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Overview

AH Formatter V7.1 is a PDF publishing software that formats XSL Formatting Objects (XSL-FO), XML/HTML with CSS. (XSL-FO and CSS cannot be used together). It is compatible with XSL 1.1 (Extensible Stylesheet Language (XSL) Version 1.1), that is an XSL-FO specification for displaying and printing XML documents beautifully. It also supports the page formatting with the layout specified by CSS (Cascading Style Sheets Level 2) and formatting with the layout specified by the page media specifications defined in CSS3 (Cascading Style Sheets Level 3) that are being formulated by W3C. This makes it possible to use HTML/XML with CSS to output various documents, forms, high-quality page formatting such as books, and page media such as printing and PDF.

The following six products are prepared according to the formatting capability of **AH Formatter V7.1**

- **AH Formatter V7.1**

  XSL-FO formatting, HTML formatting using CSS are available. As long as there is no notice especially in this document, when it is called **AH Formatter V7.1**, it is a generic term of six types of all products in many cases, but it may point an individual product guessing from the context.
- **AH XSL Formatter V7.1**

  XSL-FO formatting is available. HTML formatting using CSS is not available.
- **AH CSS Formatter V7.1**

  HTML formatting using CSS is available. XSL-FO formatting is not available.
- **AH Formatter V7.1 Lite**

  This is a function limited version of **AH Formatter V7.1**. See About **AH Formatter V7.1 Lite**. As long as there is no notice especially in this document, when it is called **AH Formatter V7.1 Lite**, it is a generic term including **AH XSL Formatter V7.1 Lite** and **AH CSS Formatter V7.1 Lite**.
- **AH XSL Formatter V7.1 Lite**

  This is a function limited version of **AH XSL Formatter V7.1**. See About **AH Formatter V7.1 Lite**.
- **AH CSS Formatter V7.1 Lite**

  This is a function limited version of **AH CSS Formatter V7.1**. See About **AH Formatter V7.1 Lite**.

Highlights

AH Formatter V7.1 provides the following features:

- ### Compliant with XSL 1.1

  Compliant with XSL 1.1 (Extensible Stylesheet Language (XSL) Version 1.1), which is an XSL-FO specification. **AH Formatter V7.1** faithfully implements quite almost elements of the XSL specification and properties. See “XSL-FO Conformance”.
- ### Compliant with CSS

  AH Formatter V7.1 supports CSS 2.1 and CSS3. Page models of CSS3 is also supported, now that high-quality page formatting will be available. For details about the conformance, see “CSS Conformance”. HTML/XHTML formatting is also available except for frames, etc., in HTML. See “Formatting HTML”.
- ### Passes Acid2

  AH Formatter V7.1 has passed the Acid2 test published by “The Web Standard Project (WaSP)” that measures the conforming level to CSS.
- ### Format virtually any size document

  AH Formatter V7.1 can now format a document of virtually any size whether it is a publication, tens of thousands of invoices, reports, technical manuals, or personalized one to one documents. See “Formatting Large Document”.
- ### High speed formatting

  AH Formatter V7.1 processes the formatting at high speed, and generates PDF. It is the best suited for applying to the Web application such as the PDF delivery on Web etc.
- ### Multilingual language

  AH Formatter V7.1 supports over 80 different languages, almost any language that is supported by Unicode and also supports surrogate pairs. It offers the abilities to write in vertical mode, to run the text from right to left as in Arabic and Hebrew and also to create multilingual documents with language mixtures on the same page and even on the same line. It also offers the hyphenation processing, and the adjustment of white space before and behind the punctuation which differs according to the

language and defining a custom counter style, etc. Moreover, **AH Formatter V7.1** makes it possible to hyphenate more than 40 languages.

- ### Outputs to the various file format

  PDF Output can be done for an unlimited number of users on a server by utilizing the Antenna House developed PDF direct creation engine. The license of Acrobat is unnecessary. **AH Formatter PostScript® Output Option**, **XPS Output Option** and **SVG Output Option** make PostScript® Output, XPS Output and SVG Output available. If you subscribe, Word(docx) Output is available.

- ### Supports PDF/X and PDF/A

  AH Formatter V7.1 supports PDF/X. PDF/X is a specification that places much value on exchanging data and defined by ISO for printing purpose. PDF/A is also supported. PDF/A is a format for long-term preservation of an electronic document and it is also defined by ISO.

- ### Accessible PDF

  AH Formatter V7.1 can generate Tagged PDF and PDF/UA for enhancing the accessibility of the PDF to people with disabilities. Generating Tagged PDF or PDF/UA is required for complying with Section 508, the law of the United States that became enforceable on June 21, 2001.

- ### Direct Printer output

  The Windows version also supports the ability to send the converted results directly to any Windows based printer without the need to first create a PDF document. It's also possible to get the formatted result and print it immediately by using Graphical User Interface.

- ### Native rendering of vector Graphics

  With **AH Formatter V7.1** SVG, MathML, EMF, WMF and CGM image is rendered into PDF as vector thus retaining the quality of output images. **AH Formatter CGM Option** is required for rendering CGM graphic.

- ### Supports the embedding of PDF into PDF

  An arbitrary page of other PDF can be embedded into PDF. It is possible to convert EPS into PDF and embed into PDF using this function. In the environment where Adobe Distiller and Ghostscript are installed, it can be performed automatically.

- ### Barcode Embedding

  Barcodes can be embedded in the document as images by using **AH Formatter Barcode Generator Option**.

- ### Supports PANTONE® color

  The color name of PANTONE® can be directly specified by using **AH Formatter PANTONE® Option**.

- ### Wide array of Integration Interface

  As integration interface **AH Formatter V7.1** provides Command-line Interface, .NET Interface, COM Interface, Java Interface and C/C++ Interface. (.NET and COM interfaces are available only for Windows.) All interfaces support streaming input/output which makes for the easy system integration. Also the output of the native parser of .NET (XML and XSLT output) can be directly received without going through a file. It is possible to receive DOM directly and process it with not only .NET interface but also COM interface.

- ### Flexible float features

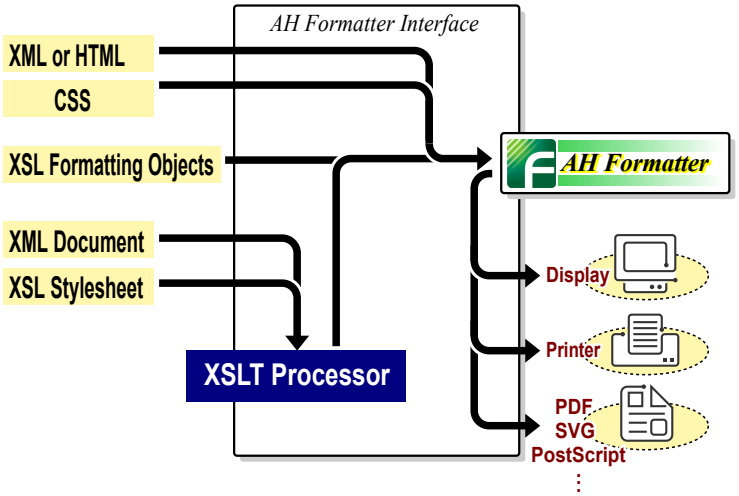
  By implementing the advanced float features, it's now available to arrange the float content in an arbitrary place of the page, or in multi-column layout with column spanning of the float. See also Float Extension.

Antenna House Workflow

AH Formatter V7.1 formats XSL Formatting Objects (XSL-FO), XML with XSL stylesheet, or HTML with CSS. The formatted result will be displayed in GUI and outputted or printed to PDF. (Display and printing are available only with the Windows version.) The work flow is as shown below.

- When an (X)HTML document is inputted, **AH Formatter V7.1** formats it immediately using a default HTML stylesheet.
- When an XML document or an (X)HTML document with a CSS are inputted, **AH Formatter V7.1** formats it immediately.
- When an XSL Formatting Object is inputted, **AH Formatter V7.1** formats it immediately.
- When an XML document and an XSL stylesheet are inputted, **AH Formatter V7.1** transforms them to XSL Formatting Object using XSLT Processor and formats the XSL Formatting Object or XHTML.

Find a list of implemented XSL-FO/CSS and properties in “XSL/CSS Properties”.



Enhancements and New Features

New Enhancements of **AH Formatter V7.1** from **AH Formatter V7.0** are as follows:

- Support for Armenian and Georgian. ☞ Scripts and Languages no-LT
- Now able to specify multiple values for axf:overflow-condense / CSS -ah-overflow-condense.
- Now able to specify the lower limit value when axf:overflow-condense="line-height" is specified. ☞ axf:overflow-condense-limit-line-height / CSS -ah-overflow-condense-limit-line-height
- Now able to specify the lower limit value when axf:overflow-condense="letter-spacing" is specified. ☞ axf:overflow-condense-limit-letter-spacing / CSS -ah-overflow-condense-limit-letter-spacing
- Now able to specify whether to set text-align-last="justify" automatically after condensing the overflow. ☞ axf:condensed-text-align-last / CSS -ah-condensed-text-align-last no-LT
- Page numbers can now be specified with axf:float-move / CSS -ah-float-move.
- The value of axf:float-x / CSS -ah-float-x has been extended.
- Now able to specify the adjustment when the block in <fo:inline-container> overflows. ☞ axf:inline-overflow-align / CSS -ah-inline-overflow-align no-LT
- Now able to specify whether to intrude the inline element into the punctuation. ☞ axf:intrude-into-punctuation / CSS -ah-intrude-into-punctuation no-LT
- The upper limit width of the keep-together.within-line condition can now be specified. ☞ axf:keep-together-within-inline-dimension / CSS -ah-keep-together-within-inline-dimension no-LT
- The value of axf:footnote-keep / CSS -ah-footnote-keep has been extended.
- The number of rows of fo:table to read ahead to determine the width of column can now be specified when table-layout="auto" is specified. ☞ axf:table-auto-layout-limit / CSS (-ah-)table-auto-layout-limit
- Now able to specify the maximum number of fo:table-row in fo:marker referenced from fo:retrieve-table-marker. ☞ axf:retrieve-table-rows no-LT
- The value of axf:suppress-if-first-on-page / CSS -ah-suppress-if-first-on-page has been extended. no-LT
- axf:suppress-duplicate-marker-contents is now effective even when <fo:retrieve-marker> references a different <fo:marker>. no-LT
- Now able to specify whether to add line numbers except for continued lines. ☞ axf:line-number-except-continued-line / CSS -ah-line-number-except-continued-line no-LT
- Now able to specify in the block element whether to include the last punctuation mark and count them in one character when axf:avoid-widow-word="true" is specified in CJK. ☞ axf:avoid-widow-words-cjk-punctuation / CSS -ah-avoid-widow-words-cjk-punctuation
- The value of axf:word-break / CSS (-ah-)word-break has been extended.
- Now able to change the handling of quotation marks with quotationmark in the Options Setting File, and also able to specify the direction of quotation marks with axf:quotetype. no-LT
- Now able to specify whether to report overflow errors in the Options Setting File. ☞ error-if-overflow no-LT
- ICC profiles can now be specified in HTML. ☞ <meta name="color-profile"> no-LT

- Now able to specify the contents to be displayed in the split cell even with CSS. ☞ CSS running(table-cell-repeated-marker) no-LT
- CSS var() function can now be specified.
- The function for referencing the width/height of the image such as <img> has been extended. ☞ CSS -ah-attr-img()
- Now able to specify whether to apply the default CSS for HTML (html.css) even for XML+CSS. ☞ apply-default-html-css-to-XML
- Now able to specify the annotation creation date and modification date. ☞ axf:annotation-createdate / CSS -ah-annotation-createdate, axf:annotation-modifydate / CSS -ah-annotation-modifydate no-LT
- Now able to specify whether to report the error when italic or small-caps are emulated in the selected font. ☞ emulated-italic, emulated-small-caps
- Arbitrary parameters can now be specified when converting EPS to PDF using Ghostscript. ☞ gs-options
- Now able to specify spaces above and below <msline> in MathML. ☞ mslineOverGap, mslineUnderGap
- Aztec Code can now be specified in the Barcode Generator Option.
- Now able to specify whether to display the WYSIWYG window as multiple pages.
- The GUI can now automatically analyze the formatting results of the current page. no-LT
- The Analyzer for automated analysis of formatting results has been extended. no-LT

System Requirements

AH Formatter	OS
Windows version	Windows 10
Windows x64 version	Windows Server 2016 Windows Server 2019 Windows 10 x64 Edition
Linux 64bit version	Built by GCC4.8. (required libstdc++.so.6 runtime library or a binary compatible library)
Macintosh 64bit version	macOS 10.14 (Intel version)

- Windows version (32-bit version) can be installed on Windows x64 Edition. When you use each interface, note the following points:
  - .NET Interface : Specify `/platform:x86`.
  - COM Interface : Use WSH (`C:\Windows\SysWOW64\cscript.exe`) 32-bit version.
  - Java Interface : Use JDK 32-bit version.
  - C/C++ Interface : Compile to be run on Win32 platform.
- Hereinafter unless otherwise explicitly mentioned, the phrase “Windows version” indicates both Windows x32 version and Windows x64 version.
- Hereinafter unless otherwise explicitly mentioned, the phrase “Linux version” indicates Linux 64-bit version.
- Hereinafter unless otherwise explicitly mentioned, the phrase “Macintosh version” indicates Macintosh 64-bit version.
- See “Fonts” for supported fonts. In addition, fonts are not included in the Windows version.
- Core 14 Fonts supplied with non-Windows version have the metrics information file only. They do not have the file of the outline information. If you want to embed these fonts to PDF or PS files, prepare whole fonts by yourself. You can download the fonts from PDF core font information.
- Confirm the necessary environment variables at “Environment Variables” in this manual.
- Confirm the installed modules at “Installed Modules” in this manual.
- When you change the directory of the modules from the installation status in Macintosh version, see Note when changing the location of Macintosh modules.
- Use case-insensitive OSX Extended format for Macintosh version.
- The printing function on the Windows version depends on Windows-based printer drivers.
- In Windows version, the run time library of Microsoft Visual C++ 2015 is required. This run time library is installed when you have the product installed on your system. It is also possible to download it from the following site When you need the package of the library separately.
  - Microsoft Visual C++ 2015 Redistributable

- When running **AH Formatter V7.1** on the virtual environment (VMware or Hyper-V, etc.), there is no functional restriction when the same operation is guaranteed as the actual running environment.

For more details, see also Antenna House Website.

Scripts and Languages

AH Formatter V7.1 supports languages expressed with the following scripts among the scripts specified by ISO 15924.

- Latn : Latin
- Grek : Greek
- Cyrl : Cyrillic
- Armn : Armenian V7.1 no-LT
- Geor : Georgian V7.1 no-LT
- Ethi : Ethiopic no-LT
- Arab : Arabic
- Syrc : Syriac no-LT
- Hebr : Hebrew
- Deva : Devanagari
- Beng : Bengali no-LT
- Guru : Gurmukhi no-LT
- Gujr : Gujarati no-LT
- Orya : Oriya no-LT
- Taml : Tamil no-LT
- Telu : Telugu no-LT
- Knda : Kannada no-LT
- Mlym : Malayalam no-LT
- Sinh : Sinhala no-LT
- Thai : Thai
- Khmr : Khmer no-LT
- Laoo : Lao no-LT
- Mymr : Myanmar no-LT
- Kana : Katakana
- Hira : Hiragana
- Hang : Hangul
- Hani : Han (Kanji)
- Hans : Han (Chinese Simplified)
- Hant : Han (Chinese Traditional)
- Jpan : Japanese (Hani+Hira+Kana)

Depending on the language, it's possible to hyphenate the Latin script, the Greek script and the Cyrillic script. Even if the hyphenation is `no` in this table, the hyphenation is available by preparing the TeX Dictionary.

Many of the language codes that are defined by ISO 639-2 (T) or ISO 639-3 can be specified. The main codes are as follows:

language code		language	script code	hyphenation
af	afr	Afrikaans	Latn	yes
	(aii)	Assyrian Neo-Aramaic no-LT	Syrc	n/a
am	amh	Amharic no-LT	Ethi	no
ar	ara	Arabic	Arab	n/a
az	aze	Azerbaijani	Cyrl / Latn	no

language code		language	script code	hyphenation
be	bel	Belarusian	Cyrl	no
bn	ben	Bengali no-LT	Beng	n/a
bs	bos	Bosnian	Cyrl / Latn	no
bg	bul	Bulgarian	Cyrl	yes
ca	cat	Catalan	Latn	yes
cs	ces	Czech	Latn	yes
	(cld)	Chaldean Neo-Aramaic no-LT	Syrc	n/a
cy	cym	Welsh	Latn	yes
da	dan	Danish	Latn	yes
de	deu	German / Swiss German	Latn	yes
el	ell	Greek	Grek	yes
en	eng	English	Latn	yes
en-US	eng-US	American	Latn	yes
eo	epo	Esperanto	Latn	yes
et	est	Estonian	Latn	yes
eu	eus	Basque	Latn	yes
fa	fas	Persian	Arab	n/a
fi	fin	Finnish	Latn	yes
fr	fra	French / Canadian French	Latn	yes
ga	gle	Irish (Erse or Gaelic)	Latn	yes
gl	glg	Galician	Latn	no
gu	guj	Gujarati no-LT	Gujr	n/a
he	heb	Hebrew	Hebr	n/a
hi	hin	Hindi	Deva	n/a
hr	hrv	Croatian	Cyrl / Latn	yes
hu	hun	Hungarian	Latn	yes
hy	hye	Armenian V7.1 no-LT	Armn	no
ia	ina	Interlingua	Latn	no
id	ind	Indonesian	Latn	yes
is	isl	Icelandic	Latn	yes
it	ita	Italian	Latn	yes
ja	jpn	Japanese	Hani, Hira, Kana, Jpan	n/a
ka	kat	Armenian V7.1 no-LT	Geor	no
kn	kan	Kannada no-LT	Knda	n/a
	(kar)	Karen no-LT	Mymr	n/a
kk	kaz	Kazakh	Cyrl / Latn	no
km	khm	Khmer no-LT	Khmr	n/a
	(kht)	Khamti no-LT	Mymr	n/a

language code		language	script code	hyphenation
ko	kor	Korean	Hang, Hani	n/a
	(ksw)	S'gaw Karen no-LT	Mymr	n/a
la	lat	Latin	Latn	yes
lo	lao	Lao no-LT	Laoo	n/a
lv	lav	Latvian	Latn	yes
lt	lit	Lithuanian	Latn	yes
ml	mal	Malayalam no-LT	Mlym	n/a
mk	mkd	Macedonia	Cyrl	no
mt	mlt	Maltese	Latn	yes
	(mnw)	Mon no-LT	Mymr	n/a
ms	msa	Bahasa Malay	Latn	yes
my	mya	Burmese (Myanmar) no-LT	Mymr	n/a
nb	nob	Norwegian (Bokmål)	Latn	yes
nl	nld	Dutch / Flemish	Latn	yes
nn	nno	Norwegian (Nynorsk)	Latn	yes
no	nor	Norwegian	Latn	yes
oc	oci	Occitan	Latn	no
or	ori	Oriya no-LT	Orya	n/a
pa	pan	Panjabi no-LT	Guru	n/a
pl	pol	Polish	Latn	yes
pt	por	Portuguese / Brazilian	Latn	yes
rm	roh	Romansh	Latn	no
ro	ron	Romanian / Moldavian	Latn	yes
ru	rus	Russian	Cyrl	yes
si	sin	Sinhalese no-LT	Sinh	n/a
sk	slk	Slovak	Latn	yes
sl	slv	Slovene	Latn	yes
es	spa	Spanish	Latn	yes
sq	sqi	Albanian	Latn	no
sr	srp	Serbian	Cyrl / Latn	yes
sw	swa	Swahili	Latn	yes
sv	swe	Swedish	Latn	yes
	syr	Syriac no-LT	Syrc	n/a
ta	tam	Tamil no-LT	Taml	n/a
te	tel	Telugu no-LT	Telu	n/a
th	tha	Thai	Thai	yes
tr	tur	Turkish	Latn	yes
uk	ukr	Ukrainian	Cyrl	yes

language code		language	script code	hyphenation
ur	urd	Urdu	Arab	n/a
uz	uzb	Uzbek	Cyrl / Latn	no
vi	vie	Vietnamese	Latn	no
zh-CN	zho-CN	Chinese	Hani, Hans	n/a
zh-TW	zho-TW	Chinese (Taiwanese)	Hani, Hant	n/a

The codes in parentheses are defined by ISO 639-3. The corresponding scripts show the major example.

Encodings

AH Formatter V7.1 supports the following HTML, CSS or FO Encodings. These are registered in CHARACTER SETS of IANA. However, the list includes some encodings that are not registered there. (Windows-31J is considered Shift_JIS.)

- UTF-8
- UTF-16
- UTF-32
- ISO-10646-UCS-2
- ISO-10646-UCS-4
- ANSI_X3.4
- ISO_646.irv
- ISO646-US
- US-ASCII
- Windows-1252
- Windows-31J
- Shift_JIS
- EUC-JP
- ISO-2022-JP
- GB18030
- GBK
- GB2312
- Big5
- KS_C_5601-1987
- iso-ir-149
- korean
- ISO-8859-1
- latin1
- ISO-8859-2
- latin2
- ISO-8859-3
- latin3
- ISO-8859-4
- latin4
- ISO-8859-5
- cyrillic
- ISO-8859-6
- arabic
- ISO-8859-7
- greek
- ISO-8859-8
- hebrew
- ISO-8859-9
- latin5
- ISO-8859-10
- latin6
- ISO-8859-11
- ISO-8859-13
- ISO-8859-14
- latin8
- ISO-8859-15
- Latin-9
- ISO-8859-16
- latin10

The encoding of the XML document and XSL stylesheet depends on the XSLT Processor you use when the XML document and XSL stylesheet are converted into XSL-FO by using the XSLT Processor.

XSLT Processor

AH Formatter V7.1 uses an XSLT Processor for converting XML documents and XSL stylesheets into XSL Formatting Objects (XSL-FO) or XHTML. In the Windows version, the higher version available from MSXML6 to MSXML3 is used as the standard XSLT

Processor. Windows users have the option to use a different XSLT Processor if desired. In non-Windows version users set their desired XSLT Processor through the “Environment Variables” or “Option Setting File”. For Windows MSXML is already installed.

About **AH Formatter V7.1 Lite**

AH Formatter V7.1 Lite is a popular version of **AH Formatter V7.1**, it limits some of the professional functions of V7.1 (hereafter Standard) and is a lower-cost alternative to V7.1 Standard. V7.1 Lite is suitable for customers who don't need advanced handling of PDF, formatting of a great deal of pages, etc. But it's still full of many other attractive functions.

- Total page number of the formatted pages are limited to 300 per 1 document. The watermark that shows the limited version is displayed and the URL of our Website is displayed at the bottom of the pages which exceed 300.
- Some Scripts and Languages are not supported. V7.1
- PDF/X, PDF/A, PDF/UA and Tagged PDF are not supported.
- Embedding multimedia is not supported.
- Embedding rich media is not supported.
- Cannot embed annotations, like 3D objects, in PDF.
- Cannot linearize PDF for Fast Web View.
- Cannot support embedding tagged PDF in tagged PDF.
- Cannot perform 2-pass format.
- Cannot save and load the AreaTree.
- TEXT Output is not supported.
- Word(docx) Output is not supported.
- MathML rendering is not supported. In order to use the function of MathML, you will have to purchase the AH Formatter MathML Option separately.
- Cannot support hyphenation with TeX dictionary.
- Cannot support Pass Through and High Compression Settings of images.
- Cannot support suppressing the output of the bookmark of PDF.
- Cannot support encrypting the metadata.
- Cannot support Edit Option Setting File from GUI.
- Cannot support Edit Font Configuration File from GUI.
- Cannot support Full Screen mode in GUI.
- Cannot support Show Border with Baseline.
- Cannot specify the default format of the Output File Name in the PDF output dialog.
- Cannot support Analyze Page in GUI. V7.1
- Cannot support WOFF File Format 1.0 and 2.0.
- Cannot support Automated Analysis.
- Some attributes that can be set in the Option Setting File are not supported.
- The following XSL/CSS Extensions are not supported. (When there is no specification written, they are common for XSL extension and CSS extension.)
    - Printer marks such as a crop mark
    - Appending a Font
    - PDF Forms
    - PDF annotation V7.1
    - Specify the page number of the link destination
    - PDF output in multiple separate volume
    - Specify the ICC profile to be embedded in PDF using the <meta> tag in HTML V7.1
    - Specify the tag name of Tagged PDF
    - Removal of duplicate marker references.
    - Line continued marks
    - Line numbers V7.1
    - Printer control

  - Leader expansion
  - Page Control Extensions
  - Suppress a block on the first page
  - Character string conversion such as Japanese numerals
  - Set the prefix for line numbers
  - Omit header/footer on column breaks, not on page breaks
  - Specify additional hyphenation information
  - Specify additional option setting information
  - Change letter-spacing depending on the number of characters
  - Transform the block
  - Gradation expressions
  - Rendering of characters to be upright and horizontal-in-vertical composition
  - Unicode normalization forms
  - Layer in PDF Output
  - Overprint
  - Text shadow
  - Drop Capitals
  - Baseline grid
  - Spread Page Master Extension
  - fo:page-sequence
  - Define custom counter styles
  - Tab stop position
  - Custom property in PDF
  - Stroke of the character
  - Feature control of OpenType font
- Some of the following XSL/CSS Extensions have limitations. (When there is no specification written, they are common for XSL extension and CSS extension.)
  - Bookmarks
  - rgb-icc()
  - text-transform
  - force-page-count
  - fo:change-bar-begin
  - Embed the document information in PDF
  - Images, Multimedia
  - Line Breaking V7.1
  - Overflow Extensions V7.1
  - Box shadow
  - Page number
  - Footnote
  - Background
  - Table V7.1
  - odd-or-even
  - Borders
  - Trimming and Hanging V7.1
  - Text Alignment
  - Ligature
  - Properties based on the CSS3 specification
- Lite doesn't include 90 day warranty. Customers may purchase an annual maintenance agreement to get the customer service.

FYI: no-LT sign is applied to the restricted items or described as restriction in this Manual.

About Evaluation Version

AH Formatter V7.1 Evaluation version has the following restrictions as compared to the product version.

- The URL of Antenna House website is shown at the bottom of all pages.
- The watermark image, “Evaluation Version”, is placed on each page.
- The weight of the font and the color of the image may look a little different because of the watermark. This is caused by an issue with Adobe Acrobat or Reader. In addition, the printing speed decreases because of the watermark.
- PDF1.3 cannot be output with the evaluation version.
- Impossible to input/output the AreaTree.
- The function of PostScript® Output is effective. PostScript Output has the following restrictions.
  - Only the first page can be outputted.

  This function with the product version is provided as an option. In order to use this function with the product version, customers must purchase AH Formatter PostScript® Output Option separately.
- The function of SVG Output is effective. SVG Output has the following restrictions.
  - Only the first page can be outputted.

  The SVG Output function in the product version is provided as an option. In order to use this function in the product version, customers must purchase AH Formatter SVG Output Option separately.
- The function of XPS Output is effective. XPS Output has the following restrictions.
  - Only the first page will be outputted.

  The XPS Output function in the product version is provided as an option. In order to use this function in the product version, customers must purchase AH Formatter XPS Output Option separately.
- The feature of Word(docx) Output is effective. Word(docx) Output has the following restrictions.
  - Only the first page will be outputted.

  The Word(docx) Output feature in the product version is provided as an option. In order to use this feature in the product version, customers must subscribe AH Formatter Word(docx) Output Option separately.
- The feature of CGM rendering by utilizing our direct creation module is effective. This feature in the product version is provided as an option. In order to use this feature with the product version, customers must purchase AH Formatter CGM Option separately.
- Barcode Generator Option is effective. However, it may not be able to read correctly because the watermark is drawn. In order to use this feature with the product version, customers must purchase AH Formatter Barcode Generator Option separately.
- The evaluation copy expires after 90 days.
- Use of the evaluation version for live production or commercial purposes is expressly prohibited.
- Removal of the watermark and/or our website URL at the bottom of the page in the evaluation version is prohibited.

There are no restrictions on formatting functions except for the above mentioned. However, the optional features that are not explicitly stated above are invalid.

Support

For further information about **AH Formatter V7.1**, see our website.

- AH Formatter

Antenna House provides numerous XSL-FO and CSS samples for testing and learning purpose. See the following:

- Developing XSL-FO Stylesheets
- XSL-FO Samples
- Antenna House Tips & Tricks
- Introduction to CSS for Paged Media

For more information, technical support and service needs, contact us by e-mail.

- info@antennahouse.com

To facilitate support requests, provide the following information:

- Version of AH Formatter
- License information (Serial No., Company name, Section and User name)
- OS environment

If you are a user of the evaluation version, enter “evaluation version” for the serial number. In the Windows product version, you can put the required information for support to the mail text automatically by using [Help]-[Mail to Support] on the menu bar in GUI.

Graphical User Interface

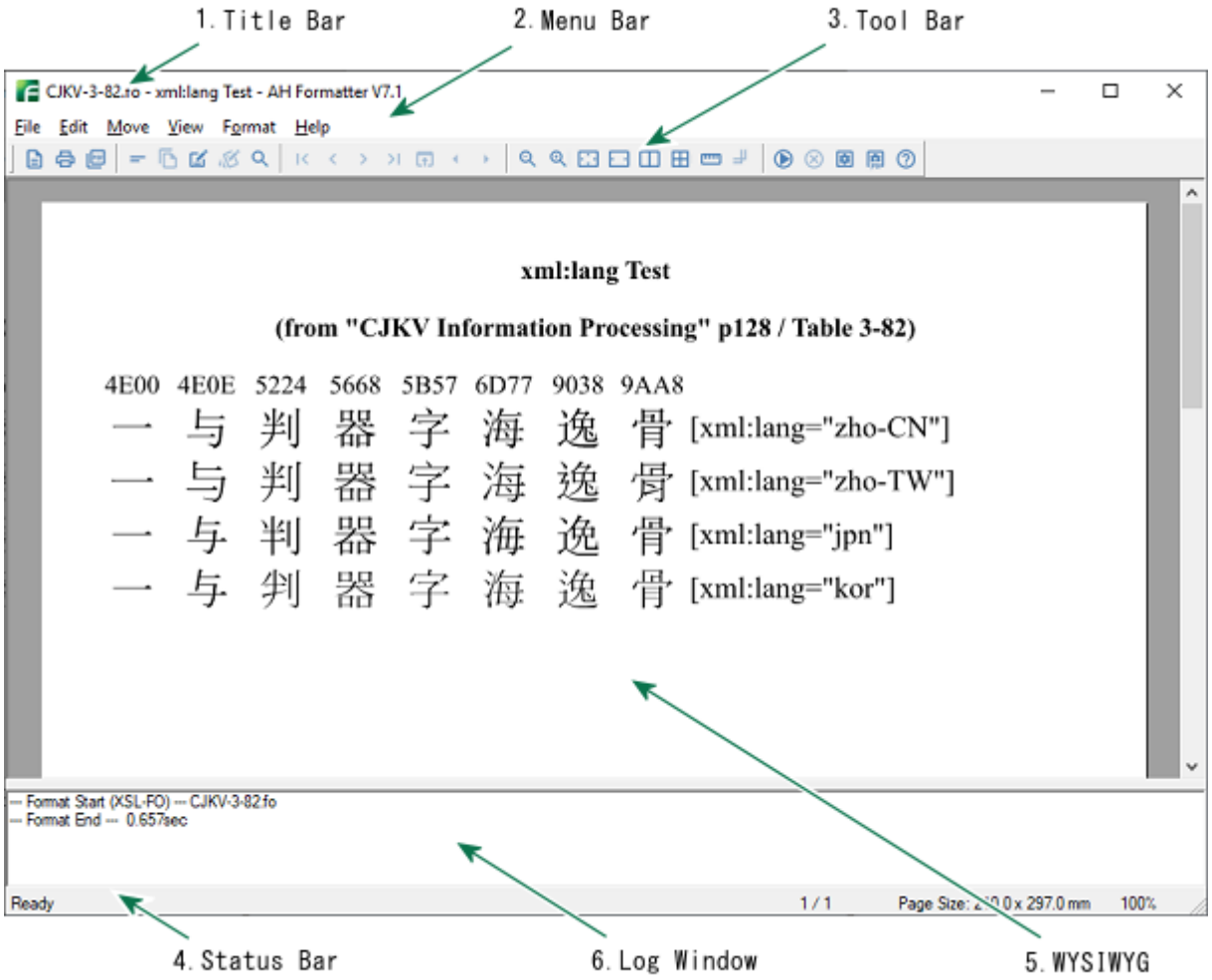
AH Formatter V7.1 Windows version has a Graphical User Interface (GUI). By using the GUI, you can easily initiate formatting and then view the formatted results in the WYSIWYG window prior to outputting to PDF or printing. You also have control over a number of formatting options, can set the options for PDF output and can direct files to any connected printer.

For developers, the GUI provides quick visual feedback of formatting results and has the added ability to save Area and FO Trees to aid in the development processes. In a large multi-page document, the pages can be browsed as they are formatted. If errors are detected, formatting can be stopped prior to completion, thus saving considerable time on very large runs.

The GUI also lets you save the XSL-FO file resulting from an XSLT transformation. This is very useful when you want to transmit a file for formatting, but not the XML or XSL files.

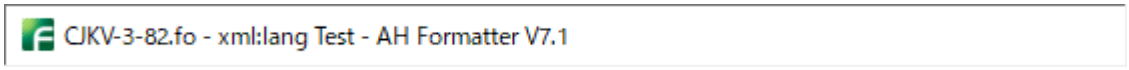
Main Window

The application window of **AH Formatter V7.1** consists of following elements:



1. ### Title Bar

   The title bar shows the title of **AH Formatter V7.1** and the filename of the original XML document you are viewing. It may also show: a `<title>` of HTML; and if the FO contains a `<fo:title>` formatting object; or if `title` is specified by the `<axf:document-info>` extension element, then either content (HTML's `<title>` or `<fo:title>` has priority) is also displayed.

2. **Menu Bar**

   The menu bar contains the following 6 pull-down menus:

   - File
   - Edit
   - Move
   - View
   - Format
   - Help

3. **Tool Bar**

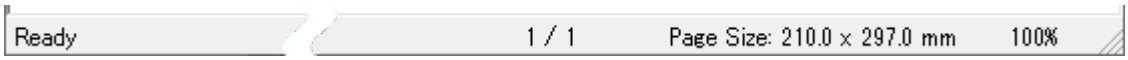
   The most commonly used menu functions are available as buttons on the Tool Bar. You can easily execute these functions by one click of the mouse. ☞ [View]-[Tool Bar]

4. **Status Bar**

   The Status Bar displays the following information:

   - Current status of Formatter or the tool bar button function as you pass over the button with the pointer.
   - Current page number/total number of pages (based on physical page count).
   - The physical page size of the displayed page.
   - Zoom ratio.

   ☞ [View]-[Status Bar]



5. **WYSIWYG (What You See Is What You Get)**

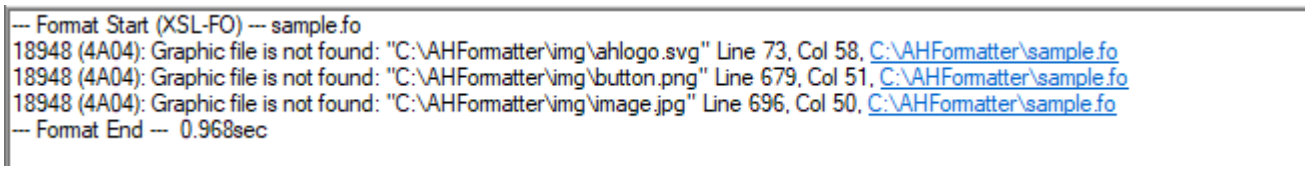
   The WYSIWYG displays the formatted results. When the scroll bar is displayed on the WYSIWYG window, you can press and hold the left mouse button to use the hand tool as the mouse pointer to move the page around so that you can view all the areas. Note that the hand tool is not available when [Text Select] mode is selected in the Edit menu.

   You can format files of various types by dropping them on the WYSIWYG window. ☞ Drag-and-drop Formatting

   CAUTION: Although some unsupported drawing elements may not be displayed in the GUI, there may be no problem with the output to other devices, such as PDF.

6. **Log Window**

   The log window shows a running status as the document is formatted. Minor warnings are shown here. Serious warnings are shown in a popup dialog box. The log window can hold a significant amount of status information. Older information is discarded if the information becomes too much. The last line of the log output is the time it took to format the document. The log window has its own scroll bar for viewing the log output.



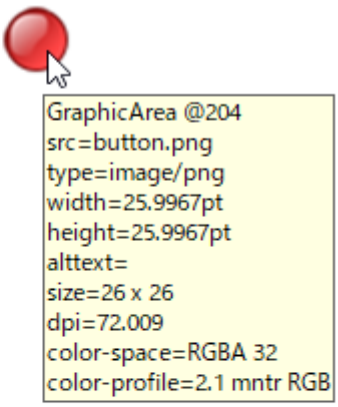
   The content in the log window can now automatically be saved to a file by click the Others tab in the Other Settings Dialog and then checking the [Output Log File] check box.

   Click the link to the document displayed in the error log to edit the document using the editor specified in the Editors page in the Other Settings Dialog.

   The log window can be displayed in three modes: Hide, Floating, and Docked. You can float the log window by dragging the border between the log window and the WYSIWYG window, or by selecting Floating from the View Menu. Also, if you drag the floating log window, a guide to the docking position will be displayed, and you can dock the log window by dropping it at the specified position. Leave the log window floating and select Docked from the View Menu to dock the log window where it was previously docked.

Tooltip

When the pointer is over an area on the WYSIWYG window, such as over a character string or an image, the information about the area is displayed as a Tooltip. Font name, size, format and size of an image that are actually used can be checked.



Multiple font names may be displayed in order to show the difference between the specified font and the font actually used:

font-family
: The font-family specified by FO.

font-name
: The font name actually selected. If this is the same as font-family, it is not displayed.

display-font
: The font name that Windows selected to display the character on the screen. If this is the same as font-name, it is not displayed.

See also [Display Glyph] in the menu.

Drag-and-drop Formatting

You can format files of various types by dropping them on the WYSIWYG window. The type of the file is detected automatically as you drop it. (See Detection of Formatting Type to learn about automatic detection.) If you'd like to specify the file type, instead open the file using the Document/Stylesheet Dialog. The dropped file is added to the <Recent File> list in the File menu and its file type is also memorized. Therefore, when you drop a file that is also on the Recent File list, the same file type will be used again automatically. Formatting actions for each file type are as follows:

FO file
: Formatting starts immediately.

Stylesheet (XSL or CSS)
: When you drop the stylesheet on a formatted XML/HTML document, **AH Formatter V7.1** starts formatting the current document using the dropped stylesheet. When you drop the stylesheet and there is no current XML/HTML document, if you then drop a XML/HTML document, **AH Formatter V7.1** starts formatting the new document using the stylesheet.

HTML file (without XSL/CSS specification in HTML)
: Formats the document using a default stylesheet.

XML/HTML file (with XSL/CSS specification in XML/HTML)
: Formats the document using the stylesheet specified in the XML/HTML.

XML/HTML file (without XSL/CSS specification in XML/HTML) + Stylesheet (XSL/CSS)
: Formats the document using the dropped stylesheet.

XML/HTML file (with XSL/CSS specification in XML/HTML) + Stylesheet (XSL/CSS)
: Formats the document using the dropped stylesheet.

Graphics file
: Renders graphics files in formats supported by **AH Formatter V7.1**.

If another stylesheet is dropped when formatting a file, except for a FO or graphics file, the file can be again formatted using the stylesheet. Moreover, if a Internet shortcut (`.url`) file, URL character string or Shortcut link (`.lnk`) to a file is dropped, the target file referred to by the URL can be opened.

Menu

1. **File**

Menu	Shortcut	Description
Open...	Ctrl+O	Displays the Document/Stylesheet Dialog.
Close	Ctrl+W	Closes the displayed formatted results.
Save AreaTree... no-LT		Displays the Save AreaTree Dialog.
Save FOTree...		Displays the Save FOTree Dialog.
Save FO...		Displays the Save FO Dialog.
Print...	Ctrl+P	Displays the Print Dialog.
PDF Output	Ctrl+D	Displays the PDF Output Dialog.
SVG Output...		Displays the SVG Output Dialog.
PostScript Output...		Displays the PostScript Output Dialog.
XPS Output...		Displays the XPS Output Dialog.
Word(docx) Output... no-LT		Displays the Word(docx) Output Dialog.
Text Output... no-LT		Displays the Text Output Dialog.
Document Information...		Displays the Document Information Dialog.
<Recent File>		Displays the files that were most recently formatted.
Exit	Alt+F4	Exits **AH Formatter V7.1**.

2. **Edit**

Menu	Shortcut	Description
Text Select		Enables you to select the text in the WYSIWYG window with the mouse.
Copy	Ctrl+C	Copies the selected text to the clipboard.
Select All	Ctrl+A	Selects all the text shown in the formatted document in the WYSIWYG window.
Deselect		Cancels selection mode of the text.
Edit Document	Ctrl+U	Opens the target XML document or stylesheet using the editor specified in the Editors tab in the Other Settings Dialog. You cannot edit a document formatted via HTTP or HTTPS.
Edit StyleSheet	Shift+Ctrl+U	
Search String...	Ctrl+F	Displays the Search String Dialog.
Search Property...	Shift+Ctrl+F	Displays the Search Property Dialog.
Search Previous	Shift+F3	Searches backwards from the position just before the search position.
Search Next	F3	Searches forwards from the the search position.

3. **Move**

Menu	Shortcut	Description
First Page	Ctrl+Home	Goes to the first page.
Previous Page	Ctrl+PageUp	Goes to the previous page.
Next Page	Ctrl+PageDown	Goes to the next page.
Last Page	Ctrl+End	Goes to the last page. When you stop formatting before it finishes, the last formatted page will be displayed.
Go To Page...	Ctrl+G	Displays the Go To Page Dialog. This only functions in multi-page documents. The current page position is shown in the Status Bar.
Back	Alt+←	As you move through the pages of a document, Formatter stores up to 10 moves. By using Back and Forward, you can step backwards or forwards through the pages viewed.
Forward	Alt+→	

4. **View**

Menu	Shortcut	Description
Fit in Window	Ctrl+0	Zooms the displayed size of the formatted page to automatically fit the entire page in the WYSIWYG window.
Actual Size	Ctrl+1	Sets the zoom ratio to 100%.
Fit Page Width	Ctrl+2	Automatically zooms the width of the formatted page to the width of the WYSIWYG window.
Zoom In	Ctrl++	Changes the zoom in/out %. You can change the zoom in % up to 2000% and zoom out % up to 12.5%. Values from 5% to 2000% can be entered using the Zoom Dialog. The current zoom ratio is shown in the Status Bar.
Zoom Out	Ctrl+−	
Zoom...	Ctrl+M	Displays the Zoom Dialog.
Two Page View	Ctrl+N	Specifies whether to display the formatted pages on the WYSIWYG window as two facing pages or as single pages.
Continuous		Specifies whether to display the formatted pages on the WYSIWYG window continuously or as separate pages.
Many Page View		Specifies whether to display the formatted pages on the WYSIWYG window as multiple pages. V7.1
Show Border	Ctrl+B	Specifies whether to display borders of areas. The displayed borders are used to confirm how the formatted result is divided in areas. The borders do not appear in any output file or when printing. This setting can also be specified in Other Settings Dialog.
Show Ruler	Ctrl+I	Displays the ruler to confirm the position of the character, etc., in the document. The ruler can be moved to anywhere you like.
Show Printer Mark no-LT		Specifies whether to display printer marks. Available only when the document being formatted includes printer marks.
Display Glyph		Specifies whether the characters are selected by Windows or are based on glyph outlines. When Windows can select the font to display, a font may be replaced and there is no guarantee that the font that is displayed is the actual specified font. See Tooltip. When a font is not the font installed in Windows, always display the glyph outline.
Tool Bar		Specifies whether to show or hide the Tool Bar.
Status Bar		Specifies whether to show or hide the Status Bar.
Log Window		Specifies how to display the Log Window. You can choose from three modes: Hide, Floating, and Docked.

Menu	Shortcut	Description
Full Screen no-LT	F11 / Ctrl+L	Makes the screen in full screen mode. You can go to full screen mode when any document is open. Full screen mode is canceled when the document is closed. You can also exit full screen mode by pressing ESC / F11 / Ctrl+L. Pages can be moved with the mouse or shortcut keys.

5. **Format**

Menu	Shortcut	Description
Format	F5 / Ctrl+R	Formats the current document (FO or XML+XSL, etc.).
Stop Formatting	Shift+F5	Stops formatting. In a large multi-page document, the pages can be browsed as they are formatted. If errors are detected, you can stop the formatting prior to completion.
Analyze Page		Analyzes the current page. The analyzer results are reported in the log window and shown as red marks on the page. V7.1 no-LT
Format Option Setting...	Shift+Ctrl+O	Displays the Format Option Setting Dialog.
PDF Option Setting...	Shift+Ctrl+P	Displays the PDF Option Setting Dialog.
Other Settings...	Shift+Ctrl+T	Displays the Other Settings Dialog.
Import Option Setting...		Displays the Import Option Setting Dialog.
Export Option Setting...		Displays the Export Option Setting Dialog.
Reset Option Setting...		Resets the Option Setting File back to the default and reloads the settings.
Edit Option Setting File no-LT	Shift+Ctrl+D	Edits the Option Setting File. The Option Setting File will not automatically be read after editing.
Reload Hyphenation Dictionary		Reloads Hyphenation Dictionary and formats the document again.
Edit Font Configuration File no-LT		Edits the Font Configuration File. The Font Configuration File will not automatically be read after editing.

6. **Help**

Menu	Shortcut	Description
Open Manual	F1	Displays this Manual.
Q&A		Displays the Q&A on the Internet.
Mail to Support no-LT		Sends an email to Antenna House Support. The required information such as serial number, etc., is embedded automatically. This is not available with either the evaluation version or **AH Formatter V7.1 Lite**.
Antenna House website		Opens the Antenna House website in your web browser.
About AH Formatter V7.1...	Shift+F1	Displays the About Dialog of **AH Formatter V7.1**.

Popup Menu

The following popup menu/boxes are displayed in the GUI.

Menu	Description
Open...	Displays the Document/Stylesheet Dialog.
<Recent File>	Displays the files that were most recently formatted.

The following pop-up menus appear when a document is open.

Menu	Description
Copy	Copies text selected.
PDF Output	Displays the PDF Output Dialog.
Format	Formats the current document (FO or XML+XSL etc.).
Stop Formatting	Stops formatting.
Open Link	Opens the the link under the pointer and formats the destination file in the current window.
Open New Window	Opens and formats either the link under the pointer or the current document in a new window.
Shell Open	Opens either the link under the pointer or the current document with the Windows application for its file type.
<Recent File>	Displays the files that were most recently formatted.

The following pop-up menus appear in full screen mode. no-LT

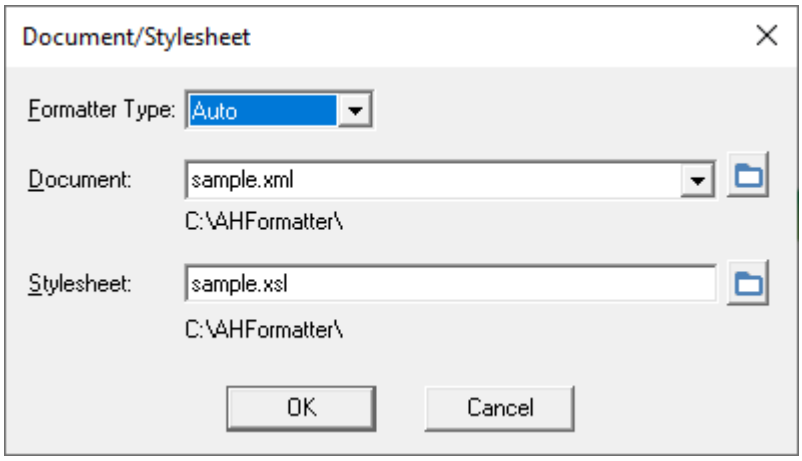
Menu	Description
Format	Formats the current document (FO or XML+XSL etc.).
Stop Formatting	Stops formatting.
Show Border	Shows the border of the area.
Show Ruler	Shows the ruler.
Show Printer Mark	Shows the printer mark.
Show Scroll Bar	Shows the scroll bar.
Show Status Bar	Shows the status bar.
Open Link	Opens the link under the pointer and formats the destination file in the current window.
Open New Window	Opens and formats either the link under the pointer or the current document in a new window.
Shell Open	Opens either the link under the pointer or the current document with the Windows application for its file type.

The content in the Log Window depends on which function Formatter is performing.

The following popup menu/boxes are displayed on the Ruler.

Menu	Description
cm	Sets the units of the ruler to cm.
mm	Sets the units of the ruler to mm.
in	Sets the units of the ruler to in.
pt	Sets the units of the ruler to pt.
pc	Sets the units of the ruler to pc.
px	Sets the units of the ruler to px.
q	Sets the units of the ruler to q.
Reset	Resets the position of the ruler to its default.
Hide	Hides the ruler.

Document/Stylesheet Dialog



The Document/Stylesheet Dialog is used when opening a document or document plus stylesheet to be formatted.

- Format Type

  Specifies the type of target document and stylesheet in the Formatter Type combo box. The following five types can be selected:

  - Auto
  - HTML
  - XHTML
  - XML+CSS
  - XSL-FO

  By specifying a type other than “Auto”, you can avoid possible misdetection of the type of format. For example, you can specify the type of format as “XML+CSS” for a document that might be detected as XHTML by the auto detection. When the specified type of format differs from the actual type, it is considered “Auto” and the type of format is detected automatically. See also Detection of Formatting Type.

- Document

  Specifies the target FO, XML or HTML document. Specified files can reside on the local file system, the network or over the internet. Files over the internet can be specified with a URL via HTTP. Local files can also be specified by a URL format starting with file://.

  Recently used files are listed in the Document drop-down list. Although XML files and stylesheets are specified in pairs, only previously used XML documents are listed in the drop-down list. However, the previously used stylesheet can be inserted in the Stylesheet combo box automatically when the XML document is selected.

- Stylesheet

  Specifies the XSL stylesheet or CSS. FO files can only be specified in the document box.

The directory or base URL displayed under the each edit box indicates the base directory that will be used with a relative path in the edit box.

Click [OK] to start formatting.

AH Formatter V7.1 determines the file type based on its content. If a stylesheet is called from within an document, then it is not necessary to separately specify the stylesheet. The specified stylesheet is used automatically.

Save AreaTree Dialog no-LT

The AreaTree is an XML representation of the formatted result of FO or HTML that includes almost all the page geometry and layout information. Since all formatting information and all information necessary for formatting is included in the AreaTree it is a very useful tool for stylesheet developers. Press the [Save] button to save the AreaTree. An AreaTree XML file can be opened using the current browser. It's possible to format an AreaTree by specifying it in the document combo box of the Document/Stylesheet Dialog.

CAUTION: AreaTree can be very large. The formatted results cannot be guaranteed.

Saving and loading the AreaTree is not available with **AH Formatter V7.1 Lite**.

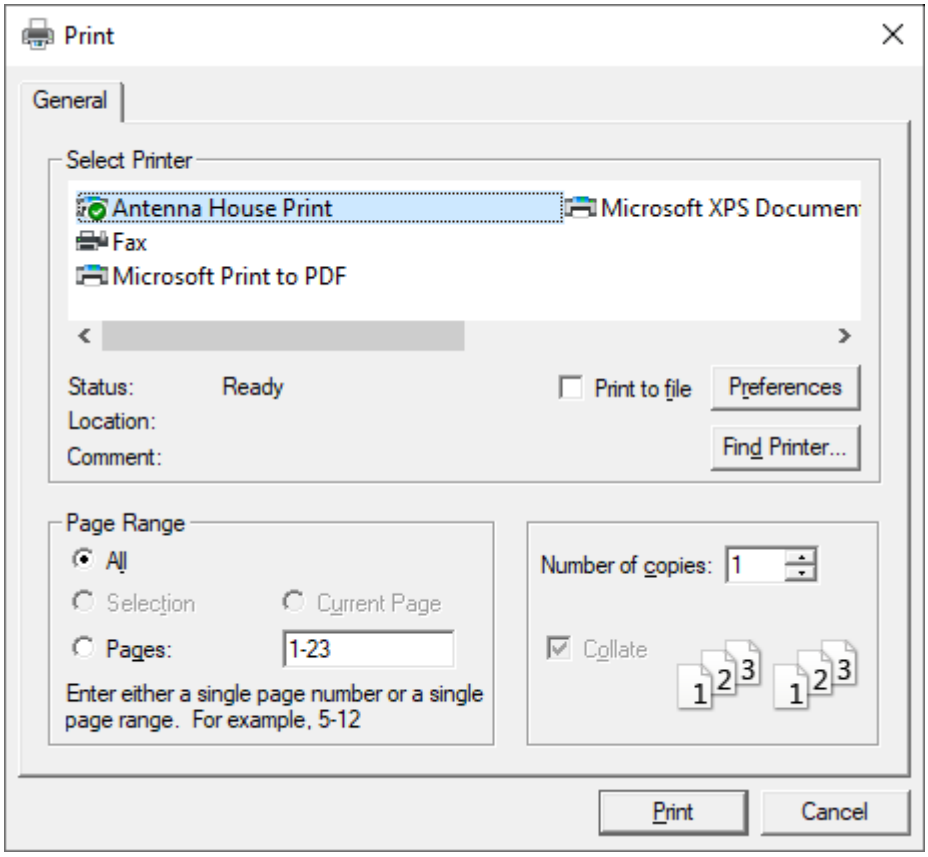
Save FOTree Dialog

In processing an FO or XML and XSL file Formatter first complete the FO file by adding properties, adding the elements omitted in the loaded FO or the resulting FO of the XSLT transformation and removing unused elements. The AreaTree is generated by evaluating this completed FO. Press the [Save] button to save the FO that was made at this time. When you format a document from the AreaTree or when you format with CSS, this menu cannot be selected.

Save FO Dialog

This menu item lets you save an FO file that is the result of the XSLT transformation of the XML and XSL files that is being formatted. This menu is only available for files formatted from XML and XSL files.

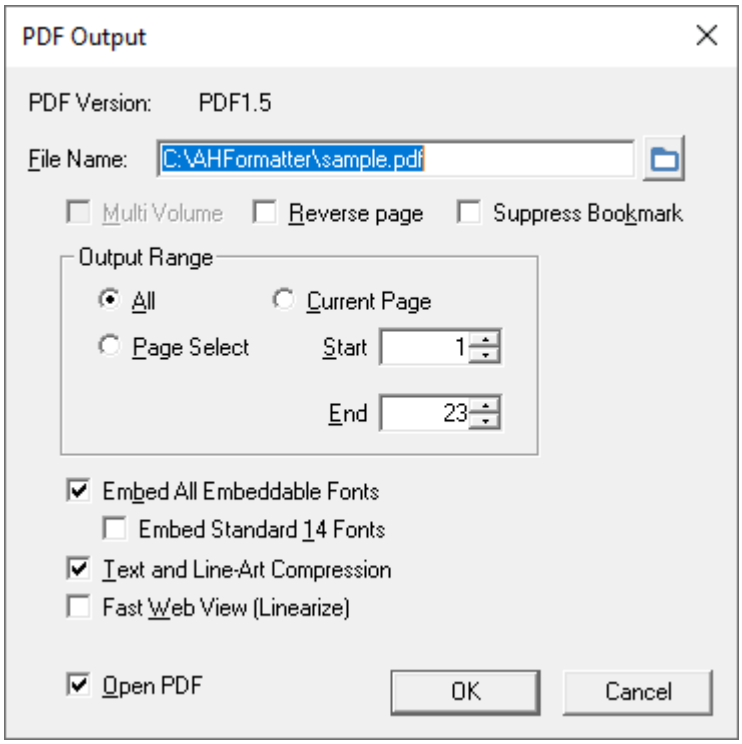
Print Dialog



You can select to print all pages, a range of pages, or selected pages. If formatting is not yet completed in the GUI, Formatter reformats the document from the beginning before output to the printer. For this reason it may take more time to output to a printer than the GUI. The border used to confirm how the formatted result is divided in areas does not appear in Print Output.

See also Restrictions regarding print.

PDF Output Dialog



The PDF Output Menu enables outputting the formatted results to PDF. You can select to output the entire document or select a range of pages. yet completed in the GUI, Formatter reformats the document from the beginning, it may take more time to output to a PDF file than the GUI. The border used to confirm how the formatted result is divided in areas does not appear in PDF Output.

- Multi Volume no-LT

  Specifies whether to produce multiple volumes. Available only when the FO includes an `<axf:output-volume-info>` extension element that enables output as multiple separate volumes.

  CAUTION: The output in multiple separate volumes is not available with the AreaTree formatting.

  CAUTION: The output in multiple separate volumes is not available with CSS formatting.

- Reverse page

  Outputs pages to PDF in reverse order, from the end page to the start page.

- Suppress Bookmark no-LT

  Suppresses the output of the bookmark.

- Output Range

  Specifies the output range. When outputting in multiple separate volumes, specifies the number of volumes, otherwise it specifies the number of pages. These indicate physical locations that are not dependent on axf:initial-volume-number or initial-page-number. If the value specified in [End] is 0 or greater than the actual number of volumes or pages, the output range continues to the end.

- Embed All Embeddable Fonts

  Embedding fonts in a PDF makes it possible to create a PDF that can be browsed anywhere and that is independent of the fonts available on the local machine. This is particularly important when generating multilingual PDF files. The drawback is that embedded fonts can substantially increase the size of the PDF file. This option is not available when the PDF format is PDF/X, PDF/A or PDF/UA, since PDF/X requires that all embeddable fonts are embedded.

- Embed Standard 14 Fonts

  Usually, Standard 14 Fonts are not embedded even if the [Embed All Embeddable Fonts] check box is checked, However, by checking the [Embed Standard 14 Fonts] check box, Standard 14 Fonts can be embedded. When PDF/X, PDF/A or PDF/UA is specified to create, Standard 14 fonts are embedded. At that time, the check box is displayed in gray color.

- Text and Line-Art Compression

  Selecting this option makes the PDF file more compact by compressing the text and line-art.

- Fast Web View no-LT

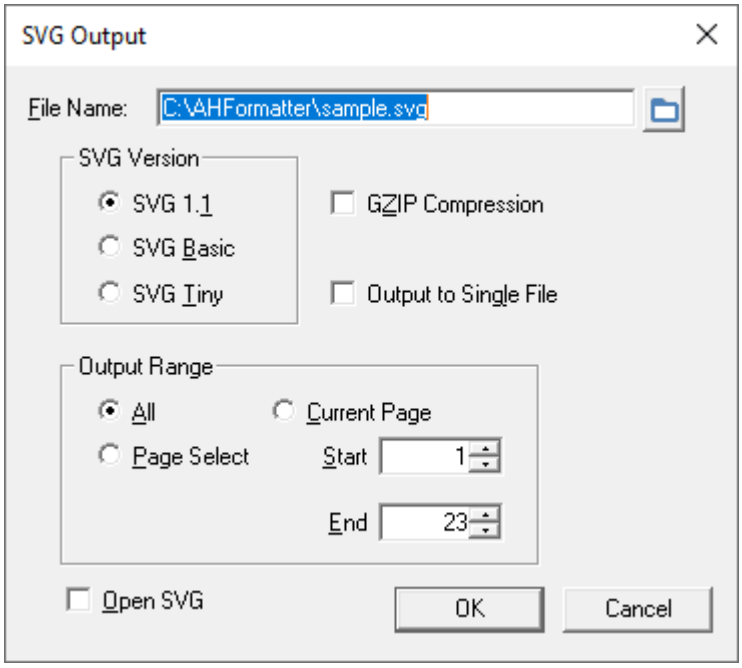
  Generates Linearized PDF. In PDF's character, it cannot be optimized unless once usual PDF is generated. Therefore, although the generation of the Linearized PDF requires time rather than usual, the display of the generated PDF on the Web will be in high-speed.
- Open PDF

  Opens the created PDF using the application associated with extension `.pdf` (in many cases, it is Adobe Acrobat or Reader).

Changes made in PDF Output Dialog are temporary and do not affect the much more comprehensive PDF Option Setting File under the Format Menu. Specify the detailed settings regarding PDF output in the PDF Option Setting Dialog.

See PDF Output to learn more about the outputted PDF.

SVG Output Dialog



The SVG Output Menu enables outputting the formatted results to SVG. Through the menu a user can select to output the entire document or selected range of pages. If formatting is not completed in the GUI then Formatter reformats the document from the beginning for output to SVG. For this reason it may take more time to output to a SVG file than the GUI. The border used to confirm how the formatted result is divided in areas does not affect SVG Output.

- SVG Version

  Selects the version of SVG to output from the following:
  - SVG 1.1
  - SVG Basic
  - SVG Tiny
- Output Range

  Specifies the range to output. This feature is not available with the evaluation version.
- GZIP Compression

  Outputs GZIP compressed svgz. The extension is set to `.svgz`.
- Output to Single File

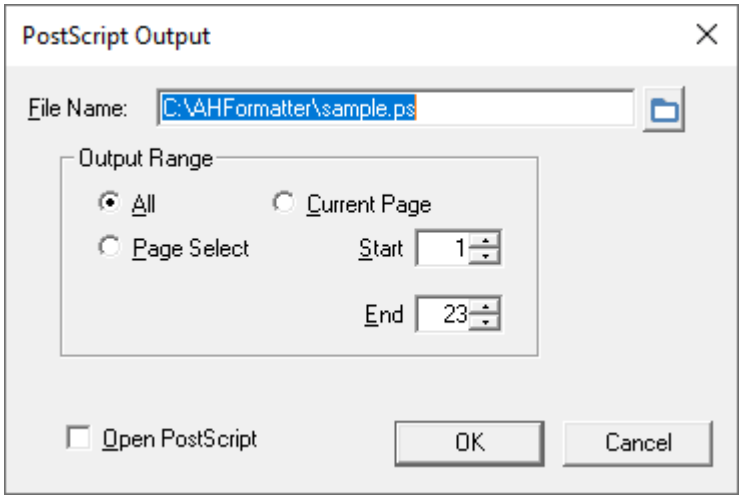
  Specifies whether pages are outputted as one SVG file, or each page is outputted as an individual file when outputting two or more pages. When outputting two or more SVG, page numbers are placed before the extension of the output file name. For example, if the specified file name is `document.svg`, page numbers are put as `document1.svg`, `document2.svg`, and so on. The number format can be set in Option Setting File, etc.
- Open SVG

  Opens the created SVG using the application associated with extension `.svg`.

Changes in SVG Output Dialog are temporary and are not reflected to the Option Setting File. See also SVG Option in the Other Settings Dialog.

See SVG Output to learn more about the outputted SVG.

PostScript Output Dialog

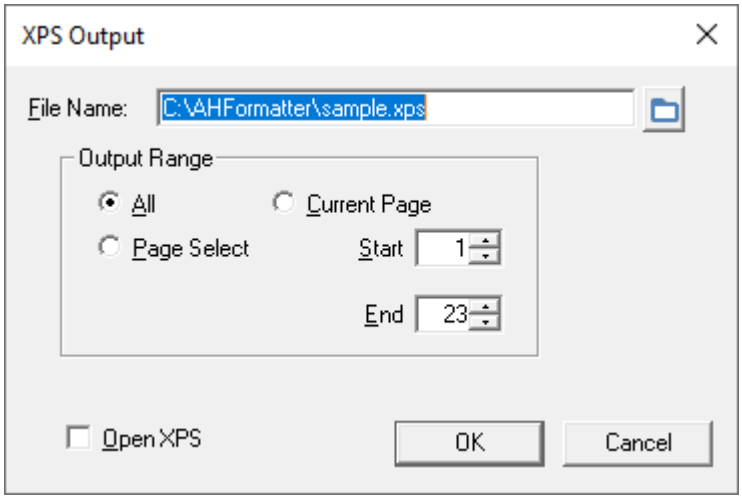


The PostScript Output Menu enables outputting the formatted results to PostScript. Through the menu a user can select to output the entire document or selected range of pages. If formatting is not completed in the GUI then Formatter reformats the document from the beginning for output to PostScript. For this reason it may take more time to output to a PostScript file than the GUI. The border used to confirm how the formatted result is divided in areas does not affect PostScript Output.

- Output Range
  Specifies the range to output. This feature is not available with the evaluation version.
- Open PostScript
  Opens the created PostScript using the application associated with extension `.ps`.

See PostScript® Output to learn more about the outputted PostScript.

XPS Output Dialog



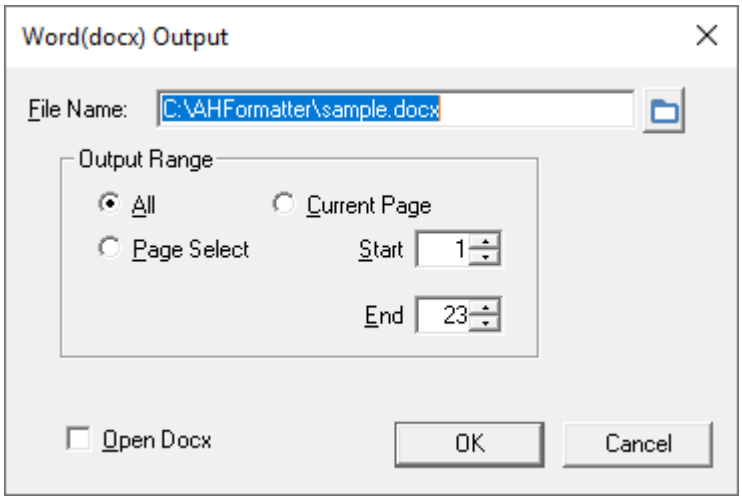
The XPS Output Menu enables outputting the formatted results to XPS (XML Paper Specification). Through the menu a user can select to output the entire document or selected range of pages. If formatting is not completed in the GUI then Formatter reformats the document from the beginning for output to XPS. For this reason it may take more time to output to a XPS file than the GUI. The border used to confirm how the formatted result is divided in areas does not affect XPS Output.

- Output Range
  Specifies the range to output. This feature is not available with the evaluation version.

- Open XPS
  Opens the created XPS using the application associated with extension `.xps`.

See XPS Output to learn more about the outputted XPS.

Word(docx) Output Dialog

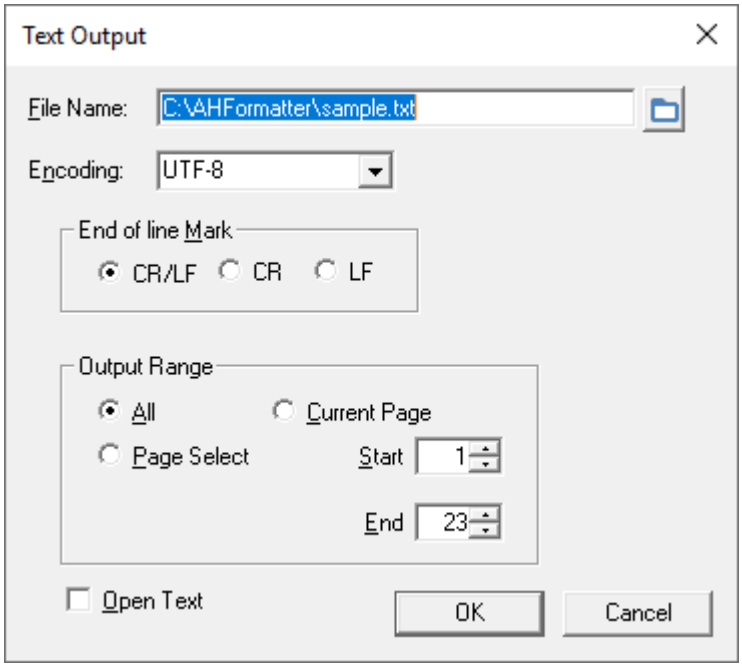


Output the formatting result in WordprocessingML of OOXML (Office Open XML). The formatting result on the screen may not be all pages, but outputs all the pages in Word (docx). When the volume exceeds the range of the formatting result on the screen, AH Formatter outputs it while reformatting it from the first page (the page outputted at this time is discarded from the memory). Therefore, it may take longer than the formatting result on the screen. The border to confirm the area is not output. no-LT

- Output Range
  Specifies the range to output. This feature is not available with the evaluation version.
- Open Docx
  Opens the created Word(docx) using the application associated with extension `.docx`.

See Word(docx) Output to learn more about the outputted Word(docx).

Text Output Dialog no-LT



The TEXT Output Menu enables outputting the formatted results to plain text format.

- Encoding

  Specifies the encoding of the output text. The defaults value is UTF-8. Choose one from the list or input a encoding you want to specify. See encoding attribute on TEXT Output Settings about the value which can be specified.

- End of line Mark

  Selects the type of “End of line Mark” from the following:

  - CR/LF
  - CR
  - LF

- Output Range

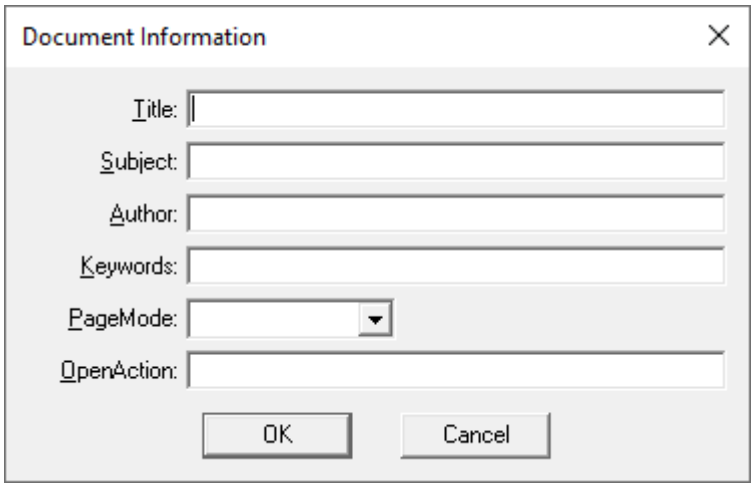
  Specifies the range to output. This feature is not available with the evaluation version.

- Open Text

  Opens the created Text file using the application associated with extension `.txt`.

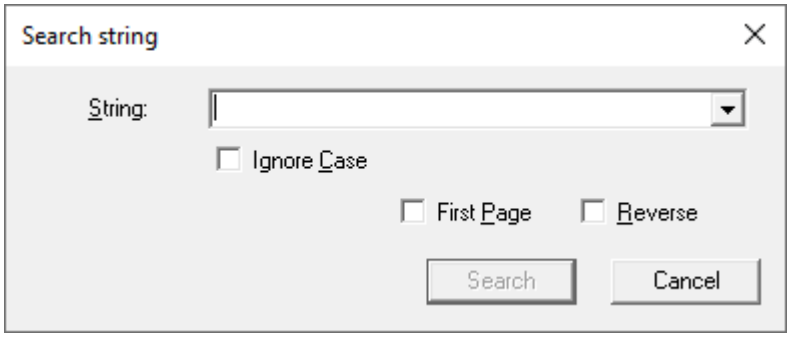
See TEXT Output to learn more about the outputted TEXT. Text output cannot be performed with **AH Formatter V7.1 Lite**.

Document Information Dialog



The information of `axf:document-info` in FO is displayed. The content can be changed here, and it can be reflected to the output PDF. The content of the change is not reflected in former FO. For more details, see `axf:document-info`.

Search String Dialog



Specify a sequence of characters to search. This dialog continues being displayed until it closes. When some characters have found in the last searching, the seach restarts from the following character. For example, when ABCDE is searched and is found, the next searching starts from B. When having found nothing, the searching begins from the first or the last page. In order to cancel the highlight of a searching result, click anywhere on the GUI screen.

- Ignore Case

  Searches a sequence of characters without distinguishing upper-case and lower-case. It is applied to all Latin alphabets, Cyrillic alphabets, etc. that have uppercase and lowercase characters.

- First Page / Last Page

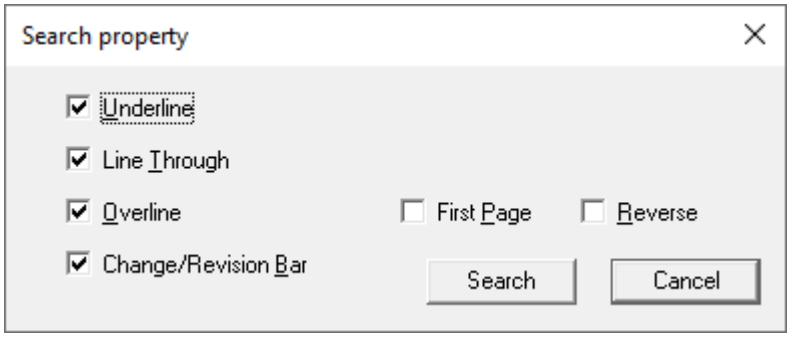
  When these check boxes are checked, the seach starts from the first or the last page. When the Reverse check box is unchecked, the display of the check box on the left side changes to [First Page]. When the Reverse check box is checked, the display of the check box on the left side changes to [Last Page].
- Reverse

  When the [Reverse] check box is checked, it starts searching toward the first page.

This search function has the following restrictions:

- Impossible to search neither what has been deleted such as a white space, nor the strings summarized to one.
- Impossible to search the strings whose spelling has changed by the hyphenation.
- Impossible to search the original text transformed under the XSL specification.

Search Property Dialog



Specify a property to search. This dialog continues being displayed until it closes.

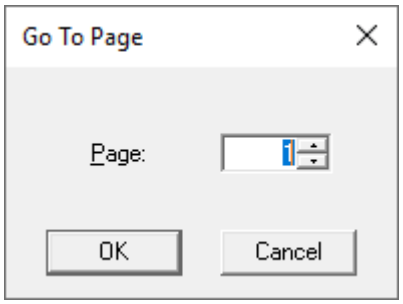
- Underline / Line Through / Overline / Change/Revision Bar

  Specify a property to search.
- First Page / Last Page

  When these check boxes are checked, the seach starts from the first or the last page. When the Reverse check box is unchecked, the display of the check box on the left side changes to [First Page]. When the Reverse check box is checked, the display of the check box on the left side changes to [Last Page].
- Reverse

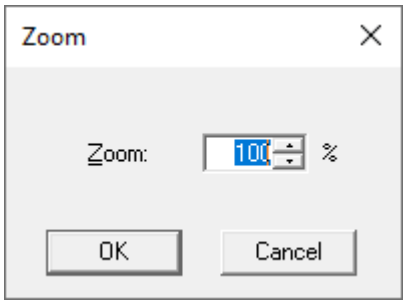
  When the [Reverse] check box is checked, it starts searching toward the first page.

Go To Page Dialog



Used to specify the page number to go to and can be from 1 to the total number of formatted pages displayed in the Status Bar.

Zoom Dialog

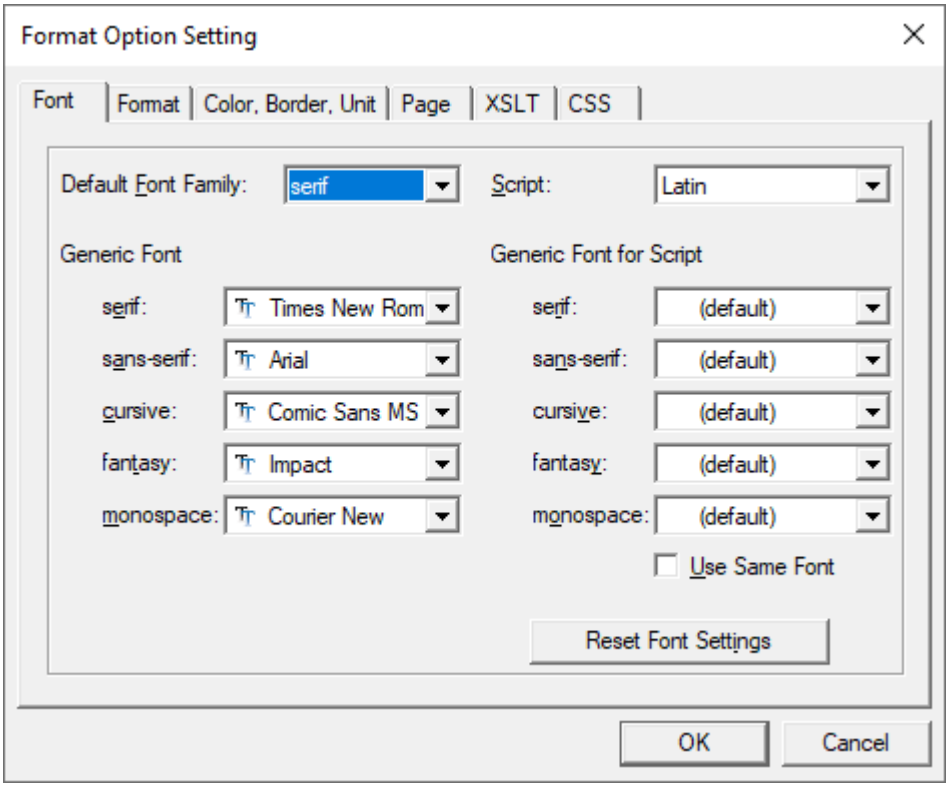


Specifies the zoom ratio. Can be set from 5% to 2000%.

Format Option Setting Dialog

By default if the `AHFSettings.xml` (`AHFSettings(x64).xml` for Windows x64 version) file exists in the application data directory this file is automatically loaded at startup as the Option Setting File. The application data directory is `[APPDATA]\AntennaHouse\AHFormatter\7.1\` indicated by the environment variable, APPDATA. If you want to load the other setting file, click Import Setting Files on the Format menu. Through the Format Option Setting Dialog, formatting items in the Option Setting File can be modified. Once changes are made through the Format Option Setting Dialog, click [OK] to write the changed items to the `AHFSettings.xml` (`AHFSettings(x64).xml` for Windows x64 version) file that exists in the application data directory.

Font



The font selection drop-down list displays fonts installed in Windows plus fonts specified in the Font Configuration File. An icon indicating the font type is displayed at the head of the list.

- OpenType
- TrueType
- Type 1
- EUDC in registry
- Adobe Fonts

For fonts that are not installed in the Windows font folder, “*” is appended at the end of the font name.

- Default Font Family

  Specifies the generic font family to use automatically when there is no setting of the font family in the FO or CSS. If a generic font family is specified in the FO or CSS, this setting is ignored. The following five generic font families can be defined:

  - serif
  - sans-serif
  - cursive
  - fantasy
  - monospace

  For more details, see the following [Generic Font].

- Generic Font

  Maps actual fonts to each generic font family. Generic font families specified in the FO replace those specified here. These settings are adopted for those generic font families not specified in the FO or CSS.

  ```
  <fo:block font-family="serif">
  ```

  Generic font families are symbolic names defined in CSS2 Specification. XSL Specification derives the generic font family from the CSS2 Specification.

  Serif font families are fonts which have a slight projection at the end of a letters/glyphs such as Japanese Mincho and Times New Roman. Sans-serif font families have plain stroke endings for their letters/glyphs and corresponds to fonts such as Japanese Gothic, Helvetica and Arial. Cursives are font families that have connected strokes and Italic typefaces for its glyphs such as Japanese Soushotai. Fantasy fonts are primarily decorative. Monospace is a font family that its font pitch is fixed, such as Courier.

- Script

  The Script setting lets you set the generic font families to be used for 10 different writing systems. This includes Japanese, Chinese Simplified, Chinese Traditional, Korean, Latin, Cyrillic, Greek, Arabic, Hebrew and Thai. Each of the 10 writing systems can have its own set of generic font families defined.

- Generic Font for Script

  Fonts specified in the FO or CSS supersede the Generic Font settings. When fonts are not defined in the FO or CSS then these settings are adopted.

  The following examples illustrate which fonts would be used if serif was specified as the generic Font, the font-family and script properties are not specified in FO or CSS, and the script for the text is unclear.

  1. `<fo:block>TEXT...`

     The font specified in the serif combo box in Generic Font is used for the TEXT.

  2. `<fo:block font-family="sans-serif">TEXT...`

     The font specified in the sans-serif combo box in Generic Font is used for the TEXT.

  3. `<fo:block script="Jpan">TEXT...`

     The font specified in the serif combo box in Generic Font for Serif for Japanese is used. If it is not specified, the font specified in the serif combo box in Generic Font is then used.

  4. `<fo:block script="Jpan" font-family="sans-serif">TEXT...`

     The font specified in the sans-serif combo box in Generic Font for sans-serif for Japanese is used. If it is not specified, the font specified in the sans-serif combo box in Generic Font is then used.

  For more details, see Font Selection to learn how to select fonts.

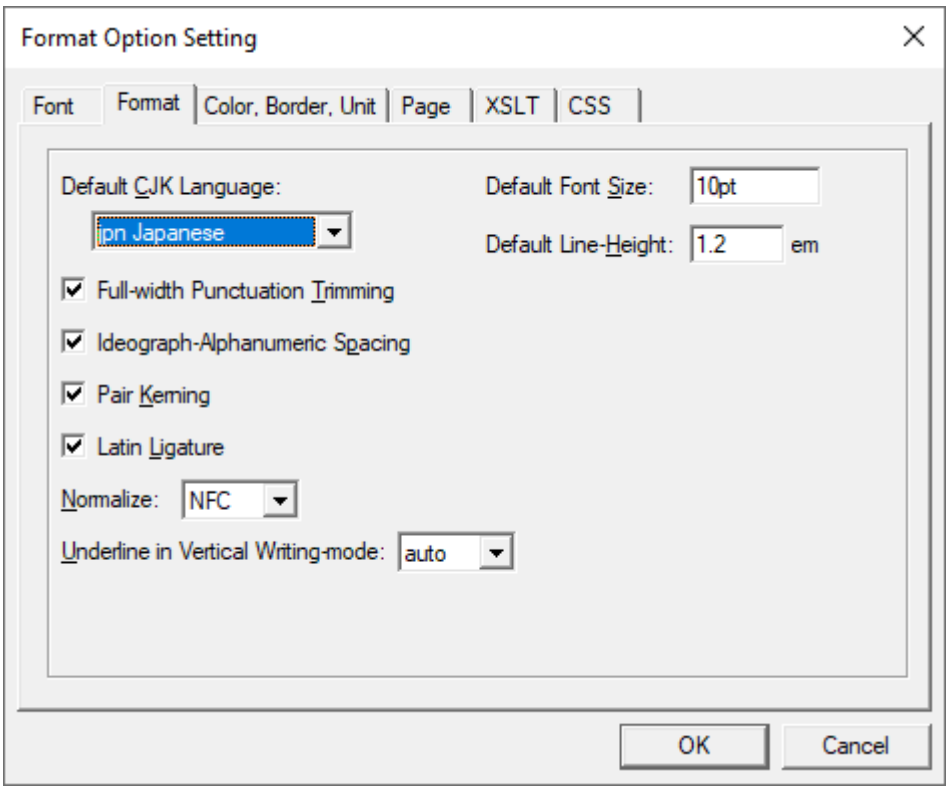
- Use Same Font

  Specifies whether to use the same font to the generic font for script. If the same font is used, the font that was specified for serif will also be used for the other scripts.

- Reset Font Settings

  Check Reset Font Settings to reset all font settings to the default.

Format



- Default CJK Language

  When the script is not explicitly specified, there may be cases where it is hard to distinguish CJK (Chinese/Japanese/Korean) in Kanji. In such cases, the setting here is adopted. Select the appropriate CJK language from the following. In the Option Setting File, the setting can be changed by default-CJK.

  - jpn Japanese
  - kor Korean
  - zho-CN Chinese Simplified
  - zho-TW Chinese Traditional

- Full-width Punctuation Trimming

  Specifies whether to trim the full-width punctuation in Japanese. This setting affects the value of the extension properties, axf:punctuation-trim="auto" and axf:text-justify-trim="auto".

- Ideograph-Alphanumeric Spacing

  Specifies whether to add space between Japanese text and Western text. This setting affects the value of the extension properties axf:text-autospace="auto". When checked this, it is equivalent to axf:text-autospace="ideograph-numeric ideograph-alpha".

- Pair Kerning

  Specifies whether to process pair kerning. This setup affects the value of the axf:kerning-mode="auto" extension property.

- Latin Ligature

  Specifies whether to process ligatures for European languages. This setup affects the value of the axf:ligature-mode="auto" extension property.

- Normalize no-LT

  Specifies whether to normalize Unicode (UAX#15: Unicode Normalization Forms) for texts in FO and XML. This setting affects the value of the extension property axf:normalize="auto".

- Underline in Vertical Writing-mode

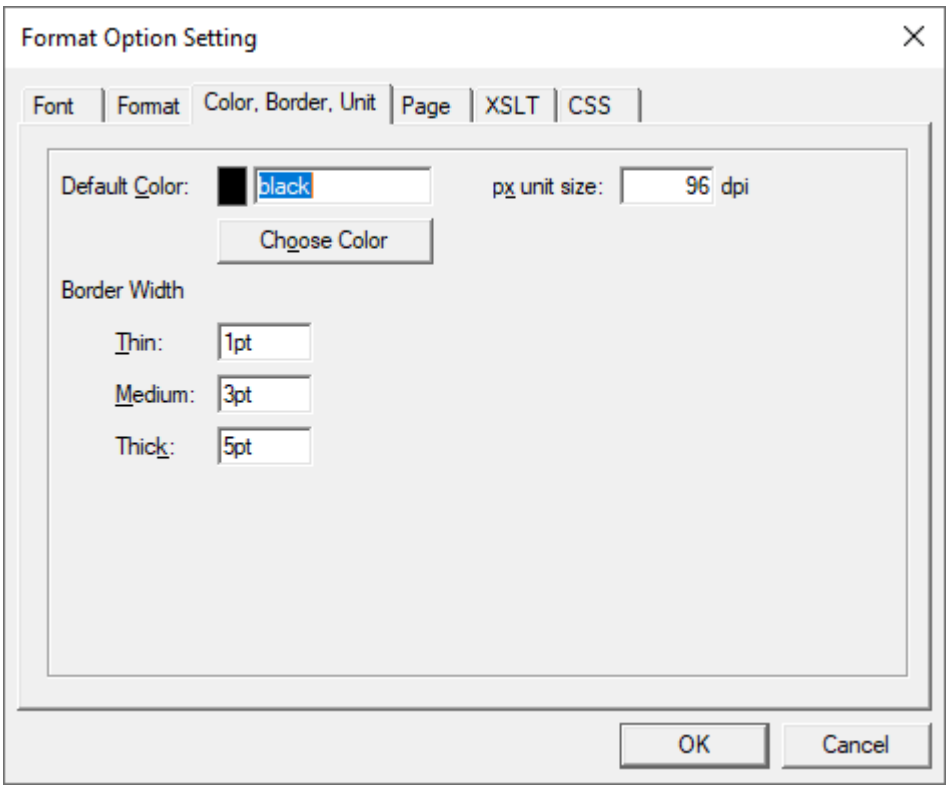
  Specifies whether to place the underline on the right side of the text or on the left side of the text in vertical writing-mode. When “auto” is specified, if the language in the language property is Japanese (jpn) or Korean (kor), the underline is placed on the right side. If there is no language property specified, it depends on the standard CJK language setting. This setting affects the value of the extension property axf:vertical-underline-side="auto".

- Default Font Size

  This setting is used to specify the font size when the font-size is not specified in the FO or CSS.
- Default Line-Height

  This setting is used to specify the line-height to be used when specified as a property in the FO or CSS. The value must be specified as a ratio against the font size in ems.

Color, Border, Unit



- Default Color

  Specifies the foreground color to be used when the color property is not specified in the FO or CSS. Function values, such as `rgb-icc()` can be specified. For example when specifying as `cmyk(0,0,0,1)`, it'll be K100. it's possible to choose the color by a button. The indicated color sample is RGB. When specifying the color other than RGB or the color including alpha value, an approximate color will be displayed.
- Border Width

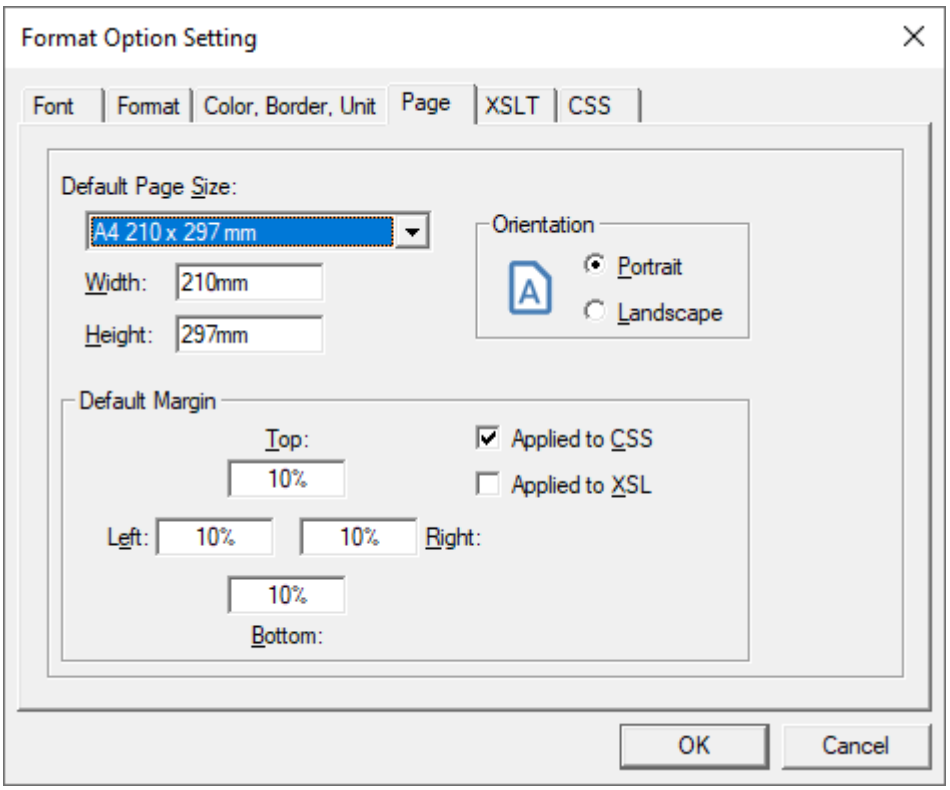
  Specifies the actual border width of the three symbolic values; `thin`, `medium` and `thick` that can be written in FO or CSS.

  ```
  <fo:block border-width="thin">
  ```

- px unit size

  Specifies the conversion factor for px (pixel) units written in FO or CSS as a point number per inch. This value is actually used when the formatted results are outputted to a browser or PDF. In XSL, you can specify “pixel” as a unit of measurement. Pxpi specifies the coefficient, which converts the value of the specified pixel, as “the number of pixels per inch” when formatting. It's specified with the real-type numeric value. The initial value is 96.

Page



- Default Page Size

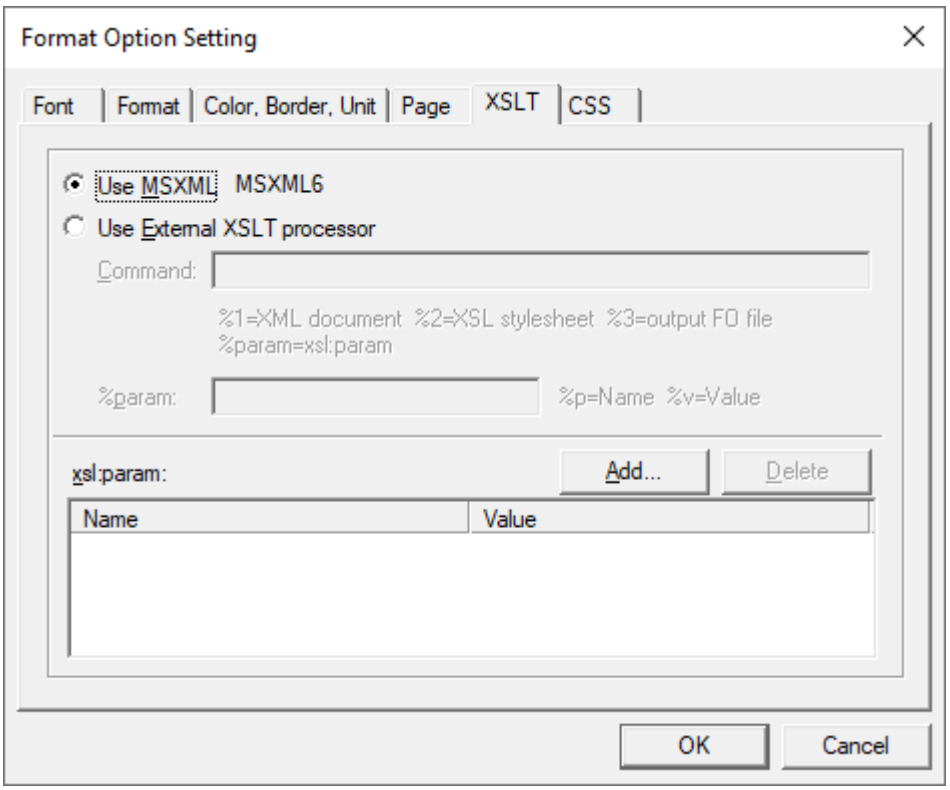
  Specifies the page size to be used when the page-width and page-height properties are not specified in the FO or CSS. The page size selected from the combo boxes reflects the [Width] and [Height]. The page size can be changed arbitrarily. If you change the orientation of the page in the [Orientation] in this dialog, the value of the [Width] and [Height] are swapped.
- Default Margin

  Specify the margin of a page applied to FO or CSS when there is no specification of the margin.
- Applied to CSS

  When there is no margin specification by `@page` in CSS, the value specified in Default Margin is applied to CSS. The margin becomes zero when there is no check.
- Applied to XSL

  When there is no margin specification in `fo:simple-page-master` in XSL, the value specified in Default Margin is applied to XSL. The margin becomes zero when there is no check.

XSLT



Specifies the settings regarding XSLT Processors. For more details, see also XSLT Settings.

- Use MSXML

  Select the [Use MSXML] check box to use MSXML as the XSLT Processor.

  CAUTION: XSLT conversion may fail with the strengthened security in MSXML6. For example, an XSLT that includes `<xsl:script language="JScript">` may produce an error. Adjust the MSXML settings in the Option Setting File.

- Use External XSLT Processor

  Select the [Use External XSLT Processor] check box to use an external XSLT Processor. You have to specify the command-line format of the XSLT Processor to use in [Command] and specify the Parameter format of `xsl:param` in [%param]. If the command-line format is not specified, then MSXML will be used.

- xsl:param

  Specifies the parameter name and the parameter value of `xsl:param` given to an XSLT Processor. Press [Add...] to add parameters or press [Delete] to delete a selected parameter.

Example settings for some major XSLT Processors.

- msxsl

  command: `msxsl %1 %2 -o %3 %param`
  %param: `%p=%v`

- Xalan

  command: `java -cp xalan.jar org.apache.xalan.xslt.Process -IN %1 -XSL %2 -OUT %3 %param`
  %param: `-PARAM %p %v`

- Saxon

  command: `java -cp saxon.jar com.icl.saxon.StyleSheet -o %3 %1 %2 %param`
  %param: `%p=%v`

- Saxon-HE 9.6

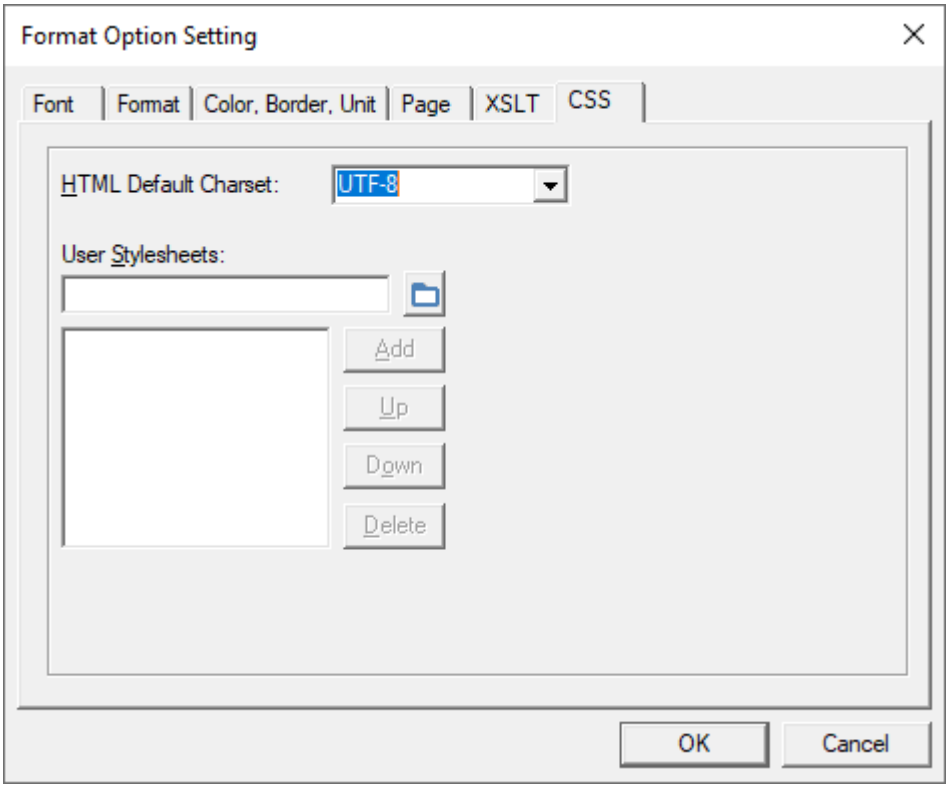
  command: `java -cp saxon9he.jar net.sf.saxon.Transform -s:%1 -xsl:%2 -o:%3 %param`
  %param: `%p=%v`

- libxslt

  command: `xsltproc --output %3 %param %2 %1`
  %param: `--param %p %v`

CAUTION: The examples shown here are provided as a guide and may be inaccurate. See the official site and the documentation for your XSLT processor.

CSS



Settings of CSS for HTML.

- HTML Default Charset

  Specifies the default charset of HTML. The default value is UTF-8. Choose one from the list or input a charset you want to specify. The character set in the Supported Encoding can be specified.

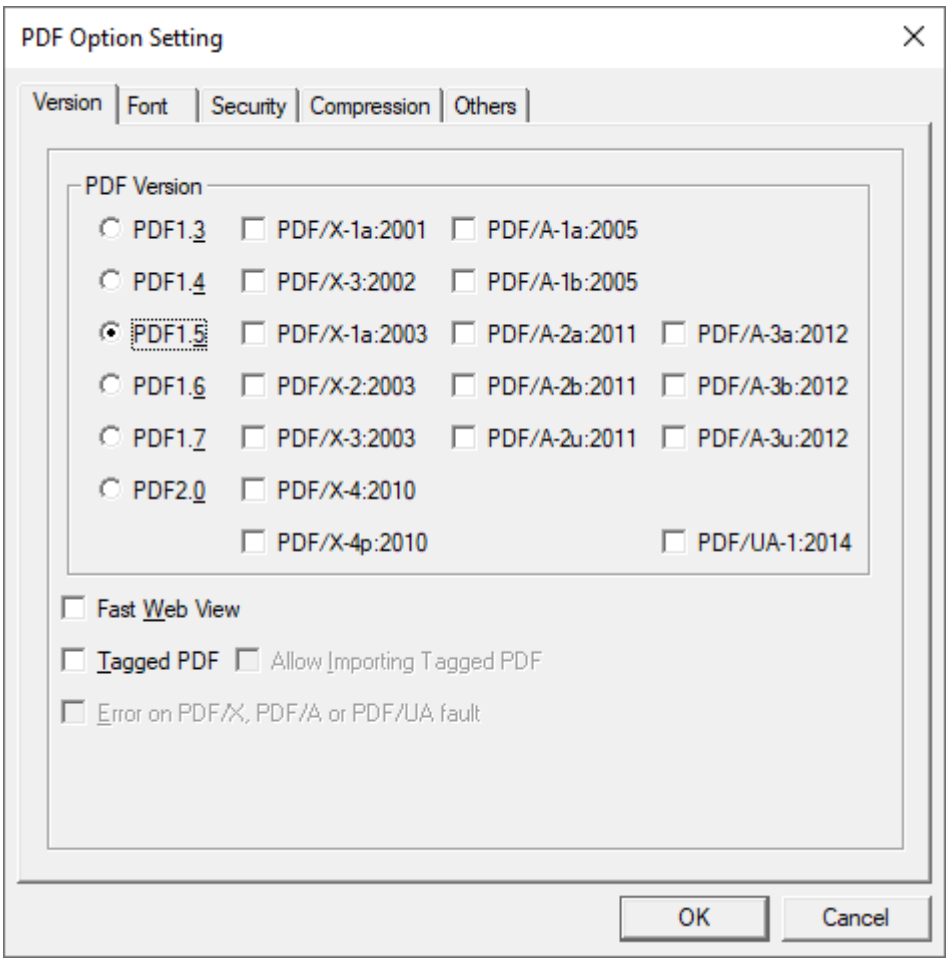
- User Stylesheets

  Sets CSS that the user uses. The stylesheets specified here are applied in the specified order after applying the default stylesheet (`html.css`). Sample user stylesheets are included in `[Install directory]/UserStylesheets` (Windows version) or in `[Install directory]/etc/UserStylesheets` (non-Windows version). See also Cascading Order of CSS.

PDF Option Setting Dialog

You can use the PDF Option Setting Dialog to set items in the Option Setting File related to PDF. When you click the [OK] button, your changes made here are written out to the `AHFSettings.xml` (`AHFSettings(x64).xml` for Windows x64 version) in the application data directory.

Version



- PDF Version

  Selects the PDF version to output from the following:

PDF Version	Specification
PDF1.3	Acrobat 4.0
PDF1.4	Acrobat 5.0
PDF1.5	Acrobat 6.0
PDF1.6	Acrobat 7.0
PDF1.7	Acrobat 8.0
PDF2.0	ISO 3200-2:2017

PDF Version	Specification
PDF/X-1a:2001 no-LT	ISO 15930-1:2001
PDF/X-3:2002 no-LT	ISO 15930-3:2002
PDF/X-1a:2003 no-LT	ISO 15930-4:2003
PDF/X-2:2003 no-LT	ISO 15930-5:2003
PDF/X-3:2003 no-LT	ISO 15930-6:2003
PDF/X-4:2010 no-LT	ISO 15930-7:2010
PDF/X-4p:2010 no-LT	
PDF/A-1a:2005 no-LT	ISO 19005-1:2005
PDF/A-1b:2005 no-LT	
PDF/A-2a:2011 no-LT	ISO 19005-2:2011
PDF/A-2b:2011 no-LT	
PDF/A-2u:2011 no-LT	
PDF/A-3a:2012 no-LT	ISO 19005-3:2012
PDF/A-3b:2012 no-LT	
PDF/A-3u:2012 no-LT	

PDF Version	Specification
PDF/UA-1:2014 no-LT	ISO 14289-1:2014

In the Option Setting File, this can be specified by setting the value of the pdf-version.

PDF/X and PDF/A cannot be selected with **AH Formatter V7.1 Lite**.

- Fast Web View no-LT

  Specifies whether to generate Linearized PDF. Linearized PDF enables PDF files to be viewed much faster over the Web by enabling viewing of the PDF as soon as the first page is downloaded rather than requiring that the entire PDF file be downloaded before it can be viewed. To linearize a PDF file is a two-step process: first, a standard PDF file is produced; second, the standard PDF file is linearized. This can also be specified in the Option Setting File by setting the value of linearized.

- Tagged PDF no-LT

  Specifies whether to create Tagged PDF. Also in the Option Setting File, it can be specified by setting the value of tagged-pdf. This setting is not available when the PDF version is PDF1.3, or with **AH Formatter V7.1 Lite**.

- Allow Importing Tagged PDF no-LT

  Specifies whether to allow tagged PDF to be embedded within tagged PDF. Also in the Option Setting File, it can be specified by setting the value of import-tagged-pdf. For more details, see also PDF Embedding. This setting is not available with **AH Formatter V7.1 Lite**.

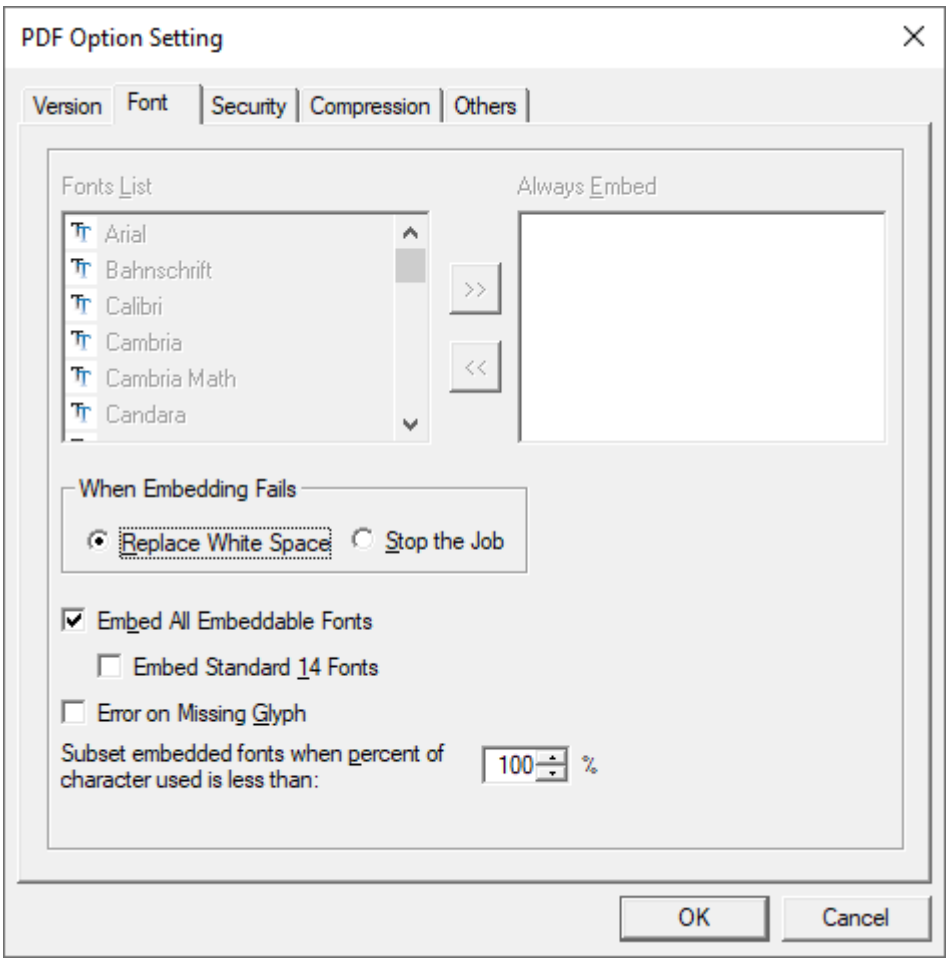
- Error on PDF/X, PDF/A or PDF/UA fault no-LT

  Specifies whether to proceed with formatting if the incompatible content cannot be avoided, for example, a non-embeddable font or any incompatible image is specified when creating PDF/X, PDF/A or PDF/UA.

  - If the check box is cleared, the formatting continues, but the generated PDF may be incompatible with PDF/X, PDF/A or PDF/UA. For example, if an image is incompatible, it will be embedded as is, or otherwise, the image, format or color space will be converted according to transparency, etc. In this case, note that the color of the image may differ from the original.
  - If the check box is checked, an error will be detected and a PDF file will not be generated. If the incompatible content can be avoided, it will be avoided and the formatting will be continued. For example, annotations in PDF/X will be thrown away.

  Also in the Option Setting File, it can be specified by setting the value of error-on-pdfx-fault.

Font



Select the target fonts you want to embed in PDF from the [Fonts List]. Press the [>>] button to move the selected fonts to [Always Embed]. If you want to delete fonts from [Always Embed], select the fonts then press the [<<] button.

Font names that appear dimmed are not available to embed. For example, if you previously added a font to the font list in the Option Setting File and that font cannot be embedded, the font name will appear dimmed in the Fonts List.

Fonts denoted with "*" are fonts that are not installed in the Windows font folder.

When the PDF version is PDF/X, PDF/A or PDF/UA, none of the items related to font embedding on this page are available.

- When Embedding Fails

  This option lets you select what you want the system to do if embedding of a font fails.

  Select either:

  [Replace White Space] to continue embedding font. The font is replaced with white space and will be embedded.

  [Stop the Job] to stop embedding. An error will be reported and the PDF generation will be stopped. Also in the Option Setting File, it can be specified by setting the value of the error-on-embed-fault.
- Embed All Embeddable Fonts

  Check [Embed All Embeddable Fonts] to embed all embeddable fonts in PDF. If this option is selected, the fonts in the [Font List] and [Always Embed] appear dimmed. Also in the Option Setting File, it can be specified by setting embed-all-fonts.
- Embed Standard 14 Fonts

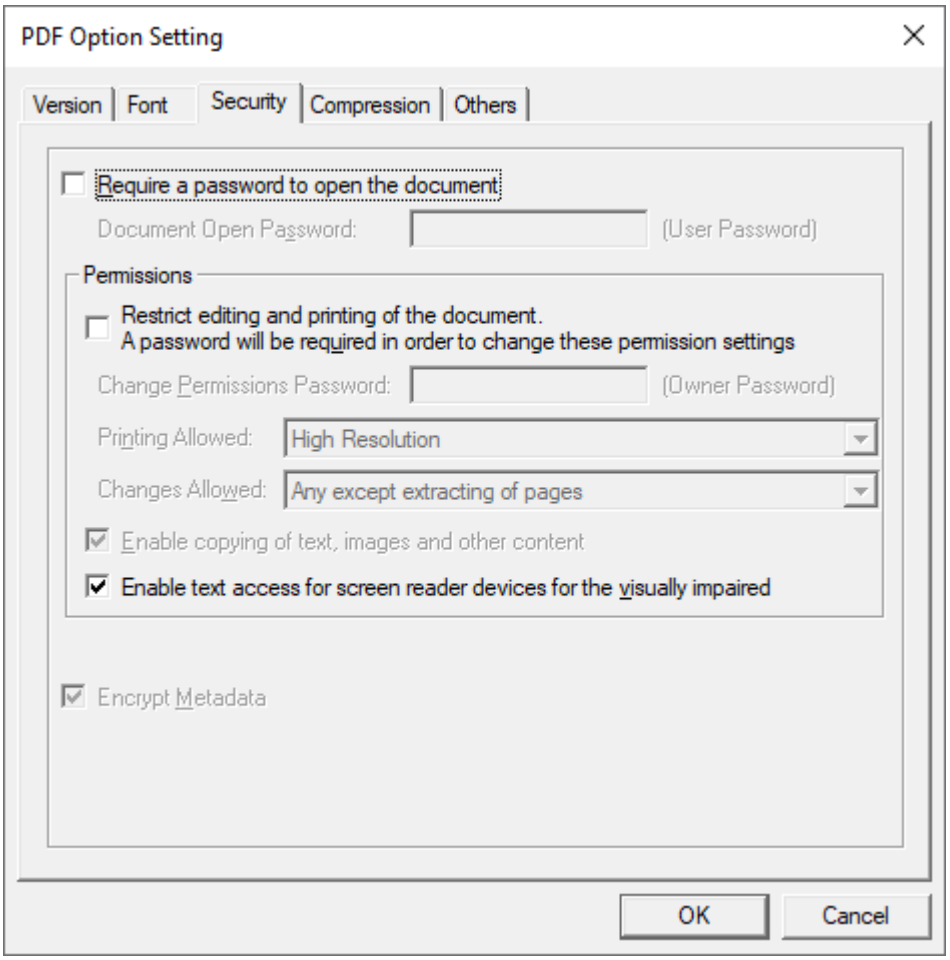
  Usually, the Standard 14 Fonts are not embedded even when the [Embed All Embeddable Fonts] check box is selected. However, by also selecting the [Embed Standard 14 Fonts] check box, the Standard 14 Fonts can be embedded.
- Error on Missing Glyph

  Specifies whether to break off the processing and report an error when the specified font does not include a glyph corresponding to a character to be displayed. Even if PDF is generated without checking this item, the character will be displayed as either a white space or a small box in PDF for missing glyph. Also the glyph might actually not exist in the specified font even when AH Formatter GUI. Also in the Option Setting File, it can be specified by setting the value of error-on-missing-glyph.

- Subset embedded fonts when percent of character used is less than:

  Specifies the percent of characters used in a font above which the entire font is embedded. When the percentage of characters used is less than the specified value, **AH Formatter V7.1** instead embeds a subset of the font that is the characters that are actually used. Also in the Option Setting File, it can be specified by setting the value of the embed-subset-font-percentage.

Security



When the PDF output format is PDF/X or PDF/A, many items in this page are not available.

- Require a password to open the document

  Specifies whether a password is required to open a PDF output document.
- Document Open Password

  Specifies the password to open the PDF document. The contents of this setting is not written to the Option Setting File.
- Restrict editing and printing of the document. A password will be required in order to change these permission settings

  Specifies whether a password is required to change the restrictions on printing or editing PDF output documents. When this is not selected, there are no restrictions.
- Change Permissions Password

  Specifies the password for changing the restrictions on printing or editing PDF documents. The contents of this setting is not written to the Option Setting File.
- Printing Allowed

  Specifies what printing of the PDF output documents is allowed. The available options depend on the PDF output version. Select from the following for PDF1.3:
  - None
  - High Resolution

  Select from the following for PDF1.4 or later:
  - None
  - Low Resolution (150 dpi)

  - High Resolution

- Changes Allowed

  Specifies what changes to PDF documents are allowed. The available options depend on the PDF output version. Select from the following for PDF1.3:

  - None
  - Commenting, filling in form fields, and signing signature fields
  - Page layout, filling in form fields, and signing signature fields
  - Any except extracting of pages

  Select from the following for PDF1.4 or later:

  - None
  - Inserting, deleting and rotating pages
  - Filling in form fields, and signing signature fields
  - Commenting, filling in form fields, and signing signature fields
  - Any except extracting of pages

- Enable copying of text, images and other content

  Specifies whether to allow copying of text, images and other content from PDF output documents to the clipboard. Note that the check box label changes when the PDF output version is PDF1.3. This setting is always effective with PDF/UA.

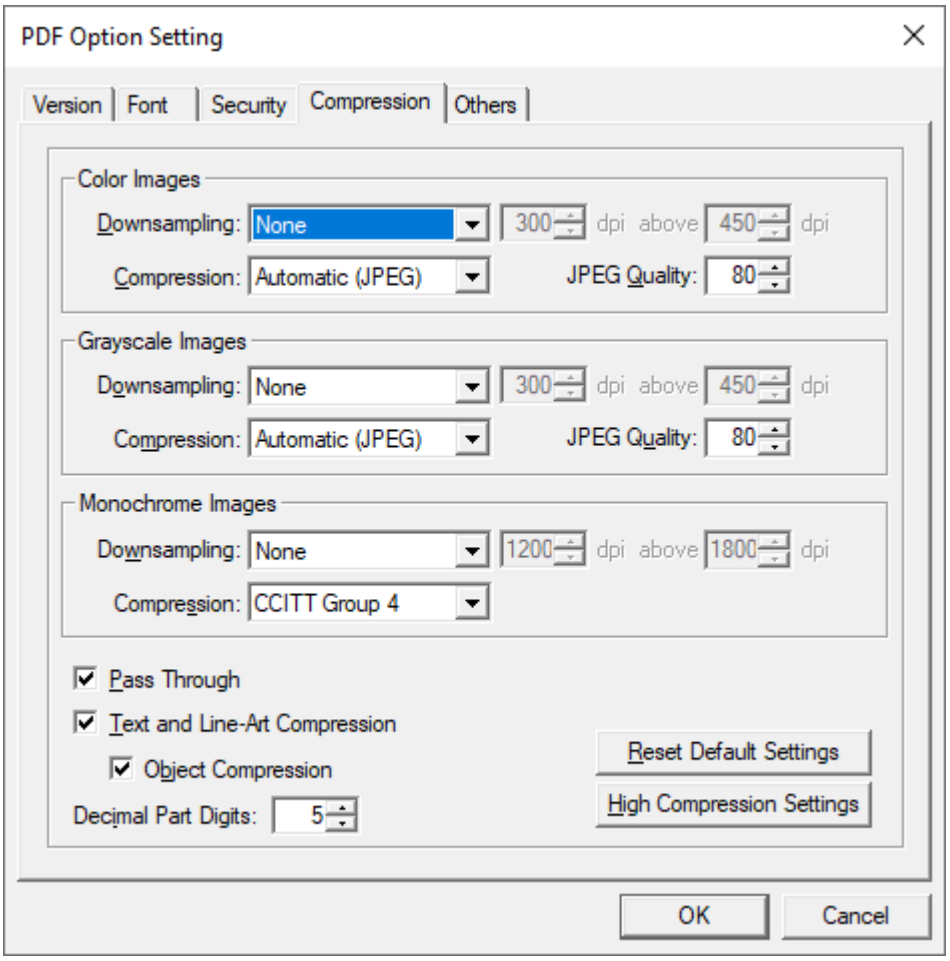
- Enable text access for screen reader devices for the visually impaired

  Specifies whether to allow text access for screen reader devices in the PDF document. This setting is effective with PDF1.4 or later.

- Encrypt Metadata

  Specifies whether to also encrypt metadata when encrypting data with a password. This setting is valid only when [Require a password to open the document] or [A password will be required in order to change these permission settings] is checked in PDF1.5 or later. no-LT

Compression



- Color Images, Grayscale Images, Monochrome Images

  These groups apply to raster images only. They specify the downsampling and compression method to apply to color images, grayscale images and monochrome images.

- Downsampling

  Selects the method of a downsampling from the following:

  - None
  - Average
  - Bicubic
  - Subsampling

  For values other than None, this specifies that an image with a dpi greater than the second dpi value is downsampled to the first dpi value. Also in the Option Setting File, downsampling of Color Images can be specified by setting color-downsampling; of Grayscale Images by setting grayscale-downsampling; and of Monochrome Images by setting monochrome-downsampling.

- Compression

  For color images and grayscale images, the available compression methods are:

  - Automatic (JPEG)
  - ZLIB
  - JPEG
  - JPEG 2000
  - KeepLZW (JPEG)
  - Automatic (JPEG 2000)
  - KeepLZW (JPEG 2000)

  Select Automatic (JPEG) to compress the image using either JPEG or ZLIB compression, depending on which produces the smaller image data size. When KeepLZW (JPEG) is selected, if the original image is LZW compressed, then LZW compression is used; if not, it behaves the same as Automatic. JPEG 2000 compression is not used with the Automatic option.

  JPEG compression is available when the following criteria are met; if not, ZLIB compression is used.

  - BitsPerComponent is 8
  - The color space is any of CMYK, RGB, grayscale or CIE L*a*b*.

  JPEG 2000 compression is available when the following criteria are met; if not, JPEG compression is used.

  - PDF version is PDF1.5 or later
  - BitsPerComponent is 8
  - The color space is any of RGB, grayscale or CIE L*a*b*.

  Automatic (JPEG 2000) and KeepLZW (JPEG 2000) are equivalent to Automatic (JPEG) and KeepLZW (JPEG) each, except that when JPEG 2000 compression is available, JPEG 2000 compression is also considered and the smaller size is adopted.

  For monochrome images, the available compression methods are:

  - CCITT Group 4
  - CCITT Group 3
  - Run Length
  - ZLIB
  - None

  Compression will not be performed if the image data size would increase by applying compression.

  In the Option Setting File, Color Images can be specified by setting color-compression; Grayscale Images by setting grayscale-compression; and Monochrome Images by setting monochrome-compression.

- JPEG Quality

  Specifies image quality of the color image and the grayscale image from 1 to 100 when JPEG compression is used. This value is converted to the compression ratio to use for JPEG 2000 compression.

  The numerical value indicates the value that corresponds to `-pjq` of the command-line interface, etc. Also in the Option Setting File, Color Images can be specified by setting the value of the color-jpeg-quality, Grayscale Images can be specified by setting the value of the grayscale-jpeg-quality.

- Pass Through

  Specify whether to embed the image that can be embedded as is in PDF as is (pass-through) upon processing it. If pass-through is not checked, the data will not be embedded as is and will be subject to compression, JPEG image quality

settings, etc. If both pass-through and downsampling are specified, the downsampling will precede pass-through. In the Option Setting File, the type of image you want to pass through can be specified by using pass-through, pass-through-default and pass-through-minimum. no-LT

In the Option Setting File, when the image type to be passed through (other than `all` and `none`) is specified by using either pass-through, pass-through-default or pass-through-minimum, you can put one of the three types of checkmarks (bold, gray and no checkmarks) in the Pass Through checkbox. When the bold checkmark is given, `all` is specified. When the box is unchecked, `none` is specified. And then when the gray checkmark is given, a value other than `all` or `none` is given. This value will appear next to the Pass Through checkbox.

- Text and Line-Art Compression

  Specifies whether to compress the text and the line art in the PDF to make the PDF size smaller or not. Also in the Option Setting File, it can be specified by setting the value of the text-and-lineart-compression.

- Object Compression

  Specifies whether to compress objects other than text and line art in the PDF to make the PDF size smaller. It's effective only when the version of PDF to output is 1.5 or later and Text and Line Art Compression in the PDF Option Setting is checked. Also in the Option Setting File, it can be specified by setting the value of the object-compression.

- Decimal Part Digits

  Specifies the number of decimal places of real numbers to be output to PDF. Also in the Option Setting File, it can be specified by setting the value of the decimal-part-digits.

- Reset Default Settings

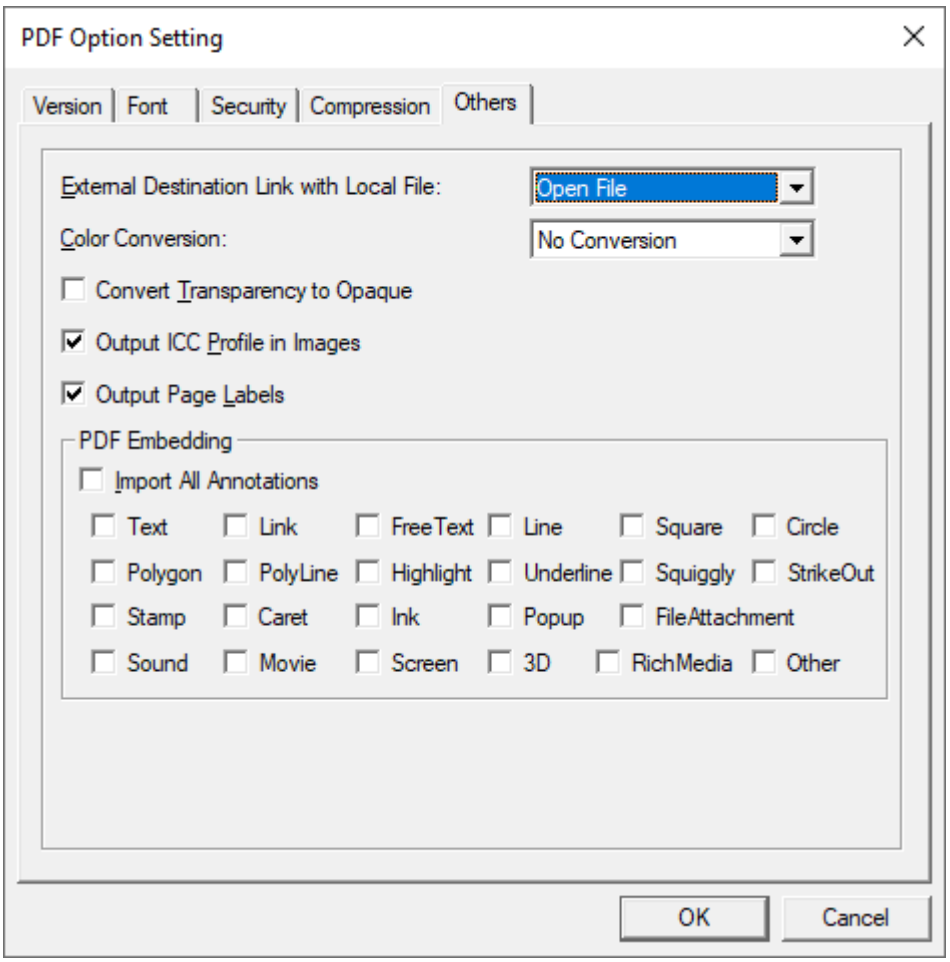
  Returns all the compression settings to the default values. In the Option Setting File, the values can be specified by using color-compression-default, grayscale-compression-default and monochrome-compression-default, etc. no-LT

- High Compression Settings

  Sets the compression settings to high. When applied, the PDF file size will get smaller but the image quality will get lower accordingly. In the Option Setting File, the values can be specified by using color-compression-minimum, grayscale-compression-minimum and monochrome-compression-minimum, etc. no-LT

  For details about the settings, see also Miscellaneous in PDF Output.

Others



- External Destination Link with Local File

  Specifies the way to transform the external destination links with local file to the PDF link property. Select from one of the following:

  - Open File
  - World Wide Web Link

  Also in the Option Setting File, it can be specified by setting the value of the use-launch-for-local-file.

- Color Conversion

  Specifies how to convert the RGB or CMYK color space to DeviceGray or DeviceCMYK.

  - No Conversion

    Does nothing.

  - Black to DeviceGray

    Converts RGB's Black to DeviceGray before outputting.

  - Gray to DeviceGray

    Converts RGB's Gray color (mono tone) to DeviceGray before outputting.

  - All to DeviceGray

    Converts all RGB or CMYK colors to DeviceGray before outputting. This conversion is based on the following formula:

    ```
    gray = 0.3×red + 0.59×green + 0.11×blue (0.0 ≤ red,green,blue ≤ 1.0)
    ```

    When it is CMYK, converts CMYK to RGB and then converts it to gray.

  - All to CMYK

    Converts the all RGB colors to CMYK before outputting. When it is CMYK, does nothing.

  In the Option Setting File, it can be specified by setting the value of the color-conversion. SVG, CGM, MathML, EMF and WMF that are drawn using their own drawing engine will be converted similarly. The other image types will be processed in the following ways:

  - When “All to DeviceGray” or “All to CMYK” is selected, conversion will be made to them. Note that conversion will not be made with **AH Formatter V7.1 Lite**. no-LT
  - When other than “All to DeviceGray” or “All to CMYK” is selected, no conversion will be made to them.

  When PDF/X-1a is specified to create, it is considered that “All to DeviceGray” or “All to CMYK” is specified. At that time the combo box is displayed in gray color. See also PDF/X for the handling of RGB in PDF/X.

- Convert Transparency to Opaque

  Specifies whether to convert transparency output to PDF into opaque. Note that transparency can be specified in the Option Setting File.

- Output ICC Profile in Images

  Specifies whether to output a ICC profile of images contained in an original image also to PDF. Also in the Option Setting File, it can be specified by setting the value of the image-color-profile.

  If the PDF to be output is PDF/X-1a, this setting is ignored and ICC profile isn't always output.

- Output Page Labels

  When FO with multiple `fo:page-sequence` is outputted to PDF and displayed with Adobe Acrobat or Reader, the page number in the lower part of the window is shown like 1 (1/9). This is a function of the page label. If this check is turned OFF, the page label is not displayed but only the page number can be displayed. Also in the Option Setting File, it can be specified by setting the value of the page-labels.

- PDF Embedding

  Specifies the embedded PDF.

- Import All Annotations

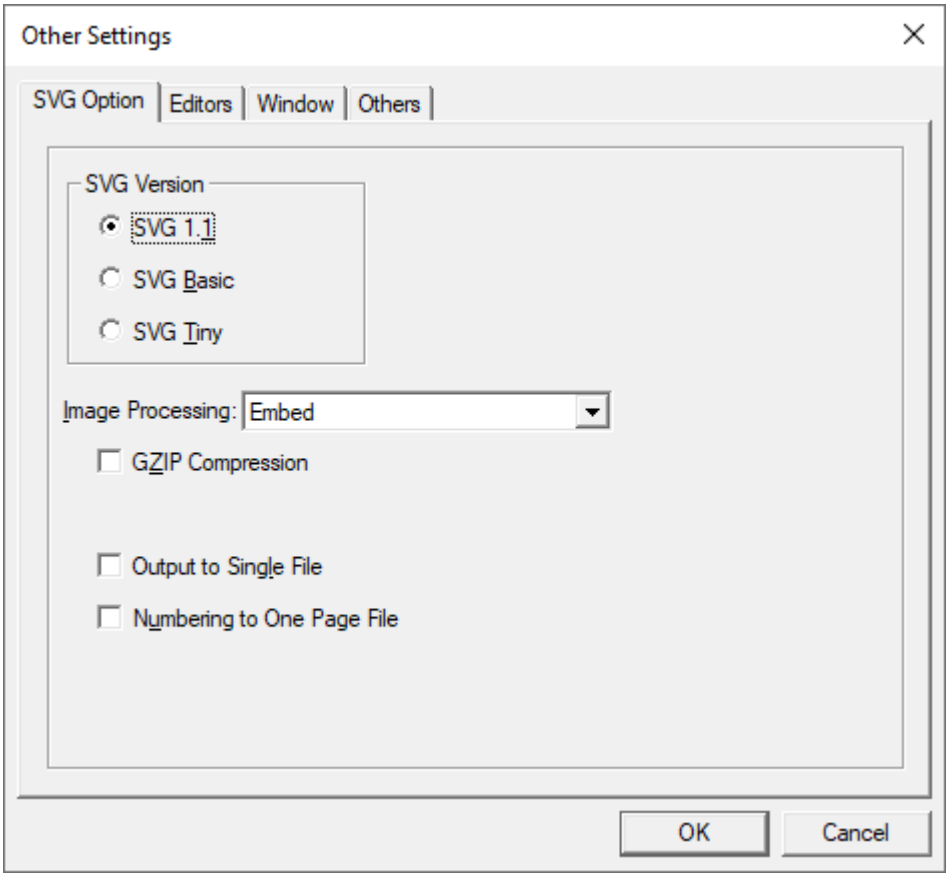
  Imports all embeddable annotations contains in the embedded PDF. When specifying the embedded annotations individually, select them from the following:

  - Text
  - Link
  - FreeText
  - Line
  - Square
  - Circle
  - Polygon
  - PolyLine
  - Highlight
  - Underline
  - Squiggly
  - StrikeOut
  - Stamp
  - Caret
  - Ink
  - Popup
  - FileAttachment
  - Sound
  - Movie
  - Screen
  - 3D
  - RichMedia
  - Other

  Specify Other when the embedded annotation is not included in the selections. In the Option Setting File, it can be specified by setting the value of the import-annotation-types. For more details, see also PDF Embedding.

Other Settings Dialog

SVG Option



In SVG Option in the Other Setting Dialog, the item concerning SVG set in the Option Setting File is adjusted. The contents changed here are written out to the `AHFSettings.xml` (`AHFSettings(x64).xml` for Windows x64 version) which exists in the application data directory by clicking the [OK] button.

- SVG Version

  Selects the version of SVG to output from the following:
  - SVG 1.1
  - SVG Basic
  - SVG Tiny
- Image Processing

  Specifies whether to embed or link images to SVG.
  - Embed
  - Copy and Link All Images
  - Link External Images
  - Copy and Link External Images

  For more details, see Image Output in SVG Output.
- GZIP Compression

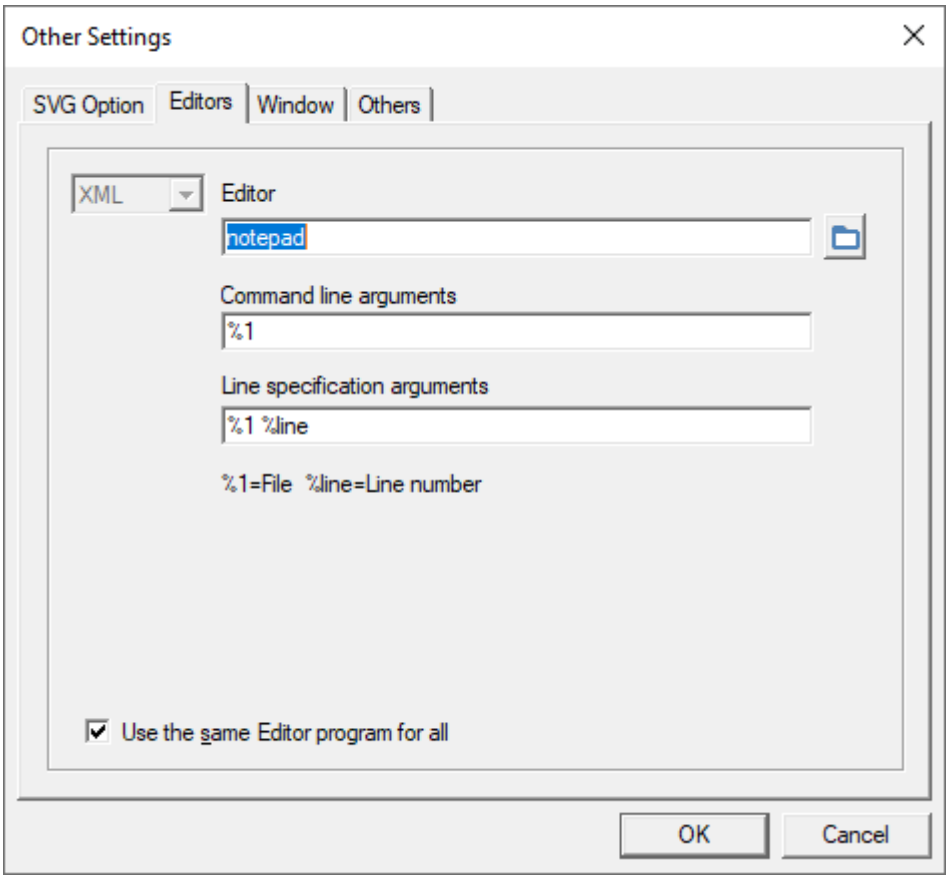
  Outputs GZIP compressed svgz. The extension is set to `.svgz`.
- Output to Single File

  Specifies whether pages are outputted as one SVG file, or each page is outputted as an individual file when outputting two or more pages. When outputting two or more SVG, page numbers are placed before the extension of the output file name. For example, if the specified file name is `document.svg`, page numbers are put as `document1.svg`, `document2.svg`, and so on. The number format can be set in Option Setting File, etc.

- Numbering to One Page File

  When Output to Single File is not specified, specifies whether the number is placed to the output file name even if SVG has only one page.

Editors



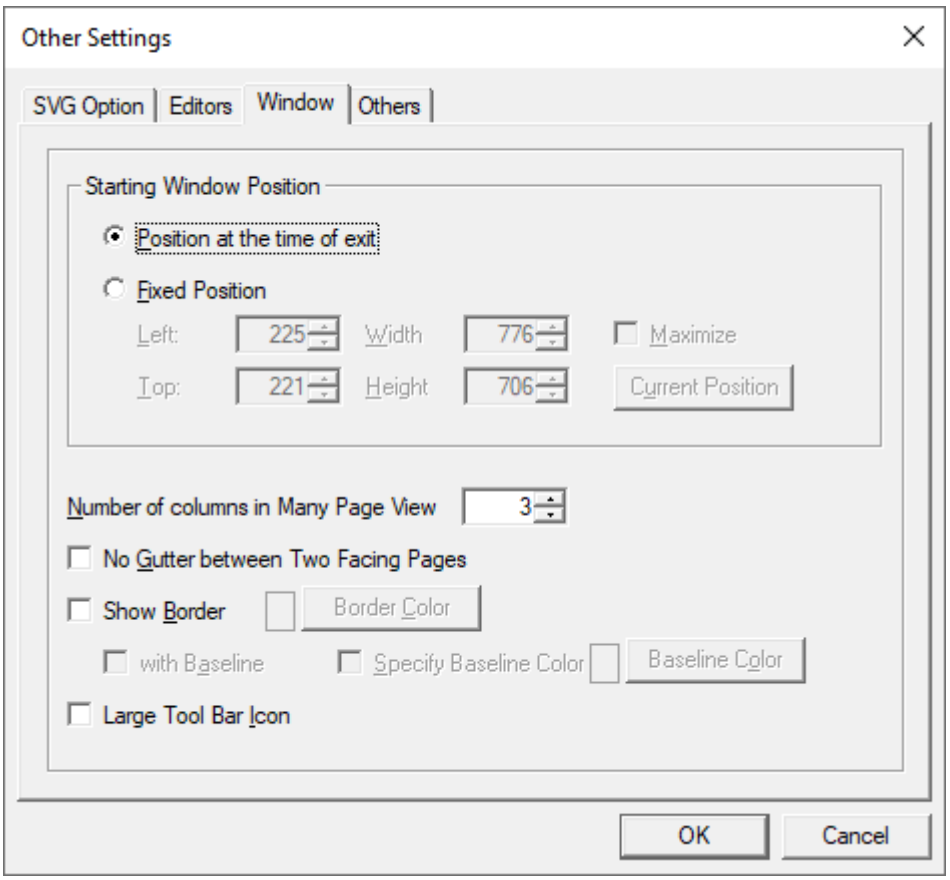
Edits the target document or stylesheet using the editor specified here. If it is empty, use the application associated with Windows. At that time, use what is associated with [Edit], if not, use what is associated with [Open]. This setting can be used from [Edit Document] on the Edit menu or [Edit StyleSheet] on the Edit menu.

Click the link to the document displayed in the log window to edit the document using the editor specified here. By specifying an argument that includes meta characters in [Line specification arguments], you can specify the line in error and edit the document. The description of meta characters is as follows:

- %1 represents the file name.
- %line represents the line number.

For example, when using oXygen as the editor, specify `file:%1#line=%line` in [Line specification arguments].

Window



- Starting Window Position

  Specifies the position of Window in GUI when starting up. Select the [Fixed Position], click the [Current Position] button to input the current information.
- Number of columns in Many Page View V7.1

  Specifies the number of columns when viewing multiple pages.
- No Gutter between Two Facing Pages

  Specifies whether to apply the gutter between two facing pages or not.
- Show Border

  Used to confirm how the formatted result is divided in areas. The border does not affect PDF Output or Print, etc. This is the same as the [Show Border] in the menu. In case of MathML, the border will be shown for each element.
- Border Color

  Displays the Color Dialog. Possible to specify the border color.
- with Baseline

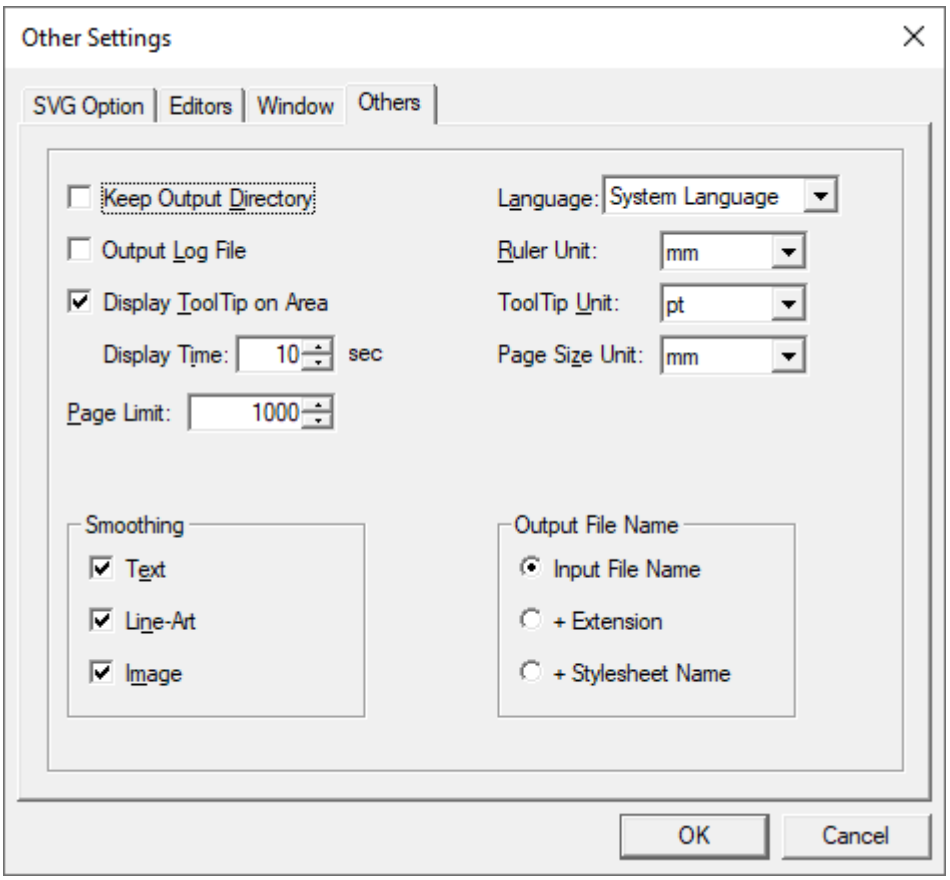
  Specifies whether to display the text baseline in addition to the borders of areas. The border does not affect PDF Output and Print, etc.
  In case of MathML, either the baseline or the centerline will be shown. no-LT
- Specify Baseline Color

  Specifies the color of the baseline. If not specified, the color will be calculated from the color of the characters. no-LT
- Baseline Color

  Displays the Color Dialog. Possible to specify the baseline color. no-LT
- Large Tool Bar Icon

  Possible to increase the size of the toolbar icons.

Others



- Keep Output Directory

  Specifies whether to remember the previous position of the directory used as the standard of a file name in the PDF Output Dialog, etc. If it's not checked, the same directory as the formatted document is assumed.

- Output Log File

  The information shown in the log window is saved as `AHFormatter.log` in the application data directory. The information in this file will be deleted when `AHFormatter.exe` is invoked.

- Display ToolTip on Area

  Specifies whether to display the information about the area as a ToolTip when a mouse is pointed on an area on the screen such as a character string or an image. A ToolTip automatically disappears by moving a mouse or reaching the specified display time.

- Page Limit

  This is used to control the maximum number of formatted pages for a very large document that a user wants to make available for display in the GUI. A large amount of memory is necessary to display a large number of pages. By specifying an appropriate value it is possible to improve the efficient working of the system. For more details, see also Restrictions. But, there is no such a restriction with other interfaces, such as Command-line Interface, etc.

- Smoothing

  Specifies whether to process the anti-aliasing in the printing or GUI. This can be specified for the following.

  - Text
  - Line-Art
  - Image

- Language

  Selects the language displayed on GUI. Changes are reflected when restarting the application.

  - English
  - Japanese
  - System Language

  CAUTION: It does not influence neither the [Cancel] button nor standard dialogs displayed by Windows.

- Ruler Unit

- ToolTip Unit
- Page Size Unit

  Selects the unit of the Ruler, the unit in the Tooltip, and the unit of the page size displayed in the Status Bar from the following:
  - cm
  - mm
  - in
  - pt
  - pc
  - px
  - q
- Output File Name no-LT

  Specifies the default format of the output file name in the PDF output dialog.
  - Input File Name

    Adds a target extension on the input file name after deleting the existing extension. For example when the input file name is `foo.fo`, it will be `foo.pdf`.
  - + Extension

    Adds a target extension on the input file name with the existing extension. For example when the input file name is `foo.fo`, it will be `foo.fo.pdf`.
  - + Stylesheet Name

    When a stylesheet is applied, adds a target extension on the conbined form of input file name and stylesheet name. When a stylesheet is not applied, it's the same as + Extension. For example when the input file name is `foo.xml` and the stylesheet is `bar.xsl`, it will be `foo.xml+bar.xsl.pdf` .

Import Option Setting Dialog

This enables you to load an Option Setting File with previously saved main preferences from the Option Setting Dialog. By default if the `AHFSettings.xml` (`AHFSettings(x64).xml` for Windows x64 version) file exists in the application data directory this file is automatically loaded at startup as the option setting file. The application data directory is `[APPDATA]\Antenna-House\AHFormatter\7.1\` indicated by the environment variable, APPDATA.

Export Option Setting Dialog

Writes the current setting to the Option Setting File. Main setting contents can be referred to in the Option Setting Dialog.

About Dialog

Displays the version of **AH Formatter V7.1** and the license information. If you are using an evaluation license the evaluation period remaining can be confirmed here.

Run with Parameters

You can use the parameters shown below when you start the `AHFormatter.exe` GUI program.

Parameter	Default	Functions
-s		If **AH Formatter V7.1** has already been invoked, the formatting will be executed with the already running **AH Formatter V7.1**. If this parameter is not specified, another **AH Formatter V7.1** will run.
-d Document		Specifies the URI of the source XML/FO/HTML document. The GUI window is displayed.
-t Stylesheet		Specifies the URI of the XSL/CSS stylesheet that is used for formatting. Must be used in combination with the `-d`, `-p` or `-pt` parameter.

Parameter	Default	Functions
-i Option-Setting-File		Specifies the path of “Option Setting File” which defines **AH Formatter V7.1** options in XML format. Any number of these parameters can be specified. If any content of this file is specified later, it will overwrite the previous contents. The default `AHFSettings.xml` is always read before this parameter.
-p Document		**AH Formatter V7.1** prints the document by displaying the Print Dialog without also displaying the GUI window. Cannot be used in combination with the `-s` parameter.
-pt Document Printer-Name		**AH Formatter V7.1** prints the document without displaying either the GUI screen or the Print Dialog. If Printer-Name is omitted, the default printer is used. Cannot be used in combination with the `-s` parameter.
-pts Document Printer-Name		Same as the `-pt` parameter, but prints the document without displaying the stop dialog box while printing. If Printer-Name is omitted, the default printer is used. Cannot be used in combination with the `-s` parameter.
-ps Printer-Setting-File		Specifies the path name of the Printer Setting File. See “Printer Setting File”. When the XML document is specified by `-d`, print the document by displaying the Print Dialog.
-c Copies	1	Specifies the number of copies to print. Must be used in combination with the `-pt` or `-pts` parameter. If it's omitted, the value is counted as 1.
-pdf Document PDF-File		**AH Formatter V7.1** outputs the formatted document to PDF by displaying the PDF Output Dialog without displaying the GUI window. PDF-File can be omitted. Cannot be used in combination with the `-s` parameter.
-pdft Document PDF-File		**AH Formatter V7.1** outputs the formatted document to PDF in the specified file without displaying either the GUI window or the PDF Output Dialog. Cannot be used in combination with the `-s` parameter.
-pdfts Document PDF-File		Same as the `-pdft` parameter, but outputs the formatted document to PDF without displaying the stop dialog box while outputting PDF. Cannot be used in combination with the `-s` parameter.
-param name=value		Specifies the name and value of a single `xsl:param`. If the value contains white space, specify as “name=value”. `-param` can be specified multiple times.

- Only one of `-d`, `-p`, `-pt`, `-pts`, `-pdf`, `-pdft` or `-pdfts` can be specified.

Restrictions

The GUI has certain formatting restrictions that do not apply when using the other interfaces.

- The maximum number of pages that can be formatted is controlled by the Others tab in the Other Settings Dialog. This is because storing formatted pages for browsing in the GUI consumes memory. Without this restriction, the system could run out of memory with very large documents.

  The other, non-GUI interfaces can format very large numbers of pages because they can aggressively discard information about already formatted pages during formatting.

  In the GUI, all pages can be output to PDF or to the printer regardless of this setting.
- EMF and WMF rendering in the WYSIWYG window is performed using functions provided by Windows. There may be documents for which the formatted results in the GUI and the formatted results in the PDF are different. The same applies to the printing of EMF and WMF using Windows printer drivers from the GUI or the Command-line Interface.
- The rendering result in the GUI and the output may differ due to the settings of glyph, smoothing, etc. or output settings in the Option Setting File.
- There may be cases where fonts displayed in an image are dropped from PDF output. This is because Windows may have substituted the fonts used for display. Specifying the proper font-family in FO or CSS can avoid this problem.
- `fo:color-profile` in FO and the ICC profile included in the image are not reflected on the screen.
- When the color set to output in black and white by PostScript printers does not convert to black and white, turn off all Smoothing. In addition, gradiants may not print as black and white even when all smoothing is turned off.

Command-line Interface

The Command-line Interface is provided as an executable file. You can call it from either a Windows batch file or a Linux / Macintosh shell script.

AH Formatter V7.1 can be executed from the Command-line Interface by:

- Specifying an FO (XSL Formatting Objects) files to be formatted and the destination of the formatted file.
- Specifying an XML and XSL file which automatically starts transformation with XSLT, then formatting and finally outputting.
- As a filter that reads FO from standard in and writes PDF to standard out.

Executable File Name

The executable file names are as follows:

Windows	`AHFCmd.exe`
Linux / Macintosh	`AHFCmd`

Environment Variables have to be set in order to execute these files. In the Windows version these are automatically set by the installer. In the non-Windows versions they have to be set. See Environment Variables.

Running on Windows

To run the command-line program of **AH Formatter V7.1** for Windows, enter the following command:

```
> cd [Install directory]
> AHFCmd -d samples\sample.fo -o \tmp\sample.pdf
```

If **AH Formatter V7.1** for Windows is successfully installed, the following message will be displayed:

```
AHFCmd : AH Formatter V7.1 XX for Windows : 7.1.X.XXXX (XXXX-XX-XXTXX:XX:XX+09)
         Copyright (c) 1999-2021 Antenna House, Inc.
AHFCmd : Formatting finished normally.
```

Then you can view `sample.pdf` in the `\tmp` directory.

Running from a Shell Script

In **AH Formatter V7.1** for non-Windows, the installation program will place the shell script file named `run.sh` in the `[Install directory]`. This is a sample shell script for running the command-line program `AHFCmd`. This script sets the necessary environment variables in the shell, and runs `AHFCmd`. To run the command-line program of **AH Formatter V7.1** for non-Windows using this script, enter the following command from your terminal window:

```
$ cd [Install directory]
$ ./run.sh -d samples/sample.fo -o /tmp/sample.pdf
```

If **AH Formatter V7.1** for non-Windows is successfully installed, the following message will be displayed, then you can get `sample.pdf` in `/tmp` directory:

```
AHFCmd : AH Formatter V7.1 XX for Xxxxxx : 7.1.X.XXXX (XXXX-XX-XXTXX:XX:XX+09)
         Copyright (c) 1999-2021 Antenna House, Inc.
AHFCmd : Formatting finished normally.
```

The same parameters in the same formats apply to both `AHFCmd` and `run.sh`.

Parameters

The following parameters apply to the Command-line Interface: Parameters with "*" in the following table indicate a negative meaning if no is placed in the beginning of the command. For example, -nomultivol cancels to output PDF in separate volume.

When specifying a path name that contains a space, the path name must be enclosed in double quotation marks. If two conflicting parameters are specified, the last parameter on the line takes precedence.

The default parameter can be specified with the environment variable. The setting with the environment variable is compensated before the parameter specified here and being evaluated. This feature does not function with **AH Formatter V7.1 Lite**.

Parameter	Default	Functions
-d Document		Specifies the URI of the target XML/FO/HTML document to be formatted. • When `-d @STDIN` is specified, FO document is loaded from standard in. The document loaded from standard in is supposed to be an FO file. If this parameter is omitted, a brief description of the Command-line interface parameters appear just like when `-h` is specified and processing stops without formatting.
-s Stylesheet		Specifies the URI of the target XSL/CSS document. If the specified XML document is FO, or the XML file contains the processing instruction `<?xml-stylesheet ...?>` and the stylesheet is specified, or the specified document is HTML, there is no need to specify a stylesheet. An XSLT Processor is necessary to use XSL stylesheets. In the Windows version, MSXML is used as the standard XSLT Processor. If you want to use another XSLT Processors or in non-Windows version, you need to set which XSLT Processor you are going to use. Setting the XSLT Processor is performed by “Environment Variables” or “Option Setting File”. If the specified document is CSS, it will be the last user stylesheet. It is applied posterior to the stylesheet added by `-css` and the Option Setting File specified by `-i`.
-f Formatter-Type	AUTO	Specifies the formatter type from the following: • AUTO • HTML • XHTML • XMLCSS • XSLFO If this parameter is omitted or invalid, it is considered AUTO.
-css User-Stylesheet		Specifies the CSS user stylesheet you want to add. `-css` can be specified any number of times. It is applied by specified order prior to the stylesheet specified by `-s`.
-htmlcs Default-HTML-Charset	UTF-8	Specifies the default encoding of HTML. This setting is applied to HTML whose encoding is unknown. If this parameter is omitted, UTF-8 is considered default.
-o Output-File	@STDOUT	Specifies the path name of the resulting output file. • When `-o @STDOUT` is specified, the result is written to standard out. • If both the printer name and this property are specified, the formatted result will be stored in the file using the printer driver. • When `-p @PDF` or `-p @TEXT` or etc. is specified, the resulting PDF or text will be stored in the file specified by this parameter. If this parameter is omitted, the result will be written to standard out.
-i Option-Setting-File		Specifies the path name of “Option Setting File” which defines **AH Formatter V7.1** options in XML format. Any number of these parameters can be specified. If any content of this file is changed it automatically overwrites the previous settings. Because only a described parameter in the Option Setting File is evaluated, it is possible to change a part of setting by adding a file that describes those parameters that should be changed. If conflicting values for a parameter are specified in the Option Setting File and the Command-line, the last specified value overwrites the previous value.
-ix		Imports `AHFSettings.xml` (`AHFSettings(x64).xml` for Windows x64 version) in the application data directory indicated as the environment variable APPDATA as the Option Setting File. This parameter is equivalent to `-i "[APPDATA]\AntennaHouse\AHFormatter\7.1\AHFSettings.xml"`

Parameter	Default	Functions
-ix		or `-i "[APPDATA]\AntennaHouse\AHFormatter\7.1\AHFSettings(x64).xml"` Effective only for Windows version.
-p Printer-Name	@PDF	Specifies the printer name where the formatted result is outputted If this parameter is omitted, `-p @PDF` is automatically specified. • When `-p @STDPRN` is specified, the standard printer is used. • When `-p @PDF` is specified, the formatted result is not output to a printer but rather to PDF. • When `-p @SVG` is specified, the formatted result is output as SVG. • When `-p @PS` is specified, the formatted result is output as PostScript. • When `-p @XPS` is specified, the formatted result is output as XPS. • When `-p @DOCX` is specified, the formatted result is output as Word(docx). no-LT • When `-p @TEXT` is specified, the formatted result will be outputted to the file as text format. no-LT • When `-p @AreaTree` is specified, the AreaTree will be outputted. no-LT A printer name other than the printer names above cannot be specified in non-Windows version. For details about specifying the printer name, see Printer Name. See “PDF Output” for PDF output info. See “SVG Output” for SVG output info. See “PostScript® Output” for PostScript output info. See “XPS Output” for XPS output info. See “Word(docx) Output” for Word(docx) output info. See “TEXT Output” for text output info. `@DOCX`, `@TEXT` and `@AreaTree` are not effective with **AH Formatter V7.1 Lite**.
-start Start-Page	1	Specifies the start page and the end page of output document. If the start page is omitted or the specified value is 0 or less, the start page is considered the first page. If the end page is omitted or 0, or the specified value exceeds the actual page number, the end page is considered the last page. If the setting is inconsistent, (for example, `-start 5 -end 3`) an error occurs. When -multivol parameter is specified, the value does not mean the page number but the separate volume number. For example `-start 3` outputs the third separate volume.
-end End-Page	0	
-2pass *		When formatting a huge document with a large amount of unresolved `<fo:page-number-citation>`, a large amount of memories are consumed because the cancellation of the page information is impossible. Therefore, the limit is caused in the number of pages to format. This parameter solves that problem by making the formatting two passes. Although its processing time may be increased, only the page number information which should be solved will consume the memory and the memory consumption will be extremely decreased. See “Formatting Large Document”. This setting is invalid with CSS formatting. no-LT
-dpw Length	210mm	Specifies the default page width with a numerical value and its unit.
-dph Length	297mm	Specifies the default page height with a numerical value and its unit.
-base BaseURI		Specifies the default base URI.
-hypdic Directory		Specifies the directory where the hyphenation dictionary exists.
-msxmlver version	6	Specifies the maximum version of MSXML used internally when msxml="true" is specified. Any version from 6 to 3 can be specified. For example, when 5 is specified, AH Formatter searches MSXML in order of MSXML5 → MSXML4 → MSXML3 and adopts the first found MSXML. If nothing is specified or the specified value is outside the range, the version will be considered 6. This setting is effective only with Windows version.
-param name=value		Specifies the parameter name and the value of `xsl:param` used with the XSLT transformation. If the value contains a white space, specify “name=value”. `-param` can be specified multiply.

Parameter	Default	Functions
-fontalias name=substname		Specifies font substitutions. If the option `-fontalias A=B` is specified, all of font family-name A in the FO file will be substituted with font B. If you are going to specify multiple substitutions, you must specify the `-fontalias` parameter for every substitution. You can also specify this option using the “Option Setting File”. The substitution is not recursive, or is done only once.
-afc *		Specifies whether the use of `<axf:formatter-config>` is permitted. It's permitted by default. When `-noafc` is specified, `<axf:formatter-config>` will be ignored. no-LT
-x Error-Level	2	Permits setting the error level at which **AH Formatter V7.1** will stop formatting and abort the job. 1. Information 2. Warning 3. Recoverable Error 4. Fatal Error If a fatal error occurs, the formatting process will always be aborted.
-silent		Suppresses the output of Error Messages. Normally error information is sent to stdout or stderr.
-stdout		Error Messages is sent to stdout only if this parameter is specified. It is output to stderr by default.
-stderr		Error Messages is also sent to stderr if this parameter is specified. It is output to stderr by default.

-xmlerr *		Outputs error messages in XML format. The namespace URL is `http://www.antenna-house.com/names/Error`. The output XML is as simple as follows:
		`<!ELEMENT errors (error|info)*>`
		`<!ATTLIST errors application CDATA #IMPLIED>`
		`<!ATTLIST errors version CDATA #IMPLIED>`
		`<!ATTLIST errors copyright CDATA #IMPLIED>`
		`<!ELEMENT error #PCDATA>`
		`<!ATTLIST error level CDATA #REQUIRED>`
		`<!ATTLIST error code CDATA #REQUIRED>`
		`<!ATTLIST error line CDATA #IMPLIED>`
		`<!ATTLIST error column CDATA #IMPLIED>`
		`<!ATTLIST error source CDATA #IMPLIED>`
		`<!ELEMENT info #PCDATA>`
		no-LT

-analyze *		Analyzes the area tree for stylistic problems, such consecutive lines that all end with the same word. Requires “`-p @AreaTree`”. Settings for automated analysis of the area tree are performed in the Option Setting File. For more details about the operation, see Automated Analysis. no-LT
-pgbar *		Outputs the progress of the page generation to the console. “`.`” shows the progress of formatting, “`-`” shows the progress of the outputted page.
-v		Shows the version, copyright and license information. Cannot be used with any other parameter.
-h -?		Displays a list of all the Command-line parameters.

Parameters for Printer

Parameter	Default	Functions
-ps Printer-Setting-File		Specifies the path name of the Printer Setting file. See “Printer Setting File”.
-copies Copies	1	Specifies the number of copies when outputting to a printer. The default value is 1.
-collate *		This parameter is effective only when outputting multiple copies. When `-collate` is specified, printing from the specified starting page to the ending page repeated. When `-nocollate` is specified, the same page is continuously printed as multiple copies.

Parameter	Default	Functions
-gdismooth Value	0	Specifies whether anti-aliasing is performed or not when printing. The sum of the following values can be specified: 1. Text 2. Line-Art 4. Image

Parameters for PDF Output

Parameter	Default	Functions
-pdfver Version	PDF1.5	Specifies the PDF version from the following: • PDF1.3 • PDF1.4 • PDF1.5 • PDF1.6 • PDF1.7 • PDF2.0 • PDF/X-1a:2001 no-LT • PDF/X-3:2002 no-LT • PDF/X-1a:2003 no-LT • PDF/X-2:2003 no-LT • PDF/X-3:2003 no-LT • PDF/X-4:2010 no-LT • PDF/X-4p:2010 no-LT • PDF/A-1a:2005 no-LT • PDF/A-1b:2005 no-LT • PDF1.4/A-2a:2011 no-LT • PDF1.5/A-2a:2011 no-LT • PDF1.6/A-2a:2011 no-LT • PDF1.7/A-2a:2011 no-LT • PDF1.4/A-2b:2011 no-LT • PDF1.5/A-2b:2011 no-LT • PDF1.6/A-2b:2011 no-LT • PDF1.7/A-2b:2011 no-LT • PDF1.4/A-2u:2011 no-LT • PDF1.5/A-2u:2011 no-LT • PDF1.6/A-2u:2011 no-LT • PDF1.7/A-2u:2011 no-LT • PDF1.4/A-3a:2012 no-LT • PDF1.5/A-3a:2012 no-LT • PDF1.6/A-3a:2012 no-LT • PDF1.7/A-3a:2012 no-LT • PDF1.4/A-3b:2012 no-LT • PDF1.5/A-3b:2012 no-LT • PDF1.6/A-3b:2012 no-LT • PDF1.7/A-3b:2012 no-LT • PDF1.4/A-3u:2012 no-LT • PDF1.5/A-3u:2012 no-LT

Parameter	Default	Functions
-pdfver Version	PDF1.5	• PDF1.6/A-3u:2012 no-LT • PDF1.7/A-3u:2012 no-LT • PDF1.5/UA-1:2014 no-LT • PDF1.6/UA-1:2014 no-LT • PDF1.7/UA-1:2014 no-LT Impossible to specify PDF/X, PDF/A or PDF/UA with **AH Formatter V7.1 Lite**.
-tpdf *		Generates Tagged PDF. Ignored if PDF cannot be tagged depending on the PDF versions. no-LT
-lpdf *		Generates linearized PDF optimized for the display on the Web. no-LT
-prevp *		Outputs pages in reverse order.
-multivol *		Specifies to output PDF in separate volume. The error occurs when FO doesn't include the `<axf:output-volume-info>` extension element. When this parameter is specified, `-start`/`-end` can be specified as the unit of separate volume.
-encrypt Key-Length	128rc4	Specifies the key length when encrypting the PDF file. The key length can be specified from the following: • `40rc4` • `128rc4` • `128aes` • `256aes` When the specified key length is not applicable with the version of the created PDF, the key length is adjusted to be applicable one. `128aes` is effective with PDF1.6 or later, `256aes` is effective with PDF1.7 or later.
-nemd *		Prevents metadata from being encrypted when encrypting a PDF to be created.
-userpwd Password		Specifies the user password to be set for the PDF. Specify up to 32 ASCII characters for PDF1.3 to 1.7 and 127 ASCII characters for PDF2.0 or later.
-ownerpwd Password		Specifies the owner password to be set for the PDF. Specify up to 32 ASCII characters for PDF1.3 to 1.7 and 127 ASCII characters for PDF2.0 or later.
-npt *		Prohibits printing the PDF file. Use `-ppa` when you specify PDF version 1.4 or later and `-encrypt 40rc4` is not specified. It is necessary to specify `-ownerpwd` so that this parameter is effective.
-ncg *		Prohibits making changes of the PDF file. It is necessary to specify `-ownerpwd` so that this parameter is effective.
-ncc *		Prohibits copying the content of the PDF file. It is necessary to specify `-ownerpwd` so that this parameter is effective.
-nca *		Prohibits adding comments and form fields to the PDF file. It is necessary to specify `-ownerpwd` so that this parameter is effective.
-nff *		Prohibits filling in of form fields and signing of the PDF file. Ignored when you specify PDF1.3 or `-encrypt 40rc4`. In order to make this parameter effective, other parameter settings may be required. For more details, see also ISO 32000-1 or ISO 32000-2.
-nab *		Prohibits text access for screen reader devices of the PDF file. Ignored when you specify PDF1.3 or `-encrypt 40rc4`. It is necessary to specify `-ncg` so that this parameter is effective.
-nad *		Prohibits inserting, deleting and rotating the PDF pages. Ignored when you specify PDF1.3 or `-encrypt 40rc4`. It is necessary to specify `-ncg` so that this parameter is effective.
-ppa Value	2	Specifies whether to permit printing of the created PDF with one of the following values:

Parameter	Default	Functions
-ppa Value	2	0. Not Allowed 1. Low Resolution Printing 2. High Resolution Printing Use `-npt` when you specify PDF version 1.3 or `-encrypt 40rc4`. It is necessary to specify `-ownerpwd` so that this parameter is effective.
-peb Value	1	Specifies whether to embed the embeddable fonts in PDF or not with one of the following values: 0. Specified font 1. All fonts excluding Base14 font 2. All fonts including Base14 font
-pee Fontname		Embeds the specified font in the PDF. If you want to specify multiple fonts, put commas between the fonts.
-pesub Percent	100%	Embeds all fonts when the percent of characters used is greater than or equal to specified value, subsets embedded fonts when the percent of characters used is less than the specified value. The value without unit or % value can be specified (1.0 = 100%). If nothing is specified, it is considered 100% and embedded fonts are always subset.
-pef *		An error is not issued when font embedding fails.
-peg *		An error is not issued when glyphs are missing.
-pex *		Prevents PDF/X, PDF/A and PDF/UA outputs from being cancelled even when an error occurs while outputting them. no-LT
-pt Value	all	Specifies whether to embed the image in PDF as is (pass-through). If both pass-through and downsampling are specified, downsampling will precede pass-through. This does not apply when it is not possible to embed the image as is for a certain reason. The following strings can be enumerated by separating with a white space to specify the image type. • `all` • `gif` • `tiff` • `png` • `jpeg` • `jpeg2000` • `jbig2` • `none` Excludes an image type by placing a hyphen "`-`" before the image type. For instance, when specifying "`all -gif`", only GIF can be excluded. no-LT
-picc Value	0	Selects how to compress the color images embedded in PDF. 0. Auto 1. JPEG compression 2. ZLIB compression 3. JPEG 2000 compression 4. Keep LZW This parameter is effective for images that cannot be directly embedded into a PDF or `-pidc` value is not 0. JPEG 2000 is effective only for PDF1.5 or later.
-picg Value	0	Selects how to compress the grayscale images embedded in PDF. 0. Auto 1. JPEG compression 2. ZLIB compression

Parameter	Default	Functions
-picg Value	0	3. JPEG 2000 compression 4. Keep LZW This parameter is effective for images that cannot be directly embedded into a PDF or `-pidg` value is not 0. JPEG 2000 is effective only for PDF1.5 or later.
-picm Value	1	Selects how to compress the monochrome images embedded in PDF. 0. None 1. CCITT Group4 2. CCITT Group3 3. Run Length compression 4. ZLIB compression This parameter is effective for images that cannot be directly embedded into a PDF or `-pidm` value is not 0.
-pidc Value	0	Selects how to downsample the raster color images embedded in a PDF with the following values: 0. None 1. Average 2. Bicubic 3. Subsampling When `-pidc` value (other than 0) is specified, a color image that has a resolution greater than `-pidca` dpi will be downsampled to the `-pidct` dpi value.
-pidca dpi	450	
-pidct dpi	300	
-pidg Value	0	Selects how to downsample the raster grayscale images embedded in PDF using the following values: 0. None 1. Average 2. Bicubic 3. Subsampling When `-pidg` value (other than 0) is specified, a grayscale image with resolution greater than `-pidga` dpi will be downsampled to the `-pidgt` dpi resolution.
-pidga dpi	450	
-pidgt dpi	300	
-pidm Value	0	Selects how to downsample the raster monochrome images embedded in PDF using the following values: 0. None 1. Average 2. Bicubic 3. Subsampling When `-pidm` value (other than 0) is specified, a monochrome image that has resolution greater than the `-pidma` dpi will be downsampled to the `-pidmt` dpi resolution.
-pidma dpi	1800	
-pidmt dpi	1200	
-pjq Percent	80	Specifies the quality of the raster graphics when specified JPEG format by `-picc` or `-picg` using the range of 1 to 100(%). A higher % increases the image quality. However the file size also becomes larger. The initial value is 80.
-pcs *		Specifies not to compress text and line art in the PDF.
-pos *		Compresses objects in PDF. The setting is invalid when `-pcs` is specified.
-plr *		Specifies whether the external link specified by the local file is transformed into “Open the file” or into “World Wide Web link” in the PDF link properties. When `-plr` is specified, it is transformed to “World Wide Web link”. When `-noplr` is specified, it is transformed to “Open the file”. If the document is designed to be viewed on a browser then it is suggested to use the world wide web `-plr` as the default setting.

