



Web-based Imaging Management System Working Group

**Printer Working Group
Face-to-Face Meeting
June 25, 2008
Longmont, CO**

WIMS WG Agenda



- **2:00 – 2:10** **Agenda, Introductions, etc.**
- **2:10 – 2:40** **Update on Current Projects
CIM Counters status (Ira)
CIM Printer Prototyping (Rick)**
- **2:40 – 3:50** **Imaging WS-Man Facilitator**
- **3:50 – 4:00** **Discussion of Next CIM Activities**

WIMS/CIM Project Status & Plans

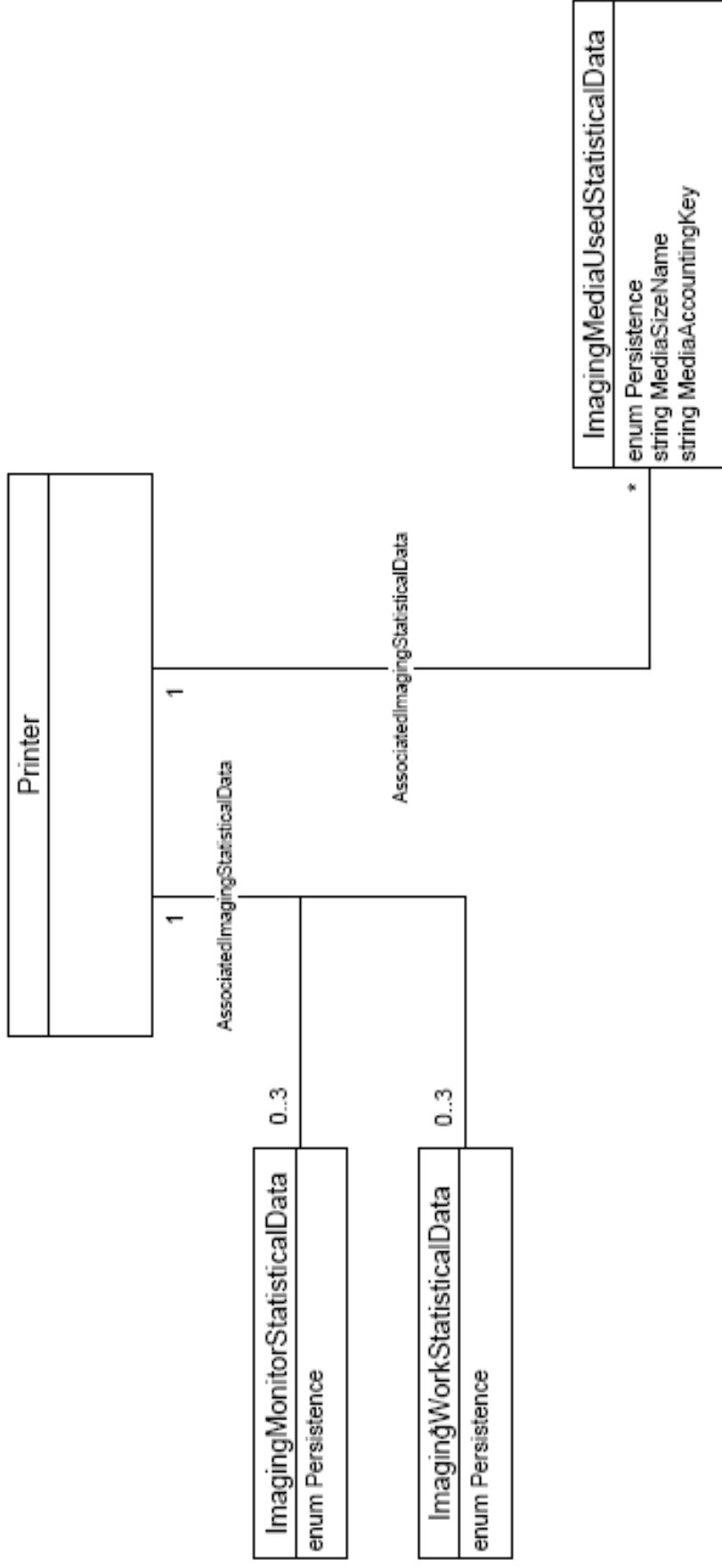


- **Imaging State & Counter MIB**
 - Document Posted
 - More implementations?

