



The Multilingual Web:
Latest developments
at the W3C/IETF

Richard Ishida
W3C Internationalization Activity

Outline

About the W3C

Standards support for the multilingual Web

The changing social context

Best practices for the multilingual Web

Getting involved

Outline

Why is it that in 2011, it is still difficult for users and developers around the world to use the Web for their own language and culture?

Which issues are more or less solved on the web (and how)?

What are we doing to address the remaining problems, and how can you influence the outcomes?



About the W3C Internationalization Activity

About the Consortium Internationalization Activity

- Help W3C Working Groups understand issues and build in requirements relating to worldwide support for Web technologies
- Liaise with other standards organizations to develop support for the international Web
- Help users of Web technology understand what's available to them and how to use it by developing best practices and other resources

عالمگیر ویب کو حقیقی طور پر عالمگیر بنانا

ᄀᄃᄅᄇ ᄁᄂᄃᄅᄇᄁᄂᄃᄅᄇ ᄅᄃᄅᄇᄁᄂᄃᄅᄇ ᄅᄃᄅᄇᄁᄂᄃᄅᄇ.

"Дүниежүзілік торды" нағыз дүниежүзілік етеміз!

वर्ल्ड वाईड वेबलाई यथार्थमै विश्वव्यापी बनाउने !

የዓለም አቀፋን ድር በእውነት አለም አቀፍ ማድረግ!

Κάνοντας τον Παγκόσμιο Ιστό πραγματικά Παγκόσμιο

ਵਰਡ ਵਾਈਡ ਵੈਬ ਨੂੰ ਵਾਕਈ ਵਿਸ਼ਵ-ਵਿਆਪੀ ਬਣਾਉਣਾ !

缔造真正全球通行的万维网

ワールド・ワイド・ウェブを世界中に広げましょう

ធ្វើឲ្យវើលវ៉ាយវ៉ែបមានទូទាំងពិភពលោកពិប្រាកដមែន!

전세계의 월드 와이드 웹으로 만들기!

Gwneud y we fyd-eang yn wirioneddol fyd-eang!

ליצור מהרשת הרשת כלל עולמית באמת!

การทำให้ World Wide Web แพร่หลายไปทั่วโลกอย่างแท้จริง

འཛམ་གླིང་ཡོངས་འབྲེལ་འདི་ རོ་མ་འབད་པར་ འཛམ་གླིང་ཡོངས་ལུ་བྱུང་བ།

සුභ්‍යථ වර්ධනය



Standards support for the multilingual Web



Standards support

Unicode

جعل شبكة الويب العالمية عالمية حقاً!

وب جهانی را به درستی جهانی سازیم!

بنانا حقیقی طور پر عالمگیر بنانا

Համաշխարհային ցանցն իրոք համաշխարհային դարձնելը

Создание действительно глобальной сети

"Дүниежүзілік торды" нағыз дүниежүзілік теміз!

वर्ल्ड वाईड वेबलाई यथार्थमै विश्वव्यापी बनाएँ!

የዓለም አቀፉን ድር በእውነት አለም አቀፍ ማድረግ!

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缔造真正全球通行的万维网

ליצור מהרשת רשת כלל עולמית באמת!

'meikɪŋ ðə wɜːld waɪd web 'truːli 'wɜːld'waɪd

ワールド・ワイド・ウェブを世界中に広げましょう

ធ្វើឲ្យវើលវ៉ាយវើបមានទូទាំងពិភពលោកពិប្រាកដមែន!

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"The Path W3C follows to making text on the Web truly global is Unicode."

Tim Berners-Lee



Standards support

Unicode

جعل شبكة الويب العالمية عالمية حقاً!

وب جهانی را به درستی جهانی سازیم!

عالمگیر ویب کو حقیقی طور پر عالمگیر بنانا

Համաշխարհային ցանցն իրոք համաշխարհային դարձնելու շնորհիվ ՄԻԿՐՈՍՏՐԻԿԻ ընկերությունը:

"Дүниежүзілік торды" нағыз дүниежүзілік етеміз!

वर्ल्ड वाईड वेबलाई यथार्थमै विश्वव्यापी बनाउने !

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'meikɪŋ ðə wɜːld waɪd web 'truːli 'wɜːld'waɪd

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Other
ASCII
UTF-8

Unicode on the Web

Standards support Unicode

<h2>
ფოტოსურათი</h2>

<p><a href="/wiki/ქიამს
class="mw-redirect">ქიამს
ხოქობის ოჯახს ეკუთ
მომრგვალო ან ოვალუ
ფონზე შავი ლაქები აც

...



Extensible Markup Language (XML) 1.0 (Fifth Edition)

W3C Recommendation 26 November 2008

This version:

<http://www.w3.org/TR/2008/REC-xml-20081126/>

Latest version:

<http://www.w3.org/TR/xml/>

Previous versions:

<http://www.w3.org/TR/2008/PER-xml-20080205/>

<http://www.w3.org/TR/2006/REC-xml-20060816/>

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François Yergeau

Please refer to the [errata](#) for this document, which may include some normative corrections.

The [previous errata](#) for this document, are also available.

See also [translations](#).

This document is also available in these non-normative formats: [XML](#), and [XHTML with color-coded revision indicators](#).

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Abstract

The Extensible Markup Language (XML) is a subset of SGML that is completely described in this document. Its goal is to enable generic SGML to be served, received, and processed on the Web in the way that is now possible with HTML. XML has been designed for ease of implementation and for interoperability with both SGML and HTML.

Status of this Document

This section describes the status of this document at the time of its publication. Other documents may supersede this document. A list of current W3C publications and the latest revision of this technical report can be found in the [W3C technical reports index](#) at <http://www.w3.org/TR/>.

This document specifies a syntax created by subsetting an existing, widely used international text processing standard (Standard Generalized Markup Language, ISO 8879:1986(E) as amended and corrected) for use on the World Wide

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<http://www.w3.org/TR/>

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STATUS OF THIS DOCUMENT

Standards support

Unicode normalization

NFD

Í z e l i ó t o ö ü l

NFC

Í z e l í t ő ü l

Ha a világ beszélni akarna, Unicode-ul szólalna meg. Regisztráljon már most a Tizedik Nemzetközi Unicode Konferenciára, melyet 1997. március 10-12-én rendeznek Mainz-ban, Németországban. Ezen a konferencián az iparág több neves szakértője is résztvesz. Ízelítőül a témákból: a világháló és a Unicode nemzetközísítése és lokalizálása, a Unicode alkalmazása működő rendszerekben és alkalmazásokban, szövegelrendezésnél, és többnyelvű számítógépeken.



Standards support

Web resource identifiers

http://JP納豆.例.jp/dir1/引き割り.html

Scheme

Domain name

Path

IDN

xn--jp-cd2fp15c.xn--fsq.jp



Standards support

Top level domain names

السعودية

Al-Saudiah

امارات

Emarat

مصر

Misr

<http://وزارة-الاتصالات.مصر>

IDN



Standards support

Web resource identifiers

http://JP納豆.例.jp/dir1/引き割り.html

Scheme

Domain name

Path

IRI

/dir1/%E5%BC%95%E3%81%8D%E5%89%B2%E3%82%8A.html



Standards support Language tags

Before (RFC 3066)

language – region

- ◆ ISO 639 language codes
- ◆ ISO 3166 country codes

en

en-GB

en-scouse



Standards support

Language tags: BCP 47

Now BCP 47

language script region variant extension private_use
(extlang)

hi

az-Cyrl

zh-Hans

es-419

- ◆ nearly 8,000 subtags available
- ◆ subtags available only from new IANA registry (based on ISO and UN codes)
- ◆ only language subtag required

sl-IT-rozaj-njiva-1994

Standards support

Key Events

W3C Editor's Draft



Document Object Model (DOM) Level 3 Event Specification

W3C Editor's Draft 21 April 2010

This version:

<http://dev.w3.org/2006/webapi/DOM-Level-3-Events/html/DOM3-Events.html?rev=1.131>

Latest stable version:

<http://www.w3.org/TR/DOM-Level-3-Events>

Previous version:

<http://dev.w3.org/cvsweb/~checkout-/2006/webapi/DOM-Level-3-Events/html/DOM3-Events.html?rev=1.130>

Editor's Draft:

