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Foreword

This European Telecommunication Standard (ETS) was produced by the Terminal Equipment (TE) Technical Committee of the European Telecommunications Standards Institute (ETSI).

This ETS aims to meet the urgent need for a standardized simple file transfer protocol as expressed by the European ISDN Users Forum (EUIF), ISDN MOU Implementation and Management Group (IMIMG) and the ISDN Management and Co-ordination Committee (IMCC).

Proposed transposition dates	
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1 Scope

This ETS specifies the usage of all protocols and supplementary services for file transfer based on ETS 300 075 [1] over the ISDN (which within this ETS is identified as EUROFILE).

The purpose of this ETS is to select the facilities offered by the ETS 300 075 [1] file transfer and ETS 300 079 [2] end-to-end protocol, to provide requirements for Correspondent PhoneBook, LogBooks and services facilities offered to the user and to select the lower layers protocols parameters offered by ETS 300 080 [3].

2 Normative references

This ETS incorporates by dated or undated reference, provision from other publication. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revision of any of these publications apply to this ETS only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

[1] ETS 300 075: "Terminal Equipment (TE); Processable data, File transfer".

[2] ETS 300 079 (1991): "Integrated Services Digital Network (ISDN); Syntax-based videotex, End-to-end protocols, circuit mode DTE-DTE".

[3] ETS 300 080 (1992): "Integrated Services Digital Network (ISDN); ISDN lower layer protocols for telematic terminals".

[4] ISO/IEC 8073 (X.224): "Information technology - Telecommunications and information exchange between systems - Open Systems Interconnection - Protocol for providing the connection-mode transport service".

[5] ISO/IEC 8208 (1990): "Information technology - Data communications - X.25 Packet Layer Protocol for Data Terminal Equipment".

[6] ISO 7776 (1986): "Information processing systems - Data communications - High-level data link control - Description of the X25 LAPB - compatible DTE data link procedures".

[7] CCITT Recommendation X.75 (1984): "Packet switched signalling system between public networks providing data transmission services".

[8] CCITT Recommendation T.70 (1988): "Network independent basic transport service for the telematic services".

[9] CCITT Recommendation T.90 (1988): "Characteristics and protocols for terminals for telematic services in ISDN".

[10] ETS 300 102-1 (1990): "Integrated Services Digital Network (ISDN); User-network interface layer 3, Specifications for basic call control".

[11] CCITT Recommendation T.51 (1988): "Coded character sets for telematic services".

[12] prETS 300 409: "Integrated Services Digital Network (ISDN); Eurofile transfer teleservice, Service description".

[13] CCITT Recommendation V.42 bis (1990): "Data compression procedures for data circuiT-terminating equipment (DCE) using error correcting procedures".

[14] ETS 300 196-1, A1: "Integrated Services Digital Network (ISDN); Generic functional protocol for the support of supplementary services; Digital Subscriber Signalling System No. one (DSS1) protocol; Part 1: Protocol specification".

3 Definitions

For the purposes of this ETS, the following definitions apply:

Access Control List: List which consists of the rights of each caller (list of file operations offered and definition base accessible to the caller).

address: Data used to identify a user. The address consists of an ISDN number and, where appropriate, a sub-address.

base: Work space that contains the files available for use to the remote or local user.

called party: The party which should wait for calls and operations. It has a passive role and acts as a slave.

caller: The party which is the initiator of the call. It has an active role and is the master compared to the remote terminal. It inputs the requests for actions on files.

Correspondent PhoneBook: List which consists of the address and local base (optional) of every called terminal.

dynamic configuration: ProducT-level configuration which is accessible to the user.

EUROFILE: The teleservice whose technical description is given in this ETS.

extended directory: List of file names with detailed information for each file.

file operations: The options available to users as regards file transfer, i.e. Save file, Consult list of file names, Load file, Delete file, Rename file.

identifier: User identification (name and, where appropriate, password) which can be supplied during the call in order to indicate entitlements with regard to operations on files.

local files: Files from the local user.

LogBook: Record of communications.

message: Information transmitted from the user of the application transfer service with the T-Typed-data Telesoftware Data Unit (TDU) (see ETS 300 075 [1], subclause 4.1.4.8).

mnemonic: Indication which provides access points for a list of names (Correspondent, Identifier,..).

Mandatory coded parameter (Mand.cod.): ETS 300 075 [1] parameters which are mandatory in the TDU primitive.

Mandatory parameter (Mand.): EUROFILE parameter which is mandatory.

navigation: Facility with capability to manage the change of filestore of the remote terminal.

Optionally coded parameter (Opt.cod.): ETS 300 075 [1] parameters which are optional in the TDU primitive.

Optional parameter (Opt.): EUROFILE parameter which is optional.

product signature: Confidential data which can be exchanged by products during the call phase.

regime: A set of protocol phases; a regime is a continuous period of time. A regime is established by using a confirmed or optionally confirmed service and it is orderly terminated using a confirmed service, it may also be interrupted in an abnormal manner. A regime is fully defined by specifying the service(s) used to establish it and the service (s) used to terminate it. A regime is used in this description to limit the range of some services which may only be available during a particular regime.

remote files: Files from the correspondent.

single base facility: Mandatory facility, working on a single filestore of the remote terminal.

single directory: List of file names in ETS 300 075 [1] format.

static configuration: Configuration of the network connection parameters and ETS 300 075 [1] parameters.

transfer name: File name that is unique and not dependent on local file management systems.

4 Abbreviations

For the purposes of this ETS, the following abbreviations apply:

DU	Data Unit
EIUF	European ISDN Users Forum
FCS	File Check Sum
FTAM	File Transfer Access & Management
IMCC	ISDN Management and Co-ordination Committee
IMIMG	ISDN MOU Implementation and Management Group
Impl.	Implicity coded parameter
ISDN	Integrated Services Digital Network
LAN	Local Area Network
Mand.	Mandatory parameter
Mand. Cod.	Mandatory Coded parameter
Opt.	Optional parameter
Opt. Cod.	Optionally Coded parameter
TDU	Telesoftware Data Unit
TE	Terminal Equipment

5 Overview

The main purposes of this ETS are as follows:

- to define a standard file exchange service operating on ISDN;
- to specify end-to-end compatibility between terminals supporting such a service;
- to recommend minimum user interface common features so that users can adapt more easily to products from different manufacturers;
- to minimize the difficulties inherent to configurations so that users can access products that are easy to install and use.

6 Configurations

The EUROFILE profile takes into account different types of terminals:

- non-dedicated EUROFILE terminals (e.g. personal computer based multiservice terminals);
- file servers;
- multi-user system or multi access systems (e.g. Local Area Network (LAN)).

7 EUROFILE transfer teleservice

7.1 General

The service specified by this ETS is called EUROFILE.

EUROFILE is an ISDN teleservice, in which end-to-end compatibility between terminals is guaranteed and which supports file exchanges between different types of equipment.

End-to-end compatibility is one of the major objectives for EUROFILE.

Files are exchanged over one single B-channel at a rate of 64 kbit/s.

The dialogue between the two systems is based on the following ETSs:

- ETS 300 080 [3] (relating to the use of lower layers protocols);
- ETS 300 079 [2] (end-to-end protocol);
- ETS 300 075 [1] (Data file transfer).

This ETS specifies the profile of these ETSs and indicates the parameter choices that shall be made for the EUROFILE protocol and encoding system.

The rules applicable to the files shall follow those defined for the transferable files of telesoftware application in ETS 300 075 [1].

NOTE: The files have common rules for the naming as they are accessed by their transfer name, which is unique. This provides file independence compared with the various file management systems available and enables different file management systems to understand each other.

The lower layer configuration is defined in such a way that interoperability is provided between the two systems without configuration adjustment.

7.1.1 General functions provided

The mandatory specificationned in this ETS define **the minimum service** which shall be provided by any product which claims to be a EUROFILE prs contaioduct (see NOTE).

EUROFILE provides a **service for interactive communications and an optional minimum set of functions for automatic communications.**

The **file functions** implemented during a connection between two users are based on three basic functions, i.e. **file save**, the **file lists** (both remote and local), and **file load** and include, **optionally, a file delete function and file rename function (both remote and local).**

EUROFILE also covers the definition of **Management functions** such as **Configuration**, an **Access Control List**, a **Correspondent PhoneBook** and a **LogBook**.

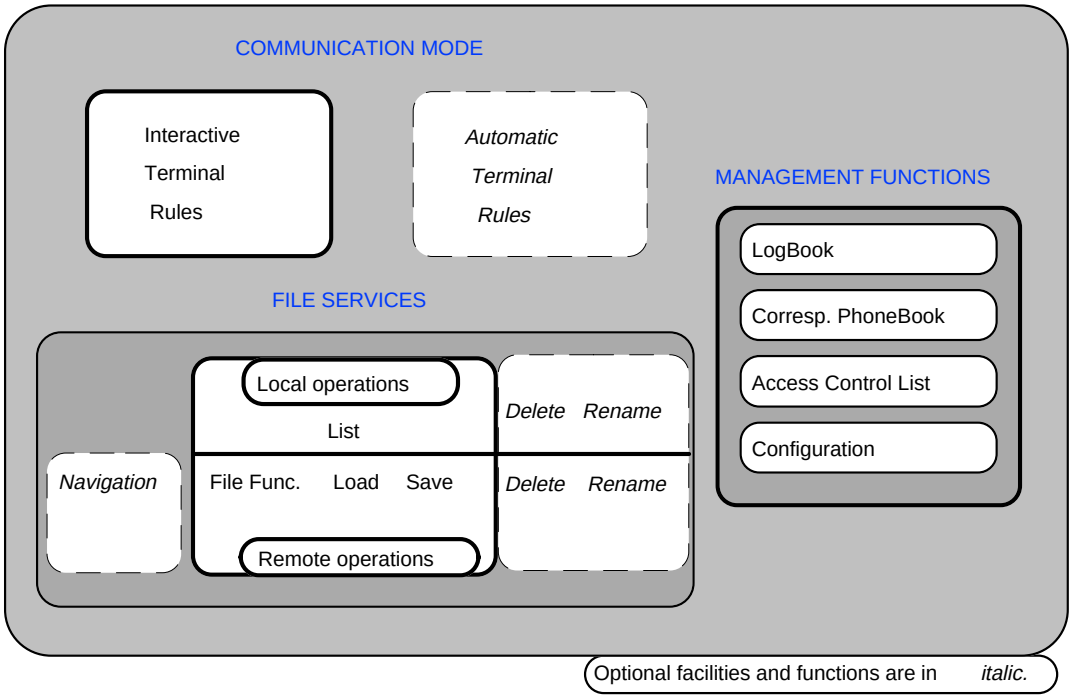


Figure 1: EUROFILE minimum services

As a default service, any incoming call shall always be reported to, and handled by, the application. Incoming calls may be refused or accepted according to the configuration and the exchanges in progress.

The EUROFILE application, in particular, shall always accept or reject calls once the communication is in progress. An answer to an incoming call (SBV_Establish_Indication of ETS 300 079 [2]) shall always be provided.

