

# CSSWG XML Prague 2020

## Antenna House

Michael Miller -- Tony Graham  
Antenna House

# Antenna House

- Established in 1984 in Japan
  - 60 employees
  - November 2000 started shipping XSL Formatter V1.0
  - March 2009 started shipping CSS Formatter
  - Antenna House Formatter is used in over 40 countries
  - Millions of pages are produced daily with AH Formatter
- 
- 2019 was one of the best years we've had.
  - **CSS and XSL-FO Paged media outputs are here to stay!**

# Antenna House Formatter

- Way beyond the browser!
- Way beyond typesetting!
- Implementing CSS for paged media output of content to produce documents ranging from simple form letters to highly complex publications such as journals, manuals, and guides.
- A CSS formatting engine that encompasses the functionality of our over 20 years of XSL formatting engine development.

# AH CSS Timeline

<b>18<sup>th</sup> October 2006</b>	<b>International Workshop on the future of the Extensible Stylesheet Language (XSL-FO) Version 2.0 Heidelberg, Germany</b>  <b>Antenna House (an implementor of XSL and represented on the XSL Working Group) gave a presentation about their desire for greater compatibility between CSS, and especially the CSS 3 drafts, and XSL-FO.</b>  <b>Zero votes in favor</b>
<b>April 2009</b>	<b>AH Formatter V5.0 released with support for CSS</b>
<b>February 2012</b>	<b>AH Formatter V6.0 released</b>
<b>25<sup>th</sup> February 2020</b>	<b>AH Formatter V7.0 will be released</b>

Antenna House has been developing our CSS Formatter for almost 14 years.

**Antenna House has always strived for quality formatting with the ability to handle complex page and document layouts.**

# A very small list of complexities of paged media output

- Support for multiple languages and writing directions. (over 70)
- MathML
- Support for multiple graphic formats (14, many of which are not supported by browsers)
- Support for multiple font formats (6)
- Support for multiple output formats (8)(20 versions of PDF)
- Accessibility
- Barcodes
- Headers and footers, including dictionary type
- Sidenotes and footnotes
- Change bars
- Multicolumn, mix of columns
- Page spreads
- Signatures
- Thumb tabs
- Rotated text, rotated pages

# INTRODUCTION TO



# FOR PAGED MEDIA



<https://www.antennahouse.com/css/>






# The Antenna House implementation

<https://www.antennahouse.com/product/ahf66/index.html>

## Documentation

## CSS Conformance


## XSL/CSS Properties List



- Overview
- Graphical User Interface
- Command-line Interface
- .NET Interface
- COM Interface
- Java Interface
- C/C++ Interface
- PDF Output
- SVG Output
- PostScript® Output
- XPS Output
- INX Output
- MIF Output
- Word(docx) Output
- TEXT Output
- Fonts
- Graphics
- Option Setting File
- XSL-FO Conformance
- CSS Conformance
- XSL/CSS Properties List
- XSL/CSS Extensions
- Float Extension
- Ruby Extension
- Spread Page Master Extension
- SVG Conformance
- CGM Conformance
- MathML Conformance
- Hyphenation
- PANTONE® Option
- Barcode Generator Option
- Environment Variables
- Symbolic Links
- Installed Modules
- Error Messages
- Technical Notes
- Index


Copyright © 1999-2020 Antenna House, Inc. All rights reserved.  
Antenna House is a trademark of Antenna House, Inc.

Please visit our website : [www.antennahouse.com](http://www.antennahouse.com)

 A Data Usability Company

• Microsoft, Windows, Windows Vista, Microsoft Internet Explorer are registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries.  
• Adobe, Adobe Acrobat, Adobe Reader, Acrobat are trademarks of Adobe Systems Incorporated.  
• Oracle and Java are registered trademarks of Oracle and/or its affiliates. Other names may be trademarks of their respective owners.

