IEC 61968-3

Edition 2.0 2017-04

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Application integration at electric utilities – System interfaces for distribution management –
Part 3: Interface for network operations

Intégration d'applications pour les services électriques – Interfaces système pour la gestion de la distribution –
Partie 3: Interface pour l'exploitation du réseau

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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FOREWORD

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International Standard IEC 61968-3 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
57/1810/FDIS	57/1841/RVD

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

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

This second edition cancels and replaces the first edition published in 2004. It constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) Replaced Measurement list with Measurement and Controls.
b) Replaced OperationalRestriction with Tag.
c) Replaced OutageRecord with Outage.
d) Replaced SafetyDocument with ClearanceDocument.
e) Replaced SwitchingSchedule with SwitchingOrder.
f) Added SwitchingPlan.
g) Added Temporary Network Change.
h) Added TroubleTicket.
i) Added Incident.
j) Added TroubleOrder.
k) Added use cases and sequence diagrams.

In this standard, the following print types are used:

– **tokens: in arial black type**

A list of all parts of the IEC 61968 series, under the general title: *Application integration at electric utilities – System interfaces for distribution management* can be found on the IEC website.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "http://webstore.iec.ch" in the data related to the specific document. At this date, the document will be

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- withdrawn,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

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INTRODUCTION

The purpose of this part of IEC 61968 is to define a standard for the integration of network operations systems with each other and other systems and business functions within the scope of IEC 61968. The specific details of communication protocols those systems employ are outside the scope of this part of IEC 61968. Instead, this part of IEC 61968 will recognize and model the general capabilities that can be potentially provided by network operations systems. In this way, this part of IEC 61968 will not be impacted by the specification, development and/or deployment of next generation network operations systems, either through the use of standards or proprietary means.

The IEC 61968 series of standards is intended to facilitate inter-application integration as opposed to intra-application integration. 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 optimised for close, real-time, synchronous connections and interactive request/reply or conversation communication models. Therefore, these inter-application interface standards are relevant to loosely coupled applications with more heterogeneity in languages, operating systems, protocols and management tools. This series of standards is intended to support applications that need to exchange data every few seconds, minutes, or hours rather than waiting for a nightly batch run. This series of standards, which are intended to be implemented with middleware services that exchange messages among applications, will complement, not replace utility data warehouses, database gateways, and operational stores.

As used in IEC 61968, a distribution management system (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. Standard interfaces are defined for each class of applications identified in the interface reference model (IRM), which is described in IEC 61968-1.

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

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1 Scope

Per the IEC 61968 Interface Reference Model, the Network Operations function defined in this part of IEC 61968 provides utilities the means to supervise main substation topology (breaker and switch state) and control equipment status. It also provides the means for handling network connectivity and loading conditions. Finally, it makes it possible for utilities to locate customer telephone complaints and supervise the location of field crews.

IEC 61968-3 specifies the information content of a set of message payloads that can be used to support many of the business functions related to network operations. Typical uses of the message payloads defined in IEC 61968-3 include data acquisition by external systems, fault isolation, fault restoration, trouble management, maintenance of plant, and the commissioning of plant.

The scope diagram shown in Figure 1 illustrates the possibility of implementing IEC 61968-3 functionality as either a single integrated advanced distribution management system or as a set of separate functions – OMS, DMS and SCADA. Utilities may chose to buy these systems from different vendors and integrate them using the IEC 61968-3 messages. Alternatively, a single vendor could provide two or all of these components as a single integrated system. In the case of more than one system being provided by the same vendor, the vendor may chose to use either extensions of the IEC 61968-messages or a proprietary integration mechanism to provide enhanced functionality over and above what is required/supported by the IEC 61968-3 specification.

An additional part of IEC 61968 will document integration scenarios or use cases, which are informative examples showing typical ways of using the message payloads defined in this document as well as message payloads to be defined in other parts of the IEC 61968 series.