PWG MFD Working Group Face-to-Face Meeting Minutes
At Dell, Austin, TX
December 8-9, 2009

December 8 Tuesday Meeting –

1. **Attendees**:

Jacob Brown,	Dell
Nancy Chen,	Okidata
Lee Farrell,	Canon
Rick Landau,	Dell
Ira McDonald*,	Samsung consultant
Joe Murdock,	Sharp
Glen Petrie*,	Epson
Jody Steele,	Dell
Jerry Thrasher,	Lexmark
Bill Wagner,	TIC
Peter Zehler*,	Xerox

*Phone-in attendee

2. **Introduction & PWG IP Policy :**
   Attendees introduced themselves. The MFD Working Group Chairman Peter Zehler reminded attendees the meeting is being conducted in accord with the PWG IP policy. No objection.

3. **Minutes Taker Assigned: Nancy Chen**

4. **Agenda:**
   9:00-9:15 Introductions, Assign Minute Taker(s)
   9:15-10:30 Detailed review of Overall MFD specification
   <ftp://ftp.pwg.org/pub/pwg/mfd/wd/wd-mfdoverallmod10-20091201.pdf>
   10:30-10:45: Break
   10:45-12:00: Review of Multifunction Device Service Model Requirements
   <ftp://ftp.pwg.org/pub/pwg/mfd/wd/reqmfdreq10-20091202.pdf>

5. **Detailed Review of MFD Overall Specification**
   ftp://ftp.pwg.org/pub/pwg/mfd/wd/wd-mfdoverallmod10-20091201.pdf

   The group reviewed all highlighted changes in the updated MFD Overall document by Bill Wagner (see the document link above).

   All highlighted changes were accepted. Listed below are exceptions or additional changes we agreed.
   - Figure 2 – Primary Interfaces with Services:
     - Both EmailOut and FaxOut also have a secondary digital-document data flow arrows to Repository.

- There should be no data flow arrow from print to Repository – the second digital-doc is for job save operation.

- Line 519-522
  - A job should include 0 or more documents.
  - There is no document ticket, only job ticket containing document processing instructions.
  - Change “is to” to “should”
- Figure 5 needs a caption
- Figure 8 and Section 2.4.2.2 – change Content Region to Scan Region
- Figure 10 delete redundant figure.
- Line 726 – DataTypes – Ira will supply this section this month.
- Table 7 – Data type should all be in lower case : Complex => complex
- Line 841, below Table 10 – fix the notes (in too tiny font).
- Table 17 FeedDirection : keywords need to be found and inserted in descriptions.
  - This is not defined in XML schema yet. Pete will define the NMToken that will be derived from Printer MIB / Print service.
- Line 960 – The reference for printer MIB system controller HR MIB is “section 2.2.8 in printer MIB”.
- Table 30 StorageRemovable attribute - it’s in host resource MIB in host storage table, but not for USB storage type. Need to say Host resource MIB does not have “removable” property. This attribute is applicable to any storage type, required in P2600 standard.
- Line 1001: replace SmartCard (a trade mark) with access card.
- Table 32 –
  - ImageBox – remove “inseparable” in the description.
  - ScanRegion - Remove “inseparable” in the description.
- Table 36 – changes agreed
  - RepertoirSupported – the reference is “PWG Candidate Standard 5106.2”
- Table 38 -
  - imagesCompleted – Remove the note about “this counter must be promptly updated …” If mandated should be identified in conformance, not here. Also Counter spec has this requirement.
- Global change – Change “PWG specification defined” => “PWG standard defined”.
- Line 1523 A saved job can be recalled by Reprocess-Job (using original job ticket) or
  - Resubmit-Job (which may change job processing instruction)
- Figure 59 – remove background color
- Table 49 –
  - Add “comma” between all parameters.
  - Get<service>XXXElements: Pete proposed the semantics of these operations to be taking the requested element name (the keyword of the top-level elements) as input, and returns one selected top level element group elements (e.g. capabilities, default ticket, … etc., of a service) . One exception is that the MediaCol element is quite large and thus the

