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Information technology — Message Handling Systems (MHS) —

Part 8:

Electronic Data Interchange Messaging Service

Technologies de l'information — Systèmes de messagerie (MHS) — Partie 8: Service de messagerie avec échange de données informatisé

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Contents

Page

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ANNEXES

TABLES

FIGURES

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

International Standard ISO/IEC 10021-8 was prepared by ITU-T (as ITU-T Recommendation F.435) and was adopted, under a special "fast-track procedure", by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, in parallel with its approval by national bodies of ISO and IEC.

ISO/IEC 10021 consists of the following parts, under the general title *Information technology — Message Handling Systems (MHS)*:

- *Part 1: System and Service Overview*
- *Part 2: Overall Architecture*
- *Part 3: Abstract Service Definition Conventions*
- *Part 4: Message Transfer System: Abstract Service Definition and Procedures*
- *Part 5: Message Store: Abstract Service Definition*
- *Part 6: Protocol Specification*
- *Part 7: Interpersonal Messaging System*
- *Part 8: Electronic Data Interchange Messaging Service*
- *Part 9: Electronic Data Interchange Messaging System*

Annexes A and B form an integral part of this part of ISO/IEC 10021. Annexes C, D and E are for information only.

Introduction

This part of ISO/IEC 10021 is one of a number of parts of ISO/IEC 10021 (Information technology - Message Handling Systems (MHS)).

Message handling systems and services enables users to exchange of messages on a store-and-forward basis. A message submitted by one user (the *originator*) is conveyed by the Message Transfer System (MTS), the principal component of a larger Message Handling System (MHS), and is subsequently delivered to one or more other users, the message's *recipients*. A user may interact directly with the MTS, or indirectly via a message store (MS).

The MTS comprises a variety of interconnected functional entities called message transfer agents (MTAs). MTAs cooperate to transfer messages and deliver them to their intended recipients. Message stores (MSs) provide storage for messages and enable their submission, retrieval and management. User agents (UAs) help users access MHS. Access units (AUs) provide links to other communication systems and services of various kinds (e.g., other telematic services, postal services).

This part of ISO/IEC 10021 was initially developed and published by the ITU-T in 1991. The ITU-T version is published as CCITT Recommendation F.435 (1991) as amended by the MHS Implementor's Guide (version 12).

This part of ISO/IEC 10021 defines the overall system and service description of the message handling application called EDI Messaging.

ISO/IEC NOTE

As stated in the ITU-T version of this part of ISO/IEC 10021 [i.e., F.435 (1991)], the expression "Administration" is used for conciseness to indicate both a telecommunication Administration and a recognized private operating agency.

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Information technology - Message Handling Systems (MHS) -

Part 8 :
Electronic Data Interchange Messaging Service

1 Scope

This part of ISO/IEC 10021 defines the overall system and service of EDI messaging.

Other aspects of message handling systems and services are defined in other parts of ISO/IEC 10021. The layout of Standards | Recommendations defining the message handling system and services is shown in table 1 of ISO/IEC 10021–1 | CCITT Recommendation X/F.400. The public services built on MHS, as well as access to and from the MHS for public services are defined in the ITU-T's F.400-Series of Recommendations.

The technical aspects of MHS are defined in the multi-part series numbered ISO/IEC 10021 and ITU-T's X.400-Series of Recommendations. The overall system architecture of MHS is defined in ISO/IEC 10021–2 | CCITT Recommendation X.402. The technical aspects of EDI messaging are defined in ISO/IEC 10021–9 | CCITT Recommendation X.435.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC 10021. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO/IEC 10021 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO/IEC 9594-2:1990, *Information technology – Open Systems Interconnection – The Directory – Part 2: Models.*
(See also CCITT Recommendation X.501 (1988))

ISO/IEC 9594-7:1990, *Information technology – Open Systems Interconnection – The Directory – Part 7: Selected object classes.*
(See also CCITT Recommendation X.521 (1988))

