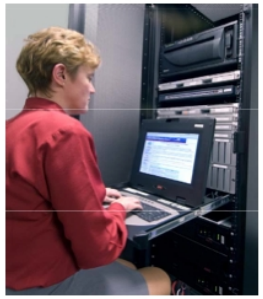
National Software Reference Library

Physical software library

Database of file metadata

Reference data for investigative use

Physical purchases



NIST Special Database #28

National Software Reference Library

Reference Data Set

Version 2.25 06/1/2009

NIST

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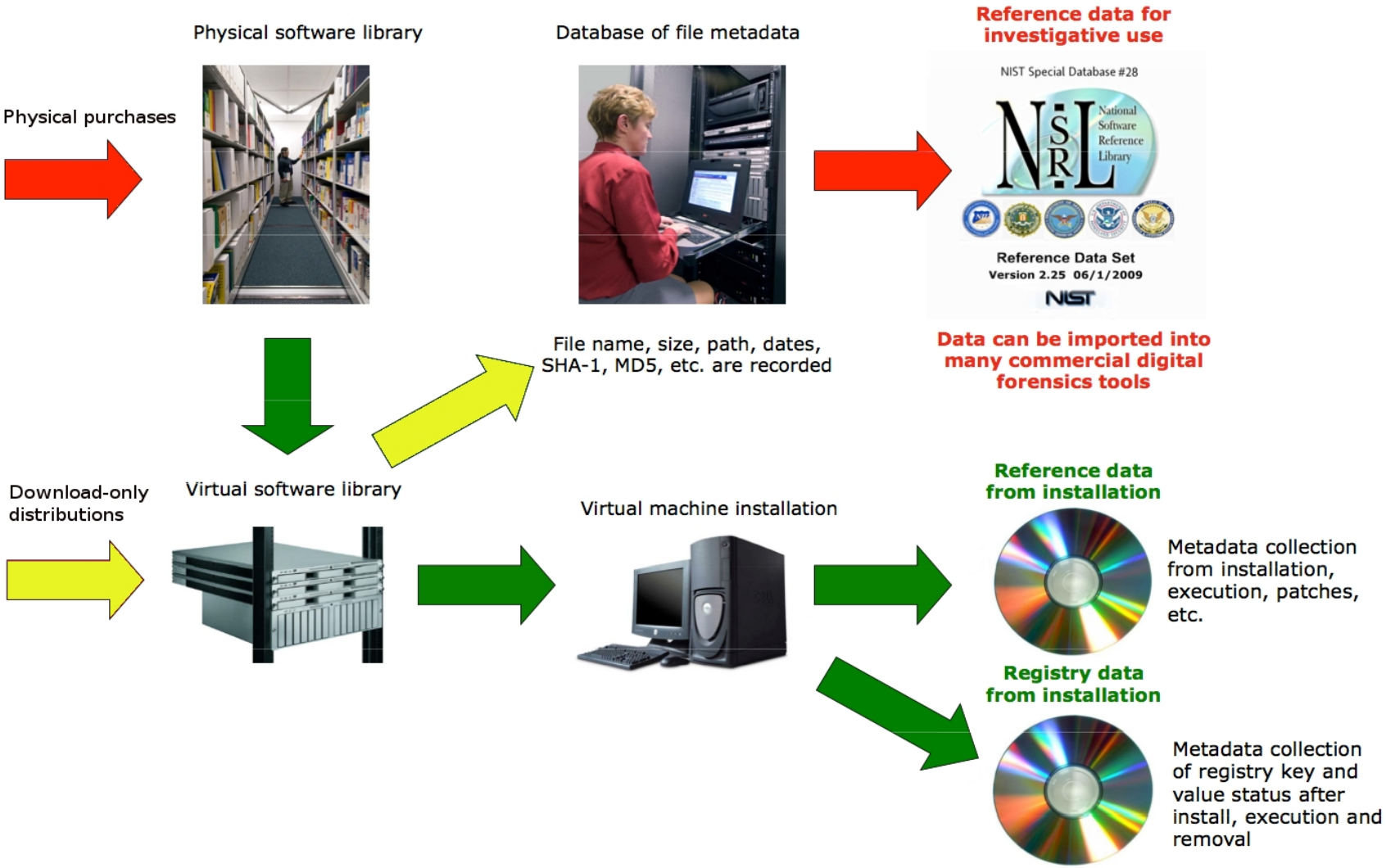
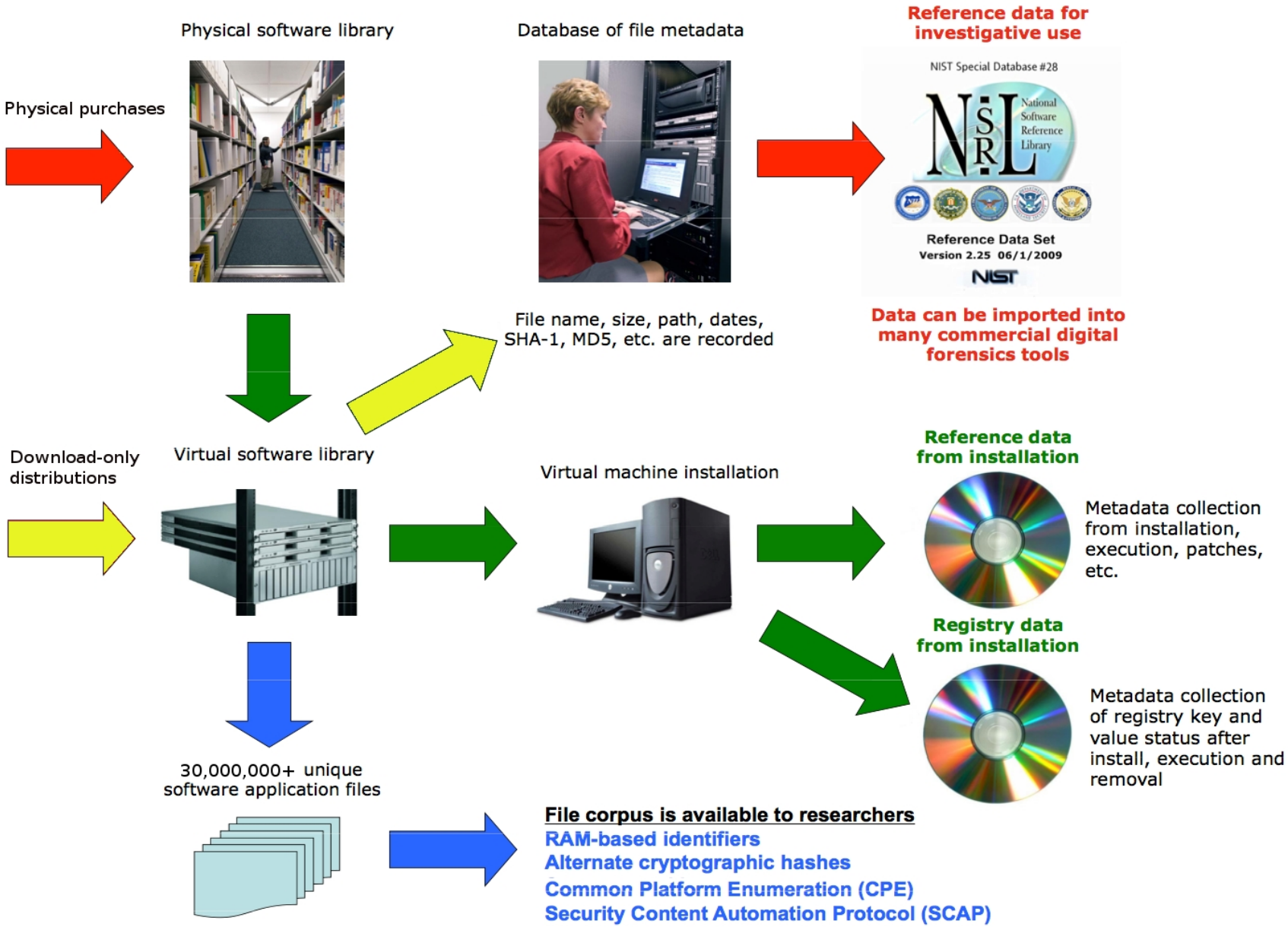
Download-only distributions

