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Information technology — Text and office systems — Document Filing and Retrieval (DFR) —

Part 1:

Abstract service definition and procedures

AMENDMENT 1: Minor enhancements

Technologies de l'information — Bureautique — Classement et récupération de documents —

Partie 1: Procédures et définition de service abstrait

AMENDEMENT 1: Améliorations mineures



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Foreword

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Amendment 1 to International Standard ISO/IEC 10166-1:1991 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee 18, *Document processing and related communication*.

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Information technology — Text and office systems — Document Filing and Retrieval (DFR) —

Part 1:

Abstract service definition and procedures

AMENDMENT 1: Minor enhancements

Page 3

Clause 2

Add the following text to the end of clause 2:

ITU-T T.435(1994), *Document Transfer and Manipulation (DTAM) - Services and Protocols - Abstract Service Definitions and Procedures for Document Manipulation.*

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Subclause 7.1.1

Change the ASN.1 definition of "DfrBindArgument" as follows:

```

DfrBindArgument ::= SEQUENCE {
    initiator-name           [0]    DistinguishedName,
    credentials              [1]    Credentials,
    retrieve-restrictions    [2]    Restrictions OPTIONAL,
                                -- default is none --
    dfr-configuration-request [3]    BOOLEAN DEFAULT FALSE,
    bind-security            [4]    BindSecurity OPTIONAL,
    priority                 [5]    Priority DEFAULT medium,
    dor-for-produce-operations [6]    BOOLEAN DEFAULT TRUE,
    dor-for-consume-operations [7]    BOOLEAN DEFAULT TRUE,
    protocol-version         [8]    INTEGER {
        version-1      (1),
        version-2      (2) } DEFAULT {1},
    bilateralInformation     [9]    SEQUENCE OF
                                BilateralInformationEntry OPTIONAL }

```

Add the following new paragraph after paragraph **h**):

i) **protocol-version (O)**: This parameter indicates the DFR protocol version which the DFR-User requests. If the DFR-Server can honor this request, DFR Abstract-Bind continues normally. Otherwise, the DFR-Server will issue error.

1) **version-1** is defined by ISO/IEC 10166-1:1991.

2) **version-2** is defined by ISO/IEC 10166-1:1991 together with ISO/IEC 10166-1:1991/Amd 1:1995.

Note - Since a server that knows only the DFR protocol version 1 will not understand a version request, such a request will lead to an (implementation dependent) error. A server that knows the DFR protocol version 2 may accept the bind from a version 1 client, or may return an appropriate error which DFR protocol version 1 client understands. One example of such error code is the **unclassified-server-error**.

Add the following new paragraph and ASN.1 definition of "**BilateralInformationEntry**" and "**ServerName**" after the (new) paragraph **i**):

j) **bilateralInformation (O)**: This parameter includes bilateral information between the DFR-Server and the DFR-User. Format of this bilateral information is as follows.

```
BilateralInformationEntry ::= SEQUENCE {
    serverName [0]    ServerName,
    information [1]    EXTERNAL }
```

```
ServerName ::= DistinguishedName
```

Change the ASN.1 definition of "**DfrBindResult**" as follows:

```
DfrBindResult ::= SET {
    authentication-attributes [0]    SET OF AuthenticationAttribute,
    constraints-supported [1]    SET OF ConstraintsType
                                OPTIONAL,
    dfr-document-types-supported [2]    SET OF TypeAndAttribute
                                OPTIONAL,
    function-set-supported [3]    FunctionSetType OPTIONAL,
    maximum-length-supported [4]    INTEGER OPTIONAL,
    dor-for-produce-operations [5]    BOOLEAN DEFAULT TRUE,
    dor-for-consume-operations [6]    BOOLEAN DEFAULT TRUE,
    rOA-protocols-accessee [7]    ROAProtocols OPTIONAL,
```

rOA-protocols-accessor	[8]	ROAProtocols OPTIONAL,
bilateralInformation	[9]	SEQUENCE OF
		BilateralInformationEntry OPTIONAL,
server-selected-protocol-version	[10]	INTEGER {
version-1	(1),	
version-2	(2) }	OPTIONAL }

