



InterPARES 2 Project

International Research on Permanent Authentic Records in Electronic Systems

Diplomatic Analysis

Case Study 21: Electronic Filing System (EFS) of the Supreme Court of Singapore

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INTRODUCTION

EFS is an integrated online workflow system, of which the main features are: an electronic filing system that provides law firms with the ability to submit their records electronically to courts; an electronic extract service that enables law firms to search for and request electronic copies of records from court case files; electronic service of records, allowing law firms to serve records to other law firms electronically; and an electronic information service which provides online access to relevant case information to law firms, creditors, bank officers and members of the public. The implementation of EFS was intended to facilitate the filing of court documents, to enable the quick retrieval of court documents, and to improve access to records and information.

This case study focuses specifically on records resulting from the process of filing bankruptcy petitions through to the issuing of a bankruptcy order. The following report summarizes the findings of a diplomatic analysis conducted on these records as they are described in the case study final report.

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).

Strict documentary and procedural controls are in place to ensure that records created and transmitted by EFS are in compliance with Singapore's Bankruptcy Act and Bankruptcy Rules, and a PKI system protects the security of these records. Submitted documents are checked by EFS registry staff, and if the documents are deemed complete, their content will not be altered,² though registry staff may annotate the record to indicate further actions to be taken, and will affix the court's seal and the signature of the registrar. The Court stores case files on WORM optical disks in a jukebox. The case files consist of legal records in PDF, standardized HTML pages with completed data fields, and a completed cover page template in HTML. The final report of the case study makes no mention of preservation strategies in place to ensure the continued readability of these WORM disks, but at the moment, presumably, all files can be opened and read in their complete and unaltered form; therefore, the records that are set aside by the Court currently satisfy 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 examined in this case study result from a compound act on procedure,³ which can be described at the highest level as "administer bankruptcy proceedings." Actions which contribute to the accomplishment of "administer bankruptcy proceedings" include, but are not limited to, "issue digital certificate smart card," "serve bankruptcy petition," "verify petition," "conduct bankruptcy hearing," "publish hearing results," etc.

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).

In each individual case, records created at any phase of the 'administer bankruptcy proceedings' action possess an archival bond with records created at every other phase. No case can proceed without all necessary documentation, submitted in accordance with the documentary and procedural controls exerted by the EFS workflow and determined by the Bankruptcy Act and the

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).

² Documents which are not deemed complete are returned to the appropriate law firm for revisions.

³ A compound act can be defined as an act "composed of many different acts produced by the same individual or organ or by a number of individuals or organs, but all essential to the formation of some final act of which they are partial elements" (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), 76). An act on procedure is defined as existing "when the final act derives from a series of different acts . . . , produced by a number of different individuals and/or organs, which have equal or different motivation or interests and accomplish different functions. However, all these partial acts have the common aim of making possible the accomplishment of the final act" (Ibid., 77).

Bankruptcy Rules. In addition, an archival bond exists between each case file, numbered in successive order, and stored together by the Court. Each submitted record is registered by the Court Registry, and is filed according to the Court’s Uniform File Classification System;⁴ all registry and filing practices conform to formal and well-established business practices and comply with legislative requirements.

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.

- 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 **addressee** the physical or juridical person(s) to whom the record is directed or for whom the record is intended.
- The **writer** is the physical or juridical person having the authority and capacity to articulate the content of the record.
- The **creator** is the person in whose fonds the record exists.
- The **originator** is the person to whom the Internet account issuing or the server holding the record belongs.

Many records are generated in the action of conducting a bankruptcy petition, each of which has its own three persons depending on the phase of the procedure in which it participates. The following table lists only some of the major types of records although all of the outcomes in the Administer Bankruptcy Proceedings model are considered to be records generated in the system.

Table 1. Persons Concurring in Actions

Action	Receive BP ⁵	Verify BP	Conduct Hearing	Accept BO ⁶	Publish HR ⁷
Record	Received BP	Verified BP	Hearing minutes	Accepted BO	Published HR ⁸
Author	Court ⁹	Court	Court	Court	Court
Writer	Solicitor ¹⁰	Registrar ¹¹	Duty registrar	Solicitor	Registrar
Addressee	Court ¹²	Solicitor ¹³	Official assignee	Creditor ¹⁴	Public
Creator ¹⁵	Court	Court	Court	Court	Court

⁴ See Question 5, re: documentary context, for more information on the filing practices of the Court.

⁵ BP: bankruptcy petition.

⁶ BO: bankruptcy order.

⁷ HR: hearing report.

⁸ A scanned copy of the published Government Gazette with the hearing report is filed into the electronic case file.

