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Technical Specification

Smart Cards;
Remote APDU structure for UICC based applications
(Release 7)

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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Smart Card Platform (SCP).

It is based on work originally done in the 3GPP in TSG-terminals WG3 and ETSI SMG.

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1 Scope

The present document defines the remote management of the UICC based on the secured packet structure specified in TS 102 225 [1].

It specifies the APDU format for remote management.

- Furthermore the present document specifies: a set of commands coded according to this APDU structure and used in the remote file management on the UICC. This is based on TS 102 221 [2].

- A set of commands coded according to this APDU structure and used in the remote application management on the UICC. This is based on the GlobalPlatform Card Specification [4].

2 References

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2.1 Normative references

The following referenced documents are indispensable for the application of the present document. For dated references, only the edition cited applies. For non-specific references, the latest edition of the referenced document (including any amendments) applies.

[1]   ETSI TS 102 225: "Smart Cards; Secured packet structure for UICC based applications".

[2]   ETSI TS 102 221: "Smart Cards; UICC-Terminal interface; Physical and logical characteristics".

[3]   ETSI TS 102 223: "Smart Cards; Card Application Toolkit (CAT)".

[4]   GlobalPlatform (March 2003): "GlobalPlatform Card Specification, Version 2.1.1".

NOTE: See http://www.globalplatform.org/.

[5]   ETSI TS 101 220: "Smart cards; ETSI numbering system for telecommunication application providers".

[6]   ETSI TS 102 241: "Smart Cards; UICC Application Programming Interface (UICC API) for Java Card (TM)".

[7]   GlobalPlatform: "GlobalPlatform Card Specification Version 2.0.1".

NOTE: See http://www.globalplatform.org/.

[8]   GlobalPlatform: "Card Specification 2.1 Compliance Packages Version 1.1".

NOTE: See http://www.globalplatform.org/.

[9]   ETSI TS 102 222: "Integrated Circuit Cards (ICC); Administrative commands for telecommunications applications".

[10]   ETSI TS 123 048: "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); Security mechanisms for the (U)SIM application toolkit; Stage 2 (3GPP TS 23.048, Release 5)".

[11]   ETSI TS 102 127: "Smart Cards; Transport protocol for CAT applications; Stage 2".

[12]   ETSI TS 143 019: "Digital cellular telecommunications system (Phase 2+); Subscriber Identity Module Application Programming Interface (SIM API) for Java Card; Stage 2 (3GPP TS 43.019 Release 5)".

2.2   Informative references

The following referenced documents are not essential to the use of the present document but they assist the user with regard to a particular subject area**.** For non-specific references, the latest version of the referenced document (including any amendments) applies.

Not applicable.

3   Definitions and abbreviations

3.1   Definitions

For the purposes of the present document, the terms and definitions given in TS 102 225 [1] and TS 101 220 [5] apply.

3.2   Abbreviations

For the purposes of the present document, the abbreviations given in TS 102 225 [1] and the following apply:

ACK	ACKnowledge
ADD	Access Domain Data
ADF	Application Data File
ADP	Access Domain Parameter
AES	Advanced Encryption Standard
AID	Application IDentifier
APDU	Application Protocol Data Unit
API	Application Programming Interface
BER-TLV	Basic Encoding Rules - Tag, Length, Value
BIP	Bearer Independent Protocol
C-APDU	Command Application Protocol Data Unit
CBC	Cell Broadcast Centre
CLA	Class
DAP	Data Authentication Pattern
DEK	Data Encryption Key
DES	Data Encryption Standard
ICCID	Integrated Circuit Card IDentification
INS	INStruction
KIc	Key and algorithm Identifier for ciphering
KID	Key and algorithm IDentifier for RC/CC/DS

PDU	Packet Data Unit
MAC	Message Authentication Code
MF	Management Field
MSL	Minimum Security Level
MSLD	Minimum Security Level Data
RAM	Remote Application Management
R-APDU	Response Application Protocol Data Unit
RFM	Remote File Management
RFU	Reserved for Future Use
SDU	Service Data Unit
TAR	Toolkit Application Reference
TLV	Tag Length Value

4 Overview of remote management
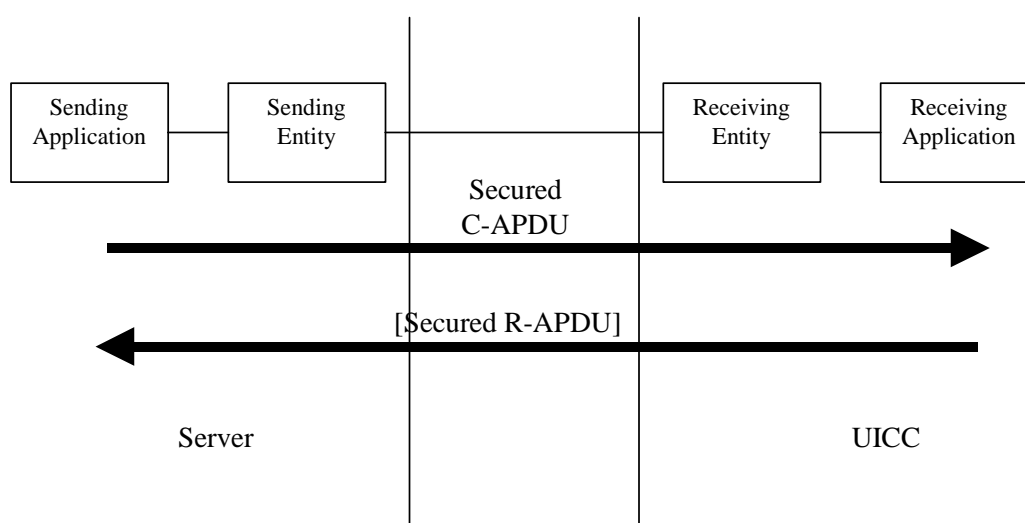
Figure 4.1: Remote management

All data exchanged between the Sending Entity and Receiving Entity shall be formatted as "Secured data" according to TS 102 225 [1]:

1) The parameter(s) in the "Secured data" is either a single command, or a list of commands, which shall be processed sequentially.

2) The Remote Management application shall take parameters from the "Secured data" and shall act upon the files or applications or perform other actions according to these parameters. A Remote Management application is the on-card Receiving Application that performs either Remote File Management (RFM) or Remote Application Management (RAM) as defined in the following clauses.

3) Remote Management commands shall be executed by the dedicated Remote Management Application (RAM). A Command "session" is defined as starting upon receipt of the parameter/command list, and ends when the parameter list in the "Secured data" is completed, or when an error (i.e. SW1 of the command indicates an error condition) is detected which shall halt further processing of the command list. Warnings or procedure bytes do not halt processing of the command list.

4) At the beginning and end of a Command "session" the logical state of the UICC as seen from the terminal shall not be changed to an extent sufficient to disrupt the behaviour of the terminal. If changes in the logical state have occurred that the terminal needs to be aware of, the application on the UICC may issue a REFRESH command according to TS 102 223 [3].

5 Remote APDU format

5.1 Compact Remote Application data format

5.1.1 Compact Remote command structure

A command string may contain a single command or a sequence of commands. The structure of each command shall be according to the generalized structure defined below; each element other than the Data field is a single octet (see TS 102 221 [2]).

The format of the commands is the same as the one defined in TS 102 221 [2] for T = 0 TPDU commands.

Class byte (CLA)	Instruction code (INS)	P1	P2	P3	Data

If the sending application needs to retrieve the Response parameters/data of a case 4 command, then a GET RESPONSE command shall follow this command in the command string.

The GET RESPONSE and any case 2 command (i.e. READ BINARY, READ RECORD) shall only occur once in a command string and, if present, shall be the last command in the string.

