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Binary file transfer format for the telematic services

ITU-T Recommendation T.434

TU-T RECOMMENDATION T.434

BINARY FILE TRANSFER FORMAT FOR THE TELEMATIC SERVICES

Summary

This Recommendation is one of the Recommendations of the T.430-Series Document Transfer and Manipulation (DTAM) that contain the protocol definitions and service descriptions used in the transfer of documents and data in the telematic services.

Source

FOREWORD

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NOTE

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Recommendation T.434

BINARY FILE TRANSFER FORMAT FOR THE TELEMATIC SERVICES

(revised in 1999)

1   Scope

This Recommendation defines the binary file transfer format which is intended for the transfer of data in the telematic services, including Facsimile Group 3 and Group 4, DTAM and message handling.

2   Normative references

References are contained in Recommendation T.431.

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; all users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published.

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

–   ISO 8571-2:1988, *Information processing systems – Open Systems Interconnection – File Transfer, Access and Management – Part 2: Virtual Filestore Definition.*

–   ISO 8571-4:1988, *Information processing systems – Open Systems Interconnection – File Transfer, Access and Management – Part 4: File Protocol Specification.*

–   ITU-T Recommendation X.680 (1997) | ISO/IEC 8824-1:1998, *Information technology – Abstract Syntax Notation One (ASN.1): Specification of basic notation.*

RFC 2046, *Multipurpose Internet Mail Extensions (MIME) Part Two: Media Types*

3   Definitions

For the purposes of this Recommendation, the following definitions apply.

3.1   attribute: A piece of information stating a property of something, taking one of a set of defined values, each value having a defined meaning.

3.2   binary file (data): A sequence of octets, representing a binary file and optional attributes, formed, using the coding rules in Appendix I.

3.3   file attributes: The name and other identifiable properties of a file.

4   General concept

Binary File Transfer (BFT) describes the semantics and syntax necessary to represent a data file in order to transfer it through the protocols of various telematic services, such as Facsimile Group 3 and Group 4, DTAM normal mode and message handling.

The following clauses describe the attributes of a data file.

5 BFT file attributes

For the BFT, the following attributes (see Table 1) are defined. All of the attributes are optional. They are described using ASN.1.

All attributes are optional except for protocol version, which is defaultable.

A BINARY DATA message consists of a sequence of these attributes which include the file data itself and is defined as follows.

BINARY-DATA-Message   ::= [APPLICATION 23] IMPLICIT SEQUENCE OF

         {SEQUENCE { [...list of attributes...] } }

Table 1/T.434 – File attributes

Attribute name
protocol version
Filename
permitted actions
contents type
storage account
date and time of creation
date and time of last modification
date and time of last read access
identity of creator
identity of last modifier
identity of last reader
Filesize
future filesize
access control
legal qualifications
private use
Structure
application reference
Machine
operating system
Recipient
character set
Compression
Environment
Pathname
store-and-forward
user visible string
file retrieval
MIME media type
data file content

The following subclauses contain the syntax for each attribute.

5.1 File name syntax

The file name is a sequence of name components. Each component is a value of type UTF8String.

When more than one element is encoded, the first element shall be the file name and the remaining elements shall be concatenated to represent the file name prefix.

> filename   [0] IMPLICIT Filename-Attribute OPTIONAL,
> Filename-Attribute   ::= SEQUENCE OF UTF8String

5.2 Permitted actions syntax

The permitted actions attribute indicates the set of actions that can be performed on the file.

> permitted-actions   [1] IMPLICIT Permitted-Actions-Attribute OPTIONAL,
>
> Permitted-Actions-Attribute   ::= BIT STRING
> -- *Actions available :*

> read   (0),
> insert   (1),
> replace   (2),
> extend   (3),
> erase   (4) } (size (5..5))

5.3 Contents type syntax

The contents type attribute indicates the abstract data types of the contents of the file and the structuring information which is necessary if the complete file structure and semantics are to be maintained during the transfer of the file.

The value is either a document name (possibly with parameters in a single value of any type) or a pair of abstract syntax name and constraint set name. Each of these names are values of the type OBJECT IDENTIFIER.

> contents-type   [2] Contents Type Attribute OPTIONAL,
> Contents-Type-attribute   ::= SEQUENCE{
> document-type-name   [1] OBJECT IDENTIFIER
> parameter   [0] ANY OPTIONAL}

> -- *The actual types to be used for values of the parameter*
> -- *field are defined in the identified or named document type.*
> -- *Currently, only UNSTRUCTURED TEXT and OBJECT IDENTIFIER*
> -- *are supported. OBJECT IDENTIFIER is the default value.*

NOTE – The document-type-name of the Contents-Type-Attribute should be specified using the default value of UNSTRUCTURED BINARY in cases where the application-reference is being used for further identification of file contents. The object identifier for unstructured-binary is: { iso (0) standard (40) 8571 (8571) document-type (5) unstructured-binary (3) }.

5.4 Storage account syntax

The storage account attribute identifies the accountable authority responsible for accumulated file storage charges. The value of the storage account attribute is of type UTF8String.

> storage-account   [3] IMPLICIT UTF8String OPTIONAL,

5.5 Date and time syntax

The date and time of creation attribute indicates when the file was created. The value of the attribute is of type GeneralizedTime.

The date and time of last modification attribute indicates when the contents of the file were last modified. The value of the attribute is of type GeneralizedTime. For a newly created file, the value is equal to the value of the date and time of creation attribute.

The date and time of last read access attribute indicates when the contents of the file were last read. The value of the attribute is of type GeneralizedTime. For a newly created file, the value is equal to the value of the date and time of creation attribute.

date-and-time-of-creation	[4] IMPLICIT GeneralizedTime OPTIONAL
date-and-time-of-last-modification	[5] IMPLICIT GeneralizedTime OPTIONAL
date-and-time-of-last-read-access	[6] IMPLICIT GeneralizedTime OPTIONAL

Generalized Time represents a calendar date and time of day to various precisions, as provided for by ISO 8601. The time of day can be specified as local time only, UTC time only, or as both local and UTC time.

The Generalized Time type is formally defined as shown below. It is a string of characters, as follows:

1) Where the local time only is present, the Generalized Time is a string consisting of the date, as specified in ISO 8601, followed by the local time of day, using one of the forms specified in ISO 8601.

2) Where the UTC time only is present, the representation is as for case 1), followed by the letter "Z" to indicate that the time is based on UTC.

