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Information processing systems – Open Systems Interconnection – File Transfer, Access and Management –

Part 2 :
Virtual Filestore Definition

AMENDMENT 2 : Overlapped access

Systèmes de traitement de l'information – Interconnexion de systèmes ouverts – Transfert, accès et gestion de fichiers –

Partie 2: Définition du système de fichiers virtuel

AMENDEMENT 2 : Chevauchement d'accès

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

Amendment 2 to International Standard ISO 8571-2:1988 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*.

ISO 8571 consists of the following parts, under the general title *Information processing systems – Open Systems Interconnection – File Transfer, Access and Management*:

- *Part 1 : General introduction*

- *Part 2 : Virtual Filestore Definition*

- *Part 3 : File Service Definition*

- *Part 4 : File Protocol Specification*

- *Part 5 : Protocol Implementation Conformance Statement Proforma*

Information processing systems – Open Systems Interconnection – File Transfer, Access and Management –

Part 2 :
Virtual Filestore Definition

AMENDMENT 2 : Overlapped access

0 Introduction

Clause 0 provides an introduction to this amendment. The text in this clause is not intended for inclusion in ISO 8571 part 2.

0.1 General

ISO 8571 part 2 defines an abstract model of the virtual filestore for describing files and filestores. Sets of actions are defined that may be used to manipulate the elements of this model, and the properties of individual files and associations are defined in terms of attributes.

This amendment extends these definitions to incorporate the concepts of overlapped access.

0.2 Rationale

The objective in introducing overlapped access is to allow more efficient access to structured files when a single initiator has a need to perform many reading and updating operations; the serial nature of the current FTAM data transfer services introduces a significant control overhead if the FADUs are small. In this context, an FADU is small if its transmission time is comparable with the time to complete a confirmed service on the association (the association's round trip delay).

0.3 Summary

The current design envelope that there should be at most one file selection per association and one file open per file selection is maintained. If access to more than one file is to be overlapped, more than one association is necessary, The overlapped access takes place within a constant set of presentation contexts established as at present when the file is opened, or previously.

Two different degrees of overlap have been identified. Firstly, requests for future accesses may be issued whilst a previously requested BDT action is in progress, allowing the creation of a queue of read and write requests. In general, PCI relating to a given BDT action may be overlapped with other BDT actions, subject to restrictions; this is called consecutive overlap. Secondly, read and write actions can be performed in parallel, so that both directions of data transfer are exploited at any one time. Requests are then taken from the queue whenever either direction of transfer becomes free. This is called concurrent access.

The transfer of a single FADU, specified in a single F-READ request has the same interpretation as in ISO 8571. The resultant effect on the virtual filestore of a set of overlapped requests using consecutive access shall be the same as that of the equivalent set of requests issued in series; the service provided is serializable. If concurrent access is used then the resultant effect of a set of write actions on the virtual filestore, is also serializable. However, due to the non-determinism introduced by the use of concurrent access, it is also possible that in some uses of the service, the data transferred as a result of a read action is not consistent with the current state of the file.

1 Scope and field of application

This amendment makes no additions to clause 1.

2 References

This amendment makes no additions to clause 2.

3 Reference model definitions

This amendment makes no additions to clause 3.

4 Service conventions definitions

This amendment makes no additions to clause 4.

5 FTAM Definitions

This amendment makes no additions to clause 5.

Section one: The filestore model

6 File selection

This amendment makes no additions to clause 6.

7 File structures

7.6 Identification structure

Add last paragraph:

If concurrent access is in use then the current locations for read and write actions are independent. The semantics of the FADU identifiers previous, current and next, are dependent on the action to be performed.

8 Actions on files

Add last sentence to note 4:

If concurrent access is in use then the effects of a set of read actions, and of a set of write actions, are independently serializable. However, the data transferred as a result of a read action may not be consistent with the current state of the file in some situations.

9 Attributes

This amendment makes no additions to clause 9.

2

Section two: Actions on the Filestore

10 Actions on complete files

This amendment makes no additions to clause 10.

11 Actions for file access

11.1 Locate

Insert second paragraph

If concurrent access is in use then separate FADUs may be located for read and write operations.

11.6 Erase

Insert second paragraph

If concurrent access is in use then the operation may be used to erase the FADU currently located for either read or write operations.

NOTE - In concurrent access, if either the read or write current location is not within the erased FADU then that location remains unaffected.

Section three: Attribute definitions

12 File attributes

This amendment makes no additions to clause 12.

13 Activity attributes

13.4 Current location

Amend first sentence of first paragraph:

The current location is a vector attribute that indicates the current position within the file.

Insert as second paragraph:

If concurrent access is not in use then the attribute only contains a single element. If concurrent access is in use then the attribute contains two elements corresponding to the locations that are maintained for the read and write actions.

Amend first sentence of third paragraph:

The values of the elements may be either, ...

Insert clause and re-number:

13.6 Current degree of overlap

The current degree of overlap attribute is a scalar attribute. It indicates the degree of overlapped access that is in use in the open regime. The value of the attribute is an integer.

The scope of the current degree of overlap attribute is the open regime.

Table 4 - Activity attributes

Attribute	Type	Minimum Attribute Range
Current access request	boolean vector	see note
Current initiator identity	GraphicString	1 to 8 characters
Current location	vector of Node-Descriptor-Data-Element	see note
Current processing mode	boolean vector	see note
Current degree of overlap	integer	see note
Current calling application entity title	application entity title	No minimum required
Current responding application entity title	application entity title	No minimum required
Current account	GraphicString	1 to 8 characters
Current concurrency control	vector of enumeration	see note
Current locking style	boolean	No minimum required
Current access passwords	GraphicString or OCTET STRING	0 to 8 characters or octets

NOTE - No minimum range can be specified for this activity attribute. The values which this attribute can take depends on the capabilities of the initiator and responder and may be further restricted by the constraint set in use, and/or the permitted actions file attribute, and/or the access control file attribute, and/or the degree of overlap.