



BSI Standards Publication

**Multimedia systems and equipment -
Multimedia E-publishing and E-books -
Generic format for E-publishing**

National foreword

This British Standard is the UK implementation of IEC 62448:2017. It supersedes BS EN 62448:2014, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee EPL/100, Audio, video and multimedia systems and equipment.

A list of organizations represented on this committee can be obtained on request to its secretary.

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© The British Standards Institution 2019
Published by BSI Standards Limited 2019

ISBN 978 0 580 99146 2

ICS 33.160.60; 35.240.30

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 September 2019.

Amendments/corrigenda issued since publication

Date	Text affected
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INTERNATIONAL STANDARD

**Multimedia systems and equipment – Multimedia E-publishing and E-books –
Generic format for E-publishing**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

ICS 33.160.60; 35.240.30

ISBN 978-2-8322-4936-9

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

MULTIMEDIA SYSTEMS AND EQUIPMENT – MULTIMEDIA E-PUBLISHING AND E-BOOKS – GENERIC FORMAT FOR E-PUBLISHING

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International Standard IEC 62448 has been prepared by technical area 10: Multimedia e-publishing and e-book technologies, of IEC technical committee 100: Audio, video and multimedia systems and equipment.

This fourth edition cancels and replaces the third edition published in 2013. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) clarifying insufficiently clear descriptions;
- b) deleting redundant statements;
- c) ironing out mistakes and confusing terminologies.

The text of this standard is based on the following documents:

CDV	Report on voting
100/2921/CDV	100/2987/RVC

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

This document has been drafted in accordance with the ISO/IEC Directives, Part 2.

In this standard, the following print type is used:

- **terms, elements, properties and attributes used and defined in Annex A and Annex C: bold type.**

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

A bilingual version of this publication may be issued at a later date.

INTRODUCTION

Markets for multimedia e-book and e-publishing require standardization of formats for e-book data interchange among associated people; authors, data preparers, publishers and readers. The formats are classified into submission format, generic format and reader's format. The submission format has to support an interaction between authors and data preparers. The reader's format depends on e-publishing equipment. The generic format has to provide an interchange format for data preparers and publishers and therefore should be e-publishing equipment independent.

The International Electrotechnical Commission (IEC) draws attention to the fact that it is claimed that compliance with this document may involve the use of patents.

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MULTIMEDIA SYSTEMS AND EQUIPMENT – MULTIMEDIA E-PUBLISHING AND E-BOOKS – GENERIC FORMAT FOR E-PUBLISHING

1 Scope

This International Standard specifies a generic format for multimedia e-publishing employed for e-book data interchange among data preparers and publishers, satisfying a number of publishers requirements: revisable, extensible and heterogeneous logical structure.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 19757-2:2008, *Information technology – Document Schema Definition Language (DSDL) – Part 2: Regular-grammar-based validation – RELAX NG*

ISO 639-1, *Codes for the representation of names of languages – Part 1: Alpha-2 code*

ISO 3166-1, *Codes for the representation of names of countries and their subdivisions – Part 1: Country codes*

3 Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

3.1

multimedia e-book

multimedia content consisting of texts, graphics, sounds and/or videos

[SOURCE: IEC 62229:2006, 3.2]

3.2

data preparer

organization or person that prepares an e-book

Note 1 to entry: An editor is an example of a preparer.

[SOURCE: IEC 62229:2006, 3.3]

3.3

publisher

organization or person that issues and distributes an e-book

[SOURCE: IEC 62229:2006, 3.4]

3.4

generic format

format for multimedia e-book contents created and edited by a data preparer and modified by a publisher to a reader's format for e-book distribution

4 Position and requirements for generic format

4.1 Generic format in contents creation/distribution model

The conceptual model for multimedia e-publishing (IEC 62229) defines a contents creation/distribution model shown in Figure 1.

Author <--(1)--> Data preparer <--(2)--> Publisher --(3)--> Reader

IEC

Figure 1 – Contents creation/distribution model

Between the adjacent processing steps, data preparer and publisher, e-book contents data are interchanged using the generic format. Merging original texts, graphics, sounds and/or videos provided by authors, the data preparer creates and edits the e-book data in a generic format. The e-book data are stored and forwarded to the publishers.

Publishers modify the generic format into reader's formats appropriate for distribution schemes and devices. The generic format can be used for e-book distribution as well.

4.2 Requirements for generic format

The generic format can satisfy the following requirements of the data preparer and the publisher:

- a) logical structure:
the generic format has to have a logical structure that can easily be revised;
- b) style specification:
the logical elements in the generic format should be rendered in accordance with a style specification for creating an appropriate reader's format;
- c) heterogeneous structures:
multimedia e-books may include heterogeneous structures such as mathematics, chemistry and music notes according to the genre of contents. Those specific structures should be imported to the generic format;
- d) metadata:
the generic format should support some metadata to manage the e-book contents data.

5 Notation

The logical structure of generic format is described by using RELAX NG schema, ISO/IEC 19757-2:2008.

6 Logical structure

The logical structure of generic format: ebook-g, provides a simple and extensible format ebook-g-core and existing and actually employed formats – BBeB Xylog, XMDF, and ESP

formats. The structures of BBeB Xylog, XMDF, and ESP formats are shown in Annex A, Annex B, and Annex C, respectively.

default namespace="http://tc100.iec.ch/2005/ebook/generic"

start = ebook-g

ebook-g = ebook-g-core

| external "bbeebylog.rnc"

| external "xmdf.rnc"

| external "esp.rnc"

ebook-g-core = meta-g & body-g

meta-g = external "meta-g.rnc"

body-g = element body-g { body }

body =

title*,

foreword*,

introduction*,

titled-clause+,

annex*,

bibliography*

title = element title {

element main { text },

element sub { text }?

}

foreword = element foreword { text }

introduction = element introduction { block+ }

titled-clause = element clause { id, title, clause-content }

clause-content =

(titled-clause, titled-clause+) | untitled-clause-content

untitled-clause-content = (untitled-clause, untitled-clause+) | block+

untitled-clause = element clause { id, untitled-clause-content }

referenced-document =

element referenced-document {

id,

```

    element abbrev { text },
    element title { text },
    element field { text }*,
    element url { xsd:anyURI }
}
annex =
    element annex {
        id,
        title,
        clause-content
    }
bibliography = element bibliography { referenced-document+ }
block = p | ol | ul | example | note | pre | float
p = element p { inline }
float = table | figure
table = external "table.rnc"
figure = external "figure.rnc"
ol =
    element ol {
        element li { id, block+ }+
    }
ul =
    element ul {
        element li { block+ }+
    }
example = element example { p+ }
note = element note { p+ }
pre = element pre { pre-content }
pre-content =
    (text
    | element var { pre-content })*
inline =

```

```
(text
| element code | b | i | var { inline }
| ref
| strong)*
ref =
    element ref {
        attribute to { xsd:IDREF }
    }
id = attribute id { xsd:ID }?
strong = element strong { text }
```

7 Semantics

Elements of ebook-g-core should be rendered in accordance with appropriate style specifications. Actual style specifications by style languages, for example XSL or DSSSL, are outside the scope of this document.

