

## [MS-PNG]:

# Internet Explorer Portable Network Graphics (PNG) Standards Support Document

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## Revision Summary

| Date       | Revision History | Revision Class | Comments   |
|------------|------------------|----------------|--|
| 03/17/2010 | 0.1              | New            | Released new document.                           |
| 03/26/2010 | 1.0              | None           | Introduced no new technical or language changes. |
| 05/26/2010 | 1.2              | None           | Introduced no new technical or language changes. |

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# 1 Introduction

This document describes the level of support provided by Windows® Internet Explorer® 7 and Windows® Internet Explorer® 8 for the *Portable Network Graphics (PNG) Specification (Second Edition)* [W3C-PNG] W3C Recommendation 10 November 2003 Windows® Internet Explorer® displays webpages written in HTML.

The [W3C-PNG] specification may contain guidance for authors of webpages and browser users, in addition to user agents (browser applications). Statements found in this document apply only to normative requirements in the specification targeted to user agents, not those targeted to authors.

## 1.1 Glossary

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

## 1.2 References

References to Microsoft Open Specifications documentation do not include a publishing year because links are to the latest version of the technical documents, which are updated frequently. References to other documents include a publishing year when one is available.

### 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. Please check the archive site, <http://msdn2.microsoft.com/en-us/library/E4BD6494-06AD-4aed-9823-445E921C9624>, as an additional source.

[IEC-RGB] International Electrotechnical Commission, "Colour Measurement and Management in Multimedia Systems and Equipment - Part 2-1: Default RGB Colour Space - sRGB", May 1998, <http://www.colour.org/tc8-05/Docs/colorsace/61966-2-1.pdf>

[ISO-3664] International Organization for Standardization, "Graphic technology and photography -- Viewing conditions", 2009, [http://www.iso.org/iso/catalogue/catalogue\\_tc/catalogue\\_detail.htm?csnumber=9117](http://www.iso.org/iso/catalogue/catalogue_tc/catalogue_detail.htm?csnumber=9117)

[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>

[W3C-PNG] World Wide Web Consortium, "Portable Network Graphics (PNG) Specification, Second Edition", November 2003, <http://www.w3.org/TR/PNG>

### 1.2.2 Informative References

None.

## 1.3 Microsoft Implementations

The following Microsoft products implement some portion of [W3C-PNG]:

- Windows® Internet Explorer® 7

- Windows® Internet Explorer® 8

In addition, each version of Windows® Internet Explorer® implements multiple document modes, which can vary individually in their support of the standard. The following table lists the document modes available in each version of Internet Explorer:

| Browser Version     | Document Modes Supported            |
|---------------------|-------------------------------------|
| Internet Explorer 7 | Quirks mode<br>Standards mode       |
| Internet Explorer 8 | Quirks mode<br>IE7 mode<br>IE8 mode |

Throughout this document, the document mode appears first followed by the browser version in parentheses. Only those document modes and versions of Internet Explorer for which there is a variation note will be listed. If the document mode is not listed, conformance to the specification can be assumed.

Note "Standards mode" in Internet Explorer 7 and "IE7 mode" in Internet Explorer 8 refer to the same document mode. "IE7 mode" is the preferred way of referring to this document mode across all versions of the browser.

## 1.4 Standards Support Requirements

To conform to [\[W3C-PNG\]](#) 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 [\[W3C-PNG\]](#) and whether they are considered normative or informative.

| Sections  | Normative/Informative |
|-----------|-----------------------|
| 1-3       | Informative           |
| 4-14      | Normative             |
| Annex A-F | Informative           |

## 1.5 Notation

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

| 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                  |

| Notation | Explanation   |
|----------|---|
|          | 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. |

## 2 Standards Support Statements

This section contains a full list of variations, clarifications, and extension points in the Microsoft implementation of [\[W3C-PNG\]](#).

- 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 [\[W3C-PNG\]](#).

#### 2.1.1 [W3C-PNG] Section 4.2, Colour spaces

V0001:

The specification states:

The RGB colour space in which colour samples are situated may be specified in one of three ways:

- a. by an ICC profile;
- b. by specifying explicitly that the colour space is sRGB when the samples conform to this colour space;
- c. by specifying the value of gamma and the 1931 CIE x,y chromaticities of the red, green, and blue primaries used in the image and the reference white point.

*All Document Modes (All Versions)*

Color correction of PNG images is not supported.

