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Service description**

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Foreword

This European Telecommunication Standard (ETS) has been produced by the Network Aspects (NA) Technical Committee of the European Telecommunications Standards Institute (ETSI).

In accordance with CCITT Recommendation I.130 [9], the following three level structure is used to describe the supplementary telecommunication services as provided by European public telecommunications operators under the pan-European Integrated Services Digital Network (ISDN):

- stage 1: is an overall service description, from the user's stand point;
- stage 2: identifies the functional capabilities and information flows needed to support the service described in stage 1; and
- stage 3: defines the signalling system protocols and switching functions needed to implement the service described in stage 1.

This ETS details the stage 1 aspects (overall service description) for the File Transfer & Access Management (FTAM) teleservice. The stage 2 aspects are detailed in ETS 300 350 and the stage 3 aspects are detailed in ETS 300 102 [2] and ETS 300 403.

Transposition dates	
Date of latest announcement of this ETS (doa):	30 September 1995
Date of latest publication of new National Standard or endorsement of this ETS (dop/e):	31 March 1996
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1 Scope

This European Telecommunication Standard (ETS) defines the stage one of the File Transfer & Access Management (FTAM) teleservice for the pan-European Integrated Services Digital Network (ISDN) as provided by European public telecommunications operators. Stage one is an overall service description from the user's point of view (see CCITT Recommendation I.130 [9]), but does not deal with the details of the human interface itself.

This ETS does not define the interworking requirements of private ISDNs with the public ISDN.

This ETS specifies the base functionality where the service is provided to the user via a private ISDN.

This ETS does not specify the additional requirements where the service is provided to the user via a telecommunications network that is not an ISDN but does include interworking requirements of other networks with the public ISDN.

Charging principles are outside the scope of this ETS.

The values of the general attributes are outside the scope of this ETS.

The FTAM teleservice is an international service enabling users to exchange files between different types of equipment in which negotiates end-to-end compatibility between terminals is guaranteed.

This ETS is applicable to the stage two and stage three ETSs for the ISDN FTAM teleservice. The terms "stage two" and "stage three" are also defined in CCITT Recommendation I.130 [9]. Where the text indicates the status of a requirement (i.e. as strict command or prohibition, as authorization leaving freedom, or as a capability or possibility), this shall be reflected in the text of the relevant stage two and stage three ETSs.

Furthermore, conformance to this ETS is met by conforming to the stage three ETSs with the field of application appropriate to the equipment being implemented. Therefore, no method of testing is provided for this ETS.

2 Normative references

This ETS incorporates by dated and undated reference, provisions from other publications. 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 revisions 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 300 080 (1992): "Integrated Services Digital Network (ISDN); ISDN lower layer protocols for telematic terminals".
- [2] ETS 300 102: "Integrated Services Digital Network (ISDN); User-network interface layer 3, Specifications for basic call control".
- [3] ETS 300 108 (1992): "Integrated Services Digital Network (ISDN): Circuit-mode 64 kbit/s unrestricted 8 kHz structured bearer service category; Service description".
- [4] ETS 300 125: "Integrated Services Digital Network (ISDN); User-network interface data link layer specifications; Application of CCITT Recommendations Q.920/I.440 and Q.921/I.441".
- [5] ETS 300 345: "Integrated Services Digital Network (ISDN); Interworking between public ISDNs and private ISDNs for the provision of telecommunication services; General aspects".
- [6] ETS 300 388: "Integrated Services Digital Network (ISDN); File Transfer Access & Management (FTAM) over ISDN based on simple file transfer profile".