The contents of meta-g.rnc, table.rnc and figure.rnc are not specified within an architecture of the ebook-g-core.

Annex A (normative)

BBeB Xylog format

A.1 General

This annex specifies the BBeB Xylog format mentioned in Clause 6.

This format is specified for two kinds of users: the e-book contents producer and the related tool developer. Those who produce contents can use this specification as a generic contents data storage format based on the international standard. The related tool developer can use it as a reference to specify the rules for the display equipment and to define the conversion rule between this document and the other data forms such as any types of XML or HTML.

This annex includes the following features:

- a) "expression of book on paper" concerning two screens layout and modified characters, etc.
- b) "expression of digital" such as sound, page jump and interactive action, etc.

The elements necessary for the above-mentioned expressions and their smooth operations are defined in this document.

A.2 Structure description

namespace a = "http://relaxng.org/ns/compatibility/annotations/1.0"

namespace sch = "http://www.ascc.net/xml/schematron"

DrawChar =

```
(element.Plot
  | element.CR
  | element.Fill
  | element.CharButton
  | element.Yoko
  | element.Tate
  | element.Nekase
  | element.NoBR
  | element.DrawChar
  | element.Italic
  | element.Bold
  | SimpleChar1)*
```

SimpleChar1 =

```
(element.Rubi
```

```
| element.Box
| element.EmpDots
| element.EmpLine
| element.Sub
| element.Sup
| element.Space
| SimpleChar0)*
SimpleChar0 = (text | element.Gaiji | element.AltString)*
SimpleChar2 = (element.Plot | SimpleChar0)*
# BBeB XML Xylog Basic
element.BBeBXylog =
  element BBeBXylog {
    attlist.version,
    element.BookInformation,
    element.Main,
    element.Style,
    element.Objects
  }
attlist.version &=
  attribute version { text }
>> a:documentation [
  ' Constraint: Current "version" attribute value is "1.0" '
]
element.BookInformation =
  element BookInformation { element.Info, element.TOC }
element.Info =
  element Info {
    attlist.version, element.BookInfo, element.DocInfo, element.Keyword*
  }
element.BookInfo =
  element BookInfo {
    element.Title,
```

```

element.Author,
element.BookID,
element.Publisher,
element.Label,
element.Category*,
element.Classification,
element.FreeText
}

element.Title = element Title { attlist.reading, text }
attlist.reading &= attribute reading { text }
element.Author = element Author { attlist.reading, text }
element.BookID = element BookID { text }
element.Publisher = element Publisher { attlist.reading, text }
element.Label = element Label { attlist.reading, text }
element.Category = element Category { text }
element.Classification = element Classification { text }
element.FreeText = element FreeText { text }
element.DocInfo =
element DocInfo {
    element.CThumbnail,
    element.Language,
    element.Creator,
    element.SumPage
}
element.CThumbnail = element CThumbnail { attlist.CThumbnail }
attlist.CThumbnail &= attribute file { text }
element.Language =
element Language {
    xsd:string { length = "2" }
    >> a:documentation [
        " Constraint: Set two-letter primary language code which is specified in ISO 639."
    ]
}

```

```

    }
    element.Creator = element Creator { text }
    element.SumPage = element SumPage { text }
    element.Keyword = element Keyword { text }
    element.TOC = element TOC { element.TocLabel* }
    element.TocLabel = element TocLabel { attlist.jump, text }
    element.Main = element Main { element.Page+ }
    element.Page =
    element Page {
        attlist.Page,
        element.Common.Page
    }
    >> sch:pattern [
        name = "Style Check"
        "\x{a}" ~
        "      "
        sch:rule [
            context = "Page"
            "\x{a}" ~
            "      "
            sch:assert [
                test = "@pagestyle = //Style/PageStyle/@stylelabel"
                "No PageStyle"
            ]
            "\x{a}" ~
            "      "
        ]
        "\x{a}" ~
        "      "
    ]
}
element.Common.Page =
(element.Common.Objects

```

```

| element.BlockSpace
| element.RuledLine
| element.Wait)*
attlist.id &= attribute objid { xsd:string }
attlist.refid &= attribute refobj { xsd:string }
attlist.refstream &= attribute refstream { xsd:string }
attlist.Page &=
    attlist.id,
    attribute pagestyle { text },
    attlist.Common.Page
element.TextBlock =
    element TextBlock {
        attlist.TextBlock,
        ((element.P | element.CR)*)
    }
>> sch:pattern [
    name = "Style Check"
    "\x{a}" ~
    "      "

    sch:rule [
        context = "TextBlock"
        "\x{a}" ~
        "      "

        sch:assert [
            test = "@blockstyle = //Style/BlockStyle/@stylelabel"
            "No BlockStyle"
        ]
        "\x{a}" ~
        "      "
    ]
    "\x{a}" ~
    "      "
]

```

```

>> sch:pattern [
    name = "Style Check"
    "\x{a}" ~
    "      "

    sch:rule [
        context = "TextBlock"
        "\x{a}" ~
        "      "

        sch:assert [
            test = "@textstyle = //Style/TextStyle/@stylelabel"
            "No TextStyle"
        ]
        "\x{a}" ~
        "      "
    ]
    "\x{a}" ~
    "      "
]
}

attlist.TextBlock &=
    attlist.id,
    attribute textstyle { text },
    attribute blockstyle { text },
    attlist.Common.Text,
    attlist.Common.Block

element.P = element P { attlist.P, DrawChar }
attlist.P &= attribute refesound { xsd:string }?
element.Plot = element Plot { attlist.Plot, text }
attlist.xsize &= attribute xsize { xsd:unsignedShort }
attlist.ysize &= attribute ysize { xsd:unsignedShort }
attlist.Plot &=
    attlist.xsize,

```

```

attlist.ysize,
attlist.refid,
[ a:defaultValue = "bottom" ]
attribute adjustment { "center" | "baseline" | "top" | "bottom" }?
element.CR = element CR { empty }
element.Fill =
    element Fill {
        attribute code { text },
        empty
    }
element.Space = element Space { attlist.xsize, empty }
element.CharButton = element CharButton { attlist.refid, SimpleChar1 }
element.Rubi = element Rubi { (element.Oyamoji, element.Rubimoji)+ }
element.Oyamoji = element Oyamoji { SimpleChar0 }
element.Gaiji = element Gaiji { attlist.Gaiji, text }
attlist.Gaiji &=
    attlist.refid,
    attribute fontfacename { text }?,
    attribute code { text }
element.AltString = element AltString { element.Org, element.Alt }
element.Org = element Org { text }
element.Alt = element Alt { text }
element.Rubimoji = element Rubimoji { SimpleChar0 }
element.Box = element Box { attlist.Box, SimpleChar0 }
attlist.linetype &=
    attribute linetype { "solid" | "dotted" | "dashed" | "double" }
attlist.Box &= attlist.linetype?
element.EmpDots = element EmpDots { attlist.EmpDots, SimpleChar0 }
attlist.Empdotsposition &=
    attribute empdotsposition { "before" | "after" }
attlist.EmpdotsChar &=
    attribute empdotscode { text },

