

ICS 29.240.01

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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 43259.302-2023

**Energy management system application program interface
(EMS-API) - Part 302: Common information model (CIM)
dynamics**

能量管理系统应用程序接口（EMS-API）第302部分：公共信息模型（CIM）的动态部分

(English Translation)

Issued on: November 27, 2023

Implemented on: November 27, 2023

**Issued by: State Administration for Market Regulation, China National
Standardization Administration**

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work Guidelines Part 1: Structure and Drafting Rules of Standardization Documents" Drafting:

This document is Part 302 of GB/T 43259 "Energy Management System Application Programming Interface (EMS-API)": GB/T 43259 has been the following sections have been published:

---Part 302: Dynamic part of the Common Information Model (CIM):

This document is equivalent to IEC 61970-302:2018 "Energy Management System Application Programming Interface (EMS-API) Part 302: Public the dynamic part of the common information model (CIM):

This document has made the following minimal editorial changes:

--- Add appendix NA (informative) "Consistency between parts of GB/T 2900 (all parts) and IEC 60050 (all parts) degree":

Please note that some content in this document may be subject to patents: The publisher of this document assumes no responsibility for identifying patents:

Introduction

In order to reduce the cost and time required to add new applications to the energy management system (EMS), and to protect the effectiveness of the EMS Investments that work with existing applications can be made by defining an energy management system (EMS) application programming interface (API) that allows applications to access the public Sharing data or exchanging information to achieve integration without relying on the internal representation of the information: GB/T 43259 aims to promote: by different Integration of EMS applications developed by manufacturers, integration between independently developed complete EMS systems, and EMS systems and related power systems the integration between other running systems is planned to consist of the following parts:

---Part 1: Guidelines and general requirements: The purpose is to identify a set of guidelines and common Infrastructure functions:

---Part 2: Terminology: The purpose is to provide the terminology and abbreviations required by GB/T 43259:

---Part 301: Common Information Model (CIM) Basics: The purpose is to represent power system resources as object classes and A standard approach to attributes and their relationships that defines the basic set of packages for CIM and provides a logical view of the functional aspects of an energy management system:

---Part 302: Dynamic part of the Common Information Model (CIM): The purpose is to

specify a dynamic extension of CIM Package to support model exchange between power system static stability or transient stability analysis applications:

---Part 401: Subset framework: The purpose is to determine how subset file specifications are structured and created:

---Part 452: CIM steady-state transmission network model subset: The purpose is to determine whether a control center or control center component performs A subset of CIM classes, class attributes and associations required for state estimation and power flow calculations:

---Part 453: Graphical layout subset: The purpose is to identify common use cases involving chart layout data exchange, and to define the layout Guidelines for linking to CIM data:

---Part 456: Power system state solution subset: The purpose is to determine the results of exchange state estimation, power flow and other similar applications A subset of the required CIM classes, class attributes and associations:

---Part 457: Dynamic Part Subset: The purpose is to determine the results for applications such as exchange static stability, transient stability analysis, etc:

A subset of the dynamic model CIM classes, class attributes, and associations required to achieve results:

---Part 501: Common Information Model Resource Description Framework (CIMRDF) pattern: The purpose is to determine the machine that generated the CIM Format and rules for human-readable forms:

---Part 552: CIMXML model exchange format: The purpose is to determine the format and rules for exchanging modeling information based on CIM:

---Part 555: CIM-based Efficient Model Exchange Format (CIM/E): The purpose is to determine the exchange modeling based on CIM/E the format and rules of information:

---Part 556: CIM-based Graphics Interchange Format (CIM/G): The purpose is to determine the graphics interchange format based on CIM/G A mechanism that supports offline exchange of graphic displays and online remote browsing of charts between different SCADA/EMS systems:

---Part 600-1: Common Grid Model Exchange Specification (CGMES)---Structure and rules: The purpose is to determine the general grid model Model Exchange Standard (CGMES), which defines the main rules and application requirements to meet business needs such as splicing and merging models:

---Part 600-2: Common Grid Model Exchange Specification (CGMES) ---Exchange subset specification: The purpose is to determine the CGMES the subset files included:

GB/T 43259 mainly includes two aspects: Common Information Model (CIM) and

Component Interface Specification (CIS): Common Information Model (CIM) specifies the semantics of EMS-API, and the Component Interface Specification (CIS) specifies the content of message exchange:

CIM is an abstract model that represents all the major pairs typically included in the model required for all aspects of power enterprise operation:

elephant: The model contains the public classes and properties of these objects, as well as the relationships between them:

Part 301 defines the basic package set of CIM and provides a logical view of the functional aspects of the energy management system: This document is built on Part 301 above provides specifications for exchange models used to represent most power system components commonly used in current electric utilities:

The dynamic behavior of the system is used to conduct simulation research on system dynamic assessment and planning:

Energy Management System Application Programming Interface (EMS-API) Part 302: Common Information Model (CIM) dynamic part

1 Scope

The Common Information Model (CIM) is an abstract model that describes all major objects of a power enterprise, especially those related to power operations:

related objects: CIM provides a standard way to represent power system resources as object classes and attributes and the relationships between them:

It facilitates the integration between EMS applications independently developed by different manufacturers, the integration between independently developed entire EMS systems, or a Integration between EMS systems and other systems that focus on different aspects of power system operations, such as generation or distribution management: SCADA the system needs to be modeled to the extent that it supports communication between power system simulation and control centers: CIM defines a common language based on CIM Language (i.e., semantics) is used to facilitate integration, allowing these applications or systems to access common data and exchange information independently of the internal representation of the information:

Due to the large scale of the complete CIM, the object classes included in the CIM are divided into several logical packages, each logical package represents part of the entire power system model: Collections of these packages are evolving into independent standards:

This document specifies a Dynamics package that extends CIM to support power system static stability (small signal stability):