FILE TRANSFER PROCEDURE (F. PROCEDURE)

General Description Ver. 2.0

Sept. 1992

New Procedure Study Committee

Center for the Informatization of Industry
Japan Information Processing Development Center

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Introduction

This document outlines the File Transfer Procedure (F Procedure) needed to implement EDI (electronic date interchanges) using OSI/FTAM (File Transfer, Access and Management) as its basis. Center for The Informatization Industry and Japan Information Processing Development Center have already published File Transfer Procedure (F Procedure) General Description Ver.1.0 in May, 1991, incorporating user requirements. This procedure has been modified by reexamining its basic functions, reflecting studies made by the vendors.

The major changes are as followss:

(1) Expansion in support circuits

To secure connectability among F Procedure procucts, ISDN line switching has been designated as mandatory support among telephone network, data switching network (packet and line switching), ISDN (packet and line switching) and leased circuits. In addition to ISDN, four types of LANs (CSMA/CD, token bus, token ring and FDFI) have been added as options.

(2) Enhanced file read by generic names

To assure interoperability, the selection of files in the ascending order of cycle identifiers has been defined as the basic operation in selecting unsent files on the responder side. The support of other methods, such as selecting a file whose cycle identifier is the largest, is left to the implementation discretion.

(3) Setting of detailed error codes

Error items and detailed error codes of the protocol have been reexamined. Codes specific to the F Procedure have been defined for detailed error codes on the F Procedure protocol by a method recognized for FTAM, rather than mapping to the FTAM error codes which are similar. The diagnostic

texts (English) operated in the protocol have been defined as options.

(4) Improved prevention of duplicated file transfer function

Specifications as to whether or not prevention of duplicated file transfer is necessary is now possible for each file.

(5) Expanded profile

Considering promotion of penetration on the personal computer level, two support levels have been established, namely, the standard profile for mainly main frames, and the reduced profile for mainly computers including personal computers but excluding main frames. The mandatory items have been reexamined. The reduced profile is a perfect subset of the standard profile.

(6) Setting of FAI specification (formerly UAI specification)

Version 1.0 was primarily intended for system implementers. Assuming that the interface specification of this level (abstract interface not language bound) would be useful to the users, a specification that can be referred to by the users in addition to the implementers has been drawn up.

The F Procedure will continuously be improved as necessary.

In conclusion, the two organizations express their gratitude to those concerned in cooperating with the development of the F Procedure, including the committee members and staff of the New Procedure Study Committee and F Procedure Promotion Working Group.

Center for The Informatization Industry

Japan Information Processing Development Center

C O N T E N T S

CHAPTER 1   PURPOSES AND BACKGROUND OF F PROCEDURE

1.1   Background for The Study

Effects obtained from and roles played by information and communication networks are extremely significant in company activities and are regarded today as one of the important infrastructures.

Accelerated by technical advances and active business transactions among companies, information and communication networks are expanding to cover wide areas and are diversifying. Viable interoperability among systems has become not only a technical task in multivendor environments, but also a great challenge to sound development of all industries.

Some industries, such as financial and distribution, have developed and established communication procedures called industry standard procedures to solve this problem. This has greatly contributed to accelerating the networking of the industries. Furthermore, their specifications have been widely publicized to a great advantage of being widely used by other industries as well.

Nevertheless, these industry standard procedures have been developed for specific business purposes of specified industries and there are boundaries for their use by a large variety of fields. Communication circuits and the business environment have rapidly changed recently, compared with the time when these standards were established. Many industries have expressed their hope to establish new communication procedures.

To be more specific, the existing industry communication procedures are unable to meet the following problems, and communication procedures with higher functions and versatility have been demanded:

① Intercompany networks in Japan and in foreign countries are expanding further.

② More requests have been received for standardization centering on business protocols applied within specific industries and also among different industries.

③ Needs generated by the business environment, such as diversification of applications, data of very bulk and frequent data use.

④ High system functions such as operation management and security.

⑤ Connection to ISDN and other communication circuits.

It was against this background that the Center for The Informatisation of Industry (CII) of the Japan Information Processing Development Center (JIPDEC) started a study to develop a new procedure (tentative name: F Procedure) for file transfer much used among companies beginning in August, 1989, in cooperation with ten industries; steel, electric power, petrochemical, electronic equipment, general trading, retail, banking, insurance and securities.

1.2 Basic Policies and Brief History of The Study

The following matters were set as a basis for the study of the F Procedure:

① In the existing industry procedures, both data and communication control parts are specified as one body so that the scope of impacts caused by changes necessitated by introducing new technologies is large. This limits their applicability and function expansibility. Data interchange will be allowed by a common mechanism, regardless of the industry format, by

thoroughly standardizing the communication part and separating it from the data part.

② Therefore, an OSI of international standard which does not depend on protocols of specified vendors and can be expanded in the future would be used as the communication protocol, as the basis for the F Procedure.

③ The principal applied business of the F Procedure would be EDI. User operational functions and other matters not included in the OSI specification would be incorporated by grouping and commonalizing them as much as possible, to create a standard procedure whose functions are enhanced compared with those of the existing procedures, to enable use by many industries.

④ The procedure must be usable with not only large computers, but also workstations and personal computers.

⑤ The F Procedure specification would be opened widely. For this reason, an environment would be created so that many vendors would provide packages supporting the F Procedure for easy use of the procedure by the users.

⑥ Work such as coordinating among the vendors would be planned aiming at offering products supporting the F Procedure in the marketplace between April and September, 1993.

Based on these basic policies, the study has been made on the functions implemented in the F Procedure and standardization scope while absorbing the actual condition of the file transfer business in the various industries, and wishes improvement to the existing industry procedures.

The functions of the F Procedure presented in this manual reflect the needs of many industries. The CII plans to solicit evaluation by principal industries to verify differences in interpretation of functional requirements and overall approach.

1.3 Basic Approach to F Procedure

The F Procedure would be developed into a communication procedure standardized on user needs of functions and specifications needed for the users to operate information networks, such as:

a. Profile selection

b. Profile utilization method (handling of options and parameters)

c. Addition of transfer protocols

d. Addition of operation protocols

in addition to OSI protocols and profiles to accomplish interconnection and interoperation in data interchange through networks among companies. The communication procedure should be able to be used by many industries. The specification of the communication procedure would be made open to the public widely and would be maintained and managed by an appropriate organization.

Therefore, the F Procedure defines specific utilization procedures and function additions for practical operation (applied business processing) in the FTAM profile as the basis of the F Procedure.

Figure 1-1 shows the concept used in defining the standardization area of the F
Procedure as a new procedure for file transfer.

F Procedure
Structure
                    F Procedure Standardization Area
EDI
Profile Model

F Procedure Structure	F Procedure Standardization Area	EDI Profile Model
UAP	Business Transaction Profile on File Transfer	Basic Transaction Profile
	③ Application Processing Profile (System Operation Profile) / Data Format, etc.	Business Operation Profile / Information Representation Profile
— FAI —	② Communication executing profile	
FTP	① Information Transfer Profile	Information Transmission Profile
FTAM	Basic FTAM Standard and implementation Standard Profile (Profile FTAM of OSI)	

① Information Transfer Profile
   The additional profile to the FTAM implementation standard profile and the
   FTAM utilization method and function addition and complementing part are
   implemented as FAI (FTP Access Interface).

② Communication Executing Profile
   The functions and interface part needed for business operation through
   networks, implemented as FAI (FTP Access Interface).

③ Application Processing Profile
   The profile for applied business, implemented as UAP (User Application
   Process).

Figure 1-1   Concept of F Procedure Standardization Area

The structure and approach mentioned above are described in the following
chapter.

— 5 —

CHAPTER 2   PROFILE OF F PROCEDURE

The F Procedure has been developed as a communication procedure for use widely across industries, solving functional, operational and management problems which the existing industry procedures have, independent of vendor equipment models.   As a system, it consists of a communication system based on the OSI stnadard file transfer protocol (FTAM) and a system called FTP having a standard interface function with user applications.

The communication system based on FTAM (this communication system itself will be called "FTAM" in the rest of this manual) assures interconnection between equipment of different models and FTP provides the operation, security and error management functions, which cannot be covered by FTAM, with user applications after standardizing them.

2.1 Characteristic of F Procedure

① Enhanced operational functions

In addition to the operational functions of the existing industry procedures, new functions have been added and standardized for user convenience.

As an example, file read by a pilot name and send and receive file status confirmation have been standardized.

② Expansion of communication media

The use of the OSI has greatly expanded the applicable communication circuit selection menu for the F Procedure, enabling high-speed transmission and reduction of communication costs.

As communication circuit types, date switching networks (packet and data line switching networks), ISDN networks (packet and line switching networks), leased circuits and various types of LANs can now be used in addition to telephone networks. The ISDN line switching networks can be used by all the F Procedure packages. The use of the other circuit types differs depending on the individual F Procedure packages.
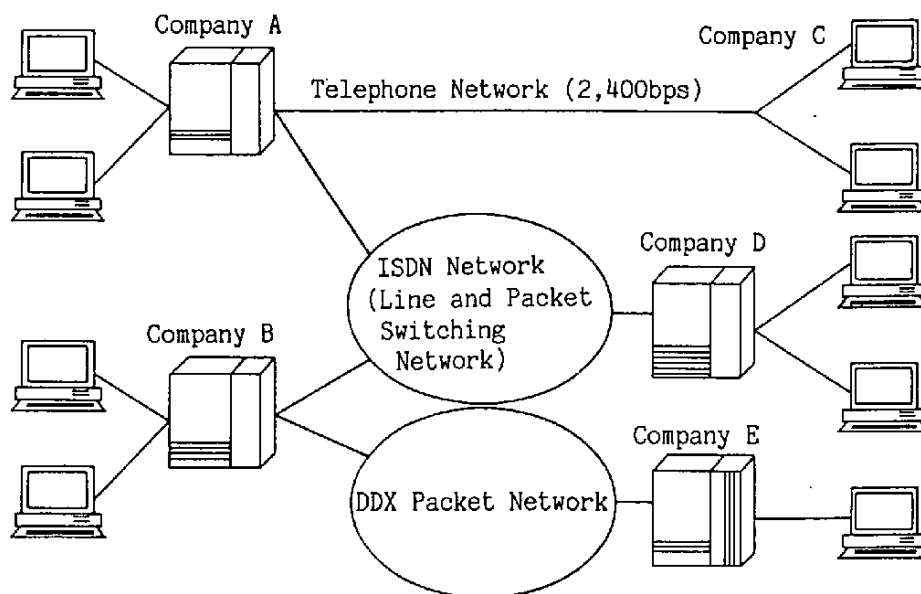
Example of Circuit Utilization Mode in F Procedure

③ Interconnectibility

The F Procedure is a protocol specification based on the FTAM standard profile of INTAP (Interoperability Technology Association for Information Processing, Japan). Communication control processing of it is generalized and standardized accordingly to solve interconnection problems between equipment of different models.

As the message format, the EDI format, existing industry transmission formats and other formats can be handled.

④ Data maintainability

The specification fully takes the maintainability of transfer data into consideration to establish a communication procedure that can be used among various industries. As an example, functions such as identifying communication parties on the other side, access control and control information protection have been standardized as security management functions.

⑤ Easy migration

The F Procedure is considered as an enhanced version of the F/Federation of Bankers Associations of Japan Procedure and is designed to allow operation equal to that of the existing procedures. Migration is therefore easy.

2.2 Function of F Procedure

As shown in Table 2-1, the functions of the F Procedure can be divided roughly into five groups: the basic FTAM, transfer management, operation management, security and error management functions.

All the standard functions are expected to be implemented in mainframes and similar other computers, even though the implementation of the option functions is left to the discretion of the vendors which provide products. The implementation of all the standard funcrtions sometimes overburdens small computers. For this reason, a reduced profile requiring the implementation of only the mandatory basic file transfer functions among the standard functions has been set in addition to the standard profile which requires the mandatory implementation of all the standard functions.

File transfer will be possible between a system that implements the standard profile and a system that implements the reduced profile. The use of some of the functions, however, will be restricted. As an example, file read by a

pilot name cannot be used.

The functions shown in Table 2-1 that have an asterisk (*) are the functions for which systems on the reduced profile side not implementing such functions respond with an error message if a connection request is received from a system which implements the standard profile.

The option functions, on the other hand, are local functions and are free of connection constraints regardless of the implementation.

The standard functions are outlined below:

① Transfer management functions

These functions are needed to operate the data interchange system. In addition to the basic file transfer functions such as the FTAM drive (function to initiate FTAM), "multiple file transfer", "Empty file transfer" and "enforced termination of date transfer" are possible. Additionally, functions matching cycle management such as "file read by a generic file name" will be provided.

② Operation management function

Requests for reinforced operation management function are most strong, and many operational functions have been reinforced and commonalized. Of them, the cycle management, prevention of duplicated file transfer,transmission available time and inquiry of various states set to smooth operation with a main frame will be provided in the standard profile as mandatory functions.

Cycle management is the function implemented to maintain the uniqueness of individual file groups and allow management of files comprising groups of files with Generic file names, even if data is transferred several times in

the same Generic file names.

These operational functions have been incorporated in conventional communication systems on a case-by case basis after users discuss them with other parties in transactions. However, these functions are not commonalized and have caused problems in system architecture each time a new connection is needed, such as requiring review. The introduction of the F Procedure improves this troublesome work.

③ Security management function

The security check methods are not necessarily unified in communication procedures widely used at present. The check method (during reception) and log-on procedure (during transmission) are changed for each party or security check is omitted. The F Procedure systematizes and unifies security checks and incorporates functions that are more enhanced than those of the existing communication procedures.

Functions such as initiator identification, responder identification, initiator verification and access control will be provided as mandatory security functions.

In addition to these functions, an optional security log function inside systems is available.

④ Error management function

Interpretation of FTAM status information in errors has been commonalized for file commitment management and other aspects. This will free the users from interpreting complex FTAM status information and will allow them to receive information needed to decide business operation in a yes-or-no form. A function to query data transfer status at any time is also available,

using the transfer status inquiry function.

The incorporation of these functions simplifies status grasping and trouble isolation work in a circuit error, which has previously required a long time, to make system operation efficient. Needless to say, FTAM is the basis for basic transmission error checks and the recovery system, and reliability is higher than the existing BSC procedure basis. Therefore, the systems with the F Procedure installed will have higher reliability for the entire systems and their effective operation efficiency will improve.

Furthermore, the FTAM recovery and resume functions can be used as options. The users who have opted to install these options can commonly receive services of the recovery system standardized by FTAM.

Table 2-1 List of Functions

		Standard Function	Option Function
File Transfer Service	Basic FTAM Functions	File receive	• Data compression
	Transfer Management Functions	Basic function of file transfer • Multiple file transfer • File read by Generic file name* • Empty file transfer • Enforced termination of file transfer	
	Operation Management Functions	• Cycle management* Prevention of duplicated file transfer • Transmission available time • Sending and receiving file status check*1 • File Transfer status inquiry (processing status and other) • Processing jurnal management facility (transfer log including time stamp)	• Automatic fetch during sending • Job initiate during receiving • File processing linkage after finishing transfer • Online Control from terminals (command processing) • Priority control
	Security Management Functions	Initiator side identification Responder side identification • Initiator identification (initiator password) • Access control (file access password)	• Security log
	Error Management Functions	File commitment management Error processing Retransmission	• Inquiry of error status

: Any F Procedure Packages will always be supported.

* : Can be used only between systems that implement this function.

*1: Supported as a principle.

2.3 Configuration of F Procedure

2.3.1 General

The shaded parts in the following diagram show the concept of the objects and scope specified in the F Procedure. The structure of the F Procedure will be outlined using this diagram.

Company A System (Initiator)   Company B System (Responder)

Interconnectibility
(FTAM Protocol)

Interoperability (FTP Protocol)
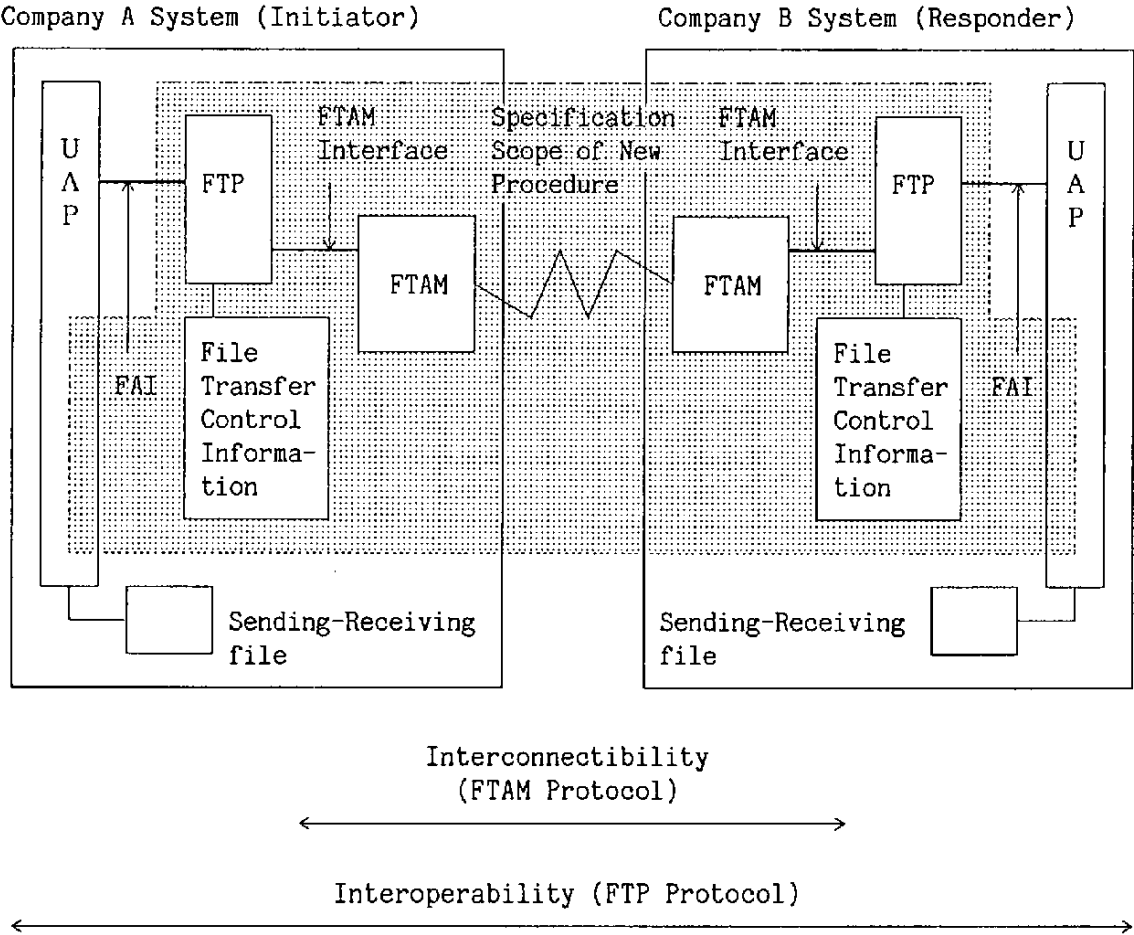
Figure 2-1 Structure of F Procedure

① FTAM

The F Procedure uses the FTAM Implementation Specifications (Ver 2, AP.111) issued as a JIS annex and specifies selection of specified service functions and specific utilization scope and method without changing the standard profile.

② FTP (File Transfer Process)

Commands from the user application side are transmitted to FTP by commonalized interfaces (FAI) and FTP converts them into primitive needed to give instructions to FTAM. As a result, the users will be freed from the complex primitive system of FTAM and errors in such as primitive issuing can be eliminated. FTP provides functions which are not originally incorporated in FTAM.

③ FAI (FTP Access Interface)

FAI is a common interface for information interchange between FTP, computer system OS and user application programs (instructions from users and responses from FTAM). By commonalizing interfaces, commands for processing related to data interchange instructed by user application programs will be commonalized. The methods of data interchange themselves will also be commonalized. This will enhance the interconnectibility.

④ UAP (User Application Process)

UAP consists of user application programs and a subsystem which provides functions not supported by FTP.

User application programs are pure application programs that process user business and can be considered as programs that are already operated in the existing systems. The principal functions of the subsystem are processing related to operation support tools provided by vendors and to operation incorporated independently by users. Therefore, systems that utilize the F Procedure implement necessary functions in accordance with the characteristics of the computer systems independent of FTP for operation, security and error management.

⑤ File transfer control information

File transfer control information is registered, updated, looked up and deleted by UAP and FTP for control or management of file transfer operations.

⑥ Sending and receiving file

A file used in sending data to a system at the other end is called a sending file. A file used to receive data from a system at the other end is called a receiving file. Sending and receiving files are set on the initiator and responder sides, respectively. These files are generically called transfer files.

In this manual, the initiator side is the side issuing transfer requests and the responder side is the side receiving transfer requests.

2.3.2 Composition of functions

Using service primitives specified in the FTAM standard profile by INTAP, FTP in the F Procedure accomplishes file transfer management and control functions to transfer files between other systems by OSI/FTAM protocols.

Figure 2-2 shows the composition of the F Procedure functions. The user interfaces in this procedure standardize and specify interfaces when UAP accesses file transfer control information specified by FTP and interfaces needed when UAP requests operation from FTP.

```
┌──────────────────────────────────────────────────────────────┐
│                         U   A   P                            │
│      User Application Processing (File Transfer Business)     │
└──────────────────────────────────────────────────────────────┘
   ①Request Issue    ②Result Get    ③Transfer Control    FAI
                                                          (FTP Access
   Interface         Interface       Access              Interface)
                                     Interface

┌──────────────────────────────────────────────────────────────┐
│   ┌──────────────────────────────────────────────────────┐   │
│   │                    F   T   P                          │   │
│   ├──────────┬──────────┬──────────┬──────────┬──────────┤   │
│   │ Transfer │Operation │Security  │Error     │File      │   │
│   │Management│Management│Management│Management│Transfer  │   │
│   │          │          │          │          │Control   │   │
│   │          │          │          │          │Information│  │
│   └──────────┴──────────┴──────────┴──────────┴──────────┘   │
│          ④FTAM                                  FTAM         │
│                                            (Access Interface) │
│       Service Primitive Interface                            │
│   ┌──────────────────────────────────┐                       │
│   │            F   T   A   M          │                       │
│   │  (Based on standard profile of INTAP)                    │
│   └──────────────────────────────────┘                       │
└──────────────────────────────────────────────────────────────┘
```

F Procedure

┌──────────────────────────────────┐
│   OSI upper layer common function │
└──────────────────────────────────┘

① Request Issue Interface

Specifies interfaces when UAP issues various requests to FTP.

② Result Get Interface

Specifies interfaces when UAP receives results from FTP.

③ File Transfer Control Information Access Interface

Specifies register, update, delete and look-up with various operational

information which file transfer control information has.

