INTERNATIONAL STANDARDIZED PROFILE

ISO/IEC ISP 12069-1

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Information technology — International Standardized Profiles ADFnn — Document Filing and Retrieval (DFR) —

Part 1:
Introduction to the DFR ISP

Technologies de l'information — Profils normalisés internationaux ADFnn — Classement et recherche documentaire (DFR) —

Partie 1: Introduction aux ISP DFR

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Contents

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 indentifies 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 12069-1 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 12069 consists of the following parts, under the general title *Information technology — International Standardized Profiles ADFnn — Document Filing and Retrieval (DFR)*:

— *Part 1: Introduction to the DFR ISP*

— *Part 2: Specification of ROSE, RTSE, ACSE, Presentation and Session protocols for use by DFR*

— *Part 3: ADF11 — Common Document Filing and Retrieval — Read Only Profile*

Annex A forms an integral part of this part of ISO/IEC ISP 12069.

Introduction

This International Standardized Profile is defined within the context of functional standardization, in accordance with the principles specified by ISO/IEC TR 10000, "Framework and Taxonomy of International Standardized Profiles." The context of functional standardization is one part of the overall field of Information Technology (IT) standardization activities, covering base standards, profiles, and registration mechanisms. A profile defines a combination of base standards that collectively perform a specific well-defined IT function. Profiles standardize the use of options and other variations in the base standards, and provide a basis for the development of uniform, internationally recognized system tests.

One of the most important roles for an ISP is to provide the basis for the development (by organizations other than ISO and IEC) of internationally recognized tests. ISPs are produced not simply to "legitimize" a particular choice of base standards and options, but to promote real system interoperability. The development and widespread acceptance of tests based on this and other ISPs is crucial to the successful realization of this goal.

This ISP was harmonized among three international Workshops; the North American OSE Implementors' Workshop (OIW), the European Workshop for Open Systems (EWOS) (jointly with the corresponding expert group for the European Telecommunications Standards Institute - ETSI) and the Asia - Oceania Workshop (AOW).

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Information technology - International Standardized Profiles ADFnn - Document Filing and Retrieval (DFR) - Part 1:

Introduction to the DFR ISP

1 Scope

1.1 General

ISO/IEC ISP 12069 defines a series of International Standardized Profiles for ISO/IEC 10166:1991 Document Filing and Retrieval (DFR).
This part of ISO/IEC ISP 12069 contains the overall specifications of the DFR functionality which are generally not appropriate for consideration only from the perspective of a single DFR profile. Detailed specifications which vary according to each DFR application functions are described in Part 3 and the following parts of ISO/IEC ISP 12069.

In addition, this part of ISO/IEC ISP 12069 includes the specification of BASIC REQUIREMENTS, which are required to be supported by all DFR implementations, and a number of optional FUNCTION GROUPS, which cover significant discrete areas of related functionality which are not required to be supported by all implementations.

1.2 Document structure of ISO/IEC ISP 12069

This part is the first part, as common text, of a multipart ISP.
ISO/IEC ISP 12069 consists of the following parts:

- Part 1 : Introduction to the DFR ISP
- Part 2 : Specification of ROSE, RTSE, ACSE, Presentation, and Session Protocols for use by DFR
- Part 3 : ADF11 - Common Filing and Retrieval - Read Only Profile
- Part 4 : ADF12 - Common Filing and Retrieval - Archiving Profile
- Part 5 : ADF13 - Common Filing and Retrieval - Document Store Manipulation

Profile
- Part 6 : ADF21 - Remote Store Management - Simple Management Profile
- Part 7 : ADF22 - Remote Store Management - Full Management Profile

2 Normative References

The following documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC ISP 12069. 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 12069 are warned against any automatically applying 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 maintains published editions o its current Recommendations.