3) Where both local time and UTC are present, the representation is as for case 1), followed by a TDF (Time Differential Factor), as defined in ISO 8601, which represents the difference of local time for UTC.

The characters required to represent the Generalized Time (the digits "0" to "9", ".", ",", "+", "−" and "Z") are taken from International Alphabet Number 5:

GeneralizedTime   ::= [UNIVERSAL 24] IMPLICIT IA5String

Example − If of type GeneralizedTime, the value "198201020700", which represents a local time of 0700 hours on 2 January 1982, can be encoded as (using hexadecimal notation):

Generalized Time	Length	Contents
18	0C	313938323031303230373030

5.6 Identity attribute syntax

The value of the identity of creator attribute is a UTF8String.

The identity of last modifier attribute is altered by the receiver whenever the file has been opened for modification or extension and is closed (including closure following a connection failure). The value is of type UTF8String. For a newly created file, the value is equal to the value of the identity of creator attribute.

The identity of last reader attribute is altered by the receiver whenever the file has been opened for reading and is closed (including closure following a connection failure). The attribute is of type UTF8String. For a newly created file, the value is equal to the value of the identity of creator attribute.

identity-of-creator	[8] IMPLICIT UTF8String OPTIONAL
identity-of-last-modifier	[9] IMPLICIT UTF8String OPTIONAL
identity-of-last-reader	[10] IMPLICIT UTF8String OPTIONAL

5.7 File characteristic attributes syntax

The filesize attribute is altered by the receiver whenever the file is closed after having been opened for modification and extension (including closure following a connection failure).

The attribute is set to the nominal size in octets of the complete file when the file is closed. The value of the attribute is an integer. For a newly created file, the value is set to zero.

The future filesize attribute indicates the nominal size in octets to which the file may grow as a result of modification and extension. The value of the attribute is an integer.

filesize	[13] IMPLICIT INTEGER OPTIONAL
future-filesize	[14] IMPLICIT INTEGER OPTIONAL

5.8 Legal qualifications syntax

The legal qualifications attribute conveys information about the legal status of the file and its use. The value of the attribute is of type UTF8String.

legal-qualifications	[16] IMPLICIT UTF8String OPTIONAL

5.9 Private use syntax

The meaning of the private use attribute is not defined. The value of the attribute can take any form.

private-use	**[17] Private-Use-Attribute OPTIONAL**
Private-Use-Attribute	**:: = SEQUENCE {**
manufacturer-values	**[0] ANY OPTIONAL }**

5.10 Environment syntax

These attributes provide additional information describing various aspects of the environment the binary file transfer is originating from.

application-reference	**[19] General-Identifier OPTIONAL**
machine	**[20] IMPLICIT SEQUENCE OF UTF8String OPTIONAL**
operating-system	**[21] IMPLICIT OBJECT IDENTIFIER OPTIONAL**
environment	**[25] IMPLICIT SEQUENCE OF UTF8String OPTIONAL**
pathname	**[26] IMPLICIT SEQUENCE OF UTF8String OPTIONAL**
user-visible-string	**[29] IMPLICIT SEQUENCE OF UTF8String OPTIONAL**
general identifier	**::= CHOICE {OBJECT IDENTIFIER,**
	SEQUENCE OF UTF8String} OPTIONAL

NOTE – Application reference is intended for identifying application program and version numbers.

5.11 Structure syntax

The structure attribute indicates the format of the data being transferred in the data-file-content attribute.

structure	**[18] IMPLICIT OBJECT IDENTIFIER OPTIONAL**

5.12 Recipient syntax

The recipient attribute is used to indicate the final user destination of the binary file transfer.

recipient	**[22] IMPLICIT SEQUENCE OF UTF8String OPTIONAL**

5.13 Character set syntax

The character set attribute indicates the international character set to be used for the rendering of the character data contained in the attribute data-file-content.

character-set	**[23] IMPLICIT OBJECT IDENTIFIER OPTIONAL**

5.14 Compression syntax

The compression attribute indicates an optional compression added to the contents of the data-file-content attribute.

compression	**[24] General-Identifier OPTIONAL**

NOTE – The syntax of the General-Identifier attribute is defined in 5.10.

5.15 Data format syntax

The data file content attribute contains the data file contents to be transferred.

data-file-content	**[30] CHOICE {EXTERNAL,**
	ANY } OPTIONAL

5.16 Access control syntax (for further study)

The access control attribute is a set attribute. It defines conditions under which access to the file is valid.

Each element of the set gives one condition under which access to the file is valid. Access to the file is allowed if at least one of these conditions is satisfied. However, the access must be based on a single condition and not on the union of a number of separate conditions.

    access-control   **[15] Access-Control-Attribute OPTIONAL**

Access-Control-Attribute   **::= CHOICE {**
    simple-password   **[0] IMPLICIT OCTET STRING,**
        -- *A simplified form of the access control syntax. Specifies*
        -- *one password for all types of access to the file and its*
        -- *attributes*
    actual-values   **[1] IMPLICIT SET OF Access-Control-Element }**
        -- *The semantics of this attribute are described in ISO 8571-2*

Access-Control-Element   **::= SEQUENCE {**
    action-list   **[0] IMPLICIT Access-Request,**
    concurrency-access   **[1] IMPLICIT Concurrency-Access OPTIONAL,**
    identity   **[2] IMPLICIT User-Identity OPTIONAL,**
    passwords   **[3] IMPLICIT Access-Passwords OPTIONAL,**
    location   **[4] IMPLICIT Application-Entity-Title OPTIONAL }**

Access-Request   **::= BIT STRING {**
    read   **(0),**
    insert   **(1),**
    replace   **(2),**
    extend   **(3),**
    erase   **(4),**
    read-attribute   **(5),**
    change-attribute   **(6),**
    delete-file   **(7) } (size (4...4))**

Concurrency-Access   **::= SEQUENCE {**
    read   **[0] IMPLICIT Concurrency-Key,**
    insert   **[1] IMPLICIT Concurrency-Key,**
    replace   **[2] IMPLICIT Concurrency-Key,**
    extend   **[3] IMPLICIT Concurrency-Key,**
    erase   **[4] IMPLICIT Concurrency-Key,**
    read-attribute   **[5] IMPLICIT Concurrency-Key,**
    change-attribute   **[6] IMPLICIT Concurrency-Key,**
    delete-file   **[7] IMPLICIT Concurrency-Key }**

