

The Multilingual Web:
Latest developments
at the W3C/IETF

Richard Ishida
W3C Internationalization Activity

Outline

About the W3C

Standards support for the multilingual Web

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



Standards support for the multilingual Web



Standards support

Unicode

جعل شبكة الويب العالمية عالمية حقاً!
 وب جهانی را درستی جهانی سازیم!
 عالمگیر ویب کو حقیقی طور پر عالمگیر بنانا

Համաշխարհային ցանցն իրոք համաշխարհային դարձնելը
 ḐḑḒḐ ḐḑḒḐḑḒḐ ḒḑḒḐḑḒḐ ḑḑḒḐḑḒḐ

"Дүниежүзілік торды" нағыз дүниежүзілік етеміз!

वल्ड वार्ड वेबलाई यथार्थमै विश्वव्यापी बनाउने !

የዓለም አቀፉን ድር በእውነት አለም አቀፍ ማድረግ!

Κάνοντας τον Παγκόσμιο Ιστό πραγματικά Παγκόσμιο

ਵਰਡ ਵਾਈਡ ਵੈਬ ਨੂੰ ਵਾਕਈ ਵਿਸ਼ਵ-ਵਿਆਪੀ ਬਨਾਉਣਾ !

締造真正全球通行的万维网

ליצור מהרשת רשת כלל עולמית באמת!

'meikiŋ ðə wɜ:lɔd waɪd web 'tru:lɪ 'wɜ:lɔd'waɪd

ワールド・ワイド・ウェブを世界中に広げましょう

ធ្វើឲ្យវើបវ៉ាយវើបមានទូទាំងពិភពលោកពិប្រាកដមែន!

전세계의 월드 와이드 웹으로 만들기!

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

การทำให้ World Wide Web แพร่หลายไปทั่วโลกอย่างแท้จริง

འཛམ་གླིང་ཡོངས་འབྲེལ་འདི་ ངོ་མ་འབད་རང་ འཛམ་གླིང་ཡོངས་ལུ་བྱབ་ཚུགསཔ་བཟོ་བ།



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 ΔΡ^αΡΔ^β Γ^αΓ^β Γ^αΓ^β Γ^αΓ^β

"Дүниежүзілік торды" нағыз дүниежүзілік темә!

वर्ल्ड वाईड वेबलाई यथार्थमै विश्वव्यापी बनाएँ!

የዓለም አቀፉን ድር በእውነት አለም አቀፍ ማድረግ!

Κάνοντας τον Παγκόσμιο Ιστό πραγματικά Παγκόσμιο

ਵਰਡ ਵਾਈਡ ਵੈਬ ਨੂੰ ਵਾਕਈ ਵਿਸ਼ਵ-ਵਿਆਪੀ ਬਣਾਉਣਾ !

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'meikɪŋ ðə wɜ:lɪd waɪd web 'tru:lɪ 'wɜ:lɪd'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

Unicode

```
<h2><a id="რჩეული">რჩეული  
ფოტოსურათი</a></h1>
```

```
<p><a href="/wiki/ჭიამია" title="ჭიამია"  
class="mw-redirect">ჭიამია</a> (Coccinellidae),  
ხოჭოების ოჯახს ეკუთვნის. აქვს ამობურცული,  
მომრგვალო ან ოვალური სხეული. ზურგზე ღია  
ფონზე შავი ლაქები აყრია, იშვიათად
```

...

Standards support Unicode

<h2>
ფოტოსურათი</h2>

<p><a href="/wiki/ქიამს
class="mw-redirect">ქიამს
ხოქობის ოჯახს ეკუთ
მომრგვალო ან ოვალურ
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/>

Editors:

Tim Bray, Textuality and Netscape <tbray@textuality.com>

Jean Paoli, Microsoft <jeanpa@microsoft.com>

C. M. Sperberg-McQueen, W3C <cmsmcq@w3.org>

Eve Maler, Sun Microsystems, Inc. <eve.maler@east.sun.com>

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

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

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

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/>.

