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GEDI — Generic Electronic Document Interchange

Échange de documents électroniques génériques (GEDI)

Reference number
ISO 17933:2000(E)

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 3.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

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International Standard ISO 17933 was prepared by Technical Committee ISO/TC 46, *Information and documentation*, Subcommittee SC 4, *Computer applications in information and documentation*.

Annexes A and B of this International Standard are for information only.

GEDI — Generic Electronic Document Interchange

1 Scope

This International Standard specifies a format for exchange of electronic document copies between computer systems. The format includes the definition of a GEDI Header containing information about the requester, Supplier, and format of the document and relevant bibliographic information.

This International Standard is applicable to computer systems supporting Interlibrary Loan and Document Transmission applications.

2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standards.

ISO 2108:1992, *Information and documentation — International standard book numbering (ISBN)*.

ISO 3166-1:1997, *Codes for the representation of names of countries and their subdivisions — Part 1: Country codes.*

ISO 3297:1998, *Information and documentation — International standard serial number (ISSN)*.

ISO 8601:1988, *Data elements and interchange formats — Information interchange — Representation of dates and times*.

ISO 10161-1:1997, *Information and documentation — Open Systems Interconnection — Interlibrary Loan Application Protocol Specification — Part 1: Protocol specification*.

ISO 10161-2:1997, *Information and documentation — Open Systems Interconnection — Interlibrary Loan Application Protocol Specification — Part 2: Protocol implementation conformance statement (PICS) proforma*.

RFC 959, *File Transfer Protocol (FTP), October 1985.*

3 Terms and definitions

For the purposes of this International Standard, the following terms and definitions apply.

3.1
consumer
application process that receives the GEDI record, processes the GEDI Header information, and makes one Electronic Document Copy available to the end user

3.2
domain
group of one or more Suppliers and one or more Consumers capable of engaging in Electronic Document Interchange Transactions between them, where a common agreement exists for 1) electronic document interchange format and compression algorithm, 2) electronic document transfer mechanism, and 3) network technology

3.3
Electronic Document Copy
the part of the GEDI Record that contains the electronic copy of the document

3.4
Electronic Document Interchange Transaction
complete cycle for the interchange of an Electronic Document Copy, starting with an electronic document residing at the Supplier and terminating with the completed delivery of that document to the Consumer

3.5
GEDI Domain
Domain in which the common agreements conform to this International Standard

3.6
GEDI Header
GEDI Cover
the first part of the GEDI Record containing information about 1) the format and version of the parts of the GEDI Record, 2) Electronic Document Exchange Transaction, 3) the bibliographic description of the electronic document, and 4) the format of the Electronic Document Copy

3.7
GEDI Record
complete GEDI message, containing both the GEDI Header and Electronic Document Copy

3.8
Relay
application process that receives a GEDI Record from a Supplier or Relay in one Domain and transmits it to another Relay or Consumer in a second Domain

3.9
Supplier
application process that captures an Electronic Document Copy, creates a GEDI Record, and transmits that Record to a Consumer, perhaps via one or more Relays

4 Symbols and abbreviated terms

FTP
File Transfer Protocol

JFIF
JPEG File Interchange Format

JPEG
Joint Photographic Experts Group

MIME
Multipurpose Internet Mail Extensions

PDF
Portable Document Format

POP
Post Office Protocol

RFC
Request for Comment; and Internet standard or proposal

SMTP
Simple Mail Transfer Protocol

TIFF
Tagged Image File Format

5 Service model and topology

5.1 Introduction

As the name indicates, the Generic Electronic Document Interchange (GEDI) is concerned with the interchange of documents in electronic form. From this concern, the emphasis of this International Standard lies in two areas:

a) the definition of an Electronic Document Format;

b) the description of the Interchange mechanism.

This concern is less wide in scope than that necessary to provide an Electronic Document Delivery service. Interchange is only a part of the whole process. To provide a complete delivery service, several other issues have to be addressed besides the two covered by GEDI.

The following elements are relevant to the complete delivery cycle of electronic documents.

a) **Identifying and locating** — where the document is identified and the source location is established. This can be done through the use of on-line union catalogue access (for example using the ISO 23950 standard), or through off-line services such as CD-ROMs or paper catalogues.

b) **Ordering** — where the required document is requested for delivery. This is functionally identical with issuing an Interlibrary Loan request. The GEDI Header information described in clause 7 takes the ISO ILL standard (ISO 10160) as a guideline for the document identification.

c) **Digitization** — where a hard-copy document is transformed into an electronic image. This will be done through a scanning device.

d) **Interchange** — where the actual transfer of the electronic copy takes place.

e) **Hard-copy reproduction** — where the document's image is converted back to paper or other media. This will be done through a printing device.

f) **Billing, accounting** and other administrative procedures.

All these elements can occur in several forms in practical situations; some might not be relevant in specific cases.

Interchange is a key element in this list as it effectuates the physical movement of a copy of a document. Other elements from the list could be absent in specific cases:

— identification and locating could be based upon common knowledge;

— ordering is not relevant in case of unsolicited delivery;

— digitalization is not necessary when documents have already been digitized, either through direct electronic publishing or through scanning and storing;

— reproduction can be skipped when an electronic copy is to be kept on a storage medium;

— billing and accounting are not relevant in cooperative services where participants share load and costs between them.

Therefore, the agreements reached in GEDI concentrate on interchange to provide common ground for the development of electronic document delivery services. On this basis, different electronic document delivery services would have the characteristics to easily enable development of links between them. Also, the development of the other elements constituting a full delivery service will benefit from international agreement on the interchange part.

The overall model that forms the basis of the International Standard within the scope of the interchange element of document delivery services is a global model. The source information that GEDI is concerned with, document images, is located around the world in various places. Likewise, the target clients of document delivery services are widely distributed. The model accommodates all sources and targets.

Furthermore, the model should recognize the responsibilities of a wide variety of organizations involved in document delivery to implement private solutions. In general, private solutions reflect agreements that exist between groups of organizations to optimize services between them. The GEDI model does not limit the possibilities and freedom of such agreements. In the end, the overall model aims at establishing common ground and direction guidelines for further development, to provide the possibility of interworking between such different groups.

5.2 General model

The general model for the interchange process for electronic document delivery is represented in Figure 1. The main characteristics of the model can be described as follows:

a) the interchange involves two parties, the Supplier and the Consumer;

b) the Supplier and Consumer are linked through a facility enabling the transfer of an electronic document from Supplier to Consumer;

c) the transfer handles one document at a time.

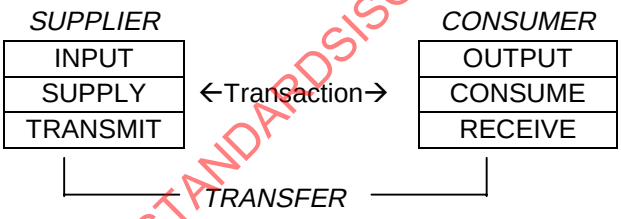

Figure 1 — General model for electronic document interchange

The complete cycle of interchange, starting with an electronic document residing with the Supplier and terminating with the completed delivery of that document to the Consumer is called a **Generic Electronic Document Interchange Transaction**.

It is important to note that the input and output functions as shown in Figure 1 do not participate in the transaction. The exact nature of these functions is outside the scope of this International Standard. Of course, in practical situations, some form of input and output will be available:

— input can come from hard-copy documents through scanning (the most probable form in the short term), from files with stored document images, or from electronically published documents;

— output can take the form of inserting an electronic document into a storage file, or printing. The implementation of some of these possibilities may be dependent on legal and copyright regulations.