Access-Passwords   **::= SEQUENCE {**
    read-password   **[0] Password,**
    insert-password   **[1] Password,**
    replace-password   **[2] Password,**
    extend-password   **[3] Password,**
    erase-password`   **[4] Password,**
    read-attribute-password   **[5] Password,**
    change-attribute-password **[6] Password,**
    delete-password   **[7] Password }**

Password   **::= CHOICE {**
                UTF8String,
                OCTET STRING }

-- *Application-Entity-Title*   -- *The use of this attribute is for further study*

Concurrency-Key   **::= BIT STRING {**
    not-required   **(0),**
    shared   **(1),**
    exclusive   **(2),**
    no-access   **(3) } (size (2...2))**

5.17 Store-and-forward syntax

The store-and-forward attribute conveys information that store-and-forward system makes use of. The value of the store-and-forward attribute is of type Store-And-Forward-Attribute.

```
store-and-forward          [27]          IMPLICIT Store-And-Forward-Attribute OPTIONAL

Store-And-Forward-Attribute     ::=       SEQUENCE {
store-and-forward-request    [0]   IMPLICIT Store-And-Forward-Request OPTIONAL,
        -- The store-and-forward request attribute conveys information from the originator and concerning
        -- the recipients. The value of the store-and-forward request attribute is of type Store-And-Forward-
        -- Request defined in 5.17.1.
delivery-information          [1]   IMPLICIT Delivery-Information OPTIONAL }
        -- The delivery information attribute conveys additional information of delivery from
        -- store-and-forward system to designated terminal. The value of the delivery information request
        -- attribute is of type Delivery-Information defined in 5.17.13.
```

5.17.1 Store-and-forward request syntax

The store-and-forward request syntax is defined below:

```
Store-And-Forward-Request     ::=       SEQUENCE {
document-characteristics     [0]   IMPLICIT Doc-Characteristics OPTIONAL,
        -- The document characteristics attribute contains information describing what kind of document
        -- is transferred from the originator. The value of the document characteristics attribute is of type
        -- Doc-Characteristics defined in 5.17.2.
communication                [1]   IMPLICIT Communication OPTIONAL }
        -- The communication attribute contains routing information. The value of the communication
        -- attribute is of type Communication defined in 5.17.3.
```

5.17.2 Doc-Characteristics syntax

The doc-characteristics syntax is defined below:

```
Doc-Characteristics     ::=       SEQUENCE {
document-name                [0]   IMPLICIT UTF8String OPTIONAL,
        -- The document name attribute indicates the name of the document.
version                      [1]   IMPLICIT UTF8String OPTIONAL,
        -- The version attribute indicates the version of the document.
document-type                [2]   IMPLICIT UTF8String OPTIONAL,
        -- The document type attribute indicates the category that the document is put into.
edition                      [3]   IMPLICIT UTF8String OPTIONAL,
        -- The edition attribute indicates the edition of the document.
reference                    [4]   IMPLICIT UTF8String OPTIONAL,
        -- The reference attribute is used for setting a code for identifying the document.
subject                      [5]   IMPLICIT UTF8String OPTIONAL,
        -- The subject attribute indicates the topic of the document.
format                       [6]   IMPLICIT UTF8String OPTIONAL,
        -- The format attribute indicates the paper size of the document.
copyrights                   [7]   IMPLICIT UTF8String OPTIONAL,
        -- The copyrights attribute indicates who has the copyrights of the document.
keywords                     [8]   IMPLICIT UTF8String OPTIONAL,
        -- The keywords attribute indicates the words representing  the contents of the document.
abstract                     [9]   IMPLICIT UTF8String OPTIONAL,
        -- The abstract attribute contains the summary of the document.
language                     [10]  IMPLICIT UTF8String OPTIONAL,
        -- The language attribute indicates what language is used in the document.
private                      [11]  IMPLICIT Private-Use-Attribute OPTIONAL }
        -- The meaning of the private attribute is not defined. The Private-Use-Attribute syntax is defined
        -- in 5.9.
```

5.17.3 Communication syntax

The communication syntax is defined below:

```
Communication  ::=       SEQUENCE {
general-priority             [0]   IMPLICIT Priority DEFAULT {normal},
        -- The general priority attribute indicates the general priority of transmitting the document to its
        -- destinations. The value of the general priority attribute is of type Priority defined
        -- in 5.17.4. NORMAL is the default value.
```

```
originator-name              [1]  IMPLICIT UTF8String OPTIONAL,
    -- The originator name attribute indicates who originates the document.
originator-T30-ID            [2]  IMPLICIT T30-Identity OPTIONAL,
    -- The value of the originator
    -- T30-ID attribute is of type T30-Identity defined in 5.17.5.
originator-fax-number        [3]  IMPLICIT Number-of-Fax OPTIONAL,
    -- The originator fax number attribute indicates the number of the terminal from which the
    -- document originates. The value of the originator fax number attribute is of type Number-of-Fax
    -- defined in 5.17.6.
originator-sub-address       [4]  IMPLICIT Sub-Address OPTIONAL,
    -- The value of the originator sub-address attribute is of type Sub-Address defined in 5.17.7.
submission-date              [5]  IMPLICIT GeneralizedTime OPTIONAL,
    -- The submission date attribute indicates when the document is submitted to the store-and-forward
    -- system. The value of the submission date attribute is of type GeneralizedTime described in 5.5.
pages-number                 [6]  IMPLICIT INTEGER OPTIONAL,
    -- The pages number attribute indicates the total number of pages in the document.
document-recovery            [7]  IMPLICIT UTF8String OPTIONAL,
    -- The document recovery attribute is used for the reference of the failed previous session.
password                     [8]  IMPLICIT UTF8String OPTIONAL,
    -- The password attribute conveys the word used for authenticating the originator of the document.
receiving-fax                [9]  IMPLICIT SEQUENCE OF Receiving-Fax OPTIONAL,
    -- The receiving fax attribute contains information about destinations. It is a sequence of
    -- Receiving-Fax defined in 5.17.8.
communication-private        [10] Private-Use-Attribute OPTIONAL }
    -- The meaning of the communication private attribute is not defined. The Private-Use-Attribute is
    -- defined in 5.9.
```

5.17.4   Priority syntax

The priority is defined below:

```
Priority  ::=       ENUMERATED {
    normal                                  (0),
        -- Normal indicates that the priority of transmission is not specified.
    nonurgent                               (1),
        -- Nonurgent indicates that delayed transmission is acceptable.
    urgent                                  (2) }
        -- Urgent indicates that the document should be transmit urgently.
```

