



The Printer Working Group

Semantic Model Workgroup

November 15, 2016

Virtual

Jeremy Reitz (Xerox)

SM Meeting Agenda



When	What
9:00-9:15	Administrivia, Introduction, Agenda
9:15-9:30	Project Status and Activities
9:30- 10:00	SM3/3D Printing Modeling Efforts
10:00-10:15	Break
10:15 -11:30	SM 2 Update & Questions (Bill)
11:30- 12:00	Next Steps and Action Items



Administrivia

- Welcome
- Confirm Minutes Taker
- Policy on Non-disclosure of Proprietary Information
- Semantic Model Workgroup Officers
 - Chair: Jeremy Reitz (Xerox)
 - Vice-Chair: Paul Tykodi (TCS)
 - Secretary: Bill Wagner (TIC)
 - Document Editors:
 - Jeremy Reitz (Xerox) – SM2, SM3 Schema
 - Paul Tykodi (TCS) – Example of PWG 3D Print Job Ticket
 - Ira McDonald (High North) – JDFMAP (awaiting prototype)
 - Rick Yardumian (Canon) – JDFMAP (awaiting prototype)



Introduction

- The current Semantic Model workgroup is the latest in a series of PWG workgroups documenting and maintaining the Hard Copy Imaging System model.
- This model defines the semantic elements that constitute the imaging services and subunits of a network connected Imaging System, and the actions that operate on the objects and elements of the model, independent of a specific protocol or network environment.
- By the current workgroup charter, the primary function of the workgroup is to keep the model updated with additions and changes developed by other PWG workgroups, to make the model documentation accessible without the need for special software, and to provide for the review and approval of model updates by the PWG membership.



Project Status – Current Projects

- **Mapping CIP4 JDF to PWG Print Job Ticket v1.0 (JDFMAP)**
 - Current draft (<ftp://ftp.pwg.org/pub/pwg/sm3/wd/wd-smjdfmap10-20150604.pdf>) is at Prototype level, awaiting prototype reports.
 - Soliciting candidates to do prototyping in progress.
- **Update and Finalization of Semantic Model 2**
 - Produce an updated version of SM2, reflecting corrections and reasonable additions from IPP, but no Cloud or 3D aspects.
 - Finalize and document this version and subject it to an approval process.
 - Gap analysis is still in progress (Bill Wagner).
- **Creation of Semantic Model 3**
 - Start afresh with SM3 to reflect updated view of MFD, with addition of Cloud aspects and 3D Print and Scan Services.
 - Although SM3 efforts were nominally to wait until after SM2 is finalized, preliminary work on the 3D Print Service has been started.
 - Initial work posted here: <https://github.com/istopwg/sm3>
 - With Daniel Leaving this will require a new volunteer to continue the effort.
- **New 3D Print Efforts**
 - New 3D Print efforts following the IPP project are within the scope of chartered projects, but will be identified in a charter update.

SM3 Approach



- SM3 starts with the SM2 model but would not necessarily maintain backward comparability to SM2, although gratuitous incompatibilities would be avoided. Specific examples of areas of incompatibility are:
 - "Light Services" (EmailIn, EMailOut, FaxIn) will be reclassified as Light services.
 - The System Control Service would be expanded to parallel the IPP System Service.
 - The Resource Service will be incorporated into the System Service.
 - Deprecated elements will be removed.
- SM3 will include new features and Services.
 - Notification will be added.
 - The Cloud Model will be incorporated and discrepancies with IPP Infra resolved.
 - The 3D Print Service reflecting IPP 3DPrint will be added.
 - There will be provision for a 3D Scan Service, although details will follow the IPP 3D Scan development.
- Development will follow the Schemata Development Process and Approval will require the full voting process.
- Certain aspects of the model (such as the WSDL or the rigorousness of the XML) may be omitted



PWG 2D & 3D Printing Job Ticket Efforts

- The PWG/IPP approach to printing is most effectively presented in abstract Print Service Capabilities (PSC), Print Job Ticket (PJT), and Print Job Receipt (PJR) structures.
 - It is desirable to include sample versions of these structures when presenting the PWG Model to other standards bodies. It would be appropriate to include both 2D and 3D samples in the SM web pages.
- **Set of 2D Printing Structures**
 - Sample Print Job Ticket exists in PWG Print Job Ticket specification section 19. A short narrative describing the intended job features will be added.
 - A sample Print Job Ticket Capabilities exists in Section 20.
 - A Sample Print Job Receipt for the same job can be generated.
- **Set of 3D Printing Structures**
 - The SM Workgroup has started generating a 3D Print Job Ticket example. This will be supported by:
 - A sample 3D Print Job Description
 - A sample 3D Print Service Capabilities
 - A sample 3D Print Job Receipt.



