ICS 33.200 SLOVENSKÁ TECHNICKÁ NORMA September 2020

STN	**Komunikačné siete a systémy automatizácie elektrických staníc Časť 8-1: Mapovanie špecifickej komunikačnej služby (SCSM) Mapovanie podľa MMS (ISO 9506-1 a ISO 9506-2) a podľa ISO/IEC 8802-3 Zmena A1**	**STN EN 61850-8-1/A1** 33 4850

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 08/20

STN EN 61850-8-1 z februára 2012 sa bez tejto zmeny A1 môže používať do 27. 3. 2023.

Obsahuje: EN 61850-8-1:2011/A1:2020, IEC 61850-8-1:2011/AMD1:2020

131481

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 61850-8-1:2011/A1

April 2020

ICS 33.200

English Version

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 61850-8-1:2011/A1:2020)

Réseaux et systèmes de communication pour l'automatisation des systèmes électriques - Partie 8-1: Mise en correspondance des services de communication spécifiques (SCSM) - Mise en correspondance pour MMS (ISO 9506-1 et ISO 9506-2) et pour l'ISO/IEC 8802-3 (IEC 61850-8-1:2011/A1:2020)

Kommunikationsnetze und -systeme für die Automatisierung der elektrischen Energieversorgung - Teil 8-1: Spezifische Abbildung von Kommunikationsdiensten (SCSM) - Abbildungen auf MMS (nach ISO 9506-1 und ISO 9506-2) und ISO/IEC 8802-3 (IEC 61850-8-1:2011/A1:2020)

This amendment A1 modifies the European Standard EN 61850-8-1:2011; it was approved by CENELEC on 2020-03-27. CENELEC members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this amendment the status of a national standard without any alteration.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CENELEC member.

This amendment exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. EN 61850-8-1:2011/A1:2020 E

EN 61850-8-1:2011/A1:2020 (E)

European foreword

The text of document 57/2150/FDIS, future IEC 61850-8-1/A1, prepared by IEC/TC 57 "Power systems management and associated information exchange" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61850-8-1:2011/A1:2020.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2020-12-27
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2023-03-27

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CENELEC shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association.

Endorsement notice

The text of the International Standard IEC 61850-8-1:2011/A1:2020 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

IEC 62351-4:2018	NOTE	Harmonized as EN IEC 62351-4:2018 (not modified)

Annex ZA
(normative)

Normative references to international publications with their corresponding European publications

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.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

Delete the following references:

Publication	Year	Title	EN/HD	Year
IEC 60874-10-1	1997	Connectors for optical fibres and cables - Part 10-1: Detail specification for fibre optic connector type BFOC/2,5 terminated to multimode fibre type A1	-	-
IEC 60874-10-2	1997	Connectors for optical fibres and cables - Part 10-2: Detail specification for fibre optic connector type BFOC/2,5 terminated to single-mode fibre type B1	-	-
IEC 60874-10-3	1997	Connectors for optical fibres and cables - Part 10-3: Detail specification for fibre optic adaptor type BFOC/2,5 for single and multimode fibre	-	-
IEC 61850-9-1	2003	Communication networks and systems in substations - Part 9-1: Specific Communication Service Mapping (SCSM) - Sampled values over serial unidirectional multidrop point to point link	-	-
ISO/IEC 8602	1995	Information technology - Protocol for providing the OSI connectionless-mode transport service	-	-
ISO/IEC 8649	1996	Information technology - Open Systems Interconnection - Service definition for the association control service element	-	-
ISO/IEC 8650-1	1996	Information technology - Open Systems Interconnection - Connection-oriented protocol for the association control service element: Protocol specification	-	-

EN 61850-8-1:2011/A1:2020 (E)

ISO/IEC 8877	1992	Information technology; telecommunications and information exchange between systems; interface connector and contact assignments for ISDN basic access interface located at reference points S and T	-	-
ISO/IEC ISP 10608-1	1992	Information technology - International Standardized Profile TAnnnn - Connection-mode Transport Service over Connectionless-mode Network Service - Part 1: General overview and subnetwork-independent requirements	-	-
ISO/IEC ISP 10608-2	1992	Information technology - International Standardized Profile TAnnnn - Connection-mode Transport Service over Connectionless-mode Network Service - Part 2: TA51 profile including subnetwork-dependent requirements for CSMA/CD Local Area Networks (LANs)	-	-
RFC 4330	-	Simple Network Time Protocol (SNTP) Version 4 for IPv4, IPv6 and OSI	-	-

