



# Electronic Court Filing Version 4.01

## OASIS Standard

23 May 2013

### Specification URIs

#### This version:

<http://docs.oasis-open.org/legalxml-courtfilling/specs/ecf/v4.01/ecf-v4.01-spec/os/ecf-v4.01-spec-os.doc> (Authoritative)  
<http://docs.oasis-open.org/legalxml-courtfilling/specs/ecf/v4.01/ecf-v4.01-spec/os/ecf-v4.01-spec-os.html>  
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<http://docs.oasis-open.org/legalxml-courtfilling/specs/ecf/v4.01/ecf-v4.01-spec/ecf-v4.01-spec.doc> (Authoritative)  
<http://docs.oasis-open.org/legalxml-courtfilling/specs/ecf/v4.01/ecf-v4.01-spec/ecf-v4.01-spec.html>  
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#### Additional artifacts:

This prose specification is one component of a Work Product which also includes:

- XML schemas:  
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- XML sample messages:  
<http://docs.oasis-open.org/legalxml-courtfilling/specs/ecf/v4.01/ecf-v4.01-spec/os/xml/>
- Model:  
<http://docs.oasis-open.org/legalxml-courtfilling/specs/ecf/v4.01/ecf-v4.01-spec/os/model/>
- Genericcode code lists:  
<http://docs.oasis-open.org/legalxml-courtfilling/specs/ecf/v4.01/ecf-v4.01-spec/os/gc/>

#### Related work:

This specification replaces or supersedes:

- *OASIS LegalXML Electronic Court Filing Version 3.0*. 15 November 2005.  
<http://docs.oasis-open.org/legalxml-courtfilling/specs/ecf/v3.0/>
- *OASIS Electronic Court Filing Version 4.0*. 21 September 2008.  
<http://docs.oasis-open.org/legalxml-courtfilling/specs/ecf/v4.0/ecf-v4.0-spec/>

This specification is related to:

- National Information Exchange Model 2.0

### Declared XML namespaces:

urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:AppInfo-4.0  
urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:AppellateCase-4.0  
urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:BankruptcyCase-4.0  
urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:CaseListQueryMessage-4.0  
urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:CaseListResponseMessage-4.0  
urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:CaseQueryMessage-4.0  
urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:CaseResponseMessage-4.0  
urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:CitationCase-4.0  
urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:CivilCase-4.0  
urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:CommonTypes-4.0  
urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:CoreFilingMessage-4.0  
urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:CourtPolicyQueryMessage-4.0  
urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:CourtPolicyResponseMessage-4.0  
urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:CriminalCase-4.0  
urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:DocumentQueryMessage-4.0  
urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:DocumentResponseMessage-4.0  
urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:DomesticCase-4.0  
urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:FeesCalculationQueryMessage-4.0  
urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:FeesCalculationResponseMessage-4.0  
urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:FilingListQueryMessage-4.0  
urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:FilingListResponseMessage-4.0  
urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:FilingStatusQueryMessage-4.0  
urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:FilingStatusResponseMessage-4.0  
urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:JuvenileCase-4.0  
urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:MessageReceiptMessage-4.0  
urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:PaymentMessage-4.0  
urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:PaymentReceiptMessage-4.0  
urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:RecordDocketingCallbackMessage-4.0  
urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:RecordDocketingMessage-4.0  
urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:ReviewFilingCallbackMessage-4.0  
urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:ServiceInformationQueryMessage-4.0  
urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:ServiceInformationResponseMessage-4.0  
urn:oasis:names:tc:legalxml-courtfilling:schema:xsd:ServiceReceiptMessage-4.0

### Abstract:

This document defines the LegalXML Electronic Court Filing 4.01 (ECF 4.0) specification, which consists of a set of non-proprietary XML and Web services specifications, along with clarifying explanations and amendments to those specifications, that have been added for the purpose of promoting interoperability among electronic court filing vendors and systems. ECF Version 4.01 is a maintenance release to address several minor schema and definition issues identified by implementers of the ECF 4.0 specification.

### Status:

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### Citation format:

When referencing this specification the following citation format should be used:

**[ECF v4.01]**

*Electronic Court Filing Version 4.01*. 23 May 2013. OASIS Standard. <http://docs.oasis-open.org/legalxml-court filing/specs/ecf/v4.01/ecf-v4.01-spec/os/ecf-v4.01-spec-os.html>.

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# 1 Introduction

This document is a specification developed by the OASIS LegalXML Electronic Court Filing Technical Committee. It defines a technical architecture and a set of components, operations and message structures for an electronic court filing system, and sets forth rules governing its implementation.

## 1.1 Scope

This specification describes the technical architecture and the functional features needed to accomplish a successful electronic court filing system, and defines both the normative (required) and non-normative (optional) business processes it supports. The non-functional requirements associated with electronic filing transactions, as well as the actions and services needed to accomplish the transactions, such as network and security infrastructures, are defined in related specifications, namely:

- Service interaction profile specifications that define communications infrastructures, within which electronic filing transactions can take place
- Document signature profile specifications that define mechanisms for stating or ensuring that a person signed a particular document

This specification supports the following automated information exchanges:

- Transmission of documents in electronic form from law firms and from other persons and organizations to a court for entry (“official filing”) into the court’s official case records
- Recording of documents in electronic form from members of the court and court administrators into the court’s official case records
- Transmission of data needed to complete (or demonstrate the previous completion of) financial transactions involving filing fees or the payment of any other court fees, fines and financial obligations
- Transmission of the metadata needed to initiate a new case record in a court’s automated case management system (CMS) when the document being transmitted is one that commences a new case in that court
- Transmission of the metadata needed to create an entry that records (indexes) a filed document in a court’s electronic listing of cases and their contents (variously called a “docket” or “register of actions”)
- Transmission of the metadata needed to update the information recorded about a case that is maintained in a court’s CMS
- Messages returned to the sender that confirm a court’s receipt of the sender’s filing message
- Messages notifying the sender of events such as the entry of the document(s) submitted by the sender into the court record (or an error message stating that the document[s] could not be accepted for filing and stating the reason[s] why)
- Queries to the court seeking information about data and documents held within the court’s official electronic records and the return of information in response to those queries
- Queries from filers for the court rules and requirements for electronic filing
- Queries by filers seeking from the court record system the names and addresses of parties in a case who must be served and whether by traditional or electronic means
- Transmission of copies of documents submitted for filing to the other parties in a case who are registered to receive service electronically

In addition to filing of court case documents, this specification supports “secondary service” – the delivery of copies of filed documents to persons who have already been made parties to a case. This



45 specification does NOT support “primary service,” which entails the service of summonses, subpoenas,  
46 warrants and other documents that establish court jurisdiction over persons, making them parties to a  
47 case. Therefore, this specification does NOT support the following automated information exchanges:

- 48 • A query by a filer seeking from the court record system the names and addresses of parties in a new  
49 case who must be served to establish court jurisdiction over them in the new case
- 50 • Transmission of copies of or links to documents submitted for filing to any party in a new case or any  
51 newly added parties in an existing case

52

53 This specification defines a set of core structures that are common to most types of court filings and  
54 defines specific structures that apply to filing documents in the following types of court cases:

- 55 • Appellate
- 56 • Bankruptcy
- 57 • Civil (including general civil, mental health, probate and small claims)
- 58 • Criminal (both felony and misdemeanor)
- 59 • Domestic relations (including divorce, separation, child custody and child support, domestic violence  
60 and parentage, i.e., maternity or paternity)
- 61 • Juvenile (both delinquency and dependency)
- 62 • Violations (including traffic, ordinances and parking)

63

64 Although ECF 4.01 does not define data structure elements specific to other case types (e.g.,  
65 administrative tribunals), the basic structure will support other types of court filings and is extensible  
66 through court-specific and case-type-specific extensions.

## 67 1.2 Relationship to Prior Specifications

68 Electronic Court Filing 4.0 superseded the LegalXML Electronic Court Filing 3.0, 3.01 and 3.1  
69 specifications developed by the predecessor organizations to the OASIS Electronic Court Filing Technical  
70 Committee. Those specifications were prepared for and approved by the COSCA/NACM Joint  
71 Technology Committee as proposed standards.

72 Relative to the ECF 3.0, 3.01 and 3.1 specifications, the ECF 4.0 and 4.01 specifications provide a  
73 number of enhancements including:

- 74 • Leveraging of the National Information Exchange Model (**[NIEM]**), a national standard for information  
75 sharing
- 76 • Leveraging of the updates to the OASIS Universal Business Language (**[UBL]**), for describing  
77 payments
- 78 • The inclusion of the data elements needed for appellate cases

79

80 This specification does not assume that prior specifications will be deprecated. However, ECF 4.0 is not  
81 backward-compatible and applications using the ECF 3.0, 3.01 and 3.1 specifications will not interoperate  
82 successfully with applications using these specifications. This fact is indicated by the assignment of a  
83 new major version number to the ECF 4.0 and 4.01 specifications.

## 84 1.3 ECF Version 4.01

85 ECF 4.01 is a maintenance release to address several minor schema and definition issues identified by  
86 implementers of the ECF 4.0 specification. All references in this document to ECF 4.0 apply to ECF 4.01  
87 as well. Relationship to other XML Specifications

88 The ECF specification incorporates other existing, non-proprietary XML specifications wherever possible.  
89 In particular, the specification has dependencies on the **[NIEM]**, the **[UBL]** data library and the World

90 Wide Web Consortium (W3C) XML Digital Signatures specification. The terminology used in this  
91 specification to describe the components of the ECF technical architecture conforms to the OASIS  
92 Reference Model for Service Oriented Architecture.

93 It is recommended that implementations cache external schemas locally to improve performance and  
94 reliability. (The alternative would be to rely on the external schemas as they are, in someone else's  
95 control, and assume they will not be changed or become hard to access due to Internet or network  
96 problems.) The copies of external schemas that are cached in this way should be updated and refreshed  
97 often to ensure changes will be quickly learned and addressed.

### 98 1.3.1 National Information Exchange Model (NIEM)

99 **[NIEM]** conformance, as defined by the NIEM Implementation Guidelines (**[NIEM Guide]**), is a core  
100 objective of this specification. The **[NIEM]** is an XML standard designed specifically for justice information  
101 exchanges, providing law enforcement, public safety agencies, prosecutors, public defenders and the  
102 judicial branch with a tool to effectively share data and information in a timely manner. The **[NIEM]**  
103 provides a library of reusable components that can be combined to automate justice information  
104 exchanges. The **[NIEM]** removes the burden from agencies to independently create exchange  
105 standards. Because of its extensibility, there is more flexibility to deal with unique agency requirements  
106 and changes. Through the use of a common vocabulary that is understood system to system, **[NIEM]**  
107 enables access from multiple sources and reuse in multiple applications. The use of **[NIEM]** element  
108 names does not require any change in local legal terminology. XML tag names are invisible to the user of  
109 an application employing them.

110 The **[NIEM]** is most useful for describing common objects such as persons and locations, and criminal  
111 justice-specific processes such as arrest, booking, jail and prosecution. The **[NIEM]** is not as well  
112 developed for describing non-criminal information exchanges and processes. ECF 4.0 uses the **[NIEM]**  
113 version 2.0 where the structures and definitions correspond to the requirements of ECF 4.0. The  
114 development process, including the **[NIEM]** modeling process, is described in Appendix B.

### 115 1.3.2 OASIS Universal Business Language

116 **[UBL]** is an OASIS Standard that provides a single ubiquitous language for business communication, and  
117 takes into account the requirements common to all enterprises. **[UBL]** provides a shared library of  
118 reusable components, essential to interoperability that can be combined to create electronic business  
119 schemas. Without a common set of base components, each document format would risk redefining  
120 addresses, locations and other basic information in incompatible ways.<sup>1</sup>

121 ECF 4.0 employs the following structures in the **[UBL]** to describe filing payments and payment receipts:

122 <AllowanceCharge>

123 Information about a charge or discount price component.

124 <Address>

125 Information about a structured address.

126 <Payment>

127 Information directly relating to a specific payment.

---

<sup>1</sup> <http://www.oasis-open.org/committees/download.php/1023/UBL%3A%20The%20Next%20Step%20for%20Global%20E-Commerce>

128 **1.3.3 W3C XML-Signature Syntax and Processing**

129 The W3C XML Signature Syntax and Processing ([**XMLSIG**]) specification describes a mechanism for  
130 signing electronic documents. This mechanism allows recipients of electronic documents to identify the  
131 sender and be assured of the validity of the electronically transmitted data. [**XMLSIG**] defines standard  
132 means for specifying information content that is to be digitally signed.<sup>2</sup>

133 ECF 4.0 employs the [**XMLSIG**] specification to describe digital signatures applied to the entire ECF 4.0  
134 message transmission in order to provide authentication, encryption and message integrity. [**XMLSIG**] is  
135 also used in the ECF 4.0 XML Document Signature Profile.

136 **1.3.4 OASIS Reference Model for Service Oriented Architecture**

137 The [**SOA-RM**] is a framework for understanding significant entities, and the relationships between those  
138 entities, within a service-oriented architecture. ECF 4.0 describes such an architecture and includes  
139 terminology that conforms to the [**SOA-RM**].

140 **1.3.5 OASIS Code List Representation (Genericode)**

141 The OASIS Code List Representation format, [**Genericode**], is a model and XML schema that can be  
142 used to encode a broad range of code list information. The XML format is designed to support  
143 interchange or distribution of machine-readable code list information between systems. All ECF 4.0 code  
144 lists that are not defined in the NIEM are provided in [**Genericode**] 1.0 format.

145

146 **1.4 Terms and Definitions**

147 The keywords “MUST”, “MUST NOT”, “REQUIRED”, “SHALL”, “SHALL NOT”, “SHOULD”, “SHOULD  
148 NOT”, “RECOMMENDED”, “MAY” and “OPTIONAL” in this document are to be interpreted as described  
149 in [RFC2119].

150

151 This section defines key terms used in this specification.

152

153 **Attachment**

154 See definition in Section 2.3.2.

155 **Callback message**

156 A message transmission returned by some operations some time after the operation was invoked  
157 (asynchronously).

158 **Document**

159 An electronic equivalent of a document that would otherwise be filed on paper in a traditional,  
160 non-electronic fashion.