5.3 The Domain concept

The model can be broken down into smaller parts by introducing the concept of Domains. This concept allows the solutions under private responsibilities in private Domains to be distinguished and made more or less independent of the solution on the common, international, GEDI domain. Common agreement is only required within the GEDI domain; GEDI might or might not be followed in private Domains.

The various private Domains will be interconnected through the services in the GEDI domain. Generally, private services are available on the basis of a variety of functional and network models reflecting the organizational structure within the private domain. From the definition of this International Standard, the Relay functions to be provided on the boundary between private and GEDI Domain can be specified.

A Domain is defined as a group of one or more Suppliers and one or more Consumers capable of engaging in Electronic Document Interchange Transactions between them, where a common agreement exists in the following areas:

a) electronic document interchange format and compression algorithm;

b) electronic document transfer mechanism;

c) network technology.

The Domain agreements not only specify which mechanism or standard to use, but also select the appropriate options to be used by the Domain members. In this sense, the Domain members agree on a common profile. This reduces the complexity of the development of systems that form part of the domain.

In practice, the Domain agreements cover all communication layers, whether they conform to International Standards and the OSI model or not. For example, the agreements in a particular Domain might specify communication on the basis of FTP over TCP/IP; another Domain might use MIME over TCP/IP.

In the application layer, agreements on the document format are as important for the Domain as the communication profile. In such a context, Suppliers and Consumers share the same view of an electronic document, and do not need functions for converting and reformatting.

Using this Domain concept, it follows that a Supplier and a Consumer within the same Domain are capable of interconnecting directly. Conversely, if they form part of different Domains, they might not be able to do so, depending on whether the two Domains share the same agreements or not. Note that two Domains that are administratively separate may still share a common profile.

If the two Domains do not share the same agreements, the interconnection will be realized through an Application Relay function. The Application Relay will receive a GEDI Record using transfer mechanisms under the agreements of the first domain, and will transfer the record to the second Domain under the agreements of the second domain. Figure 2 sketches out the role of the Application Relay.

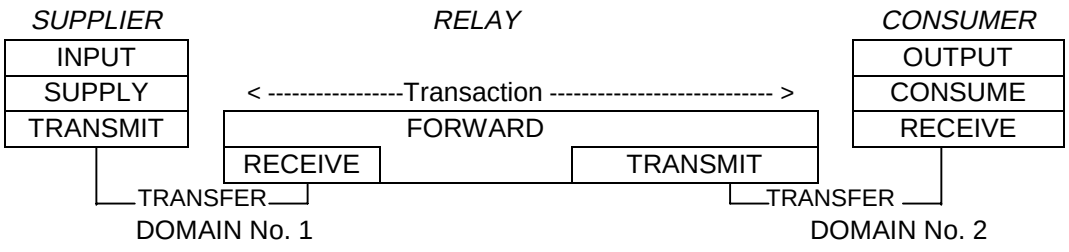

Figure 2 — Interchange across two Domains

Still, in the model of Figure 2, the Generic Electronic Document Interchange Transaction exists between Supplier and Consumer, with the Relay playing a supporting role

5.4 Functional elements

In Figure 2, all the model elements where Domain boundaries have to be crossed are shown. This model can be extended even further in cases where two Domains do not share a common Relay, but both have a Relay to a third domain. Subclause 5.5 will put this in context in the GEDI environment.

In this subclause, an overview of the functional elements shown in Figure 2 is given, together with the following characteristics of these elements.

a) Input
This function is responsible for making an Electronic Document Copy available to the Supplier. The Supplier will only handle Electronic Document Copies in the agreed image format, so the input function produces Electronic Document Copies within the Domain agreements on Electronic Document Copy format. Examples of the input function are: scanning a hard-copy document; and reading an electronic document from a storage device.

b) Supply
This function takes the result of the input function, the Electronic Document Copy, and produces a data structure to be transferred by adding information relevant to the transaction. This additional information is referred to as GEDI Header information, including the identification of the transaction, possibly a reference to an ILL transaction, the identification of the Electronic Document Copy, and information about the Supplier and Consumer. The supply function can also store the Electronic Document Copy temporarily before it is actually transferred, for example in situations where batches of Electronic Document Copies are being prepared for overnight transfer.

c) Transmit
This function takes care of the actual sending of the Electronic Document Copy and the GEDI Header information through a network. The transfer function includes the complete communications stack, with all the applications and lower layer protocol services in the initiator or originator role.

d) Receive
This function is the counterpart of the transmit function, and enables the receiving of the GEDI Record from the network. It is implemented using the same communication profile as the corresponding transmit function; it acts in the target or responder role.

e) Consume
This function receives the GEDI Record, and analyses the content of the GEDI Header information to determine what actions should be taken. Generally, it will present the Electronic Document Copy to an appropriate output function. At the same time, the GEDI Header information can be passed to other applications, for example for administrative purposes.

f) Output
This function takes care of the final reproduction or electronic filing of the received Electronic Document Copy. Examples are: printing of the Electronic Document Copy on a laser or other printer; permanent storage for later use.

g) Forward
This function provides the possibility of communicating between two Domains. It has the capabilities to convert between the agreements of two Domains. In effect, it is located on the boundary of the two Domains, taking in GEDI Records from the one Domain and sending out GEDI Records in the other.

The functional elements described above combine within the model into the main model entities as follows:

— The entity **SUPPLIER** can be thought of as an application process with the functions: input, supply and transmit.

— The entity **CONSUMER** is the application process with the functions: receive, consume and output.

— The entity **RELAY** is the application process with the functions: receive (in one domain), forward and transmit (in another domain).

5.5 GEDI topology

In the GEDI environment, a number of private Domains will exist. These private Domains can be further subdivided into sub-Domains, for example where regional services link up to form a national service.

Relays between the private Domains and the GEDI Domain can be developed on the basis of this International Standard.

Figure 3 depicts the communication between a Supplier and a Consumer that belong to two different private Domains, using the services of two Relays.

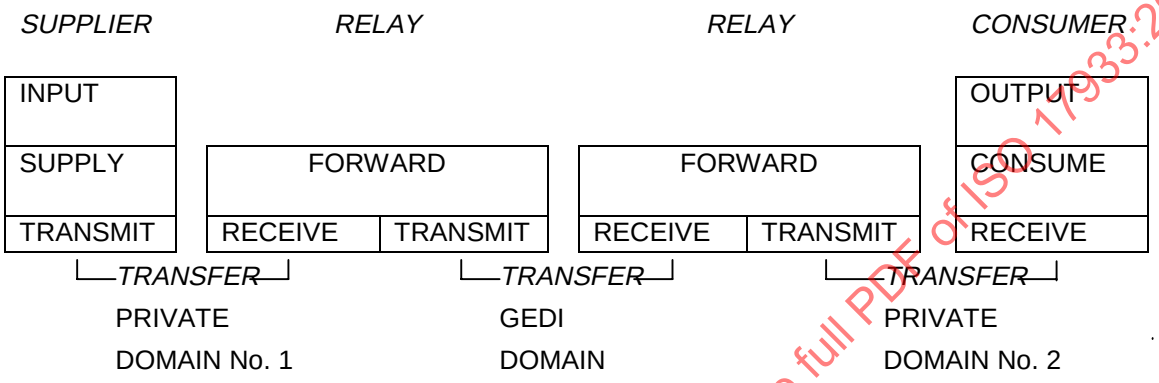

Figure 3 — Communication through the GEDI domain

The abstract model definition in the previous subclauses describes all the entities and functional elements involved in Electronic Document Interchange. In a practical situation, these elements will be implemented through programs on computer systems, communicating through physical network links.