NOTE: However, EUROFILE products may also provide additional functions compliant with ETS 300 075 [1]. Such additional functions are outside the scope of this ETS.

7.1.2 Functions available in the interactive communication mode

A call is established between two end systems, one operating as a caller and the other as a called party.

The interactive communication mode requires, on the caller side, the presence of the user.

The called party does not necessarily require the user to be present.

The caller shall **establish the call**. It has an active role, i.e. it acts as the **master**. The caller is the one who requests file functions.

The called party is **waiting for calls** and file functions. It has a passive role, i.e. it acts as the **slave**.

The Master has access, as an initiator, to the following file functions:

- save, load, list and (optionally) delete, rename;

and also to the following functions:

- file transfer abort, communication abort and (optionally) navigation, message.

The slave has access, as an initiator, to the following functions:

- file transfer abort, communication abort and (optionally) message.

7.1.3 Functions available in the automatic communication mode

Within this mode the caller shall communicate automatically and shall not require the presence of the user.

Terminals supporting this mode shall also support the recovery mechanism (see ETS 300 075 [1], subclause 4.1.2.4.2).

This mode shall be used to define a complete communication session in advance.

Automatic communication mode allows the manipulation (i.e. Create and Delete...) of automatic sessions.

An automatic session contains:

- a list of correspondents;
- a list of functions (save, load, file list) and the associated files (files being selected with criteria to select a subset of the filestore);
- a date and time of execution (relative or real).

The other Delete File and Rename File functions are optional.

The automatic sessions may be initiated immediately or at a later time.

The service shall provide an optional **presentation file** associated with the files transmitted to provide information on the files (Group B file as defined in the telesoftware application by ETS 300 075 [1]). Presentation files associated with the files loaded or saved, if used, and the service for consultation of these files, shall be used to add presentation information to these files.

Specific mechanisms shall be included in the application to **recover** from failure or incident during an operation or a call. These mechanisms shall be described in the configuration files as:

- maximum number of possible retries for an unsuccessful communication session;
- maximum number of possible retries for an unsuccessful call;
- delay between two retries;
- use of Recovery;
- date and time of execution.

This list is not exhaustive.

These events shall not block the operation, for any reason.

7.1.4 File functions

The file functions shall be accessible when the access regime is established (see ETS 300 075 [1]).

The minimum basic file functions between a caller and a called party which shall be supported are:

- save a file;
- access to the remote simple file directory;
- load a file;
- file transfer abort;
- access to the local list of files.

Optionally, the file functions supported are:

- delete a remote file;
- rename a remote file;
- navigation commands;
- access to an extended file directory, which contains detailed data relating to the files;
- delete a local file;
- rename a local file.

NOTE: When a file is accepted by the remote peer entity, the service contents are also assumed to be accepted (e.g. a simple directory file accepted is assumed to have a correct syntax).

7.1.5 Management functions

A user shall have access, at least when there is no communication in progress, to the following functions:

- **the Configuration function** shall be accessible at least to read the network parameters and protocol parameters;

- **the Logbook function** shall be accessible at least to read the trace of any communication event or any communication incident;

- **the Correspondent PhoneBook function** shall be accessible for management (Create, Modify or Delete a correspondent) and shall provide characteristics of correspondents to be called (Network Address and optionally local working filestore);

- **the Access Control List function** shall be accessible for management (Create, Modify or Delete an identifier), and shall provide characteristics and functions of correspondent accepted as callers (Identifier, authorizations granted, mandatory working area and, if necessary, navigation working area).

7.2 Use of the regimes

7.2.1 Phases and rules of a communication session

This subclause describes the use of the regimes (as defined in ETS 300 075 [1]) to establish a communication session.

The EUROFILE service shall provide a mechanism to automatically process the appropriate exchanges to establish an access regime by means of the connection and start of data exchange (see ETS 300 079 [2], subclauses 7.2.1, 7.2.2 and 7.3.3) and association and access TDUs (see ETS 300 075 [1]).

If the automatic communication is a supported service, the application shall provide a mechanism to process automatically the appropriate exchanges to establish an access regime, use the needed file services and release the communication.

These mechanisms shall use the information available in the Correspondent PhoneBook.

7.2.1.1 Connection

In order to establish a communication, the user calls a correspondent.

The address of the correspondent (ISDN number and, where appropriate, sub-address) can be supplied directly, or indirectly, by the Correspondent PhoneBook.

The caller terminal shall issue a SBV_Establish_Request (see ETS 300 079 [2], subclause 7.2.1), the called terminal receives a SBV_Establish_Indication.

The caller terminal remains waiting for an SBV_Establish_Response, as long as the inactivity timeout has not run out.

An answer to a SBV_Establish_Indication shall always be provided.

An application selection criteria, during an interim period based only on user data, shall be provided as described in annex A. Additional selection mechanisms may also be provided.

7.2.1.2 End-to-end protocol

The caller terminal shall issue a SBV_TPD_BEGIN_Request, the called terminal receives a SBV_TPD_BEGIN_Indication (see clause 9 of this ETS).

7.2.1.3 Association

The user can choose whether or not to identify himself to his correspondent. The transmission of an identifier shall not be mandatory.

The identifier consists of two keywords, the name and the password. The identifier may be supplied directly or take an optional default value. Both may be allocated to a user in advance and then be used later on during the communications between the caller and the called party correspondents.

This identifier is used by the called party to accept or refuse incoming calls. This enables a user to make use of his own capabilities over a called party from any terminal.

a) Use of identifier by the caller

The caller may supply his name, password or both at the start of the call.

If the identifier is not transmitted during the call or not listed in the remote Access Control List, the **caller shall not be identified**.

The user may enter a name and a password: these given values shall be used for requesting the association regime instead of any default values.

b) Use of identifier by the called terminal

When an association request is received, **the called party may accept or refuse the association depending on the identifier received.**

It shall be the responsibility of the application to define the access entitlements to file functions associated with a caller not identified (unknown identifier or no identifier).

If the Access Control List does not grant entitlement (no entitlements to file functions) to callers who have not been identified, the received **identifier shall not be accepted**, that is to say the call shall not be accepted.

A refusal on the grounds of an unaccepted identifier shall produce a negative response to the caller request and the cause shall be indicated ("identifier rejected"). The caller application shall then proceed with the release of the communication or with another association request. If connection release does not follow the negative response, the called party and the caller application shall provide a mechanism to allow a maximum number of retries of the association request.

c) Use of application name

The application name used in EUROFILE shall be coded "!K".

If the remote entity refuses the application name because of an "unknown application name", a fallback mode may be used. This mode is outside the scope of this ETS.

d) Use of Calling Address and Called Address

The use of this data is private. However, it should not result in reactions that are contrary to the EUROFILE specifications.

7.2.1.4 Access

The identifier supplied by the caller shall be used by the called party to define access entitlements to file functions.

The caller shall be informed about the functions which are available.

The identifier shall be used to define, locally, the remote filestore available to the caller.

For all accepted calls, a minimum function shall be provided, that is at least one of the basic functions such as file save, file load or the access of the file list.

In addition, the message function may be provided.

If the file delete, file rename or message functions do not exist in the called party, the called party shall explicitly indicate in the response that these functions as not available.

This access phase may be used to indicate the capabilities of the caller and the called party.

7.2.1.5 Abort and release

This phase covers the cleardown of the access regime and the end of the association regime.

This phase is accessible through the communication abort function.

The normal and abnormal termination of the association regime shall cause the end of the data exchange in transparent mode using SBV_TPD_End or the re-use of the association regime if the user is the initiator.

Whatever the called party, or caller mode, the end of the inactivity time-out shall be indicated by the transmission of a T-Abort caused by "delay expired".

7.2.1.6 End of data exchange and hang-up

This phase covers the end of the data exchange regime and the release of the communication described in ETS 300 079 [2].

This phase is accessible through the communication abort function.

The normal and abnormal termination of the data exchange regime shall cause the end of the communication using SBV_Release or the re-use of the data exchange regime if the user is the initiator.

7.2.1.7 Access regime

The functions not provided by the called party shall be explicitly inhibited to the caller who shall not, under any circumstances, be able to activate them at the user interface level.

The interrupt of a current transfer by the user shall result in a file transfer abort and the return of the "user abort" indication. This interrupt shall not affect the call or the following transfers in the case of a multiple request.

The functions provided by the master and the slave are:

a) File Transfer Abort

At any time during a file transfer operation (transmitting or receiving), the master and, optionally, the slave shall be able to interrupt the operation. This interrupt has no effect either on the communication or on the following transfers in case of a multiple request.

b) Communication abort

A user shall be able to interrupt a call at any time. If an operation is underway, a confirm request indication is displayed. The confirmation interrupts the current function and terminates the established call.

If the communication is interrupted during the transfer phase, the file transfer is aborted and a "user abort" indication shall be displayed. The application shall then continue with the connection release function.

c) Message

This function is optional. If supported, the message function shall be possible during the access regime.

The functions provided by the master, and only accessible to the master, are based on file functions.

The files are accessible through their transfer names.

Multiple requests on files as formulated by the user (i.e. Save or Load or Rename or Delete several files) shall be managed automatically. The transfer primitives are still carried out on a file-by-file basis.

An incident on one of the files concerned by the request shall not require user intervention to continue the operation.

The following functions are also subject to authorization by the remote correspondent:

1) Save one or more files (single or multiple requests)

The transfer name(s) shall be selected from the list of files in the local filestore or shall be entered by the user.

A save request for which the transfer name already exists in the receiving entity shall be refused by the receiving entity if the dynamic configuration parameter "Overlay existing files" is set to NO. Otherwise the request shall be accepted (the existing file may already have been stored under another transfer name).

2) List the names of remote files

The funtion allows the files from the remote filestore or a subset of the remote filestore to be requested.

The criteria for the selection of this subset shall be available to the user. The syntax is unrestricted at the user interface level; the syntax transmitted online shall comply with ETS 300 075 [1] (subclause 5.7).

Incoming data shall be displayed and contain at least the transfer name and the file size. As an optional function, if accepted by the remote peer entity, this data shall be more detailed within an extended directory function.

3) Load one or more remote files (single or multiple requests)

The transfer name(s) shall be selected from the list received in response to the file list request or shall be entered by the user: both options shall be available.

4) Delete one or more remote files (single or multiple requests)

The transfer name(s) shall be selected from the list received in response to the file list request or shall be entered by the user: both options shall be available.

5) Rename one or more remote files (single or multiple requests)

The original transfer name(s) shall be selected from the list received in response to the file list request or shall be entered by the user: both options shall be available.

The new names shall be entered by the user.

A Rename request containing a new transfer name that already exists in the receiver shall be refused if the dynamic configuration parameter "Overlay existing files" is set to NO, otherwise the request shall be accepted.

7.2.2 Information exchanged between the service and the user

7.2.2.1 Data supplied to the users

This data shall be displayed automatically without user intervention.

The display may be masked temporarily, especially, in the automatic mode. In this case, a user action is required to reveal the information.

a) Display of a confirm request

If the user breaks an established communication, the initiator of the break shall provide a confirm request indication.

b) Display of the current status of exchanges

The current status of exchanges shall be displayed whatever the call status is.

