
**Information technology — User
interface component accessibility —
Part 11:
Guidance on text alternatives for
images**

*Technologies de l'information — Accessibilité du composant interface
utilisateur —*

Partie 11: Lignes directrices pour les textes alternatifs pour images

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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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents) or the IEC list of patent declarations received (see <http://patents.iec.ch>).

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.

This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 35, *User interfaces*.

This first edition of ISO/IEC 20071-11 as an International Standard cancels and replaces the Technical Specification (ISO/IEC TS 20071-11:2012), which has been technically revised.

The main changes compared to the Technical Specification are as follows:

- a major restructuring and simplification of the requirements;
- the addition of image type specific information in annexes.

A list of all parts in the ISO/IEC 20071 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

The saying that "A picture is worth a thousand words" recognizes that images can present a wealth of information. It is important that alternative textual descriptions or representations present a comprehensive account of the purpose and content of images to people unable to see or interpret them.

Text alternatives help people who cannot see the images to understand what the image is of or the purpose it serves by providing the same information in textual form. Text alternatives can be useful to those with visual impairments, those who turned images off in order to improve webpage loading speeds, and those who cannot understand the image being displayed. They can also aid search engines in finding images. This document provides guidance for user interface, web and document developers to help them create informative descriptions for various types of illustrations.

While some sources of guidance advocate that text alternatives be kept short, it is important that they provide an equitable alternative to the image. ISO/IEC Guide 71 states "A system provides equitable use if it allows diverse users to accomplish tasks in an identical manner whenever possible or in an equivalent manner when an identical manner is not possible". This document provides guidance intended to help developers create equitable text alternatives.

The guidance contained in this document is intended to be used by the person who creates content and/or text alternatives to be placed in an electronic document. There is no expectation that this person will have any additional expertise beyond understanding the contents of the document and why an image was chosen to be placed within the document.

While the main intent of the guidance within this document is the creation of text alternatives, the information identified in this guidance could be placed in the main document text, reducing the length of the resulting text alternatives. However, placing information in the main document text does not fully replace the function of having some text alternatives for each image.

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Information technology — User interface component accessibility —

Part 11: Guidance on text alternatives for images

1 Scope

This document gives guidance on how to create text alternatives and what information to put in text alternatives.

This document applies to all static images that are used in any type of electronic document. It also applies to individual images within a slide show.

This document does not apply to moving images (e.g. movies).

NOTE 1 While text alternatives can be implemented via various mechanisms in various types of electronic documents, the contents of this document are not dependent on the choice of implementation mechanism or of electronic document type.

NOTE 2 Guidance on making moving images accessible is contained in ISO/IEC TS 20071-21, ISO/IEC 20071-23 and ISO/IEC 20071-25.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

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

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/>

3.1 Text alternatives and related definitions

3.1.1

text alternative

alternative text

textual description or representation of an image

Note 1 to entry: By storing this description or representation in text format, it is able to be rendered in any available modality.

Note 2 to entry: The main audience of text alternatives are the users of screen reading features.

Note 3 to entry: Text alternatives are often provided to screen reader users in the form of primary and secondary alternative texts of an image.

Note 4 to entry: Generally, "text alternative" is used to refer to any text alternative, while "alternative text" is used to refer to text alternatives for images that are contained in attributes of an image.

3.1.2

primary alternative text

main text alternative provided to users of screen readers

Note 1 to entry: Different technologies and platforms provide various mechanisms for containing and presenting primary alternative text.

EXAMPLE 1 In HTML 5.2 and EPUB, primary alternative text is provided in the “alt” attribute of the img tag.

EXAMPLE 2 In PDF, primary alternative text is provided through the /Alt entry in a structure element’s dictionary.

3.1.3

secondary alternative text

additional text alternative provided to users of screen readers beyond primary alternative text

Note 1 to entry: Different technologies and platforms provide various mechanisms for containing and presenting secondary alternative text.

EXAMPLE 1 In HTML5.2, secondary alternative text is provided in the “longdesc” attribute of the img tag.

EXAMPLE 2 In EPUB, secondary alternative text is provided through the “role” attribute.

