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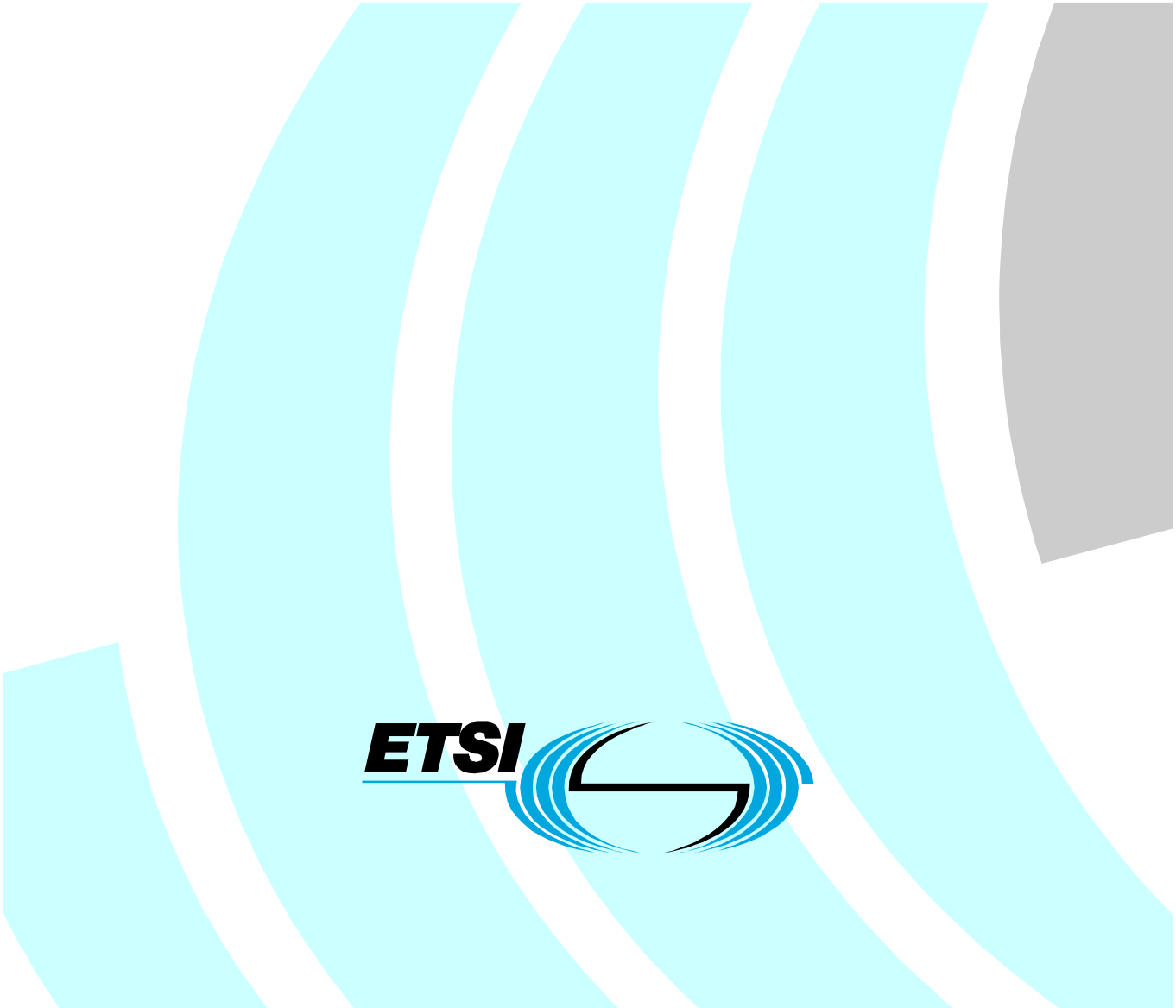
Technical Specification

Integrated Circuit Cards (ICC);
Administrative commands
for telecommunications applications
(Release 6)



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Contents

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1 Scope

The present document defines functions and syntax of a set of administrative commands for a telecommunication card.

The commands defined in the present document are compliant to the commands defined in the ISO/IEC 7816 series where corresponding commands in ISO/IEC are available. The commands described in the present document are using parts of the functionality of the commands described in the ISO/IEC 7816-3 [1]. A UICC supporting the command set based on the present document shall support the command as defined in the present document. However, it is up to the UICC to provide more functionality than described in the present document.

The present document does not cover the internal implementation within the UICC and/or the external equipment.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

Referenced documents which are not found to be publicly available in the expected location might be found at http://docbox.etsi.org/Reference.

[1] ISO/IEC 7816-3 (1997): "Information technology - Identification cards - Integrated circuit(s) cards with contacts - Part 3: Electronic signals and transmission protocols".

[2] ISO/IEC 7816-4 (1995): "Information technology - Identification cards - Integrated circuit(s) cards with contacts - Part 4: Interindustry commands for interchange".

[3] ISO/IEC 7816-8 (2004): "Identification cards - Integrated circuit(s) cards with contacts - Part 8: Commands for security operations".

[4] ISO/IEC 7816-9 (2004): "Identification cards - Integrated circuit(s) cards with contacts - Part 9: Commands for card management".

[5] ETSI TS 102 221: "Smart cards; UICC-Terminal interface; Physical and logical characteristics (Release 5)".

[6] Void.

[7] ETSI TS 101 220: "Smart cards; ETSI numbering system for telecommunication application providers (Release 6)".

