

INTERNATIONAL STANDARD

ISO
8571-3

First edition
1988-10-01



INTERNATIONAL ORGANIZATION FOR STANDARDIZATION
ORGANISATION INTERNATIONALE DE NORMALISATION
МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ

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

Part 3 : File Service Definition

*Systemes de traitement de l'information — Interconnexion de systemes ouverts — Gestion,
accès et transfert de fichier —*

Partie 3 : Définition du service de transfert de fichier

Reference number
ISO 8571-3 : 1988 (E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 8571-3 was prepared by Technical Committee ISO/TC 97, *Information processing systems*.

Users should note that all International Standards undergo revision from time to time and that any reference made herein to any other International Standard implies its latest edition, unless otherwise stated.

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*

Annexes A, B, C, D and E form an integral part of this International Standard.

Contents	Page
0 Introduction	1
1 Scope and field of application	1
2 References	1
3 Definitions	2
4 Abbreviations	2
5 Conventions	2
Section one: General	
6 Model of the file service	3
6.1 File service provider and file service users	3
6.2 File service levels	3
6.3 Regimes of the file service	4
7 Services of the file service	4
7.1 FTAM regime control	4
7.2 Filestore management	4
7.3 File selection regime control	4
7.4 File management	5
7.5 File open regime control	5
7.6 Grouping control	5
7.7 Access to file content	5
7.8 Bulk data transfer	5
7.9 Recovery	5
7.10 Checkpointing and restarting	5
8 Functional units and service classes	5
8.1 Functional units	5
8.2 Service classes	6
8.3 Application Entity roles	8
9 Levels of file service	8
10 Negotiation of service class, FTAM QoS and functional units	9
10.1 Service Class	9
10.2 FTAM Quality of Service	9
10.3 Functional units	9
Section two : Definition of file service primitives	
11 File service primitives	11

12 Sequences of primitives.....	11
12.1 Normal sequences	11
12.2 Constraints on the issue of primitives	11
12.3 Conventions	14
12.4 Confirmed Services.....	20
13 Common file service parameters	20
13.1 State result	20
13.2 Action result	20
13.3 Account	20
13.4 Charging.....	20
13.5 Attributes	20
13.6 Requested access.....	20
13.7 Access Passwords	21
13.8 Concurrency Control	21
13.9 FADU Lock.....	21
13.10 Shared ASE information.....	21
13.11 Activity Identifier	21
13.12 File Access Data Unit Identity	21
13.13 Diagnostic	22
14 FTAM regime control	23
14.1 FTAM regime establishment service.....	23
14.2 FTAM regime termination service (orderly).....	26
14.3 FTAM regime termination service (abrupt).....	26
15 File selection regime control	27
15.1 File selection service	27
15.2 File deselection service	28
15.3 File creation service	28
15.4 File deletion service	30
16 File management	31
16.1 Read attribute service	31
16.2 Change attribute service	31
17 File open regime control	31
17.1 File open service	32
17.2 File close service.....	33

18	Grouping control	34
18.1	Beginning of grouping service	34
18.2	End of grouping service	35
19	Recovery (Internal service only)	35
19.1	Regime recovery service	35
20	Access to file contents	36
20.1	Bulk data transfer service	36
20.2	Locate file access data unit service	36
20.3	Erase file access data unit service	37
Section three: Definition of bulk data transfer primitives		
21	Bulk data transfer service primitives	38
22	Sequences of bulk data transfer primitives	38
22.1	Normal sequences	38
22.2	Constraints on issue of primitives	38
23	Common bulk data transfer parameters	44
23.1	Bulk Data Transfer Specification	44
23.2	Checkpoint Identifier	44
24	Bulk data transfer	44
24.1	Read bulk data service	44
24.2	Write bulk data service	44
24.3	Data unit transfer service	44
24.4	End of data transfer service	45
24.5	End of transfer service	45
24.6	Cancel data transfer service	45
24.7	Sequence of primitives on write	46
24.8	Sequence of primitives on read	46
25	Checkpointing and restart (Internal BDT Service Only)	46
25.1	Checkpointing service	46
25.2	Restarting data transfer service	47

Annexes

A	Diagnostic parameter values	48
B	Relation of attributes to primitives.....	53
C	File transfer with commitment control	55
D	Reference to FTAM control information.....	58
E	State transition diagrams	59

Figures

1	Service Levels	3
2	File service regimes and related primitives.....	4
3	Simplified State Diagram for successful activity (see Annex E)	13
4	Confirmed service	20
5	F-U-ABORT service	27
6	F-P-ABORT service	27
7	F-P-ABORT collision.....	27
8	Simplified State Diagram for Bulk Data Transfer (see Annex E)	39
9	Sequence of primitives on write	46
10	Sequence of primitives on read	47
11	State Transition Diagram for Association Establishment (Initiator).....	60
12	State Transition Diagram for Association Establishment (Responder)	61
13	State Transition Diagram of the File Regime Establishment Service (Initiator)	62
14	State Transition Diagram for Grouped Sequences (Initiator).....	63
15	State Transition Diagram of the File Regime Establishment Service (Responder)	64
16	State Transition Diagram for Grouped Sequences (Responder).....	65
17	State Transition Diagram for the Bulk Data Transfer Service (Initiator).....	66
18	State Transition Diagram for the Bulk Data Transfer Service (Responder)	67