5.17.5   T30-Identity syntax

The T30-Identity is defined below:

```
T30-Identity        ::=     UTF8String
    -- The originator T30-ID attribute is set using the TSI parameter from Recommendation T.30.
```

5.17.6   Number of fax syntax

The number of fax is defined below:

```
Number-of-Fax       ::=     UTF8String
    -- Number of fax takes E.164 format.
```

5.17.7   Sub-Address syntax

The Sub-address is defined below:

```
Sub-Address         ::=     UTF8String
    -- The originator sub-address attribute indicates the sub-address of the terminal from which the
    -- document originates. The syntax of sub-address is defined in Recommendation T.30.
```

5.17.8   Receiving fax syntax

The receiving fax is defined below:

```
Receiving-Fax       ::=     SEQUENCE {
    fax-number               [0]  IMPLICIT Number-of-Fax,
        -- The fax number attribute indicates the number of the designated terminal. The value of fax
        -- number is of type Number-of-Fax defined in 5.17.6.
```

> **recipient**   **[1]   IMPLICIT SEQUENCE OF Recipient-Information OPTIONAL }**
> *-- The recipient attribute contains information used for communication with the terminals of*
> *-- the recipients. It is a sequence of Recipient-Information defined in 5.17.9.*

5.17.9 Recipient information syntax

The recipient information is defined below:

> **Recipient-Information   ::=   SEQUENCE {**
> **name**   **[0]   IMPLICIT UTF8String,**
> *-- The name attribute indicates the name of the recipient.*
> **type**   **[1]   IMPLICIT Copy DEFAULT {principal},**
> *-- The type attribute indicates the priority of the recipient who receives the document.*
> *-- The value of the type attribute is of type Copy defined in 5.17.10. PRINCIPAL is*
> *-- the default value.*
> **priority-of-copy**   **[2]   IMPLICIT Priority DEFAULT {normal},**
> *-- The priority of copy attribute indicates the priority of transmitting the document to the*
> *-- recipient. The value of the priority of copy attribute is of type Priority defined in 5.17.4.*
> *-- NORMAL is the default value.*
> **latest-delivery-time**   **[3]   IMPLICIT GeneralizedTime OPTIONAL,**
> *-- The latest delivery time attribute indicates what time the document should be delivered by.*
> *-- The value of the latest delivery time attribute is of type GeneralizedTime described in 5.5.*
> **deferred-delivery-time**   **[4]   IMPLICIT GeneralizedTime OPTIONAL,**
> *-- The deferred delivery time attribute indicates what time the document should be delivered after.*
> *-- The value of the deferred delivery time attribute is of type GeneralizedTime described in 5.5.*
> **sub-addressing-copy**   **[5]   IMPLICIT Sub-Address-Copy OPTIONAL,**
> *-- The sub-address copy attribute indicates the address information for forwarding. The value of the*
> *-- sub-address copy attribute is of type Sub-Address-Copy defined in 5.17.11.*
> **report-request**   **[6]   IMPLICIT Report DEFAULT {no-report},**
> *-- The report request attribute indicates whether the originator requested to deliver report.*
> *-- The value of the report attribute is of type Report defined in 5.17.12. NO-REPORT is*
> *-- the default value.*
> **complement**   **[7]   Private-Use-Attribute OPTIONAL}**
> *-- The meaning of complement attribute is not defined. The Private-Use-Attribute syntax is defined*
> *-- in 5.9.*

5.17.10 Copy syntax

The copy is defined below:

> **Copy   ::=   ENUMERATED {**
> **principal**   **(0),**
> *-- Principal indicates the primary recipient of the document.*
> **copy**   **(1),**
> *-- Copy indicates an informational recipient of the document.*
> **blind-copy**   **(2),**
> *-- Blind copy indicates an additional recipient of the document.*
> **forward**   **(3) }**
> *-- Forward indicates a recipient who is forwarded the document.*

5.17.11 Sub-address copy syntax

The sub-address copy is defined below:

> **Sub-Address-Copy   ::=   CHOICE {**
> **name**   **[0]   IMPLICIT UTF8String,**
> *-- The name attribute indicates the recipient name that the document is forwarded to.*
> **number**   **[1]   IMPLICIT Number-of-Fax,**
> *-- The number attribute indicates the number that the document is forwarded to. The value of the*
> *-- number attribute is of type Number-of-Fax defined in 5.17.6.*
> **T30-ID**   **[2]   IMPLICIT T30-Identity,**
> *-- The T30-ID attribute is used for setting parameter from T.30. The value of the*
> *-- T30-ID is of type T30-Identity defined in 5.17.5.*
> **sub-address**   **[3]   IMPLICIT Sub-Address,**
> *-- The sub-address attribute indicates sub-addresses that the document is forwarded to.*
> *-- The value of the sub-address attribute is of type Sub-Address defined in 5.17.7.*
> **list**   **[4]   IMPLICIT UTF8String,**
> *-- The list attribute is used for broadcasting list that contains forwarding addresses.*

```
short-number                    [5]   IMPLICIT UTF8String,
     -- The short number attribute indicates an abbreviated local number such as one touch dial number.
reference-number                [6]   IMPLICIT UTF8String,
     -- The reference number attribute indicates the number that identifies the stored document in
     -- the store-and-forward system.
                                      }
```

5.17.12 Report syntax

The report is defined below:

```
Report  ::=         ENUMERATED {
no-report                                       (0),
     -- No report indicates that a report is not requested.
no-delivery-report                              (1),
     -- No delivery report indicates that a report is requested in the event of  that the
     -- document is not delivered completely.
report-requested                                (2) }
     -- Report requested indicates that a report is requested.
```