STATUS OF THIS DOCUMENT

Standards support

Unicode normalization

NFD

Í z e l i ó t o ű u ö 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 nemzetközsítése és lokalizálása, a Unicode alkalmazása működő rendszerekben és alkalmazásokban, szövegrendezésnél, 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>

Editors:

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:

Daniel C. Burnett, Voxeo (formerly of Vocalocity and Nuance)
双志伟 (Zhi Wei Shuang), IBM

Authors:

Paolo Baggia, Loquendo
Paul Bagshaw, France Telecom
Michael Bodell, Microsoft
胡方 (Hu Fang), Invited Expert (until 20 October 2009)
黄德智 (De Zhi Huang), France Telecom
黄力行 (Lixing Huang), Chinese Academy of Sciences
康永国 (Yongguo Kang), Panasonic Corporation (until 5 December 2007)
楼晓雁 (Lou Xiaoyan), Toshiba
Scott McGlashan, HP
蒙美玲 (Helen Meng), Chinese University of Hong Kong (until 29 July 2009)
陶建华 (Jianhua Tao), Chinese Academy of Sciences
王霞 (Wang Xia), Nokia (until 30 October 2006)
夏海荣 (Xia Hairong), Panasonic Corporation (until 2 August 2006)
吴志勇 (Zhiyong Wu), Chinese University of Hong Kong (until 29 July 2009)
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

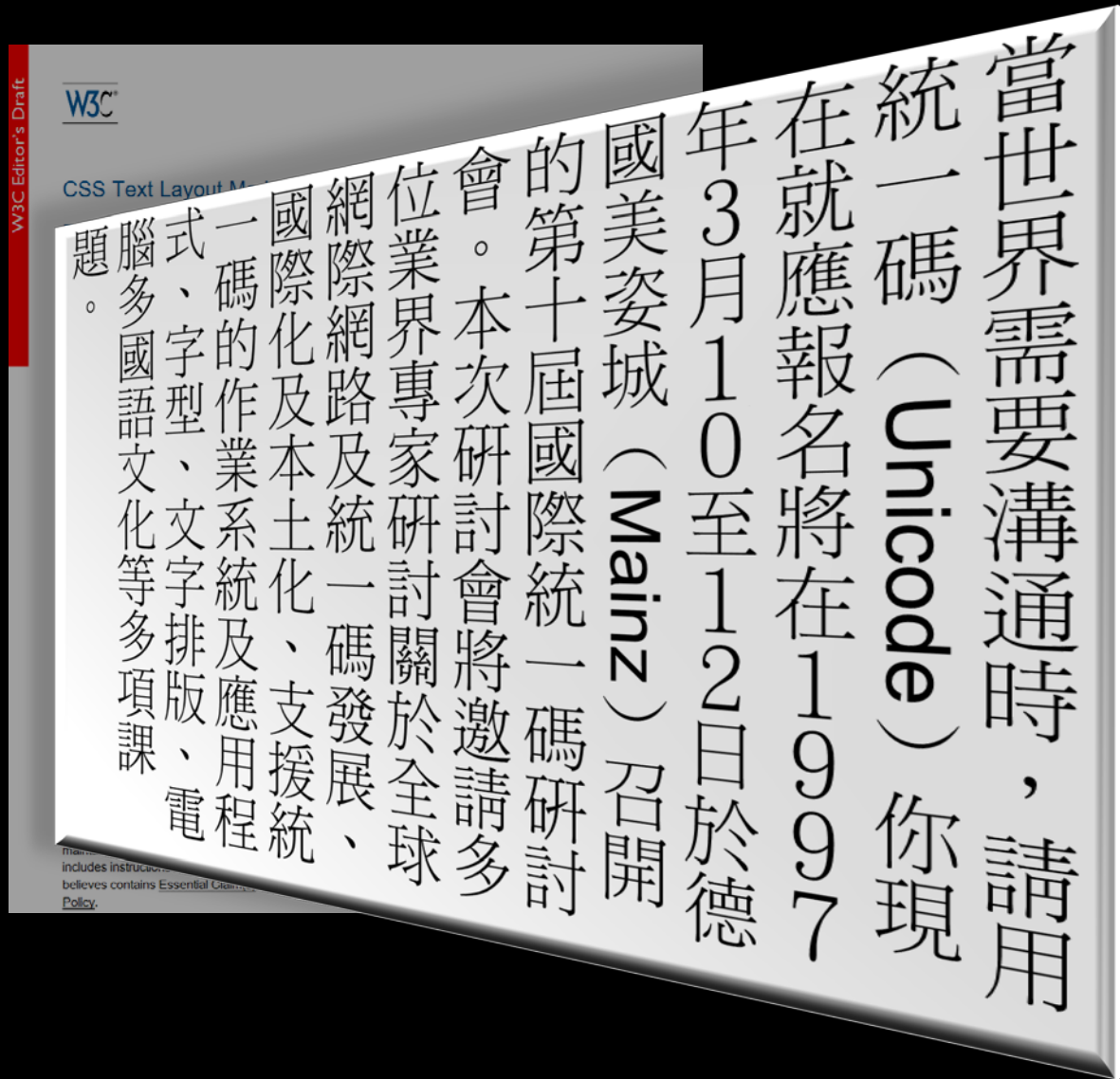
Измакоше *ти* кућу
на собу
на су *ти* узели свеску
из руке
неки бомбардери...