Parameter	Default	Functions
-prc Value	0	Specifies how to convert the RGB color space (DeviceRGB) to DeviceGray. 0. No Conversion 1. Black to DeviceGray 2. Gray to DeviceGray 3. All RGB to DeviceGray 4. All RGB to CMYK
-pcics *		Converts RGB images automatically into CMYK when outputting PDF/X and PDF/A. no-LT
-prr dpi	108	Specifies the resolution value of the transformed raster images from 70 to 500(dpi). This parameter is available only in the Windows version and should be set with consideration of on whether better image quality or file size is more important.
-p3da *		Imports 3D object. no-LT
-psbkm *		Suppresses the output of the bookmark. no-LT
-pdfscale scale	100%	Specifies the scaling ratio of the PDF to output. A value without a unit or % value can be specified as a scale (1.0 = 100%). When `-pdfwidth` is specified after `-pdfscale`, `-pdfscale` will take priority. The same applies to `-pdfheight`.
-pdfheight length	100%	Scales the output height of PDF. Height values can be specified as a unit or a % value.
-pdfwidth length	100%	Scales the output width of PDF. Width values can be specified as a unit or a % value.
-createdate date		Specifies /CreationDate, /ModDate in PDF. See also createdate, modifydate in `<axf:document-info>` for the default and specifiable dates. This setting overrides the setting of `<axf:document-info>`.
-modifydate date		

Parameters for SVG Output

Parameter	Default	Functions
-svgver Profile	SVG1.1	Specifies the SVG profile: • SVG1.1 (default) • SVGBasic • SVGTiny If this parameter is omitted, SVG1.1 is outputted.
-svgip Method	0	Specifies how to treat images within the SVG file. 0. Embeds all image files. 1. Copies all image files to the destination that is specified by `-svgicp`, and then links. 2. Links images that can be linked and embeds images that have to be embedded. Raster images other than JPEG and PNG are always embedded. 3. Copies images that have been linked to the destination that is specified by `-svgicp` and links. If this parameter is omitted, it is considered 0 and all images are embedded. For more details about the operation, see Image Output in SVG Output.
-svgicp Directory		Specifies the destination for images when “1” or “3” is selected for the `-svgip` parameter. (Outputs the image as an external file.) When a relative path is used to specify the Directory, the path will be relative to the output path specified with `-o`. When `-o` is the standard output, an error will occur if the relative path is specified. Then it is necessary to specify an absolute path.
-svgiren *		Specifies whether to rename all file names to the prefix specified by `-svgiprfx`, or to use the original name when images are copied to the directory specified by `-svgicp`. When the file name is duplicated, a sequential number is added. When `-svgiren` is specified, all files are renamed.

Parameter	Default	Functions
-svgiprfx Prefix		When images are copied to the directory specified by `-svgicp`, specifies the prefix of the file name. The file name will be prefixed followed by sequence number. When it is not specified, they are only sequential numbers.
-svggzip *		Outputs SVG compressed in gzip.
-svgsingle *		A document composed of multiple pages is outputted as a single SVG file.
-svgfmt Format	1	When the original document has multiple pages and `-svgsingle` parameter is not specified, each page will be output as an SVG files that has a consecutive number at the end of the file name. This parameter specifies the format of those consecutive numbers. For example, when "`document.svg`" is specified as the name for the output file, by specifying "-01" for `-svgfmt` parameter the output files will be `document-01.svg`, `document-02.svg` and so on. If this parameter is omitted, "1" is considered to be specified.
-svgspn *		When `-svgsingle` is not specified and the output SVG has only one-page, the sequential number specified by `-svgfmt` is not added.
-svgic Value	0	Selects how to convert the raster images which may not be directly embedded in the SVG. 0. Auto 1. JPEG conversion 2. PNG conversion When Auto is selected, monochrome, grayscale or 256-or-less-color images are converted into PNG and the rest are converted into JPEG. When this parameter is omitted, the default is Auto. See Image Output in SVG Output for information on embeddable images.
-svgjq Percent	80	Specifies the quality of the raster graphics with the range of 1 to 100(%) when JPEG format is specified to `-svgic`. The quality becomes higher in proportion to the increase in the number, however the file size also becomes larger. The initial value is 80.
-svgrr dpi	108	Specifies the rasterize-resolution value of the transformed raster images from 70 to 500(dpi). This parameter is available only in the Windows version.

Parameters for TEXT Output

Parameter	Default	Functions
-tenc Encoding	UTF-8	Specifies the encoding for TEXT Output. If this parameter is omitted, UTF-8 is adopted. For more details, see also TEXT Output Setting.
-teol EOL-mark	CRLF or LF	Specifies the end-of-line code for TEXT Output. If this parameter is omitted, CRLF is adopted in Windows version, LF is adopted in non-Windows versions. See also TEXT Output Setting for more detail.

Text Output cannot be performed with **AH Formatter V7.1 Lite**.

Values can be added using one of the following units:

Representation	Meanings
cm	centimeter
mm	millimeter. 1mm = 0.1cm
in	inch. 1in = 2.54cm
pt	point. 1pt = 1in/72
pc	pica. 1pc = 12pt
jpt	1jpt = 0.3514mm
q	1q = 0.25mm

The following sample illustrates formatting `sample.xml` using XSL stylesheet `sample.xsl` and outputting the formatted result to `sample.pdf`.

```
AHFCmd -d "sample.xml" -s "sample.xsl" -p @PDF -o "sample.pdf"
```

In order to use the stylesheet in the non-Windows environment, it's necessary to specify external XSLT processor in the Option Setting File using `-i` parameter.

The following sample illustrates how to load the Option Setting File `options.xml`, format `sample.fo` and send the formatted result to a printer.

```
AHFCmd -d "sample.fo" -i "option.xml" -p "Antenna House Print"
```

Return Value

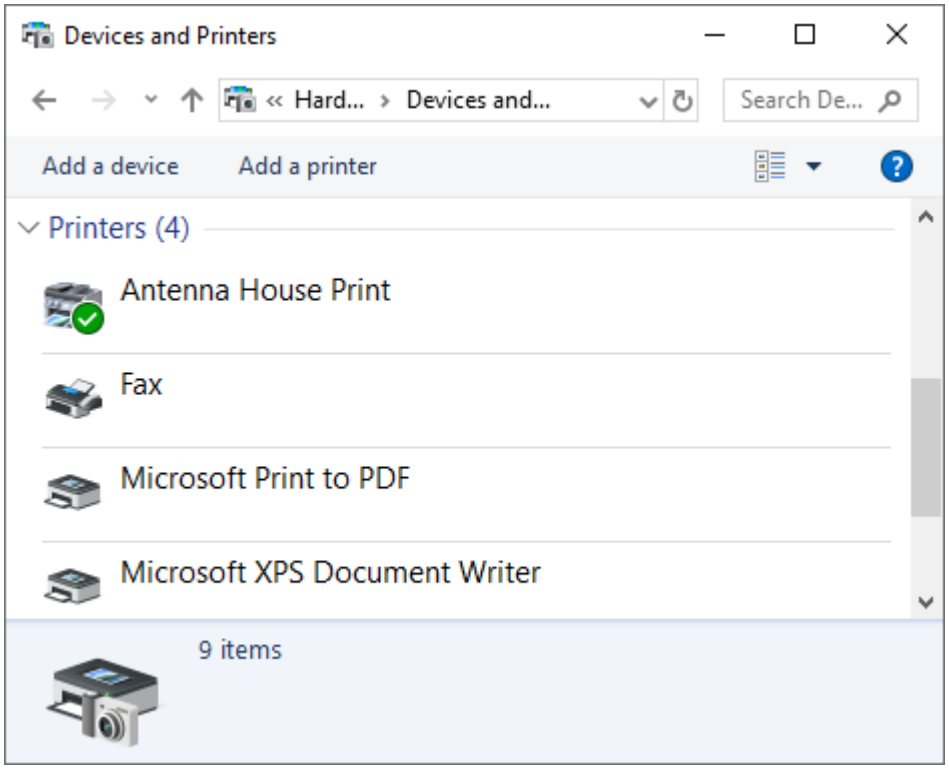
When executing formatting with a Command-line Interface, if the formatting is successful, it finishes the process with the return value of 0. If the formatting is not successful, the program finishes the process with a return value of 1. If the formatting is not performed by specifying `-v`, etc., the return value is 0.

Printer Name

The following parameter settings apply only to the Windows version.

To send a file to a printer use a printer name from the Printers dialog in the Windows start menu or from Printers and Faxes in the Control Panel.

```
-p "Antenna House Print"
```



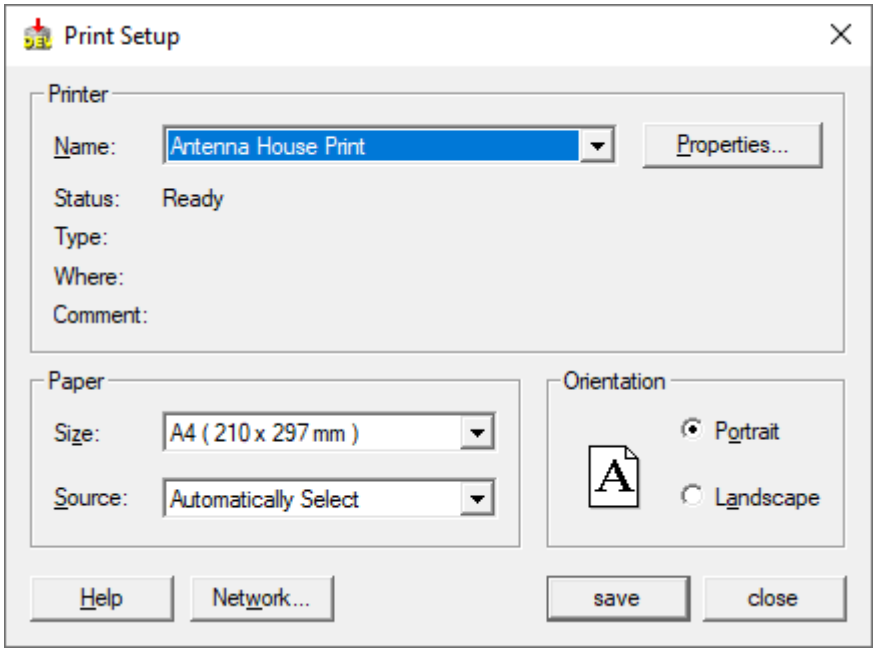
Printer Setting File

The following are effective only in the Windows version.

In the Windows environment, applications use the DEVMODE structure to exchange information about the printer settings. Also Windows printer drivers initialize themselves according to the information of the DEVMODE structure. **AH Formatter V7.1** provides `AHFDev.exe` as a utility to save the DEVMODE structure to a file.

`AHFDev.exe` can be downloaded in 32-bit or 64-bit versions. After downloading, unzip the ZIP and get `AHFDev.exe`. `AHFDev.exe` is an executable file. It can be executed anywhere.

When this program is launched, the “Print Setup” dialog will be displayed. You can choose printers from “Name” combo box or you can set various printer properties by clicking the “Properties” button. After you set up printer properties, click “save” button, the “Save As” dialog will be displayed. Specify a file name to save the print setup to. This will then modify DEVMODE structure as a “data file that records printer setup”. You can specify this file name for the PrinterSetting property of the .NET/COM Interface or `-ps` Parameter of the command line interface or other interfaces. To quit this application, click “close” button.



When a printer setting file is specified, a document is printed unless `-p` option is specified. The following shows how it operates.

- `AHFCmd -p printer-name -ps setting-file -d ...`
  Prints a document by applying DEVMODE specified in the `setting-file` to the printer-name.
- `AHFCmd -p @PDF -ps setting-file -d ...`
  Outputs a document to PDF disregarding the `-ps` option.
- `AHFCmd -ps setting-file -d ...`
  Prints a document using the DEVMODE specified in the `setting-file`. If the printer-name is not specified in DEVMODE, the default printer is used.

When `-collate` or `-copies` is specified, the content of DEVMODE is overwritten.

Restrictions

See also Restrictions in Graphical User Interface to know more about restrictions on printing.

.NET Interface

The .NET Interface makes it possible for **AH Formatter V7.1** to function through .NET applications developed using Visual Basic.NET, Visual C#.NET and similar programs.

The .NET Interface has been tried and tested in the following Microsoft .NET Framework environments.

- Microsoft .NET Framework 4.5.2
- Microsoft .NET Framework 4.6.x
- Microsoft .NET Framework 4.7.x
- Microsoft .NET Framework 4.8

CAUTION: You cannot have both **AH Formatter V7.1** and another version of **AH Formatter** or **XSL Formatter** installed on your machine when the NET interface is used. It is necessary to uninstall one version, or only set the path of **AH Formatter** or **XSL Formatter** you want to use by deleting the unwanted path from the environment variables. 32-bit Windows version can be installed on Windows x64 Edition. In that case, specify /platform:x86 when you use .NET interface.

Component Registration

AH Formatter .NET component is not registered automatically to the global assembly cache (GAC). It is necessary to create the path either by putting the .NET component in the current folder of the application, or by creating an application configuration file.

.NET Component File Name	for .NET Framework 4.5.2/4.6.x/4.7.x/4.8	`XfoDotNet40Ctl71.dll`

Confirm the necessary redistributable package for .NET Framework at System Requirements.

Classes

The following classes are contained in the .NET component:

Name	Functions

XfoObj	**AH Formatter V7.1** class (itself). This class implements an IDisposable interface. When exiting XfoObj class object, call Dispose method in order to release the resource.
	Example for C#
	`XfoDotNetCtl.XfoObj obj = new XfoDotNetCtl.XfoObj();`
	`try {`
	`  // some process`
	`} finally {`
	`  obj.Dispose();`
	`}`

XfoException	**AH Formatter V7.1** exception class. Throws the execute method of XfoObj class.

Properties

XfoException Class includes the following properties:

Name	Type	R/W	Functions
ErrorLevel	Int32	R	Indicates the level of the error that occurred during the formatting process. 1. Information 2. Warning 3. Recoverable Error 4. Fatal Error
ErrorCode	Int32	R	Indicates the code of the exception error that occurred during the formatting process. Zero means no error. Non-zero indicates any error occurred.

Name	Type	R/W	Functions
Message	String	R	Get the message of the exception error that occurred during the formatting process.

XfoObj Class includes the following properties:

Name	Type	R/W	Functions
Version	String	R	Get the version string of **AH Formatter V7.1**.
DocumentURI	String	R/W	Specifies the URI of the XML/FO/HTML documents you will format. • If DocumentURI is omitted or “@STDIN” is specified, FO documents are loaded from stdin. The documents loaded from stdin are supposed to be FO files.
StylesheetURI	String	R/W	Specifies the URI of XSL/CSS stylesheets for formatting. If the specified XML document is FO, or the XML file contains the processing instruction `<?xml-stylesheet ...?>` and the stylesheet is specified, or the specified document is HTML, there is no need to specify a stylesheet. If the specified document is CSS, it will be the last user stylesheet. It is applied posterior to the stylesheet added by AddUserStylesheetURI and the Option Setting File specified by AddOptionFileURI.
StylesheetTitle	String	R/W	Specify the title of the processing instruction of the preferred stylesheet `<?xml-stylesheet title="..."?>`.
FormatterType	Int32	R/W	Specify formatter type. Use one of the following values to specify the formatter type: 0. AUTO 1. HTML 2. XHTML 3. XML+CSS 4. XSL-FO If this parameter is omitted or invalid, it is considered AUTO.
HtmlDefaultCharset	String	R/W	Specifies the default encoding of HTML. This setting is applied to HTML whose encoding is unknown.
OptionFileURI	String	R/W	Specifies the URI of the XML-format Option Setting File which describes **AH Formatter V7.1** options. The contents of the Option Setting File are evaluated immediately. When you set a property that is contrary to an already set property, the existing setting will be overwritten. URI added by AddOptionFileURI will be canceled.
OptionFileCount	Int32	R	Counts the number of Option Setting Files you specified.
PrinterName	String	R/W	Specifies the output format or the printer name to output. • When a printer name is specified, the formatted result is outputted to that printer. • When “@STDPRN” is specified, the formatted result is outputted to the currently used printer. • When “@PDF” is specified, the formatted result is outputted to PDF. • When “@SVG” is specified, the formatted result is outputted to SVG. • When “@PS” is specified, the formatted result is outputted to PostScript. • When “@XPS” is specified, the formatted result is outputted to XPS. • When “@DOCX” is specified, the formatted result is output to Word(docx). no-LT

Name	Type	R/W	Functions
PrinterName	String	R/W	• When “@TEXT” is specified, the formatted result is outputted to a text format file. no-LT • When “@AreaTree” is specified, the AreaTree will be outputted. no-LT If this parameter is omitted, -p @PDF is automatically specified. See “Printer Name” for the printer name information. See “PDF Output” for the PDF output information. See “SVG Output” for the SVG output information. See “PostScript® Output” for the PostScript output. See “XPS Output” for the XPS output. See “Word(docx) Output” for Word(docx) output info. See “TEXT Output” for the text output information. @DOCX, @TEXT and @AreaTree are not effective with **AH Formatter V7.1 Lite**.
PrinterSettingURI	String	R/W	Specifies the URI of the Printer Setting File. See “Printer Setting File”.
OutputFilePath	String	R/W	Specifies the output file path of the formatted result. When a printer is specified as an output format by PrinterName, a printing result is saved to the specified file by the printer driver. When an output format other than a printer is specified, it is saved as the specified file with the specified output format. When omitted, or when “@STDOUT” is specified, it goes to standard output.
OutputFOPath	String	R/W	Specifies the output FO file as the result of XSLT when the input files are an XML document and an XSL stylesheet. • If the input file is FO (or HTML etc.), no file is outputted. • When “@STDOUT” is specified, it is considered stdout. If the setting is omitted, nothing outputs.
ExternalXSLT	String	R/W	Command-line of External XSLT Processor. If this is omitted, default MSXML will be used. For example: `xslt %param -o %3 %1 %2` These meanings are as follows: • %1 : XML document • %2 : XSL stylesheet • %3 : XSLT output file • %param : `xsl:param` %1 to %3 are used to express only parameter positions. Do not replace them with actual file names. In case you use `xsl:param` for an external XSLT Processor, set the parameter in XSLTParamFormat and SetXSLTParam.
XSLTParamFormat	String	R/W	Specifies the parameter format of `xsl:param` when using External XSLT Processor. For example: `-p %p %v` These meanings are as follows: • %p : Parameter Name • %v : Parameter Value

Name	Type	R/W	Functions
BaseURI	String	R/W	Specifies the default base URI.
FormattedPages	Int32	R	Get the formatted total pages.
TwoPassFormatting	Boolean	R/W	When formatting a huge document with a large amount of unresolved `<fo:page-number-citation>`, a large amount of memories are consumed because the cancellation of the page information is impossible. Therefore, the limit is caused in the number of pages to format. This parameter solves that problem by making the formatting two passes. Although its processing time may be increased, only the page number information which should be solved will consume the memory and the memory consumption will be extremely decreased. See “Formatting Large Document”. This setting is invalid with CSS formatting. no-LT
MultiVolume	Boolean	R/W	Specifies to output PDF in separate volume. The error occurs when FO doesn't include the `<axf:output-volume-info>` extension element. When the value `false` is specified, the StartVolume/EndVolume parameter is invalid, instead the parameter StartPage/EndPage is effective. When the value `true` is specified, the parameter StartPage/EndPage is invalid, instead the parameter StartVolume/EndVolume is effective. no-LT
StartVolume EndVolume	Int32	R/W	Effective when MultiVolume=true is specified. Specifies the start and the end of separate volume to output. If the setting of start for separate volume is omitted or the value `true` is less than or equal to 0, the start volume is accounted as the first volume. If the setting of start for separate volume is omitted or the value `true` is greater than actual number of separate volume, the end volume is accounted as the last volume. If the setting is conflicted, an error occurs. (e.g. StartVolume=5 EndVolume=3) no-LT
TotalVolumeCount	Int32	R	Gets the number of all the separate volumes when outputting PDF to multiple separate volumes. no-LT
OutputVolumeCount	Int32	R	Gets the number of the actual separate volumes when outputting PDF to multiple separate volumes. no-LT
StartPage EndPage	Int32	R/W	Specifies the start page number or the end page number of a document to output. If the start page is omitted or the specified value is 0 or less, the start page is considered the first page. If the end page is omitted or 0, or the specified value exceeds the actual page number, the end page is considered the last page. If the setting is inconsistent (for example, StartPage=5 EndPage=3), an error occurs.
ExitLevel	Int32	R/W	Specifies error level to abort formatting process. **AH Formatter V7.1** will stop formatting when the detected error level is greater than or equal to the specified ExitLevel property. The default value is 2 (Warning). Thus if an error occurred and error level is greater than or equal to 2 (Warning), the formatting process will be aborted. Legal values are from 1 to 4. When the value of greater than or equal to 5 is specified, it is considered the value of 4. If an error-level:4 (Fatal error) occurs, the formatting process will be aborted unconditionally. Note: Setting this value does not cause an error message to be displayed.
ErrorLevel	Int32	R	Indicates the error level that occurred during the formatting process. 1. Information 2. Warning 3. Recoverable Error 4. Fatal Error

Name	Type	R/W	Functions
ErrorCode	Int32	R	Indicates the error code of the error that occurred during the formatting process. Zero means no error. Non-zero indicates an error occurred.
ErrorMessage	String	R	Indicates the Error Messages of the error that occurred during the formatting process.
ErrorStreamType	Int32	R/W	Outputs the Error Messages to standard output or to standard error when the error level is less than the specified error level allowed while formatting. The error message is not outputted in default. 0. Not output 1. Standard output 2. Standard error output
XmlDomDocument	System.Xml.XmlDocument	W	Specifies the target XML document used by the System.Xml.XmlDocument class object.
XmlDomStylesheet	System.Xml.XmlDocument	W	Specifies the target XSL stylesheet by the System.Xml.XmlDocument class object.

Properties – PDF Settings

Name	Type	R/W	Functions
PdfVersion	Int32	R/W	Specifies PDF version: 0. PDF1.3 1. PDF1.4 2. PDF1.5 3. PDF1.6 4. PDF1.7 10. PDF2.0 101. PDF/X-1a:2001 no-LT 103. PDF/X-3:2002 no-LT 104. PDF/X-1a:2003 no-LT 105. PDF/X-2:2003 no-LT 106. PDF/X-3:2003 no-LT 107. PDF/X-4:2010 no-LT 108. PDF/X-4p:2010 no-LT 200. PDF/A-1a:2005 no-LT 400. PDF/A-1b:2005 no-LT 631. PDF1.4/A-2a:2011 no-LT 632. PDF1.5/A-2a:2011 no-LT 633. PDF1.6/A-2a:2011 no-LT 634. PDF1.7/A-2a:2011 no-LT 641. PDF1.4/A-2b:2011 no-LT 642. PDF1.5/A-2b:2011 no-LT 643. PDF1.6/A-2b:2011 no-LT 644. PDF1.7/A-2b:2011 no-LT 651. PDF1.4/A-2u:2011 no-LT 652. PDF1.5/A-2u:2011 no-LT 653. PDF1.6/A-2u:2011 no-LT

Name	Type	R/W	Functions
PdfVersion	Int32	R/W	654. PDF1.7/A-2u:2011 no-LT 661. PDF1.4/A-3a:2012 no-LT 662. PDF1.5/A-3a:2012 no-LT 663. PDF1.6/A-3a:2012 no-LT 664. PDF1.7/A-3a:2012 no-LT 671. PDF1.4/A-3b:2012 no-LT 672. PDF1.5/A-3b:2012 no-LT 673. PDF1.6/A-3b:2012 no-LT 674. PDF1.7/A-3b:2012 no-LT 681. PDF1.4/A-3u:2012 no-LT 682. PDF1.5/A-3u:2012 no-LT 683. PDF1.6/A-3u:2012 no-LT 684. PDF1.7/A-3u:2012 no-LT 1002. PDF1.5/UA-1:2014 no-LT 1003. PDF1.6/UA-1:2014 no-LT 1004. PDF1.7/UA-1:2014 no-LT Impossible to specify PDF/X, PDF/A or PDF/UA with **AH Formatter V7.1 Lite**.
PdfEncryptLevel	Int32	R/W	Specifies the key length when encrypting the PDF file during output. The key length can be specified as follows: 0. 40bit RC4 1. 128bit RC4 2. 128bit AES 3. 256bit AES This parameter is effective only when you specify PDF1.4 or later for the PdfVersion property. 128bit AES is effective with PDF1.6 or later, 256bit AES is effective with PDF1.7 or later.
PdfTag	Boolean	R/W	Generates Tagged PDF. Ignored if PDF cannot be tagged depending on the PDF versions. no-LT
PdfReversePage	Boolean	R/W	Outputs pages in reverse order.
PdfUserPassword	String	W	Specifies the user password to be set for the PDF. Specify up to 32 ASCII characters for PDF1.3 to 1.7 and 127 ASCII characters for PDF2.0 or later.
PdfOwnerPassword	String	W	Specifies the owner password to be set for the PDF. Specify up to 32 ASCII characters for PDF1.3 to 1.7 and 127 ASCII characters for PDF2.0 or later.
PdfNoPrinting	Boolean	R/W	Prohibits printing the PDF file. It is necessary to specify PdfOwnerPassword so that this parameter is effective.
PdfNoChanging	Boolean	R/W	Prohibits making changes to the PDF file. It is necessary to specify PdfOwnerPassword so that this parameter is effective.
PdfNoContentCopying	Boolean	R/W	Prohibits copying the content of the PDF file. It is necessary to specify PdfOwnerPassword so that this parameter is effective.

Name	Type	R/W	Functions
PdfNoAddingOrChangingComments	Boolean	R/W	Prohibits adding comments and form fields to the PDF file. It is necessary to specify PdfOwnerPassword so that this parameter is effective.
PdfNoFillForm	Boolean	R/W	Prohibits filling in of form fields and signing of the PDF file. This parameter is effective only when you specify PDF1.4 or later for the PdfVersion property. In order to make this parameter effective, other parameter settings may be required. For more details, see also ISO 32000-1 or ISO 32000-2.
PdfNoAccessibility	Boolean	R/W	Prohibits text access for screen reader devices of the PDF file. This parameter is effective only when you specify PDF1.4 or later for the PdfVersion property.
PdfNoAssembleDoc	Boolean	R/W	Prohibits inserting, deleting and rotating the PDF pages. This parameter is effective only when you specify PDF1.4 or later for the PdfVersion property.
PdfEmbedAllFontsEx	Int32	R/W	Specifies whether or not to embed all embeddable fonts used in the file of the formatted result into PDF. However, even if all fonts are specified to embed, the font forbidden embedding or the font that is not able to be embedded to PDF cannot be embedded. 0. Specified font 1. All fonts excluding Base14 font 2. All fonts including Base14 font
PdfEmbedFonts	String	R/W	Embeds the specified font in the created PDF. To specify multiple fonts, put commas between each font.
PdfEmbedSubsetFontPercentage	Int32	R/W	Embeds all fonts when the percent of characters used is greater than or equal to specified value, subsets embedded fonts when the percent of characters used is less than the specified value. If nothing is specified, it is considered 100 and embedded fonts are always subset.
PdfErrorOnEmbedFault	Boolean	R/W	When `true` is specified, an error is issued when font embedding fails.
PdfErrorOnMissingGlyph	Boolean	R/W	When `true` is specified, an error is issued when there is a missing glyph.
PdfPrintingAllowed	Int32	R/W	Specifies whether and how to permit printing of the PDF. This parameter is effective only when you specify PDF1.4 or later for the PdfVersion property. 0. Not Allowed 1. Low Resolution Printing 2. High Resolution Printing
PdfImageCompression	Int32	R/W	When a color image format cannot be stored directly in the PDF, an image is stored after being transformed into a bitmap format that is compatible with PDF. Use one of the following values to specify the compression method of the data stored in a PDF file: 0. JPEG or ZLIB compression 1. JPEG compression 2. ZLIB compression 3. JPEG 2000 compression (it is effective only when PdfVersion is PDF1.5 or later) 4. LZW or JPEG or ZLIB compression

Name	Type	R/W	Functions
PdfImageCompression	Int32	R/W	5. JPEG 2000 or JPEG or ZLIB compression (it is effective only when PdfVersion is PDF1.5 or later) 6. LZW or JPEG 2000 or JPEG or ZLIB compression (it is effective only when PdfVersion is PDF1.5 or later) When Auto is selected, the process is automatically done and creates the image data according to the setting of PdfJPEGQuality and PdfRasterizeResolution. Whichever has the smaller compressed size, JPEG or ZLIB, is selected. These are the settings for color images. Specify PdfGrayscaleImageCompression for grayscale images and PdfMonochromeImageCompression for monochrome images.
PdfJPEGQuality	Int32	R/W	With color image formats that cannot be stored directly in a PDF, if JPEG compression is specified for PdfImageCompression the image quality can be specified with a numeric value of 1 to 100. Higher values are proportional to increased image quality. However the file size also becomes larger. This is the setting for color images. PdfGrayscaleJPEGQuality can be specified for grayscale images. **CAUTION:** This is not for changing the quality of a JPEG formatted image.
PdfPutImageColorProfile	Boolean	R/W	Specifies whether to embed the ICC profile (of the embedded color image) in the PDF.
PdfImageDownSampling	Int32	R/W	Specifies either of the following methods to downsample the raster color image in a PDF: 0. None 1. Average 2. Bicubic 3. Subsampling When a value other than None is specified, an image that has a resolution greater than or equal to the one specified by PdfImageDownSamplingDPI will be downsampled into the resolution specified by PdfImageDownSamplingTarget. These are the settings for color images. Specify PdfGrayscaleImageDownSampling for grayscale images and PdfMonochromeImageDownSampling for monochrome images.
PdfImageDownSamplingTarget	Int32	R/W	Sets the target resolution when a raster color image is downsampled.
PdfImageDownSamplingDPI	Int32	R/W	Sets the resolution for the downsampled raster color image.
PdfGrayscaleImageCompression	Int32	R/W	When a grayscale image format cannot be stored directly in the PDF, the image is transformed and stored in a bitmap format that is compatible with PDF. Use one of the following values to specify the compression method of the data stored in a PDF file: 0. JPEG or ZLIB compression 1. JPEG compression 2. ZLIB compression 3. JPEG 2000 compression (it is effective only when PdfVersion is PDF1.5 or later) 4. LZW or JPEG or ZLIB compression

Name	Type	R/W	Functions
PdfGrayscaleImageCompression	Int32	R/W	5. JPEG 2000 or JPEG or ZLIB compression (it is effective only when PdfVersion is PDF1.5 or later) 6. LZW or JPEG 2000 or JPEG or ZLIB compression (it is effective only when PdfVersion is PDF1.5 or later) When Auto is selected, the process is automatically done and creates the image data according to the setting of PdfGrayscaleJPEGQuality and PdfRasterizeResolution. Whichever has the smaller compressed size, JPEG or ZLIB, is selected. These are the settings for grayscale images. Specify PdfImageCompression for color images and PdfMonochromeImageCompression for monochrome images.
PdfGrayscaleJPEGQuality	Int32	R/W	For grayscale image formats that cannot be stored directly in the PDF, if JPEG compression is specified in PdfGrayscaleImageCompression the image quality can be specified by a numerical value of 1 to 100. Higher values are proportional to increased image quality, however the file size also becomes larger. These are the settings for grayscale images. Specify PdfJPEGQuality for color images. **CAUTION:** This is not for changing the quality of a JPEG formatted image.
PdfGrayscaleImageDownSampling	Int32	R/W	Specifies either of the following methods to downsample raster grayscale images in a PDF: 0. None 1. Average 2. Bicubic 3. Subsampling When a value other than None is specified, an image that has a resolution greater than or equal to the one specified by PdfGrayscaleImageDownSamplingDPI will be downsampled into the resolution specified by PdfGrayscaleImageDownSamplingTarget. These are the settings for grayscale images. Specify PdfImageDownSampling for color images and PdfMonochromeImageDownSampling for monochrome images.
PdfGrayscaleImageDownSamplingTarget	Int32	R/W	Sets the target resolution when a raster grayscale image is downsampled.
PdfGrayscaleImageDownSamplingDPI	Int32	R/W	Sets the resolution for the downsampled raster grayscale image.
PdfMonochromeImageCompression	Int32	R/W	When monochrome image formats cannot be stored directly in the PDF, the image is transformed and stored in a bitmap format that is compatible with PDF. Use one of the following values to specify the compression method of data stored in a PDF file: 0. CCITT Group4 1. CCITT Group3 2. Run Length compression 3. ZLIB compression 4. None These are the settings for monochrome images. Specify PdfGrayscaleImageCompression for grayscale images and PdfImageCompression for color images.

Name	Type	R/W	Functions
PdfMonochromeImageDownSampling	Int32	R/W	Specifies either of the following methods to downsample raster monochrome images in a PDF: 0. None 1. Average 2. Bicubic 3. Subsampling When a value other than None is specified, an image that has a resolution greater than or equal to the one specified by PdfMonochromeImageDownSamplingDPI will be downsampled into the resolution specified by PdfMonochromeImageDownSamplingTarget. These are the settings for monochrome images. Specify PdfImageDownSampling for color images and PdfGrayscaleImageDownSampling for grayscale images.
PdfMonochromeImageDownSamplingTarget	Int32	R/W	Sets the target resolution when a raster monochrome image is downsampled.
PdfMonochromeImageDownSamplingDPI	Int32	R/W	Sets the resolution for the downsampled raster monochrome image.
PdfLinearize	Boolean	R/W	Specifies whether to output linearized PDF or not. no-LT
PdfCompressContentStream	Boolean	R/W	Specifies whether the text and line art in a PDF are compressed in order to reduce the size of PDF.
PdfUseLaunchForRelativeURI	Boolean	R/W	Specifies whether external links specified by the local file are transformed into “Open the file” or into “World Wide Web link” in the PDF link properties. If the value is `true`, it is transformed to “Open the file”. If the value is `false`, it is transformed to “World Wide Web link”.
PdfRGBConversion	Int32	R/W	Specifies how to convert the RGB color space (DeviceRGB) to DeviceGray. 0. No Conversion 1. Black to DeviceGray 2. Gray to DeviceGray 3. All RGB to DeviceGray 4. All RGB to CMYK
PdfConvertImageColorSpace	Boolean	R/W	Converts RGB images automatically into CMYK when outputting PDF/X and PDF/A. no-LT
PdfRasterizeResolution	Int32	R/W	Specifies the rasterize-resolution value of the transformed raster images from 70 to 500(dpi) when the vector image is converted to the raster image and stored in PDF. SVG, EMF and WMF are rendered in PDF as vectors without being changed to raster images.
PdfImport3DAnnotation	Boolean	R/W	Imports 3D object. no-LT
PdfOutputScale	String	W	Specifies the scaling ratio of the PDF to output. A value with a unit or % value can be specified as length.
PdfOutputHeight	String	R/W	Scales the height of the PDF to output. A value with a unit or % value can be specified as length.
PdfOutputWidth	String	R/W	Scales the width of the PDF to output. A value with a unit or % value can be specified as length.

Name	Type	R/W	Functions
PdfErrorOnPDFXFault	Boolean	R/W	Prevents PDF/X, PDF/A and PDF/UA outputs from being cancelled even when an error occurs while outputting them.

Properties – SVG Settings

Name	Type	R/W	Functions
SvgVersion	Int32	R/W	Specifies the SVG version: 0. SVG 1.1 1. SVG Basic 2. SVG Tiny
SvgImageProcessingType	Int32	R/W	Specifies how to treat images contained in the output SVG. 0. Embeds all image files. 1. Copies all image files to the destination specified by SvgImageCopyPath, and then links. 2. Links images that can be linked and embeds images that have to be embedded. Raster images other than JPEG and PNG are always embedded. 3. Copies images that have been linked to the destination that is specified by SvgImageCopyPath, and links. The embedded image are embedded. If this parameter is omitted, the default is 0 and all images are embedded.
SvgImageCopyPath	String	R/W	Specifies the destination for the copied images if 1 or 3 is specified for SvgImageProcessingType.
SvgGzipCompression	Boolean	R/W	Specifies whether to compress the outputted SVG into gzip format.
SvgSingleFile	Boolean	R/W	Specifies whether a formatted result composed of multiple pages is output as a single SVG file or as multiple SVG files. If the value is `true`, output is as a single SVG file. If the value is `false`, output is as multiple SVG files. When multiple files are output, the files are named as specified in SvgFormat. This takes effect only when outputting to a file and is not valid when output is without a file name such as when streaming.
SvgImageRename	Boolean	R/W	When images are copied to the directory specified by SvgImageCopyPath etc., specifies whether to rename all file names to the prefix specified in SvgImagePrefix, or use the original name. When the file name is duplicated, a sequential number is added. When `true` is specified, all files are renamed.
SvgImagePrefix	String	R/W	When images are copied to the directory specified by SvgImageCopyPath, specifies the prefix of the file name. The file name will be prefixed followed by a sequential numbers only if the Default is empty.
SvgSinglePageNumber	Boolean	R/W	When SvgSingleFile=false is specified, specifies whether to add sequential number to the output SVG even if it has only one-page. If `false` it is not added to the output SVG.
SvgFormat	String	R/W	When the original document has multiple pages and `false` is specified in SvgSingleFile, each page will be output as an SVG file that has a consecutive number at the end of the file name. This parameter specifies the format of those consecutive numbers. For example, when “`document.svg`” is specified as the name for the output file, by specifying “-01” for SvgFormat the output files will be `document-01.svg`, `document-02.svg` and so on. If this parameter is omitted then “1” is considered to have been specified.

Name	Type	R/W	Functions
SvgImageConversion	Int32	R/W	Selects how to convert the images embedded in the output SVG to the following: 0. Auto 1. JPEG conversion 2. PNG conversion
SvgJPEGQuality	Int32	R/W	For image formats which cannot be stored directly in SVG, if JPEG conversion is specified in SvgImageConversion, specifies the quality of the image from 1 to 100. Higher values are proportional to increased image quality, however the file size also increases. The initial value is set at 80.
SvgRasterizeResolution	Int32	R/W	Specifies the rasterize-resolution value of the raster image (Changed from a vector image) from 70 to 500(dpi). SVG, EMF and WMF are rendered in SVG as vectors without being changed to raster images.
SvgSingleFileMaxHeight	Int32	R/W	Specifies the maximum value of the height when assigning two or more pages to a single page when SvgSingleFile=true is specified. A unit must be assigned and specified. When SvgSingleFileMaxPages or SvgSingleFileMaxHeight is specified, (or both are specified), and the page exceeds either the maximum size (SvgSingleFileMaxHeight) or the maximum number of pages (SvgSingleFileMaxPages), **AH Formatter V7.1** will stop converting and abort the job as an error. If this parameter is omitted, there is no limitation in the value of height.
SvgSingleFileMaxPages	Int32	R/W	Specifies the maximum number of pages outputted when SvgSingleFile=true is specified. If this parameter is omitted If this parameter is omitted, “5000” is considered to be specified. When either SvgSingleFileMaxPages or SvgSingleFileMaxHeight is specified, or both are specified, and the page exceeds either the maximum size (SvgSingleFileMaxHeight) or the maximum number of pages (SvgSingleFileMaxPages), **AH Formatter V7.1** will stop converting and abort the job as an error.
SvgImageDownsamplingDPI	Int32	R/W	Specifies the resolution of the down sampling when embedding an image with 1 or more integers. When the resolution of the original image is lower than specification, it's embedded with the lower resolution.
SvgImageDownsamplingMethod	Int32	R/W	Specifies the method of compression when down sampled. If this parameter is omitted, “IMGDOWNSAMPLING_AVERAGE” is considered to be specified. 1. biliner 2. bicubic 3. nearest neighbor

Properties – Printer Settings

Name	Type	R/W	Functions
PrnCopies	Int32	R/W	Specifies the number of copies when outputting to a printer. If nothing is specified, the value is considered 1.
PrnCollate	Boolean	R/W	Indicates collation of multiple copies when outputting to a printer. If it is not specified or the value `false` is specified, the same page is multi-copied continuously. If `true` is specified, the pages specified print from start to end repeatedly.
BatchPrint	Boolean	R/W	When the value `false` is specified, the print dialog box is displayed when printing. If the setting is omitted or the value `true` is specified, the print dialog is not displayed.

Properties – Smoothing Settings

Name	Type	R/W	Functions
GdiTextAntialias	Boolean	R/W	Performs the smoothing processing to text when `true` is specified.
GdiLineartSmoothing	Boolean	R/W	Performs the smoothing processing to borders when `true` is specified.
GdiImageSmoothing	Boolean	R/W	Performs the smoothing processing to images when `true` is specified.

Properties – Watermark-Text Settings

Name	Type	R/W	Functions
WatermarkText	String	R/W	Displays the specified watermark text on each page. Possible to make it multiple lines by delimiting with the line feed \n. This setting is invalid with the evaluation version.
WatermarkFontFamily	String	R/W	Specifies the font family to the character string which you set to WatermarkText.
WatermarkFontWeight	String	R/W	Specifies the font weight to the character string which you set to WatermarkText. Possible to specify normal, bold or the numerical value from 100 to 900.
WatermarkFontStyle	String	R/W	Specifies the font style to the character string which you set to WatermarkText.
WatermarkOpacity	String	R/W	Specifies the opacity to the character string which you set to WatermarkText.

Values can be added using the following units:

Representation	Meanings
cm	centimeter
mm	millimeter. 1mm = 0.1cm
in	inch. 1in = 2.54cm
pt	point. 1pt = 1in/72
pc	pica. 1pc = 12pt
jpt	1jpt = 0.3514mm
q	1q = 0.25mm

Methods

XfoObj Class provides the following methods:

Name	Return Value	Arguments	Functions
Dispose	None	None	Releases the resource. Call this method when you exit the object.
Execute	None	None	Executes the formatting and outputs to a PDF specified in OutputFilePath or printer specified in PrinterName.
Render	None	inputStream : Stream outputStream : Stream outDevice : String	Executes the formatting of XSL-FO document specified for inputStream, and outputs it to outputStream in the output form specified for outDevice. If the outDevice parameter is omitted, @PDF is automatically specified.
Render	None	inputDoc : XmlDocument outputStream : Stream outDevice : String	Executes the formatting of XSL-FO document specified for inputDoc, and outputs it to outputStream in the output form specified for outDevice. If the outDevice parameter is omitted, @PDF is automatically specified.
Render	None	inputStream : Stream xsltStream : Stream outputStream : Stream outDevice : String	Transforms an XML document specified to inputStream using an XSL stylesheet specified to xsltStream, then executes the formatting of XSL-FO document and outputs it to outputStream in the output form specified for outDevice. If the outDevice parameter

Name	Return Value	Arguments	Functions
Render	None	inputStream : Stream xsltStream : Stream outputStream : Stream outDevice : String	is omitted, @PDF is automatically specified. A standard XSLT Processor of .NET Framework is used for the XSLT conversion. The ExternalXSLT property and the setting of XSLT Processor in the Option Setting File is disregarded.
Clear	None	None	Initializes the formatting engine.
SetXSLTParam	None	name : String value : String	Sets parameter name and value for `xsl:param`.
ClearXSLTParam	None	None	Clears all parameter names and values for `xsl:param`.
SetFontAlias	None	fontName : String aliasName : String	Sets the substitution of font name. This substitution acts on the font names existing in FO. The font name fontName is replaced to aliasName.
EraseFontAlias	None	fontName : String	Erases the substitution of font name fontName.
ClearFontAlias	None	None	Clears all substitutions of font name.
GetFormattingError	None	errlist : Collections.ArrayList	Possible to call it after the formatting is completed. Acquires error information with an error level less than ExitLevel that occurred during formatting and stores it in Collections.ArrayList specified in the argument. The error information is stored in the ArrayList as an object of the XfoErrorInformation class. The XfoErrorInformation class has three properties as error information: ErrorLevel, ErrorCode, and ErrorMessage.
GetOptionFileURI	String	index : Int32	Gets the URL of Option Setting File from the index you specified.
AddOptionFileURI	None	fileURI : String	Adds the URL of the XML-based Option Setting File that indicates the options for **AH Formatter V7.1**. The contents of Option Setting File are evaluated immediately and if new properties are set, the former setting will be overwritten.
AddUserStylesheetURI	None	fileURI : String	Specifies the CSS user stylesheet you want to add. AddUserStylesheetURI can be specified any number of times. It is applied by specified order prior to the stylesheet specified by StylesheetURI.

Events

XfoObj provides the following events:

Name	Return Value	Arguments	Functions
OnFormatPage	None	pageNum : Int32	The page number that has already been outputted during the formatting process can be received as an event. A value cannot be specified when you use ASP.NET application. ● Greater than or equal to 1 : Page number that has already been outputted. ● 0 : All page formatting has finished. ● -1 : Start of the first pass of 2 pass formatting. ● -2 : Start of the second pass of 2 pass formatting.
OnRenderPage	None	pageNum : Int32	The page number that has already been outputted during the formatting process can be received as an event. A value cannot be specified when you use ASP.NET application. ● Greater than or equal to 1: Page number that has already been outputted. ● 0 : All page has been outputted.

PDF Output to the Web Browser

It's possible to directly output PDF to the Web Browser, when you use ASP.NET application on a server and output the formatted result in PDF. The following is its sample of program.

```
public class TestPage : Page
{
    public void OnStreamPDF(Object sender, EventArgs ea)
    {
        XfoDotNetCtl.XfoObj obj = new XfoDotNetCtl.XfoObj();
        obj.ExitLevel = 4;
        FileStream fs = null;
        try
        {
            fs = File.Open("c:\\temp\\sample.fo", FileMode.Open, FileAccess.Read);
            Response.Clear();
            Response.ContentType = "application/pdf";
            obj.Render(fs1, Response.OutputStream);
            Response.End();
        }
        catch(Exception e)
        {
            throw e;
        }
        finally
        {
            if (fs != null)
                fs.Close();
        }
    }
}
```

Programming Example

The following is a C# programming sample. In addition, `[Install directory]/samples/dotnet` includes some useful sample files for C# and VisualBasic.NET.

```
using System;

public class MainApp
{
    static public void Main()
    {
        XfoDotNetCtl.XfoObj obj = new XfoDotNetCtl.XfoObj();
        obj.DocumentURI = "c:\\temp\\test.xml";
        obj.StylesheetURI = "c:\\temp\\test.xsl";
        obj.OutputFilePath = "c:\\temp\\test.pdf";
        obj.ExitLevel = 4;
        try
        {
            obj.Execute();
        }
        catch(XfoException e)
        {
            Console.WriteLine("ErrCode : " + e.ErrorCode + "\n" + e.Message);
        }
        catch(Exception e)
        {
            Console.WriteLine(e.Message);
        }
        finally
        {
            obj.Dispose();
        }
    }
}
```

COM Interface

The COM Interface makes it possible for **AH Formatter V7.1** to function through applications using COM-supported languages such as Visual Basic, Delphi and VBScript.

CAUTION: 32-bit Windows version can be installed on Windows x64 Edition. In that case, compile it for Win32 platform when you use COM interface. For example, when you use the script language using WSH, use WSH of the 32-bit version. (`C:\Windows\SysWOW64\cscript.exe`)

Object Class Name

The object class name is shown below. Use “XfoComCtl.XfoObj” as the object class name when invoking from the Create Object statement in Visual Basic.

namespace	XfoComCtl
Object Class Name	XfoObj
COM DLL File Name	`XfoComCtl71.dll`

In order to use the COM interface, Windows registration is required. When **AH Formatter V7.1** is installed correctly, the registration of COM is automatically done. To re-register the COM, run regsvr32 from the console as follows:

```
> cd [Install directory]
> regsvr32 XfoComCtl71.dll
```

When running regsvr32, an error may occur if User Account Control (UAC) function is set to Windows. In such a case, run a command prompt as an administrator by clicking “Run As Administrator” from the context menu, then run regsvr32.

Properties

XfoObj includes the following properties:

Name	Type	R/W	Functions
Version	String	R	Get the version string of **AH Formatter V7.1**.
DocumentURI	String	R/W	Specifies the URI of the XML/FO/HTML documents you will format. • If DocumentURI is omitted or “@STDIN” is specified, FO documents are loaded from stdin. The documents loaded from stdin are supposed to be FO files.
StylesheetURI	String	R/W	Specifies the URI of XSL/CSS stylesheets for formatting. If the specified XML document is FO, or the XML file contains the processing instruction `<?xml-stylesheet ...?>` and the stylesheet is specified, or the specified document is HTML, there is no need to specify a stylesheet. If the specified document is CSS, it will be the last user stylesheet. It is applied posterior to the stylesheet added by AddUserStylesheetURI and the Option Setting File specified by AddOptionFileURI.
FormatterType	Long	R/W	Specify formatter type. Use one of the following values to specify the formatter type: 0. AUTO 1. HTML 2. XHTML 3. XML+CSS 4. XSL-FO If this parameter is omitted or invalid, it is considered AUTO.

Name	Type	R/W	Functions
HtmlDefaultCharset	String	R/W	Specifies the default encoding of HTML. This setting is applied to HTML whose encoding is unknown.
OptionFileURI	String	R/W	Specifies the URI of the XML-format Option Setting File which describes **AH Formatter V7.1** options. The contents of the Option Setting File are evaluated immediately. When you set a property that is contrary to an already set property, the existing setting will be overwritten. URI added by AddOptionFileURI will be canceled.
OptionFileCount	Long	R	Counts the number of Option Setting Files you specified.
PrinterName	String	R/W	Specifies the output format or the printer name to output. • When a printer name is specified, the formatted result is outputted to that printer. • When “@STDPRN” is specified, the formatted result is outputted to the currently used printer. • When “@PDF” is specified, the formatted result is outputted to PDF. • When “@SVG” is specified, the formatted result is outputted to SVG. • When “@PS” is specified, the formatted result is outputted to PostScript. • When “@XPS” is specified, the formatted result is outputted to XPS. • When “@DOCX” is specified, the formatted result is output to Word(docx). no-LT • When “@TEXT” is specified, the formatted result is outputted to a text format file. no-LT • When “@AreaTree” is specified, the AreaTree will be outputted. no-LT If this parameter is omitted, -p @PDF is automatically specified. See “Printer Name” for the printer name information. See “PDF Output” for the PDF output information. See “SVG Output” for the SVG output information. See “PostScript® Output” for the PostScript output. See “XPS Output” for the XPS output. See “Word(docx) Output” for Word(docx) output info. See “TEXT Output” for the text output information. @DOCX, @TEXT and @AreaTree are not effective with **AH Formatter V7.1 Lite**.
PrinterSettingURI	String	R/W	Specifies the URI of the Printer Setting File. See “Printer Setting File”.
OutputFilePath	String	R/W	Specifies the output file path of the formatted result. When a printer is specified as an output format by PrinterName, a printing result is saved to the specified file by the printer driver. When an output format other than a printer is specified, it is saved as the specified file with the specified output format. When “@STDOUT” is specified, it goes to standard output. When omitted, it goes to standard output. However in cases in which ActiveServerPages requires, PDF data is output to the Web Browser.
OutputFOPath	String	R/W	Specifies the output FO file as the result of XSLT when the input files are an XML document and an XSL stylesheet. • If the input file is FO (or HTML etc.), no file is outputted. • When “@STDOUT” is specified, it is considered stdout. If the setting is omitted, nothing outputs.
ExternalXSLT	String	R/W	Command-line of External XSLT Processor. If this is omitted, default MSXML will be used. For example: `xslt %param -o %3 %1 %2` These meanings are as follows: • %1 : XML document • %2 : XSL stylesheet

Name	Type	R/W	Functions
ExternalXSLT	String	R/W	• %3 : XSLT output file • %param : `xsl:param` %1 to %3 are used to express only parameter positions. Do not replace them with actual file names. In case you use `xsl:param` for an external XSLT Processor, set the parameter in XSLTParamFormat and SetXSLTParam.
XSLTParamFormat	String	R/W	Specifies the parameter format of `xsl:param` when using External XSLT Processor. For example: `-p %p %v` These meanings are as follows: • %p : Parameter Name • %v : Parameter Value
BaseURI	String	R/W	Specifies the default base URI.
FormattedPages	Long	R	Get the formatted total pages.
TwoPassFormatting	Boolean	R/W	When formatting a huge document with a large amount of unresolved `<fo:page-number-citation>`, a large amount of memories are consumed because the cancellation of the page information is impossible. Therefore, the limit is caused in the number of pages to format. This parameter solves that problem by making the formatting two passes. Although its processing time may be increased, only the page number information which should be solved will consume the memory and the memory consumption will be extremely decreased. See “Formatting Large Document”. This setting is invalid with CSS formatting. no-LT
MultiVolume	Boolean	R/W	Specifies to output PDF in separate volume. The error occurs when FO doesn't include the `<axf:output-volume-info>` extension element. When the value `false` is specified, the StartVolume/EndVolume parameter is invalid, instead the parameter StartPage/EndPage is effective. When the value `true` is specified, the parameter StartPage/EndPage is invalid, instead the parameter StartVolume/EndVolume is effective. no-LT
StartVolume EndVolume	Long	R/W	Effective when MultiVolume=true is specified. Specifies the start and the end of separate volume to output. If the setting of start for separate volume is omitted or the value `true` is less than or equal to 0, the start volume is accounted as the first volume. If the setting of start for separate volume is omitted or the value `true` is greater than actual number of separate volume, the end volume is accounted as the last volume. If the setting is conflicted, an error occurs. (e.g. StartVolume=5 EndVolume=3) no-LT
TotalVolumeCount	Long	R	Gets the number of all the separate volumes when outputting PDF to multiple separate volumes. no-LT
OutputVolumeCount	Long	R	Gets the number of the actual separate volumes when outputting PDF to multiple separate volumes. no-LT
StartPage EndPage	Long	R/W	Specifies the start page number or the end page number of a document to output. If the start page is omitted or the specified value is 0 or less, the start page is considered the first page. If the end page is omitted or 0, or the specified value exceeds the actual page number, the end page is considered the last page. If the setting is inconsistent (for example, StartPage=5 EndPage=3), an error occurs.
ExitLevel	Long	R/W	Specifies error level to abort formatting process. **AH Formatter V7.1** will stop formatting when the detected error level is greater than or equal to the specified ExitLevel property. The default value is 2 (Warning). Thus if an error occurred and error level is greater than or equal to 2 (Warning), the formatting process will be aborted. Legal values are from 1 to 4. When the value of greater than or equal to 5 is specified, it is considered the value of 4. If an error-level:4 (Fatal error) occurs, the formatting process will be aborted unconditionally. Note: Setting this value does not cause an error message to be displayed.

Name	Type	R/W	Functions
ErrorLevel	Long	R	Indicates the error level that occurred during the formatting process. 1. Information 2. Warning 3. Recoverable Error 4. Fatal Error
ErrorCode	Long	R	Indicates the error code of the error that occurred during the formatting process. Zero means no error. Non-zero indicates an error occurred.
ErrorMessage	String	R	Indicates the Error Messages of the error that occurred during the formatting process.
XMLDOMDocument	Object	W	Specifies the target XML document used by the MSXML XMLDOMDocument object.
XMLDOMStylesheet	Object	W	Specifies the target XSL stylesheet used by the MSXML XMLDOMDocument object.

Properties – PDF Settings

Name	Type	R/W	Functions
PdfVersion	Long	R/W	Specifies PDF version: 0. PDF1.3 1. PDF1.4 2. PDF1.5 3. PDF1.6 4. PDF1.7 10. PDF2.0 101. PDF/X-1a:2001 no-LT 103. PDF/X-3:2002 no-LT 104. PDF/X-1a:2003 no-LT 105. PDF/X-2:2003 no-LT 106. PDF/X-3:2003 no-LT 107. PDF/X-4:2010 no-LT 108. PDF/X-4p:2010 no-LT 200. PDF/A-1a:2005 no-LT 400. PDF/A-1b:2005 no-LT 631. PDF1.4/A-2a:2011 no-LT 632. PDF1.5/A-2a:2011 no-LT 633. PDF1.6/A-2a:2011 no-LT 634. PDF1.7/A-2a:2011 no-LT 641. PDF1.4/A-2b:2011 no-LT 642. PDF1.5/A-2b:2011 no-LT 643. PDF1.6/A-2b:2011 no-LT 644. PDF1.7/A-2b:2011 no-LT 651. PDF1.4/A-2u:2011 no-LT 652. PDF1.5/A-2u:2011 no-LT 653. PDF1.6/A-2u:2011 no-LT 654. PDF1.7/A-2u:2011 no-LT 661. PDF1.4/A-3a:2012 no-LT 662. PDF1.5/A-3a:2012 no-LT

Name	Type	R/W	Functions
PdfVersion	Long	R/W	663. PDF1.6/A-3a:2012 no-LT 664. PDF1.7/A-3a:2012 no-LT 671. PDF1.4/A-3b:2012 no-LT 672. PDF1.5/A-3b:2012 no-LT 673. PDF1.6/A-3b:2012 no-LT 674. PDF1.7/A-3b:2012 no-LT 681. PDF1.4/A-3u:2012 no-LT 682. PDF1.5/A-3u:2012 no-LT 683. PDF1.6/A-3u:2012 no-LT 684. PDF1.7/A-3u:2012 no-LT 1002. PDF1.5/UA-1:2014 no-LT 1003. PDF1.6/UA-1:2014 no-LT 1004. PDF1.7/UA-1:2014 no-LT Impossible to specify PDF/X, PDF/A or PDF/UA with **AH Formatter V7.1 Lite**.
PdfEncryptLevel	Long	R/W	Specifies the key length when encrypting the PDF file during output. The key length can be specified as follows: 0. 40bit RC4 1. 128bit RC4 2. 128bit AES 3. 256bit AES Note: This parameter is effective only when you specify PDF1.4 or later for the PdfVersion property. 128bit AES is effective with PDF1.6 or later, 256bit AES is effective with PDF1.7 or later.
PdfTag	Boolean	R/W	Generates Tagged PDF. Ignored if PDF cannot be tagged depending on the PDF versions. no-LT
PdfReversePage	Boolean	R/W	Outputs pages in reverse order.
PdfUserPassword	String	W	Specifies the user password to be set for the PDF. Specify up to 32 ASCII characters for PDF1.3 to 1.7 and 127 ASCII characters for PDF2.0 or later.
PdfOwnerPassword	String	W	Specifies the owner password to be set for the PDF. Specify up to 32 ASCII characters for PDF1.3 to 1.7 and 127 ASCII characters for PDF2.0 or later.
PdfNoPrinting	Boolean	R/W	Prohibits printing the PDF file. It is necessary to specify PdfOwnerPassword so that this parameter is effective.
PdfNoChanging	Boolean	R/W	Prohibits making changes to the PDF file. It is necessary to specify PdfOwnerPassword so that this parameter is effective.
PdfNoContentCopying	Boolean	R/W	Prohibits copying the content of the PDF file. It is necessary to specify PdfOwnerPassword so that this parameter is effective.
PdfNoAddingOrChangingComments	Boolean	R/W	Prohibits adding comments and form fields to the PDF file. It is necessary to specify PdfOwnerPassword so that this parameter is effective.

Name	Type	R/W	Functions
PdfNoFillForm	Boolean	R/W	Prohibits filling in of form fields and signing of the PDF file. This parameter is effective only when you specify PDF1.4 or later for the PdfVersion property. In order to make this parameter effective, other parameter settings may be required. For more details, see also ISO 32000-1 or ISO 32000-2.
PdfNoAccessibility	Boolean	R/W	Prohibits text access for screen reader devices of the PDF file. This parameter is effective only when you specify PDF1.4 or later for the PdfVersion property.
PdfNoAssembleDoc	Boolean	R/W	Prohibits inserting, deleting and rotating the PDF pages. This parameter is effective only when you specify PDF1.4 or later for the PdfVersion property.
PdfEmbedAllFontsEx	Long	R/W	Specifies whether or not to embed all embeddable fonts used in the file of the formatted result into PDF. However, even if all fonts are specified to embed, the font forbidden embedding or the font that is not able to be embedded to PDF cannot be embedded. 0. Specified font 1. All fonts excluding Base14 font 2. All fonts including Base14 font
PdfEmbedFonts	String	R/W	Embeds the specified font in the created PDF. To specify multiple fonts, put commas between each font.
PdfEmbedSubsetFontPercentage	Long	R/W	Embeds all fonts when the percent of characters used is greater than or equal to specified value, subsets embedded fonts when the percent of characters used is less than the specified value. If nothing is specified, it is considered 100 and embedded fonts are always subset.
PdfErrorOnEmbedFault	Boolean	R/W	When `true` is specified, an error is issued when font embedding fails.
PdfErrorOnMissingGlyph	Boolean	R/W	When `true` is specified, an error is issued when there is a missing glyph.
PdfPrintingAllowed	Long	R/W	Specifies whether and how to permit printing of the PDF. This parameter is effective only when you specify PDF1.4 or later for the PdfVersion property. 0. Not Allowed 1. Low Resolution Printing 2. High Resolution Printing
PdfImageCompression	Long	R/W	When a color image format cannot be stored directly in the PDF, an image is stored after being transformed into a bitmap format that is compatible with PDF. Use one of the following values to specify the compression method of the data stored in a PDF file: 0. JPEG or ZLIB compression 1. JPEG compression 2. ZLIB compression 3. JPEG 2000 compression (it is effective only when PdfVersion is PDF1.5 or later) 4. LZW or JPEG or ZLIB compression 5. JPEG 2000 or JPEG or ZLIB compression (it is effective only when PdfVersion is PDF1.5 or later)

Name	Type	R/W	Functions
PdfImageCompression	Long	R/W	6. LZW or JPEG 2000 or JPEG or ZLIB compression (it is effective only when PdfVersion is PDF1.5 or later) When Auto is selected, the process is automatically done and creates the image data according to the setting of PdfJPEGQuality and PdfRasterizeResolution. Whichever has the smaller compressed size, JPEG or ZLIB, is selected. These are the settings for color images. Specify PdfGrayscaleImageCompression for grayscale images and PdfMonochromeImageCompression for monochrome images.
PdfJPEGQuality	Long	R/W	With color image formats that cannot be stored directly in a PDF, if JPEG compression is specified for PdfImageCompression the image quality can be specified with a numeric value of 1 to 100. Higher values are proportional to increased image quality. However the file size also becomes larger. This is the setting for color images. PdfGrayscaleJPEGQuality can be specified for grayscale images. **CAUTION:** This is not for changing the quality of a JPEG formatted image.
PdfPutImageColorProfile	Boolean	R/W	Specifies whether to embed in the PDF the ICC profile of the color image that will be embedded.
PdfImageDownSampling	Long	R/W	Specifies either of the following methods to downsample the raster color image in a PDF: 0. None 1. Average 2. Bicubic 3. Subsampling When a value other than None is specified, an image that has a resolution greater than or equal to the one specified by PdfImageDownSamplingDPI will be downsampled into the resolution specified by PdfImageDownSamplingTarget. These are the settings for color images. Specify PdfGrayscaleImageDownSampling for grayscale images and PdfMonochromeImageDownSampling for monochrome images.
PdfImageDownSamplingTarget	Long	R/W	Sets the target resolution when a raster color image is downsampled.
PdfImageDownSamplingDPI	Long	R/W	Sets the resolution for the downsampled raster color image.
PdfGrayscaleImageCompression	Long	R/W	When a raster grayscale image format cannot be stored directly in the PDF, the image is transformed and stored in a bitmap format that is compatible with PDF. Use one of the following values to specify the compression method of the data stored in a PDF file: 0. JPEG or ZLIB compression 1. JPEG compression 2. ZLIB compression 3. JPEG 2000 compression (it is effective only when PdfVersion is PDF1.5 or later) 4. LZW or JPEG or ZLIB compression 5. JPEG 2000 or JPEG or ZLIB compression (it is effective only when PdfVersion is PDF1.5 or later)

Name	Type	R/W	Functions
PdfGrayscaleImageCompression	Long	R/W	6. LZW or JPEG 2000 or JPEG or ZLIB compression (it is effective only when PdfVersion is PDF1.5 or later) When Auto is selected, the process is automatically done and creates the image data according to the setting of PdfGrayscaleJPEGQuality and PdfRasterizeResolution. Whichever has the smaller compressed size, JPEG or ZLIB, is selected. These are the settings for grayscale images. Specify PdfImageCompression for color images and PdfMonochromeImageCompression for monochrome images.
PdfGrayscaleJPEGQuality	Long	R/W	For grayscale image formats that cannot be stored directly in the PDF, if JPEG compression is specified in PdfGrayscaleImageCompression the image quality can be specified by a numerical value of 1 to 100. Higher values are proportional to increased image quality, however the file size also becomes larger. These are the settings for grayscale images. Specify PdfJPEGQuality for color images. **CAUTION:** This is not for changing the quality of a JPEG formatted image.
PdfGrayscaleImageDownSampling	Long	R/W	Specifies either of the following methods to downsample raster grayscale images in a PDF: 0. None 1. Average 2. Bicubic 3. Subsampling When a value other than None is specified, an image that has a resolution greater than or equal to the one specified by PdfGrayscaleImageDownSamplingDPI will be downsampled into the resolution specified by PdfGrayscaleImageDownSamplingTarget. These are the settings for grayscale images. Specify PdfImageDownSampling for color images and PdfMonochromeImageDownSampling for monochrome images.
PdfGrayscaleImageDownSamplingTarget	Long	R/W	Sets the target resolution when a raster grayscale image is downsampled.
PdfGrayscaleImageDownSamplingDPI	Long	R/W	Sets the resolution for the downsampled raster grayscale image.
PdfMonochromeImageCompression	Long	R/W	When monochrome image formats cannot be stored directly in the PDF, the image is transformed and stored in a bitmap format that is compatible with PDF. Use one of the following values to specify the compression method of data stored in a PDF file: 0. CCITT Group4 1. CCITT Group3 2. Run Length compression 3. ZLIB compression 4. None These are the settings for monochrome images. Specify PdfGrayscaleImageCompression for grayscale images and PdfImageCompression for color images.
PdfMonochromeImageDownSampling	Long	R/W	Specifies either of the following methods to downsample raster monochrome images in a PDF: 0. None

Name	Type	R/W	Functions
PdfMonochromeImageDownSampling	Long	R/W	1. Average 2. Bicubic 3. Subsampling When a value other than None is specified, an image that has a resolution greater than or equal to the one specified by PdfMonochromeImageDownSamplingDPI will be downsampled into the resolution specified by PdfMonochromeImageDownSamplingTarget. These are the settings for monochrome images. Specify PdfImageDownSampling for color images and PdfGrayscaleImageDownSampling for grayscale images.
PdfMonochromeImageDownSamplingTarget	Long	R/W	Sets the target resolution when a raster monochrome image is downsampled.
PdfMonochromeImageDownSamplingDPI	Long	R/W	Sets the resolution for the downsampled raster monochrome image.
PdfLinearize	Boolean	R/W	Specifies whether to output linearized PDF or not. no-LT
PdfCompressContentStream	Boolean	R/W	Specifies whether the text and line art in a PDF are compressed in order to reduce the size of PDF.
PdfUseLaunchForRelativeURI	Boolean	R/W	Specifies whether external links specified by the local file are transformed into “Open the file” or into “World Wide Web link” in the PDF link properties. If the value is `true`, it is transformed to “Open the file”. If the value is `false`, it is transformed to “World Wide Web link”.
PdfRGBConversion	Long	R/W	Specifies how to convert the RGB color space (DeviceRGB) to DeviceGray. 0. No Conversion 1. Black to DeviceGray 2. Gray to DeviceGray 3. All RGB to DeviceGray 4. All RGB to CMYK
PdfConvertImageColorSpace	Boolean	R/W	Converts RGB images automatically into CMYK when outputting PDF/X and PDF/A. no-LT
PdfRasterizeResolution	Long	R/W	Specifies the rasterize-resolution value of the transformed raster images from 70 to 500(dpi) when the vector image is converted to the raster image and stored in PDF. SVG, EMF and WMF are rendered in PDF as vectors without being changed to raster images.
PdfImport3DAnnotation	Boolean	R/W	Imports 3D object. no-LT
PdfOutputScale	String	W	Specifies the scaling ratio of the PDF to output. A value with a unit or % value can be specified as length.
PdfOutputHeight	String	R/W	Scales the height of the PDF to output. A value with a unit or % value can be specified as length.
PdfOutputWidth	String	R/W	Scales the width of the PDF to output. A value with a unit or % value can be specified as length.
PdfErrorOnPDFXFault	Boolean	R/W	Prevents PDF/X, PDF/A and PDF/UA outputs from being cancelled even when an error occurs while outputting them.

Properties – SVG Settings

Name	Type	R/W	Functions
SvgVersion	Long	R/W	Specifies the SVG version: 0. SVG 1.1 1. SVG Basic 2. SVG Tiny
SvgImageProcessingType	Long	R/W	Specifies how to treat images contained in the output SVG. 0. Embeds all image files. 1. Copies all image files to the destination specified by SvgImageCopyPath, and then links. 2. Links images that can be linked and embeds images that have to be embedded. Raster images other than JPEG and PNG are always embedded. 3. Copies images that have been linked to the destination that is specified by SvgImageCopyPath, and links. The embedded image are embedded. If this parameter is omitted, the default is 0 and all images are embedded.
SvgImageCopyPath	String	R/W	Specifies the destination to copy images to as specified in 1 or 3 for SvgImageProcessingType.
SvgGzipCompression	Boolean	R/W	Specifies whether to compress the outputted SVG into gzip format.
SvgSingleFile	Boolean	R/W	Specifies whether a formatted result composed of multiple pages is output as a single SVG file or as multiple SVG files. If the value is `true`, output is as a single SVG file. If the value is `false`, output is as multiple SVG files. When multiple files are output, the files are named as specified in SvgFormat. This takes effect only when outputting to a file and is not valid when output is without a file name such as when streaming.
SvgImageRename	Boolean	R/W	When images are copied to the directory specified by SvgImageCopyPath etc., specifies whether to rename all file names to the prefix specified by SvgImagePrefix, or use the original name. When the file name is duplicated, a sequential number is added. When `true` is specified, all files are renamed.
SvgImagePrefix	String	R/W	When images are copied to the directory specified by SvgImageCopyPath, specifies the prefix of the file name. The file name will be prefixed followed by a sequential numbers only if the Default is empty.
SvgSinglePageNumber	Boolean	R/W	When SvgSingleFile=false is specified, specifies whether to add sequential number to the output SVG even if it has only one-page. If `false` it is not added to the output SVG.
SvgFormat	String	R/W	When the original document has multiple pages and `false` is specified in SvgSingleFile, each page will be output as an SVG file that has a consecutive number at the end of the file name. This parameter specifies the format of those consecutive numbers. For example, when "`document.svg`" is specified as the name for the output file, by specifying "-01" for SvgFormat the output files will be `document-01.svg`, `document-02.svg` and so on. If this parameter is omitted then "1" is considered to have been specified.
SvgImageConversion	Long	R/W	Selects how to convert the images embedded in SVG from the following: 0. Auto 1. JPEG conversion 2. PNG conversion
SvgJPEGQuality	Long	R/W	For image formats which cannot be stored directly in SVG, if JPEG conversion is specified in SvgImageConversion, specifies the quality of the image from 1 to 100. Higher values are proportional to increased image quality, however the file size also increases. The initial value is set at 80.

Name	Type	R/W	Functions
SvgRasterizeResolution	Long	R/W	Specifies the rasterize-resolution value of the raster image (Changed from a vector image) from 70 to 500(dpi). SVG, EMF and WMF are rendered in SVG as vectors without being changed to raster images.

Properties – Printer Settings

Name	Type	R/W	Functions
PrnCopies	Long	R/W	Specifies the number of copies when outputting to a printer. If nothing is specified, the value is considered 1.
PrnCollate	Boolean	R/W	Indicates collation of multiple copies when outputting to a printer. If it is not specified or the value `false` is specified, the same page is multi-copied continuously. If `true` is specified, the pages specified print from start to end repeatedly.
BatchPrint	Boolean	R/W	When the value `false` is specified, the print dialog box is displayed when printing. If the setting is omitted or the value `true` is specified, the print dialog is not displayed.

Values can be added using the following units:

Representation	Meanings
cm	centimeter
mm	millimeter. 1mm = 0.1cm
in	inch. 1in = 2.54cm
pt	point. 1pt = 1in/72
pc	pica. 1pc = 12pt
jpt	1jpt = 0.3514mm
q	1q = 0.25mm

Methods

XfoObj provides the following methods:

Name	Return Value	Arguments	Functions
Execute	None	None	Executes the formatting and outputs to a PDF specified in OutputFilePath or printer specified in PrinterName.
Clear	None	None	Initializes the formatting engine.
SetXSLTParam	None	name : String value : String	Sets parameter name and value for `xsl:param`.
ClearXSLTParam	None	None	Clears all parameter names and values for `xsl:param`.
SetFontAlias	None	fontName : String aliasName : String	Sets the substitution of font name. This substitution acts on the font names existing in FO. The font name fontName is replaced to aliasName.
EraseFontAlias	None	fontName : String	Erases the substitution of font name fontName.
ClearFontAlias	None	None	Clears all substitutions of font name.
GetOptionFileURI	String	index : Long	Gets the URL of Option Setting File from the index you specified.
AddOptionFileURI	None	fileURI : String	Adds the URL of the XML-based Option Setting File that indicates the options for **AH Formatter V7.1**. The contents of Option Setting File are

Name	Return Value	Arguments	Functions
AddOptionFileURI	None	fileURI : String	evaluated immediately and if new properties are set, the former setting will be overwritten.
AddUserStylesheetURI	None	fileURI : String	Specifies the CSS user stylesheet you want to add. AddUserStylesheetURI can be specified any number of times. It is applied by specified order prior to the stylesheet specified by StylesheetURI.

Events

XfoObj provides the following events:

Name	Return Value	Arguments	Functions
onMessage	None	errLevel : Long errCode : Long errMsg : String	Events that returns Error Messages in the formatting process.
onFormatPage	None	pageNum : Long	The number of pages that formatted during the formatting process can be received as an event. • Greater than or equal to 1 : Page number that has already been outputted. • 0 : All page formatting has finished. • -1 : Start of the first pass of 2 pass formatting. • -2 : Start of the second pass of 2 pass formatting.

PDF Output to the Web Browser

It's possible to directly output PDF to the Web Browser, when you use ASP application on a server and output the formatted result in PDF. This output requires the following conditions:

1. Create a COM instance of AH Formatter using Server.CreateObject("XfoComCtl.XfoObj").
2. Specify “@PDF” to “PrinterName”.
3. There is no “OutputFilePath” specified.
4. Perform “Response.End” after calling “Execute” method.

Programming Example

The following is a VBScript programming sample. In addition, `[Install directory]/samples/com` included some useful sample files for COM.

```
dim obj
Set obj = CreateObject("XfoComCtl.XfoObj")

obj.DocumentURI = "c:\temp\test.xml"
obj.StylesheetURI = "c:\temp\test.xsl"
obj.OutputFilePath = "c:\temp\test.pdf"
obj.ExitLevel = 4
obj.Execute()

if obj.ErrorCode <> 0 then
 MsgBox "ErrorCode : " & obj.ErrorCode & " " & obj.ErrorMessage
else
 MsgBox "Create PDF : " & obj.OutputFilePath

Set obj = Nothing
```

Java Interface

This interface allows **AH Formatter V7.1** to be invoked from Java programs. See Java VM Issues.

The Java Interface uses JNI (JavaNativeInterface).

CAUTION: 32-bit Windows version can be installed on Windows x64 Edition. In that case, use JDK of the 32-bit version when you use Java interface.

Library Files

The following library files are included in `[Install directory]` or `[Install directory]/lib`.

Library file	Contents	Location
XfoJavaCtl.jar	Java Archiver	`[Install directory]/lib`
XfoJavaCtl71.dll	Java Interface Library for Windows	`[Install directory]`
libXfoJavaCtl71.so	Java Interface Library for Linux	`[Install directory]/lib`
libXfoJavaCtl71.jnilib	Java Interface Library for Macintosh	`[Install directory]/lib`

In order to execute the Java Interface, directory of execute java and `[Install directory]/lib/XfoJavaCtl.jar` must be included in the CLASSPATH environment variable. In addition, from using JNI (JavaNativeInterface), in Windows version, `[Install directory]` must be included in the PATH environment variable. In the following environment, `[Install directory]/lib` must be included. In Linux version, it must be included in the LD_LIBRARY_PATH environment variable. In Macintosh version, it must be included in the java.library.path . See also Environment Variables for the necessary environment variables.

Windows version:

```
> set CLASSPATH=[Install directory]/lib/XfoJavaCtl.jar;%CLASSPATH%
> set PATH=[Install directory];%PATH%
```

Linux version:

```
$ CLASSPATH=[Install directory]/lib/XfoJavaCtl.jar:${CLASSPATH}
$ export CLASSPATH
$ LD_LIBRARY_PATH=[Install directory]/lib:${LD_LIBRARY_PATH}
$ export LD_LIBRARY_PATH
```

Java VM Issues

AH Formatter V7.1 Java Interface is built with J2SE5.0 in Windows version, Java SE 8 in Linux version, Java SE 6 in Macintosh version.

Use in an Application Server

Since the native JNI library can be read by two or more Java VM class loaders, when using this interface in application servers, such as Tomcat, do not install the XfoJavaCtl.jar in the WEB-INF/lib of the Web application. Set the interface to be read by class loaders (system class loader etc.) which only load once.

Running the Sample Program

`[Install directory]/samples/java` contains several simple sample programs.

The following shows how to execute these sample programs. In this case `[Install directory]/samples/java` must be included in CLASSPATH.

```
> cd [Install directory]/samples/java
> javac sample.java
> java sample sample.fo sample.pdf
```

In Macintosh 64-bit version, the setting of java.library.path needs to be added in the java command as follows:

```
> java -Djava.library.path="[Install directory]/lib" sample sample.fo sample.pdf
```

API Specification

See the Javadoc documentation.

C/C++ Interface

The C/C++ Interface makes it possible to integrate **AH Formatter V7.1** into C/C++ programs.

CAUTION: 32-bit Windows version can be installed on Windows x64 Edition. In that case, compile it for Win32 platform when you use C/C++ interface.

Header Files

The following header files are included in `[Install directory]/include`.

Header file	Contents	Location
xfoifc.h	Header for C++	`[Install directory]/include`
xfoifc_c.h	Header for C	

Library Files

The following library files are included in `[Install directory]/lib` or `[Install directory]/lib`.

Library file	Contents	Location
	C/C++ Interface Library for Windows	`[Install directory]`
libXfoInterface.so	C/C++ Interface Library for Linux	`[Install directory]/lib`
libXfoInterface.dylib	C/C++ Interface Library for Macintosh	`[Install directory]/lib`

In the Windows version the following library file for link is included in `[Install directory]/lib`.

Library file	Contents	Location
XfoInterface.lib	Library for DLL linking	`[Install directory]/lib`

Compiler Issues

Windows

AH Formatter V7.1 Windows version is built using Microsoft Visual C++ 2015. MFC is not used without GUI. Use a compatible compiler for your program.

Linux

AH Formatter V7.1 Linux 64-bit version is built using GCC 4.8. Your program must be compiled using GCC 4.8 or later. For more details about GCC, see “GCC, the GNU Compiler Collection”.

Macintosh

AH Formatter V7.1 Macintosh 64-bit version is built using Xcode9.0 Apple LLVM version 9.0 (clang-900.0.37).

Building the Sample Programs

`[Install directory]/samples/cpp` and `[Install directory]/samples/c` includes some simple sample programs.

Windows

In order to build a sample with the command line of Visual C++ in the Windows environment, execute the compiler from the console as follows:

```
> cd [Install directory]/samples/cpp
> cl -EHsc -I ..\..\include sample.cpp ..\..\lib\XfoInterface.lib /MT
```

To build the executables for Windows, use the command prompt from [Start]-[Microsoft Visual Studio 2015]-[Visual Studio Tools].

`[Install directory]/lib` must be appended to the PATH environment variable in order to execute this program. The sample executes as follows:

```
> sample sample.fo sample.pdf
```

Linux

The following command-line shows how to build the sample in the Linux environment using GCC.

```
$ cd [Install directory]/samples/cpp
$ LD_LIBRARY_PATH=../../lib:${LD_LIBRARY_PATH}
$ export LD_LIBRARY_PATH
$ g++ sample.cpp -I../../include -L../../lib -lXfoInterface -o Samplecppcmd -lstdc++ -lpthread
```

In order to execute the built sample program, a setup of other environment variables is necessary. For more details, see Environment Variables.

As mentioned previous, the GCC version is very important. Check your GCC version using the `--version` command-line option.

```
$ g++ --version
g++ (GCC) 4.8.0
Copyright (C) 2013 Free Software Foundation, Inc.
This is free software; see the source for copying conditions. There is NO
warranty; not even for MERCHANTABILITY or FITNESS FOR A PARTICULAR PURPOSE.
```

Macintosh

In order to build a sample in the Macintosh 64-bit environment, execute the compiler from the terminal as follows:

```
$ cd [Install directory]/samples/cpp
$ g++ sample.cpp -I../../include -L../../lib -lXfoInterface
                                        -Wl,-rpath,@executable_path/../../lib -o Samplecppcmd
```

To execute the built sample program, a setup of other environment variables is also necessary. For more details, see Environment Variables.

API Specification

See the document that was generated by Doxygen.

PDF Output

PDF output is a standard function of **AH Formatter V7.1**. The PDF versions that can be output are as follows:

- PDF1.3
  PDF1.3 can be browsed by Adobe Acrobat (Reader) 4.0 or later.
- PDF1.4
  PDF1.4 can be browsed by Adobe Acrobat (Reader) 5.0 or later.
- PDF1.5
  PDF1.5 can be browsed by Adobe Acrobat (Reader) 6.0 or later.
- PDF1.6
  PDF1.6 can be browsed by Adobe Acrobat (Reader) 7.0 or later.
- PDF1.7
  PDF1.7 can be browsed by Adobe Acrobat (Reader) 8.0 or later.
- PDF2.0
  Possible to output PDF2.0 that conforms to ISO 32000-2:2017 with **AH Formatter V7.1**.
- PDF/X no-LT
  Possible to output PDF/X with **AH Formatter V7.1**.
- PDF/A no-LT
  Possible to output PDF/A with **AH Formatter V7.1**.
- PDF/UA no-LT
  Possible to output PDF/UA with **AH Formatter V7.1**.

AH Formatter V7.1 outputs PDFs with the following features:

- By setting extended properties inside the original document, bookmarks and links can be created. ☞ Bookmark and Link
- Possible to output PDF in multiple separate volume from one FO. no-LT ☞ Multiple Separate Volume
- By setting extended properties inside the original document, the meta information, such as “Title”, “Subject”, “Author”, and “Keyword” information, display action when opening documents or page layout can be set. ☞ Document Information
- When setting the security, 40-bit RC4, 128-bit RC4, 128-bit AES and 256-bit AES can be applied to the encryption. Available encryptions may differ depending on the PDF versions. ☞ PDF Output Settings, PDF Option Setting Dialog
- Possible to output Tagged PDF. no-LT
- Possible to output Linearized PDF no-LT

For more details, see also PDF Output Settings.

PDF/X no-LT

PDF/X is defined in ISO 15930 and is a subset of PDF that aims to exchange the data for printing. Basically all the information for printing is included in the PDF file. **AH Formatter V7.1** is available for outputting the following version of PDF/X. It's impossible to output PDF/X with **AH Formatter V7.1 Lite**.

- PDF/X-1a:2001 (ISO 15930-1:2001)
  It's a specification based on PDF1.3.
- PDF/X-3:2002 (ISO 15930-3:2002)
  It's a specification based on PDF1.3.
- PDF/X-1a:2003 (ISO 15930-4:2003)
  It's a specification based on PDF1.4 and a subset of PDF/X-3:2003.
- PDF/X-2:2003 (ISO 15930-5:2003)
  It's a specification based on PDF1.4 and a superset of PDF/X-3:2003.
- PDF/X-3:2003 (ISO 15930-6:2003)
  It's a specification based on PDF1.4.
- PDF/X-4:2010, PDF/X-4p:2010 (ISO 15930-7:2010)
  It's a specification based on PDF1.6.

The following shows the main features for PDF/X.

	PDF/X-1a	PDF/X-2	PDF/X-3	PDF/X-4	PDF/X-4p
All fonts must be embedded	yes	yes	yes	yes	yes
The output intent must be specified	yes	yes	yes	yes	yes
ICC profiles specified as the output intent must be embedded	no	no	no	yes	no
Supports CMYK, Spot color	yes	yes	yes	yes	yes
Supports Grayscale	yes	yes	yes	yes	yes
Supports RGB	no	yes	yes	yes	yes
Supports transparency	no	no	no	yes	yes
Supports PDFs with encryption; setting of password, the restriction for printing and the restriction for changing must not be done	no	no	no	no	no
PDF may contain links or annotations, etc. in the print area	no	no	no	no	no
PDF may contain elements that include actions such as bookmarks, etc.	no	no	no	no	no

In PDF/X, all fonts must be embedded. When the font that is not allowed to embed is used, PDF/X cannot be generated.

PDF/X adopts the appropriate information by ignoring the most of the information set by users, such as font embedding, etc. For example the version of the output PDF is specified to PDF/X, Font Embedding in the PDF Option Setting Dialog will be displayed in gray color.

When an image incompatible as PDF/X is specified, the processing changes depending on error-on-pdfx-fault specified in PDF Output Settings. See also error-on-pdfx-fault.

In PDF/X, the output intent must be specified. There are two ways to specify the output intent. One is to directly specify the ICC profile and the other one is to specify the output condition identifier.

In order to specify the output intent by ICC profile, use the URL of the ICC profile to the src property for `<fo:color-profile>`. In this case, omit the color-profile-name property or specify `"#CMYK"`, `"#GrayScale"` or `"#RGB"`. If this property is omitted, it is considered to be `"#CMYK"`. For example:

```
<fo:declarations>
 <fo:color-profile
  src="url('file:///C:/WINDOWS/system32/spool/drivers/color/
                                JapanColor2001Coated.icc#OutputConditionIdentifier=JC200103')"
  color-profile-name="#CMYK"
 />
</fo:declarations>
```

In HTML, you can specify as follows by using `<meta name="color-profile">`: V7.1 no-LT

```
<meta
 name="color-profile"
 content="src='file:///C:/WINDOWS/system32/spool/drivers/color/
                    JapanColor2001Coated.icc#OutputConditionIdentifier=JC200103' name='#CMYK'"
/>
```

In PDF/X, the output intent which can be specified is only one. When multiple output intents are specified, it is indeterminate which one is adopted.

In PDF/X, the only ICC profile of the output intent which can be embedded is the one whose device class is “prtr”. Any ICC profiles other than “prtr” cannot be used. Specifying an ICC profile other than “prtr” will report the following error:

```
6908 (420C): PDF output warning. Unsupported ICC Profile Device Class : mntr: Xxxxxxxx.icc
```

With PDF/X-1 to PDF/X-3, the output condition identifier can also be specified with the src property of `<fo:color-profile>`. The setting is done in the form of the fragmentation of URI. For example:

```
<fo:declarations>
 <fo:color-profile
  src="#OutputConditionIdentifier=CGATS%20TR%20001&amp;RegistryName=http://www.color.org"
 />
</fo:declarations>
```

The first character must be “#”. After that, the parameters are lined and separated by &. Each parameter is in the form of name=value. The name of the parameters are as follows (by mapping to the items of the OutputIntent dictionary for PDF/X).

- OutputConditionIdentifier
  Specifies the output condition identifier. When the URL of the ICC profile is specified, the default value is Custom.
- OutputCondition
  Specifies the output condition (possible to omit).
- RegistryName
  Specifies the URI of the registration agency of the output condition identifier. When OutputConditionIdentifier is specified and this is omitted, the default URI is `http://www.color.org`.
- Info
  Specifies the added information (possible to omit).

It's also possible to give the information of the profile by describing the format of the fragment parameter following to the ICC profile. The base URI specified by axf:base-uri can also be specified.

```
<fo:declarations axf:base-uri="url('file:///C:/WINDOWS/system32/spool/drivers/color/')">
 <fo:color-profile src="url('Photoshop5DefaultCMYK.icc#Info=Photoshop5')"/>
</fo:declarations>
```

When the output intent is specified by the output condition identifier, the output intent is not embedded in PDF/X. When it is specified by the ICC profile, the ICC profile is embedded in PDF/X.

The standard output intent is the standard ICC profile defined below.

☞ CMYK Characterization Data

You can specify any of these for the output condition identifier. The standard output intents that can be specified with **AH Formatter V7.1** are as follows and they are all for CMYK.

- CGATS TR 001
- CGATS TR 002
- CGATS TR 003
- CGATS TR 005
- CGATS TR 006
- CGATS21-2-CRPC1
- CGATS21-2-CRPC2
- CGATS21-2-CRPC3
- CGATS21-2-CRPC4
- CGATS21-2-CRPC5
- CGATS21-2-CRPC6
- CGATS21-2-CRPC7
- FOGRA1
- FOGRA2
- FOGRA3
- FOGRA4
- FOGRA5
- FOGRA6
- FOGRA7
- FOGRA8
- FOGRA9
- FOGRA11
- FOGRA12
- FOGRA13
- FOGRA14
- FOGRA15
- FOGRA16
- FOGRA17
- FOGRA18
- FOGRA19
- FOGRA20
- FOGRA21
- FOGRA22
- FOGRA23
- FOGRA24
- FOGRA25
- FOGRA26
- FOGRA27
- FOGRA28
- FOGRA29
- FOGRA30
- FOGRA31
- FOGRA32
- FOGRA33
- FOGRA34
- FOGRA35
- FOGRA36
- FOGRA37
- FOGRA38
- FOGRA39
- FOGRA40
- FOGRA41
- FOGRA42
- FOGRA43
- FOGRA44
- FOGRA45
- FOGRA46
- FOGRA47
- FOGRA48
- FOGRA49
- FOGRA50
- FOGRA51
- FOGRA52
- FOGRA53
- FOGRA54
- IFRA22
- IFRA26
- IFRA28
- IFRA30
- JCS2011
- JC200103
- JC200104
- JCN2002
- JCW2003
- EUROSB104
- EUROSB204

The ICC profile specified by the URL is judged whether it is the standard output intent from its contents. When the standard output intent is specified with a URL, with PDF/X-1 to 3, it's possible to select whether the ICC profile is embedded or not by embed-std-output-intent of the PDF Output Settings, because the embedding of the ICC profile is not required. However, with PDF/X-4, this setting is disregarded and the ICC profile is always embedded. With PDF/X-1 to 3, when specified by the output condition identifier, it's not embedded regardless of the setting of embed-std-output-intent.

When the output intent is not specified in FO, default-output-intent in the PDF Output Settings will be adopted.

The standard ICC profile can be downloaded from Adobe.

☞ Adobe ICC profiles

The profile that can be downloaded may be already bundled with Adobe Acrobat and has already been installed on your system. If your OS is Windows, search the `%windir%\system32\spool\drivers\color` directory.

PDF/A no-LT

PDF/A is defined by ISO 19005 and it is the specification intended to be suitable for long-term preservation of electronic documents. **AH Formatter V7.1** is available for outputting the following version of PDF/A. It's impossible to output PDF/A with **AH Formatter V7.1 Lite**.

- PDF/A-1a:2005
  It is the specification based on PDF1.4 that is fully compliant with ISO 19005-1:2005. It is guaranteed that PDF can be displayed and furthermore the text can be extracted in a logical order.
- PDF/A-1b:2005
  It is the specification based on PDF1.4 that is partially compliant with ISO 19005-1:2005. It is guaranteed that it can be displayed.
- PDF/A-2a:2011 no-LT
  It is the specification based on ISO 32000-1 that is fully compliant with ISO 19005-2:2011. It is guaranteed that it can be displayed and furthermore the text can be extracted in a logical order.
- PDF/A-2b:2011 no-LT
  It is the specification based on ISO 32000-1 that is partially compliant with ISO 19005-2:2011. It is guaranteed that it can be displayed.
- PDF/A-2u:2011 no-LT
  It is the specification based on ISO 32000-1 that is partially compliant with ISO 19005-2:2011. It is guaranteed that it can be displayed, and furthermore the Unicode value of text in PDF can be obtained.
- PDF/A-3a:2012 no-LT
  It is that specification based on ISO 32000-1 that is fully compliant with ISO 19005-3:2012. It is guaranteed that it can be displayed and furthermore the text can be extracted in a logical order.
- PDF/A-3b:2012 no-LT
  It is the specification based on ISO 32000-1 that is partially compliant with ISO 19005-3:2012. It is guaranteed that it can be displayed.
- PDF/A-3u:2012 no-LT
  It is the specification based on ISO 32000-1 that is partially compliant with ISO 19005-3:2012. It is guaranteed that it can be displayed, and furthermore the Unicode value of text in PDF can be obtained.

The following shows the main features for PDF/A:

	PDF/A-1a	PDF/A-1b	PDF/A-2a	PDF/A-2b	PDF/A-2u	PDF/A-3a	PDF/A-3b	PDF/A-3u
All fonts must be embedded	yes	yes	yes	yes	yes	yes	yes	yes
ICC profiles must be embedded	yes	yes	yes	yes	yes	yes	yes	yes
Files must be tagged	yes	no	yes	no	no	yes	no	no
Files must include XMP compliant metadata	yes	yes	yes	yes	yes	yes	yes	yes
Files may include encryption	no	no	no	no	no	no	no	no
Files may include LZW Compression	no	no	no	no	no	no	no	no
Files may include Transparent images	no	no	yes	yes	yes	yes	yes	yes
Files may refer to the external content	no	no	no	no	no	no	no	no
Files may include JavaScript	no	no	no	no	no	no	no	no
Unicode must be used for text	yes	no	yes	no	yes	yes	no	yes
Files may attach PDF/A as annotations	no	no	yes	yes	yes	yes	yes	yes
Files may attach any files other than PDF/A as annotations	no	no	no	no	no	yes	yes	yes

PDF/A as well as PDF/X require that all fonts are embedded; if a font cannot be embedded due to security restrictions or other issues, a PDF/A or PDF/X will not be generated. Also, the embedding of the ICC profile is required with PDF/A, so when specifying the output intent, only the URL specification of the ICC profile is effective.

Most information (including embedding of fonts etc.) is adopted precisely and user settings are ignored. In PDF/A-1a or PDF/A-2a or PDF/A-3a, the tagging is done compulsorily. See also Tagged PDF.

XMP metadata is automatically generated from the document information of PDF. The original XMP can also be specified by `<axf:document-info name="xmp">`.

In order to attach a file as an annotation, use axf:annotation-file-attachment. Although it is [yes] in the above table, there are the following restrictions when attaching a file to PDF/A. There are no restrictions other than PDF/A.

- Any files cannot be attached to PDF/A-1 as annotations.
- Only PDF/A-1 or PDF/A-2 files can be attached to PDF/A-2 as annotations. At that time, the version of PDF to be attached must be less than or equal to the version of PDF to output.
- Any files including PDF/A can be attached to PDF/A-3 as annotations.

Since fonts cannot be embedded in forms in PDF, PDF/A cannot be generated. However, only in the following cases, PDF/A can be generated even if there is a form.

- Text field without the axf:field-default-text setting.
- Push Button field without the axf:field-button-face setting.
- Radio Button field whose value of axf:field-checked-style is “circle”.

PDF/UA no-LT

PDF/UA is defined by ISO 14289-1 and is the specification intended for improving the accessibility of PDF based on the ISO 32000-1 specification. **AH Formatter V7.1** is available for outputting the following version of PDF/UA. It's impossible to output PDF/UA with **AH Formatter V7.1 Lite**.

- PDF/UA-1:2014 (ISO 14289-1:2014)

The following shows the main features of PDF/UA.

- Contents must be tagged in logical reading order.
- Meaningful graphics, annotations and numerical formulas must include alternate text descriptions. See Alternate descriptions are provided.
- Security settings must allow assistive technology access to the content.
- Recommended to include bookmarks.
- Annotations, links and multimedia may be included.
- The language of the document must be specified.
- All fonts must be embedded.

Tagged PDF no-LT

Usual PDF does not have the document structure in the contents. For example, the sentences are cut off per each line. In the column, the first line of the right column follows the first line of the left column. Therefore, even if a person with sight problems, etc. is going to read PDF using some kind of reader, it is very difficult to read a text in the right order. The same thing is applied to the text extraction from PDF. Tagged PDF is effective with PDF1.4 or later.

Tagged PDF adds structure to PDF documents by embedding tags into the PDF. The structure added to the document makes the information in the PDF more reusable. For this reason, Tagged PDF is required to create accessible PDF documents. See also the following to know more about Tagged PDF specifications.

- ISO 32000-1:2008 14.8 Tagged PDF
- ISO 32000-2:2017 14.8 Tagged PDF

Tagged PDF is an important element of PDF accessibility. For accessible PDF, there are some requirements in addition to tagged PDF, as a whole, it is defined in PDF/UA.

AH Formatter V7.1 embeds the following tags (StructElem) for each FO element. Note that FO elements assigned to regions other than `region-body` are tagged as Artifact.

FO element	PDF element	Comment
fo:root	Document	
fo:page-sequence	Part	
fo:flow	Sect or Div	Div when PDF2.0 or later
fo:static-content	Sect or Aside	Aside when PDF2.0 or later
fo:block	P or Div	P when it has the content of inline-level, otherwise Div
fo:block-container	Div or Sect, Aside	Sect when absolute-position="fixed" or "absolute", otherwise Div. In PDF2.0 or later, it will be Aside instead of Sect.
fo:inline	Span or Reference	Reference when the child of `<fo:footnote>`, otherwise Span. In PDF2.0 or later, the child of `<fo:footnote>` is also Span.
fo:inline-container	Span	
fo:leader	Span	
fo:page-number	Span	
fo:page-number-citation	Span	
fo:page-number-citation-last	Span	
fo:scaling-value-citation	Span	
fo:index-page-citation-list	Span	
fo:bidi-override	Span	
fo:footnote		The footnote-reference-area embeds Sect that contains all the footnotes on the page. In PDF2.0 or later, Aside is embedded.
fo:footnote-body	Note or FENote	
fo:float	Sect or Aside	
fo:external-graphic	Figure or Formula	Formula in case of MathML, otherwise Figure
fo:instream-foreign-object	Figure or Formula	Formula in case of MathML, otherwise Figure
fo:basic-link	Link	
fo:list-block	L	
fo:list-item	LI	
fo:list-item-label	Lbl	
fo:list-item-body	LBody	
fo:table	Table	
fo:table-caption	Caption	
fo:table-header	THead	
fo:table-footer	TFoot	
fo:table-body	TBody	
fo:table-row	TR	
fo:table-cell	TH or TD	TH within `<fo:table-header>`, otherwise TD
axf:form-field	Form	
axf:ruby	Ruby	

FO element	PDF element	Comment
axf:ruby-base	RB	
axf:ruby-text	RT	

AH Formatter V7.1 embeds the following tags (StructElem) for each HTML element.

HTML element	PDF element	Comment
html	Document	
div	Div	
h1	H1	
h2	H2	
h3	H3	
h4	H4	
h5	H5	
h6	H6	
p	P	
ul	L	
ol	L	
li	LI	
li::marker	Lbl	list label
dl	L	
dt	Lbl	
dd	LBody	
blockquote	BlockQuote or P	P when PDF2.0 or later
caption	Caption	
table	Table	
tr	TR	
td	TD	
th	TH	
thead	THead	
tfoot	TFoot	
tbody	TBody	
ruby	Ruby	
rb	RB	
rt	RT	
span	Span	
img	Figure	
a[href]	Link	
section	Sect or Part	Part when PDF2.0 or later
article	Art or ASide	ASide when PDF2.0 or later
code	Code or P	P when PDF2.0 or later

HTML element	PDF element	Comment
other block elements	Div	
other inline elements	Span	

There are some tags that are not structural elements.

PDF element	Comment
Artifact	It is mapped to the contents distinguished from the text of a page. `<fo:static-content>` that is repeatedly outputted at each page break, and `<fo:table-header>` (except the one at the beginning of the table) and `<fo:table-footer>` (except the one at the end of the table) serve as Artifact. The same applies when axf:pdftag="Artifact" is specified.
ReversedChars	It is mapped to the text which runs from right to left, such as Arabic, etc.
Span	It is used for setting up the character string before being processed for the display as ActualText. It is different from Span in the structural element. The character strings before being processed mean the character string before the hyphenation is processed, or the character string before complicated glyph substitution is done in Thai etc., for example.

In order to create Tagged PDF, you can check Tagged PDF in the PDF Option Setting Dialog, or you can specify -tpdf with the Command-line Interface.

Using the axf:pdftag extension property, you can specify an arbitrary tag name to PDF.

In complex scripts such as Arabic and Devanagari, the original character string is complexly converted to glyphs and output to PDF. The glyph does not have a one-to-one correspondence with Unicode of the original character string, so you cannot copy the correct original character string from the PDF. If you make a tagged PDF, you can copy the original character string.

In **AH Formatter V7.1**, Role Map can be specified. Role Map is a feature to set the alias of the tag element name. In **AH Formatter V7.1**, tag-role-map in the Option Setting File enables highly readable tagging while conforming to standard tags.

AH Formatter V7.1 processes as follows for each check item (in the case of Acrobat 7.0) of the Adobe Acrobat's Accessibility Full Check.

- Alternate descriptions are provided

  Alternate text can be specified with the extension property, axf:alttext.

  ```
  <fo:external-graphic src="..." axf:alttext="AltText"/>
  ```

  If axf:alttext is not specified or is empty, the content of text is treated as an alternate text. However, for empty elements such as `<fo:external-graphic>`, the content of text is empty. If the content of text is empty and HTML, the value of the title property is treated as an alternate text. If the value of the title property is also empty or not HTML, the value of the role property is treated as an alternate text. However, this is not recommended as it is not the original usage of the role property. If the value of the role property is also empty, one white-space character (U+0020) is treated as an alternate text. This prevents an accessibility checker from generating an error when alternate text is not provided on, for example, an unimportant image. It is the FO/HTML creator's responsibility to provide meaningful alternate text.

  In order to check whether an alternate text is given to the image, you can choose View in the Navigation Tabs, then click Tags to open the Tags tab with Acrobat, then see the alternate text item by opening the property of the <Figure> element.

  The alternate text of the link can be specified with the extension property axf:annotation-contents. If axf:annotation-contents is not specified or is empty, axf:alttext will be used as an alternate text. When axf:alttext is not specified or is empty, it is processed in the same way as the alternate text of the image.

- Text language is specified

  If any of the properties for specifying the language (language, country, xml:lang) are provided in the FO, they will be used to set the language of the corresponding structure elements in the Tagged PDF. For example, if you display the tags of the following Tagged PDF with Acrobat,

  ```
  <fo:block language="ja">日本語です</fo:block>
  ```

  and view the properties of the `<P>` element in this paragraph, you will see the language as Japanese.

- Reliable character encoding is provided

  The text is outputted in Unicode, there is no problem.

- All content is contained in the document structure

See the tags in the above table.

- All form fields have descriptions
  If the axf:field-description extension property is specified, the text will be assigned, if not, the form name is assigned.
- List and table structure is correct
  `<fo:list-block>` is for the list structure of Tagged PDF and `<fo:table>` is for the table structure.
- The tag order matches to the order of the logical structure
  AH Formatter V7.1 outputs tags in the right order.

See also PDF Embedding to know more about embedding tagged PDF in tagged PDF or the restrictions by the PDF versions.

It's impossible to output Tagged PDF with **AH Formatter V7.1 Lite**.

CAUTION: In PDF2.0 or later, constraints have been added to the parent-child relationship of tags, but **AH Formatter V7.1** may perform tagging that violates the constraints. You can check whether the output PDF violates the constraint by enabling check-tag-relationship.

Linearized PDF no-LT

A linearized PDF file makes viewing of the generated PDF on the web faster. Features of linearized PDF include the following:

- When opening a PDF, the first page can be opened as fast as possible.
- When a user requests another page from an opened page, the page can be opened as fast as possible.
- When distributing a document using a slow communication line, make it possible to display pages gradually one by one.
- When tracing a link, it is not necessary to receive and display all the pages.

PDF that is optimized for fast web view indicates this linearized PDF.

CAUTION: It has been confirmed that some viewers might judge that linearized PDF with file size of less than or equal to 4 KB is not optimized.

XMP

XMP (Extensible Metadata Platform) is an XML specification that represents metadata, and is defined in ISO 16684. PDF1.4 or later contains XMP. XMP is generated from the information specified in `<axf:document-info>`. Any XMP can be specified with `<axf:document-info xmp>`, but its contents are adjusted so that there is no conflict. The following contents are adjusted:

- For PDF/X, PDF/A, and PDF/UA, meta information corresponding to each is added. The conflicting information in the specified XMP is deleted.
- For `<pdf:Producer>` and `<xmp:CreatorTool>`, those of **AH Formatter V7.1** are set.
- For `<xmp:CreateDate>`, `<xmp:ModifyDate>` and `<xmp:MetadataDate>`, PDF generation date and time are set.
- For `<dc:format>`, application/pdf is set.
- If `<axf:document-info document-title>` is specified, it is set to `<dc:title>`. If `<dc:title>` is not included in the specified XMP and also `<axf:document-info document-title>` is not specified, an appropriate title is set in PDF/X.
- If `<axf:document-info subject>` is specified, it is set to `<dc:description>`.
- If `<axf:document-info author>` is specified, it is set to `<dc:creator>`.
- If `<axf:document-info author-title>` is specified, it is set to `<photoshop:AuthorsPosition>`.
- If `<axf:document-info description-writer>` is specified, it is set to `<photoshop:CaptionWriter>`.
- If `<axf:document-info keywords>` is specified, it is set to `<pdf:Keywords>`.
- If `<axf:document-info copyright-notice>` is specified, it is set to `<dc:rights>`.
- If `<axf:document-info copyright-info-url>` is specified, it is set to `<xmpRights:WebStatement>`.
- If `<axf:document-info copyright-status>` is specified to something other than Unknown, it is set to `<xmpRights:Marked>`.
- In PDF/X, when `<xmpMM:DocumentID>` is not included in the specified XMP, an appropriate UUID is added.
- In PDF/X, when `<xmpMM:VersionID>` is not included in the specified XMP, it is added as 1.
- In PDF/X, when `<xmpMM:RenditionClass>` is not included in the specified XMP, it is added as “default”.
- For other than PDF/A, add the custom property.

Namespaces that appear here are:

- xmp : http://ns.adobe.com/xap/1.0/
- xmpMM : http://ns.adobe.com/xap/1.0/mm/
- dc : http://purl.org/dc/elements/1.1/
- pdf : http://ns.adobe.com/pdf/1.3/
- photoshop : http://ns.adobe.com/photoshop/1.0/

No other adjustments other than above are made. Even if an element of an unknown namespace is included in the specified XMP, it will not be deleted. If such elements are included in PDF/A, etc., compliance violations may occur.

PDF Embedding

Possible to embed PDF document in the other PDF. Fillable PDF forms can also be embedded.

It is performed by using `<fo:external-graphic>` like handling an image. See Graphics.

```
<fo:external-graphic src="embedded.pdf#page=3"/>
```

As described above, specify the page number which you want to embed to the URI. Specify the page in the form of #page=<FirstPage>-<LastPage>. When there is no page number specified, the first page will be embedded.

embedded.pdf#page=3-5
: from 3rd page to 5th page

embedded.pdf#page=3-
: from 3rd page to the last page

embedded.pdf#page=3
: 3rd page only

embedded.pdf
: first page only

When there is no size specified, it's embedded in the page size of the PDF where it's embedded. However if you want to scale the size, `content-width` or `content-height` can be specified as follows:

```
<fo:external-graphic src="embedded.pdf#page=3" content-width="50%"/>
```

Possible to embed multiple pages continuously.

```
<fo:external-graphic src="embedded.pdf#page=3-5"/>
```

As described above, embed from the 3rd page to 5th page continuously. If you want to embed all pages, specify as follows:

```
<fo:external-graphic src="embedded.pdf#page=1-"/>
```

CAUTION:	When the page size of the embedded PDF is relatively large, pages of embedded PDF may overflow. That is because `<fo:external-graphic>` is an inline element and is affected by the widows/orphans properties. You should specify widows="1" orphans="1" for the block.

When specifying PDF by utilizing the data scheme (RFC2397), the page number can be specified as the parameter of the media type as follows:

```
<fo:external-graphic src="data:application/pdf;page=3; base64,JVBERi0xLjQKJeLjz9M..."/>
```

Moreover, it's also possible to embed PDF as a background. This can be used when making a list form as a background and formatting only the content data on it. When specifying PDF as a background, specify axf:background-repeat="no-repeat" to `<fo:simple-page-master>` or `<fo:page-sequence>` as follows:

```
<fo:simple-page-master axf:background-image="background.pdf"
                       axf:background-repeat="no-repeat" ...
```

axf:background-repeat="repeat" cannot be specified. In CSS, specify the background to `@page`.

When embedding PDF against the background, it's possible to embed not only one page but also two or more pages continuously. Specify axf:background-repeat="paginate" as follows:

```
<fo:simple-page-master axf:background-image="background.pdf#page=3-5"
                       axf:background-repeat="paginate" ...
```

In this example, pages from the 3rd to the 5th are embedded as the background. When the number of pages generated from the contents of `<fo:flow>` is less than the number of embedded PDF pages, pages are added so that all pages of embedded PDF may be outputted. Therefore, if the contents of `<fo:flow>` is empty, there would be no problem. When there is more number of pages generated from the contents of `<fo:flow>`, the background image of the page beyond the number of embedded PDF pages will drop off. Specify the page in the form of #page=<FirstPage>-<LastPage>. When axf:background-repeat="paginate" is not specified, the -<LastPage> portion is disregarded.

background.pdf#page=3-5
: from 3rd page to 5th page

background.pdf#page=3-
: from 3rd page to the last page

background.pdf#page=3
: 3rd page only

background.pdf
: all pages

CAUTION: When axf:background-repeat="paginate" is specified and a background image is also specified for a blank page and so on, the embedding of PDF ends when the blank page is adopted.

When axf:background-image or axf:background-repeat are specified to both `<fo:page-sequence>` and `<fo:simple-page-master>`, `<fo:simple-page-master>` takes priority. It's possible to embed PDF to `<fo:region-*>` by specifying to `<fo:simple-page-master>`.

axf:background-repeat="paginate" is not available to specify with **AH Formatter V7.1 Lite**.

The version of embedded PDF must be less than or equal to the version of PDF to output. The following table shows the acceptable combination with PDF/X, etc. Combinations not in the table are not acceptable.

- [yes] means that the embedding is possible.

Embedded PDF		PDF1.3 to 1.7	PDF2.0	PDF/X						
				1a:2001	3:2002	1a:2003	2:2003	3:2003	4:2010	4p:2010
Output PDF	PDF1.3 to 1.7	yes		yes	yes	yes	yes	yes	yes	yes
	PDF2.0		yes							
	PDF/X-1a:2001			yes						
	PDF/X-3:2002			yes	yes					
	PDF/X-1a:2003			yes		yes				
	PDF/X-2:2003			yes	yes	yes	yes	yes		
	PDF/X-3:2003			yes	yes	yes		yes		
	PDF/X-4:2010			yes	yes	yes		yes	yes	yes
	PDF/X-4p:2010			yes	yes	yes		yes	yes	yes

Embedded PDF		PDF/A								PDF/UA
		1a:2005	1b:2005	2a:2011	2b:2011	2u:2011	3a:2012	3b:2012	3u:2012	1:2014
Output PDF	PDF1.3 to 1.7	yes	yes	yes	yes	yes	yes	yes	yes	yes
	PDF/A-1a:2005									
	PDF/A-1b:2005	yes	yes							
	PDF/A-2a:2011									
	PDF/A-2b:2011	yes	yes	yes	yes	yes				
	PDF/A-2u:2011	yes		yes		yes				

Embedded PDF		PDF/A								PDF/UA
		1a:2005	1b:2005	2a:2011	2b:2011	2u:2011	3a:2012	3b:2012	3u:2012	1:2014
	PDF/A-3a:2012									
	PDF/A-3b:2012	yes	yes	yes	yes	yes	yes	yes	yes	
	PDF/A-3u:2012	yes		yes		yes	yes		yes	
	PDF/UA-1:2014									

Even if it is [yes] in the above table when embedding PDF, there are the following restrictions:

- An error will occur if the PDF version to be embedded is larger than the PDF version to be output.
- When there is no compatibility in OutputIntent, an error will occur when embedding PDF/A into PDF/A.
- Bookmarks contained in the embedded PDF are disregarded.
- The type of annotations to be embedded, contained in the embedded PDF can be specified by import-annotation-types in PDF Output Settings. You can also specify it in Others page in the PDF Option Setting Dialog in GUI. Unspecified annotations are disregarded.

  CAUTION: If you embed a page with an annotation multiple times at different positions, the position of the annotation will not be guaranteed.
- ID in the embedded PDF specified by internal-destination etc., are deleted.
- When FitH, FitV, etc. are specified by axf:destination-type as an internal link of the embedded PDF, the display is scaled to the paper width of the import destination.
- Images in the embedded PDF are not eligible for the image processing (Compression or Color Conversion)
- In order to embed tagged PDF in tagged PDF, specify import-tagged-pdf="true" in PDF Output Settings. You can also specify it in the Version page in the PDF Option Setting Dialog in GUI. PDF without tags is always embeddable.

  CAUTION: When tagged PDF is embedded in tagged PDF, the validity of the tag in the embedded PDF is not guaranteed.
- Even if OutputIntent is specified for the PDF page to be embedded, it is ignored.
- If map location information is attached to the embedded PDF image, **AH Formatter V7.1** places the image in Form XObject, so map location information may not be displayed depending on the PDF viewer.

Font Output

Type 1 fonts (including Adobe Standard 14 Fonts), TrueType fonts (including OpenType fonts with TrueType Outlines), OpenType fonts (PostScript Outline), WOFF (Web Open Font Format), WOFF2 and Macintosh TrueType font data fork suitcase are supported for PDF output. Other font formats are not supported. For more details, see the “Fonts”.

AH Formatter V7.1 requires that the fonts, which are specified in documents, are installed on your system in order to use them correctly. See Windows help or follow the installation instructions attached to the fonts for the method of installing the font in the Windows version. The font placed aside from the font folder can be outputted to PDF in the Windows version. At this time, you need to specify some setting in the Font Configuration File.

CAUTION: When the PDF includes a transparent image that is displayed with Adobe Acrobat or Reader, the character might appear somewhat bolder. This is a known problem of Adobe Acrobat or Reader.

Character Sets, Encoding

The following character sets are supported:

- Adobe Standard Latin character set
- Symbol character set
- ZapfDingbats character set
- Japanese character set (Adobe-Japan1-Supplement2)
- Simplified Chinese character set (Adobe-GB1-Supplement2)
- Traditional Chinese character set (Adobe-CNS1-Supplement0)
- Korean character set (Adobe-Korea1-Supplement1)

Encoding of all characters is processed as Unicode within **AH Formatter V7.1**. In the case of Chinese, Japanese, Korean (CJK), **AH Formatter V7.1** maps the Unicode to glyph in each CJK character sets by using the following CMap:

- Japanese : UniJIS-UCS2-H(V) UniJIS-UCS2-HW-H(V)
- Simplified Chinese : UniGB-UCS2-H(V)
- Traditional Chinese : UniCNS-UCS2-H(V)
- Korean : UniKS-UCS2-H(V)

The characters that do not belong to the above character sets are embedded in the PDF by getting the glyphs from the font files. This process is done only for TrueType, OpenType fonts.

Font Embedding

Embedding font makes it possible to display PDF files even in the environment where there are no fonts.

In the default setting of TrueType font processing, only the outline of glyphs that are not defined by CMap is embedded. In cases where embedding TrueType fonts are prohibited by a font vendor, error occurs and processing stops. This error can be avoided by replacing it with a white space and output PDF. You can also specify the option that all glyphs of a font are to be embedded whether the character is defined by CMap or not.

In the default setting of Type 1 font processing, only the outline of a font that has font specific encoding is embedded. The option to embed all glyphs of a font can also be specified whether the font has standard or font specific encoding.

You cannot embed the font in PDF if the font is not allowed to embed. See also PDF Output Settings to learn how to specify the font you want to embed.

Regardless of the setting, there may be a case that a font may always be embedded. In the following cases, the font is always embedded. If the font is not allowed to embed, you cannot use the font.

- Fonts for the following scripts
  - Ethi : Etiopic no-LT
  - Arab : Arabic
  - Syrc : Syriac no-LT
  - Hebr : Hebrew
  - Deva : Devalagari
  - Beng : Bengali no-LT
  - Guru : Gurmukhi no-LT
  - Gujr : Gujarati no-LT
  - Orya : Oriya no-LT
  - Taml : Tamil no-LT
  - Telu : Telugu no-LT
  - Knda : Kannada no-LT
  - Mlym : Malayalam no-LT
  - Sinh : Sinhala no-LT
  - Thai : Thai
  - Khmr : Khmer no-LT
  - Laoo : Lao no-LT
  - Mymr : Myanmar no-LT
- Ligatured form ☞ axf:ligature-mode
- The glyph of modified by font-variant (except for an emulation of small-caps)
- Characters that are transformed into Variation Sequence
- The Unicode characters which cannot be expressed by 16-bit

Image Output

For more information about supported graphic images, see the “Graphics”.

Vector Images

The following vector images outputted to PDF as vector primitives are replaced with PDF operators:

- EMF
- WMF
- SVG
- MathML
- CGM

In Windows version, vector images other than the above are transformed into the raster images and outputted to PDF. The resolution of the raster can be set in the result PDF with the value of dpi. See rasterize-resolution in PDF Output Settings. In non-Windows versions, the vector image which cannot be outputted to PDF is disregarded.

For details, see EPS in Graphics.

CAUTION: In **AH Formatter V7.1 Lite**, MathML cannot be outputted without “AH Formatter MathML Option”.
CAUTION: CGM cannot be outputted without “AH Formatter CGM Option”.

Raster Images

Generally the raster graphic data is compressed using a compression algorithms in the graphic file. If the compression method and the original (uncompressed) image format are both compatible with the PDF file format, the compressed raster graphic data will be directly embedded into the PDF file. If the compression method or original image format are not compatible with the PDF format, the graphic data will be uncompressed and converted to a PDF compatible bitmap format for output. If graphic data cannot be uncompressed, its data cannot be processed. Bitmap graphic will be compressed using JPEG or ZLIB compression and embedded into the PDF file. See color-compression, color-jpeg-quality attributes in PDF Output Settings of the Option Setting File. If raster image data is directly embedded into the PDF file, these attributes will not be applied.

The raster images which can be embedded directly in a PDF are as follows:

- JPEG
- JPEG 2000
- PNG
- TIFF
- GIF

These are the following restrictions:

- Progressive JPEG, Interlaced GIF are transformed into regular JPEG or GIF images.
- 16-bit color in PNG or TIFF is reduced to 8-bit color.
- When alpha channel is attached to PNG or TIFF, it is divided.
- There are some unsupported TIFF formats.
- JPEG 2000 is embedded into PDF only when it is PDF1.5 or later. For other versions, it is embedded after being converted to JPEG etc.

Down sampling

In **AH Formatter V7.1**, the down sampling of the raster images embedded in PDF can be down sampled.

How it's down sampled can be specified in Compression in the PDF Option Setting Dialog or in Option Seting File.

The compression has the following restrictions:

JPEG compression is available when the following criteria are met; if not, ZLIB compression is used.

- BitsPerComponent is 8.
- The color space is any of CMYK, RGB, grayscale or CIE L*a*b*.

JPEG 2000 compression is available when the following criteria are met; if not, JPEG compression is used.

- PDF version is PDF1.5 or later.

- BitsPerComponent is 8.
- The color space is any of RGB, grayscale or CIE L*a*b*.

Multimedia no-LT

The multimedia data, such as video, audio, etc. can be embedded or linked in PDF. The following shows the example using `<fo:external-graphic>`.

```
<fo:external-graphic src="video.mpg" content-type="video/mpeg"
                     axf:multimedia-treatment="embed"
                     axf:poster-image="poster.jpg"
                     axf:show-controls="true"
                     width="640pt" height="400pt"/>
```

In HTML, `<object>` or `<video>` can be used.

```
<object data="video.mpg" type="video/mpeg"
        width="640" height="400"
        style="-ah-poster-image:url('poster.jpg'); -ah-show-controls:true">
</object>
```

or

```
<video src="video.mpg" type="video/mpeg"
       width="640" height="400"
       poster="poster.jpg" controls="controls">
</video>
```

The setting of content-type (or type attribute in HTML) is required. **AH Formatter V7.1** assumes that the data specified as src follows the content-type. The contents of data are not checked. A poster image can be specified by axf:poster-image (or poster attribute in HTML `<video>`). A poster image can be displayed in the GUI. When width and height are not set, the size of the reference area is assumed. Whether to embed or link multimedia can be specified with axf:multimedia-treatment.

CAUTION: In PDF, multimedia is embedded as a type of annotations. Specify axf:annotation-flags="Print" to print a poster image.

When axf:show-controls (or controls attribute in HTML `<video>`) is specified, a control bar is shown under the playing multimedia object. To prevent overlapping the control bar with another object, it is necessary to make enough space below the multimedia object.

CAUTION: Whether the control bar is shown or not depends on the multimedia data, the viewer or the player.

The following shows the content types accepted as multimedia by default:

- audio/*
- video/*
- application/x-shockwave-flash

The additional content types other than these can be added by `<multimedia>` in the Option Setting File. The following example shows a combination of typical extensions and content types.

Extension	Content type
*.3g2	video/x-msvideo
*.3gp	video/x-msvideo
*.aac	audio/basic
*.aiff	audio/x-aiff
*.asf	video/x-ms-asf
*.au	audio/basic
*.avi	video/x-ms-wm
*.dv	video/x-dv
*.f4v	video/mp4
*.flv	video/x-msvideo

Extension	Content type
*.ivf	video/x-ivf
*.m1v	video/x-mpeg
*.m2v	video/x-mpeg
*.m4a	audio/mp4
*.m4b	audio/x-m4b
*.m4v	video/mp4
*.mid	audio/x-midi
*.midi	
*.mov	video/quicktime
*.mp2	audio/x-mpeg
*.mp3	audio/x-mp3
*.mp4	video/mp4
*.mpe	video/mpeg
*.mpeg	
*.mpg	
*.qt	video/quicktime
*.swf	application/x-shockwave-flash
*.wav	audio/x-wav
*.wma	audio/x-ms-wma
*.wmv	audio/x-ms-wmv
*.wmx	audio/x-ms-wmx

Whether these can be replayed correctly depends on the PDF viewer. When the shortage of players or shortage of codecs error occurs when replaying, it may be available to run again by introducing a corresponding player and codec.

Restrictions

- Effective with PDF1.5 or later. PDF/X, PDF/A are excluded.
- Cannot specify to background-image.
- Cannot specify to axf:poster-image.
- This feature is not effective with **AH Formatter V7.1 Lite**.

Rich media no-LT

The multimedia can be embedded as a rich media annotation (here we call such multimedia simply as the rich media). It does not require external players etc. for playback. Specify that it is rich media by axf:multimedia-treatment in `<fo:external-graphic>` as follows: In HTML, specify it by `<object>` or `<video>`. Also, there are differences in valid properties. For more details, see Images, Multimedia.

```
<fo:external-graphic src="video.mpg" content-type="video/mpeg"
                     axf:multimedia-treatment="richmedia"
                     axf:poster-image="poster.jpg"
                     width="640pt" height="400pt"/>
```

The following multimedia can be embedded as the rich media.

Extension	Content type
*.3g2	video/x-msvideo

Extension	Content type
*.3gp	video/x-msvideo
*.f4v	video/mp4
*.flv	video/x-msvideo
*.m4v	video/mp4
*.mov	video/quicktime
*.mp3	audio/x-mp3
*.mp4	video/mp4
*.swf	application/x-shockwave-flash

Even though the container format is supported the video and audio codecs need to be compatible with Adobe Acrobat's flash player in order to play correctly.

Restrictions

- Effective with PDF1.7 or later. PDF/X, PDF/A are excluded.
- Cannot specify to background-image.
- Cannot specify to axf:poster-image.
- This feature is not effective with **AH Formatter V7.1 Lite**.

Miscellaneous

- In **AH Formatter V7.1**, when the language is specified in the root element of `<fo:root>` or `<html>`, it is outputted as a language information on PDF. When the language is not specified, if default-lang is specified to the Option Setting File, it is outputted as a language information on PDF.
- With **AH Formatter V7.1**, High Compression Settings can be set to reduce the size of the output PDF file. The High Compression Settings can be set in Compression in PDF Option Setting Dialog in GUI. Note that the image quality will also be lowered according to the reduced PDF size. Setting values to be applied can be specified in color-compression-minimum, grayscale-compression-minimum and monochrome-compression-minimum, etc. in the Option Setting File. no-LT

  In the High Compression Settings, default values are set as below:

```
<pdf-settings
    color-compression="auto2k"
    color-jpeg-quality="40"
    color-downsampling="bicubic"
    color-downsampling-target-dpi="150"
    color-downsampling-above-dpi="225"
    grayscale-compression="auto2k"
    grayscale-jpeg-quality="40"
    grayscale-downsampling="bicubic"
    grayscale-downsampling-target-dpi="150"
    grayscale-downsampling-above-dpi="225"
    monochrome-compression="zlib"
    monochrome-downsampling="bicubic"
    monochrome-downsampling-target-dpi="300"
    monochrome-downsampling-above-dpi="450"
    pass-through="none"/>
```

  Compression results may vary depending on the factor such as a type, format, color space and compression ratio of the original image. The size may also be smaller if pass-through="all" is specified.

SVG Output

AH Formatter V7.1 outputs SVG that is compliant to W3C Scalable Vector Graphics (SVG) 1.1 specification. It also outputs SVG Tiny and SVG Basic in the Mobile SVG Profiles.

Customers must purchase “AH Formatter SVG Output Option” to output SVG. For more details, see also Antenna House website.

SVG Output Format

In **AH Formatter V7.1** any of SVG 1.1, SVG Basic and SVG Tiny can be outputted as an SVG profile. When a profile is not specified, it is considered SVG 1.1.

Mobile SVG Profiles are the specifications for mobile computing devices or cellular phones which have restrictions in the throughput of the hardware, the memory capacity and the number of colors that can be displayed.

Since SVG Tiny is for hardware with the most restrictions, like a cellular phone, the supported elements and attributes are quite limited. Therefore, the reproduction level of the original document may be low.

SVG Basic is for more high-efficient pocket devices, such as high-efficient PDA, and has fewer restrictions than SVG Tiny. For more details, see also Mobile SVG Profiles.

AH Formatter V7.1 outputs SVG Tiny and SVG Basic on the basis of the output for SVG 1.1 by disregarding the unsupported elements.

When the document composed of multiple pages is converted into SVG, each page will be output as individual files. It is possible to output them collectively to one file by setting Command-line Interface etc. However, when it is output as standard out, it is always output to one file.

Image Output

For more information about supported graphic images, see the “Graphics”.

With SVG Output, there are three types of methods for handling images. These methods can be specified with the Command-line Interface or the Option Setting File, etc.

- Embedding
  Raster images are embedded in SVG as Base64 encoding. Vector images are outputted as SVG.
- Linking
  Images are linked using the URI of the link origin without change.
- Copying and linking
  Images are copied to the place where they are specified and are described as a link there. the copy destination can be specified by copy-image-path, etc. in the Option Setting File.

There are two types of images in FO.

- Images by external reference
  Images are referenced externally by `<fo:external-graphic>` or `<img>` of HTML.
- Images embedded
  Images encoded by Base64 using the data scheme by `<fo:external-graphic>` or `<img>` of HTML is embedded, or the images are embedded in FO by `<fo:instream-foreign-object>`.

In **AH Formatter V7.1**, all the images referred by outputted SVG are converted into JPEG or PNG or SVG. For this reason, images embedded or externally referenced are handled as follows:

		Embed	Link	Copy and Link
JPEG	**ExternalRef**	Embeds images without change.	Links images without change.	Copies and links images without change.
	Embedded		Embeds images without change.	

<table>
<tr><th colspan="2"></th><th>Embed</th><th>Link</th><th>Copy and Link</th></tr>
<tr><td rowspan="2">PNG</td><td>ExternalRef</td><td rowspan="2">Embeds images without change.</td><td>Links images without change.</td><td rowspan="2">Copies and links images without change.</td></tr>
<tr><td>Embedded</td><td>Embeds images without change.</td></tr>
<tr><td rowspan="2">BMP</td><td>ExternalRef</td><td colspan="2" rowspan="10">Embeds images after converting into JPEG or PNG.</td><td rowspan="10">Copies and links images after converting into JPEG or PNG.</td></tr>
<tr><td>Embedded</td></tr>
<tr><td rowspan="2">TIFF</td><td>ExternalRef</td></tr>
<tr><td>Embedded</td></tr>
<tr><td rowspan="2">GIF</td><td>ExternalRef</td></tr>
<tr><td>Embedded</td></tr>
<tr><td rowspan="2">JPEG 2000</td><td>ExternalRef</td></tr>
<tr><td>Embedded</td></tr>
<tr><td rowspan="2">WebP</td><td>ExternalRef</td></tr>
<tr><td>Embedded</td></tr>
<tr><td rowspan="2">SVG</td><td>ExternalRef</td><td rowspan="2">Embeds images as SVG.</td><td>Links images without change.</td><td rowspan="2">Copies and links images without change.</td></tr>
<tr><td>Embedded</td><td>Embeds images as SVG.</td></tr>
<tr><td rowspan="2">WMF</td><td>ExternalRef</td><td colspan="2" rowspan="6">Embeds images after converting into SVG.</td><td rowspan="6">Copies and links images after converting into SVG.</td></tr>
<tr><td>Embedded</td></tr>
<tr><td rowspan="2">EMF</td><td>ExternalRef</td></tr>
<tr><td>Embedded</td></tr>
<tr><td rowspan="2">PDF</td><td>ExternalRef</td></tr>
<tr><td>Embedded</td></tr>
<tr><td rowspan="2">MathML</td><td>ExternalRef</td><td colspan="2" rowspan="2">Embeds images after converting into SVG. It's invalid if AH Formatter MathML Option is not installed with AH Formatter V7.1 Lite.</td><td rowspan="2">Copies and links images after converting into SVG. It's invalid if AH Formatter MathML Option is not installed with AH Formatter V7.1 Lite.</td></tr>
<tr><td>Embedded</td></tr>
<tr><td rowspan="2">CGM</td><td>ExternalRef</td><td colspan="2" rowspan="2">Embeds images after converting into SVG. It's invalid if AH Formatter CGM Option is not installed.</td><td rowspan="2">Copies and links images after converting into SVG. It's invalid if AH Formatter CGM Option is not installed.</td></tr>
<tr><td>Embedded</td></tr>
<tr><td rowspan="2">EPS</td><td>ExternalRef</td><td colspan="2" rowspan="2">Embeds images after converging into JPEG or PNG in Windows version. In non-Windows versions, if the preview image included in EPS is the TIFF format, it's embedded after being changed into JPEG or PNG, if it is the WMF format, it's embedded after being changed into SVG.</td><td rowspan="2">Copies and links images after converging into JPEG or PNG in Windows version. In non-Windows versions, if the preview image included in EPS is the TIFF format, it's copied and linked after being changed into JPEG or PNG, if it is the WMF format, it's copied and linked after being changed into SVG.</td></tr>
<tr><td>Embedded</td></tr>
</table>

Restrictions

SVG Tiny

Since many elements in SVG Tiny are not supported, it may be difficult to reproduce output that stays true to the original document. **AH Formatter V7.1** reproduces the original as much as possible by substituting the elements with alternative expressions to the extent possible. The following are the main restrictions of SVG Tiny:

- SVG Tiny does not support fills that contain gradation. Plain color is used as a substitute.
- Writing mode is not supported by SVG Tiny. When a document contains vertical writing, the position for every character will be specified. For this reason, the size of the document may become greater than the one outputted by SVG 1.1.
- Many SVG Tiny viewers do not support the rotation of characters. Those viewers will ignore the rotated character.

PostScript® Output

AH Formatter V7.1 can output PostScript®.

Customers must purchase “AH Formatter PostScript® Output Option” to output PostScript. For more details, see also Antenna House website.

The level of PostScript output is 3.

Font Output

The following fonts are available to output with PostScript output. See Fonts for the font.

- Type 1
- TrueType
- OpenType

However, there are the following restrictions with PostScript output.

- Type 1 fonts which contain greater than 255 glyphs are not supported.
- Vertical writing mode is not supported.
- PostScript output does not support complex script language such as Hebrew, Arabic, Thai.
- Ligatures are not supported.
- Not available to change the glyph of font-variant (except for an emulation of small-caps).
- Variation Sequence is not supported.
- The EUDC, end user defined character, is not supported.
- Separation colors, such as PANTONE®, are not supported.

Image Output

For more information about graphic images, see the “Graphics”. However, there are the following restrictions with PostScript output.

- background-repeat="repeat" is not supported.
- Patterns in SVG are not supported.
- The gradation in vector images other than EPS is not supported.
- Separation colors, such as PANTONE®, are not supported.

Vector Images

The following vector images are outputted to PostScript as vector. However, the raster image contained in the vector image will have the restrictions of the raster images mentioned after. If fonts are contained, fonts in the vector image will also have the restrictions of fonts.

- WMF
- EMF
- EPS
- SVG
- MathML
- CGM

All EPS is unprocessed and outputted to PostScript as is.

CAUTION: In **AH Formatter V7.1 Lite**, MathML cannot be outputted without “AH Formatter MathML Option”.

CAUTION: CGM cannot be outputted without “AH Formatter CGM Option”.

Raster Images

The following raster image can be outputted to PostScript. See also restrictions of each raster image respectively.

- BMP
- JPEG
- JPEG 2000
- PNG
- TIFF
- GIF

The image which cannot be embedded directly in PostScript will be transformed into the appropriate one and embedded.

Restrictions

- Transparent images and alpha channel are not supported with PostScript.

XPS Output

AH Formatter V7.1 can output XPS (XML Paper Specification File).

Customers must purchase “AH Formatter XPS Output Option” to output XPS. For more details, see also Antenna House website.

XPS (XML Paper Specification) is an electronic document format developed by Microsoft.

Font Output

The following fonts are available to output into XPS file. For details about font, see Fonts.

- TrueType
- OpenType

However, there are the following restrictions with XPS output.

- All of the fonts in the document should be embedded. So you cannot use the font that embedding is not permitted.
- If you use OpenType font that has CID CFF table, you can output it into XPS file, but XPS Viewer (XPS Viewer EP) will report an error when you open the outputted XPS file. The outputted XPS file can be validated with Microsoft XPS Conformance Tool (isXPS.exe) with no error. If you make XPS file by using this type of font by XPS Document Writer by Microsoft, you will also get the error when open the XPS file by XPS Viewer. But it will be displayed by XPS Viewer that is Internet Explorer plugin.
- XPS output does not support complex script language such as Hebrew, Arabic, Thai.
- Ligatures are not supported.
- Not available to change the glyph of font-variant (except for an emulation of small-caps).
- Variation Sequence is not supported.
- The EUDC, end user defined character, is not supported.
- Separation colors, such as PANTONE®, are not supported.

Image Output

For more information about graphic images, see the “Graphics”. However, there are the following restrictions with XPS output.

- Graphics file without the resolution setting will be treated as 96dpi according to the XPS Specification.
- Graphics file other than JPEG, PNG, and TIFF will be converted into one of JPEG, PNG, and TIFF and will be embed into XPS.
- TIFF graphic file that is compressed type 1 to 6 or 32773 is supported. TIFF file of other compression types is converted to PNG.
- PNG graphic file that has the color management function such as sRGB, cHRM, gAMA, sBIT can be outputted into XPS. But when you open the outputted XPS file by XPS Viewer, the color management function is ignored due to XPS Specification.
- It is not implemented to manage the radiant shading.
- It is not implemented to manage the tiling of the background-image.
- It is not implemented to manage Windows Media Photo Image.

Restrictions

- Temporary file is generated during the output.
- If the page width or height is shorter than 0.5 inch, it is assumed as 0.5 inch.
- Color spaces other than CMYK are converted into RGB color space.
- An error will occur if the rendering instruction generated from the document becomes complex and the canvas nesting exceeds over 16 levels that is allowed by the XPS Specification.
- It is not implemented to manage links.
- It is not implemented to make thumbnails.
- It is not implemented to set the printing scheme and the printing device.
- It is not implemented to manage the outline information.

- It is not implemented to manage the story (table, segment) information.

Word(docx) Output no-LT

AH Formatter V7.1 can output a simple Word(docx).

> Customers must subscribe “AH Formatter Word(docx) Output Option” to output Word(docx). For more details, see also Antenna House website.

Word(docx) Output is not available with **AH Formatter V7.1 Lite**.

Features of Word(docx) Output

Word(docx) is expressed in XML called WordprocessingML. WordprocessingML is an XML for expressing Word in Office documents. The XML of this Office document is called OOXML (Office Open XML) and is defined in Standard ECMA-376. The document models expressed by WordprocessingML and FO are very different. Therefore, we cannot output all FO exactly as WordprocessingML. “AH Formatter Word(docx) Output Option” outputs documents with a relatively simple structure as WordprocessingML.

Restrictions

The following shows the known restrictions of Word(docx) output. There may have some other restrictions that are not listed here.

- The docx output is available only from FO. It cannot be outputted from the AreaTree or HTML.
- In WordprocessingML, basically there are only document structures of the paragraph `<w:p>` and the table `<w:tbl>`. They are only lining up under `<w:body>`. `<w:p>` cannot be nested. In FO you can nest blocks arbitrarily, but they will expand to a flat structure in Word output. Therefore, the following nested borders etc. will not be the same as FO.

```
<fo:block border="solid 5pt red">
 Hello,
<fo:block border="solid 5pt green">
 こんにちは
</fo:block>
 World!
</fo:block>
```

- The WordprocessingML `<w:tbl>` does not have the ability to associate a table with its caption like `<fo:table-and-caption>`. Captions are generated independently from the table.
- A table cannot be rotated.
- The border is outputted as one of the ruled lines that can be expressed in WordprocessingML. In Word, when the ruled lines of adjacent paragraphs (blocks) are the same, they are merged. It is not possible to draw the same ruled line independently in adjacent paragraphs (blocks). Rounded Corners, Diagonal Border are not reflected.
- Image formats not supported by Word are not reflected.
- The background color and the background image of the first `<fo:page-sequence>` becomes the background color and the background image of the document.
- The background and border specified in `<fo:region-*>` are not reflected.
- As for superscripts and subscripts, the font size and the baseline are simply adjusted and its meaning is lost.
- **AH Formatter V7.1** performs complicated font processing such as ligature, and outputs it as a glyph in PDF. In Word(docx) output, any ligatures are not performed to leave such processing to Word itself, and it is outputted as a character string. The same is true for complex scripts.
- Printer marks are not reflected.
- Watermarks are not reflected.
- Line Numbering is not reflected.
- Revision Bar (including `fo:change-bar-*`) is not reflected.
- Emphasis marks becomes one of the emphasis marks that can be expressed by WordprocessingML.
- text shadow is not reflected.
- box shadow is not reflected.
- annotation is not reflected.

- `<fo:region-before>` is considered a header. `<fo:region-after>` is considered a footer. `<fo:region-start>` and `<fo:region-end>` are discarded.
- Headers and footers in Word can only control even and odd pages and the first page. The other complicated `<fo:page-sequence-master>` in FO is not supported.
- Footnotes are assumed to be axf:footnote-stacking="block", axf:footnote-position="page". Sidenotes, etc. are not supported.
- Spread Page Master cannot be outputted.
- It's not available to Float to the absolute position.
- WordprocessingML does not have a feature equivalent to `<fo:inline-container>`. Even if expressing a complicated document structure (eg a table) in `<fo:inline-container>`, only inline elements are retrieved.
- WordprocessingML does not have a feature equivalent to `<fo:block-container>`. `<fo:block-container>` is substituted using a single-cell table. Nested `<fo:block-container>` is not supported. Columns specified in `<fo:block-container>` are not reflected.

TEXT Output no-LT

AH Formatter V7.1 enables outputting the formatted result in a plain text format. It's best suited for getting the output composed as plain text only.

The encoding and the linefeed code of the output text can be specified in the Option Setting File. When outputting from a GUI, it's possible to specify it by Text Output Dialog.

Restrictions

TEXT Output is not effective with **AH Formatter V7.1 Lite**.

- Only one font size is used in the output. FO font size settings are ignored.
- The indent is processed by calculating the current font size. When the font size is changed in FO, lines of text are not aligned correctly.
- Table borders are not output.
- Properties other than text, such as graphics are ignored.
- Vertical writing mode and rotation are not supported.

XSL-FO Conformance

Implementation is based on Extensible Stylesheet Language (XSL) Version 1.1.

- [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.
- [-] means aural property, it is out of scope for implementation.

Sometimes items with [yes] have some limitation(s) that do not affect their ability to accomplish the specified tasks. See [8 Conformance] of XSL specification about “Conformance Level”.

5.9 Expressions

The Conformance level is not defined for Expressions. These units are also available in CSS. Besides these units, several units are also extended. See also Extended Units.

5.9.13 Definitions of Units of Measure

Name	Conformance level	Condition	Comments
cm		yes	1cm = 10mm
mm		yes	
in		yes	1in = 25.4mm
pt		yes	1pt = 1in/72 = 0.3528mm
pc		yes	1pc = 12pt
px		yes	☞ pxpi
em		yes	
deg		yes	5.11 Property Datatypes `<angle>`
grad		yes	5.11 Property Datatypes `<angle>`
rad		yes	5.11 Property Datatypes `<angle>`
ms		yes	5.11 Property Datatypes `<time>`
s		yes	5.11 Property Datatypes `<time>`
Hz		yes	5.11 Property Datatypes `<frequency>`
kHz		yes	5.11 Property Datatypes `<frequency>`

5.10 Core Function Library

The Conformance level is not defined for Core Function Library. Except for some, these functions are also available in CSS. Besides these functions, several functions are also extended. See also Extended Functions.

5.10.1 Number Functions

Name	Conformance level	Condition	Comments
floor()		yes	
ceiling()		yes	
round()		yes	
min()		yes	

Name	Conformance level	Condition	Comments
max()		yes	
abs()		yes	

5.10.2 Color Functions

Name	Conformance level	Condition	Comments
rgb()		yes	☞ `rgb()`
rgb-icc()		yes	This function is extended. ☞ `rgb-icc()`
system-color()		yes	

In XSL 1.1 specifications, names that can be used for the color names are `aqua`, `black`, `blue`, `fuchsia`, `gray`, `green`, `lime`, `maroon`, `navy`, `olive`, `purple`, `red`, `silver`, `teal`, `white` and `yellow`. However, names listed in CSS Color Module Level3 can be used in **AH Formatter V7.1**. The name `k100` can be used as the color equivalent to `cmyk(0,0,0,1)`. Color names are case insensitive.

5.10.3 Font Functions

Name	Conformance level	Condition	Comments
system-font()		no	

5.10.4 Property Value Functions

Name	Conformance level	Condition	Comments
inherited-property-value()		yes	
label-end()		yes	It is not available in CSS.
body-start()		yes	It is not available in CSS.
from-parent()		yes	
from-nearest-specified-value()		yes	
from-page-master-region()		yes	It is not available in CSS.
from-table-column()		yes	
proportional-column-width()		yes	
merge-property-values()		no	

Incompatibility with XSL 1.0 is caused by from-page-master-region() function added in XSL 1.1. In XSL 1.1, even if writing-mode or reference-orientation is specified for `<fo:region-*>`, it is supposed to be disregarded. To enable these specifications, it is necessary to specify the following for `<fo:page-sequence>`.

```
writing-mode="from-page-master-region()"
reference-orientation="from-page-master-region()"
```

Also, by specifying default-from-page-master-region="true" in the Option Setting File, it can always be operated as interchangeable XSL 1.0.

6 Formatting Objects

6.4 Declarations and Pagination and Layout Formatting Objects

Name	Conformance level	Condition	Comments
6.4.2 fo:root	Basic	yes	
6.4.3 fo:declarations	Basic	yes	
6.4.4 fo:color-profile	Extended	yes	☞ PDF/X
6.4.5 fo:page-sequence	Basic	yes	`<fo:page-sequence>` can be nested inside another `<fo:page-sequence>`.
6.4.6 fo:page-sequence-wrapper	Basic	yes	
6.4.7 fo:layout-master-set	Basic	yes	
6.4.8 fo:page-sequence-master	Basic	yes	
6.4.9 fo:single-page-master-reference	Basic	yes	
6.4.10 fo:repeatable-page-master-reference	Basic	yes	
6.4.11 fo:repeatable-page-master-alternatives	Extended	yes	
6.4.12 fo:conditional-page-master-reference	Extended	yes	
6.4.13 fo:simple-page-master	Basic	yes	Extended so that the following can be specified: ☞ Background Extensions • background-color • background-image • background-repeat • background-position-horizontal • background-position-vertical
6.4.14 fo:region-body	Basic	yes	The description order of `<fo:region-*>` is extended. ☞ Other Extensions
6.4.15 fo:region-before	Extended	yes	
6.4.16 fo:region-after	Extended	yes	
6.4.17 fo:region-start	Extended	yes	
6.4.18 fo:region-end	Extended	yes	
6.4.19 fo:flow	Basic	yes	
6.4.20 fo:static-content	Extended	yes	
6.4.21 fo:title	Extended	yes	
6.4.22 fo:flow-map	Extended	yes	
6.4.23 fo:flow-assignment	Extended	yes	
6.4.24 fo:flow-source-list	Extended	yes	
6.4.25 fo:flow-name-specifier	Extended	yes	
6.4.26 fo:flow-target-list	Extended	yes	
6.4.27 fo:region-name-specifier	Extended	yes	

6.5 Block-level Formatting Objects

Name	Conformance level	Condition	Comments
6.5.2 fo:block	Basic	yes	
6.5.3 fo:block-container	Extended	yes	Empty element is allowed. Extended so that column-count, column-gap properties can be specified. ☞ Columns

6.6 Inline-level Formatting Objects

Name	Conformance level	Condition	Comments
6.6.2 fo:bidi-override	Extended	yes	
6.6.3 fo:character	Basic	yes	
6.6.4 fo:initial-property-set	Extended	yes	
6.6.5 fo:external-graphic	Basic	yes	
6.6.6 fo:instream-foreign-object	Extended	yes	
6.6.7 fo:inline	Basic	yes	
6.6.8 fo:inline-container	Extended	yes	Empty element is allowed.
6.6.9 fo:leader	Basic	yes	
6.6.10 fo:page-number	Basic	yes	
6.6.11 fo:page-number-citation	Extended	yes	
6.6.12 fo:page-number-citation-last	Extended	yes	
6.6.13 fo:folio-prefix	Extended	yes	Antenna House has already been supporting it by the extensions specification. ☞ axf:page-number-prefix
6.6.14 fo:folio-suffix	Extended	yes	
6.6.15 fo:scaling-value-citation	Extended	yes	

6.7 Formatting Objects for Tables

Name	Conformance level	Condition	Comments
6.7.2 fo:table-and-caption	Basic	yes	
6.7.3 fo:table	Basic	yes	
6.7.4 fo:table-column	Basic	yes	
6.7.5 fo:table-caption	Extended	yes	
6.7.6 fo:table-header	Basic	yes	
6.7.7 fo:table-footer	Extended	yes	
6.7.8 fo:table-body	Basic	yes	
6.7.9 fo:table-row	Basic	yes	
6.7.10 fo:table-cell	Basic	yes	

6.8 Formatting Objects for Lists

Name	Conformance level	Condition	Comments
6.8.2 fo:list-block	Basic	yes	
6.8.3 fo:list-item	Basic	yes	
6.8.4 fo:list-item-body	Basic	yes	
6.8.5 fo:list-item-label	Extended	yes	

6.9 Dynamic Effects: Link and Multi Formatting Objects

Name	Conformance level	Condition	Comments
6.9.2 fo:basic-link	Extended	yes	
6.9.3 fo:multi-switch	Extended	no	
6.9.4 fo:multi-case	Basic	yes	
6.9.5 fo:multi-toggle	Extended	no	
6.9.6 fo:multi-properties	Extended	no	
6.9.7 fo:multi-property-set	Extended	no	

6.10 Formatting Objects for Indexing

Name	Conformance level	Condition	Comments
6.10.2 fo:index-page-number-prefix	Extended	yes	
6.10.3 fo:index-page-number-suffix	Extended	yes	
6.10.4 fo:index-range-begin	Extended	yes	
6.10.5 fo:index-range-end	Extended	yes	
6.10.6 fo:index-key-reference	Extended	yes	
6.10.7 fo:index-page-citation-list	Extended	yes	
6.10.8 fo:index-page-citation-list-separator	Extended	yes	
6.10.9 fo:index-page-citation-range-separator	Extended	yes	

6.11 Formatting Objects for Bookmarks

Name	Conformance level	Condition	Comments
6.11.1 fo:bookmark-tree	Extended	yes	When color="transparent" is specified, the color information is not set to PDF. Antenna House has already been supporting it by the extensions specification. ☞ Bookmark and Link
6.11.2 fo:bookmark	Extended	yes	
6.11.3 fo:bookmark-title	Extended	yes	

6.12 Out-of-Line Formatting Objects

Name	Conformance level	Condition	Comments
6.12.2 fo:float	Extended	yes	

Name	Conformance level	Condition	Comments
6.12.3 fo:footnote	Extended	yes	
6.12.4 fo:footnote-body	Extended	yes	Extended to have `<fo:float>` as a descendant.

6.13 Other Formatting Objects

Name	Conformance level	Condition	Comments
6.13.2 fo:change-bar-begin	Extended	yes	This is invalid in `<fo:float>`. Extended to have `<fo:float>` as a descendant. ☞ `<fo:change-bar-begin>` Antenna House has already been supporting it by the extensions specification. ☞ Revision Bar
6.13.3 fo:change-bar-end	Extended	yes	This is invalid within `<fo:float>`. Antenna House has already been supporting it by the extensions specification. ☞ Revision Bar
6.13.4 fo:wrapper	Basic	yes	
6.13.5 fo:marker	Extended	yes	
6.13.6 fo:retrieve-marker	Extended	yes	
6.13.7 fo:retrieve-table-marker	Extended	yes	

7 Formatting Properties

7.5 Common Accessibility Properties

Name	Conformance level	Condition	Comments
7.5.1 source-document	Basic	yes	
7.5.2 role	Basic	yes	

7.6 Common Absolute Position Properties

Name	Conformance level	Condition	Comments
7.6.1 absolute-position	Complete	yes	
7.6.2 top	Extended	yes	
7.6.3 right	Extended	yes	
7.6.4 bottom	Extended	yes	
7.6.5 left	Extended	yes	

7.7 Common Aural Properties

Aural Properties are out of implementation scope.

Name	Conformance level	Condition	Comments
7.7.1 azimuth	Basic	-	
7.7.2 cue-after	Basic	-	
7.7.3 cue-before	Basic	-	

Name	Conformance level	Condition	Comments
7.7.4 elevation	Basic	-	
7.7.5 pause-after	Basic	-	
7.7.6 pause-before	Basic	-	
7.7.7 pitch	Basic	-	
7.7.8 pitch-range	Basic	-	
7.7.9 play-during	Basic	-	
7.7.10 richness	Basic	-	
7.7.11 speak	Basic	-	
7.7.12 speak-header	Basic	-	
7.7.13 speak-numeral	Basic	-	
7.7.14 speak-punctuation	Basic	-	
7.7.15 speech-rate	Basic	-	
7.7.16 stress	Basic	-	
7.7.17 voice-family	Basic	-	
7.7.18 volume	Basic	-	

7.8 Common Border, Padding, and Background Properties

Name	Conformance level	Condition	Comments
7.8.1 background-attachment	Extended	yes	
7.8.2 background-color	Basic	yes	Extended so that it can be specified to `<fo:simple-page-master>`. ☞ axf:background-color The value is extended. ☞ `<color>`
7.8.3 background-image	Extended	yes	Extended so that it can be specified to `<fo:simple-page-master>`. ☞ axf:background-image
7.8.4 background-repeat	Extended	yes	Extended so that it can be specified to `<fo:simple-page-master>`. ☞ axf:background-repeat
7.8.5 background-position-horizontal	Extended	yes	Extended so that it can be specified to `<fo:simple-page-master>`. ☞ axf:background-position-horizontal
7.8.6 background-position-vertical	Extended	yes	Extended so that it can be specified to `<fo:simple-page-master>`. ☞ axf:background-position-vertical
7.8.7 border-before-color	Basic	yes	The value is extended. ☞ `<color>`
7.8.8 border-before-style	Basic	yes	Extended so that `dot-dash`, `dot-dot-dash` and `wave` in CSS3 can be specified. ☞ border-style
7.8.9 border-before-width	Basic	yes	
7.8.10 border-after-color	Basic	yes	The value is extended. ☞ `<color>`
7.8.11 border-after-style	Basic	yes	Extended so that `dot-dash`, `dot-dot-dash` and `wave` in CSS3 can be specified. ☞ border-style
7.8.12 border-after-width	Basic	yes	
7.8.13 border-start-color	Basic	yes	The value is extended. ☞ `<color>`

Name	Conformance level	Condition	Comments
7.8.14 border-start-style	Basic	yes	Extended so that `dot-dash`, `dot-dot-dash` and `wave` in CSS3 can be specified. ☞ border-style
7.8.15 border-start-width	Basic	yes	
7.8.16 border-end-color	Basic	yes	The value is extended. ☞ `<color>`
7.8.17 border-end-style	Basic	yes	Extended so that `dot-dash`, `dot-dot-dash` and `wave` in CSS3 can be specified. ☞ border-style
7.8.18 border-end-width	Basic	yes	
7.8.19 border-top-color	Basic	yes	The value is extended. ☞ `<color>`
7.8.20 border-top-style	Basic	yes	Extended so that `dot-dash`, `dot-dot-dash` and `wave` in CSS3 can be specified. ☞ border-style
7.8.21 border-top-width	Basic	yes	
7.8.22 border-bottom-color	Basic	yes	The value is extended. ☞ `<color>`
7.8.23 border-bottom-style	Basic	yes	Extended so that `dot-dash`, `dot-dot-dash` and `wave` in CSS3 can be specified. ☞ border-style
7.8.24 border-bottom-width	Basic	yes	
7.8.25 border-left-color	Basic	yes	The value is extended. ☞ `<color>`
7.8.26 border-left-style	Basic	yes	Extended so that `dot-dash`, `dot-dot-dash` and `wave` in CSS3 can be specified. ☞ border-style
7.8.27 border-left-width	Basic	yes	
7.8.28 border-right-color	Basic	yes	The value is extended. ☞ `<color>`
7.8.29 border-right-style	Basic	yes	Extended so that `dot-dash`, `dot-dot-dash` and `wave` in CSS3 can be specified. ☞ border-style
7.8.30 border-right-width	Basic	yes	
7.8.31 padding-before	Basic	yes	Extended so that negative values can also be specified.
7.8.32 padding-after	Basic	yes	Extended so that negative values can also be specified.
7.8.33 padding-start	Basic	yes	Extended so that negative values can also be specified.
7.8.34 padding-end	Basic	yes	Extended so that negative values can also be specified.
7.8.35 padding-top	Basic	yes	Extended so that negative values can also be specified.
7.8.36 padding-bottom	Basic	yes	Extended so that negative values can also be specified.
7.8.37 padding-left	Basic	yes	Extended so that negative values can also be specified.
7.8.38 padding-right	Basic	yes	Extended so that negative values can also be specified.

7.9 Common Font Properties

Name	Conformance level	Condition	Comments
7.9.2 font-family	Basic	yes	Values are strictly checked. See family-name-syntax in the Option Setting File.
7.9.3 font-selection-strategy	Complete	yes	
7.9.4 font-size	Basic	yes	

Name	Conformance level	Condition	Comments
7.9.5 font-stretch	Extended	yes	Expands/Condenses the font face to the inline progression direction. The font is not replaced by the other font, such as condensed font. Supports % value. ☞ font-stretch
7.9.6 font-size-adjust	Extended	yes	A font itself needs to have the x-height information. It is not effective with a font without x-height. A font name can be specified. ☞ font-size-adjust
7.9.7 font-style	Basic	yes	Supports `italic`, `oblique` and `backslant`.
7.9.8 font-variant	Basic	yes	This property is extended. ☞ font-variant
7.9.9 font-weight	Basic	yes	This property is extended to accept any values from 1 to 1000.

7.10 Common Hyphenation Properties

Name	Conformance level	Condition	Comments
7.10.1 country	Extended	yes	
7.10.2 language	Extended	yes	
7.10.3 script	Extended	yes	
7.10.4 hyphenate	Extended	yes	
7.10.5 hyphenation-character	Extended	yes	U+00AD cannot be specified.
7.10.6 hyphenation-push-character-count	Extended	yes	
7.10.7 hyphenation-remain-character-count	Extended	yes	

7.11 Common Margin Properties-Block

Name	Conformance level	Condition	Comments
7.11.1 margin-top	Basic	yes	
7.11.2 margin-bottom	Basic	yes	
7.11.3 margin-left	Basic	yes	
7.11.4 margin-right	Basic	yes	
7.11.5 space-before	Basic	yes	
7.11.6 space-after	Basic	yes	
7.11.7 start-indent	Basic	yes	
7.11.8 end-indent	Basic	yes	

7.12 Common Margin Properties-Inline

Name	Conformance level	Condition	Comments
7.12.1 margin-top	Basic	yes	
7.12.2 margin-bottom	Basic	yes	
7.12.3 margin-left	Basic	yes	
7.12.4 margin-right	Basic	yes	
7.12.5 space-end	Basic	yes	
7.12.6 space-start	Basic	yes	

7.13 Common Relative Position Properties

Name	Conformance level	Condition	Comments
7.13.1 top	Extended	yes	
7.13.2 right	Extended	yes	
7.13.3 bottom	Extended	yes	
7.13.4 left	Extended	yes	
7.13.5 relative-position	Extended	yes	

7.14 Area Alignment Properties

Name	Conformance level	Condition	Comments
7.14.1 alignment-adjust	Basic	yes	
7.14.2 alignment-baseline	Basic	yes	`auto` is considered `baseline`.
7.14.3 baseline-shift	Basic	yes	
7.14.4 display-align	Extended	yes	This property is extended. ☞ display-align
7.14.5 dominant-baseline	Basic	yes	
7.14.6 relative-align	Extended	yes	

7.15 Area Dimension Properties

Name	Conformance level	Condition	Comments
7.15.1 allowed-height-scale	Extended	yes	
7.15.2 allowed-width-scale	Extended	yes	
7.15.3 block-progression-dimension	Basic	yes	
7.15.4 content-height	Extended	yes	
7.15.5 content-width	Extended	yes	
7.15.6 height	Basic	yes	
7.15.7 inline-progression-dimension	Basic	yes	
7.15.8 max-height	Complete	yes	
7.15.9 max-width	Complete	yes	
7.15.10 min-height	Complete	yes	With regard to table, there is no distinction between min-height and height. When both are specified, the larger value is adopted as height.
7.15.11 min-width	Complete	yes	
7.15.12 scaling	Extended	yes	
7.15.13 scaling-method	Extended	no	
7.15.14 width	Basic	yes	

7.16 Block and Line-related Properties

Name	Conformance level	Condition	Comments
7.16.1 hyphenation-keep	Extended	yes	Either of the following happens to meet the requirement of hyphenation-keep.

Name	Conformance level	Condition	Comments
7.16.1 hyphenation-keep	Extended	yes	• The word is pushed to the next line to avoid a hyphen at the end of the page or column. • The line is pushed to the next page so that the line with the hyphen does not come at the end of the page or column.
7.16.2 hyphenation-ladder-count	Extended	yes	
7.16.3 last-line-end-indent	Extended	yes	
7.16.4 line-height	Basic	yes	
7.16.5 line-height-shift-adjustment	Extended	yes	
7.16.6 line-stacking-strategy	Basic	yes	
7.16.7 linefeed-treatment	Extended	yes	
7.16.8 white-space-treatment	Extended	yes	
7.16.9 text-align	Basic	yes	
7.16.10 text-align-last	Extended	yes	
7.16.11 text-indent	Basic	yes	
7.16.12 white-space-collapse	Extended	yes	
7.16.13 wrap-option	Basic	yes	

7.17 Character Properties

Name	Conformance level	Condition	Comments
7.17.1 character	Basic	yes	
7.17.2 letter-spacing	Extended	yes	
7.17.3 suppress-at-line-break	Extended	no	
7.17.4 text-decoration	Extended	yes	
7.17.5 text-shadow	Extended	yes	☞ text-shadow
7.17.6 text-transform	Extended	yes	
7.17.7 treat-as-word-space	Extended	no	
7.17.8 word-spacing	Extended	yes	

7.18 Color-related Properties

Name	Conformance level	Condition	Comments
7.18.1 color	Basic	yes	The value is extended. ☞ `<color>`
7.18.2 color-profile-name	Extended	yes	☞ PDF/X
7.18.3 rendering-intent	Extended	no	

7.19 Float-related Properties

Name	Conformance level	Condition	Comments
7.19.1 clear	Extended	yes	☞ Float Extension
7.19.2 float	Extended	yes	This property is extended. ☞ Float Extension

Name	Conformance level	Condition	Comments
7.19.3 intrusion-displace	Extended	yes	

7.20 Keeps and Breaks Properties

Name	Conformance level	Condition	Comments
7.20.1 break-after	Basic	yes	
7.20.2 break-before	Basic	yes	
7.20.3 keep-together	Extended	yes	The strength of keep is compared only within the same reference area. For example, keep within one reference area is not compared to keep within the next reference area.
7.20.4 keep-with-next	Basic	yes	
7.20.5 keep-with-previous	Basic	yes	
7.20.6 orphans	Basic	yes	
7.20.7 widows	Basic	yes	The widows may not be able to be resolved between regions of different width.