3.1.4

main body of text

textual content of a document that is always presented to the users

3.2 Image and related definitions

3.2.1

image

<digital> graphical content intended to be presented visually

Note 1 to entry: This includes graphics that are encoded in any electronic format, including, but not limited to, formats that are comprised of individual pixels (e.g. those produced by paint programs or by photographic means) and formats that comprised of formulas (e.g. those produced as scalable vector drawings).

3.2.2

static image

image where the set of image components and their relationships to one another do not change over time

Note 1 to entry: This includes images where the content/representation of individual image components can change over time, e.g. indicators where the value they are indicating changes in real time.

Note 2 to entry: The concept of static image is used for all images that are not slide shows or moving images.

Note 3 to entry: This use of static image is similar to the ISO/IEC 13249-5 use of “still image”. However, it differs in that a static image can have moving components. ISO/IEC 13249-5 states “A still image user-defined type is generic to image handling. It addresses the need to store, manage, and retrieve information based on aspects of inherent image characteristics such as height, width, and format and based on image features such as average color, color histogram, positional color, and texture. It also addresses the need to employ manipulation such as rotation, scaling as well as similarity assessment”.

3.2.3

slide show

set of images that replace one another periodically

Note 1 to entry: The replacement of one static image by another static image can be controlled automatically by the system (in which case the timing for each image is usually predetermined) or manually by the user (where the timing for each image is determined on a case by case basis).

Note 2 to entry: Slide shows are usually composed of static images but can include short movies. The interval between static images in a slide show are considered longer than in a movie, such that the motion being portrayed by the slide show would appear staggered instead of smooth like in a movie.

3.2.4**moving image**

image where the contents are dynamically changing

Note 1 to entry: This includes realistic moving images (often referred to as movies), abstract moving images (often referred to as cartoons), and even non-representational moving images (often referred to as light shows).

3.2.5**component**

<image> identifiable part of an image that provides content for the user

Note 1 to entry: Types of image component include (but not limited to) shapes, objects, persons, areas, and text.

Note 2 to entry: Text components can include natural and/or formal languages (such as mathematical equations).

3.3 Image types and related definitions**3.3.1****drawing**

<image> image created as an original work through the artistic actions of a human

3.3.2**photograph**

<image> electronic copy of an image of something that has its own independent existence in the real world

3.3.3**diagram**

<image> image containing a graphical representation of a set of (physical, logical, conceptual or other) objects or components and their (physical, logical, sequential or other) relationships

3.3.4**map**

<image> image containing a geospatial representation of geographic data

3.3.5**computer-generated illustration**

<image> image created by a computer based on data that it has available to it

3.3.6**composite image**

<image> image created by combining individual images or components of individual images, which can each be accessed as independent components of the composite image

3.4 Image content and related definitions**3.4.1****content**

interactive or non-interactive object containing information represented by text, image, video, sound or other media

[SOURCE: ISO/IEC/IEEE 23026:2015, 4.6]

3.4.2**realistic**

<type of content> content perceived by the user to faithfully represent data, information, objects, relationships and/or concepts in the natural world

EXAMPLE Photographic images, pictures intended to be true-to-life, diagrams used to illustrate how to assemble a set of parts.

3.4.3

sketch

<type of content> rapidly executed freehand drawing that is not usually intended as a finished fully-realistic work

Note 1 to entry: Sketches are often monochrome line drawings, with or without shading.

3.4.4

caricature

<type of content> content showing the features of its subject in a simplified or exaggerated way

3.4.5

cartoon

<type of content> semi-realistic content that is usually intended to be entertaining

Note 1 to entry: It is typical for cartoons to include unrealistic situations, e.g. animals talking, people performing physical actions that are not possible.

3.4.6

abstract

<type of content> content intended to present important major data, information, object, relationship, and/or conceptual components, without faithfully representing them as they occur in the natural world

EXAMPLE Cartoons, abstract art (where the basis for abstraction can be recognized), graphs and charts.

3.4.7

non-representational

<type of content> content intended for decorative purposes without the intent to represent any particular natural world data, information, objects, relationships and/or concepts

EXAMPLE Art presenting colors and textures (without any recognizable objective contents).

Note 1 to entry: Diagrams, maps and computer-generated illustrations are often presented as composite images.

