



InterPARES 2 Project

International Research on Permanent Authentic Records in Electronic Systems

Domain 3 Research Questions

Case Study 20: Revenue On-Line Services (ROS)

Carolyn Petrie, UBC

July 2006

- 1. What types of entities does the diplomatic analysis identify in this case study? (i.e., records, publications, data, etc.)**

Diplomatic analysis identifies all entities studied in the Revenue On-Line Services (ROS) system as records. These consist of digital certificates, tax forms, and debit instruction forms.

- 1a. If there are no records, should there be records? If not, why not?**

Not applicable.

- 1b. If there should be records, what kinds of records should be created to satisfy the creator's needs (as defined by an archivist)?**

Not applicable.

- 1c. What characteristics of records (as defined by an archivist) are missing yet necessary to preserve these entities?**

None. The entities in the ROS satisfy all requirements of a record as defined by InterPARES 1. The lack of formal recordkeeping policies, however, casts doubt as to the stability of the records' content over time.

- 2. Are the entities reliable? If not, why not?**

Yes, the records can be considered reliable, as there are many controls in place over the creation of ROS records. These include the PKI Certification Policy Statement and the Certification Practice Statement, various security and authorization measures and the use of established documentary forms.

3. Are the entities accurate? If not, why not?

Yes, the records can be considered accurate because of the security measures in place to ensure user authorization and data validity. Copies of the records are also maintained for audit trails purposes.

4. To what degree can the entities be presumed to be authentic, and why?

While no recordkeeping system exists for the ROS entities, it is possible to address the following Benchmark Requirements in part.

Benchmark Requirements Supporting the Production of Authentic Copies of Electronic Records (these apply to the creator):

1. Capture of identity and integrity metadata

The identity of the entities is assured by the presence of the following attributes:

- Names of persons concurring in the formation of the record:
 - Author: Revenue Commissioners of the Irish State
 - Writer: Revenue Commissioners of the Irish State
 - Originator: Revenue Commissioners of the Irish State
 - Addressee: Revenue Commissioners of the Irish State, registered tax payers and agencies by whom tax payers are represented
- Name of the action or matter: the entities participate in the assessment and collection of taxes, and are by-products of this action.
- Expression of an archival bond: an archival bond exists between like records generated from the same process.
- All actions within the ROS are date/time stamped automatically.
- Indication of attachments: not noted, and nor are those elements required to assess the integrity of the entities.

2. Enforcement of access privileges

Customers have their own personalized inbox, secured through a PKI environment. PKI is understood by Revenue to provide four attributes of authenticity: the guarantee of integrity of data, the guarantee of the identification and authentication of the communicator, the provision of an environment of non-repudiation, and the provision of the confidentiality of personal data at all times. External users must be authorized to use the ROS through a digital certificate.

Access is also connected to the job responsibilities of Revenue employees. The Revenue Certification Practice Statement details the policy related to employee access to digital certificates and the PKI structure, and the RPS Access Control System ensures staff access is restricted based on job responsibilities.

3. Protection against loss and corruption

Regular back-ups are made to the ROS to protect against the loss of records. All changes made to the entities are noted and logged with a date/time stamp; the name of the Revenue employee who made the change is also noted.

4. **Protection against media and technology obsolescence**
XML is currently used as the ROS export standard to facilitate future migration to new systems as necessary. Migration is specifically addressed only in relation to tax forms; these are migrated when back-end systems are updated.
5. **Established documentary forms**
Documentary forms have been established as required to carry out Revenue's business procedures. All entities consist of structured data, packaged as either a flat or XML file. Field selection and management is based on the requirements and format of ITP applications and data flow. Tax forms have been based on existing paper forms, and consist of customized data entry fields. Digital certificates are proprietary files, and three distinct Debit Instruction forms are used.
6. **Ability to authenticate records**
Revenue believes that a chain of authenticity is created by compliance with the following steps: user identification requires knowledge of both RAN and Digital Certificates; all data is validated by ROS; all actions within ROS are held, and the user cannot delete entries from the Inbox; and all actions are date/time stamped.
7. **Procedures in place to identify the authoritative record**
Revenue considers all signed and submitted tax forms to be the authoritative records; drafts are not deemed to hold authoritative value.
8. **Procedures in place to properly document removal and transfer of records from the creator's originating system**
No such procedures are noted in the final report.