```

```

    attribute empdotsfontname { text },
    attribute refempdotsfont { text }
attlist.EmpDots &= attlist.Empdotsposition?, attlist.EmpdotsChar?
element.EmpLine = element EmpLine { attlist.EmpLine, SimpleChar0 }
attlist.Emplineposition &=
    attribute emplineposition { "before" | "after" }
attlist.Emplinetype &=
    attribute emplinetype {
        "none" | "solid" | "dotted" | "dashed" | "double"
    }
attlist.EmpLine &= attlist.Emplinetype?, attlist.Emplineposition?
element.Sub = element Sub { SimpleChar0 }
element.Sup = element Sup { SimpleChar0 }
element.Yoko = element Yoko { SimpleChar0 }
element.Tate = element Tate { SimpleChar2 }
element.Nekase = element Nekase { SimpleChar2 }
element.NoBR = element NoBR { SimpleChar1 }
element.DrawChar =
    element DrawChar {
        attribute line { xsd:unsignedShort },
        SimpleChar0
    }
element.Italic = element Italic { DrawChar }
element.Bold = element Bold { DrawChar }
element.ImageBlock =
    element ImageBlock { attlist.ImageBlock, text }
>> sch:pattern [
    name = "Style Check"
    "\x{a}" ~
    "    "
    sch:rule [
        context = "Page"

```

```

"\x{a}" ~
"      "

sch:assert [
    test = "@blockstyle = //Style/BlockStyle/@stylelabel"
    "No BlockStyle"
]
"\x{a}" ~
"      "

]
"\x{a}" ~
"      "

]

attlist.ImageBlock &=
attlist.id,
attribute blockstyle { text },
attlist.Common.Block,
attlist.Common.Image
element.ButtonBlock =
element ButtonBlock {
    attlist.ButtonBlock,
    element.BaseButton?,
    element.FocusinButton?,
    element.PushButton?,
    (element.UpButton?)
>> sch:pattern [
    name = "Style Check"
    "\x{a}" ~
    "      "

    sch:rule [
        context = "ButtonBlock"
        "\x{a}" ~
        "      "

```

```

    sch:assert [
      test = "@blockstyle = //Style/BlockStyle/@stylelabel"
      "No BlockStyle"
    ]
    "\x{a}" ~
    "    "
  ]
  "\x{a}" ~
  "    "
]
}

attlist.ButtonBlock &=
  attlist.id,
  attribute blockstyle { text },
  attlist.Common.Block
attlist.refimage &= attribute refimage { xsd:string }
element.BaseButton = element BaseButton { attlist.refimage?, empty }
element.FocusinButton =
  element FocusinButton {
    attlist.refimage?,
    (element.JumpTo
      | element.Run
      | element.SoundStop
      | element.CloseWindow)*
  }
element.JumpTo = element JumpTo { attlist.jump, empty }
attlist.jump &=
  attribute refpage { xsd:string },
  attlist.refid
element.Run = element Run { attlist.Run, empty }
attlist.Run &=
  [ a:defaultValue = "normal" ]

```

```

attribute runoption {
    "normal" | "opposite" | "center" | "opposite-center"
}?,

attlist.refid

element.SoundStop = element SoundStop { empty }
element.CloseWindow = element CloseWindow { empty }
element.PushButton =
    element PushButton {
        attlist.refimage?,
        (element.JumpTo
            | element.Run
            | element.SoundStop
            | element.CloseWindow)*
    }
element.UpButton =
    element UpButton {
        attlist.refimage?,
        (element.JumpTo
            | element.Run
            | element.SoundStop
            | element.CloseWindow)*
    }
element.BlockSpace = element BlockSpace { attlist.BlockSpace, empty }
attlist.BlockSpace &=
    attribute xspace { xsd:short }?,
    attribute yspace { xsd:short }?
element.Canvas =
    element Canvas {
        attlist.Canvas, (element.Common.Canvas | element.Wait)*
    }
element.Common.Canvas =
    element.PutObj

```

```

| element.Moveto
| element.Lineto
| element.DrawBox
| element.DrawEllipse
attlist.Canvas &=
    attribute canvaswidth { xsd:unsignedShort },
    attribute canvasheight { xsd:unsignedShort },
    attribute blockrule { "block-fixed" | "block-adjustable" }?,
    attlist.id,
    attlist.Common.Canvas
attlist.Layout &= attribute layout { "LrTb" | "TbRI" }
attlist.Common.Frame &=
    attribute framewidth { xsd:unsignedShort }?,
    attribute framecolor { text }?,
    attribute framemode { "curve" | "square" }?
attlist.Common.Canvas &=
    attribute bgcolor { text }?,
    attlist.Layout?,
    attlist.Common.Frame
element.PutObj = element PutObj { attlist.PutObj, empty }
attlist.x1.unsigned &= attribute x1 { xsd:unsignedShort }
attlist.x1.signed &= attribute x1 { xsd:short }
attlist.y1.unsigned &= attribute y1 { xsd:unsignedShort }
attlist.y1.signed &= attribute y1 { xsd:short }
attlist.PutObj &=
    attlist.x1.unsigned, attlist.y1.unsigned, attlist.refid
element.Wait =
    element Wait {
        attribute time { xsd:short },
        empty
    }
element.Moveto =

```

```

    element Moveto { attlist.x1.signed, attlist.y1.signed, empty }
element.Lineto = element Lineto { attlist.Lineto, empty }
attlist.Common.line &=
    attribute linewidth { xsd:unsignedShort }?,
    attribute linecolor { text }?,
    attlist.linetype?
attlist.Lineto &=
    attlist.x1.signed,
    attlist.y1.signed,
    attlist.Common.line,
    attribute arrowtype { text }?
element.DrawBox = element DrawBox { attlist.DrawBox, empty }
attlist.DrawBox &=
    attlist.x1.signed,
    attlist.y1.signed,
    attlist.Common.line,
    attribute fillcolor { text }?
element.DrawEllipse = element DrawEllipse { attlist.DrawEllipse, empty }
attlist.DrawEllipse &=
    attlist.x1.signed,
    attlist.y1.signed,
    attlist.Common.line,
    attribute fillcolor { text }?
element.RuledLine = element RuledLine { attlist.RuledLine, empty }
attlist.RuledLine &=
    attlist.linetype,
    attribute linewidth { xsd:unsignedShort },
    attribute linelength { xsd:unsignedShort },
    attribute linecolor { text }?
element.Style =
    element Style {
        element.BookStyle,