- [7] CCITT Recommendation E.164 (1991): "Numbering plan for the ISDN era".
- [8] CCITT Recommendation I.112 (1988): "Vocabulary of terms for ISDNs".
- [9] CCITT Recommendation I.130 (1988): "Method for the characterization of telecommunication services supported by an ISDN and network capabilities of an ISDN".
- [10] CCITT Recommendation I.210 (1988): "Principles of telecommunication services supported by an ISDN and the means to describe them".
- [11] CCITT Recommendation I.220 (1988): "Common dynamic description of basic telecommunication services".
- [12] CCITT Recommendation X.500 (1988): "Information Technology - Open Systems Interconnection - The Directory: Overview of concepts, models and services".
- [13] ISO/IEC 8571 (1988): "Information Processing Systems - Open Systems Interconnection - File transfer, access and management".
- [14] ISO/IEC 10607-3 (1990): "Information Processing Systems - Open Systems Interconnection - Simple File Transfer Service (Unstructured) - (corrected and reprinted 1991-12-15)".
- [15] ISO/IEC 10607-6 (1991): "Information Processing Systems - Open Systems Interconnection - File Management Service".
- [16] ISO/IEC DISP 11190: "Information Technology - International Standardized Profile FD13 - Directory Data Definitions - FTAM Use of the Directory".

3 Definitions

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

Integrated Services Digital Network (ISDN): See CCITT Recommendation I.112 [8], § 2.3, definition 308.

service; telecommunications service: See CCITT Recommendation I.112 [8], § 2.2, definition 201.

supplementary service: See CCITT Recommendation I.210 [10], § 2.4.

ISDN number: A number conforming to the numbering plan and structure specified in CCITT Recommendation E.164 [7].

teleservice: See CCITT Recommendation I.112 [8], § 2.2.

filestore: Work space that contains the files available for file transfer operations.

navigation: Capability to change and manage the change of the files of the remote entity.

dedicated terminal: A terminal only supporting the FTAM teleservice.

multiservice terminal: A terminal supporting the FTAM teleservice in addition to other bearer services and teleservices.

bearer service: See CCITT Recommendation I.112 [8], § 2.2, definition 202.

identifier: A user's name and optionally a password.

basic service: One provided by a terminal whose implementation claims basic conformance to the FTAM teleservice as defined in ETS 300 388 [6].

full service: One provided by a terminal whose implementation claims full conformance to the FTAM teleservice as defined in ETS 300 388 [6].

4 Abbreviations

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

CLI	Calling Line Identification
ISDN	Integrated Services Digital Network
FTAM	File Transfer & Access Management
PC	Personal Computer
TP	Terminal Portability

5 Description

The FTAM teleservice is a service, which defines end-to-end compatibility between different types of terminal. During the connection the network only provides a bearer service.

Users of the FTAM teleservice can exchange and manage files of any type either manually or (with some terminals) automatically via telecommunication networks. The FTAM teleservice provides services which allows the interrogation and management of distant filestores.

The FTAM teleservice defines asymmetric connection between the two application entities. On any connection one acts in the role of initiator and one in the role of responder. A basic terminal may chose to implement only one role, however an implementation claiming full conformance must have the capability of acting in both roles. In addition, an implementation claiming only basic conformance need not implement the filestore management capabilities.

Basic conformance as defined in ETS 300 388 [6] is compatible with ISO/IEC 10607-3 [14]. Full conformance is in addition compatible with ISO/IEC 10607-6 [15].

During a call, data are transferred on one B-channel.

Users of the FTAM teleservice can be either human users or automatic application entities. The human interface is outside the scope of this ETS.

5.1 Terminals

The FTAM teleservice profile takes account of a number of different types of terminals. Terminal supporting the FTAM teleservice can be dedicated or multiservice terminals such as:

- stand-alone Personal Computers (PCs);
- computers of any type;
- file servers.

Terminals supporting the full FTAM teleservice shall provide file exchange and management.

Figure 1 shows a typical model for the implementation of an FTAM teleservice in a terminal.

