

ISO/IEC JTC1/SC34/WG2 N0290

CD text of ISO/IEC 9541-4, Font information interchange – Part 4: Font information interchange - Harmonization to Open Font Format

Forward

ISO/IEC 9541 is a standard of font information interchange and designed to be independent with concrete font file format. The Open Font Format (ISO/IEC 14496-22) is a font file format specification that is based on TrueType font file format. About the handling and utilization of the typographic properties stored in OFF font file, ISO/IEC 14496-22 describes the implementations on Microsoft Windows or IBM OS/2 only. Therefore, ISO/IEC 14496-22 does not define the method how to define a font resource in ISO/IEC 9541 architectures from given OFF font file, because it is out of the scope. ISO/IEC 9541-4 is a standard to fill the gap between OFF font file and font resource in ISO/IEC 9541.

1 Scope

ISO/IEC 9541-4 is a standard to define a font resource for ISO/IEC 9541 architecture from given OFF font file. The properties in OFF to be interchanged must be included in ISO/IEC 9541-1. The interchange format of the properties should be defined by ISO/IEC 9541-2. The glyph shape representation in OFF should be included by ISO/IEC 9541-3. Other specification to define ISO/IEC 9541 font resource from given OFF font file is described in ISO/IEC 9541-4.

ISO/IEC 9541 is not a standard to specify the font file structure. Therefore, the specification in ISO/IEC 9541-4 is not the method to generate an OFF font file from ISO/IEC 9541-4 font resource.

2 Normative Reference

- [1] ISO/IEC 9541-1, Information technology -- Font information interchange -- Part 1: Architecture
- [2] ISO/IEC 9541-2, Information technology -- Font information interchange -- Part 2: Interchange format
- [3] ISO/IEC 9541-3, Information technology -- Font information interchange -- Part 3: Glyph shape representation
- [4] ISO/IEC 10180, Information technology -- Processing languages -- Standard Page Description Language (SPDL)
- [5] ISO/IEC 14496-22, Information technology -- Coding of audio-visual objects -- Part 22: Open Font Format (OFF)
- [6] ISO/IEC 14496-18, Information technology -- Coding of audio-visual objects -- Part 18: Font compression and streaming

3 Definitions

This standard uses the terms defined in ISO/IEC 9541-1, -2, -3 and ISO/IEC 14496-22.

4 Harmonization to Open Font Format

4.1 Harmonization of the elements in OFF “head” table

4.1.1 “Table version number” element

ISO/IEC 9541 does not handle this value which describes the concrete file structure.

4.1.2 “fontRevision” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-dataversion.

4.1.3 “checksumAdjustment” element

ISO/IEC 9541 does not handle this value which is used by the checksum calculation.

4.1.4 “magicNumber” element

ISO/IEC 9541 does not handle this value because it is constant and specific to OFF font file.

4.1.5 “flags” element

The flag element is 16 bit value to describe the feature of the OFF font file. The bit5-10 are used by TrueType fonts designed for Apple Macintosh font manager, but their specification is out of OFF.

4.1.5.1 bit0 : Boolean if Baseline is set to y=0 line

ISO/IEC 9541 does not have per-font boolean flag for the position of Baseline.

4.1.5.2 bit1: Boolean if LeftSideBearing is set to x=0 line

ISO/IEC 9541 does not have per-font boolean flag for the position of LeftSideBearing.

4.1.5.3 bit2: Boolean if sfnt TrueType glyph procedure is dependent with pointSize

ISO/IEC 9541-1 and -2 have no per-font boolean flag for specific glyph shape representation.

4.1.5.4 bit3: Boolean if PPEM is integer

ISO/IEC 9541 does not handle this value which is dependent with glyph shape representation and the glyph shape procedure interpreter.

4.1.5.5 bit4: Boolean if Microsoft instruction to change character width is used

ISO/IEC 9541-1 and -2 have no per-font Boolean flag for specific glyph shape representation.

4.1.5.6 bit11: Boolean if this OFF file is Agfa MicroType font

ISO/IEC 9541 does not handle this value because this value declares the font file compression technology defined in ISO/IEC 14496-Agfa MicroType font format specification is not published.

4.1.5.7 bit12: Boolean if this OFF file is converted file

ISO/IEC 9541 does not handle this value because the definition of “conversion” in OFF is not clear.

