Draft Standard for Health Informatics—Point-of-Care Medical Device Communication—Nomenclature

Sponsor

IEEE 11073 Standards Committee
of the
IEEE Engineering in Medicine and Biology Society

Approved <Date Approved>

IEEE-SA Standards Board

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Abstract: Within the context of the ISO/IEEE 11073 family of standards for point-of-care (POC) and personal health devices (PHD) medical device communication (MDC), this standard provides the nomenclature that supports both the domain information model and service model components of the standards family, as well as the semantic content exchanged with medical devices. The nomenclature is specialized for patient vital signs information representation and medical device informatics, with major areas including concepts for electrocardiograph (ECG), haemodynamics, respiration, blood gas, urine, fluid-related metrics, and neurology, as well as specialized units of measurement, general device events, alarms, and body sites. The standard defines both the architecture and major components of the nomenclature, along with extensive definitions for each conceptual area.

Keywords: codes, information model, medical device communication, nomenclature, ontology, patient, point-of-care, POC, semantics, service model, terminology, personal health devices, PHD, independent living, IHE PCD-01.

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Introduction

This introduction is not part of IEEE P11073-10101/D3, Draft Standard for Health Informatics—Point-of-Care Medical Device Communication—Nomenclature.

ISO/IEEE 11073 standards enable communication between medical devices and external computer systems. They provide automatic and detailed electronic data capture of patient vital signs information and device operational data. The primary goals are to:

— Provide real-time plug-and-play interoperability for patient-connected medical devices

— Facilitate the efficient exchange of vital signs and medical device data, acquired at the point-of-care, in all health care environments

"Real-time" means that data from multiple devices can be retrieved, time correlated, and displayed or processed in fractions of a second. "Plug-and-play" means that all the clinician has to do is make the connection — the systems automatically detect, configure, and communicate without any other human interaction.

"Efficient exchange of medical device data" means that information that is captured at the point-of-care (e.g., patient vital signs data) can be archived, retrieved, and processed by many different types of applications without extensive software and equipment support, and without needless loss of information. The standards focus on acute care devices, such as patient monitors, ventilators, infusion pumps, ECG devices, etc, and personal health devices and systems. They comprise a family of standards that can be layered together to provide connectivity optimized for the specific devices being interfaced.

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C.2.4 Rates for countable events [RCE] Discriminators ..... **Error! Bookmark not defined.**
C.2.5 Rates for countable neurological events [RCN] Discriminators **Error! Bookmark not defined.**
C.2.6 Body Site Orientation (laterally) [LAT] Discriminators ..... **Error! Bookmark not defined.**
C.2.7 Unit of Measure [UoM] Discriminators ..... **Error! Bookmark not defined.**
C.2.8 Unit of Measure (singular) [UoM1] Discriminator ..... **Error! Bookmark not defined.**
C.2.9 No [1] Discriminator ..... **Error! Bookmark not defined.**
C.2.10 Event [2] Discriminator ..... **Error! Bookmark not defined.**
C.2.11 Location [32] Discriminator ..... **Error! Bookmark not defined.**
C.2.12 Version of External Nomeclature [64] Discriminator ..... **Error! Bookmark not defined.**
C.3 Alphabetical listing of terms, discriminators and numeric codes ..... **Error! Bookmark not defined.**
C.3.1 Object Oriented – Partition 1 ..... **Error! Bookmark not defined.**
C.3.2 Supervisory Control and Data Acquisition (SCADA) – Partition 2 ..... **Error! Bookmark not defined.**
C.3.3 Events and Alerts – Partition 3 ..... **Error! Bookmark not defined.**
C.3.4 Dimensions – Partition 4 ..... **Error! Bookmark not defined.**
C.3.5 Parameter Groups – Partition 6 ..... **Error! Bookmark not defined.**
C.3.6 Body Sites – Partition 7 ..... **Error! Bookmark not defined.**
C.3.7 Communication Infrastructure – Partition 8 ..... **Error! Bookmark not defined.**
C.3.8 PHD Disease Management – Partition 128 ..... **Error! Bookmark not defined.**
C.3.9 PHD Health Fitness – Partition 129 ..... **Error! Bookmark not defined.**
C.3.10 PHD Aging Independently – Partition 130 ..... **Error! Bookmark not defined.**
C.3.11 Return Codes – Partition 255 ..... **Error! Bookmark not defined.**
C.3.12 External Nomenclature – Partition 256 ..... **Error! Bookmark not defined.**
C.3.13 Device Settings – Partition 258 ..... **Error! Bookmark not defined.**
C.3.14 Predicted Values – Partition 514 ..... **Error! Bookmark not defined.**

Annex D (informative) Synonyms ..... **Error! Bookmark not defined.**
D.1.1 Known Synonyms ..... **Error! Bookmark not defined.**

Annex E (informative) Breaths and inflations ..... **Error! Bookmark not defined.**