```

```

    (element.TextStyle | element.BlockStyle | element.PageStyle)*
}

element.BookStyle =
    element BookStyle {
        attlist.Style,
        element.SetDefault?,
        element.RegistFont*,
        element.BookSetting
    }

attlist.Style &=
    attribute stylelabel { text },
    attlist.id

element.SetDefault = element SetDefault { attlist.SetDefault, empty }

attlist.Rubyoverhang &= attribute rubyoverhang { "auto" | "none" }
attlist.Rubyalign &= attribute rubyalign { "start" | "center" }
attlist.Rubyadjust &= attribute rubyadjust { "line-edge" | "none" }
attlist.Setwaitprop &= attribute setwaitprop { "replay" | "noreplay" }

attlist.SetDefault &=
    attlist.Rubyalign,
    attlist.Rubyoverhang,
    attlist.Empdotsposition,
    attlist.Emplineposition,
    attlist.Emplinetype,
    attlist.EmpdotsChar,
    attlist.Rubyadjust,
    attlist.Setwaitprop

element.RegistFont = element RegistFont { attlist.RegistFont, empty }

attlist.FontEncoding &= attribute encoding { "TTF" | "OTF" | "BF" }

attlist.RegistFont &=
    attribute fontfilename { text },
    attribute file { text },
    attribute fontname { text },

```

```

attlist.FontEncoding
element.BookSetting = element BookSetting { attlist.BookSetting, empty }
attlist.BookSetting &=
    attribute bindingdirection { "Lr" | "Rl" },
    attribute dpi { xsd:unsignedShort },
    attribute screenwidth { xsd:unsignedShort },
    attribute screenheight { xsd:unsignedShort },
    [ a:defaultValue = "24" ] attribute colordepth { xsd:unsignedByte }?
element.TextStyle = element TextStyle { attlist.TextStyle, empty }
attlist.TextStyle &= attlist.Style, attlist.Common.Text
attlist.Common.Text &=
    attlist.EmpDots,
    attlist.EmpLine,
    attribute fontsize { xsd:short }?,
    attribute fontwidth { xsd:short }?,
    attribute fontescapement { xsd:short }?,
    attribute fontorientation { xsd:short }?,
    attribute fontfacename { text }?,
    attribute textcolor { text }?,
    attribute textbgcolor { text }?,
    attribute wordspace { xsd:short }?,
    attribute letterspace { xsd:short }?,
    attribute baselineskip { xsd:short }?,
    attribute linespace { xsd:short }?,
    attribute parindent { xsd:short }?,
    attribute parskip { xsd:short }?,
    attlist.Rubyalign?,
    attlist.Rubyoverhang?,
    attribute column { text }?,
    attribute columnsep { text }?,
    attribute align { "head" | "center" | "foot" }?,
    attribute linecolor { text }?,

```

```
attribute charspace { xsd:short }?,
attribute fontweight { xsd:unsignedShort }?,
attlist.Rubyadjust?,
attribute textlinewidth { xsd:unsignedShort }?
element.BlockStyle = element BlockStyle { attlist.BlockStyle, empty }
attlist.BlockStyle &= attlist.Style, attlist.Common.Block
attlist.Common.Block &=
attribute blockwidth { xsd:unsignedShort }?,
attribute blockheight { xsd:unsignedShort }?,
attribute blockrule {
    "horz-fixed"
    | "horz-adjustable"
    | "vert-fixed"
    | "vert-adjustable"
    | "block-fixed"
    | "block-adjustable"
}?,
attribute bgcolor { text }?,
attlist.Layout?,
attlist.Common.Frame,
attribute topskip { xsd:unsignedShort }?,
attribute sidemargin { xsd:unsignedShort }?,
attribute footskip { xsd:unsignedShort }?,
attribute refbgimage { text }?,
attlist.Bgimagemode?
element.PageStyle = element PageStyle { attlist.PageStyle, empty }
attlist.PageStyle &=
attlist.Style,
attlist.Common.Page,
attribute setemptyview { "show" | "empty" }?,
attlist.Setwaitprop?
attlist.Bgimagemode &=
```

```

    attribute bgimagemode { "fix" | "tile" | "centering" }
attlist.Common.Page &=
    (attribute refbgimage { text },
    attlist.Bgimagemode)?,
    attribute evenfooterid { xsd:string }?,
    attribute evenheaderid { xsd:string }?,
    attribute oddfooterid { xsd:string }?,
    attribute oddheaderid { xsd:string }?,
    attribute pageposition { "upper" | "lower" | "any" }?,
    attribute topmargin { xsd:short }?,
    attribute headheight { xsd:short }?,
    attribute headsep { xsd:short }?,
    attribute oddsidemargin { xsd:unsignedShort }?,
    attribute evensidemargin { xsd:unsignedShort }?,
    attribute textheight { xsd:unsignedShort }?,
    attribute textwidth { xsd:unsignedShort }?,
    attribute footheight { xsd:short }?,
    attlist.Layout?,
    attribute footspace { xsd:short }?
element.Common.Objects &=
    element.ImageBlock
    | element.TextBlock
    | element.ButtonBlock
    | element.Canvas
element.Objects =
    element Objects {
        (element.Common.Objects
        | element.Window
        | element.PopUpWin
        | element.Sound
        | element.SoundStream
        | element.ImageStream

```

```

    | element.Header
    | element.Footer
    | element.eSound
    | element.Font

    | element.Image
    | element.Button)*
}

element.Window = element Window { attlist.Window, element.Common.Page }
attlist.Window &=
    attribute windowwidth { xsd:unsignedShort }?,
    attribute windowheight { xsd:unsignedShort }?,
    attlist.Layout?,
    attlist.id

element.PopUpWin =
    element PopUpWin {
        attlist.PopUpWin, (element.TextBlock | element.ImageBlock)
    }
attlist.PopUpWin &= attlist.id

element.Sound = element Sound { attlist.Sound, empty }
attlist.Sound &=
    [ a:defaultValue = " 1" ] attribute times { xsd:unsignedShort }?,
    [ a:defaultValue = "sync" ] attribute playmode { "sync" | "async" }?,
    attlist.refstream,
    attlist.id

element.SoundStream = element SoundStream { attlist.SoundStream, empty }
attlist.SoundStream &=
    attribute encoding { "PCM" | "MP3" },
    attribute file { text },
    attlist.id

element.ImageStream = element ImageStream { attlist.ImageStream, text }
attlist.ImageStream &=

```

```

attribute encoding { "JPEG" | "GIF" | "BMP" | "PNG" },
attribute file { text },
attlist.id
element.Header =
    element Header {
        attlist.id, attlist.Common.Canvas, (element.Common.Canvas)*
    }
element.Footer =
    element Footer {
        attlist.id, attlist.Common.Canvas, (element.Common.Canvas)*
    }
element.eSound = element eSound { attlist.eSound, empty }
attlist.eSound &= attlist.id, attlist.refstream
element.Font = element Font { attlist.Font, empty }
attlist.Font &=
    attribute file { text },
    attribute fontfilename { text },
    attribute fontname { text },
    attlist.id,
    attlist.FontEncoding
element.Image = element Image { attlist.Image, text }
attlist.Image &= attlist.id, attlist.Common.Image
attlist.Common.Image &=
    attribute x0 { xsd:unsignedShort },
    attribute y0 { xsd:unsignedShort },
    attlist.x1.unsigned,
    attlist.y1.unsigned,
    attlist.xsize,
    attlist.ysize,
    attlist.refstream
element.Button =
    element Button {

```

```

attlist.Button,

element.BaseButton?,

element.FocusinButton?,

element.PushButton?,

element.UpButton?

}

attlist.Button &= attlist.id

start = element.BBeBXylog

```

A.3 Block layout

A.3.1 Layout

The "BBeB Book Format" utilizes the "Block layout" concept. In the "Block layout", the content to be shown is displayed in an area called "Block". The layout is composed of multiple "Block"s. Each "Block" is placed in a relative location. The "BBeB XML Xylog" file format defines the implementation rules based on this "Block layout" concept, as shown in Figure A.1.

