INTERNATIONAL STANDARDIZED PROFILE

ISO/IEC ISP 15121-1

First edition
1997-12-15

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

Part 1:
AOD11 — DTAM/Read Only

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

Partie 1: AOD11 — DTAM/Lecture uniquement

Reference number
ISO/IEC ISP 15121-1:1997(E)

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Foreword

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

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. In addition to developing International Standards, ISO/IEC JTC 1 has created a Special Group on Functional Standardization for the elaboration of International Standardized Profiles.

An International Standardized Profile is an internationally agreed, harmonized document which identifies a standard or group of standards, together with options and parameters, necessary to accomplish a function or a set of functions.

Draft International Standardized Profiles are circulated to national bodies for voting. Publication as an International Standardized Profile requires approval by at least 75 % of the national bodies casting a vote.

International Standardized Profile ISO/IEC ISP 15121-1 was prepared with the collaboration of

— Asia-Oceania Workshop (AOW);

— European Workshop for Open Systems (EWOS);

— Open Systems Environment Implementors' Workshop (OIW).

ISO/IEC ISP 15121 consists of the following parts, under the general title *Information technology — International Standardized Profile AOD1n — Interactive Manipulation of ODA Documents*:

— *Part 1: AOD11 — DTAM/Read Only*

— *Part 2: AOD12 — DTAM/Insert*

— *Part 3: AOD13 — DTAM/Manipulation*

Annex A forms an integral part of this part of ISO/IEC ISP 15121. Annexes B and C are for information only.

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

Part 1:
AOD11 — DTAM/Read Only

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/Read Only) specifies such constraints for the implementation of applications that provide read only 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 lowest profile of those using DTAM (AOD1n).

This part of ISO/IEC ISP 15121 is intended for implementations where ODA documents can only be reviewed but not modified.

It is a subset of AOD12 and 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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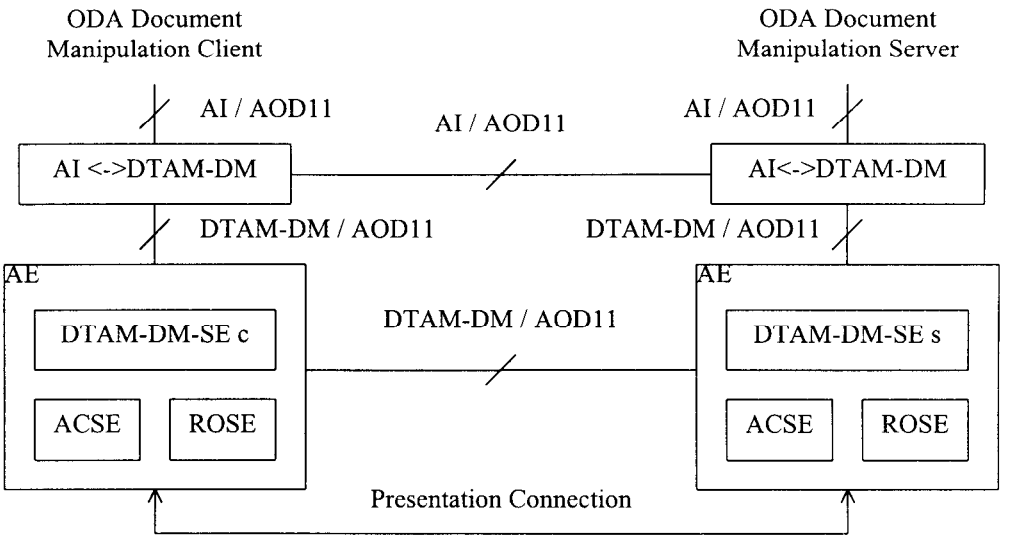

Legend:

ACSE	Association Control Service Element
AE	Application Entity
AI	Abstract Interface for the manipulation of ODA documents
AI/AOD11	Abstract Interface for the manipulation of ODA documents following AOD11 profile
DTAM-DM	Document Transfer And Manipulation - Confirmed Document Manipulation
DTAM-DM/AOD11	Document Transfer And Manipulation - Confirmed Document Manipulation following AOD11 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 - AOD11 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 15121-2: 1997, *Information technology - International Standardized Profile AOD1n - Interactive Manipulation of ODA Documents - Part 2: AOD12 - DTAM/Insert.*
- 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 ITU-T Rec. T.413 | ISO/IEC 8613-3, ITU-T Rec. T.435 and the following definitions apply.

3.1 ODA document manipulation client: Application that remotely manipulates ODA documents.

3.2 ODA document manipulation server: System to which ODA clients remotely access for document interactive manipulation. It stores the documents and performs operations on them.

4 Abbreviations

For the purposes of this part of ISO/IEC ISP 15121 the abbreviations given in ITU-T Rec. T.413 | ISO/IEC 8613-3, ITU-T Rec. T.435 and the following abbreviations apply.

ACSE	Association Control Service Element
AE	Application Entity
AI	Abstract Interface for the manipulation of ODA documents
AODnn	Application Profiles for ODA
DTAM	Document Transfer And Manipulation
DTAM-DM	Document Transfer And Manipulation - Confirmed Document Manipulation
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
DTAM-DM-SYM	Document Transfer And Manipulation - Confirmed Document Manipulation Symmetric Service Element
DTAM-TK	Document Transfer And Manipulation - Token Exchange
DTAM-TK-SE	Document Transfer And Manipulation - Token Exchange Service Element
ODA	Open Document Architecture
OSI	Open Systems Interconnection
ROSE	Remote Operations Service Element

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5 Conformance

This part of ISO/IEC ISP 15121 states requirements upon implementations to achieve interworking. A claim of conformance to this AOD11 is a claim that all requirements in the relevant base standards and recommendations are satisfied, that all the requirements in ISO/IEC ISP 11188-1, 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 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 AOD11 (Interactive Manipulation of ODA Documents - DTAM/Read Only)

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 AOD11' tables conventions

This subclause defines the conventions used in the tables presented in subclauses 6.1.2 and 6.1.3.

6.1.1.1 'AI Service' and 'DTAM-DM Service' columns

These columns list the AI and DTAM-DM operations as defined in ITU-T Rec. 413 | ISO/IEC 8613-3 and ITU-T Rec. T.435.

6.1.1.2 'B' column

The 'B' column (for "Base" Recommendation | International Standard) lists the level of support required for conformance to ITU-T Rec. T.413 | ISO/IEC 8613-3 or ITU-T Rec. T.435. The following terminology is used:

'f.s.' further study; support for this operation is left for further study in ITU-T Rec. T.413 | ISO/IEC 8613-3 or ITU-T T.435.

'm' mandatory; support for this operation is required for conformance to ITU-T Rec. T.413 | ISO/IEC 8613-3 or ITU-T T.435. Mandatory operations must always be present.

'o' optional; support for this operation is permitted, but is not mandatory for conformance to ITU-T Rec. 413 | ISO/IEC 8613-3 or ITU-T Rec. T.435. However, if this operation is implemented, it must also conform to the specifications and restrictions contained in ITU-T Rec. 413 | ISO/IEC 8613-3 or ITU-T Rec. T.435. These restrictions may affect the optionality of other operation.