6 GEDI Record format structure

Documents will be exchanged in a GEDI Record, the format of which consists of two parts:

a) the GEDI Header (cover information);

b) the Electronic Document Copy.

By separating the GEDI Header from the Electronic Document Copy, Relay systems are relieved of the requirement to be able to read the document image format. This approach also makes it easier to accommodate new document formats in the future. See Figure 4.

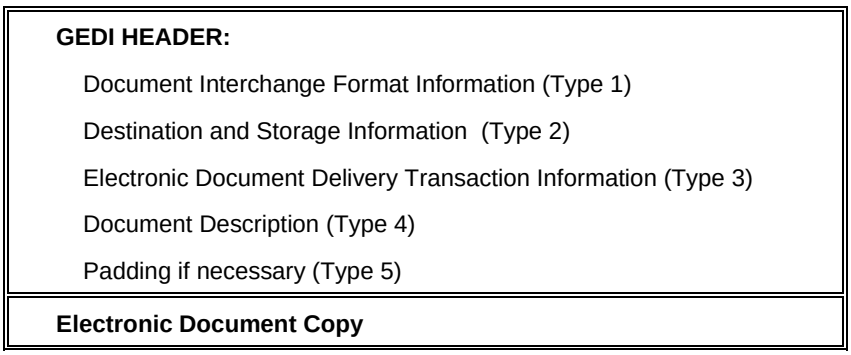

Figure 4 — GEDI Record Interchange Format

The GEDI Record may be transferred by a number of different mechanisms in different Domains, such as file transfer protocols (e.g. FTP) or email protocols (e.g. MIME). The existence of Relays between different Domains means that a single GEDI Record may be transferred by several different mechanisms in passing from Supplier (in one Domain) to Consumer (in another). Therefore, the format of the GEDI Record is independent of the transfer mechanism and makes no assumptions about the transfer mechanisms (other than that they can handle 8-bit data and have error detection).

7 The GEDI Header

7.1 General

The GEDI Header Information is classified into five types.

— Type 1: identifying information about the Document Interchange Format itself.

— Type 2: naming, time, destination, and storage information for the Transfer Mechanism.

— Type 3: other information about the particular Electronic Document Delivery Transaction.

— Type 4: information specific to the document, including a brief bibliographic description.

— Type 5: padding to allow for subsequent changes to the GEDI Header without changing the GEDI Header length (optional).

NOTE 1 The GEDI Header data elements, whether mandatory or optional, are singly occurring and cannot be repeated.

NOTE 2 The Supplier always has the option to include an actual cover page as part of an Electronic Document Copy, in addition to supplying the GEDI Header data elements.

7.2 GEDI Header data elements — semantics

7.2.1 Introduction

The following data elements make up the GEDI Header for transmission; the Consumer system may print them on a cover sheet for the GEDI Record as appropriate. In order to facilitate operation of this Electronic Document Delivery service with Interlibrary Loan applications, the data elements below are aligned with those defined in the ILL protocol standard, ISO 10161, wherever possible. Details of the mapping of ILL-Request Data Elements to GEDI tags are given for information in annex A. The occurrence of “10161” at the end of a definition indicates that the data element is aligned with the data element of the same name in the ILL protocol standard.

The “Structure” field specifies the data type for a data element. The following data types are used:

— **character-string:** ASCII 20 ... 7E; i.e. all the ASCII graphic characters

— **numeric:** ASCII 30 ... 39; i.e. 0 ... 9

— **alphanumeric:** ASCII 30 ... 39 41 ... 5A 61 ... 7A; i.e. 0 ... 9 A ... Z a ... z

NOTE Service-string-advice, SSAD, reserves some characters for special use in structured tags.

7.2.2 TYPE 1 — Document interchange format information

Name: **interchange-format-id**
Tag: **IFID**
Semantics: an unambiguous identifier of the document interchange format; it identifies both the abstract syntax and the encoding
Structure: character-string
Status: mandatory
Max. length: 20
Example: GEDI

Name: **interchange-format-version**
Tag: **IFVR**
Semantics: a version number for the Interchange Format Id
Structure: character-string
Status: mandatory
Max. length: 20
Example: 3.0

Name: **cover-information-length**
Tag: **CILN**
Semantics: the length of the GEDI Cover information (including the IFID and the IFVR); serves as an offset to the beginning of the Electronic Document Copy from the beginning of the GEDI Record; this is a character representation of a decimal number specifying the byte count of ALL of the GEDI Cover information
Structure: numeric
Status: mandatory
Max. length: 10 (padding fields included if present)
Example: 123

Name: **document-format-id**
Tag: **DFID**
Semantics: an unambiguous identifier of the format of the Electronic Document Copy in this GEDI Record; possible values include OIDs and MIME types. See annex B for a current registry of identifiers
Structure: character-string
Status: mandatory
Max. length: 20
Examples: TIFF-5.0, TIFF-6.0, PDF-1.1

Name: **service-string-advice**
Tag: **SSAD**
Semantics: a selection of characters for use as delimiters and indicators in Type 2, Type 3, and Type 4 data elements; used to provide information about the structure of elements. Each character must be set on a specified place in the string; use the following order:

- First character: release indicator
- Second character: delimiter/separator between items
- Third character: prefix of new subsegment. A one-position predefined alphanumeric character always precedes the "=" symbol
- Fourth character: opening bracket to start a nested structure
- Fifth character: closing bracket to end a nested structure

Four characters are used for subsegmenting and must be set in the service string:

- ";" as delimiter between items in a structured tag
- "=" as prefix of new subsegment; a one-position predefined alphanumeric character always precedes the "="
- "(" as opening bracket to start a nested structure
- ")" as closing bracket to end a nested structure

NOTE This was inherited from the EDIFACT encoding

Structure: character-string
Status: mandatory
Max. length: 50
Example: ?;=()

7.2.3 TYPE 2 — Destination and storage information relevant to the transfer mechanism

Name: **Consumer-name**
Tag: **CNSN**
Semantics: an unambiguous indication of the destination of the GEDI Record. Its preferred transfer mechanism and the system address are also included; this is an ordered list of preferred destinations. At least one value is required.
Structure: alphanumeric, structured. Name (N=); Email (E=); FTP address/directory (F=); Faxnr (X=). FTP must be substructured into Address (A=) and Directory (D=); multiple occurrences of Consumer-name are represented by repetitions of this sequence of subtags.
Status: mandatory
Max. length: 250
Example: F=(A=12911004352;D=LGR.DOC);N=PICA

Name: **record-name**
Tag: **RCNM**
Semantics: The name of the GEDI Record. The name is assigned by the Supplier so as to be unambiguous. It must follow the rules for Filenames as described in 9.2.
Structure: character-string
Status: mandatory
Max. length: 32
Example: RUGOPC2232

Name: **supplier-name**
Tag: **SPLN**
Semantics: The unambiguous indication of the source of the GEDI Record. At least one value is required.
Structure: alphanumeric, structured. Name (N=); Email (E=); FTP address/directory (F=); Faxnr (X=). FTP must be substructured into Address (A=) and Directory (D=)
Status: mandatory
Max. length: 250
Example: F=(A=12911004352;D=LGR.DOC);N=RLG

