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CONTENTS

FOREWORD 4
1 Scope 6
2 Normative References 7
3 Terms and definitions 8
4 Key principles reminder 10
4.1 General 10
4.2 Namespace introduction 10
4.2.1 General 10
4.2.2 Basic namespaces 11
5 Main cases of extensions of IEC 61850 12
5.1 Namespace extensions and associated rules 12
5.1.1 General 12
5.1.2 Domain namespaces 12
5.1.3 Product standard namespaces 12
5.1.4 Transitional namespaces 13
5.1.5 Private namespaces 13
5.2 IEC 61850 profiles for domains 13
5.3 Mapping of IEC 61850 data model to other protocols at CDC level 13
6 What to extend in relation with IEC 61850? 14
6.1 List of basic requirements 14
6.1.1 General 14
6.1.2 IEC 61850 structure reminder 14
6.1.3 Main deliverables and their positioning in IEC 61850 documentation structure 15
6.1.4 Intellectual property requirements 16
6.1.5 Editorial Recommendations 17
6.1.6 Data Model extension requirements 19
6.1.7 XML namespace extensions 28
6.1.8 Cyber-security requirements 29
6.1.9 Conformance Testing requirements 29
6.1.10 Maintenance of standard extension document 29
6.1.11 Backward compatibility treatment 34
6.2 List of IEC 61850 flexibilities 37
6.2.1 General 37
6.2.2 Data Model flexibilities 37
6.2.3 Communication services 39
6.2.4 SCL language 39
6.3 Allowed flexibilities per extension cases 41
7 The main activities for extending IEC 61850 43
7.1 Typical activities applying to all types of extension 43
7.1.1 General 43
7.1.2 List the main use cases for extending IEC 61850 -> deliverable P1 44
7.1.3 Ensure knowledge of the existing IEC 61850 content 44
7.1.4 Identify possible IEC 61850 gaps 44
7.1.5 Build-up IEC 61850 extensions 44
7.1.6 Maintain IEC 61850 extensions 44

7.2 Define a standard namespace (product, domain or transitional) – if needed -> deliverable P2a or P2b 44
7.2.1 General 44
7.2.2 Get a model manager nominated 45
7.2.3 Get the proposed model reviewed 45
7.2.4 Publish a namespace extension 45
7.3 Define "standard" profile(s) – if needed –> deliverable P3 (and P4) 46
7.3.1 General 46
7.3.2 Define interoperability objectives 46
7.3.3 Publish profile(s) -> deliverable P3 46
7.3.4 Publish profile(s) testing -> deliverable P4 46
Annex A (informative) IEC 61850 roadmap (example) 47
Bibliography 49

Figure 1 – IEC 61850 documentation structure 14
Figure 2 – Extensions deliverables positioned in the IEC 61850 document structure 15
Figure 3 – Handling versioning information for official IEC publication 31
Figure 4 – Handling versioning information during the internal IEC writing process 32
Figure 5 – Example of tissue fix sequence and its impact on versioning information 33
Figure 6 – Activities related to IEC 61850 extensions 43
Figure A.1 – Example of IEC 61850 roadmap 48

Table 1 – Typical deliverables attached to IEC 61850 extensions 16
Table 10 – Reference between published versions of the standard and related namespace name 17
Table 2 – Normative information related to a namespace (for example for IEC61850-7-499:2009B release 5) 20
Table 3 – Informative information related to a namespace (for example for IEC61850-7-420:2009A release 5) 21
Table 4 – Classification of Abbreviations in regards of their contribution to form a DO Name (examples) 25
Table 5 – Semantic description frame and requirements 27
Table 11 – Attributes of an xsd namespace (example) 29
Table 6 – Typical compatibility assessment 34
Table 7 – Typical compatibility assessment and associated compatibility rules – detailed discussion 35
Table 8 – Typical compatibility table 36
Table 9 – Allowed flexibilities per extension cases 41

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COMMUNICATION NETWORKS AND SYSTEMS FOR POWER UTILITY AUTOMATION –

Part 1-2: Guidelines on extending IEC 61850

FOREWORD

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

IEC TS 61850-1-2 edition 1.1 contains the first edition (2020-06) [documents 57/2084/DTS and 57/2145/RVDTS] and its amendment 1 (2022-07) [documents 57/2370/DTS and 57/2408/RVDTS].

IEC TS 61850-1-2 has been prepared by IEC technical committee TC 57: Power systems management and associated information exchange. It is a Technical Specification.

