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Part 27: Mapping between metamodel for computable data registration and bioinformatics analyses by high-throughput sequencing (HTS)

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Foreword

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Introduction

ISO/IEC 11179-34 provides a specification of the extensions to the registry metamodel specified in ISO/IEC 11179-3:2023 to enable the registration of metadata about computable data. Metadata about computable data are like a manifest describing all details related to input files, output files, and the pipeline used to process these files. The intent of ISO/IEC 11179-34 is to facilitate efficient communication and interoperability among different platforms, industries, scientists, and regulators and to improve reproducibility and replicability.

IEEE 2791-2020[1] aims to improve communication of bioinformatics protocols and data to facilitate bioinformatics workflow related exchange and communication between regulatory agencies, pharmaceutical companies, bioinformatics platform providers and researchers.

Both ISO/IEC 11179-34 and IEEE 2791 aim to ensure data reproducibility, which enhances confidence in the decisions and conclusions drawn from such data. The consistency and quality of mapping between them will ensure metadata for computable data to be accurately translated and applied across different systems and applications.

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Information technology — Concepts and usage of metadata —

Part 27:
Mapping between metamodel for computable data registration and bioinformatics analyses by high-throughput sequencing (HTS)

1 Scope

This document provides a mapping between the ISO/IEC 11179-34 metamodel for computable data registration and the IEEE 2791 standard for bioinformatics analyses generated by high-throughput sequencing (HTS), to facilitate the production of IEEE 2791 objects from instances of ISO/IEC 11179-34 metamodel and the registration of IEEE 2791 objects as computable data within an MDR conforming to ISO/IEC 11179-34.

This document is applicable to those who are submitting data to organizations that require metadata submissions in IEEE 2791 compliant format, as well as those aiming to register IEEE 2791 objects into an MDR that conforms to ISO/IEC 11179-34.

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.

ISO/IEC 11179-3:2023, *Information technology — Metadata registries (MDR) — Part 3: Metamodel for registry common facilities*

ISO/IEC 11179-33:2023, *Information technology — Metadata registries (MDR) — Part 33: Metamodel for data set registration*

ISO/IEC 11179-34:2024, *Information technology — Metadata registries (MDR) — Part 34: Metamodel for computable data registration*

IEEE 2791-2020, *Standard for Bioinformatics Analyses Generated by High-Throughput Sequencing (HTS) to Facilitate Communication*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 11179-34 apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

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