INTERNATIONAL STANDARDIZED PROFILE

ISO/IEC ISP 15121-2

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Information technology — International Standardized Profile AOD1n — Interactive Manipulation of ODA Documents —

Part 2:
AOD12 — DTAM/Insert

Technologies de l'information — Profil normalisé international AOD1n — Manipulation interactive de documents ODA —

Partie 2: AOD12 — DTAM/Insertion

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Contents

Foreword v

Introduction vi

1 Scope 1

1.1 General 1

1.2 Position within the Taxonomy 1

1.3 User Requirements and Scenario 1

2 Normative References 2

2.1 Identical Recommendations | International Standards 2

2.2 Additional References 3

3 Definitions 3

4 Abbreviations 3

5 Conformance 3

6 Constraints for the Abstract Interface for the manipulation of ODA documents and for DTAM confirmed document manipulation service 3

6.1 Support for services provided by AOD12 (Interactive Manipulation of ODA Documents - DTAM/Insert) 3

6.1.1 'Support for services provided by AOD12' tables conventions 3

6.1.2 Abstract interface for the manipulation of ODA documents 4

6.1.3 DTAM confirmed document manipulation 5

6.1.4 'Equivalence between AI and DTAM-DM services' table conventions 5

6.1.5 Equivalence between AI and DTAM-DM services 6

6.2 Support for AI and DTAM-DM operation arguments and results 6

6.2.1 'Support for AI and DTAM-DM operation arguments and results' tables conventions 6

6.2.2 Equivalence between AI and DTAM-DM arguments and results 6

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6.2.3 General Restrictions....6
6.2.4 AI List / DTAM-DM DM-DOCUMENT-LIST....6
6.2.5 AI Open / DTAM-DM DM-DOCUMENT-OPEN....6
6.2.5.1 General restrictions....6
6.2.5.2 AI Open arguments....7
6.2.5.3 DTAM-DM DM-DOCUMENT-OPEN arguments....7
6.2.5.4 Equivalence between AI Open and DTAM-DM DM-DOCUMENT-OPEN arguments....8
6.2.5.5 AI Open results....8
6.2.5.6 DM-DOCUMENT-OPEN results....8
6.2.5.7 Equivalence between AI Open and DTAM-DM DM-DOCUMENT-OPEN results....8
6.2.6 AI Close / DTAM-DM DM-DOCUMENT-CLOSE....8
6.2.7 AI Get / DTAM-DM DM-GET....8
6.2.7.1 General restrictions....8
6.2.7.2 AI Get arguments....8
6.2.7.3 DTAM-DM DM-GET arguments....9
6.2.7.4 Equivalence between AI Get and DTAM-DM DM-GET arguments....9
6.2.7.5 AI Get results....10
6.2.7.6 DTAM-DM-GET results....10
6.2.7.7 Equivalence between AI Get and DTAM-DM DM-GET results....10
6.2.8 AI Search / DTAM-DM DM-SEARCH....10
6.2.8.1 General restrictions....10
6.2.8.2 AI Search arguments....10
6.2.8.3 DTAM-DM DM-SEARCH arguments....10
6.2.8.4 Equivalence between AI Search and DTAM-DM DM-SEARCH arguments11
6.2.8.5 AI Search results....12
6.2.8.6 DTAM-DM DM-SEARCH results....12
6.2.8.7 Equivalence between AI Search and DTAM-DM DM-SEARCH results....12
6.2.9 AI Create / DTAM-DM DM-CREATE....12
6.2.9.1 General restrictions....12
6.2.9.2 AI Create arguments....12
6.2.9.3 DTAM-DM DM-CREATE arguments....13
6.2.9.4 Equivalence between AI Create and DTAM-DM DM-CREATE arguments15
6.2.9.5 AI Create results....15
6.2.9.6 DTAM-DM DM-CREATE results....15
6.2.9.7 Equivalence between AI Create and DTAM-DM DM-CREATE results....16
6.2.10 AI Copy / DTAM-DM DM-COPY....16
6.2.10.1 General restrictions....16
6.2.10.2 AI Copy arguments....16
6.2.10.3 DTAM-DM DM-COPY arguments....17
6.2.10.4 Equivalence between AI Copy and DTAM-DM DM-COPY arguments....19
6.2.10.5 AI Copy results....19
6.2.10.6 DTAM-DM DM-COPY results....20
6.2.10.7 Equivalence between AI Copy and DTAM-DM DM-COPY results....21

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6.2.11 AI Reserve / DTAM-DM DM-RESERVE 21
6.2.11.1 General restrictions 21
6.2.11.2 AI Reserve arguments 21
6.2.11.3 DTAM-DM DM-RESERVE arguments 21
6.2.11.4 Equivalence between AI Reserve and DTAM-DM DM-RESERVE arguments 22
6.2.11.5 AI Reserve results 23
6.2.11.6 DTAM-DM DM-RESERVE results 23
6.2.11.7 Equivalence between AI Reserve and DTAM-DM DM-RESERVE results23
6.2.12 AI Unreserve / DTAM-DM DM-UNRESERVE 23
6.2.12.1 General restrictions 23
6.2.12.2 AI Unreserve arguments 23
6.2.12.3 DTAM-DM DM-UNRESERVE arguments 24
6.2.12.4 Equivalence between AI Unreserve and DTAM-DM DM-UNRESERVE arguments 25
6.2.12.5 AI Unreserve results 26
6.2.12.6 DTAM-DM DM-UNRESERVE results 26
6.2.12.7 Equivalence between AI Unreserve and DTAM-DM DM-UNRESERVE results 26
6.2.13 DTAM-DM DTAM-DMBind 26
6.2.13.1 General Restrictions 26
6.2.13.2 DTAM DTAM- DMBind arguments 26
6.2.13.3 DTAM-DM DTAM-DMBind results 27
6.2.14 DTAM-DM DTAM-DMUnBind 27
7 Errors returned 27
7.1 'AI errors', 'DTAM-DM errors' and 'DTAM-DMBind / DTAM-DMUnBind errors' tables conventions 27
7.2 AI errors 28
7.2.1 AI errors table 28
7.2.2 AI errors mapping 29
7.3 DTAM-DM errors 30
7.4 DTAM-DMBind / DTAM-DMUnBind errors 31
7.5 'Mapping between AI and DTAM-DM errors' table conventions 31
7.6 Mapping between AI and DTAM-DM errors 31
7.7 'Mapping between DTAM-DM and AI errors' table conventions 34
7.8 Mapping between DTAM-DM and AI errors 34
8 Constraints on location expression 35
9 Constraints for the DTAM confirmed document manipulation protocol 36

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Annex A (normative) Profile requirements list 37

Annex B (informative) Object Identifiers List 38

Annex C (informative) Use of DM-POINT in ISO/IEC 15121 39

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Information technology — International Standardized Profile AOD1n — Interactive Manipulation of ODA Documents —

Part 2:
AOD12 — DTAM/Insert

1 Scope

1.1 General

AODnn International Standard Profiles (ISPs) specify constraints on implementations of the Abstract Interface for the manipulation of ODA (Open Document Architecture) documents, ITU-T Rec. T.413 | ISO/IEC 8613-3, in order to facilitate different implementations of interactive remote document manipulation applications.

ISO/IEC ISP 15121 specifies such constraints when the Abstract Interface for the manipulation of ODA documents (AI) is used in combination with Document Transfer and Manipulation for Confirmed Document Manipulation (DTAM-DM), ITU-T Rec. T.435 and T.436. In this case, constraints on implementations of ITU-T Rec. T.435 and T.436 are also specified.

This part of ISO/IEC ISP 15121 (Interactive Manipulation of ODA Documents - DTAM/Insert) specifies such constraints for the implementation of applications that provide insert operations on remote ODA documents in an Open Systems Interconnection (OSI) environment.

1.2 Position within the Taxonomy

This part of ISO/IEC ISP 15121 is defined in the taxonomy for Interactive Manipulation of ODA Documents, described in EWOS/TA/94/272 (EWOS/EG/SMMI/94/128). It is the intermediate profile of those using DTAM (AOD1n).

This part of ISO/IEC ISP 15121 is intended for implementations where ODA documents can be reviewed and modified with insert operations.

It is a superset of AOD11 and a subset of AOD13 profiles.

1.3 User Requirements and Scenario

The model used in this part of ISO/IEC ISP 15121 is that of remote document applications using services provided by the Abstract Interface for the manipulation of ODA documents (AI), in combination with DTAM confirmed document manipulation (DTAM-DM) service and protocol, in order to get access to a remote ODA document.

In this model, the manipulating application will be called *ODA document manipulation client*, while the system to which ODA clients will remotely access for document interactive manipulation will be called *ODA document manipulation server*. The ODA server application will store the documents and will perform the operations on them.

Figure 1 illustrates the environment within which this part of ISO/IEC ISP 15121 is applicable.