'x' excluded; implementation of this operation is not supported by ITU-T Rec. 413 | ISO/IEC 8613-3 or ITU-T Rec. T.435.

6.1.1.3 'P' column

The 'P' column (for "Profile") specifies the level of support required for conformance to this part of ISO/IEC ISP 15121. The following terminology is used:

'm' mandatory; support for this operation is required for conformance to this part of ISO/IEC ISP 15121. Mandatory operations must always be present.

'o' optional; support for this operation is permitted, but is not mandatory for conformance to this part of ISO/IEC ISP 15121. However, if this operation is implemented, it must also conform to the specifications and restrictions contained in ITU-T Rec. 413 | ISO/IEC 8613-3 and ITU-T Rec. T.435. These restrictions may affect the optionality of other operations.

'x' excluded; implementation of this operation is not supported by this part of ISO/IEC ISP 15121.

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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	x
Delete	x
Modify	x
Replace	x
Copy	x
Move	x
Reserve	x
Unreserve	x
BeginGroup	x
EndGroup	x

6.1.3 DTAM confirmed document manipulation

At least the DTAM-DM 'Basic Read Only Manipulation Level' is required to support ISO/IEC ISP 15121-1.

The following table specifies the DTAM-DM operations as defined in the 'Basic Read Only Manipulation Level' 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 6.1.1.

DTAM-DM Service	B	P
DTAM-DMBind	m	m
DTAM-DMUnBind	m	m
DM-DOCUMENT-OPEN	m	m
DM-DOCUMENT-SAVE	x	x

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DM-DOCUMENT-DISCARD	x	x
DM-DOCUMENT-CLOSE	m	m
DM-DOCUMENT-LIST	o	o
DM-GET	m	m
DM-SEARCH	m	m
DM-CREATE	x	x
DM-DELETE	x	x
DM-MODIFY	x	x
DM-COPY	x	x
DM-MOVE	x	x
DM-REPLACE	x	x
DM-RESERVE	x	x
DM-UNRESERVE	x	x
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

This subclause defines the conventions used in the table presented in subclause 6.1.5.

6.1.4.1 'AI service' column

This column lists the AI operations supported by this part of ISO/IEC ISP 15121. Every AI operation is equivalent to the DTAM-DM operation in the same row of the table.

6.1.4.2 'DTAM-DM service' column

This column lists the DTAM-DM operations supported by this part of ISO/IEC ISP 15121. Every DTAM-DM operation is equivalent to the AI operation in the same row of the table.

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.

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AI Service	DTAM-DM Service
List	DM-DOCUMENT-LIST
Open	DM-DOCUMENT-OPEN
Close	DM-DOCUMENT-CLOSE
Get	DM-GET
Search	DM-SEARCH
--	DTAM-DMBind
--	DTAM-DMUnBind

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

This subclause defines the AI and DTAM-DM operation arguments and results as defined in ITU-T Rec. T.413 | ISO/IEC 8613-3 and ITU-T Rec. T.435, and AI and DTAM-DM operation arguments and results supported by this part of ISO/IEC ISP 15121.

First, there is a subclause specifying the conventions used in the 'Support for AI and DTAM-DM operation arguments and results' tables

Then, there is a subclause specifying how the AI and DTAM-DM parameters (arguments and results) must be mapped when sending or receiving an operation.

Then, there is a subclause with general restrictions for all the AOD11 operations.

Then, there is a subclause for every operation. For each of these operations, seven subclauses are defined with the following information:

- General Restrictions: General restrictions specified by this part of ISO/IEC ISP 15121 applicable to all the AI and DTAM-DM arguments and results in the operation.
- AI arguments: AI 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.
- DTAM-DM arguments: DTAM-DM operation arguments as defined in ITU-T Rec. T.435, and those supported by this part of ISO/IEC ISP 15121.
- Equivalence between AI and DTAM-DM arguments: Equivalence between the AI and the DTAM-DM operation arguments as defined in ITU-T Rec. T.413 | ISO/IEC 8613-3, ITU-T Rec. T.435 and this part of ISO/IEC ISP 15121.
- AI results: AI 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.
- DTAM-DM results: DTAM-DM operation results as defined in ITU-T Rec. T.435, and those supported by this part of ISO/IEC ISP 15121.
- Equivalence between AI and DTAM-DM results: Equivalence between the AI and the DTAM-DM operation results as defined in ITU-T Rec. T.413 | ISO/IEC 8613-3, ITU-T Rec. T.435 and this part of ISO/IEC ISP 15121.

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

This subclause defines the conventions used in the tables presented in subclauses 6.2.4 to 6.2.14.

6.2.1.1 'Ref.' column

This column specifies a reference value for the AI or DTAM-DM operation data structures and data elements in the same row of the table.

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6.2.1.2 'Argument' and 'Result' columns

These columns define the argument and result data structures and its data elements for the operations as defined in ITU-T Rec. 413 | ISO/IEC 8613-3 or ITU-T Rec. T.435.

The data elements in these columns are defined in a hierarchical way.

6.2.1.3 'B' column

The 'B' column (for "Base" Recommendation | International Standard) lists the level of support required for conformance to ITU-T Rec. T.413 | ISO/IEC 8613-3 or ITU-T Rec. T.435. The following terminology is used:

'm' mandatory; support for this feature is required for conformance to ITU-T Rec. T.413 | ISO/IEC 8613-3 or ITU-T T.435. Mandatory parameters must always be present.

'o' optional; support for this feature is permitted, but is not mandatory for conformance to ITU-T Rec. 413 | ISO/IEC 8613-3 or ITU-T Rec. T.435. However, if this feature is implemented, it must also conform to the specifications and restrictions contained in ITU-T Rec. 413 | ISO/IEC 8613-3 and ITU-T Rec. T.435. These restrictions may affect the optionality of other features.

'o.n' optional; support for this feature depends on certain conditions as specified in ITU-T Rec. 413 | ISO/IEC 8613-3 or ITU-T Rec. T.435, and under the tables in which they appear.

'x' excluded; implementation of this feature is not supported by ITU-T Rec. 413 | ISO/IEC 8613-3 or ITU-T Rec. T.435.

6.2.1.4 'P' column

The 'P' column (for "Profile") specifies the level of support required for conformance to this part of ISO/IEC ISP 15121. The following terminology is used:

'm' mandatory; support for this feature is required for conformance to this part of ISO/IEC ISP 15121. Mandatory parameters must always be present.

'o' optional; support for this feature is permitted, but is not mandatory for conformance to this part of ISO/IEC ISP 15121. However, if this feature is implemented, it must also conform to the specifications and restrictions contained in ITU-T Rec. 413 | ISO/IEC 8613-3 and ITU-T Rec. T.435. These restrictions may affect the optionality of other features.

'o.n' optional; support for this feature depends on certain conditions as specified in this part of ISO/IEC ISP 15121 , and under the tables in which they appear.

'x' excluded; implementation of this feature is not supported by this part of ISO/IEC ISP 15121.

