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

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 402: Common services

FOREWORD

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International Standard IEC 61970-402 has been prepared by IEC technical committee 57: Power systems management and associated information exchange.

The text of this standard is based on the following documents:

FDIS	Report on voting
57/928/FDIS	57/947/RVD

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

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

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

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

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- withdrawn;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

A bilingual version of this publication may be issued at a later date.

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.

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