Name: **service-date-time**
Tag: **SVDT**
Semantics: the local date and time that the Supplier created this GEDI Record for transmission
Structure: numeric YYYYMMDDHHMMSS (conforms to ISO 8601)
Status: mandatory
Max. length: 14
Example: 19930204122436

Name: **system-service-id**
Tag: **SYID**
Semantics: delivery system identification of the Electronic Document Copy
Structure: character-string, unstructured
Status: optional
Max. length: 50
Example: DIS 12.12

Name: **system-service-address**
Tag: **SYAD**
Semantics: delivery system address of the GEDI Record; 10161 system-address
Structure: character-string, structured; Email (E=); Printlocation (P=); Faxnr (X=); Print location is substructured in Department (D=), Room (R=), Printer name (P=)
Status: optional
Max. length: 100
Example: E=Devries@ubg.nl;P=(D=development;R=123;P=oakprntr)
[10161 Definition: no equivalent 10161-1 definition found]

Name: **delivery-service**
Tag: **DLVS**
Semantics: a name or code for the delivery service or method to be used in transporting the Electronic Document Copy; 10161
Structure: character-string, structured; Name (N=); Email (E=); FTP address/directory (F=); Faxnr (X=). FTP must be substructured into Address (A=) and Directory (D=)
Status: optional
Max. length: 50
Example: F=(A=12911004352;D=LGR.DOC)
[10161 Definition: A name or code for the delivery service or method to be used in transporting the item (no change).]

Name: **confirmation-address**
Tag: **CNFA**
Semantics: an address for the confirmation of the transfer of a GEDI Record between two delivery systems
Structure: character-string, structured; Name (N=); Email (E=); FTP address/directory (F=); Faxnr (X=). FTP must be substructured into Address (A=) and Directory (D=)
Status: optional
Max. length: 50
Example: F=(A=12911004352;D=LGR.DOC)

7.2.4 TYPE 3 — Transaction information

Name: **priority**
Tag: **PRTY**
Semantics: the priority to be given to this Electronic Document Delivery Transaction; 0 is the lowest priority, 9 is the highest
Structure: numeric; number 0-9
Status: optional
Max. length: 1
Example: 0

Name: **general-note**
Tag: **GNLN**
Semantics: a free text message from the Supplier to the Consumer
Structure: character-string; unstructured
Status: optional
Max. length: 600
Example: End-page of article not sure

Name: **client-name**
Tag: **CLNT**
Semantics: the name of the reader for whom the Electronic Document Copy is intended; 10161
Structure: character-string, structured; Email (E=); Name (N=)
Status: optional
Max. length: 50
Example: E=devries@pica.nl;N=De Vries
[10161 Definition: Name of the person or institution for which the item has been requested.]

Name: **client-id**
Tag: **CLID**
Semantics: the identifier of the reader for whom the Electronic Document Copy is intended (e.g. library patron number); 10161
Structure: character-string, unstructured
Status: optional
Max. length: 25
Example: LIB1234567

[10161 Definition: Number or code used to identify the client uniquely.]

Name: **client-status**
Tag: **CLST**
Semantics: the status of the reader for whom the Electronic Document Copy is intended; 10161
Structure: character-string, structured. Country code conforms to ISO 3166-1: Code for the representation of names of countries and their subdivisions (L=); Status (S=)
Status: optional
Max. length: 25
Example: L=NL;S=Ing

[10161 Definition: Professional level or position of the client.]

Name: **name-of-person-or-institution**
Tag: **NPOI**
Semantics: the name component of the postal address to which the Electronic Document Copy is to be delivered; 10161
Structure: character-string, unstructured
Status: optional
Max. length: 150
Example: Royal Library

*[10161 Definition(s): **name-of-institution:** A word, phrase or abbreviation which identifies a library, institution or corporation; **name-of-person:** A word or combination of words and/or initials by which an individual is regularly known or designated and which identifies the person participating in the ILL-transaction.]*

Name: **extended-postal-delivery-address**
Tag: **XPDA**
Semantics: the miscellaneous component of the postal address to which the item is to be delivered
Structure: character-string, unstructured
Status: optional
Max. length: 100
Example: ILL Department

Name: **street-and-number**
Tag: **STNM**
Semantics: the street and number component of the postal address to which the item is to be delivered; 10161
Structure: character-string, unstructured
Status: optional
Max. length: 128
Example: Schipholweg 99

[10161 Definition: A number and/or phrase used to identify the location of a building within a city or a rural area.]

Name: **post-office-box**
Tag: **POBX**
Semantics: the post office box component of the postal address to which the item is to be delivered: 10161
Structure: character-string, unstructured
Status: optional
Max. length: 40
Example: Postbus 67

[10161 Definition: A box number assigned by the post office.]

Name: **city**
Tag: **CITY**
Semantics: the city component of the postal address to which the item is to be delivered; 10161
Structure: character-string, unstructured
Status: optional
Max. length: 128
Example: Maastricht

[10161 Definition: A phrase used to identify a city, town or village.]

Name: **region**
Tag: **REGN**
Semantics: the region component of the postal address to which the item is to be delivered; 10161
Structure: character-string, unstructured
Status: optional
Max. length: 128
Example: Limburg

[10161 Definition: A phrase used to identify a province, state, region or locale.]

Name: **country**
Tag: **CNTR**
Semantics: the country component of the postal address to which the item is to be delivered; 10161
Structure: character-string, unstructured
Status: optional
Max. length: 50
Example: The Netherlands

[10161 Definition: A phrase used to identify a country.]

Name: **postal-code**
Tag: **POCD**
Semantics: the postal code component of the postal address to which the item is to be delivered; 10161
Structure: character-string, unstructured
Status: optional
Max. length: 40
Example: 2634AC

[10161 Definition: A code which identifies a given area within a city or other geographical area.]

Name: **requester-id**
Tag: **RQID**
Semantics: information identifying the library (system) which generated the ILL request, typically an ILL office; 10161
Structure: character-string, unstructured
Status: optional
Max. length: 25
Example: 0019/0000

[10161 Definition: Identification information of the ILL-transaction requester. Note: the requester will not always be a library!]

Name: **requester-name**
Tag: **RQNM**
Semantics: name of the library (system) which generated the request for the document; 10161
Structure: character-string, structured; Name (N=); Email (E=); FTP address/directory (F=); Faxnr (X=). FTP must be substructured into Address (A=) and Directory (D=)
Status: optional
Max. length: 150
Example: N=RUU;E=OPC@ruu.n

[10161 Definition: requester-id: Identification information of the ILL-transaction requester.]

Name: **responder-id**
Tag: **RSID**
Semantics: information identifying the library (system) which satisfies the request for the document; 10161
Structure: character-string, unstructured
Status: optional
Max. length: 25
Example: 0019/0000

[10161 Definition: Identification information of the ILL-transaction responder.]

Name: **responder-name**
Tag: **RSNM**
Semantics: name of the library (system) which satisfies the request for the document; 10161
Structure: character-string, structured; Name (N=); Email (E=); FTP address/directory (F=); Faxnr (X=). FTP must be substructured into Address (A=) and Directory (D=)
Status: optional
Max. length: 150
Example: F=(A=12900045;D=KGH.DOC)

[10161 Definition: responder-id: Identification information of the ILL-transaction responder.]

Name: **copyright-compliance**
Tag: **CPRT**
Semantics: requester notation indicating the applicable copyright regulations or laws to which the requester is adhering; 10161
Structure: character-string, structured; Code (C=); Note (N=)
Status: optional
Max. length: 150
Example: C=1;N=Only private use

[10161 Definition: Requester notation indicating the applicable copyright regulations or law to which the requester is adhering.]

