Open Printing Requirements

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Abstract

The Free Standards Group (FSG) Open Printing Requirements provides the list of derived and implied architectural, system and subsystem requirements. This document defines the use-cases and behind-the-scene functionality leading to the requirements.

Copyright Notice

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1. Introduction < ??? >

2. Terminology and Acronyms <all>

2.1 Conformance Terminology < All >

In this document, the uppercase terms "MUST", "MUST NOT", "REQUIRED", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" are intended to be interpreted as described in [RFC2119]

In this document, each conformance statement uses one of the terms:

Term	Meaning
MUST	Implementation support is REQUIRED for conformance to this specification.
SHOULD	Implementation support is RECOMMENDED for conformance to this specification.
MAY	Implementation support is OPTIONAL for conformance to this specification.

In this document, each operation, object, or attribute is defined as:

Term	Meaning
REQUIRED	Each implementation MUST support object operations or attributes.
RECOMMENDED	Each implementation SHOULD support object operations for interoperability
OPTIONAL	Each implementation MAY support object operations or attributes .

2.2 Other Terminology <all>

Term	Meaning

2.3 Acronyms < All >

Acronyms	Meaning	Source
PWG	Printer Working Group	http://www.pwg.org/
FSG	Free Standards Group	
FSG/OP	Free Standards Group – Open Printing	http://www.openprinting.org/

3.   Open Printing Use Models (Informative) < ??? >

3.1 Terminology for Use Models

3.2 Use Model 1: Mobile Printing < Ira >

Mobile printing by reference with document data transformation.

Example Use Model:

Alice goes shopping for a new digital camera to the Fine Camera store downtown. She takes along a magazine review of the new Bright 3000. The sales clerk at the Fine Camera store tells Alice that she would probably prefer the Orion 777. Alice uses her mobile hand-held to browse the Web site of Bright and find the URL for the detailed specs of the Bright 3000. She uses the public access printer in the Fine Camera store to print the Bright 3000 specs. Sure enough, the Orion 777 is a better choice.

Details:

The following numbered paragraphs describe the important details in this use model and correspond one-to-one with the numbered data flows in the diagram below.

1.   Alice turns on her mobile hand-held and hits the 'I' (Internet) button. The mobile hand-held starts a Web browser application, which connects to Alice's wireless Internet service provider (ISP) over a 14.4Kbps cellular modem. Alice types the Bright URL (from the magazine review) into her Web browser and hits the Enter key. The Web browser connects to Bright's home page over the Internet (via the HTTP proxy in the cellular ISP's firewall). Alice searches for the Bright 3000 specs (available in HTML) and copies the URL into her GUI clipboard.

2.   Alice hits the 'P' (Print) button. The mobile hand-held starts a print application, which discovers the store's public access printer over Bluetooth using FSG/OP PAPI (which does Bluetooth device discovery) and then forms an ad-hoc wireless Personal Area Network (PAN) with the Target Printer.

3.   Alice pastes the saved URL from her GUI clipboard into the print application and hits the Enter key. The Print application sends the URL of the Bright 3000 specs (in HTML) to the Target Printer over Bluetooth using FSG/OP PAPI (sends a Bluetooth Print-By-Reference operation) and then subscribes for print job event notifications using FSG/OP PAPI (sends a Bluetooth Get-Event operation).

4.   The Target Printer creates a second a print job by sending the URL of the Bright 3000 specs to the local Print Service over the store's Ethernet LAN using FSG/OP PAPI (sends an IPP Print-

URI operation).

5. The Print Service fetches the Bright 3000 specs (in HTML) from the Content Provider (Bright's Web server) over the Internet (via the HTTP proxy in the store's Internet firewall).

6. The Print Service transforms the Bright 3000 specs from HTML to Post Script using an FSG PAPI extension or the FSG/OP Transform Service API .

7. The Print Service creates a third print job by sending the transformed Bright 3000 specs to the Target Printer over the store's Ethernet LAN using FSG/OP PAPI (sends an IPP Print-Job operation).

