

[MS-PDF]:

## Microsoft Edge ISO 32000-1 Portable Document Format (PDF) Standards Support Document

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## Revision Summary

Date	Revision History	Revision Class	Comments
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# 1 Introduction

This document describes the level of support provided by Microsoft Edge for the ISO 32000-1:2008 specification, *Document management -- Portable document format -- Part 1: PDF 1.7* [\[ISO-32000-1\]](#). The [ISO-32000-1] specification specifies a digital form for representing electronic documents commonly referred to as "PDF" files.

## 1.1 Glossary

**MAY, SHOULD, MUST, SHOULD NOT, MUST NOT:** These terms (in all caps) are used as defined in [\[RFC2119\]](#). All statements of optional behavior use either MAY, SHOULD, or SHOULD NOT.

## 1.2 References

Links to a document in the Microsoft Open Specifications library point to the correct section in the most recently published version of the referenced document. However, because individual documents in the library are not updated at the same time, the section numbers in the documents may not match. You can confirm the correct section numbering by checking the [Errata](#).

### 1.2.1 Normative References

We conduct frequent surveys of the normative references to assure their continued availability. If you have any issue with finding a normative reference, please contact [dochelp@microsoft.com](mailto:dochelp@microsoft.com). We will assist you in finding the relevant information.

[ISO-32000-1] ISO, "Document management -- Portable document format -- Part 1: PDF 1.7", ISO 32000-1:2800, July 2008, [http://www.iso.org/iso/catalogue\\_detail.htm?csnumber=51502](http://www.iso.org/iso/catalogue_detail.htm?csnumber=51502)

**Note** There is a charge to download the specification.

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997, <http://www.rfc-editor.org/rfc/rfc2119.txt>

### 1.2.2 Informative References

None.

## 1.3 Microsoft Implementations

The Microsoft Microsoft Edge product implements the PDF specifications, with variances as noted in this document.

## 1.4 Standards Support Requirements

To conform to [\[ISO-32000-1\]](#), a user agent must implement all required portions of the specification. Any optional portions that have been implemented must also be implemented as described by the specification. Normative language is usually used to define both required and optional portions. (For more information, see [\[RFC2119\]](#).)

The following table lists the sections of [ISO-32000-1] and whether they are considered normative or informative.

Sections	Normative / Informative
1 – 6	Informative

Sections	Normative / Informative
2 – 14	Normative
Annex A	Informative
Annex B	Normative
Annex C	Normative
Annex D	Normative
Annex E	Normative
Annex F	Normative
Annex G	Informative
Annex H	Informative
Annex I	Normative
Annex J	Informative
Annex K	Informative
Annex I	Informative
Bibliography	Informative

## 1.5 Notation

The following notations are used in this document to differentiate between notes of clarification, variation from the specification, and points of extensibility.

Notation	Explanation
C####	This identifies a clarification of ambiguity in the target specification. This includes imprecise statements, omitted information, discrepancies, and errata. This does not include data formatting clarifications.
V####	This identifies an intended point of variability in the target specification such as the use of MAY, SHOULD, or RECOMMENDED. (See <a href="#">RFC2119</a> .) This does not include extensibility points.
E####	Because the use of extensibility points (such as optional implementation-specific data) can impair interoperability, this profile identifies such points in the target specification.

For document mode and browser version notation, see also section [1.3](#).

## 2 Standards Support Statements

This section contains a full list of variations, clarifications, and extension points in the Microsoft implementation of [\[ISO-32000-1\]](#).

- Section [2.1](#) includes only those variations that violate a MUST requirement in the target specification.
- Section [2.2](#) describes further variations from MAY and SHOULD requirements.
- Section [2.3](#) identifies variations in error handling.
- Section [2.4](#) identifies variations that impact security.

### 2.1 Normative Variations

The following subsections detail the normative variations from MUST requirements in [\[ISO-32000-1\]](#).