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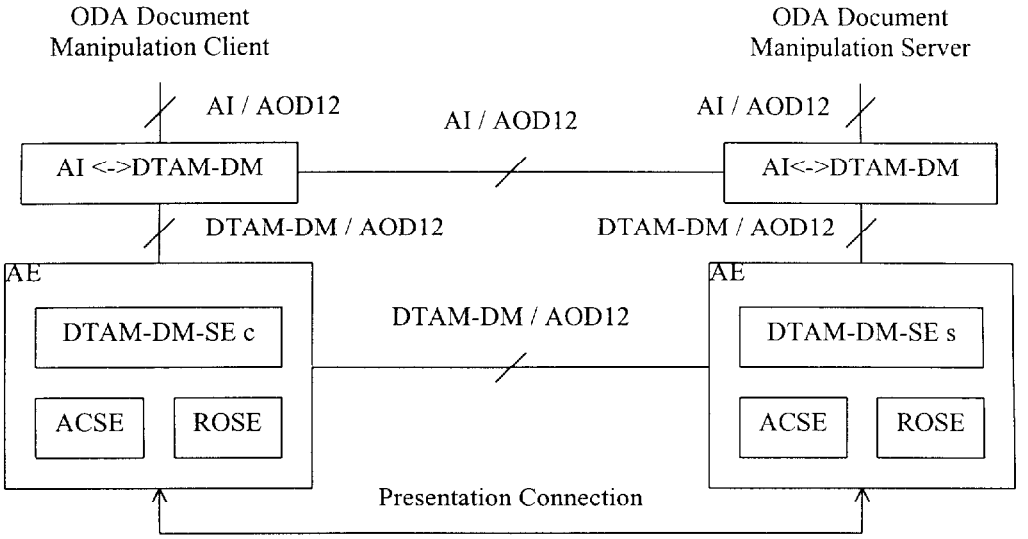

Legend:

ACSE	Association Control Service Element
AE	Application Entity
AI	Abstract Interface for the manipulation of ODA documents
AI/AOD12	Abstract Interface for the manipulation of ODA documents following AOD12 profile
DTAM-DM	Document Transfer And Manipulation - Confirmed Document Manipulation
DTAM-DM/AOD12	Document Transfer And Manipulation – Confirmed Document Manipulation following AOD12 profile
DTAM-DM-SE c	Document Transfer And Manipulation - Confirmed Document Manipulation Service Element - Consumer
DTAM-DM-SE s	Document Transfer And Manipulation - Confirmed Document Manipulation Service Element - Supplier
ROSE	Remote Operations Service Element

Figure 1 - AOD12 Environment

2 Normative References

The following documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC ISP 15121. At the time of publication, the editions indicated were valid. All documents are subject to revision, and parties to agreements based on this part of ISO/IEC ISP 15121 are warned against automatically applying any more recent editions of the documents listed below, since the nature of references made by ISPs to such documents is that they may be specific to a particular edition. Members of IEC and ISO maintain registers of currently valid International Standards and ISPs, and ITU-T maintains published editions of its current Recommendations.

2.1 Identical Recommendations | International Standards

- ITU-T Recommendation T.413 (1994) | ISO/IEC 8613-3: 1995, *Information technology - Open Document Architecture (ODA) and interchange format: Abstract interface for the manipulation of ODA documents.*
- ITU-T Recommendation T.422 (1995) | ISO/IEC 8613-12: 1996, *Information technology - Open Document Architecture (ODA) and interchange format: Identification of document fragments.*

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2.2 Additional References

- ITU-T Recommendation T.435 (1995), *Document Transfer And Manipulation (DTAM) - Services and Protocols - Abstract service definition and procedures for confirmed document manipulation.*
- ITU-T Recommendation T.436 (1995), *Document Transfer And Manipulation (DTAM) - Services and Protocols - Protocol specifications for confirmed document manipulation.*
- ISO/IEC ISP 11188-1: 1995, *Information technology - International Standardized Profile - Common upper layer requirements - Part 1: Basic connection oriented requirements.*
- ISO/IEC ISP 11188-2: 1996, *Information technology - International Standardized Profile - Common upper layer requirements - Part 2: Basic connection oriented requirements for ROSE-based profiles.*
- ISO/IEC ISP 11188-3: 1996, *Information technology - International Standardized Profile - Common upper layer requirements - Part 3: Minimal OSI upper layer facilities.*
- ISO/IEC ISP 15121-1: 1997, *Information technology - International Standardized Profile AOD1n - Interactive Manipulation of ODA Documents - Part 1: DTAM/Read Only.*
- ISO/IEC ISP 15121-3: 1997, *Information technology - International Standardized Profile AOD1n - Interactive Manipulation of ODA Documents - Part 3: AOD13 - DTAM/Manipulation.*

3 Definitions

For the purposes of this part of ISO/IEC ISP 15121, the definitions given in ISO/IEC ISP 15121-1 apply.

4 Abbreviations

For the purposes of this part of ISO/IEC ISP 15121, the abbreviations given in ISO/IEC ISP 15121-1 apply.

5 Conformance

This part of ISO/IEC ISP 15121 states requirements upon implementations to achieve interworking. A claim of conformance to this AOD12 is a claim that all requirements in the relevant base standards and recommendations are satisfied, that all the requirements in ISO/IEC ISP 11188-2 and ISO/IEC ISP 11188-3 are satisfied, and that all requirements in clauses 6, 7, 8 and 9, and in annex A of this part of ISO/IEC ISP 15121 are satisfied. Clauses 6, 7, 8 and 9, and annex A state the equivalence between these requirements and those of the base standards and recommendations.

6 Constraints for the Abstract Interface for the manipulation of ODA documents and for DTAM confirmed document manipulation service

6.1 Support for services provided by AOD12 (Interactive Manipulation of ODA Documents - DTAM/Insert)

The tables in this subclause specify the AI and DTAM-DM operations that are supported by this part of ISO/IEC ISP 15121.

6.1.1 'Support for services provided by AOD12' tables conventions

The specifications provided in ISO/IEC ISP 15121-1, subclause 6.1.1 apply.

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6.1.2 Abstract interface for the manipulation of ODA documents

The following table specifies the AI operations that are supported by this part of ISO/IEC ISP 15121. The symbols used in the table are defined in subclause 6.1.1.

AI Service	P
List	o
Open	m
Close	m
Get	m
Search	m
Create	m
Delete	x
Modify	x
Replace	x
Copy	m
Move	x
Reserve	o
Unreserve	o
BeginGroup	x
EndGroup	x

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6.1.3 DTAM confirmed document manipulation

The DTAM-DM 'Extended Level' is required to support ISO/IEC ISP 15121-2.

The following table specifies the DTAM-DM operations as defined in the 'Extended Level' in ITU-T Rec. T.435, and those supported by ISO/IEC ISP 15121-2. The symbols used in the table are defined in subclause 6.1.1.

DTAM-DM Service	B	P
DTAM-DMBind	m	m
DTAM-DMUnBind	m	m
DM-DOCUMENT-OPEN	m	m
DM-DOCUMENT-SAVE	m	x
DM-DOCUMENT-DISCARD	m	x
DM-DOCUMENT-CLOSE	m	m
DM-DOCUMENT-LIST	o	o
DM-GET	m	m
DM-SEARCH	m	m
DM-CREATE	m	m
DM-DELETE	m	x
DM-MODIFY	m	x
DM-COPY	m	m
DM-MOVE	m	x
DM-REPLACE	m	x
DM-RESERVE	m	o
DM-UNRESERVE	m	o
DM-POINT	o	x
DM-MACRO-CALL	f.s.	x
DM-GROUP-BEGIN	f.s.	x
DM-GROUP-END	f.s.	x

6.1.4 'Equivalence between AI and DTAM-DM services' table conventions

The specifications provided in ISO/IEC ISP 15121-1, subclause 6.1.4 apply.

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6.1.5 Equivalence between AI and DTAM-DM services

This table specifies the equivalence between all the AI and DTAM-DM operations supported by this part of ISO/IEC ISP 15121. The symbols used in the table are defined in subclause 6.1.4.

When one AI operation is said to be equivalent to one DTAM-DM operation, this means that the AI operation will be mapped into the DTAM-DM operation when sending the operation request, the result or an error, and that the DTAM-DM operation will be mapped into the AI operation when receiving the operation request, the result or an error.

For operations not included in this table, the specifications provided in ISO/IEC ISP 15121-1, table in subclause 6.1.5 apply.

AI Service	DTAM-DM Service
Create	DM-CREATE
Copy	DM-COPY
Reserve	DM-RESERVE
Unreserve	DM-UNRESERVE

6.2 Support for AI and DTAM-DM operation arguments and results

The text provided in ISO/IEC ISP 15121-1, subclause 6.2 applies.

6.2.1 'Support for AI and DTAM-DM operation arguments and results' tables conventions

The specifications provided in ISO/IEC ISP 15121-1, subclause 6.2.1 apply.

6.2.2 Equivalence between AI and DTAM-DM arguments and results

The specifications provided in ISO/IEC ISP 15121-1, subclause 6.2.2 apply.