8. The Target Printer sends a print job completed notification to the print application in the mobile hand-held over Bluetooth using an FSG/OP PAPI extension (sends a response to the previous Bluetooth Get-Event operation). The print application in the mobile hand-held displays "Print job completed successfully" in a status box. Alice turns off her mobile hand-held, breaking the cellular connection to her wireless ISP and also breaking the Bluetooth PAN link to the store's public access printer.

9. Alice picks up her hard-copy print output of the Bright 3000 specs from the store's public access printer.

Exceptions for Use Model:

None noted at this time.

Use Model Diagram:

Figure 3.1 Use Model 1: Mobile Printing

```
 -------------
|             |
|  Transform  |
|  Service    |
|    (TS)     |
|             |
 -------------
      ^
      |
     (6)
      |
      v
 -------------                                      -------------
|             |                                    !             |
|   Print     |                                    ! Content     |
|   Service   |<--------------(5)----------------! Provider     |
|   (PS)      |                                    !   (CP)      |
|             |                                    !             |
 -------------                                      -------------
E ^          |   ADSL ISP            T1 ISP             |
t |          |   (600Kbps)  ( ------ )  (1.5Mbps)       |
h |          |              (          )                |
e |          |             (            )               |
r(4)    (7)  |            (   INTERNET   )        (1)    |
n |          |             (            )               |
e |          |              (          )                |
t |          |               ( ------ )  Cellular ISP   |
  |      v                             (14.4Kbps)   v
 -------------                                      -------------
|            |<--------------(2)--------------->!             |
|  Target    |                                  ! Mobile      |
|  Printer   |<--------------(3)----------------! Client      |
|   (TP)     |                                  !   (MC)      |
|            |--------------(8)--------------->!(handheld)    |
|            |           Bluetooth PAN          !             |
 -------------                                      -------------
```
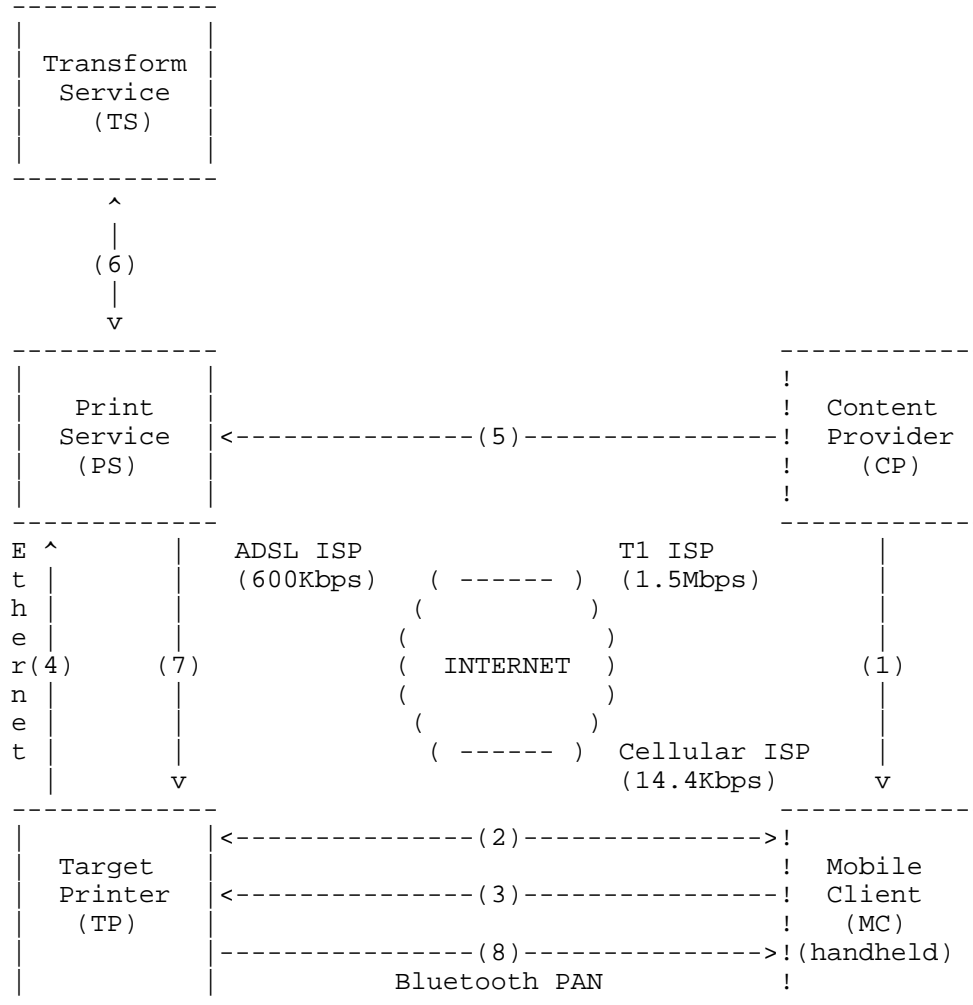
<mark>[[Diagram to be rendered as graphical at later date]]</mark>

