Comparison of Lexmark's Job Monitoring implementation with the Job Monitoring MIB objects

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1. List of objects for the Job Monitoring MIB

1.1 The MIB Instance Group

The **JobSetGroup** consists of objects that are for *all* Job Set instances, not just a single instance. The **jmJobSetGroup** consists entirely of the **jmJobSetEntry** which is indexed by:

1. **jmJobSetIndex -** a running index of Job Set instances supported by this printer or server.

JmJobSetGroup (M)	DataType	Obj/attr name	Data type	Notes
1. jmJobSetIndex - a running index of Job Set instances supported by this printer or server.	**Integer32 (1..2^31)**			

1.2 The General Group

The **jmGeneralGroup** consists of objects of a general nature that are *not* per-job. The **jmGeneralGroup** consists entirely of the **jmGeneralEntry** which is indexed by:

1. **jmJobSetIndex -** a running index of Job Set instances supported by this printer or server.

JmGeneralGroup (G)	DataType	Obj/attr name	Data type	Notes
1. jmJobSetIndex - a running index of Job Set instances supported by this printer or server.	**Integer32 (1..2^15-1)**			
2. **jmGeneralJobCompletedPolicy** - the time in seconds that jobs are kept in the **jmJobTable** and the **jmCompletedTable** after processing.	**Integer32 (0..2^31-1)**			
3. **jmGeneralMaxNumberOfJobs** - the maximum number of job; (-1) means no limit.	**Integer32 (0..2^31-1)**			
4. jmGeneralCurrentNumberOfJobs - the total number of jobs currently in the Job Table (pending and completed).	**Integer32 (0..2^31-1)**			

JmGeneralGroup (G)	DataType	Obj/attr name	Data type	Notes
5. **jmGeneralQueuingAlgorithm -** the current scheduling algorithm being used or **none** (no queuing is possible).	**JMQueuingAlgorigthm**			

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21 **1.3 The Queue Group**

22 The **jmQueueGroup** is made up entirely of the **jmQueueTable** which is an ordered list of jobs that have
23 not completed processing. The **jmQueueGroup** consists of objects that are not needed after the job has
24 completed processing. The **jmQueueGroup** is conditionally mandatory and shall be implemented by a
25 server or print that performs queuing (or spooling). The **jmQueueGroup** shall *not* be implemented if the
26 value of **jmGeneralQueuingAlgorithm** is **none**. The **jmQueueTable** is indexed by:
27   1. **jmJobSetIndex -** a running index of Job Set instances supported by this printer or server.
28   2. **jmQueueIndex** - a running index of the jobs that have *not* finished processing.
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jmQueueGroup (Q)	DataType	Obj/attr name	Data type	Notes
1. **jmJobSetIndex** - a running index of Job Set instances supported by this printer or server.	**Integer32 (1..2^15)**			
2. **jmQueueIndex** - a running index of the jobs that have *not* finished processing.	**Integer32 (1..2^31-1)**		**Integer32**	Our Job Monitoring application looks at jobs in the queue of a print server as well as in the printer. The application combines this list and presents it to the user.
3. **jmQueueIndex** - the job's identifier generated by the printer or server implementing this JM MIB	**Integer32 (0..2^31-1)**		**Integer32**	Generated by the printer
4. **jmQueueNumberOfInterveningJobs** - the number of jobs in front of this job	**Integer32 (0..2^31-1)**		**Integer32**	Generated by the Job Monitoring application
5. **jmJobPriority** - Job priority	**Integer32 (0..100)**		**Integer32**	Job Priority is determined by the Job Monitoring application.
6. **jmJobProcessAfterTime** - process-after-time	**GeneralizedTime**			
7. **jmJobMessageToOperator** - job-message-to-operator from submitting user or device	**OCTET STRING(SIZE((63))**			

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31 **1.4 The Completed Group**

32 The **jmCompletedGroup** consists entirely of the **jmCompletedTable** which is an ordered list of the job

33 that have completed processing. The **jmCompletedTable** is indexed by:

34   1. **jmJobSetIndex -** a running index of Job Set instances supported by this printer or server.