Change the ASN.1 definition of "**ConstraintsType**" in paragraph b) as follows:

```

ConstraintsType ::= SEQUENCE {
    name-constraint    [0] NameConstraint,
    version-constraint [1] VersionConstraint,
    profile-supported [2] SEQUENCE OF OBJECT IDENTIFIER
                           OPTIONAL }

```

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Change the ASN.1 definition of "**VersionConstraint**" as follows:

```

VersionConstraint ::= ENUMERATED {
    no-version-constraint    (0),
    version-unambiguity      (1),
    version-not-supported    (2) }

```

Add the following paragraph at the end of the description of 2) *Version-constraint* in paragraph b):

iii) Version not supported (conceptual document is not supported).

Add the following paragraph to the bottom of paragraph b):

3) **profile-supported** specifies the function subsets (for example, function profiles) which are supported by the DFR-Server.

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Add the following two paragraphs after paragraph i):

j) **bilateralInformation (O)**: This parameter includes bilateral information between the DFR-Server and the DFR-User.

k) **server-selected-protocol-version (O)**: This parameter indicates the DFR protocol version which the DFR-Server selected. This parameter is only present if **protocol-version** is specified in the bind argument. If the DFR-Server supports the DFR protocol version specified by the DFR-User, the DFR-Server includes the value corresponding to the specified DFR protocol version in this parameter. If the DFR-Server does not support

the DFR protocol version specified by the DFR-User, the DFR-Server includes the value corresponding to one of the DFR protocol versions supported by the DFR-Server.

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Subclause 8.1.3.2

Change the ASN.1 definition of "Reservation" as follows:

```
Reservation ::= SEQUENCE {
    reservation-duration [0]    GeneralizedTime OPTIONAL,
    reservation-level       [1]    ReservationLevel,
    reservation-status      [2]    ReservationStatus DEFAULT uncommitted,
    reservation-referent    [3]    BOOLEAN DEFAULT FALSE }
```

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Subclause 8.1.5.6

Change the ASN.1 definition of "EntryInformationSelection" as follows:

```
EntryInformationSelection ::= SEQUENCE {
    read-selector      [0]    ENUMERATED {
        attributes-only           (0),
        attributes-and-content    (1),
        content-only              (2),
        dor-to-attr-only          (3),
        attr-and-dor-to-content   (4),
        dor-to-content-only       (5),
        dor-to-entire-object      (6),
        attr-and-dor-to-entire-object (7),
        attributes-and-part-of-content (8),
        part-of-content-only      (9) },
        DEFAULT attributes-only,
    attribute-selection [1]    AttributeSelection OPTIONAL,
    content-selection   [2]    SEQUENCE {
        content-server-id      DistinguishedName,
        content-selection-parameter EXTERNAL } OPTIONAL }
```

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Subclause 8.1.5.6

Change the ASN.1 definition of "EntryInformation" as follows:

```
EntryInformation ::= CHOICE {
    attributes-only           [0]    DfrEntryAttributes,
    attributes-and-content    [1]    DfrObject,
```

content-only	[2]	DfrObjectContent,
dor-to-attr-only	[3]	DOR,
attr-and-dor-to-content	[4]	SEQUENCE {
attributes	[0]	DfrEntryAttributes,
dor-to-content	[1]	DOR },
dor-to-content-only	[5]	DOR,
dor-to-entire-object	[6]	DOR,
attr-and-dor-to-entire-object	[7]	SEQUENCE {
attributes	[0]	DfrEntryAttributes,
dor-to-entire-object	[1]	DOR },
attributes-and-part-of-content	[8]	DfrObject,
-- DFR-Server extracts the part of the DFR-Content according to --		
-- the content-selection, then creates a DfrObject which contains --		
-- only selected part of the contents. --		
part-of-content-only	[9]	DfrObjectContent
-- DFR-Server extracts the part of the DFR-Content according to --		
-- the content-selection, then creates a DfrObjectContent which contains --		
-- only selected part of the contents. --		

Add the following text to the end of the subclause:

The **content-selection** optionally specifies that only part of the DFR-Document is requested. When content is selected by DTAM (ITU-T Recommendation T.430 series), **content-selection-parameter** is the **ManipulationObject** defined in the ITU-T Recommendation T.435.