7.21 Layout-related Properties

Name	Conformance level	Condition	Comments
7.21.1 clip	Extended	yes	
7.21.2 overflow	Basic	yes	Limitation: `scroll` is not supported. This property is extended. ☞ overflow
7.21.3 reference-orientation	Extended	yes	
7.21.4 span	Extended	yes	☞ span

7.22 Leader and Rule Properties

Name	Conformance level	Condition	Comments
7.22.1 leader-alignment	Extended	partial	Limitation: `page` is not supported. This property is extended. ☞ leader-alignment
7.22.2 leader-pattern	Basic	yes	
7.22.3 leader-pattern-width	Extended	yes	
7.22.4 leader-length	Basic	yes	
7.22.5 rule-style	Basic	yes	
7.22.6 rule-thickness	Basic	yes	

7.23 Properties for Dynamic Effects Formatting Objects

Name	Conformance level	Condition	Comments
7.23.1 active-state	Extended	no	
7.23.2 auto-restore	Extended	no	
7.23.3 case-name	Extended	no	

Name	Conformance level	Condition	Comments
7.23.4 case-title	Extended	no	
7.23.5 destination-placement-offset	Extended	no	
7.23.6 external-destination	Extended	yes	☞ xlink:href
7.23.7 indicate-destination	Extended	no	
7.23.8 internal-destination	Extended	yes	This property is extended. ☞ internal-destination, xlink:href
7.23.9 show-destination	Extended	yes	
7.23.10 starting-state	Extended	no	
7.23.11 switch-to	Extended	no	
7.23.12 target-presentation-context	Extended	no	
7.23.13 target-processing-context	Extended	no	
7.23.14 target-stylesheet	Extended	no	

7.24 Properties for Indexing

Name	Conformance level	Condition	Comments
7.24.1 index-class	Extended	yes	
7.24.2 index-key	Extended	yes	
7.24.3 page-number-treatment	Extended	yes	
7.24.4 merge-ranges-across-index-key-references	Extended	yes	
7.24.5 merge-sequential-page-numbers	Extended	yes	
7.24.6 merge-pages-across-index-key-references	Extended	yes	
7.24.7 ref-index-key	Extended	yes	

7.25 Properties for Markers

Name	Conformance level	Condition	Comments
7.25.1 marker-class-name	Extended	yes	
7.25.2 retrieve-boundary-within-table	Extended	yes	
7.25.3 retrieve-class-name	Extended	yes	
7.25.4 retrieve-position	Extended	yes	
7.25.5 retrieve-boundary	Extended	yes	
7.25.6 retrieve-position-within-table	Extended	yes	

7.26 Properties for Number to String Conversion

Name	Conformance level	Condition	Comments
7.26.1 format	Basic	yes	This property is extended. ☞ format
7.26.2 grouping-separator	Extended	yes	
7.26.3 grouping-size	Extended	yes	
7.26.4 letter-value	Basic	partial	Limitation: Always uses `auto` value.

7.27 Pagination and Layout Properties

Name	Conformance level	Condition	Comments
7.27.1 blank-or-not-blank	Extended	yes	
7.27.2 column-count	Extended	yes	Extended so that it can be specified to `<fo:block-container>`. ☞ axf:column-count
7.27.3 column-gap	Extended	yes	Extended so that it can be specified to `<fo:block-container>`. ☞ axf:column-gap
7.27.4 extent	Extended	yes	
7.27.5 flow-name	Basic	yes	
7.27.6 force-page-count	Extended	yes	This property is extended. ☞ force-page-count When `<fo:flow>` is assigned to the region of the page master of the page added by force-page-count, a page doesn't break within the `<fo:flow>` and treated like `<fo:static-content>`.
7.27.7 initial-page-number	Basic	yes	
7.27.8 master-name	Basic	yes	
7.27.9 master-reference	Basic	yes	
7.27.10 maximum-repeats	Extended	yes	
7.27.11 media-usage	Extended	no	
7.27.12 odd-or-even	Extended	yes	This property is extended. ☞ odd-or-even no-LT
7.27.13 page-height	Basic	yes	Limitation: `indefinite` is not supported. When `auto` is specified, it is the size of default-page-height in the Option Setting File. The setting less than 3pt is adjusted to 3pt.
7.27.14 page-position	Extended	yes	
7.27.15 page-width	Basic	yes	Limitation: `indefinite` is not supported. When `auto` is specified, it is the size of default-page-width in the Option Setting File. The setting less than 3pt is adjusted to 3pt.
7.27.16 precedence	Extended	yes	
7.27.17 region-name	Basic	yes	
7.27.18 flow-map-name	Extended	yes	
7.27.19 flow-map-reference	Extended	yes	
7.27.20 flow-name-reference	Extended	yes	
7.27.21 region-name-reference	Extended	yes	

7.28 Table Properties

Name	Conformance level	Condition	Comments
7.28.1 border-after-precedence	Basic	yes	
7.28.2 border-before-precedence	Basic	yes	
7.28.3 border-collapse	Extended	yes	
7.28.4 border-end-precedence	Basic	yes	
7.28.5 border-separation	Extended	yes	

Name	Conformance level	Condition	Comments
7.28.6 border-start-precedence	Basic	yes	
7.28.7 caption-side	Complete	yes	`start` becomes `before`, `end` becomes `after`.
7.28.8 column-number	Basic	yes	
7.28.9 column-width	Basic	yes	
7.28.10 empty-cells	Extended	no	
7.28.11 ends-row	Extended	yes	
7.28.12 number-columns-repeated	Basic	yes	
7.28.13 number-columns-spanned	Basic	yes	
7.28.14 number-rows-spanned	Basic	yes	
7.28.15 starts-row	Extended	yes	
7.28.16 table-layout	Extended	yes	
7.28.17 table-omit-footer-at-break	Extended	yes	This property is extended. ☞ table-omit-footer-at-break
7.28.18 table-omit-header-at-break	Extended	yes	This property is extended. ☞ table-omit-header-at-break

7.29 Writing-mode-related Properties

Name	Conformance level	Condition	Comments
7.29.1 direction	Basic	yes	
7.29.2 glyph-orientation-horizontal	Extended	yes	
7.29.3 glyph-orientation-vertical	Extended	yes	
7.29.4 text-altitude	Extended	yes	It's invalid if baseline-mode="4" is specified in the Option Setting File.
7.29.5 text-depth	Extended	yes	It's invalid if baseline-mode="4" is specified in the Option Setting File.
7.29.6 unicode-bidi	Extended	yes	
7.29.7 writing-mode	Basic	partial	Supports only `lr-tb`, `rl-tb`, `tb-rl`, `lr`, `rl` and `tb`.

7.30 Miscellaneous Properties

Name	Conformance level	Condition	Comments
7.30.1 change-bar-class	Extended	yes	Antenna House has already been supporting it by the extensions specification. ☞ Revision Bar
7.30.2 change-bar-color	Extended	yes	
7.30.3 change-bar-offset	Extended	yes	
7.30.4 change-bar-placement	Extended	yes	
7.30.5 change-bar-style	Extended	yes	
7.30.6 change-bar-width	Extended	yes	
7.30.7 content-type	Extended	yes	
7.30.8 id	Basic	yes	☞ xml:id
7.30.9 intrinsic-scale-value	Extended	yes	
7.30.10 page-citation-strategy	Extended	yes	
7.30.11 provisional-label-separation	Basic	yes	

Name	Conformance level	Condition	Comments
7.30.12 provisional-distance-between-starts	Basic	yes	
7.30.13 ref-id	Extended	yes	
7.30.14 scale-option	Extended	yes	
7.30.15 score-spaces	Extended	yes	
7.30.16 src	Basic	yes	
7.30.17 visibility	Extended	yes	
7.30.18 z-index	Extended	yes	

7.31 Shorthand Properties

Name	Conformance level	Condition	Comments
7.31.1 background	Complete	yes	
7.31.2 background-position	Complete	yes	
7.31.3 border	Complete	yes	
7.31.4 border-bottom	Complete	yes	
7.31.5 border-color	Complete	yes	The value is extended. ☞ `<color>`
7.31.6 border-left	Complete	yes	
7.31.7 border-right	Complete	yes	
7.31.8 border-style	Complete	yes	Extended so that `dot-dash`, `dot-dot-dash` and `wave` in CSS3 can be specified. ☞ border-style
7.31.9 border-spacing	Complete	yes	
7.31.10 border-top	Complete	yes	
7.31.11 border-width	Complete	yes	
7.31.12 cue	Complete	-	
7.31.13 font	Complete	yes	
7.31.14 margin	Complete	yes	
7.31.15 padding	Complete	yes	
7.31.16 page-break-after	Complete	yes	
7.31.17 page-break-before	Complete	yes	
7.31.18 page-break-inside	Complete	yes	
7.31.19 pause	Complete	-	
7.31.20 position	Complete	yes	
7.31.21 size	Complete	yes	
7.31.22 vertical-align	Complete	yes	
7.31.23 white-space	Complete	yes	
7.31.24 xml:lang	Complete	yes	

CSS Conformance

AH Formatter V7.1'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-Color] CSS Color Module Level 3 (W3C Proposed Recommendation 15 March 2018)
- [CSS3-Content] CSS Generated Content Module Level 3 (W3C Working Draft 2 June 2016)
- [CSS3-CounterStyles] CSS Counter Styles Level 3 (W3C Candidate Recommendation 14 December 2017)
- [CSS3-Fonts] 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-Images] 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-Lists] 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)
- [CSS3-CustomProperties] CSS Custom Properties for Cascading Variables Module Level 1 (W3C Candidate Recommendation 3 December 2015) V7.1

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 V7.1** implementation, **AH Formatter V7.1** 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 Counters: counter(), counters()	yes	☞ `counter()`
4.4 @charset	yes	☞ Encodings

5 Selectors

Name	Condition	Comments
5.2.1 Grouping (,)	yes	
5.3 Universal selector (*)	yes	
5.4 Type selectors (E)	yes	
5.5 Descendant selectors (E F)	yes	
5.6 Child selectors (E > F)	yes	
5.7 Adjacent sibling selectors (E + F)	yes	
5.8.1 Matching attributes and attribute values ([att], [att=val], [att~=val], [att|=val])	yes	
5.8.3 Class selectors (.class)	yes	
5.9 ID selectors (#id)	yes	
5.11.1 The :first-child pseudo-class	yes	
5.11.2 The link pseudo-classes: :link and :visited	partial	`:visited` is not supported.
5.11.3 The dynamic pseudo-classes: :hover, :active and :focus	no	
5.11.4 The language pseudo-class: :lang	yes	
5.12.1 The :first-line pseudo-element	yes	
5.12.2 The :first-letter pseudo-element	yes	Only the display model elements below have effects. • `block` • `list-item` • `table-cell` • `table-caption` • `inline-block` Finds the first text in the specified element, but ::first-letter is ignored if images or the following display model elements appear before the text. • block elements other than `block` • `inline-table` • `inline-block` • `ruby` ☞ `(-ah-)initial-letters`
5.12.3 The :before and :after pseudo-elements	yes	

6 Assigning property values, Cascading, and Inheritance

Name	Condition	Comments
6.2.1 The 'inherit' value	yes	
6.3 The @import rule	yes	
6.4.2 !important rules	yes	

7 Media types

Name	Condition	Comments
7.2.1 The @media rule	partial	“print” and “all” media types are supported. media-query is not supported.

8 Box model

Name	Condition	Comments
8.3 Margin properties: 'margin-top', 'margin-right', 'margin-bottom', 'margin-left', 'margin'	yes	
8.4 Padding properties: 'padding-top', 'padding-right', 'padding-bottom', 'padding-left', 'padding'	yes	
8.5.1 Border width: 'border-top-width', 'border-right-width', 'border-bottom-width', 'border-left-width', 'border-width'	yes	
8.5.2 Border color: 'border-top-color', 'border-right-color', 'border-bottom-color', 'border-left-color', 'border-color'	yes	The value is extended. ☞ `<color>`
8.5.3 Border style: 'border-top-style', 'border-right-style', 'border-bottom-style', 'border-left-style', 'border-style'	yes	
8.5.4 Border shorthand properties: 'border-top', 'border-right', 'border-bottom', 'border-left', 'border'	yes	

9 Visual formatting model

Name	Condition	Comments
9.2.4 The 'display' property	yes	This property is extended. ☞ `display`
9.3.1 Choosing a positioning scheme: 'position'	yes	
9.3.2 Box offsets: 'top', 'right', 'bottom', 'left'	yes	
9.5.1 Positioning the float: 'float'	yes	The page break (column break) in the `float` is supported.
9.5.2 Controlling flow next to floats: 'clear'	yes	
9.9.1 Specifying the stack level: 'z-index'	yes	
9.10 Text direction: 'direction', 'unicode-bidi'	yes	

10 Visual formatting model details

Name	Condition	Comments
10.2 Content width: 'width'	yes	
10.4 Minimum and maximum widths: 'min-width', 'max-width'	yes	
10.5 Content height: 'height'	yes	The setting using the % value for other than the root element is to be ignored if the `height` is not explicitly specified in the parent block. In **AH Formatter V7.1**, when a block with `height` specified is rotated or when values other than `visible` or `auto` are specified for the `overflow` property, it is not ignored.
10.7 Minimum and maximum heights: 'min-height', 'max-height'	yes	With regard to table, there is no distinction between `min-height` and `height`. When both are specified, the larger value is adopted as `height`.
10.8 Line height calculations: 'line-height', 'vertical-align'	yes	

11 Visual effects

Name	Condition	Comments
11.1.1 Overflow: 'overflow'	yes	Limitation: `scroll` is not supported. This property is extended. ☞ `overflow`
11.1.2 Clipping: 'clip'	yes	
11.2 Visibility: 'visibility'	yes	`visibility:collapse` specified to table-column is considered `hidden`.

12 Generated content, automatic numbering, and lists

Name	Condition	Comments
12.2 The 'content' property	yes	`open-quote`, `close-quote`, `no-open-quote` and `no-close-quote` are supported.
12.3.1 Specifying quotes with the 'quotes' property	yes	
12.4 Automatic counters and numbering: 'counter-reset', 'counter-increment'	yes	When an illegal value (such as 0) is specified for `counter-reset`, “previous page number + 1” is assumed to be specified.
12.5.1 Lists: 'list-style-type'	yes	
12.5.1 Lists: 'list-style-image'	yes	
12.5.1 Lists: 'list-style-position'	yes	
12.5.1 Lists: 'list-style'	yes	

13 Paged media

Name	Condition	Comments
13.2 Page boxes: the @page rule	yes	
13.2.2 Page selectors: selecting left, right, and first pages (:left, :right, :first)	yes	
13.3.1 Page break properties: 'page-break-before', 'page-break-after', 'page-break-inside'	yes	
13.3.2 Breaks inside elements: 'orphans', 'widows'	yes	

14 Colors and Backgrounds

Name	Condition	Comments
14.1 Foreground color: 'color'	yes	The value is extended. ☞ `<color>`
14.2.1 Background properties: 'background-color'	yes	The value is extended. ☞ `<color>`
14.2.1 Background properties: 'background-image'	yes	
14.2.1 Background properties: 'background-repeat'	yes	
14.2.1 Background properties: 'background-attachment'	yes	
14.2.1 Background properties: 'background-position'	yes	
14.2.1 Background properties: 'background'	yes	

15 Fonts

Name	Condition	Comments
15.3 Font family: 'font-family'	yes	

Name	Condition	Comments
15.4 Font styling: 'font-style'	yes	
15.5 Small-caps: 'font-variant'	yes	
15.6 Font boldness: 'font-weight'	yes	It has been extended to accept any values from 1 to 1000.
15.7 Font size: 'font-size'	yes	
15.8 Shorthand font property: 'font'	yes	

16 Text

Name	Condition	Comments
16.1 Indentation: 'text-indent'	yes	
16.2 Alignment: 'text-align'	yes	
16.3.1 Underlining, overlining, striking, and blinking: 'text-decoration'	yes	Limitation: `blink` is not supported.
16.4 Letter and word spacing: 'letter-spacing', 'word-spacing'	yes	
16.5 Capitalization: 'text-transform'	yes	
16.6 Whitespace: 'white-space'	yes	

17 Tables

Name	Condition	Comments
17.4.1 Caption position and alignment: 'caption-side'	yes	
17.5.2 Table width algorithms: 'table-layout'	yes	
17.6.1 The separated borders model: 'border-spacing'	yes	
17.6.1.1 Borders and Backgrounds around empty cells: 'empty-cells'	yes	
17.6.2 The collapsing border model: 'border-collapse'	yes	

18 User interface

Name	Condition	Comments
18.1 Cursors: 'cursor'	no	
18.4 Dynamic outlines: 'outline'	no	

CSS3

As for the implemented CSS3 properties and their corresponding XSL-FO properties, see “XSL/CSS Properties”.

Selectors

Name	Condition	Comments
Subsequent-sibling combinator (E ~ F)	yes	[CSS3-Selectors]
Substring matching attribute selectors ([att^=val], [att$=val], [att*=val])	yes	[CSS3-Selectors]

Namespaces

Name	Condition	Comments
@namespace	yes	[CSS3-Namespaces]
Qualified Names (ns|E)	yes	[CSS3-Namespaces]

@ rules

Name	Condition	Comments
@font-face	partial	[CSS3-Fonts] ☞ `<axf:font-face>` / `@font-face`
@footnote	yes	[CSS3-GCPM] `footnote-display` is not supported yet. ☞ Footnotes/sidenotes by CSS
@sidenote	yes	[CSS3-GCPM] (@sidenote has been removed from GCPM on and after June 8, 2010) ☞ Footnotes/sidenotes by CSS
@page	yes	[CSS3-Page]
@page :left, :right, :first, :blank	yes	[CSS3-Page] This rule is extended. ☞ `@page`
@top-left-corner	yes	[CSS3-Page]
@top-left	yes	[CSS3-Page]
@top-center	yes	[CSS3-Page]
@top-right	yes	[CSS3-Page]
@top-right-corner	yes	[CSS3-Page]
@left-top	yes	[CSS3-Page]
@left-middle	yes	[CSS3-Page]
@left-bottom	yes	[CSS3-Page]
@right-top	yes	[CSS3-Page]
@right-middle	yes	[CSS3-Page]
@right-bottom	yes	[CSS3-Page]
@bottom-left-corner	yes	[CSS3-Page]
@bottom-left	yes	[CSS3-Page]
@bottom-center	yes	[CSS3-Page]
@bottom-right	yes	[CSS3-Page]
@bottom-right-corner	yes	[CSS3-Page]
@counter-style	partial	[CSS3-CounterStyles] Specifying `url()` for `symbols` and `additive-symbols` etc. is not available. `speak-as` is not supported. ☞ `<axf:counter-style>` / `@counter-style` no-LT

Pseudo Classes

Name	Condition	Comments
:root	yes	[CSS3-Selectors]
:nth-child()	yes	[CSS3-Selectors]
:nth-last-child()	yes	[CSS3-Selectors]
:nth-of-type()	yes	[CSS3-Selectors]

Name	Condition	Comments
:nth-last-of-type()	yes	[CSS3-Selectors]
:first-child	yes	[CSS3-Selectors]
:last-child	yes	[CSS3-Selectors]
:first-of-type	yes	[CSS3-Selectors]
:last-of-type	yes	[CSS3-Selectors]
:only-child	yes	[CSS3-Selectors]
:only-of-type	yes	[CSS3-Selectors]
:empty	yes	[CSS3-Selectors]
:not()	yes	[CSS3-Selectors]

Pseudo Elements

Name	Condition	Comments
::footnote-call	yes	[CSS3-GCPM] ☞ Footnotes/sidenotes by CSS
::footnote-marker	yes	[CSS3-GCPM] ☞ Footnotes/sidenotes by CSS
::sidenote-call	yes	[CSS3-GCPM] (@sidenote has been removed from GCPM on and after June 8, 2010) ☞ Footnotes/sidenotes by CSS
::sidenote-marker	yes	[CSS3-GCPM] (@sidenote has been removed from GCPM on and after June 8, 2010) ☞ Footnotes/sidenotes by CSS
::marker	yes	[CSS3-Lists]
::before	yes	[CSS3-Selectors]
::after	yes	[CSS3-Selectors]

Functions

Name	Condition	Comments
content()	yes	[CSS3-GCPM]
string()	yes	[CSS3-GCPM]
running()	yes	[CSS3-GCPM]
element()	yes	[CSS3-GCPM]
leader()	yes	[CSS3-GCPM]
target-counter()	yes	[CSS3-GCPM]
target-counters()	yes	[CSS3-GCPM]
target-text()	yes	[CSS3-GCPM]
device-cmyk()	yes	[CSS3-GCPM] (CYMK has been removed from GCPM on and after May 13, 2014)
rgb()	yes	[CSS3-Color]
rgba()	yes	[CSS3-Color]
hsl()	yes	[CSS3-Color]
hsla()	yes	[CSS3-Color]
counter()	yes	[CSS3-Page] ☞ `counter()`
counters()	yes	[CSS3-Page] ☞ `counter()`

Name	Condition	Comments
attr()	yes	[CSS3-Values] ☞ `attr()`
url()	yes	[CSS3-Values] ☞ URI
calc()	yes	[CSS3-Values]
linear-gradient()	yes	[CSS3-Images] ☞ `linear-gradient()`
radial-gradient()	yes	[CSS3-Images] ☞ `radial-gradient()`
repeating-linear-gradient()	yes	[CSS3-Images] ☞ `repeating-linear-gradient()`
repeating-radial-gradient()	yes	[CSS3-Images] ☞ `repeating-radial-gradient()`
matrix()	yes	[CSS3-Transforms] ☞ Transformation
translate()	yes	[CSS3-Transforms] ☞ Transformation
translateX()	yes	[CSS3-Transforms] ☞ Transformation
translateY()	yes	[CSS3-Transforms] ☞ Transformation
scale()	yes	[CSS3-Transforms] ☞ Transformation
scaleX()	yes	[CSS3-Transforms] ☞ Transformation
scaleY()	yes	[CSS3-Transforms] ☞ Transformation
rotate()	yes	[CSS3-Transforms] ☞ Transformation
skew()	yes	[CSS3-Transforms] ☞ Transformation
skewX()	yes	[CSS3-Transforms] ☞ Transformation
skewY()	yes	[CSS3-Transforms] ☞ Transformation
symbols()	partial	[CSS3-CounterStyles] Specifying `url()` is not available. no-LT **CAUTION:** The delimiter of the argument for `symbols()` is a white space. It isn't a comma. `symbols("*", "†", "‡")` is not correct, it should be `symbols("*" "†" "‡")`.
var()	partial	[CSS3-CustomProperties] Limitation: It's not supported to specify `var()` for the value of the shorthand property. V7.1

SVG Conformance

AH Formatter V7.1 conforms to W3C Scalable Vector Graphics (SVG) 1.1 and supports to display SVG images with a newly developed engine. This makes it possible to output high quality SVG images as vectors in the PDF. See also Graphics to learn how to utilize SVG.

The below table shows the implemented SVG elements. They are implemented focusing on basic drawing elements.

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

CAUTION: This conformance is not for SVG Output.

Element	Attribute	Condition	Comments
5.1 `<svg>`		yes	xmlns="http://www.w3.org/2000/svg"
	version	no	When SVG is referenced in upper XML such as FO or HTML, the following properties specified in upper XML is inherited. • font-family • font-size • font-weight • font-style
	x	yes	
	y	yes	
	width	yes	
	height	yes	
	viewBox	yes	
	preserveAspectRatio	yes	
	zoomAndPan	no	
	baseProfile	no	
	contentScriptType	no	
	contentStyleType	yes	
	class	yes	
	style	yes	
	Core Attributes		
	Conditional Processing Attributes		
	Presentation Attributes		
5.2 `<g>`		yes	
	class	yes	
	style	yes	
	transform	yes	
	Core Attributes		
	Conditional Processing Attributes		
	Presentation Attributes		
5.3 `<defs>`		yes	
	class	yes	
	style	yes	
	transform	yes	
	Core Attributes		

Element	Attribute	Condition	Comments
	Conditional Processing Attributes		
	Presentation Attributes		
5.4 `<desc>`		yes	Ignored.
	class	yes	
	style	yes	
	Core Attributes		
5.4 `<title>`		yes	Ignored.
	class	yes	
	style	yes	
	Core Attributes		
5.5 `<symbol>`		yes	
	viewBox	yes	
	preserveAspectRatio	yes	
	class	yes	
	style	yes	
	Core Attributes		
	Presentation Attributes		
5.6 `<use>`		yes	
	x	yes	
	y	yes	
	width	yes	
	height	yes	
	class	yes	
	style	yes	
	transform	yes	
	xlink:href	yes	
	Core Attributes		
	Conditional Processing Attributes		
	Presentation Attributes		
5.7 `<image>`		yes	
	x	yes	[defer] in preserveAspectRatio is ignored.
	y	yes	
	width	yes	
	height	yes	
	preserveAspectRatio	yes	
	class	yes	
	style	yes	
	transform	yes	

Element	Attribute	Condition	Comments
	xlink:href	yes	[defer] in preserveAspectRatio is ignored.
	Core Attributes		
	Conditional Processing Attributes		
	Presentation Attributes		
5.8.2 `<switch>`		partial	
	class	yes	The child element which has the requiredFeatures or the requiredExtensions attribute is ignored. The child element with the systemLanguage attribute that matches to the language of running environment, or the first element which doesn't have the systemLanguage attribute is effective. When the systemLanguage attribute matches to the xml:lang property and the language attribute in XSL-FO, it will take priority over the operating system language.
	style	yes	
	transform	yes	
	Core Attributes		
	Conditional Processing Attributes		
	Presentation Attributes		
6.10 `<style>`		yes	
	type	yes	Supports type="text/css" only.
	media	no	
	title	no	
	Core Attributes		
8.2 `<path>`		yes	
	d	yes	
	pathLength	yes	
	class	yes	
	style	yes	
	transform	yes	
	Core Attributes		
	Conditional Processing Attributes		
	Presentation Attributes		
9.2 `<rect>`		yes	
	x	yes	
	y	yes	
	width	yes	
	height	yes	
	rx	yes	
	ry	yes	
	class	yes	
	style	yes	
	transform	yes	
	Core Attributes		
	Conditional Processing Attributes		
	Presentation Attributes		

Element	Attribute	Condition	Comments
9.3 `<circle>`		yes	
	cx	yes	
	cy	yes	
	r	yes	
	class	yes	
	style	yes	
	transform	yes	
	Core Attributes		
	Conditional Processing Attributes		
	Presentation Attributes		
9.4 `<ellipse>`		yes	
	cx	yes	
	cy	yes	
	rx	yes	
	ry	yes	
	class	yes	
	style	yes	
	transform	yes	
	Core Attributes		
	Conditional Processing Attributes		
	Presentation Attributes		
9.5 `<line>`		yes	
	x1	yes	
	y1	yes	
	x2	yes	
	y2	yes	
	class	yes	
	style	yes	
	transform	yes	
	Core Attributes		
	Conditional Processing Attributes		
	Presentation Attributes		
9.6 `<polyline>`		yes	
	points	yes	
	class	yes	
	style	yes	
	transform	yes	
	Core Attributes		

Element	Attribute	Condition	Comments
	Conditional Processing Attributes		
	Presentation Attributes		
9.7 `<polygon>`		yes	
	points	yes	
	class	yes	
	style	yes	
	transform	yes	
	Core Attributes		
	Conditional Processing Attributes		
	Presentation Attributes		
10.4 `<text>`		yes	
	x	yes	
	y	yes	
	dx	yes	
	dy	yes	
	rotate	yes	
	textLength	yes	
	lengthAdjust	no	
	class	yes	
	style	yes	
	transform	yes	
	Core Attributes		
	Conditional Processing Attributes		
	Presentation Attributes		
10.5 `<tspan>`		yes	
	x	yes	
	y	yes	
	dx	yes	
	dy	yes	
	rotate	yes	
	textLength	yes	
	lengthAdjust	no	
	class	yes	
	style	yes	
	Core Attributes		
	Conditional Processing Attributes		
	Presentation Attributes		
10.6 `<tref>`		yes	

Element	Attribute	Condition	Comments
	xlink:href	yes	
	class	yes	
	style	yes	
	Core Attributes		
	Conditional Processing Attributes		
	Presentation Attributes		
10.13.2 `<textPath>`		no	
10.14 `<altGlyph>`		no	
10.14 `<altGlyphDef>`		no	
10.14 `<altGlyphItem>`		no	
10.14 `<glyphRef>`		no	
11.6.2 `<marker>`		yes	
	markerUnits	yes	
	refX	yes	
	refY	yes	
	markerWidth	yes	
	markerHeight	yes	
	orient	yes	
	viewBox	yes	
	preserveAspectRatio	yes	
	class	yes	
	style	yes	
	Core Attributes		
	Presentation Attributes		
12.3.3 `<color-profile>`		no	
13.2.2 `<linearGradient>`		yes	
	gradientUnits	yes	
	gradientTransform	yes	
	x1	yes	
	y1	yes	
	x2	yes	
	y2	yes	
	spreadMethod	yes	
	xlink:href	yes	
	class	yes	
	style	yes	
	Core Attributes		
	Presentation Attributes		

Element	Attribute	Condition	Comments
13.2.3 `<radialGradient>`		yes	
	gradientUnits	yes	
	gradientTransform	yes	
	cx	yes	
	cy	yes	
	r	yes	
	fx	yes	
	fy	yes	
	spreadMethod	yes	
	xlink:href	yes	
	class	yes	
	style	yes	
	Core Attributes		
	Presentation Attributes		
13.2.4 `<stop>`		yes	
	offset	yes	
	class	yes	
	style	yes	
	Core Attributes		
	Presentation Attributes		
13.3.3 `<pattern>`		yes	
	patternUnits	yes	
	patternContentUnits	yes	
	patternTransform	yes	
	x	yes	
	y	yes	
	width	yes	
	height	yes	
	viewBox	yes	
	preserveAspectRatio	yes	
	xlink:href	yes	
	class	yes	
	style	yes	
	Core Attributes		
	Conditional Processing Attributes		
	Presentation Attributes		
14.3.5 `<clipPath>`		yes	
	clipPathUnits	yes	

Element	Attribute	Condition	Comments
	class	yes	
	style	yes	
	transform	yes	
	Core Attributes		
	Conditional Processing Attributes		
	Presentation Attributes		
14.4 `<mask>`		no	
15.3 `<filter>`		no	
15.8.2 `<feDistantLight>`		no	
15.8.3 `<fePointLight>`		no	
15.8.4 `<feSpotLight>`		no	
15.9 `<feBlend>`		no	
15.10 `<feColorMatrix>`		no	
15.11 `<feComponentTransfer>`		no	
15.11 `<feFuncR>`		no	
15.11 `<feFuncG>`		no	
15.11 `<feFuncB>`		no	
15.11 `<feFuncA>`		no	
15.12 `<feComposite>`		no	
15.13 `<feConvolveMatrix>`		no	
15.14 `<feDiffuseLighting>`		no	
15.15 `<feDisplacementMap>`		no	
15.16 `<feFlood>`		no	
15.17 `<feGaussianBlur>`		no	
15.18 `<feImage>`		no	
15.19 `<feMerge>`		no	
15.19 `<feMergeNote>`		no	
15.20 `<feMorphology>`		no	
15.21 `<feOffset>`		no	
15.22 `<feSpecularLighting>`		no	
15.23 `<feTile>`		no	
15.24 `<feTurbulence>`		no	
16.8.3 `<cursor>`		no	
17.1 `<a>`		partial	
	target	no	For xlink:href, you can also specify a format such as `#nameddest=Chapter6` in Making Link. Hot spots are made rectangular. It does not function in GUI.
	xlink:href	yes	
	xlink:show	no	
	xlink:actuate	no	

Element	Attribute	Condition	Comments
	class	yes	For xlink:href, you can also specify a format such as `#nameddest=Chapter6` in Making Link. Hot spots are made rectangular. It does not function in GUI.
	style	yes	
	transform	yes	
	Core Attributes		
	Conditional Processing Attributes		
	Presentation Attributes		
17.3.3 `<view>`		no	
	viewBox	no	
	preserveAspectRatio	no	
	zoomAndPan	no	
	viewTarget	no	
	Core Attributes		
18.2 `<script>`		no	
19.2.10 `<animate>`		no	
19.2.11 `<set>`		no	
19.2.12 `<animateMotion>`		no	
19.2.12 `<mpath>`		no	
19.2.13 `<animateColor>`		no	
19.2.14 `<animateTransform>`		no	
20.3 `<font>`		no	
20.4 `<glyph>`		no	
20.5 `<missing-glyph>`		no	
20.7 `<hkern>`		no	
20.7 `<vkern>`		no	
20.8.3 `<font-face>`		no	
20.8.3 `<font-face-src>`		no	
20.8.3 `<font-face-uri>`		no	
20.8.3 `<font-face-format>`		no	
20.8.3 `<font-face-name>`		no	
20.8.3 `<definition-src>`		no	
21.2 `<metadata>`		no	
23.3 `<foreignObject>`		no	
Core Attributes			
	id	yes	
	xml:base	no	
	xml:lang	no	
	xml:space	yes	
Conditional Processing Attributes			

Element	Attribute	Condition	Comments
	requiredFeatures	no	
	requiredExtensions	no	
	systemLanguage	yes	
Presentation Attributes			
	writing-mode	yes	
	glyph-orientation-vertical	no	
	glyph-orientation-horizontal	no	
	direction	yes	
	unicode-bidi	yes	
	text-anchor	yes	
	dominant-baseline	no	
	alignment-baseline	no	
	baseline-shift	no	
	font-family	yes	
	font-style	yes	
	font-variant	yes	
	font-weight	yes	
	font-stretch	yes	
	font-size	yes	
	font-size-adjust	yes	
	kerning	no	
	letter-spacing	yes	
	word-spacing	yes	
	text-decoration	yes	
	fill	yes	
	fill-rule	yes	
	fill-opacity	yes	
	stroke	yes	
	stroke-width	yes	
	stroke-linecap	yes	
	stroke-linejoin	yes	
	stroke-miterlimit	yes	
	stroke-dasharray	yes	
	stroke-dashoffset	yes	
	stroke-opacity	yes	
	display	yes	
	visibility	yes	
	marker-start	yes	

Element	Attribute	Condition	Comments
	marker-end	yes	
	marker-mid	yes	
	color-interpolation	no	
	color-interpolation-filters	no	
	color-rendering	no	
	shape-rendering	no	
	text-rendering	no	
	image-rendering	no	
	color	yes	
	color-profile	no	
	stop-color	yes	
	stop-opacity	yes	
	overflow	yes	
	clip	yes	
	clip-path	yes	
	clip-rule	yes	
	opacity	yes	

Elements and attributes not listed in the above table are not supported.

SVG in gzip file format is supported.

Restrictions

- Only CSS can be described in `<style>`. Evaluates CSS2 selectors and a part of CSS3 selectors, but has the following restrictions: The same applies to external CSS.
  - @ rules (except for `@namespace`) are ignored.
  - `!important` is ignored.
  - Does not match the selector that includes pseudo elements.
  - Supports the following pseudo classes. Does not match the selector that includes the other pseudo classes.
    - `:root`
    - `:first-child`
    - `:last-child`
    - `:only-child`
    - `:first-of-type`
    - `:last-of-type`
    - `:only-of-type`
    - `:nth-child()`
    - `:nth-last-child()`
    - `:nth-of-type()`
    - `:nth-last-of-type()`
    - `:empty`
    - `:not()`
  - With the `[attr=val]` attribute selector, only the conformity of the character string is evaluated. For example, the x="1.0" attribute doesn't match the `[x="1"]` selector. The following selectors are supported.
    - `E[foo]`

        - `E[foo="bar"]`
        - `E[foo~="bar"]`
        - `E[foo^="bar"]`
        - `E[foo$="bar"]`
        - `E[foo*="bar"]`
        - `E[foo|="bar"]`
    - Functions and Variables cannot be used.
    - When there is a grammatical violation, no more issues are evaluated after that.
- To reference an external CSS, use `<?xml-stylesheet?>` and specify as follows:

```
<?xml version="1.0"?>
<?xml-stylesheet type="text/css" href="foobar.css"?>
<svg xmlns="http://www.w3.org/2000/svg">
...
```

- xlink is abolished in SVG 2.0. Therefore, it is accepted as href instead of xlink:href.
- fill, stroke, and stop-color are not supported for complex settings using multiple values. Only the first value is effective.
- Supports stop-opacity only for the PDF output.
- Strokes with complicated gradation (greater than or equal to 3 colors, repeat, reflect) are not supported.
- Transparency is not supported in PDF1.3.

MathML Conformance

AH Formatter V7.1 enables to render Mathematical Markup Language (MathML) Version 3.0 2nd Edition (PDF version) defined by W3C utilizing its originally developed engine. For that reason it's possible to render high resolution images in PDF. See also Graphics to learn how to utilize MathML. See also Option Setting File.

AH Formatter V7.1 Lite customers must purchase “AH Formatter MathML Option” to render MathML originally. For more details, see also Antenna House website.

The below table shows the implemented MathML elements and attributes.

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

CAUTION: We strongly recommend to embed fonts when generating PDF.

Presentation Markup

Element	Attribute	Condition	Comments
2.1.6	id	yes	Evaluates the following CSS properties: • font-family • font-weight • font-style • font-size • color • background-color As for id and class, external CSS settings will be reflected. The setting takes precedence over the setting by mathvariant, fontfamily, etc. that are specified within the same tag. In CSS, the CSS property specified to <math> is evaluated as a property of the image even if it's not listed above.
	class	yes	
	style	yes	
	href	yes	A hyperlink does not work.
	xref	no	
	other	no	[deprecated attribute]
2.2 <math>		yes	xmlns="http://www.w3.org/1998/Math/MathML"
	display	yes	The default value can be changed in the Option Setting File.
	maxwidth	yes	
	overflow	partial	Implements linebreak only. Except for linebreak, the automatic line breaking does not occur but the line overflows. It has been extended to accept the value of none. This does not output an error message.
	altimg	no	Ignored.
	altimg-width	no	Ignored.
	altimg-height	no	Ignored.
	altimg-valign	no	Ignored.
	alttext	yes	
	cdgroup	no	
	macros	no	[deprecated attribute]

Element	Attribute	Condition	Comments
	mode	yes	[deprecated attribute] The setting by display takes precedence.
3.1.10	mathcolor	yes	
	mathbackground	yes	
3.2.1.2 `<mglyph>`		yes	
	src	yes	Supports only to raster images, such as JPEG or PNG.
	width	yes	
	height	yes	
	valign	yes	
	alt	yes	
	fontfamily	yes	[deprecated attribute] Invalid when src is specified.
	index	yes	[deprecated attribute] Invalid when src is specified. The value of index is considered GlyphID.
3.2.2	mathvariant	partial	`initial`, `tailed`, `looped` and `stretched` are not supported.
	mathsize	yes	
	dir	yes	
	fontfamily	yes	[deprecated attribute] When mathvariant is used together, the effect is not guaranteed.
	fontweight	yes	[deprecated attribute] When mathvariant is used together, the effect is not guaranteed.
	fontstyle	yes	[deprecated attribute] When mathvariant is used together, the effect is not guaranteed.
	fontsize	yes	[deprecated attribute] When mathsize is used together, the effect is not guaranteed.
	color	yes	[deprecated attribute] When mathcolor is used together, the effect is not guaranteed.
	background	yes	[deprecated attribute] When mathbackground is used together, the effect is not guaranteed.
3.2.3 `<mi>`		yes	Although it is not written in the specification that a number, such as `<mi>3</mi>` is not made italic, the number does not become italic after the model of lots of implementations. This restriction can be adjusted in the Option Setting File.
3.2.4 `<mn>`		yes	
3.2.5 `<mo>`		yes	
	form	yes	
	lspace	yes	The default value can be changed in the Option Setting File when it's not registered to the operator dictionary.
	rspace	yes	The default value can be changed in the Option Setting File when it's not registered to the operator dictionary.
	fence	yes	
	separator	no	Ignored.
	stretchy	yes	The extension was made so that the signed length can be specified with a value like stretchy="-0.2em". Note that an unsigned length cannot be specified. Specifying a signed length also means `true`. Normally a character is stretched by keeping the original width, etc. By specifying a positive length for stretchy, the

Element	Attribute	Condition	Comments
	stretchy	yes	character is stretched to both left and right (or upwards and downwards) to the specified length. On the other hand, by specifying a negative length for stretchy, the character will be shrunk to the specified length. This length is affected by the restrictions of minsize and maxsize.
	symmetric	yes	
	maxsize	yes	
	minsize	yes	The default value can be changed in the Option Setting File.
	largeop	yes	
	movablelimits	yes	
	accent	yes	
	linebreak	yes	
	lineleading	yes	The default value is 0. The default value can be changed in the Option Setting File.
	linebreakstyle	yes	
	linebreakmultchar	yes	
	indentalign	yes	
	indentshift	yes	
	indenttarget	yes	The effect is not guaranteed when the id referenced by the attribute is behind the attribute or is in a position that does not allow for reference.
	indentalignfirst	yes	
	indentshiftfirst	yes	
	indentalignlast	yes	
	indentshiftlast	yes	
3.2.6 `<mtext>`		yes	
3.2.7 `<mspace>`		yes	mathvariant, mathcolor are invalid.
	width	yes	
	height	yes	
	depth	yes	
	linebreak	yes	indentingnewline was abolished. Although it's considered `newline`, the amount of indents can be specified in the Option Setting File. That value will be added to the value of indentshift.
	indentalign	yes	
	indentshift	yes	
	indenttarget	yes	The effect is not guaranteed when the id referenced by the attribute is behind the attribute or is in a position that does not allow for reference.
	indentalignfirst	yes	
	indentshiftfirst	yes	
	indentalignlast	yes	
	indentshiftlast	yes	
3.2.8 `<ms>`		yes	An escape character can be changed in the Option Setting File. The escape processing is not performed when lquote and rquote are empty.
	lquote	yes	

Element	Attribute	Condition	Comments
	rquote	yes	
3.3.1 `<mrow>`		yes	
	dir	yes	
3.3.2 `<mfrac>`		yes	
	linethickness	yes	
	numalign	yes	
	denomalign	yes	
	bevelled	yes	
3.3.3 `<msqrt>`		yes	
3.3.3 `<mroot>`		yes	
3.3.4 `<mstyle>`		yes	
	scriptlevel	yes	Applicable to `<math>`.
	displaystyle	yes	Applicable to `<math>`.
	scriptsizemultiplier	yes	Applicable to `<math>`. The default value can be changed in the Option Setting File.
	scriptminsize	yes	Applicable to `<math>`. The default value can be changed in the Option Setting File.
	infixlinebreakstyle	yes	Applicable to `<math>`.
	decimalpoint	yes	Applicable to `<math>`.
	any attributes	yes	Applicable to `<math>`. Accepts the following: accent accentunder align alignmentscope bevelled charalign charspacing close columnalign columnlines columnspacing columnspan columnwidth crossout denomalign depth dir edge equalcolumns equalrows fence form frame framespacing groupalign height indentalign indentalignfirst indentalignlast indentshift indentshiftfirst indentshiftlast indenttarget largeop leftoverhang length linebreak linebreakmultchar linebreakstyle lineleading linethickness location longdivstyle lquote lspace mathsize mathvariant maxsize minlabelspacing minsize movablelimits mslinethickness notation numalign open position rightoverhang rowalign rowlines rowspacing rowspan rquote rspace selection separator separators shift side stackalign stretchy subscriptshift superscriptshift symmetric valign width These are default values of the associated attributes that belong to the internal elements.
	veryverythinmathspace	yes	[deprecated attribute]
	verythinmathspace	yes	[deprecated attribute]
	thinmathspace	yes	[deprecated attribute]
	mediummathspace	yes	[deprecated attribute]
	thickmathspace	yes	[deprecated attribute]
	verythickmathspace	yes	[deprecated attribute]
	veryverythickmathspace	yes	[deprecated attribute]
	fontfamily	yes	[deprecated attribute]
	fontweight	yes	[deprecated attribute]
	fontstyle	yes	[deprecated attribute]
	fontsize	yes	[deprecated attribute]

Element	Attribute	Condition	Comments
	color	yes	[deprecated attribute]
	background	yes	[deprecated attribute]
3.3.5 `<merror>`		yes	The display style can be specified in the Option Setting File.
3.3.6 `<mpadded>`		yes	
	width	yes	
	height	yes	
	depth	yes	
	lspace	yes	
	voffset	yes	
3.3.7 `<mphantom>`		yes	
3.3.8 `<mfenced>`		yes	
	open	yes	
	close	yes	
	separators	yes	
3.3.9 `<menclose>`		yes	
	notation	partial	`*arrow` and `madruwb` are not implemented. A `circle` will be inscribed against the boundary rectangle. This can be changed so circle can be circumscribed with Option Setting File. The extension was made so that a circumscribed circle can be explicitly expressed with `circumscribed-circle` and an inscribed circle can be explicitly expressed with `inscribed-circle`.
3.4.1 `<msub>`		yes	
	subscriptshift	yes	
3.4.2 `<msup>`		yes	
	superscriptshift	yes	
3.4.3 `<msubsup>`		yes	
	subscriptshift	yes	
	superscriptshift	yes	
3.4.4 `<munder>`		yes	
	accentunder	yes	
	align	yes	
3.4.5 `<mover>`		yes	
	accent	yes	
	align	yes	
3.4.6 `<munderover>`		yes	
	accent	yes	
	accentunder	yes	
	align	yes	
3.4.7 `<mmultiscripts>`		yes	
3.4.7 `<mprescripts>`		yes	

Element	Attribute	Condition	Comments
3.4.7 `<none>`		yes	
3.5.1 `<mtable>`		yes	
	align	yes	
	rowalign	yes	
	columnalign	yes	
	groupalign	yes	
	alignmentscope	no	
	columnwidth	yes	
	width	yes	
	rowspacing	yes	The default value can be changed in the Option Setting File.
	columnspacing	yes	The default value can be changed in the Option Setting File.
	rowlines	yes	
	columnlines	yes	
	frame	yes	
	framespacing	yes	The extension was made so that three lengths of the frame spacing can be specified. The third length can be omitted, and when specified, it shows the spacing of left/right where frame="none" is specified. The default value can be changed in the Option Setting File.
	equalrows	yes	
	equalcolumns	yes	
	displaystyle	yes	
	side	partial	`leftoverlap` and `rightoverlap` are respectively considered `left` and `right`.
	minlabelspacing	yes	
3.5.2 `<mtr>`		yes	
	rowalign	yes	
	columnalign	yes	
	groupalign	yes	
3.5.3 `<mlabeledtr>`		yes	
3.5.4 `<mtd>`		yes	
	rowspan	yes	
	columnspan	yes	If a cell has columnspan greater than 1, `<maligngroup>` will be ignored.
	rowalign	yes	
	columnalign	yes	
	groupalign	yes	
3.5.5 `<maligngroup>`		yes	If `<maligngroup>` is not inside `<mtd>`, `<maligngroup>` will be ignored.
	groupalign	yes	
3.5.5 `<malignmark>`		yes	If `<malignmark>` is not inside `<mtd>`, `<malignmark>` will be ignored.
	edge	yes	

Element	Attribute	Condition	Comments
3.6.1 `<mstack>`		yes	
	align	yes	
	stackalign	yes	
	charalign	yes	
	charspacing	yes	The space corresponding to `tight`, `medium`, and `loose` can be specified in the Option Setting File. The automatic adjustment of the space is not performed.
3.6.2 `<mlongdiv>`		yes	When `<msrow>` is not contained in the divisor or the result, it is considered an error. It is also possible to apply `<mscarries>` to the divisor, the dividend, and the result.
	longdivstyle	yes	
3.6.3 `<msgroup>`		yes	
	position	yes	position is ignored with the divisor of `<mlongdiv>`. Also position is ignored with the result of `<mlongdiv>` when it is not positioned on a dividend.
	shift	yes	
3.6.4 `<msrow>`		yes	
	position	yes	position is ignored with the divisor of `<mlongdiv>`. Also position is ignored with the result of `<mlongdiv>` when it is not positioned on a dividend.
3.6.5 `<mscarries>`		yes	When `<msrow>` does not follow `<mscarries>`, it is considered an error.
	position	yes	
	location	partial	Corresponds to `n`, `ne` and `nw`. Others are considered `n`.
	crossout	yes	
	scriptsizemultiplier	yes	
3.6.6 `<mscarry>`		yes	
	location	partial	Corresponds to `n`, `ne` and `nw`. Others are considered `n`.
	crossout	yes	
3.6.7 `<msline>`		yes	
	position	yes	
	length	yes	
	leftoverhang	yes	
	rightoverhang	yes	
	mslinethickness	yes	
3.7.1 `<maction>`		yes	
	actiontype	yes	When actiontype="toggle" is specified, the element specified to selection is displayed, in other cases, only the first element is displayed.
	selection	yes	

Content Markup

It's impossible to change the appearance with reference to the external Content Dictionary dynamically. It is not necessarily displayed similarly as the illustration of MathML3 specifications.

Element	Attribute	Condition	Comments
4.2	encoding	no	

Element	Attribute	Condition	Comments
4.2	definitionURL	no	
4.2.1 `<cn>`		yes	
	type	yes	
	base	yes	
4.2.1 `<sep>`		yes	
4.2.2 `<ci>`		yes	
	type	no	Ignored.
4.2.3 `<csymbol>`		partial	
	type	no	
	cd	no	
4.2.4 `<cs>`		yes	
4.2.5 `<apply>`		yes	As for the shortage and excess of an operand corresponding to an operator, the appearance can be adjusted by enclosing the operand with parentheses and applying `<merror>`.
4.2.6 `<bind>`		yes	
4.2.6 `<bvar>`		yes	
4.2.7 `<share>`		yes	Supports to the reference only to itself, href="#id".
	src	no	
4.2.9 `<cerror>`		yes	
4.2.10 `<cbytes>`		yes	
4.3.3.1 `<domainofapplication>`		yes	
4.3.3.1 `<condition>`		yes	
4.3.3.1 `<lowlimit>`		yes	
4.3.3.1 `<uplimit>`		yes	
4.3.3.2 `<degree>`		yes	
4.3.3.3 `<momentabout>`		yes	
4.3.3.3 `<logbase>`		yes	
4.4.1.1 `<interval>`		yes	
4.4.1.2 `<inverse>`		yes	
4.4.1.3 `<lambda>`		yes	
4.4.1.4 `<compose>`		yes	
4.4.1.5 `<ident>`		yes	
4.4.1.6 `<domain>`		yes	
4.4.1.7 `<codomain>`		yes	
4.4.1.8 `<image>`		yes	
4.4.1.9 `<piecewise>`		yes	
4.4.1.9 `<piece>`		yes	
4.4.1.9 `<otherwise>`		yes	
4.4.2.1 `<quotient>`		yes	

Element	Attribute	Condition	Comments
4.4.2.2 `<factorial>`		yes	
4.4.2.3 `<divide>`		yes	
4.4.2.4 `<max>`		yes	
4.4.2.5 `<min>`		yes	
4.4.2.6 `<minus>`		yes	

4.4.2.7 `<plus>`		yes	Although there is no unary “+” in the specification, the following way of writing is allowed:
			`<apply>`
			`<plus/>`
			`<ci>x</ci>`
			`</apply>`

4.4.2.8 `<power>`		yes	
4.4.2.9 `<rem>`		yes	

4.4.2.10 `<times>`		yes	Usually, U+2062 (⁢) is used, however when a second operand is `<cn>`, U+00D7 (×) is used as follow:
			`<apply>`
			`<times/>`
			`<cn>1</cn>`
			`<cn>7</cn>`
			`</apply>`

4.4.2.11 `<root>`		yes	
4.4.2.12 `<gcd>`		yes	
4.4.2.13 `<and>`		yes	
4.4.2.14 `<or>`		yes	
4.4.2.15 `<xor>`		yes	
4.4.2.16 `<not>`		yes	
4.4.2.17 `<implies>`		yes	
4.4.2.18 `<forall>`		yes	
4.4.2.19 `<exists>`		yes	
4.4.2.20 `<abs>`		yes	
4.4.2.21 `<conjugate>`		yes	
4.4.2.22 `<arg>`		yes	
4.4.2.23 `<real>`		yes	
4.4.2.24 `<imaginary>`		yes	
4.4.2.25 `<lcm>`		yes	
4.4.2.26 `<floor>`		yes	
4.4.2.27 `<ceiling>`		yes	
4.4.3.1 `<eq>`		yes	
4.4.3.2 `<neq>`		yes	
4.4.3.3 `<gt>`		yes	
4.4.3.4 `<lt>`		yes	
4.4.3.5 `<geq>`		yes	

Element	Attribute	Condition	Comments
4.4.3.6 `<leq>`		yes	
4.4.3.7 `<equivalent>`		yes	
4.4.3.8 `<approx>`		yes	U+2248 (≈) is used as specified in MathML2 specifications or TeX, although U+2243 (≃) is used in MathML3 specifications.
4.4.3.9 `<factorof>`		yes	
4.4.4.1 `<int>`		yes	
4.4.4.2 `<diff>`		yes	
4.4.4.3 `<partialdiff>`		yes	
4.4.4.4 `<divergence>`		yes	
4.4.4.5 `<grad>`		yes	
4.4.4.6 `<curl>`		yes	
4.4.4.7 `<laplacian>`		yes	
4.4.5.1 `<set>`		yes	
	type	no	Ignored.
4.4.5.2 `<list>`		yes	
	order	no	Ignored.
4.4.5.3 `<union>`		yes	
4.4.5.4 `<intersect>`		yes	
4.4.5.5 `<in>`		yes	
4.4.5.6 `<notin>`		yes	
4.4.5.7 `<subset>`		yes	
4.4.5.8 `<prsubset>`		yes	
4.4.5.9 `<notsubset>`		yes	
4.4.5.10 `<notprsubset>`		yes	
4.4.5.11 `<setdiff>`		yes	
4.4.5.12 `<card>`		yes	
4.4.5.13 `<cartesianproduct>`		yes	
4.4.6.1 `<sum>`		yes	
4.4.6.2 `<product>`		yes	
4.4.6.3 `<limit>`		yes	
4.4.6.4 `<tendsto>`		yes	
	type	yes	
4.4.7.1 `<sin>`		yes	
4.4.7.1 `<cos>`		yes	
4.4.7.1 `<tan>`		yes	
4.4.7.1 `<sec>`		yes	
4.4.7.1 `<csc>`		yes	
4.4.7.1 `<cot>`		yes	

Element	Attribute	Condition	Comments
4.4.7.1 <sinh>		yes	
4.4.7.1 <cosh>		yes	
4.4.7.1 <tanh>		yes	
4.4.7.1 <sech>		yes	
4.4.7.1 <csch>		yes	
4.4.7.1 <coth>		yes	
4.4.7.1 <arcsin>		yes	
4.4.7.1 <arccos>		yes	
4.4.7.1 <arctan>		yes	
4.4.7.1 <arccosh>		yes	
4.4.7.1 <arccot>		yes	
4.4.7.1 <arccoth>		yes	
4.4.7.1 <arccsc>		yes	
4.4.7.1 <arccsch>		yes	
4.4.7.1 <arcsec>		yes	
4.4.7.1 <arcsech>		yes	
4.4.7.1 <arcsinh>		yes	
4.4.7.1 <arctanh>		yes	
4.4.7.2 <exp>		yes	
4.4.7.3 <ln>		yes	
4.4.7.4 <log>		yes	
4.4.8.1 <mean>		yes	
4.4.8.2 <sdev>		yes	
4.4.8.3 <variance>		yes	
4.4.8.4 <median>		yes	
4.4.8.5 <mode>		yes	
4.4.8.6 <moment>		yes	
4.4.9.1 <vector>		yes	
4.4.9.2 <matrix>		yes	
4.4.9.3 <matrixrow>		yes	
4.4.9.4 <determinant>		yes	
4.4.9.5 <transpose>		yes	
4.4.9.6 <selector>		yes	
4.4.9.7 <vectorproduct>		yes	
4.4.9.8 <scalarproduct>		yes	
4.4.9.9 <outerproduct>		yes	
4.4.10.1 <integers>		yes	
4.4.10.2 <reals>		yes	

Element	Attribute	Condition	Comments
4.4.10.3 `<rationals>`		yes	
4.4.10.4 `<naturalnumbers>`		yes	
4.4.10.5 `<complexes>`		yes	
4.4.10.6 `<primes>`		yes	
4.4.10.7 `<exponentiale>`		yes	
4.4.10.8 `<imaginaryi>`		yes	
4.4.10.9 `<notanumber>`		yes	
4.4.10.10 `<true>`		yes	
4.4.10.11 `<false>`		yes	
4.4.10.12 `<emptyset>`		yes	
4.4.10.13 `<pi>`		yes	
4.4.10.14 `<eulergamma>`		yes	
4.4.10.15 `<infinity>`		yes	
4.5.1 `<declare>`		no	[deprecated element] Ignored.
`<reln>`		yes	[deprecated element]
`<fn>`		yes	[deprecated element]

Mixing Markup

Element	Attribute	Condition	Comments
5.2.1 `<semantics>`		partial	The `<semantics>` tag itself is ignored.
5.2.2 `<annotation>`		no	Ignored.
5.2.3 `<annotation-xml>`		no	Ignored.

Operator Dictionary

What is written in the MathML 3.0 2nd Edition is implemented as is in the operator dictionary. However, the following operators are added:

Character	Glyph	Name	form	priority	lspace	rspace	Properties	Remark
U+FE37	︷	presentation form for vertical left curly bracket	postfix	880	0	0	stretchy, accent	recommend to use U+23DE
U+FE38	︸	presentation form for vertical right curly bracket	postfix	880	0	0	stretchy, accent	recommend to use U+23DF

The contents of the operator dictionary can be adjusted with the Option Setting File. There are the following restrictions:

- priority is not supported.
- separator is ignored.

The default operator dictionary which can be used with the Option Setting File is stored in OperatorDictionary.xml. **AH Formatter V7.1** does not refer to this file. It is recommended to extract and use the portion of an operator you want to change.

DTD of the operator dictionary is as follows:

```
<!ELEMENT operator-dictionary entry*>
<!ELEMENT entry EMPTY>
<!ATTLIST entry operator       CDATA #REQUIRED>
```

```
<!ATTLIST entry form           (prefix|infix|postfix) #REQUIRED>
<!ATTLIST entry priority       %integer; "0">
<!ATTLIST entry lspace         (0|1|2|3|4|5|6|7) "5">
<!ATTLIST entry rspace         (0|1|2|3|4|5|6|7) "5">
<!ATTLIST entry minsize        %length; #IMPLIED>
<!ATTLIST entry maxsize        %length: #IMPLIED>
<!ATTLIST entry accent         (false|true) "false">
<!ATTLIST entry fence          (false|true) "false">
<!ATTLIST entry separator      (false|true) "false">
<!ATTLIST entry stretchy       (false|true) "false">
<!ATTLIST entry symmetric      (false|true) "false">
<!ATTLIST entry largeop        (false|true) "false">
<!ATTLIST entry movablelimits  (false|true) "false">
<!ATTLIST entry linebreakstyle (before|after|duplicate) "before">
```

Character Substitutions

With MathML, some inputted characters will be substituted for processing. In case of **AH Formatter V7.1**, characters are substituted as below.

- The characters inside `<mi>`, `<mn>` and `<mo>` are substituted. For instance:
  1. U+0027 U+0027 U+0027 U+0027 is substituted with U+2057
  2. U+0027 U+0027 U+0027 is substituted with U+2034
  3. U+0027 U+0027 is substituted with U+2033
  4. U+0027 is substituted with U+2032
  5. U+002D is substituted with U+2212

  each.
- For the characters inside the other tags like `<mtext>`, U+002D is substituted with U+2010.

You can make the substitution invalid with Option Setting File.

Character Entity References

You can use the character entity reference defined below:

- https://www.w3.org/Math/DTD/mathml3/mathml3.dtd
- https://www.w3.org/Math/DTD/mathml3/mathml3-qname.mod
- https://www.w3.org/Math/DTD/mathml3/isobox.ent
- https://www.w3.org/Math/DTD/mathml3/isocyr1.ent
- https://www.w3.org/Math/DTD/mathml3/isocyr2.ent
- https://www.w3.org/Math/DTD/mathml3/isodia.ent
- https://www.w3.org/Math/DTD/mathml3/isolat1.ent
- https://www.w3.org/Math/DTD/mathml3/isolat2.ent
- https://www.w3.org/Math/DTD/mathml3/isonum.ent
- https://www.w3.org/Math/DTD/mathml3/isopub.ent
- https://www.w3.org/Math/DTD/mathml3/isoamsa.ent
- https://www.w3.org/Math/DTD/mathml3/isoamsb.ent
- https://www.w3.org/Math/DTD/mathml3/isoamsc.ent
- https://www.w3.org/Math/DTD/mathml3/isoamsn.ent
- https://www.w3.org/Math/DTD/mathml3/isoamso.ent
- https://www.w3.org/Math/DTD/mathml3/isoamsr.ent
- https://www.w3.org/Math/DTD/mathml3/isogrk3.ent
- https://www.w3.org/Math/DTD/mathml3/isomfrk.ent
- https://www.w3.org/Math/DTD/mathml3/isomopf.ent
- https://www.w3.org/Math/DTD/mathml3/isomscr.ent
- https://www.w3.org/Math/DTD/mathml3/isotech.ent

- https://www.w3.org/Math/DTD/mathml3/mmlextra.ent
- https://www.w3.org/Math/DTD/mathml3/mmlalias.ent

Restrictions

- The line breaking does not occur within the elements below.
  - `<mfrac>`
  - `<menclose>`
  - `<msub>`
  - `<msup>`
  - `<msubsup>`
  - `<munder>`
  - `<mover>`
  - `<munderover>`
  - `<mmultiscripts>`
  - `<msqrt>`
  - `<mroot>`
  - `<mstack>`
  - `<mlongdiv>`
- The automatic line breaking does not occur within the elements below.
  - `<mtable>`
- Complicated scripts, such as Arabic, are not supported.
- When dir="rtl" is specified, although horizontal reverse processing of a region is performed, a root sign or Σ, etc. will not be mirrored.
- Many of `<csymbol>` are not implemented.
- Many of `<bvar>` includes unknown implementation method.

CGM Conformance

AH Formatter V7.1 conforms to ISO/IEC 8632:1999 CGM and W3C WebCGM 2.1 and supports to display CGM images with a newly developed engine. This makes it possible to output high quality CGM images as vectors in the CGM. See also Graphics to learn how to utilize CGM.

Customers must purchase “AH Formatter CGM Option” to render CGM originally. For more details, see also Antenna House website.

The below table shows the implemented CGM elements.

- [yes] in the list means that the element is implemented.
- [partial] means that the element is partially implemented.
- [no] means not implemented.

The ISO8632 and WebCGM columns show the conformance status of the associated element.

- [R] means that the element is essential.
- [Y] means that the element is permitted.
- [N] means that the element should not be implemented.

Class-ID	Element	Condition	Comments / Attributes	ISO8632		WebCGM
0-0	NOP	yes		v1	Y	Y
0-1	BEGIN METAFILE	yes	When multiple BEGIN METAFILE elements are included, only the first one is effective.	v1	R	R
0-2	END METAFILE	yes	If the element exists after END METAFILE, it is ignored.	v1	R	R
0-3	BEGIN PICTURE	yes	With WebCGM, only one from BEGIN PICTURE to END PICTURE can be included in the metafile.	v1	Y	R
0-4	BEGIN PICTURE BODY	yes		v1	Y	R
0-5	END PICTURE	yes		v1	Y	R
0-6	BEGIN SEGMENT	no		v2	Y	N
0-7	END SEGMENT	no		v2	Y	N
0-8	BEGIN FIGURE	yes		v2	Y	Y
0-9	END FIGURE	yes		v2	Y	Y
0-13	BEGIN PROTECTION REGION	yes		v3	Y	Y
0-14	END PROTECTION REGION	yes		v3	Y	Y
0-15	BEGIN COMPOUND LINE	yes		v3	Y	Y
0-16	END COMPOUND LINE	yes		v3	Y	Y
0-17	BEGIN COMPOUND TEXT PATH	no		v3	Y	Y
0-18	END COMPOUND TEXT PATH	no		v3	Y	Y
0-19	BEGIN TILE ARRAY	partial	cell path direction, line progression direction are ignored.	v3	Y	Y
0-20	END TILE ARRAY	yes		v3	Y	Y

Class-ID	Element	Condition	Comments / Attributes	ISO8632		WebCGM
0-21	BEGIN APPLICATION STRUCTURE	partial	In WebCGM, the following types are defined. When these types have structural violation or the types are outside the defined one, a warning message will be shown. • layer • grobject • para • subpara • grnode The semantic interpretation of the type is not performed. The content is evaluated as is. inheritance flag is ignored and considered statelist. In WebCGM, it is assumed to control APPLICATION STRUCTURE dynamically using ECMAScript from HTML. **AH Formatter V7.1** doesn't handle such behavior. See also WebCGM Intelligent Content and WebCGM XML Companion File.	v4	Y	Y
0-22	BEGIN APPLICATION STRUCTURE BODY	yes		v4	Y	Y
0-23	END APPLICATION STRUCTURE	yes		v4	Y	Y
1-1	METAFILE VERSION	yes	The version information isn't used.	v1	R	R
1-2	METAFILE DESCRIPTION	yes	Behaves as WebCGM when “ProfileId:WebCGM” is specified. However, the setting contents of METAFILE DESCRIPTION swing widely, whether it is WebCGM may not be judged correctly. It's possible to enforce WebCGM by specifying WebCGM with content-type explicitly as follows: `<fo:external-graphic src= "sample.cgm" content-type= "image/cgm;ProfileId=WebCGM"/>` See also WebCGM Intelligent Content.	v1	R	R
1-3	VDC TYPE	yes		v1	Y	Y
1-4	INTEGER PRECISION	yes		v1	Y	Y
1-5	REAL PRECISION	yes		v1	Y	Y
1-6	INDEX PRECISION	yes		v1	Y	Y
1-7	COLOUR PRECISION	yes		v1	Y	Y
1-8	COLOUR INDEX PRECISION	yes		v1	Y	Y
1-9	MAXIMUM COLOUR INDEX	yes		v1	Y	Y
1-10	COLOUR VALUE EXTENT	yes		v1	Y	Y
1-11	METAFILE ELEMENT LIST	partial	Ignored.	v1	Y	Y
1-12	METAFILE DEFAULTS REPLACEMENT	yes		v1	Y	Y

Class-ID	Element	Condition	Comments / Attributes	ISO8632		WebCGM
1-13	FONT LIST	yes		v1	Y	Y
1-14	CHARACTER SET LIST	partial	Ignored.	v1	Y	Y
1-15	CHARACTER CODING ANNOUNCER	partial	Ignored.	v1	Y	R
1-16	NAME PRECISION	yes		v2	Y	N
1-17	MAXIMUM VDC EXTENT	partial	Ignored.	v2	Y	Y
1-18	SEGMENT PRIORITY EXTENT	no		v2	Y	N
1-19	COLOUR MODEL	partial	Supported only for RGB.	v3	Y	Y
1-20	COLOUR CALIBRATION	no		v3	Y	N
1-21	FONT PROPERTIES	partial	Only the attributes listed below are evaluated. 1. font index 4. font family 5. posture 6. weight 7. proportionate width	v3	Y	Y
1-22	GLYPH MAPPING	no		v3	Y	N
1-23	SYMBOL LIBRARY LIST	no		v3	N	N
1-24	PICTURE DIRECTORY	no		v4	Y	N
2-1	SCALING MODE	yes		v1	Y	R
2-2	COLOUR SELECTION MODE	yes		v1	Y	Y
2-3	LINE WIDTH SPECIFICATION MODE	yes		v1	Y	Y
2-4	MARKER SIZE SPECIFICATION MODE	yes		v1	Y	Y
2-5	EDGE WIDTH SPECIFICATION MODE	yes		v1	Y	Y
2-6	VDC EXTENT	yes		v1	Y	Y
2-7	BACKGROUND COLOUR	yes		v1	Y	Y
2-8	DEVICE VIEWPORT	no		v2	N	N
2-9	DEVICE VIEWPORT SPECIFICATION MODE	no		v2	N	N
2-10	DEVICE VIEWPORT MAPPING	no		v2	N	N
2-11	LINE REPRESENTATION	yes		v2	Y	N
2-12	MARKER REPRESENTATION	yes		v2	Y	N
2-13	TEXT REPRESENTATION	yes		v2	Y	N
2-14	FILL REPRESENTATION	yes		v2	Y	N
2-15	EDGE REPRESENTATION	yes		v2	Y	N

Class-ID	Element	Condition	Comments / Attributes	ISO8632		WebCGM
2-16	INTERIOR STYLE SPECIFICATION MODE	yes		v3	Y	Y
2-17	LINE AND EDGE TYPE DEFINITION	yes		v3	Y	Y
2-18	HATCH STYLE DEFINITION	yes		v3	Y	Y
2-19	GEOMETRIC PATTERN DEFINITION	no		v3	Y	N
2-20	APPLICATION STRUCTURE DIRECTORY	no		v4	Y	N
3-1	VDC INTEGER PRECISION	yes		v1	Y	Y
3-2	VDC REAL PRECISION	yes		v1	Y	Y
3-3	AUXILIARY COLOUR	yes		v1	Y	Y
3-4	TRANSPARENCY	partial	Reflected on hatch and non-solid line.	v1	Y	Y
3-5	CLIP RECTANGLE	yes		v1	Y	Y
3-6	CLIP INDICATOR	yes		v1	Y	Y
3-7	LINE CLIPPING MODE	partial	Supported only for shape.	v2	Y	N
3-8	MARKER CLIPPING MODE	partial	Supported only for shape.	v2	Y	N
3-9	EDGE CLIPPING MODE	partial	Supported only for shape.	v2	Y	N
3-10	NEW REGION	yes		v2	Y	Y
3-11	SAVE PRIMITIVE CONTEXT	no		v2	Y	N
3-12	RESTORE PRIMITIVE CONTEXT	no		v2	Y	N
3-17	PROTECTION REGION INDICATOR	yes	When multiple REGION are made effective, adopts REGION that is newly made effective, without adopting the total of these regions as REGION.	v2	Y	Y
3-18	GENERALIZED TEXT PATH MODE	no		v3	Y	Y
3-19	MITRE LIMIT	yes		v3	Y	Y
3-20	TRANSPARENT CELL COLOUR	partial	Reflected when the compression types are the following: 0. null background 1. null foreground 2. T6 3. T4 1-dimensional 4. T4 2-dimensional 5. bitmap 6. run length	v3	Y	Y
4-1	POLYLINE	yes		v1	Y	Y
4-2	DISJOINT POLYLINE	yes		v1	Y	Y

Class-ID	Element	Condition	Comments / Attributes	ISO8632		WebCGM
4-3	POLYMARKER	yes		v1	Y	Y
4-4	TEXT	yes		v1	Y	N
4-5	RESTRICTED TEXT	yes		v1	Y	Y
4-6	APPEND TEXT	yes		v1	Y	Y
4-7	POLYGON	yes		v1	Y	Y
4-8	POLYGON SET	yes		v1	Y	Y
4-9	CELL ARRAY	yes		v1	Y	Y
4-10	GENERALIZED DRAWING PRIMITIVE	no		v1	N	N
4-11	RECTANGLE	yes		v1	Y	Y
4-12	CIRCLE	yes		v1	Y	Y
4-13	CIRCULAR ARC 3 POINT	yes		v1	Y	Y
4-14	CIRCULAR ARC 3 POINT CLOSE	yes		v1	Y	Y
4-15	CIRCULAR ARC CENTRE	yes		v1	Y	Y
4-16	CIRCULAR ARC CENTRE CLOSE	yes		v1	Y	Y
4-17	ELLIPSE	yes		v1	Y	Y
4-18	ELLIPTICAL ARC	yes		v1	Y	Y
4-19	ELLIPTICAL ARC CLOSE	yes		v1	Y	Y
4-20	CIRCULAR ARC CENTRE REVERSED	yes		v2	Y	Y
4-21	CONNECTING EDGE	yes		v2	Y	Y
4-22	HYPERBOLIC ARC	yes	Approximated curve is drawn.	v3	Y	N
4-23	PARABOLIC ARC	yes		v3	Y	N
4-24	NON-UNIFORM B-SPLINE	yes	Drawn by transforming to non-rational cubic Bézier curves.	v3	Y	Y
4-25	NON-UNIFORM RATIONAL B-SPLINE	yes	Drawn by transforming to non-rational cubic Bézier curves.	v3	Y	Y
4-26	POLYBEZIER	yes		v3	Y	Y
4-27	POLYSYMBOL	no		v3	N	N
4-28	BITONAL TILE	partial	The following compression types are supported. 0. null background 1. null foreground 2. T6 3. T4 1-dimensional 4. T4 2-dimensional 5. bitmap 6. run length 7. baseline jpeg 9. png	v3	Y	Y
4-29	TILE	partial		v3	Y	Y

Class-ID	Element	Condition	Comments / Attributes	ISO8632		WebCGM
5-1	LINE BUNDLE INDEX	yes		v1	Y	N
5-2	LINE TYPE	yes	LINE TYPE=1 to 14 are supported. LINE TYPE=6, 7, 8, 14 are adopted only with POLY LINE. When LINE TYPE=6, 8, and the length of the arrowhead is less than the length of the segment or the width of the arrowhead is less than the width of a line, an arrowhead isn't drawn. When LINE TYPE=7 and a circular diameter is less than the length of the segment or the width of a line, a circle isn't drawn.	v1	Y	Y
5-3	LINE WIDTH	yes		v1	Y	Y
5-4	LINE COLOUR	yes		v1	Y	Y
5-5	MARKER BUNDLE INDEX	yes		v1	Y	N
5-6	MARKER TYPE	yes		v1	Y	Y
5-7	MARKER SIZE	yes		v1	Y	Y
5-8	MARKER COLOUR	yes		v1	Y	Y
5-9	TEXT BUNDLE INDEX	yes		v1	Y	N
5-10	TEXT FONT INDEX	yes		v1	Y	Y
5-11	TEXT PRECISION	partial	Ignored.	v1	Y	Y
5-12	CHARACTER EXPANSION FACTOR	yes		v1	Y	Y
5-13	CHARACTER SPACING	yes		v1	Y	Y
5-14	TEXT COLOUR	yes		v1	Y	Y
5-15	CHARACTER HEIGHT	yes		v1	Y	Y
5-16	CHARACTER ORIENTATION	yes		v1	Y	Y
5-17	TEXT PATH	yes		v1	Y	Y
5-18	TEXT ALIGNMENT	yes		v1	Y	Y
5-19	CHARACTER SET INDEX	partial	Ignored.	v1	Y	Y
5-20	ALTERNATE CHARACTER SET INDEX	partial	Ignored.	v1	Y	Y
5-21	FILL BUNDLE INDEX	yes		v1	Y	N
5-22	INTERIOR STYLE	partial	geometric pattern is not supported.	v1	Y	Y
5-23	FILL COLOUR	yes		v1	Y	Y
5-24	HATCH INDEX	yes		v1	Y	Y
5-25	PATTERN INDEX	yes		v1	Y	Y
5-26	EDGE BUNDLE INDEX	yes		v1	Y	N
5-27	EDGE TYPE	yes		v1	Y	Y
5-28	EDGE WIDTH	yes		v1	Y	Y
5-29	EDGE COLOUR	yes		v1	Y	Y
5-30	EDGE VISIBILITY	yes		v1	Y	Y
5-31	FILL REFERENCE POINT	yes		v1	Y	Y

Class-ID	Element	Condition	Comments / Attributes	ISO8632		WebCGM
5-32	PATTERN TABLE	yes		v1	Y	Y
5-33	PATTERN SIZE	yes		v1	Y	Y
5-34	COLOUR TABLE	yes		v1	Y	Y
5-35	ASPECT SOURCE FLAGS	yes		v1	Y	N
5-36	PICK IDENTIFIER	no		v2	Y	N
5-37	LINE CAP	partial	triangle is not supported.	v3	Y	Y
5-38	LINE JOIN	yes		v3	Y	Y
5-39	LINE TYPE CONTINUATION	partial	Ignored.	v3	Y	Y
5-40	LINE TYPE INITIAL OFFSET	yes		v3	Y	Y
5-41	TEXT SCORE TYPE	no		v3	Y	Y
5-42	RESTRICTED TEXT TYPE	yes		v3	Y	Y
5-43	INTERPOLATED INTERIOR	partial	triangular is not supported.	v3	Y	Y
5-44	EDGE CAP	partial	triangle is not supported.	v3	Y	Y
5-45	EDGE JOIN	yes		v3	Y	Y
5-46	EDGE TYPE CONTINUATION	partial	Ignored.	v3	Y	Y
5-47	EDGE TYPE INITIAL OFFSET	yes		v3	Y	Y
5-48	SYMBOL LIBRARY INDEX	no		v3	N	N
5-49	SYMBOL COLOUR	no		v3	N	N
5-50	SYMBOL SIZE	no		v3	N	N
5-51	SYMBOL ORIENTATION	no		v3	N	N
6-1	ESCAPE	partial	The following functions are supported. The other functions of ESCAPE element are ignored. 22. Transparent Cell Colour 45. Alpha Transparency	v1	Y	Y
7-1	MESSAGE	yes	A message with the error level 1 is outputted.	v1	Y	N
7-2	APPLICATION DATA	no		v1	Y	N
8-1	COPY SEGMENT	no		v2	Y	N
8-2	INHERITANCE FILTER	no		v2	Y	N
8-3	CLIP INHERITANCE	no		v2	Y	N
8-4	SEGMENT TRANSFORMATION	no		v2	Y	N
8-5	SEGMENT HIGHLIGHTING	no		v2	Y	N
8-6	SEGMENT DISPLAY PRIORITY	no		v2	Y	N

Class-ID	Element	Condition	Comments / Attributes	ISO8632		WebCGM
8-7	SEGMENT PICK PRIORITY	no		v2	Y	N
9-1	APPLICATION STRUCTURE ATTRIBUTE	partial	In WebCGM, the following attributes are defined: • region • viewcontext • linkuri • layername • layerdesc • screentip • name • content • visibility • interactivity These settings are evaluated, but these are not always used. When visibility is off, its APPLICATION STRUCTURE is not shown.	v4	Y	Y

WebCGM Intelligent Content

The feature of controlling the drawing using a URI fragment is partially supported. For example, specify as follows in FO.

```
<fo:external-graphic src="sample.cgm#name(targetName,newHighlight)"/>
```

See also WebCGM Intelligent Content to learn more about the fragment grammar. **AH Formatter V7.1** does not support `behavior`. This is ignored.

When specifying content-type, the parameter can be given as follows:

```
<fo:external-graphic src="sample.cgm" content-type="image/cgm;Version=4;ProfileId=WebCGM"/>
```

The evaluated parameters available are `Version` and `ProfileId`. These are adopted in preference to the information in METAFILE VERSION, METAFILE DESCRIPTION in the metadata for each.

See also BEGIN APPLICATION STRUCTURE, APPLICATION STRUCTURE ATTRIBUTE to learn more about Application Structure (APS).

WebCGM XML Companion File

Supports WebCGM XML Companion File (XCF) partially. XCF can be specified in FO using the fragment as follows:

```
<fo:external-graphic src="sample.cgm#xcf(sample.xcf)"/>
```

It's also available to specify XCF directly as a child element of `<fo:external-graphic>`.

```
<fo:external-graphic src="sample.cgm">
 <webcgm xmlns="http://www.cgmopen.org/schema/webcgm/">
  <bindByName apstargetname="hidden-aps" visibility="off"/>
 </webcgm>
</fo:external-graphic>
```

AH Formatter V7.1 supports the following:

	<wegcgm>	<layer>	<grobj>	<para>	<subpara>	<bindById>	<bindByName>	Comments
id	no							
version	no							
filename	no							

	<wegcgm>	<layer>	<grobj>	<para>	<subpara>	<bindById>	<bindByName>	Comments
background-color	yes							
pictureVisibility	yes							
intensity	yes	yes	yes	yes	yes	yes	yes	
raster-intensity	yes	yes	yes	yes	yes	yes	yes	
text-size	yes	yes	yes	yes	yes	yes	yes	☞ note 1
text-color	yes	yes	yes	yes	yes	yes	yes	
text-font	yes	yes	yes	yes	yes	yes	yes	
fill-color	yes	yes	yes	yes	yes	yes	yes	
fill-offset	yes	yes	yes	yes	yes	yes	yes	
stroke-color	yes	yes	yes	yes	yes	yes	yes	
stroke-weight	yes	yes	yes	yes	yes	yes	yes	
stroke-type	yes	yes	yes	yes	yes	yes	yes	
stroke-offset	yes	yes	yes	yes	yes	yes	yes	
edge-visibility	yes	yes	yes	yes	yes	yes	yes	
interior-style	yes	yes	yes	yes	yes	yes	yes	
hatch-index	yes	yes	yes	yes	yes	yes	yes	
pattern-index	yes	yes	yes	yes	yes	yes	yes	
apsid		yes	yes	yes	yes	yes		☞ note 2
apstargetname							yes	☞ note 3
screentip			no	no	no	no	no	
region			no	no	no	no	no	
viewcontext			yes	yes	yes	yes	yes	
layerdesc						no	no	
visibility		yes	yes	yes	yes	yes	yes	
interactivity		no	no	no	no	no	no	
<linkuri>			no	no	no	no	no	

note 1:
Even with RESTRICTED TEXT, text-size is adopted and variabe zooming according to the specified region is not performed.
note 2:
apsid specifies the application structure identifier of BEGIN APPLICATION STRUCTURE.
note 3:
apstargetname specifies the value of the name attribute or the layername attribute of APPLICATION STRUCTURE ATTRIBUTE.

Application Configurable Items

In the CGM specification, the default value of the attribute is sometimes not defined. Application Configurable Items (ACI) in the WebCGM specification specifies such defaults and controls the behavior of CGM. The default value can also be specified in the Option Setting File as well. These are evaluated by the following order.

1. ACI file specified by the environment variable, WebCGM_ACI_File.
2. ACI file specified by aci in the Option Setting File.
3. Contents other than aci in the Option Setting File.

4. ACI file that has the `.aci` extension and the file name is the same as CGM file in the directory when CGM is a file.

XSL/CSS Properties

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
axf:abbreviation-character-count	-ah-abbreviation-character-count	Specifies the maximum number of characters considered an abbreviation.
7.6.1 absolute-position	[CSS2.1] position	
axf:action-type	-ah-action-type	Specifies the action of External Link or Form Actions.
axf:additive-symbols	[CSS3-CounterStyle] (-ah-)additive-symbols	☞ `<axf:counter-style>`
7.14.1 alignment-adjust	[CSS2.1] vertical-align [CSS3-Line] (-ah-)alignment-adjust	
7.14.2 alignment-baseline	[CSS2.1] vertical-align [CSS3-Line] (-ah-)alignment-baseline	
7.15.1 allowed-height-scale	-ah-allowed-height-scale	
7.15.2 allowed-width-scale	-ah-allowed-width-scale	
axf:alttext	-ah-alttext [HTML] alt	Specifies the alternate text of an image or link. no-LT
axf:analyze-end-blank-page	-ah-analyze-end-blank-page	Specifies whether to perform end-blank-page analyzer checks on the current FO and its descendants. V7.1 no-LT
axf:analyze-hyphen	-ah-analyze-hyphen	Specifies whether to perform hyphen analyzer checks on the current FO and its descendants. V7.1 no-LT
axf:analyze-line-end-repeat	-ah-analyze-line-end-repeat	Specifies whether to perform line-end-repeat analyzer checks on the current FO and its descendants. V7.1 no-LT
axf:analyze-line-start-repeat	-ah-analyze-line-start-repeat	Specifies whether to perform line-start-repeat analyzer checks on the current FO and its descendants. V7.1 no-LT
axf:analyze-lines-after	-ah-analyze-lines-after	Specifies whether to analyze the number of lines after the last area generated by this FO. V7.1 no-LT
axf:analyze-lines-before	-ah-analyze-lines-before	Specifies whether to analyze the number of lines before the first area generated by this FO. V7.1 no-LT
axf:analyze-page-widow	-ah-analyze-page-widow	Specifies whether to perform page widow analyzer checks on the current FO and its descendants. V7.1 no-LT
axf:analyze-paragraph-widow	-ah-analyze-paragraph-widow	Specifies whether to perform paragraph widow analyzer checks on the current FO and its descendants. V7.1 no-LT
axf:analyze-river	-ah-analyze-river	Specifies whether to perform river analyzer checks on the current FO and its descendants. V7.1 no-LT
axf:analyze-unbalanced-spread	-ah-analyze-unbalanced-spread	Specifies whether to perform unbalanced-spread analyzer checks on the current FO and its descendants. V7.1 no-LT

XSL	CSS	Description
axf:analyze-white-space	-ah-analyze-white-space	Specifies whether to perform white-space analyzer checks on the current FO and its descendants. V7.1 no-LT
axf:annotation-author	-ah-annotation-author	Specifies the author of the annotation. no-LT
axf:annotation-border-color	-ah-annotation-border-color	Specifies the border color of the free text annotation. no-LT
axf:annotation-border-style	-ah-annotation-border-style	Specifies the border style of the free text annotation. no-LT
axf:annotation-border-width	-ah-annotation-border-width	Specifies the border width of the free text annotation. no-LT
axf:annotation-color	-ah-annotation-color	Specifies the color used for the background of the annotation. no-LT
axf:annotation-contents	-ah-annotation-contents	Specifies the content of the annotation. no-LT
axf:annotation-createdate	-ah-annotation-createdate	Specifies the annotation creation date. V7.1 no-LT
axf:annotation-file-attachment	-ah-annotation-file-attachment	Specifies the file with which file attachment annotation is related. no-LT
axf:annotation-flags	-ah-annotation-flags	Specifies the flag of the annotation. no-LT
axf:annotation-font-family	-ah-annotation-font-family	Specifies the font family of the free text annotation. no-LT
axf:annotation-font-size	-ah-annotation-font-size	Specifies the font size of the free text annotation. no-LT
axf:annotation-font-style	-ah-annotation-font-style	Specifies whether to make the font of the free text annotation italic. no-LT
axf:annotation-font-weight	-ah-annotation-font-weight	Specifies the font weight of the free text annotation. no-LT
axf:annotation-height	-ah-annotation-height	Specifies the height of the annotation. no-LT
axf:annotation-icon-name	-ah-annotation-icon-name	Specifies the name of the icon used for displaying the annotation. no-LT
axf:annotation-modifydate	-ah-annotation-modifydate	Specifies the annotation modification date. V7.1 no-LT
axf:annotation-open	-ah-annotation-open	Specifies the initial state of the annotation. no-LT
axf:annotation-position-horizontal	-ah-annotation-position-horizontal	Specifies the horizontal position of the annotation. no-LT
axf:annotation-position-vertical	-ah-annotation-position-vertical	Specifies the vertical position of the annotation. no-LT
axf:annotation-text-align	-ah-annotation-text-align	Specifies the alignment of the free text annotation. no-LT
axf:annotation-text-color	-ah-annotation-text-color	Specifies the color of the free text annotation. no-LT
axf:annotation-title	-ah-annotation-title	Specifies the title of the annotation. no-LT
axf:annotation-type	-ah-annotation-type	Specifies the type of the annotation. no-LT
axf:annotation-width	-ah-annotation-width	Specifies the width of the annotation. no-LT
axf:append-non-end-of-line-characters	-ah-append-non-end-of-line-characters	Specifies the non-end-of-line-characters to append.
axf:append-non-starter-characters	-ah-append-non-starter-characters	Specifies the non-starter-characters to append.
axf:assumed-page-number	-ah-assumed-page-number	Specifies the assumed page number.
axf:auto-letter-spacing	-ah-auto-letter-spacing	Changes letter-spacing depending on the number of characters. no-LT
axf:avoid-widow-words	-ah-avoid-widow-words	Specifies spacing behavior between words or characters so that the last line of the paragraph does not have only one word left (one character for CJK).

XSL	CSS	Description
axf:avoid-widow-words-cjk-punctuation	-ah-avoid-widow-words-cjk-punctuation	Specifies whether to include the last punctuation mark and count them in one character when axf:avoid-widow-word="true" is specified in CJK. V7.1
7.31.1 background background	[CSS2.1] background [CSS3-Background] (-ah-)background	
7.8.1 background-attachment background-attachment	[CSS2.1] background-attachment [CSS3-Background] (-ah-)background-attachment	
axf:background-clip	[CSS3-Background] (-ah-)background-clip	
7.8.2 background-color background-color	[CSS2.1] background-color	
axf:background-content-type	-ah-background-content-type	Specifies the content type of a background image.
7.8.3 background-image background-image	[CSS2.1] background-image [CSS3-Background] (-ah-)background-image	
axf:background-image-resolution	-ah-background-image-resolution	Specifies the resolution of a background image.
axf:background-origin	[CSS3-Background] (-ah-)background-origin	
7.31.2 background-position background-position	[CSS2.1] background-position [CSS3-Background] (-ah-)background-position	
7.8.5 background-position-horizontal background-position-horizontal	[CSS2.1] background-position	
7.8.6 background-position-vertical background-position-vertical	[CSS2.1] background-position	
7.8.4 background-repeat background-repeat	[CSS2.1] background-repeat [CSS3-Background] (-ah-)background-repeat	
axf:background-size	[CSS3-Background] (-ah-)background-size	
axf:balanced-text-align	-ah-balanced-text-align	Specifies whether to balance the entire block including the last line. no-LT
axf:base-uri	-ah-base-uri [XML] xml:base	Specifies the location which becomes the base of relative URI.
axf:baseline-block-snap	-ah-baseline-block-snap	Specifies how to align blocks on the baseline grid. no-LT
axf:baseline-grid	-ah-baseline-grid	Sets or clears the baseline grid. no-LT
7.14.3 baseline-shift	[CSS2.1] vertical-align [CSS3-Line] (-ah-)baseline-shift	
7.27.1 blank-or-not-blank		
axf:bleed	[CSS3-GCPM] (-ah-)bleed	Specifies the width of the bleed area for cutting off. no-LT

XSL	CSS	Description
axf:bleed-bottom	-ah-bleed-bottom	Specifies the width of the bleed area on the bottom for cutting off. no-LT
axf:bleed-left	-ah-bleed-left	Specifies the width of the bleed area on the left for cutting off. no-LT
axf:bleed-right	-ah-bleed-right	Specifies the width of the bleed area on the right for cutting off. no-LT
axf:bleed-top	-ah-bleed-top	Specifies the width of the bleed area on the top for cutting off. no-LT
7.15.3 block-progression-dimension	-ah-logical-height	Specifies the block progression dimension.
axf:bookmark-include		Specifies how to include bookmarks in multi separate volume. no-LT
	[CSS3-GCPM] (-ah-)bookmark-label	
	[CSS3-GCPM] (-ah-)bookmark-level	
	[CSS3-GCPM] (-ah-)bookmark-state	
7.31.3 border	[CSS2.1] border	
	-ah-border-after	Specifies the border of the after side.
7.8.10 border-after-color	-ah-border-after-color	Specifies the border color of the after side.
7.28.1 border-after-precedence		
7.8.11 border-after-style	-ah-border-after-style	Specifies the border style of the after side.
7.8.12 border-after-width	-ah-border-after-width	Specifies the border width of the after side.
	-ah-border-before	Specifies the border of the before side.
7.8.7 border-before-color	-ah-border-before-color	Specifies the border color of the before side.
7.28.2 border-before-precedence		
7.8.8 border-before-style	-ah-border-before-style	Specifies the border style of the before side.
7.8.9 border-before-width	-ah-border-before-width	Specifies the border width of the before side.
7.31.4 border-bottom	[CSS2.1] border-bottom	
7.8.22 border-bottom-color	[CSS2.1] border-bottom-color	
axf:border-bottom-left-radius	[CSS3-Background] (-ah-)border-bottom-left-radius	Specifies the radius of the bottom left rounded corners.
axf:border-bottom-right-radius	[CSS3-Background] (-ah-)border-bottom-right-radius	Specifies the radius of the bottom right rounded corners.
7.8.23 border-bottom-style	[CSS2.1] border-bottom-style	
7.8.24 border-bottom-width	[CSS2.1] border-bottom-width	
7.28.3 border-collapse	[CSS2.1] border-collapse	
7.31.5 border-color	[CSS2.1] border-color	
axf:border-double-thickness	-ah-border-double-thickness	Specifies the line thickness of border-style="double".
	-ah-border-end	Specifies the border of the end side.

XSL	CSS	Description
7.8.16 border-end-color	-ah-border-end-color	Specifies the border color of the end side.
7.28.4 border-end-precedence		
7.8.17 border-end-style	-ah-border-end-style	Specifies the border style of the end side.
7.8.18 border-end-width	-ah-border-end-width	Specifies the border width of the end side.
7.31.6 border-left	[CSS2.1] border-left	
7.8.25 border-left-color	[CSS2.1] border-left-color	
7.8.26 border-left-style	[CSS2.1] border-left-style	
7.8.27 border-left-width	[CSS2.1] border-left-width	
	[CSS3-GCPM] (-ah-)border-length	
axf:border-radius	[CSS3-Background] (-ah-)border-radius	Specifies the radii of the rounded corners.
7.31.7 border-right	[CSS2.1] border-right	
7.8.28 border-right-color	[CSS2.1] border-right-color	
7.8.29 border-right-style	[CSS2.1] border-right-style	
7.8.30 border-right-width	[CSS2.1] border-right-width	
7.28.5 border-separation		
7.31.9 border-spacing	[CSS2.1] border-spacing	
	-ah-border-start	Specifies the border of the start side.
7.8.13 border-start-color	-ah-border-start-color	Specifies the border color of the start side.
7.28.6 border-start-precedence		
7.8.14 border-start-style	-ah-border-start-style	Specifies the border style of the start side.
7.8.15 border-start-width	-ah-border-start-width	Specifies the border width of the start side.
7.31.8 border-style	[CSS2.1] border-style	
7.31.10 border-top	[CSS2.1] border-top	
7.8.19 border-top-color	[CSS2.1] border-top-color	
axf:border-top-left-radius	[CSS3-Background] (-ah-)border-top-left-radius	Specifies the radius of the top left rounded corners.
axf:border-top-right-radius	[CSS3-Background] (-ah-)border-top-right-radius	Specifies the radius of the top right rounded corners.
7.8.20 border-top-style	[CSS2.1] border-top-style	
7.8.21 border-top-width	[CSS2.1] border-top-width	
axf:border-wave-form	-ah-border-wave-form	Specifies the wave form of border-style="wave".
7.31.11 border-width	[CSS2.1] border-width	
7.6.4 bottom	[CSS2.1] bottom	
	[CSS3-Break] (-ah-)box-decoration-break	
axf:box-shadow	[CSS3-Background] (-ah-)box-shadow	Specifies the box shadow.
	[CSS3-UI] (-ah-)box-sizing	

XSL	CSS	Description
7.20.1 break-after	[CSS3-Multicol] (-ah-)break-after	
7.20.2 break-before	[CSS3-Multicol] (-ah-)break-before	
7.28.7 caption-side	[CSS2.1] caption-side	
7.30.1 change-bar-class	[CSS3-GCPM] (-ah-)change-bar-class	
7.30.2 change-bar-color	[CSS3-GCPM] (-ah-)change-bar-color	
7.30.3 change-bar-offset	[CSS3-GCPM] (-ah-)change-bar-offset	
7.30.4 change-bar-placement	[CSS3-GCPM] (-ah-)change-bar-side	
7.30.5 change-bar-style	[CSS3-GCPM] (-ah-)change-bar-style	
7.30.6 change-bar-width	[CSS3-GCPM] (-ah-)change-bar-width	
7.17.1 character		
7.19.1 clear	[CSS2.1] clear	
7.21.1 clip	[CSS2.1] clip	
7.18.1 color	[CSS2.1] color	
7.18.2 color-profile-name		
7.27.2 column-count column-count	[CSS3-Multicol] (-ah-)column-count	
axf:column-fill	[CSS3-Multicol] (-ah-)column-fill	Specifies whether to balance the column height.
7.27.3 column-gap column-gap	[CSS3-Multicol] (-ah-)column-gap	
7.28.8 column-number		
axf:column-number-format		Specifies the format of column number.
	[CSS3-Multicol] (-ah-)column-rule	Draws the column rules in the column gaps.
axf:column-rule-align	-ah-column-rule-align	Specifies the alignment of the column rule.
axf:column-rule-color	[CSS3-Multicol] (-ah-)column-rule-color	Specifies the color of the column rule.
axf:column-rule-display	-ah-column-rule-display	Specifies whether to also display a rule at the place where column gaps do not exist.
axf:column-rule-length	-ah-column-rule-length	Specifies the length of the column rule.
axf:column-rule-style	[CSS3-Multicol] (-ah-)column-rule-style	Specifies the style of the column rule.
axf:column-rule-width	[CSS3-Multicol] (-ah-)column-rule-width	Specifies the width of the column rule.
7.28.9 column-width	[CSS3-Multicol] (-ah-)column-width	

XSL	CSS	Description
	[CSS3-Multicol] (-ah-)columns	
axf:condensed-text-align-last	-ah-condensed-text-align-last	Specifies whether to set text-align-last="justify" automatically after condensing the overflow. V7.1 no-LT
	[CSS2.1] content	
7.15.4 content-height	-ah-content-height	
7.30.7 content-type	-ah-content-type	
7.15.5 content-width	-ah-content-width	
	[CSS2.1] counter-increment	
	[CSS2.1] counter-reset	
7.10.1 country	-ah-country	
axf:crop-area-visibility	-ah-crop-area-visibility	Specifies whether to display the area that is extended beyond the trim size. no-LT
axf:crop-offset	-ah-crop-offset	Specifies the distance from the physical end to the trim size of the output medium. no-LT
axf:crop-offset-bottom	-ah-crop-offset-bottom	Specifies the distance from the physical bottom edge to the trim size of the output medium. no-LT
axf:crop-offset-left	-ah-crop-offset-left	Specifies the distance from the physical left edge to the trim size of the output medium. no-LT
axf:crop-offset-right	-ah-crop-offset-right	Specifies the distance from the physical right edge to the trim size of the output medium. no-LT
axf:crop-offset-top	-ah-crop-offset-top	Specifies the distance from the physical top edge to the trim size of the output medium. no-LT
axf:destination-type	-ah-destination-type	Specifies the way a link opens in a link destination. no-LT
axf:diagonal-border-color	-ah-diagonal-border-color	Specifies the color of the diagonal border.
axf:diagonal-border-style	-ah-diagonal-border-style	Specifies the style of the diagonal border.
axf:diagonal-border-width	-ah-diagonal-border-width	Specifies the width of the diagonal border.
7.29.1 direction	[CSS2.1] direction	
	[CSS2.1] display [CSS3-Box] (-ah-)display	
7.14.4 display-align display-align	[CSS2.1] vertical-align -ah-display-align	
axf:display-alttext	-ah-display-alttext	Specifies whether to display the alternate text of an image. no-LT
axf:document-info-include		Specifies how to include document information in multi separate volume. no-LT
7.14.5 dominant-baseline	[CSS3-Line] (-ah-)dominant-baseline	
7.11.8 end-indent		
7.28.11 ends-row		
axf:except-non-end-of-line-characters	-ah-except-non-end-of-line-characters	Specifies the non-end-of-line-characters to eliminate.
axf:except-non-starter-characters	-ah-except-non-starter-characters	Specifies the non-starter-characters to eliminate.

XSL	CSS	Description
7.27.4 extent		
7.23.6 external-destination	[HTML] href [XML] xlink:href	
axf:fallback	[CSS3-CounterStyle] (-ah-)fallback	☞ `<axf:counter-style>`
axf:field-button-face	-ah-field-button-face	Specifies the caption displayed in the push button field. no-LT
axf:field-button-face-down	-ah-field-button-face-down	Specifies the caption displayed when pressing the push button. no-LT
axf:field-button-face-rollover	-ah-field-button-face-rollover	Specifies the caption displayed when rolling over the push button. no-LT
axf:field-button-icon	-ah-field-button-icon	Specifies the icon displayed in the push button field. no-LT
axf:field-button-icon-down	-ah-field-button-icon-down	Specifies the icon displayed when pressing the push button. no-LT
axf:field-button-icon-rollover	-ah-field-button-icon-rollover	Specifies the icon displayed when rolling over the push button. no-LT
axf:field-button-layout	-ah-field-button-layout	Specifies the positioning between the caption and icon displayed in the push button field. no-LT
axf:field-checked	-ah-field-checked	Specifies the initial state of the check box and the radio button. no-LT
axf:field-checked-style	-ah-field-checked-style	Specifies the style of the check box and the radio button. no-LT
axf:field-default-text	-ah-field-default-text	Specifies the text entered into the text field from the beginning. no-LT
axf:field-description	-ah-field-description	Specifies the descriptive text of the field. no-LT
axf:field-editable	-ah-field-editable	Specifies whether the value can be edited with the combo box. no-LT
axf:field-flags	-ah-field-flags	Specifies the flag of the field. no-LT
axf:field-font-size	-ah-field-font-size	Specifies the font size of the character string displayed in the form fields. no-LT
axf:field-format	-ah-field-format	Specifies the format of the text field. no-LT
axf:field-format-category	-ah-field-format-category	Specifies the format type of the text field. no-LT
axf:field-lock-document	-ah-field-lock-document	Specifies whether to lock the document at the time of signing with the digital signature field. no-LT
axf:field-maxlen	-ah-field-maxlen	Specifies the maximum number of characters which can be entered into the text field. no-LT
axf:field-multiline	-ah-field-multiline	Specifies whether the text field is a single-line enterable field or a multi-line enterable field. no-LT
axf:field-multiple	-ah-field-multiple	Specifies whether multiple items can be chosen in the list box. no-LT
axf:field-name	-ah-field-name	Specifies the field name. no-LT
axf:field-name-suffix-page-number		Adds a page number to the field name. no-LT
axf:field-password	-ah-field-password	Specifies whether the text field requires the password or not. no-LT
axf:field-readonly	-ah-field-readonly	Specifies whether the field is read-only or not. no-LT

XSL	CSS	Description
axf:field-required	-ah-field-required	Specifies whether the field is enter-required or not. no-LT
axf:field-scroll	-ah-field-scroll	Specifies whether the text field is scrollable or not. no-LT
axf:field-selected	-ah-field-selected	Specifies the first selected item in the list box, combo box. no-LT
axf:field-submit-coordinates	-ah-field-submit-coordinates	Specifies whether to send out the coordinates of the mouse when submitting a form field. no-LT
axf:field-submit-method	-ah-field-submit-method	Specifies the way to send the information when submitting a form field. no-LT
axf:field-text-align	-ah-field-text-align	Specifies the alignment of the text field. no-LT
axf:field-top-index	-ah-field-top-index	Specifies the first selected item in the list box, combo box. no-LT
axf:field-type	-ah-field-type	Specifies the field type. no-LT
axf:field-value	-ah-field-value	Specifies the value used when submitting a form field, etc. no-LT
7.19.2 float	[CSS2.1] float	
axf:float	[CSS3-GCPM] (-ah-)float	This is a shorthand property for setting float related extension properties.
axf:float-centering-x	-ah-float-centering-x	Specifies whether the float is centered when the width for the text wrapping around the float is insufficient.
axf:float-centering-y	-ah-float-centering-y	Specifies whether the float is centered when the extent for the text placed before and after the float is insufficient.
axf:float-float-margin-x	-ah-float-float-margin-x	Specifies the space between the float and another neighboring float (in x-axis).
axf:float-float-margin-y	-ah-float-float-margin-y	Specifies the space between the float and another neighboring float (in y-axis).
axf:float-margin-x	-ah-float-margin-x	Specifies the space between the float and the text wrapping around the float (in x-axis).
axf:float-margin-y	-ah-float-margin-y	Specifies the space between the float and the text before and after the float (in y-axis).
axf:float-min-wrap-x	-ah-float-min-wrap-x	Specifies the minimum width for the text wrapping around the float.
axf:float-min-wrap-y	-ah-float-min-wrap-y	Specifies the minimum extent for the text placed before and after the float.
axf:float-move	-ah-float-move	Specifies whether the float moves to the next page (or column).
axf:float-offset-x	-ah-float-offset-x	Specifies the offset placement for the float (in x-axis).
axf:float-offset-y	-ah-float-offset-y	Specifies the offset placement for the float (in y-axis).
axf:float-reference	-ah-float-reference	Specifies reference area where the float is placed.
axf:float-wrap	-ah-float-wrap	Specifies the text wrapping.
axf:float-x	-ah-float-x	Specifies horizontal (or vertical if writing-mode is vertical) float alignment.
axf:float-y	-ah-float-y	Specifies vertical (or horizontal if writing-mode is vertical) float alignment.
7.27.18 flow-map-name		

XSL	CSS	Description
7.27.19 flow-map-reference		
7.27.5 flow-name		
7.27.20 flow-name-reference		
axf:flush-zone	-ah-flush-zone	Adjusts the space at the end of the last line. no-LT
7.31.13 font	[CSS2.1] font	
7.9.2 font-family	[CSS2.1] font-family	
axf:font-feature-settings	[CSS3-Fonts] (-ah-)font-feature-settings	Controls the feature of OpenType fonts. no-LT
7.9.3 font-selection-strategy		
7.9.4 font-size	[CSS2.1] font-size	
7.9.6 font-size-adjust font-size-adjust	[CSS3-Fonts] (-ah-)font-size-adjust	
7.9.5 font-stretch font-stretch	[CSS3-Fonts] (-ah-)font-stretch	
7.9.7 font-style	[CSS2.1] font-style	
7.9.8 font-variant font-variant	[CSS2.1] font-variant [CSS3-Fonts] (-ah-)font-variant	
7.9.9 font-weight	[CSS2.1] font-weight	
axf:footnote-align		Specifies the alignment of the footnotes.
axf:footnote-keep	-ah-footnote-keep	Specifies whether to arrange a footnote and an anchor in the same page
axf:footnote-max-height	-ah-footnote-max-height	Specifies the maximum height of footnote. no-LT
axf:footnote-number-format		Specifies the format of footnote number. no-LT
axf:footnote-number-initial		Specifies the initial footnote number. no-LT
axf:footnote-number-reset		Resets the footnote numbering. no-LT
axf:footnote-position		Specifies the location to place the footnote.
axf:footnote-stacking	-ah-footnote-stacking	Specifies the method to layout the footnote.
7.27.6 force-page-count force-page-count		
7.26.1 format format		
7.29.2 glyph-orientation-horizontal		
7.29.3 glyph-orientation-vertical		
7.26.2 grouping-separator		
7.26.3 grouping-size		
axf:hanging-punctuation	[CSS3-Text] (-ah-)hanging-punctuation	Specifies whether to hang Japanese punctuation characters or not. no-LT
axf:headers		Specifies the table header cells associated with this cell. no-LT
7.15.6 height	[CSS2.1] height	
7.10.4 hyphenate	[CSS3-Text] (-ah-)hyphens	

XSL	CSS	Description
axf:hyphenate-caps-word	-ah-hyphenate-caps-word	Specifies whether to hyphenate a word that consists of capital letters.
axf:hyphenate-hyphenated-word	-ah-hyphenate-hyphenated-word	Specifies whether to hyphenate the already hyphenated word or not.
7.10.5 hyphenation-character	[CSS3-GCPM] (-ah-)hyphenate-character	
7.16.1 hyphenation-keep	-ah-hyphenation-keep	
7.16.2 hyphenation-ladder-count	[CSS3-GCPM] (-ah-)hyphenate-lines	
axf:hyphenation-minimum-character-count	-ah-hyphenation-minimum-character-count	Specifies the minimum number of characters a word must have before it can be hyphenated.
7.10.6 hyphenation-push-character-count hyphenation-push-character-count	[CSS3-GCPM] (-ah-)hyphenate-after	
7.10.7 hyphenation-remain-character-count hyphenation-remain-character-count	[CSS3-GCPM] (-ah-)hyphenate-before	
axf:hyphenation-zone	-ah-hyphenation-zone	Limits the range where a hyphenation is available.
7.30.8 id	[HTML] id [XML] xml:id	
	-ah-ignore-leading-newline	Specifies whether the newline right after the start tag is disregarded or not.
axf:image-resolution	[CSS3-GCPM] (-ah-)image-resolution	Specifies the resolution of an image.
axf:image-smoothing	-ah-image-smoothing	Specifies whether to process anti-aliasing of an image on the screen.
axf:indent-here	-ah-indent-here	Aligns the indent position to the region position when a line break occurs. no-LT
7.24.1 index-class		
7.24.2 index-key		
	-ah-index-page-citation-range-f-suffix	Specifies the suffix when merging 2 consecutive page numbers. no-LT
	-ah-index-page-citation-range-ff-suffix	Specifies the suffix when merging 3 consecutive page numbers. no-LT
	-ah-index-page-citation-range-separator	Specifies the separator string when merging consecutive page numbers. no-LT
axf:initial-letters	-ah-initial-letters	Creates drop initials. no-LT
axf:initial-letters-color		Specifies the text color of a dropped initial. no-LT
axf:initial-letters-end-indent	-ah-initial-letters-end-indent	Specifies the space on the end side of a dropped initial. no-LT
axf:initial-letters-first-line-head-height	-ah-initial-letters-first-line-head-height	Specifies where the height of a dropped initial should be adjusted. no-LT
axf:initial-letters-leading-punctuation	-ah-initial-letters-leading-punctuation	Specifies the size of the leading punctuation of a dropped initial, etc. no-LT

XSL	CSS	Description
axf:initial-letters-leading-punctuation-position	-ah-initial-letters-leading-punctuation-position	Specifies the position of the leading punctuation of a dropped initial in the inline progression direction. no-LT
axf:initial-letters-leading-punctuation-shift	-ah-initial-letters-leading-punctuation-shift	Specifies the position of the leading punctuation of a dropped initial in the block progression direction. no-LT
axf:initial-letters-text-align		Specifies the alignment of a dropped initial. no-LT
axf:initial-letters-width		Specifies the width of a dropped initial. no-LT
7.27.7 initial-page-number		
axf:initial-volume-number		Specifies the initial volume number in multi separate volume. no-LT
axf:inline-overflow-align	-ah-inline-overflow-align	Makes adjustments when the blocks in `<fo:inline-container>` overflow. V7.1 no-LT
7.15.7 inline-progression-dimension	-ah-logical-width	Specifies the inline progression dimension.
7.23.8 internal-destination internal-destination	-ah-internal-destination	
7.30.9 intrinsic-scale-value		
axf:intrude-into-punctuation	-ah-intrude-into-punctuation	Intrudes the inline element into the punctuation. V7.1 no-LT
7.19.3 intrusion-displace	-ah-intrusion-displace	
axf:justify-nbsp	-ah-justify-nbsp	Specifies whether to justify NON-BREAKING SPACE or not.
axf:kansuji-grouping-letter	-ah-kansuji-grouping-letter	Specifies the grouping character used for Japanese numerals. no-LT
axf:kansuji-letter	-ah-kansuji-letter	Specifies the character used for Japanese numerals. no-LT
axf:kansuji-style	-ah-kansuji-style	Specifies the style used for Japanese numerals. no-LT
	[CSS3-Multicol] (-ah-)break-inside	
7.20.3 keep-together	-ah-keep-together	
axf:keep-together-within-dimension	-ah-keep-together-within-dimension	Specifies the upper limit height of the keep-together condition. no-LT
axf:keep-together-within-inline-dimension	-ah-keep-together-within-inline-dimension	Specifies the upper limit width of the keep-together.within-line condition. V7.1 no-LT
7.20.4 keep-with-next		
7.20.5 keep-with-previous		
axf:kerning-mode	-ah-kerning-mode	Specifies whether to process the kerning.
7.10.2 language	-ah-language	
7.16.3 last-line-end-indent	-ah-last-line-end-indent	
axf:layer	-ah-layer	Specifies to which layer the area is arranged. no-LT
axf:layer-settings	-ah-layer-settings	Defines layers. no-LT
7.22.1 leader-alignment leader-alignment		
axf:leader-expansion		Specifies whether to expand a leader forcibly. no-LT
7.22.4 leader-length	-ah-leader-length	
7.22.2 leader-pattern		

XSL	CSS	Description
7.22.3 leader-pattern-width		
7.6.5 left	[CSS2.1] left	
axf:left-page-master-reference		Master name of the page master for the left page of a two-page spread. no-LT
7.17.2 letter-spacing	[CSS2.1] letter-spacing	
axf:letter-spacing-side	-ah-letter-spacing-side	Specifies on which side of the character the space by letter-spacing is distributed.
7.26.4 letter-value		
axf:ligature-mode	-ah-ligature-mode	Specifies whether to perform the ligature processing.
axf:line-break	[CSS3-Text] (-ah-)line-break	Specifies the method of line breaking.
axf:line-continued-mark	-ah-line-continued-mark	Specifies whether to show line continued marks. no-LT
axf:line-continued-mark-background-color	-ah-line-continued-mark-background-color	Specifies the background color of line continued marks. no-LT
axf:line-continued-mark-color	-ah-line-continued-mark-color	Specifies the color of line continued marks. no-LT
axf:line-continued-mark-font-family	-ah-line-continued-mark-font-family	Specifies the font family of line continued marks. no-LT
axf:line-continued-mark-font-size	-ah-line-continued-mark-font-size	Specifies the font size of line continued marks. no-LT
axf:line-continued-mark-font-style	-ah-line-continued-mark-font-style	Specifies whether to make the font style italic. no-LT
axf:line-continued-mark-font-weight	-ah-line-continued-mark-font-weight	Specifies the font weight of line numbers. no-LT
axf:line-continued-mark-offset	-ah-line-continued-mark-offset	Specifies the offset of line continued marks. no-LT
7.16.4 line-height	[CSS2.1] line-height	
7.16.5 line-height-shift-adjustment	-ah-line-height-shift-adjustment	
axf:line-number	-ah-line-number	Specifies whether to show line numbers. no-LT
axf:line-number-background-color	-ah-line-number-background-color	Specifies the background color of line numbers. no-LT
axf:line-number-color	-ah-line-number-color	Specifies the color of line numbers. no-LT
axf:line-number-display-align	-ah-line-number-display-align	Specifies the alignment, in the block-progression-direction, of line numbers in the line area. no-LT
axf:line-number-except-continued-line	-ah-line-number-except-continued-line	Specifies whether to add line numbers except for continued lines. V7.1 no-LT
axf:line-number-font-family	-ah-line-number-font-family	Specifies the font family of line numbers. no-LT
axf:line-number-font-size	-ah-line-number-font-size	Specifies the font size of line numbers. no-LT
axf:line-number-font-style	-ah-line-number-font-style	Specifies whether to make the font style italic. no-LT
axf:line-number-font-weight	-ah-line-number-font-weight	Specifies the font weight of line numbers. no-LT
axf:line-number-format	-ah-line-number-format	Specifies the format of line numbers. no-LT
axf:line-number-initial	-ah-line-number-initial	Specifies the line number of the first line. no-LT
axf:line-number-interval	-ah-line-number-interval	Specifies the interval of line numbers. no-LT
axf:line-number-offset	-ah-line-number-offset	Specifies the offset of line numbers. no-LT

XSL	CSS	Description
axf:line-number-orientation	-ah-line-number-orientation	Rotates line numbers. no-LT
axf:line-number-position	-ah-line-number-position	Specifies the position of line numbers. no-LT
axf:line-number-prefix	-ah-line-number-prefix	Sets the prefix of line number. no-LT
axf:line-number-reset	-ah-line-number-reset	Resets line numbering. no-LT
axf:line-number-show	-ah-line-number-show	Specifies the line number to be always output. no-LT
axf:line-number-start	-ah-line-number-start	Specifies the starting line number. no-LT
axf:line-number-text-align	-ah-line-number-text-align	Specifies the alignment of line numbers in the line area. no-LT
axf:line-number-text-decoration	-ah-line-number-text-decoration	Specifies the test decoration of line numbers. no-LT
axf:line-number-width	-ah-line-number-width	Specifies the width of line numbers. no-LT
7.16.6 line-stacking-strategy	-ah-line-stacking-strategy	
7.16.7 linefeed-treatment	[CSS2.1] white-space	
	-ah-link	Generates a hyper-link.
	[CSS2.1] list-style	
	[CSS2.1] list-style-image	
	[CSS2.1] list-style-position	
	[CSS2.1] list-style-type [CSS3-Lists] (-ah-)list-style-type	Specifies the list style.
7.31.14 margin	[CSS2.1] margin	
7.11.2 margin-bottom	[CSS2.1] margin-bottom	
	-ah-margin-break	Specifies how to treat the margin when the page/column breaks.
7.11.3 margin-left	[CSS2.1] margin-left	
7.11.4 margin-right	[CSS2.1] margin-right	
7.11.1 margin-top	[CSS2.1] margin-top	
7.25.1 marker-class-name		
7.27.8 master-name		
7.27.9 master-reference		
7.15.8 max-height	[CSS2.1] max-height	
	-ah-max-logical-height	Specifies the maximum block progression dimension.
	-ah-max-logical-width	Specifies the maximum inline progression dimension.
7.15.9 max-width	[CSS2.1] max-width	
7.27.10 maximum-repeats		
axf:media-activation	-ah-media-activation	Specifies when to activate / deactivate the rich media. no-LT
axf:media-duration	-ah-media-duration	Specifies the duration of a time period of the multimedia. no-LT
axf:media-extraction-policy	-ah-media-extraction-policy	Specifies whether the creation of temporary files is allowed or not when playing the multimedia. no-LT
axf:media-flash-context-menu	-ah-media-flash-context-menu	Specifies whether to display the context menu of Flash When embedding Flash in the rich media. no-LT
axf:media-flash-vars	-ah-media-flash-vars	Specifies the variable when embedding Flash in the rich media. no-LT

XSL	CSS	Description
axf:media-play-mode	-ah-media-play-mode	Specifies the number of times to play the multimedia. no-LT
axf:media-skin-auto-hide	-ah-media-skin-auto-hide	Specifies whether to automatically hide rich media skins or not. no-LT
axf:media-skin-color	-ah-media-skin-color	Specifies the skin color of the rich media. no-LT
axf:media-skin-control	-ah-media-skin-control	Specifies the skin control of the rich media. no-LT
axf:media-transparent-background	-ah-media-transparent-background	Specifies whether to make the background transparent when embedding Flash in the rich media. no-LT
axf:media-volume	-ah-media-volume	Specifies the volume of the sound when playing the multimedia. no-LT
axf:media-window-height	-ah-media-window-height	Specifies the height of the rich media window. no-LT
axf:media-window-width	-ah-media-window-width	Specifies the width of the rich media window. no-LT
7.24.6 merge-pages-across-index-key-references		
7.24.4 merge-ranges-across-index-key-references		
7.24.5 merge-sequential-page-numbers merge-sequential-page-numbers	-ah-merge-sequential-page-numbers	Specifies the page number reference to be merged. no-LT
7.15.10 min-height	[CSS2.1] min-height	
	-ah-min-logical-height	Specifies the minimum block progression dimension.
	-ah-min-logical-width	Specifies the minimum inline progression dimension.
7.15.11 min-width	[CSS2.1] min-width	
axf:multimedia-treatment	-ah-multimedia-treatment	Specifies whether to embed Multimedia in PDF. no-LT
axf:name		☞ `<axf:document-info>` `<axf:counter-style>`
axf:negative	[CSS3-CounterStyle] (-ah-)negative	☞ `<axf:counter-style>`
axf:normalize	-ah-normalize	Specifies the normalization of text. no-LT
axf:normalize-exclude	-ah-normalize-exclude	Specifies whether Composition Exclusions are excluded or not when the normalization is specified. no-LT no-LT
7.28.12 number-columns-repeated		
7.28.13 number-columns-spanned	[CSS3-Tables] (-ah-)table-column-span [HTML] colspan	
7.28.14 number-rows-spanned	[CSS3-Tables] (-ah-)table-row-span [HTML] rowspan	
axf:number-transform	-ah-number-transform	Converts the number sequence in the character string. no-LT
axf:number-type		Specifies whether to output the page number or to output the column number.
	[CSS3-Images] (-ah-)object-fit	no-LT
	[CSS3-Images] (-ah-)object-position	no-LT

XSL	CSS	Description
7.27.12 odd-or-even odd-or-even		
axf:origin-id		Specifies the origin of the page number.
7.20.6 orphans	[CSS2.1] orphans	
axf:outline-color	-ah-outline-color	Specifies the color which appears as a title of bookmarks. no-LT
axf:outline-expand	-ah-outline-expand	Specifies whether to display the lower hierarchy of bookmark items or not.
axf:outline-external-destination	-ah-outline-external-destination	Sets the external link in the PDF bookmark. no-LT
axf:outline-font-style	-ah-outline-font-style	Specifies the font style which appears as a title of bookmarks. no-LT
axf:outline-font-weight	-ah-outline-font-weight	Specifies the font weight which appears as a title of bookmarks. no-LT
axf:outline-group	-ah-outline-group	Groups bookmark items, and outputs them collectively.
axf:outline-internal-destination	-ah-outline-internal-destination	Sets the internal link in the PDF bookmark. no-LT
axf:outline-level	-ah-outline-level	Indicates the hierarchy level of bookmark items.
axf:outline-title	-ah-outline-title	Specifies the string which appears as a title of bookmarks.
axf:output-volume-break		Separates the file in multi volume. no-LT
axf:output-volume-filename		Specifies the document file name in multi separate volume. no-LT
7.21.2 overflow overflow	[CSS2.1] overflow	
axf:overflow-align	-ah-overflow-align	Specifies the alignment of the overflowed block.
axf:overflow-condense	-ah-overflow-condense	Specifies how to condense the overflowed text within the region.
axf:overflow-condense-limit-font-size	-ah-overflow-condense-limit-font-size	Specifies the lower limit font size when axf:overflow-condense="font-size" is specified.
axf:overflow-condense-limit-font-stretch	-ah-overflow-condense-limit-font-stretch	Specifies the lower limit value when axf:overflow-condense="font-stretch" is specified.
axf:overflow-condense-limit-letter-spacing	-ah-overflow-condense-limit-letter-spacing	Specifies the lower limit value when axf:overflow-condense="letter-spacing" is specified. V7.1
axf:overflow-condense-limit-line-height	-ah-overflow-condense-limit-line-height	Specifies the lower limit value when axf:overflow-condense="line-height" is specified. V7.1
axf:overflow-limit	-ah-overflow-limit	Specifies the overflow limit value. no-LT
axf:overflow-limit-block	-ah-overflow-limit-block	Specifies the block overflow limit value. no-LT
axf:overflow-limit-inline	-ah-overflow-limit-inline	Specifies the inline overflow limit value. no-LT
axf:overflow-replace	-ah-overflow-replace	Specifies an alternative character string for the overflowed text.
axf:overprint	-ah-overprint	Specifies the overprint. no-LT
axf:pad	[CSS3-CounterStyle] (-ah-)pad	☞ `<axf:counter-style>`
7.31.15 padding	[CSS2.1] padding	
7.8.32 padding-after	-ah-padding-after	

XSL	CSS	Description
7.8.31 padding-before	-ah-padding-before	
7.8.36 padding-bottom	[CSS2.1] padding-bottom	
7.8.34 padding-end	-ah-padding-end	
7.8.37 padding-left	[CSS2.1] padding-left	
7.8.38 padding-right	[CSS2.1] padding-right	
7.8.33 padding-start	-ah-padding-start	
7.8.35 padding-top	[CSS2.1] padding-top	
	[CSS3-GCPM] (-ah-)page	
7.31.16 page-break-after	[CSS2.1] page-break-after	
7.31.17 page-break-before	[CSS2.1] page-break-before	
7.31.18 page-break-inside	[CSS2.1] page-break-inside	
7.30.10 page-citation-strategy		
7.27.13 page-height		
axf:page-number-prefix		Sets the prefix of page number.
7.24.3 page-number-treatment		
7.27.14 page-position		
7.27.15 page-width		
axf:pdftag	-ah-pdftag	Specifies the tag name of Tagged PDF. no-LT
axf:physical-page-number		Gets physical page number.
7.31.20 position	[CSS2.1] position	
axf:poster-content-type	-ah-poster-content-type	Specifies the content type of the poster image for embedded multimedia. no-LT
axf:poster-image	-ah-poster-image	Specifies the poster image for embedded multimedia. no-LT
7.27.16 precedence		
axf:prefix	[CSS3-CounterStyle] (-ah-)prefix	☞ `<axf:counter-style>`
axf:printer-bin-selection	-ah-printer-bin-selection	Selects the printer tray. no-LT
axf:printer-duplex	-ah-printer-duplex	Specifies to print in duplex mode. no-LT
axf:printer-marks	[CSS3-GCPM] (-ah-)marks -ah-printer-marks	Specifies the Printing marks, such as a crop mark. Specifies the action of external link. no-LT
axf:printer-marks-line-color	-ah-printer-marks-line-color	Specifies the line color of printer marks. no-LT
axf:printer-marks-line-length	-ah-printer-marks-line-length	Specifies the line length of printer marks. no-LT
axf:printer-marks-line-width	-ah-printer-marks-line-width	Specifies the line width of printer marks. no-LT
axf:printer-marks-spine-width	-ah-printer-marks-spine-width	Specifies the spine width of the facing page. no-LT
axf:printer-marks-zero-margin	-ah-printer-marks-zero-margin	Specifies the margin between the page and the printer marks when bleed is 0. no-LT
7.30.12 provisional-distance-between-starts		
7.30.11 provisional-label-separation		

XSL	CSS	Description
axf:punctuation-spacing	-ah-punctuation-spacing	Specifies the trimming spacing between a full width punctuation and a full width character in Japanese.
axf:punctuation-trim	[CSS3-Text] (-ah-)punctuation-trim	The axf:punctuation-trim specifies whether to treat full width punctuation marks as half width in Japanese. no-LT
	[CSS2.1] quotes	
axf:quotetype	-ah-quotetype	Specifies the direction of the quotes. V7.1 no-LT
axf:range	[CSS3-CounterStyle] (-ah-)range	☞ `<axf:counter-style>`
7.30.13 ref-id		
7.24.7 ref-index-key		
7.21.3 reference-orientation	-ah-reference-orientation	
7.27.17 region-name		
7.27.21 region-name-reference		
7.14.6 relative-align	[CSS2.1] vertical-align	
7.13.5 relative-position	[CSS2.1] position	
axf:repeat-cell-content-at-break	-ah-repeat-cell-content-at-break	Specifies whether to copy the contents of a cell when a cell breaks.
axf:repeat-footnote-in-table-footer		Specifies whether to repeat the `<fo:footnote>` in the `<fo:table-footer>` that is repeated by table-omit-footer-at-break="false".
axf:repeat-footnote-in-table-header		Specifies whether to repeat the `<fo:footnote>` in the `<fo:table-header>` that is repeated by table-omit-header-at-break="false".
axf:repeat-page-sequence-master		Specifies the repetition of the page sequence. no-LT
7.25.5 retrieve-boundary		
7.25.2 retrieve-boundary-within-table		
7.25.3 retrieve-class-name		
7.25.4 retrieve-position		
7.25.6 retrieve-position-within-table		
axf:retrieve-table-rows		Specifies the maximum number of `fo:table-row` in `fo:marker` referenced from `fo:retrieve-table-marker`. V7.1 no-LT
axf:reverse-diagonal-border-color	-ah-reverse-diagonal-border-color	Specifies the color of the reverse diagonal border.
axf:reverse-diagonal-border-style	-ah-reverse-diagonal-border-style	Specifies the style of the reverse diagonal border.
axf:reverse-diagonal-border-width	-ah-reverse-diagonal-border-width	Specifies the width of the reverse diagonal border.
axf:reverse-page	-ah-reverse-page	Outputs pages in reverse order. no-LT
axf:reverse-page-number		Places page numbers in reverse order. no-LT

XSL	CSS	Description
axf:revision-bar-color	-ah-revision-bar-color	Specifies the color of the revision bar.
axf:revision-bar-offset	-ah-revision-bar-offset	Specifies the offset of the revision bar.
axf:revision-bar-position	-ah-revision-bar-position	Specifies the position of the revision bar.
axf:revision-bar-style	-ah-revision-bar-style	Specifies the style of the revision bar.
axf:revision-bar-width	-ah-revision-bar-width	Specifies the width of the revision bar.
7.6.3 right	[CSS2.1] right	
axf:right-page-master-reference		Master name of the page master for the right page of a two-page spread. no-LT
7.5.2 role		
axf:ruby-align	[CSS3-Ruby] (-ah-)ruby-align	Specifies the alignment of ruby.
axf:ruby-color	-ah-ruby-color	Specifies the color of ruby text.
axf:ruby-condense	-ah-ruby-condense	Specifies the font condense when the ruby text is longer than its base.
axf:ruby-font-family	-ah-ruby-font-family	Specifies the font family of ruby text.
axf:ruby-font-size	-ah-ruby-font-size	Specifies the font size of ruby text.
axf:ruby-font-stretch	-ah-ruby-font-stretch	Specifies the font stretching of ruby text.
axf:ruby-font-style	-ah-ruby-font-style	Specifies the font style of ruby text.
axf:ruby-font-weight	-ah-ruby-font-weight	Specifies the font weight of ruby text.
axf:ruby-limit-overhang	-ah-ruby-limit-overhang	Specifies the limit of the amount that ruby overhangs the adjacent base character when ruby is longer than its own base character.
axf:ruby-limit-space	-ah-ruby-limit-space	Specifies the limit of the amount of spaces leading and following the ruby text when the ruby text is shorter than its base characters.
axf:ruby-minimum-font-size	-ah-ruby-minimum-font-size	Specifies the minimum font size of ruby text.
axf:ruby-offset	-ah-ruby-offset	Specifies the spacing between the ruby text and its base characters.
axf:ruby-overhang	[CSS3-Ruby] (-ah-)ruby-overhang	Specifies how ruby overhangs the adjacent base character.
axf:ruby-position	[CSS3-Ruby] (-ah-)ruby-position	Specifies on which side of the base characters the ruby text appears.
axf:ruby-small-kana	-ah-ruby-small-kana	Specifies whether to allow using small kana for ruby text.
7.22.5 rule-style		
7.22.6 rule-thickness		
7.30.14 scale-option		
7.15.12 scaling	-ah-scaling	
axf:scope		Specifies the range of cells with which this table header cell is associated. no-LT
7.30.15 score-spaces	-ah-score-spaces	
7.10.3 script	-ah-script	
axf:show-controls	-ah-show-controls	Specifies whether to show the player control bar for multimedia. no-LT

XSL	CSS	Description
7.23.9 show-destination		
7.31.21 size size	[CSS3-Page] (-ah-)size	
axf:soft-hyphen-treatment	-ah-soft-hyphen-treatment	
7.5.1 source-document		
7.11.6 space-after	-ah-margin-after	Specifies the margin of the after side.
7.11.5 space-before	-ah-margin-before	Specifies the margin of the before side.
7.12.5 space-end	-ah-margin-end	Specifies the margin of the end side.
7.12.6 space-start	-ah-margin-start	Specifies the margin of the start side.
7.21.4 span	[CSS3-Multicol] (-ah-)column-span	
7.30.16 src	[HTML] src	
7.11.7 start-indent		
7.28.15 starts-row		
	[CSS3-GCPM] (-ah-)string-set	
axf:suffix	[CSS3-CounterStyle] (-ah-)suffix	☞ `<axf:counter-style>`
axf:suppress-duplicate-footnote	-ah-suppress-duplicate-footnote	Specifies whether to delete footnotes duplicated in the same page.
axf:suppress-duplicate-marker-contents		Specifies the removal of duplicate marker references. no-LT
axf:suppress-duplicate-page-number	-ah-suppress-duplicate-page-number	Specifies to delete the duplicated page numbers.
axf:suppress-folio-prefix		Invalidates the prefix of page numbers.
axf:suppress-folio-suffix		Invalidates the suffix of page numbers.
axf:suppress-if-first-on-page	-ah-suppress-if-first-on-page	Specifies whether to suppress the block at the beginning of a page or column. no-LT
axf:symbols	[CSS3-CounterStyle] (-ah-)symbols	☞ `<axf:counter-style>`
axf:system	[CSS3-CounterStyle] (-ah-)system	☞ `<axf:counter-style>`
axf:tab-align		Specifies the tab alignment at the tab stop position. no-LT
axf:tab-overlap-treatment		Specifies a behavior when tab alignment makes letters overlapped. no-LT
	[CSS3-Text] (-ah-)tab-size	
axf:tab-stops		Specifies the tab stop. no-LT
axf:tab-treatment		Specifies the method to treat the tab character (U+0009). no-LT
axf:table-auto-layout-limit	-ah-table-auto-layout-limit	Specifies the number of rows of fo:table to read ahead to determine the width of column when table-layout="auto" is specified. V7.1
7.28.16 table-layout	[CSS2.1] table-layout	
7.28.17 table-omit-footer-at-break	-ah-table-omit-footer-at-break	

XSL	CSS	Description
table-omit-footer-at-break	-ah-table-omit-footer-at-break	
7.28.18 table-omit-header-at-break table-omit-header-at-break	-ah-table-omit-header-at-break	
axf:table-row-orphans	-ah-table-row-orphans	Specifies the number of table-rows that must remain at the bottom of the page (column). no-LT
axf:table-row-widows	-ah-table-row-widows	Specifies the number of table-rows that must remain at the top of the page (column). no-LT
axf:table-summary	-ah-table-summary	Describes the table summary.
7.16.9 text-align	[CSS2.1] text-align [CSS3-Text] (-ah-)text-align	
axf:text-align-first	-ah-text-align-first	Specifies the text alignment of the first line.
7.16.10 text-align-last	[CSS3-Text] (-ah-)text-align-last	
axf:text-align-string	-ah-text-align-string	Specifies the text alignment when text-align="<string>".
7.29.4 text-altitude		
axf:text-autospace	[CSS3-Text] (-ah-)text-autospace	Specifies whether to add space surrounding ideographic glyphs or not.
axf:text-autospace-width	-ah-text-autospace-width	Specifies the width for axf:text-autospace.
	[CSS3-WritingModes] (-ah-)text-combine	
axf:text-combine-horizontal	[CSS3-WritingModes] (-ah-)text-combine-horizontal	Sets horizontal-in-vertical composition in vertical writing mode automatically. no-LT
7.17.4 text-decoration	[CSS2.1] text-decoration [CSS3-TextDecor] (-ah-)text-decoration	
	[CSS3-TextDecor] (-ah-)text-decoration-color	
	[CSS3-TextDecor] (-ah-)text-decoration-line	
	[CSS3-TextDecor] (-ah-)text-decoration-style	
7.29.5 text-depth		
	[CSS3-TextDecor] (-ah-)text-emphasis	
axf:text-emphasis-color	[CSS3-TextDecor] (-ah-)text-emphasis-color	Specifies the color of emphasis marks.
axf:text-emphasis-font-family	-ah-text-emphasis-font-family	Specifies the font family of emphasis marks.
axf:text-emphasis-font-size	-ah-text-emphasis-font-size	Specifies the font size of emphasis marks.
axf:text-emphasis-font-stretch	-ah-text-emphasis-font-stretch	Specifies the font stretching of emphasis marks.
axf:text-emphasis-font-style	-ah-text-emphasis-font-style	Specifies whether emphasis marks are made Italic.
axf:text-emphasis-font-weight	-ah-text-emphasis-font-weight	Specifies the font weight of emphasis marks.
axf:text-emphasis-offset	-ah-text-emphasis-offset	Specifies the space between emphasis marks and the base characters.

XSL	CSS	Description
axf:text-emphasis-position	[CSS3-TextDecor] (-ah-)text-emphasis-position	Specifies on which side of base characters emphasis marks are put.
axf:text-emphasis-skip	-ah-text-emphasis-skip	Specifies the character to which emphasis marks are not applied.
axf:text-emphasis-style	[CSS3-TextDecor] (-ah-)text-emphasis-style	Specifies the style of emphasis marks.
7.16.11 text-indent	[CSS2.1] text-indent	
axf:text-indent-if-first-on-page	-ah-text-indent-if-first-on-page	Specifies the text-indent of a block at the top of the page or the top of the column. no-LT
axf:text-justify	[CSS3-Text] (-ah-)text-justify	Specifies how to justify text.
axf:text-justify-trim	[CSS3-Text] (-ah-)text-justify-trim	Specifies the way to trim in text justification.
axf:text-kashida-space	-ah-text-kashida-space	Specifies the percentage of Kashida in Arabic justification.
axf:text-line-color	-ah-text-line-color	Specifies the color of underline, strikethrough, and overline.
axf:text-line-style	-ah-text-line-style	Specifies the style of underline, strikethrough, and overline.
axf:text-line-width	-ah-text-line-width	Specifies the width of underline, strikethrough, and overline.
axf:text-orientation	[CSS3-WritingModes] (-ah-)text-orientation	Specifies the orientation of text in vertical writing mode. no-LT
axf:text-overflow	[CSS3-UI] (-ah-)text-overflow	Specifies the display method at the end of the content when overflowing in the inline progression direction. no-LT
axf:text-replace	[CSS3-GCPM] (-ah-)text-replace	Replaces the character strings.
7.17.5 text-shadow text-shadow	[CSS3-TextDecor] (-ah-)text-shadow	Specifies the text shadow. no-LT
axf:text-stroke	-ah-text-stroke	Specifies the stroke of the character. no-LT
axf:text-stroke-color	-ah-text-stroke-color	Specifies the stroke color of the character. no-LT
axf:text-stroke-width	-ah-text-stroke-width	Specifies the stroke width of the character. no-LT
7.17.6 text-transform text-transform	[CSS2.1] text-transform [CSS3-Text] (-ah-)text-transform	
axf:text-underline-position	[CSS3-Text] (-ah-)text-underline-position	Specifies the position of underline.
7.6.2 top	[CSS2.1] top	
axf:transform	[CSS3-Transforms] (-ah-)transform	Specifies the block transformation. no-LT
axf:transform-origin	[CSS3-Transforms] (-ah-)transform-origin	Specifies the origin of the block transformation. no-LT
7.29.6 unicode-bidi	[CSS2.1] unicode-bidi	
axf:value		☞ `<axf:document-info>`
7.31.22 vertical-align	[CSS2.1] vertical-align [CSS3-Line] (-ah-)vertical-align	
axf:vertical-underline-side	-ah-vertical-underline-side	Specifies on which side of the text to put underline in vertical writing-mode.
7.30.17 visibility	[CSS2.1] visibility	

XSL	CSS	Description
7.31.23 white-space	[CSS2.1] white-space	
7.16.12 white-space-collapse	[CSS2.1] white-space	
7.16.8 white-space-treatment	[CSS2.1] white-space	
7.20.7 widows	[CSS2.1] widows	
7.15.14 width	[CSS2.1] width	
axf:word-break	[CSS3-Text] (-ah-)word-break	Specifies whether to enable line breaking even inside a word.
7.17.8 word-spacing	[CSS2.1] word-spacing	
axf:word-wrap	[CSS3-Text] (-ah-)word-wrap	Specifies whether to break word forcibly when line break cannot be performed.
7.16.13 wrap-option	[CSS2.1] white-space	
7.29.7 writing-mode	[CSS3-WritingModes] (-ah-)writing-mode	
7.30.18 z-index	[CSS2.1] z-index	

XSL/CSS Extensions

AH Formatter V7.1 provides you with numerous XSL proprietary extension elements and properties. When you use the extension elements or properties in XSL, be sure to specify the namespace URL `http://www.antennahouse.com/names/XSL/Extensions`.

```
<fo:root xmlns:fo="http://www.w3.org/1999/XSL/Format"
         xmlns:axf="http://www.antennahouse.com/names/XSL/Extensions">
```

AH Formatter V7.1 also provides many CSS extensions. In this document, CSS 2.1 or CSS3 properties with restrictions are written together with XSL properties. See also “XSL/CSS Properties”. Although many of CSS3 specifications are included, many of them are in the state before Recommendation. It is safer for these properties of CSS3 specifications to use by adding the `-ah-` prefix. It is written as `(-ah-)` in this document. Although the property without adding `-ah-` will work with **AH Formatter V7.1**, the specification may change in the future. It is not necessary to add `-ah-` to the property of Recommendation (or Candidate Recommendation, Proposed Recommendation) such as CSS 2.1. For more details, see also Property Value Syntax.

CAUTION: The **AH Formatter V7.1** implementation may not completely conform to the CSS3 specification.

- Extended Elements
- Extended Properties ☞ XSL/CSS Properties
- Extended Applies
- Extended Values
- Extended Functions
- Extended Units
- Other Extensions
- CSS3 Properties
- Other CSS Extensions
- CSS Extensions as is XSL

Extended Elements

Extended elements are provided only for XSL.

Element name	Description
`<fo:change-bar-begin>`	Extends the child element so that `<fo:float>` can be described as the content of the element. no-LT
`<axf:counter-style>` / CSS `@counter-style`	Defining Custom Counter Styles. no-LT
`<axf:custom-property>` / HTML `<meta>`	Specifies the custom property. This information is embedded in PDF. no-LT
`<axf:document-info>` / HTML `<meta>`	Specifies the document information. This information is embedded into the PDF.
`<axf:font-face>` / CSS `@font-face`	Appends a font. no-LT
`<axf:footnote-number>`	Generates a footnote number. no-LT
`<axf:footnote-number-citation>`	Cites a footnote number. no-LT
`<axf:form>`	Encloses the unit of the form action. no-LT
`<axf:form-field>`	Generates a form field. no-LT
`<axf:form-field-event>`	Defines the form action which corresponds to the event. no-LT
`<axf:form-field-option>`	Specifies the component elements of the list box, combo box. no-LT
`<axf:formatter-config>`	Specifies additional option setting information. no-LT
`<axf:hyphenation-info>`	Specifies additional hyphenation information. no-LT

Element name	Description
`<axf:index-page-citation-range-f-suffix>`	Specifies the suffix when merge-sequential-page-numbers="merge-f". no-LT
`<axf:index-page-citation-range-ff-suffix>`	Specifies the suffix when merge-sequential-page-numbers="merge-ff". no-LT
`<axf:output-volume-info>`	Outputs PDF in Multiple Separate Volume. no-LT
`<fo:page-sequence>`	Extends so that `<fo:page-sequence>` can be nested and described as a child element or otherwise an empty element is allowed. no-LT
`<axf:ruby>`	Generates a ruby area.
`<axf:ruby-base>`	Generates a ruby base area.
`<axf:ruby-text>`	Generates a ruby text area.
`<axf:space-end-punctuation>`	Specifies the amount of space after the punctuation in European Typography.
`<axf:space-start-punctuation>`	Specifies the amount of space before the punctuation in European Typography.
`<axf:space-between-digit-and-punctuation>`	Specifies the amount of space between the digit and the punctuation in European Typography.
`<axf:space-between-punctuation-and-digit>`	Specifies the amount of space between the punctuation and digit in European Typography.
`<axf:spread-page-master>`	Specifies a two-page spread. no-LT
`<axf:spread-region>`	Specifies a region in a two-page spread. no-LT
`<axf:tab>`	Inserts white spaces up to the tab stop position. no-LT
`<axf:table-cell-repeated-marker>`	Specifies the contents to be displayed in the split cell. no-LT

Extended Values

Extended values are provided for one or both of XSL and CSS. Extended values may differ between XSL and CSS.

Property name	Description
`<border-style>`	Extended the `dot-dash`, `dot-dot-dash`, and `wave` properties defined in old CSS3. These styles are preferred in the following order: 1. `double` 2. `solid` 3. `dashed` 4. `dot-dash` 5. `dot-dot-dash` 6. `dotted` 7. `ridge` 8. `outset` 9. `groove` 10. `inset` 11. `wave` This order is not described in CSS3.
`<color>`	The value of `<color>` in XSL-FO is one of the following: • `#RRGGBB` or values in `#RGB` format

Property name	Description
`<color>`	• The sixteen basic color names; i.e., `aqua`, `black`, `blue`, `fuchsia`, `gray`, `green`, `lime`, `maroon`, `navy`, `olive`, `purple`, `red`, `silver`, `teal`, `white` and `yellow` • `rgb()`, `rgb-icc()`, `system-color()` functions The following values are extended to be able to specify. • `#RRGGBBAA` or values in `#RGBA` format • `currentColor` • `transparent` • 131 extended color names, and `rebeccapurple` that may be added in CSS4 • 28 system color names • `rgba()`, `hsl()`, `hsla()`, `cmyk()`, `cymka()` functions • `k100`, that is equivalent to `cmyk(0,0,0,1)` In the CSS specification, `transparent` is equivalent to `rgba(0,0,0,0)`. In **AH Formatter V7.1**, `transparent` characters are not output, although the size is secured. `rgba(0,0,0,0)` outputs characters.
display	Extends the value of the `display` property in CSS.
display-align	Extends the value of the display-align property.
font-size-adjust	Extends the value of the font-size-adjust property.
font-stretch	Extends the value of the font-stretch property.
font-variant	Extends the value of the font-variant property.
force-page-count	Extends the value of the force-page-count property.
format	Extends the value of the format property.
hyphenation-push-character-count	Extends the value of the hyphenation-push-character-count property.
hyphenation-remain-character-count	Extends the value of the hyphenation-remain-character-count property.
internal-destination	Extends the value of the internal-destination property. no-LT
leader-alignment	Extends the value of the leader-alignment property.
merge-sequential-page-numbers	Extends the value of the merge-sequential-page-numbers property. no-LT
odd-or-even	Extends the value of the odd-or-even property. no-LT
overflow	Extends the value of the overflow property.
size	Extends the value of the size property.
table-omit-footer-at-break	Extends the value of the table-omit-footer-at-break property. no-LT
table-omit-header-at-break	Extends the value of the table-omit-header-at-break property. no-LT
text-transform	Extends the value of the text-transform property. no-LT

Extended Functions

Both FO and CSS functions are extended. For CSS3 functions, see also CSS3 Functions.

Function name	Description
rgb-icc()	Extends the `rgb-icc()` function. ☞ `<color>`
rgb()	The `rgb()` function is available with both CSS and FO. Its 3 arguments can be given like `rgb(<R>,<G>,<B>)`. For `<R>,<G>,<B>`, % values, or values from 0 to 255 are given. ☞ `<color>`
rgba()	The `rgba()` function from CSS3 RGBA color values is available with both CSS and FO. Its 4 arguments can be given like `rgba(<R>,<G>,<B>,<A>)`. For `<R>,<G>,<B>`, % values or values from 0 to 255 are given. For `<A>`, % values, or values from 0.0 to 1.0 are given. You can also give a color name instead of `<R>,<G>,<B>` and write it like `rgba(green,0.5)`. ☞ `<color>`
hsl()	The `hsl()` function from CSS3 HSL color values is available with both CSS and FO. Its 3 arguments can be given like `hsl(<H>,<S>,<L>)`. Unitless numbers are given to `<H>`. For `<S>,<L>`, % values, or values from 0.0 to 1.0 are given. ☞ `<color>`
hsla()	The `hsla()` function from CSS3 HSLA color values is available with both CSS and FO. Its 4 arguments can be given like `hsla(<H>,<S>,<L>,<A>)`. Unitless numbers are given to `<H>`. For `<S>,<L>`, % values, or values from 0.0 to 1.0 are given. For `<A>` % values, or values from 0.0 to 1.0 are given. ☞ `<color>`
cmyk()	Available to use `cmyk()` function. 4 arguments can be given like `cmyk(<C>,<M>,<Y>,<K>)`. For `<C>,<M>,<Y>,<K>`, % values, or values from 0.0 to 1.0 are given. `cmyk(<C>,<M>,<Y>,<K>)` is equivalent to `rgb-icc(#CMYK,<C>,<M>,<Y>,<K>)`. ☞ `<color>`
cmyka()	Available to use `cmyka()` function. 5 arguments can be given like `cmyka(<C>,<M>,<Y>,<K>,<A>)`. For `<C>,<M>,<Y>,<K>,<A>`, % values, or values from 0.0 to 1.0 are given. ☞ `<color>`
linear-gradient()	It is a function expressing the gradation. no-LT
radial-gradient()	
repeating-linear-gradient()	
repeating-radial-gradient()	
counter()	Extends the `counter()` function from CSS. It can be used only with CSS.
attr()	The `attr()` function from the specification in CSS3 Values is available. It can be used only with CSS.
-ah-attr-img()	Same as `attr()`, but provided for referencing the width/ height of an image such as `<img>`. It can be used only with CSS. V7.1
-ah-attr-from()	Extends the `attr()` function. It can be used only with CSS.

Extended Units

Besides the units defined by the XSL specification, the following units can be used. These can also be applied to CSS.

Unit name	Description
rem	Unit of em in the root element. It cannot be used for the value of the font-size property in the root element. ☞ CSS Values and Units
dcem	Unit of the value based on the font size of a dropped initial. It can be used in elements for which the axf:initial-letters property is specified. It cannot be used for the value of the axf:initial-letters property. When dcem is not available, it is treated as em.
ex	Unit of the value based on x-height of the font. When the font does not have x-height, a value of 0.5em should be used. ☞ CSS Values and Units

Unit name	Description
cap	Unit of the value based on cap-height of the font. When the font does not have cap-height, a value of altitude of the font should be used. ☞ CSS Values and Units
jpt	Unit of the absolute value defined by JIS Z 8305. 1jpt = 0.3514mm.
q	Unit of the absolute value expressing Q (quarter) by JIS X 4052, JIS Z 8125. 1q = 0.25mm.
dpi	Used when expressing the resolution with axf:image-resolution.
emu	Unit of the absolute value expressing English Metric Unit. 1emu = 1in/914400 = 1cm/360000.
ch	Unit of the length expressing the width of character "0" U+0030 to be 1. When the glyph is not in the font, a value of 0.5em should be used. ☞ CSS Values and Units
ic	Unit of the length expressing the width of character "水" U+6C34 to be 1. When the glyph is not in the font, a value of 1em should be used. ☞ CSS Values and Units
lh	Unit of the length expressing the line-height to be 1. Even if line-height="2" is specified, for example, lh is converted into the absolute value. It cannot be used for the value of the line-height property. ☞ CSS Values and Units
rlh	Unit of lh in the root element. It cannot be used for the value of the line-height property in the root element. ☞ CSS Values and Units
vw	Unit of the width expressing the viewport width as 100. It cannot be used with elements for which a viewport, such as the root element, has not been established. ☞ CSS Values and Units
vh	Unit of the height expressing the viewport height as 100. It cannot be used with elements for which a viewport, such as the root element, has not been established. ☞ CSS Values and Units
vmin	Equal to the smaller length of vw or vh. It cannot be used with elements for which a viewport, such as the root element, has not been established. ☞ CSS Values and Units
vmax	Equal to the larger length of vw or vh. It cannot be used with elements for which a viewport, such as the root element, has not been established. ☞ CSS Values and Units
pvw	Unit of the width expressing the page width as 100. It cannot be used with elements for which a viewport, such as the root element, has not been established.
pvh	Unit of the height expressing the page height as 100. It cannot be used with elements for which a viewport, such as the root element, has not been established.
pvmin	Equal to the smaller length of pvw or pvh. It cannot be used with elements for which a viewport, such as the root element, has not been established.
pvmax	Equal to the larger length of pvw or pvh. It cannot be used with elements for which a viewport, such as the root element, has not been established.
gr	Unit to specify spanning columns. It cannot be used with elements that do not have a reference area such as the root element.

Other Extensions

1. In the XSL specification, the unit has to be put on the value which shows the length. In **AH Formatter V7.1**, “0” without the unit is also acceptable only when the length value is zero.
2. In the XSL Specification, the description order of `<fo:region-*>` is defined as follows:

   ```
   (region-body+,region-before?,region-after?,region-start?,region-end?)
   ```

   However its rendering order is not defined. For this reason, if a part of region overlaps, it's important to determine which region should appear first. (With z-index, the order between `region-*` cannot be controlled.) **AH Formatter V7.1** handles the `<fo:region-*>` elements in any description order and renders them exactly in that order. If you describe `<fo:region-body>` last of all, then the content can be rendered upper than the other `<fo:region-*>`.
3. In the XSL Specification, the width of the padding or the border specified to `<fo:region-body>` or `<fo:region-before>`, etc. should be zero. **AH Formatter V7.1** can accept and process values other than zero. The following is sample code.

```
<fo:region-body padding="1.5cm" border-color="red" border-style="solid"
                                                                  border-width="2pt"/>
```

4. Although only xml:lang of the XML specification is explicitly stated in the XSL specification, **AH Formatter V7.1** accepts the following XML input. The same is applied to XHTML and XML+CSS.
   - xml:lang
   - xml:base
     Functions the same as axf:base-uri.
   - xml:id
     Functions the same as 7.30.8 id.
   - xlink:href
     Treats the href attribute of the XLink namespace as a link.

Document Information

This section describes how to embed document information into PDF file.

<axf:document-info> / HTML <meta>

Document information such as an author and title can be embedded in the PDF. **AH Formatter V7.1** generates document information automatically by adding the following extended elements. The information that was embedded into PDF can be seen by Adobe Acrobat or Reader.

Common Usage:

Specifies the document information. The information is not included in the generated areas. For example, this information is embedded into PDF.

Areas:

None.

Constraints:

```
<!ELEMENT axf:document-info EMPTY>
<!ATTLIST axf:document-info name  CDATA #REQUIRED>
<!ATTLIST axf:document-info value CDATA #REQUIRED>
```

Contents:

EMPTY

Examples:

```
<fo:root xmlns:fo="http://www.w3.org/1999/XSL/Format"
         xmlns:axf="http://www.antennahouse.com/names/XSL/Extensions">
 ...
 <fo:declarations>
  <axf:document-info name="document-title" value="The document title"/>
  <axf:document-info name="subject" value="The document subject"/>
  <axf:document-info name="author" value="The author"/>
  <axf:document-info name="keywords" value="Comma-separated keywords list"/>
 </fo:declarations>
 ...
```

In HTML, the setting equivalent to `<axf:document-info>` can be specified with the name attribute in the `<meta>` tag. The setting of `<meta name="document-title">` will take precedence over the setting of `<title>`. See also `(-ah-)display` to learn more about `<meta>`.

```
<meta name="document-title" content="The document title" />
<meta name="subject" content="The document subject"/ >
<meta name="author" content="The author" />
<meta name="keywords" content="Comma-separated keywords list" />
...
```

The `<axf:document-info>` extension property can be placed as a child of `<fo:declarations>`, or as the first child element of `<fo:page-sequence>`. `<axf:document-info>` as a child of `<fo:page-sequence>` is effective only for PDF output in multi

separate volume. `<axf:document-info>` as a child of `<fo:page-sequence>` overwrites `<axf:document-info>` as a child of `<fo:declarations>` and is utilized for an information of the document when outputting in separate volume. Therefore the same document information is embedded in all the separate volumes unless `<axf:document-info>` is specified to `<fo:page-sequence>`.

With **AH Formatter V7.1 Lite**, `<axf:document-info>` specified to `<fo:page-sequence>` is ignored.

Properties of `<axf:document-info>` are name and value, both are required. The value of name must be one of the following. The information with "*" will be outputted either to the first document or all documents generated by multi-volume output by specifying the axf:document-info-include property. Other information will be always outputted to all documents generated by multi-volume output.

- `document-title`

  Specifies the title of the document.
- `subject`

  Specifies the subtitle of the document.
- `author`

  Specifies the author of the document.
- `author-title` no-LT

  Specifies the title or some keywords of the author.
- `description-writer` no-LT

  Specifies the author of the document description.
- `keywords`

  Enumerates the comma-deliminated keyword.
- `copyright-status` no-LT

  Specifies the status of the copyright using either of the following.
  - `Unknown`
  - `Copyrighted`
  - `PublicDomain`

  Effective with PDF1.4 or later.
- `copyright-notice` no-LT

  Specifies the information of the copyright. Effective with PDF1.4 or later.
- `copyright-info-url` no-LT

  Specifies the URL of the copyright information. This URL is treated just as a character string and the program does not access this URL. Effective with PDF1.4 or later.
- `xmp` no-LT

  Specifies the URL of XMP. This URL follows `<uri-specification>` in the XSL specification. See also URI. The validity of a XMP file is checked simply whether it is well-formed or not. Effective with PDF1.4 or later.

  CAUTION: When contradictory or incorrect contents are included, the effect is not guaranteed.

  The following settings become invalid when XMP is specified.
  - `<axf:custom-property>`

  When `<axf:document-info>` has the following specifications, it will be compensated if there is no corresponding description in XMP.
  - `document-title`
  - `subject`
  - `author`
  - `author-title`
  - `description-writer`
  - `keywords`
  - `copyright-status`
  - `copyright-notice`
  - `copyright-info-url`

  In addition, the contents of **AH Formatter V7.1** or the current time is set to the following contents in XMP.
  - `<pdf:Producer>`

  - `<xmp:CreatorTool>`
  - `<xmp:CreateDate>`
  - `<xmp:ModifyDate>`

- `pagemode` *

  Specifies the method of the display when the document is opened. The following one can be specified.

  - `UseNone`
    Neither document outline nor thumbnail images visible
  - `UseOutlines`
    Document outline visible
  - `UseThumbs`
    Thumbnail images visible
  - `FullScreen`
    Full-screen mode, with no menu bar, window controls, or any other window visible
  - `UseOC`
    Optional content group panel visible

  `UseOC` can be specified for PDF1.5 or later. The default is `UseOutlines` when the outline exists.

  “Document outline” is expressed as “bookmark” in Adobe Acrobat or Reader.

- `pagelayout` *

  Specifies the page layout when a document is opened. You can specify either of the following.

  - `SinglePage`
    Display one page at a time
  - `OneColumn`
    Display the pages in one column
  - `TwoColumnLeft`
    Display the pages in two columns, with odd-numbered pages on the left
  - `TwoColumnRight`
    Display the pages in two columns, with odd-numbered pages on the right
  - `TwoPageLeft`
    Display the pages two at a time, with odd-numbered pages on the left
  - `TwoPageRight`
    Display the pages two at a time, with odd-numbered pages on the right

  `TwoPageLeft` and `TwoPageRight` can be specified for PDF1.5 or later. When nothing is specified, it depends on the operation of the PDF viewer application.

- `hidetoolbar` *

  Specifies whether to hide a tool bar or not when a document is opened with the value of `true` or `false`. The default value is `false`.

- `hidemenubar` *

  Specifies whether to hide a menu bar or not when a document is opened with the value of `true` or `false`. The default value is `false`.

- `hidewindowui` *

  Specifies whether to hide user interface elements (a scroll bar, the control for navigation, etc.). or not when a document is opened with the value of `true` or `false`. The default value is `false`.

- `fitwindow` *

  Specifies whether to change the size of a document window to fit the page size or not when a document is opened with the value of `true` or `false`. The default value is `false`.

- `centerwindow` *

  Specifies whether to arrange a document window in the center of a screen or not when a document is opened with the value of `true` or `false`. The default value is `false`.

- `displaydoctitle` *

  Specifies whether to display the title of a document or not when a document is opened with the value of `true` or `false`. The default value is `false`. Effective with PDF1.4 or later.

- `openaction` *

Specifies the address displayed when the document is opened or the action executed. The value similar to `<number-with-fragment>` of internal-destination can be described here. See also Making Link too. Action with a name and JavaScript can also be specified at this time.

- value="#Named=Print"
  The print dialog will be displayed when the document is opened.
- value="#Named=LastPage"
  The last page is displayed when the document is opened.
- value="#JavaScript=arbitrary JavaScript program"
  Executes the specified JavaScript.

"#" `Named` coming right after or JavaScript are case insensitive. Actions which can be specified to `Named` correspond to the menu name of a viewer. The operation in the case where an unknown name is specified to `Named`, or in the case where the wrong program is specified to JavaScript are not guaranteed. JavaScript cannot be specified with PDF/A. If allow-javascript="false" is specified in the Option Setting File, the specified JavaScript is ignored.

- `createdate`, `modifydate`

  Specifies "/CreationDate", "/ModDate" in PDF. When `modifydate` is not specified, it is considered the current time. When `createdate` is not specified, it is considered `modifydate`. If `modifydate` is older than `createdate`, it will be adjusted to `createdate`.

  The date format is a string in the ISO 8601 format. The following format of this standard is accepted:

  - `YYYY-MM-DD(Thh(:mm(:ss)?)?)?(Z|±hh(:mm)?)?`

  The numbers 0 to 9 are given to `Y`, `M`, `D`, `h`, `m` and `s`, either "+" or "-" is given to "`±`". Date "`-`" and time "`:`" separators may be omitted. For example, the following strings are acceptable:

  - `2018-04-13T12:34:56+09:00`
  - `2018-04-13T12:34+09`
  - `20180413T123456+09`
  - `20180413T1234`

  When time zone is omitted, it is considered the system time zone (local time). Even dates that do not exist are appropriately corrected. The setting is ignored for dates before 1970, invalid strings, and dates that cannot be corrected.

<axf:custom-property> / HTML <meta> no-LT

Specifies the custom property in PDF. Effective with PDF1.4 or later. Invalid with PDF/A.

Common Usage:

Specifies the custom property. This element does not create an area.

Areas:

None.

Constraints:

```
<!ELEMENT axf:custom-property EMPTY>
<!ATTLIST axf:custom-property name  CDATA #REQUIRED>
<!ATTLIST axf:custom-property value CDATA #REQUIRED>
```

Contents:

EMPTY

In HTML, the setting equivalent to `<axf:custom-property>` can be specified with the itemprop attribute in the `<meta>` tag. If both the itemprop attribute and the name attribute are specified, the name attribute will be ignored.

```
<meta itemprop="Custom-Prop" content="blah blah blah"/>
...
```

The `<axf:custom-property>` extension can be placed in the child of `<fo:declarations>`. Its properties are name and value, both of which are mandatory. Neither should be empty. The following cannot be specified to name. name is case sensitive. itemprop in `<meta>` is the same as name.

- `Title`
- `Author`

- `Subject`
- `Keywords`
- `Creator`
- `Producer`
- `CreationDate`
- `ModDate`
- `Trapped`

This element is not available with **AH Formatter V7.1 Lite**.

HTML <meta name="color-profile"> V7.1 no-LT

Use `<meta>` in HTML to specify the same as `<fo:color-profile>` in FO. For example,

```
<fo:color-profile color-profile-name="#CMYK" src="JapanColor2001Coated.icc#OutputConditionIdentifier=J
```

is described as follows:

```
<meta name="color-profile" content="name='#CMYK' src='JapanColor2001Coated.icc#OutputConditionIdentifi
```

content is a list of `<name>=<value>` separated by spaces, and one of the following can be specified:

- `name=<string>`
- `src=<string>`
- `rendering-intent=[auto | perceptual | relative-colorimetric | saturation | absolute-colorimetric]`

These features are not available with **AH Formatter V7.1 Lite**.

axf:pdftag / CSS -ah-pdftag no-LT

Specifies the tag name of Tagged PDF.

Value:	<string>
Initial:	empty string
Applies to:	all formatting objects
Inherited:	no
Percentages:	N/A

Customizes the tag name when outputting Tagged PDF. When you want to make the tag name of the relevant element “Paragraph”, e.g., specify as follows:

```
<fo:block axf:pdftag="Paragraph">
```

When new-tagging-mode is set to `true`, and an empty string is specified explicitly as shown below, that element does not create a tag but belongs to the tag to which the parent area belongs.

```
<fo:block axf:pdftag="''">
```

Multiple Separate Volume no-LT

AH Formatter V7.1 makes it possible to output PDF in Multiple Separate Volume. These features are not available in CSS. These features are not available with **AH Formatter V7.1 Lite**.

