


S@T 01.21 v4.0.0 (Release 2009)

S@T Administrative Commands

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2 TERMINOLOGY

2.1 Notation

Prefix '0x' indicates hexadecimal value.

2.2 Abbreviations

S@T	SIM Alliance Toolbox
SBC	S@T Byte Code
SSP	S@T Session Protocol
TLV	Tag Length Value encoding
TL[A]V	TLV with optional attribute bytes

2.3 Definitions

Administration protocol: based on SSP and used for transmitting administrative commands

Connected state: state of the browser/gateway when a session has been established

Connecting state: state of the browser/gateway is waiting for the session establishment (i.e. it has sent CONNECT_REQ and is waiting for CONNECT_RSP).

Disconnected state: no SSP session is opened

Idle state: state of the browser when no proactive session is running (no proactive command is pending).

S@T Session protocols: basic protocol for S@T browser/gateway communication based on the session establishment and data exchange within the established session.

3 LIST OF DOCUMENTS

/SBC/	S@T 01.00: S@T Byte Code
/SSP/	S@T 01.20: S@T Session Protocol
/Pull/	S@T 01.22: S@T Operational Commands
/Push/	S@T 01.23: S@T Push Commands

This document is part of a specification set, please refer to "S@T Release Note" for a comprehensive document list, including document versions.



4 OVERVIEW

This document describes S@T administration protocol that is used for transmitting administrative commands.

The S@T Session Protocol (see /SSP/) specifies generic commands (GET_REQ, POST_REQ, DATA_REQ, etc) and related parameters to be used by a S@T gateway and browser. This document specialises these generic commands to be used in administration protocol to perform administrative commands.

5 DEFINITION OF NEEDS

The administrative commands offer the possibility to exchange configuration information between the S@T browser and the S@T gateway and to configure the browser by the gateway. The browser receives an administration command from the gateway and each valid gateway command is answered with a browser response.

This document specifies the following operations concerning the communication between the browser and the gateway:

Information the browser can send to the gateway:

- environment variable value (as response to the request from the gateway).

Information the gateway can send to the browser:

- request to manage resident decks;
- request to get environment variable value.

6 GENERIC SIMPLE-TL[A]V FORMAT

Refer to paragraph 6 of /SBC/



7 ADMINISTRATION PROTOCOL

7.1 SSP Packet for Administration Protocol

Administrative session establishment can be requested only from the S@T gateway. SSP packet for the gateway request shall contain:

- CONNECT_REQ command with the administration protocol Id (0x02 as defined in /SSP/);
- one or more DATA_REQ commands with administrative commands as defined in 7.2.

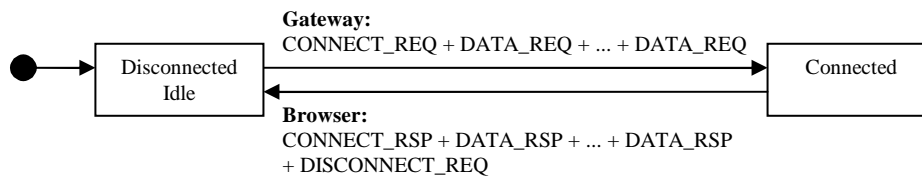
The S@T browser shall accept the gateway request only when it is in the idle state. In this case SSP packet for the browser response shall contain:

- CONNECT_RSP;
- one or more DATA_RSP commands with the browser response as defined in 7.3.
- DISCONNECT_REQ command following the last DATA_RSP command.

When the S@T browser is not in the idle state, the gateway request shall be ignored (i.e. no browser response shall be sent).

SSP packet for administration protocol shall be formatted as described above in this section.

Use of administrative protocol can be presented with the following state diagram for the S@T browser:



7.2 Gateway Request

Administrative commands from the gateway are sent using DATA_REQ commands, including only one command in one DATA_REQ.

A Request Id is added to identify each command.

LENGTH	VALUE	DESCRIPTION	M/O
1	0x00 to 0xFF	Administrative Command tag	M
1-3	A + 2 + B	Length of subsequent data (length coded in BER-TLV)	M
A (0 - 1)	V	Attribute byte	O
2	0-65535	Request Id	M
B	V	Administrative command data	M

Administrative commands are described in section 8.

