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STANDARD GENERALIZED MARKUP LANGUAGE (SGML)

CATEGORY: SOFTWARE STANDARD
SUBCATEGORY: ELECTRONIC DOCUMENT
INTERCHANGE

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Foreword

The Federal Information Processing Standards Publication Series of the National Institute of Standards and Technology (NIST) is the official publication relating to standards and guidelines adopted and promulgated under the provisions of Section 111(d) of the Federal Property and Administrative Services Act of 1949 as amended by the Computer Security Act of 1987, Public Law 100-235. These mandates have given the Secretary of Commerce and NIST important responsibilities for improving the utilization and management of computer and related telecommunications systems in the Federal Government. The NIST through its National Computer and Telecommunications Laboratory provides leadership, technical guidance, and coordination of Government efforts in the development of standards and guidelines in these areas.

Comments concerning Federal Information Processing Standards Publications are welcomed and should be addressed to the Director, National Computer and Telecommunications Laboratory, National Institute of Standards and Technology, Gaithersburg, MD 20899.

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Abstract

This publication announces the adoption of the International Standards Organization Standard Generalized Markup Language (SGML), ISO 8879-1986, as a Federal Information Processing Standard (FIPS). ISO 8879-1986 specifies a language for describing documents to be used in office document processing, interchange between authors and between authors and publishers, and publishing. The language provides a coherent and unambiguous syntax for describing the elements within a document.

Key words: documents; Federal Information Processing Standard; interchange; ISO 8879-1986; markup; SGML; text processing.

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**Federal Information
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Announcing the Standard for

STANDARD GENERALIZED MARKUP LANGUAGE (SGML)

Federal Information Processing Standards Publications (FIPS PUBS) are issued by the National Institute of Standards and Technology after approval by the Secretary of Commerce pursuant to Section 111(d) of the Federal Property and Administrative Services Act of 1949 as amended by the Computer Security Act of 1987, Public Law 100-235.

1. **Name of Standard.** Standard Generalized Markup Language (SGML) (FIPS PUB 152).
2. **Category of Standard.** Software Standard, Electronic Document Interchange.
3. **Explanation.** This publication announces the adoption of the International Standards Organization Standard Generalized Markup Language (SGML), ISO 8879-1986, as a Federal Information Processing Standard (FIPS). ISO 8879-1986 specifies a language for describing documents to be used in office document processing, interchange between authors and between authors and publishers, and publishing. The language provides a coherent and unambiguous syntax for describing the elements within a document. The language includes:
 - a. An abstract syntax for descriptive markup of the elements within a document.
 - b. A reference concrete syntax which binds the abstract syntax to particular delimiter characters and quantities.
 - c. Markup declarations that allow the definition of a specific vocabulary of generic identifiers and attributes for different document types.
 - d. Provision for arbitrary data content. This can include specialized data content notations that require interpretations different from general text, i.e., formulas, images, non-Latin alphabets, previously formatted text or graphics.
 - e. Entity references for referring to content located outside the mainstream of the document, such as separately written chapters, photographs, etc.
 - f. Special delimiters for processing instructions to distinguish them from descriptive markup. Processing instructions are systems and applications dependent.
4. **Approving Authority.** Secretary of Commerce.
5. **Maintenance Agency.** U.S. Department of Commerce, National Institute of Standards and Technology (NIST), National Computer and Telecommunications Laboratory.
6. **Cross Index.** International Standards Organization ISO 8879-1986, Information Processing—Text and Office Systems—Standard Generalized Markup Language (SGML).
7. **Related Documents.**
 - a. ISO 9069-1987, Information processing—SGML support facilities—SGML Document Interchange Format (SDIF).
 - b. ISO 9070-1987, Information processing—SGML support facilities—Registration procedures for public text.
 - c. Federal Information Processing Standards (FIPS) Publication 29-2, Interpretation Procedures for Federal Information Processing Standards for Software.
8. **Objectives.** The primary objectives of this standard are:
 - To provide a common markup language for a variety of document types and uses;
 - To allow the portability of unformatted textual data among different installations and processing systems;

- To promote interchange of documents between systems of different manufacturers.

9. Applicability. This standard is intended to be used for documents that are processed by any text processing system. It is particularly applicable to: a) documents that are intended for electronic printed output; b) documents that are interchanged among systems with differing text output devices; and c) documents that are processed in more than one way, even when the procedures use the same text processing language. Documents that exist solely in formatted form are not within the scope of applicability of this standard.

This standard applies to the development and acquisition of SGML systems. An SGML system includes an SGML parser, which must be able to recognize markup in conforming SGML documents; an entity manager, such as a file system or symbol table that can maintain and provide access to multiple entities or units of information; and both or either of:

- a. an implementation of one or more SGML applications; and/or
- b. facilities for a user to implement SGML applications, with access to the SGML parser and entity manager.