<axf:output-volume-info>

Common Usage:

Makes it possible to output PDF in separate volume per `<fo:page-sequence>` when outputting the formatted result.

Areas:

None.

Constraints:

```
<!ELEMENT axf:output-volume-info EMPTY>
<!ATTLIST axf:output-volume-info initial-volume-number NMTOKEN "1"><!-- digits -->
<!ATTLIST axf:output-volume-info format                CDATA   "1">
<!ATTLIST axf:output-volume-info bookmark-include (first|all|separate) "separate">
```

The `<axf:output-volume-info>` is placed as a child of `<fo:declarations>`.

Contents:

EMPTY

Examples:

```
<axf:output-volume-info
  initial-volume-number="2"
  format="-1"
  bookmark-include="separate"
/>

<fo:page-sequence>
  PAGE-SEQUENCE-1
  ...
</fo:page-sequence>
<fo:page-sequence>
  PAGE-SEQUENCE-2
  ...
</fo:page-sequence>
<fo:page-sequence axf:output-volume-break="true">
  PAGE-SEQUENCE-3
  ...
</fo:page-sequence>
```

Effective only when outputting to files. It's not available for printing or stream output. At that time the file name should be given by GUI, command line parameter or etc. The file names of separate volumes are given automatically based on the output file names. This process is done by inputting the strings formatted by the format property right before the file extension of the output file name. In the above example, when `document.pdf` is given to the file name, PAGE-SEQUENCE-1 and PAGE-SEQUENCE-2 are outputted to `document-2.pdf`, PAGE-SEQUENCE-3 is outputted to `document-3.pdf`.

The numeric value applied to the format property can be given by the axf:initial-volume-number property as the initial value. The format property is the same as “7.26.1. format” in the XSL-FO specification.

The volume is separated by the axf:output-volume-break property specified to `<fo:page-sequence>`. If the axf:output-volume-filename property is specified, only the separated volumes can be outputted with the specified file name.

The book mark of PDF in multi separate volume can be set by the axf:bookmark-include from the following options. However it is invalid for bookmarks created by `<fo:bookmark>`. Use axf:outline-*.

- Adds a bookmark to the first separate volume only.
- Adds bookmarks to all the separate volumes.
- Adds each bookmark to each separate volume.

The following conditions are required for the actual separate volume.

- The `<axf:output-volume-info>` element should be included in FO.
- The following items are set in each interface.

GUI	Multi Volume should be checked in the PDF Output Dialog.
Command-line	The -multivol parameter should be specified.
.NET	`true` should be specified to the MultiVolume property.
COM	`true` should be specified to the MultiVolume property.
Java	The separate volume should be specified by XfoObj::setMultiVolume().
C/C++	The separate volume should be specified by XfoObj::setMultiVolume().

axf:bookmark-include no-LT

Specifies how to include bookmarks in multi separate volume.

Value:	first | all | separate | separate-group
Initial:	separate
Applies to:	axf:output-volume-info
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`first`

Adds a bookmark to the first separate volume.

`all`

Adds bookmarks to all the separate volumes.

`separate`

Adds each bookmark to each separate volume. Bookmarks are added to the volume where axf:outline-level="1" appears. The bookmark that goes across the volume is added to the previous volume. For that reason, the external link to the other volume may be included even though axf:bookmark-include="separate" is specified. Bookmarks grouped by axf:outline-group are attached to the last separate volume.

`separate-group`

Same as `separate`, but also adds grouped bookmarks to each volume.

CAUTION: It is invalid for bookmarks created by `<fo:bookmark>`. Use axf:outline-*.

This property is not available with **AH Formatter V7.1 Lite**.

axf:document-info-include no-LT

Specifies how to include document information in multi separate volume.

Value:	first | all
Initial:	first
Applies to:	axf:output-volume-info
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`first`

Adds document information to the first separate volume.

`all`

Adds document information to all the separate volumes.

See `<axf:document-info>`. This property is not available with **AH Formatter V7.1 Lite**.

axf:initial-volume-number no-LT

Specifies the initial volume number in multi separate volume.

Value:	<number>
Initial:	1
Applies to:	axf:output-volume-info
Inherited:	no
Percentages:	N/A

This value is applied for the format property and utilized for the PDF file name to output. In the following example, the file name of the separate volume is `document-2.pdf`, `document-3.pdf`, `document-4.pdf`, and so on.

```
<axf:output-volume-info
  initial-volume-number="2"
  format="-1"
/>
```

This property is not available with **AH Formatter V7.1 Lite**.

axf:output-volume-break no-LT

Separates the file in multi volume.

Value:	true | false
Initial:	false
Applies to:	fo:page-sequence
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`true`

Separates the volume newly from this `<fo:page-sequence>`.

`false`

Do not separates the volume newly from this `<fo:page-sequence>`.

Specifies axf:output-volume-break="true" to `<fo:page-sequence>` where you want to start separating the volume. The document number increases one by one. When separating the volume, axf:output-volume-break="true" is considered to be always being specified to the first `<fo:page-sequence>`. If axf:output-volume-break="false" is specified explicitly, it is ignored.

This property is not available with **AH Formatter V7.1 Lite**.

axf:output-volume-filename no-LT

Specifies the document file name in multi separate volume.

Value:	<string>
Initial:	empty string
Applies to:	fo:page-sequence
Inherited:	no
Percentages:	N/A

If nothing specified, the automatic file name using the format property is adopted. If this property is specified, the specified name is adopted. This property is effective only with the top `<fo:page-sequence>` or with the `<fo:page-sequence>` where axf:output-volume-break="true" is specified.

In the following example, suppose that if `document.pdf` is specified as the file name of the PDF output, the separated file names will be `document-2.pdf`, `chapterX.pdf`, `document-4.pdf`, and so on.

```
<axf:output-volume-info
  initial-volume-number="2"
  format="-1"
/>

<fo:page-sequence>
  ...
</fo:page-sequence>
<fo:page-sequence axf:output-volume-break="true" axf:output-volume-filename="chapterX.pdf">
  ...
</fo:page-sequence>
<fo:page-sequence axf:output-volume-break="true">
  ...
</fo:page-sequence>
```

The original PDF file name cannot be omitted even though axf:output-volume-filename is specified to all the `<fo:page-sequence>`. This property is not available with **AH Formatter V7.1 Lite**.

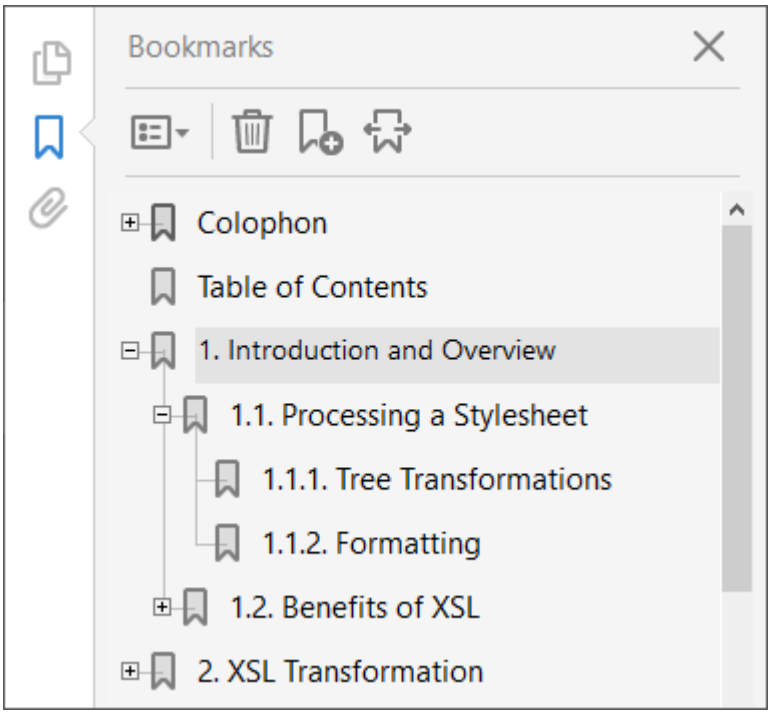
Bookmark and Link

This section describes how to create bookmark and link within the PDF file.

Making Bookmark

A PDF document has a function called bookmarks. Bookmarks in Adobe Acrobat or Reader consist of a tree-structured hierarchy which serve as a “visual table of contents”, allowing the user to navigate to the target place by clicking on items.

CAUTION: A similar function is provided in XSL 1.1. Use `<fo:bookmark>`. However, use axf:outline-* instead of `<fo:bookmark>` when you output PDF in Multi Separate Volume.



AH Formatter V7.1 generates bookmarks automatically by adding the extended properties to the objects to have bookmarks.

The following sample illustrates how to create the bookmark of the above picture.

```
<fo:root xmlns:fo="http://www.w3.org/1999/XSL/Format"
         xmlns:axf="http://www.antennahouse.com/names/XSL/Extensions">
...
<fo:block axf:outline-level="1"
          axf:outline-expand="false"
          axf:outline-title="Colophon">
  ...
</fo:block>
<fo:block axf:outline-level="1"
          axf:outline-expand="false"
          axf:outline-title="Table of Contents">
  ...
</fo:block>
<fo:block axf:outline-level="1"
          axf:outline-expand="true"
          axf:outline-title="1. Introduction and Overview">
  <fo:block axf:outline-level="2"
            axf:outline-expand="true"
            axf:outline-title="1.1. Processing a Stylesheet">
    <fo:block axf:outline-level="3"
              axf:outline-expand="false"
              axf:outline-title="1.1.1. Tree Transformations">
      ...
    </fo:block>
    <fo:block axf:outline-level="3"
              axf:outline-expand="false"
              axf:outline-title="1.1.2. Formatting">
```

```
      ...
    </fo:block>
  </fo:block>
  <fo:block axf:outline-level="2"
            axf:outline-expand="false"
            axf:outline-title="1.2. Benefits of XSL">
    ...
  </fo:block>
</fo:block>
<fo:block axf:outline-level="1"
          axf:outline-expand="false"
          axf:outline-title="2. XSL Transformation">
  ...
</fo:block>
...
```

axf:outline-expand / CSS -ah-outline-expand

Specifies whether to display the lower hierarchy of bookmark items or not.

Value:	true | false
Initial:	true
Applies to:	block-level formatting objects
Inherited:	no
Percentages:	N/A

`true` specifies to display the lower hierarchy in the expanded state. `false` specifies to display in the collapsed state. In CSS, `(-ah-)bookmark-state` is also available.

axf:outline-group / CSS -ah-outline-group

Groups bookmark items, and outputs them collectively.

Value:	<string>
Initial:	empty string
Applies to:	block-level formatting objects
Inherited:	no
Percentages:	N/A

If this property is omitted or specifies empty string, bookmark items are not grouped. If this specifies any string, the string is used as the name of group. The group with the same name is outputted collectively. The non-grouped bookmark is outputted as the group without the group name.

axf:outline-level / CSS -ah-outline-level

Indicates the hierarchy level of bookmark items.

Value:	<number>
Initial:	0
Applies to:	block-level formatting objects
Inherited:	no
Percentages:	N/A

The `<number>` must be a non-negative integer. Initial value is 0 and it means that bookmarks should not be created. The highest level of bookmarks is 1 and it becomes 2 or more according to the hierarchy level of the bookmarks. In CSS, `(-ah-)bookmark-level` is also available.

axf:outline-title / CSS -ah-outline-title

Specifies the string which appears as a title of bookmarks.

Value:	<string>
Initial:	empty string
Applies to:	block-level formatting objects
Inherited:	no
Percentages:	N/A

If this property is omitted or has an empty string, the text of the object to which the property is added will become the title. In other words, the following two samples create the same bookmark.

```
<fo:block axf:outline-level="2" axf:outline-title="1. Introduction">...
```

```
<fo:block axf:outline-level="2">1. Introduction</fo:block>
```

In CSS, `(-ah-)bookmark-label` is also available.

axf:outline-color / CSS -ah-outline-color no-LT

Specifies the color which appears as a title of bookmarks.

Value:	<color>
Initial:	transparent
Applies to:	block-level formatting objects
Inherited:	no
Percentages:	N/A

When transparent is specified, the color information is not set to PDF.

This property is effective with PDF1.4 or later. This property is not available with **AH Formatter V7.1 Lite**.

axf:outline-font-style / CSS -ah-outline-font-style no-LT

Specifies the font style which appears as a title of bookmarks.

Value:	normal | italic
Initial:	normal
Applies to:	block-level formatting objects
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`normal`

Specifies normal style.

`italic`

Specifies italic.

This property is effective with PDF1.4 or later. This property is not available with **AH Formatter V7.1 Lite**.

axf:outline-font-weight / CSS -ah-outline-font-weight no-LT

Specifies the font weight which appears as a title of bookmarks.

Value:	normal | bold
Initial:	normal
Applies to:	block-level formatting objects
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`normal`

Specifies normal weight.

`bold`

Specifies bold weight.

This property is effective with PDF1.4 or later. This property is not available with **AH Formatter V7.1 Lite**.

Remarks

- These properties have to be created in block areas or inline areas (`<fo:block>`, `<fo:inline>` ...). If you specify them in an `<fo:wrapper>`, for example, they are not effective.
- When the language is not supported in Acrobat and the font that belongs to the unsupported language is specified for the bookmark, there may be a possibility of the font displaying incorrectly in Adobe Acrobat or Reader.

Making Link

In XSL-FO, PDF links can be created easily by using `<fo:basic-link>`. In HTML, `<a>` is used to create links.

PDF links are classified either as an internal link to a specified position in the PDF document, or as an external link to an external document. The internal-destination property of `<fo:basic-link>` indicates a link to a position in the same document. The external-destination property indicates a link to an external document. Below are the examples of both.

- Internal Link

```
<fo:block>
Answer may be found in <fo:basic-link
                            internal-destination="appendix-a">Appendix-A</fo:basic-link>.
</fo:block>
...
<fo:block id="appendix-a">
Appendix-A
</fo:block>
```

- External Link

```
<fo:block>
Here is <fo:basic-link external-destination="https://www.w3.org/">W3C Home
                                                                    Page</fo:basic-link>.
</fo:block>
```

The external link specified by the local file is transformed into either “Open the file” or “World Wide Web link” by the use-launch-for-local-file property in PDF Output Settings. The external link specified by the non-local file is always transformed into “World Wide Web link”.

Furthermore, it's possible to specify professional links as follows:

- Specifies the following actions for the external link explicitly.
  - Moves the destination inside PDF (GoToR)
  - Opens the file (Launch)
  - World Wide Web link (URI)
- Possible to specify ID (named destination) for an external link to another PDF.
- Possible to specify ID (named destination) for an internal link.
- Possible to specify the page number for the external link in PDF.
- Possible to specify the page number for the internal link.
- Possible to specify the type of destination for the external link.
- Possible to specify the type of destination for the internal link.
- Possible to specify the external link in the bookmark.
- Possible to specify the internal link in the bookmark.

For further understanding see also ISO 32000-1 or ISO 32000-2. The professional links are not available with **AH Formatter V7.1 Lite**.

The setting of external-destination for the external link in PDF conforms to the following specification of PDF parameters. Not all the parameters are effective with **AH Formatter V7.1**. The invalid parameters are ignored.

- PDF Open Parameters

This specification provides the following examples.

- `http://mydocs/doc.pdf#nameddest=Chapter6`

- http://mydocs/doc.pdf#page=3
- http://mydocs/doc.pdf#page=3&zoom=200,250,100
- http://mydocs/doc.pdf#zoom=50
- http://mydocs/doc.pdf#page=72&view=fitH,100
- http://mydocs/doc.pdf#view=fitb&nameddest=Chapter3
- http://mydocs/doc.pdf#pagemode=none
- http://mydocs/doc.pdf#pagemode=bookmarks&page=2
- http://mydocs/doc.pdf#page=3&pagemode=thumbs

Only the following parameters are effective with **AH Formatter V7.1**. The case sensitivity is ignored.

- nameddest
- page
- zoom
- view
- viewrect

For example, it's invalid to specify fitH, fitR and fitBH for the external link. These are effective only with the internal link. If the required values for the PDF parameters are omitted in fitH, etc., the values are accounted as 0.

With the external link for PDF, it's possible to specify whether to open a new window by the show-destination property. A link destination except PDF is invalid. If show-destination="new" is specified, a new window will be opened and PDF will be displayed on the window. If show-destination="replace" is specified, a new window will not be opened but PDF will be displayed in the current window. When nothing is specified, it depends on the operation of the PDF viewer application. Although it is defined as "replace" in the XSL-FO specification when the property is omitted, **AH Formatter V7.1** complies with the specification a little differently. show-destination property is invalid under the following conditions.

- Other than the case that axf:action-type is specified as "gotor" or as "launch" when the link destination is PDF.
- In the internal link. There may be a case that an internal link is embedded as an external link when separating the volume. show-destination specified to the internal link is effective only in that case.

AH Formatter V7.1 provides the following extension properties for the professional link.

axf:action-type / CSS -ah-action-type

Specifies the action of External Link. See also Form Actions.

Value:	auto | gotor | launch | uri
Initial:	auto
Applies to:	fo:basic-link
Inherited:	no
Percentages:	N/A

Values have the following meanings:

auto

Dependent on the system setting.

gotor

Opens the link destination by the “GoToR” action as PDF. The URI of the link destination is considered PDF.

launch

Opens the link destination by the “Launch” action as the file.

uri

Opens the link destination by the “URI” action as URI (World Wide Web).

When the link destination is not a local file, such as http:, the action type is “URI” at any time. When axf:action-type="auto" specified, the external link specified by the local file is transformed into either “Open the file” or “World Wide Web link” by the

use-launch-for-local-file property in PDF Output Settings. The external link specified by the non-local file is always transformed into “World Wide Web link”.

axf:destination-type / CSS -ah-destination-type no-LT

Specifies the way a link opens in a link destination.

Value: <string>
Initial: empty string
Applies to: block level formatting object
Inherited: no
Percentages: N/A

The destination type has the following options. If nothing specified, it's accounted as axf:destination-type="xyz-top". The case sensitivity is ignored. axf:destination-type can be specified together with ID in the External Link, ID in the Internal Link, Page Number in the External Link, Page Number in the Internal Link, Bookmark with the External Link and Bookmark with the Internal Link.

CAUTION: Although the link functions in GUI, axf:destination-type is invalid and it is always considered `xyz-left-top`.

Destination Type of PDF	How to specify axf:destination-type
[page /XYZ left top zoom]	**AH Formatter V7.1** calculates the value of left/top. However it's possible to specify null or non-null explicitly. The user can specify the arbitrary value for zoom. axf:destination-type="xyz" Specifies left and top as null. axf:destination-type="xyz-left" Specifies top as null. axf:destination-type="xyz-top" Specifies left as null. axf:destination-type="xyz-left-top" If nothing is specified to zoom, it's accounted as null. Specifies % value to zoom as follows: axf:destination-type="xyz-top 75" If only the numbers are specified, the value is accounted for xyz-top. axf:destination-type="75"
[page /Fit]	axf:destination-type="fit"
[page /FitH top]	**AH Formatter V7.1** calculates the value of top. Effective only to specify in the internal link. axf:destination-type="fith"
[page /FitV left]	**AH Formatter V7.1** calculates the value of left. axf:destination-type="fitv"
[page /FitR left bottom right top]	**AH Formatter V7.1** calculates the value of left/bottom/right/top. Effective only to specify in the internal link. axf:destination-type="fitr"
[page /FitB]	axf:destination-type="fitb"
[page /FitBH top]	**AH Formatter V7.1** calculates the value of top. Effective only to specify in the internal link. axf:destination-type="fitbh"
[page /FitBV left]	**AH Formatter V7.1** calculates the value of left. axf:destination-type="fitbv"

This property is not available with **AH Formatter V7.1 Lite**.

axf:outline-external-destination / CSS -ah-outline-external-destination no-LT

Sets the external link in the PDF bookmark.

Value: <uri-specification>
Initial: empty string
Applies to: block-level formatting objects
Inherited: no
Percentages: N/A

Values have the following meanings:

`<uri-specification>`

Specifies the URI of the link destination.

This property is not available with **AH Formatter V7.1 Lite**.

axf:outline-internal-destination / CSS -ah-outline-internal-destination no-LT

Sets the internal link in the PDF bookmark.

Value:	<idref> | <number-with-fragment>
Initial:	empty string
Applies to:	block-level formatting objects
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`<idref>`

Specifies the ID of the link destination.

`<number-with-fragment>`

Specifies the page number of the link destination. This string is simple numeric characters or the following string that combines numeric characters and a fragment with “#”. See Making Link for the fragment.

```
123#zoom=50
```

The page number also can be specified in the fragment.

```
#page=123&zoom=50
```

When the page number is not specified, it is usually considered the 1st page. However, when the top position is specified, it is considered the head of the page of a block where axf:outline-internal-destination is contained. For example, it is specified as follows:

```
#view=fit
#view=fith
#zoom=,,0
```

This property is not available with **AH Formatter V7.1 Lite**.

ID in the External Link

A link destination is created when axf:destination-type is set and the ID of the destination is specified in the id property.

```
<fo:block id="Chapter6" axf:destination-type="xyz-top">
```

The ID is specified in external-destination if the link destination is referred to from an external link in a different PDF. Only the `nameddest` parameter is valid in the URI.

```
<fo:basic-link external-destination="http://mydocs/doc.pdf#nameddest=Chapter6"
               axf:action-type="gotor">
```

ID in the Internal Link

A link destination is created when axf:destination-type is set and the ID of the destination is specified in the id property.

```
<fo:block id="Chapter6" axf:destination-type="xyz-top">
```

The ID is specified in internal-destination when creating an internal link.

```
<fo:basic-link internal-destination="Chapter6">
```

Page Number in the External Link

The page number can be accounted by the page parameter in the URI. If both page and nameddest are specified, nameddest takes priority. When specifying the page number, the destination information cannot be set to the link destination. Therefore the type of the destination is given by reading the parameter in the URI. The unreadable parameter is discarded.

```
<fo:basic-link external-destination="http://mydocs/doc.pdf#page=72&amp;view=fitH,100"
               axf:action-type="gotor">
```

When neither `page` nor `nameddest` are included in the parameter of the URI, it's accounted as `page=1`. The page number is accounted as physical in PDF.

Page Number in the Internal Link

Adds extension in order to specify the page number to the value of internal-destination.

```
<fo:basic-link internal-destination="72">
```

The type of the destination can be specified by adding the parameter of the external link URI.

```
<fo:basic-link internal-destination="72#view=fitH,100">
```

The page number is accounted as physical in PDF. If only the page number is specified, the type of the destination is accounted as `view=fit`.

Bookmark with the External Link

To specify the external link to the bookmark, specify the axf:outline-external-destination property as follows:

```
<fo:block axf:outline-level="1"
          axf:outline-title="Chapter 6"
          axf:outline-external-destination="http://mydocs/doc.pdf#nameddest=Chapter6"
          axf:action-type="gotor"
          show-destination="new">
```

At that time, this bookmark becomes independent of the block such as `fo:block`, etc., which the bookmark belongs to.

Bookmark with the Internal Link

To specify the internal link to the bookmark, specify the axf:outline-internal-destination property as follows:

```
<fo:block axf:outline-level="1"
          axf:outline-title="Chapter 6"
          axf:outline-internal-destination="Chapter6">
```

At that time, this bookmark becomes independent of the block such as `fo:block`, etc., which the bookmark belongs to.

Remarks

- Specify either internal-destination or external-destination.
- There may be a case that an internal link is accounted as an external link when separating the multi volume. At that time, the action type of the link is accounted as axf:action-type="gotor".
- When an unintended link is created, confirm the setting of your PDF viewer application first. For example, in Adobe Reader or Adobe Acrobat, the feature of “Create links from URLs” may create a link automatically.

Annotation no-LT

Annotations can be added to PDF with **AH Formatter V7.1**. For more details, see also ISO 32000-1 or ISO 32000-2. Annotations which can be specified here are a part of those. This function is not available with **AH Formatter V7.1 Lite**.

axf:annotation-type / CSS -ah-annotation-type no-LT

Specifies the type of the annotation.

Value: <string>

Initial:	empty string
Applies to:	all block-level and inline-level formatting objects
Inherited:	no
Percentages:	N/A

Any of the following types of the annotation can be specified.

- empty string
  No annotations.
- `Text`
  Text annotation.
- `FreeText`
  Free text annotation.
- `Stamp`
  Rubber stamp annotation.
- `FileAttachment`
  File attachment annotation.

Character strings are case insensitive.

`<fo:basic-link>` and HTML `<a>` always generate a `Link` annotation.

This property is not available with **AH Formatter V7.1 Lite**.

axf:annotation-author / CSS -ah-annotation-author no-LT

Specifies the author of the annotation.

Value:	<string>
Initial:	empty string
Applies to:	all block-level and inline-level formatting objects
Inherited:	no
Percentages:	N/A

This property is not available with **AH Formatter V7.1 Lite**.

axf:annotation-title / CSS -ah-annotation-title no-LT

Specifies the title of the annotation.

Value:	<string>
Initial:	empty string
Applies to:	all block-level and inline-level formatting objects
Inherited:	no
Percentages:	N/A

This property is effective with PDF1.5 or later. This property is not available with **AH Formatter V7.1 Lite**.

axf:annotation-contents / CSS -ah-annotation-contents no-LT

Specifies the content of the annotation.

Value:	<string>
Initial:	empty string
Applies to:	all block-level and inline-level formatting objects
Inherited:	no
Percentages:	N/A

Specifies the character string to be displayed for an `<fo:basic-link>` or HTML `<a>` or when axf:annotation-type specifies one of the following annotation types:

- `Text`
- `FreeText`

- `Stamp`
- `FileAttachment`

See Alternate descriptions are provided.

This property is not available with **AH Formatter V7.1 Lite**.

axf:annotation-color / CSS -ah-annotation-color no-LT

Specifies the color used for the background of the annotation.

Value:	<color> | none
Initial:	none
Applies to:	all block-level and inline-level formatting objects
Inherited:	no
Percentages:	N/A

This property is not available with **AH Formatter V7.1 Lite**.

axf:annotation-flags / CSS -ah-annotation-flags no-LT

Specifies the flag of the annotation.

Value:	<string>
Initial:	empty string
Applies to:	all block-level and inline-level formatting objects
Inherited:	no
Percentages:	N/A

Specifies the following character sequences by enumerating using the white space. They are case insensitive.

- `Invisible`
- `Hidden`
- `Print`
- `NoZoom`
- `NoRotate`
- `NoView`
- `ReadOnly`
- `Locked`
- `ToggleNoView`
- `LockedContents`

See also ISO 32000-1 or ISO 32000-2 to learn more.

This property is not available with **AH Formatter V7.1 Lite**.

axf:annotation-open / CSS -ah-annotation-open no-LT

Specifies the initial state of the annotation.

Value:	true | false
Initial:	false
Applies to:	all block-level and inline-level formatting objects
Inherited:	no
Percentages:	N/A

Specifies whether it is displayed in the open state when the type of the annotation (axf:annotation-type) is as follows:

- `Text`

Values have the following meanings:

`true`

Displays the annotation in the open state.

`false`

Displays the annotation in the closed state.

This property is not available with **AH Formatter V7.1 Lite**.

axf:annotation-icon-name / CSS -ah-annotation-icon-name no-LT

Specifies the name of the icon used for displaying the annotation.

Value:	<string>
Initial:	empty string
Applies to:	all block-level and inline-level formatting objects
Inherited:	no
Percentages:	N/A

Although arbitrary name can be specified for the icon used for the display of annotations, whether it can be displayed or not depends on the viewer application of a document. The annotation type (axf:annotation-type) shows the standard name which can be specified.

- `Text`
  Standard names are as follows:
  - `Comment`
  - `Help`
  - `Insert`
  - `Key`
  - `NewParagraph`
  - `Note`
  - `Paragraph`

  Empty string is considered `Note`.
- `Stamp`
  Standard names are as follows:
  - `Approved`
  - `AsIs`
  - `Confidential`
  - `Departmental`
  - `Draft`
  - `Experimental`
  - `Expired`
  - `Final`
  - `ForComment`
  - `ForPublicRelease`
  - `NotApproved`
  - `NotForPublicRelease`
  - `Sold`
  - `TopSecret`

  Empty string is considered `Draft`.
- `FileAttachment`
  Standard names are as follows:
  - `Graph`
  - `Paperclip`
  - `PushPin`
  - `Tag`

Empty string is considered `PushPin`.

This property is not available with **AH Formatter V7.1 Lite**.

axf:annotation-position-horizontal / CSS -ah-annotation-position-horizontal no-LT

Specifies the horizontal position of the annotation.

Value:	<length>
Initial:	0pt
Applies to:	all block-level and inline-level formatting objects
Inherited:	no
Percentages:	N/A

The position specified is the distance from the left edge of the region and is used for the position of pop-up or icons and the position of rubber stamp annotations.

This property is not available with **AH Formatter V7.1 Lite**.

axf:annotation-position-vertical / CSS -ah-annotation-position-vertical no-LT

Specifies the vertical position of the annotation.

Value:	<length>
Initial:	0pt
Applies to:	all block-level and inline-level formatting objects
Inherited:	no
Percentages:	N/A

The position specified is the distance from the top edge of the region and is used for the position of pop-up or icons and the position of rubber stamp annotations.

This property is not available with **AH Formatter V7.1 Lite**.

axf:annotation-width / CSS -ah-annotation-width no-LT

Specifies the width of the annotation.

Value:	<length> | auto
Initial:	auto
Applies to:	all block-level and inline-level formatting objects
Inherited:	no
Percentages:	N/A

This property is used for the width of pop-up and the width of rubber stamp annotations.

This property is not available with **AH Formatter V7.1 Lite**.

axf:annotation-height / CSS -ah-annotation-height no-LT

Specifies the height of the annotation.

Value:	<length> | auto
Initial:	auto
Applies to:	all block-level and inline-level formatting objects
Inherited:	no
Percentages:	N/A

This property is used for the height of pop-up and the height of rubber stamp annotations.

This property is not available with **AH Formatter V7.1 Lite**.

axf:annotation-font-family / CSS -ah-annotation-font-family no-LT

Specifies the font family of the free text annotation.

Value:	<string>

Initial: depends on user agent
Applies to: all block-level and inline-level formatting objects
Inherited: no
Percentages: N/A

This property is not available with **AH Formatter V7.1 Lite**.

axf:annotation-font-size / CSS -ah-annotation-font-size no-LT

Specifies the font size of the free text annotation.

Value: <absolute-size> | <relative-size> | <length> | <percentage>
Initial: depends on user agent
Applies to: all block-level and inline-level formatting objects
Inherited: no
Percentages: refer to the font size

This property is not available with **AH Formatter V7.1 Lite**.

axf:annotation-font-weight / CSS -ah-annotation-font-weight no-LT

Specifies the font weight of the free text annotation.

Value: normal | bold
Initial: normal
Applies to: all block-level and inline-level formatting objects
Inherited: no
Percentages: N/A

This property is not available with **AH Formatter V7.1 Lite**.

axf:annotation-font-style / CSS -ah-annotation-font-style no-LT

Specifies whether to make the font of the free text annotation italic.

Value: normal | italic
Initial: normal
Applies to: all block-level and inline-level formatting objects
Inherited: no
Percentages: N/A

This property is not available with **AH Formatter V7.1 Lite**.

axf:annotation-text-color / CSS -ah-annotation-text-color no-LT

Specifies the color of the free text annotation.

Value: <color>
Initial: depends on user agent
Applies to: all block-level and inline-level formatting objects
Inherited: no
Percentages: N/A

This property is not available with **AH Formatter V7.1 Lite**.

axf:annotation-text-align / CSS -ah-annotation-text-align no-LT

Specifies the alignment of the free text annotation.

Value: left | center | right
Initial: left
Applies to: all block-level and inline-level formatting objects
Inherited: no
Percentages: N/A

This property is not available with **AH Formatter V7.1 Lite**.

axf:annotation-border-style / CSS -ah-annotation-border-style no-LT

Specifies the border style of the free text annotation.

Value:	<border-style>
Initial:	solid
Applies to:	all block-level and inline-level formatting objects
Inherited:	no
Percentages:	N/A

The following can be specified for `<border-style>`. If anything else is specified, it is considered `solid`.

- `solid`
- `dotted`
- `dashed`
- `dot-dash`
- `dot-dot-dash`

This property is not available with **AH Formatter V7.1 Lite**.

axf:annotation-border-width / CSS -ah-annotation-border-width no-LT

Specifies the border width of the free text annotation.

Value:	<border-width>
Initial:	0pt
Applies to:	all block-level and inline-level formatting objects
Inherited:	no
Percentages:	N/A

This property is not available with **AH Formatter V7.1 Lite**.

axf:annotation-border-color / CSS -ah-annotation-border-color no-LT

Specifies the border color of the free text annotation.

Value:	<color>
Initial:	axf:annotation-text-color
Applies to:	all block-level and inline-level formatting objects
Inherited:	no
Percentages:	N/A

This property is not available with **AH Formatter V7.1 Lite**.

axf:annotation-file-attachment / CSS -ah-annotation-file-attachment no-LT

Specifies the file with which file attachment annotation is related.

Value:	<uri-specification>
Initial:	empty string
Applies to:	all block-level and inline-level formatting objects
Inherited:	no
Percentages:	N/A

This property is not available with **AH Formatter V7.1 Lite**.

axf:annotation-createdate / CSS -ah-annotation-createdate V7.1 no-LT

Specifies the annotation creation date.

Value:	<string>
Initial:	empty string
Applies to:	all block-level and inline-level formatting objects
Inherited:	no

Percentages: N/A

It is the value of /CreationDate in the annotation dictionary. If omitted, it is considered the same as axf:annotation-modifydate. See The date format for the character string that can be specified.

This property is not available with **AH Formatter V7.1 Lite**.

axf:annotation-modifydate / CSS -ah-annotation-modifydate V7.1 no-LT

Specifies the annotation modification date.

Value: <string>
Initial: empty string
Applies to: all block-level and inline-level formatting objects
Inherited: no
Percentages: N/A

It is the value of /M in the annotation dictionary. If omitted, it is considered the value of modifydate in `<axf:document-info>`. If axf:annotation-modifydate is older than axf:annotation-createdate, it will be adjusted to axf:annotation-createdate. See The date format for the character string that can be specified.

This property is not available with **AH Formatter V7.1 Lite**.

Acroform no-LT

It's possible to create PDF forms with **AH Formatter V7.1**. Forms consist of the field to fill in the text and buttons, etc. Moreover, the action can be specified.

- Form Fields
- Form Actions

Forms can be specified by describing `<axf:form-field>` inside `<axf:form>`.

```
<axf:form
  external-destination="http://www.antenna.co.jp/form-test.cgi"
  field-submit-method="post"
  field-submit-coordinates="true">
  <fo:block>
    Submit:
    <axf:form-field
      field-type="button"
      field-name="SubmitButton"
      action-type="submit"
      field-button-layout="caption"
      field-button-face="Submit!"
      width="5em"
      background-color="#eee"
      border="2px silver outset"
    />
  </fo:block>
  <fo:block>
    Text Field:
    <axf:form-field
      field-type="text"
      field-name="InputText"
      field-default-text="Input text here!"
      field-multiline="false"
      field-scroll="true"
      field-maxlen="32"
      width="10em"
      height="1.2em"
      background-color="#ff8"
      border="1pt silver inset"
    />
  </fo:block>
</axf:form>
```

When `<axf:form-field>` is not inside of `<axf:form>` and action-type is `submit` or `reset`, these do not function. `<axf:form-field>` other than these will work fine regardless of `<axf:form>`.

In the HTML form, the appearance of the following tags is specified by `html.css`. Tags other than these are ignored.

- `<form>`
- `<input>`
- `<button>`
- `<textarea>`
- `<select>`
- `<option>`

This function is not available with **AH Formatter V7.1 Lite**.

<axf:form> / HTML <form> no-LT

Common Usage:

Encloses the unit of the form action.

Areas:

Generates and returns a block-area.

Contents:

(`#PCDATA` | `%inline;` | `%block;`)*

axf:field-submit-method / CSS -ah-field-submit-method no-LT

Specifies the way to send the information when submitting a form field.

Value:	get | post
Initial:	get
Applies to:	axf:form
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`get`

Sends out a form as GET request.

`post`

Sends out a form as POST request.

axf:field-submit-coordinates / CSS -ah-field-submit-coordinates no-LT

Specifies whether to send out the coordinates of the mouse when submitting a form field.

Value:	false | true
Initial:	false
Applies to:	axf:form
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`false`

Does not send out the coordinates.

`true`

Sends out the coordinates.

<axf:form-field> / HTML <input> <button> <textarea> <select> no-LT

Common Usage:

Generates a form field.

Areas:

Generates and returns a single normal inline-area.

Contents:

(axf:form-field-option | axf:form-field-event)*

The main constraints of form fields generated by HTML forms are as follows:

- Not all attributes that can be specified for <input>, <button>, <textarea>, <select> are supported.
- Not all type that can be specified for <input> are supported.
- If search, tel, url, email, month, week, datetime-local are specified as the type of <input>, it is treated as -ah-field-type:text.
- By <input type="button">, <button type="button">, the button will be displayed, but it will not function as a field. In addition, only the text is valid for the contents displayed on the <button>.

See the contents of html.css to know more about supported features. Features not explicitly stated in html.css are invalid even if they are not listed in the constraint.

axf:field-type / CSS -ah-field-type no-LT

Specifies the field type.

Value:	text | button | checkbox | radio | listbox | combobox | signature
Initial:	N/A, a value is required
Applies to:	axf:form-field
Inherited:	no
Percentages:	N/A

Values have the following meanings:

text

Specifies the Text field.

button

Specifies the Push Button field.

checkbox

Specifies the Check Box field.

radio

Specifies the Radio Button field.

listbox

Specifies the List Box field.

combobox

Specifies the Combo Box field.

signature

Specifies the Digital Signature field.

axf:field-name / CSS -ah-field-name no-LT

Specifies the field name.

Value: <string>
Initial: N/A
Applies to: axf:form-field
Inherited: no
Percentages: N/A

If the name is omitted, an appropriate name will be generated.

axf:field-name-suffix-page-number no-LT

Adds a page number to the field name.

Value: <string>
Initial: empty string
Applies to: axf:form-field
Inherited: no
Percentages: N/A

Adds a page number to the name specified by axf:field-name. It's invalid when axf:field-name is not specified. A character string that can be specified is the one that can be specified by format. A page number is formatted and added. If it's an empty string, nothing is added.

This property is specified when creating a form in `<fo:static-content>` and you want to make a separate form on each page.

axf:field-description / CSS -ah-field-description no-LT

Specifies the descriptive text of the field.

Value: <string>
Initial: empty string
Applies to: axf:form-field
Inherited: no
Percentages: N/A

The string that was specified here as a value is shown as a tooltip with Acrobat etc.

axf:field-value / CSS -ah-field-value no-LT

Specifies the value used when submitting a form field, etc.

Value: <string>
Initial: empty string
Applies to: axf:form-field, axf:form-field-option
Inherited: no
Percentages: N/A

axf:field-flags / CSS -ah-field-flags no-LT

Specifies the flag of the field.

Value: <string>
Initial: empty string
Applies to: axf:form-field
Inherited: no
Percentages: N/A

Specifies the following character sequences by enumerating using the white space. They are case insensitive.

- `ReadOnly`
  Makes it a read-only field. Same as axf:field-readonly="true", but the axf:field-flags setting takes precedence.
- `Required`
  Makes it a input-required field. Same as axf:field-required="true", but the axf:field-flags setting takes precedence.
- `Multiline`
  Makes the text field multiple lines. Same as axf:field-multiline="true", but the axf:field-flags setting takes precedence.

- `Scroll`
  Makes the text field scrollable. Same as axf:field-scroll="true", but the axf:field-flags setting takes precedence.
- `Password`
  Makes the text field password-protected. Same as axf:field-password="true", but the axf:field-flags setting takes precedence.
- `Checked`
  Makes the check box and radio button being checked. Same as axf:field-checked="true", but the axf:field-flags setting takes precedence.
- `Multiple`
  Makes multiple items selectable in the list box. Same as axf:field-multiple="true", but the axf:field-flags setting takes precedence.
- `Editable`
  Makes the value editable in the combo box. Same as axf:field-editable="true", but the axf:field-flags setting takes precedence.
- `Hidden`
  Makes it a hidden field. However, the size of the field is secured. Backgrounds and borders are displayed.

This property is not available with **AH Formatter V7.1 Lite**.

axf:field-readonly / CSS -ah-field-readonly no-LT

Specifies whether the field is read-only or not.

Value:	true | false
Initial:	false
Applies to:	axf:form-field
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`true`

The field is read-only.

`false`

The field is not read-only.

axf:field-required / CSS -ah-field-required no-LT

Specifies whether the field is enter-required or not.

Value:	true | false
Initial:	false
Applies to:	axf:form-field
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`true`

The field is enter-required.

`false`

The field is not enter-required.

axf:field-default-text / CSS -ah-field-default-text no-LT

Specifies the text entered into the text field from the beginning.

Value:	<string>
Initial:	empty string
Applies to:	axf:form-field
Inherited:	no

Percentages: N/A

axf:field-multiline / CSS -ah-field-multiline no-LT

Specifies whether the text field is a single-line enterable field or a multi-line enterable field.

Value: false | true
Initial: false
Applies to: axf:form-field
Inherited: no
Percentages: N/A

Values have the following meanings:

`false`

The text field is a single-line enterable field.

`true`

The text field is a multi-line enterable field.

axf:field-scroll / CSS -ah-field-scroll no-LT

Specifies whether the text field is scrollable or not.

Value: false | true
Initial: false
Applies to: axf:form-field
Inherited: no
Percentages: N/A

Values have the following meanings:

`false`

The text field is not scrollable.

`true`

The text field is scrollable.

axf:field-password / CSS -ah-field-password no-LT

Specifies whether the text field requires the password or not.

Value: false | true
Initial: false
Applies to: axf:form-field
Inherited: no
Percentages: N/A

Values have the following meanings:

`false`

The text field does not require the password.

`true`

The text field requires the password. Entered characters are shown as “*”, etc.

axf:field-maxlen / CSS -ah-field-maxlen no-LT

Specifies the maximum number of characters which can be entered into the text field.

Value: <number>
Initial: 0

Applies to: axf:form-field
Inherited: no
Percentages: N/A

When 0 or less is specified, the number of characters is not limited.

CAUTION: When the maximum number of characters is specified and the number of characters set as initial value of the text field in axf:field-default-text exceeds the specified maximum number, the initial value will be discarded.

axf:field-format-category / CSS -ah-field-format-category no-LT

Specifies the format type of the text field.

Value: none | number | percentage | date | time
Initial: none
Applies to: axf:form-field
Inherited: no
Percentages: N/A

Values have the following meanings:

`none`

Does not specify the format.

`number`

Specifies the format for numerical values.

`percentage`

Specifies the format for percentage values.

`date`

Specifies the format for date values.

`time`

Specifies the format for time values.

Actual formats can be specified by axf:field-format.

CAUTION: As for the character string set as initial values of the text field in axf:field-default-text, its validity is inspected when a format is specified. Nonconforming initial values will be discarded.

axf:field-format / CSS -ah-field-format no-LT

Specifies the format of the text field.

Value: auto | [[<string> | <number>] [<string> | <number> | true | false]*]
Initial: auto
Applies to: axf:form-field
Inherited: no
Percentages: N/A

The setting of the format will differ depending on the type of formats specified by axf:field-format-category. When `auto` is specified, the default is adopted to all values. In other cases, values of axf:field-format-category can be specified as follows:

`number`

Values can be specified with a maximum of 5 as follows:

```
axf:field-format="2 0 1 '$ ' true"
```

These values have the following meanings in sequence.

1. The number of digits after the decimal point. (default: 2)
   When the inputted value has many digit numbers after the decimal point, it is displayed by rounding off.

2. How to display numbers with different separators. One of the following values can be specified. (default: 0)
    0. `1,234.56`
    1. `1234.56`
    2. `1.234,56`
    3. `1234,56`
    4. `1'234.56`
3. How to display negative numbers. (default: 0)
    0. No processing.
    1. Display in red.
    2. Display with parentheses.
    3. Display in red with parentheses.
4. Currency symbol. Any character strings can be specified. (default: empty)

    When putting a currency symbol before numbers, it's better to put a white space after the currency symbol like "`$ `". When putting it after numbers, put a white space before the currency symbol.
5. Position of a currency symbol. If `true` is specified, it is displayed before numbers, if `false` is specified, it is displayed after numbers. (default: `true`)

`percentage`

Values can be specified with a maximum of 2 as follows:

```
axf:field-format="2 0"
```

Values have the same meaning as `number`.

`date`

Specifies the format by the numerical value or character strings. One of the following numerical values can be specified. (default: 0)

0. `m/d`
1. `m/d/yy`
2. `mm/dd/yy`
3. `mm/yy`
4. `d-mmm`
5. `d-mmm-yy`
6. `dd-mmm-yy`
7. `yy-mm-dd`
8. `mmm-yy`
9. `mmmm-yy`
10. `mmm d, yyyy`
11. `mmmm d, yyyy`
12. `m/d/yy h:MM tt`
13. `m/d/yy HH:MM`

The following 2 settings have the same meaning.

```
axf:field-format="2"
axf:field-format="'mm/dd/yy'"
```

Although an arbitrary format can be specified in the character string, the operation when specifying the mistaken format will not be guaranteed. See the specifications of JavaScript, etc. to learn the meaning of the character in the format.

`time`

Specifies the format by the numerical value or character strings. One of the following numerical values can be specified. (default: 0)

0. `HH:MM`
1. `h:MM tt`
2. `HH:MM:ss`
3. `h:MM:ss tt`

The following 2 settings have the same meaning.

```
axf:field-format="0"
axf:field-format="'HH:MM'"
```

Although an arbitrary format can be specified in the character string, the operation when specifying the mistaken format will not be guaranteed. See the specifications of JavaScript, etc. to learn the meaning of the character in the format.

CAUTION: The specified format might be invalid depending on the version of Acrobat.

axf:field-text-align / CSS -ah-field-text-align no-LT

Specifies the alignment of the text field.

Value:	left | center | right
Initial:	left
Applies to:	axf:form-field
Inherited:	no
Percentages:	N/A

This property is not available with **AH Formatter V7.1 Lite**.

axf:field-font-size / CSS -ah-field-font-size no-LT

Specifies the font size of the character string displayed in the form fields.

Value:	font-size | auto | <length>
Initial:	font-size
Applies to:	axf:form-field
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`font-size`

Sets the value specified by the font-size property.

`auto`

Sets the font size to auto without specifying the size.

`<length>`

Sets the font size explicitly.

This property is not available with **AH Formatter V7.1 Lite**.

axf:field-button-layout / CSS -ah-field-button-layout no-LT

Specifies the positioning between the caption and icon displayed in the push button field.

Value:	caption | icon | caption-below-icon | caption-above-icon | icon-caption | caption-icon | caption-over-icon
Initial:	caption
Applies to:	axf:form-field
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`caption`

Only a caption is displayed on the button. An icon is not displayed.

`icon`

Only an icon is displayed on the button. A caption is not displayed.

`caption-below-icon`

A caption is displayed under the icon.

`caption-above-icon`

A caption is displayed on top of the icon.

`icon-caption`

A caption is displayed on the right side of the icon.

`caption-icon`

A caption is displayed on the left side of the icon.

`caption-over-icon`

A caption is displayed on the icon in piles.

axf:field-button-face / CSS -ah-field-button-face no-LT

Specifies the caption displayed in the push button field.

Value:	<string>
Initial:	empty string
Applies to:	axf:form-field
Inherited:	no
Percentages:	N/A

axf:field-button-icon / CSS -ah-field-button-icon no-LT

Specifies the icon displayed in the push button field.

Value:	<uri-specification>
Initial:	empty string
Applies to:	axf:form-field
Inherited:	no
Percentages:	N/A

axf:field-button-face-down / CSS -ah-field-button-face-down no-LT

Specifies the caption displayed when pressing the push button.

Value:	<string>
Initial:	empty string
Applies to:	axf:form-field
Inherited:	no
Percentages:	N/A

axf:field-button-icon-down / CSS -ah-field-button-icon-down no-LT

Specifies the icon displayed when pressing the push button.

Value:	<uri-specification>
Initial:	empty string
Applies to:	axf:form-field
Inherited:	no
Percentages:	N/A

axf:field-button-face-rollover / CSS -ah-field-button-face-rollover no-LT

Specifies the caption displayed when rolling over the push button.

Value:	<string>
Initial:	empty string
Applies to:	axf:form-field
Inherited:	no
Percentages:	N/A

axf:field-button-icon-rollover / CSS -ah-field-button-icon-rollover no-LT

Specifies the icon displayed when rolling over the push button.

Value:	<uri-specification>
Initial:	empty string
Applies to:	axf:form-field
Inherited:	no
Percentages:	N/A

axf:field-checked / CSS -ah-field-checked no-LT

Specifies the initial state of the check box and the radio button.

Value:	false | true
Initial:	false
Applies to:	axf:form-field
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`false`

The initial state is unchecked.

`true`

The initial state is checked.

axf:field-checked-style / CSS -ah-field-checked-style no-LT

Specifies the style of the check box and the radio button.

Value:	checkmark | circle | square | cross | star
Initial:	checkmark
Applies to:	axf:form-field
Inherited:	no
Percentages:	N/A

axf:field-top-index / CSS -ah-field-top-index no-LT

Specifies the first selected item in the list box, combo box.

Value:	<number>
Initial:	1
Applies to:	axf:form-field
Inherited:	no
Percentages:	N/A

The specified value indicates what number of `<axf:form-field-option>` it is. The beginning number is 1. When less than 1 is specified or the specified number exceeds the number of elements contained, the value is considered 1.

axf:field-multiple / CSS -ah-field-multiple no-LT

Specifies whether multiple items can be chosen in the list box.

Value:	false | true
Initial:	false
Applies to:	axf:form-field
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`false`

Multiple items cannot be chosen.

`true`

Multiple items can be chosen.

axf:field-editable / CSS -ah-field-editable no-LT

Specifies whether the value can be edited with the combo box.

Value:	false | true
Initial:	false
Applies to:	axf:form-field
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`false`

The value cannot be edited.

`true`

The value can be edited.

axf:field-lock-document / CSS -ah-field-lock-document no-LT

Specifies whether to lock the document at the time of signing with the digital signature field.

Value:	auto | false | true
Initial:	auto
Applies to:	axf:form-field
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`auto`

The PDF viewer will display a user interface such as a dialog asking whether or not to lock the document.

`false`

Does not lock the document after signing.

`true`

Locks the document at the time of signing.

Effective with PDF1.7 or later.

<axf:form-field-option> / HTML <option> no-LT

Common Usage:

Specifies the component elements of the list box, combo box.

Areas:

No areas generated.

Contents:

`#PCDATA`

axf:field-selected / CSS -ah-field-selected no-LT

Specifies the first selected item in the list box, combo box.

Value:	false | true
Initial:	false
Applies to:	axf:form-field-option
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`false`

Does nothing.

`true`

Specifies the first selected item.

The axf:field-selected="true" setting overrides the axf:field-top-index setting. The behavior when multiple items specified is inconstancy.

Form Fields

These fields can be added to your forms:

- Text field
  - one line text
  - multi line text
- Button field
  - Push Button field
  - Check Box field
  - Radio Button field
- Select field
  - List Box field
  - Combo Box field
- Digital Signature field

These are all expressed by the `<axf:form-field>` extension element. `<axf:form-field>` is an inline element. Although many common extension properties can be specified to `<axf:form-field>`, the effective property differs depending on the field type. The size of the field can be specified with the width and the height properties. When omitted, a suitable size will be applied. Below shows the example of the setting for each form field.

Text field

Text field can be specified by field-type="text". The contents are empty. Whether it is a single line or not depends on the setting of field-multiline.

```
<axf:form-field
     field-type="text"
     field-default-text="TEXT"
     field-multiline="false"
     field-scroll="false"
     field-password="true"
     field-maxlen="100"
/>
```

The contents of field-default-text are not displayed in GUI.

Push Button field

Push Button field can be specified by field-type="button". The contents are empty. The Push button is usually an object used to perform an action.

```
<axf:form-field
     field-type="button"
     field-button-layout="caption"
     field-button-face="TEXT"
     field-button-icon="URI"
     field-button-face-down="DOWN"
     field-button-icon-down="URI"
     field-button-face-rollover="OVER"
     field-button-icon-rollover="URI"
/>
```

The contents of field-button-face are not displayed in GUI.

Check Box field

Check Box field can be specified by field-type="checkbox". The contents are empty.

```
<axf:form-field
     field-type="checkbox"
     field-checked="true"
     field-checked-style="checkmark"
/>
```

The status of field-checked="true" are not displayed in GUI.

Radio Button field

Radio Button field can be specified by field-type="radio". The contents are empty.

```
<axf:form-field
     field-type="radio"
     field-checked="true"
     field-checked-style="checkmark"
     field-name="Card"
     field-value="MasterCard"
/>
```

Radio buttons are usually arranged in groups of two or more. The group is identified as a radio button with the same field-name. Users can select only one of the radio buttons. Even if field-checked="true" is set multiply, only one button in a group is checked.

The status of field-checked="true" is not displayed in GUI.

List Box field

List Box field can be specified by field-type="listbox". `<axf:form-field-option>` is required for the contents. It should not be empty. `<axf:form-field-option>` expresses the contents of the list and these are lined up in the appearance order in the list. Neither the value of field-value nor the content text in `<axf:form-field-option>` should be empty or white-space characters.

```
<axf:form-field
     field-type="listbox"
     field-top-index="1"
     field-multiple="true"
>
```

```
 <axf:form-field-option field-value="M">MasterCard</axf:form-field-option>
 <axf:form-field-option field-value="V">Visa</axf:form-field-option>
 <axf:form-field-option field-value="A">AMEX</axf:form-field-option>
</axf:form-field>
```

The contents of the list box are not displayed in GUI.

Combo Box field

Combo Box field can be specified by field-type="combobox". `<axf:form-field-option>` is required for the contents. The contents should not be empty. `<axf:form-field-option>` is the same as that of the list box.

```
<axf:form-field
     field-type="combobox"
     field-top-index="1"
     field-editable="true"
>
 <axf:form-field-option field-value="M">MasterCard</axf:form-field-option>
 <axf:form-field-option field-value="V">Visa</axf:form-field-option>
 <axf:form-field-option field-value="A">AMEX</axf:form-field-option>
</axf:form-field>
```

The contents of the combo box are not displayed in GUI.

Digital Signature field

Digital Signature field can be specified by field-type="signature". The contents are empty. The appearance cannot be specified beforehand.

```
<axf:form-field
     field-type="signature"
     width="40pt"
     height="50pt"
/>
```

When performing the formatting process, the signature area is only secured and the signature field is not generated. The signature field is generated when generating PDF.

Form Actions

Form actions are realized by specifying the event to be triggered and the action corresponding to the event to each field. In **AH Formatter V7.1**, the action can be specified to the field that is included in `<axf:form>`. The contents of `<axf:form>` are arbitrary and generate a block area. Usually, `<axf:form-field>` is included in `<axf:form>`. The form actions include the following:

- Reset
- Submit
- Link

axf:action-type is prepared for the external link, but Form actions have more contents that can be specified.

CAUTION: Reset and submit will not work for fields where axf:field-name is not specified.

axf:action-type

Specifies the action of Form Actions.

Value:	auto | goto | gotor | launch | uri | reset | submit | javascript
Initial:	auto
Applies to:	axf:form-field
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`auto`

Dependent on the system setting. See also axf:action-type for external link.

`goto`

Moves to the internal link destination by the “GoTo” action.

`gotor`

Opens the external link destination by the “GoToR” action as PDF. The URI of the external link destination is considered PDF.

`launch`

Opens the external link destination by the “Launch” action as the file.

`uri`

Opens the external link destination by the “URI” action as URI (World Wide Web).

`reset` no-LT

Resets a form field as a form action.

`submit` no-LT

Submits a form field as a form action.

`javascript`

Generates the action by JavaScript. This setting is available only with axf:form-field-event. Ignored when allow-javascript="false" is set in the Option Setting File.

Reset

Reset initializes the value of all the fields included in `<axf:form>` to their initial state. Specify axf:action-type="reset" to the button to reset. The action is generated by releasing the button.

```
<axf:form>
 <axf:form-field field-type="button" action-type="reset"/>
 <axf:form-field field-type="text" field-default-text="XXX"/>
 ...
</axf:form>
```

Submit

Submit sends out the information by using HTTP. The contents of each field are sent out as GET or the POST request of HTTP. That is, the information is submitted using the same HTTP method of HTML. The action is generated by releasing the button.

```
<axf:form
     external-destination="URI"
     field-submit-method="post"
     field-submit-coordinates="false"
>
 <axf:form-field field-type="button" action-type="submit"/>
 <axf:form-field field-type="text" field-default-text="YYY"/>
 ...
</axf:form>
```

Link

Link cannot be specified to `<axf:form>` but directly specified to the Button field. The method is the same as that of `<fo:basic-link>`. The internal link can be specified as follows:

```
<axf:form-field field-type="button" internal-destination="IDREF"
                                    action-type="goto"/>
```

Specifies `goto` to action-type or omits the setting. The action is generated by releasing the button.

The external link can be specified as follows:

```
<axf:form-field field-type="button" external-destination="URI"
                                    action-type="gotor"/>
```

You can specify any one of `gotor`, `launch` or `uri` to action-type.

CAUTION: internal-destination is invalid between PDFs in separate volume in the button field.

<axf:form-field-event> no-LT

Common Usage:

Defines the form action which corresponds to the event.

Areas:

No areas generated.

Contents:

```
<!ELEMENT axf:form-field-event #PCDATA>
<!ATTLIST axf:form-field-event name        CDATA #REQUIRED>
<!ATTLIST axf:form-field-event action-type CDATA #REQUIRED>
```

It's possible to put the `<axf:form-field-event>` extension element as a child element of `<axf:form-field>`. The properties are name and action-type and both are required. One of the following event types can be specified to name. Case insensitive.

`MouseUp`

The action occurs when a mouse button is released on the form field.

`MouseDown`

The action occurs when a mouse button is pushed on the form field.

`MouseEnter`

The action occurs when a mouse cursor enters the form field.

`MouseExit`

The action occurs when a mouse cursor exits the form field.

`OnFocus`

The action occurs when a form field gets focus.

`OnBlur`

The action occurs when a form field loses focus.

The action occurred by `<axf:form-field action-type>` is the action by MouseUp. When both are specified like, `<axf:form-field-event name="MouseUp">`, `<axf:form-field-event>` will take precedence. When the same events are multiply specified to `<axf:form-field-event>`, it is indeterminate which one is adopted.

When action-type="javascript" is specified, the JavaScript program will be written in the content text. If an incorrect program is specified, the operation will not be guaranteed. However, when allow-javascript="false" is set in the Option Setting File, it's ignored.

Layer no-LT

Layers can be specified to PDF with **AH Formatter V7.1**. Layer settings are effective only with PDF1.5 or later. These features are not available with **AH Formatter V7.1 Lite**.

axf:layer-settings / CSS -ah-layer-settings no-LT

Defines layers.

Value:	none | <layer-setting>#
Initial:	none
Applies to:	root element
Inherited:	no
Percentages:	N/A

<layer-setting>	=	<layer-name> [on | off]? [intent [view | design] || view [on | off] || print [on | off] || export [on | off] || lang <string> preferred? || zoom <number> <number>? || locked]?
<layer-name>	=	<string>

Values have the following meanings:

`none`

No definition.

`<layer-setting>`

Multiple layers can be defined by comma-separated items. What is essential for layer definition is `<layer-name>`. Other parameters are optional.

`<layer-name>`

Specifies a name to identify the layer. `on` or `off` specifies the default state of the layer when the document is opened. If omitted, it is assumed to be `on`. If `view`, `print`, `export` are not specified, the value specified here will be referenced.

`intent`

Specifies the intent of the layer. When `view` is specified, showing and hiding layers can be toggle. When `design` is specified, these cannot be toggled. If omitted, it is assumed to be `view`.

`view`

Specifies whether to show or hide the layer. Displayed when the document is opened with `on`, it is hidden with `off`.

`print`

Specifies whether to print the layer. It is printed by `on` and not printed by `off`.

`export`

Specifies whether to include the layer in the exported result. It is included by `on` and not included by `off`.

`lang`

Specifies the language of the layer. Displays the layer if the language of the PDF viewer application matches the specified `lang` when the document is opened. `preferred` also displays the layer when the language of the viewer partially matches `lang`. Whether the string of `lang` is valid or not depends on the PDF viewer application.

`zoom`

Specifies the minimum and maximum values of the magnification of the displayed layer. If only one value is specified, the minimum value is set.

`locked`

Locks the layer and disables editing. `locked` is effective with PDF1.6 or later.

In PDF/X, PDF/A and PDF/UA, the settings of `view`, `print`, and `export` are ignored.

This property is not available with **AH Formatter V7.1 Lite**.

axf:layer / CSS -ah-layer no-LT

Specifies to which layer the area is arranged.

Value:	none | <layer-name>
Initial:	none
Applies to:	formatting object that generates area
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`none`

The area is arranged to no layer.

`<layer-name>`

The area is arranged to the layer with the name specified by axf:layer-settings.

This property is not available with **AH Formatter V7.1 Lite**.

Extension for European Rule

AH Formatter V7.1 provides the extension for adjusting the amount of space before and after the punctuation in European Typography. Although these features cannot be used as a style in CSS, the setting of `<space-end-punctuation>` etc. in Option Setting File is effective.

<axf:space-end-punctuation>

Specifies the amount of space end the punctuation.

<axf:space-start-punctuation>

Specifies the amount of space start the punctuation.

<axf:space-between-digit-and-punctuation>

Specifies the amount of space between the digit and the punctuation.

<axf:space-between-punctuation-and-digit>

Specifies the amount of space between the punctuation and the digit.

These extension elements are all empty element and can be put on the right under `<fo:declarations>`. The area is not generated. The setting of `<axf:space-between-digit-and-punctuation>` or `<axf:space-between-punctuation-and-digit>` takes precedence over the setting of `<axf:space-end-punctuation>` or `<axf:space-start-punctuation>`. The following properties can be specified.

language

Specifies the language code (RFC3066). It is not possible to omit it.

Value:	<language>
Initial:	N/A
Inherited:	no
Percentages:	N/A

space

Specifies the amount of space. Specification is invalid when less than 0.

Value:	<number> | <length> | <percentage> | figure | punctuation | thin | hair
Initial:	N/A
Inherited:	no
Percentages:	refer to the font size

Values have the following meanings:

`figure`

Indicates the same amount as U+2007.

`punctuation`

Indicates the same amount as U+2008.

`thin`

Indicates the same amount as U+2009.

`hair`

Indicates the same amount as U+200A.

code

Specifies the code point to be applied.

Value:	<string>
Initial:	empty string
Inherited:	no
Percentages:	N/A

language and space are applied to all the specified code points.

For instance, the following would be specified to format French.

```
<axf:space-start-punctuation code="?" space="1 div 3" language="fr"/>
<axf:space-start-punctuation code="!" space="1 div 3" language="fr"/>
<axf:space-start-punctuation code=";" space="1 div 3" language="fr"/>
<axf:space-start-punctuation code=":" space="1 div 4" language="fr"/>
<axf:space-start-punctuation code="&#xBB;" space="1 div 4" language="fr"/>
<axf:space-end-punctuation   code="&#xAB;" space="1 div 4" language="fr"/>
<axf:space-between-punctuation-and-digit code="+" space="thin" language="fr"/>
<axf:space-between-punctuation-and-digit code="&#x2212;" space="thin" language="fr"/>
<axf:space-between-punctuation-and-digit code="&#xB1;" space="thin" language="fr"/>
<axf:space-between-digit-and-punctuation code="%" space="thin" language="fr"/>
<axf:space-between-digit-and-punctuation code="&#x2103;" space="thin" language="fr"/>
<axf:space-between-digit-and-punctuation code="&#x2109;" space="thin" language="fr"/>
```

These settings for European Typography can also be specified by the Option Setting File. The setting in FO overwrites it.

Appending Option Setting Information

AH Formatter V7.1 can specify the additional option setting information used inside the document. These features are not available in CSS.

<axf:formatter-config> no-LT

Common Usage:

Specifies additional option setting information. This element does not generate an area. These features are not available with **AH Formatter V7.1 Lite**.

Areas:

None.

Constraints:

```
<!ELEMENT axf:formatter-config (%axs-settings;)*>
<!ATTLIST axf:formatter-config src CDATA #IMPLIED>
```

The `<axf:formatter-config>` extension element can be set as many as you want right under `fo:declarations`.

The src property can optionally specify the external Option Setting File. It's an additional setting to the original settings and effective only in this document. It becomes base-uri for the relative path. A part of the element that is the same as `%axs-settings;` under the specified file is evaluated.

Contents:

`%axs-settings;` is an element which belongs to the name space `http://www.antennahouse.com/names/XSL/Settings`. The properties in the Option Setting File are included in the name space, however currently only the following elements and their child elements can be described. The other elements will be disregarded. Also, some specifications, such as those related to initialization, are ignored.

- `<formatter-settings>`
- `<pdf-settings>`

- `<text-settings>`
- `<svg-settings>`
- `<ps-settings>`
- `<mathml-settings>`
- `<cgm-settings>`

Examples:

```
<fo:declarations>
 <axf:formatter-config src="add-settings.xml"
  xmlns:axs="http://www.antennahouse.com/names/XSL/Settings">
  <axs:pdf-settings pdf-version="PDF1.6" tagged-pdf="true"/>
 </axf:formatter-config>
</fo:declarations>
```

In this example, an additional option setting file, `add-settings.xml` is specified, and then PDF setting is added.

Remarks

Usually, the additional setting by `<axf:formatter-config>` never influences the formatting process of the following document. However, when the following settings are done by GUI, the additional settings will be reflected on the default settings, then reflected on the formatting of the following document.

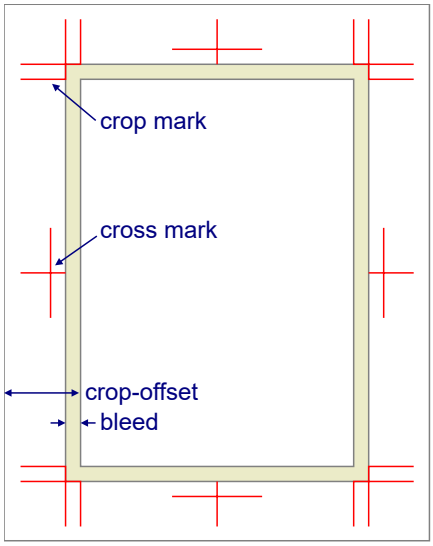
- Format Option Setting
- PDF Option Setting
- Other Settings
- Import Option Setting
- Export Option Setting

The addition option setting information by `<axf:formatter-config>` is not reflected in the AreaTree.

When axf-formatter-config="false" is specified in the Option Setting File, the contents of `<axf:formatter-config>` will be ignored.

Printer Marks no-LT

AH Formatter V7.1 can draw printer marks in PDF etc. Since printer marks are drawn outside of the actual page size (trim size) specified with the page-width and page-height properties, they have no effect on the contents of the document. This function is not available with **AH Formatter V7.1 Lite**.



axf:crop-offset / CSS -ah-crop-offset no-LT
axf:crop-offset-top / CSS -ah-crop-offset-top no-LT
axf:crop-offset-bottom / CSS -ah-crop-offset-bottom no-LT
axf:crop-offset-left / CSS -ah-crop-offset-left no-LT
axf:crop-offset-right / CSS -ah-crop-offset-right no-LT

Specifies the distance from the physical end to the trim size of the output medium.

Value:	<length>
Initial:	0pt
Applies to:	fo:simple-page-master / CSS @page
Inherited:	no
Percentages:	N/A

The trim size is specified by the page-width and page-height properties (CSS `size` property). axf:crop-offset is for specifying how much the space is taken outside the trim size. In order to specify the same values vertically and horizontally, axf:crop-offset can be used. In order to specify individual values, axf:crop-offset-top, axf:crop-offset-bottom, axf:crop-offset-left and axf:crop-offset-right can be used. When axf:crop-offset and others are specified simultaneously, individual axf:crop-offset-* properties take priority.

CAUTION: If the value of axf:bleed is greater than the value of axf:crop-offset, axf:crop-offset is adjusted to that value. To make the trim size the size of the basic printing image, set axf:bleed and axf:crop-offset to 0.

These properties are not available with **AH Formatter V7.1 Lite**.

axf:crop-area-visibility / CSS -ah-crop-area-visibility no-LT

Specifies whether to display the area that is extended beyond the trim size.

Value:	hidden | visible
Initial:	hidden
Applies to:	fo:simple-page-master / CSS @page
Inherited:	no
Percentages:	N/A

Specifies whether the area that overflows on the margin specified with axf:crop-offset is clipped with the trim size, if there is a bleed area, clipped with the bleed area, or the extended area is displayed.

These properties are not available with **AH Formatter V7.1 Lite**.

axf:bleed / CSS (-ah-)bleed no-LT
axf:bleed-top / CSS -ah-bleed-top no-LT
axf:bleed-bottom / CSS -ah-bleed-bottom no-LT
axf:bleed-left / CSS -ah-bleed-left no-LT
axf:bleed-right / CSS -ah-bleed-right no-LT

Specifies the width of the bleed area for cutting off. [CSS3-GCPM] Page marks and bleed area (“bleed” has been removed from GCPM on and after May 13, 2014)

Value:	<length>
Initial:	0pt
Applies to:	fo:simple-page-master / CSS @page
Inherited:	no
Percentages:	N/A

The area of the bleed is taken outside the trim size. In order to specify the same values vertically and horizontally, axf:bleed can be used. In order to specify individual values, axf:bleed-top, axf:bleed-bottom, axf:bleed-left and axf:bleed-right can be used. When axf:bleed and others are specified simultaneously, individual axf:bleed-* properties take priority.

These properties are not available with **AH Formatter V7.1 Lite**.

axf:printer-marks / CSS (-ah-)marks no-LT

Specifies the Printing marks, such as a crop mark. Specifies the action of external link. [CSS3-GCPM] Page marks and bleed area (“marks” has been removed from GCPM on and after May 13, 2014)

Value:	[[crop | crop-trim] || [cross | cross-circle | cross-registration] || <uri-specification>+] | none
Initial:	none
Applies to:	fo:simple-page-master / CSS @page
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`crop`

Outputs corner marks. Outputs corner marks to the position of the trim size and the position of the bleed area if it exists. When corner marks are output to both the position of the trim size and the position of the bleed area, they are combinations of crop marks and bleed marks in Japanese style.

`crop-trim`

Outputs corner marks only to the position of the trim size (crop marks).

`cross`

Outputs cross-shaped marks.

`cross-circle`

Outputs cross-shaped marks with concentric circle.

`cross-registration`

Outputs registration marks.

`<uri-specification>`

Original printer marks, color bars, etc. can be outputted by specifying images, such as SVG. Two or more URIs can be specified.

CAUTION: If `-ah-crop-offset` is not specified in `(-ah-)marks` of CSS, it is considered 14mm.

This property is not available with **AH Formatter V7.1 Lite**.

axf:printer-marks-line-color / CSS -ah-printer-marks-line-color no-LT

Specifies the line color of printer marks.

Value:	<color> | auto
Initial:	auto
Applies to:	fo:simple-page-master / CSS @page
Inherited:	no
Percentages:	N/A

When the value is auto, the color is considered the registration color.

This property is not available with **AH Formatter V7.1 Lite**.

axf:printer-marks-line-length / CSS -ah-printer-marks-line-length no-LT

Specifies the line length of printer marks.

Value:	<length> | auto
Initial:	auto
Applies to:	fo:simple-page-master / CSS @page
Inherited:	no
Percentages:	N/A

When the value is auto, the length depends on the system setting. The default length of a printer mark is 10mm, it can be adjusted in the Option Setting File.

This property is not available with **AH Formatter V7.1 Lite**.

axf:printer-marks-line-width / CSS -ah-printer-marks-line-width no-LT

Specifies the line width of printer marks.

Value:	<length> | auto
Initial:	auto
Applies to:	fo:simple-page-master / CSS @page
Inherited:	no
Percentages:	N/A

When the value is auto, the width depends on the system setting. The default width of a printer mark is 0.24pt, it can be adjusted in the Option Setting File.

This property is not available with **AH Formatter V7.1 Lite**.

axf:printer-marks-zero-margin / CSS -ah-printer-marks-zero-margin no-LT

Specifies the margin between the page and the printer marks when bleed is 0.

Value:	<length> | auto
Initial:	auto
Applies to:	fo:simple-page-master / CSS @page
Inherited:	no
Percentages:	N/A

When the value is auto, the margin depends on the system setting. The default margin is 3mm, it can be adjusted in the Option Setting File.

This property is not available with **AH Formatter V7.1 Lite**.

axf:printer-marks-spine-width / CSS -ah-printer-marks-spine-width no-LT

Specifies the spine width of the facing page.

Value:	<length>
Initial:	0pt
Applies to:	fo:simple-page-master / CSS @page
Inherited:	no
Percentages:	N/A

When a value greater than 0pt is specified, the printing image is assumed to be constructed as facing pages, the center mark of the spine will be outputted as a spine-width printer mark.

This property is not available with **AH Formatter V7.1 Lite**.

Printing Control

axf:printer-bin-selection / CSS -ah-printer-bin-selection no-LT

Selects the printer tray.

Value:	<string> | <integer>
Initial:	depends on the environment
Applies to:	fo:page-sequence / CSS `:root` element
Inherited:	no
Percentages:	N/A

Effective only with the Windows version and functions when outputting to a printer. Whether it is effective also depends on a printer. What can be specified by the character string is the tray name which comes out in each printer setting dialog. This is the tray name acquired from a printer driver. The specified name which does not match to the tray name acquired from a printer driver is invalid. The specified integer needs to match to the tray number acquired from a printer driver.

This property is not available with **AH Formatter V7.1 Lite**.

axf:printer-duplex / CSS -ah-printer-duplex no-LT

Specifies to print in duplex mode.

Value:	<integer>
Initial:	depends on the environment
Applies to:	fo:page-sequence / CSS `:root` element
Inherited:	no
Percentages:	N/A

Effective only with the Windows version and functions when outputting to a printer. Whether it is effective also depends on a printer. Specify the value that is specified by the printer driver. Most printers support following integer values.

1. Simplex Printing.
2. Duplex Printing. Flip on Long Edge.
3. Duplex Printing. Flip on Short Edge.

See also SeparatePrinterDuplexJob in the Option Setting File. This property is not available with **AH Formatter V7.1 Lite**.

axf:overprint / CSS -ah-overprint no-LT

Specifies the overprint.

Value:	auto | <overprint>#
Initial:	auto
Applies to:	all formatting objects
Inherited:	yes
Percentages:	N/A

<overprint> = <opcolor> [[stroke || paint || [full | nonzero]] | none]?
<opcolor> = <color> | k100 | separation | all

Values have the following meanings:

`auto`

The setting of the overprint in the Option Setting File is adopted. If you specify overprint="k100" in the Option Setting File, even if nothing is specified in FO, black overprinting will be done on all pages.

`<color>`

Specifies a color you want to apply the overprint. A color with alpha value cannot be specified.

`k100`

Applies the overprint to `rgb-icc(#CMYK,0,0,0,1)`.

`separation`

Applies the overprint to the separation color shown `rgb-icc(#Separation)`. The registration color is not included.

`all`

Applies the overprint to all colors except for a color with alpha value.

`stroke`

Applies the overprint for the line stroke.

`paint`

Applies the overprint for the paint.

`full`
`nonzero`

Specifies the operation in case the color ingredient is 0 when applying the overprint. When `full` is specified, the color ingredient is set to 0, when `nonzero` is specified, the color ingredient is not changed. (It is considered no color.) This setting is effective only with CMYK.

`none`

The overprint is not applied.

If you specify only the color as follows:

```
axf:overprint="<color>"
```

it is considered as follows:

```
axf:overprint="<color> stroke paint nonzero"
```

In addition, when neither `stroke` nor `paint` is specified, it is considered that `stroke` and `paint` are specified. Specify `none` to remove them from the overprint.

```
axf:overprint="k100, rgb-icc(#CMYK,0,0,0,1) stroke full, all paint"
```

As specified above, when a certain color can be interpreted as multiple settings, the settings will be investigated in the following order and the first matched setting will be adopted.

1. `<color>`
2. `k100`
3. `separation`
4. `all`

The effect of the overprint varies by the actual printing environment, in relation between the background color and the foreground color with overprint specified. The effect of the typical overprint by the color space is shown below. When color-conversion="all-cmyk" is specified in the Option Setting File, RGB serves as CMYK.

		Foreground (overprint is specified)			
		CMYK	**Separation**	**RGB**	**Grayscale**
Background	**CMYK**	yes	yes	no	no
	Separation	yes	yes	yes	yes
	RGB	yes	yes	no	no
	Grayscale	no	yes	no	no

For more details, see also *4.5.6 Overprint Control* in ISO 32000-1 or ISO 32000-2.

CAUTION: The overprint is effective only with the PDF output. It is invalid when printing to paper directly. Also it is not applied to shading and the form field.

CAUTION: The setting does not affect on the embedded PDF. Create PDF by specifying the overprint before embedding it.

This property is not available with **AH Formatter V7.1 Lite**.

Page Control Extensions

axf:repeat-page-sequence-master no-LT

Specifies the repetition of the page sequence.

Value: true | false
Initial: false
Applies to: fo:page-sequence-master
Inherited: no
Percentages: N/A

When the value is `true`, if the page output reaches in the end of `<fo:page-sequence-master>` and the page which should still be outputted remains, page output repeats from the start of `<fo:page-sequence-master>`.

This property is not available with **AH Formatter V7.1 Lite**.

axf:reverse-page / CSS -ah-reverse-page no-LT

Outputs pages in reverse order.

Value: true | false
Initial: false
Applies to: fo:page-sequence
Inherited: no
Percentages: N/A

Values have the following meanings:

`true`

Outputs pages in reverse order.

`false`

Outputs pages in order.

Specifies whether to output pages within `fo:page-sequence` in reverse order. This setting does not cover all the output destinations. Effective only with PDF output. Multi Separate Volume is not available. In case of CSS, this setting can be specified for the `<html>` element only.

This property is not available with **AH Formatter V7.1 Lite**.

odd-or-even

The following bold values are extended.

Value: odd | even | **odd-document** | **even-document** | any

Values have the following meanings:

`odd-document` no-LT

This page master is eligible for selection if the number of pages from the beginning of the document is odd.

`even-document` no-LT

This page master is eligible for selection if the number of pages from the beginning of the document is even.

These extended values are not available with **AH Formatter V7.1 Lite**.

size / CSS (-ah-)size

The following bold value is extended. [CSS3-Page] Page size: the ‘size’ property

Value: <length>{1,2} | auto | [**<paper-name>** || [portrait | landscape]]

Values have the following meanings:

`auto`

It's the size of default-page-width×default-page-height in the Option Setting File.

`<paper-name>`

Specifies the paper name. The following can be specified. Case insensitive.

<paper-name>	Width×Height	
A3	297×420mm	ISO 216
A4	210×297mm	ISO 216
A5	148×210mm	ISO 216
A6	105×148mm	ISO 216
B4	250×353mm	ISO 216

<paper-name>	Width×Height	
ISO-B4	250×353mm	ISO 216
JIS-B4	257×364mm	JIS P 0138
B5	176×250mm	ISO 216
ISO-B5		
JIS-B5	182×257mm	JIS P 0138
B6	125×176mm	ISO 216
ISO-B6		
JIS-B6	128×182mm	JIS P 0138
Letter	8.5×11in	North American Paper Sizes
Government-Letter	8×10.5in	North American Paper Sizes
Legal	8.5×14in	North American Paper Sizes
Ledger	17×11in	North American Paper Sizes
Tabloid	11×17in	North American Paper Sizes
Statement	5.5×8.5in	
Executive	7.25×10.5in	
Folio	210×330mm	
C	17×22in	ANSI Paper Sizes
D	22×34in	ANSI Paper Sizes
E	34×44in	ANSI Paper Sizes
ISO-DL	110×220mm	ISO 269
ISO-C3	324×458mm	ISO 269
ISO-C4	229×324mm	ISO 269
ISO-C5	162×229mm	ISO 269
ISO-C6	114×162mm	ISO 269
Hagaki	100×148mm	Japan Post Co., Ltd.

CSS @page

`:last`, `:only` are extended. [CSS3-Page] Page selectors

- `:last`
  The last page of the pages belonging to the specified `@page`.
- `:only`
  A single page that is the first and last, belonging to the specified `@page`.

Block Extensions

axf:suppress-if-first-on-page / CSS -ah-suppress-if-first-on-page no-LT

Specifies whether to suppress the block at the beginning of a page or column.

Value: false | true | unless
Initial: false
Applies to: fo:block, fo:block-container

Inherited: no
Percentages: N/A

Values have the following meanings:

`false`

Does nothing.

`true`

Suppresses a block when it comes at the beginning of a page or column. Actually, it is hidden but exists as a block of zero size without being deleted, it's effective to refer to id, etc.

`unless` V7.1

Suppresses a block when it comes to a place other than the beginning of a page or column. Actually, it is hidden but exists as a block of zero size without being deleted, it's effective to refer to id, etc.

This property is not available with **AH Formatter V7.1 Lite**.

Transformation

axf:transform / CSS (-ah-)transform no-LT

Specifies the block transformation. [CSS3-Transforms] The 'transform' Property

Value: none | <transform-function>+
Initial: none
Applies to: transformable objects
Inherited: no
Percentages: N/A

Values have the following meanings:

`none`

Does not transform the block.

`<transform-function>`

Performs the specified transformation. The following transformations can be specified.

- `matrix(<number>, <number>, <number>, <number>, <number>, <number>)`
- `translate(<translation-value>[, <translation-value>])`
- `translateX(<translation-value>)`
- `translateY(<translation-value>)`
- `scale(<number>[, <number>])`
- `scaleX(<number>)`
- `scaleY(<number>)`
- `rotate(<angle>)`
- `skew(<angle>[, <angle>])`
- `skewX(<angle>)`
- `skewY(<angle>)`

This property is not available with **AH Formatter V7.1 Lite**.

CAUTION: The transformation of the region does not happen. Only the contents are transformed.

axf:transform-origin / CSS (-ah-)transform-origin no-LT

Specifies the origin of the block transformation. [CSS3-Transforms] The 'transform-origin' Property

Value: [<percentage> | <length> | left | center | right | top | bottom] | [[<percentage> | <length> | left | center | right] && [<percentage> | <length> | top | center | bottom]]

Initial:	center center
Applies to:	transformable objects
Inherited:	no
Percentages:	refer to the size of the bounding box

This property is not available with **AH Formatter V7.1 Lite**.

Baseline Grid

axf:baseline-grid / CSS -ah-baseline-grid no-LT

Sets or clears the baseline grid.

Value:	normal | none | root | new
Initial:	normal
Applies to:	block-level formatting objects, fo:flow and fo:static-content / block containers
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`normal`

Neither sets nor clears the baseline grid.

`none`

Clears the baseline grid and the content will not align with a baseline grid.

`new`

Sets a new baseline grid. The new baseline grid is established by using the font and the line-height settings of this element.

`root`

Sets the baseline grid defined by the root element. The root baseline grid is defined by using the font and the line-height settings of the root element.

Inside the area line that a baseline grid is set, the lines are aligned with baselines on the baseline grid. Half-leading is not added before the first line and after the last line so that the em-box edges are aligned with the before and after edges of the content box.

CAUTION: axf:baseline-grid works within the block where it is specified. The block itself depends on the parent's block.

The baseline grid is not available in the area with `display-align` other than `auto`.

An HTML+CSS example with baseline grids:

```
:root {
  font-size: 10pt;
  line-height: 18pt;
  font-family: "Yu Mincho", serif;
}

@page {
  size: 128mm 188mm;
  margin: auto;
  width: 28rem;
  height: calc(24rlh - (1rlh - 1rem));
}

body {
  -ah-baseline-grid: root;
}

h1 {
  -ah-baseline-grid: new;
  -ah-baseline-block-snap: center;
  font-size: 16pt;
  line-height: 20pt;
  margin-top: 16pt;
```

```
  margin-bottom: 16pt;
}

figure {
  -ah-baseline-grid: none;
  -ah-baseline-block-snap: auto;
}
```

An XSL-FO example with baseline grids:

```
<fo:root xmlns:fo="http://www.w3.org/1999/XSL/Format"
         xmlns:axf="http://www.antennahouse.com/names/XSL/Extensions"
         font-size="10pt" line-height="18pt" font-family="Yu Mincho, serif">
  ...
  <fo:page-sequence master-reference="master">
    <fo:flow flow-name="xsl-region-body" axf:baseline-grid="root">
      <fo:block axf:baseline-grid="new" axf:baseline-block-snap="center"
          font-size="16pt" line-height="20pt" space-before="16pt" space-after="16pt">
        Heading ...
      </fo:block>
      <fo:block>The quick brown fox jumps ...</fo:block>
      ...
      <fo:block axf:baseline-grid="none" axf:baseline-block-snap="auto">
         Figure ...
      </fo:block>
      ...
    </fo:flow>
  </fo:page-sequence>
</fo:root>
```

This property is not available with **AH Formatter V7.1 Lite**.

axf:baseline-block-snap / CSS -ah-baseline-block-snap no-LT

Specifies how to align blocks on the baseline grid.

Value:	none | [auto | before | after | center] || [border-box | margin-box]
Initial:	auto border-box
Applies to:	block-level elements
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`none`

The block is not aligned with the baseline grid.

`auto`

Same as `before` on top of column, same as `after` at bottom of column, otherwise `center`.

`before`

The before edge of the block is aligned with a text-before-edge baseline on the baseline grid.

`after`

The after edge of the block is aligned with a text-after-edge baseline on the baseline grid.

`center`

The block is centered between a text-before-edge and a text-after-edge baselines on the baseline grid.

`border-box`

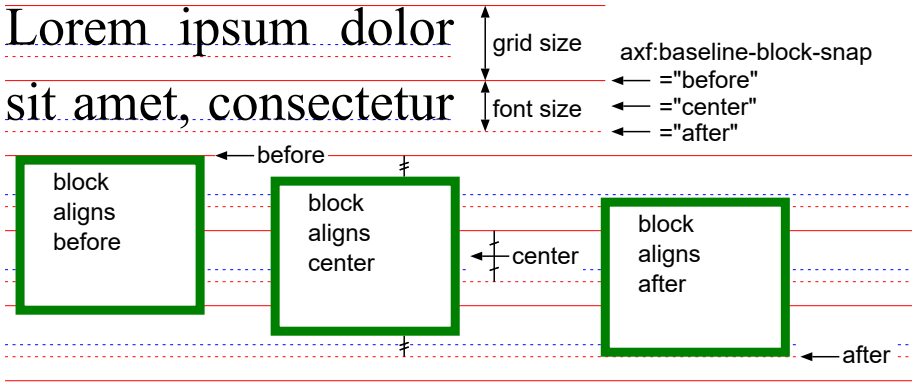
The border edge is used to align the block on the baseline grid.

`margin-box`

The margin edge is used to align the block on the baseline grid.

This property specifies how to align blocks other than normal line boxes, such as headings, figures and tables, on the baseline grid.

CAUTION: axf:baseline-block-snap is valid when axf:baseline-grid is specified in the parent block of the block where it is specified.



See axf:baseline-grid for usage.

This property is not available with **AH Formatter V7.1 Lite**.

Line Breaking

AH Formatter V7.1 provides extension properties to control the line-breaking. Usually, the line-breaking complies with UAX#14: Line Breaking Properties. See also Line Breaking in Technical Notes.

axf:line-break / CSS (-ah-)line-break

Specifies the method of line breaking. [CSS3-Text] Breaking Rules for Punctuation: the 'line-break' property

Value:	auto | [[normal | strict | ~~loose~~ | ~~anywhere~~] || [line | bpil]]
Initial:	auto
Applies to:	all block-level formatting objects
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`auto`

It is assumed that `normal` is specified.

`normal`

CJK Nonstarter characters (prolonged sound mark, small hiragana letters, small katakana letters, and iteration marks) defined in JIS X 4051:2004 are not treated as Nonstarter characters. Characters marked with [NS] in the following list are processed.

`strict`

CJK Nonstarter character is treated. Characters marked with [NS] and [JIS] in the following list are processed.

`line`

Line breaking is performed one by one by a simple algorithm.

`bpil`

Line breaking is performed according to the line breaking algorithm by Knuth-Plass's Breaking Paragraphs into Lines. At this time, the bpil specification in the Option Setting File is ignored. Depending on the conditions, this algorithm may not be applicable. See Line Breaking in Technical Notes.

If neither `normal` nor `strict` is specified, it is assumed that normal is specified. When neither `line` nor `bpil` is specified, the algorithm is selected according to the specification of bpil in the Option Setting File. For more details, see Line Breaking in Technical Notes.

The line breaking other than Nonstarter characters in CJK complies with UAX#14: Line Breaking Properties. At this time, characters specified to the properties of axf:append-non-starter-characters, axf:except-non-starter-characters, axf:append-non-end-of-line-characters and axf:except-non-end-of-line-characters are included.

The CJK Nonstarter character is as follows:

U+203C	DOUBLE EXCLAMATION MARK	‼	[NS]	
U+203D	INTERROBANG	⸘	[NS]	
U+2047	DOUBLE QUESTION MARK	⁇	[NS]	
U+2048	QUESTION EXCLAMATION MARK	⁈	[NS]	
U+2049	EXCLAMATION QUESTION MARK	⁉	[NS]	
U+3005	IDEOGRAPHIC ITERATION MARK	々	[NS]	[JIS]
U+301C	WAVE DASH	〜	[NS]	
U+303B	VERTICAL IDEOGRAPHIC ITERATION MARK	〻	[NS]	[JIS]
U+303C	MASU MARK	〼	[NS]	
U+3041	HIRAGANA LETTER SMALL A	ぁ		[JIS]
U+3043	HIRAGANA LETTER SMALL I	ぃ		[JIS]
U+3045	HIRAGANA LETTER SMALL U	ぅ		[JIS]
U+3047	HIRAGANA LETTER SMALL E	ぇ		[JIS]
U+3049	HIRAGANA LETTER SMALL O	ぉ		[JIS]
U+3063	HIRAGANA LETTER SMALL TU	っ		[JIS]
U+3083	HIRAGANA LETTER SMALL YA	ゃ		[JIS]
U+3085	HIRAGANA LETTER SMALL YU	ゅ		[JIS]
U+3087	HIRAGANA LETTER SMALL YO	ょ		[JIS]
U+308E	HIRAGANA LETTER SMALL WA	ゎ		[JIS]
U+3095	HIRAGANA LETTER SMALL KA	ゕ		[JIS]
U+3096	HIRAGANA LETTER SMALL KE	ゖ		[JIS]
U+309B	KATAKANA-HIRAGANA VOICED SOUND MARK	゛	[NS]	
U+309C	KATAKANA-HIRAGANA SEMI-VOICED SOUND MARK	゜	[NS]	
U+309D	HIRAGANA ITERATION MARK	ゝ	[NS]	[JIS]
U+309E	HIRAGANA VOICED ITERATION MARK	ゞ	[NS]	[JIS]
U+30A0	KATAKANA-HIRAGANA DOUBLE HYPHEN	゠	[NS]	
U+30A1	KATAKANA LETTER SMALL A	ァ		[JIS]
U+30A3	KATAKANA LETTER SMALL I	ィ		[JIS]
U+30A5	KATAKANA LETTER SMALL U	ゥ		[JIS]
U+30A7	KATAKANA LETTER SMALL E	ェ		[JIS]
U+30A9	KATAKANA LETTER SMALL O	ォ		[JIS]
U+30C3	KATAKANA LETTER SMALL TU	ッ		[JIS]
U+30E3	KATAKANA LETTER SMALL YA	ャ		[JIS]
U+30E5	KATAKANA LETTER SMALL YU	ュ		[JIS]
U+30E7	KATAKANA LETTER SMALL YO	ョ		[JIS]
U+30EE	KATAKANA LETTER SMALL WA	ヮ		[JIS]
U+30F5	KATAKANA LETTER SMALL KA	ヵ		[JIS]
U+30F6	KATAKANA LETTER SMALL KE	ヶ		[JIS]
U+30FB	KATAKANA MIDDLE DOT	・	[NS]	
U+30FC	KATAKANA-HIRAGANA PROLONGED SOUND MARK	ー		[JIS]
U+30FD	KATAKANA ITERATION MARK	ヽ	[NS]	[JIS]
U+30FE	KATAKANA VOICED ITERATION MARK	ヾ	[NS]	[JIS]
U+31F0	KATAKANA LETTER SMALL KU	ㇰ		[JIS]
U+31F1	KATAKANA LETTER SMALL SI	ㇱ		[JIS]
U+31F2	KATAKANA LETTER SMALL SU	ㇲ		[JIS]
U+31F3	KATAKANA LETTER SMALL TO	ㇳ		[JIS]
U+31F4	KATAKANA LETTER SMALL NU	ㇴ		[JIS]
U+31F5	KATAKANA LETTER SMALL HA	ㇵ		[JIS]
U+31F6	KATAKANA LETTER SMALL HI	ㇶ		[JIS]
U+31F7	KATAKANA LETTER SMALL HU	ㇷ		[JIS]
U+31F8	KATAKANA LETTER SMALL HE	ㇸ		[JIS]
U+31F9	KATAKANA LETTER SMALL HO	ㇹ		[JIS]
U+31FA	KATAKANA LETTER SMALL MU	ㇺ		[JIS]
U+31FB	KATAKANA LETTER SMALL RA	ㇻ		[JIS]
U+31FC	KATAKANA LETTER SMALL RI	ㇼ		[JIS]

U+31FD	KATAKANA LETTER SMALL RU	ㇽ	[JIS]
U+31FE	KATAKANA LETTER SMALL RE	ㇾ	[JIS]
U+31FF	KATAKANA LETTER SMALL RO	ㇿ	[JIS]
U+FE54	SMALL SEMICOLON	﹔	[NS]
U+FE55	SMALL COLON	﹕	[NS]
U+FF1A	FULLWIDTH COLON	：	[NS]
U+FF1B	FULLWIDTH SEMICOLON	；	[NS]
U+FF65	HALFWIDTH KATAKANA MIDDLE DOT	･	[NS]
U+FF67	HALFWIDTH KATAKANA LETTER SMALL A	ｧ	[JIS]
U+FF68	HALFWIDTH KATAKANA LETTER SMALL I	ｨ	[JIS]
U+FF69	HALFWIDTH KATAKANA LETTER SMALL U	ｩ	[JIS]
U+FF6A	HALFWIDTH KATAKANA LETTER SMALL E	ｪ	[JIS]
U+FF6B	HALFWIDTH KATAKANA LETTER SMALL O	ｫ	[JIS]
U+FF6C	HALFWIDTH KATAKANA LETTER SMALL YA	ｬ	[JIS]
U+FF6D	HALFWIDTH KATAKANA LETTER SMALL YU	ｭ	[JIS]
U+FF6E	HALFWIDTH KATAKANA LETTER SMALL YO	ｮ	[JIS]
U+FF6F	HALFWIDTH KATAKANA LETTER SMALL TU	ｯ	[JIS]
U+FF70	HALFWIDTH KATAKANA-HIRAGANA PROLONGED SOUND MARK	ｰ	[JIS]
U+FF9E	HALFWIDTH KATAKANA VOICED SOUND MARK	ﾞ	[NS]
U+FF9F	HALFWIDTH KATAKANA SEMI-VOICED SOUND MARK	ﾟ	[NS]

[NS] is classified into NS in Line Break Properties. [JIS] is classified into the Nonstarter character in JIS X 4051:2004.

CAUTION: `loose`, `anywhere` are not supported.

axf:append-non-starter-characters / CSS -ah-append-non-starter-characters

Specifies the non-starter-characters to append.

Value: <string>
Initial: empty string
Applies to: fo:page-sequence / CSS `:root` element
Inherited: no
Percentages: N/A

The characters included in `<string>` can be appended to the non-starter-characters. If the specified characters are also specified in axf:except-non-starter-characters as well in the same tag, the effect could be wrong. White space characters are disregarded even though they are specified. Closing parentheses and punctuation marks are automatically treated as except-non-starter characters without adding them. The initial value of non-starter-characters can be set by append-non-starter-characters in the Option Setting File.

axf:except-non-starter-characters / CSS -ah-except-non-starter-characters

Specifies the non-starter-characters to eliminate.

Value: <string>
Initial: empty string
Applies to: fo:page-sequence / CSS `:root` element
Inherited: no
Percentages: N/A

The characters included in `<string>` can be eliminated from the non-starter-characters. If the specified characters are also specified to axf:append-non-starter-characters in the same tag as well, the effect is not guaranteed. White space characters are disregarded even though they are specified. The initial value of non-starter-characters can be set by append-non-starter-characters in the Option Setting File.

axf:append-non-end-of-line-characters / CSS -ah-append-non-end-of-line-characters

Specifies the non-end-of-line-characters to append.

Value: <string>
Initial: empty string
Applies to: fo:page-sequence / CSS `:root` element

Inherited: no
Percentages: N/A

The characters included in `<string>` can be appended to the non-end-of-line-characters. If the specified characters are also specified to axf:except-non-end-of-line-characters as well in the same tag, the effect could be wrong. White space characters are disregarded even though they are specified. Opening parentheses etc. are automatically treated as except-non-end-of-line characters without adding them. The initial value of non-end-of-line-characters can be set by append-non-end-of-line-characters in the Option Setting File.

axf:except-non-end-of-line-characters / CSS -ah-except-non-end-of-line-characters

Specifies the non-end-of-line-characters to eliminate.

Value: <string>
Initial: empty string
Applies to: fo:page-sequence / CSS `:root` element
Inherited: no
Percentages: N/A

The characters included in `<string>` can be eliminated from the non-end-of-line-characters. If the specified characters are also specified to axf:append-non-end-of-line-characters in the same tag as well, the effect is not guaranteed. White space characters are disregarded even though they are specified. The initial value of non-end-of-line-characters can be set by append-non-end-of-line-characters in the Option Setting File.

axf:word-break / CSS (-ah-)word-break

Specifies whether to enable line breaking even inside a word. [CSS3-Text] Breaking Rules for Letters: the ‘word-break’ property

Value: normal | keep-all | break-all | ~~break-word~~ | keep-non-spaces
Initial: normal
Applies to: all block-level and inline-level formatting objects
Inherited: yes
Percentages: N/A

Values have the following meanings:

`normal`

Follows a normal line breaking rule.

`keep-all`

Does not break inside words. A word here indicates a character string which consists of the following category (General Category) of Unicode.

- Letter
- Mark
- Number

Whether to break lines on a boundary with characters other than these follows the rule of the standard line break. Moreover, hyphenate="true" is disregarded.

`break-all`

The line breaking is enabled between all the characters in the word. This is effective only with the following scripts.

- Latn
- Cyrl
- Grek
- Zyyy

axf:word-wrap="normal" is disregarded.

`keep-non-spaces` V7.1

Does not break between non-whitespace characters.

Within the word oriented upright by axf:text-orientation="upright", it is always considered axf:word-break="break-all".

CAUTION: `break-word` is not supported.

axf:word-wrap / CSS (-ah-)word-wrap

Specifies whether to break word forcibly when line break cannot be performed. [CSS3-Text] Overflow Wrapping: the overflow-wrap/ word-wrap property

Value:	normal | break-word | ~~break-spaces~~
Initial:	break-word (XSL) / normal (CSS)
Applies to:	all block-level and inline-level formatting objects
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`normal`

The line is not broken forcibly. The text will overflow across the region.

`break-word`

The line is broken forcibly at an appropriate position.

CAUTION: `break-spaces` is not supported.

axf:abbreviation-character-count / CSS -ah-abbreviation-character-count

Specifies the maximum number of characters considered an abbreviation.

Value:	auto | <number>
Initial:	auto
Applies to:	fo:block
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`auto`

The value specified by abbreviation-character-count in the Option Setting File is adopted.

`<number>`

Specifies the number of characters considered an abbreviation.

axf:abbreviation-character-count controls the line break of the abbreviation delimited by U+002F or “/”. In general, the line break occurs with “km/h” or “w/o”, etc. because the position right after “/” is the target for the line break and it's not desirable. In UAX#14: Line Breaking Properties, it is written to avoid splitting in such cases. In **AH Formatter V7.1**, when the number of characters of the word right after “/” is less than or equal to the specified number with axf:abbreviation-character-count, the word is considered the abbreviation and the line does not break. Also, the word right after “/” will not be hyphenated when the number of characters of the word is less than or equal to the specified number with axf:abbreviation-character-count. It is considered an abbreviation only when the string is one of the following scripts:

- Latn
- Cyrl
- Grek
- Zyyy

The axf:abbreviation-character-count must be an integer number of 0 or more. 0 does not control over the abbreviation. In addition, when the line overflows without finding the line break position, the line break may forcibly occur right after “/”. If the number of characters exceeds 10, it is considered 10.

axf:quotetype V7.1 no-LT

Specifies the direction of the quotes.

Value:	QU | OP | CL
Initial:	empty
Applies to:	fo:character
Inherited:	no
Percentages:	N/A

Values have the following meanings (they are case insensitive):

`QU`

Considered to be an non-directional quotation mark.

`OP`

Considered to be an open quotation mark.

`CL`

Considered to be a close quotation mark.

For non-directional quotation marks such as U+0022, explicitly specify the direction as follows to encourage proper line breaks:

```
Lorem <fo:character character="&#x22;" axf:quotetype="OP"/>ipsum<fo:character
                                       character="&#x22;" axf:quotetype="CL"/> dolor sit amet,
```

Specifying the property to characters other than quotation marks is invalid. See Quotation Mark in Technical Notes for how to handle quotation marks. If not specified, the setting there will be used.

This property is not available with **AH Formatter V7.1 Lite**.

Extension for Hyphenations

AH Formatter V7.1 provides the extended features for hyphenations.

hyphenation-push-character-count

The following bold value is extended.

Value: <number> | **auto**

Values have the following meanings:

`auto`

If after of `<hyphen-min>` is specified in the Hyphenation Exception Dictionary, it will be the value. If nothing is specified, the value is 2.

In CSS, `(-ah-)hyphenate-after` corresponds to it.

hyphenation-remain-character-count

The following bold value is extended.

Value: <number> | **auto**

Values have the following meanings:

`auto`

If before of `<hyphen-min>` is specified in the Hyphenation Exception Dictionary, it will be the value. If nothing is specified, the value is 2.

In CSS, `(-ah-)hyphenate-before` corresponds to it.

axf:hyphenation-minimum-character-count / CSS -ah-hyphenation-minimum-character-count

Specifies the minimum number of characters a word must have before it can be hyphenated.

Value:	<number>
Initial:	1
Applies to:	fo:block, fo:character
Inherited:	yes
Percentages:	N/A

The axf:hyphenation-minimum-character-count must be an integer number of 1 or more.

axf:hyphenation-zone / CSS -ah-hyphenation-zone

Limits the range where a hyphenation is available.

Value:	none | <length> | <percentage>
Initial:	none
Applies to:	fo:block
Inherited:	yes
Percentages:	refer to the width of containing block

Values have the following meanings:

`none`

Nothing is limited in hyphenation.

`<length>`

If the length from the end of a word to the end of line is less or equal to the specified value, the following word is not hyphenated. It is invalid when 0 or less value is specified.

axf:hyphenate-hyphenated-word / CSS -ah-hyphenate-hyphenated-word

Specifies whether to hyphenate the already hyphenated word or not.

Value:	true | false
Initial:	true
Applies to:	fo:block
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`true`

Hyphenates a word.

`false`

Does not hyphenate a word. The line may break only at the hyphen position.

The following are recognized as hyphens.

U+002D	HYPHEN-MINUS
U+00AD	SOFT HYPHEN
U+2010	HYPHEN
U+2011	NON-BREAKING HYPHEN

This setting is invalid when hyphenate="false" is specified.

axf:hyphenate-caps-word / CSS -ah-hyphenate-caps-word

Specifies whether to hyphenate a word that consists of capital letters.

Value:	true | false

Initial: true
Applies to: fo:block
Inherited: yes
Percentages: N/A

Values have the following meanings:

`true`

Hyphenates a word.

`false`

Does not hyphenate a word.

A phrase like ANTENNA-HOUSE with hyphens is considered multiple words. There is a possibility of a line break at the hyphen position. Even letters processed as small-caps are considered lowercase if the original letters are lowercase. This setting is invalid when hyphenate="false" is specified.

CSS (-ah-)hyphenate-after

[CSS3-GCPM] Hyphenate properties (“hyphenate-after” has been removed from GCPM on and after November 29, 2011)

Value: <integer> | auto
Initial: auto
Applies to: all elements
Inherited: yes
Percentages: N/A

☞ [XSL 1.1] hyphenation-push-character-count, hyphenation-push-character-count

CSS (-ah-)hyphenate-before

[CSS3-GCPM] Hyphenate properties (“hyphenate-before” has been removed from GCPM on and after November 29, 2011)

Value: <integer> | auto
Initial: auto
Applies to: all elements
Inherited: yes
Percentages: N/A

☞ [XSL 1.1] hyphenation-remain-character-count, hyphenation-remain-character-count

CSS (-ah-)hyphenate-character

[CSS3-GCPM] Hyphenate properties (“hyphenate-character” has been removed from GCPM on and after November 29, 2011)

Value: auto | <string>
Initial: auto
Applies to: all elements
Inherited: yes
Percentages: N/A

☞ [XSL 1.1] hyphenation-character

CSS (-ah-)hyphenate-lines

[CSS3-GCPM] Hyphenate properties (“hyphenate-lines” has been removed from GCPM on and after November 29, 2011)

Value: no-limit | <integer>
Initial: no-limit
Applies to: all elements
Inherited: yes
Percentages: N/A

☞ [XSL 1.1] hyphenation-ladder-count

CSS (-ah-)hyphens

[CSS3-Text] Hyphenation Control: the 'hyphens' property

Value:	none | manual | auto
Initial:	manual
Applies to:	all elements
Inherited:	yes
Percentages:	N/A

☞ [XSL 1.1] hyphenate

<axf:hyphenation-info> no-LT

Common Usage:

Specifies additional hyphenation information. This element does not generate an area. This feature is not available in CSS. This feature is not available with **AH Formatter V7.1 Lite**.

Areas:

None.

Constraints:

```
<!ELEMENT axf:hyphenation-info (%axh-elements;)*>
<!ATTLIST axf:hyphenation-info language CDATA #REQUIRED>
<!ATTLIST axf:hyphenation-info src      CDATA #IMPLIED>
```

The `<axf:hyphenation-info>` extension element can be set as many as you want right under `<fo:declarations>`.

The language property is required to indicate which language this element is associated with. It is not available to do hyphenation if the specified language is originally not hyphenated. See Hyphenation for the languages you can specify.

The src property can optionally specify the exception dictionary. It's an additional setting to the original dictionary and effective only in this FO. There is no language dependency constraint for the file name unlike the original dictionary. It is a relative base-uri for the relative path. It's not a relative path to the environment valuable of the hyphenation dictionary. `<exceptions>` in the specified dictionary is evaluated. When multiple words of the same spelling are registered, the information on the last registered word becomes effective.

Contents:

`%axh-elements;` is an element which belongs to the name space `http://www.antennahouse.com/names/XSL/Hyphenations`. The elements in the Hyphenation Exception Dictionary are included in the name space, however currently only `<exceptions>` (and its child element, `<hyphen>`) can be described.

Examples:

```
<fo:declarations>
 <axf:hyphenation-info language="eng" src="en-add.xml"
  xmlns:axh="http://www.antennahouse.com/names/XSL/Hyphenations">
  <axh:exceptions>
  abc-defg
  </axh:exceptions>
 </axf:hyphenation-info>
</fo:declarations>
```

In this example, an additional exception dictionary, `en-add.xml` is specified for English language, and then the exception hyphenation is specified for the word spelled "abcdefg".

CAUTION: In the example above, do not use the following setting. (`<hyphen/>` is disregarded).

```
abc<hyphen/>defg
```

Instead, make sure to specify.

```
abc<axh:hyphen/>defg
```

Output Glyph by SOFT HYPHEN

Generally SOFT HYPHEN (U+00AD) is displayed only when the line breaks and is not displayed when the line does not break. However in this processing, it is often the case that the glyph assigned to U+00AD may not be printed when the fonts such as pictographic characters are used. **AH Formatter V7.1** implements the extension property axf:soft-hyphen-treatment which makes it possible to eliminate this problem.

```
<fo:block axf:soft-hyphen-treatment="preserve" font-family="Wingdings">abc&#xAD;xyz
```

axf:soft-hyphen-treatment / CSS -ah-soft-hyphen-treatment

Value: auto | preserve
Initial: auto
Applies to: all formatting objects
Inherited: yes
Percentages: N/A

Values have the following meanings:

`auto`

SOFT HYPHEN is deleted except when needed for line breaking. (Same behavior as before.)

`preserve`

SOFT HYPHEN is not deleted and the target glyph is output.

Trimming and Hanging

AH Formatter V7.1 provides extension properties to trim and to hang.

axf:punctuation-trim / CSS (-ah-)punctuation-trim

Specifies whether to treat full width punctuations in Japanese. [CSS3-Text] Fullwidth Punctuation Kerning: the ‘punctuation-trim’ property (“punctuation-trim” has been removed from CSS3-Text on and after January 19, 2012 after the transition of name)

Value: none | [[start | start-except-first] || [end | allow-end | end-except-fullstop] || adjacent] | all | <string> | auto
Initial: auto
Applies to: all block-level and inline-level formatting objects
Inherited: yes
Percentages: N/A

Values have the following meanings:

`none`

Punctuation characters are not trimmed.

`start`

Punctuation characters (open parenthesis etc.) at start of line are trimmed.

`start-except-first`

Same as the `start` value except for a start line of a paragraph or a line right after the forced line break.

`end`

When text-align="right" or text-align="justify" (or text-align-last="justify") is specified and full width punctuation marks (closing parenthesis etc.) come to the end of the sentence, the character is treated as half width forcibly.

`allow-end`

When text-align="right" or text-align="justify" (or text-align-last="justify") is specified and full width punctuation marks (closing parenthesis etc.) come to the end of the sentence, characters are treated as full width if text fits into one line, characters are treated as half width if text does not fit into one line.

`end-except-fullstop`

Behaves as the same as the `end` value except for the following two characters.

U+3002	IDEOGRAPHIC FULL STOP	。
U+FF0E	FULLWIDTH FULL STOP	．

`adjacent`

The space between a full width punctuation and a full width character in Japanese is trimmed.

- Between full width close parenthesis and full width open parenthesis.
- Between full width close parenthesis and full width close parenthesis.
- Between full width close parenthesis and full width middle dots.
- Between full width close parenthesis and full width space.
- Between full width close parenthesis and full width non punctuation characters.
- Between full width open parenthesis and full width open parenthesis.
- Between full width middle dots and full width open parenthesis.
- Between full width space and full width open parenthesis.
- Between full width non punctuation character and full width open parenthesis.

Full width punctuation characters are treated the same as full width close parenthesis. The `adjacent` value is equivalent to axf:kerning-mode="contextual" with **XSL Formatter V4**.

`all`

Trim all parentheses, middle dots, and punctuations of full width and treat them as half width.

`<string>`

Behave the same as `all`, but only the character included in the character strings specified here is treated as a half width. Other than parentheses, middle dots, and punctuations of full width are disregarded.

`auto`

Dependent on the system setting. It is considered axf:punctuation-trim="none" or axf:punctuation-trim="start end adjacent" by punctuation-trim in the Option Setting File.

Full width punctuation open parenthesis processed by axf:punctuation-trim are:

U+2018	LEFT SINGLE QUOTATION MARK	‘
U+201C	LEFT DOUBLE QUOTATION MARK	“
U+3008	LEFT ANGLE BRACKET	〈
U+300A	LEFT DOUBLE ANGLE BRACKET	《
U+300C	LEFT CORNER BRACKET	「
U+300E	LEFT WHITE CORNER BRACKET	『
U+3010	LEFT BLACK LENTICULAR BRACKET	【
U+3014	LEFT TORTOISE SHELL BRACKET	〔
U+3016	LEFT WHITE LENTICULAR BRACKET	〖
U+3018	LEFT WHITE TORTOISE SHELL BRACKET	〘
U+301A	LEFT WHITE SQUARE BRACKET	〚
U+301D	REVERSED DOUBLE PRIME QUOTATION MARK	〝
U+FF08	FULLWIDTH LEFT PARENTHESIS	（
U+FF3B	FULLWIDTH LEFT SQUARE BRACKET	［
U+FF5B	FULLWIDTH LEFT CURLY BRACKET	｛
U+FF5F	FULLWIDTH LEFT WHITE PARENTHESIS	

Full width punctuation close parenthesis processed by axf:punctuation-trim are:

U+2019	RIGHT SINGLE QUOTATION MARK	’
U+201D	RIGHT DOUBLE QUOTATION MARK	”
U+3009	RIGHT ANGLE BRACKET	〉
U+300B	RIGHT DOUBLE ANGLE BRACKET	》
U+300D	RIGHT CORNER BRACKET	」

U+300F	RIGHT WHITE CORNER BRACKET	』
U+3011	RIGHT BLACK LENTICULAR BRACKET	】
U+3015	RIGHT TORTOISE SHELL BRACKET	〕
U+3017	RIGHT WHITE LENTICULAR BRACKET	〗
U+3019	RIGHT WHITE TORTOISE SHELL BRACKET	〙
U+301B	RIGHT WHITE SQUARE BRACKET	〛
U+301E	DOUBLE PRIME QUOTATION MARK	″
U+301F	LOW DOUBLE PRIME QUOTATION MARK	‟
U+FF09	FULLWIDTH RIGHT PARENTHESIS	）
U+FF3D	FULLWIDTH RIGHT SQUARE BRACKET	］
U+FF5D	FULLWIDTH RIGHT CURLY BRACKET	｝
U+FF60	FULLWIDTH RIGHT WHITE PARENTHESIS	

Full width punctuations processed by axf:punctuation-trim are:

U+3001	IDEOGRAPHIC COMMA	、
U+3002	IDEOGRAPHIC FULL STOP	。
U+FF0C	FULLWIDTH COMMA	，
U+FF0E	FULLWIDTH FULL STOP	．

Full width middle dots processed by axf:punctuation-trim are:

U+30FB	KATAKANA MIDDLE DOT	・
U+FF1A	FULLWIDTH COLON	：
U+FF1B	FULLWIDTH SEMICOLON	；

axf:punctuation-trim doesn't affect the proportional font. Also, it is always considered `none` when anything other than `auto` is specified for glyph-orientation-*.

CAUTION: To make the behavior of axf:punctuation-trim="both" in **XSL Formatter V4** the same, specify axf:punctuation-trim="start end" or axf:punctuation-trim="start allow-end" in **AH Formatter V7.1**. In addition, if you use this extension together with axf:kerning-mode="contextual", specify axf:punctuation-trim="start end adjacent" etc. with **AH Formatter V7.1**.

axf:text-justify-trim / CSS (-ah-)text-justify-trim

Specifies the way to trim in text justification. [CSS3-Text] Additional compression: The 'text-justify-trim' property (“text-justify-trim” has been removed from CSS3-Text on and after June 27, 2005)

Value:	none | [punctuation || punctuation-except-fullstop || punctuation-except-middledot || [kana | ideograph] || inter-word] | auto
Initial:	auto
Applies to:	all block-level and inline-level formatting objects
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`none`

Do not trim Japanese text.

`punctuation`

Trim text with parentheses, middle dots, and punctuations of full width in Japanese.

`punctuation-except-fullstop`

Behaves as the same as the `punctuation` value except for the following two characters.

U+3002	IDEOGRAPHIC FULL STOP	。
U+FF0E	FULLWIDTH FULL STOP	．

`punctuation-except-middledot`

Behaves as the same as the `punctuation` value except for the following middle dots.

U+30FB	KATAKANA MIDDLE DOT	・

U+FF1A	FULLWIDTH COLON	:
U+FF1B	FULLWIDTH SEMICOLON	;

`kana`

Trim Hiragana and Katakana a bit.

`ideograph`

Trim spaces between Kanji or Kana.

`inter-word`

Trim spaces between Western words.

`auto`

Dependent on the system setting. This is the value specified by punctuation-trim and text-justify-mode in the Option Setting File. However, when axf:avoid-widow-words is enabled, it is considered that axf:text-justify-trim="ideograph inter-word" is specified.

Trim the spaces between characters as specified so that text fits into a line. When axf:punctuation-trim="all" is specified, there may be no more space to trim.

axf:text-justify / CSS (-ah-)text-justify

Specifies how to justify text. [CSS3-Text] Justification Method: the 'text-justify' property

Value:	auto | inter-word | inter-character | distribute
Initial:	auto
Applies to:	all block-level and inline-level formatting objects
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`auto`

Uses the best text justification method for the script. For instance, in case of Japanese Kanji, Hiragana and Katakana, spaces between letters are expanded. In case of Arabic scripts, Kashida is used while spaces between words are expanded for the other scripts.

`inter-word`

Justifies text by expanding the space between words.

`inter-character`

Justifies text by expanding the space between letters.

`distribute`

Changed to `inter-character` with CSST-Text 2017-08-22. We also accept `distribute` for compatibility.

CAUTION: If `inter-character` is specified, kerning and ligature are limited.

axf:kerning-mode / CSS -ah-kerning-mode

Specifies whether to process the kerning.

Value:	none | pair | auto
Initial:	auto
Applies to:	all block-level and inline-level formatting objects
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`none`

The kerning is not processed.

`pair`

The pair kerning is processed.

`auto`

Dependent on the system setting.

You can specify whether pair kerning is performed or not by pair-kerning in the Option Setting File. This can also be set in the Format Option Setting dialog in GUI.

CAUTION: axf:kerning-mode="contextual" with **XSL Formatter V4** was abolished. Use axf:punctuation-trim="adjacent" instead.

axf:kerning-mode does not work when letter-spacing is specified.

axf:punctuation-spacing / CSS -ah-punctuation-spacing

Specifies the trimming spacing between a full width punctuation and a full width character in Japanese.

Value:	<length> | <percentage> | auto
Initial:	auto
Applies to:	all block-level and inline-level formatting objects
Inherited:	yes
Percentages:	refer to the font size

The initial value of this space can be set by punctuation-spacing in the Option Setting File.

Values have the following meanings:

`<length>`

Specifies the amount of the trimming space with an absolute value.

`<percentage>`

It's a relative setting to the font size when actually applied.

`auto`

Dependent on the system setting. This is the value specified by punctuation-spacing in the Option Setting File.

This space is used for the following space amount specified by axf:punctuation-trim="adjacent".

- Between full width close parenthesis and full width open parenthesis.
- Between full width close parenthesis and full width non punctuation characters.
- Between full width non punctuation character and full width open parenthesis.

axf:hanging-punctuation / CSS (-ah-)hanging-punctuation

Specifies whether to hang punctuation marks at the start of the line or end of the line. [CSS3-Text] Hanging Punctuation: the ‘hanging-punctuation’ property (“hanging-punctuation” has been removed from CSS3-Text on and after August 22, 2017)

Value:	none | [start || first || [force-end | allow-end] || last]
Initial:	none
Applies to:	fo:block
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`none`

Do not hang punctuation marks at the start of the line or end of the line.

`start`

Hangs punctuation marks at the start of the line. If the target character for hanging appears at the start of the line, the character is forced to hang.

`first`

Behaves as the same as the `start` value only with the start line of a paragraph.

`force-end`

Hangs punctuation marks at the end of the line. When text-align="right" or text-align="justify" (or text-align-last="justify") is specified and a target character for hanging appears at the end of the line, the character is hanged forcibly. When anything else is specified to text-align, the character is hung naturally.

`allow-end`

Hangs punctuation marks at the end of the line. When text-align="right" or text-align="justify" (or text-align-last="justify") is specified and a target character for hanging comes to the end of the line, the character is not hung if text fits into one line, but the character is hung if text does not fit into one line. When anything else is specified to text-align, the character is hung naturally.

`last`

Behaves the same as the `force-end` value only with the end of the line of a paragraph.

The target punctuation marks is as follows:

- `force-end`, `allow-end`
  Japanese or Simplified Chinese

U+3001	IDEOGRAPHIC COMMA	、
U+3002	IDEOGRAPHIC FULL STOP	。
U+FF0C	FULLWIDTH COMMA	，
U+FF0E	FULLWIDTH FULL STOP	．

  Traditional Chinese

U+FE50	SMALL COMMA	﹐
U+FE51	SMALL IDEOGRAPHIC	﹑
U+FE52	SMALL FULL STOP	﹒
U+FF64	HALFWIDTH IDEOGRAPHIC COMMA	､

  Other languages Same as the `last` value.
- `last`
  quotation marks, closing parentheses, period, comma and hyphen
- `start`, `first`
  quotation marks, closing parentheses and bullet

axf:avoid-widow-words / CSS -ah-avoid-widow-words

Specifies spacing behavior between words or characters so that the last line of the paragraph does not have only one word left (one character for CJK).

Value:	false | true | [<length> || <percentage>]
Initial:	false
Applies to:	fo:block
Inherited:	yes
Percentages:	refer to the width of containing block

Values have the following meanings:

`false`

Does nothing.

`true`

Adjusts the spacing so that the last line of the paragraph does not have only one word left (one character for CJK). When axf:text-justify-trim="auto" is specified, it is considered that axf:text-justify-trim="ideograph inter-word" is specified.

`<length>`
`<percentage>`

Leaves the specified width of text on the last line of the paragraph. If both `<length>` and `<percentage>` are specified, the smaller one is adopted. When 0 or less is specified, it is considered `false`. If it is greater than 0 and axf:text-justify-trim="auto" is specified, it is considered that axf:text-justify-trim="ideograph inter-word" is specified. This setting is effective only when the Breaking Paragraphs into Lines line breaking algorithm is applied, such as when axf:line-break="bpil" is specified. Otherwise, the specified value of greater than 0 is considered `true`.

CAUTION: The specified width is not always secured, for example, in case it is too unbalanced when the specified width is secured.

If the width of columns (length of the line) is short, when `true` is specified, it is not so effective because there is not enough space to run on. In addition, in case there is no room for a word to be placed at the end of the line, axf:avoid-widow-words has no effect. Note that there may be no more space to trim by setting axf:punctuation-trim or axf:text-justify-trim. See also avoid-widow-words-cjk-punctuation in the Option Setting File to learn more about the treatment of the punctuation at the end of the line in CJK.

axf:avoid-widow-words-cjk-punctuation / CSS -ah-avoid-widow-words-cjk-punctuation V7.1

Specifies whether to include the last punctuation mark and count them in one character when axf:avoid-widow-word="true" is specified in CJK.

Value:	auto | true | false | <string>
Initial:	auto
Applies to:	fo:block
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`auto`

Follows the settings of avoid-widow-words-cjk-punctuation in the Option Settings File.

`false`

Because punctuation marks are also counted in one character, it may be a line like “す。”.

`true`

Because punctuation marks are not counted in one character, they do not become a line like “す。”, but a line like “です。”. The target punctuation marks here are the following characters:

- Characters classified as CL or CP in UAX#14: Line Breaking Properties (such as closing parenthesis and punctuation mark)
- U+2019 and U+201D

`<string>`

If you specify a character string other than true/false, such as axf:avoid-widow-words-cjk-punctuation="？！", those characters will also be treated as target punctuation marks in addition to the above.

axf:intrude-into-punctuation / CSS -ah-intrude-into-punctuation V7.1 no-LT

Intrudes the inline element into the punctuation.

Value:	none | [start || end]
Initial:	none
Applies to:	inline elements
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`none`

Does nothing.

`start`

In Japanese, when the character immediately before the start side is any of the following, that character is treated as half-width.

- full width close parenthesis
- full width punctuation

See axf:punctuation-trim for these characters.

`end`

In Japanese, when the character immediately after the end side is any of the following, that character is treated as half-width.

- full width open parenthesis

See axf:punctuation-trim for these characters.

Works when axf:punctuation-trim="adjacent" is specified.

This property is specified when you want to place the footnote symbol after the punctuation mark and treat the punctuation mark in half-width characters. You can do the same with axf:punctuation-trim="all", but you can't just apply it to a particular inline element.

This property is not available with **AH Formatter V7.1 Lite**.

Spacing and Alignment

Adding Space

axf:text-autospace / CSS (-ah-)text-autospace

Specifies whether to add space surrounding ideographic glyphs or not. [CSS3-Text] Adding space: the ‘text-autospace’ property (“text-autospace” has been removed from CSS3-Text on and after April 4, 2011)

Value:	none | [ideograph-numeric || ideograph-alpha || ideograph-parenthesis] | auto
Initial:	auto
Applies to:	all block-level and inline-level formatting objects
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`none`

Space is not added.

`ideograph-numeric`

Space is added between ideograph character and non-ideographic number character. Non-ideographic number character mentioned here indicates the character of Nd classified by Unicode and the non-full-width character.

`ideograph-alpha`

Space is added between ideograph character and non-ideographic alphabet character. Non-ideographic alphabet character mentioned here indicates the character of Lu, Ll, Lt and Lm classified by Unicode.

`ideograph-parenthesis`

Space is added between ideograph character and non-ideographic parenthesis character. However space is not added between ideograph character and non-ideographic closing parenthesis or between non-ideographic opening parenthesis and ideograph character.

`auto`

Dependent on the system setting. It's considered axf:text-autospace="none" or axf:text-autospace="ideograph-numeric ideograph-alpha" according to the setting.

The initial value of whether space is added or not can be set by text-autospace in the Option Setting File. It can also be set in the Format Option Setting Dialog in the GUI.

axf:text-autospace-width / CSS -ah-text-autospace-width

Specifies the width for axf:text-autospace.

Value:	<length> | <percentage> | auto
Initial:	auto
Applies to:	all block-level and inline-level formatting objects
Inherited:	yes
Percentages:	refer to the font size

The initial value of this space can be set by text-autospace-width in the Option Setting File.

Values have the following meanings:

`<length>`

Specifies the amount of the space with an absolute value.

`<percentage>`

It's a relative setting to the font size when actually applied.

`auto`

Dependent on the system setting. This is the value specified by text-autospace-width in the Option Setting File.

This space is used in axf:text-autospace.

axf:letter-spacing-side / CSS -ah-letter-spacing-side

Specifies on which side of the character the space by letter-spacing is distributed.

Value:	both | start | end
Initial:	both
Applies to:	inline-level formatting objects
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`both`

Half the amount of space is distributed on both side of the character for each.

`start`

The space is distributed only on the start side of the character.

`end`

The space is distributed only on the end side of the character.

axf:auto-letter-spacing / CSS -ah-auto-letter-spacing no-LT

Changes letter-spacing depending on the number of characters.

Value:	[none | <length> | <percentage>]*
Initial:	none
Applies to:	inline-level formatting objects
Inherited:	no
Percentages:	refer to the font size

Values have the following meanings:

`none`

Does not specify letter-spacing.

Values can be enumerated corresponding to the number of characters of 2 or more. For example, if specified as follows:

```
axf:auto-letter-spacing="2em 1em 0.5em 0.25em"
```

when the number of characters in this FO is 2, then letter-spacing="2em" is applied. When 3 characters, then letter-spacing="1em" is applied. When 4 characters, then letter-spacing="0.5em" is applied. When 5 characters, then letter-spacing="0.25em" is applied. Does nothing with any other number of characters. Only the characters included in the first inline element are counted.

This property is defined mainly for use in chapter titles in CJK text. In the following case,

```
第 1 章 はじめに
```

It is better to use this together with axf:letter-spacing-side as follows:

```
第 1 章 <fo:inline axf:auto-letter-spacing="2em 1em 0.5em 0.25em"
                                                axf:letter-spacing-side="end">はじめに</fo:inline>
```

It is not possible to apply this property to text (such as page numbers, etc.) for which the number of characters is not fixed.

This property is not available with **AH Formatter V7.1 Lite**.

CSS -ah-margin-break

Specifies how to treat the margin when the page/column breaks.

Value:	[auto | discard | keep] keep?
Initial:	auto
Applies to:	block elements
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`auto`

Retains the margin on the before side of the block placed at the start of the document or right after the forced page/column break. Except for that, it is the same as `discard`.

`discard`

Discards the margin.

`keep`

Retains the margin on the before side. When the second `keep` is specified, the margin on the after side is also retained.

CSS -ah-ignore-leading-newline

Specifies whether the newline right after the start tag is disregarded or not.

Value:	false | true | auto
Initial:	false
Applies to:	`<pre>` element
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`false`

The newline right after the start tag is not disregarded.

`true`

The newline right after the start tag is disregarded.

`auto`

The newline right after the start tag is disregarded with HTML, not disregarded with XHTML.

This is effective with the element that does not disregard the newline like `<pre>`.

Text Alignment

axf:text-align-string / CSS -ah-text-align-string

Specifies the text alignment when text-align="<string>".

Value:	start | center | end | inside | outside | left | right
Initial:	end
Applies to:	fo:table-cell
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`start`
`center`
`end`
`inside`
`outside`
`left`
`right`

Same as text-align or text-align-last.

Although the specification of `<string>` to `<fo:table-cell>` aligns the character position of decimal point, etc., there is no definition for the alignment of the whole character string. At a default, **AH Formatter V7.1** displayed it right aligned according to the illustration of 17.5.4 Horizontal alignment in a column. **AH Formatter V7.1** extends the alignment and makes it possible to align left or align center.

axf:text-align-first / CSS -ah-text-align-first

Specifies the text alignment of the first line.

Value:	relative | start | center | end | justify | inside | outside | left | right
Initial:	relative
Applies to:	fo:block
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`relative`

Does nothing. axf:text-align-first is invalid.

`start`
`center`
`end`
`justify`
`inside`
`outside`
`left`
`right`

Same as text-align or text-align-last.

Specifies the alignment of the child of the first line area and the alignment of the line coming right after the line with U+000A at the end. Priority is given above text-align-last.

See axf:leader-expansion.

axf:flush-zone / CSS -ah-flush-zone

Adjusts the space at the end of the last line. no-LT

Value:	none | <length> | <percentage>
Initial:	none
Applies to:	fo:block
Inherited:	yes
Percentages:	refer to the width of containing block

Values have the following meanings:

`none`

Does nothing.

`<length>`
`<percentage>`

If text-align="justify" is specified but text-align-last="justify" are not specified, and the space at the end of the last line is less than or equal to the specified value, the last line is processed as text-align-last="justify" is specified.

This property is not available with **AH Formatter V7.1 Lite**.

axf:balanced-text-align / CSS -ah-balanced-text-align no-LT

Specifies whether to balance the entire block including the last line.

Value:	true | false | auto
Initial:	auto
Applies to:	fo:block
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`true`

The entire block is adjusted to be balanced including the last line.

`false`

Does not balance the last line.

`auto`

When applied to a block with any of the following conditions, the entire block including the last line is adjusted to be balanced.

- text-align="justify" and text-align-last="justify"
- text-align="center" and text-align-last="center"

This property is only valid when the line breaking algorithm of Breaking Paragraphs into Lines is applied, such as when axf:line-break="bpil" is specified. Otherwise it is considered `false`.

This property is not available with **AH Formatter V7.1 Lite**.

leader-alignment

The following bold values are extended.

Value:	none | reference-area | ~~page~~ | **start** | **center** | **end**
Initial:	none
Applies to:	fo:leader

Inherited: yes
Percentages: N/A

Values have the following meanings:

`start`

When leader-pattern="dots" or leader-pattern="use-content" is specified and the contents are only the text, leaders are aligned on the start side.

`center`

When leader-pattern="dots" or leader-pattern="use-content" is specified and the contents are only the text, leaders are center aligned.

`end`

When leader-pattern="dots" or leader-pattern="use-content" is specified and the contents are only the text, leaders are aligned on the end side.

CAUTION: `page` is not supported.

axf:leader-expansion no-LT

Specifies whether to expand a leader forcibly.

Value: auto | force
Initial: auto
Applies to: fo:block
Inherited: yes
Percentages: N/A

Values have the following meanings:

`auto`

Operates as usual by specifying text-align.

`force`

Considers a line with leaders as text-align="justify". Consequently, leaders will expand.

CAUTION: In CSS, it is always considered `force`.

Suppose you create a table of contents using leaders. Then you might want to format as follows with the length of a label, or the length of the number of pages.

```
1.  Short Label ................................ 10, 20, 30
2.  Short Label ... 10, 20, 30, 40, 50, 60, 70, 80, 90, 100,
                                  110, 120, 130, 140, 150
3.  Very Looooooooooooooooooooooooooooooooooooong Label ...
    ............................................ 10, 20, 30
4.  Very Looooooooooooooooooooooooooooooooooooong Label ...
    ..... 10, 20, 30, 40, 50, 60, 70, 80, 90, 100, 110, 120,
                                            130, 140, 150
5.  Very Very Very Looooooooooooooooooooooooooooooooooooong
    Long Long Label ............................ 10, 20, 30
6.  Very Very Very Looooooooooooooooooooooooooooooooooooong
    Long Long Label .... 10, 20, 30, 40, 50, 60, 70, 80, 90,
                             100, 110, 120, 130, 140, 150
```

When the following XSL Standard is specified,

```
<fo:block text-align="justify" text-align-last="justify">
 Label
 <fo:leader leader-pattern="dots"/>
 Pages
</fo:block>
```

only the simple 1. and 5. can get the expected results. And 3. can be performed by the following specification.

```
<fo:block text-align="justify" text-align-last="justify">
 Label
 <fo:leader leader-length.minimum="0pt" leader-pattern="dots"/><fo:leader
                                                                  leader-pattern="dots"/>
 Pages
</fo:block>
```

Next, by using axf:text-align-first as follows,

```
<fo:block text-align="justify" text-align-last="right" axf:text-align-first="justify">
 Label
 <fo:leader leader-length.minimum="0pt" leader-pattern="dots"/><fo:leader
                                                                  leader-pattern="dots"/>
 Pages
</fo:block>
```

all cases excluding 3. and 5. gets the result as expected. Furthermore, by using axf:leader-expansion as follows,

```
<fo:block text-align="justify" text-align-last="right" axf:text-align-first="justify"
          axf:leader-expansion="force">
 Label
 <fo:leader leader-length.minimum="0pt" leader-pattern="dots"/><fo:leader
                                                                  leader-pattern="dots"/>
 Pages
</fo:block>
```

all cases of 1. to 6. gets the result as expected.

This property is not available with **AH Formatter V7.1 Lite**.

axf:text-kashida-space / CSS -ah-text-kashida-space

Specifies the percentage of Kashida in Arabic justification.

Value:	<percentage> | auto
Initial:	auto
Applies to:	all block-level and inline-level formatting objects
Inherited:	yes
Percentages:	yes

Values have the following meanings:

`<percentage>`

Indicates the percentage of white space and Kashida. If the value is 0%, Kashida is not inserted and only the white space expands as well as the normal justification. If the value is 100%, Kashida is inserted as much as possible. The value should be from 0% to 100%.

`auto`

Dependent on the system setting.

The initial value of the percentage can be set by text-kashida-space in the Option Setting File.

axf:justify-nbsp / CSS -ah-justify-nbsp

Specifies whether to justify NON-BREAKING SPACE or not.

Value:	true | false
Initial:	true
Applies to:	all formatting objects
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`true`

NON-BREAKING SPACE is included for justification.

`false`

NON-BREAKING SPACE is not included for justification.

Generally, NON-BREAKING SPACE (U+00A0) is intended for justification. The axf:justify-nbsp property can be used when you want to check off U+00A0 from justification.

axf:indent-here / CSS -ah-indent-here no-LT

Aligns the indent position to the region position when a line break occurs.

Value:	none | <length>
Initial:	none
Applies to:	fo:inline
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`none`

Does nothing.

`<length>`

Aligns the indent position to the shifted position by `<length>` from the beginning of the specified line area.

In order to indent lines, specify `<fo:inline>` which contains this property as follows:

```
<fo:block>Indent-here: <fo:inline axf:indent-here="0pt"/>The quick brown fox jumps over the
                                                                    lazy dog ...</fo:block>
```

The start position of `<fo:inline>` becomes the standard of indentation.

This property is not available with **AH Formatter V7.1 Lite**.

axf:text-indent-if-first-on-page / CSS -ah-text-indent-if-first-on-page no-LT

Specifies the text-indent of a block at the top of the page or the top of the column.

Value:	<length> | <percentage> | auto
Initial:	auto
Applies to:	fo:block, fo:block-container
Inherited:	yes
Percentages:	refer to the logical width of the containing block

Values have the following meanings:

`<length>`
`<percentage>`

When the block comes to the top of the page or column, if the first line is on that page or column, the value of this property substitutes for the value of text-indent.

`auto`

Does nothing.

This property is not available with **AH Formatter V7.1 Lite**.

Tab

In case of FO, the tab character (U+0009) will be normalized to the white space (U+0020); therefore, the character normally has a meaning of just a white space. However, there are a lot of document structures that the tab character aligns the text, such as JIS X 4051:2004. **AH Formatter V7.1** provides the extension that enables to express the tab structure.

CAUTION: A line which contains a tab will be forced to text-align="start".

CAUTION: We cannot guarantee the best result of a tab processing in case a text requires the BIDI processing.

<axf:tab> no-LT

Common Usage:

Places a white space up to a tab stop position. Specify the tab stop position with axf:tab-stops.

Areas:

Generates and returns a single normal inline-area.

Contents:

EMPTY

This element is not equivalent to `<fo:character character="	"/>`. For `<fo:character>`, all the properties related to a white space such as white-space-collapse and white-space-treatment are applied.

This element is not available with **AH Formatter V7.1 Lite**.

axf:tab-align no-LT

Specifies the tab alignment at the tab stop position.

Value:	auto | start | center | end | left | right | decimal | <string>
Initial:	auto
Applies to:	axf:tab
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`auto`

The alignment of the tab stop position is considered what is specified in axf:tab-stops.

`start`

Aligns the start of the string to the tab stop position.

`center`

Aligns the center of the string to the tab stop position.

`end`

Aligns the end of the string to the tab stop position.

`left`

Aligns the left side of the string (the top of the string in case of vertical writing) to the tab stop position. Same as `start` above in case of writing-mode="lr-tb" and "tb-rl".

`right`

Aligns the right side of the string (the bottom of the string in case of vertical writing) to the tab stop position. Same as `end` above in case of writing-mode="lr-tb" and "tb-rl".

`decimal`

Considered that `"."` is specified.

`<string>`

Aligns the start of the string to the tab stop position as specified. For instance, when axf:tab-align="." is specified, alignment will be made as below:

```
  1 . 2345
123 . 45
```

```
12345 .
12345
```

This property is not available with **AH Formatter V7.1 Lite**.

axf:tab-stops no-LT

Specifies the tab stop.

Value:	[[<tab-align>? [<length> | <number>]]* [<tab-align>? eol]?]!
Initial:	8
Applies to:	all block-level formatting objects
Inherited:	yes
Percentages:	N/A

<tab-align> = start | center | end | left | right | decimal | <string>

Values have the following meanings:

`<tab-align>`

Specifies the alignment of the tab stop position. When omitted, it will be considered that this alignment is same as that of the previous tab stop position. When omitted at the start of the line, the value will be considered `start`. For more details, see axf:tab-align.

`<length>`

Specifies the tab length.

`<number>`

Regards the specified number of the white space characters (U+0020) as the tab length.

`eol`

Regards that the tab stop position is placed at the end of the line. However, when the previous tab specification already exceeded the end of the line, it will be considered that the tab stop position is always placed at the end of the line.

The tab length to be specified will be the distance added from the start of the reference area. You cannot specify a negative value. When `eol` is not specified, it will be considered that the tab length is repeatedly specified until the last value reaches the end of the line. However, when this value is 0, the tab will be ignored. For instance, specify as below:

```
axf:tab-stops="80pt decimal 40pt end 8 eol"
```

In case of CSS, `tab-size:8` is equivalent to axf:tab-stops="8".

This property is not available with **AH Formatter V7.1 Lite**.

axf:tab-treatment no-LT

Specifies the method to treat the tab character (U+0009).

Value:	<number> | preserve
Initial:	4
Applies to:	fo:block, fo:character
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`<number>`

Treated as the specified number of the white space characters (U+0020). You cannot specify a negative value. This white space is subject to processing of white-space-treatment and white-space-collapse, etc.

`preserve`

Treated as `<axf:tab/>`.

This property is not available with **AH Formatter V7.1 Lite**.

axf:tab-overlap-treatment no-LT

Specifies a behavior when tab alignment makes letters overlapped.

Value:	auto | ignore-tab | next-tab
Initial:	auto
Applies to:	fo:block, fo:character
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`auto`

Depends on the default value of the system. This is the value specified in tab-overlap-treatment in the Option Setting File.

`ignore-tab`

Ignores the tab. The string will be shown just after the previous string.

`next-tab`

Places the tab at the next tab stop position.

Letters will not be overlapped when axf:tab-align="start" is specified.

This property is not available with **AH Formatter V7.1 Lite**.

Character and Text Decoration

axf:text-line-color / CSS -ah-text-line-color

Specifies the color of underline, strikethrough, and overline.

Value:	<color>
Initial:	the value of the ‘color’ property
Applies to:	all elements with and generated content with textual content
Inherited:	no
Percentages:	N/A

axf:text-line-style / CSS -ah-text-line-style

Specifies the style of underline, strikethrough, and overline.

Value:	<border-style>
Initial:	solid
Applies to:	all elements with and generated content with textual content
Inherited:	no
Percentages:	N/A

`none` cannot be specified to `<border-style>`.

axf:text-line-width / CSS -ah-text-line-width

Specifies the width of underline, strikethrough, and overline.

Value:	auto | <border-width>
Initial:	auto
Applies to:	all elements with and generated content with textual content
Inherited:	no
Percentages:	N/A

axf:text-underline-position / CSS (-ah-)text-underline-position

Specifies the position of underline. [CSS3-Text] Other text decoration simple properties: 'text-underline-position'

Value:	auto | [[before-edge | alphabetic | after-edge] || [<percentage> | <length>]]
Initial:	auto
Applies to:	all elements with and generated content with textual content
Inherited:	yes
Percentages:	refers to the line height of the parent area

Values have the following meanings:

`auto`

The underline is placed on the automatically adjusted position. The specification of axf:vertical-underline-side in vertical writing mode is effective.

`before-edge`

The underline is placed on the before-edge. When `<percentage>` or `<length>` is not specified, the upper end of the height of an underline is placed on the before-edge. When `<percentage>` or `<length>` is specified, the center of the height of an underline is placed on the before-edge.

`alphabetic`

The underline is placed on the position of the baseline. When `<percentage>` or `<length>` is not specified, the upper end of the height of an underline is placed on the baseline. When `<percentage>` or `<length>` is specified, the center of the height of an underline is placed on the baseline.

`after-edge`

The underline is placed on the after-edge. When `<percentage>` or `<length>` is not specified, the upper end of the height of an underline is placed on the after-edge. When `<percentage>` or `<length>` is specified, the center of the height of an underline is placed on the after-edge.

`<percentage>`
`<length>`

The underline position is shifted by the specified amount. When the underline is placed on the right side by axf:vertical-underline-side, it is moved to the opposite direction of the left side.

axf:vertical-underline-side / CSS -ah-vertical-underline-side

Specifies on which side of the text to put underline in vertical writing-mode.

Value:	left | right | depend-on-language | auto
Initial:	auto
Applies to:	all block-level and inline-level formatting objects
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`left`

The underline is placed on the left side.

`right`

The underline is placed on the right side.

`depend-on-language`

The underline is placed on the right side when the language property is Japanese (`jpn`) or Korean (`kor`). The underline is placed on the left side when the language property is other than Japanese (`jpn`) or Korean (`kor`).

`auto`

Dependent on the system setting.

This property is effective only when axf:text-underline-position="auto" is specified. The overline is placed on the opposite position of the underline.

The initial value of the underline position can be set by vertical-underline-side in the Option Setting File. It can also be set in the Format Option Setting Dialog in the GUI.

When axf:vertical-underline-side="auto" is specified and the initial value of the system is also `auto`, the underline is placed on the right side when the language property is Japanese (jpn) or Korean (kor). The underline is placed on the left side when the language property is other than Japanese (jpn) or Korean (kor). If there is no language properties specified, it depends on the Default CJK language setting.

axf:text-stroke / CSS -ah-text-stroke no-LT

Specifies the stroke of the character.

Value:	<length> <color>? | <color>
Initial:	0pt transparent
Applies to:	all block-level and inline-level formatting objects
Inherited:	yes
Percentages:	N/A

This is a shorthand property for axf:text-stroke-width and axf:text-stroke-color.

CAUTION: This property is valid for GUI and PDF output, SVG output. Ignored on other outputs.

CAUTION: Contiguous character strings such as Arabic or Devanagari draw strokes at character boundaries.

This property is not available with **AH Formatter V7.1 Lite**.

axf:text-stroke-width / CSS -ah-text-stroke-width no-LT

Specifies the stroke width of the character.

Value:	<length>
Initial:	0pt
Applies to:	all block-level and inline-level formatting objects
Inherited:	yes
Percentages:	N/A

Specifies the stroke width of the character. Strokes are not drawn when these are less than or equal to 0.

CAUTION: This property is valid for GUI and PDF output, SVG output. Ignored on other outputs.

CAUTION: Contiguous character strings such as Arabic or Devanagari draw strokes at character boundaries.

This property is not available with **AH Formatter V7.1 Lite**.

axf:text-stroke-color / CSS -ah-text-stroke-color no-LT

Specifies the stroke color of the character.

Value:	<color>
Initial:	transparent
Applies to:	all block-level and inline-level formatting objects
Inherited:	yes
Percentages:	N/A

Specifies the stroke color of the character. Strokes are not drawn when these are transparent.

CAUTION: This property is valid for GUI and PDF output, SVG output. Ignored on other outputs.

CAUTION: Contiguous character strings such as Arabic or Devanagari draw strokes at character boundaries.

This property is not available with **AH Formatter V7.1 Lite**.

CSS (-ah-)text-decoration

[CSS 2.1] 16.3.1 Underlining, overlining, striking, and blinking
[CSS3-TextDecor] Text Decoration Shorthand: the ‘text-decoration’ property

Value:	<text-decoration-line> || <text-decoration-color> || <text-decoration-style>
Initial:	none

Applies to: all elements and generated content
Inherited: no
Percentages: N/A

CSS (-ah-)text-decoration-color

[CSS3-TextDecor] Text Decoration Color: the ‘text-decoration-color’ property

Value: <color>
Initial: currentColor
Applies to: all elements and generated content
Inherited: no
Percentages: N/A

☞ axf:text-line-color

CSS (-ah-)text-decoration-line

[CSS3-TextDecor] Text Decoration Lines: the ‘text-decoration-line’ property

Value: none | [underline || overline || line-through || ~~blink~~]
Initial: none
Applies to: all elements and generated content
Inherited: no (but see prose)
Percentages: N/A

☞ [XSL 1.1] text-decoration

CSS (-ah-)text-decoration-style

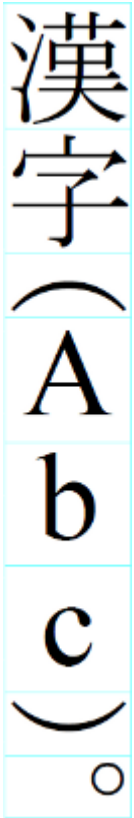
[CSS3-TextDecor] Text Decoration Style: the ‘text-decoration-style’ property

Value: <border-style>
Initial: solid
Applies to: all elements and generated content
Inherited: no
Percentages: N/A

☞ axf:text-line-style

axf:text-orientation / CSS (-ah-)text-orientation no-LT

Specifies the orientation of text in vertical writing mode. [CSS3-WritingModes] Orienting Text: the 'text-orientation' property



Value:	mixed | upright | sideways-rl | sideways | none | auto
Initial:	auto
Applies to:	all block-level and inline-level formatting objects
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`mixed`

Rotates alphanumeric characters, etc. 90-degree clockwise. (As shown on the right in the figure.)

`upright`

Renders all the characters upright except for punctuation marks, such as parentheses. (As shown on the left in the figure.)

`sideways-rl`
`sideways`

Rotates all the characters 90-degree clockwise. This has the same effect as setting some parts in horizontal layout in the vertical writing mode.

`none`

Dependent on the system. Although the operation is close to `mixed`, which character is rotated is decided by considering the compatibility with the old version.

`auto`

In XSL-FO, it is considered `mixed` when the value of text-orientation-mode is 7 in the Option Setting File, `none` when the value is less than or equal to 6. In CSS, it is considered `mixed`.

See also Upright Rendering of Text in Vertical Writing Mode to learn more about the behavior of `mixed` and `upright`. It is always considered axf:word-break="break-all", hyphenate="false" in upright character strings.

This property is not effective in horizontal writing mode. In addition, complicated scripts, such as Arabic or Thai, cannot be rendered upright.

This property is not available with **AH Formatter V7.1 Lite**.

axf:text-combine-horizontal / CSS (-ah-)text-combine-horizontal no-LT

Sets horizontal-in-vertical composition in vertical writing mode automatically. [CSS3-WritingModes] Horizontal-in-Vertical Composition: the 'text-combine-horizontal' property ("text-combine-horizontal" has been removed from CSS3-WritingMode on and after March 20, 2014)

Value:	none | all | [digits <integer> || alpha <integer> || alphanumeric <integer>]
Initial:	none
Applies to:	all block-level and inline-level formatting objects
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`none`

Does not set horizontal-in-vertical composition.

`all`

The whole element which consists of only text is set to horizontal-in-vertical composition.

`digits`

A sequence of consecutive numbers (0-9) that are less than or equal to the digit number specified by `<integer>` is set to horizontal-in-vertical composition.

`alpha`

A sequence of consecutive alphabetic characters (A-Z, a-z) that are less than or equal to the digit number specified by `<integer>` is set to horizontal-in-vertical composition.

`alphanumeric`

A sequence of consecutive alphanumeric characters (0-9, A-Z, a-z) that are less than or equal to the digit number specified by `<integer>` is set to horizontal-in-vertical composition.

Usually, horizontal-in-vertical composition will be marked up as follows:

```
<fo:inline-container writing-mode="lr-tb"
                     line-height="1"
                     text-align-last="center"
                     text-indent="0pt"
                     start-indent="0pt"
                     end-indent="0pt"
                     padding="0pt"
                     wrap-option="no-wrap">
 <fo:block>12</fo:block>
</fo:inline-container>
```

The automatic horizontal-in-vertical composition saves time and effort for this.

axf:text-combine-horizontal is applied before axf:text-orientation or text-transform, etc. The removable white space placed before and after the character string targeted for horizontal-in-vertical composition will be removed.

When digits is specified to axf:text-combine-horizontal and axf:text-orientation="upright" is also specified, the following behaviors are applied to the sequence of numbers targeted for horizontal-in-vertical composition that are shorter than `<integer>`, that has adjacent decimal point.

- U+002E and U+FF65 are considered decimal points.
- A sequence of numbers targeted for horizontal-in-vertical composition after the decimal point will not be set to horizontal-in-vertical composition. However, the decimal point will be transferred to U+FF65.
- When the decimal point comes after a sequence of numbers targeted for horizontal-in-vertical composition, the sequence of numbers will be set to horizontal-in-vertical composition. The decimal point will be transferred to U+FF65.

The figure on the right shows the example of the horizontal-in-vertical composition set to “12.34” automatically.

```
<fo:block axf:text-combine-horizontal="digits 2"
          axf:text-orientation="upright"
>12.34</fo:block>
```

Furthermore, with the combination of text-transform, you can set two or more characters in non full-width, change others in full-width in horizontal-in-vertical composition.

```
<fo:block axf:text-combine-horizontal="digits 2"
          axf:text-orientation="upright"
          text-transform="full-width"
>平成 25 年 4 月 16 日</fo:block>
```

CAUTION: Automatic horizontal-in-vertical composition is not recommended to use in any other way than axf:text-orientation="upright".

Automatic horizontal-in-vertical composition is invalid in the following cases. Emphasis marks in horizontal-in-vertical composition will be deleted.

- In horizontal writing mode (includes the case where the value for axf:text-orientation is `sideways` in horizontal-in-vertical composition)
- When languages other than CJK are specified
- Within ruby
- Character strings generated dynamically, such as `<fo:page-number>`

This property is not available with **AH Formatter V7.1 Lite**.

Emphasis Marks

AH Formatter V7.1 is capable of applying emphasis marks to the character string. However, emphasis marks cannot be applied to an arbitrary script. Only to the following scripts in addition to CJK are available.

- Latn
- Cyrl
- Grek
- Zyyy

It's not available to apply emphasis marks to the ruby characters, though it is available to apply to ruby's base characters.

As for the glyph of the emphasis mark in the general font, the size of glyph image is various, you will need to adjust the position and size according to the emphasis mark you use.

```
axf:text-emphasis-style="sesame"
axf:text-emphasis-offset="-0.25"
axf:text-emphasis-font-size="1"
axf:text-emphasis-position="before"

axf:text-emphasis-style="circle"
axf:text-emphasis-offset="0.25"
axf:text-emphasis-font-size="0.25"
axf:text-emphasis-position="before"
```

A free special font suitable for emphasis marks is available (☞ Kenten Generic OpenType Font). The font has the same size of emphasis marks, then the same settings for any emphasis marks will be OK.

```
axf:text-emphasis-style="sesame"
axf:text-emphasis-offset="0"
axf:text-emphasis-font-size="0.5"
axf:text-emphasis-font-family="KentenGeneric"
axf:text-emphasis-position="before"
```

axf:text-emphasis-style / CSS (-ah-)text-emphasis-style

Specifies the style of emphasis marks. [CSS3-TextDecor] Emphasis Mark Style: the ‘text-emphasis-style’ property

Value:	none | [[filled | open] || [dot | circle | double-circle | triangle | sesame]] | <string>
Initial:	none
Applies to:	all elements
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`none`

No emphasis marks.

`filled`

Specifies a character with color-fill.

`open`

Specifies a character with an outline without color-fill.

`dot`

Specifies a filled dot. `filled dot` is U+2022 •, `open dot` is U+25E6 ◦.

`circle`

Specifies a circle. `filled circle` is U+25CF ●, `open circle` is U+25CB ○.

`double-circle`

Specifies a double-circle. `filled double-circle` is U+25C9 ◉, `open double-circle` is U+25CE ◎.

`triangle`

Specifies a triangle. `filled triangle` is U+25B2 ▲, `open triangle` is U+25B3 △.

`sesame`

Specifies a sesame dot. `filled sesame` is U+FE45 ﹅, `open sesame` is U+FE46 ﹆.

`<string>`

Specifies an arbitrary character string. When multiple characters are specified, overlapping of emphasis marks is not considered though everything is displayed.

when `filled` or `open` is not specified, it's considered `filled`. When `filled` or `open` is specified, it's considered `circle` in vertical writing mode.

axf:text-emphasis-position / CSS (-ah-)text-emphasis-position

Specifies on which side of base characters emphasis marks are put. [CSS3-TextDecor] Emphasis Mark Position: the 'text-emphasis-position' property

Value:	before | after
Initial:	before
Applies to:	all elements
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`before`

Emphasis marks are put on the before side.

`after`

Emphasis marks are put on the after side.

axf:text-emphasis-offset / CSS -ah-text-emphasis-offset

Specifies the space between emphasis marks and the base characters.

Value:	<number> | <length> | <percentage>
Initial:	0pt
Applies to:	all elements
Inherited:	yes
Percentages:	refer to the font size

When specified using `<number>`, the value is what is obtained by multiplying text-emphasis-font-size by the specified `<number>`. When ruby and emphasis marks are put on the same side, it is adjusted to the larger one of the specified value and the ruby height.

axf:text-emphasis-skip / CSS -ah-text-emphasis-skip

Specifies the character to which emphasis marks are not applied.

Value:	none | [spaces || punctuation || symbols || narrow]
Initial:	spaces
Applies to:	all elements
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`spaces`

White space characters are excluded.

`punctuation`

Punctuation marks are excluded.

`symbols`

Symbols are excluded.

`narrow`

Non full width characters (half width characters, etc.) are excluded.

axf:text-emphasis-font-family / CSS -ah-text-emphasis-font-family

Specifies the font family of emphasis marks.

Value:	[<family-name> | <generic-family>]#
Initial:	empty string
Applies to:	emphasis elements
Inherited:	yes
Percentages:	N/A

If nothing is specified, it's considered the same as font-family.

axf:text-emphasis-font-size / CSS -ah-text-emphasis-font-size

Specifies the font size of emphasis marks.

Value:	<number> | <absolute-size> | <relative-size> | <length> | <percentage>
Initial:	0.5
Applies to:	emphasis elements
Inherited:	yes
Percentages:	refer to the font size

When specified using `<number>`, the value is what is obtained by multiplying font-size by the specified `<number>`.

axf:text-emphasis-font-style / CSS -ah-text-emphasis-font-style

Specifies whether emphasis marks are made Italic.

Value:	normal | italic
Initial:	empty
Applies to:	emphasis elements
Inherited:	yes
Percentages:	N/A

If nothing is specified, it's considered the same as font-style.

axf:text-emphasis-font-weight / CSS -ah-text-emphasis-font-weight

Specifies the font weight of emphasis marks.

Value:	normal | bold | bolder | lighter | 1...1000
Initial:	empty
Applies to:	emphasis elements
Inherited:	yes
Percentages:	N/A

If nothing is specified, it's considered the same as font-weight.

axf:text-emphasis-font-stretch / CSS -ah-text-emphasis-font-stretch

Specifies the font stretching of emphasis marks.

Value:	normal | wider | narrower | ultra-condensed | extra-condensed | condensed | semi-condensed | semi-expanded | expanded | extra-expanded | ultra-expanded | <percentage> | <number>

Initial:	empty
Applies to:	emphasis elements
Inherited:	yes
Percentages:	refer to the text-emphasis-font-size

If nothing is specified, it's considered the same as font-stretch.

axf:text-emphasis-color / CSS (-ah-)text-emphasis-color

Specifies the color of emphasis marks. [CSS3-TextDecor] Emphasis Mark Color: the 'text-emphasis-color' property

Value:	<color>
Initial:	currentColor
Applies to:	emphasis elements
Inherited:	yes
Percentages:	N/A

If nothing is specified, it's considered the same as color.

Text Shadow

text-shadow / CSS (-ah-)text-shadow no-LT

Specifies the text shadow. [CSS3-TextDecor] Text Shadows: the 'text-shadow' property

Value:	none | [<length>{2,3} && <color>?]#
Initial:	none
Applies to:	all elements which can have borders
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`none`

No shadow is displayed.

The meanings of `<length>`s and a `<color>` are as follows:

- The first `<length>` is an offset of a horizontal shadow. It becomes a right-side shadow of a region when a positive value is specified. It becomes a left-side shadow of a region when a negative value is specified.
- The second `<length>` is an offset of a vertical shadow. It becomes a bottom-side shadow of a region when a positive value is specified. It becomes a top-side shadow of a region when a negative value is specified.
- The 3rd `<length>` has to be the non-negative value and specifies the blur radius. If 0 is specified, there is no shading. When the value greater than 0 is specified, the text shadow is described in raster-image format.
  The resolution of a described image can be set by textshadow-resolution-minimum-dpi, textshadow-resolution-pixel-per-em. In addition, when the blur radius is given by the length in px unit, the blur radius will not be decided by the resolution setting but by pxpi.
- The color of the shadow can be specified by `<color>`.

This combination can be specified multiply and shadows can be added several times over. This property is not available with **AH Formatter V7.1 Lite**.

CAUTION: In the XSL specification, this property is not inherited and can be applied to very limited FO, but extended by **AH Formatter V7.1** according to the CSS specification. ☞ [XSL 1.1] text-shadow

CAUTION: When the text color includes the transparence or the alpha value, the color is not correctly displayed.

Note the following when you set the blur:

- Effective only with GUI and PDF output. The blur setting is ignored with the other outputs.
- The blur setting is ignored with the device that cannot output in transparent mode like PDF/X.
- The glyph of the font is processed and transformed into the raster image. Some fonts may not be allowed to transform into images, process and distribute. Be sure the font you are using has no licensing problem.

- When you set the blur without embedding the font, the font shape may differ between the text shadow and the text area in the environment where the font is not installed. We recommend to embed fonts when setting the blur. Also It's possible to specify whether to blur the font that are not allowed to embed by textshadow-blur-cannot-embed-font.
- It's not described to the decorated characters, such as decorated lines or emphasis marks.
- Compression in PDF Output can also be applied to the image created by this feature.
- The blur setting is ignored when transparency is specified as `false`.

Drop Capitals

axf:initial-letters / CSS (-ah-)initial-letters no-LT

Creates drop initials. [CSS3-Inline] Initial Letters

Value:	normal | [[<number> | <length>] <integer>? | [<number> | <length>] && [drop | raise]] [adjacent | <integer2>]?
Initial:	normal
Applies to:	fo:block (XSL) / ::first-letter (CSS)
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`normal`

Does nothing.

`<number>`

Specifies the letter size of a dropped initial by number of lines. When the value is less than 1, it is invalid.

`<length>`

Specifies the letter size of a dropped initial by actual dimensions. The specified dimension is converted to how many lines it corresponds to. When it is less than 1 line, it is invalid.

`<integer>`

Specifies the number of lines a dropped initial should sink. When the value is omitted, it is considered a value obtained by rounding down the number of lines to an integer. When the value is less than 1, it is invalid.

`drop`

Equivalent to specifying a value of the number of lines rounded down to an integer to `<integer>`.

`raise`

Equivalent to specifying 1 to `<integer>`.

`adjacent`

Indents all lines in the block, not just the letter of a dropped initial.

`<integer2>`

Similar to `adjacent`, but indents the lines after the part of dropped initial by the specified number of lines. When the value is omitted, it is considered 0. When the value is negative, it is invalid.

This property can only be specified in `<fo:block>` in XSL-FO and in the `::first-letter` pseudo element in CSS. A dropped initial is selected from the first text by tracing the children of the element for which axf:initial-letters is specified. In XSL-FO, axf:initial-letters is ignored if the following elements appear before text. In CSS, it follows the `::first-letter` pseudo element (except for ruby).

- `fo:block` with axf:initial-letters specified
- `fo:block` within inline elements
- Block elements other than `fo:block`
- `fo:inline-container`

- `fo:bidi-override`
- `fo:page-number`
- `fo:page-number-citation`
- `fo:page-number-citation-last`
- `axf:footnote-number`
- `axf:footnote-number-citation`

When the strings of the block with axf:initial-letters specified are short and less than the number of lines to be sunk, the succeeding block without axf:initial-letters specified is also indented. However, in the following cases, it will not be indented and will be placed on the next line of the dropped initial.

- Block with clear="start" or `"both"` specified
- When a float is included on the end side of a block with clear="end" specified
- When a space is included between blocks due to margin, etc.

A dropped initial is the first letter except for the following punctuations from the first text and accents that decorate them. At that time, all the following punctuations that are adjacent are also selected according to the `::first-letter` specification.

- Ps : open punctuation
- Pe : close punctuation
- Pi : initial punctuation
- Pf : final punctuation
- Po : other punctuation

For example, `"H` will be a dropped initial in case of `"Hello`.

The font size is automatically calculated from the cap-height etc. of the font, so the font-size specified in `::first-letter` is ignored. When the letter following the dropped initial is in lowercase and small-caps is specified, the letter size is calculated taking into account not only cap-height but also x-height. For more details, see also axf:initial-letters-first-line-head-height. Some fonts do not have cap-height or x-height, or may not have appropriate values. In such a case, it can be adjusted by specifying in the Font Configuration File.

CAUTION:	The font size is calculated on the assumption that the line height is constant. For example, when a line with line-stacking-strategy="max-height" has large letters in the middle, the letter size may be different from the expected one.
CAUTION:	Drop initials do not work for the block when axf:text-align-first is specified and its value is other than `"left"`, `"start"` or `"justify"`. Also, drop initials do not work for the block when axf:text-align-first is not specified and the value of text-align is other than `"left"`, `"start"` or `"justify"`.

If the first letter is ruby, then the first ruby container of that ruby will be a dropped initial. When an image, such as `<fo:external-graphic>` comes first, the image is a dropped initial. At that time, all the settings related to the scaling of the image are ignored. If `::first-letter` without `initial-letters` specified, `::first-letter` does not apply to ruby or image.

`::first-letter` may be nested.

```
div::first-letter { ... }
p::first-letter { ... }
```

```
<div><p>Hello...
```

In this example, all `::first-letters` are evaluated as follows:

```
<div><p><div::first-letter><p::first-letter>H</p::first-letter></div::first-letter>ello...
```

When `initial-letters` is specified to `::first-letter`, the following restrictions apply.

