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PWG Semantic Model/Schema Extension and Revision Process

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The Printer Working Group

PWG Semantic Model and Schema Extension and Revision Process

Version 0.03
April 09, 2004

41 Abstract: This document defines the process that guides and controls the extensions and revisions of the PWG
42 Semantic Model and associated Schema. This document covers both the formal extension of the Model and Schema
43 by approved by the PWG as well as the process for private extensions by vendors or sites. Sections relating to
44 Intellectual Property and Confidentiality are taken directly from the PWG Standards Development Process [PWG-
45 Proc]. This is a process defining document, not an industry standard.

46

47 This version of the PWG Semantic Model/Schema Extension and Revision Process is available electronically at:
48 <ftp://ftp.pwg.org/pub/pwg/standards/process/pwg-sm-process-20040304.pdf>, .doc

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56 Title: The PWG Semantic Model/Schema Extension and Revision Process

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85 The Printer Working Group (or PWG) is a Program of the IEEE Industry Standards and Technology Organization
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87 providers, network operating systems providers, network connectivity vendors, and print management application
88 developers. The group is chartered to make printers and the applications and operating systems supporting them
89 work together better. All references to the PWG in this document implicitly mean "The Printer Working Group, a
90 Program of the IEEE ISTO." In order to meet this objective, the PWG will document the results of their work as open
91 standards that define print related protocols, interfaces, procedures and conventions. Printer manufacturers and
92 vendors of printer related software will benefit from the interoperability provided by voluntary conformance to these
93 standards.

94 In general, a PWG standard is a specification that is stable, well understood, and is technically competent, has
95 multiple, independent and interoperable implementations with substantial operational experience, and enjoys
96 significant public support.

97 For additional information regarding the Printer Working Group visit: <http://www.pwg.org>

98 **Contact information:**

99 Semantic Model Web Page: <http://www.pwg.org/sm/>
100 Semantic Model Mailing List: sm@pwg.org

101 To subscribe to the Semantic Model mailing list, send the following email:

- 102 1) send it to majordomo@pwg.org
- 103 2) leave the subject line blank
- 104 3) put the following two lines in the message body:
105 subscribe sm
106 end
107

108 Members of the PWG and interested parties are encouraged to join the Semantic Model Mailing List in order to
109 participate in any discussions of clarifications or review of the PWG Process.

110 Implementers of the PWG Semantic Model specification and associated Schema are encouraged to join the
111 Semantic Model Mailing List in order to participate in any discussions of clarifications or review of registration
112 proposals for additional names. Requests for additional extensions, for inclusion in this specification, should be sent
113 to the Semantic Model Mailing list for consideration.

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129 **1 Introduction**

130 This document establishes the process that is followed to extend or revise the PWG Semantic Model or its
131 associated Schema. The Printer Working Group (or PWG) is a Program of the IEEE Industry Standards and
132 Technology Organization (ISTO) and is an alliance among printer manufacturers, print server developers, operating
133 system providers, network operating systems providers, network connectivity vendors, print and print management
134 application developers chartered to make printers and the applications and operating systems supporting them work
135 together better. All references to the PWG in this document implicitly mean "The Printer Working Group, a Program
136 of the IEEE ISTO." In order to meet this objective, the PWG will document the results of their work as open
137 standards that define print related protocols, interfaces, procedures and conventions. Printer manufacturers, vendors
138 of printer related software and the consuming public will benefit from the interoperability provided by voluntary
139 conformance to these standards.

140
141 The PWG Semantic Model and associated Schema specifies a stable, well understood, technically competent and
142 has multiple, independent implementations with substantial operational experience, demonstrated interoperability
143 and significant public support. In developing this standard, the Semantic Model Working group of the PWG defined
144 durable documents covering the abstract Semantic Model and an associated Schema at persistent URLs.

145
146 This process document establishes

- 147 1. The maintenance stage of the PWG Semantic Model and associated Schema.
- 148 2. Versioning of the Semantic Model and Schema
- 149 3. The process for Public (i.e. PWG approved) and Private extensions to the PWG Semantic Model and
150 associated Schema

151
152 This document can be updated and a new version can be produced following the Formal PWG Approval process.
153

154 **1.1 PWG Semantic Model Meetings**

155 It is common to hold face-to-face meetings every 6 to 10 weeks with phone and web based conferencing during the
156 interim. Meeting location details are published in advance of meetings as are the agenda for the working groups that
157 will meet. The Semantic Model will meet when warranted. New documents must be introduced at least a week prior
158 to a face-to-face. Telephone and web based conferences are held as needed and announced on the Semantic Model
159 mailing list. Decisions made at PWG administrative, business, or plenary meetings require a simple majority, 1 vote
160 per member organization.