The language used for the development of this Technical Specification is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

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

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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COMMUNICATION NETWORKS AND SYSTEMS FOR POWER UTILITY AUTOMATION –

Part 1-2: Guidelines on extending IEC 61850

1 Scope

This part of IEC 61850, which is a technical specification, is intended for any users but primarily for standardization bodies that are considering using IEC 61850 as a base standard within the scope of their work and are willing to extend it as allowed by the IEC 61850 standards. This document identifies the required steps and high-level requirements in achieving such extensions of IEC 61850 and provides guidelines for the individual steps.

Within that scope, this document addresses the following cases:

- The management of product-level standards for products that have an interface based on IEC 61850
- The management of domain-level standards based on IEC 61850
- The management of transitional standards based on IEC 61850
- The management of private namespaces based on IEC 61850
- The development of standards offering the mapping of IEC 61850 data model at CDC level
- The development and management of IEC 61850 profiles for domains (underlying the role of IEC TR 62361-103 and IEC TR 61850-7-6)

This document includes both technical and process aspects:

On the technical side, this document:

- Highlights the main basic requirements (mostly referring to the appropriate parts of the series which host the requirements or recommendations)
- Lists all possible flexibilities offered by the standards
- Defines which flexibilities are allowed/possible per type of extension cases

On the process side, the document covers:

- The initial analysis of how the existing IEC 61850 object models and/or communication services may be applied and what allowed extensions may be required for utilizing them in new or specific domains (including private ones). The results of that step are expected to be documented
- The extension of the IEC 61850 object models for new domains. The typical associated work is to identify existing logical nodes which can be reused "as is", to determine if existing logical nodes can be extended, or to define new logical nodes
- The purpose and process to use transitional namespaces, which are expected to be merged eventually into an existing standard namespace
- The management of standard namespaces
- The development of private namespaces

2 Normative References

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 61400-25 (all parts), *Wind energy generation systems – Part 25-1: Communications for monitoring and control of wind power plants – Overall description of principles and models*

IEC 61850-8 (all parts), *Communication networks and systems for power utility automation*

IEC TR 61850-1, *Communication networks and systems for power utility automation – Part 1: Introduction and overview*

IEC TS 61850-2, *Communication networks and systems for power utility automation – Part 2: Glossary*

IEC 61850-5, *Communication networks and systems for power utility automation – Part 5: Communication requirements for functions and device models*

IEC 61850-6, *Communication networks and systems for power utility automation – Part 6: Configuration description language for communication in electrical substations related to IEDs*

IEC 61850-7-1, *Communication networks and systems for power utility automation – Part 7-1: Basic communication structure – Principles and models*

IEC 61850-7-2, *Communication networks and systems for power utility automation – Part 7-2: Basic information and communication structure – Abstract communication service interface (ACSI)*

IEC 61850-7-3, *Communication networks and systems for power utility automation – Part 7-3: Basic communication structure – Common data classes*

IEC 61850-7-4:2010, *Communication networks and systems for power utility automation – Part 7-4: Basic communication structure – Compatible logical node classes and data object classes*

IEC TR 61850-7-6, *Communication networks and systems for power utility automation – Part 7-6: Guideline for definition of Basic Application Profiles (BAPs) using IEC 61850*

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

IEC 61850-8-1, *Communication networks and systems for power utility automation – Part 8-1: Specific communication service mapping (SCSM) – Mappings to MMS (ISO 9506-1 and ISO 9506-2) and to ISO/IEC 8802-3*

IEC TS 61850-80-1, *Communication networks and systems for power utility automation – Part 80-1: Guideline to exchanging information from a CDC-based data model using IEC 60870-5-101 or IEC 60870-5-104*

IEC TS 61850-80-4, *Communication networks and systems for power utility automation – Part 80-4: Translation from the COSEM object model (IEC 62056) to the IEC 61850 data model*

IEC 61850-9 (all parts), *Communication networks and systems for power utility automation*

IEC 62271-3:2015, *High-voltage switchgear and controlgear – Part 3: Digital interfaces based on IEC 61850*

IEC 61869-9, *Instrument transformers – Part 9: Digital interface for instrument transformers*

IEC TR 62361-103, *Power systems management and associated information exchange – Interoperability in the long term – Part 103: Standard profiling*

IEC 62351 (all parts), *Power systems management and associated information exchange – Data and communications security*

IEEE 1815.1, *Standard for Exchanging Information between networks Implementing IEC 61850 and IEEE Std 1815™ (Distributed Network Protocol – DNP3)*

"Guidelines for code components" *document accessible at: https://www.iec.ch/tc57/supportdocuments*