<http://dev.w3.org/2006/webapi/DOM-Level-3-Events/html/DOM3-Events.html>

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Doug Schepers, *W3C*
Björn Höhrmann, *Invited Expert (until December 2007)*
Philippe Le Hégaré, *W3C (until November 2003)*
Tom Pixley, *Netscape Communications Corporation (until July 2002)*

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Abstract

This specification defines the platform- and language-neutral event flow through each event. The Document Object Model Events Level 3

SEARCH

MOBILE

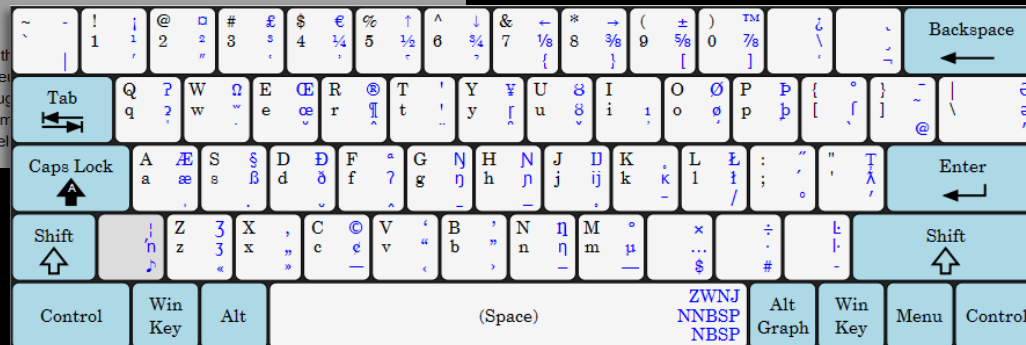
ACCESSIBILITY

I18N

TYPOGRAPHY

Internationalization Quicktips

- ▶ Use Unicode wherever possible for content, databases, etc. Always declare the encoding of content.
- ▶ Use characters rather than escapes (e.g. á á or á) whenever you can.
- ▶ Declare the language of documents and indicate internal language changes.



Developing requirements Speech Synthesis Markup Language

W3C Proposed Recommendation



Speech Synthesis Markup Language

W3C Proposed Recommendation 23 February 2010

This version:

<http://www.w3.org/TR/2010/PR-speech-synthesis11-20100223/>

Latest version:

<http://www.w3.org/TR/speech-synthesis11/>

Previous version:

<http://www.w3.org/TR/2009/CR-speech-synthesis11-20090827/>

Editors:

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严峻 (Yan Jun), iFLYTEK

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Abstract

The Voice Browser Working Group has sought to develop standards to enable access to the Web using spoken interaction. The Speech Synthesis Markup Language Specification is one of these standards and is designed to provide a rich, XML-based markup language for assisting the generation of synthetic speech in Web and other applications. The essential role of the markup language is to provide authors of synthesizable content a standard way to control aspects of speech such as pronunciation, volume, pitch, rate, etc. across different synthesis-capable platforms.

這一晚會如常舉行

這一|晚會|如常|舉行

這一|晚會|如|常|舉行

這一晚|會|如常|舉行

different synthesis-capable platforms:
content a standard way to control aspects of speech such as pronunciation, volume, pitch, rate, etc. across

Standards support CSS3

W3C Editor's Draft

W3C

CSS3 module: line

Editor's Draft 23 February 2008

This version:
[no permanent URL]

Latest version:
<http://www.w3.org/TR/css3-linebox>

Previous version:
<http://www.w3.org/TR/2002/WD-css3-linebox-20020515/>

Editors:
[Michel Suignard \(Microsoft\)](#) (until February 2003)
[Eric A. Meyer](#) (until February 2003)
[L. David Baron](#) (Mozilla Corporation) (from March 2003)

Authors:
Original CSS2 authors, and
[Bert Bos \(W3C\)](#)
[Michel Suignard \(Microsoft\)](#)
[Steve Zilles \(Adobe\)](#)
[L. David Baron \(Mozilla Corporation\)](#)

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Abstract

The CSS formatting model provides for a flow of elements and text inside of a container to be wrapped into lines. The formatting of elements and text within a line, its positioning in the inline progression direction, and the breaking of lines are described in [\[CSS3TEXT\]](#). This module describes the positioning in the block progression direction both of elements and text within lines and of the lines themselves. This positioning is often relative to a baseline. It also describes special features for formatting of first lines and drop caps. It extends on the model in [\[CSS2\]](#).

Status of This Document

This is a public copy of the editors' draft. It is provided for discussion only and may change at any moment. Its publication here does not imply endorsement of its contents by W3C. Don't cite this document other than as work in progress.

The (archived) public mailing list www-style@w3.org (see [instructions](#)) is preferred for discussion of this specification. When sending e-mail, please put the text "css3-linebox" in the subject, preferably like this: "[css3-linebox] - summary of comment."

hanging

alphabetic

A क ङ

क्रिकेट के लिए मशहूर व
इसके लिए दीवानगी
दिखाने वाले खेल प्रेमियों के देश
भारत में अगर कोई अन्य खिलाड़ी

स्थिति

Implementers of user agents need to be
prodded by the public to support the
developing marketplace !



Standards support Hyphenation

Zusätzlich erleichtert PLS die Eingrenzung von Anwendungen, indem es Aussprachebelange von anderen Teilen der Anwendung abtrennt.

Zusätzlich erleichtert PLS die Eingrenzung von Anwendungen, indem es Aussprachebelange von anderen Teilen der Anwendung abtrennt.

* { hyphens: auto; }

Standards support

OpenType feature support by language

Š š

ü ä ö ü ä ö

Београд, Април 1944

Измакоше *ти* кућу

на собу

на су *ти* узели свеску

из руке

неки бомбардери...

Беоірад, Аірил 1944

Измакоше *іи* кућу

іа собу

іа су *іи* узели свеску

из руке

неки *ъомъаръери...*

fi fi

Standards support Vertical text

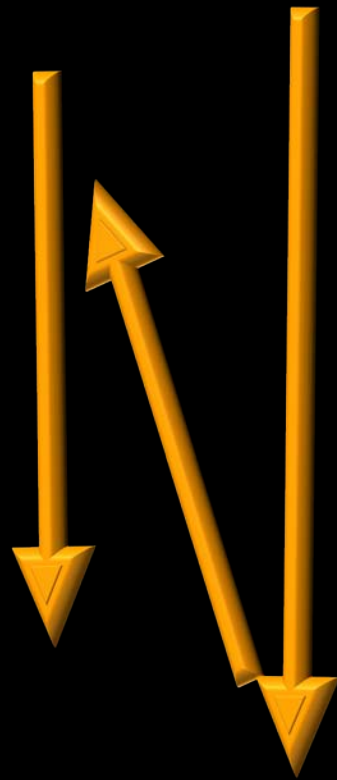
W3C Editor's Draft

W3C

CSS Text Layout Module

當世界需要溝通時，請用
統一碼（Unicode）你現
在就應報名將在1997
年3月10至12日於德
國美姿城（Mainz）召開
的第十屆國際統一碼研討
會。本次研討會將邀請多
位業界專家研討關於全球
網際網路及統一碼發展、
國際化及本土化、支援統
一碼的作業系統及應用程
式、字型、文字排版、電
腦多國語文化等多項課
題。

includes instructions
believes contains Essential Character
Policy.