4.1.5.8 bit13: Boolean if this OFF file is designed for Microsoft ClearType rasterizer

ISO/IEC 9541 does not handle this value because it is used by specific implementation.

4.1.6 “unitPerEm” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-relunits.

4.1.7 “created” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-dataversion.

4.1.8 “modified” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-dataversion.

4.1.9 “xMin” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-minsize.

4.1.10 “yMin” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-minsize.

4.1.11 “xMax” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-maxsize.

4.1.12 “yMax” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-maxsize.

4.1.13 “macStyle” element

This element is used by Apple Macintosh to declare an OFF font file as an embolden typeface of another typeface. In the matching, the combination of FamilyName and macStyle is used. ISO/IEC 9541 does not provide such mechanism to relate a typeface to another typeface. Therefore, the

values in macStyle are not used as original design.

4.1.13.1 bit0: Boolean if the glyph in this OFF file is already emboldened.

This element is used to define ISO/IEC 9541-2 iso-standard-9541-weight.

4.1.13.2 bit1: Boolean if the glyph in this OFF file is Italic.

The “italic” in this element means a slanted typeface mathematically transformed from normal regular typeface. This element is used to define ISO/IEC 9541-2 iso-standard-9541-posture.

4.1.13.3 bit2: Boolean if the glyph in this OFF file has underline

This element is used to define ISO/IEC 9541-2 iso-standard-9541-dsngroup.

4.1.13.4 bit3: Boolean if the glyph in this OFF file is outlined

This element is used to define ISO/IEC 9541-2 iso-standard-9541-dsngroup.

4.1.13.5 bit4: Boolean if the glyph in this OFF file is shadowed

This element is used to define ISO/IEC 9541-2 iso-standard-9541-dsngroup.

4.1.13.6 bit5: Boolean if the glyph in this OFF file is condensed

This element is used to define ISO/IEC 9541-2 iso-standard-9541-propwidth.

4.1.13.7 bit6: Boolean if the glyph in this OFF file is extended

This element is used to define ISO/IEC 9541-2 iso-standard-9541-propwidth.

4.1.14 “LowestRecPPEM” element

ISO/IEC 9541 does not handle this value because it is dependent with output surface.

4.1.15 “fontDirectionHint” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-wrmode.

4.1.16 “indexLocFormat” element

ISO/IEC 9541 does not handle this value which describes the concrete file structure.

4.1.17 “glyphDataFormat” element

ISO/IEC 9541 does not handle this value which describes the concrete file structure.

4.2 Harmonization of the elements in OFF “name” table

4.2.1 “copyright notice” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-dsncopyright.

4.2.2 “Font Family Name” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-fontfamily.

4.2.3 “Font Subfamily Name” element

ISO/IEC 9541 does not handle this value.

4.2.4 “Unique Font Identifier” element

ISO/IEC 9541 does not handle this value.

4.2.5 “Full Font Name” element

ISO/IEC 9541 does not handle this value.

4.2.6 “Version String” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-dataversion.

4.2.7 “PostScript Name” element

ISO/IEC 9541 does not handle this value which is specific to output surface.

4.2.8 “Trademark” element

ISO/IEC 9541 does not handle this value.

4.2.9 “Manufacture Name” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-dsnsourc.

4.2.10 “Designer” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-dsnsourc.

4.2.11 “Description” element

ISO/IEC 9541 does not handle this value.

4.2.12 “URL Vendor” element

ISO/IEC 9541 does not handle this value.

4.2.13 “License Description” element

ISO/IEC 9541 does not handle this value.

4.2.14 “Preferred Family” element

ISO/IEC 9541 does not handle this value.

4.2.15 “Compatible fullname” element

ISO/IEC 9541 does not handle this value.

4.2.16 “Sample text” element

ISO/IEC 9541 does not handle this value.

4.2.17 “PostScript CID fontname” element

ISO/IEC 9541 does not handle this value.

4.3 Harmonization of the elements in OFF “hhea” table

4.3.1 Table version number” element

ISO/IEC 9541 does not handle this value which describes the concrete file structure.

4.3.2 “Ascender” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-maxfontext.

4.3.3 “Descender” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-maxfontext.

4.3.4 “LineGap” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-minlinesp.

4.3.5 “advanceWidthMax” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-maxfontext.

4.3.6 “minLeftSideBearing” element

ISO/IEC 9541 does not reserve the element to handle minimum value of metrics related value.