6.2.3 General Restrictions

Permanent document identifiers shall be used in AOD12 in the List / DM-DOCUMENT-LIST operations result, and in Open / DM-DOCUMENT-OPEN operations argument. Once a document is opened using a permanent document identifier, a non-permanent document identifier shall be returned in the Open / DM-DOCUMENT-OPEN result.

The base standards define the document identifier as optional in the Get / DM-GET, Search / DM-SEARCH, Create / DM-CREATE, Copy / DM-COPY, Reserve / DM-RESERVE and Unreserve / DM-UNRESERVE operations argument. When only one document is opened at a time, no document identifier shall be necessary for the argument because all those operations shall be performed on the opened document. When more than one document is opened at a time, then, the non-permanent document identifier returned by the Open / DM-DOCUMENT-OPEN result shall be used as document identifier in those operations.

The non-permanent document identifier returned by the Open / DM-DOCUMENT-OPEN result shall be used in the Close / DM-Close operation argument. Once the document is closed, the new permanent document identifier shall be returned in the Close / DM-Close operation result.

6.2.4 AI List / DTAM-DM DM-DOCUMENT-LIST

The specifications provided in ISO/IEC ISP 15121-1, subclause 6.2.4 apply.

6.2.5 AI Open / DTAM-DM DM-DOCUMENT-OPEN

6.2.5.1 General restrictions

There are no general restrictions for the AI Open / DTAM-DM DM-DOCUMENT-OPEN operation.

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6.2.5.2 AI Open arguments

The following table defines the AI Open operation arguments as defined in ITU-T Rec. T.413 | ISO/IEC 8613-3, and those supported by this part of ISO/IEC ISP 15121. The symbols used in the table are defined in subclause 6.2.1.

The argument of the AI Open operation is a SEQUENCE of two data structures. The first data structure is of type Document-Id and the second one is an optional data structure of type ModeType. In this operation argument, the Document-Id shall reference to a permanent identifier.

Ref.	Argument	B	P	Constraint / value
1	identifier	m	m	
1.1	permanent	m	m	
1.1.1	unique-reference	o.1	m	
1.1.2	descriptive-reference	o.1	x	
1.2	non-permanent	x	x	
2	mode	o	m	

o.1: One and only one of the two marked items shall be selected.

6.2.5.3 DTAM-DM DM-DOCUMENT-OPEN arguments

The following table defines the DTAM-DM DM-DOCUMENT-OPEN operation arguments as defined in ITU-T Rec. T.435, and those supported by this part of ISO/IEC ISP 15121. The symbols used in the table are defined in subclause 6.2.1.

The argument of the DTAM-DM DM-DOCUMENT-OPEN operation is a SEQUENCE of two data structures. The first data structure is of type DocumentId and the second one is an optional data structure of type ModeType. DocumentId is a CHOICE between four options.

Ref.	Argument	B	P	Constraint / value
1	documentId	m	m	
1.1	dfrName	o.1	x	
1.2	documentReference	o.1	m	
1.2.1	unique-reference	o.2	m	
1.2.2	descriptive-reference	o.2	x	
1.3	documentName	o.1	x	
1.4	nonPermanentIdentifier	o.1	x	
2	mode	o	m	

o.1: One and only one of the four marked items shall be selected.

o.2: One and only one of the two marked items shall be selected.

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6.2.5.4 Equivalence between AI Open and DTAM-DM DM-DOCUMENT-OPEN arguments

This subclause specifies the equivalence, as defined in subclause 6.2.2, between the AI Open and the DTAM-DM DM-DOCUMENT-OPEN operation arguments that are supported by ITU-T Rec. T.413 | ISO/IEC 8613-3, ITU-T Rec. T.435 and this part of ISO/IEC ISP 15121.

The equivalencies are:

- The AI "permanent" argument (Ref. 1.1) is equivalent to the DTAM-DM "documentReference" argument (Ref. 1.2).
- The AI "unique-reference" argument (Ref. 1.1.1) is equivalent to the DTAM-DM "unique-reference" argument (Ref. 1.2.1).
- The AI "mode" argument (Ref. 2) is equivalent to the DTAM-DM "mode" argument (Ref. 2).

6.2.5.5 AI Open results

The specifications provided in ISO/IEC ISP 15121-1, subclause 6.2.5.5 apply.

6.2.5.6 DM-DOCUMENT-OPEN results

The specifications provided in ISO/IEC ISP 15121-1, subclause 6.2.5.6 apply.

6.2.5.7 Equivalence between AI Open and DTAM-DM DM-DOCUMENT-OPEN results

The specifications provided in ISO/IEC ISP 15121-1, subclause 6.2.5.7 apply.

6.2.6 AI Close / DTAM-DM DM-DOCUMENT-CLOSE

The specifications provided in ISO/IEC ISP 15121-1, subclause 6.2.6 apply.

6.2.7 AI Get / DTAM-DM DM-GET

6.2.7.1 General restrictions

There are no general restrictions for the AI Get / DTAM-DM DM-GET operation.

6.2.7.2 AI Get arguments

The following table defines the AI Get operation arguments as defined in ITU-T Rec. T.413 | ISO/IEC 8613-3, and those supported by this part of ISO/IEC ISP 15121. The symbols used in the table are defined in subclause 6.2.1.

The argument of the AI Get operation is a SEQUENCE of two data structures. The first data structure is of type LocationInDocumentType, and the second one is an optional BOOLEAN. LocationInDocumentType is a SEQUENCE of an optional data structure of type Document-Id and a data structure of type Location-expression.

Ref.	Argument	B	P	Constraint / value
1	location-in-document	m	m	
1.1	document	o	o	Mandatory if more than one document is open
1.1.1	permanent	o.1	x	
1.1.2	non-permanent	o.1	m	
1.2	location	m	m	
2	no-defaults	o	o	The value shall be equal to 'FALSE' (default value)

o.1: One and only one of the two marked items shall be selected.

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6.2.7.3 DTAM-DM DM-GET arguments

The following table defines the DTAM-DM DM-GET operation arguments as defined in ITU-T Rec. T.435, and those supported by this part of ISO/IEC ISP 15121. The symbols used in the table are defined in subclause 6.2.1.

The argument of the DTAM-DM DM-GET operation is a SEQUENCE of a data structure of type ManipulationObject. ManipulationObject is a SEQUENCE of an optional data structure of type DocumentId and an optional data structure of type ObjectValue. DocumentId is a CHOICE between four options. ObjectValue is a CHOICE between three options. NonPermanentIdentifier is a CHOICE between two options. Oda-Expression is a CHOICE between four options.

Ref.	Argument	B	P	Constraint / value
1	object	m	m	
1.1	documentIdentifier	o	o	Mandatory if more than one document is open
1.1.1	dfrName	o.1	x	
1.1.2	documentReference	o.1	x	
1.1.3	documentName	o.1	x	
1.1.4	nonPermanentIdentifier	o.1	m	
1.1.4.1	integer	o.2	m	
1.1.4.2	octetString	o.2	x	
1.2	objectValue	o	m	
1.2.1	odaExpression	o.3	m	
1.2.1.1	locationExpression	o.4	m	
1.2.1.2	basicLocationExpression	o.4	x	
1.2.1.3	constituentLocator	o.4	x	
1.2.1.4	constituentIdentifier	o.4	x	
1.2.2	otherExpression	o.3	x	
1.2.3	anyExpression	o.3	x	

o.1: One and only one of the four marked items shall be selected.

o.2: One and only one of the two marked items shall be selected.

o.3: One and only one of the three marked items shall be selected.

o.4: One and only one of the four marked items shall be selected.

6.2.7.4 Equivalence between AI Get and DTAM-DM DM-GET arguments

This subclause specifies the equivalence, as defined in subclause 6.2.2, between the AI Get and the DTAM-DM DM-GET operation arguments that are supported by ITU-T Rec. T.413 | ISO/IEC 8613-3, ITU-T Rec. T.435 and this part of ISO/IEC ISP 15121.

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The equivalencies are:

- The "non-permanent" argument (Ref. 1.1.2) is equivalent to the DTAM-DM "integer" argument (Ref. 1.1.4.1).
- The AI "location" argument (Ref. 1.2) is equivalent to the DTAM-DM "locationExpression" argument (Ref. 1.2.1.1).
- The AI "no-defaults" argument (Ref. 2) has no DTAM-DM equivalent argument.

6.2.7.5 AI Get results

The specifications provided in ISO/IEC ISP 15121-1, subclause 6.2.7.5 apply.

6.2.7.6 DTAM-DM-GET results

The specifications provided in ISO/IEC ISP 15121-1, subclause 6.2.7.6 apply.

6.2.7.7 Equivalence between AI Get and DTAM-DM DM-GET results

The specifications provided in ISO/IEC ISP 15121-1, subclause 6.2.7.7 apply.

6.2.8 AI Search / DTAM-DM DM-SEARCH

6.2.8.1 General restrictions

There are no general restrictions for the AI Search / DTAM-DM DM-SEARCH operation.