ISO/IEC TR 10000-1:1995, *Information technology - Framework and taxonomy of International Standardized Profiles - Part 1: General principles and documentation framework.*

ISO/IEC TR 10000-2:1995, *Information technology - Framework and taxonomy of International Standardized Profiles - Part 2: Principles and Taxonomy of ISO profiles..*

ISO/IEC 10166-1:1991, *Information technology - Text and office systems - Document Filing and Retrieval(DFR) - Part 1: Abstract service definition and procedures.*

ISO/IEC 10166-1:1991/Amd.1:1995, *Information technology - Text and office systems - Document Filing and Retrieval(DFR) - Part 1: Abstract service definition and procedures - Amendment 1: Minor Enhancements.*

ISO/IEC 10166-1:1991/Amd.2:1996, *Information technology - Text and office systems - Document Filing and Retrieval(DFR) - Part 1: Abstract service definition and procedures - Amendment 2: Combined usage of DFR and DTAM.*

ISO/IEC 10166-1:1991/Cor.1:1994, *Information technology - Text and office systems - Document Filing and Retrieval(DFR) - Part 1: Abstract service definition and procedures -*

Technical Corrigendum 1.

ISO/IEC 10166-1:1991/Cor.2:1994, *Information technology - Text and office systems - Document Filing and Retrieval(DFR) - Part 1: Abstract service definition and procedures - Technical Corrigendum 2.*

ISO/IEC 10166-1:1991/Cor.3:1994, *Information technology - Text and office systems - Document Filing and Retrieval(DFR) - Part 1: Abstract service definition and procedures - Technical Corrigendum 3.*

ISO/IEC 10166-2: 1991, *Information technology - Text and office systems - Document Filing and Retrieval(DFR) - Part 2: Protocol specification.*

ISO/IEC 10166-2: 1991/Amd.1:1995, *Information technology - Text and office systems - Document Filing and Retrieval(DFR) - Part 2: Protocol specification - Amendment 1: Minor enhancements for additional error.*

ISO/IEC 10166-2: 1991/Amd.2:1996, *Information technology - Text and office systems - Document Filing and Retrieval(DFR) - Part 2: Protocol specification - Amendment 2: Combined usage of DFR and DTAM.*

ISO/IEC 10166-2: 1991/Cor.1:1994, *Information technology - Text and office systems - Document Filing and Retrieval(DFR) - Part 2: Protocol specification - Technical Corrigendum 1.*

ISO/IEC 10166-2: 1991/Cor.2:1995, *Information technology - Text and office systems - Document Filing and Retrieval(DFR) - Part 2: Protocol specification - Technical Corrigendum 2.*

ISO/IEC 10031-2:1991, *Information technology - Text and office systems - Distributed-office-applications model - Part 2: Distinguished-object-reference and associated procedures.*

ISO/IEC 9646-7:1995, *Information technology - Open Systems Interconnection - Conformance testing methodology and framework - Part 7: Implementation Conformance*

Statements.

3 Definitions

For the purposes of ISO/IEC 12069, the following definitions apply. In addition, each part of ISO/IEC ISP 12069 may add specific definitions used by the specific part.

3.1 General

3.1.1 Basic requirement

Basic Requirement is an element of service, protocol element, procedural element or other identifiable feature specified in the base standards which is required by all DFR implementations.

3.1.2 Function group

Function group is a specification of one or more related Elements of Service, protocol elements, procedural elements or other identifiable features specified in the base standards which together support a significant optional area of DFR functionality.

3.2 Support Classification

To specify the support level of Elements of Service used by each part of ISO/IEC ISP 12069, the following terminology is defined.

3.2.1 Static capability

The following classifications from ISO/IEC 9646-7 apply. The terminology "capability" used here corresponds to "Element of Service."

Table 1 - Static Conformance Classifications.