Data Flows:

1. MC-CP: Internet browse for content URL
2. MC-TP: Bluetooth discovery of wireless printer
3. MC-TP: Bluetooth Print-By-Reference of content URL
4. TP-PS: IPP Print-URI of content URL
5. PS-CP: HTTP Get of content URL
6. PS-TS: Convert content data from HTML to PCL
7. PS-TP: IPP Print-Job of converted content data
8. TP-MC: Bluetooth print completed notification

Security Domains:

1. MC-ISP: Alice's cellular Internet connection (wireless ISP)
2. MC-TP: Alice's ad-hoc network (Bluetooth wireless PAN)
3. TP-PS: Fine Camera's enterprise network (Ethernet LAN segment)
4. PS-ISP: Fine Camera's Internet connection (ADSL modem to ISP)
5. CP: Bright's enterprise network (Ethernet LAN segment)
6. CP-ISP: Bright's Internet connection (T1 circuit to ISP)
7. Cloud: Internet backbone

Requirements for this Use Model:

The FSP/OP Architecture MUST support:

1. Administrative configuration of Print Services and their associations with Target Printers using FSG/OP PAPI;

2. Administrative configuration of Target Printers and their associations with Print Services using FSG/OP PAPI;

3. Dynamic discovery of network (IP, Bluetooth, IRDA, etc.) Print Services and Target Printers using FSG/OP PAPI;

4. Multiple print protocol bindings of FSG/OP PAPI (for direct-connect and non-IP network printing);

5. Print-by-reference operations (for example, printing from low-bandwidth mobile devices);

6. Print-by-value operations (for example, printing of converted or local content);

7. Content conversion by FSG/OP Transform Services (for example, reference printing);

8. Job and Printer event notification (for example, job complete, printer intervention required, etc.).

Requirements for similar Use Models:

1. Dynamic discovery of direct-connect (USB, parallel, etc.) local Print Services and Target Printers using FSG/OP PAPI;

3.3 Use Model 2: PDA Printing < Mark >

PDA printing of a locally stored photograph (jpg).

Example Use Model:

< one or two paragraphs illustrative use model example >

Details: < What is happening in details for this use model >

< numbered list of flow in Use Model Diagram >

Exceptions for Use Model:

[[Editor Note: How do we handle exceptions to the use model]]

< exception 1 for this use model >

*

*

*

< exception n for this use model >

Use Model Diagram:

Requirements for this Use Model:

     1. < enumerated list of the requirements for this use model >

     2. < . . . >

     3. < . . . >

3.4   Use Model 3: Desktop Personal (Consumer) Printing < Glen >

Print to a low end inkjet printer from an application

Example Use Model:

Dorothy has been editing and formatting her biology term paper for weeks. She takes her laptop computer to class and constantly updates her term paper with new information from the lectures and labs. She uses her portable scanner and graphics editor to illustrate the step-by-step processes in her term paper as well as the final charts and graphs which will are all integrated into her word processor. She does not final edit the night before. Then she loads her 2000XYZ-Color inkjet printer with the special paper required by the professor; she connects the USB cable from her printer to her laptop and she's ready to print. She has already formatted the print job but brings up the print preview window to double check as the special paper is expensive. Finally, she brings up the print dialog box and makes her selections. She selects collated copies, highest print quality and background printing mode before hitting the print button (she still has work on her chemistry assignment). Thirty-eight minutes later she removes the printed pages, carefully inspects each page and staples each copy into special cover sheets for the biology class.