⁹ The bankruptcy petition is filed by the solicitor but in compliance with the procedures and requirements regulated by the Court.

¹⁰ The debtor is the actual initiator of the petition but, with a contract or authorization to the law firm, the solicitor is the person who has the competency to articulate the content of the petition.

¹¹ The Registrar’s signature on the verified petition indicates the writer and the Court’s seal on the petition indicates the author.

¹² The petition is directed to the Bankruptcy Section in the Court.

¹³ The verified petition is directed to the solicitor for the next action (it is served to the debtor for hearing purposes).

¹⁴ Because the engrossed BO is sent directly to the creditor, it is the creditor who is the addressee.

¹⁵ Records residing in EFS are accumulated by the Court and therefore belong to the Court’s fonds.

Originator ¹⁶	Court	Court	Court	Court	Court
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If the petition becomes Summons in Chambers Bankruptcy due to the fact that the debtor cannot be located, the action of approving order of substituted service will take place. The main record generated in this process is the approved order of substituted service. The three persons for the record is the Court (author), the registrar (writer) and the solicitor (addressee).

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.

As described in the case study final report, EFS is subject to the juridical regulations of the Singaporean Court. There are three main pieces of legislation related to the filing and serving of bankruptcy records in Singapore: the Bankruptcy Act (1995) outlines the conditions under which bankruptcy petitions and orders may be instituted; the Bankruptcy Rules (1995) state the proceedings involved in filing for bankruptcy, and also describe the documentary and procedural controls to which the various documentary forms resulting from the bankruptcy proceedings must be submitted; finally, the Electronic Transaction Act (1999), developed with the goals of facilitating electronic filing of government records and of “promot[ing] efficient delivery of government services by means of reliable electronic records,”¹⁷ directs the implementation of e-filing services by the Singapore government.

- The **provenancial context** refers to the creating body, its mandate, structure and functions.
- EFS was developed by the Singapore Supreme Court in the early 1990s as part of the Court’s efforts to reform the judicial system and decrease its backlog of cases. The Supreme Court’s mandate is to ensure the administration of justice by establishing “an efficient and effective court to enhance access to justice and instill public trust and confidence in the court system.”¹⁸ Presiding over all civil and criminal matters, the Supreme Court consists of four main branches: the Court of Appeal, the High Court, the Constitutional Reference Tribunal, and the Supreme Court Registry.¹⁹ Bankruptcy petitions and Summons in Chambers Bankruptcy are filed in the High Court.
- The **procedural context** comprises the business procedure in the course of which the record is created.

In the case of EFS, the procedural context is closely aligned with the juridical-administrative context; strict procedural controls are dictated by the three pieces of legislation identified above, and are incorporated into EFS’ business rules and practices. Procedural controls are also dictated by the Supreme Court’s function of enhancing access to justice as defined in its

¹⁶ EFS is operated on the Court’s IT infrastructure which hosts the application system and databases.

¹⁷ Case Study 21 Final Report, p. 5.

¹⁸ Ibid., p. 3.

¹⁹ See Ibid., pp. 3-4, for more information about each of these branches.

mandate. Thus, the procedure followed by the Court in its activity of administering a bankruptcy petition, based on the premise that the petition is accepted, consists of a defined set of six constitutive phases.

Diplomatic analysis of **procedural phases** related to the “Administer Bankruptcy Petition” and “Conduct Hearing” activities can be broken down as follows:²⁰

- a. **Initiative:** the introductory phase of any procedure is “constituted by those acts, written and/or oral, which start the mechanism of the procedure.”²¹

Administer Bankruptcy Petition

The initiative occurs when the Bankruptcy Section receives the bankruptcy petition filed by the solicitor on behalf of the creditor.

Conduct Hearing

The initiative is to set the hearing date and assign cases to deputy registrar.

- b. **Inquiry:** this preliminary phase “is constituted by the collection of the elements necessary to evaluate the situation.”²²

Administer Bankruptcy Petition

The inquiry involves the registrar staff ensuring that all required documents are submitted by the solicitor.

Conduct Hearing

The inquiry involves the acts of asking questions and assembling answers during the hearing, which are recorded in the form of the hearing minute sheet.

- c. **Consultation:** this phase is “constituted by the collection of opinions and advice after all the relevant data has been assembled.”²³

Administer Bankruptcy Petition

The consultation refers to the registrar staff verifying the documentary forms of all submitted documents against legal and regulatory requirements and ensuring that established business procedures are followed.

Conduct Hearing

The consultation consists of the Duty Registrar to consulting with his/her knowledge and experience and asking for opinions from hearing assistants.²⁴

²⁰ The phases of procedure as dictated by Diplomatic Analysis; see Duranti, op. cit., 115.