5.17.13 Delivery information syntax

The delivery information is defined below:

```
Delivery-Information      ::=       IMPLICIT SEQUENCE OF SEQUENCE {
date-and-time-of-sending      [0]   IMPLICIT GeneralizedTime OPTIONAL,
     -- The date and time of sending attribute is a time stamp the store-and-forward
     -- system begins to receive the document from the originating terminal. The value of the date
     -- and time of sending attribute is of type GeneralizedTime described in 5.5.
originator-fax-number         [1]   IMPLICIT UTF8String OPTIONAL,
     -- The originator fax number attribute indicates the number of the terminal from which the
     -- document originates.
file-number                   [2]   IMPLICIT INTEGER OPTIONAL,
     -- The file number attribute indicates the ordinal number of the file in a series of files.
whole-number                  [3]   IMPLICIT INTEGER OPTIONAL,
     -- The whole number attribute indicates the total number of the files.
last-file-indication          [4]   IMPLICIT UTF8String OPTIONAL,
     -- The last file indication attribute identifies the final file in a series of files.
delivery-re-try-indication    [5]   IMPLICIT UTF8String OPTIONAL,
     -- The delivery re-try indication attribute identifies that the store-and-forward system tried to
     -- deliver the files more than twice.
charge-address                [6]   IMPLICIT UTF8String OPTIONAL,
     -- The charge address attribute indicates the address that is charged for the communication
     -- by the store-and-forward system.
information-fee               [7]   IMPLICIT UTF8String OPTIONAL,
     -- The information fee attribute is used for the fee when the originator makes use of the toll
     --  information providing service.
original-file-format          [8]   IMPLICIT General-Identifier OPTIONAL,
     -- The original file format attribute indicates the  files structure when the files were received by the
     -- store-and-forward system.
terminal-file-format          [9]   IMPLICIT General-Identifier OPTIONAL,
     -- The terminal file format attribute indicates the  files structure when the files were delivered to
     -- the destination by the store-and-forward system.
delivery-time-designate-indication
                              [10]  IMPLICIT UTF8String OPTIONAL,
     -- The delivery time designate indication attribute identifies the scheduled delivery.
addressee                     [11]  IMPLICIT UTF8String OPTIONAL }
     -- The addressee attribute is used for the addressee information.
```

5.18   File and retrieval syntax (for further study)

The File and retrieval attribute is used for archiving, management and manipulation of documents.

```
file-retrieval                [31]  IMPLICIT File-Retrieval-Attribute OPTIONAL
```

5.19   MIME media type syntax

The MIME media type attribute contains the specific MIME media type that corresponds to the file type of the data file content. Per the rules for MIME media types defined in RFC 2046, the media type may optionally have one or more parameters. The value of the MIME media type attribute is of type Mime-Media-Type-Attribute.

mime-media-type   [32]   Mime-Media-Type-Attribute OPTIONAL,

Mime-Media-Type-Attribute   ::= SEQUENCE

    -- See RFC 2046

                                    {

media-type   IA5String,

parameter   SEQUENCE OF IA5String OPTIONAL

                                      }

    -- The media-type is a registered MIME media type of the form "type/sub-type"

    -- One or more parameters may be supported, depending upon specifications for the media type

Annex A

BFT abstract syntax definition

(This annex forms an integral part of this Recommendation)

BFT-FORMAT { itu-t(0) recommendation(0) t(20) bft(434)
version(3) } DEFINITIONS ::=
        BEGIN
        -- EXPORTS Everything
        IMPORTS;
        BINARY-DATA-Message   ::= [APPLICATION 23]
        IMPLICIT SEQUENCE OF SEQUENCE {
        protocol-version   [28] Protocol-Version ,
            -- If the protocol-version is not specified, version 1 should be assumed
        filename   [0] IMPLICIT Filename-Attribute OPTIONAL,

        permitted-actions   [1] IMPLICIT Permitted-Actions-Attribute

OPTIONAL,
        contents-type   [2] Contents-Type-Attribute OPTIONAL,
        -- DEFAULT { UNSTRUCTURED BINARY }
        -- not specifying this attribute implies that data-file-content
        -- is unstructured binary
        storage-account   [3] IMPLICIT UTF8String OPTIONAL,
        date-and-time-of-creation [4] IMPLICIT GeneralizedTime

OPTIONAL,
        date-and-time-of-last-modification   [5] IMPLICIT GeneralizedTime

OPTIONAL,
        date-and-time-of-last-read-access   [6] IMPLICIT GeneralizedTime

OPTIONAL,
        -- 7 is reserved for date-and-time-of-last-attribute-modification
        identity-of-creator   [8] IMPLICIT UTF8String OPTIONAL,
        identity-of-last-modifier   [9] IMPLICIT UTF8String OPTIONAL,
        identity-of-last-reader   [10] IMPLICIT UTF8String OPTIONAL,
        -- 11 is reserved for identity-of-last-attribute-modifier
        -- 12 is reserved for file-availability
        filesize   [13] IMPLICIT INTEGER OPTIONAL,
        future-filesize   [14] IMPLICIT INTEGER OPTIONAL,
        -- access-control   [15] Access-Control-Attribute OPTIONAL,
        -- the use of this attribute is for further study

```
legal-qualifications      [16] IMPLICIT UTF8String OPTIONAL,
private-use               [17] Private-Use-Attribute OPTIONAL,
structure                 [18] IMPLICIT OBJECT IDENTIFIER OPTIONAL,
application-reference      [19] General-Identifier OPTIONAL,
machine                   [20] IMPLICIT SEQUENCE OF UTF8String OPTIONAL,
operating-system          [21] IMPLICIT OBJECT IDENTIFIER OPTIONAL,
recipient                 [22] IMPLICIT SEQUENCE OF UTF8String OPTIONAL,
character-set             [23] IMPLICIT OBJECT IDENTIFIER OPTIONAL,
compression               [24] General-Identifier OPTIONAL,
-- Indicates an optional compression applied to the content
-- octets of the attribute data-file-content
environment               [25] IMPLICIT SEQUENCE OF UTF8String OPTIONAL,
pathname                  [26] IMPLICIT SEQUENCE OF UTF8String OPTIONAL,
user-visible-string       [29] IMPLICIT SEQUENCE OF UTF8String
OPTIONAL,
data-file-content         [30] CHOICE {external EXTERNAL,
any OCTET STRING} OPTIONAL
-- For most cases, a type of Octetstring is a reasonable choice in place of the ANY syntax
}
Contents-Type-Attribute  ::=
-- See Annex B of ISO 8571-2 for more information
SEQUENCE {
document-type-name   [1] OBJECT IDENTIFIER,
parameter            [0] TYPE-IDENTIFIER.&Type OPTIONAL }
-- The actual types to be used for values of the parameter
-- field are defined in the document-type-name.
-- They may consist of an object identifier assigned to the document type, or be
-- UNSTRUCTURED TEXT.
Entity-Reference     ::= INTEGER {
no-categorization-possible                (0),
initiating-file-service-user              (1),
initiating-file-protocol-machine          (2),
service-supporting-the-file-protocol-machine   (3),
responding-file-protocol-machine          (4),
responding-file-service-user              (5) }
Filename-Attribute  ::= SEQUENCE OF UTF8String
General-Identifier  ::= CHOICE {
    entityID       OBJECT IDENTIFIER,
    entityTextID   SEQUENCE OF UTF8String }
Mime-Media-Type-Attribute      ::= [32] EXPLICIT SEQUENCE {
    media-type                  IA5String ,
    parameter                   SEQUENCE OF
IA5String OPTIONAL

                                }

Password             ::= CHOICE {
    textualPwd    UTF8String,
    binaryPwd     OCTET STRING }
Permitted-Actions-Attribute       ::= BIT STRING {
-- Actions available
read            (0),
insert          (1),
replace         (2),
extend          (3),
erase           (4) } (SIZE (5..5))
Private-Use-Attribute   ::= SEQUENCE {
manufacturer-values  [0] TYPE-IDENTIFIER.&Type OPTIONAL}
-- For most cases, a type of Octetstring is a reasonable choice in place of the ANY syntax
Protocol-Version     ::= BIT STRING { version-3 (2) }
User-Identity        ::= UTF8String

Store-And-Forward-Attribute          ::=        SEQUENCE {
store-and-forward-request    [0]       IMPLICIT

Store-And-Forward-Request OPTIONAL,
delivery-information          [1]       IMPLICIT Delivery-Information
```