Virtual software library

National Software Reference Library



National Software Reference Library



National Software Reference Library

14,320 Applications
2,281 Manufacturers
696 Operating Systems
30,193,306 Unique Files (corpus)
37,827,886 Unique Files (DB)
192,090,545 File Records
Many Registry entries

Shrinkwrapped & “Clickwrapped” products

Mobile device apps, iOS & Android
Scope: free, popular apps

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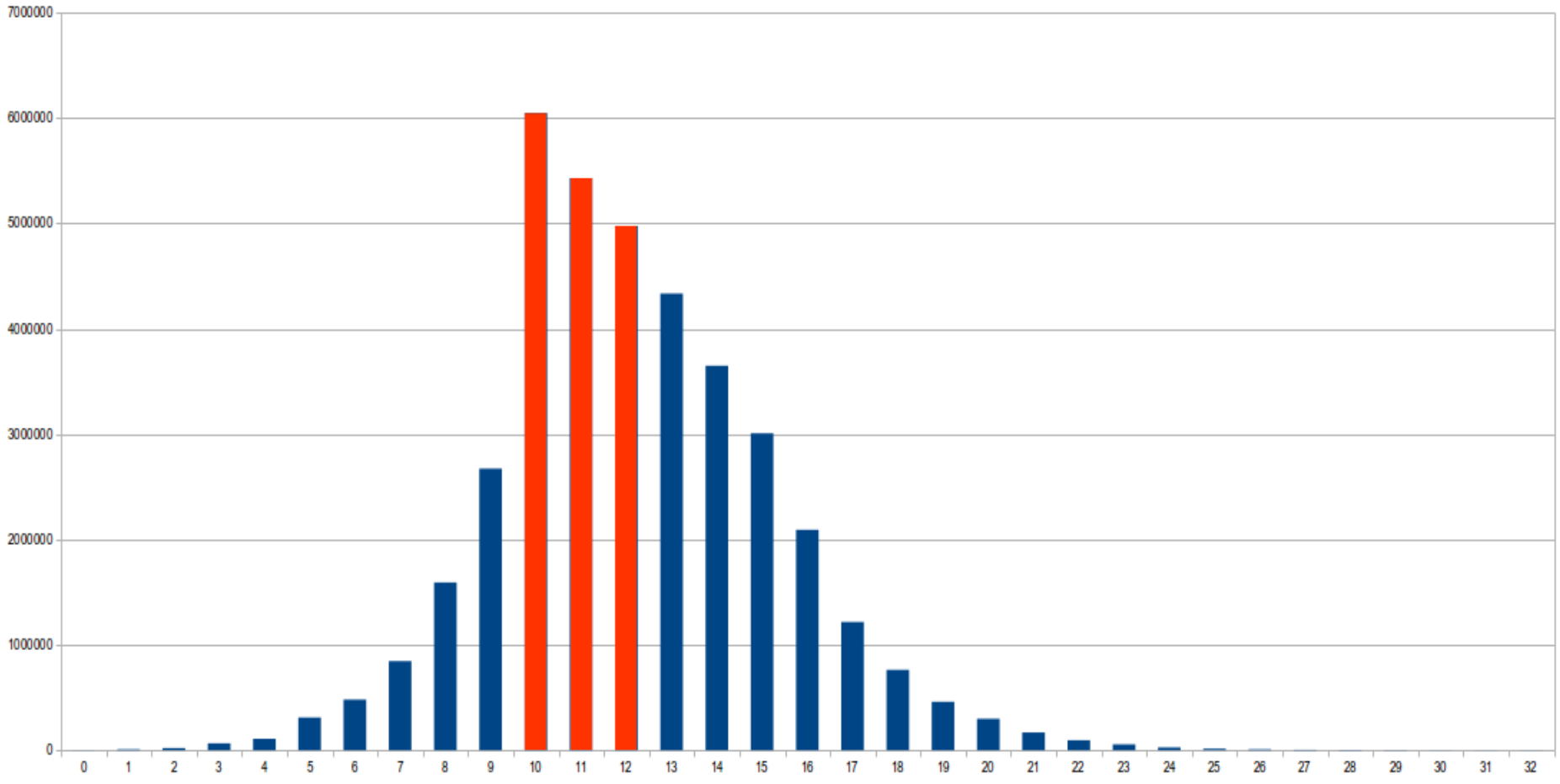

x = int(log(bytes)/log(2)) , y = count of files
Majority are between 1024 and 8192 bytes

National Software Reference Library

4,653,105	.GIF
2,852,898	.HTML
2,334,990	.CLASS
1,768,049	.HTM
1,492,402	.JPG
1,070,950	.PNG
1,050,296	.WMF
1,026,247	.C
962,059	.H
907,594	.DLL
537,649	.EPS
524,945	.XML
402,867	.WAV
341,116	.TXT
331,244	.EXE

National Software Reference Library

RDS – SHA1, MD5, CRC32
Additionally: SHA256, SHA512, SHA3 (upon FIPS)
Block hashes
Bulk_extractor
Approximate matching : SP 800-168
http://csrc.nist.gov/publications/PubsSPs.html

Corpus of unique files
Collection of media (disk) images
Photographs of materials

Installation in virtual machines
Memory
Registry
Network

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Taxonomy of applications, OSes

Automated identification: SWIDTags (ISO 19770)

Interoperability with National Vulnerability Database

CYBOX, DFXML

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