TECHNICAL REPORT

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Information technology — SGML and Text-entry Systems — Guidelines for SGML Syntax-Directed Editing Systems

Traitement de l'information — Systèmes SGML — Recommendations pour les systèmes d'édition sensibles à la syntaxe SGML.

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Contents

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.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

The main task of technical committees is to prepare International Standards, but in exceptional circumstances a technical committee may propose the publication of a Technical Report of one of the following types:

— type 1, when the required support cannot be obtained for the publication of an International Standard, despite repeated efforts;

— type 2, when the subject is still under technical development or where for any other reason there is the future but not immediate possibility of an agreement on an International Standard;

— type 3, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example).

Technical Reports of types 1 and 2 are subject to review within three years of publication, to decide whether they can be transformed into International Standards. Technical Reports of type 3 do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful.

ISO/IEC/TR 10037, which is a Technical Report of type 3, was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*.

Introduction

This Technical Report specifies a series of guidelines for the capabilities of an SGML (Standard Generalized Markup Language, as defined in ISO 8879) Syntax-Directed Editing System. An *Editing System* is a combination of computer software and hardware that is used as a tool for the entry and modification of data. A *Syntax-Directed* Editing System is one that is aware of the syntax and structure of the data being edited, and can make use of that knowledge to ease the task of the person using that system. This Technical Report is therefore concerned with editing systems that are specifically tailored for the manipulation of documents marked up with SGML.

When electronic publishing first evolved, an author would create a document in either manuscript or typescript form, using various spacing conventions to indicate the structure of the document. An editor would then "blue pencil" it to mark the actions needed to lay out and format the document. The document would then be key-punched with the appropriate detailed formatting instructions inserted into the text.

With the advent of generic markup and availability of on-line editing systems, authors were given a list of tags and were expected to use these tags to mark up the document as it was being created, thus reducing the need for manual "blue pencilling". In some cases, having authors mark up the documents created more problems than it solved. For example:

— tags were used incorrectly

— generic identifiers (tag names) were misspelled

— tags were omitted.

With the development of SGML there is now a mechanism that allows markup errors to be found prior to composition — thus eliminating a cause of many subsequent composition errors. The drawback to this was that SGML requires that the author understand enough about the tag set to allow it to be used correctly. Many authors were unhappy about this and demanded assistance with the tagging.

Furthermore, SGML requires the creation and use of a Document Type Definition (DTD) which describes a document's structure. Creating DTDs is a difficult task that requires skill and is prone to errors; when an SGML document fails validation it is sometimes not clear whether the error is in the document or in the DTD.

It is apparent that tools are needed both to aid the document analyst in creating correct DTDs and the author in correctly using them. These tools are called *SGML Syntax-Directed Editing Systems*.

Information technology — SGML and Text-entry Systems — Guidelines for SGML Syntax-Directed Editing Systems

1 Scope

1.1 What is in this report?

This Technical Report describes a set of functions which an SGML syntax-directed editing system may have in order to help users manipulate documents marked up according to the rules of SGML. These functions may be embodied in a special-purpose editing system, or they could be added to those functions already present in an existing text-entry or editing system. In either case the result would be a syntax-directed editing system that is optimized for the manipulation of SGML documents.

The Technical Report contains two major clauses. The first and larger clause describes the functions of an SGML syntax-directed editing system as applied to document processing (that is, the creation, viewing, and modification of an SGML source document instance). The second clause identifies those additional facilities felt to be appropriate for DTD processing. The editing of SGML declarations is not covered.

This Technical Report does not specify a "standard editing system". Any references to specific functions relating to general editing (such as insertion, deletion, or the changing of data) are made only for clarity. They do not imply any particular procedure for performing such functions, but simply indicate that their existence is presumed. The methodology for the implementation of editing functions is left to the ingenuity of the implementor.

Similarly, this Technical Report is primarily aimed at the creator of "text" documents. Although SGML can be used for describing a wide variety of data (including databases, spreadsheets, mathematics, and even music), these uses are not directly considered in this Technical Report.

1.2 Who should read this report?

This Technical Report is intended to be useful to two categories of readers:

a) People who are specifying or selecting an editing system for use with SGML documents.

b) People who are implementing an SGML syntax-directed editing system.

As such it describes a variety of facilities — some essential and some more esoteric — which may be found useful in an SGML syntax-directed editing system. By comparing the facilities available in an SGML editing system with those described here, the reader can gauge its capabilities. It is assumed that readers are familiar with the concepts and terminology of SGML; the definitions of many of the terms used in the Technical Report may be found in ISO 8879.

Most of the requirements for an SGML syntax-directed editing system are sufficiently generic that they can be implemented using a wide variety of display and entry devices. These include both text and graphics displays (whether monochrome or colour), keyboards with or without special "function" keys, mice and other pointing devices, and potentially even voice recognition and sound generation machinery. It is expected that an SGML syntax-directed editing system will take full advantage of the facilities of the devices available in a way that is natural to the users of the system.

Although the editing system may be primarily designed for the manipulation of SGML documents and DTDs, nothing in this Technical Report necessarily prevents its use with non-SGML documents (or, indeed, other data such as computer programs). However, it must be noted that the special SGML functions described in this Technical Report may not be appropriate for documents that do not use SGML syntax.

2 Reference

The following standard contains provisions which, through reference in this text, constitute provisions of this Technical Report. At the time of publication, the edition indicated was valid. All standards are subject to revision, and parties to agreements based on this Technical Report are encouraged to investigate the possibility of applying the most recent edition of the standard indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 8879:1986, *Information processing — Text and office systems — Standard Generalized Markup Language (SGML).*