#### 2.1.1 [ISO32000-1] Section 7.4.7, JBIG2Decode Filter

V0001:

The specification states:

```
The JBIG2Decode filter (PDF 1.4) decodes monochrome (1 bit per pixel) image data that has been encoded using JBIG2 encoding.
```

Microsoft Edge:

Partially supported.

#### 2.1.2 [ISO32000-1] Section 7.4.9, JPXDecode Filter

V0002:

The specification states:

```
The JPXDecode filter (PDF 1.5) decodes data that has been encoded using the JPEG2000 compression method, an ISO standard for the compression and packaging of image data.
```

Microsoft Edge:

Partially supported.

#### 2.1.3 [ISO32000-1] Section 7.6.2, General Encryption Algorithm

V0003:

The specification states:

```
One of the following algorithms shall be used when encrypting data in a PDF file:
```

- A proprietary encryption algorithm known as RC4.

Microsoft Edge:

The RC4 algorithm is not supported because it is proprietary.

#### **2.1.4 [ISO32000-1] Section 7.8.2, Content Streams**

V0004:

The specification states:

Ordinarily, when a conforming reader encounters an operator in a content stream that it does not recognize, an error shall occur. A pair of compatibility operators, **BX** and **EX** (PDF 1.1), shall modify this behaviour (see Table 32).

Microsoft Edge:

The compatibility operators are not supported (their presence is ignored).

#### **2.1.5 [ISO32000-1] Section 7.11.2.2, Absolute and Relative File Specifications**

V0005:

The specification states:

A simple file specification that begins with a SOLIDUS shall be an *absolute* file specification. ... A file specification that does not begin with a SOLIDUS shall be a *relative* file specification giving the location of the file relative to that of the PDF file containing it.

Microsoft Edge:

Absolute and relative file specifications are not supported.

#### **2.1.6 [ISO32000-1] Section 7.11.6, Collection Items**

V0006:

The specification states:

Beginning with PDF 1.7, a collection item dictionary shall contain the data described by the collection schema dictionary for a particular file in a collection (see 12.3.5, "Collections").

Microsoft Edge:

Collection items are not supported (their presence is ignored).

#### **2.1.7 [ISO32000-1] Section 7.12, Extensions Dictionary**

V0007:

The specification states:



The extensions dictionary, an entry in the document's catalog dictionary, if present, shall contain one or more entries identifying developer-defined extensions to the ISO 32000-1 Standard.

Microsoft Edge:

Developer extensions are not supported (their presence is ignored).

### **2.1.8 [ISO32000-1] Section 8.7.4.5.2, Type 1 (Function-Based) Shadings**

V0008:

The specification states:

In Type 1 (function-based) shadings, the colour at every point in the domain is defined by a specified mathematical function.

Microsoft Edge:

Function-based shadings are not supported (their presence is ignored).

### **2.1.9 [ISO32000-1] Section 8.7.4.5.5, Type 4 Shadings (Free-Form Gouraud-Shaded Triangle Meshes)**

V0009:

The specification states:

Type 4 shadings (free-form Gouraud-shaded triangle meshes) are commonly used to represent complex coloured and shaded three-dimensional shapes.

Microsoft Edge:

Free-form Gouraud-shaded triangle mesh shadings are not supported (their presence is ignored).

### **2.1.10 [ISO32000-1] Section 8.7.4.5.6, Type 5 Shadings (Lattice-Form Gouraud-Shaded Triangle Meshes)**

V0010:

The specification states:

Type 5 shadings (lattice-form Gouraud-shaded triangle meshes) are similar to type 4, but instead of using free-form geometry, their vertices are arranged in a *pseudorectangular lattice*, which is topologically equivalent to a rectangular grid.

Microsoft Edge:

Lattice-form Gouraud-shaded triangle mesh shadings are not supported (their presence is ignored).

### **2.1.11 [ISO32000-1] Section 8.7.4.5.7, Type 6 Shadings (Coons Patch Meshes)**

V0011:

The specification states:

Patches can sometimes appear to fold over on themselves—for example, if a boundary curve intersects itself. As the value of parameter *u* or *v* increases in parameter space, the location of the corresponding pixels in device space may change direction so that new pixels are mapped onto previous pixels already mapped.