OPTIONAL }

Store-And-Forward-Request	**::=**	**SEQUENCE {**
document-characteristics	**[0]**	**IMPLICIT Doc-Characteristics**

OPTIONAL,

communication	**[1]**	**IMPLICIT Communication OPTIONAL }**
Doc-Characteristics	**::=**	**SEQUENCE {**
document-name	**[0]**	**IMPLICIT UTF8String OPTIONAL,**
version	**[1]**	**IMPLICIT UTF8String OPTIONAL,**
document-type	**[2]**	**IMPLICIT UTF8String OPTIONAL,**
edition	**[3]**	**IMPLICIT UTF8String OPTIONAL,**
reference	**[4]**	**IMPLICIT UTF8String OPTIONAL,**
subject	**[5]**	**IMPLICIT UTF8String OPTIONAL,**
format	**[6]**	**IMPLICIT UTF8String OPTIONAL,**
copyrights	**[7]**	**IMPLICIT UTF8String OPTIONAL,**
keywords	**[8]**	**IMPLICIT UTF8String OPTIONAL,**
abstract	**[9]**	**IMPLICIT UTF8String OPTIONAL,**
language	**[10]**	**IMPLICIT UTF8String OPTIONAL,**
private	**[11]**	**IMPLICIT Private-Use-Attribute OPTIONAL }**
Communication	**::=**	**SEQUENCE {**
general-priority	**[0]**	**IMPLICIT Priority DEFAULT normal,**
originator-name	**[1]**	**IMPLICIT UTF8String OPTIONAL,**
originator-T30-ID	**[2]**	**IMPLICIT T30-Identity OPTIONAL,**
originator-fax-number	**[3]**	**IMPLICIT Number-of-Fax OPTIONAL,**
originator-sub-address	**[4]**	**IMPLICIT Sub-Address OPTIONAL,**
submission-date	**[5]**	**IMPLICIT GeneralizedTime OPTIONAL,**
pages-number	**[6]**	**IMPLICIT INTEGER OPTIONAL,**
document-recovery	**[7]**	**IMPLICIT UTF8String OPTIONAL,**
password	**[8]**	**IMPLICIT UTF8String OPTIONAL,**
receiving-fax	**[9]**	**IMPLICIT SEQUENCE OF Receiving-Fax OPTIONAL,**
communication-private	**[10]**	**Private-Use-Attribute OPTIONAL }**
Priority		**::=**

ENUMERATED {
-- *Priority takes following status:*

normal	**(0),**
nonurgent	**(1),**
urgent	**(2) }**
T30-Identity	**::=**	**UTF8String**
Number-of-Fax	**::=**	**UTF8String**
Sub-Address	**::=**	**UTF8String**
Receiving-Fax	**::=**	**SEQUENCE {**
fax-number	**[0]**	**IMPLICIT Number-of-Fax,**
recipient	**[1]**	**IMPLICIT SEQUENCE OF Recipient-Information**

OPTIONAL }

Recipient-Information	**::=**	**SEQUENCE {**
name	**[0]**	**IMPLICIT UTF8String,**
type	**[1]**	**IMPLICIT Copy DEFAULT principal,**
priority-of-copy	**[2]**	**IMPLICIT Priority DEFAULT normal,**
latest-delivery-time	**[3]**	**IMPLICIT GeneralizedTime OPTIONAL,**
deferred-delivery-time	**[4]**	**IMPLICIT GeneralizedTime OPTIONAL,**
sub-addressing-copy	**[5]**	**Sub-Address-Copy OPTIONAL,**
report-request	**[6]**	**IMPLICIT Report DEFAULT no-report,**
compliment	**[7]**	**Private-Use-Attribute OPTIONAL}**
Copy ::=		**ENUMERATED {**

-- *Copy takes following status:*

principal	**(0),**
copy	**(1),**
blind-copy	**(2),**
forward	**(3) }**
Sub-Address-Copy ::=	**CHOICE {**	
name [0]	**IMPLICIT UTF8String,**	
number	**[1]**	**IMPLICIT Number-of-Fax,**
t30-ID	**[2]**	**IMPLICIT T30-Identity,**
sub-address	**[3]**	**IMPLICIT Sub-Address,**
list	**[4]**	**IMPLICIT UTF8String,**

-- *name or broadcast list number*

short-number	**[5]**	**IMPLICIT UTF8String,**
reference-number	**[6]**	**IMPLICIT UTF8String**

```
        }
        Report             ::=   ENUMERATED {
        no-report          (0),
        no-delivery-report (1),
        report-requested   (2) }
        Delivery-Information    ::=   SEQUENCE OF SEQUENCE {
        date-and-time-of-sending      [0]        IMPLICIT GeneralizedTime

OPTIONAL,
        originator-fax-number     [1]      IMPLICIT UTF8String OPTIONAL,
        file-number               [2]      IMPLICIT INTEGER OPTIONAL,
        whole-number              [3]      IMPLICIT INTEGER OPTIONAL,
        last-file-indication      [4]      IMPLICIT UTF8String OPTIONAL,
        delivery-re-try-indication [5]     IMPLICIT UTF8String

OPTIONAL,
        charge-address        [6]      IMPLICIT UTF8String OPTIONAL,
        information-fee       [7]      IMPLICIT UTF8String OPTIONAL,
        original-file-format  [8]      General-Identifier

OPTIONAL,
        terminal-file-format  [9]      General-Identifier

OPTIONAL,
        delivery-time-designate-indication  [10]     IMPLICIT UTF8String

OPTIONAL,
        addressee                     [11]      IMPLICIT UTF8String OPTIONAL}

        END
```

Annex B

Diagnostic messages

B.1   Introduction

Some applications using the T.434 binary file transfer format have facilities for the exchange of diagnostic messages between the sending and receiving terminal (e.g. Group 3 facsimile). This annex defines the components which form the diagnostic parameter. It details the valid values and their meaning for each component.

