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SERIES X: DATA NETWORKS AND OPEN SYSTEM COMMUNICATIONS

Message Handling Systems

Information technology – Message Handling Systems (MHS): Electronic data interchange messaging system

ITU-T Recommendation X.435

(Previously CCITT Recommendation)

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INTERNATIONAL STANDARD 10021-9

ITU-T RECOMMENDATION X.435

INFORMATION TECHNOLOGY – MESSAGE HANDLING SYSTEMS (MHS): ELECTRONIC DATA INTERCHANGE MESSAGING SYSTEM

Summary

This Recommendation | International Standard defines the message handling application called EDI messaging (EDIMG), a form of message handling tailored for the exchange of electronic data interchange (EDI) information. It is designed to meet the requirements of users of ISO 9735 (EDIFACT), and other commonly used EDI systems. This edition of the EDI Specification, Version 2, replaces CCITT Rec. X.435 (1991) | ISO/IEC 10021-9:1995. It consolidates Amendment 1 (Compression Extension), Amendment 2 (EDI Message Store Logs and Correlation Attributes), replacement of ASN.1:1988 with ASN.1:1994, and a revised EDI auto-forward auto-action.

Source

The ITU-T Recommendation X.435 was approved on 18 June 1999. The identical text is also published as ISO/IEC International Standard 10021-9.

FOREWORD

ITU (International Telecommunication Union) is the United Nations Specialized Agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the ITU. The ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Conference (WTSC), which meets every four years, establishes the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

The approval of Recommendations by the Members of the ITU-T is covered by the procedure laid down in WTSC Resolution No. 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation the term *recognized operating agency (ROA)* includes any individual, company, corporation or governmental organization that operates a public correspondence service. The terms *Administration, ROA* and *public correspondence* are defined in the *Constitution of the ITU (Geneva, 1992).*

INTELLECTUAL PROPERTY RIGHTS

The ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. The ITU takes no position concerning the evidence, validity or applicability of claimed Intellectual Property Rights, whether asserted by ITU members or others outside of the Recommendation development process.

As of the date of approval of this Recommendation, the ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementors are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database.

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INFORMATION TECHNOLOGY – MESSAGE HANDLING SYSTEMS (MHS): ELECTRONIC DATA INTERCHANGE MESSAGING SYSTEM

1 Scope

This Recommendation | International Standard is one of a series on message handling. The entire set provides a comprehensive blueprint for a Message Handling System (MHS) realized by any number of cooperating open systems.

The purpose of an MHS is to enable users to exchange messages on a store-and-forward basis. A message submitted on behalf of one user, the originator, is conveyed by the Message Transfer System (MTS) and subsequently delivered to the agents of one or more additional users, the recipients. Access Units (AU) link the MTS to communication systems of other kinds (e.g. postal systems). A user is assisted in the preparation, storage, and display of messages by a User Agent (UA). Optionally, it is assisted in the storage of messages by a Message Store (MS). The MTS comprises a number of Message Transfer Agents (MTA) which collectively perform the store-and-forward message transfer function.

This Recommendation | International Standard defines the message handling application called EDI messaging (EDIMG), a form of message handling tailored for exchange of Electronic Data Interchange (EDI) information, a new message content type and associated procedures known as Pedi. It is designed to meet the requirements of users of ISO 9735 (EDIFACT), and other commonly used EDI systems.

This Recommendation | International Standard is one of a series on message handling. ITU-T Rec. X.402 | ISO/IEC 10021-2 constitutes the introduction to the series and identifies the other documents in it.

The architectural basis and foundation for message handling are defined in still other Recommendations | International Standards. ITU-T Rec. X.402 | ISO/IEC 10021-2 identifies those documents as well.

2 References

The following Recommendations and International Standards contain provisions which, through reference in this text, constitute provisions of this Recommendation | International Standard. At the time of publication, the editions indicated were valid. All Recommendations and Standards are subject to revision, and parties to agreements based on this Recommendation | International Standard are encouraged to investigate the possibility of applying the most recent edition of the Recommendations and Standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards. The Telecommunications Standardization Bureau of the ITU maintains a list of currently valid ITU-T Recommendations.

2.1 Presentation references

This Recommendation | International Standard cites the following Presentation specifications:

- ITU-T Recommendation X.680 (1997) | ISO/IEC 8824-1:1998, *Information technology – Abstract Syntax Notation One (ASN.1): Specification of basic notation*.
- ITU-T Recommendation X.681 (1997) | ISO/IEC 8824-2:1998, *Information technology – Abstract Syntax Notation One (ASN.1): Information object specification*.
- ITU-T Recommendation X.690 (1997) | ISO/IEC 8825-1:1998, *Information technology – ASN.1 Encoding Rules: Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER)*.
- ITU-T Recommendation X.880 (1994) | ISO/IEC 13712-1:1995, *Information technology – Remote Operations: Concepts, model and notation*.

2.2 Directory references

This Recommendation | International Standard cites the following Directory specifications:

- ITU-T Recommendation X.500 (1997) | ISO/IEC 9594-1:1998, *Information technology – Open Systems Interconnection – The Directory: Overview of concepts, models, and services*.
- ITU-T Recommendation X.501 (1997) | ISO/IEC 9594-2:1998, *Information technology – Open Systems Interconnection – The Directory: Models*.
- ITU-T Recommendation X.520 (1997) | ISO/IEC 9594-6:1998, *Information technology – Open Systems Interconnection – The Directory: Selected attribute types*.
- ITU-T Recommendation X.521 (1997) | ISO/IEC 9594-7:1998, *Information technology – Open Systems Interconnection – The Directory: Selected object classes*.

2.3 Message Handling references

This Recommendation | International Standard cites the following Message Handling System specifications:

- ITU-T Recommendation F.400/X.400 (1999), *Message handling services: Message handling system and service overview*.
- ITU-T Recommendation F.435 (1999) | ISO/IEC 10021-8:1999, *Electronic Data Interchange Messaging Service*.

  ISO/IEC 10021-1:1999, *Information technology – Message Handling Systems (MHS) – Part 1: System and service overview*.
- ITU-T Recommendation X.402 (1999) | ISO/IEC 10021-2:1999, *Information technology – Message Handling Systems (MHS): Overall architecture*.
- ITU-T Recommendation X.411 (1999) | ISO/IEC 10021-4:1999, *Information technology – Message Handling Systems (MHS): Message transfer system: Abstract service definition and procedures*.
- ITU-T Recommendation X.413 (1999) | ISO/IEC 10021-5:1999, *Information technology – Message Handling Systems (MHS): Message Store: Abstract service definition*.
- ITU-T Recommendation X.420 (1999) | ISO/IEC 10021-7:1999, *Information technology – Message Handling Systems (MHS): Interpersonal messaging system*.

2.4 Additional references

This Recommendation | International Standard cites the following specification:

- ISO 9735:1988, *Electronic data interchange for administration, commerce and transport (EDIFACT) – Application level syntax rules*.

3 Definitions

For the purposes of this Recommendation | International Standard, the following definitions apply.

3.1 Common definitions for MHS

This Recommendation | International Standard uses terms defined in ITU-T Rec. X.402 | ISO/IEC 10021-2:

- Access unit;
- Body;
- Content;
- Distribution list;
- Encoded information types;
- Envelope;
- Message handling system;
- Message store;
- Message transfer agent;

- Message transfer system;
- Physical delivery access unit;
- Recipient;
- Submission identifier;
- Submission time;
- Telematic agent;
- Telex access unit;
- User;
- User agent.

3.2 Common definitions for abstract syntax notation one

This Recommendation | International Standard uses the full extent of the abstract syntax notation one (ASN.1) as defined in ITU-T Rec. X.680 | ISO/IEC 8824-1.

3.3 EDI service definitions

This Recommendation | International Standard uses terms defined in ITU-T Rec. F.435 | ISO/IEC 10021-8.

- EDI forwarding;
- EDI message;
- EDI notification;
- EDI user;
- EDIM responsibility.

3.4 Other EDI definitions

The terms listed below may assume different meanings in the standards referenced.

3.4.1 EDI for administration, commerce and transport

This Recommendation | International Standard uses terms defined in ISO 9735 (EDIFACT – Application level syntax rules).

- Acknowledgement request;
- Address for reverse routing;
- Application reference;
- Communications agreement;
- Component data element separator;
- Data element separator;
- Date/time of preparation;
- Decimal notation;
- Functional group header;
- Identification code;
- Identification code qualifier;
- Interchange control reference;
- Interchange control header;
- Interchange recipient;
- Interchange sender;
- Message header;
- Processing priority code;

- Recipient identification code;
- Recipients reference qualifier;
- Recipients reference, password;
- Release indicator;
- Routing address;
- Segment terminator;
- Sender identification;
- Service string advice;
- Syntax identifier;
- Syntax version;
- Test indicator;
- UNA segment;
- UNB segment;
- UNH segment.

3.4.2 United Nations trade data interchange

This Recommendation | International Standard uses terms defined in the United Nations Trade Data Interchange (UNTDI) syntax rules (developed from the earlier syntax Recommendation UNGTDI) unanimously accepted by the United Nations Economic Commission for Europe, Working Party 4, in September 1985.

- Application reference;
- Date and time of transmission;
- Message header;
- MHD segment;
- Recipients reference/password;
- Start of transmission;
- Transmission priority code;
- Transmission recipient;
- Transmission sender.

3.4.3 American National Standards Institute Committee X12 Definitions

This Recommendation | International Standard uses terms defined in the American National Standards Institute Committee X12 (ANSIX12) standard X12.5-1987.

- Authorization information qualifier;
- Authorization information;
- Functional group header;
- Interchange date;
- Interchange header;
- Interchange receiver id;
- Interchange sender id;
- Interchange time;
- ISA segment;
- Test indicator;
- Transactional set header, ST segment.

3.5 EDI messaging system definitions

For the purposes of this Recommendation | International Standard, the following definitions apply.

3.5.1 EDI message store: An EDI message store is a specialized message store for the purposes of EDI messaging.

3.5.2 EDI messaging system: The EDI messaging system is the functional object by means of which all users communicate with one another in EDI messaging.

3.5.3 EDI user agent: An EDI user agent is a specialized user agent for the purposes of EDI messaging.

4 Abbreviations

For the purposes of this Recommendation | International Standard, the following abbreviations apply.

ANSIX12	American National Standards Institute Committee X12
AU	Access Unit
DL	Distribution List
EDI	Electronic Data Interchange
EDI-MS	EDI Message Store
EDI-UA	EDI User Agent
EDIFACT	Electronic Data Interchange for Administration, Commerce and Transport
EDIM	EDI Message
EDIME	EDI Messaging Environment
EDIMG	EDI Messaging
EDIMG user	EDI messaging user
EDIMS	EDI Messaging System
EDIN	EDI Notification
EIT	Encoded Information Type
FN	Forwarded Notification
MD	Management Domain
MHS	Message Handling System
MS	Message Store
MTA	Message Transfer Agent
MTS	Message Transfer System
NN	Negative Notification
PDAU	Physical Delivery Access Unit
PDS	Physical Delivery System
PN	Positive Notification
TLMA	TeLeMatic Agent
UA	User Agent
UNTDI	United Nations/Trade Data Interchange

5 Conventions

This edition of the EDI Specification, Version 2, replaces CCITT Rec. X.435 (1991) | ISO/IEC 10021-9:1995. For Message Store operation, this Recommendation | International Standard assumes use of the Message Store definition given in ITU-T Rec. X.413 (1995) | ISO/IEC 10021-5: 1996. The term "1994 Application Contexts" is used to distinguish this more recent mode of Message Store access from that used in Version 1. The EDI auto-forward auto-action (see 18.7.1) differs substantially from that defined in Version 1; with this exception, Versions 1 and 2 are compatible.

Additional descriptive conventions are listed below.

5.1 Terms

Throughout the rest of this Recommendation | International Standard, terms that refer to ASN.1 types are written with upper-case initial letters for all words in the ASN.1 type (for example, EDI Notification Requests).

5.2 ASN.1

ASN.1 definitions appear both in the main text and in the annexes. In case of inconsistency between a definition presented in the text, and a definition presented in an annex forming an integral part of this Recommendation | International Standard, the definition in the annex shall be used. ASN.1 notation is defined in ITU-T Rec. X.680 | ISO/IEC 8824-1.

This Recommendation | International Standard uses, for the indicated purposes, the following ASN.1-based descriptive conventions:

a) to define the information objects of EDI Messaging, and other data types and values of all kinds, ASN.1 itself;

b) to define the functional objects of EDI Messaging, the MHS-OBJECT information class of ITU-T Rec. X.411 | ISO/IEC 10021-4;

c) to define the abstract service of EDI Messaging, the PORT, ABSTRACT-OPERATION and ERROR information object classes of ITU-T Rec. X.411 | ISO/IEC 10021-4, and the CONTRACT information object class of ITU-T Rec. X.880 | ISO/IEC 13712-1;

d) to define the protocol extensions, the EDIM-EXTENSION information object class of this Recommendation | International Standard;

e) to define extended body part types, the EXTENDED-BODY-PART-TYPE information object class of ITU-T Rec. X.420 | ISO/IEC 10021-7;

f) to define MS Auto-actions and MS attributes, the AUTO-ACTION and ATTRIBUTE information object classes of ITU-T Rec. X.413 | ISO/IEC 10021-5.

ASN.1 tags are implicit throughout the ASN.1 modules defined in any annex; the module is definitive in that respect.

NOTE – The use of ASN.1 to describe a class or piece of information does not in itself imply that information is transported between open systems. The fact that the information, by virtue of its description in ASN.1 and of ASN.1's basic encoding rules, has a concrete transfer syntax may be immaterial. Information actually conveyed between systems is designated as such by its inclusion in an application protocol.

5.3 Conventions for Attribute Types in Table 2

This Recommendation | International Standard uses the conventions listed below in its definition of attribute types for the MS abstract services.

For the columns headed "Single/Multi-valued" the following values can occur:

– S: single-valued,

– M: multi-valued.

For the columns headed "Support level by MS and UA" (where UA refers only to a UA that accesses an MS) the following values can occur:

– M: mandatory,

– O: optional.

For the columns headed "Presence in delivered EDIM", "Presence in submitted EDIM", "Presence in PN", "Presence in NN", "Presence in FN", "Presence in Delivery-log", and "Presence in Submission-log", the presence of each attribute type is described by one of the following values:

– P: "always present" in the entry because it is mandatory for generation by the MS or it is a mandatory or defaulted parameter in the relevant abstract operation.

– C: "conditionally present" in the entry. It will be present because it is supported by the MS and subscribed to by the user and it was present in an optional parameter in the relevant abstract operation.

– a hyphen (-) indicates "always absent", otherwise.

For the columns headed "Available for list, alert" and "Available for summarize", the following values can occur:

– N: No;

– Y: Yes.

5.4 Conventions for Attribute Types in Table 4

This Recommendation | International Standard uses the conventions listed below in its definition of attribute types for the MS abstract services.

For the columns headed "Source generated by", the following values can occur:

– Md: MessageDelivery abstract-operation;

– Ms: MessageSubmission abstract-operation;

– MS: MessageStore.

6 Information objects

The information objects that users exchange in EDI messaging are of two kinds: EDI messages (EDIM), and EDI notifications (EDIN).

NOTE – The EDI messaging user (EDIMG user) is normally an EDI application or computer process, not a person. For brevity, the term user is used throughout the rest of this Recommendation | International Standard with the meaning of EDIMG user.

```
InformationObject ::= CHOICE {
    edim            [0] EDIM,
    edin            [1] EDIN }
```

7 Common data types

Information items of several kinds appears both in EDI messages and EDI notifications. These common items are defined below.

7.1 EDIM Identifier

An EDIM Identifier is an information item that unambiguously, globally and forever uniquely identifies an EDIM.

It comprises an OR-name and a string which may for example contain a time or sequence number or other sufficient information to make this EDIM unique.

```
EDIMIdentifier ::= SET {
    user                        [0] ORName,
    user-relative-identifier    [1] LocalReference }
```

NOTE – OR-name is defined in 8.5.5 of ITU-T Rec. X.411 | ISO/IEC 10021-4.

The EDIM Identifier shares the same value set with the IPM Identifier defined in ITU-T Rec. X.420 | ISO/IEC 10021-7. Therefore an EDI user agent or EDI message store that is capable of handling both IPM and EDIM shall make sure that the Local Reference is unique both for IPMs and EDIMs.

An EDIM Identifier has the following components:

a) *User*: Identifies the user who originates the EDIM. One of the user's OR-names.

b) *User-relative-identifier*: Unambiguously identifies the EDIM, distinguishing it from all other EDIMs that the user who is identified by the User component originates. A Printable String of from zero to a prescribed number of characters (see Annex G). A length of zero is discouraged.

```
LocalReference ::= PrintableString (SIZE (0..ub-local-reference))
```

7.2 Extensions

A mechanism is provided which allows for future extensions to this Recommendation | International Standard.

```
ExtensionField ::= SEQUENCE {
    type             [0] EDIM-EXTENSION.&id,
    criticality      [1] Criticality DEFAULT FALSE,
    value            [2] EDIM-EXTENSION.&Type DEFAULT NULL:NULL }
```

Each Extension has the following components:

a) *Type*: Identifies the semantics and restricts the abstract syntax of the *Value* component. An Object Identifier.

b) *Criticality*: An Extension field can be marked critical (Criticality set to TRUE) or non-critical (Criticality set to FALSE) for acceptance of Responsibility. An extension marked as non-critical for Responsibility may be ignored or discarded, while an extension marked as critical must be known and performed for acceptance of Responsibility of an EDIM.

> NOTE – The term EDIM Responsibility; is defined in 3.5 of ITU-T Rec. F.435 | ISO/IEC 10021-8. Throughout this document, the term "Responsibility" refers to the term defined in of ITU-T Rec. F.435 | ISO/IEC 10021-8, and not to the everyday use of the word.

```
Criticality ::= BOOLEAN
```

c) *Value*: An information item whose abstract syntax is restricted only by the Type component.

Every extension is defined by means of the following information object class:

```
EDIM-EXTENSION ::= CLASS {
        &id              OBJECT IDENTIFIER UNIQUE,
        &criticality     BOOLEAN DEFAULT FALSE,
        &Type            DEFAULT NULL }
WITH SYNTAX { [VALUE &Type,] [ CRITICALITY &criticality ] IDENTIFIED BY &id }
```

The &id field is the identifier field for the class. It distinguishes an EDIM Extension from every other instance of the class. The &Type field defines the data type to which every value of this instance of EDIM Extension shall conform.

8 EDI Messages

An EDI message (EDIM) is a member of the primary class of information objects conveyed between users in EDI messaging.

> NOTE 1 – The term message when used throughout the rest of this Recommendation | International Standard is a synonym for EDI Message where the context admits.

```
EDIM ::= SEQUENCE {
    heading                  Heading,
    body                     Body }
```

An EDI Message consists of the following components:

a) *Heading*: A set of Heading Fields (or Fields), each an information item that gives a characteristic of the EDI Message.

b) *Body*: A sequence of one or more body parts.

```
Body ::= SEQUENCE {
    primary-body-part        PrimaryBodyPart,
    additional-body-parts    OtherBodyParts OPTIONAL }

PrimaryBodyPart ::= CHOICE {
    edi-body-part            [0] EDIBodyPart,
    forwarded-EDIM           [1] EDIMBodyPart }

OtherBodyParts ::= SEQUENCE OF EDIM-ExtendedBodyPart
```

NOTE 2 – EDIM-Extended Body Part is defined in 8.3.3. EDI Body Part is defined in 8.3.1. EDIM Body Part is defined in 8.3.2.

The Body has one Primary Body Part that contains an EDI information object. This body part is either an EDI interchange itself or a forwarded EDIM. Examples of types of EDI information objects are EDI Interchanges defined by ISO 9735, Electronic Data Interchange For Administration, Commerce and Transport (EDIFACT), by United Nations Trade Data Interchange (UNTDI) and by American National Standards Institute Committee X12 (ANSIX12).

NOTE 3 – The scope of an EDI information object type is rather large and includes for example Privately Defined types. For brevity, the term interchange is used throughout the rest of this Recommendation | International Standard with the meaning of EDI Interchange.

The following rules comply with the requirements stated in 7.4 of ITU-T Rec. F.435 | ISO/IEC 10021-8:

c) When an EDIM is first created, the Primary Body Part shall contain one EDI Body Part.

d) When an EDIM is forwarded, its structure shall comply with the rules given in 17.3.3.2.

Other body parts may be present in a message related to the Primary Body Part but of a different type. Examples of related body parts might be textual information, voice annotation or graphics to be used in conjunction with the interchange.

The structure of an EDI Message is depicted in Figure 1.

8.1 Heading Field Component Types

Information items of several kinds appear throughout the Heading. These common items are defined below.

In the text that follows, reference is made to EDIFACT segments and data elements. Annex K explains this in relation to UNTDI and ANSIX12. Values copied from EDI data elements and represented as Telex Strings are semantically equivalent to the characters used to form the EDI data elements in EDIFACT, UNTDI and ANSIX12.

8.1.1 Interchange Recipient/Sender

The Interchange Recipient and Interchange Sender fields have some data types in common. They are defined below.

8.1.1.1 Identification Code

The Identification Code identifies a sender/recipient of an interchange. This is semantically identical to the "Sender identification/recipient identification" component of the Interchange sender/recipient of the EDIFACT UNB segment.

```
IdentificationCode ::= TeletexString (SIZE (1..ub-identification-code))
```

8.1.1.2 Identification Code Qualifier

The Identification Code Qualifier, if present, is a qualifier to the Identification Code of a sender/recipient. This is semantically identical to the "Identification code qualifier" component of the Interchange sender/recipient of the EDIFACT UNB segment.

```
IdentificationCodeQualifier ::= TeletexString (SIZE (1..ub-identification-code-qualifier))
```

8.1.1.3 Routing Address

The Routing Address, if present, is an address for routing to the sender/recipient specified in the Identification Code. This is semantically identical to the "Address for reverse routing / Routing address" component of the Interchange sender/recipient of the EDIFACT UNB segment.

```
RoutingAddress ::= TeletexString (SIZE (1..ub-routing-address))
```

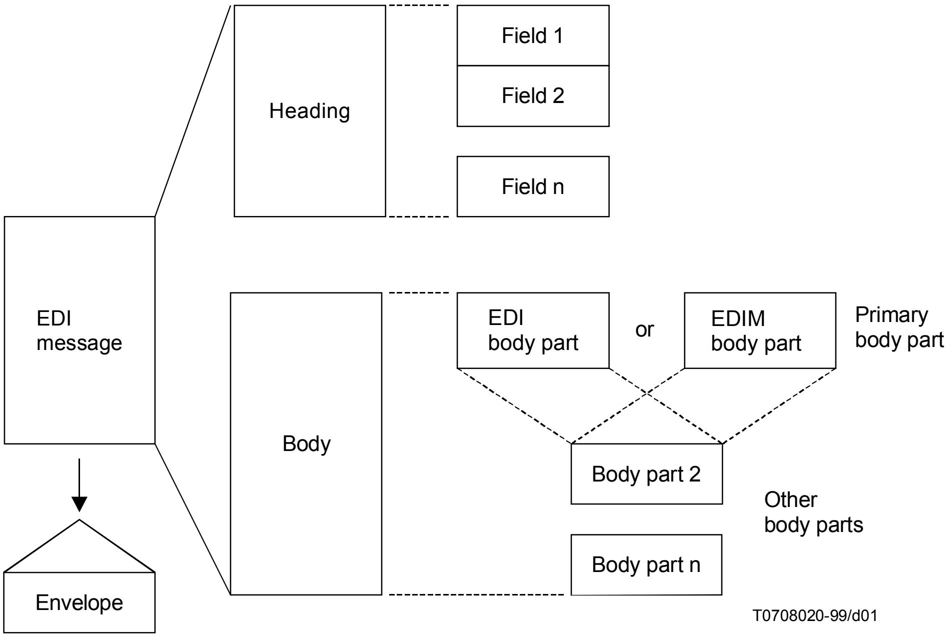


Figure 1 – EDI message structure

8.2 Heading Fields

The fields that may appear in the Heading of an EDIM are defined and described below.

```
Heading ::= SEQUENCE {
    this-EDIM                          [1]  ThisEDIMField,
    originator                         [2]  OriginatorField OPTIONAL,
    recipients                         [3]  RecipientsField OPTIONAL,
    edin-receiver                      [4]  EDINReceiverField OPTIONAL,
    responsibility-forwarded           [5]  ResponsibilityForwarded DEFAULT FALSE,
    edi-bodypart-type                  [6]  EDIBodyPartType DEFAULT {id-bp-edifact-ISO646},
    incomplete-copy                    [7]  IncompleteCopyField DEFAULT FALSE,
    expiry-time                        [8]  ExpiryTimeField OPTIONAL,
    related-messages                   [9]  RelatedMessagesField OPTIONAL,
    obsoleted-EDIMs                    [10] ObsoletedEDIMsField OPTIONAL,
    edi-application-security-elements  [11] EDIApplicationSecurityElementsField OPTIONAL,
    cross-referencing-information      [12] CrossReferencingInformationField OPTIONAL,
        -- Begin Fields from EDIFACT Interchange
    edi-message-type                   [13] EDIMessageTypeField OPTIONAL,
    service-string-advice              [14] ServiceStringAdviceField OPTIONAL,
    syntax-identifier                  [15] SyntaxIdentifierField OPTIONAL,
    interchange-sender                 [16] InterchangeSenderField OPTIONAL,
    date-and-time-of-preparation       [17] DateAndTimeOfPreparationField OPTIONAL,
    application-reference              [18] ApplicationReferenceField OPTIONAL,
        -- End Fields from EDIFACT
    heading-extensions                 [19] HeadingExtensionsField OPTIONAL }
```

NOTE – The names of the Heading fields derived from EDI standards are taken directly from the relevant standards. See also Annex K.

8.2.1 This EDIM

The This EDIM field identifies the EDIM. It comprises an EDIM Identifier which provides a globally and forever unique identification for the EDIM.

```
ThisEDIMField ::= EDIMIdentifier
```

NOTE – EDIM Identifier is defined in 7.1.

8.2.2 Originator

Identifies the EDIM's originator. It comprises an OR-name. If the Originator field is not present in the EDIM Heading on reception, then the originator-name of the delivery envelope shall be used to determine the originator of the EDIM (see 8.2.1.1.1.1 of ITU-T Rec. X.411 | ISO/IEC 10021-4).

```
OriginatorField ::= ORName
```

NOTE – OR-name is defined in 8.5.5 of ITU-T Rec. X.411 | ISO/IEC 10021-4.

8.2.3 Recipients

The Recipients field identifies the user(s) and distribution lists (DLs) who are the (preferred) recipient(s) of the EDIM. It comprises a set of Recipients subfields, one for each recipient. If the Recipients field is not present in the EDIM Heading on reception, then the This-recipient-name of the delivery envelope shall be used to determine the recipient of the EDIM (see 8.3.1.1.1.3 of ITU-T Rec. X.411 | ISO/IEC 10021-4).

NOTE – The fact that a message can be redirected or forwarded is reflected in the word "preferred" above.

```
RecipientsField ::= SET OF RecipientsSubField
```

The Recipients subfield is an information item that identifies a recipient of an EDIM and that may make certain requests of him.

```
RecipientsSubField ::= SEQUENCE {
    recipient                          [1]  RecipientField,
    action-request                     [2]  ActionRequestField DEFAULT {id-for-action},
    edi-notification-requests-field    [3]  EDINotificationRequestsField OPTIONAL,
    responsibility-passing-allowed     [4]  ResponsibilityPassingAllowedField DEFAULT FALSE,
      -- Begin Fields from EDIFACT UNB
    interchange-recipient              [5]  InterchangeRecipientField OPTIONAL,
    recipient-reference                [6]  RecipientReferenceField OPTIONAL,
    interchange-control-reference      [7]  InterchangeControlReferenceField OPTIONAL,
    processing-priority-code           [8]  ProcessingPriorityCodeField OPTIONAL,
    acknowledgement-request            [9]  AcknowledgementRequestField DEFAULT FALSE,
    communications-agreement-id        [10] CommunicationsAgreementIdField OPTIONAL,
    test-indicator                     [11] TestIndicatorField DEFAULT FALSE,
      -- End Fields from EDIFACT UNB
      -- Begin Fields from ANSIX12 ISA
    authorization-information          [12] AuthorizationInformationField OPTIONAL,
      -- End Fields from ANSIX12 ISA
    recipient-extensions               [13] RecipientExtensionsField OPTIONAL }
```

The Recipients subfield has the following components:

8.2.3.1 Recipient

A Recipient identifies the preferred recipient in question. It comprises an OR-name.

```
RecipientField ::= ORName
```

NOTE – OR-name is defined in 8.5.5 of ITU-T Rec. X.411 | ISO/IEC 10021-4.

8.2.3.2 Action Request

An Action Request indicates what action the originator requests from the recipient. Its value is an object identifier.

```
ActionRequestField ::= OBJECT IDENTIFIER
```

The following standard values have object identifiers defined in this Recommendation | International Standard:

- For Action,
- Copy.

The absence of this field shall be interpreted as having the default value set to For Action.

NOTE – Additional values for this field can be defined by any interested parties.

8.2.3.3 EDI Notification Requests

The EDI Notification Requests component (Default: no notifications, no notification security and no reception security) may make certain requests of the preferred recipient deNOTEd by the Recipient field.

NOTE 1 – The fact that a message can be redirected or forwarded is reflected in the word "preferred" above.

```
EDINotificationRequestsField ::= SEQUENCE {
    edi-notification-requests    [0] EDINotificationRequests DEFAULT {},
    edi-notification-security    [1] EDINotificationSecurity DEFAULT {},
    edi-reception-security       [2] EDIReceptionSecurity DEFAULT {}  }

EDINotificationRequests ::= BIT STRING {
    pn              (0),
    nn              (1),
    fn              (2) } (SIZE (0..ub-bit-options))

EDINotificationSecurity ::= BIT STRING {
    proof           (0),
    non-repudiation (1) } (SIZE (0..ub-bit-options))

EDIReceptionSecurity ::= BIT STRING {
    proof           (0),
    non-repudiation (1) } (SIZE (0..ub-bit-options))
```

NOTE 2 – Only the following combinations of EDI Notification Security and EDI Reception Security bits have a defined behaviour:

EDI Notification Security {proof(0)}	*and*	EDI Reception Security {proof(0)};
EDI Notification Security {non-repudiation(1)}	*and*	EDI Reception Security {non-repudiation(1)};
EDI Notification Security {proof(0)}	*and*	EDI Reception Security { };
EDI Notification Security {non-repudiation(1)}	*and*	EDI Reception Security { };
EDI Notification Security { }	*and*	EDI Reception Security { }.

The EDI Notification Requests field consists of a sequence of three optional bit strings of which the first selects the type of notification, the second selects what security function should be applied to that notification, and the third may make certain security requests for proof or non-repudiation of reception of this EDIM by the recipient. EDI Notification Security and EDI Reception Security shall not be requested if EDI Notifications are not requested.

The EDI Notification Requests bit string may assume any of the following values simultaneously.

a) *pn*: A notification of acceptance of Responsibility is requested in the circumstances prescribed in clause 9.

b) *nn*: A notification of refusal of Responsibility of a message is requested in the circumstances prescribed in clause 9.

c) *fn*: A forwarded notification is requested in the circumstances prescribed in clause 9.

The absence of the EDI Notification Requests bit string implies that no EDI Notification requests are made.

The EDI Notification Security bit string may assume any of the following values simultaneously. Each of these values places requirements as indicated below on an EDI-UA submitting a subsequent EDIN in response to the EDI Notification Requests.

d) *Proof*: When submitting the EDIN to the MTS, content-integrity-check shall be requested in the Message-submission-argument as defined in 8.2.1.1.1.28 in ITU-T Rec. X.411 | ISO/IEC 10021-4.

e) *Non-repudiation*: When submitting the EDIN to the MTS, content-integrity-check shall be requested in the Message-submission-argument as defined in 8.2.1.1.1.28 in ITU-T Rec. X.411 | ISO/IEC 10021-4 with a non-repudiable certificate.

The absence of the EDI Notification Security bit string implies that no EDI Notification Security requests are made.

The EDI Reception Security bit string may assume any of the following values simultaneously. Each of these values places requirements as indicated below on an EDI-UA submitting a subsequent EDIN in response to the EDI Notification Requests.

f) *Proof*: When submitting the EDIN to the MTS, content-integrity-check (possibly in the message token), or the message-origin-authentication-check (depending on the security policy in force) shall be requested. A notification shall contain the security elements and shall be signed on submission to the MTS, using content-integrity-check (possibly in the message token) or message-origin-authentication-check (depending on the security policy in force) in the Message-submission-argument as defined in 8.2.1.1.1.26, 8.2.1.1.1.28 and 8.2.1.1.1.29 of ITU-T Rec. X.411 | ISO/IEC 10021-4.

g) *Non-repudiation*: When submitting the EDIN to the MTS, a non-repudiable content-integrity-check (possibly in the message token) or a message-origin-authentication-check (depending on the security policy in force) shall be requested. A notification shall contain the security elements and shall be signed on submission to the MTS, using non-repudiable content-integrity-check (possibly in the message token) or message-origin-authentication-check (depending on the security policy in force) in the Message-submission-argument as defined in 8.2.1.1.1.26, 8.2.1.1.1.28 and 8.2.1.1.1.29 of ITU-T Rec. X.411 | ISO/IEC 10021-4.

The absence of the EDI Reception Security field implies that no EDI Reception Security requests are made.

NOTE 3 – Security services are available only if the MTS supports secure messaging.

8.2.3.4 Responsibility Passing Allowed

The Responsibility Passing Allowed field indicates that forwarding Responsibility is allowed if this field is set to TRUE. Absence of the field shall be interpreted as the value FALSE.

A recipient of a message with the Responsibility Passing Allowed field set to FALSE shall originate EDIN's as requested, and shall not forward Responsibility.

```
ResponsibilityPassingAllowedField ::= BOOLEAN -- Default FALSE
```

If allowed, Responsibility may be forwarded to at most one recipient.

8.2.3.5 Interchange Recipient

The Interchange Recipient identifies the EDI Interchange recipient. This is semantically identical to the "Interchange recipient" of the EDIFACT UNB segment.

```
InterchangeRecipientField ::= SEQUENCE {
    recipient-identification         [0] IdentificationCode,
    identification-code-qualifier    [1] IdentificationCodeQualifier OPTIONAL,
    routing-address                  [2] RoutingAddress OPTIONAL }
```

NOTE – The above fields are defined in 8.1.1.

8.2.3.6 Recipient Reference

The Recipient Reference identifies a reference meaningful to the recipient's EDI application. This is semantically identical to the "Recipient's Reference, Password" of the EDIFACT UNB segment. It consists of two strings.

```
RecipientReferenceField ::= SEQUENCE {
    recipient-reference              [0] RecipientReference,
    recipient-reference-qualifier    [1] RecipientReferenceQualifier OPTIONAL }

RecipientReference ::= TeletexString (SIZE (1..ub-recipient-reference))

RecipientReferenceQualifier ::= TeletexString (SIZE (1..ub-recipient-reference-qualifier))
```

8.2.3.7 Interchange Control Reference

Indicates the Interchange Control Reference as assigned by the Interchange sender. This is semantically identical to the "Interchange control reference" of the EDIFACT UNB segment.

```
InterchangeControlReferenceField ::= TeletexString (SIZE (1..ub-interchange-control-
reference))
```

8.2.3.8 Processing Priority Code

Indicates the EDI application Processing Priority Code. This is semantically identical to the "Processing priority code" in the EDIFACT UNB segment. It consists of a string.

```
ProcessingPriorityCodeField ::= TeletexString (SIZE (1..ub-processing-priority-code))
```

8.2.3.9 Acknowledgement Request

The Acknowledgement Request indicates the request for EDI acknowledgement as indicated by the interchange sender. This is semantically identical to the "Acknowledgement request" in the EDIFACT UNB segment. Its value is a Boolean, where the value TRUE indicates a request for acknowledgement. Absence of this field shall be interpreted as the value FALSE.

```
AcknowledgementRequestField ::= BOOLEAN -- default FALSE
```

8.2.3.10 Communications Agreement Id

The Communications Agreement Id indicates the type of Communications Agreement controlling the interchange, e.g. Customs or other agreement. This is semantically identical to the "Communications agreement id" in the EDIFACT UNB segment.

```
CommunicationsAgreementIdField ::= TeletexString (SIZE (1..ub-communications-agreement-id))
```

8.2.3.11 Test Indicator

Indicates that the EDI Interchange is a test. This is semantically identical to the "Test indicator" in the EDIFACT UNB segment. It is a Boolean where the value TRUE indicates that the EDI Interchange is a test. Absence of this field shall be interpreted as the value FALSE.

```
TestIndicatorField ::= BOOLEAN  -- default FALSE
```

8.2.3.12 Authorization Information

The Authorization Information indicates who authorized the interchange. This is semantically identical to the "Authorization information" in the ANSIX12 Interchange.

```
AuthorizationInformationField ::= SEQUENCE {
    authorization-information           [0] AuthorizationInformation,
    authorization-information-qualifier [1] AuthorizationInformationQualifier OPTIONAL }

AuthorizationInformation ::= TeletexString (SIZE (1..ub-authorization-information))

AuthorizationInformationQualifier ::= TeletexString
                                        (SIZE (1..ub-authorization-information-qualifier))
```

NOTE – In the above text reference is made to ANSIX12 segments and data elements. Annex K explains this in relation to UNTDI and EDIFACT (ISO 9735), being the other two widely used syntaxes.

8.2.3.13 Recipient Extensions

The Recipient Extensions contains extensions to the Recipients subfield.

```
RecipientExtensionsField ::= SET OF RecipientExtensionsSubField

RecipientExtensionsSubField ::= ExtensionField
```

There are no Recipient Extensions defined in this Recommendation | International Standard.

8.2.4 EDIN Receiver

Identifies the recipient to whom EDINs are to be sent. This is created by the originator of the EDIM when the Recipient of a requested notification is different from the Originator of the message. It consists of a sequence of OR-name, EDIM Identifier and First Recipient.

This field shall not be present if EDI Notification Requests are not made.

This field shall be present in a forwarded message when the forwarding EDI user agent (EDI-UA) or EDI message store (EDI-MS) forwards Responsibility. This field may be present when the forwarding EDI-UA accepts Responsibility. Rules related to the construction of this field are given in 17.3.3.4.

NOTE 1 – For brevity, the term User Agent (UA) is used throughout the rest of this Recommendation | International Standard with the meaning of EDI-UA, and the term Message Store (MS) is used throughout the rest of this Recommendation | International Standard with the meaning of EDI-MS.

```
EDINReceiverField ::= SEQUENCE {
    edin-receiver-name         [0] ORName,
    original-edim-identifier   [1] EDIMIdentifier OPTIONAL,
    first-recipient            [2] FirstRecipientField OPTIONAL}
```

The "first-recipient" field shall not be present if more than one Recipients Subfield contains EDI Notification Requests.

The "original-edim-identifier" and the "first-recipient" fields shall not be present when the Primary Body Part is an EDI Body Part (that is, when the original originator first creates the EDIM).

NOTE 2 – The Original EDIM Identifier and First Recipient fields are included in order to allow the recipient to construct the EDIN for a forwarded EDIM. See 9.1 (more specifically 9.1.3) and 17.3.1.1 for rules related to the construction of an EDIN; see 17.3.3.4 for rules related to the First Recipient field when constructing a forwarded EDIM. OR-name is defined in 8.5.5 of ITU-T Rec. X.411 | ISO/IEC 10021-4. First Recipient Field is defined in 9.1.3.

8.2.5 Responsibility Forwarded

The Responsibility Forwarded field is used to indicate whether Responsibility was forwarded. Absence of this field shall be interpreted as the value FALSE.

```
ResponsibilityForwarded ::= BOOLEAN -- Default FALSE
```

If this field has the value TRUE it indicates to a receiving UA that Responsibility was forwarded. If this field has the value FALSE (or is absent) it indicates to a receiving UA that the security elements of the inner envelope have been checked.

Subject to the security policy in force, the security elements may have been checked when the message was forwarded. However, when Responsibility is accepted, the security elements shall be checked.

NOTE – Rules regarding the use of this field are contained in 17.3.3.1 and 17.3.3.2.

8.2.6 EDI Body Part Type

Indicates the EDI standard and EDI character sets used in the Primary Body Part. It is represented by a single object identifier.

```
EDIBodyPartType ::= OBJECT IDENTIFIER -- default EDIFACT-ISO646
```

The following standard values have object identifiers defined in this Recommendation | International Standard:

- EDIFACT: ISO646 | TeletexString | ISO 8859 | UNDEFINED OCTETS
- ANSIX12: ISO646 | TeletexString | EBCDIC | UNDEFINED OCTETS
- UNTDI: ISO646 | TeletexString | UNDEFINED OCTETS
- PRIVATE: UNDEFINED OCTETS
- UNDEFINED: UNDEFINED OCTETS

The absence of this field shall be interpreted as having the default value set to EDIFACT, ISO/IEC 646.

NOTE 1 – The character set referred to by the object identifier is that in which both the EDI Body Part, and those Heading fields that are OCTET STRINGS and are derived from the EDI Interchange are encoded, notwithstanding the fact that these types are defined as OCTET STRING.

NOTE 2 – The PRIVATE and UNDEFINED object identifiers are provided as an interim measure and rely on the existence of bilateral agreements. The PRIVATE object identifier should be used in preference to the UNDEFINED, as it conveys a semantic of being understood according to private arrangements between the communicating parties, i.e. the originator and the intended recipient.

Instead of using one of the object identifiers listed above, a privately defined object identifier may be used indicating a privately defined EDI syntax and character set. Such an object identifier should be acquired from a local registration authority and used in accordance with the practices and policies of that registration authority.

For EDIFACT body types whose character repertoire is encoded as defined in ISO/IEC 8859, the object identifier root is defined in Annex A of this Recommendation | International Standard. ISO/IEC 8859 is composed of several parts, where each part specifies a specific character repertoire. The specific part number shall form the leaf value of the object identifier used in the EDIMG protocol.

NOTE 3 – This is the same technique used for indicating character repertoires used in IPM's General Text bodypart. For example, an EDIFACT message encoded per ISO/IEC 8859-6 would be represented with the object identifier:

```
{joint-iso-itu-t mhs edims(7) id-bp(11) id-bp-edifact-8859(12) iso-8859-6(6)}
-- or alternatively, { 2 6 7 11 12 6 }.
```

The value of the EDI Body Part Type field shall be used in the Encoded Information Types in the MTS abstract operations (in accordance with 19.4). This enables a UA to signal to the MTS what type of EDI standard the EDIM's Primary Body Part complies with. The MTS makes use of this information, if the recipient UA has registered delivery restrictions on Encoded Information Types, to decide if it can deliver the EDIM.

NOTE 4 – The term Encoded Information Type is defined in 8.1 of ITU-T Rec. X.402 | ISO/IEC 10021-2. See also 8.2.1.1.1.33 of ITU-T Rec. X.411 | ISO/IEC 10021-4.

8.2.7 Incomplete Copy

The Incomplete Copy field indicates that the forwarded EDIM is an incomplete copy of an EDIM. Its value is a Boolean. This field shall have the value TRUE if body parts are removed when an EDIM is forwarded. The absence of this field shall be interpreted as having the value FALSE.

```
IncompleteCopyField ::= BOOLEAN  -- Default FALSE
```

NOTE – The term "forwarded EDIM" is defined in 17.3.3.