ISO/IEC 9594-8:1990, *Information technology – Open Systems Interconnection – The Directory – Part 8: Authentication framework.*
(See also CCITT Recommendation X.509 (1988))

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

ISO/IEC 10021-1:1990, *Information technology – Text Communication – Message-Oriented Text Interchange Systems (MOTIS) - Part 1: System and Service Overview.*
(See also CCITT Recommendation F.400 (1992) | X.400 (1993))

ISO/IEC 10021-2:1990, *Information technology – Text Communication – Message-Oriented Text Interchange Systems (MOTIS) - Part 2: Overall Architecture.*
(See also CCITT Recommendation X.402 (1992))

ISO/IEC 10021-5:1994, *Information technology – Text Communication – Message-Oriented Text Interchange Systems (MOTIS) - Part 5: Message Store: Abstract Service Definition.*
(See also CCITT Recommendation X.413 (1992))

ISO/IEC 10021-7:1990, *Information technology – Text Communication – Message-Oriented Text Interchange Systems (MOTIS) - Part 7: Interpersonal Messaging System.*
(See also CCITT Recommendation X.420 (1992))

ISO/IEC 10021-9:1995, *Information technology – Message Handling Systems (MHS) - Part 9: Electronic Data Interchange Messaging System.*
(See also CCITT Recommendation X.435 (1991))

CCITT Recommendation F.401 (1992), *Message handling services: Naming and addressing for public message handling services.*

CCITT Recommendation F.415 (1992), *Message handling services: Intercommunication with public physical delivery services.*

3 Definitions

For the purposes of this part of ISO/IEC 10021, the following definitions, and those defined in annex A apply.

Definitions of the elements of service applicable to EDI messaging are contained in annex B of this part of ISO/IEC 10021. The elements of service applicable to the Message Transfer service, and used by EDI messaging, are called out in this part of ISO/IEC 10021, however their definitions are contained in ISO/IEC 10021-1 | CCITT Recommendation F.400, annex B.

3.1 Terms defined in this part of ISO/IEC 10021

3.1.1 EDI forwarding: Onward transfer of a received EDIM to one or more recipients determined by the forwarding EDI user agent/message store.

EDI forwarding takes place when an EDI message having been delivered to an EDI user agent or EDI message store is forwarded onward to another EDI user agent or EDI message store.

3.1.2 EDI message: Information in electronic form that is transferred between EDI messaging users. An EDI message is a member of the primary class of information objects conveyed between EDI messaging users.

See also ISO/IEC 10021-9 | CCITT Recommendation X.435 clause 8.

3.1.3 EDI messaging user: User that engages in EDI messaging. An EDI messaging user originates, receives, or both originates and receives EDI messages. The EDI messaging environment contains any number of EDI messaging users. An EDI messaging user may be a person or a computer process. An EDI messaging user may access the EDI messaging system through an access unit.

3.1.4 EDI notification: Member of the secondary class of information objects that indicates to the originator of an EDI message the disposition of EDIM responsibility for the EDI message.

3.1.5 EDI message responsibility: EDI message responsibility indicates whether the subject EDI message has been made available to a specific user by its EDI user agent/message store. EDI message responsibility carries no legal significance within this part of ISO/IEC 10021 and ISO/IEC 10021-9 | CCITT Recommendation X.435.

3.2 Terms imported from ISO 9735

- Acknowledgment request
- Application reference
- Communication agreement ID
- Date/time of preparation
- Functional group header
- Interchage control reference
- Interchange header
- Interchange recipient
- Interchange sender
- Message header
- Processing priority code
- Recipients reference, password
- Service string advice
- Syntax identifier
- Test indicator
- UNA
- UNB
- UNG
- UNH
- UNT
- UNZ

NOTE - These terms are further expanded in annex A of this part of ISO/IEC 10021 and annex K of ISO/IEC 10021-9 | CCITT Recommendation X.435.