[8] ETSI TS 102 223: "Smart cards; Card Application Toolkit (CAT) (Release 6)".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

Access Conditions (AC): set of security attributes associated to a file

ADMinistrative (ADM): access condition to an EF which is under the control of the authority which creates this file

administrative command: command modifying the internal properties of the file system of an UICC

current directory: latest directory (Dedicated File (DF) or Master File (MF)) selected in the UICC

current EF: latest Elementary File (EF) selected in the UICC

current file: latest file (DF or EF) selected in the UICC

Dedicated File (DF): file containing Access Conditions (AC) and allocable memory

NOTE: It may be the parent of Elementary Files (EF) and/or Dedicated Files (DF).

directory: general name for MF or DF

Elementary File (EF): file containing Access Conditions (AC) and data

NOTE: It cannot be the parent of another file.

file IDentifier (ID): each file (DF, EF) has a file identifier consisting of 2 bytes

Master File (MF): mandatory unique DF representing the root of the file structure and containing Access Conditions (AC) and allocable memory

NOTE: It may be the parent of elementary files and/or dedicated files.

record: string of bytes handled as a whole by the UICC and terminal and referenced by a record number or a record pointer

record number: is sequential and unique within an EF

NOTE: It is managed by the UICC.

telecommunication card: UICC mainly used for telecommunication applications

3.2 Symbols

For the purposes of the present document, the following symbols apply:

'	Single quotation is used to indicate hexadecimal notation.
'0' to '9' and 'A' to 'F'	The sixteen hexadecimal digits
b8 ... b1	Bits of one byte. b8 is the MSB, b1 the LSB

3.3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

AC	Access Condition
ADF	Application Dedicated File
AM	Access Mode byte
AM_DO	Access Mode Data Object
APDU	Application Protocol Data Unit
ATR	Answer To Reset

BER	Basic Encoding Rule
CLA	CLAss
DF	Dedicated File (abbreviation formerly used for Data Field)
EF	Elementary File
FCP	File Control Parameters
ID	IDentifier
IEC	International Electrotechnical Commission
INS	INStruction
ISO	International Organization for Standardization
Lc	Length of command data sent by the application layer
LCSI	Life Cycle Status Information
Le	maximum Length of data expected by the application layer
LSB	Least Significant Bit
M	Mandatory
MF	Master File
MSB	Most Significant Bit
O	Optional
PIN	Personal Identification Number
PS	PIN Status
PS_DO	PIN Status Data Object
RFU	Reserved for Future Use
SC	Security Condition
SC_DO	Security Condition Data Object
SM	Secure Messaging
SW1/SW2	Status Word 1/Status Word 2
TLV	Tag Length Value

4 Mapping principles

UICC Cards compliant to the present document shall follow the rules of TS 102 221 [5] in clauses 7 and 10.

5 Security architecture

The general coding of security attributes assigned to files by use of the CREATE FILE command is as described in TS 102 221 [5].

6 Description of the functions and commands

This clause gives a functional description of the commands, their respective responses, associated status conditions, error codes and their coding.

6.1 Coding of the commands

Table 1: Coding of the commands

Command	CLA	INS
CREATE FILE	'0X'	'E0'
DELETE FILE	'0X'	'E4'
DEACTIVATE FILE	'0X'	'04'
ACTIVATE FILE	'0X'	'44'
TERMINATE DF	'00'	'E6'
TERMINATE EF	'00'	'E8'
TERMINATE CARD USAGE	'00'	'FE'
RESIZE FILE	'8X'	'D4'

The coding of the CLA-bytes shall be according to ISO/IEC 7816-4 [2], clause 5.4.1.

All bytes specified as RFU shall be set to '00' and all bits specified as RFU shall be set to 0.

These are the basic commands under the assumption of no Secure Messaging (SM). If SM is used, the Lc and data field must be adopted.

Other commands may be needed in order to execute the commands listed above (e.g. EXTERNAL AUTHENTICATE). If such commands are necessary, they shall be coded according to ISO/IEC 7816-4 [2] or ISO/IEC 7816-8 [3].

6.2 TLV objects

All TLVs described in the present document are BER-TLVs as described in TS 101 220 [7] and shall be supported by the UICC.

The sequence of mandatory TLV objects within the data field of any command specified in the present document shall be as in the description of the command.

According to the requirements of the application, the mandatory list of TLVs may be appended by one of the Tags '85' (Proprietary Information, see ISO/IEC 7816-4 [2]) or 'A5' (Proprietary Information Constructed, see ISO/IEC 7816-9 [4]).

Tag '85' or Tag 'A5' may be appended by other TLVs described in the present document or by any ISO/IEC or application dependent optional TLV object if necessary for a particular application.

6.3 CREATE FILE

6.3.1 Definition and scope

This function allows the creation of a new file under the current DF or ADF. The access condition for the CREATE FILE function of the current DF or ADF shall be fulfilled.

When creating an EF with linear fixed or cyclic structure the UICC shall directly create as many records as allowed by the requested file size.

After the creation of a DF, the current directory shall be on the newly created file. In case of an EF creation, the current EF shall be on the newly created file and the current directory is unchanged. After creation of an EF with linear fixed structure, the record pointer is not defined. After creation of an EF with cyclic structure, the current record pointer is on the last created record. After creation of an EF with BER TLV structure, the current tag pointer is undefined.

The memory space allocated shall be reserved for the created file.

If an ADF is created, some instance has to take care of the administration of the application, e.g. updating the EF_{DIR} with the application ID. The CREATE FILE command does not take care of this administration by its own. The DF Name tag shall only provided in the command, if an ADF is created.

The CREATE FILE command shall initialize newly created EFs with 'FF'. The content of the whole newly created EF shall consist of bytes of this value. If, for another application, other default values are required, this default behaviour can be overwritten by specifying an appropriate TLV in the application dependent data TLV (tag '85' or 'A5') of the CREATE FILE command.

6.3.2 Command message

The CREATE FILE command message is coded according to table 2.

Table 2: CREATE FILE command message

Code	Value
CLA	See table 1
INS	'E0'
P1	'00'
P2	'00'
Lc	Length of the subsequent data field
Data field	Data sent to the UICC
Le	Not present

6.3.2.1 Parameters P1 and P2

P1 and P2 are set to '00' indicating: FileID and file parameters encoded in data.