3.5 Information relationship definitions

3.5.1

relationship type

information about an association between entities

3.5.2

logical

<relationship> information about what entities are interacting and how they interact

3.5.3

temporal

<relationship> information about when some action or entity occurs

3.5.4

physical

spatial

<relationship> information about where one entity is in relation to another entity

3.6 Information type definitions

3.6.1

physical

<information> information about phenomena which have a concrete existence

EXAMPLE Objects, agents or scenes that have a physical existence.

Note 1 to entry: This can include states and histories of objects.

3.6.2**value**

<information> quantitative information describing properties of an object

3.6.3**quantitative**

<information> statistical information or numerical data and the relationships between the numbers

Note 1 to entry: Quantitative information is often presented in a graphical manner.

Note 2 to entry: Quantitative images are often used for comparison between related sets of data, such as comparing net profit over a period of time.

Note 3 to entry: Examples of quantitative images include charts and graphs.

3.6.4**control**

<information> information that can be used to take some action which manipulates data, other objects or their attributes

3.6.5**event**

<information> information about a state change, message indicating the occurrence of an action, or conveying a significant change in the world

3.6.6**state**

<information> properties of the environment, objects or agents that remain constant during a period of time

3.7 Importance and related definitions**3.7.1****importance**

<information> level of need for users to know information about content

[SOURCE: ISO/IEC 20071-23, 3.11]

3.7.2**essential information**

information that is necessary to understand the content and/or its function

[SOURCE: ISO/IEC 20071-23, 3.12]

3.7.3**significant information**

information that is needed for a more detailed understanding of the content and/or its function to most users most of the time

[SOURCE: ISO/IEC 20071-23, 3.13]

3.7.4**helpful information**

information that provides a thorough understanding of the content to some users

[SOURCE: ISO/IEC 20071-23, 3.14]

3.7.5

unhelpful information

information that does not help users understand the content and/or can interfere with that understanding

[SOURCE: ISO/IEC 20071-23, 3.15]

4 Text alternatives for images

4.1 Uses of text alternatives

Images are often used to convey a large amount of information, whether it is a diagram for constructing a desk or a photo of what happened at a birthday party. In one glance, a person can retrieve a large amount of information and have a general understanding about the remaining content in the document in which the image resides.

NOTE 1 While text alternatives are primarily developed for electronic documents (including computer applications, apps, and websites); they can also be helpful in printed documents that can be read out to a user.

Images are sometimes used to supplement or complement the document content or can be another representation of the same content. However, sometimes the image stands alone or adds information that is not part of the other document content. Any information that is present in the image but not the other document content does not get conveyed to those who are unable to see the image. Text alternatives are needed to convey that information.

There are many reasons why a person can need text alternatives, including (but not limited to):

- a) the person has a visual impairment;
- b) the person is using a program that aurally reads the document content while doing something else (e.g. the person is listening while driving or cooking);
- c) the device being used to view the image is unable to properly display the image or the image is difficult to see (such as on a small mobile device);
- d) the person turned off images on their web browser to increase loading speed;
- e) the person cannot understand and/or interpret the image; and
- f) the text alternative can be used by search engines to find an image.

Tools (such as screen readers) exist that can read aloud text that appears in a document to those who cannot or are not looking at the screen. If an image can be described and represented textually, then the tools can also read the text alternatives aloud.

NOTE 2 The term "text alternative" is used to represent the text equivalent of an image, regardless of where that text resides. The term "alternative text" is generally used to represent a text alternative that is technically provided as an attribute of an image.

Text alternatives can include a description of what the image looks like and/or an interpretation of what the image represents or its function. Different text alternatives can be developed for the same image, differing in length and (as a result) information. Technology often allows for a primary alternative text as well as a secondary alternative text to be attached as attributes of an image. Providing both primary alternative text and secondary alternative text can give the user a choice in the amount of detail they wish to receive about an image.

Images can mean different things to different viewers. However, images are added to a document for particular purposes with the intent of meaning certain things to all viewers. In order to write informative text alternatives for an image, it is important to first know the information intended to be represented in the image. It is difficult to share knowledge about an image with others if the alternative

text developer does not have knowledge of what the image is intended to convey to the reader. Therefore, it is important to gather or identify as much information as possible about an image.