Replace the following existing references with the following new references:

Publication	Year	Title	EN/HD	Year
IEC 61850-6	-	Communication networks and systems for power utility automation - Part 6: Configuration description language for communication in electrical substations related to IEDs	EN 61850-6	-
IEC 61850-7-1	-	Communication networks and systems for power utility automation - Part 7-1: Basic communication structure - Principles and models	EN 61850-7-1	-
IEC 61850-7-2	2010	Communication networks and systems for power utility automation - Part 7-2: Basic communication structure - Abstract communication service interface (ACSI)	EN 61850-7-2	2010
+A1	2019		+A1	2020
IEC 61850-7-3	-	Communication networks and systems for power utility automation - Part 7-3: Basic communication structure - Common data classes	EN 61850-7-3	-
IEC 61850-7-4	-	Communication networks and systems for power utility automation - Part 7-4: Basic communication structure - Compatible logical node classes and data object classes	EN 61850-7-4	-

IEC 61850-9-2	-	Communication networks and systems for power utility automation - Part 9-2: Specific communication service mapping (SCSM) - Sampled values over ISO/IEC 8802-3	EN 61850-9-2	-
IEC 62351-6	2019[1]	Power systems management and associated information exchange - Data and communications security - Part 6: Security for IEC 61850	EN IEC 62351-6	–[2]
IEC 62439-3	2016	Industrial communication networks - High availability automation networks - Part 3: Parallel Redundancy Protocol (PRP) and High-availability Seamless Redundancy (HSR)	EN IEC 62439-3	2018
ISO/IEC/IEEE 8802-3	2014	Standard for Ethernet	-	-
ISO/IEC 8824-1	2015	Information technology - Abstract Syntax Notation One (ASN.1): Specification of basic notation	-	-
ISO/IEC 8825-1	2015	Information technology - ASN.1 encoding rules: Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER)	-	-
ISO/IEC ISP 11188-1	1995	Information technology - International Standardized Profile - Common upper layer requirements - Part 1: Basic connection-oriented requirements	-	-
ISO/IEC ISP 11188-3	1996	Information technology - International Standardized Profile - Common upper layer requirements - Part 3: Minimal OSI upper layer facilities	-	-
IEEE C37.111	1999	IEEE Standard for Common Format for Transient Data Exchange (COMTRADE) for Power Systems	-	-

Add the following references:

Publication	Year	Title	EN/HD	Year
IEC/IEEE 61850-9-3	-	Communication networks and systems for power utility automation - Part 9-3: Precision time protocol profile for power utility automation	-	-

[1] To be published. Stage at the time of publication: IEC/PRVC 62351-6:2020.

[2] To be published. Stage at the time of publication: prEN IEC 62351-6:2018.

IEC/TR 61850-90-4	-	Communication networks and systems for power utility automation - Part 90-4: Network engineering guidelines	-	-
IEC 62351-9	-	Power systems management and associated information exchange - Data and communications security - Part 9: Cyber security key management for power system equipment	EN 62351-9	-
IEC/TR 62357-200	2015-08	Power systems management and associated information exchange - Part 200: Guidelines for migration from Internet Protocol version 4 (IPv4) to Internet Protocol version 6 (IPv6)	-	-
IEC 60255-24 / IEEE Std C37.111	2013 2013	Measuring relays and protection equipment - Part 24: Common format for transient data exchange (COMTRADE) for power systems	-	-
ITU-T X.217	1996	Information technology - Open Systems Interconnection - Service definition for the Associated Control Service Element	-	-
ITU-T X.227	1996	Information technology - Open Systems Interconnection - Connection-oriented protocol for the Association Control Service Element: Protocol specification	-	-
ISO 4217	2015	Codes for the representation of currencies	-	-
RFC 919	-	Broadcasting Internet Datagrams	-	-
RFC 1035	-	Domain Names - Implementation and specification	-	-
RFC 1240	-	OSI Connectionless Transport Services on top of UDP Version:1	-	-
RFC 2460	-	Internet Protocol, Version 6 (IPv6) Specification	-	-
RFC 2474	-	Definition of the Differentiated Services Field (DS Field) in the IPv4 and IPv6 Headers	-	-
RFC 2991	-	Multipath Issues in Unicast and Multicast Next-Hop Selection	-	-
RFC 3168	-	The Addition of Explicit Congestion Notification (ECN) to IP	-	-
RFC 3246	-	An Expedited Forwarding PHB (Per-Hop Behavior)	-	-
RFC 3629	-	UTF-8, a transformation format of ISO 1646	-	-
RFC 4291	-	IP Version 6 Addressing Architecture	-	-
RFC 4604	-	Internet Group Management Protocol, Version 3 (IGMPv3)	-	-