Беоїраг, Аїрил 1944

Измакоше *їи* кућу
їа собу
їа су *їи* узели свеску
из руке
неки *ъомъаръери*...

fi fi

Standards support Vertical text



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.

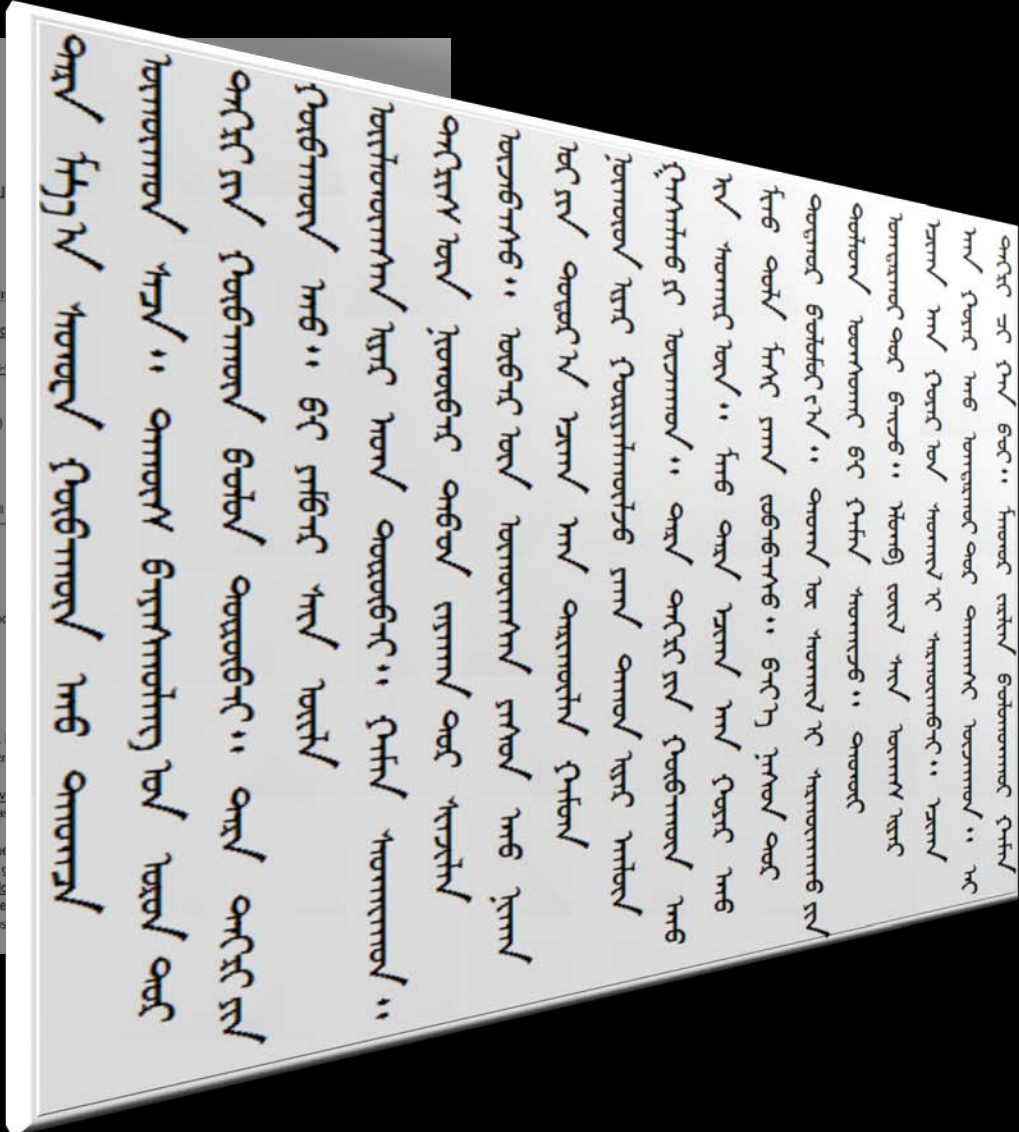
Status of this document

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

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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: Erika J. Etemad, Shinyu Murakami (Ante)

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

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Abstract

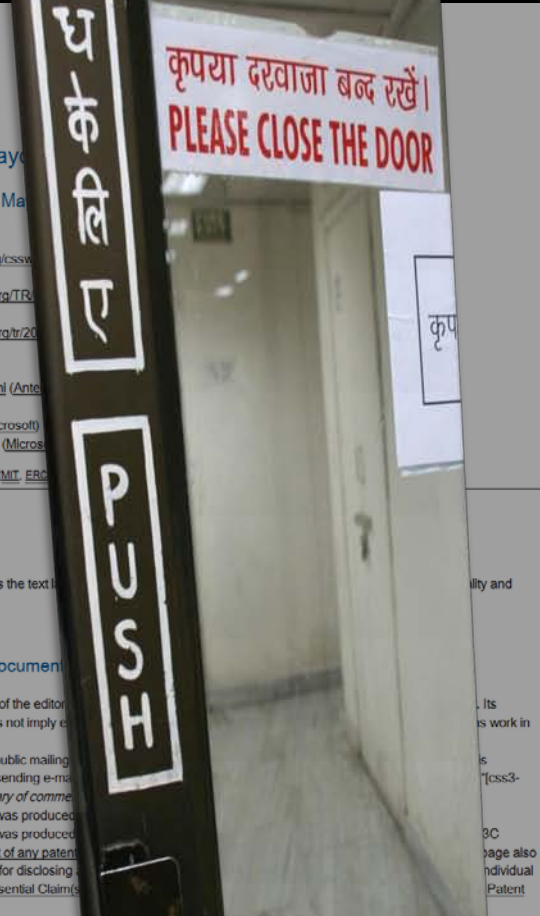
This module specifies the text layout for vertical text.

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The (archived) public mailing list [w3c-css-text@w3.org](#) (subscribe) provides a forum for discussion and is the primary mechanism for reporting bugs and requesting changes. When sending e-mail to the list, please put the subject line in the form "W3C (CSS3) - Summary of comments on [text](#)".

This document was produced by the [CSS3 Text Layout Working Group](#). This document maintains a public list of any patent disclosures that have been received by the Working Group. This document includes instructions for disclosing a patent. This document believes contains Essential Claims. [Patent Policy](#).