elements of this group are not returned for Capabilities group. A single element can only be returned by adding an extension operation. Pete will align the current Print Service with this semantics.
        - All Services must align with this semantics. This is the same used in WS-Print.
        - Bill will add these statements in the Conformance section.
    - Set element – should be able to set a specific element
        - Set uses sparsely populated tree (only contains element values to be set). IPP specifies that "this must be an atomic" operation.
        - Get element: The client can obtain a specific group of elements. (not IPP semantic, a WS-scan semantic).
        - Bill will resolve offline with Ira's comments.
- Section 7.3.2.5 Promote<service>Job – needs to add text from Sec 4.4.1 of RFC 3998, and take a look at Tom's IPP working draft and CUPS implementation of PromoteJob.
- Section 8 Conformance :
    - Line 1826 – remove the entire sentence "Therefore…".
    - Line 1825 – add "particular" to an Imaging Service.
    - Line 1830: delete the beginning sentence. Start with "MFD Service Model" change the sentence to "MFD Service Model and MFD system specifications MUST import the definition of common elements; terms and semantics from this document."
- Section 11 Security Considerations
    - Need to reference P2600 standards here.
    - Line 1874: Change the sentence to: "The management of the site policy for use of Sevice features is accomplished by an Administrators using Set<service> Elements operation to set Capabilities and DefaultJobTicket elements."
- Table 49: get rid of the extra "*".
- AI: Bill to search through the conformance statements to make sure they are consistent with individual service compliance statements.

6. Review of MFD Service Model Requirements

ftp://ftp.pwg.org/pub/pwg/mfd/wd/reqmfdreq10-20091202.pdf

- Bill briefly introduced the purpose and scope, the organization and contents of this requirement document, many use uses are currently temporarily culled from Scan Service Requirement document.
- Fig 1 need to be updated for consistency with the MFD Overall specification.
- The Title need to be changed to: "wd-mfd-req10…". After formal vote, then the title can be change to "req…" before it's placed in the PWG informational document area.
- Line 273 – MFDs that are not network connected is out of scope. However we should consider non-network connected MFD too. => remove this statement.
    - Line 244 change to "as observed by a client".
    - Rationale: We want a coherent model of all imaging devices to improve interoperability, use PWG model for workflow solutions to achieve reliable results,

also simplify product development for services in different network environment. The use of consistent semantics also enable manufacturers to simplify the gateways (i.e. protocol bindings) into the services in different networks.
    - Line 300 & 301: Change both “data system” to “computer or network”.
    - Line 310: Change “An effective” to “A standard”.
- Use Cases:
    - Bill currently plans to generalize the use cases from the Scan Service requirement document into generic use cases for all imaging services, and show the interactive diagrams for all the generalized use cases; Take the extracted design requirements from all use cases and unify them into a set of generic design requirements.
    - Line 750 – remove the requirement for the Client, not a service requirement.
    - Plan to remove all design requirements that are not for a MFD service.
    - Change SHALL => MUST.
- Bill welcome all comments/suggestions for the requirement document as it evolves.

7. Review of Copy Service Specification

ftp://ftp.pwg.org/pub/pwg/mfd/wd/wd-mfdcopymodel10-20091123.pdf

- The specification is nearly complete, but it only specifies CopyService specific semantics that are not in the Overall spec. Therefore it can’t be approve until the Overall spec is approved.
- There is no CopyService specific terminology.
- Section 6 CopyService Model Overview
    - References need to be updated.
    - Newer version has been updated with consistency with the updated Schema that has Capabilities, and CapabilitiesReady.
- CopyServiceStatus: only have very few CopyService specifics.
- CopyServiceConfiguration
- Section 7 CopyJob Model – semantics come directly from Scan and Print, modeled as Scan-to-Print, except that the internal documents are not visible: hardcopy in, hardcopy out, intermediate internal digital documents are implementation-specific.
- CopyJobTicket has Input and Output DocumentProcessing instructions, the “sides” of document to impress from and the sides of media sheet to impress on made the split.
- CopySerive Interfaces
    - Do we need HoldCopyJob and ReleaseCopyJob? The CopyJobTicket allow you to specify HoldUntil(Time). Basically CopyService scheduler always wait till a input media can be pulled from input tray then start the copy job processing, whether it’s a walk-up copy or remote submission of a copy job or the user pressed the green button.
    - CopyService does not handle the scenario when a user wants a copy job be scanned before the end of day, but not to be printed until certain time the next morning. This requires a Scan and followed by a Reprint operation in PWG MFD semantic model.

