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BSI Standards Publication

Information technology — Concepts and usage of metadata

Part 1: Metadata concepts

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National foreword

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Part 1: Metadata concepts

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Foreword

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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 website.

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.

Introduction

This document describes the concept of metadata, particularly in respect of its use within the data management speciality in information technology.

The ISO/IEC 11179[2] and ISO/IEC 19763[4] series describe the structure for registering information about metadata that is used and/or held elsewhere.

The ISO/IEC 11179 series defines metadata as “data that defines and describes other data”. There are, however, many other definitions of metadata that are used more generally, for example, the US National Information Standards Organization (NISO) defines metadata as "structured information which describes, explains, locates, or otherwise makes it easier to retrieve, use, or manage an information resource”.

Metadata is, therefore, just data, but data which has the specific purpose of defining or describing other data. Metadata is normally used within a particular context, which is the set of circumstances, purposes or perspectives within which any particular item of data is used as metadata. Metadata can, therefore, be considered to be data about data within some context.

The definitions above, by themselves, do not say how metadata arises, where it comes from, how it is used, or how it is managed (although the ISO/IEC 11179 series describes the facilities for registering and managing structured metadata). For those reasons, this document has been developed to provide a broader view of metadata and the associated concept of the metamodel.

These concepts of metadata and metamodels are important when trying to understand exactly what is being registered within the registries whose structure is specified in the ISO/IEC 11179 and ISO/IEC 19763 series.

TECHNICAL REPORT **ISO/IEC TR 19583-1:2019(E)**

Information technology — Concepts and usage of metadata —

Part 1: Metadata concepts

1 Scope

This document describes the basic concept of metadata, and its relationship to both data and metamodels.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

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

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

4 Introduction to metadata

Metadata is defined as “data that defines and describes other data”. This is a very broad definition of metadata leaving room for confusion. It is often said that one person’s metadata is another person’s data. Whether any piece of data is seen as metadata or just data depends on the context. These contexts can be classified into three distinct groups:

— structural metadata: the metadata used by those responsible for the management of data in information systems to describe the ‘containers’ of data, for example, the tables and columns in a database managed using the SQL database language;

— descriptive metadata: the metadata used for the discovery and identification of content, such as by librarians, and the metadata that helps to further describe other data, such as metadata that a scientist has observed about continuous or systematically produced data;

— administrative metadata: the metadata associated with data values, such as metadata describing when and who created the data, who can edit and manage the data, and any other information about the data that is deemed useful, including metadata that describes multimedia data.

The focus of this document is the first of these groups: the structural metadata used within data management. The use of descriptive metadata is explained in Annex A and the use of administrative metadata is explained in Annex B.

For any data to be useful or shareable the meaning of the data (the semantics), the data type and format of the data (the syntax) and the relationship of the data to other data (the structure) must be known. All of this information about data is metadata.

Metadata is independent of the systems that produce the data. Metadata is usually defined before systems are built, either as part of the systems development of an individual system or as part of an enterprise-wide data management initiative. However, metadata can be recorded after the data has