

**Internet Printing Project Meeting Minutes**  
**April 3, 1997**  
**Austin, Texas**

The meeting started on April 3rd, 1997 at 8:40AM led by Carl-Uno Manro. The attendees were:

Ron Bergman - Data Products  
Lee Farrell - Canon  
Don Wright - Lexmark  
Scott Isaacson - Novell  
Jeff Copeland - QMS  
Bob Pentecost - HP  
Dave Kuntz - HP  
Tom Hastings - Xerox  
Harry Lewis - IBM  
Roger Debry - IBM  
William Wagner - Digital Products  
Robert Herriot - Sun  
Carl-Uno Manros - Xerox  
Keith Carter - IBM  
Jim Walker - Dazel  
Chuck Adams - Tektronix  
Stuart Rowley - Kyocera  
Peter Zehler - Xerox  
David McMaster - TrueSpectra  
Jeff Barnett - IBM  
Jerry Hadsell - IBM  
Steve Adobe - Adobe  
Randy Turner - Sharp  
Paul Moore - Microsoft  
Rob Rhoads - Intel

The following proposed agenda was reviewed and approved:

- 1) Protocol
- 2) Security
- 3) Model
- 4) Prototyping
- 5) Directory
- 6) Internationalization

## PROTOCOL

Randy Turner presented his proposal "HTTP 1.1 as a Transport for the Internet Printing Protocol which is available as <draft-turner-ipp-trans-develop-00.txt> on the PWG server and is also an IETF internet draft.

Issues and comments:

1. Should we suggest a specific URL format as the default for printers (www.printers.company.com or www.company.com/printers or something else)?
2. Discussion again on "Why HTTP" - no resolution
3. Why would we want to map IPP to different transports? How would different implementations mapped to different transports ever interoperate?
4. Is HTTP a "stop-gap" solution? If so, when should we start talking about a longer term solution?
5. Some of Randy's proposals would require some changes to the Model document.
6. Implementation of Randy's proposal by Sharp preceded the development of the IPP Model document.
7. Under Randy's proposal, he recommends that if HTML pages are created for non-IPP clients (like an existing browser) that we standardize the type of controls, etc. are present on the HTML pages.
8. Discussion on whether an IPP over HTTP implementation should create HTML pages (presenting status and capabilities) that turn off caching of that page.
9. Randy's proposal for an IPP server requires only a subset of the full HTTP/1.1 RFC.

Steve Zilles presented a proposal of an architecture for the IPP protocol. This was an interactive session where Steve presented his thoughts in a block diagram form. As of the meeting, this proposal has not yet been documented in a paper.

Steve presented an issues list related to protocol:

1. Coded format - content type header
  - \* form data
  - \* IPP unique
2. Transport
  - \* HTTP
  - \* HTTP Subset
  - \* Something else
3. Where encoding operations happen:
  - \* Host
  - \* other
4. One Message or Multiple Messages
  - \* Single POST
  - \* CREATE, SEND
5. Printer status during sending
6. Response to create
  - \* Job data URL

- \* Query URL
  - \* Modify URL
7. Conformance requirements of >1 of protocol
  8. Alignment between Model and Protocol documents
  9. Use of accept headers to select
    - \* language
    - \* character set
    - \* encoding
  10. No discussion of firewalls
  11. What to say in Memphis?

A major discussion occurred focused on having two protocol mappings: one that is browser-based (HTTP/HTML) and one that is a richer, peer-to-peer printing solution to replace LPD. How do we provide interoperability? Should we define interoperability? Are we solving two problems? There was no consensus on this issue, further discussion will be on the mailing list. Steve Zilles will report this lack of consensus at the IETF meeting in Memphis.

Protocol Work Items and Owners:

Document a transport protocol and provide information as to why that is a good choice

- \* HTTP 1.1 (Steve Zilles, Roger DeBry)
- \* HTTP Subset (Randy Turner)
- \* IPP (Paul Moore)

Break for lunch: 12:30 - 1:30

The meeting resumed at 1:30 PM.

The first item of discussion in the afternoon was a brief discussion on doing some kind of press release, etc. to "let the world know" about the IPP effort. Scott Isaacson will create a draft release for discussion on the mailing list. The Hardcopy Observer article on the Microsoft presentation was mentioned.

