

18 Purpose

Elements of service are particular features, functions, or capabilities of MHS. All the elements of service applicable for MHS are defined in Annex B, where they are listed in alphabetical order with a corresponding reference number. The realization of these elements of service in MHS are described in other Recommendations in the X.400 Series.

Elements of service are associated with the various services provided in MHS. There are elements of service for the message transfer service which provide for a basic capability for sending and receiving messages between UAs. There are elements of service for the interpersonal messaging service which provide for the sending and receiving of messages between a particular class of UAs called IPM UAs. There are elements of service for the physical delivery service, enabling MH users to send messages and have them delivered in a physical medium to non-MH users. There are elements of service specifically available for the use of message stores.

The elements of service for the IPM service include those available for the MT service, the PD service, and the message store as well as specific ones applicable to the IPM service.

Table 3/X.400 lists all the elements of service available in MHS, shows what service they are specifically associated with of the presently defined services, MT service, IPM service, and PD service, or whether they are specific to the message store, and gives the corresponding reference number to the definition in Annex B.

TABLE 3/X.400

MHS elements of service

| Elements of service | MT | IPM | PD | MS | Annex B reference |
|--|----|-----|----|----|-------------------|
| Access management | X | | | | B.1 |
| Additional physical rendition | | | X | | B.2 |
| Alternate recipient allowed | X | | | | B.3 |
| Alternate recipient assignment | X | | | | B.4 |
| Authorizing users indication | | X | | | B.5 |
| Auto-forwarded indication | | X | | | B.6 |
| Basic physical rendition | | | X | | B.7 |
| Blind copy recipient indication | | X | | | B.8 |
| Body part encryption indication | | X | | | B.9 |
| Content confidentiality | X | | | | B.10 |
| Content integrity | X | | | | B.11 |
| Content type indication | X | | | | B.12 |
| Conversion prohibition | X | | | | B.13 |
| Conversion prohibition in case of loss information | X | | | | B.14 |
| Converted indication | X | | | | B.15 |
| Counter collection | | | X | | B.16 |
| Counter collection with advice | | | X | | B.17 |
| Cross-referencing indication | | X | | | B.18 |
| Deferred delivery | X | | | | B.19 |
| Deferred delivery cancellation | X | | | | B.20 |
| Delivery notification | X | | | | B.21 |
| Delivery time stamp indication | X | | | | B.22 |
| Delivery via Bureau fax service | | | X | | B.23 |
| Designation of recipient by directory name | X | | | | B.24 |
| Disclosure of other recipients | X | | | | B.25 |
| DL expansion history indication | X | | | | B.26 |
| DL expansion prohibited | X | | | | B.27 |
| EMS (express mail service) | | | X | | B.28 |
| Expiry date indication | | X | | | B.29 |
| Explicit conversion | X | | | | B.30 |
| Forwarded IP-message indication | | X | | | B.31 |
| Garde of delivery selection | X | | | | B.32 |
| Hold for delivery | X | | | | B.33 |
| Implicit conversion | X | | | | B.34 |
| Importance indication | | X | | | B.35 |
| Incomplete copy indication | | X | | | B.36 |
| IP-message identification | | X | | | B.37 |
| Language indication | | X | | | B.38 |
| Latest delivery designation | X | | | | B.39 |
| Message flow confidentiality | X | | | | B.40 |
| Message identification | X | | | | B.41 |
| Message origin authentication | X | | | | B.42 |
| Message security labelling | X | | | | B.43 |
| Message sequence integrity | X | | | | B.44 |
| Multi-destination delivery | X | | | | B.45 |
| Multi-part body | | X | | | B.46 |
| Non-delivery notification | X | | | | B.47 |

TABLE 3/X.400 (cont.)