④ FTAM Service Primitive Interface

Specifies communication protocols between FTP and FTAM in accordance with

the service primitive based on the INTAP standard profile.

Figure 2-2 Composition of F Procedure Functions

UAP

<Operation Management>

Automatic start-up
during sending

Job initiating
during receiving

File processing linkage
after finishing transfer

Online control from terminal

Priority control

Cycle management

Processing journal
management

<Security>

Security log

<Error Management>

Inquiry of error status Error processing

Retransmission

FAI

FTP

<Transfer Management>

Basic function of file transfer
(request acknowledge,
  result notice, FTAM drive)

Multiple file transfer

File read by generic file name

Empty file transfer

Enforced termination of file transfer

<Operation Management>

Prevention of duplicated file transfer

Cycle management

Transmission available time

Sending and receiving file
status check

File transfer status inquiry

<Security>

Initiator side identification

Responder side identification

Initiator
verification

Access control

File tranfer
control
information

<Error Management>

File commitment management

Error management

FTAM
access

FTAM

File send and receive

NOTE: Shaded functions are supported
any F procedure package.

Figure 2-3 Structure of F Procedure Functions

— 18 —

2.4 Basic Sequence

2.4.1 General

(1)   Transfer mode

File transfer in the F Procedure is divided into initiator sending, responder receiving, initiator receiving and responder sending modes as transfer modes.

① Initiator sending, responder receiving

Initiator side   Responder side
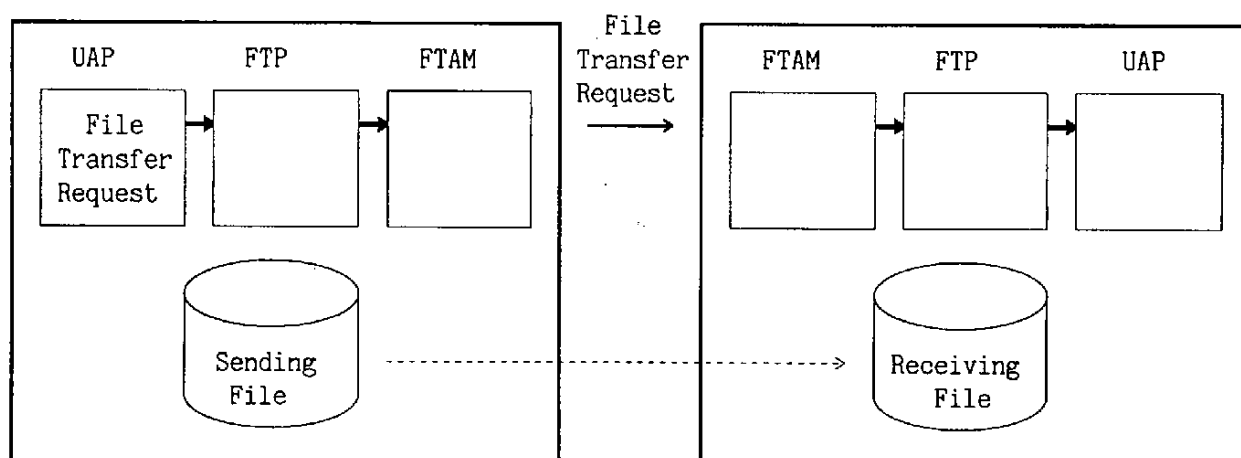
② Initiator receiving, responder sending

Initiator side   Responder side
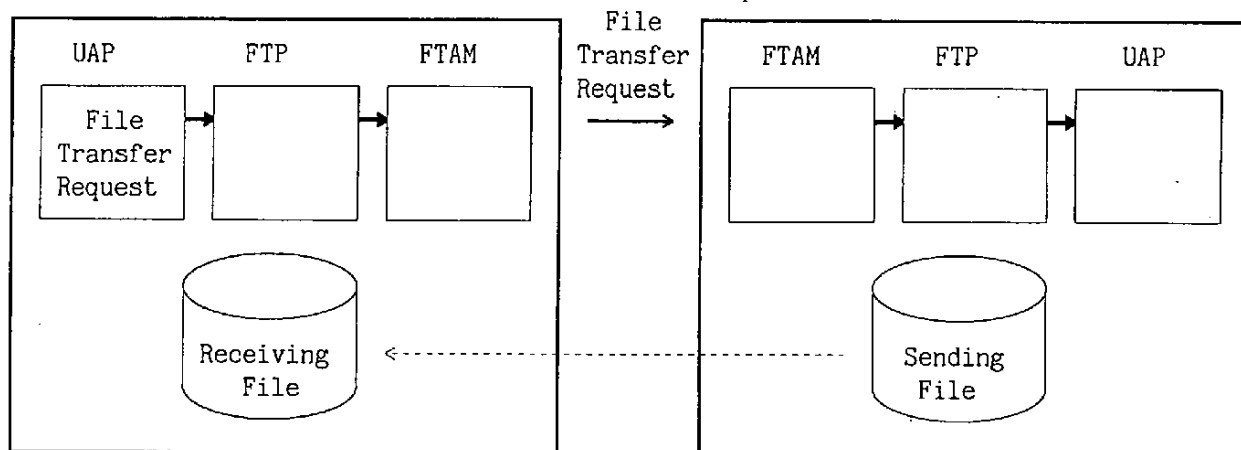
(2)   Basic Sequence

In file transfer by the F Procedure, UAP makes file transfer request to FTP

through FAI. When a file transfer request is made, file transfer control

information has to be set as preparation for transfer.   At times, the

transfer file preparation status is notified or queries. Data is stored in

a sending file or receiving files are prepared in advance. File transfer

status can be queries from UAP if necessary.   The transfer results are

notified from FTP to UAP after transfer is finished and UAP can process in

various ways in accordance with the results.

Figure 2-4 shows a typical basic sequence.

Typical Basic Sequence

Initiator Side

Responder Side

File Transfer Control Information

File Transfer Control Information

UAP	FTP	FTAM	FTAM	FTP	UAP

1. Setting file transfer control information
   Information of party at other end
   File information
   File transfer request information, etc.

Information of party at other end
File information
File transfer request information, etc. is set
· Transmission available time
· Initiator identification
· Responder identification
· Password, etc.

Partner information
File information
File transfer request information, etc.is set
· Transmission available time
· Initiator identification
· Responder identification
· Password, etc.

1. File transfer control information setting
   Partner information
   File information
   File transfer request information, etc.

2. Preparation of transfer files
   Strage of send file data
   File information update

File transfer status reset

File transfer status reset

File information update

2. Transfer file preparations
   Store send file data

(As required)
3. Transfer file status check
   Transfer file status inquiry
   Transfer file status notice

Home-side file prepared notice
Other-party file prepared inquiry

FTAM primitives
F-INITIALIZE
F-TERM, etc.

FTAM primitives
F-INITIALIZE
F-TERM, etc.

Home-side file prepared notice
Other-party file prepared inquiry

(As required)
3. Transfer file status check
   Transfer file status inquiry
   Transfer file status notice

4. File transfer (start)
   Transfer start request
   (send, receive)

Basic function of file transfer
Multiple file transfer
Empty file transfer
Enforced termination of file transfer   Security
Prevention of duplicated file transfer
Transmission available time check

FTAM primitives
F-INITIALIZE
F-SELECT/F-OPEN
F-WRITE/READ
F-DATA
:
F-CLOSE/
    F-DESELECT

FTAM primitives
F-INITIALIZE
F-SELECT/F-OPEN
F-WRITE/READ
F-DATA
:
F-CLOSE/
    F-DESELECT

Basic function of file transfer
Multiple file transfer
Empty file transfer
Enforced termination of file transfer   Security
Prevention of duplicated file transfer
Transmission available time check
Transfer start notice
(for each file)

4. File transfer (start)
   Transfer start request
   (Send, receive)

Transfer start get

Transfer start notice
(for each file), etc.

Transfer start get

(As required)
5. File transfer status inquiry
   Home-side file transfer status inquiry

status notice

F-TERM etc.

F-TERM etc.

Status notice

(As required)
5. File transfer status inquiry
   Home-side file transfer status inquiry

6. File transfer (end)

Transfer end get

Transfer end notice
(for each file)

Transfer end notice (for each file)

6. File transfer (end)
   Transfer end get

7. Transfer end post processing
   Processing jurnal
   Job linkage
   File processing
   (Receiving file data processing), etc.

7. Transfer end post processing
   Processing jurnal
   Job linkage
   File processing
   (Receive file data processing), etc.

Transfer files (sending files, receiving files)

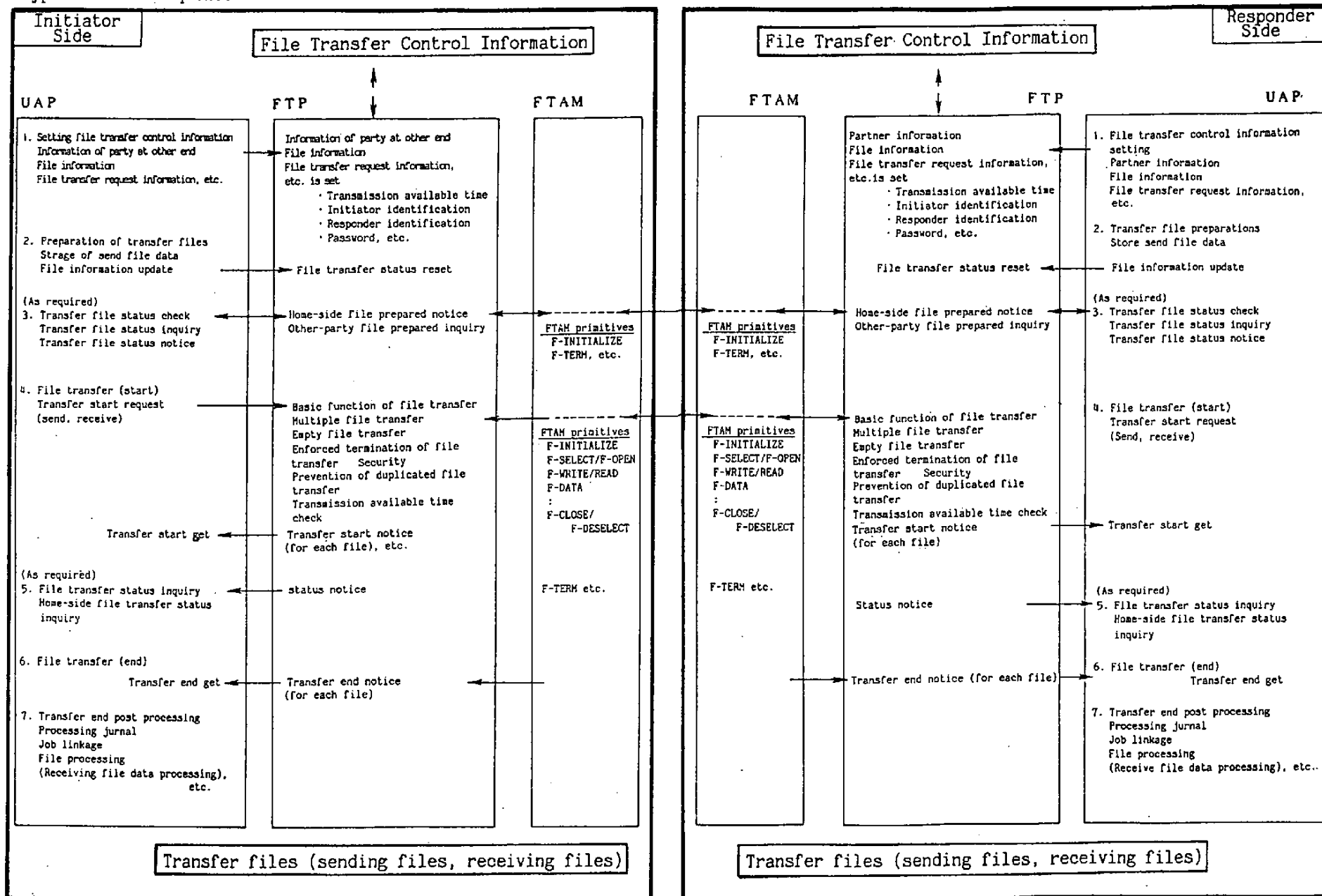Transfer files (sending files, receiving files)

Figure 2-4 Typical Basic Sequence

2.5 Relationship with FTAM Implementation Profile

2.5.1   Identification of data format

In the F Procedure, the information in transfer files can be notified during

file transfer as additional information. (Option function) The file

information can be widely and uniquely identified in a standardized method using

"object identifier." For example, a data format arranged by "the National

Association of _____ " is registerd as an identification object (which

is called an "object") and the identifier allocated at that time can be used.

This can be accomplished by file attribute parameters which have a file

structure and data format called the INTAP-1 document form defined in the FTAM

implementation profile are extended to define a new document type (tentative

name JOUG-1) which has parameters that can display the information of transfer

files.

The difference between INTAP-1 itself and JOUG-1 which uses INTAP-1 as a basis

is whether or not parameters to show file information are provided. These

parameters are transferred by the FTAM protocol as parameters during file

opening (document-type parameters).

2.5.2   Coding system

(1) Character code

① F procedure control data

    The character set and code of character strings related to F Procedure

    control, such as file names during data interchange, are standardized and

    processing, such as conversion, is supported by the F Procedure. The users,

therefore, normally do not have to be concerned with the character code difference.

② User data

User data is handled in the F Procedure as mere bit strings. Therefore, the user is required to convert to an appropriate character code if character codes between parties in data interchange differ.

Some EDI translators (packages) contain the character code conversion function and the character code problem can be solved by using them.

(2) Data code

The F Procedure uses several types of data codes at FAI (FTP access interface), such as command and error codes.

Some of these data codes can be standardized while others cannot. For example, in error codes, unified error codes are set for standardized errors. However, local error codes are set for error codes during local processing of F Procedure packages and other error codes, as errors, cannot be standardized due to package structures. (Internal structures of F Procedure packages are not standardized.)

2.5.3 Identification and authentication of other party (file)

(1) Identification of initiator and responder sides

The F Procedure has a function to check the other party using initiator and responder identifier. In a global network, a symbol to uniquely identify communicators is set. The initiator identifier express the initiator side by this symbol. The responder identifier expresses the responder side. Codes (numbers) unique to individual companies are normally allocated to

them as identifiers. The standard enterprise code of the Center for The
Informatisation of Industry (CII), Japan Information Processing Development
Center can be used when expressing other parties in business.

Initiator side identification is used by the responder side to identify the
initiator by the initiator identifier taransferred from the initiator side.
Responder side identification is used by the initiator side to identify the
responder by the responder identifier transferred from the responder side.

Both the responder and initiator sides can disable transfer unless the
identified other party is defined (registered) in that side's transfer
management information. This will accomplish a type of a closed connection
network in an open network.

(2) Initiator verification and access control
Generally, initiator and responder identifier are open information. There
may be some misdirected persons who will try illegal transfer using a system
set with a false identifier. This can be prevented by using an initiator
password and file access password.

① Initiator password
One initiator password can be assigned to one initiator identifier, and this
is checked by the responder side together with the initiator identifier.
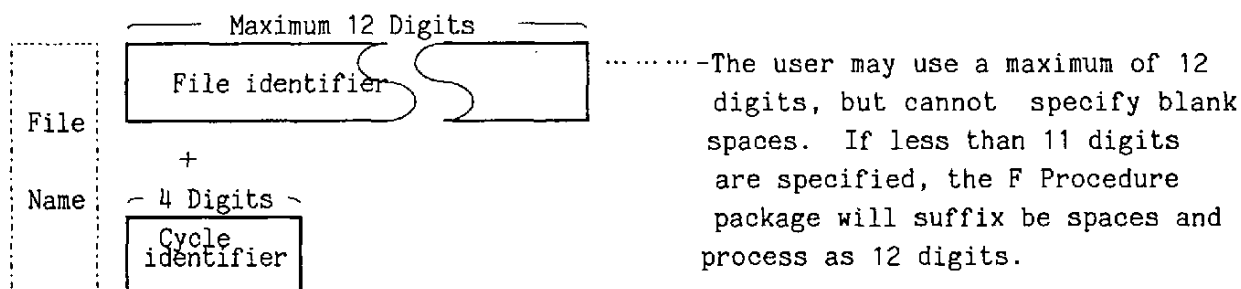This checks for false initiator identifier.

② File access password
One file access password can be assigned to one file and is checked during
the first file access. This prevents file name errors and illegal access.

2.5.4 File name

The initiator side must specify the intended file name on the responder side before transferring a file. The responder side checks whether or not the specified file can be used on the initiator side.

The file names in the procedure shall have 16 digits comprising a file identifier and a cycle identifier in the following format:

```
        ┌────── Maximum 12 Digits ──────┐
┌........┐ ┌──────────────────────────┐
:        : │  File identifier   ⌇  ⌇  │ ·········-The user may use a maximum of 12
: File   : └──────────────────────────┘          digits, but cannot  specify blank
:        :        +                                spaces.  If less than 11 digits
:        :    ┌─ 4 Digits ─┐                       are specified, the F Procedure
: Name   :    ┌──────────┐                         package will suffix be spaces and
:        :    │  Cycle   │                         process as 12 digits.
:        :    │identifier│
:........:    └──────────┘
```

Cycle identifiers are used in file cycle management and shall be set and managed by UAP. Decimal numbers in four digits are set as cycle identifiers when a transfer file performs cycle management. If cycle management is not performed, a blank space for four characters is set as a cycle identifier.

Files can be read using Genelic file names if the send cycle on the responder side manages the cycle.

2.5.5 Checking status of sending and receiving files

When notifying of or querying file preparation status or storage status, notification or inquiry information is stored in a specified file and this file is transferred to accomplish the notification or inquiry.
In this case also, a security function such as confirmation by an identifier or a password will be used as in regular file transfer.

CHAPTER 3 FUNCTIONS OF F PROCEDURE

3.1 Basic FTAM Functions

The F Procedure uses the FTAM functions conforming to the FTAM (File Transfer,

Access and Management) standard profile to perform file transfer, access and

management between information processing systems in an OSI environment.

The FTAM standard profile of the F Procedure conforms to the FTAM standard

profile of the INTAP (Interoperability Technology Association for Information

Processing, Japan). Refer to the protocol implementation specification

requirements for the details of the profile.

3.1.1 FTAM service primitives to be used

Table 3-1 lists the FTAM services which will be used as service primitives.

Table 3-1 List of Service Primitives

Classification	Primitive Name	Description
Association Initialize and Abort	F-INITIALIZE F-TERMINATE F-U-ABORT F-P-ABORT	Sets file service association. Performs normal release of file service association. Forced association abort by FTAM user. Forced association abort by service provider.
File Select, Deselect	F-SELECT F-DSELECT	File select File deselect
File Open, Close	F-OPEN F-CLOSE	File open. File close.
File Data Transfer	F-READ F-WRITE F-DATA F-DATA-END F-TRANSFER-END F-CANCEL	Instructs start of reading opened file. Instructs start of writing opened file. Data transfer. Instructs end of data transfer. Checking end of transfer. Cancellation of reading and writing.
Grouping	F-BEGIN-GROUP F-END-GROUP	Declare start of service primitive concatenation. Declare end of service primitive concatenation.

3.1.2 Basic FTAM functions to be used

(1) Data compression transmission (option function)

This function enables selection of whether or not to transmit data by compressing it in an association unit.

This function in effective when transferring information in which the same character strings are continued.

The compression method will be the FTAM data compression method (compression by INTAP-1).

(2) Data blocking transmission

Several groups of data such as records input by a sending file can be transmitted after blocking them. This will enable efficient data transmission.

Blocking will be performed in accordance with the basic FTAM functions.

3.2 Transfer Management Functions

3.2.1 Basic function of file transfer

The following file transfer methods are available in the F Procedure.

① Files are transferred by file transfer request on the initiator side. (Initiator send-responder receive)

② Files are received by file transfer request on the initiator side. (Initiator receive-responder send)

Combining ① and ② , the initiator side can transfer several files by one transfer request. (Whether or not this function can be used differs depending on the individual F Procedure packages.)

