S **HIFI**	**MIB-editor** **Requirements**	**Hifi no.: SRON-U/HIFI-SP-2000-2 .** **Inst.no.: n** **Issue: 1.0** **Date: Aug 23, 2000** **Category: -**

Title: MIB editor Requirements specification document

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1. Introduction

SCOS-2000 is configured by the Mission Information Base subsystem (MIB), a set of more than 30 ASCII files containing mission-specific data. During the integration and test of the FIRST-instruments the MIB will contain the instrument-specific configuration data.

The MIB editor is a tool to maintain the MIB. Especially during the integration and test of an instrument *under construction* it is important to have a flexible and reliable editor.

This document lists the requirements of a MIB-editor. As the MIB-editor may be implemented as a relational database, the editor is also called the database in this document.

2. Applicable documents

AD-#1 S2K-MCS-ICD-1-TOS-GCI SCOS-2000 database import ICD

3 Requirements

3.1 Data content

RQ 3.1.1 The database shall contain all data that is required to configure SCOS-2000

RQ 3.1.2 The database shall contain a table for each SCOS-2000 file. For an overview of these files see Annex A

3.2 User interface

RQ 3.2.1 The database shall provide a datasheet for each table.

RQ 3.2.2 The datasheets shall mark each column with the field-names listed in AD-#1

RQ 3.2.3 The datasheets shall use tiptexts to clarify the meaning of the columns. These texts shall be derived from the descriptions in AD-#1

RQ 3.2.4 The datasheets shall show complete records on the monitor. (i.e. a record shall be visible completely without the need of using scroll-bars)

RQ 3.2.5 The database shall provide a set of forms that follow the data-structure of the MIB.

The following forms are required:

- A form showing the Parameter characteristics file PCF, with the following related subforms:
  - Monitor checks (OCF and OCP)
  - Numerical calibration (CAF and CAP)
  - Textual calibration (TXF and TXP)
  - Polynomial calibration (MCF)

- A form showing the command parameters (CPC) with the following related subforms:
  - Parameter range sets (PRF and PRV)
  - Numerical (de)calibration curves (CCA and CCS)
  - Textual (de)calibration sets (PAF and PAS)

- A form showing the packets identification PID, with the following related subforms:
  - Variable packet definition (VPD)
  - Parameter location in fixed packets (PLF)

- A form showing the command characteristics (CCF) with the following related subforms:
  - Command definition (CDF)
  - Pre-transmission validation (PTV)
  - Verification profiles (CVP), Command verification profiles (CVP) and command verification expressions (CVE)

- A form showing the command sequence characteristics (CSF) with the following related subforms:
  - Command sequence definition (CSS)
  - Command sequence element parameters (SDF)
  - Command sequence formal parameters (CSP)

- A form with the packet header definition (PCDF), packet header parameters (PCPC) and the packet header characteristics (TCP)

- A form showing the parameter sets and related data (PST, PSV, PVS, CPS)

- A form showing the layout of alpha-numerical, graphics and scrolling displays

RQ 3.2.6 Whenever the value of a field is limited to a set of values based on another table, the forms shall provide pulldown menus to select a value.

RQ 3.2.7 The forms shall use tiptexts to clarify the meaning of the columns. These texts shall be derived from the descriptions in AD-#1.

RQ 3.2.8 When a field can contain a limited set of values, tiptexts shall show the possible options.

3.3 Data checking

RQ 3.3.1 When a field is marked as unique identifier of a record in a table, this unique key shall be enforced by the database.

RQ 3.3.2 When a relationship exists between to tables an update-cascade will enable edits of primary-key fields.

RQ 3.3.3 When a relationship exists between to tables the absence of a delete-cascade will prevent unintended deletions.

RQ 3.3.4 When a field can contain a limited set of values, validation rules shall enforce these limitations.

RQ 3.3.5 When a field is marked as mandatory in AD-#1, the database shall enforce that a value is entered.

RQ 3.3.6 When a default value is specified in AD-#1 (Default values used by SCOS-2000 for fields that are left blank in the tables) these default values shall be used as default values in the tables.

RQ 3.3.7 Upon export, fields for which default values are specified shall not be left blank.

RQ 3.3.8 The database shall have a tool to check the data for a configurable set of errors. The kind of checks that is meant here are the checks that can only be performed when a complete data set is entered and that can not be performed by the consistency checks of the database itself.

RQ 3.3.9 The database editor shall maintain all fields that count the number of related fields in another table in those cases where these counters are meaningful for SCOS-2000

RQ 3.3.10 The database editor shall have a tool to update all fields that count the number of related fields in another table in those cases where these counters have no meaning for SCOS-2000.

3.4 Groups of data

The table in the database can be grouped as follows: parameter data, packet data, parameter-sets and operator data. Refer to Annex A for details of this grouping.