The current status covers the following:

- call status: established call, current call, end of call, no current call;
- the name of the caller supplied by its identifier;
- the current operation, at least for file transmissions.

c) Display of file transfer operations

The current file transfer operation shall be displayed in the established call status during the actual file transfer.

It enables the user to estimate the duration of the transfer.

d) Indication of inactivity on an established communication

A user indication shall be provided if the inactivity time-out runs out.

e) Result code for operations completed successfully

The user may be informed of the success of the operation requested.

f) Indication of incidents

Refusals from the remote entity, transfer aborts by the remote entity, transfer aborts for any reasons, end-of-call at the initiative of the remote correspondent, local incidents (e.g. file access problems), end-of-call as a result of inactivity time-outs, end-of-call due to others reasons (protocol errors, network failure, etc.) shall be indicated to the local user.

g) Display of incoming messages

The display of incoming messages shall not affect the other operations.

7.2.2.2 Error codes

The error codes used online are those defined in subclause 7.2 of ETS 300 075 [1] to which are added other codes at the application level in order to give users the greatest possible amount of detailed information.

These additional codes are:

- "identifier rejected";
- "disk full";
- "file access impossible";
- "user interrupt of communication";

- "user abort";
- "extended format not available";
- "log access impossible";
- "compression format not supported";
- "incorrect recovery FCS";
- "coding error in compressed data".

7.3 Functions for files operations

7.3.1 Working area

The transfer operations are carried out between two filestores, the remote filestore and the local filestore.

When the slave accepts to setup an access regime, it shall offer a working area to the master. This working area contains the mandatory remote filestore.

The remote filestore, accessible to a given caller, contains the files offered by the called party to the caller. The remote filestore is defined in the Access Control List of the called terminal.

By default the local filestore corresponds to the caller's entire working area, otherwise the local filestore is defined in the Correspondent PhoneBook of called parties.

Files are described in each of the two filestores by a single name, the **transfer name,** which is independent of the local file management systems.

File operations are carried out, either in accordance with the mandatory working area, or in accordance with an optional service, the navigation facility.

If the navigation facility is not used, the caller has no knowledge of the structure of the remote working area.

If navigation facility is used, it is possible to take into account the structure of the remote working area.

By default, the facilities to access remote files shall not require navigation.

The facilities "list", "load", "delete", "rename" shall then apply to the mandatory remote filestore but the structure of the remote working area remains transparent.

Consequently, users of the "save" service do not know the exact storage location of the transmitted file stored in the remote filestore.

As an **optional** feature, and if the remote correspondent agrees to this type of system operation, **a navigation facility** into the structure of the remote working area may be offered**.**

The working area to which the file operations are applied are specific to the navigation facility.

7.3.2 Local files operations

The operations shall always be accessible.

The mandatory operations shall be:

1) list the names of local files

The service allows the files from the local filestore or a subset to be requested.

The criteria used to select this subset are entered by the user. The syntax is the same as the one used for the remote file names.

The list produced in this way shall be displayed.

The optional operations supported are:

2) delete one or more local files

The transfer name(s) shall be selected in the list of local files.

The transfer name(s) shall be selected in the list of files contained in the local filestore or shall be entered by the user: both options shall be available.

The user shall be able to select several files at the same time.

3) rename one or more local files

The original transfer name(s) shall be selected in the list of files contained in the local filestore or shall be entered by the user: both options are available.

The new names shall be entered by the user.

7.3.3 Files administration

For the purpose of file administration, the files are classified in three types: local files, incoming files and remote files.

The files are accessible and listed by their transfer names. The transfer name is unique within a filestore.

The requests for **local lists** shall be implemented at the user interface level using the same syntax as for remote lists. The format of local lists is unrestricted.

The data contained in incoming **remote lists** shall be at least displayed.

7.3.3.1 Local files

Local files are the files which are available for exchange with correspondents. Local filestores belonging to each correspondent and containing all or part of the files are defined optionally in the Correspondent PhoneBook.

If a local file is deleted on the basis of its transfer name, it is no longer accessible for exchanges with a correspondent.

If the transfer name of a local file is changed, the new name replaces the old name.

A practical implementation shall state the relationship between the transfer name and the physical file name.

7.3.3.2 Incoming files

Incoming files are saved, in the case of an Executor (subclause 4.1.2.2.4 of ETS 300 075 [1]), without their attributes (ETS 300 075 [1] header) in the saved file. Their local last update is the date included in the attributes of the file header.

It is up to the application to provide or not, a storage of the file header.

As soon as these files are received, they are considered as local files. They are listed under their transfer name locally and towards the correspondent.

The transfer name of an incoming file shall be retained for at least as long as the call during which the transfer took place.

A file transmission request for which the transfer name already exists in the receiving entity shall be refused by the entity if the dynamic configuration parameter "Overlay existing files" is set to NO. Otherwise the request is accepted (the existing file may already have been stored under another name).

7.3.3.3 Remote files

If a remote file is deleted on the basis of its transfer name, it shall no longer be accessible for exchanges with a correspondent.

7.3.4 Remote file lists

Two types of remote file name lists or directories are defined in EUROFILE:

- simple directories complying with ETS 300 075 [1];
- extended directories.

The implementation of the **extended directory** is **optional** in EUROFILE for both the called party and the caller terminal.

The requests concerning these two types of directory (simple and extended) use the same TDU but with different encoding.

The extended directory does not replace the simple directory (subclause 7.3.4.1 of ETS 300 075 [1]).

The access entitlement rules defined in the Access Control List apply to this directory.

There is no way of knowing beforehand if the remote entity will accept this function.

An extended directory is a file which provides detailed data for all the files whose transfer name complies with the designation parameter in the request.

The detailed data of an extended directory shall consist of at least the following:

- transfer name;
- file name (this name may include the access path);
- file size;
- the date of the last file update.

The caller terminal shall only transmit an extended directory request if the consultation of the file name lists is provided by the called party and if the application name is coded "!K".

If the called party does not provide this extended format, it shall respond with a negative acknowledgement indicating "extended format not available".

7.3.5 Navigation

The navigation facility shall be used only if the application name is coded "!K".

The use of the navigation facility for remote files shall be **optional** for both the caller and the called parties.

When implemented, all the operations defined in this facility shall be available.

7.3.5.1 Definition of filestores

The navigation working area is a complementary working area of the mandatory filestore offered by the slave to the master. This area is organized into different filestores. The navigation allows movement from filestore to filestore. A filestore may contain files and/or other filestores, or be empty.

The name of filestores are absolute names, allowing the filestores to be uniquely identified.

From the mandatory filestore, that is before the first selection of a navigation filestore, the file operations affect only the mandatory filestore files.

From a navigation filestore, that is after the selection of a navigation filestore, file operations affect the selected filestore files.

7.3.5.2 Definition of working areas

The working area for the mandatory filestore and the working area for the navigation filestores have no intersection.

If the links between the mandatory filestore and the navigation filestores are not implicit, they shall be indicated in the Access Control List.

The navigation facility makes it possible to take account of a different remote working area than the mandatory working area.

This working area is organized into navigation filestores.

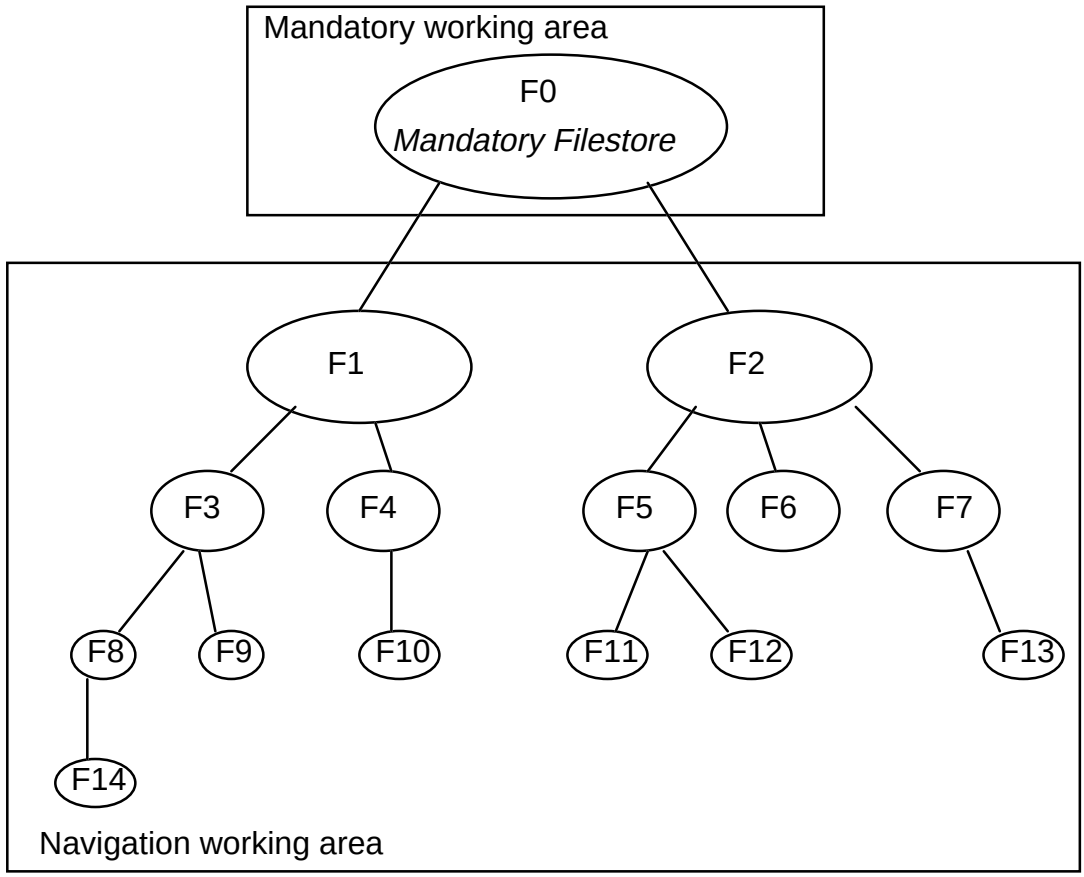


Figure 2: Working areas

The filestore F0 shall be mandatory, F1 and F2 are child filestores of F0 and are linked logically, or physically, to F0, F3 and F4 are the child filestores of F1,...

Within a filestore, the files have a unique transfer name.

7.3.5.3 Available functions in the navigation facility

The commands in the navigation facility are as follows:

- access to the list of navigation filestores (this list shall give all the names of the filestores of the navigation working area. No matter where the request is made, the list remains the same);
- access to the sub-list of the navigation filestores (this list shall gives all the names of the filestores directly included in the current filestore. It is different according to where the request is made);
- selecting a navigation filestore;
- checking the name of the current navigation filestore;
- exiting from the navigation facility.

a) Access to the list of navigation filestores

The caller may request the downloading of the **file containing** the list of the filestores.

The file content shall always be the same, that is to say, no matter where the request is made (mandatory filestore or navigation filestore). The file contains all the navigation filestores.

The request shall use the T-Load TDU with a specific transfer name:

"EUROSFT92/NAVIGATION/LIST".