RFC 5771	-	IANA Guidelines for IPv4 Multicast Address Assignments	-	-
RFC 5905	-	Network Time Protocol Version 4: Protocol and Algorithms Specification	-	-
RFC 6864	-	Updated Specification of the IPv4 ID Field	-	-

IEC 61850-8-1

Edition 2.0 2020-02

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

AMENDMENT 1
AMENDEMENT 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

Réseaux et systèmes de communication pour l'automatisation des systèmes électriques – Partie 8-1: Mise en correspondance des services de communication spécifiques (SCSM) – Mises en correspondance pour MMS (ISO 9506-1 et ISO 9506-2) et pour l'ISO/IEC 8802-3

IEC 61850-8-1:2011-06/AMD1:2020-02(en-fr)

About the IEC
The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications
The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigendum or an amendment might have been published.

IEC publications search - webstore.iec.ch/advsearchform
The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,…). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished
Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and once a month by email.

IEC Customer Service Centre - webstore.iec.ch/csc
If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: sales@iec.ch.

Electropedia - www.electropedia.org
The world's leading online dictionary on electrotechnology, containing more than 22 000 terminological entries in English and French, with equivalent terms in 16 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary
67 000 electrotechnical terminology entries in English and French extracted from the Terms and definitions clause of IEC publications issued between 2002 and 2015. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

A propos de l'IEC
La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC
Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Recherche de publications IEC - webstore.iec.ch/advsearchform
La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études,…). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished
Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et une fois par mois par email.

Service Clients - webstore.iec.ch/csc
Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: sales@iec.ch.

Electropedia - www.electropedia.org
Le premier dictionnaire d'électrotechnologie en ligne au monde, avec plus de 22 000 articles terminologiques en anglais et en français, ainsi que les termes équivalents dans 16 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

Glossaire IEC - std.iec.ch/glossary
67 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et définitions des publications IEC parues entre 2002 et 2015. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

IEC 61850-8-1

Edition 2.0 2020-02

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

AMENDMENT 1
AMENDEMENT 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

Réseaux et systèmes de communication pour l'automatisation des systèmes électriques – Partie 8-1: Mise en correspondance des services de communication spécifiques (SCSM) – Mises en correspondance pour MMS (ISO 9506-1 et ISO 9506-2) et pour l'ISO/IEC 8802-3

INTERNATIONAL ELECTROTECHNICAL COMMISSION

COMMISSION ELECTROTECHNIQUE INTERNATIONALE

ICS 33.200 ISBN 978-2-8322-7719-5

FOREWORD

This amendment has been prepared by IEC technical committee 57: Power systems management and associated information exchange.

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

– the update of the normative references
– the extension of the transport layer with ipV6
– the extension of the time synchronization A-Profile with 1588 profiled with IEC/IEEE 61850-9-3
– the extension of GOOSE and SMV A and T-Profiles to support the routable GOOSE and SMV introduced by IEC TR 61850-90-5
– the optional support of the new COMTRADE file format
– the removal of OSI-T profile support for client / server communication
– the update of the reference for PRP / HSR causes reference to PRP1 to be change to PRP
– the deprecation of the unicast sample value model
– the deprecation of the GSSE model
– the annex regarding compatibility of different revision of the standard
– provision of clarifications and corrections to the second edition of IEC 61850-8-1, based on the technical issues (tissues) 753, 770, 784, 817, 821, 827, 834, 851, 854, 935, 942, 951, 1036, 1040, 1041, 1042, 1043, 1047, 1058, 1063, 1064, 1068, 1135, 1155, 1164, 1171, 1174, 1178, 1181, 1192, 1274, 1285, 1287, 1289, 1290, 1299, 1300, 1309, 1324, 1336, 1345, 1361, 1369, 1376, 1422, 1440, 1441, 1442, 1443, 1453, 1454, 1462, 1495, 1499, 1500, 1612, 1626, 1629, 1645, 1658.

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

FDIS	Report on voting
57/2150/FDIS	57/2168/RVD

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

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

Contrary to usual IEC practice, for ease of use in this case, all tables and figures (including those which have been added since Edition 2) have been numbered consecutively in the amendment and the consolidated version.

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.