Carl Uno provided an overview of security and how it is applied to IP and the various existing protocols. (There charts have been posted to the ftp server.) Additionally, specific areas of security and how they are related to the various aspects of printing were also presented. Carl-Uno presented some specific uses of SSL from a printing perspective. Confidentiality, non-repudiation (proof of origin/proof of delivery) and replay prevention were specifically discussed. The group discussed the current implementations of security and the lack of ubiquitous security solutions that could be adopted by IPP. Randy Turner suggested that the combination of secure MIME and SSL V3 might meet the requirements.

Further work in this area will continue to be done by the Security sub-group.

Scott Isaacson presented on the current status and issues in the model and semantic area:

Issues:

- 1) Print - should it be submit?
- 2) Cancel - should this be defined on the printer rather than the job
  - \* implementer decides
- 3) Get Attributes
  - \* attribute names are "keywords"
  - \* group names are "keywords"
- 4) Support for printers than can't or don't spool
- 5) New operation - print becomes "create" then "write"
- 6) How do error flow back?
  - \* Action item: Model document needs to document errors and how they are handled
- 7) Internationalization
  - \* Client asks for a set of supported locales
  - \* On each request client asks for a locale (set?)
  - \* On each response, the server uses
    - \* client request, or
    - \* a well defined fallback
    - \* Action item: write up these ideas --> use 10646, Unicode, something else (No volunteer)
  - \* Do the PDL's implicitly state their character set?
- 8) Mandatory
  - \* Operations
  - \* Attribute Group Names
- 9) Conditional Mandatory
  - \* Attribute Names (on an attribute by attribute basis a decision needs to be made as to whether an attribute is mandatory or conditionally mandatory and what does that mean. What does it mean to be supported? - Scott Isaacson will define)
  - \* Tags
- 10) Need Job template attribute by attribute what to do if
  - \* Job and printer
  - \* Not job and not printer
  - \* not job and printer
  - \* job and not printer
- 11) Document object now are:
  - \* document-name
  - \* document-content (may not become an attribute - Protocol Group)
  - \* document-url
- 12) Print request
  - \* substitute-as-needed
  - \* do-not-substitute
- 13) Print Object

- \* substitute-as-needed
- \* do-not-substitute

Most printers today only do best effort (they substitute one font for another) so if we make do-not-substitute the default and therefore required, none of today's printers would be conforming. We can't afford the complexity of having "substitute-as-needed" and "do-not-substitute" on an attribute by attribute basis. However this would allow font substitutions to occur when what the user wants is the right form and only the right form. This issue remains open.

More Issues:

- 1) Identity of printer and jobs
  - \* xxx-url - globally unique
  - \* xxx-name - non-globally unique
- 2) Document Identity (line number 654)
  - \* document-name
  - \* document-id ??
- 3) "printer-state-as-text" (line number 1628)
  - \* how is this internationalized?
  - \* freeform, left to the implementation
- 4) Job size (line #1307)
  - \* "total" versus "printer" (limits)
  - \* job-k-octets
  - \* job-impressions
  - \* job-media-sheets
  - \* this will be changed to have two sets of numbers
- 5) Alignment with JMP and PMP?
  - \* IPP will align with JMP and PMP, not vice-versa
- 6) Setting print quality is not listed as a requirement in the requirements document yet is defined in the model and directory document. This is also true for printer-fonts and printer-speed.

Scott will publish these issues and lists on the ftp server.

## PROTOTYPING

Peter Zehler took the floor to discuss the current plan for prototyping. At this time very little has been started in this effort. Peter broke the plans down into short term (company demos, etc.) and long term (back-offs, interoperability tests.) There has been an offer to develop a reference implementation for \$200,000 to deliver within 6 months. Any implementation problems during prototyping should be fed back into the group. Are there any test suites going to be available -- Genoa, Interworking Labs?

## MEMPHIS

We have 2.5 hours on Tuesday in Memphis. Most of the time will be spent on Protocol(Steve Zilles) and Security(Carl-Uno). Carl-Uno will present an introduction and overview of the group. Two short slots will be covering Requirements and Model.

## PUBLICITY

Should we develop some PWG press release addressing the formation and work scope for the IPP group. Things that might be included:

- + Participants/Companies
- + Work Scope, problems trying to be solved
- + Chartered by IETF
- + Status and schedule
- + Contact information for potential members and press (could be different)
- + Scott, Don, Roger, Carl-Uno, Steve Zilles will create the early drafts
- + Companies that want to be included should indicate their interest.
- + Goal - March 21st
- + Should we get an analyst quote?

## NEXT MEETING

- + Model subgroup meeting may be held on May 14th
- + IPP meeting will be May 15th

Meeting adjourned at 5 PM.