# Digital Records Forensics

**CORINNE ROGERS**

**Abstract:** Records managers are responsible for determining and maintaining authenticity over time of digital records in their care, and must be prepared to comply with litigation holds and demands for legal discovery. This is of concern to law enforcement professionals, who increasingly rely on digital forensics to identify, extract, maintain and preserve records required for court. While digital forensic investigations in law enforcement are “post-event”, organizations are increasingly using forensic tools to prepare for information security incidents or litigation holds. Forensic readiness, maximizing the potential to use digital evidence while minimizing disruption and cost, concerns records managers, IT professionals and legal departments. The Digital Records Forensics Project combines archival diplomatics, digital recordkeeping best practices, the Law of Evidence and digital forensics into a body of knowledge called "Digital Records Forensics." This poster offers an overview of the DRF project and need for an interdisciplinary approach to risk management in the development of organizational “forensic readiness.”

The Digital Records Forensics (DRF) Project is a 3-year collaboration between the University of British Columbia's School of Library, Archival and Information Studies (SLAIS), the UBC Faculty of Law, and the Computer Forensics Division of the Vancouver Police Department, funded by the Social Sciences and Humanities Research Council of Canada (SSHRC). Through literature review, analysis of North American case law, case studies and cross-disciplinary interviews, the project addresses the challenge of identification of records among all the digital objects produced by complex digital systems, and the determination of their authenticity, particularly with removed from their system of origin.

**About the author:**

***Corinne Rogers*** is a PhD student at the University of British Columbia in the School of Library and Information Studies under the supervision of Dr. Luciana Duranti. Her area of research is in establishing the requirements for preservation of authenticity of digital evidence over time. She works as a graduate research assistant on the Digital Records Forensics Project, focusing on management of digital evidence by law enforcement and the courts.

# Digital Records Forensics Project

A collaboration between University of British Columbia's School of Library, Archival and Information Studies,
Faculty of Law, & Vancouver Police Department
Corinne Rogers, UBC

The Digital Records Forensics Project integrates archival diplomatics, computer forensics and the law of evidence to develop concepts and methods:

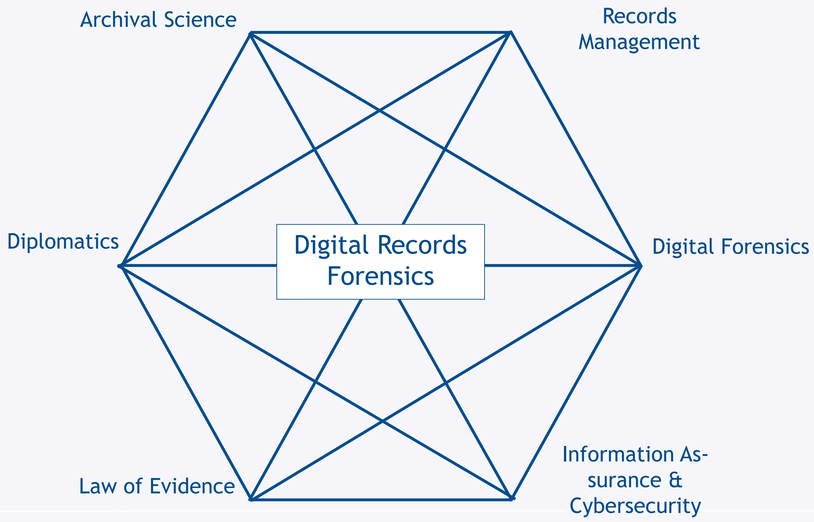
- to recognize records produced by and removed from complex digital systems;
- to determine their authenticity, reliability & accuracy;
- to maintain records acquired from crime scenes or created by police to pursue crime over the long term so that their authenticity will not be questioned;
- to identify & develop a new discipline of *digital records forensics*;
- to identify intellectual components of an education program.

## Research Methods & Products:

- interdisciplinary literature review - law, digital forensics, archival diplomatics
- analysis of North American case law
- interviews & questionnaires
- ethnographic study of the Vancouver Police Department
- case law database
- terminology database
- digital records forensics activity model
- white papers
- educational curricula

## This research benefits:

- law enforcement professionals
- the legal profession - lawyers & judges
- records professionals
- records users - journalists, scholarly researchers and citizens
- records creators - public and private sectors, individuals or organizations




**Record types**
- computer stored
- computer generated

**Law of Evidence**
- best evidence rule
- hearsay rule
- business exception to the hearsay rule
- Daubert guidelines
- case law v. statutory law

**Terminology**
- record v. document
- information v. data
- lifecycle
- authenticity
- authentication
- classification
- privilege
- image v. copy
- preservation
- storage
- archive

**Where found**
- hard drives
- photocopiers
- PDAs
- cell phones
- digital cameras
- swipe card logs
- appliances
- gaming systems

**Evidence Issues**
- evidence
- authentication
- authenticity
- reliability
- integrity
- accuracy
- identity

**Interviews**
- lawyers
- judges
- court clerks
- records managers
- police investigators
- forensics experts

**Archival issues**
- what is a record
- context
- authenticity
- reliability
- maintenance
- preservation

**Forensics Issues**
- repeatability
- verifiability
- objectivity
- transparency
- data integrity
- duplication integrity
- computer integrity
- system integrity

**Commonalities**
- chain of custody
- context
- e-discovery
- electronically stored information
- risk

www.digitalrecordsforensics.org

## Vancouver Police Department Case Study

- VPD is "ahead of the curve";
- Implementing a Storage Area Network (SAN);
- At the moment of siezure, the investigator assumes role of trusted custodian;
- There is reliance on VPD's EDRMS to make explicit all links between records.

### Preliminary Interview Data

| | Concept of digital record | Establishment of authenticity | Maintenance of authenticity over time | Challenges to authenticity & preservation | Challenges to digital records as evidence |
|---|---|---|---|---|---|
| **Archivists** | Established definition based on theory & practice | Specific requirements - identity & integrity | Critical - trusted custodian | Circumstances of creation; tampering; obsolescence | Archival theory addresses evidentiary capacity |
| **Information managers (law enforcement)** | Anything generated in electronic format | Chain of custody | Chain of command | Silos; different SW/HW; multiple creators/owners | Retention; integrated units; migration |
| **Lawyers** | Anything on digital media; context-dependent | Context; proper forensic process; source | Not an issue (interviews to date) | Process; multi-user systems | Unallocated clusters; forensic process |
| **Judges** | Any record on a computer | Authentication | Not a concern (interviews to date) | Proof of reliability | Proof of reliability; chain of custody; alterations; completeness |
| **Forensics experts** | Anything created electronically | Hash values; digital signatures; trusted 3rd party | Maintain integrity | Lack of understanding of technology | N/A |
| **Police investigators** | Archival definition (evidential value) | Provenance (source) | Chain of custody | Obsolescence; corruption; interoperability | Show chain of custody |

## Next Steps

- Complete interviews
- Develop a model of the digital records forensics process
- Conduct survey questionnaires
- Develop a series of concept papers
- Develop education curriculum

Digital Records Forensics Project
Social Sciences and Humanities Research Council of Canada | Conseil de recherches en sciences humaines du Canada

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