Standards support Vertical text

W3C Editor's Draft



CSS Text Layout Module

Editor's Draft 5 May 2010

This version:
<http://dev.w3.org/csswg/css3-text-l>

Latest version:
<http://www.w3.org/TR/css3-text-lay>

Previous version:
<http://www.w3.org/tr/2003/CR-css3>

Editors:
Elika J. Etemad
Shinya Murakami (Antenna House)

Previous Editors:
Paul Nelson (Microsoft)
Michel Suignard (Microsoft)

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Abstract

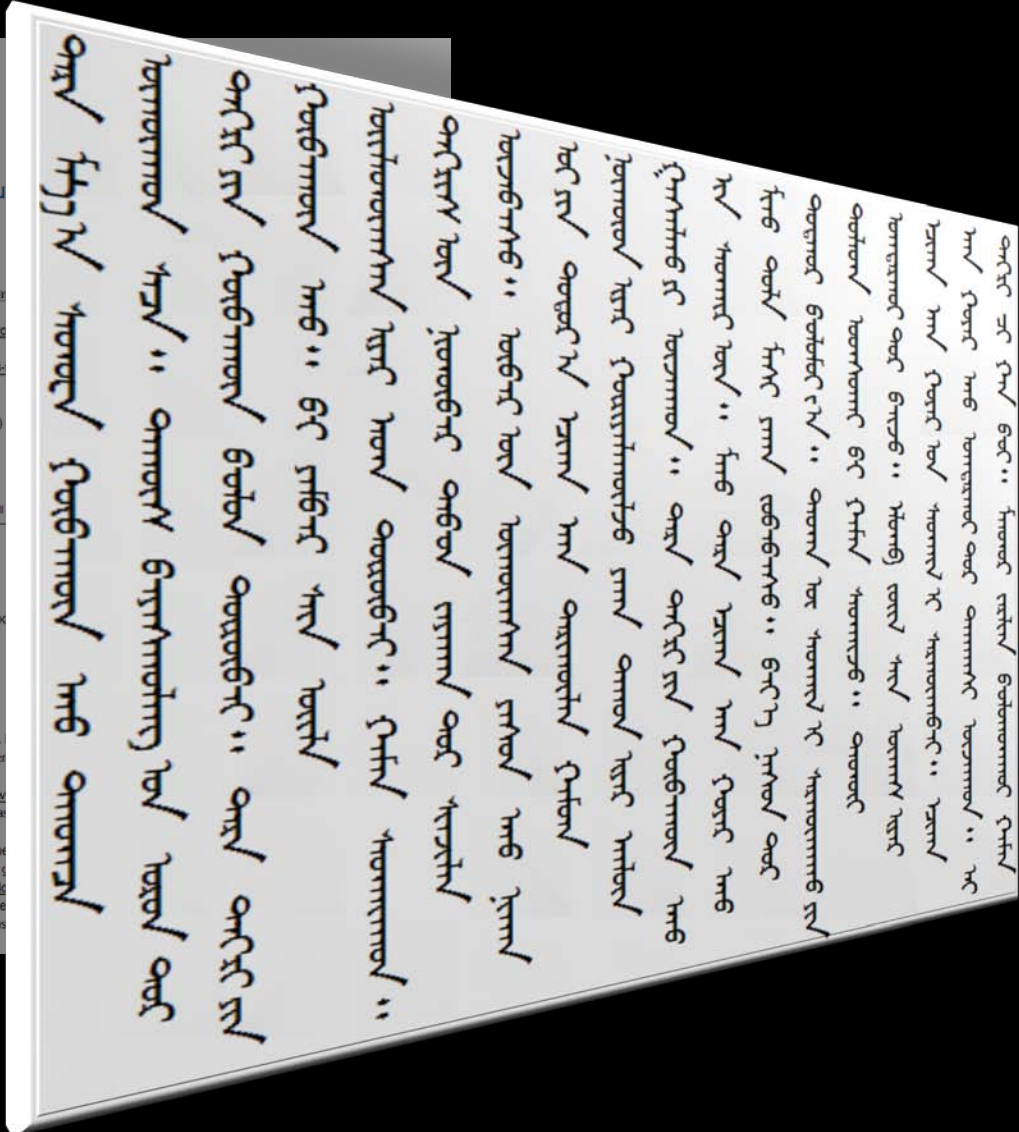
This module specifies the text layout model for vertical text.

Status of this document

This is a public copy of the editors' draft. Publication here does not imply endorsement or progress.

The (archived) public mailing list [www.w3.org/2004/01/condom/css3-text-lay](#) is preferred for comments. When sending e-mail, please use the subject line "summary of comment...".

This document was produced by a group of participants who were not members of the Working Group. It maintains a public list of any patent disclosures. It includes instructions for disclosing a patent. If you believe you have Essential Claim(s) that may be covered by this document, please disclose your claims according to the [W3C Patent Policy](#).



Standards support Vertical text

W3C Editor's Draft

W3C

CSS Text Layout

Editor's Draft 5 May 2008

This version:
<http://dev.w3.org/csswg/>

Latest version:
<http://www.w3.org/TR/>

Previous version:
<http://www.w3.org/tr/2008/>

Editors:
Elika J. Etemad
Shinya Murakami (Ante)

Previous Editors:
Paul Nelson (Microsoft)
Michel Suignard (Microsoft)

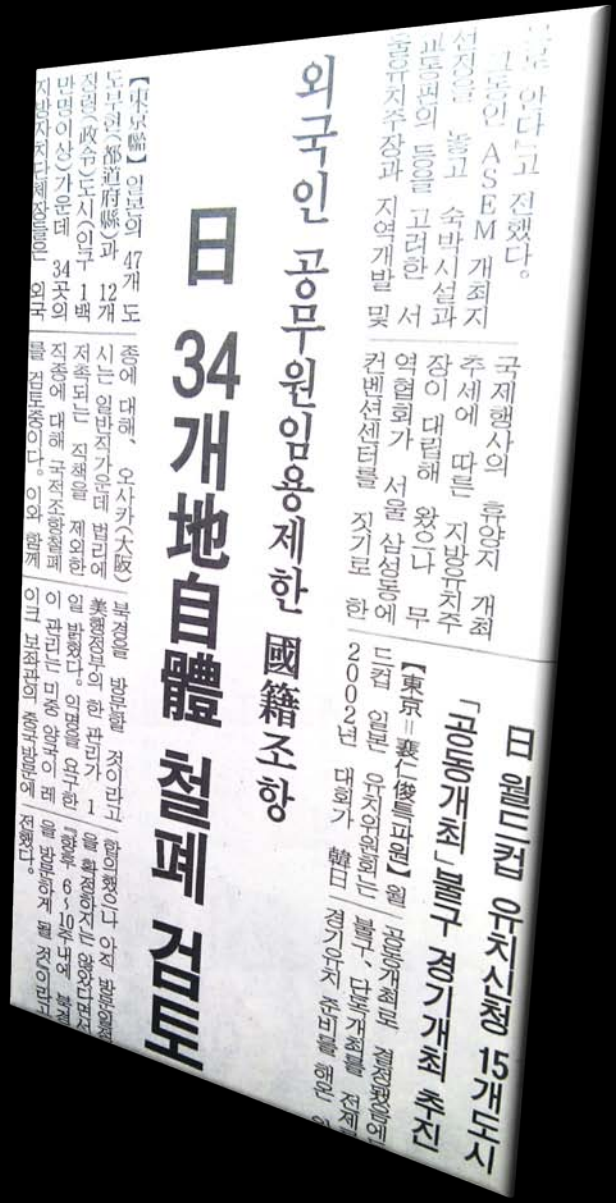
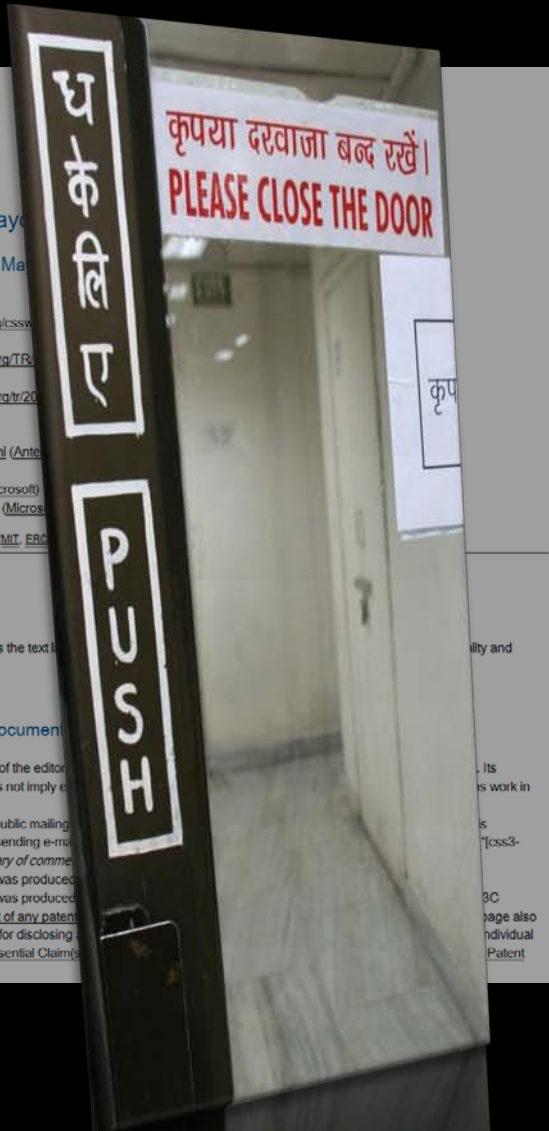
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Abstract

This module specifies the text layout of vertical text.