B.2   Form of the diagnostic message

The value of the diagnostic parameter is structured into the following items:

1)   An error type indicating "permanent error" or "transient error" or "informative". A permanent error occurs every time the sequence of events is repeated, and implies the failure of at least the present operation being performed. A transient error may not re-occur if the sequence is repeated but does imply the failure of the operation being performed. An informative error does not require recovery and does not affect the current state of the file service. See Tables B.1 and B.2.

2)   An error identifier categorizing errors in terms of concepts defined in the virtual filestore definition or in terms of Recommendation X.200.

3)   Optionally, a text message in natural language giving further details of the cause of the error; it may include not standardized concepts relating to the local system environment of the filestore provider. The values are of the type GraphicString.

Table B.1/T.434 – Error types

Error type value	Error type
0	Informative
1	Transient
2	Permanent

Type			Identifier	Reason
	1	2	0	No reason
0	1	2	1	Responder error (unspecific)
	1	2	2	System shutdown
0	1	2	7	Initiator error (unspecific)
0	1	2	9	Temporal insufficiency (unspecific)
		2	1000	Conflicting parameter values
		2	1001	Unsupported parameter values
		2	1002	Mandatory parameter no set
		2	1003	Unsupported parameter
		2	1004	Duplicated parameter
		2	1005	Illegal parameter type
		2	1006	Unsupported parameter types
0		2	1007	Version not supported
	1	2	1013	Timeout
	1	2	3000	Filename not found
	1	2	3004	Non-existent file
	1	2	3005	File already exists
0	1	2	3006	File cannot be created
	1	2	3012	File busy
	1	2	3013	File not available
0			3017	Filename truncated
	1	2	3019	Bad account
0	1	2	4000	Attribute non-existent
	1	2	4003	Attribute not supported
		2	4004	Bad attribute name
		2	4005	Bad attribute value
0	1	2	5028	Local failure (unspecific)
0	1	2	5029	Local failure – filespace exhausted
0	1	2	5030	Local failure – data corrupted
0	1	2	5031	Local failure – device failure
		2	5032	Future file size exceeded
0			5034	Future file size increased

B.3   Transfer of BFT diagnostic messages in DTAM transparent mode

In DTAM Transparent Mode, the parameters defined in B.2 are offered to be sent as diagnostic messages from the receiving equipment to the sender in the case of Binary File Transfer in the Group 4 Telefax environment. These messages are reserved to be sent in the case of errors only. If the communicating partners are able to continue the association by transfer of other files or Fax documents depending on the implementations, the use of diagnostic messages is optional.

The diagnostic messages are carried by the S-SYNC-MINOR resp./conf. user data. The supply of the S-SYNC-MINOR user data is done by the receiving equipment without involvement of the DTAM service. The reception and interpretation of the diagnostic message by the sender of the file is also done outside the responsibility of the DTAM service and DTAM protocol machine.

Table B.3 contains a bit assignment for the diagnostic messages in the first octet of the S-SYNC-MINOR resp./conf. user data.

Table B.3/T.434

No reason	00000010
Responder error (unspecific)	00000011
System shutdown	00000100
Initiator error (unspecific)	00000101
Temporal insufficiency of ressources	00000110
Conflicting parameter values	00000111
Unsupported parameter values	00001000
Mandatory parameter not set	00001001
Unsupported parameter	00001010
Duplicated parameter	00001011
Illegal parameter type	00001100
Unsupported parameter types	00001101
Timeout	00001110
Filename not found	00001111
Non-existent file	00010000
File already exists	00010001
File cannot be created	00010010
File busy	00010011
File not available	00010100
Filename truncated	00010101
Bad account	00010110
Attribute non-existent	00010111
Attribute not supported	00011000
Bad attribute name	00011001
Bad attribute value	00011010
Local failure (unspecific)	00011011
Local failure – filespace exhausted	00011100
Local failure – data corrupted	00011101
Local failure – device failure	00011110
Future file-size exceeded	00011111
Future file-size increased	00100000
Version not supported	00100001

NOTE – The bit assignments defined in this table are also used in Recommendation T.30 to be encoded in one octet of the FDM frame.

Appendix I

Use of ASN.1 for encoding

I.1   ASN.1 introduction

The coding rules were developed using Abstract Syntax Notation One (ASN.1) rules. These coding rules translate a binary file and its attributes into a binary range.

ASN.1 specifies a set of basic encoding rules that may be used to derive the specification of a transfer syntax for values of types defined, using the notation specified in ISO 8824. These basic encoding rules are also to be applied for decoding such a transfer syntax in order to identify the data values being transferred.

The coding rules for BFT appear in this appendix. They describe a transfer syntax, using ASN.1 notation that is very similar to that used by FTAM.

Following is a brief overview of how values are coded using types defined in ASN.1. For a complete description, see Recommendations X.208 and X.209.

I.2   Structure of an encoding

Using ASN.1, the encoding of a data value shall consist of four components which shall appear in the following order:

1)   identifier octet;

2)   length octets;

3)   contents octets;

4)   end-of-contents octets.

Figure I.1 illustrates the structure of an encoding. Note that the length of the contents octets can be specified by either the length octets or an end-of-contents octets.
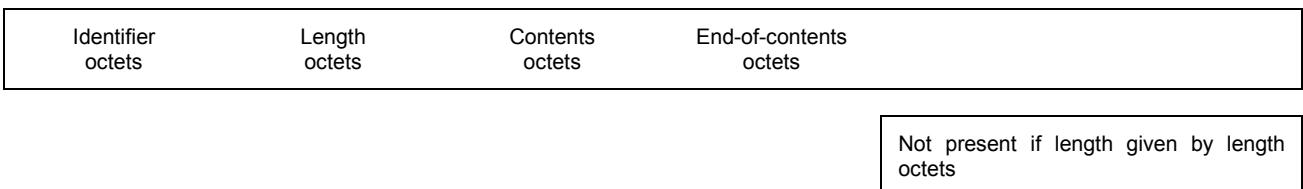
Identifier octets	Length octets	Contents octets	End-of-contents octets

> Not present if length given by length octets

Figure I.1/T.434 – The structure of a data value encoding

I.3   Identifier octet

The identifier octet encodes the ASN.1 tag (class and number) of the type of the data value. This tag is used to identify the data value in the context in which it is coded. The value of the tag can be determined explicitly or implicitly from the production rules being applied.