- **CIM Status**
 - Printer MOFs approved and in CIM Schema V2.19
 - Counter Classes Question Resolved
 - Counter MOFs drafted
 - Prototyping of Printer MOFs underway at Dell

- **Next Projects?**
 - CIM Printer Profile
 - Providing for CIM elements currently supported in standard MIBs
 - Providing for CIM elements from IPP
 - Other elements
 - Private MIBs (e.g., Power Management)
 - Web pages
 - Not presently supported

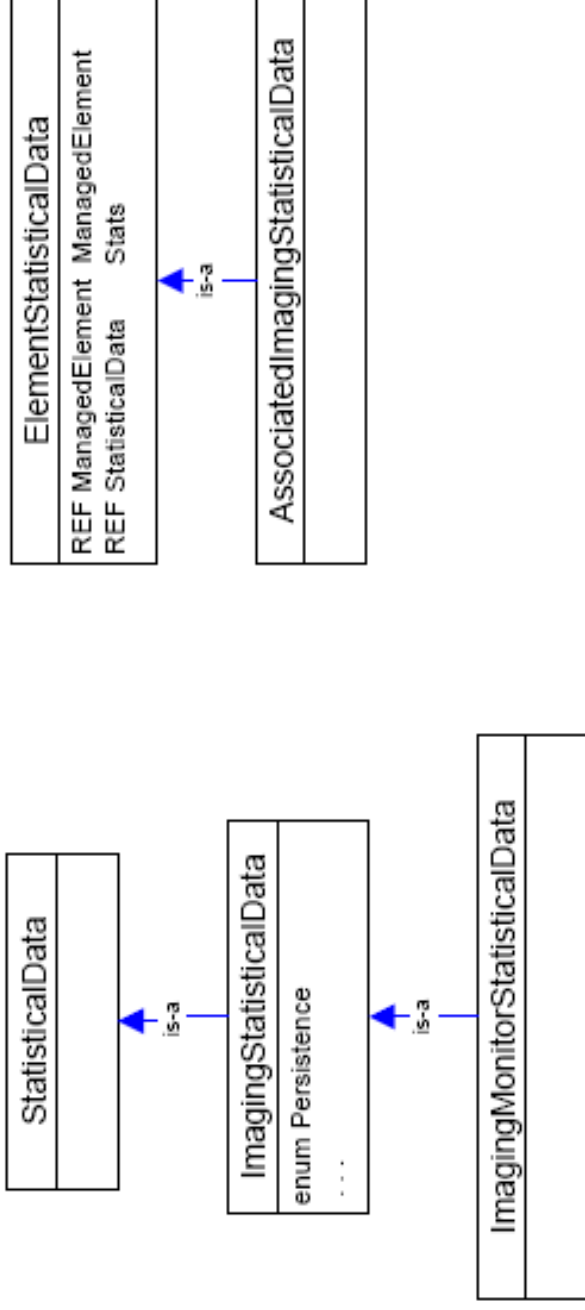
Printer-Related Imaging Counters



Based on

- Imaging System State and Counter MIB v2.0, <ftp://ftp.pwg.org/pub/pwg/candidates/cs-wimscountmib20-20080318-5106.3.pdf>
- Standardized Imaging System Counters v1.1, <ftp://ftp.pwg.org/pub/pwg/candidates/cs-wimscount11-20070427-5106.1.pdf>