Microsoft Edge:

Self-overlapping meshes are not supported.

### **2.1.12 [ISO32000-1] Section 8.7.4.5.8, Type 7 Shadings (Tensor-Product Patch Meshes)**

V0012:

The specification states:

Type 7 shadings (tensor-product patch meshes) are identical to type 6, except that they are based on a bicubic tensor-product patch defined by 16 control points instead of the 12 control points that define a Coons patch. The shading dictionaries representing the two patch types differ only in the value of the **ShadingType** entry and in the number of control points specified for each patch in the data stream.

Microsoft Edge:

Self-overlapping meshes are not supported.

### **2.1.13 [ISO32000-1] Section 8.10.4, Reference XObjects**

V0013:

The specification states:

*Reference XObjects (PDF 1.4)* enable one PDF document to import content from another.

Microsoft Edge:

Reference XObjects are not supported (their presence is ignored).

### **2.1.14 [ISO32000-1] Section 8.11.2, Optional Content Groups**

V0014:

The specification states:

An optional content group is a dictionary representing a collection of graphics that can be made visible or invisible dynamically by users of conforming readers.

Microsoft Edge:

Only the default states are shown for View and Print.

### **2.1.15 [ISO32000-1] Section 9.3.8, Text Knockout**

V0015:

The specification states:

The text knockout parameter,  $T_k$  (PDF 1.4), shall be a boolean value that determines what text elements shall be considered elementary objects for purposes of colour compositing in the transparent imaging model.

Microsoft Edge:

The parameter value is always taken to be the default, **true**. That is, all glyphs in the text object shall be treated together as a single elementary object. When glyphs overlap, later glyphs shall overwrite ("knock out") earlier ones in the area of overlap.

### **2.1.16 [ISO32000-1] Section 9.7.3, CIDSystemInfo Dictionaries**

V0016:

The specification states:

The supplement number of the character collection. An original character collection has a supplement number of 0. Whenever additional CIDs are assigned in a character collection, the supplement number shall be increased.

Microsoft Edge:

The supplement number is taken to be 6 regardless of what is in the file.

### **2.1.17 [ISO32000-1] Section 10.4, Transfer Functions**

V0017:

The specification states:

Starting with PDF 1.2, a transfer function may be used to adjust the values of colour components to compensate for nonlinear response in an output device and in the human eye.

Microsoft Edge:

Transfer functions are not supported.

### **2.1.18 [ISO32000-1] Section 10.5, Halftones**

V0018:

The specification states:

Halftoning is a process by which continuous-tone colours are approximated on an output device that can achieve only a limited number of discrete colours. Colours that the device cannot produce directly are simulated by using patterns of pixels in the colours available.

Microsoft Edge:

Halftoning is not supported (halftone screens are ignored).

### 2.1.19 [ISO32000-1] Section 10.6.2, Flatness Tolerance

V0019:

The specification states:

The *flatness tolerance* controls the maximum permitted distance in device pixels between the mathematically correct path and an approximation constructed from straight line segments, as shown in Figure 54.

Microsoft Edge:

The flatness tolerance is ignored.

### 2.1.20 [ISO32000-1] Section 10.6.3, Smoothness Tolerance

V0020:

The specification states:

The *smoothness tolerance* (PDF 1.3) controls the quality of smooth shading (type 2 patterns and the **sh** operator) and thus indirectly controls the rendering performance. Smoothness is the allowable colour error between a shading approximated by piecewise linear interpolation and the true value of a (possibly nonlinear) shading function.

Microsoft Edge:

The smoothness tolerance is ignored.

### 2.1.21 [ISO32000-1] Section 11.3.5, Blend Mode

V0021:

The specification states:

In principle, any function of the backdrop and source colours that yields another colour,  $C_r$ , for the result may be used as a blend function  $B(C_b, C_s)$ , in the compositing formula to customize the blending operation. PDF defines a standard set of named blend functions, or *blend modes*, listed in Tables 136 and 137.