Status of this document

This is a public copy of the editor's draft. It is not a final document and its work in progress. The (archived) public mailing list [w3c-css-wg@w3.org](#) summarizes the work of the group. This document was produced by the CSS3 Working Group. It maintains a public list of any patent disclosures. It includes instructions for disclosing patents. It believes contains Essential Claims Policy.



Standards support Ruby annotation

W3C Recommendation



Ruby Annotation

W3C Recommendation
2008)

This version:

<http://www.w3.org/TR/2008/REC-ruby-20081215/>
(ZIP archive)

Latest version:

<http://www.w3.org/TR/2008/REC-ruby-20081215/>

Previous versions:

<http://www.w3.org/TR/2008/REC-ruby-20081215/>

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Michel Suo
Masayasu Hara
Martin Dürst
Tex Texell
(See Acknowledgments)

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Abstract

"Ruby" are short annotations on an XHTML document.

Status of This Document

This section describes the status of this document at the time of its publication. Other documents may supersede this document. A list of current W3C publications and the most recently formally published revision of this technical report can be found in the [W3C technical reports index](http://www.w3.org/TR/) at <http://www.w3.org/TR/>.

This document is a W3C Recommendation. It is endorsed by the W3C members and other interested parties and represents the consensus of the W3C community. It is a reference material for developers. This enhances interoperability.

W3C Editor's Draft



CSS3 Ruby

W3C Working Draft

This version:

<http://dev.w3.org/csswg/css3-ruby/>

Latest version:

<http://dev.w3.org/csswg/css3-ruby/>

Previous versions:

<http://dev.w3.org/csswg/css3-ruby/>

Editors:

Richard S. Steyer
Former editors:
Paul Neill
Michel Szwed
Marcin Szwed

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Abstract

"Ruby" are short annotations on an XHTML document associated with the [RUBY].

Status of This Document

See [open issues](#).

This document is a W3C Working Draft. It is not endorsed by the W3C members and other interested parties and represents the consensus of the W3C community. It is a reference material for developers. This enhances interoperability.

This section describes the status of this document at the time of its publication. Other documents may supersede this document. A list of current W3C publications and the most recently formally published revision of this technical report can be found in the [W3C technical reports index](http://www.w3.org/TR/) at <http://www.w3.org/TR/>.

Publication as a Working Draft does not imply endorsement by the W3C members and other interested parties and represents the consensus of the W3C community. It is a reference material for developers. This enhances interoperability.



HTML5

A vocabulary and associated APIs for HTML and XHTML

Editor's Draft 4 May 2010

Latest Published Version:

<http://www.w3.org/TR/html5/>

Latest Editor's Draft:

<http://dev.w3.org/html5/spec/Overview.html>

Previous Versions:

<http://www.w3.org/TR/2009/WD-html5-20090825/>
<http://www.w3.org/TR/2009/WD-html5-20090423/>
<http://www.w3.org/TR/2009/WD-html5-20090212/>
<http://www.w3.org/TR/2008/WD-html5-20080610/>
<http://www.w3.org/TR/2008/WD-html5-20080122/>

Editors:

Jan Hickson, Google, Inc.

This specification is available in the following formats: [single page HTML](#), [multipage HTML](#). This is revision 1.4073.

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Abstract

This specification defines the 5th major revision of the core language of the World Wide Web: the Hypertext Markup Language (HTML). In this version, new features are introduced to help Web application authors, new elements are introduced based on research into prevailing authoring practices, and special attention has been given to defining clear conformance criteria for user agents in an effort to improve interoperability.

Status of This document

This section describes the status of this document at the time of its publication. Other documents may supersede this document. A list of current W3C publications and the most recently formally published revision of this technical report can be found in the [W3C technical reports index](http://www.w3.org/TR/) at <http://www.w3.org/TR/>.

If you wish to make comments regarding this document, please send them to public-html-comments@w3.org



Standards support Ruby annotation

鬼門きもん
の方角ほうかく
を凝視ぎようしする

```
<ruby><rb>凝</rb><rt>ぎょう</rt></ruby>  
<ruby><rb>視</rb><rt>し</rt></ruby>
```

HTML5

A vocabulary and associated APIs for HTML and XHTML

```
<ruby>凝<rt>ぎょう</rt>視<rt>し</rt></ruby>
```

<http://dev.w3.org/html5/spec/Overview.html>

Previous Versions:

<http://www.w3.org/TR/2009/WD-html5-20090825/>
<http://www.w3.org/TR/2009/WD-html5-20090423/>
<http://www.w3.org/TR/2009/WD-html5-20090212/>
<http://www.w3.org/TR/2008/WD-html5-20080610/>
<http://www.w3.org/TR/2008/WD-html5-20080122/>

```
<ruby>  
<rb><rb>凝</rb><rb>視</rb></rb>  
<rtc><rt>ぎょう</rt><rt>し</rt></rtc>  
</ruby>
```

Status of This document

This section describes the status of this document at the time of its publication. Other documents may supersede this document. A list of current W3C publications and the most recently formally published revision of this technical report can be found in the [W3C technical reports index](http://www.w3.org/TR/) at <http://www.w3.org/TR/>.

If you wish to make comments regarding this document, please send them to public-html-comments@w3.org

東南とうなん
の方角たつみ

Developing requirements

Requirements for Japanese Layout



[[contents](#)]

Requirements for Japanese Text Layout

W3C Working Group Note 4 June 2009

This version:

<http://www.w3.org/TR/2009/NOTE-jlreq-20090604/>

Latest version:

<http://www.w3.org/TR/jlreq/>

Previous version:

<http://www.w3.org/TR/2008/WD-jlreq-20081015/>

Editors:

- Yasuhiro Anan (阿南 康宏), Microsoft
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- Richard Ishida, W3C
- Keiichiro Ishino (石野 恵一郎), Antenna House
- Tatsuo Kobayashi (小林 龍生), JustSystems
- Toshi Kobayashi (小林 敏), Invited Expert
- Kenzou Onozawa (小野澤 賢三), Invited Expert
- Felix Sasaki, University of Applied Sciences Potsdam

Please refer to the [errata](#) for this document.

A [Japanese version](#) of this document is also available. See also [translations](#). English version of this document is the authoritative version.

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Abstract

This document describes requirements for general Japanese layout realized with technologies like CSS, SVG and XSL-FO. The document is mainly based on a standard for Japanese layout, JIS X 4051, however, it also addresses areas which are not covered by JIS X 4051.

register mark →

line gap (7 point)

line length per line (25 characters)

base character → 君く ← ruby

base character → 子し ← ruby

base character → 和わ ← ruby

1/4 em space

1/2 em space

half-width

Character advance of middle dots is half-width, before and after 1/4 em space

Character advance of brackets is half-width, 1/2 em space before or after

half-width

1/2 em space

half-width

1/2 em space

ruby

ruby

どう同ぜず



Standards support

Web fonts

തൊണ്ണൂറ്
ണ്ണൂ

ഉപാസകൻ

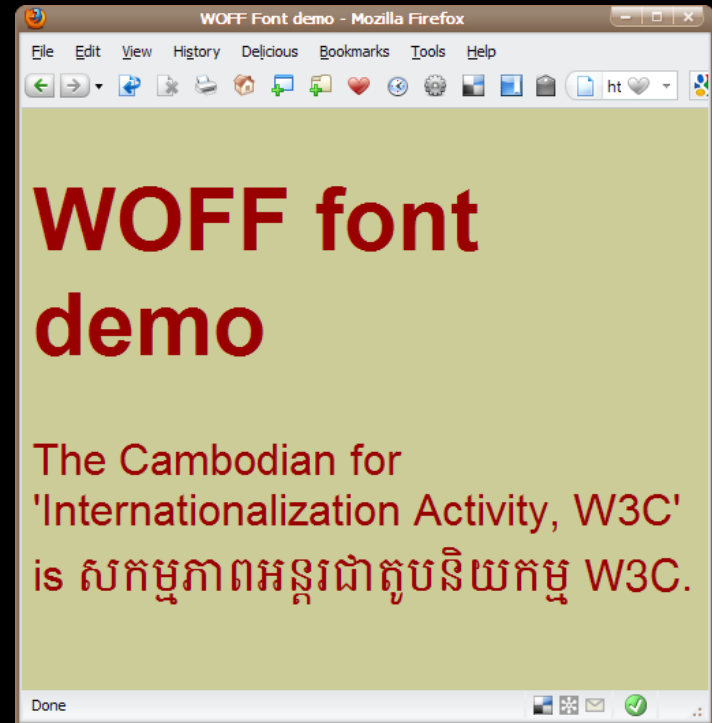
کو قفقى طور پر عالمگیر بنانا

കൃഷ്ണൻ വർഷം വർഷം വർഷം വർഷം

Standards support Web fonts

```
@font-face {  
  font-family: 'battambang-woff';  
  font-style: normal;  
  font-weight: normal;  
  src: url(fonts/khmerosbbang.woff);  
}
```

```
:lang(kh) {  
  font-family: 'battambang-woff';  
  font-size: 100%;  
}
```



Issues

- Rendering detail for complex fonts.
- Subsetting capability may be needed.
- Can only be used for fonts with an appropriate licence.