161 **Document hash**

---

<sup>2</sup> <http://xml.coverpages.org/xmlSig.html>

162 A condensed representation of a document intended to protect document integrity, calculated  
163 according to the FIPS 180-2 SHA 256 algorithm.

#### 164 **Docketing**

165 The process invoked when a court receives a pleading, order or notice, with no errors in  
166 transmission or in presentation of required content, and records it as a part of the official record.

#### 167 **Filer**

168 An attorney or a *pro se* (self-represented) litigant acting as an individual who assembles and  
169 submits one or more filings (combinations of data and documents).

#### 170 **Filing**

171 An electronic document (with any associated data, attachments and the like) that has been  
172 assembled for the purpose of being filed into a specified court case.

#### 173 **Hub Service MDE**

174 A centralized Service MDE capable of receiving a single set of service notifications for all parties  
175 registered for electronic service in a case and transmitting the service notifications to the Service  
176 MDEs registered to each party in the case.

#### 177 **Major Design Element (MDE)**

178 A logical grouping of operations representing a significant business process supported by ECF  
179 4.0. Each MDE operation receives one or more messages, returning a synchronous response  
180 message (a reaction to a message received) and, optionally, returning an asynchronous (later)  
181 response message to the originating message sender.

#### 182 **Message**

183 See definition in Section 2.3.1.

#### 184 **Message Transmission**

185 The sending of one or more messages and associated attachments to an MDE. Each  
186 transmission must invoke or respond to an operation on the receiving MDE, as defined in the  
187 ECF 4.0 specification.

#### 188 **Operation (or MDE Operation)**

189 A function provided by an MDE upon receipt of one or more messages. The function provided by  
190 the operation represents a significant step in the court filing business process. A sender invokes  
191 an operation on an MDE by transmitting a request with an operation identifier and a set of  
192 messages.

#### 193 **Operation signature**

194 A definition of the input message and synchronous response message associated with an  
195 operation. Each message is given a name and a type by the operation. The type is defined by a  
196 single one of the message structures defined in the ECF 4.0 specification.

#### 197 **Synchronous response**

198 A message transmission returned immediately (synchronously) as the result of an operation.  
199 Every operation has a synchronous response.

## 200 **1.5 Symbols and Abbreviations**

201 This section defines key symbols and abbreviations used in this specification.

202

### 203 **ECF 4.0**

204 Electronic Court Filing 4.0

### 205 **IEPD**

206	Information Exchange Package Documentation
207	<b>MDE</b>
208	Major Design Element
209	<b>NIEM</b>
210	National Information Exchange Model
211	<b>OASIS</b>
212	Organization for the Advancement of Structured Information Standards
213	<b>XML</b>
214	eXtensible Markup Language
215	<b>W3C</b>
216	World Wide Web Consortium
217	<b>WS-I</b>
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## 307 2 ECF 4.0 Architecture

308  
309 The ECF 4.0 architecture consists of four Major Design Elements (MDEs), which support operations and  
310 messages. An MDE is a logical grouping of operations, such as the operations involved in creating a  
311 filing or the operations involved in receiving and recording a filing, that is, incorporating the constituent  
312 documents into a court document management system. A message is the data exchanged between  
313 MDEs in the form of an XML document that may include one or more additional binary attachments.  
314 These messages contain the information to be filed with the court. This section describes the ECF 4.0  
315 architecture including the MDEs, the operations and the messages.

### 316 2.1 Core vs. Profiles

317 The ECF 4.0 architecture can be divided into three principal elements:

- 318 • **Core Specification** – This core specification defines the MDEs and the operations and messages  
319 that are exchanged between MDEs.
- 320 • **Service Interaction Profiles** – Service interaction profiles are specifications that describe  
321 communication infrastructures that deliver messages between MDEs.
- 322 • **Document Signature Profiles** – Document signature profiles are specifications that describe  
323 mechanisms for signing electronic documents.

324 In order to be compliant, an implementation of the ECF specification **MUST** implement the core  
325 specification and at least one service interaction profile and one document signature profile.

326 The MDEs and messages that make up the core specification are discussed in Sections 2.2 and 2.3  
327 below, respectively. Service interaction profiles are discussed in Section 5 below. Document signature  
328 profiles are discussed in Section 6 below.

### 329 2.2 Major Design Elements

330 ECF 4.0 defines four MDEs. They are:

- 331 • **Filing Assembly MDE** – enables a filer to create a filing message for submission to a court, and for  
332 service on other parties in the case, returning a response from the court to the filer.
- 333 • **Filing Review MDE** – enables a court to receive and review a filing message and prepare the  
334 contents for recording in its case management and document management systems, sending a  
335 response concerning the filing to the Filing Assembly MDE. The Filing Review MDE also enables  
336 filers to obtain court-specific policies regarding electronic filing and to check on the status of a filing.
- 337 • **Court Record MDE** – enables a court to record electronic documents and docket entries in its case  
338 management and document management systems and returns the results to the Filing Review MDE.  
339 The Court Record MDE also enables filers to obtain service information for all parties in a case, to  
340 obtain information about cases maintained in the court’s docket, register of actions and calendars,  
341 and to access documents maintained in the court’s electronic records.
- 342 • **Legal Service MDE** – enables a party to receive service electronically **FROM** other parties in the  
343 case. Note that service **TO** other parties in the case is performed by the Filing Assembly MDE.

344 The MDEs defined in the ECF 4.0 specifications are meant only to define the “interface” to each  
345 operation; the specification is not intended to define how operations must be implemented. This strategy  
346 allows MDE implementations to interoperate while leaving room for vendors and courts to have differing  
347 implementations (e.g., an implementation that supports a particular CMS).

348 An ECF 4.0-compliant implementation may implement one or more of the MDEs defined in the  
349 specification but a complete ECF 4.0 system **MUST** include at least one each of the Filing Assembly,  
350 Filing Review and Court Record MDEs. For instance, a court may decide to provide certain MDEs and  
351 allow private providers to furnish the remaining MDEs. When multiple MDEs are implemented by a single



352 court, vendor or application, the application MUST maintain the ECF 4.0 specified operations between  
353 each MDE so that other applications will be able to interoperate with it.

354 Each of the operations supported by an MDE accepts one or more messages as input and returns an  
355 immediate, synchronous response message to the calling MDE. For some operations, the MDE will also  
356 return an asynchronous (callback) message at a later time that reports the result of a business process  
357 implemented within the MDE. In order to be compliant with ECF 4.0, an MDE must support all messages  
358 required for that MDE. However, in an ECF 4.0 system that does not support electronic service, the  
359 operations associated with the Legal Service MDE are not required.

360 An MDE defines an information model and behavior model of a service as described in the [SOA-RM].  
361 One must remember that “service” in the service oriented architecture sense is not the same as the  
362 business function of “service of filing” used throughout in this document.

## 363 2.3 Information Model

364 The ECF information model describes the messages that may be exchanged between MDEs. All ECF  
365 4.0 operations use the same core message stream structure, which is implemented in the service  
366 interaction profiles. Each ECF core message stream is a stream of bytes that contains at least one  
367 message and may also contain attachments.

### 368 2.3.1 Messages

369 A message is an XML document that is a well-formed XML data structure with a single root element that  
370 is transmitted between MDEs and is valid as defined by one of the defined message structure schemas in  
371 the ECF 4.0 specification. A message may be related to one or more attachments. A message contains  
372 the following information:

- 373 • Message information about the filing and court case, such as identifiers for the sender and receiver,  
374 the sending and receiving MDEs, and the submission date and time, typically a composition of:
  - 375 – A core message which includes basic information common to all courts and case types and  
376 Information about each of the documents associated with the message
  - 377 – Case-type-specific extensions that includes information appropriate only for a particular type of  
378 filing
  - 379 – Court-specific extensions that includes information appropriate only for cases in a particular court
- 380 • Information about each of the documents associated with the message. A document in this sense is  
381 the electronic representation of what would be recognized as a “document” if it were a single, whole,  
382 physical paper object. This includes both a lead document, one that will be placed on the court’s  
383 register of actions (docketed, indexed) and any supporting document(s), which are present to  
384 supplement the lead document in some way. The message includes the document’s metadata, for  
385 example, its title, type, identifier, parent document identifier and document sequence number. Each  
386 document structure may reference one or more attachments, including attachment identifiers and  
387 sequence numbers. When included in attachments, a logical document MAY be split into several  
388 physical parts if necessary to satisfy a court requirement regarding maximum document size. The  
389 actual binary encoded electronic document MAY be either included in one or more attachments to the  
390 message or embedded in the message using the following structure:

```
391     <FilingLeadDocument> (or <FilingConnectedDocument>)  
392     <ecf:DocumentRendition>  
393         <DocumentRenditionMetadata>  
394             <DocumentAttachment>  
395                 <BinaryBase64Object>2345klj345h...<BinaryBase64Objec  
396                 t>  
397             </DocumentAttachment>  
398         </DocumentRenditionMetadata>  
399     </ecf:DocumentRendition>
```

400 </FilingLeadDocument> (or </FilingConnectedDocument>)

401

402 Elements defined by this specification, whether in core messages, case type-specific extensions or court-  
403 specific extensions, are intended to be useful to an automated case management system for the  
404 purposes of partially or fully automating case workflow after filing (e.g., filing review, noticing, docketing,  
405 judicial assignment, calendaring, standardized forms receipt and generation, fee processing) or  
406 ascertaining the adequacy or appropriateness of the filing (e.g., fee or fine calculation, jurisdiction).

407 Elements defined by this specification are not intended to fully populate the automated case management  
408 system with all data contained within filed documents. That is, these elements should be useful as “filing  
409 metadata” about the case, the filing transaction, parties or documents. These elements may also be “filing  
410 data”, or the contents of the filings. For instance, information found on a filing cover sheet can generally  
411 be considered filing metadata, even if the information is also repeated in the document(s) being filed.

412

413 The scope of the ECF core messages and extensions is limited by the following criteria:

- 414 • Elements in the ECF core messages should be applicable to most courts and case types
- 415 • Elements in the ECF case-type-specific extensions should only be applicable to one of the seven  
416 case types defined in National Center for State Courts (NCSC) statistical standards
- 417 • Elements in locally-defined court-specific extensions should only be applicable to a particular court or  
418 court system but not to courts in general

419 All “filing data” elements should be described in the filed documents, whose structure is outside the scope  
420 of the ECF specification.

### 421 **2.3.2 Attachment**

422 An attachment is a series of bytes in the message stream transmitted between MDEs that constitutes, in  
423 whole or in part, an electronic document whose conventional equivalent would be a document on paper.  
424 The contents are preceded by one or more “headers” that uniquely identify the attachment (using a  
425 content identifier) and specify the format or type of the attachment. Note that the contents of an  
426 attachment can be binary octets (the “raw” binary data of the document), binary data encoded in text  
427 (e.g., via base-64 or some other algorithm), XML text or plain text.

428 Attachments appear in the message stream after the messages. The order of attachments within the  
429 message stream is not important and cannot be treated as significant. In particular, this means that the  
430 series of bytes representing the content of a lead document need not appear before the attachments  
431 representing the content of documents supporting that lead document.

### 432 **2.3.3 Sample Message Streams**

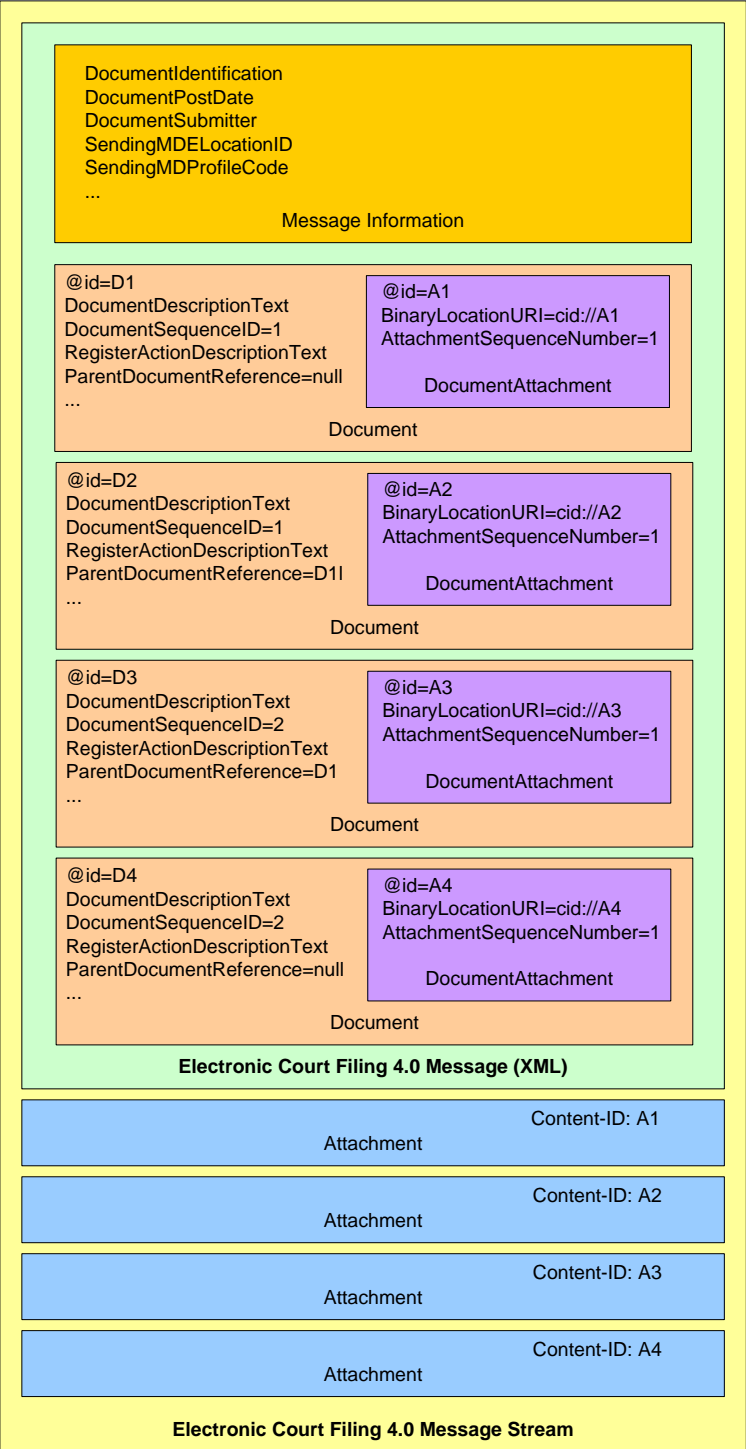
433 The following conceptual diagrams illustrate the containment structures involved in the message stream.