- For `initial-letters`, only the first `::first-letter` is valid, and anything else specified is ignored.
- If `initial-letters` is specified, subsequent `::first-letters` are ignored.

A float with axf:float-x="start" within the number of lines of the dropped initial is placed on the start side of the dropped initial when it is included at the beginning. Otherwise, it will be pushed out and placed on the after side of the dropped initial.

This property is not available with **AH Formatter V7.1 Lite**.

axf:initial-letters-first-line-head-height / CSS -ah-initial-letters-first-line-head-height no-LT

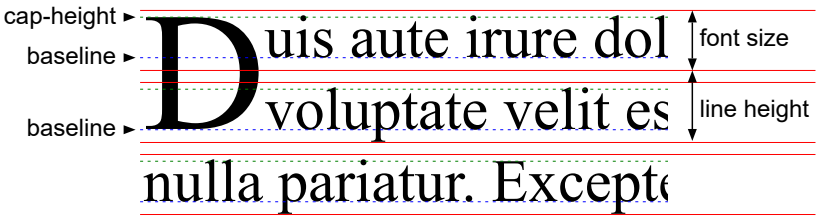
Specifies where the height of a dropped initial should be adjusted.

Value:	cap-height | x-height | auto
Initial:	auto
Applies to:	fo:block (XSL) / ::first-letter (CSS)
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

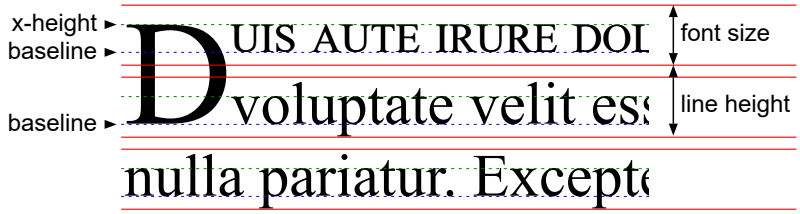
`cap-height`

Adjusts the height to cap-height on the first line. The figure shows an example when the number of lines is 2.



`x-height`

Adjusts the height to x-height on the first line. The figure shows an example when the number of lines is 2 and small-caps is specified for the first line.



`auto`

Adjusts the height to x-height under the following conditions: Otherwise, adjusts to cap-height.

- When the next character of a dropped initial character or image is lowercase small-caps (provided that the character or image to be a dropped initial and the next character belong to the same element)
- When the number of lines of a dropped initial is equal to the number of lines a dropped initial should sink (provided that the number of lines is specified without units)

CAUTION: This property is not effective when the document is vertical writing or CJK.

This property is not available with **AH Formatter V7.1 Lite**.

axf:initial-letters-end-indent / CSS -ah-initial-letters-end-indent no-LT

Specifies the space on the end side of a dropped initial.

Value:	<length>+
Initial:	0pt
Applies to:	fo:block (XSL) / ::first-letter (CSS)
Inherited:	yes
Percentages:	N/A

Multiple values can be specified. The first value applies to the first line and the second value applies to the next line. The last value applies after the corresponding line.

This property is not available with **AH Formatter V7.1 Lite**.

axf:initial-letters-leading-punctuation / CSS -ah-initial-letters-leading-punctuation no-LT

Specifies the size of the leading punctuation of a dropped initial, etc.

Value:	normal | hide | [<length> || <color>]
Initial:	normal
Applies to:	fo:block (XSL) / ::first-letter (CSS)
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`normal`

Does nothing special.

`hide`

Does not display the leading punctuation.

`<length>`

Specifies the font size of the leading punctuation.

`<color>`

Specifies the color of the leading punctuation.

This property is not available with **AH Formatter V7.1 Lite**.

axf:initial-letters-leading-punctuation-position / CSS -ah-initial-letters-leading-punctuation-position no-LT

Specifies the position of the leading punctuation of a dropped initial in the inline progression direction.

Value:	normal | [[hang | intrude] && <length>?]
Initial:	normal
Applies to:	fo:block (XSL) / ::first-letter (CSS)
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`normal`

Does nothing special.

`hang`

Protrudes the leading punctuation to the start side. axf:hanging-punctuation="start" protrudes one-character punctuation, but the `hang` setting protrudes all punctuations.

`intrude`

Penetrates and overlaps the leading punctuation with the dropped initial.

`<length>`

Adjusts the position of the leading punctuation. `hang` or `intrude` must be specified. Shifts the punctuation from that position by the specified length in the inline progression direction.

This property is not available with **AH Formatter V7.1 Lite**.

axf:initial-letters-leading-punctuation-shift / CSS -ah-initial-letters-leading-punctuation-shift no-LT

Specifies the position of the leading punctuation of a dropped initial in the block progression direction.

Value:	normal | [[baseline | before | middle | after] || <length>]
Initial:	normal
Applies to:	fo:block (XSL) / ::first-letter (CSS)
Inherited:	yes

Percentages: N/A

Values have the following meanings:

`normal`

Does nothing special. Aligns the leading punctuation with the baseline for horizontal writing and aligns it with the center for vertical writing.

`baseline`

Aligns the leading punctuation with the baseline of the last line.

`before`

Aligns the leading punctuation with the before side of the dropped initial.

`middle`

Aligns the leading punctuation with the center of the dropped initial.

`after`

Aligns the leading punctuation with the after side of the dropped initial.

`<length>`

Specifies the baseline-shift amount of the leading punctuation. If it is specified at the same time as `baseline`, `before`, `middle`, and `after`, it is the shift amount from that position.

This property is not available with **AH Formatter V7.1 Lite**.

axf:initial-letters-width no-LT

Specifies the width of a dropped initial.

Value: auto | <length> | <percentage>
Initial: auto
Applies to: fo:block
Inherited: yes
Percentages: refer to the width of containing reference area

Values have the following meanings:

`auto`

The width of a dropped initial is calculated from the included character string or image.

`<length>`
`<percentage>`

Forces the width of a dropped initial to the specified width.

Specify `width` in `::first-letter` in CSS.

This property is not available with **AH Formatter V7.1 Lite**.

axf:initial-letters-text-align no-LT

Specifies the alignment of a dropped initial.

Value: start | center | end | left | right
Initial: end
Applies to: fo:block
Inherited: yes
Percentages: N/A

When the value of axf:initial-letters-width is `auto`, it has no effect because there is no room for right alignment.

Specify `text-align` in `::first-letter` in CSS.

This property is not available with **AH Formatter V7.1 Lite**.

axf:initial-letters-color no-LT

Specifies the text color of a dropped initial.

Value:	<color>
Initial:	the value of the ‘color’ property
Applies to:	fo:block
Inherited:	yes
Percentages:	N/A

Specify `color` in `::first-letter` in CSS.

This property is not available with **AH Formatter V7.1 Lite**.

Text Transformation

axf:normalize / CSS -ah-normalize no-LT

Specifies the normalization of text.

Value:	auto | none | nfc | nfkc | nfd | nfkd
Initial:	auto
Applies to:	all block-level and inline-level formatting objects
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`auto`
: Depends on the value of normalize specified to the Option Setting File.

`none`
: Does not normalize text.

`nfc`
: Performs NFC.

`nfkc`
: Performs NFKC.

`nfd`
: Performs NFD.

`nfkd`
: Performs NFKD.

Specifies whether the normalization defined in UAX#15: Unicode Normalization Forms is performed. The normalization is performed to the character strings described in the text area. If you use only the normalized code from the start, it is not necessary to specify the normalization. If not, the normalization by NFC will be a good choice for practical use.

In these conversions, all the Composition Exclusions are excluded from the normalization processing when axf:normalize-exclude="full-composition-exclusion" is specified.

CAUTION: Keep in mind that U+00A0, which is a meaningful code as FO, will be transformed to U+0020, etc. by performing the normalization with NFKC, for example.

This feature is not available with **AH Formatter V7.1 Lite**.

axf:normalize-exclude / CSS -ah-normalize-exclude no-LT

Specifies whether Composition Exclusions are excluded or not when the normalization (axf:normalize) is specified.

Value:	full-composition-exclusion | none
Initial:	full-composition-exclusion
Applies to:	all block-level and inline-level formatting objects
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`full-composition-exclusion`
: Excludes all the characters specified in Composition Exclusions.

`none`
: Does not exclude.

This feature is not available with **AH Formatter V7.1 Lite**.

axf:text-replace / CSS (-ah-)text-replace

Replaces the character strings. [CSS3-GCPM] Character substitution (“text-replace” has been removed from GCPM on and after June 8, 2010)

Value:	none | [<string> <string>]+
Initial:	none
Applies to:	all block-level and inline-level formatting objects
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`none`

: Does nothing.

`<string> <string>`

: The first pair of character strings is replaced by the latter character strings. You have to specify a character string by a pair. It is not replaced when character strings are odd pieces or the first character string is empty. White space characters will be replaced after being processed by white-space-treatment, etc.

When it is simultaneously specified with text-transform or axf:number-transform, axf:text-replace will be evaluated last.

text-transform / CSS (-ah-)text-transform

The following bold values are extended. [CSS3-Text] Transforming Text: the ‘text-transform’ property

Value:	none | [[capitalize | uppercase | lowercase | **capitalize-lowercase**] || [**fullwidth** | **fullwidth-if-vertical**] || **fullsize-kana**]]

Values have the following meanings:

`capitalize-lowercase`

: Makes an initial letter an upper case and makes the remainder lower cases. See also Changes from XSL Formatter V4.

`fullwidth` no-LT

: Converts the character of U+0021 to U+007E into full width.

`fullwidth-if-vertical` no-LT

: Only with the vertical writing (writing-mode="tb-rl"), text-transform="fullwidth" will be applied. Does no conversion when it's not the vertical writing.

`fullsize-kana`

: Converts small kana into regular kana. Only fullwidth (not halfwidth) characters are converted.

axf:number-transform / CSS -ah-number-transform no-LT

Converts the number sequence in the character string.

Value:	none | kansuji | kansuji-if-vertical | <list-style-type> | <string>
Initial:	none
Applies to:	all block-level and inline-level formatting objects
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`none`

Does nothing.

`kansuji`

Converts the contained number sequence into Japanese numerals. The details of the Japanese numeral format can be specified by axf:kansuji-style, axf:kansuji-letter and axf:kansuji-grouping-letter.

`kansuji-if-vertical`

Only with the vertical writing, such as writing-mode="tb-rl", axf:number-transform="kansuji" is applied. Does no conversion when it's not the vertical writing.

`<list-style-type>`

The same value as `list-style-type` can be specified. The range of the value that can be converted varies depending on the style.

`<string>`

When a character string is specified, the behavior is same as when the character string is specified by format.

A number sequence (number) here indicates character strings of the following forms.

```
number ::= '-'? digits
digits ::= [0-9]+
```

When it is simultaneously specified with text-transform or axf:text-replace, axf:number-transform is evaluated first. When a counter style which was specified with axf:counter-style or `symbols()` is used, prefix/suffix will not be added.

CSS (-ah-)list-style-type

Specifies the list style. [CSS3-Lists] 3 Default Marker Contents

Value:	none | <name> | <string>
Initial:	disc
Applies to:	all elements with '`display:list-item`'
Inherited:	yes
Percentages:	N/A

The following `<list-style-type>` are supported. ☞ axf:number-transform, format, axf:counter-style, `counter()`

- `none`
- The style that is defined with axf:counter-style / `@counter-style` no-LT
- The predefined counter styles
- `symbols()` no-LT

If no counter style is found, the style is considered `decimal`.

CAUTION: See Changes from AH Formatter V6.2.

Japanese Numerals

AH Formatter V7.1 can convert numbers into Japanese numerals using axf:number-transform. This function is not available with **AH Formatter V7.1 Lite**.

axf:kansuji-style / CSS -ah-kansuji-style no-LT

Specifies the style used for Japanese numerals.

Value:	simple | grouping | readable
Initial:	simple
Applies to:	all block-level and inline-level formatting objects
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`simple`

Converts a number sequence into Japanese numerals by one to one correspondence.

```
12340   ⇒ 一二三四〇
6700000 ⇒ 六七〇〇〇〇〇
```

`grouping`

In adds to the conversion of one to one correspondence, grouping for “万億兆京垓秭穣溝澗正載極” is inserted.

- When all the parts below a certain grouping are zero, they are disregarded.

```
12340   ⇒ 一万二三四〇
6700000 ⇒ 六七〇万
```

`readable`

Inserts grouping of “万億兆...” and uses “十百千” additionally so that the character strings becomes readable.

- Preceding zero is disregarded.
- In the huge numerical value which needs the next grouping of “極”, the digits more than “極” are converted by one to one correspondence.

```
12340   ⇒ 一万二千三百四十
6700000 ⇒ 六百七十万
1000000 ⇒ 百万
000015  ⇒ 十五
0       ⇒ 〇
```

axf:kansuji-letter / CSS -ah-kansuji-letter no-LT

Specifies the character used for Japanese numerals.

Value:	kanji | latin | <string>
Initial:	kanji
Applies to:	all block-level and inline-level formatting objects
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`kanji`

Use Japanese numerals for numbers. Equivalent to specify axf:kansuji-letter="〇一二三四五六七八九".

〇 : U+3007
一 : U+4E00
二 : U+4E8C
三 : U+4E09
四 : U+56DB
五 : U+4E94
六 : U+516D
七 : U+4E03
八 : U+516B
九 : U+4E5D

`latin`

Use full width western numerals for numbers. Equivalent to specify axf:kansuji-letter="０１２３４５６７８９".

０ : U+FF10
１ : U+FF11
２ : U+FF12
３ : U+FF13

4 : U+FF14
5 : U+FF15
6 : U+FF16
7 : U+FF17
8 : U+FF18
9 : U+FF19

`<string>`

Specifies arbitrary characters as numbers you use. For example, if you want to use traditional Japanese numerals, specify axf:kansuji-letter="零壱弐参肆伍陸柒捌玖". If you want to specify traditional Japanese numerals only to “一二三”, specify axf:kansuji-letter="〇壱弐参四五六七八九". If you specify only the head part like axf:kansuji-letter="〇壱弐参", it is compensated as axf:kansuji-letter="〇壱弐参四五六七八九".

零 : U+96F6
壱 : U+58F1
弐 : U+5F10
参 : U+53C2
肆 : U+8086
伍 : U+4F0D
陸 : U+9678
柒 : U+67D2
捌 : U+634C
玖 : U+7396

axf:kansuji-grouping-letter / CSS -ah-kansuji-grouping-letter no-LT

Specifies the grouping character used for Japanese numerals.

Value:	<string>
Initial:	empty string
Applies to:	all block-level and inline-level formatting objects
Inherited:	yes
Percentages:	N/A

The null character sequence is considered “十百千万億兆京垓秭穣溝澗正載極”. Change and specify only a corresponding character if you want to change “万” to “萬”, for example. When you specify only the head part like “拾佰阡萬”, it is compensated as “拾佰阡萬億兆京垓秭穣溝澗正載極”.

十 : U+5341 : 10
百 : U+767E : 100
千 : U+5343 : 1000
万 : U+4E07 : 10^4
億 : U+5104 : 10^8
兆 : U+5146 : 10^{12}
京 : U+4EAC : 10^{16}
垓 : U+5793 : 10^{20}
秭 : U+25771 : 10^{24}
穣 : U+7A63 : 10^{28}
溝 : U+6E9D : 10^{32}
澗 : U+6F97 : 10^{36}
正 : U+6B63 : 10^{40}
載 : U+8F09 : 10^{44}
極 : U+6975 : 10^{48}
拾 : U+62FE : 10
佰 : U+4F70 : 100
阡 : U+9621 : 1000
萬 : U+842C : 10^4

<axf:counter-style> / CSS @counter-style no-LT

With **AH Formatter V7.1**, unique counter style can be defined. For details about the CSS specification, see CSS Counter Styles Level 3. This function is not available with **AH Formatter V7.1 Lite**.

Common Usage:

Defining custom counter styles. This element does not generate area.

Areas:

None.

Constraints:

```
<!ELEMENT axf:counter-style EMPTY>
<!ATTLIST axf:counter-style name             CDATA #REQUIRED>
<!ATTLIST axf:counter-style system           CDATA "symbolic">
<!ATTLIST axf:counter-style negative         CDATA "-">
<!ATTLIST axf:counter-style prefix           CDATA "">
<!ATTLIST axf:counter-style suffix           CDATA ", ">
<!ATTLIST axf:counter-style range            CDATA "auto">
<!ATTLIST axf:counter-style pad              CDATA "0 ''">
<!ATTLIST axf:counter-style fallback         CDATA "decimal">
<!ATTLIST axf:counter-style symbols          CDATA #IMPLIED>
<!ATTLIST axf:counter-style additive-symbols CDATA #IMPLIED>
```

The `<axf:counter-style>` element can be placed directly under `<fo:declarations>`.

Contents:

EMPTY

Examples:

```
<fo:declarations>
  <axf:counter-style name="trinary"
                     system="numeric"
                     symbols="'0' '1' '2'"
                     suffix="') '"/>
</fo:declarations>
```

The following properties can be specified to `<axf:counter-style>` / `@counter-style`.

CAUTION: Strings can only be specified for `<symbol>`. Note `url()` cannot be specified.

name

Specifies the name of the counter style.

Value:	<name>
Initial:	N/A
Inherited:	no
Percentages:	N/A

This name can be used with `list-style-type` and axf:number-transform etc. Note that `default`, `decimal` and `none` cannot be specified. The following counter styles are predefined. For more details, see Ready-made Counter Styles and 7. Complex Predefined Counter Styles.

- `numeric`
  - `arabic-indic`
  - `bengali`
  - `binary`
  - `cambodian`
  - `cjk-decimal`
  - `decimal`
  - `devanagari`

  - fullwidth-decimal
  - gujarati
  - gurmukhi
  - kannada
  - khmer
  - lao
  - lepcha
  - lower-hexadecimal
  - malayalam
  - mongolian
  - myanmar
  - new-base-60
  - octal
  - oriya
  - persian
  - shan
  - super-decimal
  - tamil
  - telugu
  - thai
  - tibetan
  - upper-hexadecimal
- alphabetic
  - afar
  - agaw
  - ari
  - blin
  - cjk-earthly-branch
  - cjk-heavenly-stem
  - dizi
  - fullwidth-lower-alpha
  - fullwidth-lower-latin *
  - fullwidth-upper-alpha
  - fullwidth-upper-latin *
  - gedeo
  - gumuz
  - hadiyya
  - harari
  - hindi
  - hiragana
  - hiragana-iroha
  - japanese-formal
  - kaffa
  - katakana
  - katakana-iroha
  - kebena
  - kembata
  - khmer-consonant
  - konso

  - korean-consonant
  - korean-hanja-formal
  - korean-hanja-informal
  - korean-syllable
  - kunama
  - lower-alpha
  - lower-belorussian
  - lower-bulgarian
  - lower-greek
  - lower-latin *
  - lower-macedonian
  - lower-oromo-qubee
  - lower-russian
  - lower-russian-full
  - lower-serbo-croatian
  - lower-ukrainian
  - lower-ukrainian-full
  - meen
  - oromo
  - saho
  - sidama
  - silti
  - thai-alphabetic
  - tigre
  - upper-alpha
  - upper-belorussian
  - upper-bulgarian
  - upper-greek *
  - upper-latin *
  - upper-macedonian
  - upper-oromo-qubee
  - upper-russian
  - upper-russian-full
  - upper-serbo-croatian
  - upper-ukrainian
  - upper-ukrainian-full
  - wolaita
  - yemsa
- additive
  - ancient-tamil
  - armenian
  - georgian
  - greek *
  - greek-lower-ancient
  - greek-lower-modern
  - greek-upper-ancient
  - greek-upper-modern
  - hebrew
  - japanese-informal

  - korean-hangul-formal
  - lower-armenian
  - lower-roman
  - simple-lower-roman
  - simple-upper-roman
  - upper-armenian
  - upper-roman
- symbolic
  - lower-alpha-symbolic
  - upper-alpha-symbolic
- fixed
  - arabic-abjad
  - circled-decimal
  - circled-ideograph
  - circled-katakana
  - circled-korean-consonant
  - circled-korean-syllable
  - circled-lower-latin
  - circled-upper-latin
  - decimal-leading-zero
  - dotted-decimal
  - double-circled-decimal
  - filled-circled-decimal
  - fullwidth-lower-roman
  - fullwidth-upper-roman
  - maghrebi-abjad
  - parenthesized-decimal
  - parenthesized-hangul-consonant
  - parenthesized-hangul-syllable
  - parenthesized-ideograph
  - parenthesized-lower-latin
  - persian-abjad
  - persian-alphabetic
- cyclic
  - box *
  - check *
  - circle
  - diamond *
  - disc
  - hyphen *
  - square
- complex
  - ethiopic-numeric
  - kansuji ** no-LT
  - simp-chinese-formal
  - simp-chinese-informal
  - trad-chinese-formal
  - trad-chinese-informal

A string generated with system="cyclic" is the one that is set with `<list-style-type>` in the Option Setting File. Items denoted with "*" mean that they were added for compatibility. `kansuji` denoted with "**" is converted in accordance with axf:kansuji-style. The counter style that is classified as `complex` cannot be defined with `<axf:counter-style>` / `@counter-style`. On the other hand, it can be extended with `extends`.

These predefined counter style names are case insensitive, while the counter style names that are defined with `<axf:counter-style>` / `@counter-style` are case sensitive.

CSS does not have this property. In case of CSS, specify the name with `@counter-style` directly.

system

Specifies the type of the counter system.

Value: cyclic | numeric | alphabetic | symbolic | additive | [fixed <integer>?] | [extends <counter-style-name>]
Initial: symbolic
Inherited: no
Percentages: N/A

CAUTION: For `numeric`, `alphabetic`, `symbolic` and `additive`, values with greater than or equal to 999 digits cannot be converted.

negative

Specifies the prefix and the suffix for the negative value.

Value: <symbol> <symbol>?
Initial: "-"
Inherited: no
Percentages: N/A

prefix

Specifies the prefix.

Value: <symbol>
Initial: ""
Inherited: no
Percentages: N/A

suffix

Specifies the suffix.

Value: <symbol>
Initial: ", "
Inherited: no
Percentages: N/A

range

Specifies the range to which the style is applied.

Value: [[<integer> | infinite]{2}]# | auto
Initial: auto
Inherited: no
Percentages: N/A

pad

Specifies the padding for a small digit.

Value: <integer> && <symbol>
Initial: 0 ""
Inherited: no
Percentages: N/A

fallback

Specifies the fallback style in case where the style could not be applied due to the style out of the range.

Value: <counter-style-name>
Initial: decimal
Inherited: no
Percentages: N/A

symbols

Specifies the counter symbol.

Value: <symbol>+
Initial: N/A
Inherited: no
Percentages: N/A

additive-symbols

Specifies the weighted counter symbol.

Value: [<integer> && <symbol>]#
Initial: N/A
Inherited: no
Percentages: N/A

Font Control

axf:ligature-mode / CSS -ah-ligature-mode

Specifies whether to perform the ligature processing.

Value: none | [latin || kana || jamo] | all | auto
Initial: auto
Applies to: all block-level and inline-level formatting objects
Inherited: yes
Percentages: N/A

Values have the following meanings:

`none`

The ligature processing is not performed.

`latin`

Processes the ligature in Western languages. It is processed when the scripts are the following.

- Latn
- Grek
- Cyrl

`kana`

Processes the ligature of Kana + semivoiced sound symbol in JIS X 0213:2004 as follows:

- U+304B + U+309A
- U+304D + U+309A
- U+304F + U+309A
- U+3051 + U+309A
- U+3053 + U+309A
- U+30AB + U+309A
- U+30AD + U+309A
- U+30AF + U+309A
- U+30B1 + U+309A
- U+30B3 + U+309A
- U+30BB + U+309A
- U+30C4 + U+309A
- U+30C8 + U+309A
- U+31F7 + U+309A

Although the ligature of Western languages and the ligature of symbols are included in JIS X 0213:2004, these are processed by axf:ligature-mode="latin".

`jamo` no-LT

Processes the ligature of Hangul Jamo U+1100 to U+11FF.

`all`

`latin kana jamo` is considered to be specified.

`auto`

The ligature of kana is performed. latin-ligature in the Option Setting File will decide whether to perform the ligature of Western words. This setting can also be done with the Format Option Setting dialog in GUI. Whether to process the ligature of Hangul Jamo depends on jamo-ligature in the Option Setting File.

The ligature processed here is the ligature defined in the font itself. The ligature defined in Unicode are not processed. (It is called Canonical Composition.) In order to normalize ligatures defined in Unicode Standard, specify axf:normalize="nfc". Note that axf:normalize will not be effective with **AH Formatter V7.1 Lite**.

axf:font-feature-settings / CSS (-ah-)font-feature-settings no-LT

Controls the feature of OpenType fonts. [CSS3-Fonts] Low-level font feature settings control: the font-feature-settings property

Value:	normal | <feature-tag-value>#
Initial:	normal
Applies to:	all elements
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`normal`

Does nothing.

`<feature-tag-value>`

Specifies the tag of OpenType GSUB/GPOS with the following format:

<feature-tag-value> = <string> [<integer> | on | off]?

`<string>` is the tag name of OpenType and is case sensitive. This string must be a 4-character ASCII string from U+0020 to U+007E. U+0020 is supplemented when it is less than 4 characters.

`<integer>` is an integer greater than or equal to 0 that indicates the validity and invalidity of the selection index or features of the glyph. `on` is 1 and `off` is the same as 0. 0 means to invalidate this tag. If omitted, it is assumed to be 1. If exceeds the selectable number, the behavior depends on the font (usually assumed to be 0 or 1).

The following tags are always valid regardless of the setting.

- 'ccmp'
- 'locl'
- 'rlig'
- 'mark'
- 'mkmk'

The setting of axf:font-feature-settings overrides font-variant and axf:ligature-mode.

When axf:font-feature-settings="kern" or `"vkrn"` is specified, the setting of axf:kerning-mode is ignored.

CAUTION:	Refrain from using this property if you are not familiar with the OpenType specification. Invalidating the tags required for complex script control or inadvertent settings will result in unintended results.
CAUTION:	Tags to be applied may be different in horizontal writing and vertical writing. For example, the following are different: **Horizontal writing** / **Vertical writing** 'kern' / 'vkrn' 'halt' / 'vhal' 'palt' / 'vpal'
CAUTION:	When GSUB/GPOS is applied, the string is transformed into the glyph. For tags that apply almost to text, such as 'kern' or 'palt', almost entire document will be transformed into the glyph if the setting is for entire document. The text transformed into the glyph is always embedded in PDF.

This property is not available with **AH Formatter V7.1 Lite**.

<axf:font-face> / CSS @font-face no-LT

In **AH Formatter V7.1**, it is possible to add fonts you want to use in the document. See also `@font-face` in the CSS specifications.

Common Usage:

Specifies an additional font. This element does not generate area. These functions are not available with **AH Formatter V7.1 Lite**.

Areas:

None.

Constraints:

```
<!ELEMENT axf:font-face EMPTY>
<!ATTLIST axf:font-face src         CDATA #REQUIRED>
<!ATTLIST axf:font-face font-family CDATA #REQUIRED>
<!ATTLIST axf:font-face font-style  (%font-style;)  "normal">
<!ATTLIST axf:font-face font-weight (%font-weight;) "normal">
```

The `<axf:font-face>` element can be placed directly under `<fo:declarations>`.

Contents:

EMPTY

Examples:

```
<fo:declarations>
  <axf:font-face src="url('https://www.hixie.ch/resources/fonts/AHEM____.TTF')"
                 font-family="AHEM"/>
</fo:declarations>
```

A font specified by `<axf:font-face>` / `@font-face` is always embedded. A font with embedding prohibition information cannot be specified.

The following properties can be specified to `<axf:font-face>` / `@font-face`.

src

Specifies the font resource.

Value: [<uri-specification> [format(<font-type>)]? | <font-face-name>]#
Initial: N/A
Inherited: no
Percentages: N/A

URI can be specified to `<uri-specification>` with the file name of the font, or the `url()` function. Also data scheme can be specified to `url()`. The type of fonts `<font-type>` can be specified by the `format()` function. When omitted, it will be recognized by the extension of the font resource or the media type (content-type) in the data scheme. Available types are as follows:

`woff`

WOFF File Format 1.0 font. content-type is “application/font-woff”.

`woff2`

WOFF File Format 2.0 font. content-type is “application/font-woff2”.

`truetype`

TrueType font. content-type is “application/x-font-ttf”.

`opentype`

OpenType font. content-type is “application/x-font-otf”.

`<axf:font-face>` can be used as follows:

```
<fo:declarations>
<axf:font-face
  src="url('woff/MyPrivate.woff') format(woff)"
  font-family="MyWOFF"
/>
</fo:declarations>
...
<fo:block font-family="MyWOFF">
...
```

When using the already installed font, specify the installed font name with the `local()` function.

```
<fo:declarations>
<axf:font-face
  src="local(Arial)"
  ...
```

font-family

Specifies the font family.

Value: <string>
Initial: N/A
Inherited: no
Percentages: N/A

font-style

Specifies the font style.

Value: normal | italic
Initial: normal
Inherited: no
Percentages: N/A

font-weight

Specifies the font weight.

Value: normal | bold | 1...1000
Initial: normal

Inherited: no
Percentages: N/A

URI and Link

axf:base-uri / CSS -ah-base-uri

Specifies the location which becomes the base of relative URI.

Value: <uri-specification>
Initial: empty string
Applies to: all formatting objects
Inherited: yes
Percentages: N/A

The axf:base-uri is applied to all relative URI in a document. When making links using `<fo:basic-link>` and specify relative URI, the location that is specified using axf:base-uri is interpreted to be base URI. If this property is omitted or this has empty string, the base location is interpreted as current XML file.

☞ xml:base

In the case of the following example, it links to: "`https://www.antenna.co.jp/AHF/ahf_samples/CSS-Print.pdf`".

```
<fo:root xmlns:fo="http://www.w3.org/1999/XSL/Format"
         xmlns:axf="http://www.antennahouse.com/names/XSL/Extensions"
         axf:base-uri="https://www.antenna.co.jp/AHF/">
                  :
                  :
<fo:basic-link external-destination="ahf_samples/CSS-Print.pdf">
    ...
</fo:basic-link>
```

CSS -ah-link

Generates a hyper-link.

Value: <uri-specification> | none
Initial: N/A
Applies to: all inline elements
Inherited: no
Percentages: N/A

☞ [XSL 1.1] 7.23.6 external-destination, 7.23.8 internal-destination, xlink:href

Page Number

AH Formatter V7.1 provides extension properties to control the page number.

axf:suppress-duplicate-page-number / CSS -ah-suppress-duplicate-page-number

Specifies to delete the duplicated page numbers.

CAUTION: A similar function is provided in XSL 1.1. Use merge-*-index-key-reference.

CAUTION: In CSS, this extension cannot be applied when the page number being referenced occurs after the counter reference.

Value: true | false
Initial: false
Applies to: all formatting objects
Inherited: yes
Percentages: N/A

When formatting an index, generally several `<fo:page-number-citation>` line up for one index item. In such case, when `<fo:page-number-citation>` refers to the same page number of the index, duplicate page numbers will be output using the

standard property. If `true` is specified, when the same page number of the previous `<fo:page-number-citation>` is referred, that page number will be hidden along with the intervening elements (such as commas).

For example:

When axf:suppress-duplicate-page-number is not specified.

```
<fo:block text-align-last="justify">
 <fo:block>bcd
  <fo:leader leader-pattern="dots"/>
  <fo:basic-link internal-destination="ID1">
   <fo:page-number-citation ref-id="ID1"/>
  </fo:basic-link>
 </fo:block>
 <fo:block>index
  <fo:leader leader-pattern="dots"/>
  <fo:basic-link internal-destination="ID2">
   <fo:page-number-citation ref-id="ID2"/>,
  </fo:basic-link>
  <fo:basic-link internal-destination="ID3">
   <fo:page-number-citation ref-id="ID3"/>,
  </fo:basic-link>
  <fo:basic-link internal-destination="ID4">
   <fo:page-number-citation ref-id="ID4"/>,
  </fo:basic-link>
  <fo:basic-link internal-destination="ID5">
   <fo:page-number-citation ref-id="ID5"/>,
  </fo:basic-link>
  <fo:basic-link internal-destination="ID6">
   <fo:page-number-citation ref-id="ID6"/>,
  </fo:basic-link>
  <fo:basic-link internal-destination="ID7">
   <fo:page-number-citation ref-id="ID7"/>,
  </fo:basic-link>
 </fo:block>
</fo:block>
```

Format example of the above text is as follows:

bcd 2
index 3, 3, 4, 4, 4, 4

When axf:suppress-duplicate-page-number is specified.

```
<fo:block text-align-last="justify" axf:suppress-duplicate-page-number="true">
 <fo:block>bcd
  <fo:leader leader-pattern="dots"/>
  <fo:basic-link internal-destination="ID1">
   <fo:page-number-citation ref-id="ID1"/>
  </fo:basic-link>
 </fo:block>
 <fo:block>index
  <fo:leader leader-pattern="dots"/>
  <fo:basic-link internal-destination="ID2">
   <fo:page-number-citation ref-id="ID2"/>,
  </fo:basic-link>
  <fo:basic-link internal-destination="ID3">
   <fo:page-number-citation ref-id="ID3"/>,
  </fo:basic-link>
  <fo:basic-link internal-destination="ID4">
   <fo:page-number-citation ref-id="ID4"/>,
  </fo:basic-link>
  <fo:basic-link internal-destination="ID5">
   <fo:page-number-citation ref-id="ID5"/>,
  </fo:basic-link>
  <fo:basic-link internal-destination="ID6">
   <fo:page-number-citation ref-id="ID6"/>,
  </fo:basic-link>
  <fo:basic-link internal-destination="ID7">
   <fo:page-number-citation ref-id="ID7"/>,
```

```
    </fo:basic-link>
   </fo:block>
  </fo:block>
```

Format example of the above text is as follows.

bcd 2
index 3, 4

axf:suppress-duplicate-page-number deletes the duplicated page numbers within the same line, but does not delete them when the line break occurs.

axf:page-number-prefix

Sets the prefix of page number.

CAUTION: A similar function is provided in XSL 1.1. Use `fo:folio-prefix`.

Value:	<string>
Initial:	empty string
Applies to:	fo:page-sequence
Inherited:	no
Percentages:	N/A

Specifies the prefix for page numbers. Specified string will be outputted before the page number by `<fo:page-number>` and `<fo:page-number-citation>`. Also this string will be used as the page label in the PDF.

```
<fo:page-sequence axf:page-number-prefix="A-" format="i" initial-page-number="10">
  <fo:static-content ...>
   ...<fo:page-number/>...
  </fo:static-content>
  ...
</fo:page-sequence>
```

Arabic and Hebrew cannot be specified for the value of axf:page-number-prefix.

axf:physical-page-number

Gets physical page number.

Value:	true | false
Initial:	false
Applies to:	fo:page-number, fo:page-number-citation, fo:page-number-citation-last
Inherited:	no
Percentages:	N/A

The value of initial-page-number property is disregarded and the physical page number that is not affected by the page-sequence is obtained. In order to obtain the total number of pages, ID is given to the last page per the following example:

```
<fo:page-number-citation ref-id="lastpage" axf:physical-page-number="true"/>
```

In order to use this function with CSS, see `counter()`. However, this does not apply to **AH Formatter V7.1 Lite**.

See also `fo:page-number-citation-last` in XSL 1.1.

axf:reverse-page-number no-LT

Places page numbers in reverse order.

Value:	true | false
Initial:	false
Applies to:	fo:page-number, fo:page-number-citation, fo:page-number-citation-last
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`true`

Places page numbers in reverse order.

`false`

Places page numbers in order.

By specifying axf:reverse-page-number="true", the page number reference in `<fo:page-sequence>` is counted from the last page of `<fo:page-sequence>` in descending order. When pages with different formatting directions are mixed, together with axf:reverse-page="true", it is available to align the page numbers in one order when outputting PDF. In order to use this function with CSS, see `counter()`.

This property is not available with **AH Formatter V7.1 Lite**.

axf:origin-id

Specifies the origin of the page number.

Value:	<idref>
Initial:	none
Applies to:	fo:page-number, fo:page-number-citation, fo:page-number-citation-last
Inherited:	no
Percentages:	N/A

ID for the origin of the page number can be specified in `<fo:page-number>` or `<fo:page-number-citation>`. The output page number is as follows:

```
[ref-id page] - [origin-id page] + 1
```

If the specified Page is after the ref-id page, the value becomes 0. In `<fo:page-number>`, ref-id is considered the position of `<fo:page-number>` itself.

axf:assumed-page-number / CSS -ah-assumed-page-number

Specifies the assumed page number.

Value:	<number>
Initial:	N/A
Applies to:	all formatting objects
Inherited:	yes
Percentages:	N/A

When `<fo:page-number-citation>` appears, the reference area is sometimes undecided. In evaluation of `<fo:page-number-citation>`, the temporary area is secured first, and when a page number is decided, it is adjusted to the right contents. Since the size of an area may change at this time, the formatted result is sometimes not desirable. For example, when an area becomes narrow, it seems that there is an unnecessary line break, and condition that a character will overflow if an area becomes large appears. axf:assumed-page-number gives the assumed page number at that time.

AH Formatter V7.1 expects the area of at least three-digit page number and formats temporarily. What is necessary will be just to specify axf:assumed-page-number="99" etc., when the page number is clearly less than that.

axf:number-type

Specifies whether to output the page number or to output the column number.

Value:	page | column | page-and-column
Initial:	page
Applies to:	fo:page-number, fo:page-number-citation, fo:page-number-citation-last
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`page`

Outputs the page number.

`column`

Outputs the column number.

`page-and-column`

Outputs both of the page number and the column number.

It can be specified to `<fo:page-number>`, etc. and the column number can be outputted instead of the page number. While format property is applied to the format of the page number, axf:column-number-format property is applied to the format of the column number. The column number is not outputted if multiple column is not specified by specifying of column-count="1" or span="all".

axf:column-number-format

Specifies the format of column number.

Value:	<string>
Initial:	"A"
Applies to:	fo:page-sequence
Inherited:	no
Percentages:	N/A

It applies to the format of column number specified by axf:number-type property. It can be specified with the same way as format property.

axf:suppress-folio-prefix

Invalidates the prefix of page numbers.

Value:	true | false
Initial:	false
Applies to:	fo:page-number, fo:page-number-citation, fo:page-number-citation-last
Inherited:	no
Percentages:	N/A

Specifies whether to invalidate the prefix set by `<fo:folio-prefix>`.

Values have the following meanings:

`true`

Invalidates the prefix.

`false`

Validates the prefix.

axf:suppress-folio-suffix

Invalidates the suffix of page numbers.

Value:	true | false
Initial:	false
Applies to:	fo:page-number, fo:page-number-citation, fo:page-number-citation-last
Inherited:	no
Percentages:	N/A

Specifies whether to invalidate the suffix set by `<fo:folio-suffix>`.

Values have the following meanings:

`true`

Invalidates the suffix.

`false`

Validates the suffix.

merge-sequential-page-numbers / CSS -ah-merge-sequential-page-numbers no-LT

Specifies the page number reference to be merged. In XSL-FO, the following bolded values are extended.

CAUTION: This extension cannot be applied when the page number being referenced occurs after the counter reference.

Value:	merge | **merge-f** | **merge-ff** | leave-separate
Initial:	merge (XSL) / leave-separate (CSS)
Applies to:	fo:index-page-citation-list (XSL) / block level elements (CSS)
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`merge`

Merges page numbers when the consecutive page numbers are greater than or equal to 3. At this time, it is considered axf:suppress-duplicate-page-number="true". The separator can be changed by `<fo:index-page-citation-range-separator>` or `-ah-index-page-citation-range-separator`.

`merge-f`

Merges 2 consecutive page numbers and appends the suffix specified by `<axf:index-page-citation-range-f-suffix>` or `-ah-index-page-citation-range-f-suffix`. Applies `merge` to greater than or equal to 3 consecutive page numbers.

`merge-ff`

In addition to `merge-f`, merges 3 consecutive page numbers and appends the suffix specified by `<axf:index-page-citation-range-ff-suffix>` or `-ah-index-page-citation-range-ff-suffix`. Applies `merge` to greater than or equal to 4 consecutive page numbers.

`leave-separate`

Does nothing.

Suppose the following CSS is specified.

```
p.index-page-citation-list {
  -ah-merge-sequential-page-numbers: merge;
}
span.index-item {
  content: target-counter(attr(href), page);
}
```

Then, suppose the following HTML exists.

```
<p class="index-page-citation-list">
  <span class="index-item" href="#id1"/>,
  <span class="index-item" href="#id2"/>,
  <span class="index-item" href="#id3"/>,
  <span class="index-item" href="#id4"/>,
  <span class="index-item" href="#id5"/>,
  <span class="index-item" href="#id6"/>,
  <span class="index-item" href="#id7"/>,
  <span class="index-item" href="#id8"/>,
  <span class="index-item" href="#id9"/>
</p>
```

Suppose page numbers line up as follows:

```
1, 3, 4, 4, 5, 6, 8, 8, 9
```

The result will be as follows:

```
1, 3-6, 8, 9
```

If `merge-f` is specified, the result will be as follows:

```
1, 3-6, 8f.
```

This property is not available with **AH Formatter V7.1 Lite**.

CSS -ah-index-page-citation-range-separator no-LT

Specifies the separator string when merging consecutive page numbers.

CAUTION: In CSS, this extension cannot be applied when the page number being referenced occurs after the counter reference.

`-ah-index-page-citation-range-separator` corresponds to `<fo:index-page-citation-range-separator>` in XSL, but simple strings can only be specified in CSS.

Values that can be specified in CSS are as follows:

Value:	<string>
Initial:	"–"
Applies to:	block level elements
Inherited:	yes
Percentages:	N/A

The separator string is used when `-ah-merge-sequential-page-numbers:merge` is specified.

This property is not available with **AH Formatter V7.1 Lite**.

<axf:index-page-citation-range-f-suffix> / CSS -ah-index-page-citation-range-f-suffix no-LT

Specifies the suffix when merging 2 consecutive page numbers.

CAUTION: In CSS, this extension cannot be applied when the page number being referenced occurs after the counter reference.

In XSL, it is used in the same way as `<fo:index-page-citation-range-separator>`. The content is (`#PCDATA`|`%inline;`)*. If omitted, it is considered `"f."`.

Values that can be specified in CSS are as follows:

Value:	<string>
Initial:	"f."
Applies to:	block level elements
Inherited:	yes
Percentages:	N/A

This suffix is used when axf:merge-sequential-page-numbers="merge-f" is specified.

This property is not available with **AH Formatter V7.1 Lite**.

<axf:index-page-citation-range-ff-suffix> / CSS -ah-index-page-citation-range-ff-suffix no-LT

Specifies the suffix when merging 3 consecutive page numbers.

CAUTION: In CSS, this extension cannot be applied when the page number being referenced occurs after the counter reference.

In XSL, it is used in the same way as `<fo:index-page-citation-range-separator>`. The content is (`#PCDATA`|`%inline;`)*. If omitted, it is considered `"ff."`.

Values that can be specified in CSS are as follows:

Value:	<string>
Initial:	"ff."
Applies to:	block level elements
Inherited:	yes
Percentages:	N/A

This suffix is used when axf:merge-sequential-page-numbers="merge-ff" is specified.

This property is not available with **AH Formatter V7.1 Lite**.

Line Numbering

Place line numbers as part of the text. Line numbers can be placed against the line area. Even though the place looks empty, if there is a line area, line numbers can be placed. These are not placed in the space or in the margin. The axf:line-number is not effective inside `<fo:float>` or `<fo:footnote>`.

CAUTION:	Placing the line numbering for the page formatted complexly with `<fo:block-container>` or `<fo:table>`, etc. might have unintended consequences. Apply the line numbering to a simple structural document as much as possible.

This function is not available with **AH Formatter V7.1 Lite**.

axf:line-number / CSS -ah-line-number no-LT

Specifies whether to show line numbers.

Value:	none | show | hide
Initial:	none
Applies to:	all block-level formatting objects that are descendants of fo:flow, fo:table-column
Inherited:	yes (except for `fo:table-column`)
Percentages:	N/A

Values have the following meanings:

`none`

Line numbers are not generated.

`show`

Line numbers are shown.

`hide`

Line numbers are not shown but the numbers of the line are counted.

Line numbers are counted against the lines inside the block where axf:line-number="show" or axf:line-number="hide" is specified.

If axf:line-number is specified to `<fo:table-column>`, independent line numbers are given to the column of the table. At this time, the same setting available for `<fo:page-sequence>` can be specified. The ID reference can be specified to `<fo:table-column>` as axf:line-number-initial="#xxx". The ID must be the same as the one specified to the existing `<fo:table-column>`. The value specified to that column is adopted as the default value of the line number information. A reference to a following column is invalid. The following shows the example:

```
...
<fo:page-sequence ... axf:line-number="show"/>
...
<fo:table>
 <fo:table-column/>
 <fo:table-column axf:line-number="show" id="c2"/>
 <fo:table-body>
  ...
 </fo:table-body>
</fo:table>
```

In this table, line numbers specified to `<fo:page-sequence>` are given to the left column and line numbers specified to `<fo:table-column id="c2">` are given to the right column independently. In the following table, if you specify as follows:

```
<fo:table>
 <fo:table-column/>
 <fo:table-column axf:line-number="show" axf:line-number-initial="#c2"/>
 <fo:table-body>
  ...
 </fo:table-body>
</fo:table>
```

then, line numbers of the right column will continue in sequence from the previous table.

This property is not available with **AH Formatter V7.1 Lite**.

axf:line-number-background-color / CSS -ah-line-number-background-color no-LT

Specifies the background color of line numbers.

Value:	<color>
Initial:	transparent
Applies to:	all block-level formatting objects that are descendants of fo:flow, fo:table-column
Inherited:	yes
Percentages:	N/A

This property is not available with **AH Formatter V7.1 Lite**.

axf:line-number-color / CSS -ah-line-number-color no-LT

Specifies the color of line numbers.

Value:	<color>
Initial:	the value of the 'color' property
Applies to:	all block-level formatting objects that are descendants of fo:flow, fo:table-column
Inherited:	yes
Percentages:	N/A

This property is not available with **AH Formatter V7.1 Lite**.

axf:line-number-display-align / CSS -ah-line-number-display-align no-LT

Specifies the alignment, in the block-progression-direction, of line numbers in the line area.

Value:	auto | before | center | after
Initial:	auto
Applies to:	all block-level formatting objects that are descendants of fo:flow, fo:table-column
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`before`

Align the line numbers in the upper end of the line area.

`center`

Align the line numbers in the middle of the line area.

`after`

Align the line numbers in the lower end of the line area.

`auto`

It is considered `after` in horizontal writing, and `center` in vertical writing.

This property is not available with **AH Formatter V7.1 Lite**.

axf:line-number-font-family / CSS -ah-line-number-font-family no-LT

Specifies the font family of line numbers.

Value:	[<family-name> | <generic-family>]#
Initial:	depends on UA
Applies to:	all block-level formatting objects that are descendants of fo:flow, fo:table-column
Inherited:	yes
Percentages:	N/A

This property is not available with **AH Formatter V7.1 Lite**.

axf:line-number-font-size / CSS -ah-line-number-font-size no-LT

Specifies the font size of line numbers.

Value:	<absolute-size> | <relative-size> | <length> | <percentage>
Initial:	medium
Applies to:	all block-level formatting objects that are descendants of fo:flow, fo:table-column
Inherited:	yes
Percentages:	refer to the font size

This property is not available with **AH Formatter V7.1 Lite**.

axf:line-number-font-style / CSS -ah-line-number-font-style no-LT

Specifies whether to make the font style italic.

Value:	normal | italic
Initial:	normal
Applies to:	all block-level formatting objects that are descendants of fo:flow, fo:table-column
Inherited:	yes
Percentages:	N/A

This property is not available with **AH Formatter V7.1 Lite**.

axf:line-number-font-weight / CSS -ah-line-number-font-weight no-LT

Specifies the font weight of line numbers.

Value:	normal | bold | bolder | lighter | 1...1000
Initial:	normal
Applies to:	all block-level formatting objects that are descendants of fo:flow, fo:table-column
Inherited:	yes
Percentages:	N/A

This property is not available with **AH Formatter V7.1 Lite**.

axf:line-number-format / CSS -ah-line-number-format no-LT

Specifies the format of line numbers.

Value:	<string>
Initial:	1
Applies to:	fo:page-sequence, fo:table-column
Inherited:	no
Percentages:	N/A

Line numbers are shown as the specified format. The way to specify is the same as that for the format property.

This property is not available with **AH Formatter V7.1 Lite**.

axf:line-number-initial / CSS -ah-line-number-initial no-LT

Specifies the line number of the first line.

Value:	auto | <number> | #<id>
Initial:	auto
Applies to:	fo:page-sequence, fo:table-column
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`auto`

Line numbers are not initialized, and it is succeeded from previous `<fo:page-sequence>`. When previous `<fo:page-sequence>` does not exist, it becomes 1.

`<number>`

Initializes the line number with the specified value. The value must be greater than or equal to 1. Actual initialization takes place at the time when axf:line-number-reset is specified.

`#<id>`

This extension can only be specified to `<fo:table-column>` to continue line numbers of `<fo:table-column>` in sequence. See also axf:line-number.

This property is not available with **AH Formatter V7.1 Lite**.

axf:line-number-interval / CSS -ah-line-number-interval no-LT

Specifies the interval of line numbers.

Value:	<number> | auto
Initial:	auto
Applies to:	fo:page-sequence, fo:table-column
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`auto`

The specification of previous `<fo:page-sequence>` is succeeded. When previous `<fo:page-sequence>` does not exist, it becomes 1.

`<number>`

Sets the interval of the line numbers to the value specified.

Specifies to show the line numbers like 5, 10, 15. In this case, axf:line-number-initial="1" axf:line-number-start="5" axf:line-number-interval="5" can be applied.

This property is not available with **AH Formatter V7.1 Lite**.

axf:line-number-offset / CSS -ah-line-number-offset no-LT

Specifies the offset of line numbers.

Value:	<length>
Initial:	0pt
Applies to:	all block-level formatting objects that are descendants of fo:flow, fo:table-column
Inherited:	yes
Percentages:	N/A

This property is not available with **AH Formatter V7.1 Lite**.

axf:line-number-orientation / CSS -ah-line-number-orientation no-LT

Rotates line numbers.

Value:	0 | 90 | 180 | 270 | -90 | -180 | -270
Initial:	0
Applies to:	fo:page-sequence, fo:table-column
Inherited:	no
Percentages:	N/A

Rotates line numbers with specified degrees.

This property is not available with **AH Formatter V7.1 Lite**.

axf:line-number-position / CSS -ah-line-number-position no-LT

Specifies the position of line numbers.

Value:	start | end | inside | outside | alternate
Initial:	start
Applies to:	all block-level formatting objects that are descendants of fo:flow, fo:table-column
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`start`

Places line numbers at start-edge.

`end`

Places line numbers at end-edge.

`inside`

Places line numbers at start-edge on odd pages, at end-edge on even pages.

`outside`

Places line number at end-edge on odd pages, at start-edge on even pages.

`alternate`

Places line number at end-edge in the last column of a column layout, except for the last column, places it at start-edge. If the layout is non-column, places it at start-edge.

This property is not available with **AH Formatter V7.1 Lite**.

axf:line-number-prefix / CSS -ah-line-number-prefix no-LT

Sets the prefix of line number.

Value:	<string>
Initial:	empty string
Applies to:	fo:page-sequence, fo:table-column
Inherited:	no
Percentages:	N/A

Specifies the prefix for line numbers. Specified string will be output before each line number generated by axf:line-number.

This property is not available with **AH Formatter V7.1 Lite**.

axf:line-number-reset / CSS -ah-line-number-reset no-LT

Resets line numbering.

Value:	auto | none | page | column | force
Initial:	auto
Applies to:	fo:page-sequence, fo:block, fo:table-column
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`auto`

The specification of previous `<fo:page-sequence>` is succeeded. When the previous `<fo:page-sequence>` does not exist, it will become `none`.

`none`

Line numbers are not reset.

`page`

Line numbers are reset when pages break.

`column`

Line numbers are reset when columns break.

`force`

Line numbers are reset forcibly. It can be specified to `<fo:block>`.

Line numbers are reset to the value specified to axf:line-number-initial.

CAUTION: `force` can be specified only to `<fo:block>`. On the contrary, other values cannot be specified to `<fo:block>`.

This property is not available with **AH Formatter V7.1 Lite**.

axf:line-number-start / CSS -ah-line-number-start no-LT

Specifies the starting line number.

Value:	<number> | auto
Initial:	auto
Applies to:	fo:page-sequence, fo:table-column
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`auto`

The specification of the previous `<fo:page-sequence>` is succeeded. When the previous `<fo:page-sequence>` does not exist, it will become 1.

`<number>`

Sets the line number that begins outputting to the value specified.

Line numbers are shown when the value is greater than or equal to the value specified here. When axf:line-number-initial="1" axf:line-number-start="5" are specified, the first 4 line numbers are not shown but the 5th line number will be outputted as the beginning number. When axf:line-number-initial="5" axf:line-number-start="6" are specified, the first line number is not shown but the next line number is outputted as 6.

This property is not available with **AH Formatter V7.1 Lite**.

axf:line-number-show / CSS -ah-line-number-show no-LT

Specifies the line number to be always output.

Value:	<number>*
Initial:	empty
Applies to:	fo:page-sequence, fo:table-column
Inherited:	no
Percentages:	N/A

Always outputs the numbers specified here even if numbers are not outputted by axf:line-number-interval, etc.

This property is not available with **AH Formatter V7.1 Lite**.

axf:line-number-text-align / CSS -ah-line-number-text-align no-LT

Specifies the alignment of line numbers in the line area.

Value:	auto | start | center | end | inside | outside | left | right
Initial:	auto
Applies to:	all block-level formatting objects that are descendants of fo:flow, fo:table-column
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`start`
`center`
`end`
`inside`
`outside`
`left`
`right`

Same as text-align.

`auto`

When the position of the line numbers is in the start side, it is considered `end`. When the position of the line numbers is in the end side, it is considered `start`. The position of line numbers is specified by axf:line-number-position.

When axf:line-number-width is not specified, It is always considered `auto`.

This property is not available with **AH Formatter V7.1 Lite**.

axf:line-number-text-decoration / CSS -ah-line-number-text-decoration no-LT

Specifies the test decoration of line numbers.

Value:	same as text-decoration
Initial:	none
Applies to:	all block-level formatting objects that are descendants of fo:flow, fo:table-column
Inherited:	yes
Percentages:	N/A

Values have the same meaning as text-decoration.

This property is not available with **AH Formatter V7.1 Lite**.

axf:line-number-width / CSS -ah-line-number-width no-LT

Specifies the width of line numbers.

Value:	auto | <length>
Initial:	auto
Applies to:	all block-level formatting objects that are descendants of fo:flow, fo:table-column
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`auto`

The width of line numbers becomes the width of the text of the line.

When specifying the arrangement of line numbers by axf:line-number-text-align, the value other than `auto` should be specified for the width.

This property is not available with **AH Formatter V7.1 Lite**.

axf:line-number-except-continued-line / CSS -ah-line-number-except-continued-line V7.1 no-LT

Specifies whether to add line numbers except for continued lines.

Value:	true | false
Initial:	false
Applies to:	all block-level formatting objects that are descendants of fo:flow, fo:table-column
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`true`

When a long line wraps, only the first line is numbered. At this time, the continued lines is not counted in the number of lines.

`false`

Adds line numbers to all lines.

This property is not available with **AH Formatter V7.1 Lite**.

Line Continued Mark

When the line with long text strings is broken and continues to the next line, line continued marks can be applied to the end of line. It is invalid inside `fo:float` or `fo:footnote`.

This function is not available with **AH Formatter V7.1 Lite**.

axf:line-continued-mark / CSS -ah-line-continued-mark no-LT

Specifies whether to show line continued marks.

Value:	<string>
Initial:	empty string
Applies to:	all block-level formatting objects that are descendants of fo:flow
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`<string>`

Line continued marks with the specified character strings are shown. If the character strings are empty, line continued marks are not shown.

CAUTION: Complicated character strings which consist of multiple scripts or complicated scripts, such as Arabic, Thai, etc., are not supported.

This property is not available with **AH Formatter V7.1 Lite**.

axf:line-continued-mark-background-color / CSS -ah-line-continued-mark-background-color no-LT

Specifies the background color of line continued marks.

Value:	<color>
Initial:	transparent
Applies to:	all block-level formatting objects that are descendants of fo:flow
Inherited:	yes
Percentages:	N/A

This property is not available with **AH Formatter V7.1 Lite**.

axf:line-continued-mark-color / CSS -ah-line-continued-mark-color no-LT

Specifies the color of line continued marks.

Value:	<color>
Initial:	depends on the current line area
Applies to:	all block-level formatting objects that are descendants of fo:flow
Inherited:	yes
Percentages:	N/A

This property is not available with **AH Formatter V7.1 Lite**.

axf:line-continued-mark-font-family / CSS -ah-line-continued-mark-font-family no-LT

Specifies the font family of line continued marks.

Value: [<family-name> | <generic-family>]#
Initial: depends on the current line area
Applies to: all block-level formatting objects that are descendants of fo:flow
Inherited: yes
Percentages: N/A

This property is not available with **AH Formatter V7.1 Lite**.

axf:line-continued-mark-font-size / CSS -ah-line-continued-mark-font-size no-LT

Specifies the font size of line continued marks.

Value: <absolute-size> | <relative-size> | <length> | <percentage>
Initial: depends on the current line area
Applies to: all block-level formatting objects that are descendants of fo:flow
Inherited: yes
Percentages: refer to the font size

This property is not available with **AH Formatter V7.1 Lite**.

axf:line-continued-mark-font-style / CSS -ah-line-continued-mark-font-style no-LT

Specifies whether to make the font style italic.

Value: normal | italic
Initial: depends on the current line area
Applies to: all block-level formatting objects that are descendants of fo:flow
Inherited: yes
Percentages: N/A

This property is not available with **AH Formatter V7.1 Lite**.

axf:line-continued-mark-font-weight / CSS -ah-line-continued-mark-font-weight no-LT

Specifies the font weight of line numbers.

Value: normal | bold | bolder | lighter | 1...1000
Initial: depends on the current line area
Applies to: all block-level formatting objects that are descendants of fo:flow
Inherited: yes
Percentages: N/A

This property is not available with **AH Formatter V7.1 Lite**.

axf:line-continued-mark-offset / CSS -ah-line-continued-mark-offset no-LT

Specifies the offset of line continued marks.

Value: <length>
Initial: 0pt
Applies to: all block-level formatting objects that are descendants of fo:flow
Inherited: yes
Percentages: N/A

This property is not available with **AH Formatter V7.1 Lite**.

Marker

axf:suppress-duplicate-marker-contents no-LT

Specifies the removal of duplicate marker references.

Value: true | false
Initial: false

Applies to: all formatting objects
Inherited: yes
Percentages: N/A

When inline consecutive `<fo:retrieve-marker>` refer to `<fo:marker>` with the same content, one `<fo:retrieve-marker>` is removed. For example, in the following case, text and elements between `<fo:retrieve-marker>` are also removed.

```
<fo:retrieve-marker/> — <fo:retrieve-marker/>
```

It does not work in the following cases:

- When `<fo:marker>` is not an inline element
- When `<fo:retrieve-marker>` is not a sibling element

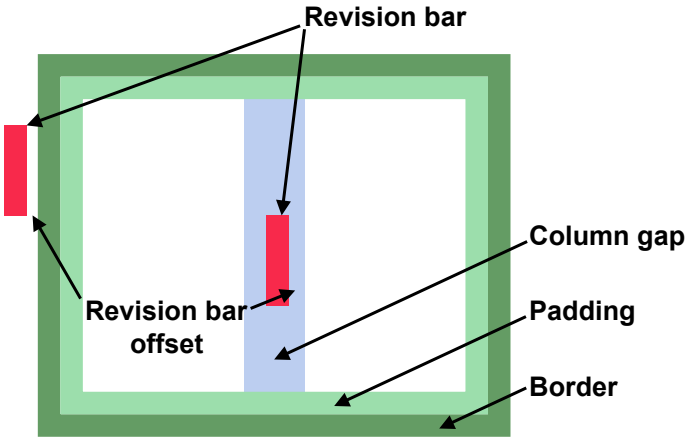
The same applies to inline consecutive `<fo:retrieve-table-marker>`.

This property is not available with **AH Formatter V7.1 Lite**.

Revision Bar

AH Formatter V7.1 provides extension properties to layout the revision bars in the documents. The revision bar is shown above the border or the column rule. The revision bars and `<fo:change-bar-*>` are invalid in `<fo:float>`.

CAUTION: A similar function is provided in XSL 1.1. Use `<fo:change-bar-begin>` and `<fo:change-bar-end>`.



axf:revision-bar-color / CSS -ah-revision-bar-color

Specifies the color of the revision bar.

Value: <color>
Initial: the value of the ‘color’ property
Applies to: all block-level and inline-level formatting objects that are descendants of fo:flow
Inherited: yes
Percentages: N/A

axf:revision-bar-offset / CSS -ah-revision-bar-offset

Specifies the offset of the revision bar.

Value: <length>
Initial: 0pt
Applies to: all block-level and inline-level formatting objects that are descendants of fo:flow
Inherited: yes
Percentages: N/A

axf:revision-bar-position / CSS -ah-revision-bar-position

Specifies the position of the revision bar.

Value:	start | end | inside | outside | alternate | both
Initial:	start
Applies to:	all block-level and inline-level formatting objects that are descendants of fo:flow
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`start`

Places revision bar at start-edge.

`end`

Places revision bar at end-edge.

`inside`

Places revision bar at start-edge on odd pages, at end-edge on even pages.

`outside`

Places revision bar at end-edge on odd pages, at start-edge on even pages.

`alternate`

Places revision bar at end-edge in the last column of multi-column layout, except for the last column, places it at start-edge.

`both`

Places revision bar at start-edge and end-edge.

axf:revision-bar-style / CSS -ah-revision-bar-style

Specifies the style of the revision bar.

Value:	<border-style>
Initial:	none
Applies to:	all block-level and inline-level formatting objects that are descendants of fo:flow
Inherited:	yes
Percentages:	N/A

axf:revision-bar-width / CSS -ah-revision-bar-width

Specifies the width of the revision bar.

Value:	<border-width>
Initial:	medium
Applies to:	all block-level and inline-level formatting objects that are descendants of fo:flow
Inherited:	yes
Percentages:	N/A

CSS (-ah-)change-bar-class

[CSS3-GCPM] Change bars (“change-bar-class” has been removed from GCPM on and after June 8, 2010)

Value:	<name>
Initial:	N/A
Applies to:	all elements
Inherited:	no
Percentages:	N/A

☞ [XSL 1.1] change-bar-class

CSS (-ah-)change-bar-color

[CSS3-GCPM] Change bars (“change-bar-color” has been removed from GCPM on and after June 8, 2010)

Value:	<color>
Initial:	the value of the 'color' property
Applies to:	all elements
Inherited:	no
Percentages:	N/A

☞ [XSL 1.1] change-bar-color

CSS (-ah-)change-bar-offset

[CSS3-GCPM] Change bars (“change-bar-offset” has been removed from GCPM on and after June 8, 2010)

Value:	<length>
Initial:	6pt
Applies to:	all elements
Inherited:	no
Percentages:	N/A

☞ [XSL 1.1] change-bar-offset

CSS (-ah-)change-bar-side

[CSS3-GCPM] Change bars (“change-bar-side” has been removed from GCPM on and after June 8, 2010)

Value:	start | end | left | right | inside | outside | alternate
Initial:	start
Applies to:	all elements
Inherited:	no
Percentages:	N/A

☞ [XSL 1.1] change-bar-placement

CSS (-ah-)change-bar-style

[CSS3-GCPM] Change bars (“change-bar-style” has been removed from GCPM on and after June 8, 2010)

Value:	<border-style>
Initial:	none
Applies to:	all elements
Inherited:	no
Percentages:	N/A

☞ [XSL 1.1] change-bar-style

CSS (-ah-)change-bar-width

[CSS3-GCPM] Change bars (“change-bar-width” has been removed from GCPM on and after June 8, 2010)

Value:	<border-width>
Initial:	medium
Applies to:	all elements
Inherited:	no
Percentages:	N/A

☞ [XSL 1.1] change-bar-width

Footnote

`(-ah-)float` is used to create footnotes and sidenotes in CSS. See also “Footnotes/Sidenotes by CSS”.

Footnote Positioning

With **AH Formatter V7.1**, footnotes can be arranged per each column or footnotes duplicated in the same page can be deleted. Also, sidenotes can be generated.

axf:footnote-align

Specifies the alignment of the footnotes.

Value:	auto | before | after
Initial:	auto
Applies to:	fo:region-body, fo:footnote
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`auto`

Footnotes are placed automatically. Footnotes are the usual arrangement. When the text is one column, sidenotes are arranged with an anchor position, and in the case of two or more columns, sidenotes are arranged near by the before side.

`before`

Sidenotes are arranged near by the before side. In the case of usual footnotes that are not sidenotes, footnotes are arranged immediately after the text in a page.

`after`

Sidenotes are arranged near by the after side. In the case of usual footnotes that are not sidenotes, footnotes are arranged at the last of a page.

Specifies the method of arrangement of footnotes or sidenotes. When it is sidenotes (footnote arrangement into `<fo:region-start>` or `<fo:region-end>` is specified by axf:footnote-position), it's possible to specify whether it is arranged automatically, or it is arranged near by the before side, or it is arranged near by the after side.

axf:footnote-stacking / CSS -ah-footnote-stacking

Specifies the method to layout the footnote.

Value:	block | inline
Initial:	block
Applies to:	fo:region-body, fo:footnote
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`block`

Arranges the footnotes in the block progression direction.

`inline`

Arranges the footnotes in the inline progression direction.

axf:footnote-position

Specifies the location to place the footnote.

Value:	page | odd-page | even-page | start | end | inside | outside | column | start-column | end-column | inside-column | outside-column
Initial:	page
Applies to:	fo:region-body, fo:footnote
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`page`

Footnotes are placed on the after side of each page in `<fo:region-body>`. This is the standard layout of XSL specification.

`odd-page`

Footnotes are placed on the after side of each odd page in `<fo:region-body>`. This is the standard layout of sidenotes in vertical writing. (On the outside in odd page.)

`even-page`

Footnotes are placed on the after side of each even page in `<fo:region-body>`.

`start`

Footnotes are placed on each page in `<fo:region-start>`. Headnotes in vertical writing. Sidenotes on the left side in horizontal writing.

`end`

Footnotes are placed on each page in `<fo:region-end>`. Footnotes in vertical writing. Sidenotes on the right side in horizontal writing.

`inside`

Footnotes are placed at each even page in `<fo:region-end>` and each odd page in `<fo:region-start>`. Sidenotes on the inside in horizontal writing.

`outside`

Footnotes are placed on each even page in `<fo:region-start>` and each odd page in `<fo:region-end>`. This is a standard sidenotes in horizontal writing. (On the outside of both right and left pages.)

`column`

Footnotes are placed on the after side of each column. This is a standard footnote in horizontal writing. Same as `page` if the document is non multi-columns.

`start-column`

Footnotes are placed on the after side of the first column. Same as `start` if the document is non multi-columns.

`end-column`

Footnotes are placed on the after side of the end column. Same as `end` if the document is non multi-columns.

`inside-column`

Footnotes are placed in the same way as `end-column` at even page and in the same way as `start-column` at odd page. Footnotes are put together on the inside column in horizontal writing.

`outside-column`

Footnotes are placed in the same way as `start-column` at even page and in the same way as `end-column` at odd page. Footnotes are put together on the outside column in horizontal writing.

It is possible to arrange footnotes inside the `<fo:region-start>` or the `<fo:region-end>` (these notes are called sidenotes). Besides specifying them to `<fo:region-body>`, it is also effective to specify to individual `<fo:footnote>`. It is possible to make several types of notes intermingled by this extension.

There are following restrictions for sidenotes.

- The sidenotes which run over from the specified area will overflow.
- The `xsl-footnote-separator` is not effective.

`start-column`, `end-column`, `inside-column` and `outside-column` have the following restrictions.

- It is not possible to specify these values to `<fo:footnote>`. It is only available to specify them to `<fo:region-body>`.
- When you specify these values to `<fo:region-body>`, `column` cannot be specified to `<fo:footnote>`.

- These values cannot be used with the forcible column break such as break-before="column", etc. These values cannot be used for a large volume of footnotes.

`odd-page` and `even-page` have the following restrictions.

- It is not possible to specify these values to `<fo:footnote>`. It is only available to specify them to `<fo:region-body>`.

axf:footnote-keep / CSS -ah-footnote-keep

Specifies whether to arrange a footnote and an anchor in the same page

Value:	auto | always | none
Initial:	auto
Applies to:	fo:region-body, fo:footnote
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`auto`

When a footnote does not fit within the column, it is sent to the next page or the next column.

`always`

When a footnote does not fit within the column, the line of the anchor and the subsequent lines are sent to the following page, and a footnote and an anchor are arranged in the same page. When axf:footnote-position="column" is specified, a footnote and an anchor are arranged in the same column.

> **CAUTION:** A footnote and an anchor may not be arranged in the same page when the cell containing the anchor is large or at the bottom of the page.

`none` V7.1

When a footnote does not fit within the column, the line of the anchor and the subsequent lines are sent to the next page, and attempts to fit the footnote itself within the page.

axf:footnote-max-height / CSS -ah-footnote-max-height no-LT

Specifies the maximum height of footnote.

Value:	auto | <length> | <percentage>
Initial:	auto
Applies to:	fo:region-body
Inherited:	no
Percentages:	refer to the height of the page

Specifies the maximum height of footnote. The behavior when `auto` is specified depends on the value of auto-break-footnote in the Option Setting File.

- When axf:footnote-max-height="auto" and auto-break-footnote="false" are specified

  Up to **AH Formatter V6.1**, page (column) break did not occur within `<fo:footnote-body>`. This setting performs such previous operation. In case a footnote is big and exceeds the page height, an overflow occurs. However, only in case a footnote is small, is it possible to format without breaking a footnote.
- When axf:footnote-max-height="auto" and auto-break-footnote="true" are specified

  It is considered that the page height is specified to axf:footnote-max-height and page break (column break) occurs within `<fo:footnote-body>`.
- When axf:footnote-max-height="<length>" or "<percentage>" is specified

  The value must be a positive. auto-break-footnote is not referred to. At this time, page (column) break may occur within `<fo:footnote-body>`. The footnote will be put after an anchor position as much as possible and the remaining part will be split and sent to the next page (column). Note that axf:footnote-max-height is invalid for pages without text.

There are following restrictions in CSS.

- A footnote can be split within `@footnote` only when `@footnote` is `-ah-float-y:after` and the width is not specified.

- A footnote cannot be split when `@footnote` is `-ah-float-reference:multicol`.

These property are not available with **AH Formatter V7.1 Lite**.

axf:suppress-duplicate-footnote

Specifies whether to delete footnotes duplicated in the same page.

Value:	true | false
Initial:	false
Applies to:	fo:footnote
Inherited:	yes
Percentages:	N/A

Deters the display of duplicated footnotes on the same footnote region when the same footnote is assigned to two or more places in the same page. When axf:footnote-position="column" is specified, it is effective only for the footnote in the same column.

Footnote Numbering

These features are not available with **AH Formatter V7.1 Lite**.

<axf:footnote-number> no-LT

Common Usage:

Generates a footnote number.

Areas:

Generates and returns a single normal inline-area.

Constraints:

`<axf:footnote-number>` can be specified only as an anchor area. That is, it can be specified only as a descendant of `<fo:inline>` that is a child of `<fo:footnote>`.

Contents:

EMPTY

This element is not available with **AH Formatter V7.1 Lite**.

<axf:footnote-number-citation> no-LT

Common Usage:

Cites a footnote number.

Areas:

Generates and returns a single normal inline-area.

Constraints:

`<axf:footnote-number-citation>` can be specified only as a descendant of `<fo:footnote-body>`. The ref-id property is required, and the ID referenced by `<axf:footnote-number-citation>` must be the one specified in `<axf:footnote-number>` in the anchor area in the same `<fo:footnote>`.

Contents:

EMPTY

This element is not available with **AH Formatter V7.1 Lite**.

axf:footnote-number-format no-LT

Specifies the format of footnote number.

Value:	<string>

Initial: 1
Applies to: fo:page-sequence
Inherited: no
Percentages: N/A

Adopted as a format of axf:footnote-number. It can be specified in the same way as the format property.

This property is not available with **AH Formatter V7.1 Lite**.

axf:footnote-number-initial no-LT

Specifies the initial footnote number.

Value: auto | <number>
Initial: auto
Applies to: fo:page-sequence
Inherited: no
Percentages: N/A

Values have the following meanings:

`auto`

Succeeded from the before existing `<fo:page-sequence>` without initializing a footnote number. When `<fo:page-sequence>` does not exist before, it is set to 1.

`<number>`

Initializes the footnote number with the specified value. The value must be greater than or equal to 1. Actual initialization takes place at the time when axf:footnote-number-reset is specified.

This property is not available with **AH Formatter V7.1 Lite**.

axf:footnote-number-reset no-LT

Resets the footnote numbering.

Value: auto | none | page | odd-page | even-page | column
Initial: auto
Applies to: fo:page-sequence
Inherited: no
Percentages: N/A

Values have the following meanings:

`auto`

Succeeded from the before existing `<fo:page-sequence>`. When `<fo:page-sequence>` does not exist before, it is set to `none`.

`none`

Does not reset the footnote number.

`page`

Resets the footnote number when a page breaks.

`odd-page`

Resets the footnote number when an odd page breaks.

`even-page`

Resets the footnote number when an even page breaks.

`column`

Resets the footnote number when a column breaks.

A footnote number is reset by the value specified by axf:footnote-number-initial.

This property is not available with **AH Formatter V7.1 Lite**.

Columns

In FO, these properties are placed as `<fo:region-body>` and `<fo:block-container>`.

CSS (-ah-)columns

[CSS3-Multicol] ‘columns’

Value: [[<integer> | auto] || [<length> | auto]]
Initial: see individual properties
Applies to: block-level elements
Inherited: no
Percentages: N/A

column-count / CSS (-ah-)column-count

[CSS3-Multicol] ‘column-count’

Value: <number> (XSL) / <number> | auto (CSS)
Initial: 1 (XSL) / auto (CSS)
Applies to: fo:region-body, fo:block-container
Inherited: no
Percentages: N/A

column-gap / CSS (-ah-)column-gap

[CSS3-Multicol] ‘column-gap’

Value: <length> | <percentage> (XSL) / <length> | normal (CSS)
Initial: 12pt (XSL) / normal (CSS)
Applies to: fo:region-body, fo:block-container
Inherited: refer to the width of the `fo:block-container`
Percentages: N/A

CSS (-ah-)column-span

[CSS3-Multicol] ‘column-span’

Value: none | all
Initial: none
Applies to: static, non-floating elements
Inherited: no
Percentages: N/A

CSS (-ah-)column-width

[CSS3-Multicol] ‘column-width’

Value: <length> | auto
Initial: auto
Applies to: block-level elements
Inherited: no
Percentages: N/A

axf:column-fill / CSS (-ah-)column-fill

Specifies whether to balance the column height. [CSS3-Multicol] ‘column-fill’

Value:	auto | balance | ~~balance-all~~
Initial:	balance
Applies to:	multi-column elements
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`auto`

Do not balance the height. However if span="all" is specified, it is balanced before the spanned column.

`balance`

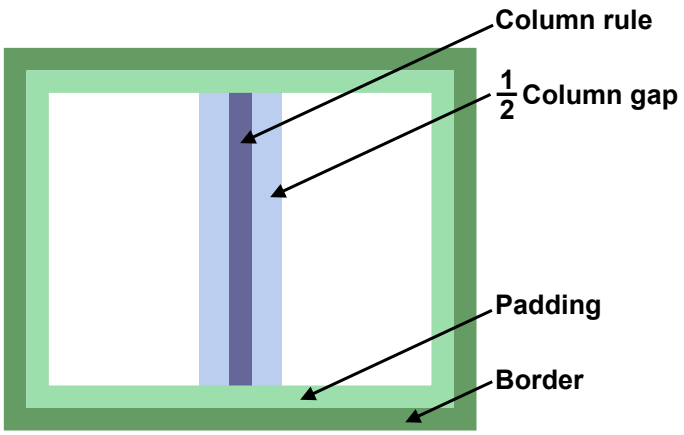
Balance the height.

CAUTION: `balance-all` is not supported.

Column Rule

AH Formatter V7.1 provides extension properties to layout the column rules in the column gaps. The column rule is placed above the border and below the revision bar.

CAUTION: The following figure shows the associated width in FO. In CSS, the width of `-ah-column-rule` in `-ah-column-gap` is not taken into consideration.



CSS (-ah-)column-rule

[CSS3-Multicol] ‘column-rule’

Value:	<border-width> || <border-style> || <color>
Initial:	see individual properties
Applies to:	multi-column elements
Inherited:	no
Percentages:	N/A

axf:column-rule-align / CSS -ah-column-rule-align

Specifies the alignment of the column rule.

Value:	before | center | after
Initial:	center
Applies to:	fo:region-body, fo:block-container
Inherited:	no
Percentages:	N/A

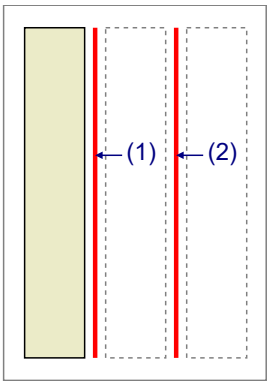
axf:column-rule-color / CSS (-ah-)column-rule-color

Specifies the color of the column rule. [CSS3-Multicol] ‘column-rule-color’

Value:	<color>
Initial:	the value of the ‘color’ property
Applies to:	fo:region-body, fo:block-container
Inherited:	no
Percentages:	N/A

axf:column-rule-display / CSS -ah-column-rule-display

Specifies whether to also display a rule at the place where column gaps do not exist.



Value:	gap | end | all
Initial:	gap
Applies to:	fo:region-body, fo:block-container
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`gap`

Displays a rule only between existing columns.

`end`

Displays a rule at the end side of each existing column. However, the end side of the final column is not included.

`all`

Displays rules even between non-existent columns at the end of a page, etc.

Suppose contents are only in the left column of the three columns as shown in the figure on the right. When `gap` is specified, rules are not displayed at all. When `end` is specified, a rule (1) is displayed, when `all` is specified, rules (1) and (2) are displayed.

axf:column-rule-length / CSS -ah-column-rule-length

Specifies the length of the column rule.

Value:	<length> | <percentage>
Initial:	100%
Applies to:	fo:region-body, fo:block-container
Inherited:	no
Percentages:	refer to the height of the column

In case where the column is short by specifying span="all" in FO, or in case of the block containing columns in CSS, that height of the column indicates 100%.

axf:column-rule-style / CSS (-ah-)column-rule-style

Specifies the style of the column rule. [CSS3-Multicol] ‘column-rule-style’

Value:	<border-style>
Initial:	none
Applies to:	fo:region-body, fo:block-container
Inherited:	no
Percentages:	N/A

axf:column-rule-width / CSS (-ah-)column-rule-width

Specifies the width of the column rule. [CSS3-Multicol] ‘column-rule-width’

Value:	<border-width>

Initial: medium
Applies to: fo:region-body, fo:block-container
Inherited: no
Percentages: N/A

Borders

axf:border-connection-form / CSS -ah-border-connection-form no-LT

Specifies the shape of the connecting portion of borders.

Value: wedge | mixed | precedence
Initial: mixed
Applies to: all elements
Inherited: yes
Percentages: N/A

Values have the following meanings:

`wedge`

Connects borders in wedge shape. Forms the X shape at the cross-shaped intersecting portion, and forms the Y shape at the T-shaped intersecting portion.

`mixed`

Connects borders with the same thickness in rectangle shape at the T-shaped intersecting portion. Others will be in wedge shape.

`precedence`

Draws thick borders to the edge. For the same thickness, draws a stronger border to the edge by the border priority.

In the table of border-collapse="collapse", axf:border-connection-form specified in `<fo:table-row>`, `<fo:table-cell>`, etc. in that table is invalid. The one specified in `<fo:table>` is adopted.

This property is not available with **AH Formatter V7.1 Lite**.

axf:border-double-thickness / CSS -ah-border-double-thickness

Specifies the line thickness of border-style="double".

Value: <value> [<value> [<value>]]
Initial: 1
Applies to: all elements
Inherited: yes
Percentages: N/A

In `<value>`, either `<number>` or `<length>` can be specified. The values are outside line width, spacing and inside line width in order from left to right. If the value is omitted, it is considered to be equivalent to the preceding value. Negative values are not available. The line width can directly be specified in `<length>`. We do not guarantee the best result if the total of `<length>` exceeds the border-width. The values in `<number>` is summed and then the total of `<length>` is deducted from the actual border-width for proportional distribution. For example, if the border-width is 10pt and axf:border-double-thickness="4pt 2 1" is specified, it will be shown as follows:

- Outside line width = 4pt
- Spacing = (10pt-4pt)/(2+1)*2 = 4pt
- Inside line width = (10pt-4pt)/(2+1)*1 = 2pt

axf:border-wave-form / CSS -ah-border-wave-form

Specifies the wave form of border-style="wave".

Value: <value> [<value>]

Initial: auto
Applies to: all elements
Inherited: yes
Percentages: N/A

In `<value>`, either `<number>` or `<length>` or `auto` can be specified. The values are wave form and line width in order from left to right. If the value is `auto` or omitted, it is considered 6 and 0.125 each. Negative values are not available. The wave form or the line width can directly be specified in `<length>`. `<number>` is proportional to the border-width.

CSS -ah-border-after

Specifies the border of the after side.

Value: <border-width> || <border-style> || <color>
Initial: see individual properties
Applies to: same as 'border'
Inherited: no
Percentages: see individual properties

This is a shorthand property for setting the width, style, and color of the after side.

CSS -ah-border-before

Specifies the border of the before side.

Value: <border-width> || <border-style> || <color>
Initial: see individual properties
Applies to: same as 'border'
Inherited: no
Percentages: see individual properties

This is a shorthand property for setting the width, style, and color of the before side.

CSS -ah-border-end

Specifies the border of the end side.

Value: <border-width> || <border-style> || <color>
Initial: see individual properties
Applies to: same as 'border'
Inherited: no
Percentages: see individual properties

This is a shorthand property for setting the width, style, and color of the end side.

CSS -ah-border-start

Specifies the border of the start side.

Value: <border-width> || <border-style> || <color>
Initial: see individual properties
Applies to: same as 'border'
Inherited: no
Percentages: see individual properties

This is a shorthand property for setting the width, style, and color of the start side.

CSS -ah-border-after-color

Specifies the border color of the after side.

Value: <color>
Initial: currentColor
Applies to: same as 'border-color'
Inherited: no

Percentages: N/A

☞ [XSL 1.1] border-after-color

CSS -ah-border-before-color

Specifies the border color of the before side.

Value: <color>
Initial: currentColor
Applies to: same as ‘border-color’
Inherited: no
Percentages: N/A

☞ [XSL 1.1] border-before-color

CSS -ah-border-end-color

Specifies the border color of the end side.

Value: <color>
Initial: currentColor
Applies to: same as ‘border-color’
Inherited: no
Percentages: N/A

☞ [XSL 1.1] border-end-color

CSS -ah-border-start-color

Specifies the border color of the start side.

Value: <color>
Initial: currentColor
Applies to: same as ‘border-color’
Inherited: no
Percentages: N/A

☞ [XSL 1.1] border-start-color

CSS -ah-border-after-style

Specifies the border style of the after side.

Value: <border-style>
Initial: none
Applies to: same as ‘border-style’
Inherited: no
Percentages: N/A

☞ [XSL 1.1] border-after-style

CSS -ah-border-before-style

Specifies the border style of the before side.

Value: <border-style>
Initial: none
Applies to: same as ‘border-style’
Inherited: no
Percentages: N/A

☞ [XSL 1.1] border-before-style

CSS -ah-border-end-style

Specifies the border style of the end side.

Value:	<border-style>
Initial:	none
Applies to:	same as ‘border-style’
Inherited:	no
Percentages:	N/A

☞ [XSL 1.1] border-end-style

CSS -ah-border-start-style

Specifies the border style of the start side.

Value:	<border-style>
Initial:	none
Applies to:	same as ‘border-style’
Inherited:	no
Percentages:	N/A

☞ [XSL 1.1] border-start-style

CSS -ah-border-after-width

Specifies the border width of the after side.

Value:	<border-width>
Initial:	none
Applies to:	same as ‘border-width’
Inherited:	no
Percentages:	refer to the logical width of the containing block

☞ [XSL 1.1] border-after-width

CSS -ah-border-before-width

Specifies the border width of the before side.

Value:	<border-width>
Initial:	none
Applies to:	same as ‘border-width’
Inherited:	no
Percentages:	refer to the logical width of the containing block

☞ [XSL 1.1] border-before-width

CSS -ah-border-end-width

Specifies the border width of the end side.

Value:	<border-width>
Initial:	none
Applies to:	same as ‘border-width’
Inherited:	no
Percentages:	refer to the logical width of the containing block

☞ [XSL 1.1] border-end-width

CSS -ah-border-start-width

Specifies the border width of the start side.

Value:	<border-width>
Initial:	none

Applies to: same as ‘border-width’
Inherited: no
Percentages: refer to the logical width of the containing block

☞ [XSL 1.1] border-start-width

CSS (-ah-)border-length

[CSS3-GCPM] The ‘border-length’ property (“border-length” has been removed from GCPM on and after June 8, 2010)

Value: <length> | auto
Initial: auto
Applies to: @footnote areas
Inherited: no
Percentages: refer to the width of element

CSS (-ah-)box-decoration-break

The following bold value is extended. [CSS3-Break] Fragmented Borders and Backgrounds: the box-decoration-break property

Value: slice | clone | **padding**
Initial: slice
Applies to: all elements
Inherited: no
Percentages: N/A

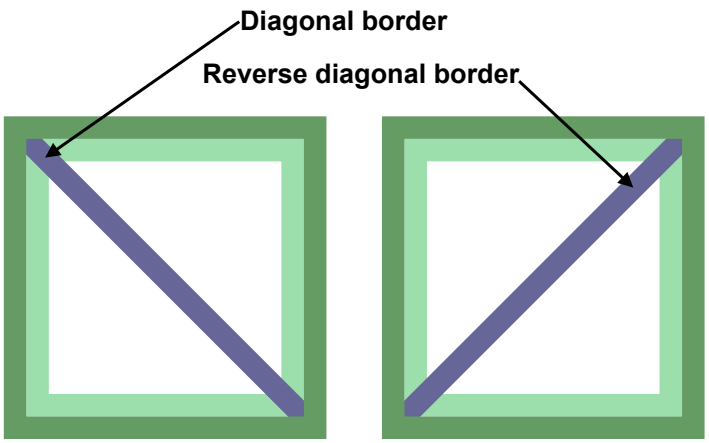
Extended values have the following meanings.

`padding` `no-LT`

`slice` eliminates the border and padding of the broken edges, while `padding` leaves padding.
This value cannot be specified by **AH Formatter V7.1 Lite**.

Diagonal Border

AH Formatter V7.1 provides extension properties to draw the diagonal border in the area such as the table cell where the border can be specified. The diagonal border by axf:diagonal-border-* is drawn from the edge of before-start to the edge of after-end. The diagonal border by axf:reverse-diagonal-border-* is drawn from the edge of before-end to the edge of after-start. When the writing-mode="lr-tb" is specified, the diagonal border is drawn as follows. When the writing-mode="rl-tb" or `"tb-rl"` is specified, it is drawn in a reverse way.



axf:diagonal-border-color / CSS -ah-diagonal-border-color

Specifies the color of the diagonal border.

Value: <color>
Initial: the value of the ‘color’ property

Applies to: all elements which can have borders
Inherited: yes
Percentages: N/A

axf:diagonal-border-style / CSS -ah-diagonal-border-style

Specifies the style of the diagonal border.

Value: <border-style>
Initial: none
Applies to: all elements which can have borders
Inherited: no
Percentages: N/A

axf:diagonal-border-width / CSS -ah-diagonal-border-width

Specifies the width of the diagonal border.

Value: <border-width>
Initial: medium
Applies to: all elements which can have borders
Inherited: yes
Percentages: N/A

axf:reverse-diagonal-border-color / CSS -ah-reverse-diagonal-border-color

Specifies the color of the reverse diagonal border.

Value: <color>
Initial: the value of the ‘color’ property
Applies to: all elements which can have borders
Inherited: yes
Percentages: N/A

axf:reverse-diagonal-border-style / CSS -ah-reverse-diagonal-border-style

Specifies the style of the reverse diagonal border.

Value: <border-style>
Initial: none
Applies to: all elements which can have borders
Inherited: no
Percentages: N/A

axf:reverse-diagonal-border-width / CSS -ah-reverse-diagonal-border-width

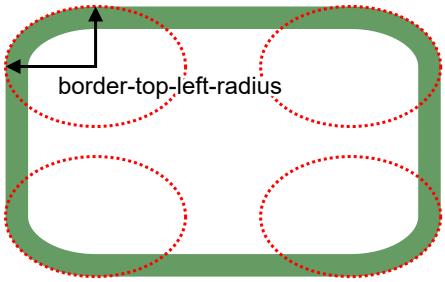
Specifies the width of the reverse diagonal border.

Value: <border-width>
Initial: medium
Applies to: all elements which can have borders
Inherited: yes
Percentages: N/A

Rounded Corners

axf:border-radius
axf:border-top-left-radius / CSS (-ah-)border-top-left-radius
axf:border-top-right-radius / CSS (-ah-)border-top-right-radius
axf:border-bottom-left-radius / CSS (-ah-)border-bottom-left-radius
axf:border-bottom-right-radius / CSS (-ah-)border-bottom-right-radius

Specifies the radii of the rounded corners. [CSS3-Background] Curve Radii: the ‘border-radius’ properties



Value:	[<length> | <percentage>] [<length> | <percentage>]?
Initial:	0
Applies to:	all elements which can have borders
Inherited:	no
Percentages:	border box

The first value is the horizontal radius (or vertical if vertical writing). The second value is the other radius. If the second length is omitted it is equal to the first. If either length is less or equal 0, the corner is square, not rounded. When specifying rounding corners for the table, if border-collapse="collapse" is specified, axf:border-radius is effective only when specified to `fo:table`.

Rounded corners do not apply to the following border-style.

- `wave`

CSS (-ah-)border-radius

[CSS3-Background] Curve Radii: the ‘border-radius’ properties

Value:	[<length>|<percentage>]{1,4} [/ [<length>|<percentage>]{1,4}]?
Initial:	0
Applies to:	all elements which can have borders
Inherited:	no
Percentages:	border box

See axf:border-radius for restrictions on `border-style`.

Box Shadow

axf:box-shadow / CSS (-ah-)box-shadow

Specifies the box shadow. [CSS3-Background] Drop Shadows: the ‘box-shadow’ property

Value:	none | [inset? && [<length>{2,4} && <color>?]]#
Initial:	none
Applies to:	all elements which can have borders
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`none`

No shadow is displayed.

`inset`

An inner shadow is displayed.This setting is ignored with **AH Formatter V7.1 Lite**. no-LT

The meanings of `<length>`s and a `<color>` are as follows:

- The first `<length>` is an offset of a horizontal shadow. It becomes a right-side shadow of a region when a positive value is specified. It becomes a left-side shadow of a region when a negative value is specified.
- The second `<length>` is an offset of a vertical shadow. It becomes a bottom-side shadow of a region when a positive value is specified. It becomes a top-side shadow of a region when a negative value is specified.
- The 3rd `<length>` must be a non-negative value and specifies the blur radius. If the value is 0, there is no blur. This setting is ignored with **AH Formatter V7.1 Lite**. no-LT
- The 4th `<length>` extends a shadow. When a positive value is specified, the region will be expanded. When a negative value is specified, the region will be reduced. no-LT
- The color of the shadow can be specified by `<color>`.

This combination can be specified multiply and shadows can be added several times over.

CAUTION: The minimum unit of `<length>` which can be specified is 1in/96=0.265mm. The value is rounded to its multiple number.

CAUTION: Note the following when you set the blur:

- The blur setting is ignored with the device that cannot output in transparent mode like PDF/X.
- The blur setting is ignored when transparency is specified as `false`.

Table

<axf:table-cell-repeated-marker> / CSS running(table-cell-repeated-marker) V7.1 no-LT

Common Usage:

Specifies the contents to be displayed in the split cell.

Areas:

This element does not generate a region directly.

Constraints:

Available to specify only one as a first child (except for a marker) of `fo:table-cell`.

Contents:

(`#PCDATA` | `%inline;` | `%block;`)*

When axf:repeat-cell-content-at-break="true" is specified and `<axf:table-cell-repeated-marker>` is contained in the cell, the contents of `<axf:table-cell-repeated-marker>` is used instead of the contents of the cell.

In CSS, if you specify the following for an element in a cell, that element will be treated in the same way as `<axf:table-cell-repeated-marker>`. It does not have to be the first child, but only the first one specified will be adopted. V7.1

```
position: running(table-cell-repeated-marker);
```

This element is not available with **AH Formatter V7.1 Lite**.

axf:repeat-cell-content-at-break / CSS -ah-repeat-cell-content-at-break

Specifies whether to copy the contents of a cell when a cell breaks.

Value:	true | false
Initial:	false
Applies to:	fo:table-cell
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`true`

When the content of table cell fits in table-cell-area without breaking and table-cell-area breaks according to the break of other table-cell in the same row, or according to the break among the multiple rows with number-rows-spanned, usually the content of table-cell-area becomes empty. When axf:repeat-cell-content-at-break is specified to table-cell, the content of the cell before break is copied and repeated.

`false`

The content of the cell is not copied.

axf:repeat-footnote-in-table-footer

Specifies whether to repeat the `<fo:footnote>` in the `<fo:table-footer>` that is repeated by table-omit-footer-at-break="false".

Value:	true | false
Initial:	true
Applies to:	fo:table-footer
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`true`

Process `<fo:footnote>` repeatedly.

`false`

Do not process `<fo:footnote>` repeatedly.

axf:repeat-footnote-in-table-header

Specifies whether to repeat the `<fo:footnote>` in the `<fo:table-header>` that is repeated by table-omit-header-at-break="false".

Value:	true | false
Initial:	true
Applies to:	fo:table-header
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`true`

Process `<fo:footnote>` repeatedly.

`false`

Do not process `<fo:footnote>` repeatedly.

table-omit-footer-at-break / CSS -ah-table-omit-footer-at-break

The following bold value is extended.

Value: true | false | **column**

Values have the following meanings:

`column` no-LT

Omits footer on column breaks, but not on page breaks.

This property is not extended with **AH Formatter V7.1 Lite**.

In HTML, `<tfoot>` can be placed after `<tbody>` but `-ah-table-omit-footer-at-break:true` will be forced at that time.

table-omit-header-at-break / CSS -ah-table-omit-header-at-break

The following bold value is extended.

Value: true | false | **column**

Values have the following meanings:

`column` no-LT

Omits header on column breaks, but not on page breaks.

This property is not extended with **AH Formatter V7.1 Lite**.

axf:table-summary / CSS -ah-table-summary

Describes the table summary.

Value: <string>
Initial: empty
Applies to: fo:table
Inherited: no
Percentages: N/A

This is equivalent to `<table summary="<string>">` in HTML. It doesn't affect the formatting result. It is outputted with Tagged PDF.

axf:table-row-orphans / CSS -ah-table-row-orphans no-LT

Specifies the number of table-rows that must remain at the bottom of the page (column).

Value: <integer>
Initial: 1
Applies to: fo:table-body
Inherited: yes
Percentages: N/A

This property is not available with **AH Formatter V7.1 Lite**.

axf:table-row-widows / CSS -ah-table-row-widows no-LT

Specifies the number of table-rows that must remain at the top of the page (column).

Value: <integer>
Initial: 1
Applies to: fo:table-body
Inherited: yes
Percentages: N/A

This property is not available with **AH Formatter V7.1 Lite**.

axf:scope no-LT

Specifies the range of cells with which this table header cell is associated.

Value: auto | row | col | rowgroup | colgroup | both
Initial: auto
Applies to: fo:table-cell
Inherited: no
Percentages: N/A

It is the same as the scope attribute in HTML.

axf:headers no-LT

Specifies the table header cells associated with this cell.

Value: <idrefs>
Initial: empty
Applies to: fo:table-cell
Inherited: no
Percentages: N/A

It is the same as the headers attribute in HTML.

CSS (-ah-)table-column-span

([CSS3-Tables] table-column-span and table-row-span properties)

Value: <number> | attr(...)
Initial: 1
Applies to: table cells
Inherited: no
Percentages: N/A

☞ [XSL 1.1] number-columns-spanned

CSS (-ah-)table-row-span

([CSS3-Tables] table-column-span and table-row-span properties)

Value: <number> | attr(...)
Initial: 1
Applies to: table cells
Inherited: no
Percentages: N/A

☞ [XSL 1.1] number-rows-spanned

axf:table-auto-layout-limit / CSS (-ah-)table-auto-layout-limit V7.1

Specifies the number of rows of fo:table to read ahead to determine the width of column when table-layout="auto" is specified.

Value: auto | <number>
Initial: auto
Applies to: fo:table
Inherited: yes
Percentages: N/A

Values have the following meanings:

`auto`

Follows the setting of table-auto-layout-limit in the Option Settings File.

`<number>`

Reads ahead the specified number of rows. When 0 is specified, all rows are read. When a negative value is specified, it is considered auto.

axf:retrieve-table-rows V7.1 no-LT

Specifies the maximum number of `fo:table-row` in `fo:marker` referenced from `fo:retrieve-table-marker`.

Value: <integer>
Initial: 1
Applies to: fo:retrieve-table-marker
Inherited: no
Percentages: N/A

When multiple rows are retrieved, the number of rows may be inconsistent and the rows may be duplicated. In such cases, specify the maximum number of lines to avoid it. Values less than 1 are considered 1.

This property is not available with **AH Formatter V7.1 Lite**.

Images, Multimedia

axf:multimedia-treatment / CSS -ah-multimedia-treatment no-LT

Specifies whether to embed Multimedia in PDF.

Value:	auto | embed | absolute-link | relative-link | richmedia | richmedia-windowed
Initial:	auto
Applies to:	fo:external-graphic / multimedia objects
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`auto`

The value specified by multimedia-treatment in the Option Setting File is adopted.

`embed`

Embeds the multimedia objects in PDF. It is not recommended for PDF 2.0 or later.

`absolute-link`

Links the multimedia objects in PDF, instead of embedding them. The linked multimedia objects are referred to as the absolute link. It is not recommended for PDF 2.0 or later.

`relative-link`

Links the multimedia objects in PDF, instead of embedding them. The linked multimedia objects are referred to as the relative link from either XML or FO. It is not recommended for PDF 2.0 or later.

`richmedia`

Embeds the multimedia as Rich media annotation. Effective with PDF1.7 or later.

`richmedia-windowed`

Embeds the multimedia as Rich media annotation, but displayed in a separate window when playing. Effective with PDF1.7 or later.

This property is not available with **AH Formatter V7.1 Lite**.

axf:alttext / CSS -ah-alttext / HTML alt no-LT

Specifies the alternate text of an image or link.

Value:	<string>
Initial:	empty string
Applies to:	fo:external-graphic, fo:instream-foreign-object, fo:basic-link
Inherited:	no
Percentages:	N/A

Effective when outputting Tagged PDF. See Alternate descriptions are provided.

This property is not available with **AH Formatter V7.1 Lite**.

axf:display-alttext / CSS -ah-display-alttext no-LT

Specifies whether to display the alternate text of an image.

Value:	false | true | auto
Initial:	auto
Applies to:	fo:external-graphic, `img`
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`false`

The alternate text is not displayed.

`true`

The alternate text is displayed when the alternate text is specified and no image exists.

`auto`

The value specified by display-alttext in the Option Setting File is adopted.

The alternate text is specified by axf:alttext in XSL-FO and alt in HTML. When the alternate text is displayed, the image is not displayed.

This property is not available with **AH Formatter V7.1 Lite**.

axf:image-resolution / CSS (-ah-)image-resolution

Specifies the resolution of an image. [CSS3-GCPM] Image resolution (“image-resolution” has been removed from GCPM on and after November 29, 2011)

Value:	normal | [from-image || <dpi>]
Initial:	from-image (XSL) / normal (CSS)
Applies to:	fo:external-graphic, fo:instream-foreign-object
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`normal`

Depends on the default value of the system. It's the value specified as pxpi in the Option Setting File. Ignores the actual resolution of an image.

`from-image`

Uses the actual resolution of an image. When an image does not have the resolution, it will follow the `<dpi>` specification. If nothing is specified, it is the same as `normal`.

`<dpi>`

Specifies the resolution (dpi) Ignores the actual resolution of an image.

The resolution of a background image is specified by axf:background-image-resolution. In case of vector images, such as SVG, it is applied to numerical values with no units. `from-image` is ignored.

axf:image-smoothing / CSS -ah-image-smoothing

Specifies whether to process anti-aliasing of an image on the screen.

Value:	auto | true | false
Initial:	auto
Applies to:	fo:external-graphic fo:instream-foreign-object
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`auto`

Depends on smoothing settings in GUI.

`true`

Processes anti-aliasing of an image.

`false`

Does not process anti-aliasing of an image.

axf:poster-image / CSS -ah-poster-image no-LT

Specifies the poster image for embedded multimedia.

Value:	<uri-specification> | none | auto
Initial:	auto
Applies to:	fo:external-graphic / multimedia objects
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`<uri-specification>`

Specifies the URL of the poster image. Multimedia, such as video or audio, cannot be specified.

`none`

Specifies no poster images.

`auto`

Uses the plain fallback image for the poster image.

This property is not available with **AH Formatter V7.1 Lite**.

See also Multimedia.

axf:poster-content-type / CSS -ah-poster-content-type no-LT

Specifies the content type of the poster image for embedded multimedia.

Value:	<string> | auto
Initial:	auto
Applies to:	fo:external-graphic / multimedia objects
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`<string>`

Specifies the content type of the poster image.

`auto`

Recognizes the content type from the poster image.

This property is not available with **AH Formatter V7.1 Lite**.

See also Multimedia.

axf:show-controls / CSS -ah-show-controls no-LT

Specifies whether to show the player control bar for multimedia.

Value:	true | false
Initial:	false
Applies to:	fo:external-graphic / multimedia objects
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`true`

Shows the player control bar.

`false`

Does not show the player control bar.

The control bar is shown under the playing multimedia object. To prevent overlapping the control bar with another object, it is necessary to make enough space below the multimedia object.

CAUTION: Whether the control bar is shown or not depends on the multimedia data, the viewer or the player. This setting is invalid with the rich media.

This property is not available with **AH Formatter V7.1 Lite**.

See also Multimedia.

axf:media-volume / CSS -ah-media-volume no-LT

Specifies the volume of the sound when playing the multimedia.

Value:	<percentage> | <number> | auto
Initial:	auto
Applies to:	fo:external-graphic / multimedia objects
Inherited:	no
Percentages:	N/A

CAUTION: Whether the setting is effective or not depends on the multimedia data, the viewer or the player. It is effective also with the rich media, but when editing the multimedia with Acrobat, this setting seems to be canceled.

This property is not available with **AH Formatter V7.1 Lite**.

axf:media-play-mode / CSS -ah-media-play-mode no-LT

Specifies the number of times to play the multimedia.

Value:	once | continuously | <number>
Initial:	once
Applies to:	fo:external-graphic / multimedia objects
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`once`

Plays the multimedia only one time.

`continuously`

Plays the multimedia continuously.

`<number>`

Plays the multimedia only the specified number of times.

CAUTION: Whether the setting is effective or not depends on the multimedia data, the viewer or the player. This setting is invalid with the rich media.

This property is not available with **AH Formatter V7.1 Lite**.

axf:media-duration / CSS -ah-media-duration no-LT

Specifies the duration of a time period of the multimedia.

Value:	intrinsic | infinity | <number>
Initial:	intrinsic

Applies to: fo:external-graphic / multimedia objects
Inherited: no
Percentages: N/A

Values have the following meanings:

`intrinsic`

Plays the multimedia only the period of time that the resource has.

`infinity`

Plays the multimedia indefinitely.

`<number>`

Plays the multimedia only the specified period of time. The value is the number of seconds.

This setting is invalid when axf:media-play-mode="once" is specified.

CAUTION: Whether the setting is effective or not depends on the multimedia data, the viewer or the player. This setting is invalid with the rich media.

This property is not available with **AH Formatter V7.1 Lite**.

axf:media-extraction-policy / CSS -ah-media-extraction-policy no-LT

Specifies whether the creation of temporary files is allowed or not when playing the multimedia.

Value: tempnever | tempextract | tempaccess | tempalways
Initial: tempaccess
Applies to: fo:external-graphic / multimedia objects
Inherited: no
Percentages: N/A

Values have the following meanings:

`tempnever`

The creation of temporary files is not allowed.

`tempextract`

Only when the “copy of the contents” is given to the user right to access PDF, the creation of temporary files is allowed.

`tempaccess`

Only when the “content extraction for accessibility” is given to the user right to access PDF, the creation of temporary files is allowed.

`tempalways`

The creation of temporary files is always allowed.

CAUTION: Whether the setting is effective or not depends on the multimedia data, the viewer or the player. This setting is invalid with the rich media.

This property is not available with **AH Formatter V7.1 Lite**.

axf:media-activation / CSS -ah-media-activation no-LT

Specifies when to activate / deactivate the rich media.

Value: [ExplicitlyActivated | PageOpen | PageVisible]? [ExplicitlyDeactivated | PageClose | PageInvisible]?
Initial: empty
Applies to: fo:external-graphic / multimedia objects
Inherited: no
Percentages: N/A

Values have the following meanings (values are case insensitive, values other than these are ignored):

`ExplicitlyActivated`

Activates when the content is clicked. It can be abbreviated as `XA`.

`PageOpen`

Activates when the page containing the content is opened. It can be abbreviated as `PO`.

`PageVisible`

Activates when the page containing the content is displayed. It can be abbreviated as `PV`.

`ExplicitlyDeactivated`

Deactivates when “Disable Content” is selected from the context menu. It can be abbreviated as `XD`.

`PageClose`

Dectivates when the page containing the content is closed. It can be abbreviated as `PC`.

`PageInvisible`

Deactivates when the page containing the content is not displayed. It can be abbreviated as `PI`.

If omitted, it is considered `ExplicitlyActivated ExplicitlyDeactivated`. This setting is effective when Rich media is activated.

This property is not available with **AH Formatter V7.1 Lite**.

axf:media-skin-control / CSS -ah-media-skin-control no-LT

Specifies the skin control of the rich media.

Value:	none | all | [play || stop || forward || rewind || seek || mute || volume]
Initial:	all
Applies to:	fo:external-graphic / multimedia objects
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`none`

No controls are displayed.

`all`

All controls are displayed.

`play`

The playback control is displayed.

`stop`

The stop control is displayed.

`forward`

The fast-forward control is displayed.

`rewind`

The rewind control is displayed.

`seek`

The seek control is displayed.

`mute`

The mute control is displayed.

`volume`

The volume control is displayed.

Other controls may be displayed automatically to display a certain control. This setting is effective when the Rich media is activated.

This property is not available with **AH Formatter V7.1 Lite**.

axf:media-skin-color / CSS -ah-media-skin-color no-LT

Specifies the skin color of the rich media.

Value:	auto | <color>
Initial:	auto
Applies to:	fo:external-graphic / multimedia objects
Inherited:	no
Percentages:	N/A

When the color does not contain the α value, the default α value is adopted. When α value is specified, that value is adopted. This setting is effective when the Rich media is activated.

This property is not available with **AH Formatter V7.1 Lite**.

axf:media-skin-auto-hide / CSS -ah-media-skin-auto-hide no-LT

Specifies whether to automatically hide rich media skins or not.

Value:	true | false
Initial:	true
Applies to:	fo:external-graphic / multimedia objects
Inherited:	no
Percentages:	N/A

This setting is effective when the Rich media is activated.

This property is not available with **AH Formatter V7.1 Lite**.

axf:media-window-width / CSS -ah-media-window-width no-LT

Specifies the width of the rich media window.

Value:	auto | <length>
Initial:	auto
Applies to:	fo:external-graphic / multimedia objects
Inherited:	no
Percentages:	N/A

Specifies the width of the window when axf:multimedia-treatment="richmedia-windowed" is specified. This setting is effective when the Rich media is activated.

This property is not available with **AH Formatter V7.1 Lite**.

axf:media-window-height / CSS -ah-media-window-height no-LT

Specifies the height of the rich media window.

Value:	auto | <length>
Initial:	auto
Applies to:	fo:external-graphic / multimedia objects
Inherited:	no
Percentages:	N/A

Specifies the height of the window when axf:multimedia-treatment="richmedia-windowed" is specified. This setting is effective when the Rich media is activated.

This property is not available with **AH Formatter V7.1 Lite**.

axf:media-flash-vars / CSS -ah-media-flash-vars no-LT

Specifies the variable when embedding Flash in the rich media.

Value:	<string>
Initial:	empty string
Applies to:	fo:external-graphic / multimedia objects
Inherited:	no
Percentages:	N/A

This setting is effective when embedding Flash in the Rich media.

CAUTION: Even if there are some errors in the described content, these are not detected and output to PDF as is.

This property is not available with **AH Formatter V7.1 Lite**.

axf:media-flash-context-menu / CSS -ah-media-flash-context-menu no-LT

Specifies whether to display the context menu of Flash When embedding Flash in the rich media.

Value:	true | false
Initial:	false
Applies to:	fo:external-graphic / multimedia objects
Inherited:	no
Percentages:	N/A

This setting is effective when embedding Flash in the Rich media

This property is not available with **AH Formatter V7.1 Lite**.

axf:media-transparent-background / CSS -ah-media-transparent-background no-LT

Specifies whether to make the background transparent when embedding Flash in the rich media.

Value:	true | false
Initial:	true
Applies to:	fo:external-graphic / multimedia objects
Inherited:	no
Percentages:	N/A

This setting is effective when embedding Flash in the Rich media.

This property is not available with **AH Formatter V7.1 Lite**.

Background Extensions

Extended so that multiple background images can be specified.

In FO, **AH Formatter V7.1** provides extension properties to set the background of the page. These properties are placed as `<fo:simple-page-master>` or `<fo:page-sequence>`. If any one of background-* is specified for `<fo:simple-page-master>`, the setting of the background to `<fo:simple-page-master>` is effective, the setting of the background to `<fo:page-sequence>` is ignored.

background / CSS (-ah-)background

This property is a shorthand of background-*. [CSS3-Background] Backgrounds Shorthand: the ‘background’ property

Value:	[<bg-layer>,]* <final-bg-layer>
Initial:	see individual properties
Applies to:	fo:simple-page-master, fo:page-sequence, all formatting objects
Inherited:	no
Percentages:	N/A

<bg-layer>	=	<background-image> || <background-position> [/ <background-size>]? || <background-repeat> || <background-attachment> || <background-clip> || <background-origin>

<final-bg-layer> = <bg-layer> || <background-color>

background-color / CSS background-color

Value: <color>
Initial: transparent
Applies to: fo:simple-page-master, fo:page-sequence, all formatting objects
Inherited: no
Percentages: N/A

background-image / CSS (-ah-)background-image

[CSS3-Background] Image Sources: the 'background-image' property

Value: [<uri-specification> | none]#
Initial: none
Applies to: fo:simple-page-master, fo:page-sequence, all formatting objects
Inherited: no
Percentages: N/A

background-repeat / CSS (-ah-)background-repeat

The following bold value is extended. [CSS3-Background] Tiling Images: the 'background-repeat' property

Value: [repeat-x | repeat-y | **paginate** | [repeat | space | round | no-repeat]{1,2}]#
Initial: repeat
Applies to: fo:simple-page-master, fo:page-sequence, all formatting objects
Inherited: no
Percentages: N/A

Extended values have the following meanings.

`paginate` no-LT

Effective when embedding PDF in the background image and indicates to embed multiple pages of PDF. For more details, see also PDF Embedding. For other than PDF, it's considered `no-repeat`. In case of CSS, it's effective when specified to `@page`. This value cannot be specified by **AH Formatter V7.1 Lite**.

background-attachment / CSS (-ah-)background-attachment

[CSS3-Background] Affixing Images: the 'background-attachment' property

Value: [scroll | fixed | local]#
Initial: scroll
Applies to: fo:simple-page-master, fo:page-sequence, all formatting objects
Inherited: no
Percentages: N/A

background-position / CSS (-ah-)background-position

[CSS3-Background] Positioning Images: the 'background-position' property

Value: [[<percentage> | <length> | left | center | right | top | bottom]{1,2}]#
Initial: 0%
Applies to: fo:simple-page-master, fo:page-sequence, all formatting objects
Inherited: no
Percentages: refer to the size of the padding-rectangle

background-position in FO is a shorthand. It is expanded to background-position-horizontal and background-position-vertical.

background-position-horizontal

Value: [<percentage> | <length> | left | center | right]#
Initial: 0%
Applies to: fo:simple-page-master, fo:page-sequence, all formatting objects
Inherited: no
Percentages: refer to the size of the padding-rectangle

background-position-vertical

Value: [<percentage> | <length> | top | center | bottom]#
Initial: 0%
Applies to: fo:simple-page-master, fo:page-sequence, all formatting objects
Inherited: no
Percentages: refer to the size of the padding-rectangle

axf:background-clip / CSS (-ah-)background-clip

[CSS3-Background] Painting Area: the ‘background-clip’ property

Value: [border-box | padding-box | content-box]#
Initial: padding-box (XSL) / border-box (CSS)
Applies to: fo:simple-page-master, fo:page-sequence, all formatting objects
Inherited: no
Percentages: N/A

axf:background-origin / CSS (-ah-)background-origin

[CSS3-Background] Positioning Area: the ‘background-origin’ property

Value: [border-box | padding-box | content-box]#
Initial: padding-box
Applies to: fo:simple-page-master, fo:page-sequence, all formatting objects
Inherited: no
Percentages: N/A

axf:background-size / CSS (-ah-)background-size

[CSS3-Background] Sizing Images: the ‘background-size’ property

Value: [[<length> | <percentage> | auto]{1,2} | cover | contain]#
Initial: auto
Applies to: fo:simple-page-master, fo:page-sequence, all formatting objects
Inherited: no
Percentages: see text

axf:background-content-type / CSS -ah-background-content-type

Specifies the content type of a background image.

Value: [<string> | auto]#
Initial: auto
Applies to: fo:simple-page-master, fo:page-sequence, all formatting objects
Inherited: no
Percentages: N/A

axf:background-image-resolution / CSS -ah-background-image-resolution

Specifies the resolution of a background image.

Value: [normal | [from-image || <dpi>]]#
Initial: from-image (XSL) / normal (CSS)
Applies to: fo:simple-page-master, fo:page-sequence, all formatting objects
Inherited: no
Percentages: N/A

Values have the following meanings:

`normal`

Depends on the default value of the system. It's the value specified as pxpi in the Option Setting File. Ignores the actual resolution of an image.

`from-image`

Uses the actual resolution of an image. When an image does not have the resolution, it will follow the `<dpi>` specification. If nothing is specified, it is the same as `normal`.

`<dpi>`

Specifies the resolution (dpi) Ignores the actual resolution of an image.

The resolution of a non-background image is specified by axf:image-resolution. In case of vector images, such as SVG, it is applied to numerical values with no units. `from-image` is ignored.

Overflow Extensions

AH Formatter V7.1 extends the value of the overflow property and provides the extension properties to regulate the behavior of the value. There are also properties that are extended/restricted in order to make the extended value of the overflow property correspond to the overflow-related property, which is not the proprietary extension of **AH Formatter V7.1**.

overflow

The following bold values are extended.

Value: visible | hidden | ~~scroll~~ | error-if-overflow | repeat | **replace** | **condense** | auto

Values have the following meanings:

`replace`

The string specified by axf:overflow-replace is repeated in a full area. When the specified string is empty, the string of the area is replaced with an empty string. The original string is discarded.

`condense`

Condenses the overflowed text within the region. How to condense the text can be specified by axf:overflow-condense.

These values are applied to `<fo:block-container>` or `<fo:inline-container>` only. When blocks with overflow="condense" are nested, the inner block is not affected by the outer block. For example, when the inner block is condensed with `font-stretch`, the inside `font-size` does not change even if the outer block is condensed with `font-size`.

CAUTION: `scroll` is not supported.

axf:overflow-align / CSS -ah-overflow-align

Specifies the alignment of the overflowed block.

Value: normal | start | end | center
Initial: normal
Applies to: block-level formatting objects
Inherited: yes
Percentages: N/A

Values have the following meanings:

`normal`

Specifies the alignment of the block according to the text-align setting.

`start`

Specifies the alignment of the block to the start side.

`end`

Specifies the alignment of the block to the end side.

`center`

Specifies the block to center aligned.

This setting is invalid when overflow="condense" is specified.

axf:overflow-condense / CSS -ah-overflow-condense

Specifies how to condense the overflowed text within the region.

Value:	[font-size | font-stretch | line-height | letter-spacing]+ | auto | none
Initial:	auto
Applies to:	all block-level formatting objects
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`font-size`

Condenses the text by adjusting the font size.

`font-stretch`

Condenses the text by adjusting the font width.

`line-height`

Condenses the text by adjusting the line height. There is no condensing process that makes line-height negative.

`letter-spacing`

Condenses the text by adjusting the letter spacing.

> **CAUTION:** Condensing process by specifying `letter-spacing` may cause overlapping characters. The display position of characters may also be reversed. We recommend that you avoid extreme condensing process with axf:overflow-condense-limit-letter-spacing.

`auto`

It is considered `font-size` for the condensing process in the block, `font-stretch` for the condensing process in inline.

`none`

Specifies not to condense the text. This can also be specified to the inline element and is not inherited.

When overflow="condense" is specified, the text within the region can be condensed by the way specified in the axf:overflow-condense property. The adjustment for condensing the text includes both the inline progression direction and the block progression direction. There is a difference in the condensing process between inline and block. Inline condensing process occurs by specifying `<fo:inline-container>`, and block condensing process occurs by specifying `<fo:block-container>`.

For example, if there is an absolute value setting such as font-size="20pt" internally, the size setting will not be changed by the condensing process with `font-size`. The same is true for other `font-stretch` and `line-height`.

text-align-last="justify" may be set when the condensing process by `font-size` or `font-stretch` in a block occurs. See axf:condensed-text-align-last.

You can specify multiple methods, such as axf:overflow="font-size font-stretch". In this example, if condensing process by `font-size` does not resolve the overflow, condensing process by `font-stretch` will continue to be attempted. V7.1

axf:overflow-condense-limit-font-size / CSS -ah-overflow-condense-limit-font-size

Specifies the lower limit font size when axf:overflow-condense="font-size" is specified.

Value:	none | [<length> [visible | hidden | error-if-overflow | repeat]?]
Initial:	none
Applies to:	all block-level formatting objects
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`none`

It is considered that 0 is specified.

`<length>`

Specifies the lower limit font size. A font is not made smaller than that value. If you specify less than 0, it is considered that 0 is specified.

When the content exceeds the limit shown by `<length>`, the region still overflows. Then a solution can be specified as follows:

```
axf:overflow-condense-limit-font-size="4pt hidden"
```

However, it is ignored when the following condensing method is specified in axf:overflow-condense. V7.1

CAUTION: When overflow cannot be resolved, such as when there is not enough block height or a large image is included, the condensing process may be terminated before reaching the lower limit value. V7.1

axf:overflow-condense-limit-font-stretch / CSS -ah-overflow-condense-limit-font-stretch

Specifies the lower limit value when axf:overflow-condense="font-stretch" is specified.

Value:	none | [[<number> | <percentage>] [visible | hidden | error-if-overflow | repeat]?]
Initial:	none
Applies to:	all block-level formatting objects
Inherited:	yes
Percentages:	refer to the font size

Values have the following meanings:

`none`

It is considered that 0 is specified.

`<percentage>`

Specifies the percentage against the lower limit font width. A font size is not made smaller than that value. If you specify less than 0, it is considered that 0 is specified.

`<number>`

Equivalent to (`<number>` / 100)%.

When the content exceeds the limit shown by `<percentage>` or `<number>`, the region still overflows. Then a solution can be specified as follows:

```
axf:overflow-condense-limit-font-stretch="30% hidden"
```

However, it is ignored when the following condensing method is specified in axf:overflow-condense. V7.1

CAUTION: When overflow cannot be resolved, such as when there is not enough block height or a large image is included, the condensing process may be terminated before reaching the lower limit value. V7.1

axf:overflow-condense-limit-line-height / CSS -ah-overflow-condense-limit-line-height V7.1

Specifies the lower limit value when axf:overflow-condense="line-height" is specified.

Value: none | [<number> [visible | hidden | error-if-overflow | repeat]?]
Initial: none
Applies to: all block-level formatting objects
Inherited: yes
Percentages: N/A

Values have the following meanings:

`none`

It is considered that 0 is specified.

`<number>`

Specifies the lower limit value of line-height. line-height is not made smaller than that value. The value is a percentage against the font size. If you specify less than 0, it is considered that 0 is specified.

When the content exceeds the limit shown by `<number>`, the region still overflows. Then a solution can be specified as follows:

```
axf:overflow-condense-limit-line-height="1 hidden"
```

However, it is ignored when the following condensing method is specified in axf:overflow-condense.

CAUTION: When overflow cannot be resolved, such as when there is not enough block height or a large image is included, the condensing process may be terminated before reaching the lower limit value. V7.1

axf:overflow-condense-limit-letter-spacing / CSS -ah-overflow-condense-limit-letter-spacing V7.1

Specifies the lower limit value when axf:overflow-condense="letter-spacing" is specified.

Value: none | [<length> [visible | hidden | error-if-overflow | repeat]?]
Initial: none
Applies to: all block-level formatting objects
Inherited: yes
Percentages: N/A

Values have the following meanings:

`none`

It is considered that -1em is specified.

`<length>`

Specifies the lower limit value of letter-spacing. letter-spacing is not made smaller than that value.

When the content exceeds the limit shown by `<length>`, the region still overflows. Then a solution can be specified as follows:

```
axf:overflow-condense-limit-letter-spacing="-0.2em hidden"
```

However, it is ignored when the following condensing method is specified in axf:overflow-condense.

CAUTION: When overflow cannot be resolved, such as when there is not enough block height or a large image is included, the condensing process may be terminated before reaching the lower limit value. V7.1

axf:overflow-replace / CSS -ah-overflow-replace

Specifies an alternative character string for the overflowed text.

Value: <string>
Initial: empty string
Applies to: all block-level formatting objects
Inherited: yes
Percentages: N/A

When overflow="replace" is specified, the overflowed text is replaced by repeating the specified string. A complex character string cannot be specified.

axf:overflow-limit / CSS -ah-overflow-limit no-LT

Specifies the overflow limit value.

Value:	<length>{1,2}
Initial:	depends on system
Applies to:	all formatting objects
Inherited:	yes
Percentages:	N/A

Specifies the overflow limit value with `<length>`. If a single `<length>` value is specified, it gives both the inline and block overflow limit values. If two `<length>` values are specified, the first gives the inline overflow limit value and the second gives the block overflow limit value. Negative values are invalid.

When overflow="error-if-overflow" is specified, overflows greater than the overflow limit value are reported as error level 2 (warning) and smaller overflows are reported as error level 1 (information).

The initial values of the overflow limit can be set by overflow-limit-inline and overflow-limit-block in the Option Setting File.

This is a shorthand property for setting axf:overflow-limit-inline and axf:overflow-limit-block.

This property is not available with **AH Formatter V7.1 Lite**.

axf:overflow-limit-inline / CSS -ah-overflow-limit-inline no-LT

Specifies the inline overflow limit value.

Value:	<length>
Initial:	depends on system
Applies to:	all formatting objects
Inherited:	yes
Percentages:	N/A

Specifies the inline overflow limit value with `<length>`. Negative values are invalid.

For more details, see axf:overflow-limit.

This property is not available with **AH Formatter V7.1 Lite**.

axf:overflow-limit-block / CSS -ah-overflow-limit-block no-LT

Specifies the block overflow limit value.

Value:	<length>
Initial:	depends on system
Applies to:	all formatting objects
Inherited:	yes
Percentages:	N/A

Specifies the block overflow limit value with `<length>`. Negative values are invalid.

For more details, see axf:overflow-limit.

This property is not available with **AH Formatter V7.1 Lite**.

axf:text-overflow / CSS (-ah-)text-overflow no-LT

Specifies the display method at the end of the content when overflowing in the inline progression direction. [CSS3-UI] Overflow Ellipsis: the ‘text-overflow’ property

Value:	clip | ellipsis | <string>
Initial:	clip
Applies to:	block level elements
Inherited:	no
Percentages:	N/A

This feature is effective only when overflow="hidden" is specified.

Values have the following meanings:

`clip`

When overflowing in the inline progression direction, no processing is performed.

`ellipsis`

When overflowing in the inline progression direction, narrow the display area by the extent that the ellipsis (U+2026) is entered, and then insert the ellipsis at the end.

`<string>`

When overflowing in the inline progression direction, narrow the display area by the intent that the character string is entered. and then insert the specified character string at the end.

It has no effect on the overflow in the block progression direction.

When overflowing with only the first one character (or an object such as the first image), an ellipsis (abbreviated character string) is not added and it is treated as `clip`.

If the first one character (or an object such as the first image) does not overflow, but if it overflows when an ellipsis (abbreviated character string) is attached, the ellipsis (abbreviated character string) is also displayed.

This property is not available with **AH Formatter V7.1 Lite**.

axf:keep-together-within-dimension / CSS -ah-keep-together-within-dimension no-LT

Specifies the upper limit height of the keep-together condition.

Value:	all | <length>
Initial:	all
Applies to:	block level formatting object
Inherited:	no
Percentages:	N/A

If keep-together.within-page or .within-column or CSS `break-inside` is not `auto`, you can specify the height for keep-together to apply to that block. When it is `all`, the height is not restricted. If you specify a height with `<length>`, keep-together will be applied to that height, but after that it behaves as if `auto` was specified for keep-together. For example, if you want to specify keep-together.within-page="always" for a block, but want to break it if it is a block that exceeds the height of the page, specify as follows:

```
<fo:block keep-together.within-page="always" axf:keep-together-within-dimension="100vh">
```

This property is not available with **AH Formatter V7.1 Lite**.

axf:keep-together-within-inline-dimension / CSS -ah-keep-together-within-inline-dimension V7.1 no-LT

Specifies the upper limit width of the keep-together.within-line condition.

Value:	all | <length>
Initial:	all
Applies to:	block level formatting object
Inherited:	no
Percentages:	N/A

When keep-together.within-line is not `auto`, you can specify the width to apply keep-together.within-line to the block. When `all` is specified, the width is not limited. If you specify a width with `<length>`, keep-together is applied up to that width, but for a width longer than that, keep-together behaves as if `auto` is specified.

This property is not available with **AH Formatter V7.1 Lite**.

axf:condensed-text-align-last / CSS -ah-condensed-text-align-last V7.1 no-LT

Specifies whether to set text-align-last="justify" automatically after condensing the overflow.

Value:	false | true | justify | auto

Initial:	auto
Applies to:	all block-level formatting objects
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`false`

Does nothing.

`true`

Sets text-align-last="justify".

`justify`

Sets text-align-last="justify" when text-align="justify" is specified. Whether or not text-align="justify" is determined by whether or not the element with the overflow="condense" specified is text-align="justify".

`auto`

Follows the setting of condensed-text-align-last in the Option Settings File.

This feature is only available when:

- Condensing in the block progression dimension.
- `font-size` or `font-stretch` condensing is occurring by axf:overflow-condense.
- text-align-last is not explicitly specified.

This property is not available with **AH Formatter V7.1 Lite**.

axf:inline-overflow-align / CSS -ah-inline-overflow-align V7.1 no-LT

Makes adjustments when the blocks in `<fo:inline-container>` overflow.

Value:	normal | start | end | left | right
Initial:	normal
Applies to:	fo:inline-container
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`normal`

Does nothing. axf:inline-overflow-align is invalid.

`start`
`end`
`left`
`right`

Shifts the blocks on the specified side of the reference area that contains `<fo:inline-container>`.

This property is not available with **AH Formatter V7.1 Lite**.

Extended Applies

AH Formatter V7.1 has properties and elements whose applicable targets are extended.

<fo:page-sequence>

Nested <fo:page-sequence> no-LT

Extends so that `<fo:page-sequence>` can be nested and described as a child element of `<fo:flow>`.

For instance:

```
<fo:page-sequence><!--A-->
 <elements><!--B-->
 <fo:flow><!--F-->
  <elements><!--C-->
  <fo:page-sequence><!--P-->
  ...
  </fo:page-sequence>
  <elements><!--D-->
 </fo:flow>
</fo:page-sequence>
```

The structure above is processed as below:

```
<fo:page-sequence><!--A-->
 <elements><!--B-->
 <fo:flow><!--F-->
  <elements><!--C-->
 </fo:flow>
</fo:page-sequence>
<fo:page-sequence><!--P-->
 ...
</fo:page-sequence>
<fo:page-sequence><!--A-cloned-->
 <elements><!--B-cloned-->
 <fo:flow><!--F-cloned-->
  <elements><!--D-->
 </fo:flow>
</fo:page-sequence>
```

Note the following:

- If `<elements><!--D-->` is not given, `<fo:page-sequence><!--A-cloned-->` will not be generated; however, `<fo:page-sequence><!--A-->` will be generated even if `<elements><!--C-->` is not given.
- Even if `<fo:page-sequence><!--A-->` has a setting of Multiple Separate Volume, no separate volumes will occur with `<fo:page-sequence><!--A-cloned-->`.
- If an element which contains id is copied, the id will be discarded.
- This structure cannot be applied to `<fo:page-sequence-wrapper>`.
- The nested `<fo:page-sequence>` will try to read all the FO trees; therefore, note that the memory may reach the limit or similar things may happen if a large `<fo:page-sequence>` is nested.

Empty <fo:page-sequence> no-LT

`<fo:flow>` can be omitted. This means that `<fo:page-sequence>` can be empty.

Contents
(`fo:title`?,`fo:folio-prefix`?,`fo:folio-suffix`?,`fo:static-content`*,`fo:flow`*)

When force-page-count in `<fo:page-sequence>` is other than `no-force`, `<fo:flow>` can be omitted. This will allow adjustment of the page number on a certain page. For instance, when the last `<fo:page-sequence>` is indeterminate and you want to make the total page number even, a blank page can be used to insert `<fo:page-sequence>` like

```
<fo:page-sequence
  master-reference="blank"
  force-page-count="document 2"
/>
```

in the last page of the document.

<fo:change-bar-begin>

Extends the child element so that `<fo:float>` can be described as the content of the element. As a result, arbitrary characters can be placed for side marks. ☞ Float Extension no-LT

```
<fo:change-bar-begin change-bar-class="xxx">
<fo:float float="start">
```

```
<fo:block-container width="2.5em" absolute-position="absolute" left="-4em">
<fo:block font-size="12pt">This is a change log.</fo:block>
</fo:block-container>
</fo:float>
</fo:change-bar-begin>
```

The following properties specified in `<fo:float>` are adjusted to appropriate values:

- axf:float-x
- axf:float-y
- axf:float-reference
- axf:float-move

This extension is not available with **AH Formatter V7.1 Lite**.

Extended Values

AH Formatter V7.1 extends some values of the FO properties. In order to use these values, you have to specify exactly as follows:

```
axf:overflow="condense"
```

However, with **AH Formatter V7.1**, even if axf: is not added, it is made so that it may function similarly. Moreover, the FO standard property and the extended property can be specified simultaneously as follows:

```
overflow="hidden" axf:overflow="condense"
```

At this time, the standard property will be overwritten by the extended property and only axf:overflow="condense" becomes effective. That is, it is the same as having overflow="condense" specified. However, in order to avoid the confusion, do not use such specification.

display-align / CSS -ah-display-align

The following bold value is extended.

Value: auto | before | center | after | **justify**

Values have the following meanings:

`justify`

Justifies the text to block-progression dimension by adjusting the space between lines.

font-size-adjust / CSS (-ah-)font-size-adjust

The following bold value is extended. [CSS3-Fonts] Relative sizing: the font-size-adjust property

Value: none | <number> | **<string>**

Values have the following meanings:

`<string>`

Considers a character string as a font name and acquires the x-height value of the font. When a font does not exist or it does not have x-height information, it is considered `none`.

font-stretch / CSS (-ah-)font-stretch

The following bold values are extended. [CSS3-Fonts] Font width: the font-stretch property

Value: normal | wider | narrower | ultra-condensed | extra-condensed | condensed | semi-condensed | semi-expanded | expanded | extra-expanded | ultra-expanded | **<percentage>** | **<number>**

Values have the following meanings:

`<percentage>`

Specifies the percentage against the font width.

`<number>`

Equivalent to (`<number>` / 100)%.

font-variant / CSS (-ah-)font-variant

The following bold values are extended. [CSS3-Fonts] Overall shorthand for font rendering: the font-variant property

Value: normal | **none** | [**<font-variant-caps>** || **<font-variant-numeric>** || **<font-variant-alternates>** || **<font-variant-ligatures>** || **<font-variant-position>** || **<font-variant-east-asian>**]

<font-variant-caps>	=	small-caps | **all-small-caps** | **petite-caps** | **all-petite-caps** | **titling-caps** | **unicase**
<font-variant-numeric>	=	**<numeric-figure-values>** || **<numeric-spacing-values>** || **<numeric-fraction-values>** || **ordinal** || **slashed-zero**
<numeric-figure-values>	=	**lining-nums** | **oldstyle-nums**
<numeric-spacing-values>	=	**proportional-nums** | **tabular-nums**
<numeric-fraction-values>	=	**diagonal-fractions** | **stacked-fractions**
<font-variant-alternates>	=	**historical-forms** | **stylistic(<number>)** | **swash(<number>)** | **ornament(<number>)** | **annotation(<number>)** | **styleset(<number>#)** | **character-variant(<number>#)**
<font-variant-ligatures>	=	**<common-lig-values>** || **<discretionary-lig-values>** || **<historical-lig-values>** || **<contextual-alt-values>**
<common-lig-values>	=	**common-ligatures** | **no-common-ligatures**
<discretionary-lig-values>	=	**discretionary-ligatures** | **no-discretionary-ligatures**
<historical-lig-values>	=	**historical-ligatures** | **no-historical-ligatures**
<contextual-alt-values>	=	**contextual** | **no-contextual**
<font-variant-position>	=	**sub** | **super**
<font-variant-east-asian>	=	**<east-asian-variant-values>** || **<east-asian-width-values>** || **ruby**
<east-asian-variant-values>	=	**jis78** | **jis83** | **jis90** | **jis04** | **hojo-kanji** | **nlckanji** | **simplified** | **traditional**
<east-asian-width-values>	=	**full-width** | **half-width** | **third-width** | **quarter-width** | **proportional-width**

These are achieved by using the GSUB feature of OpenType fonts. `small-caps` and `all-small-caps` are emulated to the fonts which don't have the GSUB feature. The other is disregarded.

CAUTION: In the CSS specification, `font-variant` is a shorthand, but it's not available to specify individual property (`font-variant-caps` or `font-variant-ligatures`, etc.) by **AH Formatter V7.1**.

force-page-count / CSS -ah-force-page-count

The following bold values are extended.

Value: auto | even | odd | **doubly-even** | end-on-even | end-on-odd | **end-on-doubly-even** | **even-document** | **odd-document** | **doubly-even-document** | **[end-on | document]? <number> <number>?** | no-force

Values have the following meanings:

`doubly-even`

Force an doubly-even number of pages in this page-sequence.

`end-on-doubly-even`

Force the last page in this page-sequence to be an doubly-even-page.

`even-document`

Force the number of pages counted from the document head to be an even number.

`odd-document`

Force the number of pages counted from the document head to be an odd number.

`doubly-even-document`

Force the number of pages counted from the document head to be an doubly-even number.

`[ end-on | document ]? <number> <number>?` no-LT

Suppose that the first `<number>` is A, the next `<number>` is B, the number of pages of specified page-sequence is set as a multiple number of A + B. A must be an integer greater than or equal to 1, B must be an integer greater than or equal to 0 and less than A. When B is omitted, it is considered 0. when `end-on` was specified, the page number of the last page of the specified page-sequence is applied. When `document` is specified, the number of the page counted from the beginning of the document is applied. For example (assuming 5 pages of content in a page sequence):

- force-page-count="even"
  equivalent to force-page-count="2"
- force-page-count="odd"
  equivalent to force-page-count="2 1"
- force-page-count="doubly-even"
  equivalent to force-page-count="4"
- force-page-count="end-on-doubly-even"
  equivalent to force-page-count="end-on 4"
- force-page-count="end-on 2"
  total number of pages is 6 with 1 blank page
- force-page-count="end-on 4"
  total number of pages is 8 with 3 blank page
- force-page-count="end-on 4 1"
  total number of pages is 5 with 0 blank pages
- force-page-count="end-on 4 3"
  total number of pages is 7 with 2 blank pages
- force-page-count="end-on 6 5"
  total number of pages is 5 with 0 blank pages
- force-page-count="end-on 6 4"
  total number of pages is 10 with 5 blank pages

In CSS, this property is evaluated when specified to `@page`.

This property is not available with **AH Formatter V7.1 Lite** CSS.

format

The format tokens for the format property supports the format tokens defined in the XSLT 1.0 Recommendation and some extensions. axf:column-number-format is also the same.

- The style that can be specified with `list-style-type` can be specified here. no-LT
- Numerals

  Regular decimal representation of the numbers is generated. The minimum number of figures can be specified as 01, 001, etc. The following numbers can be specified as a format token.

Format Token		Digits	Description
1	0		
U+0031	U+0030	0 1 2 3 4 5 6 7 8 9	DIGIT
U+00B9	U+2070	⁰ ¹ ² ³ ⁴ ⁵ ⁶ ⁷ ⁸ ⁹	SUPERSCRIPT DIGIT
U+0661	U+0660	٠ ١ ٢ ٣ ٤ ٥ ٦ ٧ ٨ ٩	ARABIC-INDIC DIGIT
U+06F1	U+06F0	۰ ۱ ۲ ۳ ۴ ۵ ۶ ۷ ۸ ۹	EXTENDED ARABIC-INDIC DIGIT
U+0967	U+0966	० १ २ ३ ४ ५ ६ ७ ८ ९	DEVANAGARI DIGIT
U+09E7	U+09E6	০ ১ ২ ৩ ৪ ৫ ৬ ৭ ৮ ৯	BENGALI DIGIT
U+0A67	U+0A66	੦ ੧ ੨ ੩ ੪ ੫ ੬ ੭ ੮ ੯	GURMUKHI DIGIT
U+0AE7	U+0AE6	૦ ૧ ૨ ૩ ૪ ૫ ૬ ૭ ૮ ૯	GUJARATI DIGIT
U+0B67	U+0B66	୦ ୧ ୨ ୩ ୪ ୫ ୬ ୭ ୮ ୯	ORIYA DIGIT

Format Token		Digits	Description
1	0		
U+0BE7	U+0BE6	௦ ௧ ௨ ௩ ௪ ௫ ௬ ௭ ௮ ௯	TAMIL DIGIT
U+0C67	U+0C66	౦ ౧ ౨ ౩ ౪ ౫ ౬ ౭ ౮ ౯	TELUGU DIGIT
U+0CE7	U+0CE6	೦ ೧ ೨ ೩ ೪ ೫ ೬ ೭ ೮ ೯	KANNADA DIGIT
U+0D67	U+0D66	൦ ൧ ൨ ൩ ൪ ൫ ൬ ൭ ൮ ൯	MALAYALAM DIGIT
U+0E51	U+0E50	๐ ๑ ๒ ๓ ๔ ๕ ๖ ๗ ๘ ๙	THAI DIGIT
U+0ED1	U+0ED0	๐ ๑ ๒ ๓ ๔ ๕ ๖ ๗ ๘ ๙	LAO DIGIT
U+1041	U+1040	๐ ๑ ๒ ๓ ๔ ๕ ๖ ๗ ๘ ๙	MYANMAR DIGIT
U+17E1	U+17E0	០ ១ ២ ៣ ៤ ៥ ៦ ៧ ៨ ៩	KHMER DIGIT
U+4E00	U+3007	〇 一 二 三 四 五 六 七 八 九	CJK IDEOGRAPH DIGIT
U+C77C	U+C601	영 일 이 삼 사 오 육 칠 팔 구	HANGUL DIGIT
U+FF11	U+FF10	０ １ ２ ３ ４ ５ ６ ７ ８ ９	FULLWIDTH DIGIT

- Roman Numerals

  Regular expressions of Roman numeral, such as `I II III IV V VI VII VIII IX X ...`, is generated.

Format Token	Numerals	Description
U+0049 (I)	I V X L C D M Ⅾ ↀ	LATIN CAPITAL LETTER I
U+0069 (i)	i v x l c d m	LATIN SMALL LETTER I
U+2160 (I)	I V X L C D M Ⅾ ↀ	ROMAN NUMERAL ONE
U+2170 (i)	i v x l c d m	SMALL ROMAN NUMERAL ONE
U+FF29 (Ｉ)	Ｉ Ｖ Ｘ Ｌ Ｃ Ｄ Ｍ Ⅾ ↀ	FULLWIDTH LATIN CAPITAL LETTER I
U+FF49 (ｉ)	ｉ ｖ ｘ ｌ ｃ ｄ ｍ	FULLWIDTH LATIN SMALL LETTER I

  Numerical values with upper case up to 39999 and numerical values with lower case up to 3999 can be expressed.

- Hebrew Numerals

  Regular expressions of Hebrew numeral, such as א ב ג ד ה ... י יא יב יג יד טו ..., is generated.

Format Token	Numerals	Description
U+05D0 (א)	א ב ג ד ה ו ז ח ט י כ ל מ נ ס ע פ צ ק ר ש ת ך ם ן ף ץ	HEBREW LETTER ALEF

  The specification of the grouping-separator and grouping-size properties are ignored and always considered grouping-separator=" " grouping-size="3". The way of the conversion is different from when format="hebrew" is specified.

- Armenian Numerals

  Formats Armenian numerals. It's available to express up to 99999999.

Format Token	Numerals	Description
U+0531 (Ա)	Ա Բ Գ Դ Ե Զ Է Ը Թ Ժ Ի Լ Խ Ծ Կ Հ Ձ Ղ Ճ Մ Յ Ն Շ Ո Չ Պ Ջ Ռ Ս Վ Տ Ր Ց Ւ Փ Ք	ARMENIAN CAPITAL LETTER AYB
U+0561 (ա)	ա բ գ դ ե զ է ը թ ժ ի լ խ ծ կ հ ձ ղ ճ մ յ ն շ ո չ պ ջ ռ ս վ տ ր ց ւ փ ք	ARMENIAN SMALL LETTER AYB

- Georgian Numerals

  Formats Georgian numerals. It's available to express up to 19999.

Format Token	Numerals	Description
U+10D0 (ა)	ა ბ გ დ ე ვ ზ ჱ თ ი კ ლ მ ნ ჲ ო პ ჟ რ ს ტ უ ფ ქ ღ ყ შ ჩ ც ძ წ ჭ ხ ჯ ჰ ჵ ჶ	GEORGIAN LETTER AN

- Alphabets

  Regular expressions of alphabets sequence, such as `A B C ... Z AA AB AC ...`, is generated.

Format Token	Alphabets	Description
U+0041 (A)	A B C D E F G H I J K L M N O P Q R S T U V W X Y Z	LATIN CAPITAL LETTER A
U+0061 (a)	a b c d e f g h i j k l m n o p q r s t u v w x y z	LATIN SMALL LETTER A
U+00C5 (Å)	A B C D E F G H I J K L M N O P Q R S T U V W X Y Z Æ Ø Å	LATIN CAPITAL LETTER A WITH RING ABOVE
U+00E5 (å)	a b c d e f g h i j k l m n o p q r s t u v w x y z æ ø å	LATIN SMALL LETTER A WITH RING ABOVE
U+0391 (Α)	Α Β Γ Δ Ε Ζ Η Θ Ι Κ Λ Μ Ν Ξ Ο Π Ρ Σ Τ Υ Φ Χ Ψ Ω	GREEK CAPITAL LETTER ALPHA
U+03B1 (α)	α β γ δ ε ζ η θ ι κ λ μ ν ξ ο π ρ σ τ υ φ χ ψ ω	GREEK SMALL LETTER ALPHA
U+0410 (А)	А Б В Г Д Е Ж З И К Л М Н О П Р С Т У Ф Х Ц Ч Ш Щ Ы Э Ю Я	CYRILLIC CAPITAL LETTER A
U+0430 (а)	а б в г д е ж з и к л м н о п р с т у ф х ц ч ш щ ы э ю я	CYRILLIC SMALL LETTER A
U+0623 (أ)	أ ب ت ث ج ح خ د ذ ر ز س ش ص ض ط ظ ع غ ف ق ك ل م ن ه و ي	ARABIC LETTER ALEF WITH HAMZA ABOVE
U+3042 (あ)	あ い う え お か き く け こ さ し す せ そ た ち つ て と な に ぬ ね の は ひ ふ へ ほ ま み む め も や ゆ よ ら り る れ ろ わ を ん	HIRAGANA AIUEO
U+3044 (い)	い ろ は に ほ へ と ち り ぬ る を わ か よ た れ そ つ ね な ら む う ゐ の お く や ま け ふ こ え て あ さ き ゆ め み し ゑ ひ も せ す	HIRAGANA IROHA
U+30A2 (ア)	ア イ ウ エ オ カ キ ク ケ コ サ シ ス セ ソ タ チ ツ テ ト ナ ニ ヌ ネ ノ ハ ヒ フ ヘ ホ マ ミ ム メ モ ヤ ユ ヨ ラ リ ル レ ロ ワ ヲ ン	KATAKANA AIUEO
U+30A4 (イ)	イ ロ ハ ニ ホ ヘ ト チ リ ヌ ル ヲ ワ カ ヨ タ レ ソ ツ ネ ナ ラ ム ウ ヰ ノ オ ク ヤ マ ケ フ コ エ テ ア サ キ ユ メ ミ シ ヱ ヒ モ セ ス	KATAKANA IROHA
U+3131 (ㄱ)	ㄱ ㄴ ㄷ ㄹ ㅁ ㅂ ㅅ ㅇ ㅈ ㅊ ㅋ ㅌ ㅍ ㅎ	HANGUL CHOSUNG
U+5B50 (子)	子 丑 寅 卯 辰 巳 午 未 申 酉 戌 亥	CHINESE ZODIAC 12
U+7532 (甲)	甲 乙 丙 丁 戊 己 庚 辛 壬 癸	CHINESE ZODIAC 10
U+AC00 (가)	가 나 다 라 마 바 사 아 자 차 카 타 파 하	HANGUL GANADA
U+FF21 (Ａ)	Ａ Ｂ Ｃ Ｄ Ｅ Ｆ Ｇ Ｈ Ｉ Ｊ Ｋ Ｌ Ｍ Ｎ Ｏ Ｐ Ｑ Ｒ Ｓ Ｔ Ｕ Ｖ Ｗ Ｘ Ｙ Ｚ	FULLWIDTH LATIN CAPITAL LETTER A
U+FF41 (ａ)	ａ ｂ ｃ ｄ ｅ ｆ ｇ ｈ ｉ ｊ ｋ ｌ ｍ ｎ ｏ ｐ ｑ ｒ ｓ ｔ ｕ ｖ ｗ ｘ ｙ ｚ	FULLWIDTH LATIN SMALL LETTER A

Format Token	Alphabets	Description
U+FF71 (ｱ)	ｱ ｲ ｳ ｴ ｵ ｶ ｷ ｸ ｹ ｺ ｻ ｼ ｽ ｾ ｿ ﾀ ﾁ ﾂ ﾃ ﾄ ﾅ ﾆ ﾇ ﾈ ﾉ ﾊ ﾋ ﾌ ﾍ ﾎ ﾏ ﾐ ﾑ ﾒ ﾓ ﾔ ﾕ ﾖ ﾗ ﾘ ﾙ ﾚ ﾛ ﾜ ﾖ ﾝ	HALFWIDTH KATAKANA AIUEO
U+FF72 (ｲ)	ｲ ﾛ ﾊ ﾆ ﾎ ﾍ ﾄ ﾁ ﾘ ﾇ ﾙ ﾖ ﾜ ｶ ﾖ ﾀ ﾚ ｿ ﾂ ﾈ ﾅ ﾗ ﾑ ｳ ﾉ ｵ ｸ ﾔ ﾏ ｹ ﾌ ｺ ｴ ﾃ ｱ ｻ ｷ ﾕ ﾒ ﾐ ｼ ﾋ ﾓ ｾ ｽ	HALFWIDTH KATAKANA IROHA

- Non-repeating

Format Token	Characters	Description
U+2460 (①)	⓪ ① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭ ⑮ ⑯ ⑰ ⑱ ⑲ ⑳	CIRCLED DIGIT ONE 0 to 20 can be expressed.
U+2474 ((1))	⑴ ⑵ ⑶ ⑷ ⑸ ⑹ ⑺ ⑻ ⑼ ⑽ ⑾ ⑿ ⒀ ⒁ ⒂ ⒃ ⒄ ⒅ ⒆ ⒇	PARENTHESIZED DIGIT ONE 1 to 20 can be expressed.
U+2488 (⒈)	⒈ ⒉ ⒊ ⒋ ⒌ ⒍ ⒎ ⒏ ⒐ ⒑ ⒒ ⒓ ⒔ ⒕ ⒖ ⒗ ⒘ ⒙ ⒚ ⒛	DIGIT ONE FULL STOP 1 to 20 can be expressed.
U+249C ((a))	⒜ ⒝ ⒞ ⒟ ⒠ ⒡ ⒢ ⒣ ⒤ ⒥ ⒦ ⒧ ⒨ ⒩ ⒪ ⒫ ⒬ ⒭ ⒮ ⒯ ⒰ ⒱ ⒲ ⒳ ⒴ ⒵	PARENTHESIZED LATIN SMALL LETTER A 1 to 26 can be expressed.
U+24B6 (Ⓐ)	Ⓐ Ⓑ Ⓒ Ⓓ Ⓔ Ⓕ Ⓖ Ⓗ Ⓘ Ⓙ Ⓚ Ⓛ Ⓜ Ⓝ Ⓞ Ⓟ Ⓠ Ⓡ Ⓢ Ⓣ Ⓤ Ⓥ Ⓦ Ⓧ Ⓨ Ⓩ	CIRCLED LATIN CAPITAL LETTER A 1 to 26 can be expressed.
U+24D0 (ⓐ)	ⓐ ⓑ ⓒ ⓓ ⓔ ⓕ ⓖ ⓗ ⓘ ⓙ ⓚ ⓛ ⓜ ⓝ ⓞ ⓟ ⓠ ⓡ ⓢ ⓣ ⓤ ⓥ ⓦ ⓧ ⓨ ⓩ	CIRCLED LATIN SMALL LETTER A 1 to 26 can be expressed.
U+24EB (⓫)	⓫ ⓬ ⓭ ⓮ ⓯ ⓰ ⓱ ⓲ ⓳ ⓴	NEGATIVE CIRCLED NUMBER ELEVEN 11 to 20 can be expressed.
U+24F5 (⑤)	① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑨ ⑩	DOUBLE CIRCLED DIGIT ONE 1 to 10 can be expressed.
U+7532 U+5B50 (甲子)	甲子 乙丑 丙寅 丁卯 戊辰 己巳 庚午 辛未 壬申 癸酉 甲戌 乙亥 丙子 丁丑 戊寅 己卯 庚辰 辛巳 壬午 癸未 甲申 乙酉 丙戌 丁亥 戊子 己丑 庚寅 辛卯 壬辰 癸巳 甲午 乙未 丙申 丁酉 戊戌 己亥 庚子 辛丑 壬寅 癸卯 甲辰 乙巳 丙午 丁未 戊申 己酉 庚戌 辛亥 壬子 癸丑 甲寅 乙卯 丙辰 丁巳 戊午 己未 庚申 辛酉 壬戌 癸亥	CHINESE ZODIAC 60 1 to 60 can be expressed.

- The strings which consist of the same character with 2 or more altogether

  For example, when format="**" is specified, “*” is repeated by the number of numerical values. Up to 999 can be expressed.
- The symbols of all different character with 2 or more altogether

  For example, if format="*†‡" is specified, the following regular expressions will be generated:

  1. “*”
  2. “†”
  3. “‡”
  4. “**”
  5. “††”
  6. “‡‡”
  7. “***”
  8. “†††”
  9. “‡‡‡”

10. ...

Up to 999 can be expressed.

- The character string which does not include symbols, with all different 2 or more characters altogether

  For example, character strings such as "上中下", which means the sequence of “first, second and third classes, etc.”, is considered a format token and generates the sequence of the following regular expressions.

  1. “上”
  2. “中”
  3. “下”
  4. “上上”
  5. “上中”
  6. “上下”
  7. “中上”
  8. ...

internal-destination / CSS -ah-internal-destination

The following bold value is extended. no-LT

Value: <idref> | **<number-with-fragment>** | **<named-action>**

Values have the following meanings:

`<number-with-fragment>`

Effective for the internal link in PDF and indicates the page number of the link destination. This string is simple numeric characters (`<number>`) or the following string that combines numeric characters and a fragment with “#”. See Making Link for fragment.

```
123#zoom=50
```

The page number also can be specified in the fragment.

```
#page=123&zoom=50
```

When the page number is not specified, it is usually considered the 1st page. However, when the top position is specified, it is considered the head of the page of a block where internal-destination is contained. For example, it is specified as follows:

```
#view=fit
#view=fith
#zoom=,,0
```

`<named-action>`

Effective for the internal link in PDF and specifies the PDF Named Action. For example, the following settings are available. Since the specified value is not checked, you can specify arbitrary such as `Print` or `GoBack`, but whether it works or not depends on the PDF viewer.

```
#named=NextPage
#named=PrevPage
#named=FirstPage
#named=LastPage
```

Complex settings in CSS must be specified by character strings.

```
-ah-internal-destination: '#page=123&zoom=50';
```

CAUTION: Note that `<uri-specification>` is the value of external-destination and href, but not for internal-destination.

CAUTION: When href="#123" is specified in HTML, it is an id specification of "123", not a page number. If href-page-link="true" is specified in the Option Setting File, it will be considered a page number specification.

This property is not extended with **AH Formatter V7.1 Lite**.

CSS (-ah-)display

The following bold values are extended. Values with strikethrough are not supported. [CSS3-Box] The ‘display’ property

Value: inline | block | inline-block | list-item | run-in | ~~compact~~ | table | inline-table | table-row-group | table-header-group | table-footer-group | table-row | table-column-group | table-column | table-cell | table-caption | ruby | ruby-base | ruby-text | ~~ruby-base-group~~ | ~~ruby-text-group~~ | ~~<template>~~ | **(-ah-)bidi-override** | **(-ah-)meta** | none

Values have the following meanings:

`(-ah-)bidi-override`

Equivalent to the `<bdo>` element in HTML.

`(-ah-)meta`

It is treated as an element representing the document information. Equivalent to the `<meta>` element in HTML. See also Document Information for PDF Output.
It can be specified for any XML that is not HTML, but it must be before the first page content. The content of the element is discarded.

It cannot be specified for the root element. The following HTML elements are fixed to `display:none`.

- `<head>`
- `<title>`
- `<base>`
- `<link>`
- `<style>`
- `<script>`

The following HTML elements are fixed to `display:-ah-meta`.

- `<meta>`

In HTML, these `display` cannot be changed.

Extended Functions

AH Formatter V7.1 extends some FO functions and CSS functions.

rgb-icc()

The format of the argument which the rgb-icc function can accept is as follows:

- rgb-icc(#Grayscale,<Scale>)
  Specifies Grayscale. The depth in color can be specified by `<Scale>`.
- rgb-icc(<R>,<G>,<B>,#CMYK,<C>,<M>,<Y>,<K>)
- rgb-icc(#CMYK,<C>,<M>,<Y>,<K>)
  Specifies CMYK. When RGB is omitted, it is calculated from CMYK.
- rgb-icc(<R>,<G>,<B>,#Separation,<Name>,<Tint>,<C>,<M>,<Y>,<K>) no-LT
- rgb-icc(<R>,<G>,<B>,#Separation,<Name>,<Tint>) no-LT
- rgb-icc(<R>,<G>,<B>,#Separation,<Name>) no-LT
- rgb-icc(#Separation,<Name>,<Tint>,<C>,<M>,<Y>,<K>) no-LT
  Specifies Separation color (Spot color). The name of the ink in use is specified as `<Name>`. For example, specify “PANTONE 131 PC”. The color tone is specified as `<Tint>`. When `<Tint>` is omitted, it is considered 1.0. It is also necessary to specify RGB or CMYK. When RGB is omitted, it is calculated from CMYK.
- rgb-icc(#Separation,<Name>,<Tint>) no-LT
- rgb-icc(#Separation,<Name>) no-LT
  If you purchase AH Formatter PANTONE® Option, it includes the ability for more than 1,000 PANTONE® Colors to be converted into RGB or CMYK values automatically. This is specified in the FO as follows:

  ```
  rgb-icc(#Separation, 'PANTONE 131 PC')
  ```

- rgb-icc(#Registration,<Tint>) no-LT

- rgb-icc(#Registration) no-LT

  Specifies Registration color. The color tone is specified as `<Tint>`. When `<Tint>` is omitted, it is considered 1.0. Registration color is used for the registered trademark outputted to all the color versions. Registration color can also be expressed by specifying “All” as the `<Name>` of `#Separation`.

An identifier beginning with “#” is case insensitive. Formats using identifiers which begins with “#” are extended specifications in **AH Formatter V7.1**. The specified RGB is an alternative color. It is used when the devices (display etc.) cannot display CMYK or the separation color directly. Arguments take the following values, respectively.

- `<R>,<G>,<B>` = % value or 0 to 255 integer value
- `<C>,<M>,<Y>,<K>` = % value or 0.0 to 1.0 float value
- `<Scale>` = % value or 0.0 (black) to 1.0 (white) float value
- `<Tint>` = % value or 0.0 (lightest) to 1.0 (darkest) float value

linear-gradient()

Expresses the linear gradient. It can be specified as a value of background-image. no-LT

```
linear-gradient( [ [ <angle> | to <side-or-corner> ], ]? <color-stop>#{2,} )
<side-or-corner>   =   [ left | right ] || [ top | bottom ]
<color-stop>       =   <color> [ <percentage> | <length> ]?
```

Arguments have the following meanings.

`<angle>`

Specifies the angle of the gradient. 0deg indicates top, 90deg indicates right.

`<side-or-corner>`

Specifies the angle of the gradient by keywords. to top, to right, to bottom and to left indicate 0deg, 90deg, 180deg and 270deg for each.

`<color-stop>`

Specifies the color, percent and length for the gradient.

☞ [CSS3-Images] Linear Gradients: the ‘linear-gradient()’ notation

This function is not available with **AH Formatter V7.1 Lite**.

radial-gradient()

Expresses the radial gradient. It can be specified as a value of background-image. no-LT

```
radial-gradient( [ [ <shape> || <size> ] [ at <position> ]? , | at <position>, ]? <color-stop>#{2,} )
<shape>        =   circle | ellipse
<size>         =   closest-side | farthest-side | closest-corner | farthest-corner | [ <length> | [ <length> | <percentage> ]{2} ]
<color-stop>   =   <color> [ <percentage> | <length> ]?
```

Arguments have the following meanings.

`<shape>`

Specifies the shape of the gradient.

`<size>`

Specifies the size of the gradient.

`<position>`

Specifies the center position of a circle or an oval. The value is the same as that of the `background-position` in CSS 2.1.

`<color-stop>`

Specifies the color, percent and length for the gradient.

☞ [CSS3-Images] Radial Gradients: the ‘radial-gradient()’ notation

This function is not available with **AH Formatter V7.1 Lite**.

repeating-linear-gradient()

Expresses the repeating linear gradient. It can be specified as a value of background-image. The syntax is the same as that of `linear-gradient()`. no-LT

☞ [CSS3-Images] Repeating Gradients: the 'repeating-linear-gradient()' and 'repeating-radial-gradient()' notations

This function is not available with **AH Formatter V7.1 Lite**.

repeating-radial-gradient()

Expresses the repeating radial gradient. It can be specified as a value of background-image. The syntax is the same as that of `radial-gradient()`. no-LT

☞ [CSS3-Images] Repeating Gradients: the 'repeating-linear-gradient()' and 'repeating-radial-gradient()' notations

This function is not available with **AH Formatter V7.1 Lite**.

CSS counter()

The first argument of the counter function in CSS is extended as follows:

counter(<ident> [**physical** || **reverse**]?, <list-style-type>?)

Although any counter name can be specified to `<ident>`, there are some counter names defined already. Counters with these same names cannot be defined.

- `page`
  Counters that apply to pages (`@page`). This is useful for page numbers defined in [CSS3-Pages] Page-based counters.
- `pages`
  Counters that apply to pages (`@page`). This is useful for page numbers defined in [CSS3-Pages] Page-based counters
- `footnote`
  Counters that apply to footnotes (`@footnote`). This is useful for footnote numbers defined in [CSS3-GCPM] Footnotes ☞ Footnotes/Sidenotes by CSS
- `sidenote`
  Counters that apply to sidenotes (`@sidenote`). This is useful for sidenote numbers. ☞ Footnotes/Sidenotes by CSS
- `list-item`
  Counters that apply to `<li>` (`display:list-item`) in HTML.

`physical` and `reverse` can be specified when `<ident>` is `page`. These extensions are not available with **AH Formatter V7.1 Lite**.

- `physical`
  Equivalent to axf:physical-page-number in FO. no-LT
- `reverse`
  Equivalent to axf:reverse-page-number in FO. no-LT

See also `list-style-type` to learn more about `<list-style-type>`.

CSS attr()

[CSS3-Values] Attribute References: 'attr()'

attr(<attr-name> <type-or-unit>? [, <fallback>]?)

CSS -ah-attr-img() V7.1

It is prepared for referencing the width/height of the image such as `<img>`. When the element is other than the image, when other than width/height is specified to `<attr-name>`, and when fix-css-img-percentage="false" is specified in the Option Setting File, it is the same as `attr()`. For details, see Changes from AH Formatter V7.0 .

-ah-attr-img(<attr-name> <type-or-unit>? [, <fallback>]?)

CSS -ah-attr-from()

It is an extension of attr function. Specify the element of the ancestor which applies `attr()` to the first parameter.

-ah-attr-from(<from-name> , <attr-name> <type-or-unit>? [, <fallback>]?)

CSS3 Properties

This section enumerates the properties based on CSS3 specification supported with **AH Formatter V7.1** which have not been described until now.

