Application integration at electric utilities - System interfaces for distribution management - Part 1: Interface architecture and general requirements

EESTI STANDARDIKESKUS
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EESTI STANDARDI EESSÕNA **NATIONAL FOREWORD**

Käesolev Eesti standard EVS-EN 61968-1:2004 sisaldab Euroopa standardi EN 61968-1:2004 ingliskeelset teksti.	This Estonian standard EVS-EN 61968-1:2004 consists of the English text of the European standard EN 61968-1:2004.
Standard on kinnitatud Eesti Standardikeskuse 22.07.2004 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.	This standard is ratified with the order of Estonian Centre for Standardisation dated 22.07.2004 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 13.01.2004.	Date of Availability of the European standard text 13.01.2004.
Standard on kättesaadav Eesti standardiorganisatsioonist.	The standard is available from Estonian standardisation organisation.

ICS 33.200

Võtmesõnad:

EUROPEAN STANDARD **EN 61968-1**

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ICS 33.200

English version

Application integration at electric utilities – System interfaces for distribution management Part 1: Interface architecture and general requirements

(IEC 61968-1:2003)

Intégration d'applications pour les services électriques –
Systèmes d'interface pour la gestion de la distribution
Partie 1 : Architecture des interfaces et spécifications générales
(CEI 61968-1:2003)

Integration von Anwendungen in Anlagen der Elektrizitätsversorgung -
Systemschnittstellen für Netzführung
Teil 1: Schnittstellenarchitektur und allgemeine Anforderungen
(IEC 61968-1:2003)

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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 61968-1:2004 E

Foreword

The text of document 57/650/FDIS, future edition 1 of IEC 61968-1, prepared by IEC TC 57, Power system control and associated communications, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 61968-1 on 2003-12-01.

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) 2004-09-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2006-12-01

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Endorsement notice

The text of the International Standard IEC 61968-1:2003 was approved by CENELEC as a European Standard without any modification.

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INTERNATIONAL STANDARD

IEC 61968-1

First edition
2003-10

Application integration at electric utilities –
System interfaces for distribution management –

Part 1:
Interface architecture and general requirements

Reference number
IEC 61968-1:2003(E)

Publication numbering

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

APPLICATION INTEGRATION AT ELECTRIC UTILITIES – SYSTEM INTERFACES FOR DISTRIBUTION MANAGEMENT –

Part 1: Interface architecture and general requirements

FOREWORD

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International Standard IEC 61968-1 has been prepared by IEC technical committee 57: Power system control and associated communications.

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

FDIS	Report on voting
57/650/FDIS	57/668/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.

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

IEC 61968 consists of the following parts under the general title *Application integration at electric utilities – System interfaces for distribution management*:

Part 1: Interface architecture and general requirements

Part 2: Glossary[1]

Part 3: Interface standard for network operations[1]

Part 4: Interface standard for records and asset management[1]

The committee has decided that the contents of this publication will remain unchanged until 2005. At this date, the publication will be

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

[1] Under consideration.

INTRODUCTION

The IEC 61968 series is intended to facilitate inter-application integration, as opposed to intra-application integration, of the various distributed software application systems supporting the management of utility electrical distribution networks. Intra-application integration is aimed at programs in the same application system, usually communicating with each other using middleware that is embedded in their underlying runtime environment, and tends to be optimized for close, real-time, synchronous connections and interactive request/reply or conversation communication models. IEC 61968, by contrast, is intended to support the inter-application integration of a utility enterprise that needs to connect disparate applications that are already built or new (legacy or purchased applications), each supported by dissimilar runtime environments. Therefore, IEC 61968 is relevant to loosely coupled applications with more heterogeneity in languages, operating systems, protocols and management tools. IEC 61968 is intended to support applications that need to exchange data on an event driven basis. IEC 61968 is intended to be implemented with middleware services that broker messages among applications, and will complement, but not replace utility data warehouses, database gateways, and operational stores.

