



PWG-DMTF Alliance Work

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PWG-DMTF Joint Mission



- "... to review and update the CIM model based on the updated Printer MIBv2, the PWG Semantic Model and web services protocols, as appropriate."
 - PWG / DMTF Work Register, V1.0, 2005/05/12
 - <http://www.dmtf.org/about/register/PWG-DMTFWorkRegister.pdf>
- "Based on. . ." implies no new invention
 - Bring PWG standard semantics to the CIM model

Who is PWG?



- The Printer Working Group (PWG), www.pwg.org
 - A program of the IEEE Industry Standard and Technology Organization (IEEE-ISTO)
- Varied membership
 - Manufacturers of printers, multi-function devices, print servers, and imaging devices
 - Developers of operating systems, print management applications
- Chartered to make imaging devices and applications work together better
 - Develop standards for the electronic printing industry to improve interoperability

Some PWG Standards



- SNMP Printer MIB v2 (RFCs 3805, 3806, 1759)
- Internet Printing Protocol (RFCs 2910, 2911 plus fifteen more), and eight other PWG standards
- PWG Media Standardized Names
- PWG Semantic Model
- PWG Standardized Imaging System Counters & PWG Counter MIB v2
- PWG Web-based Imaging Management Services
- PWG Printer Port Monitor MIB
- Et al.

PWG WIMS-CIM Working Group



- Existing PWG Web-based Imaging Management Services (WIMS) working group
 - Concerned with the management of imaging services and devices via the Web
- Formed WIMS-CIM working group within WIMS
 - Align the CIM printing model with established printer management models
 - SNMP Printer MIB, Internet Printing Protocol, PWG Semantic Model
 - Future: Imaging System Counters, Multi-Function Device model
 - Upgrade CIM printing classes
 - Future basis for web service based printer management

PWG WIMS-CIM WG Goals



- Update CIM printing model with PWG models
 - CIM schema includes classes for Printer (device), PrintService, PrintJob, PrintQueue
- Enhance management scope of Printer device model
 - Include many important printer attributes
- Ensure that every property in CIM printing-related classes is interoperable
 - Correct a number of properties
 - Build prototype providers