6.2.8.2 AI Search arguments

The following table defines the AI Search operation arguments as defined in ITU-T Rec. T.413 | ISO/IEC 8613-3, and those supported by this part of ISO/IEC ISP 15121. The symbols used in the table are defined in subclause 6.2.1.

The argument of the AI Search operation is a SEQUENCE of two data structures. The first data structure is of type LocationInDocumentType, and the second one is an optional INTEGER. LocationInDocumentType is a SEQUENCE of an optional data structure of type Document-Id and a data structure of type Location-expression.

Ref.	Argument	B	P	Constraint / value
1	location-in-document	m	m	
1.1	document	o	o	Mandatory if more than one document is open
1.1.1	permanent	o.1	x	
1.1.2	non-permanent	o.1	m	
1.2	location	m	m	
2	maxOccurrences	o	m	The value shall always be greater or equal to 1 and less or equal to 255

o.1: One and only one of the two marked items shall be selected.

6.2.8.3 DTAM-DM DM-SEARCH arguments

The following table defines the DTAM-DM DM-SEARCH operation arguments as defined in ITU-T Rec. T.435, and those supported by this part of ISO/IEC ISP 15121. The symbols used in the table are defined in subclause 6.2.1.

The argument of the DTAM-DM DM-SEARCH operation is a SEQUENCE of two data structures. The first data structure is a SEQUENCE of a ManipulationObject, and the second one is an optional INTEGER. ManipulationObject is a SEQUENCE of an optional data structure of type DocumentId and an optional data structure of type ObjectValue.

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DocumentId is a CHOICE between four options. ObjectValue is a CHOICE between three options. NonPermanentIdentifier is a CHOICE between two options. Oda-Expression is a CHOICE between four options.

Ref.	Argument	B	P	Constraint / value
1	object	m	m	
1.1	documentIdentifier	o	o	Mandatory if more than one document is open
1.1.1	dfrName	o.1	x	
1.1.2	documentReference	o.1	x	
1.1.3	documentName	o.1	x	
1.1.4	nonPermanentIdentifier	o.1	m	
1.1.4.1	integer	o.2	m	
1.1.4.2	octetString	o.2	x	
1.2	objectValue	o	m	
1.2.1	odaExpression	o.3	m	
1.2.1.1	locationExpression	o.4	m	
1.2.1.2	basicLocationExpression	o.4	x	
1.2.1.3	constituentLocator	o.4	x	
1.2.1.4	constituentIdentifier	o.4	x	
1.2.2	otherExpression	o.3	x	
1.2.3	anyExpression	o.3	x	
2	limit	o	m	The value shall always be greater or equal to 1 and less or equal to 255

o.1: One and only one of the four marked items shall be selected.

o.2: One and only one of the two marked items shall be selected.

o.3: One and only one of the three marked items shall be selected.

o.4: One and only one of the four marked items shall be selected.

6.2.8.4 Equivalence between AI Search and DTAM-DM DM-SEARCH arguments

This subclause specifies the equivalence, as defined in subclause 6.2.2, between the AI Search and the DTAM-DM DM-SEARCH operation arguments that are supported by ITU-T Rec. T.413 | ISO/IEC 8613-3, ITU-T Rec. T.435 and this part of ISO/IEC ISP 15121.

The equivalencies are:

- The AI "non-permanent" argument (Ref. 1.1.2) is equivalent to the DTAM-DM "integer" (Ref. 1.1.4.1).

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- The AI "location" argument (Ref. 1.2) is equivalent to the DTAM-DM "locationExpression" argument (Ref. 1.2.1.1).
- The AI "maxOccurrences" argument (Ref. 2) is equivalent to the DTAM-DM "limit" argument (Ref. 2).

6.2.8.5 AI Search results

The specifications provided in ISO/IEC ISP 15121-1, subclause 6.2.8.5 apply.

6.2.8.6 DTAM-DM DM-SEARCH results

The specifications provided in ISO/IEC ISP 15121-1, subclause 6.2.8.6 apply.

6.2.8.7 Equivalence between AI Search and DTAM-DM DM-SEARCH results

The specifications provided in ISO/IEC ISP 15121-1, subclause 6.2.8.7 apply.

6.2.9 AI Create / DTAM-DM DM-CREATE

6.2.9.1 General restrictions

There are no general restrictions for the AI Create / DTAM-DM DM-CREATE operation.

6.2.9.2 AI Create arguments

The following table defines the AI Create operation arguments as defined in ITU-T Rec. T.413 | ISO/IEC 8613-3, and those supported by this part of ISO/IEC ISP 15121. The symbols used in the table are defined in subclause 6.2.1.

The argument of the AI Create operation is a SEQUENCE of three data structures. The first data structure is a SEQUENCE OF ConstituentType, the second one is an optional data structure of type ConstituentLocationInDocumentType and the third one is an optional data structure of type PositionType. ConstituentLocationInDocumentType is a SEQUENCE of an optional data structure of type Document-Id and an optional data structure of type Constituent-locator. Document-Id is a CHOICE between two options. PositionType is an ENUMERATED.

Ref.	Argument	B	P	Constraint / value
1	constituent-or-subtree	m	m	
2	location-in-document	o	m	Mandatory, although it would not be necessary if only one document is open and the constituent is neither an object (other than the logical or layout root) nor a content portion
2.1	document	o	o	Mandatory if more than one document is open
2.1.1	permanent	o.1	x	
2.1.2	non-permanent	o.1	m	
2.2	constituent-location	o	o	Mandatory if the constituent is an object (other than the logical or layout root) or a content portion
3	position	o	m	Mandatory, although it would not be necessary if the constituent is neither an object (other than the logical or layout root) nor a content portion

o.1: One and only one of the two marked items shall be selected.

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6.2.9.3 DTAM-DM DM-CREATE arguments

The following table defines the DTAM-DM DM-CREATE operation arguments as defined in ITU-T Rec. T.435, and those supported by this part of ISO/IEC ISP 15121. The symbols used in the table are defined in subclause 6.2.1.

The argument of the DTAM-DM DM-CREATE operation is a SEQUENCE of three data structures. The first data structure is of type ManipulationObject, the second one is of type ObjectPosition and the third one is an optional SEQUENCE OF ObjectContent. ManipulationObject is a SEQUENCE of an optional data structure of type DocumentId and an optional data structure of type ObjectValue. ObjectPosition is an ENUMERATED. ObjectContent is a CHOICE between three data structures. DocumentId is a CHOICE between four options. ObjectValue is a CHOICE between three options. NonPermanentIdentifier is a CHOICE between two options. Oda-Expression is a CHOICE between four options.

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Ref.	Argument	B	P	Constraint / value
1	destination	m	m	Mandatory, although it would not be necessary if only one document is open and the constituent is neither an object (other than the logical or layout root) nor a content portion
1.1	documentIdentifier	o	o	Mandatory if more than one document is open
1.1.1	dfrName	o.1	x	
1.1.2	documentReference	o.1	x	
1.1.3	documentName	o.1	x	
1.1.4	nonPermanentIdentifier	o.1	m	
1.1.4.1	integer	o.2	m	
1.1.4.2	octetString	o.2	x	
1.2	objectValue	o	o	Mandatory if the constituent is an object (other than the logical or layout root) or a content portion
1.2.1	odaExpression	o.3	m	
1.2.1.1	locationExpression	o.4	x	
1.2.1.2	basicLocationExpression	o.4	x	
1.2.1.3	constituentLocator	o.4	m	
1.2.1.4	constituentIdentifier	o.4	x	
1.2.2	otherExpression	o.3	x	
1.2.3	anyExpression	o.3	x	
2	position	m	m	Mandatory, although it would not be necessary if the constituent is neither an object (other than the logical or layout root) nor a content portion
3	content	o	m	
3.1	odaContent	o.5	m	
3.2	octetAligned	o.5	x	
3.3	anyContent	o.5	x	

o.1: One and only one of the four marked items shall be selected.

o.2: One and only one of the two marked items shall be selected.

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o.3: One and only one of the three marked items shall be selected.

o.4: One and only one of the four marked items shall be selected.

o.5: One and only one of the three marked items shall be selected.

6.2.9.4 Equivalence between AI Create and DTAM-DM DM-CREATE arguments

This subclause specifies the equivalence, as defined in subclause 6.2.2, between the AI Create and the DTAM-DM DM-CREATE operation arguments that are supported by ITU-T Rec. T.413 | ISO/IEC 8613-3, ITU-T Rec. T.435 and this part of ISO/IEC ISP 15121.

The equivalencies are:

- The AI "constituent-or-subtree" argument (Ref. 1) is equivalent to the DTAM-DM "odaContent" argument (Ref. 3.1).
- The AI "non-permanent" argument (Ref. 2.1.2) is equivalent to the DTAM-DM "integer" argument (Ref. 1.1.4.1).
- The AI "constituent-location" (Ref. 2.2) is equivalent to the DTAM-DM "constituentLocator" argument (Ref. 1.2.1.3).
- The AI "position" argument (Ref. 3) is equivalent to the DTAM-DM "position" argument (Ref. 2).