4.3.7 “minRightSideBearing” element

ISO/IEC 9541 does not reserve the element to handle minimum value of metrics related value.

4.3.8 “xMaxExtent” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-maxfontext.

4.3.9 “caretSlopeRise” element

ISO/IEC 9541 does not handle this value which is designed for text input user interface.

4.3.10 “caretSlopeRun” element

ISO/IEC 9541 does not handle this value which is designed for text input user interface.

4.3.11 “caretOffset” element

ISO/IEC 9541 does not handle this value which is designed for text input user interface.

4.3.12 “metricDataFormat” element

ISO/IEC 9541 does not handle this value which describes the concrete file structure.

4.3.13 “numberOfHMetrics” element

ISO/IEC 9541 does not handle this value which describes the concrete file structure.

4.4 Harmonization of the elements in OFF “hmtx” table

4.4.1 “advanceWidth” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-ex.

4.4.2 “leftSideBearing” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-minex.

4.5 Harmonization of the elements in OFF “vhea” table

4.5.1 “version” element

ISO/IEC 9541 does not handle this value which describes the concrete file structure.

4.5.2 “ascent” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-maxfontext.

4.5.3 “descent” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-maxfontext.

4.5.4 “lineGap” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-minlinesep.

4.5.5 “advanceHeightMax” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-maxfontext.

4.5.6 “minTopSideBearing” element

ISO/IEC 9541 does not reserve the element to handle minimum value of metrics related value.

4.5.7 “minBottomSideBearing” element

ISO/IEC 9541 does not reserve the element to handle minimum value of metrics related value.

4.5.8 “ymaxExtent” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-maxfontext.

4.5.9 “caretSlopeRise” element

ISO/IEC 9541 does not handle this value which is designed for text input user interface.

4.5.10 “caretSlopeRun” element

ISO/IEC 9541 does not handle this value which is designed for text input user interface.

4.5.11 “caretOffset” element

ISO/IEC 9541 does not handle this value which is designed for text input user interface.

4.5.12 “metricDataFormat” element

ISO/IEC 9541 does not handle this value which describes the concrete file structure.

4.5.13 “numberOfVMetrics” element

ISO/IEC 9541 does not handle this value which describes the concrete file structure.

4.6 Harmonization of the elements in OFF “vmtx” table

4.7 Harmonization of the elements in OFF “maxp” table

4.7.1 “table version number” element

ISO/IEC 9541 does not handle this value which describes the concrete file structure.

4.7.2 “numGlyphs” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-numglyphs.

4.7.3 glyph shape representation profiles

Following elements indicates the requirement for TrueType glyph procedure interpreter by included TrueType glyph shape representation data. ISO/IEC 9541 does not define the detailed implementation of TrueType glyph instruction interpreter; therefore these elements are not handled by ISO/IEC 9541.

- maxPoints
- maxContours
- maxCompositePoints
- maxCompositeContours
- maxZones
- maxTwilightPoints
- maxStorage
- maxFunctionDefs
- maxInstructionDefs
- maxStackElements
- maxComponentElements
- maxComponentDeps

4.8 Harmonization of the elements in OFF “kern” table

The elements in OFF “kern” table are used to define ISO/IEC 9541-2 iso-standard-9541-pea list. The detailed relationship is described.

4.9 Harmonization of the elements in OFF “post” table

4.9.1 “Version” element

ISO/IEC 9541 does not handle this value which describes the concrete file structure.

4.9.2 “italicAngle” element

The “italic” in this element means a slanted typeface mathematically transformed from normal regular typeface. This element is used to define ISO/IEC 9541-2 iso-standard-9541-postureangle.

4.9.3 “underlinePosition” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-scoreoffsety.

4.9.4 “underlineThickness” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-scorethick.

4.9.5 “isFixedPitch” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-escclass.

4.9.6 “minMemType42” element

ISO/IEC 9541 does not handle this value which is specific to the implementation to rasterize TrueType glyph shape representation directly.

4.9.7 “maxMemType42” element

ISO/IEC 9541 does not handle this value which is specific to the implementation to rasterize TrueType glyph shape representation directly.

4.9.8 “minMemType1” element

ISO/IEC 9541 does not handle this value which is specific to the implementation to rasterize TrueType glyph shape representation via shape conversion by ISO/IEC 9541 Type 1 glyph shape representation.