434

435

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Figure 1 illustrates a message stream involving two lead documents, the first of which has two supporting documents. The second lead document has no supporting documents. Each document is associated with a single attachment.

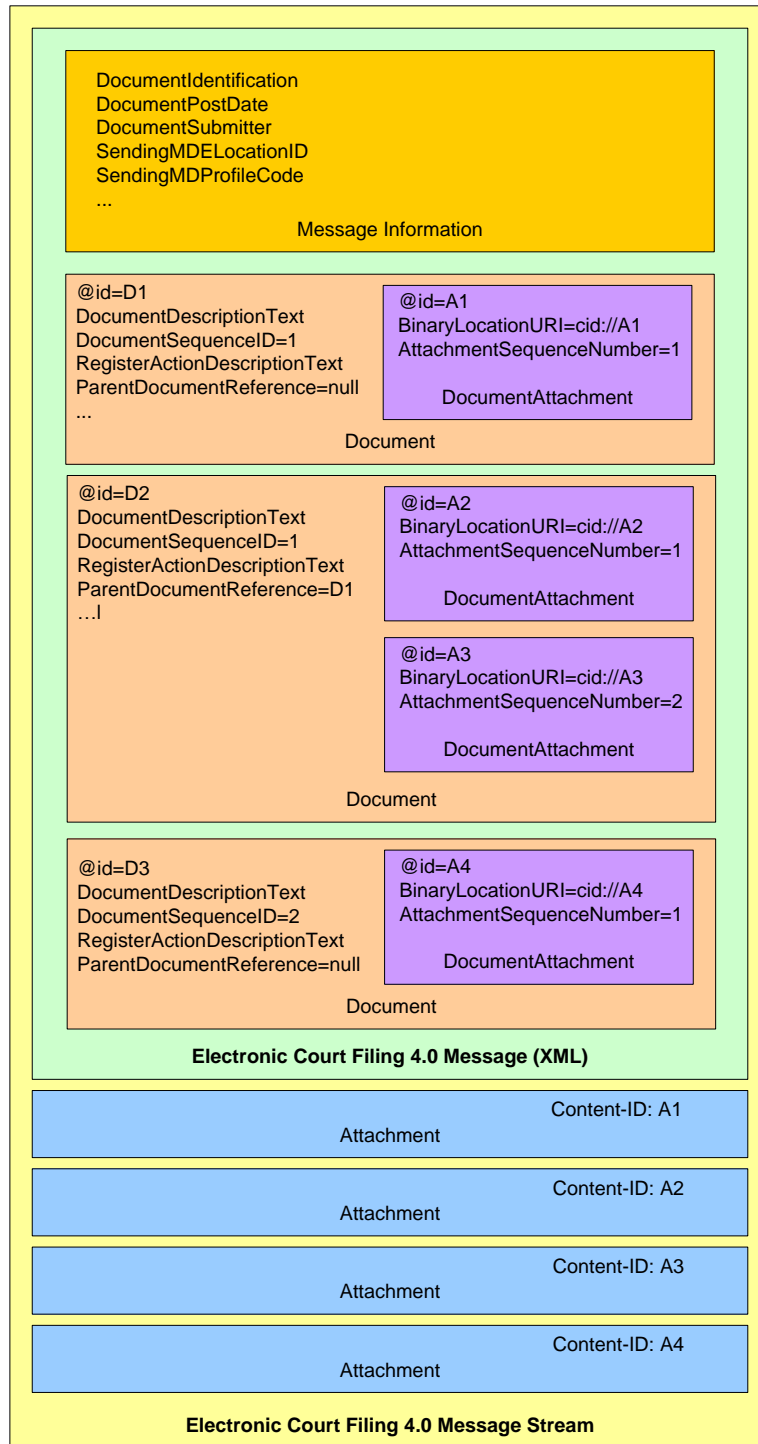


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**Figure 1. Simple Message Stream**

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Figure 2 illustrates a message stream involving two lead documents, the first of which has a single supporting document. The second lead document has no supporting documents. The supporting document associated with the first lead document is split into two pieces, each treated as an attachment, presumably due to limits set by the court on size. Each lead document is associated with a single attachment, and the one supporting document is associated with two attachments.



450  
451  
452

**Figure 2. Message Stream with a Document in Multiple Attachments**

## 453 2.4 Court Policy

454 A court's customary practices may influence many aspects of its ECF 4.0 implementation, and those local  
455 practices and variations are expressed through the "court policy" component of e-filing, which includes:

- 456 • **Human-readable court policy** – a textual document publishing the court's rules and requirements for  
457 electronic filing.
- 458 • **Machine-readable court policy** – an ECF 4.0 message that describes the features of the ECF 4.0  
459 implementation supported by this specification, the court's code lists and any other information a  
460 Filing Assembly MDE would need to know in order to successfully submit an electronic filing into that  
461 court.

462 The court **MUST** have only one active, authoritative version of its policies at a given time; both the  
463 human-readable and the machine-readable statements of those policies **MUST** have the same release  
464 dates for the court.

465 The court's human-readable and machine-readable court policies **MUST** each have a version numbering  
466 method associated with it. The court's versioning process **SHOULD** comply with the following rules: 1)  
467 Versions are denoted using a standard triplet of integers: MAJOR.MINOR.PATCH; 2) Different MAJOR  
468 versions are to be considered incompatible, large-scale upgrades of the Policy; 3) Different MINOR  
469 versions are to be considered to retain source and binary compatibility with earlier minor versions, and  
470 changes in the PATCH level are perfectly compatible, forward and backward. It is important to note that a  
471 policy that has not reached version 1.0.0 is not subject to the guidelines described in this document.  
472 Before a 1.0 release is achieved (i.e., any version numbered 0.x.y), court policy can be changed freely  
473 without regard to the restrictions on compatibility between versions.

474 Court policy is not directly equivalent to "service policy" in the **[SOA-RM]**. However, thinking about court  
475 policy from a policy assertion, policy owner and policy enforcement framework as described in the **[SOA-**  
476 **RM]** is helpful. Note that "court policy" refers to a set of constituent rules and requirements, while the  
477 **[SOA-RM]** looks at each individual item as a "service policy." In all cases the policy owner is the court  
478 where the document is to be filed. Also note that none of the elements of court policy rise to the level of a  
479 "service contract" as defined by the **[SOA-RM]**.

### 480 2.4.1 Human-Readable Court Policy

481 To be compliant with the ECF 4.0 specification, each court **MUST** publish a human-readable court policy  
482 that **MUST** include each of the following:

- 483 1. The unique court identifier
- 484 2. The location of the machine-readable court policy
- 485 3. A definition of what constitutes a "lead document" in the court
- 486 4. A description of how filer identifiers are to be maintained during electronic communications regarding  
487 the case
- 488 5. A description of how the court processes (dockets) filings
- 489 6. A description of any instances in which the court will mandate an element that the ECF 4.0 schema  
490 makes optional
- 491 7. A description of any restrictions to data property values other than code list restrictions. (This  
492 restriction may be removed in later versions of the ECF specification)
- 493 8. Any other rules required for electronic filing in the court

### 494 2.4.2 Machine-Readable Court Policy

495 Machine-readable Court Policy includes structures for identifying run-time and development-time policy  
496 information.

497 Run-time information includes information that will be updated from time to time, such as code lists (e.g.,  
498 acceptable document types, codes for various criminal charges and civil causes of action) and the court's  
499 public key for digital signatures and encryption.

500 Development-time information includes court rules governing electronic filing that are needed at the time  
501 an application is developed but which are not likely to change. These include:

- 502 1. The service interaction profile(s) that the court supports
- 503 2. The MDEs, query operations and case types supported by the court's ECF 4.0 system
- 504 3. Whether a court will accept the filing of a URL in lieu of the electronic document itself
- 505 4. Whether the court accepts documents requiring payment of a filing fee
- 506 5. Whether the court accepts electronic filing of sealed documents
- 507 6. Whether the court accepts multiple (batch) filings
- 508 7. The court-specific extensions to the ECF 4.0 specification, including the required elements (see  
509 below)
- 510 8. The maximum sizes allowed for a single attachment and a complete message stream

511 The machine readable court policy MUST be provided to the Filing Assembly MDE either by the Filing  
512 Review MDE through the GetCourtPolicy query or some other means.

### 513 **2.4.3 Case-Type and Court Extensions**

514 Schemas for initiating specific case types (e.g. criminal, civil) are included in the specification. Case-type  
515 and court-specific extensions to the ECF core messages are implemented through the methods  
516 described in **[NIEM Techniques]**. The primary extension technique is the use of element substitution, as  
517 described in Section 5.3.3 of **[NIEM Techniques]**, in which a more specific element defined in a case-  
518 type or court-specific extension is used in place of a generic element in a core message. For instance, a  
519 court may add elements required for a particular case type (e.g. civil) by defining an extension schema  
520 that includes types (e.g. `court:CivilCaseType`) and elements (e.g., `court:CivilCase`) that  
521 substitute for ECF types (e.g. `civil:CivilCaseType`) and elements (e.g., `civil:CivilCase`).  
522 Similarly, an implementation may substitute a court-specific code list for a generic code list defined in this  
523 specification.

524

### 525 **2.4.4 Court-Specific Code Lists**

526 Code lists are used to constrain the allowable values for certain information in an ECF 4.0 message. The  
527 court SHOULD publish **[GenericCode]** 1.0 code lists for each of the following code lists and reference  
528 each of these code lists in its court policy:

529

- 530 • ECF Code Lists
  - 531 • **Civil Case Type**
    - 532 • `<FiduciaryTypeCode>*`
    - 533 • `<JurisdictionalGroundsCode>`
    - 534 • `<ReliefTypeCode>`
  - 535 • **Domestic Case Type**
    - 536 • `<NoContactCode>*`
    - 537 • `<RequestToVacateCode>`
  - 538 • **Common Types**
    - 539 • `<AliasAlternateNameTypeCode>*`
    - 540 • `<CaseAssociationTypeCode>*`
    - 541 • `<CaseOfficialRoleText>*`
    - 542 • `<CaseParticipantRoleCode>*`

- 543           • <CauseOfActionCode>
- 544           • <CourtEventTypeCode>
- 545           • <EntityAssociationTypeCode>
- 546           • <ErrorCode>\*
- 547       • **Juvenile Case Type**
- 548           • <DelinquentActApplicabilityCode>
- 549           • <DelinquentActDegreeCode>
- 550           • <DelinquentActSeverityCode>
- 551           • <DelinquentActSpecialAllegationCode>
- 552           • <DependencyAllegationCode>
- 553           • <GuardianAssociationTypeCode>\*
- 554           • <PlacementTypeCode>
- 555       • **NIEM Code Lists**
- 556           • **JXDM**
- 557           • <ChargeEnhancingFactorText>
- 558           • <CourtLocationCode>
- 559           • <RegisterActionDescriptionText>
- 560           • <StatuteCodeIdentification>
- 561           • <StatuteCodeSectionIdentification>
- 562           • <StatuteOffenseIdentification>
- 563           • <StatusOffenseCodeIdentification>
- 564           • **NIEM Core**
- 565           • <BinaryDescriptionText>\*
- 566           • <CaseCategoryText>
- 567           • <DriverLicenseCommercialClassCode>
- 568           • <FamilyKinshipCode>\*

570 A non-normative **[Genericcode]** code list with default values is provided for each of the code lists above  
571 with asterisks (\*).

572  
573 If a court does not define allowable values for any of the above code lists in court policy, then any value  
574 MUST be considered acceptable for that code.

## 576 2.4.5 Court-Specific Constraint Schemas

577 The cardinality of elements in the NIEM subset imported by the ECF is applied through the use of  
578 constraint schemas that define the minimum and maximum occurrence of elements in the NIEM subset.  
579 Courts MAY enforce court-specific rules and code lists by creating court-specific constraint schemas.  
580 This process creates a duplicate set of the ECF schemas and allows the customization of the cardinality  
581 of elements as needed. If court-specific constraint schemas are used, instance documents MUST  
582 validate against both the ECF schemas and the court constraint schemas.

---

## 583 3 ECF 4.0 Process Model

584 This section details the interactions of the ECF 4.0 MDEs and the role of each MDE in the electronic filing  
585 and electronic service processes. This section also enumerates the operations provided by each MDE  
586 and points to the operations, provided by other MDEs, that each MDE consumes.