| Elements of service | MT | IPM | PD | MS | Annex B reference |
|--|----|-----|----|----|-------------------|
| Non–receipt notification request indication | | X | | | B.48 |
| Non–repudiation of delivery | X | | | | B.49 |
| Non–repudiation of origin | X | | | | B.50 |
| Non–repudiation of submission | X | | | | B.51 |
| Obsoleting indication | | X | | | B.52 |
| Ordinary mail | | | X | | B.53 |
| Original encoded information types indication | X | | | | B.54 |
| Originator indication | | X | | | B.55 |
| Originator requested alternate recipient | X | | | | B.56 |
| Physical delivery notification by MHS | | | X | | B.57 |
| Physical delivery notification by PDS | | | X | | B.58 |
| Physical forwarding allowed | | | X | | B.59 |
| Physical forwarding prohibited | | | X | | B.60 |
| Prevention of non–delivery notification | X | | | | B.61 |
| Primary and copy recipients indication | | X | | | B.62 |
| Probe | X | | | | B.63 |
| Probe origin authentication | X | | | | B.64 |
| Proof of delivery | X | | | | B.65 |
| Proof of submission | X | | | | B.66 |
| Receipt notification request indication | | X | | | B.67 |
| Redirection disallowed by originator | X | | | | B.68 |
| Redirection of incoming messages | X | | | | B.69 |
| Registered mail | | | X | | B.70 |
| Registered mail to addressee in person | | | X | | B.71 |
| Reply request indication | | X | | | B.72 |
| Replying IP–message indication | | X | | | B.73 |
| Report origin authentication | X | | | | B.74 |
| Request for forwarding address | | | X | | B.75 |
| Requested delivery method | X | | | | B.76 |
| Restricted delivery | X | | | | B.77 |
| Return of content | X | | | | B.78 |
| Secure access management | X | | | | B.79 |
| Sensitivity indication | | X | | | B.80 |
| Special delivery | | | X | | B.81 |
| Stored message alert | | | | X | B.82 |
| Stored message auto–forward | | | | X | B.83 |
| Stored message deletion | | | | X | B.84 |
| Stored message fetching | | | | X | B.85 |
| Stored message listing | | | | X | B.86 |
| Stored message summary | | | | X | B.87 |
| Subject indication | | X | | | B.88 |
| Submission time stamp indication | X | | | | B.89 |
| Type body | | X | | | B.90 |
| Undeliverable mail with return of physical message | | | X | | B.91 |
| Use of distribution list | X | | | | B.92 |
| User/UA capabilities registration | X | | | | B.93 |

19 Classification

TABLE 4/X.400

Elements of service belonging to the basic MT service

19.1 Purpose of classification

The elements of service of MHS are classified either as belonging to a basic (also called base for PD and MS) service, or as optional user facilities. Elements of service belonging to a basic service are inherently part of that service – they constitute the basic service and are always provided and available for use of that service.

Other elements of service, called optional user facilities, can be selected by the subscriber or user, either on a per-message basis, or for an agreed contractual period of time. Each optional user facility is classified as either essential or additional. Essential (E) optional user facilities are to be made available to all MH users. Additional (A) optional user facilities can be made available for national use, and for international use on the basis of bilateral agreement.

19.2 Basic message transfer service

The basic MT service enables a UA to submit and to have messages delivered to it. If a message cannot be delivered, the originating UA is so informed through a non-delivery notification. Each message is uniquely and unambiguously identified. To facilitate meaningful communication, a UA can specify the encoded information type(s) that can be contained in messages which are delivered to it. The content type and original encoded information type(s) of a message and an indication of any conversions that have been performed, and the resulting encoded information type(s), are supplied with each delivered message. In addition, the submission time and delivery time are supplied with each message. The MT elements of service belonging to the basic MT service are listed in Table 4/X.400.

| Elements of service | Annex B ref. |
|---|--------------|
| Access management | B.1 |
| Content type indication | B.12 |
| Converted indication | B.15 |
| Delivery time stamp indication | B.22 |
| Message indication | B.41 |
| Non-delivery notification | B.47 |
| Original encoded information types indication | B.54 |
| Submission time stamp indication | B.89 |
| User/UA capabilities registration | B.93 |

19.3 MT service optional user facilities

MT service optional user facilities

Optional user facilities for the MT service can be selected on a per-message basis, or for an agreed period of time. Each optional user facility is classified as either essential or additional as described in § 19.1. Table 5/X.400 lists the elements of service comprising the optional user facilities of the MT service with their classification and their availability (PM: per-message; CA: contractual agreement). Optional user facilities for the PD service and the message store, while forming a part of the MT service optional user facilities, are not listed in this table because they are subject to either a PDAU or an MS being supplied, and are given separate classifications in Tables 6/X.400-9/X.400.