Details: < What is happening in details for this use model >

< numbered list of flow in Use Model Diagram >

Exceptions for Use Model:

[[Editor Note: How do we handle exceptions to the use model]]

< exception 1 for this use model >

*

< exception n for this use model >

Use Model Diagram:

Requirements for this Use Model:

    1. < enumerated list of the requirements for this use model >

    2. < . . . >

    3. < . . . >

3.5 Use Model 4: Desktop Small-Office/Home-Office Printing < Glen >

Print to mid-volume laser printer, office inkjet and impact printers

Example Use Model:

Keith's small company produces about 5000 widgets a month for a large industrial customer. Keith has two employees and the customer now wants a data sheet on each widget along with a summary report. The data base has been completed for the month and all the widgets have been packaged. The three print task that Keith needs to perform this month are:

> a Keith then brings up the data base and requests a text summary report - he'll need 25 copies this month. From the command-line Keith sends the text summary report to the print system requesting 25 copies. Within seconds, the laser printer, connect over a BlueTooth adaptor, warms up and begin producing the 25 copies.

> b. Keith returns to the data base software and now request data sheets (in post-script) for each widget. Keith spent weeks designing/creating the template for the data sheets, including color and graphics. Navigating to the directory with this month's data sheets; he again sends post-script formatted data sheets to the print system, requesting two copies of each data sheet on the office inkjet printer.

> c. Concurrently, Keith decides to do the timecards for his temporary employees. The temporary employee agency requires 3-part timecards to be submitted. The impact printer is loaded with pin-feed 3-part stock and is connected via the parallel port. After looking over the spread data, Keith selects the print action in the accounting software instructing the application to send a text version the timecard data to print system.

Details: < What is happening in details for this use model >

< numbered list of flow in Use Model Diagram >

Exceptions for Use Model:

[[Editor Note: How do we handle exceptions to the use model]]

< exception 1 for this use model >

*

< exception n for this use model >

Use Model Diagram:

Requirements for this Use Model:

1. < enumerated list of the requirements for this use model >

2. < . . . >

3. < . . . >

3.6 Use Model 5: Desktop Office Printing < Till >

Document from an application is printed on a printer shared by 3-5 workplaces.

Example Use Model:

Till is working in an office with three other employees; namely, Claudia, Mark and Glen that have individual computers. In the same room there are two printers; specifically, a low-volume color inkjet connected to Mark's computer and a low-volume black/white laser printer connected to Glen's computer for printing confidential material. Till wants to print some color documents to the color inkjet printer and print his black-and-white documents to the laser printer. All document have differing quality requirements. Because the documents are confidential then should be printed not be on the central printer in the hallway.

Details: < What is happening in details for this use model >

1. Till creates a confidential document containing color photos in an office application on his desktop computer. He chooses "File"/"Print" in his application program to print the document.

2. The application program contacts the local print service on Till's computer to request the available printers and their capabilities such as Description, Location, bw/color, photo-capable, ...

3. The local print service communicates with the other print services on the local network to exchange the information of the available printers.

    3.1 All machines hosting and sharing a print queue advertises a list of their print queues and server's IP addresses to all computers on the network.

    3.2 All other print services are listening for these advertisements to receive the print queue list.

    3.3 The local print service knows about the existence of all queues now and asks all print servers for their basic printer capabilities. As an example the following is returned for the color inkjet, laser print and the central hallway printer;

inkjet:Mark	6-ink photo color printer, room of W, X, Y, and Z;
laser:Glen	desktop bw laser printer, 10 p/min, room of W, X, Y, and Z
central_server:XYZ	workgroup color laser 50 p/min, hallway 1st floor

4. Then the local print service sends the information to the application program

5. The application displays the printing dialog with the available printers.

6. Till chooses the photo-capable color inkjet printer in his office, so that no one can see this confidential document.

7. This document is for a valued customer so Till wants to produce the document on high quality paper in high resolution. Till clicks on the options button to display a vendor specific option dialog for this printer. Tills selects photo print quality mode on glossy inkjet paper in the option dialog. Till closes the option dialog and returns to the print dialog.