Standards support

Language declarations in HTML5

W3C Editor's Draft

W3C

HTML5

A vocabulary and associated APIs for HTML and XHTML

Editor's Draft 4 May 2010

Latest Published Version:
<http://www.w3.org/TR/html5/>

Latest Editor's Draft:
<http://dev.w3.org/html5/spec/Overview.html>

Previous Versions:
[http://www.w3.org/TR/2009/WD-html5-200908/](http://www.w3.org/TR/2009/WD-html5-20090908/)
[http://www.w3.org/TR/2009/WD-html5-200909/](http://www.w3.org/TR/2009/WD-html5-20090909/)
[http://www.w3.org/TR/2009/WD-html5-200909/](http://www.w3.org/TR/2009/WD-html5-20090920/)
[http://www.w3.org/TR/2008/WD-html5-200806/](http://www.w3.org/TR/2008/WD-html5-20080607/)
[http://www.w3.org/TR/2008/WD-html5-200807/](http://www.w3.org/TR/2008/WD-html5-20080715/)

Editors:
[Ian Hickson](#), Google, Inc.

This specification is available in the following formats:
\$Revision: 1.4073 \$.

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Abstract

This specification defines the 5th major revision of the Markup Language (HTML). In this version, new features are introduced based on research into previous versions, and given to defining clear conformance criteria for user agents.

Status of This document


This section describes the status of this document as it is published by the W3C. It is a public technical report that may be superseded at any time. A list of current W3C publications and this technical report can be found in the [W3C technical reports list](#).

If you wish to make comments regarding this document, please use the [W3C Discussion Mail](#).

`<html lang="de">` 

`<head>`

...

`<meta http-equiv="Content-Language" content="de">` 

...

`</head>`

...

Standards support Date and time

```
<time datetime="2004-08-08">8 สิงหาคม ๒๕๔๗</time>
```

Datetime picker demo

UTC

June 2010

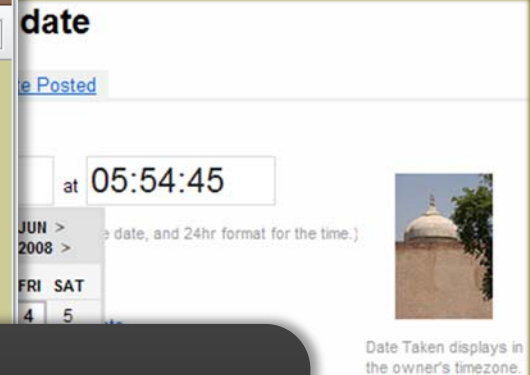
Week	Mon	Tue	Wed	Thu	Fri	Sat	Sun
22	31	1	2	3	4	5	6
23	7	8	9	10	11	12	13
24	14	15	16	17	18	19	20
25	21	22	23	24	25	26	27
26	28	29	30	1	2	3	4
27	5	6	7	8	9	10	11

Today None

```
<form>
```

```
<input type="date">
```


```
</form>
```





Standards support

Bidirectional text support

W3C نشاط التدويل، 

 W3C نشاط التدويل،

```
<description dir="rtl">W3C نشاط التدويل</description>
```


Developing requirements

Augmenting bidi support in HTML5 & CSS

[\[contents \]](#)



Additional Requirements for Bidi in HTML5

W3C Working Draft 4 March 2010

This version:

<http://www.w3.org/TR/2010/WD-html-bidi-20100304/>

Latest version:

<http://www.w3.org/TR/html-bidi/>

Editor:

Aharon Lanin, Google

Additional Contributors:

Adil Alawi, Technical Director, Diwan Software

Matitiahu Allouche, Bidi Architect, IBM

Uri Bernstein, Google

Douglas Davidson, Apple

Mark Davis, Senior I18n Architect, Google; P

Martin J. Dürst, W3C I18n Interest Group Chair

Asmus Freytag, President, ASMUS, Inc.

Richard Ishida, I18n Lead, W3C

Shanjian Li, Google

Mohamed Mohie, IBM

Jeremy Moskovich, Google

Shachar Shemesh, Lingnu Open Source Consulting

Gaal Yahas, Google

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Abstract

Authoring a web app that needs to support both right-to-left and left-to-right interfaces, or to take as input and display both left-to-right and right-to-left data, usually presents a number of challenges that make it an especially laborious and bug-prone task. Some of these are due to browser bugs, but some can be traced to a gap in the specification of

TOP RATED
RESTAURANTS

Aroma - 3 reviews



TOP RATED
RESTAURANTS

Aroma - 3 reviews



Translate text, webpages and documents

Enter text or a webpage URL, or [upload a document](#).

Internationalization Activity, W3C

Translate from: English

Translate into: Arabic

Translate text, webpages and documents

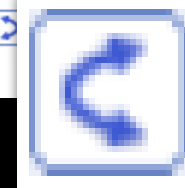
Enter text or a webpage URL, or [upload a document](#).

ضابطه لساني عدميت، W3C

Translate from: English

Translate into:

Translate



Developing requirements Arabic mathematics



Arabic mathematical notation

W3C Interest Group Note 31 January 2006

This version:
<http://www.w3.org/TR/2006/NOTE-arabic-math-20060131/>

Latest version:
<http://www.w3.org/TR/arabic-math/>

Previous version:
This is the first version

Editors:
Azzeddine Lazrek, with Mustapha Eddahibi and Khalid
Morocco
Bruce R. Miller, National Institute of Standards and Technology

This document is also available in these non-normative formats:

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Abstract

This Note analyzes potential problems with the use of MathML for the presentation of mathematics in the notations customarily used with Arabic, and related languages. The goal is to clarify avoidable implementation details that hinder such presentation, as well as to uncover genuine limitations in the current specification and to suggest extensions in the MathML specification that may require extensions in future versions of the specification.

Status of this Document

This section describes the status of this document at the time of its publication. It may be superseded by a later version of the document. A list of current W3C publications and the latest revision of each document is available at <http://www.w3.org/TR/>.

This Note is a self-contained discussion of Arabic mathematical notation in MathML 2.0 and suggests extensions for a future revision.

