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Amendment 1
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SERIES X: DATA NETWORKS AND OPEN SYSTEM COMMUNICATION

Message Handling Systems

Information technology – Message Handling Systems (MHS) – Message store: Abstract service definition

Amendment 1: Additional correlation attribute and security error code

ITU-T Recommendation X.413 – Amendment 1

(Previously CCITT Recommendation)

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INTERNATIONAL STANDARD 10021-5

ITU-T RECOMMENDATION X.413

INFORMATION TECHNOLOGY – MESSAGE HANDLING SYSTEMS (MHS) – MESSAGE STORE: ABSTRACT SERVICE DEFINITION

AMENDMENT 1
Additional correlation attribute and security error code

Summary

This Amendment provides:

- implementation of security error code extensions to support newly identified security rejection reasons that may occur during the execution of the MS-Bind abstract operation; and
- enhancement to change the value of the *MS-retrieval status* attribute.

Source

The ITU-T Recommendation X.413, Amendment 1 was approved on the 9th of August 1997. The identical text is also published as ISO/IEC International Standard 10021-5.

FOREWORD

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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 expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

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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.

CONTENTS

Introduction

The purpose of this Amendment is as follows:

- to define an extended set of ASN.1 Integer values for MS-security error codes;
- a set of enhancements to change the value of the *MS-retrieval status* attribute;
- missing matching rules for redirection attributes;
- clarification of multi-valued MTS envelope extensions;
- definition of additional correlation attribute for reports;
- clarification of an aspect of attribute creation;
- definition of a new attribute to identify the delivered-message's originator.

The instructions enumerated below identify the reference clause number and then the desired change.

INTERNATIONAL STANDARD

ITU-T RECOMMENDATION

INFORMATION TECHNOLOGY – MESSAGE HANDLING SYSTEMS (MHS) – MESSAGE STORE: ABSTRACT SERVICE DEFINITION

AMENDMENT 1
Additional correlation attribute and security error code

1 Detailed security related changes

1) Subclause 7.1.3 and Annex B

Add a value in the ASN.1 definition of **BindProblem** *as follows:*

```
BindProblem::= ENUMERATED {
        authentication-error (0),
        unacceptable-security-context (1),
        unable-to-establish-association (2),
        ...-- 1994 extension addition -- ,
        bind-extension-problem (3),
        confidentiality-association-error (4)}
```

In subclause 7.1.3, item a), *add the following sentence to the end of the* Unqualified-error *parameter definition:*

> If **confidentiality-association-error** is indicated, the abstract-association cannot be established because the underlying connection does not provide the necessary degree of confidentiality.

2) Subclause 9.8

Add the following text to the end of this subclause:

The **security-error** contains the **security-problem** parameter which indicates the cause of security-policy violation.

The **security-problem** parameter concerns:

- delete;
- fetch;
- list;
- modify;
- MS-message-submission;
- MS-probe-submission;
- register-MS;
- summarize.

9.8.1 Security-error for register-MS abstract-operation

The **security-problem** parameter can have one of the following values related to change-credentials component of register-MS argument:

a) **operation-security-failure**: The operation failed for security reason.

b) **security-policy-violation**: The security-policy is violated.

c) **security-services-refusal**: The security services cannot be supported.

9.8.2 Security-error for delete, fetch, list, modify and summarize abstract-operations

The **security-problem** parameter can have one of the following values:

a) **operation-security-failure**: The operation failed for security reason.

b) **unauthorized-entry-class**: The security policy does not permit the requested operation to be performed on the specified entry-class.

9.8.3 Security-error for MS-probe-submission and MS-message-submission abstract-operations

The **security-problem** parameter may have one of the following values in addition to those defined in ITU-T Rec. X.411 | ISO/IEC 10021-4 for the message-submission and probe-submission abstract-operations:

a) **authentication-problem**: The submission failed because the MTS-bind cannot be performed by the MS for peer entity authentication reasons.

b) **confidentiality-association-problem**: The submission failed because the MTS-bind cannot be performed by the MS for confidentiality association reasons.

c) **responder-credentials-checking-problem**: The submission failed because the MTS-bind cannot be performed by the MS for responder credentials checking reasons.

d) **security-context-problem**: The submission failed because the MTS-bind cannot be performed by the MS for security-context reasons.

2 Modification of the retrieval-status attribute

3) Subclause 7.1.2

Append the following to item h)*:*

This Specification defines one additional capability of the MS. If, and only if, the MS-configuration-request parameter of the MS-bind-argument is true, and the MS supports the use of the Modify abstract-operation to change the value of the retrieval-status attribute, then the following MS-EXTENSION shall be present:

```
modify-retrieval-status MS-EXTENSION::= {
    ModifyRetrievalStatus IDENTIFIED BY id-ext-modify-retrieval-status  }

ModifyRetrievalStatus ::= INTEGER  {
    no-restriction              (0),
    listed-to-processed         (1)  }
```

If the value *no-restriction* is present, then the MS supports any modification of the retrieval-status attribute. If the value *listed-to-processed* is present, then retrieval-status may be modified provided that its existing value is *listed* and the replacement value is *processed*.