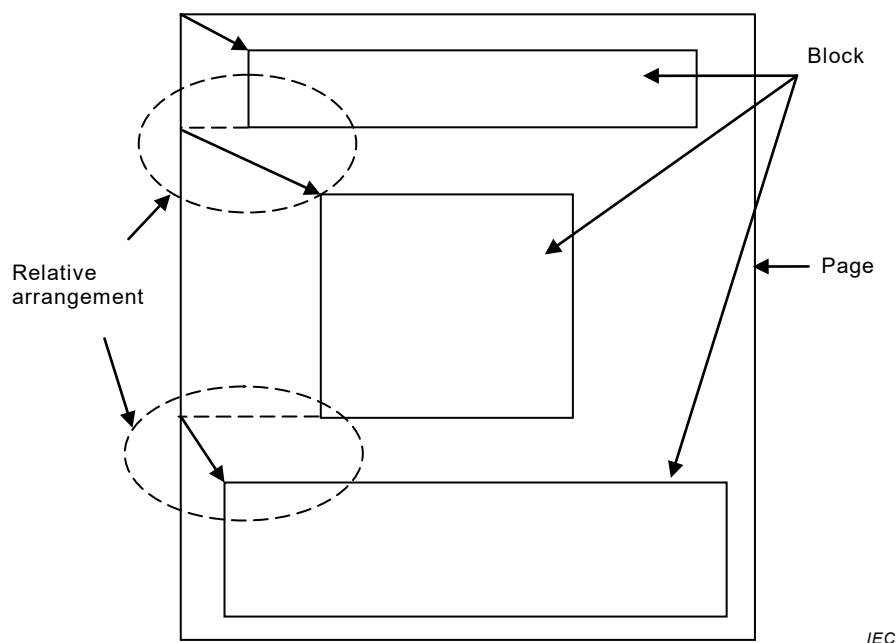


Figure A.1 – Conceptual diagram of the "Block layout"

A.3.2 Block

This document defines the **TextBlock**, **ImageBlock**, **ButtonBlock**, and **Canvas** elements. These are positioned on a "Page" as a "Block". These are described as sub-elements of the **Page** element with the **BlockSpace** element that indicates the relative arrangement position.

It is possible to specify background image, background colour and frame in the "Block".

A.3.3 Coordinate system

This document uses a two-dimensional coordinate system (X,Y) that depends on the vertical layout or the horizontal layout, see Figure A.2.

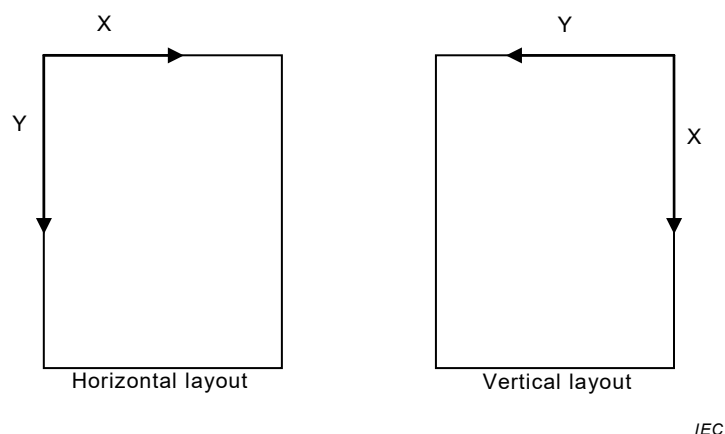


Figure A.2 – Coordinate system

A.4 Terminology

A.4.1 Page layout

For the page layout area, the following terms are defined (see Figure A.3):

Screen size:

screen size of page content which is expected to be viewed by a specific display device and specified by the value of the **screenwidth** and **screenheight** attribute in the **BookSetting** element (see A.5.71)

topmargin:

the space between the top edge of screen and Header area

Header area:

area where header(s) is/are placed

headheight:

the height of Header area

headsep:

the space between Header area and Main text area

Main text area:

area where main content is placed

textheight:

the height of Main text area

textwidth:

the width of Header area, Main text area and Footer area

footspace:

the distance between the bottom of Main text area and the bottom edge of Footer area

footheight:

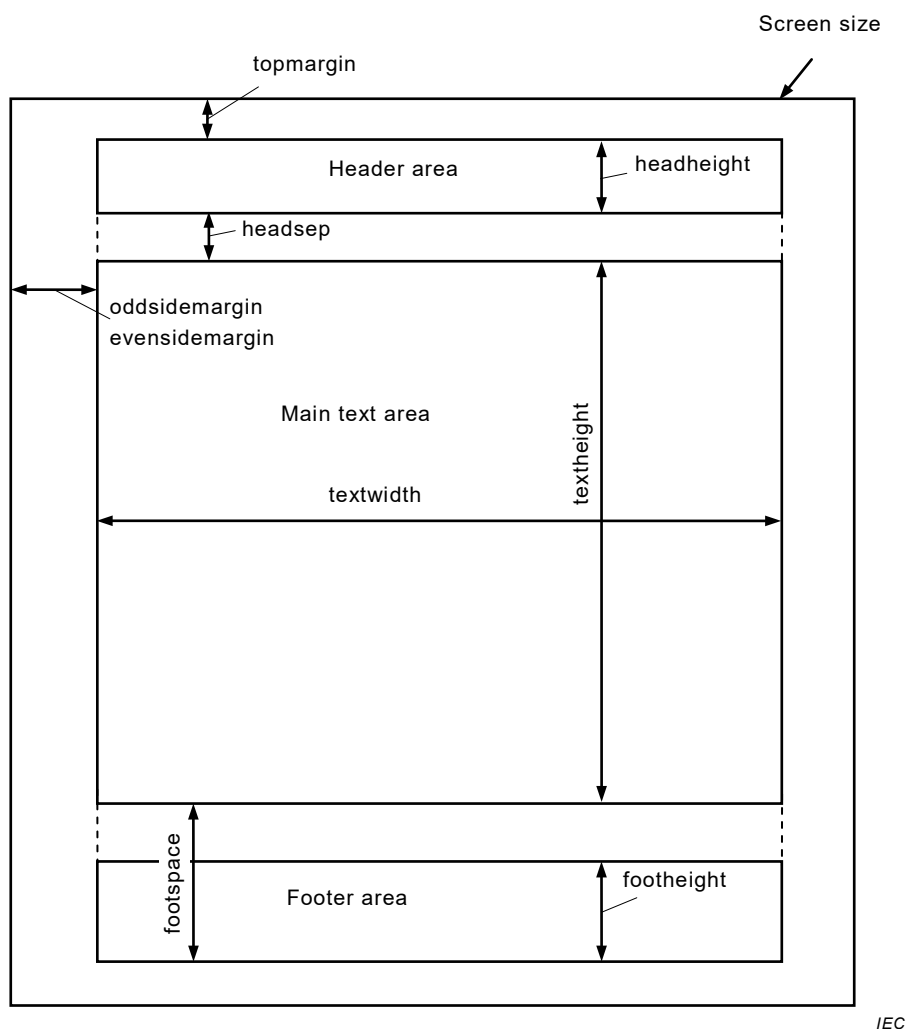
the height of Footer area

oddsidemargin:

the margin between the left-hand side edge of screen and left-hand side edge of Main text area in the odd page

evensidemargin:

the margin between the left-hand side edge of screen and left-hand side edge of Main text area in the even page.



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Figure A.3 – Page layout composition

A.4.2 Block layout

For the Block layout area, the following terms are defined (see Figure A.4):

rendering area:

area defined in a block, where the text or image are placed

topskip:

margin between the top edge of the block and the top edge of the rendering area

sidemargin:

margin between the side edge of a block and the side edge of the rendering area for both sides

footskip:

margin between the bottom edge of the block and the bottom edge of the rendering area

blockheight:

height of the "Block"

blockwidth:

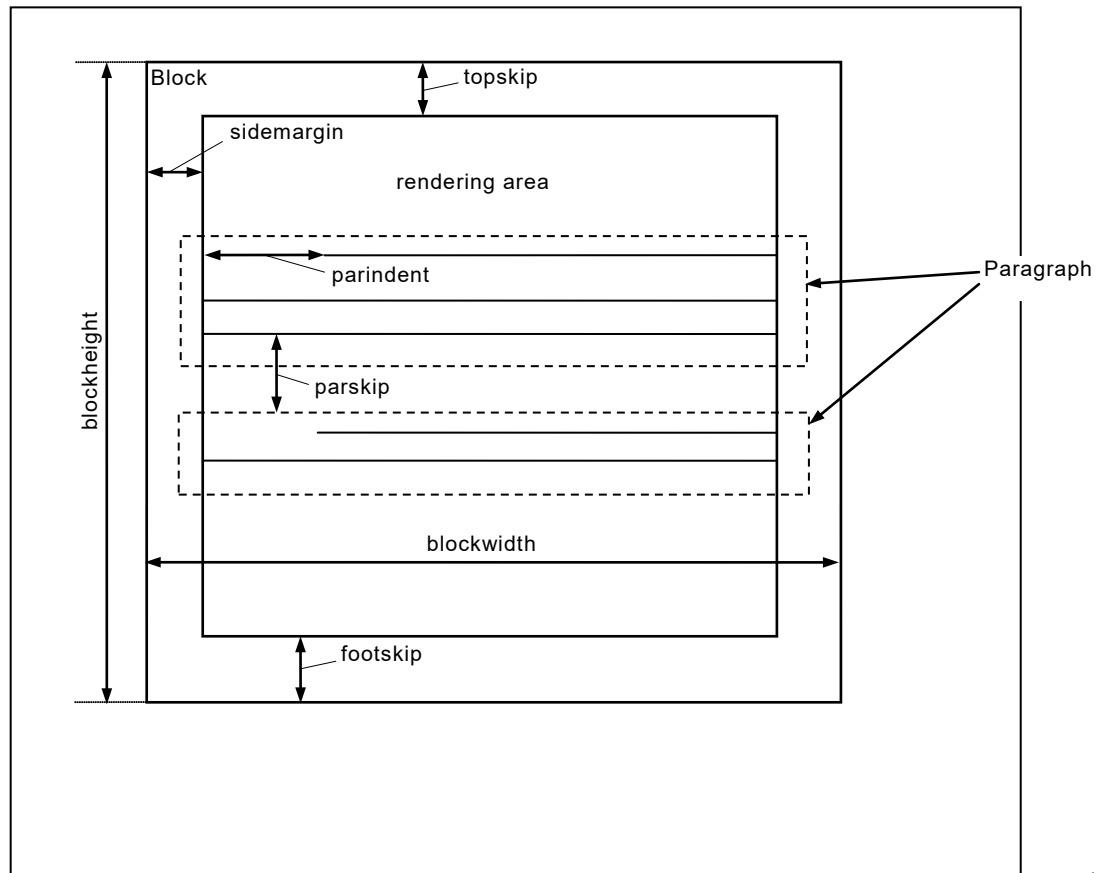
width of the "Block"

parindent:

indent of the paragraph measured from the side edge of the rendering area

parskip:

distance between the end line of a paragraph and the start line of the next paragraph



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Figure A.4 – Block layout composition

A.4.3 Data types

The type definitions, as stated in Table A.1, are defined as the XML "Attribute" value in this document.

Table A.1 – Data types

Type definition	Meaning	Example
String	Specifies a normal string of characters	"after", "solid"
String for sorting	Only able to use the character string defined in the "Character Set for Sorting Specification".	"Kennedy John F."
File path	Specifies the path in which the file is located	"D:\sample.jpg", "..\data\white.mp3"
Decimal string	Specifies a decimal numeral as a character string	"10", "20"
Hexadecimal string	Specifies a hexadecimal numeral as a character string. "0x" is placed at the start of the numeral to show it is hexadecimal	"0x12", "0x3333"
Style string	Specifies a character string used in style labels	"Main Block", "Cover Page", "Section Title Text"
Object ID string	Specifies a character string used in object IDs	"33", "Object12"
COLORREF string	Specifies 32-bit hexadecimal character string signifying color. The description format is 0xaaarrgbb. (aa: alpha channel [specified as "00" or "ff" in these specifications], "rr": red value, "gg": green value, "bb": blue value)	"0x00ff0000" (red)

A.5 Elements and attributes

A.5.1 BBeBXylog

The **BBeBXylog** element is an element that indicates the area of a whole content in accordance with "BBeB XML Xylog file format", see Table A.2.

Table A.2 – Attribute of BBeBXylog

Attribute name	Default value	Data type	Comments
version (required)		String	Defines as "1.0".

The **version** attribute specifies the relevant version number for the "BBeB XML Xylog" file format. The value shall be "1.0" according to this document.

A.5.2 BookInformation

The **BookInformation** element specifies bibliographical information and the TOC (table of content) information.

A.5.3 Info

The **Info** element specifies the bibliographical information and the additional information of the content, see Table A.3.

