



InterPARES 2 Project

International Research on Permanent Authentic Records in Electronic Systems

Diplomatic Analysis

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

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INTRODUCTION

Ireland's Revenue On-Line System (ROS) is an eGovernment service offered to both individual tax payers and agents of the Irish State. ROS is a Web portal that is maintained by the Irish Revenue Commissioners. These services allow authorized and approved users to access tax information, submit their tax returns, and arrange or make payments entirely online. The following report presents the results of a diplomatic analysis of the three main groups of records generated from ROS: digital certificates, tax forms and debit instruction forms.

The purpose of the diplomatic analysis is to assess the status of the identified digital entity as a record. Once the status of the digital entity has been determined, preservation strategies may be proposed by Domain 3.

IDENTIFICATION OF RECORD(S)

A record, as defined by the InterPARES glossary, is a document made or received and set aside in the course of a practical activity. A record must also possess all of the following five components, as established by InterPARES 1 research conclusions: fixed content and form, embedded action, archival bond, persons and contexts. The application of the definition of a record to the creator's digital entities is therefore analyzed according to the following parameters:

1. To be identified as a record, the digital entity must possess fixed content and form,¹ and be affixed to a stable medium (or physical carrier).

¹ The InterPARES1 Authenticity Task Force has defined fixed form as the following: 1) binary content of the record, including indicators of documentary form, must be stored in a manner that ensures it remains complete and unaltered, and 2) technology must be maintained and procedures defined and enforced to ensure that the content is presented or rendered with the same documentary form it had when set aside. (See ATF Research Methodology Statement, available at: http://www.interpares.org/documents/interpares_ResearchMethodologyStatement.pdf).

The stable medium to which ROS is affixed is an n-tiered system which employs business rules to dictate how records will be created and kept. The control exerted over record creation by these business rules, along with ROS's integration in a PKI (Public Key Infrastructure) environment provides strict controls on access to the system. The form of the three groups of records are fixed, as they mirror their paper counterparts. All three groups of records created by ROS are saved nightly on backend servers which is the physical carrier of these records. Thus, the digital certificates, tax forms and debit instruction forms all meet the first requirement of a record.

2. A record must also participate in an action, defined as the conscious exercise of will by an officer of the creator or by an external person, aimed to create, maintain, modify or extinguish situations. A record results as an unintended by-product or product of the action.

The records created by ROS participate in the assessing and collecting of taxes. Many actions are performed by ROS; these include the assessment of taxes, receipt of payment, maintenance of ROS system, provision of access to Irish citizens and the preservation and protection required for security controls. This diplomatic analysis will only focus on the following three actions: first, the generation of digital certificate to access ROS for tax purposes; second, the collection of tax forms to facilitate the filing of taxes and to meet legislative obligation; and third, the receipt of payment online by way of user instructions received by the debit instruction form.

3. A record must possess an archival bond, which is the relationship that links each record to the previous and subsequent record of the same action and, incrementally, to all the records which participate in the same activity. The archival bond is originary (i.e., it comes into existence when a record is made or received and set aside), necessary (i.e., it exists for every record), and determined (i.e., it is characterized by the purpose of the record).

All three groups of records have an archival bond with other like records generated from the same process. For instance, both the tax and debit instructions forms are saved chronologically and can be easily sorted and viewed upon the field selected. Tax forms form a natural aggregation as they are arranged based on tax type and the tax year. In regards to the digital certificate, there is a bond between the RAN and the Password letters, thus the electronic application and the paper output are naturally aggregated. Furthermore, the entirety of data transactions² received from every customer is stored individually within 'security wrappers' which are stored on back office databases. Thus, the digital certificates, tax and debit instruction forms satisfy the third requirement of a record.

4. Record creation must involve at least three persons, whether or not they explicitly appear in the record itself. These persons are the author, addressee and writer; in the electronic environment, one must also take into account two additional necessary persons: the creator and the originator.

² These data transactions refer to the digital certificates, tax and debit instructional forms, as well as the digital signature and the date and time stamp.