The called party shall respond with:

- a negative acknowledgement indicating "file unknown" if the command is not supported, if it does not wish to support it, or if there is no filestore;

- a positive acknowledgement if this command is accepted; the file containing the list of all the filestores is then transmitted.

A reception of a positive acknowledgement associated with an empty file shall be considered as a negative acknowledgement indicating "no filestore".

For each filestore, the file supplies:

- its name;
- its reference or exact position compared to the other filestores.

The application shall rely on the contents of the file and not on any specific order of transmission.

This file enables the caller to rebuild the organization of the remote correspondent's files locally.

b) Access to the sub-list of filestores

The caller shall transmit a downloading request for the file containing the sub-list of filestores.

The file contents differ according to the location (mandatory filestore or navigation filestore) where the request is made. The file contains the filestores directly included in the current filestore.

This request shall use the T-Load TDU with a specific transfer name:

"EUROSFT92/NAVIGATION/S-LIST".

The called party shall respond with:

- a negative acknowledgement indicating "file unknown" if the command is either not supported or if it does not wish to implement it, or because no directly included filestore exists;

- a positive acknowledgement if this command is accepted; the file containing the list of all the filestore names is then transmitted.

A reception of a positive acknowledgement associated with an empty file shall be considered as a negative acknowledgement indicating "no directly included filestore exist".

For each filestore, the file supplies:

- its name;
- its reference or exact position compared to the other filestores.

The application shall rely on the contents of the file and not on any specific order of transmission.

c) Selecting a filestore

The caller can select a filestore which then becomes the current filestore.

Following an unsuccessful selection of a filestore, the application remains in the current filestore.

This request shall use the T-Save TDU with a specific transfer name:

"EUROSFT92/NAVIGATION/SELECT".

The called party shall respond with:

- a negative acknowledgement indicating "erroneous designation" if the command is not supported or if it does not wish to implement it;

- a positive acknowledgement if this command is accepted.

The file transmitted by the caller or the "select a filestore" file shall contain the name of the filestore selected.

The "select a filestore" instruction is used to reach any filestore from the current filestore that has already been selected.

Under a current filestore, operations can be implemented as provided for by the called party.

The requests for consultation of file list, for file retrieval, for delete file, or for rename file refer to the files directly located in the current filestore.

The files transmitted are stored by the called party in the current filestore.

The selection of a filestore from the mandatory filestore (or first selection) is equivalent to the start of operation in the navigation facility.

d) Checking the name of the current filestore

The name of the current filestore should be checked after selecting a filestore.

This check is implemented by means of a downloading request applied to the file containing the name of the current filestore.

This request shall use the file T-Load TDU unit with a specific transfer name:

"EUROSFT92/NAVIGATION/S-FILESTORE".

The called party shall respond with:

- a negative acknowledgement indicating "file unknown" if a navigation filestore has not been selected (no current navigation filestore);

- a negative acknowledgement indicating "erroneous designation" if the command is not supported;

- a positive acknowledgement if a filestore is selected. The file containing the name of the current navigation filestore is then transmitted.

e) Exiting from the navigation facility

The caller may exit from the navigation facility and return to the Single Filestore service (mandatory filestore).

This request shall use the T-Save TDU with a specific transfer name:

"EUROSFT92/NAVIGATION/SELECT".

The called party shall respond with:

- a negative acknowledgement indicating "erroneous designation" if the command is not supported;

- a positive acknowledgement if it accepts this access command (exit from the navigation service shall always be accepted).

The file transmitted by the caller shall contain the following reserved character string:

"EUROSFT92/NAVIGATION/RESET".

At this level, there is no longer any current navigation filestore.

The file operations shall then apply to the mandatory filestore.

7.3.5.4 Use of commands

Outside the navigation facility, the only commands that can be used and that are specific to the navigation facility are as follows:

- the request for the list of navigation filestores;
- the request for the sub-list of filestores.

These two requests have no effect on the facility: the Single Filestore facility remains active.

- the selection of a navigation filestore.

This request is equivalent to a passage into navigation facility.

From the navigation facility, the possible commands are as follows:

- the request for the list of filestores;
- the request for the sub-list of filestores;
- the selection of a filestore.

These three requests have no effect on the facility: the navigation facility remains active.

- exiting from the navigation facility.

This request is equivalent to a return to the Single Filestore facility.

7.3.5.5 Reserved names

Some names are reserved in EUROFILE depending on the use of the navigation facility.

7.3.5.5.1 Reserved file names

The following names are reserved:

- "EUROSFT92/NAVIGATION/LIST";
- "EUROSFT92/NAVIGATION/S-LIST";
- "EUROSFT92/NAVIGATION/S-FILESTORE";
- "EUROSFT92/NAVIGATION/SELECT".

An incoming request other than the downloading of a file with the file names:

- "EUROSFT92/NAVIGATION/LIST";
- "EUROSFT92/NAVIGATION/S-LIST";
- "EUROSFT92/NAVIGATION/S-FILESTORE";

shall be refused.

An incoming request other than a file store with the file name "EUROSFT92/NAVIGATION/SELECT" shall be refused.

If a file is created by the user with one of these names, it shall not be accessible in the EUROFILE application.

7.3.5.5.2 Content of a reserved file

In EUROFILE, a reserved file content is: "EUROSFT92/NAVIGATION/RESET". This content is linked to the file name: "EUROSFT92/NAVIGATION/SELECT".

7.3.6 Recovery mechanism

The application may provide mechanism to ensure a correct recovery.

The mechanism shall be one of the following (these mechanisms are not exclusive):

- check the integrity of the data already exchanged with a 32 bit checksum;

- check the context of the communication session with the use of previously stored parameters as Group of files, Transfer Name, Identifier, Date, Block Size, Working Filestore.

Using a 32 bit checksum mechanism, the checksum shall be calculated from the uncompressed file up to the recovery point. The remote terminal shall check, upon reception, if a corresponding recovery context with the same transfer name and the same 32 File Check Sum (FCS) is available. The application is responsible to ensure the calculation before the inactivity time-out runs out.

It is up to the service user to provide the means for a correct recovery (specific storage facilities, files locking,...) otherwise the mechanism shall not be used.

7.4 Functions for management

7.4.1 LogBooks

The LogBook shall contain the record of communications and provide the trace of any communication event or any communication incident.

7.4.1.1 Administration

If the application cannot access the log, the user shall be informed.

The LogBook shall be at least accessible when there is no communication in progress.

The consultation function provides a rapid display of the latest events.

Save and **Reset** functions complete this administrative aspect.

7.4.1.2 Content

The following communication events shall be included in the log:

- file transfer abort and in general, reasons of provider or user refusals (see subclause 7.2 of ETS 300 075 [1]);
- the establishment of the call and the call initiator;
- the cleardown of the call and the call initiator;
- for the called terminal: caller identifications (Access Control List literal and/or the name contained in the identifier); for the caller terminal: the identification of the called parties;
- the contents of incoming and outgoing messages;
- file operations.

This list of events is not exhaustive.

7.4.2 Correspondent PhoneBook and Access Control List

The Correspondent PhoneBook and the Access Control List are used to store the co-ordinates and the access entitlements of correspondents.

The Correspondent PhoneBook contains the characteristics of correspondents to be called.

The Access Control List contains the characteristics of correspondent accepted as callers.

7.4.2.1 Administration

The Correspondent PhoneBook and the Access Control List shall be accessible to the user at least when there is no call in progress.

Access to the Correspondent PhoneBook or to the Access Control List shall be independent.

The minimum functions which shall be provided are: create, modify or delete a correspondent.

The application shall ensure during create and modify functions that at least one of the basic services (transmission, retrieval, lists) is provided.

A mnemonic, specific to callers who are not identified, may be defined by the application in the Access Control List to make possible to provide the access entitlements and service authorizations for callers not identified.

7.4.2.2 Content

The following abbreviations are used: [Mand.] = mandatory parameter;
[Opt.] = optional parameter.

a) Correspondent PhoneBook:

Mnemonic [Mand.]

The mnemonic provides access points for the Correspondent PhoneBook. The format is unrestricted. The mnemonic is never transmitted online.

Address [Mand.]

Consists of the ISDN number and, where appropriate, of the sub-address.

Local Filestore [Opt.]

It is the working area comprising all the files available for the exchange with the called party.

b) Access Control List:

Mnemonic [Mand.]

The mnemonic provides access points for the Access Control List. The format is unrestricted. The mnemonic is never transmitted online.

Identifier [Mand.]

The identifier provide access points for the functions associated with a received identifier.

Authorizations granted to the caller [Mand.]

This parameter provides the list of functions granted to the caller. This list comprise the following functions: File Load, File Save, File List requests, and optionally File Delete and File Rename.

Working Area [Mand.]

This is the work space comprising all the files accessible to the caller.

Support of Navigation Facility [Opt.]

If the Navigation is a supported facility, indication if the facility is offered to the caller.

Navigation Filestores Links [Opt.]

If necessary, indication of the logical links, which may exist, between the navigation filestores and the mandatory working area.

7.4.3 Configuration

7.4.3.1 Administration

The configuration, which may be located inside or outside the application, shall provide the possibility of display and modification of the local parameters, by a simple and user-friendly program.

The configuration functions shall only be accessible when there is no communication in progress.

7.4.3.2 Static configuration

A static configuration shall be accessible to the users for display and for modification of the network connection parameters and appropriate ETS 300 075 [1] parameters with one or more access functions.

The configuration contains at least the address of the caller terminal (i.e. the ISDN number and, where appropriate, the sub-address).

7.4.3.3 Dynamic configuration

A dynamic configuration shall be accessible to the users for display and for modification of local parameters.

It shall contain at least:

- the on-line inactivity time-out;
- the response time-out at application level;
- an indication on the possibility of "overlaying or not overlaying existing files";
- a default working filestore.

Additional parameters shall be associated with the automatic mode:

- number of retries for an unsuccessful session;
- number of retries for an unsuccessful call;
- delay between two attempts;
- use of recovery;
- date and time of execution.

The parameters for this configuration takes the following default values:

- inactivity time-out: 5 minutes;
- response time-out at application level: 1 minute;
- overlay existing files: Yes.

A function enabling return to the default configuration shall always be provided to the user.

8 Encoding

8.1 Use and encoding of TDUs

The parameters used in the minimum service are listed below. They may be accompanied by a comment if their value is a specific choice among those possible in ETS 300 075 [1] or if they have a particular meaning within EUROFILE.

The absence of any comment is equivalent to an unrestricted reference to ETS 300 075 [1] including a reference to the specifications of the telesoftware application.

Non-listed parameters may not be used for transmission.

Parameters with no specific rules applicable to this ETS shall be accepted in conformance with ETS 300 075 [1] but ignored on receipt.

A default value is the value which shall be used when not transmitted.

If a default value is allowed for and this parameter is not transmitted the receiver of a mandatory parameter shall ensure the parameter to be set to its default value.

In reception of a mandatory parameter with an implicit value (not transmitted), the parameter shall be set to its default value.