PJT, PJR, PSC Efforts

- 2D PJT, PJR and PSC
 - Sample Print Job Ticket exists in PWG Print Job Ticket specification section 19
 - A short narrative describing the intended job features would be helpful
 - A sample Print Job Ticket Capabilities exists in Section 20.
 - A Sample Print Job Receipt for the same job can be generated.
[Review current state of 2D Printing set]
- 3D Printing Job Ticket
 - Sample Job Description
 - Sample Service Capabilities
 - Sample Print Job Ticket
 - Sample Job Receipt
 - The SM Workgroup has started this effort in generating a 3D Print Job Ticket example.
[Review current state of 3D Printing set]
- Questions and Issues in Examples



3D Print Service Efforts

- Because of the distinct differences between 2D Printing and 3D Printing Elements, 3D Printing in the Semantic Model is represented as a distinct service.
- The IPP 3D Extensions specification provides explicit information on the additional elements needed to support 3D Printing.
- The 3D Print Service Model is created starting with the existing Print Service Model and deleting and adding elements following the information in the IPP 3D Extensions specification.
- Although the 3D Print Service is to be included in SM3, a good first cut can be made at this time when the model can be better coordinated with the IPP 3D Print effort.

[Review current state of the 3D Print Service Model]

Break



SM2 Update and Questions



- TBD



- The project is to update, stabilize and finalize SM2 as the basic model for an MFD providing one or more imaging services. This model will then be the basis for SM3, which will include Cloud, 3D Printing and the expanded finishing features.
- The approach is to correlate current IPP attributes, as registered in IANA, with Semantic Model elements, adding new elements and deprecating others. Elements specifically for Cloud, 3D Printing and the expanded finishing features will be removed.
- Once syntactical and format errors are corrected, the updated SM2 will be submitted for PWG approval in accord with the PWG Policy for Maintenance and Approval of Schemata.
- A compilation of IANA-registered IPP attributes has been made and potential corresponding element names were generated. ([elements-IANA-registry-20160815.xlsx](#)). The task is now to see if these elements (and their values) are in the model and if they are not, to add them in the proper position.

SM2- IPP Attributes, Values, Operations and Codes Derived from IANA Registry



[elements-IANA-registry-20160822.xlsx](#)

- **Attribute Table**

- Columns B-G are from IANA table
 - Column I is current guess at corresponding major Print Service type in the Semantic Model Major Print Service
 - Column J is current guess at the Model Type containing the Element
 - Column K is the element name
 - Column L is the sub-element name (if any)
 - Column M is the value
 - Column N is the syntax
- Spread Sheet is used for ease of Sorting, Searching, and Linking.



Other Issues and Next Steps

- Continuing the Semantic Model effort requires the participation of more PWG members, both for active generation of material and for review. Participation is dependent on:
 - An understanding on the part of both the participant and the supporting company of the value of the semantic model.
 - Presentation of the Semantic Model documentation in a form that is easily understandable, so that participation does not require either special knowledge or software.
- The Semantic Model Workgroup has been posting “browesable” forms of the model and the operations. We need to know if other PWG members find these forms of the documentation usable and sufficient to consider the content.
- Summary of Decisions and Action Items



More Info/How to participate

- **We welcome more participation from member companies**
- **Much of the discussion of issues will be on the SM3 mail list. You must subscribe to the list to be able to post to the list. See <http://www.pwg.org/mailman/listinfo/sm3> to subscribe.**
- **The group maintains a Web Page for Semantic Model that includes links to the latest documents, schema and a browse-able version of the schema at <http://www.pwg.org/sm3>**
- **Next conference call: September 5, 2016; 12:00 – 1:00 Pacific Time / 3:00 – 4:00 PM Eastern Time.**

Call-in toll-free number (US/Canada): 1-866-469-3239

Call-in toll number (US/Canada): 1-650-429-3300

Call-in toll number (US/Canada): 1-408-856-9570

<https://ieee-isto.webex.com/ieee-isto/e.php?MTID=m123b376f8d9bdc7d9ff0ff43ed7d1610>