4) Subclause 11.2.68

In 11.2.68 (Retrieval-status – now renumbered 11.2.69), replace the second sentence with the following:

The Modify abstract-operation and Auto-modify auto-action, if available, may be capable of amending the attribute.

5) Subclause 11.6

Replace the first sentence with the following:

Of the general-attribute-types, only those listed below are subject to modification by the Modify abstract-operation and the Auto-modify auto-action.

Add a new third sentence:

Support for the modification of retrieval-status is indicated as an additional capability reported in MS-bind-result [see item h) in 7.1.2].

6) Annex A

Add the following after the line starting **id-mr***:*

```
id-ext  -- extensions – ID::= {id-ms 9}
```

Add the following before the line starting **END***:*

```
        -- Extensions --

id-ext-modify-retrieval-status  ID::= {id-ext 0}
```

7) Annex B

Insert the productions shown above for 7.1.2 in this Annex, following the production for MSBindResult.

Add the following after **id-crt-ms-access-94**, *in the* **IMPORTS FROM MSObjectIdentifiers***:*

```
id-ext-modify-retrieval-status,
```

3 Determination of the presence of an attribute

8) Subclause 8.1.4 and Annex B

Replace the production for AttributeSelection with the following:

```
AttributeSelection ::= SET  {
        type     ATTRIBUTE.&id ({AttributeTable}),
        from     [0] INTEGER (1..ub-attribute-values) OPTIONAL --  used if type is multi-valued  --,
        count    [1] INTEGER (0..ub-attribute-values) OPTIONAL
                                -- for 1988 Application Contexts the lower bound is on  --  }
```

Replace bullet c) *of 8.1.4 with the following:*

c) **Count** (0): This Integer specifies the maximum number of values to be returned. It is not an error if **count** is greater than the number of values present in the attribute. If **count** is zero, then information is requested on the total number of values present in the attribute but no actual values are returned. If this component is omitted, there is no limit as to how many values are returned.

9) Subclause 8.1.5

In item b) *append the following to the last sentence:*

, or if all the requested-attributes present were specified in entry-information-selections in which the count component indicated that zero attribute-values were to be returned.

4 Missing matching-rule

10) Subclause 11.2.25 and Annex C

In the ASN.1 production for **mt-dl-expansion-history**, *insert the following after* **redirectionOrDLExpansionSubstringElementsMatch***:*

```
| redirectionOrDLExpansionSingleElementMatch
```

11) Subclause 11.2.63 and Annex C

In the ASN.1 production for **mt-redirection-history**, *insert the following after* **redirectionOrDLExpansionSubstringElementsMatch** |*:*

```
redirectionOrDLExpansionSingleElementMatch |
```

12) Subclause 12.4.7

Replace the first sentence with the following:

The **OR-name-single-element-match** rule determines whether a presented string and some element present in a value of an attribute of type OR-name match for equality.

Replace the first sentence of the last paragraph with the following:

The rule returns true if, and only if, the stored OR-name contains an element (in its OR-address or directory-name components) that matches the presented value according to the MS-string-match rule.

Append the same Note that appears in 12.4.6.

13) New subclause 12.4.11

Insert a new subclause 12.4.11 and renumber existing subclauses 12.4.11-14 to 12.4.12-15, accordingly:

12.4.11 Redirection-or-DL-expansion-single-element-match

The **Redirection-or-DL-expansion-single-element-match** rule determines whether a presented string and some element present in the **OR-address-and-optional-directory-name** component of a value of an attribute of type **Redirection-history** or **DL-expansion-history** match for equality.

```
RedirectionOrDLExpansionSingleElementMatch MATCHING-RULE ::= SET  {
        SYNTAX      MSString {ub-msstring-match}
        ID          id-mr-redirection-or-dl-expansion-single-element-match }
```

The rule returns true if, and only if, the stored OR-name contains an element (in its OR-address or directory-name components) that matches the presented value according to the MS-string-match rule. The terminal-type and extended form of network address elements are not considered when evaluating the Redirection-or-DL-expansion-single-element-match rule.

14) Subclause 12.6 and Annex D

In the production for **GeneralMatchingRules**, *add the following before* **redirectionOrDLExpansionSubstringElementsMatch***:*

```
redirectionOrDLExpansionSingleElementMatch |
```

15) Annex A

Add the following to the **Matching-rules** *section, preserving alphabetical order:*

```
id-mr-redirection-or-dl-expansion-single-element-match  ID::= {id-mr 25}
```

16) Annex C

Add the following after **redirectionOrDLExpansionMatch**, *in the* **IMPORTS FROM MSMatchingRules***:*

```
redirectionOrDLExpansionSingleElementMatch,
```

17) Annex D

Add the production given above in 12.4.11 for **redirectionOrDLExpansionSingleElementMatch**, *before the production for* **redirectionOrDLExpansionSubstringElementsMatch**.