4.9.9 “maxMemType1” element

ISO/IEC 9541 does not handle this value which is specific to the implementation to rasterize TrueType glyph shape representation via shape conversion by ISO/IEC 9541 Type 1 glyph shape representation.

4.10 Harmonization of the elements in OFF “CFF” table

The “CFF” table of OFF font file consists of glyph-independent properties per font and the glyph shape representation. The data structure of “CFF” table is described in bibliography [2]. When the “CFF” table is designed for 7 or 8bit character set, the content of CFF table must provide the data that is sufficient to define a SPDL indexed font. Therefore, the syntaxes of some values in CFF table are restricted to be compatible with SPDL indexed font.

4.10.1 Harmonization of the elements in Top DICT

4.10.1.1 “version” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-dataversion. The syntax of value is described in ISO/IEC 10180 C.4.2.1.1.

4.10.1.2 “Notice” element

ISO/IEC 9541 and SPDL indexed font do not reserve the property for this element.

4.10.1.3 “Copyright” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-dsncopyright, but SPDL indexed font does reserve the property for this element.

4.10.1.4 “FullName” element

ISO/IEC 9541 font resource does not reserve the property for this element, but SPDL indexed font requires this property. The syntax of value is described in ISO/IEC 10180 C.4.2.1.2.

4.10.1.5 “FamilyName” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-familyname. The syntax of value is described in ISO/IEC 10180 C.4.2.1.3.

4.10.1.6 “Weight” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-weight. The syntax of value is described in ISO/IEC 10180 C.4.2.1.4.

4.10.1.7 “isFixedPitch” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-escclass. The syntax of value is described in ISO/IEC 10180 C.4.2.1.6.

4.10.1.8 “ItalicAngle” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-postureangle. The syntax of value is described in ISO/IEC 10180 C.4.2.1.5.

4.10.1.9 “UnderlinePosition” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-scoreoffsety. The syntax of value is described in ISO/IEC 10180 C.4.2.1.7.

4.10.1.10 “UnderlineThickness” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-scorethick. The syntax of value is described in ISO/IEC 10180 C.4.2.1.8.

4.10.1.11 “PaintType” element

This element is used to define ISO/IEC 9541-3 painttype (described in ISO/IEC 9541-3 2.6.1.2). The syntax of value is described in ISO/IEC 10180 C.4.2.3.

4.10.1.12 “CharstringType” element

This element is used to define ISO/IEC 9541-3 gshapes (described in ISO/IEC 9541-3 1.7.2). In SPDL indexed font, the value should be consistent with FontType property described in ISO/IEC 10180 C.4.2.4.

4.10.1.13 “FontMatrix” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-relunits. The syntax of value is described in ISO/IEC 10180 C.4.2.5.

4.10.1.14 “UniqueID” element

This element is used to define ISO/IEC 9541-3 uniqueid (described in ISO/IEC 9541-3 2.6.1.3). The syntax of value is described in ISO/IEC 10180 C.4.2.8.

4.10.1.15 “FontBBox” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-maxfontext. The syntax of value is described in ISO/IEC 10180 C.4.2.7.

4.10.1.16 “StrokeWidth” element

ISO/IEC 9541 font resource and SPDL indexed font do not reserve the property for this element.

4.10.1.17 “XUID” element

ISO/IEC 9541 font resource and SPDL indexed font do not reserve the property for this element.

4.10.1.18 “charset” element

This element is an offset used by CFF font interpreter internally to access the charset dictionary. ISO/IEC 9541 and SPDL indexed font do not reserve the property for this element.

4.10.1.19 “Encoding” element

This element is an offset used by CFF font interpreter internally to access the encoding dictionary. ISO/IEC 9541 and SPDL indexed font do not reserve the property for this element.

4.10.1.20 “CharStrings” element

This element is an offset used by CFF font interpreter internally to access the glyph procedures. ISO/IEC 9541 and SPDL indexed font do not reserve the property for this element.

4.10.1.21 “Private” element

This element is a pair of an offset and data length used by CFF font interpreter internally to access Private DICT. ISO/IEC 9541 and SPDL indexed font do not reserve the property for this element.

4.10.1.22 “SyntheticBase” element

ISO/IEC 9541 and SPDL indexed font do not reserve the property for this element.

4.10.1.23 “PostScript” element

ISO/IEC 9541 and SPDL indexed font do not reserve the property for this element.