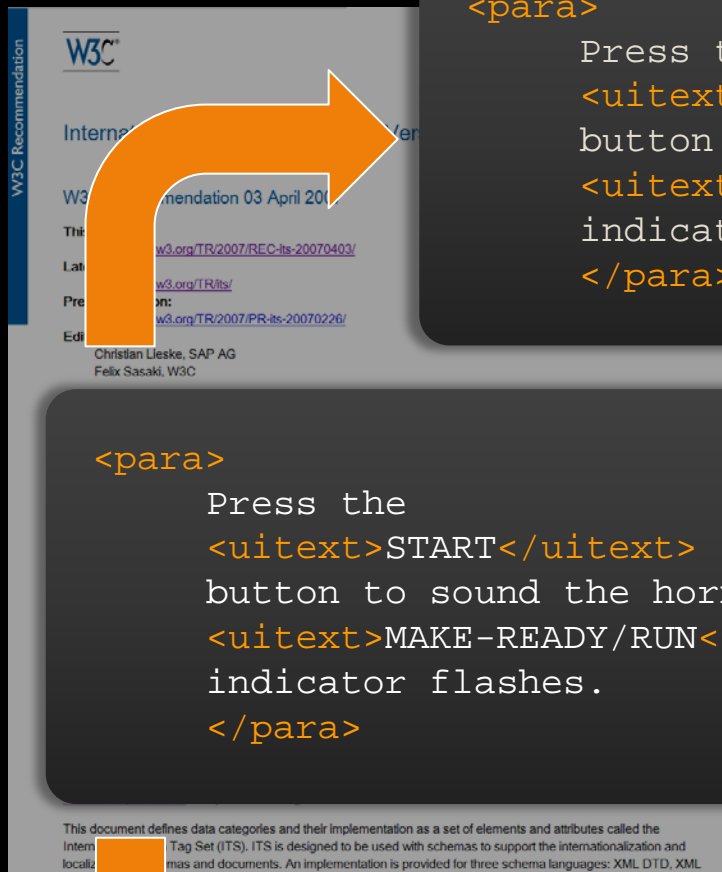
This Note has been written by participants in the [Math Interest Group](#) (W3C member activity). Please direct comments and report errors in this document to the [list](#) with a public [archive](#).

Publication as a Working Group Note does not imply endorsement by the W3C. The document and its contents may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to cite this document as other than work in progress.

$$f(x) = \begin{cases} \sum_{i=1}^s x^i & \text{if } x < 0 \\ \int_1^s x^i dx & \text{if } x \in S \\ \tan \pi & \text{otherwise (with } \pi \simeq 3.141) \end{cases}$$

$$\left. \begin{array}{l} \text{إذا كان } s > 0 \\ \text{مجموع } s \text{ ب } \\ \text{ب } = 1 \\ \text{إذا كان } s \in S \\ \text{ب } s \text{ ب } s \\ \text{غير ذلك (مع } \pi \simeq 3.141) \\ \text{ظا } \pi \end{array} \right\} = (s)$$

Standards support Internationalization Tag Set



W3C Recommendation

Internationalization Tag Set

W3C Recommendation 03 April 2007

This document defines data categories and their implementation as a set of elements and attributes called the Internationalization Tag Set (ITS). ITS is designed to be used with schemas to support the internationalization and localization of web pages and documents. An implementation is provided for three schema languages: XML DTD, XML Schema, and XSL-FO.

Christian Lieske, SAP AG
Felix Sasaki, W3C

```
<para>
```

Press the

```
<uitext translate="no">START</uitext>
```

button to sound the horn. The

```
<uitext translate="no">MAKE-READY/RUN</uitext>
```

indicator flashes.

```
</para>
```

```
<para>
```

Press the

```
<uitext>START</uitext>
```

button to sound the horn. The

```
<uitext>MAKE-READY/RUN</uitext>
```

indicator flashes.

```
</para>
```

- supported by some translation tools – linked with XLIFF
- being applied by specifications at W3C

```
<its:rules ... its:version="1.0">
```

```
<its:translateRule selector="//uitext" translate="no" />
```

```
</its:rules>
```

The changing social context

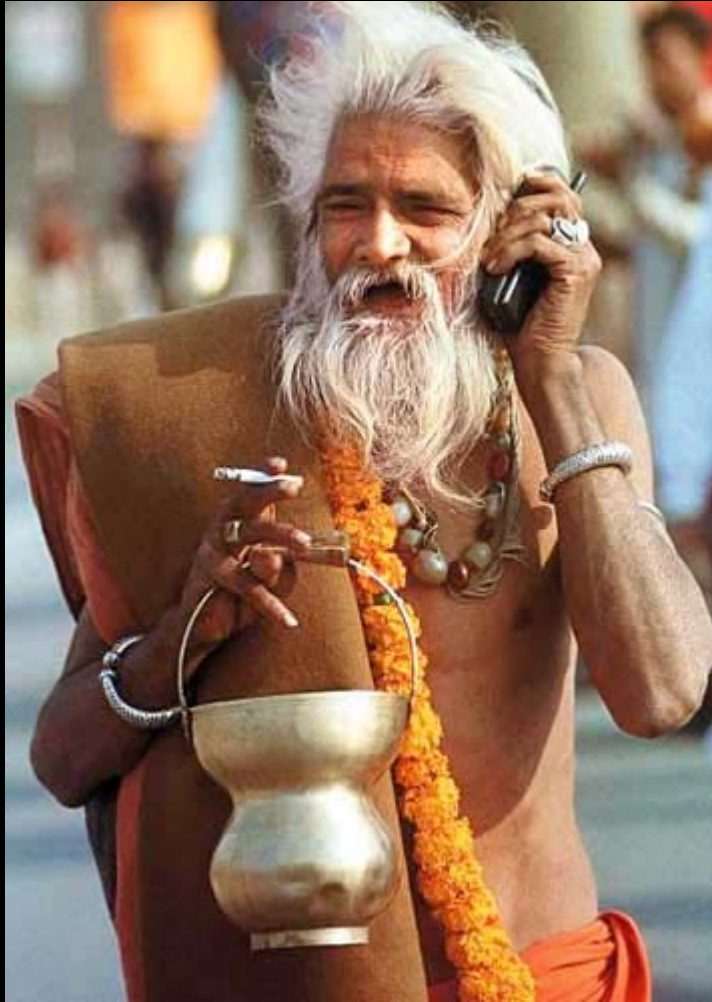
The rise of the Mobile Web



- "In China ... over 73m people, or 29% of all internet users in the country, use mobile phones to get online."
- "The number of pages viewed in June by 14m users of [Opera] software was over 3 billion, a 300% increase on a year earlier. The fastest growth was in developing countries including Russia, Indonesia, India and South Africa."

Social context

Mobile Web for Developing Society (MW4D)



Track the social impact of the mobile web in the developing world, to ensure that the web's technical standards evolve to serve this rapidly emerging constituency.



Best practices for the multilingual Web

Best practices Capturing guidance for spec developers

The image displays three overlapping screenshots of W3C documents. The leftmost document is 'Character Model for the World Wide Web', a W3C Recommendation. The middle document is 'Best Practices', a W3C Working Group Note. The rightmost document is 'Working with Time Zones', also a W3C Working Group Note. Each document includes a 'This version' link, a 'Latest version' link, and a list of editors. The 'Working with Time Zones' document also includes a 'Previous version' link and a 'This version' link to a specific note. The documents are presented in a way that shows their structure and content, with some text overlapping between the pages.

markup for
bidirectional text

Normalization

working with case
sensitivity

more information
about date & time

Best practices I18n resources

Articles

Tutorials

<http://www.w3.org/International/>

Tests

Talks

Tools

Reviews

The screenshot shows the W3C Internationalization (I18n) Activity website. The browser window title is "W3C Internationalization (I18n) Activity - Mozilla Firefox". The address bar shows "http://www.w3.org/International/". The website header includes the W3C logo and the text "Internationalization (I18n) Activity" with the tagline "Making the World Wide Web world wide!". Navigation links include Home, Resources, Techniques, Topics, News, Groups, and About. A search box for "I18n site search:" and an RSS Feeds icon are also present.

The main content area features a "Home page" section with a paragraph explaining the activity's purpose. Below this is a "Recent highlights" section with a "More ..." link. A list of highlights includes:

- 30 April 10 [Text direction tests updated](#)
- 27 April 10 [First translation into Hindi](#)
- 27 April 10 [Webfonts tests updated to include WOFF](#)
- 14 April 10 [Language declaration tests updated](#)
- 13 April 10 [Character encoding tests updated](#)
- 11 April 10 [First International Conference](#)

A "Talk slides: W3C India Office opening" section is dated "24 May 2010". It describes a talk by Richard Ishida on May 6th about internationalization challenges at the W3C India Office opening in New Delhi, India. The talk describes the work of the Internationalization Activity and ways in which people in South Asia can contribute to that work. It includes an "Edit..." link and categories: "Talks, w3cWebDesign".

The "Text direction tests updated" section is dated "30 April 2010". It states that HTML and CSS text direction tests in the Internationalization Activity test suite have been updated as follows:

- HTML5 and XHTML5 were added as new test formats
- tests now use strict DOCTYPEs
- reference graphics in the vertical text tests were improved
- the order of tests related to browser chrome was changed

In addition, a new [results page](#) was created for the tests about vertical text. Other changes behind the scenes include gathering of all tests into a single PHP file (generatehtml.php is no longer used). Code in the PHP file was also streamlined. A search key "results-vertical-text" is provided. It includes an "Edit..." link and categories: "Highlight, Test, w3cWebDesign, w3cWebUserAgents".