8.2.8 Expiry Time

Indicates when the originator considers this EDIM loses its validity. It comprises a date and time (UTC).

```
ExpiryTimeField ::= UTCTime
```

8.2.9 Related Messages

Identifies messages, EDIMs or other (for example IPMs), that the originator of this EDIM considers related to it. It comprises a sequence of one or more message references, one for each related message.

```
RelatedMessagesField ::= SEQUENCE OF RelatedMessageReference

RelatedMessageReference ::= CHOICE {
    edi-message-reference       [0] EDIMIdentifier,
    external-message-reference  [1] ExternalMessageReference }

ExternalMessageReference ::= TYPE-IDENTIFIER
```

NOTE 1 – If the related message identifies messages from other services the user component of the message identifier (EDIMIdentifier) must be present.

NOTE 2 – Message identifier values of the referenced message of other service types than EDIMG are carried in the EDIMIdentifier field.

8.2.10 Obsoleted EDIMs

The Obsoleted EDIMs Field identifies one or more EDIMs that the present EDIM obsoletes. It is a sequence of subfields, each an EDIM Identifier.

```
ObsoletedEDIMsField ::= SEQUENCE OF ObsoletedEDIMsSubfield

ObsoletedEDIMsSubfield ::= EDIMIdentifier
```

8.2.11 EDI Application Security Elements

The EDI Application Security Elements field allows an EDI application to exchange security elements having an end-to-end significance.

```
EDIApplicationSecurityElementsField ::= SEQUENCE {
    edi-application-security-element      [0] EDIApplicationSecurityElement OPTIONAL,
    edi-encrypted-primary-bodypart        [1] BOOLEAN OPTIONAL,
    edi-application-security-extensions   [2] EDIApplicationSecurityExtensions OPTIONAL }

EDIApplicationSecurityElement ::= BIT STRING (SIZE (0..ub-edi-application-security-elements))

EDIApplicationSecurityExtensions ::= SET OF EDIApplicationSecurityExtension

EDIApplicationSecurityExtension  ::= ExtensionField
```

8.2.12 Cross Referencing Information

The Cross Referencing Information allows an EDI application to reference individual body parts within the same EDIM and within other EDIMs. It contains a set of cross reference data. Its usage is outside the scope of this Recommendation | International Standard.

```
CrossReferencingInformationField ::= SET OF CrossReferencingInformationSubField

CrossReferencingInformationSubField ::= SEQUENCE {
    application-cross-reference [0] ApplicationCrossReference,
    message-reference           [1] MessageReference OPTIONAL,
    body-part-reference         [2] BodyPartReference }

ApplicationCrossReference ::= OCTET STRING

MessageReference ::= EDIMIdentifier
```

If the Message Reference is absent, the message referred to is the current one.

NOTE 1 – Body Part Reference is defined in 8.3.3.

NOTE 2 – The character set used in the Application Cross Reference field is indicated by the value of the field EDI Body Part Type.

8.2.13 EDI Message Type

Indicates the Message type(s) present in the EDI Interchange. It consists of a set of distinct strings.

NOTE – "Message" is to be understood as message types that are defined in EDI standards and shall not be confused with "message" used elsewhere in this Recommendation | International Standard.

```
EDIMessageTypeField ::= SET OF EDIMessageTypeFieldSubField

EDIMessageTypeFieldSubField ::= TeletexString (SIZE (1..ub-edi-message-type))
```

The values for this field shall be:

- EDIFACT: Message Type from the UNH segment
- ANSIX12: Transaction Set ID from the ST segment
- UNTDI: Message Type from the MHD segment.

8.2.14 Service String Advice

Indicates the Service String Advice of the EDI Interchange. This is semantically identical to the "UNA, Service string advice" of the EDIFACT Interchange.

```
ServiceStringAdviceField ::= SEQUENCE {
    component-data-element-separator      [0] ComponentDataElementSeparator,
    data-element-separator                [1] DataElementSeparator,
    decimal-notation                      [2] DecimalNotation,
    release-indicator                     [3] ReleaseIndicator OPTIONAL,
    reserved                              [4] Reserved OPTIONAL,
    segment-terminator                    [5] SegmentTerminator }

ComponentDataElementSeparator ::= OCTET STRING (SIZE (1))

DataElementSeparator ::= OCTET STRING (SIZE (1))

DecimalNotation ::= OCTET STRING (SIZE (1))

ReleaseIndicator ::= OCTET STRING (SIZE (1))

Reserved ::= OCTET STRING (SIZE (1))

SegmentTerminator ::= OCTET STRING (SIZE (1))
```

8.2.15 Syntax Identifier

Indicates the syntax used. This is semantically identical to the "Syntax identifier" of the EDIFACT UNB segment.

It consists of a sequence of the Syntax Identifier and the Syntax Version.

```
SyntaxIdentifierField ::= SEQUENCE {
    syntax-identifier  SyntaxIdentifier,
    syntax-version     SyntaxVersion }

SyntaxIdentifier ::= TeletexString (SIZE (1..ub-syntax-identifier))

SyntaxVersion ::= PrintableString (SIZE (1..ub-syntax-version))
```

8.2.16 Interchange Sender

Indicates the sender of the EDI Interchange. This is semantically identical to the "Interchange sender" of the EDIFACT UNB segment.

```
InterchangeSenderField ::= SEQUENCE {
    sender-identification         [0] IdentificationCode,
    identification-code-qualifier [1] IdentificationCodeQualifier OPTIONAL,
    address-for-reverse-routing   [2] RoutingAddress OPTIONAL } -- EDIFACT Routing
                                                              -- Information
```

NOTE – The above fields are defined in 8.1.1.

8.2.17 Date and Time of Preparation

Indicates the Date/Time of preparation of the EDI Interchange. This is in UTC Time and is derived from the "Date and time of preparation" of the EDIFACT UNB segment. It comprises a UTC time.

```
DateAndTimeOfPreparationField ::= UTCTime
```

8.2.18 Application Reference

Provides a general reference to an application or function. This is semantically identical to the "Application reference" segment of the EDIFACT UNB segment. It consists of a string.

```
ApplicationReferenceField ::= TeletexString (SIZE (1..ub-application-reference))
```

8.2.19 Heading Extensions

The Heading Extensions allows for future extensions to the Heading.

```
HeadingExtensionsField ::= SET OF HeadingExtensionsSubField

HeadingExtensionsSubField ::= ExtensionField -- {{HeadingExtensions}}

HeadingExtensions EDIM-EXTENSION ::= {
    primary-body-part-compression-indication,
    ... }
```

Each extension type shall occur at most once in a set of HeadingExtensionsField, unless multiple occurrences are explicitly permitted in the definition of the extension type. The same extension type may occur in different places in the protocol. This applies both to standardized and private extensions.

Some extensions are defined in the following subclauses.

NOTE – The Heading Extensions may be used to implement the element of service "Services Indication" defined in ITU-T Rec. F.435 | ISO/IEC 10021-8.

8.2.19.1 Compression Extension

The following extension describes the parameters that need to be exchanged when the primary body part is transferred in a compressed mode. The absence of this parameter implies that the content of the primary body part is not compressed.

```
primary-body-part-compression-indication EDIM-EXTENSION ::= {
    VALUE           CompressionParameter,  -- as defined for IPM File Transfer Body Part
    CRITICALITY     TRUE
    IDENTIFIED BY   id-edi-compression }
```

The syntax of this parameter is that of the corresponding parameter in the file transfer-body-part defined in ITU-T Rec. X.420 | ISO/IEC 10021-7.

The following information object class gives a notation to express an instance of the compression extension.

```
COMPRESSION-ALGORITHM ::= CLASS {
       &id          OBJECT IDENTIFIER UNIQUE,
       &Type        OPTIONAL }
WITH SYNTAX { [VALUE &Type] IDENTIFIED BY &id }
```

NOTE – Although this Recommendation | International Standard identifies V.42 *bis* compression, other compression algorithms may be used.

8.2.19.1.1 V.42 *bis* compression

The following instance of COMPRESSION-ALGORITHM defines the parameters needed to perform V.42 *bis* compression.

```
v42BisCompression COMPRESSION-ALGORITHM ::= {
    VALUE          V42BisCompressionParameter
    IDENTIFIED BY  id-edi-compression-v42bis }

V42BisCompressionParameter ::= SEQUENCE {
    dictionary-size  INTEGER DEFAULT 12,
    largest-compressed-chain INTEGER DEFAULT 512,
    last-entries-to-delete   INTEGER DEFAULT 256 }
```

The **V42BisCompressionParameter** has the following components:

a) *Dictionary-size*: Gives the length of the index in bits. The default value, 12, allows 4096 entries in the dictionary.

b) *Largest-compressed-chain*: Defines the largest repetitive chain of bytes that can be compressed.

c) *Last-entries-to-delete*: Defines the number of last entries in the dictionary to be purged when full.

8.3 Body Part Types

The types of body parts that may appear in the Body of an EDIM are defined and described below.

8.3.1 EDI Body Part

An EDI Body Part carries a single EDI Interchange.

```
EDIBodyPart ::= OCTET STRING
```

The reference definition of EDI Interchange used is that used by EDIFACT (ISO 9735). Annex K describes equivalent terms in other EDI standards.

8.3.2 EDIM Body Part

An EDIM Body Part contains an EDIM, and optionally, its delivery envelope. It is used for forwarding of EDIMs. When an EDIM is forwarded, its structure shall comply with the rules given in 17.3.3.2.

```
EDIMBodyPart ::= SEQUENCE {
    parameters              [0] MessageParameters OPTIONAL,
    data                    [1] MessageData }

MessageParameters ::= SET {
    delivery-time           [0] MessageDeliveryTime OPTIONAL,
    delivery-envelope       [1] OtherMessageDeliveryFields OPTIONAL,
    other-parameters        [2] EDISupplementaryInformation OPTIONAL }
      -- MessageDeliveryTime and OtherMessageDeliveryFields shall both be present
      -- or both be absent.
      -- EDISupplementaryInformation is used in the EDI auto-forward auto-action;
      -- see 18.7.1.

MessageData ::= SEQUENCE {
    heading                 Heading,
    body                    BodyOrRemoved }

BodyOrRemoved ::= SEQUENCE {
    primary-or-removed      PrimaryOrRemoved,
    additional-body-parts   AdditionalBodyParts OPTIONAL }

PrimaryOrRemoved ::= CHOICE {
    removed-edi-body        [0] NULL,
    primary-body-part       [1] EXPLICIT PrimaryBodyPart }

AdditionalBodyParts ::= SEQUENCE OF CHOICE {
    external-body-part      [0] EDIM-ExtendedBodyPart,
    place-holder            [1] BodyPartPlaceHolder }  -- This type is for Body Part Removal

BodyPartPlaceHolder ::= EDIM-ExtendedBodyPart
      -- Only the data portion of the Extended Body shall be removed.
      -- See text in 8.3.2.

EDISupplementaryInformation ::= TeletexString (SIZE (1..ub-supplementary-info-length))
```

NOTE – Primary Body Part is defined in clause 8. Body Part Reference is defined in 8.3.3. Message Delivery Time and Other Message Delivery Fields are defined in 8.3.1.1 of ITU-T Rec. X.411 | ISO/IEC 10021-4.

The Body Part Place Holder is only used for removal of body parts; i.e. it indicates a removed-EDI-body. It may consist of only the Body Part Reference, or a modified Extended Body Part. In the latter case the Object Identifier and Body Part Reference of the removed body part are preserved; from the parameter (if present) and data portions of the removed body part, only the Object Identifier and the identifier octets of the "encoding" field of the TYPE-IDENTIFIERs are preserved. That is, the &Type shall have an encoding field of zero length and hence no content.

The delivery envelope shall be present if security services are invoked.

The structure of an EDIM Body Part is depicted in Figure 2.

8.3.3 Extended Body Parts

Additional body parts, that relate to the Primary Body Part, may be carried together with an EDI Body Part. These body parts shall not be or include EDI Interchanges.

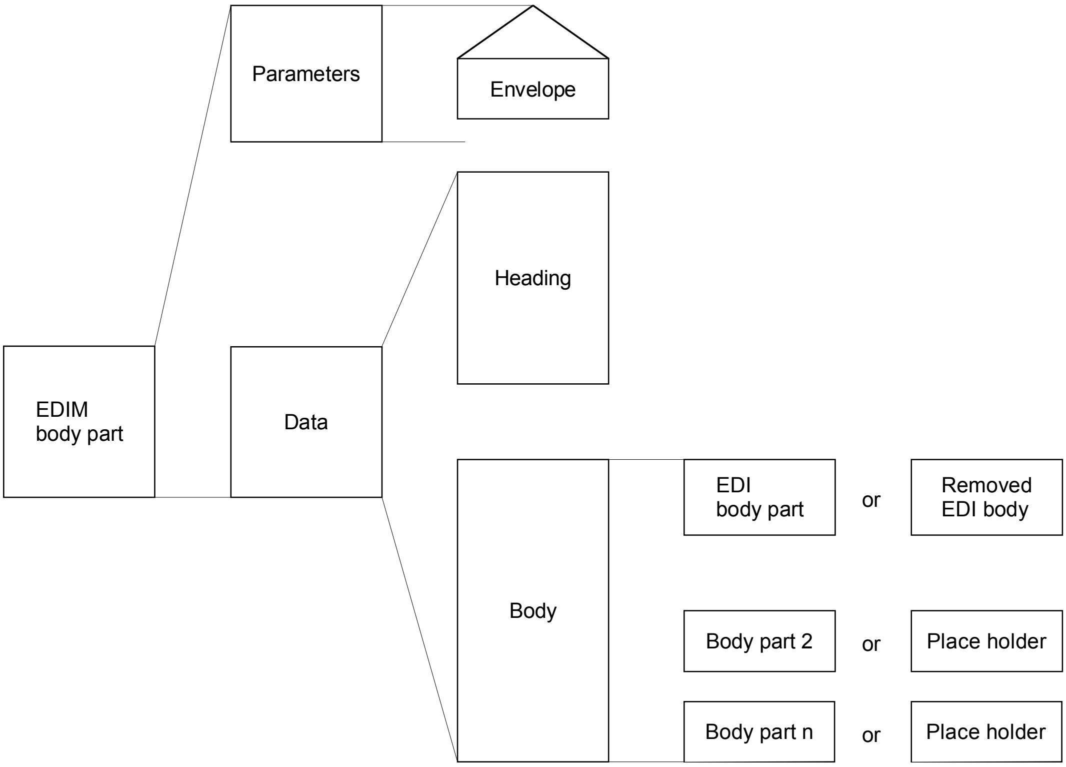
Additional body parts are externally defined and represent information objects whose semantics and abstract syntax are deNOTEd by an object identifier which the body part carries. They have Parameters and Data components and optionally a Body Part Reference that may be used for cross-referencing to a body part.

```
EDIM-ExtendedBodyPart ::= SEQUENCE {
    body-part-reference            [0] BodyPartReference OPTIONAL,
    extended-body-part             [1] ExtendedBodyPart -- from IPMS --}

BodyPartReference ::= INTEGER -- shall be unique within a EDIM
```

Body Part Reference is assigned when the body part is created, and is not modified subsequently. Its value shall be unique within an EDIM. It shall be present if the originator wishes to cross-reference the body part at creation or in the future.

NOTE – Some Extended body part types are defined in 7.3.1 of ITU-T Rec. X.420 | ISO/IEC 10021-7.



T0708030-99/d02

Figure 2 – EDIM body part structure

9 EDI Notifications

An EDI Notification (EDIN) is a member of a secondary class of information object conveyed between users in EDI Messaging.

NOTE – The term notification is used throughout the rest of this Recommendation | International Standard as a synonym for EDI Notification.

```
EDIN ::= CHOICE {
    positive-notification     [0] PositiveNotificationFields,
    negative-notification     [1] NegativeNotificationFields,
    forwarded-notification    [2] ForwardedNotificationFields }
```

a) *Positive notification*: An EDIN that reports its originator's acceptance of Responsibility of an EDIM.

b) *Negative notification*: An EDIN that reports its originator's refusal to accept Responsibility of an EDIM.

c) *Forwarded notification*: An EDIN that reports that Responsibility of an EDIM has been forwarded together with the subject EDIM.

The EDIM to which an EDIN refers is called the subject EDIM (see also 17.3.3).

The recipient of the EDIN is the Originator of the subject EDIM, or, if present, the OR-name indicated in the EDIN Receiver field. There shall be at most one recipient specified for an EDIN. There shall be at most one PN, NN or FN originated for each subject EDIM by each recipient of whom notifications are requested (except that an NN may be originated by the same UA subsequent to an FN, in accordance with c) of 17.3.3.1). One FN is originated, if and only if requested, by each recipient that forwards an EDIM. In accordance with the provisions of 17.3.3, the original originator shall receive at most one PN or NN for each recipient of whom notifications were requested, regardless of how many times the EDIM is forwarded, and may receive multiple FNs.

An EDIN consists of Positive, Negative or Forwarded Notification fields. Each of these contains the Common fields which are described below.

The structure of an EDIN is depicted in Figure 3.

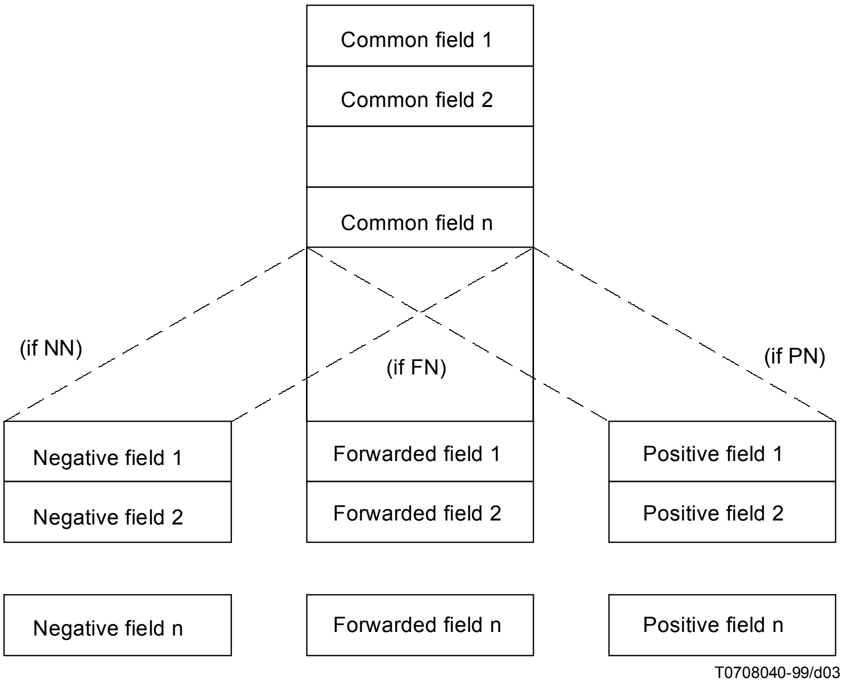


Figure 3 – EDI notification structure

9.1 Common Fields

The Common fields are defined and described below.

```
CommonFields ::= SEQUENCE {
    subject-edim                      [1] SubjectEDIMField,
    edin-originator                   [2] EDINOriginatorField,
    first-recipient                   [3] FirstRecipientField OPTIONAL,
    notification-time                 [4] NotificationTimeField,
    notification-security-elements    [5] SecurityElementsField OPTIONAL,
    edin-initiator                    [6] EDINInitiatorField,
    notifications-extensions          [7] NotificationExtensionsField OPTIONAL }
```

NOTE – The Common fields appear in the Positive Notification, Negative Notification and Forwarded Notification fields defined below.

9.1.1 Subject EDIM

The Subject EDIM Identifier is the EDIM Identifier either passed in the EDIN Receiver field, if Responsibility has been forwarded, or the This EDIM field, if not.

```
SubjectEDIMField  ::= EDIMIdentifier
```

NOTE – EDIM Identifier is defined in 7.1. Subject EDIM is defined in clause 9.

9.1.2 EDI Notification Originator

The EDI Notification Originator contains the OR-name of the UA constructing the notification.

```
EDINOriginatorField ::= ORName
```

NOTE – OR-name is defined in 8.5.5 of ITU-T Rec. X.411 | ISO/IEC 10021-4.

9.1.3 First Recipient

The First Recipient field contains the OR-name of the first recipient in a forwarding chain. This field, together with other fields, is used by the recipient of the notification to correlate the notification and the original message.

```
FirstRecipientField ::= ORName
```

NOTE – OR-name is defined in 8.5.5 of ITU-T Rec. X.411 | ISO/IEC 10021-4.

If the originator of the EDIN is not the recipient specified by the original originator, then the First Recipient Field shall be present in the EDIN (see 17.3 and more specifically 17.3.1.1).

9.1.4 Notification Time

Notification Time contains the date and time, in UTC format, at which the notification for the subject EDIM was generated.

```
NotificationTimeField ::= UTCTime
```

9.1.5 Security Elements

The Security Elements field is used to provide "proof/non repudiation of content received", "EDI application security" services.

```
SecurityElementsField ::= SEQUENCE {
    original-content                    [0] Content OPTIONAL,
    original-content-integrity-check    [1] ContentIntegrityCheck OPTIONAL,
    edi-application-security-elements   [2] EDIApplicationSecurityElementsField OPTIONAL,
    security-extensions                 [3] SecurityExtensionsField OPTIONAL }

SecurityExtensionsField ::= SET OF SecurityExtensionsSubField

SecurityExtensionsSubField ::= ExtensionField
```

NOTE – The EDI Application Security Elements Field is defined in 8.2.11. Content and Content Integrity Check are defined in, respectively, 8.2.1.1.1.37 and 8.2.1.1.1.28 (and Figure 2) of ITU-T Rec. X.411 | ISO/IEC 10021-4. Security services are available only if the MTS supports secure messaging.

Subclause 17.1.3 specifies how these fields are filled in.

9.1.6 EDIN Initiator

The EDIN Initiator field can take one of the following values:

a) "internal-UA" means that the UA generated the EDIN either for local reasons or because the generation had been delegated to it by the user;

b) "internal-MS" means that the MS generated the EDIN either for local reasons or because the generation had been delegated to it by the user;

c) "external-UA" means that the generation of the EDIN was requested by the user via the abstract operation Originate EDIN (see 17.1.3).

```
EDINInitiatorField ::= ENUMERATED {
    internal-ua (0),
    external-ua (1),
    internal-ms (2)}
```

Origination of a Positive Notification implies that Responsibility has been accepted, regardless of the value of this field.

The value of this field shall be consistent with the choice (UA/MS, user, PDAU) of the Reason Code field for NNs and FNs.

NOTE – Physical delivery access unit (PDAU) is defined in 15.4.

9.1.7 Notification Extensions

The Notification Extensions allows for future extensions to the EDIN.

```
NotificationExtensionsField ::= SET OF NotificationExtensionsSubField

NotificationExtensionsSubField ::= ExtensionField
```

There are no extensions to the EDIN defined in this Recommendation | International Standard.

Extensions shall not be critical in EDINs.

9.2 Positive Notifications

A Positive Notification (PN) is sent by the recipient UA, if and only if the originator has requested one, when Responsibility for the EDIM has been accepted by the UA.

The exact procedures which constitute acceptance of Responsibility are a local matter; for example, the UA may construct the PN as soon as it passes the message to the user, or the UA may wait for an external stimulus from the user that the message has been accepted and therefore the requested PN can be sent.

Positive Notification fields are defined and described below.

```
PositiveNotificationFields ::= SEQUENCE {
    pn-common-fields                [0] CommonFields,
    pn-supplementary-information    [1] EDISupplementaryInformation OPTIONAL,
    pn-extensions                   [2] PNExtensionsField OPTIONAL }
```

9.2.1 PN Supplementary Information

The PN Supplementary Information field may be used to return further information to the EDIN recipient to clarify the Positive Notification.

NOTE – EDI Supplementary Information Field is defined in 8.3.2.

9.2.2 Positive Notification Extensions

The Positive Notification Extensions allows for future extensions to the PN.

```
PNExtensionsField ::= SET OF PNExtensionsSubField

PNExtensionsSubField ::= ExtensionField
```

There are no extensions to the PN defined in this Recommendation | International Standard.

Extensions shall not be critical in PNs.

9.3 Negative Notifications

A Negative Notification; (NN) is sent by a UA, if and only if the originator has requested one, when it determines that it can neither accept Responsibility, nor forward the EDIM and the EDI Notification Request contained in the EDIM to another UA.

Negative Notification fields are defined and described below.

```
NegativeNotificationFields ::= SEQUENCE {
    nn-common-fields                [0] CommonFields,
    nn-reason-code                  [1] NNReasonCodeField,
    nn-supplementary-information    [2] EDISupplementaryInformation OPTIONAL,
    nn-extensions                   [3] NNExtensionsField OPTIONAL }
```

9.3.1 Negative Notification Reason

The Negative Notification Reason indicates why the subject EDIM could not be passed to the user by the UA originating the EDIN. Additional information may be carried in any combination of a Diagnostic field or the NN Supplementary Info field. Depending on the security policy in force, the security error diagnostic code may or may not be present.

NOTE – The value "unspecified(0)" is provided for use in any basic code field when other code values do not apply.

```
NNReasonCodeField ::= CHOICE {
    nn-ua-ms-reason-code       [0]  NNUAMSReasonCodeField,
    nn-user-reason-code        [1]  NNUserReasonCodeField,
    nn-pdau-reason-code        [2]  NNPDAUReasonCodeField }

    -- Negative Notification Reason Codes from an EDI-UA or EDI-MS

NNUAMSReasonCodeField ::= SEQUENCE {
    nn-ua-ms-basic-code        [0]  NNUAMSBasicCodeField,
    nn-ua-ms-diagnostic        [1]  NNUAMSDiagnosticField OPTIONAL }

    -- Negative Notification Basic Reason Codes from an EDI-UA or EDI-MS. These
    -- codes are those specified in Annex B of ITU-T Rec. F.435 | ISO/IEC 10021-8
    -- for the element of service "EDI Notification Request".

NNUAMSBasicCodeField ::= INTEGER {
    unspecified                (0),
    cannot-deliver-to-user     (1), -- the EDI Interchange can not be passed on to
                                    -- the user
    delivery-timeout           (2), -- the EDI Interchange could not be passed on to
                                    -- the user within a specified time limit
    message-discarded          (3), -- the UA/MS discarded the message before handoff
                                    -- to user
    subscription-terminated    (4), -- recipient's subscription terminated after
                                    -- delivery but before handoff to user
    forwarding-error           (5), -- EDI Forwarding was attempted, but failed
    security-error             (6)  -- security error
    -- physical delivery errors indicated by "cannot-deliver-to-user"
    } (0..ub-reason-code)

--   Negative Notification Diagnostic Codes from an EDI-UA or EDI-MS
```

```
  NNUAMSDiagnosticField ::= INTEGER {
      -- This field may be used to further specify the error signalled in nn-ua-ms
      -- basic-code. Additional information may be indicated in nn-supplementary-
      -- information general diagnostic codes
  protocol-violation                  (1), -- used if the UA detects a protocol error
  edim-originator-unknown             (2),
  edim-recipient-unknown              (3),
  edim-recipient-ambiguous            (4), -- used if the EDIM recipients or originator are
                                           -- not valid
  action-request-not-supported        (5), -- used when the action requested by the
                                           -- recipient is not performed
  edim-expired                        (6), -- used when the expiry date of the received
                                           -- EDIM occurred before the subject EDIM was
                                           -- successfully passed to the user or forwarded
                                           -- by the EDI-UA
  edim-obsoleted                      (7), -- used when the EDIM Identifier of the
                                           -- received EDIM was contained in the Obsoleted
                                           -- EDIM field of a previously received EDIM
  duplicate-edim                      (8), -- used when the same EDIM is received more
                                           -- than once from the same originator
  unsupported-extension               (9), -- used if the EDIM contains an extension which
                                           -- is not supported by the UA
  incomplete-copy-rejected           (10), -- used if the EDI-UA does not accept EDIMs with
                                           -- the Incomplete Copy Indication true
  edim-too-large-for-application     (11), -- used if the EDIM cannot be delivered to the
                                           -- user due to length constraints

  -- FORWARDING ERROR DIAGNOSTIC CODES
  forwarded-edim-not-delivered       (12), -- used when an Non-Delivery Report is received
                                           -- for forwarded EDIM
  forwarded-edim-delivery-time-out   (13), -- used when no Delivery Report is received
                                           -- within a given period
  forwarding-loop-detected           (14), -- used if the UA receives an EDIM which
                                           -- contains a previously forwarded EDIM
  unable-to-accept-responsibility    (15), -- used if the EDI-UA cannot accept or forward
                                           -- responsibility

  -- INTERCHANGE HEADER DIAGNOSTIC CODES
  interchange-sender-unknown         (16), -- used when the UA does not recognize the
                                           -- interchange-sender of the EDI interchange
  interchange-recipient-unknown      (17), -- used when the UA cannot find a valid
                                           -- interchange recipient in the Recipient
                                           -- Specifier
  invalid-heading-field              (18),
  invalid-bodypart-type              (19),
  invalid-message-type               (20),
  invalid-syntax-id                  (21),

  -- SECURITY ERROR DIAGNOSTIC CODES
  message-integrity-failure          (22),
  forwarded-message-integrity-failure (23),
  unsupported-algorithm              (24),
  decryption-failed                  (25),
  token-error                        (26),
  unable-to-sign-notification        (27),
  unable-to-sign-message-receipt     (28),
  authentication-failure             (29),
  security-context-failure           (30),
  message-sequence-failure           (31),
  message-security-labelling-failure (32),
  repudiation-failure                (33),
  proof-service-failure                   (34),
  compression-unsupported            (35) -- the received compression is not supported
  } (1..ub-reason-code)


--   Negative Notification Reason Codes from a user


  NNUserReasonCodeField ::= SEQUENCE {
      nn-user-basic-code             [0]  NNUserBasicCodeField,
      nn-user-diagnostic             [1]  NNUserDiagnosticField OPTIONAL }


--   Negative Notification Basic Reason Codes from a user
```

```
    NNUserBasicCodeField ::= INTEGER {
        unspecified                   ( 0),
        syntax-error                   (1),  -- used when the user discovers a syntax error
                                             -- within the EDI interchange
        interchange-sender-unknown     (2),
        interchange-recipient-unknown  (3),  -- used when the UA cannot find a valid
                                             -- interchange recipient in the Recipient
                                             -- Specifier
        invalid-heading-field          (4),
        invalid-bodypart-type          (5),
        invalid-message-type           (6),
        functional-group-not-supported (7),
        subscription-terminated        (8),  -- unknown to EDIMS-User service
        no-bilateral-agreement         (9),
        user-defined-reason            (10)
        } (0..ub-reason-code)

--   Negative Notification Diagnostic Codes from a user


    NNUserDiagnosticField ::= INTEGER {
        compression-unsupported    (1) -- the received compression is not supported
        } (1..ub-reason-code)
        -- Contains reason passed by user when the value of nn-user-basic-code is
        -- user-defined-reason. Additional information may be indicated in
        -- nn-supplementary-information

--   Negative Notification Reason Codes from a PDAU


    NNPDAUReasonCodeField ::= SEQUENCE {
        nn-pdau-basic-code         [0]  NNPDAUBasicCodeField,
        nn-pdau-diagnostic         [1]  NNPDAUDiagnosticField OPTIONAL }

--   Negative Notification Basic Reason Codes from a PDAU


    NNPDAUBasicCodeField ::= INTEGER {
        unspecified                       (0),
        undeliverable-mail                (1), -- used if the PDAU determines that it cannot
                                               -- perform the physical delivery of the EDIM
        physical-rendition-not-performed (2)   -- used if the PDAU cannot perform the physical
                                               -- rendition of the EDIM
     } (0..ub-reason-code)

--   Negative Notification Diagnostic Codes from a PDAU


    NNPDAUDiagnosticField ::= INTEGER {
        -- This field may be used to further specify the error signalled in
        -- nn-pdau-basic-code
        -- Additional information may be indicated in the nn-supplementary-information
        undeliverable-mail-physical-delivery-address-incorrect   (32),
        undeliverable-mail-physical-delivery-office-incorrect-or-invalid (33),
        undeliverable-mail-physical-delivery-address-incomplete  (34),
        undeliverable-mail-recipient-unknown                     (35),
        undeliverable-mail-recipient-deceased                    (36),
        undeliverable-mail-organization-expired                  (37),
        undeliverable-mail-recipient-refused-to-accept           (38),
        undeliverable-mail-recipient-did-not-claim               (39),
        undeliverable-mail-recipient-changed-address-permanently (40),
        undeliverable-mail-recipient-changed-address-temporarily (41),
        undeliverable-mail-recipient-changed-temporary-address   (42),
        undeliverable-mail-new-address-unknown                   (43),
        undeliverable-mail-recipient-did-not-want-forwarding     (44),
        undeliverable-mail-originator-prohibited-forwarding      (45),
        physical-rendition-attributes-not-supported              (31)
         } (1..ub-reason-code)
```

9.3.2 NN Supplementary Information

The NN Supplementary Information field may be used to return further information to the EDIN recipient to clarify the Negative Notification.

NOTE – EDI Supplementary Information is defined in 8.3.2.

9.3.3 Negative Notification Extensions

The Negative Notification Extensions allows for future extensions to the NN.

```
NNExtensionsField ::= SET OF NNExtensionsSubField

NNExtensionsSubField ::= ExtensionField
```

There are no extensions to the NN defined in this Recommendation | International Standard.

Extensions shall not be critical in NNs.

9.4 Forwarded Notifications

A Forwarded Notification (FN) is sent by a UA, if and only if the originator has requested one, when it determines that it cannot accept Responsibility and decides to forward the EDIM, and the EDI Notification Requests contained in the EDIM, to another UA.

Forwarded Notification fields are defined and described below.

```
ForwardedNotificationFields ::= SEQUENCE {
    fn-common-fields              [0] CommonFields,
    forwarded-to                  [1] ForwardedTo,
    fn-reason-code                [2] FNReasonCodeField,
    fn-supplementary-information  [3] EDISupplementaryInformation OPTIONAL,
    fn-extensions                 [4] FNExtensionsField OPTIONAL }
```

9.4.1 Forwarded To

The Forwarded To field indicates the new recipient of the (forwarded) subject EDIM. Its value is an OR-name.

```
ForwardedTo ::= ORName
```

NOTE – OR-name is defined in 8.5.5 of ITU-T Rec. X.411 | ISO/IEC 10021-4.

9.4.2 Forwarded Notification Reason

The Forwarded Reason Code indicates the reason why the Responsibility of the subject EDIM was forwarded. It also indicates the appropriate source of forwarding, e.g. the UA or MS, the user, or the PDAU. Additional information may be carried in any combination of a Diagnostic field and the FN Supplementary Info field.

```
        FNReasonCodeField ::= CHOICE {
            fn-ua-ms-reason-code   [0] FNUAMSReasonCodeField,
            fn-user-reason-code    [1] FNUserReasonCodeField,
            fn-pdau-reason-code    [2] FNPDAUReasonCodeField }
    --  Forwarding Notification Reason Codes from an EDI-UA or EDI-MS

        FNUAMSReasonCodeField ::= SEQUENCE {
            fn-ua-ms-basic-code    [0] FNUAMSBasicCodeField,
            fn-ua-ms-diagnostic    [1] FNUAMSDiagnosticField OPTIONAL,
            fn-security-check      [2] FNUAMSSecurityCheckField DEFAULT FALSE }
    --  Forwarding Notification Basic Reason Codes from an EDI-UA or EDI-MS

        FNUAMSBasicCodeField ::= INTEGER {
            unspecified             (0),
            onward-routing          (1), -- used whenever the UA decides to re-route the
                                         -- subject EDIM for local reasons
            edim-recipient-unknown  (2),
            edim-originator-unknown (3),
            forwarded-by-edi-ms     (4)
             } (0..ub-reason-code)
    --  Forwarding Notification Diagnostic Reason Codes from an EDI-UA or EDI-MS

        FNUAMSDiagnosticField ::= INTEGER {
            -- This field may be used to further specify the error signalled in
            -- fn-ua-ms-basic-code
            -- Additional information may be indicated in fn-supplementary-information
            recipient-name-changed (1),
            recipient-name-deleted (2)
             } (1..ub-reason-code)
    --  Forwarding Notification Security Check Codes from an EDI-UA or EDI-MS
    --  This field may be used, with a value of TRUE, to indicate that all security
    --  features present have been validated, or a value of FALSE to indicate that the
    --  security features have not been validated.
```

```
  FNUAMSSecurityCheckField ::= BOOLEAN
--  Forwarding Notification Reason Codes from a user

  FNUserReasonCodeField ::= SEQUENCE {
      fn-user-basic-code              [0]  FNUserBasicCodeField,
      fn-user-diagnostic              [1]  FNUserDiagnosticField OPTIONAL }
--  Forwarding Notification Basic Reason Codes from a user

  FNUserBasicCodeField ::= INTEGER {
      unspecified                     (0),
      forwarded-for-archiving         (1),
      forwarded-for-information       (2),
      forwarded-for-additional-action (3),
      subscription-changed            (4),
      heading-field-not-supported     (5),
      bodypart-type-not-supported     (6),
      message-type-not-supported      (7),
      syntax-identifier-not-supported (8),
      interchange-sender-unknown      (9),
      user-defined-reason             (10)
      } (0..ub-reason-code)
--  Forwarding Notification Diagnostic Reason Codes from a user

  FNUserDiagnosticField ::= INTEGER (1..ub-reason-code)
      -- Contains reason passed by user when value of fn-user-basic-code is
      -- user-defined-reason
      -- Additional information may be indicated in fn-supplementary-information
--  Forwarding Notification Reason Codes from a PDAU

  FNPDAUReasonCodeField ::= SEQUENCE {
      fn-pdau-basic-code              [0] FNPDAUBasicCodeField,
      fn-pdau-diagnostic              [1] FNPDAUDiagnosticField OPTIONAL }
--  Forwarding Notification Basic Reason Codes from a PDAU

  FNPDAUBasicCodeField ::= INTEGER {
      unspecified                     (0),
      forwarded-for-physical-rendition-and-delivery (1)
      } (0..ub-reason-code)
-- Forwarding Notification Diagnostic Codes from a PDAU

  FNPDAUDiagnosticField ::= INTEGER (1..ub-reason-code)
```

A Physical Delivery Access Unit (PDAU) (see 15.4) is only able to generate NNs and FNs. Any request for PN notification is ignored. If FN notification is requested, and passing of Responsibility is allowed by the originator, the PDAU shall generate an FN with appropriate Forwarded Reason Code ("forwarded-for-physical-rendition-and-delivery") when it has determined that it can render the EDIM for physical delivery. If FN notification is requested and passing of responsibility is not allowed by the originator, the PDAU shall not render the EDIM for physical delivery and shall generate an NN if so requested.

9.4.3 FN Supplementary Information

The FN Supplementary Information field may be used to return further information to the EDIN recipient to clarify the Forwarded Notification.

NOTE – The EDI Supplementary Information Field is defined in 8.3.2.

9.4.4 Forwarded Notification Extensions

The Forwarded Notifications Extensions allows for future extensions to the FN.

```
FNExtensionsField ::= SET OF FNExtensionsSubField

FNExtensionsSubField ::= ExtensionField
```

There are no extensions to the FN defined in this Recommendation | International Standard.

Extensions shall not be critical in FNs.

10 Primary Object Types

The environment in which EDI Messaging takes place can be modelled as an abstract object which is hereafter referred to as the EDI Messaging Environment (EDIME).

When refined (i.e. functionally decomposed), the EDIME can be seen to comprise lesser objects which interact by means of ports.

The lesser objects are referred to as the primary objects of EDI Messaging. They include a single, central object, the EDI Messaging System, EDIMS, and numerous peripheral objects called EDI Messaging System users (users).

The structure of the EDIME is depicted in Figure 4.

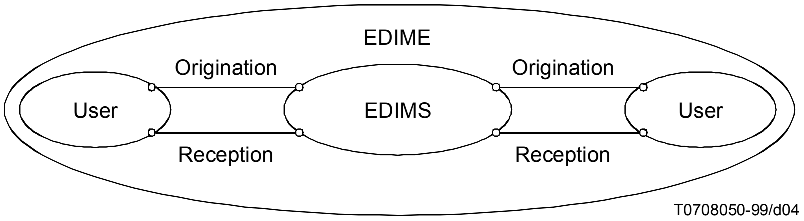


Figure 4 – The EDI messaging environment

The primary object types are defined and described below. The types of ports by means of which they interact are discussed in clause 11.

10.1 EDI Messaging User

An EDI Messaging user (EDIMG user) is typically a computer process or application that engages in EDI Messaging. Such processes or applications are referred to by the term "user" in this Recommendation | International Standard. A user originates, receives, or both originates and receives Information Objects of the types defined in clause 6.

```
edimg-user MHS-OBJECT ::= {
    INITIATES    {edims-access-contract}
    ID           id-ot-edimg-user }

edims-access-contract CONTRACT ::= {
    INITIATOR CONSUMER OF { origination | reception } }
```

The EDIME comprises any number of Users.

NOTE – EDI messaging is typically an activity between information processing systems. These are referred to as EDI applications. This does not preclude the possibility of human interaction with the information processing systems which are performing EDI, or more direct interaction of a human user with the EDIMS. The terms "user" and "EDIMG user" may be regarded as synonyms for EDI applications within this Recommendation | International Standard. For brevity, the term "user" is used throughout the rest of this Recommendation | International Standard with the meaning of "EDIMG user".

10.2 EDI Messaging System

The EDI Messaging System (EDIMS) is the object by means of which all users communicate with one another in EDI Messaging.

```
edims MHS-OBJECT ::= {
    RESPONDS     {edims-access-contract}
    ID           id-ot-edims }
```

The EDIME comprises exactly one EDIMS.

11 Primary Port Types

The primary objects of EDI Messaging are joined to and interact with one another by means of ports. These ports, which the EDIMS supplies, are referred to as the primary ports of EDI Messaging. They are of the types defined below.

Specification of a management port may be the subject of future standardization.

NOTE – In clause 15 to follow, the EDIMS is decomposed into still lesser objects, among which is the MTS. This fact is anticipated here by the inclusion of certain MTS capabilities in the EDIMS Abstract Service.

11.1 Origination Port

An Origination Port is the means by which a single user conveys to the EDIMS messages containing Information Objects of the types defined in clause 6. Through such a port the user originates EDI Messages and EDI Notifications. In addition, the user may originate probes through such a port.

```
origination PORT ::= {
    CONSUMER INVOKES { originate-probe | originate-edim | originate-edin }
    ID               id-pt-origination }
```

The EDIMS supplies one Origination Port to each user (with the exception of indirect users served by PDAUs; see 15.4).

11.2 Reception Port

A Reception Port is the means by which the EDIMS conveys to a single user messages containing Information Objects of the types defined in clause 6. Through such a port the user receives EDI Messages and EDI Notifications. In addition, the user may receive reports through such a port.

```
reception PORT ::= {
    SUPPLIER INVOKES { receive-report | receive-edim | receive-edin }
    ID               id-pt-reception }
```

The EDIMS supplies one Reception Port to each user.

12 Abstract Operations

What follows defines the abstract service that characterizes EDI messaging, and describes the environment in which that service is supplied and consumed. It does both using the abstract service definition conventions of ITU-T Rec. X.402 | ISO/IEC 10021-2.