Table A.3 – Attribute of Info

Attribute name	Default value	Data type	Comments
version (required)		String	Defines as "1.0".

The **version** attribute specifies the version of the bibliographical information format. The value shall be "1.0" according to this document.

A.5.4 BookInfo

The **BookInfo** element specifies the bibliographical information of the content.

A.5.5 Title

The **Title** element specifies the title of the content, see Table A.4.

Table A.4 – Attribute of Title

Attribute name	Default value	Data type	Comments
reading (required)		String for sorting	

The **reading** attribute specifies the string to sort the content by the title. "Japanese syllabary character", etc. can be used in Japanese. "Alphabet", etc. can be used in English. The detail of the character sets used in this attribute may be specified in interchange parties.

A.5.6 Author

The **Author** element specifies the author name of the content. If the user wants to describe plural author names, the user shall describe author names serially in an element, see Table A.5.

Table A.5 – Attribute of Author

Attribute name	Default value	Data type	Comments
reading (required)		String for sorting	

The **reading** attribute specifies the string to sort the content by the author. "Japanese syllabary character", etc. can be used in Japanese. "Alphabet" etc. can be used in English. The detail of the character sets used in this attribute may be specified in interchange parties.

A.5.7 BookID

The **BookID** element specifies ID information of the content. This ID is used to distinguish "Personal content" and the "Commercial content". BookID for the Personal content shall be specified by the character "FB" and the following characters of 14 digits or less (16 digits or less in total). BookID for the Commercial content may be specified in Interchange Parties.

A.5.8 Publisher

The **Publisher** element specifies the publisher name of the content, see Table A.6.

Table A.6 – Attribute of Publisher

Attribute name	Default value	Data type	Comments
reading (required)		String for sorting	

The **reading** attribute specifies the string to sort the content by the publisher. "Japanese syllabary character", etc. can be used in Japanese. "Alphabet", etc. can be used in English. The detail of the character sets used in this attribute may be specified in interchange parties.

A.5.9 Label

The **Label** element specifies the label name, see Table A.7.

Table A.7 – Attribute of Label

Attribute name	Default value	Data type	Comments
reading (required)		String for sorting	

The **reading** attribute specifies the string to sort the content by the label. "Japanese syllabary character", etc. can be used in Japanese. "Alphabet", etc. can be used in English. The detail of the character sets used in this attribute may be specified in interchange parties.

A.5.10 Category

The **Category** element specifies the genre of the content. The number of this element shall be up to two.

A.5.11 Classification

The **Classification** element specifies information on what kind of data is included in the content (e.g. sound, colour image).

A.5.12 FreeText

The **FreeText** element specifies free description about the content (e.g. content summary).

A.5.13 DocInfo

The **DocInfo** element specifies the thumbnail, language information, etc.

A.5.14 Cthumbnail

The **Cthumbnail** element specifies the file name of the thumbnail image for the content, see Table A.8.

Table A.8 – Attribute of Cthumbnail

Attribute name	Default value	Data type	Comments
file (required)		File path	Specifies the absolute path or the accessible relative path of the file to be used as a thumbnail image

The **file** attribute specifies the file name and path in which the thumbnail file is located.

A.5.15 Language

The **Language** element specifies the main language used in the content. It should use "ISO 639 language codes", for example Japanese: "ja".

A.5.16 Creator

The **Creator** element specifies the creator or studio name of the content.

A.5.17 SumPage

The **SumPage** element specifies the number of "View"s (visible pages for the **BookSetting** element conditions) of the content.

A.5.18 Keyword

The **Keyword** element specifies keywords necessary for searching the content.

A.5.19 TOC

The **TOC** element specifies the table of the content information.

A.5.20 TocLabel

A.5.20.0 General

The **TocLabel** element specifies the character string shown as the table of content list, see Table A.9.

Table A.9 – Attribute of TocLabel

Attribute name	Default value	Data type	Comments
refobj (required)		Object ID string	Specifies the "objid" of TextBlock , ImageBlock , ButtonBlock and Canvas elements
refpage (required)		Object ID string	Specifies the "objid" of the Page element

A.5.20.1 refobj

The **refobj** attribute specifies the "objid" of the element specified as the "Jump" target. The element specified as "objid" should be located in the **Page** element specified as "refpage".

A.5.20.2 refpage

The **refpage** attribute specifies the "objid" of the **Page** element including the element specified as the "Jump" target.

A.5.21 Main

The **Main** element specifies the "Main content".

A.5.22 Page

A.5.22.0 General

The **Page** element specifies the elements composed of the "Page" and the layout information itself. The attribute of the **Page** element is recommended to describe the only different information from the **PageStyle** element information specified by "pagestyle", see Table A.10.

Table A.10 – Attribute of Page

Attribute name	Default value	Data type	Comments
bgimagemode		String	Specifies "fix", "tile" or "centering"
evenfooterid		Object ID string	Specifies the "objid" of the Footer element
evenheaderid		Object ID string	Specifies the "objid" of the Header element
evensidemargin	(Unsigned integer)	Decimal string	[dot]
footheight	(Signed integer)	Decimal string	[dot]
footspace	(Signed integer)	Decimal string	[dot]
headheight	(Signed integer)	Decimal string	[dot]
headsep	(Signed integer)	Decimal string	[dot]
layout		String	Specifies "LrTb" or "TbRI"
objid (Required)		String	Specifies the only character string in the file
oddfooterid		Object ID string	Specifies the "objid" of the Footer element
oddheaderid		Object ID string	Specifies the "objid" of the Header element
oddsidemargin	(Unsigned integer)	Decimal string	[dot]
pageposition		String	Specifies "upper", "lower" or "any"
pagestyle (Required)		Style string	It is necessary to match the specified style character string to "stylelabel" of the referred PageStyle element
refbgimage		Object ID string	Specifies the "objid" of the Image element. Moreover, it is necessary to specify the bgimagemode attribute at the same time
textheight	(Unsigned integer)	Decimal string	[dot]
textwidth	(Unsigned integer)	Decimal string	[dot]
topmargin	(Signed integer)	Decimal string	[dot]

A.5.22.1 pagestyle

The **pagestyle** attribute specifies the "stylelabel" of the **PageStyle** element with necessary information for the "Page" layout.

A.5.22.2 refbgimage

The **refbgimage** attribute specifies the "objid" of the **Image** element to be shown as the background of the **Page** element. When the "objid" is not specified, the image is not displayed.

A.5.22.3 pageposition

The **pageposition** attribute specifies whether the start position is the left page or the right page on the two screen display.

Upper is specified when it is shown on the upper side, lower is specified when it is shown on the lower side, and any is specified when it is shown after the preceding page.

The **bindingdirection** attribute "RI" (mostly vertical flow content) in the **BookSetting** element:

"upper" means the start page is the right.

"lower" means the start page is the left.

"any" means to display continuously from the previous page.

The **bindingdirection** attribute "Lr" (mostly horizontal flow content) in the **BookSetting** element:

"upper" means the start page is the left.