35   2. **jmCompletedIndex** - a running index of the jobs that have finished processing.

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jmCompletedGroup (C)	DataType	Obj/attr name	Data type	Notes
1. jmJobSetIndex - a running index of Job Set instances supported by this printer or server.	**Integer32 (1..2^15-1)**			
2. jmCompletedIndex - a running index of the jobs that have finished processing.	**Integer32 (1..2^31)**			
3. **jmJobIndex** - the job's identifier generated by the printer or server implementing this JM MIB	**Integer32 (1..)**			

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1.5 The Job Group

The **jmJobGroup** consists of (1) job identification, (2) job parameters, and (3) job status and accounting objects that have a *single* value per job. The **jmJobGroup** consists entirely of the **jmJobTable** which is indexed by:

1. **jmJobSetIndex -** an instance index to distinguish separate sets of tables when a server supports more than one printer.
2. **jmJobIndex** - the job identifier that was generated by the server or printer that accepted the job.

jmJobGroup - Identification (**I**)	DataType	Obj/attr name	Data type	Notes
1. **jmJobSetIndex -** a running index of Job Set instances supported by this printer or server.	**Integer32 (1..2^15-1)**			
2. **jmJobIndex** - the job's identifier generated by the server or printer implementing this JM MIB	**Integer32 (1..2^31-1)**			
3. **jmJobName** - Job name assigned by job owner which is not necessarily unique.	**OCTET STRING(SIZE(63))**		**Octet string size (24)**	
4. **jmJobNameId -** the job's identifier name generated by the job submitting software using the job submission protocol. This name can be anything that helps identifier the job to the job submitter, including the name of the queue from which the job was submitted.	**OCTET STRING(SIZE(63))**		**We combine Host Name, User Name, Source Protocol, Job Name, and Queue Name into a string length of 255**	We use the server queue name
5. **jmJobNumberId -** the job's identifier number generated by the job submitting software using the job submission protocol. A (-2) value shall indicate that the submitter did not supply a job identifier number.	**Integer32 (0..2^31-1)**			
6. **jmJobTypes** - Job types (print, fax, scan, etc.) - bit vector to get multiple values in a single object	**JMJobType - enum encoded as bits**			

jmJobGroup - Identification (I)	DataType	Obj/attr name	Data type	Notes
7. **jmJobOwner** - Job owner (User name of the user that originally submitted print job)	**OCTET STRING(SIZE(63))**		**We combine Host Name, User Name, Source Protocol, Job Name, and Queue Name into a string length of 255**	
8. **jmJobDeviceNameRequested** - Device name (Device-specific name of device) requested by the submitting user.	**OCTET STRING(SIZE((63))**			
9. **jmDeviceIndex** - the host resources index of the corresponding Printer MIB that the job was submitted to or has been assigned to be printed on by the server. 0 indicates if the server has not assigned a printer to the job.	**Integer32 (0..2^31-1)**			
10. **jmJobSourceChannel** - Source channel on which the job was submitted (index of channel row in the Printer MIB)	**PrtChannelIndex**		**1 Byte**	
11. **jmJobSubmissionTime** - Date/Time of job submission by job owner	**DateAndTime**			
12. **jmJobComment** - Job comment	**OCTET STRING(SIZE(63))**			

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jmJobGroup - Parameters (J)	DataType	Obj/attr name	Data type	Notes
12. **jmJobTotalKOctets -** total K octets to be processed in the job - rounded up to next higher K	**Integer32 (0..2^31-1)**			

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jmJobGroup - Status and Accounting (S)	DataType	Obj/attr name	Data type	Notes

jmJobGroup - Status and Accounting (S)	DataType	Obj/attr name	Data type	Notes
13. **jmJobCurrentState** - Job state (**pending**, **processing**, **completed**, etc.)	**JMJobState**		**5 bit encoded bytes**	We have this variable but it is in bit encoded bytes
14. **jmJobStateReasons** - Job state reasons - additional information about the job state: reasons being held, additional completed information such as successful, warnings, or errors.	**OCTET STRING(SIZE(0..63)) -bit vector**			
15. **jmJobKOctetsCompleted** - K Octets completed - should be rounded down to lower K until completed.	**Integer32 (0..2^31-1)**			
16. **jmJobStartedProcessingTime** - Date/Time of day job started processing on device	**DateAndTime**			
17. **jmJobCompletionTime** - Date/Time of day job finished using the device	**DateAndTime**			For us, this information is stored by our job management app. And not the printer. We have five variables for this information: Day of week - character(3) Month - character (3) Day of month - integer Time - character (8) Year - integer
18. **jmJobAccountName** - Account Name	**OCTET STRING(SIZE(63))**			