6.3.2.2 Data field sent in the command message

6.3.2.2.1 Creating a DF

Table 3: Coding of the data field of the CREATE FILE command (in case of creation of a DF)

Value	M/O	Description	Length
'62'	M	Tag: FCP Template	1 byte
LL		Length (byte 3 to the end)	1 byte
'82'	M	Tag: File descriptor	1 byte
'02'		Length of file descriptor	1 byte
xx		File descriptor byte indicating DF, see table 4	1 byte
'21'	M	Data Coding Byte	1 byte
'83'	M	Tag: File ID	1 byte
'02'		Length of file ID	1 byte
xx xx		File ID	2 bytes
'84'	O	Tag: DF Name	1 byte
LL		Length of DF Name	1 byte
xx		DF Name	1 byte to 16 bytes
'8A'	M	Life Cycle Status Information (LCSI)	1 byte
'01'		Length of the LCSI	1 byte
xx		Life Cycle Status Information	1 byte
'8C' 'AB' '8B'	M	Tag: Security attributes: one of the following: Compact Expanded Referenced	1 byte
LL		Length of security attributes related data	1 byte
xx ... xx	M	Data for the security attributes	
'81'	M	Tag: Total file size	1 byte
X, X ≥ 2		Length of number	1 byte
xx ... xx		Number of data bytes	X bytes
"C6"	M	Tag: PIN Status Template DO	1 byte
LL		Length of PIN Status Template DO	1 byte
xx ... xx		PIN Status Template DO	X bytes
'85' or 'A5'	O	Tag: Proprietary, application dependent	1 byte
LL		Length of application dependent data	1 byte
		Application dependent data	
LL: indicates a length of a TLV object coded in one hexadecimal byte. xx: indicates one hexadecimal byte.			

Security attributes:

At least the key references that are used to allow access during the operational phase of the UICC are to be supplied in the security attributes.

Tag '81': Total file size:

Amount of physical memory allocated for the DF or ADF. The amount of memory specifies, how much memory will be available within the currently created DF or ADF to create EFs or other DFs. It shall include the memory needed for structural information for these EFs and DFs. The size of the structural information for the created DF shall not be included.

Some card implementations support dynamic allocation of memory (memory is allocated for the whole UICC), and therefore will ignore this TLV object.

By specifying a value other than '0000' it is possible, to indicate the requested amount of physical memory for the content of a DF or an ADF. This amount is taken from the memory allocated for the current DF.

The behaviour of the UICC for a value equal to '0000' is for further study.

Tag '82': File Descriptor with Data Coding Byte

The File Descriptor Byte shall be coded according to table 4.

Table 4: File descriptor byte

b8	B7	B6	b5	b4	b3	b2	b1	Meaning
0	X	-	-	-	-	-	-	**File accessibility**
0	0	-	-	-	-	-	-	Not shareable file
0	1	-	-	-	-	-	-	Shareable file
0	-	x	x	x	-	-	-	**File type**
0	-	0	0	0	-	-	-	Working EF
0	-	0	0	1	-	-	-	Internal EF
0	-	0	1	0	-	-	-	RFU
0	-	0	1	1	-	-	-	
0	-	1	0	0	-	-	-	
0	-	1	0	1	-	-	-	
0	-	1	1	0	-	-	-	
0	-	1	1	1	-	-	-	DF or ADF
0	-	-	-	-	x	x	x	**EF structure**
0	-	Not all set to 1- -			0	0	0	No information given
0	-	-	-	-	0	0	1	Transparent
0	-	-	-	-	0	1	0	Linear fixed
0	-	-	-	-	0	1	1	RFU
0	-	-	-	-	1	0	0	
0	-	-	-	-	1	0	1	
0	-	-	-	-	1	1	0	Cyclic
0	-	-	-	-	1	1	1	RFU
0	-	1	1	1	0	0	1	BER-TLV structure
1	X	x	x	x	x	x	x	RFU

The data coding byte can be used differently according to table 86 in ISO/IEC 7816-4 [2]. For the present document, the value '21' (proprietary) shall be used and shall not be interpreted by the UICC.

Tag '84': DF Name:

This TLV shall only be provided if an ADF is created. The DF name is a string of bytes which is used to uniquely identify a dedicated file in the card.

Tag '8A': Life Cycle Status Information LCSI

Table 5: Coding of Life Cycle Status Integer

b8	b7	b6	b5	b4	b3	b2	b1	Meaning
0	0	0	0	0	0	0	0	No information given
0	0	0	0	0	0	0	1	Creation state
0	0	0	0	0	0	1	1	Initialization state
0	0	0	0	0	1	-	1	Operational state - activated
0	0	0	0	0	1	-	0	Operational state - deactivated
0	0	0	0	1	1	-	-	Termination state
≠ 0				x	x	x	x	Proprietary
Any other value								RFU

This TLV specifies the status of the file after creation.

The initialization state can be used to set the file into a specific security environment for administrative purposes. See ACTIVATE command.

Tag "C6": PIN Status Template DO

The PIN Status Template DO shall be coded according to TS 102 221 [5].

6.3.2.2.2 Creating an EF

Table 6: Coding of the data field of the CREATE FILE command (in case of the creation of an EF)

Value	M/O	Description	Length
'62'	M	Tag: FCP Template	1 byte
LL		Length (next byte to the end)	1 byte
'82'	M	Tag: File descriptor File descriptor byte followed by data coding byte or File descriptor byte followed by data coding byte and record length, coded on 2 bytes	1 byte
LL		Length of the data (indicating 2 or 4 bytes)	1 byte
xx	M	File Descriptor Byte, see table 4	1 byte
'21'	M	Data Coding Byte	1 byte
xx xx	O	only available, if a record structured file (i.e. for linear fixed or cyclic file) is created	2 bytes
'83'	M	Tag: File ID	1 byte
'02'		Length of the File ID	1 byte
xx xx		File ID	2 bytes
'8A'	M	Life Cycle Status Information (LCSI)	1 byte
'01'		Length of the LCSI	1 byte
xx		Life Cycle Status Information	1 byte
'8C' 'AB' '8B'	M	Tag: Security attributes: one of the following: Compact Expanded Referenced	1 byte
LL		Length of security attributes related data	1 byte
xx ... xx	M	Data for the security attributes	
'80'	M	Tag: File size (Reserved file size)	1 byte
'LL'		Length of the number of bytes	1 byte
xx xx		Number of data bytes	LL bytes
'88'	O	Tag: Short File Identifier	1 byte
LL		Length of Short File Identifier	1 byte
xx		Short File Identifier	1 byte
'A5' or '85'	O	Tag proprietary, application dependent	1 byte
LL		Length of application dependent data	1 byte
		Application dependent data (see below)	
'84'	C	File details tag	1 byte
'01'		Length	1 byte
'01'		File details value as defined for the BER TLV structured EFs in TS 102 221 [5]	1 byte
'86'	C	Tag: Maximum file size	1 byte
'LL'		Length of the number of bytes	1 byte
xx xx		Number of data bytes	LL bytes
'C0'	O (see note)	Tag: Special file information (file status byte)	1 byte
'01'		Length	1 byte
xx		Special file information (file status byte)	1 byte
"C1"	O (see note)	Tag: Filling Pattern	1 byte
L1		Length of Filling Pattern	1 byte
xx ... xx		Filling Pattern Value	L1 bytes
'C2'	O (see note)	Tag: Repeat Pattern	1 byte
L2		Length of the Repeat Pattern	1 byte
xx … xx		Repeat Pattern Value	L2 bytes
xx ... xx		Additional application dependent data	L3 bytes
NOTE: Tag 'C1' and Tag 'C2' shall not be both present within the same command. Tags 'C0', 'C1', 'C2' are only encapsulated in Tag 'A5'. Tag "C1" and "C2" are not applicable in case of BER-TLV structured EF. Tag '84' shall only be present for BER TLV structured EFs, for which it is mandatory. Tag '86' shall only be present for BER TLV structured EFs, for which it is optional.			