Support Class	Description
m (Mandatory)	the capability is required to be implemented, in conformance with the related specification; when applied to a parameter on a supported PDU, this means that the semantics shall be supported.
o (Optional)	the capability may be implemented, and if it is implemented it is required to conform to the related specification; options can be Boolean, mutually exclusive, or selectable (as described in ISO/IEC 9646-1:1994, clause A.3); when applied to a parameter on a supported PDU, this means that the parsing of the parameter shall be supported but that the semantics may be supported or not.
c (Conditional)	the requirement on the capability depend on the selection of other optional or conditional items; the ICS proforma cannot define in advance a definite status for the capability, it can only specify how the status (mandatory, optional, prohibited, out-of-scope, or not-applicable) depends on the evaluation of a predicate or a conditional expression.
i (Out of Scope)	this capability is outside the scope of the given profile, and hence irrelevant and not subject to conformance testing for that profile.
- (Not Applicable)	in the given context the base specification makes it impossible to use this capability.

Static Conformance can be defined individually for both the sender side and the receiver side. In some cases, the information sent by the sender side is not processed by the receiver side because some combinations are not valid. Each implementation may have bilateral agreement prior to the communication in order to avoid invalid combinations. Possible combinations of the Support Class will be as follows.

Table 2 - Possible combinations of the Static Conformance Classifications.

Sender Side	Receiver Side	Explanation
m	**m**	The specific part of ISO/IEC ISP 12069 enforce the support of this Element of Service.
o	**o**	Each implementation of the specific part of ISO/IEC ISP 12069 has an option whether to implement this Element of Service, or not to implement it. This decision is done individually by the sender side and the receiver side. If the sender side selected to support this Element of Service, bilateral agreement may be done prior to the communication to ensure that the receiver side also supports this Element of Service.
o	**m**	The specific part of ISO/IEC ISP 12069 enforce the receiver side to support this Element of Service. Support of this Element of Service by the sender side is not enforced by the specific part of ISO/IEC ISP 12069, and the decision to support this Element of Service or not is left to each implementation.
c	**c**	Each part of ISO/IEC ISP 12069 has one or more conditions on the support of this Element of Service. This condition may be derived from the condition defined in the base standard, or may be the additional constraints defined in each part of ISO/IEC ISP 12069.
c	**m**	The specific part of ISO/IEC ISP 12069 enforce the receiver side to support this Element of Service. Support of this Element of Service by the sender side is based on some conditions. This condition may be derived from the condition defined in the base standard, or may be the additional constraints defined in each part of ISO/IEC ISP 12069.
i	**i**	The specific part of ISO/IEC ISP 12069 defines this Element of Service to be outside the scope of the specific profile.
-	**-**	This Element of Service is not applicable to the specific part of ISO/IEC ISP 12069.

3.2.2 Dynamic behavior

The above classifications are used in other parts of ISO/IEC ISP 12069 to specify static conformance requirements (i.e. capability); dynamic conformance requirements (i.e., behavior) are as specified in the DFR base standards. However, in a few cases it has been necessary to specify additional dynamic conformance requirements in each part of ISO/IEC ISP 12069. They are specified using the second classification code for the Element of Service, as follows.

Table 3 - Dynamic Conformance Classifications.

Support Class	Description
m1 (Mandatory 1)	an implementation shall be able to generate and use the Element of Service, and/or receive the Element of Service.
m2 (Mandatory 2)	an implementation shall be able to generate and use the Element of Service in certain condition. This condition is defined by the base standards and/or defaults which the DFR user is not concerned, or in the specific part of ISO/IEC 12069. The description of the condition is defined at the base standard, or in the specific part of ISO/IEC 12069.
x (Excluded)	the Element of Service shall never be present.

In the dynamic behavior, each Element of Service may or may not be included in a PDU. There are three different possibilities:
- The Element of Service is always present in a PDU (**m1**).
- The Element of Service may or may not be present in a PDU (**m2**).
- The Element of Service is never present in a PDU (**x**).

If the Static Conformance for the sender side is **m** (Mandatory), dynamic behavior of this Element of Service is either **m1** or **m2**.
If the Static Conformance for the sender side is **i** (Out of Scope) or **-** (Not Applicable), the dynamic behavior of this Element of Service is **x**.