1.6 The Resource Group

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49 The **jmResourceGroup** consists of requested and used resources objects that can have multiple values per
50 job. The **jmResourceGroup** consists entirely of the **jmResourceTable** which is indexed by:
51   1. **jmJobSetIndex -** an instance index to distinguish separate sets of tables when a server
52   supports more than one printer.
53   2. **jmJobIndex** - the job identifier that was generated by the server or printer that accepted the
54   job.
55   3. **jmResourceIndex** - a running index of resources for each job
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jmResourceGroup (R)	DataType	Obj/attr name	Data type	Notes
1. **jmJobSetIndex -** a running index of Job Set instances supported by this printer or server.	**Integer32**			
2. **jmJobIndex** - the job's current identifier generated by the server or printer implementing this JM MIB	**Integer32 (0..)**			
3. **jmResourceIndex** - a running index of the resources requested and/or used by the job.	**Integer32**			
4. **jmResourceType** - Resources required/used (table):	**JMResourceType**			
a) **documentName(3) -** Document name(s) (or file-names)	**OCTET STRING(63)**			For us, this is contained in the job name.
b) **jobCopiesRequested(4) -** Number of job copies requested	**Integer32 (0..2^31-1)**			
c) **jobCopiesProduced(5) -** Number of job copies produced	**Integer32 (0..2^31-1)**			
d) **documentCopiesReque sted(6) -** Number of document copies requested	**Integer32 (0..2^31-1)**			
e) **documentCopiesProdu ced(7) -** Number of document copies produced	**Integer32 (0..2^31-1)**			
f) **sides(8) -** Number of sides requested/used (one-sided, two-sided)	**Integer32 (1..2)**			
g) **interpreters(9) -** PDLs requested/used	**PrtInterp reterFam ily**		**Enum**	We record interpreters used (not requested)
h) **physicalDevices(10) -** physical devices requested/used	**hrDeviceI ndex**			

jmResourceGroup (R)		DataType	Obj/attr name	Data type	Notes
i)	**faxPhoneNumber(10) -** FAX phone number requested/used	**OCTET STRING(255)**			
j)	**impressionsCompleted (11) -** Impressions (sides) completed	**Counter32(0..2^31-1)**			We record impressions completed for each input source separately.
k)	**sheetsCompleted(12) -** Sheets completed for the job.	**Counter32(0..2^31-1)**			We record sheets completed for each input source separately.
l)	**pagesSpooled(13) -** logical pages spooled for the job.	**Counter32(0..2^31-1)**			
m)	**pagesInterpreted(14) -** logical pages intepreted for the job.	**Counter32(0..2^31-1)**			
n)	**pagesSentToDevice(15) -** logical pages sent to the device for the job.	**Counter32(0..2^31-1)**			
o)	**pagesCompleted(16) -** logical pages completed for the job.	**Counter32(0..2^31-1)**			
p)	**pagesCompletedCurrentCopy(17) -** logical pages completed on the current copy.	**Integer32(0..2^31-1)**			
q)	**processingTime(18) -** Processing time so far	**Integer32(0..2^31-1)**			
r)	**processingMessage(19) -** Processing Messages	**OCTET STRING(63)**			
5.	**jmResourceName** - resource required/usage name	**OCTET STRING(63) or Integer32**			
6.	**jmResourceUnits** - resource required/used usage-unit	**JMResourceUnits**			
7.	**jmResourceAmount** - resource amount requested/used; -2 - unknown	**Integer32**			

57 **- The one object that we monitor that I did not know where to put in this table is on**
58 **a color printer is the colors used per job.**