For all case 2 commands and for the GET RESPONSE command, if P3 = '00', then the UICC shall send back all available response parameters/data e.g. if a READ RECORD command has P3='00' the whole record shall be returned. The limitation of 256 bytes does not apply for the length of the response data. In case the data is truncated in the response, the remaining bytes are lost and the status words shall be set to '62 F1'.

5.1.2 Compact Remote response structure

If a proof of Receipt is required by the sending entity, the Additional Response Data sent by the Remote Management Application shall be formatted according to table 5.1.

Table 5.1: Format of additional response data

Length	Name
1	Number of commands executed within the command script (see note)
2	Status bytes or '61 xx' procedure bytes of last executed command / GET RESPONSE
X	Response data of last executed command / GET RESPONSE if available (i.e. if the last command was a case 2 command or a GET RESPONSE)
NOTE:	This field shall be set to '01' if one command was executed within the command script, '02' if two commands were executed, etc.

5.2 Expanded Remote Application data format

5.2.1 Expanded Remote command structure

The "Secured data" sent to a Remote Management Application shall be a BER-TLV data object formatted according to table 5.2.

Table 5.2: Expanded format of Remote Management application command "secured data"

Length in bytes	Name
1	Command Scripting template tag
L	Length of Command Scripting template= A+B+…C
A	Command TLV
B	Command TLV
	…
C	Command TLV

The Command Scripting template is a BER-TLV data object as defined in TS 101 220 [5] and the tag of this TLV is defined in annex A.

A Remote Management application command string may contain a single or several Command TLVs.

A Command TLV can be one of the following:

- A C-APDU, containing a remote management command;

- An Immediate Action TLV, containing a proactive command or another action to be performed when it is encountered while processing the sequence of Command TLVs;

- An Error Action TLV, containing a proactive command to be performed only if an error is encountered in a C-APDU following this TLV.

- A script Chaining TLV as first Command TLV.

5.2.1.1 C-APDU TLV

The structure of each C-APDU shall be a TLV structure coded according to the C-APDU COMPREHENSION-TLV data object coding defined in TS 102 223 [3]. The restriction on the length of the C-APDU mentioned in the note in TS 102 223 [3] shall not apply.

For all case 2 and case 4 C-APDUs, if Le='00' in the C-APDU, then the UICC shall send back all available response parameters/data in the R-APDU e.g. if a READ RECORD command has Le='00' the whole record shall be returned. The limitation of 256 bytes does not apply for the length of the response data.

In case the data is truncated in the response of a C-APDU, the status words for this C-APDU shall be set to '62 F1' in the corresponding R-APDU. This shall terminate the processing of the command list.

If a R-APDU fills the response buffer so that no further R-APDU can be included in the response scripting template, this shall terminate the processing of the command list.

If Le field is empty in the C-APDU, then no response data is expected in the R-APDU. In that case, no R-APDU shall be returned by the UICC in the application additional response data except if the corresponding C-APDU is the last command executed in the script.

NOTE: In this expanded format the GET RESPONSE command is not used.

5.2.1.2 Immediate Action TLV

The Immediate Action TLV is a BER TLV data object that allows the Remote Management Application to issue a proactive command during the execution or that allows to abort the execution if a proactive session is ongoing. It shall be formatted as shown in table 5.3 or table 5.4.

Table 5.3: Immediate Action TLV - normal format

Length in bytes	Name
1	Immediate Action tag (see annex A)
L	Length of Immediate Action = A > 1
A	Set of COMPREHENSION-TLV data objects

Table 5.4: Immediate Action TLV - referenced format

Length in bytes	Name
1	Immediate Action tag (see annex A)
1	Length of Immediate Action = 1
1	'01' to '7F': Reference to a record in EF_{RMA} '81': Proactive session indication '82': Early response other values: RFU

In case of reference to a record in EF_{RMA}, the referenced record shall contain the set of COMPREHENSION-TLV data objects preceded by a length value as defined for a BER TLV, see [10].

If present, the Immediate Action TLV coding "proactive session indication" shall be:

- The first Command TLV in the script if there is no script chaining.

- The second Command TLV in the script if there is script chaining.

In case of "proactive session indication", execution of the remaining script shall be suspended if a proactive session is ongoing. Script processing shall be resumed after the end of the proactive session. If the UICC cannot suspend the script execution, e.g. because there is not enough internal resources available, the UICC shall terminate the processing of the script and return a "suspension error" in the response data.

If no "proactive session indication" is present as first Command TLV and another proactive session is ongoing, proactive commands in the script shall be silently ignored.

In case of "early response", the response to the sending entity shall be sent before processing the rest of the command TLVs. The number of executed commands TLV objects shall include all objects up to the immediate action TLV encoding the "early response". No other response data shall be sent after the response sent due to the early response action TLV.

NOTE: This is useful in case of some refresh modes, where the UICC might not be able to send a response after the refresh is performed by the terminal.

Proactive commands as defined in table 5.5 are allowed as Immediate Action. The behaviour of the card for other commands is undefined.

Table 5.5: Allowed proactive commands for Immediate Action

DISPLAY TEXT
PLAY TONE
REFRESH

5.2.1.3 Error Action TLV

The Error Action TLV is a BER TLV data object that allows the Remote Management Application to issue a proactive command in case of error in the execution. It shall be formatted as shown in tables 5.6, 5.7 or 5.8.

The Error Action tag is defined in annex A.

Table 5.6: Error Action TLV - normal format

Length in bytes	Name
1	Error Action tag
L	Length of Error Action = A > 1
A	Set of COMPREHENSION-TLV data objects

Table 5.7: Error Action TLV - referenced format

Length in bytes	Name
1	Error Action tag
1	Length of Error Action = 1
1	'01' to '7F': Reference to a record in EF$_{RMA}$ other values: RFU

Table 5.8: Error Action TLV - no action

Length in bytes	Name
1	Error Action tag
1	Length of Error Action = 0

In case of referenced format, the referenced record in EF$_{RMA}$ shall contain the set of COMPREHENSION-TLV data objects preceded by a length value as defined for a BER TLV, see [10].

Proactive commands as defined in table 5.9 are allowed as Error Action. The behaviour of the card for other commands is undefined.

Table 5.9: Allowed proactive commands for Error Action

DISPLAY TEXT
PLAY TONE

If an error is encountered when processing a C-APDU, error actions shall be performed as follows:

- If there is an Error Action TLV between the start of the script and the C-APDU resulting in an error, the action defined in the last Error Action TLVs shall be performed. If this last Error Action TLV has zero length, no action shall be performed.

- If there is no Error Action TLV between the start of the script and the C-APDU resulting in an error, no action shall be performed.

5.2.1.4 Script Chaining TLV

The optional Script Chaining TLV is a BER-TLV data object and shall be coded as shown in table 5.9a.

Table 5.9a: Script Chaining TLV

Length in bytes	Name
1	Script Chaining tag
1	Script Chaining Length= 1
1	Script Chaining Value

The Script Chaining tag is defined in annex A.

If present, the Script Chaining TLV shall be present only once and shall be the first Command TLV in the Command Script. It may only be present for Remote File Management. If it is received by any other application standardized in the present document, the error "Script Chaining not supported by this application" shall be send back to the sending entity.

The Script Chaining Value is defined as follows:

'01'   first script - delete chaining information upon card reset;

'11'   first script - keep chaining information across card reset;

'02'   subsequent script - subsequent script(s) will follow;

'03'   subsequent script - last script.

Whether or not chaining information is kept across card reset(s) is defined in the first script for the whole chain.

5.2.2   Expanded Remote response structure

The additional response application data which may be sent by a Remote Management application is a BER-TLV data object.