The EDIMS Abstract Service is the set of capabilities that the EDIMS provides to each user by means of one Origination Port and one Reception Port. Those capabilities are modelled as abstract operations, which may encounter abstract errors when invoked.

The purpose of the EDIMS Abstract Service Definition is not to prescribe the interface between the EDI user and the EDI-UA, but rather to clarify the meaning and intended use of the Information Objects of clause 6. A user interface need not provide commands in one-to-one correspondence to the service's abstract operations, nor indeed even divide the labour between the user and the EDIMS as the service does.

The abstract operations available at the Origination Port and Reception Port are defined and described below. The abstract errors they may provoke are the subject of clause 13.

The EDIMS Abstract Service involves neither abstract bind nor abstract unbind operations.

The EDIMS authenticates (i.e. establishes the identity of) the typical user before offering the EDIMS Abstract Service to him. By this means it can verify, e.g. that the user is an EDIMS subscriber. Authentication, where required, is implicit (rather than explicit) in the definition of the EDIMS Abstract Service.

NOTE – In clause 15 to follow, the EDIMS is decomposed into objects among which is the MTS. The text here reflects this fact by its inclusion of various MTS-defined information items in the EDIMS Abstract Service.

12.1 Origination Abstract Operations

The abstract operations available at an origination port (originate-probe, originate-edim, originate-edin) are invoked by the user and performed by the EDIMS.

12.1.1 Originate Probe

The Originate Probe abstract operation originates a probe concerning (a class of) messages whose contents are EDIMs.

```
originate-probe ABSTRACT-OPERATION ::= {
    ARGUMENT SET {
        envelope              [0] ProbeSubmissionEnvelope,
        content               [1] EDIM }
    RESULT SET {
        submission-identifier [0] ProbeSubmissionIdentifier,
        submission-time       [1] ProbeSubmissionTime }
    ERRORS {
        recipient-improperly-specified } }
```

This abstract operation has the following arguments:

a) *Envelope:* A probe submission envelope, whose make-up the MTS Abstract Service defines. The UA supplies all but the following envelope components, which the user provides:

1) The desired per-message options (i.e. per-message indicators and extensions).

2) The OR-names of the preferred recipients and the per-recipient options (i.e. originator report request, explicit conversion, and extensions) desired for each.

b) *Content:* An instance of the class of EDIM whose deliverability is to be probed.

This abstract operation has the following results:

c) *Submission-identifier:* The probe submission identifier the MTS assigns to the probe.

d) *Submission-time:* The date and time the probe was directly submitted.

12.1.2 Originate EDIM

The Originate EDIM abstract operation originates a message whose content is an EDIM.

```
originate-edim ABSTRACT-OPERATION ::= {
    ARGUMENT SET {
        envelope                [0] MessageSubmissionEnvelope,
        content                 [1] EDIM }
    RESULT SET {
        submission-identifier   [0] MessageSubmissionIdentifier,
        submission-time         [1] MessageSubmissionTime }
    ERRORS {
        recipient-improperly-specified } }
```

This abstract operation has the following arguments:

a) *Envelope:* A message submission envelope, whose make-up the MTS Abstract Service defines. The UA supplies all but the following envelope components, which the user provides:

1) The desired per-message options (i.e. priority, per-message indicators, deferred delivery time, and extensions).

2) The OR-names of the preferred recipients and the per-recipient options (i.e. originator report request, explicit conversion, and extensions) desired for each. The OR-names supplied in the envelope shall have the same values as those OR-names in the Recipients field, when present, of the EDIM heading which identify the corresponding recipients.

b) *Content:* The EDIM being originated.

1) If application to application security services are required, the user shall supply the value for the EDI Application Security Elements field.

The EDIM shall be constructed as described in 17.3.

This abstract operation has the following results:

c) *Submission-identifier:* The message submission identifier the MTS assigns to the submission.

d) *Submission-time:* The date and time the message was directly submitted.

12.1.3 Originate EDIN

The Originate EDIN abstract operation originates a message whose content is an EDIN.

```
originate-edin ABSTRACT-OPERATION ::= {
    ARGUMENT SET {
        envelope                [0] MessageSubmissionEnvelope,
        content                 [1] EDIN }
    RESULT SET {
        submission-identifier   [0] MessageSubmissionIdentifier,
        submission-time         [1] MessageSubmissionTime }
    ERRORS {
        recipient-improperly-specified } }
```

A user may, if notifications are requested, invoke an Originate EDIN abstract operation to indicate to the UA that it should accept, refuse or forward Responsibility for the subject EDIM. The exact type of EDIN to be generated (PN, NN or FN) is determined from the Content argument.

An EDIN shall be originated only by an actual recipient of the subject EDIM of whom an EDIN is requested by means of the EDI Notification Request field of the subject EDIM's Recipient field.

A user may delegate the task of generating EDINs to the UA. In this case, this abstract operation is not present at the abstract interface between the UA and the user, that is, the operation is not available at the Origination Port. In this case the UA behaves as described in 17.3.

This abstract operation has the following arguments:

a) *Envelope:* A message submission envelope, whose make-up the MTS Abstract Service defines. The UA supplies all but the following envelope components, which the user provides:

   1) The desired per-message options (i.e. priority, per-message indicators, and extensions). Implicit conversion and deferred delivery shall be prohibited, priority shall be that of the subject EDIM.

   2) The OR-names of the preferred recipient and the per-recipient options (i.e. explicit conversion and extensions) desired. The preferred recipient of the EDIN is the originator of the subject EDIM or, if present, the OR-name indicated in the EDIN Receiver field.

b) *Content:* The EDIN being originated.

   1) If application to application security services are required, the user shall supply the value for the EDI Application Security Elements field.

The EDIN shall be constructed as described in 17.3.

This abstract operation has the following results:

c) *Submission-identifier:* The message submission identifier the MTS assigns to the submission.

d) *Submission-time:* The date and time the message was directly submitted.

12.2 Reception Abstract Operations

The abstract operations available at a Reception Port (receive-report, receive-edim, receive-edin) are invoked by the EDIMS and performed by the user.

As abstractly defined, the EDIMS provides no storage for received messages because whether or not it does so for a particular user has no impact upon that user’s ability to communicate with other users. Thus the provision of storage is a local matter.

12.2.1 Receive Report

The Receive Report abstract operation receives a report.

```
receive-report ABSTRACT-OPERATION ::= {
    ARGUMENT SET {
        envelope              [0] ReportDeliveryEnvelope,
        undelivered-object    [1] InformationObject OPTIONAL } }
```

The report received may concern any of the following previously originated by the report’s recipient:

a) A message whose content was an EDIM that was originated with the Originate EDIM abstract operation or by forwarding.

b) A message whose content was an EDIN that was originated as a result of a previously received message. The EDIN could be any of PN, NN or FN.

c) A probe concerning a message whose content was an EDIM that was originated with the Originate Probe abstract operation.

This abstract operation has the following arguments:

d) *Envelope:* A report delivery envelope, whose make-up the MTS Abstract Service defines.

e) *Undelivered-object:* The content of the message whose status is being reported. An EDIM or EDIN.

   If the report was provoked by a previous Originate Probe abstract operation invocation, this conditional argument shall be absent. If the report was provoked by a previous Originate EDIM abstract operation invocation, the argument shall be present if, and only if, content return was requested. Otherwise (for example, if the report was provoked by an EDIN), the argument shall be absent.

This abstract operation has no results.

12.2.2 Receive EDIM

The Receive EDIM abstract operation receives a message whose content is an EDIM.

```
receive-edim ABSTRACT-OPERATION ::= {
    ARGUMENT SET {
        envelope              [0] MessageDeliveryEnvelope,
        content               [1] EDIM } }
```

This abstract operation has the following arguments:

a) *Envelope:* The message's delivery envelope.

b) *Content:* The EDIM that is the message's content.

This abstract operation has no results.

When the received EDIM contains an EDIM Body Part (that is, when the original EDIM has been forwarded), it may be necessary to scan several levels of nested Heading fields in order to determine the correct original value for optional Heading fields (see 8.3.2 for the nested structure of a forwarded EDIM and 17.3.3 for rules related to Heading fields).

12.2.3 Receive EDIN

The Receive EDIN abstract operation receives a message whose content is an EDIN. The EDIN is provoked by an EDIM originated with the Originate EDIM abstract operation.

```
receive-edin ABSTRACT-OPERATION ::= {
    ARGUMENT SET {
        envelope              [0] MessageDeliveryEnvelope,
        content               [1] EDIN } }
```

This abstract operation has the following arguments:

a) *Envelope:* The message's delivery envelope.

b) *Content:* The EDIN that is the message's content.

This abstract operation has no results.

13 Abstract Errors

The abstract errors that may be reported in response to the invocation of the abstract operations available at the Origination Port and Reception Port are defined and described below or as part of the MTS Abstract Service definition.

The set of abstract errors represented below is intended to be illustrative, rather than exhaustive.

13.1 Recipient Improperly Specified

The Recipient Improperly Specified abstract error reports that one or more of the OR-names supplied as arguments of the abstract operation whose performance is aborted, or as components of its arguments, are invalid.

This abstract error is defined by the MTS Abstract Service.

14 Other capabilities

In addition to the capabilities embodied in the EDIMS Abstract Service, defined above, the EDIMS shall transparently extend to each user the other MS (see ITU-T Rec. X.413 | ISO/IEC 10021-5) and MTS (see ITU-T Rec. X.411 | ISO/IEC 10021-4) capabilities identified below. (The enumeration of these capabilities necessarily anticipates the fact, stated in clause 15, that MSs and the MTS are among the EDIMS' component parts.)

The following additional capabilities shall be provided:

a) *Submission:* Capabilities of the MS' or MTS' submission port not embodied in the EDIMS Abstract Service, e.g. the ability to cancel delivery of a previously originated message whose content is an EDIM (but not an EDIN), if deferred delivery was selected.

b) *Delivery:* Capabilities of the MTS' delivery port not embodied in the EDIMS Abstract Service, e.g. the ability to temporarily control the kinds of information objects the MTS conveys to the user's UA.

c) *Administration:* The capabilities of the MS' or MTS' administration port.

d) *Retrieval:* The capabilities of the MS' retrieval port.

In addition to the above and as a local matter, the EDIMS may provide to users additional capabilities neither defined nor limited by this Recommendation | International Standard. Among such capabilities are those of the Directory.

NOTE – The required capabilities above are excluded from the formal definition of the EDIMS Abstract Service for purely pragmatic reasons, in particular, because their inclusion would largely and needlessly reproduce the definitions of the MS and MTS abstract operations upon which the capabilities are based.

15 Secondary Object Types

The EDIMS can be modelled as comprising lesser objects which interact with one another by means of (additional) ports.

These lesser objects are referred to as the secondary objects of EDI Messaging. They include a single, central object, the MTS, and numerous peripheral objects: EDI messaging system user agents (EDI-UA), EDI messaging system message stores (EDI-MS), telematic agents (TLMA), and physical delivery access units (PDAU). Specification of the protocol for the TLMA may be the subject for future standardization.

The structure of the EDIMS is depicted in Figure 5. As shown by the figure, EDI-UAs and PDAUs are the instruments by means of which the EDIMS provides the EDIMS Abstract Service to users.

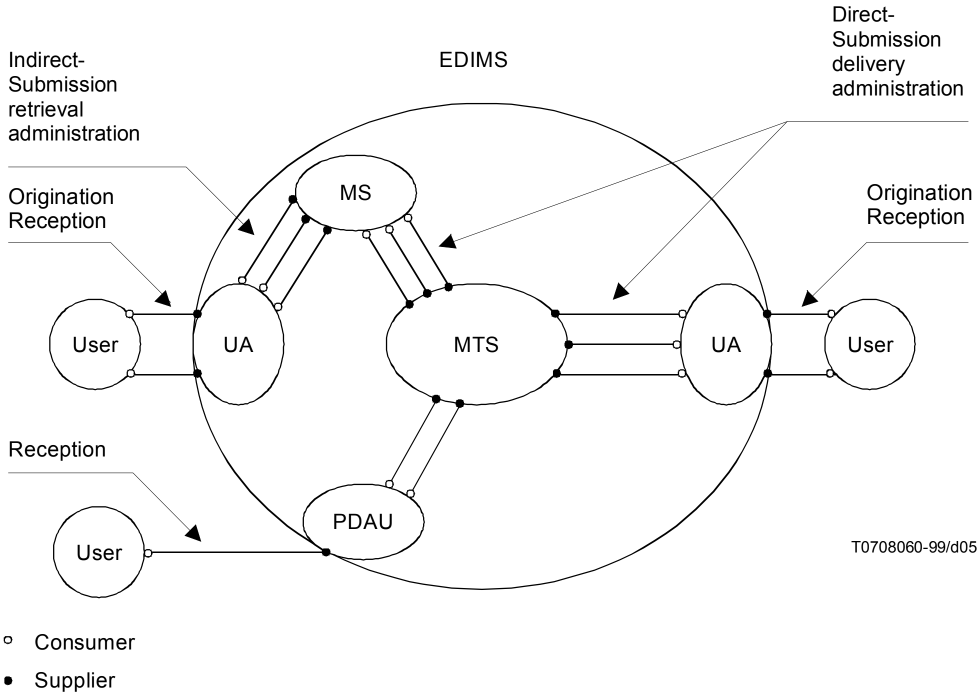


Figure 5 – The EDI messaging system

The secondary object types are defined and described below. The types of ports by means of which they interact are discussed in clause 16.

The refinement above encompasses all possible interconnections of all possible objects. It ignores the possible absence of objects of a particular type (e.g. PDAU), and specific logical configurations of the MS. The latter are identified in ITU-T Rec. X.402 | ISO/IEC 10021-2.

The MTS supplies import and export ports (for AUs). However, since those ports are not formally defined (in ITU-T Rec. X.411 | ISO/IEC 10021-4), they are not included in the formal refinement above.

15.1 EDI User Agent

An EDI user agent (EDI-UA) is a UA tailored so as to better assist a single user to engage in EDI Messaging. It helps him originate, receive, or both originate and receive messages containing Information Objects of the types defined in clause 6.

The EDIMS comprises any number of EDIMS UAs.

NOTE – As noted above, the term user agent (UA) is used throughout this Recommendation | International Standard with the meaning of EDI-UA.

15.2 EDI Message Store

An EDI message store (EDI-MS) is an MS tailored so as to better assist a single UA engaged in EDI Messaging. It helps it submit, take delivery of, or both submit and take delivery of messages containing Information Objects of the types defined in 6.

The EDIMS comprises any number of EDIMS MSs.

NOTE – As noted above, the term message store (MS) is used throughout this Recommendation | International Standard with the meaning of EDI-MS.

15.3 Telematic Agent

A TeLeMatic Agent (TLMA) is an AU that helps a single indirect user engage in EDI Messaging from a Telematic terminal, along with that terminal and the network that joins the two. A TLMA helps the user originate, receive, or both originate and receive messages containing Information Objects of the types defined in clause 6.

Specification of the protocol for this AU may be the subject for future standardization.

15.4 Physical Delivery Access Unit

In the present context, a Physical Delivery Access Unit (PDAU) helps any number of indirect users engage in EDI Messaging by means of a Physical Delivery System (PDS). It helps them receive (but not originate) messages containing Information Objects of the types defined in clause 6.

The EDIMS comprises any number of PDAUs.

A PDAU consumes import and export ports. However, since those ports are not formally defined (in ITU-T Rec. X.411 | ISO/IEC 10021-4), they are not included in the formal definition of PDAU above.

If notifications are requested, the PDAU shall generate one of the following:

- an FN with appropriate reason code if the PDAU determines that it can render and deliver the EDIM;
- a NN with appropriate reason code if the PDAU determines that it cannot render or deliver the EDIM.

The use of the PDAU shall be subject to the requirements of the security policy in force.

15.5 Message Transfer System

In the present context, the Message Transfer System (MTS) conveys Information Objects of the types defined in clause 6 between UAs, MSs, and AUs.

The EDIMS comprises a single MTS.

The use of TLMA may be restricted by the security policy in force.

16 Secondary Port Types

The secondary objects of EDI Messaging are joined to and interact with one another by means of ports. These ports, which MSs and the MTS supply, are referred to as the secondary ports of EDI Messaging. They are of the types identified below.

The capabilities embodied in one Submission, one Retrieval, and one Administration port constitute the MS Abstract Service. They are defined in ITU-T Rec. X.413 | ISO/IEC 10021-5.

The capabilities embodied in one Submission, one Delivery, and one Administration Port constitute the MTS Abstract Service. They are defined in ITU-T Rec. X.411 | ISO/IEC 10021-4.

NOTE – By means of the abstract bind operation which guards its ports, an MS or the MTS typically authenticates another secondary object before offering its abstract service to that object.

16.1 Submission Port

In the present context, a Submission Port is the means by which a UA (directly or indirectly) or an MS (directly) submits probes concerning, and messages containing Information Objects of the types defined in clause 6.

An MS supplies one Submission Port to its UA.

The MTS supplies one Submission Port to each UA configured without an MS and to each MS.

16.2 Delivery Port

In the present context, a Delivery Port is the means by which a UA or MS takes delivery of reports concerning and messages containing Information Objects of the types defined in clause 6.

The MTS supplies one Delivery Port to each UA configured without an MS and to each MS.

16.3 Retrieval Port

In the present context, a Retrieval Port is the means by which a UA retrieves reports concerning and messages containing Information Objects of the types defined in clause 6.

An MS supplies one Retrieval Port to its UA.

16.4 Administration Port

In the present context, an Administration Port is the means by which a UA changes information about itself or its user on file with its MS, or a UA or MS changes such information on file with the MTS.

An MS supplies one Administration Port to its UA.

The MTS supplies one Administration Port to each UA configured without an MS and to each MS.

16.5 Import Port

In the present context, an Import Port is the means by which the MTS imports reports and probes concerning, and messages containing Information Objects of the types defined in clause 6.

The MTS supplies one Import Port to each AU.

16.6 Export Port

In the present context, an Export Port is the means by which the MTS exports reports and probes concerning, and messages containing Information Objects of the types defined in clause 6.

The MTS supplies one Export Port to each AU.

17 User Agent Operation

A UA must employ the MTS in a particular way in order to (correctly) provide the EDIMS Abstract Service to its user. If the user is equipped with an MS, the latter contributes to the provision of the abstract service and, therefore, is subject to the same rules.

The rules that govern the operation of a UA (and MS) are the subject of what follows. The operation of a TLMA is beyond the scope of this Recommendation | International Standard.

NOTE – The purpose of what follows is not to dictate or constrain the implementation of a real UA unnecessarily, but rather to specify the effect to be achieved.

17.1 Performance of Origination Operations

A UA shall perform the abstract operations it makes available at its Origination Port as prescribed below.

In the performance of these operations, the UA invokes the following abstract operations of the MTS Abstract Service (which, for what follows, are unqualified as to their source):

a) Probe Submission;

b) Message Submission.

In response to the invocation of these abstract operations, a UA reports abstract errors as appropriate. Specification of the precise circumstances under which each abstract error should be reported is beyond the scope of this Recommendation | International Standard.

17.1.1 Originate Probe

A UA shall perform the Originate Probe abstract operation by invoking Probe Submission with the arguments indicated below, and by returning to its user the results indicated below.

The arguments of Probe Submission shall be as follows:

a) *Envelope:* The components of this argument that constitute per-probe fields shall be as follows; those not explicitly mentioned below shall be as specified by Originate Probe's Envelope argument:

   1) Originator-name: The OR-name of the UA's user.

   2) Content-type, Content-length, and Original-encoded-information-types: Determined from Originate Probe's Content argument as specified in subclauses 19.2 to 19.4.

   3) Content-identifier and Content-correlator: Specified or omitted as a local matter.

   The components of this argument that constitute per-recipient fields shall be as specified by Originate Probe's Envelope argument.

The results of Originate Probe shall be as follows:

b) *Submission-identifier:* Probe Submission's Probe-submission-identifier result.

c) *Submission-time:* Probe Submission's Probe-submission-time result.

The UA shall ignore all properties of Originate Probe's Content argument other than those mentioned above.

How the UA employs Probe Submission's Content-identifier and Content-correlator are local matters.

17.1.2 Originate EDIM

A UA shall perform the Originate EDIM abstract operation by invoking Message Submission with the arguments indicated below, and by returning to its user the results indicated below.

The arguments of Message Submission shall be as follows:

a) *Envelope:* The components of this argument that constitute per-message fields shall be as follows; those not explicitly mentioned below shall be as specified by Originate EDIM's Envelope argument:

   1) Originator-name: The OR-name of the UA's user.

   2) Content-type and Original-encoded-information-types: Determined from Originate EDIM's Content argument as specified in 19.2 and 19.4, respectively.

   3) Content-identifier and Content-correlator: Specified or omitted as a local matter.

   4) The security arguments on message submission are subject to the security policy in force. When the security policy specifies the support of Content Integrity Security Service, and when Notification Security is requested, the UA shall generate and submit the content-integrity-check Security Argument as defined in 8.2.1.1.1.28 of ITU-T Rec. X.411 | ISO/IEC 10021-4.

   5) If "proof/non-repudiation of Content Originated" is requested, the UA shall submit the message using the "message-origin-authentication-check", or the "content-integrity-check" (possibly in the message token), according to the security policy in force.

   The components of this argument that constitute per-recipient fields shall be as specified by abstract operation Originate EDIM's Envelope argument.

   To prevent an unknown number of EDINs from being sent to the original originator of a message in case of forwarding, "DL-expansion-prohibited", if available, may be set to TRUE if any of PN, NN or FN are requested.

b) *Content:* Determined from Originate EDIM's Content argument (identified as an EDIM) as specified in 19.1.

   1) If "proof/non-repudiation of EDI Notification Request" notification is requested, the UA shall set the EDI Notification Security field accordingly for each recipient as required.

   2) If "proof/non-repudiation of Content Received Request" notification is requested, the UA shall set the EDI Reception Security field accordingly for each recipient as required.

   3) If "Application Security Element" is requested, the end-to-end application security value shall be conveyed in the EDI Application Security Elements field.

NOTE – In case of the use of a notarizing function, the non-repudiation of content service is provided implicitly, and is not reflected in any protocol elements.

The results of Originate EDIM shall be as follows:

c) *Submission-identifier:* Message Submission's Message-submission-identifier result.

d) *Submission-time:* Message Submission's Message-submission-time result.

How the UA employs Message Submission's Content-identifier and Content-correlator are local matters.

The inclusion of Message Submission's Extensions result among Originate EDIM's results is proper and may be the subject for future standardization.

17.1.3 Originate EDIN

A UA shall perform the Originate EDIN abstract operation, if the UA makes it available to its user, by invoking Message Submission with the arguments indicated below, and by returning to its user the results indicated below.

A user may delegate the task of generating EDINs to the UA. In this case, this abstract operation is not present at the abstract interface between the UA and the user, that is, the operation is not available at the Origination port. In this case the UA behaves as if the abstract operation would have been invoked. The UA may accept Responsibility at will, but shall accept Responsibility when the EDIM is made available to the user, or when it forwards an EDIM with content changed (in this context, "content changed" means that the forwarding UA adds or removes body parts from the forwarding EDIM, in accordance with 8.3.2. The term forwarding EDIM is defined in 17.3.3).

The arguments of Message Submission shall be as follows:

a) *Envelope:* The components of this argument that constitute per-message fields shall be as follows; those not explicitly mentioned below shall be as specified by Originate EDIN's Envelope argument:

   1) Originator-name: The OR-name of the UA's user.

   2) Content-type and Original-encoded-information-types: Determined from the EDIN as specified in subclauses 19.2 and 19.4, respectively.

   3) Content-identifier and Content-correlator: Specified or omitted as a local matter.

   4) Deferred-delivery-time: Omitted.

   5) Priority: Same as that of the subject EDIM (see 17.3.3).

   6) Per-message-indicators: *notification-type* shall be set to "type 1" for PN, to "type 2" for NN, and to "type 3" for FN.

b) *Content:* Determined from Originate EDIN's Content argument (identified as a PN, NN or FN) as specified in 19.1.

   1) If, in the subject EDIM, EDI Reception Security is set to "non-repudiation" and EDI Notification Security is set to "non-repudiation" and the "content-integrity-check" security argument is present in the delivery envelope of the subject EDIM, then the "content-integrity-check" security argument is copied into the Content Integrity Check field of the EDIN. The UA shall submit the EDIN with a non-repudiable security element "content-integrity-check" (possibly in the message token) or a "message-origin-authentication-check" (depending on the security policy in force).

   2) If, in the subject EDIM, EDI Reception Security is set to "proof" and EDI Notification Security is set to "proof" and the "content-integrity-check" security argument is present in the delivery envelope of the subject EDIM, then the "content-integrity-check" security argument is copied into the Content Integrity Check field of the EDIN. The UA shall submit the EDIN with the security element "content-integrity-check" (possibly in the message token) or a "message-origin-authentication-check" (depending on the security policy in force).

3) If, in the subject EDIM, Reception Security is set to "non-repudiation" and Notification Security is set to "non-repudiation" and the "content-integrity-check" security argument is not present in the delivery envelope of the subject EDIM, then the Content of the subject message shall be copied into the Original Content field of the EDIN. The UA shall submit the EDIN with a non-repudiable security element "content-integrity-check" (possibly in the message token) or a "message-origin-authentication-check" (depending on the security policy in force).

4) If, in the subject EDIM, EDI Reception Security is set to "proof" and EDI Notification Security is set to "proof" and the "content-integrity-check" security argument is not present in the delivery envelope of the subject EDIM, then the Content of the subject message shall be copied into the Original Content field of the EDIN. The UA shall submit the EDIN with the security element "content-integrity-check" (possibly in the message token) or a "message-origin-authentication-check" (depending on the security policy in force).

5) If, in the Subject EDIM, EDI Notification Security is set to "proof" the UA shall submit the EDIN with the security element "content-integrity-check" (possibly in the message token) or the "message-origin-authentication-check", according to the security policy in force.

6) If, in the Subject EDIM, EDI Notification Security is set to "non-repudiation" the UA shall submit the EDIN with a non-repudiable security argument "content-integrity-check" (possibly in the message token) or a "message-origin-authentication-check", according to the security policy in force.

7) If the MTS does not support secure messaging and if the EDI Reception/Notification security services are requested, the EDIN shall contain an appropriate Reason Code.

The content-integrity-check shall always be checked for validity by the recipient UA before generating the EDIN.

The results of Originate EDIN shall be as follows:

c) *Submission-identifier:* Message Submission's Message-submission-identifier result.

d) *Submission-time:* Message Submission's Message-submission-time result.

How the UA employs Message Submission's Content-identifier and Content-correlator are local matters.

17.2 Invocation of Reception Operations

A UA shall invoke the abstract operations available at its Reception Port as specified below.

The UA invokes these operations in response to the MTS' invocation of the following abstract operations of the MTS Abstract Service (which, for what follows, are unqualified as to their source):

a) Report Delivery;

b) Message Delivery.

The abstract operations of a Reception Port report no errors.

17.2.1 Receive Report

Whenever the MTS invokes Report Delivery at a UA's Delivery Port, the UA shall invoke the Receive Report abstract operation with the following arguments:

a) *Envelope*: Report Delivery's Envelope argument.

b) *Undelivered-object:* Determined from Report Delivery's Returned-content argument as specified in 19.1.

How the UA employs the Content-identifier and Content-correlator components of Report Delivery's Envelope argument are local matters.

17.2.2 Receive EDIM

When the MTS invokes Message Delivery at a UA's Delivery Port, and its Content argument encodes an EDIM as specified in 19.1, the UA may invoke the Receive EDIM abstract operation with the following arguments:

a) *Envelope:* Message Delivery's Envelope argument.

b) *Content:* Determined from Message Delivery's Content argument as specified in 19.1 (but no longer marked as an EDIM).

NOTE – Under some circumstances, for example, when the delivered message is forwarded, the UA might not invoke the Receive EDIM abstract operation.

17.2.3 Receive EDIN

Whenever the MTS invokes Message Delivery at a UA's Delivery Port, and its Content argument encodes an EDIN as specified in 19.1, the UA shall invoke the Receive EDIN abstract operation with the following arguments:

a) *Envelope:* Message Delivery's Envelope argument.

b) *Content:* Determined from Message Delivery's Content argument as specified in 19.1.

17.3 Internal procedures

A UA shall perform as specified below the internal procedures that relate to acceptance of Responsibility, refusal of Responsibility and forwarding.

A user may instruct its UA to accept or refuse Responsibility of incoming messages based on certain criteria.

In addition, a user may instruct its UA to forward incoming messages based on certain criteria.

Because of forwarding, redirection or DL-expansion, it is possible for a UA to receive the same EDIM more than once. Mechanisms for detecting such duplicate receptions are not required, but may be a matter of local implementation by the UA. If they exist, and notifications are requested, the UA shall originate an NN. If they do not exist, and notifications are requested, the UA shall originate a PN or FN, as appropriate.

The procedures involve the following abstract operations of the MTS Abstract Service (which, for what follows, are unqualified as to their source):

a) Message Submission;

b) Message Delivery.

As implied by the above, in the course of the procedures, the UA has occasion to invoke Message Submission. What it does with the results of this abstract operation is a local matter.

The UA shall consider as a candidate for each procedure individually every message for which all of the following conditions hold:

c) The MTS has conveyed the message to the UA by invoking Message Delivery at the UA's Delivery Port.

d) The UA has not conveyed the message to the user by invoking Receive EDIM at the UA's Reception Port.

e) The message contains an EDIM (rather than an EDIN).

With reference to item d) above, the message might be detained in the UA, e.g. as might be typical, because of the user's unavailability.

17.3.1 Acceptance of Responsibility

A UA shall accept Responsibility when a message is successfully passed from the UA to the user. The UA shall follow the procedures below for each candidate message with respect to whose content the following condition holds:

– The EDIM requests a PN by means of the EDI Notification Request field of the appropriate Recipients Sub Field in the EDIM's Recipients field.

The UA may forward a message for which it has accepted Responsibility. See also 17.3.3 on forwarding.

17.3.1.1 Construction of PN

The UA shall construct a PN if, and only if, one is requested by means of the EDI Notification Requests field of the appropriate Recipients Sub Field in the EDIM's Recipients field and in accordance with 17.3.1.

The PN shall also have the following common fields:

a) *Subject EDIM:* The EDIM's This EDIM field or, if present, the Original EDIM Identifier in the EDIN Receiver field.

b) *EDIN Originator:* The OR-name of the UA which submits the EDIN. If the UA is a preferred recipient of the subject EDIM, the OR-name shall be precisely that which is the value of the Recipient field in the subject EDIM.

c) *First Recipient:* The OR-name of the UA which the originator of the EDIM specified as recipient in the Heading, or, if present, the First Recipient field in the EDIN Receiver field. The First Recipient shall be present in the EDIN only if the originator of the EDIN has an OR-address that differs from that specified as the recipient by the original originator. If the EDIN Receiver field is not present, the First Recipient OR-name is the OR-name of the UA creating the EDIN, unless the MTA has performed redirection or DL-expansion. In case of redirection, the correct First Recipient OR-name must be obtained from the Intended Recipient Name field of the delivery envelope (see 8.3.1.1.1.4 of ITU-T Rec. X.411 | ISO/IEC 10021-4). In case of DL-expansion, the correct First Recipient OR-name must be obtained from the DL Expansion History field of the delivery envelope (see 8.3.1.1.1.7 of ITU-T Rec. X.411 | ISO/IEC 10021-4).

d) *Notification Time:* The current date and time.

e) *EDI Notification Security Elements:* Security elements in any type of notification shall follow the rules of 17.1.3.

f) *EDIN Initiator:* Shall be set according to 9.1.6.

17.3.1.2 Submission of PN

The UA shall submit the PN above by invoking Message Submission with the following arguments:

a) *Envelope:* The components of this argument shall be as prescribed for performance of the Originate EDIN abstract operation with the following exceptions:

   1) Priority: As specified by Message Delivery's Envelope argument.

   2) Per-message-indicators: A local matter, except that *conversion-prohibited* shall be among the values specified and *notification-type* shall be set to "type 1".

   3) Per-recipient-fields: A single field whose Recipient-name component shall be the Originator-name component of Message Delivery's Envelope argument, or if the EDIN Receiver field is present, the EDIN Receiver as specified by the originator of the message.

NOTE – If the OR-name in the EDIN Receiver field is not valid, then the UA cannot submit the EDIN. Procedures to be followed in this case are a local matter.

b) *Content:* Determined from the PN as specified in 19.1.

17.3.2 Refusal of Responsibility

A UA shall refuse to accept Responsibility when a message cannot be successfully passed from the UA to the user. A UA may refuse to accept Responsibility when forwarding was unsuccessful [see c) of 17.3.3.1]. The UA shall follow the procedures below for each candidate message under the following conditions:

a) The EDIM requests an NN of the UA's user by means of the EDI Notification Requests field of the appropriate Recipients Sub Field in the EDIM's Recipients field.

b) The EDIM is not successfully forwarded onward, or not successfully passed to the user of this UA.

NOTE – See also 17.3.3 on forwarding.

17.3.2.1 Construction of NN

The UA shall construct an NN if, and only if, one is requested by means of the EDI Notification Requests field of the subject EDIM's Recipients field and in accordance with 17.3.2.

The NN shall have the common fields prescribed for Construction of PN (see 17.3.1.1).

The NN shall also have the following fields:

a) *Negative Notification Reason Code:* The reason why Responsibility for the EDIM was refused.

b) Optionally, *NN Supplementary Information* that adds information to the reason given.

17.3.2.2 Submission of NN

The UA shall submit the NN (if any) above by invoking Message Submission. Its Envelope argument shall be as prescribed for Acceptance of Responsibility (see 17.3.1) except that the *notification-type* in the per-message-indicators shall be set to "type 2", and the Content argument determined from the NN as specified in 19.1.

NOTE – If the OR-name in the EDIN Receiver field is not valid, then the UA cannot submit the EDIN. Procedures to be followed in this case are a local matter.

17.3.2.3 Handling of received EDIM

The received EDIM for which the UA refuses Responsibility shall not be made available to the user, nor shall it be forwarded.

17.3.3 EDI Forwarding

The procedures defined in this subclause describe EDI Forwarding.

NOTE – For brevity, the term "forwarding" is used in this Recommendation | International Standard as a synonym for "EDI Forwarding".

A user may instruct its UA to forward received messages based on local criteria. A user may also instruct its UA to automatically forward requests for notifications together with the forwarded message. A message shall not be forwarded when Responsibility for that message has been refused.

In order to forward an EDIM, the UA creates a new EDIM with a new Heading and in the Primary Body Part encapsulates the received EDIM (Heading and Body) and optionally the envelope of the received message using the body part type EDIM Body Part (see 8.3.2).

Figure 6 illustrates forwarding with an example.

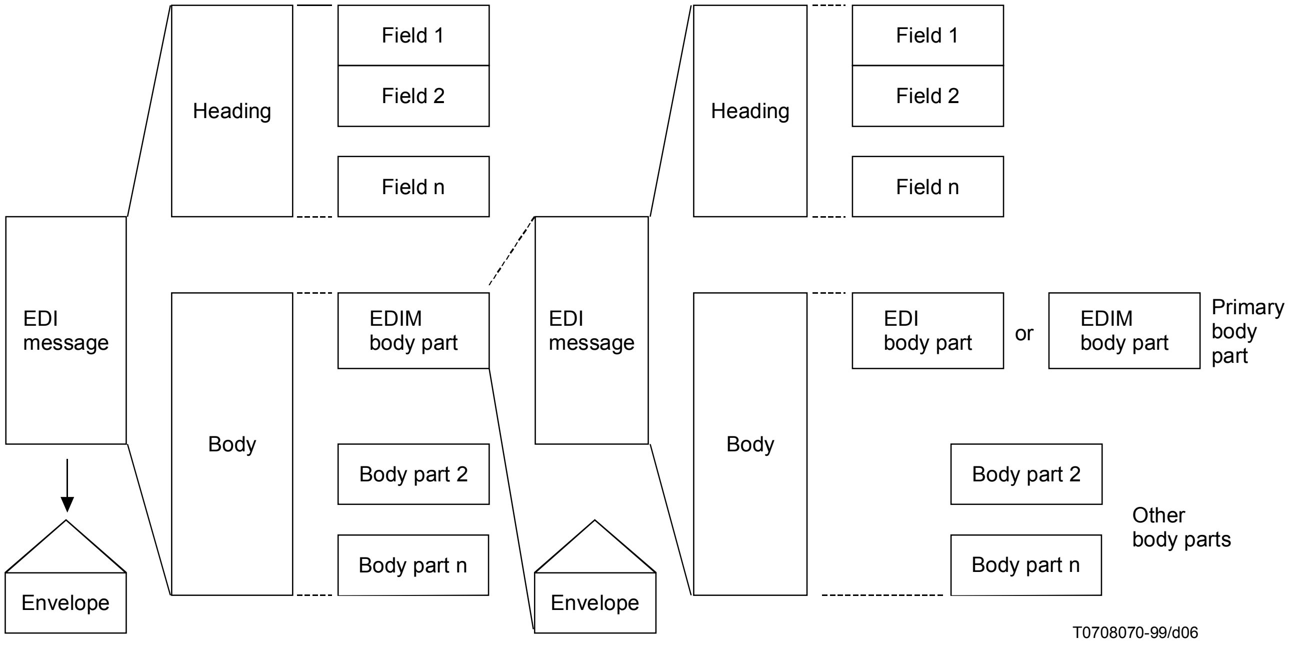


Figure 6 – Forwarding

The term subject EDIM refers to the received EDIM that is being forwarded. The term forwarding EDIM refers to the new EDIM that is being created, and that will include all or part of the subject EDIM, in accordance with 8.3.2. The term forwarded EDIM refers to the outermost EDIM Body Part of the forwarding EDIM, constituting all or part of the subject EDIM.

Unless overridden by specific rules below, or by the requirements of the security policy in force, the following general rules apply to the creation of the Heading fields of the forwarding EDIM:

- All mandatory Heading fields and any optional fields whose values are changed with respect to the values present in the subject EDIM shall be present.
- Heading fields whose values are unchanged shall be copied from the subject EDIM Heading to the forwarding EDIM Heading if the field is present in the subject EDIM Heading and the value in the field is other that the value specified as DEFAULT in 8.2.
- Other Heading fields need not be copied.

EDI Forwarding may take two forms:

a) Forwarding of message and Responsibility forwarded.

b) Forwarding of message and Responsibility accepted.

EDI Forwarding may take place even if no notifications have been requested. This is equivalent to form b) above.

The UA shall, subject to the instructions given by the user, forward messages as follows.

17.3.3.1 Forwarding of message and Responsibility forwarded

Forwarding a message without accepting Responsibility of the message implies the following:

a) The Primary Body Part of the new message is the content of the subject message unchanged. The delivery envelope of the received EDIM shall be included if security notifications are requested.

b) If passing of Responsibility is allowed by the originator, the EDI Notification Request field is forwarded unchanged with the new message to one, and only one, of the recipients of the new message. The value of the Responsibility Forwarded field shall be set to TRUE.

c) If the forwarding fails (for example, a Non delivery report on the forwarded message is returned) within a given period of time (either specified by the originator in Expiry Time or as a local decision in the MS or UA, with priority given to the Expiry Time), the UA may refuse Responsibility (see 17.3.2).

d) If the EDI Notification Requests field of the subject EDIM's Recipients field requests FN, an FN EDIN shall be sent back to the specified EDIN Receiver, or to the originator of the EDIM, if no EDIN Receiver is specified.

The delivery envelope of the received message shall be included in the new EDIM if the received EDIM's Primary Body Part is not a Forwarded EDIM.

It is possible to forward a message more than once, and a message may be forwarded to multiple recipients, in accordance with the rules above.

The originator of a message may prohibit passing of Responsibility by setting the Responsibility Passing Allowed field to the value FALSE. In this case, if the UA cannot accept Responsibility and NN Notification is requested, the UA shall submit an NN EDIN with appropriate reason code. If the UA cannot accept Responsibility and NN Notification is not requested, then no EDIN shall be submitted.

17.3.3.2 Forwarding of message and Responsibility accepted

Forwarding a message and accepting Responsibility of the message implies the following:

a) The Primary Body Part of the new message is the content of the subject message changed or unchanged. This type of forwarding is less restricted and may include removal or addition of body parts. The Heading of the subject EDIM shall remain unchanged.

NOTE 1 – If the delivery envelope of the received message is included in the forwarded message, and if that envelope contained security fields, and if body parts are added or removed, then the security fields may no longer be valid.

The following rules apply with respect to removal of body parts:

1) A forwarded EDIM Body Part shall not be removed;

2) "removed-edi-body" shall be inserted where an EDI Body Part has been removed (see 8.3.2);

3) Body Part Place Holders shall be inserted where other body parts have been removed (see 8.3.2);

4) the Incomplete Copy Indicator field of the forwarding EDIM shall be set to "TRUE" if Body Parts are removed.

b) Responsibility Forwarded shall not be requested (that is, the field shall not be present).

c) If the EDI Notification Requests field of the subject EDIM's Recipients field requests Positive Notification, a PN EDIN shall be sent back to the specified EDIN Receiver, or to the originator of the EDIM, if no EDIN Receiver is specified.

d) A Forwarded Notification, FN, shall not be sent back to the originator of the message.

NOTE 2 – By scanning the successive nested Headings of an EDIM that contains a forwarded EDIM, the final recipient UA can determine from the setting of the Responsibility Forwarded field at which point in the forwarding chain Responsibility was accepted.

17.3.3.3 Prevention of loops

The UA shall suppress forwarding if the EDIM to be forwarded itself contains a forwarding EDIM that the UA previously created. That is to say, forwarding shall be suppressed whenever the forwarding EDIM appears (directly) in a body part of the EDIM to be forwarded, or (nested) in a body part of the EDIM that appears in such a body part.

The UA shall consider itself to have created the forwarding EDIM above if, and only if, the OR-name component of a This EDIM Field in a forwarded EDIM matches the OR-name of the UA's user.

NOTE – Forwarding an EDIM of the kind described above would constitute an EDI Forwarding "loop".

17.3.3.4 Construction of forwarding EDIM

The UA shall construct a forwarding EDIM whose Primary Body Part comprises a body part of type EDIM Body Part.

The Heading shall have the following components:

a) *This EDIM:* New value generated.

b) *Originator:* OR-name of the forwarding user.

c) *Recipients:* The recipients to which the EDIM is being forwarded.

If Responsibility is not accepted, the following rules relating to the components of the EDIM Heading apply:

d) *EDIN Receiver Field:* shall be present and shall contain all optional fields. If the subject EDIM contains an EDIN Receiver Field, the fields of the EDIN Receiver Field of the forwarding EDIM shall have the values of the fields of the EDIN Receiver Field of the subject EDIM. If optional fields are missing from the EDIN Receiver Field of the subject EDIM, or if the subject EDIM does not contain an EDIN Receiver Field, then the missing fields of the EDIN Receiver Field of the forwarding EDIM shall have the following values:

   1) Edin-receiver-name: Originator of subject EDIM.

   2) Original-edim-identifier: This EDIM field of subject EDIM.