### 587 3.1 The Filing-Preparation-to-Docketing Process Model

588 This model describes the sequence of operations in a basic filing cycle from Filing Preparation to  
589 Docketing. This model involves three parties: a Filer (represented by the Filing Assembly MDE), a Court  
590 (represented by the Filing Review and Court Record MDEs) and a Service Recipient (represented by the  
591 Legal Service MDE). The operations defined by ECF 4.0 to support the processes in this cycle are listed  
592 below. The operations in bold are required and MUST occur in every successful filing as long as sending  
593 and receiving MDEs are implemented. The other operations are optional and MAY occur within a given  
594 filing:

- 595 • GetPolicy
- 596 • GetServiceInformation
- 597 • GetFeesCalculation
- 598 • **ReviewFiling**
- 599 • ServeFiling
- 600 • **RecordFiling**
- 601 • **NotifyDocketingComplete**
- 602 • **NotifyFilingReviewComplete**

603 At any point during or after the ReviewFiling operation, if the filing is accessible, a party MAY access  
604 information through the following operations:

- 605 • GetFilingList
- 606 • GetFilingStatus

607 At any point after the NotifyFilingReviewComplete operation, if the case is accessible, a party MAY  
608 access information through the following operations:

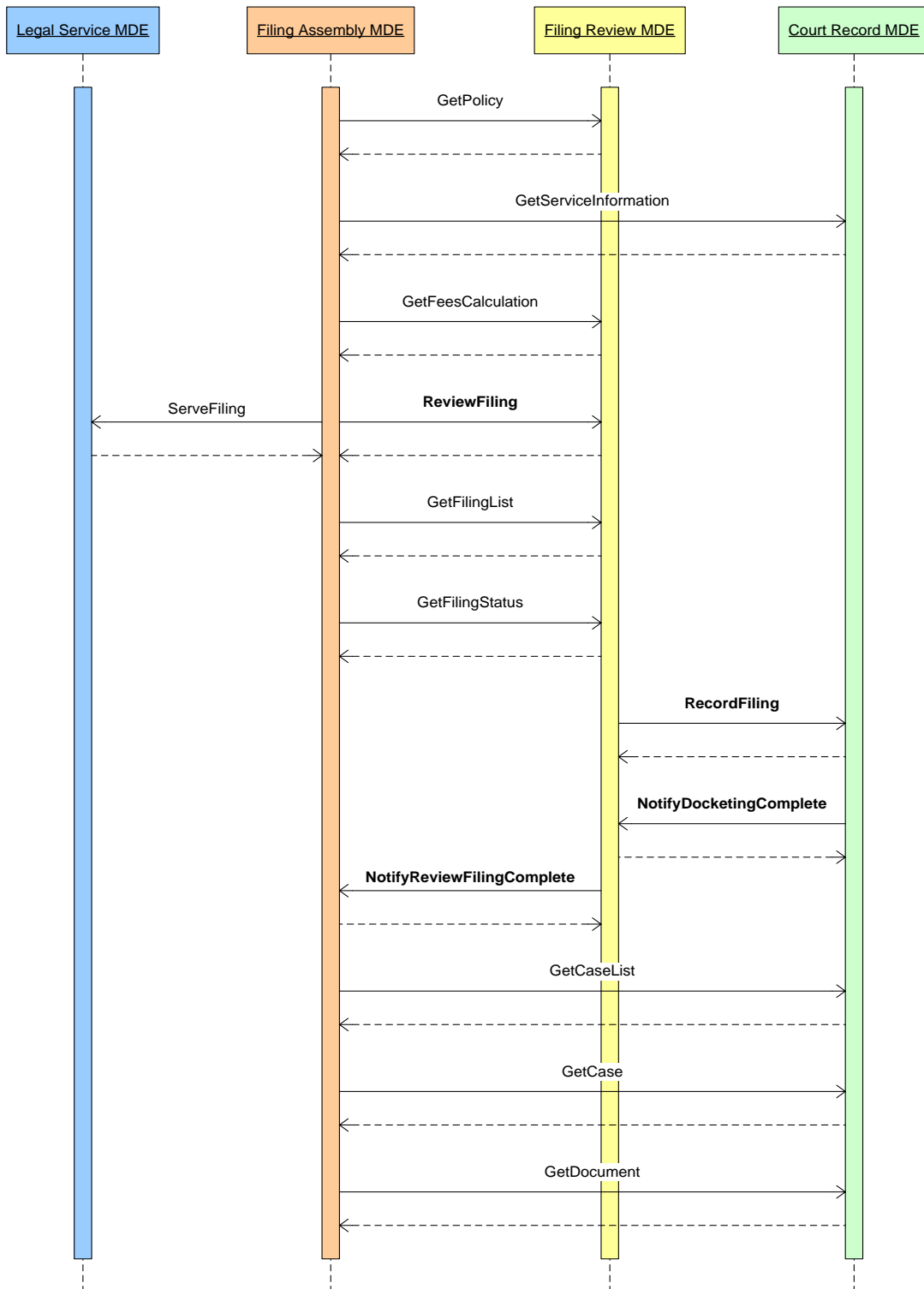
- 609 • GetCaseList
- 610 • GetCase
- 611 • GetDocument

612 These operations are depicted in the sequence diagram below. The solid lines indicate invoked  
613 operations and the dashed lines indicate the synchronous responses to those operations.

614



Figure 4. Filing Preparation to Docketing Process Model



## 618 **3.2 Business Rules**

619 This section describes the business rules of the generic filing-preparation-to-docketing process that  
620 govern the ECF 4.0 operations.

621 ECF 4.0 includes an `<ecf:ErrorCode>` element for returning errors in response to a query request.  
622 Successful queries MUST return an `<ecf:ErrorCode>` of "0". Failed queries MUST NOT return an  
623 `<ecf:ErrorCode>` of "0" and SHOULD return an appropriate `<ecf:ErrorCode>` value as defined in  
624 court policy.

### 625 **3.2.1 GetPolicy**

626 The Filing Assembly MDE MAY obtain a court's machine-readable court policy at any time by invoking the  
627 GetPolicy operation on the Filing Review MDE with the identifier for the court. The Filing Review MDE  
628 returns the machine-readable court policy in a synchronous response. The content of the machine-  
629 readable court policy is described in Section 2.4.2. This step may be omitted if the Filing Assembly MDE  
630 already has the current court policy.

### 631 **3.2.2 GetServiceInformation**

632 The Filing Assembly MDE MAY obtain the Court's service information for all parties in an existing case at  
633 any time by invoking the GetServiceInformation operation with the appropriate case number on the Court  
634 Record MDE. The service list returned by the GetServiceInformation operation assists the filer in  
635 maintaining the filer's service list and is not a substitute for the filer's service list. To provide this  
636 information, the Court Record MDE MUST have access to the court's registry with all updated information  
637 about case participants. There MUST be only one such registry per court, though multiple courts MAY  
638 share the same registry. The Court Record MDE responds synchronously to the Filing Assembly MDE  
639 with a service list reflecting the most current contact information available to the court, which is necessary  
640 to complete secondary service, whether electronically or by other means.

641 If the court provides a Hub Service MDE, the electronic service information returned from this query  
642 MUST include the court's Service MDE ID for all case participants who have one.

643 A party to a case is always the official target of service. In practice, the system will actually deliver to pro  
644 se litigants and to attorneys as intermediaries.

645 The duty to complete secondary service is upon the filer, and not the court, except when the court is the  
646 filer.

647 The GetServiceInformation operation returns a service list current as of the transaction. No assumption  
648 can be made that the data returned by the operation will remain current for use at any future point in time.

### 649 **3.2.3 GetFeesCalculation**

650 The Filing Assembly MDE MAY query for the fees associated with a filing by invoking the MDE's  
651 GetFeesCalculation operation, with a filing as a parameter, on the Filing Review MDE. The Filing Review  
652 MDE responds synchronously with the fee calculation and, optionally, a list of the included charges. This  
653 step may be omitted if there are no fees associated with filings in the court or the calculated fees are  
654 already known.

### 655 **3.2.4 ReviewFiling**

656 The Filing Assembly MDE MUST submit the filing to the court by invoking the ReviewFiling operation on  
657 the Filing Review MDE. The ReviewFiling operation includes messages for the core filing, including the  
658 case type-specific and court-specific extensions and the filing payment. The Filing Review MDE  
659 responds synchronously with a receipt message that includes the filing identifier issued by the court.

### 660 **3.2.5 ServeFiling**

661 At approximately the same time the Filing Assembly MDE submits the filing to the court, the Filing  
662 Assembly MDE MAY serve the entire filing, to other parties in the case by invoking the ServeFiling

663 operation on the ServiceMDE associated with the service recipient. This operation MUST NOT be used  
664 to serve parties in a new case or to persons or organizations that have not yet been made party to the  
665 case. The Legal Service MDE responds synchronously with an acknowledgement that the message will  
666 be delivered to the service recipient or with an error.

667 If the court hosts a hub Service MDE, the Filing Assembly MDE MAY send a message to the hub Service  
668 MDE's ServeFiling operation. The hub Service MDE MUST then broadcast the message to each of the  
669 individual Legal Service MDE's ServeFiling operations and respond synchronously with a single  
670 ServiceResponseMessage to the Filing Assembly MDE, conveying the results of each individual service  
671 transaction.

672 If a court chooses to support electronic service, then each Filing Assembly MDE MUST support service  
673 operations for the clients for which it provides Filing Assembly functionality.

### 674 **3.2.6 RecordFiling**

675 If the clerk reviews and accepts the filing, the Filing Review MDE MUST invoke the RecordFiling  
676 operation on the Court Record MDE. The RecordFiling operation includes information from the  
677 ReviewFiling operation with any modifications or comments by the clerk. The Court Record MDE  
678 responds synchronously with an acknowledgement of the request.

### 679 **3.2.7 NotifyDocketingComplete**

680 The Court Record MDE MUST invoke the NotifyDocketingComplete operation on the Filing Review MDE  
681 as a callback message to the RecordFiling operation to indicate whether the filing was accepted or  
682 rejected by the court record system. If the Court Record MDE rejected the filing, an explanation MUST be  
683 provided. If the Court Record MDE accepts the filing, the docketing information (e.g. date and time the  
684 document was entered into the court record, judge assigned, document identifiers and next court event  
685 scheduled) MUST be provided. The Filing Review MDE responds synchronously with an  
686 acknowledgement of the callback message.

### 687 **3.2.8 NotifyFilingReviewComplete**

688 If the clerk rejects the filings or the Filing Review MDE receives the Notify Docketing Complete message,  
689 the Filing Review MDE MUST invoke the NotifyFilingReviewComplete operation on the Filing Assembly  
690 MDE as a callback message to the ReviewFiling operation to indicate whether the filing was accepted  
691 and docketed by the clerk and court record system. The operation MAY return the filed documents or  
692 links to the documents, but MUST include the [FIPS 180-2] SHA 256 document hash, a condensed  
693 representation of a document intended to protect document integrity.

694 If the filing included a payment, and the filing was accepted by the clerk and court record system, a  
695 receipt for the payment MUST be included in the operation. The Filing Assembly MDE responds  
696 synchronously with an acknowledgement of the callback message.

### 697 **3.2.9 GetFilingList**

698 The Filing Assembly MDE MAY invoke the GetFilingList query operation on the Filing Review MDE to  
699 return a list of filings matching several criteria including the filer identifier, the case number and the filed  
700 date within a certain time range. The Filing Review MDE responds synchronously with a list of matching  
701 filings and the status of each filing.

### 702 **3.2.10 GetFilingStatus**

703 The Filing Assembly MDE MAY invoke the GetFilingStatus query operation with the filing Identifier on the  
704 Filing Review MDE to return the status of the selected filing. The Filing Review MDE responds  
705 synchronously with the matching filing and the status of the filing.

### 706 **3.2.11 GetCaseList**

707 The Filing Assembly MDE MAY invoke the GetCaseList query operation on the Court Record MDE to  
708 return a list of cases matching several criteria including case number, case participant, or the filed date  
709 over a specific time range. The Court Record MDE responds synchronously with a list of matching cases.

### 710 **3.2.12 GetCase**

711 The Filing Assembly MDE MAY invoke the GetCase query operation with a case number on the Court  
712 Record MDE to return information about the case including the case participants, court docket and  
713 calendar events. The Filing Assembly MDE may also limit the amount of case detail returned from the  
714 Court Record MDE by using a set of filters. The Court Record MDE responds synchronously with the  
715 selected case information.

### 716 **3.2.13 GetDocument**

717 The Filing Assembly MDE MAY invoke the GetDocument query operation, including the case number and  
718 document number, on the Court Record MDE to retrieve a particular document from a case. The Court  
719 Record MDE will respond synchronously with the requested document or instructions on how to access it.

## 720 **3.3 Message Business Rules**

721 Each operation includes one or more messages as parameters. The following business rules apply to the  
722 content of ECF 4.0 messages:

### 723 **3.3.1 Identifiers**

724 Identifiers are used to uniquely label people, organizations and things in the ECF 4.0 process. The  
725 following conventions will be used to produce identifiers.

#### 726 **3.3.1.1 Attachment Identifiers**

727 Attachment identifiers MUST be unique within a message transmission. A convention for assigning  
728 identifiers to each message and attachment in a message transmission has to be defined in each service  
729 interaction profile.

#### 730 **3.3.1.2 Case Identifiers**

731 Case identifiers (case numbers) are assigned by the court record system and MUST be unique within a  
732 court.

#### 733 **3.3.1.3 Court Identifiers**

734 Court identifiers are locally assigned by the court administrator for a region (typically a state, provincial or  
735 federal court administrator) and MUST be universally unique to a court but not necessarily to a particular  
736 court house, branch or subunit of a court. Court identifiers MUST conform to following convention:

737 <Internet domain of the court administrator>:<unique identifier within the court system>.

738 Examples of conformant court identifiers include:

- 739 • courts.wa.gov:superior.king
- 740 • nmcourts.com:albd.civil
- 741 • uscourts.gov:100
- 742 • courts.gov.bc.ca:appeal

743 These are strictly examples and do not necessarily indicate actual courts.

#### 744 **3.3.1.4 Document Identifiers**

745 Document identifiers are assigned by the court record system and MUST be unique within a court.

#### 746 **3.3.1.5 Filing Identifiers**

747 Filing identifiers MUST be unique within a court and will be generated by the court in response to a  
748 ReviewFiling operation.

#### 749 **3.3.1.6 MDE Identifiers**

750 The address of an MDE MUST be unique within a given communications infrastructure. The convention  
751 for defining MDE identifiers will be defined in each service interaction profile.

#### 752 **3.3.1.7 Filer and Party Identifiers**

753 Identifiers for filers and parties to a case, both persons and organizations, MUST be unique within a case  
754 and will be generated by the court in response to a ReviewFiling operation. The following is a non-  
755 normative example of an identifier for filer number 100:

```
756  
757 <nc:PersonOtherIdentification>  
758     <nc:IdentificationID>100<nc:IdentificationID>  
759     <nc:IdentificationCategoryText>ECFFilerID</nc:IdentificationCategoryTex  
760 t>  
761 </nc:PersonOtherIdentification>
```

762  
763 In addition to <nc:PersonOtherIdentification>, other elements that may contain a filer identifier  
764 include <nc:OrganizationOtherIdentification>, <ecf:FilingPartyID> and  
765 <ecf:FilingAttorneyID>.

766 Attorneys MAY reference the parties they represent with party identifiers. Self-represented litigants MAY  
767 be represented using both attorney and party elements for the same individual, with a reference from the  
768 attorney element to the party element. The attorney elements for a self-represented litigant SHOULD  
769 NOT include a bar number.