In case no Script Chaining is present in the command list or processing of the Script Chaining produces no error, it shall be formatted according to table 5.10.

Table 5.10: Expanded Format of Remote Management application additional response data

Length in bytes	Name
1	Response Scripting template tag
L	Length of Response Scripting template= X+A+B…C
X	Number of executed Command TLV objects
A	R-APDU of first executed case 2/ case 4 C-APDU in the script
B	R-APDU of second executed case 2/ case 4 C-APDU in the script
	…
C	R-APDU of last executed C-APDU (case 1, 2, 3 or 4) in the script or Bad format TLV
NOTE: If the last executed C-APDU is a case 2 or case 4 command, its corresponding R-APDU TLV shall only be present once in the Response Scripting template.	

The Response Scripting template is a BER-TLV data object as defined in TS 101 220 [5] and the tag of this TLV is defined in annex A.

The Number of executed command TLV objects is a BER-TLV data object and shall be coded as shown in table 5.11.

Table 5.11: Number of executed command TLV objects

Length in bytes	Description
1	Number of executed command TLV objects tag
1	Length=X
X	Number of executed command TLV objects

The Number of executed command TLV objects tag is defined in annex A. The Number of executed command TLV objects value corresponds to the number of command TLV objects executed within the command script.

The structure of each R-APDU shall be a TLV structure coded according to the R-APDU COMPREHENSION-TLV data object coding defined in TS 102 223 [3]. The restriction on the length of the R-APDU mentioned in the note in TS 102 223 [3] shall not apply. For Le='00', the length of the R-APDU may be coded on more than two bytes.

A Remote Management application response string may contain a single or several R-APDU TLVs.

In case of an unknown Tag, or TLV with a wrong format (e.g. length > length of BER-TLV or length < 4) is encountered while processing the command script, a Bad format TLV shall be put into the response data and processing of the command script shall be aborted at that point.

The Number of executed C-APDUs shall take into account the incorrectly formatted TLV.

The Bad format TLV is a BER-TLV data object and shall be coded as shown in table 5.5.

Table 5.12: Bad format TLV

Length in bytes	Description
1	Bad format TLV tag
1	Length
1	Error type

Error type Coding:

- '01': Unknown Tag found

- '02': Wrong length found

- '03': Length not found

other values: RFU.

If "proactive session indication" is present in the script and a proactive session is ongoing and the UICC is unable to suspend script processing, the additional response application data shall be formatted according to tables 5.12 and 5.13 and indicate "suspension error".

Table 5.13: Expanded Format of Remote Management application additional response data in case of Immediate Action error

Length in bytes	Name
1	Response Scripting template tag
L	Length of Response Scripting template= X+A
X	Number of executed command TLV objects (value is 1)
A	Immediate Action Response

The Immediate Action Response is an Immediate Action Response TLV which is a BER-TLV data object coded as shown in table 5.13.

Table 5.14: Immediate Action Response TLV

Length in bytes	Description
1	Immediate Action Response tag
1	Length=X
X	Immediate Action Response Value

The Immediate Action Response tag is defined in annex A.

The Immediate Action Response Value is defined as follows:

- '01'   Suspension error

In case a Script Chaining TLV indicating "subsequent script - …" is present in the list, the following situations shall be considered as chaining errors:

- The previous script did not contain a Script Chaining TLV indicating "first script - …" or "subsequent script - subsequent script(s) will follow".

- The first script of the chain indicating "first script - delete chaining information upon card reset" was processed in an earlier card session.

In case of chaining errors, the additional response application data shall be formatted according to table 5.15.

**Table 5.15: Expanded Format of Remote Management application
additional response data in case of Script Chaining error**

Length in bytes	Name
1	Response Scripting template tag
L2	Length of Response Scripting template= X+A
X	Number of executed Command TLV objects
A	Script Chaining Response

The Script Chaining Response TLV is a BER-TLV data object and shall be coded as shown in table 5.16.

Table 5.16: Script Chaining Response TLV

Length in bytes	Description
1	Script Chaining Response tag
1	Length=X
X	Script Chaining Result Value

The Script Chaining Response tag is defined in annex A. The Script Chaining Result Value is defined as follows:

- '01' No previous script;

- '02' Script Chaining not supported by this application;

- '03' Unable to process script chaining (e.g. no resources to store chaining context).

6 Security parameters assigned to applications

6.1 Minimum Security Level (MSL)

The Minimum Security Level (MSL) is used to specify the minimum level of security to be applied to Secured Packets sent to any Receiving Application. The Receiving Entity shall check the Minimum Security Level before processing the security of the Command Packet. If the check fails, the Receiving Entity shall reject the messages and a Response Packet with the "Insufficient Security Level" Response Status Code (see TS 102 225 [1]) shall be sent if required.

A Minimum Security Level as described in clause 8.2.1.3.2.4 shall be assigned to each Remote Management application (RFM/RAM).

6.2 Access domain

The Access Domain is a parameter used to define the access rights granted to an Application allowing it to perform operations on UICC files specified in TS 102 221 [2]. Access Conditions of UICC Files shall be coded as defined in TS 102 221 [2].

The access rights granted to an application by its Access Domain shall be independent from the access rights granted at the UICC/Terminal interface.

NOTE: This implies in particular that the status of a secret code (e.g. disabled PIN1, blocked PIN2, etc.) at the UICC/Terminal interface does not affect the access rights granted to an application.

An Access Domain as described in clause 8.2.1.3.2.5 shall be assigned to each Remote File Management Application.

7 Remote File Management (RFM)

The concept of embedding APDUs in a command packet and the Additional Response data in a response packet shall be as defined in the previous clauses describing the Compact and expanded Remote Application data format.

The Compact and expanded Remote Application data formats shall be distinguished by different TAR values.

For the Expanded Remote Application data format, it is possible to chain two or more scripts using Script Chaining TLVs.

If a Script Chaining TLV indicating "first script - …" or "subsequent script - subsequent script(s) will follow" is processed successfully, the file context (current directory, current file, current tag pointer, etc.) and the PIN verification status at the end of the script shall be remembered until the next script is processed by the Remote File Management application. If the next script contains a Script Chaining TLV indicating "subsequent script - …" that is processed successfully, the remembered file context and PIN verification status shall be restored. Else the default context shall be used.

If a non-shareable file is selected by the remembered file context, the mechanisms defined in TS 102 221 [2] limiting the access to non-shareable files shall apply.

NOTE: It is up to the sending entity to guarantee that a sequence of scripts, each relying on the context of the previous one, is processed in the correct sequence by the UICC. This can be achieved by using a reliable transport mechanism, by waiting for a positive response of one script before sending the next, or by using appropriate settings in the security layer ("process only if counter value is one higher than previous value").

7.1 Commands

The standardized commands are listed in table 7.1. The commands are as defined in TS 102 221 [2] and TS 102 222 [9].

Table 7.1: Remote File Management commands

Operational command
SELECT (see below)
UPDATE BINARY
UPDATE RECORD
SEARCH RECORD
INCREASE
VERIFY PIN
CHANGE PIN
DISABLE PIN
ENABLE PIN
UNBLOCK PIN
DEACTIVATE FILE
ACTIVATE FILE
READ BINARY
READ RECORD
CREATE FILE
DELETE FILE
RESIZE FILE
SET DATA
RETRIEVE DATA

The SELECT command shall not include the selection by DF name corresponding to P1='04' in the Command Parameters of SELECT (see TS 102 221 [2]).

The Response Data shall be placed in the Additional Response Data element of the Response Packet.

- If P3/Le ='00' in the READ RECORD command, then the UICC shall send back the whole record data.

- If P3/Le ='00' in the READ BINARY command, then the UICC shall send back all data until the end of the file, according to clause 5.1.