3.3 Terms imported from ANSI X12

- Application reference
- Date and Time of Transmission
- GS
- Interchange header
- Functional group header
- Transaction set header
- ISA
- IEA
- Recipient;s transmission reference/password
- ST
- Transmission sender

- Transmission recipient
- Transmission priority code

NOTE - These terms are further expanded in annex A of this part of ISO/IEC 10021 and annex K of ISO/IEC 10021-9 | CCITT Recommendation X.435.

4 Abbreviations

ANSI	American National Standards Institute
AU	Access unit
DIT	Directory information tree
DL	Distribution list
DUA	Directory user agent
EDI	Electronic data interchange
EDIFACT	Electronic data interchange for Administration, commerce and transport
EDIM	EDI message
EDIME	EDI messaging environment
EDIMG	EDI messaging
EDIMS	EDI messaging system
EDI-AU	EDI access unit
EDI-MS	EDI message store
EDI-UA	EDI user agent
EDIN	EDI notification
FN	Forwarded notification
ID	Identifier
IPM	Interpersonal messaging
MD	Management domain
MH	Message handling
MHS	Message handling system
MS	Message store
MT	Message transfer
MTA	Message transfer agent
MTS	Message transfer system
NDN	Non-delivery notification
NN	Negative notification
O/R	Originator/Recipient
PD	Physical delivery
PDAU	Physical delivery access unit
PDS	Physical delivery system
PN	Positive notification
PRMD	Private management domain
TLMA	Telematic agent
UA	User agent
UNTDI	United Nations, trade data interchange
UTC	Coordinated universal time

5 Conventions

In clause 2, CCITT aligned standards are cited.

Common language practices have been applied as far as possible in the use of capitalization of words.

6 EDI messaging service

6.1 Introduction

The EDI messaging service provides an EDI messaging user with features to assist in communicating with other EDI messaging users. EDI messaging users are in many cases computer processes. The EDI messaging service uses the capabilities of the Message Transfer service (see also Recommendation F.410) for sending and receiving EDI messages. The elements of service describing the features of the EDI messaging service are defined in annex B, and classified in clause 14.

EDI, electronic data interchange, can be described as computer to computer exchange of structured business data, such as invoices and purchase orders. In some cases the EDI messaging service can be used to transmit an EDI interchange to a physical rendition system, such as a physical delivery system, or facsimile.

The EDI messaging service is provided by EDI messaging.

6.2 EDI messaging

EDI messaging (EDIMG) consists of the exchange of EDI messages (EDIMs), and EDI notifications (EDINs), which are information objects specified in ISO/IEC 10021-9 | CCITT Recommendation X.435.

6.3 EDI messaging environment

The environment in which EDI messaging takes place can be modelled as a functional 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 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 users (EDIMG users).

The structure of the EDIME is depicted in figure 1.

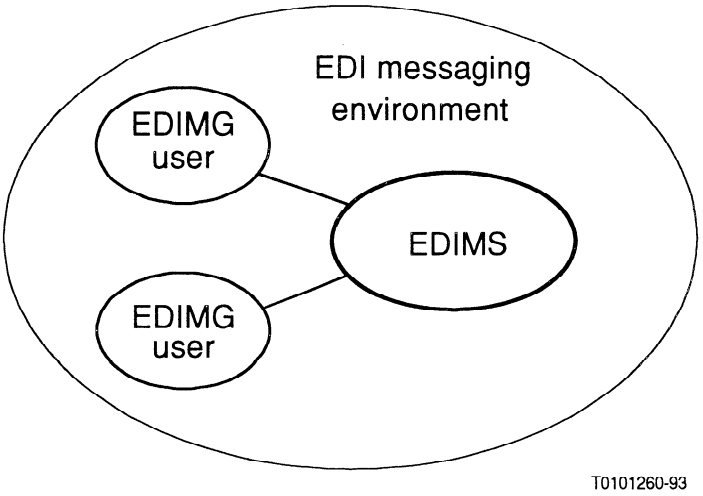


Figure 1 – EDI messaging environment

6.4 EDI messaging user

An EDI messaging user (EDIMG user) is a user that engages in EDI messaging. An EDIMG user originates, receives, or both originates and receives EDIMs. The EDIME contains any number of EDIMG users.