1 / 2



**CSS Conformance**

AH Formatter V7.0's CSS implementation is based on the following specifications:

- [CSS 2.1] [Cascading Style Sheets Level 2 Revision 1 \(CSS 2.1\)](#) (W3C Recommendation 07 June 2011)
- [CSS3-Background] [CSS Backgrounds and Borders Module Level 3](#) (W3C Recommendation 17 October 2017)
- [CSS3-Box] [CSS basic box model](#) (W3C Working Draft 9 August 2007)
- [CSS3-Break] [CSS Fragmentation Module Level 3](#) (W3C Candidate Recommendation 9 February 2017)
- [CSS3-Calendar] [CSS Color Module Level 3](#) (W3C Proposed Recommendation 15 March 2018)
- [CSS3-Content] [CSS Generated Content Module Level 3](#) (W3C Working Draft 2 June 2018)
- [CSS3-CounterStyle] [CSS Counter Styles Level 3](#) (W3C Candidate Recommendation 14 December 2017)
- [CSS3-Font] [CSS Fonts Module Level 3](#) (W3C Candidate Recommendation 15 March 2018)
- [CSS3-GCPM] [CSS Generated Content for Paged Media Module](#) (W3C Working Draft 13 May 2014)
- [CSS3-Image] [CSS Image Values and Replaced Content Module Level 3](#) (W3C Candidate Recommendation 17 April 2012)
- [CSS3-Inline] [CSS Inline Layout Module Level 3](#) (W3C Working Draft 8 August 2018)
- [CSS3-Line] [CSS3 module line](#) (W3C Working Draft 15 May 2002)
- [CSS3-Like] [CSS Lists and Counters Module Level 3](#) (W3C Working Draft 20 March 2014)
- [CSS3-Multicol] [CSS Multi-column Layout Module Level 1](#) (W3C Working Draft 5 October 2017)
- [CSS3-Namespaces] [CSS Namespaces Module Level 3](#) (W3C Recommendation 29 September 2011, edited in place 20 March 2014)
- [CSS3-Page] [CSS Paged Media Module Level 3](#) (W3C Working Draft 14 March 2013)
- [CSS3-Ruby] [CSS Ruby Layout Module Level 1](#) (W3C Working Draft 5 August 2014)
- [CSS3-Selectors] [Selectors Level 3](#) (W3C Candidate Recommendation 30 January 2018)
- [CSS3-Text] [CSS Text Module Level 3](#) (W3C Working Draft 22 August 2017)
- [CSS3-TextDecor] [CSS Text Decoration Module Level 3](#) (W3C Candidate Recommendation 1 August 2013)
- [CSS3-Transforms] [CSS Transforms Module Level 1](#) (W3C Working Draft 30 November 2017)
- [CSS3-UI] [CSS Basic User Interface Module Level 3](#) (W3C Proposed Recommendation 14 December 2017)
- [CSS3-Values] [CSS Values and Units Module Level 3](#) (W3C Candidate Recommendation 29 September 2016)
- [CSS3-WritingModes] [CSS Writing Modes Module Level 3](#) (W3C Candidate Recommendation 7 December 2017)

Many of CSS3 specifications are still under the draft or the state before draft. Although the specifications above are linked to the versions based on the AH Formatter V7.0 implementation, AH Formatter V7.0 does not implement them perfectly. Each property in this document includes the link to the specification that is the base of the implementation. ([CSS3-GCPM] etc. written at the beginning is an abbreviated name when referring to the specification).

- [yes] in the list means that the formatting object or property is implemented.
- [partial] means that the formatting object or property is partially implemented.
- [no] means not implemented.


Sometimes items with [yes] have some limitation(s) that do not affect their ability to accomplish the specified tasks.

**CSS Level 2 Revision 1 (CSS 2.1)**

**4 Syntax and basic data types**

Name	Condition	Comments
4.3.5 <a href="#">Counters: counter()</a> , <a href="#">counters()</a>	yes	⇨ <a href="#">counter()</a>
4.4 <a href="#">@charset</a>	yes	⇨ <a href="#">Encoding</a>

1 / 9



**XSL/CSS Properties List**

The following table shows XSL-FO properties and their corresponding CSS properties. A blank cell indicates that no corresponding CSS property is implemented for the XSL-FO property, or vice-versa. See also [XSL-FO Conformance](#) or [CSS Conformance](#) to learn the current implementation status for each property. [CSS Conformance](#) also defines the CSS module abbreviations, such as [CSS3-GCPM] etc., that are used in the table. Showing properties as corresponding does not always mean that their specifications in XSL-FO and CSS are completely aligned. Some correspondences just indicate that the properties are functionally equivalent or mostly similar. Among the CSS extension properties that have -ah- just added to the property name of the XSL specification, those that have no link destination have the same specifications in XSL and CSS. See also XSL specifications.