8.1.1 Association

8.1.1.1 T-Associate Request

Parameter [Mand. Cod.] **Application name**

In transmission, the application name value shall be 2/1 4/B ("!K"). In reception, if another value is received, the specific services provided of this ETS shall not be used. The handling of !T and !A values is outside the scope of this ETS.

Application may implement a fallback mode after the application name "!K" has been refused and transmit another application name "!T".

Parameter [Opt. Cod.] **Calling address**

This parameter shall conform to ETS 300 075 [1]. On receipt, an ETS 300 075 [1] encoding (string of no more than 254 bytes) shall be accepted.

Parameter [Mand. Cod.] **Service class**

In transmission, this parameter shall be encoded in symmetrical service. On receipt, the encoding corresponding to the "two categories of service offered" shall be accepted, and the response shall be a T-Response-positive symmetrical service.

Parameter [Mand. Cod.] **Explicit confirmation**

This parameter shall be set to "confirmation requested or absent (default value)". On receipt, an encoding of "explication confirmation not requested" shall result in a T-ABORT (see subclause 6.2.3 of ETS 300 075 [1]).

Parameter [Opt. Cod.] **Time-outs**

This value corresponds to the configuration response time-out. Subclause 4.1.3.1.2.6 of ETS 300 075 [1] is applicable.

Parameter [Opt. Cod.] **Identification**

The identification may consists of two keywords which shall comply with ETS 300 075 [1] syntax:

- the name;
- the password.

Each of the keywords is a character string with a maximum length of 12 characters. These characters can take any value except 2/15 ("/").

During transmission, the name and password shall be grouped and separated by 2/15 ("/").

The identifier (name and password) shall not be encoded when transmitted.

The name is necessary, and is sufficient to identify a correspondent; it is the name which guarantees that the identifier is unique.

The password, which is an optional element in the identifier, provides an additional check. It is always displayed in coded form; it is not noted in the log and it is entered invisibly by either the called party or the caller.

The identifier:

- if it contains only one keyword, it consists of the name. In this case, the identifier does not contain any "/" character;

- if it contains two keywords, they are separated by a slash "/" and their contents cannot be empty. The first keyword shall be the name, the second the password.

Parameter [Opt. Cod.] **Request identification**

This parameter shall conform to ETS 300 075 [1].

Parameter [Opt. Cod.] **User Data**

This parameter shall conform to ETS 300 075 [1].

Parameter [Opt. Cod.] **Called Address**

This parameter shall conform to ETS 300 075 [1].

8.1.1.2 T-Response-positive

Parameter [Mand. Cod.] **Result**

This parameter shall conform to ETS 300 075 [1].

Parameter [Opt. Cod.] **Identification**

It shall be present if the request requires the inclusion of an identifier in the response, the applicable rules are the same as in the T-Associate request.

Parameter [Opt. Cod.] **Called address**

On receipt, an ETS 300 075 [1] encoding (string of no more than 254 bytes) shall be accepted.

Parameter [Opt. Cod.] **Time-outs**

It corresponds to the configuration response time-out.

Parameter [Impl.] **Service Class**

This parameter is implicit (see subclause 6.2.1.1 of ETS 300 075 [1]).

Parameter [Opt. Cod.] **User Data**

This parameter shall conform to ETS 300 075 [1].

8.1.1.3 T-Response-negative

Parameter [Mand. Cod.] **Result**

The result parameter may take any value defined in subclause 7.2 of ETS 300 075 [1]. In addition, it may also take the value "identifier rejected", which shall be coded as 6/15 2/1.

8.1.2 Access regime

8.1.2.1 T-Access Request

Parameter [Mand. Cod.] **Role**

The requested role shall be the master role. The handling of a slave role is outside the scope of this ETS (see NOTE

Parameter [Mand. Cod.] **Functions**

The T-Read_restart shall not be used.

Parameter [Mand. Cod.] **Transfer unit size**

The recommended block size is 4 096 characters. It is recommended for the sender (sending a T-WRITE TDU) to use the maximum size of the application data accepted by the receiver.

Parameter [Mand. Cod.] **Anticipation window**

The minimum anticipation window in file reception shall be 2. It is highly recommended to support higher window values in order to support various types of networks (satellite links,..).

Parameter [Mand. Cod.] **Recovery**

This parameter shall conform to ETS 300 075 [1].

Parameter [Mand. Cod.] **Transfer Mode**

The default value shall be used (Basic transfer mode not required by master).

Parameter [Opt. Cod.] **User Data**

This parameter shall conform to ETS 300 075 [1].

Optionally, this field may be used to carry information of the command capabilities.

If this option is used the first two bytes shall be used in conformance with subclause 7.4.1 of ETS 300 075 [1]. The accepted primitives shall be, as a default value, limited to the group of transferable files (group A). Optionally, group B may be supported.

The remaining bytes are, by default, not present.

The third byte indicates if the navigation facility is supported. If it is coded 4/15, the navigation facility shall be supported. If user data are absent or contain less than three bytes or if the third byte is coded 0/0, the navigation facility is not supported.

Starting at the fourth byte, a list of capabilities is transmitted, introduced by a byte coded 5/15 and a byte that contains the length of the following capability information. The capability information consists of capability information elements coded according to the type-length-value scheme for the parameter field of TDUs. Each capability information element consists of:

- a byte indicating the capability information type;
- a byte that holds the length of the capability information data;
- the capability information itself.

The following capability information element types are defined:

- the list of supported compression modes. The capability information element type shall be coded 6/0. The capability information in this element contains one to three bytes if present. Each byte represents one supported compression mode:

  - 4/0 represents the basic compression mode;
  - 4/1 represents the high efficiency compression mode;
  - 4/15 represents the "application defined" compression mode;

- the list of parameters for the high efficiency compression mode, if this mode is supported. The capability information element type shall be coded 6/1. The capability information in this element contains two bytes. The first codes the maximum supported value for N1, the second the maximum supported value for N7. If this capability information is not present and the high efficiency compression mode is supported, only the default values (minimum) defined in CCITT Recommendation V.42 bis [13] apply. This capability information element enables the peer entity to compress files with more efficient parameters than the default.

8.1.2.2 T-Response-positive

Parameter [Mand. Cod.] **Result**

Parameter [Mand. Cod.] **Role**

The slave role shall be accepted. The handling of the master role is outside the scope of this ETS (see NOTE

Parameter [Mand. Cod.] **Functions**

The T-Read_restart shall not be used. At least one of the following functions T-Save, T-Load or T-Directory shall be accepted. The master shall manage the functions provided.

Parameter [Mand. Cod.] **Transfer unit size**

The receiver should accept a block size of 4 096 characters.

Parameter [Mand. Cod.] **Anticipation window**

The minimum anticipation window in file reception shall be 2.

Parameter [Mand. Cod.] **Recovery**

The parameter shall conform to ETS 300 075 [1].

Parameter [Mand. Cod.] **Transfer Mode**

The default value shall be used (Basic Transfer mode not supported by Slave).

Parameter [Opt. Cod.] **User data**

The accepted primitives shall be, as a default value, limited to the group of transferable files (group A). Optionally, group B may be supported.

(The first two bytes shall conform to subclause 7.4.1 of ETS 300 075 [1]).

The remaining bytes are, by default, not present.

The third byte indicates if the navigation facility is supported. If it is coded 4/15, the navigation facility shall be supported. If user data are absent or contain less than three bytes of if the third byte is coded 0/0, the navigation facility is not supported.

Starting at the fourth byte a list of capabilities is transmitted, introduced by a byte coded 5/15 and a byte that contains the length of the following capability information. The capability information consists of capability information elements coded according to the type-length-value scheme for the parameter field of TDUs. Each capability information element consists of:

- a byte indicating the capability information type;
- a byte that holds the length of the capability information data;
- the capability information itself.

Table 1: User data (containing n capability information elements)

1	See ETS 300 075, § 7.4.1	
2	See ETS 300 075, § 7.4.1	
3	Navigation Indicator	'4F'H or '00'H
4	List of Capabilities	'5F'H
5	Length of capability list	> 2
6-i	Capability Information Element 1	
i + 1 - ...	Capability Information Element 1	
...	...	...
	Capability Information Element n	

The following capability information element types are defined:

- the list of supported compression modes. The capability information element type shall be coded 6/0. The capability information in this element contains 1 to three bytes if present. Each byte represents one supported compression mode:

  - 4/0 represents the basic compression mode;
  - 4/1 represents the high efficiency compression mode;
  - 4/15 represents the "application defined" compression mode;

Table 2: Capability information element "supported compression modes"

Type	'60'H
Length	1 - 3
Basic compression mode indicator	'40'H
High efficiency compression mode indicator	'41'H
Application defined compression mode indicator	'42'H

- the list of parameters for the high efficiency compression mode, if this mode is supported. The capability information element type shall be coded 6/1. The capability information in this element contains two bytes. The first codes the maximum supported value for N1, the second the maximum supported value for N7. If this capability information is not present and the high efficiency compression mode is supported, only the default values (minimum) defined in CCITT Recommendation V.42 bis [13] apply. This capability information element enables the peer entity to compress files with more efficient parameters than the default.

Table 3: Capability information element "high efficiency compression parameters"

Type	'61'H
Length	2
N1	
N7	

8.1.2.3 T-Response-negative

Parameter [Mand. Cod.] **Result**

This parameter shall conform to ETS 300 075 [1].

8.1.3 Save-Load-Directory-Delete-Rename

8.1.3.1 T-Save

Parameter [Mand. Cod.] **Designation**

This parameter shall contain the transfer name (see subclause 7.4.4 of ETS 300 075 [1]).

Specific case of the navigation facility:

The designation field may contain the name corresponding to the filestore selection which shall be:

- "EUROSFT92/NAVIGATION/SELECT",

the content of the file transmitted shall be as follows:

- for a filestore selection, the name of the filestore to be selected;
- for an exit from the navigation facility, the character string: "EUROSFT92/NAVIGATION/RESET".

Parameter [Opt. Cod.] **Recovery point**

This parameter shall conform to ETS 300 075 [1].

Parameter [Opt. Cod.] **User data**

The first byte shall conform to ETS 300 075 [1]. To save presentation files, the first byte shall take the group B value.

In case of a recovery, starting on the second byte, a 32 bits file checksum calculated from the uncompressed file up to the recovery point may be transmitted. The receiver shall check if a corresponding recovery context with the same transfer name and the same 32 FCS is available.

8.1.3.2 T-Load

Parameter [Mand. Cod.] **Designation**

This parameter shall contain the transfer name (see subclause 7.4.4 of ETS 300 075 [1]).

Specific case of the navigation facility:

The designation field may contain the following fields:

- the name of the filestore list file which shall be:
  "EUROSFT92/NAVIGATION/LIST".

- the name of the filestore name sub-list file which shall be:
  "EUROSFT92/NAVIGATION/S-LIST".

- the name of the current filestore file which shall be:
  "EUROSFT92/NAVIGATION/S-FILESTORE".

In these cases, the associated files have a specific meaning.

Parameter [Opt. Cod.] **Recovery point**

This parameter shall conform to ETS 300 075 [1].

Parameter [Opt. Cod.] **User data**

The first byte shall conform to ETS 300 075 [1]. To load presentation files, the first byte shall take the group B value.