#### 770 **3.3.2 Code Lists**

771 Code Lists are used to constrain the allowable values for certain information in a message. The following  
772 normative code lists are normative for all ECF 4.0 implementations. Court-specific code lists are listed in  
773 Section 2.4.4.

- 774
- 775 • ECF Code Lists
  - 776 • **Bankruptcy Case Type**
    - 777 • <DebtorTypeCode>\*
    - 778 • <EstimatedAssetsValueLevelCode>\*
    - 779 • <EstimatedDebtsValueLevelCode>\*
    - 780 • <NatureOfDebtCode>\*
    - 781 • <NumberOfCreditorsValueLevelCode>\*
  - 782 • **Common Types**
    - 783 • <FilingStatusCode>\*
  - 784 • **Court Policy Response Message**

- 785           • <MajorDesignElementNameCode>
- 786           • <OperationNameCode>
- 787       • [Service Receipt Message](#)
- 788           • <ServiceStatusCode>\*
- 789   • NIEM Code Lists
  - 790       • [ANSI NIST](#)
    - 791           • <FingerPositionCode>
  - 792       • [JXDM](#)
    - 793           • <ChargeNCICCode>
    - 794           • <DrivingIncidentHazMatCode>
    - 795           • <DrivingJurisdictionAuthorityNCICLSTACode>
    - 796           • <IdentificationJurisdictionNCICLISCode>
    - 797           • <WarrantExtraditionLimitationCode>
  - 798       • [NIEM Core](#)
    - 799           • <DocumentLangageCode>
    - 800           • <DriverLicenseCommercialClassCode>
    - 801           • <DrivingRestrictionCode>
    - 802           • <LanguageCode>
    - 803           • <LengthUnitCode>
    - 804           • <LocationCountryFIPS10-4Code>
    - 805           • <LocationCountyCode>
    - 806           • <LocationStateUSPostalServiceCode>
    - 807           • <PersonCitizenshipFIPS10-4Code>
    - 808           • <PersonEthnicityCode>
    - 809           • <PersonEyeColorCode>
    - 810           • <PersonHairColorCode>
    - 811           • <PersonRaceCode>
    - 812           • <PersonSexCode>
    - 813           • <PersonUnionCategoryCode>
    - 814           • <PhysicalFeatureCategoryCode>
    - 815           • <VehicleColorPrimaryCode>
    - 816           • <VehicleMakeCode>
    - 817           • <VehicleModelCode>
    - 818           • <VehicleStyleCode>
    - 819           • <WeightUnitCode>

821 Code lists defined using **[Genericcode]** 1.0 are indicated with asterisks (\*). The remaining code lists are  
822 defined in XSD schema definitions.

823

### 824 3.3.3 Message-Specific Business Rules

825 The following business rules apply to specific messages:

#### 826 3.3.3.1 CoreFilingMessage

827 A CoreFilingMessage MUST express the name or names of the party or parties on whose behalf a  
828 document is filed, and the party whose document is the subject of a responsive document being  
829 submitted for filing. If a case refers to a single element using the legal term "In Re," the filer SHOULD use  
830 the NIEM <j:CaseRespondentParty>, not the <j:CaseInitiatingParty> element.

831 A CoreFilingMessage MAY NOT include documents for transactions such as the payment of a criminal  
832 fine. If a CoreFilingMessage includes documents, the message MUST include only one level of  
833 connected and supporting documents. If a CoreFilingMessage includes multiple renditions of the same  
834 document, the <nc:BinaryDescriptionText> element SHOULD be used to determine how to  
835 process multiple renditions of the same document. The <ecf:DocumentMetadata> and  
836 <ecf:DocumentRenditionMetadata> structures MAY be extended to support more sophisticated  
837 workflow processes.

#### 838 3.3.3.2 FilingPaymentMessage

839 ECF 4.0 supports multiple particular payment processes. Information about a payment is included in the  
840 FilingPaymentMessage including the method of payment of the applicable fees, e.g., electronic funds  
841 transfer, credit or debit card, charge to an escrow account held in the court or promise to pay in the  
842 future. The payment MAY include a maximum amount for the payment if some latitude is needed to  
843 accomplish the filing.

#### 844 3.3.3.3 RecordDocketingMessage

845 The court record system SHOULD retain all complete message transmissions, including any message  
846 envelopes and headers defined by the service interaction profile, for evidentiary purposes.

### 847 3.4 Filing the Record on Appeal

848 This section describes the process for filing and subsequently amending the Record on Appeal (ROA)  
849 using ECF 4.0.

- 850
- 851 • All ROA transactions, either the original filing or subsequent amendments, MUST contain, as the  
852 lead document, an Index of Record document that itemizes the content of the record on appeal.<sup>3</sup>  
853
  - 854 • The documents that comprise the ROA transaction will be identified as supporting documents.  
855
  - 856 • The supporting documents that comprise the ROA transaction MAY also have additional attached  
857 documents.  
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- 

<sup>3</sup> There are no set requirements for the structure or content of the Index of Record document

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- All ROA documents being submitted, including the Index of Record document and each document within the record, MUST have at least one court-defined document type that indicates the type of transaction to be performed on the document, and whether the document is being added to or stricken from the record.
  - The Index of Record document and each document within the ROA transaction MAY also have an additional document type or types, which characterize the document for the Court Record MDE.
  - When a document within the ROA transaction is being stricken from the court record, the document MUST be identified by the unique document identifier, which was provided by the Court Record MDE when the document was initially filed (See section 3.3.1.4).
  - A hierarchical structure of case lineage elements MUST be used to express the target case's predecessor cases at prior courts. Each predecessor case MAY also have its own predecessor case, as necessary to express the full lineage of an appellate case.<sup>4</sup>
  - When the ROA transaction is electronically transferred from one court to another, the target case number in the destination court and the case lineage, which includes the predecessor case number in the sending court, MUST be provided.
  - If the ROA transaction is a case initiating filing in the destination court, then the FilingCase object MUST be present and the CaseTrackingID MUST be absent.
  - Each predecessor case identified in the target case's case lineage may include case type-specific and court-specific extensions. The case type and the case type-specific extensions for each predecessor case MUST be consistent throughout the case lineage.

---

<sup>4</sup> Explanation (non-normative): There is not always a one to one correspondence between a lower court case (i.e. a trial court case) and the target appellate case. A single trial court case could have multiple descendent cases, and a single appellate case can have multiple predecessors. In the situation where an appellate case has multiple predecessor cases, each predecessor case will send a record on appeal to the target court for the appellate case. Each individual record will have an independent index of record. The warning above against sending multiple ROA transactions while a prior transaction is still pending must be regarded in light of the record to which the transaction is intended (or if you prefer, the predecessor case from which it originates). For example, let's say an appellate case has two predecessor cases, case A and case B. If an ROA transaction for the record from case A is pending (awaiting acceptance or rejection), this will not have any potential adverse impact on an ROA transaction from case B. Similarly, if a single lower court case were on appeal in two different appellate cases (say case Y and case Z), then while an ROA transaction targeted to case Y is pending, there is no potential adverse impact to case Z receiving an ROA transaction (assuming of course that case Z does not also have a pending ROA transaction from the same predecessor case).



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- When a ROA amendment transaction is sent, the Index of Record document MUST reflect the status of the record assuming that the transaction will be accepted. If however the transaction is rejected, there will be ramifications for other pending amendment transactions for the same ROA in the same target case.<sup>5</sup>
  - While an ROA transaction is awaiting acceptance or rejection in the destination court, and when the target case consists of multiple records, courts SHOULD NOT send additional amendment transactions intended for the same record for the same target case.
  - Individual documents within the ROA transaction MUST not be individually accepted or rejected. All documents within the ROA transaction MUST have the same acceptance or rejection disposition.

---

<sup>5</sup> While an ROA transaction is awaiting acceptance or rejection in the destination court, courts are cautioned against, but not prohibited from, sending additional amendment transactions for the same record in the same target case, regardless of whether the case contains one or many records.

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## 900 4 ECF 4.0 Schemas

901 The Court Filing XSD schemas are implementations of the ECF 4.0 exchange content models (see  
902 Appendix B.3 below). They are the only normative representations of ECF 4.0 messages.

903 All of the ECF 4.0 XSD schemas are contained in the `xsd/` subdirectory of the ECF 4.0 release package  
904 (see Appendix A for more information regarding the structure of the release package). The `xsd/`  
905 directory is further subdivided into the `xsd/casetype/`, `xsd/common/`, `xsd/constraint/`,  
906 `xsd/message/`, and `xsd/Subset/` subdirectories.

907

### 908 4.1 ECF 4.0 Case Type Schemas

909 The XSD schemas that define extensions specific to certain ECF 4.0 case types are included in the  
910 `xsd/casetype/` directory, as listed below:

911

#### 912 **AppellateCase**

913 [xsd/casetype/ECF-4.0-AppellateCase.xsd](#)

#### 914 **BankruptcyCase**

915 [xsd/casetype/ECF-4.0-BankruptcyCase.xsd](#)

#### 916 **CitationCase**

917 [xsd/casetype/ECF-4.0-CitationCase.xsd](#)

#### 918 **CivilCase**

919 [xsd/casetype/ECF-4.0-CivilCase.xsd](#)

#### 920 **CriminalCase**

921 [xsd/casetype/ECF-4.0-CriminalCase.xsd](#)

#### 922 **DomesticCase**

923 [xsd/casetype/ECF-4.0-DomesticCase.xsd](#)

#### 924 **JuvenileCase**

925 [xsd/casetype/ECF-4.0-JuvenileCase.xsd](#)

926

### 927 4.2 ECF 4.0 Common Schemas

928 The XSD schemas that define the generic elements and types that are common to multiple ECF 4.0  
929 messages and/or case types are located in the `xsd/common/` folder, as listed below:

930

#### 931 **AppInfo**

932 [xsd/common/ECF-4.0-AppInfo.xsd](#)

#### 933 **CommonTypes**

934 [xsd/common/ECF-4.0-CommonTypes.xsd](#)

#### 935 **DigitalSignature**

936 [xsd/common/xmlsig-core-schema.xsd](#)

#### 937 **Genericcode**

938 [xsd/common/genericcode.xsd](#)

### 939 **4.3 ECF 4.0 Constraint and Subset Schemas**

940 The XSD schemas that define the subset of all NIEM elements and types that are used in ECF 4.0  
941 messages and/or case type extensions are located in the `xsd/Subset/niem/` folder. As a general  
942 data model, NIEM does not define any constraints regarding the minimum and maximum occurrence of  
943 elements contained within types. Therefore, in conformance with NIEM, ECF-specific constraints are not  
944 included in the schemas within the `xsd/Subset/niem` folder. The XSD schemas in the  
945 `xsd/constraint/niem/` folder represent the NIEM subset schemas with the ECF-specific constraints  
946 applied and are the schemas by which the ECF message and case type schemas incorporate NIEM  
947 elements and types.

### 948 **4.4 ECF 4.0 Message Schemas**

949 The XSD schemas defining the messages that support the ECF 4.0 processes are located in the  
950 `xsd/messages/` folder, as listed below:

951

#### 952 **CaseListQueryMessage**

953 [xsd/message/ECF-4.0-CaseListQueryMessage.xsd](#)

#### 954 **CaseListResponseMessage**

955 [xsd/message/ECF-4.0-CaseListResponseMessage.xsd](#)

#### 956 **CaseQueryMessage**

957 [xsd/message/ECF-4.0-CaseQueryMessage.xsd](#)

#### 958 **CaseResponseMessage**

959 [xsd/message/ECF-4.0-CaseResponseMessage.xsd](#)

#### 960 **CoreFilingMessage**

961 [xsd/message/ECF-4.0-CoreFilingMessage.xsd](#)

#### 962 **CourtPolicyQueryMessage**

963 [xsd/message/ECF-4.0-CourtPolicyQueryMessage.xsd](#)

#### 964 **CourtPolicyResponseMessage**

965 [xsd/message/ECF-4.0-CourtPolicyResponseMessage.xsd](#)

#### 966 **DocumentQueryMessage**

967 [xsd/message/ECF-4.0-DocumentQueryMessage.xsd](#)

#### 968 **DocumentResponseMessage**

969 [xsd/message/ECF-4.0-DocumentResponseMessage.xsd](#)

#### 970 **FeesCalculationQueryMessage**

971 [xsd/message/ECF-4.0-FeesCalculationQueryMessage.xsd](#)

#### 972 **FeesCalculationResponseMessage**

973 [xsd/message/ECF-4.0-FeesCalculationResponseMessage.xsd](#)

#### 974 **FilingListQueryMessage**

975 [xsd/message/ECF-4.0-FilingListQueryMessage.xsd](#)

#### 976 **FilingListResponseMessage**

977 [xsd/message/ECF-4.0-FilingListResponseMessage.xsd](#)

#### 978 **FilingStatusQueryMessage**

979 [xsd/message/ECF-4.0-FilingStatusQueryMessage.xsd](#)

#### 980 **FilingStatusResponseMessage**

981 [xsd/message/ECF-4.0-FilingStatusResponseMessage.xsd](#)

982 **MessageReceiptMessage**  
983     [xsd/message/ECF-4.0-MessageReceiptMessage.xsd](#)  
984 **PaymentMessage**  
985     [xsd/message/ECF-4.0-PaymentMessage.xsd](#)  
986 **PaymentReceiptMessage**  
987     [xsd/message/ECF-4.0-PaymentReceiptMessage.xsd](#)  
988 **RecordDocketingCallbackMessage**  
989     [xsd/message/ECF-4.0-RecordDocketingCallbackMessage.xsd](#)  
990 **RecordDocketingMessage**  
991     [xsd/message/ECF-4.0-RecordDocketingMessage.xsd](#)  
992 **ReviewFilingCallbackMessage**  
993     [xsd/message/ECF-4.0-ReviewFilingCallbackMessage.xsd](#)  
994 **ServiceInformationQueryMessage**  
995     [xsd/message/ECF-4.0-ServiceInformationQueryMessage.xsd](#)  
996 **ServiceInformationResponseMessage**  
997     [xsd/message/ECF-4.0-ServiceInformationResponseMessage.xsd](#)  
998 **ServiceReceiptMessage**  
999     [xsd/message/ECF-4.0-ServiceReceiptMessage.xsd](#)  
1000

---

## 5 Service Interaction Profiles

1001  
1002 An ECF 4.0 service interaction profile defines a transmission system that supports the functional  
1003 requirements of electronic filing, along with the MDE operations and message structures, and implements  
1004 certain non-functional requirements. A service interaction profile does not govern the content of  
1005 messages – message content is described in Sections 2 and 3 of this specification. A service interaction  
1006 profile will define how a message gets from the sending MDE to the receiving MDE in a given messaging  
1007 framework.