The purchase of this IEC standard carries a copyright license for the purchaser to sell software containing Code Components from this standard directly to end users and to end users via distributors, subject to IEC software licensing conditions, which can be found at: http://www.iec.ch/CCv1.

This publication contains attached.nsd files which compose the Code Component of this part. These files are intended to be used as a complement and do not form an integral part of this standard.

The committee has decided that the contents of this amendment and the base 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

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

IMPORTANT – The 'colour inside' logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this document using a colour printer.

INTRODUCTION

This part of IEC 61850 is part of a set of specifications which details layered utility communication architecture.

This part of IEC 61850 is intended to provide inter-device operation of a variety of devices to achieve interoperability providing detailed information on how to create and exchange concrete communication messages that implement abstract services and models specified in IEC 61850-7-4, IEC 61850-7-3, and IEC 61850-7-2.

The mapping allows for data exchange over ISO/IEC 8802-3 Local Area Networks between all kinds of utility devices. Some of the protocol stacks used within this document are routable. Therefore, the actual communications path may not be restricted to the LAN. Data exchange consists of real-time monitoring and control data, including measured values, to name just a few.

NOTE This part of IEC 61850 does not provide tutorial material. It is recommended that IEC 61850-5 and IEC 61850-7-1 be read in conjunction with IEC 61850-7-2.

New tables have been introduced in the consolidated edition (2.1) of this document. The following cross reference table delivers the correspondancy.

IEC 61850-8-1:2011	**IEC 61850-8-1:2011+AMD1:2019**	
Table number	**Table number**	**Table Name**
Table 1	Table 1	MMS objects and services in use within this SCSM
Table 2	Table 2	Services requiring client/server Communication Profile
Table 3	Table 3	Service and protocols for client/server communication A-Profile
Table 4	Table 4	Service and protocols for client/server TCP/IP T-Profile
Table 5	*deprecated communication profile*	Service and protocols for client/server OSI T-Profile
Table 6	Table 5	Services requiring GSE Management and GOOSE communication profile
Table 7	Table 6	Service and protocols for GSE Management and GOOSE communication A-Profile
	Table 7	RFC 1240 A-Profile Options
Table 8	Table 8	GOOSE/GSE T-Profile
	Table 9	UDP Field Implementation Requirements
Table 9	Table 10	Time sync A-Profile
Table 10	Table 11	Time sync T-Profile
	Table 12	Services requiring sampled value Management and sampled value communication profile
	Table 13	Service and protocols for Sampled value Management and Multicast sampled value communication A-Profile
	Table 14	MSV T-Profile
Table 11	Table 15	Mapping of ACSI BasicTypes
Table 12	Table 16	PhyComAddr structure for Layer 2 communication
Table 13	Table 17	Associate ACSI service error mappings
Table 14	Table 18	Release service error mappings
Table 15	Table 19	GetNameList conflicting IEC 61850 objectClass and objectScope
Table 16	Table 20	GetNameList service error mappings
Table 17	Table 21	Read of NamedVariableList object error mappings
Table 18	Table 22	Write of NamedVariableList object error mappings
Table 19	Table 23	DefineNamedVariableList service error mappings
Table 20	Table 24	GetNamedVariableListAttributes service error mappings
Table 21	Table 25	DeleteNamedVariableList service error mappings
Table 22	Table 26	Read service error mappings
Table 23	Table 27	Write service error mappings
Table 24	Table 28	GetVariableAccessAttributes service error mappings
Table 25	Table 29	ServiceError mappings for Log services
Table 26	Table 30	FileDirectory service error mappings
Table 27	Table 31	Mappings of ACSI ServiceError to ObtainFile ServiceError
Table 28	Table 32	Mappings of ACSI ServiceError to FileOpen ServiceError
Table 29	Table 33	Mappings of ACSI ServiceError to FileRead ServiceError
Table 30	Table 34	Mappings of ACSI ServiceError to FileClose ServiceError
Table 31	Table 35	Mappings of ACSI ServiceError to FileDelete ServiceError
Table 32	Table 36	Encoding of IEC 61850-7-2 TimeQuality
	Table 37	Encoding of the TriggerConditions