NOTE- This function is provided for some initial applications with limited capabilities that can not support the combined use of DFR and DTAM.

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Subclause 8.2.5.3

Add the following note at the end of the subclause:

NOTE - When content selection is done by DTAM, and content selection criteria in the **ManipulationObject** are not satisfied, the DTAM defined error **CapabilityError** will be reported by using **ExternalServerError**.

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Subclause 8.2.8.1

Change the ASN.1 definition of "**SearchArgument**" as follows:

```
SearchArgument ::= SEQUENCE {
    search-mode      [0] CHOICE {
        -continue    [0] DfrEntryName,
        -- Continue the search which all options (search domain, --
```

-- search criteria and continuation context) from the--
 -- search result list specified by the DfrEntryName. --
 -- The result will be added to the present content of --
 -- this search result list. --

update [1] **DfrEntryName**,
 -- The present content of the search result list --
 -- is verified and possibly updated. --

new-search-stored [2] **DfrEntryName**,
 -- All options are supplied by the requester in the --
 -- subsequent parameters; they are stored in the search --
 -- result list specified, where the result is then --
 -- also stored. --

non-stored-search [3] **Null** },
 -- All options are supplied by the requester in the --
 -- subsequent parameters; they are not stored, also the --
 -- result is not stored but only returned to the requester. --

COMPONENTS OF CommonListSearchArguments,
search-domain [5] **SearchDomain** **OPTIONAL**,
search-criteria [6] **SearchCriteria** **OPTIONAL**,
search-server [7] **SEQUENCE {**
server-id **DistinguishedName**,
server-parameter **EXTERNAL }** **OPTIONAL**,
search-limit [8] **SEQUENCE {**
small-set-upper-limit [0] **INTEGER**,
large-set-lower-limit [1] **INTEGER**,
medium-set-attributes [2] **SET OF**
AttributeType **OPTIONAL }** **OPTIONAL**,

COMPONENTS OF CommonArguments (
WITH COMPONENTS { ... ,
error-handling ABSENT }}

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Add the following text to the end of a) Specific Search argument:

- **search-server** specifies the identifier of the search server, and the parameter supplied to the search server.

- **search-limit** specifies the behavior of the DFR-Server according to the number of the DFR-Entities which satisfy the search criteria.

1. **small-set-upper-limit** is the upper limit of the hits where the DFR-Server returns Search result according to the specification of the **AttributeSelection** parameter.

2. **large-set-lower-limit** is the upper limit of the hits where the DFR-Server returns Search result according to the specification of the **medium-set-attributes** specification. If number of hits exceeds this limit, the DFR-Server returns an error indication instead of returning Search result.

3. medium-set-attributes is the set of attributes returned by the DFR-Server when number of hits are more than **small-set-upper-limit** and less than **large-set-lower-limit**. If this parameter is not specified, the value specified by **AttributeSelection** is assumed.

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Subclause 8.2.8.2

Change the ASN.1 definition of "SearchResult" as follows:

```
SearchResult ::= SEQUENCE {
    COMPONENTS OF CommonListSearchResult
        (WITH COMPONENTS { ... , warnings ABSENT }),
    removed-entries      [5]    DfrEntryList OPTIONAL,
    number-of-hits       [6]    ENUMERATED {
        within-small-set      (0),
        within-medium-set     (1) } OPTIONAL,
    additional-information [7]    SEQUENCE OF
                                   AdditionalInformationEntry
OPTIONAL}
```

Add the ASN.1 definition of "AdditionalInformationEntry" after the definition of "SearchResult" as follows:

```
AdditionalInformationEntry ::= SEQUENCE {
    server-name [0]    DistinguishedName,
    information  [1]    EXTERNAL }
```

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Add the following bullets to the end of b) Specific Search result:

- **number-of-hits** indicates whether number of hits is less than **small-set-upper-limit** or between **small-set-upper-limit** and **large-set-lower-limit**. This parameter is present only if **search-limit** is present in the Search Abstract Operation.
- **additional-information** is the supplementary information provided by the search server specified by the parameter **search-server**. This parameter is present only if the parameter **search-server** is specified in the Search Abstract Operation, and the search server has supplementary information.