Tag '80' File size (Reserved file size):

File size indicates the number of bytes allocated for the body of the file (i.e. it does not include structural information). and cannot be allocated by any other entity.

In the case of an EF with linear or cyclic structure, it is the record length multiplied by the number of records of the EF.

In case of a BER-TLV structured EF, the File size indicates the number of bytes allocated for the body of the file. The value shall include administrative overhead (if any) that is required to store TLV objects, but not the structural information for the file itself. This value shall be returned in the FCP information provided in a response to a SELECT APDU command and labelled "Reserved file size".

Tag '86' Maximum file size:

In the case of an EF with transparent or linear or cyclic structure, this TLV shall not be present in the command.

In case of a BER-TLV structured EF, maximum file size indicates the maximum number of bytes that may be allocated for the body of the file and shall not be exceeded when new objects are created. The value shall include administrative overhead (if any) that is required to store TLV objects, but not the structural information for the file itself. This value shall be returned in the FCP information provided in a response to a SELECT APDU command and labelled "Maximum file size".

If the TLV is not present, no maximum file size is defined for the file and all available memory of the UICC can be allocated to that file.

Tag '82': File Descriptor

The File Descriptor Byte shall be coded according to table 4.

The data coding byte can be used differently according to table 86 in ISO/IEC 7816-4 [2]. For the present document, the value '21' (proprietary) shall be used and shall not be interpreted by the UICC.

The record length shall be present if a record structured file (i.e. for linear fixed or cyclic files) is selected. In this case it indicates the length of the records on 2 bytes. Most significant byte comes first in the value field.

Tag '8A': Life Cycle Status Information LCSI

Table 7: Coding of Life Cycle Status Integer

b8	b7	b6	b5	b4	b3	b2	b1	Meaning
0	0	0	0	0	0	0	0	No information given
0	0	0	0	0	0	0	1	Creation state
0	0	0	0	0	0	1	1	Initialization state
0	0	0	0	0	1	-	1	Operational state - activated
0	0	0	0	0	1	-	0	Operational state - deactivated
0	0	0	0	1	1	-	-	Termination state
≠ 0				x	x	x	x	Proprietary
Any other value								RFU

This TLV specifies the status of the file after creation.

The initialization state can be used to set the file into a specific security environment for administrative purposes. See ACTIVATE command.

Tag '88' Short File Identifier:

The short file identifier is coded from bits b8 to b4. Bits b3,b2,b1 = 000.

The following 3 cases shall be supported by the UICC if the ATR indicates that the UICC supports selection by SFI:

- Tag '88' is missing in the CREATE FILE command: The lower five bits of the file ID are used as the short file identifier by the EF;
- Tag '88' is available in the CREATE FILE command, there is no value part in the TLV: Short file identifier not supported by the EF;

- Tag '88' is available in the CREATE FILE command, there is a short file identifier value in the TLV: Short file identifier is supported by the EF.

Tag 'C0' Special File Information (file status byte) within the proprietary TLV (tag 'A5').

Table 8: Coding of the Special File Information

b8	b7	b6	b5	b4	b3	b2	b1	Meaning
0	x	0	0	0	0	0	0	Low update activity
1	x	0	0	0	0	0	0	High update activity
x	0	0	0	0	0	0	0	Not readable or updatable when deactivated
x	1	0	0	0	0	0	0	Readable and updatable when deactivated
Any other value								RFU

Tag 'C1' Filling pattern within the proprietary TLV (tag 'A5'):

The filling pattern may have any length L1>0 and shall be used as follows:

The first L1-1 bytes of the transparent EF or the first L1-1 bytes of each record of a record oriented EF shall be initialized with the first L1-1 bytes of the filling pattern. All remaining bytes (if any) shall be initialized with the value of the last byte of the filling pattern. If the file or record length is shorter than the filling pattern, the filling pattern shall be truncated accordingly.

Tag 'C2' Repeat pattern within the proprietary TLV (tag 'A5'):

The repeat pattern may have any length L2 and shall be used as follows:

The first L2 bytes of the transparent EF or the first L2 bytes of each record of a record oriented EF shall be initialized with the L2 bytes of the repeat pattern. This shall be repeated consecutively for all remaining blocks of L2 bytes of data in the file or in a record. If necessary, the repeat pattern shall be truncated at the end of the file or at the end of each record to initialize the remaining bytes.

6.3.3 Response message

6.3.3.1 Data field returned in the response message

The data field of the response message is not present.

6.3.3.2 Status conditions returned in the response message

The following status conditions shall be returned by the UICC.

Table 9: CREATE FILE status conditions

SW1	SW2	Meaning
Normal processing		
'90'	'00'	- normal ending of the command
'63'	'0X'	- command successful but after using an internal update retry routine 'X' times
Errors		
'62'	'83'	- in contradiction with activation status
'65'	'81'	- memory problem
'67'	'00'	- incorrect length field
'69'	'82'	- security status not satisfied
"6A"	"80"	- incorrect parameters in the data field
'6A'	'84'	- not enough memory space
'6A'	'89'	- file ID already exists
'6A'	'8A'	- DF name already exists (only for creation of a DF and if a DF Name TLV is used)
'6B'	'00'	- incorrect parameter P1 or P2
'6D'	'00'	- Instruction code not supported or invalid
'6E'	'00'	- Class not supported
'6F'	'00'	- technical problem with no diagnostic given
'6F'	'XX'	- technical problem, XX (proprietary) provides diagnostic except for SW2 = '00'

6.4 DELETE FILE

6.4.1 Definition and scope

This command initiates the deletion of a referenced EF immediately under the current DF, or a DF with its complete subtree.