8. Till selects "Notification on job completion".

9. Till clicks the "Print" button in the printing dialog to initiate printing.

10. The application PostScript generator resizes the photos from the camera's 14 mega-pixels to the 600 DPI of the inkjet printer and creates the PostScript document with all fonts and photos embedded. The application PostScript generator stops with a message dialog because elements of the document located outside the margin area. Till clicks "Yes" to override the nominal printing margins and/or accept clipping.

11. The application submits the print job to the local spooler with all options specified in a job ticket.

12. The local spooler passes the print job on to the remote spooler on Mark's machine.

13. The spooler on Mark's machine parses the job ticket and calls the appropriate renderer and driver to spool converted job data in the inkjet's native language.

14. The spooler on Mark's machine sends an alert to Till's machine indicating that should photo paper be loaded.

15. Till's machine displays a job dialog to load photo paper.

16. Till loads the photo paper and clicks "OK".

17. The job dialog on Till's machine, via PAPI/IPP, notifies the spooler on Mark's machine has been photo paper is loaded.

18. The spooler on Mark's machine sends the rendered job data to the USB port and the printer begins printing.

19. Till receive the job completion notification in a job dialog.

20. Till clicks "OK" and walks to the inkjet printer and picks up his document.

Exceptions for Use Model:

[[Editor Note: How do we handle exceptions to the use model]]

< exception 1 for this use model >
*
< exception n for this use model >

Use Model Diagram:

Requirements for this Use Model:

    1. < enumerated list of the requirements for this use model >

    2. < . . . >

    3. < . . . >

3.7   Use Model 6: Central (Print Room) Office Printing < Glen >

Mid to large volume printing from document repository with data transformation and post printing finishing

Example Use Model:

In three days Michael will provide a sales and marketing pitch to first and second tier managers of the Zeta Bank for a new bank statement design and end-customer packaging of statements and collaterals. Michael's sale pitch includes various sized collateral sheets, integrated pictorial and text content and presentation slides from a variety of sources in differing formats. Michael submints technical-publication department print request containing his contact information, the number of copies, location of the electronic data, special finishing instructions and delivery date.

John in the technical-publication is assign Michael print request. The technical-publication print system processing the Michael's request and notifies John when operation inaction is required. Michael's print request is completed and deliveried to Michael.

Details: < What is happening in details for this use model >

< numbered list of flow in Use Model Diagram >

Exceptions for Use Model:

[[Editor Note: How do we handle exceptions to the use model]]

< exception 1 for this use model >

*

< exception n for this use model >

Use Model Diagram:

Requirements for this Use Model:

1. < enumerated list of the requirements for this use model >

2. < . . . >

3. < . . . >

3.8 Use Model 7: Desktop File (Direct) Printing < Glen >

Print to print device directly from file-manager/shell-script without going through an application

[Note: Print to print service directly from file manager versus going through application.]

Example Use Model:

Robert is the lead engineer on the power subsystem of the company's next generation satellite. He has spent the last 6 month working with individual engineering and other departments on no less than 12 interrelated specifications and design documents. People have been delivering him Postscript versions of their document over the last several days. Robert recently bought a wide format color inkjet printer from the Acme print company. The printer does not print Postscript natively; so Robert downloads and installs the latest version of GhostScript along with the print driver from the web. Robert types in the print options, printer model, the output URL and location of the print data for GhostScript at the command line and wait for each document to be printed. Robert begins the task of checking and removing ambiguities between the specifications.

Example two of Model: - With Auto discovery (direct connect and network connect) and install.