Improve Interoperability



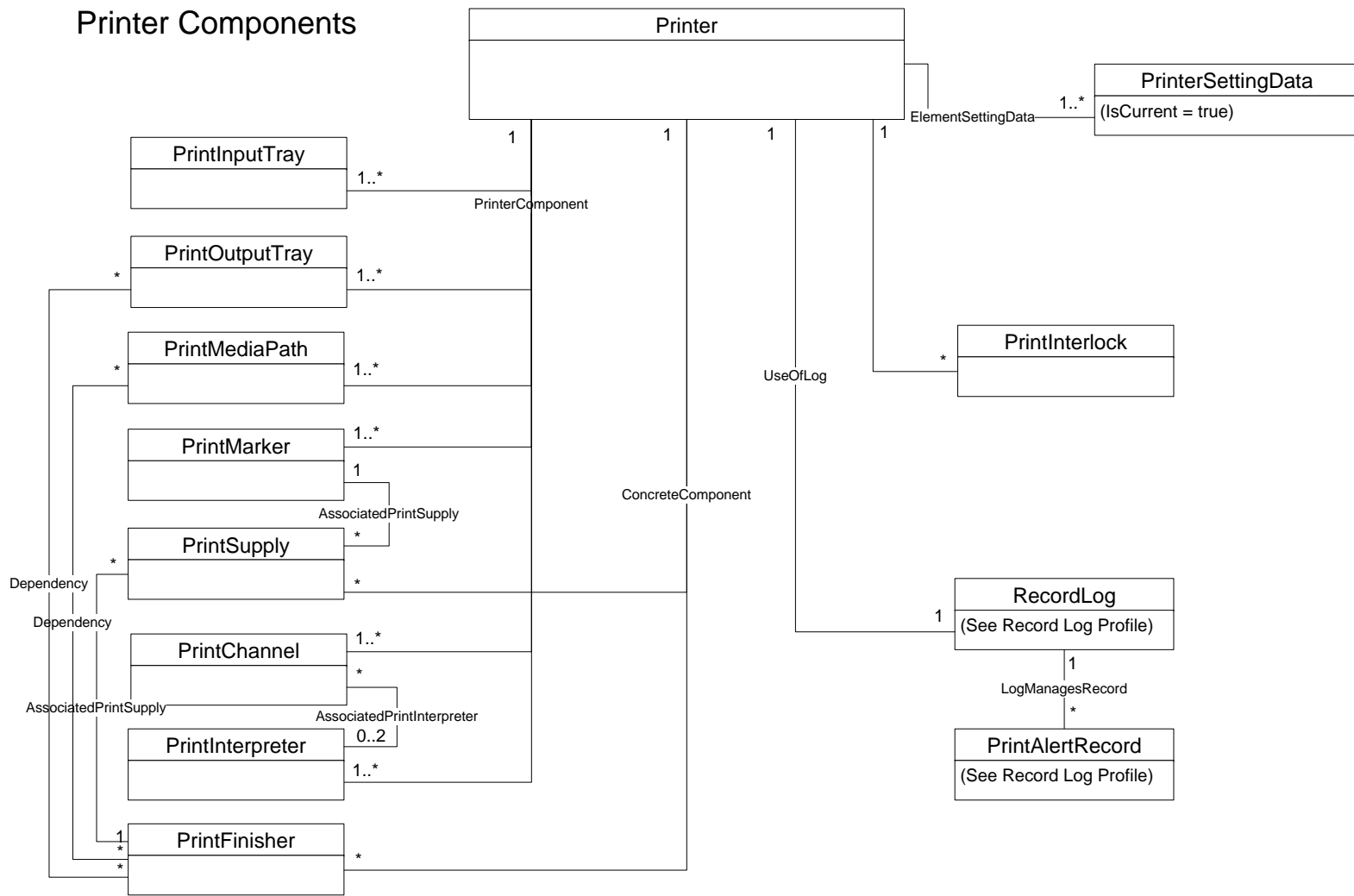
- Fix definitions of ambiguous properties
 - "Vertical" and "Horizontal" not defined for sheet-fed printers
 - Use measurements in feed direction and cross-feed direction
- Deprecate non-interoperable properties
 - "Current" media, language not defined for pipelines > 1 page
 - Define defaults instead
- Relocate some properties to correct parent class
 - CIM_Printer contains aspects of PrintService's logical printer
 - MaxCopies, DefaultCopies, MaxSizeSupported, etc., will be moved to CIM_PrintService

Add What Was Missing



- Then-current (<v2.16) CIM_Printer (and other) classes were pretty basic
 - CIM_Printer class had about 30 properties
 - PrinterMIB has about 140 properties
- Some categories of management information were entirely absent, including most information needed for *management*
 - Alerts
 - Input trays, output trays, input media
 - Media paths, markers
 - Toners, colorants, and other supplies
 - Communications channels and language interpreters
 - Counters
 - Local languages used for management
 - Console display

Model of Printer Device



Working Relationship



- All work to date submitted to Core Schema WG
- A great deal of education in both directions
- Many CRs, many ballots
- Result: successful collaboration
- Future work with Schema SC and Platform SC

Printer Device Complete



- Re-modeling of Printer device classes complete
- Fifteen classes
- CRs already submitted: 35
 - Approved: 30
 - In flight: 0
 - Withdrawn: 5, due to changes in model
- Changes appear in schema versions 2.13 thru 2.19
- Current state in the PWG wiki page
<http://pwg-wiki.wikispaces.com/DMTF+CIM+Core+Schema+Change+Requests>

Remaining to be Done (near term)



- Printer alert messages
- Printer-related counters

Printer Alerts



- Add message codes and text to the Platform Alert Messages Registry, DSP8007
- Work with Physical Platform Profiles (PPP) WG of Platform SC
- Schedule?
 - Started
 - Done this CY

Defining Printer Alerts



- Take all currently defined printer-related alerts and cast them in CIM terms using the new model of Printer
- Several hundred types of printer device and finisher alerts, but many fall into the same categories
 - Need to compromise between specificity of messages and number of unique messages
 - Collapse into small set of messages with substitution arguments
 - Aim for dozens of messages rather than hundreds

Printer-Related Counters



- PWG Counter MIB V2 defines many counters for imaging systems, including printer devices, print services, etc.
 - Approx 100 different counters in spec
 - New Printer device model currently contains four
 - All from Printer MIB
- Work with Schema SC
 - Small number of classes: approx 6 plus associations
 - Moderate number of properties: 50-100
- Schedule?
 - Done this CY