- If P3/Le ='00' in the RETRIEVE DATA command, then the UICC shall send back all data until the end of the data object from the current BER-TLV structure EF.

7.2 UICC Shared File System Remote File Management

A UICC Shared File System Remote File Management application shall have access only to the MF and all DFs and EFs that are located under the MF.

    NOTE: ADFs are not considered to be files located under the MF.

Unless Script Chaining is used, the MF shall be implicitly selected and be the current directory at the beginning of a Command "session".

No ADF shall be accessed by the UICC Shared File System Remote File Management application.

All commands defined in clause 7.1 shall apply.

The TAR value of the UICC Shared File System Remote File Management application is defined in TS 101 220 [5].

7.3 ADF Remote File Management

An ADF Remote File Management application shall have access to the DFs and EFs located under the ADF.

Unless Script Chaining is used, the ADF shall be implicitly selected and be the current directory at the beginning of a Command "session".

The UICC Shared File System, i.e. the MF and all DFs and EFs that are located under the MF, may also be accessed, depending on the access rights granted to the ADF Remote File Management application.

    NOTE: ADFs are not considered to be files located under the MF.

All commands defined in clause 7.1 shall apply.

The TAR of an ADF RFM application shall be linked to the AID of the application to which the ADF belongs.

The TAR value of an ADF Remote File Management application is defined in TS 101 220 [5].

8 Remote Application Management (RAM)

Remote Application Management on a UICC card includes the ability to load, install, and remove applications. This management is under the control of the Issuer Security Domain or any Security Domain with delegated management privileges as described in GlobalPlatform Card Specification [4].

All GlobalPatform features and functionality that are described in the present clause shall comply with GlobalPlatform Card Specification [4].

A RAM Application shall support the features and functionality described as mandatory in Package 0 "Core OP functionality" of GlobalPlatform Card Specification 2.1 Compliance Packages [8] unless they are specifically defined as not applicable or optional in the present clause.

A RAM Application shall support all features and functionality described in the present clause unless they are specifically described as optional.

The support of the APIs defined in GlobalPlatform Card Specification [4] (Package 0.A (Java Card API) or Package 0.B (Windows Powered Smart Cards API) in GlobalPlatform Card Specification 2.1 Compliance Packages [8] is optional.

Remote Application Management commands shall be executed according to table 9.1 of GlobalPlatform Card Specification [4].

The TAR value allocated for the Issuer Security Domain are defined in TS 101 220 [5].

The concept of embedding APDUs in a command packet and the Additional Response data in a response packet shall be as defined in the previous clauses describing the Compact and expanded Remote Application data format.

The Compact and expanded Remote Application data formats shall be distinguished by different TAR values.

The Minimum Security Level of a RAM Application shall require at least integrity using CC or DS.

A complying card shall support at least the DES CBC algorithm for cryptographic computations.

8.1 Remote application management application behaviour

Remote Load File loading, Application installation, Load File removal, Application removal, Application locking/unlocking, Application information retrieval shall be compliant to GlobalPlatform Card Specification [4].

As a RAM Application is a Receiving Application per clause 4, application selection (SELECT command) and command dispatching as described in GlobalPlatform Card Specification [4] do not apply to Remote Application Management.

8.2 Commands coding and description

Commands and responses shall be coded according to GlobalPlatform Card Specification [4] unless otherwise specified in the present document.

Secure messaging shall be based on TS 102 225 [1]. Therefore secure messaging as defined in GlobalPlatform Card Specification [4] shall not apply to RAM APDU commands and responses (e.g. MAC shall not be present in the command data field). In addition the class byte shall indicate that an APDU command includes no secure messaging.

The logical channel number indicated in the class byte shall be zero.

Command status words placed in the Additional Response Data element of the Response Packet shall be coded according to the GlobalPlatform Card Specification [4].

8.2.1 Commands

The standardized commands are listed in table 8.1.

Table 8.1: Application management commands

Operational command
DELETE
SET STATUS
INSTALL
LOAD
PUT KEY
GET STATUS
GET DATA as case 2 command
GET DATA as case 4 command
(for Menu parameters)

Support of the STORE DATA command described in GlobalPlatform Card Specification [4] is optional.

The Response Data shall be placed in the Additional Response Data element of the Response Packet.

8.2.1.1 DELETE

The removal of Applications, of Executable Load Files, and of Executable Load Files and its related Applications shall be supported.

The warning status word '6200' (Application has been logically deleted) as defined in Open Platform Card Specification 2.0.1 [7] may be returned.

8.2.1.2 SET STATUS

The management of Applications, Issuer Security Domain and Security Domains Life Cycle States shall be supported.

8.2.1.3 INSTALL

INSTALL [for load], INSTALL [for install] and INSTALL [for make selectable] commands shall be supported.

In addition the support of the combined [for install and make selectable] within the same INSTALL command is mandatory.

8.2.1.3.1 INSTALL [for load]

A card supporting DAP verification shall support the Load File Data Block Hash according to GlobalPlatform Card Specification [4].

> NOTE: The exact generation of the DAP was not defined in previous releases of the present document. Inter-operability with previous releases should be handled with care.

If present, the Load Parameter Field of the INSTALL [for load] command shall be coded according to GlobalPlatform Card Specification [4].

If the System Specific parameters "Non volatile code space limit" (Tag 'C6'), "Volatile data space limit" (Tag 'C7') and "Non volatile data space limit" (Tag 'C8') are present, the UICC shall be able to handle them.

8.2.1.3.2 INSTALL [for install]

If present, the Install Parameter Field of the INSTALL [for install] command shall be coded according to GlobalPlatform Card Specification [4].

If the System Specific parameters "Volatile data space limit" (Tag 'C7') and "Non volatile data space limit" (Tag 'C8') are present, the UICC shall be able to handle them.

The application instance shall be registered with the instance AID present in the INSTALL [for install] command.

In case of JavaCard[TM] applications, the application may invoke the register(bArray, bOffset, bLength) or the register() method:

- If the register (bArray, bOffset, bLength) is invoked, the AID passed in the parameters shall be the instance AID provided in the install method buffer.

- If the register() method is invoked the instance AID present in the INSTALL [for install] command and the AID within the Load File, as specified in GlobalPlatform Card Specification [4], should be the same.

The "UICC System Specific Parameters" TLV object (Tag 'EA', as defined below) is included in the Install Parameter Field and shall be coded as follows:

Presence	Length	Name	Value
Optional	1	Tag of UICC System Specific Parameters constructed field	'EA'
	1	Length of UICC System Specific Parameters constructed field	
	0 to n	UICC System Specific Parameters constructed value field.	

8.2.1.3.2.1 Coding of the SIM File Access and Toolkit Application Specific Parameters

The "SIM File Access and Toolkit Application Specific Parameters" TLV object (Tag 'CA', as defined below) is included in the "System Specific Parameters" (Tag 'EF') and shall be coded as follows:

Presence	Length	Name	Value
Optional	1	Tag of SIM file access and toolkit application specific parameters field	'CA'
	1	Length of SIM file access and toolkit application specific parameters field	
	6 to n	SIM file access and toolkit Application specific Parameters	

The SIM file access and toolkit application specific parameters field is used to specify the terminal and UICC resources the application instance can use. These resources include the timers, the Bearer Independent protocol channels, menu items for the Set Up Menu, the Minimum Security Level and the TAR Value(s) field. The Network Operator or Service Provider can also define the menu position and the menu identifier of the menus activating the application.

The SIM file access and toolkit parameters are mandatory for applications using the *sim.toolkit.ToolkitInterface* or *sim.access.SIMView* interface as defined in TS 143 019 [12]. The Access Domain is applicable to applications using the *sim.access.SIMView* interface as defined in TS 143 019 [12].