NOTE: This specification assumes that the parameters are always in the specified order, in aim to simplify the browser implementation.



7.3 Browser Response

When the administrative command has been executed by the S@T browser, it shall respond to the gateway by sending a DATA_RSP command.

This DATA_RSP command contains in its data a browser response TL[A]V which encapsulates the error code of the executed administrative command and optionally the output value (e.g. Admin Get Environmental Variable).

The request Id element identifies which request the response corresponds to.

<i>LENGTH</i>	<i>VALUE</i>	<i>DESCRIPTION</i>	<i>M/O</i>
1	0x50	Browser Response tag	M
1-3	4 + A	Length of subsequent data (length coded in BER-TLV)	M
2	The same Request Id as in the administrative command	Request Id	M
2	As defined in section 10	Error code	M
A	V	Output of the execution of the administrative command.	O

7.4 Security

It is not recommended to use security level 0 for the Administration protocol.



8 ADMINISTRATIVE COMMANDS

This section describes the browser administrative commands used by the operator to customize the S@T browser.

Customization is possible at several levels:

- Resident decks. As some decks can be preinstalled in the SIM at personalization time, deck update or removal over the air, as well as addition of new decks, must be possible.
- Environment variables. They contain information about the browser, the mobile and the subscriber which are necessary for the gateway to generate useable bytecode and/or optimize communication.



8.1 Resident Deck Management

8.1.1 Install Deck

INSTALL DECK			
Description	Install a resident deck on the SIM. If a deck with the same Deck Id is already stored on the SIM, it is replaced by the new one (deck update).		
LENGTH	VALUE	DESCRIPTION	M/O
1	0x51	Install Deck tag	M
1-3	2 + A	Length of subsequent data (length coded in BER-TLV)	M
2	0-65535	Request Id	M
A	Deck TL[A]V	Deck (see /SBC/)	M
OUTPUT			
None.			
ERROR CODE		DESCRIPTION	
Memory allocation problem		Not enough memory to install the deck.	

8.1.2 Uninstall Deck

UNINSTALL DECK			
Description	Delete the specified resident deck on the SIM.		
LENGTH	VALUE	DESCRIPTION	M/O
1	0x52	Uninstall Deck tag	M
1-3	2 + A	Length of subsequent data (length coded in BER-TLV)	M
2	0-65535	Request Id	M
A	Deck Id TL[A]V	Deck Id (see /SBC/)	M
OUTPUT			
None.			
ERROR CODE		DESCRIPTION	
Reference to undefined		The specified deck not found	



8.2 Environment Variable Management

Environment Variables define parameters of the browser and the mobile phone. These Environment Variables are used both by the gateway for administrative purposes and by the applications loaded online to the SIM to determine certain application related (standard) procedures. The settings defined through Environment Variables are shared among services.

See /SBC/ for a complete description of the environment variables.

All the environment variables defined in /SBC/ are usable in the Admin Get Environmental Variable command. These variables are sent using the BROWSER RESPONSE TL[A]V, where the value of the output element is the value of the variable.