4.10.1.24 “BaseFontName” element

ISO/IEC 9541 and SPDL indexed font do not reserve the property for this element.

4.10.1.25 “BaseFontBlend” element

ISO/IEC 9541 and SPDL indexed font do not reserve the property for this element.

4.10.1.26 Harmonization of the additional elements for CIDFonts

ISO/IEC 9541 and SPDL indexed font do not reserve the properties for following elements.

- ROS
- CIDFontVersion
- CIDFontRevision
- CIDFontType
- CIDCount
- UIDBase
- FDArray
- FDSelect
- FontName

4.10.2 Harmonization of the elements in charset DICT

The relationship between charset DICT and ISO/IEC 9541 font resource and SPDL indexed font resource is described.

4.10.3 Harmonization of the elements in Encoding DICT

The relationship between charset DICT and ISO/IEC 9541 font resource and SPDL indexed font resource is described.

4.10.4 Harmonization of the elements in Private DICT

4.10.4.1 “BlueValues” element

This element is used to define ISO/IEC 9541-3 iso-standard-9541-maxfontext. The syntax of value is described in ISO/IEC 10180 C.4.2.7.

4.10.4.2 “OtherBlues” element

This element is used to define ISO/IEC 9541-3 otherblues (described in ISO/IEC 9541-3 2.6.2.2). The syntax of value is described in ISO/IEC 10180 C.4.2.6.

4.10.4.3 “FamilyBlues” element

This element is used to define ISO/IEC 9541-3 familyblues (described in ISO/IEC 9541-3 2.6.2.3). The syntax of value is described in ISO/IEC 10180 C.4.2.6.

4.10.4.4 “FamilyOtherBlues” element

This element is used to define ISO/IEC 9541-3 familyotherblues (described in ISO/IEC 9541-3 2.6.2.4). The syntax of value is described in ISO/IEC 10180 C.4.2.6.

4.10.4.5 “BlueScale” element

This element is used to define ISO/IEC 9541-3 bluescale (described in ISO/IEC 9541-3 2.6.2.5). The syntax of value is described in ISO/IEC 10180 C.4.2.7.

4.10.4.6 “BlueShift” element

This element is used to define ISO/IEC 9541-3 blueshift (described in ISO/IEC 9541-3 2.6.2.6). The syntax of value is described in ISO/IEC 10180 C.4.2.7.

4.10.4.7 “BlueFuzz” element

This element is used to define ISO/IEC 9541-3 bluefuzz (described in ISO/IEC 9541-3 2.6.2.7). The syntax of value is described in ISO/IEC 10180 C.4.2.7.

4.10.4.8 “StdHW” element

This element is used to define ISO/IEC 9541-3 std-hw (described in ISO/IEC 9541-3 2.6.2.8.1). The syntax of value is described in ISO/IEC 10180 C.4.2.7.

4.10.4.9 “StdVW” element

This element is used to define ISO/IEC 9541-3 std-vw (described in ISO/IEC 9541-3 2.6.2.8.2). The syntax of value is described in ISO/IEC 10180 C.4.2.7.

4.10.4.10 “StemSnapH” element

This element is used to define ISO/IEC 9541-3 stem-snap-h (described in ISO/IEC 9541-3 2.6.2.8.4). The syntax of value is described in ISO/IEC 10180 C.4.2.7.

4.10.4.11 “StemSnapV” element

This element is used to define ISO/IEC 9541-3 stem-snap-v (described in ISO/IEC 9541-3 2.6.2.8.4). The syntax of value is described in ISO/IEC 10180 C.4.2.7.

4.10.4.12 “ForceBold” element

This element is used to define ISO/IEC 9541-3 force-bold (described in ISO/IEC 9541-3 2.6.2.8.5). The syntax of value is described in ISO/IEC 10180 C.4.2.7.

4.10.4.13 “LanguageGroup” element

This element is used to define ISO/IEC 9541-3 language-group (described in ISO/IEC 9541-3 2.6.2.8.6). The syntax of value is described in ISO/IEC 10180 C.4.2.7.

4.10.4.14 “ExpansionFactor” element

ISO/IEC 9541 font resource and SPDL indexed font do not reserve the property for this element.

4.10.4.15 “initialRandomSeed” element

ISO/IEC 9541 font resource and SPDL indexed font do not reserve the property for this element.