Length	Name	Value
1	Length of Access Domain field	
1 to p	Access Domain	
1	Priority level of the Toolkit application instance	
1	Maximum number of timers allowed for this application instance	
1	Maximum text length for a menu entry	
1	Maximum number of menu entries allowed for this application instance	= m
1	Position of the first menu entry	\
1	Identifier of the first menu entry ('00' means do not care)	|
	….	| = 2 × m bytes
1	Position of the last menu entry	|
1	Identifier of the last menu entry ('00' means do not care)	/
1	Maximum number of channels for this application instance	
1	Length of Minimum Security Level field	
0 to q	Minimum Security Level (MSL)	
1	Length of TAR Value(s) field	
3 × y	TAR Value(s) of the Toolkit Application instance	

See the following clauses for the description of the parameters fields.

8.2.1.3.2.2 Coding of the UICC System Specific Parameters

If the SIM file access and toolkit parameters TLV object (tag 'CA') is present and the UICC System Specific Parameters TLV object (tag 'EA') is present, the card shall return the Status Word '6A80', incorrect parameters in data field, to the INSTALL [for install] command.

The UICC System Specific Parameters constructed value field of the INSTALL [for Install] command shall be coded as follows:

Presence	Length	Name	Value
Optional	1	Tag of UICC Toolkit Application specific parameters field	'80'
	1	Length of UICC Toolkit Application specific parameters field	
	N	UICC Toolkit Application specific parameters	
Optional	1	Tag of UICC Toolkit parameters DAP	'C3'
	1	Length of UICC Toolkit parameters DAP	
	N	UICC Toolkit parameters DAP	
Optional	1	Tag of UICC Access Application specific parameters field	'81'
	1	Length of UICC Access Application specific parameters field	
	N	UICC Access Application specific parameters	
Optional	1	Tag of UICC Administrative Access Application specific parameters field	'82'
	1	Length of UICC Administrative Access Application specific parameters field	
	N	UICC Administrative Access Application specific parameters	

Access parameters for the same ADF may be present in both the UICC Access Application specific parameters field and the UICC Administrative Access Application specific parameters field. The same applies for the UICC file system.

8.2.1.3.2.2.1   UICC Toolkit Application specific parameters field

The UICC toolkit application specific parameters field is used to specify the terminal and UICC resources the application instance can use. These resources include the timers, the Bearer Independent Protocol channels, the services for local bearers, menu items for the Set Up Menu, the Minimum Security Level and the TAR Value(s) field. The Network Operator or Service Provider can also define the menu position and the menu identifier of the menus activating the application.

The UICC toolkit parameters are mandatory for applications using the *uicc.toolkit.ToolkitInterface* defined in TS 102 241 [6]. These parameters shall be coded as follows:

Length	Name	Value
1	Priority level of the Toolkit application instance	
1	Maximum number of timers allowed for this application instance	
1	Maximum text length for a menu entry	
1	Maximum number of menu entries allowed for this application instance	= m
1	Position of the first menu entry	\
1	Identifier of the first menu entry ('00' means do not care)		
	….		= 2 × m bytes
1	Position of the last menu entry		
1	Identifier of the last menu entry ('00' means do not care)	/
1	Maximum number of channels for this application instance	
1	Length of Minimum Security Level field	
0-q	Minimum Security Level (MSL)	
1	Length of TAR Value(s) field	
3 × y	TAR Value(s) of the Toolkit Application instance	
1	Maximum number of services for this application instance	

Any additional parameters shall be ignored by the card.

8.2.1.3.2.2.2   UICC Access Application specific parameters field

The UICC access application specific parameters field is used to specify the access rights. The application instance is granted access rights to files only according to these UICC access parameters.

The UICC access parameters are applicable to applications using the *uicc.access.FileView* defined in TS 102 241 [6]. These parameters shall be coded as follows:

Presence	Name	Length
O	Length of UICC file system AID	1
	Empty UICC file system AID	0
	Length of Access Domain for UICC file system	1
	Access Domain for UICC file system	n
	Length of Access Domain DAP	1
	Access Domain DAP	0 or n
O	Length of ADF #1 AID	1
	ADF #1 AID	5 to 16
	Length of Access Domain for ADF #1	1
	Access Domain for ADF #1	N
	Length of Access Domain DAP #1	1
	Access Domain DAP #1	0 or n
…	…	…
…	…	…

Presence	Name	Length
O	Length of ADF #n AID	1
	ADF #n AID	5 to 16
	Length of Access Domain for ADF #n	1
	Access Domain for ADF #n	n
	Length of Access Domain DAP #n	1
	Access Domain DAP #n	0 or n

See the following clauses for the description of the parameters fields.

8.2.1.3.2.2.3 UICC Toolkit Parameters DAP

The UICC toolkit parameters DAP is an optional signature. The card issuer's security policy may require the presence of this DAP.

The input data used to compute this DAP is the concatenation of the following data:

Description	Length
Length of instance AID	1
Instance AID	5 to 16
Length of UICC Toolkit parameters	1
UICC Toolkit parameters	n

The key used to compute this DAP is: Key identifier '02' of Key Version number '11' in the Issuer Security Domain.

Depending on the key type:

- If padding is required by the algorithm, the data is appended by '80' and filled up with zero or more '00'.

- If DES or AES is used, MAC in CBC mode shall be used (with initial chaining value set to zero).

8.2.1.3.2.2.4 UICC Administrative Access Application specific parameters field

The UICC Administrative access application specific parameters field is used to specify the access rights. The application instance is granted access rights to administrate files only according to these UICC Administrative access parameters.

The UICC Administrative access parameters are applicable to applications using the *uicc.access.fileadministration.AdminFileView* defined in TS 102 241 [6]. These parameters shall be coded as defined in clause 8.2.1.3.2.2.2.

8.2.1.3.2.3 Description of Toolkit Application Specific Parameters

If the maximum number of timers required is greater than '08' (maximum numbers of timers specified in TS 102 223 [3]), the card shall return the Status Word '6A80', incorrect parameters in data field, to the INSTALL [for install] command.

If the maximum number of channels required is greater than '07' (maximum numbers of channels specified in TS 102 223 [3]), the card shall return the Status Word '6A80', incorrect parameters in data field, to the INSTALL [for install] command.

If the maximum number of services requested is greater than '08' (maximum numbers of services specified in TS 102 223 [3]), the card shall return the Status Word '6A80', incorrect parameters in data field, to the INSTALL [for install] command.

The mechanism to manage the position of the Menu Entries is defined in TS 102 241 [6].

A part of the item identifier shall be under the control of the card system and the other part under the control of the card issuer. Item identifiers are split in two ranges:

- [1,127] under control of the card issuer;

- [128,255] under the control of the toolkit framework.

If the requested item identifier is already allocated, or in the range [128,255], then the card shall reject the INSTALL command. If the requested item identifier is '00', the card shall take the first free value in the range [128,255].

8.2.1.3.2.4 Coding of the Minimum Security Level (MSL)

If the length of the Minimum Security Level (MSL) field is zero, no minimum security level check shall be performed by the Receiving Entity.

If the length of the Minimum Security Level (MSL) field is greater than zero, the Minimum Security Level (MSL) field shall be coded according to the following table.

Length	Name
1	MSL Parameter
q to 1	MSL Data

The MSL Data coding and length is defined for each MSL Parameter.

8.2.1.3.2.4.1 MSL Parameter

The possible values for the MSL Parameter are:

Value	Name	Support	MSL Data length
'00'	RFU	RFU	N/A
'01'	Minimum SPI1	Optional	1
'02' to '7F'	RFU	RFU	N/A
'80' to 'FE'	Reserved for Proprietary Mechanisms	Optional	N/A
'FF'	RFU	RFU	N/A

8.2.1.3.2.4.2 Minimum SPI1

The Minimum Security Level Data (MSLD) for the Minimum SPI1 MSL parameter shall use the same coding as the first octet of the SPI of a command packet (see clause 5.1.1 of TS 102 225 [1]).