        - AI: Document this type use case scenarios in Overall Spec. and describe how this can be handled as two jobs (Scan and Print), not as a Copy Job. The same scenario may be applicable to email / fax services too.
    - Can not use copy service to scan a doc, hold the doc and print that at 3am for the doc to be copied. Can only do it by submitting Scan job first and a print job.
        - Write a use case to describe this as a Scan and Print
    - An Interrupt (hitting the button) for a Copy Job is a Suspend Copy Job operation.
        - AI: add SuspendJob operation and ResumeJob operation in Overall specification. There are SuspendPrintJob and ResumePrintJob operations in IPP(RFC 3998) / Print Service.
        - AI: Pete to add Suspend<service>Job and Resume<service>Job in all service Schema. These are Administrative operation, a user may not do this remotely.
    - In general "remote interrupt" are administrative operations, job owner at console can also press "interrupt button" to suspend/resume own job.
    - Hold/Release affects the job scheduler in the job pool(RFC 2911). Keep these.
    - Comment 7 : We need to have consistent calling sequence for Get<service>XXXElements and Set<service>XXXElements. This is being taken care of by Pete.

October 14 Wednesday Meeting –

1. **Attendees**:

Jacob Brown,	Dell
Nancy Chen,	Okidata
Lee Farrell,	Canon
Rick Landau,	Dell
Ira McDonald*,	High North, Inc. (Samsung consultant)
Joe Murdock,	Sharp
Glen Petrie*,	Epson
Jody Steele,	Dell
Jerry Thrasher,	Lexmark
Bill Wagner,	TIC
Peter Zehler*,	Xerox

*Phone-in attendee

2. **Introduction & PWG IP Policy :**
   Attendees introduced themselves. The MFD Working Group Chairman Peter Zehler reminded attendees the meeting is being conducted in accord with the PWG IP policy. No objection.

3. **Minutes Taker Assigned: Nancy Chen**

4. **Agenda:**
   9:00-9:10 Introductions, Assign Minute Taker(s)

9:10-10:30 : Copy Specification Review
10:30-10:45 : Break
10:45-11:30: MFD Hosted Services Definition Completion Planning Discussion
11:30-12:00: Next Steps

5. Review the Updated Copy Service Specification

ftp://ftp.pwg.org/pub/pwg/mfd/wd/wd-mfdcopymodel10-20091209.pdf

- CopyServiceCapabilities is updated, has list of supported elements in CopyJobTicket. The element names are the same, only syntax may be different. The MFD Overall spec if referenced to cover the syntax of the elements.
- CopyServiceCapabilitiesReady has text that explains the difference from CopyServiceCapabilites.
- CopyJobProcessing: Pete proposed a solution to an issue raised yesterday: There are copy services where separation in time between document acquisition and disposition is desirable. We agreed to Pete's proposal to add new JobProcessing elements to control this behavior. The elements DelayOutputUntil and DelayOutUntilTime could be added. These elements would have the same syntax as JobHoldUntil and JobHoldUntilTime. A new JobStateReason would be added to indicate Output has been delayed while the JobState is ProcessingStopped. The associated operation that would allow processing to continue would be Resume<service>Job. This eliminates the need for writing a Scan and Print workflow through two job processing to accomplish the same thing.
    - It was further recognized that the same solution can be applied to scenarios in other services such as in Print, a Print-SaveJob-Reprint scenario. Pete will write up these elements and associated JobState and JobStateReasons for Bill Wagner to include in the Overall document.
- Table 4 User Operations is updated with new operations from IPP/2.0 Job and Printer Operations Set2, and Suspend/ResumeCopyJob from yesterday's discussion.
- Agreed that all GetXXXElements operations should include ElementNaturalLanguageRequested as input parameter.
- Agreed that all SetXXXElements operations should also include ElementNaturalLanguageRequested as input parameter.
- Agreed that need to have consistent calling sequence for Get<service>XXXElements and Set<service>XXXElements. For Get<service>XXXElements, input parameters are a list of keywords for top level element groups. For Set<service>XXXElements, input is a sparsely polulated tree with element values to be set, and operation is atomic: all fails and no change made if any single element can't be set.
- AI: In the previous section (Copy Model), add elements that are defined mandatory in Schema, and reference them in this section (Sec. 10.3)
- Section 11: At the beginning, add: "There is no PWG IANA registration consideration for this specification."
- Line 650 needs to be re-written for secure "Set" operations. Pete will add verbiage to state that "All Set operations are privileged administrative operations".
- AI: For Security Consideration, it is recommended that all security considerations common to all services should be specified in MFD Overall document, and the individual service spec simply reference the Overall document for most of the security consideration, unless service-specific.

- AI: Add CancelCopyJobs and CancelMyCopyJob as required administrative operations in Section 10.2.2.
- AI: Make the all operations in a table of operations with a column indicating whether each operation is REQUIRED and reference them in Conformance section. Make sure all operations captured in Table 4 and Table 5 are listed appropriately.