Defining Printer Counters



- Sources: PWG Standardized Imaging System Counters, PWG Counter MIB v2
- Define 50-100 counters of various types
 - Impressions, media
 - Monochrome, color, blank
 - Processing, auxiliary, maintenance, waste
 - Times, jobs, alerts, bytes
 - Counters have different levels of persistence
- Group into small number of classes, define model
- Write MOFs for classes

Future Challenges

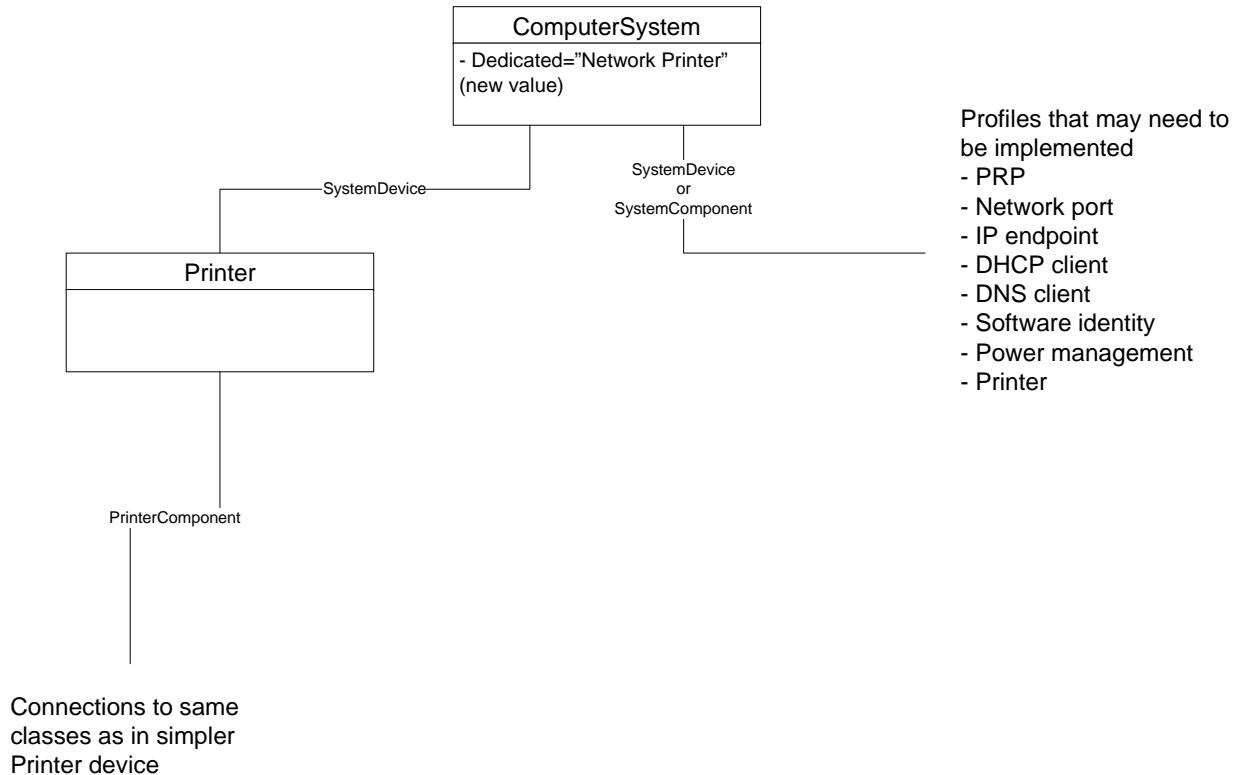


- Network printer is ComputerSystem, not a LogicalDevice
 - Current model of CIM_Printer is a personal printer attached to a host computer
 - Network printer is more complex
 - Contains computer system, interfaces, protocol services, profiles
 - Incremental remodeling effort
 - Uses CIM_ComputerSystem (that includes an attached printer)

Model of Network Printer



Network Printer = Dedicated CIM_ComputerSystem with an included Printer



Future



- Into next CY (2008-2009)
 - Update the PrintService and PrintJob classes based on IPP and Semantic Model
 - Make notes for Profiles of Printer Device and Network Printer in the future

Questions?