Add the following to the **IMPORTS FROM MSObjectIdentifiers** *after* **id-mr-redirection-or-dl-expansion-match,***:*

```
id-mr-redirection-or-dl-expansion-single-element-match,
```

5 Multi-valued MTS envelope extensions

18) Subclause 11.1

Add the following, after the item – whether the attribute-type is single-valued or multi-valued;*:*

NOTE – Some attributes are defined to take their values from the values of extension fields in the MTS envelope. If such an attribute is single-valued, and the extension concerned occurs more than once in the MTS envelope, then the attribute will contain only one of the values (selected arbitrarily). If the MS-user requires access to the other values, it will be necessary to fetch the entire envelope.

6 Additional correlation attribute for Reports

19) Subclause 11.1.1

In Table 2, insert the following row after the row labelled AC-correlated-report-list*:*

AC-report-subject-entry*	–	C	–	–	–	–	O	O	S	Y	N

20) New subclause 11.2.2

Insert the following new subclause 11.2.2 and renumber existing subclauses 11.2.2-11.2.75, accordingly:

11.2.2 AC-report-subject-entry

This general-attribute identifies, by sequence-number, the submitted-message entry or submitted-probe entry which is the subject of this delivered-report entry. It is generated by the MS. Subscription to this attribute requires subscription to the Auto-correlate-reports auto-action (see 13.3).

ms-ac-report-subject-entry ATTRIBUTE::= {

WITH ATTRIBUTE-SYNTAX	**SequenceNumber,**
EQUALITY MATCHING-RULE	**integerMatch,**
ORDERING MATCHING-RULE	**integerOrderingMatch,**
NUMERATION	**single-valued,**
ID	**id-att-ac-report-subject-entry }**

The attribute is created when a report is delivered whose subject-submission-identifier identifies a submitted-message or submitted-probe entry. The content of this attribute is unaffected by the subsequent deletion of the submitted-message or submitted-probe entry to which it refers.

21) Subclause 11.5

In Table 4, insert the following row after the row labelled AC-correlated-report-list*:*

AC-report-subject-entry	S	–	MS	The attribute-value is the sequence-number of the submitted-message or submitted-probe entry which is the subject of this report.

22) Subclause 13.3

Replace the second paragraph (beginning The MS supports *...) with the following:*

The MS supports the Auto-correlate-reports auto-action by means of the AC-correlated-report-list, AC-report-subject-entry, AC-report-summary, AC-uncorrelated-report-list, and deferred-delivery-cancellation-time general-attributes (see 11.2.1, 11.2.2, 11.2.3, 11.2.4, and 11.2.21).

23) Annex A

Insert the following after the line beginning **id-att-ac-correlated-report-list***:*

id-att-ac-report-subject-entry ID::= {id-att 77}

24) Annex C

In the **IMPORTS FROM MSObjectIdentifiers**, *insert the following after* **id-att-ac-correlated-report-list,***:*

id-att-ac-report-subject-entry,

In the production for **GeneralAttributes**, *insert the following after* **ms-ac-correlated-report-list |***:*

ms-ac-report-subject-entry |

Insert the following after the production defining **ms-ac-correlated-report-list***:*

```
ms-ac-report-subject-entry ATTRIBUTE::= {
        WITH ATTRIBUTE-SYNTAX           SequenceNumber,
        EQUALITY MATCHING-RULE          integerMatch,
        ORDERING MATCHING-RULE          integerOrderingMatch,
        NUMERATION                      single-valued,
        ID                              id-att-ac-report-subject-entry }
```

7 Attribute correlation problem

25) Subclause 11.2.3

*In 11.2.3 (***AC-uncorrelated-report-list**, *here renumbered 11.2.4), replace the first sentence with the following:*

The attribute is created when the first report of the kind described is delivered, and is updated as further reports of this kind are delivered.

8 Additional attribute for delivered message originator

26) Subclause 11.1.1

In Table 2, insert the following row after the row labelled latest-delivery-time**:*

Locally-originated	C	–	–	–	–	–	O	O	S	Y	N

27) New subclause 11.2.31

Insert the following new subclause 11.2.31 and renumber subsequent subclauses accordingly:

11.2.31 Locally-originated

This general attribute indicates, by its presence or absence, whether this delivered-message entry was originated by this MS-user.

```
ms-locally-originated ATTRIBUTE::= {
        WITH ATTRIBUTE-SYNTAX           NULL,
        NUMERATION                      single-valued,
        ID                              id-att-locally-originated }
```

28) Subclause 11.5

In Table 4, insert the following row after the row labelled Latest-delivery-time*:*

Locally-originated	S	–	MS	The attribute-value is present if the originator of the delivered-message is this MS-user.

29) Annex A

Insert the following after the line beginning **id-att- latest-delivery-time***:*

id-att-locally-originated ID ::= {id-att 76}

30) Annex C

In the production for **GeneralAttributes**, *insert the following after* **mt-latest-delivery-time |***:*

ms-locally-originated |

Insert the following after the production defining **mt-latest-delivery-time***:*

```
ms-locally-originated ATTRIBUTE::= {
        WITH ATTRIBUTE-SYNTAX          NULL,
        NUMERATION                     single-valued,
        ID                             id-att-locally-originated }
```

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