

INTERNATIONAL  
STANDARD

ISO/  
IEC/IEEE  
23026

Second edition  
2023-07

Corrected version  
2023-09

---

---

**Systems and software engineering —  
Engineering and management of  
websites for systems, software and  
services information**

*Ingénierie des systèmes et du logiciel — Ingénierie et gestion de sites  
web pour les systèmes, logiciels et services d'information*



Reference number  
ISO/IEC/IEEE 23026:2023(E)

© ISO/IEC 2023  
© IEEE 2023

This document is a preview generated by EUS



**COPYRIGHT PROTECTED DOCUMENT**

© ISO/IEC 2023  
© IEEE 2023

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO or IEEE at the respective address below or ISO's member body in the country of the requester.

ISO copyright office  
CP 401 • Ch. de Blandonnet 8  
CH-1214 Vernier, Geneva  
Phone: +41 22 749 01 11  
Fax: +41 22 749 09 47  
Email: [copyright@iso.org](mailto:copyright@iso.org)  
Website: [www.iso.org](http://www.iso.org)

Institute of Electrical and Electronics Engineers, Inc  
3 Park Avenue, New York  
NY 10016-5997, USA

Email: [stds.ipr@ieee.org](mailto:stds.ipr@ieee.org)  
Website: [www.ieee.org](http://www.ieee.org)

Published in Switzerland

# Contents

Page

<b>Foreword</b> .....	<b>vi</b>
<b>Introduction</b> .....	<b>viii</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms, definitions and abbreviated terms</b> .....	<b>1</b>
3.1 Terms and definitions.....	1
3.2 Abbreviated terms.....	5
<b>4 Planning websites</b> .....	<b>6</b>
4.1 Defining the purpose, users, and context of the website.....	6
4.2 Establishing the informational website design and sustainment strategies.....	7
4.2.1 General.....	7
4.2.2 Website plan.....	8
4.2.3 Website maintenance planning.....	8
4.2.4 Website maintenance procedures.....	9
4.3 Establishing the privacy and security strategy.....	9
<b>5 Designing and engineering websites</b> .....	<b>11</b>
5.1 Design goals and website requirements.....	11
5.2 Design principles.....	12
5.3 Choice of devices and media.....	12
5.4 Engineering for website security.....	13
5.4.1 General.....	13
5.4.2 Website operational security procedures.....	14
5.4.3 Website security reviews and audits.....	15
5.5 Engineering for performance, scalability, and sustainability.....	15
5.5.1 General.....	15
5.5.2 Selecting technical formats and standards to use for the website.....	16
5.5.3 Bandwidth efficiencies.....	18
5.5.4 Document type declaration.....	18
5.5.5 Description metatag.....	19
5.5.6 XML considerations.....	19
5.5.7 Image formats, image compression and video.....	19
5.5.8 Server technology independence.....	19
5.5.9 Designing for performance and scale.....	20
<b>6 Testing and evaluating websites</b> .....	<b>21</b>
6.1 Test planning.....	21
6.2 Testing for usability.....	21
6.2.1 General.....	21
6.2.2 Validation of markup language and accessibility conformance.....	22
6.2.3 Operational validation.....	22
6.2.4 Active links.....	23
6.2.5 Dead links.....	23
6.3 Testing for performance and resilience.....	23
6.4 Testing for security.....	24
<b>7 Managing the website</b> .....	<b>24</b>
7.1 Website roles and responsibilities.....	24
7.2 Control of information content.....	25
7.3 Managing security.....	25
<b>8 Sustaining the website</b> .....	<b>26</b>
8.1 General.....	26
8.2 Continuous delivery, content validation, and versioning.....	26
8.3 Handling disconnects.....	27

8.3.1	General	27
8.3.2	Site or page relocation	27
8.3.3	Redirection	27
8.4	Security monitoring and measurement	28
8.5	Backups and archiving	28
8.5.1	Backups	28
8.5.2	Archiving	29
<b>9</b>	<b>Website features</b>	<b>30</b>
9.1	Web page components	30
9.1.1	General	30
9.1.2	Website home page	31
9.1.3	Identifying the website and its owner	31
9.1.4	Page title, header, and headings	32
9.2	Site navigation	32
9.2.1	General	32
9.2.2	Links	33
9.2.3	Offsite warning	34
9.2.4	Usage tracking and cookies	34
9.2.5	Frames	35
9.3	Search and indexing	35
9.3.1	General	35
9.3.2	Search filtering	36
9.3.3	Keywords	36
9.3.4	Metadata for indexing	36
9.3.5	Flushing search engines	36
9.4	Presentation of information	37
9.4.1	Presentation of text	37
9.4.2	Graphic images	37
9.4.3	Animations, 3D, sound, video	38
9.4.4	Use of colour in websites	38
9.4.5	Time-sensitive content	39
9.4.6	Printing from websites	41
9.5	Accessibility	41
9.6	Website security	43
9.6.1	Overall security considerations	43
9.6.2	Website security monitoring and measurement	43
9.6.3	Web page security designations	44
9.6.4	Security of the website code	45
9.6.5	Website access and authentication	46
9.7	Data management	48
9.7.1	General	48
9.7.2	Website information integrity	48
9.7.3	Data encryption	49
9.7.4	Data privacy	49
9.7.5	Intellectual property rights	51
9.8	User interaction	51
9.8.1	Providing user support	51
9.8.2	Collaboration and user generated content	52
9.9	Translation and localization	52
9.9.1	General	52
9.9.2	Browser language selection	52
9.9.3	Icon use	53
9.9.4	Holidays and time zones	53
9.9.5	Place of origin	54
9.9.6	Hemisphericals	54
9.9.7	Metric and monetary units	54
9.9.8	Regulations	54
9.9.9	Contact information	54

