



BSI Standards Publication

Energy management system application program interface (EMS-API)

Part 401: Profile framework

National foreword

This British Standard is the UK implementation of EN IEC 61970-401:2022. It is identical to IEC 61970-401:2022.

The UK participation in its preparation was entrusted to Technical Committee PEL/57, Power systems management and associated information exchange.

A list of organizations represented on this committee can be obtained on request to its committee manager.

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English Version

Energy management system application program interface (EMS-API) - Part 401: Profile framework

Interface de programmation d'application pour système de
gestion d'énergie (EMS-API) - Partie 401: Cadre de profils

Schnittstelle für Anwendungsprogramme für
Netzführungssysteme (EMS-API) - Teil 401: Rahmenwerk
für Profile

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European foreword

The text of document 57/2482/FDIS, future edition 1 of IEC 61970-401, prepared by IEC/TC 57 "Power systems management and associated information exchange" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 61970-401:2022.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2023-04-04 level by publication of an identical national standard or by endorsement
- latest date by which the national standards conflicting with the (dow) 2025-07-04 document have to be withdrawn

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The text of the International Standard IEC 61970-401:2022 was approved by CENELEC as a European Standard without any modification.

Annex ZA

(normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 61968-11	-	Application integration at electric utilities - System interfaces for distribution management - Part 11: Common information model (CIM) extensions for distribution	EN 61968-11	-
IEC/TS 61970-2	-	Energy management system application program interface (EMS-API) - Part 2: Glossary	CLC/TS 61970-2	-
IEC 61970-300	series	Energy management system application program interface (EMS-API)	-	-
IEC 61970-501	2006	Energy management system application program interface (EMS-API) - Part 501: Common Information Model Resource Description Framework (CIM RDF) schema	EN 61970-501	2006
IEC 61970-552	-	Energy management system application program interface (EMS-API) - Part 552: CIMXML Model exchange format	EN 61970-552	-
OMG Unified-Modeling Language®		OMG document number: formal/2015-03-01, available at http://www.omg.org/spec/UML/2.5		-
World Wide Web-Consortium (W3C)		RDF 1.1 Primer from 24 June 2014, available at https://www.w3.org/TR/rdf11-primer/	-	-
World Wide Web-Consortium (W3C)		RDF 1.1 Concepts and Abstract Syntax from 25 February 2014, available at https://www.w3.org/TR/rdf11-concepts/	-	-
World Wide Web-Consortium (W3C)		RDF 1.1 XML Syntax from 25 February 2014, available at https://www.w3.org/TR/rdf-syntax-grammar/	-	-
World Wide Web-Consortium (W3C)		RDF Schema 1.1 from 25 February 2014, available at https://www.w3.org/TR/rdf-schema/	-	-

World Wide Web- Consortium (W3C)	OWL 2 Web Ontology Language Primer - (Second Edition), W3C Recommendation 11 December 2012, available at https://www.w3.org/TR/owl2-primer/	-
World Wide Web- Consortium (W3C)	OWL 2 Web Ontology Language Structural - Specification and Functional-Style Syntax (Second Edition), W3C Recommendation 11 December 2012, available at https://www.w3.org/TR/owl2-syntax/	-

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Energy management system application program interface (EMS-API) –
Part 401: Profile framework**

**Interface de programmation d'application pour système de gestion d'énergie
(EMS-API) –
Partie 401: Cadre de profils**

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**ENERGY MANAGEMENT SYSTEM APPLICATION
PROGRAM INTERFACE (EMS-API) –****Part 401: Profile framework****FOREWORD**

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IEC 61970-401 has been prepared by IEC technical committee 57: Power systems management and associated information exchange. It is an International Standard.

This first edition cancels and replaces IEC TS IEC 61970-401 published in 2005. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) The previous edition of IEC TS 61970-401:2005 provided an overview of the Component Interface Specifications (CIS) IEC 61970-402, IEC 61970-403, IEC 61970-404, IEC 61970-405, and IEC 61970-407. IEC 61970-402 to IEC 61970-407 are duplicates of existing OPC interfaces from OPC Foundation and the DAIS/HDA interfaces from OMG. Hence IEC 61970-402 to IEC 61970-407 have been withdrawn and IEC TS 61970-401:2005 no longer serves a purpose.

- b) IEC 61970-401 (this document) does not contain an overview of Component Interface Specifications (CIS) but instead a description of how to create profile specifications that describes dataset contents (or message contents). Hence it has been renamed "Profile framework". The profile specifications IEC 61970-450 (all parts) and IEC 61970-600 (all parts) describe dataset contents. The purpose of this document is to define the rules to be followed in the process of creating profile specifications.

The text of this International Standard is based on the following documents:

Draft	Report on voting
57/2482/FDIS	57/2494/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/standardsdev/publications.

A list of all parts in the IEC 61970 series, published under the general title *Energy management system application program interface (EMS-API)*, can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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INTRODUCTION

This document is one of the IEC 61970 series that defines message interfaces for network application data exchange.

The IEC 61970-300 series of documents specify a canonical Common Information Model (CIM) describing network application data. The CIM is an information model that represents all the major objects in an electric utility enterprise needed to describe data used by power network applications. The Canonical CIM provides the semantics for IEC 61970-450 (all parts) and IEC 61970-600 (all parts) profile specifications dedicated to specific data exchanges.

This document describes the framework in which profile specifications are created from the Canonical CIM. It describes the structure of profile documents and the rules for selection of information from the Canonical CIM to be included in profile specifications.

The reasons for creating this document are

- 1) The IEC 61970 profiles have for a long time been created using a profiling method not described by an IEC 61970 document.
- 2) The IEC 61970 profiling method has issues that need resolution. Issues and solutions are described in Annex A.