In case of a recovery, starting on the second byte, a 32 bits file checksum calculated from the uncompressed file up to the recovery point may be transmitted. The receiver shall check if a corresponding recovery context with the same transfer name and the same 32 FCS is available.

8.1.3.3 T-Directory

Parameter [Mand. Cod.] **Designation**

This parameter is made up of words to design the list of transfer names (refer to subclause 7.4.3 in ETS 300 075 [1]).

Parameter [Opt. Cod.] **User data**

The first byte shall conform to subclause 7.4.2 of ETS 300 075 [1].

To list presentation files, the byte shall take the value 3/2 (group B).

To distinguish between simple directory and extended directory requests, a second byte shall take the value 4/0 for an extended directory request.

8.1.3.4 T-Delete

Parameter [Mand. Cod.] **Designation**

This parameter shall contain the transfer name (see subclause 7.4.4 in ETS 300 075 [1]).

Parameter [Opt. Cod.] **User data**

It shall correspond to the group of transferable files (group A).

8.1.3.5 T-Rename

Parameter [Mand. Cod.] **Designation**

This parameter shall contain the transfer name (see subclause 7.4.4 in ETS 300 075 [1]).

Parameter [Mand. Cod.] **New Name**

This parameter shall contain the transfer name (see subclause 7.4.4 in ETS 300 075 [1]).

Parameter [Opt. Cod.] **User data**

It shall correspond to the group of transferable files (group A).

8.1.3.6 T-Response-positive

Parameter [Mand. Cod.] **Result**

8.1.3.7 T-Response-negative

Parameter [Mand. Cod.] **Result**

It may carry additional causes not provided by ETS 300 075 [1]:

- "disk full" encoded as 6/15, 2/2;
- "file access impossible" encoded 6/15, 2/3;
- "incorrect recovery FCS" encoded 6/15, 2/10;

and if it is a negative acknowledgement to an extended directory request, the reason for the refusal:

- "extended format not available" encoded as 6/15, 2/7.

8.1.4 Typed Data

8.1.4.1 T-Typed-data

Parameter [Mand. Cod.] **User data**

The character set used in transmission shall be CCITT Recommendation T.51 [11] primary set of graphic character sets coded from 2/0 to 7/15.

8.1.5 File transfer

8.1.5.1 T-Write

Parameter [Mand. Cod.] **First/last**

This parameter shall conform to ETS 300 075 [1].

Parameter [Mand. Cod.] **Explicit confirmation**

All blocks shall be confirmed.

Parameter [Mand. Cod.] **Block number**

The blocks shall be numbered.

Parameter [Mand. Cod.] **Data Field**

This parameter shall conform to ETS 300 075 [1].

8.1.5.2 T-Response-positive

Parameter [Mand. Cod.] **Result**

It shall contain the number of the block which is acknowledged.

8.1.5.3 T-Response-negative

Parameter [Mand. Cod.] **Result**

It shall contain the number of the block which is refused.

On the last block, it may contain an error code that is equivalent to a file refusal.

REMARKS:

The following cases are not valid reasons for error indications, file transfer aborts or file refusal:

- the absence of the file header parameters;
- the absence of confidential fields in a simple directory file or the encoding of these fields differently to the encoding defined;
- after an extended directory request, the reception of a text directory file which complies with ETS 300 075 [1].

All the blocks remaining in the anticipation window shall be ignored in the case of a negative acknowledgement of a block, a file transfer abort or an error indication.

8.1.6 Transfer Abort

8.1.6.1 T-Transfer-reject

Parameter [Opt. Cod.] **Reason**

In addition to the reasons given in ETS 300 075 [1], it may transmit additional reasons:

- "disk full" encoded as 6/15, 2/2;
- "file access impossible" encoded as 6/15, 2/3;
- "user abort" encoded as 6/15, 2/6;
- "log access impossible" encoded as 6/15, 2/8;
- "compression format not supported" encoded 6/15, 2/9.

8.1.7 Exception

8.1.7.1 T-P-Exception

Parameter [Mand. Cod.] **Reason**

This parameter shall conform to ETS 300 075 [1].

8.1.8 End of Access

8.1.8.1 T-End-Access

Parameter [Mand. Cod.] **Result**

In addition to the reasons given in ETS 300 075 [1], it may transmit additional reasons:

- "user interrupt of communication" encoded as 6/15, 2/5;
- "log access impossible" encoded as 6/15, 2/8.

If the result is "reason not specified", the length following the Command Identifier (CI) T-End-access shall be 0.

Parameter [Opt. Cod.] **User Data**

This parameter shall conform to ETS 300 075 [1].

8.1.8.2 T-Response-positive

Parameter [Opt. Cod.] **User Data**

This parameter shall conform to ETS 300 075 [1].

Parameter [Mand. Cod.] **Result**

This parameter shall conform to ETS 300 075 [1].

8.1.9 Termination

8.1.9.1 T-Release

Parameter [Opt. Cod.] **User Data**

This parameter shall conform to ETS 300 075 [1].

8.1.9.2 T-Response-positive

Parameter [Mand. Cod.] **Result**

This parameter shall conform to ETS 300 075 [1].

Parameter [Opt. Cod.] **User Data**

This parameter shall conform to ETS 300 075 [1].

8.1.10 Abort

8.1.10.1 T-Abort

Parameter [Mand. Cod.] **Reason**

This parameter shall conform to ETS 300 075 [1].

8.2 Description of the files structures

8.2.1 Files

All files shall be defined in terms of:

- the group A or B they belong to;

- a transfer name or unique logical name which enable the file to be referenced without any risk of ambiguity;
- descriptive attributes;
- file data.

The files are part of the telesoftware application. The files are accessed by their transfer name. The list of transfer names constitutes the file directory.

- Naming

The transfer name is a logical name which provides file independence compared to the various file management systems available.

The syntax of these transfer names shall comply with the specifications for the telesoftware application defined in ETS 300 075 [1] (see subclause 7.4.4).

- Content

The files transferred shall consist of a file header and file data (see ETS 300 075 [1], subclause 7.3).

- File header

It includes the following mandatory attributes:

- File length

The size shall be processed by the file transmitter and receiver in order to display to the processing of the file transfer. This display should allow the user to get an idea about the duration of the transfer.

- Date/Time of the last modification

This date shall be processed by the receiver as it is linked to the save process for the incoming file. The date shall be encoded in the format YYMMDDHHMMSS without truncation.

- File type

This parameter shall conform to ETS 300 075 [1]. The recommended value is data files.

- File coding

This parameter shall conform to ETS 300 075 [1]. The default value is binary code.

The File coding parameter may be used to carry the name of the local operating system and the file format. In this case, the first character shall be encoded as defined in ETS 300 075 [1]. The following characters may identify the name of the operating system by a character string. The values recognized in EUROFILE for the operating system are MSDOS, WINDOWS, UNIX, OS2, MACOS.

This data may be followed, after a slash "/", by the file format. A specific value is MACBINARY. Use of the MACBINARY format follows the specifications of a de facto standard "MACBINARY 1”.

If compression is used (compression parameter present), it shall be processed on reception, for the basic compression mode and the application defined compression mode (values 4/0 and 4/15 as defined in subclause 7.3.2.15 of ETS 300 075 [1]).

The reception of a file containing a file header but which does not have the attributes defined above shall not cause the transmission of an error, abort or refusal primitive in order to retain the compatibility with ETS 300 075 [1].

- **File data**

  The file data constitutes the contents of the file.

  The file data is not subject to any processing during transfer operations; the incoming file is an exact copy of the original file. The conversion operations are implemented upstream or downstream from the downloading session.

8.2.2 File lists

File lists or directories are produced by directory requests.

a) Names

The directory names transmitted during a call shall comply with ETS 300 075 [1].

b) Content

The contents differ depending on the type of directory.

8.2.2.1 Simple directory

The contents of simple directory files are encoded in accordance with ETS 300 075 [1]. They are text files containing:

- file transfer name;
- file length;
- executable File Indication (indication whether or not the file can be executed).

NOTE: The application may use in MACOS the indication field to differentiate a document or an application.

The file type parameter in the file header of the file directory shall be positioned to "text file".

The file coding parameter shall be positioned on the default value character coding.

The private field of 9 characters introduced after a file name by a space (2/0) shall be used as follows in EUROFILE:

- the file size shall be supplied in a variable length string over a maximum of the first 8 characters, coded in the range 3/0 to 3/9 specifying the file size;

- the last character, that is to say the ninth, shall be used to indicate whether or not the file can be executed. Its value is 44H for non-executable files and 45H for executable files. There is no mandatory requirement to make use of the last character. If it is present, the unused characters between the size and the "executable" indication shall be encoded as 2BH.

The data relating to file size and executable/non-executable file is used during reception.

The remote file list shall be displayed with this data.

The reception of a directory file that does not make use of this confidential field or which uses it differently cannot lead to a file transfer abort or the refusal of a file.

8.2.2.2 Extended directory

Its format is as defined in ETS 300 075 [1] for the structure files of the telesoftware application.

The file type parameter of the file header is set to "description file".

The file coding parameter shall not be present.

The length of the file headers forming the content of the extended directory shall not be zero.

The file shall contain at least the following parameters:

- file transfer name;
- file name;
- file length;
- date of the last modification.

The other header attributes defined in the telesoftware application (see ETS 300 075 [1], subclause 5.5.1) may also be used.

The reception of a simple directory file after an extended directory request cannot cause an error signal, file transfer abort or file refusal.

8.2.3 Navigation facility

8.2.3.1 Format of filestore list and sub-list

The file type shall be text file.

They consist of character strings of no more than 254 characters separated by a CR, LF sequence (0DH,0AH).

Each character string consists of the navigation filestore reference and the name of the filestore:

- the first field constitutes the reference. This reference indicates the position of the navigation in the navigation working area;

- the following characters constitute the filestore name.

Format of the filestore reference

The **filestore reference** has the following characteristics:

It shall be encoded over a maximum of 32 characters with characters from "A" (4/1) to "Z" (5/10). It is followed by the separator 20H.

The length of a reference shall be a multiple of two characters.

The value of the two characters (from "AA" to "ZZ") is an order value making it possible to distinguish the filestores included in the same parent filestore: 676 filestores may be directly included in one parent filestore.

The number of character couples in a filestore reference indicates the inclusion level of the reference. It is possible to represent up to sixteen inclusion levels.

The reference of a filestore is a concatenation of the reference of the parent filestore in which the filestore is directly included and an order value consisting of a character couple.

The reference of filestores not included in other parent filestores consists only of the order value i.e. two characters.

Format of the name of the filestore

The name of the filestore is a string with a maximum of 221 characters.

These characters are part of the CCITT Recommendation T.51 [11] primary set of graphic character sets coded from 2/0 to 7/15.

8.2.3.2 Format of the file containing the name of the current filestore

The file type shall be text file.

The file shall contain only the name of the current filestore.

8.2.3.3 Format of the filestore selection file

The file type shall be text file.

If it is a filestore selection, only the name of the current filestore shall be present. If it is an exit from the navigation facility, only the following character string shall be present:

"EUROSFT92/NAVIGATION/RESET".