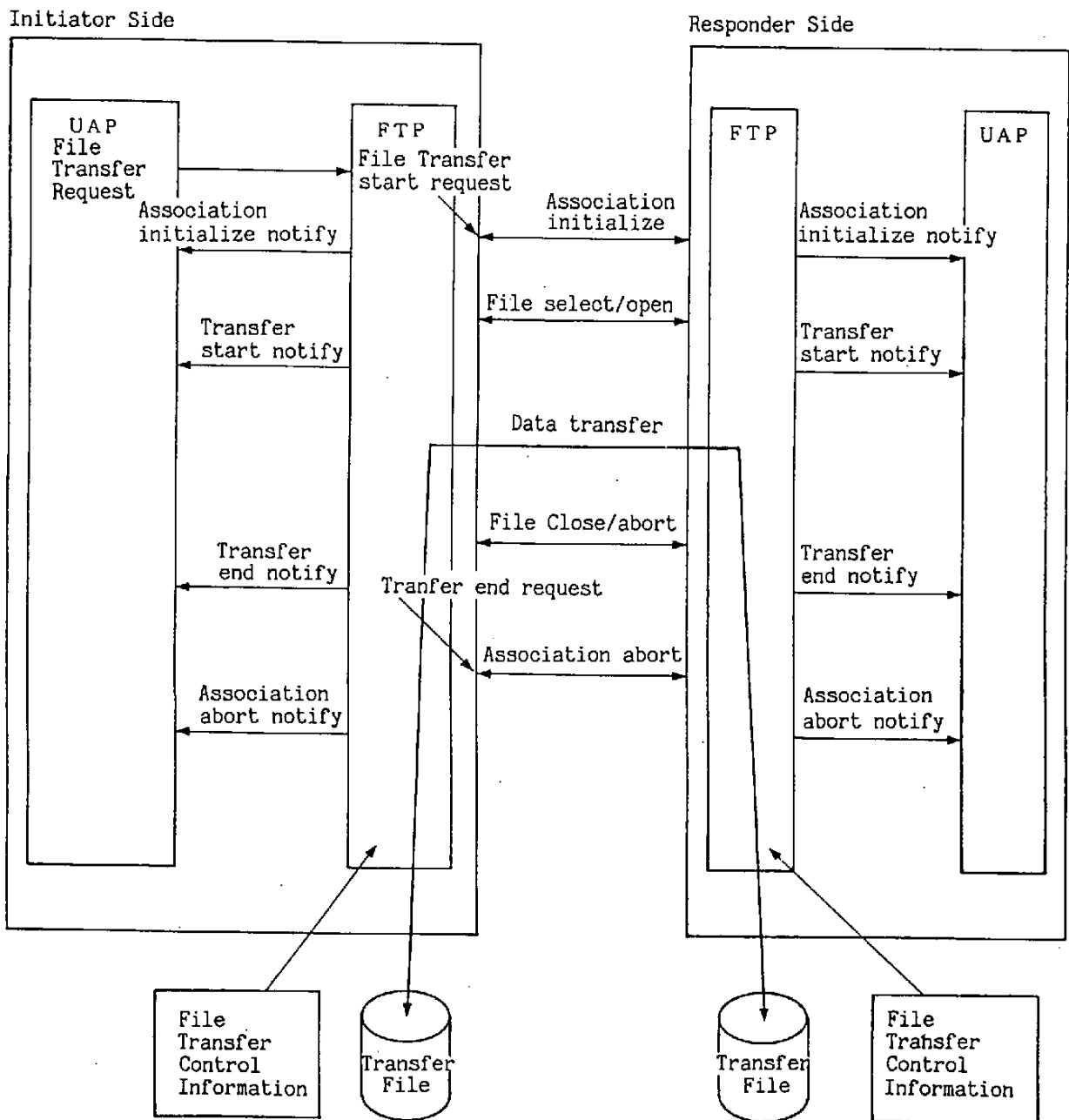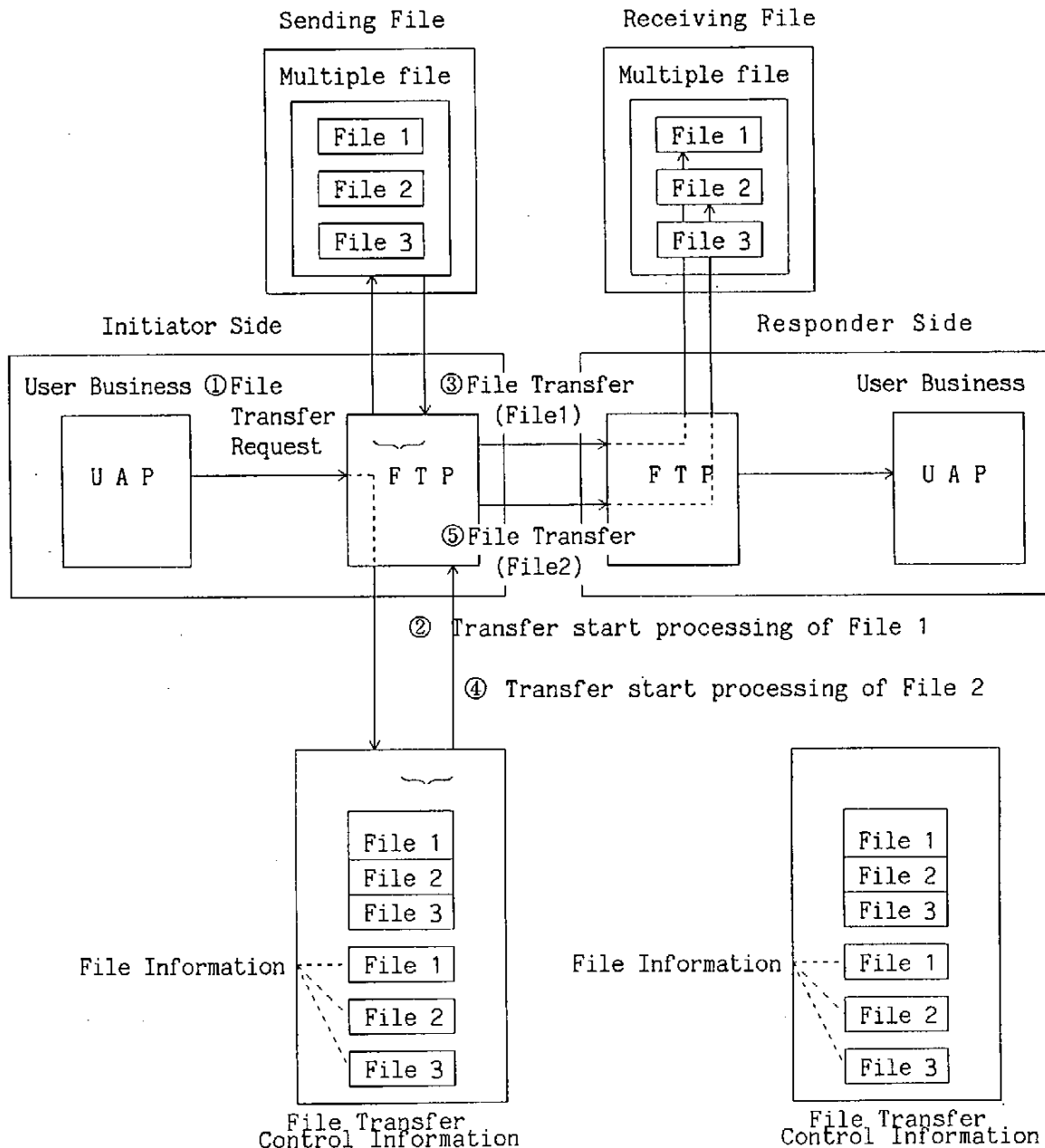The basic file transfer flow is shown in the diagram.

Figure 3-1 Basic Function of File Transfer

3.2.2 Multiple file transfer

Several files should be able to be transferred to the other transfer party by one file transfer request. Transfer data is processed, file select/open and file close/deselect, for each file while connection to the other party is maintained. Legality during a transfer request is checked for each file before file select/file open.

Sending File   Receiving File

Multiple file   Multiple file

File 1   File 1
File 2   File 2
File 3   File 3

Initiator Side   Responder Side

User Business ①File   ③File Transfer   User Business
Transfer   (File1)
Request
U A P   F T P   F T P   U A P
                ⑤File Transfer
                (File2)

② Transfer start processing of File 1

④ Transfer start processing of File 2

File 1   File 1
File 2   File 2
File 3   File 3

File Information   File 1   File Information   File 1
File 2   File 2
File 3   File 3

File Transfer   File Transfer
Control Information   Control Information

NOTE: If an error occurs during multiple file transfer, transfer subsequent to this file is suspended. Files transferred before the error (files normally ended) are considered formed.

Figure 3-2 Multiple file Transfer

The multiple file transfer is processed as follows:

(Initiator side)   (Responder side)

```
                          FTP
            Association Initialize │ Association Initialize
            ─────────────────────→│ ←───────────────────→

                                   │ File-1  select/open
                                   │ ←───────────────────→

            Transfer Start         │
            ─────────────────────→ │  ┌──────────────────┐
   ┌──────────┐                    │  │   Data Transfer  │     ┌──────────┐
   │  File 1  │                    │  └──────────────────┘     │  File 1  │
   └──────────┘                    │                           └──────────┘

                                   │ File-1 close/deselect
                                   │ ←───────────────────→

            Transfer end           │
            ←───────────────────── │

                                   │ File-2  select/open
                                   │ ←───────────────────→

            Transfer Start         │
            ─────────────────────→ │  ┌──────────────────┐
   ┌──────────┐                    │  │   Data Transfer  │     ┌──────────┐
   │  File 2  │                    │  └──────────────────┘     │  File 2  │
   └──────────┘                    │                           └──────────┘

                                   │ File-2 close/deselect
                                   │ ←───────────────────→

            Transfer end           │
            ←───────────────────── │

            Association abort      │ Association abort
            ─────────────────────→ │ ←───────────────────→
```
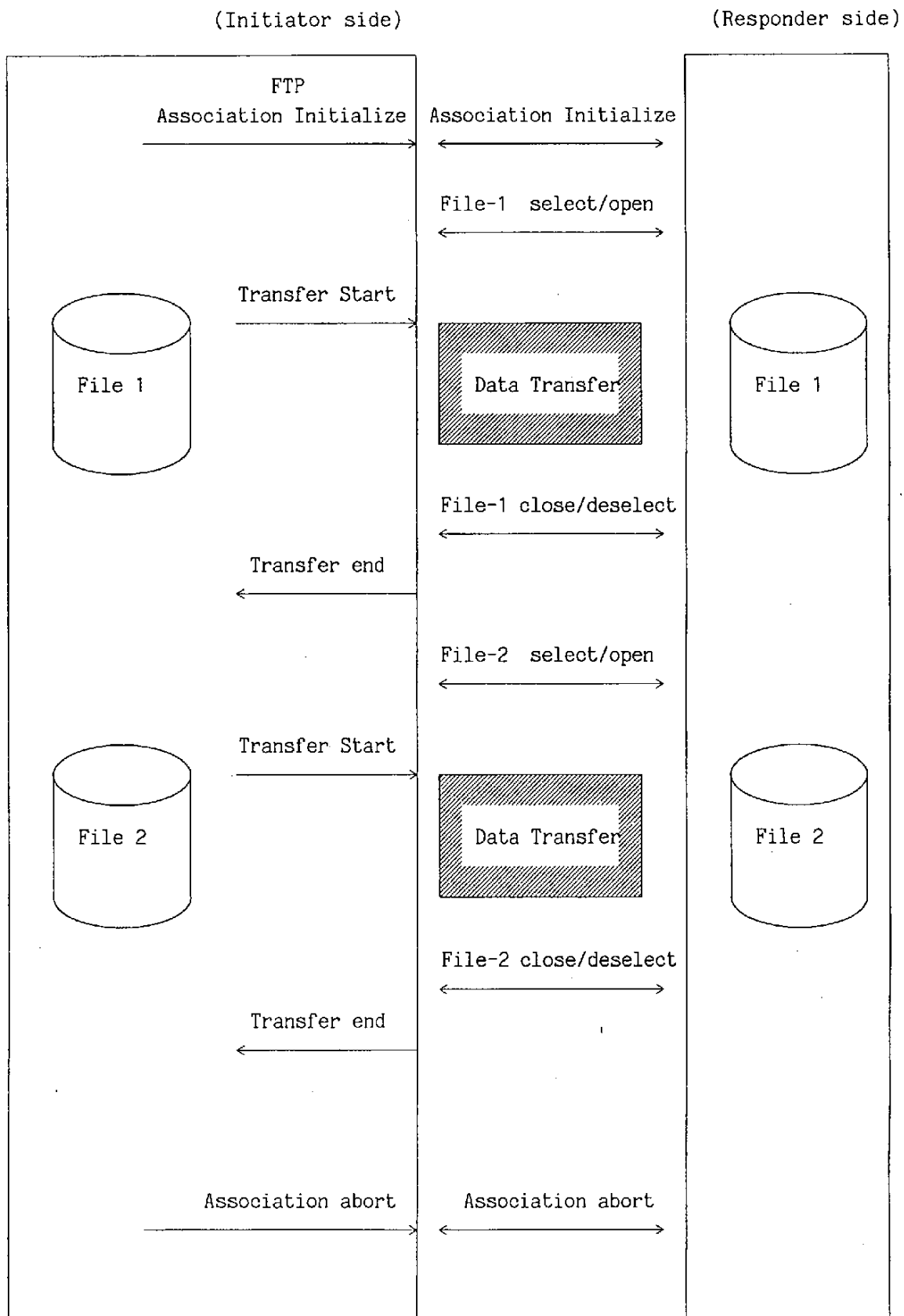
Figure 3-3 Multiple file Transfer Processing Procedure

In the case of multifiles, if file transfer is suspended due to a fault during transfer processing, the file can be transferred again beginning at the head of the file affected by the fault.

In the following case, File 1 is considered as formed. Therefore, normally, retransmission is started beginning with File 2. Retransmission beginning with File 1 is also possible by enforcing the File 1 status to be reset by user business processing.

Transfer data
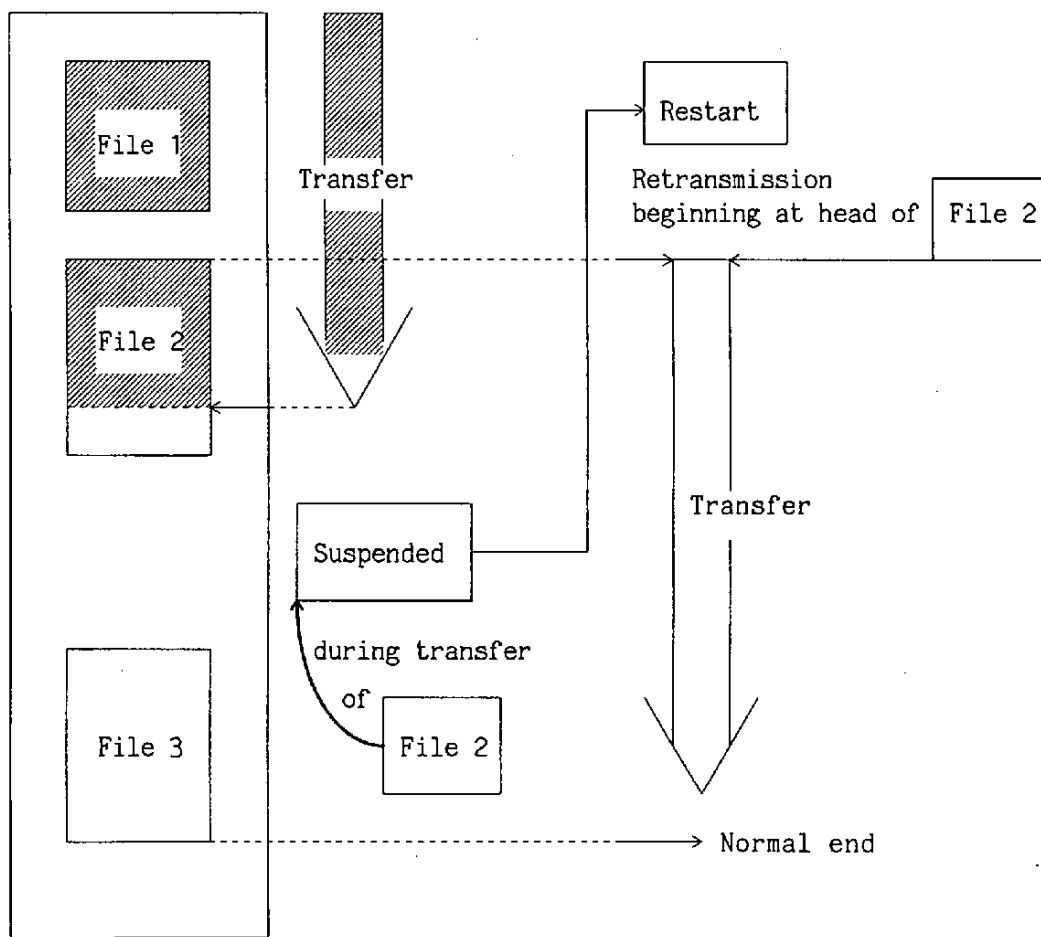
Figure 3-4 Retransmission Processing in Multifile

3.2.3 File read by generic file name

Files can be read using a generic file name if cycle management is performed
. The file identifier and cycle identifier of a file name must be specified
when cycle management is performed. In the file read function by a generic
file name, an optional cycle identifier is considered as the specified file
and one of the unsent files is selected by specifying * in four digits as a
file identifier and a cycle identifier of a file name from a group of files
on the responder side. The file wiht the smallest cycle identifier will be
read if there are several unsent files.

Initiator Side   Responder Side

```
UAP

  "Unique File Name        FTP
  Designate"                        Transfer Start        FTP
              Transfer Request      Request
  File              ──────┼──→  ────────┼──────────→
  identifier : A
  Cycle
  identifier : 0002

  "Generic File Name
  Designate"                        Transfer Start
              Transfer Request      Request
  File ID           ──────┼──→  ────────┼──────────→
  identifier : A
  Cycle
  identifier : ****
                                 Data Transfer
```

Receiving File

File
identifier
Cycle   A ·   A ·   A ·
identifier   0001   0002   0003

(Not transferred)(Not transferred)(Not transferred)
↓
(Transferred) Transfer File

Figure 3-5   File Read by Generic File Name

3.2.4 Empty file transfer

Transfer files include files with empty file. This procedure regards empty
file as data transferred normally. This data can also be treated as an error
by designation by the sender side.
This function can be used when notifying the receiving side that there is no
data to send. If transfer data is not ready on the sending side, an error
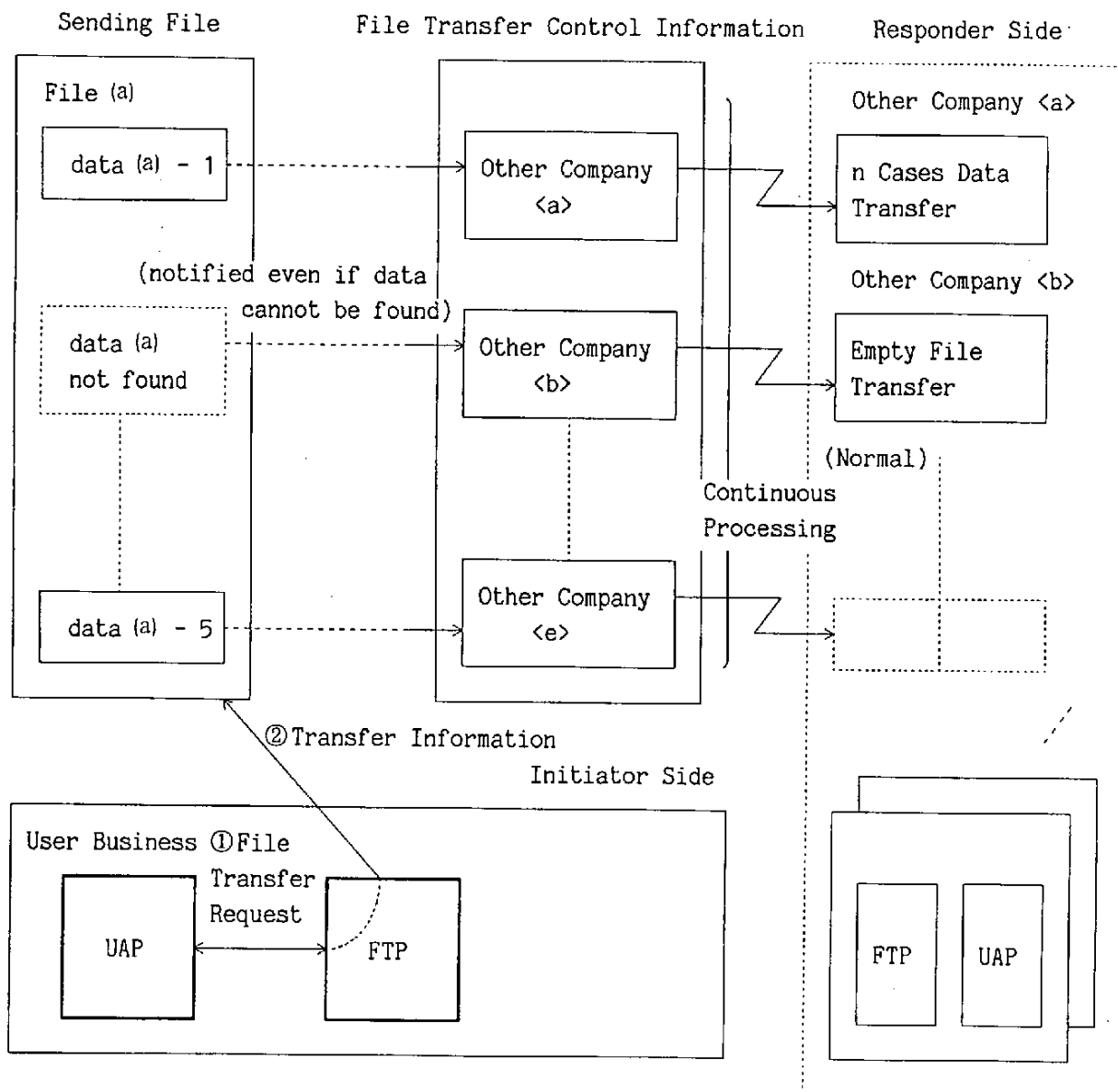message is sent in response to the receive request of the receiving side.

Sending File   File Transfer Control Information   Responder Side

File (a)

data (a) - 1

(notified even if data
cannot be found)

data (a)
not found

data (a) - 5

Other Company
<a>

Other Company
<b>

Other Company
<e>

Continuous
Processing

Other Company <a>

n Cases Data
Transfer

Other Company <b>

Empty File
Transfer

(Normal)

②Transfer Information

Initiator Side

User Business ①File
Transfer
Request

UAP FTP

FTP UAP

Figure 3-6 Empty file Transfer

3.2.5. Enforced termination of file transfer

UAP can ask FTP to forcibly terminate data transfer if UAP detects an event that requires transfer to be terminated during file transfer. Both the initiator side and responder side can make enforced termination of data transfer by using the same method.

The following is examples of events that require enforced termination of file transfer:

- File transfer is not completed before the system stop time.
- Noticed wrong file is sent.
- Noticed file is transferred to a wrong party.

Files that had already been transferred before data transfer termination are considered as formed files.