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정청(政令)도시)의 12개
민정청(民政令)도시)의 12개
민정청(民政令)도시)의 12개
민정청(民政令)도시)의 12개

日 34개地自體 철폐 검토

중대 대책, 오사카(大阪)
시는 일본정부가 일본 내
지방자치단체의 자립을
진정하게 해 주는 방안을
진정하게 해 주는 방안을
진정하게 해 주는 방안을

외국인 공무원 임용 제한 國籍 조항

국제행사의 휴양지
주세에 따른 지방자치
장이 대립해 왔으나
역협회가 서울 삼성동에
컨벤션센터를 짓기로 한

日 월3컵 유치신청 15개도시

「東京 妻仁(後藤)파견」을
드립, 일본, 유치신청
2002년 대학가 韓日
경인자치 정부를 위한

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/>

Editors:

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

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Abstract

"Ruby" are short annotations
pronunciation of
an XHTML document.

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Publication as a Recommendation and as a W3C Recommendation is inappropriate.

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
pronunciation of
associated with
[RUBY].

Status of This Document

See [open issues](#).

This document is not endorsed by the W3C. For reference material, see the W3C Recommendation. This enhances the readability of the 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/>.

Publication as a Recommendation and as a W3C Recommendation is inappropriate.

W3C Editor's Draft



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:

[Ian 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
- Hiroyuki Chiba (千葉 弘幸), Invited Expert
- Junsaburo Edamoto (枝本 順三郎), Invited Expert
- 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
character → んん ← ruby

base character → 子し ← ruby
character → はは ← ruby

base character → 和わ ← ruby
character → はは ← ruby

1/4 em space

half-width

1/2 em space

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

1/2 em space

half-width

1/2 em space

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

half-width

1/2 em space

Character advance of full stops and commas is half-width, 1/2 em space after

half-width

1/2 em space

どう
同ぜず



Standards support
Web fonts

തൊണ്ണൂറ്
ണ്ണൂ

ഉപാസകൻ

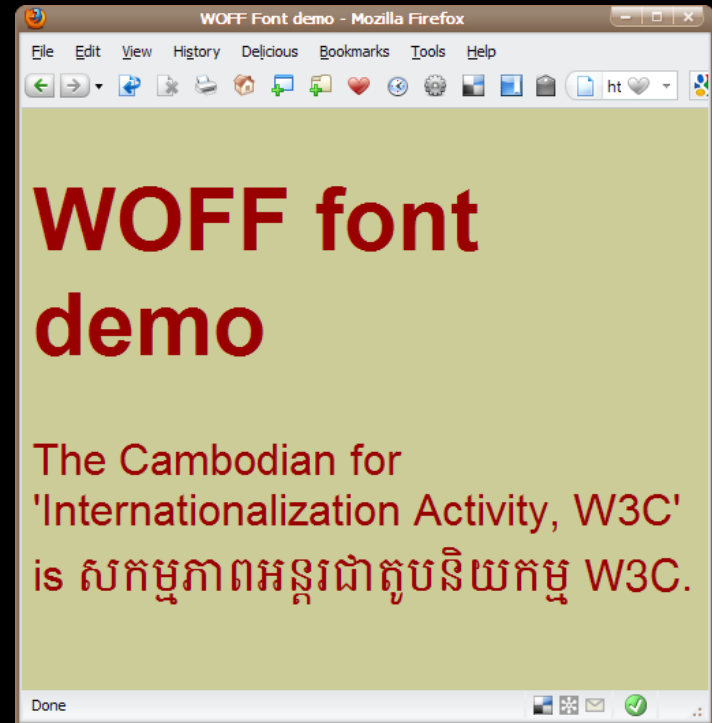
کو قفقى طور پر عالمگیر بنانا

ཀླུ་ལྷ་སྒྲིབ་བསྐྱེད་བའི་ལས་དོན།

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, 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](#).