If the SGML parser is a validating parser, it must find and report a reportable markup error if one exists, and must recognize and report ambiguous content models.

An implementation of SGML involves consideration of an entire SGML system.

10. Specifications. The ISO 8879-1986 Standard Generalized Markup Language (SGML) defines the scope of the specification, the field of application, the syntax and semantics of SGML constructs, and requirements for conforming SGML applications and documents. All of the specifications of ISO 8879-1986, using the core concrete syntax, apply to FIPS SGML with the exception of the following optional features: SHORTREF; CONCUR; DATATAG; RANK; SHORTTAG; SUBDOC; SIMPLE; IMPLICIT; and EXPLICIT. The two optional features that are part of the FIPS SGML are OMITTAG (omitted tag minimization) and FORMAL (formal public identifiers). The core concrete syntax is a variant of the reference concrete syntax that has no short reference delimiters.

11. Implementation. This standard is compulsory and binding. The implementation of this standard involves two areas of consideration: acquisition of SGML systems and interpretation of the syntax and semantics of SGML constructs.

11.1 Acquisition of SGML Systems. This standard is effective March 31, 1989. SGML systems developed or acquired for Federal use after this date should implement this standard. Conformance to this standard should be considered whether SGML systems are developed internally, acquired as part of an ADP system procurement, acquired by separate procurement, used under an ADP leasing arrangement, or specified for use in contracts for programming services. If the functionality of one or more of the optional features meets programmatic requirements, then those optional features may be acquired.

A transition period provides time for industry to produce SGML systems conforming to the standard. The transition period begins on the effective date and continues for 1 year thereafter. The provisions of this publication apply to orders placed after the effective date.

11.2 Interpretation of FIPS SGML. Resolution of questions regarding this standard will be provided by NIST. Questions concerning the content and specifications of this FIPS PUB should be addressed to:

Director
National Computer and Telecommunications Laboratory
Attn: SGML Interpretation
National Institute of Standards and Technology
Gaithersburg, MD 20899

12. Waivers. Under certain exceptional circumstances, the heads of Federal departments and agencies may approve waivers to Federal Information Processing Standards (FIPS). The head of such agency may redelegate such authority only to a senior official designated pursuant to Section 3506(b) of Title 44, United States Code.

Requests for waivers shall be granted only when:

- a. Compliance with a standard would adversely affect the accomplishment of the mission of an operator of a Federal computer system, or

b. Cause a major adverse financial impact on the operator which is not offset by Government-wide savings.

Agency heads may act only upon written waiver requests containing the information detailed above. Agency heads may approve requests for waivers only by a written decision which explains the basis upon which the agency head made the required finding(s). A copy of each such decision, with procurement sensitive or classified portions clearly identified, shall be sent to the: Director, National Computer and Telecommunications Laboratory, Attn: FIPS Waiver Decisions, Technology Building, Room B-154, National Institute of Standards and Technology, Gaithersburg, MD 20899. In addition, notice of each waiver granted and each delegation of authority to approve waivers shall be sent promptly to the Committee on Government Operations of the House of Representatives and the Committee on Governmental Affairs of the Senate and shall be published promptly in the *Federal Register*.

When the determination on a waiver request applies to the procurement of equipment and/or services, a notice of the waiver determination must be published in the *Commerce Business Daily* as a part of the notice of solicitation for offers of an acquisition or, if the waiver determination is made after that notice is published, by amendment to such notice.

A copy of the waiver request, any supporting documents, the document approving the waiver request and any supporting and accompanying document(s), with such deletions as the agency is authorized and decides to make under 5 U.S.C. Sec. 552(b), shall be part of the procurement documentation and retained by the agency.

13. Special Information. Another approach, to the interchange of documents, currently under development, is the Office Document Architecture and Office Document Interchange Format (ODA/ODIF), draft international standard (DIS 8613). NIST is currently working on the development of this draft standard which, when completed, will become a Federal Information Processing Standard (FIPS).

14. Where to Obtain Copies. Copies of this publication are for sale by the National Technical Information Service, U.S. Department of Commerce, Springfield, VA 22161. (Sale of the included specifications document is by arrangement with the American National Standards Institute.) When ordering, refer to Federal Information Processing Standards Publication 152 (FIPSPUBS152), and title. Payment may be made by check, money order, or NTIS deposit account.

Copies of other FIPS PUBS are also available from the National Technical Information Service.

Copies of ISO 9069-1987 and ISO 9070-1987 may be obtained from:

American National Standards Institute, Inc.
1430 Broadway
New York, NY 10018

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