If the Static Conformance for the sender side is **o** (Optional) or **c** (Conditional), the dynamic behavior of this Element of Service classified as **c1**, or **c2** in Table 4 is determined by the implementation option of the sender side. This behavior is indicated in each part of ISO/IEC ISP 12069 as **c1** or **c2**. In the actual communication, the dynamic behaviors **c1** and **c2** are replaced by either **m1**, **m2**, or **x** depending on the value of condition.

Table 4 - Conditions for the dynamic behavior

Support Class	Descriptions
c1 (Conditional 1)	an implementation shall be able to generate and use the Element of Service at the condition which is specified by the DFR user, not by the base standards.
c2 (Conditional 2)	an implementation shall be able to generate and use the Element of Service at the condition which is defined by the agreement between the implementation systems. The condition shall be negotiated by the system administrations and shall be described.

The classification relationships between static capability and dynamic behavior are the following.

Table 5 - Relation between Static and Dynamic Conformance capabilities.

Static Sender Capability	Static Receiver Capability	Dynamic Capability
m (Mandatory)	**m** (Mandatory)	**m1** (Mandatory 1)
		m2 (Mandatory 2)
o (Optional)	**o** (Optional)	**c1** (Conditional 1)
o (Optional)	**m** (Mandatory)	**c1** (Conditional 1)
c (Conditional)	**c** (Conditional)	**c2** (Conditional 2)
c (Conditional)	**m** (Mandatory)	**c2** (Conditional 2)
i (Out of Scope)	**i** (Out of Scope)	**x** (Excluded)
- (Not Applicable)	- (Not Applicable)	

Note 1: **c1**: **m1**, **m2** or **x**
c2: **m1**, **m2** or **x**

2: The combination (**m**, **o**) and (**m**, **c**) may lead to the failure of performing desired functionality between DFR-Server and its client. Therefore, these combinations are not allowed.

4 Abbreviations

For the purposes of ISO/IEC 12069, the abbreviations defined in the referenced base standards and the following abbreviations apply.

ADF: Application profile for Document Filing and Retrieval
DOR: Distinguished Object Reference
ISP: International Standardized Profile
OSI: Open Systems Interconnection
PDU: Protocol Data Unit

5 Conformance

Conformance requirements are specific to each DFR Profile. They are specified in the other parts of ISO/IEC ISP 12069. There is no conformance requirements common for all DFR Profiles other than stated in section 6.

6 Basic Requirements

Annex A specifies the basic requirements for support of DFR Element of Service for conformance to ISO/IEC ISP 12069. These basic requirements are independent of the DFR Profile.

7 DFR Taxonomy

7.1 Rationale for DFR Function Profiles

Function standards for ISO/IEC 10166:1991 DFR are required in order to satisfy the market needs of interactive access to documents stored in office and library systems. This approach covers the most urgent needs of open document interchange for the office systems in the market today.

The market requires open access to office libraries and archives in a heterogeneous environment, i.e. interchange of documents across domains using open standards. Existing products are specially designed for the needs of their application areas. Therefore they support only parts of the basic DFR functionality, however, providing extended functionality for the domain they are designed for. In order to ensure a DFR based integration of these products in a heterogeneous office, joint Function subsets of DFR have to be defined.

The functionality covered by DFR is currently implemented by a wide variety of products supporting a subset of the DFR functionality, namely:

- access to manuals and on line help
- access to project documentation
- document archives and retrieval systems
- databases tailored for the storage of images or forms
- distributed file systems

DFR Function standards provide the common subset of the different systems - offering a unified access protocol to these different applications, flexible enough to provide the functionality concerned with the storage and archiving requirements of the different office systems.

7.2 Common Filing and Retrieval (ADF1n)

In many offices, some document stores and terminals such as personal computers are connected by network. However, one terminal can not access to all document stores on the network, because there are many kinds of protocols between document stores and terminals. The market needs interactive access to all multi-vendors' document stores on the network. Therefore, DFR Function standards are required in order to satisfy the market needs.

Common Filing and Retrieval profiles (ADF1) are defined to satisfy this requirement, and contain three different profiles, namely ADF11, ADF12, and ADF13. ADF11, ADF12, and ADF13 are defined hierarchically with ADF11 having the lowest functionality and ADF13 the highest. All the functions provided by ADF11 are provided by ADF12 and all functions provided by ADF12 are provided by ADF13.