If a file is indicated as not-shareable as defined in TS 102 221 [5] and is the current file of one application, then another application cannot delete it.

If a file is indicated as shareable as defined in TS 102 221 [5], then it can be deleted by one application independently of whether or not the file is the current file of any other application.

NOTE 1: If an other application is using concurrently the deleted file, the processing by the application may fail.

NOTE 2: If a DF is shareable and an application, having the appropriate rights, requests to delete it, the whole DF including all EFs can be deleted whatever shareable status they have.

If an EF is to be deleted, the access condition "DELETE FILE" of the EF to be deleted shall be fulfilled. After successful completion the current directory is unchanged and no EF is selected.

If a DF is to be deleted, the access condition "DELETE FILE (self)" of the DF to be deleted shall be fulfilled. After successful completion the parent directory is selected and no EF is selected.

If an ADF is to be deleted, the access condition "DELETE FILE (self)" of the ADF to be deleted shall be fulfilled and the ADF is not currently selected on another logical channel.. After successful completion the MF is selected and no EF is selected.

The access conditions "DELETE FILE" and "DELETE FILE (self)" shall be coded as specified in ISO/IEC 7816-9 [4]. The access condition "DELETE FILE (child)" shall not be used.

After successful completion of this command, the deleted file can no longer be selected. The resources held by the file shall be released and the memory used by this file shall be set to the logical erased state. It shall not be possible to interrupt this process in such a way that the data can become recoverable.

If an ADF is deleted, some instance has to take care of the administration of the application, e.g. deleting the application ID entry in the EF_{DIR}. The DELETE FILE command does not take care of this administration by its own.

6.4.2 Command message

The DELETE FILE command message is coded according to table 10.

Table 10: DELETE FILE command message

Code	Value
CLA	See table 1
INS	'E4'
P1	'00'
P2	'00'
Lc	Length of the subsequent data field
Data field	Data sent to the UICC
Le	Not present

6.4.2.1 Parameters P1 and P2

P1 and P2 are set to '00', indicating the selection by file identifier as defined in ISO/IEC 7816-4 [2] for SELECT FILE command.

6.4.2.2 Data field sent in the command message

Table 11: Coding of the data field of the DELETE FILE command

Bytes	Description	Length
1 to 2	File ID (optional)	2 bytes

6.4.3 Response message

6.4.3.1 Data field returned in the response message

The data field of the response message is not present.

6.4.3.2 Status conditions returned in the response message

The following status conditions shall be returned by the UICC.

Table 12: DELETE FILE status conditions

SW1	SW2	Meaning
Normal processing		
'90'	'00'	- normal ending of the command
Errors		
'63'	'0X'	- command successful but after using an internal update retry routine 'X' times
'65'	'81'	- memory problem
'67'	'00'	- incorrect length field
'69'	'82'	- security status not satisfied
"6A"	"82"	- File not found
'6B'	'00'	- incorrect parameter P1 or P2
'6D'	'00'	- Instruction code not supported or invalid
'6E'	'00'	- Class not supported
'6F'	'00'	- technical problem with no diagnostic given
'6F'	'XX'	- technical problem, XX (proprietary) provides diagnostic except for SW2 = '00'

6.5 DEACTIVATE FILE

The support of this command is mandatory for an UICC compliant to the present document.

Refer to TS 102 221 [5] for the specification of the command.

6.6 ACTIVATE FILE

The support of this command is mandatory for an UICC compliant to the present document.

Refer to TS 102 221 [5] for the specification of the command.

This command initiates the transition of a file from:

- the initialization state; or
- the operational state (deactivated).

To the operational state (activated).

6.7 TERMINATE DF

6.7.1 Definition and scope

The TERMINATE DF command initiates the irreversible transition of the currently selected DF into the termination state (coding see LCSI coding in ISO/IEC 7816-9 [4]).

Following a successful completion of the command, the DF is in terminated state and the functionality available from the DF and its subtree is reduced. The DF shall be selectable and if selected the warning status SW1/SW2='6285' (selected file in termination state) shall be returned.

Further possible actions are not defined.

The intend of DF termination is generally to make the application unusable by the cardholder.

The command can be performed only if the security status satisfies the security attributes defined for this command.

This command can be performed only if logical channel 0 is selected and no other logical channel is open.

NOTE: An appropriate security rule is to be setup and fulfilled in order to execute this command.

6.7.2 Command message

The TERMINATE DF command message is coded according to table 13.

Table 13: TERMINATE DF command message

Code	Value
CLA	As defined in ISO/IEC 7816-4 [2], b1 and b2 set to 0
INS	'E6'
P1	'00'
P2	'00'
Lc	Not present
Data field	Not present
Le	Not present

6.7.2.1 Parameters P1 and P2

P1 and P2 are set to '00'.

6.7.2.2 Data field sent in the command message

The data field of the command message is not present.

6.7.3 Response message

6.7.3.1 Data field returned in the response message

The data field of the response message is not present.

6.7.3.2 Status conditions returned in the response message

The following status conditions shall be returned by the UICC.

Table 14: TERMINATE DF status conditions

SW1	SW2	Meaning
Normal Processing		
'90'	'00	- normal ending of the command
Errors		
'65'	'81'	- memory problem
'67'	'00'	- incorrect length field
'69'	'82'	- security status not satisfied
'69'	'85'	- Condition of use not satisfied: - more than 1 logical channel open - selected logical channel not channel 0
'6B'	'00'	- incorrect parameter P1 or P2
'6D'	'00'	- Instruction code not supported or invalid
'6E'	'00'	- Class not supported
'6F'	'00'	- technical problem with no diagnostic given
'6F'	'XX'	- technical problem, XX (proprietary) provides diagnostic except for SW2 = '00'

6.8 TERMINATE EF

6.8.1 Definition and scope

The TERMINATE EF command initiates the irreversible transition of the currently selected EF into the termination state (coding see LCSI coding in ISO/IEC 7816-9 [4]).

The command can be performed only if the security status satisfies the security attributes defined for this command.

This command can be performed only if logical channel 0 is selected and no other logical channel is open.

6.8.2 Command message

The TERMINATE EF command message is coded according to table 15.