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Subclause 8.2.9

Delete last sentence of subclause 8.2.9, 1st paragraph, which reads "If a DFR-Reference is reserved, the Referent is not affected, that is, not reserved".

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Subclause 8.2.9.1

Add following bullet to the bottom of paragraph a).

- **reservation-referent** is applicable only when changing the parameter specified in **Reservation** argument against the DFR-Reference. If this parameter is given the value TRUE in the DFR abstract operation of the DFR-Reference, the **reservation-duration**, the **reservation-level**, and the **reservation-status** of the DFR-Referent which is pointed to by this DFR-Reference are also changed.
The DFR-User must have appropriate access rights to the DFR-Referent.

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Subclause 8.3.10

Change the ASN.1 definition of "**ServiceProblem**" as follows:

```
ServiceProblem ::= ENUMERATED {
    server-busy (1),      -- please wait and repeat --
    server-unavailable (2), -- please unbind --
    operation-too-complex (3), -- e.g. search-criteria --
    resource-limit-exceeded (4), -- e.g. when creating a bulky object --
    maximum-length-exceeded (5), -- in an abstract operation --
    cannot-continue (6),  -- e.g. search-domain altered --
    unclassified-server-error (7), -- implementation specific --
    function-set-violation (8), -- see 8.4 --
    too-many-search-hits (9) } -- hit exceeds large-set-lower-limit --
```

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Subclause 8.3.10

Add the following paragraph after the paragraph **h**):

i) **too-many-search-hits**: The Search abstract operation finds more DFR-Entities which satisfy the search criteria than the value specified by the **large-set-lower-limit** value.

Subclause 8.3.13

Create a new subclause 8.3.13 with the following text, and resequence the current subclause 8.3.13 as 8.3.14:

8.3.13 External-Server-Error

An **ExternalServerError** reports a problem occurring in a search server or a content search server. If the problem can be mapped to one of the DFR Abstract-Errors, the DFR-Server reports the error by using one of the DFR Abstract-Errors. If the problem can not be mapped to one of the DFR Abstract-Errors, the DFR-Server reports the problem by **ExternalServerError**.

ExternalServerError ::= ABSTRACT ERROR

PARAMETER	SEQUENCE {
server-id	DistinguishedName,
server-specific-error	EXTERNAL }

Subclause (resequenced) 8.3.14

Insert "**ExternalServerError**" after "**ServiceError**".

Table 3

Add the following entries at the bottom of Table 3.

Attribute-type name	Single/Multi-valued	Assigned by	Modified by	Deleted by	Auto copied by Copy
Valid-User-Key	S	R	R	R	N
DFR-Document-Purge-Date-and-Time	S	U	U	U	U

In the key at the bottom of each part of Table 3, insert "**R = ROOT GROUP ONLY**" after "**O=OWNERS**".

Table 4

Add the following entries at the bottom of Table 4.

Attribute-Types	Used for				Matches in Filter for		
	DO	GR	RE	SR	EQ	OR	SU
Valid-User-Key		O					
DFR- Document- Purge-Date- and-Time	O	O	O	O	O		

Add the following note at the bottom of Table 4.

NOTE- Valid-user-key attribute is applicable only to the DFR-Root-Group.

Subclause 9.2

Add two new subclauses to the end of 9.2.

9.2.31 Valid-User-Key

This is the one of basic attributes assigned to the DFR-Root-Group. This attribute defines the list of additional attributes associated with the documents contained in this DS.

valid-user-key ATTRIBUTE

WITH ATTRIBUTE-SYNTAX ValidUserKey

SINGLE VALUE

::= id-att-valid-user-key

ValidUserKey ::= SEQUENCE OF SEQUENCE {
 document-type **OBJECT IDENTIFIER,**
 user-key-list **UserKeyList }**

1. **document-type:** It is possible that each document type has a different set of additional attributes. This parameter names the document type for which the additional keys are specified in **user-key-list**.

