



**BSI Standards Publication**

## **Communication networks and systems for power utility automation**

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Part 7-7: Machine-processable format of IEC 61850-related data models for tools

## National foreword

This Published Document is the UK implementation of IEC TS 61850-7-7:2018.

The UK participation in its preparation was entrusted to Technical Committee PEL/57, Power systems management and associated information exchange.

A list of organizations represented on this committee can be obtained on request to its secretary.

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# TECHNICAL SPECIFICATION



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**Communication networks and systems for power utility automation –  
Part 7-7: Machine-processable format of IEC 61850-related data models for tools**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

**COMMUNICATION NETWORKS AND  
SYSTEMS FOR POWER UTILITY AUTOMATION –****Part 7-7: Machine-processable format  
of IEC 61850-related data models for tools**

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Technical specifications are subject to review within three years of publication to decide whether they can be transformed into International Standards.

Technical Specification IEC TS 61850-7-7 has been prepared by IEC technical committee 57: Power systems management and associated information exchange.

The text of this technical specification is based on the following documents:

Enquiry draft	Report on voting
57/1925/DTS	57/1956/RVDTS

Full information on the voting for the approval of this technical specification 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.

A list of all parts in the IEC 61850 series, published under the general title *Communication networks and systems for power utility automation*, can be found on the IEC website.

This IEC standard includes Code Components i.e. components that are intended to be directly processed by a computer. Such content is any text found between the markers <CODE BEGINS> and <CODE ENDS>, or otherwise is clearly labeled in this standard as a Code Component.

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

- transformed into an International standard,
- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

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

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## INTRODUCTION

Year after year the IEC 61850 data models are extended both in depth with hundreds of new data items, and in width with tens of new parts.

In order to foster an active tool market with good quality, and at the end to improve IEC 61850 interoperability, a machine-processable file, describing data model related parts of the standard as input, is needed. This is the purpose of the new language Name Space Definition (NSD) defined by this part of IEC 61850.

This will avoid the need for any engineering tool related to the IEC 61850 data models to get the content of the standard manually entered, with a high risk of mistakes. This will also help to easily spread any corrections to the data model, as requested to reach interoperability. Tool vendors will be able to integrate NSD in their tools to distribute the standard data models directly to end users.

## COMMUNICATION NETWORKS AND SYSTEMS FOR POWER UTILITY AUTOMATION –

### Part 7-7: Machine-processable format of IEC 61850-related data models for tools

## 1 Scope

### 1.1 General

This part of IEC 61850, which is a Technical Specification, specifies a way to model the code components of IEC 61850 data model (e.g., the tables describing logical nodes, common data classes, structured data attributes, and enumerations) in an XML format that can be imported and interpreted by tools. The following main use cases are supported:

- Generation of SCL data type templates for system specification or ICD files.
- Validation of SCL data type templates.
- Definition of private extensions by following the rules of the standard.
- Adapting rapidly the whole engineering chain as soon as a new version of IEC 61850 data model (an addendum, a corrigenda or a Tissue) affects the content of the standard.
- Provide tool-neutral textual help to users of tools on the data model contents.
- Supporting multi-language publication, i.e., enabling the expression of the data model in different languages, through a machine processable format.

The purpose of this proposal is limited to the publication of the XML format which should support the data model part of any IEC 61850 related standard. The publication of code components themselves will be part of the related IEC 61850 part.

### 1.2 Namespace name and version

The new namespace name and version section is mandatory for any IEC 61850 namespace (as defined by IEC 61850-7-1:2011).

The parameters which identify this new release of the NSD namespace `xmlns:nsd="http://www.iec.ch/61850/2016/NSD"` are:

- Namespace Version: 2017
- Namespace Revision: A
- Namespace Release: 1
- Namespace release date: 2017/08/28

Edition	Publication date	Webstore	Namespace
Edition 1.0	2017-??	IEC 61850-7-7:2017	IEC 61850-7-7:2017A

The namespace version relates to the edition of the standard: here namespace version 2017 refers to the first edition of this document.

Then, the revision relates to amendments if any: as for the current version of this document, revision A corresponds to the original edition, without amendment. For the first amendment, the revision will be B, etc.