Baseline Requirements Supporting the Production of Authentic Copies of Electronic Records (these apply to the preserver):

As no formal recordkeeping system exists for the entities within the ROS, the Baseline Requirements cannot be discussed.

5. For what purpose(s) are the entities to be preserved?

The records are to be preserved to ensure compliance with legal obligations and for auditing purposes. Currently, Revenue adheres to requirements to retain records to satisfy business and audit requirements and to facilitate compliance with the Freedom of Information Acts, 1997 and 2003; and there is an awareness of the obligation to preserve paper-based records and to seek permission prior to their destruction in conformity with the provisions of the National Archives Act, 1986. Because electronic tax records have been given parity in weight to paper tax records, Revenue should bring ROS into similar compliance. They should be preserved because of their involvement in the transaction of tax filing and payment. The case study also notes that work practices and the increased use of IT have driven retention and preservation concerns.

6. Has the feasibility of preservation been explored?

Yes, Revenue is conscious of the need to preserve accurate financial records over time, and standard back up and disaster recovery programs are currently in place. Preservation strategies are based on the type of entity in question; for example, digital certificates must be reissued and therefore have a limited preservation requirement. Tax forms, however, have to remain accessible for seven years to satisfy Revenue's procedural standards. Currently, digital certificate security wrappers and tax forms are being held indefinitely. Inactive records are maintained in the system, but are not exported to the ROS.

6a. If yes, what elements and components need to be preserved?

Financial details, including characteristics demonstrating the records' authenticity, must be preserved until disposal in conformity with the *National Archives Act, 1986*.

7. Which preservation strategies might most usefully be applied, and what are their strengths and weaknesses, including costs and degree of technical difficulty?

The creator now has few preservation strategies in place; digital certificate security wrappers and tax forms are held indefinitely, and there is some discussion of maintaining PKI data for at least ten years. Due to the amount of material to be preserved, it is difficult to estimate associated costs and the degree of technical difficulty.

7a. Which alternative preservation strategies might be applied? What are their strengths and weaknesses, including costs and degree of technical difficulty?

While the majority of maintenance strategies are applied to ROS entities, the following are not noted in the final report:

- A4. Transfer of data to new storage media on a regular basis
- A5. Adherence to appropriate conditions for storage media

Alternative preservation strategies that could be applied include:

B1.4. Conversion

The final report is ambiguous about whether conversion/migration takes place. While tax forms are apparently migrated when back-end systems are updated, the report also claims that there are no specific plans to migrate records in the future. A formal conversion/migration strategy should be implemented.

8. What additional information does the preserver need to know to facilitate appraisal and preservation?

The preserver should ensure that personal information within the ROS is managed appropriately, and should be knowledgeable about applicable legislation regarding the retention of financial records. Furthermore, the case study notes the need to incorporate a comprehensive response to the issue of digital signatures, and future claims of authenticity arising from such technology.

8a. If required information is missing, where should it come from and how should it be made manifest?

The National Archives should be consulted regarding the identification of archival documents and to provide guidance for establishing and agreeing upon retention periods and disposal arrangements. Revenue employees should be interviewed to gather information regarding operational record requirements and/or standards.

9. Are there any policies in place that affect preservation?

Several procedural policies affect the preservation of ROS entities, as the creator has noted that preservation strategies need to be based on the type of entity in question. Digital certificates should have a limited preservation period, as they need to be periodically reissued to clients for security reasons. To satisfy Revenue's procedural standards, tax forms need to be preserved live for a minimum of seven years to provide clients with a history of their transactions. Long-term preservation is not considered appropriate by the Revenue Commissioners because of the high level of personal information found within these records and the requirement to manage such information in conformity with data protection legislation (i.e., disposing of them when no longer required for business needs). However, from a legal perspective, the destruction of the records must be still be authorised by the Director of the National Archives, thereby facilitating preservation if deemed to be of archival value.

9a. Are there any policies in place that present obstacles to preservation?

No such policies are noted in the final report.

9b. Are there any policies that would need to be put in place to facilitate appraisal and preservation?

The establishment of formal electronic recordkeeping policies would facilitate both appraisal and preservation, and ensure consistency in the management of both paper and electronic records.