8.2.1 Admin Get Environmental Variable

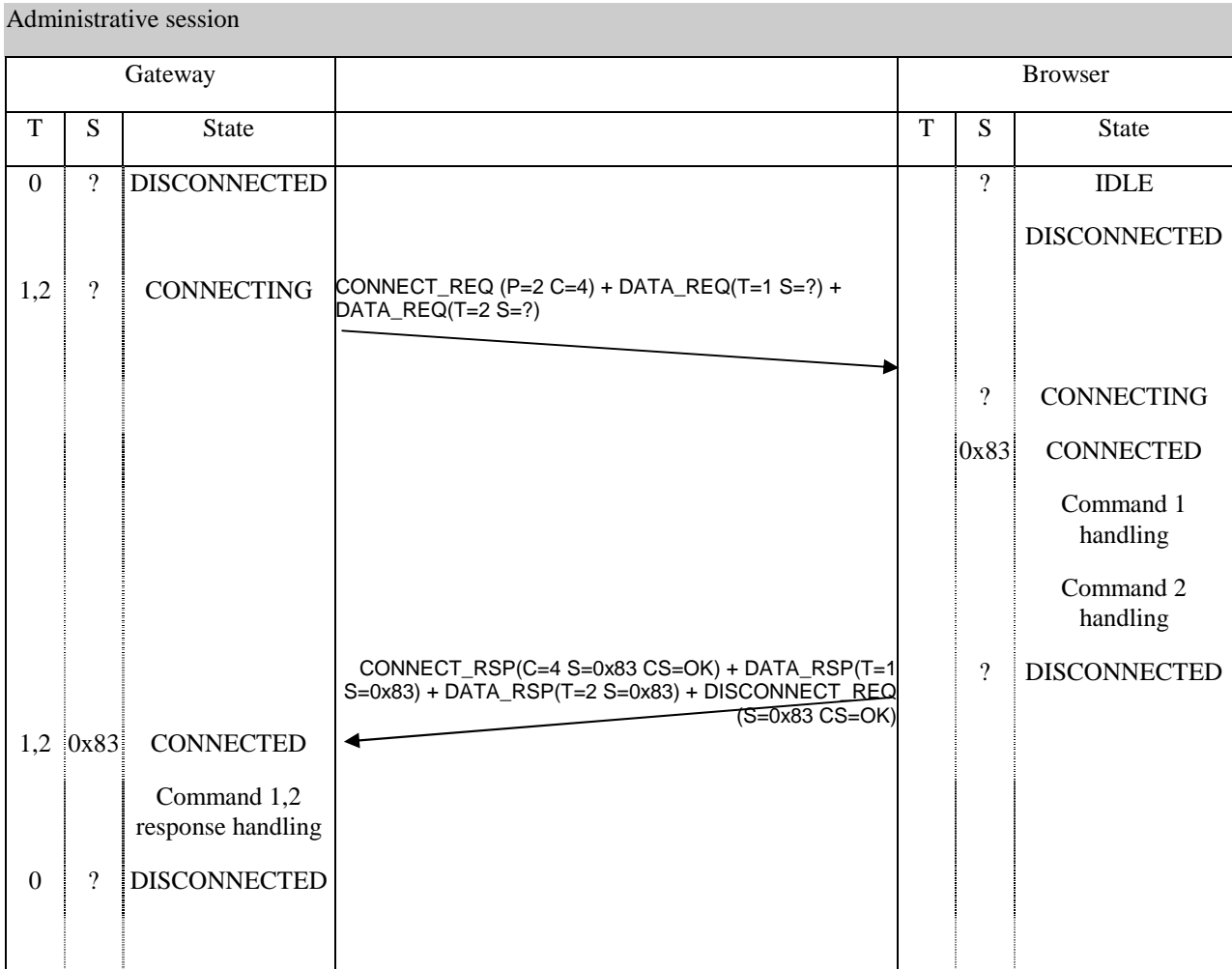
<i>ADMIN GET ENVIRONMENT VARIABLE</i>			
<i>Description</i>	Get the value of one environment variable (i.e. generate a string corresponding to the element required into a variable) and send it to the S@T gateway.		
<i>LENGTH</i>	<i>VALUE</i>	<i>DESCRIPTION</i>	<i>M/O</i>
1	0x58	Admin Get Environmental Variable tag	M
1-3	3	Length of subsequent data (length coded in BER-TLV)	M
2	0-65535	Request Id	M
1	VarId	Environmental variable Id (as defined in /SBC/)	M
<i>OUTPUT</i>			
Value of the specified environment variable as defined in /SBC/.			
<i>ERROR CODE</i>		<i>DESCRIPTION</i>	
NO_ERROR		OK	

NOTE: If the environmental variable reference does not exist, a NULL string shall be returned.



9 ADMINISTRATIVE SESSION FLOWCHART

The following flow chart demonstrates an example of the administrative session establishment:



Legend:

- C: Connection Id
- CS: Connection Status
- P: Protocol Id
- S: Session Id
- T: Transaction Id



10 ERROR MANAGEMENT

With administrative commands, the error code is sent to the gateway. Browser shall add error happened during the administrative command execution to the browser response.

Error codes are defined in /SBC/.

