

Job Monitoring MIB

Proposal for a new standards track project

Developed by Printer MIB participants

Presented at 12/10/96 IETF

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<ftp://ftp.pwg.org/pub/pwg/snmpmib/jobs-mib/jmp-ietf.ppt>

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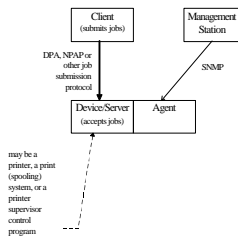
Problem Statement

- Need for monitoring print jobs in devices and servers
 - » status of print jobs
 - » progress of print jobs
 - » accounting data: resources used during and at job completion
- Independent of the job submission protocol

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Client, Server, NMS, agent



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Outside Scope

- do *not* include management operations; job monitoring only
- *can't* cancel jobs
- *can't* change priority of jobs
- *can't* resubmit jobs
- *not* considering proxy agents
- *not* considering multi-level agent configurations
- "a satellite with cameras, not missiles"

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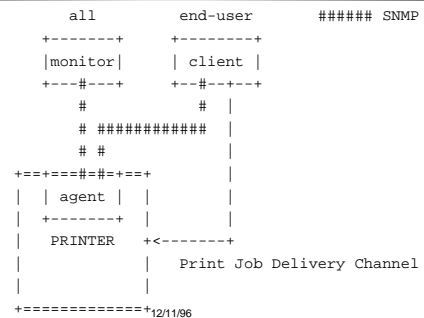
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Goals

- Be companion to the Printer MIB
- Be real simple, common denominator
- MIB must satisfy the needs of:
 - » Primary: an embedded agent in a device
 - device may or may not queue and/or spool jobs
 - » Secondary: an agent in a server that supports one or more devices:
 - connected directly to the server OR
 - connected by a LAN with the device *not* containing the Job Monitoring MIB agent
 - server may or may not queue and/or spool jobs

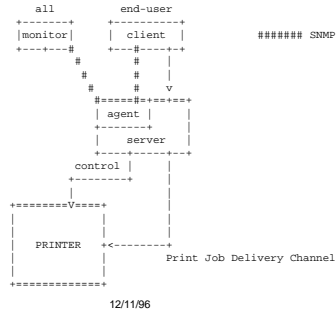
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1. Agent embedded in device



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2. Server - no agent in device



Goals (continued)

- Provide data so Accounting and Usage Statistics applications can copy after job completes
 - Usable with any job submission protocol; does not require ISO DPA
 - Design so non-print (FAX, scan, etc..) devices can augment this MIB
 - Security: allow agent to implement policy that users see their jobs only; depend on other SNMP security
 - Support devices that support multiple job submission protocols
 - Not require SNMPv2
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Job Monitoring MIB Requirements

- Types of users:
 - » end-user - submitted job (via some protocol)
 - » system operator - manages printers
 - » capacity planner - how busy are printers
 - » accountant - how to charge for usage
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End-user Requirements

- timely notification of job completion
 - on-demand query of status of user's jobs
 - errors and device problems encountered by user's jobs
 - Find the least busy device
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System Operator Requirements

- presentation of state of all jobs in device or server
 - which users submitted which jobs
 - resources needed by each job
 - devices assigned (by scheduler)
 - some idea of how long each job will take
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Capacity Planner Requirements

- Provide MIB raw data so that an application program can compute:
 - » how busy devices are
 - » what time of day are devices used
 - » what is queue wait time distribution
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Accountant Requirements

- record of resources used by each job
- record of device usage
- user and account identification with each job

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Companies participating pwg-request@pwg.org

Adobe	Canon	DAZEL
Dataproducts	Digital	DPI
HP	IBM	IWL
Kyocera	Lexmark	Northlake Software
Novell	Sharp	Sun
Tektronix	Underscore	Unisys
	Xerox	

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Surveyed job submission protocols

- ISO DPA
 - » PSM, Printxchange, DPS, DAZEL, NDPS
- Apple PAP
- IDPS
- LPR/LPD RFC 1179
- NDPS
- PJL
- PServer
- SMB
- IEEE 1284.1 TIPS!

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Strawman Proposal

ftp://ftp.pwg.org/pub/snmpmib/jobs-mib/jmp-list.*

Group	Description	#
General	applies to all jobs	6
Queue	ordered table of jobs not completed (conditionally mandatory)	7
Completed	ordered table of jobs completed	3
Job	per job data	20
Resource	resources requested and/or used by job	7
	Total:	36
		+7

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The General Group

- jmMIBInstanceIndex
- jmGeneralJobRetentionPolicy
- jmGeneralMaxNumberOfJobs
- jmGeneralCurrentNumberOfJobs
- jmQueuing
- jmQueuingAlgorithm

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Queue Group (cond man)

- jmMIBInstanceIndex
- jmQueueIndex
- jmJobLocalId
- jmQueueNumberOfInterveningJobs
- jmJobPriority
- jmJobProcessAfterTime
- jmJobMessageToOperator

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Completed Group

- jmMIBInstanceIndex
- jmCompletedIndex
- jmJobLocalId

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Job Group

- jmMIBInstanceIndex
- jmJobLocalCurrentId
- jmJobDownstreamId
- jmJobTypes
- jmJobOwner
- jmJobSourceChannel
- jmJobSourceChannelInformation
- jmJobName
- jmJobSubmissionTime
- jmJobComment
- jmJobDeviceNameRequested
- jmJobTotalOctetsHigh
- jmJobTotalOctetsLow

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Job Group (cont: status)

- jmJobCurrentState
- jmJobStateReasons
- jmJobOctetsCompletedHigh
- jmJobOctetsCompletedLow
- jmJobStartedProcessingTime
- jmJobCompletionTime
- jmJobAccountName

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Resource Group

- jmMIBInstanceIndex
- jmJobLocalId
- jmResourceIndex
- jmResourceType
 - » documentName
 - » jobCopiesRequested
 - » jobCopiesProduced
 - » documentCopiesRequested
 - » documentCopiesProduced
- » sides
- » interpreters
- » physicalDevices
- » faxPhoneNumbers
- » impressions
- » sheets
- » processingTime
- » processingMessage
- jmResourceName
- jmResourceUnits
- jmResourceAmount

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Issues and next steps

- Need to be chartered
- Join by: pwg-request@pwg.org
- Papers: <ftp://ftp.pwg.org/pub/pwg/snmpmib/jobs-mib/>
- Expect six months to draft for proposed standard
- Six companies stated they'd implement a Job Monitoring MIB when there is a proposed standard
- Way to do directed trapping?
 - » Many end-user apps may be using a single agent all at once! Network overload
 - » Party MIB was a way, but it died
- How many job identifiers are needed? Upstream and down stream job ids or just one local job id?

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