Initiator Side   Responder Side
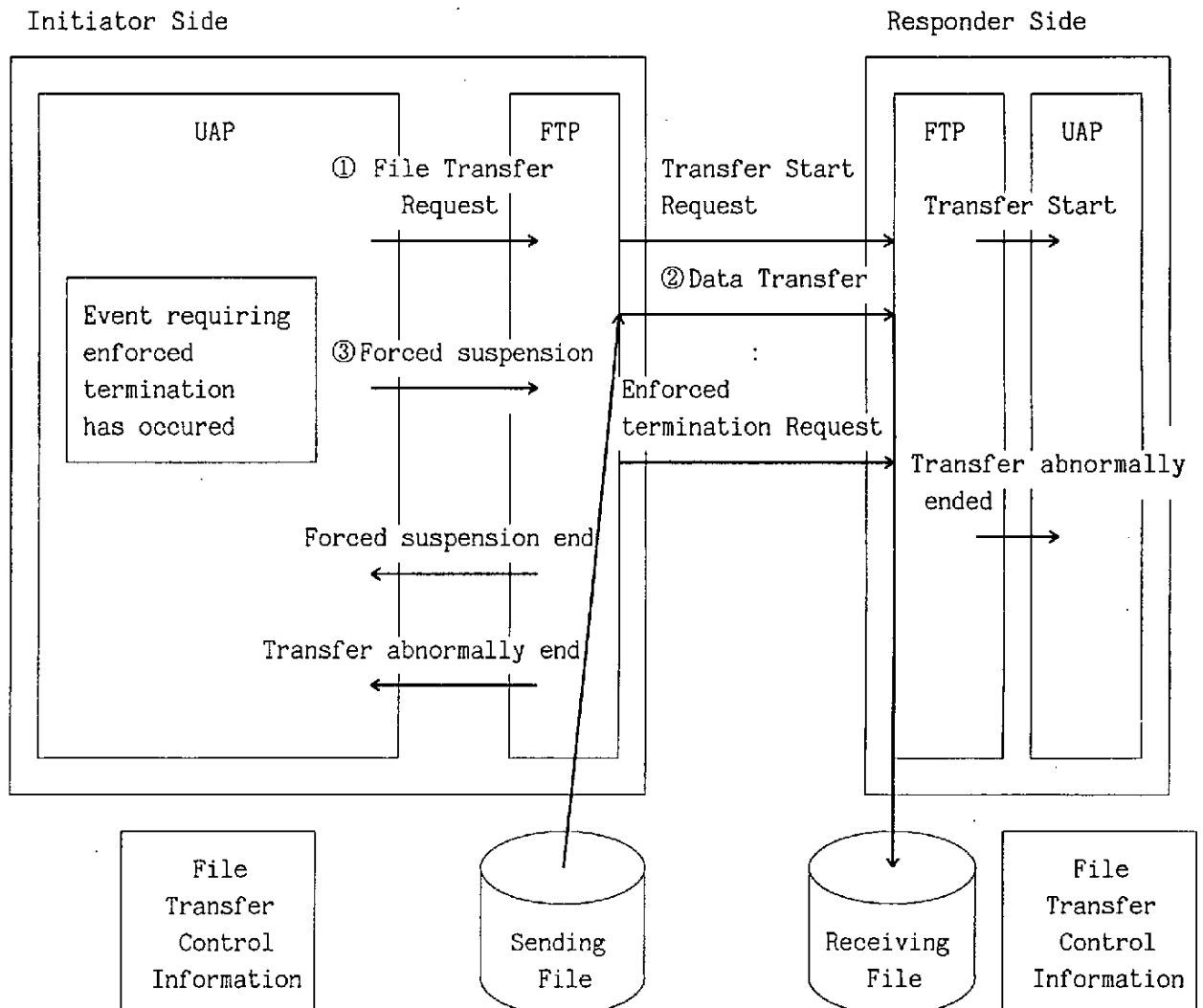
Figure 3-7 Enforced Termination of File Transfer

3.3 Operation Management Function

3.3.1 Cycle management

Data of the same type in transfer data, such as order acknowledgment data,is
 file-transferred by dividing it into several lots per day. By transferring
files by setting "Cycle identifier" as the file name of the applicable
transfer data on the sending side and by securing uniqueness, both the
sending and receiving sides can mutually classify and manage data of the
same type.
The user business UAP manages cycles and sets cycle identifiers.
The receiving side can check the data sequence of the same file identifier
using"cycle identifiers."
The function of file read by generic file name can be used during cycle
management.
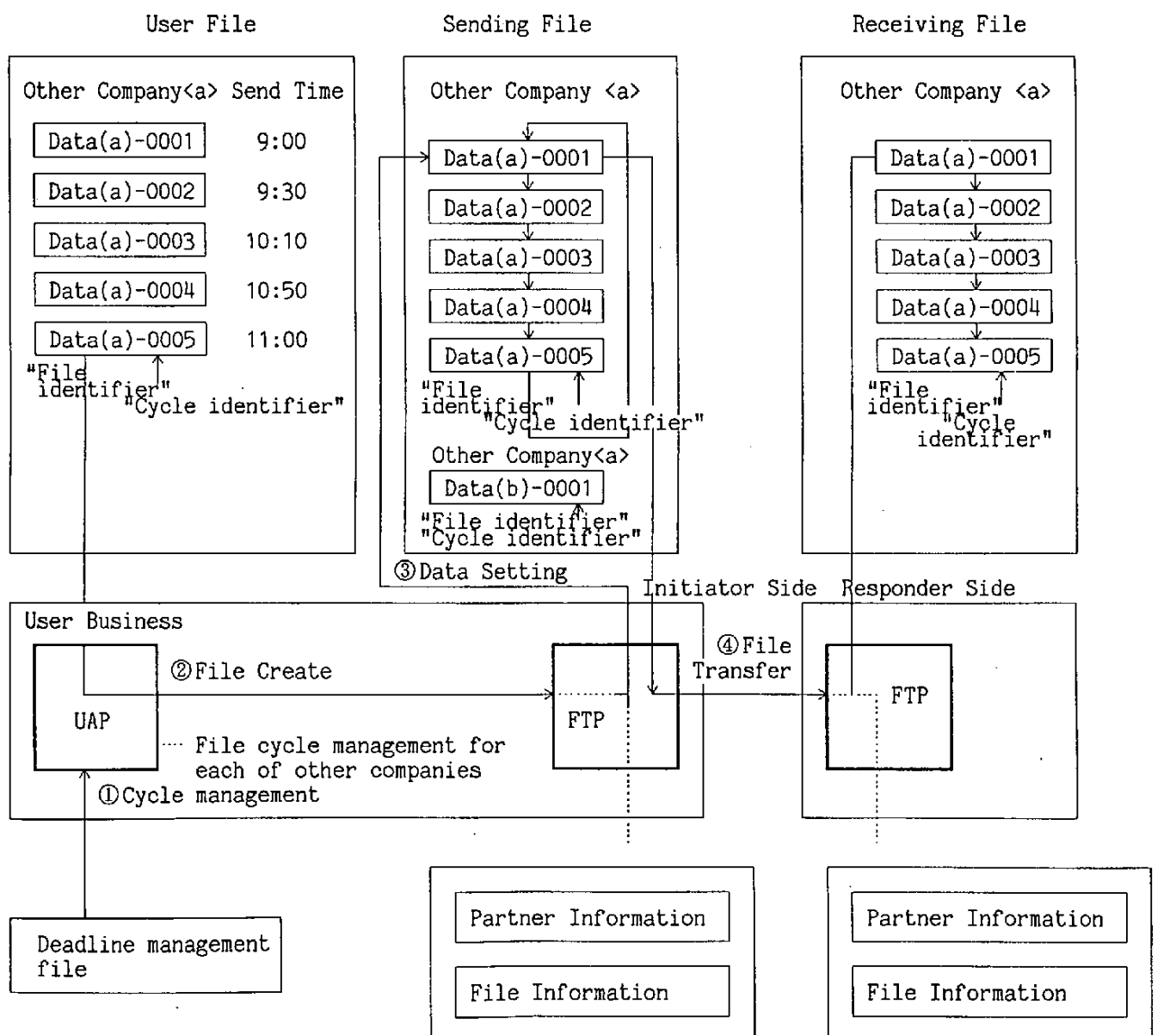
Figure 3-8 Cycle Management

3.3.2 Prevention of duplicated file transfer

Duplicated file transfer means transferring files that are already
transferred. In principle, duplicated file transfer is an inhibition item.
This function can be applied to all the files, regardless of cycle
management. However, duplicated file transfer enable can be specified for
each file as necessary. The files used in status confirmation will not be
checked.

(a) Checking prevention of duplicated file transfer on initiator side.

Checking is performed for each file at the start of file transfer, based on
file transfer control information on the initiator side.

Initiator Side   Responder Side

User Business

UAP   (Inquiry)   FTP

(Results)

Preliminary Transfer
status etc.

File Information   ←---- Checking Prevention
                                of duplicated file
                                transfer

File Transfer Control Information
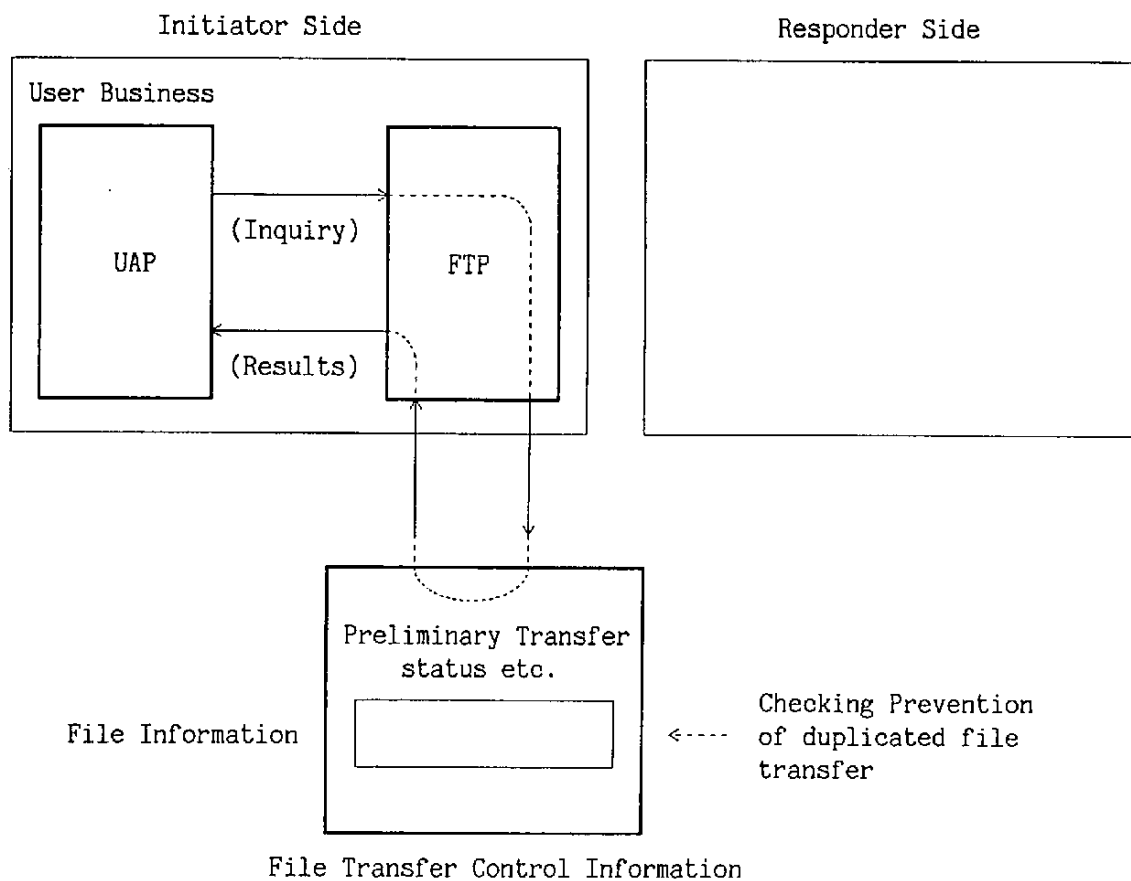
Figure 3-9 Checking Prevention of Duplicated file transfer on Initiator Side

(b) Checking Prevention of Duplicated file transfer on Responder Side

Duplicated file transfer is checked for each file at the start of file transfer, based on file transfer control information on the responder side. Files cannot be transferred if they are already transferred. This prevents duplicated file transfer.
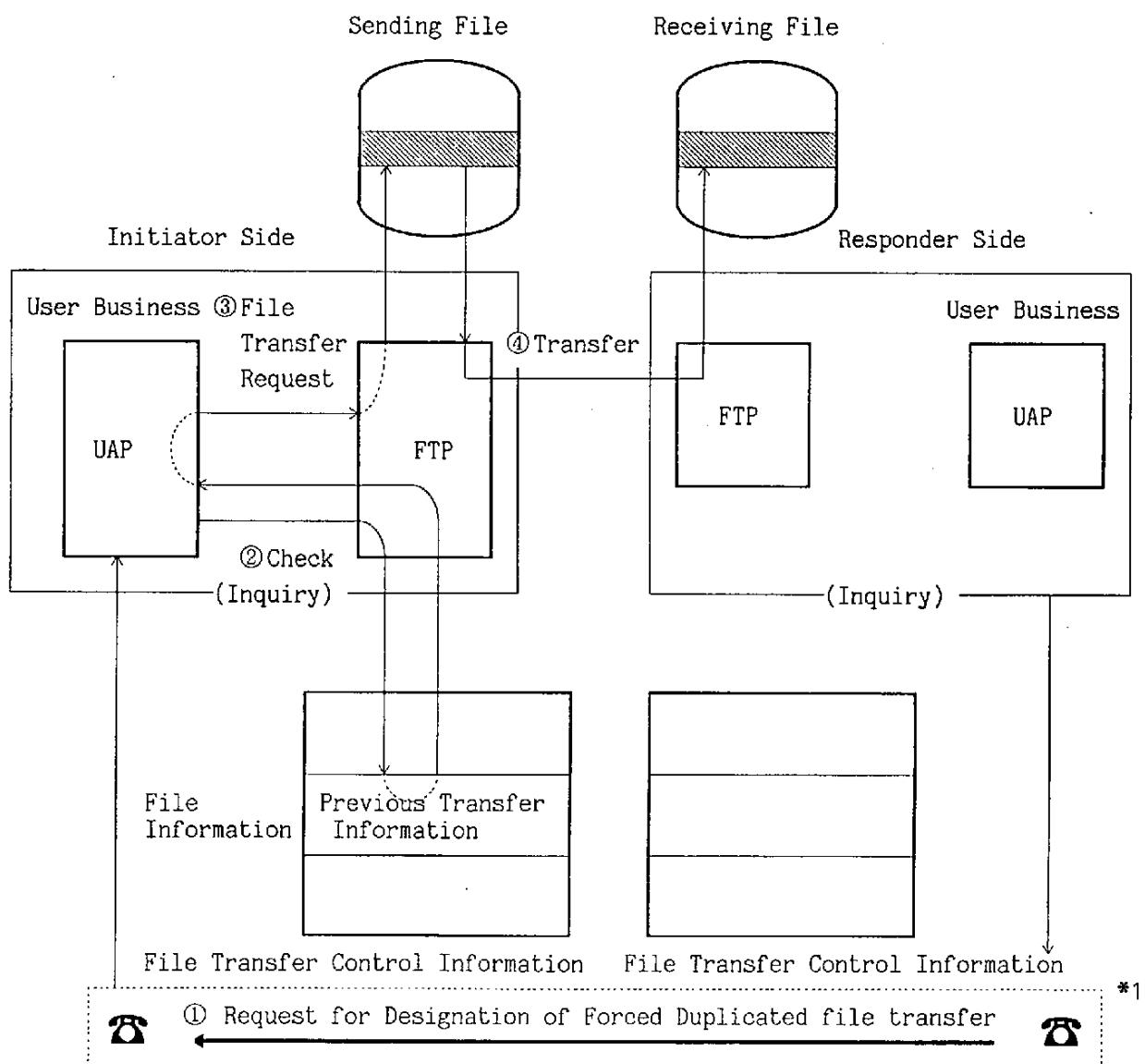
Initiator Side   Responder Side

File Transfer Control information
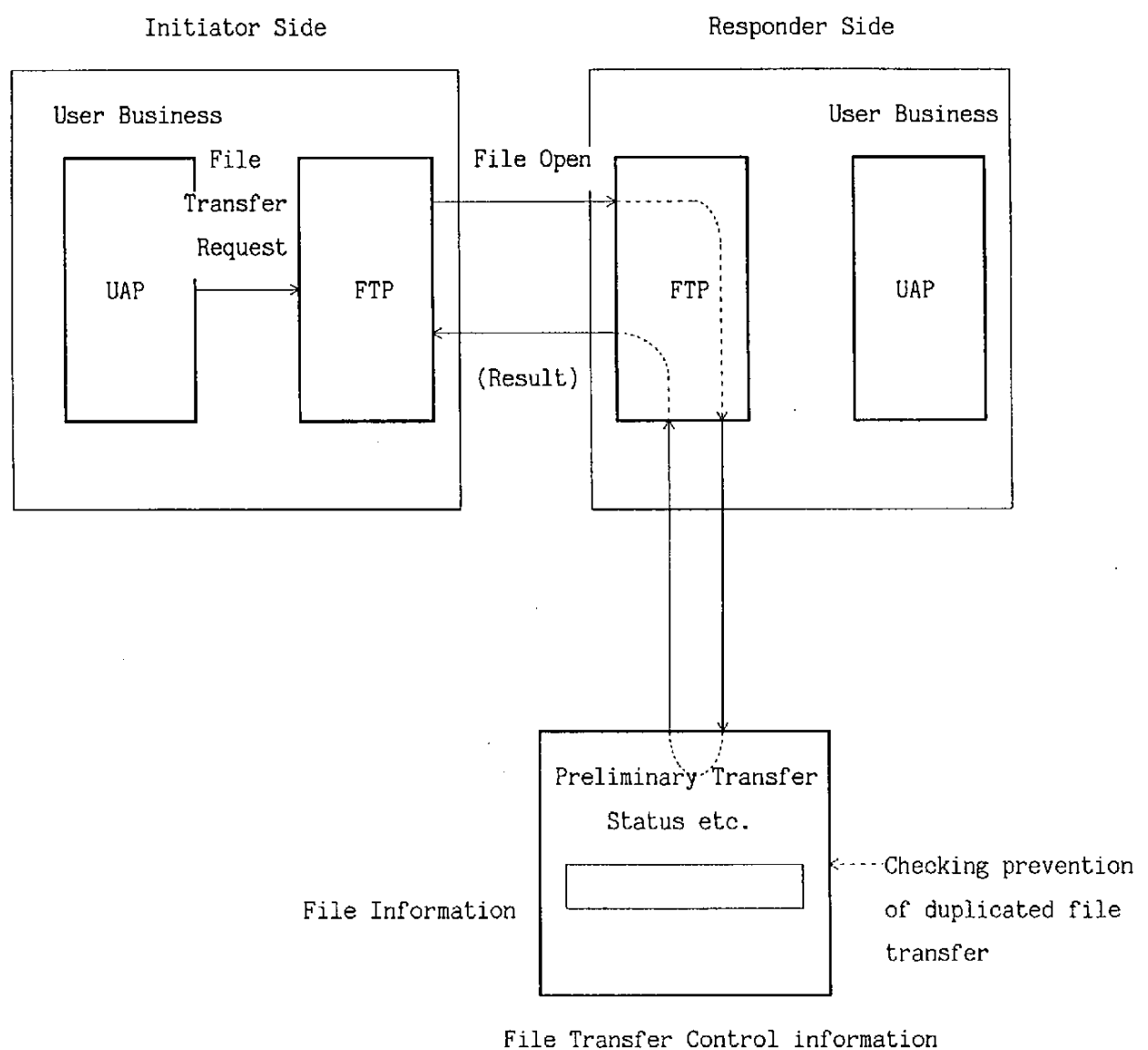
Figure 3-10   Checking Prevention of Duplicated file transfer on Responder Side

(c) Duplicated transfer designation

Duplicated transfer designation enables retransfer of files already
transferred for a business reason. This can be accomplished by using the
duplicated transfer enable function option in a file unit (both sender and
receiver make the same designation) and by processing the transfer by
setting up the status before transfer through manual processing (enforced
duplicated transfer). In manual processing, the responder side must set up
the status before transfer prior to retransferring files.

Sending File   Receiving File

Initiator Side   Responder Side

User Business ③File   User Business
              Transfer   ④Transfer
              Request
    UAP   FTP   FTP   UAP

       ②Check
       (Inquiry)   (Inquiry)

File   Previous Transfer
Information   Information

File Transfer Control Information   File Transfer Control Information
                                                                    *1
☎   ① Request for Designation of Forced Duplicated file transfer   ☎

NOTE1: Foreced double interchange is designated by reprocessing file sele
       ct/open after initializing association again and transfer is start
       ed beginning at the file head.
NOTE2: *1 Only when operating by manual processing.

Figure 3-11 Duplicated file transfer

3.3.3 Transmission available time

The file transfer regime can be set for each other party and each file to prevent illegal transfer outside of the time zone and illegal access.

The maximum time that can be set is 24 hours and decisions are made based on the starting time of file transfer requests. The transfer starting time for each file.

NOTE: The transfer available time zone for file information must be set within the transfer available time of the remote-side information.

(a) Setting of transfer available time on sending side

The file transfer regime can be controlled for each other party or file based on "starting time" and "ending time" of other party information in the file transfer control information to control the Transmission available time.

Initiator Side   Responder Side

File Transfer Control Information
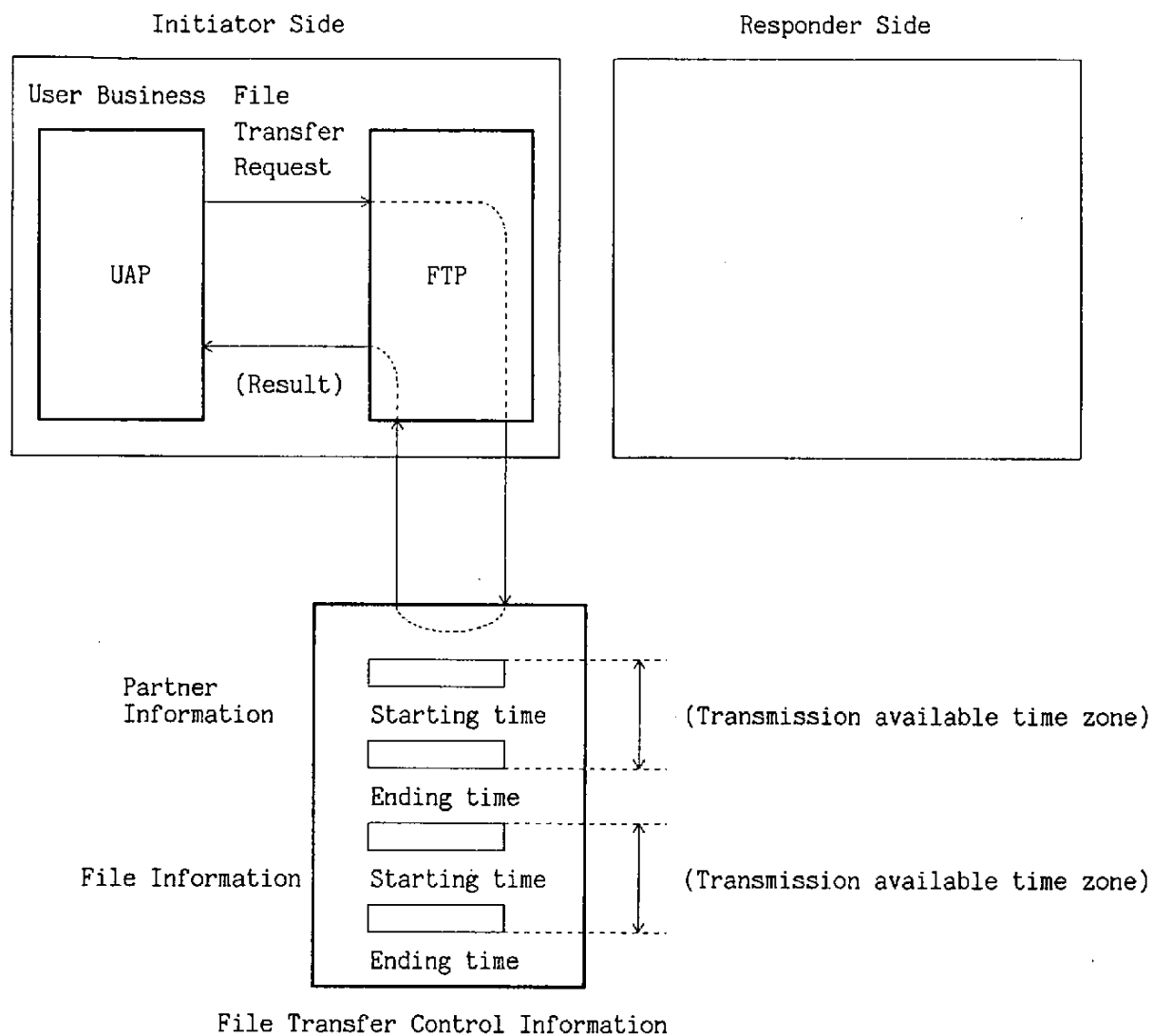
Figure 3-12   Setting Transmission Available Time on Initiator Side

(b) Setting and decision on transmission available time on receiving side

The file transfer regime for each other party and each file can be
controlled at the start of transfer by the "starting time" and "endingtime"
of partner information and file information in the file transfer control
information on the receiving side to prevent receiving illegal transfer
outside of the time zone.