#### 2.1.2 [W3C-PNG] Section 4.6, Additional information

V0002:

The specification states:

Gamma and chromaticity: Gamma characteristic of the image with respect to the desired output intensity, and chromaticity characteristics of the RGB values used in the image.

*All Document Modes (All Versions)*

When the **gAMA** chunk is present, the gamma conversion to a display gamma of 2.2 is incorrectly applied; a display gamma of ~1.9 is used instead of a 2.2 display gamma.

V0003:

The specification states:

sRGB colour space

A rendering intent (as defined by the International Color Consortium) and an indication that the image samples conform to this colour space.

*All Document Modes (All Versions)*

The **sRGB** chunk is not supported.

### 2.1.3 [W3C-PNG] Section 4.7.2, Chunk types

V0004:

The specification states:

The remaining 14 chunk types are termed ancillary chunk types, which encoders may generate and decoders may interpret.

- a. Transparency information: tRNS (see 11.3.2: Transparency information).
- b. Colour space information: cHRM, gAMA, iCCP, sBIT, sRGB (see 11.3.3: Colour space information).

*All Document Modes (All Versions)*

**gAMA** chunks are the only color space information chunks that are supported. No color conversion is applied to the pixel color values that are read from the PNG file.

### 2.1.4 [W3C-PNG] Section 11.3.3.1, cHRM Primary chromaticities and white point

V0005:

The specification states:

11.3.3.1 cHRM Primary chromaticities and white point

*All Document Modes (All Versions)*

The **cHRM** chunk is not supported.

### 2.1.5 [W3C-PNG] Section 11.3.3.2, gAMA Image gamma

V0006:

The specification states:

For gAMA these are the reference viewing conditions of the sRGB specification [IEC-RGB], which are based on ISO 3664 [ISO-3664].

*All Document Modes (All Versions)*



When the **gAMA** chunk is present, the gamma conversion to a display gamma of 2.2 is incorrectly applied; a display gamma of ~1.9 is used instead of a 2.2 display gamma.

### 2.1.6 [W3C-PNG] Section 11.3.3.3, iCCP Embedded ICC profile

V0007:

The specification defines the **iCCP Embedded ICC** profile.

*All Document Modes (All Versions)*

The **iCCP** chunk is not supported.

### 2.1.7 [W3C-PNG] Section 11.3.3.4, sBIT Significant bits

V0008:

The specification states:

11.3.3.4 sBIT Significant bits

Each depth specified in sBIT shall be greater than zero and less than or equal to the sample depth (which is 8 for indexed-colour images, and the bit depth given in IHDR for other colour types). Note that sBIT does not provide a sample depth for the alpha channel that is implied by a tRNS chunk; in that case, all of the sample bits of the alpha channel are to be treated as significant. If the sBIT chunk is not present, then all of the sample bits of all channels are to be treated as significant.

*All Document Modes (All Versions)*

The **sBIT** chunk is not supported.

### 2.1.8 [W3C-PNG] Section 11.3.3.5, sRGB Standard RGB colour space

V0009:

The specification defines the **sRGB Standard** color space.

*All Document Modes (All Versions)*

The **sRGB** chunk is not supported.

### 2.1.9 [W3C-PNG] Section 11.3.4, Textual information

V0010:

The specification defines textual information.

*All Document Modes (All Versions)*

Textual information is not read from PNG files.

### 2.1.10 [W3C-PNG] Section 11.3.5, hIST Image histogram

V0011:

The specification defines the **hIST** image histogram.

*All Document Modes (All Versions)*

The **hIST** chunk is not supported.

#### **2.1.11 [W3C-PNG] Section 11.3.5.3, pHYs Physical pixel dimensions**

V0012:

The specification defines **pHYs** physical pixel dimensions.

*All Document Modes (All Versions)*

The **pHYs** chunk is not supported.

#### **2.1.12 [W3C-PNG] Section 11.3.5.4, sPLT Suggested palette**

V0013:

The specification defines the **sPLT** suggested palette.

*All Document Modes (All Versions)*

The **sPLT** chunk is not supported.

#### **2.1.13 [W3C-PNG] Section 11.3.6, tIME Image last-modification time**

V0014:

The specification defines the **tIME** image last-modification time.

*All Document Modes (All Versions)*

The **tIME** chunk is not supported.

#### **2.1.14 [W3C-PNG] Section 12, PNG Encoders**

V0015:

The specification states requirements and recommendations for PNG encoder behavior.

*All Document Modes (All Versions)*

PNG encoding is not supported.

### **2.2 Clarifications**

There are no additional clarifications to [\[W3C-PNG\]](#).

### **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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