INTERNATIONAL STANDARD

ISO/IEC 9506-2

First edition
1990-10-15
AMENDMENT 2
1995-12-15

Industrial automation systems — Manufacturing Message Specification —

Part 2:

Protocol specification

AMENDMENT 2: Conditioned service response

Systèmes d'automatisation industrielle — Spécification de messagerie industrielle —

Partie 2: Spécification de protocole

AMENDEMENT 2: Réponse conditionnelle de service

Contents

Page

Annexes

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Amendment 2 to International Standard ISO/IEC 9506-2:1990 was prepared by Technical Committee ISO/TC 184, *Industrial automation systems and integration*, Subcommittee 5, *Architecture and communications*.

Introduction

This amendment details the changes to ISO/IEC 9506-2 to support conditioned service response. In developing these changes, it is assumed that the changes from the inclusion of the Data Exchange Service, ISO/IEC 9506-2/Amd.1, and the changes from technical corrigendum ISO/IEC 9506-2/Cor.1, have already been applied to the base document. All clause number references refer to the document as amended and corrected; page number references refer to the base document.

This amendment adds a new object, an Access Control List, to the structure of the MMS VMD. The VMD references one such object that provides conditions that constrain the successful access of any object within the VMD by an MMS Client. In addition, each named object within a VMD references some Access Control List object, and the conditions expressed in that Access Control List object constrain the use of the parent object by an MMS Client. The present MMS system allows an MMS Server to support or deny support for any MMS service to an MMS Client for all object instances within its implementation; this amendment allows an MMS Server to offer support for a MMS service to an MMS Client for some object instances but not for others. If support of object specific access control is negotiated in the Initiate dialogue, the MMS client may examine and manipulate the Access Control List object of individual object instances.

The attribute MMS Deletable is removed from the object description of all MMS objects. In its place, a derivation rule is provided such that services that report MMS Deletable can do so in a manner consistent with implementations not employing this amendment.

There are seven classes of constraint, called Service Classes, that are covered by this amendment. These classes are Read, Write, Load, Store, Execute, Delete, and Edit. Not all classes are applicable to all objects. The Edit class describes the ability to change the Access Control List characteristics of any object.

This amendment makes use of the Authentication Unit of the Association Control Service Element (ACSE) now available as an implementation option. It does so by allowing the conditions expressed in the Access Control List to depend on the Authentication Value present in the A-ASSOCIATE service primitives. Such use of the Authentication Unit is not required, however, to make use of the Access Control List mechanism.

By using the mechanisms present in this amendment, an implementation can restrict access to an object (for reading, writing, loading, storing, execution, deletion, or other modification) to MMS Clients that either (1) attempt access from known network nodes, (2) provide properauthentication (passwords), (3) have synchronized their use with other MMS Clients through use of the semaphores, or (4) an arbitrary combination of these methods. The specification of passwords requires the use of the Authentication Unit of ACSE.

This amendment also modifies the MMS Service model by adding an explicit Object Model for an Application Association. This model should be present in the basic MMS Object Model, independent of the use of Access Control Lists. Its omission in the base document should be considered an oversight, corrected by this amendment.

The introduction of an object model for the application association allows one to move the list of transactions objects from the VMD to the application association, thereby allowing the invoke ID to be the sole key attribute of the transaction. The case of processing of Event Actions, however, requires us to introduce a new attribute to the VMD, namely a list of transactions associated with Event Action processing that are not bound (necessarily) to an association.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

Industrial automation systems — Manufacturing Message Specification —

Part 2:
Protocol specification
AMENDMENT 2: Conditioned service response

1. Scope

(This amendment makes no changes to clause 1 of ISO/IEC 9506-2.)

2. Normative References

Immediately following the reference to ISO 8650, page 2, add the following:

ISO 8649:1988/Amd. 1: 1990,   *Information processing systems - Open Systems Interconnection - Service definition for the Association Control Service Element Amendment 1: Authentication during association establishment.*

ISO 8650:1988/Amd 1:1990,   *Information processing systems - Open Systems Interconnection - Protocol specification for the Association Control Service Element Amendment 1: Authentication during association establishment.*

Immediately following the reference to ISO/IEC 9506-1, add the following:

ISO/IEC 9506-2:1990/Amd. 1:1993,   *Industrial automation systems - Manufacturing Message Specification - Part 2: Protocol Specification Amendment 1: Data Exchange.*

ISO/IEC 9506-2:1990/Cor. 1:1995,   *Industrial Automation Systems - Manufacturing Message Specification - Part 2: Protocol Specification Technical corrigendum 1.*

3. Definitions

(This amendment makes no changes to clause 3 of ISO/IEC 9506-2.)

4. Abbreviations

(This amendment makes no changes to clause 4 of ISO/IEC 9506-2.)

5.　Conventions

(This amendment makes no changes to clause 5 of ISO/IEC 9506-2.)

6.　Elements of Protocol Procedure

(This amendment makes no changes to clause 6 of ISO/IEC 9506-2.)