Moreover, the data inside these tables can be grouped according to the subsystems with which they correspond.

The following requirements deal with how to organise these groups of data.

RQ 3.4.1 The database shall have an organized way to collect groups of data that as a group correspond to a subsystem of the instrument.

RQ 3.4.2 The data that belongs to a subsystem can be entered to the database without detailed knowledge of SCOS-2000.

This requirement anticipates that data shall be supplied by subsystems engineers who have nothing to do with SCOS-2000. They should only be asked to supply data that is related to their subsystem, not to SCOS-2000.

RQ 3.4.3 A report can be made of the data that belongs to one subsystem.

This requirement prevents that documentation is maintained on two places: one place for the purpose of documentation and one place for the database.

RQ 3.4.4 The database-content can be changed according to a change in instrument configuration.

When the instrument consists of several subsystems of several models, say Subsys1 QM, Subsys2 QM, Subsys 1 FM and Subsys2 FM then several tables are populated with data that corresponds to the current configuration's subsystem.

When the configuration is Subsys1 QM, Subsys2 QM and Subsys1QM is replaced by Subsys1 FM, the data that corresponds to Subsys1QM must be replaced by data that corresponds to Subsys1 FM

3.5 Tools

RQ 3.5.1 The database shall have a tool to import a set of SCOS-2000 files

RQ 3.5.2 The database shall have a tool to append a set of SCOS-2000 files

RQ 3.5.3 The database shall have a tool to output a set of SCOS-2000 files

RQ 3.5.4 The database shall have a tool to delete the data from the tables

RQ 3.5.5 The database shall have a tool to enter series of parameter-value-sets in an intuitive way. I.e. the parameter names in the left-most column of a

table and the values of the parameters in the subsequent columns, one column per parameter value set.

Annex A File overview

Group	TableName	Description	Reference (AD-#1)
Operator	dpc	Alphanumeric display definition	3.3.2.6.2 p 36
	dpf	Alphanumeric display	3.3.2.6.1 p 35
	gpc	Graphic display definition	3.3.2.6.4 p 38
	gpf	Graphic display	3.3.2.6.3 p 37
	spc	Scrolling display definition	3.3.2.6.6 p 41
	spf	Scrolling display	3.3.2.6.5 p 40
Packet	ccf	Command characteristics	3.3.3.2.1 p 47
	cdf	Commands definition	3.3.3.2.3 p 52
	csf	Command sequence definition	3.3.3.3.1 p 59
	csp	Command sequence formal parameters	3.3.3.3.4 p 66
	css	Command sequence definition	3.3.3.3.2 p 60
	cve	Verification expression	3.3.3.4.2 p 71
	cvp	Verification profile	3.3.3.4.3 p 73
	cvs	Verification stage	3.3.3.4.1 p 70
	pid	Packet identification	3.3.2.4.1 p 27
	plf	Parameter location in fixed packets	3.3.2.5.1 p 29
	ptv	Pre-transmission verification	3.3.3.2.4 p 56
	sdf	Command sequence element parameters	3.3.3.3.3 p 64
	vpd	Variable packet definition	3.3.2.5.2 p 31
Packet header	pcdf	Packet header parameters	3.3.3.1.3 p 46
	pcpc	Packet header parameters	3.3.3.1.2 p 45
	tcp	Packet header characteristics	3.3.3.1.1 p 45
Parameter	caf	Numerical calibration curves	3.3.2.2.1 p 21
	cap	Numerical calibration curve definition	3.3.2.2.2 p 22
	cca	Numerical (de)calibration curves	3.3.3.6.1 p 76

Group	TableName	Description	Reference (AD-#1)
	ccs	Numerical (de)calibration curves definition	3.3.3.6.2 p 77
	cpc	Command parameters	3.3.3.2.2 p 50
	mcf	Polynomial calibration curves	3.3.2.2.5 p 23
	ocf	Monitoring checks	3.3.2.3.1 p 24
	ocp	Monitoring check definition	3.3.2.3.2 p 25
	paf	Textual (de)calibration	3.3.3.6.3 p 77
	pas	Textual (de)calibration definiton	3.3.3.6.4 p 78
	pcf	Monitoring parameter definition	3.3.2.1.1 p 14
	prf	Parameter range sets	3.3.3.7.1 p 78
	prv	Parameter range values	3.3.3.7.2 p 79
	txf	Textual calibrations	3.3.2.2.3 p 22
	txp	Textual calibration definition	3.3.2.2.4 p 22
Parameter set	cps	Parameter set definition	3.3.3.5.3 p 74
	psm	Parameter sets mapping	3.3.3.5.5 p 75
	pst	Parameter sets	3.3.3.5.1 p 73
	psv	Parameter value sets	3.3.3.5.2 p 74
	pvs	Parameter value sets definition	3.3.3.5.4 p 74