It is preferable for the developer of the electronic document to also be the developer of text alternatives for images included in the document.

NOTE 3 While various experts can analyse an image to a greater extent (e.g. for cataloguing purposes in a library of images), it is important that people involved in this procedure understand the information content that the image is intended to convey within the document in which it occurs.

This document presents a method for identifying information about an image and then structuring text alternatives for the image.

4.2 Presenting text alternatives

4.2.1 General

There are three possible locations for presenting text alternatives for an image:

- a) within the main body of text;
- b) within the primary alternative text attribute of an image;
- c) within the secondary alternative text attribute of an image or within secondary alternative text that is linked in some manner to the image.

NOTE Subclause [10.4](#) provides guidance on the use of these three locations for presenting text alternatives.

4.2.2 Text alternatives within the main body of text

The information contained in well-written text alternatives can often help users who can see an image to understand or interpret the image as it was intended by the document developer. In situations where the information contained in a text alternative is considered beneficial to all (or most) users of a document, this information can be presented in the main body of text, either as part of the main text or in a special addition to the main text that is identified as acting as a text alternative to the image, rather than as alternative text attribute of the image that requires special efforts to access.

Where text alternatives are included within the main body of text, they are not limited in length and can take one or more paragraphs to provide detailed descriptions of the image and detailed discussions of its intended purpose.

4.2.3 Primary alternative text

Primary alternative text is the usual location for text alternatives for images in most documents. The primary alternative text is usually displayed (in a hidden manner) to tools such as screen readers. Some tools present the primary alternative text automatically by default, while the user needs to request the secondary alternative text.

Where alternative text is considered beneficial for all readers it can be placed (with a suitable notation identifying it as alternative text) in the main body of text, as long as the primary alternative text is used to refer to the location of it in the main body of text (see subclause [10.4.6](#)).

Some types of electronic documents have a limitation or restriction on the length of the primary alternative text.

NOTE Some screen readers will sub-divide alternative text entries that are larger than 125 characters.

In order to limit the size of the primary alternative text, it is often viewed as an overview of the image content, what the image is about, or the function of the image.

Short primary alternative texts (due to character length limitations) may not be sufficient to convey the full amount of information provided by the image. Where primary alternative texts are limited in length, secondary alternative text becomes an important means of communicating the complete meaning/content of an image.

4.2.4 Secondary alternative text

Where it is available, secondary alternative text generally does not have limits on its length and therefore can contain a larger amount of information about the image. It can consist of details about the image that could not be part of the primary alternative text.

Since there is no limit on the amount of information, it can include information that some users might not need. The importance of each piece of information about an image can help to determine if the information is presented in the primary alternative text, secondary alternative text, both primary and secondary alternative texts, or not at all (see [Clause 10](#) for a discussion of levels of importance).

5 Procedure for creating text alternatives

The creation of suitable text alternatives (regardless of where they are located) shall be based on a thorough understanding of the image, its components, its purpose and context in the document where it is contained.

This can be done by applying the following procedure:

- a) Identify the type of image ([Clause 6](#))
Identify the type (and if applicable the sub-type) of image.
- b) Identify the purpose of the image ([Clause 7](#))
Identify and describe the purpose of each image. This step influences which image components and which pieces of information are important for the user to know.

This involves answering the question "Why?"

- c) Identify the image components ([Clause 8](#))

Depending on the purpose of the image, identify the image components. This step is necessary to properly identify pieces of information about the image that can be important to the user.

This can be done in a two-stage process:

- 1) Identify the image as a whole;
- 2) Identify the image components of the image.

NOTE 1 Identifying image components is an iterative process. Individual image components can be further separated into a number of (lower level) image components until all components that are important to describe have been identified.

- d) Identify the information (content) presented by the image ([Clause 9](#))

Depending on the purpose of the image, identify the content about an image and its components.

This involves answering the question "What?"

NOTE 2 "Who" is a specific instance of "What" that involves recognizable people.

NOTE 3 While identified content is complex, it can become useful to separate that image (or image component) into several (lower level) image components, in order to better be able to identify simpler content components.