Table 15: TERMINATE EF command message

Code	Value
CLA	As defined in ISO/IEC 7816-4 [2], b1 and b2 set to 0
INS	'E8'
P1	'00'
P2	'00'
Lc	Not present
Data field	Not present
Le	Not present

6.8.2.1 Parameters P1 and P2

P1 and P2 are set to '00'.

6.8.2.2 Data field sent in the command message

The data field of the command message is not present.

6.8.3 Response message

6.8.3.1 Data field returned in the response message

The data field of the response message is not present.

6.8.3.2 Status conditions returned in the response message

The following status conditions shall be returned by the UICC.

Table 16: TERMINATE EF status conditions

SW1	SW2	Meaning
Normal Processing		
'90'	'00	- normal ending of the command
Errors		
'65'	'81'	- memory problem
'67'	'00'	- incorrect length field
'69'	'82'	- security status not satisfied
'69'	'85'	- Condition of use not satisfied: - more than 1 logical channel open - selected logical channel not channel 0
'69'	'86'	- Command not allowed (no EF selected)
'6B'	'00'	- incorrect parameter P1 or P2
'6D'	'00'	- Instruction code not supported or invalid
'6E'	'00'	- Class not supported
'6F'	'00'	- technical problem with no diagnostic given
'6F'	'XX'	- technical problem, XX (proprietary) provides diagnostic except for SW2 = '00'

6.9 TERMINATE CARD USAGE

6.9.1 Definition and scope

The TERMINATE CARD USAGE command initiates the irreversible transition of the UICC into the termination state. Use of this command gives an implicit selection of the MF.

The termination state should be indicated in the ATR (see ISO/IEC 7816-4 [2]) using the coding shown in table 2 of ISO/IEC 7816-9 [4].

Following a successful completion of the command, no other than the STATUS command shall be supported by the UICC.

The intend of UICC termination is generally to make the UICC unusable by the cardholder.

The command can be performed only if the security status satisfies the security attributes defined for this command.

NOTE: An appropriate security rule is to be setup and fulfilled in order to execute this command.

6.9.2 Command message

The TERMINATE CARD USAGE command message is coded according to table 17.

Table 17: TERMINATE CARD USAGE command message

Code	Value
CLA	As defined in ISO/IEC 7816-4 [2], b1 and b2 set to 0
INS	'FE'
P1	'00'
P2	'00'
Lc	Not present
Data field	Not present
Le	Not present

6.9.2.1 Parameters P1 and P2

P1 and P2 are set to '00'.

6.9.2.2 Data field sent in the command message

The data field of the command message is not present.

6.9.3 Response message

6.9.3.1 Data field returned in the response message

The data field of the response message is not present.

6.9.3.2 Status conditions returned in the response message

The following status conditions may be returned by the UICC.

Table 18: TERMINATE CARD USAGE status conditions

SW1	SW2	Meaning
Normal Processing		
'90'	'00	- normal ending of the command
Errors		
'65'	'81'	- memory problem
'67'	'00'	- incorrect length field
'69'	'82'	- security status not satisfied
'69'	'85'	- Condition of use not satisfied: - more than 1 logical channel open - selected logical channel not channel 0
'6B'	'00'	- incorrect parameter P1 or P2
'6D'	'00'	- Instruction code not supported or invalid
'6E'	'00'	- Class not supported
'6F'	'00'	- technical problem with no diagnostic given
'6F'	'XX'	- technical problem, XX (proprietary) provides diagnostic except for SW2 = '00'

6.10 RESIZE FILE

6.10.1 Definition and scope

This command allows to modify the memory space allocated to the MF, a DF/ADF, a transparent file or a linear fixed file or a BER-TLV structured EF under the current directory (MF, DF/ADF). This command shall not be allowed for a cyclic file.

If the RESIZE FILE command is used for an ADF, this ADF can only be the ADF of the current active application on this logical channel.

If the card can-not provide the requested memory , the error status SW1/SW2="6A84' (not enough memory space) shall be returned.

MF or DF/ADF resizing may be not allowed for card implementing dynamic allocation of memory (memory is allocated for the whole UICC). If not allowed, the error status SW1/SW2="6985' (condition of use not satisfied) shall be returned.

The access condition for the RESIZE FILE command shall be fulfilled for the file to be resized.

The RESIZE FILE access condition is indicated in the access rules using AM_DO tag '84'. Tag '84' indicates that the INS code for the RESIZE FILE command is indicated as the value in the TLV object (instruction code 'D4'). The RESIZE FILE command can only be used on files that refer to an access rule where this INS code is indicated as part of the rule.

In case of successful execution of the command, the current file or directory on which the command was applied is selected. If the RESIZE FILE command was performed on a linear fixed file the record pointer shall be undefined, on BER-TLV structured EF the tag pointer shall be undefined.

After an unsuccessful execution of the command, the current selected file and directory shall remain the same as prior to the execution. If in this case the RESIZE FILE command was performed on a linear fixed file the record pointer shall not be changed, on BER-TLV structured EF the tag pointer shall not be changed.

After a successful execution of the command, the total file size, if applicable, and the file size TLVs defined in the FCP template of the modified file shall be updated accordingly.

The allocated memory space is updated according to the new data size.

For a linear fixed file, the RESIZE FILE command modifies the number of records but doesn't change the record length.

In case the size of a linear fixed or transparent EF is increased:

- the extension data shall be appended to the end of the existing data (e.g. if 3 records are added to a linear fixed EF with 2 records, these 2 records remain the record 1 and 2 in the increased file, and the 3 new records will become the records 3, 4 and 5); and
- the data contained in the previously allocated memory space shall not be modified by the RESIZE FILE command (e.g. if 3 records are added to a linear fixed EF with 2 records, the content of the 2 initially allocated records shall be identical before and after the execution of the RESIZE FILE command); and
- the newly allocated memory space shall be initialized with 'FF'. The content of the whole newly allocated memory space shall consist of bytes of this value. If, for some applications, other default values are required, this default behaviour can be overwritten by specifying an appropriate TLV in the application dependent data TLV (tag '85' and 'A5') of the RESIZE FILE command.