Initiator Side   Responder Side

User Business   User Business

        FTP   UAP   FTP   UAP

                        Transfer start
                        request

                        (Result)

                                    Partner   ┌──────────┐   (Transmission Available
                                    Information   Starting time   Time Zone)

                                                       Ending time

                                    File Information   Starting time   (Transmission Available
                                                                         Time Zone)

                                                       Ending time

File Transfer Control Information
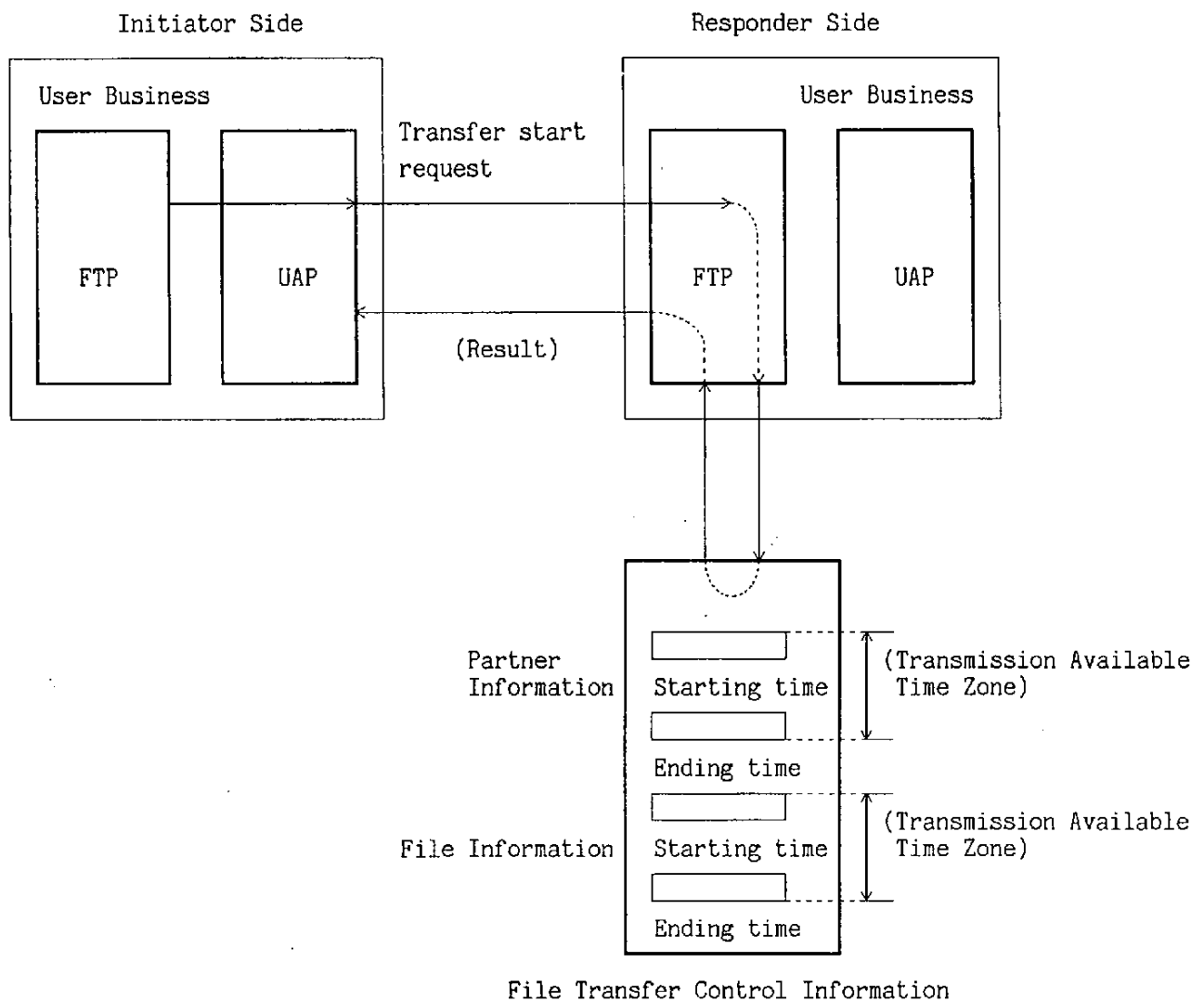
Figure 3-13 Setting Transmission available time on Responder Side

3.3.4 Checking sending and receiving file status

(a) Preparation status of receiving file

The status of receiving file preparation by the other party can be notified
of or queried beforehand.

- [Notification of receiving file preparation status]
  ① The remote side is notified when preparations to receive data are made.
    (Notification is made by transferring the transfer status communication
    file which stores the notification information.)
  ② The side receiving the notification checks this information and sends
    data when the specified time arrives.

- [Inquiry of receiving file preparation status]
  ① Check is made as to whether or not the receiving file of the remote side
    is ready before sending data. (Check is made by storing the information
    to be checked in the transfer status communication file and by
    transferring it.
  ② Data is sent after checking that the receiving file of the remote side
    is ready.

Whether or not status can be checked during data transfer differs depending
on the individual F Procedure packages.

(a) Notice of receiving file ready status
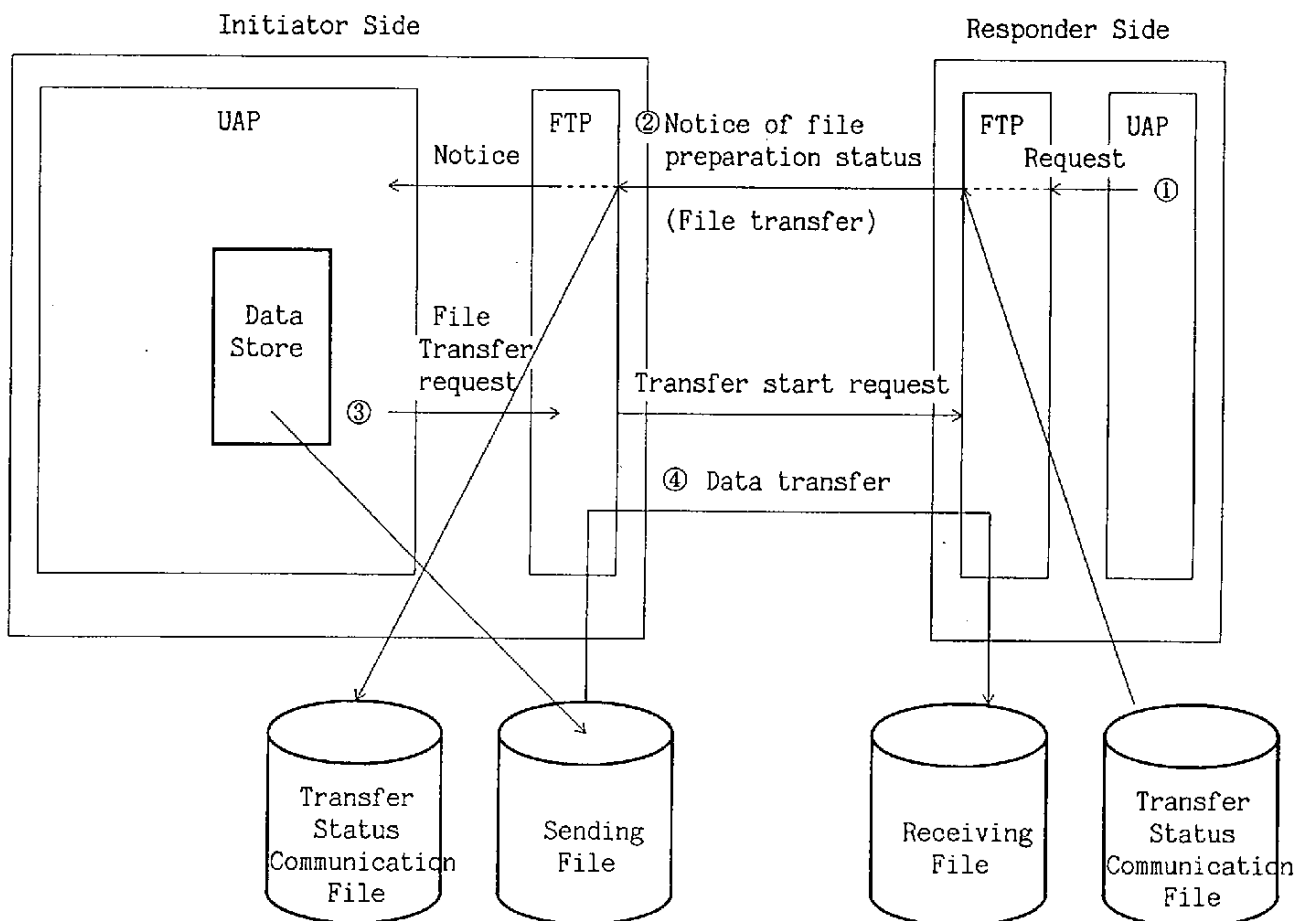
Figure 3-14 Notice of Status of Receiving File

(b) Inquiry of preparation status of receiving file

Initiator side   Responder Side
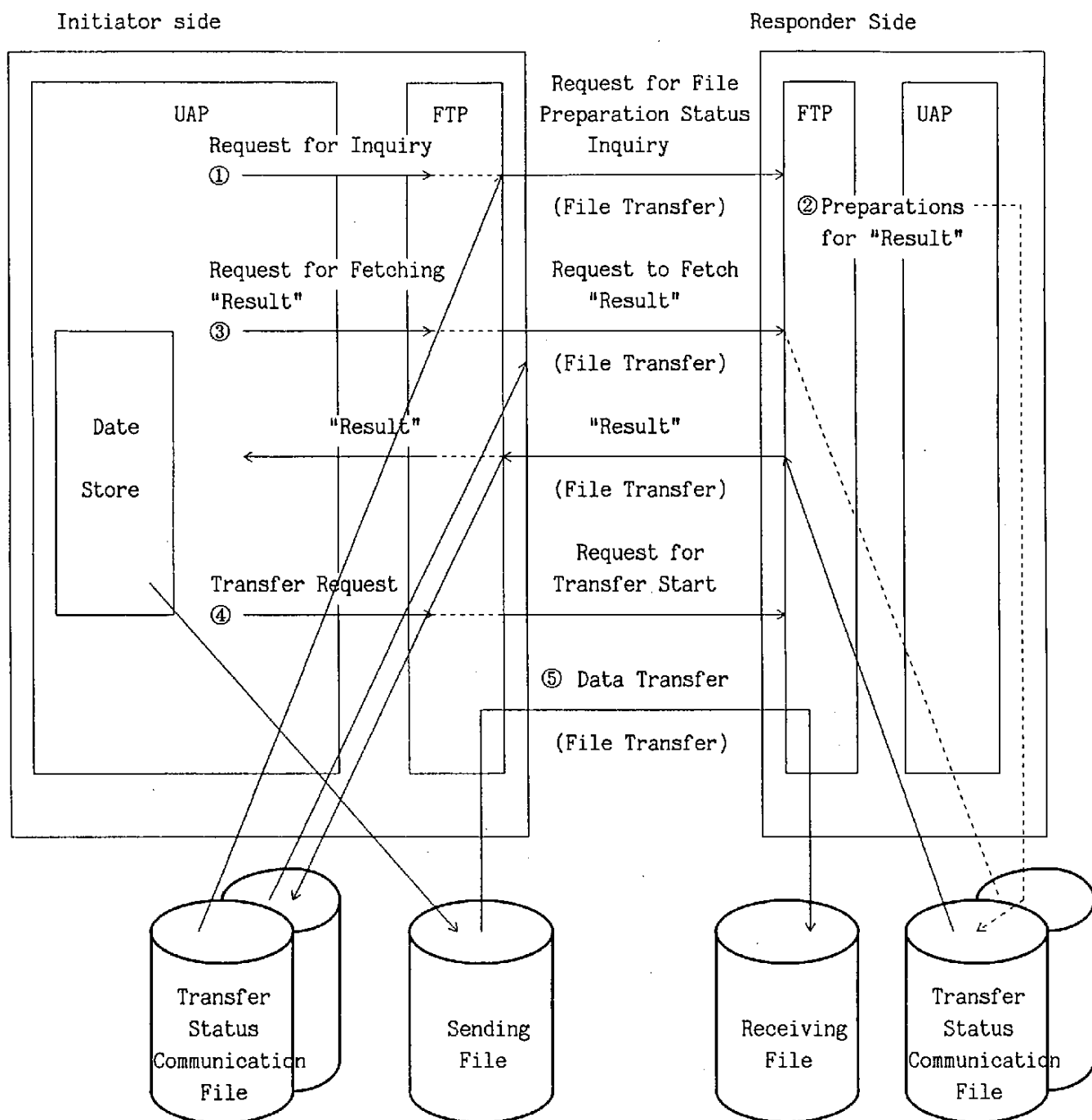
Figure 3-15   Inquiry of Receiving File Preparation Status

(b) Storing status of sending file

The file storage status can be notified to or inquired from the remote side
beforehand.

- [Notice of sending file storage status]
  ①The remote party is notified that data is stored when data has been
     stored. (This is accomplished by transferring the transfer status
     communication file which stores the notification information.)
  ②The side receiving the notification makes preparations to receive
     data and receives data.

- [Inquiry of sending file storing status (check)]
  ①Check is made if the remote side has stored data before receiving it.
     (This is accomplished by transferring the transfer status communication
     file which stores the check information.)
  ②Data is received if storing of data by the remote side is confirmed.

(a) Notice of storing status of sending file
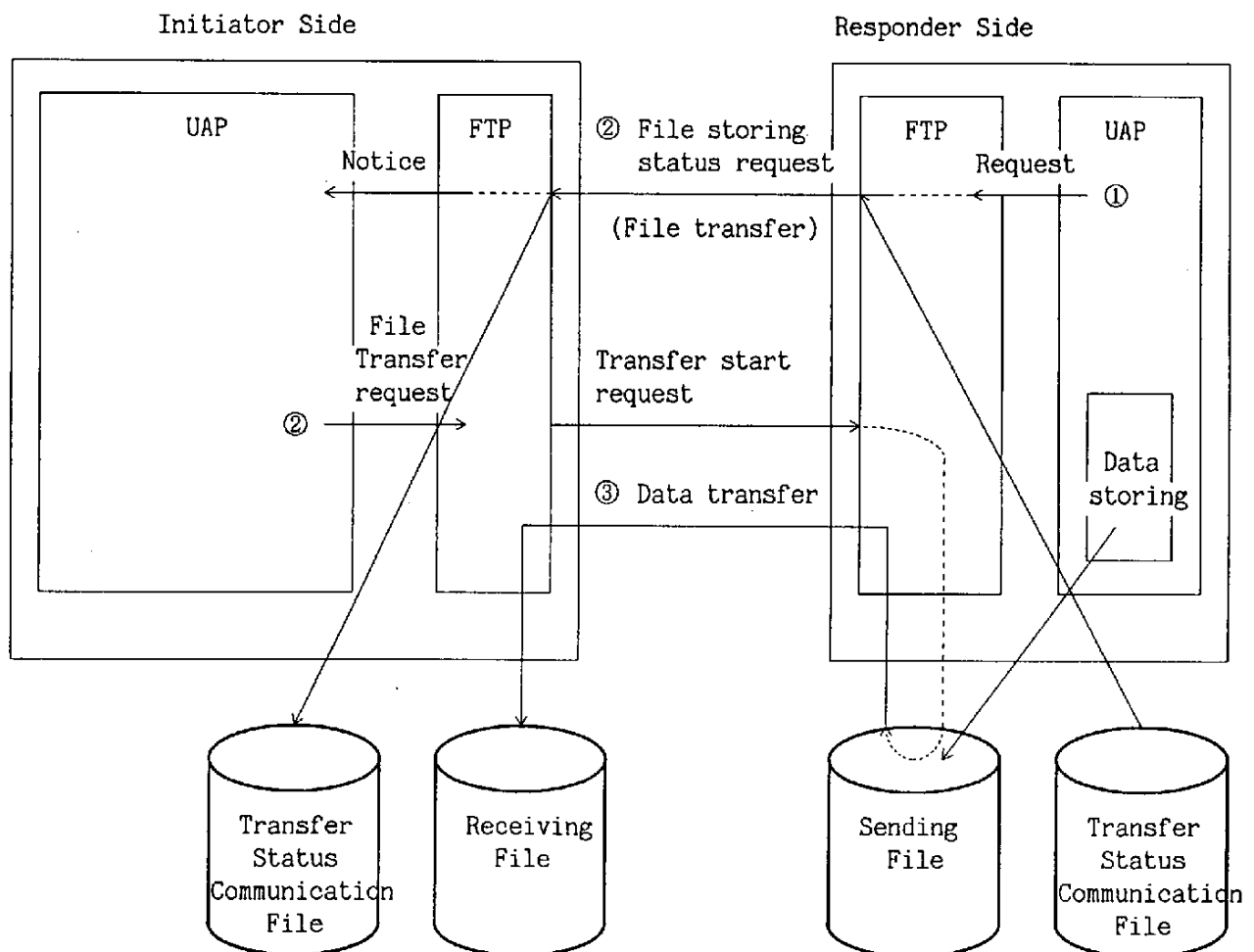
Figure 3-16 Notice of Send File Storage Status (Notice from Responder Side)

(b) Inquiry of storing status of sending file

Initiator side   Responder Side
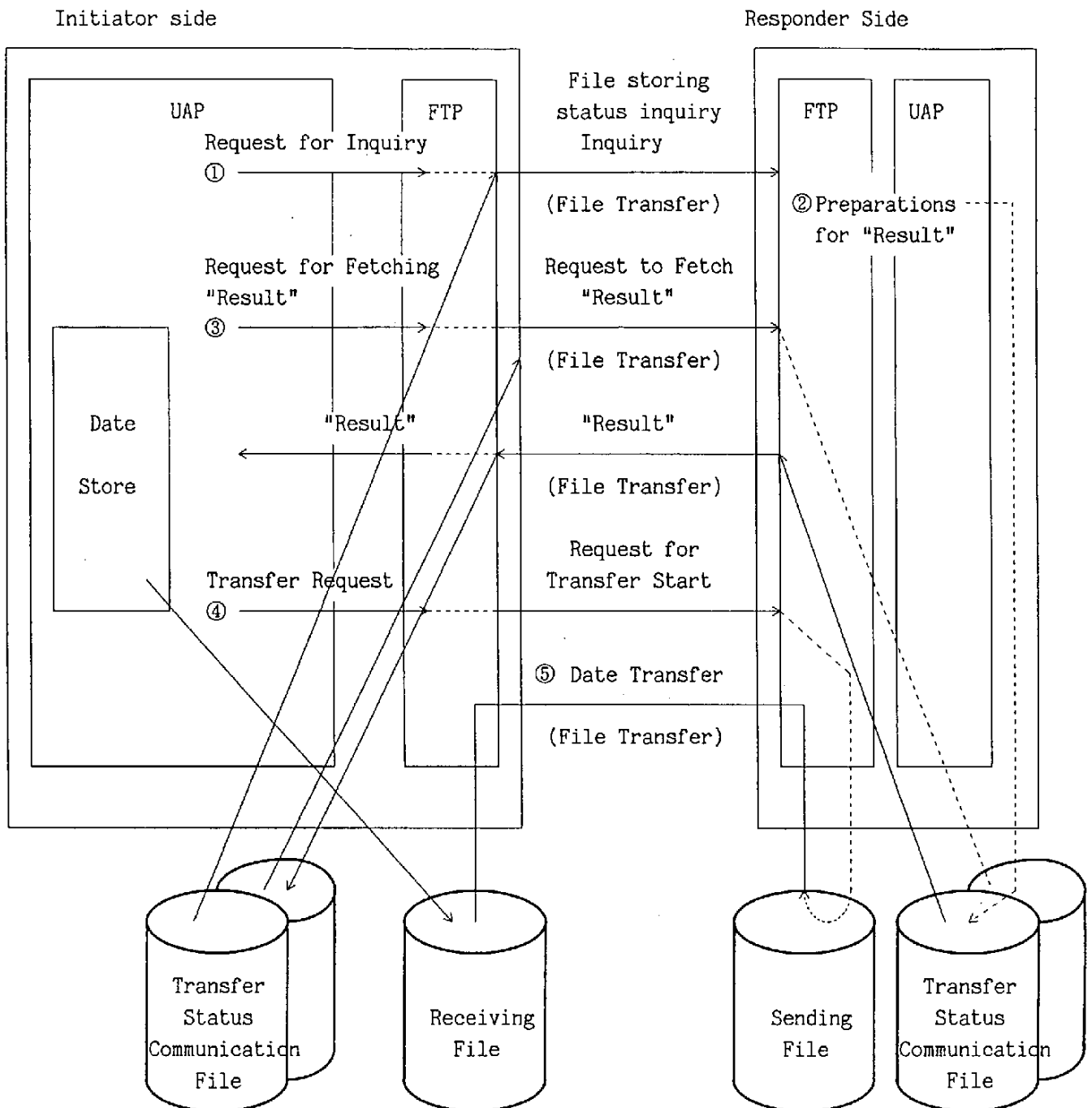
Figure 3-17   Inquiry of Storing Status of Sending File

3.3.5 Querying file transfer status

The progress of processing is checked to verigy the following status:
- Whether or not the requested service is progressing steadily.
- Scheduled end time is estimated during processing of a bulk data.
- Service in execution is checked before system stop to see if the system can be stopped.
- Estimation is made as to when a line will be available if connection is not possible due to line busy.

Information is gathered by FTP as to the progress of processing.
An example of information gathered is shown below.
- Other party
- File name
- Starting time
- Present status (sending/receiving)

UAP requests necessary information from FTP and notifies the user after editing the results. Information to be notified of is different in accordance with the equipment.