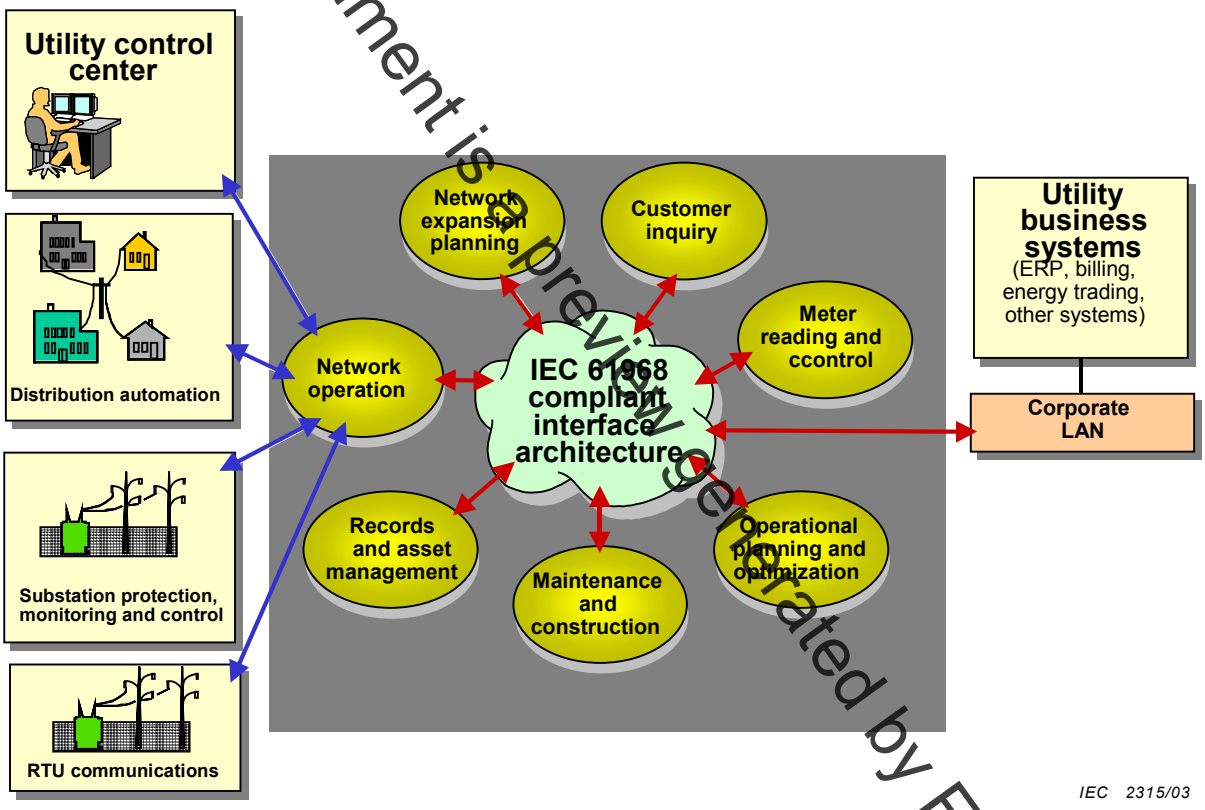

Figure 1 – Distribution management system with IEC 61968 compliant interface architecture

Figure 1 clarifies the scope of IEC 61968-1 graphically in terms of business functions and shows a Distribution Management System with IEC 61968 compliant interface architecture.

APPLICATION INTEGRATION AT ELECTRIC UTILITIES – SYSTEM INTERFACES FOR DISTRIBUTION MANAGEMENT –

Part 1: Interface architecture and general requirements

1 Scope

This part of IEC 61968 is the first in a series that, taken as a whole, defines interfaces for the major elements of an interface architecture for Distribution Management Systems (DMS). This part of IEC 61968 identifies and establishes requirements for standard interfaces based on an Interface Reference Model (IRM). Subsequent parts of this standard are based on each interface identified in the IRM. This set of standards is limited to the definition of interfaces and is implementation independent. They provide for interoperability among different computer systems, platforms, and languages. Methods and technologies used to implement functionality conforming to these interfaces are considered outside of the scope of these standards; only the interface itself is specified in the IEC 61968 series.

As used in the IEC 61968 series, a DMS consists of various distributed application components for the utility to manage electrical distribution networks. These capabilities include monitoring and control of equipment for power delivery, management processes to ensure system reliability, voltage management, demand-side management, outage management, work management, automated mapping and facilities management. The IRM is specified in Clause 4.

2 General

2.1 Overview of the IEC 61968 series

As used in IEC 61968, a DMS (Distribution Management System) consists of various distributed application components for the utility to manage electrical distribution networks. These capabilities include monitoring and control of equipment for power delivery, management processes to ensure system reliability, voltage management, demand-side management, outage management, work management, automated mapping and facilities management. Standards interfaces are to be defined for each class of applications identified in the Interface Reference Model (IRM), which is described in Clause 4.

IEC 61968 recommends that system interfaces of a compliant utility inter-application infrastructure be defined using Unified Modelling Language (UML).

The eXtensible Markup Language (XML) is a data format for structured document interchange particularly on the Internet. One of its primary uses is information exchange between different and potentially incompatible computer systems. XML is thus well-suited to the domain of system interfaces for distribution management.

Where applicable, future parts of the IEC 61968 series will define the information required for ‘message payloads’. Message Payloads will be formatted using XML with the intent that these payloads can be loaded on to messages of various messaging transports, for example OAG, SOAP (Simple Object Access Protocol), etc. The XML encoding rules will be covered in a future part of the IEC 61968 series.

Communication between application components of the IRM requires compatibility on two levels:

- Message formats and protocols.
- Message contents must be mutually understood, including application-level issues of message layout and semantics.