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

`<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>
```

date

Posted

at 05:54:45

JUN > (date, and 24hr format for the time.)

2008 >

FRI SAT


4 5



Date Taken displays in the owner's timezone.

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

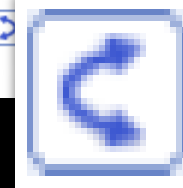
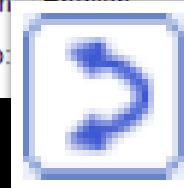
Translate text, webpages and documents

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

ضابطه لساني عدميت، W3C

Translate from: English

Translate into:



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:
[HTML](#), [PDF](#), [XML](#)
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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 MathML specification that may require extensions in future versions.

Status of this Document

This section describes the status of this document at the time of its publication. It may be superseded by a future version of this 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.

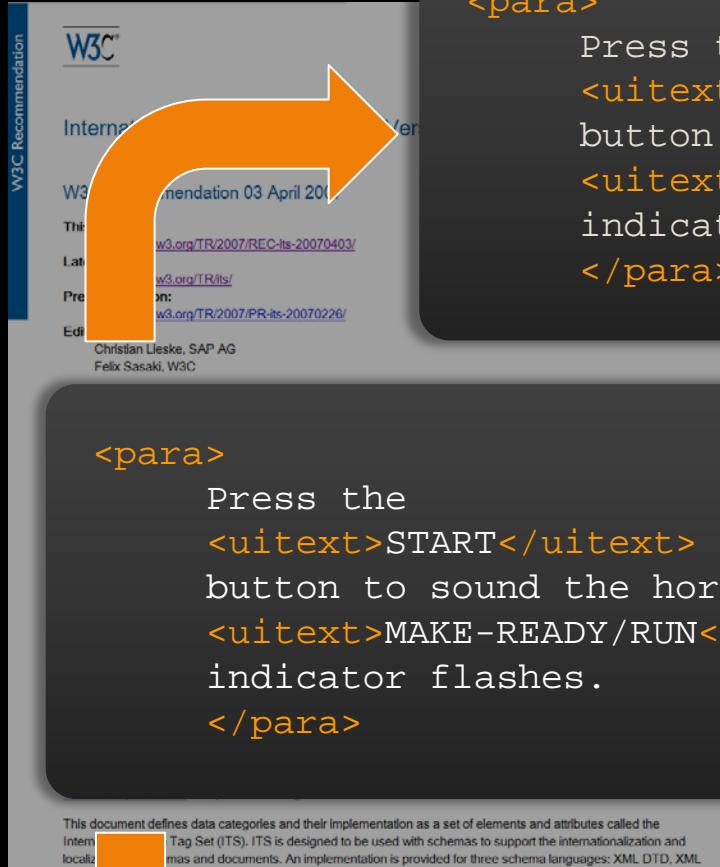
This Note has been written by participants in the [Math Interest Group](#) (W3C member activity). Please direct comments and report errors in this document to the [list](#) with a public [archive](#).

Publication as a Working Draft does not imply endorsement by the W3C. The document 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.

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

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

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>`

Standards support

Internationalization & Localization metadata