An EDIMG user may be a person or a computer process. An EDIMG user may access the EDIMS through an access unit.

7 EDI messaging system

7.1 Introduction

The EDI messaging system (EDIMS) is the functional object by means of which all EDIMG users communicate with one another in EDI messaging.

The EDIMS can be modelled as comprising lesser functional objects which interact with one another. These lesser objects are referred to as the secondary objects of EDI messaging. They include a single, central object, the message transfer system (MTS), and numerous peripheral objects of three kinds: EDI user agents (EDI-UAs), EDI message stores (EDI-MSs), and EDI access units (EDI-AUs).

The structure of the EDIMS is depicted in figure 2. As shown in figure 2, EDI-UAs, EDI-MSs, and EDI-AUs are the objects by which the EDIMS provides service to EDIMG users.

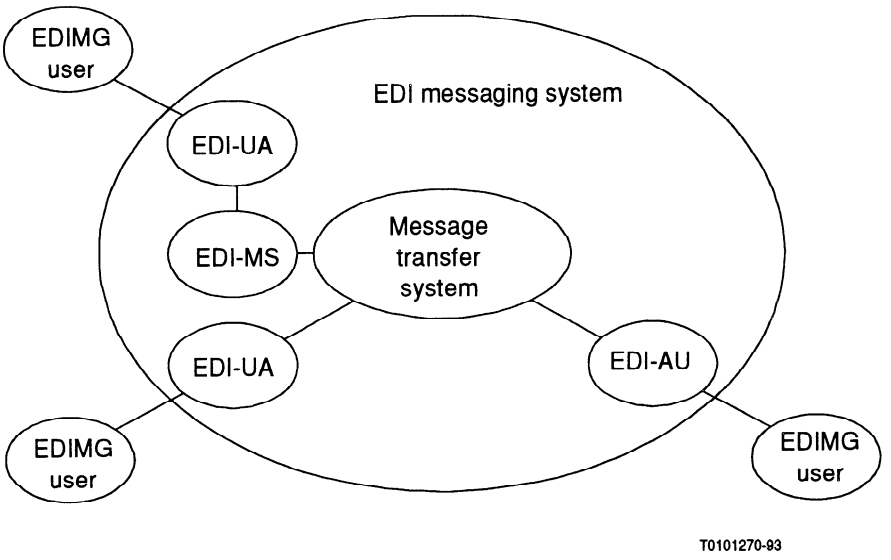


Figure 2 – EDI messaging system

7.1.1 EDI user agents

An EDI user agent (EDI-UA) is a user agent tailored so as to better assist a single EDIMG user to engage in EDI messaging. It helps that EDIMG user originate and receive messages containing EDIMs. The EDIMS contains any number of EDI-UAs.

NOTE – An exact definition of the boundary between the EDI-UA and the EDIMG user is beyond the scope of this part of ISO/IEC 10021.

7.1.2 EDI message store

An EDI message store (EDI-MS) is a message store tailored so as to better assist a single EDI-UA engage in EDI messaging. It helps that EDI-UA submit, take delivery of, store, and retrieve messages containing EDIMs.

7.1.3 Message transfer system

In the present context the message transfer system (MTS) conveys EDIMs or EDI notifications (EDINs) between EDI-UAs, or between an EDI-UA and an access unit. The EDIMS contains a single MTS.