The first octet of the SPI field in the incoming message Command Packet (SPI1) shall be checked against the Minimum Security Level Data (MSLD) byte by the receiving entity according to the following rules:

- if SPI1.b2b1 is equal to or greater than MSLD.b2b1;

- if SPI1.b3 is equal to or greater than MSLD.b3; and

- if SPI1.b5b4 is equal to or greater than MSLD.b5b4.

then the Message Security Level is sufficient and the check is successful, otherwise the check is failed.

8.2.1.3.2.5 Coding of the Access domain

The Access Domain field is formatted as follows:

Length	Name
1	Access Domain Parameter (ADP)
p to 1	Access Domain Data (ADD)

The Access Domain Data (ADD) coding and length is defined for each Access Domain Parameter (ADP).

8.2.1.3.2.5.1 Access Domain Parameter

This parameter indicates the mechanism used to control the application instance access to the File System.

Value	Name	Support	ADD length
'00'	Full access to the File System	Mandatory	0
'01'	Reserved (for APDU access mechanism)	-	-
'02'	UICC access mechanism	Mandatory	3
'03' to '7F'	RFU	RFU	RFU
'80' to 'FE'	Proprietary mechanism	-	-
'FF'	No access to the File System	Mandatory	0

The access rights granted to an application and defined in the access domain parameter shall be independent from the access rights granted at the UICC/Terminal interface.

NOTE: This implies in particular that the status of a secret code (e.g. disabled PIN1, blocked PIN2, etc.) at the UICC/Terminal interface does not affect the access rights granted to an application.

If an application with Access Domain Parameter (ADP) 'FF' (i.e. No Access to the File System) tries to access a file the framework shall throw an exception.

If an application has Access Domain Parameter (ADP) '00' (i.e. Full Access to the File System), all actions can be performed on a file except the ones with NEVER access condition.

If the Access Domain Parameter (ADP) requested is not supported, the card shall return the Status Word '6A80', incorrect parameters in data field, to the INSTALL [for install] command.

8.2.1.3.2.5.2 Access Domain Data: for UICC access mechanism

The UICC access mechanism shall be coded as follows:

Byte 1:

```
| b8 | b7 | b6 | b5 | b4 | b3 | b2 | b1 |
                                    └─ Application PIN 1
                               └─ Application PIN 2
                          └─ Application PIN 3
                     └─ Application PIN 4
                └─ Application PIN 5
           └─ Application PIN 6
      └─ Application PIN 7
 └─ Application PIN 8
```

Byte 2:

```
| b8 | b7 | b6 | b5 | b4 | b3 | b2 | b1 |
                                    └─ ADM1
                               └─ ADM2
                          └─ ADM3
                     └─ ADM4
                └─ ADM5
           └─ ADM6
      └─ ADM7
 └─ ADM8
```
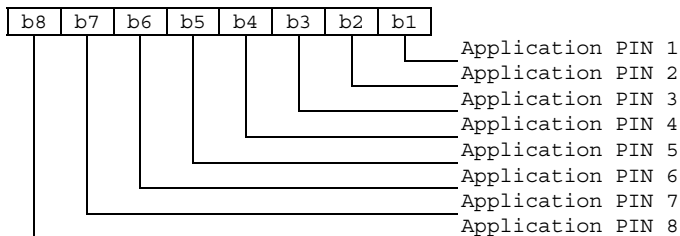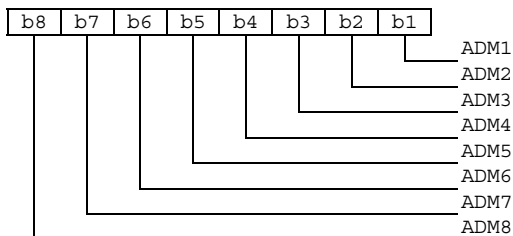
Byte 3:

These access rights shall be checked against SE ID 01 access rules as defined in TS 102 221 [2].

8.2.1.3.2.5.3   Access Domain DAP

The Access Domain DAP is an optional signature. The security policy of the provider of the application to which the file system belongs may require the presence of this DAP.

The input data used to compute this DAP is the concatenation of the following data:

Description	Length
Length of instance AID	1
Instance AID	5 to 16
Length of File System AID	1
File System AID	0 or n
Length of Access Domain	1
Access Domain	n

In case of UICC shared File system, the Length of File System AID is 0 and the File System AID is not present.

The key used to compute this DAP is: Key identifier '02' of Key Version number '11' in the Security Domain associated to the application to which the File System belongs. In case of UICC shared file system, the associated Security Domain may be the Issuer Security Domain or another Security Domain, depending on the card issuer's security policy.

Depending on the key type:

- If padding is required by the algorithm, the data is appended by '80' and filled up with zero or more '00'.
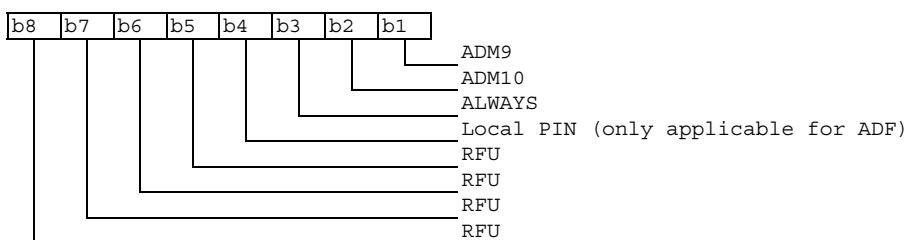
- The initial chaining value for CBC modes shall be zero.

- If DES or AES is used, MAC in CBC mode shall be used.

8.2.1.3.2.6   Priority level of the toolkit application

The priority specifies the order of activation of an application compared to the other application registered to, the same event. If two or more applications are registered to the same event and have the same priority level, the applications are activated according to their installation date (i.e. the most recent application is activated first). The following values are defined for priority:

- '00': RFU.

- '01': Highest priority level.

- ...

- 'FF': Lowest priority level.

8.2.1.3.2.7 Coding of TAR Value(s) field

The TAR is defined and coded according to TS 101 220 [5].

It is possible to define several TAR Values at the installation of a Toolkit Application.

The TAR Value(s) field shall be coded according to the following table.

Bytes	Description	Length
1 to 3	TAR Value 1	3
4 to 6	TAR Value 2	3
…	…	…
$3 \times y$-2 to $3 \times y$	TAR Value y	3

If the length of TAR Value(s) is zero, the TAR may be taken out of the AID if any.

If the length of the TAR Value(s) is greater than zero then the application instance shall be installed with the TAR Value(s) field defined above and the TAR indicated in the AID if any shall be ignored.

If a TAR Value(s) is already assigned on the card for a Toolkit Application instance or if the length of TAR Value(s) field is incorrect, the card shall return the Status Word '6A80', incorrect parameters in data field, to the INSTALL [for install] command.

8.2.1.4 LOAD

A card supporting DAP verification shall support at least DES scheme for Load File Data Block Signature computation according to GlobalPlatform Card Specification [4].

8.2.1.5 PUT KEY

Key version number and key identifiers of KIc, KID and DEK shall be defined according to TS 102 225 [1].

The key used for ciphering the key values (e.g. KIc, KID or DEK) of the PUT KEY command is the key with identifier 3 (i.e. DEK). It is a static key.

When replacing or adding key(s) within the same key set, or when updating the key version number of a key set, the encrypting key to be used is the DEK of the same key version number as the changed key(s).