6.2.1.5 'Constraint / value' column

This column specifies constraints established by this part of ISO/IEC ISP 15121 on the use or range of values permitted for each feature.

6.2.2 Equivalence between AI and DTAM-DM arguments and results

When one parameter (or element of a parameter) of an AI operation is said to be equivalent to one parameter (or element of a parameter) of a DTAM-DM operation, this means that the AI parameter (or element of the parameter) value shall be used to generate the DTAM-DM parameter (or element of the parameter) when sending the operation or the result.

When one parameter (or element of an parameter) of a DTAM-DM operation is said to be equivalent to one parameter (or element of a parameter) of an AI operation, this means that the DTAM-DM parameter (or element of the parameter) value shall be used to generate the AI parameter (or element of the parameter) when receiving the operation or the result.

6.2.3 General Restrictions

Permanent document identifiers shall be used in AOD11 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 and Search / DM-SEARCH operations argument. As in this part of ISO/IEC ISP 15121 only one document is allowed to be opened at a time, no

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document identifier shall be necessary for the argument because all the Get / DM-GET and Search / DM-SEARCH operations shall be performed on the opened document.

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

6.2.4.1 General restrictions

The set of Document Profile Attributes to appear in the query of the list-argument are restricted to the following document management attributes:

- Document description:
  - "title"
  - "subject"
  - "document type"
  - "abstract"
  - "keywords"
- Dates and times:
  - "document fragment date and time"
  - "creation date and time"
  - "local filing date and time"
  - "expiry date and time"
  - "start date and time"
  - "purge date and time"
  - "release date and time"
  - "revision history"
- Originators:
  - "organizations"
  - "preparers"
  - "owners"
  - "authors"
- Other user information:
  - "copyright"
  - "status"
  - "user-specific codes"
  - "distribution list"
  - "additional information"
- External references:
  - "references to other documents"
  - "superseded documents"
- "local file references"
- Content attributes:
  - "languages"

6.2.4.2 AI List arguments

The following table defines the AI List 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.

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The argument of the AI List operation is an optional data structure of type QueryType. QueryType is a CHOICE between four options.

To avoid using logical operators to define complex queries, at most 16 levels of recurrence shall be used.

Ref.	Argument	B	P	Constraint / value
1	queryType	o	o	
1.1	basic	o.1	o.1	
1.2	not	o.1	o.1	
1.3	and	o.1	o.1	
1.4	or	o.1	o.1	

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

6.2.4.3 DTAM-DM DM-DOCUMENT-LIST arguments

The following table defines the DTAM-DM DM-DOCUMENT-LIST 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-LIST operation is a CHOICE between three options.

Ref.	Argument	B	P	Constraint / value
1	odaCriteria	o.1	m	
2	otherCriteria	o.1	x	
3	anyCriteria	o.1	x	

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

6.2.4.4 Equivalence between AI List and DTAM-DM DM-DOCUMENT-LIST arguments

This subclause specifies the equivalence, as defined in subclause 6.2.2, between the AI List and the DTAM-DM DM-DOCUMENT-LIST 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 equivalence is:

- The AI "queryType" argument (Ref. 1) is equivalent to the DTAM-DM "odaCriteria" argument (Ref. 1).

6.2.4.5 AI List results

The following table defines the AI List 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 List operation is a SEQUENCE OF Document-Id. Document-Id is a CHOICE between two options.

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Ref.	Result	B	P	Constraint / value
1	document-id	m	m	
1.1	permanent	o.1	m	
1.1.1	unique-reference	o.2	m	
1.1.2	descriptive-reference	o.2	x	
1.2	non-permanent	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.

6.2.4.6 DTAM-DM DM-DOCUMENT-LIST results

The following table defines the DTAM-DM DM-DOCUMENT-LIST 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-DOCUMENT-LIST operation is a SEQUENCE OF DocumentId. DocumentId is a CHOICE between four options.

Ref.	Result	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	

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.

6.2.4.7 Equivalence between AI List and DTAM-DM DM-DOCUMENT-LIST results

This subclause specifies the equivalence, as defined in subclause 6.2.2, between the AI List and the DTAM-DM DM-DOCUMENT-LIST 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 "permanent" result (Ref. 1.1) is equivalent to the DTAM-DM "documentReference" result (Ref. 1.2).
- The AI "unique-reference" result (Ref. 1.1.1) is equivalent to the DTAM-DM "unique-reference" result (Ref. 1.2.1).

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

6.2.5.1 General restrictions

Only one document shall be open at a time.

Only 'read' mode shall be allowed.

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	The value shall be equal to 'read'

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.

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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	The value shall be equal to 'read'

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.

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 following table defines the AI Open 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 Open operation is a data structure of type Document-Id. Document-Id is a CHOICE between two options. In this operation result, the Document-Id shall reference to a non-permanent identifier.

Ref.	Result	B	P	Constraint / value
1	document-id	m	m	
1.1	permanent	x	x	
1.2	non-permanent	m	m	

6.2.5.6 DM-DOCUMENT-OPEN results

The following table defines the DTAM-DM DM-DOCUMENT-OPEN 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.

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The result of the DTAM-DM DM-DOCUMENT-OPEN operation is a CHOICE between a NULL and a data structure of type NonPermanentIdentifier. NonPermanentIdentifier is a CHOICE between two options.

Ref.	Result	B	P	Constraint / value
1	noValue	o.1	x	
2	nonPermanentIdentifier	o.1	m	
2.1	integer	o.2	m	
2.2	octetString	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 two marked items shall be selected.

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

This subclause specifies the equivalence, as defined in subclause 6.2.2, between the AI Open and the DTAM-DM DM-DOCUMENT-OPEN 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 "non-permanent" result (Ref. 1.2) is equivalent to the DTAM-DM "integer" result (Ref. 2.1).

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

6.2.6.1 General restrictions

There are no general restrictions for the AI Close / DTAM-DM DM-DOCUMENT-CLOSE operation.

6.2.6.2 AI Close arguments

The following table defines the AI Close 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 Close operation is an optional data structure of type Document-Id. Document-Id is a CHOICE between two options. In this operation argument, the Document-Id shall reference to a non-permanent identifier.

Ref.	Argument	B	P	Constraint / value
1	document-id	o	m	
1.1	permanent	o.1	x	
1.2	non-permanent	o.1	m	

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

6.2.6.3 DTAM-DM DM-DOCUMENT-CLOSE arguments

The following table defines the DTAM-DM DM-DOCUMENT-CLOSE 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-CLOSE operation is a SEQUENCE of a data structure of type DocumentId. DocumentId is a CHOICE between four options. NonPermanentIdentifier is a CHOICE between two options.

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Ref.	Argument	B	P	Constraint / value
1	documentId	m	m	
1.1	dfrName	o.1	x	
1.2	documentReference	o.1	x	
1.3	documentName	o.1	x	
1.4	nonPermanentIdentifier	o.1	m	
1.4.1	integer	o.2	m	
1.4.2	octetString	o.2	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.

