

TECHNICAL SPECIFICATION



**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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**Communication networks and systems for power utility automation –
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CONTENTS

FOREWORD.....	5
INTRODUCTION.....	7
1 Scope.....	8
1.1 General.....	8
1.2 Namespace name and version Published versions.....	8
1.4 Namespace name and version.....	9
1.3 Code Component distribution.....	9
1.3.1 General.....	9
1.3.2 XML schema namespace code component.....	11
2 Normative references.....	11
3 Terms and definitions.....	12
4 Abbreviated terms.....	12
5 Use cases.....	13
5.1 Generation of SCL data type templates for system specification.....	13
5.1.1 Description of the use case.....	13
5.1.2 Technical details.....	14
5.1.3 Information exchanged.....	15
5.2 Generation of SCL data type templates for ICD files.....	15
5.2.1 Description of the use case.....	15
5.2.2 Technical details.....	17
5.2.3 Information exchanged.....	18
5.3 Validation of data model conformity.....	18
5.3.1 Description of the use case.....	18
5.3.2 Diagrams of use case.....	19
5.3.3 Technical details.....	20
5.4 Definition of private data model extensions by following the rules of the standard.....	21
5.4.1 Description of the use case.....	21
5.4.2 Diagrams of use case.....	22
5.4.3 Technical details.....	23
5.4.4 Information exchanged.....	24
5.5 Supporting the IEC 61850 data model change management.....	24
5.5.1 Description of the use case.....	24
5.5.2 Diagrams of use case.....	26
5.5.3 Technical details.....	28
5.5.4 Information exchanged.....	29
5.5.5 Common terms and definitions.....	30
6 Namespace file breakdown.....	30
6.1 General.....	30
6.2 Namespace dependencies.....	30
6.3 Namespace types.....	32
6.3.1 General.....	32
6.3.2 Core namespace.....	32
6.3.3 Domain namespace.....	32
6.3.4 Technical report namespace.....	32
6.3.5 Private namespace.....	33

7	Overview of the format	33
7.1	General.....	33
7.2	File types	33
7.2.1	NSD	33
7.2.2	SNSD	37
7.2.3	AppNS.....	39
7.2.4	NSDoc.....	39
7.3	NSD usage convention.....	40
7.3.1	General	40
7.3.2	Element identification	40
7.3.3	Inheritance and extension.....	41
7.3.4	DataObject parameterization	42
7.3.5	CDC variants	43
7.4	Naming convention	44
7.4.1	File extension	44
7.4.2	File name	44
7.5	Example.....	44
7.5.1	General	44
7.5.2	NSD file example.....	44
7.5.3	SNSD file example.....	45
7.5.4	AppNS file example	45
7.5.5	NSDoc file example	45
8	File usage	45
8.1	General.....	45
8.2	System specification creation	46
8.3	Manufacturer IED creation	47
8.4	Creation of a non-standard name space.....	47
8.5	IED data model validation	47
8.6	Data model update management.....	47
Annex A (normative)	Schema NSD.xsd	48
Annex B (normative)	Compatibility of the different revisions of the standard	73
B.1	General.....	73
B.2	NSD version management	73
B.2.1	NSD Schema version.....	73
B.2.2	NSD version identification.....	73
B.2.3	NSD version dependency	74
B.3	DataObject parameterization.....	74
Figure 1	– Generation of SCL data type templates for system specification diagrams	14
Figure 2	– Generation of SCL data type templates for ICD files diagrams	17
Figure 3	– Validation of data model conformity diagrams	20
Figure 4	– Definition of private data model extensions by following the rules of the standard diagrams	23
Figure 5	– Supporting the IEC 61850 data model change management.....	27
Figure 6	– Namespace dependencies	31
Figure 7	– Service Namespace usage	32
Figure 8	– Abstract LNClass hierarchy example	37

Figure 9 – Specification type creation example	46
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Table 1 – Reference between published versions of the standard and related namespace name.....	9
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Table 2 – Attributes of xsd namespace	9
---	---

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

IEC TS 61850-7-7 Edition 1 2018-03 Amendment 1 Edition 1 2023-01

COMMUNICATION NETWORKS AND SYSTEMS FOR POWER UTILITY AUTOMATION

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

CORRIGENDUM 1

INTRODUCTION TO CORRIGENDUM

a) Background

As part of the maintenance process for the standard, technical issues (called TISSUES) are collected through the website iec61850.tissue-db.com. A new TISSUE has been entered for IEC TS 61850-7-7:2018+AMD1:2023 which has to be implemented and published. This corrigendum notifies the replacement of the code component file IEC_TS_61850-7-7.2017.NSD.2017B5.full.zip by the following new code component file IEC_TS_61850-7-7.2017.NSD.2017B6.full.zip.