When creating key set(s), the encrypting key to be used is the DEK of the same key version number as KIc and KID in the Command Packet containing the PUT KEY command.

The key version number of KIc and KID used to secure the Response Packet shall be the same as the key version number indicated in the Command Packet.

The transport security keys (i.e. KIc/KID) used to secure the Response Packet shall be the same as the ones of the Command Packet containing the PUT KEY command.

8.2.1.6 GET STATUS

In addition to the mandatory values of the P1 parameter defined in GlobalPlatform Card Specification [4], combinations of the P1 parameter, as defined in Open Platform Card Specification 2.0.1 [7] may be supported.

The LOGICALLY_DELETED Life Cycle State may be returned as defined in Open Platform Card Specification 2.0.1 [7].

If bit 2 of the P2 parameter is set, the returned GlobalPlatform Registry Data TLV shall include an SCP Registry Data TLV (see table 8.2 for coding) which includes a Menu Parameters TLV for Issuer Security Domain, Security Domains and Applications.

Table 8.2: Format of SCP Registry Data

TAG	Length	Value
'EA'	Variable	SCP Registry Data
'80'	Variable	Menu parameters (see clause 8.2.1.6.1)

8.2.1.6.1 Menu parameters

Table 8.3: Format of Menu parameters

Description	Length
First menu entry position	1
First menu entry identifier	1
First menu entry state	1
…	…
Last menu entry position	1
Last menu entry identifier	1
Last menu entry state	1

The menu entry identifiers and positions shall be the ones provided in the Menu Entries list defined in TS 102 241 [6], and shall be returned regardless of the menu entry state as well as regardless of the Application life cycle state (e.g. Selectable/Locked, etc.).

The menu entry state is defined as follows:

'00':	menu entry is disabled
'01':	menu entry is enabled
other values	RFU

8.2.1.7 GET DATA

The value '80' for the CLA byte shall be supported. The value '00' for the CLA byte is optional.

The Issuer Security Domain shall support at least the following data object tags:

- Tag '66': Card Data.

- Tag 'E0': Key Information Template.

An Application Provider Security Domain shall support at least the following data object tags:

- Tag 'E0': Key Information Template.

The Tag values '42' and '45' are not applicable to the present document.

The command Get Data is extended to retrieve specific card information with tag values in P1 and P2. The following values have been defined:

- 'FF 1F': Reserved for TS 123 048 [10].

- 'FF 20': Reserved for TS 123 048 [10].

- 'FF 21': Extended Card Resources Tag, this retrieves information on the card resources used and available.

- 'FF 22' to 'FF 3F': reserved for allocation in the present document.

8.2.1.7.1   Void

8.2.1.7.2   Extended Card resources information

After the successful execution of the command, the GET DATA response data field shall be coded as defined in GlobalPlatform [4]. The value of the TLV coded data object referred to in reference control parameters P1 and P2 of the command message is:

Length	Description	Value
1	Number of installed application tag	'81'
1	Number of installed application length	X
X	Number of installed application	
1	Free non volatile memory tag	'82'
1	Free non volatile memory length	Y
Y	Free non volatile memory	
1	Free volatile memory tag	'83'
1	Free volatile memory length	Z
Z	Free volatile memory	

The free memory indicated shall be at least available for applications to be loaded onto the UICC.

9   Additional command for push

The PUSH command enables an application to open a BIP channel and/or to establish a CAT_TP link upon a remote entity request.

9.1   Push command behaviour

9.1.1   Request for open channel

The request for open channel allows a remote entity to ask an application on the UICC to open a BIP channel using the OPEN CHANNEL proactive command specified in TS 102 223 [3].

The PUSH command shall be considered completed once the terminal response to the OPEN CHANNEL proactive command has been received by the application.

9.1.2   Request for CAT_TP link establishment

The request for link establishment allows a remote entity to ask an application on the UICC to establish a CAT_TP link as defined in TS 102 127 [11].

The PUSH command shall be considered completed once the link reaches the OPEN state in CAT_TP or the link establishment is terminated due to an error condition.

9.1.3   Behaviour for responses

It is mandatory for applications that process PUSH commands to support additional response data management. The additional response data shall be coded as defined below.

When defining how to send response packets, it shall be taken into account that the processing of the PUSH command will result in proactive commands being issued.

9.2 Commands coding

Each command is coded as an APDU. This table extends the command tables defined in clauses 7 and 8 for applications supporting BIP and/or CAT_TP.

Table 9.1: Commands

Operational command
PUSH

The PUSH command shall be coded as follows:

Code	Value
CLA	'80'
INS	'EC'
P1	'01' "80" reserved for application specific usage
P2	'01': Request for BIP channel opening '02': Request for CAT_TP link establishment see note
Lc	Length of subsequent data field
Data	Described below
NOTE:	These values only apply for P1 = '01'

9.2.1 Data for BIP channel opening

Command data:

Any COMPREHENSION-TLV data objects as defined for OPEN CHANNEL in TS 102 223 [3] can be present in the data field of the PUSH command. In addition, the application may define default values for one or more of these data objects. The application shall use the data objects provided by both means to construct the OPEN CHANNEL command, whereby the objects provided in the PUSH command take precedence.

For OPEN CHANNEL, related to packet data service bearer, in TS 102 223 [3] the following rules shall apply:

- The "Other address (local address)" parameter shall not be included in the command.

- "Login" parameter and "Password" parameter shall be both present or absent in the command.

If these rules are not satisfied the Push requesting BIP open channel is rejected with status word set to '6A 80'.

Response parameters/data:

If the OPEN CHANNEL command was successful (general result < '10'), the status word of the PUSH command shall be set to '90 00'.

If the OPEN CHANNEL command fails (general result ≥ '10'), the status word of the PUSH command shall be set to '6F 00' and the Result TLV of the TERMINAL RESPONSE shall be used as response data in the additional response data.

9.2.2 Data for CAT_TP link establishment

Command data:

Description	Format from TS 102 223 [3]	M/O/C
CAT_TP Destination Port	UICC/terminal interface transport level	M
Max SDU size	Buffer size	O
Identification data	Channel data	O

For CAT_TP Destination Port the transport protocol type is insignificant and shall be set to zero. For the PUSH command, an allocable port number shall be used.

If the Max SDU size data object is present in the command data field of the PUSH command and is non null data object, and if the size is available on the UICC, then the UICC shall use the requested size.

If the Max SDU size data object is not present in the command data field of the PUSH command or is null data object, or if the UICC is not able to provide the requested size, then the UICC shall use another appropriate value.

NOTE: Max PDU length is already defined in the OPEN CHANNEL proactive command and the TERMINAL RESPONSE to it.

The identification data object present in the command data field of the PUSH command shall be used as identification data in the SYN PDU sent from the UICC. If it is of zero length, the length of the identification data in the SYN PDU shall also be zero. If identification data is not present, the ICCID shall be used as identification data in the SYN PDU. The SYN/ACK PDU sent from the remote entity shall have a null identification data field.

Response parameters/data:

If the link reaches the OPEN state in CAT_TP, the status word of the PUSH command shall be set to '90 00'.

If the CAT_TP OPEN state is not reached, the PUSH command shall be considered as failed and the status word of the PUSH command shall be set to '6F 00'. The response data in the additional response data shall be coded as follows:

- '01': SYN sent failed.

- '02': SYN/ACK not received.

- '03': ACK sent failed (first ACK).

9.3 Closing of the BIP channel

The BIP channel shall be closed using the CLOSE CHANNEL proactive command specified in TS 102 223 [3] once the only or last link using the channel has been closed.