7.　MMS PDU

In clause 7, near the top of page 19, replace the lines

```
IMPORTS AP-title, AP-invocation-id, AE-qualifier, AE-invocation-id
  FROM ISO-8650-ACSE-1
{iso standard 8650 abstract-syntax(2) acse-pdi(1)};
```

with:

```
IMPORTS AP-title, AP-invocation-id, AE-qualifier,
   AE-invocation-id, Authentication-value
   FROM ISO-8650-ACSE-1
{iso standard 8650 abstract-syntax(2) acse-pdi(1)}
```

In 7.5.2, in the middle of page 23, change the last line of the production from:

```
  exchangeData              [81] IMPLICIT  ExchangeData-Request
            -- Shall not appear in minor version 1
```

to:

```
 exchangeData        [81] IMPLICIT ExchangeData-Request,
          -- Shall not appear in minor version one
 defineAccessControlList  [82] IMPLICIT
              DefineAccessControlList-Request,
          -- Shall not appear in minor version one or two
 getAccessControlListAttributes   [83] IMPLICIT
              GetAccessControlListAttributes-Request,
          -- Shall not appear in minor version one or two
 reportAccessControlledObjects    [84] IMPLICIT
              ReportAccessControlledObjects-Request,
          -- Shall not appear in minor version one or two
 deleteAccessControlList       [85] IMPLICIT
              DeleteAccessControlList-Request,
          -- Shall not appear in minor version one or two
 changeAccessControl            [86] IMPLICIT
              ChangeAccessControl-Request
          -- Shall not appear in minor version one or two
```

In 7.5.4 near the top of page 27, change the last line of the production from:

```
exchangeData                         [81] IMPLICIT
                          ExchangeData-Response
               -- Shall not appear in minor version one
```

to

```
exchangeData                         [81] IMPLICIT
                          ExchangeData-Response,
               -- Shall not appear in minor version one
defineAccessControlList         [82] IMPLICIT
                          DefineAccessControlList-Response,
               -- Shall not appear in minor version one or two
getAccessControlListAttributes   [83] IMPLICIT
                          GetAccessControlListAttributes-Response,
               -- Shall not appear in minor version one or two
reportAccessControlledObjects    [84] IMPLICIT
                          ReportAccessControlledObjects-Response,
               -- Shall not appear in minor version one or two
deleteAccessControlList          [85] IMPLICIT
                          DeleteAccessControlList-Response,
               -- Shall not appear in minor version one or two
changeAccessControl              [86] IMPLICIT
                          ChangeAccessControl-Response
               -- Shall not appear in minor version one or two
```

In 7.5.5, page 30, at the very end of the ServiceError production, change:

```
additionalService       [10] AdditionalService-Error
} OPTIONAL
```

to:

```
additionalService       [10] AdditionalService-Error,
changeAccessControl     [11] IMPLICIT ChangeAccessControlError
               -- Shall not appear in minor version one or two
} OPTIONAL
```

8. Environment and General Management Protocol

In 8.2 on page 36, change:

```
cancel                                              (84),
getDataExchangeAttributes                           (85),
    -- Shall not appear in minor version one
exchangeData                                        (86)
    -- Shall not appear in minor version one
```

to:

```
cancel                                              (84),
getDataExchangeAttributes                           (85),
    -- Shall not appear in minor version one
exchangeData                                        (86),
    -- Shall not appear in minor version one
defineAccessControlList                             (87),
    -- Shall not appear in minor version one or two
getAccessControlListAttributes                      (88),
    -- Shall not appear in minor version one or two
reportAccessControlledObjects                       (89),
    -- Shall not appear in minor version one or two
deleteAccessControlList                             (90),
    -- Shall not appear in minor version one or two
alterAccessControl                                  (91)
    -- Shall not appear in minor version one or two
```

In 8.2 on page 36, in ParameterSupportOptions, change:

```
cei     (10)
```

to:

```
cei     (10),
aco     (11)          -- Shall not appear in minor version one or two
```

9. VMD Support Protocol

In 9.4 on page 41, change:

```
operatorStation                                     (11),
dataExchange                                        (12)
    -- Shall not appear in minor version one
```

to:

```
    operatorStation                                   (11),
    dataExchange                                      (12),
        -- Shall not appear in minor version one
    accessControlList                                 (13)
        -- Shall not appear in minor version one or two
```

In 9.6 on page 43, change:

```
    operatorStation                                   (11),
    dataExchange                                      (12)
        -- Shall not appear in minor version one
```

to:

```
    operatorStation                                   (11),
    dataExchange                                      (12),
        -- Shall not appear in minor version one
    accessControlList                                 (13)
        -- Shall not appear in minor version one or two
```

10. Domain Management Protocol

iTeh STANDARD PREVIEW

In 10.13, page 50, replace the line: (standards.iteh.ai)

```
    uploadInProgress          [5] IMPLICIT Integer8
```

with:

```
    uploadInProgress   [5] IMPLICIT Integer8,
    accessControlList  [6] IMPLICIT Identifier OPTIONAL
            -- Shall not appear in minor version one or two
```

Add a new subclause 10.13.2.1:

10.13.2.1 Access Control List

The accessControlList parameter shall appear if and only if the ACO CBB has been negotiated.