Robert plugs in his new wide format printer into his computer. The print service recognizes that a new printer has been connected and then query's the printer for vendor name, product model and command set.   The print service uses printer information to determine if additional software is needs to support the new printer. The print service asks Robert if they want to download and install software to support his new printer.   Robert select the ok to download the software; at which point the print service downloads and installs required software.   The print service now creates a new print queue and makes available to Robert.   Robert now begins printing his specification.

Details: < What is happening in details for this use model >

< numbered list of flow in Use Model Diagram >

Exceptions for Use Model:

[[Editor Note: How do we handle exceptions to the use model]]

< exception 1 for this use model >

*

*

*

< exception n for this use model >

Use Model Diagram:

Requirements for this Use Model:

1. < enumerated list of the requirements for this use model >
2. < . . . >
3. < . . . >

3.9   Use Model 8: Pay for Print Printing < Mark/Claudia >

Print using a job ticket from a print driver through a print spooler to a mid-range (90 PPM) color laser printer.

Example Use Model:

Amy is a student at the university who has to do research on controlling forest fires near densely populated areas. She decides to go the library at the university so that she can access restricted archives of information pertaining to her topic. The archive contains research papers that have information that is controversial, so some of the information has never been made public.

Amy was given a PrintCard by the university at the beginning of the semester that gives her $10 worth of print credit. The PrintCard has a magnetic strip which is encoded with her student Id and the balance for her printing account. Duplex black/white prints cost 10 cents per sheet and duplex color prints cost $1 per sheet. The student must enter their student ID and a PIN code to use the PrintCard.

Amy searches the restricted archives and finds a document of interest, both for use in her research and to her parents whose house was recently burned down by a forest fire. The document is formatted to print on legal size paper and has front and back cover sheets.

Amy selects the Print menu item on the Netscape browser and the Print dialog displays. She selects a printer called ColorLibraryPrinter. She selects legal size paper, duplex, covers, left corner staple, and two copies (one for her parents and one for herself). She clicks the OK button. A dialog displays asking her to swipe her PrintCard and to enter her student ID and PIN number. She does as instructed and clicks OK.

A print application is called by the print driver to create a job ticket that contains the information that Amy selected in the Print dialog. The print application pre-appends the job ticket that it generated to the postscript file that was generated by the print driver and returns the result to the print driver. The print driver makes contact with Print Services and sends the print job that contains the ticket pre-appended to the Postscript file to the Print Service over the network. The Print Service recognizes the print job as a ticketed job, strips off the job ticket and consumes the job ticket. From the consumed job ticket, the Print Services extracts the name of the printer that the print job is to be sent to and maps the name to the IPP URL of the printer. The Print Service contacts the printer called ColorLibraryPrinter using its IP address and sends the print job that contains the job ticket pre-appended to the postscript file to ColorLibraryPrinter. ColorLibraryPrinter receives the print job, recognizes that the print job contains a ticketed job, strips off the job ticket, and consumes the job ticket.

Amy walks to the first floor of the library to the printer labeled ColorLibraryPrinter. She swipes her PrintCard and enters her student ID and PIN on the printer console when prompted. A summary of Amy's print job appears on the printer console asking her if the options are correct. Amy has decided to also print a copy of the paper for her brother Tim, so she changes the number of copies to three and clicks OK. Amy's print job completes printing and her PrintCard debited. She picks up her print job from the printer's over-size output bin and examines the output. A message on the printer console asks if the print output looks correct. Amy clicks OK. Amy leaves the library with the three copies of the research paper.

To be restructured to have a single paragraph and details in above moved to Details section below.

Details: < What is happening in details for this use model >

< numbered list of flow in Use Model Diagram >

Exceptions for Use Model:

[[Editor Note: How do we handle exceptions to the use model]]

< exception 1 for this use model >

*

*

*

< exception n for this use model >

Use Model Diagram:

Requirements for this Use Model:

       1. < enumerated list of the requirements for this use model >

       2. < . . . >

       3. < . . . >

3.10   Use Model 8: Print on Demand < Claudia >

< one sentence description of use model >

Example Use Model:

< one or two paragraphs illustrative use model example >

Claudia, an instructor at the local college needs to print 30 copies of her antropology class notes with blue covers and with sections 3 and 4 removed.   The local print shop maintains a copy of her class notes along with the print instructions. The basic print instructions will produce bound copies with covers of the color she need this semseter; indivdual sections will be separated by tab inserts with sections 3 and 4 removed, and all pages printed in duplexed mode. All 30 copies are required 2 weeks before the semseter starts at the college bookstore.