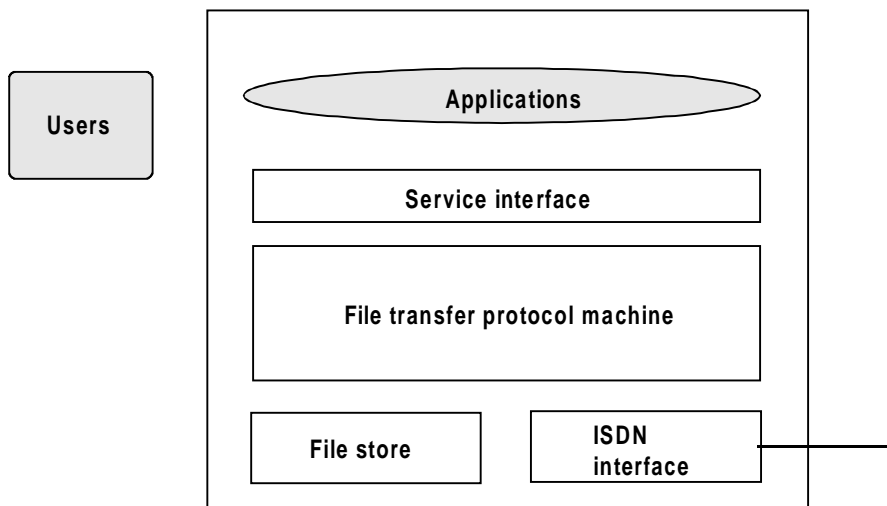


Figure 1: Example of a terminal model for the FTAM teleservice

5.2 Interoperability

After the connection has been established, the calling user shall negotiate in-band with the called user the options to be used for file transfer. Only those options supported by both user shall be selected. No information exchange before call-set up about available options shall be necessary in order to ensure interoperability (with the exception of the exchange of security information, i.e. username and password).

NOTE: With no prior knowledge of the options available from the other user, the file transfer operation resulting from the negotiation may be unable to use the available capabilities.

Terminals shall use the 64 kbit/s bearer capability within ISDN.

The procedures required for the establishment of connections over which files can be transferred are identical to the corresponding procedures for the circuit-mode 64 kbit/s unrestricted bearer service category (see ETS 300 108 [3]).

6 Procedures

6.1 Call establishment and termination procedures

The procedures required for the following aspects of the FTAM teleservice shall be identical to the corresponding procedures for the circuit-mode 64 kbit/s unrestricted bearer service category (see ETS 300 108 [3]):

- a) normal procedures for establishing, maintaining and terminating calls; and
- b) exceptional procedures for failure situations.

6.1.1 Originating the call

6.1.1.1 Provision of dialling and addressing information

The terminal should provide to the user the means to identify the requested correspondent. The information required such as ISDN numbers (CCITT Recommendation E.164 [7]) the OSI application entity title and other relevant information (for example the sub-address) of known parties can be stored in a local directory or accessed through the CCITT Recommendation X.500 [12] Directory service.

6.1.1.2 Provision of the caller identification

The terminal may provide the user the means to enter an identifier when initiating the call. The identifier shall then be exchanged during the in-band negotiation. Nevertheless the user can choose whether or not to provide an identity to the correspondent.

6.1.2 Remote user identification check

Information, consisting of a user name, calling application entity title and a password, as defined in ETS 300 388 [6], of recognized remote users can be allocated and stored in an "access control list" together with the corresponding service authorizations. These are used to accept/or refuse a call and to define the services and the files visible to the caller.

Remote Calling Line Identification (CLI), if available, can be used to identify the calling location.

If no remote user identification or remote CLI is available, the called terminal can still grant an authorization within the limit established in the "access control list".

The detailed description of these functions is given in ETS 300 388 [6].

6.1.3 Terminating the call

Orderly termination of a call should be requested by the caller but the call may be abnormally terminated by either one of the users by requesting it. If one user terminates the call and the other user has not yet terminated the call, an appropriate indication shall be sent to the other user.

The termination of the call shall conform to ETS 300 108 [3].

The termination of the file transfer shall conform to ISO/IEC 8571 [13].

6.2 File transfer procedures

6.2.1 File transfer services

When the connection is established, file transfer procedures shall be available to the calling user.

For the purpose of the FTAM teleservice, file transfer operations shall be carried out between the remote filestore and the local filestore.

File names, which may be different from those used by the operating system, shall be used for transfer operations. They shall be unique in the remote filestore. They shall provide operating system independence.

Only the calling entity shall be able to initiate the file transfer procedures. The basic service allows:

- transfer one or more files from the local filestore to the remote filestore;
- transfer one or more files from the remote filestore to the local filestore;

in addition the full service allows:

- list "file names" of files visible in the remote filestore.