- The record's **author** is the physical or juridical person having the authority and capacity to issue the record or in whose name or by whose command the record has been issued.

The author for all groups of records is the Revenue Commissioners for the Irish state.

- The **addressee** the physical or juridical person(s) to whom the record is directed or for whom the record is intended.

The addressees of the digital certificates are the registered tax payers and/or citizens of the Irish state, as well as agencies that represent individual tax payers.³ However, the addressee for both the tax and debit instruction forms is Revenue, who receives and processes these forms.

- The **writer** is the physical or juridical person having the authority and capacity to articulate the content of the record.

The writer for all groups of records is the Revenue Commissioners of the Irish state.

- The **creator** is the person in whose funds the record exists.

The creator for all three groups of records is the Revenue Commissioners for the Irish state.

- The **originator** is the person to whom the Internet account issuing or the server holding the record belongs.

The originator for all three groups of records is Revenue.⁴

5. Finally, a record must possess an identifiable context, defined as the framework in which the action in which the record participates takes place. The types of context include juridical-administrative, provenancial, procedural, documentary, and technological.

- The **juridical-administrative context** is the legal and organizational system in which the creating body belongs.

In 1923, Order 2/23 established the office of the Revenue Commissioners within the Irish state. This order gave the Revenue Commissioners direct control over the administration of revenue services in Ireland. The Revenue Commissioners are subject to the following legislation: *Taxes Consolidation Act of 1997, Irish E-Commerce Act 2000*.

- The **provenancial context** refers to the creating body, its mandate, structure and functions.

The Revenue Commissioner is the creating agency. Their mission and mandate is to provide the Irish state with effective and efficient methods of collecting and assessing individual and corporate taxes in a timely manner.

³ To process tax returns, citizens of the Irish state are required to hold a Personal Public Security card.

⁴ The ROS Web site carries Revenue's logo and banner.

- The **procedural context** comprises the business procedure in the course of which the record is created.

ROS is used to facilitate the filing and payment of tax returns in an on-line environment. This process begins with the user's application for a digital certificate to access ROS to file their taxes.

Diplomatic analysis of **procedural phases** related to the three ROS activities under examination here can be broken down as follows:⁵

- a. **Initiative:** the introductory phase of any procedure is "constituted by those acts, written and/or oral, which start the mechanism of the procedure."⁶

Generate Digital Certificate

In "Generate Digital Certificate," the initiative consists of the application for user status authorization which requires all relevant data. It is at this stage that the user will be given both a password and an access number to enter into ROS.

Create Tax Form

In "Create Tax Form," the initiative occurs when the user has filled out their tax form with all relevant information and signature and submits it.

Receive Payment

In "Receive Payment," the initiative occurs when Revenue receives the completed online debit instruction form.

- b. **Inquiry:** this preliminary phase "is constituted by the collection of the elements necessary to evaluate the situation."⁷

Generate Digital Certificate

In "Generate Digital Certificate," the functionality of ROS allows it to complete the inquiry phase automatically upon receipt of the user application.

Create Tax Form

In "Create Tax Form," the inquiry occurs when the tax form is completed by the user online, with all relevant information and signature included.

Receive Payment

In "Receive Payment," the inquiry occurs when ROS validates the users' identity.

⁵ The phases of procedure as dictated by Diplomatic Analysis; see Luciana Duranti, *Diplomatics: New Uses for an Old Science* (Lanham, Maryland and London: The Scarecrow Press in association with the Society of American Archivists and the Association of Canadian Archivists, 1998), 115.

⁶ Ibid.

⁷ Ibid.

- c. **Consultation:** this phase is “constituted by the collection of opinions and advice after all the relevant data has been assembled.”⁸

Generate Digital Certificate

In “Generate Digital Certificate,” the consultation again, occurs automatically by the ROS when the user applies for the digital certificate. As above.

Create Tax Form

In “Create Tax Form,” the consultation occurs when the user clicks the ‘sign and submit’ button. There is also a ‘Last Chance Check’ for the user to recheck their information before submitting their tax form.