### 5.1 Service Interaction Profile Requirements

1008  
1009 Each service interaction profile will define standard conventions and configuration details to support  
1010 interoperability between and among ECF 4.0 implementations that support the same service interaction  
1011 profile. However, compliance with these requirements will not necessarily guarantee interoperability.

1012 To be compliant with the ECF 4.0 specification, a service interaction profile **MUST** satisfy the following  
1013 non-functional requirements:

- 1014 1. **Transport protocol** – A service interaction profile **MUST** define how messages are physically  
1015 transported from a sending MDE to a receiving MDE. In so doing, a profile may identify factors that  
1016 restrict the range of environments in which the profile is applicable.
- 1017 2. **MDE addressing** – A service interaction profile **MUST** include a convention for uniquely addressing  
1018 each MDE.
- 1019 3. **Operation addressing** – A service interaction profile **MUST** describe a convention for uniquely  
1020 addressing each MDE operation.
- 1021 4. **Request and operation invocation** – A service interaction profile **MUST** describe a mechanism for a  
1022 sending MDE to invoke an operation on the receiving MDE.
- 1023 5. **Synchronous mode response** – A service interaction profile **MUST** support synchronous operations  
1024 in which the response to an operation is always returned immediately, typically within a matter of  
1025 seconds, to the invoking MDE.
- 1026 6. **Asynchronous mode response** – A service interaction profile **MUST** support asynchronous  
1027 operations in which the response to an operation may not necessarily be returned immediately to the  
1028 invoking MDE. Instead, the response may be returned at some later time through a callback from the  
1029 MDE that received the operations to the invoking MDE. The callback **MUST** include a reference to  
1030 the invoking message transmission.
- 1031 7. **Message/attachment delimiters** – A service interaction profile **MUST** define how the receiving MDE  
1032 distinguishes messages from attachments within a message transmission.
- 1033 8. **Message identifiers** – A service interaction profile **MUST** provide a means for a sending MDE to  
1034 assign a unique identifier to each message (including any attachments) within a message  
1035 transmission.

1036 In addition, there are some non-functional features that a service interaction profile **SHOULD** provide,  
1037 including:

- 1038 1. **Message non-repudiation** – A service interaction profile **SHOULD** provide a mechanism so that the  
1039 receiving MDE is provided with evidence that demonstrates:
  - 1040 a. the identity of the sending MDE
  - 1041 b. the content of the message(s) transmitted
  - 1042 c. the date and time of the message transmission
- 1043 2. **Message integrity** – A service interaction profile **SHOULD** provide a mechanism so that the  
1044 receiving MDE is able to determine whether the message(s) transmitted (including any attachments)  
1045 was (were) modified during the message transmission.

- 1046 3. **Message confidentiality** – A service interaction profile SHOULD provide a mechanism, such as  
1047 encryption, that can be used with a sending MDE to ensure that the message(s) in a transmission  
1048 (including any attachments) can be processed only by the receiving MDE.
- 1049 4. **Message authentication** – A service interaction profile SHOULD provide a mechanism, such that a  
1050 sending MDE is required to include, to display credentials that demonstrate its identity to the receiving  
1051 MDE in each message transmission.
- 1052 5. **Message transmission reliability** – A service interaction profile SHOULD provide a mechanism,  
1053 such that a sending MDE is required to include, to guarantee that a message transmission will be  
1054 delivered to the receiving MDE within a specified period of time, or else the sending MDE will receive  
1055 notification at the end of that period of time that the message transmission was not deliverable to the  
1056 receiving MDE.
- 1057 6. **Message splitting and assembly** – A service interaction profile SHOULD provide a mechanism by  
1058 which a large message and attachments MAY be split into multiple pieces that are transmitted  
1059 separately by the sending MDE and reassembled into the complete message by the receiving MDE.  
1060 In the HTTP 1.1 protocol, this is called “chunking.”
- 1061 7. **Transmission auditing** – A service interaction profile SHOULD provide a mechanism for the MDE to  
1062 receive message transmissions in their entirety (both messaging and “payload” content) for auditing  
1063 purposes.

## 1064 5.2 Service Interaction Profile Approval and Revision Processes

1065 The ECF Technical Committee (TC) will recommend certain service interaction profiles for use in  
1066 implementations of the ECF 4.0 specification. The TC will consider a service interaction profile for  
1067 recommendation for use in ECF 4.0 implementations provided the profile meets the following  
1068 requirements:

- 1069 1. The service interaction profile MUST be described in a document in the format of an OASIS  
1070 specification.
- 1071 2. The service interaction profile specification MUST identify a unique URI to identify the service  
1072 interaction profile and version.
- 1073 3. The service interaction profile specification MUST describe the binding of MDE operations to the  
1074 service interaction profile that satisfies the functional requirements described in Section 3 (“ECF 4.0  
1075 Process Model”) and Section 4 (“ECF 4.0 Schema”) of this specification.
- 1076 4. The service interaction profile specification MUST demonstrate that the service interaction profile  
1077 satisfies the non-functional service interaction profile requirements described in Section 5.1 (“Service  
1078 Interaction Profile Requirements”) of this specification.
- 1079 5. The service interaction profile specification MUST include samples that demonstrate how the  
1080 messaging information and “payload” content are combined into message transmissions. These  
1081 samples MUST include samples that demonstrate both synchronous and asynchronous mode  
1082 operations.
- 1083 6. At least one voting member of the ECF TC MUST agree to sponsor the service interaction profile and  
1084 submit the service interaction profile specification to the TC for review as a candidate for approval as  
1085 an ECF 4.0 compliant service interaction profile.

1086 Certifying that a candidate service interaction profile meets certain service interaction profile requirements  
1087 will necessarily involve some subjectivity since service interaction profile requirements cannot be  
1088 expressed algebraically, in the manner of XML Schemas. Therefore, it will be up to the TC to assess  
1089 whether the proposed profile’s description is adequate in meeting the requirements of ECF 4.0 before  
1090 approving the service interaction profile specification as a “Committee Draft” through the OASIS  
1091 standards approval process.

1092 From time to time, it may be necessary to revise or update a service interaction profile to bring it into  
1093 compliance with changes in network and messaging protocols, or to support additional non-functional  
1094 requirements. Any revision(s) to previously approved service interaction profiles will be considered a new  
1095 service interaction profile and MUST meet the requirements of a new service interaction profile, including  
1096 sponsorship by a voting member of the ECF TC and review and approval by the ECF TC. There will be

1097 no guarantees that future versions of a service interaction profile will be backwardly compatible with the  
1098 current version.

### 1099 **5.3 Supported Service Interaction Profiles**

1100 The following ECF 4.0 service interaction profile specifications are for use in conjunction with  
1101 implementations of the ECF 4.0 specification:

- 1102 • **Web Services Service Interaction Profile 2.0 Specification** – This specification defines a  
1103 transmission system using the specifications described in the Web Services Interoperability (WS-I)  
1104 Basic Profile 1.1, W3C SOAP 1.1 Binding for MTOM 1.0, WS-I Basic Security Profile 1.0 and OASIS  
1105 WS-Reliable Messaging 1.1.
- 1106 • **Web Services Service Interaction Profile 2.1 Specification** – This specification defines a  
1107 transmission system using the specifications described in the Web Services Interoperability (WS-I)  
1108 Basic Profile 1.1, W3C SOAP 1.1 Binding for MTOM 1.0 and WS-I Basic Security Profile 1.1 and  
1109 OASIS WS-Reliable Messaging 1.1.
- 1110 • **Portable Media Service Interaction Profile 1.01 Specification** – This specification defines a  
1111 transmission system in which the sending MDE stores message transmissions on portable media  
1112 (e.g., a compact disc), which is then physically transported to the receiving MDE where it is  
1113 connected for retrieval of the message transmissions. This specification may be needed in the  
1114 absence of an active network between the sending and receiving MDEs.

1115 Additional service interaction profiles, or revisions to these service interaction profiles, may be approved  
1116 by the ECF TC for use in conjunction with implementations of the ECF 4.0 specification according to the  
1117 process described in Section 5.2 (“Service Interaction Profile Approval and Revision Processes”) above.

---

## 1118 6 Document Signature Profiles

1119 An ECF 4.0 document signature profile defines a mechanism for asserting that a person signed a single  
1120 electronic or imaged document, which is an attachment to a message transmission. The signing of an  
1121 entire message transmission is described in a service interaction profile and is not supported by a  
1122 document signature profile.

### 1123 6.1 Document Signature Profile Requirements

1124 Each document signature profile will define standard conventions and configuration details to support  
1125 interoperability in the creation and verification of document signatures between and among ECF 4.0  
1126 implementations that support the same document signature profile. However, compliance with these  
1127 requirements will not necessarily guarantee interoperability.

1128 Except for the Null Document Signature Profile, to be compliant with the ECF 4.0 specification, a  
1129 document signature profile **MUST** satisfy the following non-functional requirements:

- 1130 1. **Signer name assertion** – A document signature profile **MUST** make an assertion regarding the  
1131 name of the person who signed a document.
- 1132 2. **Signed date assertion** – A document signature profile **MUST** make an assertion regarding the date  
1133 the person signed a document.
- 1134 3. **Multiple signatures** – A document signature profile **MUST** allow multiple signatures to be associated  
1135 with the same document.

1136 A signature profile **SHOULD** provide the following non-functional features:

- 1137 1. **Signer and date non-repudiation** – A document signature profile **SHOULD** provide a mechanism so  
1138 that the receiving MDE is provided with verifiable evidence that demonstrates:
  - 1139 a. the unique identity of the person who signed the document
  - 1140 b. the date the person signed a document
- 1141 2. **Document integrity** – A document signature profile **SHOULD** provide a mechanism so that the  
1142 receiving MDE is able to determine if the document was modified since the person signed the  
1143 document.
- 1144 3. **Document signature auditing** – A document signature profile **SHOULD** provide a mechanism for  
1145 the MDE to receive both the document and signatures for auditing purposes.

### 1146 6.2 Document Signature Profile Approval and Revision Processes

1147 The ECF Technical Committee will recommend certain document signature profiles for use in  
1148 implementations of the ECF 4.0 specification. The TC will consider a document signature profile for  
1149 recommendation for use in ECF 4.0 implementations provided the profile meets the following  
1150 requirements:

- 1151 1. The document signature profile **MUST** be described in a document in the format of an OASIS  
1152 specification.
- 1153 2. The document signature profile specification **MUST** identify a unique URI to identify the document  
1154 signature profile and version.
- 1155 3. If the document signature is not embedded in the document, the document signature profile  
1156 specification **MUST** include an XML structure for describing precisely how the document signature is  
1157 represented.
- 1158 4. The document signature profile specification **MUST** demonstrate that the document signature profile  
1159 satisfies the non-functional requirements described in Section 6.1 (“Document Signature Profile  
1160 Requirements”) of this specification.



- 1161 5. The document signature profile specification MUST include samples that demonstrate how the  
1162 document signature information and “payload” content are combined into message transmissions.
- 1163 6. At least one voting member of the ECF TC MUST agree to sponsor the document signature profile  
1164 and submit the document signature profile specification to the TC for review as a candidate for  
1165 approval as an ECF 4.0 document signature profile.

1166 Certifying that a candidate document signature profile meets certain document signature profile  
1167 requirements will necessarily involve some subjectivity, since document signature profile requirements  
1168 cannot be expressed algebraically, in the manner of XML Schemas. Therefore, it will be up to the TC to  
1169 assess whether the proposed profile’s description is adequate to the requirements before approving the  
1170 profile specification as a Committee Draft through the OASIS standards approval process.

1171 From time to time, it may be necessary to revise or update a document signature profile to bring it into  
1172 compliance with changes in authentication and encryption protocols, or to support additional non-  
1173 functional requirements. Any revision(s) to previously approved document signature profiles will be  
1174 considered a new document signature profile and MUST meet the requirements of a new document  
1175 signature profile, including sponsorship by a voting member of the ECF TC and review and approval by  
1176 the ECF TC. There will be no guarantees that future versions of document signature profiles will be  
1177 backwardly compatible with the current version.

### 1178 6.3 Supported Document Signature Profiles

1179 The following ECF 4.0 document signature profile specifications are candidate Committee Drafts for use  
1180 in conjunction with implementations of the ECF 4.0 specification:

- 1181 • **Null Document Signature Profile 1.0 Specification** – This specification defines a default  
1182 mechanism to describe documents that do not have any associated signatures.
- 1183 • **XML Document Signature Profile 1.0 Specification** – This specification defines a mechanism for  
1184 associating a W3C XML Signature with a document.
- 1185 • **Application-Specific Document Signature Profile 1.0 Specification** – This specification defines a  
1186 mechanism for embedding an application-specific binary signature with a document. This profile  
1187 supports the native capabilities in document formats such as Microsoft Word and the Adobe Portable  
1188 Document Format (PDF) for describing and embedding signatures.
- 1189 • **Proxy Document Signature Profile 1.0 Specification** – This specification defines a mechanism for  
1190 indicating documents that are digitally signed by a court filing infrastructure component on behalf of  
1191 an authenticated signer.
- 1192 • **Symmetric Key Document Signature Profile 1.0 Specification** – This specification defines a  
1193 mechanism for indicating documents that are digitally signed by a trusted entity on behalf of the  
1194 signer using a symmetric key known only to the trusted entity.

1195 Additional document signature profiles, or revisions to these document signatures profiles, may be  
1196 approved by the ECF TC for use in conjunction with implementation of the ECF 4.0 specification  
1197 according to the process described in Section 6.2 (“Document Signature Profile Approval and Revision  
1198 Processes”) above.