Annex F (informative) Respiratory, ventilator, and anesthesia reference ID naming conventions ..... **Error! Bookmark not defined.**

Annex G (informative) Anesthesia ventilation and breathing circuits ..... **Error! Bookmark not defined.**
G.1 Bellows driven on expiratory side ..... **Error! Bookmark not defined.**
G.2 Piston driven on inspiratory side ..... **Error! Bookmark not defined.**
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Annex H (informative) Rosetta Terminology Mapping Management System (RTMMS) Database ..... **Error! Bookmark not defined.**

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H.2.1 Rosetta Table ..... **Error! Bookmark not defined.**
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H.4 Term Approval and Management Process ..... **Error! Bookmark not defined.**
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Annex A

(informative)

Term Approval and Management Process

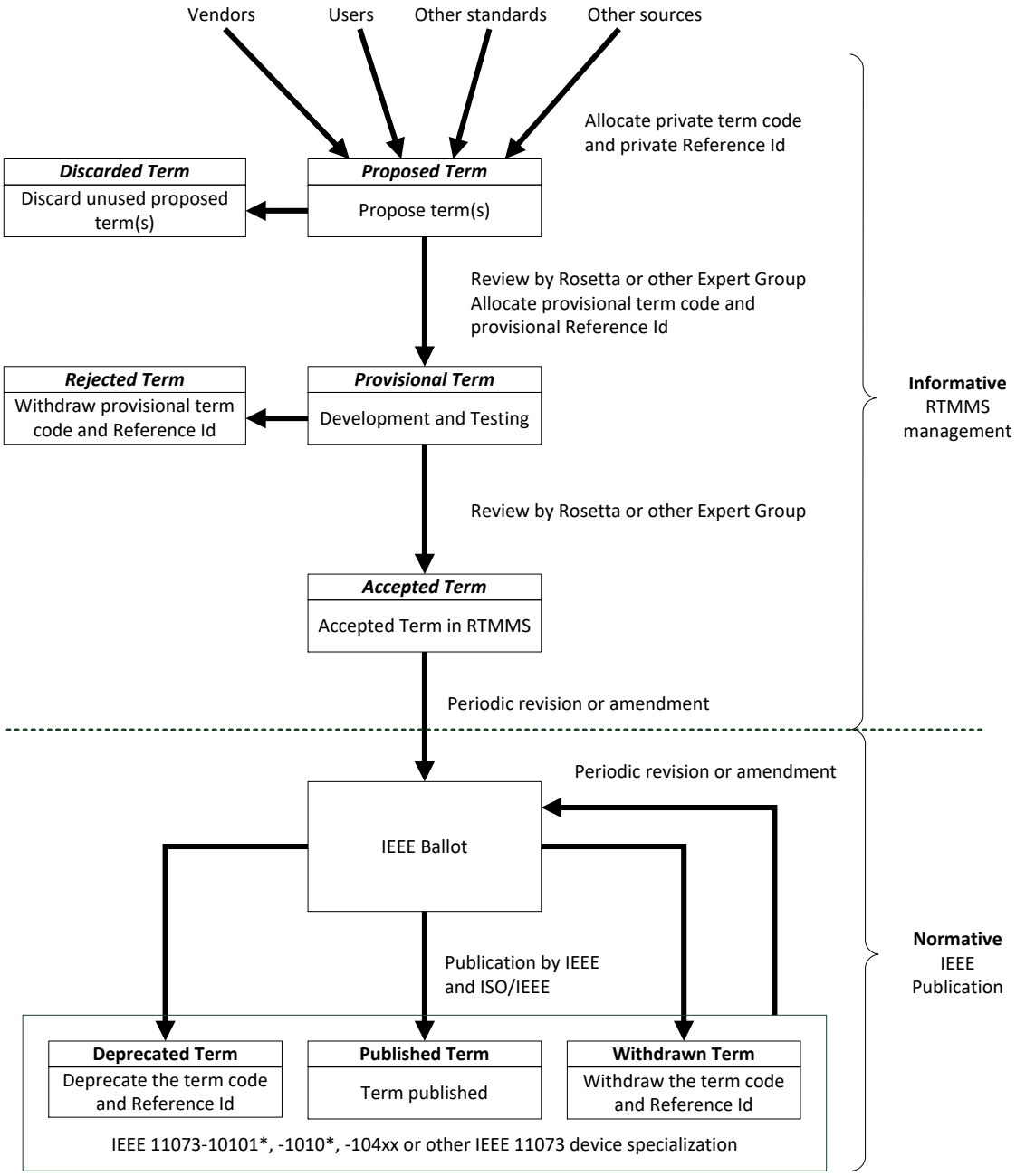

Figure A.1—Term Approval and Management Process

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A.1 Term Approval and Management Process

IEEE 11073 nomenclature terms follow **Error! Reference source not found.**for their approval and management. The management process has two sections: in the first section terms are managed in the Rosetta Terminology Mapping Management System (RTMMS), term status are informative and are shown in italic; in the second section terms are managed by the IEEE standard publication process, term status are normative.