Receive Payment

In “Receive Payment,” the consultation occurs simultaneously with the inquiry phase and involves the user identity validation, record authentication and content integrity conducted by the PKI technology.⁹

- d. **Deliberation:** this phase is “constituted by the final decision-making.”¹⁰

Generate Digital Certificate

In “Generate Digital Certificate,” the deliberation phase consists of a decision by the Revenue Commissioners (or competent persons acting on their behalf) to issue the personal access number.

Create Tax Form

During this phase, persons at ROS responsible for validating the tax form determine whether all necessary information has been provided by the user.

Receive Payment

In “Receive Payment,” the deliberation phase consists of the decision making process which involves the transfer of these forms to the back office database and to relevant financial institutions.

- e. **Deliberation control:** this phase is “constituted by the control exercised by a physical or juridical person different from the author of the document embodying the transaction, on the substance of the deliberations and/or on its forms.”¹¹

Generate Digital Certificate

In “Generate Digital Certificate,” deliberation control either the supervisor will approve and validate the personal access number. This may be automatically preformed by the ROS system itself.

⁸ Ibid.

⁹ The objective of ROS is to remove the need for human intervention in filing tax returns and making associated payments. Error correction is performed by clients and staff.

¹⁰ Duranti, op. cit..

¹¹ Ibid.

Create Tax Form

In “Create Tax Form,” deliberation control either the supervisor will approve and validate the tax form. This may be automatically preformed by the ROS system itself.

Receive Payment

In “Receive Payment,” deliberation control is the final approval from management.

- f. **Execution:** “the documents created in this phase are the originals of those embodying the transactions.”¹² In other words, the execution phase results in the issuing of the first record capable of producing the consequences intended by its author.

Generate Digital Certificate

In “Generate Digital Certificate,” the execution phase is the generation of the digital certificate which is stored in the user’s inbox.

Create Tax Form

In “Create Tax Form,” the execution phase is the generation of a copy of the tax return which is sent to the user’s inbox.

Receive Payment

In “Receive Payment,” the execution phase occurs when there is the transfer of debit instruction forms.

- The **documentary context** is defined as the archival fonds to which a record belongs and its internal structure.

The Revenue Commissioners, in which the ROS arises from, has a legal obligation to serve citizens and companies with efficient, effective and swift service in the processing of electronic tax records.

- **The technological context** is defined as the characteristics of the technological components of an electronic computing system in which records are created.

ROS resides on an n-tiered system which employs business rules to dictate how records will be kept. Due to highly sensitive records that are generated, ROS has integrated strict access through Personal Key Information (PKI) with x.509 conformance. The main application for hosting and maintaining ROS digital environment is the Advantage Ingress 2.5 Relational database. Users’ data are nightly stored on back office databases, referred as the “corporate Integrated Taxation Processing back office system.” For a complete listing of the technological context, please refer to pp. 9-11 of the Case Study 20 Final Report.

¹² Ibid., 116.

CONCLUSIONS

According to the above analysis all three groups of records, the digital certificates, tax forms, and the debit instruction form, that are generated from ROS, have met all the requirements of a records as defined by InterPARES 1.

The authoritative record to be preserved is comprised of both digital and intellectual components. The “Security wrappers” embody the entire data transaction for every ROS client. This entails the digital certificate, tax and debit forms, as well as, digital signatures and the date and time stamp. Thus, it becomes apparent that the technology used to generate the security wrappers must be maintained and preserved. ROS developers are aware of this concern and are continually releasing, updating and improving their software and applications.

Due to the high sensitivity of personal information within tax forms, coupled with their lack of suitability for archives, the long-term preservation of these records are not recommended by Revenue. However, the destruction of tax records requires the authorization from the National Archives. Currently, Revenue plans to store inactive records either in offline storage or to retain them on an older system. There are no retention policies to address this issue. Therefore, government legislation is needed to provide the guidelines and authorization for the retention of these types of records. Furthermore, interoperability, metadata and descriptive schemas are all needed to maintain and preserve the records of the ROS system.