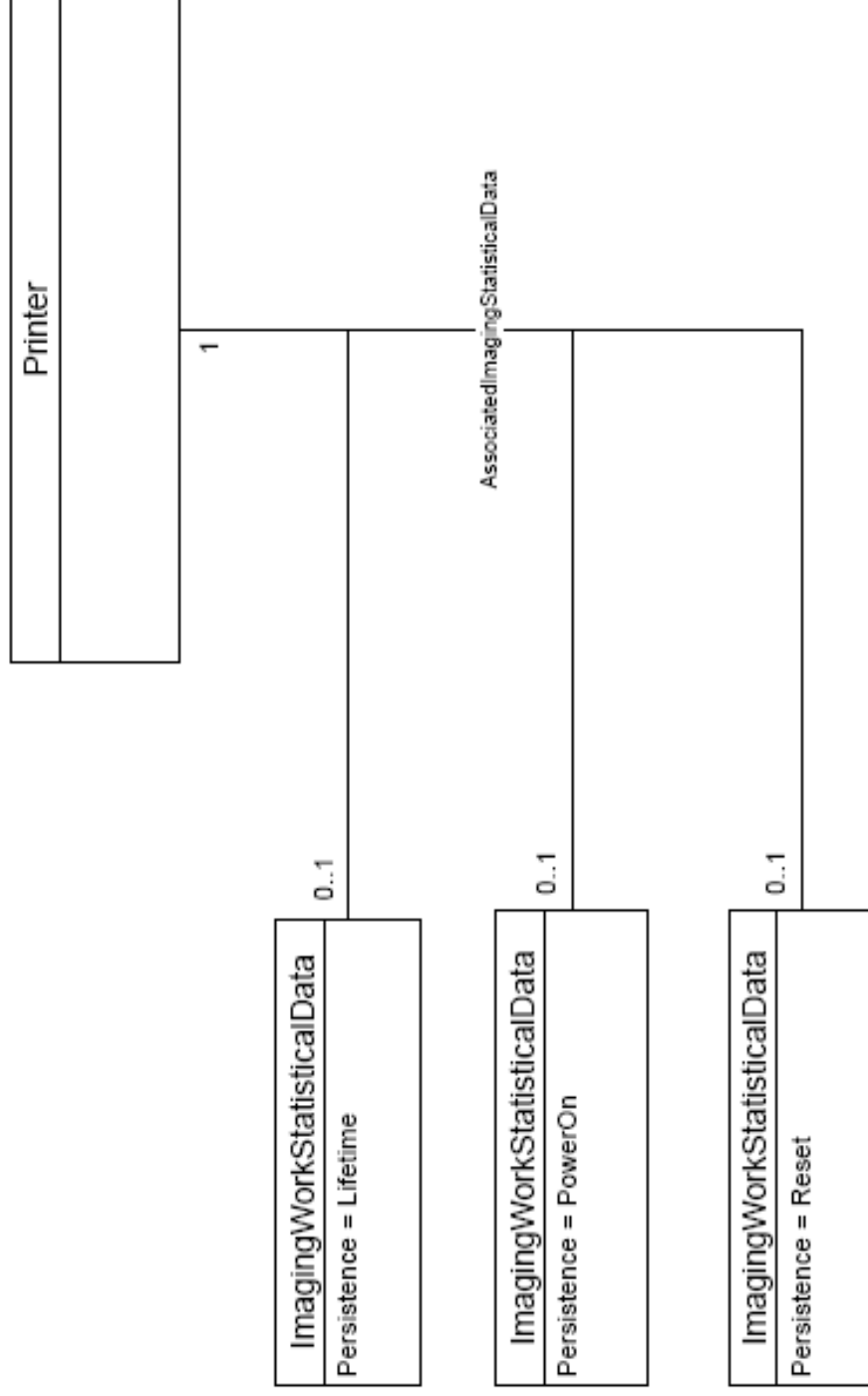
Class Hierarchy



... and similar classes:

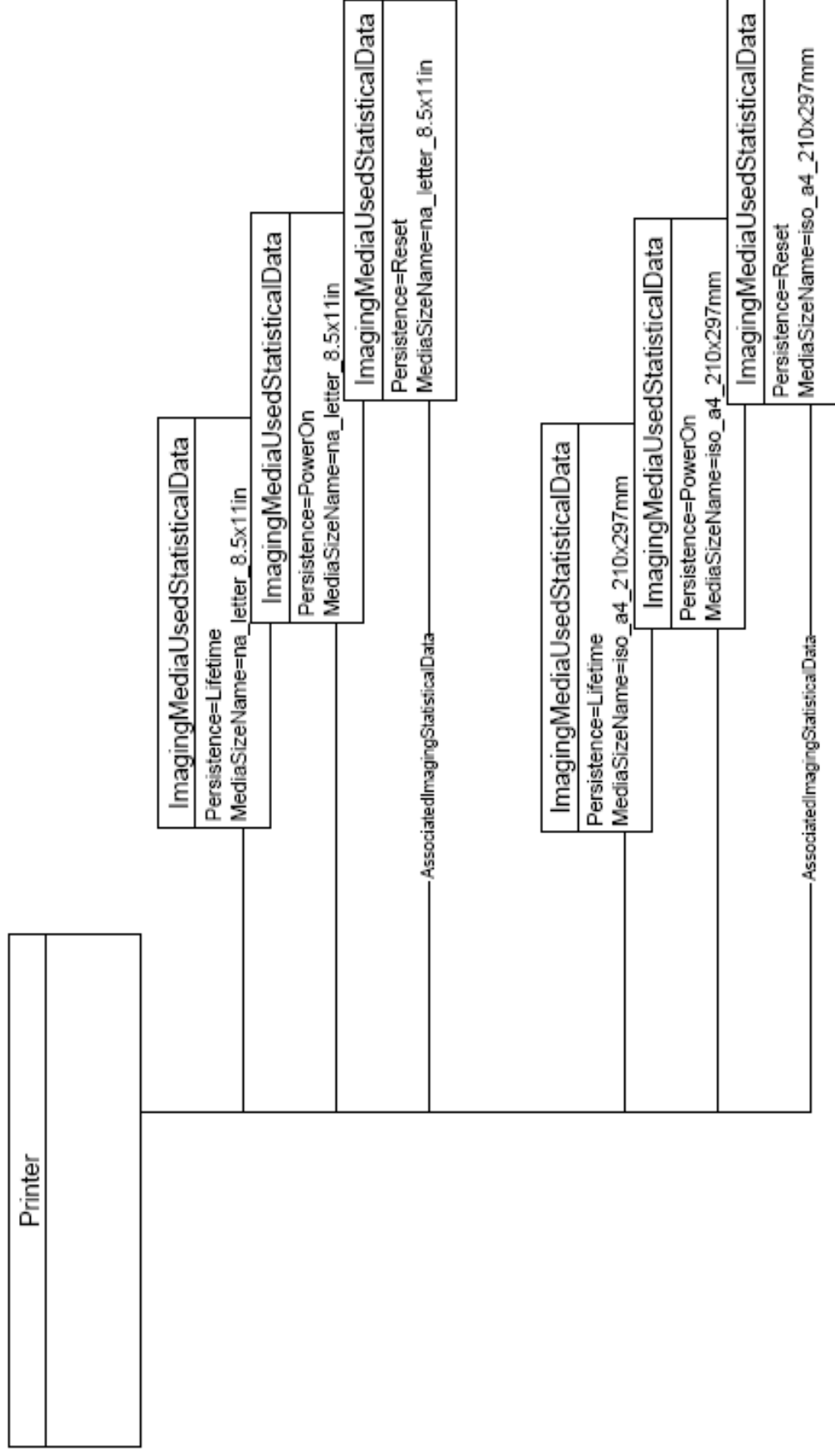
ImagingWorkStatisticalData
ImagingMediaUsedStatistical
Data

Example of Multiple Instances of a Single Counter Class Depending on Persistence



Note: Lifetime Persistence is mandatory for System-scope totals counters; others are conditionally mandatory or optional.

Example of Multiple Instances of the MediaUsed Counter Class Depending on Persistence and Specific Media Used



... and so forth for additional media

CIM_ImagingStatisticalData



- CIM version of Counter MIB
- Ira Has posted:
 - CIM_ImagingMediaUsedStatisticalData.mof
 - - concrete - media used description properties and impressions
 - CIM_ImagingMonitorStatisticalData.mof
 - - concrete - monitoring, availability, and traffic counters
 - CIM_ImagingWorkStatisticalData.mof
 - - concrete - images, impressions, and sheets
 - CIM_ImagingStatisticalData.mof
 - - abstract - parent class for all counter classes
- <ftp://ftp.pwg.org/pub/pwg/wims/cim/mofinput/ira-20080615.zip>

CIM_ImagingStatisticalData



Issues?