In case the size of a linear fixed or transparent EF is decreased:

- the removed data shall be deleted and removed from the end of the existing data (e.g. if 3 bytes are removed from a transparent EF with 5 bytes, the bytes 3, 4 and 5 shall be removed from the file); and
- the remaining data already contained in the previously allocated memory space shall not be modified by the RESIZE FILE command (e.g. if 3 bytes are removed from a transparent EF with 5 bytes, the content of the 2 remaining bytes shall be identical before and after the execution of the RESIZE FILE command).

For a BER-TLV structured EF, the reserved file size or the maximum file size or both can be resized. If the maximum file size is decreased and the new size conflicts with the used size, then depending on the mode chosen the command is rejected or all objects in the file are deleted.

If the file size of the MF or a DF/ADF is increased its content is unchanged.

The size of the MF or a DF/ADF can only be decreased if the current amount of memory (including structural information) allocated to the child EFs and DFs is lower or equal to the new requested size. Otherwise, the command is not allowed and the error status SW1/SW2='6985' (condition of use not satisfied) shall be returned.

6.10.2 Command message

The RESIZE FILE command message is coded according to table 19.

Table 19: RESIZE command message

Code	Value
CLA	See table 1
INS	See table 1
P1	See Table 19A
P2	'00'
Lc	Length of the subsequent data field
Data Field	Data sent to the ICC
Le	Not present

Table 19A: Coding of P1 for BER-TLV structure EF

b8	b7	b6	b5	b4	b3	b2	b1	Meaning
0	0	0	0	0	0	0	0	Mode 0
0	0	0	0	0	0	0	1	Mode 1
Any other value								RFU

For other file types, P1 shall be set to '00'.

6.10.2.1 Data field sent in the command message

Table 20: Coding of the data field of the RESIZE FILE command

Value	M/O	Description	Length
'62'	M	Tag: FCP Template	1 byte
LL		Length (next byte to the end)	1 byte
'83'	M	Tag: File ID	1 byte
'02'		Length of the File ID	1 byte
xx xx		File ID	2 bytes
'80'	O	Tag: File size (Reserved file size)	1 byte
LL		Length of the number of bytes	1 byte
xx … xx		Number of data bytes (new file size)	LL bytes
'81'	O	Tag: Total file size	1 byte
LL		Length of the number of bytes	1 byte
xx … xx		Number of data bytes (new file size)	LL bytes
'85' or 'A5'	O	Tag proprietary, application dependent	1 byte
LL		Length of application dependent data	1 byte
		Application dependent data (see below)	
"C1"	O (see note)	Tag: Filling Pattern	1 byte
L1		Length of filling pattern	1 byte
xx... xx		Filling pattern value	L1 bytes
'C2'	O (see note)	Tag: Repeat Pattern	1 byte
L2		Length of the Repeat Pattern	1 byte
xx … xx		Repeat Pattern Value	L2 bytes
xx ... xx		AdditionalApplication dependent data	L3 bytes
'86'	C	Tag: Maximum file size	1 byte
LL		Length of the number of bytes	1 byte
xx … xx		Number of data bytes (new Maximum file size)	LL bytes
NOTE: Tag 'C1' and Tag 'C2' shall not be both present within the same command and are only encapsulated in Tag 'A5'. In case the size of an EF is decreased these Tags shall be ignored. Tag "C1" and "C2" are not applicable in case of a BER-TLV structured EF.			

There is at most one occurrence of the following Tags.

Tag '83' File ID:

Contains the FID of the MF, ADF, DF or EF to modify. In order to specify the ADF of the currently selected application on this logical channel, the FID '7FFF' shall be used.

Tag '80' File size (Reserved file size):

This TLV shall only be provided if an EF is resized. It contains the new file size for this EF.

This size is the new number of bytes allocated for the body of the EF (i.e. it does not include structural information).

In the case of an EF with linear fixed structure, the file size shall be the record length multiplied by the number of records of the EF; otherwise the command is rejected. The new file size shall contain at least one record.

For transparent files, if this size is set to '00', all the content of the EF is removed but the EF is not deleted (it is then exactly as if the EF was created with a size set to '00') and the structural information is still available.

For BER-TLV structured EF, if File size is present, it indicates the minimum number of bytes reserved for the body of the file. The value shall include administrative overhead (if any) that is required to store TLV objects, but not the structural information for the file itself. The content of the file shall not be altered whatever is the new reserved file size value.

Tag '86' Maximum file size:

This TLV may only be provided if a BER-TLV structured EF is resized.

File size indicates the new maximum number of bytes that can be allocated for the body of the file. The value shall include administrative overhead (if any) that is required to store TLV objects, but not the structural information for the file itself.

In case the new maximum file size is decreased and the size used by the existing TLV is greater than the new maximum file size:

- If P1 indicates Mode 0, all existing TLV objects shall be deleted. The file itself shall not be deleted. The new maximum file size is assigned to the file.
- If P1 indicates Mode 1, no action is performed and the error status SW1/SW2='6985' (condition of use not satisfied) shall be returned.

Tag '81' Total File size:

This TLV shall only be provided if the MF or a DF/ADF is resized. It contains the new file size for the MF or this DF/ADF.

This size is the new amount of physical memory allocated for the MF or a DF/ADF (i.e. it does not include structural information) for card not implementing dynamic allocation of memory.

The amount of EFs or DFs which may be created is implementation dependent.

The MF or DF/ADF can be resized to '00' only if it does not contain any file. In this case, the structural information is still available for the MF or DF/ADF. For an ADF, the resizing to '00' does not affect EF_{DIR}.

Tag 'C1' Filling pattern within the proprietary TLV (tag 'A5'):

The filling pattern may have any length L1>0 and shall be used as follows:

- The first L1-1 bytes of the newly allocated memory space of the transparent EF or the first L1-1 bytes of each newly created record shall be initialized with the first L1-1 bytes of the filling pattern. All remaining bytes (if any) shall be initialized with the value of the last byte of the filling pattern. If the newly allocated memory space or record length is shorter than the filling pattern, the filling pattern shall be truncated accordingly.

Tag 'C2' Repeat pattern within the proprietary TLV (tag 'A5'):

The repeat pattern may have any length L2 and shall be used as follows:

- The first L2 bytes of the newly allocated memory space of the transparent EF or the first L2 bytes of each newly created record shall be initialized with the L2 bytes of the repeat pattern. This shall be repeated consecutively for all remaining blocks of the new L2 bytes of data in the file or in the new records. If necessary, the repeat pattern shall be truncated at the end of the file or at the end of each new record to initialize the remaining bytes.