<b>Bibliography</b> .....	<b>55</b>
<b>IEEE notices and abstract</b> .....	<b>58</b>

This document is a preview generated by EVS

## 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 ISO/IEC documents 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](http://www.iso.org/directives) or [www.iec.ch/members\\_experts/refdocs](http://www.iec.ch/members_experts/refdocs)).

IEEE Standards documents are developed within the IEEE Societies and the Standards Coordinating Committees of the IEEE Standards Association (IEEE-SA) Standards Board. The IEEE develops its standards through a consensus development process, approved by the American National Standards Institute, which brings together volunteers representing varied viewpoints and interests to achieve the final product. Volunteers are not necessarily members of the Institute and serve without compensation. While the IEEE administers the process and establishes rules to promote fairness in the consensus development process, the IEEE does not independently evaluate, test, or verify the accuracy of any of the information contained in its standards.

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](http://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](http://www.iso.org/iso/foreword.html). In the IEC, see [www.iec.ch/understanding-standards](http://www.iec.ch/understanding-standards).

This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 7, *Software and systems engineering*, in cooperation with the Systems and Software Engineering Standards Committee of the IEEE Computer Society, under the Partner Standards Development Organization cooperation agreement between ISO and IEEE.

This second edition cancels and replaces the first edition (ISO/IEC/IEEE 23026:2015), which has been technically revised.

The main changes are as follows:

- updates relating to enhanced technical capabilities for website design and sustainment;
- attention to threats to data privacy and website integrity;
- reorganization to present both the life cycle processes of website information for informational websites and the requirements for website features.

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](http://www.iso.org/members.html) and [www.iec.ch/national-committees](http://www.iec.ch/national-committees).

This corrected version of ISO/IEC/IEEE 23026:2023 incorporates the following correction:

- the edition number on the cover page has been corrected.

## Introduction

Continuing improvements in Internet capabilities for technical communication, and the accelerating development of new technical protocols, products and services for website development and hosting, have both simplified and complicated the engineering and management of websites. This document is intended to account for new capabilities, approaches, and interests in using websites to communicate technical information. To a large extent, use of digital communications, particularly those accessible through the Internet or intranets, has supplanted printed publications for conveying technical information. This trend applies to information for users, systems and services documentation, and operational plans, policies, and procedures.

Other factors have also affected the design and operation of websites. The increasing sophistication of information security threats to technical enterprises and their information, as well as concerns for the privacy of Internet users, have markedly complicated the process of delivering information and communication technology (ICT) information over the Web. This document therefore has increased emphasis on information security and privacy concerns.

The diversity of websites for commercial marketing and social networking purposes reflects different interests and media choices from those websites that deliver ICT reference information. This document applies primarily to websites whose purpose is to deliver information about ICT systems, software, and services. It includes increased emphasis on the human factors concerns for making information easily retrievable and usable for the intended audience. It recommends practices for websites based on World Wide Web Consortium (W3C) and related industry guidelines. It continues to address the entire life cycle of website strategy, design, engineering, testing and validation, and management and sustainment, which are the responsibility of the website owner and website provider.

# Systems and software engineering — Engineering and management of websites for systems, software and services information

## 1 Scope

This document defines system engineering and management requirements for the life cycle of websites, including strategy, design, engineering, testing and validation, and management and sustainment for intranet and extranet environments. This document applies to those using web technology to present information and communications technology (ICT) information, such as information for users of systems and services, plans and reports for systems and software engineering projects, and documentation of policies, plans, and procedures for IT service management. This document provides requirements for website owners and website providers, managers responsible for establishing guidelines for website development and operations, website engineers, designers, developers, and operations and maintenance staff, who can be external or internal to the website owner's organization. It applies to websites for public access and for limited access, such as for users, customers, and subscribers seeking information on IT systems, products and services.

The requirements and recommendations in this document address the following aspects of usability of informational websites and ease of maintenance of managed website operations:

- a) locating relevant and timely information;
- b) applying information security management;
- c) facilitating accessibility and ease of use;
- d) providing for consistent and efficient development and maintenance practices.

This document is not particularly applicable to websites used primarily for marketing or sales, to deliver instructional material (tutorials), or to provide graphical user interfaces (GUI) for business or consumer transactional application processing. However, this document can provide useful insights for managing such sites.

This document does not address vendor and product considerations for website engineering and management. This document does not include specifications for application development tools, programming and scripting languages used for websites, metadata tags, or protocols for network communications. It does not address tools or systems used for management or storage of information content (data, documents) that can be presented on websites.

This document does not address the design and architecture of software and systems supporting the Internet.

## 2 Normative references

There are no normative references for this document.

## 3 Terms, definitions and abbreviated terms

### 3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.