DMTF Alliance Partner Technical Symposium

July 18, 2007

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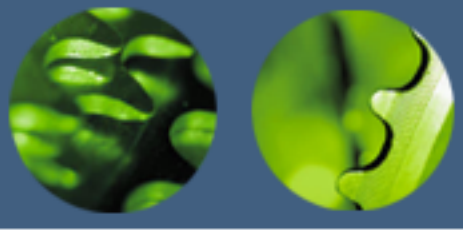
WIMS/CIM WG Co-chair

A Program of the IEEE-ISTO pwg



DMTF / PWG Background

- Printer Working Group (PWG)
  - Program of the IEEE Industry Standard and Technology Organization (ISTO)
  - Includes printer, multi-function device / print server, and imaging device manufacturers
  - OS providers, print management application developers
  - Chartered to make imaging devices and applications work together better

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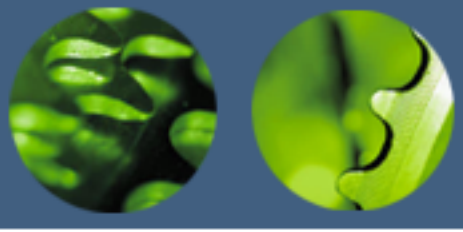

PWG WIMS/CIM Working Group

- The PWG WIMS/CIM WG is . . .
  - Concerned with the management of imaging services and devices via the Web
  - Focused on “realignment “of the DMTF/CIM printing classes with established printer management models
  - Upgrading DMTF/CIM printing classes in anticipation of this forming the basis for print management over the Web

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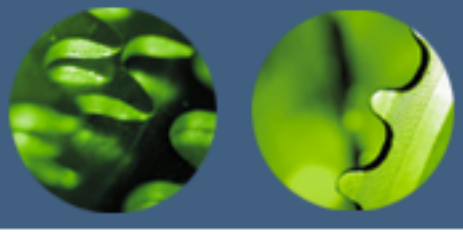

PWG WIMS/CIM Working Group Goals

- Update CIM printing model with PWG models
  - CIM schema includes classes for Printer (device), PrintService, PrintJob, PrintQueue
  - Current classes missing many attributes
- Correct model discrepancies
  - CIM_Printer class has about 30 properties
  - PrinterMIB has about 140 properties
  - Current classes not clearly defined
  - CIM_Printer contains aspects of PrintService's logical printer
- Ensure that every property in CIM printing-related classes is interoperable
  - Build prototype providers

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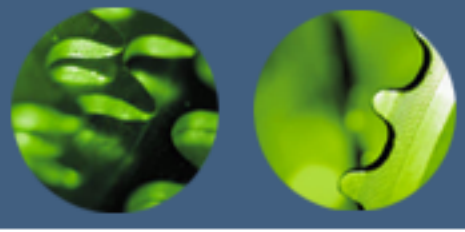
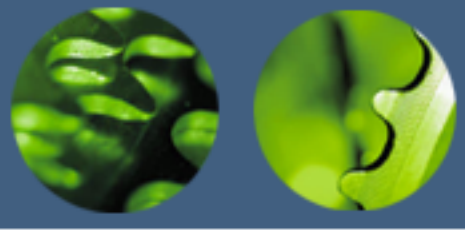


What's Missing Phase 1

- Current CIM_Printer (and other) classes are pretty basic
- Some categories of management information entirely absent
  - Console displays and lights
  - Input trays, output trays, input media
  - Media paths, markers
  - Toners, colorants, and other supplies
  - Communications channels and language interpreters
  - Counters

Phase 1

- Several CRs have been adopted in CIM schema versions 2.13 and 2.14
- Fixed / added documentation
  - Corrected Descriptions
  - Added Mapping Strings
  - Added Model Correspondences



Process for Change

- Submit Change Requests (CRs)
  - Change CIM classes or define new classes
  - Concentrate on printer as device first, then service, job, queue
  - Phases: cosmetic changes, corrections, major restructuring
- Follow process
  - Decide on changes
  - Draft CRs,
  - Submit CRs to appropriate CIM Working Group
    - Printer-related is in the CIM Core Schema Working Group
- Completed activities in WIMS-CIM WG
  - Selected a range of printers and use cases
  - Selected properties to move forward from Printer MIB
  - Developed a model of class inheritance and relationships