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1199 **7 Conformance**

1200 *An implementation conforms with the Electronic Court Filing Version 4.01 if the implementation meets the*  
1201 *requirements in Sections 1-6 including conformance with the XSD schemas and [Genericcode] code lists*  
1202 *referenced in Section 3 and 4.*

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## 1203 Appendix A. (Informative) Release Notes

### 1204 A.1 Availability

1205 Online and downloadable versions of this release are available from the locations specified at the top of  
1206 this document.

### 1207 A.2 Package Structure

1208 The ECF 4.0 specification is published as a ZIP archive named `ecf-v4.0.zip`. Unzipping this archive  
1209 creates a directory named `ecf-4.0/` containing this specification document and a number of  
1210 subdirectories. The files in these subdirectories, linked to the specification document, contain the various  
1211 normative and informational pieces of the 1.0 release. A description of each subdirectory is given below.

1212 `gc/`

1213 **[Genericcode]** 1.0 code lists

1214 `model/`

1215 ECF 4.0 UML exchange content model diagrams and spreadsheet models; see Appendix B.3 and

1216 B4

1217 `xml/`

1218 Example instances; see Appendix D

1219 `xsd/`

1220 XSD schemas; see Section 4

### 1221 A.3 Recursive Structures

1222 Certain components in the **[NIEM]** version 2.0 schemas allow recursive nesting. For example, a  
1223 `nc:Case` may be related to another `nc:Case`, etc. These are legitimate business data structures. Most  
1224 real-world applications will limit the depth of recursion in such structures, but XSD schemas are incapable  
1225 of expressing this constraint. Implementers should be aware of this and may wish to set limits on the  
1226 depth of recursive structures in their applications.

### 1227 A.4 Date and Time Formats

1228 The date and time elements contained in the messages defined by the ECF 4.0 XSD schemas should be  
1229 formatted according to the documentation in the **[NIEM]** version 2.0. The **[NIEM]** documentation  
1230 indicates the following:

- 1231 • Calendar date values should be expressed as “CCYY-MM-DD”, with an optional time zone qualifier  
1232 designated by appending -hh:00, where hh represent the number of hours the local time zone is  
1233 behind Coordinated Universal Time (UTC).
- 1234 • Time values should be expressed as “hh:mm:ss.sss”, with an optional time zone qualifier designated  
1235 by appending -hh:00, where hh represent the number of hours the local time zone is behind  
1236 Coordinated Universal Time (UTC).
- 1237 • Date and time values should be expressed as “CCYY-MM-DDThh:mm:ss.sss” with an optional time  
1238 zone designated by appending -hh:00, where hh represent the number of hours the local time zone is  
1239 behind Coordinated Universal Time (UTC).qualifier.

1240 These formats are documented in, but not enforced by, the XSD schema at  
1241 `xsd/constraint/niem/proxy/xsd/2.0/xsd.xsd`.

1242 **A.5 Known Errata**

1243 Known errors in the ECF 4.0 specification will be identified in an errata document available at:

1244 <http://www.oasis-open.org/committees/legalxml-courtfilling/>.

---

1245 **Appendix B. (Informative) ECF 4.0 Development**  
1246 **Approach and Artifacts**

1247 This appendix describes the approach used to develop ECF 4.0 and the modeling artifacts.

1248 **B.1 Principles**

1249 The key principles that guided the design of the ECF 4.0 message structures were:

- 1250 • **Interoperability** – The ECF 4.0 message structures should provide a means for exchanging court  
1251 filings among all types of court information systems.
- 1252 • **Completeness** – The ECF Filing 4.0 message structures format should provide for all the elements  
1253 of an electronic filing system.
- 1254 • **Simple implementation** – The design should foster rapid implementation.
- 1255 • **Simple XML and portable structure** – The core messages in an ECF 4.0 exchange will be  
1256 formatted as XML documents.
- 1257 • **Familiarity** – The data elements and code values should be meaningful to the legal community and  
1258 non-expert recipients alike.
- 1259 • **Interdisciplinary and international utility** – The design should be usable by a broad range of court-  
1260 related applications and should be applicable internationally.

1261 **B.2 Approach**

1262 The ECF 4.0 message schemas were developed as a **[NIEM]** Information Exchange Package Definition  
1263 (IEPD). A **[NIEM IEPD]** is a collection of artifacts that describe the structure and content of a set of data  
1264 that is transmitted for a specific business purpose. It does not specify other interface layers (such as Web  
1265 services).

1266 The NIEM Naming and Design Rules (MNDR) **[NIEM NDR]** describe best practices for the development  
1267 of NIEM-conformant Information Exchange Packages and documentation. The Design Rules set forth:

- 1268 • A methodology for the construction of **[NIEM]**-conformant exchange documents
- 1269 • Naming and design rules for the artifacts called for by the methodology
- 1270 • Guidelines for the customization of **[NIEM]** schema structures

1271 **B.3 ECF 4.0 Exchange Content Models**

1272 The ECF 4.0 exchange content models describe the information components used in all of the messages  
1273 defined by ECF 4.0.

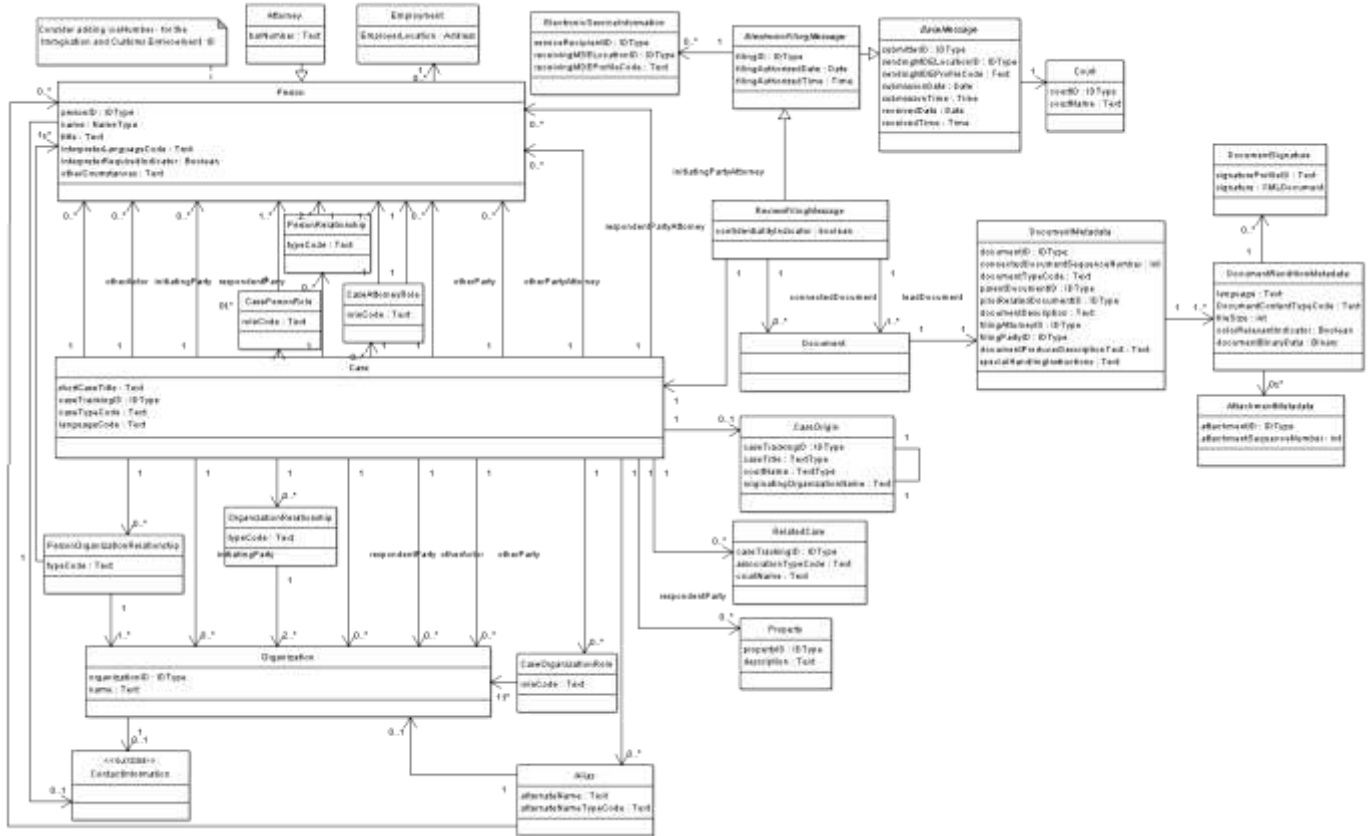
1274 The exchange content models are the result of a detailed analysis of the data requirements to support the  
1275 ECF 4.0 Process Model (see Section 3). During the modeling process, common items of data were  
1276 identified by a process of normalization to identify aggregates based on functional dependency. Where  
1277 appropriate, these were generalized so that they could be re-used to support the various messages.

1278 The exchange content models are used for the following purposes:

- 1279 • They facilitate the identification of the reusable components, i.e., the data structures that are common  
1280 across the ECF 4.0 messages.
- 1281 • They aid in understanding the information requirements of the total scenario.
- 1282 • They are the source from which the object classes are derived and documented in the ECF 4.0  
1283 schemas (see Section 4).

1284 To facilitate comprehension, the ECF 4.0 is composed of several exchange content model diagrams.  
 1285 Each diagram represents a logical grouping of components and displays both the attributes and object  
 1286 classes belonging to the components in this grouping. The scope of each diagram is arbitrary and does  
 1287 not hold any significance beyond these diagrams.

1288 For example, the ECF 4.0 Review Filing Model diagram is shown below:



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The complete set of exchange content models for all the ECF 4.0 components is listed below:

**Appellate Filing Model**

<model/uml/html/AppellateFiling.png>

**Bankruptcy Filing Model**

<model/uml/html/BankruptcyFiling.png>

**Base Message Model**

<model/uml/html/BaseMessage.png>

**Civil Filing Model**

<model/uml/html/CivilFiling.png>

**Citation Filing Model**

<model/uml/html/Violation Filing.png>

**Criminal Filing Model**

<model/uml/html/CriminalFiling.png>

**Domestic Filing Model**

- 1307 <model/uml/html/DomesticFiling.png>
- 1308 **Extended Person Information Model**
- 1309 <model/uml/html/ExtendedPersonInformation.png>
- 1310 **Get Calculated Fees Query Model**
- 1311 <model/uml/html/GetFeesCalculationQuery.png>
- 1312 **Get Case List Query Model**
- 1313 <model/uml/html/GetCaseListQuery.png>
- 1314 **Get Document Query Model**
- 1315 <model/uml/html/GetDocumentQuery.png>
- 1316 **Get Filing List Query Model**
- 1317 <model/uml/html/GetFilingListQuery.png>
- 1318 **Get Filing Status Query Model**
- 1319 <model/uml/html/GetFilingStatusQuery.png>
- 1320 **Get Service Information Query Model**
- 1321 <model/uml/html/GetServiceInformationQuery.png>
- 1322 **Major Design Elements Model**
- 1323 <model/uml/html/MajorDesignElements.png>
- 1324 **Juvenile Filing Model**
- 1325 <model/uml/html/JuvenileFiling.png>
- 1326 **Record Docketing Model**
- 1327 <model/uml/html/RecordDocketing.png>
- 1328 **Review Filing Model**
- 1329 <model/uml/html/ReviewFiling.png>

1330

1331 No specific directions are defined for the associations in these models; they can be navigated in either  
1332 direction. The specific navigation path for each association is defined when documents are assembled.

## 1333 **B.4 Spreadsheet Models**

1334 ECF 4.0 uses spreadsheet models to describe the mapping of objects and attributes to **[NIEM]** and ECF  
1335 4.0 elements. The spreadsheet models use rows to define components. Components are either simple  
1336 data types or associations. Columns define the metadata associated with each component type.

1337 The ECF 4.0 spreadsheet model is located at <model/ECF-4.0-NIEM2-mapping.xls>.

1338

## 1339 Appendix C. (Informative) MDE Operations

1340 This appendix details the operations that are provided by each Major Design Element (MDE) and the  
 1341 operations, provided by other MDEs that each MDE “consumes.” Implementation of an MDE requires  
 1342 both that the MDE provide certain functionality and that the MDE use particular operations provided by  
 1343 other MDEs.

### 1344 C.1 Filing Assembly MDE

1345 The Filing Assembly MDE supports the preparation and submission of filed documents to a court for  
 1346 review, and can receive the results of that process. The Filing Assembly MDE also conveys filings to the  
 1347 Legal Service MDE for service on other case participants. The Filing Assembly MDE calls operations in  
 1348 other MDEs and provides a single operation for notifying the submitter that the filing has been reviewed  
 1349 by a court. A Filing Assembly MDE may be provided by a court or by a third party.

#### 1350 C.1.1 Provided Operations

1351 The Filing Assembly MDE provides the following operations to other MDEs:

Operation	Called By	Output	Parameters
NotifyFilingReviewComplete	Filing Review MDE	xsd/message/ECF-4.0-MessageReceiptMessage.xsd : MessageReceiptMessage	xsd/message/ECF-4.0-ReviewFilingCallbackMessage.xsd : ReviewFilingCallbackMessage
			xsd/message/ECF-4.0-PaymentMessage.xsd : PaymentMessage

#### 1352 C.1.2 Consumed Operations

1353 The Filing Assembly MDE calls the following operations in other MDEs:

Operation	Provided By	Return Type
GetPolicy	Filing Review MDE	xsd/message/ECF-4.0-CourtPolicyQueryMessage.xsd : CourtPolicyReponseMessage
ReviewFiling	Filing Review MDE	xsd/message/ECF-4.0-MessageReceiptMessage.xsd : MessageReceiptMessage
GetFeesCalculation	Filing Review MDE	xsd/message/ECF-4.0-FeesCalculationResponseMessage.xsd : FeesCalculationResponseMessage
GetFilingStatus	Filing Review MDE	xsd/message/ECF-4.0-FilingStatusResponseMessage.xsd : FilingStatusResponseMessage
GetFilingList	Filing Review MDE	xsd/message/ECF-4.0-FilingListResponseMessage.xsd : FilingListResponseMessage
GetCase	Court Record MDE	xsd/message/ECF-4.0-CaseResponseMessage.xsd : CaseResponseMessage
GetCaseList	Court Record MDE	xsd/message/ECF-4.0-CaseListResponseMessage.xsd : CaseListResponseMessage
GetServiceInformation	Court Record MDE	xsd/message/ECF-4.0-ServiceInformationResponseMessage.xsd : ServiceInformationResponseMessage
GetDocument	Court Record MDE	xsd/message/ECF-4.0-DocumentResponseMessage.xsd :



		DocumentResponseMessage
ServeFiling	Legal Service MDE	xsd/message/ECF-4.0-ServiceReceiptMessage.xsd : ServiceReceiptMessage

## 1354 C.2 Filing Review MDE

1355 The Filing Review MDE receives, presents and manages the filings. The Filing Review MDE receives  
 1356 filings in a standard format and presents those filings to a Clerk for review, where they may be accepted  
 1357 or rejected. The Filing Review MDE transmits data and documents to the Filing Assembly MDE to inform  
 1358 the filer that the filing has been accepted or rejected. The Filing Review MDE transmits data and  
 1359 documents for accepted filings to the Court Record MDE for docketing and recording. While there will  
 1360 generally be one Filing Review MDE per court, there is no physical barrier to having more than one,  
 1361 particularly if a court wants to support different Filing Review MDEs for particular case types.