6.2.6.4 Equivalence between AI Close and DTAM-DM DM-DOCUMENT-CLOSE arguments

This subclause specifies the equivalence, as defined in subclause 6.2.2, between the AI Close and the DTAM-DM DM-DOCUMENT-CLOSE 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 equivalence is:

- The AI "non-permanent" argument (Ref. 1.2) is equivalent to the DTAM-DM "integer" argument (Ref. 1.4.1).

6.2.6.5 AI Close results

The following table defines the AI Close 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 Close operation is a data structure of type Document-Id. In this operation result, the Document-Id shall reference to a permanent identifier.

Ref.	Result	B	P	Constraint / value
1	document-id	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	

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

6.2.6.6 DTAM-DM DM-DOCUMENT-CLOSE results

The following table defines the DTAM-DM DM-DOCUMENT-CLOSE 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.

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The argument of the DTAM-DM DM-DOCUMENT-CLOSE operation is a CHOICE between a NULL and a data structure of type DocumentId. DocumentId is a CHOICE between four options. NonPermanentIdentifier is a CHOICE between two options.

Ref.	Result	B	P	Constraint / value
1	noValue	o.1	x	
2	permanentId	o.1	m	
2.1	dfrName	o.2	x	
2.2	documentReference	o.2	m	
2.2.1	unique-reference	o.3	m	
2.2.2	descriptive-reference	o.3	x	
2.3	documentName	o.2	x	
2.4	nonPermanentIdentifier	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 four marked items shall be selected.

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

6.2.6.7 Equivalence between AI Close and DTAM-DM DM-DOCUMENT-CLOSE results

This subclause specifies the equivalence, as defined in subclause 6.2.2, between the AI Close and the DTAM-DM DM-DOCUMENT-CLOSE 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 "permanent" result (Ref. 1.1) is equivalent to the DTAM-DM "documentReference" result (Ref. 2.2).
- The AI "unique-reference" result (Ref. 1.1.1) is equivalent to the DTAM-DM "unique-reference" result (Ref. 2.2.1).

6.2.7 AI Get / DTAM-DM DM-GET

6.2.7.1 General restrictions

There are no general restrictions for the Get / 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.

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Ref.	Argument	B	P	Constraint / value
1	location-in-document	m	m	
1.1	document	o	x	
1.2	location	m	m	
2	no-defaults	o	o	The value shall be equal to 'FALSE' (default value)

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. Oda-Expression is a CHOICE between four options.

Ref.	Argument	B	P	Constraint / value
1	object	m	m	
1.1	documentIdentifier	o	x	
1.2	objectValue	o	m	
1.2.1	odaExpression	o.1	m	
1.2.1.1	locationExpression	o.2	m	
1.2.1.2	basicLocationExpression	o.2	x	
1.2.1.3	constituentLocator	o.2	x	
1.2.1.4	constituentIdentifier	o.2	x	
1.2.2	otherExpression	o.1	x	
1.2.3	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.

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.

The equivalence is:

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

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- The AI "no-defaults" argument (Ref. 2) has no DTAM-DM equivalent argument.

6.2.7.5 AI Get results

The following table defines the AI Get 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 Get operation is a SEQUENCE OF SEQUENCE OF ConstituentType.

Ref.	Result	B	P	Constraint / value
1	constituent-type	m	m	

6.2.7.6 DTAM-DM-GET results

The following table defines the DTAM-DM DM-GET 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-GET operation is a SEQUENCE OF SEQUENCE OF ObjectContent. ObjectContent is a CHOICE between three options.

Ref.	Result	B	P	Constraint / value
1	objectContent	m	m	
1.1	odaContent	o.1	m	
1.2	octetAligned	o.1	x	
1.3	anyContent	o.1	x	

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

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

This subclause specifies the equivalence, as defined in subclause 6.2.2, between the AI Get and the DTAM-DM DM-GET 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 "constituent-type" result (Ref. 1) is equivalent to the DTAM-DM "odaContent" result (Ref. 1.1).

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.

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Ref.	Argument	B	P	Constraint / value
1	location-in-document	m	m	
1.1	document	o	x	
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

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

Ref.	Argument	B	P	Constraint / value
1	object	m	m	
1.1	documentIdentifier	o	x	
1.2	objectValue	o	m	
1.2.1	odaExpression	o.1	m	
1.2.1.1	locationExpression	o.2	m	
1.2.1.2	basicLocationExpression	o.2	x	
1.2.1.3	constituentLocator	o.2	x	
1.2.1.4	constituentIdentifier	o.2	x	
1.2.2	otherExpression	o.1	x	
1.2.3	anyExpression	o.1	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 three marked items shall be selected.

o.2: 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.

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The equivalencies are:

- 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 following table defines the AI Search 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 Search operation is a SEQUENCE of two data structures. The first data structure is a SEQUENCE OF ConstituentIdentifier, and the second one is an INTEGER. ConstituentIdentifier is a CHOICE between three options.

Ref.	Result	B	P	Constraint / value
1	constituent-identifier	m	m	
2	numberOfOccurrences	m	m	The value shall never be greater than the value of the "max-occurrences" data element in the AI Search argument

6.2.8.6 DTAM-DM DM-SEARCH results

The following table defines the DTAM-DM DM-SEARCH 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-SEARCH operation is a SEQUENCE of two data structures. The first data structure is a SEQUENCE OF DocFragment-Id, and the second one is an INTEGER. DocFragment-Id is a ConstituentIdentifier.

Ref.	Result	B	P	Constraint / value
1.	objectList	m	m	
1.1	docFragment-Id	m	m	
2	number	m	m	The value shall never be greater than the value of the "limit" data element in the DTAM-DM DM-SEARCH argument

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

This subclause specifies the equivalence, as defined in subclause 6.2.2, between the AI Search and the DTAM-DM DM-SEARCH 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 "constituent-identifier" result (Ref. 1) is equivalent to the DTAM-DM "docFragment-Id" result (Ref. 1.1).
- The AI "numberOfOccurrences" result (Ref. 2) is equivalent to the DTAM-DM "number" result (Ref. 2).

6.2.9 DTAM-DM DTAM-DMBind

6.2.9.1 General restrictions

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

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6.2.9.2 DTAM-DM 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.

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 1}'
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.

6.2.9.3 DTAM-DM DTAM-DMBind results

The following table defines the DTAM-DM DTAM-DMBind operation results as defined in ITU-T Rec. T.435, and the DTAM-DM DTAM-DMBind operation results 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 DTAM-DMBind operation is a SEQUENCE of four data structures. The first data structure is a BIT STRING, the second one is a SEQUENCE OF OdaApplicationCappabilities, the third one is an

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optional BIT STRING and the fourth one is an optional SEQUENCE OF BilateralInformation. OdaApplicationCapabilities is a SEQUENCE of three data elements. BilateralInformation is a SEQUENCE of two data elements.