7.2.1 Read Only (ADF11)

The DFR operations included in this profile allow only to retrieve stored documents or to search for documents, but they do not allow to store new information or to change it.

In the read-only application stored documents may be retrieved by users of the DFR service. The documents are locally created by a special group of users, e.g. by using image readers, through operations which are outside the scope of this profile.

Examples for this application are access to manuals, on-line help information or project documentation. As these users only want to read information simple hardware is required, e.g. no image scanner. Typical storage media are CD-ROMs, WORM disks, or hard disks.

7.2.2 Archiving(ADF12)

The DFR operations included in this profile allow to store new documents, to read them, but they do not allow changes to stored information at all.

In the archiving application area long term archiving documents may be created by all users of the DFR service, however, a stored document may not be changed by any user during the lifetime of the store. Only a special group of authorized administrators is responsible for modifying or deleting stored information (by operations which are outside the scope of this profile).

Examples for this application are office archives, the storage of contracts or legal documents, images or medical information that must be stored provable unmodified in the system for a certain period of time. Typical storage media are WORM disks, magneto-optical disks or hard disks.

7.2.3 Document Store Manipulation (ADF13)

The DFR operations included in this profile allow to create, read, copy, move, modify and reserve documents and other objects.

In the document store manipulation application area, documents and other objects of the document store may be retrieved, stored and modified by users of the DFR service. This includes handling the concurrent access control and the structure of the document store.

Examples for this application area are a distributed office environment where people are jointly working together having concurrent access and manipulation of a common office library, or remote administration facilities for reorganizing the library. Typical storage media are magneto-optical disks or hard disks.

7.3 Remote Store Management(ADF2n)

There is a need of having Function profiles oriented to the management of a document store from remote applications.

A clear example of this kind of application is when a user is provided with the ability to handle a document store and manipulate, remotely, a selected document. For the selection of the document and the handling of the store, DFR is needed. For the inner manipulation of the documents, a second standard for inner manipulation of the document is necessary. For example, if documents follow the ODA standard structure, the ODA Abstract Interface for Manipulation, combined with a communication mechanism, could be used.

The "Remote Store Management" profiles are oriented towards:

- remote manipulation of the remote store structure, without reading documents or creating new ones, because all document manipulation is performed at the server;

- remote handling of DFR objects for further manipulation of selected documents by other applications that know the structure of the document.

Remote Store Management profiles (ADF2) are defined to satisfy these requirements and contain two profiles, namely ADF21 and ADF22. ADF21 and ADF22 are defined hierarchically with ADF21 having lower functionality than ADF22. All the functions provided by ADF21 are provided by ADF22.

7.3.1 Simple Management(ADF21)

This profile provides list and search functions to support other document handling applications.

Simple document manipulation applications may only need a minimum DFR functionality such as the selection of the document in which manipulations will be performed. The "Simple Remote Store Management" profile provides this minimum functionality.

7.3.2 Full Management(ADF22)

This profile provides list, search and manipulation functions to support other document handling applications.

For more complex applications that combine document manipulation with document store handling, more powerful functionality is needed, such as the ability to list, search, copy, delete, move and modify documents. In this case, the "Full Remote Store Management" profile should be used.

8 Function Groups

Annex A specifies any additional requirements for support of DFR Element of Service if support of an optional Function Group is claimed. The following clauses summarize the functionality supported by each optional Function Group and identify any particular requirements or implementation considerations which are outside the scope of formal conformance to ISO/IEC ISP 12069.

8.1 Abandon

Each DFR Abstract Operation may be either synchronous or asynchronous. If DFR Abstract operations are issued asynchronously, it is possible to Abandon outstanding operations. In addition, DFR Abandon Abstract Operation can be used to terminate an outstanding DFR Abstract Operation which is pending in the DFR-Server by using DFR continuation mechanism. This optional Function group allows to abandon the