   3) First-recipient: OR-name of the UA to which the subject EDIM was first sent by the original originator. This is the OR-name of the forwarding UA (which is performing the first forwarding operation), unless the MTA has performed redirection. In case of redirection, the correct First Recipient OR-name must be obtained from the Intended Recipient Name field of the delivery envelope (see 8.3.1.1.1.4 of ITU-T Rec. X.411 | ISO/IEC 10021-4).

e) *EDI Notification Request (sub-field of Recipients):* The UA may forward the EDIM to several recipients by simply adding recipients to the Recipients field. The UA shall set identical EDI Notification Requests for one, and only one, of the recipients. One, and only one, of the UAs to whom the subject EDIM is forwarded will receive the EDI Notification Requests contained in the subject EDIM.

f) *Expiry Time:* may be set to a value different to the value indicated in the subject EDIM.

g) All other Heading fields shall follow the general rules in 17.3.3.

If Responsibility is accepted, the EDIM Heading shall comply with a), b) and c) above and with the following rules:

h) *EDIN Receiver Field:* may be absent or present. If present, it shall contain only the following value:

   1) Edin-receiver-name: OR-name of the desired EDIN Receiver.

i) Other fields may be added (including EDI Notification Requests).

In both cases other fields apart from those especially mentioned above may, but need not, be copied from the Heading of the subject EDIM to the Heading of the forwarding EDIM (except that the Original EDIM Identifier and First Recipient sub-fields of the EDIN Receiver Field shall not be present).

The Primary Body Part shall be of type EDIM Body Part and shall have the following components:

j) *Parameters:* Specified or omitted as a local matter.

k) *Data:* The EDIM to be forwarded.

17.3.3.5 Submission of forwarded EDIM

The UA shall submit the forwarded EDIM it constructed above by invoking Message Submission with the following arguments:

a) *Envelope:* The components of this argument shall be as follows:

   1) Originator-name: The OR-name of the UA's user.

   2) Content-type and Original-encoded-information-types: Determined from the EDIM as specified in subclauses 19.2 and 19.4.

   3) Content-identifier: Specified or omitted as a local matter.

   4) Priority: As specified by Message Delivery's Envelope argument.

5) Per-message-indicators and Extensions: A local matter.

6) Deferred-delivery-time: Omitted.

7) Per-recipient-fields: Their Recipient-name components shall be the OR-names that the message shall be forwarded to. Their other components are a local matter.

b) *Content:* Determined from the EDIM as specified in 19.1.

17.3.3.6 Construction of FN

The UA shall construct an FN if, and only if, one is requested by means of the EDI Notification Requests field of the subject EDIM's Recipients field and the user is not willing to accept Responsibility for the message and forwards the request for notification.

The FN shall have the common fields as prescribed for construction of PN (see 17.3.1.1).

The FN shall have the following forwarding fields:

a) *Forwarded To:* the OR-name of the recipient to whom the request for notification was forwarded.

b) *Forwarded Reason Code:* The reason why the subject message was forwarded.

c) Optionally, *FN Supplementary Information* that adds information to the reason given.

17.3.3.7 Submission of FN

The UA shall submit the FN (if any) above by invoking Message Submission. Message Submission's Envelope argument shall be as prescribed for acceptance of Responsibility (see 17.3.1), except that the *notification-type* in the per-message-indicators shall be set to "type 3", and the Content argument determined from the FN as specified in 19.1.

NOTE – If the OR-name in the EDIN Receiver field is not valid, then the UA cannot submit the EDIN. Procedures to be followed in this case are a local matter.

18 Message Store operation

ITU-T Rec. X.413 | ISO/IEC 10021-5 defines the abstract service for a general content independent Message Store (MS). The MS is an optional system component in an MHS. The MS is associated with a user's UA. The user can submit messages through it and retrieve messages that have been delivered to the MS. In addition, the MS can perform certain predefined auto-actions on the UA's behalf.

NOTE – Because the MS is an optional system component in an MHS, use of the word "shall" with respect to MS specifications shall not be construed as mandating the provision of an MS or the services it provides. Use of the word "shall" with respect to MS specifications shall be construed as mandating the specifications of an MS, if one is provided.

All the abstract operations, general attribute types and general auto-action types defined in ITU-T Rec. X.413 | ISO/IEC 10021-5 are also available for use by EDI messages.

An MS may optionally offer additional support for the EDI messaging specific attribute types and auto-actions, which would qualify it as an EDI messaging specific MS (EDI-MS). These additional definitions are given in what follows.

18.1 Binding to the MS

Binding to the MS is described in 7.1 of ITU-T Rec. X.413 | ISO/IEC 10021-5. Attention should be given to the following points when using the MS for EDI messaging.

18.1.1 Abstract-bind argument

Components of the Fetch-restrictions parameter in 7.1.1 of ITU-T Rec. X.413 | ISO/IEC 10021-5 have special meaning in this Recommendation | International Standard:

a) *Allowed-content-types:* The name of the object identifier for the EDI content type is "id-mct-pedi", the value is defined in Annex A.

b) *Allowed-EITs:* The names of the object identifiers so far standardized in this Recommendation | International Standard are defined in Annex A. See also 19.4.

18.2 Abstract-bind result

The following parameter from 7.1.2 of ITU-T Rec. X.413 | ISO/IEC 10021-5 has special meaning for this Recommendation | International Standard:

– Available-auto-actions.

18.3 Creation of Information Objects

An MS shall satisfy the following requirements related to the information objects it maintains:

a) The MS shall maintain a separate information object for each message containing an EDIM or EDIN that is delivered to it.

b) The MS shall maintain as a separate information object not only each message containing a forwarding EDIM [pursuant to Item a)] but also each message containing a forwarded EDIM (recursively).

c) The MS shall assign sequence numbers to the messages in the hierarchy formed by a forwarding EDIM and its forwarded EDIMs.

The general (content independent) attributes that may occur in entries of the stored-message entry-class are documented in ITU-T Rec. X.413 | ISO/IEC 10021-5. All content-independent MS attributes can be used for the content defined in this Recommendation | International Standard. The EDI specific attributes for stored-messages are defined in 18.8. All general attribute types classified as "mandatory" in Table 2 of ITU-T X.413 | ISO/IEC 10021-5 shall be supported.

18.3.1 Mapping of an MHS message to an MS entry

NOTE – In what follows, reference is made to an "MHS message". This is not be confused with the term "message", which refers to an EDIM.

When an EDIM or EDIN is stored in the MS, a corresponding MS entry is generated in appropriate entry-class. The MS generates some attributes for administrative purposes such as Sequence Number, a Creation Time for the entry, the Interchange Length etc. It then generates attributes based on protocol elements in the MHS Envelope, in the Heading and one attribute containing the whole EDI Interchange. The attribute EDI Body Part Types signals which EDI Standard has been used. Other Body Parts will be mapped into one or several additional attributes.

Figure 7 describes how an MHS message with an EDIM is mapped into a corresponding MS entry.

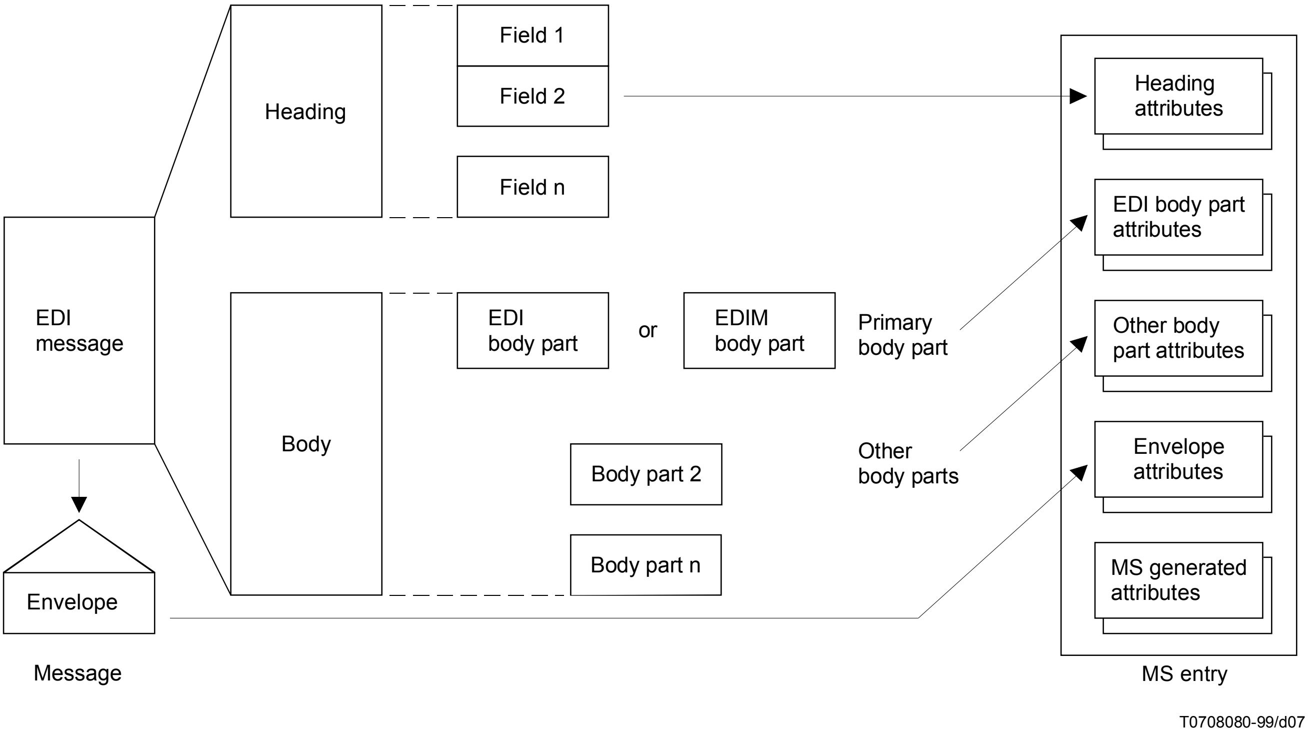


Figure 7 – MHS message with EDIM – Mapping in MS

18.3.2 Mapping of forwarding messages in the MS

A forwarding EDIM shall be mapped to the Message Store as one main entry and one or more linked child entries. The final child entry shall contain the original EDIM (with its interchange and any additional body parts).

The MS Structure of a forwarding message, such as the message in Figure 6, is depicted in Figure 8.

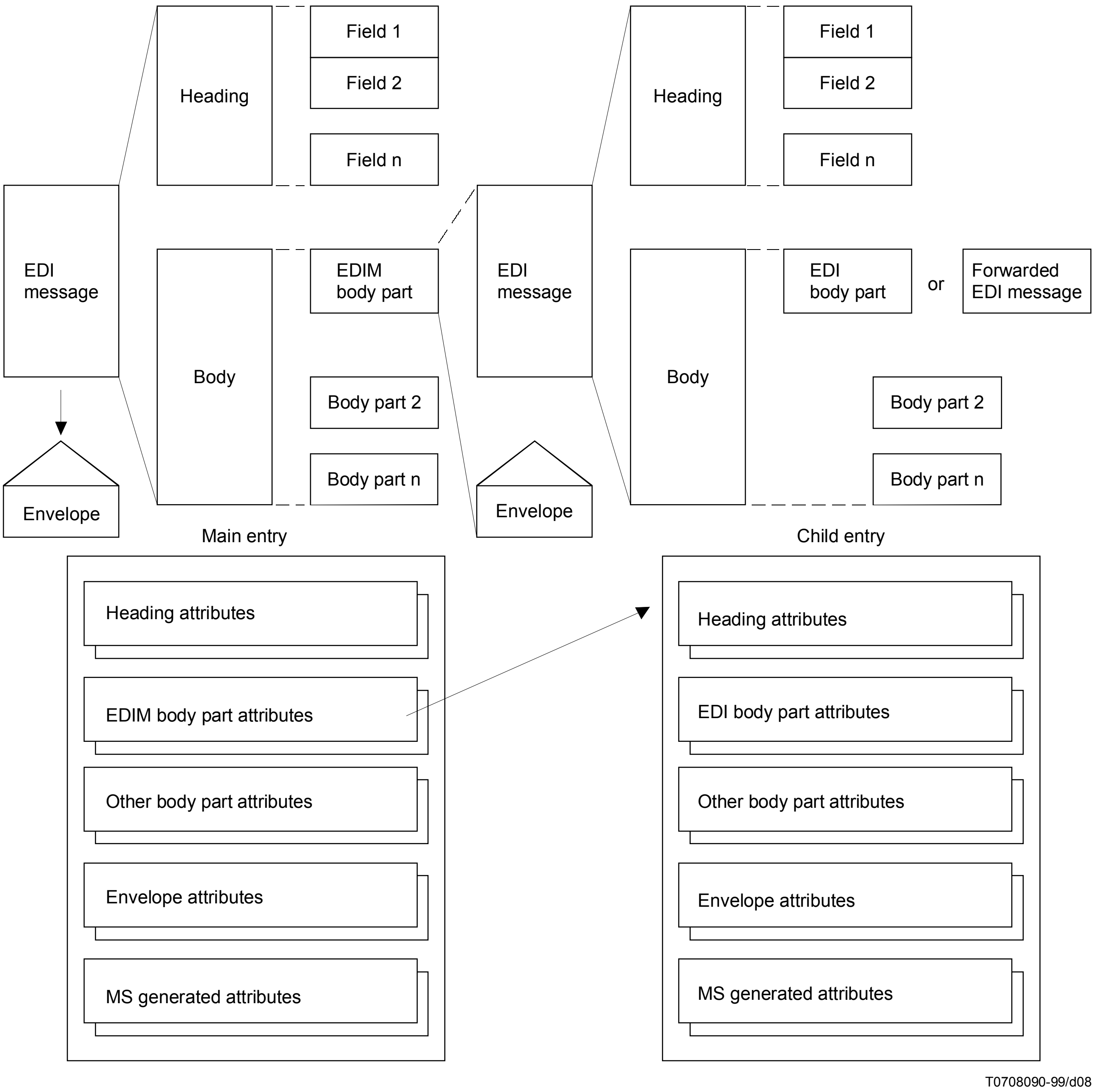


Figure 8 – Forwarding message in MS

18.4 Maintenance of Attributes

An MS shall satisfy the following requirements related to MS attributes:

a) For each EDIM or EDIN it holds, the MS shall support the attributes of 18.8 as specified therein.

b) For each EDIM it holds, the MS shall give the following meanings to the defined values of the MS retrieval-status attribute:

1) *new*: No attribute values have been conveyed to the UA.

2) *listed*: At least one attribute value has been conveyed to the UA, and at least one body part value has not been conveyed to the UA.

3) *processed*: All body parts have been conveyed to the UA or the MS has performed an auto-action on it and the definition of that auto-action causes a change of entry-status.

c) For each EDIN it holds, the MS shall give the following meanings to the defined values of the MS-status attribute:

   1) *new*: No attribute values have been conveyed to the UA.

   2) *listed*: At least one attribute value has been conveyed to the UA, and at least one attribute value has not been conveyed to the UA.

   3) *processed*: All attributes have been conveyed to the UA or the MS has performed an auto-action on it and the definition of that auto-action causes a change of entry-status.

d) The MS retrieval-status attribute shall reflect the state of affairs prior to an abstract operation invocation that alters its value.

e) The Content Type attribute of each message containing an EDIM or EDIN that is delivered to the MS shall have as value the Object Identifier id-mct-pedi (see Annex A).

18.5 Negative Notification

When it discards an EDIM while performing the Delete abstract operation of the MS Abstract Service, the MS shall submit an NN if one is requested and the EDIM's MS retrieval-status attribute has the value *listed*.

18.6 MS-message-submission extensions

The EDI-MS provides two methods for incorporating stored messages in the body of a submitted EDIM. If a 1988 Application Context is in use (see 5.7 of ITU-T Rec. X.413 | ISO/IEC 10021-5), the forwarding-request extension enables the EDI-MS-user to nominate a delivered EDIM for forwarding; see 18.6.1.

If a 1994 Application Context is in use, the EDI-submission-options argument enables an EDI-MS-user to nominate any stored EDIM or EDI body part for inclusion in the Body of a submitted EDIM; see 18.6.2.

18.6.1 Forwarding-request extension

If a 1988 Application Context is in use then an EDI-MS supports the forwarding-request extension as specified in 8.3.1.1 of ITU-T Rec. X.413 | ISO/IEC 10021-5. The EDI-MS-user may submit an EDIM, including Heading and Body, using the MS-message-submission abstract-operation, and identify by means of the forwarding-request extension, a message that is already stored in the EDI-MS which is to be forwarded as the primary body part of the submitted EDIM. The MS shall construct an EDIM-body-part from the specified stored-message. The constructed EDIM-body-part replaces the primary body part supplied by the UA.

NOTE – The syntax of the Body of an EDIM does not allow the UA to omit the primary body part from the submitted EDIM. However, the value supplied by the UA serves no purpose and may have any value; for example, it may be an EDIMBodyPart of length zero.

18.6.2 EDI Submission Options

The submission-options argument of the MS-message-submission abstract-operation defined in 8.3.1.1 and 8.1.6 of ITU-T Rec. X.413 | ISO/IEC 10021-5 allows for the specification of MS-submission-extensions. The EDI-MS makes use of this argument when performing the MS-message-submission abstract-operation, in order to support the incorporation of stored EDIMs and stored body parts in submitted EDIMs.

The **EDI-submission-options** information object is defined as follows:

```
edi-submission-options EDIM-EXTENSION ::= {
      VALUE EDISubmissionOptions,  IDENTIFIED BY  id-ext-submission-options }

EDISubmissionOptions ::= SET {
      assembly-instructions  [0]  BodyPartSpecifiers }

BodyPartSpecifiers ::= SEQUENCE OF BodyPartSpecifier

BodyPartSpecifier ::= CHOICE {
      stored-entry            [0]  SequenceNumber,
      submitted-body-part     [2]  INTEGER (1..MAX),
      stored-body-part        [3]  SEQUENCE {
            message-entry          SequenceNumber,
            body-part-number       INTEGER (1..MAX) } }
```

The single component of EDI-submission-options has the following meaning:

Assembly-instructions: This component instructs the EDI-MS to assemble stored body parts or stored EDIMs with the present submitted EDIM, before submitting the resulting EDIM to the MTS (or storing it as a draft-message entry). The EDI-MS shall construct the new Body by assembling body parts in the order specified in the argument, i.e. the sequence of body parts which forms the new Body is determined by the sequence of body-part-specifiers. If **stored-entry** is specified, it may identify a stored EDIM. If **submitted-body-part** is specified, the new body part is a body part of the present submitted EDIM (identified by number). If **stored-body-part** is specified, the new body part is copied from the entry identified by message-entry, with the body-part-number indicated. Body parts are numbered starting at '1'.

NOTE 1 – The presence of delivery-envelope in the Parameters component of an EDIM body part does not imply that the body part was derived from a delivered-message. This derivation is implied (but not verified) by the presence of delivery-time.

NOTE 2 – The assembly of body-parts from entries with content-type other than EDI is possible only for body parts whose definition is compatible with EDI (as stated in the relevant content-type Specification), or for which rules of conversion into EDI body parts are defined.

18.6.3 EDI submission errors

When an EDI-MS performs the MS-message-submission abstract-operation of ITU-T Rec. X.413 | ISO/IEC 10021-5, the EDI-specific errors defined below may be reported. These are reported as MS-extension-errors, as defined in 9.12 of ITU-T Rec. X.413 | ISO/IEC 10021-5.

The **EDI-submission-errors** information object set comprises the submission errors defined for the EDI-MS:

```
EDISubmissionErrors EDIM-EXTENSION ::= {
      invalid-assembly-instructions,
      ... -- For future extension additions -- }
```

The **invalid-assembly-instructions** error shall be reported where the assembly-instructions component of EDI-submission-options is present, but the message submitted is not an EDIM, or the assembly-instructions component contains a reference to an entry whose content-type is not compatible with EDI, or contains a reference to a body part not present in the submitted or stored message. The invalid body-part-specifiers are reported in the error.

```
invalid-assembly-instructions EDIM-EXTENSION ::= {
      VALUE BodyPartSpecifiers,  IDENTIFIED BY  id-ext-invalid-assembly-instructions }
```

18.7 Auto-Action Types

The concept of auto-actions is described in 6.5 and clause 13 of ITU-T Rec. X.413 | ISO/IEC 10021-5. This introduces four general auto-action types that may be applied to all content types. The EDI-MS shall perform the general-auto-actions as specified in clause 13 of ITU-T Rec. X.413 | ISO/IEC 10021-5.

Three further auto-action types, specific to the EDI-MS, are defined in this Recommendation | International Standard:

a) EDI auto-forward auto-action;

b) EDI auto-correlate auto-action;

c) EDI auto-acknowledgement auto-action.

Each EDI-MS auto-action is defined as an instance of the AUTO-ACTION information object class (see 6.5.1 of ITU-T Rec. X.413 | ISO/IEC 10021-5). For the EDI-MS, the elements of the EDI-auto-actions information object set are regarded as objects populating the Content-specific-auto-actions information object set defined in clause 13 of ITU-T Rec. X.413 | ISO/IEC 10021-5. It is defined as follows:

```
EDIAutoActions AUTO-ACTION ::= {
    edi-auto-forward |
    edi-auto-correlate |
    edi-auto-acknowledgement }
```

Each auto-action-error that may be generated by the EDI auto-actions is defined as an instance of the AUTO-ACTION-ERROR information object class. For the EDI-MS, the elements of the EDI-auto-action-error-table information object set are regarded as objects populating the Content-specific-auto-action-errors information object set defined in clause 13 of ITU-T Rec. X.413 | ISO/IEC 10021-5. It is defined as follows:

```
EDIAutoActionErrorTable AUTO-ACTION-ERROR ::= {
    auto-forwarding-loop |
    duplicate-edin |
    element-of-service-not-subscribed |
    inconsistent-request |
    originator-invalid |
    recipient-improperly-specified |
    remote-bind-error |
    security-error |
    submission-control-violated |
    unsupported-critical-function }
```

The EDI-MS-user may register and deregister auto-actions by subscription, or, in certain cases, by means of the Register-MS abstract-operation as described in 8.2.5 of ITU-T Rec. X.413 | ISO/IEC 10021-5. An auto-action-registration-parameter is associated with the registration of an auto-action and contains the parameters required by the EDI-MS to perform the registered auto-action.

The operation of EDI auto-actions may be affected by the implementation of a security policy.

18.7.1 EDI auto-forward auto-action

The EDI auto-forward auto-action enables the EDI-MS-user to instruct the EDI-MS to forward, automatically, any subsequently delivered EDIM to another recipient or recipients. The auto-action is performed whenever an EDIM is delivered to the EDI-MS.

NOTE – In this version of ITU-T Rec. X.435 | ISO/IEC 10021-9, the definition of the EDI auto-forward auto-action differs substantially from that defined in earlier versions. Refer to the version 1 text of CCITT Rec. X.435 (1991) | ISO/IEC 10021-9:1995 for the earlier definition.

The performance of the EDI auto-forward auto-action may cause the creation of an entry in the Auto-action-log entry-class, subject to subscription to the Auto-action-log entry-class. The auto-action-errors associated with the EDI auto-forward auto-action correspond to the abstract-errors of the Message Submission abstract-operation; see 8.2.1.1.3 of ITU-T Rec. X.411 | ISO/IEC 10021-4. In addition, the following auto-action-error is generated if an auto-forwarding loop is detected (see 17.3.3.3):

```
auto-forwarding-loop AUTO-ACTION-ERROR ::= {
    CODE    global:id-aae-edi-auto-forwarding-loop }
```

Support for the EDI auto-forward auto-action by an EDI-MS, or EDI-MS-user accessing an EDI-MS, requires that it supports the registration of the EDI-auto-forward-registration-parameter by means of the Register-MS abstract-operation. The additional procedures necessary to support the auto-action are defined in 18.9.

The EDI-auto-forward auto-action allows EDIMs to be forwarded as follows:

- forwarding-with-responsibility-not-accepted, which means that EDI responsibility is forwarded. See a) of 17.3.3;
- forwarding-with-responsibility-accepted, which means that EDI responsibility is accepted. See b) of 17.3.3.

As specified in 17.3.3, if no notifications are requested, EDI-auto-forwarding may take place and is equivalent to forwarding-with-responsibility-accepted.

If EDI Security Requests are present, then the EDI-auto-forward actions defined above may be prohibited, subject to the security policy in force. If EDI Security Requests are present then the EDI-auto-forward action "forwarding-with-responsibility-accepted" shall not be performed.

The EDI-auto-forward allows one or more sets of EDI-auto-forward-registration-parameters to be registered with the MS, each identified by its registration-identifier. Each EDI-auto-forward-registration-parameter specifies criteria to determine whether it applies to a delivered EDIM, and if so, a copy of the message is EDI-auto-forwarded using the MS-message-submission abstract operation. The delivered EDIM may be automatically deleted afterwards. The procedure followed where a delivered EDIM matches more than one set of criteria is described in 18.8.1.2.

Below is the ASN.1 definition of the EDI auto-forward auto-action:

```
edi-auto-forward  AUTO-ACTION ::= {
    REGISTRATION PARAMETER IS   EDIAutoForwardRegistrationParameter
    ERRORS                      {auto-forwarding-loop | element-of-service-not-subscribed |
                                inconsistent-request | originator-invalid |
                                recipient-improperly-specified | remote-bind-error |
                                security-error | submission-control-violated |
                                unsupported-critical-function }
    IDENTIFIED BY               id-act-edi-auto-forward-v2 }

EDIAutoForwardRegistrationParameter ::= SEQUENCE {
    filter                   [0] Filter OPTIONAL,
    edi-supplementary-info   [1] EDISupplementaryInformation OPTIONAL,
    delete-after-forwarding  [2] BOOLEAN DEFAULT FALSE,
    edi-forwarding-mode      CHOICE {
        forwarding-with-responsibility-not-accepted [3] NewRecipient,
        forwarding-with-responsibility-accepted     [4] ForwardWithRespAccepted },
    forwarding-envelope      [5] MessageSubmissionEnvelope,
    submission-options       [6] MSSubmissionOptions OPTIONAL }
```

NOTE – The data type Filter is defined in 8.1.2.1 of ITU-T Rec. X.413 | ISO/IEC 10021-5.

The common parameters of the EDI-auto-forward-registration-parameter have the following meanings:

a) *Filter:* This is a set of criteria which a new entry representing a delivered EDIM shall satisfy for the EDI-MS to auto-forward it using this set of parameters.

   In the absence of this parameter all new entries are considered for auto-forwarding.

b) *EDI-supplementary-info:* This parameter can contain text to be included in the Supplementary Information field of an EDIN and in the Other Parameters field of a forwarded EDIM.

c) *Delete-after-forwarding:* This parameter indicates whether an MS entry should be deleted following successful auto-forward submission. If not specified, no deletion takes place.

d) *EDI-forwarding-mode:* This is a choice between:

   1) forwarding-with-responsibility-not-accepted;

   2) forwarding-with-responsibility-accepted.

These two cases are described in 18.7.1.1 and 18.7.1.2.

e) *Forwarding-envelope:* This specifies the message submission arguments for the forwarding EDIM (see 8.2.1.1.1 of ITU-T Rec. X.411 | ISO/IEC 10021-4). Any argument which is not registered, not mandatory, and not specifically mentioned below, will be absent from each message submission.

f) *Submission-options:* This parameter specifies the submission-options that shall apply to the forwarding EDIM and to the submitted EDIN (if one is requested). Submission-options are specific to MS operation (see 8.1.6 of ITU-T Rec. X.413 | ISO/IEC 10021-5). The value *draft* is not permitted for the object-entry-class component. If the parameter is omitted, it assumes the value of submission-defaults, as registered by means of Register-MS; see 8.2.5.1 of ITU-T Rec. X.413 | ISO/IEC 10021-5.

18.7.1.1 Forwarding with Responsibility not accepted

The forwarding-with-responsibility-not-accepted case enables the MS abstract service provider to automatically forward, with EDI Responsibility forwarded, any EDIM (with its notification requests) that has been delivered to the EDI-MS. The use of this auto-action shall be subject to the requirements of the security policy in force. The EDI-MS shall follow the rules in 17.3.3.1. Appropriate values are added in the EDI Notification Indicator attribute.

The following limitations apply to forwarding-with-responsibility-not-accepted, when compared to the general rules for forwarding contained in 17.3.3:

a) The forwarding-with-responsibility-not-accepted auto-action type shall only be performed once for a particular EDIM by the same MS.

b) The Heading of the forwarding EDIM is copied from the Heading of the delivered EDIM, except that the value of the Recipients field is replaced by the single Recipients Subfield that identifies this EDI-MS-user; the value of that subfield's Recipient Field is replaced using the registered value of New Recipient.

```
NewRecipient ::= RecipientField
```

The message-submission-envelope of the forwarding EDIM shall be constructed according to the following rules:

c) Any Message-submission argument which is not registered, not mandatory, and not specifically mentioned below, will be absent from each message submission.

d) Only one recipient shall be specified for the EDI auto-forwarding auto-action, i.e. a single instance of the per-recipient-fields argument shall be present in the message-submission-envelope. The following per-recipient-message-submission argument has a fixed value:

   – *originator-report-request*: this shall have either the value *non-delivery-report* or the value *report*.

e) If *conversion-with-loss-prohibited* is registered with the value *conversion-with-loss-allowed*, either by explicit registration of the value, or if it is not registered and thus assumes this value by default, the value used for each Message-submission abstract-operation shall be the value of the corresponding Message-delivery argument. If it is registered with the value *conversion-with-loss-prohibited*, this value shall be used for each Message-submission abstract-operation.

f) If *implicit-conversion-prohibited* is registered with the value 'zero', indicating that implicit-conversion is allowed, or if no value is registered, the value used for each Message-submission abstract-operation shall be the value of the corresponding Message-delivery argument. If it is registered with the value 'one', indicating that implicit-conversion is prohibited, this value shall be used for each Message-submission abstract-operation.

g) If the following arguments are not registered, their presence as message submission arguments depends upon the presence of the corresponding message delivery arguments, their values being transformed where appropriate: *message-security-label*, and *priority*.

h) Certain message submission arguments shall not be registered. These are: *original-encoded-information-types*, and *content-type*. *DL-expansion-prohibited* shall have the fixed value *DL-expansion-prohibited* in the Message-submission abstract-operation.

18.7.1.2 Forwarding with responsibility accepted

The forwarding-with-responsibility-accepted case enables the MS abstract service provider to automatically forward, with Responsibility accepted, any EDIM that has been delivered. The use of this auto-action shall be subject to the requirements of the security policy in force. The MS shall follow the rules in 17.3.3.2. Appropriate values are added in the EDI Notification Indication attribute.

The following rules apply to forwarding-with-responsibility-accepted in addition to the general rules for forwarding contained in 17.3.3:

a) The MS shall construct and forward an EDIM whose primary body part comprises a body part of type EDIM body part as described in 17.3.3.4. No body parts shall be removed or added, and the original delivery envelope shall be included.

```
ForwardWithRespAccepted ::= SET {
    new-edin-receiver-name        [0] RecipientField OPTIONAL,
    per-recipient-heading-fields  [1] SEQUENCE SIZE (1..ub-recipients) OF
                                      NextRecipientFields }

NextRecipientFields ::= SEQUENCE {
    next-recipient                        [1] RecipientField,
    next-recipient-action-request         [2] ActionRequestField DEFAULT {id-for-action},
    next-recipient-edi-notification-requests-field  [3] EDINotificationRequestsField OPTIONAL,
    next-responsibility-passing-allowed [4] ResponsibilityPassingAllowedField DEFAULT FALSE }
```

b) The components of the original Heading shall be copied to the Heading of the forwarding EDIM according to the rules in 17.3.3 with the following exceptions:

   1) The Recipients field is constructed from the registered "per-recipient-heading-fields".

   2) The EDIN Receiver field is set to the registered value of "new-edin-receiver-name".

c) For each instance of Next Recipient Fields registered, a value of Recipients Subfield is generated is follows:

   1) Recipient is set to the registered value of "next-recipient";

   2) Action Request is set to the registered value of "next-recipient-action-request";

   3) EDI Notification Requests is set to the registered value of "next-recipient-edi-notification-requests-field";

   4) Responsibility Passing Allowed is set to the registered value of "next-responsibility-passing-allowed".

18.7.2 EDI auto-correlate auto-action

The EDI auto-correlate auto-action correlates EDIMs and EDINs related in the following ways:

a) an EDIM and the EDINs indicating positive, negative, or forwarded notification;

b) an EDIM and the EDIMs which subsequently forward it, or render it obsolete, or cross-reference it, or are related to it.

The auto-action is performed whenever an EDIM or EDIN is submitted or delivered. The EDI auto-correlate auto-action is provided by subscription only, and not by registration using the Register-MS abstract-operation of ITU-T Rec. X.413 | ISO/IEC 10021-5.

```
edi-auto-correlate AUTO-ACTION ::= {
    IDENTIFIED BY    id-act-edi-auto-correlate }
```

The EDI-specific attributes which support EDI auto-correlate are defined in 18.8.6, and the additional procedures necessary for the support of this auto-action are defined in 18.9.1.1. The performance of the EDI auto-correlate auto-action shall not cause the creation of an entry in the Auto-action-log entry-class.

18.7.3 EDI auto-acknowledgement auto-action

The **EDI auto-acknowledgement** auto-action enables the IPMS-MS-user to instruct the EDI-MS to automatically originate PNs on the user's behalf. The auto-action is performed when the retrieval-status of an EDI entry in the Delivery entry-class changes to *processed.* The PN is originated only if PN was requested of this user for this EDIM by means of the EDI Notification Requests component of the relevant Recipient field. The RN shall have the common fields as prescribed in 17.3.1.1 and shall be submitted as prescribed in 17.3.1.2. Use of this auto-action implies acceptance of responsibility whenever a delivered EDIM becomes *processed*.

NOTE 1 – No PN should be generated for an EDIM which has been the subject of DL-expansion.

NOTE 2 – A PN is not originated for an entry whose retrieval-status changes to *processed* as a consequence of EDI auto-forwarding.

NOTE 3 – An abstract-association might terminate abnormally after a PN has been submitted by the EDI-MS, but before the fetch-result that caused the EDI auto-acknowledgement has been received by the EDI-MS-user. The EDI-MS has no detection or recovery mechanisms for this case.

The EDI-auto-acknowledgement-registration-parameter may specify the PN-supplementary-information field of each PN generated by EDI auto-acknowledgement, and the submission-options that shall apply (see 8.1.6 of ITU-T Rec. X.413 | ISO/IEC 10021-5). In submission-options, the value *draft* is not permitted for the object-entry-class component; the MS-submission-extensions component shall be absent. If the submission-options parameter is omitted, it assumes the value of submission-defaults, as registered by means of Register-MS; see 8.2.5.1 item h) of ITU-T Rec. X.413 | ISO/IEC 10021-5.

```
edi-auto-acknowledgement AUTO-ACTION ::= {
    REGISTRATION PARAMETER IS EDIAutoAcknowledgementRegistrationParameter
    ERRORS                    {submission-control-violated | recipient-improperly-specified |
                              element-of-service-not-subscribed | originator-invalid |
                              inconsistent-request | security-error | remote-bind-error |
                              unsupported-critical-function | duplicate-edin}
    IDENTIFIED BY             id-act-edi-auto-acknowledgement }

EDIAutoAcknowledgementRegistrationParameter ::= SET {
    auto-acknowledge-suppl-receipt-info  [0]  EDISupplementaryInformation OPTIONAL,
    submission-options                   [1]  MSSubmissionOptions OPTIONAL }
```

The performance of the EDI auto-acknowledgement auto-action may cause the creation of an entry in the Auto-action-log entry-class, subject to subscription to the Auto-action-log entry-class. Where an EDIN has already been generated for a delivered EDIM, (except for an auto-forwarded EDIM where an FN indicating EDI-auto-forwarded has already been sent), EDI auto-acknowledgement fails and generates the following error:

```
duplicate-edin AUTO-ACTION-ERROR ::= {
    CODE    global:id-aae-duplicate-edin }
```

Support of the EDI auto-acknowledgement auto-action by an EDI-MS, or UA accessing an EDI-MS, requires that it supports a single registration of the EDI-auto-acknowledgement-registration-parameter by means of the Register-MS abstract-operation. The registration-identifier component of auto-action-registration shall be absent when registration is requested. The IPM auto-acknowledgement auto-action shall not be subscribed to unless the AC Submitted EDIN Status attribute or EDI Notification Indicator attribute is also subscribed to.

18.7.4 Auto-action performance

Table 1 shows the various events that may cause the creation of an entry in the EDI-MS, and indicates which general and EDI-specific auto-actions are performed consequently for each type of event, and their order of execution (reading left to ight).

Table 1 – Order of auto-action execution

Event	Auto-action				
	Auto-correlate-reports	EDI auto-correlate	Auto-modify	EDI auto-forward	Auto-alert
EDIM delivery	–	Y	Y	Y	Y
EDIN delivery	–	Y	Y	–	Y
Report delivery	Y	–	Y	–	Y
Submit EDIM	Y	Y	Y	–	–
Submit EDIN	Y	Y	Y	–	–
Submit probe	Y	–	Y	–	–
Create draft	–	–	Y	–	–

Table 2 – Summary of EDI-specific MS attribute-types

Attribute	Single/ Multi valued	Support level by MS and UA	Presence in delivered EDIM	Presence in submitted EDIM	Presence in PN	Presence in NN	Presence in FN	Presence in Delivery-log	Presence in Submission-log	Available for list, alert	Available for summarize
acknowledgement-request-for-this-recipient	S	O	P	–	–	–	–	P	–	Y	N
action-request-for-this-recipient	S	O	P	–	–	–	–	P	–	Y	N
application-reference	S	O	C	C	–	–	–	C	C	Y	N
authorization-information-for-this-recipient	S	O	C	–	–	–	–	C	–	Y	N
body	S	M	P	P	–	–	–	–	–	N	N
communications-agreement-id-for-this-recipient	S	O	C	–	–	–	–	C	–	Y	N
cross-referencing-information	M	O	C	C	–	–	–	C	C	Y	N
date-and-time-of-preparation	S	M	C	C	–	–	–	C	C	Y	N
edi-application-security-elements	S	O	C	C	–	–	–	C	C	Y	N
edi-application-security-extentions	M	O	C	C	–	–	–	C	C	Y	N
edi-body-part	S	M	P	P	–	–	–	–	–	N	N
edi-bodypart-type	S	M	P	P	–	–	–	C	C	Y	Y
edi-message-type	M	M	C	C	–	–	–	C	C	Y	N
edi-notification-indicator	M	O	C	–	–	–	–	C	–	Y	N
edi-notification-requests-for-this-recipient	S	O	C	–	–	–	–	C	–	Y	N
edi-notification-security-for-this-recipient	S	O	C	–	–	–	–	C	–	Y	N
edi-reception-security-for-this-recipient	S	O	C	–	–	–	–	C	–	Y	N
edim-body-part	S	O	C	C	–	–	–	–	–	N	N
edim-synopsis	S	O	P	P	–	–	–	C	C	N	N
edims-entry-type	S	M	P	P	P	P	P	P	P	Y	Y
edin-initiator	S	O	–	–	P	P	P	C	C	Y	N
edin-originator	S	O	–	–	P	P	P	C	C	Y	N
edin-receiver	S	O	C	C	–	–	–	C	C	Y	N
expiry-time	S	O	C	C	–	–	–	C	C	Y	N
extended-body-part-types	M	O	C	C	–	–	–	–	–	Y	N
first-recipient	S	O	–	–	C	C	C	C	C	Y	N
fn-extensions	M	O	–	–	–	–	C	C	C	Y	N
fn-reason-code	S	O	–	–	–	–	P	C	C	Y	N
fn-supplementary-information	S	O	–	–	–	–	C	C	C	Y	N
forwarded-to	S	O	–	–	–	–	P	C	C	Y	N

Table 2 – Summary of EDI-specific MS attribute-types *(concluded)*

Attribute	Single/ Multi valued	Support level by MS and UA	Presence in delivered EDIM	Presence in submitted EDIM	Presence in PN	Presence in NN	Presence in FN	Presence in Delivery-log	Presence in Submission-log	Available for list, alert	Available for summarize
heading	S	M	P	P	–	–	–	–	–	N	N
heading-extensions	M	O	C	C	–	–	–	C	C	Y	N
incomplete-copy	S	O	P	P	–	–	–	C	C	Y	N
interchange-control-reference-for-this-recipient	S	M	C	–	–	–	–	C	–	Y	N
interchange-length	S	O	P	P	–	–	–	C	C	Y	N
interchange-recipient-for-this-recipient	S	M	C	–	–	–	–	C	–	Y	N
interchange-sender	S	M	C	C	–	–	–	C	C	Y	N
message-data	S	O	C	C	–	–	–	–	–	N	N
message-parameters	S	O	C	C	–	–	–	–	–	N	N
nn-extensions	M	O	–	–	–	C	–	C	C	Y	N
nn-reason-code	S	O	–	–	–	P	–	C	C	Y	N
nn-supplementary-information	S	O	–	–	–	C	–	C	C	Y	N
notification-security-elements	S	O	–	–	C	C	C	C	C	Y	N
notification-time	S	O	–	–	P	P	P	C	C	Y	N
notifications-extensions	M	O	–	–	C	C	C	C	C	Y	N
obsoleted-edims	M	O	C	C	–	–	–	C	C	Y	N
originator	S	O	C	C	–	–	–	C	C	Y	N
pn-extensions	M	O	–	–	C	–	–	C	C	Y	N
pn-supplementary-information	S	O	–	–	C	–	–	C	C	Y	N
processing-priority-code-for-this-recipient	S	O	C	–	–	–	–	C	–	Y	Y
recipient-extensions-for-this-recipient	M	O	C	–	–	–	–	C	–	Y	N
recipient-reference-for-this-recipient	S	O	C	–	–	–	–	C	–	Y	N
related-messages	M	O	C	C	–	–	–	C	C	Y	N
responsibility-forwarded	S	O	P	P	–	–	–	C	C	Y	Y
responsibility-passing-allowed-for-this-recipient	S	O	P	–	–	–	–	C	–	Y	N
service-string-advice	S	O	C	C	–	–	–	C	C	Y	N
subject-edim	S	M	–	–	P	P	P	C	C	Y	N
syntax-identifier	S	M	C	C	–	–	–	C	C	Y	Y
test-indicator-for-this-recipient	S	O	P	–	–	–	–	C	–	Y	Y
this-edim	S	M	P	P	–	–	–	P	P	Y	N
this-recipient	S	O	C	–	–	–	–	C	–	Y	N

Table 3 – Summary of EDI-specific correlation attributes

Attribute	Single/ multi valued	Support level by EDI-MS	Presence in delivered EDIM	Presence in submitted EDIM	Presence in EDIN	Available for List	Available for Summarize
AC Correlated Delivered EDINs	M	O	–	C	–	Y	N
AC Delivered EDIN Summary	M	O	–	C	–	Y	Y
AC EDIM Recipients	M	O	–	C	–	Y	N
AC Forwarded EDIMs	M	O	C	C	–	Y	N
AC Forwarding EDIMs	M	O	C	C	–	Y	N
AC Obsoleted EDIMs	M	O	C	C	–	Y	N
AC Obsoleting EDIMs	M	O	C	C	–	Y	N
AC Related EDIMs	M	O	C	C	–	Y	N
AC Relating EDIMs	M	O	C	C	–	Y	N
AC Subject EDIM	S	O	–	–	C	Y	N
AC Submitted EDIN Status	S	O	C	–	–	Y	N
AC Submitted EDINs	M	O	C	–	–	Y	N

18.8 Message Store Attributes

As described in ITU-T Rec. X.413 | ISO/IEC 10021-5, an MS maintains and provides access to certain attributes of each information object it holds. An attribute comprises a type and, depending upon the type, one or more values. Attributes that may assume several values simultaneously (all pertaining to one object) are termed multi-valued, those that may assume just one value, single-valued. Some attributes pertain to information objects of all kinds, others only to those of e.g. EDI messaging kind.