4.10.4.16 “Subrs” element

This element is used to define ISO/IEC 9541-3 subrs (described in ISO/IEC 9541-3 2.6.3.4). The syntax of value is described in ISO/IEC 10180 C.4.2.7.

4.10.4.17 “defaultWidthX” element

ISO/IEC 9541 font resource and SPDL indexed font do not reserve the property for this element.

4.10.4.18 “nominalWidthX” element

ISO/IEC 9541 font resource and SPDL indexed font do not reserve the property for this element.

4.11 Harmonization of the elements in OFF “OS/2” table

4.11.1 “version” element

ISO/IEC 9541 does not handle this value which describes the concrete file structure.

4.11.2 “xAvgCharWidth” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-avgescx.

4.11.3 “usWeightClass” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-weight.

4.11.4 “usWidthClass” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-propwidth.

4.11.5 “fsType” element

ISO/IEC 9541 does not handle this value because it is designed to control the restriction of OFF font file printing, embedding and subsetting. Such restriction is out of scope of ISO/IEC 9541.

4.11.6 “ySubscriptXOffset” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-vsoffsetx.

4.11.7 “ySubscriptYOffset” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-vsoffsety.

4.11.8 “ySubscriptXSize” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-vsscalex.

4.11.9 “ySubscriptYSize” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-vsscaley.

4.11.10 “ySuperscriptXOffset” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-vsoffsetx.

4.11.11 “ySuperscriptYOffset” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-vsoffsety.

4.11.12 “ySuperscriptXSize” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-vsscalex.

4.11.13 “ySuperscriptYSize” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-vsscaley.

4.11.14 “sFamilyClass” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-dsngroup, iso-standard-9541-typefaceclass-prop.

4.11.15 “Panose” element

OS/2 table of OFF file allocates 10 octets storage to store “Panose” element, in all versions of OS/2 table. The name of each octet refers the names of digits in “Latin Text” (bibliography [3]). In OFF, OS/2 table since version 3 defines the name of each octet but no definition of the values. Earlier versions have their own definitions, i.e. bFamilyStyle=2 means the typeface is “Text and Display”.

4.11.15.1 bFamilyStyle

This element is used to define ISO/IEC 9541-2 iso-standard-9541-dsngroup.

4.11.15.2 bSerifStyle

This element is used to define ISO/IEC 9541-2 iso-standard-9541-serifstyle.

4.11.15.3 bWeight

This element is used to define ISO/IEC 9541-2 iso-standard-9541-weight.

4.11.15.4 bProportion

This element is used to define ISO/IEC 9541-2 iso-standard-9541-propwidth.

4.11.15.5 bStrokeVariation

This element is used to define ISO/IEC 9541-2 iso-standard-9541-dsngroup

4.11.15.6 bArmStyle

This element is used to define ISO/IEC 9541-2 iso-standard-9541-dsngroup

4.11.15.7 bLetterform

This element is used to define ISO/IEC 9541-2 iso-standard-9541-dsngroup

4.11.15.8 bMidLine

This element is used to define ISO/IEC 9541-2 iso-standard-9541-dsngroup

4.11.15.9 bXHeight

This element is used to define ISO/IEC 9541-2 iso-standard-9541-dsngroup and iso-standard-9541-lcheight.

4.11.16 “ulUnicodeRange1” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-incglyphcols.

4.11.17 “ulUnicodeRange2” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-incglyphcols.

4.11.18 “ulUnicodeRange3” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-incglyphcols.

4.11.19 “ulUnicodeRange4” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-incglyphcols.

4.11.20 “achVendID” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-datasource.

4.11.21 “fsSelection” element

4.11.21.1 bit0: Boolean if this OFF file is Italic

The “italic” in this element means a slanted typeface mathematically transformed from normal regular typeface. This element is used to define ISO/IEC 9541-2 iso-standard-9541-dsngroup

4.11.21.2 bit1: Boolean if the glyph in this OFF file has underscore

This element is used to define ISO/IEC 9541-2 iso-standard-9541-dsngroup

4.11.21.3 bit2: Boolean if the glyph in this OFF file is negative (painted background and unpainted glyph).

This element is used to define ISO/IEC 9541-2 iso-standard-9541-dsngroup

4.11.21.4 bit3: Boolean if the glyph in this OFF file is outlined (the outline of glyph is painted but background and internal of glyph is not painted)

This element is used to define ISO/IEC 9541-2 iso-standard-9541-dsngroup

4.11.21.5 bit4: Boolean if the glyph in this OFF file is over struck.