The "New translation into Hindi" section is dated "28 April 2010". It thanks Bhavatmaj Seth for translating a getting-started article into Hindi. The text "वेब पर भाषा (Language on the Web)" is visible.

On the right side, there are several sidebar sections:

- Site links:** Getting Started, Tasks, Topics, Resource types, Reviews, Mail archives, Aggregated data, Translation, News by category, News archives.
- I18n resources:** Authoring HTML & CSS, Authoring SVG, Authoring XML, Developing specifications, Setting up a server, Developing schemas, Using the Web.
- Quick links:** Planet, Specifications, Articles etc., Tests, MultilingualWeb, @webi18n tweets.
- About the Activity:** Groups: Core, ITS, IG, JLTf, Mission, Contacts, Activity Statement.
- Participate!** Join a Working Group, Review a W3C specification, Translate a specification or page, Subscribe to the Interest Group list.
- Search for news:** A search box with radio buttons for "All Words", "Some Word", and "Entire phrase", and a "Search" button.
- Admin:** Admin, Profile (rishida), Logout (rishida).

Best practices I18n resources

Articles

Tutorials

Technical notes

Tests

Talks

Tools

Reviews

W3C[®] Internationalization (I18n) Activity
Making the World Wide Web world wide!

Home Resources Techniques Topics News Groups About

I18n site search:

RSS Feeds

Articles, best practices & tutorials

You can also find resources using the [Technique index](#) and [Topic index](#), which provide more fine-grained access to information.

Getting Started

- Overview
- Introducing character sets and encodings
- Language on the Web
- Internationalization Quick Tips for the Web

Characters

- Character encodings for beginners
- Character encodings
- Character sets & encodings in XHTML, HTML and CSS
- Changing (X)HTML page encoding to UTF-8
- Setting encoding in web authoring applications
- Using character entities and NCRs
- Document character set
- CSS character encoding declarations
- Setting the HTTP Charset parameter
- Setting charset information in .htaccess
- Checking HTTP headers
- Checking the character encoding using the validator
- Character Model for the World Wide Web 1.0: Fundamentals
- Display problems caused by the UTF-8 BOM
- HTML, XHTML, XML and control codes
- Missing characters and glyphs
- Who uses Unicode?
- Migrating to Unicode

Language

- Specifying Language in XHTML & HTML Content
- Language tags in HTML and XML
- Choosing a language tag **NEW!**
- 2-letter or 3-letter language codes
- Why use the language attribute?
- Setting language preferences in a browser
- Declaring Language in XHTML and HTML
- xml:lang in XML document schemas

> عربي [Български](#)
[Deutsch](#) [Ελληνικά](#)
[Español](#) [Français](#) [עברית](#)
[हिन्दी](#) [Magyar](#) [Italiano](#) [日本語](#) [한국어](#) [Nederlands](#)
[Polski](#) [Português](#)
[Português-BR](#) [Română](#)
[Русский](#) [Svenska](#) [Türkçe](#) [Українська](#)
[Tiếng Anh](#) [简体汉语](#) [繁體中文](#)

On this page

- Getting started
- Characters
- Language
- Markup & text
- Text direction
- Styling & layout
- Forms
- Navigation
- Web addresses
- Cultural issues
- Other

xml:lang in XML document schemas
Declaring language in XHTML and HTML
Setting language preferences in a browser
Why use the language attribute?
2-letter or 3-letter language codes

Best practices

I18n resources

W3C I18n Site Index - Mozilla Firefox

File Edit View History Delicious Bookmarks Tools Help

http://www.w3.org/International/technique-index

W3C® Internationalization (I18n) Activity
Making the World Wide Web world-wide

Home Resources Techniques Topics

118n site search:

RSS Feeds

W3C I18n technique index

Select the task you want help with among its articles, tutorials, tests

General task

Select a general task...

- ▶ [Using the Web](#)
- ▶ [Creating HTML & CSS](#)
- ▶ [Authoring SVG](#)
- ▶ [Authoring XML](#)
- ▶ [Setting up a server](#)
- ▶ [Developing specifications](#)
- ▶ [Developing schemas](#)

See also

The [topic index](#) organizes links to resources by keywords, rather than tasks (like the index in a book).

The [resources by type](#) page lists resources by type (eg. articles, tools, mail archives, etc).

Current status

This index is still a work in progress. It doesn't yet point to all resources on the site. The content will also continually grow and change as resources are added to the site.

Author: Richard Ishida, W3C.
Content last changed 2009-03-12 16:23 GMT

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http://www.w3.org/International/technique-index?topic=htmlauth

Best practices

I18n resources

W3C I18n Site Index - Mozilla Firefox

File Edit View History Delicious Bookmarks Tools Help

http://www.w3.org/International/technique-index?topic=htmlauth

Google

W3C Internationalization (I18n) Activity
Making the World Wide Web world-wide

Home Resources Techniques Topics

I18n site search:

RSS Feeds

W3C I18n technique index

Select the task you want help with, or browse among its articles, tutorials, tests and techniques.

General task	Creating HTML and CSS
Select a general task...	Select a sub-area...
<ul style="list-style-type: none">▶ Using the Web▶ Creating HTML & CSS▶ Authoring SVG▶ Authoring XML▶ Setting up a server▶ Developing specifications▶ Developing schemas	<ul style="list-style-type: none">▶ Characters▶ Language▶ Markup & text▶ Text direction▶ Styling & layout▶ Forms▶ Navigation▶ Cultural issues▶ Troubleshooting

Author: Richard Ishida, W3C.

Content last changed 2009-03-12 16:23 GMT

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See also

The [topic index](#) organizes links to resources by keywords, rather than tasks (like the index in a book).

The [resources by type](#) page lists resources by type (eg. articles, tools, mail archives, etc).

Current status

This index is still a work in progress. It doesn't yet point to all resources on the site. The content will also continually grow and change as resources are added to the site.

http://www.w3.org/International/technique-index?topic=htmlauth

Best practices

I18n resources

The screenshot shows the W3C I18n Site Index page in a Mozilla Firefox browser. The browser's address bar shows the URL: <http://www.w3.org/International/technique-index?topic=htmlauth>. The page title is "W3C Internationalization (I18n) Activity".

An orange callout bubble with the text "Choosing language values" is overlaid on the page, pointing to a link in the "Getting started" section. The link is circled in orange. The "Getting started" section contains the following links:

- Getting started
- Using attributes to declare language
- Declaring metadata about the language of the intended audience
- Declaring language for documents aimed at speakers of more than one language
- Choosing language values**
- Identifying in-document language changes
- Indicating the language of a link destination
- Styling by language
- Using Accept-Language for locale setting

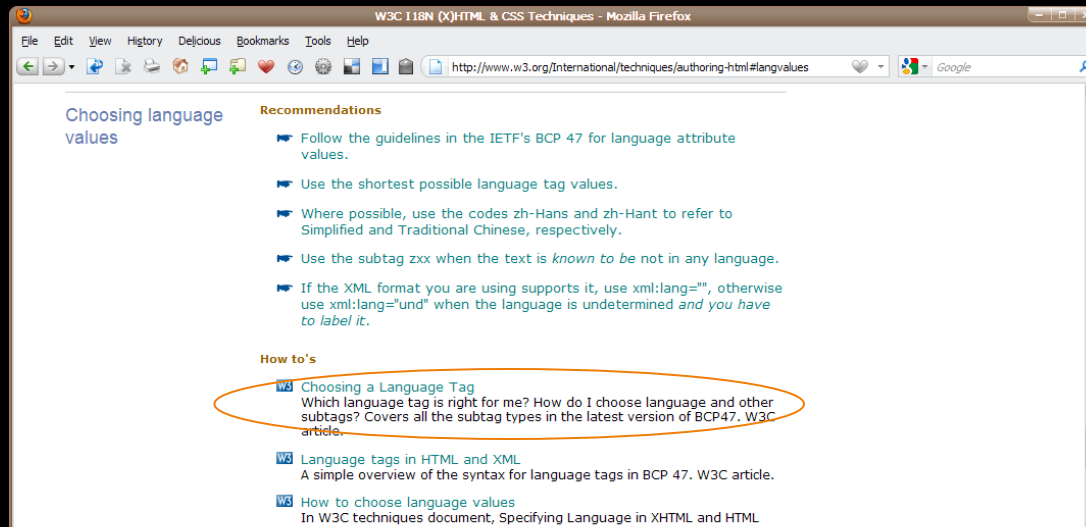
Other sections on the page include:

- See also**: The [topic index](#) organizes links to resources by keywords, rather than tasks (like the index in a book). The [resources by type](#) page lists resources by type (eg. articles, tools, mail archives, etc).
- Current status**: This index is still a work in progress. It doesn't yet point to all resources on the site. The content will also continually grow and change as resources are added to the site.

