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This document was prepared by the Consultative Committee for Space Data Systems (CCSDS) (as CCSDS 914.0-M-2 Cor.1, August 2016) and was adopted (without modifications) by Technical Committee ISO/TC 20, *Space vehicles,* Subcommittee SC 13, *Space data and information transfer systems*.

This third edition cancels and replaces the second edition (ISO 18441:2016), which has been technically revised.

The main changes compared to the previous edition are as follows:

— references CCSDS 913.1-B for one-way hash function algorithm and removes reference to Secure Hash Algorithm standard.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

CONTENTS

Section Page

1 INTRODUCTION 1-1

1.1 PURPOSE OF THIS RECOMMENDED PRACTICE 1-1
1.2 SCOPE 1-1
1.3 APPLICABILITY 1-2
1.4 RATIONALE 1-3
1.5 DOCUMENT STRUCTURE 1-4
1.6 DEFINITIONS 1-7
1.7 REFERENCES 1-10

2 DESCRIPTION OF THE SLE API 2-1

2.1 INTRODUCTION 2-1
2.2 SPECIFICATION METHOD AND NOTATION 2-2
2.3 LOGICAL VIEW 2-7
2.4 SECURITY ASPECTS OF CORE SLE API CAPABILITIES 2-58

3 SPECIFICATION OF API COMPONENTS 3-1

3.1 INTRODUCTION 3-1
3.2 API PROXY 3-1
3.3 API SERVICE ELEMENT 3-27
3.4 SLE OPERATIONS 3-52
3.5 SLE UTILITIES 3-56
3.6 SLE APPLICATION 3-64
3.7 HANDLING OF IN PROCESS THREADS AND EXTERNAL EVENTS 3-71

4 STATE TABLES 4-1

4.1 INTRODUCTION 4-1
4.2 NOTATION 4-1
4.3 GENERAL ERROR HANDLING CONVENTIONS 4-2
4.4 STATE TABLE FOR ASSOCIATIONS 4-2
4.5 STATE TABLES FOR SERVICE INSTANCES 4-15

ANNEX A SPECIFICATION OF COMMON INTERFACES (NORMATIVE) A-1
ANNEX B RESULT CODES (NORMATIVE) B-1
ANNEX C STRUCTURE OF THE SERVICE INSTANCE IDENTIFIER FOR VERSION 1 OF THE SLE SERVICES RAF, RCF, AND CLTU (NORMATIVE) C-1
ANNEX D SIMPLE COMPONENT MODEL (NORMATIVE) D-1

CONTENTS (continued)

Section Page

ANNEX E CONFORMANCE (NORMATIVE) E-1
ANNEX F INTERACTION OF COMPONENTS (INFORMATIVE) F-1
ANNEX G INTERFACE CROSS REFERENCE (INFORMATIVE) G-1
ANNEX H INDEX TO DEFINITIONS (INFORMATIVE) H-1
ANNEX I ACRONYMS AND ABBREVIATIONS (INFORMATIVE) I-1
ANNEX J INFORMATIVE REFERENCES (INFORMATIVE) J-1

Figure

1-1 SLE Services and SLE API Documentation 1-6
2-1 UML Stereotypes Used in This Recommended Practice 2-3
2-2 Top Level Decomposition of the API 2-7
2-3 Structure of the Package API Proxy 2-9
2-4 Reporting and Tracing by the Proxy 2-10
2-5 Configuration Database of the Proxy 2-20
2-6 Structure of the Package API Service Element 2-23
2-7 Reporting and Tracing by the Service Element 2-24
2-8 Sequential Control Interface Component Class Controlled Component 2-39
2-9 Concurrent Control Interface 2-43
2-10 Structure of the Package SLE Application 2-44
2-11 Reporting and Tracing Interfaces Provided by the Application 2-45
2-12 Operation Objects 2-49
2-13 Operation Object Interfaces for Common Association Management 2-53
2-14 Common SLE Operation Objects 2-54
2-15 SLE Utilities 2-56
4-1 Processing Context for the Association State Table 4-3
4-2 Processing Context for the Service Instance State Table 4-16
B-1 Structure of Result Codes B-1
F-1 Configuration of Components F-3
F-2 Configuration of Interfaces for Service Provisioning F-3
F-3 Interaction of API Components F-4
F-4 Initialization and Shutdown F-5
F-5 Collaboration Diagram for Use of Operation Objects F-8
F-6 Sequence Diagram for Use of Operation Objects F-9
F-7 User Side Binding (User Initiated Bind) F-12
F-8 User Side Unbinding (User Initiated Bind) F-13
F-9 Provider Side Binding (User Initiated Bind) F-14
F-10 Provider Side Unbinding (User Initiated Bind) F-16

CONTENTS (continued)

Table Page

C-1 Identifiers and Abbreviations for Attributes C-3
E-1 Optional Features for the API Proxy E-3
E-2 Optional Features for the API Service Element E-6
E-3 Parameters That May Be Constrained by a Proxy E-9
E-4 Parameters That May Be Constrained by a Service Element E-10

1 INTRODUCTION

1.1 PURPOSE OF THIS RECOMMENDED PRACTICE

The purpose of this Recommended Practice is to define a C++ Application Program Interface (API) for CCSDS Space Link Extension (SLE) Transfer Services, which is independent of any specific technology used for communications between an SLE service user and an SLE service provider.

This API is intended for use by application programs implementing SLE services. It can be configured to support SLE service user applications or SLE service provider applications.

This API is also intended to simplify the implementation of gateways that are required to achieve interoperability between SLE service provider and SLE service user applications using different communications technologies.

Using this Application Program Interface Recommended Practice, API implementations (software packages) able to run on specific platforms can be developed. Once developed, such a package can be supplied to new users of SLE services for integration with their user or production facilities, thus minimizing their investment to buy into SLE support.

1.2 SCOPE

1.2.1 ITEMS COVERED BY THIS RECOMMENDED PRACTICE

This Recommended Practice defines the Application Program Interface in terms of:

a) the components that provide the services of the API;

b) the functionality provided by each of the components;

c) the interfaces provided by each of the components; and

d) the externally visible behavior associated with the interfaces exported by the components.

It does not specify:

a) individual implementations or products;

b) the internal design of the components; and

c) the technology used for communications.

This Recommended Practice defines those aspects of the Application Program Interface, which are common for all SLE service types or for a subset of the SLE service types, e.g., all return link services or all forward link services. It also defines a framework for specification of service type-specific elements of the API. Service-specific aspects of the API are defined by supplemental Recommended Practice documents for SLE return link services (references [10], [11], and [12]) and SLE forward link services (references [13] and [14]).