
**Space data and information transfer
systems — Space link extension —
Application program interface for transfer
services — Core specification**

*Systèmes de transfert des informations et données spatiales — Extension de
liaisons spatiales — Interface du programme d'application pour les services
de transfert — Spécification de base*





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ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
copyright@iso.org
Web www.iso.org

Published in Switzerland

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This second edition cancels and replaces the first edition (ISO 18441:2013), which has been technically revised.

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DOCUMENT CONTROL

Document	Title	Date	Status
CCSDS 914.0-M-1	Space Link Extension—Application Program Interface for Transfer Services—Core Specification, Recommended Practice, Issue 1	October 2008	Original issue, superseded
CCSDS 914.0-M-2	Space Link Extension—Application Program Interface for Transfer Services—Core Specification, Recommended Practice, Issue 2	September 2015	Current issue: <ul style="list-style-type: none">– updates text to accommodate changes in current versions of SLE service specifications;– differentiates applicability by SLE service specification version;– updates references.

NOTE – Substantive changes from the previous issue are marked with change bars in the inside margin.

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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]).

This Recommended Practice for the Application Program Interface responds to the requirements imposed on such an API by the CCSDS SLE transfer service Recommended Standards that were available when this Recommended Practice was released.

1.2.2 CONFORMANCE TO CCSDS RECOMMENDED STANDARDS

This version of the SLE API Recommended Practice conforms to the CCSDS Recommended Standards for Space Link Extension Services, referenced in 1.7, with the exception of the following optional features:

- a) The negotiation procedure for version numbers in the BIND operation is not supported. If the responder does not support the version number identified in the BIND Invocation, it responds with a BIND Return containing a negative result and the diagnostic 'version number not supported'. The responder does not propose an alternative version number.
- b) Provider-initiated binding, specified by CCSDS Recommended Standards for return link services is not included in this Recommended Practice. The management parameters that specify the bind initiative are supported to simplify addition of this procedure in later versions.

1.3 APPLICABILITY

The Application Program Interface specified in this document supports three generations of SLE Transfer Service specifications, namely:

- a) Generation 1 covering the services RAF, RCF, and FCLTU identified by the version number 1 in the BIND operation, as specified by references [C1], [C2], and [C3];
- b) Generation 2 covering
 - 1) the services RAF, RCF, and FCLTU identified by the version number 2 in the BIND operation, as specified by references [J9], [J10], and [J12];
 - 2) the services ROCF and FSP identified by the version number 1 in the BIND operation, as specified by references [J11] and [J13];
- c) Generation 3 covering the services RAF, RCF, ROCF, FCLTU, and FSP identified by the version number 4 in the BIND operation, as specified by references [4], [5], [6], [7], and [8].