NOTE 1: An entity may permit only certain files to be visible to the other user.

NOTE 2: Common rules for the naming of files can be used to harmonize the user view of file names used for transfer operations.

6.2.2 File format

Information in the file copied by means of the file exchange service between terminals shall be logically identical with the original in content.

6.2.3 Filestore management

When the connection is established the user identity is used to establish the base or working directory. Navigation services should be available to the remote user to select a different working area. The filestore management addenda define how to navigate through the overall filestore

6.2.4 Remote file management (rename, delete, etc.)

Within the limits of the access rights given by the remote entity, the local entity can be allowed to perform management operations (such as rename, delete, etc.) on files included in the remote filestore.

File name(s) used for these operations shall be the same as those used for transfer operations.

A detailed description of this function is given in ETS 300 388 [6].

6.2.5 Automatic mode and recovery

An automatic communication mode may be provided to initiate the ISDN calls and to process the file transfer operations when the user is not present. Terminals supporting the automatic communication mode shall also support a file transmission recovery mechanism.

A detailed description of this function is given in ISO/IEC 8571 [13].

6.3 Exceptional procedures

Exceptional procedures for call establishment are identical to those defined in ETS 300 108 [3].

Incompatible options or procedural errors detected during the in-band communication are handled as in ISO/IEC 8571 [13].

6.4 Terminal management services

6.4.1 Communication log

Local services should be provided to register and clearly indicate to the user the result of each communication event. This indication should be provided by a log capable to rapid display the latest events. The log should include a trace of any communication event or any communication incident. The log-examine function should always be able to access the log, independent of the status of the call and the operation mode. The log-examine function should be able to access at least the latest communication events.

6.4.2 Directory and access control list

Local services shall be provided to access and administrate the local and CCITT Recommendation X.500 [12] remote directories and the access control list by an authorized administrator. A detailed description of these functions are given in ETS 300 388 [6] and FTAM use of the Directory ISO/IEC DISP 11190 [16].

6.4.3 Local configuration procedures

Administration services of the local file transfer application should be provided in order to access or configure local parameters, including, but not limited to:

- the local ISDN address (and the subaddress when appropriate);
- the technical configuration parameters.

7 Intercommunication considerations

7.1 Interworking with non-ISDNs

This is done using IWUs as defined in the ISO network and transport services.

7.2 Interworking with private networks

Interworking with private ISDNs shall include the general requirements given in ETS 300 345 [5].

The situation where the communicating users are attached to a private ISDN and a public ISDN is detailed in clauses 5 and 6.

8 Interaction with other supplementary services

The considerations for the interaction with supplementary services shall be identical to those described in ETS 300 108 [3], clause 8.

As indicated by ETS 300 080 [1], the Terminal Portability (TP) supplementary service shall not be used.

9 Static description of the service using attributes

9.1 Low layer attributes

9.1.1 Information transfer attributes

The information transfer attributes of this teleservice are specified in table 1.

Table 1: Values of information transfer attributes

Attribute	Possible values
Information transfer mode	- circuit
Information transfer rate	- 64 kbit/s
Information transfer capability	- unrestricted digital information
Structure	- 8 kHz integrity
Establishment of communication	- on demand
Symmetry	- bi-directional symmetric
Communication configuration	- point-to-point

9.1.2 Access attributes

The access attributes of this teleservice are specified in table 2.

Table 2: Values of access attributes

Attribute	Possible values
Access channel and rate	User information - B-channel Signalling - D-channel
Signalling access protocol	ETS 300 125 [4] and ETS 300 102 [2]
Information access protocol	ETS 300 080 [1]

9.2 High layer attributes

Type of user information: files.

Layers 4, 5, 6 and 7 protocols: ETS 300 388 [6].

Other attributes are not applicable.

9.3 General attributes

This ETS does not provide values for general attributes.

10 Dynamic description

The dynamic description for the call control aspects of the FTAM teleservice shall be identical to that for the circuit-mode 64 kbit/s unrestricted bearer service category on a demand basis which is given in CCITT Recommendation I.220 [11].

History

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