IEC 61850-8-1:2011	IEC 61850-8-1:2011+AMD1:2019	
Table number	**Table number**	**Table Name**
	Table 38	Encoding of the ReasonForInclusionInReport
	Table 39	Encoding of the ReasonForInclusionInLog
	Table 40	PhyComAddr for UPD/IP communication
	Table 41	Encoding of the RCBReportOptions
	Table 42	Encoding of the SVMessageOptions
	Table 43	Encoding of the CheckConditions
Table 33	Table 44	Encoding of IEC 61850-7-3 quality
Table 34	Table 45	Mapping of ACSI GetServerDirectory(LOGICAL DEVICE) to MMS
Table 35	Table 46	Mapping of ACSI GetServerDirectory(FILE) to MMS
Table 36	Table 47	Association model versus communication profiles
Table 37	Table 48	Mapping of ACSI Associate service to MMS
Table 38	Table 49	Mapping of ACSI Release service to MMS
Table 39	Table 50	GetNameList classes for GetLogicalNodeDirectory service
Table 40	Table 51	Mapping of ACSI GetLogicalNodeDirectory(DataObject) service to MMS
Table 41	Table 52	Mapping of ACSI GetAllDataValues service to MMS
Table 42	Table 53	Mapping of GetDataValues service parameters
Table 43	Table 54	Mapping of SetDataValues service parameters
Table 44	Table 55	Mapping of GetDataDirectory service parameters
Table 45	Table 56	Mapping of GetDataSetValues service parameters
Table 46	Table 57	Mapping of SetDataSetValues service parameters
Table 47	Table 58	Mapping of CreateDataSet service parameters
Table 48	Table 59	Mapping of DeleteDataSet service parameters
Table 49	Table 60	Mapping of GetDataSetDirectory service parameters
Table 50	Table 61	Mapping of CDC CST to MMS type definition
Table 51	Table 62	Mapping of ACSI ServiceType values
Table 52	Table 63	Mapping of ACSI ServiceError values
Table 53	Table 64	Mapping of CDC BTS to MMS type definition
Table 54	Table 65	Mapping of CDC UTS to MMS type definition
Table 55	Table 66	Mapping of CDC LTS to MMS type definition
Table 56	Table 67	Mapping of CDC GTS to MMS type definition
Table 57	Table 68	Mapping of CDC STS to MMS type definition
Table 58	Table 69	Mapping of CDC MTS to MMS type definition
Table 59	Table 70	Mapping of CDC NTS to MMS type definition
Table 60	Table 71	Mapping of SGCB to MMS type definition
Table 61	*move to Table 41*	Mapping of BRCB to MMS type definition
Table 62	Table 72	Mapping of OptFlds within Bit-string
Table 63	Table 73	Mapping of URCB to MMS type definition
Table 64	Table 74	Order of AccessResults for variableListName report
Table 65	Table 75	Definition of an MMS log control block
Table 66	Table 76	Mapping of values for LogEna
Table 67	Table 77	Mapping of ACSI LogEntries
Table 68	Table 78	General mappings of ACSI log model services
Table 69	Table 79	Mapping of QueryLogByTime request parameters

IEC 61850-8-1:2011	IEC 61850-8-1:2011+AMD1:2019	
Table number	**Table number**	**Table Name**
Table 70	Table 80	Mapping of response parameters
Table 71	Table 81	Mapping of QueryLogAfter request parameters
Table 72	Table 82	Log conformance requirements
Table 73	*move to table 16*	MMS TypeDescription definition for GoCB MMS structure
Table 74	Table 83	DstAddress structure
Table 75	Table 84	Mapping of GetGoReference service
Table 76	Table 85	GetGoReference
Table 77	Table 86	Mapping of GetGOOSEElementNumber service
Table 78	Table 87	GetGOOSEElementNumber
Table 79	Table 88	GOOSE service parameter mapping
	Table 89	Mapping of GetMsvReference service
	Table 90	GetMsvReference
	Table 91	Mapping of GetMsvElementNumber service
	Table 92	GetMsvElementNumber
Table 80	Table 93	Controllable service parameters
Table 81	Table 94	Mapping of IEC 61850-7-2 control model to MMS control components
Table 82	Table 95	Mapping of control services
Table 83	Table 96	Select service parameter mapping
Table 84	Table 97	Mapping of the Select service
Table 85	Table 98	SelectWithValue service parameter mapping
Table 86	Table 99	Mapping of the SelectWithValue service
Table 87	Table 100	SelectWithValue, Oper and Cancel AccessResult specification
Table 88	Table 101	Cancel service parameter mapping
Table 89	Table 102	Mapping of the Cancel service
Table 90	Table 103	Operate service parameter mapping
Table 91	Table 104	Mapping of the Operate service
Table 92	Table 105	Mapping of the CommandTermination service
Table 93	Table 106	TimeActivatedOperate service parameter mapping
Table 94	Table 107	Mapping of the TimeActivatedOperate service
Table 95	Table 108	Mapping of the TimeActivatedOperate_Termination service
Table 96	Table 109	Definition of LastApplError variable structure
Table 97	Table 110	Mapping of ACSI AddCause values
	Table 111	Mapping of CDC CTS to MMS type definition
Table 98	Table 112	Mapping of ACSI file class to MMS file object
Table 99	Table 113	Reserved file suffixes
Table 100	Table 114	Mapping of ACSI GetFile service parameters
Table 101	Table 115	Mapping of ACSI GetFile service
Table 102	Table 116	Mappings of GetFile ServiceError to MMS ServiceError
Table 103	Table 117	Mapping of ACSI SetFile parameters
Table 104	Table 118	Mapping of ACSI DeleteFile service
Table 105	Table 119	Mapping of ACSI GetFileAttributeValues parameters
Table 106	Table 120	Mapping of ACSI ListOfDirectoryEntry