6.2.9.5 AI Create results

The following table defines the AI Create operation results as defined in ITU-T Rec. T.413 | ISO/IEC 8613-3, and those supported by this part of ISO/IEC ISP 15121. The symbols used in the table are defined in subclause 6.2.1.

The result of the AI Create operation is a data structure of type ConstituentIdentifier. ConstituentIdentifier is a CHOICE between three options.

Ref.	Result	B	P	Constraint / value
1	constituentIdentifier	m	m	
1.1	object-or-class	o.1	o.1	
1.2	content-portion	o.1	o.1	
1.3	style	o.1	o.1	

o.1: One and only one of the three marked items shall be selected.

6.2.9.6 DTAM-DM DM-CREATE results

The following table defines the DTAM-DM DM-CREATE operation results as defined in ITU-T Rec. T.435, and those supported by this part of ISO/IEC ISP 15121. The symbols used in the table are defined in subclause 6.2.1.

The result of the DTAM-DM DM-CREATE operation is CHOICE between a NULL and a SEQUENCE OF AssignedId. AssignedId is a CHOICE between three options.

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Ref.	Result	B	P	Constraint / value
1	noValue	o.1	x	
2	assignedID	o.1	m	
2.1	odaIdentifier	o.2	m	
2.2	nonOdaIdentifier	o.2	x	
2.3	anyContent	o.2	x	

o.1: One and only one of the two marked items shall be selected.

o.2: One and only one of the three marked items shall be selected.

6.2.9.7 Equivalence between AI Create and DTAM-DM DM-CREATE results

This subclause specifies the equivalence, as defined in subclause 6.2.2, between the AI Create and the DTAM-DM DM-CREATE operation results that are supported by ITU-T Rec. T.413 | ISO/IEC 8613-3, ITU-T Rec. T.435 and this part of ISO/IEC ISP 15121.

The equivalencies are:

- The AI "constituentIdentifier" argument (Ref. 1) is equivalent to the DTAM-DM "odaIdentifier" result (Ref. 2.1).

6.2.10 AI Copy / DTAM-DM DM-COPY

6.2.10.1 General restrictions

There are no general restrictions for the AI Copy / DTAM-DM DM-COPY operation.

6.2.10.2 AI Copy arguments

The following table defines the AI Copy operation arguments as defined in ITU-T Rec. T.413 | ISO/IEC 8613-3, and those supported by this part of ISO/IEC ISP 15121. The symbols used in the table are defined in subclause 6.2.1.

The argument of the AI Copy operation is a SEQUENCE of three data structures. The first data structure is of type BasicLocationInDocumentType, the second one is an optional data structure of type ConstituentLocationInDocumentType and the third one is an optional data structure of type PositionType. BasicLocationInDocumentType is a SEQUENCE of an optional data structure of type Document-Id and a data structure of type Basic-location-expression. ConstituentLocationInDocumentType is a SEQUENCE of an optional data structure of type Document-Id and an optional data structure of type Constituent-locator. PositionType is an ENUMERATED. Document-Id is a CHOICE between two options.

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Ref.	Argument	B	P	Constraint / value
1	source	m	m	
1.1	document	o	o	Mandatory if more than one document is open
1.1.1	permanent	o.1	x	
1.1.2	non-permanent	o.1	m	
1.2	basic-location	m	m	
2	target	o	o	Mandatory if more than one document is open or if the constituent is an object (other than the logical or layout root) or a content portion
1.1	document	o	o	Mandatory if more than one document is open
2.1.1	permanent	o.2	x	
2.1.2	non-permanent	o.2	m	
2.2	constituent-location	o	o	Mandatory if the constituent is an object (other than the logical or layout root) or a content portion
3	position	o	o	Mandatory if the constituent is an object (other than the logical or layout root) or a content portion

o.1: One and only one of the two marked items shall be selected.

o.2: One and only one of the two marked items shall be selected.

6.2.10.3 DTAM-DM DM-COPY arguments

The following table defines the DTAM-DM DM-COPY operation arguments as defined in ITU-T Rec. T.435, and those supported by this part of ISO/IEC ISP 15121. The symbols used in the table are defined in subclause 6.2.1.

The argument of the DTAM-DM DM-COPY operation is a SEQUENCE of three data structures. The first and the second ones are optional data structures of type ManipulationObject and the third one is an optional data structure of type ObjectPosition. ManipulationObject is a SEQUENCE of an optional data structure of type DocumentId and an optional data structure of type ObjectValue. ObjectPosition is an ENUMERATED. DocumentId is a CHOICE between four options. ObjectValue is a CHOICE between three options. NonPermanentIdentifier is a CHOICE between two options. Oda-Expression is a CHOICE between four options.

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Ref.	Argument	B	P	Constraint / value
1	source	o	m	
1.1	documentIdentifier	o	o	Mandatory if more than one document is open
1.1.1	dfrName	o.1	x	
1.1.2	documentReference	o.1	x	
1.1.3	documentName	o.1	x	
1.1.4	nonPermanentIdentifier	o.1	m	
1.1.4.1	integer	o.2	m	
1.1.4.2	octetString	o.2	x	
1.2	objectValue	o	m	
1.2.1	odaExpression	o.3	m	
1.2.1.1	locationExpression	o.4	x	
1.2.1.2	basicLocationExpression	o.4	m	
1.2.1.3	constituentLocator	o.4	x	
1.2.1.4	constituentIdentifier	o.4	x	
1.2.2	otherExpression	o.3	x	
1.2.3	anyExpression	o.3	x	
2	destination	o	o	Mandatory if more than one document is open or if the constituent is an object (other than the logical or layout root) or a content portion
2.1	documentIdentifier	o	o	Mandatory if more than one document is open
2.1.1	dfrName	o.5	x	
2.1.2	documentReference	o.5	x	
2.1.3	documentName	o.5	x	
2.1.4	nonPermanentIdentifier	o.5	m	
2.1.4.1	integer	o.6	m	
2.1.4.2	octetString	o.6	x	

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2.2	objectValue	o	o	Mandatory if the constituent is an object (other than the logical or layout root) or a content portion
2.2.1	odaExpression	o.7	m	
2.2.1.1	locationExpression	o.8	x	
2.2.1.2	basicLocationExpression	o.8	x	
2.2.1.3	constituentLocator	o.8	m	
2.2.1.4	constituentIdentifier	o.8	x	
2.2.2	otherExpression	o.7	x	
2.2.3	anyExpression	o.7	x	
3	position	o	o	Mandatory if the constituent is an object (other than the logical or layout root) or a content portion

o.1: One and only one of the four marked items shall be selected.

o.2: One and only one of the two marked items shall be selected.

o.3: One and only one of the three marked items shall be selected.

o.4: One and only one of the four marked items shall be selected.

o.5: One and only one of the four marked items shall be selected.

o.6: One and only one of the two marked items shall be selected.

o.7: One and only one of the three marked items shall be selected.

o.8: One and only one of the four marked items shall be selected.

6.2.10.4 Equivalence between AI Copy and DTAM-DM DM-COPY arguments

This subclause specifies the equivalence, as defined in subclause 6.2.2, between the AI Copy and the DTAM-DM DM-COPY operation arguments that are supported by ITU-T Rec. T.413 | ISO/IEC 8613-3, ITU-T Rec. T.435 and this part of ISO/IEC ISP 15121.

The equivalencies are:

- The AI "non-permanent" argument (Ref. 1.1.2) is equivalent to the DTAM-DM "integer" argument (Ref. 1.1.4.1).
- The AI "basic-location" argument (Ref. 1.2) is equivalent to the DTAM-DM "basicLocationExpression" argument (Ref. 1.2.1.2).
- The AI "non-permanent" argument (Ref. 2.1.2) is equivalent to the DTAM-DM "integer" argument (Ref. 2.1.4.1).
- The AI "constituent-location" argument (Ref. 2.2) is equivalent to the DTAM-DM "constituentLocator" argument (Ref. 2.2.1.3).
- The AI "position" argument (Ref. 3) is equivalent to the DTAM-DM "position" argument (Ref. 3).

6.2.10.5 AI Copy results

The following table defines the AI Copy operation results as defined in ITU-T Rec. T.413 | ISO/IEC 8613-3, and those supported by this part of ISO/IEC ISP 15121. The symbols used in the table are defined in subclause 6.2.1.

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The result of the AI Copy operation is a data structure of type ConstituentIdentifier. ConstituentIdentifier is a CHOICE between three options.

Ref.	Result	B	P	Constraint / value
1	constituentIdentifier	m	m	
1.1	object-or-class	o.1	o.1	
1.2	content-portion	o.1	o.1	
1.3	style	o.1	o.1	

o.1: One and only one of the three marked items shall be selected.

6.2.10.6 DTAM-DM DM-COPY results

The following table defines the DTAM-DM DM-COPY operation results as defined in ITU-T Rec. T.435, and those supported by this part of ISO/IEC ISP 15121. The symbols used in the table are defined in subclause 6.2.1.