The following defines the MS attributes specific to EDI messaging. EDI specific attributes are defined below.

All of the attributes defined in this Recommendation | International Standard, except those corresponding to extended body part types (which cannot be enumerated), are contained in Tables 2 and 3. Table 2 records their presence in delivered and submitted message entries. None of them appears in a delivered report entry. Table 3 indicates the presence of the correlation attributes (see 18.8.6) in entries of the Stored-message and Message-log entry-classes. Except for the AC Subject EDIM attribute, these attributes shall not be present in entries representing EDINs. Table 4 describes how the EDI attributes are generated.

All attributes supported are available to the fetch abstract operation subject to support by the implementation and subscription.

NOTE – See 5.3 and 5.4 for an elaboration of the legend of the tables.

18.8.1 Summary Attributes

Some attributes summarize an EDI Messaging information object. These attributes are defined and described below.

18.8.1.1 EDIMS Entry Type

The EDIMS Entry Type attribute identifies an information object's type.

```
edims-entry-type ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX  EDIMSEntryType,
    EQUALITY MATCHING-RULE integerMatch,
    NUMERATION             single-valued,
    ID                     id-sat-edims-entry-type }

EDIMSEntryType ::= ENUMERATED {
    edim (0),
    pn (1),
    nn (2),
    fn (3) }
```

This attribute may assume any one of the following values:

a) *edim:* The information object is an EDIM.

b) *pn:* The information object is a PN.

c) *nn:* The information object is an NN.

d) *fn:* The information object is an FN.

An MS that supports this attribute shall maintain it for an information object that it holds if, and only if, that object is a message whose content is an EDIM or EDIN.

18.8.1.2 EDIM Synopsis

The EDIM Synopsis attribute gives the structure, characteristics, size, and processing status of an EDIM at the granularity of individual body parts. This attribute is created when an EDIM is delivered to the MS.

```
edim-synopsis ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX   EDIMSynopsis,
    NUMERATION              single-valued,
    ID                      id-sat-edim-synopsis }
```

The synopsis of an EDIM comprises a synopsis of each of its body parts. The synopsis appear in the order in which the body parts appear.

```
EDIMSynopsis ::= SEQUENCE OF BodyPartSynopsis
```

The synopsis of a body part takes either of two forms depending upon whether the body part is of type Message or Non-message (i.e. body-parts other than a forwarded EDIM). This enables the synopsis of a forwarding EDIM to encompass the body parts of each forwarded EDIM (recursively), as well as those of the forwarding EDIM itself.

```
BodyPartSynopsis ::= CHOICE {
    message         [0] MessageBodyPartSynopsis,
    non-message     [1] NonMessageBodyPartSynopsis }

MessageBodyPartSynopsis ::= SEQUENCE {
    number          [0] SequenceNumber,
    synopsis        [1] EDIMSynopsis }

NonMessageBodyPartSynopsis ::= SEQUENCE {
    type            [0] OBJECT IDENTIFIER,
    parameters      [1] INSTANCE OF TYPE-IDENTIFIER OPTIONAL,
    size            [2] INTEGER,
    processed       [3] BOOLEAN DEFAULT FALSE }
```

The synopsis of a Message body part has the following components:

a) *Number:* The sequence number that the MS assigns to the entry that the Message body part represents. This component is generated when a child-entry is created.

b) *Synopsis:* The synopsis of the EDIM that forms the content of the message that the body part represents. This component is generated when a child-entry is created.

The synopsis of a body part of type other than Message has the following components. For purposes of this synopsis, the body part is considered to be of type Extended, whether or not it was so conveyed to the MS:

c) *Type:* This value is generated when the entry is created. If the Non-message Body Part is an edi-body-part, the value is the object identifier value contained in the edi-bodypart-type attribute contained in this entry. If it is a removed-edi-body, the value is set to "id-syn-removed" (see Annex A). If it is a place-holder, the value is set to "id-syn-place-holder" (again, see Annex A). If it is an external-body-part, the value is set to the Direct-reference component of the body part's Data component.

d) *Parameters:* This value is generated if the Non-message Body Part is an extended-body-part. It contains that body part's Parameter component, which may describe the body part's format and control parameters.

e) *Size:* This value is created when the entry is created. The value is set to the size in octets of the encoding of the Encoding component of the body part's Data component when the Basic Encoding Rules of ITU-T Rec. X.690 | ISO/IEC 8825-1 are followed. If those rules permit several (e.g. both primitive and constructed) encodings of the component, the size may reflect any one of them.

f) *Processed (default false):* An indication of whether or not the body part has been conveyed to the UA by means of the MS Fetch abstract operation, or has been processed by an auto-action and the definition of that auto-action causes a change of entry-status. This value is set to the default value when the EDIM is delivered to the MS and is updated as described in 18.4.

An MS that supports this attribute shall maintain it for an information object that it holds if, and only if, that object is a message whose content is an EDIM.

As a consequence of its variability, the value of the Size component should be considered only an estimate of the body part's size.

18.8.2 EDI Notification Indicator

The EDI Notification Indicator attribute contains information about whether any EDI Notifications have been sent by the MS in response to an EDIM, and if so which type of EDI Notifications were sent. The MS creates this attribute for each new EDIM and maintains the attribute values, depending on the auto-actions performed.

NOTE 1 – When notifications are generated by the UA, the values of this attribute are not affected.

NOTE 2 – In previous editions, the following attribute was erroneously defined as multi-valued.

```
edi-notification-indicator ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX   EDINotificationIndicator,
    EQUALITY MATCHING-RULE  integerMatch,
    NUMERATION              single-valued,
    ID                      id-sat-edi-notification-indicator }

EDINotificationIndicator ::= ENUMERATED {
    no-notification-sent   (0),
    pn-sent                (1),
    nn-sent                (2),
    fn-sent                (3) }
```

Each value of this attribute may assume one of the following values:

a) *no-notification-sent:* This is the initial value set by the MS when a new MS entry is created for the EDIM.

b) *pn-sent:* This value means that the MS has generated and sent a Positive Notification (PN) in response to a request for a PN.

c) *nn-sent:* This value means that the MS has generated and sent a Negative Notification (NN) in response to a request for an NN.

d) *fn-sent:* This value means that the MS has generated and sent a Forwarded Notification (FN) in response to a request for an FN.

18.8.3 Heading Attributes

Some attributes are derived from the Heading of an EDIM. These attributes are defined and described below.

18.8.3.1 Heading

The Heading attribute is the (entire) Heading of an EDIM.

```
heading ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    Heading,
    NUMERATION               single-valued,
    ID                       id-hat-heading }
```

An MS that supports this attribute shall maintain it for an information object that it holds if, and only if, that object is a message whose content is an EDIM.

18.8.3.2 Heading fields

Some attributes bear the names of Heading fields and have those fields as their values. Some attributes bear the names of Heading fields and have sub-fields of those fields as their values. See 8.2 for semantics.

```
this-edim ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    ThisEDIMField,
    EQUALITY MATCHING-RULE   iPMIdentifierMatch,
    NUMERATION               single-valued,
    ID                       id-hat-this-edim }

originator ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    OriginatorField,
    EQUALITY MATCHING-RULE   oRNameMatch,
    NUMERATION               single-valued,
    ID                       id-hat-originator }
```

```
edin-receiver ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    EDINReceiverField,
    -- EQUALITY MATCHING-RULE   rule not defined --
    NUMERATION               single-valued,
    ID                       id-hat-edin-receiver }


responsibility-forwarded ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    ResponsibilityForwarded,
    EQUALITY MATCHING-RULE   booleanMatch,
    NUMERATION               single-valued,
    ID                       id-hat-responsibility-forwarded }


edi-bodypart-type ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    EDIBodyPartType,
    EQUALITY MATCHING-RULE   objectIdentifierMatch,
    NUMERATION               single-valued,
    ID                       id-hat-edi-bodypart-type }


incomplete-copy ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    IncompleteCopyField,
    EQUALITY MATCHING-RULE   booleanMatch,
    NUMERATION               single-valued,
    ID                       id-hat-incomplete-copy }


expiry-time ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    ExpiryTimeField,
    EQUALITY MATCHING-RULE   uTCTimeMatch,
    ORDERING MATCHING-RULE   uTCTimeOrderingMatch, -- not defined in version 1 --
    NUMERATION               single-valued,
    ID                       id-hat-expiry-time }


related-messages ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    RelatedMessageReference,
    -- EQUALITY MATCHING-RULE   rule not defined --
    NUMERATION               multi-valued,
    ID                       id-hat-related-messages }


obsoleted-edims ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    ObsoletedEDIMsSubfield,
    EQUALITY MATCHING-RULE   iPMIdentifierMatch,
    NUMERATION               multi-valued,
    ID                       id-hat-obsoleted-edims }


edi-application-security-element ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    EDIApplicationSecurityElement,
    EQUALITY MATCHING-RULE   bitStringMatch,
    NUMERATION               single-valued,
    ID                       id-hat-edi-application-security-element }


edi-application-security-extensions ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    EDIApplicationSecurityExtension,
    EQUALITY MATCHING-RULE   bitStringMatch,
    NUMERATION               multi-valued,
    ID                       id-hat-edi-application-security-extensions }


cross-referencing-information ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    CrossReferencingInformationSubField,
    EQUALITY MATCHING-RULE   bitStringMatch,
    NUMERATION               multi-valued,
    ID                       id-hat-cross-referencing-information }
```

Fields from EDIFACT Interchange:

```
edi-message-type ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    EDIMessageTypeFieldSubField,
    EQUALITY MATCHING-RULE   mSStringMatch,
    NUMERATION               multi-valued,
    ID                       id-hat-edi-message-type }


service-string-advice ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    ServiceStringAdviceField,
    -- EQUALITY MATCHING-RULE   rule not defined --
    NUMERATION               single-valued,
    ID                       id-hat-service-string-advice }
```

```
syntax-identifier ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    SyntaxIdentifierField,
    -- EQUALITY MATCHING-RULE   rule not defined --
    NUMERATION               single-valued,
    ID                       id-hat-syntax-identifier }


interchange-sender ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    InterchangeSenderField,
    -- EQUALITY MATCHING-RULE   rule not defined --
    NUMERATION               single-valued,
    ID                       id-hat-interchange-sender }


date-and-time-of-preparation ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    DateAndTimeOfPreparationField,
    EQUALITY MATCHING-RULE   uTCTimeMatch,
    ORDERING MATCHING-RULE   uTCTimeOrderingMatch, -- rule not defined in version 1 --
    NUMERATION               single-valued,
    ID                       id-hat-date-and-time-of-preparation }


application-reference ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    ApplicationReferenceField,
    EQUALITY MATCHING-RULE   mSStringMatch,
    SUBSTRINGS MATCHING-RULE mSSubstringsMatch,
    NUMERATION               single-valued,
    ID                       id-hat-application-reference }
```

Heading extensions:

```
heading-extensions ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    HeadingExtensionsSubField,
    -- EQUALITY MATCHING-RULE   rule not defined --
    NUMERATION               multi-valued,
    ID                       id-hat-heading-extensions }
```

An MS that supports one of these attributes shall maintain it for an information object that it holds if, and only if, that object is a message whose content is an EDIM whose Heading contains the field or sub-field whose name the attribute bears.

18.8.3.3 Recipient sub-field

Some attributes bear the names of Recipient fields and have sub-fields of those fields as their values. See 8.2.3 for semantics.

```
this-recipient ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    RecipientField,
    EQUALITY MATCHING-RULE   oRNameMatch,
    NUMERATION               single-valued,
    ID                       id-rat-this-recipient }


action-request-for-this-recipient ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    ActionRequestField,
    EQUALITY MATCHING-RULE   objectIdentifierMatch,
    NUMERATION               single-valued,
    ID                       id-rat-action-request-for-this-recipient }


edi-notification-requests-for-this-recipient ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    EDINotificationRequests,
    EQUALITY MATCHING-RULE   bitStringMatch,
    NUMERATION               single-valued,
    ID                       id-rat-edi-notification-requests-for-this-recipient }


edi-notification-security-for-this-recipient ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    EDINotificationSecurity,
    EQUALITY MATCHING-RULE   bitStringMatch,
    NUMERATION               single-valued,
    ID                       id-rat-edi-notification-security-for-this-recipient }


edi-reception-security-for-this-recipient ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    EDIReceptionSecurity,
    EQUALITY MATCHING-RULE   bitStringMatch,
    NUMERATION               single-valued,
    ID                       id-rat-edi-reception-security-for-this-recipient }
```

```
  responsibility-passing-allowed-for-this-recipient ATTRIBUTE ::= {
      WITH ATTRIBUTE-SYNTAX    ResponsibilityPassingAllowedField,
      EQUALITY MATCHING-RULE   booleanMatch,
      NUMERATION               single-valued,
      ID                       id-rat-responsibility-passing-allowed-for-this-recipient }

-- Fields from EDIFACT interchange

  interchange-recipient-for-this-recipient ATTRIBUTE ::= {
      WITH ATTRIBUTE-SYNTAX    InterchangeRecipientField,
      -- EQUALITY MATCHING-RULE   rule not defined --
      NUMERATION               single-valued,
      ID                       id-rat-interchange-recipient-for-this-recipient }

  recipient-reference-for-this-recipient ATTRIBUTE ::= {
      WITH ATTRIBUTE-SYNTAX    RecipientReferenceField,
      -- EQUALITY MATCHING-RULE   rule not defined --
      NUMERATION               single-valued,
      ID                       id-rat-recipient-reference-for-this-recipient }

  interchange-control-reference-for-this-recipient ATTRIBUTE ::= {
      WITH ATTRIBUTE-SYNTAX    InterchangeControlReferenceField,
      EQUALITY MATCHING-RULE   mSStringMatch,
      SUBSTRINGS MATCHING-RULE mSSubstringsMatch,
      NUMERATION               single-valued,
      ID                       id-rat-interchange-control-reference-for-this-recipient }

  processing-priority-code-for-this-recipient ATTRIBUTE ::= {
      WITH ATTRIBUTE-SYNTAX    ProcessingPriorityCodeField,
      EQUALITY MATCHING-RULE   mSStringMatch,
      NUMERATION               single-valued,
      ID                       id-rat-processing-priority-code-for-this-recipient }

  acknowledgement-request-for-this-recipient ATTRIBUTE ::= {
      WITH ATTRIBUTE-SYNTAX AcknowledgementRequestField,
      EQUALITY MATCHING-RULE   booleanMatch,
      NUMERATION               single-valued,
      ID                       id-rat-acknowledgement-request-for-this-recipient }

  communications-agreement-id-for-this-recipient ATTRIBUTE ::= {
      WITH ATTRIBUTE-SYNTAX    CommunicationsAgreementIdField,
      EQUALITY MATCHING-RULE   mSStringMatch,
      SUBSTRINGS MATCHING-RULE mSSubstringsMatch,
      NUMERATION               single-valued,
      ID                       id-rat-communications-agreement-id-for-this-recipient }

  test-indicator-for-this-recipient ATTRIBUTE ::= {
      WITH ATTRIBUTE-SYNTAX    TestIndicatorField,
      EQUALITY MATCHING-RULE   booleanMatch,
      NUMERATION               single-valued,
      ID                       id-rat-test-indication-for-this-recipient }

-- END Fields from EDIFACT

-- Fields from ANSIX12 ISA

  authorization-information-for-this-recipient ATTRIBUTE ::= {
      WITH ATTRIBUTE-SYNTAX    AuthorizationInformationField,
      -- EQUALITY MATCHING-RULE   rule not defined --
      NUMERATION               single-valued,
      ID                       id-rat-authorization-information-for-this-recipient }

-- END Fields from ANSIX12 ISA
```

Extensions:

```
  recipient-extensions-for-this-recipient ATTRIBUTE ::= {
      WITH ATTRIBUTE-SYNTAX    RecipientExtensionsSubField,
      -- EQUALITY MATCHING-RULE   rule not defined --
      NUMERATION               multi-valued,
      ID                       id-rat-recipient-extensions-for-this-recipient }
```

An MS that supports one of these attributes shall maintain it for an information object that it holds if, and only if, that object is a message whose content is an EDIM whose Heading Recipients field contains the field whose name the attribute bears. It shall maintain one attribute value for each sub-field.

18.8.4 Body Attributes

Some attributes are derived from the Body of an EDIM. These attributes are defined and described below.

18.8.4.1 Body

The Body attribute is the (entire) Body of an EDIM.

```
body ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    Body,
    NUMERATION               single-valued,
    ID                       id-bat-body }
```

An MS that supports this attribute shall maintain it for an information object that it holds if, and only if, that object is a message whose content is an EDIM.

18.8.4.2 Body Analyses

Some attributes have as their values information about the body parts contained in the body of the message.

The interchange length attribute is created by the Message Store when it receives an EDIM. Its value indicates the length of the EDI Interchange carried in the Primary Body Part of the message.

```
interchange-length ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    InterchangeLength,
    ORDERING MATCHING-RULE   integerOrderingMatch,
    NUMERATION               single-valued,
    ID                       id-bat-interchange-length }

InterchangeLength ::= INTEGER
```

The Interchange Length gives the number of octets occupied by the EDI Interchange.

18.8.4.3 Primary Body Parts

Some attributes bear the names of the Primary Body Part types and have such body parts as their values. See 8.3.1 for semantics.

```
edi-body-part ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    EDIBodyPart,
    NUMERATION               single-valued,
    ID                       id-bat-edi-body-part }
```

An MS holds each forwarded EDIM (i.e. each Message body part) as an information object in its own right, separate from the forwarding EDIM. (stored as a separate child entry in the stored-messages entry-class). That information object, of course, is a message whose content is an EDIM. The EDIM Body Part attribute below, therefore, has as its value the sequence number the MS assigns to those messages. See 8.3.2 for semantics.

```
edim-body-part ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    SequenceNumber, -- sequence number of the forwarded EDIM
                                             -- entry
    NUMERATION               single-valued,
    ID                       id-bat-edim-body-part }
```

An MS that supports one of these attributes shall maintain it for an information object that it holds if, and only if, that object is a message whose content is an EDIM. It shall maintain one attribute value for such a body part.

Some attributes bear the names of the Parameters and Data components of an EDIM Body Part and have the Parameters and Data components as their values.

```
message-parameters ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    MessageParameters,
    NUMERATION               single-valued,
    ID                       id-bat-message-parameters }

message-data ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    MessageData,
    NUMERATION               single-valued,
    ID                       id-bat-message-data }
```

An MS that supports these attributes shall maintain it for an information object that it holds if, and only if, that object is a message whose content is an EDIM whose Body contains an EDIM Body Part.

18.8.4.4 Extended Body Part Types

The Extended Body Part Types attribute identifies the extended body part types represented in an EDIM.

```
extended-body-part-types ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    OBJECT IDENTIFIER,
    EQUALITY MATCHING-RULE   objectIdentifierMatch,
    NUMERATION               multi-valued,
    ID                       id-bat-extended-body-part-types }
```

An MS that supports this attribute shall maintain it for an information object that it holds if, and only if, that object is a message whose content is an EDIM whose Body contains one or more Additional body parts. It shall maintain one attribute value for every such type present. The value shall denote the type as specified in 7.3.1 of ITU-T Rec. X.420 | ISO/IEC 10021-7.

NOTE 1 – When a new extended body part type and a new EIT are defined and have a one to one relationship, then the same Object Identifier may be used for the data component and the EIT.

NOTE 2 – Some Extended body part types are defined in ITU-T Rec. X.420 | ISO/IEC 10021-7. Values are as specified in 7.3.1 of ITU-T Rec. X.420 | ISO/IEC 10021-7.

18.8.4.5 Extended Body Parts

Some attributes, unnamed, have as their values the value components of the Sequence type associated with the instance-of type that constitutes the Data (and Parameters) components of Extended Body Parts. See C.7 of ITU-T Rec. X.681 | ISO/IEC 8824-2.

To each extended body part type there corresponds two attributes. The first attribute is denoted by the object identifier that is the &id field of the TYPE-IDENTIFIER that constitutes the Data component of a body part of that type. The content of this first attribute contains the Body Part Reference and the Extended Body Part encoded as an EDIM-ExtendedBodyPart (see 8.3.3).

The second attribute is denoted by the object identifier that is the &id field of the TYPE-IDENTIFIER that constitutes the Parameters component of a body part of that type. The content of this second attribute contains the Body Part Reference and the Parameters component encoded as follows:

```
EDIExtendedBodyPartParameterAttribute ::= SEQUENCE {
    body-part-reference      [0] BodyPartReference OPTIONAL,
    parameter                [1] EXTENDED-BODY-PART-TYPE.&parameters }
```

An MS that supports one of these body parts shall maintain both attributes for an information object that it holds if, and only if, that object is a message whose content is an EDIM whose Body contains one or more body parts of the type that corresponds to that attribute. It shall maintain one value of each attribute for each such body part.

NOTE – The extended body part attributes cannot be enumerated in practice because the extended body part types cannot be so enumerated.

The Extended Body Part Types attribute determines the Extended Body Part Types for a particular EDIM.

18.8.5 Notification Attributes

Some attributes are derived from an EDIN. These attributes are defined and described below.

18.8.5.1 Common fields

Some attributes bear the names of Common fields and have those fields as their values. See 9.1 for semantics.

```
subject-edim ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    SubjectEDIMField,
    EQUALITY MATCHING-RULE   iPMIdentifierMatch,
    NUMERATION               single-valued,
    ID                       id-nat-subject-edim }

edin-originator ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    EDINOriginatorField,
    EQUALITY MATCHING-RULE   oRNameMatch,
    NUMERATION               single-valued,
    ID                       id-nat-edin-originator }

first-recipient ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    FirstRecipientField ,
    EQUALITY MATCHING-RULE   oRNameMatch,
    NUMERATION               single-valued,
    ID                       id-nat-first-recipient }
```

```
notification-time ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    NotificationTimeField,
    EQUALITY MATCHING-RULE   uTCTimeMatch,
    ORDERING MATCHING-RULE   uTCTimeOrderingMatch, -- rule not defined in version 1 --
    NUMERATION               single-valued,
    ID                       id-nat-notification-time }

notification-security-elements ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    SecurityElementsField,
    -- EQUALITY MATCHING-RULE   rule not defined --
    NUMERATION               single-valued,
    ID                       id-nat-notification-security-elements }

edin-initiator ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    EDINInitiatorField,
    EQUALITY MATCHING-RULE   integerMatch,
    NUMERATION               single-valued,
    ID                       id-nat-edin-initiator }
```

Some attributes bear the names of notification fields and have subfields of the Common fields of a notification as their values.

```
notification-extensions ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    NotificationExtensionsSubField,
    -- EQUALITY MATCHING-RULE   rule not defined --
    NUMERATION               multi-valued,
    ID                       id-nat-notification-extensions }
```

An MS that supports one of these attributes shall maintain it for an information object that it holds if, and only if, that object is a message whose content is an EDIN that contains the field or subfield whose name the attribute bears.

18.8.5.2 Positive Notification fields

Some attributes bear the names of PN EDIN fields and have those fields as their values. Some attributes bear the names of notification fields and have subfields of the PN fields of a notification as their values. See 9.2 for semantics.

```
pn-supplementary-information ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    EDISupplementaryInformation,
    EQUALITY MATCHING-RULE  mSStringMatch,
    SUBSTRINGS MATCHING-RULE mSSubstringsMatch,
    NUMERATION               single-valued,
    ID                       id-nat-pn-supplementary-info }

pn-extensions ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    PNExtensionsSubField,
    -- EQUALITY MATCHING-RULE   rule not defined --
    NUMERATION               multi-valued,
    ID                       id-nat-pn-extensions }
```

An MS that supports one of these attributes shall maintain it for an information object that it holds if, and only if, that object is a message whose content is a PN that contains the field whose name the attribute bears. It shall maintain one attribute value for each subfield.

18.8.5.3 Negative Notification fields

Some attributes bear the names of NN EDIN fields and have those fields as their values. Some attributes bear the names of notification fields and have subfields of the NN fields of a notification as their values. See 9.3 for semantics.

```
nn-reason-code ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    NNReasonCodeField,
    -- EQUALITY MATCHING-RULE   rule not defined --
    NUMERATION               single-valued,
    ID                       id-nat-nn-reason-code }

nn-supplementary-information ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    EDISupplementaryInformation,
    EQUALITY MATCHING-RULE   mSStringMatch,
    SUBSTRINGS MATCHING-RULE mSSubstringsMatch,
    NUMERATION               single-valued,
    ID                       id-nat-nn-supplementary-info }

nn-extensions ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    NNExtensionsSubField,
    -- EQUALITY MATCHING-RULE   rule not defined --
    NUMERATION               multi-valued,
    ID                       id-nat-nn-extensions }
```

An MS that supports one of these attributes shall maintain it for an information object that it holds if, and only if, that object is a message whose content is an NN that contains the field whose name the attribute bears. It shall maintain one attribute value for each field or subfield.

18.8.5.4 Forwarded Notification fields

Some attributes bear the names of FN EDIN fields and have those fields as their values. Some attributes bear the names of notification fields and have subfields of the FN fields of a notification as their values. See 9.4 for semantics.

```
forwarded-to ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    ForwardedTo,
    EQUALITY MATCHING-RULE   oRNameMatch,
    NUMERATION               single-valued,
    ID                       id-nat-forwarded-to }

fn-reason-code ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    FNReasonCodeField,
    -- EQUALITY MATCHING-RULE   rule not defined --
    NUMERATION               single-valued,
    ID                       id-nat-fn-reason-code }

fn-supplementary-information ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    EDISupplementaryInformation,
    EQUALITY MATCHING-RULE   mSStringMatch,
    SUBSTRINGS MATCHING-RULE mSSubstringsMatch,
    NUMERATION               single-valued,
    ID                       id-nat-fn-supplementary-info }

fn-extensions ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX    FNExtensionsSubField,
    -- EQUALITY MATCHING-RULE   rule not defined --
    NUMERATION               multi-valued,
    ID                       id-nat-fn-extensions }
```

An MS that supports one of these attributes shall maintain it for an information object that it holds if, and only if, that object is a message whose content is an FN that contains the field whose name the attribute bears. It shall maintain one attribute value for each field or subfield.

18.8.6 Correlation Attributes

Some attributes correlate messages which are interrelated in various ways:

a) an EDIM and the EDINs conveying positive, negative, or forwarding notification;

b) an EDIM and the EDIMs which subsequently forward it, or obsolete it, or cross-reference it, or are related to it.

Some attributes are relevant to all submitted and delivered EDIMs; others are specific to submitted-message entries, and correlate the delivered EDINs received in response to a submitted EDIM; others still are specific to delivered-message entries, and correlate the EDINs generated by this EDI-MS-user in response to a delivered message. All the Correlation attributes defined in this clause are generated by the EDI-MS.

The deletion of an entry referred to by one of the correlation attributes has no effect on the value of that attribute.

18.8.6.1 Common attributes

Some attributes, common to the entries of both the Submission and Delivery entry-classes (and corresponding entries of the Message-log entry-class), correlate an EDIM with the EDIMs which indicate in their Heading fields that they render it obsolete, or are related to it, or cross-reference it, or have forwarded it. A further common attribute correlates an EDIN with the EDIM entry to which it refers.

18.8.6.1.1 AC Forwarding EDIMs

The **AC Forwarding EDIMs** attribute, which is multi-valued, contains the sequence-numbers of the EDIM entries that bear the present EDIM as an EDIM body-part. One value of the attribute shall be generated for each forwarding EDIM containing the message. The attribute values are stored in ascending order of the forwarding entries' creation times.

```
ac-forwarding-edims ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX     SequenceNumber,
    EQUALITY MATCHING-RULE    integerMatch,
    ORDERING MATCHING-RULE    integerOrderingMatch,
    NUMERATION                multi-valued,
    ID                        id-cat-forwarding-edims }
```

An EDI-MS that supports this attribute shall maintain it for an information object that it holds (and the Message-log entry for such an object) if, and only if, that object is a message whose content is an EDIM, which has been the subject of forwarding.

18.8.6.1.2 AC Forwarded EDIMs

The **AC Forwarded EDIMs** attribute, which is multi-valued, contains the sequence-numbers of the stored EDIMs that correspond to the EDIM body-part that the present child-entry represents. One value of the attribute shall be generated for each stored EDIM that corresponds to the body-part that the present entry represents. Each value indicates the sequence-number of the corresponding EDIM. The attribute is absent unless at least one EDIM entry exists that corresponds to this EDIM body-part.

```
ac-forwarded-edims ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX      SequenceNumber,
    EQUALITY MATCHING-RULE     integerMatch,
    ORDERING MATCHING-RULE     integerOrderingMatch,
    NUMERATION                 multi-valued,
    ID                         id-cat-forwarded-edims }
```

An EDI-MS that supports this attribute shall maintain it for an information object that it holds (and the Message-log entry for such an object) if, and only if, that object is a child-entry that represents an EDIM body part which correspond to at least one EDIM present in the EDI-MS.

18.8.6.1.3 AC Obsoleting EDIMs

The **AC Obsoleting EDIMs** attribute, which is multi-valued, contains the sequence-numbers of the EDIM entries that indicate, by means of their Obsoleted EDIMs heading field, that they render obsolete the present EDIM. The attribute values are stored in ascending order of the obsoleting entries’ creation times.

```
ac-obsoleting-edims ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX      SequenceNumber,
    EQUALITY MATCHING-RULE     integerMatch,
    ORDERING MATCHING-RULE     integerOrderingMatch,
    NUMERATION                 multi-valued,
    ID                         id-cat-obsoleting-edims }
```

An EDI-MS that supports this attribute shall maintain it for an information object that it holds (and the Message-log entry for such an object) if, and only if, that object is a message whose content is an EDIM, to which at least one EDIM refers in its Obsoleted EDIMs heading field.

18.8.6.1.4 AC Obsoleted EDIMs

The **AC Obsoleted EDIMs** attribute, which is multi-valued, contains the sequence-numbers of the EDIM entries identified by the Obsoleted EDIMs heading field of the present EDIM. One value of the attribute shall be generated for each subfield of the Obsoleted EDIMs heading field. The value *stored* indicates the one or more EDIM entries identified by a given subfield. The value *absent* indicates that no EDIM entry corresponds to a given subfield. The attribute values are stored in the same order as the corresponding values of the heading field. The attribute is absent unless at least one EDIM entry exists that is identified by a subfield of the Obsoleted EDIMs heading field.

```
ac-obsoleted-edims ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX      EDIMLocation,
    OTHER MATCHING-RULES       {iPMLocationMatch, ...}, -- from ITU-T Rec. X.420 |
                                                          ISO/IEC 10021-7
    NUMERATION                 multi-valued,
    ID                         id-cat-obsoleted-edims }

EDIMLocation ::= CHOICE {
    stored          SET OF SequenceNumber,
    absent          NULL,
    ... }
```

An EDI-MS that supports this attribute shall maintain it for an information object that it holds (and the Message-log entry for such an object) if, and only if, that object is a message whose content is an EDIM, which identifies in its Obsoleted EDIMs heading field one or more EDIMs present in the EDI-MS.

18.8.6.1.5 AC Relating EDIMs

The **AC Relating EDIMs** attribute, which is multi-valued, contains the sequence-numbers of the EDIM entries which indicate, by means of their Related Messages heading field, that they are related to the present EDIM. The attribute values are stored in ascending order of the relating entries' creation times.

```
ac-relating-edims ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX     SequenceNumber,
    EQUALITY MATCHING-RULE    integerMatch,
    ORDERING MATCHING-RULE    integerOrderingMatch,
    NUMERATION                multi-valued,
    ID                        id-cat-relating-edims }
```

An EDI-MS that supports this attribute shall maintain it for an information object that it holds (and the Message-log entry for such an object) if, and only if, that object is a message whose content is an EDIM, to which at least one EDIM refers in its Related Messages heading field.

18.8.6.1.6 AC Related EDIMs

The **AC Related EDIMs** attribute, which is multi-valued, contains the sequence-numbers of the EDIM entries identified by the Related Messages heading field of the present EDIM. One value of the attribute shall be generated for each subfield of the Related Messages heading field. The value *stored* indicates the one or more EDIM entries identified by a given subfield. The value *absent* indicates that no EDIM entry corresponds to a given subfield. The attribute values are stored in the same order as the corresponding values of the heading field. The attribute is absent unless at least one EDIM entry exists that is identified by a subfield of the Related Messages heading field.

```
ac-related-edims ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX     EDIMLocation,
    OTHER MATCHING-RULES      {iPMLocationMatch, ...},
    NUMERATION                multi-valued,
    ID                        id-cat-related-edims }
```

An EDI-MS that supports this attribute shall maintain it for an information object that it holds (and the Message-log entry for such an object) if, and only if, that object is a message whose content is an EDIM, which identifies in its Related Messages heading field one or more EDIMs present in the EDI-MS.

18.8.6.1.7 AC Subject EDIM

The **AC Subject EDIMs** attribute contains the sequence-number of the EDIM entry to which the present EDIN refers.

```
ac-subject-edim ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX     SequenceNumber,
    EQUALITY MATCHING-RULE    integerMatch,
    ORDERING MATCHING-RULE    integerOrderingMatch,
    NUMERATION                single-valued,
    ID                        id-cat-subject-edim }
```

An EDI-MS that supports this attribute shall maintain it for an information object that it holds (and the Message-log entry for such an object) if, and only if, that object is a message whose content is an EDIN, and whose Subject EDIM common field identifies an EDIM entry. Its value shall be the sequence-number of the entry identified by the Subject EDIM common field.

18.8.6.2 Submitted message correlation

Some attributes correlate EDIMs submitted by this EDI-MS-user with the notifications subsequently delivered in response, and provide a summary of the notifications requested and those received.

NOTE – If a non-delivery-report is received concerning an intended recipient of a submitted message then no EDIN will be generated by that recipient. The UA can determine when this applies by examining the MS AC-report-summary attribute and correlating the recipients identified in the MS Recipient-names and AC EDIM Recipients attributes.

For any given entry, the number of values of each of the submitted message correlation attributes, defined below, shall be the same. The ordering of values in the attributes is aligned, such that all values at a given order position within the sequence of attribute-values refer to one of the intended recipients of the EDIM. The AC EDIM Recipients attribute shall be supported if any of the other attributes defined in 18.8.6.2 are supported.

18.8.6.2.1 AC EDIM Recipients

The **AC EDIM Recipients** attribute, which is multi-valued, contains one value for each Recipients subfield of the submitted EDIM. Where two or more Recipients subfields contain the same value of O/R name, a value is generated only for the first of these.

The order of values in this attribute is aligned with the order of values in the other attributes defined in 18.8.6.2.

NOTE – For example, the value containing the OR-name for a given recipient occupies the same position in this attribute as the position occupied by the value containing the delivered-edin-summary for the same recipient in the AC Delivered EDIN Summary attribute.

The values of this attribute are drawn from the corresponding Recipients subfields, as determined by the procedure indicated above.

```
ac-edim-recipients ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX     ORName,
    EQUALITY MATCHING-RULE    oRNameMatch,
    OTHER MATCHING-RULES      {oRnameElementsMatch | oRNameSubstringElementsMatch |
                               oRNameSingleElementMatch},
    NUMERATION                multi-valued,
    ID                        id-cat-edim-recipients }
```

An EDI-MS that supports this attribute shall maintain it for an information object that it holds (and the submission-log entry for such an object) if, and only if, that object is a submitted message whose content is an EDIM. It shall maintain one attribute value for each distinct Recipients subfield in the EDIM's Recipients fields.

18.8.6.2.2 AC Delivered EDIN Summary

The **AC Delivered EDIN Summary** attribute, which is multi-valued, contains a summary of the EDINs requested of, and generated by, or on behalf of, the AC EDIM Recipients of a submitted message. The initial values of AC Delivered EDIN Summary are set according to the values of the EDI Notification Requests component of each of the EDIM's Recipients subfields, and each value is updated as each EDIN is received. The order of values in this attribute is aligned with the order of values in the other attributes defined in 18.8.6.2.

```
ac-delivered-edin-summary  ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX     EDINStatus,
    EQUALITY MATCHING-RULE    bitStringMatch,
    NUMERATION                multi-valued,
    ID                        id-cat-delivered-edin-summary }

EDINStatus ::= BIT STRING {
    nn-requested              (0),
    fn-requested              (1),
    pn-requested              (2),
    nn-issued                 (3),
    fn-issued                 (4),
    pn-issued                 (5) }
```

A value of the attribute is present for each value present in the AC EDIM Recipients attribute. For each of positive notification, negative notification, and forwarded notification, the attribute indicates whether the EDI-MS-user requested a notification and whether a notification of that type has been received.

An EDI-MS that supports this attribute shall maintain it for an information object that it holds (and the submission-log entry for such an object) if, and only if, that object is a submitted message whose content is an EDIM. It shall maintain one attribute value for each value of the AC EDIM Recipients attribute. The initial values shall reflect the values of each Recipients subfield component of EDI Notification Requests.

18.8.6.2.3 AC Correlated Delivered EDINs

The **AC Correlated Delivered EDINs** attribute, which is multi-valued, identifies the delivered EDINs that have been correlated with each of the AC EDIM Recipients of a submitted EDIM. The initial value of the attribute is set for each of the AC EDIM Recipients and indicates that no EDINs have been received. The order of values in this attribute is aligned with the order of values in the other attributes defined in 18.8.6.2.

```
ac-correlated-delivered-edins ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX     CorrelatedDeliveredEDINs,
    NUMERATION                multi-valued,
    ID                        id-cat-correlated-delivered-edins }

CorrelatedDeliveredEDINs ::= CHOICE {
    no-edin-received   [0]    NULL,
    edins-received     [1]    SEQUENCE OF SequenceNumber }
```

The components of **correlated-delivered-EDINs** have the following meaning:

a) **No-EDIN-received** (C): No EDIN has been received from this intended recipient or from an actual recipient acting on his behalf. This is the initial value of the attribute.

b) **EDINs-received** (C): This identifies the sequence-numbers of the EDIN entries received from this intended recipient or the actual recipient acting on his behalf. The sequence-numbers are present in ascending order of the corresponding entries' creation times.

Each value of this attribute indicates that no EDIN has been received, or identifies each delivered-message entry which contains an EDIN, whose subject is the originally submitted EDIM, and whose originator received the EDIM as, or on behalf of, an intended recipient.

An EDI-MS that supports this attribute shall maintain it for an information object that it holds (and the submission-log entry for such an object) if, and only if, that object is a submitted message whose content is an EDIM. It shall maintain one attribute value for each value of the AC EDIM Recipients attribute. The initial values shall be *no-EDIN-received.*

18.8.6.3 Delivered message correlation

Some attributes correlate EDIMs delivered to this EDI-MS-user with the EDINs subsequently submitted by the EDI-MS-user, and provide a summary of the notifications requested and those generated.

18.8.6.3.1 AC Submitted EDIN Status

The **AC Submitted EDIN Status** attribute indicates whether an EDIN for a delivered message was requested and whether one has been sent.

```
ac-submitted-edin-status ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX       EDINStatus,
    EQUALITY MATCHING-RULE      bitStringMatch,
    NUMERATION                  single-valued,
    ID                          id-cat-submitted-edin-status }
```

For each of positive notification, negative notification, and forwarded notification, the attribute indicates whether the originator requested a notification of that type from this EDI-MS-user and whether one has been sent.

An EDI-MS that supports this attribute shall maintain it for an information object that it holds (and the delivery-log entry for such an object) if, and only if, that object is a delivered message whose content is an EDIM. The initial value of the attribute is set in accordance with the EDI Notification Requests component for this EDI-MS-user.

18.8.6.3.2 AC Submitted EDINs

The **AC Submitted EDINs** attribute, which is multi-valued, identifies the EDINs submitted in response to a delivered EDIM. The EDI-MS shall record, by means of this attribute, any EDIN submitted by the EDI-MS-user or caused as a consequence of auto-actions performed by the EDI-MS. The attribute values are stored in ascending order of the EDIN entries' creation times.

```
ac-submitted-edins ATTRIBUTE ::= {
    WITH ATTRIBUTE-SYNTAX       SequenceNumber,
    EQUALITY MATCHING-RULE      integerMatch,
    ORDERING MATCHING-RULE      integerOrderingMatch,
    NUMERATION                  multi-valued,
    ID                          id-cat-submitted-edins }
```

An EDI-MS that supports this attribute shall maintain it for an information object that it holds (and the delivery-log entry for such an object) if, and only if, that object is a delivered message whose content is an EDIM.

18.8.7 Generation of the EDI-specific Attributes

Table 4 summarizes the rules governing the generation of the EDI-specific attributes. See 5.4 for a description of the classifications used.

None of EDI-specific attribute-types is subject to modification by means of the Modify abstract-operation or Auto-modify auto-action of the MS.

Table 4 – Generation of the EDI specific MS Attribute Types

Attribute-type-name	Source parameters	Source generated by	Generation rules
AC Correlated Delivered EDINs	NONE	MS	A value is generated for each EDIN which has been correlated with an intended recipient of the EDIM.
AC Delivered EDIN Summary	NONE	MS	Summarizes the Notification Requests in a submitted EDIM, correlated with the EDINs received. One value is generated for each of the EDIM recipients.
AC EDIM Recipients	NONE	MS	A value is generated for each recipient of the submitted EDIM.
AC Forwarded EDIMs	NONE	MS	The attribute-values are the sequence-numbers of the stored EDIMs that correspond to the body-part that the present child-entry represents.
AC Forwarding EDIMs	NONE	MS	The attribute-values are the sequence-numbers of the EDIMs which bear the present EDIM as a body-part.
AC Obsoleted EDIMs	NONE	MS	A value is generated for each EDIM referred to in the Obsoleted EDIMs Heading field.
AC Obsoleting EDIMs	NONE	MS	A value is generated for each EDIM which refers to the present EDIM in its Obsoleted EDIMs Heading field.
AC Related EDIMs	NONE	MS	A value is generated for each EDIM referred to in the Related Messages Heading field.
AC Relating EDIMs	NONE	MS	A value is generated for each EDIM which refers to the present EDIM in its Related Messages Heading field.
AC Subject EDIM	NONE	MS	The attribute-value is the sequence-number of the EDIM to which the present EDIN refers in its Subject EDIM Heading field.
AC Submitted EDIN Status	NONE	MS	The attribute-value is initially set to the value of Notification Requests pertaining to this EDI-MS-user.
AC Submitted EDINs	NONE	MS	The attribute-values are the sequence-numbers of the EDINs whose Subject EDIM corresponds to the present entry.
acknowledgement-request-for-this-recipient	acknowledgement-request	Md	The attribute-value is the value of the parameter in the recipient-sub-field for this recipient. If the source parameter is missing, an attribute with the default value shall be generated.
action-request-for-this-recipient	action-request	Md	The attribute-value is the value of the parameter in the recipient-sub-field for this recipient. If the source parameter is missing, an attribute with the default value shall be generated.
application-reference	application-reference	Md, Ms	The value of the parameter is the attribute value.
authorization-information-for-this-recipient	authorization-information	Md	The attribute-values is the value of the parameter in the recipient-subfield for this recipient.
body	body	Md, Ms	The value of the parameter is the attribute value.
communications-agreement-id-for-this-recipient	communications-agreement-id	Md	The attribute-values is the value of the parameter in the recipient-subfield for this recipient.
cross-referencing-information	cross-referencing-information	Md, Ms	A value is generated from each value of the SET.
date-and-time-of-preparation	date-and-time-of-preparation	Md, Ms	The value of the parameter is the attribute value.
edi-application-security-elements	edi-application-security-elements	Md, Ms	The value of the parameter is the attribute value.