Initiator Side   Responder Side
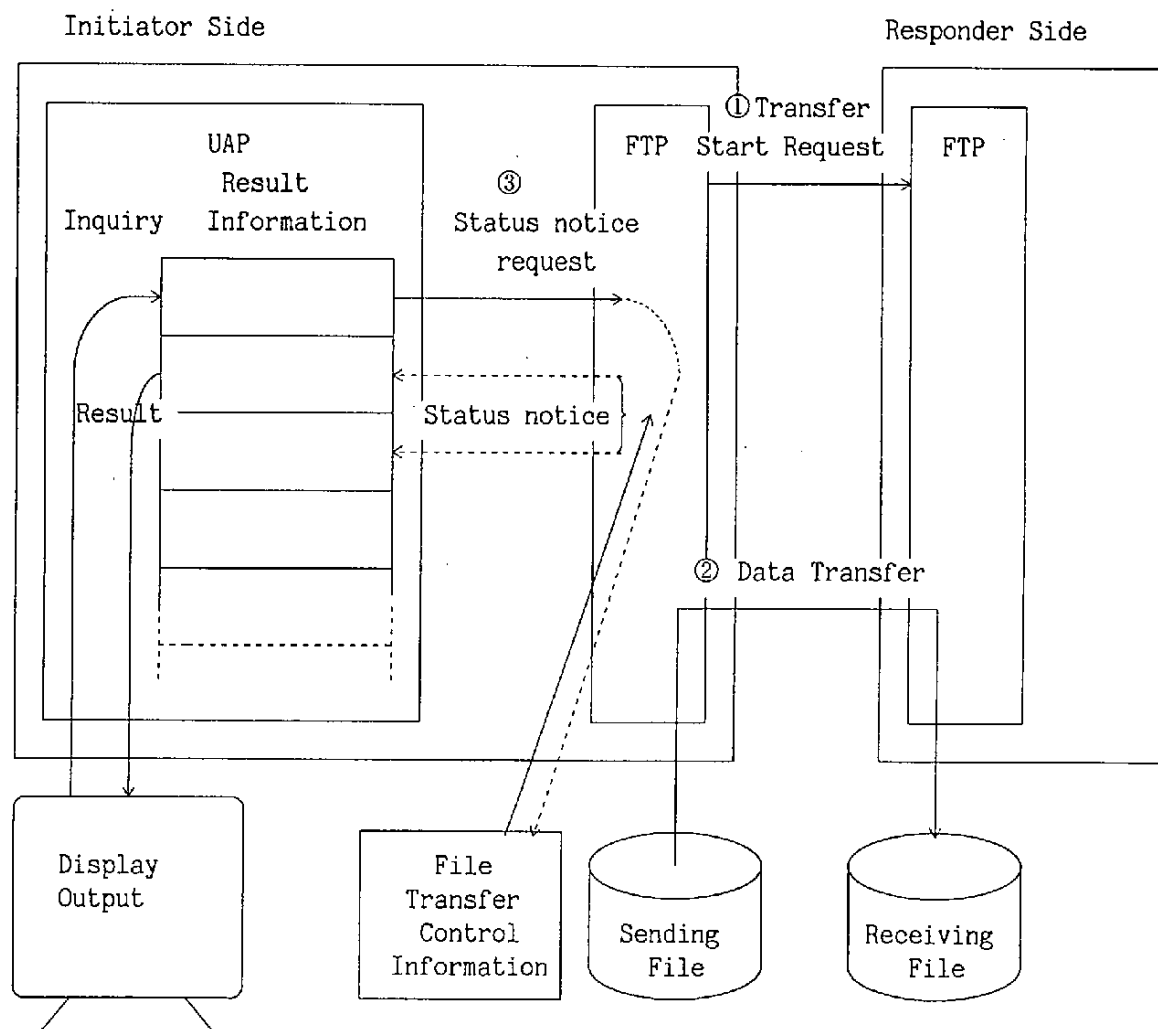
Figure 3-18 File Transfer Status Inquiry

3.3.6 Processing journal management facility

Both the initiator side and responder side can receive transfer results from FTP as log information. UAP records logging information notified of by FTP as processing journal with the time stamp and can display and output reports by editing the information afterward.

[Example of logging information]

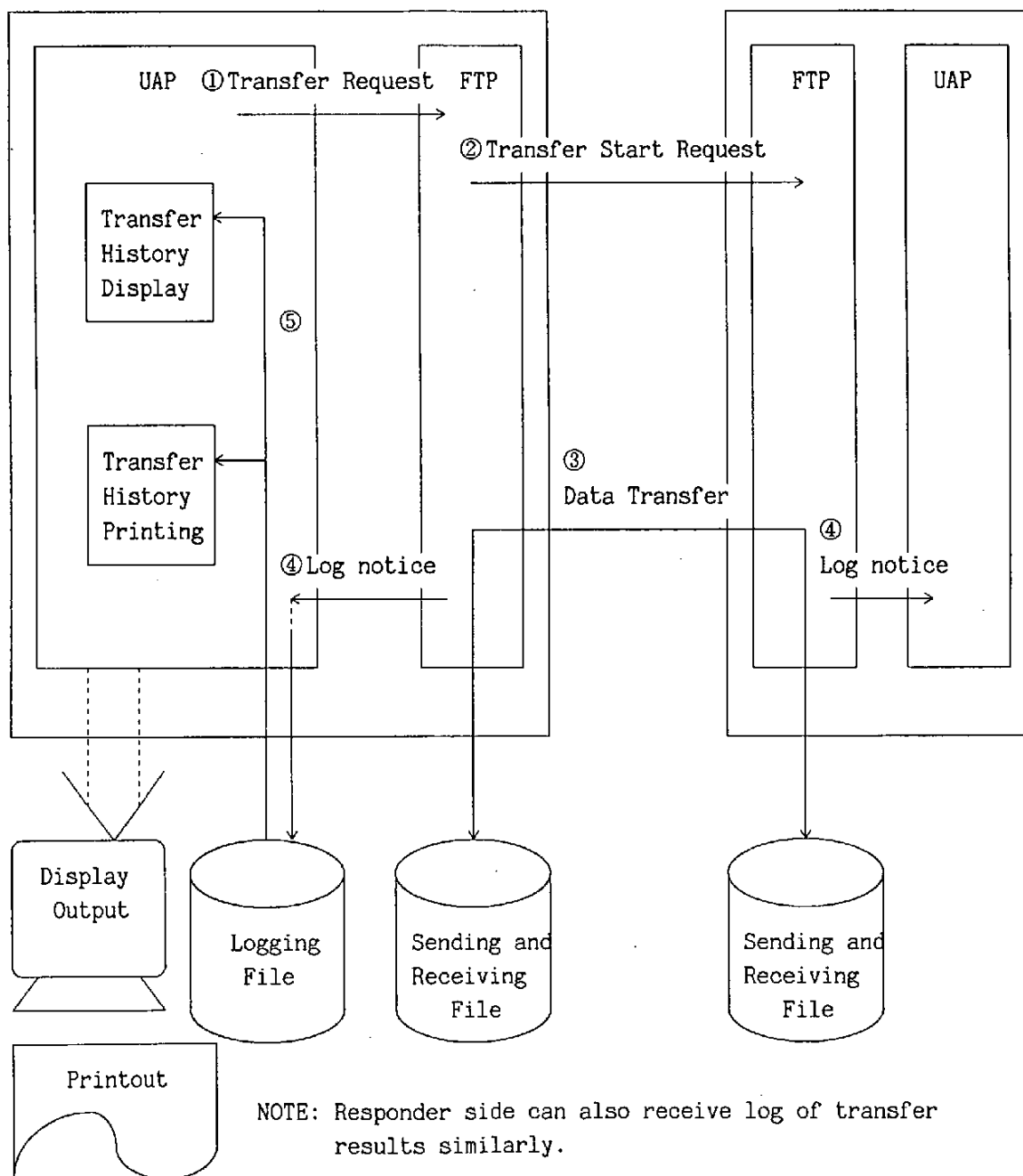Transfer start and end time/transfer destination and transferring party/ transfer file ID/transfer results/data amount

Initiator Side   Responder Side

UAP ①Transfer Request FTP

②Transfer Start Request

Transfer
History
Display

⑤

Transfer
History
Printing

③
Data Transfer

④
Log notice

④Log notice

FTP   UAP

Display
Output

Logging
File

Sending and
Receiving
File

Sending and
Receiving
File

Printout

NOTE: Responder side can also receive log of transfer
        results similarly.

Figure 3-19   Example of Logging of Transfer Results on Initiator Side

3.3.7 Automatic start-up during sending

After preparations for the send file are completed ①, the business program notifies the scheduler (UAP)② of results.

The scheduler judges the send conditions and automatically originates a file transfer request to FTP to start transfer. By this, each UAP is required to prepare send files only without directly initiating FTP.

Condition setting and other tools will be needed separately to set operating conditions to be given to the scheduler.
Automatic schedule processing and other matters will differ depending on the users or F Procedure packages.

Initiator Side   Responder Side
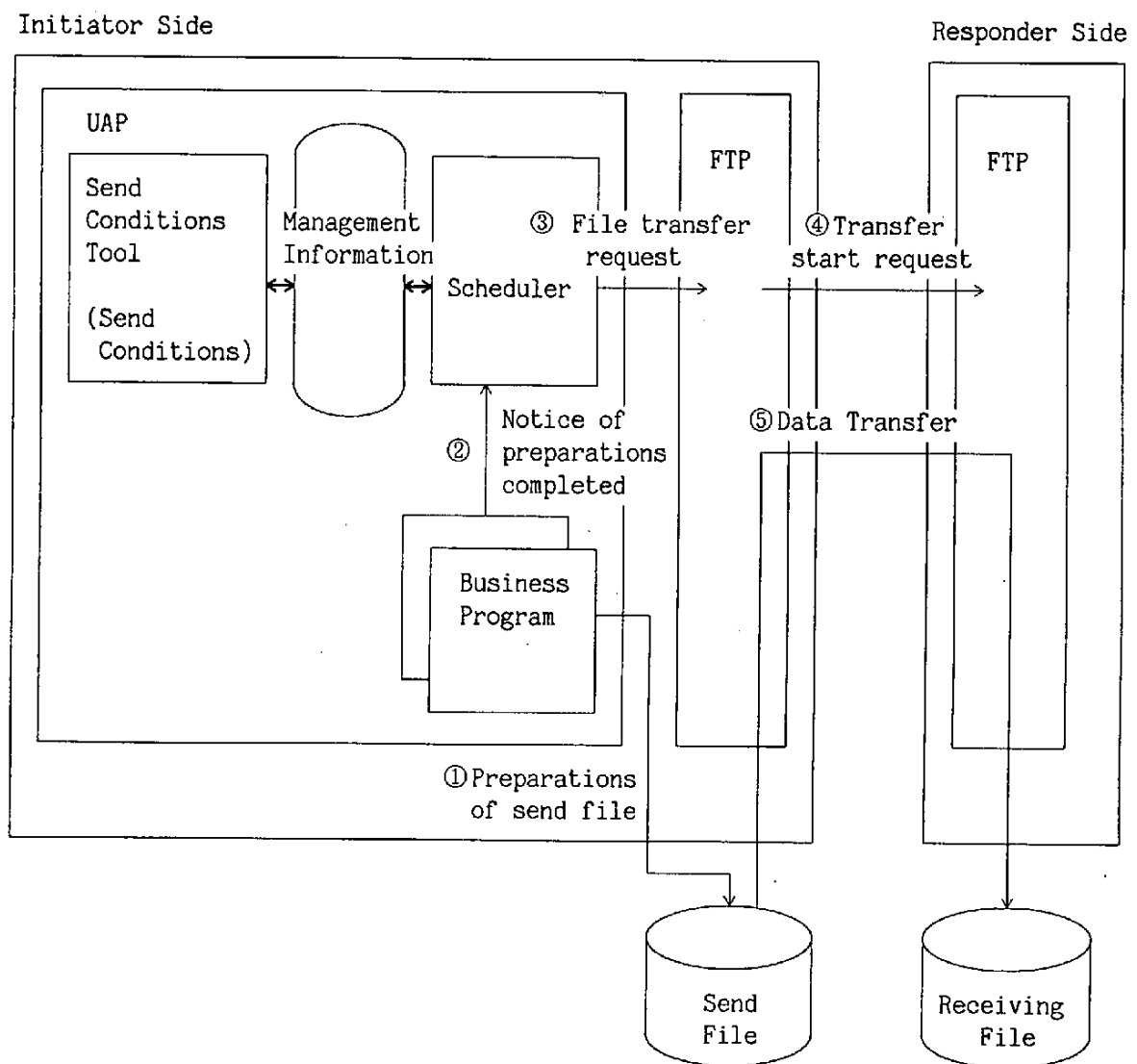
Figure 3-20 Automatic Start-up During Sending

3.3.8 Job linkage during receiving

The scheduler (UAP) receiving the event notice of file receiving completed from FTP at the end of reception automatically initiates jobs after receiving the files.

Condition setting and other tools will be needed separately regarding job initiating conditions, etc. to be to given the scheduler.

Initiator side   Responder side
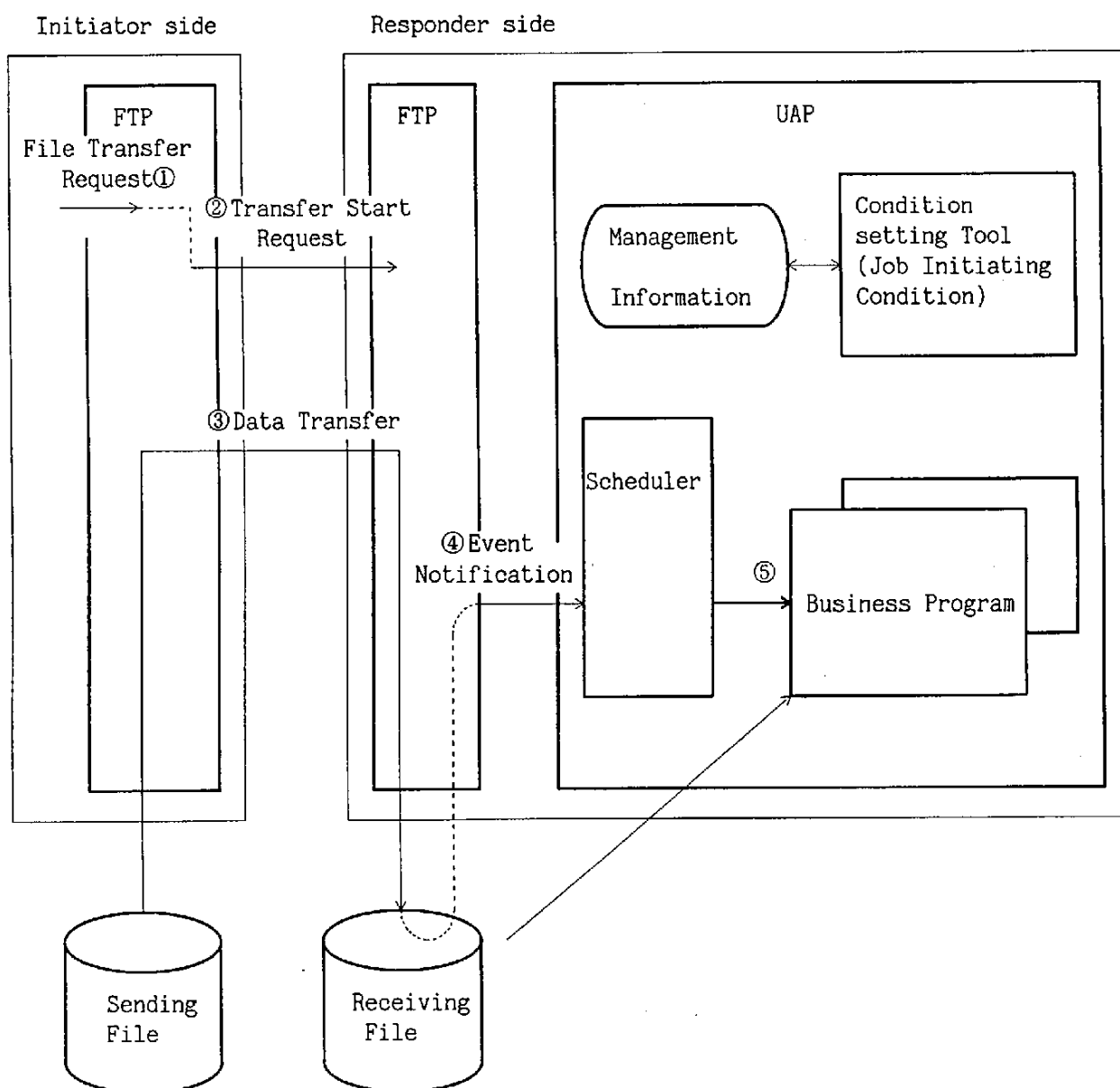
NOTE: Jobs can be linked by the same mechanism even when the initiator side is receiving data.

Figure 3-21 Example of Job Linkage During Reception by Responder side

3.3.9 File processing linkage after finishing transfer

The scheduler (UAP) receiving the event notice of file transfer completed from FTP on completion of file transfer initiates post-processing after completing file transfer.

Condition setting and other tools will be needed separately to set post-process initiating conditions, etc. to be given to the scheduler.

Initiator Side   Responder Side

NOTE: Post-processing can be linked by the same
      mechanism even when the responder side is
      in transmission.
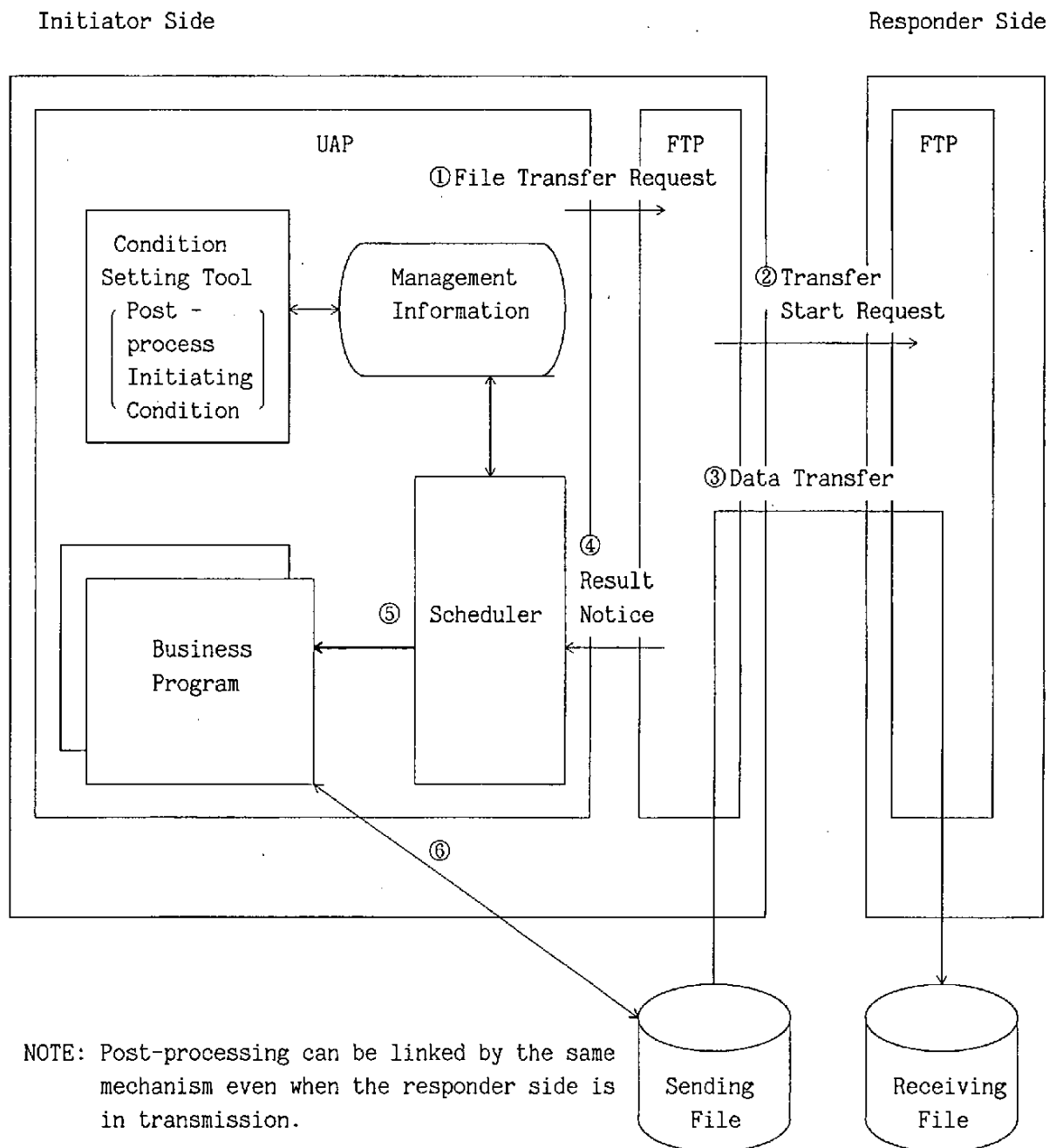
Figure 3-22 Example of Post-Processing Linkage During Sending by Initiator Side

3.3.10 Online control from terminal (Command processing)

A function to process commands can be provided with UAP by using FAI to

enable terminals to directly give instructions for sending and receiving,

in addition to the UAP and console.