Microsoft Edge:

For all blend modes other than **Normal**, the shape parameter is ignored.

### 2.1.22 [ISO32000-1] Section 11.4.6, Knockout Groups

V0022:

The specification states:

In a knockout group, each individual element shall be composited with the group's initial backdrop rather than with the stack of preceding elements in the group.

Microsoft Edge:

Knockout groups are not supported.

### 2.1.23 [ISO32000-1] Section 11.6.7, Patterns and Transparency

V0023:

The specification states:

In the transparent imaging model, the graphics objects making up the pattern cell of a tiling pattern (see "Tiling Patterns") may include transparent objects and transparency groups. Transparent compositing may occur both within the pattern cell and between it and the backdrop wherever the pattern is painted.

Microsoft Edge:

Transparent patterns are rendered opaque.

### 2.1.24 [ISO32000-1] Section 11.7.4, Overprinting and Transparency

V0024:

The specification states:

In the opaque imaging model, overprinting is controlled by two parameters of the graphics state: the *overprint parameter* and the *overprint mode* (see "Overprint Control"). Painting an object causes some specific set of device colorants to be marked, as determined by the current colour space and current colour in the graphics state. The remaining colorants shall be either erased or left unchanged, depending on whether the overprint parameter is **false** or **true**. When the current colour space is **DeviceCMYK**, the overprint mode parameter additionally enables this selective marking of colorants to be applied to individual colour components according to whether the component value is zero or nonzero.

Microsoft Edge:

Overprinting is not supported.

### 2.1.25 [ISO32000-1] Section 12.2, Viewer Preferences

V0025:

The specification states:

The **ViewerPreferences** entry in a document's catalogue (see 7.7.2, "Document Catalog") designates a *viewer preferences dictionary* (PDF 1.2) controlling the way the document shall be presented on the screen or in print. If no such dictionary is specified, conforming readers should behave in accordance with their own current user preference settings. Table 150 shows the contents of the viewer preferences dictionary.

Microsoft Edge:

The following viewer preferences keys are ignored:

- HideToolBar
- HideMenuBar

- HideWindowUI
- FitWindow
- CenterWindow
- DisplayDocTitle
- NonFullScreenPageMode
- ViewArea
- ViewClip
- PrintArea
- PrintClip
- PrintScaling
- Duplex
- PickTrayByPDFSize
- PrintPageRange
- NumCopies

### **2.1.26 [ISO32000-1] Section 12.3.3, Document Outline**

V0026:

The specification states:

A PDF document may contain a *document outline* that the conforming reader may display on the screen, allowing the user to navigate interactively from one part of the document to another. The outline consists of a tree-structured hierarchy of *outline items* (sometimes called *bookmarks*), which serve as a visual table of contents to display the document's structure to the user.

Microsoft Edge:

Document outlines are not supported (their presence is ignored).

### **2.1.27 [ISO32000-1] Section 12.3.5, Collections**

V0027:

The specification states:

Beginning with PDF 1.7, PDF documents may specify how a conforming reader's user interface presents collections of file attachments, where the attachments are related in structure or content. Such a presentation is called a portable collection.

Microsoft Edge:

Specifications of user interface presentation are not supported (their presence is ignored).

## 2.1.28 [ISO32000-1] Section 12.4.2, Page Labels

V0028:

The specification states:

Each page in a PDF document shall be identified by an integer *page index* that expresses the page's relative position within the document. In addition, a document may optionally define *page labels* (PDF 1.3) to identify each page visually on the screen or in print.

Microsoft Edge:

Page labels are not supported (their presence is ignored).

## 2.1.29 [ISO32000-1] Section 12.4.4, Presentations

V0029:

The specification states:

Some conforming readers may allow a document to be displayed in the form of a *presentation* or slide show, advancing from one page to the next either automatically or under user control. In addition, PDF 1.5 introduces the ability to advance between different states of the same page (see 12.4.4.2, "Sub-page Navigation").