Ref.	Result	B	P	Constraint / value
1	serverSelectedDtamProtocolVersion	o	o	The value shall be equal to 'version-1'
2	odaApplicationCapabilities	m	m	
2.1	odaDocumentApplicationProfile	m	m	
2.2	nonBasicOdaDocumentCharacteristics	o	x	
2.3	nonBasicOdaStructuralCharacteristics	o	x	
3	serverSelectedDfrVersion	o	o	
4	bilateralInformation	o	o	
4.1	serverName	m	m	
4.2	information	m	m	

6.2.10 DTAM-DM DTAM-DMUnBind

6.2.10.1 General restrictions

The DTAM-DM DTAM-DMUnBind operation does not have any argument, result or error defined.

7 Errors returned

The following 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

This subclause defines the conventions used in the tables presented in subclauses 7.2 and 7.3.

7.1.1 'AI Error', 'DTAM-DM Error' and 'DTAM-DMBind / DTAM-DMUnBind Error' column

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

For the 'DTAM-DM Error' and 'DTAM-DMBind / DTAM-DMUnBind Error' columns, the error name, error data structure and error problem, as defined in ITU-T Rec. T.435, are included. The following notation is used in these columns:

ErrorName(ErrorDataStructure, ErrorProblem)

ErrorName(ErrorProblem)

7.1.2 AI operations and DTAM-DM operations columns

These columns list the possibility of a given AI and DTAM-DM operation to return a certain error. The following terminology is used:

'√' this error is supported by ITU-T Rec. 413 | ISO/IEC 8613-3 or ITU-T Rec. T.435.

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'--' this error is not supported by ITU-T Rec. 413 | ISO/IEC 8613-3 or ITU-T Rec. T.435.

'x' this error, although supported by ITU-T Rec. 413 | ISO/IEC 8613-3 or ITU-T Rec. T.435, is not supported by this part of ISO/IEC ISP 15121.

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.

AI Error	List	Open	Close	Get	Search
Invalid location expression or document	--	--	--	√	√
Location expression does not match	--	--	--	x	x
Document fragments reserved	--	--	--	√	√
Invalid document identifier	--	√	√	--	--
Document does not exist	--	x	--	--	--
Improper access rights	x	√	√	√	√
Document is not open	--	--	√	√	√
Unspecified error	√	√	√	√	√
Invalid query	√	--	--	--	--
Query does not match	x	--	--	--	--
Document already open	--	√	--	--	--
Document impossible to update	--	--	x	--	--
Groups not yet ended	--	--	x	--	--

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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.

AI error not supported by this part of ISO/IEC ISP 15121	Equivalent AI error supported by this part of ISO/IEC ISP 15121
Location expression does not match	Invalid location expression or document
Document does not exist	Invalid document identifier
Improper access rights	Unspecified error
Query does not match	Invalid query
Document impossible to update	Unspecified error
Groups not yet ended	Unspecified error
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.

DTAM-DM Error	DM-D.-LIST	DM-D.-OPEN	DM-D.-CLOSE	DM-GET	DM-SEARCH
DM-ListError (all)	x	--	--	--	--
DM-ListError (prefix)	x	--	--	--	--
DM-ListError (suffix)	x	--	--	--	--
DM-ListError (typeOfQuery)	√	--	--	--	--
DM-ListError (anyCriteria)	x	--	--	--	--
DM-ServiceError (server-busy)	x	x	x	x	x
DM-ServiceError (server-unavailable)	x	x	x	x	x
DM-ServiceError (resource-limit-exceeded)	x	x	x	x	x
DM-ServiceError (operation-too-complex)	x	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
DM-DocumentError (DocumentId, invalid-document-name)	--	x	x	x	x
DM-DocumentError (DocumentId, invalid-non-permanent-id)	--	x	√	x	x
DM-AccessError (DocumentId, document-already-open)	--	√	--	--	--
DM-AccessError (DocumentId, document-not-opened)	--	--	√	√	√
DM-AccessError (DocumentId, improper-access-rights)	--	√	√	x	x

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DM-AccessError (ManipulationObject, reserved-by-a-user)	--	x	x	√	√
DM-AccessError (ManipulationObject, improper-access-rights)	--	--	--	√	√
DM-FragmentError (ObjectValue, invalid-location-expression)	--	--	--	√	√
DM-FragmentError (ObjectValue, invalid-expression)	--	--	--	x	x

7.4 DTAM-DMBind / DTAM-DMUnBind errors

7.4.1 DTAM-DMBind / DTAM-DTAM-DMUnBind errors table

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

DTAM-DMBind and DTAM-DMUnBind operations are independent from AI.

DTAM-DMBind / DTAM-DMUnBind Error	DTAM-DM Bind	DTAM-DM Unbind
DM-ServiceError (server-busy)	x	--
DM-ServiceError (server-unavailable)	x	--
DM-ServiceError (resource-limit-exceeded)	x	--
DM-ServiceError (operation-too-complex)	x	--
DM-ServiceError (unclassified-server-error)	√	--
DM-ProtocolError (protocol-version-not-supported)	√	--
DM-ProtocolError (supportedDtamProtocolVersions)	√	--
DM-ProtocolError (supportedDfrProtocolVersions)	√	--
DM-ProfileError (profile-not-supported)	√	--
DM-ProfileError (supportedDtamManipulationLevels)	√	--
DM-ProfileError (supportedDfrProfiles)	√	--

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7.4.2 DTAM-DMBind / DTAM-DMUnbind errors mapping

The following table specifies the mapping between the DTAM-DMBind / DTAM-DMUnbind errors supported by ITU-T Rec. T.435 but not supported by this part of ISO/IEC ISP 15121, and those supported by this part of ISO/IEC ISP 15121.

DTAM-DMBind / DTAM-DMUnbind error not supported by this ISP	Equivalent DTAM-DMBind / DTAM-DMUnbind error supported by this ISP
DM-ServiceError (server-busy)	DM-ServiceError (unclassified-server-error)
DM-ServiceError (server-unavailable)	DM-ServiceError (unclassified-server-error)
DM-ServiceError (resource-limit-exceeded)	DM-ServiceError (unclassified-server-error)
DM-ServiceError (operation-too-complex)	DM-ServiceError (unclassified-server-error)

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

This subclause defines the conventions used in the tables presented in subclause 7.6.

7.5.1 'AI Error' column

This column lists all the AI errors, as defined in ITU-T Rec. 413 | ISO/IEC 8613-3, supported by this part of ISO/IEC ISP 15121.

7.5.2 'Equivalent DTAM-DM Error' column

This column specifies the DTAM-DM error equivalent to the AI Error in the same row of the table.

7.5.3 'List', 'Open', 'Close', 'Get' and 'Search' columns

These columns specify the possibility of a given AI operation to return a certain error. The following terminology is used:

'√' this error is supported by ITU-T Rec. 413 | ISO/IEC 8613-3 and this part of ISO/IEC ISP 15121.

'--' this error is not supported by this part of ISO/IEC ISP 15121.

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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.

