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Requirements Document



The Printer Working Group

IPP Fax Project: IPP Fax Requirements

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Status: Approved

Abstract: This document captures the requirements for IPP Fax, both the transport and the document format. This document assumes that the reader is familiar with IPP 1.1.

This document is a PWG Statement of Requirements. See:

<ftp://ftp.pwg.org/pub/pwg/general/pwg-process20.pdf>

This document is available electronically at:

<ftp://ftp.pwg.org/pub/pwg/informational/req-ixreq10-20040204.pdf>, .doc, .rtf

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The Printer Working Group (or PWG) is a Program of the IEEE-ISTO. All references to the PWG in this document implicitly mean “The Printer Working Group, a Program of the IEEE ISTO.” The PWG is chartered to make printers and the applications and operating systems supporting them work together better. In order to meet this objective, the PWG will document the results of their work as open standards that define print related protocols, interfaces, data models, procedures and conventions. Printer manufacturers and vendors of printer related software would benefit from the interoperability provided by voluntary conformance to these standards.

In general, a PWG standard is a specification that is stable, well understood, and is technically competent, has multiple, independent and interoperable implementations with substantial operational experience, and enjoys significant public support.

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Members of the PWG and interested parties are encouraged to join the PWG and IFX WG mailing lists in order to participate in discussions, clarifications and review of the WG product.

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1. Glossary

Sender – A piece of hardware and / or software that sends IPP fax documents to an IPP Fax Receiver

Receiver – A piece of hardware and / or software that receives IPP Fax traffic.

Sending user – The human that initiates the transmission of an IPP Fax

Receiving user – The intended human recipient of an IPP Fax

Support – To define a feature and all required semantics.

2. Protocol Specification Requirements

2.1. *Public access*

The spec must support:

- An administrator making an IPPFax Receiver publicly available on the Internet (or an intranet), but also being informed of the identity of the sending user and equipment.

2.2. *Basic requirements*

The spec must support:

- synchronous and timely delivery to the Receiver
- Use existing Internet protocols
- Encryption (privacy)
- Data integrity (reliability)
- Server authentication
- Client authentication

2.3. *Basic rules*

The spec must support:

- Definition of an IPPFAX URL scheme to identify a Receiver
- Use of Data privacy by the Sender.
- Mandatory server authentication to identify the Receiver.
- Optional client authentication to identify the Sender.

2.4. *IPP extensions*

The spec must support:

- Identification of a job as an IPP Fax Job.
- Both Anonymous and authenticated access by the Sender

2.5. *Identity exchange*

The spec must support:

- Exchange of unique 'identity' of Senders and Receivers (equipment)
- Machine readable descriptions of Sending Users and Receiving Users – their identity. (For example, containing name, email, mail, phone, etc.)
- Exchange of unique 'identity' of Sending User and Receiving User

2.6. *IPP restrictions*

The spec must support:

- Restricting a Receiver from allowing anonymous users to query job information.
- Restricting authenticated job owner from querying other user's jobs.
- Restricting a Receiver from allowing an anonymous user or authenticated job owner to perform any administrative operation, including cancel-job.
- Restricting a Receiver to only allow authenticated operator or administrator to cancel jobs, but not any other administrative operation.
- Restricting a Receiver from allowing any user to modify jobs.
- Restricting a Sender or Receiver from supporting any non-PDF document format.

2.7. *Notifications*

The spec should support:

- Notifications for authenticated Senders.

2.8. *Logging*

The spec must support:

- Sender logging of IPP Fax transactions
- Receiver logging of IPP Fax transactions
- The Sender including Sender's identity on at least one page of an IPP Fax document.

2.9. *Document format*

The spec must specify:

- One IPPFax required document format for the Sender and the Receiver.

3. Document Format Specification Requirements

The spec must support:

- The use of a subset of Adobe's PDF (tentatively named and referred to throughout this document as PDF/is) for guaranteed interoperability (that is blind exchange)

3.1. *Image format*

The PDF/is spec must support:

- Raster image data.
- JPEG, JBIG2, and CCITT Group 4 image compression types.
- All image compressions as mandatory for all Receivers.
- Full compatibility with Acrobat Reader version 5.X by defining a valid subset of PDF 1.4
- Streaming of document data on a page by page basis. (The Sender should co-locate all data for a given page in the document data stream. In addition, the Sender can begin sending a page's data before other pages in the document are available to the Sender.)
- Optional searchable/extractable invisible text. (Text rendering mode 3, see [PDF] table 5.3)
- Optional identifiable "Originator-ID" image. (That is Sender identity)

The PDF/is spec should support:

- Image compressions suitable for archiving.
- Compatibility with PDF/A (www.aiim.org).

- Optional digital signatures for Senders and Receivers.

3.2. Color

The PDF/is spec must support:

- 8-bit sRGB color images.
- 8-bit grayscale images.
- Bi-level monochrome images

3.3. Resolution

The PDF/is spec must support:

- Image resolutions of 300 dpi or greater.
- Only matched horizontal and vertical resolutions. (square aspect ratio)

3.4. Page

The PDF/is spec must support:

- Multi-page documents.
- Portrait page orientation.
- Images encoded in row order (left to right, from top to bottom).
- Multiple images on a page.
- Only horizontal banding.
- Page orientation indication by the Sender.
- Color, resolution and image format independence between pages.
- Optional duplex document indication.
- Page order indication.

The PDF/is spec should support:

- Resynchronization on page boundaries by Receivers after encountering damaged data

3.5. Printable area

The PDF/is spec must support:

- Minor scaling of images to allow for similar page size accommodation (for example North-American Letter and ISO-A4).
- Indication of the original imaged area for each page.

3.6. Metadata

The PDF/is spec must support:

- Optional inclusion of metadata as well as images (for example XML or hidden text).
- Unambiguous indication that the document data is in PDF/is format.
- Unambiguous indication of the version of PDF/is.
- Extensibility for new metadata attributes.

4. References

[pdf]

Adobe Systems, "PDF Reference, third edition, Adobe Portable Document Format Version 1.4", Addison-Wesley, December 2001, http://partners.adobe.com/asn/acrobat/docs/File_Format_Specifications/PDFReference.pdf
Also see errata: <http://partners.adobe.com/asn/acrobat/docs/PDF14errata.txt>

[RFC2911]

deBry, Hastings, Herriot, Isaacson, Powell, "Internet Printing Protocol/1.1: Model and Semantics", RFC2911, September 2000.

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