XSL	CSS	Description
<a href="#">xsl:abbreviation-character-count</a>	<a href="#">-ah:abbreviation-character-count</a>	Specifies the maximum number of characters considered to be an abbreviation.
7.6.1 <a href="#">absolute-position</a>	[CSS2.1] <a href="#">position</a>	
<a href="#">xsl:action-type</a>	<a href="#">-ah:action-type</a>	Specifies the action of <a href="#">External Link</a> or <a href="#">Form Actions</a> .
<a href="#">xsl:additive-symbols</a>	[CSS3-CounterStyle] <a href="#">(-ah-)additive-symbols</a>	⇨ <a href="#">-xsl:counter-style</a>
7.14.1 <a href="#">alignment-adjust</a>	[CSS2.1] <a href="#">vertical-align</a> [CSS3-Line] <a href="#">(-ah-)alignment-adjust</a>	
7.14.2 <a href="#">alignment-baseline</a>	[CSS2.1] <a href="#">vertical-align</a> [CSS3-Line] <a href="#">(-ah-)alignment-baseline</a>	
7.15.1 <a href="#">allowed-height-scale</a>	<a href="#">-ah:allowed-height-scale</a>	
7.15.2 <a href="#">allowed-width-scale</a>	<a href="#">-ah:allowed-width-scale</a>	
<a href="#">xsl:alttext</a>	<a href="#">-ah:alttext</a> [HTML] <a href="#">alt</a>	Specifies the alternate text of an image or link. (noLT)
<a href="#">xsl:annotation-author</a>	<a href="#">-ah:annotation-author</a>	Specifies the author of the annotation. (noLT)
<a href="#">xsl:annotation-border-color</a>	<a href="#">-ah:annotation-border-color</a>	Specifies the border color of the free text annotation. (noLT)
<a href="#">xsl:annotation-border-style</a>	<a href="#">-ah:annotation-border-style</a>	Specifies the border style of the free text annotation. (noLT)
<a href="#">xsl:annotation-border-width</a>	<a href="#">-ah:annotation-border-width</a>	Specifies the border width of the free text annotation. (noLT)
<a href="#">xsl:annotation-color</a>	<a href="#">-ah:annotation-color</a>	Specifies the color used for the background of the annotation. (noLT)
<a href="#">xsl:annotation-contents</a>	<a href="#">-ah:annotation-contents</a>	Specifies the content of the annotation. (noLT)
<a href="#">xsl:annotation-file-attachment</a>	<a href="#">-ah:annotation-file-attachment</a>	Specifies the file with which file attachment annotation is related. (noLT)
<a href="#">xsl:annotation-flags</a>	<a href="#">-ah:annotation-flags</a>	Specifies the flag of the annotation. (noLT)
<a href="#">xsl:annotation-font-family</a>	<a href="#">-ah:annotation-font-family</a>	Specifies the font family of the free text annotation. (noLT)

1 / 26



# V7.0

- V7.0 will be released – February 25<sup>th</sup>, 2020
  - Strengthen both CSS and XSL-FO
  - New features
  - Additional languages

## Breaking Paragraphs into Lines (BPIL)

### BPIL not applied

Lorem Ipsum is simply dummy text of the printing and typesetting industry Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum.

### BPIL applied

Lorem Ipsum is simply dummy text of the printing and typesetting industry Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum.

It can be seen that the width of the spaces at the end of lines are more even with applying BPIL.

In order to make it easier to understand the width of the space, the result is not justified.

## Breaking Paragraphs into Lines (BPIL)

### BPIL not applied, with hyphenation

Lorem Ipsum is simply dummy text of the printing and typesetting industry Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum.

### BPIL applied, with hyphenation

Lorem Ipsum is simply dummy text of the printing and typesetting industry Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum.

BPIL is designed to minimize the occurrence of hyphenation.

## Initial Letters


Specify the letter size as 3 lines

**L**orem ipsum dolor sit amet, consectetur adipiscing elit. Fusce sit amet risus ut sapien vehicula aliquam molestie vitae lacus. In aliquam sem quis suscipit iaculis. In vitae nibh volutpat, blandit mi at, cursus ipsum.

Indent all the lines in block

**Z**orem ipsum dolor sit amet, consectetur adipiscing elit. Fusce sit amet risus ut sapien vehicula aliquam molestie vitae lacus. In aliquam sem quis suscipit iaculis. In vitae nibh volutpat, blandit mi at, cursus ipsum.