Name: **ILL-transaction-id**
Tag: **ILTI**
Semantics: information which uniquely identifies an ILL transaction related to this Electronic Document Delivery Transaction; 10161
Structure: character-string, structured; Symbol (S=); Name (N=); Group qualifier (G=); Qualifier (Q=); Subqualifier (B=)
Status: optional
Max. length: 25+150+25+25+25+(5*4)=270
Example: S=1200/0000;N=RUU;G=ION;Q=1234;B=1

[10161 Definition: transaction-qualifier: An alphanumeric string identifying all services and messages associated with a single ILL-transaction. Note that this is a unique string assigned by the initial requester of the ILL-transaction and applied by the ILL partners to all subsequent services and messages associated with the ILL-transaction. In combination with the requester's id and the transaction-group-qualifier, this provides a universally unique identification for the ILL-transaction.]

Name: **responder-note**
Tag: **RSNT**
Semantics: a free text message from the party which is responding to the ILL request; 10161
Structure: character-string, unstructured
Status: optional
Max. length: 600
Example: Last page missing
[10161 Definition: Note provided by the ILL-transaction responder.]

Name: **receive-control**
Tag: **RCON**
Semantics: information which controls the actions that the receiver is allowed to perform on the received item.
Structure: character-string, structured: D (print and delete only), F (forwarding NOT allowed), P (print only), V (view only), X (delete if forwarded)
Status: Optional for Supplier, if present mandatory for receiver
Max. Length 1
Example: D

7.2.5 TYPE 4 — Document description

Name: **author**
Tag: **ATHR**
Semantics: 10161
Structure: character-string, unstructured
Status: optional
Max. length: 125
Example: James, E.R.
[10161 Definition: Name of the person or corporate body responsible for the intellectual or artistic content of an item, including composers, creators or originators of an item.]

Name: **title**
Tag: **TTLE**
Semantics: This is the title of the serial, monograph, or whatever, from which the document is extracted.
Structure: character-string, unstructured
Status: optional
Max. length: 250
Example: Journal of the American Chemical Society
[10161 Definition: Name of an item consisting of a word or group of words intended to identify it.]

Name: **volume-issue**
Tag: **VLIS**
Semantics: 10161
Structure: character-string, structured; Volume (V=); Issue (I=); Combined (B=)
Status: optional
Max. length: 25
Example: V=1.2
[10161 Definition: Identifier of a physical unit of a serial or multi-volume monograph/number, letter or word identifying a unit of an item which is, or the volumes which are, published in parts.]

Name: **author-of-article**
Tag: **AART**
Semantics: 10161
Structure: character-string, unstructured
Status: optional
Max. length: 125
Example: Jones, Q.X.

[10161 Definition: Author of an item which is a component part of another item.]

Name: **title-of-article**
Tag: **TART**
Semantics: the title of the document being transmitted
Structure: character-string, unstructured
Status: optional
Max. length: 250
Example: From Babel to EDIL - the evolution of a standard

[10161 Definition: Title of an item which is a component part of another item.]

Name: **ISBN**
Tag: **ISBN**
Semantics: International standard book number, as defined in ISO 2108:1992 *Documentation — International Standard book numbering (ISBN);* 10161.
Structure: alpha-numeric
Status: optional
Max. length: 10
Example: 1234567890

[10161 Definition: The International Standard Book Number assigned to a monograph as prescribed by ISO 2108:1992.]

Name: **ISSN**
Tag: **ISSN**
Semantics: an unambiguous identification code for serial publications, as defined in ISO 3297:1998 *Documentation - International Standard Serial numbering (ISSN); 10161*
Structure: alpha-numeric
Status: optional
Max. length: 8
Example: 12345678

[10161 Definition: The International Standard Serial Number assigned to a serial title as prescribed by ISO 3297-1998.]

Name: **page-numbers**
Tag: **PGNS**
Semantics: the range(s) of page numbers in the original document that are contained in the electronic copy of the document
Structure: character-string, unstructured
Status: optional
Max. length: 100
Example: 1-23, 36

Name: **date-scanned**
Tag: **DTSC**
Semantics: the date that the electronic copy of the document was made; this is not necessarily the same as the date that the electronic copy was placed within this Document Interchange Format Record
Structure: numeric; YYYYMMDDHHMMSS (conforms to ISO 8601)
Status: optional
Max. length: 14
Example: 19930101123554

Name: **number-of-pages**
Tag: **NMPG**
Semantics: the total number of pages represented in the electronic document copy
Structure: numeric
Status: optional
Max. length: 5
Example: 123

Name: **call-number**
Tag: **CLNO**
Semantics: see ILL-REQUEST under item-id (call number)
Structure: character-string, structured; Journal (J=); Book (B=); Report (R=) and Unknown (U=)
Status: optional
Max. length: 50
Example: J=12.9

Name: **publication-date-of-component**
Tag: **PDOC**
Semantics: see ILL-REQUEST under item-id (publication date of component)
Structure: character-string, unstructured
Status: optional
Max. length: 25
Example: 1992

Name: **publication-date**
Tag: **PUBD**
Semantics: see ILL-REQUEST under item-id (publication date)
Structure: character-string, unstructured
Status: optional
Max. length: 25
Example: 2-03-93

Name: **place-of-publication**
Tag: **PLPB**
Semantics: see ILL-REQUEST under item-id (place of publication)
Structure: character-string, unstructured
Status: optional
Max. length: 128
Example: London

Name: **publisher**
Tag: **PUBL**
Semantics: see ILL-REQUEST under item-id (publisher)
Structure: character-string, unstructured
Status: optional
Max. length: 50
Example: Harvard University Press

Name: **edition**
Tag: **EDIT**
Semantics: see ILL-REQUEST under item-id (edition)
Structure: character-string, unstructured
Status: optional
Max. length: 25
Example: 12A

Name: **request-as-quoted**
Tag: **RQAQ**
Semantics: details of the requested item as quoted by the requester
Structure: character-string, unstructured
Status: optional
Max. length: 600
Example: Jnl Am Chem Soc. 1993 642 (3) 3412-3417 Smith and Jones

Name: **copyright-statement**
Tag: **STAT**
Semantics: a free text message from the Supplier which details any restrictions on the use of the delivered item for copyright reasons.
Structure: character-string, unstructured
Status: Optional, but, if included, it is mandatory for the statement to be printed out with the item or, if displayed on a screen, it is mandatory for the statement to be displayed on the screen
Max. Length: 600
Example: Further copying of this document (including storage in any medium by electronic means), other than that allowed under copyright law, is not permitted without the permission of the copyright owner or an authorized licensing body.

Name: **Item Id**
Tag: **ITID**
Semantics: a standard identifier for the item, such as BICI, DOI, SICI, URN
Structure: character-string, type of identifier (T=); value of identifier (V=);
Status: optional
Max. Length: 200
Example: T=SICI; V=0002-8231(199412)45:10<737:T10DIM>2.3.tx;2-M

7.2.6 TYPE 5 — Padding

Name: **zpadding**
Tag: **ZPAD**
Semantics: the length of this field reserves space for reformatting the GEDI Header; this is done to allow systems to change the length of individual data elements in the GEDI Header without changing the total length of the GEDI Header; the length of ZPAD can be changed by the amount necessary to compensate for the sum of the changes in the length of individual data elements. The contents of the value of ZPAD have no significance
Structure: none
Status: optional
Max. length: 8k
Example:

7.3 GEDI Header data elements--syntax

Each data element is represented in a <tag><length><value> structure. Tags are mnemonic alphabetic 8-bit ASCII character strings, fixed length of four 8-bit characters, case insensitive. Lengths are decimal integers, represented by four ASCII numeric characters, fixed length. Values are string of 8-bit ASCII graphic characters. There are no intervening characters, or “white space” of any kind between the <tag> and the <length>, the <length> and the <value>, or the <value> and the next <tag>.