Annex A (normative):
BER-TLV tags

Table A.1: BER-TLV tags

Description	Length of tag	Value
Command Scripting template tag	1	Defined in TS 101 220 [5]
Response Scripting template tag	1	Defined in TS 101 220 [5]
Number of executed command TLV objects tag	1	Defined in TS 101 220 [5]
Bad format TLV tag	1	Defined in TS 101 220 [5]
Immediate Action tag	1	Defined in TS 101 220 [5]
Immediate Action Response tag	1	Defined in TS 101 220 [5]
Error Action tag	1	Defined in TS 101 220 [5]
Script Chaining tag	1	Defined in TS 101 220 [5]
Script Chaining Response tag	1	Defined in TS 101 220 [5]

Annex B (informative):
Void

Annex C (informative):
Change history

This annex lists all changes made to the present document.

Change History								
Date	**Meeting**	**Tdoc**	**CR**	**Rv**	**Cat**	**Changes**	**Old**	**New**
2001-07	T3 API -7	T3a010114				Initial version is based on 3GPP TS 23.048 V4.0.0. Submitted to EP SCP#7 for information.	-	0.0.0
2001-10	SCP2-1	SCP2-010004				Alignment with 3GPP TS 23.048 V5.1.0 and editorial enhancements.	0.0.0	0.1.0
2001-10	T3 API -9	T3a010196				Updated to include the results of EP SCP WG2 #1.	0.1.0	0.2.0
2001-11	T3-21/ SCP-8	T3-010670/ SCP-010346				Submitted to 3GPP T3#21 - EP SCP#8. Editorial changes.	0.2.0	0.2.1
2001-11	SCP-8	SCP-010377				Editorial and formatting enhancements. Version number raised to 1.0.0 in line with decision at EP SCP #8.	0.2.1	1.0.0
2002-01	SCP2-2	SCP2-020019				Updated to include the results of TSG-T#14 and editorial changes.	1.0.0	1.1.0
2002-03	SCP-9	SCP-020049				Updated to include the results of TSG-T#15 and editorial changes. Submitted to SCP#9 for approval.	1.1.0	2.0.0
2002-03	SCP-9	SCP-020057				Editorial changes after discussion at SCP#9. This version has been sent to the ETSI secretariat for publication in March 2002 as TS 102 226 V6.0.0. No technical changes compared to V2.0.0.	2.0.0	6.0.0
2002-06	SCP-10	SCP-020169	001	1	B	Definition of the TAR Value(s) parameter in the Application Specific Parameters of the Install(Install) command.	6.0.0	6.1.0
2002-09	SCP-11	SCP-020232	003		A	Toolkit Access with modified secret code status	6.1.0	6.2.0
			004		A	Minimum Security Level for the Remote Management Applications and Access conditions for Remote File Management Application.		
			005		A	Clarification on Put Key command		
			006		A	Maximum number of channels allowed for this applet instance		
		SCP-020237	007		A	Clarification on letter 'n' describing the length of parameters of the Install(Install) command		
2003-01	SCP-12	SCP-030022	008		D	Deletion of the load command example.	6.2.0	6.3.0
2003-05	SCP-13	SCP-030173	009	1	A	Clarification of the Install(Install) command in case of installing a non Toolkit Applet	6.3.0	6.4.0
2003-09	SCP-14	SCP-030225	010		B	Modification of commands for remote application management	6.4.0	6.5.0
			011		B	Menu Entries Position		
2003-12	SCP-15	SCP-030464	016	1	F	Clarification on case 4 command handling	6.5.0	6.6.0
		SCP-030465	015	2	C	Remote command coding with P3="00"		
		SCP-030466	017	1	B	Addition of Push for CAT_TP		
		SCP2-030247	013	1	B	Update of TS 102 226 to GlobalPlatform Card Specification version 2.1.1		
		SCP2-030248	014		F	Clarification of the description of Remote Management Applications		
		SCP2-030268	018		B	Addition of the CREATE command for Remote File Management.		
2004-02	SCP-16	SCP2-040040	022		B	Remote File Management definitions	6.6.0	6.7.0
		SCP-040094	023		B	Introduction of UICC toolkit and access domain parameters		
		SCP-040100	024	2	F	Clarification for READ BINARY with P3='00'		
		SCP2-040052	026		B	Addition of the DELETE FILE command for Remote File Management		
		SCP2-040053	027		B	Addition of the RESIZE command for Remote File Management.		
		SCP2-040058	030		F	Correction of behaviour for responses in Push for CAT_TP		
2004-05	SCP-17	SCP-040219	031	2	B	Expanded Remote Application data format	6.7.0	6.8.0
		SCP-040219	032		D	Renaming of Resize command to Resize File		
		SCP-040266	033	1	D	Editorial corrections after integration of change requests		
		SCP-040267	034	1	F	Alignment of Get Data command with GP		
		SCP-040219	035		B	Clarify Access Domain DAP for UICC Shared File System		
		SCP-040219	036		B	Specification of the UICC Toolkit parameters DAP		
		SCP-040272	037	2	B	Introduction of SCP Registry Data (TLV) for Get Status		
2004-09	SCP-18	SCP-040324	039		F	Correction to the commands coding description of the PUSH command	6.8.0	6.9.0
			040		F	Clarification on Max SDU size		
			041		B	Introduction of Administrative Access Domain		
		SCP-040370	038	1	F	Wrong values of BER-TLV tags in annex A		
2004-09	SCP-19	SCP-040418	042		F	Clarification for non-specific references	6.9.0	6.10.0
			043		F	Correction of SW and clarification for truncated responses		
2005-01	SCP-20	SCP-050018	044		F	Clarification of presence of access parameters	6.10.0	6.11.0
2005-09	SCP-22	SCP-050243	045		F	Correction to status words sent back in the Remote Management	6.11.0	6.12.0

**Change History**										
Date	**Meeting**	**Tdoc**	**CR**	**Rv**	**Cat**	\multicolumn{5}{l}{**Changes**}	**Old**	**New**
						Application response data in case data is truncated		
			046		F	Clarification of data sent in compact remote response		
2006-05	SCP-25	SCP-060132	048		B	\multicolumn{5}{l}{Mandatory support of responses to push commands}	6.12.0	7.0.0
2006-07	SCP-26	SCP-060257	048		A	\multicolumn{5}{l}{Clarification of the presence of the last R-APDU}	7.0.0	7.1.0
			049	1	D	Correction of abbreviation		
		SCP-060280	050	1	B	Reservation of an application specific P1 value in the PUSH command		
2006-09	SCP-27	SCP-060471	051	1	A	\multicolumn{5}{l}{Correction of the release for references}	7.1.0	7.2.0
		SCP-060472	054	1	B	Add new response TLV in case of a bad formatted C-APDU.		
2007-01	SCP-29	SCP-070053	055		B	\multicolumn{5}{l}{Action TLVs in Command Scripting Template}	7.2.0	7.3.0
2007-05	SCP-30	SCP-070137	058		F	\multicolumn{5}{l}{Clarification on BIP Open Channel parameters in Push command}	7.3.0	7.4.0
2007-08	SCP-32	SCP-070317	060		A	\multicolumn{5}{l}{Correction of the coding of the SCP Registry Data}	7.4.0	7.5.0
2008-09	SCP-32	SCP-070317	060		A	\multicolumn{5}{l}{Correction of the coding of the SCP Registry Data (reimplemented)}	7.5.0	7.5.1
2008-11	SCP-33	SCP-070442	053	4	B	\multicolumn{5}{l}{Remote Management with Script chaining}	7.5.1	7.6.0

History

Document history		
V7.0.0	May 2006	Publication
V7.1.0	July 2006	Publication
V7.2.0	October 2006	Publication
V7.3.0	February 2007	Publication
V7.4.0	July 2007	Publication
V7.5.0	October 2007	Publication
V7.5.1	September 2008	Publication
V7.6.0	January 2009	Publication