| Elements of service | Classification | Available | Annex B ref. |
|---|-----------------|-----------|--------------|
| Alternate recipient allowed | E | PM | B.3 |
| Alternate recipient assignment | A | CA | B.4 |
| Content confidentiality | A | PM | B.10 |
| Content integrity | A | PM | B.11 |
| Conversion prohibition | E | PM | B.13 |
| Conversion prohibition in case of loss of information | A | PM | B.14 |
| Deferred delivery | E | PM | B.19 |
| Deferred delivery cancellation | E | PM | B.20 |
| Delivery notification | E | PM | B.21 |
| Designation of recipient by directory name | A | PM | B.24 |
| Disclosure of other recipients | E | PM | B.25 |
| DL expansion history indication | E | PM | B.26 |
| DL expansion prohibited | A | PM | B.27 |
| Explicit conversion | A | PM | B.30 |
| Grade of delivery selection | E | PM | B.32 |
| Hold for delivery | A | CA | B.33 |
| Implicit conversion | A | CA | B.34 |
| Lastest delivery designation | A | PM | B.39 |
| Message flow confidentiality | A | PM | B.40 |
| Message origin authentication | A | PM | B.42 |
| Message security labelling | A | PM | B.43 |
| Message sequence integrity | A | PM | B.44 |
| Multi-destination delivery | A | PM | B.45 |
| Non-repudiation of delivery | A | PM | B.49 |
| Non-repudiation of origin | A | PM | B.50 |
| Non-repudiation of submission | A | PM | B.51 |
| Originator requested alternate recipient | A | PM | B.56 |
| Prevention of non-delivery notification | A | PM | B.61 |
| Probe | E | PM | B.63 |
| Probe origin authentication | A | PM | B.64 |
| Proof of delivery | A | PM | B.65 |
| Proof of submission | A | PM | B.66 |
| Redirection disallowed by originator | A | PM | B.68 |
| Redirection of incoming messages | A | CA | B.69 |
| Report origin authentication | A | PM | B.74 |
| Requested delivery method | E ^{a)} | PM | B.76 |
| Restricted delivery | A | CA | B.77 |
| Return of content | A | PM | B.78 |
| Secure access management | A | CA | B.79 |
| Use of distribution list | A | PM | B.92 |

^{a)} Does not imply the provision of all delivery methods which may be requested.

19.4 Base MH/PD service intercommunication

TABLE 6/X.400

The base MH/PD service intercommunication can be supplied to enhance the MT service, and enables messages to be delivered to recipients in a physical (typically hard copy) format via a physical delivery service such as the postal service. This capability is applicable for use by any application making use of the MT service. The MH/PD elements of service belonging to the base MH/PD service intercommunication are available on a per-recipient basis and are listed in Table 6/X.400. When this intercommunication is provided, through a PDAU, all the elements of service shown in Table 6/X.400 shall be supported.

| Elements of service | Annex B ref. |
|--|--------------|
| Basic physical rendition | B.7 |
| Ordinary mail | B.53 |
| Physical forwarding allowed | B.59 |
| Undeliverable mail with return of physical message | B.91 |

19.5 Optional user facilities for MH/PD service intercommunication

Base MH/PD elements of service § 19.4) together with the optional user facilities listed below, can be used together for the provision of the MH/PD service intercommunication. This capability is applicable for use by any application making use of the enhanced MT service. These optional user facilities can be selected on a per-recipient basis and are listed in Table 7/X.400.

| Elements of service | Classification | Annex B ref. |
|--|----------------|--------------|
| Additional physical rendition | A | B.2 |
| Counter collection | E | B.16 |
| Counter collection with advice | A | B.17 |
| Delivery via Bureau fax service | A | B.23 |
| EMS (express mail service) ^{a)} | E | B.28 |
| Physical delivery notification by MHS | A | B.57 |
| Physical delivery notification by PDS | A | B.58 |
| Notification forwarding prohibited | A | B.60 |
| Registered mail | A | B.70 |
| Registered mail to addressee in person | A | B.71 |
| Request for forwarding address | A | B.75 |
| Special delivery ^{a)} | E | B.81 |

^{a)} At least one or the other shall be supported by the PDAU and the associated PDS.