2. **user-key-list:** This is the list of additional attributes assigned to the document type.

UserKeyList ::= SEQUENCE OF SET {
 user-key-id **[0] OBJECT IDENTIFIER,**
 user-key-name **[1] CharacterData OPTIONAL,**

user-key-syntax	[2]	OBJECT IDENTIFIER,
user-key-multi-valued	[3]	BOOLEAN OPTIONAL,
user-key-matching-rule	[4]	BIT STRING OPTIONAL,
user-key-comment	[5]	CharacterData OPTIONAL }

1. **user-key-id** is the Object Identifier which is assigned to the additional attribute.
2. **user-key-name** is the human readable name of the attribute.
3. **user-key-syntax** is an Object Identifier indicating which syntax is assigned to the key. The Object Identifier may represent either one of the common data types or one of the DFR defined data types.
4. **user-key-multi-valued** is the indication whether this user key is single-valued or multi-valued.
5. **user-key-matching-rule** is the matching rule which is applied to this user key when making attribute value assertions.
6. **user-key-comment** is the optional human readable comment associated with the attribute.

9.2.32 DFR-Document-Purge-Date-and-Time

This is one of the basic attributes assigned to the DFR-Documents and DFR-Groups. This attribute indicate the date (and optionally time) after which this DFR-Object may be deleted from the DS, and the ID of the security subject that created or last modified this attribute. The security subject must have at least delete access rights when the object is deleted.

dfr-document-purge-date-and-time ATTRIBUTE
WITH ATTRIBUTE-SYNTAX DfrPurgeRequest
MATCHES FOR EQUALITY
SINGLE VALUE
::= id-att-dfr-document-purge-date-and-time

DfrPurgeRequest ::= SEQUENCE {
access-id AccesId,
purge-time GeneralizedTime }

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Annex B

Add the following two definitions at the bottom of -- Attribute Types --.

id-att-valid-user-key ::= {id-dfr-bas-att 30}

id-att-dfr-document-purge-date-and-time ::= {id-dfr-bas-att 31}

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Annex C

Change the ASN.1 definition of "DfrBindArgument" as follows:

```

DfrBindArgument ::= SEQUENCE {
    initiator-name          [0]    DistinguishedName,
    credentials             [1]    Credentials,
    retrieve-restrictions   [2]    Restrictions OPTIONAL,
                                -- default is none --
    dfr-configuration-request [3]    BOOLEAN DEFAULT FALSE,
    bind-security           [4]    BindSecurity OPTIONAL,
    priority                [5]    Priority DEFAULT medium,
    dor-for-produce-operations [6]    BOOLEAN DEFAULT TRUE,
    dor-for-consume-operations [7]    BOOLEAN DEFAULT TRUE,
    protocol-version        [8]    INTEGER {
        version-1          (1),
        version-2          (2) } DEFAULT {1},
    bilateralInformation    [9]    SEQUENCE OF
                                BilateralInformationEntry OPTIONAL }

```

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Add the following ASN.1 definition of "BilateralInformationEntry" after the ASN.1 definition of "BindSecurity."

```

BilateralInformationEntry ::= SEQUENCE {
    serverName [0]    ServerName,
    information [1]    EXTERNAL }

```

Add the following ASN.1 definition of "ServerName" after the ASN.1 definition of "BilateralInformationEntry."