CSS (-ah-)alignment-adjust

[CSS3-Line] Setting the alignment point: the 'alignment-adjust' property

Value:	auto | baseline | before-edge | text-before-edge | middle | central | after-edge | text-after-edge | ideographic | alphabetic | hanging | mathematical | <percentage> | <length>
Initial:	auto
Applies to:	inline-level elements
Inherited:	no
Percentages:	refer to the line-height of element

☞ [XSL 1.1] alignment-adjust

CSS (-ah-)alignment-baseline

[CSS3-Line] Aligning the alignment point of an element: the 'alignment-baseline' property

Value:	auto | baseline | before-edge | text-before-edge | middle | central | after-edge | text-after-edge | ideographic | alphabetic | hanging | mathematical
Initial:	auto
Applies to:	inline-level elements
Inherited:	no
Percentages:	N/A

☞ [XSL 1.1] alignment-baseline

CSS (-ah-)baseline-shift

[CSS3-Line] Repositioning the dominant baseline: the 'baseline-shift' property

Value:	baseline | sub | super | <percentage> | <length>
Initial:	baseline
Applies to:	inline-level elements
Inherited:	no
Percentages:	refer to the line-height of parent element

☞ [XSL 1.1] baseline-shift

CSS (-ah-)bookmark-label

[CSS3-GCPM] bookmark-label

Value:	content | <attr> | <string>
Initial:	content
Applies to:	all elements
Inherited:	no
Percentages:	N/A

☞ axf:outline-title

CSS (-ah-)bookmark-level

[CSS3-GCPM] bookmark-level

Value:	none | <integer>
Initial:	none
Applies to:	all elements
Inherited:	no
Percentages:	N/A

☞ axf:outline-level

CSS (-ah-)bookmark-state

[CSS3-GCPM] bookmark-state

Value:	open | closed
Initial:	open
Applies to:	block-level elements
Inherited:	no
Percentages:	N/A

☞ axf:outline-expand

CSS (-ah-)box-sizing

[CSS3-UI] 'box-sizing' property

Value:	content-box | border-box
Initial:	content-box
Applies to:	all elements that accept width or height
Inherited:	no
Percentages:	N/A

CSS (-ah-)break-after

[CSS3-Multicol] ‘break-before’, ‘break-after’, ‘break-inside’

Value:	auto | always | page | column | avoid | avoid-page | avoid-column | left | right
Initial:	auto
Applies to:	block-level elements
Inherited:	no
Percentages:	N/A

☞ [XSL 1.1] break-after

CSS (-ah-)break-before

[CSS3-Multicol] ‘break-before’, ‘break-after’, ‘break-inside’

Value:	auto | always | page | column | avoid | avoid-page | avoid-column | left | right
Initial:	auto
Applies to:	block-level elements
Inherited:	no
Percentages:	N/A

☞ [XSL 1.1] break-before

CSS (-ah-)break-inside

[CSS3-Multicol] ‘break-before’, ‘break-after’, ‘break-inside’

Value:	auto | avoid | avoid-page | avoid-column
Initial:	auto
Applies to:	block-level elements

Inherited: no
Percentages: N/A

☞ [XSL 1.1] keep-together

CSS (-ah-)dominant-baseline

[CSS3-Line] Dominant baseline: the 'dominant-baseline' property

Value: auto | use-script | no-change | reset-size | ideographic | alphabetic | hanging | mathematical | central | middle | text-after-edge | text-before-edge
Initial: auto
Applies to: inline-level elements
Inherited: no
Percentages: N/A

☞ [XSL 1.1] dominant-baseline

CSS (-ah-)object-fit no-LT

[CSS3-Images] 'object-fit' property

Value: fill | contain | cover | none | scale-down
Initial: fill
Applies to: replaced elements
Inherited: no
Percentages: N/A

This property is not available with **AH Formatter V7.1 Lite**.

CSS (-ah-)object-position no-LT

[CSS3-Images] 'object-position' property

Value: [<percentage> | <length> | left | center | right | top | bottom]{1,2}
Initial: center center
Applies to: replaced elements
Inherited: no
Percentages: refer to the width and the height of box itself

This property is not available with **AH Formatter V7.1 Lite**.

CSS (-ah-)outline-offset no-LT

[CSS3-UI] 'outline-offset' property

Value: <length>
Initial: 0
Applies to: all elements
Inherited: no
Percentages: N/A

This property is not available with **AH Formatter V7.1 Lite**.

CSS (-ah-)page

[CSS3-Page] Using named pages: ‘page’
[CSS3-GCPM] Named page lists (“Named page lists” has been removed from GCPM on and after June 8, 2010)

Value: auto | <identifier>+ auto?
Initial: auto
Applies to: block-level elements
Inherited: no
Percentages: N/A

CSS (-ah-)string-set

[CSS3-GCPM] Setting named strings: the ‘string-set’ property

Value:	[<identifier> <content-list>]# | none
Initial:	none
Applies to:	all elements
Inherited:	no
Percentages:	N/A

`env()` is not supported yet.

The string-set sets the named strings for running headers.

☞ [CSS3-GCPM] Named strings

To make the element with structure, not only the text, into running headers, use the *running elements*.

☞ [CSS3-GCPM] Running elements

CSS (-ah-)text-align

[CSS 2.1] 16.2 Alignment
[CSS3-Text] Text Alignment: the ‘text-align’ shorthand

Value:	start | end | left | right | inside | outside | center | justify | <string>
Initial:	start
Applies to:	all elements
Inherited:	yes
Percentages:	N/A

☞ [XSL 1.1] text-align

CSS (-ah-)text-align-last

[CSS3-Text] Last Line Alignment: the ‘text-align-last’ property

Value:	auto | start | end | left | right | inside | outside | center | justify
Initial:	auto
Applies to:	block elements
Inherited:	yes
Percentages:	N/A

☞ [XSL 1.1] text-align-last

CSS (-ah-)text-combine

[CSS3-WritingModes] Glyph Composition: the ‘text-combine’ property (“text-combine” has been removed from CSS3-WritingMode on and after September 1, 2011)

Value:	none | horizontal
Initial:	none
Applies to:	non-replaced inline elements
Inherited:	no
Percentages:	N/A

CSS (-ah-)vertical-align

[CSS3-Line] Vertical alignment: the 'vertical-align' shorthand baseline alignment property

Value:	baseline | sub | super | top | text-top | middle | central | bottom | text-bottom | <percentage> | <length>
Initial:	baseline
Applies to:	inline-level and table-cell elements
Inherited:	no
Percentages:	refer to the line-height

☞ [XSL 1.1] vertical-align

CSS (-ah-)writing-mode

[CSS3-WritingModes] Block Flow Direction: the ‘writing-mode’ property

Value:	horizontal-tb | vertical-rl | lr-tb | rl-tb | tb-rl
Initial:	horizontal-tb
Applies to:	all elements except table row groups, table column groups, table rows, and table columns
Inherited:	yes
Percentages:	N/A

☞ [XSL 1.1] writing-mode

Other CSS Extensions

CSS -ah-leader-length

The following composite values can be specified like XSL.

- `-ah-leader-length.minimum`
- `-ah-leader-length.optimum`
- `-ah-leader-length.maximum`

☞ [XSL 1.1] leader-length

CSS -ah-logical-height

Specifies the block progression dimension.

Value:	<length> | <percentage> | auto
Initial:	auto
Applies to:	same as ‘height’
Inherited:	no
Percentages:	refer to the logical height of the containing block

☞ [XSL 1.1] block-progression-dimension

CSS -ah-logical-width

Specifies the inline progression dimension.

Value:	<length> | <percentage> | auto
Initial:	auto
Applies to:	same as ‘width’
Inherited:	no
Percentages:	refer to the logical width of the containing block

☞ [XSL 1.1] inline-progression-dimension

CSS -ah-margin-after

Specifies the margin of the after side.

Value:	<length> | <percentage>
Initial:	0
Applies to:	same as ‘margin’
Inherited:	no
Percentages:	refer to the logical width of the containing block

☞ [XSL 1.1] space-after

CSS -ah-margin-before

Specifies the margin of the before side.

Value:	<length> | <percentage>
Initial:	0
Applies to:	same as ‘margin’
Inherited:	no
Percentages:	refer to the logical width of the containing block

☞ [XSL 1.1] space-before

CSS -ah-margin-end

Specifies the margin of the end side.

Value:	<length> | <percentage>
Initial:	0
Applies to:	same as ‘margin’
Inherited:	no
Percentages:	refer to the logical width of the containing block

☞ [XSL 1.1] space-end, [XSL 1.1] end-indent

CSS -ah-margin-start

Specifies the margin of the start side.

Value:	<length> | <percentage>
Initial:	0
Applies to:	same as ‘margin’
Inherited:	no
Percentages:	refer to the logical width of the containing block

☞ [XSL 1.1] space-start, [XSL 1.1] start-indent

CSS -ah-max-logical-height

Specifies the maximum block progression dimension.

Value:	<length> | <percentage> | none
Initial:	none
Applies to:	same as ‘max-height’
Inherited:	no
Percentages:	refer to the logical height of the containing block

☞ [XSL 1.1] block-progression-dimension

CSS -ah-max-logical-width

Specifies the maximum inline progression dimension.

Value:	<length> | <percentage> | none
Initial:	none
Applies to:	same as ‘max-width’
Inherited:	no
Percentages:	refer to the logical width of the containing block

☞ [XSL 1.1] inline-progression-dimension

CSS -ah-min-logical-height

Specifies the minimum block progression dimension.

Value:	<length> | <percentage>
Initial:	0

Applies to: same as ‘min-height’
Inherited: no
Percentages: refer to the logical height of the containing block

☞ [XSL 1.1] block-progression-dimension

CSS -ah-min-logical-width

Specifies the minimum inline progression dimension.

Value: <length> | <percentage>
Initial: 0
Applies to: same as ‘min-width’
Inherited: no
Percentages: refer to the logical width of the containing block

☞ [XSL 1.1] inline-progression-dimension

CSS Extensions as is XSL

The following CSS extension properties apply the implementation of the XSL specification to CSS as is. See also each XSL specification. The implementation restrictions are the same as XSL. See also XSL-FO Conformance.

- -ah-allowed-height-scale ☞ [XSL 1.1] allowed-height-scale
- -ah-allowed-width-scale ☞ [XSL 1.1] allowed-width-scale
- -ah-content-height ☞ [XSL 1.1] content-height
- -ah-content-type ☞ [XSL 1.1] content-type
- -ah-content-width ☞ [XSL 1.1] content-width
- -ah-country ☞ [XSL 1.1] country
- -ah-hyphenation-keep ☞ [XSL 1.1] hyphenation-keep
- -ah-intrusion-displace ☞ [XSL 1.1] intrusion-displace
- -ah-keep-together ☞ [XSL 1.1] keep-together
- -ah-language ☞ [XSL 1.1] language
- -ah-last-line-end-indent ☞ [XSL 1.1] last-line-end-indent
- -ah-line-height-shift-adjustment ☞ [XSL 1.1] line-height-shift-adjustment
- -ah-line-stacking-strategy ☞ [XSL 1.1] line-stacking-strategy
- -ah-padding-after ☞ [XSL 1.1] padding-after
- -ah-padding-before ☞ [XSL 1.1] padding-before
- -ah-padding-end ☞ [XSL 1.1] padding-end
- -ah-padding-start ☞ [XSL 1.1] padding-start
- -ah-reference-orientation ☞ [XSL 1.1] reference-orientation
- -ah-scaling ☞ [XSL 1.1] scaling
- -ah-score-spaces ☞ [XSL 1.1] score-spaces
- -ah-script ☞ [XSL 1.1] script

Functions in the XSL specifications can also be used in CSS with some exceptions. See 5.10 Core Function Library.

Float Extension

By implementing the advanced float features, **AH Formatter V7.1** is capable of arranging the float content in an arbitrary place of the page, arranging the float content in multi-column layout with column spanning of the float. As a result, **AH Formatter V7.1** can meet various demands of the arrangement while formatting documents with illustrations, etc.

Using with XSL-FO, the float extension properties (axf:float-*) are applied to the `<fo:float>` element.

Using with CSS, the float extension properties (`-ah-float-*`) are applied to elements that will become floated elements.

CAUTION:	float="left" is interpreted as float="start" and float="right" is interpreted as float="end" by the XSL specification. But with this specification, it isn't possible to put the float to the physical `left`/`right` positions regardless of writing-mode. In XSL-FO in **AH Formatter V7.1**, `left`/`right` are interpreted so that they indicate the physical direction. The same behavior also applies to clear.

Extended Properties

axf:float / CSS (-ah-)float

This is a shorthand property for setting float related extension properties. [CSS3-GCPM] Page floats (“float” has been removed from GCPM on and after May 13, 2014)

Value:	<float-x> || <float-y> || <float-wrap> || <float-reference> || <float-move> (XSL) [<float-x> || <float-y> || <float-wrap> || <float-reference> || <float-move>] | footnote | sidenote (CSS)
Initial:	none
Applies to:	fo:float / floated elements
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`<float-x> = none | start | end | left | right | top | bottom | center | inside | outside | alternate | column-outside`

Specifies horizontal (or vertical if writing-mode is vertical) float alignment. ☞ axf:float-x

`<float-y> = none | before | after | top | bottom | left | right | center | inside | outside`

Specifies vertical (or horizontal if writing-mode is vertical) float alignment. ☞ axf:float-y

`<float-wrap> = wrap | skip`

Specifies whether the text wraps around the float. ☞ axf:float-wrap

`<float-reference> = auto | normal | page | multicol | column`

Specifies reference area where the float is positioned. ☞ axf:float-reference

`<float-move> = next | auto-next | auto-move | keep | keep-float | <integer>`

Specifies whether the float moves to the next page (or column). ☞ axf:float-move

`footnote`

Generates footnotes in CSS. ☞ Footnotes/Sidenotes by CSS

`sidenote`

Generates sidenotes in CSS. ☞ Footnotes/Sidenotes by CSS

This extension property is treated as a shorthand and maps to individual extension properties. For example,

```
<!-- XSL-FO example -->
<fo:float axf:float="before column auto-move">
  ...
</fo:float>
```

```
<!-- XHTML+CSS example -->
<div style="-ah-float: before column auto-move">
  ...
</div>
```

is equivalent to the following:

```
<!-- XSL-FO example -->
<fo:float axf:float-x="none" axf:float-y="before"
          axf:float-reference="column" axf:float-move="auto-move">
  ...
</fo:float>
```

```
<!-- XHTML+CSS example -->
<div style="-ah-float-x: none; -ah-float-y: before;
            -ah-float-reference: column; -ah-float-move: auto-move">
  ...
</div>
```

For more details, see individual extension properties.

The values `left`, `right`, `top`, `bottom`, `center`, `inside`, and `outside` which express absolute directions have the ambiguity to extend to both `<float-x>` and `<float-y>`. This can be solved as follows:

- `none` is ignored.
- When one of `before`, `after`, `start`, `end`, `alternate` or `column-outside` is contained, either `<float-x>` or `<float-y>` will be selected. The remaining ambiguous value will become another value.
- When none of `before`, `after`, `start`, `end`, `alternate` or `column-outside` is contained, the first value which expresses the absolute direction will be `<float-x>`, the latter value will be `<float-y>`.

axf:float-x / CSS -ah-float-x

Specifies horizontal (or vertical if writing-mode is vertical) float alignment.

Value:	none | start | end | left | right | top | bottom | center | inside | outside | alternate | column-outside
Initial:	none
Applies to:	fo:float / floated elements
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`none`

Not floated horizontally (or vertically if writing-mode is vertical).

`start`

Floated to the start side. Same as `left` in horizontal left-to-right writing-mode.

`end`

Floated to the end side. Same as `right` in horizontal left-to-right writing-mode.

`left`

Floated to the left side. Used only for horizontal writing. It cannot be specified for vertical writing.

`right`

Floated to the right side. Used only for horizontal writing. It cannot be specified for vertical writing.

`top`

Floated to the top. Used only for vertical writing. It cannot be specified for horizontal writing.

`bottom`

Floated to the bottom. Used only for vertical writing. It cannot be specified for horizontal writing.

`center`

Floated to the center horizontally (or vertically if writing-mode is vertical).

`inside`

Floated to the inside (left side on a right page, right side on a left page). Used only for horizontal writing. It cannot be specified for vertical writing.

`outside`

Floated to the outside (right side on a right page, left side on a left page). Used only for horizontal writing. It cannot be specified for vertical writing.

`alternate`

When the float area is in the first column, it's considered that `end` is specified, when the float area is in the last column, it's considered that `start` is specified, if it is not in the column, it's considered that `center` is specified.

`column-outside` V7.1

When the float area is in the last column, it's considered that `end` is specified, when the float area is in other columns, it's considered that `start` is specified, if it is not in the column, it's considered that `start` is specified.

axf:float-y / CSS -ah-float-y

Specifies vertical (or horizontal if writing-mode is vertical) float alignment.

Value:	none | before | after | top | bottom | left | right | center | inside | outside
Initial:	none
Applies to:	fo:float / floated elements
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`none`

Not floated vertically (or horizontally if writing-mode is vertical).

`before`

Floated to the before side. Same as `top` in horizontal left-to-right writing-mode.

`after`

Floated to the after side. Same as `bottom` in horizontal left-to-right writing-mode.

`top`

Floated to the top. Used only for horizontal writing. It cannot be specified for vertical writing.

`bottom`

Floated to the bottom. Used only for horizontal writing. It cannot be specified for vertical writing.

`left`

Floated to the left side. Used only for vertical writing. It cannot be specified for horizontal writing.

`right`

Floated to the right side. Used only for vertical writing. It cannot be specified for horizontal writing.

`center`

Floated to the center vertically (or horizontally if writing-mode is vertical).

`inside`

Floated to the inside (left side on a right page, right side on a left page). Used only for vertical writing. It cannot be specified for horizontal writing.

`outside`

Floated to the outside (right side on a right page, left side on a left page). Used only for vertical writing. It cannot be specified for horizontal writing.

axf:float-reference / CSS -ah-float-reference

Specifies reference area where the float is placed.

Value:	auto | normal | page | multicol | column
Initial:	auto
Applies to:	fo:float / floated elements
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`auto`

Same as `normal`. However, when axf:float-y is none in CSS, the float positioning is affected by block indents where the block contains the float anchor.

`normal`

The float is placed in the current reference area.

`page`

The float is placed in the page area (`region-body`).

`multicol`

The float is placed in the multi-column area.

`column`

The float is placed in the column area.

When axf:float-y is `none`, the reference area in x-axis will be set.

When using with CSS, if axf:float-y is `none` and the axf:float-reference is `auto` the float positioning is affected by block indents where the block contains the float anchor, but by specifying `normal`, `page`, or `column`, it is possible to position floats regardless of the block indents.

axf:float-move / CSS -ah-float-move

Specifies whether the float moves to the next page (or column).

Value:	auto | next | auto-next | auto-move | keep | keep-float | <integer>
Initial:	auto
Applies to:	fo:float / floated elements
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`auto`

Same as `keep` if axf:float-y is `none`, same as `auto-next` otherwise.

`next`

The float is moved to the next page (or column).

`auto-next`

The float is moved to the next page (or column) if there is not enough space in the current page (or column).

`auto-move`

The float is moved to the next page (or column) if there is not enough space in the current page (or column). It is also possible that the float anchor and around text are moved to the next page (or column) instead.

`keep`

The float and its anchor are always placed on the same page (or column). If there is not enough space for that, a page (or column) break occurs before the float anchor and a blank space is left.

`keep-float`

Although it is almost the same as `keep`, the following points differ. With `keep`, keep-with-next="always" is automatically set to anchor area and a page break (or column break) is deterred between the next area. However, it is not performed by `keep-float`. The difference on operation will appear when the height of anchor area is zero.

`<integer>` V7.1

The numerical value is considered the page number and moves the float to that page. If it is larger than the number of pages in the document, pages with no contents (not blank pages) will be inserted. It does not work when axf:float-y is `none`. At that time, it is considered that `auto` is specified.

CAUTION: Page numbers are considered logical page numbers.

If both axf:float-x and axf:float-y are `none`, the object is not floated and the axf:float-move specification is ineffective.

axf:float-wrap / CSS -ah-float-wrap

Specifies the text wrapping.

Value:	auto | wrap | skip
Initial:	auto
Applies to:	fo:float / floated elements
Inherited:	no
Percentages:	N/A

Values have the following meanings:

`auto`

Same as `wrap` if axf:float-x is other than `none`. Same as `skip` if it is `none`.

`wrap`

Wraps the text around the float. However, when there is a space on both side of a float within the column (by specifying `center` to axf:float-x or axf:float-offset-x), it is the same as `skip`.

`skip`

The text doesn't wrap around the float. The text is positioned by skipping the float.

axf:float-min-wrap-x / CSS -ah-float-min-wrap-x

Specifies the minimum width for the text wrapping around the float.

Value:	normal | <length> | <percentage>
Initial:	normal
Applies to:	fo:float / floated elements
Inherited:	no
Percentages:	refer to the size of containing block

If the width for the text wrapping around the float is smaller than the width specified by this property, the text doesn't wrap.

The initial value, `normal` is minimum wrapping width of normal floats. It is same as 0pt.

axf:float-min-wrap-y / CSS -ah-float-min-wrap-y

Specifies the minimum extent for the text placed before and after the float.

Value:	normal | <length> | <percentage>
Initial:	normal
Applies to:	fo:float / floated elements
Inherited:	no
Percentages:	refer to the size of containing block

When the axf:float-y value is not `none` and there is remaining space to place the text before or after the float within the formatting target area, if the extent of that space is smaller than the extent specified by this property, the text is not placed to that space.

If the value of axf:float-y is `none`, it is processed as follows:

- If the value of axf:float-move is `auto-next` and there is space left to place text after the float within the formatting target area, if its height (width in vertical writing) is smaller than the height (width in vertical writing) specified in this property, moves the float position so that its height (width in vertical writing) becomes zero. Text that was after the float will move before the float.
- If the value of axf:float-move is `auto-move`, it is the same as the case of `auto-next`, but within the formatting target area, if the height (width in vertical writing) of the text placement space before the float, not only after the float, is smaller than the height (width in vertical writing) specified in this property, moves the float position so that its height (width in vertical writing) becomes zero. Text that was before the float will move after the float.
- If the value of axf:float-move is other than these, text will wrap around if there is space left to place text after the float in the formatting target area, otherwise it will not wrap around.

The initial value, `normal` is the same as 0pt.

axf:float-centering-x / CSS -ah-float-centering-x

Specifies whether the float is centered when the width for the text wrapping around the float is insufficient.

Value:	none | auto | <length> | <percentage>
Initial:	none
Applies to:	fo:float / floated elements
Inherited:	no
Percentages:	refer to the size of containing block

Values have the following meanings:

`none`

The float is not centered.

`auto`

The float is centered when the width for the text wrapping around the float is less than the width specified by the axf:float-min-wrap-x property.

`<length>`
`<percentage>`

The float is centered when the width for the text wrapping around the float is less than the width specified by this property.

axf:float-centering-y / CSS -ah-float-centering-y

Specifies whether the float is centered when the extent for the text placed before and after the float is insufficient.

Value:	none | auto | <length> | <percentage>
Initial:	none
Applies to:	fo:float / floated elements
Inherited:	no
Percentages:	refer to the size of containing block

Values have the following meanings:

`none`

The float is not centered.

`auto`

The float is centered when the extent for the text placed before and after the float is less than the extent specified by the axf:float-min-wrap-y property.

`<length>`
`<percentage>`

The float is centered when the extent for the text placed before and after the float is less than the extent specified by this property.

axf:float-margin-x / CSS -ah-float-margin-x

Specifies the space between the float and the text wrapping around the float (in x-axis).

Value:	[<length> | <percentage>] [<length> | <percentage>]?
Initial:	0pt
Applies to:	fo:float / floated elements
Inherited:	no
Percentages:	refer to the size of containing block

When two values are specified, the first one will be the value of the start side, the next one will be the value of the end side.

axf:float-margin-y / CSS -ah-float-margin-y

Specifies the space between the float and the text before and after the float (in y-axis).

Value:	[<length> | <percentage>] [<length> | <percentage>]?
Initial:	0pt
Applies to:	fo:float / floated elements
Inherited:	no
Percentages:	refer to the size of containing block

When two values are specified, the first one will be the value of the before side, the next one will be the value of the after side.

axf:float-float-margin-x / CSS -ah-float-float-margin-x

Specifies the space between the float and another neighboring float (in x-axis).

Value:	auto | [[<length> | <percentage>] [<length> | <percentage>]?]
Initial:	auto
Applies to:	fo:float / floated elements
Inherited:	no
Percentages:	refer to the size of containing block

The initial value `auto` is same as the axf:float-margin-x value. When two values are specified, the first one will be the value of the start side, the next one will be the value of the end side.

The axf:float-float-margin-x value cannot exceed the axf:float-margin-x value.

axf:float-float-margin-y / CSS -ah-float-float-margin-y

Specifies the space between the float and another neighboring float (in y-axis).

Value:	auto | [[<length> | <percentage>] [<length> | <percentage>]?]
Initial:	auto
Applies to:	fo:float / floated elements
Inherited:	no
Percentages:	refer to the size of containing block

The initial value `auto` is same as the axf:float-margin-y value. When two values are specified, the first one will be the value of the before side, the next one will be the value of the after side.

The axf:float-float-margin-y value cannot exceed the axf:float-margin-y value.

axf:float-offset-x / CSS -ah-float-offset-x

Specifies the offset placement for the float (in x-axis).

Value:	<length> | <percentage>
Initial:	0pt
Applies to:	fo:float / floated elements
Inherited:	no
Percentages:	refer to the size of containing block minus the size of the float

If axf:float-x is `start`, the offset to the end side is specified. If it is `end`, the offset to the start side is specified.

axf:float-offset-y / CSS -ah-float-offset-y

Specifies the offset placement for the float (in y-axis).

Value:	<length> | <percentage>
Initial:	0pt
Applies to:	fo:float / floated elements
Inherited:	no
Percentages:	refer to the size of containing block minus the size of the float

If axf:float-y is `before`, the offset to the after side is specified. If it is `after`, the offset to the before side is specified.

“gr” Unit

“gr” is a special length unit and it counts both column-width and column-gap as 1gr. n-column-spanning can be specified as (2n-1)gr. Fractions of gr unit can be used to specify halfway length of column-width or column-gap. Negative value cannot be specified.

The following is an example of two-column-spanning float:

```
<fo:float axf:float="multicol top left">
  <fo:block-container width="3gr">
    <fo:block>This is a two-column-spanning float.</fo:block>
  </fo:block-container>
</fo:float>
```

Note that the “3gr” means 2 column-widths plus 1 column-gap.

```
0.5gr = 0.5 columnWidth
1gr = 1 columnWidth
1.5gr = 1 columnWidth + 0.5 columnGap
2gr = 1 columnWidth + 1 columnGap
2.5gr = 1 columnWidth + 1 columnGap + 0.5 columnWidth
3gr = 1 columnWidth + 1 columnGap + 1 columnWidth
(2n-1)gr = n columnWidth + (n-1) columnGap
```

CAUTION:	The unit “gr” is defined only to the float specified as axf:float="multicol". It cannot be applied to the element other than float and float that is not specified as axf:float="multicol". If applied, the operation will be indeterminate.

Footnotes/Sidenotes by CSS

In order to express footnotes by CSS, `(-ah-)float:footnote` and `@footnote` are used. The following shows a very easy example of a footnote. ☞ [CSS3-GCPM] Footnotes

```
span.footnote {
 -ah-float: footnote;
}
@page {
 @footnote {
  border-top: solid;
  -ah-float: page bottom;
 }
}
```

```
<p>
Lorem dignissim<span class="footnote">Quisque suscipit ante vel eros.</span>, orci ac porta
                                                                                    blandit, ...
</p>
```

Thereby, the portion enclosed with `<span class="footnote">` to `</span>` will be placed at the bottom of the page as a footnote, that portion will be replaced with a reference mark. `(-ah-)float:footnote` expresses a footnote body. (Equivalent to `<fo:footnote-body>` in FO.) The appearance of a footnote can be specified with `@footnote`. You can specify the appropriate position of footnotes using `(-ah-)float`. `footnote-display` is not supported.

The appearance of a reference mark can be specified by `::footnote-call`. The number added to a footnote can be specified by `::footnote-marker`. Those default appearances are specified in the default stylesheet (`html.css`). The following example shows the way to put letters of the alphabet, like A, B, C... as an alternative method of numbering. You can specify the same values that can be specified to `list-style-type`.

```
::footnote-call,
::footnote-marker {
 content: counter(footnote, upper-alpha);
}
```

To reset the counter, specify `counter-reset:footnote` to `@page`, etc. accordingly.

In order to express sidenotes by CSS, `(-ah-)float:sidenote` and `@sidenote` are used. The same way as footnotes applies to sidenotes. ☞ [CSS3-GCPM] Sidenotes (@sidenote has been removed from GCPM on and after June 8, 2010)

```
span.sidenote {
 -ah-float: sidenote;
}
@page {
 @sidenote {
  -ah-float: outside;
  clear: both;
  width: 20%
 }
}

<p>
Lorem dignissim<span class="sidenote">Quisque suscipit ante vel eros.</span>, orci ac porta
                                                                                    blandit, ...
</p>
```

The default stylesheet does not include the setting of `::sidenote-call` and `::sidenote-marker`.

Examples

Page Float Examples

In the following example, the float is placed on top of a page.

```
<fo:float axf:float="page top">
  <fo:block>This is a page float.</fo:block>
</fo:float>
```

In the following example, the float is placed on bottom of a page.

```
<fo:float axf:float="page bottom">
  <fo:block>This is a page float.</fo:block>
</fo:float>
```

Multi-column Float Examples

In the following example, the float is placed on the top right corner spanning three columns on a multi-column area.

```
<fo:float axf:float="multicol top right">
  <fo:block-container width="5gr">
    <fo:block>This is a multicol float.</fo:block>
  </fo:block-container>
</fo:float>
```

In the following example, the float is placed on the bottom inside corner on a multi-column area.

```
<fo:float axf:float="multicol bottom inside">
  <fo:block-container width="1gr">
    <fo:block>This is a multicol float.</fo:block>
  </fo:block-container>
</fo:float>
```

Column Float Examples

In the following example, the float is placed on top of a column.

```
<fo:float axf:float="column top">
  <fo:block>This is a column float.</fo:block>
</fo:float>
```

In the following example, the float is placed on bottom of a column.

```
<fo:float axf:float="column bottom">
  <fo:block>This is a column float.</fo:block>
</fo:float>
```

Float Move Example

Since float is arranged at the place of the anchor area, when an image, etc. are contained and there is not enough space for that, it will be sent to the next page. As a result, a blank space will remain in the lower part of the page. In order to avoid this, use the axf:float-move property to move float automatically from the anchor area. Note that the blank space will remain when there is no room to move.

The following example arranges an image with no text wrap on the right, left or center of a page. If there is not enough space at this time, only an image will move to the next page leaving an anchor to that position. Note that it's necessary to specify axf:float-x at this time.

```
<fo:float axf:float-x="center"
          axf:float-y="none"
          axf:float-move="auto-next"
          axf:float-wrap="skip"
          axf:float-reference="page">
  <fo:block>
    <fo:external-graphic src="any-image"/>
  </fo:block>
</fo:float>
```

In the above example, if axf:float-move="auto-move" is specified, an anchor (and text around it) will move to the next page depending on the situation of the blank space. As a result, it looks like the image moves to the previous page.

You may not want to move the float across over the chapter or the paragraph. Since the float does not move over other float, it is realizable by putting the dummy float into the break of the chapter or the paragraph. The following shows how the empty float prevents the other float from moving across the chapter.

```
<fo:float axf:float-x="end"
          axf:float-y="none"
          axf:float-move="keep"/>
<fo:block page-break-before="always"> New-Chapter ...
```

You may want to allow the float in a new chapter to move to the previous. In the above example, since keep-with-next="always" is set to the empty float, there is no room for the float to move before the new chapter. By specifying axf:float-move="keep-float", the setting will be cleared, then this empty float will be arranged at the last of a previous page and the float can move between the next block afterwards.

Restrictions

AH Formatter V7.1 Float Extensions have the following restrictions:

- When axf:float-y is `none`, a float may be split when the page (column) breaks. Specify keep-together="always" if you want to avoid splitting the float.

- When axf:float-y is `none` and the axf:float-reference value is `multicol` or `page`, the text doesn't wrap around the float except for the specified column, then the text and the float may overlap.
- When axf:float="page before" is specified and xsl-before-float-separator is defined, it behaves as float="before" defined in the standard XSL specification. In other cases, xsl-before-float-separator will not be displayed.
- Float Extensions may not be positioned correctly within `<fo:table-cell>` or `<fo:block-container>`.
- When axf:float-y is not `none`, a float can be placed in `<fo:region-body>` or `<axf:spread-region>`. If you place such a float in any other region, it will not float.

Ruby Extension

AH Formatter V7.1 is capable of expressing ruby.

For details about ruby, see the following:

- Requirements for Japanese Text Layout (W3C Working Group Note 3 April 2012)
- JIS X 4051:2004 Formatting rules for Japanese documents
- CSS Ruby Layout Module Level 1 W3C Working Draft, 5 August 2014
- Ruby Annotation W3C Recommendation 31 May 2001 (Markup errors corrected 25 June 2008)

AH Formatter V7.1 implements ruby according to the Requirements for Japanese Text Layout.

Ruby is expressed by the following three elements:

XSL-FO	HTML	CSS	Meanings
`<axf:ruby>`	`<ruby>`	`display:ruby`	Shows the ruby structure.
`<axf:ruby-base>`	`<rb>`	`display:ruby-base`	Shows the base character of ruby.
`<axf:ruby-text>`	`<rt>`	`display:ruby-text`	Shows ruby.

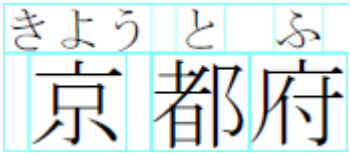
One `<axf:ruby-base>` maps to one `<axf:ruby-text>`. A pair of one `<axf:ruby-base>` and `<axf:ruby-text>` is called the ruby container. The line can break between a ruby container and another ruby container though the line cannot break within a ruby container.

Ruby has three types and it is classified as follows (`<ruby>` `<rb>` `<rt>` are used in the following example):

- Mono-ruby

  Mono-ruby is expressed as follows:

  <ruby><rb>京</rb><rt>きょう</rt></ruby><ruby><rb>都</rb><rt>と</rt></ruby><ruby><rb>府</rb><rt>ふ</rt></ruby>

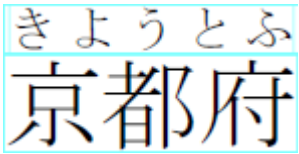
  

  Mono-ruby can be considered a group ruby whose base character consists of one character. The ruby container of mono-ruby is independent and ruby characters never overhang the base character of the adjacent ruby.

- Group-ruby

  Group-ruby is expressed as follows:

  <ruby><rb>京都府</rb><rt>きょうとふ</rt></ruby>

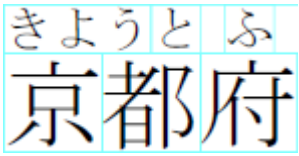
  

  Group-ruby can be considered a jukugo-ruby consisting of one ruby container. Group-ruby is evenly arranged to the entire base characters.

- Jukugo-ruby

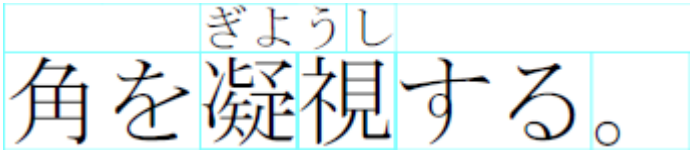
  Jukugo-ruby is expressed as follows (“Jukugo” means kanji compound word):

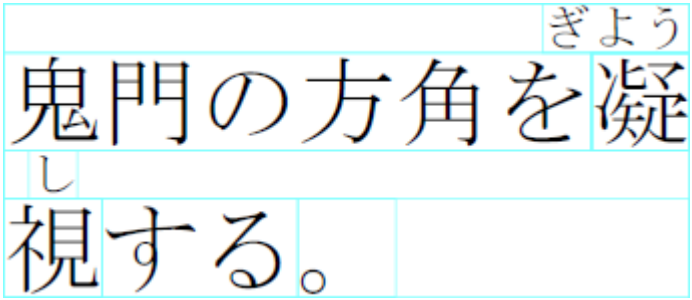
  <ruby><rb>京</rb><rt>きょう</rt><rb>都</rb><rt>と</rt><rb>府</rb><rt>ふ</rt></ruby>



Jukugo-ruby consists of one or more ruby containers. The line can break between ruby containers. The method of arranging jukugo-ruby is complex. As a general rule, the ruby container arranges ruby as group-ruby. However when the ruby text is wider than the ruby base characters, ruby text is allowed to partially overhang any adjacent text in addition to its own base to adjust its position.

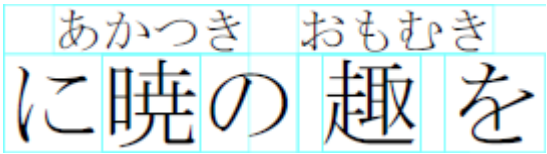
鬼門の方角を<ruby><rb>凝</rb><rt>ぎょう</rt><rb>視</rb><rt>し</rt></ruby>する。





When ruby is wider than its own base characters, ruby will overhang the adjacent character. In the following cases, ruby cannot overhang the character.

- The adjacent content is a non-text structure, such as an image or `<fo:inline-container>`.
- The adjacent content is ruby.
- The font size of the adjacent base character differs from the ruby's own base or it's a script other than Kanji or Kana or there is any inappropriateness.
- The adjacent character is a character excluded by axf:ruby-overhang.
- Ruby overhangs the adjacent character and there is no enough space between ruby and adjacent to the adjacent ruby. (Ruby might overhang partially.)

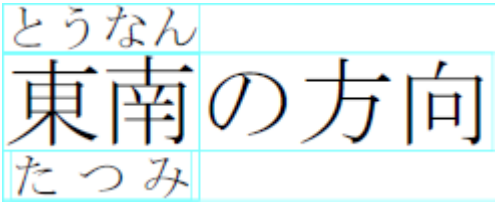


Ruby and emphasis marks can be used together. When the ruby and emphasis marks are put on the same side, emphasis marks will be put outside of ruby. When you want to align the height of emphasis marks on the text without ruby with the height of emphasis marks on the ruby text, specify axf:text-emphasis-offset.

`<... text-emphasis-offset="0.5em">`ルビと`<ruby><rb>`圏点`</rb><rt>`けんてん`</rt></ruby>`

With group-ruby, ruby can be put on both sides or it can be nested several times. At this time, only ruby specified on the outside can overhang the adjacent character.

```
<ruby ruby-position="after"><rb><ruby ruby-position="before"><rb>東南</rb><rt>とうなん</rt></
                                                                ruby></rb><rt>たつみ</rt></ruby>の方向
```



In **AH Formatter V7.1**, ruby has the following restrictions:

- Bopomofo is not supported.
- Emphasis marks can be put on the base characters of ruby, but they cannot be put on ruby characters.
- Within the ruby structure, it doesn't expand by justify. This is defined by JIS X 4051 and “Requirements for Japanese Text Layout”.
- Ruby doesn't affect the line height. The line height is decided only by the base characters.

Extended Elements

<axf:ruby> / CSS display: ruby / HTML <ruby>

Common Usage:

Generates a ruby area.

Areas:

Generates and returns the ruby area.

Constraints:

```
<!ELEMENT axf:ruby (axf:ruby-base, axf:ruby-text)+>
<!ATTLIST axf:ruby axf:ruby-align             CDATA "auto">
<!ATTLIST axf:ruby axf:ruby-position          CDATA "before">
<!ATTLIST axf:ruby axf:ruby-offset            CDATA "0pt">
<!ATTLIST axf:ruby axf:ruby-overhang          CDATA "auto">
<!ATTLIST axf:ruby axf:ruby-limit-overhang    CDATA "1.0">
<!ATTLIST axf:ruby axf:ruby-limit-space       CDATA "1.0">
<!ATTLIST axf:ruby axf:ruby-small-kana        CDATA "auto">
<!ATTLIST axf:ruby axf:ruby-font-family       CDATA #IMPLIED>
<!ATTLIST axf:ruby axf:ruby-font-size         CDATA "0.5">
<!ATTLIST axf:ruby axf:ruby-minimum-font-size CDATA #IMPLIED>
<!ATTLIST axf:ruby axf:ruby-font-style        CDATA #IMPLIED>
<!ATTLIST axf:ruby axf:ruby-font-weight       CDATA #IMPLIED>
<!ATTLIST axf:ruby axf:ruby-font-stretch      CDATA #IMPLIED>
<!ATTLIST axf:ruby axf:ruby-condense          CDATA "none">
<!ATTLIST axf:ruby axf:ruby-color             CDATA #IMPLIED>
```

Specifies `display:ruby` in CSS.

<axf:ruby-base> / CSS display: ruby-base / HTML <rb>

Common Usage:

Generates a ruby base area.

Areas:

Generates and returns the text area.

Constraints:

```
<!ELEMENT axf:ruby-base (#PCDATA | axf:ruby)>
```

Specifies `display:ruby-base` in CSS.

<axf:ruby-text> / CSS display: ruby-text / HTML <rt>

Common Usage:

Generates a ruby text area.

Areas:

Generates and returns the text area. This text area does not impact upon the block progression dimension in the line area.

Constraints:

```
<!ELEMENT axf:ruby-text #PCDATA>
```

Within the `<axf:ruby>` elements, the Nth `<axf:ruby-text>` element addresses to the Nth `<axf:ruby-base>` element. The Nth `<axf:ruby-text>` element must be placed after the Nth `<axf:ruby-base>` element.

Specifies `display:ruby-text` in CSS.

Extended Properties

axf:ruby-align / CSS (-ah-)ruby-align

Specifies the alignment of ruby. [CSS3-Ruby] Ruby alignment: the 'ruby-align' property

Value:	auto | [[space-between | space-around] || [center | start | end | start-if-vertical]]
Initial:	auto
Applies to:	axf:ruby
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`auto`

The value specified by ruby-align in the Option Setting File is adopted.

`space-around`

Same as space-around center.

`space-around center`

Spaces leading and following the ruby text are made and the ruby text is evenly distributed. If the ruby text consists of one character, then it's center aligned.

`space-around start`

Spaces leading and following the ruby text are made and the ruby text is evenly distributed. If the ruby text consists of one character, then it is start aligned.

`space-between`

Same as space-between center.

`space-between center`

Spaces leading and following the ruby text are not made and the ruby text is evenly distributed. If the ruby text consists of one character, then it is center aligned.

`space-between start`

Spaces leading and following the ruby text are not made and the ruby text is evenly distributed. If the ruby text consists of one character, then it is start aligned.

`center`

Ruby is positioned at the center with solid setting.

`start`

Ruby is positioned on the start side with solid setting.

`end`

Ruby is positioned on the end side with solid setting.

`start-if-vertical`

Same as start if the writing-mode is vertical, same as center if the writing-mode is horizontal.

axf:ruby-align decides the alignment of ruby. Originally, center alignment and start alignment are the concept of mono-ruby, however, the same concept is also applied for group-ruby whose base text has 2 or more characters. When ruby is longer than its base characters, ruby will be positioned with solid setting.

Center alignment of mono-ruby can be specified as follows:

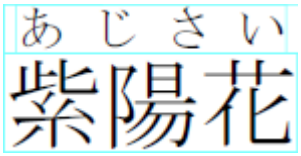
```
<ruby ruby-align="center"><rb>地</rb><rt>ち</rt></ruby>
```

Start alignment of mono-ruby can be specified as follows:

```
<ruby ruby-align="start"><rb>地</rb><rt>ち</rt></ruby>
```

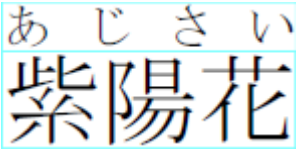
The following shows the example of giving spaces leading and following the ruby text in group-ruby. The amount of spaces leading and following the ruby text is half the amount of inter-character space of the ruby text.

```
<ruby ruby-align="space-around"><rb>紫陽花</rb><rt>あじさい</rt></ruby>
```



The following shows the example of not giving spaces leading and following the ruby text in group-ruby.

```
<ruby ruby-align="space-between"><rb>紫陽花</rb><rt>あじさい</rt></ruby>
```



axf:ruby-position / CSS (-ah-)ruby-position

Specifies on which side of the base characters the ruby text appears. [CSS3-Ruby] Ruby positioning: the 'ruby-position' property

Value:	before | after | [[over | under | ~~inter-character~~] || [right | left]]
Initial:	before
Applies to:	axf:ruby
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`before`

Ruby appears on the before side.

`after`

Ruby appears on the after side.

`over`

Ruby appears on the upper side in horizontal writing mode. Same as `before`.

`under`

Ruby appears on the lower side in horizontal writing mode. Same as `after`.

`right`

Ruby appears on the right side in vertical writing mode. Same as `before`.

`left`

Ruby appears on the left side in vertical writing mode. Same as `after`.

CAUTION: `inter-character` is not supported.

axf:ruby-offset / CSS -ah-ruby-offset

Specifies the spacing between the ruby text and its base characters.

Value:	<number> | <length> | <percentage>
Initial:	0pt
Applies to:	axf:ruby
Inherited:	yes
Percentages:	refer to the font size

Values have the following meanings:

`<number>`

Specifies the value multiplied by the ruby font size (axf:ruby-font-size) of the `<axf:ruby-text>` element.

`<length>`

Specifies the length.

`<percentage>`

Specifies the value multiplied by the font size of the `<axf:ruby>` element (not the font size of the ruby text).

axf:ruby-overhang / CSS (-ah-)ruby-overhang

Specifies how ruby overhangs the adjacent base character. [CSS3-Ruby] Ruby overhanging: the 'ruby-overhang' property (“ruby-overhang” has been removed from CSS3-Ruby on and after September 19, 2013)

Value:	none | auto | [start || end || except-kanji || except-katakana || except-hiragana || except-kana || except-start-open-parenthesis || except-end-close-parenthesis]
Initial:	auto
Applies to:	axf:ruby
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`none`

Does not overhang the adjacent base character.

`auto`

Same as `start end except-kanji`

`start`

Overhangs on the start side of the adjacent base character (if available).

`end`

Overhangs on the end side of the adjacent base character (if available).

`except-kanji`

Does not overhang when the adjacent base character is kanji.

`except-katakana`

Does not overhang when the adjacent base character is katakana.

`except-hiragana`

Does not overhang when the adjacent base character is hiragana.

`except-kana`

Does not overhang when the adjacent base character is kana. Same as `except-katakana except-hiragana`.

`except-start-open-parenthesis`

Does not overhang when the open parenthesis is on the start side.

`except-end-close-parenthesis`

Does not overhang when the close parenthesis is on the end side.

When only `except-*` is specified and neither `start` nor `end` are specified, it is considered that `start` and `end` are specified.

axf:ruby-limit-overhang / CSS -ah-ruby-limit-overhang

Specifies the limit of the amount that ruby overhangs the adjacent base character when ruby is longer than its own base character.

Value:	<number> | <length> | <percentage>
Initial:	1.0
Applies to:	axf:ruby
Inherited:	yes
Percentages:	refer to the font size

Values have the following meanings:

`<number>`

Specifies the value multiplied by the ruby font size (axf:ruby-font-size) of the `<axf:ruby-text>` element. The value must be non-negative.

`<length>`

Specifies the length. The value must be non-negative.

`<percentage>`

Specifies the value multiplied by the font size of the `<axf:ruby>` element (not the font size of the ruby text). The value must be non-negative.

This value shows the amount that ruby overhangs the adjacent base character. (It is not the protruding amount.)

axf:ruby-limit-space / CSS -ah-ruby-limit-space

Specifies the limit of the amount of spaces leading and following the ruby text when the ruby text is shorter than its base characters.

Value:	<number> | <length> | <percentage> | none
Initial:	1.0
Applies to:	axf:ruby
Inherited:	yes
Percentages:	refer to the font size

Values have the following meanings:

`<number>`

Specifies the value multiplied by the ruby font size (axf:ruby-font-size) of the `<axf:ruby-text>` element. The value must be non-negative.

`<length>`

Specifies the length. The value must be non-negative.

`<percentage>`

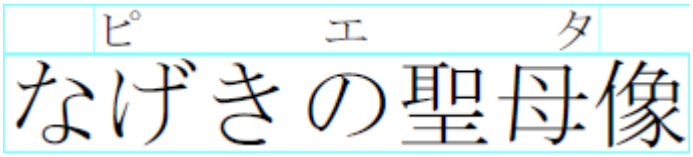
Specifies the value multiplied by the font size of the `<axf:ruby>` element (not the font size of the ruby text). The value must be non-negative.

`none`

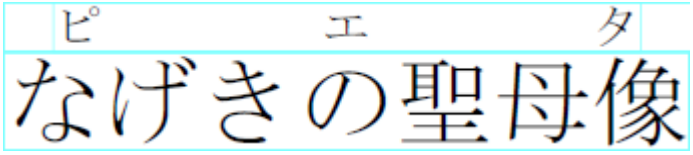
Does not limit the amount of the space.

Possible to avoid generating too much spaces leading and following the ruby text because the ruby text is too shorter than its base characters when axf:ruby-align="space-around" is specified. The amount of the space will be limited to the specified value.

```
<ruby ruby-limit-space="none"><rb>なげきの聖母像</rb><rt>ピエタ</rt></ruby>
```




```
<ruby ruby-limit-space="1.0"><rb>なげきの聖母像</rb><rt>ピエタ</rt></ruby>
```



axf:ruby-small-kana / CSS -ah-ruby-small-kana

Specifies whether to allow using small kana for ruby text.

Value:	auto | preserve| convert
Initial:	auto
Applies to:	axf:ruby
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`auto`
`preserve`

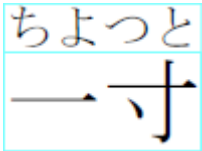
Does nothing.

`convert`

Small kana is converted into regular kana. Only fullwidth (not halfwidth) characters are converted.

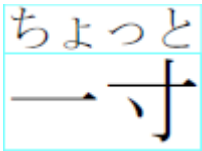
It's made available not to use small kana for ruby text. Even if small kana is specified to the ruby text, it will be transformed into regular kana.

```
<ruby ruby-small-kana="convert"><rb>一寸</rb><rt>ちょっと</rt></ruby>
```



When axf:ruby-small-kana="preserve" is specified, there is nothing special. Small kana will appear in the ruby text as is unless text-transform="fullsize-kana" is specified.

```
<ruby ruby-small-kana="preserve"><rb>一寸</rb><rt>ちょっと</rt></ruby>
```



axf:ruby-font-family / CSS -ah-ruby-font-family

Specifies the font family of ruby text.

Value:	[<family-name> | <generic-family>]#
Initial:	empty string
Applies to:	axf:ruby
Inherited:	yes
Percentages:	N/A

If nothing is specified, it's considered the same as `font-family`.

axf:ruby-font-size / CSS -ah-ruby-font-size

Specifies the font size of ruby text.

Value:	<number> | <absolute-size> | <relative-size> | <length> | <percentage>
Initial:	0.5
Applies to:	axf:ruby
Inherited:	yes
Percentages:	refer to the font size

When `<number>` is specified, the used value is this number multiplied by the element's font-size.

axf:ruby-minimum-font-size / CSS -ah-ruby-minimum-font-size

Specifies the minimum font size of ruby text.

Value:	none | <absolute-size> | <relative-size> | <length> | <percentage>
Initial:	none
Applies to:	axf:ruby
Inherited:	yes
Percentages:	refer to the font size

axf:ruby-font-style / CSS -ah-ruby-font-style

Specifies the font style of ruby text.

Value:	normal | italic
Initial:	empty
Applies to:	axf:ruby
Inherited:	yes
Percentages:	N/A

If nothing is specified, it's considered the same as font-style.

axf:ruby-font-weight / CSS -ah-ruby-font-weight

Specifies the font weight of ruby text.

Value:	normal | bold | bolder | lighter | 1...1000
Initial:	empty
Applies to:	axf:ruby
Inherited:	yes
Percentages:	N/A

If nothing is specified, it's considered the same as font-weight.

axf:ruby-font-stretch / CSS -ah-ruby-font-stretch

Specifies the font stretching of ruby text.

Value:	normal | wider | narrower | ultra-condensed | extra-condensed | condensed | semi-condensed | semi-expanded | expanded | extra-expanded | ultra-expanded | <percentage> | <number>
Initial:	empty
Applies to:	axf:ruby
Inherited:	yes
Percentages:	refer to the ruby font size

If nothing is specified, it's considered the same as font-stretch.

axf:ruby-condense / CSS -ah-ruby-condense

Specifies the font condense when the ruby text is longer than its base.

Value:	none | <percentage> | <number>
Initial:	none
Applies to:	axf:ruby
Inherited:	yes
Percentages:	refer to the ruby font size

Condenses ruby by “stretch” so that length of ruby becomes the same as its base characters when ruby is longer than its base characters. The numerical value shows the limit to be shorten at that time. If `none` is specified, ruby is not condensed.

axf:ruby-color / CSS -ah-ruby-color

Specifies the color of ruby text.

Value:	<color>
Initial:	empty
Applies to:	axf:ruby
Inherited:	yes
Percentages:	N/A

If nothing is specified, it's considered the same as color.

Spread Page Master Extension no-LT

AH Formatter V7.1 is able to treat two facing pages (a two-page spread) as a single unit, and you can define spread regions that span across the two pages. You can also define a single background for the two pages.

The requirement for formatting facing pages as a two-page spread appears in:

- Extensible Stylesheet Language (XSL) Requirements Version 2.0 (W3C Working Draft 26 March 2008)
- Requirements for Latin Text Layout and Pagination (W3C Editor's Draft, 17 August 2015)
- List of CSS features required for paged media (4 December 2014)

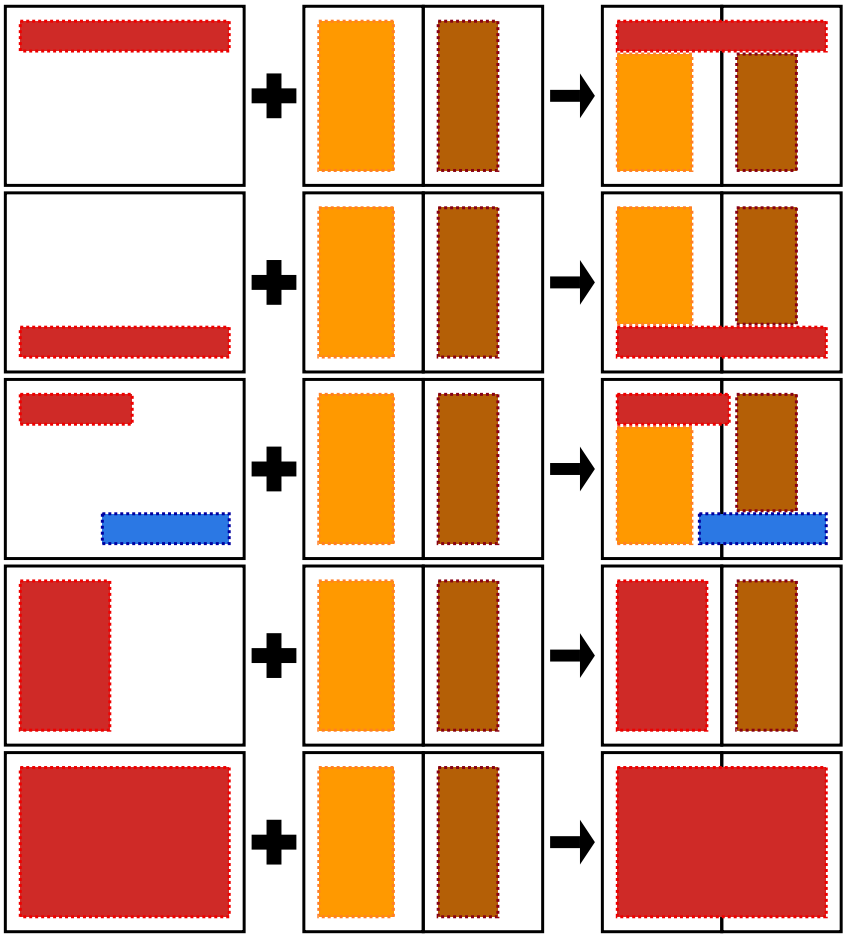
Only some documents need spreads, but uses for spreads include:

- Titles that extend across two pages
- Graphics or tables that are wider than one page
- Full-bleed background images that extend across two pages

The Spread Page Master Extension adds the following two Formatting Objects:

FO	Definition
`<axf:spread-page-master>`	Defines the spread.
`<axf:spread-region>`	Region that can span two pages.

Two-page spreads are typically exceptions to normal formatting, so `<axf:spread-page-master>` refers to other page masters for the definitions of the two pages' sizes and non-spread regions. When an `<axf:spread-region>` intersects an `<fo:region-body>` from one of the page masters, the `<fo:region-body>` is resized to be a smaller, rectangular region. When an `<axf:spread-region>` covers an `<fo:region-body>` from one of the page masters, the `<fo:region-body>` is dropped from the spread.



CAUTION: Spread Page Master Extension is not effective with **AH Formatter V7.1 Lite**.

Extended Elements

<axf:spread-page-master> no-LT

Common Usage:

Specifies a two-page spread.

`<axf:spread-page-master>` is used in page master selection in the same way as `<fo:simple-page-master>`, but it always causes a multiple of two pages to be generated. You must ensure that the pairs of pages occur as two-page spreads. Properties that can help enforce this are maximum-repeats, initial-page-number, and force-page-count.

If the `<axf:spread-region>` children generate all regions on the pages (for example, the spread pages are a multi-page, double-wide table) but you do not know how many pairs of pages the spread content will use generate, then either the `<axf:spread-page-master>` should be the last page master in the `<fo:page-sequence-master>` or the content of the spread pages should be in a nested `<fo:page-sequence>` that uses only the `<axf:spread-page-master>`.

Areas:

Generates no area directly. It is used in the generation of pages by an `<fo:page-sequence>`.

Constraints:

```
<!ELEMENT axf:spread-page-master (axf:spread-region*)>
<!ATTLIST axf:spread-page-master master-name                        CDATA #REQUIRED>
<!ATTLIST axf:spread-page-master axf:left-page-master-reference     CDATA #REQUIRED>
<!ATTLIST axf:spread-page-master axf:right-page-master-reference    CDATA #REQUIRED>
<!ATTLIST axf:spread-page-master reference-orientation              CDATA "0">
<!ATTLIST axf:spread-page-master writing-mode                       CDATA "lr-tb">
<!ATTLIST axf:spread-page-master %common-margin-properties-block;>
```

<axf:spread-region> no-LT

Common Usage:

Specifies a region in a two-page spread.

Areas:

Used to generate one region-viewport-area and one region-reference-area whenever its parent `<axf:spread-page-master>` is used to generate a page.

Constraints:

```
<!ELEMENT axf:spread-region EMPTY>
<!ATTLIST axf:spread-region region-name                          CDATA #REQUIRED>
<!ATTLIST axf:spread-region height                               CDATA "auto">
<!ATTLIST axf:spread-region overflow                             CDATA "auto">
<!ATTLIST axf:spread-region reference-orientation                CDATA "0">
<!ATTLIST axf:spread-region width                                CDATA "auto">
<!ATTLIST axf:spread-region writing-mode                         CDATA "lr-tb">
<!ATTLIST axf:spread-region %common-absolute-position-properties;>
<!ATTLIST axf:spread-region %common-border-padding-and-background-properties;>
<!ATTLIST axf:spread-region %common-margin-properties-block;>
```

Extended Properties

axf:left-page-master-reference no-LT

Master name of the page master for the left page of a two-page spread.

Value:	<name>
Initial:	N/A, a value is required
Applies to:	axf:spread-page-master
Inherited:	no

Percentages: N/A

Values have the following meanings:

`<name>`

The name must refer to a master-name that exists within the document.

axf:left-page-master-reference refers to the page master that defines the page size and the non-spread regions for the left-hand page of a two-page spread.

axf:right-page-master-reference no-LT

Master name of the page master for the right page of a two-page spread.

Value: <name>
Initial: N/A, a value is required
Applies to: axf:spread-page-master
Inherited: no
Percentages: N/A

Values have the following meanings:

`<name>`

The name must refer to a master-name that exists within the document.

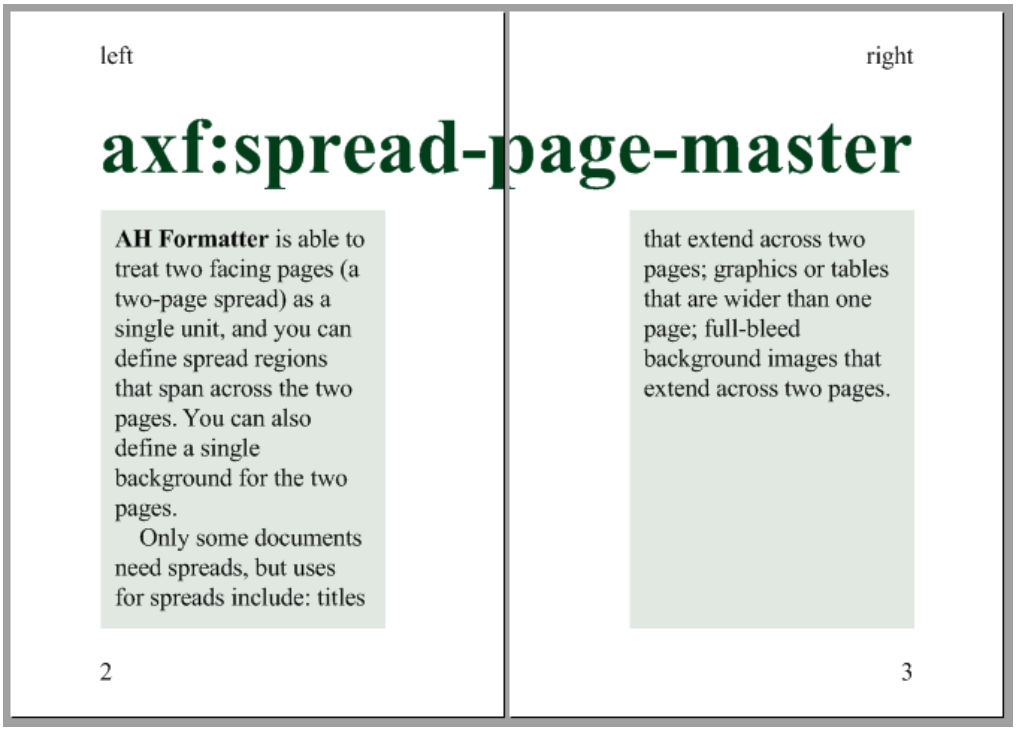
axf:right-page-master-reference refers to the page master that defines the page size and the non-spread regions for the right-hand page of a two-page spread.

Example

The following example shows two pages generated using an `<axf:spread-page-master>`. The definitions of the page sizes and non-spread regions are from the “left” and “right” `<fo:simple-page-master>` that are referred to from the “spreadpm” `<axf:spread-page-master>`. The `<axf:spread-page-master>` defines a “top” `<axf:spread-region>` that spans across the two pages of the spread. In this example, the “top” region contains a title. The content of the “xsl-region-body” flow generates areas in the body regions defined by the `<fo:region-body>` in the two `<fo:page-sequence-master>`.

```
<fo:root xmlns:fo="http://www.w3.org/1999/XSL/Format"
                                xmlns:axf="http://www.antennahouse.com/names/XSL/Extensions">
 <fo:layout-master-set>
  <fo:simple-page-master master-name="left" page-width="70mm" page-height="100mm">
   <fo:region-body margin="36pt" margin-right="48pt" background-color="#E1E8E2"
                                                                        padding="6pt"/>
   <fo:region-before region-name="left-header" extent="36pt" padding-start="36pt"
                                                              display-align="center"/>
   <fo:region-after extent="36pt" padding-start="36pt" display-align="center"/>
  </fo:simple-page-master>
  <fo:simple-page-master master-name="right" page-width="70mm" page-height="100mm">
   <fo:region-body margin="36pt" margin-left="48pt" background-color="#E1E8E2" padding="6pt"/>
   <fo:region-before region-name="right-header" extent="36pt" padding-end="36pt"
                                                              display-align="center"/>
   <fo:region-after extent="36pt" padding-end="36pt" display-align="center"/>
  </fo:simple-page-master>
  <axf:spread-page-master master-name="spreadpm" left-page-master-reference="left"
                                                 right-page-master-reference="right">
   <axf:spread-region region-name="top" margin="36pt" margin-bottom="72mm"/>
  </axf:spread-page-master>
  <fo:page-sequence-master master-name="psm">
   <fo:repeatable-page-master-reference master-reference="spreadpm"/>
   <fo:repeatable-page-master-alternatives>
    <fo:conditional-page-master-reference master-reference="left" odd-or-even="even"/>
    <fo:conditional-page-master-reference master-reference="right" odd-or-even="odd"/>
   </fo:repeatable-page-master-alternatives>
  </fo:page-sequence-master>
 </fo:layout-master-set>
 <fo:page-sequence master-reference="psm" initial-page-number="2"
                                                        force-page-count="end-on-odd">
```

```
  <fo:static-content flow-name="left-header">
   <fo:block text-align="outside" margin="0">left</fo:block>
  </fo:static-content>
  <fo:static-content flow-name="right-header">
   <fo:block text-align="outside" margin="0">right</fo:block>
  </fo:static-content>
  <fo:static-content flow-name="xsl-region-after">
   <fo:block text-align="outside" margin="0"><fo:page-number /></fo:block>
  </fo:static-content>
  <fo:flow flow-name="top">
   <fo:block-container height="100%" color="#003D19" font-size="100pt" overflow="condense"
                                        axf:overflow-condense="font-size" font-weight="bold">
    <fo:block>axf:spread-page-master</fo:block>
   </fo:block-container>
  </fo:flow>
  <fo:flow flow-name="xsl-region-body">
   <fo:block>
    <fo:inline font-weight="bold">AH Formatter</fo:inline> is able to treat two facing pages
  (a two-page spread) as a single unit, and you can define spread regions that span across the
                          two pages. You can also define a single background for the two pages.
   </fo:block>
   <fo:block text-indent="1em">
    Only some documents need spreads, but uses for spreads include: titles that extend across
 two pages; graphics or tables that are wider than one page; full-bleed background images that
                                                                                extend across two pages.
   </fo:block>
  </fo:flow>
 </fo:page-sequence>
</fo:root>
```



Automated Analysis no-LT

AH Formatter V7.1 is able to automatically detect a range of typographic problems in the formatted Area Tree. Solving these problems usually requires editorial or stylistic changes, and sometimes both.

Specify `-analyze` on the **AH Formatter V7.1** Command-line Interface to enable analysis. Any problems detected are reported in the error information output. An XSLT stylesheet for annotating the Area Tree XML with visual indications of the analysis problems is available on GitHub at `https://github.com/AntennaHouse/analysis-utility` You are free to modify the XSLT stylesheet you obtained, but it is outside the scope of our support.

Every language, including English, has stylistic conventions for formatted text. The origins of the conventions may be for readability, for aesthetics, for commercial reasons, or for a mix of these. Some are now just considered to be good design without reference to the underlying reason. Books on typography or book design will usually cover a subset of possible problems, but even the reference books differ in what they consider to be a problem, the threshold for a condition becoming a problem, and even the terminology for describing a problem.

CAUTION: Automated Analysis is not available with **AH Formatter V7.1 Lite**.

Analyzers

The checks, which can be individually enabled or disabled in the Option Setting File, are:

- End Blank Pages
- Hyphens on Consecutive Lines
- Repeated First or Last Word
- Number of Lines Before or After Current Block V7.1
- Page Widow
- Paragraph Widow
- River V7.1
- Unbalanced Spread
- White-space V7.1

End Blank Pages

This analyzer reports when the number of blank pages exceeds the end-blank-pages-limit option setting.

The printing and binding method used for a book may require that the book is a multiple of 8, 16, 32, or even more pages. Extensions to the force-page-count property make this possible with **AH Formatter V7.1**. However, the forced page count may create empty pages at the end of the document just to fulfil the requirement. Empty pages are a cost to the publisher with little or no obvious benefit.

Hyphens on Consecutive Lines

This analyzer reports when the number of consecutive lines that end with a hyphen exceeds the hyphen-limit option setting.

Too many consecutive lines that end with a hyphen increase the likelihood that a reader will either skip reading a line or read the same line twice. Both the Chicago Manual of Style (17th edition) and Elements of Typographic style recommend a maximum of three consecutive lines that end with a hyphen.

AH Formatter V7.1 implements the XSL 1.1 hyphenation-ladder-count property for automatically limiting the number of successive lines that end with a hyphen. For CSS, it implements the similar `hyphenate-lines` from an early draft of GCPM. However, the appropriate property may not have been set, or it may be preferable to review the lines before letting **AH Formatter V7.1** automatically adjust the lines.

CAUTION: This analyzer ignores blocks with a right-to-left writing mode.

Repeated First or Last Word

This analyzer reports when the number of consecutive lines that start with the same word exceeds the line-start-repeat-limit option setting or the number of consecutive lines that end with the same word exceeds the line-end-repeat-limit option setting.

This is similar to the problem with multiple consecutive lines that end on a hyphen. Multiple consecutive lines that start with the same word or lines that end with the same word can result in a reader either skipping a line of text or rereading a line. The Chicago Manual of Style (17th edition) recommends a maximum of three lines that either start or end with the same word. Book Typography warns against multiple lines that end with the same word but does not provide a limit and does not mention lines that start with the same word.

Lines Before or After Current Block V7.1

When chapters does not start on a new page, there can be a requirement for a minimum number of lines either before or after the chapter heading. Book Typography recommends at least three lines above and below the chapter heading. This can usually be enforced using the widows and orphans properties, but not when, for example, the previous chapter ends with short lines of dialogue.

A section break is a space the height of one or two blank lines, possibly containing an asterisk or other symbol or symbols. It indicates a change of scene or subject. There can be a requirement for a minimum number of lines above and below a section break. Book Typography recommends at least two lines above and below a section break.

This analyzer reports when the number of lines before the current block is more than zero but less than the axf:analyze-lines-before property or the number of lines after the current block is more than zero but less than the axf:analyze-lines-after property. The effect of the properties can be disabled using the lines-before and lines-after option settings.

CAUTION: If there is a requirement for at least one line before or after the current block area, use keep-with-previous or keep-with-next, as appropriate.

CAUTION: Content of `<fo:list-item-label>` is not counted as lines.

CAUTION: This analyzer only counts lines in the same reference area.

Page Widow

This analyzer reports when a short last line of a block of text is formatted as the first line on a page or column. The line is too short when it is shorter than either the page-widow-limit-em or page-widow-limit-percent option setting.

widows is name of the XSL and CSS property that controls the number of line of a paragraph that must be left at the top of a page.

Paragraph Widow

This analyzer reports when a block of text has a short last line. The line is too short when it is shorter than either the paragraph-widow-limit-em or paragraph-widow-limit-percent option setting.

widows is name of the XSL and CSS property that controls the number of line of a paragraph that must be left at the top of a page.

River V7.1

A river occurs where spaces on consecutive lines overlap, or nearly overlap. Rivers are more likely to occur in justified text than in text that is aligned to one side or is centered. A large or long river of white-space may interfere with comprehension of the text. People differ in their sensitivity to rivers, but it is often noted as problem for people with certain cognitive disabilities, including dyslexsia.

`axf:analyze-river="auto"`

`axf:analyze-river="1em 0.5em"`

This analyzer reports when the cumulative width of overlapping white-space on consecutive lines exceeds the river option setting. The option setting may be overridden using the axf:analyze-river property.

Non-overlapping spaces on consecutive lines that are within the river-zone option setting length are considered a part of the same river. The option setting may be overridden using the axf:analyze-river property.

CAUTION: This analyzer applies only to blocks with a left-to-right writing mode.

Unbalanced Spread

This analyzer reports when the difference in the formatted length of the text in corresponding body regions on the left-hand and right-hand pages of a two-page spread exceeds the unbalanced-spread-limit option setting. The option setting may be overridden using the axf:analyze-unbalanced-spread property.

A spread is not checked if either the left or right page of the spread is the last page of its page sequence.

White-space V7.1

This analyzer reports when the white-space between words in a line is stretched and exceeds the white-space option setting. The option setting may be overridden using the axf:analyze-white-space property.

CAUTION: This analyzer applies only to blocks with a left-to-right writing mode.

Extended Properties

axf:analyze V7.1 no-LT

Specifies whether to perform analyzer checks on the current FO and its descendants.

Value: true | false | auto

Initial: auto
Applies to: all elements
Inherited: no
Percentages: N/A

Values have the following meanings:

`true`

Perform analyzer checks on this FO and its descendants.

`false`

Do not perform analyzer checks on either this FO or its descendants

`auto`

Dependent on the system setting. This is the value specified by analyze in the Option Setting File.

This property is not available with **AH Formatter V7.1 Lite**.

axf:analyze-end-blank-page V7.1 no-LT

Specifies whether to perform end-blank-page analyzer checks on the current FO and its descendants.

Value: auto | none | <integer>
Initial: auto
Applies to: fo:page-sequence
Inherited: yes
Percentages: N/A

Values have the following meanings:

`auto`

Dependent on the system setting. This is the value specified by end-blank-pages-limit in the Option Setting File.

`none`

Do not perform end-blank-page analyzer checks on this FO or its descendants.

`<integer>`

Allowed number of blank pages at the end of document. Blank pages in excess of this causes an analyzer error.

This property is not available with **AH Formatter V7.1 Lite**.

axf:analyze-hyphen V7.1 no-LT

Specifies whether to perform hyphen analyzer checks on the current FO and its descendants.

Value: auto | none | <integer>
Initial: auto
Applies to: block elements
Inherited: yes
Percentages: N/A

Values have the following meanings:

`auto`

Dependent on the system setting. This is the value specified by hyphen-limit in the Option Setting File.

`none`

Do not perform hyphen analyzer checks on this FO or its descendants.

`<integer>`

Allowed number of consecutive lines that end with a hyphen. Consecutive lines in excess of this causes an analyzer error.

This property is not available with **AH Formatter V7.1 Lite**.

axf:analyze-line-end-repeat V7.1 no-LT

Specifies whether to perform line-end-repeat analyzer checks on the current FO and its descendants.

Value:	auto | none | [<integer> <integer>?]
Initial:	auto
Applies to:	block elements
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`auto`

Dependent on the system setting. This is the value specified by line-end-repeat-limit in the Option Setting File.

`none`

Do not perform line-end-repeat analyzer checks on this FO or its descendants.

`<integer>`

Allowed number of consecutive lines that end with the same word. Lines in excess of this causes an analyzer error.

A second integer specifies the maximum number of characters at the end of the line to compare. This overrides the value specified by line-end-limit in the Option Setting File.

This property is not available with **AH Formatter V7.1 Lite**.

axf:analyze-line-start-repeat V7.1 no-LT

Specifies whether to perform line-start-repeat analyzer checks on the current FO and its descendants.

Value:	auto | none | [<integer> <integer>?]
Initial:	auto
Applies to:	block elements
Inherited:	yes
Percentages:	N/A

Values have the following meanings:

`auto`

Dependent on the system setting. This is the value specified by line-start-repeat-limit in the Option Setting File.

`none`

Do not perform line-start-repeat analyzer checks on this FO or its descendants.

`<integer>`

Allowed number of consecutive lines that start with the same word. Lines in excess of this causes an analyzer error.

A second integer specifies the maximum number of characters at the start of the line to compare. This overrides the value specified by line-start-limit in the Option Setting File.

This property is not available with **AH Formatter V7.1 Lite**.

axf:analyze-lines-after V7.1 no-LT

Specifies whether to analyze the number of lines after the last area generated by this FO.

Value:	none | <integer>
Initial:	none
Applies to:	block elements
Inherited:	no

Percentages: N/A

Values have the following meanings:

`none`

Do not perform lines-after analyzer checks on this FO.

`<integer>`

Minimum number of consecutive lines in the current column after the last area generated from this FO. A non-zero number of following lines less than this causes an analyzer error.

This property is not available with **AH Formatter V7.1 Lite**.

axf:analyze-lines-before V7.1 no-LT

Specifies whether to analyze the number of lines before the first area generated by this FO.

Value: none | <integer>
Initial: none
Applies to: block elements
Inherited: no
Percentages: N/A

Values have the following meanings:

`none`

Do not perform lines-before analyzer checks on this FO.

`<integer>`

Minimum number of consecutive lines in the current column before the first area generated from this FO. A non-zero number of previous lines less than this causes an analyzer error.

This property is not available with **AH Formatter V7.1 Lite**.

axf:analyze-page-widow V7.1 no-LT

Specifies whether to perform page widow analyzer checks on the current FO and its descendants.

Value: auto | none | <length> | <percentage>
Initial: auto
Applies to: all elements
Inherited: yes
Percentages: refer to the width of line

Values have the following meanings:

`auto`

Dependent on the system setting. This is the value specified by page-widow in the Option Setting File.

`none`

Do not perform page widow analyzer checks on this FO or its descendants.

`<length>`
`<percentage>`

Minimum length of a page widow. A page widow that is less than this length causes an analyzer error.

This property is not available with **AH Formatter V7.1 Lite**.

axf:analyze-paragraph-widow V7.1 no-LT

Specifies whether to perform paragraph widow analyzer checks on the current FO and its descendants.

Value: auto | none | <length> | <percentage>
Initial: auto
Applies to: all elements
Inherited: yes
Percentages: refer to the width of line

Values have the following meanings:

`auto`

Dependent on the system setting. This is the value specified by paragraph-widow in the Option Setting File.

`none`

Do not perform paragraph widow analyzer checks on this FO or its descendants.

`<length>`
`<percentage>`

Minimum length of a paragraph widow. A paragraph widow that is less than this length causes an analyzer error.

This property is not available with **AH Formatter V7.1 Lite**.

axf:analyze-river V7.1 no-LT

Specifies whether to perform river analyzer checks on the current FO and its descendants.

Value: auto | none | [<length> <length>?]
Initial: auto
Applies to: block elements
Inherited: yes
Percentages: N/A

Values have the following meanings:

`auto`

Dependent on the system setting. This is the value specified by river in the Option Setting File.

`none`

Do not perform river analyzer checks on this FO or its descendants.

`<length>`

Maximum cumulative length of a white-space river. A cumulative width that is greater than this length causes an analyzer error.

A second length specifies the “river zone” in which two spaces on consecutive lines that do not overlap are considered part of the same river. This overrides the value specified by river-zone in the Option Setting File.

This property is not available with **AH Formatter V7.1 Lite**.

axf:analyze-unbalanced-spread V7.1 no-LT

Specifies whether to perform unbalanced-spread analyzer checks on the current FO and its descendants.

Value: auto | none | <length>
Initial: auto
Applies to: fo:region-body
Inherited: yes
Percentages: N/A

Values have the following meanings:

`auto`

Dependent on the system setting. This is the value specified by unbalanced-spread-limit in the Option Setting File.

`none`

Do not perform unbalanced-spread analyzer checks on this FO or its descendants.

`<length>`

Maximum vertical imbalance of the last areas of two body regions with the same region name on facing pages of one spread. An imbalance that is greater than this length causes an analyzer error.

This property is not available with **AH Formatter V7.1 Lite**.

axf:analyze-white-space V7.1 no-LT

Specifies whether to perform white-space analyzer checks on the current FO and its descendants.

Value:	auto | none | <length> | <percentage>
Initial:	auto
Applies to:	block elements
Inherited:	yes
Percentages:	refer to the width of line

Values have the following meanings:

`auto`

Dependent on the system setting. This is the value specified by white-space in the Option Setting File.

`none`

Do not perform white-space analyzer checks on this FO or its descendants.

`<length>`
`<percentage>`

Maximum length of white-space between words on a line. A width that is greater than this length causes an analyzer error.

This property is not available with **AH Formatter V7.1 Lite**.

Error Message Format

Error messages from analyzing the Area Tree may include one or both of a message about the error and an indication of the location of the error. The general format of an analyzer error in XML format is:

```
<error level="1" code="45959">
Message
location:: page: 3; ax: 18; ay: 242; bx: 191.764; by: 270;
</error>
```

where:

- `Message`
  Error message text. This may be omitted. For example, when the number of blank pages at the end of the document exceeds the limit by more than one page, an error message is generated for each page, but only the last page has the error message text showing the number of excess pages.
- `location::`
  Literal text that is included in every location indication.
- `page: 3`
  Absolute page number of the page containing the error.
- `ax: 18`
  Absolute position, in pt, of the right edge of the error indication area.
- `ay: 242`
  Absolute position, in pt, of the top edge of the error indication area.
- `bx: 191.764`
  Absolute position, in pt, of the left edge of the error indication area.

- `by: 270`
  Absolute position, in pt, of the bottom edge of the error indication area.

Note that the error indication area does not always correspond to a single area in the Area Tree.

References

- Bringhurst, R. (2001). The Elements of Typographic Style (2.4 ed.). Vancouver, BC, Canada: Hartley & Marks.
- Mitchell, M., & Wrightman, S. (2005). Book Typography: A Designer's Manual. Marlborough, Wiltshire: Libanus Press.
- The University of Chicago Press. (2017). The Chicago Manual of Style (17th ed.). Chicago and London: The University of Chicago Press.
- W3C. (2014, September 30). Requirements for Latin Text Layout and Pagination. (D. Cramer, Ed.) Retrieved from: https://www.w3.org/TR/dpub-latinreq/

Barcode Generator Option

Barcode Generator Option enables you to embed barcodes directly in the document as images. Barcode fonts are not necessary.

> Customers must purchase “AH Formatter Barcode Generator Option” to generate Barcodes. For more details, see also Antenna House website.

Barcode Generator Option supports the following barcode formats.

- QR / MicroQR
- Data Matrix
- PDF417
- Aztec Code V7.1
- Japan Post Customer Barcode
- Intelligent Mail® Barcode
- POSTNET
- EAN / JAN
- UPC (UPC-A, UPC-E)
- Interleaved 2of5 (ITF)
- Codabar / NW-7
- Code 39
- Code 128
- GS1-128 / EAN-128

The barcode can be specified by using data scheme as follows:

```
<!-- XSL-FO example -->
<fo:external-graphic src="data:application/vnd.ah-barcode;type=QR;scale=2,Hello%20World!"/>

<!-- HTML example -->
<img src="data:application/vnd.ah-barcode;type=QR;scale=2,Hello%20World!"/>
```

`application/vnd.ah-barcode` is a special media type of its own use. The barcode content you want to output can be specified directly as strings as shown above. Note that at this time, an improper character as URI should be expressed by the % encode. You can also specify it with Base64.

```
<!-- XSL-FO example -->
<fo:external-graphic src="data:application/vnd.ah-barcode;type=QR; base64,PD94bWwgdmVyc2lv..."/>

<!-- HTML example -->
<img src="data:application/vnd.ah-barcode;type=QR; base64,PD94bWwgdmVyc2lv..."/>
```

The barcode output is controlled by the parameter of the media type. The parameter is not case-sensitive. The type parameter is required and indicates the types of the barcode to output.

The barcode is always enforced by axf:image-smoothing="false".

CAUTION: This document does not cover barcode specifications. Refer instead to the specification of each barcode type.

QR / MicroQR

QR codes complies with the international standard of ISO/IEC 18004:2006. Barcode Generator Option only supports QR Model2, does not support Model1. The following parameters can be specified.

Parameter	Value		Default	Contents
type	QR	MicroQR	<Required>	

Parameter	Value		Default	Contents
ver	auto | 1 to 40	auto | 1 to 4	auto	Version
ecl	auto | L | M | Q | H		auto	Error correction level
enc	auto | [N || A || B || K]		auto	Encoding auto Equivalent to NABK N Numbers `0123456789` A Alphanumeric `0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ$%*+-./:` space B Bytes K Kanji Shift JIS
mpr	auto | 0 to 7	auto | 0 to 3	auto	Mask pattern reference
scale	<positive-numbers>		1	Output size of 1 cell
qz	<non-negative-numbers>		4 or 2	Margin (quiet zone). Default: 4 for QR, 2 for MicroQR
out	svg | png		svg	Output formats
dpi	<non-negative-numbers>		0	The png image resolution (0, if nothing specified)
color	<color>		black	Barcode color
bgcolor	<color>		white	Barcode background-color
charset	<arbitrary-character-strings>		UTF-8	Encoding by the direct character string specification

By specifying `auto` for ver, an appropriate version will be applied according to the data length.

By specifying `auto` for ecl (error correction level), an appropriate error correction level will be applied according to the data and the version.

Multiple values can be specified to enc excluding `auto`. For instance, suppose enc=NAB is specified, these three are mixed and outputted appropriately. If failed to output with the specified encoding, an error will be generated.

Some sort of masking is given to QR so that a monochrome pattern may become even as much as possible. The mpr specification by the mask pattern reference enforces this processing to one particular pattern. It may be less uniformity than the pattern automatically selected, but it doesn't mean the wrong QR.

The specifiable format for scale as the output size of 1 cell differs between `svg` and `png`.

- `svg`
  The positive real number with a unit can be specified. 0 or less cannot be specified. Enter a value and choose a unit option (em, ex, px, pt, pc, and in, cm or mm). If the unit is omitted, it is considered px.
- `png`
  The integral value greater than or equal to 1 can be specified. The unit should not be included. When the value of a real number is specified, below the decimal point will be rounded down.

A value of the margin (quiet zone) which can be specified with the qz specification is 4 for QR and 2 for MicroQR. This value can be changed to smaller; however, we do not guarantee the best result.

The dpi specification for image resolution is effective only with `png` and the value of a real number can be specified. The unit should not be included.

Any color other than `transparent` can be specified for the color specification, however png is converted to RGB if color or bgcolor is specified. You can also specify `transparent` for the bgcolor specification.

- color=red
- color='#FF0000'
- color='rgb-icc(#Grayscale,0.5)'

In this example, note that a value is processed with quotation marks appropriately. If you do not use quotation marks, you must process a value with % escape appropriately as below:

- color=%23FF0000
- color=rgb-icc(%23Grayscale%2C0.5)

If semi-transparent is specified for color, the color tone of the barcode may differ between `svg` and `png`. While color of foreground is drawn on top of bgcolor of background in `svg`, bgcolor and color are not drawn overlapping in `png`.

The charset specification indicates the encoding outputted to QR when the character string is specified directly and it's not Base64. This setting is applied when kanji is not specified to the encoding. The data specified by Base64 is outputted as is with no conversion.

CAUTION: QR cannot process all range of Shift JIS codes in kanji mode. These characters may not be readable for some QR readers.

CAUTION: Structured Append is not supported.

Data Matrix

Data Matrix complies with the international standard of ISO/IEC 16022:2006. Barcode Generator Option only supports ECC 200. The following parameters can be specified.

Parameter	Value	Default	Contents
type	DataMatrix | DM	<Required>	
enc	auto | [A || C || T || X || E || B] | raw	auto	Encoding auto Equivalent to ACTXB A ASCII C C40 T Text X ANSI X12 E EDIFACT B Base 256 raw Raw data
shape	S | R	S	Barcode shape S Square R Rectangular
scale	<positive-numbers>	1	Output size of 1 cell ☞ scale
qz	<non-negative-numbers>	1	Margin (quiet zone)
out	svg | png	svg	Output formats
dpi	<non-negative-numbers>	0	The png image resolution (0, if nothing specified)
color	<color>	black	Barcode color ☞ color
bgcolor	<color>	white	Barcode background-color ☞ color

Multiple values other than `auto` or `raw` can be specified with the enc specification (encoding specification). For instance, when enc=ACE is specified, these three values are mixed and output properly. In this case, `A` is always considered to be specified even if it is not specified.
When `raw` is specified, the input data is output without change. In this case, note the following:

- No error correction code is included in the input data.
- Automatic padding is not applied so an error occurs if the data size does not reach the capacity of the matrix.
- We do not guarantee whether the input data meets the specification requirements.

The dpi specification for image resolution is effective only with `png` and the value of a real number can be specified. The unit should not be included.

CAUTION: Structured Append is not supported.

PDF417

PDF417 complies with the international standard of ISO/IEC 15438:2006. Barcode Generator Option does not support CompactPDF417, MacroPDF417 or MicroPDF417. The following parameters can be specified.

Parameter	Value	Default	Contents
type	PDF417	<Required>	
enc	auto | [T || N || B]	auto	Encoding auto Equivalent to TNB T Text N Numeric B Byte
ecl	auto | 0 to 8	auto	Error correction level
r	auto | 3 to 90	auto	Number of rows
c	auto | 1 to 30	auto	Number of columns per row (data only)
h	<positive-numbers>	3	Height of a row (proportion to the width)
scale	<positive-numbers>	1	Width of a bar ☞ scale
qzx	<non-negative-numbers>	2	Horizontal margin (quiet zone)
qzy	<non-negative-numbers>	2	Vertical margin (quiet zone)
out	svg | png	svg	Output formats
dpi	<non-negative-numbers>	0	The `png` image resolution (0, if nothing specified)
color	<color>	black	Barcode color ☞ color
bgcolor	<color>	white	Barcode background-color ☞ color

Multiple values can be specified to enc excluding `auto`. For instance, suppose enc=TNB is specified, these three are mixed and outputted appropriately. If failed to output with the specified encoding, an error will be generated.

Bar code size can be specified with r and c. c specifies the number of columns for data only. Start pattern, left row identifier, right row identifier and end pattern are not included. If no values are specified with both r and c, their necessary values are automatically calculated. If a value is specified with either r or c, a value of the other one is automatically calculated. If values are specified with both of them, and the values are less than necessary size, an error occurs. The number of bars per row is `c*17+69`.

h specifies the height of the bar per row how many times longer than the width of the bar. In the specification, greater than or equal to 3 is required. A smaller value can be specified; however, we do not guarantee the best result.

A margin (quiet zone) can be specified with qzx and qzy. In the specification, greater than or equal to 2 is required. A smaller value can be specified; however, we do not guarantee the best result.

The dpi specification for image resolution is effective only with `png` and the value of a real number can be specified. The unit should not be included.

Aztec Code V7.1

Aztec Code complies with the international standard of ISO/IEC 24788:2008. The following parameters can be specified.

Parameter	Value		Default	Contents
type	Aztec	AztecRune	<Required>	
ecl	5 to 95		23	Error correction level (%) (Invalid for AztecRune)
scale	<positive-numbers>		1	Output size of 1 cell ☞ scale
qz	<non-negative-numbers>		0	Margin (quiet zone)
out	svg | png		svg	Output formats
dpi	<non-negative-numbers>		0	The `png` image resolution (0, if nothing specified)
color	<color>		black	Barcode color ☞ color
bgcolor	<color>		white	Barcode background-color ☞ color

In the case of AztecRune, a decimal character string from 0 to 255 is given as the input data.

ecl is the percentage of code generated from the input data. The total number of codes is at least `(number of generated codes+3)*100/(100-ecl)`.

The dpi specification for image resolution is effective only with `png` and the value of a real number can be specified. The unit should not be included.

CAUTION: Extended Channel Interpretation (ECI), Reader Initialization Symbol are not supported. Structured Append is not supported.

Customer Barcodes

Customer barcodes indicate Japan Post Customer Barcode or Intelligent Mail® Barcode, etc. The following parameters can be specified.

Parameter	Value	Default	Contents
type	JPCBC	<Required>	Japan Post Customer Barcode
	IMBC		Intelligent Mail® Barcode
	POSTNET		
l	<positive-numbers>	<Described later>	Length of long bar/full bar
t	<positive-numbers>	<Described later>	Length of timing bar/tracker bar
h	<positive-numbers>	<Described later>	Length of half bar (POSTNET only)
w	<positive-numbers>	<Described later>	Width of bar
p	<positive-numbers>	<Described later>	Pitch of bar
hsp	<non-negative-numbers>	<Described later>	Horizontal margin
vsp	<non-negative-numbers>	<Described later>	Vertical margin
out	svg | png	svg	Output format
dpi	<positive-numbers>	384	`png` image resolution
color	<color>	black	Barcode color ☞ color
bgcolor	<color>	white	Barcode background-color ☞ color

The length and width of the bar, and the margin, etc should be the values with units. Enter a value and choose a unit option (pt, pc, in, cm or mm). The default values are as follows:

Parameters	JPCBC	IMBC	POSTNET
l	3.6mm	0.15in	0.125in
t	1.2mm	0.05in	
h			0.05in
w	0.6mm	0.02in	0.02in
p	1.2mm	0.045in	0.0416in
hsp	2.0mm	0.125in	0
vsp	2.0mm	0.028in	0

When outputting `png`, the length and the width of the bar are rounded to the number of pixels by the dpi specification. Therefore, the output may differ slightly from the specified length. When a low resolution is specified, the barcode may not be correctly read.

The dpi specification for image resolution is effective only with `png` and the value of a real number can be specified. The unit should not be included.

Japan Post Customer Barcode

Japan Post Customer Barcode can be specified by the `JPCBC` value and the following characters can be specified. The first seven characters indicates the ZIP code. Then the numbers that show postal address will follow afterwards. If the postal address numbers indicates greater than 13 characters, by counting 2 alphabets as 1 character, then the latter parts greater than 13 characters will be discarded. Lower case will be converted into upper case.

```
0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ-
```

Intelligent Mail® Barcode

Intelligent Mail® Barcode can be specified by the `IMBC` value and only numbers with the determined digit numbers can be specified. The allowed digit numbers are 20, 25, 29 or 31. In addition, the second digit must be 0 to 4.

POSTNET

Only numbers with the determined digit numbers can be specified to `POSTNET`. The allowed digit numbers are 5, 9, or 11.

Linear Barcodes

Linear barcodes indicate 1 dimensional barcodes. The following parameters can be specified.

Parameter	Value	Default	Contents
type	EAN | JAN	<Required>	
	UPC		UPC-A, UPC-E
	ITF		Interleaved 2of5
	Codabar | NW-7		
	Code39		
	Code128		
	GS1-128 | EAN-128		
w	<positive-numbers>	0.33mm	Width of thin bar
r	<positive-numbers>	2.5	Width ratio between thin and wide bars It's not used with EAN JAN UPC Code128 GS1-128 EAN-128
h	<positive-numbers>	22.86mm	Width of bar
qz	<non-negative-numbers>	10	Specifies the horizontal margin (quiet zone) by the number of thin bars.

Parameter	Value	Default	Contents
scale	<positive-numbers>	1	Display magnification
out	svg | png	svg	Output format
dpi	<positive-numbers>	384	`png` image resolution
color	<color>	black	Barcode color ☞ color
bgcolor	<color>	white	Barcode background-color ☞ color
text	none | auto | center | justify	none	Specifies how the text of an original code is displayed under the barcode.

The length and width of the bar, and the margin, etc should be the values with units. Enter a value and choose a unit option (pt, pc, in, cm or mm).

When outputting `png`, the length and the width of the bar are rounded to the number of pixels by the dpi specification. Therefore, the output may differ slightly from the specified length. When a low resolution is specified, the barcode may not be correctly read.

The dpi specification for image resolution is effective only with `png` and the value of a real number can be specified. The unit should not be included.

You can display the text of an original code under the barcode by specifying values to `text`. Only the typical display format can be specified. This is effective only with `svg` output. Specify the font you want to use by barcode-text-font in Option Setting File. The size of a character is automatically calculated from the size of a barcode.

- `none`
  Does not display text.
- `auto`
  With JAN/EAN/UPC, the standard output, like drawing out a part of bar and pushing the beginning character toward left, will be performed. With other than JAN/EAN/UPC, it is treated as center.
- `center`
  Displays centered text.
- `justify`
  Displays justified text by fitting the right and left edge of the text on the width of the barcode.

EAN / JAN

`EAN` complies with the international standard of ISO/IEC 15420:2009. `JAN` is the same as `EAN`. In EAN/JAN, the allowed digit numbers are 13 or 8 only by the figure. The last digit is the check digit. It is acceptable to input 12 digits or 7 digits excluding the check digit. When 13 digits or 8 digits are given, the last digit will be ignored, calculated and replaced correctly when outputted.

UPC

In `UPC`, the allowed digit numbers are 12 or 8 only by the figure. 12 digits are UPC-A, and eight digits are UPC-E. In UPC-E, the first digit must be 0 or 1. The last digit is the check digit. It is acceptable to input 11 digits or 7 digits excluding the check digit. When 12 digits or 8 digits are given, the last digit will be ignored, calculated and replaced correctly when outputted. UPC-D is not supported.

Interleaved 2of5

Interleaved 2of5 complies with the international standard of ISO/IEC 16390:2007. Interleaved 2of5 can be specified with `ITF`. In `ITF`, only the figure in the even number digit can be specified.

Codabar / NW-7

In `Codabar`/`NW-7`, the beginning of a string must be one of `ABCD`. The end character must be one of `ABCD` or `TN*E`. The character in the middle can be specified from the following in any arbitrary digit. The lower case of the beginning and end of English letters will be converted into the upper case.

```
0123456789-$/:.+
```

You can specify whether to add the check digit or not. When the check digit is added, there may be a limit on characters that can be used.

Parameter	Value	Default	Contents	Limitations
cd	none	none	None	
	m10w2		Modulus 10 weight 2	Only figures available except for the beginning and end of characters.
	m10w2r		Modulus 10 weight 2 runes	Only figures available except for the beginning and end of characters.
	m10w3		Modulus 10 weight 3	Only figures available except for the beginning and end of characters.
	m11		Modulus 11	Only figures with greater than or equal to 6 digits available except for the beginning and end of characters.
	wm11		Weight modulus 11	Only figures with less than or equal to 12 digits available except for the beginning and end of characters.
	m16		Modulus 16	
	7dr | 7dsr		7 check DR/DSR	Only figures available except for the beginning and end of characters.
	9dr | 9dsr		9 check DR/DSR	Only figures available except for the beginning and end of characters.

Code39

`Code39` complies with the international standard of ISO/IEC 16388:2007. In `Code39`, the following characters can be specified in any arbitrary digit. The lower case of the beginning and end of English letters will be converted into the upper case.

`0123456789ABCDEFGHIJKLMNOPQRSTUVWXYZ-.$/+%` space

You can specify whether to add the check digit or not.

Parameter	Value	Default	Contents
cd	none	m43	None
	m43		Modulus 43

Code128

`Code128` complies with the international standard of ISO/IEC 15417:2007. In `Code128`, three types of code sets, CODE-A, CODE-B, and CODE-C can be specified by parameters.

Parameter	Value	Default
code	A | B | C	B

In `Code128`, any arbitrary characters of U+0000 to U+007F can be expressed. Among these, U+0000 to U+001F, U+007F, and the control code will be substituted by another codes.

Input	CODE-A	CODE-B	CODE-C
U+0020	SPACE	SPACE	N/A
U+0021	!	!	N/A
U+0022	"	"	N/A
U+0023	#	#	N/A
U+0024	$	$	N/A

Input	CODE-A	CODE-B	CODE-C
U+0040	@	@	N/A
U+0041	A	A	N/A
U+0042	B	B	N/A
U+0043	C	C	N/A
U+0044	D	D	N/A

Input	CODE-A	CODE-B	CODE-C
U+0060	U+0000	`	N/A
U+0061	U+0001	a	N/A
U+0062	U+0002	b	N/A
U+0063	U+0003	c	N/A
U+0064	U+0004	d	N/A

Input	CODE-A	CODE-B	CODE-C
U+0025	%	%	N/A
U+0026	&	&	N/A
U+0027	'	'	N/A
U+0028	(	(	N/A
U+0029	)	)	N/A
U+002A	*	*	N/A
U+002B	+	+	N/A
U+002C	,	,	N/A
U+002D	-	-	N/A
U+002E	.	.	N/A
U+002F	/	/	N/A
U+0030	0	0	0
U+0031	1	1	1
U+0032	2	2	2
U+0033	3	3	3
U+0034	4	4	4
U+0035	5	5	5
U+0036	6	6	6
U+0037	7	7	7
U+0038	8	8	8
U+0039	9	9	9
U+003A	:	:	N/A
U+003B	;	;	N/A
U+003C	<	<	N/A
U+003D	=	=	N/A
U+003E	>	>	N/A
U+003F	?	?	N/A

Input	CODE-A	CODE-B	CODE-C
U+0045	E	E	N/A
U+0046	F	F	N/A
U+0047	G	G	N/A
U+0048	H	H	N/A
U+0049	I	I	N/A
U+004A	J	J	N/A
U+004B	K	K	N/A
U+004C	L	L	N/A
U+004D	M	M	N/A
U+004E	N	N	N/A
U+004F	O	O	N/A
U+0050	P	P	N/A
U+0051	Q	Q	N/A
U+0052	R	R	N/A
U+0053	S	S	N/A
U+0054	T	T	N/A
U+0055	U	U	N/A
U+0056	V	V	N/A
U+0057	W	W	N/A
U+0058	X	X	N/A
U+0059	Y	Y	N/A
U+005A	Z	Z	N/A
U+005B	[	[	N/A
U+005C	\	\	N/A
U+005D	]	]	N/A
U+005E	^	^	N/A
U+005F	_	_	N/A

Input	CODE-A	CODE-B	CODE-C
U+0065	U+0005	e	N/A
U+0066	U+0006	f	N/A
U+0067	U+0007	g	N/A
U+0068	U+0008	h	N/A
U+0069	U+0009	i	N/A
U+006A	U+000A	j	N/A
U+006B	U+000B	k	N/A
U+006C	U+000C	l	N/A
U+006D	U+000D	m	N/A
U+006E	U+000E	n	N/A
U+006F	U+000F	o	N/A
U+0070	U+0010	p	N/A
U+0071	U+0011	q	N/A
U+0072	U+0012	r	N/A
U+0073	U+0013	s	N/A
U+0074	U+0014	t	N/A
U+0075	U+0015	u	N/A
U+0076	U+0016	v	N/A
U+0077	U+0017	w	N/A
U+0078	U+0018	x	N/A
U+0079	U+0019	y	N/A
U+007A	U+001A	z	N/A
U+007B	U+001B	{	N/A
U+007C	U+001C	|	N/A
U+007D	U+001D	}	N/A
U+007E	U+001E	~	N/A
U+00BF	U+001F	U+007F	N/A
U+00C0	FNC3	FNC3	N/A
U+00C1	FNC2	FNC2	N/A
U+00C2	SHIFT	SHIFT	N/A
U+00C3	CODE-C	CODE-C	N/A
U+00C4	CODE-B	FNC4	CODE-B
U+00C5	FNC4	CODE-A	CODE-A
U+00C6	FNC1	FNC1	FNC1

The following characters are available to input.

CODE-A	U+0020 to U+007E, U+00BF to U+00C6
CODE-B	U+0020 to U+007E, U+00BF to U+00C6
CODE-C	Figures with even number digits, U+00C4 to U+00C6

GS1-128 / EAN-128

`GS1-128`/`EAN-128` is `Code128` with some kind of restriction. Barcode Generator Option will check the following points (or may not). The restrictions other than these are the same as `Code128`.

- It is necessary to start with FNC1.
- Characters that can be used excluding the control code are as follows (white space is not included):

```
!"%&'()*+-./0123456789:;<=>?
ABCDEFGHIJKLMNOPQRSTUVWXYZ_
abcdefghijklmnopqrstuvwxyz
```

- FNC2 and FNC4 cannot be used.
- Recognizes the already-known application identifier (AI) and check the number of characters. Does not check the character format.
- Does not check FNC1 in case of the fixed length even if is a necessary format.

The following shows the already registered AI. If you want to change the format or AI is not listed here, it is possible to add changes in Option Setting File. * as the last digit of AI allows any arbitrary digit. For instance, 310* indicates 3100 to 3109. Format has the following meanings. The last F of the format shows that FNC1 is required.

- n3 : 3-digit numbers
- x3 : 3-digit arbitrary characters
- n-10 : Numbers with greater than or equal to 1 and less than or equal to 10 digits.
- x3-10 : Arbitrary characters with greater than or equal to 3 and less than or equal to 10 digits.

AI	format
00	n18
01	n14
02	n14
03	n14
04	n16
10	x-20 F
11	n6
12	n6
13	n6
14	n6
15	n6
16	n6
17	n6
18	n6
19	n6
20	n2
21	x-20 F
22	x-29 F
23*	x-19 Note
240	x-30 F
241	x-30 F
242	x-6 F
250	x-30 F
251	x-30 F
252	n27

AI	format
30	n-8
310*	n6
311*	n6
312*	n6
313*	n6
314*	n6
315*	n6
316*	n6
320*	n6
321*	n6
322*	n6
323*	n6
324*	n6
325*	n6
326*	n6
327*	n6
328*	n6
329*	n6
330*	n6
331*	n6
332*	n6
333*	n6
334*	n6
335*	n6
336*	n6

AI	format
340*	n6
341*	n6
342*	n6
343*	n6
344*	n6
345*	n6
346*	n6
347*	n6
348*	n6
349*	n6
350*	n6
351*	n6
352*	n6
353*	n6
354*	n6
355*	n6
356*	n6
357*	n6
360*	n6
361*	n6
362*	n6
363*	n6
364*	n6
365*	n6
366*	n6

AI	format
37	n-8 F
390*	n-15 F
391*	n4-18 F
392*	n-15 F
393*	n4-18 F
400	x-30 F
401	x-30 F
402	n17 F
403	x-30 F
410	n13
411	n13
412	n13
413	n13
414	n13
415	n13
420	x-20 F
421	x4-12 F
422	n3 F
423	n4-15 F
424	n3 F
425	n3 F
426	n3 F
7001	n13 F
7002	x-30 F
7003	n10 F

AI	format
8001	n14 F
8002	x-20 F
8003	x15-30 F
8004	x-30 F
8005	n6 F
8006	n18 F
8007	x-30 F
8008	n9-12 F
8018	n18 F
8020	x-25 F
8100	n6 F
8101	n10 F
8102	n2 F
8110	x-30 F
90	x-30 F
91	x-30 F
92	x-30 F
93	x-30 F
94	x-30 F
95	x-30 F
96	x-30 F
97	x-30 F
98	x-30 F
99	x-30 F

AI	format
253	n14-30 F
254	x-20 F

AI	format
337*	n6

AI	format
367*	n6
368*	n6
369*	n6

AI	format
7004	n-4 F
703*	x4-30 F

Note: The format of 23* is the fixed length of digit number 2*+1 against the number * of the last digits. For instance, if it is 234, it becomes x9.

PANTONE® Option

With **AH Formatter V7.1**, you can specify a color name of PANTONE® to the rgb-icc() function.

Customers must purchase “AH Formatter PANTONE® Option” to use PANTONE color names. For more details, see also Antenna House website.

For example, specify as follows in FO (you do not have to specify an alternative color):

```
rgb-icc(#Separation, 'PANTONE 185 C')
rgb-icc(#Separation, 'PANTONE Reflex Blue U')
```

You can specify color names by specifying:

```
PANTONE prefix color-name suffix
```

Prefixes (necessary for certain colors) and suffixes are as shown below:

library	prefix	suffix	example
PANTONE® Formula Guide Solid Coated		C	PANTONE 185 C
PANTONE® Formula Guide Solid Uncoated		U	PANTONE 185 U
PANTONE® Premium Metallics Coated		C	PANTONE 10101 C
PANTONE® CMYK Coated	P	C	PANTONE P 35-1 C
PANTONE® CMYK Uncoated	P	U	PANTONE P 35-1 U
PANTONE® Pastels & Neons Coated		C	PANTONE 9461 C
PANTONE® Pastels & Neons Uncoated		U	PANTONE 9461 U
PANTONE® Metallic Formula Guide Coated		C	PANTONE 871 C
PANTONE® Color Bridge® Coated		CP	PANTONE 185 CP
PANTONE® Color Bridge® Uncoated		UP	PANTONE 185 UP
PANTONE® Extended Gamut Coated		XGC	PANTONE 101 XGC

Color Names

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
Process Black	C U	Process Blue	C U CP UP XGC	Process Cyan	C U	Process Magenta	C U
Process Yellow	C U	Black	C U CP UP XGC	Black 2	C U CP UP XGC	Black 3	C U CP UP XGC
Black 4	C U CP UP XGC	Black 5	C U CP UP XGC	Black 6	C U CP UP XGC	Black 7	C U CP UP XGC
Black 0961	C U	Blue 072	C U CP UP XGC	Blue 0821	C U	Bright Red	C U
Dark Blue	C U	Green	C U CP UP XGC	Green 0921	C U	Magenta 0521	C U
Medium Purple	C U	Orange 021	C U CP UP XGC	Pink	C U	Purple	C U CP UP XGC

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
Red 032	C U CP UP XGC	Red 0331	C U	Reflex Blue	C U CP UP XGC	Rhodamine Red	C U CP UP XGC
Rubine Red	C U CP UP XGC	Silver	C	Violet	C U CP UP XGC	Violet 0631	C U
Yellow	C U CP UP XGC	Yellow 012	C U	Yellow 0131	C U	Cool Gray 1	C U CP UP XGC
Cool Gray 2	C U CP UP XGC	Cool Gray 3	C U CP UP XGC	Cool Gray 4	C U CP UP XGC	Cool Gray 5	C U CP UP XGC
Cool Gray 6	C U CP UP XGC	Cool Gray 7	C U CP UP XGC	Cool Gray 8	C U CP UP XGC	Cool Gray 9	C U CP UP XGC
Cool Gray 10	C U CP UP XGC	Cool Gray 11	C U CP UP XGC	Warm Gray 1	C U CP UP XGC	Warm Gray 2	C U CP UP XGC
Warm Gray 3	C U CP UP XGC	Warm Gray 4	C U CP UP XGC	Warm Gray 5	C U CP UP XGC	Warm Gray 6	C U CP UP XGC
Warm Gray 7	C U CP UP XGC	Warm Gray 8	C U CP UP XGC	Warm Gray 9	C U CP UP XGC	Warm Gray 10	C U CP UP XGC
Warm Gray 11	C U CP UP XGC	Warm Red	C U CP UP XGC				
XG Green	C	XG Orange	C	XG Violet	C		
1-1	P..C P..U	1-2	P..C P..U	1-3	P..C P..U	1-4	P..C P..U
1-5	P..C P..U	1-6	P..C P..U	1-7	P..C P..U	1-8	P..C P..U
1-9	P..C P..U	1-10	P..C P..U	1-11	P..C P..U	1-12	P..C P..U
1-13	P..C P..U	1-14	P..C P..U	1-15	P..C P..U	1-16	P..C P..U
2-1	P..C P..U	2-2	P..C P..U	2-3	P..C P..U	2-4	P..C P..U
2-5	P..C P..U	2-6	P..C P..U	2-7	P..C P..U	2-8	P..C P..U
2-9	P..C P..U	2-10	P..C P..U	2-11	P..C P..U	2-12	P..C P..U
2-13	P..C P..U	2-14	P..C P..U	2-15	P..C P..U	2-16	P..C P..U
3-1	P..C P..U	3-2	P..C P..U	3-3	P..C P..U	3-4	P..C P..U
3-5	P..C P..U	3-6	P..C P..U	3-7	P..C P..U	3-8	P..C P..U
3-9	P..C P..U	3-10	P..C P..U	3-11	P..C P..U	3-12	P..C P..U
3-13	P..C P..U	3-14	P..C P..U	3-15	P..C P..U	3-16	P..C P..U
4-1	P..C P..U	4-2	P..C P..U	4-3	P..C P..U	4-4	P..C P..U
4-5	P..C P..U	4-6	P..C P..U	4-7	P..C P..U	4-8	P..C P..U
4-9	P..C P..U	4-10	P..C P..U	4-11	P..C P..U	4-12	P..C P..U
4-13	P..C P..U	4-14	P..C P..U	4-15	P..C P..U	4-16	P..C P..U
5-1	P..C P..U	5-2	P..C P..U	5-3	P..C P..U	5-4	P..C P..U
5-5	P..C P..U	5-6	P..C P..U	5-7	P..C P..U	5-8	P..C P..U
5-9	P..C P..U	5-10	P..C P..U	5-11	P..C P..U	5-12	P..C P..U
5-13	P..C P..U	5-14	P..C P..U	5-15	P..C P..U	5-16	P..C P..U
6-1	P..C P..U	6-2	P..C P..U	6-3	P..C P..U	6-4	P..C P..U

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
6-5	P..C P..U	6-6	P..C P..U	6-7	P..C P..U	6-8	P..C P..U
6-9	P..C P..U	6-10	P..C P..U	6-11	P..C P..U	6-12	P..C P..U
6-13	P..C P..U	6-14	P..C P..U	6-15	P..C P..U	6-16	P..C P..U
7-1	P..C P..U	7-2	P..C P..U	7-3	P..C P..U	7-4	P..C P..U
7-5	P..C P..U	7-6	P..C P..U	7-7	P..C P..U	7-8	P..C P..U
7-9	P..C P..U	7-10	P..C P..U	7-11	P..C P..U	7-12	P..C P..U
7-13	P..C P..U	7-14	P..C P..U	7-15	P..C P..U	7-16	P..C P..U
8-1	P..C P..U	8-2	P..C P..U	8-3	P..C P..U	8-4	P..C P..U
8-5	P..C P..U	8-6	P..C P..U	8-7	P..C P..U	8-8	P..C P..U
8-9	P..C P..U	8-10	P..C P..U	8-11	P..C P..U	8-12	P..C P..U
8-13	P..C P..U	8-14	P..C P..U	8-15	P..C P..U	8-16	P..C P..U
9-1	P..C P..U	9-2	P..C P..U	9-3	P..C P..U	9-4	P..C P..U
9-5	P..C P..U	9-6	P..C P..U	9-7	P..C P..U	9-8	P..C P..U
9-9	P..C P..U	9-10	P..C P..U	9-11	P..C P..U	9-12	P..C P..U
9-13	P..C P..U	9-14	P..C P..U	9-15	P..C P..U	9-16	P..C P..U
10-1	P..C P..U	10-2	P..C P..U	10-3	P..C P..U	10-4	P..C P..U
10-5	P..C P..U	10-6	P..C P..U	10-7	P..C P..U	10-8	P..C P..U
10-9	P..C P..U	10-10	P..C P..U	10-11	P..C P..U	10-12	P..C P..U
10-13	P..C P..U	10-14	P..C P..U	10-15	P..C P..U	10-16	P..C P..U
11-1	P..C P..U	11-2	P..C P..U	11-3	P..C P..U	11-4	P..C P..U
11-5	P..C P..U	11-6	P..C P..U	11-7	P..C P..U	11-8	P..C P..U
11-9	P..C P..U	11-10	P..C P..U	11-11	P..C P..U	11-12	P..C P..U
11-13	P..C P..U	11-14	P..C P..U	11-15	P..C P..U	11-16	P..C P..U
12-1	P..C P..U	12-2	P..C P..U	12-3	P..C P..U	12-4	P..C P..U
12-5	P..C P..U	12-6	P..C P..U	12-7	P..C P..U	12-8	P..C P..U
12-9	P..C P..U	12-10	P..C P..U	12-11	P..C P..U	12-12	P..C P..U
12-13	P..C P..U	12-14	P..C P..U	12-15	P..C P..U	12-16	P..C P..U
13-1	P..C P..U	13-2	P..C P..U	13-3	P..C P..U	13-4	P..C P..U
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13-9	P..C P..U	13-10	P..C P..U	13-11	P..C P..U	13-12	P..C P..U
13-13	P..C P..U	13-14	P..C P..U	13-15	P..C P..U	13-16	P..C P..U
14-1	P..C P..U	14-2	P..C P..U	14-3	P..C P..U	14-4	P..C P..U
14-5	P..C P..U	14-6	P..C P..U	14-7	P..C P..U	14-8	P..C P..U
14-9	P..C P..U	14-10	P..C P..U	14-11	P..C P..U	14-12	P..C P..U
14-13	P..C P..U	14-14	P..C P..U	14-15	P..C P..U	14-16	P..C P..U
15-1	P..C P..U	15-2	P..C P..U	15-3	P..C P..U	15-4	P..C P..U
15-5	P..C P..U	15-6	P..C P..U	15-7	P..C P..U	15-8	P..C P..U

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
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16-1	P..C P..U	16-2	P..C P..U	16-3	P..C P..U	16-4	P..C P..U
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16-9	P..C P..U	16-10	P..C P..U	16-11	P..C P..U	16-12	P..C P..U
16-13	P..C P..U	16-14	P..C P..U	16-15	P..C P..U	16-16	P..C P..U
17-1	P..C P..U	17-2	P..C P..U	17-3	P..C P..U	17-4	P..C P..U
17-5	P..C P..U	17-6	P..C P..U	17-7	P..C P..U	17-8	P..C P..U
17-9	P..C P..U	17-10	P..C P..U	17-11	P..C P..U	17-12	P..C P..U
17-13	P..C P..U	17-14	P..C P..U	17-15	P..C P..U	17-16	P..C P..U
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23-13	P..C P..U	23-14	P..C P..U	23-15	P..C P..U	23-16	P..C P..U
24-1	P..C P..U	24-2	P..C P..U	24-3	P..C P..U	24-4	P..C P..U
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color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
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25-13	P..C P..U	25-14	P..C P..U	25-15	P..C P..U	25-16	P..C P..U
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33-9	P..C P..U	33-10	P..C P..U	33-11	P..C P..U	33-12	P..C P..U
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color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
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35-9	P..C P..U	35-10	P..C P..U	35-11	P..C P..U	35-12	P..C P..U
35-13	P..C P..U	35-14	P..C P..U	35-15	P..C P..U	35-16	P..C P..U
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38-13	P..C P..U	38-14	P..C P..U	38-15	P..C P..U	38-16	P..C P..U
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42-13	P..C P..U	42-14	P..C P..U	42-15	P..C P..U	42-16	P..C P..U
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color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
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45-13	P..C P..U	45-14	P..C P..U	45-15	P..C P..U	45-16	P..C P..U
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color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
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54-13	P..C P..U	54-14	P..C P..U	54-15	P..C P..U	54-16	P..C P..U
55-1	P..C P..U	55-2	P..C P..U	55-3	P..C P..U	55-4	P..C P..U
55-5	P..C P..U	55-6	P..C P..U	55-7	P..C P..U	55-8	P..C P..U
55-9	P..C P..U	55-10	P..C P..U	55-11	P..C P..U	55-12	P..C P..U
55-13	P..C P..U	55-14	P..C P..U	55-15	P..C P..U	55-16	P..C P..U
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56-9	P..C P..U	56-10	P..C P..U	56-11	P..C P..U	56-12	P..C P..U
56-13	P..C P..U	56-14	P..C P..U	56-15	P..C P..U	56-16	P..C P..U
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57-5	P..C P..U	57-6	P..C P..U	57-7	P..C P..U	57-8	P..C P..U
57-9	P..C P..U	57-10	P..C P..U	57-11	P..C P..U	57-12	P..C P..U
57-13	P..C P..U	57-14	P..C P..U	57-15	P..C P..U	57-16	P..C P..U
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58-9	P..C P..U	58-10	P..C P..U	58-11	P..C P..U	58-12	P..C P..U
58-13	P..C P..U	58-14	P..C P..U	58-15	P..C P..U	58-16	P..C P..U
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59-5	P..C P..U	59-6	P..C P..U	59-7	P..C P..U	59-8	P..C P..U
59-9	P..C P..U	59-10	P..C P..U	59-11	P..C P..U	59-12	P..C P..U
59-13	P..C P..U	59-14	P..C P..U	59-15	P..C P..U	59-16	P..C P..U
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60-9	P..C P..U	60-10	P..C P..U	60-11	P..C P..U	60-12	P..C P..U
60-13	P..C P..U	60-14	P..C P..U	60-15	P..C P..U	60-16	P..C P..U
61-1	P..C P..U	61-2	P..C P..U	61-3	P..C P..U	61-4	P..C P..U
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61-9	P..C P..U	61-10	P..C P..U	61-11	P..C P..U	61-12	P..C P..U

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
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62-13	P..C P..U	62-14	P..C P..U	62-15	P..C P..U	62-16	P..C P..U
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63-13	P..C P..U	63-14	P..C P..U	63-15	P..C P..U	63-16	P..C P..U
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67-13	P..C P..U	67-14	P..C P..U	67-15	P..C P..U	67-16	P..C P..U
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69-13	P..C P..U	69-14	P..C P..U	69-15	P..C P..U	69-16	P..C P..U
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70-13	P..C P..U	70-14	P..C P..U	70-15	P..C P..U	70-16	P..C P..U

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
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71-13	P..C P..U	71-14	P..C P..U	71-15	P..C P..U	71-16	P..C P..U
72-1	P..C P..U	72-2	P..C P..U	72-3	P..C P..U	72-4	P..C P..U
72-5	P..C P..U	72-6	P..C P..U	72-7	P..C P..U	72-8	P..C P..U
72-9	P..C P..U	72-10	P..C P..U	72-11	P..C P..U	72-12	P..C P..U
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75-13	P..C P..U	75-14	P..C P..U	75-15	P..C P..U	75-16	P..C P..U
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76-13	P..C P..U	76-14	P..C P..U	76-15	P..C P..U	76-16	P..C P..U
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78-9	P..C P..U	78-10	P..C P..U	78-11	P..C P..U	78-12	P..C P..U
78-13	P..C P..U	78-14	P..C P..U	78-15	P..C P..U	78-16	P..C P..U
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79-5	P..C P..U	79-6	P..C P..U	79-7	P..C P..U	79-8	P..C P..U
79-9	P..C P..U	79-10	P..C P..U	79-11	P..C P..U	79-12	P..C P..U
79-13	P..C P..U	79-14	P..C P..U	79-15	P..C P..U	79-16	P..C P..U
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color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
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80-9	P..C P..U	80-10	P..C P..U	80-11	P..C P..U	80-12	P..C P..U
80-13	P..C P..U	80-14	P..C P..U	80-15	P..C P..U	80-16	P..C P..U
81-1	P..C P..U	81-2	P..C P..U	81-3	P..C P..U	81-4	P..C P..U
81-5	P..C P..U	81-6	P..C P..U	81-7	P..C P..U	81-8	P..C P..U
81-9	P..C P..U	81-10	P..C P..U	81-11	P..C P..U	81-12	P..C P..U
81-13	P..C P..U	81-14	P..C P..U	81-15	P..C P..U	81-16	P..C P..U
82-1	P..C P..U	82-2	P..C P..U	82-3	P..C P..U	82-4	P..C P..U
82-5	P..C P..U	82-6	P..C P..U	82-7	P..C P..U	82-8	P..C P..U
82-9	P..C P..U	82-10	P..C P..U	82-11	P..C P..U	82-12	P..C P..U
82-13	P..C P..U	82-14	P..C P..U	82-15	P..C P..U	82-16	P..C P..U
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84-13	P..C P..U	84-14	P..C P..U	84-15	P..C P..U	84-16	P..C P..U
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86-13	P..C P..U	86-14	P..C P..U	86-15	P..C P..U	86-16	P..C P..U
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88-13	P..C P..U	88-14	P..C P..U	88-15	P..C P..U	88-16	P..C P..U
89-1	P..C P..U	89-2	P..C P..U	89-3	P..C P..U	89-4	P..C P..U
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color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
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90-13	P..C P..U	90-14	P..C P..U	90-15	P..C P..U	90-16	P..C P..U
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94-5	P..C P..U	94-6	P..C P..U	94-7	P..C P..U	94-8	P..C P..U
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color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
98-13	P..C P..U	98-14	P..C P..U	98-15	P..C P..U	98-16	P..C P..U
99-1	P..C P..U	99-2	P..C P..U	99-3	P..C P..U	99-4	P..C P..U
99-5	P..C P..U	99-6	P..C P..U	99-7	P..C P..U	99-8	P..C P..U
99-9	P..C P..U	99-10	P..C P..U	99-11	P..C P..U	99-12	P..C P..U
99-13	P..C P..U	99-14	P..C P..U	99-15	P..C P..U	99-16	P..C P..U
100	C U CP UP XGC	100-1	P..C P..U	100-2	P..C P..U	100-3	P..C P..U
100-4	P..C P..U	100-5	P..C P..U	100-6	P..C P..U	100-7	P..C P..U
100-8	P..C P..U	100-9	P..C P..U	100-10	P..C P..U	100-11	P..C P..U
100-12	P..C P..U	100-13	P..C P..U	100-14	P..C P..U	100-15	P..C P..U
100-16	P..C P..U	101	C U CP UP XGC	101-1	P..C P..U	101-2	P..C P..U
101-3	P..C P..U	101-4	P..C P..U	101-5	P..C P..U	101-6	P..C P..U
101-7	P..C P..U	101-8	P..C P..U	101-9	P..C P..U	101-10	P..C P..U
101-11	P..C P..U	101-12	P..C P..U	101-13	P..C P..U	101-14	P..C P..U
101-15	P..C P..U	101-16	P..C P..U	102	C U CP UP XGC	102-1	P..C P..U
102-2	P..C P..U	102-3	P..C P..U	102-4	P..C P..U	102-5	P..C P..U
102-6	P..C P..U	102-7	P..C P..U	102-8	P..C P..U	102-9	P..C P..U
102-10	P..C P..U	102-11	P..C P..U	102-12	P..C P..U	102-13	P..C P..U
102-14	P..C P..U	102-15	P..C P..U	102-16	P..C P..U	103	C U CP UP XGC
103-1	P..C P..U	103-2	P..C P..U	103-3	P..C P..U	103-4	P..C P..U
103-5	P..C P..U	103-6	P..C P..U	103-7	P..C P..U	103-8	P..C P..U
103-9	P..C P..U	103-10	P..C P..U	103-11	P..C P..U	103-12	P..C P..U
103-13	P..C P..U	103-14	P..C P..U	103-15	P..C P..U	103-16	P..C P..U
104	C U CP UP XGC	104-1	P..C P..U	104-2	P..C P..U	104-3	P..C P..U
104-4	P..C P..U	104-5	P..C P..U	104-6	P..C P..U	104-7	P..C P..U
104-8	P..C P..U	104-9	P..C P..U	104-10	P..C P..U	104-11	P..C P..U
104-12	P..C P..U	104-13	P..C P..U	104-14	P..C P..U	104-15	P..C P..U
104-16	P..C P..U	105	C U CP UP XGC	105-1	P..C P..U	105-2	P..C P..U
105-3	P..C P..U	105-4	P..C P..U	105-5	P..C P..U	105-6	P..C P..U
105-7	P..C P..U	105-8	P..C P..U	105-9	P..C P..U	105-10	P..C P..U
105-11	P..C P..U	105-12	P..C P..U	105-13	P..C P..U	105-14	P..C P..U
105-15	P..C P..U	105-16	P..C P..U	106	C U CP UP XGC	106-1	P..C P..U
106-2	P..C P..U	106-3	P..C P..U	106-4	P..C P..U	106-5	P..C P..U
106-6	P..C P..U	106-7	P..C P..U	106-8	P..C P..U	106-9	P..C P..U

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
106-10	P..C P..U	106-11	P..C P..U	106-12	P..C P..U	106-13	P..C P..U
106-14	P..C P..U	106-15	P..C P..U	106-16	P..C P..U	107	C U CP UP XGC
107-1	P..C P..U	107-2	P..C P..U	107-3	P..C P..U	107-4	P..C P..U
107-5	P..C P..U	107-6	P..C P..U	107-7	P..C P..U	107-8	P..C P..U
107-9	P..C P..U	107-10	P..C P..U	107-11	P..C P..U	107-12	P..C P..U
107-13	P..C P..U	107-14	P..C P..U	107-15	P..C P..U	107-16	P..C P..U
108	C U CP UP XGC	108-1	P..C P..U	108-2	P..C P..U	108-3	P..C P..U
108-4	P..C P..U	108-5	P..C P..U	108-6	P..C P..U	108-7	P..C P..U
108-8	P..C P..U	108-9	P..C P..U	108-10	P..C P..U	108-11	P..C P..U
108-12	P..C P..U	108-13	P..C P..U	108-14	P..C P..U	108-15	P..C P..U
108-16	P..C P..U	109	C U CP UP XGC	109-1	P..C P..U	109-2	P..C P..U
109-3	P..C P..U	109-4	P..C P..U	109-5	P..C P..U	109-6	P..C P..U
109-7	P..C P..U	109-8	P..C P..U	109-9	P..C P..U	109-10	P..C P..U
109-11	P..C P..U	109-12	P..C P..U	109-13	P..C P..U	109-14	P..C P..U
109-15	P..C P..U	109-16	P..C P..U	110	C U CP UP XGC	110-1	P..C P..U
110-2	P..C P..U	110-3	P..C P..U	110-4	P..C P..U	110-5	P..C P..U
110-6	P..C P..U	110-7	P..C P..U	110-8	P..C P..U	110-9	P..C P..U
110-10	P..C P..U	110-11	P..C P..U	110-12	P..C P..U	110-13	P..C P..U
110-14	P..C P..U	110-15	P..C P..U	110-16	P..C P..U	111	C U CP UP XGC
111-1	P..C P..U	111-2	P..C P..U	111-3	P..C P..U	111-4	P..C P..U
111-5	P..C P..U	111-6	P..C P..U	111-7	P..C P..U	111-8	P..C P..U
111-9	P..C P..U	111-10	P..C P..U	111-11	P..C P..U	111-12	P..C P..U
111-13	P..C P..U	111-14	P..C P..U	111-15	P..C P..U	111-16	P..C P..U
112	C U CP UP XGC	112-1	P..C P..U	112-2	P..C P..U	112-3	P..C P..U
112-4	P..C P..U	112-5	P..C P..U	112-6	P..C P..U	112-7	P..C P..U
112-8	P..C P..U	112-9	P..C P..U	112-10	P..C P..U	112-11	P..C P..U
112-12	P..C P..U	112-13	P..C P..U	112-14	P..C P..U	112-15	P..C P..U
112-16	P..C P..U	113	C U CP UP XGC	113-1	P..C P..U	113-2	P..C P..U
113-3	P..C P..U	113-4	P..C P..U	113-5	P..C P..U	113-6	P..C P..U
113-7	P..C P..U	113-8	P..C P..U	113-9	P..C P..U	113-10	P..C P..U
113-11	P..C P..U	113-12	P..C P..U	113-13	P..C P..U	113-14	P..C P..U
113-15	P..C P..U	113-16	P..C P..U	114	C U CP UP XGC	114-1	P..C P..U

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
114-2	P..C P..U	114-3	P..C P..U	114-4	P..C P..U	114-5	P..C P..U
114-6	P..C P..U	114-7	P..C P..U	114-8	P..C P..U	114-9	P..C P..U
114-10	P..C P..U	114-11	P..C P..U	114-12	P..C P..U	114-13	P..C P..U
114-14	P..C P..U	114-15	P..C P..U	114-16	P..C P..U	115	C U CP UP XGC
115-1	P..C P..U	115-2	P..C P..U	115-3	P..C P..U	115-4	P..C P..U
115-5	P..C P..U	115-6	P..C P..U	115-7	P..C P..U	115-8	P..C P..U
115-9	P..C P..U	115-10	P..C P..U	115-11	P..C P..U	115-12	P..C P..U
115-13	P..C P..U	115-14	P..C P..U	115-15	P..C P..U	115-16	P..C P..U
116	C U CP UP XGC	116-1	P..C P..U	116-2	P..C P..U	116-3	P..C P..U
116-4	P..C P..U	116-5	P..C P..U	116-6	P..C P..U	116-7	P..C P..U
116-8	P..C P..U	116-9	P..C P..U	116-10	P..C P..U	116-11	P..C P..U
116-12	P..C P..U	116-13	P..C P..U	116-14	P..C P..U	116-15	P..C P..U
116-16	P..C P..U	117	C U CP UP XGC	117-1	P..C P..U	117-2	P..C P..U
117-3	P..C P..U	117-4	P..C P..U	117-5	P..C P..U	117-6	P..C P..U
117-7	P..C P..U	117-8	P..C P..U	117-9	P..C P..U	117-10	P..C P..U
117-11	P..C P..U	117-12	P..C P..U	117-13	P..C P..U	117-14	P..C P..U
117-15	P..C P..U	117-16	P..C P..U	118	C U CP UP XGC	118-1	P..C P..U
118-2	P..C P..U	118-3	P..C P..U	118-4	P..C P..U	118-5	P..C P..U
118-6	P..C P..U	118-7	P..C P..U	118-8	P..C P..U	118-9	P..C P..U
118-10	P..C P..U	118-11	P..C P..U	118-12	P..C P..U	118-13	P..C P..U
118-14	P..C P..U	118-15	P..C P..U	118-16	P..C P..U	119	C U CP UP XGC
119-1	P..C P..U	119-2	P..C P..U	119-3	P..C P..U	119-4	P..C P..U
119-5	P..C P..U	119-6	P..C P..U	119-7	P..C P..U	119-8	P..C P..U
119-9	P..C P..U	119-10	P..C P..U	119-11	P..C P..U	119-12	P..C P..U
119-13	P..C P..U	119-14	P..C P..U	119-15	P..C P..U	119-16	P..C P..U
120	C U CP UP XGC	120-1	P..C P..U	120-2	P..C P..U	120-3	P..C P..U
120-4	P..C P..U	120-5	P..C P..U	120-6	P..C P..U	120-7	P..C P..U
120-8	P..C P..U	120-9	P..C P..U	120-10	P..C P..U	120-11	P..C P..U
120-12	P..C P..U	120-13	P..C P..U	120-14	P..C P..U	120-15	P..C P..U
120-16	P..C P..U	121	C U CP UP XGC	121-1	P..C P..U	121-2	P..C P..U
121-3	P..C P..U	121-4	P..C P..U	121-5	P..C P..U	121-6	P..C P..U
121-7	P..C P..U	121-8	P..C P..U	121-9	P..C P..U	121-10	P..C P..U
121-11	P..C P..U	121-12	P..C P..U	121-13	P..C P..U	121-14	P..C P..U

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
121-15	P..C P..U	121-16	P..C P..U	122	C U CP UP XGC	122-1	P..C P..U
122-2	P..C P..U	122-3	P..C P..U	122-4	P..C P..U	122-5	P..C P..U
122-6	P..C P..U	122-7	P..C P..U	122-8	P..C P..U	122-9	P..C P..U
122-10	P..C P..U	122-11	P..C P..U	122-12	P..C P..U	122-13	P..C P..U
122-14	P..C P..U	122-15	P..C P..U	122-16	P..C P..U	123	C U CP UP XGC
123-1	P..C P..U	123-2	P..C P..U	123-3	P..C P..U	123-4	P..C P..U
123-5	P..C P..U	123-6	P..C P..U	123-7	P..C P..U	123-8	P..C P..U
123-9	P..C P..U	123-10	P..C P..U	123-11	P..C P..U	123-12	P..C P..U
123-13	P..C P..U	123-14	P..C P..U	123-15	P..C P..U	123-16	P..C P..U
124	C U CP UP XGC	124-1	P..C P..U	124-2	P..C P..U	124-3	P..C P..U
124-4	P..C P..U	124-5	P..C P..U	124-6	P..C P..U	124-7	P..C P..U
124-8	P..C P..U	124-9	P..C P..U	124-10	P..C P..U	124-11	P..C P..U
124-12	P..C P..U	124-13	P..C P..U	124-14	P..C P..U	124-15	P..C P..U
124-16	P..C P..U	125	C U CP UP XGC	125-1	P..C P..U	125-2	P..C P..U
125-3	P..C P..U	125-4	P..C P..U	125-5	P..C P..U	125-6	P..C P..U
125-7	P..C P..U	125-8	P..C P..U	125-9	P..C P..U	125-10	P..C P..U
125-11	P..C P..U	125-12	P..C P..U	125-13	P..C P..U	125-14	P..C P..U
125-15	P..C P..U	125-16	P..C P..U	126	C U CP UP XGC	126-1	P..C P..U
126-2	P..C P..U	126-3	P..C P..U	126-4	P..C P..U	126-5	P..C P..U
126-6	P..C P..U	126-7	P..C P..U	126-8	P..C P..U	126-9	P..C P..U
126-10	P..C P..U	126-11	P..C P..U	126-12	P..C P..U	126-13	P..C P..U
126-14	P..C P..U	126-15	P..C P..U	126-16	P..C P..U	127	C U CP UP XGC
127-1	P..C P..U	127-2	P..C P..U	127-3	P..C P..U	127-4	P..C P..U
127-5	P..C P..U	127-6	P..C P..U	127-7	P..C P..U	127-8	P..C P..U
127-9	P..C P..U	127-10	P..C P..U	127-11	P..C P..U	127-12	P..C P..U
127-13	P..C P..U	127-14	P..C P..U	127-15	P..C P..U	127-16	P..C P..U
128	C U CP UP XGC	128-1	P..C P..U	128-2	P..C P..U	128-3	P..C P..U
128-4	P..C P..U	128-5	P..C P..U	128-6	P..C P..U	128-7	P..C P..U
128-8	P..C P..U	128-9	P..C P..U	128-10	P..C P..U	128-11	P..C P..U
128-12	P..C P..U	128-13	P..C P..U	128-14	P..C P..U	128-15	P..C P..U
128-16	P..C P..U	129	C U CP UP XGC	129-1	P..C P..U	129-2	P..C P..U
129-3	P..C P..U	129-4	P..C P..U	129-5	P..C P..U	129-6	P..C P..U

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
129-7	P..C P..U	129-8	P..C P..U	129-9	P..C P..U	129-10	P..C P..U
129-11	P..C P..U	129-12	P..C P..U	129-13	P..C P..U	129-14	P..C P..U
129-15	P..C P..U	129-16	P..C P..U	130	C U CP UP XGC	130-1	P..C P..U
130-2	P..C P..U	130-3	P..C P..U	130-4	P..C P..U	130-5	P..C P..U
130-6	P..C P..U	130-7	P..C P..U	130-8	P..C P..U	130-9	P..C P..U
130-10	P..C P..U	130-11	P..C P..U	130-12	P..C P..U	130-13	P..C P..U
130-14	P..C P..U	130-15	P..C P..U	130-16	P..C P..U	131	C U CP UP XGC
131-1	P..C P..U	131-2	P..C P..U	131-3	P..C P..U	131-4	P..C P..U
131-5	P..C P..U	131-6	P..C P..U	131-7	P..C P..U	131-8	P..C P..U
131-9	P..C P..U	131-10	P..C P..U	131-11	P..C P..U	131-12	P..C P..U
131-13	P..C P..U	131-14	P..C P..U	131-15	P..C P..U	131-16	P..C P..U
132	C U CP UP XGC	132-1	P..C P..U	132-2	P..C P..U	132-3	P..C P..U
132-4	P..C P..U	132-5	P..C P..U	132-6	P..C P..U	132-7	P..C P..U
132-8	P..C P..U	132-9	P..C P..U	132-10	P..C P..U	132-11	P..C P..U
132-12	P..C P..U	132-13	P..C P..U	132-14	P..C P..U	132-15	P..C P..U
132-16	P..C P..U	133	C U CP UP XGC	133-1	P..C P..U	133-2	P..C P..U
133-3	P..C P..U	133-4	P..C P..U	133-5	P..C P..U	133-6	P..C P..U
133-7	P..C P..U	133-8	P..C P..U	133-9	P..C P..U	133-10	P..C P..U
133-11	P..C P..U	133-12	P..C P..U	133-13	P..C P..U	133-14	P..C P..U
133-15	P..C P..U	133-16	P..C P..U	134	C U CP UP XGC	134-1	P..C P..U
134-2	P..C P..U	134-3	P..C P..U	134-4	P..C P..U	134-5	P..C P..U
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134-10	P..C P..U	134-11	P..C P..U	134-12	P..C P..U	134-13	P..C P..U
134-14	P..C P..U	134-15	P..C P..U	134-16	P..C P..U	135	C U CP UP XGC
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135-5	P..C P..U	135-6	P..C P..U	135-7	P..C P..U	135-8	P..C P..U
135-9	P..C P..U	135-10	P..C P..U	135-11	P..C P..U	135-12	P..C P..U
135-13	P..C P..U	135-14	P..C P..U	135-15	P..C P..U	135-16	P..C P..U
136	C U CP UP XGC	136-1	P..C P..U	136-2	P..C P..U	136-3	P..C P..U
136-4	P..C P..U	136-5	P..C P..U	136-6	P..C P..U	136-7	P..C P..U
136-8	P..C P..U	136-9	P..C P..U	136-10	P..C P..U	136-11	P..C P..U
136-12	P..C P..U	136-13	P..C P..U	136-14	P..C P..U	136-15	P..C P..U

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
136-16	P..C P..U	137	C U CP UP XGC	137-1	P..C P..U	137-2	P..C P..U
137-3	P..C P..U	137-4	P..C P..U	137-5	P..C P..U	137-6	P..C P..U
137-7	P..C P..U	137-8	P..C P..U	137-9	P..C P..U	137-10	P..C P..U
137-11	P..C P..U	137-12	P..C P..U	137-13	P..C P..U	137-14	P..C P..U
137-15	P..C P..U	137-16	P..C P..U	138	C U CP UP XGC	138-1	P..C P..U
138-2	P..C P..U	138-3	P..C P..U	138-4	P..C P..U	138-5	P..C P..U
138-6	P..C P..U	138-7	P..C P..U	138-8	P..C P..U	138-9	P..C P..U
138-10	P..C P..U	138-11	P..C P..U	138-12	P..C P..U	138-13	P..C P..U
138-14	P..C P..U	138-15	P..C P..U	138-16	P..C P..U	139	C U CP UP XGC
139-1	P..C P..U	139-2	P..C P..U	139-3	P..C P..U	139-4	P..C P..U
139-5	P..C P..U	139-6	P..C P..U	139-7	P..C P..U	139-8	P..C P..U
139-9	P..C P..U	139-10	P..C P..U	139-11	P..C P..U	139-12	P..C P..U
139-13	P..C P..U	139-14	P..C P..U	139-15	P..C P..U	139-16	P..C P..U
140	C U CP UP XGC	140-1	P..C P..U	140-2	P..C P..U	140-3	P..C P..U
140-4	P..C P..U	140-5	P..C P..U	140-6	P..C P..U	140-7	P..C P..U
140-8	P..C P..U	140-9	P..C P..U	140-10	P..C P..U	140-11	P..C P..U
140-12	P..C P..U	140-13	P..C P..U	140-14	P..C P..U	140-15	P..C P..U
140-16	P..C P..U	141	C U CP UP XGC	141-1	P..C P..U	141-2	P..C P..U
141-3	P..C P..U	141-4	P..C P..U	141-5	P..C P..U	141-6	P..C P..U
141-7	P..C P..U	141-8	P..C P..U	141-9	P..C P..U	141-10	P..C P..U
141-11	P..C P..U	141-12	P..C P..U	141-13	P..C P..U	141-14	P..C P..U
141-15	P..C P..U	141-16	P..C P..U	142	C U CP UP XGC	142-1	P..C P..U
142-2	P..C P..U	142-3	P..C P..U	142-4	P..C P..U	142-5	P..C P..U
142-6	P..C P..U	142-7	P..C P..U	142-8	P..C P..U	142-9	P..C P..U
142-10	P..C P..U	142-11	P..C P..U	142-12	P..C P..U	142-13	P..C P..U
142-14	P..C P..U	142-15	P..C P..U	142-16	P..C P..U	143	C U CP UP XGC
143-1	P..C P..U	143-2	P..C P..U	143-3	P..C P..U	143-4	P..C P..U
143-5	P..C P..U	143-6	P..C P..U	143-7	P..C P..U	143-8	P..C P..U
143-9	P..C P..U	143-10	P..C P..U	143-11	P..C P..U	143-12	P..C P..U
143-13	P..C P..U	143-14	P..C P..U	143-15	P..C P..U	143-16	P..C P..U
144	C U CP UP XGC	144-1	P..C P..U	144-2	P..C P..U	144-3	P..C P..U
144-4	P..C P..U	144-5	P..C P..U	144-6	P..C P..U	144-7	P..C P..U

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
144-8	P..C P..U	144-9	P..C P..U	144-10	P..C P..U	144-11	P..C P..U
144-12	P..C P..U	144-13	P..C P..U	144-14	P..C P..U	144-15	P..C P..U
144-16	P..C P..U	145	C U CP UP XGC	145-1	P..C P..U	145-2	P..C P..U
145-3	P..C P..U	145-4	P..C P..U	145-5	P..C P..U	145-6	P..C P..U
145-7	P..C P..U	145-8	P..C P..U	145-9	P..C P..U	145-10	P..C P..U
145-11	P..C P..U	145-12	P..C P..U	145-13	P..C P..U	145-14	P..C P..U
145-15	P..C P..U	145-16	P..C P..U	146	C U CP UP XGC	146-1	P..C P..U
146-2	P..C P..U	146-3	P..C P..U	146-4	P..C P..U	146-5	P..C P..U
146-6	P..C P..U	146-7	P..C P..U	146-8	P..C P..U	146-9	P..C P..U
146-10	P..C P..U	146-11	P..C P..U	146-12	P..C P..U	146-13	P..C P..U
146-14	P..C P..U	146-15	P..C P..U	146-16	P..C P..U	147	C U CP UP XGC
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147-5	P..C P..U	147-6	P..C P..U	147-7	P..C P..U	147-8	P..C P..U
147-9	P..C P..U	147-10	P..C P..U	147-11	P..C P..U	147-12	P..C P..U
147-13	P..C P..U	147-14	P..C P..U	147-15	P..C P..U	147-16	P..C P..U
148	C U CP UP XGC	148-1	P..C P..U	148-2	P..C P..U	148-3	P..C P..U
148-4	P..C P..U	148-5	P..C P..U	148-6	P..C P..U	148-7	P..C P..U
148-8	P..C P..U	148-9	P..C P..U	148-10	P..C P..U	148-11	P..C P..U
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148-16	P..C P..U	149	C U CP UP XGC	149-1	P..C P..U	149-2	P..C P..U
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150-6	P..C P..U	150-7	P..C P..U	150-8	P..C P..U	150-9	P..C P..U
150-10	P..C P..U	150-11	P..C P..U	150-12	P..C P..U	150-13	P..C P..U
150-14	P..C P..U	150-15	P..C P..U	150-16	P..C P..U	151	C U CP UP XGC
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151-5	P..C P..U	151-6	P..C P..U	151-7	P..C P..U	151-8	P..C P..U
151-9	P..C P..U	151-10	P..C P..U	151-11	P..C P..U	151-12	P..C P..U
151-13	P..C P..U	151-14	P..C P..U	151-15	P..C P..U	151-16	P..C P..U

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
152	C U CP UP XGC	152-1	P..C P..U	152-2	P..C P..U	152-3	P..C P..U
152-4	P..C P..U	152-5	P..C P..U	152-6	P..C P..U	152-7	P..C P..U
152-8	P..C P..U	152-9	P..C P..U	152-10	P..C P..U	152-11	P..C P..U
152-12	P..C P..U	152-13	P..C P..U	152-14	P..C P..U	152-15	P..C P..U
152-16	P..C P..U	153	C U CP UP XGC	153-1	P..C P..U	153-2	P..C P..U
153-3	P..C P..U	153-4	P..C P..U	153-5	P..C P..U	153-6	P..C P..U
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153-15	P..C P..U	153-16	P..C P..U	154	C U CP UP XGC	154-1	P..C P..U
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154-6	P..C P..U	154-7	P..C P..U	154-8	P..C P..U	154-9	P..C P..U
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157-7	P..C P..U	157-8	P..C P..U	157-9	P..C P..U	157-10	P..C P..U
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157-15	P..C P..U	157-16	P..C P..U	158	C U CP UP XGC	158-1	P..C P..U
158-2	P..C P..U	158-3	P..C P..U	158-4	P..C P..U	158-5	P..C P..U
158-6	P..C P..U	158-7	P..C P..U	158-8	P..C P..U	158-9	P..C P..U
158-10	P..C P..U	158-11	P..C P..U	158-12	P..C P..U	158-13	P..C P..U
158-14	P..C P..U	158-15	P..C P..U	158-16	P..C P..U	159	C U CP UP XGC
159-1	P..C P..U	159-2	P..C P..U	159-3	P..C P..U	159-4	P..C P..U
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color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
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159-13	P..C P..U	159-14	P..C P..U	159-15	P..C P..U	159-16	P..C P..U
160	C U CP UP XGC	160-1	P..C P..U	160-2	P..C P..U	160-3	P..C P..U
160-4	P..C P..U	160-5	P..C P..U	160-6	P..C P..U	160-7	P..C P..U
160-8	P..C P..U	160-9	P..C P..U	160-10	P..C P..U	160-11	P..C P..U
160-12	P..C P..U	160-13	P..C P..U	160-14	P..C P..U	160-15	P..C P..U
160-16	P..C P..U	161	C U CP UP XGC	161-1	P..C P..U	161-2	P..C P..U
161-3	P..C P..U	161-4	P..C P..U	161-5	P..C P..U	161-6	P..C P..U
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162-6	P..C P..U	162-7	P..C P..U	162-8	P..C P..U	162-9	P..C P..U
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163-9	P..C P..U	163-10	P..C P..U	163-11	P..C P..U	163-12	P..C P..U
163-13	P..C P..U	163-14	P..C P..U	163-15	P..C P..U	163-16	P..C P..U
164	C U CP UP XGC	164-1	P..C P..U	164-2	P..C P..U	164-3	P..C P..U
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164-12	P..C P..U	164-13	P..C P..U	164-14	P..C P..U	164-15	P..C P..U
164-16	P..C P..U	165	C U CP UP XGC	165-1	P..C P..U	165-2	P..C P..U
165-3	P..C P..U	165-4	P..C P..U	165-5	P..C P..U	165-6	P..C P..U
165-7	P..C P..U	165-8	P..C P..U	165-9	P..C P..U	165-10	P..C P..U
165-11	P..C P..U	165-12	P..C P..U	165-13	P..C P..U	165-14	P..C P..U
165-15	P..C P..U	165-16	P..C P..U	166	C U CP UP XGC	166-1	P..C P..U
166-2	P..C P..U	166-3	P..C P..U	166-4	P..C P..U	166-5	P..C P..U
166-6	P..C P..U	166-7	P..C P..U	166-8	P..C P..U	166-9	P..C P..U
166-10	P..C P..U	166-11	P..C P..U	166-12	P..C P..U	166-13	P..C P..U
166-14	P..C P..U	166-15	P..C P..U	166-16	P..C P..U	167	C U CP UP XGC

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
167-1	P..C P..U	167-2	P..C P..U	167-3	P..C P..U	167-4	P..C P..U
167-5	P..C P..U	167-6	P..C P..U	167-7	P..C P..U	167-8	P..C P..U
167-9	P..C P..U	167-10	P..C P..U	167-11	P..C P..U	167-12	P..C P..U
167-13	P..C P..U	167-14	P..C P..U	167-15	P..C P..U	167-16	P..C P..U
168	C U CP UP XGC	168-1	P..C P..U	168-2	P..C P..U	168-3	P..C P..U
168-4	P..C P..U	168-5	P..C P..U	168-6	P..C P..U	168-7	P..C P..U
168-8	P..C P..U	168-9	P..C P..U	168-10	P..C P..U	168-11	P..C P..U
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169-11	P..C P..U	169-12	P..C P..U	169-13	P..C P..U	169-14	P..C P..U
169-15	P..C P..U	169-16	P..C P..U	170	C U CP UP XGC	170-1	P..C P..U
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172-4	P..C P..U	172-5	P..C P..U	172-6	P..C P..U	172-7	P..C P..U
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173-15	P..C P..U	173-16	P..C P..U	174	C U CP UP XGC	174-1	P..C P..U
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color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
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175-9	P..C P..U	175-10	P..C P..U	175-11	P..C P..U	175-12	P..C P..U
175-13	P..C P..U	175-14	P..C P..U	175-15	P..C P..U	175-16	P..C P..U
176	C U CP UP XGC	176-1	P..C P..U	176-2	P..C P..U	176-3	P..C P..U
176-4	P..C P..U	176-5	P..C P..U	176-6	P..C P..U	176-7	P..C P..U
176-8	P..C P..U	176-9	P..C P..U	176-10	P..C P..U	176-11	P..C P..U
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178-14	P..C P..U	178-15	P..C P..U	178-16	P..C P..U	179	C U CP UP XGC
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179-9	P..C P..U	179-10	P..C P..U	179-11	P..C P..U	179-12	P..C P..U
179-13	P..C P..U	179-14	P..C P..U	179-15	P..C P..U	179-16	P..C P..U
180	C U CP UP XGC	181	C U CP UP XGC	182	C U CP UP XGC	183	C U CP UP XGC
184	C U CP UP XGC	185	C U CP UP XGC	186	C U CP UP XGC	187	C U CP UP XGC
188	C U CP UP XGC	189	C U CP UP XGC	190	C U CP UP XGC	191	C U CP UP XGC
192	C U CP UP XGC	193	C U CP UP XGC	194	C U CP UP XGC	195	C U CP UP XGC
196	C U CP UP XGC	197	C U CP UP XGC	198	C U CP UP XGC	199	C U CP UP XGC
200	C U CP UP XGC	201	C U CP UP XGC	202	C U CP UP XGC	203	C U CP UP XGC
204	C U CP UP XGC	205	C U CP UP XGC	206	C U CP UP XGC	207	C U CP UP XGC

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
208	C U CP UP XGC	209	C U CP UP XGC	210	C U CP UP XGC	211	C U CP UP XGC
212	C U CP UP XGC	213	C U CP UP XGC	214	C U CP UP XGC	215	C U CP UP XGC
216	C U CP UP XGC	217	C U CP UP XGC	218	C U CP UP XGC	219	C U CP UP XGC
220	C U CP UP XGC	221	C U CP UP XGC	222	C U CP UP XGC	223	C U CP UP XGC
224	C U CP UP XGC	225	C U CP UP XGC	226	C U CP UP XGC	227	C U CP UP XGC
228	C U CP UP XGC	229	C U CP UP XGC	230	C U CP UP XGC	231	C U CP UP XGC
232	C U CP UP XGC	233	C U CP UP XGC	234	C U CP UP XGC	235	C U CP UP XGC
236	C U CP UP XGC	237	C U CP UP XGC	238	C U CP UP XGC	239	C U CP UP XGC
240	C U CP UP XGC	241	C U CP UP XGC	242	C U CP UP XGC	243	C U CP UP XGC
244	C U CP UP XGC	245	C U CP UP XGC	246	C U CP UP XGC	247	C U CP UP XGC
248	C U CP UP XGC	249	C U CP UP XGC	250	C U CP UP XGC	251	C U CP UP XGC
252	C U CP UP XGC	253	C U CP UP XGC	254	C U CP UP XGC	255	C U CP UP XGC
256	C U CP UP XGC	257	C U CP UP XGC	258	C U CP UP XGC	259	C U CP UP XGC
260	C U CP UP XGC	261	C U CP UP XGC	262	C U CP UP XGC	263	C U CP UP XGC
264	C U CP UP XGC	265	C U CP UP XGC	266	C U CP UP XGC	267	C U CP UP XGC
268	C U CP UP XGC	269	C U CP UP XGC	270	C U CP UP XGC	271	C U CP UP XGC
272	C U CP UP XGC	273	C U CP UP XGC	274	C U CP UP XGC	275	C U CP UP XGC
276	C U CP UP XGC	277	C U CP UP XGC	278	C U CP UP XGC	279	C U CP UP XGC
280	C U CP UP XGC	281	C U CP UP XGC	282	C U CP UP XGC	283	C U CP UP XGC
284	C U CP UP XGC	285	C U CP UP XGC	286	C U CP UP XGC	287	C U CP UP XGC
288	C U CP UP XGC	289	C U CP UP XGC	290	C U CP UP XGC	291	C U CP UP XGC
292	C U CP UP XGC	293	C U CP UP XGC	294	C U CP UP XGC	295	C U CP UP XGC

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
296	C U CP UP XGC	297	C U CP UP XGC	298	C U CP UP XGC	299	C U CP UP XGC
300	C U CP UP XGC	301	C U CP UP XGC	302	C U CP UP XGC	303	C U CP UP XGC
304	C U CP UP XGC	305	C U CP UP XGC	306	C U CP UP XGC	307	C U CP UP XGC
308	C U CP UP XGC	309	C U CP UP XGC	310	C U CP UP XGC	311	C U CP UP XGC
312	C U CP UP XGC	313	C U CP UP XGC	314	C U CP UP XGC	315	C U CP UP XGC
316	C U CP UP XGC	317	C U CP UP XGC	318	C U CP UP XGC	319	C U CP UP XGC
320	C U CP UP XGC	321	C U CP UP XGC	322	C U CP UP XGC	323	C U CP UP XGC
324	C U CP UP XGC	325	C U CP UP XGC	326	C U CP UP XGC	327	C U CP UP XGC
328	C U CP UP XGC	329	C U CP UP XGC	330	C U CP UP XGC	331	C U CP UP XGC
332	C U CP UP XGC	333	C U CP UP XGC	334	C U CP UP XGC	335	C U CP UP XGC
336	C U CP UP XGC	337	C U CP UP XGC	338	C U CP UP XGC	339	C U CP UP XGC
340	C U CP UP XGC	341	C U CP UP XGC	342	C U CP UP XGC	343	C U CP UP XGC
344	C U CP UP XGC	345	C U CP UP XGC	346	C U CP UP XGC	347	C U CP UP XGC
348	C U CP UP XGC	349	C U CP UP XGC	350	C U CP UP XGC	351	C U CP UP XGC
352	C U CP UP XGC	353	C U CP UP XGC	354	C U CP UP XGC	355	C U CP UP XGC
356	C U CP UP XGC	357	C U CP UP XGC	358	C U CP UP XGC	359	C U CP UP XGC
360	C U CP UP XGC	361	C U CP UP XGC	362	C U CP UP XGC	363	C U CP UP XGC
364	C U CP UP XGC	365	C U CP UP XGC	366	C U CP UP XGC	367	C U CP UP XGC
368	C U CP UP XGC	369	C U CP UP XGC	370	C U CP UP XGC	371	C U CP UP XGC
372	C U CP UP XGC	373	C U CP UP XGC	374	C U CP UP XGC	375	C U CP UP XGC
376	C U CP UP XGC	377	C U CP UP XGC	378	C U CP UP XGC	379	C U CP UP XGC
380	C U CP UP XGC	381	C U CP UP XGC	382	C U CP UP XGC	383	C U CP UP XGC

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
384	C U CP UP XGC	385	C U CP UP XGC	386	C U CP UP XGC	387	C U CP UP XGC
388	C U CP UP XGC	389	C U CP UP XGC	390	C U CP UP XGC	391	C U CP UP XGC
392	C U CP UP XGC	393	C U CP UP XGC	394	C U CP UP XGC	395	C U CP UP XGC
396	C U CP UP XGC	397	C U CP UP XGC	398	C U CP UP XGC	399	C U CP UP XGC
400	C U CP UP XGC	401	C U CP UP XGC	402	C U CP UP XGC	403	C U CP UP XGC
404	C U CP UP XGC	405	C U CP UP XGC	406	C U CP UP XGC	407	C U CP UP XGC
408	C U CP UP XGC	409	C U CP UP XGC	410	C U CP UP XGC	411	C U CP UP XGC
412	C U CP UP XGC	413	C U CP UP XGC	414	C U CP UP XGC	415	C U CP UP XGC
416	C U CP UP XGC	417	C U CP UP XGC	418	C U CP UP XGC	419	C U CP UP XGC
420	C U CP UP XGC	421	C U CP UP XGC	422	C U CP UP XGC	423	C U CP UP XGC
424	C U CP UP XGC	425	C U CP UP XGC	426	C U CP UP XGC	427	C U CP UP XGC
428	C U CP UP XGC	429	C U CP UP XGC	430	C U CP UP XGC	431	C U CP UP XGC
432	C U CP UP XGC	433	C U CP UP XGC	434	C U CP UP XGC	435	C U CP UP XGC
436	C U CP UP XGC	437	C U CP UP XGC	438	C U CP UP XGC	439	C U CP UP XGC
440	C U CP UP XGC	441	C U CP UP XGC	442	C U CP UP XGC	443	C U CP UP XGC
444	C U CP UP XGC	445	C U CP UP XGC	446	C U CP UP XGC	447	C U CP UP XGC
448	C U CP UP XGC	449	C U CP UP XGC	450	C U CP UP XGC	451	C U CP UP XGC
452	C U CP UP XGC	453	C U CP UP XGC	454	C U CP UP XGC	455	C U CP UP XGC
456	C U CP UP XGC	457	C U CP UP XGC	458	C U CP UP XGC	459	C U CP UP XGC
460	C U CP UP XGC	461	C U CP UP XGC	462	C U CP UP XGC	463	C U CP UP XGC
464	C U CP UP XGC	465	C U CP UP XGC	466	C U CP UP XGC	467	C U CP UP XGC
468	C U CP UP XGC	469	C U CP UP XGC	470	C U CP UP XGC	471	C U CP UP XGC

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
472	C U CP UP XGC	473	C U CP UP XGC	474	C U CP UP XGC	475	C U CP UP XGC
476	C U CP UP XGC	477	C U CP UP XGC	478	C U CP UP XGC	479	C U CP UP XGC
480	C U CP UP XGC	481	C U CP UP XGC	482	C U CP UP XGC	483	C U CP UP XGC
484	C U CP UP XGC	485	C U CP UP XGC	486	C U CP UP XGC	487	C U CP UP XGC
488	C U CP UP XGC	489	C U CP UP XGC	490	C U CP UP XGC	491	C U CP UP XGC
492	C U CP UP XGC	493	C U CP UP XGC	494	C U CP UP XGC	495	C U CP UP XGC
496	C U CP UP XGC	497	C U CP UP XGC	498	C U CP UP XGC	499	C U CP UP XGC
500	C U CP UP XGC	501	C U CP UP XGC	502	C U CP UP XGC	503	C U CP UP XGC
504	C U CP UP XGC	505	C U CP UP XGC	506	C U CP UP XGC	507	C U CP UP XGC
508	C U CP UP XGC	509	C U CP UP XGC	510	C U CP UP XGC	511	C U CP UP XGC
512	C U CP UP XGC	513	C U CP UP XGC	514	C U CP UP XGC	515	C U CP UP XGC
516	C U CP UP XGC	517	C U CP UP XGC	518	C U CP UP XGC	519	C U CP UP XGC
520	C U CP UP XGC	521	C U CP UP XGC	522	C U CP UP XGC	523	C U CP UP XGC
524	C U CP UP XGC	525	C U CP UP XGC	526	C U CP UP XGC	527	C U CP UP XGC
528	C U CP UP XGC	529	C U CP UP XGC	530	C U CP UP XGC	531	C U CP UP XGC
532	C U CP UP XGC	533	C U CP UP XGC	534	C U CP UP XGC	535	C U CP UP XGC
536	C U CP UP XGC	537	C U CP UP XGC	538	C U CP UP XGC	539	C U CP UP XGC
540	C U CP UP XGC	541	C U CP UP XGC	542	C U CP UP XGC	543	C U CP UP XGC
544	C U CP UP XGC	545	C U CP UP XGC	546	C U CP UP XGC	547	C U CP UP XGC
548	C U CP UP XGC	549	C U CP UP XGC	550	C U CP UP XGC	551	C U CP UP XGC
552	C U CP UP XGC	553	C U CP UP XGC	554	C U CP UP XGC	555	C U CP UP XGC
556	C U CP UP XGC	557	C U CP UP XGC	558	C U CP UP XGC	559	C U CP UP XGC

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
560	C U CP UP XGC	561	C U CP UP XGC	562	C U CP UP XGC	563	C U CP UP XGC
564	C U CP UP XGC	565	C U CP UP XGC	566	C U CP UP XGC	567	C U CP UP XGC
568	C U CP UP XGC	569	C U CP UP XGC	570	C U CP UP XGC	571	C U CP UP XGC
572	C U CP UP XGC	573	C U CP UP XGC	574	C U CP UP XGC	575	C U CP UP XGC
576	C U CP UP XGC	577	C U CP UP XGC	578	C U CP UP XGC	579	C U CP UP XGC
580	C U CP UP XGC	581	C U CP UP XGC	582	C U CP UP XGC	583	C U CP UP XGC
584	C U CP UP XGC	585	C U CP UP XGC	586	C U CP UP XGC	587	C U CP UP XGC
600	C U CP UP XGC	601	C U CP UP XGC	602	C U CP UP XGC	603	C U CP UP XGC
604	C U CP UP XGC	605	C U CP UP XGC	606	C U CP UP XGC	607	C U CP UP XGC
608	C U CP UP XGC	609	C U CP UP XGC	610	C U CP UP XGC	611	C U CP UP XGC
612	C U CP UP XGC	613	C U CP UP XGC	614	C U CP UP XGC	615	C U CP UP XGC
616	C U CP UP XGC	617	C U CP UP XGC	618	C U CP UP XGC	619	C U CP UP XGC
620	C U CP UP XGC	621	C U CP UP XGC	622	C U CP UP XGC	623	C U CP UP XGC
624	C U CP UP XGC	625	C U CP UP XGC	626	C U CP UP XGC	627	C U CP UP XGC
628	C U CP UP XGC	629	C U CP UP XGC	630	C U CP UP XGC	631	C U CP UP XGC
632	C U CP UP XGC	633	C U CP UP XGC	634	C U CP UP XGC	635	C U CP UP XGC
636	C U CP UP XGC	637	C U CP UP XGC	638	C U CP UP XGC	639	C U CP UP XGC
640	C U CP UP XGC	641	C U CP UP XGC	642	C U CP UP XGC	643	C U CP UP XGC
644	C U CP UP XGC	645	C U CP UP XGC	646	C U CP UP XGC	647	C U CP UP XGC
648	C U CP UP XGC	649	C U CP UP XGC	650	C U CP UP XGC	651	C U CP UP XGC
652	C U CP UP XGC	653	C U CP UP XGC	654	C U CP UP XGC	655	C U CP UP XGC
656	C U CP UP XGC	657	C U CP UP XGC	658	C U CP UP XGC	659	C U CP UP XGC