19.6 Base message store

The base message store is optionally available to provide for storage and management of incoming messages acting as an intermediary between a UA and an MTA. The MS is applicable for use in any application making use of the MT service. The elements of service belonging to the base message store are listed in Table 8/X.400. When an MS is provided, all the elements of service shown in Table 8/X.400 shall be supported.

| Elements of service | Annex B ref. |
|-------------------------|--------------|
| Stored message deletion | B.84 |
| Stored message fetching | B.85 |
| Stored message listing | B.86 |
| Stored message summary | B.87 |

19.7 MS optional user facilities

Base MS elements of service (S.19.6) together with the optional user facilities listed below can be used together for enhanced use of a message store. The enhanced MS is applicable for use in any application making use of the MT service. The elements of service comprising the MS optional user facilities are listed in Table 9/X.400.

| Elements of service | Classification | Annex B ref. |
|-----------------------------|----------------|--------------|
| Stored message alert | A | B.82 |
| Stored message auto-forward | A | B.83 |

19.8 Basic interpersonal messaging service

The basic IPM service, which makes use of the MT service, enables a user to send and receive IP-messages. A user prepares IP-messages with the assistance of his user agent (UA). User agents cooperate with each other to facilitate communication between their respective users. To send an IP-message, the originating user submits the message to his UA specifying the O/R name of the recipient who is to receive the IP-message. The IP-message, which has an identifier conveyed with it, is then sent by the originator's UA to the recipient's UA via the message transfer service.

Following a successful delivery to the recipient's UA, the IP-message can be received by the recipient. To facilitate meaningful communication, a recipient can specify the encoded information type(s) contained in IP-messages that he will allow to be delivered to his UA. The original encoded information type(s) and an indication of any conversions that have been performed and the resulting encoded information type(s) are supplied with each delivered IP-message. In addition, the submission time and delivery time are supplied with each IP-message. Non-delivery notification is provided with the basic service. The IPM elements of service belonging to the basic IPM service are listed in Table 10/X.400.

| Elements of service | Annex B ref. |
|---|--------------|
| Access management | B.1 |
| Content type indication | B.12 |
| Converted indication | B.15 |
| Delivery time stamp indication | B.22 |
| IP-message identification | B.37 |
| Message identification | B.41 |
| Non-delivery notification | B.47 |
| Original encoded information types indication | B.54 |
| Submission time stamp indication | B.89 |
| Typed body | B.90 |
| User/UA capabilities registration | B.93 |

19.9 IPM service optional user facilities

A set of the elements of service of the IPM service are optional user facilities. The optional user facilities of the IPM service, which can be selected on a per-message basis or for an agreed contractual period of time, are listed in Table 11/X.400 and Table 12/X.400, respectively. Local user facilities can be usefully provided in conjunction with some of these user facilities.

The optional user facilities of the IPM service that are selected on a per-message basis are classified for both origination and reception by UAs. If an MD offers these optional user facilities for origination by UAs, then a user is able to create and send IP-messages according to the procedures defined for the associated element of service. If an MD offers these optional user facilities for reception by UAs, MSs and AUs, then the receiving UA, MS and PDAU will be able to receive and recognize the indication associated with the corresponding element of service and to inform the user of the requested optional user facility. Each optional user facility is classified as additional (A) or essential (E) for UAs from these two perspectives.

Note – With the access protocol described in Recommendation T.330, teletex terminals are able to make use of the basic IPM service as well as of the optional user facilities provided by the message handling system.