Table 4 – Generation of the EDI specific MS Attribute Types *(continued)*

Attribute-type-name	Source parameters	Source generated by	Generation rules
edi-application-security-extensions	edi-application-security-extensions	Md, Ms	A value is generated from each value of the SET.
edi-body-part	edi-body-part	Md, Ms	The value of the parameter is the attribute value.
edi-bodypart-type	edi-bodypart-type	Md, Ms	The value of the parameter is the attribute value. If the source parameter is missing, an attribute with the default value shall be generated.
edi-message-type	edi-message-type	Md, Ms	A value is generated from each value of the SET.
edi-notification-indicator	NONE	MS	A value is added when an EDIN is submitted from the MS.
edi-notification-requests-for-this-recipient	edi-notification-request	Md	The attribute-value is the value of the parameter in the recipient-subfield for this recipient.
edi-notification-security-for-this-recipient	edi-notification-security	Md	The value of the parameter is the attribute value.
edi-reception-security-for-this-recipient	edi-reception-security	Md	The value of the parameter is the attribute value.
edim-body-part	NONE	MS	The value is the sequence-number of the entry created for the forwarded EDIM.
edim-synopsis	see 18.8.1.2	MS	see 18.8.1.2
edims-entry-type	InformationObject and edin	MS	If the information object is an EDIM, the value is set to "edim". If the information object is an EDIN, the value is set according to the type of the EDIN.
edin-initiator	edin-initiator	Md, Ms	The value of the parameter is the attribute value.
edin-originator	edin-originator	Md, Ms	The value of the parameter is the attribute value.
edin-receiver	edin-receiver	Md, Ms	The value of the parameter is the attribute value.
expiry-time	expiry-time	Md, Ms	The value of the parameter is the attribute value.
extended-body-part-types	additional-body-parts	Md, Ms	From each component of the SEQUENCE, one value is generated from the value of the ExtendedData components direct-reference and one is generated from the value of the ExtendedParameters components direct-reference, if present.
first-recipient	first-recipient	Md, Ms	The value of the parameter is the attribute value.
fn-extensions	fn-extensions	Md, Ms	A value is generated from each value of the SET.
fn-reason-code	fn-reason-code	Md, Ms	The value of the parameter is the attribute value.
fn-supplementary-information	fn-supplementary-information	Md, Ms	The value of the parameter is the attribute value.
forwarded-to	forwarded-to	Md, Ms	The value of the parameter is the attribute value.
heading	heading	Md, Ms	The value of the parameter is the attribute value.
heading-extensions	heading-extensions	Md, Ms	A value is generated from each value of the SET.
incomplete-copy	incomplete-copy	Md, Ms	The value of the parameter is the attribute value. If the source parameter is missing, an attribute with the default value shall be generated.
interchange-control-reference-for-this-recipient	interchange-control-reference	Md	The attribute-values is the value of the parameter in the recipient-sub-field for this recipient.
interchange-length	NONE	MS	The value is the number of octets occupied by the source parameter.

Table 4 – Generation of the EDI specific MS Attribute Types (*concluded*)

Attribute-type-name	Source parameters	Source generated by	Generation rules
interchange-recipient-for-this-recipient	interchange-recipient	Md	The attribute-value is the value of the parameter in the recipient-subfield for this recipient.
interchange-sender	interchange-sender	Md, Ms	The value of the parameter is the attribute value.
message-data	data	Md, Ms	The value of the parameter is the attribute value.
message-parameters	message-parameters	Md, Ms	The value of the parameter is the attribute value.
nn-extensions	nn-extensions	Md, Ms	A value is generated from each value of the SET.
nn-reason-code	nn-reason-code	Md, Ms	The value of the parameter is the attribute value.
nn-supplementary-information	nn-supplementary-information	Md, Ms	The value of the parameter is the attribute value.
notification-security-elements	notification-security-elements	Md, Ms	The value of the parameter is the attribute value.
notification-time	notification-time	Md, Ms	The value of the parameter is the attribute value.
notifications-extensions	notifications-extensions	Md, Ms	A value is generated from each value of the SET.
obsoleted-edims	obsoleted-EDIMs	Md, Ms	A value is generated from each value of the SEQUENCE.
originator	originator	Md, Ms	The value of the parameter is the attribute value.
pn-extensions	pn-extensions	Md, Ms	A value is generated from each value of the SET.
pn-supplementary-information	pn-supplementary-information	Md, Ms	The value of the parameter is the attribute value.
processing-priority-code-for-this-recipient	processing-priority-code	Md	The attribute-value is the value of the parameter in the recipient-subfield for this recipient.
recipient-extensions-for-this-recipient	recipient-extensions	Md	A value is generated from each value of the SET in the recipient-subfield for this recipient.
recipient-reference-for-this-recipient	recipient-reference	Md	The attribute-value is the value of the parameter in the recipient-subfield for this recipient.
related-messages	related-messages	Md, Ms	A value is generated from each value of the SEQUENCE.
responsibility-forwarded	responsibility-forwarded	Md, Ms	The value of the parameter is the attribute value. If the source parameter is missing, an attribute with the default value shall be generated.
responsibility-passing-allowed-for-this-recipient	responsibility-passing-allowed	Md	The attribute-value is the value of the parameter in the recipient-subfield for this recipient. If the source parameter is missing, an attribute with the default value shall be generated.
service-string-advice	service-string-advice	Md, Ms	The value of the parameter is the attribute value.
subject-edim	subject-edim	Md, Ms	The value of the parameter is the attribute value.
syntax-identifier	syntax-identifier	Md, Ms	The value of the parameter is the attribute value.
test-indicator-for-this-recipient	test-indicator	Md	The attribute-value is the value of the parameter in the recipient-subfield for this recipient. If the source parameter is missing, an attribute with the default value shall be generated.
this-edim	this-EDIM	Md, Ms	The value of the parameter is the attribute value.
this-recipient	recipient	Md	The attribute-value is the value of the parameter in the recipient-subfield for this recipient.

18.9 Procedures for EDI MS

The procedures for a general MS are specified in clauses 15 and 16 of ITU-T Rec. X.413 | ISO/IEC 10021-5. This reference gives complementary information for MS systems that also explicitly support EDI messaging.

18.9.1 Additional procedures for message delivery

The performance of the Message-delivery abstract-operation is described in 15.1.1 of ITU-T Rec. X.413 | ISO/IEC 10021-5. Additions to item c) in that subclause required for the support of EDI messaging are described below.

18.9.1.1 Additional procedures for EDI auto-correlate

If the EDI auto-correlate auto-action is subscribed to, the EDI-MS performs the following actions:

a) If the delivered message contains an EDIM, then each Recipient subfield in the Recipients field is examined. If any Recipient subfield identifies the present EDI-MS-user, and the EDI Notification Requests component indicates that an EDIN is requested, then the EDI-MS shall create an AC Submitted EDIN Status attribute containing the values *nn-requested, fn-requested,* and *pn-requested* as appropriate.

b) If the delivered message contains an EDIM which itself contains one or more EDIM body parts, the EDI-MS shall attempt to identify the EDIM entries corresponding to the EDIM body parts by searching main-entries of all the entry-classes, except the Draft and Auto-action-log entry-classes, and matching on the This EDIM field. For each entry found, the EDI-MS shall add the sequence-number of the delivered (forwarding) message to those entries' AC Forwarding EDIMs attribute. In addition, the AC Forwarded EDIMs attribute of the delivered message entry is updated to record the sequence-numbers of the forwarded EDIMs.

c) If the delivered message contains an EDIM whose Related Messages heading field is present, the EDI-MS shall attempt to locate the entries identified by the Related Messages field by searching entries of all the entry-classes except the Draft and Auto-action-log entry-classes. If any such entries are found, each has its AC Relating EDIMs attribute updated to record the sequence-number of the delivered message entry. In addition, the AC Related EDIMs attribute of the delivered message entry is updated to record the sequence-numbers of the related EDIMs.

d) If the delivered message contains an EDIM whose Obsoleted EDIMs heading field is present, the EDI-MS shall attempt to locate the entries identified by the Obsoleted EDIMs field by searching entries of all the entry-classes except the Draft and Auto-action-log entry-classes. If any such entries are found, each has its AC Obsoleting EDIMs attribute updated to record the sequence-number of the delivered message entry. In addition, the AC Obsoleted EDIMs attribute of the delivered message entry is updated to record the sequence-numbers of the obsoleted EDIMs.

e) If the delivered message contains an EDIN, the EDI-MS shall attempt to locate an entry corresponding to the EDIN's subject EDIM by searching the Submission (and Submission-log) entry-classes. If the subject EDIM entry is found, the EDI-MS shall perform the following actions. The EDIN Originator field is compared against the list of recipients recorded in the subject EDIM's AC EDIM Recipients attribute. If a match is found, then the EDI-MS shall update the value corresponding to that recipient in the subject EDIM's AC Correlated Delivered EDINs attribute to cause it to reference the present entry. In addition, the corresponding value in the subject EDIM's AC Delivered EDIN Summary attribute is updated to indicate that an EDIN has been received from that recipient (or from the EDIN originator to whom delivery of the subject EDIM occurred as a consequence of its being addressed to that recipient).

18.9.1.2 Additional procedures for EDI auto-forward

If the EDI auto-forward auto-action is subscribed to the EDI-MS performs the actions described below.

If EDI Security Requests are present, then the EDI-auto-forward actions defined above may be prohibited, subject to the security policy in force. If EDI Security Requests are present then the EDI-auto-forward action (forwarding-with-responsibility-accepted) shall not be performed.

Addition to 14.1.1, 2 a) of ITU-T Rec. X.413 | ISO/IEC 10021-5:

a) If EDI auto-forwarding criteria are registered by the Register-MS abstract operation, the new entry shall be matched against the criteria registered. The matching shall always proceed starting with the registration having the lowest registration identifier and perform the following auto-actions:

   1) registrations against the "forward-with-responsibility-accepted" auto-action.

      If this results in forwarding being performed, it is possible that one or several forwardings may be performed for this EDIM.

2) registrations against "forward-with-responsibility-not-accepted" auto-action.

If this results in a forwarding being performed, no further EDI forwarding actions shall be performed for this EDIM by the same EDI-MS.

If an auto-action registration stipulates that the EDIM is to be deleted after forwarding, no further forwarding auto-action can take place.

The appropriate notification shall be returned for the first auto- forwarding that is performed for the EDIM.

When an EDIN is submitted, a value reflecting the type of the EDIN shall be added to the "edi-notification-indicator" attribute.

If an EDI auto-forwarding does not succeed, e.g. through a non-delivery, an NN EDIN may be returned to the originator if an FN was previously sent.

The entry-status shall be set to "processed" when the MS has performed an EDI-auto-forward auto-action on a delivered message, and the EDIM has not been deleted.

b) An entry is created in the Auto-action-log entry-class. If the submission fails, the error is recorded by attaching an auto-action-error attribute to the auto-action-event entry (see 6.5.3 of ITU-T Rec. X.413 | ISO/IEC 10021-5), and processing of this EDIM auto-action terminates. The EDI-MS then resumes processing of other EDI auto-forward auto-actions.

c) The EDI-MS inspects the registered value of the MS submission-options to determine whether to store the forwarding message in the Submission (or Submission-log) entry-class. Where the creation of an entry is requested, the following attributes are attached to it:

   1) AC EDIM Recipients shall contain one value for each recipient specified in Auto-forward-arguments;

   2) AC Correlated Delivered EDINs shall contain the same number of values, each of which shall indicate that no EDIN has been received from the corresponding member of AC EDIM Recipients;

   3) AC Delivered EDIN Summary shall contain the same number of values, each of which shall indicate whether notifications are requested of the corresponding member of AC EDIM Recipients.

   4) The MS-originated general-attribute is created and assigned the value *true*.

d) If the EDIM auto-correlate auto-action is subscribed to, and an entry for the forwarding message was created in the stored-Message or Message-log entry-class, the entry's sequence-number is added to the AC Forwarding EDIMs attribute of the delivered message. In addition, the sequence-number of the delivered message is added to the forwarding message's AC Forwarded EDIMs attribute.

e) MS-message-submission is invoked using the submission-options parameter registered for this EDIM auto-forward auto-action, and the procedures defined in 18.9.2 are followed.

18.9.2 Additional Procedures for Message-submission

Procedures for the invocation of the Message-submission abstract-operation and for the performance of the MS-message-submission abstract-operation are defined in 15.2.1 and 16.2.1, respectively, of ITU-T Rec. X.413 | ISO/IEC 10021-5.

If the EDI auto-correlate auto-action is subscribed to, then the following additions are required to 16.2.1 f) of ITU-T Rec. X.413 | ISO/IEC 10021-5, and apply both in the case where the EDI-MS-user invokes Message-submission, and where the EDI-MS invokes Message-submission as a consequence of auto-action processing. For the purpose of the following exposition, it is assumed that the creation of an entry in the Submission-log (and possibly the Submission) entry-class for the submitted message has been requested.

a) If the submitted message contains an EDIN, the EDI-MS shall attempt to locate the entry identified by the Subject EDIM field by searching entries of the Delivery and Delivery-log entry-classes. If such an entry is found, the sequence-number of the submitted EDIN is added to the subject EDIM's AC Submitted EDINs attribute. In addition, that entry's AC Submitted EDIN Status attribute is updated to indicate the type of notification sent.

b) If the submitted message contains an EDIM, the EDI-MS shall attach the following attributes to the entries created in the Submission and Submission-log entry-classes:

   1) AC EDIM Recipients shall contain one value for each distinct recipient specified in the Recipients fields;

   2) AC Correlated Delivered EDINs shall contain the same number of values, each of which shall indicate that no EDIN has been received from the corresponding member of AC EDIM Recipients;

   3) AC Delivered EDIN Summary shall contain the same number of values, each of which shall indicate whether notifications are requested of the corresponding members of AC EDIM Recipients.

c) If the submitted message contains an EDIM which itself contains one or more EDIM body parts, the EDI-MS shall attempt to locate the EDIM entries corresponding to the EDIM body parts by searching main-entries of all the entry-classes, except the Draft and Auto-action-log entry-classes, and matching on This EDIM field. For each entry found, the EDI-MS shall add the sequence-number of the submitted (forwarding) message to those entries' AC Forwarding EDIMs attribute. In addition, the AC Forwarded EDIMs attribute of the submitted message entry is updated to record the sequence-numbers of the forwarded EDIMs.

d) If the submitted message contains an EDIM whose Related Messages heading field is present, the EDI-MS shall attempt to locate the entries identified by the Related Messages field by searching main-entries of all the entry-classes except the Draft and Auto-action-log entry-classes. If any such entries are found, each has its AC Relating EDIMs attribute updated to record the sequence-number of the submitted message entry. In addition, the AC Related EDIMs attribute of the submitted message entry is updated to record the sequence-numbers of the related EDIMs.

e) If the submitted message contains an EDIM whose Obsoleted EDIMs heading field is present, the EDI-MS shall attempt to locate the entries identified by the Obsoleted EDIMs field by searching main-entries of the Stored-message and Message-log entry-classes. If any such entries are found, each has its AC Obsoleting EDIMs attribute updated to record the sequence-number of the submitted message entry. In addition, the AC Obsoleted EDIMs attribute of the submitted message entry is updated to record the sequence-numbers of the obsoleted EDIMs.

19 Message Contents

As has already been seen, various secondary objects (e.g. UAs) have occasion to convey the Information Objects of clause 6 as the contents of messages, as well as to convey probes concerning such messages. What follows specifies precisely how they shall do this.

The rules governing the transmittal of such messages and probes, and the semantics and abstract and transfer syntaxes of their contents, constitute the EDI Messaging protocol (Pedi).

19.1 Content

A secondary object that submits a message containing an EDIM or EDIN shall supply, as the octets of the Octet String that constitutes the content of the message, the result of encoding the Information Object of 6 in accordance with the Basic Encoding Rules of ITU-T Rec. X.690 | ISO/IEC 8825-1.

19.2 Content type

A secondary object that submits a message containing an EDIM or EDIN shall assign the integer value 35 to the Content Type.

19.3 Content Length

A secondary object that submits a probe concerning a message containing an EDIM or EDIN shall specify as the length of the message's content the size in octets of the encodings of the instance in question of the Information Object of clause 6 (a choice of an EDIM or an EDIN) when the Basic Encoding Rules of ITU-T Rec. X.690 | ISO/IEC 8825-1 are followed. If those rules permit several (e.g. both primitive and constructed) encoding of that Information Object, the content length may reflect any one of them.

19.4 Encoded Information Types

A secondary object that submits a message containing an EDIM or EDIN shall specify the Encoded Information Types (EIT) of the message as follows.

In the case of an EDIN, the basic EITs shall be unspecified.

In the case of an EDIM, the EITs shall be the logical union of the EITs of the EDIM's body parts specified in accordance with the following rules:

a) *EDI Body Part:* The EIT of the EDI Body Part shall have the same values as the Heading field EDI Body Part Type, or its default value if absent.

b) *EDIM Body Part (Forwarded Message):* The EITs (if any) of a EDIM Body Part shall be those of the forwarded message.

c) *Additional body parts:* The EIT of additional body parts (if any) shall be the logical union of the individual body parts EITs.

An Extended body part whose extended type corresponds to a basic type shall be indicated using the built-in EIT.

The EDI Body Part Type shall be indicated in the external EITs.

A secondary object that submits a message containing an EDIM to an MTA that conforms to ITU-T Rec. X.411 | ISO/IEC 10021-4 in its 1988 version shall use the union of the object identifiers from EDI Body Part Type (see 8.2.6 and Annex A) for all "original-encoded-information-types".

A secondary object that submits a message containing an EDIM to an MTA that conforms to ITU-T Rec. X.411 | ISO/IEC 10021-4 in its 1984 version shall use the "undefined" bit of the "built-in-encoded-information-types" (called "basic-encoded-information-type" in ITU-T Rec. X.411 | ISO/IEC 10021-4 in its 1984 version), as no other indication is possible for the EITs defined in 8.2.6 in an MTA that conforms to ITU-T Rec. X.411 | ISO/IEC 10021-4 in its 1984 version. The "external-encoded-information-type" field shall not be present.

NOTE – The following reduced functionality has to be considered when a secondary object submits a message containing an EDIM to an MTA that conforms to ITU-T Rec. X.411 | ISO/IEC 10021-4 in its 1984 version or when such messages are relayed through such an MTA. The delivering MTA cannot make a comparison of which EITs, and hence primary EDI body part types, the UA is prepared to accept for delivery (otherwise it would not perform the delivery at all). In addition, the security features of an MTA that conforms to ITU-T Rec. X.411 | ISO/IEC 10021-4 in its 1988 version cannot be used.

20 Port realization

How an MS or the MTS concretely realizes the secondary ports it supplies is specified in of ITU-T Rec. X.419 | ISO/IEC 10021-6.

How a UA, TLMA, or AU concretely realizes the primary ports it supplies is beyond the scope of this Recommendation | International Standard.

21 Conformance

The requirements a secondary object (excluding the MTS) and its implementor shall meet when the latter claims the former's conformance to this Recommendation | International Standard are identified below. A number of the conformance requirements distinguish between support upon origination and support upon reception.

21.1 Origination versus Reception

A UA or AU shall be said to support upon origination a particular Heading field, Heading extension, EDIM Body Part type or Extended Body Part type if, and only if, it accepts, preserves, and emits, in full accord with this Recommendation | International Standard, that particular Heading field or extension, or EDIM Body Part type or Extended Body Part type, whenever a user calls upon it to convey an EDIM containing them to the MTS or the user's MS (the latter only in the case of a UA).

A UA or AU shall be said to support upon reception a particular Heading field, Heading extension, EDIM Body Part type or Extended Body Part type if, and only if, it accepts, preserves, and emits, in full accord with this Recommendation | International Standard, that particular Heading field or extension, or EDIM Body Part type or Extended Body Part type, whenever the MTS or a user's MS (the latter only in the case of a UA) calls upon it to convey to the user an EDIM containing them.

A PDAU supports nothing upon origination because it is not a supplier of the origination port.

21.2 Statement requirements

The implementor of a UA, MS or AU shall state the following. For each item below he shall make separate statements concerning conformance upon origination and conformance upon reception:

a) The Heading fields for which he claims conformance.

b) The body part types for which he claims conformance.

c) In the case of a UA with MS or MS, the EDI Messaging-specific MS attributes for which it claims conformance.

d) In the case of a UA with MS or MS, whether it supports the EDI messaging-specific auto-action.

e) In the case of an AU, whether it supports import or export or both.

21.3 Static requirements

A UA, MS or AU shall satisfy the following static requirements:

a) A UA, MS or AU shall implement the Heading fields and the body part types for which conformance is claimed.

b) A UA with MS or MS shall support the EDI messaging-specific MS attributes for which conformance is claimed, but including as a minimum those designated mandatory in 18.8. In addition, it shall support the mandatory attributes identified in Table 1/X.413.

c) A UA, MS or AU shall concretely realize its abstract ports as specified in clause 20.

d) A UA or MS shall be able to both submit and receive messages of the content type of 19.2.

e) An AU shall be able to import and export such messages as appropriate.

f) An MS, or a UA accessing an MS, shall conform to at least one of the MS Access protocols specified in ITU-T Rec. X.419 | ISO/IEC 10021-6.

21.4 Dynamic requirements

A UA, MS or AU shall satisfy the following dynamic requirements:

a) A UA or MS shall follow the rules of operation specified in clauses 17 or 18, respectively.

b) A UA, MS or AU shall submit and receive messages whose contents are as specified in clause 19.

c) A UA, MS or AU shall register with the MTS its ability to accept delivery of messages of the content type of 19.2 and EITs as specified in 19.4.

Annex A

Reference definition of Object Identifiers

(This annex forms an integral part of this Recommendation | International Standard)

The annex defines for reference purposes various Object Identifiers cited in the ASN.1 modules of subsequent annexes. It uses ASN.1.

All Object Identifiers this Recommendation | International Standard assigns are assigned in this annex. The annex is definitive for all but those for ASN.1 modules, the object EDIMS application (EDIME) itself and the EDI use of Directories. The definitive assignments for the former occur in the modules themselves; other references to them appear in IMPORT statements. For the EDI use of Directories object identifiers, this annex only defines a base object identifier. This annex also specifies a root identifier for identifying character repertoires encoded as per ISO/IEC multipart standard 8859.

```
EDIMSObjectIdentifiers {joint-iso-itu-t mhs(6) edims(7) modules(0) object-identifiers(0) version(2)}

DEFINITIONS IMPLICIT TAGS ::=

BEGIN

-- Prologue

-- Exports everything

IMPORTS  -- nothing --;

ID ::= OBJECT IDENTIFIER

-- EDI Messaging

id-edims ID ::= { joint-iso-itu-t mhs(6) edims(7) } -- not definitive

-- Categories

id-mod                                        ID ::= {id-edims  0} -- modules
id-edi                                        ID ::= {id-edims  1} -- reserved
id-ot                                         ID ::= {id-edims  2} -- object types
id-pt                                         ID ::= {id-edims  3} -- port types
id-ref                                        ID ::= {id-edims  4} -- refinements
id-sat                                        ID ::= {id-edims  5} -- summary attributes
id-hat                                        ID ::= {id-edims  6} -- heading attributes
id-rat                                        ID ::= {id-edims  7} -- recipient attributes
id-bat                                        ID ::= {id-edims  8} -- body attributes
id-nat                                        ID ::= {id-edims  9} -- notification attributes
id-mct                                        ID ::= {id-edims 10} -- message content types
id-bp                                         ID ::= {id-edims 11} -- edi body part types
id-nt                                         ID ::= {id-edims 12} -- not used
id-for                                        ID ::= {id-edims 13} -- edi action indicator types
id-act                                        ID ::= {id-edims 14} -- edi auto-action
                                                                   -- identifier types
id-dir                                        ID ::= {id-edims 15} -- edi use of directory
id-syn                                        ID ::= {id-edims 16} -- edi synopsis type
id-cat                                        ID ::= {id-edims 17} -- correlation attributes
id-aae                                        ID ::= {id-edims 18} -- auto-action-errors
id-ext                                        ID ::= {id-edims 19} -- edi extensions

-- Modules

id-mod-object-identifiers                     ID ::= {id-mod  0}
id-mod-functional-objects                     ID ::= {id-mod  1}
id-mod-information-objects                    ID ::= {id-mod  2}
id-mod-abstract-service                       ID ::= {id-mod  3}
id-mod-message-store-attributes               ID ::= {id-mod  4}
id-mod-upper-bounds                           ID ::= {id-mod  5}
id-mod-edi-directory-cl-att                   ID ::= {id-mod  6}
id-mod-message-store-auto-actions             ID ::= {id-mod  7}

-- Object types

id-ot-edime                                   ID ::= {id-ot 0}
id-ot-edimg-user                              ID ::= {id-ot 1}
id-ot-edims                                   ID ::= {id-ot 2}
id-ot-edi-ua                                  ID ::= {id-ot 3}
id-ot-edi-ms                                  ID ::= {id-ot 4}
id-ot-pdau                                    ID ::= {id-ot 5}

-- Port types

id-pt-origination                             ID ::= {id-pt 0}
id-pt-reception                               ID ::= {id-pt 1}
```

```
-- Message content type (for use by MS and Directory)

id-mct-pedi                                  ID ::= {id-mct 0} -- Pedi

-- EDI Body Part type (and P1 EIT)

id-bp-edifact-ISO646                         ID ::= {id-bp 0} -- ISO646 is equivalent to
                                                              -- Rec. T.50
id-bp-edifact-TeletexString                  ID ::= {id-bp 1}
id-bp-edifact-octet                          ID ::= {id-bp 2}
id-bp-ansiX12-ISO646                         ID ::= {id-bp 3}
id-bp-ansiX12-TeletexString                  ID ::= {id-bp 4}
id-bp-ansiX12-octet                          ID ::= {id-bp 5}
id-bp-ansiX12-ebcdic                         ID ::= {id-bp 6}
id-bp-untdi-ISO646                           ID ::= {id-bp 7}
id-bp-untdi-TeletexString                    ID ::= {id-bp 8}
id-bp-untdi-octet                            ID ::= {id-bp 9}
id-bp-private-octet                          ID ::= {id-bp 10}
id-bp-undefined-octet                        ID ::= {id-bp 11}
id-bp-edifact-8859                           ID ::= {id-bp 12} -- Root OID for ISO/IEC 8859
                                                               -- character repertoires

-- EDI Action Request

id-for-action                                ID ::= {id-for 0} -- For action
id-for-copy                                  ID ::= {id-for 1} -- Copy, not original

-- EDIMG Specific Auto Actions

id-act-edi-auto-forward                      ID ::= {id-act 0}
id-act-edi-auto-correlate                    ID ::= {id-act 1}
id-act-edi-auto-acknowledgement              ID ::= {id-act 2}
id-act-edi-auto-forward-v2                   ID ::= {id-act 3}

-- EDI Auto Action Errors

id-aae-edi-auto-forwarding-loop              ID ::= {id-aae 0}
id-aae-duplicate-edin                        ID ::= {id-aae 1}

-- EDIM Synopsis (MS)

id-syn-removed                               ID ::= {id-syn 0}
id-syn-place-holder                          ID ::= {id-syn 1}

-- MESSAGE STORE ATTRIBUTES

-- Summary attributes

id-sat-edims-entry-type                      ID ::= {id-sat 0}
id-sat-edim-synopsis                         ID ::= {id-sat 1}
id-sat-edi-notification-indicator            ID ::= {id-sat 2}

-- Heading attributes

id-hat-heading                               ID ::= {id-hat 0}
id-hat-this-edim                             ID ::= {id-hat 1}
id-hat-originator                            ID ::= {id-hat 2}
id-hat-recipients                            ID ::= {id-hat 3}
id-hat-edin-receiver                         ID ::= {id-hat 4}
id-hat-responsibility-forwarded              ID ::= {id-hat 5}
id-hat-edi-bodypart-type                     ID ::= {id-hat 6}
id-hat-incomplete-copy                       ID ::= {id-hat 7}
id-hat-expiry-time                           ID ::= {id-hat 8}
id-hat-related-messages                      ID ::= {id-hat 9}
id-hat-obsoleted-edims                       ID ::= {id-hat 10}
id-hat-edi-application-security-element      ID ::= {id-hat 11}
id-hat-edi-application-security-extensions   ID ::= {id-hat 12}
id-hat-cross-referencing-information         ID ::= {id-hat 13}
id-hat-edi-message-type                      ID ::= {id-hat 14}
id-hat-service-string-advice                 ID ::= {id-hat 15}
id-hat-syntax-identifier                     ID ::= {id-hat 16}
id-hat-interchange-sender                    ID ::= {id-hat 17}
id-hat-date-and-time-of-preparation          ID ::= {id-hat 18}
id-hat-application-reference                 ID ::= {id-hat 19}
id-hat-heading-extensions                    ID ::= {id-hat 20}

-- Per Recipient attributes

id-rat-this-recipient                                    ID ::= {id-rat 0}
id-rat-action-request-for-this-recipient                 ID ::= {id-rat 1}
id-rat-edi-notification-requests-for-this-recipient      ID ::= {id-rat 2}
id-rat-responsibility-passing-allowed-for-this-recipient ID ::= {id-rat 3}
```

```
-- UNB EDIFACT Field Object Ids --

id-rat-interchange-recipient-for-this-recipient          ID ::= {id-rat 4}
id-rat-recipient-reference-for-this-recipient            ID ::= {id-rat 5}
id-rat-interchange-control-reference-for-this-recipient  ID ::= {id-rat 6}
id-rat-processing-priority-code-for-this-recipient       ID ::= {id-rat 7}
id-rat-acknowledgement-request-for-this-recipient        ID ::= {id-rat 8}
id-rat-communications-agreement-id-for-this-recipient    ID ::= {id-rat 9}
id-rat-test-indicator-for-this-recipient                 ID ::= {id-rat 10}
id-rat-edi-notification-security-for-this-recipient      ID ::= {id-rat 11}
id-rat-edi-reception-security-for-this-recipient         ID ::= {id-rat 12}
id-rat-recipient-extensions-for-this-recipient           ID ::= {id-rat 13}

-- ANSIX12 ISA Field Object Ids --

id-rat-authorization-information-for-this-recipient   ID ::= {id-rat 14}

-- Body attributes

id-bat-body                                 ID ::= {id-bat 0}
id-bat-interchange-length                   ID ::= {id-bat 1}
id-bat-edi-body-part                        ID ::= {id-bat 2}
id-bat-edim-body-part                       ID ::= {id-bat 3}
id-bat-message-parameters                   ID ::= {id-bat 4}
id-bat-message-data                         ID ::= {id-bat 5}
id-bat-extended-body-part-types             ID ::= {id-bat 6}

-- Notification attributes

id-nat-subject-edim                         ID ::= {id-nat 0}
id-nat-edin-originator                      ID ::= {id-nat 1}
id-nat-first-recipient                      ID ::= {id-nat 2}
id-nat-notification-time                    ID ::= {id-nat 3}
id-nat-notification-security-elements       ID ::= {id-nat 4}
id-nat-notification-extensions              ID ::= {id-nat 5}
id-nat-edin-initiator                       ID ::= {id-nat 6}

-- PN attributes

id-nat-pn-supplementary-info                ID ::= {id-nat 7}

id-nat-pn-extensions                        ID ::= {id-nat 8}

-- NN attributes

id-nat-nn-reason-code                       ID ::= {id-nat 9}
id-nat-nn-supplementary-info                ID ::= {id-nat 10}
id-nat-nn-extensions                        ID ::= {id-nat 11}

-- FN attributes

id-nat-forwarded-to                         ID ::= {id-nat 12}
id-nat-fn-reason-code                       ID ::= {id-nat 13}
id-nat-fn-supplementary-info                ID ::= {id-nat 14}
id-nat-fn-extensions                        ID ::= {id-nat 15}

-- Correlation attributes

id-cat-correlated-delivered-edins           ID ::= {id-cat 0}
id-cat-delivered-edin-summary               ID ::= {id-cat 1}
id-cat-edim-recipients                      ID ::= {id-cat 2}
id-cat-forwarded-edims                      ID ::= {id-cat 3}
id-cat-forwarding-edims                     ID ::= {id-cat 4}
id-cat-obsoleted-edims                      ID ::= {id-cat 5}
id-cat-obsoleting-edims                     ID ::= {id-cat 6}
id-cat-related-edims                        ID ::= {id-cat 7}
id-cat-relating-edims                       ID ::= {id-cat 8}
id-cat-subject-edim                         ID ::= {id-cat 9}
id-cat-submitted-edin-status                ID ::= {id-cat 10}
id-cat-submitted-edins                      ID ::= {id-cat 11}

-- MESSAGE STORE ATTRIBUTES – END

-- Compression identifiers

id-edi-compression                          ID ::= {id-edi 0}
id-edi-compression-v42bis                   ID ::= {id-edi 1}

-- EDI extension identifiers

id-ext-submission-options                   ID ::= {id-ext 0}
id-ext-invalid-assembly-instructions        ID ::= {id-ext 1}

END -- of EDIMSObjectIdentifiers
```

Annex B

Reference definition of Abstract Information Objects

(This annex forms an integral part of this Recommendation| International Standard)

