International Standard

ISO/IEC 19583-27

First edition
2025-12

Information technology — Concepts and usage of metadata —

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

Reference number
ISO/IEC 19583-27:2025(en)

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Page

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives or www.iec.ch/members_experts/refdocs).

ISO and IEC draw attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO and IEC take no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO and IEC had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents and https://patents.iec.ch. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see www.iso.org/iso/foreword.html. In the IEC, see www.iec.ch/understanding-standards.

This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 32, *Data management and interchange*.

A list of all parts in the ISO/IEC 19583 series can be found on the ISO and IEC websites.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html and www.iec.ch/national-committees.

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.

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/