Tables

1	Services and functional units of the External File Service	7
2	Services and functional units of the Internal File Service	7
3	Functional units in the file services	9
4	Service Class Combinations	9
5	Service Class Negotiation	10
6	File service primitives	11
7	Sequence of service primitives for FTAM regime establishment — initiator	15
8	Sequence of service primitives for FTAM regime establishment — responder	15
9	Sequence of service primitives for file service regimes — initiator	16
10	Sequence of service primitives for file service regimes — responder	18
11	F-INITIALIZE parameters	24
12	F-TERMINATE parameters	26
13	F-U-ABORT parameters	26
14	F-P-ABORT parameters	26
15	F-SELECT parameters	27
16	F-DESELECT parameters	28
17	F-CREATE parameters	29
18	F-DELETE parameters	30
19	F-READ-ATTRIB parameters	31
20	F-CHANGE-ATTRIB parameters	32
21	F-OPEN parameters	32
22	F-CLOSE	34
23	F-BEGIN-GROUP parameters	35
24	F-RECOVER parameters	35
25	BDT read sub-parameters	36
26	BDT write sub-parameters	36
27	Access contexts	36
28	F-LOCATE parameters	37
29	F-ERASE parameters	37
30	Bulk data transfer service primitives	38
31	Sequence of service primitives for bulk data transfer — initiator	40
32	Sequence of service primitives for bulk data transfer — responder	42
33	F-READ parameters	44

34 F-WRITE parameters.....	44
35 F-DATA parameters.....	45
36 F-DATA-END parameters.....	45
37 F-TRANSFER-END parameters.....	45
38 F-CANCEL parameters.....	46
39 F-CHECK parameters.....	47
40 F-RESTART parameters.....	47
41 Error types.....	48
42 Sources and observers of errors.....	48
43 General FTAM diagnostics.....	49
44 Protocol and supporting service related diagnostics.....	49
45 Association related diagnostics.....	50
46 Selection related diagnostics.....	50
47 File management related diagnostics.....	51
48 Access related diagnostics.....	51
49 Recovery related diagnostics.....	52
50 File attributes.....	53
51 Activity attributes.....	54
52 File service primitives associated with CCR primitives.....	56
53 FTAM Primitives with Shared ASE Information parameters.....	56
54 Composite FTAM actions.....	57

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

Part 3 : File Service Definition

0 Introduction

ISO 8571 is one of a set of International Standards produced to facilitate the interconnection of computer systems. It is related to other International Standards in the set as defined by the Reference Model for Open Systems Interconnection (ISO 7498). The Reference Model subdivides the area of standardization for interconnection into a series of layers of specification, each of manageable size.

The aim of Open Systems Interconnection is to allow, with a minimum of technical agreement outside the interconnection standards, the interconnection of computer systems

- a) from different manufacturers
- b) under different managements
- c) of different levels of complexity
- d) of different ages.

ISO 8571 defines a File Service and specifies a File Protocol available within the application layer of the Reference Model. The service defined is of the category Application Service Element (ASE). It is concerned with identifiable bodies of information which can be treated as files, which may be stored within open systems or passed between application processes.

ISO 8571 defines a basic file service. It provides sufficient facilities to support file transfer, and establishes a framework for file access and file management. ISO 8571 does not specify the interfaces to a file transfer or access facility within the local system.

It is recognised that, with respect to Communication Quality of Service, (described in 14.1.2.16), work is still in progress to provide an integrated treatment of quality of service across all of the layers of the OSI Reference Model and to ensure that the individual treatments in each layer service satisfy overall quality of service objectives in a consistent manner. As a consequence, an addendum may be added to this International Standard at a later time which reflects further quality of service developments and integration.

ISO 8571 consists of the following four parts.

- Part 1: General introduction
- Part 2: Virtual Filestore definition
- Part 3: File Service definition
- Part 4: File Protocol specification

This part of ISO 8571 contains the following annexes which form part of the standard.

- Annex A - Diagnostic parameter values
- Annex B - Relation of attributes to primitives
- Annex C - File transfer with commitment control
- Annex D - Reference to FTAM control information
- Annex E - State transition diagrams

1 Scope and field of application

This part of ISO 8571 defines in an abstract way the externally visible file transfer, access and management service within the OSI Application Layer in terms of:

- a) the primitive actions and events of the service;
- b) the parameter data associated with each primitive action and event;
- c) the relationship between, and the valid sequences of, these actions and events.

The service defined in ISO 8571-3 is that which is provided by the OSI file transfer, access and management protocol ISO 8571-4 in conjunction with the Association Control Service Elements ISO 8649 and with the Presentation service ISO 8822.

ISO 8571-3 does not specify individual implementations or products, nor does it constrain the implementation of entities and interfaces within a computer system. There is, therefore, no conformance to this part of ISO 8571.

2 References

ISO 7498, *Information Processing Systems - Open Systems Interconnection - Basic Reference Model*.

ISO/TR 8509, *Information Processing Systems - Open Systems Interconnection - Service Conventions*.

ISO 8571, *Information Processing Systems - Open Systems Interconnection - File transfer, access and management*.

- Part 1: General introduction.
- Part 2: Virtual Filestore definition.
- Part 4: File Protocol specification.

ISO 8649, *Information Processing Systems - Open Systems Interconnection - Service definition for the Association Control Service Element*.

ISO 8822, *Information Processing Systems - Open Systems Interconnection - Connection-oriented presentation service definition*.

ISO 8831, Information Processing Systems -Open Systems Interconnection - Job Transfer and Manipulation Concepts and Services.

ISO 9804, Information Processing Systems -Open Systems Interconnection - Definition of Application Service Elements - Commitment, Concurrency and Recovery.¹⁾

ISO 9805, Information Processing Systems -Open Systems Interconnection - Specification of protocols for Application Service Elements - Commitment, Concurrency and Recovery.¹⁾

¹⁾ At present at the stage of draft; publication anticipated in due course.