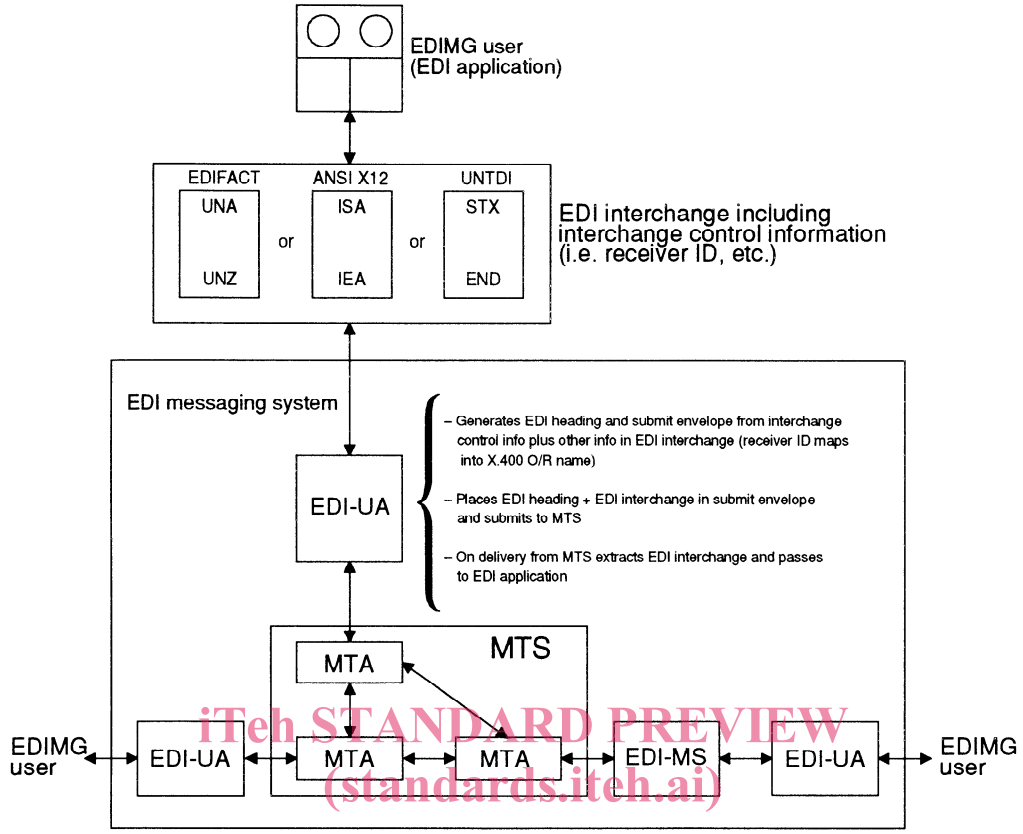
7.1.4 EDI access units

An EDIMG user may have access to/from the EDIMS through an access unit (AU). One type of access unit is the physical delivery access unit (PDAU). In EDIMG, the physical delivery access unit provides the ability to send messages to EDIMG recipients through a physical delivery system (PDS). Other types of EDI-AUs (e.g., facsimile access units) may be the subject of future standardization.

7.2 Information flow in the EDIMS

Figure 3 expands on figure 2 and shows the principal information flows in EDI messaging.

NOTE - Figure 3 illustrates aspects of the EDI encoded data exchanged in this model, not the actual details.



NOTES

1 - For abbreviations and acronyms see clause 4 and annex A of this part of ISO/IEC 10021.

2 - The structure of the information exchanged between the EDIMG user and the EDI-UA is not defined by this part of ISO/IEC 10021. In addition to the EDI interchange, the control information may comprise information carried in the envelope, EDIM heading, interchange header, etc. The control information could also be extracted from the EDI interchange and/or form other sources.

Figure 3 – Information flow in EDI messaging

7.3 EDI messaging service functional model

Figure 4 shows the functional model of the EDI messaging service. The UAs used in the EDI messaging service comprise a specific class of cooperating UAs. The optional PDAU allows EDIMG users to send messages to indirect users outside of the EDI messaging environment. The message stores used in the EDI messaging service have specific EDI related functions and can optionally be used by EDIMG users to take delivery of messages on their behalf. The telematic agent (TLMA) shown in figure 4 will allow access to telematic services and may be the subject of future standardization.