This annex defines for reference purposes the abstract information objects of EDI Messaging. It defines a Body Part for EDIM that includes a body part reference number while importing the IPMS ExtendedBodyParts information object class for specifying non-EDI body parts. It also defines an EDIM-EXTENSION information object class that differs from IPMS.

```
EDIMSInformationObjects {joint-iso-itu-t mhs(6) edims(7) modules(0) information-objects(2)
                        version(2)}

DEFINITIONS IMPLICIT TAGS ::=

BEGIN

--      Prologue

--      Exports everything

IMPORTS

--      EDIMS Upper bounds

        ub-application-reference, ub-authorization-information,
        ub-authorization-information-qualifier, ub-communications-agreement-id,
        ub-edi-application-security-elements, ub-edi-message-type,
        ub-identification-code, ub-identification-code-qualifier,
        ub-interchange-control-reference, ub-local-reference, ub-processing-priority-code,
        ub-reason-code, ub-recipient-reference, ub-recipient-reference-qualifier,
        ub-routing-address, ub-syntax-identifier, ub-syntax-version
                ----
                FROM EDIMSUpperBounds {joint-iso-itu-t mhs(6) edims(7) modules(0) upper-bounds(5)}

--      EDIMS Object Identifiers

        id-bp-edifact-ISO646, id-edi-compression, id-edi-compression-v42bis,
        id  -ext-invalid-assembly-instructions, id-ext-submission-options, id-for-action
                ----
                FROM EDIMSObjectIdentifiers {joint-iso-itu-t mhs(6) edims(7) modules(0)
                                            object-identifiers(0) version(2)}

--      MTS Upper Bounds

        ub-bit-options, ub-integer-options, ub-supplementary-info-length
                ----
                FROM MTSUpperBounds {joint-iso-itu-t mhs(6) mts(3) modules(0) upper-bounds(3)
                                    version-1999(1)}

--      MTS Abstract Service

        MessageDeliveryTime,  ORName, OtherMessageDeliveryFields, ContentIntegrityCheck, Content
                ----
                FROM MTSAbstractService {joint-iso-itu-t mhs(6) mts(3)  modules(0)
                                        mts-abstract-service(1) version-1999(1)}

--      IPM Information Objects

        ExtendedBodyPart
                ----
                FROM IPMSInformationObjects {joint-iso-itu-t mhs(6) ipms(1) modules(0)
                                            information-objects(2) version-1999(1)}

--      IPM Compression Parameter

        CompressionParameter
                ----
                FROM IPMSFileTransferBodyPartType {joint-iso-itu-t mhs(6) ipms(1) modules(0)
                                                  file-transfer-body-part-type(9)}

--      MS Abstract Service

        SequenceNumber
                ----
                FROM MSAbstractService {joint-iso-itu-t mhs(6) ms(4) modules(0) abstract-service(1)
                                       version-1999(1)};

--      END Imports

--      ABSTRACT INFORMATION OBJECTS

--      Overview

InformationObject ::= CHOICE {
        edim                            [0] EDIM,
        edin                            [1] EDIN }
```

```
--      Common data types

--      EDIM Identifier

EDIMIdentifier ::= SET {
        user                                  [0] ORName,
        user-relative-identifier              [1] LocalReference }

LocalReference ::= PrintableString (SIZE (0..ub-local-reference))

--      Extensions

ExtensionField ::= SEQUENCE {
        type                                  [0] EDIM-EXTENSION.&id,
        criticality                           [1] Criticality DEFAULT FALSE,
        value                                 [2] EDIM-EXTENSION.&Type DEFAULT NULL:NULL }

Criticality ::= BOOLEAN

--      EDIM Extension information object class

EDIM-EXTENSION::= CLASS {
        &id             OBJECT IDENTIFIER UNIQUE,
        &criticality    BOOLEAN DEFAULT FALSE,
        &Type           DEFAULT NULL }
WITH SYNTAX { [VALUE &Type,] [ CRITICALITY &criticality ] IDENTIFIED BY &id }

--      EDI Messages

EDIM ::= SEQUENCE {
        heading                               Heading,
        body                                  Body }

--      Heading Field Component Types

--      Interchange Recipient/Sender

--      Identification Code

IdentificationCode ::= TeletexString (SIZE (1..ub-identification-code))

--      Identification Code Qualifier

IdentificationCodeQualifier ::= TeletexString (SIZE (1..ub-identification-code-qualifier))

--      Routing Address

RoutingAddress ::= TeletexString (SIZE (1..ub-routing-address))

--      Heading Fields

Heading ::= SEQUENCE {
        this-EDIM                                  [1]  ThisEDIMField,
        originator                                 [2]  OriginatorField OPTIONAL,
        recipients                                 [3]  RecipientsField OPTIONAL,
        edin-receiver                              [4]  EDINReceiverField OPTIONAL,
        responsibility-forwarded                   [5]  ResponsibilityForwarded DEFAULT FALSE,
        edi-bodypart-type                          [6]  EDIBodyPartType DEFAULT
                                                        {id-bp-edifact-ISO646},
        incomplete-copy                            [7]  IncompleteCopyField DEFAULT FALSE,
        expiry-time                                [8]  ExpiryTimeField OPTIONAL,
        related-messages                           [9]  RelatedMessagesField OPTIONAL,
        obsoleted-EDIMs                            [10] ObsoletedEDIMsField OPTIONAL,
        edi-application-security-elements          [11] EDIApplicationSecurityElementsField OPTIONAL,
        cross-referencing-information              [12] CrossReferencingInformationField OPTIONAL,
        -- Begin Fields from EDIFACT Interchange
        edi-message-type                           [13] EDIMessageTypeField OPTIONAL,
        service-string-advice                      [14] ServiceStringAdviceField OPTIONAL,
        syntax-identifier                          [15] SyntaxIdentifierField OPTIONAL,
        interchange-sender                         [16] InterchangeSenderField OPTIONAL,
        date-and-time-of-preparation               [17] DateAndTimeOfPreparationField OPTIONAL,
        application-reference                      [18] ApplicationReferenceField OPTIONAL,
        -- End Fields from EDIFACT
        heading-extensions                         [19] HeadingExtensionsField OPTIONAL }

--      This EDIM

ThisEDIMField ::= EDIMIdentifier

--      Originator

OriginatorField ::= ORName

--      Recipients

RecipientsField ::= SET OF RecipientsSubField
```

```
RecipientsSubField ::= SEQUENCE {
        recipient                                 [1]  RecipientField,
        action-request                            [2]  ActionRequestField DEFAULT {id-for-action},
        edi-notification-requests-field           [3]  EDINotificationRequestsField OPTIONAL,
        responsibility-passing-allowed            [4]  ResponsibilityPassingAllowedField DEFAULT
                                                       FALSE,
          -- Begin Fields from EDIFACT UNB
        interchange-recipient                     [5]  InterchangeRecipientField OPTIONAL,
        recipient-reference                       [6]  RecipientReferenceField OPTIONAL,
        interchange-control-reference             [7]  InterchangeControlReferenceField OPTIONAL,
        processing-priority-code                  [8]  ProcessingPriorityCodeField OPTIONAL,
        acknowledgement-request                   [9]  AcknowledgementRequestField DEFAULT FALSE,
        communications-agreement-id               [10] CommunicationsAgreementIdField OPTIONAL,
        test-indicator                            [11] TestIndicatorField DEFAULT FALSE,
          -- End Fields from EDIFACT UNB
          -- Begin Fields from ANSIX12 ISA
        authorization-information                 [12] AuthorizationInformationField OPTIONAL,
          -- End Fields from ANSIX12 ISA
        recipient-extensions                      [13] RecipientExtensionsField OPTIONAL }

--      Recipient

RecipientField ::= ORName

--      Action Request

ActionRequestField ::= OBJECT IDENTIFIER

--      EDI Notification Requests

EDINotificationRequestsField ::= SEQUENCE {
        edi-notification-requests                 [0] EDINotificationRequests DEFAULT {},
        edi-notification-security                 [1] EDINotificationSecurity DEFAULT {},
        edi-reception-security                    [2] EDIReceptionSecurity DEFAULT {}  }

EDINotificationRequests ::= BIT STRING {
        pn                                        (0),
        nn                                        (1),
        fn                                        (2) }(SIZE (0..ub-bit-options))

EDINotificationSecurity ::= BIT STRING {
        proof (0),
        non-repudiation (1) } (SIZE (0..ub-bit-options))

EDIReceptionSecurity ::= BIT STRING {
        proof (0),
        non-repudiation (1) }(SIZE (0..ub-bit-options))

--      Interchange recipient

InterchangeRecipientField ::= SEQUENCE {
        recipient-identification                  [0] IdentificationCode,
        identification-code-qualifier             [1] IdentificationCodeQualifier OPTIONAL,
        routing-address                           [2] RoutingAddress OPTIONAL }

--      Recipient reference

RecipientReferenceField ::= SEQUENCE {
        recipient-reference                       [0] RecipientReference,
        recipient-reference-qualifier             [1] RecipientReferenceQualifier OPTIONAL }

RecipientReference ::= TeletexString (SIZE (1..ub-recipient-reference))

RecipientReferenceQualifier ::=  TeletexString (SIZE (1..ub-recipient-reference-qualifier))

--      Recipient Extensions

RecipientExtensionsField ::= SET OF RecipientExtensionsSubField

RecipientExtensionsSubField ::= ExtensionField

--      EDIN receiver

EDINReceiverField ::= SEQUENCE {
        edin-receiver-name                        [0] ORName,
        original-edim-identifier                  [1] EDIMIdentifier OPTIONAL,
        first-recipient                           [2] FirstRecipientField OPTIONAL}

--      Responsibility Forwarded indication

ResponsibilityForwarded ::= BOOLEAN -- default FALSE

--      EDI Body Part Types – identifies EDI Standard, Character set and encoding

EDIBodyPartType ::= OBJECT IDENTIFIER -- default EDIFACT-ISO646

--      EDI message type

EDIMessageTypeField ::= SET OF EDIMessageTypeFieldSubField

EDIMessageTypeFieldSubField ::= TeletexString (SIZE (1..ub-edi-message-type))

--      Responsibility Passing Allowed
```

```
ResponsibilityPassingAllowedField ::= BOOLEAN -- Default FALSE

--      Incomplete Copy

IncompleteCopyField ::= BOOLEAN -- default FALSE

--      Expiry time

ExpiryTimeField ::= UTCTime

--      Related Messages

RelatedMessagesField ::= SEQUENCE OF RelatedMessageReference

RelatedMessageReference ::= CHOICE {
        edi-message-reference              [0] EDIMIdentifier,
        external-message-reference         [1] ExternalMessageReference }

ExternalMessageReference ::= TYPE-IDENTIFIER

--      Obsoleted EDIMs

ObsoletedEDIMsField ::= SEQUENCE OF ObsoletedEDIMsSubfield

ObsoletedEDIMsSubfield ::= EDIMIdentifier

--      EDI Application Security Elements

EDIApplicationSecurityElementsField ::= SEQUENCE {
edi-application-security-element           [0] EDIApplicationSecurityElement OPTIONAL,
edi-encrypted-primary-bodypart             [1] BOOLEAN OPTIONAL,
edi-application-security-extensions        [2] EDIApplicationSecurityExtensions OPTIONAL }

EDIApplicationSecurityElement ::= BIT STRING (SIZE (0..ub-edi-application-security-elements))

EDIApplicationSecurityExtensions ::= SET OF EDIApplicationSecurityExtension

EDIApplicationSecurityExtension ::= ExtensionField

--      Cross Referencing Information

CrossReferencingInformationField ::= SET OF CrossReferencingInformationSubField

CrossReferencingInformationSubField ::= SEQUENCE {
application-cross-reference                [0] ApplicationCrossReference,
message-reference                          [1] MessageReference OPTIONAL,
body-part-reference                        [2] BodyPartReference }

ApplicationCrossReference ::= OCTET STRING

MessageReference ::= EDIMIdentifier

--      Service String Advice

ServiceStringAdviceField ::= SEQUENCE {

component-data-element-separator           [0] ComponentDataElementSeparator,
        data-element-separator             [1] DataElementSeparator,
        decimal-notation                   [2] DecimalNotation,
        release-indicator                  [3] ReleaseIndicator OPTIONAL,
        reserved                           [4] Reserved OPTIONAL,
        segment-terminator                 [5] SegmentTerminator }

ComponentDataElementSeparator ::= OCTET STRING (SIZE (1))

DataElementSeparator ::= OCTET STRING (SIZE (1))

DecimalNotation ::= OCTET STRING (SIZE (1))



ReleaseIndicator ::= OCTET STRING (SIZE (1))

Reserved ::= OCTET STRING (SIZE (1))

SegmentTerminator ::= OCTET STRING (SIZE (1))

--      Syntax Identifier

SyntaxIdentifierField ::= SEQUENCE {
        syntax-identifier                  SyntaxIdentifier,
        syntax-version                     SyntaxVersion }

SyntaxIdentifier ::= TeletexString (SIZE (1..ub-syntax-identifier))

SyntaxVersion ::= PrintableString (SIZE (1..ub-syntax-version))

--      Interchange sender

InterchangeSenderField ::= SEQUENCE {
        sender-identification              [0] IdentificationCode,
        identification-code-qualifier      [1] IdentificationCodeQualifier OPTIONAL,
        address-for-reverse-routing        [2] RoutingAddress OPTIONAL } -- EDIFACT Routing
                                                                        -- Information
--      Date and Time of preparation

DateAndTimeOfPreparationField ::= UTCTime

--      Interchange control reference

InterchangeControlReferenceField ::= TeletexString (SIZE (1..ub-interchange-control-reference))

--      Application reference

ApplicationReferenceField ::= TeletexString (SIZE (1..ub-application-reference))

--      Processing Priority Code

ProcessingPriorityCodeField ::= TeletexString (SIZE (1..ub-processing-priority-code))

--      Acknowledgement Request

AcknowledgementRequestField ::= BOOLEAN -- default FALSE

--      Communications Agreement Id

CommunicationsAgreementIdField ::= TeletexString (SIZE (1..ub-communications-agreement-id))

--      Test indicator

TestIndicatorField ::= BOOLEAN  -- default FALSE

--      Authorization Information

AuthorizationInformationField ::= SEQUENCE {
        authorization-information           [0] AuthorizationInformation,
        authorization-information-qualifier  [1] AuthorizationInformationQualifier OPTIONAL }

AuthorizationInformation ::= TeletexString (SIZE (1..ub-authorization-information))

AuthorizationInformationQualifier ::= TeletexString (SIZE(1..ub-authorization-information-qualifier))

--      Heading Extensions

HeadingExtensionsField ::= SET OF HeadingExtensionsSubField

HeadingExtensionsSubField ::= ExtensionField  -- {{HeadingExtensions}}

HeadingExtensions EDIM-EXTENSION ::= {
        primary-body-part-compression-indication,
        ... }

primary-body-part-compression-indication EDIM-EXTENSION ::= {
        VALUE                 CompressionParameter, -- as defined for IPM File Transfer Body
                                                    -- Part
        CRITICALITY           TRUE
        IDENTIFIED BY         id-edi-compression }

COMPRESSION-ALGORITHM ::= CLASS {
        &id          OBJECT IDENTIFIER UNIQUE,
        &Type        OPTIONAL }
WITH SYNTAX { [VALUE &Type] IDENTIFIED BY &id }

v42BisCompression COMPRESSION-ALGORITHM ::= {
        VALUE          V42BisCompressionParameter
        IDENTIFIED BY  id-edi-compression-v42bis }

V42BisCompressionParameter ::= SEQUENCE {
        dictionary-size                    INTEGER DEFAULT 12,
        largest-compressed-chain           INTEGER DEFAULT 512,
        last-entries-to-delete             INTEGER DEFAULT 256 }

--      EDIM body

Body ::= SEQUENCE {
        primary-body-part                  PrimaryBodyPart,
        additional-body-parts              OtherBodyParts OPTIONAL }

PrimaryBodyPart ::= CHOICE {
        edi-body-part                      [0] EDIBodyPart,
        forwarded-EDIM                     [1] EDIMBodyPart }

OtherBodyParts ::= SEQUENCE OF EDIM-ExtendedBodyPart

--      EDI body part

EDIBodyPart ::= OCTET STRING

--      Forwarded EDIM body part

EDIMBodyPart ::= SEQUENCE {
        parameters                         [0] MessageParameters OPTIONAL,
        data                               [1] MessageData }
```

```
MessageParameters ::= SET {
delivery-time                               [0] MessageDeliveryTime OPTIONAL,
delivery-envelope                           [1] OtherMessageDeliveryFields OPTIONAL,
other-parameters                            [2] EDISupplementaryInformation OPTIONAL }
-- MessageDeliveryTime and OtherMessageDeliveryFields shall both be present or both be
-- absent.
-- EDISupplementaryInformation is used for the EDI auto-forward auto-action; see 18.7.1

MessageData ::= SEQUENCE {
        heading                             Heading,
        body                                BodyOrRemoved }

BodyOrRemoved ::= SEQUENCE {
        primary-or-removed                  PrimaryOrRemoved,
        additional-body-parts               AdditionalBodyParts OPTIONAL }

PrimaryOrRemoved ::= CHOICE {
        removed-edi-body                    [0] NULL,
        primary-body-part                   [1] EXPLICIT PrimaryBodyPart }

AdditionalBodyParts ::= SEQUENCE OF CHOICE {
        external-body-part                  [0] EDIM-ExtendedBodyPart,
        place-holder                        [1] BodyPartPlaceHolder } -- For Body Part Removal

BodyPartPlaceHolder ::= EDIM-ExtendedBodyPart -- Only the data  portion of the Extended Body
                    -- shall be removed. See text in 8.3.2.

--      EDIM Externally Defined Body Parts

EDIM-ExtendedBodyPart ::= SEQUENCE {
        body-part-reference                 [0] BodyPartReference OPTIONAL,
        extended-body-part                  [1] ExtendedBodyPart -- from IPMS --}

BodyPartReference ::= INTEGER -- shall be unique within a EDIM

--      Supplementary Info

EDISupplementaryInformation ::= TeletexString (SIZE (1..ub-supplementary-info-length))

--      EDI Notifications (EDINs)

EDIN ::= CHOICE {
        positive-notification               [0] PositiveNotificationFields,
        negative-notification               [1] NegativeNotificationFields,
        forwarded-notification              [2] ForwardedNotificationFields }

--      Common fields

CommonFields ::= SEQUENCE {
        subject-edim                        [1] SubjectEDIMField,
        edin-originator                     [2] EDINOriginatorField,
        first-recipient                     [3] FirstRecipientField OPTIONAL,
        notification-time                   [4] NotificationTimeField,
        notification-security-elements      [5] SecurityElementsField OPTIONAL,
        edin-initiator                      [6] EDINInitiatorField,
        notifications-extensions            [7] NotificationExtensionsField OPTIONAL }

--      Subject EDIM Identifier

SubjectEDIMField ::= EDIMIdentifier

--      EDI Notification Originator

EDINOriginatorField ::= ORName

--      First Recipient

FirstRecipientField ::= ORName

--      Notification Time

NotificationTimeField ::= UTCTime

--      Security Elements

SecurityElementsField ::= SEQUENCE {
        original-content                    [0] Content OPTIONAL,
        original-content-integrity-check    [1] ContentIntegrityCheck OPTIONAL,
        edi-application-security-elements   [2] EDIApplicationSecurityElementsField OPTIONAL,
        security-extensions                 [3] SecurityExtensionsField OPTIONAL }

SecurityExtensionsField ::= SET OF SecurityExtensionsSubField

SecurityExtensionsSubField ::= ExtensionField

--      EDIN Initiator

EDINInitiatorField ::= ENUMERATED {
        internal-ua (0),
        external-ua (1),
        internal-ms (2)}

--      Notification Extensions
```

```
NotificationExtensionsField ::= SET OF NotificationExtensionsSubField

NotificationExtensionsSubField ::= ExtensionField

--      Positive Notification fields

PositiveNotificationFields ::= SEQUENCE {
        pn-common-fields                    [0] CommonFields,
        pn-supplementary-information        [1] EDISupplementaryInformation OPTIONAL,
        pn-extensions                       [2] PNExtensionsField OPTIONAL }

--      Positive Notification Extensions

PNExtensionsField ::= SET OF PNExtensionsSubField

PNExtensionsSubField ::= ExtensionField

--      Negative notification fields

NegativeNotificationFields ::= SEQUENCE {

nn-common-fields                            [0] CommonFields,

nn-reason-code                              [1] NNReasonCodeField,

nn-supplementary-information                [2] EDISupplementaryInformation OPTIONAL,

nn-extensions                               [3] NNExtensionsField OPTIONAL }

--      Negative Notification Reason Codes

NNReasonCodeField ::= CHOICE {
        nn-ua-ms-reason-code                [0] NNUAMSReasonCodeField,
        nn-user-reason-code                 [1] NNUserReasonCodeField,
        nn-pdau-reason-code                 [2] NNPDAUReasonCodeField }

--      Negative Notification Reason Codes from an EDI-UA or EDI-MS

NNUAMSReasonCodeField ::= SEQUENCE {
        nn-ua-ms-basic-code                 [0] NNUAMSBasicCodeField,
        nn-ua-ms-diagnostic                 [1] NNUAMSDiagnosticField OPTIONAL }

--      Negative Notification Basic Reason Codes from an EDI-UA or EDI-MS. These codes are
--      those specified in Annex B of ITU-T Rec. F.435 | ISO/IEC 10021-8
--      for the element of service "EDI Notification Request".

NNUAMSBasicCodeField ::= INTEGER {
        unspecified                 (0),
        cannot-deliver-to-user      (1), -- the EDI Interchange can not be passed on to the
                                         -- user
        delivery-timeout            (2), -- the EDI Interchange could not be passed on to the
                                         -- user within a specified time limit
        message-discarded           (3), -- the UA/MS discarded the message before handoff to
                                         -- user
        subscription-terminated     (4), -- recipient's subscription terminated after delivery
                                         -- but before handoff to user
        forwarding-error            (5), -- EDI Forwarding was attempted, but failed
        security-error              (6)  -- security error
        -- physical delivery errors indicated by "cannot-deliver-to-user"
        } (0..ub-reason-code)

--      Negative Notification Diagnostic Codes from an EDI-UA or EDI-MS

NNUAMSDiagnosticField ::= INTEGER {
        -- This field may be used to further specify the error signalled in nn-ua-ms
        -- basic-code.
        -- Additional information may be indicated in nn-supplementary-information general
        -- diagnostic codes
        protocol-violation                (1), -- used if the UA detects a protocol error
        edim-originator-unknown           (2),
        edim-recipient-unknown            (3),
        edim-recipient-ambiguous          (4), -- used if the EDIM recipients or originator are
                                               -- not valid
        action-request-not-supported      (5), -- used when the action requested by the
                                               -- recipient is not performed
        edim-expired                      (6), -- used when the expiry date of the received
                                               -- EDIM occurred before the subject EDIM was
                                               -- successfully passed to the user or forwarded
                                               -- by the EDI-UA
        edim-obsoleted                    (7), -- used when the EDIM Identifier of the received
                                               -- EDIM was contained in the Obsoleted EDIM
                                               -- field of a previously received EDIM
        duplicate-edim                   (8), -- used when the same EDIM is received more than
                                              -- once from the same originator
        unsupported-extension            (9), -- used if the EDIM contains an extension which
                                              -- is not supported by the UA
        incomplete-copy-rejected        (10), -- used if the EDI-UA does not accept EDIMs with
                                              -- the Incomplete Copy Indication true
        edim-too-large-for-application  (11), -- used if the EDIM cannot be delivered to the
                                              -- user due to length constraints

        -- FORWARDING ERROR DIAGNOSTIC CODES
        forwarded-edim-not-delivered    (12), -- used when an Non-Delivery Report is received
                                              -- for forwarded EDIM
        forwarded-edim-delivery-time-out (13), -- used when no Delivery Report is received
                                              -- within a given period
        forwarding-loop-detected        (14), -- used if the UA receives an EDIM which
                                              -- contains a previously forwarded EDIM
        unable-to-accept-responsibility (15), -- used if the EDI-UA cannot accept or forward
                                              -- responsibility

        -- INTERCHANGE HEADER DIAGNOSTIC CODES
        interchange-sender-unknown      (16), -- used when the UA does not recognize the
                                              -- interchange-sender of the EDI interchange
        interchange-recipient-unknown   (17), -- used when the UA cannot find a valid
                                              -- interchange recipient in the Recipient
                -- Specifier
        invalid-heading-field           (18),
        invalid-bodypart-type           (19),
        invalid-message-type            (20),
        invalid-syntax-id               (21),

        -- SECURITY ERROR DIAGNOSTIC CODES
        message-integrity-failure       (22),
        forwarded-message-integrity-failure (23),
        unsupported-algorithm           (24),
        decryption-failed               (25),
        token-error                     (26),
        unable-to-sign-notification     (27),
        unable-to-sign-message-receipt  (28),
        authentication-failure          (29),
        security-context-failure        (30),
        message-sequence-failure        (31),
        message-security-labelling-failure (32),
        repudiation-failure             (33),
        proof-service-failure                (34),
        compression-unsupported         (35) -- the received compression is not supported
        } (1..ub-reason-code)

--      Negative Notification Reason Codes from a user

NNUserReasonCodeField ::= SEQUENCE {
        nn-user-basic-code   [0]  NNUserBasicCodeField,
        nn-user-diagnostic   [1]  NNUserDiagnosticField OPTIONAL }

--      Negative Notification Basic Reason Codes from a user

NNUserBasicCodeField ::= INTEGER {
        unspecified                   ( 0),
        syntax-error                   (1),  -- used when the user discovers a syntax error
                                             -- within the EDI interchange
        interchange-sender-unknown     (2),
        interchange-recipient-unknown  (3),  -- used when the UA cannot find a valid
                                             -- interchange recipient in the Recipient
                                             -- Specifier
        invalid-heading-field          (4),
        invalid-bodypart-type          (5),
        invalid-message-type           (6),
        functional-group-not-supported (7),
        subscription-terminated        (8), -- unknown to EDIMS-User service
        no-bilateral-agreement         (9),
        user-defined-reason            (10) } (0..ub-reason-code)

--      Negative Notification Diagnostic Codes from a user

NNUserDiagnosticField ::= INTEGER {
        compression-unsupported (1) -- the received compression is not supported --}
        (1..ub-reason-code)
        -- Contains reason passed by user when the value of nn-user-basic-code is
        -- user-defined-reason.
        -- Additional information may be indicated in nn-supplementary-information

--      Negative Notification Reason Codes from a PDAU

NNPDAUReasonCodeField ::= SEQUENCE {
        nn-pdau-basic-code                [0]  NNPDAUBasicCodeField,
        nn-pdau-diagnostic                [1]  NNPDAUDiagnosticField OPTIONAL }

--      Negative Notification Basic Reason Codes from a PDAU
```

```
NNPDAUBasicCodeField ::= INTEGER {
        unspecified (0),
        undeliverable-mail (1),
        -- used if the PDAU determines that it cannot perform physical delivery of the
        -- EDIM
        physical-rendition-not-performed (2)
        -- used if the PDAU cannot perform the physical rendition of the EDIM --  }
        (0..ub-reason-code)

--      Negative Notification Diagnostic Codes from a PDAU

NNPDAUDiagnosticField ::= INTEGER {
        -- This field may be used to further specify the error signalled in
        -- nn-pdau-basic-code
        -- Additional information may be indicated in the nn-supplementary-information
        undeliverable-mail-physical-delivery-address-incorrect (32),
        undeliverable-mail-physical-delivery-office-incorrect-or-invalid (33),
        undeliverable-mail-physical-delivery-address-incomplete (34),
        undeliverable-mail-recipient-unknown (35),
        undeliverable-mail-recipient-deceased (36),
        undeliverable-mail-organization-expired (37),
        undeliverable-mail-recipient-refused-to-accept (38),
        undeliverable-mail-recipient-did-not-claim (39),
        undeliverable-mail-recipient-changed-address-permanently (40),
        undeliverable-mail-recipient-changed-address-temporarily (41),
        undeliverable-mail-recipient-changed-temporary-address (42),
        undeliverable-mail-new-address-unknown (43),
        undeliverable-mail-recipient-did-not-want-forwarding (44),
        undeliverable-mail-originator-prohibited-forwarding (45),
        physical-rendition-attributes-not-supported (31) } (1..ub-reason-code)

--      Negative Notification Extension Field(s)

NNExtensionsField ::= SET OF NNExtensionsSubField

NNExtensionsSubField ::= ExtensionField

--      Forwarded Notification Fields

ForwardedNotificationFields ::= SEQUENCE {
        fn-common-fields                     [0] CommonFields,
        forwarded-to                         [1] ForwardedTo,
        fn-reason-code                       [2] FNReasonCodeField,
        fn-supplementary-information         [3] EDISupplementaryInformation OPTIONAL,
        fn-extensions                        [4] FNExtensionsField OPTIONAL }

--      Forwarded To

ForwardedTo ::= ORName

--      Forwarded Reason Code

FNReasonCodeField ::= CHOICE {
        fn-ua-ms-reason-code                 [0] FNUAMSReasonCodeField,
        fn-user-reason-code                  [1] FNUserReasonCodeField,
        fn-pdau-reason-code                  [2] FNPDAUReasonCodeField }

--      Forwarding Notification Reason Codes from an EDI-UA or EDI-MS

FNUAMSReasonCodeField ::= SEQUENCE {
        fn-ua-ms-basic-code                  [0]  FNUAMSBasicCodeField,
        fn-ua-ms-diagnostic                  [1]  FNUAMSDiagnosticField OPTIONAL,
        fn-security-check                    [2]  FNUAMSSecurityCheckField DEFAULT FALSE }

--      Forwarding Notification Basic Reason Codes from an EDI-UA or EDI-MS

FNUAMSBasicCodeField ::= INTEGER {
        unspecified             (0),
        onward-routing          (1),
        -- used whenever the UA decides to re-route the subject EDIM for local reasons
        edim-recipient-unknown  (2),
        edim-originator-unknown (3),
        forwarded-by-edi-ms     (4)
         } (0..ub-reason-code)

--      Forwarding Notification Diagnostic Reason Codes from an EDI-UA or EDI-MS
```

```
FNUAMSDiagnosticField ::= INTEGER {
        -- This field may be used to further specify the error signalled in
        -- fn-ua-ms-basic-code.
        -- Additional information may be indicated in fn-supplementary-information.
        recipient-name-changed (1),
        recipient-name-deleted (2)
         } (1..ub-reason-code)

--      Forwarding Notification Security Check Codes from an EDI-UA or EDI-MS.
--      This field may be used, with a value of TRUE, to indicate that all security
--      features present have been validated, with a value of FALSE, to indicate that
--      the security features have not been validated.

FNUAMSSecurityCheckField ::= BOOLEAN

--      Forwarding Notification Reason Codes from a user

FNUserReasonCodeField ::= SEQUENCE {
        fn-user-basic-code                  [0]  FNUserBasicCodeField,
        fn-user-diagnostic                  [1]  FNUserDiagnosticField OPTIONAL }

--      Forwarding Notification Basic Reason Codes from a user

FNUserBasicCodeField ::= INTEGER {
        unspecified (0),
        forwarded-for-archiving (1),
        forwarded-for-information (2),
        forwarded-for-additional-action (3),
        subscription-changed (4),
        heading-field-not-supported (5),
        bodypart-type-not-supported (6),
        message-type-not-supported (7),
        syntax-identifier-not-supported (8),
        interchange-sender-unknown (9),
        user-defined-reason (10)
        } (0..ub-reason-code)

--      Forwarding Notification Diagnostic Reason Codes from a user

FNUserDiagnosticField ::= INTEGER (1..ub-reason-code)
        -- Contains reason passed by user when value of fn-user-basic-code is
        -- user-defined-reason.
        -- Additional information may be indicated in fn-supplementary-information.

--      Forwarding Notification Reason Codes from a PDAU

FNPDAUReasonCodeField ::= SEQUENCE {
        fn-pdau-basic-code                  [0] FNPDAUBasicCodeField,
        fn-pdau-diagnostic                  [1] FNPDAUDiagnosticField OPTIONAL }

--      Forwarding Notification Basic Reason Codes from a PDAU

FNPDAUBasicCodeField ::= INTEGER {
        unspecified (0),
        forwarded-for-physical-rendition-and-delivery (1)
        } (0..ub-reason-code)

--      Forwarding Notification Diagnostic Codes from a PDAU

FNPDAUDiagnosticField ::= INTEGER (1..ub-reason-code)

--      Forwarded Notification Extensions

FNExtensionsField ::= SET OF FNExtensionsSubField

FNExtensionsSubField ::= ExtensionField

--      Message Store realization

edi-submission-options EDIM-EXTENSION ::= {
        VALUE EDISubmissionOptions,  IDENTIFIED BY  id-ext-submission-options }

EDISubmissionOptions ::= SET {
        assembly-instructions  [0]  BodyPartSpecifiers }

BodyPartSpecifiers ::= SEQUENCE OF BodyPartSpecifier

BodyPartSpecifier ::= CHOICE {
        stored-entry           [0]  SequenceNumber,
        submitted-body-part    [2]  INTEGER (1..MAX),
        stored-body-part       [3]  SEQUENCE {
             message-entry          SequenceNumber,
             body-part-number       INTEGER (1..MAX) } }

EDISubmissionErrors EDIM-EXTENSION ::= {
        invalid-assembly-instructions,
        ... -- For future extension additions -- }

invalid-assembly-instructions EDIM-EXTENSION ::= {
        VALUE BodyPartSpecifiers,  IDENTIFIED BY  id-ext-invalid-assembly-instructions }

END -- of EDIMSInformationObjects
```

Annex C

Reference definition of Message Store Attributes

(This annex forms an integral part of this Recommendation | International Standard)

This annex defines for reference purposes the MS attributes specific to EDIM Messaging. It uses the ATTRIBUTE information object class of ITU-T Rec. X.413 | ISO/IEC 10021-5.

```
EDIMSMessageStoreAttributes {joint-iso-itu-t mhs(6) edims(7) modules(0) message-store-attributes(4)
                            version(2)}

DEFINITIONS IMPLICIT TAGS ::=

BEGIN

--      Prologue

--      Exports everything

IMPORTS

--      EDIMS Object Identifiers

        id-bat-body, id-bat-edi-body-part, id-bat-edim-body-part, id-bat-extended-body-part-types,
        id-bat-interchange-length, id-bat-message-data, id-bat-message-parameters,
        id-cat-correlated-delivered-edins, id-cat-delivered-edin-summary, id-cat-edim-recipients,
        id-cat-forwarded-edims, id-cat-forwarding-edims, id-cat-obsoleted-edims,
        id-cat-obsoleting-edims, id-cat-related-edims, id-cat-relating-edims, id-cat-subject-edim,
        id-cat-submitted-edin-status, id-cat-submitted-edins, id-hat-application-reference,
        id-hat-cross-referencing-information, id-hat-date-and-time-of-preparation,
        id-hat-edi-application-security-element, id-hat-edi-application-security-extensions,
        id-hat-edi-bodypart-type, id-hat-edi-message-type, id-hat-edin-receiver, id-hat-expiry-time,
        id-hat-heading, id-hat-heading-extensions, id-hat-incomplete-copy, id-hat-interchange-sender,
        id-hat-obsoleted-edims, id-hat-originator, id-hat-recipients, id-hat-related-messages,
        id-hat-responsibility-forwarded,id-hat-service-string-advice, id-hat-syntax-identifier,
        id-hat-this-edim, id-nat-edin-initiator, id-nat-edin-originator, id-nat-first-recipient,
        id-nat-fn-extensions, id-nat-fn-reason-code, id-nat-fn-supplementary-info,
        id-nat-forwarded-to, id-nat-nn-extensions, id-nat-nn-reason-code,
        id-nat-nn-supplementary-info, id-nat-notification-extensions,
        id-nat-notification-security-elements, id-nat-notification-time, id-nat-pn-extensions,
        id-nat-pn-supplementary-info, id-nat-subject-edim,
        id-rat-acknowledgement-request-for-this-recipient, id-rat-action-request-for-this-recipient,
        id-rat-authorization-information-for-this-recipient,
        id-rat-communications-agreement-id-for-this-recipient,
        id-rat-edi-notification-requests-for-this-recipient,
        id-rat-edi-notification-security-for-this-recipient,
        id-rat-edi-reception-security-for-this-recipient,
        id-rat-interchange-control-reference-for-this-recipient,
        id-rat-interchange-recipient-for-this-recipient,
        id-rat-processing-priority-code-for-this-recipient,
        id-rat-recipient-extensions-for-this-recipient, id-rat-this-recipient,
        id-rat-recipient-reference-for-this-recipient,
        id-rat-responsibility-passing-allowed-for-this-recipient,
        id-rat-test-indicator-for-this-recipient, id-sat-edi-notification-indicator,
        id-sat-edim-synopsis, id-sat-edims-entry-type
                ----
                FROM EDIMSObjectIdentifiers {joint-iso-itu-t mhs(6) edims(7) modules(0)
                                            object-identifiers(0) version(2)}

--      EDIMS Information Objects

        AcknowledgementRequestField, ActionRequestField, ApplicationReferenceField,
        AuthorizationInformationField, Body, BodyPartReference, CommunicationsAgreementIdField,
        CrossReferencingInformationSubField, DateAndTimeOfPreparationField,
        EDIApplicationSecurityElement, EDIApplicationSecurityExtension, EDIBodyPart, EDIBodyPartType,
        EDIMessageTypeFieldSubField, EDINInitiatorField, EDINOriginatorField,
        EDINotificationRequests, EDINotificationSecurity, EDINReceiverField, EDIReceptionSecurity,
        EDISupplementaryInformation, ExpiryTimeField, FirstRecipientField, FNExtensionsSubField,
        FNReasonCodeField, ForwardedTo, Heading, HeadingExtensionsSubField, IncompleteCopyField,
        InterchangeControlReferenceField,  InterchangeRecipientField, InterchangeSenderField,
        MessageData, MessageParameters, NNReasonCodeField, NNExtensionsSubField,
        NotificationExtensionsSubField, NotificationTimeField, ObsoletedEDIMsSubfield,
        OriginatorField, PositiveNotificationFields, PNExtensionsSubField,
        ProcessingPriorityCodeField, RecipientExtensionsSubField, RecipientField,
        RecipientReferenceField, RecipientsSubField, RelatedMessageReference,
        ResponsibilityForwarded, ResponsibilityPassingAllowedField, SecurityElementsField,
        ServiceStringAdviceField, SubjectEDIMField, SyntaxIdentifierField, TestIndicatorField,
        ThisEDIMField
                ----
                FROM EDIMSInformationObjects {joint-iso-itu-t mhs(6) edims(7) modules(0)
                                             information-objects(2) version(2)}
```

```
--      MS Abstract Service

        ATTRIBUTE, SequenceNumber
                ----
                FROM MSAbstractService {joint-iso-itu-t mhs(6) ms(4) modules(0)
                                        abstract-service(1) version-1999(1)}

--      MS Matching-rules

        mSStringMatch, mSSubstringsMatch, oRNameElementsMatch, oRNameMatch, oRNameSingleElementMatch,
                oRNameSubstringElementsMatch
                ----
                FROM MSMatchingRules {joint-iso-itu-t mhs(6) ms(4) modules(0)
                                      general-matching-rules(5)}

--      IPMS Matching-rules

        iPMIdentifierMatch, iPMLocationMatch
                ----
                FROM IPMSMessageStoreAttributes {joint-iso-itu-t mhs(6) ipms(1) modules(0)
                                                 message-store-attributes(8) version-1999(1)}

--      Directory matching-rules

        bitStringMatch, booleanMatch, integerMatch, integerOrderingMatch, uTCTimeMatch,
        uTCTimeOrderingMatch
                ----
                FROM SelectedAttributeTypes {joint-iso-itu-t ds(5) module(1)
                                             selectedAttributeTypes(5) 3}

        objectIdentifierMatch
                ----
                FROM InformationFramework {joint-iso-itu-t ds(5) module(1)
                                           informationFramework(1) 3}

--      IPMS Information Objects

        EXTENDED-BODY-PART-TYPE
                ----
                FROM IPMSInformationObjects {joint-iso-itu-t mhs(6) ipms(1) modules(0)
                                             information-objects(2) version-1999(1)}

--      MTS Abstract Service

        ORName
                ----
                FROM MTSAbstractService {joint-iso-itu-t mhs(6) mts(3) modules(0)
                                         mts-abstract-service(1) version-1999(1)};

--      END imports

--      MESSAGE STORE ATTRIBUTES

--      Summary Attributes

--      EDIMS Entry Type

edims-entry-type ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    EDIMSEntryType,
        EQUALITY MATCHING-RULE   integerMatch,
        NUMERATION               single-valued,
        ID                       id-sat-edims-entry-type }

EDIMSEntryType ::= ENUMERATED {
        edim (0),
        pn   (1),
        nn   (2),
        fn   (3) }

--      EDIM Synopsis

edim-synopsis ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    EDIMSynopsis,
        NUMERATION               single-valued,
        ID                       id-sat-edim-synopsis }

EDIMSynopsis ::= SEQUENCE OF BodyPartSynopsis

BodyPartSynopsis ::= CHOICE {
        message         [0] MessageBodyPartSynopsis,
        non-message     [1] NonMessageBodyPartSynopsis }

MessageBodyPartSynopsis ::= SEQUENCE {
        number          [0] SequenceNumber,
        synopsis        [1] EDIMSynopsis }

NonMessageBodyPartSynopsis ::= SEQUENCE {
        type            [0] OBJECT IDENTIFIER,
        parameters      [1] INSTANCE OF TYPE-IDENTIFIER OPTIONAL,
        size            [2] INTEGER,
        processed       [3] BOOLEAN DEFAULT FALSE }
```

```
--      EDI Notification Indicator

edi-notification-indicator ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    EDINotificationIndicator,
        EQUALITY MATCHING-RULE   integerMatch,
        NUMERATION               single-valued,
        ID                       id-sat-edi-notification-indicator }

EDINotificationIndicator ::= ENUMERATED {
        no-notification-sent     (0),
        pn-sent                  (1),
        nn-sent                  (2),
        fn-sent                  (3) }

--      Heading Attributes

--      Heading

heading ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    Heading,
        NUMERATION               single-valued,
        ID                       id-hat-heading }

--      Heading Fields

this-edim ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    ThisEDIMField,
        EQUALITY MATCHING-RULE   iPMIdentifierMatch,
        NUMERATION               single-valued,
        ID                       id-hat-this-edim }

originator ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    OriginatorField,
        EQUALITY MATCHING-RULE   oRNameMatch,
        NUMERATION               single-valued,
        ID                       id-hat-originator }

edin-receiver ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    EDINReceiverField,
        -- EQUALITY MATCHING-RULE   rule not defined --
        NUMERATION               single-valued,
        ID                       id-hat-edin-receiver }

responsibility-forwarded ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    ResponsibilityForwarded,
        EQUALITY MATCHING-RULE   booleanMatch,
        NUMERATION               single-valued,
        ID                       id-hat-responsibility-forwarded }

edi-bodypart-type ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    EDIBodyPartType,
        EQUALITY MATCHING-RULE   objectIdentifierMatch,
        NUMERATION               single-valued,
        ID                       id-hat-edi-bodypart-type }

incomplete-copy ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    IncompleteCopyField,
        EQUALITY MATCHING-RULE   booleanMatch,
        NUMERATION               single-valued,
        ID                       id-hat-incomplete-copy }

expiry-time ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    ExpiryTimeField,
        EQUALITY MATCHING-RULE   uTCTimeMatch,
        ORDERING MATCHING-RULE   uTCTimeOrderingMatch, -- not defined in version 1 --
        NUMERATION               single-valued,
        ID                       id-hat-expiry-time }

related-messages ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    RelatedMessageReference,
        -- EQUALITY MATCHING-RULE   rule not defined --
        NUMERATION               multi-valued,
        ID                       id-hat-related-messages }

obsoleted-edims ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    ObsoletedEDIMsSubfield,
        EQUALITY MATCHING-RULE   iPMIdentifierMatch,
        NUMERATION               multi-valued,
        ID                       id-hat-obsoleted-edims }

edi-application-security-element ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    EDIApplicationSecurityElement,
        EQUALITY MATCHING-RULE   bitStringMatch,
        NUMERATION               single-valued,
        ID                       id-hat-edi-application-security-element }

edi-application-security-extensions ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    EDIApplicationSecurityExtension,
        EQUALITY MATCHING-RULE   bitStringMatch,
        NUMERATION               multi-valued,
        ID                       id-hat-edi-application-security-extensions }
```

```
cross-referencing-information ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    CrossReferencingInformationSubField,
        EQUALITY MATCHING-RULE   bitStringMatch,
        NUMERATION               multi-valued,
        ID                       id-hat-cross-referencing-information }

--      Fields from EDIFACT Interchange:

edi-message-type ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    EDIMessageTypeFieldSubField,
        EQUALITY MATCHING-RULE   mSStringMatch,
        NUMERATION               multi-valued,
        ID                       id-hat-edi-message-type }

service-string-advice ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    ServiceStringAdviceField,
        -- EQUALITY MATCHING-RULE   rule not defined --
        NUMERATION               single-valued,
        ID                       id-hat-service-string-advice }

syntax-identifier ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    SyntaxIdentifierField,
        -- EQUALITY MATCHING-RULE   rule not defined --
        NUMERATION               single-valued,
        ID                       id-hat-syntax-identifier }

interchange-sender ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    InterchangeSenderField,
        -- EQUALITY MATCHING-RULE   rule not defined --
        NUMERATION               single-valued,
        ID                       id-hat-interchange-sender }

date-and-time-of-preparation ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    DateAndTimeOfPreparationField,
        EQUALITY MATCHING-RULE   uTCTimeMatch,
        ORDERING MATCHING-RULE   uTCTimeOrderingMatch, -- rule not defined in version 1 --
        NUMERATION               single-valued,
        ID                       id-hat-date-and-time-of-preparation }

application-reference ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    ApplicationReferenceField,
        EQUALITY MATCHING-RULE   mSStringMatch,
        SUBSTRINGS MATCHING-RULE mSSubstringsMatch,
        NUMERATION               single-valued,
        ID                       id-hat-application-reference }

--      Heading extensions:

heading-extensions ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    HeadingExtensionsSubField,
        -- EQUALITY MATCHING-RULE   rule not defined --
        NUMERATION               multi-valued,
        ID                       id-hat-heading-extensions }

--      Recipient Subfield

this-recipient ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    RecipientField,
        EQUALITY MATCHING-RULE   oRNameMatch,
        NUMERATION               single-valued,
        ID                       id-rat-this-recipient }

action-request-for-this-recipient ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    ActionRequestField,
        EQUALITY MATCHING-RULE   objectIdentifierMatch,
        NUMERATION               single-valued,
        ID                       id-rat-action-request-for-this-recipient }

edi-notification-requests-for-this-recipient ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    EDINotificationRequests,
        EQUALITY MATCHING-RULE   bitStringMatch,
        NUMERATION               single-valued,
        ID                       id-rat-edi-notification-requests-for-this-recipient }

edi-notification-security-for-this-recipient ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    EDINotificationSecurity,
        EQUALITY MATCHING-RULE   bitStringMatch,
        NUMERATION               single-valued,
        ID                       id-rat-edi-notification-security-for-this-recipient }

edi-reception-security-for-this-recipient ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    EDIReceptionSecurity,
        EQUALITY MATCHING-RULE   bitStringMatch,
        NUMERATION               single-valued,
        ID                       id-rat-edi-reception-security-for-this-recipient }

responsibility-passing-allowed-for-this-recipient ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    ResponsibilityPassingAllowedField,
        EQUALITY MATCHING-RULE   booleanMatch,
        NUMERATION               single-valued,
        ID                       id-rat-responsibility-passing-allowed-for-this-recipient }
```

```
--      Fields from EDIFACT interchange

interchange-recipient-for-this-recipient ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    InterchangeRecipientField,
        -- EQUALITY MATCHING-RULE   rule not defined --
        NUMERATION               single-valued,
        ID                       id-rat-interchange-recipient-for-this-recipient }

recipient-reference-for-this-recipient ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    RecipientReferenceField,
        -- EQUALITY MATCHING-RULE   rule not defined --
        NUMERATION               single-valued,
        ID                       id-rat-recipient-reference-for-this-recipient }

interchange-control-reference-for-this-recipient ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    InterchangeControlReferenceField,
        EQUALITY MATCHING-RULE   mSStringMatch,
        SUBSTRINGS MATCHING-RULE mSSubstringsMatch,
        NUMERATION               single-valued,
        ID                       id-rat-interchange-control-reference-for-this-recipient }

processing-priority-code-for-this-recipient ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    ProcessingPriorityCodeField,
        EQUALITY MATCHING-RULE   mSStringMatch,
        NUMERATION               single-valued,
        ID                       id-rat-processing-priority-code-for-this-recipient }

acknowledgement-request-for-this-recipient ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX AcknowledgementRequestField,
        EQUALITY MATCHING-RULE   booleanMatch,
        NUMERATION               single-valued,
        ID                       id-rat-acknowledgement-request-for-this-recipient }

communications-agreement-id-for-this-recipient ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    CommunicationsAgreementIdField,
        EQUALITY MATCHING-RULE   mSStringMatch,
        SUBSTRINGS MATCHING-RULE mSSubstringsMatch,
        NUMERATION               single-valued,
        ID                       id-rat-communications-agreement-id-for-this-recipient }

test-indicator-for-this-recipient ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    TestIndicatorField,
        EQUALITY MATCHING-RULE   booleanMatch,
        NUMERATION               single-valued,
        ID                       id-rat-test-indicator-for-this-recipient }

--      END Fields from EDIFACT

--      Fields from ANSIX12 ISA

authorization-information-for-this-recipient ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    AuthorizationInformationField,
        -- EQUALITY MATCHING-RULE   rule not defined --
        NUMERATION               single-valued,
        ID                       id-rat-authorization-information-for-this-recipient }

--      END Fields from ANSIX12 ISA

recipient-extensions-for-this-recipient ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    RecipientExtensionsSubField,
        -- EQUALITY MATCHING-RULE   rule not defined --
        NUMERATION               multi-valued,
        ID                       id-rat-recipient-extensions-for-this-recipient }

--      Body Attributes

--      Body

body ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    Body,
        NUMERATION               single-valued,
        ID                       id-bat-body }

--      Body Analyses

interchange-length ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    InterchangeLength,
        ORDERING MATCHING-RULE   integerOrderingMatch,
        NUMERATION               single-valued,
        ID                       id-bat-interchange-length }

InterchangeLength ::= INTEGER

--      Primary Body Parts

edi-body-part ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    EDIBodyPart,
        NUMERATION               single-valued,
        ID                       id-bat-edi-body-part }
```

```
edim-body-part ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    SequenceNumber, -- sequence number of the forwarded EDIM entry
        NUMERATION               single-valued,
        ID                       id-bat-edim-body-part }

message-parameters ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    MessageParameters,
        NUMERATION               single-valued,
        ID                       id-bat-message-parameters }

message-data ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    MessageData,
        NUMERATION               single-valued,
        ID                       id-bat-message-data }

--      Extended Body Part Types

extended-body-part-types ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    OBJECT IDENTIFIER,
        EQUALITY MATCHING-RULE   objectIdentifierMatch,
        NUMERATION               multi-valued,
        ID                       id-bat-extended-body-part-types }

--      Description of the extended-body-part-types attribute syntax for parameter portion
--      only

EDIExtendedBodyPartParameterAttribute ::= SEQUENCE {
        body-part-reference      [0] BodyPartReference OPTIONAL,
        parameter                [1] EXTENDED-BODY-PART-TYPE.&parameters }

--      Notification Attributes

--      Common Fields

subject-edim ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    SubjectEDIMField,
        EQUALITY MATCHING-RULE   iPMIdentifierMatch,
        NUMERATION               single-valued,
        ID                       id-nat-subject-edim }

edin-originator ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    EDINOriginatorField,
        EQUALITY MATCHING-RULE   oRNameMatch,
        NUMERATION               single-valued,
        ID                       id-nat-edin-originator }

first-recipient ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    FirstRecipientField ,
        EQUALITY MATCHING-RULE   oRNameMatch,
        NUMERATION               single-valued,
        ID                       id-nat-first-recipient }

notification-time ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    NotificationTimeField,
        EQUALITY MATCHING-RULE   uTCTimeMatch,
        ORDERING MATCHING-RULE   uTCTimeOrderingMatch, -- rule not defined in version 1 --
        NUMERATION               single-valued,
        ID                       id-nat-notification-time }

notification-security-elements ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    SecurityElementsField,
        -- EQUALITY MATCHING-RULE   rule not defined --
        NUMERATION               single-valued,
        ID                       id-nat-notification-security-elements }

edin-initiator ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    EDINInitiatorField,
        EQUALITY MATCHING-RULE   integerMatch,
        NUMERATION               single-valued,
        ID                       id-nat-edin-initiator }

notification-extensions ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    NotificationExtensionsSubField,
        -- EQUALITY MATCHING-RULE   rule not defined --
        NUMERATION               multi-valued,
        ID                       id-nat-notification-extensions }

--      Positive Notification Extension Fields

pn-supplementary-information ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    EDISupplementaryInformation,
        EQUALITY MATCHING-RULE  mSStringMatch,
        SUBSTRINGS MATCHING-RULE mSSubstringsMatch,
        NUMERATION               single-valued,
        ID                       id-nat-pn-supplementary-info }

pn-extensions ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    PNExtensionsSubField,
        -- EQUALITY MATCHING-RULE   rule not defined --
        NUMERATION               multi-valued,
        ID                       id-nat-pn-extensions }
```

```
--      Negative Notification Fields

nn-reason-code ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    NNReasonCodeField,
        -- EQUALITY MATCHING-RULE   rule not defined --
        NUMERATION               single-valued,
        ID                       id-nat-nn-reason-code }

nn-supplementary-information ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    EDISupplementaryInformation,
        EQUALITY MATCHING-RULE   mSStringMatch,
        SUBSTRINGS MATCHING-RULE mSSubstringsMatch,
        NUMERATION               single-valued,
        ID                       id-nat-nn-supplementary-info }

nn-extensions ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    NNExtensionsSubField,
        -- EQUALITY MATCHING-RULE   rule not defined --
        NUMERATION               multi-valued,
        ID                       id-nat-nn-extensions }

--      Forwarded Fields

forwarded-to ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    ForwardedTo,
        EQUALITY MATCHING-RULE   oRNameMatch,
        NUMERATION               single-valued,
        ID                       id-nat-forwarded-to }

fn-reason-code ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    FNReasonCodeField,
        -- EQUALITY MATCHING-RULE   rule not defined --
        NUMERATION               single-valued,
        ID                       id-nat-fn-reason-code }

fn-supplementary-information ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    EDISupplementaryInformation,
        EQUALITY MATCHING-RULE   mSStringMatch,
        SUBSTRINGS MATCHING-RULE mSSubstringsMatch,
        NUMERATION               single-valued,
        ID                       id-nat-fn-supplementary-info }

fn-extensions ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    FNExtensionsSubField,
        -- EQUALITY MATCHING-RULE   rule not defined --
        NUMERATION               multi-valued,
        ID                       id-nat-fn-extensions }

--      Correlation attributes

ac-forwarding-edims ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    SequenceNumber,
        EQUALITY MATCHING-RULE   integerMatch,
        ORDERING MATCHING-RULE   integerOrderingMatch,
        NUMERATION               multi-valued,
        ID                       id-cat-forwarding-edims }

ac-forwarded-edims ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    SequenceNumber,
        EQUALITY MATCHING-RULE   integerMatch,
        ORDERING MATCHING-RULE   integerOrderingMatch,
        NUMERATION               multi-valued,
        ID                       id-cat-forwarded-edims }

ac-obsoleting-edims ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    SequenceNumber,
        EQUALITY MATCHING-RULE   integerMatch,
        ORDERING MATCHING-RULE   integerOrderingMatch,
        NUMERATION               multi-valued,
        ID                       id-cat-obsoleting-edims }

ac-obsoleted-edims ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    EDIMLocation,
        OTHER MATCHING-RULES     {iPMLocationMatch, ...}, -- from ITU-T Rec. X.420 |
                                                            ISO/IEC 10021-7
        NUMERATION               multi-valued,
        ID                       id-cat-obsoleted-edims }

EDIMLocation ::= CHOICE {
        stored        SET OF SequenceNumber,
        absent        NULL,
        ... }

ac-relating-edims ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    SequenceNumber,
        EQUALITY MATCHING-RULE   integerMatch,
        ORDERING MATCHING-RULE   integerOrderingMatch,
        NUMERATION               multi-valued,
        ID                       id-cat-relating-edims }
```

```
ac-related-edims ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    EDIMLocation,
        OTHER MATCHING-RULES     {iPMLocationMatch, ...},
        NUMERATION               multi-valued,
        ID                       id-cat-related-edims }

ac-subject-edim ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    SequenceNumber,
        EQUALITY MATCHING-RULE   integerMatch,
        ORDERING MATCHING-RULE   integerOrderingMatch,
        NUMERATION               single-valued,
        ID                       id-cat-subject-edim }

ac-edim-recipients ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    ORName,
        EQUALITY MATCHING-RULE   oRNameMatch,
        OTHER MATCHING-RULES     {oRnameElementsMatch | oRNameSubstringElementsMatch |
                                 oRNameSingleElementMatch},
        NUMERATION               multi-valued,
        ID                       id-cat-edim-recipients }

ac-delivered-edin-summary  ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    EDINStatus,
        EQUALITY MATCHING-RULE   bitStringMatch,
        NUMERATION               multi-valued,
        ID                       id-cat-delivered-edin-summary }

EDINStatus ::= BIT STRING {
        nn-requested             (0),
        fn-requested             (1),
        pn-requested             (2),
        nn-issued                (3),
        fn-issued                (4),
        pn-issued                (5) }

ac-correlated-delivered-edins ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    CorrelatedDeliveredEDINs,
        NUMERATION               multi-valued,
        ID                       id-cat-correlated-delivered-edins }

CorrelatedDeliveredEDINs ::= CHOICE {
        no-edin-received   [0]   NULL,
        edins-received     [1]   SEQUENCE OF SequenceNumber }

ac-submitted-edin-status ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    EDINStatus,
        EQUALITY MATCHING-RULE   bitStringMatch,
        NUMERATION               single-valued,
        ID                       id-cat-submitted-edin-status }

ac-submitted-edins ATTRIBUTE ::= {
        WITH ATTRIBUTE-SYNTAX    SequenceNumber,
        EQUALITY MATCHING-RULE   integerMatch,
        ORDERING MATCHING-RULE   integerOrderingMatch,
        NUMERATION               multi-valued,
        ID                       id-cat-submitted-edins }

END -- of EDIMSMessageStoreAttributes
```