Image as initial letter

 Lorem ipsum dolor sit amet, consectetur adipiscing elit. Fusce sit amet risus ut sapien vehicula aliquam molestie vitae lacus. In aliquam sem quis suscipit iaculis. In vitae nibh volutpat, blandit mi at, cursus ipsum.

Raised initial letter

**L**orem ipsum dolor sit amet, consectetur adipiscing elit. Fusce sit amet risus ut sapien vehicula aliquam molestie vitae lacus. In aliquam sem quis suscipit iaculis.



## Languages written right-to-left

הואיל והכרה בכבוד הטבעי אשר לכל בני  
המשפחה האדם ובזכויותיהם השוות והבלתי  
נפקעות הוא יסוד החופש, הצדק והשלום בעולם.  
הואיל והזלזול בזכויות האדם וביזוין הבשילו  
מעשים פראיים שפגעו קשה במצפונה של  
האנושות; ובנין עולם, שבו ייהנו כל יצורי אנוש  
מחירות הדיבור והאמונה ומן החירות מיוחד  
וממחסור, הוכרז כראש שאיפותיו של כל אדם.

## Language-specific letter selection

IJzel zorgt voor zeer gevaarlijke  
omstandigheden op de weg. IJzel  
zorgt voor zeer gevaarlijke  
omstandigheden op de weg.  
Black ice creates very dangerous  
conditions on the road. Black ice  
creates very dangerous conditions  
on the road.

## Automatically align to small-capitals

LOREM IPSUM dolor sit amet,  
consectetur adipiscing elit, sed do  
eiusmod tempor incididunt ut labore  
et dolore magna aliqua.

## Individual color

Zorem ipsum dolor sit amet,  
consectetur adipiscing elit. Fusce sit  
amet risus ut sapien vehicula  
aliquam molestie vitae lacus.

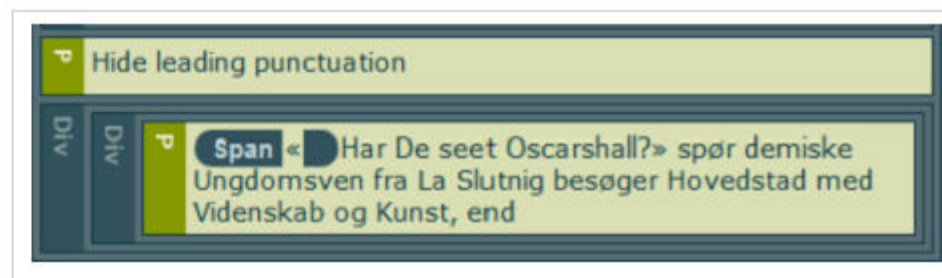
## Partially raised

gazing on that which seems to dim thy sight!"  
What seest thou there? King Henry's  
diadem, enchased with all the honours of  
the world? If so, gaze on, and grovel on  
thy face, until thy head be circled with the same.

## Hang leading punctuation

«**H**ar De seet Oscarshall?» spør demiske Ungdomsven fra La Slutnig besøger Hovedstad med Videnskab og Kunst, end

## Hidden punctuation included in PDF/UA



## Leading punctuation size and position

«**A**ar De seet Oscarshall?» spør demiske Ungdomsven fra La Slutnig besøger Hovedstad med Videnskab og Kunst, end

## Initial letter in vertical text

憶たヤ所じ何見れい名  
し事ーでめで当た。前  
てだ泣ニじもがかどは  
いけいゃめ薄つとこま  
るはてーし暗かんでだ  
。記いニたいぬと生無る

吾輩は猫

## Hide leading punctuation

**H**ar De seet Oscarshall?» spør demiske Ungdomsven fra La Slutnig besøger Hovedstad med Videnskab og Kunst, end

## box-decoration-break

box-decoration-break: slice;

Lorem ipsum

dolor sit amet,

orange consectetur adipiscing elit.

box-decoration-break: clone;

Lorem ipsum

dolor sit amet,

orange consectetur adipiscing elit.

box-decoration-break: slice;

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Sed aliquet efficitur erat, vitae porttitor libero pharetra lobortis. Nunc luctus enim euismod lacus dignissim, vitae tempor mi fermentum. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Vivamus quam nisl, consectetur nec nulla ut, molestie cursus turpis. Pellentesque non magna diam. Aliquam erat volutpat. Aliquam viverra dui odio, id laoreet enim laoreet et. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Sed

aliquet efficitur erat, vitae porttitor libero pharetra lobortis. Nunc luctus enim euismod lacus dignissim, vitae tempor mi fermentum. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Vivamus quam nisl. Lorem ipsum dolor sit amet, consectetur adipiscing elit. In turpis lorem, facilisis vitae odio sit amet, porttitor lobortis eros.