- Mapping string length (overflow?)
- Base class includes config changes. Do we still want to include this? May be difficult to implement.
- Should there be a timestamp (TOD or counter) with the counters?

CIM_Printer Prototyping



- Progress - (Rick)

MIB-CIM Converter for WS-MAN



- **Background for CIM as pathway to WS-MAN**
- **Printer MIB to CIM converter utility for new and updated Printer CIM Classes**
- **Arguments relative to PWG participation**
- **What about MIB to WS-MAN?**
- **Computer System Elements – Use of utility for MIB-II and HR MIB elements**
- **Handling of Elements not in Public MIBs**
 - **IPP Elements**
 - **Private MIB elements**
 - **Other (WSD?)**

Background



1. SNMP, although widely implemented for imaging devices, is considered increasingly inadequate to provide device/service management in the internet-oriented environment
 - security problems
 - inherently a “local” protocol, not appropriate for use over the internet and therefore not compatible with remote management
 - not compatible with the collection of Web Service protocols that are being generated, and which are increasing being used for network communication.
 - row/column structure of MIBs is not optimal for quick access to desired elements

Background



2. With the popularity of Web Services, there is a migration to using the security, communication, discovery and other capabilities offered as part of Web Services for service and device management. Indeed, it has been suggested that, if hardcopy devices and services are not manageable by a web service protocol, at some point in the future they simply won't be manageable at all on some set of corporate networks.
3. Management by Web Services does not use a MIB model, but requires the management elements to be in a XML Schema. For WS-Man, the only public, standard definitions so far are CIM objects.

Background



4. The DMTF has developed an automatic mechanism for converting CIM MOFs into WS-Man compatible Schema.
5. The WIMS WG has converted the critical management information in the Printer MIB into CIM MOFs, and is continuing to generate MOFs for imaging device and service management information.
6. Dell intends to prototype the Printer MOFs created with a MIB to CIM implementation and verify with a CIM Browser (not a WS-Man Application).

Request



It has been suggested that:

1. a product level MIB to CIM converter would make the existing base of SNMP supporting imaging devices manageable by with WS-Man.
2. having a base of manageable devices will encourage both the inclusion of imaging devices in WS-Man applications and the utilization of web service management by enterprise installations.
3. it is in the interests of the industry (not just some individual companies) to encourage the inclusion of imaging devices in WS management applications and WS managed installations.
4. and therefore, that the PWG should take the initiative to encourage, by some means, the availability of such a MIB to CIM converter product.

Questions:

- Will a MIB-CIM converter make the SNMP supporting devices manageable by web services?
 - Insofar as a CIM to WS-Man Schema conversion utility is available, it would certainly go part of the way. A WS-Man application would also need to be developed.
- Wouldn't the dynamic translation between MS-Man requests/responses and SNMP GETs/responses through a CIM MOF intermediary be complex and cumbersome?
 - ?
- Why not use the Dell prototype for the SNMP to CIM translation?
 - This prototype is envisioned as a lashup including proprietary code.

Questions:

- Wouldn't the ability to manage SNMP supporting devices by Web Services take the pressure off manufacturers to incorporate MS-Man in their imaging products and thereby actually delay full implementation of MS-Man in imaging devices?
 - Manufacturers implement what their customers request. Before there is a significant demand for WS-Man capability, there must be sites that intend to use WS-Man. But to do this, the sites need a significant proportion of their networked devices to support it. So there is a chicken and egg situation.
 - There is a similar issue with management applications. There will not be a significant demand for applications until there is a significant base of devices that are WS-Manageable.

Making existing SNMP supporting devices WS-Manageable will facilitate the transition by allowing sites and applications to use their existing base, migrating over to internal implementations.