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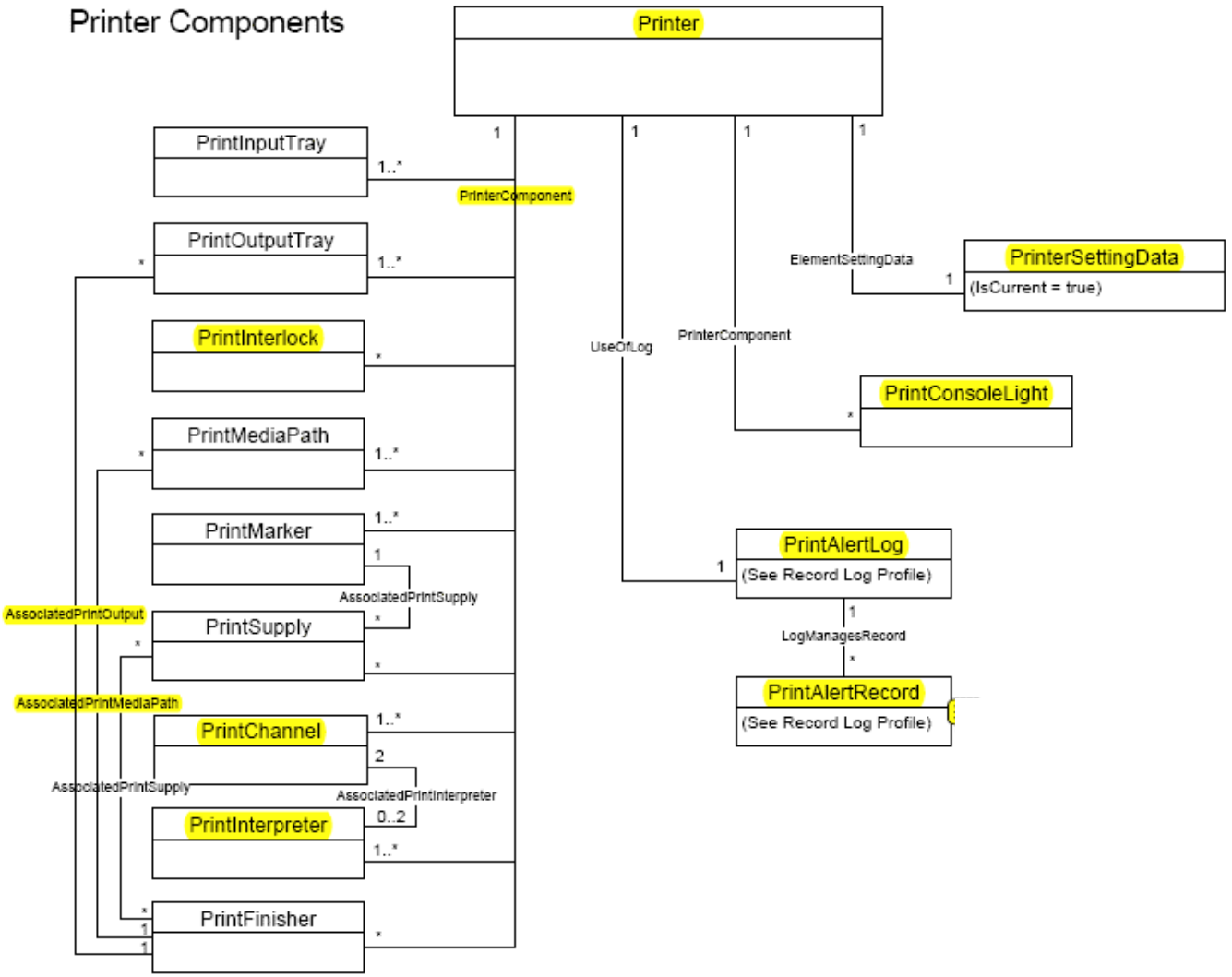
Model



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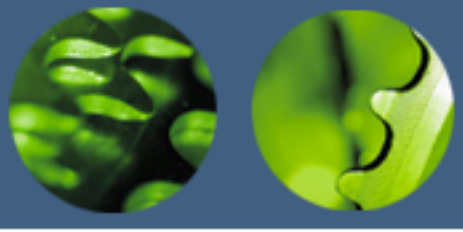

Phase 2/3 Issues

- Push-back from CIM Core WG about writable properties
  - Especially the writable-if-the-device-cannot-sense-reliably ones
- Response: simplify the CIM printer-related classes
  - Read-only: for the near term, concentrate on monitoring
  - Use object methods to modify device behavior, contents of properties
- Proxy implementations in the near term are not likely to have SNMP write access, anyway
  - Remove some properties, especially if they are writable
    - E.g., OutputTray.StackingOrder, OffsetStacking
  - Reprioritize to work on "most important“ classes early