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
660	C U CP UP XGC	661	C U CP UP XGC	662	C U CP UP XGC	663	C U CP UP XGC
664	C U CP UP XGC	665	C U CP UP XGC	666	C U CP UP XGC	667	C U CP UP XGC
668	C U CP UP XGC	669	C U CP UP XGC	670	C U CP UP XGC	671	C U CP UP XGC
672	C U CP UP XGC	673	C U CP UP XGC	674	C U CP UP XGC	675	C U CP UP XGC
676	C U CP UP XGC	677	C U CP UP XGC	678	C U CP UP XGC	679	C U CP UP XGC
680	C U CP UP XGC	681	C U CP UP XGC	682	C U CP UP XGC	683	C U CP UP XGC
684	C U CP UP XGC	685	C U CP UP XGC	686	C U CP UP XGC	687	C U CP UP XGC
688	C U CP UP XGC	689	C U CP UP XGC	690	C U CP UP XGC	691	C U CP UP XGC
692	C U CP UP XGC	693	C U CP UP XGC	694	C U CP UP XGC	695	C U CP UP XGC
696	C U CP UP XGC	697	C U CP UP XGC	698	C U CP UP XGC	699	C U CP UP XGC
700	C U CP UP XGC	701	C U CP UP XGC	702	C U CP UP XGC	703	C U CP UP XGC
704	C U CP UP XGC	705	C U CP UP XGC	706	C U CP UP XGC	707	C U CP UP XGC
708	C U CP UP XGC	709	C U CP UP XGC	710	C U CP UP XGC	711	C U CP UP XGC
712	C U CP UP XGC	713	C U CP UP XGC	714	C U CP UP XGC	715	C U CP UP XGC
716	C U CP UP XGC	717	C U CP UP XGC	718	C U CP UP XGC	719	C U CP UP XGC
720	C U CP UP XGC	721	C U CP UP XGC	722	C U CP UP XGC	723	C U CP UP XGC
724	C U CP UP XGC	725	C U CP UP XGC	726	C U CP UP XGC	727	C U CP UP XGC
728	C U CP UP XGC	729	C U CP UP XGC	730	C U CP UP XGC	731	C U CP UP XGC
732	C U CP UP XGC	801	C U	802	C U	803	C U
804	C U	805	C U	806	C U	807	C U
808	C U	809	C U	810	C U	811	C U
812	C U	813	C U	814	C U	871	C U
872	C U	873	C U	874	C U	875	C U
876	C U	877	C U	901	C U	902	C U
903	C U	904	C U	905	C U	906	C U

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
907	C U	908	C U	909	C U	910	C U
911	C U	912	C U	913	C U	914	C U
915	C U	916	C U	917	C U	918	C U
919	C U	920	C U	921	C U	922	C U
923	C U	924	C U	925	C U	926	C U
927	C U	928	C U	929	C U	930	C U
931	C U	932	C U	933	C U	934	C U
935	C U	936	C U	937	C U	938	C U
939	C U	940	C U	941	C U	942	C U
1205	C U CP UP XGC	1215	C U CP UP XGC	1225	C U CP UP XGC	1235	C U CP UP XGC
1245	C U CP UP XGC	1255	C U CP UP XGC	1265	C U CP UP XGC	1345	C U CP UP XGC
1355	C U CP UP XGC	1365	C U CP UP XGC	1375	C U CP UP XGC	1385	C U CP UP XGC
1395	C U CP UP XGC	1405	C U CP UP XGC	1485	C U CP UP XGC	1495	C U CP UP XGC
1505	C U CP UP XGC	1525	C U CP UP XGC	1535	C U CP UP XGC	1545	C U CP UP XGC
1555	C U CP UP XGC	1565	C U CP UP XGC	1575	C U CP UP XGC	1585	C U CP UP XGC
1595	C U CP UP XGC	1605	C U CP UP XGC	1615	C U CP UP XGC	1625	C U CP UP XGC
1635	C U CP UP XGC	1645	C U CP UP XGC	1655	C U CP UP XGC	1665	C U CP UP XGC
1675	C U CP UP XGC	1685	C U CP UP XGC	1765	C U CP UP XGC	1767	C U CP UP XGC
1775	C U CP UP XGC	1777	C U CP UP XGC	1785	C U CP UP XGC	1787	C U CP UP XGC
1788	C U CP UP XGC	1795	C U CP UP XGC	1797	C U CP UP XGC	1805	C U CP UP XGC
1807	C U CP UP XGC	1815	C U CP UP XGC	1817	C U CP UP XGC	1895	C U CP UP XGC
1905	C U CP UP XGC	1915	C U CP UP XGC	1925	C U CP UP XGC	1935	C U CP UP XGC
1945	C U CP UP XGC	1955	C U CP UP XGC	2001	C U CP UP XGC	2002	C U CP UP XGC
2003	C U CP UP XGC	2004	C U CP UP XGC	2005	C U CP UP XGC	2006	C U CP UP XGC
2007	C U CP UP XGC	2008	C U CP UP XGC	2009	C U CP UP XGC	2010	C U CP UP XGC
2011	C U CP UP XGC	2012	C U CP UP XGC	2013	C U CP UP XGC	2014	C U CP UP XGC

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
2015	C U CP UP XGC	2016	C U CP UP XGC	2017	C U CP UP XGC	2018	C U CP UP XGC
2019	C U CP UP XGC	2020	C U CP UP XGC	2021	C U CP UP XGC	2022	C U CP UP XGC
2023	C U CP UP XGC	2024	C U CP UP XGC	2025	C U CP UP XGC	2026	C U CP UP XGC
2027	C U CP UP XGC	2028	C U CP UP XGC	2029	C U CP UP XGC	2030	C U CP UP XGC
2031	C U CP UP XGC	2032	C U CP UP XGC	2033	C U CP UP XGC	2034	C U CP UP XGC
2035	C U CP UP XGC	2036	C U CP UP XGC	2037	C U CP UP XGC	2038	C U CP UP XGC
2039	C U CP UP XGC	2040	C U CP UP XGC	2041	C U CP UP XGC	2042	C U CP UP XGC
2043	C U CP UP XGC	2044	C U CP UP XGC	2045	C U CP UP XGC	2046	C U CP UP XGC
2047	C U CP UP XGC	2048	C U CP UP XGC	2049	C U CP UP XGC	2050	C U CP UP XGC
2051	C U CP UP XGC	2052	C U CP UP XGC	2053	C U CP UP XGC	2054	C U CP UP XGC
2055	C U CP UP XGC	2056	C U CP UP XGC	2057	C U CP UP XGC	2058	C U CP UP XGC
2059	C U CP UP XGC	2060	C U CP UP XGC	2061	C U CP UP XGC	2062	C U CP UP XGC
2063	C U CP UP XGC	2064	C U CP UP XGC	2065	C U CP UP XGC	2066	C U CP UP XGC
2067	C U CP UP XGC	2068	C U CP UP XGC	2069	C U CP UP XGC	2070	C U CP UP XGC
2071	C U CP UP XGC	2072	C U CP UP XGC	2073	C U CP UP XGC	2074	C U CP UP XGC
2075	C U CP UP XGC	2076	C U CP UP XGC	2077	C U CP UP XGC	2078	C U CP UP XGC
2079	C U CP UP XGC	2080	C U CP UP XGC	2081	C U CP UP XGC	2082	C U CP UP XGC
2083	C U CP UP XGC	2084	C U CP UP XGC	2085	C U CP UP XGC	2086	C U CP UP XGC
2087	C U CP UP XGC	2088	C U CP UP XGC	2089	C U CP UP XGC	2090	C U CP UP XGC
2091	C U CP UP XGC	2092	C U CP UP XGC	2093	C U CP UP XGC	2094	C U CP UP XGC
2095	C U CP UP XGC	2096	C U CP UP XGC	2097	C U CP UP XGC	2098	C U CP UP XGC
2099	C U CP UP XGC	2100	C U CP UP XGC	2101	C U CP UP XGC	2102	C U CP UP XGC

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
2103	C U CP UP XGC	2104	C U CP UP XGC	2105	C U CP UP XGC	2106	C U CP UP XGC
2107	C U CP UP XGC	2108	C U CP UP XGC	2109	C U CP UP XGC	2110	C U CP UP XGC
2111	C U CP UP XGC	2112	C U CP UP XGC	2113	C U CP UP XGC	2114	C U CP UP XGC
2115	C U CP UP XGC	2116	C U CP UP XGC	2117	C U CP UP XGC	2118	C U CP UP XGC
2119	C U CP UP XGC	2120	C U CP UP XGC	2121	C U CP UP XGC	2122	C U CP UP XGC
2123	C U CP UP XGC	2124	C U CP UP XGC	2125	C U CP UP XGC	2126	C U CP UP XGC
2127	C U CP UP XGC	2128	C U CP UP XGC	2129	C U CP UP XGC	2130	C U CP UP XGC
2131	C U CP UP XGC	2132	C U CP UP XGC	2133	C U CP UP XGC	2134	C U CP UP XGC
2135	C U CP UP XGC	2136	C U CP UP XGC	2137	C U CP UP XGC	2138	C U CP UP XGC
2139	C U CP UP XGC	2140	C U CP UP XGC	2141	C U CP UP XGC	2142	C U CP UP XGC
2143	C U CP UP XGC	2144	C U CP UP XGC	2145	C U CP UP XGC	2146	C U CP UP XGC
2147	C U CP UP XGC	2148	C U CP UP XGC	2149	C U CP UP XGC	2150	C U CP UP XGC
2151	C U CP UP XGC	2152	C U CP UP XGC	2153	C U CP UP XGC	2154	C U CP UP XGC
2155	C U CP UP XGC	2156	C U CP UP XGC	2157	C U CP UP XGC	2158	C U CP UP XGC
2159	C U CP UP XGC	2160	C U CP UP XGC	2161	C U CP UP XGC	2162	C U CP UP XGC
2163	C U CP UP XGC	2164	C U CP UP XGC	2165	C U CP UP XGC	2166	C U CP UP XGC
2167	C U CP UP XGC	2168	C U CP UP XGC	2169	C U CP UP XGC	2170	C U CP UP XGC
2171	C U CP UP XGC	2172	C U CP UP XGC	2173	C U CP UP XGC	2174	C U CP UP XGC
2175	C U CP UP XGC	2176	C U CP UP XGC	2177	C U CP UP XGC	2178	C U CP UP XGC
2179	C U CP UP XGC	2180	C U CP UP XGC	2181	C U CP UP XGC	2182	C U CP UP XGC
2183	C U CP UP XGC	2184	C U CP UP XGC	2185	C U CP UP XGC	2186	C U CP UP XGC
2187	C U CP UP XGC	2188	C U CP UP XGC	2189	C U CP UP XGC	2190	C U CP UP XGC

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
2191	C U CP UP XGC	2192	C U CP UP XGC	2193	C U CP UP XGC	2194	C U CP UP XGC
2195	C U CP UP XGC	2196	C U CP UP XGC	2197	C U CP UP XGC	2198	C U CP UP XGC
2199	C U CP UP XGC	2200	C U CP UP XGC	2201	C U CP UP XGC	2202	C U CP UP XGC
2203	C U CP UP XGC	2204	C U CP UP XGC	2205	C U CP UP XGC	2206	C U CP UP XGC
2207	C U CP UP XGC	2208	C U CP UP XGC	2209	C U CP UP XGC	2210	C U CP UP XGC
2211	C U CP UP XGC	2212	C U CP UP XGC	2213	C U CP UP XGC	2214	C U CP UP XGC
2215	C U CP UP XGC	2216	C U CP UP XGC	2217	C U CP UP XGC	2218	C U CP UP XGC
2219	C U CP UP XGC	2220	C U CP UP XGC	2221	C U CP UP XGC	2222	C U CP UP XGC
2223	C U CP UP XGC	2224	C U CP UP XGC	2225	C U CP UP XGC	2226	C U CP UP XGC
2227	C U CP UP XGC	2228	C U CP UP XGC	2229	C U CP UP XGC	2230	C U CP UP XGC
2231	C U CP UP XGC	2232	C U CP UP XGC	2233	C U CP UP XGC	2234	C U CP UP XGC
2235	C U CP UP XGC	2236	C U CP UP XGC	2237	C U CP UP XGC	2238	C U CP UP XGC
2239	C U CP UP XGC	2240	C U CP UP XGC	2241	C U CP UP XGC	2242	C U CP UP XGC
2243	C U CP UP XGC	2244	C U CP UP XGC	2245	C U CP UP XGC	2246	C U CP UP XGC
2247	C U CP UP XGC	2248	C U CP UP XGC	2249	C U CP UP XGC	2250	C U CP UP XGC
2251	C U CP UP XGC	2252	C U CP UP XGC	2253	C U CP UP XGC	2254	C U CP UP XGC
2255	C U CP UP XGC	2256	C U CP UP XGC	2257	C U CP UP XGC	2258	C U CP UP XGC
2259	C U CP UP XGC	2260	C U CP UP XGC	2261	C U CP UP XGC	2262	C U CP UP XGC
2263	C U CP UP XGC	2264	C U CP UP XGC	2265	C U CP UP XGC	2266	C U CP UP XGC
2267	C U CP UP XGC	2268	C U CP UP XGC	2269	C U CP UP XGC	2270	C U CP UP XGC
2271	C U CP UP XGC	2272	C U CP UP XGC	2273	C U CP UP XGC	2274	C U CP UP XGC
2275	C U CP UP XGC	2276	C U CP UP XGC	2277	C U CP UP XGC	2278	C U CP UP XGC

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
2279	C U CP UP XGC	2280	C U CP UP XGC	2281	C U CP UP XGC	2282	C U CP UP XGC
2283	C U CP UP XGC	2284	C U CP UP XGC	2285	C U CP UP XGC	2286	C U CP UP XGC
2287	C U CP UP XGC	2288	C U CP UP XGC	2289	C U CP UP XGC	2290	C U CP UP XGC
2291	C U CP UP XGC	2292	C U CP UP XGC	2293	C U CP UP XGC	2294	C U CP UP XGC
2295	C U CP UP XGC	2296	C U CP UP XGC	2297	C U CP UP XGC	2298	C U CP UP XGC
2299	C U CP UP XGC	2300	C U CP UP XGC	2301	C U CP UP XGC	2302	C U CP UP XGC
2303	C U CP UP XGC	2304	C U CP UP XGC	2305	C U CP UP XGC	2306	C U CP UP XGC
2307	C U CP UP XGC	2308	C U CP UP XGC	2309	C U CP UP XGC	2310	C U CP UP XGC
2311	C U CP UP XGC	2312	C U CP UP XGC	2313	C U CP UP XGC	2314	C U CP UP XGC
2315	C U CP UP XGC	2316	C U CP UP XGC	2317	C U CP UP XGC	2318	C U CP UP XGC
2319	C U CP UP XGC	2320	C U CP UP XGC	2321	C U CP UP XGC	2322	C U CP UP XGC
2323	C U CP UP XGC	2324	C U CP UP XGC	2325	C U CP UP XGC	2326	C U CP UP XGC
2327	C U CP UP XGC	2328	C U CP UP XGC	2329	C U CP UP XGC	2330	C U CP UP XGC
2331	C U CP UP XGC	2332	C U CP UP XGC	2333	C U CP UP XGC	2334	C U CP UP XGC
2335	C U CP UP XGC	2336	C U CP UP XGC	2337	C U CP UP XGC	2338	C U CP UP XGC
2339	C U CP UP XGC	2340	C U CP UP XGC	2341	C U CP UP XGC	2342	C U CP UP XGC
2343	C U CP UP XGC	2344	C U CP UP XGC	2345	C U CP UP XGC	2346	C U CP UP XGC
2347	C U CP UP XGC	2348	C U CP UP XGC	2349	C U CP UP XGC	2350	C U CP UP XGC
2351	C U CP UP XGC	2352	C U CP UP XGC	2353	C U CP UP XGC	2354	C U CP UP XGC
2355	C U CP UP XGC	2356	C U CP UP XGC	2357	C U CP UP XGC	2358	C U CP UP XGC
2359	C U CP UP XGC	2360	C U CP UP XGC	2361	C U CP UP XGC	2362	C U CP UP XGC
2363	C U CP UP XGC	2364	C U CP UP XGC	2365	C U CP UP XGC	2366	C U CP UP XGC

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
2367	C U CP UP XGC	2368	C U CP UP XGC	2369	C U CP UP XGC	2370	C U CP UP XGC
2371	C U CP UP XGC	2372	C U CP UP XGC	2373	C U CP UP XGC	2374	C U CP UP XGC
2375	C U CP UP XGC	2376	C U CP UP XGC	2377	C U CP UP XGC	2378	C U CP UP XGC
2379	C U CP UP XGC	2380	C U CP UP XGC	2381	C U CP UP XGC	2382	C U CP UP XGC
2383	C U CP UP XGC	2384	C U CP UP XGC	2385	C U CP UP XGC	2386	C U CP UP XGC
2387	C U CP UP XGC	2388	C U CP UP XGC	2389	C U CP UP XGC	2390	C U CP UP XGC
2391	C U CP UP XGC	2392	C U CP UP XGC	2393	C U CP UP XGC	2394	C U CP UP XGC
2395	C U CP UP XGC	2396	C U CP UP XGC	2397	C U CP UP XGC	2398	C U CP UP XGC
2399	C U CP UP XGC	2400	C U CP UP XGC	2401	C U CP UP XGC	2402	C U CP UP XGC
2403	C U CP UP XGC	2404	C U CP UP XGC	2405	C U CP UP XGC	2406	C U CP UP XGC
2407	C U CP UP XGC	2408	C U CP UP XGC	2409	C U CP UP XGC	2410	C U CP UP XGC
2411	C U CP UP XGC	2412	C U CP UP XGC	2413	C U CP UP XGC	2414	C U CP UP XGC
2415	C U CP UP XGC	2416	C U CP UP XGC	2417	C U CP UP XGC	2418	C U CP UP XGC
2419	C U CP UP XGC	2420	C U CP UP XGC	2421	C U CP UP XGC	2422	C U CP UP XGC
2423	C U CP UP XGC	2424	C U CP UP XGC	2425	C U CP UP XGC	2426	C U CP UP XGC
2427	C U CP UP XGC	2562	C U CP UP XGC	2563	C U CP UP XGC	2567	C U CP UP XGC
2572	C U CP UP XGC	2573	C U CP UP XGC	2577	C U CP UP XGC	2582	C U CP UP XGC
2583	C U CP UP XGC	2587	C U CP UP XGC	2592	C U CP UP XGC	2593	C U CP UP XGC
2597	C U CP UP XGC	2602	C U CP UP XGC	2603	C U CP UP XGC	2607	C U CP UP XGC
2612	C U CP UP XGC	2613	C U CP UP XGC	2617	C U CP UP XGC	2622	C U CP UP XGC
2623	C U CP UP XGC	2627	C U CP UP XGC	2635	C U CP UP XGC	2645	C U CP UP XGC
2655	C U CP UP XGC	2665	C U CP UP XGC	2685	C U CP UP XGC	2695	C U CP UP XGC

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
2705	C U CP UP XGC	2706	C U CP UP XGC	2707	C U CP UP XGC	2708	C U CP UP XGC
2715	C U CP UP XGC	2716	C U CP UP XGC	2717	C U CP UP XGC	2718	C U CP UP XGC
2725	C U CP UP XGC	2726	C U CP UP XGC	2727	C U CP UP XGC	2728	C U CP UP XGC
2735	C U CP UP XGC	2736	C U CP UP XGC	2738	C U CP UP XGC	2745	C U CP UP XGC
2746	C U CP UP XGC	2747	C U CP UP XGC	2748	C U CP UP XGC	2755	C U CP UP XGC
2756	C U CP UP XGC	2757	C U CP UP XGC	2758	C U CP UP XGC	2765	C U CP UP XGC
2766	C U CP UP XGC	2767	C U CP UP XGC	2768	C U CP UP XGC	2905	C U CP UP XGC
2915	C U CP UP XGC	2925	C U CP UP XGC	2935	C U CP UP XGC	2945	C U CP UP XGC
2955	C U CP UP XGC	2965	C U CP UP XGC	2975	C U CP UP XGC	2985	C U CP UP XGC
2995	C U CP UP XGC	3005	C U CP UP XGC	3015	C U CP UP XGC	3025	C U CP UP XGC
3035	C U CP UP XGC	3105	C U CP UP XGC	3115	C U CP UP XGC	3125	C U CP UP XGC
3135	C U CP UP XGC	3145	C U CP UP XGC	3155	C U CP UP XGC	3165	C U CP UP XGC
3242	C U CP UP XGC	3245	C U CP UP XGC	3248	C U CP UP XGC	3252	C U CP UP XGC
3255	C U CP UP XGC	3258	C U CP UP XGC	3262	C U CP UP XGC	3265	C U CP UP XGC
3268	C U CP UP XGC	3272	C U CP UP XGC	3275	C U CP UP XGC	3278	C U CP UP XGC
3282	C U CP UP XGC	3285	C U CP UP XGC	3288	C U CP UP XGC	3292	C U CP UP XGC
3295	C U CP UP XGC	3298	C U CP UP XGC	3302	C U CP UP XGC	3305	C U CP UP XGC
3308	C U CP UP XGC	3375	C U CP UP XGC	3385	C U CP UP XGC	3395	C U CP UP XGC
3405	C U CP UP XGC	3415	C U CP UP XGC	3425	C U CP UP XGC	3435	C U CP UP XGC
3935	C U CP UP XGC	3945	C U CP UP XGC	3955	C U CP UP XGC	3965	C U CP UP XGC
3975	C U CP UP XGC	3985	C U CP UP XGC	3995	C U CP UP XGC	4485	C U CP UP XGC
4495	C U CP UP XGC	4505	C U CP UP XGC	4515	C U CP UP XGC	4525	C U CP UP XGC

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
4535	C U CP UP XGC	4545	C U CP UP XGC	4625	C U CP UP XGC	4635	C U CP UP XGC
4645	C U CP UP XGC	4655	C U CP UP XGC	4665	C U CP UP XGC	4675	C U CP UP XGC
4685	C U CP UP XGC	4695	C U CP UP XGC	4705	C U CP UP XGC	4715	C U CP UP XGC
4725	C U CP UP XGC	4735	C U CP UP XGC	4745	C U CP UP XGC	4755	C U CP UP XGC
4975	C U CP UP XGC	4985	C U CP UP XGC	4995	C U CP UP XGC	5005	C U CP UP XGC
5015	C U CP UP XGC	5025	C U CP UP XGC	5035	C U CP UP XGC	5115	C U CP UP XGC
5125	C U CP UP XGC	5135	C U CP UP XGC	5145	C U CP UP XGC	5155	C U CP UP XGC
5165	C U CP UP XGC	5175	C U CP UP XGC	5185	C U CP UP XGC	5195	C U CP UP XGC
5205	C U CP UP XGC	5215	C U CP UP XGC	5225	C U CP UP XGC	5235	C U CP UP XGC
5245	C U CP UP XGC	5255	C U CP UP XGC	5265	C U CP UP XGC	5275	C U CP UP XGC
5285	C U CP UP XGC	5295	C U CP UP XGC	5305	C U CP UP XGC	5315	C U CP UP XGC
5395	C U CP UP XGC	5405	C U CP UP XGC	5415	C U CP UP XGC	5425	C U CP UP XGC
5435	C U CP UP XGC	5445	C U CP UP XGC	5455	C U CP UP XGC	5463	C U CP UP XGC
5467	C U CP UP XGC	5473	C U CP UP XGC	5477	C U CP UP XGC	5483	C U CP UP XGC
5487	C U CP UP XGC	5493	C U CP UP XGC	5497	C U CP UP XGC	5503	C U CP UP XGC
5507	C U CP UP XGC	5513	C U CP UP XGC	5517	C U CP UP XGC	5523	C U CP UP XGC
5527	C U CP UP XGC	5535	C U CP UP XGC	5545	C U CP UP XGC	5555	C U CP UP XGC
5565	C U CP UP XGC	5575	C U CP UP XGC	5585	C U CP UP XGC	5595	C U CP UP XGC
5605	C U CP UP XGC	5615	C U CP UP XGC	5625	C U CP UP XGC	5635	C U CP UP XGC
5645	C U CP UP XGC	5655	C U CP UP XGC	5665	C U CP UP XGC	5743	C U CP UP XGC
5747	C U CP UP XGC	5753	C U CP UP XGC	5757	C U CP UP XGC	5763	C U CP UP XGC
5767	C U CP UP XGC	5773	C U CP UP XGC	5777	C U CP UP XGC	5783	C U CP UP XGC

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
5787	C U CP UP XGC	5793	C U CP UP XGC	5797	C U CP UP XGC	5803	C U CP UP XGC
5807	C U CP UP XGC	5815	C U CP UP XGC	5825	C U CP UP XGC	5835	C U CP UP XGC
5845	C U CP UP XGC	5855	C U CP UP XGC	5865	C U CP UP XGC	5875	C U CP UP XGC
7401	C U CP UP XGC	7402	C U CP UP XGC	7403	C U CP UP XGC	7404	C U CP UP XGC
7405	C U CP UP XGC	7406	C U CP UP XGC	7407	C U CP UP XGC	7408	C U CP UP XGC
7409	C U CP UP XGC	7410	C U CP UP XGC	7411	C U CP UP XGC	7412	C U CP UP XGC
7413	C U CP UP XGC	7414	C U CP UP XGC	7415	C U CP UP XGC	7416	C U CP UP XGC
7417	C U CP UP XGC	7418	C U CP UP XGC	7419	C U CP UP XGC	7420	C U CP UP XGC
7421	C U CP UP XGC	7422	C U CP UP XGC	7423	C U CP UP XGC	7424	C U CP UP XGC
7425	C U CP UP XGC	7426	C U CP UP XGC	7427	C U CP UP XGC	7428	C U CP UP XGC
7429	C U CP UP XGC	7430	C U CP UP XGC	7431	C U CP UP XGC	7432	C U CP UP XGC
7433	C U CP UP XGC	7434	C U CP UP XGC	7435	C U CP UP XGC	7436	C U CP UP XGC
7437	C U CP UP XGC	7438	C U CP UP XGC	7439	C U CP UP XGC	7440	C U CP UP XGC
7441	C U CP UP XGC	7442	C U CP UP XGC	7443	C U CP UP XGC	7444	C U CP UP XGC
7445	C U CP UP XGC	7446	C U CP UP XGC	7447	C U CP UP XGC	7448	C U CP UP XGC
7449	C U CP UP XGC	7450	C U CP UP XGC	7451	C U CP UP XGC	7452	C U CP UP XGC
7453	C U CP UP XGC	7454	C U CP UP XGC	7455	C U CP UP XGC	7456	C U CP UP XGC
7457	C U CP UP XGC	7458	C U CP UP XGC	7459	C U CP UP XGC	7460	C U CP UP XGC
7461	C U CP UP XGC	7462	C U CP UP XGC	7463	C U CP UP XGC	7464	C U CP UP XGC
7465	C U CP UP XGC	7466	C U CP UP XGC	7467	C U CP UP XGC	7468	C U CP UP XGC
7469	C U CP UP XGC	7470	C U CP UP XGC	7471	C U CP UP XGC	7472	C U CP UP XGC
7473	C U CP UP XGC	7474	C U CP UP XGC	7475	C U CP UP XGC	7476	C U CP UP XGC

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
7477	C U CP UP XGC	7478	C U CP UP XGC	7479	C U CP UP XGC	7480	C U CP UP XGC
7481	C U CP UP XGC	7482	C U CP UP XGC	7483	C U CP UP XGC	7484	C U CP UP XGC
7485	C U CP UP XGC	7486	C U CP UP XGC	7487	C U CP UP XGC	7488	C U CP UP XGC
7489	C U CP UP XGC	7490	C U CP UP XGC	7491	C U CP UP XGC	7492	C U CP UP XGC
7493	C U CP UP XGC	7494	C U CP UP XGC	7495	C U CP UP XGC	7496	C U CP UP XGC
7497	C U CP UP XGC	7498	C U CP UP XGC	7499	C U CP UP XGC	7500	C U CP UP XGC
7501	C U CP UP XGC	7502	C U CP UP XGC	7503	C U CP UP XGC	7504	C U CP UP XGC
7505	C U CP UP XGC	7506	C U CP UP XGC	7507	C U CP UP XGC	7508	C U CP UP XGC
7509	C U CP UP XGC	7510	C U CP UP XGC	7511	C U CP UP XGC	7512	C U CP UP XGC
7513	C U CP UP XGC	7514	C U CP UP XGC	7515	C U CP UP XGC	7516	C U CP UP XGC
7517	C U CP UP XGC	7518	C U CP UP XGC	7519	C U CP UP XGC	7520	C U CP UP XGC
7521	C U CP UP XGC	7522	C U CP UP XGC	7523	C U CP UP XGC	7524	C U CP UP XGC
7525	C U CP UP XGC	7526	C U CP UP XGC	7527	C U CP UP XGC	7528	C U CP UP XGC
7529	C U CP UP XGC	7530	C U CP UP XGC	7531	C U CP UP XGC	7532	C U CP UP XGC
7533	C U CP UP XGC	7534	C U CP UP XGC	7535	C U CP UP XGC	7536	C U CP UP XGC
7537	C U CP UP XGC	7538	C U CP UP XGC	7539	C U CP UP XGC	7540	C U CP UP XGC
7541	C U CP UP XGC	7542	C U CP UP XGC	7543	C U CP UP XGC	7544	C U CP UP XGC
7545	C U CP UP XGC	7546	C U CP UP XGC	7547	C U CP UP XGC	7548	C U CP UP XGC
7549	C U CP UP XGC	7550	C U CP UP XGC	7551	C U CP UP XGC	7552	C U CP UP XGC
7553	C U CP UP XGC	7554	C U CP UP XGC	7555	C U CP UP XGC	7556	C U CP UP XGC
7557	C U CP UP XGC	7558	C U CP UP XGC	7559	C U CP UP XGC	7560	C U CP UP XGC
7561	C U CP UP XGC	7562	C U CP UP XGC	7563	C U CP UP XGC	7564	C U CP UP XGC

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
7565	C U CP UP XGC	7566	C U CP UP XGC	7567	C U CP UP XGC	7568	C U CP UP XGC
7569	C U CP UP XGC	7570	C U CP UP XGC	7571	C U CP UP XGC	7572	C U CP UP XGC
7573	C U CP UP XGC	7574	C U CP UP XGC	7575	C U CP UP XGC	7576	C U CP UP XGC
7577	C U CP UP XGC	7578	C U CP UP XGC	7579	C U CP UP XGC	7580	C U CP UP XGC
7581	C U CP UP XGC	7582	C U CP UP XGC	7583	C U CP UP XGC	7584	C U CP UP XGC
7585	C U CP UP XGC	7586	C U CP UP XGC	7587	C U CP UP XGC	7588	C U CP UP XGC
7589	C U CP UP XGC	7590	C U CP UP XGC	7591	C U CP UP XGC	7592	C U CP UP XGC
7593	C U CP UP XGC	7594	C U CP UP XGC	7595	C U CP UP XGC	7596	C U CP UP XGC
7597	C U CP UP XGC	7598	C U CP UP XGC	7599	C U CP UP XGC	7600	C U CP UP XGC
7601	C U CP UP XGC	7602	C U CP UP XGC	7603	C U CP UP XGC	7604	C U CP UP XGC
7605	C U CP UP XGC	7606	C U CP UP XGC	7607	C U CP UP XGC	7608	C U CP UP XGC
7609	C U CP UP XGC	7610	C U CP UP XGC	7611	C U CP UP XGC	7612	C U CP UP XGC
7613	C U CP UP XGC	7614	C U CP UP XGC	7615	C U CP UP XGC	7616	C U CP UP XGC
7617	C U CP UP XGC	7618	C U CP UP XGC	7619	C U CP UP XGC	7620	C U CP UP XGC
7621	C U CP UP XGC	7622	C U CP UP XGC	7623	C U CP UP XGC	7624	C U CP UP XGC
7625	C U CP UP XGC	7626	C U CP UP XGC	7627	C U CP UP XGC	7628	C U CP UP XGC
7629	C U CP UP XGC	7630	C U CP UP XGC	7631	C U CP UP XGC	7632	C U CP UP XGC
7633	C U CP UP XGC	7634	C U CP UP XGC	7635	C U CP UP XGC	7636	C U CP UP XGC
7637	C U CP UP XGC	7638	C U CP UP XGC	7639	C U CP UP XGC	7640	C U CP UP XGC
7641	C U CP UP XGC	7642	C U CP UP XGC	7643	C U CP UP XGC	7644	C U CP UP XGC
7645	C U CP UP XGC	7646	C U CP UP XGC	7647	C U CP UP XGC	7648	C U CP UP XGC
7649	C U CP UP XGC	7650	C U CP UP XGC	7651	C U CP UP XGC	7652	C U CP UP XGC

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
7653	C U CP UP XGC	7654	C U CP UP XGC	7655	C U CP UP XGC	7656	C U CP UP XGC
7657	C U CP UP XGC	7658	C U CP UP XGC	7659	C U CP UP XGC	7660	C U CP UP XGC
7661	C U CP UP XGC	7662	C U CP UP XGC	7663	C U CP UP XGC	7664	C U CP UP XGC
7665	C U CP UP XGC	7666	C U CP UP XGC	7667	C U CP UP XGC	7668	C U CP UP XGC
7669	C U CP UP XGC	7670	C U CP UP XGC	7671	C U CP UP XGC	7672	C U CP UP XGC
7673	C U CP UP XGC	7674	C U CP UP XGC	7675	C U CP UP XGC	7676	C U CP UP XGC
7677	C U CP UP XGC	7678	C U CP UP XGC	7679	C U CP UP XGC	7680	C U CP UP XGC
7681	C U CP UP XGC	7682	C U CP UP XGC	7683	C U CP UP XGC	7684	C U CP UP XGC
7685	C U CP UP XGC	7686	C U CP UP XGC	7687	C U CP UP XGC	7688	C U CP UP XGC
7689	C U CP UP XGC	7690	C U CP UP XGC	7691	C U CP UP XGC	7692	C U CP UP XGC
7693	C U CP UP XGC	7694	C U CP UP XGC	7695	C U CP UP XGC	7696	C U CP UP XGC
7697	C U CP UP XGC	7698	C U CP UP XGC	7699	C U CP UP XGC	7700	C U CP UP XGC
7701	C U CP UP XGC	7702	C U CP UP XGC	7703	C U CP UP XGC	7704	C U CP UP XGC
7705	C U CP UP XGC	7706	C U CP UP XGC	7707	C U CP UP XGC	7708	C U CP UP XGC
7709	C U CP UP XGC	7710	C U CP UP XGC	7711	C U CP UP XGC	7712	C U CP UP XGC
7713	C U CP UP XGC	7714	C U CP UP XGC	7715	C U CP UP XGC	7716	C U CP UP XGC
7717	C U CP UP XGC	7718	C U CP UP XGC	7719	C U CP UP XGC	7720	C U CP UP XGC
7721	C U CP UP XGC	7722	C U CP UP XGC	7723	C U CP UP XGC	7724	C U CP UP XGC
7725	C U CP UP XGC	7726	C U CP UP XGC	7727	C U CP UP XGC	7728	C U CP UP XGC
7729	C U CP UP XGC	7730	C U CP UP XGC	7731	C U CP UP XGC	7732	C U CP UP XGC
7733	C U CP UP XGC	7734	C U CP UP XGC	7735	C U CP UP XGC	7736	C U CP UP XGC
7737	C U CP UP XGC	7738	C U CP UP XGC	7739	C U CP UP XGC	7740	C U CP UP XGC

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
7741	C U CP UP XGC	7742	C U CP UP XGC	7743	C U CP UP XGC	7744	C U CP UP XGC
7745	C U CP UP XGC	7746	C U CP UP XGC	7747	C U CP UP XGC	7748	C U CP UP XGC
7749	C U CP UP XGC	7750	C U CP UP XGC	7751	C U CP UP XGC	7752	C U CP UP XGC
7753	C U CP UP XGC	7754	C U CP UP XGC	7755	C U CP UP XGC	7756	C U CP UP XGC
7757	C U CP UP XGC	7758	C U CP UP XGC	7759	C U CP UP XGC	7760	C U CP UP XGC
7761	C U CP UP XGC	7762	C U CP UP XGC	7763	C U CP UP XGC	7764	C U CP UP XGC
7765	C U CP UP XGC	7766	C U CP UP XGC	7767	C U CP UP XGC	7768	C U CP UP XGC
7769	C U CP UP XGC	7770	C U CP UP XGC	7771	C U CP UP XGC	8001	C
8002	C	8003	C	8004	C	8005	C
8006	C	8020	C	8021	C	8022	C
8023	C	8024	C	8025	C	8040	C
8041	C	8042	C	8043	C	8044	C
8045	C	8060	C	8061	C	8062	C
8063	C	8064	C	8065	C	8080	C
8081	C	8082	C	8083	C	8084	C
8085	C	8100	C	8101	C	8102	C
8103	C	8104	C	8105	C	8120	C
8121	C	8122	C	8123	C	8124	C
8125	C	8140	C	8141	C	8142	C
8143	C	8144	C	8145	C	8160	C
8161	C	8162	C	8163	C	8164	C
8165	C	8180	C	8181	C	8182	C
8183	C	8184	C	8185	C	8200	C
8201	C	8202	C	8203	C	8204	C
8205	C	8220	C	8221	C	8222	C
8223	C	8224	C	8225	C	8240	C
8241	C	8242	C	8243	C	8244	C
8245	C	8260	C	8261	C	8262	C
8263	C	8264	C	8265	C	8280	C
8281	C	8282	C	8283	C	8284	C
8285	C	8300	C	8301	C	8302	C
8303	C	8304	C	8305	C	8320	C

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
8321	C	8322	C	8323	C	8324	C
8325	C	8340	C	8341	C	8342	C
8343	C	8344	C	8345	C	8360	C
8361	C	8362	C	8363	C	8364	C
8365	C	8380	C	8381	C	8382	C
8383	C	8384	C	8385	C	8400	C
8401	C	8402	C	8403	C	8404	C
8405	C	8420	C	8421	C	8422	C
8423	C	8424	C	8425	C	8440	C
8441	C	8442	C	8443	C	8444	C
8445	C	8460	C	8461	C	8462	C
8463	C	8464	C	8465	C	8480	C
8481	C	8482	C	8483	C	8484	C
8485	C	8500	C	8501	C	8502	C
8503	C	8504	C	8505	C	8520	C
8521	C	8522	C	8523	C	8524	C
8525	C	8540	C	8541	C	8542	C
8543	C	8544	C	8545	C	8560	C
8561	C	8562	C	8563	C	8564	C
8565	C	8580	C	8581	C	8582	C
8583	C	8584	C	8585	C	8600	C
8601	C	8602	C	8603	C	8604	C
8605	C	8620	C	8621	C	8622	C
8623	C	8624	C	8625	C	8640	C
8641	C	8642	C	8643	C	8644	C
8645	C	8660	C	8661	C	8662	C
8663	C	8664	C	8665	C	8680	C
8681	C	8682	C	8683	C	8684	C
8685	C	8700	C	8701	C	8702	C
8703	C	8704	C	8705	C	8720	C
8721	C	8722	C	8723	C	8724	C
8725	C	8740	C	8741	C	8742	C
8743	C	8744	C	8745	C	8760	C
8761	C	8762	C	8763	C	8764	C
8765	C	8780	C	8781	C	8782	C
8783	C	8784	C	8785	C	8800	C
8801	C	8802	C	8803	C	8804	C

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
8805	C	8820	C	8821	C	8822	C
8823	C	8824	C	8825	C	8840	C
8841	C	8842	C	8843	C	8844	C
8845	C	8860	C	8861	C	8862	C
8863	C	8864	C	8865	C	8880	C
8881	C	8882	C	8883	C	8884	C
8885	C	8900	C	8901	C	8902	C
8903	C	8904	C	8905	C	8920	C
8921	C	8922	C	8923	C	8924	C
8925	C	8940	C	8941	C	8942	C
8943	C	8944	C	8945	C	8960	C
8961	C	8962	C	8963	C	8964	C
8965	C	9020	C U	9021	C U	9022	C U
9023	C U	9040	C U	9041	C U	9042	C U
9043	C U	9044	C U	9045	C U	9060	C U
9061	C U	9062	C U	9063	C U	9064	C U
9080	C U	9081	C U	9082	C U	9083	C U
9084	C U	9100	C U	9101	C U	9102	C U
9103	C U	9120	C U	9121	C U	9122	C U
9123	C U	9140	C U	9141	C U	9142	C U
9143	C U	9160	C U	9161	C U	9162	C U
9163	C U	9180	C U	9181	C U	9182	C U
9183	C U	9184	C U	9185	C U	9186	C U
9200	C U	9201	C U	9202	C U	9203	C U
9220	C U	9221	C U	9222	C U	9223	C U
9224	C U	9225	C U	9226	C U	9240	C U
9241	C U	9242	C U	9243	C U	9244	C U
9260	C U	9261	C U	9262	C U	9263	C U
9280	C U	9281	C U	9282	C U	9283	C U
9284	C U	9285	C U	9286	C U	9300	C U
9301	C U	9302	C U	9303	C U	9320	C U
9321	C U	9322	C U	9323	C U	9324	C U
9340	C U	9341	C U	9342	C U	9343	C U
9344	C U	9345	C U	9360	C U	9361	C U
9362	C U	9363	C U	9380	C U	9381	C U
9382	C U	9383	C U	9384	C U	9385	C U
9400	C U	9401	C U	9402	C U	9403	C U

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
9420	C U	9421	C U	9422	C U	9423	C U
9424	C U	9440	C U	9441	C U	9442	C U
9443	C U	9460	C U	9461	C U	9462	C U
9463	C U	9464	C U	9480	C U	9481	C U
9482	C U	9483	C U	9500	C U	9501	C U
9502	C U	9503	C U	9504	C U	9520	C U
9521	C U	9522	C U	9523	C U	9524	C U
9525	C U	9540	C U	9541	C U	9542	C U
9543	C U	9544	C U	9560	C U	9561	C U
9562	C U	9563	C U	9580	C U	9581	C U
9582	C U	9583	C U	9584	C U	9585	C U
9600	C U	9601	C U	9602	C U	9603	C U
10101	C	10102	C	10103	C	10104	C
10105	C	10106	C	10107	C	10108	C
10109	C	10110	C	10111	C	10112	C
10113	C	10114	C	10115	C	10116	C
10117	C	10118	C	10119	C	10120	C
10121	C	10122	C	10123	C	10124	C
10125	C	10126	C	10127	C	10128	C
10129	C	10130	C	10131	C	10132	C
10133	C	10134	C	10135	C	10136	C
10137	C	10138	C	10139	C	10140	C
10141	C	10142	C	10143	C	10144	C
10145	C	10146	C	10147	C	10148	C
10149	C	10150	C	10151	C	10152	C
10153	C	10154	C	10155	C	10156	C
10157	C	10158	C	10159	C	10160	C
10161	C	10162	C	10163	C	10164	C
10165	C	10166	C	10167	C	10168	C
10169	C	10170	C	10171	C	10172	C
10173	C	10174	C	10175	C	10176	C
10177	C	10178	C	10179	C	10180	C
10181	C	10182	C	10183	C	10184	C
10185	C	10186	C	10187	C	10188	C
10189	C	10190	C	10191	C	10192	C
10193	C	10194	C	10195	C	10196	C
10197	C	10198	C	10199	C	10200	C

color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix	color name	prefix/suffix
10201	C	10202	C	10203	C	10204	C
10205	C	10206	C	10207	C	10208	C
10209	C	10210	C	10211	C	10212	C
10213	C	10214	C	10215	C	10216	C
10217	C	10218	C	10219	C	10220	C
10221	C	10222	C	10223	C	10224	C
10225	C	10226	C	10227	C	10228	C
10229	C	10230	C	10231	C	10232	C
10233	C	10234	C	10235	C	10236	C
10237	C	10238	C	10239	C	10240	C
10241	C	10242	C	10243	C	10244	C
10245	C	10246	C	10247	C	10248	C
10249	C	10250	C	10251	C	10252	C
10253	C	10254	C	10255	C	10256	C
10257	C	10258	C	10259	C	10260	C
10261	C	10262	C	10263	C	10264	C
10265	C	10266	C	10267	C	10268	C
10269	C	10270	C	10271	C	10272	C
10273	C	10274	C	10275	C	10276	C
10277	C	10278	C	10279	C	10280	C
10281	C	10282	C	10283	C	10284	C
10285	C	10286	C	10287	C	10288	C
10289	C	10290	C	10291	C	10292	C
10293	C	10294	C	10295	C	10296	C
10297	C	10298	C	10299	C	10300	C
10301	C	10302	C	10303	C	10304	C
10305	C	10306	C	10307	C	10308	C
10309	C	10310	C	10311	C	10312	C
10313	C	10314	C	10315	C	10316	C
10317	C	10318	C	10319	C	10320	C
10321	C	10322	C	10323	C	10324	C
10325	C	10326	C	10327	C	10328	C
10329	C	10330	C	10331	C	10332	C
10333	C	10334	C	10335	C	10336	C
10337	C	10338	C	10339	C	10340	C
10341	C	10342	C	10343	C	10344	C
10345	C	10346	C	10347	C	10348	C

color name	prefix/suffix		color name	prefix/suffix		color name	prefix/suffix		color name	prefix/suffix
10349	C		10350	C		10351	C		10352	C
10353	C		10354	C		10355	C		10356	C
10357	C		10358	C		10359	C		10360	C
10361	C		10362	C		10363	C		10364	C
10365	C		10366	C		10367	C		10368	C
10369	C		10370	C		10371	C		10372	C
10373	C		10374	C		10375	C		10376	C
10377	C		10378	C		10379	C		10380	C
10381	C		10382	C		10383	C		10384	C
10385	C		10386	C		10387	C		10388	C
10389	C		10390	C		10391	C		10392	C
10393	C		10394	C		10395	C		10396	C
10397	C		10398	C		10399	C			

Option Setting File

The Option Setting File is an XML file which describes the operating setup for **AH Formatter V7.1**. It can be loaded by the -i option in Command-line Interface, etc. In Windows Graphical User Interface, the Option Setting File is loaded automatically if `AHFSettings.xml` (`AHFSettings(x64).xml` for Windows x64 version) exists in the application specific data directory. The application data directory is indicated by the environment variable APPDATA, it is `[APPDATA]\AntennaHouse\AHFormatter\7.1\`.

When the content of the Option Setting File is corrected with the editor, etc. while **AH Formatter V7.1** is running, the correction is not reflected to **AH Formatter V7.1**. Exit **AH Formatter V7.1** once or load the Option Setting File from the [Format]-[Import Option Setting Dialog] menu in GUI. (There may be some settings which cannot be changed by reloading.)

The following are the elements of the Option Setting File:

Element	Location	Description
`<formatter-config>`	root element	The root element of the **AH Formatter V7.1** Option Setting File.
`<formatter-settings>`	child of `<formatter-config>`	The element of Formatter Settings.
`<font-settings>`	child of `<formatter-config>`	The element of Font Settings.
`<script-font>`	child of `<font-settings>`	The element of generic font settings for each script.
`<font-alias>`	child of `<font-settings>`	The element of font alias settings.
`<pdf-settings>`	child of `<formatter-config>`	The element of PDF Output Settings.
`<embed-font>`	child of `<pdf-settings>`	The element of embedding font settings.
`<ps-settings>`	child of `<formatter-config>`	The element of PostScript Output Settings.
`<svg-settings>`	child of `<formatter-config>`	The element of SVG Output Settings.
`<text-settings>`	child of `<formatter-config>`	The element of TEXT Output Settings. no-LT
`<mathml-settings>`	child of `<formatter-config>`	The element of MathML Settings.
`<cgm-settings>`	child of `<formatter-config>`	The element of CGM Settings.
`<xslt-settings>`	child of `<formatter-config>`	The element of XSLT Settings.
`<param>`	child of `<xslt-settings>`	The element of `xsl:param` settings.
`<stylesheet>`	child of `<xslt-settings>`	The element of default stylesheet settings.
`<analyzer-settings>`	child of `<formatter-config>`	The element of Analyzer Settings. no-LT

AH Formatter V7.1 allows you to specify one of the following units for the parameter (designated with asterisk "`*`" sign) that takes the length value. In addition to these, relative units like em or % can be specified for the parameter with double asterisk "`**`" sign.

Representation	Meanings
cm	centimeter
mm	millimeter. 1mm = 0.1cm
in	inch. 1in = 2.54cm
pt	point. 1pt = 1in/72
pc	pica. 1pc = 12pt
jpt	1jpt = 0.3514mm
q	1q = 0.25mm

Formatter Settings

These settings are used for the formatting.

Element	Attribute	Default	Description
`<formatter-settings>`			child of `<formatter-config>`
	abbreviation-character-count	3	Specify the number of characters considered an abbreviation when a line break is inserted. See also axf:abbreviation-character-count.
	append-non-end-of-line-characters		Specifies to append the non-end-of-line characters. White spaces are disregarded even though they are specified. See also axf:append-non-end-of-line-characters in extended FO.
	append-non-starter-characters		Specifies to append the non-starter characters. White space characters are disregarded even though they are specified. See also axf:append-non-starter-characters in extended FO.
	apply-default-html-css-to-XML	true	Specifies whether to apply the Default CSS for HTML (`html.css`) even for XML+CSS. `html.css` is made for (X)HTML. In other words, XHTML targets elements whose namespace is `http://www.w3.org/1999/xhtml`, so it is not applied to any other XML. However, pseudo-elements do not belong to any namespace, so they are applied to XML other than XHTML. If `false` is specified, `html.css` will not be applied to XML other than XHTML. V7.1
	auto-break-footnote	true	Specifies whether to break the footnote automatically when axf:footnote-max-height="auto" is specified.
	auto-formatter-type	html	When the detection of formatting type is set automatically and the decision of XHTML or HTML is unclear, the priority can be given by specifying the following values: • `html` • `xhtml` See also Detection of Formatting Type.
	avoid-orphan-single-word	pol, hun, ces	Polish, Hungarian, Czech, etc. are not allowed to have single letter words at the end of lines. Specify such languages separated by commas. You can cancel the process by specifying an empty string or `false`. Specify `true` to apply to all languages.
	avoid-widow-words-cjk-punctuation	false	Specifies the initial value when axf:avoid-widow-words-cjk-punctuation="auto" is specified. You can specify `false`, `true`, or any string. V7.1
	axf-formatter-config	true	Specifies whether the use of `<axf:formatter-config>` in FO is permitted by a value of `true` or `false`. When `false` is specified, `<axf:formatter-config>` will be ignored. The setting of axf-formatter-config within `<axf:formatter-config>` will be ignored. no-LT
	baseline-mode	6	In **AH Formatter V6**, there are some changes from **XSL Formatter V4** in deciding the baseline in the text with different scripts like a mixture of Western and Japanese. The following values can be specified. 4. Operates the same as **XSL Formatter V4**. 5. Adds the improved operation by **AH Formatter V5**. 6. Adds the improved operation by **AH Formatter V6**. See also Changes from AH Formatter V6.0. In addition, when baseline-mode="4" is specified, the text-altitude and text-depth properties are invalid.
	bold-ratio	1.0	Specifies how thick a font should be displayed when `bold` is specified for fonts that do not have bold in the font family. When 1.0 is specified, only the amount decided by the system is made thicker. For instance, when 1.5 is specified, it is drawn 1.5 times thicker. When 0.0 or less is specified, it is considered 1.0 thick. This setting is effective with PDF Output and PostScript® Output.

Element	Attribute	Default	Description
	border-medium-width *	3pt	Specifies the default border width in `medium` style with the real type numerical value.
	border-thick-width *	5pt	Specifies the default border width in `thick` style with the real type numerical value.
	border-thin-width *	1pt	Specifies the default border width in `thin` style with the real type numerical value.
	bpil	Latn Grek Cyrl Armn Geor	Specifies a language or script to apply Knuth-Plass Breaking Paragraphs into Lines [BPIL] to the line breaking algorithm by separating each code with a space. The following can be specified. When empty, it does not apply to any language. • Language code defined in ISO 639 or ISO 639-2 • Code formed by combining the language code and the country code defined in ISO 3166 by a hyphen. • Script code defined in ISO 15924 When a script is specified, it is considered that the language for which it is a representative script has been specified. See also Line Breaking.
	bpil-limit-chars	50000	Specifies the maximum number of characters to which [BPIL] applies. Approximately more than this number of blocks will not apply [BPIL]. The value less than 1000 cannot be specified.
	bpil-minimum-line-width	8	Specifies the minimum line width to apply [BPIL] in units of em. The value less than 1 is considered 1.
	bpil-penalty-hyphenation	100	Specifies the frequency of hyphenation in [BPIL] with a value of 0 to 1000. Hyphenation is more likely to occur with smaller values.
	condensed-text-align-last	justify	Specifies the initial value when axf:condensed-text-align-last="auto" is specified. You can specify `false`, `true` or `justify`. V7.1
	css-media-type	print	**AH Formatter V7.1** evaluates `print` among `@media` settings of CSS. You can specify any number of media types using the white space character as a delimiter. For example, specify like css-media-type="print screen". When the setting is empty, no `@media` will be evaluated.
	default-CJK		Specifies the language (such as `jpn` or `kor`) to be applied when a script is ambiguous for CJK. Although the default value is determined from the operating environment, Japanese language is assumed when the operating environment is other than CJK. In GUI, the setting can be changed by Default CJK Language.
	default-color	#000000	Specifies the default color of text with the format of #RRGGBB. You can also specify the color name, `rgb()` or `rgb-icc()`. However, RGB cannot be omitted with `rgb-icc()`. ☞ Default Color
	default-font-size *	10pt	Specifies the default font size with the real type numerical value.

	default-from-page-master-region	false	In XSL 1.1, there is no compatibility with XSL 1.0 in the method of evaluating writing-mode or reference-orientation. If `true` is specified, it becomes the same operation as the following are specified for `fo:page-sequence`.
			`writing-mode="from-page-master-region()"`
			`reference-orientation="from-page-master-region()"`
			For more details, see `from-page-master-region()`.

	default-html-charset	UTF-8	Specifies the default encoding of HTML. This setting is applied to HTML with unknown encoding. When the setting is in HTML, or the encoding can be recognized by BOM, they are adopted. See also encoding of `<text-settings>`. Case insensitive.

Element	Attribute	Default	Description
	default-lang		Specifies the default language code. The language code follows ISO 639-2. There is no default value. default-lang specifies the language when FO doesn't have the language specification. This is outputted as the language information to the PDF. The default value of default-lang is empty. At this time, if the language is not specified for FO etc., the language information is not outputted to the PDF. The language specified to default-lang2 is adopted when default-lang is empty.
	default-lang2	eng	Specifies the language actually adopted when default-lang is empty. When default-lang2 is empty, it depends on the locale of the system.
	default-page-height *	297mm	Specifies the default page height with the real type numerical value.
	default-page-margin-bottom *	10%	Specifies a default page margin with the real type numerical value. A percent value is considered a ratio out of the page width or the page height.
	default-page-margin-left *	10%	
	default-page-margin-right *	10%	
	default-page-margin-top *	10%	
	default-page-width *	210mm	Specifies the default page width with the real type numerical value.
	descendant-or-self-files	false	When `true` is specified, the location of the external files that can be read is restricted to be within the same directory as the FO or HTML, or within a subdirectory of it. It isn't restricted by `http:` or `https:`. If disable-network is specified, all network access such as `http:` or `https:` are also restricted in addition to it. no-LT
	display-alttext	false	Specifies whether to display an alternate text by axf:alttext or the alt attribute when there is no image in `<fo:exterlal-graphic>` or HTML `<img>`. When `true` is specified, an alternate text is displayed. When `false` is specified and the src attribute is specified, an alternate image is displayed. no-LT
	error-if-overflow	false	Specifies whether to perform the same check as `error-if-overflow` and report an overflow error when overflow="auto" is specified. V7.1 no-LT
	except-non-end-of-line-characters		Specifies the except-non-end-of-line characters. This setting will be ignored even if white spaces are specified. See also the extension property axf:except-non-end-of-line-characters.
	except-non-starter-characters		Specifies the except-non-starter characters. This setting will be ignored even if white spaces are specified. See also the extension property axf:except-non-starter-characters.
	external-entity	true	Specifies whether the external reference is allowed or not with `<!ENTITY>` of XML (FO, XHTML, SVG, MathML etc.) to be formatted. Note that it does not work on external XSLT processor called from **AH Formatter V7.1**. See also XSLT Settings.

	family-name-syntax	auto	Specify whether to strictly check the syntax of the value of font-family. When `strict` is specified, it is evaluated exactly as Font family: the font-family property. Until **AH Formatter V6.5**, only a pretty loose check has been done, so even it is strictly an error, it does not become an error. For example, the following setting is strictly an error:
			`font-family="Abc 123"`
			You must specify it as follows:
			`font-family="'Abc 123'"`

Element	Attribute	Default	Description
	family-name-syntax	auto	Specify `loose` if you want to loosen the check. If `auto` is specified, it is considered `strict` in CSS and it is considered `loose` in FO.
	fix-css-img-percentage	true	Specifies how to handle the reference standard when width and height for images in CSS is specified by %. `true` interprets according to the specification. For details, see Changes from AH Formatter V7.0. V7.1
	fixed-width-space-treatment	true	Fonts seldom contain glyphs for characters, such as EM SPACE (U+2003) etc., that represent white space with fixed width. At that time, a substitution glyph is displayed and the white space is not shown correctly. fixed-width-space-treatment specifies the treatment of a fixed white space. • `false` : Does nothing. • `true` : Inserts a white space when there is no glyph in the font. When there is a glyph in the font, it will be used. • always : Always inserts a white space without depending on the font. Even If there is a glyph in the font, it will not be used. The target characters and their widths are as follows (in units of em): U+2000 EN QUAD 1/2 U+2001 EM QUAD 1 U+2002 EN SPACE 1/2 U+2003 EM SPACE 1 U+2004 THREE-PER-EM SPACE 1/3 U+2005 FOUR-PER-EM SPACE 1/4 U+2006 SIX-PER-EM SPACE 1/6 U+2007 FIGURE SPACE The same width of the figure “0”. U+2008 PUNCTUATION SPACE The same width of the punctuation period “.”. U+2009 THIN SPACE Depends on the setting of thin-space-width. U+200A HAIR SPACE Depends on the setting of hair-space-width. U+205F MEDIUM MATHEMATICAL SPACE 4/18
	hair-space-width	0.1	Specifies the character width of HAIR SPACE (U+200A) in units of em, when fixed-width-space-treatment="true" is specified.
	href-page-link	false	Unlike FO, HTML has id value that is not NCName, so id like `"123"` is allowed. Therefore, when `<a href="#123">` is specified, the id `"123"` is the target. When href-page-link ="true" is specified, it will be considered a page number and easily move to the specified page in HTML.
	hyphen-min	false	Specifies whether to enable `<hyphen-min>` in the Hyphenation Exception Dictionary. • `false` : `<hyphen-min>` is ignored. • `true` : The value of `<hyphen-min>` is the value when hyphenation-remain-character-count="auto" or hyphenation-push-character-count="auto" in XSL is specified. It is invalid when any property other than `auto` is specified for these properties. • `without-exceptions`: Same as `true`, but words specified in `<exceptions>` in the exception dictionary are excluded.
	hyphenation-keep-mode	word	Specifies the processing method when the word at the end of the page (column) is hyphenated by hyphenation-keep="page", etc. `word` pushes out the word to the next page (column). `line` pushed out that line to the next page (column). You need to be careful when you use `word`. See Hyphenation. However, in `<fo:float>` where the value of axf:float-x is other than `none` and the value of axf:float-y is `none`, it is always considered `line`.

Element	Attribute	Default	Description
	hyphenation-TeX		When HyphenationOption="true" is specified, enumerates a comma-delimited list of languages that you want to hyphenate using a TeX dictionary, e.g.: hyphenation-TeX="ces,deu". no-LT
	Hyphenation Option	true	Specifies whether to hyphenate words by using the custom processing that supports over 40 languages or to use TeX hyphenation dictionaries. If `false` is specified, words will be hyphenated by using TeX dictionaries. If so, only the languages that have a dictionary can be hyphenated.
	intrusion-displace-mode	6	In **AH Formatter V6**, there are some changes from **AH Formatter V5** in the behavior of the intrusion-displace property. Specify when you want to make it the same as V5. 5. Operates the same as **AH Formatter V5**. 6. Adds the modified operation by **AH Formatter V6**. See also Changes from AH Formatter V5.
	issue-scale-to-fit	false	Specifies whether to report the scale-change ratio when the scale ratio of the image is changed by `scale-to-fit`/`scale-down-to-fit`/`scale-up-to-fit` with the value of `true` or `false`. If `true` is specified, the level 1 is reported.
	jamo-ligature	true	Specifies whether to process the ligature of Hangul Jamo (U+1100 to U+11FF) with the value of `true` or `false`. If `true` is specified, processes the ligature of Hangul Jamo. If `false`, does nothing. This setting affects the value of the extension property axf:ligature-mode="auto". This ligature uses jamo of GSUB feature in the OpenType font. no-LT
	justify-leader	false	Although the leader functions in the justified line, the leader itself is not justified. leader-alignment="none" specifies whether the leader itself is justified or not when the contents are only the text, by leader-pattern="dots" or leader-pattern="use-content". If `true` is specified, the space may be generated between characters in the leader, the leader may become irregular against the other leaders. However, the space at the end of the leader will disappear.
	justify-rowspan-height	false	When there is a cell with rowspan and the height of the cell is high, specifies whether the height of each row occupied by the cell should be as even as possible. When there is a row or cell with height specified, or when there is a cell whose text direction is rotating, it is processed so that only the height of the row after that row is even. no-LT
	keep-footnote-anchor	true	When a block including a footnote anchor does not fit within the page, the lines up to the dividable position after the anchor are sent to the previous page. See also Changes from AH Formatter V6.2 in Technical Notes.
	latin-ligature	true	Specifies whether to process the ligature in European languages with the value of `true` or `false`. If `true` is specified, the ligature will be processed. If `false` is specified, it will not be processed. This setting affects the value of axf:ligature-mode="auto".
	no-disp-warnings		Suppress Error Messages that are output on GUI or Command-line. Specifies by enumerating the error code in decimal or hexadecimal as no-disp-warnings="10754 0x320D". No error message corresponding to the specified error code is output. It is invalid for errors where the processing is interrupted. no-LT
	non-starter-ideographic-space	true	Specifies whether to treat the ideographic space as a non-starter character. See also Treatment of full-width white space in Technical Notes.
	normal-line-height	1.2	Specifies the default line height with the real type numerical value. A unit is not specified. The value means the ratio to the font size. The initial value is 1.2. Therefore, in case the font size is 10pt, the line height becomes 12pt.
	normalize	nfc	Specifies the method of the normalization to be adopted when axf:normalize="auto" is specified. The following values (case insensitive) can be specified: no-LT • `none` : Does not normalize text.

Element	Attribute	Default	Description
	normalize	nfc	• `nfc` : Performs NFC. • `nfd` : Performs NFD. • `nfkc` : Performs NFKC. • `nfkd` : Performs NFKD. See also Changes from AH Formatter V6.0.
	oblique-skew	0	Specifies the amount of the inclination when using font-style="oblique" or "backslant". When 0 or less is specified, it is considered the system default. The font is inclined by the system default whenever there is no italic in the font when using font-style="italic". This setting is effective in the following outputs: • Graphical User Interface • PDF Output • PostScript® Output • XPS Output
	overflow-limit-block **	0pt	Specifies the default value of axf:overflow-limit-block.
	overflow-limit-inline **	0pt	Specifies the default value of axf:overflow-limit-inline.
	printer-marks-line-length *	10mm	Specifies the length of the printer marks.
	printer-marks-line-width *	0.24pt	Specifies the width of the printer marks.
	printer-marks-zero-margin *	3mm	Specifies the margin between the page and the printer marks when bleed is 0. no-LT
	Printer Orientation	auto	When the paper is placed in landscape in the PS Printer, there may be a case that the printer rotate-output the line and EPS incorrectly because some printers cannot get information. Possible to correct the rotation by specifying one of the following values (the value should be anti-clockwise rotation degree): • `auto` • 0 • 90 • 270 This setting is effective only with Windows version.
	PscriptPass Through	true	Possible to makes Pass Through output invalid when outputting to PS printer. If `true` is specified, Pass Through output is executed. If `false` is specified, Pass Through output is not executed but the output is executed only by GDI operator. This setting is effective only with Windows version.
	pair-kerning	true	Specifies whether to process the pair kerning with the value of `true` or `false`. If `true` is specified, the ligature will be processed. If `false` is specified, it will not be processed. This setting affects the value of axf:kerning-mode="auto".
	punctuation-spacing	50%	Specifies the space width between the adjacent Japanese full width characters with the percentage value. The value means the ratio to the font size. This setting affects the value of axf:punctuation-spacing="auto" in extended FO.
	punctuation-trim	true	When Japanese full width characters (punctuation marks and brackets) are used in succession or come at the start of a line, you can specify whether to trim the letter spacing or keep the same letter spacing with the value of `true` or `false`. If the value is `true`, the letter spacing will be tracked narrow. If the value is `false`, it will be the same as that of

Element	Attribute	Default	Description
	punctuation-trim	true	other full width characters. This setting affects the values of axf:punctuation-trim="auto" and axf:text-justify-trim="auto" in extended FO.
	pxpi	96	In XSL or CSS, you can specify px (pixel) as a unit of measurement. pxpi specifies the coefficient, which converts the value of the specified px, as “the number of pixels per inch” when formatting. It's specified with the real type numerical value.
	responsive-svg-size	reference	Specifies whether the size matches the viewBox setting when the width and height of the root element are omitted in SVG. The following values can be specified: • `reference` : It is considered width="100%" height="100%" according to the SVG specification. • `viewBox` : If viewBox is specified as the root element, it is considered its size. no-LT
	ruby-align		Specifies the arrangement when axf:ruby-align="auto" is specified. When nothing or `auto` is specified, it is considered `space-around center`.
		true	Specifies whether to batch print without interrupting a job for printing, even if the switching of the printer between simplex/duplex modes is set when axf:printer-duplex is specified. If `true` is specified, the file is split and outputted, if `false` is specified the file is batch printed.
	small-caps-emulation-always	false	Specifies whether to always emulate small-caps. When `true` is specified, it always emulates and does not use the font information. V7.1
	small-caps-emulation-size	70%	Specifies the scale-down ratio when the font does not have small-caps when font-variant="small-caps" is specified.
	small-caps-emulation-x-height	true	If the font has x-height and cap-height, the emulation magnification of small-caps is x-height/cap-height. If the font does not have them, it will be small-caps-emulation-size.
	splitting-blocks-space	false	In CSS, when breaking a block with the height of auto, specifies whether to adjust the height of the block in the previous page (column) to the height of the page (column), or leave it as blank. When `true` is specified, it's left as blank, which is contrary to the CSS specification. See also Splitting blocks in Technical Notes.
	tab-overlap-treatment	ignore-tab	Specifies a behavior when tab alignment makes letters overlapped, by selecting from either `ignore-tab` or `next-tab`. See axf:tab-overlap-treatment. no-LT
	table-auto-layout-limit	100	When table-layout="auto" is specified, it is necessary to look ahead and read the table to decide the width of column. The number of row to read ahead can be limited because it takes a long time to read all row in a too huge table. After reading ahead up to the number of row specified here, the width of column is decided. If 0 is specified, all row is read, and then the width of column is decided. For more details, see Table Auto Layout.
	table-is-reference-area	false	In XSL 1.1, there is no compatibility with XSL 1.0 about whether to make `fo:table` a reference area. If `true` is specified, `fo:table` will be made a reference area and its operation will be the same as XSL 1.0. For more details, see Incompatibility of fo:table.
	text-autospace	true	Specifies whether to insert spaces surrounding ideographic glyphs to make them look better with the value of `true` or `false`, in the document ideographic and non-ideographic glyphs are mixed. If the value is `true`, a space will be inserted to make them look better. If the value is `false`, a space won't be inserted. This setting affects the value of axf:text-autospace="auto" in extended FO.
	text-autospace-width	25%	Specifies the space width surrounding ideographic glyphs characters with the percentage value. The value means the ratio to the font size. This setting affects the value of axf:text-autospace-width="auto" in extended FO.
	text-decoration-mode	1	Specifies how much the underline, strikethrough and overline exceed the length of a word. 0. Do not exceed the word length.

Element	Attribute	Default	Description
	text-decoration-mode	1	1. Exceed half-length of the space between words. 2. Do not exceed the start edge of a word, but exceed the end edge of a word by the full space between words.
	text-justify-mode	5	In **AH Formatter V5** or later, there are some changes from XSL Formatter V4 in trimming a line. Specify the value when you want to make it the same operation as V4. This adjusts the initial value when axf:text-justify-trim="auto" is specified. The following values can be specified: 4. Operates the same as **XSL Formatter V4**. That is, it is considered that `ideograph` and `inter-word` are specified. 5. Adds the improved operation by **AH Formatter V5**. See also Changes from XSL Formatter V4.
	text-kashida-space	100%	Specifies the percentage of the Kashida in Arabic justification. The value indicates the percentage of white space and Kashida. If the value is 0%, Kashida is not inserted and only the white space expands as well as the normal justification. If the value is 100%, Kashida is inserted as much as possible. This setting affects the value of axf:text-kashida-space="auto" in extended FO.
	text-orientation-mode	6	Specifies whether UAX#50: Unicode Vertical Text Layout is taken into consideration by the value of axf:text-orientation when rendering alphanumeric characters, etc. to be upright in vertical writing mode with the following values: no-LT 5. UAX#50 is not taken into consideration. 6. SVO and MVO are taken into consideration. 7. In addition to 6, axf:text-orientation="auto" is treated as `"mixed"`. Note: • The layout of SVO/MVO do not match the one defined in UAX#50. See also Glyphs in Vertical Text. • SVO is applied to the text with axf:text-orientation="upright" specified in FO or `text-orientation:upright;` specified in CSS. • MVO is applied to the text with axf:text-orientation="mixed" specified in FO or `text-orientation:mixed;` specified in CSS. • This setting does not work with **AH Formatter V7.1 Lite**. It is always considered 5.
	textshadow-resolution-minimum-dpi	108	Specifies the minimum value of the resolution of the image when setting the blur in text-shadow with the unit of dpi. Only the integer value of greater than or equal to 1 is effective. Fractions below decimal point are rounded off to the nearest integer, if the value is less than 1, the default value is adopted.
	textshadow-resolution-pixel-per-em	100	Specifies the resolution of the image when setting the blur in text-shadow. Specifies the resolution by the number of pixels per 1 font size. If the back-calculated dpi value is smaller than textshadow-resolution-minimum-dpi, the latter setting will take priority. Only the integer value of greater than or equal to 1 is effective. Fractions below decimal point are rounded off to the nearest integer, if the value is less than 1, the default value is adopted.
	textshadow-blur-cannot-embed-font	false	Selects whether to set the blur against the font that is not allowed to be embedded with the value of `true` or `false` in text-shadow. If `true` is specified, sets the blur.
	text-underline-mode	6	Some improved changes have been added for the position of underline and overline with **AH Formatter V6**. Specify when you want to make it the same as V5. 5. Operates the same as **AH Formatter V5**. 6. Adds the improved operation by **AH Formatter V6**. See also Changes from AH Formatter V5.

Element	Attribute	Default	Description
	thin-space-width	0.2	Specifies the character width of THIN SPACE (U+2009) in units of em, when fixed-width-space-treatment="true" is specified.
	two-pass-formatting	false	When formatting a huge document with a large amount of unresolved `<fo:page-number-citation>`, a large amount of memories are consumed because the cancellation of the page information is impossible. Therefore, the limit is caused in the number of pages to format. This parameter solves that problem by making the formatting two passes. Although its processing time may be increased, only the page number information which should be solved will consume the memory and the memory consumption will be extremely decreased. This setting is invalid with CSS formatting. This setting is invalid with GUI. ☞ Formatting Large Document no-LT
	unicode-bidi-rev		Specifies the revision of UAX#9: Unicode Bidirectional Algorithm that **AH Formatter** conforms to. A value greater than or equal to 37 is considered 41. If the value is less than 37, it follows the algorithm compatible with V6.6 (about revision 27). At that time, the following control characters cannot be handled correctly. U+2066 is considered U+202D, U+2067 is considered U+202E and U+2069 is considered U+202C for each. If no value is set, the latest revision supported by **AH Formatter** is used. See also BIDI Algorithm Implementation Restrictions for implementation restrictions when not V6.6 compatible. • U+2066 : LEFT-TO-RIGHT ISOLATE • U+2067 : RIGHT-TO-LEFT ISOLATE • U+2068 : FIRST STRONG ISOLATE • U+2069 : POP DIRECTIONAL ISOLATE
	use-default-page-margin-CSS	true	Specifies whether default-page-margin-* is adopted or not when there is no margin specification in `@page` in CSS.
	use-default-page-margin-XSL	false	Specifies whether default-page-margin-* is adopted or not when there is no margin specification in `fo:simple-page-master` in XSL.
	vertical-block-width-mode	6	The behavior of the `auto` value of the width of vertical-text block within horizontal-text flow (or the height of horizontal-text block within vertical-text flow) is changed with **AH Formatter V6**. Specify when you want to make it the same as V5. 5. Operates the same as **AH Formatter V5**. The width of vertical-text block is given by the width of the outer area. 6. Adds the improved operation by **AH Formatter V6**. The width of vertical-text block shrinks to fit the content. See also Changes from AH Formatter V5.
	vertical-underline-side	auto	In the XSL specification, there is no description about the underline in vertical writing mode. The vertical-underline-side property is an option which specifies whether to place the underline in vertical writing mode on the right side or on the left side. If `left` or `right` is specified, the underline is placed on the left or on the right. If `auto` is specified, the underline is placed on the right side when the language property is Japanese (`jpn`) or Korean (`kor`). The underline is placed on the left side when the language property is other than Japanese (`jpn`) or Korean (`kor`). If there is no language properties specified, it depends on the default-CJK language setting. This setting affects the value of the extension property, axf:vertical-underline-side="auto".
	viewport-length-units-mode	6	Specifies whether to adapt the CSS3 interpretation of the vw and vh units. 5. Makes the vw and vh units based on the page size. 6. Makes the vw and vh units based on the size of the area excluding the page margins. See also Changes from AH Formatter V6.0.

Element	Attribute	Default	Description
	watermark-font-family	sans-serif	Specifies the font family to the character string which you set to watermark-text.
	watermark-font-style	normal	Specifies the font style to the character string which you set to watermark-text. Possible to specify `normal` or `italic`.
	watermark-font-weight	normal	Specifies the font weight to the character string which you set to watermark-text. Possible to specify `normal`, `bold` or the numerical value from 1 to 1000.
	watermark-text		Displays the specified watermark text on each page. Possible to make it multiple lines by delimiting with the line feed “
”. This setting is invalid with the evaluation version. With **AH Formatter V7.1 Lite**, the watermark that shows the evaluation version is shown after the 300 pages, which is the limited formatted pages with the Lite version. You will need to specify an appropriate watermark-font-family according to the text you specify. Confirm it by outputting PDF. In addition, complex scripts such as Thai and Arabic cannot be specified. The text that cannot be outputted by a single font cannot be specified.
	watermark2-font-family		Specifies the font family to the character string which you set to watermark2-text. If not specified, the default value is the same as watermark-font-family.
	watermark2-font-style	normal	Specifies the font style to the character string which you set to watermark2-text. Possible to specify `normal` or `italic`.
	watermark2-font-weight	normal	Specifies the font weight to the character string which you set to watermark2-text. Possible to specify `normal`, `bold` or the numerical value from 1 to 1000.
	watermark2-text		Displays the specified watermark text on each page. This setting is invalid with the evaluation version. You will need to specify an appropriate watermark2-font-family according to the text you specify. Confirm it by outputting PDF. In addition, complex scripts such as Thai and Arabic cannot be specified. The text that cannot be outputted by a single font cannot be specified. Multiple lines of text cannot be specified.
	white-space-collapse-mode	7	The operation of white-space-collapse was corrected with **AH Formatter V7**. Specify as follows when you want the same operation as V6. 6. Operates the same as **AH Formatter V6**. 7. Adds the modified operation by **AH Formatter V7**. See also Changes from AH Formatter V6.6.
	zwsp-mode	6	The operation of ZERO WIDTH SPACE (U+200B) was corrected with **AH Formatter V6**. It's compatible with V6 by default. Specify as follows when you want the same operation as V5. 5. Operates the same as **AH Formatter V5**. 6. Adds the modified operation by **AH Formatter V6**. See also Changes from AH Formatter V5.
`<list-style-type>`			child of `<formatter-settings>`
	box	U+25AB	Specifies the character to use by list-style-type="box".
	check	U+2713	Specifies the character to use by list-style-type="check".
	circle	U+25E6	Specifies the character to use by list-style-type="circle".
	diamond	U+2666	Specifies the character to use by list-style-type="diamond".
	disc	U+2022	Specifies the character to use by list-style-type="disc".
	hyphen	U+2043	Specifies the character to use by list-style-type="hyphen".
	square	U+25AA	Specifies the character to use by list-style-type="square".
`<quotationmark>`			child of `<formatter-settings>`

Element	Attribute	Default	Description
	language		Changes the handling of Quotation Mark. Specify the language code for language, the character code of quotation marks for code, and specify one of the QU/OP/CL for quotetype. Only Western languages can be specified for the language code. CJK etc. cannot be specified. V7.1 no-LT
	code		
	quotetype		
<script-chars>			child of <formatter-settings>
	script		Evaluates all characters specified to the code as scripts specified to the script. For example, by specifying as follows: `<script-chars script="Jpan" code="\"/>` "\" is displayed as "¥". (Note that it is applied only when the font corresponding to Jpan is specified for font-family.) When code not being specified, all characters specified to script are canceled. When script not being specified, all characters specified to code are canceled.
	code		
<script-language-in-CJK>			child of <formatter-setting>
	script		When the script specified to the script attribute appears in the sentence of CJK languages, the character string of the script is considered the language that is specified to the language attribute. For example: `<script-language-in-CJK script="Latn" language="eng"/>` The Latn character string that appears in Japanese or Chinese sentences can be recognized as English. If hyphenate="true" is specified, the hyphenation can be processed by considering this part as English. The CJK languages cannot be specified to language. When nothing is specified to the language attribute, the language specification to the script attribute is canceled.
	language		
<space-end-punctuation>			child of <formatter-settings>
	language		For the language specified to language, the space specified by space is made after the character specified to code. If code is not being specified, the specified space will be canceled for all characters specified to language. The amount of space is specified with the real type numerical value. The value means the ratio to the font size. ☞ <axf:space-end-punctuation>
	code		
	space		
<space-start-punctuation>			child of <formatter-settings>
	language		For the language specified to language, the space specified by space is made before the character specified to code. If code is not being specified, the specified space will be canceled for all characters specified to language. The amount of space is specified with the real type numerical value. The value means the ratio to the font size. ☞ <axf:space-start-punctuation>
	code		
	space		
<space-between-digit-and-punctuation>			child of <formatter-settings>
	language		For the language specified to language, the space specified by space is made between the number and the character specified to code. If code is not being specified, the specified space will be canceled for all characters specified to language. The amount of space is specified with the real type numerical value. The value means the ratio to the font size. ☞ <axf:space-between-digit-and-punctuation>
	code		
	space		
<space-between-punctuation-and-digit>			child of <formatter-settings>
	language		For the language specified to language, the space specified by space is made between the character specified to code and the number. If code is not being specified, the specified space will be canceled for all characters specified to language. The amount of space is specified with the real type numerical value. The value means the ratio to the font size. ☞ <axf:space-between-punctuation-and-digit>
	code		
	space		

Element	Attribute	Default	Description
`<usercss>`			child of `<formatter-settings>`
	Specifies the CSS user stylesheet you want to add by `<css>`. See also Cascading Order of CSS.		
`<css>`			child of `<usercss>`
	path		Specifies the path of the CSS user stylesheet.
`<multimedia>`			child of `<formatter-settings>`
	audio		When specifying multimedia, such as audio or video as graphics, the setting of content-type is required. **AH Formatter** may sometimes not automatically recognize if a content-type other than “audio/*” or “video/*” formats indicates it is multimedia. For such content-type, specify audio, video or flash explicitly as follows: `<multimedia flash="application/x-shockwave-flash"/>` By default, “audio/*” is considered as audio, “video/*” as video, “application/x-shockwave-flash” as Flash.
	video		
	flash		
`<GS1-128>`			child of `<formatter-settings>`
	AI		Registers the format of application identifier (AI) of GS1-128. Some formats of AI has been already registered, but you can specify when you change the format or the format is not registered. AI is a number with 2 to 4 digits. AI starting from 0 should be 2 digits. The last digit can be set as “`*`” if AI is a 3 or 4 digit number. For instance, AI="380*" indicates 3800 to 3809. The following formats can be specified to the format attribute: • n3 : 3-digit numbers • x3 : 3-digit arbitrary characters • n-10 : Numbers with greater than or equal to 1 and less than or equal to 10 digits. • x3-10 : Arbitrary characters with greater than or equal to 3 and less than or equal to 10 digits. For example, specify as follows: `<GS1-128 AI="380*" format="n-15"/>`
	format		
`<UAX50>`			child of `<formatter-settings>`
	code		Specifies the code point to code you change. The code point can be specified as follows: • One character : “`~`” or “`“`”, etc. • 4-digit hexadecimal numbers : `201C` • Set of 4-digit hexadecimal numbers : `202A-202E` Characters greater than or equal to U+10000 cannot be specified. `U` or `R` or `V` can be specified to SVO or MVO. It means that `U` renders upright, `R` rotates 90-degree clockwise. `V` is same as `U`, but when vertical writing glyph is designed to rotate 90-degree counterclockwise originally, it is displayed by rotating 90-degree clockwise. See also text-orientation-mode. no-LT
	SVO		
	MVO		
`<unbreakable-words>`			child of `<formatter-settings>`

	List the unbreakable words by the line break. The character string of each line will become unbreakable. For example, if you write as follows, two phrases will become unbreakable:
	`<unbreakable-words>`
	こんにちは
	`Hello World`
	`</unbreakable-words>`
	The leading and trailing white spaces (U+0009, U+0020) will be discarded. Consecutive white spaces (U+0009, U+0020) are grouped together and match consecutive white spaces (U+0009, U+000A, U+000D, U+0020) including line breaks. So taking the above example, any of the following will become unbreakable:		

Element	Attribute	Default	Description

			`Hello World`
			`Hello  World`
			`Hello`
			`World`
			
			Because the first phrase found from the beginning of the character string is the target, if
			
			`ABCD`
			`CDEF`
			
			is specified, `ABCD` will be unbreakable for the character string of `ABCDEFG`. Since it is case sensitive, `Abcd`, etc. will not become unbreakable.
			Also, as AH Formatter tries to adopt as long a phrase as possible, if
			
			`ABCD`
			`ABCDEF`
			
			is specified, `ABCDEF` will become unbreakable for the character string of `ABCDEFG`. If
			
			`cafe`
			
			is specified, `café` and `café` will not become unbreakable. To make all of these unbreakable, you should specify as follows:
			
			`cafe`
			`café`
			`café`
			
			Note the following:
			
			• This processing is performed for character string of input XML. In other words, it is performed before processing axf:normalize or axf:text-replace, etc. Therefore, unbreakable character strings may be processed by them.
			• If a character string that causes ligature, for example, `ffi` is specified as unbreakable up to `ff`, ligature as `ffi` will not occur.
			
			no-LT

	src		You can specify external XML for src. That XML looks the same as this element, but src cannot be specified. no-LT

Font Settings

These settings are used for the fonts.

Element	Attribute	Default	Description
`<font-settings>`			child of `<formatter-config>`
	auto-fallback-font	true	Specifies whether to look for a fall back font automatically when a font with a glyph cannot be found in the font family which was specified by FO or CSS. See also Font Selection to learn more about the fall back method.
	barcode-text-font	OCRB, monospace	Specifies the font used when you add the text of an original code to the linear barcode with Barcode Generator Option.
	default-font-family	serif	Specifies the default font family. Usually, it is one of the generic font families: `serif`, `sans-serif`, `cursive`, `fantasy` or `monospace`. See also Font Selection.
	emulated-italic	0	Specifies whether to report the error when italic is emulated in the selected font. Specify one of the following: 0. No error message will be reported. 1. The level 1 error message will be reported. 2. The level 2 error message will be reported. 3. The level 3 error message will be reported.

Element	Attribute	Default	Description
	emulated-italic	0	4. The level 4 error message will be reported. V7.1
	emulated-small-caps	0	Specifies whether to report the error when small-caps is emulated in the selected font. Specify one of the following: 0. No error message will be reported. 1. The level 1 error message will be reported. 2. The level 2 error message will be reported. 3. The level 3 error message will be reported. 4. The level 4 error message will be reported. No error will be reported when small-caps-emulation-always="true" is specified. V7.1
	fallback-glyph	1	Specifies whether to report it or not when the glyph is found in a fall back font. When the glyph corresponding to the specified character in the font family is not found, if auto-fallback-font is specified, a fall back font will be looked for. The following either can be specified: 0. No error message will be reported. 1. The level 1 error message will be reported. 2. The level 2 error message will be reported. 3. The level 3 error message will be reported. 4. The level 4 error message will be reported.
	font-selection-mode	6	Specifies the selection method of fonts. The following values can be specified: 5. The setting of font-selection-strategy is disregarded and always considered `auto`. 6. The first font that has a glyph is adopted. See also Font Selection.
	font-stretch-mode	6	Specifies whether the information on font-stretch is used when selecting fonts. The following values can be specified: 5. The information on font-stretch will not be used. The operation is the same as **AH Formatter V5**. 6. The information on font-stretch will be used. See also Changes from AH Formatter V6.0.
	missing-font	1	Specifies whether to warn when a font is not found from the specified font family. The following either can be specified: 0. No error message will be reported. 1. The level 1 error message will be reported. 2. The level 2 error message will be reported. 3. The level 3 error message will be reported. 4. The level 4 error message will be reported.
	missing-glyph	1	Specifies whether to warn when the glyph corresponding to the specified character is not found in the specified font family or the fallback font. The following either can be specified: 0. No error message will be reported. 1. The level 1 error message will be reported. 2. The level 2 error message will be reported. 3. The level 3 error message will be reported. 4. The level 4 error message will be reported.

Element	Attribute	Default	Description
	missing-glyph-all	false	Usually the report on missing-glyph is given only once to the same character. However, by specifying missing-glyph-all="true", the report can be given to all. Note that careless specification could cause huge amount of error. This setting is similarly applied to fallback-glyph as well.
`<script-font>`			child of `<font-settings>`
	script		Specifies the script codes for multilingual setting. The available scripts conform to ISO 15924. However, the **AH Formatter V7.1** does not support all scripts. The scripts that can be specified here are scripts that are indicated in Scripts and Languages excluding Hira, Kana, and Hani. For generic fonts you may omit the setting of the script or specify as script="".
	serif		Specifies the generic serif font when specified by the script.
	sans-serif		Specifies the generic sans-serif font when specified by the script.
	monospace		Specifies the generic monospace font when specified by the script.
	cursive		Specifies the generic cursive font when specified by the script.
	fantasy		Specifies the generic font for fantasy when specified by the script.
	fallback		Specifies the fall back font of the script when specified by the script. Two or more fonts can be enumerated by comma-separated values.
`<font-alias>`			child of `<font-settings>`

	src		Formats the font name src (source) appearing in FO (or HTML etc.) by replacing with dst (destination). This is achieved by specifying an arbitrary font name for src and dst. This makes it possible to substitute an unknown font in a document made in a different environment, without modifying the document. However, in the following sample:
			`<font-alias src="A" dst="B">`
			`<font-alias src="B" dst="C">`
			“A” would never be replaced with “C”. Moreover, the setting for `<font-alias>` doesn't affect the font name in the Option file.

	dst		

PDF Output Settings

These settings are used for PDF Output.

Element	Attribute	Default	Description
`<pdf-settings>`			child of `<formatter-config>`
	allow-javascript	true	When `false` is specified, even if JavaScript is specified by openaction or axf:action-type, it will be ignored. no-LT
	allow-nest-alt-text	true	When outputting a Tagged PDF, specify `false` if you do not want to set alternate text for tags descended from tags that have alternate text settings for accessibility reasons. Child tags of the tags that have alternate text settings will no longer have alternate text. In that case, you may not be able to find or copy text that does not have a one-to-one correspondence between glyphs and Unicode using complex scripts. V7.1MR4
	check-tag-relationship	false	If `true` is specified, the validity of the parent-child relationship between tags is verified and a warning is issued for an invalid structure when outputting a tagged PDF2.0.
	color-compression	auto	When the color image format cannot be stored directly in PDF, the image is stored after being transformed into a bit map format that is compatible with PDF. The compression method of the data stored in a PDF file is then specified by one of the following values: • `auto` • `zlib`

Element	Attribute	Default	Description
	color-compression	auto	• `jpeg` • `jpeg2000` • `keeplzw` • `auto2k` • `keeplzw2k` When `auto` is selected, the process is automatically done and creates the image data according to the setting of color-jpeg-quality. When `keeplzw` is specified, if the original image is LZW compressed, it becomes the LZW compression. If not, it becomes the same as `auto`. Whichever has the smaller compressed size, JPEG or ZLIB, is selected. `auto2k` and `keeplzw2k` are equivalent to `auto` and `keeplzw` each, except that compression will be done with JPEG 2000 instead of JPEG. However, they are same as `auto` and `keeplzw` in case of PDF1.4 or earlier. See also Image Output to learn about the file formats which can be stored directly in PDF. This is the setting for the color image. Specifies grayscale-compression for the grayscale image, and monochrome-compression for the monochrome image. In GUI, it can be specified by selecting the Compression option. JPEG 2000 is effective only for PDF1.5 or later.
	color-compression-default	auto	Specifies the value of the compression method of the color image when pressing the “Reset Default Settings” button or the “High Compression Settings” button in the Compression page in the PDF Option Setting Dialog in GUI. no-LT
	color-compression-minimum	auto2k	
	color-conversion	none	Specifies how to convert the RGB or CMYK color space to DeviceGray or DeviceCMYK. • `none` Does nothing. • `black` Converts RGB's Black to DeviceGray before outputting. • `gray` Converts RGB's Gray color (mono tone) to DeviceGray before outputting. • `all-gray` Converts all RGB or CMYK color spaces to DeviceGray before outputting. This conversion is based on the following formula: `gray = 0.3×red + 0.59×green + 0.11×blue` (`0.0 ≤ red,green,blue ≤ 1.0`). When it is CMYK, converts CMYK to RGB and then converts it to gray. • `all-cmyk` Converts all RGB color spaces to CMYK before outputting. When it is CMYK, does nothing. It's possible to change the setting by Color Conversion in GUI. Similarly converts SVG, CGM, MathML, EMF and WMF that are drawn by the original drawing engine. The other images are converted as below: • Converts the color space for `all-gray` and `all-cmyk`; however **AH Formatter V7.1 Lite** converts no colors. no-LT • Converts no color space except for `all-gray` and `all-cmyk`. When PDF/X-1a is specified to output, it is considered that `all-gray` or `all-cmyk` is specified. See also PDF/X for the handling of RGB in PDF/X.
	color-downsampling	none	Specifies the method to downsample the raster color image that is put into PDF. • `none` • `average`

Element	Attribute	Default	Description
	color-downsampling-above-dpi	450	• `bicubic` • `subsampling` When a value other than `none` is specified, the image that has resolution greater than the one specified by color-downsampling-above-dpi will be downsampled to the resolution specified by color-downsampling-target-dpi. This is the setting for the color image. Specifies grayscale-downsampling for the grayscale image, and monochrome-downsampling for the monochrome image. In GUI, it can be specified by selecting the Downsampling option.
	color-downsampling-target-dpi	300	
	color-downsampling-default	none	Specifies the value of the downsampling of the color image when pressing the “Reset Default Settings” button or the “High Compression Settings” button in the Compression page in the PDF Option Setting Dialog in GUI. no-LT
	color-downsampling-above-dpi-default	450	
	color-downsampling-target-dpi-default	300	
	color-downsampling-minimum	bicubic	
	color-downsampling-above-dpi-minimum	225	
	color-downsampling-target-dpi-minimum	150	
	color-jpeg-quality	80	For the color image format that cannot be stored directly in PDF, specifies the image quality by the numerical value within the range of 1 to 100 when `jpeg` is specified by color-compression. The higher the number the better the quality in proportion to the increase in the number; however the file size also becomes larger. Converts this value to the compression ratio to use in case of `jpeg2000`. **CAUTION:** This is not for changing the quality of a JPEG format image. This is the setting for the color image. Specifies grayscale-jpeg-quality for the grayscale image. In GUI, it can be specified by selecting the JPEG Quality option.
	color-jpeg-quality-default	80	Specifies the value of the JPEG image quality of the color image when pressing the “Reset Default Settings” button or the “High Compression Settings” button in the Compression page in the PDF Option Setting Dialog in GUI. no-LT
	color-jpeg-quality-minimum	40	
	decimal-part-digits	5	Specify the number of digits after the decimal point of real numbers to be output in PDF as 1 to 6.
	decimal-part-digits-default	5	Specifies the adopted value of decimal places when pressing the “Reset Default Settings” button or the “High Compression Settings” button in the Compression page in the PDF Option Setting Dialog in GUI.
	decimal-part-digits-minimum	3	
	default-output-intent		Sets the default value when the output intent is not specified in FO while outputting PDF/X. Values that can be specified are equal to the ones that can be specified to the

Element	Attribute	Default	Description
	default-output-intent		src property for `fo:color-profile`. If not specified, the following is considered to be specified: `#OutputConditionIdentifier=CGATS TR 001` See also PDF/X.
	embed-all-fonts	true	Specifies whether or not to embed in the PDF all fonts that are embeddable, with one of the following values: • `false` : Only fonts specified in `<embed-font>` are embedded. • `true` : All fonts that can be embedded will be embedded, except for the Standard 14 Fonts. • `base14` : All fonts that can be embedded will be embedded, including the Standard 14 Fonts. In the GUI, this can be specified by selecting the Embed All Embeddable Fonts option.
	embed-font-encoding		Specifies the encoding when the TrueType font is embedded. When nothing is specified, Identity-H/V is the default. • `WinAnsiEncoding` Specifies WinAnsiEncoding for encoding. If WinAnsiEncoding cannot be specified, Identity-H/V is considered to be specified.
	embed-std-output-intent	false	Specifies whether to embed the ICC profile specified for the standard output intent into PDF/X output. It is necessary to specify the actual file of the ICC profile when embedding it. If `false` is specified, it is not embedded. This setting is invalid when outputting PDF/A because the embedding of the ICC profile is required with PDF/A or PDF/X-4 output.
	embed-subset-font-percentage	100	Finds the percent of the character used in PDF against the entire characters that the font has. When the percent of characters used is greater than or equal to the specified value, embeds all font characters including characters not used. If not, embeds only characters that are actually used. In GUI, it can be specified by selecting the Subset embedded fonts when percent of character used is less than: option.
	encrypt-metadata	true	Specifies whether to encrypt the metadata when encrypting the PDF file. (Effective with PDF1.5 or later.) no-LT
	encryption-level	128rc4	Specifies the key length when encrypting the PDF file. • `40rc4` (Effective with PDF1.3 to 1.7) • `128rc4` (Effective with PDF1.4 to 1.7) • `128aes` (Effective with PDF1.6 to1.7) • `256aes` (Effective with PDF1.7 or later)

	EPS-processor	none	Specifies whether to output PDF after changing into PDF using an external processor when outputting EPS to PDF in the formatted result. The value is case-insensitive.
			• `none`
			• `distiller`
			• `ghostscript`
			These have the following meanings:
			• `none` : Use nothing. The same way in the past.
			• `distiller` : Use Adobe Distiller in the environment where Adobe Distiller is installed. `acrodist.exe` is used. Effective only with the Windows version. EPS support at this time has a little restrictions.
			  ○ `PS-Adobe-2.0` or later required.
			  ○ `%%BeginProlog` and `%%EndProlog` should be included.
			☞ joboptions

Element	Attribute	Default	Description
	EPS-processor	none	• `ghostscript` : Use Ghostscript in the environment where Ghostscript is installed. Use `gswin32c.exe` with the Windows version (use `gswin64c.exe` with Windows 64-bit) and use `gs` with non-Windows. Since the program is invoked by fork() etc. and used, there is no problem with GPL license. ☞ ghostscript Invalid in the environment where each processor is not installed. Moreover, it's necessary to set the PATH etc. of the program to use.
	error-on-embed-fault	false	When an error occurs while embedding fonts, specifies whether to stop the job as an error or to continue embedding by replacing the character with a white space using the value of `true` or `false`. If the value is `true`, stops executing as an error. If the value is `false`, continues executing and outputs PDF by replacing the character with a white space. In GUI, it can be specified by selecting the When Embedding Fails option.
	error-on-missing-glyph	false	When the corresponding glyph for the specified character does not exist in the specified font, specifies whether to break off the processing as an error or to continue the processing by using `true` or `false`. When `true` is specified, the processing will end as an error. When `false` is specified, although PDF is outputted, the character will be displayed as a white space or a small box in PDF for missing glyph. In GUI, it can be specified by selecting the Error on Missing Glyph option.
	error-on-pdfx-fault	true	Specifies whether to stop formatting as an error or ignore the unsuitable content and continue formatting when a content that is unsuitable for PDF/X, PDF/A or PDF/UA is detected while creating PDF/X, PDF/A or PDF/UA, such like PDF/X, PDF/A or PDF/UA that contains non-embeddable fonts. If `false` is specified, the processing is continued, a generated PDF may be incongruent as PDF/X, PDF/A or PDF/UA. If `true` is specified, PDF will not be generated as an error. When the unsuitable content is avoidable, the formatting continues. For example, annotations in PDF/X are thrown away. In GUI, it can be specified by selecting the Error on PDF/X, PDF/A or PDF/UA fault option. no-LT
	ghostscript		When converting EPS into PDF using Ghostscript, the full path to Ghostscript can be specified. For example, specify as ghostscript="/usr/local/bin/gs". Thereby, Ghostscript can be invoked even if the PATH does not set to Ghostscript. Specify `gswin32c.exe` in Windows version (specify `gswin64c.exe` with Windows 64-bit).
	grayscale-compression	auto	When the grayscale image format cannot be stored directly in PDF, the image is stored after being transformed into the bit map format that is compatible with PDF. The compression method of the data stored in a PDF file is then specified by one of the following values: • `auto` • `zlib` • `jpeg` • `jpeg2000` • `keeplzw` • `auto2k` • `keeplzw2k` When `auto` is selected, the process is automatically done and creates the image data according to the setting of grayscale-jpeg-quality. When `keeplzw` is specified, if the original image is LZW compressed, it becomes the LZW compression. If not, it becomes the same as `auto`. Whichever has the smaller compressed size, JPEG or ZLIB, is selected. `auto2k` and `keeplzw2k` are equivalent to `auto` and `keeplzw` each, except that compression will be done with JPEG 2000 instead of JPEG. However, they are same as `auto` and `keeplzw` in case of PDF1.4 or earlier. See also Image Output to learn about the file formats which can be stored directly in PDF. This is the setting for the grayscale image. Specifies color-compression for the color image, and monochrome-compression for the monochrome image. In GUI, it can be

Element	Attribute	Default	Description
	grayscale-compression	auto	specified by selecting the Compression option. JPEG 2000 is effective only for PDF1.5 or later.
	grayscale-compression-default	auto	Specifies the value of the compression method of the grayscale image when pressing the “Reset Default Settings” button or the “High Compression Settings” button in the Compression page in the PDF Option Setting Dialog in GUI. no-LT
	grayscale-compression-minimum	auto2k	
	grayscale-downsampling	none	Specifies the method to downsample the raster grayscale image that is put into PDF. The options are: • `none` • `average` • `bicubic` • `subsampling` When a value other than `none` is specified, the image that has resolution greater than the one specified by grayscale-downsampling-above-dpi will be downsampled to the resolution specified by grayscale-downsampling-target-dpi. This is the setting for the grayscale image. Specifies color-downsampling for the color image, and monochrome-downsampling for the monochrome image. In GUI, it can be specified by selecting the Downsampling option.
	grayscale-downsampling-above-dpi	450	
	grayscale-downsampling-target-dpi	300	
	grayscale-downsampling-default	none	Specifies the value of the JPEG image quality of the grayscale image when pressing the “Reset Default Settings” button or the “High Compression Settings” button in the Compression page in the PDF Option Setting Dialog in GUI. no-LT
	grayscale-downsampling-above-dpi-default	450	
	grayscale-downsampling-target-dpi-default	300	
	grayscale-downsampling-minimum	bicubic	
	grayscale-downsampling-above-dpi-minimum	225	
	grayscale-downsampling-target-dpi-minimum	150	
	grayscale-jpeg-quality	80	For the grayscale image format that cannot be stored directly in PDF, specifies the image quality by a numerical value within the range of 1 to 100 when `jpeg` is specified by grayscale-compression. The higher the number the better the quality in proportion to the increase in the number; however the file size also becomes larger. Converts this value to the compression ratio to use in case of `jpeg2000`. **CAUTION:** It is not for changing the quality of a JPEG format image. This is the setting for the grayscale image. Specifies color-jpeg-quality for the color image. In GUI, it can be specified by selecting the JPEG Quality option.

Element	Attribute	Default	Description
	grayscale-jpeg-quality-default	80	Specifies the value of the JPEG image quality of the color image when pressing the “Reset Default Settings” button or the “High Compression Settings” button in the Compression page in the PDF Option Setting Dialog in GUI. no-LT
	grayscale-jpeg-quality-minimum	40	

	gs-options		When converting EPS into PDF using Ghostscript, **AH Formatter V7.1** specifies the following parameters and starts Ghostscript by default:
			`-dPDFSETTINGS=/printer`
			`-dNOPAUSE`
			`-dBATCH`
			`-dSAFER`
			`-sDEVICE=pdfwrite`
			`-dDEVICEWIDTHPOINTS=%width`
			`-dDEVICEHEIGHTPOINTS=%height`
			`-dEPSFitPage`
			`-dCompatibilityLevel=1.3`
			`-dAutoRotatePages=/None`
			`-q`
			`-sOutputFile=%temp`
			`-c`
			`.setpdfwrite`
			`-f`
			`%eps`
			The next four starting with % are replaced by their respective values by **AH Formatter V7.1**.
			• `%width` : Width of EPS
			• `%height` : Height of EPS
			• `%eps` : Input EPS
			• `%temp` : Temporary Output File
			You can specify any parameter with gs-options. Specify multiple parameters separated by U+000A. The gs-options setting completely replaces the above settings and launches Ghostscript. The setting of `-sOutputFile` is always considered to be `-sOutputFile=%temp`. If `%temp` is not included, it will be added. If `%eps` is not included, it will be added at the end. The operation is not guaranteed when invalid parameters are specified. V7.1

	image-color-profile	true	Specifies whether to embed in the PDF the ICC profile of the color image that will be embedded. If the value is `true` it is embedded. If the value is `false` it is not embedded. In GUI, it can be specified by selecting the Output ICC Profile in Images option. If the PDF to be output is PDF/X-1a, it is always considered `false`.
	import-annotation-types		Annotations contained in the embedded PDF is embeddable directly in PDF. Specify the following character strings (case insensitive) separated by white spaces: • `All` • `Text` • `Link` • `FreeText` • `Line` • `Square` • `Circle` • `Polygon` • `PolyLine` • `Highlight` • `Underline` • `Squiggly`

Element	Attribute	Default	Description
	import-annotation-types		• `StrikeOut` • `Stamp` • `Caret` • `Ink` • `Popup` • `FileAttachment` • `Sound` • `Movie` • `Screen` • `3D` • `RichMedia` • `Other` Specify `Other` when you embed annotations with no type written. When `All` is specified, all the annotations are embedded. In GUI, it can be specified by selecting the Import All Annotations option. For more details, see also PDF Embedding.
	import-tagged-pdf	false	Specifies whether to permit embedding tagged PDF in tagged PDF. If `true` is specified, the tagged PDF is embedded “as is” without producing an error. In GUI, you can change the setting at Allow Importing Tagged PDF. For more details, see also PDF Embedding. This setting is not available with **AH Formatter V7.1 Lite**. no-LT

	joboptions		Specifies Adobe PDF Settings File that is passed to Distiller when converting EPS into PDF using Distiller. Only a local file can be specified. A relative path is resolved relative to the target EPS file. However, when the EPS itself is a relative path, the operation will be indeterminate. Specify the joboptions with absolute path preferably. See also the manual of Acrobat etc. for Adobe PDF Settings File. The operation when specifying an inaccurate file etc. will not be guaranteed. When this file is not specified, the following contents which are not almost specified at all will be assumed:
			
			`<<`
			`  /CompatibilityLevel 1.3`
			`  /AutoRotatePages /None`
			`>> setdistillerparams`
			`<<`
			`>> setpagedevice`
			
			Effective only with the Windows version.

	linearized	false	Specifies whether to create linearized PDF. If the value is `true`, creates linearized PDF that is optimized for Web display. If the value is `false`, creates normal PDF. In GUI, it can be specified by selecting the Fast Web View option. no-LT
	monochrome-compression	ccitt4	When the monochrome image format cannot be stored directly in PDF, the image is stored after being transformed into the bit map format that is compatible with PDF. The compression method of the data stored in a PDF file is then specified by one of the following values: • `ccitt4` • `ccitt3` • `runlength` • `zlib` • `none` See the Image Output for the image format that can be stored directly in PDF. This is the setting for monochrome images. Specifies color-compression for the color image, and grayscale-compression for the grayscale image. In GUI, it can be specified by selecting the Compression option.

Element	Attribute	Default	Description
	monochrome-compression-default	ccitt4	Specifies the value of the compression method of the monochrome image when pressing the “Reset Default Settings” button or the “High Compression Settings” button in the Compression page in the PDF Option Setting Dialog in GUI. no-LT
	monochrome-compression-minimum	zlib	
	monochrome-downsampling	none	Specifies the method to downsample the raster monochrome image that is put into PDF. • `none` • `average` • `bicubic` • `subsampling` When a value other than `none` is specified, an image that has resolution greater than the one specified by monochrome-downsampling-above-dpi will be downsampled to the resolution specified by monochrome-downsampling-target-dpi. This is the setting for the monochrome image. Specifies color-downsampling for the color image, and grayscale-downsampling for the grayscale image. In GUI, it can be specified by selecting the Downsampling option.
	monochrome-downsampling-above-dpi	1800	
	monochrome-downsampling-target-dpi	1200	
	monochrome-downsampling-default	none	Specifies the value of the downsampling of the monochrome image when pressing the “Reset Default Settings” button or the “High Compression Settings” button in the Compression page in the PDF Option Setting Dialog in GUI. no-LT
	monochrome-downsampling-above-dpi-default	1800	
	monochrome-downsampling-target-dpi-default	1200	
	monochrome-downsampling-minimum	bicubic	
	monochrome-downsampling-above-dpi-minimum	450	
	monochrome-downsampling-target-dpi-minimum	300	
	multimedia-treatment	embed	Specifies whether to embed multimedia in PDF in case of axf:multimedia-treatment="auto", with one of the following values: • `embed` • `absolute-link` • `relative-link` • `richmedia` • `richmedia-windowed` no-LT

Element	Attribute	Default	Description
	new-tagging-mode	false	If `true` is specified, when explicitly specifying an empty string such as axf:pdftag="", that element does not create a tag but belongs to the tag to which the parent area belongs. In addition, the Role Map is also enabled, and maps from nonstandard tag names to standard tag names are valid. Specifying axf:pdftag="" on the root element has no effect since the root element does not have a parent: a Document tag is always created.
	no-accessibility	false	Specifies whether to permit text access for screen reader devices of PDF files with the value of `true` or `false`. If `false` is specified, it is permitted. If `true` is specified, it is not permitted. This attribute is effective only when you specify PDF1.4 or later. owner-password is required for the permission settings of text access for screen reader devices to be effective.
	no-adding-or-changing-comments	false	Specifies whether to permit adding or changing comments and form fields in the PDF or not with the value of `true` or `false`. If the value is `false`, permits adding or changing. If the value is `true`, permits no changes or additions are allowed. owner-password is required for the permission settings of adding or changing comments and form fields to be effective.
	no-assemble-doc	false	Specifies whether to permit inserting, deleting and rotating of PDF pages with the value of `true` or `false`. If `false` is specified, it is permitted. If `true` is specified, it is not permitted. This attribute is effective only when you specify PDF1.4 or later. owner-password is required for the permission settings of inserting, deleting and rotating of PDF pages to be effective.
	no-changing	false	Specifies whether or not to permit making form field and making other changes in the PDF file or not with the value of `true` or `false`. If the value is `false`, changes are permitted. If the value is `true`, no changes are permitted. owner-password is required for the permission settings of making form field and making other changes to be effective.
	no-content-copying	false	Specifies whether to permit copying the text and the graphics in PDF or not with the value of `true` or `false`. If the value is `false`, permits copying. If the value is `true`, permits no copying. owner-password is required for the permission settings of copying the text and the graphics to be effective.
	no-fill-form	false	Specifies whether to permit filling in of form fields and signing of the PDF file with the value of `true` or `false`. If `false` is specified, it is permitted. If `true` is specified, it is not permitted. This attribute is effective only when you specify PDF1.4 or later. owner-password is required for the permission settings of filling in of form fields and signing to be effective.
	object-compression	true	Compresses objects in PDF. It is effective with PDF1.5 or later and text-and-lineart-compression="true" is specified. If `true` is specified, objects will be compressed, if `false` is specified, they will not be compressed. In GUI, it can be specified by selecting the Object Compression option.
	object-compression-default	true	Specifies the value of the Object Compression when pressing the “Reset Default Settings” button or the “High Compression Settings” button in the Compression page in the PDF Option Setting Dialog in GUI. no-LT
	object-compression-minimum	true	
	overprint		Specifies the overprint. Any values of axf:overprint other than auto can be specified. no-LT
	owner-password		Sets the strings specified as an owner password. Specify up to 32 ASCII characters for PDF1.3 to 1.7 and 127 ASCII characters for PDF2.0 or later. If the characters other than the above are included, it becomes invalid and it is assumed that no password is set. The default value is no-password.

Element	Attribute	Default	Description
	owner-password		**CAUTION:** The password is described in plaintext in the file. Be very careful when handling files.
	page-labels	true	Specifies whether to apply the page labels to the page numbers with the value of `true` or `false`. If `true` is specified the page labels are applied, if `false` is specified, they are not applied. In GUI, it can be specified by selecting the Output Page Labels option.
	pages-max-kids	10	Specifies the maximum number of elements in the /Kids array of the PDF /Pages dictionary. Negative or 1 cannot be specified. If 0 is specified, there is no tree structure and all pages are arranged flat in the /Kids array.
	pass-through	all	Embeds an image in a PDF file as it is if available. This is called pass-through. If both pass-through and downsampling are specified, downsampling will precede pass-through. The image format you want to pass through can be specified by using the pass-through. However, the pass-through is not done in case of unavoidable circumstances even if pass-through is specified. The following strings (case insensitive) can be specified by enumerating them with white-space specified: • `all` • `gif` • `tiff` • `png` • `jpeg` • `jpeg2000` • `jbig2` • `none` Excludes an image type by placing a hyphen "`-`" before the image type. For instance, pass-through="all -gif" excludes GIF only. no-LT **CAUTION:** A gif image can be embedded in a PDF file as it is. However, when outputting the PDF file from the PostScript printer, an I/O error may occur. To avoid this error, `gif` must be deselected.
	pass-through-default	all	Specifies the image type to be passed through when pressing the "Reset Default Settings" button or the "High Compression Settings" button in the Compression page in the PDF Option Setting Dialog in GUI. no-LT
	pass-through-minimum	none	
	pdf-version	PDF1.5	Specifies the version of the PDF to create with one of the following values: • `PDF1.3` • `PDF1.4` • `PDF1.5` • `PDF1.6` • `PDF1.7` • `PDF2.0` • `PDF/X-1a:2001` no-LT • `PDF/X-3:2002` no-LT • `PDF/X-1a:2003` no-LT • `PDF/X-2:2003` no-LT • `PDF/X-3:2003` no-LT • `PDF/X-4:2010` no-LT • `PDF/X-4p:2010` no-LT • `PDF/A-1a:2005` no-LT • `PDF/A-1b:2005` no-LT

Element	Attribute	Default	Description
	pdf-version	PDF1.5	• `PDF1.4/A-2a:2011` no-LT • `PDF1.5/A-2a:2011` no-LT • `PDF1.6/A-2a:2011` no-LT • `PDF1.7/A-2a:2011` no-LT • `PDF1.4/A-2b:2011` no-LT • `PDF1.5/A-2b:2011` no-LT • `PDF1.6/A-2b:2011` no-LT • `PDF1.7/A-2b:2011` no-LT • `PDF1.4/A-2u:2011` no-LT • `PDF1.5/A-2u:2011` no-LT • `PDF1.6/A-2u:2011` no-LT • `PDF1.7/A-2u:2011` no-LT • `PDF1.4/A-3a:2012` no-LT • `PDF1.5/A-3a:2012` no-LT • `PDF1.6/A-3a:2012` no-LT • `PDF1.7/A-3a:2012` no-LT • `PDF1.4/A-3b:2012` no-LT • `PDF1.5/A-3b:2012` no-LT • `PDF1.6/A-3b:2012` no-LT • `PDF1.7/A-3b:2012` no-LT • `PDF1.4/A-3u:2012` no-LT • `PDF1.5/A-3u:2012` no-LT • `PDF1.6/A-3u:2012` no-LT • `PDF1.7/A-3u:2012` no-LT • `PDF1.5/UA-1:2014` no-LT • `PDF1.6/UA-1:2014` no-LT • `PDF1.7/UA-1:2014` no-LT In GUI, it can be specified by selecting the PDF Version option. PDF/X, PDF/A or PDF/UA cannot be selected with **AH Formatter V7.1 Lite**.
	printing-allowed	high-resolution	Specifies whether to print the resulting PDF file or not. If `high-resolution` is specified, it allows to printing in high resolution. `low-resolution` is effective with PDF1.4 or later. If low-resolution is specified, it allows printing in low resolution. If the PDF version is 1.3, it is handled as `high-resolution`. If `none` is specified, it does not allow printing. owner-password is required for the permission settings of printing the PDF file to be effective.
	rasterize-resolution	108	If part of a vector image is transformed to a raster image and stored in the PDF. Specifies the value of the rasterize-resolution of the transformed raster images in the range from 70 to 500(dpi). This setting is effective only with Windows version. The vector format image which cannot be stored directly in PDF is not supported with non-Windows version. See also Image Output to learn about the file formats which can be stored directly in PDF.
	real-value-limit	2	The limit value of the real value described in PDF is within ±32767 with PDF version less than or equal to 1.4, within $\pm 3.403 \times 10^{38}$ with PDF1.5 or later. However, even if the PDF1.5 or later, if the value exceeds ±32767, some viewers may generate an error. Therefore the outputted real value can be checked so that it may not exceed the limit value when the PDF1.5 or later. The following values can be specified: 0. The limit value is not checked. 1. Checked if the value is within ±32767. 2. Checked if the value is within $\pm 2.14748 \times 10^{9}$ (approximately).

Element	Attribute	Default	Description
	real-value-limit	2	3. Checked if the value is within ±9.22337×10^{18} (approximately). If the value greater than or equal to 2 is specified, it's considered that 1 is specified with PDF version less than or equal to 1.5. **CAUTION:** This setting doesn't mean to guarantee the operation of a viewer, such as Acrobat.
	real-value-limit-modify	false	Specifies whether to modify the value when it exceeds the limit value specified by real-value-limit. If real-value-limit-modify="false" is specified, the value is only checked and it will not be modified.
	reverse-page	false	If the value is `true`, outputs pages in reverse order to PDF.
	tagged-pdf	false	Specifies whether to make the Tagged PDF file or not. PDF may not be able to be tagged depending on the PDF versions. In this case this setting will be ignored. In GUI, it can be specified by selecting the Tagged PDF option. no-LT
	text-and-lineart-compression	true	Specifies whether the text and the line art in PDF are compressed in order to make the size of PDF smaller or not. If the value is `true`, it is compressed. If the value is `false`, it is not compressed. In GUI, it can be specified by selecting the Text and Line-Art Compression option.
	text-and-lineart-compression-default	true	Specifies the value of the Text-and-Lineart Compression when pressing the “Reset Default Settings” button or the “High Compression Settings” button in the Compression page in the PDF Option Setting Dialog in GUI. no-LT
	text-and-lineart-compression-minimum	true	
	transparency	true	Specifies whether to convert transparency output to PDF into opaque. If `true` is specified, transparency is output as is. If `false` is specified, it is converted into opaque. In GUI, you can change this setting in Convert Transparency to Opaque **CAUTION:** The transparency in the embedded PDF will not be converted.
	transparency-color-space	DeviceRGB	Specifies the color space when processing the transparency in PDF. Either of the following can be specified: • `None` • `DeviceRGB` • `DeviceCMYK`
	use-launch-for-local-file	true	Specifies whether the external link (external-destination property) specified by the local file is transformed into “Open the file” or into “World Wide Web link” in the PDF link properties with the value of `true` or `false`. If the value is `true`, it is transformed to “Open the file”. If the value is `false`, it is transformed to “World Wide Web link”. In GUI, it can be specified by selecting the External Destination Link with Local File option.
	user-password		Sets the strings specified as a user password. Specify up to 32 ASCII characters for PDF1.3 to 1.7 and 127 ASCII characters for PDF2.0 or later. If the characters other than the above are included, it becomes invalid and it is assumed that no password is set. The default value is no-password. **CAUTION:** The password is described in plaintext in the file. Use care in managing the file.
	xmp-padding	2000	Specifies the padding size to assist XMP editing in place when embedding XMP specified by `<axf:document-info name="xmp">` or automatically generated XMP in PDF. When the value is 0 or less, padding is not applied. Also, padding is not applied to XMP with `<?xpacket end="r"?>`.
`<embed-font>`			child of `<pdf-settings>`

Element	Attribute	Default	Description
	font		Specifies the fonts that are embedded in the PDF. This element can be specified without limit and is effective only when embed-all-fonts="false" is specified. When embed-all-fonts="false" is specified and this element is not specified, only the glyphs of the characters that are needed in the PDF output are embedded. When this element is specified and if the font indicated here is used within the formatted results, the glyph of the character currently used will be embedded. For a font that is not specified, embedding is performed only for the glyphs of the characters that are needed in the PDF output.
`<tag-role-map>`			child of `<pdf-settings>`
	It is an element for putting together `<tag-element>`. Evaluates the child element only when new-tagging-mode="true".		
`<tag-element>`			child of `<tag-role-map>`

	tag-base-name		When Tagged PDF is output, maps the tag element name from the value of tag-derived-name to the value of tag-base-name. You can specify any number of this element.
			`<tag-element tag-derived-name="p2" tag-base-name="p1"/>`
			`<tag-element tag-derived-name="p1" tag-base-name="P"/>`
			When written like the above, tags in the area where the value of axf:pdftag is created from FO with p1 or p2 are tagged as mapped to the P element.
			CAUTION: In PDF/UA, mapping from standard tag names to other tag names are prohibited.

	tag-derived-name		

PostScript Output Settings

These settings are used for PostScript® Output.

Element	Attribute	Default	Description
`<ps-settings>`			child of `<formatter-config>`
	noembed-font	false	Specifies whether fonts are embedded in the outputted PostScript. When `true` is specified, the font information is not embedded and the font must be referred to only by the PostScript name. The following are restrictions: • The PostScript interpreter may not be correctly processed when the font includes a multi-byte code like Japanese, etc. With Distiller, an error like `MS-Mincho not found and using Courier.` may be generated. • Character-codes greater than 255 cannot be outputted. When using non-Type 1 fonts, it's not recommended to specify noembed-font.
	transparency	false	When `true` is specified, the transparency will be processed upon outputting pdfmark, which is a PostScript extension. At this time, open joboptions in your text editor and then modify "`/AllowTransparency false`" to "`/AllowTransparency true`". The directory of joboptions varies depending on the setting; either the preset or the custom setting. For more details, see also the manual of Adobe Acrobat. This specification is valid when printing to Distiller too. no-LT
	use-launch-for-local-file		Specifies whether the external link (external-destination property) specified by the local file is transformed into "Open the file" or into "World Wide Web link" in the PDF link properties with the value of `true` or `false`. If the value is `true`, it is transformed to "Open the file". If the value is `false`, it is transformed to "World Wide Web link". When nothing is specified, follows the specification of use-launch-for-local-file in PDF Output Settings.

SVG Output Settings

These settings are used for SVG Output.

Element	Attribute	Default	Description
`<svg-settings>`			child of `<formatter-config>`
	copy-image-path		Specifies the destination directory to copy images to as specified by `copy-all` or `copy` by image-processing.
	copy-image-prefix		When images are copied to the directory specified by copy-image-path and processed, specifies the prefix of the file name. The file name will be prefix with sequence numbers. Default is empty character string with only sequential numbers.
	format	1	When the formatted result is output to multiple SVG files specified by `false` in singlefile, specifies the format of the additional character string to output to the file name. This character string adopts the character string same as the format property of FO. Each file name is automatically determined based on the output file name. The character string as formatted by the value specified by format will be inserted just before the extension of the output file. For example, if the file name is `document.svg`, and format="-1" is specified, the file become `document-1.svg` and `document-2.svg` and so on.
	gzip-compression	false	If the value is `true`, creates SVG compressed in gzip format. If the value is `false`, it is not compressed.
	image-conversion	auto	When the image format to be embedded is a raster image other than JPEG or PNG, it is converted into JPEG or PNG and embedded. The following either can be specified: • `auto` • `jpeg` • `png` When `auto` is selected, images of monochrome, grayscale or 256-or-less-color are converted into PNG, and the rest are converted into JPEG.
	image-processing	embed-all	Specifies how to treat the referred image. • `embed-all` Embeds all images in the SVG. • `link` Links images that have been linked, and embeds the embedded image. Raster images other than JPEG and PNG are always embedded. • `copy-all` Copies all image files to the destination that is specified by copy-image-path, and then links. • `copy` Copies images that have been linked to the destination that is specified by copy-image-path, and links. The embedded image are embedded. For details about the operation, see Image Output in SVG Output.
	jpeg-quality	80	For images that cannot be embedded directly in SVG, specifies the image quality by the numerical value within the range of 1 to 100 when `jpeg` or `auto` is specified by image-conversion. The higher the number the better the quality in proportion to the increase in the number; however the file size also becomes larger. **CAUTION:** It is not for changing the quality of a JPEG format image.
	rename-copy-image	false	When images are copied to the directory specified by copy-image-path etc. and processed, specifies whether to rename all file name to prefix specified by copy-image-prefix, or use original name. When the file name overlaps, sequential number is added. When `true` is specified, all files are renamed.

Element	Attribute	Default	Description
	singlefile	false	Specifies whether the formatted result composed of multiple pages is output as a single SVG file or as multiple SVG files. If the value is `true`, outputs as a single SVG file. If the value is `false`, outputs as multiple SVG files. When multiple files are output, the file is named by the format specified by format. Effective only when outputting to a file. It is invalid in the output without the file name like the stream etc.
	singlefile-number	true	When singlefile="false" is specified, specifies whether to add sequential number to the output SVG even if it has only one-page. It is not added in case of `false`.
	rasterize-resolution	108	If part of a vector image is transformed to a raster image and stored in the SVG. Specifies the value of the rasterized-resolution of the transformed raster images in the range from 70 to 500(dpi). SVG, EMF and WMF are drawn in SVG as vectors without being transformed to raster images. This setting is effective only with Windows version. The vector format image which cannot be stored directly in SVG is not supported with non-Windows version.
	svg-version	1.1	Specifies the version of the SVG to create with one of the following values: • `1.1` • `Basic` • `Tiny`

TEXT Output Settings no-LT

These settings are used for TEXT Output. These settings are not effective with **AH Formatter V7.1 Lite**.

Element	Attribute	Default	Description
`<text-settings>`			child of `<formatter-config>`
	encoding	UTF-8	Specifies the encoding of the output text. The following encodings are available (case insensitive): • `UTF-8` • `UTF-16` • `UTF-16BE` • `UTF-16LE` • `UTF-32` • `UTF-32BE` • `UTF-32LE` • `ISO-10646-UCS-2` • `ISO-10646-UCS-4` • `ANSI_X3.4` • `ISO_646.irv` • `ISO646-US` • `US-ASCII` • `ISO_8859-1` • `latin1` • `Windows-31J` • `Shift_JIS` • `EUC-JP` • `ISO-2022-JP` Endian of UTF-16, UTF-32 etc. depends on the processor in the operating system.
	eol-marker	CRLF or LF	Specifies the linefeed code of the output text. The following can be specified (case insensitive):

Element	Attribute	Default	Description
	eol-marker	CRLF or LF	• CRLF • LF • CR The default value is CRLF in Windows, LF in others.

MathML Settings

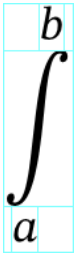
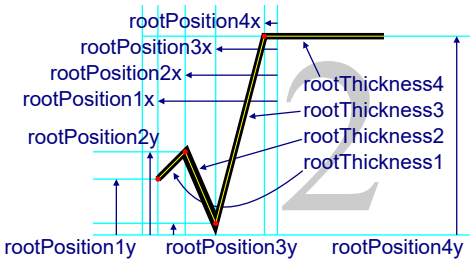
These settings are used for MathML.

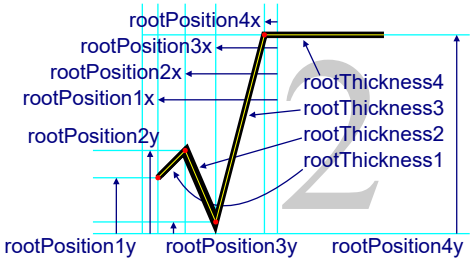
CAUTION: The default value shows the equivalent value. Note that the setting cannot be described as thinSpace="2/10" in fact. Describe it as thinSpace="0.2" in a file.

Element	Attribute	Default	Description
<mathml-settings>			child of <formatter-config>
	mathDisplay	inline	In the MathML specification, the default value of display in <math> is defined as inline, but it can be changed. One of the following can be specified: • inline • block • context If the context that contains <math> is a block, context takes its initial value as block and otherwise inline. The following are considered block contexts: • (X)HTML • MathML is directly described (not external reference) • The parent element of <math> is a block element • <math> is a single child
	scriptsizemultiplier	0.71	In the MathML specification, although the default value of scriptsizemultiplier is defined, the value can be changed by specifying the unitless numerical value (>0). ☞ OpenType MATH Feature
	scriptsizemultiplier Mscarries	0.6	In the MathML specification, although the default value of scriptsizemultiplier of <mscarries> is defined, the value can be changed by specifying the unitless numerical value (>0).
	scriptminsize *	8pt	In the MathML specification, although the default value of scriptminsize is defined, the value can be changed by specifying the absolute value with units (≥0).
	scriptmaxsize *	0pt	In the MathML specification, although there is no definition of the limit value of scriptmaxsize, the value can be set by specifying the absolute value with units (≥0). If less than or equal to scriptminsize is specified, it is considered unlimited.
	largeopmultiplier	1.414	Specifies the multiplier of largeop by the unitless numerical value (≥1). ☞ OpenType MATH Feature
	largeopmultiplierInt	2.0	Specifies the multiplier of largeop against the integral by the unitless numerical value (≥1). The integral consists of 27 characters of U+222B to U+2233 and U+2A0B to U+2A1C. ☞ OpenType MATH Feature
	mathsizeSmall	0.83	Specifies the multiplier against mathsize="small" by the unitless numerical value (>0).

Element	Attribute	Default	Description
	mathsizeBig	1.17	Specifies the multiplier against mathsize="big" by the unitless numerical value (>0).
	enQuad	1/2	Specifies the space for EN QUAD U+2000 by the unitless numerical value (>0) or the named length. The numerical value is in unit of em.
	emQuad	1	Specifies the space for EM QUAD U+2001 by the unitless numerical value (>0) or the named length. The numerical value is in unit of em.
	enSpace	1/2	Specifies the space for EN SPACE U+2002 by the unitless numerical value (>0) or the named length. The numerical value is in unit of em.
	emSpace	1	Specifies the space for EM SPACE U+2003 by the unitless numerical value (>0) or the named length. The numerical value is in unit of em.
	thinSpace	2/10	Specifies the space for THIN SPACE U+2009 by the unitless numerical value (>0) or the named length. The numerical value is in unit of em.
	hairSpace	1/10	Specifies the space for HAIR SPACE U+200A by the unitless numerical value (>0) or the named length. The numerical value is in unit of em.
	veryverythinmathspace	1/18	Specifies the space for `veryverythinmathspace` by the unitless numerical value (>0). The numerical value is in unit of em.
	verythinmathspace	2/18	Specifies the space for `verythinmathspace` by the unitless numerical value (>0). The numerical value is in unit of em.
	thinmathspace	3/18	Specifies the space for `thinmathspace` by the unitless numerical value (>0). The numerical value is in unit of em.
	mediummathspace	4/18	Specifies the space for `mediummathspace` by the unitless numerical value (>0). The numerical value is in unit of em.
	thickmathspace	5/18	Specifies the space for `thickmathspace` by the unitless numerical value (>0). The numerical value is in unit of em.
	verythickmathspace	6/18	Specifies the space for `verythickmathspace` by the unitless numerical value (>0). The numerical value is in unit of em.
	veryverythickmathspace	7/18	Specifies the space for `veryverythickmathspace` by the unitless numerical value (>0). The numerical value is in unit of em.
	accentOffset	0.15	Specifies the space between the accent character and the base character by the numerical value with no units or the named length. The numerical value is the em value. ☞ OpenType MATH Feature
	defaultLSpace	thickmathspace	Specifies the lspace value of the operator that is not registered in the operator dictionary by the unitless numerical value (≥0) or the named length. The numerical value is in unit of em. However, it is always 0 when the operator is empty or the operator has a blank fixed width.
	defaultRSpace	thickmathspace	Specifies the rspace value of the operator that is not registered in the operator dictionary by the unitless numerical value (≥0) or the named length. The numerical value is in unit of em. However, it is always 0 when the operator is empty or the operator has a blank fixed width.
	defaultMinsize **	100%	In the MathML specification, although the default value of minsize of `<mo>` is defined as 100%, the value can be changed by specifying the numerical value with units (≥0).
	defaultLineleading **	0pt	Specifies the default value of lineleading of `<mo>` with the numerical value with units (≥0). The value indicates the space between lines.
	mathLeading *	0pt	The only way to control the space between lines when the line break occurs is to do with lineleading of `<mo>`. The line break can also be specified in `<mspace>`, but there is no way to specify the space between lines at that time. mathLeading specifies all spaces between lines by the line break with

Element	Attribute	Default	Description
	mathLeading *	0pt	an absolute value with units (≥0). The setting of lineleading of `<mo>` will be added. ☞ OpenType MATH Feature
	linebreakingHeight Adjust	true	When the line break occurs, there is no rule on how the height of each row should be. If `false` is specified, the height of each row is the height of the entire row before the line break occurs. That is, each row has the same height. If `true` is specified, the height of each row is its height respectively.
	indentingnewline **	0pt	The value of `<mspace linebreak="indentingnewline">` was abolished with MathML 3.0. However the amount of space you want to indent can be specified by the numerical value with units (≥0).
	applyFunctionSpace	thinmathspace	Specifies the space for FUNCTION APPLICATION U+2061 when the space is required, by the unitless numerical value (≥0) or the named length. The numerical value is in unit of em.
	invisibleTimesSpace	thinmathspace	Specifies the space for INVISIBLE TIMES U+2062 when the space is required, by the unitless numerical value (≥0) or the named length. The numerical value is in unit of em.
	scriptAlignMode	1	Specifies the alignment of subscript/superscript in vertical mode. 0. Aligns the upper end of a boundary rectangle of subscript to the center line of the base character. Aligns the lower end of a boundary rectangle of superscript to the center line of the base character. (V6.3 compatible) 1. Aligns the center line of subscript to the base line of the base character. Aligns the base line of superscript to the center of the glyph, upper than the center line of the base character. When subscript and superscript overlaps by `<msubsup>`, etc., it will be adjusted properly. When the size of the subscript is small, superscript will shift up and subscript will shift down to make them look better.
	italicSubscriptShift	-0.04	Specifies the shift amount of the lower-right and upper-left scripts by the unitless numeric value with `<msub>`, `<msubsup>` and `<mmultiscripts>` when the base character is italic. the numeric value is in unit of em. it's not applied to the integral of largeop. ☞ OpenType MATH Feature
	integralSubscriptShift	-0.3 -0.2	Specifies the shift amount of the lower right script (`<msub>`) of the integral of the largeop by the unitless numerical value or the named length. As for the upper right, it shifts only the amount of `-integralSubscriptShift`. The 2 values can be specified, the first one indicates the value when displaystyle="true" is specified, the next one indicates the value when displaystyle="false" is specified. The numerical value is in unit of em. ☞ OpenType MATH Feature
	integralSuperscriptShift	0.02 0	Specifies the shift amount of the upper right script (`<msup>`) of the integral of the largeop by the unitless numerical value or the named length. As for the lower right, it shifts only the amount of `-integralSuperscriptShift`. The 2 values can be specified, the first one indicates the value when displaystyle="true" is specified, the next one indicates the value when displaystyle="false" is specified. The numerical value is in unit of em. ☞ OpenType MATH Feature
	integralUnderOverShift	0.2 0.12	Specifies the shift amount of the over/under script (`<mover>`, `<munder>` and `<munderover>`) of the integral of the largeop by the unitless numerical value or the named length. The 2 values can be specified, the first one indicates the value when displaystyle="true" is specified, the next one indicates the value when displaystyle="false" is specified. The numerical value is in unit of em. This shift is available only when align="center" is specified. Over script will shift to the right, under script will shift to the left. In the MathML specification, the alignment of over script and under script

Element	Attribute	Default	Description
	integralUnderOverShift	0.2 0.12	cannot be specified independently, it is not easy to format the script shown in the folowing image.  integralUnderOverShift makes it easy to format such scripts. ☞ OpenType MATH Feature
	thinLine	0.5/18	Specifies the thickness of linethickness="thin", mslinethickness="thin" by the unitless numerical value (>0) or the named length. The numerical value is in unit of em.
	mediumLine	1/18	Specifies the thickness of linethickness="medium", mslinethickness="medium" by the unitless numerical value (>0) or the named length. The numerical value is in unit of em.
	thickLine	2/18	Specifies the thickness of linethickness="thick", mslinethickness="thick" by the unitless numerical value (>0) or the named length. The numerical value is in unit of em.
	fracLineExtend	1/18	Specifies the extended amount of a fraction line to the right and left with `<mfrac>` by the unitless numerical value (≥0) or the named length. The numerical value is in unit of em.
	fracLineSpace	1/18	Specifies the right and left spaces of a fraction line with `<mfrac>` by the unitless numerical value (≥0) or the named length. The numerical value is in unit of em.
	fracLineOverGap	1/18	Specifies the overline offset of a fraction line with `<mfrac>` by the unitless numerical value (≥0) or the named length. The numerical value is in unit of em. ☞ OpenType MATH Feature
	fracLineUnderGap	1/18	Specifies the underline offset of a fraction line with `<mfrac>` by the unitless numerical value (≥0) or the named length. The numerical value is in unit of em. ☞ OpenType MATH Feature
	bevelledAngle	70	Specifies the angle of a bevelled fraction line by the unitless numerical value (≥10, <90). The value is in unit of degree. It would be better not to specify too small value.
	bevelledHeight	1.5	Specifies the height of a bevelled fraction line by the unitless numerical value (>0). The value is the multiplier against the higher one of a numerator or a denominator.
	rootPosition1x	-0.6	Specifies the shape of a radical symbol by the unitless numerical value or the named length. The numerical value is in unit of em. 
	rootPosition1y	0.4	
	rootPosition2x	-0.5	
	rootPosition2y	0.5	
	rootPosition3x	-0.3	
	rootPosition3y	0.05	
	rootPosition4x	0	
	rootPosition4y	20/18	
	rootThickness1	0.5/18	

Element	Attribute	Default	Description
	rootThickness2	1.3/18	Specifies the shape of a radical symbol by the unitless numerical value or the named length. The numerical value is in unit of em. 
	rootThickness3	1/18	
	rootThickness4	1/18	
	rootRoundRadius	1/18	Rounds the left part of the radical symbol. Specify the rounding radius with unitless numerical values (≥0) or the named length. The numerical value is in unit of em. If it is 0, no rounding is done.
	encloseLineThickness	1/18	Specifies the thickness of the line drawn by `<menclose>` by the unitless numerical value (>0) or the named length. The numerical value is in unit of em.
	encloseCircle	inscribed	Specifies whether a circle drawn with `<menclose notation="circle">` is `inscribed` or `circumscribed` against the boundary rectangle. `inscribed` or `circumscribed` can be specified. The circumscribed circle is a similar figure to the inscribed circle.
	roundedboxRadius	0.25	Specifies the rounded box radius when `<menclose notation="roundedbox">` is specified, by the unitless numerical value (>0) or the named length. The numerical value is in unit of em.
	columnspacing **	0.4em	In the MathML specification, the default value of columnspacing is predefined, but it can be specified and changed with a numeric value with a unit. Note that only a numeric value can be specified. (Note: The default value predefined in the MathML specification is 0.8em, but the default value of **AH Formatter V7.1** has been changed.)
	rowspacing **	1.0ex	In the MathML specification, the default value of rowspacing is predefined, but it can be specified and changed with a numeric value with a unit. Note that only a numeric value can be specified.
	framespacing **	0.2em 0.5ex 0em	In the MathML specification, the default value of framespacing is predefined, but it can be specified and changed with a numeric value with a unit. The first two values are predefined in the MathML specification, showing the spacing of left/right and top/bottom where frame="none" is not specified. The third value is the extension, showing the spacing of left/right where frame="none" is specified. (Note: The default values predefined in the MathML specification are 0.4em 0.5ex, but the default values of **AH Formatter V7.1** have been changed.)
	columnlineThickness	1/18	Specifies the thickness of the ruled line of a column with `<mtable>` by the unitless numerical value (>0) or the named length. The numerical value is in unit of em.
	rowlineThickness rowlineThickness	1/18	Specifies the thickness of the ruled line of a row with `<mtable>` by the unitless numerical value (>0) or the named length. The numerical value is in unit of em.
	framelineThickness	1/18	Specifies the thickness of the ruled line of a frame with `<mtable>` by the unitless numerical value (>0) or the named length. The numerical value is in unit of em.
	charspacingTight	0	Specifies the space when `<mstack charspacing="tight">` is specified, by the unitless numerical value (≥0) or the named length. The numerical value is in unit of em.

Element	Attribute	Default	Description
	charspacingMedium	0.2	Specifies the space when `<mstack charspacing="medium">` is specified, by the unitless numerical value (≥0) or the named length. The numerical value is in unit of em.
	charspacingLoose	0.4	Specifies the space when `<mstack charspacing="loose">` is specified, by the unitless numerical value (≥0) or the named length. The numerical value is in unit of em.
	overlapMsline	true	Specifies whether to draw `<msline>` over the above `<msrow>`. When mslinethickness is extremely thick, `<msline>` overlaps the characters of the above `<msrow>`. In such a case, specify `false`.
	mslineOverGap	0	Specifies the space above `<msline>` by the unitless numerical value (≥0) or the named length. The numerical value is in unit of em. It is invalid when overlapMsline="true" is specified. V7.1
	mslineUnderGap	0	Specifies the space below `<msline>` by the unitless numerical value (≥0) or the named length. The numerical value is in unit of em. It is invalid when overlapMsline="true" is specified. V7.1
	crossoutThickness	1/18	Specifies the line thickness of crossout of `<mscarry>` by the unitless numerical value (≥0) or the named length. The numerical value is in unit of em.
	errorColor	red	Specifies the color with `<merror>`.
	errorBackground	transparent	Specifies the background color with `<merror>`.
	escapingMs	\	Specifies the escape character with `<ms>`. If empty is specified, the escape processing will not be performed.
	italicizeMi	U+0041-005A, U+0061-007A, U+00C0-01BF, U+01C4-02AF, U+0386-0481, U+048A-052F, U+1E00-1FBC, U+1FC2-1FCC, U+1FD0-1FDC, U+1FE0-1FEC, U+1FF0-1FFC, U+2C60-2C7F	Specifies the range of Unicode of the character that is made italic with `<mi>`. See also Unicode Range to learn more about the format. In MathML specifications, it is written only that single character is made italic with `<mi>`. However neither numbers nor ∞ are made italic by lots of implementations. The default value contains only the character of `Latn`, `Grek`, and `Cyrl`.
	stylisticMi		Specifies the Unicode Range to a single letter specified by `<mi>` to apply GSUB of ss02 in OpenType font. As for the format, see Unicode Range. For example, in STIX Two Math, glyphs are prepared for the following 5 letters: • U+1D454 g • U+1D462 u • U+1D463 v • U+1D464 w • U+1D467 z You can specify these Unicode or you can specify U+0067 etc. instead. To specify everything, you may specify stylisticMi="'guvwz'".
	substKeyboard Characters	true	Specifies whether to enable the character substitutions defined in 7.7.1 Keyboard Characters in the MathML specification. See also Character Substitutions.

Element	Attribute	Default	Description
	pseudoScripts	true	Specifies whether to make MathML specifications 7.7.2 Pseudo-scripts processing effective. If `true` is specified, when all the character strings of superscripts, such as `<msup>` etc., are seudo superscripts, a script level will not be changed and a baseline will not be changed, either. The same is applied to subscripts, such as `<msub>`, etc.
	inheritFontweight	false	Specifies whether to inherit the default of fontweight from the upper environment by the value of `true` or `false`.

	enableOpenTypeMATH	true	Specifies whether to enable OpenType MATH feature. If `true` is specified, all processing is effective. If `false` is specified, all processing is invalid. When you want to enable only the specific processing, specify as follows by enumerating function name keywords separated by whitespace:
			`enableOpenTypeMATH="scriptsizemultiplier upperlowerlimit"`
			If you want to invalidate only the specific processing, specify as follows by putting "`-`" before the function name keyword:
			`enableOpenTypeMATH="-largeopmultiplier -italicscorrection"`
			See the OpenType MATH Feature to learn feature name keywords and what will happen corresponding to them. It is invalid with fonts that do not contain MATH features.

	exceptOpenTypeMATH Variants		When you do not want to apply the OpenType feature to some characters with largeopmultiplier, vertstretchy in enableOpenTypeMATH, enumerate the characters you want to exclude. As for the format, see Unicode Range. For example, in STIX version 2.0, glyphs for largeop are prepared for U+22C0 etc., but the position of the baseline is lowered and not aligned with U+2211 etc. You may specify such characters as "U+22C0-22C3".

	mathmlSettingsMode	7.1	There are some contents that the default value has been changed or added in the MathML settings. If you specify a previous version, such as mathmlSettingsMode="6.3", the initial value can be changed to the one at that time.
			• ≤6.3
			  ○ scriptAlignMode="0"
			  ○ italicSubscriptShift="0"
			  ○ integralSubscriptShift="-0.25 0"
			  ○ integralSuperscriptShift="0.05 0"
			  ○ integralUnderOverShift="0 0"
			• ≤6.5
			  ○ linebreakingHeightAdjust="false"
			  ○ rootThickness2="1.5/18"
			  ○ rootRoundRadius="0"
			  ○ overlapMsline="true"
			  ○ enableOpenTypeMATH="false"

`<variant-font>`			child of `<mathml-settings>`
	Specifies the font corresponding to mathvariant. Any number of this element can be specified. See also Fonts for Math Expression.		
	mathvariant		Either of the following can be specified: • empty string • `normal`

Element	Attribute	Default	Description
	mathvariant		• bold • italic • bold-italic • double-struck • bold-fraktur • script • bold-script • fraktur • sans-serif • bold-sans-serif • sans-serif-italic • sans-serif-bold-italic • monospace Specifying empty string would be the standard font used by MathML.

	fontfamily		Specifies the font to be used. The default value of mathvariant="" in Windows version is:
			
			`fontfamily="'STIX Two Math', 'STIX Two Text', 'STIX', 'STIXGeneral', 'Cambria Math'"`
			
			In non-Windows versions is:
			
			`fontfamily="'STIX Two Math', 'STIX Two Text', 'STIX', 'STIXGeneral'"`
			
			In any cases other than mathvariant="", mathvariant="" font is the default value. See also `<font-entry>`.

	center-shift	0	The center position of a character can be adjusted. When the minus etc. are remarkably shifted from the center, the position can be specified by the unitless numerical value. The numerical value is in unit of em. See also Fonts for Math Expression.
`<font-entry>`			child of `<variant-font>`

	Specifies the font that corresponds to the script or Unicode Range. This setting can change a part of fonts specified by fontfamily of `<variant-font>`. Any number of this element can be specified. The following shows the example:
	
	`<variant-font mathvariant="normal" fontfamily="'Cambria Math'">`
	`<font-entry script="Latn" fontfamily="'Times New Roman'"/>`
	`</variant-font>`
	
	Either script or unicode-range must be specified. The effect is not guaranteed when both are specified.		

	fontfamily		Specifies the font to use.
	script		Specifies the scripts, such as `Latn` or `Grek`. The available scripts conform to ISO 15924. However, `Zyyy`, etc. cannot be specified.
	unicode-range		Specifies the range of Unicode to apply. See also Unicode Range to learn more about the format.
	mathvariant		Some fonts behave as regular fonts even if they are designed as italic. In such fonts, if mathvariant="italic" is specified, they will be doubly slanted. To avoid this, specify mathvariant="normal". See also Fonts for Math Expression.
	center-shift		The center position of a character can be adjusted. When the minus etc. are remarkably shifted from the center, the position can be specified by the unitless numerical value. The numerical value is in unit of em. The

Element	Attribute	Default	Description
	center-shift		default value is the value of `<variant-font>`. See also Fonts for Math Expression.
`<operator-dictionary>`			child of `<mathml-settings>`
	`<operator-dictionary>` is specified in order to change the contents of the default operator dictionary. Any number of this element can be specified and is evaluated in order. See also MathML Conformance to learn more about the operator dictionary.		
	src		URI of the operator dictionary can be specified as src. If you setup a relative path, this setting file is being considered the relative. The content is XML of the same content as this element whose root is `<operator-dictionary>`. However, src cannot be specified.
`<entry>`			child of `<operator-dictionary>`
	Any number of this element can be specified and is evaluated in order. If the setting is the same, latter one will take precedence. The default value is the one when the new unregistered operator is specified. When the operator is already registered, omitted attribute values will not be changed. `<entry>` is disregarded when src of `<operator-dictionary>` is specified.		
	operator		Specifies the operator. This setting is required.
	form		Specifies either of the following: • `prefix` • `infix` • `postfix` SThis setting is required.
	priority	0	Specifies the integer value.
	lspace	5	Specifies the value from 0 to 7. Values have the following meanings: 0. Adds no spaces. 1. Adds the space of `veryverythinmathspace`. 2. Adds the space of `verythinmathspace`. 3. Adds the space of `thinmathspace`. 4. Adds the space of `mediummathspace`. 5. Adds the space of `thickmathspace`. 6. Adds the space of `verythickmathspace`. 7. Adds the space of `veryverythickmathspace`.
	rspace	5	
	minsize		Specifies the relative value with units or the absolute value, such as em. The relative value is changed into the absolute value when it is used. When there is no settings, it depends on the setting of `<mo>`.
	maxsize		
	accent	false	Specifies either `true` or `false`.
	fence	false	Specifies either `true` or `false`.
	separator	false	Specifies either `true` or `false`.
	stretchy	false	Specifies either `true` or `false`.
	symmetric	false	Specifies either `true` or `false`.
	largeop	false	Specifies either `true` or `false`.
	movablelimits	false	Specifies either `true` or `false`.
	linebreakstyle	before	Specifies either of the following: • `before`

Element	Attribute	Default	Description
	linebreakstyle	before	• after • duplicate

The named length is either of the following:

- veryverythinmathspace
- verythinmathspace
- thinmathspace
- mediummathspace
- thickmathspace
- verythickmathspace
- veryverythickmathspace
- negativeveryverythinmathspace
- negativeverythinmathspace
- negativethinmathspace
- negativemediummathspace
- negativethickmathspace
- negativeverythickmathspace
- negativeveryverythickmathspace

negative* is a negative length. negative* cannot be used in the scene where a positive value is calculated.

OpenType MATH Feature

OpenType fonts for math expressions may contain MATH features. The MATH feature contains a lot of information for the math expression layout. In **AH Formatter V7.1**, you can use the various MATH features by setting enableOpenTypeMATH. The feature name keywords that can be specified for enableOpenTypeMATH are as follows:

- true
  Enable all processing.
- false
  Disable all processing.
- scriptsizemultiplier
  When scriptsizemultiplier is not specified, applies

  MathConstants.ScriptPercentScaleDown

  to scriptlevel=1. Applies

  MathConstants.ScriptScriptPercentScaleDown

  to scriptlevel=2. Applies

  ScriptScriptPercentScaleDown*(ScriptScriptPercentScaleDown/ScriptPercentScaleDown)^{L}

  to scriptlevel=3 or more. (L=scriptlevel-2 here)
- mathleading
  Applies

  MathConstants.MathLeading

  to the space between lines when the line break occurs. At this time, mathLeading is ignored.
- largeopmultiplier
  If MathVariants has a definition for largeop <mo>, adopts that glyph. At that time, if there is a glyph of

  MathConstants.DisplayOperatorMinHeight

or more, adopts the smallest glyph within it, otherwise adopts the largest glyph. At this time, when the following values exceed 1.0, they are ignored:

- largeopmultiplier
- largeopmultiplierInf

- `vertstretchy`

  If there is a definition in MathVariants for vertically stretching `<mo>`, that glyph is used. However, the stretching with the combination of multiple glyphs is not supported.

- `italicscorrection`

  For characters with `ItalicsCorrection` defined, the following are ignored:

  - italicSubscriptShift
  - integralSubscriptShift
  - integralSuperscriptShift
  - integralUnderOverShift

  Subscript is adjusted to the position considering `ItalicsCorrection`, superscript is not adjusted. (The script on the left side behaves in the opposite way.)

- `fractiongap`

  Adjusts the distance between the fraction rule and the numerator/denominator by `<mfrac>` using the following:

  ```
  MathConstants.FractionNumeratorGapMin
  MathConstants.FractionNumDisplayStyleGapMin
  MathConstants.FractionDenominatorGapMin
  MathConstants.FractionDenomDisplayStyleGapMin
  ```

  At this time, the following are ignored:

  - fracLineOverGap
  - fracLineUnderGap

- `fractionthickness`

  Sets the default thickness of the fraction rule to the value of

  ```
  MathConstants.FractionRuleThickness
  ```

  when linethickness in `<mfrac>` is not specified.

- `upperlowerlimit`

  Adjusts the minimum distance between the over/under scripts and the base character by `<munder>`, `<mover>` and `<munder-over>` using the following:

  ```
  MathConstants.LowerLimitGapMin
  MathConstants.UpperLimitGapMin
  ```

- `radicalgap`

  Adjusts the distance between the roof of the radical symbol and the math contents using the following:

  ```
  MathConstants.RadicalVerticalGap
  MathConstants.RadicalDisplayStyleVerticalGap
  ```

  At this time rootPosition4y is ignored.

- `radicalthickness`

  Applies

  ```
  MathConstants.RadicalRuleThickness
  ```

  to the thickness of the radical symbol. This value will be the value of rootThickness4. The values of rootThickness1, rootThickness2 and rootThickness3 are calculated from rootThickness4 according to the ratio of the values specified in the Option Setting File.

Fonts for Math Expression

In order to format the math expression finely, it is necessary to prepare the font for math expression. Some fonts for math expression are introduced here.

CAUTION: Using multiple fonts with different origins in math expression makes the adjustment of positions troublesome. It is not a recommended usage.

STIX Fonts

AH Formatter V7.1 assumes the STIX fonts are used by default. STIX fonts are downloadable from the following:

- STIX Fonts

When using STIX fonts, it is not necessary to specify something to the Option Setting File in particular. However when using other fonts, it is necessary to do a proper setting with `<variant-font>`.

CAUTION: The supported STIX fonts versions are 2.0, 1.1.1 or 1.1.0.

Cambria Math Fonts

Fonts for Math expression called Cambria Math are enclosed in Windows. In **AH Formatter V7.1** Windows version, when STIX fonts are not installed, these fonts are the default. In order to invalidate STIX fonts and always use these fonts, specify as follows:

```
<variant-font fontfamily="'Cambria Math'"/>
```

BaKoMa Fonts

BaKoMa fonts are often used with TeX. BaKoMa fonts are downloadable from the following:

- CTAN Fonts

It is recommended to use ttf or otf from here.
Since these fonts are old, there is no relevance as the font family respectively. If you use all of them, a lot of settings would be required. The following shows an example of changing x y z in STIX fonts in italic into the round shape letter peculiar to the math expression:

```
<variant-font mathvariant="italic">
 <font-entry unicode-range="U+0061-007A" fontfamily="cmmi10" mathvariant="normal"/>
</variant-font>
<variant-font mathvariant="bold-italic">
 <font-entry unicode-range="U+0061-007A" fontfamily="cmmib10" mathvariant="normal"/>
</variant-font>
```

Even if BaKoMa fonts are designed to be italic, the information which shows it does not exist in the font. Therefore, the setting of mathvariant="normal" is needed so that the text is not slanted doubly. The same applies to bold.

CGM Settings

These settings are used for CGM.

Element	Attribute	Default	Description
`<cgm-settings>`			child of `<formatter-config>`
	issue-unknown-element	10	Specifies whether a warning message is issued when unknown elements appear. If -1 is specified, issues a warning against all unknown elements, then ignore these elements. If greater than or equal to 1 is specified, issues a warning up to the specified number, then ignores these elements, when it reaches its number, stops evaluating CGM.

Element	Attribute	Default	Description
	issue-unsupported-element	1	Specifies whether a warning message is issued against unsupported elements. When -1 is specified, issues a warning against all elements. if 0 is specified, a warning message is not issued. If greater than or equal to 1 is specified, issues a warning up to the specified number for each element.
	default-line-cap	round	Specifies the default value of LINE CAP / EDGE CAP by either of the following (the number on the left can also be specified): 2. `butt` 3. `round` 4. `square`
	default-edge-cap	round	
	default-line-join	round	Specifies the default value of LINE JOIN / EDGE JOIN by either of the following (the number on the left can also be specified): 2. `miter` 3. `round` 4. `bevel`
	default-edge-join	round	
	default-mitre-limit	-1	Specifies the default value of MITRE LIMIT. If a negative value is specified, the limit is not outputted. (It's environment dependent.)
	default-restricted-text-type	boxed-cap	Specifies the default value of RESTRICTED TEXT TYPE by either of the following (the number on the left can also be specified): 1. `basic` 2. `boxed-cap` 3. `boxed-all` 4. `isotropic-cap` 5. `isotropic-all` 6. `justified` The default value on ISO specification is `basic`.
	fallback-font		Specifies the fallback font in case the font settings in CGM is insufficient.
	aci		Specifies the file of Application Configurable Items. See also Application Configurable Items.

XSLT Settings

These settings are used for XSLT Processor.

Element	Attribute	Default	Description
`<xslt-settings>`			child of `<formatter-config>`
	msxml	true	Specifies whether to use MSXML or not. If `true` is specified, MSXML is used as an XSLT Processor. Specification of command is disregarded at this time. If `false` is specified, the external XSLT Processor specified from command will be used, but when nothing is specified from command, it is considered that `true` is specified and MSXML is used. The version of MSXML actually used can be checked on the XSLT page of the Format Option Setting Dialog. This setting is ignored in non-Windows environment.
	msxmlver	0	Specifies the maximum version of MSXML used internally when msxml="true" is specified. Any version from 6 to 3 can be specified. For example, when 5 is specified, AH Formatter searches MSXML in order of MSXML5 → MSXML4 → MSXML3 and adopts the first found MSXML. If nothing is specified or the specified value is incorrect (such as 0), the version will be considered 6. This setting is effective only with Windows version.

Element	Attribute	Default	Description
	command		The command line of the External XSLT Processor is specified here. The command line strings must include at least three identifiers, `%1`, `%2` and `%3`. • `%1` : XML document • `%2` : XSL stylesheet • `%3` : XSLT Output File • `%param` : Parameter of `xsl:param` If nothing is specified, or "@MSXML" is specified, the external processor is not used but the internal processor, MSXML is used. This setting is effective only with Windows version. It's an initial setting of XSLT Processor with all kinds of interfaces. If nothing is specified in non-Windows environment, XSLT transformation is not performed.
	param-option		Specifies the parameter type of `xsl:param` given to the external XSLT Processor. The strings must include at least two identifiers, `%p` and `%v`. These values are as follows: • `%p` : Value of name of `<param>` • `%v` : Value of value of `<param>` These values affect the part of `%param` in the command strings. When two or more `<param>`s are specified, they are divided by the white space and repeated.
`<param>`			child of `<xslt-settings>`
	name		Specifies the parameter name of `xsl:param` for XSLT Processor.
	value		Specifies the parameter value of `xsl:param` for XSLT Processor. When the value includes a white space, since the quotation marks will not be processed, explicitly enclose in quotation marks.
`<stylesheet>`			child of `<xslt-settings>`

	ns		Possible to specify the stylesheet applied to a specific XML document. Specifies the name space of the XML document by ns, and specifies the URI of the stylesheet by href. The following shows the example of XHTML and WordML:
			`<stylesheet ns="http://www.w3.org/1999/xhtml" href="xhtml2fo.xsl"/>`
			`<stylesheet ns="http://schemas.microsoft.com/office/word/2003/wordml" href="[WordMLToFO install directory]/WordMLToFO.xsl"/>`
			If the XML document has the name space specified here, it can be formatted by itself, without specifying the stylesheet. If the stylesheet is specified when formatting or the stylesheet is specified in the XML document, these are adopted and the setting here will be ignored.

	href		
`<msxml>`			child of `<xslt-settings>`
	name		Specifies the property of MSXML when msxml="true" is specified. The property name is specified by name and the value is specified by value. For the moment, only `true` or `false` can be specified as value. That is, the property which needs the other value cannot be specified. There are two types of properties available. • Properties specified by the setProperty() method like, `setProperty("AllowXsltScript", true);`. • Properties specified by the value directly like, `resolveExternals = true;`.
	value		name interpreted as the latter one are as follows: • `preserveWhiteSpace` • `validateOnParse` • `resolveExternals` In any case other than these, the value is set via the setProperty() method. The character string of name is not checked. It is considered that the following are set as default:

Element	Attribute	Default	Description

	value		`<msxml name="preserveWhiteSpace" value="true"/>`
			`<msxml name="validateOnParse" value="false"/>`
			`<msxml name="resolveExternals" value="true"/>`
			`<msxml name="ServerHTTPRequest" value="true"/>`
			`<msxml name="ProhibitDTD" value="false"/>`
			`<msxml name="AllowDocumentFunction" value="true"/>`
			`<msxml name="AllowXsltScript" value="false"/>`
			
			From MSXML6.0, `resolveExternals` became `ResolveExternals` (**AH Formatter V7.1** accepts both). Also, the default value of this is `false` when external-entity="false" is specified. See also MSXML Security Overview. The settings are ignored with non-Windows versions.

Suppose XSLT setting is as follows:

```
<xslt-settings command="xslt -o &#34;%3&#34; &#34;%1&#34; &#34;%2&#34; %param"
                                                                  param-option="%p=%v">
  <param name="foo" value="123"/>
  <param name="bar" value="&#34;Hello, World&#34;"/>
</xslt-settings>
```

XSLT Processor executes as follows in order to transform `file.xml` and `file.xsl` into `file.fo`:

```
xslt -o "file.fo" "file.xml" "file.xsl" foo=123 bar="Hello, World"
```

As described in the example here, the actual file name given to `%1` or `%2` includes white space, it's necessary to enclose the file name with quotation mark, “`"`”.

Analyzer Settings no-LT

These settings are used for automated analysis of the Area Tree. These settings are not effective with **AH Formatter V7.1 Lite**.

Element	Attribute	Default	Description
`<analyzer-settings>`			child of `<formatter-config>`
	analyze V7.1	true	Specifies whether or not to perform analysis checks.
	end-blank-pages	true	Specifies whether or not to analyze the number of blank pages at the end of the document.
	end-blank-pages-limit	2	Allowed number of blank pages at the end of document
	hyphen	true	Specifies whether or not to analyze the number of consecutive lines that end with a hyphen.
	hyphen-limit	3	Allowed number of consecutive lines that end with a hyphen.
	line-start-end	true	Specifies whether or not to analyze consecutive lines that start, or that end, with the same word.
	line-start-limit	8	Maximum number of characters to compare at the start of a line.
	line-start-repeat-limit	2	Allowed number of lines that start with the same word.
	line-end-limit	8	Maximum number of characters to compare at the end of a line.
	line-end-repeat-limit	2	Allowed number of lines that end with the same word.
	lines-after V7.1	true	Specifies whether or not to analyze the number of lines after a block.
	lines-before V7.1	true	Specifies whether or not to analyze the number of lines before a block.
	page-widow	true	Specifies whether or not to analyze pages that start with a page-level widow.
	page-widow-limit-em	2.5	Minimum width, in 'em' for the current block, of a widow line at the start of a page. If the value is 0, this setting is ignored. A negative value is treated as 0.
	page-widow-limit-percent	15	Minimum width, in percent of the current block width, of a widow line at the start of a page. If the value is 0, this setting is ignored. A negative value is treated as 0.

Element	Attribute	Default	Description
	paragraph-widow	true	Specifies whether or not to analyze paragraphs that end with a paragraph-level widow.
	paragraph-widow-limit-em	2.5	Minimum width, in 'em' for the current block, of a widow line at the start of a paragraph. If the value is 0, this setting is ignored. A negative value is treated as 0.
	paragraph-widow-limit-percent	15	Minimum width, in percent of the current block width, of a widow line at the start of a paragraph. If the value is 0, this setting is ignored. A negative value is treated as 0.
	river V7.1	1em	Either the maximum allowed cumulative width, in 'em' or as an absolute length, for a river of white-space within a block or the value `none` to disable river analysis.
	river-zone V7.1	0	Maximum allowed width between two non-overlapping spaces on consecutive lines for the spaces to be considered a part of the same river. This setting is ignored when river is `none`.
	unbalanced-spread	true	Specifies whether or not to analyze unbalanced spreads.
	unbalanced-spread-limit	0	Allowed height difference, in 'pt', for an unbalanced spread. A negative value is treated as 0.
	white-space V7.1	0.40em	Either the maximum width, in 'em' or as an absolute length, for white-space between consecutive words on a line or the value `none` to disable white-space analysis.

Example

```
<?xml version="1.0"?>
<formatter-config>
  <formatter-settings
      default-page-width="210mm"
      default-page-height="297mm"
      default-font-size="10pt"
      normal-line-height="1.2"
      default-color="#000000"
      border-thin-width="1pt"
      border-medium-width="3pt"
      border-thick-width="5pt"
      pxpi="96"
      default-lang=""
      default-CJK="ja"
      punctuation-trim="true"
      text-autospace="true"
      vertical-underline-side="auto"
      punctuation-spacing="0.5"
      text-autospace-width="0.25"/>
  <pdf-settings
      embed-all-fonts="false"
      error-on-embed-fault="false"
      user-password=""
      master-password=""
      no-printing="false"
      no-changing="false"
      no-content-copying="false"
      no-adding-or-changing-comments="false"
      color-compression="auto"
      color-jpeg-quality="80"
      text-and-lineart-compression="true"
      use-launch-for-local-file="true"
      rasterize-resolution="108">
    <embed-font font="Arial"/>
    <embed-font font="Courier New"/>
  </pdf-settings>
  <font-settings default-font-family="serif">
    <script-font
      serif="Times New Roman"
      sans-serif="Arial"
      monospace="Courier New"
      cursive="Times New Roman"
      fantasy="Times New Roman"/>
```

```
    <script-font
      script="Jpan"
      serif="IPAMincho"
      sans-serif="IPAGothic"
      monospace="IPAMincho"/>
    <script-font
      script="Hang"
      serif="Batang"
      sans-serif="Gulim"
      monospace="BatangChe"/>
    <script-font
      script="Hans"
      serif="SimSun"
      sans-serif="SimHei"
      monospace="SimSun"/>
    <script-font
      script="Hant"
      serif="MingLiU"
      sans-serif="MingLiU"
      monospace="MingLiU"/>
    <font-alias src="MS Mincho" dst="IPAMincho"/>
    <font-alias src="MS Gothic" dst="IPAGothic"/>
  </font-settings>
  <xslt-settings command="xslt -o &#34;%3&#34; &#34;%1&#34; &#34;%2&#34; %param"
                 param-option="%p=%v">
    <param name="foo" value="123"/>
    <param name="bar" value="XYZ"/>
  </xslt-settings>
</formatter-config>
```

Fonts

This chapter explains about the fonts which **AH Formatter V7.1** supports and how to use them. Also it explains the general consideration for each type of font.