161
162 Dial-up and web conference details, agenda and reference materials are to be published at least 48 hours in
163 advance when work is being conducted via remote conferencing.
164

165 **1.2 PWG Semantic Model Communications Infrastructure**

166 The PWG Semantic Model Working Group will maintain

- 167 1. A page on the PWG web site (<http://www.pwg.org/sm>) where the working group information, and document
168 links and other pertinent information may be found.
- 169 2. A PWG ftp site (<ftp://ftp.pwg.org/pub/pwg/Semantic-Model/>) where PWG Semantic Model and associated
170 Schema working drafts, standards, procedures, schema, templates and other useful and necessary
171 documents may be accessed.
- 172 3. An e-mail reflector (sm@pwg.org), and an archive (<http://www.pwg.org/hypermail/sm/>) .
173

174 2 Overview of Maintenance and Extension

175 There are 3 main phases to standards development in the PWG – Charter, Development and Maintenance. The
 176 PWG Semantic Model and associated Schema are in the Maintenance phase. In this phase clarifications and errors
 177 that are discovered will be corrected and any extensions or registrations will be made. See the PWG Process
 178 specification [PWG-Proc] for the general maintenance process. Section 3 describes details on how the PWG
 179 Semantic Model and its associated Schema are extended

180 The Semantic Model Editor will be responsible for reflecting the decisions of the working group, rather than their own
 181 personal views. Ultimately, the editor has responsibility for the quality of the document, making sure that it is
 182 readable and has a coherent style, even when it has multiple authors or contributors.

183 2.1 PWG Semantic Model Specification

184 The PWG Semantic Model Specification is expected to be updated from time to time. Minor updates must maintain
 185 upward and downward compatibility and require a minor version change. Updates that prevent upward or downward
 186 interoperability require a major version change and should occur rarely. Change requests will be discussed,
 187 approved and collected in a Working Draft until the Working Group feels it is time to revise the official specification.
 188 The details discussed below.

189 2.2 PWG Schema

190 The PWG Schema is expected to be extended and updated. Extensions can be made in private namespaces or in
 191 the PWG namespace. Details on this are below. The Schema contains a registry of PWG approved keywords. Any
 192 approved extensions will be immediately placed in the appropriate file. After approval and testing, the extensions will
 193 be incorporated into the Schema itself. As long as upward and downward interoperability are maintained the
 194 namespace for the Schema will not change. Each file contains an attribute that specifies its version. This version
 195 number will be incremented each time a change is made.

196 2.3 PWG Semantic Model and Schema relationship

197 The Semantic Model specification and the Schema are closely related. The elements and their values in the Schema
 198 are described in the Semantic Model Specification. Furthermore the Semantic Model Specification only provides a
 199 summary on the elements and values in the Semantic Model. The detailed description is provided in an external
 200 document and referenced in the PWG Semantic Model Specification. The external document can take many forms.
 201 Examples include PWG IPP Specifications, any standards body specification (e.g. IEEE, PWG, IETF, ISO, IANA), or
 202 a white paper or technical brief created specifically for the extension. Even a mail note is acceptable if it meets the
 203 criteria outlined in section 3.2. Note that mail notes, white papers and technical briefs will be collected into a single
 204 document to simplify semantic references when the Semantic Model specification is updated.

205 3 PWG Semantic Model and Schema Extensions

206 The PWG Semantic Model and associated Schema are extensible and intended to be extended to meet the needs of
 207 the industry. When approved, these semantic elements or values have the same status as the PWG Semantic
 208 Model and Schema. In addition, as implementation work proceeds, clarifications may be required to guarantee
 209 interoperability.

210 The PWG Semantic Model and associated Schema are also vendor and site extensible (see below). These private
 211 vendor and site extensions require no formal PWG approval process. It is recommended that vendor publish their
 212 extensions through the PWG and petition to make them PWG endorsed extensions.

213 Major changes or additions are defined as any changes that prevent upward and downward interoperability. Major
 214 changes require engagement of the PWG standards development process described in the he PWG Process
 215 specification [PWG-Proc].

216 **3.1 Federation of vendor extensions (Namespace)**

217 Any vendor or site is permitted to extend the PWG Schema. Extensions are federated through the use of
 218 namespaces. Any new semantic element or value MUST be qualified by the extendor's namespace. The only
 219 exception to this are the values for elements that have a specific pattern for extensions. Exceptions include
 220 MediaColor, MediaType, MediaSizeName, OperatingSystemName and OutputBin. Vendors are responsible for
 221 managing their own namespace to prevent collisions. When an extension is approved by the PWG the element or
 222 value will be in the PWG namespace.
 223 The PWG's namespace for the Semantic Model Schema (e.g. <http://www.pwg.org/schemas/sm/1.0/>) is expected to
 224 remain constant. The PWG Schema was designed as an open content schema [XML-CHANGE]. An open content
 225 schema is one that allows instance documents to contain additional elements beyond what is declared in the
 226 schema. The PWG Schema implements localized openness that allows extension at specific points. The
 227 namespace for the PWG Schema needs to remain constant and change infrequently to foster deployment. The
 228 namespace for the PWG Schema will only change when a major change is required that prevents upward or
 229 downward interoperability.
 230 To accommodate minor updates each schema file contains the *schema* element with an attribute that specifies the
 231 version. The *version* attribute will be incremented each time a PWG approved extension is added. Note that the
 232 namespace does not change but by examining the schema file the exact version can be determined.