The different types are shown in Tables 1 to 5

Tableau 1 — TYPE 1--Document interchange format information

Tag	Name	Mandatory/ Optional	Max. length	Structure
IFID	interchange-format-id	**M**	20	character-string
IFVR	interchange-format-version	**M**	20	character-string
CILN	cover-information-length	**M**	10	numeric
DFID	document-format-id	**M**	20	character-string
SSAD	service-string-advice	**M**	50	character-string

Tableau 2 — TYPE 2--Destination and storage information

Tag	Name	Mandatory/ Optional	Max. length	Structure
CNSN	Consumer-name	**M**	250	character-string, structured. Name (N=); Email (E=); FTP address/directory (F=); Faxnr (X=).FTP must be substructured into Address (A=) and Directory (D=)
RCNM	record-name	**M**	32	character-string
SPLN	Supplier-name	**M**	250	character-string, structured. Name (N=); Email (E=); FTP address/directory (F=); Faxnr (X=). FTP must be substructured into Address (A=) and Directory (D=)
SVDT	service-date-time	**M**	14	numeric YYYYMMDDHHMMSS conforms to ISO 8601
SYID	system-service-id	Opt.	50	character-string, unstructured
SYAD	system-service-address	Opt.	100	character-string, structured; Email (E=); Print location (P=); Faxnr (X=); Print location must be substructured into Department (D=); Room (R=); Printer name (P=)
DLVS	delivery-service	Opt.	50	character-string, structured; Email (E=); FTP address/directory (F=): Faxnr (X=); ISDN address and code (I=); FTP must be substructured into Address (A=) and Directory (D=)
CNFA	confirmation-address	Opt.	50	character-string, structured; Email (E=); FTP address/directory (F=); Faxnr (X=); FTP must be substructured into Address (A=) and Directory (D=)

Tableau 3 — TYPE 3--Electronic document delivery transaction information

Tag	Name	Mandatory/ Optional	Max. length	Structure
PRTY	priority	Opt.	1	numeric; number 0-9
GNLN	general-note	Opt.	600	character-string, unstructured
CLNT	client-name	Opt.	50	character-string, structured; Email (E=); Name (N=)
CLID	client-id	Opt.	25	character-string, unstructured
CLST	client-status	Opt.	25	character-string, structured; Country code conforms to ISO 3166-1, *Codes for the representation of names of countries and their subdivisions — Part 1: Country codes.* (L=); Status (S=)
NPOI	name-of-person-or-institution	Opt.	150	character-string, unstructured
XPDA	extended-postal-delivery-address	Opt.	100	character-string, unstructured
STNM	street-and-number	Opt.	128	character-string, unstructured
POBX	post-office-box	Opt.	40	character-string, unstructured
CITY	city	Opt.	128	character-string, unstructured
REGN	region	Opt.	128	character-string, unstructured
CNTR	country	Opt.	50	character-string, unstructured
POCD	postal-code	Opt.	40	character-string, unstructured
RQID	requester-id	Opt.	25	character-string, unstructured
RQNM	requester-name	Opt.	150	character-string, structured; Name (N=); Email (E=); FTP address/directory (F=); Faxnr (X=) FTP must be substructured into Address (A=) and Directory (D=)
RSID	responder-id	Opt.	25	character-string, unstructured
RSNM	responder-name	Opt.	150	character-string, structured; Name (N=); Email (E=); FTP address/directory (F=); Faxnr (X=) FTP must be substructured into Address (A=) and Directory D=)
CPRT	copyright-compliance	Opt.	150	character-string, structured; Code (C=); Note (N=)
ILTI	ILL-transaction-id	Opt.	270	character-string, structured; Symbol (S=); Name (N=); Group qualifier (G=); Qualifier (Q=); Subqualifier (B=)
RSNT	responder-note	Opt.	600	character-string, unstructured
RCON	receive-control	Opt.	1	character-string, structured: print and delete only (D); do NOT forward (F); print only (P); view only (V); delete if forwarded (X)

Tableau 4 — TYPE 4--Document description

Tag	**Name**	**Mandatory/** Optional	**Max. length**	**Structure**
ATHR	author	Opt.	125	character-string, unstructured
TTLE	title	Opt.	250	character-string, unstructured
VLIS	volume-issue	Opt.	25	character-string, structured; Volume (V=), Issue (I=); Combined (B=)
AART	author-of-article	Opt.	125	character-string, unstructured
TART	title-of-article	Opt.	250	character-string, unstructured
ISBN	ISBN	Opt.	10	alpha-numeric
ISSN	ISSN	Opt.	8	alpha-numeric
PGNS	page-numbers	Opt.	100	character-string, unstructured
DTSC	date-scanned	Opt.	14	numeric; YYYYMMDDHHMMSS, conforms to ISO 8601
NMPG	number-of-pages	Opt.	5	numeric, unstructured
CLNO	call-number	Opt.	50	character-string, unstructured
PDOC	publication-date-of-component	Opt.	25	character-string, unstructured
PUBD	publication-date	Opt.	25	character-string, unstructured
PLPB	place-of-publication	Opt.	128	character-string, unstructured
PUBL	publisher	Opt.	50	character-string, unstructured
EDIT	edition	Opt.	25	character-string, unstructured
RQAQ	request-as-quoted	Opt.	600	character-string, unstructured
STAT	copyright-statement	Opt.	600	character string, unstructured
ITID	item id	Opt.	200	character string, structured: type of identifier (T=); value of identifier (V=);

Tableau 5 — TYPE 5--Padding

MNEM	**Name**	**Mandatory/** Optional	**Max. length**	**Structure**
ZPAD	zpadding	Opt.	8k	none

7.4 Tag list in alphabetical order

TAG	type	Name
AART	4	author-of-article
ATHR	4	author
CILN	1	cover-information-length
CITY	3	city
CLNO	4	call-number
CLID	3	client-id
CLNT	3	client-name
CLST	3	client-status
CNFA	2	confirmation-address
CNSN	2	Consumer-name
CNTR	3	country
CPRT	3	copyright-compliance
DFID	1	document-format-id
DLVS	2	delivery-service
DTSC	4	date-scanned
EDIT	4	edition
GNLN	3	general-note
IFID	1	interchange-format-id
IFVR	1	interchange-format-version
ILTI	3	ILL-transaction-id
ISBN	4	ISBN
ISSN	4	ISSN
ITID	4	Item-id
NMPG	4	number-of-pages
NPOI	3	name-of-person-of-institution
PDOC	4	publication-date-of-component
PGNS	4	page-numbers
PLPB	4	place-of-publication
POBX	3	post-office-box
POCD	3	postal-code
PUBD	4	publication-date
PUBL	4	publisher
PRTY	3	priority
RCNM	2	record-name
RCON	3	receive-control
REGN	3	region
RQAQ	4	request-as-quoted
RQID	3	requester-id
RQNM	3	requester-name
RSID	3	responder-id
RSNM	3	responder-name
RSNT	3	responder-note
SPLN	2	Supplier-name
SSAD	1	service-string-advice
STAT	4	copyright-statement
STNM	3	street-and-number
SVDT	2	service-date-time
SYAD	2	system-service-address
SYID	2	system-service-id
TART	4	title-of-article
TTLE	4	title
VLIS	4	volume-issue
XPDA	3	extended-postal-delivery-address
ZPAD	5	zpadding