Details: < What is happening in details for this use model >

< numbered list of flow in Use Model Diagram >

Exceptions for Use Model:

[[Editor Note: How do we handle exceptions to the use model]]

< exception 1 for this use model >
*
*
*
< exception n for this use model >

Use Model Diagram:

Requirements for this Use Model:

      4. < enumerated list of the requirements for this use model >

      5. < . . . >

6. < . . . >

6. < . . . >

3.11   Use Model 9: Production (Transactional, Statements) Printing < Glen >

[Note: may have two use models: one for in-house and service bureau]

A single job printing a large number of document, each of variable size and content with inserts in a print production environment.

Example Use Model:

< one or two paragraphs illustrative use model example >

The Acme Phone Company for the western United States needs to print their monthly billing statements. The statements are printed on non-standard size pre-printed sheets with a high-color logo and detailed phone transaction information. An individual customer envolope will contain the single folded statement along with a return evelope and a tri-folded insert on a rate increase. During the printing, the unque customer billing information is processed to create the print content for that customer. As a result, the total number sheets printed per customer will vary. The varable number of sheet will be stuffed in a mailing envelope along with the inserts. The mailing evelope is this then addressed and postal stamped. To ensure that all statement have been printed, a print production montoring system provides a report of all statement and content for this job.

Details: < What is happening in details for this use model >

< numbered list of flow in Use Model Diagram >

Exceptions for Use Model:

[[Editor Note: How do we handle exceptions to the use model]]

< exception 1 for this use model >
*
*
*
< exception n for this use model >

Use Model Diagram:

Requirements for this Use Model:

      1. < enumerated list of the requirements for this use model >

2. < . . . >

3. < . . . >

2. < . . . >

3. < . . . >

3.12 Use Model 10: Graphics Art (non-offset) Printing < TBD >

< one sentence description of use model >

Example Use Model:

< one or two paragraphs illustrative use model example >

A local news magazine needs to print their weekly issue of their magazine. AOL has contracted with them to deliver a CD with each subscriber. Magazine are printed and bagged separate from addressing. Fred needs to create a job-ticket and contacts the printing company to start the job. The magazine content to be printed on special paper is pre-ripped and referenced in the job-ticket. The subscriber address database in also referenced in the job-ticket and is printed separately from the magazine content. After the magazine content is printed it is saddled stitched and bagged with AOL CD. Then the printed address label is glue on.

Time magazine

magazine stuffed in pastic with an AOL CD

magazine is printed as a separate independent step of pre-ripped pages

pre-ripped means a page is processed down to an image (as page impression)

saddle stitched

print address after magazine been printed as a post process

high volume

bound

special paper

fixed content

color

photos/images

Details: < What is happening in details for this use model >

< numbered list of flow in Use Model Diagram >

Exceptions for Use Model:

[[Editor Note: How do we handle exceptions to the use model]]

< exception 1 for this use model >

*

*

*

< exception n for this use model >

Use Model Diagram:

Requirements for this Use Model:

1. < enumerated list of the requirements for this use model >

2. < . . . >

3. < . . . >

4. Open Printing Requirements < ??? >

This section describes the general requirements of the Open Printing solution. These requirements will be based on the use models defined above along with the issues of Discovery, Print Job Control Security and Billing.

[[Editor Note: This should a table with major headings (category) (driver, job ticket, etc) and the requirements listed.

Category	No.	Requirement	Required Recommended Optional
Job Ticket	R1000		Required

5. Other Considerations

5.1 ???? < ??? >

6.   Normative References

[ISO639]   multi-part International Standard, presently consisting of [ISO639-1] and [ISO639-2].