The Font Configuration File is for setting the details of the font environment. In non-Windows version: Although the initial file is prepared, you need to set it in accordance with your font environment. In the Windows version: The font configuration file may be used as is.

AH Formatter V7.1 also supports Adobe Fonts and EUDC (end user defined character) for Private Use Characters.

☞ See also Font Output in the PDF Output.
☞ See also Font Output in the PostScript® Output.
☞ See also Font Output in the XPS Output.

Supported font formats

AH Formatter V7.1 supports the following types of fonts.

- Type 1

  Type 1 font files usually consists of a pair of font files `.AFM`+`.PFB` or `.PFM`+`.PFB`. The former is used in non-Windows environment. The latter is used in Windows environment. For further information, see Type 1.
- TrueType

  TrueType font files have the `.TTF` or `.TTC` extension. For further information, see TrueType.
- OpenType

  OpenType font files have the `.TTF` or `.OTF` extension. Fonts with the `.TTF` extension are fonts that contain TrueType outline information and are treated the same as TrueType. See TrueType. Fonts with the `.OTF` extension are fonts that contain PostScript outline information. See OpenType. Supports also OpenType Collection.
- WOFF File Format 1.0 no-LT

  You can treat WOFF (Web Open Font Format) by specifying to `<axf:font-face>`. WOFF fonts cannot be specified directly. The WOFF font specified by `<axf:font-face>` is treated as a TrueType or an OpenType. It's not necessary to specify the place where the WOFF font is located in the Font Configuration File. These functions are not available with **AH Formatter V7.1 Lite**.
- WOFF File Format 2.0 no-LT

  You can treat WOFF 2.0 as well as WOFF 1.0.

  CAUTION: WOFF2, which is based on TrueType Collection, OpenType Collection, is not supported.
- Macintosh TrueType data fork suitcase

  Supports Macintosh TrueType Suitcase expressed by the `.dfont` extension or the `.dfon` extension. This is the Font Suitcase whose font is defined as the data fork. The old Font Suitcase, which is used by Classic MacOS and whose font is defined in the resource fork, is not supported. The contents is TrueType. For details, see also TrueType.

CAUTION: When different types of fonts with the same file name or the same font family name exist in the same directory, it is indeterminate which one is adopted. Also there is a possibility to interfere with the operation. Avoid such a mixture.

Font Configuration File

To configure the font environment for **AH Formatter V7.1**, you must make a Font Configuration File.

The Font Configuration File is a simple structured XML file and is usually located in the `[Install directory]/etc` on non-Windows and `[Install directory]` on Windows.

The Font Configuration File should be set in the Environment Variables. The name `font-config.xml` is set as default.

In the Font Configuration File, the most important element is `<font-folder>`. If you want to use more than the PDF Standard 14 Fonts on non-Windows, you must locate the font files and add their directory as a `<font-folder path="...">` element to the configuration file.

AH Formatter V7.1 automatically detects the font files in the specified directory at the `<font-folder path="...">`. However, there are a few cases where the font name cannot be resolved, only in such cases it is necessary to describe the font file. Normally it is not necessary to specify each file to be used.

In the Windows version, the default font configuration includes all the fonts in the Windows font directory. **AH Formatter V7.1** reads the information on the fonts available to use when starting up AH Formatter. In other words, the more the fonts exist, the more processing time is taken. This means that it may take more time to initialize fonts than time to format when formatting a small document. With a big document, the time to initialize font may not be significant. In order to save the time to initialize fonts, reduce the available fonts. There are the following three solutions available:

1. Reduce the font installed in the Windows font directory.
2. In the Font Configuration File, enumerate fonts that are not used in the Windows font directory by using the font-exclude attribute.
3. Prepare the separate directory where only necessary fonts are included and specify only that directory in the Font Configuration File.

A realistic solution may probably be 3. For example, put fonts you'd like to use in the directory of `C:\MyFonts` and prepare the Font Configuration File like the following:

```
<?xml version="1.0" encoding="UTF-8" ?>
<font-config windows-registry="disable">
  <font-folder path="C:\MyFonts"/>
</font-config>
```

Be sure not to include the setting of Windows font directory here. Specify this Font Configuration File by the Environment Variables.

In Macintosh version, the system font directory is also included in the Initial Font Configuration File. If necessary, adjust the Font Configuration File as well.

Initial Font Configuration File

The following is the initial Font Configuration File. **AH Formatter V7.1** Linux version, the following Font Configuration File is installed on `[Install directory]/etc`.

```
<?xml version="1.0" encoding="UTF-8" ?>
<!-- DOCTYPE font-config SYSTEM "font-config.dtd" -->
<font-config>
  <!-- add your font folder here -->
  <!-- font-folder path="/home/user-name/fonts" -->
  <!-- /font-folder -->
  <font-folder path="[Install directory]/fonts">
    <font-entry file="ZapfDingbats.afm"
          glyph-list="ZapfDingbats-glyphname.txt"/>
  </font-folder>
</font-config>
```

AH Formatter V7.1 Macintosh version, the following Font Configuration File is installed on `[Install directory]/etc`.

```
<?xml version="1.0" encoding="UTF-8" ?>
<!-- DOCTYPE font-config SYSTEM "font-config.dtd" -->
<font-config>
  <!-- add your font folder here -->
  <acc-folder path="~/Library/Application Support/Adobe/CoreSync/plugins/livetype"/>
  <font-folder path="/System/Library/Fonts"/>
  <font-folder path="/System/Library/Fonts/Supplemental"/>
  <font-folder path="/System/Library/Assets" recursive="true"/>
  <font-folder path="/System/Library/AssetsV2" recursive="true"/>
  <font-folder path="/Library/Fonts"/>
  <font-folder path="[Install directory]/fonts">
    <font-entry file="ZapfDingbats.afm"
          glyph-list="ZapfDingbats-glyphname.txt"/>
  </font-folder>
</font-config>
```

In **AH Formatter V7.1** Windows version, the following Font Configuration File is installed on `[Install directory]`. The user font directory added in Windows 10 is set to `[User font directory]`. The Windows font directory is set to `[System font directory]`.

```
<?xml version="1.0" encoding="UTF-8" ?>
<!-- DOCTYPE font-config SYSTEM "font-config.dtd" -->
<font-config>
  <!-- add your font folder here -->
  <acc-folder/>
  <font-folder path="[User font directory]"/>
  <font-folder path="[System font directory]"/>
</font-config>
```

In Windows version, when there is no Font Configuration File, the Font Configuration File of this content will be assumed.

Font Configuration File elements and attributes

The following table is a summary of the elements and attributes in the Font Configuration File.

Element	Attribute	Default	Description
`<font-config>`			root element
	use-preferred-family	true	Specifies whether the information on NameID=16 is used for a font family name with TrueType or OpenType.
	windows-registry	enable	Effective only with Windows version. Specifies whether to get the information of EUDC from the Windows registry or not. If the value is `enable`, it refers to the registry. If the value is `disable`, it doesn't.
`<font-folder>`			child of `<font-config>`

	path		Indicates the font folder using the path attribute.
			`<font-folder path="/home/user-name/fonts">`
			`...`
			`</font-folder>`
			This element can be specified as many times as necessary.

	recursive	false	If true is specified, inside of the subfolder included in the folder specified by path will also be searched.
`<font-entry>`			child of `<font-folder>`
	file		Associated attributes are given to the font file specified by the file attribute (base file name, without the wild card).
	glyph-list		Specifies the glyph-list file of the font when the Type 1 font is specified by the file attribute. The glyph-list defines Unicode to glyph name mapping rule for Type 1 fonts.
	skip-glyphname-mapping	true	Specifies whether to map Unicode to the glyph name or map Unicode to the character-code of the font when the Type 1 font is specified by the file attribute. If `true` is specified, it maps. If `true` is specified, it doesn't.
	font-exclude	false	Specifies whether to disregard the file specified by file attribute. If `true` is specified, it disregards. If `false` is specified, it doesn't. When `true` is specified, the font file is not processed.
	unicode-range		Specifies the range of Unicode applied to the file specified by the file attribute. See Unicode Range for the format. When unicode-range is not specified, it is considered the total range U+0-10FFFF.
	font-size-adjust	1	Adjusts the font size of the file specified by the file attribute. For instance, when specifying font-size-adjust="1.05", the output size is 1.05 times greater than the size specified in FO. It is also possible to specify it as `"105%"` using the % value.
	baseline-adjust	0	Adjusts the baseline of the file specified by the file attribute. For instance, when specifying baseline-adjust="0.1", the value is added to the baseline specified in FO and adjusted to the added position. It is also possible to specify it as `"10%"` using the % value.

Element	Attribute	Default	Description
	x-height		Adjusts the x-height of the file specified by the file attribute. Some fonts may not have x-height information. Specify it in such a case or when you want to adjust the value the font has. 1.0 is equivalent to 1em. It's invalid if 0 or less is specified.
	cap-height		Adjusts the cap-height of the file specified by the file attribute. Some fonts may not have cap-height information. Specify it in such a case or when you want to adjust the value the font has. 1.0 is equivalent to 1em. It's invalid if 0 or less is specified.
`<font-alias>`			child of `<font-folder>`

	file		Indicates the alias name of the font family name. The source font file should be specified using the file and entry attributes. file attribute should specify font files (base file name, without the wild card). For Type 1 fonts, specify the font files that have the `.AFM` or `.PFM` extensions. For TrueType or OpenType fonts, you can specify the font files that have the `.TTF` or `.TTC` or `.OTF` extensions. The entry attributes should be the number of the fonts in the `.TTC` (TrueType Collection) file. The number should be a numeric value of 1 or more. If the entry attribute is omitted, the value is considered 1. If the font is not `.TTC`, the value is ignored.
			
			`<font-alias file="simsun.ttc" entry="1">`
			`  ...`
			`</font-alias>`
			
			To define the alias names, enumerates the `<alias>` element within this element. This element can be specified as many times as necessary.

	entry		
`<alias>`			child of `<font-alias>`

	family-name		Indicates the actual alias name for the font described in the file of `<font-alias>`. The alias information is specified using family-name, weight, italic attributes. family-name attribute is the alias font family-name. Newly defined names should not match any other existing font-family names. weight attribute is the alias font weight class. This attribute can be specified using a numeric value between 100 to 900 or the keyword `normal`, `bold`. italic attribute indicates the font style for italic. It should be specified using the keyword `true` or `false`. You can specify multiple alias definition for one font file. This element can be specified as often as necessary.
			
			It's possible to display the font file specified by file of `<font-alias>` using the name and style specified here.
			
			`<font-alias file="ARIALI.TTF">`
			`  <alias family-name="MyArial"/>`
			`</font-alias>`
			`<font-alias file="ARIALBI.TTF">`
			`  <alias family-name="MyArial" weight="bold"/>`
			`</font-alias>`
			
			In the example above, font-family="MyArial" font-weight="normal" should display “`ARIALI.TTF`”, font-family="MyArial" font-weight="bold" should display “`ARIALBI.TTF`” differently. Note the following points.
			
			• When the italic font is originally specified, and even if font-style="normal" is specified, it doesn't become normal.
			• When the bold font is originally specified, and even if font-weight="normal" is specified, it doesn't become normal. Even if font-weight="bold" is specified, it doesn't become bolder.
			
			When `<alias>` is specified, the file set in file of `<font-alias>` is selected by the name and style and displayed. For instance, when font-style="italic" is specified and there is no `<alias>` with italic setting, normal is adopted.

	weight	normal	
	italic	false	
`<acc-folder>`			child of `<font-config>`
	path		Specifies the installation destination of Adobe Fonts by the path attribute. For more details, see Adobe Fonts.
`<eudc-processing>`			child of `<font-config>`

Element	Attribute	Default	Description
	mapping	enable	Specifies whether to process EUDC. If the mapping attribute is `enable`, it processes EUDC. If the mapping attribute is `disable`, it doesn't.
`<eudc-range>`			child of `<eudc-processing>`
	start		Specifies the range of EUDC by Unicode. `<eudc-range start="57344" end="63743"/>` Numeric value is specified. This sample indicates as 57344 = U+E000, 63743 = U+F8FF. If there is no numeric value specified, and the registry reference is effective with Windows version, it follows the instruction of the registry. If not, the PUA range is detected as (U+E000 to U+F8FF). When end is omitted, it is considered the same value as start. Multiple ranges can also be specified.
	end		
`<eudc-system-default>`			child of `<eudc-processing>`
	file-path		Specifies the EUDC font file of the system default. It is adopted when there is no supported glyphs in the specified EUDC font. If there is no EUDC font file specified, and the registry reference is effective with Windows version, it follows the registry setting. At that time, the code page 932 is referred. If not, EUDC font of the system default is detected as nothing.
`<eudc-map>`			child of `<eudc-processing>`
	family-name		Specifies the EUDC file by the file-path attribute, which is used when the character code of the EUDC range is specified to the font specified by the family-name attribute. If the registry reference is effective with Windows version, it is also taken into consideration. If there are the same font-family specified, the previous appearance takes precedence and the Font Configuration File takes precedence over the registry. This element can be specified as often as necessary.
	file-path		

The following meta strings can be specified for path of `<font-folder>` and `<acc-folder>`.

- @@HOME@@ : Expanded to the contents of the Environment Variable, AHF71_HOME or AHF71_64_HOME.
- @@WINFONTS@@ : Expanded to the system font directory (eg `C:\Windows\Fonts`) in Windows version.
- @@USERWINFONTS@@ : Expanded to the user font directory (`@@LOCALAPPDATA@@\Microsoft\Windows\Fonts`) in Windows version.
- @@APPDATA@@ : Expanded to the contents of the environment variable APPDATA in Windows version.
- @@LOCALAPPDATA@@ : Expanded to the contents of the environment variable LOCALAPPDATA in Windows version.
- @@ACCFOLDER@@ : Expanded to the installation destination of Adobe Fonts in Windows version or Macintosh version. However, since this folder has a special structure, it may not be specified to path of `<font-folder>`.

The DTD of Font Configuration File is as follows:

```
<!ELEMENT font-config (font-folder+ | acc-folder? | eudc-processing?)>
<!ATTLIST font-config use-preferred-family (true|false)     "true">
<!ATTLIST font-config windows-registry     (enable|disable) "enable">

<!ELEMENT font-folder (font-entry | font-alias)*>
<!ATTLIST font-folder path CDATA #REQUIRED>
<!ATTLIST font-folder recursive (true|false) "false">

<!ELEMENT font-entry EMPTY>
<!ATTLIST font-entry file                   CDATA #REQUIRED>
<!ATTLIST font-entry glyph-list             CDATA #IMPLIED>
<!ATTLIST font-entry skip-glyphname-mapping (true|false) "false">
<!ATTLIST font-entry font-exclude           (true|false) "false">
<!ATTLIST font-entry unicode-range          CDATA "U+0-10FFFF">
<!ATTLIST font-entry font-size-adjust       CDATA "1.0">
<!ATTLIST font-entry baseline-adjust        CDATA "0.0">
<!ATTLIST font-entry x-height               CDATA "0.0">
<!ATTLIST font-entry cap-height             CDATA "0.0">

<!ELEMENT font-alias (alias)*>
<!ATTLIST font-alias file  CDATA #REQUIRED>
```

```
<!ATTLIST font-alias entry CDATA #IMPLIED>

<!ELEMENT alias EMPTY>
<!ATTLIST alias family-name CDATA   #REQUIRED>
<!ATTLIST alias weight      CDATA   #IMPLIED><!-- normal|bold|1..1000 -->
<!ATTLIST alias italic (true|false) #IMPLIED>

<!ELEMENT acc-folder EMPTY>
<!ATTLIST acc-folder path CDATA #REQUIRED>

<!ELEMENT eudc-processing (eudc-range?, eudc-system-default?, eudc-map*)>
<!ATTLIST eudc-processing mapping (enable|disable) #IMPLIED>

<!ELEMENT eudc-range EMPTY>
<!ATTLIST eudc-range start CDATA #REQUIRED>
<!ATTLIST eudc-range end   CDATA #REQUIRED>

<!ELEMENT eudc-system-default EMPTY>
<!ATTLIST eudc-system-default file-path CDATA #REQUIRED>

<!ELEMENT eudc-map EMPTY>
<!ATTLIST eudc-map family-name CDATA #REQUIRED>
<!ATTLIST eudc-map file-path   CDATA #REQUIRED>
```

Type 1

This section describes general information for Type 1 fonts and how **AH Formatter V7.1** supports them.

Font organization and necessary condition

Type 1 fonts are organized using the following font files.

File extension	Description
.PFB (Printer Font Binary)	Contains binary compressed font outline.
.AFM (Adobe Font Metrics)	Contains general font information and font metrics information. This is a text file. Used in pairs of `.AFM`+`.PFB`.
.PFM (Printer Font Metrics)	Contains general font information and font metrics information. This is a binary format file. Used in pairs of `.PFM`+`.PFB`.

AH Formatter V7.1 supports both types of combinations: `.AFM`+`.PFB`, `.PFM`+`.PFB` files.

Type 1 font considerations.

- The current version of **AH Formatter V7.1** does not support font outline files with `.PFA` (Printer Font ASCII) extension. Most Type 1 font products are shipped in the `.PFB` format, which is supported by **AH Formatter V7.1**.
- Type 1 font metrics data which has the `.MMM` extension is not supported. This metrics file is used for the Multiple Master Type 1 fonts.
- Both `.PFB` and `.PFM` that maps to `.PFB` must exist in the same directory. Fonts may be installed in different directories by using ATM (Adobe Type Manager). Such fonts cannot be used for embedding with **AH Formatter V7.1**.

Embedding Type 1

AH Formatter V7.1 supports embedding the Type 1 font into PDF files. The following are required to embed fonts:

- The `.AFM`+`.PFB` or `.PFM`+`.PFB` font files must be in the folder specified in the `<font-folder>` of the font configuration file.
- In the Option Setting File specify the target font family name `<embed-font>` element or specify `<pdf-settings embed-all-fonts="true">` entry.

If you do not embed fonts, only `.AFM` or `.PFM` files are needed. If fonts are not embedded in the PDF the user will need the actual fonts on their system when they read the PDF file.

PDF Standard 14 Fonts

In non-Windows version, the following Type 1 fonts are installed.

- `Courier.afm`
- `Courier-Bold.afm`
- `Courier-Oblique.afm`
- `Courier-BoldOblique.afm`
- `Helvetica.afm`
- `Helvetica-Bold.afm`
- `Helvetica-Oblique.afm`
- `Helvetica-BoldOblique.afm`
- `Times-Roman.afm`
- `Times-Bold.afm`
- `Times-Italic.afm`
- `Times-BoldItalic.afm`
- `Symbol.afm`
- `ZapfDingbats.afm`

Because `.PFB` is not included in these, it is not possible to embed it in PDF. See the bundled `MustRead.html` before you use.

These fonts can be downloaded from PDF core font information.

TrueType

This section describes **AH Formatter V7.1** implementation for TrueType and OpenType (TrueType outline) fonts. Tips on how to use these fonts in your environment are provided.

Font organization and necessary condition

TrueType fonts were originally developed by Apple Computer and have been used in the Windows environment. OpenType fonts were jointly developed by Adobe and Microsoft as cross-platform fonts. Due to the origin, OpenType fonts have two flavors/kinds. One has the TrueType outline. The other has the PostScript outline. OpenType font files that have the TrueType outline have the file extension `.TTF` or `.TTC`. OpenType font files that have the PostScript outline have the extension `.OTF`. This section treats original TrueType fonts and OpenType (TrueType outline) fonts together. From now on, we will use the term TrueType fonts as the contraction of TrueType font and OpenType (TrueType outline).

☞ Macintosh TrueType font data fork suitcase is also TrueType font and its extension is `.dfont` or `.dfon`. Although it's somehow different from `.TTF`, since the treatment of TrueType is almost the same, its description is omitted here.

TrueType fonts are composed of a single file which has the extension `.TTF` or `.TTC`. TTC is the abbreviation of the TrueType Collection. It contains multiple TrueType fonts in a single file structure. It is sometimes used in the CJK fonts.

TrueType font requirements:

- Font must have a cmap table which enables mapping Unicode to glyph indexes. (Almost all TrueType fonts have a cmap table available.)
- Some older TrueType fonts do not have Code Page information in the OS/2 table (ulCodePageRange1, 2) which can negatively influence **AH Formatter V7.1**'s font selection algorithms. For this reason we recommend not using old TrueType fonts.

☞ Visit the following sites to get more details about TrueType font (cmap table, etc.)

- TrueType Reference Manual (Apple)
- Microsoft Typography (Microsoft)

Embedding TrueType

AH Formatter V7.1 supports embedding the TrueType font as well as the Type 1 font into PDF. One big difference is the embedding license. TrueType font has the license information in OS/2 table *fsType* field. **AH Formatter V7.1** respects this licensing information

which will cause embedding errors when you specify font embedding against fonts with restrictions on embedding. In addition, only the used glyphs are embedded with the TrueType fonts.

☞ ISO 32000-1 or ISO 32000-2 says that TrueType fonts should be embedded to get predictable behavior across all viewer applications. If you don't embed TrueType fonts into the PDF file, Adobe Acrobat or Reader sometimes reports errors for particular Unicode character and font combinations.

OpenType

This section describes how **AH Formatter V7.1** implements OpenType (PostScript outline) fonts. Tips on how to use OpenType fonts more conveniently in your environment are provided. Hereafter, when simply saying OpenType in this document, it means OpenType of the PostScript outline.

Font organization and necessary condition

OpenType font files have an extension `.OTF` and consists of only a single file. In addition, OpenType is classified into two categories. One is OpenType CID font and the other is OpenType non-CID font. The following table gives a brief description of these categories.

Type	Contents	Treatment in PDF
non-CID font	Mainly contains Latin character glyphs. Glyphs are indexed using glyph name. It is the same as Type 1 font.	Type 1
CID font	Mainly contains CJK ideograph glyphs. Glyphs are indexed using CID.	Type 0

Embedding OpenType

Font embedding is the same as for TrueType fonts. For more details, see the Embedding TrueType.

Integrate the family name using the alias name

Some OpenType CID fonts have a family name defined per font file. Originally these fonts belonged to the same family and each font file has a different `font-weight` value.

Font file	Family-name	Weight	Italic
`HeiseiKakuGoStd-W3.otf`	Heisei Kaku Gothic Std W3	300	normal
`HeiseiKakuGoStd-W5.otf`	Heisei Kaku Gothic Std W5	500	normal
`HeiseiKakuGoStd-W7.otf`	Heisei Kaku Gothic Std W7	700	normal
`HeiseiKakuGoStd-W9.otf`	Heisei Kaku Gothic Std W9	900	normal

In the Windows environment it is not allowed to have more than three weight-values in the same family name. (Macintosh does allows such combinations.) As a result, these fonts have different family name per font file. This makes it inconvenient to use these fonts using the different family name. To integrate the family names, the following alias descriptions to the font configuration file should be added.

```
<font-config>
  <font-folder path="[Install directory]/fonts">
    <glyph-list file="ZapfDingbats.txt" afm="ZapfDingbats.afm"/>
  </font-folder>
  <font-folder path="/home/resource/fonts">
    <!-- Integrate the four OTF font's family name to
         "Heisei Kaku Gothic Std"-->
    <font-alias  file="HeiseiKakuGoStd-W3.otf">
      <alias family-name="Heisei Kaku Gothic Std" weight="300"/>
    </font-alias>
    <font-alias  file="HeiseiKakuGoStd-W5.otf">
      <alias family-name="Heisei Kaku Gothic Std" weight="500"/>
    </font-alias>
    <font-alias  file="HeiseiKakuGoStd-W7.otf">
      <alias family-name="Heisei Kaku Gothic Std" weight="700"/>
    </font-alias>
    <font-alias  file="HeiseiKakuGoStd-W9.otf">
```

```
      <alias family-name="Heisei Kaku Gothic Std" weight="900"/>
    </font-alias>
  </font-folder>
</font-config>
```

The alias family name can be used in the FO as follows:

```
<fo:block font-family="Heisei Kaku Gothic Std" font-weight="300">
  "Heisei Kaku Gothic Std W3" will be applied to this text.
</fo:block>
<fo:block font-family="Heisei Kaku Gothic Std" font-weight="500">
  "Heisei Kaku Gothic Std W5" will be applied to this text.
</fo:block>
<fo:block font-family="Heisei Kaku Gothic Std" font-weight="700">
  "Heisei Kaku Gothic Std W7" will be applied to this text.
</fo:block>
<fo:block font-family="Heisei Kaku Gothic Std" font-weight="900">
  "Heisei Kaku Gothic Std W9" will be applied to this text.
</fo:block>
```

Adobe Fonts

Adobe Fonts is a font library service provided by Adobe. **AH Formatter V7.1** supports Adobe Fonts. For details on Adobe Fonts and available font licenses, see the following:

- ☞ Adobe Fonts
- ☞ Adobe Fonts User Guide

Adobe Fonts are available on Windows or Macintosh. To use Adobe Fonts, it is necessary to add the `<acc-folder>` element to the Font Configuration File in the environment where Adobe Fonts are installed. The Font Configuration File includes that setting by default.

In Windows, Adobe Fonts are installed in `[APPDATA]\Adobe\CoreSync\plugins\livetype`. `[APPDATA]` shows the location indicated by the environment variable. Specify it to the path of `<acc-folder>`. However, the path can be omitted in Windows version. If the path is omitted and `<acc-folder/>` is specified, it is considered that it is specified as the path.

In Macintosh, Adobe Fonts are installed in `~/Library/Application Support/Adobe/CoreSync/plugins/livetype`. Specify it to the path of `<acc-folder>`. It cannot be omitted.

Installed Adobe Fonts are OpenType. You can check the font family name, etc. in `.../livetype/c/entitlements.xml` or `.../livetype/.c/entitlements.xml`.

EUDC

EUDC: End User Defined Character is available with **AH Formatter V7.1**.

Since the information on EUDC is acquired from the registry, it is not necessary to create EUDC information to the Font Configuration File with Windows version. However when EUDC information is described by the Font Configuration File, it is also taken into consideration. With non-Windows version, it is necessary to create EUDC information to the Font Configuration File in order to use EUDC.

```
<font-config>
 <windows-registry reference="enable"/>
 <font-folder path="c:\Windows\Fonts"/>
 <eudc-processing mapping="enable">
  <eudc-range start="57344" end="63743"/>
  <eudc-system-default file-path="c:\Windows\Fonts\EUDC.TTE"/>
  <eudc-map family-name="MS Mincho" file-path="c:\Program Files\east\jinmei3\FEJPMIN.TTG"/>
  <eudc-map family-name="MS PMincho" file-path="c:\Program Files\east\jinmei3\FEJPMIN.TTG"/>
 </eudc-processing>
</font-config>
```

A user does not need to be conscious of utilizing EUDC. **AH Formatter V7.1** changes the font automatically by the character code.

Restrictions

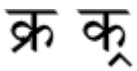
There are V1 and V2 specifications for Indic OpenType Fonts. V2 is the specification published by Microsoft in 2008 and corresponds to the fonts included with Windows Vista or later. The main differences between V1 and V2 specifications are as follows:

- The script tag was changed.
- The way to divide text into syllables, which is the base of the text layout, was changed.
- The treatment of ZWJ, ZWNJ and NBSP used for the selection of the typeface was clearly defined.
- The behavior of consonant conjuncts or above-base vowel marks became font dependence.
- Features to be applied for GSUB and GPOS were added.
- The applying order of GSUB and GPOS features was changed.

AH Formatter V7.1 integrates fonts based on the V1 specification. Many of fonts corresponding to the V2 specification are also included in the features of V1 specification. Fonts that only have the V2 compliant are not supported.

There are some known problems in the Indic fonts implementation with **AH Formatter V7.1**.

- With Kokila V5.* included with Windows Vista or later, the processing of Vattu is not correct. For example, a sequence of U+0915 U+094D U+0930 will be rendered as shown in the image on the right, although it should be rendered as shown on the left.

  It seems that the processing of the V1-compliant font itself is not correct. Use V1.00, etc.
- Kalinga V5.* included with Windows Vista or later only includes the features of the V2 specification. **AH Formatter V7.1** conforms to the V1 specification, so this font cannot be handled correctly. We recommend to use the free Lohit font (Oriya). Lohit fonts are downloadable from the following site:
  - Lohit Fonts

The following is not the problem of **AH Formatter V7.1**, hope you find it informative.

- The typeface of DaunPenh V5.* included with Windows Vista or later is designed to be very small. Therefore, the balance is not very good when European languages etc. are mixed. We recommend to use the free KhmerOS font. KhmerOS fonts are downloadable from the following site:
  - Khmer Software Initiative

Graphics

- BMP
- JPEG
- JPEG 2000
- WebP
- PNG
- TIFF
- GIF
- WMF
- EMF
- EPS
- SVG
- MathML
- CGM
- PDF
- Video/Audio

Any graphics as the external files can be specified to src property of `<fo:external-graphic>` or axf:background-image property of `<fo:simple-page-master>`. **AH Formatter V7.1** detects the graphics format automatically. When the value of the content-type property is specified, it is assumed, then detected whether it conflicts or not. As the result if the specified value conflicts, then additional auto-detection will be done. In case of the image via HTTP, the content-type is given from the HTTP header. At that time it's assumed in preference to the value of the property.

When an external file is an XML file, a fragment can be specified. For instance, the MathML part given in the XML file

```
<?xml version="1.0"?>
<root>
 ...
 <m:math id="math-1" xmlns:m="http://www.w3.org/1998/Math/MathML">
  ...
 </m:math>
 ...
</root>
```

can be specified as

```
<fo:external-graphic src="url('file.xml#math-1')"/>
```

so that the part can be referred to.

The data scheme (RFC2397) can be specified to src property of `<fo:external-graphic>` or axf:background-image property of `<fo:simple-page-master>`. In other word, the content of the graphics can be specified in do directly without preparing the external file.

```
<fo:external-graphic
src="
3RJTUUH1AIFCDIuN9BfzQAAAAlw ... ="/>
```

It's not necessary to specify the media type (content-type) in the data scheme, if specified, it is assumed.

See URI for the data scheme and the jar scheme.

AH Formatter V7.1 supports the following types of graphics. Unless otherwise noted they are supported across all platforms; Windows, non-Windows.

- ☞ See also Image Output in the PDF Output section.
- ☞ See also Image Output in the SVG Output section.
- ☞ See also Image Output in the PostScript® Output section.
- ☞ See also Image Output in the XPS Output section.

When the specified image cannot be acquired because the image is not existent, etc., a substitute image will be displayed instead. However if the image is a background-image, a substitute image will not be displayed.

CAUTION: When outputting to PDF, Alpha channel information is effective with PDF1.4 or later.

BMP

Supports Windows Bitmap. The content-type is “image/bmp”.

JPEG

Supports JFIF (JPEG File Interchange Format). The content-type is “image/jpeg”.

JPEG 2000

Supports JPEG 2000 of the following format.

- JP2 (The content-type is “image/jp2”)

WebP

Supports WebP. The following restrictions currently exist:

- Animated WebP displays only the first frame.

The content-type is “image/webp”.

PNG

Supports PNG (Portable Network Graphics Format). The following restrictions currently exist:

- 16-bit color depth image will be truncated to 8-bit depth.

The content-type is “image/png”.

TIFF

Supports the TIFF files of TIFF Revision 6.0 specification.

- No Compression
- PackBits Compression
- Modified Huffman
- CCITT Group3 1D
- CCITT Group3 2D
- CCITT Group4
- JPEG Compression
- OLD JPEG Compression
- LZW Compression
- ZIP Compression

Supports the following color expression.

- Grayscale
- RGB
- CMYK
- YCbCr
- CIE L*a*b*

Restrictions:

- The following formats are not supported.
  - Tiled Image
  - Planar Configuration=2 (Planar format)
- A YCbCr image is transformed into an RGB image when outputting to PDF.
- 16-bit color depth image will be truncated to 8-bit depth.
- Multi page TIFF images are not supported. Only the first image in the TIFF file will be processed.
- Some parts of the TIFF extensions cannot be loaded properly.

The content-type is “image/tiff”.

GIF

Supports Graphics Interchange Format. The following restrictions currently exist:

- In the case of Animation GIFs containing multiple pages, only the first page is displayed.

The content-type is “image/gif”.

WMF

Supports Windows Metafile. The image quality is maintained by embedding the vector image in the PDF, SVG, PostScript. The following restrictions currently exist:

- Only the horizontal value for the pen width can be used. If the value is 0.0, the drawing is not processed.
- The Bitmap specified for the brush is disregarded.
- The calculation of physical size may not correct.
- Clipping of Multiple rectangles is not supported.
- The raster operation is not supported. The original copied data is drawn as is.
- The function of clipping the characters is not supported.
- The background of the character is always transparent.
- The function of rotating the character from the baseline is not supported.

WMF in gzip file format is also supported. The content-type is “image/wmf”.

EMF

Supports Enhanced Metafile. The image quality is maintained by embedding the vector image in the PDF, SVG, PostScript. The following restrictions currently exist:

- Only the horizontal value for the pen width can be used. If the value is 0.0, the drawing is not processed.
- The Bitmap specified for the brush is disregarded.
- The calculation of physical size may not be correct.
- The raster operation is not supported. The original copied data is drawn as is.
- The function of clipping the characters is not supported.
- The background of the character is always transparent.
- The function of rotating the character from the baseline is not supported.
- The function of clipping the bottom drawing is not supported.

EMF in gzip file format is also supported. The content-type is “image/emf”.

EPS

Supports Encapsulated PostScript. When there is a preview image in EPS, the image can be outputted. When there is no image, a substitute image will be reflected in the GUI. When generating PDF using Adobe Distiller or outputting to a PS printer or PostScript® Output, a PostScript code in EPS is outputted instead of a preview image.

In the environment where Adobe Distiller and Ghostscript are installed, you can utilize them when outputting EPS to PDF. At that time EPS can be embedded in PDF as PDF. (However, you cannot embed EPS as PDF to Tagged PDF.) Set EPS-processor in the Option Setting File.

CAUTION: In Adobe Distiller, there may be a restriction on the PDF size that can be created. The size of EPS needs to be within the restriction that Adobe Distiller has. See also ISO 32000-1 or ISO 32000-2.

It is possible to embed EPS code directly in FO. Therefore it is possible to embed EPS code in PDF with Adobe Distiller, etc. The following is a sample using `<fo:instream-foreign-object>`.

```
<fo:instream-foreign-object><![CDATA[%!PS-Adobe-3.0 EPSF-3.0
%%BoundingBox: 0 0 84 43
%%Pages: 0
%%Creator: Antenna House
%%Title: Green Rounded Box
%%CreationDate: 10 Feb 2003
%%LanguageLevel: 2
%%EndComments
%%BeginProlog
%%EndProlog
%%BeginSetup
%%EndSetup
%%Page: 1 1
%%BeginPageSetup
%%EndPageSetup
0 128 0 setrgbcolor
0.1 setlinewidth
newpath
0 5 moveto
0 43 84 43 5 arct
84 43 84 0 5 arct
84 0 0 0 5 arct
0 0 0 43 5 arct
closepath
gsave
stroke
grestore
fill
%%PageTrailer
%%Trailer
%%EOF
]]>
</fo:instream-foreign-object>
```

It is not necessary to have the CDATA section set, but appropriate character references are required.

EPS can be created by various kinds of software. For this reason, some of the EPS files may not generate the desired results when processed by **AH Formatter V7.1**.

The content-type is “application/postscript”.

SVG

Supports Scalable Vector Graphics (SVG) 1.1. **AH Formatter V7.1** greatly enhances the display quality of SVG in PDF, PostScript through a newly developed SVG native output engine. For more details, see “SVG Conformance”. SVG in gzip file format is also supported.

It is also possible to describe SVG code directly in FO. The following sample uses `<fo:instream-foreign-object>`.

```
<fo:instream-foreign-object
    width="100mm" height="100mm"
    content-width="96mm" content-height="72mm"
    display-align="center" text-align="center">
<svg version="1.1" xmlns="http://www.w3.org/2000/svg" viewBox="0 0 480 360">
 <circle cx="100" cy="100" r="50" fill="none" stroke="black"/>
 <circle cx="220" cy="100" r="35" fill="red" stroke="black"/>
 <circle cx="340" cy="100" r="20" fill="black" stroke="lime" stroke-width="4"/>
 <circle cx="100" cy="260" r="20" stroke="lime" fill="yellow" stroke-width="4"/>
 <circle cx="220" cy="260" r="35" stroke="none" fill="blue"/>
 <circle cx="340" cy="260" r="50" stroke="red" fill="none" stroke-width="10"/>
```

```
</svg>
</fo:instream-foreign-object>
```

In FO, the judgment of being SVG is based on whether the `<svg>` element has the correct SVG namespace. If the `<svg>` element has the correct SVG namespace, it's considered SVG. If not, it's not considered SVG. In HTML, just having the `<svg>` tag is considered SVG.

If you want to include the DOCTYPE declaration in FO, enclose it with the CDATA sections as follows (example of SVG 1.1):

```
<fo:instream-foreign-object>
<![CDATA[
<!DOCTYPE svg PUBLIC "-//W3C//DTD SVG 1.1//EN"
  "http://www.w3.org/Graphics/SVG/1.1/DTD/svg11.dtd">
<svg version="1.1" xmlns="http://www.w3.org/2000/svg" viewBox="0 0 480 360">
  ...
</svg>
]]>
</fo:instream-foreign-object>
```

The typical content-type is “image/svg+xml”.

MathML

Supports Mathematical Markup Language (MathML) Version 3.0 2nd Edition. It's possible to render high resolution image in PDF, SVG, PostScript because of the direct creation engine. For more details, see “MathML Conformance” . See also MathML Settings for fine tuning the rendering of MathML.

CAUTION: With **AH Formatter V7.1 Lite**, the original rendering function of MathML is an option. You will need to purchase “AH Formatter MathML Option” separately.

It is also possible to describe MathML code directly in FO. The following sample uses `<fo:instream-foreign-object>`.

```
<fo:instream-foreign-object>
<math xmlns="http://www.w3.org/1998/Math/MathML">
<mrow>
 <mi>y</mi><mo>=</mo><mi>x</mi><mo>&#x2212;</mo><mn>1</mn>
</mrow>
</math>
</fo:instream-foreign-object>
```

In FO, the judgment of being MathML is based on whether the `<math>` element has the correct MathML namespace. If the `<math>` element has the correct MathML namespace, it's considered MathML. If not, it's not considered MathML. In HTML, just having the `<math>` tag is considered MathML.

If you want to include the DOCTYPE declaration in FO, enclose it with the CDATA sections as follows:

```
<fo:instream-foreign-object>
<![CDATA[
<!DOCTYPE math PUBLIC "-//W3C//DTD MathML 3.0//EN"
  "http://www.w3.org/Math/DTD/mathml3/mathml3.dtd">
<math xmlns="http://www.w3.org/1998/Math/MathML">
<mrow>
 <mi>y</mi><mo>=</mo><mi>x</mi><mo>&minus;</mo><mn>1</mn>
</mrow>
</math>
]]>
</fo:instream-foreign-object>
```

The typical content-type is “application/mathml+xml”.

CGM

Supports Computer Graphics Metafiles as defined in ISO/IEC 8632:1999 and WebCGM 2.1. CGM graphic is embedded as vector graphic into the PDF without raster degradation. About the CGM conformances, see CGM Conformance page. Supported CGM is binary encoded file defined in ISO/IEC 8632-3:1999. CGM in gzip file format is also supported.

CAUTION: The original rendering function of CGM is an option. You will need to purchase “AH Formatter CGM Option” separately.

The content-type is “image/cgm”.

PDF

Although it is not an image, **AH Formatter V7.1** can treat PDF like an image. See also PDF Embedding in PDF Output.

Embedded PDF has the following restrictions on viewing and printing. Also, the same restrictions apply to the PDF embedded in PostScript, SVG, and XPS format.

- Text
  - “Path for Clipping” of the text rendering mode is not supported.
- Graphics
  - The mask image is not supported if the image size is different from its original.
  - When the display is less than 32-bits, part of the blend cannot be correctly output when printing.
  - Fill patterns are not supported.
  - Form XObject is not supported.
  - Optional content group is not supported. The content cannot be selectively viewed or hidden per group.
  - The DCTDecode and the JPXDecode image formats might not be displayed by the color space.
  - Does not support some graphic functions.
- The viewing of address, document outline and thumbnail images are not supported.
- Interactive forms are not supported.

The content-type is “application/pdf”.

Video/Audio

Multimedia data like video, audio can be embedded in PDF. See also Multimedia.

Hyphenation

AH Formatter V7.1 can hyphenate over 40 languages. There is no need to prepare the dictionary.

Languages

AH Formatter V7.1 supports the hyphenation for the following languages.

Code		Language	Hyphenation Limited To
af	afr	Afrikaans	Latin characters and Apostrophe
bg	bul	Bulgarian	Cyrillic characters
ca	cat	Catalan	Latin characters and Apostrophe and Decimal point (Full stop or Middle dot)
cs	ces	Czech	Latin characters
cy	cym	Welsh	Latin characters and Apostrophe
da	dan	Danish	Latin characters and Apostrophe
de	deu	German / Swiss German	Latin characters and Apostrophe
el	ell	Greek	Greek characters
en	eng	English	Latin characters and Apostrophe
en-US	eng-US	American	Latin characters and Apostrophe
eo	epo	Esperanto	Latin characters
es	spa	Spanish	Latin characters
et	est	Estonian	Latin characters
eu	eus	Basque	Latin characters
fi	fin	Finnish	Latin characters
fr	fra	French / Canadian French	Latin characters and Apostrophe
ga	gle	Irish (Erse or Gaelic)	Latin characters and Apostrophe
hr	hrv	Croatian	Cyrillic characters or Latin characters
hu	hun	Hungarian	Latin characters
id	ind	Indonesian	Latin characters and Apostrophe and Digit 2
is	isl	Icelandic	Latin characters
it	ita	Italian	Latin characters and Apostrophe
la	lat	Latin	Latin characters
lt	lit	Lithuanian	Latin characters
lv	lav	Latvian	Latin characters
ms	msa	Bahasa Malay	Latin characters and Apostrophe and Digit 2
mt	mlt	Maltese	Latin characters and Apostrophe
nb	nob	Norwegian (Bokmål)	Latin characters and Apostrophe
nl	nld	Dutch / Flemish	Latin characters and Apostrophe
nn	nno	Norwegian (Nynorsk)	Latin characters and Apostrophe
no	nor	Norwegian	Latin characters and Apostrophe
pl	pol	Polish	Latin characters

Code		Language	Hyphenation Limited To
pt	por	Portuguese / Brazilian	Latin characters
ro	ron	Romanian / Moldavian	Latin characters and Apostrophe
ru	rus	Russian	Cyrillic characters
sk	slk	Slovak	Latin characters and Apostrophe
sl	slv	Slovenian	Latin characters and Apostrophe
sr	srp	Serbian	Cyrillic characters or Latin characters
sv	swe	Swedish	Latin characters and Apostrophe
sw	swa	Swahili	Latin characters and Apostrophe
th	tha	Thai	Thai characters
tr	tur	Turkish	Latin characters
uk	ukr	Ukrainian	Cyrillic characters

AH Formatter V7.1 hyphenates a word considering the character string composed of characters listed in the table above to be a word. If a word contains the other characters, it is not considered a word. If you need hyphenation for unsupported characters you will need to use a TeX dictionary.

Example

To use Czech hyphenation the following is placed in the FO file:

```
<fo:block hyphenate="true" language="ces">
Všichni lidé rodí se svobodní a sobě rovní co do důstojnosti a práv. Jsou nadáni rozumem a
                                                svědomím a mají spolu jednat v duchu bratrství.
</fo:block>
```

Exception Dictionary

It's not necessary to prepare the dictionary with **AH Formatter V7.1**. However, there may be a case that you want to treat the unexpected hyphened words as exceptions. In such case, it is possible to register the words in the exception dictionary. In addition, when you edit the exception dictionary while working on GUI, you can re-load the hyphenation dictionary and re-format the document from [Format]-[Reload Hyphenation Dictionary] in the menu.

The exception dictionary is stored in the `hyphenation` folder in the **AH Formatter V7.1** installation folder or in the folder where the `AHF71_HYPDIC_PATH` (`AHF71_64_HYPDIC_PATH` for 64-bit version) environment variable indicates. The name of the dictionary file conforms to the following rules.

- The file name is made from the Language Tag defined in RFC1766. To make a file name, the "`.xml`" extension is added. The Language Tag is made by joining the language code of ISO 639-2 and the country code of ISO 3166 with a hyphen. Sometimes it consists of only the language code. You can also use an underscore instead of a hyphen in the file name.
- The language code given to the file name should be specified by 2-letter code when it exists, and if not, specify it by Terminology code. Also specify the country code by 2-letter code when it exists.

For example: `de.xml`, `en_US.xml` and so on. When xml:lang="nl-BE" is specified, dictionaries are detected in the following order. The same is applied even if xml:lang="nld-BEL" is specified.

1. `nl-BE.xml`
2. `nl_BE.xml`
3. `nl.xml`

The following shows the content of exception dictionary.

Element	Location	Description
<hyphenation-info>	root element	
<hyphen-char>	child of <hyphenation-info>	The element that indicates the hyphenation character alternative to <hyphen/> in the <exception> element. Hyphenation character is expressed by the value attribute. The initial value is "-" (U+002D).
<hyphen-min>	child of <hyphenation-info>	When a line break by hyphenation occurs, gives the minimum number of characters before and after the line break position of the word with the before, after attributes. The before attribute corresponds to the hyphenation-remain-character-count property in the XSL specification and the after attribute corresponds to the hyphenation-push-character-count property. **AH Formatter V7.1** uses the <hyphen-min> as the initial value of these properties. See hyphen-min in the Option Setting File.
<exceptions>	child of <hyphenation-info>	A data of exception dictionary. The text of the <exception> element is a collection of hyphened words divided by white space. The hyphen information is indicated by the <hyphen> element, however the character specified by the <hyphen-char> element can also be used.
<hyphen>	child of <exceptions>	A full functional hyphen equivalent to TeX dictionary. <hyphen> element has the pre, post and no attributes. The pre attribute indicates the strings inserted before the hyphenation character when a hyphenation break occurs, the post attribute indicates the strings inserted after the hyphenation character when a hyphenation break occurs, and the no attribute indicates the strings appearing when a hyphenation break does not occur. <hyphen> element is used when the spelling changes when a hyphenation break occurs.
<non-eol-words>	child of <hyphenation-info>	Specifies non-end-of-line words dividing by the white space. The word specified here is adjusted not to be placed at the end of line, however in some case it's inevitable. The non-end-of-line process is effective all the time, independent of the hyphenate property in FO.

The DTD for the Exception Dictionary is simply as follows:

```
<!ELEMENT hyphenation-info (hyphen-char?, exceptions?, non-eol-words?)>

<!ELEMENT hyphen-char EMPTY>
<!ATTLIST hyphen-char value CDATA #REQUIRED>

<!ELEMENT hyphen-min EMPTY>
<!ATTLIST hyphen-char before NMTOKEN #IMPLIED><!-- digits -->
<!ATTLIST hyphen-char after  NMTOKEN #IMPLIED><!-- digits -->

<!ELEMENT exceptions (#PCDATA|hyphen)*>

<!ELEMENT hyphen EMPTY>
<!ATTLIST hyphen pre  CDATA #IMPLIED>
<!ATTLIST hyphen no   CDATA #IMPLIED>
<!ATTLIST hyphen post CDATA #IMPLIED>

<!ELEMENT non-eol-words #PCDATA>
```

The <hyphen> element can change the spelling of a word when it is hyphenated.

Exception Dictionary	Word	Hyphenated Word
ab<hyphen/>def	abdef	ab-def
ab<hyphen no="c"/>def	abcdef	ab-def
ab<hyphen pre="x"/>def	abdef	abx-def
ab<hyphen pre="x" no="c"/>def	abcdef	abx-def
ab<hyphen post="z"/>def	abdef	ab-zdef

Exception Dictionary	Word	Hyphenated Word
ab<hyphen no="c" post="z"/>def	abcdef	ab-zdef
ab<hyphen pre="x" post="z"/>def	abdef	abx-zdef
ab<hyphen pre="x" no="c" post="z"/>def	abcdef	abx-zdef

Suppose the following exception dictionary is prepared:

```
<hyphenation-info>
<exceptions>
ta-ble
present
ba<hyphen pre="k" no="c"/>ken
</exceptions>
</hyphenation-info>
```

The word "table" will be hyphenated only as "ta-ble"; the word "present" will never be hyphenated; and the word "backen" will be hyphenated as "bak-ken". Also, "ta<hyphen/>ble" is equivalent to "ta-ble" in this example.

The exception dictionary is available with the following languages:

Code		Language	Hyphenation Limited To
km	khm	Khmer	Khmer characters
lo	lao	Lao	Lao characters
my	mya	Burmese (Myanmar)	Burmese characters
th	tha	Thai	Thai characters

With these languages, the exception dictionary is not used for hyphenation but to specify the words that are prohibited from breaking. Each word can contain only the characters making up the word. Neither hyphen characters nor <hyphen> can be used in <exceptions>.

The Dutch exception dictionary nl.xml is included in **AH Formatter V7.1**. V7.1MR1

TeX Dictionary

It's also available to do hyphenate using the TeX dictionary with **AH Formatter V7.1**. To hyphenate by Tex dictionary, it's necessary to specify HyphenationOption="false" in the Option Setting File. Dictionaries will be required for all the necessary languages. Dictionaries are XML files that are the same format as FOP. See also the Apache Website. Only the hyphenation dictionary for English (en.xml) is ready and provided with **AH Formatter V7.1**.

When you'd like to hyphenate words by TeX dictionary only with a certain language, specify a language to hyphenation-TeX in the Option Setting File.

See also Exception Dictionary to learn the name and the position of TeX dictionary.

The contents of TeX's Hyphenation Dictionary are defined in the hyphenation.dtd. hyphenation.dtd is included in FOP distribution. In **AH Formatter V7.1**, it is installed in the hyphenation folder where **AH Formatter V7.1** is installed. Below is a brief explanation of the DTD. For more details, see hyphenation.dtd.

Element	Location	Description
<hyphenation-info>	root element	
<hyphen-char>	child of <hyphenation-info>	This element expresses hyphenation characters in the exception dictionary data. Hyphenation character is expressed by the value attribute. Initial value is "-" (U+002D). But the hyphenation characters in the actual formatted result are given by the hyphenation-character property in the XSL specification.
<hyphen-min>	child of <hyphenation-info>	When hyphenation break occurs, before and after attributes give the minimum number of characters in a hyphenated word before or after the hyphenation character. The before attribute corresponds to the hyphenation-remain-character-count property in the XSL specification and the after attribute corresponds to the

Element	Location	Description
`<hyphen-min>`	child of `<hyphenation-info>`	hyphenation-push-character-count property. **AH Formatter V7.1** uses the setting of `<hyphen-min>` as the initial value of these properties.
`<classes>`	child of `<hyphenation-info>`	Defined as character equivalent class. Text of classes' element is white space-separated list of character groups, all characters in a group are to be treated equivalent. Actually each group consists of lowercase and uppercase characters. The following is a sample of English dictionary (`en.xml`). `aA bB cC dD eE fF gG hH iI jJ kK lL mM nN oO pP qQ rR sS tT uU vV wW xX yY zZ`
`<pattern>`	child of `<hyphenation-info>`	The hyphenation patterns, separated by spaces. A pattern consists of character and digits. Character is the beginning characters of classes groups (normally lowercase). Digits between characters indicate the strength of hyphenation potential (hyphenation value).
`<exceptions>`	child of `<hyphenation-info>`	Data of hyphenation exception dictionary. Text of exceptions element consists of space-separated list of hyphenated words. A hyphen is indicated by the hyphen element, but you can use character defined in hyphen-char element. Exceptions element is used when hyphenation points determined by hyphenation-pattern dictionary are not appropriate or you want to use special hyphenation patterns of your own.
`<hyphen>`	child of `<exceptions>`	A full functional hyphen. Hyphen element has the pre, post and no attributes. The pre attribute indicates the strings inserted before the hyphenation character when a hyphenation break occurs, the post attribute indicates the strings inserted after the hyphenation character when a hyphenation break occurs, and the no attribute indicates the strings appearing when a hyphenation break does not occur. Hyphen element is used when the spelling changes when a hyphenation break occurs.

Restrictions

- If the sentence is placed in the narrow region and multiple hyphenations occur for one word, sometimes the result does not follow the exception dictionary. See also Hyphenation in Technical Notes.
- When a line break occurs at the position where U+200B or U+200C is inserted, a hyphenation is not done at U+200B, but occurs at U+200C.

Environment Variables

AH Formatter V7.1 refers to the following environment variables before running. In the Windows version, the installation program sets the default value of the variables that are marked with an asterisk "*". The environment variables that have "_64", such as "AHF71_64_", are for Windows x64 version, Linux 64-bit version and Macintosh 64-bit version. In the non-Windows versions the environment variables have to be set by the user. When running command-line program from shell script (`run.sh`) on non-Windows versions, after the necessary environment variables are set, the **AH Formatter V7.1** Command line program is executed.

Env-Variable	Description
AHF71_HOME * AHF71_64_HOME *	Specifies the directory where **AH Formatter V7.1** is installed ("\" or "/" that indicate the directory delimiter are not included at the end of directory strings). The description `[Install directory]` in this manual indicates the value of this environment variable.
AHF71_XSLT_COMMAND AHF71_64_XSLT_COMMAND	Specifies the command string for starting an external XSLT. For more details, see "XSLT Setting". This setting is equal to the `<xslt-settings command>`. In the Windows version, MSXML is adopted as the default if this setting is omitted. In the non-Windows version, you cannot invoke XSLT conversion without setting "Option Setting File". In GUI, this environment variable is not referred.
AHF71_XSLT_PARAM AHF71_64_XSLT_PARAM	Specifies the parameter format of the command for starting an external XSLT. For more details, see "XSLT Setting". This setting is equal to the `<xslt-settings param>`. In GUI, this environment variable is not referred.
AHF71_LIC_PATH * AHF71_64_LIC_PATH *	Specifies the directory where the license key files are located ("\" or "/" that indicate the directory delimiter are not included at the end of directory strings). In the Windows version, the default value is located in the same place as the `XfoEngine71.dll`. In the non-Windows versions, the setting is required. In the case of `run.sh`, `[Install directory]/etc` is set.
AHF71_HYPDIC_PATH * AHF71_64_HYPDIC_PATH *	Specifies the directory where the hyphenation dictionary exists ("\" or "/" that indicate the directory delimiter are not included at the end of directory strings). In the Windows version, the default value is located in the same place as the `XfoEngine71.dll`. In the non-Windows versions, the setting is required. In the case of `run.sh`, `[Install directory]/etc/hyphenation` is set.
AHF71_DEFAULT_HTML_CSS * AHF71_64_DEFAULT_HTML_CSS *	Specifies Default CSS for HTML. In the Windows version, the default value is `html.css` located in the same directory as the `XfoEngine71.dll`. In the non-Windows versions, the setting is required. In the case of `run.sh`, `[Install directory]/etc` is set.
AHF71_BROKENIMG AHF71_64_BROKENIMG	Specifies the substitute image displayed when the image specified in FO does not exist. When this is not specified, the image that the system has will be displayed. Sample image such as `[Install directory]/samples/Broken.png` can be also specified.
AHF71_FONT_CONFIGFILE * AHF71_64_FONT_CONFIGFILE *	Specifies the Font Configuration File. In the Windows version, the default value is `fontconfig.xml` located in the same directory as the `AHFontService19.dll`. In the non-Windows versions, the setting is required. In the case of `run.sh`, `[Install directory]/etc` is set.
AHFCmd71 AHFCmd71_64	Specifies the default parameter with the Command-line Interface. This setting is compensated before the parameter specified by a user and being evaluated. no-LT
PATH *	In the Windows version, `[Install directory]` is added to the PATH environment. In the non-Windows versions, there is no change.
LD_LIBRARY_PATH	The setting is required for the Linux version. When using the Command-line and Java Interface, the directory where `*.so` is located should be included. In the case of `run.sh`, `[Install directory]/lib` is set.
CLASSPATH	When using the Java Interface, the necessary `*.jar` should be included. In the case of `run.sh`, `[Install directory]/lib` is added.
HTTP_PROXY HTTPS_PROXY	When accessing HTTP or HTTPS via a proxy in non-Windows environment, it's necessary to specify the proxy address by the environment variable HTTP_PROXY or HTTPS_PROXY. When there are no environment variables, it will access the host directly.

Env-Variable	Description
SSL_CERT_FILE	Specifies the root certificate file in non-Windows environment.
SSL_CERT_DIR	Specifies the directory where the root certificate is stored in non-Windows environment.
WebCGM_ACI_File	Specifies the file of Application Configurable Items in CGM. See also Application Configurable Items.

Symbolic Links

It is necessary to create the Symbolic Links of the library appropriately with the versions other than a Windows or Macintosh version of **AH Formatter V7.1**. These are automatically generated by the installation program. However if you need to generate them, see the following:

```
$ cd [Install directory]/lib
$ rm -f libXfoEngine.so
$ ln -s libXfoEngine.so.7.1 libXfoEngine.so
$ chmod 755 libXfoEngine.so
$ rm -f libXfoEngine.so.7
$ ln -s libXfoEngine.so.7.1 libXfoEngine.so.7
$ chmod 755 libXfoEngine.so.7
```

In Macintosh version, `libXfoInterface.dylib`, the symbolic link of `libXfoInterface.7.1.dylib` to use with “C/C++ Interface”, is automatically generated. The target is specified as `[Install directory]/lib/libXfoInterface.7.1.dylib`. If you change the location of the modules, recreate the symbolic links.

Linux version

Module	SymLink 1	SymLink 2
libXfoCommon.so.7.1	libXfoCommon.so.7	libXfoCommon.so
libXfoEngine.so.7.1	libXfoEngine.so.7	libXfoEngine.so
libXfoFont.so.7.1	libXfoFont.so.7	libXfoFont.so
libXfoGraphic.so.7.1	libXfoGraphic.so.7	libXfoGraphic.so
libXfoHyphen.so.7.1	libXfoHyphen.so.7	libXfoHyphen.so
libXfoRender.so.7.1	libXfoRender.so.7	libXfoRender.so
libXfoText.so.7.1	libXfoText.so.7	libXfoText.so
libXfoTrans.so.7.1	libXfoTrans.so.7	libXfoTrans.so
libXfoJavaCtl71.so		
libXfoInterface.so.7.1	libXfoInterface.so.7	libXfoInterface.so
libPDFCreator.so.7.1	libPDFCreator.so.7	libPDFCreator.so
libPDFRes.so.7.1	libPDFRes.so.7	libPDFRes.so
libPDFToolPage.so.7.1	libPDFToolPage.so.7	libPDFToolPage.so
libPDFLinearizer.so.7.1	libPDFLinearizer.so.7	libPDFLinearizer.so
libPSCreator.so.7.1	libPSCreator.so.7	libPSCreator.so
libSVGCreator.so.7.1	libSVGCreator.so.7	libSVGCreator.so
libXPSCreator.so.7.1	libXPSCreator.so.7	libXPSCreator.so
libOOXMLCreator.so.7.1	libOOXMLCreator.so.7	libOOXMLCreator.so
libAHMathML.so.7.1	libAHMathML.so.7	libAHMathML.so
libAHCGM.so.7.1	libAHCGM.so.7	libAHCGM.so
libAHFontService.so.1.9	libAHFontService.so.1	libAHFontService.so
libAHGraphicService.so.1.3	libAHGraphicService.so.1	libAHGraphicService.so
libAHPDFLib.so.1.4	libAHPDFLib.so.1	libAHPDFLib.so
libAHCommon.so.2.1	libAHCommon.so.1	libAHCommon.so
libicudata.so.67.1	libicudata.so.67	libicudata.so

Module	SymLink 1	SymLink 2
libicui18n.so.67.1	libicui18n.so.67	libicui18n.so
libicuio.so.67.1	libicuio.so.67	libicuio.so
libicule.so.67.1	libicule.so.67	libicule.so
libiculx.so.67.1	libiculx.so.67	libiculx.so
libicutu.so.67.1	libicutu.so.67	libicutu.so
libicuuc.so.67.1	libicuuc.so.67	libicuuc.so

Macintosh version

Module	SymLink 1	SymLink 2
libXfoInterface.7.1.dylib		libXfoInterface.dylib

Installed Modules

AH Formatter V7.1 installs the following modules.

- Windows version
- Linux version
- Macintosh version

Windows version

AH Formatter	
AHFormatter.exe	Graphical User interface
AHFormatterJPN.dll	Graphical User interface Japanese resource
AHFCmd.exe	Command-line Interface
XfoEngine71.dll	Formatting engine
XfoRender71.dll	Rendering engine
XfoGdiCtl71.dll	GDI control
XfoText71.dll	Text control
XfoFont71.dll	Font control
XfoGraphic71.dll	Graphic control
XfoTrans71.dll	XSLT filter
XfoCommon71.dll	Formatting engine common library
XfoHyphen71.dll	Hyphenation
hyphenation/*.xml	Hyphenation dictionary
hyphenation/hyphenation.dtd	Hyphenation dictionary DTD
XfoDotNet40Ctl71.dll	.NET Interface
XfoComCtl71.dll	COM Interface
XfoJavaCtl71.dll	Java Interface
lib/XfoJavaCtl.jar	
include/xfo*.h	C/C++ interface
lib/XfoInterface.lib	
XfoInterface71.dll	Common Interface library
Output engines	
PDFCreator71.dll	PDF output engine
PDFRes71.dll	
PDFToolPage71.dll	
PDFLinearizer71.dll	
PSCreator71.dll	PostScript output engine
SVGCreator71.dll	SVG output engine
XPSCreator71.dll	XPS output engine
OOXMLCreator71.dll	Word (docx) output engine

Miscellaneous libraries etc.	
AHFontService19.dll	Font service module
font-config.xml	Font configuration file
AHGraphicService13.dll	Graphic service module
AHCommon21.dll	Common library
AHPDFLib14.dll	PDF library
AHMathML71.dll	MathML library
AHCGM71.dll	CGM library
html.css	Default stylesheet for (X)HTML
UserStylesheets/*.css	User stylesheet samples
icu*67.dll	ICU libraries
pthreadVC2.dll	POSIX thread library
MSVCP140.DLL	These are installed under the [Windows System Directory] or [Windows System Directory]\WinSxS directory, when required
MFC140U.DLL	
VCRUNTIME140.DLL	
License	
AHFormatter.lic	License for Evaluation
Documents and etc.	
EULA.txt	License Agreement text
ReadMe.txt	Read me text
docs/*	Manual
docs/javadoc/*	Java Interface manual
docs/cppdoc/*	C/C++ interface manual
samples/*	Samples
license/*	Third-Party Copyright Notices

Linux version

AH Formatter	
bin/AHFCmd	Command-line Interface
lib/libXfoEngine.so.7.1	Formatting engine
lib/libXfoRender.so.7.1	Rendering engine
lib/libXfoText.so.7.1	Text control
lib/libXfoFont.so.7.1	Font control
lib/libXfoGraphic.so.7.1	Graphic control
lib/libXfoTrans.so.7.1	XSLT filter
lib/libXfoCommon.so.7.1	Formatting engine common library
lib/libXfoHyphen.so.7.1	Hyphenation
etc/hyphenation/*.xml	Hyphenation dictionary
etc/hyphenation/hyphenation.dtd	Hyphenation dictionary DTD

lib/libXfoJavaCtl71.so	Java Interface
lib/XfoJavaCtl.jar	
include/xfo*.h	C/C++ interface
lib/libXfoInterface.so.7.1	Common interface library
Output engines	
lib/libPDFCreator.so.7.1	PDF output engine
lib/libPDFRes.so.7.1	
lib/libPDFToolPage.so.7.1	
lib/libPDFLinearizer.so.7.1	
lib/libPSCreator.so.7.1	PostScript output engine
lib/libSVGCreator.so.7.1	SVG output engine
lib/libXPSCreator.so.7.1	XPS output engine
lib/libOOXMLCreator.so.7.1	Word (docx) output engine
Miscellaneous libraries etc.	
lib/libAHFontService.so.1.9	Font service module
fonts/*	PDF Standard 14 Fonts AFM files and glyph-name list file for ZapfDingbats font
etc/font-config.xml	Font configuration file
lib/libAHGraphicService.so.1.3	Graphic service module
lib/libAHCommon.so.2.1	Common library
lib/libAHPDFLib.so.1.4	PDF library
lib/libAHMathML.so.7.1	MathML library
lib/libAHCGM.so.7.1	CGM library
etc/html.css	Default stylesheet for (X)HTML
etc/UserStylesheets/*.css	User stylesheet samples
lib/libicu*.so.67.1	ICU libraries
License	
etc/AHFormatter.lic	License for Evaluation
Documents and etc.	
EULA.txt	License Agreement text
ReadMe.txt	Read me text
docs/*	Manual
docs/javadoc/*	Java Interface manual
docs/cppdoc/*	C/C++ interface manual
run.sh	Sample shell script for running command line interface
samples/*	Samples
license/*	Third-Party Copyright Notices

Macintosh version

AH Formatter	
bin/AHFCmd	Command-line Interface
lib/libXfoEngine.7.1.dylib	Formatting engine
lib/libXfoRender.7.1.dylib	Rendering engine
lib/libXfoText.7.1.dylib	Text control
lib/libXfoFont.7.1.dylib	Font control
lib/libXfoGraphic.7.1.dylib	Graphic control
lib/libXfoTrans.7.1.dylib	XSLT filter
lib/libXfoCommon.7.1.dylib	Formatting engine common library
lib/libXfoHyphen.7.1.dylib	Hyphenation
etc/hyphenation/*.xml	Hyphenation dictionary
etc/hyphenation/hyphenation.dtd	Hyphenation dictionary DTD
lib/libXfoJavaCtl71.jnilib	Java Interface
lib/XfoJavaCtl.jar	
include/xfo*.h	C/C++ interface
lib/libXfoInterface.7.1.dylib	Common interface library
Output engines	
lib/libPDFCreator.7.1.dylib	PDF output engine
lib/libPDFRes.7.1.dylib	
lib/libPDFToolPage.7.1.dylib	
lib/libPDFLinearizer.7.1.dylib	
lib/libPSCreator.7.1.dylib	PostScript output engine
lib/libSVGCreator.7.1.dylib	SVG output engine
lib/libXPSCreator.7.1.dylib	XPS output engine
lib/libOOXMLCreator.7.1.dylib	Word (docx) output engine
Miscellaneous libraries etc.	
lib/libAHFontService.1.9.dylib	Font service module
fonts/*	PDF Standard 14 Fonts AFM files and glyph-name list file for ZapfDingbats font
etc/font-config.xml	Font configuration file
lib/libAHGraphicService.1.3.dylib	Graphic service module
lib/libAHCommon.2.1.dylib	Common library
lib/libAHPDFLib.1.4.dylib	PDF library
lib/libAHMathML.7.1.dylib	MathML library
lib/libAHCGM.7.1.dylib	CGM library
etc/html.css	Default stylesheet for (X)HTML
etc/UserStylesheets/*.css	User stylesheet samples
lib/libicu*.67.1.dylib	ICU libraries

License	
`etc/AHFormatter.lic`	License for Evaluation
Documents and etc.	
`EULA.txt`	License Agreement text
`ReadMe.txt`	Read me text
`docs/*`	Manual
`docs/javadoc/*`	Java Interface manual
`docs/cppdoc/*`	C/C++ interface manual
`run.sh`	Sample shell script for running command line interface
`samples/*`	Samples
`license/*`	Third-Party Copyright Notices

Note when changing the location of Macintosh modules

In Macintosh version, the positioning of each module is important. When changing the directory of the modules from the install directory, note the following:

Suppose the module B is necessary for running the module A. In that case, the position information of the module B is written in the module A by the rpath setting beforehand. When the module A is invoked, it looks for the module B by its position information. When the module B exists in the place where the position information indicates, it works normally. If not, the operation will be terminated.

The following table shows the status when installed: `AHFCmd` looks for the module in the `lib` directory, that is the same hierarchy of the directory where `AHFCmd` itself is stored. The other two types of modules look for modules in the same directories where themselves are stored.

Module name	Reference destination	rpath
`AHFCmd`	`../lib`	`@executable_path/../lib`
`*.dylib` (except `XfoInterface.dylib`)	`./`	`@loader_path`
`*.jnilib`	`./`	`@loader_path`

When changing the position of the module, change the setting of rpath by using `install_name_tool`, etc.

Error Messages

AH Formatter V7.1 shows the following error messages.

Error code	Error level	Error message	Comments
1 (0001)	4	SYSTEM ERROR: Out of memory.	System error
2 (0002)	4	SYSTEM ERROR: C++ exception: XXXXX	System error
3 (0003)	4	SYSTEM ERROR: XXXXX is null.	System error
4 (0004)	4	SYSTEM ERROR: Argument is out of range.	System error
6 (0006)	4	SYSTEM ERROR: XXXXX arg is created from a different document.	System error
7 (0007)	4	SYSTEM ERROR: XXXXX is not an AHAttr object.	System error
8 (0008)	4	SYSTEM ERROR: XXXXX is an AHAttr that is already an attribute of another AHElement.	System error
9 (0009)	4	SYSTEM ERROR: XXXXX is not a child of this node.	System error
11 (000B)	4	SYSTEM ERROR: Cannot set a value on node type: XXXXX	System error
12 (000C)	4	SYSTEM ERROR: startDocument() must be called just after setOutput().	System error
13 (000D)	4	SYSTEM ERROR: attribute() must be called just after startTag().	System error
14 (000E)	4	SYSTEM ERROR: Unexpected endTag().	System error
15 (000F)	4	SYSTEM ERROR: End tag 'XXXXX' does not match the start tag 'XXXXX'.	System error
16 (0010)	4	SYSTEM ERROR: Unexpected docdecl().	System error
18 (0012)	4	SYSTEM ERROR: Unsupported node type.	System error
67 (0043)	4	Cannot open file: XXXXX	
68 (0044)	4	Unexpected end of input stream.	
69 (0045)	4	Output stream is not set.	
70 (0046)	4	Input stream error.	
71 (0047)	4	Output stream error.	
77 (004D)	4	Cannot remove temporary file: XXXXX	
78 (004E)	4	Cannot create temporary file: XXXXX	
113 (0071)	4	MSXML CreateInstance failed.	
114 (0072)	4	MSXML COM interface exception. Description : XXXXX	
115 (0073)	4	MSXML parsing error. Reason : XXXXX	
129 (0081)	4	Missing end tag.	
130 (0082)	4	Only one top level element is allowed.	
131 (0083)	4	Invalid root tag name after '<!DOCTYPE'.	
132 (0084)	4	Invalid start tag name.	
133 (0085)	4	Invalid end tag name.	
134 (0086)	4	End tag 'XXXXX' does not match the start tag 'XXXXX'	
135 (0087)	4	Undeclared namespace prefix: XXXXX	
136 (0088)	4	Duplicate attribute: XXXXX	
137 (0089)	4	Invalid attribute name: XXXXX	

Error code	Error level	Error message	Comments
138 (008A)	4	Missing '=' after attribute name.	
139 (008B)	4	Missing whitespace between attributes.	
141 (008D)	4	Unexpected whitespace after 'XXXXX'.	
142 (008E)	4	Unexpected text at top level of the document.	
143 (008F)	4	Unexpected '<![XXXXX'.	
144 (0090)	4	Unexpected ']]>'.	
145 (0091)	4	Unexpected end of input while looking for CDATA section terminator ']]>'.	
146 (0092)	4	Unexpected end of input while looking for comment terminator '-->'.	
148 (0094)	4	Unexpected DOCTYPE declaration outside of prolog.	
149 (0095)	4	Cannot have multiple DOCTYPE declarations.	
150 (0096)	4	Missing whitespace after 'XXXXX'.	
151 (0097)	4	External ID is expected after 'XXXXX'.	
152 (0098)	4	PubidLiteral is expected after 'XXXXX'.	
153 (0099)	4	SystemLiteral is expected after 'XXXXX'.	
154 (009A)	4	Unexpected end of input in XXXXX declaration.	
155 (009B)	4	Empty entity name.	
156 (009C)	4	Invalid character in entity reference: %XXXXX;	
159 (009F)	4	Entity name is expected after 'XXXXX'.	
160 (00A0)	4	NDATA is expected after 'XXXXX'.	
161 (00A1)	4	Unexpected XML declaration.	
162 (00A2)	4	Missing 'version=' after '<?xml ' in XML declaration.	
163 (00A3)	4	Missing '=' after 'XXXXX' in XML declaration.	
164 (00A4)	4	Missing whitespace after 'XXXXX' in XML declaration.	
165 (00A5)	4	Missing whitespace before 'XXXXX' in XML declaration.	
166 (00A6)	4	Unsupported XML version: X.X	
167 (00A7)	4	Invalid standalone declaration in XML declaration.	
168 (00A8)	4	Invalid syntax in CDATA section.	
169 (00A9)	4	Invalid syntax in comment.	
170 (00AA)	4	Unexpected '<!XXXXX'.	
171 (00AB)	4	The name 'xml' must be lower case: <?XML	
172 (00AC)	4	Missing whitespace after PI target: <?XXXXX	
173 (00AD)	4	Unexpected end of input while looking for PI terminator '?>'.	
174 (00AE)	4	Missing quotation character (' or ").	
175 (00AF)	4	Unexpected end of input while looking for literal terminator X.	
176 (00B0)	4	Unexpected '<' in attribute value.	
177 (00B1)	4	Unexpected whitespace in character reference: &#XXXXX;	
178 (00B2)	4	Invalid character in character reference: &#XXXXX;	
179 (00B3)	4	Invalid Unicode character: &#XXXXX;	

Error code	Error level	Error message	Comments
180 (00B4)	4	Invalid character.	
181 (00B5)	4	Unknown or unsupported encoding: XXXXX	
182 (00B6)	4	No-XML document.	
185 (00B9)	4	Conflict encoding: XXXXX	
186 (00BA)	4	Invalid element name: XXXXX	
187 (00BB)	4	Invalid attribute value: XXXXX="XXXXX"	
188 (00BC)	4	External entity is not allowed: 'XXXXX'.	
189 (00BD)	4	Empty attribute name: XXXXX	
513 (0201)	2	End tag 'XXXXX' does not match the start tag 'XXXXX'	
514 (0202)	2	Reference to undefined entity: %XXXXX;	
515 (0203)	2	Reference to undefined entity: &XXXXX;	
516 (0204)	2	External entity is not allowed: 'XXXXX'.	
517 (0205)	2	Cannot open file: XXXXX	
518 (0206)	2	Not an XML Catalog file: 'XXXXX'.	
770 (0302)	3	Unexpected whitespace after 'XXXXX'.	
771 (0303)	3	Unexpected character '--' in comment	
897 (0381)	1	Unexpected character: XXXXX	
898 (0382)	1	Unexpected whitespace after 'XXXXX'.	
899 (0383)	1	Unexpected character '--' in comment	
1025 (0401)	4	XXXXX is not specified.	
1026 (0402)	4	FontConfig file is not found: XXXXX	
1027 (0403)	4	No <font-folder> in XXXXX	
1028 (0404)	4	Unexpected start tag: <XXX> in XXXXX	
1029 (0405)	4	Unexpected end tag: </XXX> in XXXXX	
1030 (0406)	4	Invalid value: <XXX XXX="XXX"> in XXXXX	
1031 (0407)	4	Empty value: <XXX XXX> in XXX	
1032 (0408)	4	No-file path is not allowed: <XXX XXX="XXX"> in XXXXX	
1033 (0409)	4	Relative path is not allowed: <XXX XXX="XXX"> in XXXXX	
1034 (040A)	4	Already registered value: <XXX XXX="XXX"> in XXXXX	
1035 (040B)	4	Invalid font file extension: <XXX XXX="XXX"> in XXXXX	
1036 (040C)	4	Font file must be base file name: <XXX XXX="XXX"> in XXXXX	
1037 (040D)	4	Not an integer value: <XXX XXX="XXX"> in XXXXX	
1921 (0781)	1	Font read error: XXXXX	
1923 (0783)	1	Glyph-list open error: XXXXX	
1924 (0784)	1	Glyph-list read error: XXXXX	
1925 (0785)	1	Cannot read printer font: XXXXX	
1926 (0786)	1	Cannot read font information: XXXXX	
1928 (0788)	1	Font file error: XXXXX	

Error code	Error level	Error message	Comments
1929 (0789)	1	Font file error: XXXXX	
1930 (078A)	1	Already registered font-face font: XXXXX	
1931 (078B)	1	Cannot open font-face font: XXXXX	
1932 (078C)	1	Cannot create font-face font: XXXXX	
1933 (078D)	1	Cannot read font-face font information: XXXXX	
1934 (078E)	1	Cannot make raster image of glyph: XXXXX	
1944 (0798)	1	Cannot read font-face font information: XXXXX	
8193 (2001)	4	XSLT Processor is not given.	
8194 (2002)	4	No XSL Stylesheet is specified.	
8195 (2003)	4	FO transformation failed.	
8196 (2004)	4	Cannot find MSXML.	
8197 (2005)	4	Cannot load file to XMLDomDocument.	
8198 (2006)	4	Cannot load XSL Stylesheet.	
8199 (2007)	4	Invalid XSL Stylesheet.	
8200 (2008)	4	Cannot find <fo:root> in FO.	
8201 (2009)	4	Invalid name space in FO.	
8202 (200A)	4	Cannot execute external XSLT Processor.	
8205 (200D)	4	Transformed FO is invalid.	
8206 (200E)	4	FO transformation failed.	
8208 (2010)	4	FO transformation by MSXML DOM failed.	
8209 (2011)	4	Cannot create the pipe for XSLT Processor.	
8210 (2012)	4	Cannot read from the pipe for XSLT Processor.	
9103 (238F)	1	XXXXX.	`xsl:message` output
10241 (2801)	4	XXXXX is not given.	
10242 (2802)	4	Next page-master with master-name="XXXXX" is not found.	
10243 (2803)	4	Page-master with master-name="XXXXX" is not found.	
10244 (2804)	4	fo:flow is not assigned on page: master-name="XXXXX".	
10245 (2805)	4	Unassigned flow: flow-name="XXXXX"	
10246 (2806)	4	fo:flow-map with flow-map-name="XXXXX" is not found.	
10247 (2807)	4	Incorrect flow-map (mixture of fo:static-content and fo:flow): flow-map-name="XXXXX".	
10248 (2808)	4	Incorrect flow-map (same flow-name): flow-map-name="XXXXX", flow-name="XXXXX".	
10249 (2809)	4	Incorrect flow-map (same region-name): flow-map-name="XXXXX", region-name="XXXXX".	
10250 (280A)	4	Duplicated change-bar-class: 'XXXXX'.	
10251 (280B)	4	Missing region-body flow: master-name="XXXXX".	
10252 (280C)	4	Contradictory value of attribute 'XXXXX' with the same form-field name 'XXXXX'.	

Error code	Error level	Error message	Comments
10253 (280D)	4	Incorrect flow-map (not found flow-name): flow-map-name="XXXXX", flow-name="XXXXX".	
10254 (280E)	4	Unresolved internal-destination: "XXXXX".	
10255 (280F)	4	This document requires version XXXXX or later.	
10256 (2810)	4	No corresponding area on first spread page for spread region: XXXXX	
10753 (2A01)	2	Unknown FO element: 'XXXXX'.	
10754 (2A02)	2	Unknown property: 'XXXXX'.	
10755 (2A03)	2	Unexpected FO element: 'XXXXX'.	
10756 (2A04)	2	Unexpected FO element: 'XXXXX'.	
10758 (2A06)	2	Unexpected element: 'XXXXX'.	
10759 (2A07)	2	Unexpected element: 'XXXXX'.	
10760 (2A08)	2	Unexpected text: 'XXXXX'.	
10761 (2A09)	2	Invalid property value: XXXXX="XXXXX"	
10762 (2A0A)	2	Invalid compound property: 'XXXXX'	
10763 (2A0B)	2	Unknown extension property: 'XXXXX'	
10764 (2A0C)	2	Missing required property value: 'XXXXX' on XXXXX.	
10765 (2A0D)	2	Satisfied conditional-page-master-reference is not found in fo:page-sequence-master master-name="XXXXX".	
10767 (2A0F)	2	Sub-sequence-specifiers in fo:page-sequence-master master-name="XXXXX" are exhausted.	
10768 (2A10)	2	Duplicate id value: id="XXXXX".	
10769 (2A11)	2	Unresolved id value: "XXXXX".	
10771 (2A13)	2	Not yet supported: XXXXX.	
10772 (2A14)	2	Duplicate color-profile-name: XXXXX.	
10774 (2A16)	2	Expected FO element: 'XXXXX'.	
10775 (2A17)	2	Ambiguous conditional-page-master-references are found in fo:page-sequence-master master-name="XXXXX", master-reference="XXXXX" and "XXXXX".	
10776 (2A18)	2	Duplicate xxxxx-name: "XXXXX".	
10777 (2A19)	2	Unresolved index-key value: "XXXXX".	
10778 (2A1A)	2	Empty contents: 'XXXXX'.	
10779 (2A1B)	2	Expected element: 'XXXXX'.	
10780 (2A1C)	2	Contradictory value of attribute 'XXXXX' with the same form-field name 'XXXXX'.	
10781 (2A1D)	2	Unsupported function argument: XXXXX(XXXXX).	
10782 (2A1E)	2	Unresolved internal-destination: "XXXXX".	
10783 (2A1F)	2	Insufficient property value: XXXXX="XXXXX".	
10784 (2A20)	2	Unexpected property: 'XXXXX'.	
10785 (2A21)	2	XXXXX is not given.	
10786 (2A22)	2	Unassigned flow: flow-name="XXXXX"	

Error code	Error level	Error message	Comments
10787 (2A23)	2	Duplicate flow-name="XXXXX"	
10788 (2A24)	2	Cannot access file: XXXXX	
10789 (2A25)	2	Duplicate region-name: 'XXXXX'.	
10790 (2A26)	2	Different regions have same region-name: 'XXXXX'.	
10791 (2A27)	2	Unexpected 'fo:float' with float-y.	
10792 (2A28)	2	Cannot condense no-width area: Page XX.	V7.1
11009 (2B01)	3	fo:change-bar-begin with change-bar-class="XXXXX" is not found.	
11010 (2B02)	3	fo:change-bar-end with change-bar-class="XXXXX" is not found.	
11011 (2B03)	3	Unresolved internal-destination: "XXXXX".	
11139 (2B83)	1	Unexpected FO element: 'XXXXX'.	
11140 (2B84)	1	Need block level FO element: 'XXXXX'.	
11141 (2B85)	1	No color value is given in rgb-icc separation: 'XXXXX'.	
11142 (2B86)	1	Unknown PANTONE color name: 'XXXXX'.	
11144 (2B88)	1	Invalid fo:xxxxx with ref-id="XXXXX".	
11145 (2B89)	1	Unresolved internal-destination: "XXXXX".	
11146 (2B8A)	1	Unknown extension element: 'XXXXX'.	
11148 (2B8C)	1	Overlapped table cell: row=XX col=XX.	
11151 (2B8F)	1	Deprecated property: 'XXXXX'.	
11152 (2B90)	1	Deprecated property value: XXXXX="XXXXX".	
11154 (2B92)	1	Obsoleted property: 'XXXXX'.	
11155 (2B93)	1	Obsoleted property value: XXXXX="XXXXX".	
11156 (2B94)	1	Unknown language: 'XXXXX'.	
11157 (2B95)	1	Unknown script: 'XXXXX'.	
11159 (2B97)	1	Ineffective property: XXXXX on XXXXX.	
11160 (2B98)	1	Scale to fit image (XXXXX, XXXXX).	☞ issue-scale-to-fit
11161 (2B99)	1	Unsupported property value: XXXXX="XXXXX".	
11162 (2B9A)	1	Invalid @charset syntax.	
11163 (2B9B)	1	Unknown or unsupported @charset encoding: 'XXXXXX'.	
11164 (2B9C)	1	Nested fo:page-sequence master-name='XXXXXX'.	
12802 (3202)	2	Missing declaration separator ';': 'XXXXX'.	
12803 (3203)	2	Invalid pseudo element: 'XXXXX'.	
12804 (3204)	2	Unexpected token: 'XXXXX'.	
12805 (3205)	2	Invalid class attribute: 'XXXXX'.	
12806 (3206)	2	Missing attribute name before: ']'.	
12807 (3207)	2	Missing closing parenthesis 'X': unexpected 'XXXXX'.	
12808 (3208)	2	Missing opening parenthesis 'X': unexpected 'XXXXX'.	
12809 (3209)	2	Invalid attribute name: 'XXXXX'.	
12810 (320A)	2	Invalid lang value: 'XXXXX'.	

Error code	Error level	Error message	Comments
12811 (320B)	2	Invalid positional condition: 'XXXXX'.	
12812 (320C)	2	Unknown property: 'XXXXX'.	
12813 (320D)	2	Invalid property value: XXXXX: XXXXX	
12814 (320E)	2	Invalid @charset value: 'XXXXX'.	
12815 (320F)	2	Invalid @import url: 'XXXXX'.	
12816 (3210)	2	Invalid @media value: 'XXXXX'.	
12817 (3211)	2	Invalid id attribute: 'XXXXX'.	
12820 (3214)	2	Invalid @namespace url: 'XXXXX'.	
12821 (3215)	2	Missing style in selector: 'XXXXX'.	
12822 (3216)	2	Invalid declaration: 'XXXXX'.	
12823 (3217)	2	Cannot load stylesheet: 'XXXXX'.	
12824 (3218)	2	Insufficient function parameter: 'XXXXX'.	
12825 (3219)	2	Too many function parameters: 'XXXXX'.	
12826 (321A)	2	Invalid function parameter type: function 'XXXXX', parameter 'XXXXX'.	
12827 (321B)	2	@import rules must precede all other rules.	
12828 (321C)	2	Invalid color value: 'XXXXX'.	
12829 (321D)	2	Unknown function call: 'XXXXX()'.	
12830 (321E)	2	Missing or invalid @counter-style name: 'XXXXX'.	
12831 (321F)	2	Missing required property value: 'XXXXX' on XXXXX.	
12832 (3220)	2	Insufficient property value: XXXXX: XXXXX.	
12833 (3221)	2	Unexpected property: 'XXXXX'.	
12834 (3222)	2	Cannot be combined any other values: 'XXXXX'.	
12835 (3223)	2	Unknown property: 'XXXXX'.	System error
12836 (3224)	2	Invalid selector after pseudo element: 'XXXXX'.	
12837 (3225)	2	Looped variable reference: var(XXXXX).	V7.1
12838 (3226)	2	Undefined variable: XXXXX.	V7.1
12839 (3227)	2	Unsupported var() in shorthand value: XXXXX: XXXXX.	V7.1
13187 (3383)	1	Ignore string-set: XXXXX XXXXX.	
13188 (3384)	1	Obsoleted property value: XXXXX: XXXXX.	
13189 (3385)	1	Unsupported property value: XXXXX: XXXXX.	
13190 (3386)	1	Unexpected token: 'XXXXX'.	
13191 (3387)	1	Cannot specify 'display: XXXX' for the root element.	
13192 (3388)	1	Cannot specify 'display: XXXX' for <XXXX>, must be 'XXXX'.	
14337 (3801)	4	Invalid Option Setting file. XXXXX	
14338 (3802)	4	Unlicensed formatter type: XXX.	
14339 (3803)	4	No AreaTree: XXXXX	
14340 (3804)	4	Unsupported AreaTree version 'XXX.X': XXXXX	
14341 (3805)	4	Start formatting failure: XXXXX	

Error code	Error level	Error message	Comments
14342 (3806)	4	Invalid Operator Dictionary file. XXXXX	
14343 (3807)	4	Invalid page number XXX (expect XXX).	V7.1
14850 (3A02)	2	Area overflow: XXXX (inline/block XXpt) Page XX (XX).	Area overflow occurred, by overflow="error-if-overflow"
14851 (3A03)	2	Invalid page number XXX (expect XXX).	V7.1
15107 (3B03)	3	Invalid page number XXX (expect XXX).	V7.1
15234 (3B82)	1	Area overflow, minor: XXXX (inline/block XXpt) Page XX (XX).	A minor overflow (not greater than the overflow limit) occurred, by overflow="error-if-overflow" with axf:overflow-limit
15236 (3B84)	1	Breaking Paragraphs into Lines failure: @XXXX.	
15237 (3B85)	1	Breaking Paragraphs into Lines narrower width: @XXXX.	
15238 (3B86)	1	Breaking Paragraphs into Lines too large paragraph: @XXXX.	
15239 (3B87)	1	Breaking Paragraphs into Lines unbreakable: @XXXX.	
15240 (3B88)	1	Breaking Paragraphs into Lines overflow: @XXXX.	
15241 (3B89)	1	Breaking Paragraphs into Lines unsupported XXXX: @XXXX.	
15242 (3B8A)	1	Breaking Paragraphs into Lines unsupported intruded FloatArea: @XXXX.	
15243 (3B8B)	1	Breaking Paragraphs into Lines unsupported intruded FloatArea: @XXXX.	
15245 (3B8D)	1	Invalid page number XXX (expect XXX).	V7.1
15246 (3B8E)	1	Invalid XXXXX with undefined or unappeared ref-id="XXXXX".	V7.1
15247 (3B8F)	1	Invalid XXXXX with ref-id="XXXXX" contained inside XXXXX.	V7.1
16385 (4001)	4	Printing is canceled.	In case the Cancel button was being pushed in the Print dialog or StartDoc() failed, etc.
16386 (4002)	4	Printer is not found: XXXXX	
16387 (4003)	4	StartPage() failed or canceled.	
16388 (4004)	4	EndPage() failed.	
16390 (4006)	4	PDF output error.	
16391 (4007)	4	PDF output : Font embedding error.	
16392 (4008)	4	PDF output : Encryption error.	
16393 (4009)	4	Cannot open TEXT file.	
16394 (400A)	4	Cannot write TEXT file.	
16398 (400E)	4	PDFLinearizer: Cannot rename PDF file: XXXXX	
16399 (400F)	4	PDFLinearizer: Cannot open PDF file: XXXXX	
16400 (4010)	4	PDFLinearizer error: XXXXX	
16403 (4013)	4	Unsupported PDF version: XXXXX	
16404 (4014)	4	PostScript output error: XXXXX	

Error code	Error level	Error message	Comments
16407 (4017)	4	Unsupported encoding: XXXXX	
16408 (4018)	4	XPS output error: XXXXX	
16413 (401D)	4	AHPDF error: XXXXX	
16414 (401E)	4	OOXML output error: XXXXX	
16415 (401F)	4	OOXML output from HTML is not supported.	
16416 (4020)	4	Error of Role Map Setting: XXXXX	☞ Role Map
16420 (4024)	4	Cannot create font for water-mark.	
16897 (4201)	2	File name is not specified: axf:annotation-file-attachment.	☞ axf:annotation-file-attachment
16898 (4202)	2	Attachment is not found: axf:annotation-file-attachment. file: XXXXX	☞ axf:annotation-file-attachment
16900 (4204)	2	Cannot embed the image: XXXXX	
16901 (4205)	2	No ICC profile specified: XXXXX	
16902 (4206)	2	AHPDF error: XXXXX	
16903 (4207)	2	AHPDF warning: XXXXX	
16904 (4208)	2	Unsupported PDF Blend Mode: XXXXX	
16905 (4209)	2	Unsupported PDF Shading Type: XXXXX	
16906 (420A)	2	Unsupported PDF Soft Mask: XXXXX	
16907 (420B)	2	Transparency is not allowed.	
16908 (420C)	2	PDF output warning.	
16909 (420D)	2	Cannot import PDF file: XXXXX	
16910 (420E)	2	Cannot open XMP resource: XXXXX	
16911 (420F)	2	Empty XMP resource: XXXXX	
16912 (4210)	2	Invalid XMP resource: XXXXX	
16913 (4211)	2	Multimedia is not supported on XXXXX.	
16914 (4212)	2	Layer is not supported on XXXXX.	
16915 (4213)	2	Blend Mode is not allowed on XXXXX.	
16916 (4214)	2	OOXML output warning: XXXXX	
16920 (4218)	2	Cannot access file: XXXXX	
16921 (4219)	2	Fault of rendering blur text-shadow: XXXXX	
16922 (421A)	2	Undefined layer name exists: 'XXXXX'	
16923 (421B)	2	Richmedia is not supported on XXXXX.	
16924 (421C)	2	Multimedia doesn't support. Change to Richmedia. : XXXXX	
16925 (421D)	2	Warning of Role Map Setting: XXXXX	☞ Role Map
16926 (421E)	2	Cannot embed a page with annotation in different positions multiple times. : XXXXX	
17281 (4381)	1	Invalid printer bin number/name: XXXXX	☞ axf:printer-bin-selection
17282 (4382)	1	Invalid printer duplex: XXXXX	☞ axf:printer-duplex

Error code	Error level	Error message	Comments
17284 (4384)	1	AHPDF information: XXXXX	
17285 (4385)	1	Too long default value of text field 'XXXXX': XXXXX	
17286 (4386)	1	Invalid default value of text field 'XXXXX': XXXXX	
17287 (4387)	1	Invalid format of text field 'XXXXX': XXXXX	
17288 (4388)	1	PostScript output information: XXXXX	
17289 (4389)	1	OOXML output information: XXXXX	
17290 (438A)	1	No effective output intent specified on XXXXX.	
17291 (438B)	1	SVG parsing error: XXXXX.	
18433 (4801)	4	Cannot remove temporary file: XXXXX	
18434 (4802)	4	PDF file is protected by a password	
18435 (4803)	4	Cannot read PDF: XX	System error
18441 (4809)	4	MathML parsing error: XXXXX	
18442 (480A)	4	PDF reading error: XXXXX	
18945 (4A01)	2	Cannot create temporary file for image.	
18946 (4A02)	2	Graphic file name is not specified.	
18947 (4A03)	2	Cannot load graphic file: XXXXX	
18948 (4A04)	2	Graphic file is not found: XXXXX	
18949 (4A05)	2	Graphic file is broken: XXXXX	
18950 (4A06)	2	Unknown or unsupported graphic file format: XXXXX	
18952 (4A08)	2	SVG parsing error: XXXXX	
18953 (4A09)	2	MathML parsing error. Reason : XXXXX	
18954 (4A0A)	2	Cannot create temporary stream for image.	
18956 (4A0C)	2	CGM parsing error XXXXX	
18958 (4A0E)	2	Cannot create Distiller instance.	
18959 (4A0F)	2	Cannot create Ghostscript instance.	
18960 (4A10)	2	Distiller processing failed: XXXXX	
18961 (4A11)	2	Ghostscript processing failed: XXXXX	
18964 (4A14)	2	Missing barcode type.	
18965 (4A15)	2	Unsupported barcode type: XXXXX.	
18966 (4A16)	2	Barcode generation error: XXXXX.	
18967 (4A17)	2	PDF reading warning: XXXXX	
18968 (4A18)	2	Cannot specify this image here: XXXXX	
18969 (4A19)	2	MathML rendering error (XXXXX:XXXXX)	
18970 (4A1A)	2	Graphic file cannot display: XXXXX	
19329 (4B81)	1	Graphic file has no EPS preview: XXXXX	
19330 (4B82)	1	Conflict media-type: XXXXX actually XXXXX	
19331 (4B83)	1	Unknown media-type: XXXXX	
19332 (4B84)	1	Unknown content-type: XXXXX	

Error code	Error level	Error message	Comments
19333 (4B85)	1	SVG parsing information. Reason : XXXXX	
19334 (4B86)	1	JPEG does not end with EOI: XXXXX	
19335 (4B87)	1	Joboptions does not exist: XXXXX	
19336 (4B88)	1	Joboptions is not a file: XXXXX	
19337 (4B89)	1	CGM parsing error XXXXX	
19339 (4B8B)	1	PDF reading information: XXXXX	
19340 (4B8C)	1	MathML rendering error (XXXXX:XXXXX)	
19341 (4B8D)	1	Invalid data is contained @XXXX: XXXXX	
21377 (5381)	1	Invalid exception word: XXXXX	
21443 (53C3)	1	'XXXXXX' does not have xxxx, only has yyyy.	☞ Font : Restrictions
22529 (5801)	4	Create font error: XXXXX	
22530 (5802)	4	Select font error: XXXXX	
22531 (5803)	4	Missing font family: 'XXXXX'.	☞ missing-font
22532 (5804)	4	Missing glyph U+XXXX (X) in 'XXXXX'.	☞ missing-glyph
22533 (5805)	4	Fallbacked glyph U+XXXX (X) to 'XXXXX'.	☞ fallback-glyph
22534 (5806)	4	Emulated small-caps 'XXXXX'.	☞ emulated-small-caps V7.1
22535 (5807)	4	Emulated italic 'XXXXX'.	☞ emulated-italic V7.1
23041 (5A01)	2	Missing font family: 'XXXXX'.	☞ missing-font
23042 (5A02)	2	Missing glyph U+XXXX (X) in 'XXXXX'.	☞ missing-glyph
23043 (5A03)	2	Fallbacked glyph U+XXXX (X) to 'XXXXX'.	☞ fallback-glyph
23044 (5A04)	2	Emulated small-caps 'XXXXX'.	☞ emulated-small-caps V7.1
23045 (5A05)	2	Emulated italic 'XXXXX'.	☞ emulated-italic V7.1
23297 (5B01)	3	Missing font family: 'XXXXX'.	☞ missing-font
23298 (5B02)	3	Missing glyph U+XXXX (X) in 'XXXXX'.	☞ missing-glyph
23299 (5B03)	3	Fallbacked glyph U+XXXX (X) to 'XXXXX'.	☞ fallback-glyph
23300 (5B04)	3	Emulated small-caps 'XXXXX'.	☞ emulated-small-caps V7.1
23301 (5B05)	3	Emulated italic 'XXXXX'.	☞ emulated-italic V7.1
23425 (5B81)	1	Missing font family: 'XXXXX'.	☞ missing-font
23426 (5B82)	1	Missing glyph U+XXXX (X) in 'XXXXX'.	☞ missing-glyph
23427 (5B83)	1	Fallbacked glyph U+XXXX (X) in 'XXXXX'.	☞ fallback-glyph
23428 (5B84)	1	Cannot find script-font: XXXXX	☞ script-font
23429 (5B85)	1	Emulated small-caps 'XXXXX'.	☞ emulated-small-caps V7.1
23430 (5B86)	1	Emulated italic 'XXXXX'.	☞ emulated-italic V7.1
24582 (6006)	4	Cannot find license file: XXXXX	
24583 (6007)	4	Permission denied license file: XXXXX	

Error code	Error level	Error message	Comments
24584 (6008)	4	Invalid license data: XXXXX	
24585 (6009)	4	Cannot load license file: XXXXX	
24586 (600A)	4	Invalid license file: XXXXX	
24587 (600B)	4	Invalid license file: XXXXX	
24588 (600C)	4	Invalid license file that is for another product: XXXXX	
24589 (600D)	4	Invalid license file that is for another platform: XXXXX	
24590 (600E)	4	Invalid license date: XXXXX	
24591 (600F)	4	Evaluation license is expired: XXXXX	
24592 (6010)	4	Invalid license date: XXXXX	
24594 (6012)	4	No license for command line interface: XXXXX	
24595 (6013)	4	No license for program interface: XXXXX	
24596 (6014)	4	Invalid license type: XXXXX	
24597 (6015)	4	Invalid license version: XXXXX	
32770 (8002)	4	Cannot open work file: XXXXX	
32771 (8003)	4	Cannot create work file: XXXXX	
32772 (8004)	4	Invalid printer name: XXXXX	
32773 (8005)	4	Cannot read printer setting file: XXXXX	
32774 (8006)	4	Invalid Printer setting file: XXXXX	
32776 (8008)	4	PDF output failed.	System error
32777 (8009)	4	Printing failed.	System error
32778 (800A)	4	Formatting failed.	System error
32779 (800B)	4	No page is available to print.	
32782 (800E)	4	No volume is available to print.	
32783 (800F)	4	Cannot separate to multi volumes.	
32784 (8010)	4	Cannot output multi volumes to stream.	
32785 (8011)	4	TEXT output failed.	System error
32786 (8012)	4	NUL output failed.	System error
32787 (8013)	4	Printer name is required.	
32788 (8014)	4	SVG output failed.	System error
32789 (8015)	4	Empty document.	
32794 (801A)	4	AreaTree output failed.	System error
32796 (801C)	4	Invalid XfoCommon version.	
32799 (801F)	4	Output file same as input file: XXXXX	
32800 (8020)	4	PostScript output failed.	System error
32802 (8022)	4	No licensed printer name: XXXXX	
32803 (8023)	4	Invalid license.	
32804 (8024)	4	XPS output failed.	System error
32805 (8025)	4	Cannot create formatting thread (XX).	

Error code	Error level	Error message	Comments
32806 (8026)	4	Formatting exception: XXXX	
32807 (8027)	4	No rendering page XX is given.	System error
32818 (8032)	4	Empty output multi volumes.	
33794 (8402)	4	Interface instance is not given.	System error (Java Interface)
34818 (8802)	4	Memory access failed.	System error (COM Interface)
34819 (8803)	4	Cannot open work file.	(COM Interface)
34820 (8804)	4	Cannot read work file.	(COM Interface)
34821 (8805)	4	ASP Response data output failed.	(COM Interface)
36865 (9001)	4	Parameter error: XXXXX	(Command-line)
36866 (9002)	4	Cannot transform to FO: XXXXX	(Command-line)
36867 (9003)	4	Printing error: XXXXX	(Command-line)
38913 (9801)	4	XSL Stylesheet is not given.	(.NET Interface)
38914 (9802)	4	Attribute index is out of range.	(.NET Interface)
45953 (B381)	1	Consecutive hyphens: XX	Too many consecutive lines end with a hyphen
45954 (B382)	1	Too many blank pages: XXXX	Excessive blank pages at end of document
45955 (B383)	1	Lines starting with the same word: XXXX	Duplicate word at consecutive line start
45956 (B384)	1	Lines ending with the same word: XXXX	Duplicate word at consecutive line end
45957 (B385)	1	Page widow	Page-level widow
45958 (B386)	1	Paragraph widow	Paragraph-level widow
45959 (B387)	1	Left/Right page is longer:: XXXXX	Unbalanced spread
45960 (B388)	1	White-space:: width: XXXXX; limit: XXXXX	White-space V7.1
45961 (B389)	1	River:: total: XXXXX; limit: XXXXX; zone: XXXXX	River V7.1
45962 (B38A)	1	Lines before:: present: XXXXX; minimum: XXXXX	Number of lines before current block V7.1
45963 (B38B)	1	Lines after:: present: XXXXX; minimum: XXXXX	Number of lines after current block V7.1

In case a message that is not shown here is output or a system error occurs, contact us.

Technical Notes

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Formatting HTML

AH Formatter V7.1 can format HTML designed for the Web (except for HTML that uses a frame). However, there may be few HTML documents that achieve a good result without needing adjustment after formatting. The reasons are as follows:

- The HTML document was designed especially for the browser and paginated media was not taken into consideration.
- The HTML document does not follow the HTML specification.
- The CSS used in the HTML document may not be used exactly according to the CSS specification.

For example, if the HTML can be printed from a Web browser without overflowing the right-hand side of the page, then formatting with **AH Formatter V7.1** will produce a reasonable result. However, in order to achieve a better result, the HTML must be designed both for the browser and for printing. The CSS for printing may be precisely defined using rules such as:

```
@media print { ... }
@page { ... }
```

Moreover, there are big differences in the CSS implementations of current Web browsers. If the HTML contains grammar mistakes by being designed for a particular browser, or the HTML uses incorrect CSS, it is unlikely that a good result could be obtained.

Many (X)HTML documents on the Web use only generic fonts. (This is desirable considering the characteristics of the Web.) Since the font settings for every script in the Option Setting File always apply in **AH Formatter V7.1** GUI on Windows, suitable fonts will be used. However, this applies only to **AH Formatter V7.1** GUI and only on Windows. When using the Command-line Interface, set appropriate `<script-font>` values in the Option Setting File and specify the Option Setting File when formatting.

CAUTION: Since **AH Formatter V7.1** formats the document for print media, `@media screen` is ignored even when viewing documents on-screen with the GUI. Only `@media all` or `@media print` applies.

Cascading Order of CSS

The cascading order of the CSS is defined in the CSS2 Specification as follows:

1. user agent declarations
2. user normal declarations
3. author normal declarations
4. author important declarations
5. user important declarations

AH Formatter V7.1 corresponds to the following.

- **user agent declarations**

  It is `html.css`. See also Default CSS for HTML.
- **user declarations**

  This can be specified by `<usercss>`, in the Option Setting File and by the command line of `-css` or `-s`. (As for the .NET, Java interface, etc, they are equivalent to the corresponding command line.) These are applied in the following order.

  1. Applies CSS specified by the Option Setting File and `-css` in the appearance order.
  2. Applies CSS specified by `-s`.

  Only the Option Setting File is applied in GUI. What is specified on the CSS page of the Format Option Setting dialog will be reflected in the Option Setting File.
- **author declarations**

  This can be specified by `<link>` or `<style>` inside HTML, by the processing instruction of `<?xml-stylesheet ...?>`. These are applied in the following order.

  1. Applies the processing instruction `<?xml-stylesheet?>` in XML in the appearance order. (XML or XHTML)
  2. Applies `<link>` or `<style>` inside HTML in the appearance order. (XML or XHTML)

Default CSS for HTML

Default CSS for HTML is used as the first stylesheet (user agent declarations) when formatting (X)HTML. This is `html.css`, which is placed in the directory indicated by the environment variable, AHF71_DEFAULT_HTML_CSS or AHF71_64_DEFAULT_HTML_CSS. (When `html.css` does not exist, it is formatted as all the elements are inline.)

This stylesheet is created based on the display of a web browser, the style specified by CSS, etc. However, there may be specification which cannot be well displayed depending on the environment. Probably, there is also a difference of taste. Users are required to optimize the default CSS according to their own environment etc. Some examples are shown below.

- **<q>**

  It is specified as follows by default CSS.

  ```
  q::before { content: open-quote }
  q::after  { content: close-quote }
  ```

  In **AH Formatter V7.1**, the default values of `quotes` are "\201C" "\201D" "\2018" "\2019". The following specification may be preferable.

  ```
  q:lang(en) { quotes: '"' '"' "'" "'" }
  q:lang(no) { quotes: "«" "»" '"' '"' }
  ```

- **footnote**

  A footnote number is specified to be placed in the margin of the left page. If you don't want to make it overflow into the margin, specify `padding-left` or specify `list-style-position:inside` to `@footnote`. `decimal` is specified for numbering. Probably, it is good to correct as follows when you want to use `super-decimal`.

  ```
  ::footnote-call {
    content: counter(footnote, super-decimal);
  ```

```
}
::footnote-marker {
  content: counter(footnote, super-decimal);
  -ah-margin-end: 0.5em;
  text-indent: 0;
}
```

- **::marker**

  The symbol used for the marker of the list is specified by `<list-style-type>` in the Option Setting File. Because that glyph is font dependent, different fonts will show different markers. Since `::marker` has no specific font setting, the font used depends on the context at that time. It is good to specify a specific font for the `::marker` if necessary.

Detection of Formatting Type

When the formatting starts by setting the detection of formatting type automatically, the formatting type will be determined in the following procedures.

1. When MIME is specified, **AH Formatter V7.1** will follow its settings. That is, if `text/html` is specified, it will be detected as HTML. When `application/xhtml+xml` is specified, it will be detected as XHTML.
2. When auto-formatter-type="html" is specified in the Option Setting File and the extension of the input document is known, **AH Formatter V7.1** will follow its setting. That is, when the extension is for HTML such as `.htm` or `.html`, it will be detected as HTML. If the extension is for XHTML, such as `.xht` or `.xhtml`, it will be detected as XHTML.
3. When there is no XML declaration and DOCTYPE is for HTML, it will be detected as HTML. If it is for XHTML, it will be detected as XHTML.
4. When auto-formatter-type="xhtml" is specified in the Option Setting File and the name space is for XHTML, it will be detected as XHTML.
5. When there is no XML declaration and name space does not exist and the root element is `<HTML>` with case insensitive, it will be detected as HTML.
6. When CSS, which is not XSLT, is specified (to the internal or external document), it will be detected as XML+CSS.
7. When the name space is for XSL-FO, it will be detected as XSL-FO.
8. Other than these will be detected as XML+CSS.

Although the document does not need to be XML if it's HTML formatting, it is required except HTML that the document should be well formed XML.

Changes from AH Formatter V7.0 V7.1

There are some differences in formatting between **AH Formatter V7.1** and **AH Formatter V7.0** as listed below.

- **Specifying Image Size in %**

  In (X)HTML, when `<img src="xxx" width="50%">` is specified, % is based on the size of the image. When `img { width:50% }` is specified in CSS, the size of the parent element is the base. However, until **AH Formatter V7.0**, even with CSS, % of the following properties were calculated based on the size of the image.

  - width
  - max-width
  - min-width
  - height
  - max-height
  - min-height

  AH Formatter V7.1 corrects this error and calculates % based on the size of the parent element. If you want to calculate % the same as before, specify fix-css-img-percentage="false" in the Option Setting File.

Changes from AH Formatter V6.6

There are some differences in formatting between **AH Formatter V7.0** and **AH Formatter V6.6** as listed below.

- **Line Breaking**

Line breaking processing has been improved. See Line Breaking. In addition, the line break position may change due to changes in the Unicode specifications.

- **axf:suppress-if-first-on-page**

  The behavior of axf:suppress-if-first-on-page has been improved.

  - axf:suppress-if-first-on-page specified in the block following the block deleted by axf:suppress-if-first-on-page has now been effective.
  - axf:suppress-if-first-on-page has now been effective in multi-column areas.
  - space-before specified in the block following the block deleted by axf:suppress-if-first-on-page has now been invalid.
  - When `fo:marker` was specified for `fo:table-row` at the top of the page, axf:suppress-if-first-on-page specified for the subsequent `fo:table-row` has now been effective.

- **::first-letter**

  When the character is enlarged using the `::first-letter` pseudo-element in CSS, the line spacing may be expanded unless `line-height` is specified. In **AH Formatter V7.0**, the line spacing is not unnecessarily expanded when `line-height` is not specified in `::first-letter`.

- **zwsp-mode**

  The default value for zwsp-mode has been changed to 6.

- **hyphenation-keep-mode**

  The processing method when the word at the end of the page (column) is hyphenated by hyphenation-keep="page", etc. has been improved. See hyphenation-keep-mode in the Option Setting File. Specify hyphenation-keep-mode="line" when you want to make it the same as V6.

- **white-space-collapse-mode**

  white-space-collapse is implemented to apply across `<fo:inline>`, but until **AH Formatter V6.6**, it was applied unconditionally, so even in some cases where there is a border in `<fo:inline>`, it was collapsed. **AH Formatter V7.0** no longer collapses under the following conditions:

  - When there is border or padding at the border of `<fo:inline>`
  - When there is `<fo:inline>` with width settings in between

  Specify white-space-collapse-mode="6" in the Option Setting File when you want to make it the same as V6.

- **font-stretch-mode**

  The behavior of font-stretch-mode="6" has been corrected. When a keyword such as `condensed` is specified in font-stretch, that information is used for the font selection. For example, when `extra-condensed` is specified, if there is a `condensed` font, the compression is performed based on that font. The compression ratio at that time is (62.5/75)% = 83.3%. However, if there is no `normal` font in the selection candidates, the compression rate will be 62.5%.

- **Poster image when embedding multimedia**

  In **AH Formatter V7.0**, if axf:poster-image is specified when embedding multimedia, the size of that image is used. In order to get the same result as **AH Formatter V6.6** or earlier, specify scaling="non-uniform" content-width="scale-to-fit" content-height="scale-to-fit" to `<fo:external-graphic>`.

- **BIDI**

  Revision 41 in UAX #9: Unicode Bidirectional Algorithm is now supported. If you want to process with the same algorithm as V6, set a value less than 37 in unicode-bidi-rev. A value greater than or equal to 37 is considered 41. ☞ BIDI Algorithm Implementation Restrictions

Changes from AH Formatter V6.5

There are some differences in formatting between **AH Formatter V6.6** and **AH Formatter V6.5** as listed below.

- **html.css**

  There are changes in the description of Default CSS for HTML (`html.css`).

  - `li::marker { ... }` has been changed to `::marker {...}`. With this change, this style also applies to markers of list-items other than `<li>`. As a result, `-ah-margin-end:0.5em;` will cause a different margin from the past. Specify `-ah-margin-end:0;`, etc. if necessary.
  - `*[hidden] { visibility: hidden }` has been added.

- **-ah-force-page-count**

  In CSS,

```
@page {
  -ah-force-page-count: document 4;
```

If you write as above, in **AH Formatter V6.6**, `-ah-force-page-count` will work when switching all pages. To make it work only on the last page as **AH Formatter V6.5** or earlier, specify `-ah-force-page-count` to `@page` where the last used page selector exists.

- **Suppression of ligatures**

  Ligatures are suppressed by inserting the following characters:

  - U+200B
  - U+200C
  - U+2060
  - U+FEFF

- **MathML**

  When STIX version 2.0 font is installed by default, it will be adopted.

  If OpenType has a MATH table, it will be referenced. You can control it finely using enableOpenTypeMATH, exceptOpenTypeMATHVariants in the Option Setting File.

  The thickness of the line of `<mlongdiv>` will be drawn with the thickness of `mslinethickness`.

  The height of each line at the time of line breaking will become the height of each line. To make the height of each line the same, as it has been with **AH Formatter V6.5** or earlier, specify linebreakingHeightAdjust="false" in the Option Setting File.

Changes from AH Formatter V6.3

There are some differences in formatting between **AH Formatter V6.4** and **AH Formatter V6.3** as listed below.

- **MathML**

  In the MathML settings in the Option Setting File, the default value for the alignment of subscript/superscript has somewhat been modified. In order to make it the same setting as **AH Formatter V6.3**, specify mathmlSettingsMode="6.3".

Changes from AH Formatter V6.2

There are some differences in formatting between **AH Formatter V6.3** and **AH Formatter V6.2** as listed below.

- **keep-footnote-anchor**

  With **AH Formatter V6.2**, the block containing the anchor was sent to the following page due to conditions such as orphans, and as a result, the footnote itself was sometimes arranged in the previous page. On the other hand, **AH Formatter V6.3** will try to fit the dividable block after the anchor in the previous page. You can also get the same result by specifying axf:footnote-keep="always" in the original block. In order to get the same result as **AH Formatter V6.2** or earlier, specify keep-footnote-anchor="false" in the Option Setting File.

- **list-style-type**

  The implemented list-style-type has been changed to use Predefined Counter Styles. The following style names were included in the previous list-style-type but are not included in the Predefined Counter Styles:

  - `cjk-ideographic`
  - `japanese-formal-obsolete`
  - `urdu`
  - `lower-norwegian`
  - `upper-norwegian`
  - `hangul`
  - `hangul-consonant`
  - `halfwidth-katakana`
  - `halfwidth-katakana-iroha`

  Even though the style names are same as those given in the previous list-style-type, some of implementation of the Predefined Counter Style may differ. If you still want to use the style names of the previous list-style-type, specify axf:number-transform="'lower-alpha'" for instance, not axf:number-transform="lower-alpha".

Changes from AH Formatter V6.1

There are some differences in formatting between **AH Formatter V6.2** and **AH Formatter V6.1** as listed below.

- **latin-ligature / pair-kerning**

  The default values of latin-ligature and pair-kerning in the Option Setting File have been changed. Up to **AH Formatter V6.1**, these values are `false`. In **AH Formatter V6.2**, they are changed to `true`. This intends to be able to get a better formatting result by default. When axf:ligature-mode and axf:kerning-mode are specified specifically about those in FO, they don't influence the formatting result. These settings will influence the formatting speed.
- **Splitting blocks**

  In CSS, when the block with auto-height breaks at the end of a page for example, the block height was the break point as is up to **AH Formatter V6.1**. In **AH Formatter V6.2**, the height is adjusted to the end of a page. The difference is remarkable when the background or the border is specified to the block. The same is applied to the end of column. ☞ 5.3. Splitting Boxes
  This behavior is not applied to FO.
  By specifying splitting-blocks-space="true" in the Option Setting File, you can return to the original V6.1 behavior.
- **Text wrapping with before float**

  When the float width on the before side fills up the region and there is no room for wrapping text, although the text is positioned aside by the float, the block itself has overlapped with the float. This can be checked by adding a background or a border to the block. When intrusion-displace="block" is specified, the block itself is positioned aside by the float. In **AH Formatter V6.2**, regardless of the setting of intrusion-displace, the block itself is positioned aside by the float.
- **Splitting footnotes**

  Up to **AH Formatter V6.1**, a page (column) break did not occur within `footnote-body`. In **AH Formatter V6.2**, it is possible to break pages (columns) within `footnote-body`. A footnote breaks by the setting of axf:footnote-max-height and it occurs by default. For this reason, the formatted result may differ from **AH Formatter V6.1**. In order to avoid the automatic break, specify auto-break-footnote="false" in the Option Setting File.
- **BIDI**

  Up to **AH Formatter V6.1**, there was a known issue in the BIDI processing. With **AH Formatter V6.2**, BIDI processing was corrected. Therefore, the formatted result may differ from V6.1.

Changes from AH Formatter V6.0

There are some differences in formatting between **AH Formatter V6.1** and **AH Formatter V6.0** as listed below.

- **normalize**

  In **AH Formatter V6.1**, Unicode normalization (UAX#15: Unicode Normalization Forms) can be performed to the inputted text. See also axf:normalize. The normalization may somehow influence the formatting speed. If you don't want to perform the normalization by default, specify normalize="none" in the Option Setting File.
- **font-stretch-mode**

  In **AH Formatter V6.1**, when specifying a family name to the font-family, it's made available to choose a `condensed` font if it actually exists using the information of font-stretch="condensed" etc. Specify font-stretch-mode="6" in the Option Setting File. The operating differences between font-stretch-mode="5" and "6" are as follows:
  - font-stretch-mode="5"

    The behavior is the same as **AH Formatter V5**. The information on font-stretch is not used for the font selection. That is, even if a `condensed` font exists in the family, it is not chosen. In order to choose a `condensed` font, it is necessary to specify the font name. When fonts called `Foo-Regular.otf` and `Foo-Condensed.otf` exist with the family name of Foo, `Foo-Condensed.otf` is not chosen even if `<fo:block font-family="Foo" font-stretch="condensed">` is specified. It is necessary to specify `<fo:block font-family="Foo-Condensed">`.

    When `<fo:block font-family="Foo" font-stretch="condensed">` is specified, `Foo-Regular.otf` is compressed and displayed. The compression ratio at that time is somewhat smaller (larger when expanding) than the value defined in the OpenType specification.
  - font-stretch-mode="6"

    The information on font-stretch is used for the font selection. In the example above, `<fo:block font-family="Foo" font-stretch="condensed">` is specified, `Foo-Condensed.otf` will be chosen. When a numerical value is specified as font-stretch, a `condensed` font is not searched. `<fo:block font-family="Foo" font-stretch="extra-`

condensed"> is specified, and when there is no extra-condensed font, a condensed font is not necessarily compressed but the normal font will be compressed.

A compression ratio in case there is no condensed font will be the following values shown in the specification of OpenType.

ultra-condensed	50%
extra-condensed	62.5%
condensed	75%
semi-condensed	87.5%
normal	100%
semi-expanded	112.5%
expanded	125%
extra-expanded	150%
ultra-expanded	200%

The behavior has been corrected in **AH Formatter V7.0**. ☞ font-stretch-mode

- **baseline-mode**

  Although the position of the baseline was improved by **AH Formatter V5**, when the character (alphanumeric character) of European languages was rendered upright in vertical writing mode, there still remains the problem that the center position was not aligned. The problem has been improved by **AH Formatter V6.1**. Specify baseline-mode="5" in the Option Setting File when you want to make it the same as V5.

- **viewport-length-units-mode**

  The interpretation of the vw and vh units have been changed. Formerly the unit was based on the entire page size including page margins. In **AH Formatter V6.1**, it is based on the size excluding the page margins. In addition, the pvw and pvh units based on the entire page size have been added. Specify viewport-length-units-mode="5" in the Option Setting File when you want to make it the same as V5. In this case, the units behave as vw=pvw, vh=pvh, vmin=pvmin and vmax=pvmax.

- **letter-spacing** / **word-spacing**

  When letter-spacing and word-spacing are specified to the text, the settings of axf:punctuation-trim, axf:text-autospace, etc. were invalid. **AH Formatter V6.1** removed this restriction.

- **Treatment of ideographic space**

  With **AH Formatter V6.1**, the treatment of the ideographic space (U+3000) has been somewhat changed.

  - When axf:punctuation-trim="adjacent" is specified, the space adjacent to full-width brackets will be trimmed.
  - Treated as a non-starter character. It was decided in consideration of the specification change by Unicode 6.3. If you don't want to treat it as a non-starter character, specify non-starter-ideographic-space="false" in the Option Setting File.

Changes from AH Formatter V5

There are some differences in formatting between **AH Formatter V6.0** and **AH Formatter V5** as listed below.

- **span**

  In **AH Formatter V6.0**, the behavior of span="all" differs from that in **AH Formatter V5**.

  - In **AH Formatter V5**, the span specified inside of the nested FO, that generates reference area such as <fo:block-container> is also effective. However, in **AH Formatter V6.0**, the span specified in FO nested inside of FO that generates reference area is invalid. For instance,

    ```
    <fo:block-container>
    <fo:block span="all">
    <fo:block>ABC</fo:block>
    </fo:block>
    </fo:block-container>
    ```

    In V5, span="all" was effective with <fo:block>ABC</fo:block>. However it's invalid in **AH Formatter V6.0**. In addition, when span="all" is specified to <fo:block> in the column of <fo:block-container>, that uses axf:column-

count, it is considered that the span is specified to the column of the `<fo:block-container>`. In order to keep the same result as V5, specify span="all" to the parent's `<fo:block-contianer>`.

- Although the specification of the forced page break between the empty block at the beginning of the document and the block with span="all" was disregarded in V5, In **AH Formatter V6.0**, a forced page break is effective and a blank page is produced. In order to keep the same result as V5, specify as follows:
  - Do not place an empty block the block with break-before="page" specified, or
  - Do not specify break-before="page" (as it is the beginning of `<fo:flow>`, it's not necessary). Or specify it to an empty block.
- In case of one-column format, span="all" was not effective in V5. **AH Formatter V6.0**, even if it's one-column format, a reference area is generated. This causes the following differences, for example:

```
<fo:block>AAA</fo:block>
<fo:block space-before="1cm" span="all">BBB</fo:block>
```

In case of one-column format, the space was generated between AAA and BBB in V5, but it's not generated in **AH Formatter V6.0**. It is because a reference area is generated by span even in one-column format, then the space without the specification of space-before.conditionality="retain" will be deleted at the beginning of the reference area. In order to keep the same result as V5, do not specify span="all" in one-column format.

- **text-underline-mode**

  In **AH Formatter V5**, there were the following problems with the position of underline, overline and line-through.
  - axf:vertical-underline-side doesn't work when axf:text-underline-position is specified.
  - It is always interpreted as an offset from base-line when the numerical value is specified to axf:text-underline-position.
  - Even if the position of the underline is changed by axf:vertical-underline-side, the position of the overline is not changed.
  - In CSS, the position of underline and overline differs between `-ah-line-stacking-strategy:line-height` and `-ah-line-stacking-strategy:max-height` specified.
  - When the underline etc. are drawn in horizontal writing mode, the line becomes uneven when there are baseline-shift="super", etc. though the line is aligned in a straight in vertical writing mode.
  - When the strikethrough is drawn, the line becomes uneven when the font size differs or there are baseline-shift="super", etc.
  - The line width depends on the font size when axf:text-line-width="auto" is specified. However in CSS, it depends on the height of the line area.

  In **AH Formatter V6.0**, these are improved as follows:
  - axf:vertical-underline-side is effective even if axf:text-underline-position is specified.
  - The standard position can also be described in the numerical value specified for axf:text-underline-position.
  - The overline is always positioned on the opposite side of the underline.
  - In CSS, the line is drawn at the same position without depending on the value of `-ah-line-stacking-strategy`.
  - When the underline etc. are drawn in horizontal writing mode, it is aligned in a straight line even if there are baseline-shift="super", etc.
  - When the strikethrough is drawn, it is aligned in a straight line even if the font size differs or there are baseline-shift="super", etc.
  - The line width depends on the height of the line area when axf:text-line-width="auto" is specified.

  Specify text-underline-mode="5" in the Option Setting File when you want to make it the same as V5.

- **intrusion-displace-mode**

  In **AH Formatter V6.0**, the behavior of the intrusion-displace is revised and different from that of AH Formatter V5.
  - text-indent no longer disappears when intrusion-displace="line" or "auto".
  - intrusion-displace="indent" ensures that relative indents by start-indent and end-indent are preserved. In **AH Formatter V5**, only text-indent was preserved when intrusion-displace="indent".

  Specify intrusion-displace-mode="5" in the Option Setting File when you want to make it the same as V5.

- **vertical-block-width-mode**

  The behavior of the `auto` value of the width of vertical-text block within horizontal-text flow (or the height of horizontal-text block within vertical-text flow) is changed with **AH Formatter V6.0**.

  In **AH Formatter V5**, the width of vertical-text block was given by the width of the outer area. In **AH Formatter V6.0**, the `auto` width of vertical-text block shrinks to fit the content. If you don't want this behavior you should specify the width explicitly such as width="100%". Also the same behavior will be applied to the height of horizontal-text block within vertical-text flow.

Specify vertical-block-width-mode="5" in the Option Setting File when you want to make it the same as V5.

- **zwsp-mode**

  There is an ambiguous portion of the specification in the operation of ZERO WIDTH SPACE (U+200B). In **AH Formatter V5**, ZERO WIDTH SPACE is also a target for text-align="justify" and this portion becomes larger than others. In addition, since leading and trailing ZERO WIDTH SPACE in the block are not exceptions, they spread also. **AH Formatter V6.0** can format as follows:

  - Remove ZERO WIDTH SPACE from the target of justify.
  - Delete leading and trailing ZERO WIDTH SPACE of a block.

  This will avoid the effect of having a one-line space in the block such like `<fo:block></fo:block>`. Specify zwsp-mode in the Option Setting File.

Changes from XSL Formatter V4

There are some differences in formatting between **AH Formatter V5** and **XSL Formatter V4** as listed below.

- **capitalize**

  For example, V4 formats the following

  ```
  <fo:block text-transform="capitalize">
  HELLO world!
  </fo:block>
  ```

  as follows:

  ```
  Hello World!
  ```

  AH Formatter V5 formats as follows:

  ```
  HELLO World!
  ```

  That is, although V4 changes the letters except the initial letter into lower case, **AH Formatter V5** does nothing. In order to make it the same as V4, specify as follows:

  ```
  <fo:block text-transform="capitalize-lowercase">
  ```

  ☞ text-transform

- **text-justify-mode**

  AH Formatter V5 improves the processing of trimming a line of text. Although finer control was attained by axf:text-justify-trim with this enhancement, a difference may arise in the number of characters included in one line with **XSL Formatter V4**. When you want to make it the same as V4 by FO which does not use axf:text-justify-trim, specify text-justify-mode="4" in the Option Setting File.

- **baseline-mode**

  AH Formatter V5 improves the processing when putting fonts with different baselines like a mixture of Western and Japanese text. For example,

  ```
  <fo:block>Latin 漢字</fo:block>
  <fo:block>漢字 Latin</fo:block>
  <fo:block>Latin</fo:block>
  <fo:block>漢字</fo:block>
  ```

  like the above, you may specify font-family="'Times New Roman', 'MS Mincho'" so that Japanese fonts are not applied to Latin. Since the first font specified as font-family determines a baseline by **XSL Formatter V4** at this time, a difference may arise in the height of a line. Since **AH Formatter V5** selects the font in the font-family by the script or the language specification, a suitable baseline will be applied by specifying language="jpn" in the example above. When you want to make it the same as V4, specify baseline-mode="4" in the Option Setting File.

- **Font selection**

  font-selection-strategy="character-by-character" is supported from **AH Formatter V5** In addition, auto-fallback-font in the Option Setting File makes it possible to control the fallback. See also Font Selection.

Changes from XSL 1.0 to XSL 1.1

Some incompatible changes from XSL 1.0 are made to XSL 1.1.

- **from-page-master-region()**

  In XSL 1.1, even if writing-mode or reference-orientation are specified to `<fo:region-*>`, these are ignored and not effective. In order to make these specifications effective in XSL 1.1, it is necessary to specify the following to `<fo:page-sequence>`.

  ```
  writing-mode="from-page-master-region()"
  reference-orientation="from-page-master-region()"
  ```

  In order to evaluate it as well as XSL 1.0 without making any changes in FO, specify default-from-page-master-region="true" in the Option Setting File.

- **fo:table**

  In XSL 1.0, `fo:table` is supposed to generate a reference area (see 5.6 in XSL 1.0). However, in XSL 1.1, it was corrected that this was an error. The difference is mainly generated when converting from margin-* to start-indent and end-indent specified in `fo:table`. For example:

  ```
  <fo:block margin-left="10pt">
    <fo:table margin-left="0pt">
    ...
  ```

  In the table like above, left margins may differ between XSL 1.0 and XSL 1.1. If start-indent etc. are used instead of margin-*, such incompatibility will not be generated.

  In order to evaluate it as well as XSL 1.0 without making any changes in FO, specify table-is-reference-area="true" in the Option Setting File.

Shorthand

Since the shorthand in the property of XSL has succeeded the definition of CSS, the value is evaluated like CSS. That is,

```
margin="0pt -10pt"
```

is evaluated as two values instead of one formula. However, when it's not a shorthand, this is evaluated as one formula. For example, the following is one formula.

```
margin-left="0pt -10pt"
```

AH Formatter V7.1 processes such an ambiguous expression by the shorthand as follows:

- If the expression cannot be one formula like "0pt 10pt", then it is counted as two values.
- If the mark and the numerical value have adhered like "0pt -10pt", it is counted as two values.
- If a white space is included between a mark and a numerical value like "0pt - 10pt", it is counted as one formula.
- "0pt-10pt" is an error. (See 5.9.5 Numerics in the XSL specification)

In FO, when using a formula in the shorthand, it can be enclosed with parentheses, etc.

With CSS, when a function of calc() is written as `calc(10pt-5pt)`, “`-`” is evaluated as a operator.

Property Value Syntax

We briefly explain a part of property value syntax in the XSL/CSS Extensions. This notation conforms to that in CSS. For more details, see also Value Definition Syntax.

- Component value combinators
  - All values that are simply placed must appear in the given order.
  - All values that are separated by a double ampersand “`&&`” must appear in any order.
  - Greater than or equal to one of the values that are separated by a double bar “`||`” must appear in any order.
  - Exactly one of the values that are separated by a bar “`|`” must appear.
  - Brackets “`[ ]`” are for grouping the content.

- Component value multipliers
  - An asterisk “`*`” indicates that the content appears greater than or equal to zero times.
  - A plus “`+`” indicates that the content appears greater than or equal to one times.
  - A question mark “`?`” indicates that the content appears zero or one time.
  - “`{N}`” indicates that the content appears N times.
  - “`{N,}`” indicates that the content appears greater than or equal to N times.
  - “`{N,M}`” indicates that the content appears at least N and at most M times.
  - A hash mark “`#`” indicates that the content appears greater than or equal to one times, separated by comma.

Unicode

AH Formatter V7.1 supports Unicode 13.0. Newly added characters may not be treated correctly. In addition, it's impossible to treat the character of unsupported script correctly (☞ Scripts and Languages). See unicode-bidi-rev in the Option Setting File for the BIDI control characters.

BIDI Algorithm Implementation Restrictions

When an algorithm that is not compatible with V6.6 is selected in unicode-bidi-rev, the BIDI level may not be resolved as specified.

As shown in the following example, if the character before the break is a character such as a space whose BIDI level depends on the subsequent text, or text that changes the BIDI level depending on the presence of the corresponding character, such as parentheses or “isolate” if present, the text in multiple elements must be combined to determine the BIDI level. At this time, the BIDI level is not evaluated correctly if there is an element within the range that the text is converted depending on the evaluation result of the property. The BIDI level is obtained for the text before the property is applied.

```
<fo:block>aaaa <fo:inline property="xxxx">bbbbb</fo:inline> ...</fo:block>
<fo:block>(aaaa<fo:inline property="xxxx">bbbbb</fo:inline> ...)</fo:block>
```

As shown in the following example, when the element is backward referenced, the text obtained in the evaluation result is assumed to be “Neutral”, the BIDI level is obtained once, and after the text is obtained, the BIDI processing is performed only with that text.

```
<p>xxxx<span ref="#yyy" style="content:target-text(attr(ref, url))"></span>zzzz</p>
<p><span id="yyy">ref</span></p>
```

If you want to place the page number that changes the writing direction of the index leader at the left edge of the page, we recommend that you place a space in front of the leader and change the writing direction with unicode-bidi as shown in the following example, rather than giving control characters to “content”.

```
a::before {
    content: leader(dotted) " " target-counter(attr(ref, url),page);
    unicode-bidi: embed;
    direction: rtl;
}

<toc>حول xxxx <a ref="#yyy"></a></toc>
```

Unicode Range

To express the Unicode Range as a property value in the Font Configuration File, Option Setting File, etc., use the following format:

```
[ <urange> | <string> ]# | all
```

`<urange>` is a hexadecimal number with the preceding `U+` and one of the following. Hexadecimal is case insensitive. (In the Unicode specification, the code point must be 4 to 6 digits, but here it is allowed to represent less than 4 digits for notation.)

- a single code point (e.g. `U+416`)
- an interval value range (e.g. `U+400-4FF`)
- a range where trailing “`?`” character implies “any digit value” (e.g. `U+4??`)

`U+4??` is equivalent to `U+400-4FF`. `U+???` is equivalent to `U+000-FFF`. Unicode up to `U+10FFFF` is effective. Even if a range greater than `U+10FFFF` is specified, it is disregarded.

`<string>` is any string enclosed with quotation marks. For example, `U+0028-0029` can be written as `'()'`.

`all` is considered that `U+0-10FFFF` is specified.

URI

`<uri-specification>` in the XSL specification is supposed to specify the character string which fulfills IRI (RFC3987) specification in url(). IRI is called URI for convenience in this document.

> **CAUTION:** In the XSL specification, it is not necessary to enclose a string in url() with quotation marks. However, it may be difficult to accurately recognize "`url(`" corresponding to "`)`", such as when the string contains parentheses. We strongly recommend to enclose a string in url() with quotation marks.

Schemes which can actually be specified in **AH Formatter V7.1** are as follows:

- http:
- https: (Websites cannot be accessed if they have any problem with their certificates)
- file:
- data: (RFC2397)
- jar: (JarURLConnection)

It's possible to specify a correct absolute URI that includes the scheme name without using url(). For example, the following two are the same.

```
<fo:external-graphic src="url('http://localhost/image.png')"/>
<fo:external-graphic src="http://localhost/image.png"/>
```

Moreover, it's possible to specify a relative URI without specifying the scheme name.

```
<fo:external-graphic src="url('image.png')"/>
<fo:external-graphic src="image.png"/>
```

AH Formatter V7.1 allows specifying the file name on a local file system instead of URI for user's convenience. However, generally there is no compatibility between URI and a local file name. For example, while a white space is not allowed for URI, a white space may be available for a local file name. Moreover, since the direct use of the % may be available to use, a character string called `foo%20bar.png` will point to a different resource between the two cases, evaluating as URI and evaluating as a local file name.

AH Formatter V7.1 solves this problem as follows:

- When the scheme is specified, it is adopted as is.
- When the scheme is not specified and surrounded by url(), it is processed as follows:
  1. If URI is correct, it will be adopted as is.
  2. If URI is incorrect, % escape processing is done.
- When the scheme is not specified explicitly and not surrounded by url(), it is processed as follows:
  1. In the Windows environment, "\" is changed into "/".
  2. % escape processing is done.

The relative URI is combined with base-uri and transformed into the absolute URI. All local file names are transformed into a file scheme at this time. For example, in the Windows environment, when base-uri is `C:\home\`, it is transformed as follows:

```
foobar.png                file:///C:/home/foobar.png
url('foobar.png')         file:///C:/home/foobar.png
url('url(foobar.png)')    file:///C:/home/url(foobar.png)
subdir\foobar.png         file:///C:/home/subdir/foobar.png
url('subdir\foobar.png')  file:///C:/home/subdir%5Cfoobar.png
url('subdir/foobar.png')  file:///C:/home/subdir/foobar.png
foo bar.png               file:///C:/home/foo%20bar.png
url('foo bar.png')        file:///C:/home/foo%20bar.png
foo%20bar.png             file:///C:/home/foo%2520bar.png
url('foo%20bar.png')      file:///C:/home/foo%20bar.png
foo%%20bar.png            file:///C:/home/foo%25%2520bar.png
url('foo%%20bar.png')     file:///C:/home/foo%25%2520bar.png
```

```
foo#bar.png              file:///C:/home/foo#bar.png
url('foo#bar.png')       file:///C:/home/foo#bar.png
foo%23bar.png            file:///C:/home/foo%2523bar.png
url('foo%23bar.png')     file:///C:/home/foo%23bar.png
```

A local file name cannot be written directly into url(). For example:

```
url('C:\My Document\foobar.png')
```

The string above will not operate as expected. Specify a local file name without surrounding by url().

"#" is a fragment separator. In `file:///C:/home/foo#bar.png`, the resource actually accessed is `file:///C:/home/foo`. Specify `url('foo%23bar.png')` to access a resource called `foo#bar.png`.

UNC (Universal Naming Convention) in Windows, for example, `\\host\My Document\foobar.png` is transformed into `file://host/My%20Document/foobar.png`. Also, `//host/My Document/foobar.png` will be transformed into `http://host/My%20Document/foobar.png` when base-uri is `http:`. (The same applies to `https:`.) In non-Windows environments, `file://host/...` is not supported.

The format of the data scheme defined in RFC2397 is:

```
"data:" [ mediatype ] [ ";base64" ] "," data
```

Note that a semicolon "`;`" is required when specifying base64, and a data delimiter is a comma "`,`".

The jar scheme defined in JarURLConnection can be specified. This is effective to JAR or ZIP and possible to specify the entry in it.

```
jar:http://www.foo.com/bar/baz.jar!/COM/foo/Quux.png
```

What is specified from after the first separator "`!/`" is considered the entry specification. The nest of JAR or ZIP is not supported.

When accessing HTTP or HTTPS via a proxy in non-Windows environments, it's necessary to specify the proxy address with the HTTP_PROXY or HTTPS_PROXY environment variable.

When the root certificate is necessary in non-Windows environments, it's necessary to specify the file of the root certificate with the SSL_CERT environment variable.

Supports Multi-domain Certificates.

Table Auto Layout

The table (`<fo:table>`) has the attribute, table-layout="fixed" and table-layout="auto". The former specifies the fixed layout which has the fixed column width, and the latter is a specification of the automatic layout which calculates the column width automatically. When the value is omitted, the default value is table-layout="auto". In the XSL specification, the automatic layout serves as implementation-independent. We will explain the implementation of **AH Formatter V7.1** in this document.

An automatic layout can take a lot of time for calculating the width of columns. Specify table-layout="fixed" if high-speed formatting is desired.

In **AH Formatter V7.1**, the processing method of the table differs between the specification of table-layout and the specification of the width to `<fo:table>`. When the width of all columns is specified, even if table-layout="auto" is specified, it is treated as table-layout="fixed". Moreover, proportional-column-width() is supposed to be available to specify only in the case of table-layout="fixed" according to the XSL specification. In **AH Formatter V7.1**, when a column with proportional-column-width() and a column without the width specification are intermingled, it is considered that column-width="proportional-column-width(1)" is specified to the column without the width specification. In addition, it is considered and processed that table-layout="fixed" is specified. That is, in such case, all columns will have the width specification.

table-layout	Width of `fo:table`	Processing Method
fixed	Yes	The width is divided equally and assigned to the column as which width is not specified. When the content exceeds the width, it will overflow.
	No	The table width becomes 100%. The width is divided equally and assigned to the column where the width is not specified. When the content exceeds the width, it will overflow.

table-layout	Width of `fo:table`	Processing Method
auto	Yes	The content of the column are calculated and the width is assigned to the column where the width is not specified. When the table width exceeds its specified width even if the minimum width of a column is adopted, the table width expands to the exceeded width.
	No	The content of the column are calculated and the width is assigned to the column where the width is not specified. When the table width does not fill to 100% even if the maximum width of a column is adopted, it will become the table width. When the table width exceeds 100% even if the width of a column is adopted, it will become the table width. Otherwise, the width of a table becomes 100%.

When table-layout="auto" is specified, the content of the column where the width is not specified are investigated. More desirable column width can be determined if all rows are investigated, but it takes too much time for a big table. **AH Formatter V7.1** usually investigates the contents only to the column for 100 rows at the maximum and determines the width of a column. This number of rows can be changed by table-auto-layout-limit of Option Setting File.

When table-layout="fixed" is specified, since the contents of the column are not investigated, the processing speed is always high.

CAUTION: The column width of the table cell whose contents are generated by `<fo:retrieve-table-marker>` is not automatically calculated.

Line Breaking

AH Formatter V7.1 processes two types of line breaking. One is to break lines into the line width at appropriate points at the end of every line, and the other is a processing according to the line breaking algorithm by Knuth-Plass's “Breaking Paragraphs into Lines”. (Hereinafater referred to as BPIL.) BPIL determines the break position considering the balance of the whole block.

Candidates for line breaking positions are determined by the processing of UAX#14: Line Breaking Properties. The UAX#14 processing is somewhat different from the Unicode specification as follows:

- Nonstarter Japanese characters defined in JIS X 4051:2004 can be controlled by axf:line-break.
- Although LB30 in UAX#14 is a non line-breaking rule before the open-parenthesis and after the close-parenthesis. **AH Formatter V7.1** permits line breaking for full-width parentheses. The target objects are full-width open parenthesis, full-width close parenthesis, and full-width punctuation that are indicated in axf:punctuation-trim.
- The line breaking class AI in a CJK script is processed as ID. However, U+2015 (HORIZONTAL BAR) is processed as IN since it is non-breaking character in JIS X 4051:2004.
- The line breaking class of half width kana is AL. Unless it leaves a space between words as well as the alphabet, line breaking is not done. **AH Formatter V7.1** treats half width kana as full width kana and processes the line breaking.
- UAX#14 allows a line break immediately after U+002F (SOLIDUS), then a line break occurs with abbreviations such as km/h and w/o. It is described clearly that such breaks are undesirable in UAX#14. **AH Formatter V7.1** makes it possible to control the breaking of the word, such as abbreviations by axf:abbreviation-character-count.
- The ideographic space (U+3000) is treated as a non-starter character. If you don't want to treat it as a non-starter character, specify non-starter-ideographic-space="false" in the Option Setting File.
- U+200C and U+200D are processed as follows:
    1. Line breaking will not be done before and after U+200D.
    2. Line breaking will be considered to be available before and after U+200C.

BPIL is applied to the following blocks:

- Blocks with axf:line-break="bpil" specified
- Blocks with no algorithm specified by axf:line-break but its language is specified by bpil in the Option Setting File

The language of the block is specified by xml:lang or the language property, or specified by default-lang in the Option Setting File. However, BPIL is not always applied to all situations. In the following cases, BPIL is not applied, but the line breaking is performed at the end of every line.

- Blocks that contain leaders (such as `<fo:leader>`)
- Blocks that contain floats or blocks with complicated adjustment of the spacing (BPIL may be applied for simple adjustment of the spacing)
- Blocks that contain form field

- Blocks that contain ruby
- Blocks that require BIDI processing
- Blocks that contain axf:indent-here
- Blocks that contain `<axf:tab>` or tab characters with axf:tab-treatment="preserve"
- Blocks that contain overflowed lines where the line breaking is not restricted by wrap-option="no-wrap", etc.
- Blocks whose font-size is 0 or line-height is 0 or less
- Narrow area (The minimum line width is specified by bpil-minimum-line-width in the Option Setting File)
- Large blocks (Limited number of characters is specified by bpil-limit-chars in the Option Setting File)
- Blocks that have page masters changing to different page sizes

The following are restrictions.

- For blocks that contain `<fo:initial-property-set>` or `::first-line`, BPIL is applied to the second and subsequent lines.
- If the block spans across greater than or equal to 3 pages (columns), BPIL may not be applied to the second and subsequent pages (columns).

Quotation Mark

Quotation marks are characters that belong to the character class QU in UAX#14: Line Breaking Properties. Quotation marks generally have an open and close direction, but QU does not. Therefore, if nothing is done, it will have undesired results when breaking lines. Unicode, on the other hand, says that if language information is available, it can be used to determine which character is used as the open or close quotation marks and treat them as OP or CL.

AH Formatter V7.1 treats the following characters as quotation marks (including some non-QU characters in UAX#14.) QU/OP/CL shown here indicates in which direction **AH Formatter V7.1** treats the character (not the character class in UAX#14.)

U+0022	QU	QUOTATION MARK
U+0027	QU	APOSTROPHE
U+00AB	OP	LEFT-POINTING DOUBLE ANGLE QUOTATION MARK
U+00BB	CL	RIGHT-POINTING DOUBLE ANGLE QUOTATION MARK
U+2018	OP	LEFT SINGLE QUOTATION MARK
U+2019	CL	RIGHT SINGLE QUOTATION MARK
U+201A	OP	SINGLE LOW-9 QUOTATION MARK
U+201B	OP	SINGLE HIGH-REVERSED-9 QUOTATION MARK
U+201C	OP	LEFT DOUBLE QUOTATION MARK
U+201D	CL	RIGHT DOUBLE QUOTATION MARK
U+201E	OP	DOUBLE LOW-9 QUOTATION MARK
U+201F	OP	DOUBLE HIGH-REVERSED-9 QUOTATION MARK
U+2039	OP	SINGLE LEFT-POINTING ANGLE QUOTATION MARK
U+203A	CL	SINGLE RIGHT-POINTING ANGLE QUOTATION MARK
U+275B	QU	HEAVY SINGLE TURNED COMMA QUOTATION MARK ORNAMENT
U+275C	QU	HEAVY SINGLE COMMA QUOTATION MARK ORNAMENT
U+275D	QU	HEAVY DOUBLE TURNED COMMA QUOTATION MARK ORNAMENT
U+275E	QU	HEAVY DOUBLE COMMA QUOTATION MARK ORNAMENT
U+275F	QU	HEAVY LOW SINGLE COMMA QUOTATION MARK ORNAMENT
U+2760	QU	HEAVY LOW DOUBLE COMMA QUOTATION MARK ORNAMENT
U+2E00	QU	RIGHT ANGLE SUBSTITUTION MARKER
U+2E01	QU	RIGHT ANGLE DOTTED SUBSTITUTION MARKER
U+2E02	OP	LEFT SUBSTITUTION BRACKET
U+2E03	CL	RIGHT SUBSTITUTION BRACKET
U+2E04	OP	LEFT DOTTED SUBSTITUTION BRACKET
U+2E05	CL	RIGHT DOTTED SUBSTITUTION BRACKET
U+2E06	QU	RAISED INTERPOLATION MARKER
U+2E07	QU	RAISED DOTTED INTERPOLATION MARKER
U+2E08	QU	DOTTED TRANSPOSITION MARKER
U+2E09	OP	LEFT TRANSPOSITION BRACKET
U+2E0A	CL	RIGHT TRANSPOSITION BRACKET
U+2E0B	QU	RAISED SQUARE

U+2E0C OP LEFT RAISED OMISSION BRACKET
U+2E0D CL RIGHT RAISED OMISSION BRACKET
U+2E1C OP LEFT LOW PARAPHRASE BRACKET
U+2E1D CL RIGHT LOW PARAPHRASE BRACKET
U+2E20 OP LEFT VERTICAL BAR WITH QUILL
U+2E21 CL RIGHT VERTICAL BAR WITH QUILL
U+301D OP REVERSED DOUBLE PRIME QUOTATION MARK
U+301E CL DOUBLE PRIME QUOTATION MARK
U+301F CL LOW DOUBLE PRIME QUOTATION MARK

Quotation marks have different directions, mainly in European languages. For example, in French it will be «Guillemets» and in German it will be »Guillemets«. **AH Formatter V7.1** uses the above settings by default, but some languages correct this as follows. Blank cells and characters not listed here are the same as the default.

language code		language	U+00AB	U+00BB	U+2018	U+2019	U+201C	U+201D	U+2039	U+203A
		default	OP	CL	OP	CL	OP	CL	OP	CL
az	aze	Azerbaijani			CL		CL			
bs	bos	Bosnian	CL	OP		QU		QU	CL	OP
bg	bul	Bulgarian			CL		CL			
cs	ces	Czech	CL	OP	CL		CL		CL	OP
da	dan	Danish	CL	OP	CL		CL		CL	OP
de	deu	German	CL	OP	CL		CL		CL	OP
de-CH	deu-CH	Switzerland			CL		CL			
et	est	Estonian			CL		CL			
fi	fin	Finnish		QU		QU		QU		QU
hr	hrv	Croatian	CL	OP					CL	OP
hu	hun	Hungarian	CL	OP					CL	OP
is	isl	Icelandic			CL		CL			
ka	kat	Armenian			CL		CL			
lt	lit	Lithuanian			CL		CL			
mk	mkd	Macedonia			CL		CL			
no	nor	Norwegian		QU		QU		QU		QU
pl	pol	Polish	CL	OP					CL	OP
ru	rus	Russian			CL		CL			
sk	slk	Slovak	CL	OP	CL		CL		CL	OP
sl	slv	Slovene	CL	OP	CL		CL		CL	OP
sq	sqi	Albanian			CL		CL			
sv	swe	Swedish		QU		QU		QU		QU
uz	uzb	Uzbek			CL		CL			

You can change the direction of the quotation marks by quotationmark in the Options Setting File. You can also specify the direction of the quotation marks with axf:quotetype.

Characters in `quotes` used in CSS `open-quote`/`close-quote` are forced to OP or CL regardless of these settings.

OP is a quotation mark that is treated like an open parenthesis and CL is a quotation mark that is treated like a close parenthesis. QU is a non-directional quotation mark. For characters that are QU, **AH Formatter V7.1** processes them as follows:

- QU at the beginning of the string is considered OP.

- QU at the end of the string is considered CL.
- QU within the string is considered OP if there is no white space immediately after it and there is a white space immediately before it.
- QU within the string is considered CL if there is no white space immediately before it and there is a white space immediately after it.
- When other than these, leave it as QU.

Hyphenation

This section explains the behavior of the page (or column) break when hyphenation-keep="page" (or "column") is specified. Suppose there is the following sentence with hyphenation-keep="page" specified.

```
xxxxxxxxxxxxxxx
xxxxxxxxxxxxxxx
xxxxxxxxxxx abc-
def xxxxxxx ghi-
jkl mnopqr.
```

When the page break occurs at the last line, ghi will be pushed to the next page and results in the following:

```
xxxxxxxxxxxxxxx
xxxxxxxxxxx abc-
def xxxxxxx
---------------- page break
ghijkl mnopqr.
```

When widows="2" is specified, another 1 line will be pushed to the next page and results in the following:

```
xxxxxxxxxxxxxxx
xxxxxxxxxxx abc-
---------------- page break
def xxxxxxx ghi-
jkl mnopqr.
```

But it acts against the behavior of hyphenation-keep="page". At that time, **AH Formatter V7.1** cannot push only abc and accordingly 1 line will be pushed to the next page.

```
xxxxxxxxxxxxxxx
---------------- page break
xxxxxxxxxxx abc-
def xxxxxxx ghi-
jkl mnopqr.
```

When the previous line ends with the hyphenation, lines will be pushed line after line. It's better to use together with hyphenation-ladder-count.

In a slightly different case, lines may increase when ghi is pushed as follows:

```
xxxxxxxxxxxxxxx
xxxxxxxxxxx xxxx
xxx xxxxxxx
---------------- page break
ghijkl xxxx mno-
pqr.
```

When widows="3" is specified, one more line will be pushed. At this time, lines may decrease as follows:

```
xxxxxxxxxxxxxxx
xxxxxxxxxxx xxxx
---------------- page break
xxx xxxxxxx ghi-
jkl xxxx mnopqr.
```

AH Formatter V7.1 cannot dissolve the widows="3" caused by the side effect. This is the limitation of **AH Formatter V7.1**. widows="2" never cause such scenario.

Variation Sequence

AH Formatter V7.1 supports the Unicode Character “Variation Sequence”. When the OpenType font has the capability of Variation Sequence (cmap Format14), it is processed appropriately. For example, Variant Sequences can be expressed as follows:

葛󠄀城市 葛城市
葛󠄁飾区 葛飾区

Even when it is applied to a CID font which does not have the capability of Variation Sequence, CID is selected according to the following IVD (UTS#37: Ideographic Variation Database).

- /ivd/data/2007-12-14 Combined registration of the Adobe-Japan1 collection and of sequences in that collection

󠄀, etc. will be disregarded when it is a font which does not have the capability of Variation Sequence or there is no corresponded variation characters, or the specified Variation Sequence is beyond the range. This indicates that even if the setting is the same, the displayed font face may differ depending on which Variation Sequence the font corresponds to.

CAUTION: Variation Sequences other than Ideographic are not supported.

Font Selection

Fonts in FO or CSS are specified by the font-family property. There are various cases in settings when the candidates of the font are enumerated like font-family="'Courier New', serif", or when there is no specification of font-family, **AH Formatter V7.1** determines which font should be applied to a character string as follows:

1. The character strings in the region are divided into the character strings with the same character by the script information corresponding to the character defined by Unicode, the language specified in FO or CSS, or the script information, etc. and the script of the divided character string is determined. This method of determination is complicated because of the reason that there contains the ambiguous characters to determine if it's a full width character or not in Unicode. Or the language is being unable to determine by kanji only as a character string.
2. When font-selection-mode="6" is specified in the Option Setting File, each character of this character string is investigated in order whether the font-family specified by FO or CSS has its glyph. Then the font with the first found glyph will be adopted. If these are not specified, each character of this character string is investigated whether the font-family specified by FO or CSS has its glyph, and the font-family supports the Unicode Range or script in order. Then the first found supported font will be adopted. When no font-family is specified, it is considered that the generic font family as the default font family is specified.

In XSL or CSS, the following five can be used as the generic font family.

- `serif`
- `sans-serif`
- `cursive`
- `fantasy`
- `monospace`

AH Formatter V7.1 has the information of which font is actually made to correspond to these for every script. Moreover, the generic font which does not belong to any script can also be defined now. These can be specified in the Font Setting page of the Option Setting dialog in Graphical User Interface, and also can be specified with `<script-font>` in the Option Setting File.

3. When the generic font classified by the script corresponding to the script of the target character string is specified, whether it supports the character string is investigated.
4. When the corresponding generic font classified by the script is not specified, the generic font is investigated.
5. When auto-fallback-font="true" is specified in the Option Setting File and any fonts specified in the font-family don't support the target character string, the following fallback processing will be performed.
    a. The font specified to the fallback associated with the corresponding script is investigated.
    b. The font specified to the fallback of the generic font is investigated.
    c. Even then any fonts don't support the target character string, the following fonts are investigated in order.
        - Windows version

    i. Lucida Sans Unicode
    ii. Microsoft Sans Serif
    iii. IPAGothic
    iv. Code2000
    v. MS PGothic
    vi. Arial Unicode MS
  - Non-Windows version
    i. Helvetica
    ii. IPAGothic
    iii. Code2000

6. It is an error even then the font which supports the target character string is not found.

The settings in the Option Setting dialog is reflected on the Option Setting File. For example, it is written like

```
<script-font script="Hans" serif="SimSun" sans-serif="SimHei" monospace="SimSun"/>
```

Since there is no specification of cursive here, cursive in the generic font is adopted to Hans. Like immediately after the installation, when `<script-font script="Hans"/>` itself is not specified, it is considered that the default group is specified. The following default group is set up with the Windows version. Only scripts that are specified here are set up. Moreover, it is not set up when the font does not actually exist.

Script	serif	sans-serif	cursive	fantasy	monospace
default	Times New Roman	Arial	Segeo Script or Comic Sans MS or Monotype Corsiva	Impact	Courier New
Jpan	MS Mincho	MS Gothic	MS Mincho or MS Gothic	MS Mincho or MS Gothic	MS Gothic or MS Mincho
Hans	SimSun or MS Song	SimHei or MS Hei or MS Song	SimSun or MS Song	SimSun or MS Song	SimHei or MS Hei or MS Song
Hant	MingLiU	←	←	←	←
Hang	Batang or BatangChe	Gulim or BatangChe	Batang or BatangChe	Batang or BatangChe	BatangChe
Armn V7.1 no-LT	Arian AMU Serif or Arian AMU	Arian AMU	Arian AMU	Arian AMU	Arian AMU Mono or Arian AMU
Geor V7.1 no-LT	Sylfaen	←	←	←	←
Ethi no-LT	Nyala	←	←	←	←
Arab	Arabic Typesetting	←	←	←	←
Syrc no-LT	Estrangelo Edessa	←	←	←	←
Hebr	FrankRuehl	←	←	←	←
Deva	Mangal	←	←	←	←
Beng no-LT	Vrinda	←	←	←	←
Guru no-LT	Raavi	←	←	←	←
Gujr no-LT	Shruti	←	←	←	←
Taml no-LT	Latha	←	←	←	←
Telu no-LT	Gautami	←	←	←	←
Knda no-LT	Tunga	←	←	←	←
Mlym no-LT	Kartika	←	←	←	←

Script	serif	sans-serif	cursive	fantasy	monospace
Sinh no-LT	Iskoola Pota	←	←	←	←
Thai	Angsana New	←	←	←	←
Khmr no-LT	DaunPenh	←	←	←	←
Laoo no-LT	DokChampa	←	←	←	←
Mymr no-LT	Myanmar Text	←	←	←	←

The following default group is set up with the Macintosh version.

Script	serif	sans-serif	cursive	fantasy	monospace
default	Times or Times New Roman	Helvetica or Arial	Monaco or Chalkboard	Monaco or Chalkboard	Courier
Jpan	HiraMinPro W3	HiraKakuPro W3	HiraMaruPro W3 or HiraKakuPro W3	HiraMaruPro W3 or HiraKakuPro W3	HiraKakuPro W3
Hans	STXihei or STSong	STSong	STXihei or STSong	STXihei or STSong	STSong
Hant	LiHeiPro or LiSongPro	LiSongPro	LiHeiPro or LiSongPro	LiHeiPro or LiSongPro	LiSongPro
Hang	AppleMyungjo	AppleGothic	AppleMyungjo	AppleMyungjo	AppleGothic
Arab	Geeza Pro	←	←	←	←
Hebr	NewPeninimMT	←	←	←	←
Deva	DevanagariMT	←	←	←	←
Thai	Thonburi	←	←	←	←

The following default group is set up with the Linux version.

Script	serif	sans-serif	cursive	fantasy	monospace
default	Times	Helvetica	Times	Times	Courier

Glyphs in Vertical Text

There are basically three types of the orientation of text in Japanese or Chinese documents as follows:

In horizontal writing	In vertical writing	
	SVO	MVO
漢字(Abc)。	漢字(Abc)。	漢字(Abc)。

Expresses the orientation of text in vertical writing mode with U or R. U is a character displayed upright on the paper. R is a character rotated 90 degrees clockwise on the paper. Then the text orientation in vertical writing mode is as follows:

- Japanese characters like "漢字" are U.
- Brackets are R.
- After the glyph for vertical writing is used, punctuations are U.
- European characters like "Abc" are U in SVO, R in MVO.

There is an argument of which characters should be upright or which characters should be rotated 90 degrees at UAX#50: Unicode Vertical Text Layout. Right now only the description of MVO (Mixed Vertical Orientation) is here. However, the description of SVO (Stacked Vertical Orientation) was also included in the past (`tr50-6.html`). **AH Formatter V7.1** implements axf:text-orientation="mixed" complying with MVO, axf:text-orientation="upright" complying with SVO. However, **AH Formatter V7.1** uses the one with some modifications (☞ `tr50-x.Orientation.txt`). This data can be modified arbitrarily in the Option Setting File. See also UAX50.

Usually, the font supporting the vertical writing mode has the glyph for vertical writing for some characters. It is because some are inapplicable to vertical writing simply by rotating the glyph for horizontal writing mode. They are small kana, punctuations, long vowel, etc. In vertical writing mode, if the character has the glyph for vertical writing, it will be used.

The orientation of text (U or R) is decided and expressed as compared to the orientation of the glyph for horizontal writing mode. However some glyphs for vertical writing mode differ from that for horizontal writing mode. The example below shows the glyph of U+3083, U+FF08, and U+2190. U+FF08 and U+2190 have the different orientation between vertical and horizontal writing mode.

Glyph for horizontal writing	Glyph for vertical writing
ゃ (←	ゃ ︵ ↑

Although “brackets are R” as mentioned above, actually you have to display them as U using the glyph for vertical writing mode. That is, here is a tacit assumption that the glyph for vertical writing mode is designed to have the orientation differently from that for horizontal writing mode. Whether the font has the glyph for vertical writing mode or whether the orientation is the same as that for

horizontal writing mode depends on the font. In particular, the difference by a font is remarkable in the orientation of symbols, such as arrows. Since it is impossible to get to know which orientation the glyph is designed, this problem is generally impossible to solve. Therefore, **AH Formatter V7.1** controls the orientation of the character according to the major implementations.

Formatting Large Document

When outputting PDF, **AH Formatter V7.1** discards pages that have already been formatted, so **AH Formatter V7.1** consumes just the memory required for one page when outputting PDF for, for example, a simple FO without `<fo:page-number-citation>`, no matter how huge the document is (except when formatting from the GUI). However, if a page contains an `<fo:page-number-citation>` that refers to a following page, we cannot know the page number of the referenced page until that page is actually formatted. For that reason, if a page containing an unresolved `<fo:page-number-citation>` appears, **AH Formatter V7.1** will suspend its output and store the result in memory while continuing formatting. When a document has a table of contents at the start, the table of contents will not be output until all the page numbers appearing in it are resolved. Because of the high memory consumption, there is a limit to the number of formatted pages, so it is not possible to format extremely large documents.

To solve this problem, **AH Formatter V7.1** makes it possible to process the document in two formatting passes. In the first pass, the formatting is processed only for resolving `<fo:page-number-citation>`, and all the required page number information is collected. In the second pass, formatting starts again from the first page. Since all `<fo:page-number-citation>` are already resolved, **AH Formatter V7.1** can discard formatted pages when outputting the document. Although the formatting processing time is increased, the formatting consumes less memory and it is possible to format extremely large documents. But this has no effect on the memory consumption needed for the output.

The following shows how to perform 2-pass formatting:

- Specify -2pass with the Command-line Interface.
- Specify TwoPassFormatting=true with the .NET Interface.
- Specify TwoPassFormatting=true with the COM Interface.
- Specify setTwoPassFormatting(true) with the Java Interface.
- Specify setTwoPassFormatting(true) with the C/C++ Interface.
- Specify `<formatter-settings two-pass-formatting="true">` in the Option Setting File.

CAUTION: Two-pass formatting is not available with CSS formatting.

CAUTION: It's not possible to perform two-pass formatting from Graphical User Interface.

CAUTION: Two-pass formatting is not available with **AH Formatter V7.1 Lite**.

Temporary File

AH Formatter V7.1 does not make a temporary working file if it can be avoided. The following are the cases that **AH Formatter V7.1** makes the temporary file for work.

- With the COM Interface, PDF of a formatted result is saved to a temporary file when outputting PDF to a Web browser directly.
- An XML document passed by using DOM with the COM Interface is processed using a temporary file. However, when FO is specified as the formatting type, the temporary file is not generated because DOM is processed directly.
- When outputting a file while printing, a temporary file is generated.
- When a file interface is required in the XSLT transformation using external XSLT, a temporary file is generated.
- When the transformation from XML+XSL is required in the render method of a Java Interface, the result FO is generated as a temporary file.
- In Windows version, when embedding the image that is not embeddable in PDF, a temporary file is generated in the conversion process.
- A temporary file is generated when converting EPS to PDF using Distiller or Ghostscript.
- When processing EPS using Distiller, if joboptions is not specified, a default joboption will be generated as a temporary file.
- A temporary file is generated when outputting to a XPS file.
- In GUI of Windows version, a temporary file is suitably generated by Windows System.

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