Microsoft Edge:

Presentations are not supported (the parameters that specify them are ignored).

## 2.1.30 [ISO32000-1] Section 12.5, Annotations

V0030:

The specification states:

An *annotation* associates an object such as a note, sound, or movie with a location on a page of a PDF document, or provides a way to interact with the user by means of the mouse and keyboard. PDF includes a wide variety of standard annotation types, described in detail in 12.5.6, "Annotation Types."

Microsoft Edge:

These annotation types are not supported:

- Pop-up (section 12.5.6.14)
- File attachment (section 12.5.6.15)
- Movie (section 12.5.6.17)
- Screen (section 12.5.6.18)
- Printer's Mark (section 12.5.6.20)
- Trap Network (section 12.5.6.21)
- Redaction (section 12.5.6.23)

User interaction is not supported for these annotation types:

- Markup (section 12.5.6.2)
- Text (section 12.5.6.4)
- Free text (section 12.5.6.6)
- Line (section 12.5.6.7)
- Square and circle (section 12.5.6.8)
- Polygon and polyline (section 12.5.6.9)
- Text markup (section 12.5.6.10)
- Rubber stamp (section 12.5.6.12)
- Ink (section 12.5.6.13)
- Sound (section 12.5.6.16)
- Widget (section 12.5.6.19)

### **2.1.31 [ISO32000-1] Section 12.6, Actions**

V0031:

The specification states:

In addition to jumping to a destination in the document, an annotation or outline item may specify an action (*PDF 1.1*) to perform, such as launching an application, playing a sound, changing an annotation's appearance state. ... PDF includes a wide variety of standard action types, described in detail in 12.6.4, "Action Types."

Microsoft Edge:

These action types are not supported (their presence in a document is ignored):

- Remote go-to (section 12.6.4.3)
- Embedded to-to (section 12.6.4.4)
- Launch (section 12.6.4.5)
- Sound (section 12.6.4.8)
- Movie (section 12.6.4.9)
- Hide (section 12.6.4.10)
- Named (section 12.6.4.11)
- Set OCG State (section 12.6.4.12)
- Rendition (section 12.6.4.13)
- Transition (section 12.6.4.14)
- Go to 3D view (section 12.6.4.15)



- JavaScript (section 12.6.4.16)

### **2.1.32 [ISO32000-1] Section 12.7.3.4, Rich Text Strings**

V0032:

The specification states:

```
These rich text strings are fully-formed XML documents that conform to the rich text
conventions specified for the XML Forms Architecture (XFA) specification...
```

Microsoft Edge:

Rich text strings are not supported.

### **2.1.33 [ISO32000-1] Section 12.7.4, Field Types**

V0033:

The specification states:

```
Interactive forms support the following field types:
▪ Button fields ...
▪ Text fields ...
▪ Choice fields ...
▪ Signature fields ...
```

Microsoft Edge:

These types of fields are rendered but do not interact.

### **2.1.34 [ISO32000-1] Section 12.7.5, Form Actions**

V0034:

The specification states:

```
Interactive forms also support special types of actions in addition to those described in
12.6.4, "Action Types":
▪ submit-form action
▪ reset-form action
▪ import-data action
```

Microsoft Edge:

These actions are not supported.

### **2.1.35 [ISO32000-1] Section 12.7.6, Named Pages**

V0035:

The specification states:

The optional Pages entry (*PDF 1.3*) in a document's name dictionary (see 7.7.4, "Name Dictionary") contains a name tree that maps name strings to individual pages within the document.

Microsoft Edge:

Named pages are not supported (entries that specify them are ignored).

### **2.1.36 [ISO32000-1] Section 12.7.7, Forms Data Format**

V0036:

The specification states:

This sub-clause describes Forms Data Format (FDF), the file format used for interactive form data (*PDF 1.2*). FDF can be used when submitting form data to a server, receiving the response, and incorporating it into the interactive form.

Microsoft Edge:

Forms data format is not supported.