At the bottom of the page, the author is identified as Richard Ishida, W3C. The content was last changed on 2009-03-12 16:23 GMT. The copyright notice states: Copyright © 2009 W3C® (MIT, ERCIM, Keio), All Rights Reserved. W3C liability, trademark, document use and software licensing rules apply. Your interactions with this site are in accordance with our public and Member privacy statements.

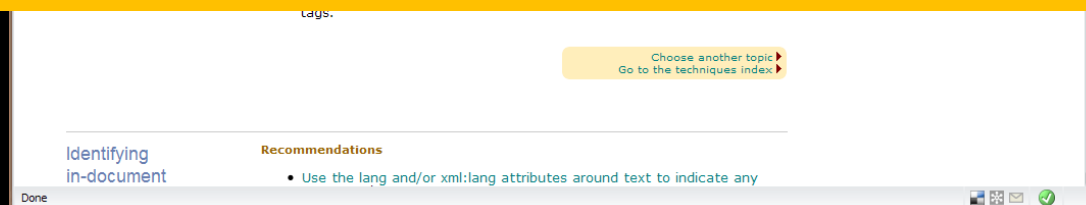
Best practices

I18n resources



How to's

- W3** [Choosing a Language Tag](#)
Which language tag is right for me? How do I choose language and other subtags? Covers all the subtag types in the latest version of BCP47. W3C article.
- W3** [Language tags in HTML and XML](#)
A simple overview of the syntax for language tags in BCP 47. W3C article.
- W3** [How to choose language values](#)
In W3C techniques document. Specifying Language in XHTML and HTML



Best practices

I18n resources

The screenshot shows a Mozilla Firefox browser window with the address bar displaying <http://www.w3.org/International/questions/qa-choosing-language-tags>. The page is titled "Choosing a Language Tag" and is part of the W3C Internationalization resources. The page content includes a navigation menu, a search bar, and a "related links" sidebar. The main content area is divided into sections: "question", "background", and "answer".

question

Which language tag is right for me? How do I choose language and other subtags?

[Skip to the answer]

background

In HTML and XML documents a **language tag** is used to indicate the language of content.

A language tag is composed of one or more **subtags** separated by hyphens. Subtags can be of various types.

Language tag syntax is defined by the IETF's [BCP 47](#). In the past it was necessary to consult lists of codes in various ISO standards to find the right subtags, but now you only need to look in the [IANA Language Subtag Registry](#). We will describe the new registry below.

This article provides advice on how to choose the components of a language tag. For an overview of the concepts defined in BCP 47, see [Language tags in HTML and XML](#).

Addison Phillips and Mark Davis, authors of BCP 47, provided guidance during the writing of this article.

answer

Accessing the subtag registry

All the subtags you will need to create a language tag are found in one place, the [IANA Language Subtag Registry](#). The registry is a long text file, containing nearly 8,000 entries.

The first (and often only) subtag in a language tag always designates a language. It is referred to in BCP 47 as the **primary language subtag**. We will use that term in this document to refer to the subtag that represents a language, to more clearly make the distinction from 'language tag', which refers to the whole thing.

related links

- Resources
- Techniques
- [IANA Language Subtag Registry](#)
- Subtag search tool
- BCP 47

BCP stands for 'Best Current Practice', and is a persistent name for a series of RFCs whose numbers change as they are updated. The latest RFC describing language tag syntax is RFC 5646, Tags for the Identification of Languages, and it obsoletes the older RFCs 4646 3066 and 1766.

The notes on this page provide guidance that is sufficient for most people wanting to use language tags. There are links to relevant sections of BCP 47 in this margin for people who want to read the full text of the specification.

Note, also, that some environments or systems may dictate choices that are different from what you would otherwise expect. For example, in Java you must use "hw" (deprecated in BCP47) in place of "he" (recommended in BCP47).

Best practices

Text expansion

DochuLa Pass



Around 3,100 m high, in Bhutan.

© Anyone can see this photo ([edit](#))

Uploaded on Jan 28, 2007 | [Map](#) | [Delete](#)

1,414 views / 5 comments

Korean		0.8
English	views	1
Chinese	次檢視	1.2
Portugues	visualizações	2.6
French ^e	consultations	2.6
German	-mal	2.8
Italian	angesehen visualizzazio ni	3

Best practices

Text expansion

Global settings

Interface language

Search language

Number of results

Acuan Umum

Bahasa Pengantar di Antar Muka

Bahasa Pengantar untuk Penelusuran

Jumlah Hasil Penelusuran

Allgemeine Voreinstellungen

Sprache der Benutzeroberfläche

Suchsprache

Anzahl der Ergebnisse

Best practices Checker tool

▼ Detailed report




Security Description

W3C Internationalization Checker (Prototype only!)

Is your Web site internationalized?

▼ Address http://rishida.net/tools/i18nchecker/test.php

▼ Results

 2  8  1

XHTML 1.0 :: text/html

Character encoding		Code
HTTP Content-Type	No charset found.	Content-Type: text/html
Byte order mark (BOM)	UTF8	
xml declaration	None found.	
meta charset element	iso-8859-1	<meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1" />
HTML5 meta charset element	None found.	
Language		Code
<html lang=	kk	<html lang="kk" xml:lang="to" dir="ltr" xmlns="http://www.w3.org/1999/xhtml">
<html xml:lang=	to	<html lang="kk" xml:lang="to" dir="ltr" xmlns="http://www.w3.org/1999/xhtml">
HTTP Content-Language	ka, ta	Content-Language: ka, ta
meta content-language element	en,fr,sp	<meta http-equiv="Content-Language" content="en,fr,sp" />
Text direction		Code
Default direction	ltr	<html lang="kk" xml:lang="to" dir="ltr" xmlns="http://www.w3.org/1999/xhtml">
Class & id names		Code
Non-ascii class or id names	8	<input type="button" value="Show list"/>
Non-NFC class or id names	4	<input type="button" value="Show list"/>
Request headers		
Accept-Language	en,pt-br;q=0.8,fr;q=0.5,ch;q=0.3	
Accept-Charset	ISO-8859-1,utf-8;q=0.7,*;q=0.7	

↑ TOP

▼ Detailed report

<http://validator.w3.org/i18n-checker/>

1. Discover

2. Check

Getting involved...

Getting involved

- Follow the discussions on the i18n mailing lists (eg. www-international@w3.org), and track other technologies for internationally relevant topics. Follow our RSS feeds and twitter channels ([@webi18n](https://twitter.com/webi18n) and [@multilingweb](https://twitter.com/multilingweb))
- Read and review specifications (<http://www.w3.org/TR/tr-technology-drafts>) and send comments to the i18n list or direct to the Working Group.
- Discuss local requirements for the Multilingual Web, and if you identify missing features, find ways to coordinate proposals.
- Use features needed for non-Latin script support and push implementers to include more in browsers and authoring tools.

Getting involved

- Review or contribute to development/dissemination of outreach materials, to help others understand how to implement and use international features of the Web.
- Take on board that internationalization is something done by developers and designers – not localizers. Find out how to do it. (<http://www.org/International/>)
- Use Unicode wherever you can.
- Consider how your content will appear on the Mobile Web.
- Participate in the MultilingualWeb events planned over the coming year and a half.
- Use the I18n Checker (<http://qa-dev.w3.org/i18n-checker/>) and send ideas for improvements.
- Don't rely on us to do the work for you! We need your help.

The Web needs your help

this is your Web –
not the W3C's

the Web is about
people, not
technology

we need **You** to
make the Web
worldwide

get involved



Thank you

<http://www.w3.org/International/talks/1010-madrid/>