ServerName ::= DistinguishedName

Change the ASN.1 definition of "DfrBindResult" as follows:

```

DfrBindResult ::= SET {
    authentication-attributes [0]    SET OF AuthenticationAttribute,
    constraints-supported     [1]    SET OF ConstraintsType
                                OPTIONAL,
    dfr-document-types-supported [2]    SET OF TypeAndAttribute
                                OPTIONAL,
    function-set-supported     [3]    FunctionSetType OPTIONAL,
    maximum-length-supported   [4]    INTEGER OPTIONAL,
}

```

dor-for-produce-operations	[5]	BOOLEAN DEFAULT TRUE,
dor-for-consume-operations	[6]	BOOLEAN DEFAULT TRUE,
rOA-protocols-accessee	[7]	ROAProtocols OPTIONAL,
rOA-protocols-accessor	[8]	ROAProtocols OPTIONAL,
bilateralInformation	[9]	SEQUENCE OF
		BilateralInformationEntry OPTIONAL,
server-selected-protocol-version	[10]	INTEGER {
version-1	(1),	
version-2	(2) }	OPTIONAL }

Change the ASN.1 definition of "**ConstraintsType**" as follows:

```

ConstraintsType ::= SEQUENCE {
    name-constraint    [0]    NameConstraint,
    version-constraint [1]    VersionConstraint,
    profile-supported  [2]    SEQUENCE OF OBJECT IDENTIFIER
                                OPTIONAL }

```

Change the ASN.1 definition of "**VersionConstraint**" as follows:

```

VersionConstraint ::= ENUMERATED {
    no-version-constraint    (0),
    version-unambiguity      (1),
    version-not-supported    (2) }

```

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Change the ASN.1 definition of "**Reservation**" as follows:

```

Reservation ::= SEQUENCE {
    reservation-duration [0]    GeneralizedTime OPTIONAL,
    reservation-level    [1]    ReservationLevel,
    reservation-status   [2]    ReservationStatus DEFAULT uncommitted,
    reservation-referent [3]    BOOLEAN DEFAULT FALSE }

```

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Change the ASN.1 definition of "**EntryInformationSelection**" as follows:

```

EntryInformationSelection ::= SEQUENCE {
    read-selector        [0]    ENUMERATED {
        attributes-only          (0),
        attributes-and-content    (1),
        content-only              (2),
        dor-to-attr-only          (3),
        -attr-and-dor-to-content  (4),
        dor-to-content-only      (5),
    }

```

```

        dor-to-entire-object          (6),
        attr-and-dor-to-entire-object (7),
        attributes-and-part-of-content (8),
        part-of-content-only          (9) }
        DEFAULT attributes-only,
attribute-selection [1] AttributeSelection OPTIONAL,
content-selection [2] SEQUENCE {
        content-server-id             DistinguishedName,
        content-selection-parameter EXTERNAL } OPTIONAL }

```

Change the ASN.1 definition of "EntryInformation" as follows:

```

EntryInformation ::= CHOICE {
    attributes-only          [0] DfrEntryAttributes,
    attributes-and-content   [1] DfrObject,
    content-only             [2] DfrObjectContent,
    dor-to-attr-only         [3] DOR,
    attr-and-dor-to-content  [4] SEQUENCE {
        attributes          [0] DfrEntryAttributes,
        dor-to-content      [1] DOR },
    dor-to-content-only      [5] DOR,
    dor-to-entire-object     [6] DOR,
    attr-and-dor-to-entire-object [7] SEQUENCE {
        attributes          [0] DfrEntryAttributes,
        dor-to-entire-object [1] DOR },
    attributes-and-part-of-content [8] DfrObject,
    -- DFR-Server extracts the part of the DFR-Content according to --
    -- the content-selection, then creates a DfrObject which contains --
    -- only selected part of the contents. --
    part-of-content-only     [9] DfrObjectContent
    -- DFR-Server extracts the part of the DFR-Content according to --
    -- the content-selection, then creates a DfrObjectContent which contains --
    -- only selected part of the contents. --
}

```

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Change the ASN.1 definition of "SearchArgument" as follows:

```

SearchArgument ::= SEQUENCE {
    search-mode [0] CHOICE {
        continue [0] DfrEntryName,
        -- Continue the search which all options (search-domain, --
        -- search criteria and continuation context) from the --
        -- search result list specified by the DfrEntryName. --
        -- The result will be added to the present content of --
        -- this search result list. --
        update [1] DfrEntryName,

```