### **2.1.37 [ISO32000-1] Section 12.7.8, XFA Forms**

V0037:

The specification states:

PDF 1.5 introduces support for interactive forms based on the Adobe XML Forms Architecture (XFA). The **XFAentry** in the interactive forms dictionary (see Table 218) specifies an XFA resource, which shall be an XML stream that contains the form information. The format of an XFA resource is described in the *XML Data Package (XDP) Specification* (see the Bibliography).

Microsoft Edge:

XFA forms are not supported (their presence is ignored).

### **2.1.38 [ISO32000-1] Section 13, Multimedia**

V0038:

The specification states:

This clause describes those features of PDF that support embedding and playing multimedia content. It contains the following sub-clauses:

- 13.2, "Multimedia," describes the comprehensive set of multimedia capabilities that were introduced in PDF 1.5.
- 13.3, "Sounds," and 13.4, "Movies," describe features that have been supported since PDF 1.2.
- 13.5, "Alternate Presentations," describes a slideshow capability that was introduced in PDF 1.4.
- 13.6, "3D Artwork," describes the capability of embedding three-dimensional graphics in a document, introduced in PDF 1.6.

Microsoft Edge:

Multimedia features are not supported (their presence is ignored).

### **2.1.39 [ISO32000-1] Section 14, Document Interchange**

V0039:

The specification states:

The features described in this clause do not affect the final appearance of a document. Rather, these features enable a document to include higher-level information that is useful for the interchange of documents among conforming products:

- Procedure sets (14.2, "Procedure Sets") that define the implementation of PDF operators
- Metadata (14.3, "Metadata") consisting of general information about a document or a component of a document, such as its title, author, and creation and modification dates
- File identifiers (14.4, "File Identifiers") for reliable reference from one PDF file to another
- Page-piece dictionaries (14.5, "Page-Piece Dictionaries") allowing a conforming product to embed private data in a PDF document for its own use
- Marked-content operators (14.6, "Marked Content") for identifying portions of a content stream and associating them with additional properties or externally specified objects
- Logical structure facilities (14.7, "Logical Structure") for imposing a hierarchical organization on the content of a document
- Tagged PDF (14.8, "Tagged PDF"), a set of conventions for using the marked content and logical structure facilities to facilitate the extraction and reuse of a document's content for other purposes
- Various ways of increasing the accessibility of a document to users with disabilities (14.9, "Accessibility Support"), including the identification of the natural language in which it is written (such as English or Spanish) for the benefit of a text-to-speech engine
- The Web Capture extension (14.10, "Web Capture"), which creates PDF files from Internet-based or locally resident HTML, PDF, GIF, JPEG, and ASCII text files
- Facilities supporting prepress production workflows (14.11, "Prepress Support"), such as the specification of page boundaries and the generation of printer's marks, colour separations, output intents, traps, and low-resolution proxies for high-resolution images

Microsoft Edge:

These features are not supported (their presence is ignored), except for:

- Metadata –DID is supported, XMP is not
- Accessibility – partial support
- Boxes –media and crop box only

### **2.1.40 [ISO32000-1] Section 14.3.2, Metadata Streams**

V0040:

The specification states:

Metadata, both for an entire document and for components within a document, may be stored in PDF streams called *metadata streams* (PDF 1.4).

Microsoft Edge:

Metadata streams are not supported.

## 2.2 Clarifications

The following subsections detail the normative variations from MAY, SHOULD or RECOMMENDED requirements in [\[ISO-32000-1\]](#).

### 2.2.1 [ISO32000-1] Section 12.3.4, Thumbnail Images

C0001:

The specification states:

A PDF document may contain *thumbnail images* representing the contents of its pages in miniature form. A conforming reader may display these images on the screen, allowing the user to navigate to a page by clicking its thumbnail image:

Microsoft Edge:

Thumbnail images are not supported (their presence is ignored).

## 2.3 Error Handling

There are no additional considerations for error handling.

## 2.4 Security

There are no additional security considerations.

### **3 Change Tracking**

No table of changes is available. The document is either new or has had no changes since its last release.

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