Initiator Side   Responder Side
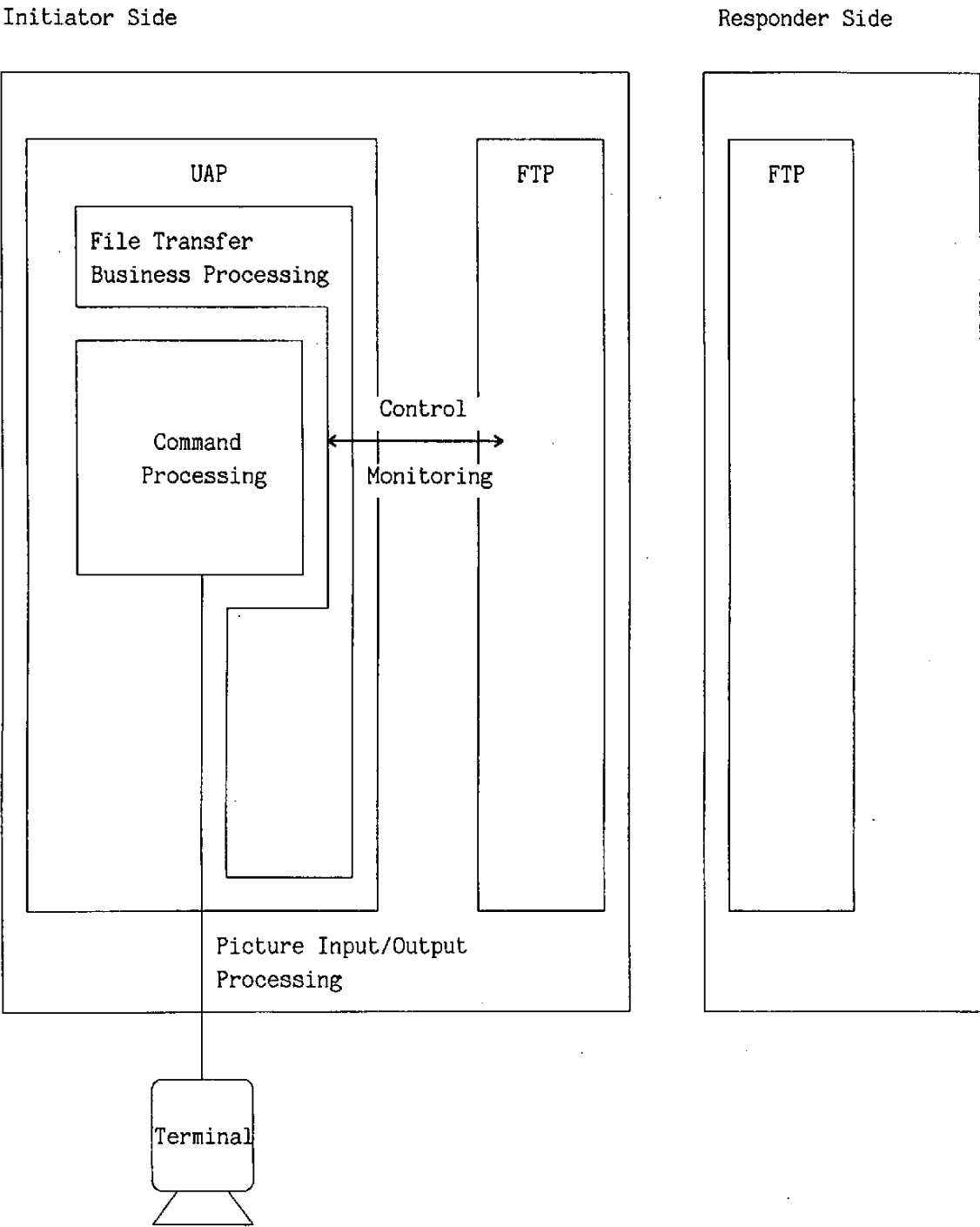
Figure 3-23 Online Control from Terminal (Command Processing)

3.3.11 Priority control

Urgent service must be able to be executed, overtaking services waiting for transfer, to execute several services between the same destination. To accomplish this, each service is given a priority rank and is executed at a low priority for normal services. A high priority can be set only during an urgent event. This is called priority control for transfer queuing. This control enabels a service with a high priority to be executed first by requesting a h priority service afterward, even if there are services that queue for busy retry and execution.

Iniator Side   Responder Side

UAP

Queue for
Processing

④—③—② — Company B

Connected to head of queue if   File   Transfer
send request① of priority 1 is   Transfer   start
genarated(② is overtaken) new   Request   request

                                 (Head of Queue)

④—③—②—① — Company B   Data transfer

Neumerals in circles are priorities
(younger numerals have higher priorities)

FTP   FTP   UAP

② Sending File   ① Sending File   ① Receiving File   ② Receiving File

Figure 3-24 Priority Control of Queues for Transfer

3.4 Security

3.4.1 Initiator side identification

The initiator side sets information to identify the initiator as an initiator-side identifier at the start of file transfer, enabling the responder side to decide whether or not the initiator is the right remote side. The F Procedure uses object identifiers as initiator side identifiers.

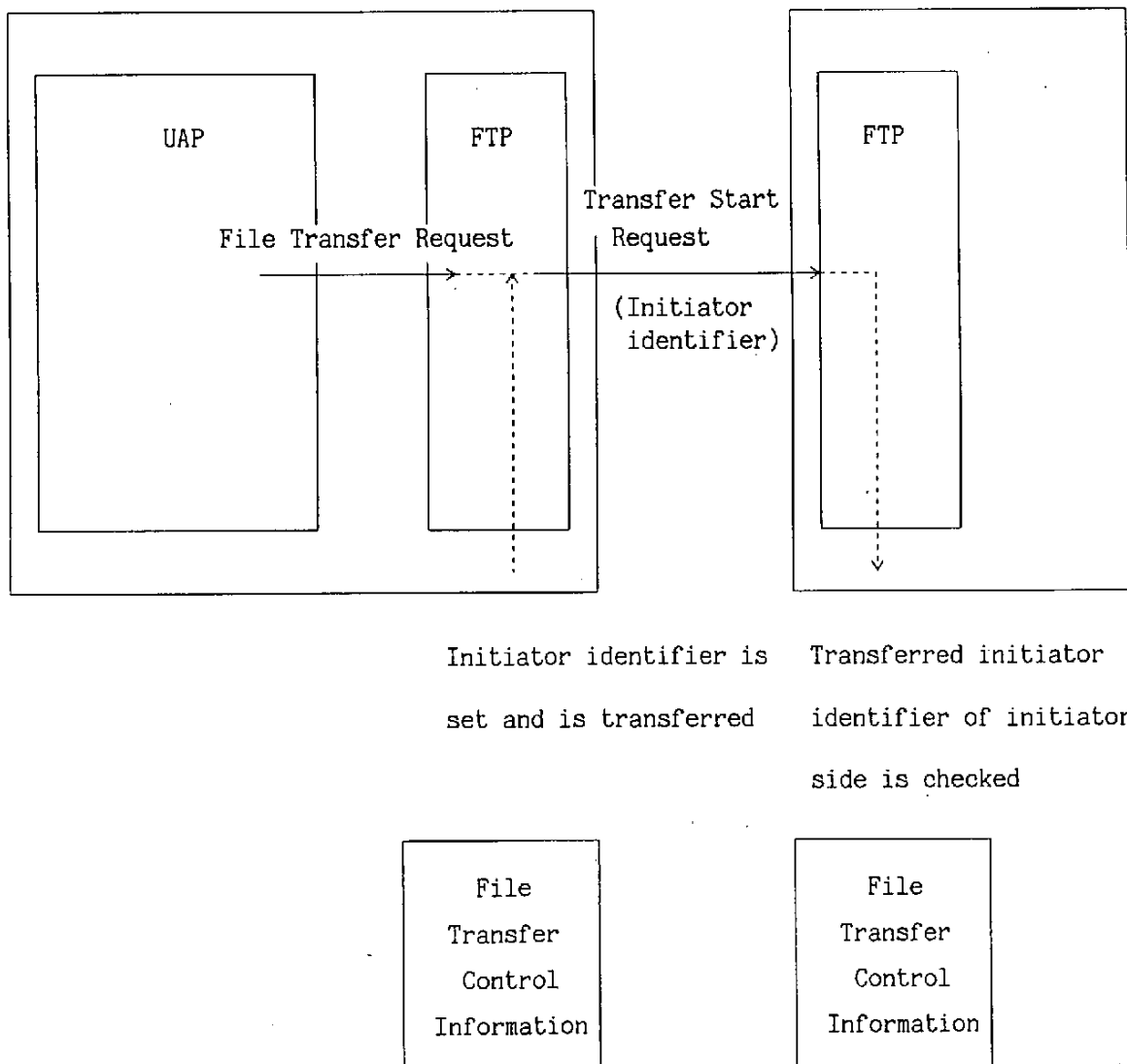Initiator Side   Responder Side

Initiator identifier is   Transferred initiator

set and is transferred   identifier of initiator

                            side is checked

| File Transfer Control Information |
| File Transfer Control Information |

Figure 3-25   Initiator Side Identification by Initiator Identifier

3.4.2 Responder side identification

The initiator side uses the responder identifier sent by the responder side to decide whether or not the responder side is the right party when a communication path (communication path with other party) is established between the initiator and responder sides. The F Procedure uses an object identifier as the responder identifier.

Initiator Side   Responder Side
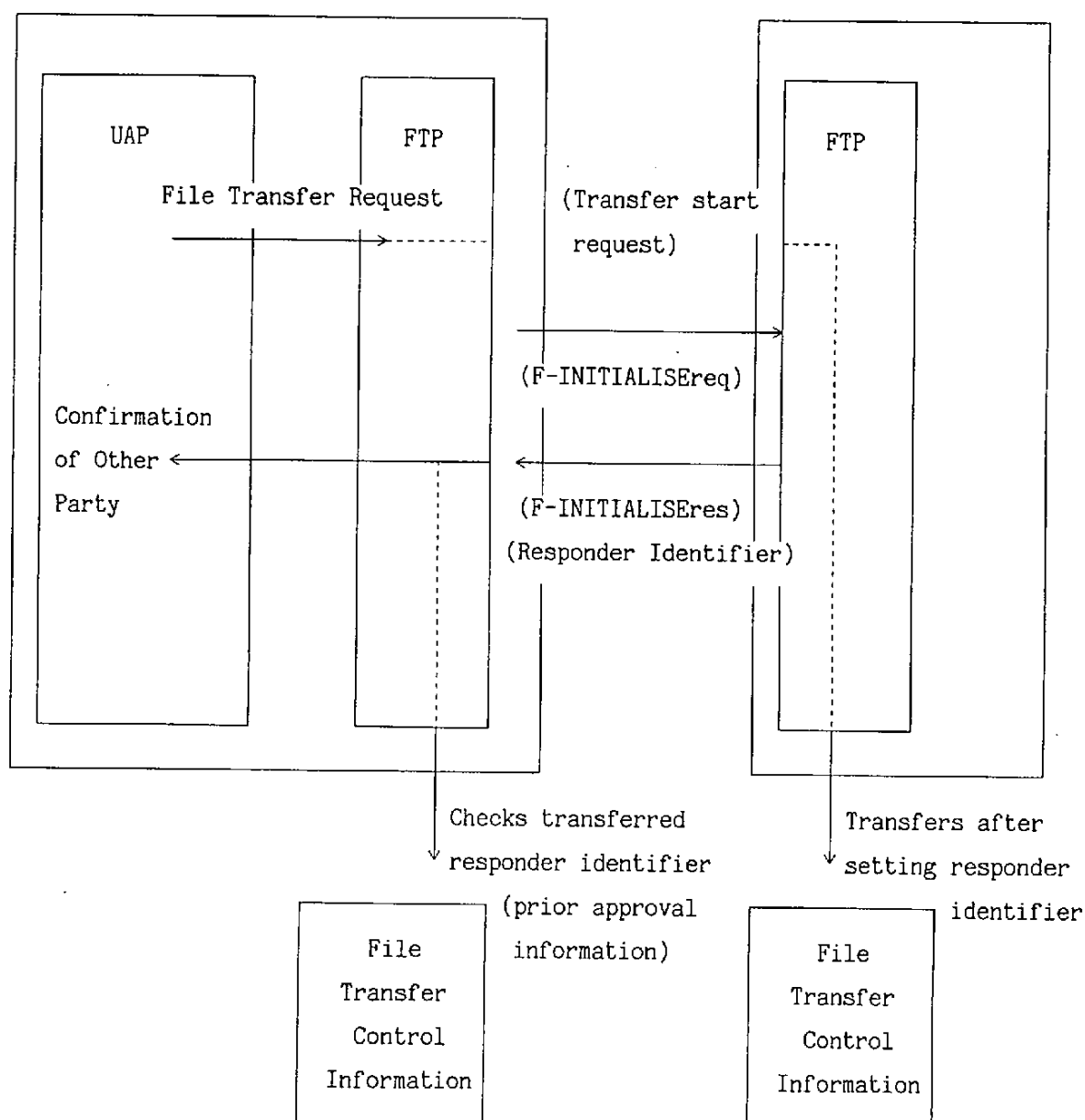
Figure 3-26 Responder Side Identification by Responder Identifier

3.4.3 Initiator verification (Initiator password)

The responder side verifies whether or not the initiator is the right party by judging the initiator password sent by the initiator side when a communication path (communication path with other party) is established between the initiator and responder sides.

The initiator password corresponding to initiator identifiers on the respond er side is prior approval information.

Initiator Side   Responder Side
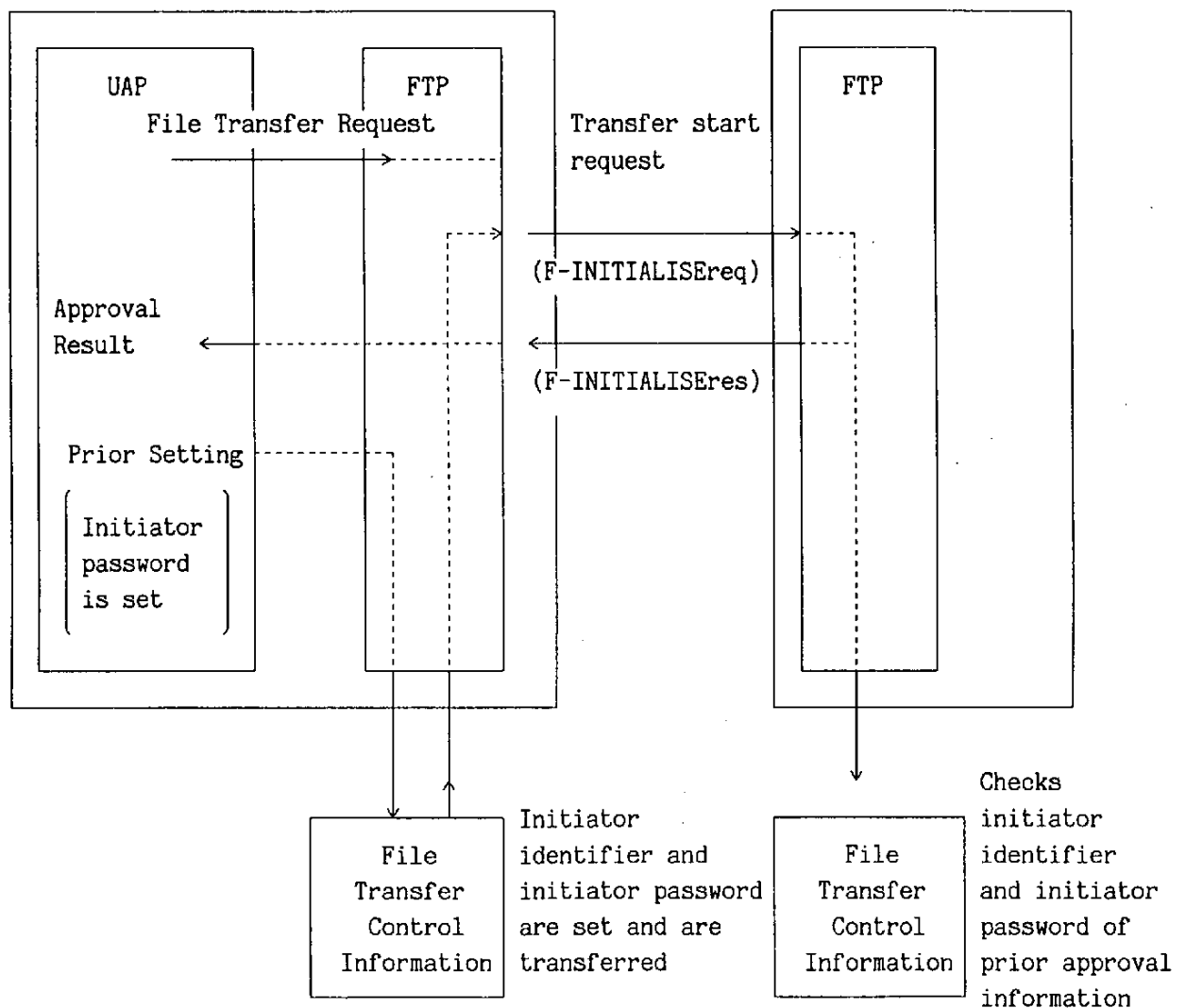
Figure 3-27   Initiator Verification by Initiator Password

3.4.4 Access control (File access password)

Prior to file transfer, the initiator side designates the intended file on the responder side.

The responder side checks whether or nor the designated file can be used by the initiator side and decides whether or not access operation (read, substitution, etc.) can be allowed. During file selection and opening. The file access password is set for each access operation. Access to the file is controlled whether or not the access operation requested during file selection and opening coincide with the password.

In the F Procedure, file access is controlled by using the file access password.

Initiator Side   Responder Side
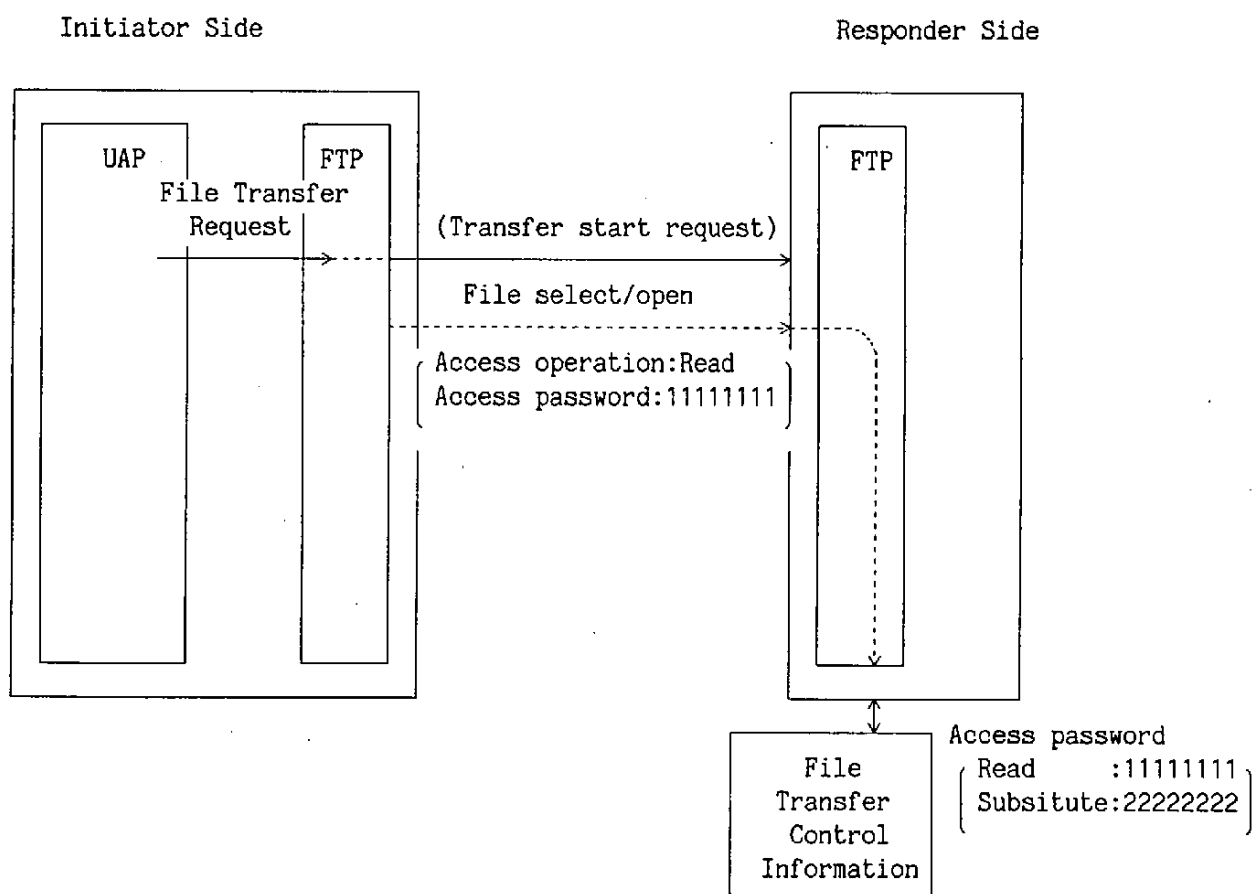
Figure 3-28 Access Control (File Access Password)

3.4.5 Security log

The F Procedure can also gather security error logs to prevent illegal access by outsiders. By this, processing can also be stopped by the UAP monitoring function if more security error than the specified number are detected from the same partner (company). Security information for security checking is also added when transfer start is enabled for checking of security on the initiator side to prevent leaks by omission of checking on the initiator side in addition to the responder side.
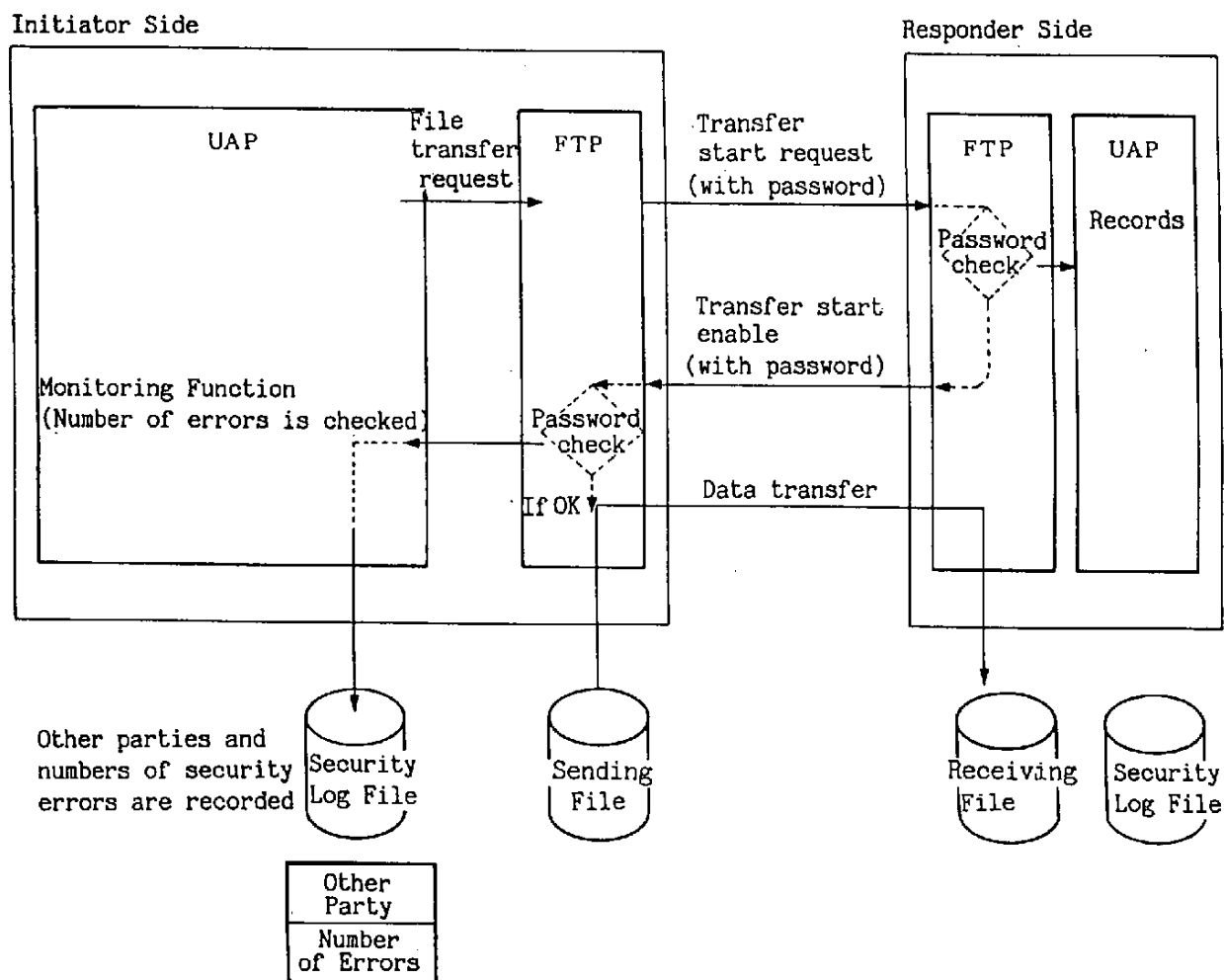
Initiator Side