6.10.3 Response message

6.10.3.1 Data field returned in the response message

The data field of the response message is not present.

6.10.3.2 Status conditions returned in the response message

The following status conditions shall be returned by the ICC.

Table 21: RESIZE FILE status conditions

SW1	SW2	Meaning
Normal processing		
'90'	'00'	- normal ending of the command
'63'	'0X'	- command successful but after using an internal update retry routine 'X' times
Errors		
'65'	'81'	- memory problem
'67'	'00'	- incorrect length field
'69'	'81'	- Command incompatible with file structure
'69'	'82'	- security status not satisfied
'69'	'84'	- Referenced data invalidated
'69'	'85'	- Condition of use not satisfied: - command not allowed on MF/DF/ADF - new MF/DF/ADF size lower than current MF/DF/ADF content size - new maximum size is lower than current BER-TLV EF content size.
'6A'	'80'	- incorrect parameters in the data field
'6A'	'82'	- File not found
'6A'	'84'	- not enough memory space
'6B'	'00'	- incorrect parameter P1 or P2
'6D'	'00'	- Instruction code not supported or invalid
'6E'	'00'	- Class not supported
'6F'	'00'	- technical problem with no diagnostic given
'6F'	'XX'	- technical problem, X (proprietary) provides diagnostic

7 Administrative files

7.1 EF_{SUME} (SetUpMenu Elements)

This file is located under $DF_{TELECOM}$ ('7F10').

This EF contains COMPREHENSION TLVs related to the menu title to be used by a UICC when issuing a SET UP MENU proactive command.

Identifier: '6F 54'	Structure: transparent	Optional
File size: X+Y+Z+P bytes	Update activity: low	
Access Conditions: READ ADM UPDATE ADM DEACTIVATE ADM ACTIVATE ADM		

Bytes	Description	M/O	Length
1 to X	Title Alpha Identifier	M	X bytes
X+1 to X+Y	Title Icon Identifier	O	Y bytes
X+Y+1 to X+Y+Z	Title Text Attribute	O	Z bytes
X+Y+Z+1 to X+Y+Z+P	'FF' Padding	O	P bytes

- Title Alpha Identifier.

  Contents: this field contains the Alpha Identifier COMPREHENSION TLV defining the menu title text.

  Coding: according to TS 102 223 [8].

- Title Icon Identifier

  Contents: this field contains the Icon Identifier COMPREHENSION TLV defining the menu title icon.

  Coding: according to TS 102 223 [8].

- Title Text Attribute

  Contents: this field contains the Text Attribute COMPREHENSION TLV defining the menu title text attribute.

  Coding: according to TS 102 223 [8].

Annex A (informative): Change history

The table below indicates all changes that have been incorporated into the present document since it was created by EP SCP.

Change history								
Date	**Meeting**	**EP SCP Doc.**	**CR**	**Rev**	**Cat**	**Subject/Comment**	**Old**	**New**
2000-05	SCP-01	9-00-0149	-		-	Final draft approved for publication		3.0.0
2000-11	SCP-03	9-00-0437	002		F	Alignments with TS 102 221 regarding CREATE FILE command. Note that CR 002 includes corrections which had originally been agreed in CR 001 in T3-000347.	3.0.0	3.1.0
		9-00-0438	003		F	Alignments with TS 102 221 regarding access conditions		
		9-00-0439	004		F	Alignments with TS 102 221 concerning editorial changes		
		9-00-0436	005		F	Administrative command: proprietary information added		
2001-05	SCP-05	SCP-010120	006		F	Correction of the annex applying to the SIM	3.1.0	3.2.0
		SCP-010144	007		F	Allocation of memory for a file		
2001-10	SCP-07	SCP-010305	008		F	Correction of the CREATE FILE command	3.2.0	3.3.0
2002-09	SCP-11	SCP-020256	009		F	Clarification of the SFI management by the CREATE FILE command	3.3.0	3.4.0
2003-01	SCP-12	SCP-030020	011		F	Correction of return status conditions in case of technical problem.	3.4.0	6.0.0
		SCP-030075	012	1	D	Suppression of duplicated information with TS 102 221		
		SCP030079	010	1	D	Reference TS 101 220 for definition of TLV		
2003-05	SCP-13	SCP-030122	014		B	Additional Status Words for CREATE FILE and DELETE FILE command	6.0.0	6.1.0
2003-09	SCP-14	SCP-030224	016		F	Alignment of TS 102 222 with EP SCP specifications	6.1.0	6.2.0
2003-12	SCP-15	SCP2-030253	015	1	B	Addition of the RESIZE Command	6.2.0	6.3.0
		SCP2-030260	017		C	Clarification of DELETE FILE command		
2004-02	SCP-16	SCP-040091	021	2	B	Addition of a filling pattern TLV in the CREATE FILE command for an EF	6.3.0	6.4.0
		SCP-040042	022		D	Deletition of two empty references		
		SCP-040042	023		C	Description of deletion of a shareable file		
		SCP-040090	024	1	B	Addition of a filling pattern TLV in the RESIZE command in case the size of an EF is increased.		
		SCP-040042	025		B	Add "command not allowed" status condition in TERMINATE EF command		
		SCP-040070	027	1	B	Introduction of EF_{SUME} File		
2004-05	SCP-17	SCP-040218	031		D	Renaming of Resize command to Resize File	6.4.0	6.5.0
		SCP-040218	028		B	Add "incorrect parameters in the data field" status condition in RESIZE command		
		SCP-040218	029		B	Authorize Create File and Resize File on any channel		
		SCP-040218	030		B	Addition of text attribute for the menu title		
2004-09	SCP-19	SCP-040346	032		F	Correction of CLA byte for Create/Delete/Resize/Activate/Deactivate	6.5.0	6.6.0
		SCP-040346	033		F	Alignment with TS 102 221 terminology in status conditions		
		SCP-040368	034	1	B	Add support for BER-TLV structure EF administration (Create and Resize)		

History

Document history		
V6.0.0	February 2003	Publication
V6.1.0	June 2003	Publication
V6.2.0	September 2003	Publication
V6.3.0	January 2004	Publication
V6.4.0	March 2004	Publication
V6.5.0	June 2004	Publication
V6.6.0	September 2004	Publication