Energy management system application program interface (EMS-API) - Part 402: Common services

EESTI STANDARDIKESKUS EVS
ESTONIAN CENTRE FOR STANDARDISATION

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 61970-402:2008 sisaldab Euroopa standardi EN 61970-402:2008 ingliskeelset teksti.	This Estonian standard EVS-EN 61970-402:2008 consists of the English text of the European standard EN 61970-402:2008.
Standard on kinnitatud Eesti Standardikeskuse 20.10.2008 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 20.10.2008 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.
Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 29.08.2008.	Date of Availability of the European standard text 29.08.2008.
Standard on kättesaadav Eesti standardiorganisatsioonist.	The standard is available from Estonian standardisation organisation.

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EN 61970-402

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English version

Energy management system application program interface (EMS-API) - Part 402: Common services
(IEC 61970-402:2008)

Interface de programmation d'application
pour systèmes de gestion d'énergie
(EMS-API) -
Partie 402: Services communs
(CEI 61970-402:2008)

Schnittstelle für Anwendungsprogramme
für Netzführungssysteme (EMS-API) -
Teil 402: Allgemeine Dienste
(IEC 61970-402:2008)

This European Standard was approved by CENELEC on 2008-07-01. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Ref. No. EN 61970-402:2008 E

Foreword

The text of document 57/928/FDIS, future edition 1 of IEC 61970-402, prepared by IEC TC 57, Power systems management and associated information exchange, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61970-402 on 2008-07-01.

The following dates were fixed:

– latest date by which the EN has to be implemented
  at national level by publication of an identical
  national standard or by endorsement   (dop)   2009-04-01

– latest date by which the national standards conflicting
  with the EN have to be withdrawn   (dow)   2011-07-01

Annex ZA has been added by CENELEC.

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Endorsement notice

The text of the International Standard IEC 61970-402:2008 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 61850-7-2	NOTE	Harmonized as EN 61850-7-2:2003 (not modified).
IEC 61968	NOTE	Harmonized in EN 61968 series (not modified).
IEC 61968-1	NOTE	Harmonized as EN 61968-1:2004 (not modified).
IEC 61968-3	NOTE	Harmonized as EN 61968-3:2004 (not modified).
IEC 61970-301	NOTE	Harmonized as EN 61970-301:2004 (not modified).

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Annex ZA
(normative)

Normative references to international publications
with their corresponding European publications

The following referenced documents are indispensable for the application 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   When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

Publication	Year	Title	EN/HD	Year
IEC 61970-1	- [1]	Energy management system application program interface (EMS-API) - Part 1: Guidelines and general requirements	EN 61970-1	2006 [2]
IEC/TS 61970-2	- [1]	Energy management system application program interface (EMS-API) - Part 2: Glossary	CLC/TS 61970-2	2005 [2]
IEC/TS 61970-401	- [1]	Energy management system application program interface (EMS-API) - Part 401: Component interface specification (CIS) framework	-	-
IEC 61970-403	- [1]	Energy management system application program interface (EMS-API) - Part 403: Generic data access	EN 61970-403	2008 [2]
IEC 61970-404	- [1]	Energy management system application program interface (EMS-API) - Part 404: High Speed Data Access (HSDA)	EN 61970-404	2007 [2]
IEC 61970-405	- [1]	Energy management system application program interface (EMS-API) - Part 405: Generic Eventing and Subscription (GES)	EN 61970-405	2007 [2]
IEC 61970-407	- [1]	Energy management system application program interface (EMS-API) - Part 407: Time Series Data Access (TSDA)	EN 61970-407	2007 [2]
OMG DAF	2002	Utility Management System (UMS) Data Access Facility (DAF)	-	-

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[1] Undated reference.

[2] Valid edition at date of issue.

CONTENTS

INTRODUCTION

This standard is one of the IEC 61970 series parts that define an application program interface (API) for utility operational systems. This standard is based upon the work of the Electric Power Research Institute (EPRI) Control Center API (CCAPI) research project (RP-3654-1).

The IEC 61970-4xx series specifies a set of interfaces that a component (or application) should implement to be able to exchange information with other components and/or access publicly available data in a standard way. The IEC 61970-4xx series component interfaces describe the specific event types and message contents that can be used by applications independent of any particular component technology. The implementation of these messages using a particular component technology is described in the IEC 61970-5xx series of documents. Thus, IEC 61970-4xx documents describe a Platform Independent Model (PIM), while IEC 61970-5xx documents describe a Platform Specific Model (PSM).