The result for the DTAM-DM DM-COPY operation is a SEQUENCE of a data structure of type ManipulationObject. ManipulationObject is a SEQUENCE of an optional data structure of type DocumentId and an optional data structure of type ObjectValue. ObjectValue is a CHOICE between three options. Oda-Expression is a CHOICE between four options.

Ref.	Result	B	P	Constraint / value
1	manipulationObject	m	m	
1.1	newConstituent	m	m	
1.1.1	documentIdentifier	o	x	
1.1.2	objectValue	o	m	
1.1.2.1	odaExpression	o.1	m	
1.1.2.1.1	locationExpression	o.2	x	
1.1.2.1.2	basicLocation Expression	o.2	x	
1.1.2.1.3	constituentLocator	o.2	x	
1.1.2.1.4	constituentIdentifier	o.2	m	
1.2.2	otherExpression	o.1	x	
1.1.3	anyExpression	o.1	x	

o.1: One and only one of the three marked items shall be selected.

o.2: One and only one of the four marked items shall be selected.

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6.2.10.7 Equivalence between AI Copy and DTAM-DM DM-COPY results

This subclause specifies the equivalence, as defined in subclause 6.2.2, between the AI Copy and the DTAM-DM DM-COPY operation results that are supported by ITU-T Rec. T.413 | ISO/IEC 8613-3, ITU-T Rec. T.435 and this part of ISO/IEC ISP 15121.

The equivalencies are:

- The AI "constituentIdentifier" result (Ref. 1) is equivalent to the DTAM-DM "constituentIdentifier" result (Ref. 1.1.2.1.4).

6.2.11 AI Reserve / DTAM-DM DM-RESERVE

6.2.11.1 General restrictions

There are no general restrictions for the AI Reserve / DTAM-DM DM-RESERVE operation.

6.2.11.2 AI Reserve arguments

The following table defines the AI Reserve operation arguments as defined in ITU-T Rec. T.413 | ISO/IEC 8613-3, and those supported by this part of ISO/IEC ISP 15121. The symbols used in the table are defined in subclause 6.2.1.

The argument of the AI Reserve operation is a data structure of type LocationInDocumentType. LocationInDocumentType is a SEQUENCE of an optional data structure of type DocumentId and a data structure of type Location-expression. Document-Id is a CHOICE between two options.

Ref.	Argument	B	P	Constraint / value
1	locationInDocumentType	m	m	
1.1	document	o	o	Mandatory if more than one document is open
1.1.1	permanent	o.1	x	
1.1.2	non-permanent	o.1	m	
1.2	location	m	m	

o.1: One and only one of the two marked items shall be selected.

6.2.11.3 DTAM-DM DM-RESERVE arguments

The following table defines the DTAM-DM DM-RESERVE operation arguments as defined in ITU-T Rec. T.435, and those supported by this part of ISO/IEC ISP 15121. The symbols used in the table are defined in subclause 6.2.1.

The argument of the DTAM-DM DM-RESERVE operation is a SEQUENCE of a data structure of type ManipulationObject. ManipulationObject is a SEQUENCE of an optional data structure of type DocumentId and an optional data structure of type ObjectValue. DocumentId is a CHOICE between four options. ObjectValue is a CHOICE between three options. NonPermanentIdentifier is a CHOICE between two options. Oda-Expression is a CHOICE between four options.

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Ref.	Argument	B	P	Constraint / value
1	object	m	m	
1.1	documentIdentifier	o	o	Mandatory if more than one document is open
1.1.1	dfrName	o.1	x	
1.1.2	documentReference	o.1	x	
1.1.3	documentName	o.1	x	
1.1.4	nonPermanentIdentifier	o.1	m	
1.1.4.1	integer	o.2	m	
1.1.4.2	octetString	o.2	x	
1.2	objectValue	o	m	
1.2.1	odaExpression	o.3	m	
1.2.1.1	locationExpression	o.4	m	
1.2.1.2	basicLocationExpression	o.4	x	
1.2.1.3	constituentLocator	o.4	x	
1.2.1.4	constituentIdentifier	o.4	x	
1.2.2	otherExpression	o.3	x	
1.2.3	anyExpression	o.3	x	

o.1: One and only one of the four marked items shall be selected.

o.2: One and only one of the two marked items shall be selected.

o.3: One and only one of the three marked items shall be selected.

o.4: One and only one of the four marked items shall be selected.

6.2.11.4 Equivalence between AI Reserve and DTAM-DM DM-RESERVE arguments

This subclause specifies the equivalence, as defined in subclause 6.2.2, between the AI Reserve and the DTAM-DM DM-RESERVE operation arguments that are supported by ITU-T Rec. T.413 | ISO/IEC 8613-3, ITU-T Rec. T.435 and this part of ISO/IEC ISP 15121.

The equivalencies are:

- The AI "non-permanent" argument (Ref. 1.1.2) is equivalent to the DTAM-DM "integer" argument (Ref. 1.1.4.1).
- The AI "location" argument (Ref. 1.2) is equivalent to the DTAM-DM "locationExpression" argument (Ref. 1.2.1.1).

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6.2.11.5 AI Reserve results

The following table defines the AI Reserve operation results as defined in ITU-T Rec. T.413 | ISO/IEC 8613-3, and those supported by this part of ISO/IEC ISP 15121. The symbols used in the table are defined in subclause 6.2.1.

The result of the AI Reserve operations is a data structure of type Reservation-Id. Reservation-Id is an INTEGER.

Ref.	Result	B	P	Constraint / value
1	reservation-Id	m	m	

6.2.11.6 DTAM-DM DM-RESERVE results

The following table defines the DTAM-DM DM-RESERVE operation results as defined in ITU-T Rec. T.435, and those supported by this part of ISO/IEC ISP 15121. The symbols used in the table are defined in subclause 6.2.1.

The result of the DTAM-DM DM-RESERVE operation is a NULL.

Ref.	Result	B	P	Constraint / value
1	null	m	m	

6.2.11.7 Equivalence between AI Reserve and DTAM-DM DM-RESERVE results

This subclause specifies the equivalence, as defined in subclause 6.2.2, between the AI Reserve and the DTAM-DM DM-RESERVE operation results that are supported by ITU-T Rec. T.413 | ISO/IEC 8613-3, ITU-T Rec. T.435 and this part of ISO/IEC ISP 15121.

The equivalence is:

- The AI "reservation-Id" result (Ref. 1) has no DTAM-DM equivalent result.

NOTE - The value of the "reservation-Id" AI Reserve result is not needed since the use of the "reservation-Id" attribute in the AI Unreserve operation arguments is not allowed by this part of ISO/IEC ISP 15121.

6.2.12 AI Unreserve / DTAM-DM DM-UNRESERVE

6.2.12.1 General restrictions

There are no general restrictions for the AI Unreserve / DTAM-DM DM-UNRESERVE

6.2.12.2 AI Unreserve arguments

The following table defines the AI Unreserve operation arguments as defined in ITU-T Rec. T.413 | ISO/IEC 8613-3, and those supported by this part of ISO/IEC ISP 15121. The symbols used in the table are defined in subclause 6.2.1.

The argument of the AI Get operation is a SEQUENCE of two data structures. The first data structure is of type LocationInDocumentType, and the second one is of type Reservation-Id. LocationInDocumentType is a SEQUENCE of an optional data structure of type Document-Id and a data structure of type Location-expression. Document-Id is a CHOICE between two options. Reservation-Id is an INTEGER.

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Ref.	Argument	B	P	Constraint / value
1	location-in-document	o.1	m	
1.1	document	o	o	Mandatory if more than one document is open
1.1.1	permanent	o.2	x	
1.1.2	non-permanent	o.2	m	
1.2	location	m	m	
2	reservation	o.1	x	

o.1: One and only one of the two marked items shall be selected.

o.2: One and only one of the two marked items shall be selected.

6.2.12.3 DTAM-DM DM-UNRESERVE arguments

The following table defines the DTAM-DM DM-UNRESERVE operation arguments as defined in ITU-T Rec. T.435, and those supported by this part of ISO/IEC ISP 15121. The symbols used in the table are defined in subclause 6.2.1.

The argument of the DTAM-DM DM-UNRESERVE operation is a SEQUENCE of a data structure of type ManipulationObject. ManipulationObject is a SEQUENCE of an optional data structure of type DocumentId and an optional data structure of type ObjectValue. DocumentId is a CHOICE between four options. ObjectValue is a CHOICE between three options. NonPermanentIdentifier is a CHOICE between two options. Oda-Expression is a CHOICE between four options.

