

Energy management system application program
interface (EMS-API) - Part 452: CIM static transmission
network model profiles

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

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English Version

**Energy management system application program interface
(EMS-API) - Part 452: CIM static transmission network model
profiles
(IEC 61970-452:2021)**

Interface de programmation d'application pour système de
gestion d'énergie (EMS-API) - Partie 452: Profils du modèle
de réseau de transport statique CIM
(IEC 61970-452:2021)

Schnittstelle für Anwendungsprogramme für
Netzführungssysteme (EMS-API) - Teil 452: CIM-Statistische-
Übertragungsnetzwerk-Modell-Profil
(IEC 61970-452:2021)

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European foreword

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IEC 61968-13 NOTE Harmonized as EN IEC 61968-13

IEC 61970-1 NOTE Harmonized as EN 61970-1

IEC/TS 61970-2 NOTE Harmonized as CLC/TS 61970-2

IEC 61970-456 NOTE Harmonized as EN IEC 61970-456

IEC 61970-501 NOTE Harmonized as EN 61970-501

IEC 61970-552 NOTE Harmonized as EN 61970-552

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.

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INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Energy management system application program interface (EMS-API) –
Part 452: CIM static transmission network model profiles**

**Interface de programmation d'application pour système de gestion d'énergie
(EMS-API) –
Partie 452: Profils du modèle de réseau de transport statique CIM**



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INTERNATIONAL STANDARD

NORME INTERNATIONALE



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Part 452: CIM static transmission network model profiles**

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(EMS-API) –
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ENERGY MANAGEMENT SYSTEM APPLICATION
PROGRAM INTERFACE (EMS-API) –****Part 452: CIM static transmission network model profiles**

FOREWORD

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

This fourth edition cancels and replaces the third edition published in 2017. This edition constitutes a technical revision. It is based on the IEC 61970 UML version 'IEC61970CIM17v40', dated 2020-08-24.

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

- a) The classes `PowerElectronicsConnection`, `PowerElectronicsUnit` and `PowerElectronicsWindUnit` are added to the Core Equipment profile.

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

FDIS	Report on voting
57/2400/FDIS	57/2407/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 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 part of IEC 61970 is part of the IEC 61970 series that define an application program interface (API) for an energy management system (EMS).

The IEC 61970-300 series specifies a Common Information Model (CIM). The CIM is an abstract model that represents all of the major objects in an electric utility enterprise typically needed to model the operational aspects of a utility. It provides the semantics for the IEC 61970 APIs specified in the IEC 61970-400 series of Component Interface Standards (CIS). The IEC 61970-300 series includes IEC 61970-301, *Common Information Model (CIM) base* and draft standard IEC 61970-302, *Common Information Model (CIM) for Dynamics*.

This document is one of the IEC 61970-400 series of Component Interface Standards that specify the functional requirements for interfaces that a component (or application) shall implement to exchange information with other components (or applications) and/or to access publicly available data in a standard way. The component interfaces describe the specific message contents and services that can be used by applications for this purpose. The implementation of these messages in a particular technology is described in the IEC 61970-500 series.

This document specifies the specific profiles (or subsets) of the CIM for exchange of static power system data between utilities, security coordinators and other entities participating in an interconnected power system, such that all parties have access to the modelling of their neighbour's systems that is necessary to execute state estimation or power flow applications. Currently three profiles, the CoreEquipment Profile, the Operation Profile and the Short Circuit Profile, have been defined. A companion standard, IEC 61970-552, defines the CIM XML Model Exchange Format based on the Resource Description Framework (RDF) Schema specification language. IEC 61970-552 is the common industry approach and is recommended to be used to transfer power system model data for the IEC 61970-452 profile.