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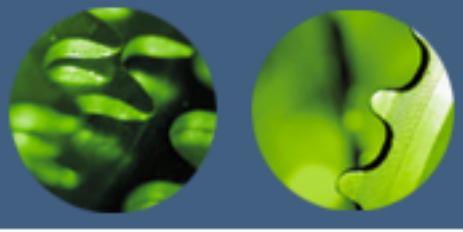
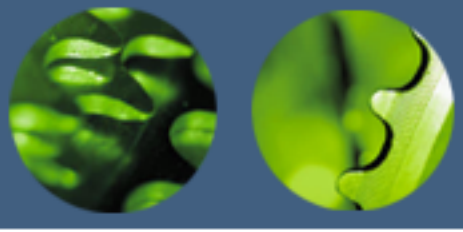


Plans (Post Phase 1)

- Continuing Phases 2 and 3 of the CIM Realignment Activity
  - Fix definitions of ambiguous properties, deprecate non-interoperable properties; move properties to correct parent class
  - Add needed management items that are available through existing printer management methods (e.g., MIBs & IPP)



Web Services Rationale

- DMTF CIM pursuing common path for Web Services
- CIM printer/printing model good starting point
- Goal: expand MOFs in preparation for management by Web Services

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CR Status / Plan (1/2)

CR Number	Title	Status	Next Steps
CIMCoreCR00829	Editorial changes to CIM_Printer	included in CIM Schema v2.13	n/a
CIMCoreCR00855	Editorial changes to CIM_OwningPrintQueue	adopted, included in v2.14	n/a
CIMCoreCR00856	Editorial changes to CIM_PrintJob	adopted, in v2.14	n/a
CIMCoreCR00857	Editorial changes to CIM_PrintQueue	adopted, in v2.14	n/a
CIMCoreCR00858	Editorial changes to CIM_PrintSAP	adopted, in v2.14	n/a
CIMCoreCR00859	Editorial changes to CIM_PrintService	adopted, in v2.14	n/a
CIMCoreCR00860	Editorial changes to CIM_QueueForPrintService	adopted, in v2.14	n/a
CIMCoreCR00901	Add class CIM_PrintOutputTray	adopted for v2.16	Almost fully baked. Needs additional CR for slight corrections and updates.
CIMCoreCR00930	Add class CIM_PrintInputTray	The CR passed ballot in Core 6/1	To be balloted at TC. Needs additional CR for slight corrections and updates.
CIMCoreCR00945	Add class CIM_PrintMarker	Passed ballot in Core 7/13	To be balloted at TC.
CIMCoreCR00946	Add class CIM_PrintSupply	Passed ballot in Core 7/13	To be balloted at TC.

CR Status / Plan (2/2)

CR Number	Title	Status	Next Steps
CIMCoreCR00947	Add class CIM_AssociatedPrintSupply	Passed ballot in Core 7/13	To be balloted at TC.
CIMCoreCR00958	Add class CIM_PrinterElement	Passed ballot in Core 7/13	To be balloted at TC.
tba	Add class CIM_PrintComponent		write CR
CIMCoreCR00962	Add class CIM_printMediaPath	Submitted to Core 7/13	To be balloted at Core
CIMCoreCR00963	Add class CIM_PrintFinisher	Submitted to Core 7/13	To be balloted at Core
tba	Add class CIM_AssociatedPrintMediaPath		write CR
tba	Add class CIM_AssociatedPrintOutputTray		write CR
tba	Add class CIM_PrintAlertLog	next to be done	write CR
tba	Add class CIM_PrintAlertRecord	next to be cone	write CR