²¹ Ibid.

²² Ibid.

²³ Ibid.

²⁴ This information is inferred.

- d. **Deliberation:** this phase is “constituted by the final decision-making.”²⁵

Administer Bankruptcy Petition

The deliberation consists of making a decision about the acceptance of the petition and hearing based on the information that was obtained through ensuring that all necessary documents were included and their verification.

Conduct Hearing

The deliberation occurs when a decision is made to dismiss the petition or grant a bankruptcy order.

- 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.”²⁶

Administer Bankruptcy Petition

The deliberation control is the act of guaranteeing the compliance of the petition with the Bankruptcy Act and other relevant laws.

Conduct Hearing

Although no information exists at this time about who approves the Duty Registrar’s decision, one hypothesis is that approval is granted by the Bankruptcy Act in the sense that its provisions regulate the Court to accept or not accept the petition.

- f. **Execution:** “the documents created in this phase are the originals of those embodying the transactions.”²⁷ In other words, the execution phase results in the issuing of the first record capable of producing the consequences intended by its author.

Administer Bankruptcy Petition

The execution takes place when the petition, including the Court’s seal and registrar’s signature, is sent back to the solicitor.

Conduct Hearing

The execution phase results in the issuing of the first record capable of producing the consequences intended by its author. In “Conduct Hearing,” the execution is achieved when the bankruptcy order is granted and made publicly known.

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

The Singapore Supreme Court system employs formal and well-established documentary procedures, developed out of the need to comply with legislative requirements that dictate the creation, use, maintenance and preservation of records, and out of the need to create reliable

²⁵ Duranti, op. cit.

²⁶ Ibid.

²⁷ Ibid., 116.

legal records. The Singapore Supreme Court employs a uniform file classification scheme, and the file classification of bankruptcy records in EFS essentially mirrors the file classification of bankruptcy records in the earlier paper-based filing system. The primary difference between the paper-based filing system and the filing system within EFS is that the electronic record profile includes fields not included in the paper record profile; the profile of an EFS bankruptcy case file includes the case number, the name of the debtor, the name of the petitioner, the case status, and the bankruptcy status, where earlier paper record profiles included only the case number and name of the debtor. Case file numbers are electronically generated in a consecutive order and according to the year a petition is filed (e.g., B1/ 2004, B2/ 2004, B3/2004). A registry of all records is contained in a sub-directory of EFS. As the final report makes clear, EFS' documentary procedures are closely integrated with the business procedures of the Court and have been developed in compliance with relevant legislative requirements.

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

EFS is made up of an integrated workflow application and document imaging system. The following extract from the case study draft report describes the technological components of EFS at both the law firm and the Court:

The EFS is built on a “hybrid architecture.” The law firm’s module uses a Web-based interface and is developed on Java/J2EE technology, WebLogi Application server and Oracle database. The court’s workflow and recordkeeping system uses Visual basic, Oracle database and Filenet document management system. The service bureau acts as a gateway between the law firm’s front-end module and the courts’ application system. For instance, it ensures that fees are electronically computed and routes records to the respective court’s registries.²⁸

EFS uses a Public Key Infrastructure to sign and encrypt records, and also employs a Secure Sockets Layer and hardware encryptors to ensure secure record transmission between law firms and the Court.

CONCLUSIONS

According to the above analysis, the records resulting from the process of administering bankruptcy proceedings have met all the requirements of a record as defined by InterPARES 1.

The authoritative record to be preserved comprises both digital and intellectual components. The content, structure and context of the records produced through the EFS are greatly affected by the type of operating system and Web browser that are used. This means that the law firms must use Windows for their operating systems and Internet Explorer 5 or above if they are to be compatible with EFS. Furthermore, the records must be in PDF format using Adobe Acrobat

²⁸ Case Study 21 Final Report, p. 9.

Exchange Versions 3.01 and 4, and the law firms cannot submit more than 99 records or 500 megabytes at once. It is up to the law firms to maintain their own levels of compliancy.

Although the Supreme Court employs exceedingly stringent controls over the records produced through EFS, the emphasis on maintaining authenticity and reliability is in their production rather than in the preservation of the electronic records produced. Currently, the electronic records are stored on optical disks and in the Oracle database. Preservation measures have been recommended for Court records: migration for active and semi-active records, microfilm for those records designated for permanent retention, and outsourcing of digital certificates to a licensed certification authority to counteract technological obsolescence. However, there is no formal preservation strategy in place and much study still needs to be taken to find a long-term preservation solution.