box-decoration-break: clone;

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Sed aliquet efficitur erat, vitae porttitor libero pharetra lobortis. Nunc luctus enim euismod lacus dignissim, vitae tempor mi fermentum. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Vivamus quam nisl, consectetur nec nulla ut, molestie cursus turpis. Pellentesque non magna diam. Aliquam erat volutpat. Aliquam viverra dui odio, id laoreet enim laoreet

et. Lorem ipsum dolor sit amet, consectetur adipiscing elit. Sed aliquet efficitur erat, vitae porttitor libero pharetra lobortis. Nunc luctus enim euismod lacus dignissim, vitae tempor mi fermentum. Vestibulum ante ipsum primis in faucibus orci luctus et ultrices posuere cubilia Curae; Vivamus quam nisl. Lorem ipsum dolor sit amet, consectetur adipiscing elit. In turpis lorem, facilisis vitae odio sit amet, porttitor lobortis eros.



## table-row widows/orphans

Specify the number of table-row to be remained at the top of the page: widows

Specified number: 1

table header 1	table header 2
cell	cell
cell	cell
cell	cell
cell	cell
cell	cell
cell	cell

cell	cell
------	------

Specified number: 2

table header 1	table header 2
cell	cell
cell	cell
cell	cell
cell	cell
cell	cell

cell	cell
cell	cell

Specify the number of table-row to be remained at the bottom of the page: orphans

Specified number: 1

sample

sample

sample

sample

sample

sample

table header 1	table header 2
-------------------	-------------------

cell	cell
cell	cell
cell	cell
cell	cell
cell	cell
cell	cell
cell	cell

Specified number: 2

sample  
sample  
sample  
sample  
sample

table header 1	table header 2
cell	cell
cell	cell
cell	cell
cell	cell
cell	cell
cell	cell
cell	cell

## Specify the unbreakable words

Register the "アンテナハウス"

アンテナハウス株式会社、アンテナハウス株式会社サンプルデータ、アンテナハウス株式会社、アンテナハウス株式会社サンプルデータ、アンテナハウス株式会社、アンテナハウス株式会社サンプル。

Register the "Antenna House"

Antenna House Sample Data, Antenna House, Antenna House Sample Data, Antenna House Sample, Antenna House Sample Data, Antenna House, Antenna House Sample Data, Antenna House, Antenna House Sample Data, Antenna House.

Register the language mixed word "Sampleデータ"

Sampleデータ、Sampleデータ、Sampleデータ、Sampleデータ、データ、データ、Sampleデータ、Sampleデータ、Sampleデータ、サンプルデータ、データ

Register the hyphenation included word "support-team"

aaaaa support team support team support team support team support team  
aaaaa support-team support-team support-team support-team support-team  
aaaaaaa supportteam supportteam

Only the specified words including hyphenation are processed.



## Specify the unbreakable words

Register the "アンテナハウス"

アンテナハウス株式会社、  
アンテナハウス株式会社サンプルデー  
タ、アンテナハウス株式会社、  
アンテナハウス株式会社サンプルデー  
タ、アンテナハウス株式会社、  
アンテナハウス株式会社サンプル。

Register the "Antenna House"

Antenna House Sample Data,  
Antenna House, Antenna House Sample  
Data, Antenna House Sample,  
Antenna House Sample Data,  
Antenna House, Antenna House Sample  
Data, Antenna House, Antenna House  
Sample Data, Antenna House.

Register the language mixed word  
"Sampleデータ"

Sampleデータ、Sampleデータ、  
Sampleデータ、Sampleデータ、デー  
タ、データ、データ、Sampleデータ、  
Sampleデータ、Sampleデータ、サンプ  
ルデータ、サンプルデータ、データ

Register the hyphenation included word  
"support-team"

aaaaa support team support team support  
team support team support team  
aaaaa support-team support-team  
support-team support-team support-team  
aaaaaaa supportteam supportteam

Only the specified words including hyphenation  
are processed.

- **Automated analysis of formatting results**
- **Custom Tagged PDF RoleMap**
- Justify space for last line of a paragraph (flush-zone)
- PDF 2.0 Output
- PDF/X-4p Output
- Support for WebP