AI Error	Equivalent DTAM Error	List	Open	Close	Get	Search
Invalid location expression or document	DM-FragmentError (ObjectValue, invalid-location-expression)	--	--	--	√	√
Document fragments reserved	DM-AccessError (ManipulationObject, reserved-by-a-user)	--	--	--	√	√
Invalid document identifier	DM-DocumentError (DocumentId, invalid-document-reference)	--	√	--	--	--
	DM-DocumentError (DocumentId, invalid-non-permanent-id)	--	--	√	--	--
Improper access rights	DM-AccessError (DocumentId, improper-access-rights)	--	√	√	--	--
	DM-AccessError (ManipulationObject, improper-access-rights)	--	--	--	√	√
Document is not open	DM-AccessError (DocumentId, document-not-opened)	--	--	√	√	√
Unspecified error	DM-ServiceError (unclasified-server-error)	√	√	√	√	√
Invalid query	DM-ListError (typeOfQuery)	√	--	--	--	--
Document already open	DM-AccessError (DocumentId, document-already-open)	--	√	--	--	--

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

This subclause defines the conventions used in the tables presented in subclause 7.8.

7.7.1 'DTAM-DM Error' column

This column lists all the DTAM-DM errors, as defined in ITU-T Rec. 435, supported by this part of ISO/IEC ISP 15121.

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7.7.2 'Equivalent AI Error' column

This column specifies the AI error equivalent to the DTAM-DM error in the same row of the table.

7.7.3 'List', 'Open', 'Close', 'Get' and 'Search' columns

These columns specify the possibility of a given DTAM-DM operation to return a certain error. The following terminology is used:

'√' this error is supported by ITU-T Rec. T.435 and this part of ISO/IEC ISP 15121.

'--' this error is not supported by this part of ISO/IEC ISP 15121.

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 7.6.

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 error given in the table.

Some DTAM-DM errors have no equivalent AI error.

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DTAM Error	Equivalent AI Error	DM-D.-LIST	DM-D.-OPEN	DM-D.-CLOSE	DM-GET	DM-SEARCH
DM-ListError (typeOfQuery)	Invalid query	√	--	--	--	--
DM-ServiceError (unclasified-server-error)	Unspecified error	√	√	√	√	√
DM-DocumentError (DocumentId, invalid-document-reference)	Invalid document identifier	--	√	--	--	--
DM-DocumentError (DocumentId, invalid-non-permanent-id)	Invalid document identifier	--	--	√	--	--
Access error (DocumentId, document-already-open)	Document already open	--	√	--	--	--
DM-Access Error (DocumentId, document-not-openend)	Document is not open	--	--	√	√	√
DM-AccessError (DocumentId, improper-access-rights)	Improper access rights	--	√	√	--	--
DM-AccessError (ManipulationObject, reserved-by-a-user)	Document fragments reserved	--	--	--	√	√
DM-AccessError (ManipulationObject, improper-access-rights)	Improper access rights error	--	--	--	√	√
DM-FragmentError (ObjectValue, invalid-location-expression)	Invalid location expression or document	--	--	--	√	√

8 Constraints on location expression

Location expressions, as specified in ITU-T Rec. T.422 | ISO/IEC 8613-12, are used as arguments of many operations specified by the Abstract Interface for the Manipulation of ODA Documents.

Different location expressions can be defined to identify the same information. This clause specifies the only permissible location expressions allowed in this part of ISO/IEC ISP 15121.

8.1 Conventions

In the notation for specifying constraints, the following conventions regarding arguments of functions are used:

- An argument that is preceded by the keyword "REQ" in the argument list shall always be specified for the function.
- An argument which is preceded by the keyword "PERM" in the argument list may or need not be specified for the function.
- An argument that is not present in the argument list shall not be specified for the function.

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- The allowable values are specified for every argument. The keyword "ANY_VALUE" is used to denote that the argument may take any value permitted in ITU-T Rec. T.422 | ISO/IEC 8613-12 for that argument.

A location expression is permitted if it satisfies any of the given constraints.

8.2 Document profile locators

The following location expression allows for the identification of the document profile.

<constraint-1>::= <document-profile-locator>

8.3 Object locators

There are three possible location expressions that allow the identification of objects.

The first constraint allows for location expressions identifying an object directly by is "object identifier" attribute.

<constraint-2>::= <object-id>

The second constraint allows for the identification of the n-th subordinate to a given object. The superior object may be specified directly by its "object identifier", or alternatively by another expression satisfying this constraint. A particular implementation may restrict the maximum level up to which the SUBORD functions may be nested.

Since the end counter argument cannot be specified, this constraint only allows for location expressions identifying at most one object.

<constraint-3>::= SUBORD(REQ object-locator = <constraint-2>,
PERM start-counter = ANY_VALUE)
| SUBORD(REQ object-locator = <constraint-3>,
PERM start-counter = ANY_VALUE)

The third constraint allows for the identification of an object for which a given value of an attribute applies. The object to be used as the origin for the search shall be given directly by its "object identifier" (which may have been previously obtained with another expression satisfying this constraint).

Since the end counter argument cannot be specified, this constraint only allows for location expressions identifying at most one object.

<constraint-4>::= OBJECT-WITH(REQ attribute-name = ANY_VALUE,
REQ value = ANY_VALUE,
PERM object-locator = <constraint-2>,
PERM start-counter = 1,
PERM defaulting = ANY_VALUE)

8.4 Object class locators

There are three possible location expressions that allow the identification of object classes.

The first constraint allows for location expressions identifying an object class directly by its "object class identifier" attribute.

<constraint-5>::= <object-class-id>

The second constraint allows for the identification of the object class to which a given object belongs. The object shall be specified directly by its "object identifier" (which may have been previously obtained with another expression satisfying the object locator constraints).

<constraint-6>::= CLASS-OF(REQ object-locator = <constraint-2>)

The third constraint allows for the identification of all object classes for which a given value of an attribute applies. There may be more than one object class identified by a location expression satisfying this constraint. A particular implementation may restrict the maximum number of object classes identified by the location expression.

<constraint-7>::= CLASS-WITH(REQ attribute-name = ANY_VALUE,
REQ value = ANY_VALUE)

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8.5 Content portion locators

There are three possible location expressions that allow the identification of content portions.

The first constraint allows for location expressions identifying a content portion directly by its "content identifier - logical" or "content identifier - layout" attribute.

<constraint-8>::= <content-portion-id>

The second constraint allows for the identification of the n-th content portion associated with a given object. The object may be specified directly by its "object identifier", or alternatively by an expression using the SUBORD function, which may be recursive.

Since the end counter argument cannot be specified, this constraint only allows for location expressions identifying at most one content portion.

<constraint-9>::= ASSOC(REQ object-locator = <constraint-2>,
PERM start-counter = ANY_VALUE)
| ASSOC(REQ object-locator = <constraint-3>,
PERM start-counter = ANY_VALUE)

The third constraint allows for the identification of a content portion for which a given value of an attribute applies. The object to be used as the origin for the search shall be given directly by its "object identifier" (which may have been previously obtained with another expression satisfying the object locator constraints).

Since the end counter argument cannot be specified, this constraint only allows for location expressions identifying at most one content portion.

<constraint-10> ::= CONTENT-WITH(REQ attribute-name = ANY_VALUE,
REQ value = ANY_VALUE,
PERM object-locator = <constraint-2>,
PERM start-counter = 1,
PERM defaulting = ANY_VALUE)

8.6 Style locators

There are five possible location expressions that allow the identification of styles.