8.2.4 Presentation files

The presentation files share the same transfer name as the corresponding transferable files. They are part of group B application presentation files.

The file type shall be text files.

They contain displayable data.

These characters are part of the CCITT Recommendation T.51 [11] primary set of graphic character sets coded from 2/0 to 7/15.

8.3 Error codes

The error codes used online are those defined in ETS 300 075 [1] to which are added the following indications relevant at application level and giving users the greatest possible amount of detailed information.

Reason	Coding
"identifier rejected"	6/15 2/1
"disk full"	6/15 2/2
"file access impossible"	6/15 2/3
"reserved"	6/15 2/4
"user interrupt of communication"	6/15 2/5
"user abort"	6/15 2/6
"extended format not available"	6/15 2/7
"log access impossible"	6/15 2/8
"compression format not supported"	6/15 2/9
"incorrect recovery FCS"	6/15 2/10
"coding error in compressed data"	6/15 2/11

9 End-to-end protocol

EUROFILE shall use the transparent mode (with no transport layer) and shall comply with ETS 300 079 [2].

The ETS 300 079 [2] TDUs to implement the transparent mode are:

- SBV_TPD_Begin;
- SBV_TPD_End;
- SBV_TC_Error.

The SBV_TPD_Begin Request shall be transmitted by the initiator of the call (caller).

The Transparent mode shall be effective after reception of a SBV_TPD_Begin Positive Response.

The function of SBV_TPD_End is identical to D_Abort of the DDU transport protocol ETS 300 075 [1].

The reception of a SBV_TC_Error with an Error code parameter "TC erroneous" shall result in the transmission of a SBV_TPD_End.

Any reception of elements before the transmission or reception of a SBV_TPD_Begin Request shall be ignored by the application.

If an other DDU level is supported, the caller shall fall back on the others transport protocol in the following cases:

- reception of an SBV_TPD_Begin Negative Response without DDU_Fall_Back_mode parameter;
- reception of an SBV_TPD_Begin Negative Response with DDU_Fall_Back_mode parameter which specifies the mode supported by the remote peer entity;
- no response from the remote during the delay defined by the inactivity time-out or receipt of elements other than Telematic Commands (received elements shall be ignored).

10 Application rules for lower layer protocols for EUROFILE Transfer over ISDN

All references in *Italic* in the following subclauses are references to ETS 300 080 [3].

10.1 General overview of ETS 300 080 application for EUROFILE Transfer

10.1.1 General

Clause of ETS 300 080 [3]	for EUROFILE Transfer over ISDN....
(clause 4) Model description	Details given for each subclause.
(Subclause 4.1) Protocol pillars	*Subclause 4.1* application rules in subclause 10.2.1.
(Subclause 4.2) Co-ordination between B-Channel and D-channel	*Subclause 4.2* shall not apply since no OSI CONS can be referenced in this case.
(Subclause 4.3) Mapping of ETS 300 102-1 [10] causes to OSI CONS reasons	*Subclause 4.3* shall not apply since no OSI CONS can be referenced in this case.

10.1.2 Layer 1 and D-channel protocols

Subclause of ETS 300 080 [3]	for EUROFILE Transfer over ISDN....
(clause 5) Layer 1 protocols	*clause 5* shall apply without any additional rule.
(clause 6) D-channel layer 2	*clause 6* shall apply without any additional rule.
(clause 7) D-channel layer 3	Details given for each subclause.
(Subclause 7.1) The access protocol	*Subclause 7.1* shall apply without any additional rule.
(Subclause 7.2) Terminal selection and compatibility checking	*Subclause 7.2* application rules in subclause 10.2.2.
(Subclause 7.3) Service specific use of supplementary services	*Subclause 7.3* application rules in subclause 10.2.3.

10.1.3 B-Channel Protocols

Subclause of ETS 300 080 [3]	**for EUROFILE Transfer over ISDN....**
(clause 8) B-channel protocols	Details given for each subclause.
(Subclause 8.1) B-channel Layer 2	Details given for each subclause.
(Subclause 8.1.1) Base protocols	*Subclause 8.1.1* shall apply without any additional rule (see also note).
(Subclause 8.1.2) General rules for base protocol CCITT Recommendation X.75 [7]	*Subclause 8.1.2* shall apply without any additional rule (see also note 1).
(Subclause 8.1.3) Specific rules for base protocol CCITT Recommendation X.75 [7]	*Subclause 8.1.3* application rules in subclause 10.2.4 (see also note 1).
(Subclause 8.1.4) Application rules for base protocol ISO 7776 [6]	*Subclause 8.1.4* application rules in subclause 10.2.5.
(Subclause 8.1.5) Synchronization	*Subclause 8.1.5* shall apply without any additional rule (see note 2).
(Subclause 8.2) B-channel layer 3	*Subclause 8.2* application rules in subclause 10.2.6.
(clause 9) Layer 4 transport protocol	*Clause 9* as a whole shall not apply.
(Subclause 9.1) Additional application rules for the transport protocol in CCITT Recommendation T.70 [8] (layer 4)	Not applicable; see above.
(Subclause 9.2) Specification of the additional application rules for the transport protocol in ISO/IEC 8073 and CCITT Recommendation X.224 [4] (layer 4)	Not applicable; see above.

NOTE 1: As indicated in annex C, subclause C.4.2 of ETS 300 080 [3], the interworking between terminal implementing CCITT Recommendation X.75 [7] based level 2 protocol modified by the application rules defined in CCITT Recommendation T.90 [9] and terminal implementing a level 2 protocol based on ISO 7776 [6] is possible however the communication may be inefficient in some situations.

If an efficient interworking with ENV 41112 based implementations is a major concern the use of a level 2 protocol based on ISO 7776 [6] with the additional rules defined in ETS 300 080 [3], subclause *8.1.4* is preferable. If global interoperability with terminal providing telematic services is the major concern then the CCITT Recommendation X.75 [7] based level 2 protocol (CCITT Recommendation T.90 [9] compatible and globally recognized as level 2 protocol for telematic terminals) should be preferred.

NOTE 2: If possible, the calling side should send at least 64 concatenated flags so that two adjacent "0"s occur between each string of "1"s before initializing the link with a SABM. The called side should start the transmission of flag as soon as possible in order to send at least 64 concatenated flags before receiving a SABM from the calling side.

10.2 Additional application rules specific for EUROFILE transfer

10.2.1 Protocol pillars *(subclause 4.1)*

Subclause 4.1 of ETS 300 080 [3] shall apply for EUROFILE with the following modification of the last by one paragraph.

"while in Videotex and EuroFile transfer no transport protocol is employed at all".

10.2.2 Terminal Selection and Compatibility checking *(subclause 7.2)*

Subclause 7.2 of ETS 300 080 [3] shall apply for EUROFILE with the following extension of table_4 of *subclause 7.2.1.3* "High Layer Compatibility".

The HLC codepoint for Eurofile transfer over ISDN is "(Eurofile" (whose service is defined in ETS 300 409 [12] and is defined in ETS 300 196-1, A1 [14] (100 0001)). This codepoint shall be included for octet 4.

10.2.3 Service specific use of supplementary services *(subclause 7.3)*

According to ETS 300 079 [2], *subclause 7.3* of ETS 300 080 [3] shall apply. In addition, the supplementary services indicated in subclause 11.2.3 of ETS 300 079 [2] may be used optionally.

10.2.4 Specific rules for base protocol CCITT Recommendation X.75 *(subclause 8.1.3)*

Subclause 8.1.3 of ETS 300 080 [3] shall apply for EUROFILE with the following additions:

o) Timer/Parameter T1 (CCITT Recommendation X.75 [7]**, § 2.4.8.1)**

For T1 the value indicated in table B.1 is suggested for efficiency.

p) Parameter T2 (CCITT Recommendation X.75 [7]**, § 2.4.8.2)**

The implementation of a T2 timer as indicated in table B.1 is suggested for efficiency.

r) Transmission Counter N2 (CCITT Recommendation X.75 [7]**, § 2.4.8.4)**

A value of 10 shall be adopted for N2.

s) Maximum frame length N1 (CCITT Recommendation X.75 [7]**, § 2.4.8.5)**

Maximum frame sizes of at least 1 031 octets shall be implemented assuming basic mode is used.

10.2.5 Specific rules for base protocol ISO 7776 *(subclause 8.1.4)*

Subclause 8.1.4 of ETS 300 080 [3] shall apply for EUROFILE with the following additions:

c) Timer T1

In spite of the 5 sec value recommended in *subclause 8.1.4* for T1, the value indicated in annex B, table B.1 is recommended for efficiency.

d) Parameter T2

The implementation of a T2 timer as indicated in annex B, table B.1 is recommended for efficiency .

f) Maximum frame length N1

Maximum frame sizes of at least 1 031 octets shall be implemented assuming basic mode is used.

In addition a value of 10 shall be adopted for N2.

10.2.6 B-channel layer 3 *(subclause 8.2)*

Subclause 8.2 of ETS 300 080 [3] shall apply for EUROFILE with the following additions.

According to ETS 300 079 [2], "mapping to support the OSI CONS" in accordance with ISO/IEC 8208 [5] as specified in the second paragraph of *subclause 8.2* shall not apply for EUROFILE transfer.

In addition,

Logical channels to be used *(subclause 8.2.2)*

Channel 1 shall be available as default.

Further study is required to evaluate the use of the "Registration Procedure" or the "Logical Channel Identifier negotiation" based on the "Reference Number" optional user facility as proposed in ISO 8802: (Draft 1993).

Packet Sizes *(subclause 8.2.3)* & Default packet level window size *(subclause 8.2.4)*

These two subclauses shall apply to EUROFILE transfer applications with the following additional text.

To optimize the efficiency of an EUROFILE Transfer application use of the negotiation mechanism for packet window size and packet size (together with the support of packet size of at least 1 024 octets) shall be mandatory . Such negotiation should lead to other values than default packet size = 128 and default packet level window size=2. The recommended combinations of packet size and packet level window size are given in annex B, table B.1.

Q-bit *(subclause 8.2.7)*

Occurrences of "Videotex" in this subclause should be changed in "Videotex and EuroFile transfer".

Protocol Identifier *(subclause 8.2.8)*

Paragraph beginning with "In case of Videotex" should be changed to begin with "In case of Videotex and EUROFILE transfer".

Interrupt packet *(subclause 8.2.9)*

Not requested for EUROFILE transfer application (end-to-end) but requested for Videotex.

Encoding of Network Service Access point (NSAP) addresses *(subclause 8.2.11)*

Not requested for Eurofile transfer application as specified in ETS 300 080 [3] with the additional rules specified in ETS 300 079 [2].

Optional user facilities and CCITT specified DTE facilities *(subclause 8.2.12)*

Subclause 8.2.12 as a whole applies to the case of EuroFile transfer over ISDN except for the facilities in relation to subclause 8.2.11. In particular, facilities required to support the mechanism defined in *subclause 8.2.4* shall be fully implemented.

Annex A (normative): Application selection criteria for EUROFILE transfer applications

As an application selection criteria, a user data field and the "EUROFILE" HLC shall be transmitted.