TABLE 11/X.400

IPM optional user facilities selectable on a per-message basis

| Elements of service | Origination | Reception | Annex B ref. |
|---|-------------|-----------|--------------|
| Additional physical rendition | A | A | B.2 |
| Alternate recipient allowed | A | A | B.3 |
| Authorizing users indication | A | E | B.5 |
| Auto-forwarded indication | A | E | B.6 |
| Basic physical rendition | A | E* | B.7 |
| Blind copy recipient indication | A | E | B.8 |
| Body part encryption indication | A | E | B.9 |
| Content confidentiality | A | A | B.10 |
| Content integrity | A | A | B.11 |
| Conversion prohibition | E | E | B.13 |
| Conversion prohibition in case of loss of information | | N/A | B.14 |
| Counter collection | A | E* | B.16 |
| Counter collection with advice | A | A | B.17 |
| Cross-referencing indication | A | E | B.18 |
| Deffered delivery | E | N/A | B.19 |
| Deffered delivery cancellation | A | N/A | B.20 |
| Delivery notification | E | N/A | B.21 |
| Delivery via Bureaufax service | A | A | B.23 |
| Designation of recipient by directory name | A | N/A | B.24 |
| Disclosure of other recipients | A | E | B.25 |
| DL expansion history indication | N/A | E | B.26 |
| DL expansion prohibited | A | A | B.27 |
| EMS (express mail service) ^{a)} | A | E* | B.28 |
| Expiry date indication | A | E | B.29 |
| Explicit conversion | A | N/A | B.30 |
| Forwarded IP-message indication | A | E | B.31 |
| Grade of delivery selection | E | E | B.32 |
| Importance indication | A | E | B.35 |
| Incomplete copy indication | A | A | B.36 |
| Language indication | A | E | B.38 |
| Latest delivery designation | A | N/A | B.39 |
| Message flow confidentiality | A | N/A | B.40 |
| Message origin authentication | A | A | B.42 |
| Message security labelling | A | A | B.43 |
| Message sequence integrity | A | A | B.44 |
| Multi-destination delivery | E | N/A | B.45 |
| Multi-part body | A | E | B.46 |
| Non-receipt notification request indication | A | E | B.48 |
| Non-repudiation of delivery | A | A | B.49 |
| Non-repudiation of origin | A | A | B.50 |
| Non-repudiation of submission | A | A | B.51 |
| Obsoleting indication | A | E | B.52 |
| Ordinary mail | A | E* | B.53 |
| Originator indication | E | E | B.55 |
| Originator requested alternate recipient | A | N/A | B.56 |
| Physical delivery notification by MHS | A | A | B.57 |
| Physical delivery notification by PDS | A | E* | B.58 |
| Physical forwarding allowed | A | E* | B.59 |

TABLE 12/X.400TABLE 11/X.400 (cont.)

**IPM optional user facilities agreed for a contractual
period of time**

| Elements of service | Origination | Reception | Annex B ref. |
|--|-------------|-----------|--------------|
| Physical forwarding prohibited | A | E* | B.60 |
| Prevention of non-delivery notification | A | N/A | B.61 |
| Primary and copy recipients indication | E | E | B.62 |
| Probe | A | N/A | B.63 |
| Probe origin authentication | A | A | B.64 |
| Proof of delivery | A | A | B.65 |
| Proof of submission | A | A | B.66 |
| Receipt notification request indication | A | A | B.67 |
| Redirection disallowed by originator | A | N/A | B.68 |
| Registered mail | A | A | B.70 |
| Registered mail to addressee in person | A | A | B.71 |
| Reply request indication | A | E | B.72 |
| Reply IP-message indication | E | E | B.73 |
| Report origin authentication | A | A | B.74 |
| Request for forwarding address | A | A | B.75 |
| Requested delivery method | E | N/A | B.76 |
| Return of content | A | N/A | B.78 |
| Sensitivity indication | A | E | B.80 |
| Special delivery ^{a)} | A | E* | B.81 |
| Stored message deletion | N/A | E** | B.84 |
| Stored message fetching | N/A | E** | B.85 |
| Stored message listing | N/A | E** | B.86 |
| Stored message summary | N/A | E** | B.87 |
| Subject indication | E | E | B.88 |
| Undeliverable mail with return of physical message | A | E* | B.91 |
| Use of distribution list | A | A | B.92 |

E Essential optional user facility has to be provided.

E* Essential optional user facility only applying to PDAUs.

E** Essential optional user facility only applying to MSs.

A Additional optional user facility can be provided.

N/A Not applicable.

^{a)} At least EMS or special delivery shall be supported by the PDAU and associated PDS.

Note – Bilateral agreement may be necessary in cases of reception by UA of elements of service classified by A.

| Elements of service | Classification | Annex B ref. |
|----------------------------------|----------------|--------------|
| Alternate recipient assignment | A | B.4 |
| Hold for delivery | A | B.33 |
| Implicit conversion | A | B.34 |
| Redirection of incoming messages | A | B.69 |
| Restricted delivery | A | B.77 |
| Secure access management | A | B.79 |
| Stored message alert | A | B.82 |
| Stored message auto-forward | A | B.83 |