I.4   Length octets

The length octet encodes the length of the contents octets. Two forms of length octets are specified. These are:

a)   The definite form. The octets consist of one or more octets, and represent the number of octets in the contents octets.

b)   The indefinite form. The octet indicates that the contents octets are terminated by end-of-contents octets, and consist of a single octet with a value of 80 hex.

I.5 Contents octets

The contents octets consist of zero, one or more octets, and encode the data value as specified in ISO 8824 and ISO 8825.

I.6 End-of-contents octets

The end-of-contents octets shall be present if the length is encoded as a single octet with a value of 80 hex, otherwise they shall not be present.

The end-of-contents octets shall consist of two zero octets.

Appendix II

Differences between BFT syntax and FTAM syntax

II.1 The following list contains the parameters that are supplementary compared with the FTAM syntax:

– protocol-version;
– structure;
– application-reference;
– machine;
– operating-system;
– recipient;
– character-set;
– environment;
– pathname;
– user-visible-string;
– data-file-content.

II.2 For the following list of parameters, the ASN.1 application-wide tags contained in the FTAM syntax have been modified or removed:

– BINARY-DATA-Message;
– Document-Type-Name;
– Access-Request;
– Access-Passwords;
– Password;
– Application-Entity-Title.

Appendix III

BFT abstract syntax definition of T.434 (1992)

This appendix contains the entire BFT abstract syntax definition standardized in the 1992 version of Recommendation T.434. It is included to aid implementers of the 1992 version. New implementations should conform to the current (1999) version.

```
BFT-FORMAT { ccitt(0) recommendation(8) tseries(20) bft(434) version(0) }
BEGIN
-- EXPORTS Everything
IMPORTS;
```

```
BINARY-DATA-Message                     ::= [APPLICATION 23]
                                        IMPLICIT SEQUENCE OF SEQUENCE {
    protocol-version                    [28] Protocol-Version DEFAULT {version-1},
    filename                            [0] IMPLICIT Filename-Attribute OPTIONAL,
    permitted-actions                   [1] IMPLICIT Permitted-Actions-Attribute OPTIONAL,
    contents-type                       [2] Contents-Type-Attribute OPTIONAL,
    -- DEFAULT { UNSTRUCTURED BINARY }
    -- not specifying this attribute implies that data-file-content
    -- is unstructured binary

    storage-account                     [3] IMPLICIT GraphicString OPTIONAL,
    date-and-time-of-creation           [4] IMPLICIT GeneralizedTime OPTIONAL,
    date-and-time-of-last-modification  [5] IMPLICIT GeneralizedTime OPTIONAL,
    date-and-time-of-last-read-access   [6] IMPLICIT GeneralizedTime OPTIONAL,
    -- 7 is reserved for date-and-time-of-last-attribute-modification
    identity-of-creator                 [8] IMPLICIT GraphicString OPTIONAL,
    identity-of-last-modifier           [9] IMPLICIT GraphicString OPTIONAL,
    identity-of-last-reader             [10] IMPLICIT GraphicString OPTIONAL,
    -- 11 is reserved for identity-of-last-attribute-modifier
    -- 12 is reserved for file-availability
    filesize                            [13] IMPLICIT INTEGER OPTIONAL,
    future-filesize                     [14] IMPLICIT INTEGER OPTIONAL,
    access-control                      [15] Access-Control-Attribute OPTIONAL,
    -- the use of this attribute is for further study
    legal-qualifications                [16] IMPLICIT GraphicString OPTIONAL,
    private-use                         [17] Private-Use-Attribute OPTIONAL,
    structure                           [18] IMPLICIT OBJECT IDENTIFIER OPTIONAL,
    application-reference               [19] IMPLICIT SEQUENCE OF GraphicString OPTIONAL,
    machine                             [20] IMPLICIT SEQUENCE OF GraphicString OPTIONAL,
    operating-system                    [21] IMPLICIT OBJECT IDENTIFIER OPTIONAL,
    recipient                           [22] IMPLICIT SEQUENCE OF GraphicString OPTIONAL,
    character-set                       [23] IMPLICIT OBJECT IDENTIFIER OPTIONAL,
    compression                         [24] IMPLICIT SEQUENCE OF GraphicString OPTIONAL,
    -- Indicates an optional compression applied to the content
    -- octets of the attribute data-file-content
    environment                         [25] IMPLICIT SEQUENCE OF GraphicString OPTIONAL,
    pathname                            [26] IMPLICIT SEQUENCE OF GraphicString OPTIONAL,
    user-visible-string                 [29] IMPLICIT SEQUENCE OF GraphicString OPTIONAL,
    data-file-content                   [30] EXTERNAL OPTIONAL } }

Contents-Type-Attribute                 ::= {
-- See Annex B of ISO 8571-2 for more information
    document-type                       [0] IMPLICIT SEQUENCE {
        document-type-name              [1] Document-Type-Name,
        parameter                       [0] ANY OPTIONAL } }
    -- The actual types to be used for values of the parameter
    -- field are defined in the document-type-name.
    -- Currently, only UNSTRUCTURED TEXT and UNSTRUCTURED BINARY
    -- are supported.

Document-Type-Name                      ::= OBJECT IDENTIFIER

Entity-Reference                        ::= INTEGER {
    no-categorization-possible                          (0),
    initiating-file-service-user                        (1),
    initiating-file-protocol-machine                    (2),
    service-supporting-the-file-protocol-machine        (3),
    responding-file-protocol-machine                    (4),
    responding-file-service-user                        (5) }

Filename-Attribute                      ::= SEQUENCE OF GraphicString

Password                                :: = CHOICE {
                                            GraphicString,
                                            OCTET STRING }

Permitted-Actions-Attribute             ::= BIT STRING {
```

-- Actions available

read	**(0),**
insert	**(1),**
replace	**(2),**
extend	**(3),**
erase	**(4) } (size (2...2))**

Private-Use-Attribute   **:: = SEQUENCE {**
       manufacturer-values   **[0] EXTERNAL OPTIONAL**
                                       }

Protocol-Version   **:: = IMPLICIT BIT STRING { version-1 (0) }**

User-Identity   **:: = GraphicString**

    END

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