Energy management system application program interface (EMS-API) - Part 456: Solved power system state profiles (IEC 61970-456:2013)

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EUROPEAN STANDARD

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Energy management system application program interface (EMS-API) - Part 456: Solved power system state profiles

(IEC 61970-456:2013)

Interface de programmation d'application pour système de gestion d'énergie (EMS-API) -
Partie 456: Profils d'état de réseaux électriques résolus
(CEI 61970-456:2013)

Schnittstelle für Anwendungsprogramme für Netzführungssysteme (EMS-API) -
Teil 456: Globale Stabilitätsbeurteilung
(IEC 61970-456:2013)

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Foreword

The text of document 57/1327/FDIS, future edition 1 of IEC 61970-456, 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 61970-456:2013.

The following dates are fixed:

• latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement	(dop)	2014-03-11
• latest date by which the national standards conflicting with the document have to be withdrawn	(dow)	2016-06-11

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

IEC 61970-1	NOTE	Harmonised as EN 61970-1.
IEC/TS 61970-2	NOTE	Harmonised as CLC/TS 61970-2.
IEC 61970-301	NOTE	Harmonised as EN 61970-301.
IEC 61970-501	NOTE	Harmonised as EN 61970-501.

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Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 61970-452	-	Energy Management System Application Program Interface (EMS-API) - Part 452: CIM static transmission network model profiles	EN 61970-452	-
IEC 61970-453	-	Energy Management System Application Program Interface (EMS-API) - Part 453: Diagram Layout Profile	EN 61970-453	-
IEC 61970-552	-	Energy Management System Application Program Interface (EMS-API) - Part 552: CIM XML Model Exchange Format	EN 61970-552	-

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INTRODUCTION

This standard is one of several parts of the IEC 61970 series that defines common information model (CIM) datasets exchanged between application programs in energy management systems (EMS).

The IEC 61970-3xx series of documents specify the common information model (CIM). The CIM is an abstract model that represents the objects in an electric utility enterprise typically needed to model the operational aspects of a utility.

This standard is one of the IEC 61970-4xx series of component interface standards that specify the semantic structure of data exchanged between components (or applications) and/or made publicly available data by a component. This standard describes the payload that would be carried if applications are communicating via a messaging system, but the standard does not include the method of exchange, and therefore is applicable to a variety of exchange implementations. This standard assumes and recommends that the exchanged data is formatted in XML based on the resource description framework (RDF) schema as specified in 61970-552 CIM XML model exchange standard.

IEC 61970-456 specifies the profiles (or subsets) of the CIM required to describe a steady-state solution of a power system case, such as is produced by power flow or state estimation applications. It describes the solution with reference to a power system model that conforms to IEC 61970-452 in this series of related standards. (Thus solution data does not repeat the power system model information.) IEC 61970-456 is made up of several component profiles that describe: topology derived from switch positions, measurement input (in the case of state estimation), and the solution itself.

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

Part 456: Solved power system state profiles

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1 Scope

This part of IEC 61970 belongs to the IEC 61970-450 to IEC 61970-499 series that, taken as a whole, defines at an abstract level the content and exchange mechanisms used for data transmitted between control centers and/or control center components.

The purpose of this part of IEC 61970 is to rigorously define the subset of classes, class attributes, and roles from the CIM necessary to describe the result of state estimation, power flow and other similar applications that produce a steady-state solution of a power network, under a set of use cases which are included informatively in this standard.

This standard is intended for two distinct audiences, data producers and data recipients, and may be read from those two perspectives. From the standpoint of model export software used by a data producer, the standard describes how a producer may describe an instance of a network case in order to make it available to some other program. From the standpoint of a consumer, the standard describes what that importing software must be able to interpret in order to consume solution cases.

There are many different use cases for which use of this standard is expected and they differ in the way that the standard will be applied in each case. Implementers should consider what use cases they wish to cover in order to know the extent of different options they must cover. As an example, this standard will be used in some cases to exchange starting conditions rather than solved conditions, so if this is an important use case, it means that a consumer application needs to be able to handle an unsolved state as well as one which has met some solution criteria.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61970-452, *Energy Management System Application Program Interface (EMS-API) – Part 452: CIM Static Transmission Network Model Profiles*[1]

IEC 61970-453, *Energy Management System Application Program Interface (EMS-API) – Part 453: Diagram Layout Profile*

IEC 61970-552, *Energy Management System Application Program Interface (EMS-API) – Part 552: CIM XML Model Exchange Format*[2]

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1 To be published.

2 To be published.