The keyword "EUROSFT92" without spacing and in capital letters (a 9 byte string with the following hexadecimal encoding 45H, 55H, 52H, 4FH, 53H, 46H, 54H, 39H, 32H), shall be inserted after the first four bytes of the level 3 call packet user data.

During an ad interim period while no HLC codepoint for "EUROFILE transfer" will be defined, the application shall transmit the keyword only.

The receiving terminal which supports EUROFILE transfer shall check for the presence of the HLC codepoint and, if not present shall check for the presence of the keyword in the assigned bytes of the call request packet as specified in the above paragraph and will accept the call if the keyword is present.

Annex B (informative): Recommended combinations of parameter values to insure optimum throughput

One 64 kbit/s channel is assumed.

When many protocol layers are used within a single end-to-end transport mechanism, the choice of specific values for the parameters of each level is not conditioned by their availability within intermediate system or networks. It is then possible (and recommended) to select appropriate combinations of values at different levels to ensure the operation at the maximum achievable throughput.

Table B.1 (below) includes some cases selected as meaningful examples of possible implementation for a system with different requirements of capacity (from small to large). The table is intended as a guidance for the optimum parameter combination. Selection of actual values for a specific implementation and the target throughput of such implementation is matter of evaluation for the implementation engineer.

Table B.1

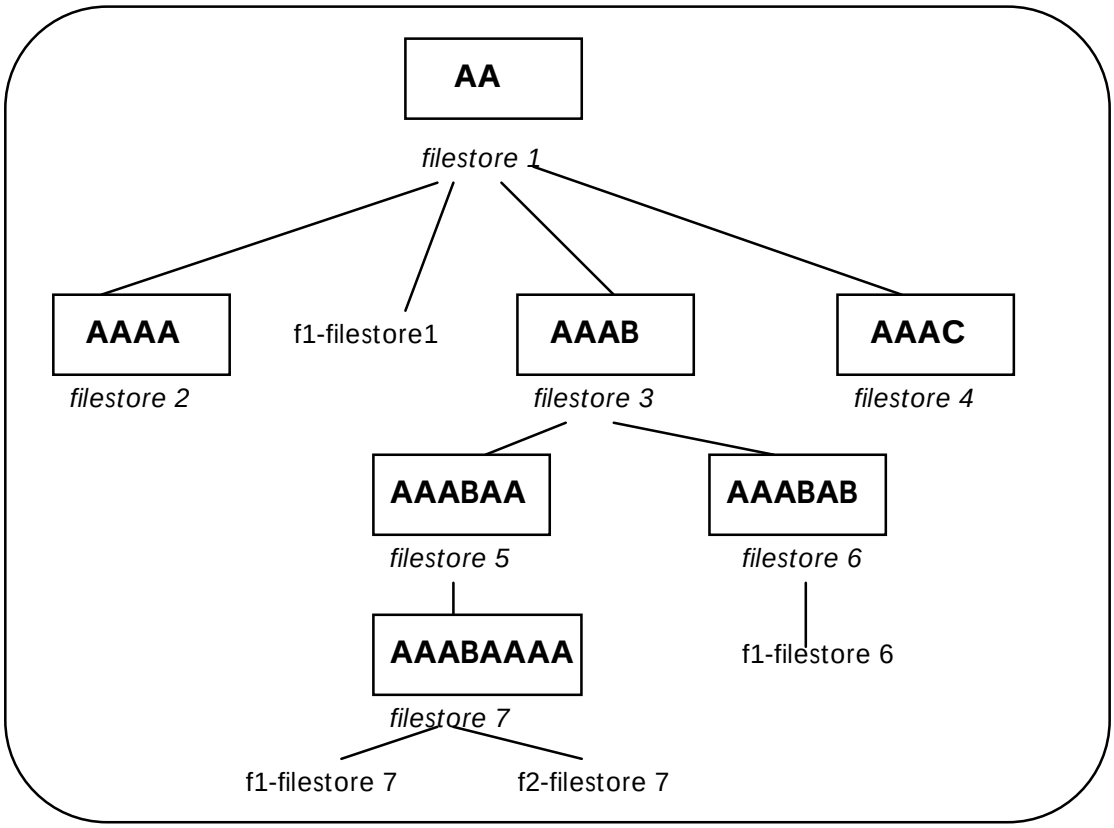
	Case 1 small	**Case 2**	**Case 3 Large**
Packet Level Size (octets)	1 024	1 024	2 048
Packet Window Size	2	7	7
Frame Size (octets)	1 031	1 031	2 055
k	7	7	7
Timer T1	1 600 ms	1 600 ms	3 300 ms
Timer T2	150 ms	150 ms	300 ms

Annex C (informative): Examples of operation in navigation facility

For the list and the sub-list, the appearance of the filestores is indifferent.

The uniqueness of the filestore names can be ensured by including the access path in the name of the filestore.

EXAMPLE 1:



The filestore reference are in bold characters.
The filestore names are in italic characters.
The file names are in plain characters.

The content of the filestore list file is always:

AA FILESTORE1;

AAAA FILESTORE2;

AAAB FILESTORE3;

AAAC FILESTORE4;

AAABAA FILESTORE5;

AAABAB FILESTORE6;

AAABAAAA FILESTORE7.

The content of the filestore sub-list file requested from outside the navigation facility is:

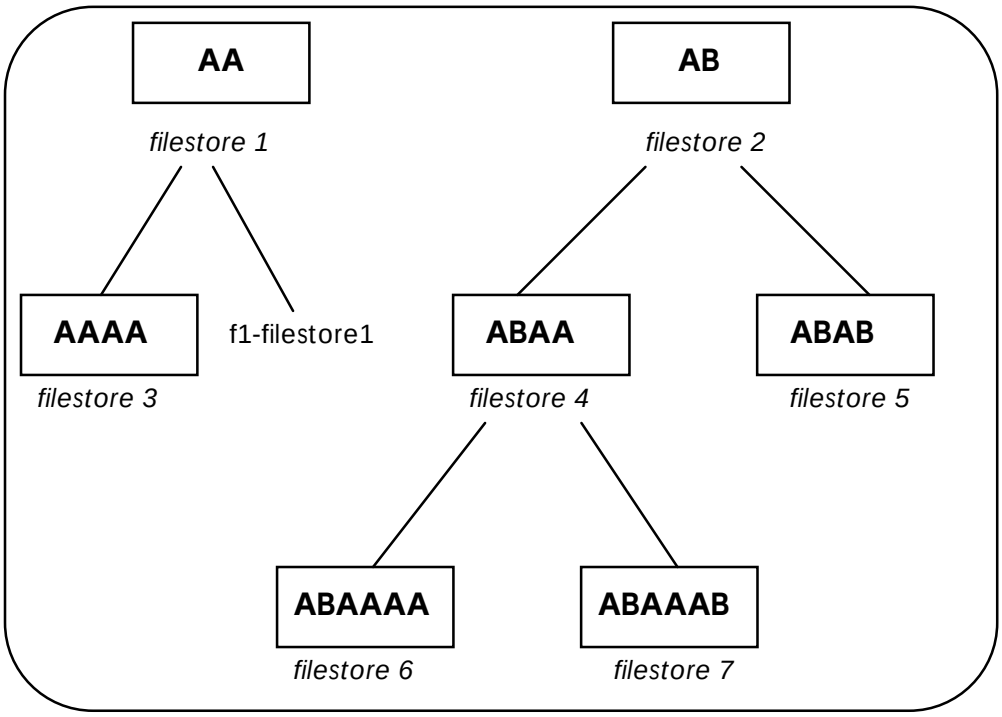
AA FILESTORE1.

The contents of the filestore sub-list file requested when the FILESTORE3 is the current filestore is:

AAABAA FILESTORE5;

AAABAB FILESTORE6.

EXAMPLE 2:



The filestore reference are in bold characters.
The filestore names are in italic characters.
The file names are in plain characters.

The content of the filestore list file is always:

AA FILESTORE1;

AB FILESTORE2;

AAAA FILESTORE3;

ABAA FILESTORE4;

ABAB FILESTORE5;

ABAAAA FILESTORE6;

ABAAAB FILESTORE7.

The content of the filestore sub-list file requested from outside the navigation facility is:

AA FILESTORE1;

AB FILESTORE2.

The content of the filestore sub-list file requested when the FILESTORE4 filestore is the current filestore is:

ABAAAA FILESTORE6;

ABAAAB FILESTORE7.

A negative acknowledgement is transmitted following a request for the sub-list of the filestores when the FILESTORE6 is the current filestore.

Annex D (normative): Enhancements

D.1 Description on transfer names and physical names

In particular, for a communication between heterogeneous operating systems, the physical names are not compatible. ETS 300 075 [1] provides, with the transfer name, a way of having file independence compared to the various file management systems available.

The application shall provide a "mapping" between these transfer names and the physical names.

D.2 Signatures

The applications may exchange their signature (product name, version number, etc.) by using the user data in the association request.

This exchange can only be carried out as part of a EUROFILE application (name "!K").

The use of this data is private. However, it shall not result in reactions that are contrary to the EUROFILE specifications.

The signature can contain either purely private information or public words, that is to say information which is recognized in the EUROFILE specifications.

The signature contains public words, its format shall be as follows:

- “EUROSFT92/[Number of public words]/[Public word 1]/.../[Public word N]/[Confidential information]”.

The different fields of the signature shall be as follows:

- the keyword EUROSFT92;
- the number of public words in the signature. This number can be zero;
- the value of each public word, the value of a public word cannot be a null string; multiple public words may be used;
- possibly a confidential information. The signature’s confidential information may be written in a string of no more than 254 characters.

These signature fields shall be separated by the character “/”.

The public word recognized in this ETS for the operating system name shall be:

- MSDOS;
- WINDOWS;
- UNIX;
- OS2;
- MACOS.

During reception and when the signature is interpreted, an incorrect syntax of the signature or an unrecognized public word value shall not cause any error. In particular, an ETS 300 075 [1] encoding (string of no more than 254 bytes) shall be accepted.

The public words recognized in this ETS for the system name shall be:

- FAT;
- HPFS;
- HFS;
- NFS
- MFS;
- MACBINARY.

The list of the public words may be extended in the future.

D.3 Private extensions of the navigation facility

Extensions of the navigation facility shall follow the same rules as those defined in subclause 7.3.5.

A request shall use the file T-Save or T-Load TDU with a specific transfer name.

A specific navigation transfer name shall contain three keywords, they are separated by s slash "/" and their contents is:

- EUROSFT92 for the first keyword;
- NAVIGATION for the second keyword;
- the name of the facility for the new keyword.

For a creation of filestore service, the caller requests a creation.

The caller may create a filestore in the current filestore, this request implements the T-Save Telesoftware Data Unit with a specific transfer name: "EUROSFT92/NAVIGATION/CREATE".

The called party shall respond with:

- a negative acknowledgement indicating "erroneous designation" if the function is not supported or if it does not wish to implement it;
- a positive acknowledgement if this function is accepted.

The file transmitted by the caller or the "create a filestore" file shall contain the name of the filestore to be created.

History

Document history	
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