```
<p translate="no" >
```

W3C Recommendation

W3C

Internationalization Tag Set (ITS) Version 1.0

W3C Recommendation 03 April 2007

This version:
<http://www.w3.org/TR/2007/REC-its-20070403/>

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

Previous version:
<http://www.w3.org/TR/2007/PR-its-20070226/>

Editors:
Christian Lieske, SAP AG
Felix Sasaki, W3C

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

See also [translations](#).

This document is also available in these non-normative formats: [ODD/XML document](#), [self-contained zipped archive](#), and [XHTML Diff markup to publication from 26 February 2007](#).

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Abstract

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 schemas and documents. An implementation is provided for three schema languages: XML DTD, XML Schema and RELAX NG.

Status of this Document

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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 schemas and documents. An implementation is provided for three schema languages: XML DTD, XML



MultilingualWeb-LT

The changing social context

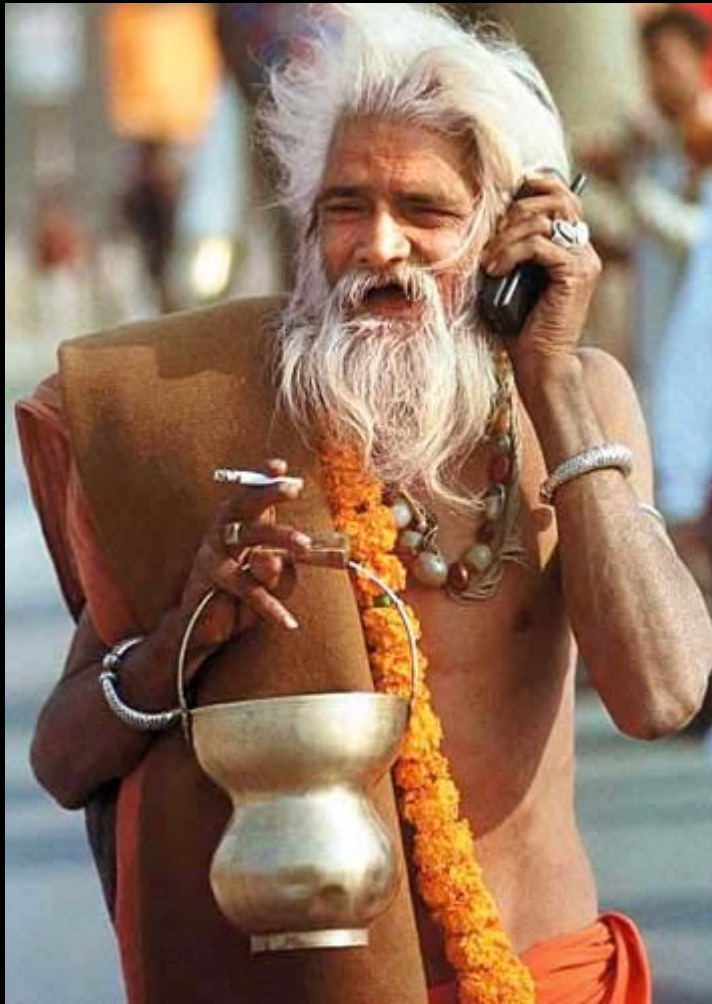
The rise of the Mobile Web



- "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 top-left document is 'Character Model for the World Wide Web 1.0: Normalization Model for the World Wide Web', showing its title, version information, editors, and abstract. The middle document is 'Best Practices for Internationalization', showing its title, version information, editors, and abstract. The bottom-right document is 'Working with Time Zones', showing its title, version information, editors, and abstract. Each document has a vertical blue bar on its left side with the text 'W3C Working Group Note'.

markup for
bidirectional text

Normalization

working with case
sensitivity

more information
about date & time

Best practices I18n resources

Articles

Tutorials

Technical notes
<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 has a navigation menu with links for Home, Resources, Techniques, Topics, News, Groups, and About. A search box is located in the top right corner with the text "I18n site search:" and "RSS Feeds" next to it. The main content area features a "Home page" section with a paragraph about the activity's purpose. Below this is a "Recent highlights" section with a list of updates: "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", and "11 April 10 W3C India Office opening at International Conference". A "Talk slides: W3C India Office opening" section follows, dated "24 May 2010", with a paragraph about a talk by Richard Ishida. Below that is a "Text direction tests updated" section dated "30 April 2010", which includes a bulleted list of changes: "HTML5 and XHTML5 were added as new test formats", "tests now use strict DOCTYPEs", "reference graphics in the vertical text tests were improved", and "the order of tests related to browser chrome was changed". A "New translation into Hindi" section is dated "28 April 2010" and mentions a translated getting-started article. The right sidebar contains several sections: "Site links" with links to Getting Started, Tasks, Topics, Resource types, Reviews, Mail archives, Aggregated data, Translation, News by category, and News archives; "I18n resources" with links to Authoring HTML & CSS, Authoring SVG, Authoring XML, Developing specifications, Setting up a server, Developing schemas, and Using the Web; "Quick links" with links to Planet, Specifications, Articles etc., Tests, MultilingualWeb, and @webi18n tweets; "About the Activity" with links to Groups, Mission, Contacts, and Activity Statement; "Participate!" with links to Join a Working Group, Review a W3C specification, Translate a specification or page, and Subscribe to the Interest Group list; "Search for news" with a search box and radio buttons for "All Words", "Some Word", and "Entire phrase"; and "Admin" with links to Admin, Profile (rishida), and Logout (rishida).

Best practices I18n resources

Articles

Tutorials

Technical notes

Tests

Talks

Tools

Reviews

 **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 தமிழ்
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 and more.

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).

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

Best practices

I18n resources