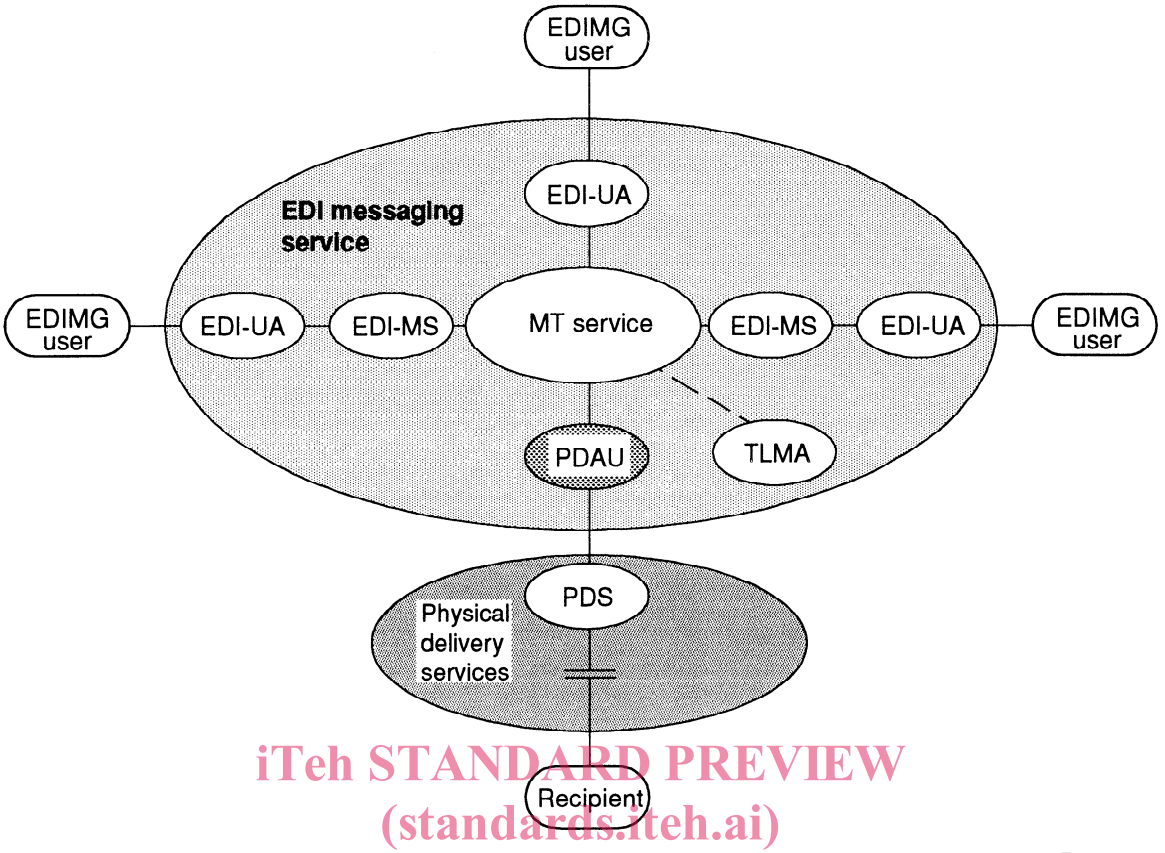


Figure 4 – EDI messaging service functional model

7.4 Structure of EDI messages

The EDI class of UAs create messages containing a content specific to the EDI messaging service. The specific content that is sent from one EDI-UA to another is a result of an originator, which is generally an application process, composing and sending a message, called an EDI message (EDIM). The EDIM carries the EDI interchange and optionally other information associated with the EDI interchange. Only one EDI interchange shall be present in an EDIM. Every EDIM shall contain an EDI interchange body part on origination of the EDIM. Any of the body parts can subsequently be removed (wholly, not partially) when forwarding an EDIM, except a forwarded body part, which cannot be removed. Body parts that are removed when forwarding are replaced with place holders to indicate what type of body part was removed. The heading of an EDIM shall not be removed when forwarding an EDIM. The structure of an EDIM as it relates to the basic message structure of MHS is shown in figure 5. The EDIM is conveyed with an envelope when being transferred through the MTS.