[ISO639-1] Codes for the Representation of Names of Languages -- Part 1: Alpha-2 Code, ISO/IEC
            639-1, 2000.

[ISO639-2] Codes for the Representation of Names of Languages -- Part 2: Alpha-3 Code, ISO/IEC
            639-2, 1998.

[ISO3166] multi-part International Standard, presently consisting of [ISO3166-1] and [ISO3166-2].

[ISO3166-1] Codes for the Representation of Names of Countries and their Subdivisions, Part 1:
            Country Codes, ISO/IEC 3166-1, 1997.

[ISO3166-2] Codes for the Representation of Names of Countries and their Subdivisions, Part 2:
            Country Subdivision Codes, ISO/IEC 3166-2, 1998.

[ISO10646] multi-part International Standard, presently consisting of [ISO10646-1] and [ISO10646-
            2].

[ISO10646-1] Information Technology - Universal Multiple-Octet Code Character Set (UCS) - Part
            1: Architecture and Basic Multilingual Plane, ISO/IEC 10646-1, September 2000.

[ISO10646-2] Information Technology - Universal Multiple-Octet Code Character Set (UCS) - Part
            2: Supplemental Planes, ISO/IEC 10646-2, January 2001.

[RFC2119] Bradner. Key words for use in RFCs to Indicate Requirement Levels, RFC 2119, March
            1997.

[RFC2396] Berners-Lee, Fielding, Masinter. URI Generic Syntax, RFC 2396, August 1998.

[RFC2910] Herriot, R., Butler, S., Moore, P., Turner, R., "Internet Printing Protocol/1.1: Encoding
            and Transport", RFC 2910, September 2000.

[RFC2911] R. deBry, T. Hastings, R. Herriot, S. Isaacson, P. Powell, " Internet Printing Protocol/1.10: Model and Semantics", RFC 2911, September 2000.

[RFC2978] Freed, Postel. IANA Charset Registration Procedures, RFC 2978, October 2000.

[RFC3066] Alvestrand. Tags for the Identification of Languages, RFC 3066, January 2001.

7. Informative References

[cip4]   The International Cooperation for the Integration of Processes in Prepress, Press and Postpress (CIP4) located at http://www.cip4.org/

[jdf]   The Job Definition Format (JDF), version 1.1, August 2002. Sett the Document tab at: http://www.cip4.org

[pwg]   The Printer Working Group located at http://www.pwg.org/

[pwg-sm]   Zehler, P., Hastings, T., and Albright, S., Printer Working Group (PWG): Semantic Model, March 26, 2003, work in progress at ftp://ftp.pwg.org/pub/Semantic-Model/wd-sm010-20030326.pdf

[IANA-CHAR]   IANA Registry of Character Sets ftp://ftp.iana.org/assignments/charset-reg/...

[IANA-MIME]   IANA Registry of MIME Media Types ftp://ftp.iana.org/assignments/media-types/...

[RFC2277] Alvestrand. IETF Policy on Character Sets and Languages, RFC 2277, January 1998.

[RFC2279] Yergeau. UTF-8, a Transformation Format of ISO 10646, RFC 2279, January 1998.

APPENDIX: X CHANGES < Editor >

Date	Affected Version	Author	Change
03.08.14	-----	G. Petrie	Original document
03.08.21	0.01	G. Petrie	Removed the Generalized Use Model section. Renamed several of the Use Models. Added Print on Demand Use Model.
03.09.25	0.20	G. Petrie	Added Ira McDonald's use case for Mobile Printing to be used as model for other authors.
03.10.23	0.2	C. Alimpich	Changed all occurrences of "Target Device" to "Target Printer". Removed "(spooler)" from "Print Services (spooler)". Added Transfrom Services Block to Use Model 1 Mobile Printing diagram. Finished reviewing Use Model 1 Mobile Printing Details, added step 9. Reviewed Requirements for Use Model 1.
04.02.18	0.27	G. Petrie	Integrated new use model text from weekly meetings.

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