IEC 61850-8-1:2011	IEC 61850-8-1:2011+AMD1:2019	
Table number	**Table number**	**Table Name**
Table 107	Table 121	PICS for A-Profile support
	Table 122	PICS for Time Sync A-Profile support
Table 108	Table 123	PICS for T-Profile support
Table 109	Table 124	MMS InitiateRequest general parameters
Table 110	Table 125	MMS InitiateResponse general parameters
	Table 126	MMS InitiateError conformance statement
Table 111	Table 127	MMS service supported conformance table
Table 112	Table 128	MMS Parameter CBB
Table 113	Table 129	GetNameList conformance statement
	Table 130	GetCapabilityList conformance statement
	Table 131	GetDomainAttributes conformance statement
	Table 132	Status conformance statement
	Table 133	Cancel conformance statement
	Table 134	Identify conformance statement
	Table 135	Environment and general management conformance statement
	Table 136	Conclude conformance statement
	Table 137	AlternateAccess conformance statement
Table 114	Table 138	AlternateAccessSelection conformance statement
	Table 139	VariableSpecification for LDevice/MHAI1.HA.phsAHar(7).cVal.mag.f
	Table 140	VariableSpecification for LDevice/MHAI1.HA.phsAHar(7).cVal.mag.f
	Table 141	Non conformant VariableSpecification I
	Table 142	Non conformant VariableSpecification II
	Table 143	VariableSpecification for LDevice/MHAI1.HA.phsAHar(7) [MX]
	Table 144	VariableSpecification for LDevice/MHAI1.HA.phsAHar(7) [MX]
Table 115	Table 145	VariableAccessSpecification conformance statement
Table 116	Table 146	VariableSpecification conformance statement
Table 117	Table 147	Read conformance statement
Table 118	Table 148	Write conformance statement
Table 119	Table 149	InformationReport conformance statement
Table 120	Table 150	GetVariableAccessAttributes conformance statement
Table 121	Table 151	DefineNamedVariableList conformance statement
Table 122	*no used in this standard*	GetNamedVariableListAttributes conformance statement
Table 123	Table 152	DeleteNamedVariableList conformance statement
Table 124	Table 153	ReadJournal conformance statement
Table 125	Table 154	JournalEntry conformance statement
Table 126	Table 155	InitializeJournal conformance statement
Table 127	Table 156	FileDirectory conformance statement
Table 128	Table 157	FileOpen conformance statement
Table 129	Table 158	FileRead conformance statement
Table 130	Table 159	FileClose conformance statement
Table 131	Table 160	GOOSE conformance statement