7.5 Sample GEDI Header

IFID0004GEDIIFVS00032.0CILN00042048DFID0008TIFF6.0SSAD0005?;=()CNSN0006N=PICARCNM0008RLG0
0001SPLN0005N=RLGSVDT001419910802140600TTLE0012PC/ComputingAART0013Paul
SomersonTART0031The DOS you've been waiting forZPAD1860

tag	IFID
len	0004
value	GEDI

tag	IFVS
len	0003
value	3.0

tag	CILN
len	0004
value	2048

tag	DFID
len	0008
value	TIFF-6.0

tag	SSAD
len	0005
value	?;=()

tag	CNSN
len	0006
value	N=PICA

tag	RCNM
len	0008
value	RLG00001

tag	SPLN
len	0005
value	N=RLG

tag	SVDT
len	0014
value	19910802140600

tag	TTLE
len	0012
value	PC/Computing

tag	AART
len	0013
value	Paul Somerson

tag	TART
len	0031
value	The DOS you've been waiting for

tag	ZPAD
len	1860
value	[blanks]

8 Electronic document format

8.1 General

GEDI supports various formats for the representation of documents in electronic form, such as TIFF, PDF and JPEG.

As indicated in clause 6, the structure of the GEDI Record is designed to accommodate easily additional formats for representation of documents, such as ODA or SGML, in the future.

8.2 Document format identification

The Document Format Identification (DFID) field in the GEDI Header specifies the format of the electronic document copy in any given GEDI record. See annex B for registration of document formats and corresponding values of DFID.

9 File transfer mechanism

9.1 Introduction

This International Standard is defined with the intention that it should be possible for a document to be exchanged as a single file (the “GEDI record”) between transmitter and receiver. For this purpose, GEDI attempts to support existing standards, protocols and profiles selected by existing International Standardization groups for simple file transfers.

The choice of file transfer mechanism is the Internet FTP protocol.

While the general intention is to make this International Standard as independent as possible of the specific transfer mechanism adopted, it is recognized that the choice of mechanism requires that certain additional features be specified. This amounts to defining a profile for the protocol in question.

Subclauses 9.2 to 9.6 specify such a profile for FTP.

9.2 Filenames

In order to avoid potential conflicts, documents have to be exchanged with unique filenames. These filenames will be used all the way from Supplier to Consumer. Therefore, they must be usable on a large number of computers.

A filename will have to conform to the following rules:

— 8 characters long, followed optionally by a “.” separator and a three character extension;

— contains only uppercase (A, B, C, ..., Z) and digits (0, 1, ..., 9), except for the separator;

— consists of a unique system ID, followed by a sequence number.

The serial number is chosen by the Supplier in order to be unique (for this Supplier) within a time interval that will avoid ambiguous reuse of the serial number.

One of the acceptable forms of filename is one based on an IP address. This type of filename must conform to the following rules:

— 12 characters long;

— the first eight characters are a hexadecimal representation of the IP address;

— the ninth character is a “.” separator;

— the last 3 characters are a serial number.

9.3 FTP introduction

The transmitter will act as the client, initiating the control connection and sending the files. The receiver will act as the server, listening for incoming control connections, including receipt of the Store (STOR) command, and receive files from the client.

9.4 FTP implementation profile

Aspects indicated in **bold face type** are essential to the GEDI application.

USE RFC 959 File Transfer Protocol minimum implementation (Clause 5.1) plus Image Data Type (Clause 3.1.1.3) and the Password (PASS) and Allocate (ALLO) commands. GEDI files will always be sent in the IMAGE Representation Type, the STREAM Transfer Mode, and the FILE Structure.

TYPE - ASCII Non-print and **IMAGE***

MODE - Stream

Structure - File, Record

Commands -

User Name (USER)

Logout (QUIT)

Data Port (PORT)

Representation Type (TYPE) for ASCII Non-print and Image

Transfer Mode (MODE)

File Structure (STRU) for File and Record

RETRIEVE (RETR)

STORE (STOR)

NOOP

Password (PASS)

Allocate (ALLO)

NOTE The elements marked with an asterisk (*) are in addition to the minimum implementation specified in RFC 959, Clause 5.1

9.5 Supporting protocol stack for FTP

FTP will run over TCP/IP.

9.6 FTP naming and addressing

FTP will be accessible at the “well-known ports” for FTP, Port 21 for commands and Port 20 for data, at the host address for each system.

10 Mail transfer mechanism

10.1 Introduction

When a GEDI record is sent via email, the entire GEDI record is contained within a single email message. Within that single message, the machine-readable GEDI Header is carried in a separate body part from the body part used for the optional human-readable GEDI Header or from the body part used for the document copy.

Body part A	**GEDI Header (required)**
Body part A'	*human-readable GEDI Header (optional)*
Body part B	**document copy (required)**

The proposed format allows the primary Content-Type GEDI Header of the message to specify explicitly that this is a GEDI record. This has the advantage that specialized GEDI-viewing software may be employed by the user agent to display/print/handle the document.

Where an application does not recognize the new GEDI MIME type, it should treat the message as a multipart/mixed message; where it does not understand any of the constituent parts, it should allow the user to specify a file to store them in.

10.2 MIME implementation profile

The overall message content-type GEDI Header is:

Content-Type: multipart/gedi-record

No parameters are defined.

10.2.1 The GEDI Header Body part-required

The first body part is the *machine-readable* GEDI Header, that is the GEDI Header in the syntax defined in clause 6 and 7. The machine-readable form is a new MIME content type, *application/gedi-header*; this will allow GEDI-specific software to use it, and to specify that this is in GEDI Header syntax.

The *Content-Transfer-Encoding: quoted-printable* is used for this body part since the GEDI Header syntax does not use new line characters and therefore can generate lines longer than 76 characters. The Content-Type line for this body part may have a parameter *charset=*; this is mandatory if the body contains characters outside the US-ASCII character set.

When the optional Human-Readable GEDI Header (see below) is NOT present, the form of the MIME message is as shown in Table 6.

Table 6 — GEDI-Record MIME Structure without the Human-Readable GEDI Header

	Content-type: multipart/gedi-record; boundary="<unique-boundary1>"
	--<unique-boundary1>
GEDI Header Body Part	**Content-type**: application/gedi-header Content-transfer-encoding: quoted-printable *<gedi header>*
	--<unique-boundary1>
Electronic Document Body Part(s)	**Content-type**: image/tiff Content-transfer-encoding: base64 *<the document>*
	--<unique-boundary1>--

10.2.2 The Human-Readable GEDI Header Body part-optional

The human-readable part, if present, uses a MIME media type appropriate for the contents, i.e. determined by the originator of the messages. This is most likely to be *text/plain* with an appropriate character set, and *text/plain* is used here as an example. This part is optional. If the human-readable form uses non-US-ASCII characters and/or has lines longer than 76 characters, it should be encoded using quoted-printable rather than base64, to allow maximum opportunity for it to be displayed in human-readable form.

Unlike the GEDI Header, the content and format of the Human-Readable GEDI Header is not defined by this International Standard. The content and format of this GEDI Header is left to the discretion of the implementation. No assumptions can be made about the content and format of this GEDI Header.

When the optional Human-Readable GEDI Header is present, both the GEDI Header and the Human-Readable GEDI Header will be contained in a body part of content-type: multipart/mixed as shown in Table 7.