IEC 61970-402 contains API services that are considered to be foundational. As such, all the other parts in the IEC 61970-4xx series assume their existence. As a result, the services described in IEC 61970-402 are required for any component that complies with the IEC 61970-4xx series.

The component interface specifications refer to entity objects for the power system domain that are defined in the IEC 61970-3xx series: Common Information Model (CIM).

This standard contains normative and informative text. Clauses are marked as normative or informative. A subclause inherits its parent clause's label unless overridden by the lower level subclause label.

ENERGY MANAGEMENT SYSTEM APPLICATION
PROGRAM INTERFACE (EMS-API) –

Part 402: Common services

1 Scope

This International Standard provides the base functionality considered necessary and common that is provided by neither the normative standards incorporated by reference nor the new APIs specified in the IEC 61970-403 to IEC 61970-449 [1] generic interface standards. An application is expected to use the Common Services in conjunction with the generic interfaces. These application category independent interfaces include:

- IEC 61970-403: Generic Data Access (GDA)

- IEC 61970-404: High Speed Data Access (HSDA)

- IEC 61970-405: Generic Eventing and Subscription (GES)

- IEC 61970-407: Time Series Data Access (TSDA)

To support these objectives, the Common Services are divided into three categories:

a) Resource Identifiers – A common way of identifying classes, class attributes, and object instances.
b) Resource Description – A common way of encoding values associated with classes, class attributes, and object instances.
c) Views – A common way of presenting classes, class attributes, and object instances via hierarchies.

IEC 61970-402 contains API services that are considered to be foundational. As such, all the other parts in the IEC 61970-4xx series assume their existence. As a result, the services described in IEC 61970-402 are required for any component that complies with the IEC 61970-4xx series of standards.

Though the target of this IEC standard includes the control center technical domain, common services encompass a general set of concepts that can be applied to many types of systems. Examples of these systems include:

- Distribution management systems

- Work or asset management systems

- Geographic information systems

- Outage management systems

- Other types of operational business systems.

In recognition that the integration between applications in two or more of these systems is often necessary, the intent of this specification is to address general common service requirements to the extent that they are common to different types of systems while effectively addressing the control center needs.

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[1] At this time, only parts 402 to 408 exist. Additional generic services beyond are not yet under consideration.

2   Normative references

The following referenced documents are indispensable for the application 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.

IEC 61970-1, *Energy management system application program interface (EMS-API) – Part 1: Guidelines and general requirements*

IEC 61970-2, *Energy management system application program interface (EMS-API) – Part 2: Glossary*

IEC 61970-401, *Energy management system application program interface (EMS-API) – Part 401: Component interface specification (CIS) framework*

IEC 61970-403, *Energy management system application program interface (EMS-API) – Part 403: Component Interface Specification (CIS) – Generic data access*

IEC 61970-404, *Energy management system application program interface (EMS-API) – Part 404: High Speed Data Access (HSDA)*

IEC 61970-405, *Energy management system application program interface (EMS-API) – Part 405: Generic Eventing and Subscription (GES)*

IEC 61970-407, *Energy management system application program interface (EMS-API) – Part 407: Time Series Data Access (TSDA)*

OMG, Utility Management System Data Access Facility, document formal/2002-11-08

3   Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 61970-2 apply.

NOTE   Refer to International Electrotechnical Vocabulary, IEC 60050, for general glossary definitions.

4   Background

This International Standard specifies Component Interface Specifications (CIS) for Energy Management Systems Application Program Interfaces (EMS-API). It specifies the interfaces that a component (or application) shall implement to be able to exchange information with other components (or applications) and/or to access publicly available data in a standard way (see IEC 61970-1 for an overview of these standards). The goal of the creation of this document is to improve the interoperability of control center applications and systems. This specification provides a mechanism for applications from independent suppliers to access IEC 61970 Common Information Model (CIM) data using a common Application Program Interface (API) for the purpose of supplementary processing, storage, or display.

IEC 61970-401, CIS Framework, provides an overview of the CIS documents in the IEC 61970-4xx series. It explains the separation of these specifications into two major groups. One group of standards, IEC 61970-402 to IEC 61970-449, defines a set of generic application independent services that a component shall use for exchanging information with another component or for accessing public data. However, as the generic interfaces do not specify what specific data is exchanged, interoperability between products using IEC 61970-402 to IEC 61970-449 is not guaranteed. The other group, IEC 61970-450 to IEC 61970-499, defines the information content conveyed using the generic services that a particular component or system exchanges with other components. While IEC 61970-402 to IEC 61970-449 specify