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Ref.	Argument	B	P	Constraint / value
1	object	m	m	
1.1	documentIdentifier	o	o	Mandatory if more than one document is open
1.1.1	dfrName	o.1	x	
1.1.2	documentReference	o.1	x	
1.1.3	documentName	o.1	x	
1.1.4	nonPermanentIdentifier	o.1	m	
1.1.4.1	integer	o.2	m	
1.1.4.2	octetString	o.2	x	
1.2	objectValue	o	m	
1.2.1	odaExpression	o.3	m	
1.2.1.1	locationExpression	o.4	m	
1.2.1.2	basicLocationExpression	o.4	x	
1.2.1.3	constituentLocator	o.4	x	
1.2.1.4	constituentIdentifier	o.4	x	
1.2.2	otherExpression	o.3	x	
1.2.3	anyExpression	o.3	x	

o.1: One and only one of the four marked items shall be selected.

o.2: One and only one of the two marked items shall be selected.

o.3: One and only one of the three marked items shall be selected.

o.4: One and only one of the four marked items shall be selected.

6.2.12.4 Equivalence between AI Unreserve and DTAM-DM DM-UNRESERVE arguments

This subclause specifies the equivalence, as defined in subclause 6.2.2, between the AI Unreserve and the DTAM-DM DM-UNRESERVE operation arguments that are supported by ITU-T Rec. T.413 | ISO/IEC 8613-3, ITU-T Rec. T.435 and this part of ISO/IEC ISP 15121.

The equivalencies are:

- The AI "non-permanent" argument (Ref. 1.1.2) is equivalent to the DTAM-DM "integer" argument (Ref. 1.1.4.1).
- The AI "location" argument (Ref. 1.2) is equivalent to the DTAM-DM "locationExpression" argument (Ref. 1.2.1.1).
- The AI "reservation" argument (Ref. 2) has no DTAM-DM equivalent argument.

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6.2.12.5 AI Unreserve results

The following table defines the AI Unreserve operation results as defined in ITU-T Rec. T.413 | ISO/IEC 8613-3, and those supported by this part of ISO/IEC ISP 15121. The symbols used in the table are defined in subclause 6.2.1.

The result of the AI Unreserve operation is a data structure of type SuccessType. SuccessType is a BOOLEAN.

Ref.	Result	B	P	Constraint / value
1	success	m	m	The value shall be equal to 'TRUE'

6.2.12.6 DTAM-DM DM-UNRESERVE results

The following table defines the DTAM-DM DM-UNRESERVE operation results as defined in ITU-T Rec. T.435, and those supported by this part of ISO/IEC ISP 15121. The symbols used in the table are defined in subclause 6.2.1.

The result of the DTAM-DM DM-UNRESERVE operation is a NULL.

Ref.	Result	B	P	Constraint / value
1	null	m	m	

6.2.12.7 Equivalence between AI Unreserve and DTAM-DM DM-UNRESERVE results

This subclause specifies the equivalence, as defined in subclause 6.2.2, between the AI Unreserve and the DTAM-DM DM-UNRESERVE operation results that are supported by ITU-T Rec. T.413 | ISO/IEC 8613-3, ITU-T Rec. T.435 and this part of ISO/IEC ISP 15121.

The equivalence is:

- The AI "success" result (Ref. 1) has no DTAM-DM equivalent result.

NOTE - No value is needed for the DTAM-DM DM-UNRESERVE operation result, since it is always 'TRUE'. Otherwise, the response of the DTAM-DM DM-UNRESERVE operation would be an error.

6.2.13 DTAM-DM DTAM-DMBind

6.2.13.1 General Restrictions

The specifications provided in ISO/IEC ISP 15121-1, subclause 6.2.9.1 apply.

6.2.13.2 DTAM DTAM- DMBind arguments

The following table defines the DTAM-DM DTAM-DMBind operation arguments as defined in ITU-T Rec. T.435, and those supported by this part of ISO/IEC ISP 15121. The symbols used in the table are defined in subclause 6.2.1.

The argument of the DTAM-DM DTAM-DMBind operation is a SEQUENCE of six data structures. The first data structure is a BIT STRING, the second one is of type ManipulationCapabilities, the third one is an optional SEQUENCE OF OdaApplicationCapabilities, the fourth one is an optional data structure of type DfrCapabilities, the fifth one is an optional SEQUENCE OF BilateralInformation, and the sixth one is an optional data structure of type ApplicationRequirements. ManipulationCapabilities is a CHOICE between three options. OdaApplicationCapabilities is a SEQUENCE of three data elements. DfrCapabilities is a SEQUENCE of two data elements. BilateralInformation is a SEQUENCE of two data elements. ApplicationRequirements is a CHOICE between two options.

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Ref.	Argument	B	P	Constraint / value
1	dtamProtocolVersion	o	o	The value shall be equal to 'version-1'
2	dtamManipulationCapabilities	m	m	
2.1	profileSelection	o.1	m	The value shall be equal to '{iso standard 15121 2}'
2.2	manipulationLevelSelection	o.1	x	
2.3	bilateralAgreement	o.1	x	
3	odaApplicationCapabilities	o	m	
3.1	odaDocumentApplicationProfile	m	m	
3.2	nonBasicOdaDocumentCharacteristics	o	x	
3.3	nonBasicOdaStructuralCharacteristics	o	x	
4	dfrCapabilities	o	o	
4.1	dfrProtocolVersion	o	o	
4.2	dfrProfile	o	m	
5	bilateralInformation	o	o	
5.1	serverName	m	m	
5.2	information	m	m	
6	applicationRequirements	o	o	

o.1: One and only one of the three marked items shall be selected.

6.2.13.3 DTAM-DM DTAM-DMBind results

The specifications provided in ISO/IEC ISP 15121-1, subclause 6.2.9.3 apply.

6.2.14 DTAM-DM DTAM-DMUnBind

The specifications provided in ISO/IEC ISP 15121-1, subclause 6.2.10 apply.

7 Errors returned

These tables define the possible errors, as defined in ITU-T Rec. 413 | ISO/IEC 8613-3 and ITU-T Rec. T.435, for all AI and DTAM-DM operations supported by this part of ISO/IEC ISP 15121.

7.1 'AI errors', 'DTAM-DM errors' and 'DTAM-DMBind / DTAM-DMUnBind errors' tables conventions

The specifications provided in ISO/IEC ISP 15121-1, subclause 7.1 apply.

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7.2 AI errors

7.2.1 AI errors table

The AI errors are defined in ITU-T Rec. 413 | ISO/IEC 8613-3. The following table specifies those errors supported by the AI operations supported by this part of ISO/IEC ISP 15121. The symbols used in the table are defined in subclause 7.1.

For errors of the operations not included in this table, the specifications provided in ISO/IEC ISP 15121-1, table in subclause 7.2.1 apply.

AI Error	Create	Copy	Reserve	Unreserve
Error in the constituents	√	--	--	--
Invalid location expression or document	√	--	√	√
Location expression does not match	x	--	x	x
Document fragments reserved	√	--	√	--
Improper access rights	√	√	√	√
Document is not open	√	--	√	√
Unspecified error	√	√	√	√
Invalid source location expression or document	--	√	--	--
Invalid target location expression or document	--	√	--	--
Source location expression does not match	--	x	--	--
Target location expression does not match	--	x	--	--
Source region reserved	--	√	--	--
Target region reserved	--	√	--	--
Source document is not open	--	√	--	--
Target document is not open	--	√	--	--
Constituents are not reserved	--	--	--	√

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7.2.2 AI errors mapping

The following table specifies the mapping between the AI errors supported by ITU-T Rec. T.413 | ISO/IEC 8613-3 but not supported by this part of ISO/IEC ISP 15121, and those supported by this part of ISO/IEC ISP 15121.

For errors not included in this table, the specifications provided in ISO/IEC ISP 15121-1, table in subclause 7.2.2 apply.

AI error not supported by this part of ISO/IEC ISP 15121	Equivalent AI error supported by this part of ISO/IEC ISP 15121
Source location expression does not match	Invalid source location expression or document
Target location expression does not match	Invalid target location expression or document

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7.3 DTAM-DM errors

The DTAM-DM errors are defined in ITU-T Rec. 435. The following table specifies those errors supported by the operations supported by this part of ISO/IEC ISP 15121. The symbols used in the table are defined in subclause 7.1.

For errors of the operations not included in this table, the specifications provided in ISO/IEC ISP 15121-1, table in subclause 7.3 apply.