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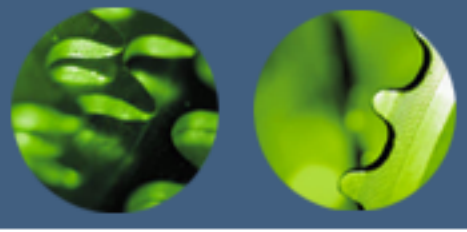
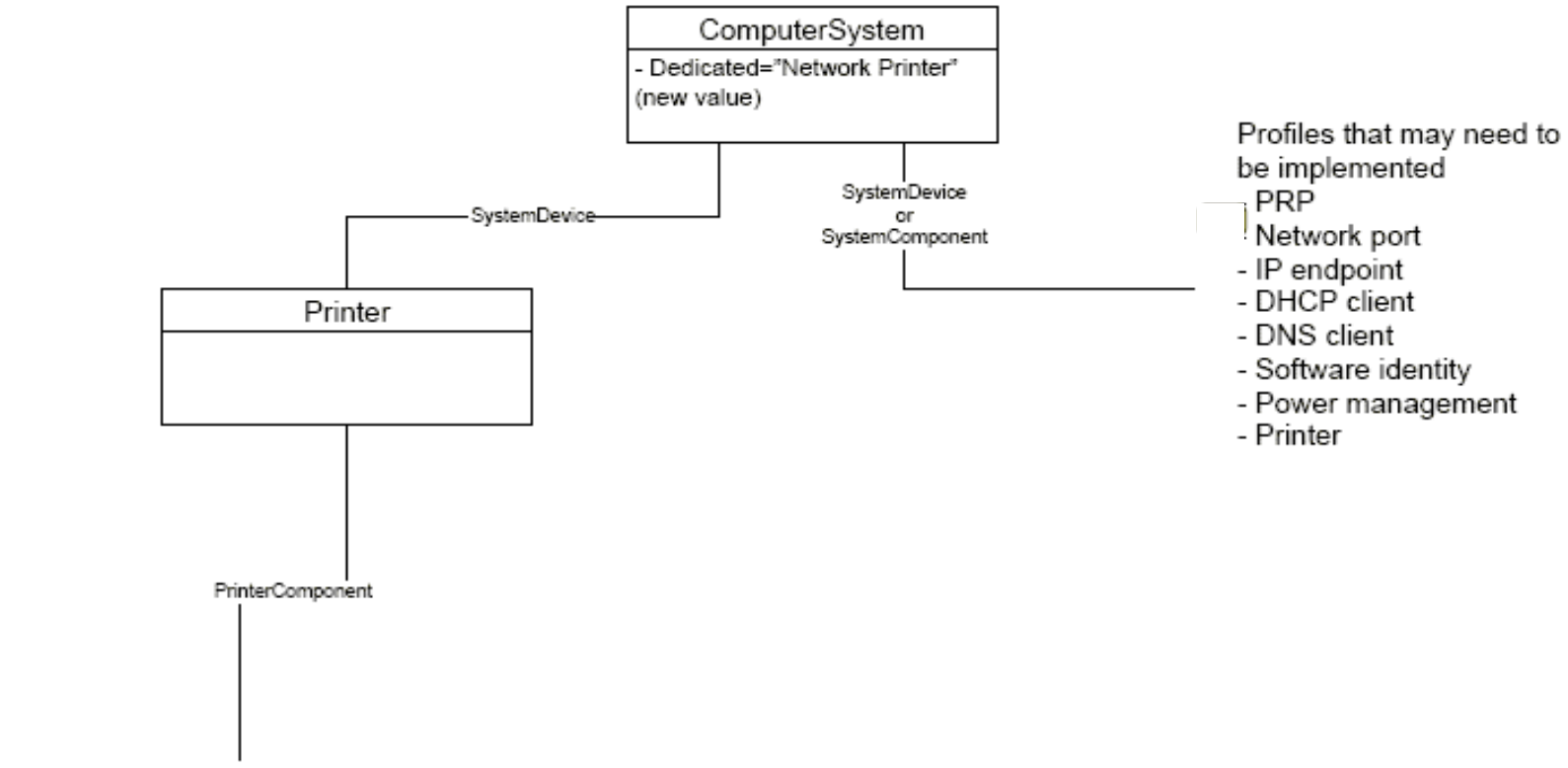
Latest update:
http://pwg-wiki.wikispaces.com/DMTF+CIM+Core+Schema+Change+Requests



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: computer system, interfaces, protocol services, profiles
  - Incremental remodeling effort
    - Uses ComputerSystem (as an attached printer)
- Approach
  - No change to the fundamental model at this time
  - Add important manageable elements first
  - Define network printer for CIM later

Network Printer using Computer System



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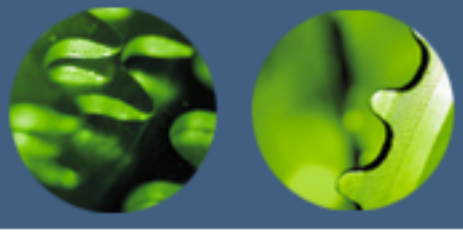

Plans

- 2007: finish the printer device classes
  - Based on Printer and Finisher MIBs
- 2008: update PrintService and PrintJob classes
  - Based on IPP and Semantic Model
  - Maybe add some management functions for the lost writable properties

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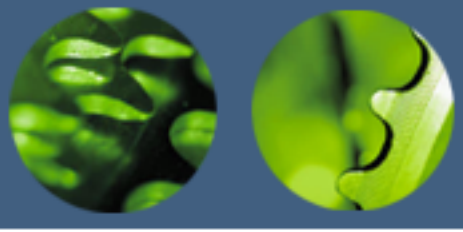

Prototype Implementation

- Prototype implementation of a CIM Provider
  - Embodies the new Printer device classes (Dell)
  - Proxy to SNMP printers
  - Proof for implement-ability of new classes / properties
  - Possible test bed for interoperability
- Two instances of "implementation experience" are required for DMTF to promote classes from experimental status to final status

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