Annex D

Reference definition of Message Store Auto-Action Types

(This annex forms an integral part of this Recommendation | International Standard)

This annex, a supplement to Annex C, defines for reference purposes the MS Auto-Actions specific to EDI Messaging. It uses the AUTO-ACTION information object class of ITU-T Rec. X.413 | ISO/IEC 10021-5.

```
EDIMSAutoActionTypes {joint-iso-itu-t mhs(6) edims(7) modules(0) message-store-auto-actions(7)
                      version(2)}

DEFINITIONS ::=

BEGIN

--      Prologue

--      Exports everything

IMPORTS

--      EDIMS Object Identifiers

        id-aae-duplicate-edin, id-act-edi-auto-acknowledgement, id-act-edi-auto-correlate,
        id-act-edi-auto-forward-v2, id-for-action
                ----
                FROM EDIMSObjectIdentifiers {joint-iso-itu-t mhs(6) edims(7) modules(0)
                                             object-identifiers(0) version(2)}

--      EDIMS Information Objects

        EDISupplementaryInformation, RecipientField, ActionRequestField,
        EDINotificationRequestsField, EDISupplementaryInformation, ResponsibilityPassingAllowedField
                ----
                FROM EDIMSInformationObjects {joint-iso-itu-t mhs(6) edims(7) modules(0)
                                              information-objects(2) version(2)}

--      MS Abstract Service

        AUTO-ACTION, AUTO-ACTION-ERROR, Filter, MSSubmissionOptions
                ----
                FROM MSAbstractService {joint-iso-itu-t mhs(6) ms(4) modules(0) abstract-service(1)
                                        version-1999(1)}

--      MTS Upper Bounds

        ub-recipients
                ----
                FROM MTSUpperBounds {joint-iso-itu-t mhs(6) mts(3) modules(0) upper-bounds(3)
                                     version-1999(1)}

--      MTS Abstract Service Definition

        element-of-service-not-subscribed, ExtensionField, inconsistent-request, originator-invalid,
        MessageSubmissionEnvelope, recipient-improperly-specified, remote-bind-error, security-error,
        submission-control-violated, unsupported-critical-function
                ----
                FROM MTSAbstractService {joint-iso-itu-t mhs(6) mts(3) modules(0)
                                         mts-abstract-service(1) version-1999(1)};

--      END Imports

--      EDI auto-actions information object set

EDIAutoActions AUTO-ACTION ::= {
        edi-auto-correlate |
        edi-auto-forward |
        edi-auto-acknowledgement }

--      Auto-Action Types

--      EDI Auto-Forward

edi-auto-forward AUTO-ACTION ::= {
        REGISTRATION PARAMETER IS  EDIAutoForwardRegistrationParameter
        ERRORS                     {auto-forwarding-loop | element-of-service-not-subscribed |
                                   inconsistent-request | originator-invalid |
                                   recipient-improperly-specified | remote-bind-error |
                                   security-error | submission-control-violated |
                                   unsupported-critical-function }
        IDENTIFIED BY                   id-act-edi-auto-forward-v2 }
```

```
EDIAutoForwardRegistrationParameter ::= SEQUENCE {
        filter                                [0] Filter OPTIONAL,
        edi-supplementary-info                [1] EDISupplementaryInformation OPTIONAL,
        delete-after-forwarding               [2] BOOLEAN DEFAULT FALSE,
        edi-forwarding-mode                   CHOICE {
        forwarding-with-responsibility-not-accepted   [3] NewRecipient,
        forwarding-with-responsibility-accepted       [4] ForwardWithRespAccepted },
        forwarding-envelope       [5] MessageSubmissionEnvelope,
        submission-options        [6] MSSubmissionOptions OPTIONAL }

NewRecipient ::= RecipientField

ForwardWithRespAccepted ::= SET {
        new-edin-receiver-name           [0] RecipientField OPTIONAL,
        per-recipient-heading-field      [1] SEQUENCE SIZE (1..ub-recipients) OF NextRecipientFields }

NextRecipientFields ::= SEQUENCE {
        next-recipient                       [1] RecipientField,
        next-recipient-action-request        [2] ActionRequestField DEFAULT {id-for-action},
        next-recipient-edi-notification-requests-field [3] EDINotificationRequestsField OPTIONAL,
        next-responsibility-passing-allowed [4] ResponsibilityPassingAllowedField DEFAULT FALSE }

--      EDI auto-correlate auto-action

edi-auto-correlate AUTO-ACTION ::= {
        IDENTIFIED BY    id-act-edi-auto-correlate }

--      EDI auto-acknowledgement auto-action

edi-auto-acknowledgement AUTO-ACTION ::= {
        REGISTRATION PARAMETER IS  EDIAutoAcknowledgementRegistrationParameter
        ERRORS                     {submission-control-violated | recipient-improperly-specified |
                                    element-of-service-not-subscribed | originator-invalid |
                                    inconsistent-request | security-error | remote-bind-error |
                                    unsupported-critical-function | duplicate-edin}
        IDENTIFIED BY              id-act-edi-auto-acknowledgement }

EDIAutoAcknowledgementRegistrationParameter ::= SET {
        auto-acknowledge-suppl-receipt-info   [0]  EDISupplementaryInformation OPTIONAL,
        submission-options                    [1]  MSSubmissionOptions OPTIONAL }

duplicate-edin AUTO-ACTION-ERROR ::= {
        CODE    global:id-aae-duplicate-edin }

--      EDI auto-action-error-table information object set

EDIAutoActionErrorTable AUTO-ACTION-ERROR ::= {
        auto-forwarding-loop |
        duplicate-edin |
        element-of-service-not-subscribed |
        inconsistent-request |
        originator-invalid |
        recipient-improperly-specified |
        remote-bind-error |
        security-error |
        submission-control-violated |
        unsupported-critical-function }

auto-forwarding-loop AUTO-ACTION-ERROR ::= {
        CODE    global:id-aae-edi-auto-forwarding-loop }

END -- of EDIMSAutoActionTypes
```

Annex E

Reference definition of EDIMS Functional Objects

(This annex forms an integral part of this Recommendation | International Standard)

This annex defines for reference purposes the functional objects of EDI Messaging. It uses the MHS-OBJECT information object class of ITU-T Rec. X.411 | ISO/IEC 10021-4.

```
EDIMSFunctionalObjects {joint-iso-itu-t mhs(6) edims(7) modules(0) functional-objects(1)}

DEFINITIONS IMPLICIT TAGS ::=

BEGIN

--      Prologue

--      Exports everything

IMPORTS

--      EDIMS Abstract Service

        origination, reception
                ----
                FROM EDIMSAbstractService {joint-iso-itu-t mhs(6) edims(7) modules(0)
                                        abstract-service(3)}

--      EDIMS Object Identifiers

        id-ot-edimg-user
                ----
                FROM EDIMSObjectIdentifiers {joint-iso-itu-t mhs(6) edims(7) modules(0)
                                          object-identifiers(0) version(2)}

--      Remote operations

        CONTRACT
                ----
                FROM Remote-Operations-Information-Objects {joint-iso-itu-t remote-operations(4)
                                                         informationObjects(5) version1(0)}

--      MTS Abstract Service

        MHS-OBJECT
                ----
                FROM MTSAbstractService {joint-iso-itu-t mhs(6) mts(3)  modules(0)
                                      mts-abstract-service(1) version-1999(1)};

--      END imports

--      Primary Object Types

--      EDI User

edimg-user MHS-OBJECT ::= {
        INITIATES    {edims-access-contract}
        ID           id-ot-edimg-user }

edims-access-contract CONTRACT ::= {
        INITIATOR CONSUMER OF { origination | reception } }

--      EDI Messaging System

edims MHS-OBJECT ::= {
        RESPONDS     {edims-access-contract}
        ID
        id-ot-edims }

END --  of EDIMSFunctionalObjects
```

Annex F

Reference definition of EDIMS Abstract Service

(This annex forms an integral part of this Recommendation | International Standard)

This annex defines for reference purposes the EDIMS Abstract Service. It uses the PORT, ABSTRACT-OPERATION and ABSTRACT-ERROR information object classes of ITU-T Rec. X.411 | ISO/IEC 10021-4.

```
EDIMSAbstractService {joint-iso-itu-t mhs(6) edims(7) modules(0) abstract-service(3)}

DEFINITIONS IMPLICIT TAGS ::=

BEGIN

--      Prologue

--      Exports everything

IMPORTS

--      EDIMS Information Objects

        EDIM, EDIN, InformationObject
                 ----
                 FROM EDIMSInformationObjects {joint-iso-itu-t mhs(6) edims(7) modules(0)
                                                information-objects(2) version(2)}

--      EDIMS Object Identifiers

        id-pt-origination, id-pt-reception
                ----
                FROM EDIMSObjectIdentifiers {joint-iso-itu-t mhs(6) edims(7) modules(0)
                                             object-identifiers(0) version(2)}

--      MTS Abstract Service

        ABSTRACT-ERROR, ABSTRACT-OPERATION, MessageDeliveryEnvelope, MessageSubmissionEnvelope,
        MessageSubmissionIdentifier, MessageSubmissionTime, PORT, ProbeSubmissionEnvelope,
        ProbeSubmissionIdentifier, ProbeSubmissionTime, recipient-improperly-specified,
        ReportDeliveryEnvelope
                ----
                FROM MTSAbstractService {joint-iso-itu-t mhs(6) mts(3)  modules(0)
                                         mts-abstract-service(1) version-1999(1)};

--      Primary Port Types

--      Origination

origination PORT ::= {
        CONSUMER INVOKES {
        originate-probe |
        originate-edim |
        originate-edin }
        ID                  id-pt-origination }

--      Reception

reception PORT ::= {
        SUPPLIER INVOKES {
        receive-report |
        eceive-edim |
        receive-edin }
        ID                 id-pt-reception }

--      ABSTRACT OPERATIONS

--      Origination Abstract Operations

--      Originate Probe

originate-probe ABSTRACT-OPERATION ::= {
        ARGUMENT SET {
            envelope                          [0] ProbeSubmissionEnvelope,
            content                           [1] EDIM }
        RESULT SET {
            submission-identifier             [0] ProbeSubmissionIdentifier,
            submission-time                   [1] ProbeSubmissionTime }
        ERRORS {
            recipient-improperly-specified } }

--      Originate EDIM
```

```
originate-edim ABSTRACT-OPERATION ::= {
        ARGUMENT SET {
            envelope                        [0] MessageSubmissionEnvelope,
            content                         [1] EDIM }
        RESULT SET {
            submission-identifier           [0] MessageSubmissionIdentifier,
            submission-time                 [1] MessageSubmissionTime }
        ERRORS {
            recipient-improperly-specified } }

--      Originate EDIN

originate-edin ABSTRACT-OPERATION ::= {
        ARGUMENT SET {
            envelope                        [0] MessageSubmissionEnvelope,
            content                         [1] EDIN }
        RESULT SET {
            submission-identifier           [0] MessageSubmissionIdentifier,
            submission-time                 [1] MessageSubmissionTime }
        ERRORS {
            recipient-improperly-specified } }

        --  Reception Abstract Operations

        --  Receive Report

receive-report ABSTRACT-OPERATION ::= {
        ARGUMENT SET {
            envelope                        [0] ReportDeliveryEnvelope,
            undelivered-object              [1] InformationObject OPTIONAL } }

--      Receive EDIM

receive-edim ABSTRACT-OPERATION ::= {
        ARGUMENT SET {
            envelope                        [0] MessageDeliveryEnvelope,
            content                         [1] EDIM } }

--      Receive EDIN

receive-edin ABSTRACT-OPERATION ::= {
        ARGUMENT SET {
            envelope                        [0] MessageDeliveryEnvelope,
            content                         [1] EDIN } }

END -- of EDIMSAbstractService
```

Annex G

Reference definition of EDIMS Upper Bounds Parameters

(This annex forms an integral part of this Recommendation | International Standard)

This annex defines for reference purposes the upper bounds of various variable-length information items whose abstract syntaxes are defined in the ASN.1 modules of prior annexes.

```
EDIMSUpperBounds { joint-iso-itu-t mhs(6) edims(7) modules(0) upper-bounds(5)}

DEFINITIONS ::=

BEGIN

--      Prologue

--      Exports everything

IMPORTS -- nothing -- ;

--      Upper bounds

ub-application-reference                        INTEGER ::= 14

ub-authorization-information                    INTEGER ::= 10

ub-authorization-information-qualifier          INTEGER ::= 2

ub-communications-agreement-id                  INTEGER ::= 35

ub-edi-association-assigned-code                INTEGER ::= 6

ub-edi-application-security-elements            INTEGER ::= 8191

ub-edi-controlling-agency                       INTEGER ::= 2

ub-edi-document-release                         INTEGER ::= 3

ub-edi-document-version                         INTEGER ::= 3

ub-edi-message-type                             INTEGER ::= 6

ub-identification-code-qualifier                INTEGER ::= 4

ub-identification-code                          INTEGER ::= 35

ub-interchange-control-reference                INTEGER ::= 14

ub-local-reference                              INTEGER ::= 64

ub-processing-priority-code                     INTEGER ::= 1

ub-reason-code                                  INTEGER ::= 32767

ub-recipient-reference-qualifier                INTEGER ::= 2

ub-recipient-reference                          INTEGER ::= 14

ub-recipients                                   INTEGER ::= 32767

ub-routing-address                              INTEGER ::= 14

ub-syntax-identifier                            INTEGER ::= 4

ub-syntax-version                               INTEGER ::= 5

END -- of EDIMSUpperBounds
```

Annex H

Reference definition of Directory Object Classes and Attributes

(This annex forms an integral part of this Recommendation | International Standard)

This annex defines for reference purposes the object identifiers, object classes, attributes, and attribute syntaxes specific to EDI use of Directory. It uses the OBJECT-CLASS and ATTRIBUTE information object classes of ITU-T Rec. X.501 | ISO/IEC 9594-2. Annex J contains a discussion and description of the objects defined here.

```
EDIUseOfDirectory {joint-iso-itu-t mhs(6) edims(7) modules(0) edi-directory-cl-att(6) version(2)}

DEFINITIONS IMPLICIT TAGS ::=

BEGIN

--      Prologue

--      Exports everything

IMPORTS

--      EDIMS Object Identifiers

        ID, id-dir
                ----
                FROM EDIMSObjectIdentifiers {joint-iso-itu-t mhs(6) edims(7) modules(0)
                                             object-identifiers(0) version(2)}

--      EDIMS Information Objects

        EDIBodyPartType, EDIMessageTypeFieldSubField, SyntaxIdentifier, SyntaxVersion
                ----
                FROM EDIMSInformationObjects {joint-iso-itu-t mhs(6) edims(7) modules(0)
                                              information-objects(2) version(2)}

--      EDIMS Upper bounds

        ub-edi-association-assigned-code, ub-edi-controlling-agency,
        ub-edi-document-release, ub-edi-document-version
                ----
                FROM EDIMSUpperBounds {joint-iso-itu-t mhs(6) edims(7) modules(0) upper-bounds(5)}

--      MHS Directory Object Classes and Attributes

        mhs-user, mhs-user-agent, mhs-message-store
                ----
                FROM MHSDirectoryObjectsAndAttributes {joint-iso-itu-t mhs(6) arch(5) modules(0)
                                                       directory(1) version-1999(1)}

--      Information Framework

        ATTRIBUTE, OBJECT-CLASS, top
                ----
                FROM InformationFramework {joint-iso-itu-t ds(5) modules(1) informationFramework(1) 3}

--      Selected Object Classes

        applicationEntity
                ----
                FROM SelectedObjectClasses {joint-iso-itu-t ds(5) modules(1)
                                            selectedObjectClasses(6) 3}

--      Selected Attribute Types

        objectIdentifierFirstComponentMatch
                ----
                FROM SelectedAttributeTypes {joint-iso-itu-t ds(5) modules(1)
                                             selectedAttributeTypes(5) 3};

--      END Imports

--      OBJECT IDENTIFIER ASSIGNMENTS FOR USE OF DIRECTORY

--      Categories

id-doc  ID ::=  {id-dir  0}  -- directory object classes
id-dat  ID ::=  {id-dir  1}  -- directory attribute types

--      Directory Object Classes

id-doc-edi-user                                  ID ::= {id-doc 0}
id-doc-edi-user-agent                            ID ::= {id-doc 1}
id-doc-edi-message-store                         ID ::= {id-doc 2}
```

```
--      Directory Attribute Types

id-dat-edi-name                                  ID ::= {id-dat 0}
id-dat-edi-routing-address                       ID ::= {id-dat 1}
id-dat-edi-capabilities                          ID ::= {id-dat 2}

--      END Object Identifier Assignments

--      Object Classes for EDI Use of Directory

--      EDI User

edi-user OBJECT-CLASS ::= {
        SUBCLASS OF   {top}
        MUST CONTAIN  {edi-name}
        MAY CONTAIN   {edi-routing-address | edi-capabilities}
        ID            id-doc-edi-user }

--      EDI User Agent

edi-user-agent OBJECT-CLASS ::= {
        SUBCLASS OF   {mhs-user-agent}
        MAY CONTAIN   {edi-capabilities}
        ID            id-doc-edi-user-agent }

--      EDI Message Store

edi-message-store OBJECT-CLASS ::= {
        SUBCLASS OF   {mhs-message-store}
        MAY CONTAIN   {edi-capabilities}
        ID            id-doc-edi-message-store }

--      ATTRIBUTES

--      EDI Name

edi-name ATTRIBUTE ::= {
        WITH SYNTAX            DirectoryString
        SINGLE VALUE           TRUE
        ID                     id-dat-edi-name }

        --   The edi-name shall be one of the following:

        --   *  a name assigned by an EDI naming authority, e.g. the Sender-ID or the
        --   Receiver-ID,
        --   *  a name assigned by the EDI user's organization.

--      EDI Routing Address

edi-routing-address ATTRIBUTE ::= {
        WITH SYNTAX            DirectoryString
        SINGLE VALUE           TRUE
        ID                     id-dat-edi-routing-address }
        --  The term edi-routing-address reflects its derivation from a data element in
        --  the EDI Interchange with the same name.

--      EDI Capabilities

edi-capabilities ATTRIBUTE ::= {
        WITH SYNTAX            EDIUserCapability
        EQUALITY MATCHING RULE objectIdentifierFirstComponentMatch
        ID                     id-dat-edi-capabilities }

EDIUserCapability ::=  SEQUENCE {
        edi-bodypart-type                       [0] EDIBodyPartType OPTIONAL,
        edi-processable-document                [1] EDIProcessableDocument OPTIONAL }

EDIProcessableDocument ::= SEQUENCE {
        standardVersion                         [0] SyntaxVersion OPTIONAL,
        standardSyntaxId                        [1] SyntaxIdentifier OPTIONAL,
        documentType                            [2] EDIMessageTypeFieldSubField OPTIONAL,
        documentVersion                         [3] DocumentVersion OPTIONAL,
        documentRelease                         [4] DocumentRelease OPTIONAL,
        controllingAgency                       [5] ControllingAgency OPTIONAL,
        associationAssignedCode                 [6] AssociationAssignedCode OPTIONAL }

AssociationAssignedCode ::= TeletexString (SIZE(1..ub-edi-association-assigned-code))

ControllingAgency ::= TeletexString (SIZE(1..ub-edi-controlling-agency))

DocumentRelease ::= TeletexString (SIZE(1..ub-edi-document-release))

DocumentVersion ::= TeletexString (SIZE(1..ub-edi-document-version))

END -- EDIMUseOfDirectory module
```

Annex I

Enhanced Security Model

(This annex forms an integral part of this Recommendation | International Standard)

I.1 Introduction

This annex describes the enhancements required to the security model defined in ITU-T Rec. X.402 | ISO/IEC 10021-2.

In order to provide the security services defined in this Recommendation | International Standard and the underlying security services of the MTS, the MTS and MSs must support secure messaging as defined in ITU-T Rec. F.400/X.400 and ITU-T Recs. X.402, X.411 and X.413 | ISO/IEC 10021, Parts 2, 4, and 5.

I.2 Security Services

The additional security services and pervasive mechanisms described in ITU-T Rec. F.435 | ISO/IEC 10021-8 require the security model defined in clause 10 of ITU-T Rec. X.402 | ISO/IEC 10021-2 to be enhanced with the following security services:

- Non-repudiation/Proof of Reception;
- Non-repudiation/Proof of Retrieval;
- Non-repudiation/Proof of Transfer;
- Non-repudiation of Content.

I.3 Enhancements to subclause 10.2: Security Services

I.3.1 Changes to ITU-T Rec. X.402 | ISO/IEC 10021-2

Changes to Table 7/X.402 are shown in Table I.1. Two new classes of services are added; these are EDIM Responsibility Authentication and Non-repudiation of EDIM Responsibility.

Table I.1 – Additions to Table 7/X.402

Services	UA UA	UA MS	MS MTA	UA MTA	MTA MS	MTA MTA	MTA UA	MS UA
Origin Authentication	(as defined in *ITU-T Rec. X.402 | ISO/IEC 10021-2*)							
EDIM Responsibility Authentication								
Proof of EDI Notification	**X**	–	–	–	–	–	–	–
Proof of Retrieval	–	**X**	–	–	–	–	–	–
Proof of Transfer	–	–	–	–	–	**X**	–	–
Secure Access Management	(as defined in *ITU-T Rec. X.402 | ISO/IEC 10021-2*)							
Data Confidentiality	(as defined in *ITU-T Rec. X.402 | ISO/IEC 10021-2*)							
Data Integrity	(as defined in *ITU-T Rec. X.402 | ISO/IEC 10021-2*)							
Non-repudiation	(as defined in *ITU-T Rec. X.402 | ISO/IEC 10021-2*)							
Non-repudiation of EDIM Responsibility	(as defined in *ITU-T Rec. X.402 | ISO/IEC 10021-2*)							
Non-repudiation of EDI Notification	**X**	–	–	–	–	–	–	–
Non-repudiation of Retrieval	–	**X**	–	–	–	–	–	–
Non-repudiation of Transfer	–	–	–	–	–	**X**	–	–
Non-repudiation of Content	**X**	–	–	–	–	–	–	–
Message Security Labelling	(as defined in *ITU-T Rec. X.402 | ISO/IEC 10021-2*)							
Security Management Services	(as defined in *ITU-T Rec. X.402 | ISO/IEC 10021-2*)							

NOTE – In this Table UA means EDI-UA and MS means EDI-MS. The column headings in the above table correspond to those of ITU-T Rec. X.402 | ISO/IEC 10021-2 (except that typographical errors in ITU-T Rec. X.402 | ISO/IEC 10021-2 are not reproduced in the above table). Rows shown in bold typeface indicate classes of security services.

I.3.2 EDIM Responsibility authentication services

I.3.2.1 Proof of EDI Notification

This security service enables the originator of a message to obtain corroboration that his message has been received, and EDIM Responsibility has been accepted, forwarded, or refused.

This service may be provided by using the Content Integrity check on message submission applied to the EDI Notification of the subject EDIM.

I.3.2.2 Proof of retrieval

This security service enables the MS administrator to obtain corroboration that a particular message has been retrieved from the EDI-MS by the EDI-UA.

Implementation of this security service is a local issue. Additional pervasive mechanisms described in ITU-T Rec. F.435 | ISO/IEC 10021-8 may be used to provide this service.

I.3.2.3 Proof of transfer

This security service enables an MTA or an MD to obtain corroboration that a message has been transferred (relayed) to another MTA within another domain. Implementation of this security service is a local issue. Additional pervasive mechanisms described in ITU-T Rec. F.435 | ISO/IEC 10021-8 may be used to provide this service.

NOTE – As a local matter this service may also be useful between MTAs within an MD.

I.4 Non-repudiation of EDIM Responsibility services

I.4.1 Non-repudiation of EDI Notification

This security service provides the Originator of a message with irrevocable proof that the message has been received, and EDIM Responsibility has been accepted, forwarded, or refused.

I.4.2 Non-repudiation of retrieval

This security service provides the EDI-MS administrator and the EDI-UA with irrevocable proof that a message has been retrieved from the EDI-MS by the EDI- UA. Implementation of this security service is a local issue. Additional pervasive mechanisms described in ITU-T Rec. F.435 | ISO/IEC 10021-8 may be used to provide this service.

I.4.3 Non-repudiation of transfer

This security service provides an MTA or an MD with irrevocable proof that a message has been transferred (relayed) to another MTA within another domain. Implementation of this security service is a local issue. Additional pervasive mechanisms described in ITU-T Rec. F.435 | ISO/IEC 10021-8 may be used to provide this service.

NOTE – As a local matter this service may also be useful between MTAs within an MD.

I.4.4 Non-repudiation of Content

This security service provides an EDIMG user with irrevocable proof of the authenticity and integrity of the content of the message.

This security service may be provided in two ways:

1) using a Notarisation Mechanism, or

2) using the Non-repudiation of Origin security service applied to the subject message and the EDI Notification of the subject message, provided the EDI Notification includes irrevocable proof of the content of the subject message.

Annex J

Directory Object Classes and Attributes

(This annex forms an integral part of this Recommendation | International Standard)

J.1 Introduction

Several Directory object class attributes and attribute syntaxes are specific for an *EDI user*. These are defined in Annex H of this Recommendation | International Standard. In this annex, *EDI user* refers to a generic EDI user that is not bound to a communication mechanism or any named entity, such as country or organization. The term *EDI user* is used in this annex to mean a generic EDI user. *EDI user* is not to be confused with the terms "EDI messaging system user" and "user" defined in the main text of this Recommendation | International Standard..

J.2 Object Classes

The object classes specific to EDI use of the Directory are:

- EDI User object class;
- EDI User Agent object class;
- EDI Message Store object class.

J.2.1 EDI User Object Class

The EDI User object class defines the characteristics of an *EDI user*. The attributes in its definition identify the EDI user's name and, to the extent that they are present, identify the *EDI user*'s capabilities.

NOTE – The definition of the EDI User object class is generic and is formally outside the scope of MHS. However, no other group has provided a definition and therefore the present definition is provided.

J.2.2 EDI User Agent Object Class

An EDI User Agent object class defines an Application Entity that is able to realize an EDI-UA. The attributes in its definition, to the extent that they are present, define the capabilities of the EDI-UA, identify the EDI-UA's owner, its deliverable content length, content types and EITs, and its OR Address. Some of these attributes are derived from the MHS User Agent object class defined in ITU-T Rec. X.402 | ISO/IEC 10021-2.

J.2.3 EDI Message Store Object Class

An EDI Message Store object class defines an Application Entity that is able to realize an EDI-MS. The attributes in its definition, to the extent that they are present, describe the EDI-MS, identify its owner, specify its capabilities and enumerate the optional attributes, auto-actions and content types it supports. Some of these attributes are derived from the MHS Message Store object class defined in ITU-T Rec. X.402 | ISO/IEC 10021-2.

J.3 Attributes

The attributes specific to EDI use of the Directory are:

- EDI Name attribute;
- EDI Routing Address attribute;
- EDI Capabilities attribute.

J.3.1 EDI Name Attribute

The EDI Name attribute identifies the *EDI user*. The EDI Name attribute corresponds to the Sender identification code of the Interchange sender (or Recipient identification code of the Interchange recipient) fields of the EDI Interchange header segment.

J.3.2 EDI Routing Address Attribute

The EDI Routing Address attribute further qualifies the name of an *EDI user*. It corresponds to the Routing Address sub-field of the Interchange Recipient field defined in the EDIM Heading field.

J.3.3 EDI Capabilities Attribute

The EDI Capabilities attribute defines the capabilities of an *EDI user*. These capabilities include the support of EDI documents and EDI Interchange types.

The EDI Interchange types are represented by object identifiers.

J.4 Attribute Syntaxes

The attribute syntax specific to EDI use of the Directory is identified as EDI Capabilities attribute syntax.

The EDI Capabilities attribute syntax describes an attribute each of whose values identifies two components:

- supported EDI Interchange types (EDI Bodypart Types Syntax),
- EDI documents processable by the EDI user.

Only equality matching rules apply for this attribute.

J.4.1 EDI Bodypart Type Syntax

The EDI Bodypart Type syntax identifies the EDI standard (EDIFACT, ANSIX12, UNTDI or Private), and character set and/or encoding that *EDI user* is able to handle. It is characterized by an object identifier. Annex A of this Recommendation | International Standard defines a set of object identifiers that may be used as a value for this attribute.

J.4.2 EDI Processable Document Syntax

An EDI Processable Document syntax, depending on its type, identifies an EDI document by:

a) *Standard Version:* the value identifies the version of the Standard.

b) *Standard Syntax Identifier:* the value identifies the syntax version of the standard.

NOTE – For example, for EDIFACT, this identifies which syntax level is supported (Level A or B).

c) *Document Type:* the value identifies the structure of the document.

d) *Document Version:* the value identifies the version of the Document Type.

e) *Document Release:* the value identifies the release of the Document Type.

f) *Controlling Agency:* this value identifies the agency that ratified the definition of the standard document.

g) *Association Assigned Code:* this identifies who developed the definition of the document.

Annex K

Comparison of terms of EDI syntaxes

(This annex does not form an integral part of this Recommendation | International Standard)

The purpose of this annex is to facilitate comparison between the terms used in different EDI standards.

The heading fields of an EDIM are described in clause 8. These descriptions, in many cases, reflect the terminology of the EDIFACT syntax (ISO 9735). Where another EDI syntax standard is used (as reflected in the EDI Body Part Type field in the header), the terminology will not be fully compatible.

Thus, Table K.1 outlines the comparable fields (data elements) in the United Nations Trade Data Interchange (UNTDI) and the American National Standards Institute X12 (ANSIX12) standards.

The following definitions from Annex A of ISO 9735 are included in order to aid understanding of the material in this annex:

- *Interchange:* communication between partners in the form of a structured set of messages and service segments starting with an interchange control header and ending with an interchange control trailer.
- *Segment:* a predefined and identified set of functionally related data element values which are identified by their sequential position within the set. A segment starts with a segment tag and ends with a segment terminator. It can be a service segment or a user data segment.
- *Data element:* a unit of data for which the identification, description and value representation have been specified.

Table K.1 lists the EDIM Heading fields which are related to EDI Interchange header segments and shows the corresponding EDIFACT, UNTDI and ANSIX12 data elements present in, respectively, the UNA plus UNB, STX and ISA segments.

Table K.1 – Comparison of terms for EDI Interchange header fields

X.435 | 10021-9 Fields	EDIFACT	UNTDI	ANSIX12
Heading	(UNA and UNB)	(STX)	(ISA)
Service String Advice	Service string advice	–	1 Data Element Separator 2 Segment Terminator 3 Subelement Separator
Syntax Identifier	Syntax identifier	Syntax rules identifier	1 Interchange Standard Identifier 2 Interchange Version ID
Interchange Sender	Interchange sender	Transmission sender	Interchange Sender ID
Interchange Recipient	Interchange recipient	Transmission recipient	Interchange Receiver ID
Date And Time Of Preparation	Date/time of preparation	Date and time of transmission	1 Interchange Date 2 Interchange Time
Interchange Control Reference	Interchange control reference	Sender's transmission reference	Interchange Control Number
Recipient Reference	Recipients reference, password	Recipient's transmission reference/password	Security Information
Application Reference	Application reference	Application reference	–
Processing Priority Code	Processing priority code	Transmission priority code	–
Acknowledgement Request	Acknowledgement request	–	Acknowledgement Requested
Communications Agreement ID	Communications agreement ID	–	–
Test Indicator	Test indicator	–	Test Indicator
Authorization Information	–	–	Authorization Information

The equivalents shown in the following table may also be found to be useful. Table K.2 relates certain segments of EDIFACT, UNTDI and ANSIX12 in order to show the equivalent terms for each of the three EDI standards.

Table K.2 – Comparison of terms of EDI Interchange header segments

EDIFACT	UNTDI	ANSIX12
Interchange Header (UNA and UNB)	Start of Transmission (STX)	Interchange Header (ISA)
Functional Group Header (UNG)	–	Functional Group Header (GS)
Message Header (UNH)	Message Header (MHD)	Transaction Set Header (ST)

Annex L

Comparison of terms in this Recommendation | International Standard and ITU-T Rec. F.435 | ISO/IEC 10021-8

(This annex does not form an integral part of this Recommendation | International Standard)

The purpose of this annex is to facilitate comparison between the terminology used in this Recommendation | International Standard and that used in ITU-T Rec. F.435 | ISO/IEC 10021-8.

Table L.1 shows how Elements of Service defined in ITU-T Rec. F.435 | ISO/IEC 10021-8 are realized with protocol elements in this Recommendation | International Standard. The Elements of Service appear in the order in which they are defined in Annex B of ITU-T Rec. F.435 | ISO/IEC 10021-8. For this Recommendation | International Standard, reference is made to the title of the divisions which define the protocol elements.

Table L.1 – Comparison of terms in ITU-T Rec. X.435 | ISO/IEC 10021-9 with those of ITU-T Rec. F.435 | ISO/IEC 10021-8

ITU-T Rec. F.435 | ISO/IEC 10021-8	ITU-T Rec. X.435 | ISO/IEC 10021-9
Application Security Element	EDI Application Security Element
Character Set	EDI Body Part Type
Cross Reference Information	Cross Referencing Information
EDI Forwarding	EDI Forwarding
EDI Message Type(s)	EDI Message Type
EDI Notification Request	EDI Notification Requests
EDI Standard Indication	EDI Body Part Type
EDI-message Identification	EDIM Identifier
EDIM Responsibility Forwarding Allowed Indication	Responsibility Passing Allowed
EDIN Receiver	EDIN Receiver
Expiry Date/Time Indication	Expiry Time
Incomplete Copy Indication	Incomplete Copy
Interchange Header	Heading Fields from Interchange Header
Multi-part Body	EDI Messages
Non-repudiation of Content Originated	Originate EDIM
Non-repudiation of Content Received	Originate EDIN and Internal Procedures
Non-repudiation of Content Received Request	Originate EDIN and Internal Procedures
Non-repudiation of EDI Notification	Originate EDIN and Internal Procedures
Non-repudiation of EDI Notification Request	EDI Notification Requests
Obsoleting Indication	Obsoleted EDIMs
Originator Indication	Originator
Proof of Content Received	Originate EDIN and Internal Procedures
Proof of Content Received Request	Originate EDIN and Internal Procedures
Proof of EDI Notification	Originate EDIN and Internal Procedures
Proof of EDI Notification Request	EDI Notification Requests
Recipient Indication	Recipients
Related Message(s)	Related Messages
Services Indication	Heading Extensions
Store EDI Message Auto-forward	Auto-Action Types
Typed Body	EDI Messages

Annex M

Realization of an EDIMG User in the Directory

(This annex does not form an integral part of this Recommendation | International Standard)

An EDIMG User object class that a Directory administrator can realize contains a set of characteristics that define its application, communication mechanism, depending entity, and naming. The following text describes how such an EDIMG User object class, for use with EDI messaging, can be realized from the generic EDI User object class and suggests a manner in which it can be defined.

This need can be rationalized from the following observations:

a) The description of the EDI User object class in Annex J of this Recommendation | International Standard is that of a generic EDI user. That is, a description that does not presuppose a notion of a specific communication mechanism such as MHS. EDI users may desire to use other communication mechanisms.

b) The definition of the MHS User object class in ITU-T Rec. X.402 | ISO/IEC 10021-2 is of a generic MHS User. It does not presuppose that a MHS User is associated with any particular kind of "named" entity, such as country, or organization. Also, its definition does not limit the MHS User to the Interpersonal Messaging Service.

c) The selected object classes in ITU-T Rec. X.521 | ISO/IEC 9594-7 define the characteristics for a set of "independent" entities, such as country and organization, and their name forms. These entities are generic in the sense that they are not bound to any particular kind of user application.

d) ITU-T Rec. X.521 | ISO/IEC 9594-7, Annex B, suggests a set of relationships among these entities. These relationships form the DIT structure, and thus the naming of the entities. As in point b above, the notion of an application or how applications are used in a communication mechanism is open ended.

e) The Directory Specifications do not prescribe a "binding" mechanism that will allow the formation of composite objects from generic objects.

To realize a Directory entry for an EDIMG user requires that a new unregistered object class be defined. This new object class forms a composite of the characteristics from each desired generic object class, for example, by combining the EDI User object class and MHS User object class into a new unregistered object class. In ASN.1 this may be expressed as:

```
edimg-user OBJECT CLASS ::= SUBCLASS OF edi-user, mhs-user
```

NOTE – An Unregistered Object Class is discussed in 9.4.1 of ITU-T Rec. X.501 | ISO/IEC 9594-2 , as an object class without an assigned object identifier. It is intended for local use as a means of conveniently adding new attribute types to a pre-defined superclass.

In this example, the edimg-user is a type identifier specified by the defining Directory Administration. Additionally, the Administration may include private attributes by adding the MUST CONTAIN and MAY CONTAIN statements to the unregistered object class definition.

In addition to the definition of the content of Directory entries by use of the object class notation, a naming policy for these entries is also required. For example, using the approach of Annex B of ITU-T Rec. X.521 | ISO/IEC 9594-7 it may be specified that for entries of the EDI User object class, the EDI Name attribute is used for naming; entries of this object class may be immediately subordinate to entries of for example, Organization object class or Organizational Unit object class.

To provide an alternative name for an EDIMG user requires that another unregistered object class be defined. This new object class forms a composite of the characteristics from the alias object class and the desired EDI user naming attribute. In ASN.1, this may be expressed as:

```
edimg-user-alias OBJECT CLASS ::= SUBCLASS OF alias MUST CONTAIN {edi-name}
```

The alias may contain only naming attributes. Its allowed relationships within the DIT shall be specified, as described above, for the naming policy of the unregistered EDIMG User object class.

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