The first constraint allows for location expressions identifying a layout style or a presentation style directly by its "layout style identifier" or "presentation style identifier" attribute, respectively.

<constraint-11> ::= <style-id>

The second constraint allows for the identification of the layout style associated with an object or object class. Since the permitted locators to be used as argument to the LAYOUT-STYLE-OF function never identify more than one component, a location expression satisfying this constraint identifies at most one layout style.

<constraint-12> ::= LAYOUT-STYLE-OF(REQ component-locator = <constraint-2>)
| LAYOUT-STYLE-OF(REQ component-locator = <constraint-3>)
| LAYOUT-STYLE-OF(REQ component-locator = <constraint-5>)
| LAYOUT-STYLE-OF(REQ component-locator = <constraint-6>)

The third constraint allows for the identification of all layout styles for which an attribute has a given value. There may be more than one layout style identified by a location expression satisfying this constraint. A particular implementation may restrict the maximum number of layout styles identified by the location expression.

<constraint-13> ::= LAYOUT-STYLE-WITH(REQ attribute-name = ANY_VALUE,
REQ value = ANY_VALUE,
REQ defaulting = false)

The fourth constraint allows for the identification of the presentation style associated with an object or object class. Since the permitted locators to be used as argument to the PRESENTATION-STYLE-OF function never identify more than one component, a location expression satisfying this constraint identifies at most one presentation style.

<constraint-14> ::= PRESENTATION-STYLE-OF(REQ component-locator = <constraint-2>)
| PRESENTATION-STYLE-OF(REQ component-locator = <constraint-3>)
| PRESENTATION-STYLE-OF(REQ component-locator = <constraint-5>)
| PRESENTATION-STYLE-OF(REQ component-locator = <constraint-6>)

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The fifth constraint allows for the identification of all presentation styles for which an attribute has a given value. There may be more than one presentation style identified by a location expression satisfying this constraint. A particular implementation may restrict the maximum number of presentation styles identified by the location expression.

<constraint-15> ::= PRESENTATION-STYLE-WITH(REQ attribute-name = ANY_VALUE,
REQ value = ANY_VALUE,
REQ defaulting = false)

9 Constraints for the DTAM confirmed document manipulation protocol

The communication between the ODA document manipulation client and the ODA document manipulation server shall be done using DTAM-DM protocol, as specified in ITU-T Rec. T.436, with the constraints in the service specified in clauses 6 and 7 of this part of ISO/IEC ISP 15121.

The DTAM-DM application context shall be supported.

The use of the DTAM-DM/DFR combined application context is considered optional. When used, all the constraints specified in this part of ISO/IEC ISP 15121 shall apply.

9.1 Use of ROSE

The constraints on ROSE services specified in ISO/IEC ISP 11188-2 shall be applied.

9.2 Use of ACSE, Presentation and Session

The constraints on ACSE, Presentation and Session services specified in ISO/IEC ISP 11188-3 shall be applied, together with those specified in Annex A of this part of ISO/IEC ISP 15121.

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Annex A
(normative)
Profile requirements list

A.1 Introduction

This annex contains the profile specifications for completing the mOSI Profile Requirements List (PRL) for the selected facilities, roles and options, as required in ISO/IEC 11188-3.

This clause uses the tables in Annex D of ISO/IEC ISP 11188-3. The clause numbers and tables referenced in these tables are those of the Annexes A, B and D in ISO/IEC ISP 11188-3.

These tables complement the requirements stated in annex B of ISO/IEC ISP 11188-2 and in annexes A, B and C of ISO/IEC ISP 11188-3. ISO/IEC ISP 11188-3 leaves options for some features which are redefined by the tables in this annex.

The list of the mOSI variables and their allowed (compliant) values may be found in the first table. The list of parameters whose constraints are specified by this part of ISO/IEC ISP 15121, and their allowed (compliant) values may be found in the second table.

A.2 Profile requirements list proforma

The following table specifies the profile requirements list proforma defined by ISO/IEC 11188-3. Table D.1 from ISO/IEC 11188-3 is used.

Item / variable	Specification's choice	Constraint / value
Establishment-initiator	m	
Establishment-responder	i	
Establishment-responder-reject	i	
Normal-data-requestor	m	
Normal-data-acceptor	m	
Release-requestor	m	
Release-acceptor	i	
Authentication	o	
Application-context-negotiation	m	
Transport-expedited	o	
Number of presentation-context required	more	
ISO/IEC ISP 11188-1 compliance ?	yes	
Status values for all open (*) parameters	mixed	

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A.3 Open parameters

The following table specifies the open values required by ISO/IEC 11188-3. Table D.2 from ISO/IEC 11188-3 is used.

Referenced table (in ISO/IEC 11188-3 annexes A, B and C)	Parameter	Specification's statement-Sender	Specification's statement-Receiver	Constraint / Value
A.6.1 [AARQ]	Calling AE title	m	-	
	Called AE title	m	-	
	Calling invocation ids	m	-	
	Called invocation ids	m	-	
	User Information	i	-	
A.6.2 [AARE]	Responding AE title	-	m	
	Responding invocation identifiers	-	m	
	User Information	-	m	
A.6.3 [RLRQ]	Reason	m	-	
	User Information	i	-	
A.6.4 [RLRE]	Reason	-	m	
	User Information	-	m	
A.6.5 [ABRT]	User Information	m	m	
A.7.1 [AARQ and AARE]	Form 1 (Directory name)	o	o	
	Form 2 (Object id + integer)	o	o	
B.4.1 [CP]	Default context name	o	o	
B.4.3 [CPR]	Default context result	o	o	

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A.4 List of transfer syntaxes supported

The following table lists the object identifiers of the required transfer syntaxes.

Type	Detail	Profile
Object identifier	joint-iso-itu asn1(1) basic-encoding(1)	m
Object Identifier	joint-iso-itu standard(0) culr(11188) mosi(3) default-transfer-syntax(2) version(1)	i

A.5 Abstract syntaxes supported

The following table lists the object identifiers for the abstract syntaxes required within this application.

Type	Detail	Profile
Object identifier	joint-iso-itu association-control(2) abstract-syntax(1) apdus(0) version1(1)	m
Object Identifier	joint-iso-itu standard(0) culr(11188) mosi(3) default-abstract-syntax(1) version(1)	i
Object Identifier	joint-iso-itu association-control (2) abstract-syntax (1) apdus (0) version (1)	m
Object Identifier	itu-t recommendation t_436 modules (0) object_identifiers (0) id-as (0)	m

NOTE 1 - Other abstract syntaxes may be added to the above table based on the application(s) supported.

NOTE 2 - Applications specified using ASN.1 should not use the default abstract syntax.

NOTE 3 - As Default abstract syntax for minimal OSI OBJECT IDENTIFIER is used by applications using the default abstract syntax for mOSI, it cannot be used to differentiate between applications. One of the ACSE parameters, e.g. AE-Title, may be used to differentiate between applications.