### 1362 C.2.1 Provided Operations

1363 The Filing Review MDE provides the following operations to other MDEs:

Operation	Called By	Output	Parameters
ReviewFiling	Filing Assembly MDE	xsd/message/ECF-4.0-MessageReceiptMessage.xsd : MessageReceiptMessage	xsd/message/ECF-4.0-CoreFilingMessage.xsd : CoreFilingMessage xsd/message/ECF-4.0-PaymentMessage.xsd : PaymentMessage
NotifyDocketingComplete	Court Docketing MDE	xsd/message/ECF-4.0-MessageReceiptMessage.xsd : MessageReceiptMessage	xsd/message/ECF-4.0-RecordDocketingCallbackMessage.xsd : RecordDocketingCallbackMessage
GetFeesCalculation	Filing Assembly MDE	xsd/message/ECF-4.0-FeesCalculationResponseMessage.xsd : FeesCalculationResponseMessage	xsd/message/ECF-4.0-FeesCalculationQueryMessage.xsd : FeesCalculationQueryMessage
GetFilingList	Filing Assembly MDE	xsd/message/ECF-4.0-FilingListResponseMessage.xsd : FilingListResponseMessage	xsd/message/ECF-4.0-FilingListQueryMessage.xsd : FilingListQueryMessage
GetFilingStatus	Filing Assembly MDE	xsd/message/ECF-4.0-FilingStatusResponseMessage.xsd : FilingStatusResponseMessage	xsd/message/ECF-4.0-FilingStatusQueryMessage.xsd : FilingStatusQueryMessage
GetPolicy	Filing Assembly MDE	xsd/message/ECF-4.0-CourtPolicyQueryMessage.xsd : CourtPolicyResponseMessage	xsd/message/ECF-4.0-CourtPolicyQueryMessage.xsd : CourtPolicyQueryMessage

### 1364 C.2.2 Consumed Operations

1365 The Filing Review MDE calls the following operations in other MDEs:

Operation	Provided By	Output
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RecordFiling	Court Record MDE	xsd/message/ECF-4.0-MessageReceiptMessage.xsd : MessageReceiptMessage
NotifyFilingReviewComplete	Filing Assembly MDE	xsd/message/ECF-4.0-MessageReceiptMessage.xsd : MessageReceiptMessage

### 1366 C.3 Court Record MDE

1367 The Court Record MDE receives the filed documents from the Filing Review MDE and enters them into  
 1368 the official case record of the court. The Court Record MDE notifies the Filing Review MDE that the filing  
 1369 has been filed.

#### 1370 C.3.1 Provided Operations

1371 The Court Record MDE provides the following operations to other MDEs:

Operation	Called By	Output	Parameters
RecordFiling	Filing Review MDE	xsd/message/ECF-4.0-MessageReceiptMessage.xsd : MessageReceiptMessage	xsd/message/ECF-4.0-RecordDocketingMessage.xsd : RecordDocketingMessage
			xsd/message/ECF-4.04.0-CoreFilingMessage.xsd : CoreFilingMessage
GetCase	Filing Assembly MDE	xsd/message/ECF-4.0-CaseResponseMessage.xsd : CaseResponseMessage	xsd/message/ECF-4.0-CaseQueryMessage.xsd : CaseQueryMessage
GetCaseList	Filing Assembly MDE	xsd/message/ECF-4.0-CaseListResponseMessage.xsd : CaseListResponseMessage	xsd/message/ECF-4.0-CaseListQueryMessage.xsd : CaseListQueryMessage
GetServiceInformation	Filing Assembly MDE	xsd/message/ECF-4.0-ServiceInformationResponseMessage.xsd : ServiceInformationResponseMessage	xsd/message/ECF-4.0-ServiceInformationQueryMessage.xsd : ServiceInformationQueryMessage
GetDocument	Filing Assembly MDE	xsd/message/ECF-4.0-DocumentResponseMessage.xsd : DocumentResponseMessage	xsd/message/ECF-4.0-DocumentQueryMessage.xsd : DocumentQueryMessage

#### 1372 C.3.2 Consumed Operations

1373 The Court Record MDE calls the following operations in other MDEs:

Operation	Provided By	Output
NotifyDocketingComplete	Filing Review MDE	xsd/message/ECF-4.0-MessageReceiptMessage.xsd : MessageReceiptMessage

### 1374 C.4 Legal Service MDE

1375 The Legal Service MDE enables a filer or a court to electronically transmit copies of, or links to,  
 1376 electronically filed documents to other parties who are participating in the case and who are entitled to be  
 1377 promptly served with the electronically filed documents. The Filing Assembly MDE transmits data and  
 1378 documents to the Legal Service MDE to inform the case participant that an electronic filing has been

1379 submitted to the court clerk. The Legal Service MDE transmits a callback message to the Filing  
1380 Assembly MDE requesting a notification to confirm receipt of the served document.

### 1381 **C.4.1 Provided Operations**

1382 The Legal Service MDE provides the following operations to other MDEs:

Operation	Called By	Output	Parameters
ServeFiling	Filing Assembly MDE	xsd/message/ECF-4.0- ServiceReceiptMessage .xsd : ServiceReceiptMessage	xsd/message/ECF-4.0-CoreFilingMessage.xsd : CoreFilingMessage

### 1383 **C.4.2 Consumed Operations**

1384 The Legal Service MDE does not call operations in other MDEs

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## 1385 **Appendix D. (Informative) Example Instances**

1386 Example instances of each ECF 4.0 message are provided in the xml/ subdirectory, as listed below:

1387

1388 **FeesCalculationQueryMessage**

1389 [xml/ECF-4.0-FeesCalculationQueryMessage.xml](#)

1390 **FeesCalculationResponseMessage**

1391 [xml/ECF-4.0-FeesCalculationResponseMessage.xml](#)

1392 **CaseListQueryMessage**

1393 [xml/ECF-4.0-CaseListQueryMessage.xml](#)

1394 **CaseListResponseMessage**

1395 [xml/ECF-4.0-CaseListResponseMessage.xml](#)

1396 **CaseQueryMessage**

1397 [xml/ECF-4.0-CaseQueryMessage.xml](#)

1398 **CaseResponseMessage**

1399 [xml/ECF-4.0-CaseResponseMessage.xml](#)

1400 **CoreFilingMessage (Appellate case type)**

1401 [xml/ECF-4.0-CoreFilingMessage-Appellate.xml](#)

1402 **CoreFilingMessage (Criminal case type)**

1403 [xml/ECF-4.0-CoreFilingMessage-Criminal.xml](#)

1404 **CourtPolicyQueryMessage**

1405 [xml/ECF-4.0-CourtPolicyQueryMessage.xml](#)

1406 **CourtPolicyResponseMessage**

1407 [xml/ECF-4.0-CourtPolicyResponseMessage.xml](#)

1408 **DocumentQueryMessage**

1409 [xml/ECF-4.0-DocumentQueryMessage.xml](#)

1410 **DocumentResponseMessage**

1411 [xml/ECF-4.0-DocumentResponseMessage.xml](#)

1412 **FilingListQueryMessage**

1413 [xml/ECF-4.0-FilingListQueryMessage.xml](#)

1414 **FilingListResponseMessage**

1415 [xml/ECF-4.0-FilingListResponseMessage.xml](#)

1416 **FilingPaymentMessage**

1417 [xml/ECF-4.0-PaymentMessage.xml](#)

1418 **FilingStatusQueryMessage**

1419 [xml/ECF-4.0-FilingStatusQueryMessage.xml](#)

1420 **FilingStatusResponseMessage**

1421 [xml/ECF-4.0-FilingStatusResponseMessage.xml](#)

1422 **MessageReceiptMessage**

1423 [xml/ECF-4.0-MessageReceiptMessage.xml](#)

1424 **PaymentReceiptMessage**

- 1425 [xml/ECF-4.0-PaymentReceiptMessage.xml](#)
- 1426 **RecordDocketingCallbackMessage**
- 1427 [xml/ECF-4.0-RecordDocketingCallbackMessage.xml](#)
- 1428 **RecordDocketingMessage**
- 1429 [xml/ECF-4.0-RecordDocketingMessage.xml](#)
- 1430 **ReviewFilingCallbackMessage**
- 1431 [xml/ECF-4.0-ReviewFilingCallbackMessage.xml](#)
- 1432 **ServiceInformationQueryMessage**
- 1433 [xml/ECF-4.0-ServiceInformationQueryMessage.xml](#)
- 1434 **ServiceInformationResponseMessage**
- 1435 [xml/ECF-4.0-ServiceInformationResponseMessage.xml](#)
- 1436 **ServiceReceiptMessage**
- 1437 [xml/ECF-4.0-ServiceReceiptMessage.xml](#)

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1438 **Appendix E. (Informative) Ongoing Work Items**

1439 The Electronic Court Filing TC plans to continue to revise and expand this specification through future  
1440 versions. Future versions of ECF will:

- 1441 • Address filings in administrative tribunals
- 1442 • Address primary service (the delivery of documents such as summonses, subpoenas and warrants  
1443 that establish a court's jurisdiction over a party)
- 1444 • Consider how the specifications for filing of documents intended for filing with a court relate to  
1445 specifications for filing other documents, e.g., property records, in the offices of elected clerks of  
1446 courts
- 1447 • Incorporate feedback from ECF implementations
- 1448 • Support future releases of the **[NIEM]**
- 1449 • Support future **[Court Document]** specifications and integration optimizations
- 1450 • Support non-case related filings into a court clerk's office

1451

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## Appendix F. (Informative) Acknowledgments

1452 The following court organizations provided lists of data elements required for initiating cases in their case  
1453 management information systems:

- 1454 • Administrative Office of United States Courts
  - 1455 ○ Bankruptcy, Civil, Criminal
- 1456 • Arizona Administrative Office of the Courts
  - 1457 ○ Appellate
- 1458 • Fourth Judicial District Court, Hennepin County, Minneapolis
  - 1459 ○ Criminal
- 1460 • King County Superior Court, Washington
  - 1461 ○ Civil, Criminal
- 1462 • Missouri Office of State Courts Administrator
  - 1463 ○ Citation
- 1464 • Thirteenth Judicial District, Orange County, Florida (through vendor)
  - 1465 ○ Civil, Criminal, Domestic relations, Mental health, Juvenile delinquency/dependency,
  - 1466 Probate, Citation
- 1467 • Utah State Courts
  - 1468 ○ Civil, Criminal

1469

1470 The following individuals were members or voting members of the committee during the development of  
1471 this specification:

- 1472 • Rolly Chambers, American Bar Association
- 1473 • John Messing, American Bar Association
- 1474 • Adam Angione, Courthouse News Service
- 1475 • Eric Eastman Doxpop, LLC
- 1476 • Robert DeFilippis, Associate
- 1477 • Chester Ensign, Associate
- 1478 • Gary Poindexter, Associate
- 1479 • Michael Alexandrou, Judicial Council of Georgia
- 1480 • Shawn Artrip, Judicial Council of Georgia,
- 1481 • Robbie Diaz, Judicial Council of Georgiar
- 1482 • Hui Ji, Judicial Council of Georgia
- 1483 • Morgan Medders, Judicial Council of Georgia
- 1484 • Scott Edson, LA County Information Systems Advisory Body
- 1485 • Ali Farahani, LA County Information Systems Advisory Body
- 1486 • John Ruegg, LA County Information Systems Advisory Body
- 1487 • CJ Allen, Maricopa County
- 1488 • Robin Gibson, Missouri Office of State Courts Admin
- 1489 • James Cabral, MTG Management Consultants, LLC
- 1490 • Thomas Clarke, National Center for State Courts
- 1491 • Diana Graski, National Center for State Courts
- 1492 • Jim Harris, National Center for State Courts
- 1493 • Jason Hill, New York State Office of Court Administration, DoT
- 1494 • Robert O'Brien, Ottawa Courts Administration Service
- 1495 • George Knecht, PC Intellect, LLC
- 1496 • Mark Ladd, Property Records Industry Assn.
- 1497 • Ron Bowmaster. Utah Administrative Office of the Courts

## Appendix G. (Informative) Revision History

Rev	Date	By Whom	What
Wd01	2008-03-17	James Cabral	Initial version
Wd02	2008-08-15	James Cabral	Revision including complete IEPD.
Wd03	2008-08-25	James Cabral	Revisions based on August face to face meeting and initial testing.
Wd04	2008-09-03	James Cabral	Revised guidance on filing record on appeal (Section 3.4)
Wd01	2008-09-20	James Cabral	Committee draft
4.01	2010-03-15	James Cabral	Minor schema and definition changes based on feedback from implementers of the ECF 4.0 specification.
Csd-01	2011-08-08	James Cabral	Revised reference format. Minor schema changes including correction of several constraints. Addition of Section 1.3.5 and revision of Section 2.4.3 based on feedback from implementers.
Csd-02	2011-10-18	James Cabral	Updated UBL reference version 2.1.
Csd-03	2012-02-07	James Cabral	Minor changes to Appendix C (non-normative). Minor additions to the schema. Revision of sections 2.4.1, 2.4.2, 3.1 and 3.3.3.2, based on feedback from implementers.