Responder Side

Figure 3-29   Security Log

3.5 Fault Management

3.5.1 File commitment management

To improve file commitment reliability, the F Procedure sets the timing to check data transfer results to the F-CLOSE promitive on file close end. A file is considered formed if transfer has been successfully made at this primitive.
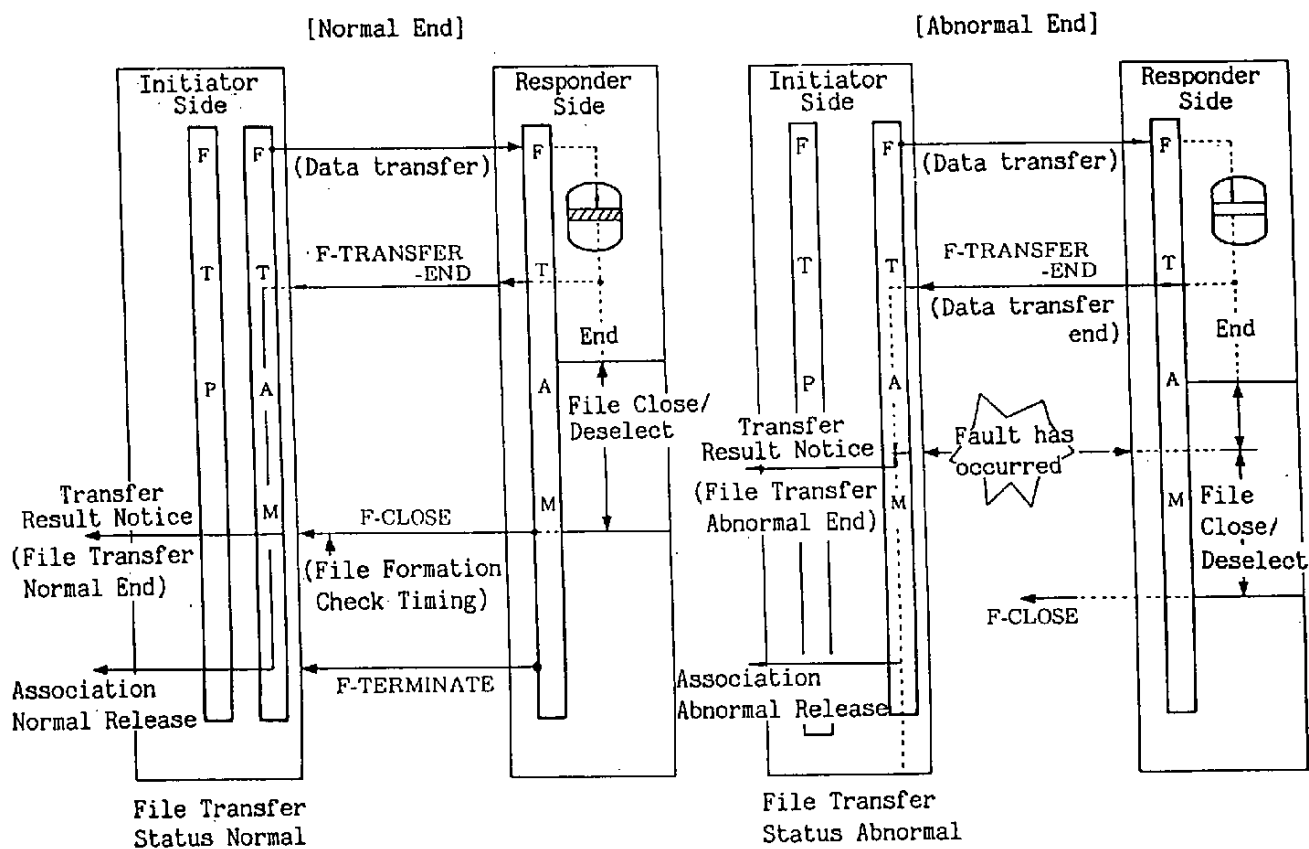

Figure 3-30   File Commitment Management

3.5.2 Error processing

Table 3-2 lists the factors that cause circuit or equipment faults during file transfer after connecting a physical circuit. The processing sequence by the F Procedure in such retransmission process.
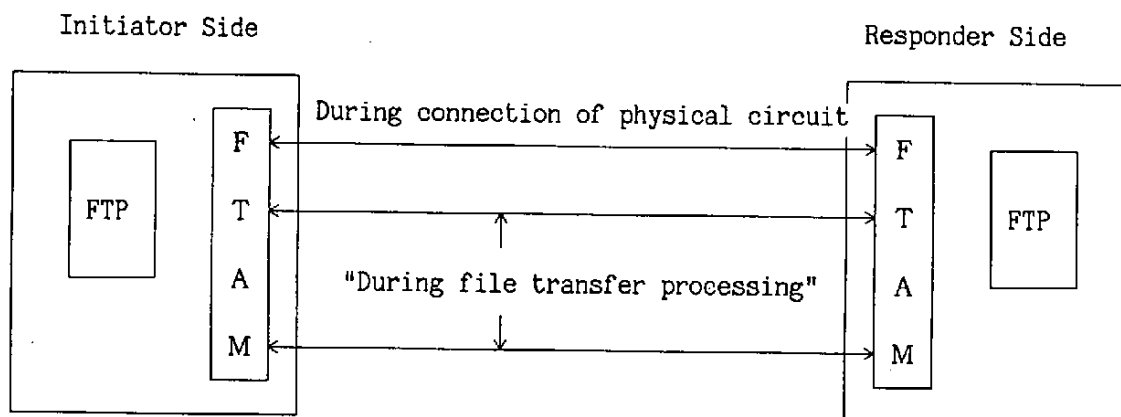
Initiator Side   Responder Side

Figure 3-31   Error Status

Table 3-2   Error Processing During File Transfer Processing

When Fault Occur		Processing on Initiator Side	Processing on Responder Side
1	• During association initialize	• Trouble detection • Abort processing	• Trouble detection • Abort processing
2	• During file selection/opening	• (Same as above)	• (Same as above)
3	• During read and data transfer	• (Same as above)	• (Same as above)
4	• During file closing/deselect	• (Same as above)	• (Same as above)
5	• At end of association	• Transfer normal end	• Transfer normal end

3.5.3 Retransmission

① Retransmission from beginning

> Regardless of whether data has been transferred normally on abnormally, file
> transfer is resumed after both sending and receiving sides comfirm
> information items of file transfer contorl information by telephone on other
> means to resend data from the beginning.
> In normal cases, data is resent if the previous transfer from the sending
> side ended abnormally. If the previous transfer ended normally, the
> designation of file information in the file transfer control information is
> changed back by designating forced double interchange by telephone or other
> means from the receiving side to transfer the file again. The enforced
> duplicated transfer designation function mentioned earlier is used.

	Retransmission by F Procedure	Remarks
Single File	Retransmission from beginning	
Multifile	• Retransmission beginning at head of file suspended in transfer	• Selected from items on left in accordance with user business (UAP) decision.
	• Retransmission from beginning of multifile	• Conforms to multifile processing function.

② Retransmission from halfway (Option function)

> If file transfer is suspended, basically, this file is resent using the
> standard FTAM functions.

③ Retransmission of bulk data

Resending from halfway is an important factor in transferring bulk data of

data in the F Procedure, as the standard FTAM functions are basically used

in resending .

Bulk data of data should preferably be created as multifiles during

data creation on the sending side to enable resending halfway based on file

transfer control information.

An example of resending a multifile halfway is shown below.
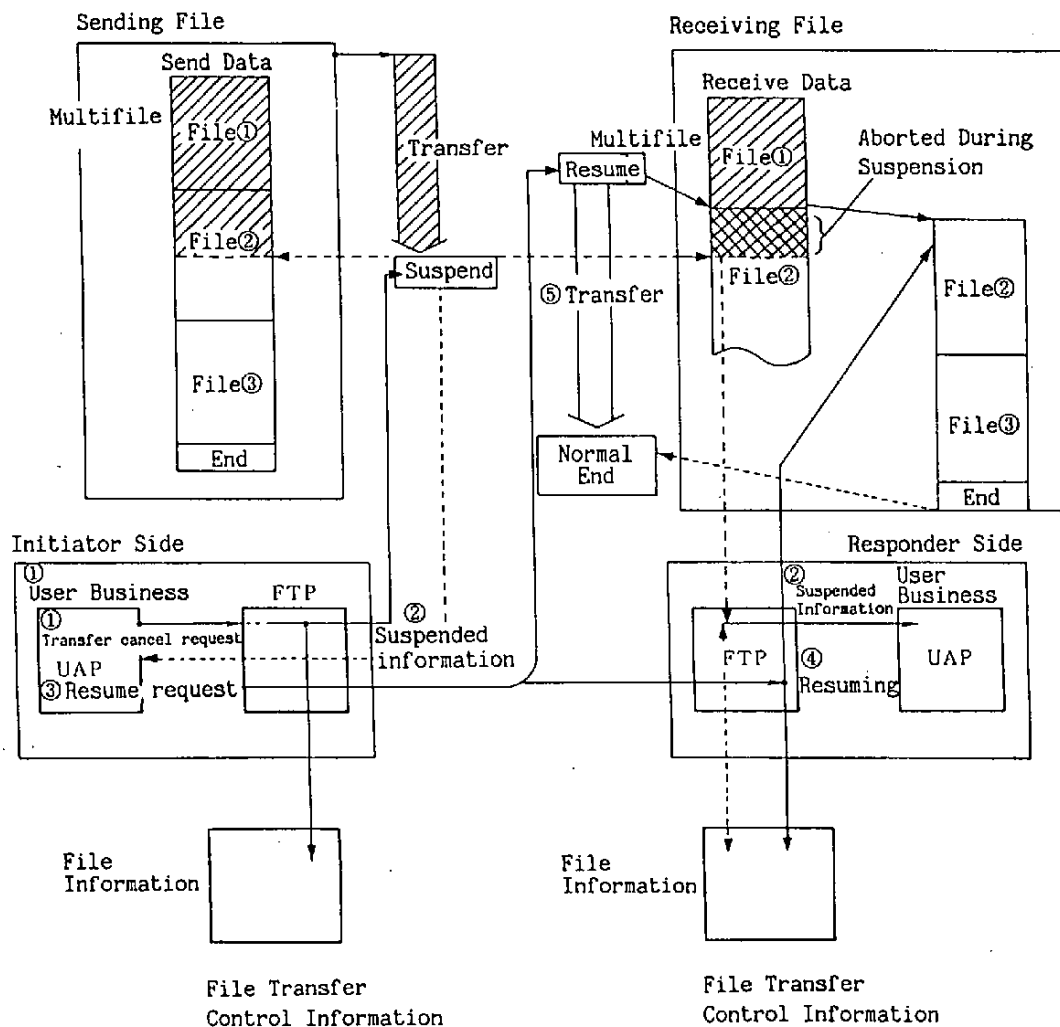

Figure 3-32 Retransmission of Bulk Data

④ Retry of Busy

An automatic retry of busy function is provided in UAP to minimize retry

operation by operator when the line is used and is busy.

The following retry methods are used if the line is busy:

(a) Retry for a specified number at spceified time intervals.

(b) Retry a specified duration at specified time intervals.

(c) Retry through a substitute line.

Initiator Side   Responder Side
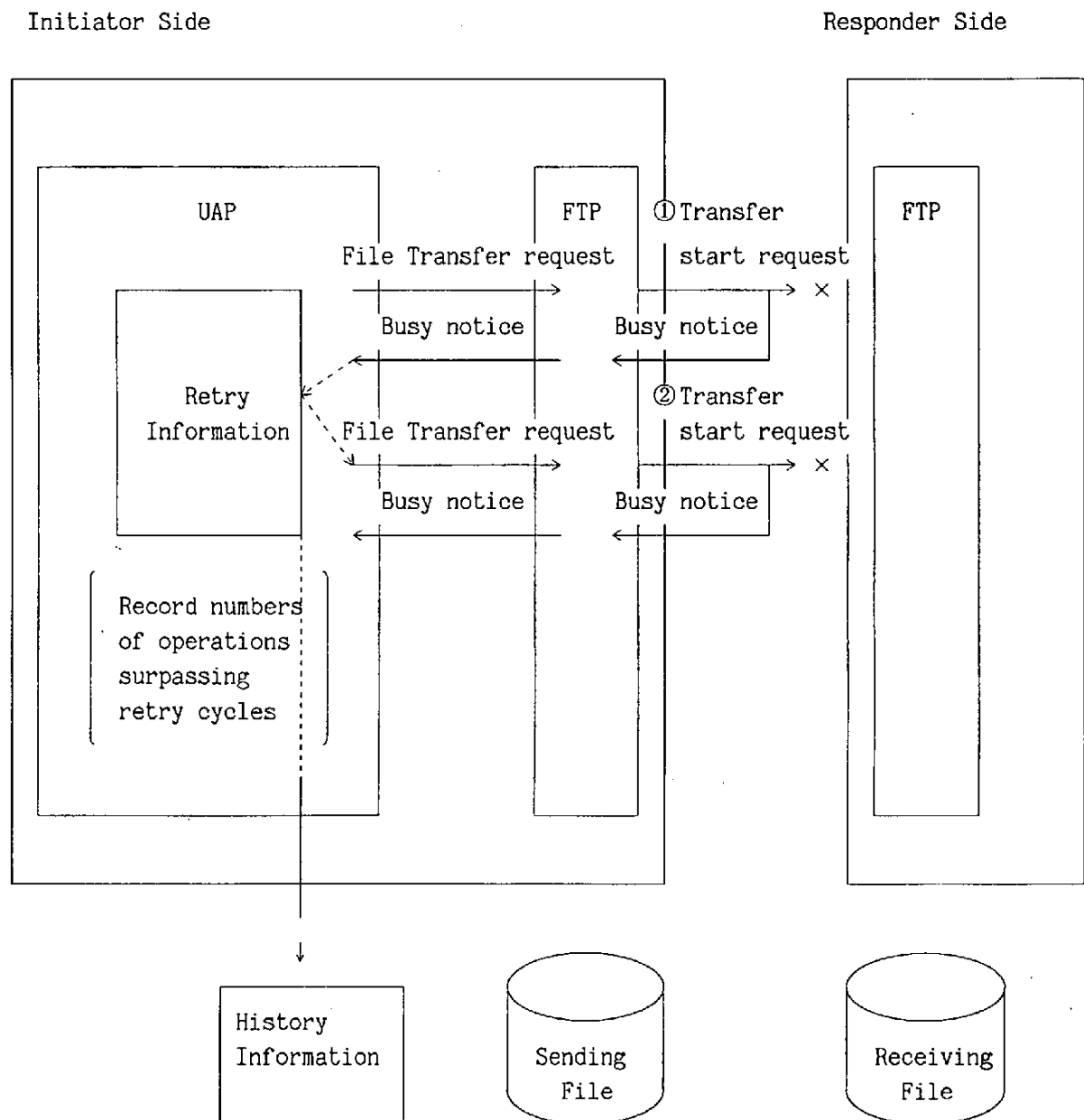

Figure 3-33 Retry of Busy

3.5.4 Inquiry of error status

Error information, such as line error, is gathered as logs to enable the user to detect error status if a error occurs. The user can edit log information by UAP utilities and picture display tools to check the error status.

The error status is notified by FTP to UAP using an event notice and is stored in UAP as a fault log. UAP provides utilities to display and output reports in answer to user inquiries.

Initiator Side   Responder Side

UAP   FTP   ①Transfer   FTP
                              start request

Error   Transfer request
Information   ──┼────────┼──>

                       ③ Error notice

History
Printing
Utility   ②Data transfer
Processing

Display
output   History   Sending   Receiving
              Information   File   File

Printout   NOTE: The responder side also can obtain error logs
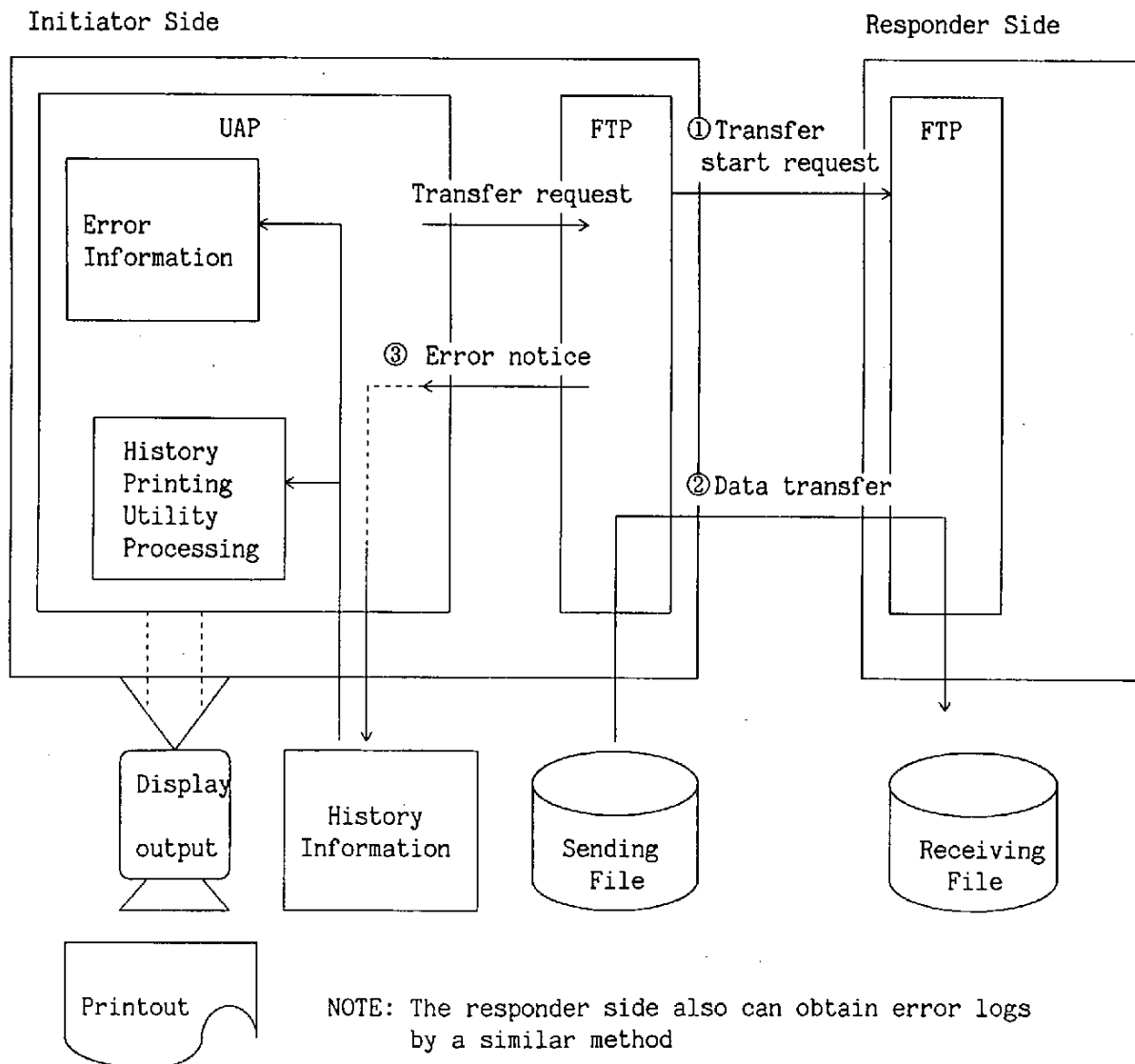   by a similar method

Figure 3-34 Inquiry of Error Status (Example of Initiator Side)

CHAPTER 4 F PROCEDURE SUPPORT STRUCTURE

4.1 Document System

The F Procedure is intended to promote the understanding of it and to smoothly commercialize it by and widely offering various documents suiting user requirements opening them to the public.

Documents for Users

Classification No.	Document Name
F-U01	File Transfer Procedure (F Procedure) General Description (Ver. 2.0)
F-U02	File Transfer Procedure (F Procedure) User Guide (Ver. 1.0) To be issued

Documents for Developers

Classification No.	Document Name
F-M01	F Procedure - Network Protocol Specification (Ver. 1.0)
F-M02	F Procedure - File Transfer Specification (Ver. 1.0)
F-M03	F Procedure - FTP Access Interface Specification (Ver. 1.0)
F-M04	F Procedure - Code List (Ver. 1.0) To be issued
F-M05	F Procedure - Protocol Implementation Requirement specification (Ver. 1.0)
F-M06	F Procedure - Implementation Guide (Ver. 1.0) To be issued

4.2 Object Registration

In OSI, terminal identifications independently defined in network architectures of vendors, etc., as well as identifications of addresses, communication systems and data formats, are called information objects or merely objects. Within OSI, efforts are made to establish rules to systematically and uniquely define and allocate identifiers and to form international and national organizations to register and manage them to ensure information communications among systems of different vendors and models.

The F Procedure offers various functions to meet the mutual-authentication function requirement between connected parties received from its users. In commercializing the F Procedure functions, the following objects are selected for registration:

Object to be Registered	Description	Registerer
Data Format Identifier	The F Procedure will allow any industry format to be transferred and formats will have to be identified without referring to data.	Group or industry
Organization Code *1	Needed to uniquely identify remote sides such as enterprises, groups, government agencies and local governments.	General enterprises, etc.

NOTE. *1: Organization codes should preferably be registered.

These identifiers can be widely used commonly, even when new procedures are developed in the future suiting various EDI communication processing modes.

As object registration and management organizations, registration was started in March, 1991 for national-level objects by two organizations - Japan Information Processing Development Center for the ISO system and Telecommunications Technology Counicil for the CCITT system.

At present, specifications and objects defined by the OSI functional standards (implementation specifications) are registered for the moment. The registration objects and scopes will also be clarified in the future for objects to be registered by the users, such as the data format identifiers mentioned above.

Thus, the F Procedure accomplishes EDI in accordance with international information communication rules, and national object registration and management systems for such purposes have been establishes.