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A.6 Use of ASN.1 encoding

The following table contains an indication of any coding restrictions for sending all ACSE APDUs, PPDUs and User Information on ACSE APDUs.

Restriction	Profile	Constraint / value
Only definite form of length encoding used	o	See ISO/IEC ISP 11188-1, 8.1.2
Indefinite form of length encoding used for all constructed types	o	
Only minimal number of octets used for definite form of length encoding	m	See ISO/IEC ISP 11188-1, 8.1.2
Only primitive encoding used for OCTET STRING	o	See ISO/IEC ISP 11188-1, 8.1.7
Only primitive encoding used for BIT STRING	m	See ISO/IEC ISP 11188-1, 8.1.7 (note 2)

NOTE 1 - A referencing implementation shall receive all forms of encoding.

NOTE 2 - ISO/IEC ISP 11188-1 restricts encoding of an OCTET STRING or a BIT STRING to only one level of constructed encoding.

NOTE - PICS Proforma subclause A.9.4 is out of the scope (i) of this Profile.

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Annex B
(informative)
Object Identifiers List

B.1 Object Identifiers

The value of the attribute "profileSelection" of the DTAM-DMBind arguments is an ASN.1 object identifier with one of the following values:

- {iso standard 15121 1} for the AOD11 - DTAM/Read Only profile;
- {iso standard 15121 2} for the AOD12 - DTAM/Insert profile;
- {iso standard 15121 3} for the AOD13 - DTAM/Manipulation profile;

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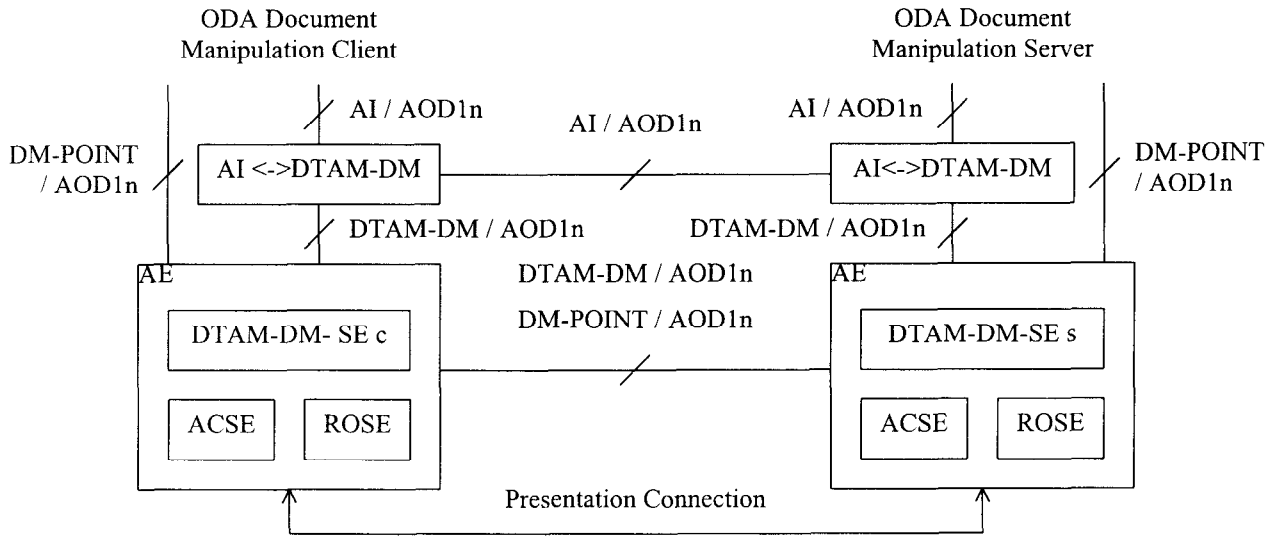
Annex C
(informative)
Use of DTAM-DM DM-POINT in ISO/IEC 15121

C.1 User Requirements and Scenario

The model for the use of DTAM-DM DM-POINT in ISO/IEC ISP 15121 is that of asymmetric 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), including DM-POINT services and protocols, in order to get access to a remote ODA document.

Figure 2 illustrates the environment within which this annex C of this part of ISO/IEC ISP 15121 is applicable.



Legend:

ACSE	Association Control Service Element
AE	Application Entity
AI	Abstract Interface for the manipulation of ODA documents
AI/AOD1n	Abstract Interface for the manipulation of ODA documents following AOD13 profile
DM-POINT	DM-POINT operation
DM-POINT/AOD1n	DM-POINT operation following AOD1n profile
DTAM-DM	Document Transfer And Manipulation - Confirmed Document Manipulation
DTAM-DM/AOD1n	Document Transfer And Manipulation - Confirmed Document Manipulation following AOD1n 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 2 - AOD1n Environment when using DTAM-DM DM-POINT in ISO/IEC 15121

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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.

Ref.	Argument	B	P	Constraint / value
1	object	m	m	
1.1	documentIdentifier	o	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.

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C.2.1.3 DTAM-DM DM-POINT results

The following table defines the DTAM-DM DM-POINT 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-POINT operation is a NULL.

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

C.3 DTAM-DM DM-POINT Errors

C.3.1 DTAM-DM DM-POINT errors table

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

DTAM-DM DM-POINT operation is independent from AI.

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

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C.3.2 DTAM-DM DM-POINT errors mapping

The following table specifies the mapping between DTAM-DM DM-POINT errors supported by ITU-T Rec. T.435 but not supported by this part of ISO/IEC ISP 15121, and those supported by this annex C of this part of ISO/IEC ISP 15121.

DTAM-DM DM-POINT error not supported by this ISP	Equivalent DTAM-DM DM-POINT error supported by this ISP
DM-ServiceError (server-busy)	DM-ServiceError (unclassified-server-error)
DM-ServiceError (server-unavailable)	DM-ServiceError (unclassified-server-error)
DM-ServiceError (server-busy)	DM-ServiceError (unclassified-server-error)
DM-ServiceError (server-unavailable)	DM-ServiceError (unclassified-server-error)
DM-ServiceError (resource-limit-exceeded)	DM-ServiceError (unclassified-server-error)
DM-ServiceError (operation-too-complex)	DM-ServiceError (unclassified-server-error)
DM-DocumentError (DocumentId, invalid-upi)	DM-ServiceError (unclassified-server-error)
DM-DocumentError (DocumentId, invalid-path-name)	DM-ServiceError (unclassified-server-error)
DM-DocumentError (DocumentId, ambigous-path-name)	DM-ServiceError (unclassified-server-error)
DM-DocumentError (DocumentId, invalid-document-reference)	DM-ServiceError (unclassified-server-error)
DM-DocumentError (DocumentId, invalid-document-name)	DM-ServiceError (unclassified-server-error)
DM-DocumentError (DocumentId, invalid-non-permanent-id)	DM-ServiceError (unclassified-server-error)
DM-AccessError (DocumentId, improper-access-rights)	DM-AccessError (ManipulationObject, improper-access-rights)
DM-FragmentError (ObjectValue, invalid-expression)	DM-FragmentError (ObjectValue, invalid-location-expression)

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ICS 35.100.05

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