"lower" means the start page is the right.

"any" means to display continuously from the previous page.

A.5.22.4 oddheaderid

The **oddheaderid** attribute specifies the "objid" of the **Header** element shown in the odd "Page" (upper page) on the 2 screen display.

A.5.22.5 evenheaderid

The **evenheaderid** attribute specifies the "objid" of the **Header** element shown in the even "Page" (lower pages) on the 2 screen display.

A.5.22.6 oddfooterid

The **oddfooterid** attribute specifies the "objid" of the **Footer** element shown in the odd "Page" (upper page) on the 2 screen display.

A.5.22.7 evenfooterid

The **evenfooterid** attribute specifies the "objid" of the **Footer** element shown in the even "Page" (lower pages) on the 2 screen display.

A.5.22.8 bgimagemode

The **bgimagemode** attribute specifies how the "Image" specified in the **refbgimage** attribute should be positioned.

The value is "fix": The image position is at the origin of the "main text area".

The value is "tile": The images fill the "main text area" from the origin.

The value is "center": The image position is the centre of the "main text area".

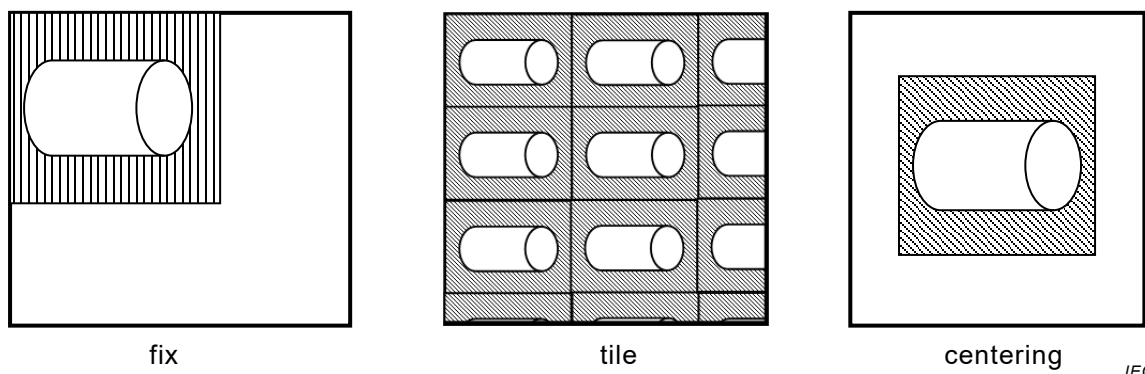


Figure A.5 – Bgimagemode attribute

A.5.22.9 evensidemargin

The **evensidemargin** attribute sets the left margin of the "Page layout composition" on the 2 screen display: the left page in the horizontal layout, and the right page in the vertical layout.

A.5.22.10 footnote

The **footnote** attribute sets the "footnote" of the "Page layout composition".

A.5.22.11 footspace

The **footspace** attribute sets the "footspace" of the "Page layout composition".

A.5.22.12 headheight

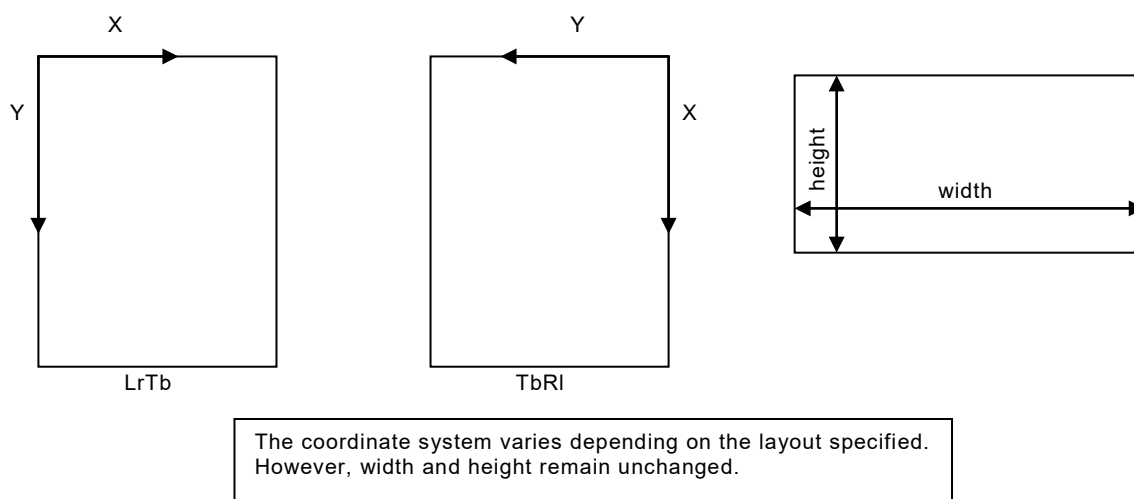
The **headheight** attribute sets the "headheight" of the "Page layout composition".

A.5.22.13 headsep

The **headsep** attribute sets the "headsep" of the "Page layout composition".

A.5.22.14 layout

The **layout** attribute specifies the coordinate system of the **Page** element. When "LrTb" is specified, the origin is in the top left, the X-axis is toward the right and the Y-axis is toward the bottom. When "TbRl" is specified, the origin is in the top right, the X-axis is toward the left and the Y-axis is toward the bottom. When "TbRl" is specified, the origin is in the top right, the X-axis is toward the left and the Y-axis is toward the bottom.



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Figure A.6 – Layout attribute**A.5.22.15 oddsidemargin**

The **oddsidemargin** attribute sets the left margin of the "Page layout composition" on the 2 screen display: the right page in the horizontal layout, the left page in the vertical layout.

The value of the **oddsidemargin** attribute should be used. On the 1 screen display, the value of "Oddsidesmargin" from "Evensidesmargin" is used.

A.5.22.16 textheight

The **textheight** attribute sets the "textheight" of the "Page layout composition".

A.5.22.17 textwidth

The **textwidth** attribute sets the "textwidth" of the "Page layout composition".

A.5.22.18 topmargin

The **topmargin** attribute sets the "topmargin" of the "Page layout composition".

A.5.22.19 objid

The **objid** attribute specifies a unique character string in the content for each element.

A.5.23 Wait

The **Wait** element specifies the timer control operation, see Table A.11.

Table A.11 – Attribute of Wait

Attribute name	Default value	Data type	Comments
time (required)	(Signed integer)	Decimal string	

The **time** attribute specifies the timer. When the time is "0", it keeps waiting even for the input operation. When the time is a positive value, nothing is done for the set time ($\times 100$ ms). When the time is a negative value, it keeps waiting for the input during the absolute value of the set time ($\times 100$ ms).

A.5.24 TextBlock**A.5.24.0 General**

The **TextBlock** element specifies the set-up information of the "Block" and "Text" to express the "Block" on the screen. The attribute of the **TextBlock** element is recommended to describe only different information from the **TextStyle** and **BlockStyle** element information specified by "textstyle" and "blockstyle", see Table A.12.