IEC 61850-8-1:2011	IEC 61850-8-1:2011+AMD1:2019	
Table number	**Table number**	**Table Name**
	Table 161	Multicast Sampled value conformance statement
Table 132	Table 162	Allowed P-Type definitions for client/server addressing
Table 133	Table 163	Definitions for GSE SCL
	Table 164	Definitions for GSE/SMV over UDP/IP SCL
Table A.1	Table A.1	Encoding allData in Fixed-length GOOSE message – the GOOSE Header
Table A.2	Table A.2	Encoding allData in Fixed-length GOOSE message – the basic data types
Table A.3	Table A.3	Encoding example for Data
Table B.1	Table B.1	Recommended multicast addressing example
Table C.1	Table C.1	Default virtual LAN IDs and priorities
Table C.2	Table C.2	Assigned Ethertype values
Table D.1	Table D.1	SCL conformance degrees
Table D.2	Table D.2	Supported ACSI services for SCL.2
Table E.1	Table E.1	Relationships between timescales
Table E.2	Table E.2	Examples of timescale correspondence
Table H.1	*deprecated communication profile*	
Table H.2	*deprecated communication profile*	
Table H.3	*deprecated communication profile*	
Table H.4	*deprecated communication profile*	
Table H.5	*deprecated communication profile*	
Table H.6	*deprecated communication profile*	
Table H.7	*deprecated communication profile*	
Table H.8	*deprecated communication profile*	
Table H.9	*deprecated communication profile*	
Table H.10	*deprecated communication profile*	
Table H.11	*deprecated communication profile*	
Table H.12	*deprecated communication profile*	
Table H.13	*deprecated communication profile*	
Table H.14	*deprecated communication profile*	
	Table J.1	Example encodings of SPDU Length
	Table J.2	Network Protocol Conformance Implementation Statement (PICS) for IPv4 based T-Profiles

1 Scope

Add the new subtitle "1.1 General" at the beginning of Clause 1.

Add, at the end of Clause 1, the following new subclauses:

1.2 Namespace name and version

This new section is mandatory for any IEC 61850 namespace (as defined by IEC 61850-7-1).

The parameters which identify this new release of this namespace are:

- Namespace Version: 2003
- Namespace Revision: A
- Namespace name: “IEC 61850-8-1:2003”

The table below provides an overview of all published versions of this namespace.

Edition	Publication date	Webstore	Namespace
Edition 1.0	2004-05	IEC 61850-8-1:2004	IEC 61850-8-1:2003
Edition 2.0	2011-06	IEC 61850-8-1:2011	IEC 61850-8-1:2003
Amendment 1 of Edition 2.0	2020-02	IEC 61850-8-1:2011/AMD1:2020	IEC 61850-8-1:2003
Edition 2.1	2020-02	IEC 61850-8-1:2011+AMD1:2020 CSV	IEC 61850-8-1:2003

1.3 Code Component distribution

The Code Component will be available in light and full version:

- Full version will contain definition of the whole types and functional constrains defined in this standard with the documentation associated and access will be restricted to purchaser of this part. The code component package name will be IEC 61850-8-1.NSD.2003A2.full.zip
- Light version will not contain the documentation but will contain the whole definition of the types functional constrains as per full version, and this light version will be freely accessible on the IEC website for download, but the usage remains under the licensing conditions.

The link for downloading the light version of this code component is:

http://www.iec.ch/tc57/supportdocuments/IEC 61850-8-1.NSD.2003A2.light.zip

The Code Components for IEC 61850 data models (like the mapping of the control service parameter in this document) are available as the file format NSD defined by IEC 61850-7-7.

The Code Component included in this IEC standard are potentially subject to maintenance works and user shall select the latest release in the repository located at:
http://www.iec.ch/tc57/supportdocuments

The latest version/release of the document will be found by selecting the file IEC 61850-8-1.NSD.{VersionStateInfo}.light.zip with the filled VersionStateInfo of the highest value.

Each Code Component is a ZIP package containing the electronic representation of the Code Component itself, with a file describing the content of the package (IECManifest.xml).

The IECManifest contains different sections giving information on:

- The copyright notice
- The identification of the code component
- The publication related to the code component
- The list of the electronic files which compose the code component
- An optional list of history files to track changes during the evolution process of the code component

The life cycle of a code component is not restricted to the life cycle of the related publication. The publication life cycle goes through two stages, Version (corresponding to an edition) and Revision (corresponding to an amendment). A third publication stage (Release) allow publication of Code Component without need to publish an amendment.

This is useful when InterOp Tissues need to be fixed. Then a new release of the Code Component will be released, which supersedes the previous release, and distributed through the IEC TC57 web site.

2 Normative references

Remove the following existing normative references:

IEC 60874-10-1:1997

IEC 60874-10-2:1997

IEC 60874-10-3:1997

IEC 61850-9-1:2003

ISO/IEC 8602:1995

ISO/IEC 8649:1996

ISO/IEC 8650-1:1996

ISO/IEC 8877:1992

ISO/IEC ISP 10608-1:1992

ISO/IEC ISP 10608-2:1992

RFC 4330

Replace the following existing normative references by the following new references:

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 – Part 7-1: Principles and models*

IEC 61850-7-2:2010/AMD1:2019, *Communication networks and systems for power utility automation – Part 7-2: Basic 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, *Communication networks and systems for power utility automation – Part 7-4: Basic communication structure – Compatible logical node classes and data object classes*