The error codes used for the administrative commands:

Type of error	Coding
Problem in memory management	0x6F05
Reference to undefined	0x6F07
General unspecific error	0x6FFF

In the case no error occurs the value 0x0000 shall be sent to the gateway.



11 LIST OF COMMAND TAGS

Since bit 7 is reserved for attribute indication the tag values can be in range [0x00..0x7F]

Command	Value
Browser Response tag	0x50
Install Deck tag	0x51
Uninstall Deck tag	0x52
Admin Get Environment Variable tag	0x58

Unsupported tags must be ignored (i.e. no DATA_RSP shall be sent on the DATA_REQ with unknown administrative command).

Deprecated Tags
0x53 – 0x57
0x59
0x61

Deprecated tag values must not be re-used in future.



12 HISTORY

Document history		
Release	Approved by	Comment
1.0.0	SIM Alliance TDG	Document S@T 01.60 renamed to 01.21 + Add macro AdminManageContextualMenu (CR Schlumberger-Admin-31-Mar-2000 approved during meeting 16)
1.0.1	SIM Alliance TDG	Changes after meeting #18 CR : 10017
1.0.2	SIM Alliance TDG	Changes after meeting #18 ad hoc CRs: 10031 and 10040
1.0.3	SIM Alliance TDG	Editorial Changes for Release 2000-06
1.0.4	SIM Alliance TDG	Add CRs: 10060, 10065
1.0.5	SIM Alliance TDG	Add CRs: 10072, 10117, 10120
1.0.6	SIM Alliance TDG	Editorial changes at meeting #30 for publication
2.0.0	SIM Alliance TDG	Editorial changes for publication
3.0.0	SIM Alliance TDG	Add CR Axalto-S@T Number 015
3.0.1	SIM Alliance TDG	CR: PRISM-May-2007 #003 accepted
4.0.0	SIM Alliance TDG	S@T Task Force: Review of Spec: Major editorial modifications for clarification <ul style="list-style-type: none">- Defined default gateway address- Removed "Admin Manage plug-ins" command- Removed multi session management- Removed SPS management commands- Removed Set Environment Variable command- Removed Contextual Menu Management



12.1 Annex A[informative]: LIST OF CHANGE REQUESTS

CR Number	CR Identifier	Subject	Document Reference	Status / Meeting No.
10017	GEMPLUS-WG1-MAY-2000#3	PRECISE DEFINITION TO “TEMPORARY DECK BUFFER SIZE”	S@T 1.21 V1.0.0	Accepted #17
10031	GEMPLUS-WG1-MAY-2000#18.3	RFU INDICATION AFTER FOLLOW BIT IN ATTRIBUTE FIELD	S@T 1.21 V1.0.1	Accepted #18
10040	GEMPLUS-WG1-MAY-2000#18.5	COUPLE USAGE IN CONTEXTUAL MENUS	S@T 1.21 V1.0.1	Accepted #18
10042	GEMPLUS-WG1-MAY-2000#18.7	OPTIONAL / MANDATORY FEATURES	S@T 1.21 V1.0.1	Accepted #18
10060	SCHLUMBERGE R-WG1 - AUGUST-2000#4	Edit correction	S@T 1.21 V1.0.3	Accepted #20
10065	SCHLUMBERGE R-WG1 – AUGUST-2000#9	Admin SetEnv	S@T 1.21 V1.0.3	Accepted #20
10072	SCHLUMBERGE R –WG1 – AUGUST 2000#11	Admin Manage Contextual Menu Items	S@T 1.21 V1.0.4	Accepted #26
10117	GEMPLUS-APR-2001#29-5.DOC	SPECIFY END OF ADMIN SESSION TO AVOID DEAD LOCKS	S@T 1.21 V1.0.4	Accepted #28
10120	GEMPLUS-WG1-MAY-2001#28-3	Proposal for state diagrams in 1.21/1.22/1.23	S@T 1.21 V1.0.4	Accepted #29
2006-016	Axalto-S@T Number 015	Administrative PLUG-IN MANAGEMENT CMD	S@T 1.21 V2.1.0	Accepted (email vote 9 th Feb. 2005)
	PRISM-May-2007 #003	Clarifications for certification	S@T 1.21 V3.0.1	Accepted at WG meeting Jan 2008