6. MFD Hosted Service Definition Completion Planning Discussion

- Agreed that all Service specifications must be finalized to Prototype stage before the MFD Overall spec can begin "Last Call" process.
- Currently Print, Scan, Resource Service specification are complete, Copy Service is near complete, FaxOut Service needs to be converted to inherit common semantics from the Overall specification. The following service specifications are still need to be started:
    - EmailIn, EmailOut, FaxIn, Transform.
- For FaxIn, the end-user does not create a job instance, job life cycle is different from any other service job. FaxIn job is created by the service as an event based on the incoming call. The same state transition as other services is followed, but there is no pending or pending-held state.
- The Transform Service can convert the output from one service to the appropriate input format for another service for a MFD workflow.
- Question was asked whether any resource is available to write FaxIn and Transform Service specification. No volunteer at the meeting.
- Pete will continue to develop the XML Schema for all the services and provide Schema diagrams as needed. Pete reported that the WSDL interfaces are already written, he will start to evolve WSDL1.0 to WSDL 2.0. We need toolkits to maintain WSDL1.0.
- Pete hopes to have concrete implementations of PWG MFD semantics by various vendors, and hold PWG MFD interoperability tests for the benefits of office workflow environments in the future.
- Pete plans to write a white paper on the vision of PWG MFD Semantic Model and Interfaces, how it can serve as a hardcopy on-ramp and off-ramp platform for business process workflows,…, etc.
- Lee Farrell recommended to Pete to formally distribute the white paper, survey vendors' responses and interests.
- Pete also plans to evolve MFD Semantic work along with IPPv2 standard which has been implemented by several vendors and by CUPS. MFD Semantics can also be implemented in Web Services that open up MFD devices the opportunities to gain access to other posted services and also using WS-Eventing, WS-Addressing, WS-Security,..that are very beneficial in networking environment.
- The problem of only few individuals are willing to contribute to the MFD semantic model and very few vendors are willing to implement the model was discussed. Our conclusion was that vendors are not contributing or implementing because either the model does not solve their real problems and/or there is no real customer's application requirements to push vendors' contribution. But the customers or application developers are not involved in PWG standard at all.
- One comment was that the working group may have been building the solution that people don't know. It was recommended that the group should address the problems the model is trying to solve. The discussion then diverged to a lengthy discussion on what are problems considered by customers/vendors valuable to solve. In light of that, Jody Steele reported one of his enterprise

document management solution customer is trying to find how the solution can obtain the total document counts processed by each MFD in their network. Unfortunately, although there are PWG standard counter specification and standard printer MIB for various counts, not many printer vendors implemented the standards today. However, this is because there is no customer requirements demand the standards to be implemented, and perhaps there is a missing communication link between the application customers and printer vendors. The conclusion was that in order to influence vendors to implement these standards, we need to show the business rationales. This requires marketing and advertising effort into the applications or OS environments that are using MFDs which is not expertise of this group. These business requirements can also be used to drive what elements are required for the MFD model.

- The group later asked Jody's help in providing his enterprise document management customers' use case scenarios for our MFD semantic model. Jody happily agreed to contribute his customer's requirements.
- There is still question remain as regards to how to convince vendors to implement standard counters for printer/MFD management instead of adhering to their own private MIB for differentiation. It will require the customers to speak up, though some expressed it's very hard to convince customers to speak up to their vendors too.
- One voice is that a vendor does not respond to abstract spec which is still under development. Only when it's finalized and there is a binding specification, the standard is considered stabilized, then vendor will start to implement.
- Lee welcomed the opportunity to use PWG as the conduit for communicating with member companies' customers to voice their requirements for a standard. He then encouraged Pete to include in his white paper a roadmap on where the expected benefits will go and lead to by doing what in what time frame that can help crystallize our vision for assimilation by people outside PWG.
- Pete plans to develop Web Services binding specification for MFD Services. Once the XML WSDL is written, the binding can be generated from XML code generation tool for the request and response messages. It's also possible to build a UML model use proper UML tools to generate XML WSDL.

7. Next Steps

- Next teleconference is on Jan. 7, 2010, Thursday, 3pm EDT.
- Pete to complete the MFD semantic model white paper and distributed to MFD WG for comments.
- Pete to update Copy Service specification, XML WSDL and Schema
- Pete to update FaxOut Service specification.
- Ira to start FaxIn Service specification after FaxOut Service specification is updated.
- Recruit volunteers to help Transform Service specification or MFD System specification.