A.1.1 Proposed Term

New terms for consideration may be submitted from numerous sources including vendors, users, and other standards. A thorough search should be made to ensure that no suitable equivalent term exists. The new term and information are entered initially, and designated as a proposed term. At this stage several terms having the same concept may be proposed. Proposed terms may be allocated a term code from the private block of the respective partition and a private Reference Id that starts with MDCX_ in place of MDC_.

A.1.2 Proposed Term Review

Proposed terms are reviewed by the Rosetta or other expert group to select and confirm terms to be given provisional status. Where several terms conveying the same concept have been proposed, a single term is selected. Terms not selected are designated as discarded. Discarded terms may be retained for historic or other purposes.

A.1.3 Provisional Term

A provisional term is allocated a term code and Reference Id. Provisional terms are generally used for development and interoperability testing and ought not to be released in production devices.

A.1.4 Provisional Term Review

Provisional terms are reviewed by the Rosetta or other expert group to confirm terms to be given accepted status. Terms not selected are designated as rejected.

A.1.5 Rejected Term

A rejected term is retained and its Reference Id and term code are marked as used in RTMMS and are not available to be allocated to new terms until such time that codes within a partition are exhausted. Rejected terms ought not to be released in production devices.

A.1.6 Accepted Term

Accepted terms will be included in the first draft of a revision or amendment of IEEE 11073-10101 (or one of the IEEE 11073-1010* family of nomenclature standards) for ballot. Accepted terms may be used in production devices.

A.1.7 IEEE Ballot

Periodically a revision or amendment of IEEE 11073-10101 (or one of the IEEE 11073-1010* family of nomenclature standards, or IEEE 11073-104xx or other IEEE 11073 device specialization) will be produced. The first draft will include accepted terms from RTMMS that are appropriate to the standard.

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Although accepted terms are normally proposed to become published, they could be deprecated or withdrawn.

During balloting, additional new term codes and Reference Ids not originally contemplated as RTMMS accepted terms may be proposed for consideration as published terms.

Only new terms need be included in an amendment of a standard, although existing terms may be proposed for deprecation or withdrawal.

All existing terms of a standard are to be included in a revision of that standard and may be proposed for deprecation or withdrawal.

A.1.8 Published Term

Terms included in a revision or an amendment of IEEE 11073-10101 (or IEEE 11073-1010* family of nomenclature standards, or IEEE 11073-104xx or other IEEE 11073 device specialization) are designated published.

A.1.9 Deprecated Term

Terms may be designated as deprecated for a number of reasons, which may include deprecation of the entire term, the term code (Reference Id retained but a new term code allocated) or the Reference Id (term code retained but a new Reference Id allocated). Deprecated terms, term codes and Reference Ids are to be removed from use in production devices. Deprecated terms, term codes and Reference Ids remain in RTMMS and this standard to support legacy. The deprecated Reference Id and term code ought not to be allocated to new terms.

A.1.10 Withdrawn Term

Terms found to be in error, such as having conflicting codes, are designated withdrawn and ought to be removed from existing devices and applications. Withdrawn terms are retained in RTMMS and this standard to support legacy, but where possible withdrawn terms ought to be replaced. The Reference Id and term code of withdrawn terms ought not to be used.

A.2 Rosetta Terminology Mapping Management System (RTMMS)

The Rosetta Terminology Mapping Management System (RTMMS) has been developed to support the process of term approval and management. It supports submission of proposed terms and their information, review, allocation of term codes and Reference Ids, search for terms, and download of terms and their information.

The RTMMS database and management system is currently hosted by National Institute of Standards and Technology (NIST), and is part of the US Deparment of Commerce. RTMMS may be accessed at https://rtmms.nist.gov/rtmms.

A.3 Right to Use

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The following information in this standard is provided free of charge for use via the IEEE-SA and NIST Royalty Free Agreement:

- "Reference Id" ('REFID' in RTMMS)
- "Terminology Code" ('CF_Code', 'CODE10', 'CF_CODE10', 'UCODE10', 'CF_UCODE10', 'ECODE10', and 'CF_ECODE10' in RTMMS)
- "Description" ('Term Description' in RTMMS)
- "Systematic Name" ('Systematic Name' in RTMMS)
- "Common Term" ('Common term' in RTMMS)
- "Acronym" ('Aronym' in RTMMS)
- Unit of measure (“UOM_MDS” in RTMMS)
- Mapping to UCUM unit of measure (“UOM_UCUM” in RTMMS)
- Enumerated values (“Enum_Values” in RTMMS)
- Dimension (“Dimension” in RTMMS)
- Symbol (“Symbol” in RTMMS)

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