Questions?



- What sort of PWG actions are envisioned to promote a generally available MIB-CIM conversion capability?
 1. Producing a document fully specifying such a capability in terms of interfaces, operation, etc?
 - One reaction is that this would be a waste of time. The interfaces and operations are already defined. What is needed is a usable product.
 2. A cooperative venture supported by effort contributed by PWG member organizations?
 - This would be cumbersome and difficult to manage. Most work would be done by a few companies, and companies are typically disinclined to make their developed software public.
 3. Contracting the development to a company, with the development expenses to be paid by PWG members, much like the P2600 PP activity.
 - A possibility.

Questions?



- Isn't the generation of a publically available application out of scope for the PWG?
 - Although it hasn't yet been done, there is no reason why it could not be done.
- What about Ira's idea of having Open Printing do this?
 - That would appear to address both the logistics problem and the question of whether the PWG could reasonable develop or even manage the development of a product.
 - Further, Ira's proposal goes beyond a SNMP to CIM converter and goes the whole route to a SNMP/WS-Man capability.

Ira's Suggestion



- Ira McDonald has suggested a joint PWG/OP project to develop an open source WS-MAN CIM Provider (i.e., proxy) that speaks:
 - SNMP to the Printer MIB in existing printers
 - WS-MAN to upstream management stations
- Ira has offered to mentor implementers (printer manufacturers, students, consultants, etc.) and Ira would provide liaison between the PWG and the OP organization

Proposed Open Printing CIM Provider (OPCIMP) Project



1. Use an existing open source CIM project, so that the OPCIMP would run on Windows, Apple Mac, UNIX, Linux, etc. Possibilities include:
 - a) Open CIM (Java based)(<http://opencim.org/>)
 - b) Open Group's OpenPegasus (C++ based) <http://www.openpegasus.org/>
 - c) Open WBEM (C++ based) <http://openwbem.sourceforge.net/>
 - d) SBLIM (C++ and Java based) - GNU/Linux systems > <http://sblim.wiki.sourceforge.net/>
 - (e) SFCB [Small Footprint CIM Broker] (C based for embedded systems) > <http://sblim.wiki.sourceforge.net/Sfcb>

Proposed Open Printing CIM Provider (OPCIMP) Project



2. Implement 100% coverage of CIM Print Device classes (Printer MIB v2 and Finisher MIB v1 objects)

CIM_Printer > - prtGeneralTable > - prtConsoleDisplayBufferTable > -
prtLocalizationTable
CIM_PrintAlertRecord > - prtAlertTable
CIM_PrintChannel > - prtChannelTable
CIM_PrintFinisher > - finDeviceTable
CIM_PrintInputTray > - prtInputTable
CIM_PrintInterlock > - prtCoverTable
CIM_PrintInterpreter > - prtInterpreterTable
CIM_PrintMarker > - prtMarkerTable
CIM_PrintMediaPath > - prtMediaPathTable
CIM_PrintOutputTray > - prtOutputTable
CIM_PrintSupply > - prtMarkerSuppliesTable > - prtMarkerColorantTable

Proposed Open Printing CIM Provider (OPCIMP) Project



3. Implement incremental SNMP support (with existing libraries):
 - a) SNMPv1-Community first (universally supported by printers)
 - b) SNMPv2-Community second (for performance)
 - c) SNMPv3-User third (tricky due to security configuration)

4. Build source packages and possibly binary packages for several desktop/workstation platforms (Windows, OpenSolaris, Linux, etc.)

Discussion



- Is providing an openly available SNMP to WS-Man capability a desirable objective for the PWG?
- Is the Open Printing approach the most reasonable way to approach this?
- What should be the PWG degree of involvement?
What PWG Members are willing to participate in this PWG involvement?
- Open Source does not preclude companies from including some or all of this in their products (such as a conversion utility or appliance, or perhaps even in their imaging products). Should the PWG have a position on this?

Meeting End



- Conclusions?
- Action Items?
- Next Teleconference –
 - 7 July, 11AM EDT
 - Will be announced.