DTAM-DM Error	DM-CREATE	DM-COPY	DM-RESERVE	DM-UNRESERVE
DM-ServiceError (server-busy)	x	x	x	x
DM-ServiceError (server-unavailable)	x	x	x	x
DM-ServiceError (resource-limit-exceeded)	x	x	x	x
DM-ServiceError (operation-too-complex)	x	x	x	x
DM-ServiceError (unclassified-server-error)	√	√	√	√
DM-DocumentError (DocumentId, invalid-upi)	x	x	x	x
DM-DocumentError (DocumentId, invalid-path-name)	x	x	x	x
DM-DocumentError (DocumentId, ambigous-path-name)	x	x	x	x
DM-DocumentError (DocumentId, invalid-document-reference)	x	x	x	x
DM-DocumentError (DocumentId, invalid-document-name)	x	x	x	x
DM-DocumentError (DocumentId, invalid-non-permanent-id)	x	x	x	x
DM-AccessError (DocumentId, document-already-open)	--	--	--	--
DM-AccessError (DocumentId, document-not-opened)	√	√	√	√
DM-AccessError (DocumentId, improper-access-rights)	x	x	x	x
DM-AccessError (ManipulationObject, reserved-by-a-user)	√	√	--	--
DM-AccessError (ManipulationObject improper-access-rights)	√	√	√	√
DM-FragmentError (ObjectValue, invalid-location-expression)	√	√	√	√

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DM-FragmentError (ObjectValue, invalid-expression)	x	x	x	x
DM-AttributeError (ManipulationObject, invalid-syntax)	x	x	--	--
DM-AttributeError (ManipulationObject, constraint-violation)	x	x	--	--
DM-AttributeError (ManipulationObject, illegal-violation)	x	x	--	--
DM-AttributeError (ManipulationObject, odaAttributeValue, invalid-syntax)	x	x	--	--
DM-AttributeError (ManipulationObject, odaAttributeValue, constraint-violation)	x	x	--	--
DM-AttributeError (ManipulationObject, odaAttributeValue, illegal-violation)	x	x	--	--
DM-AttributeError (ManipulationObject, anyAttributeValue, invalid-syntax)	x	x	--	--
DM-AttributeError (ManipulationObject, anyAttributeValue, constraint-violation)	x	x	--	--
DM-AttributeError (ManipulationObject, anyAttributeValue, illegal-violation)	x	x	--	--
DM-UpdateError (ManipulationObject, illegal-modification)	√	x	--	--
DM-ReservationError (ManipulationObject, already-reserved)	--	--	√	--
DM-ReservationError (ManipulationObject, not-yet-reserved)	--	--	--	√

7.4 DTAM-DMBind / DTAM-DMUnBind errors

The specifications provided in ISO/IEC ISP 15121-1, subclause 7.4 apply.

7.5 'Mapping between AI and DTAM-DM errors' table conventions

The specifications provided in ISO/IEC ISP 15121-1, subclause 7.5 apply.

7.6 Mapping between AI and DTAM-DM errors

The following table specifies, for all the AI operations supported by this part of ISO/IEC ISP 15121, the mapping of AI Errors into DTAM-DM Errors supported by this part of ISO/IEC ISP 15121. The symbols used in the table are defined in subclause 7.5.

For all AI errors allowed in this part of ISO/IEC ISP 15121, an equivalent DTAM-DM error is given. This means that when an error is produced when performing an AI operation in the ODA document manipulation server, this error shall be mapped into the DTAM-DM one given in the table. Then, it shall be returned, by DTAM-DM protocol, to the ODA document manipulation client.

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For errors of the operations not included in this table, the specifications provided in ISO/IEC ISP 15121-1, table in subclause 7.6 apply.

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AI Error	Equivalent DTAM Error	Create	Copy	Reserve	Unreserve
Error in the constituents	DM-UpdateError (ManipulationObject, illegal-modification)	√	--	--	--
Invalid location expression or document	DM-FragmentError (ObjectValue, invalid-location-expression)	√	--	√	√
Document fragments reserved	DM-AccessError (ManipulationObject, reserved-by-a-user)	√	--	--	--
	DM-ReservationError (ManipulationObject, already-reserved)	--	--	√	--
Improper access rights	DM-AccessError (ManipulationObject, improper-access-rights)	√	√	√	√
Document is not open	DM-AccessError (DocumentId, document-not-opened)	√	--	√	√
Unspecified error	DM-ServiceError (unclassified-server-error)	√	√	√	√
Constituents are not reserved	DM-ReservationError (ManipulationObject, not-yet-reserved)	--	--	--	√
Invalid source location expression or document	DM-FragmentError (ObjectValue, invalid-location-expression)	--	√	--	--
Invalid target location expression or document	DM-FragmentError (ObjectValue, invalid-location-expression)	--	√	--	--
Source region reserved	DM-AccessError (ManipulationObject, reserved-by-a-user)	--	√	--	--
Target region reserved	DM-AccessError (ManipulationObject, reserved-by-a-user)	--	√	--	--
Source document is not open	DM-AccessError (DocumentId, document-not-opened)	--	√	--	--
Target document is not open	DM-AccessError (DocumentId, document-not-opened)	--	√	--	--

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7.7 'Mapping between DTAM-DM and AI errors' table conventions

The specifications provided in ISO/IEC ISP 15121-1, subclause 7.7 apply.

7.8 Mapping between DTAM-DM and AI errors

The following table specifies, for all the DTAM-DM operations supported by this part of ISO/IEC ISP 15121, the mapping of DTAM-DM errors into AI errors supported by this part of ISO/IEC ISP 15121. The symbols used in the table are defined in subclause 7.7.

For all DTAM-DM errors allowed in this part of ISO/IEC ISP 15121, an equivalent AI error is given. This means that when the ODA document manipulation client receives an error, through DTAM protocol, this error shall be mapped into the AI one given in the table.

For errors of the operations not included in this table, the specifications provided in ISO/IEC ISP 15121-1, table in subclause 7.8 apply.

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DTAM Error	Equivalent AI Error	DM-CREATE	DM-COPY	DM-RESERVE	DM-UNRESERVE
DM-ServiceError (unclassified-server-error)	Unspecified error	√	√	√	√
DM-AccessError (DocumentId, document-not-opened)	Document is not open	√	--	√	√
	Source document is not open	--	√	--	--
	Target document is not open				
DM-AccessError (ManipulationObject, reserved-by-a-user)	Document fragments reserved	√	--	--	--
	Source region reserved	--	√	--	--
	Target region reserved				
DM-AccessError (ManipulationObject, improper-access-rights)	Improper access rights	√	√	√	√
DM-FragmentError (ObjectValue, invalid-location-expression)	Invalid location expression or document	√	--	√	√
	Invalid source location expression or document	--	√	--	--
	Invalid target location expression or document				
DM-UpdateError (ManipulationObject, illegal-modification)	Error in the constituents	√	--	--	--
DM-ReservationError (ManipulationObject, already-reserved)	Document fragments reserved	--	--	√	--
DM-ReservationError (ManipulationObject, not-yet-reserved)	Constituents are not reserved	--	--	--	√

8 Constraints on location expression

The specifications provided in ISO/IEC ISP 15121-1, clause 8 apply.

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9 Constraints for the DTAM confirmed document manipulation protocol

The specifications provided in ISO/IEC ISP 15121-1, clause 9 apply.

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Annex A
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Profile requirements list

The specifications provided in ISO/IEC ISP 15121-1, Annex A apply.

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Annex B
(informative)
Object Identifiers List

The specifications provided in ISO/IEC ISP 15121-1, Annex B apply.

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Annex C
(informative)
Use of DM-POINT in ISO/IEC 15121

The specifications provided in ISO/IEC ISP 15121-1, Annex C apply.

C.1 User Requirements and Scenario

The specifications provided in of ISO/IEC ISP 15121-1, Annex C, subclause C.1 apply.

C.2 DTAM-DM DM-POINT Services

C.2.1 DTAM-DM DM-POINT

C.2.1.1 General Restrictions

There are no general restrictions for the DTAM-DM DM-POINT operation.

C.2.1.2 DTAM-DM DM-POINT arguments

The following table defines the DTAM-DM DM-POINT operation arguments as defined in ITU-T Rec. T.435, and those supported by this annex C of this part of ISO/IEC ISP 15121. The symbols used in the table are defined in subclause 6.2.1.

The argument of the DTAM-DM DM-POINT operation is a ManipulationObject. ManipulationObject is a SEQUENCE of an optional data structure of type DocumentId and an optional data structure of type ObjectValue. DocumentId is a CHOICE between four options. ObjectValue is a CHOICE between three options. NonPermanentIdentifier is a CHOICE between two options. Oda-Expression is a CHOICE between four options.

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Ref.	Argument	B	P	Constraint / value
1	object	m	m	
1.1	documentIdentifier	o	o	
1.1.1	dfrName	o.1	x	
1.1.2	documentReference	o.1	x	
1.1.3	documentName	o.1	x	
1.1.4	nonPermanentIdentifier	o.1	m	
1.1.4.1	integer	o.2	m	
1.1.4.2	octetString	o.2	x	
1.2	objectValue	o	m	
1.2.1	odaExpression	o.3	m	
1.2.1.1	locationExpression	o.4	m	
1.2.1.2	basicLocationExpression	o.4	x	
1.2.1.3	constituentLocator	o.4	x	
1.2.1.4	constituentIdentifier	o.4	x	
1.2.2	otherExpression	o.3	x	
1.2.3	anyExpression	o.3	x	

o.1: One and only one of the four marked items shall be selected.

o.2: One and only one of the two marked items shall be selected.

o.3: One and only one of the three marked items shall be selected.

o.4: One and only one of the four marked items shall be selected.

C.2.1.3 DTAM-DM DM-POINT results

The specifications provided in of ISO/IEC ISP 15121-1, Annex C, subclause C.2.1.3 apply.

C.3 DTAM-DM DM-POINT Errors

The specifications provided in of ISO/IEC ISP 15121-1, Annex C, subclause C.3 apply.

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