PSI Meeting April 16, 2002

1. Meeting Attendees

Canon
Canon Development Americas
Compaq
Epson
Epson
Epson
Heidelberg
Hewlett Packard
Hewlett Packard
Hitachi-Koki
IBM
IBM
Lexmark
Microsoft
Motorola
NETsilicon
Oak Technology
Oak Technology
Peerless
Sharp
Xerox

2. Administrivia

Alan Berkema led the discussion and provided the planned agenda items:

- Review PSI Document
- Review Specification 0.25
 - * Off-Ramp Identifier
 - * Document Reference
 - * IPP to PSI Mapping
- Work Items
 - * GetJobs
 - * Persistence Policy
 - * Attributes
 - * Extended Attribute Description Policy
 - * Mapping PS, Off-Ramp, Client
- Requirements Document?
- Job Status Content Status
- Query Interface for Extensibility
- Security Model

Alan explained that he did not expect to be able to cover all the topics today, but wanted to explore as many as possible.

Because this was the first PWG-based Working Group meeting for PSI, he gave a brief statement about the PSI activity and reviewed the introductory slide presentation that has been posted on the PSI website [www.pwg.org/ps/index.html].

Peter Zehler stressed that he wants to take advantage of past PWG efforts on defining Printer semantics. Whenever possible, he would like to share the concepts of the Print model across different standards efforts—such as JDF, Linux, UPnP, etc.

3. Review PSI Document

Dave Hall led a review of the PSI sequence diagrams, method definitions on the interface, and related parameters. He also reviewed the descriptive report document that his UML tool automatically generates.

The group asked several questions relating to how SOAP over HTTP works, how exceptions are "thrown" and "caught" using SOAP, and how WSDL might be used to define the interface.

During the review, the following question was raised:

Is there a need to be able to do something outside the scope of a Job request? For example, turning on a projector and having it warm up. As another example, setting the default settings of stapling.

According to Dave, security has been left to the HTTP layer—not the application/interface layer. Although it was not discussed in detail, there seemed to be some concern about whether or not this is sufficient. Pete Zehler raised the issue of "surrogate authorization" (giving your rights to access a document to someone else.) This is evidently a "very hard problem"—one that the group did not attempt to resolve.

In the definition for AddContentReference there is a Boolean parameter, "secure", to allow the client to request a secure data retrieval. It was agreed that this parameter would be more appropriate in InvokeJob. Also, there is some concern whether this approach is adequate.

For AddContentPost, Dave noted that we might want to use Multiplexed MIME type—but he was unable to specify this using his UML tool. He said that the group will need to examine the WSDL closely before addressing this satisfactorily.

ISSUE: Who can cancel a job—or specific documents?

The topic of Off-ramp attributes raised the question of supporting "interdependent attributes." It was noted that in some cases, certain attribute values are dependent on other attribute values. How will these dependency relationships be modeled/supported? The group agreed that this topic should be explored further—later.

While discussing RegisterOffRamp, it was agreed that a "Registration Lifetime" parameter should be added to indicate how long a registration should last.

4. <u>Review Specification 0.25</u>

Dave Hall reviewed a few items in the latest PSI specification draft.

4.1 Off-Ramp Identifier

Dave discussed the OffRampIdentifier type. He proposes that it should be an XML document, explaining that this will allow the definition of "everything you need to know in order to establish a connection with the identifier."

He added that this would allow clients to specify legacy devices as off-ramps. It is up to the print service to provide the proxy support for that legacy device if it chooses to do so.

Dave suggests that we should define a schema that includes a set of well-known identifiers—but we need to ensure that the schema is extensible. Nagasaka-san suggested that we might reference the list of identifiers included in the IEEE 1212 specification.

A list of possible endpoint identifiers was suggested:

- Fax
- IPP end point
- Projector
- UPnP end point
- EPF Electronic Picture Frame
- JobControl SOAP end point (Print Service end point?)
- File system end point
- Windows SMB end point
- Channel Group Printer MIB
- SOAP Gateway to other Print Service
- E-mail end point
- SMTP
- etc.

Dave volunteered to write a draft schema definition for OffRampIdentifier.

4.2 Document Reference

Dave explained that the Bluetooth Printing Protocol (BPP) activity has already made an attempt at defining several attributes of an XML document reference. He proposes that the PSI group adopt their work—with possible additions or deletions.

Dave reviewed a table of attributes from the BPP specification. He will extract and distribute a copy of this information to the PSI group—hopefully to be included in the PSI specification.

A list of different methods of referencing documents (content) for retrieval was identified:

- FTP (URL + some other information)
- E-mail (POP3)
- E-mail (IMAP)
- WebDAV (Web-based Distributed Authoring and Versioning)
- UNC (Universal Naming Convention)
- Other Exchange protocol?
- PTP (Picture Transfer Protocol) mechanism to retrieve image from digital camera
- Video stream 1394 reference?
- etc.

4.3 IPP to PSI Mapping

Dave Hall and Peter Zehler discussed different approaches to optimize the mapping from IPP concepts/constructs to PSI.

They essentially agreed on a [extensible] class hierarchy for operational attributes that Peter will distribute in a future document.

5. GetJobs

As a result of their discussion, they agreed that having multiple "Get Jobs" methods (e.g., GetAllJobs, GetMyJobs, GetCompletedJobs, etc.) is not a good idea. It is better to have a single GetJobs method that is flexible enough to handle the many variations desired.

6. <u>Persistence Policy</u>

Dave led a discussion about Job and Document persistence, resulting in the following items:

- We need a way for the Print Service to know that the job has actually been printed so that it can begin its policy
- We need a definition of the policy
- We should require job state/history, but not require the document data to be persistent
- The Off-ramp needs to provide job/state persistence for a minimum of 30 seconds after job completion. The jobs that the Off-ramp needs to provide information for is only required for the jobs that were submitted via the JobControl interface. The Off-ramp may also choose to provide information on jobs/documents that have been submitted via other interface mechanisms.
- The [minimum] number of jobs that must persist depends upon the time it takes to actually complete the jobs
- The Print Service needs to provide job/state persistence for a minimum of 1 day

Dave noted that we need to define/examine use models that include:

- Documents delivered to Off-ramp via multiple protocols
 - * Do they show up in the GetJobs call?
 - * Can they be cancelled via the JobControl interface?
- Multiple Print Services printing to a single Off-ramp how do we manage spooling/hold-off?

It was noted that there is a difference between spooling and queuing. Job requests can be queued; Printer device data is spooled. Isn't an Off-ramp that provides a Job Control interface the same as a Device that has a Print Service embedded within it?

7. Extended Attribute Description

How does a Print Service or a Device describe to an end user the capabilities of that device?

To answer this question, Dave suggested that the Print Service could pass a "user understandable" description of multiple attributes and possible values. This description could be encoded as an XML schema—and used for presenting a User Interface. [It was noted that this problem sounds very similar to the problem being addressed by the UPDF activity.]

A natural follow-on question to this observation is:

Should all attribute descriptions be defined—and exchanged—as XML schemas?

The group agreed that the UPDF work should be examined for consideration. Perhaps the UPDF solution could be used/adopted for solving the exchange of attributes/capabilities in PSI?

8. Requirements Document

Alan said that he would like to request a Last Call review on the Requirements Document. He hopes to reach agreement on its content quickly—especially now that the entire PWG membership has had a chance to review the latest draft.

9. Terminology

Don Levinstone requested that the term "Off-ramp" should be changed. He believes it is confusing—and the term has other established meanings with other groups. A few people agreed.

The terms "target device" and "end unit" were suggested for consideration.

PSI meeting adjourned.