The screenshot shows a Mozilla Firefox browser window displaying the W3C I18n Site Index. The page title is "W3C Internationalization (I18n) Activity". The URL in the address bar is "http://www.w3.org/International/technique-index?topic=htmlauth". The page content includes a search bar, a "See also" section with links to "topic index" and "resources by type", and a "Current status" section. A large orange callout bubble with the text "Choosing language values" is overlaid on the page, pointing to a link in a list of internationalization techniques. The list includes: "Using the Web", "Creating HTML & CSS", "Authoring SVG", "Authoring XML", "Setting up a server", "Developing specifications", "Developing schemas", "Characters", "Language", "Markup & text", "Text direction", "Styling & layout", "Forms", "Navigation", "Cultural issues", and "Troubleshooting". The link "Choosing language values" is circled in orange. Other links in the list include "Identifying in-document language changes", "Indicating the language of a link destination", "Styling by language", and "Using Accept-Language for locale setting". The footer contains author information (Richard Ishida, W3C), a copyright notice (© 2009 W3C), and a privacy statement.

W3C Internationalization (I18n) Activity

Home R

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Internationalization site

118n site search:

RSS Feeds

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.

Choosing language values

Using the Web

Creating HTML & CSS

Authoring SVG

Authoring XML

Setting up a server

Developing specifications

Developing schemas

Characters

Language

Markup & text

Text direction

Styling & layout

Forms

Navigation

Cultural issues

Troubleshooting

Identifying in-document language changes

Indicating the language of a link destination

Styling by language

Using Accept-Language for locale setting

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 (X)HTML & CSS Techniques - Mozilla Firefox

http://www.w3.org/International/techniques/authoring-html#langvalues

Choosing language values

Recommendations

- Follow the guidelines in the IETF's BCP 47 for language attribute values.
- Use the shortest possible language tag values.
- Where possible, use the codes zh-Hans and zh-Hant to refer to Simplified and Traditional Chinese, respectively.
- Use the subtag zxx when the text is *known to be* not in any language.
- If the XML format you are using supports it, use `xml:lang=""`, otherwise use `xml:lang="und"` when the language is undetermined *and you have to label it*.

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

How to's

- W3** [Choosing a Language Tag](#)
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- 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

Choose another topic
Go to the techniques index

Identifying in-document

Recommendations

- Use the lang and/or xml:lang attributes around text to indicate any

Best practices

I18n resources

Choosing a language tag - Mozilla Firefox

File Edit View History Delicious Bookmarks Tools Help

http://www.w3.org/International/questions/qa-choosing-language-tags

W3C Internationalization

Home Resources Techniques Topics News Groups About

Choosing a Language Tag

on this page: [question](#) - [background](#) - [answer](#) - [by the way](#) - [further reading](#)

Intended audience: XHTML/HTML coders (using editors or scripting), script developers (PHP, JSP, etc.), CSS coders, schema developers (DTDs, XML Schema, RelaxNG, etc.), XSLT developers, Web project managers, and anyone who needs guidance on how to construct language tags.

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.

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).

> Español

related links

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

Done

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

▼ 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

Best practices

MultilingualWeb workshops

Developers

Creators

Localizers

Machines

Users

Policy



<http://multilingualweb.eu>

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.
- Review or contribute to development/dissemination of outreach materials, to help others understand how to implement and use international features of the Web.
- Attend the MultilingualWeb workshop in Luxembourg in March 2012.

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/IIII-aslib/>