Table 7 — GEDI-Record MIME Structure with the Human-Readable Header

	Content-type: multipart/gedi-record; boundary="<unique-boundary1>"
	--<unique-boundary1>
	Content-type: multipart/mixed; boundary="<unique-boundary2>"
	--<unique-boundary2>
GEDI Header Body part	**Content-type**: application/gedi-GEDI Header Content-transfer-encoding: quoted-printable <GEDI Header>
	--<unique-boundary2>
Human-Readable Body Part	**Content-type**: text/plain <human readable GEDI Header>
	--<unique-boundary2>--
	--<unique-boundary1>
Electronic Document Body Part(s)	**Content-type**: image/tiff Content-transfer-encoding: base64 <the document>
	--<unique-boundary1>--

10.2.3 The Electronic Document Copy Body part(s) — required

One or more body parts complete the message, transmitting the electronic document copy.

Either the whole document is transmitted in a single body part, or the pieces of the document are contained in multiple body parts.

Note that some formats, e.g. multi-page TIFF, have page identification and organization built in, so would not require a page per body part approach.

The Content-Type and Content-Transfer-Encoding will be appropriate for the format of the document, e.g. tiff, jpeg, pdf.

There is no requirement for all pages to have the same Content-Type, although this will probably usually be the case.

EXAMPLE including Human-Readable GEDI Header:

```
Content-Type: multipart/gedi-record;
              boundary=”unique-boundary1”

--unique-boundary1
Content-type: multipart/mixed;
              boundary=“unique-boundary2”

--boundary2
Content-Type: application/gedi-GEDI Header
              Content-Transfer-Encoding: quoted-printable

IFID0004GEDIIFVS00033.0CILN00042048DFID0008TIFF6.0SSAD0005?=()CNSN0006N==
PICARCNM0008RLG00001SPLN0005N=RLGSVDT00141991080214060OTTLE0012PC/Comput= ingAART0013Paul
SomersonTART0031The DOS you’ve been waiting forZPAD1860
--unique-boundary2
Content-Type: text/plain

       interchange-format-id          GEDI
       interchange-format-version     3.0
       document-format-id             TIFF-6.0
       Consumer-name                  PICA
       record-name                    RLG00001
       Supplier-name                  RLG
       service-date_time              1991/08/02 14:06:00
       title                          PC/Computing
       author-of-article              Paul Somerson
       title-of-article               The DOS you’ve been waiting
                                      for
--unique-boundary2--
--unique-boundary1
Content-Type: image/tiff
Content-Transfer-Encoding: base64

<multi-page TIFF image>
--unique-boundary1--
```

10.3 Supporting protocol stack for MIME

The SMTP protocol is used for sending. Either SMTP or the POP3 protocol is used for receiving. These are run over TCP/IP.

11 Conformance

11.1 Sending/receiving role(s)

A system may claim conformance as either

a) a sending system (Supplier),

b) a receiving system (Consumer), or

c) both a sending (Supplier) and receiving (Consumer) system.

11.2 GEDI Header data element conformance

A system claiming conformance as a sending system (Supplier) must be able to send all of the mandatory data elements, as defined in 7.2. This includes all Type 1 data elements, as defined in 7.2.2, since all of these are mandatory, and the mandatory Type 2 data elements as defined in 7.2.3.

A system claiming conformance as a receiving system (Consumer) must be able to receive all of the GEDI Header data elements, both mandatory and optional, as defined in clause 8. For extensibility, a receiving system (Consumer) must also be able to receive a GEDI Header data element that it does not recognize; the presumption is that the system will ignore any unrecognized data elements.

11.2.1 In order to claim conformance to the GEDI Document Interchange Format Record GEDI-3.0 as a Supplier, a system must be able to transmit all of the mandatory GEDI Header elements as defined in this International Standard.

NOTE 1 No ordering of tags is advised, except IFID as the first and ZPAD as the last tag.

NOTE 2 Tags are not repeatable.

11.2.2 In order to claim conformance to the GEDI Document Interchange Format Record GEDI-3.0 as a Consumer, a system must

a) be able to receive and process all of the optional elements as defined in this International Standard, and

b) be able to receive and process TIFF Version 6.0 images, as specified in annex B.

For purposes of extensibility, a Consumer system must also be able to ignore any unknown elements it receives, as long as those elements conform to the structure of <4 character tag><4 character length><value> as specified in 7.3.

11.2.3 In order to claim conformance to the GEDI Document Interchange Format Record GEDI-3.0 as a Relay, a system must

a) be able to receive and transmit the GEDI record transparently, without change, and

b) be able to create and transmit TIFF Version 6.0 images, as specified in annex B.

11.3 Electronic document copy conformance

A system claiming conformance as a sending system (Supplier) must be able to send electronic document copies in the TIFF image format as defined in annex B.1.

A system claiming conformance as a receiving system (Consumer) must be able to receive electronic document copies in the TIFF image format as defined in annex B.1.

11.4 Protocol conformance

A system may claim conformance as either:

a) an FTP system,

b) a MIME system, or

c) both an FTP system and MIME system.

11.4.1 FTP conformance

A system claiming conformance as an FTP system must be according to clause 9.

11.4.2 MIME conformance

A system claiming conformance as a MIME system must be according to clause 10.

Annex A
(informative)

Mapping of the ILL-Request APDU to GEDI

ILL Data Elements	Components/elements	GEDI Tag	Notes
protocol-version-num		-	
transaction-id			
	initial-requester-id		
	-person-or-institution-symbol	ILTI (S=)	
	-name-of-person-or-institution	ILTI (N=)	
	transaction-group-qualifier	ILTI (G=)	
	transaction-qualifier	ILTI (Q=)	
	sub-transaction-qualifier	ILTI (B=)	
service-date-time			
	date-time-of-this-service		
	-date	-	
	-time	-	
	date-time-of-original-service		
	-date	-	
	-time	-	
requester-id	person-or-institution-symbol	RQID	
	name-of-person-or-institution	RQNM (N=)	
responder-id	person-or-institution-symbol	RSID	
	name-of-person-or-institution	RSNM (N=)	
transaction-type		-	
delivery-address	postal-address		
	-name-of-person-or-institution	NPOI	
	-extended-postal-delivery-address	XPDA	*
	-street-and-number	STNM	
	-post-office-box	POBX	
	city	CITY	
	region	REGN	
	country	CNTR	
	postal-code	POCD	
	electronic-address		
	-telecom-service-identifier	SYID	
	-telecom-service-address	SYAD	

ILL Data Elements	Components/elements	GEDI Tag	Notes
delivery-service	physical-delivery	-	
	electronic-delivery		
	-e-delivery-service	CNSN	
	-- e-delivery-mode		
	-- e-delivery-parameters		
	-document-type		
	-- document-type-id		
	--document-type-parameters		
	-e-delivery-details	CNSN	One of e-delivery-address or e-delivery-id will be present
	--e-delivery-address		
	---telecom-service-identifier		
	--- telecom-service-address		
	--e-delivery-id		
	--- person-or-institution-symbol		
	--- name-of-person-or-institution		
	-name-or-code	-	
	-delivery-time	-	
billing-address	postal-address		
	-name	-	
	-extended-postal-delivery-address	-	
	-street-and-number	-	
	-post-office-box	-	
	-city	-	
	-region	-	
	-country	-	
	-postal-code	-	
	electronic-address		
	-telecom-service-identifier	-	
	-telecom-service-address.	-	
ill-service-type		-	
responder-specific-service		-	