233 **3.2 PWG Semantic Model and Schema Extension Process**

234 Proposals for extensions will follow the following process:
 235 1. Anyone can initiate a proposal for an extension by starting a discussion on the Semantic Model mailing list.
 236 2. After there is some agreement on the mailing list for the suitability of the extension, the Proposer creates a
 237 proposal. Such a proposal should include:
 238 ? Status of the proposal, including previous reviews.
 239 ? A description of the requirement being met or the problem being solved.
 240 ? Description of the semantic element(s) or value(s).
 241 ? The exact text to be incorporated into the PWG Semantic Model specification at some future date.
 242 ? The exact XML Schema fragment to be included in the updated Schema
 243 3. The proposals (i.e. technical briefs/white papers) will be store (ZZZ add reference to white paper directory from
 244 PWG-Proc ZZZ)
 245 4. All proposals must be published according to section (ZZZ add reference to PWG-Proc ZZZ)
 246 5. Reviews of proposed extensions may occur at a meeting or on the MAILING LIST.
 247 6. The proposal will undergo sufficient reviews and updates until, in the opinion of the SM Chair, there is rough
 248 consensus that the proposal is ready for Last Call as described in section (ZZZ add reference to PWG-Proc
 249 ZZZ) followed by Formal Approval as described in section (ZZZ add reference to PWG-Proc ZZZ).
 250 7. If, in the opinion of the SM Chair, the Last Call discussions and Formal Approval meet the voting requirements
 251 described in section (ZZZ add reference to PWG-Proc ZZZ), the Maintenance Editor will move the approved
 252 extension to the ftp://ftp.pwg.org/pub/pwg/sm/ext sub-directory to make the status of proposed extensions clear.
 253 The appropriate schema file(s) will be updated.
 254 8. The SM Chair will announce the Formal Approval and updates to the entire PWG via the PWG-ANNOUNCE
 255 MAILING LIST.
 256 9. Periodically, the Maintenance Editor will incorporate the approved extensions, registrations and clarifications into
 257 the PWG Semantic Model Specification. Such an updated version of the standard will have a new minor version
 258 of the standard, along with a Change History Appendix that lists each change.
 259
 260

261 **4 Intellectual Property and Confidentiality**

262 Confidentiality, IP rights, Intellectual Property Procedures and Patent Statement policies are covered in the PWG
 263 Standards Development Process specification [PWG-Proc]. The Semantic Model maintenance and extensions
 264 conform to those policies.
 265

266 **5 References**

- 267 [PWG5105.1] IEEE-ISTO 5105.1-2004, "The Printer Working Group(PWG) Semantic Model", January 20, 2004, T.
268 Hastings, S. Albright, and P. Zehler, <ftp://ftp.pwg.org/pub/pwg/standards/pwg5105.1.pdf>
- 269 [PWG-Proc] IEEE-ISTO 510X.X-2004, "PWG Standards Development Process V2.0", March 4, 2004, D. Carney, D.
270 Hall, and H. Lewis, <ftp://ftp.pwg.org/pub/pwg/standards/pwg510X.X.pdf>
- 271 [XML-CHANGE] "W3C XML Schema Design Patterns: Dealing With Change", July 3, 2002, D. Obasanjo,
272 http://www.xml.com/pub/a/2002/07/03/schema_design.html

273 **6 Author's Address**

274
275 Harry Lewis
276 IBM Printing Systems
277 6300 Diagonal Highway
278 Boulder, CO 80301
279 Phone: 303 924 5337
280 Fax: 303 924 7434
281 e-mail: harryl@us.ibm.com

282
283 Peter Zehler
284 Xerox Corporation
285 800 Phillips Road
286 MS/128-30E
287 Webster, NY 14580
288 Phone: 585 265-8755
289 Fax: 585-422-7691
290 e-mail: pzehler@crt.xerox.com

291
292 Additional contributors:
293 Alan Berkema, HP
294 Elliott Bradshaw, Oak Technology
295 Dennis Carney, IBM
296 Lee Farrell, Canon
297 David Hall, Hewlett-Packard
298 Tom Hastings, Xerox
299 Ira McDonald, High North
300 Gail Songer, Peerless
301 Jerry Thrasher, Lexmark
302 Bill Wagner, NetSilicon
303 Don Wright, Lexmark
304