This element is used to define ISO/IEC 9541-2 iso-standard-9541-dsngroup

4.11.21.6 bit5: Boolean if the glyph in this OFF file is already emboldened.

This element is used to define ISO/IEC 9541-2 iso-standard-9541-dsngroup

4.11.21.7 bit6: Boolean if this OFF file is regular

This element is used to define ISO/IEC 9541-2 iso-standard-9541-dsngroup

4.11.22 “usFirstCharIndex” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-incglyphcols.

4.11.23 “usLastCharIndex” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-incglyphcols.

4.11.24 “sTypoAscender” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-alignment.

4.11.25 “sTypoDescender” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-alignment.

4.11.26 “sTypoLineGap” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-alignment.

4.11.27 “usWinAscent” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-maxsize.

4.11.28 “usWinDescent” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-maxsize.

4.11.29 “ulCodePageRange1” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-incglyphcols.

4.11.30 “ulCodePageRange2” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-incglyphcols.

4.11.31 “sxHeight” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-dsngroup and iso-standard-9541-lcheight.

4.11.32 “sCapHeight” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-capheight.

4.11.33 “usBreakChar” element

ISO/IEC 9541 does not handle this value.

4.11.34 “usMaxContext” element

ISO/IEC 9541 does not handle this value.

4.12 Harmonization of the elements in OFF “PCLT” table

The contents in OFF “PCLT” table are used to specify the font resource stored in PCL5 printer without sending OFF font file to printer. Therefore, the values may be designed to be substituted by similar but different font resource.

4.12.1 “version” element

ISO/IEC 9541 does not handle this value which describes the concrete file structure.

4.12.2 “FontNumber” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-dataversion.

4.12.3 “Pitch” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-relunits.

4.12.4 “xHeight” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-dsngroup and iso-standard-9541-lcheight.

4.12.5 “Style” element

4.12.5.1 bits5-9

This element is used to define ISO/IEC 9541-2 iso-standard-9541-dsngroup.

4.12.5.2 bits2-4

This element is used to define ISO/IEC 9541-2 iso-standard-9541-propwidth.

4.12.5.3 bits0-1

This element is used to define ISO/IEC 9541-2 iso-standard-9541-posture.

4.12.6 “TypeFamily” element

ISO/IEC 9541 does not handle this value because this element is vendor-name based font family classification.

4.12.7 “CapHeight” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-capheight.

4.12.8 “SymbolSet” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-incglyphcols. The values of this element must be chosen from a registered list maintained by Hewlett-Packard (bibliography [7]).

4.12.9 “Typeface” element

This element may be used to define ISO/IEC 9541-2 iso-standard-9541-typeface. The syntax of the value is designed by the naming convention of PCL5, the FamilyName element in OFF “name” table is preferred.

4.12.10 “CharacterComplement” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-incglyphcols. The values of this element must be chosen from a registered list maintained by Hewlett-Packard (bibliography [7]).

4.12.11 “FileName” element

ISO/IEC 9541 does not handle this value.

4.12.12 “StrokeWeight” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-weight.

4.12.13 “WidthType” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-propwidth.

4.12.14 “SerifStyle” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-serifstyle.

4.13 Harmonization of the elements in OFF “VORG” table

4.13.1 “defaultVertOriginY” element

ISO/IEC 9541 does not reserve the element to handle minimum value of metrics related value.

4.13.2 “vertOriginY” element

This element is used to define ISO/IEC 9541-2 iso-standard-9541-py for vertical writing mode.

4.14 Harmonization of the elements in OFF “VDMX” table

The relationship between OFF “VDMX” elements and ISO/IEC 9541 properties of the glyphs are described.

5 Harmonization to the glyph names in OFF font file

The relationship between glyph names in ISO/IEC 9541 and OFF is described. Many OFF font files uses AFII glyph name (ISO/IEC 10036), Adobe Glyph List (bibliography [3][4]), or hexadecimal /uniXXXX.

6 Layout Tag Registry and ISO/IEC 10036

Some predefined OFF layout tags are simple 1-to-1 glyph substitution regardless with the context of glyph. If the glyph substitution rule can be defined as a ISO/IEC 10036 glyph to another ISO/IEC 10036 glyph, it is described in this section.

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