IEC 61850-9-2, *Communication networks and systems for power utility automation – Part 9-2: Specific Communication Service Mapping (SCSM) – Sampled values over ISO/IEC 8802-3*

IEC 62351-6:2019[1], *Power systems management and associated information exchange – Data and Communication Security – Part 6: Security for IEC 61850*

IEC 62439-3:2016, *Industrial communication networks – High availability automation networks – Part 3: Parallel Redundancy Protocol (PRP) and High availability Seamless Redundancy (HSR)*

ISO/IEC/IEEE 8802-3:2014, *Standard for Ethernet*

ISO/IEC 8824-1:2015 [ITU-T X.680:2015], *Information technology – Abstract Syntax Notation One (ASN. 1): Specification of basic notation*

ISO/IEC 8825-1:2015 [ITU-T X.690:2015], *Information technology – ASN.1 encoding rules: Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER)*

ISO/IEC ISP 11188-1:1995 [ITU-T X.637:1996], *Information technology – International Standardized Profile – Common upper layer requirements – Part 1: Basic connection-oriented requirements*

ISO/IEC ISP 11188-3:1996 [ITU-T X.638:1996], *Information technology – International Standardized Profile – Common upper layer requirements – Part 3: Minimal OSI upper layer facilities*

IEEE C37.111:1999, *IEEE Standard Common Format for Transient Data Exchange (COMTRADE) for Power Systems*

Add the following new normative references:

IEC/IEEE 61850-9-3, *Communication networks and systems for power utility automation – Part 9-3: Precision time protocol – profile for power utility automation*

IEC TR 61850-90-4, *Communication networks and systems for power utility automation – Part 90-4: Network engineering guidelines*

IEC 62351-9, *Power systems management and associated information exchange – Part 9 – Data and communications security key management for power system equipment*

---

1 Under preparation. Stage at the time of publication: IEC/PRVC 62351-6:2020.

IEC TR 62357-200:2015-08, *Power system management and associated information exchange – Part 200: Guidelines for migration from Internet Protocol version 4 (IPv4) to Internet Protocol version 6 (IPv6)*

IEC 60255-24:2013 / IEEE Std C37.111-2013, *Measuring relays and protection equipement – Part 24: Common format for transient data exchange (COMTRADE) for power systems*

ITU-T X.217:1996, *Information technology – Open Systems Interconnection – Service definition for the Associated Control Service Element*

NOTE The corresponding International Standard ISO/IEC 8649:1996 has been withdrawn.

ITU-T X.227:1996, *Information technology – Open Systems Interconnection – Connection-oriented protocol for the Association Control Service Element: Protocol specification*

NOTE The corresponding International Standard ISO/IEC 8650-1:1996 has been withdrawn

ISO 4217:2015, *Code for the representation of currencies*

RFC 919, *Broadcasting Internet Datagrams, IETF, available at http://www.ietf.org*

RFC 1035, *Domain Names – Implementation and specification, IETF, available at http://www.ietf.org*

RFC 1240, *OSI Connectionless Transport Services on top of UDP Version:1, IETF, available at http://www.ietf.org*

RFC 2460, *Internet Protocol, Version 6 (IPv6) Specification, IETF, available at http://www.ietf.org*

RFC 2474, *Definition of Differentiated Services Field (DS Field) in IPv4 and IPv6 Headers, available at http://www.ietf.org*

RFC 2991, *Multipath Issues in Unicast and Multicast Next-Hop Selection, available at http://www.ietf.org*

RFC 3168, *The Addition of Explicit Congestion Notification (ECN) to IP, available at http://www.ietf.org*

RFC 3246, *An Expedited Forwarding PHB (Per-Hop Behavior), available at http://www.ietf.org*

RFC 3629, *UTF-8, a transformation format of ISO 1646 – IETF, available at http://www.ietf.org*

RFC 4291, *IP Version 6 Addressing Architecture, available at http://www.ietf.org*

RFC 4604, *Internet Group Management Protocol, Version 3 (IGMPv3), available at http://www.ietf.org*

RFC 5771, *IANA Guidelines for IPv4 Multicast Address Assignments, available at http://www.ietf.org*

RFC 5905, *Network Time Protocol (NTP) Version 4: Protocol and Algorithms Specification, IETF, available at http://www.ietf.org*

RFC 6864, *Updated Specification of the IPv4 ID Field , IETF, available at http://www.ietf.org*