b) List of interoperability TISSUES to be released

The following tables provides an overview of the various TISSUES applicable to IEC TS 61850-7-7:2018+AMD1:2023 that will be released with this corrigendum. The table indicates the number of the TISSUE, the title, and an indication if the code component is impacted. The indication for the code component is in the column “CC” as follows:

- L: the light version and the full version are impacted
- F: only the full version is impacted; this is typically a change only in the description of elements

Nr	Title	CC
1930	New PAS publication process is not supported by NSD	L

c) Published versions of the standard and related namespace names

The table below provides a reference between all published editions, amendments or corrigenda of this document and the full name of the namespace.

Edition	Publication date	Webstore	Namespace
Edition 1.0	2018-03	IEC 61850-7-7:2018	IEC 61850-7-7:2017A
Edition 1.1	2023-01	IEC 61850-7-7:2022	IEC 61850-7-7:2017B5
Edition 1.1/COR1	2024-10	IEC 61850-7-7:2022	IEC 61850-7-7:2017B6

d) Identification of the code component

The namespace associated with this document is an XML schema (XSD) defining the structure of NSD files describing IEC 61850 data models namespaces. The parameters which identify the namespace are provided in the table below:

Attributes of the IEC TS 61850-7-7 XML namespace

Attribute	Content
Namespace nameplate	
Namespace Identifier (xmlns)	http://www.iec.ch/61850/2016/NSD
Version	2017
Revision	B
Release	6
XSD version header attribute	2017B6
Recommended reference name	eIEC61850-7-7
Code Component Name	IEC_61850-7-7.2017.NSD.2017B6.full

Replace the existing code components file *IEC_TS_61850-7-7.2017.NSD.2017B5.full.zip* by the following new code components file: *IEC_TS_61850-7-7.2017.NSD.2017B6.full.zip*.

**Table 1 – Reference between published versions
of the standard and related namespace name**

Add, at the end of Table 1, the following new row:

Edition 1.1/COR1	2024-10	IEC 61850-7-7:2022	IEC 61850-7-7:2017B6
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Table 2 – Attributes of xsd namespace

Replace existing Table 2 with the following new table:

Attribute	Content
Namespace nameplate	
Namespace Identifier (xmlns)	http://www.iec.ch/61850/2016/NSD
Version	2017
Revision	B
Release	6
XSD version header attribute	2017B6
Recommended reference name	eIEC61850-7-7
Code Component Name	IEC_61850-7-.2017.NSD.2017B6.full

1.3.2 XML schema namespace code component

Replace the existing text of the second paragraph of Subclause 1.3.2 with the following new text:

The full version is freely accessible on the IEC website for download at:

https://assets.iec.ch/public/tc57/IEC_61850-7-7.2017.NSD.2017B6.full.zip

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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

FOREWORD

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This consolidated version of the official IEC Standard and its amendment has been prepared for user convenience.

IEC TS 61850-7-7 edition 1.1 contains the first edition (2018-03) [documents 57/1925/DTS and 57/1956/RVDTS], and its amendment 1 (2023-01) [documents 57/2471/DTS and 57/2523/RVDTS] and its corrigendum 1 (2025-05).

In this Redline version, a vertical line in the margin shows where the technical content is modified by amendment 1. Additions are in green text, deletions are in strikethrough red text. A separate Final version with all changes accepted is available in this publication.

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- the subject is still under technical development or where, for any other reason, there is the future but no immediate possibility of an agreement on an International Standard.

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.

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 the base publication and its amendment will remain unchanged until the stability date indicated on the IEC web site under webstore.iec.ch in the data related to the specific publication. At this date, the publication will be

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

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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.

The description of namespace concept and relation between each kind of namespace is defined by IEC 61850-7-1 and process for creation of a namespace (domain, product, ...) is defined by IEC 61850-1-2.

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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~~ document 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, and IEC 61850-1-2 will indicate the requirements to produce NSD files for other purpose than core datamodel.

1.2 ~~Namespace name and version~~ Published versions

~~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.~~