THE BIG PICTURE WITH BMC AMI UTILITIES FOR DB2

For many years now, Db2 systems have been running more and more utilities for the critical Db2 applications or management needs of databases.

Db2 Utilities continue to increase because over the years the number of objects has increased, the volume of data has increased, the number of applications has increased both in the production environments, but also in the Test and Development environments.

The consequence of this continuing growth of db2 application sizes have implications that often find the DBAs unprepared to manage:

- Increase in duration
- Increase in consumption
- Concurrency problems with applications
- Lack of an overview

BMC AMI Utilities for Db2 is a solution designed to best address these issues thanks to exclusive patents that provide unique techniques and solid results. In particular the solution helps customers by recording all the detailed information of each individual AMI Db2 utilities performed, providing DBAs with all the information necessary to have a global overview and the capability to understand and optimize their shop by quickly answering important questions such as:

How long do Db2 utilities last and consume on average?
The trend in durability and consumption is growing ?

How many jobs are executed and by which users ?
How many abends and for which objects ?
How many restart ?
How many objects are treated ?
How many records are processed ?
How many Copy, Reorg, Load, Unload ?
Are there objects too thick or too little reorganized ?
Are there objects without backup ?
Are there objects too unloaded ?
Are there objects with sensitive data downloaded by unauthorized users ?

Being able for a DBA to have the answer to these questions means being able to have a great value for managing the best of db2 utilities. It means being able to understand how many and how the data is loaded, how and where it grows most, how much data is downloaded, better balance the executions, and monitoring the abends by identifying it among thousands of daily executions.

How long would it take to extract that information from SMF Records or from SYSCOPY utilizing IBM standard utilities?

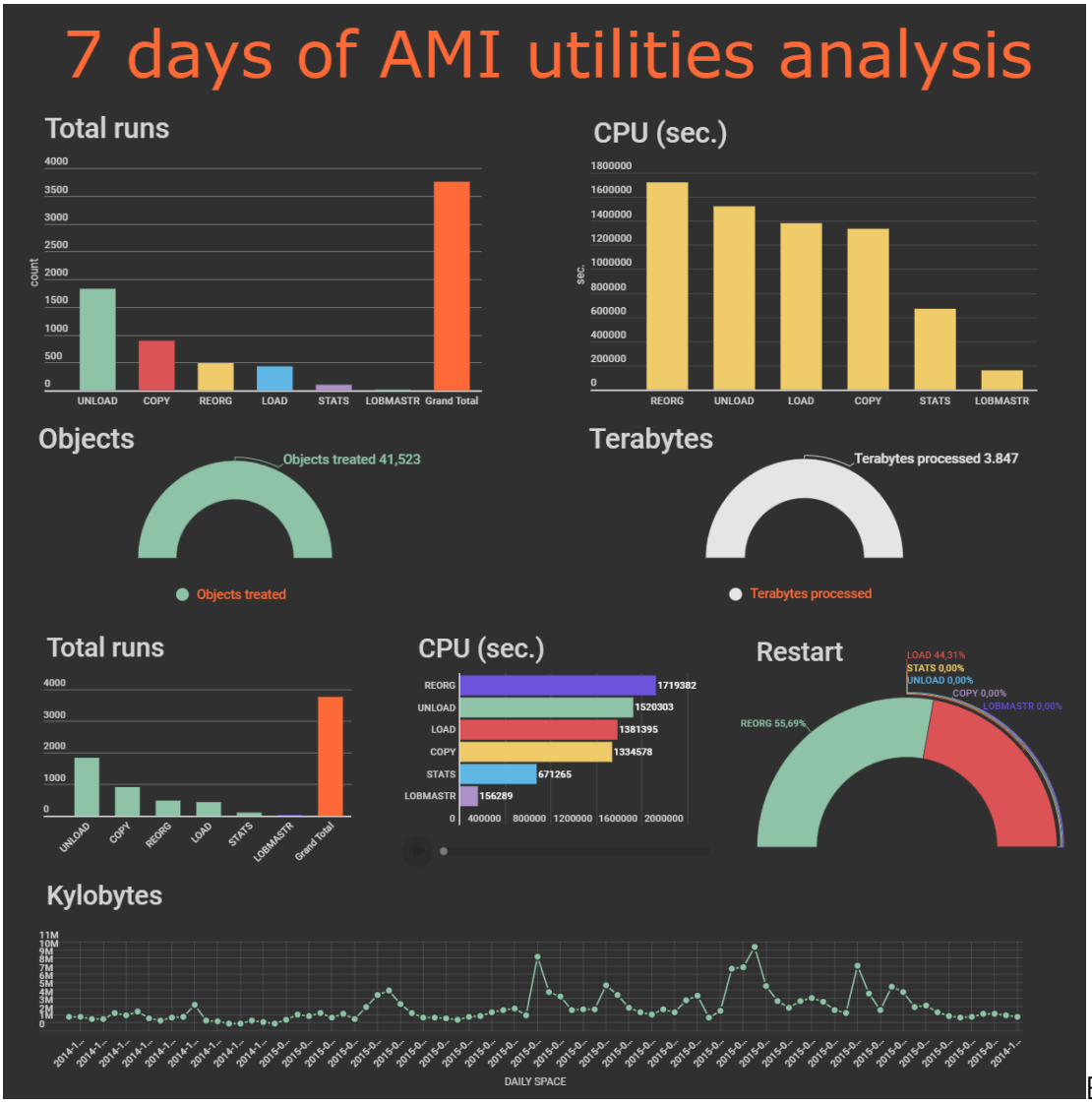
The BIG PICTURE

BMC AMI Utilities for Db2 provides two specific tables that collects important historical information of the execution of the BMC utilities.
The CMN_BMCHIST_STEP table holds job/step information and contains columns such as job name, job ID, step number and name, utility name that was executed, utility ID, auth ID of the individual that submitted the job, start and end times as well as CPU, elapsed, GP CPU as well as zIIP CPU and zIIP Eligible. There are other columns that identify where the job was run as well as how many objects were processed.

The CMN_BMCHIST_OBJECT table provides detailed information regarding each object that was processed. Some of the details include object type, number of parts processed, start and end times, elapsed time, rows and pages processed as well as error code and reason why an object was not processed.

Every AMI utility executed writes into those History tables all the possible significant information may be helpful for any further analysis the analyst can do.

All these data allow DBAs to perform data mining for the most disparate researches producing reports as the following examples below.



BMC AMI Utilities for Db2 History Tables can be easily exported in CSV format using BMC AMI Command Center for Db2 or by any other tool you could have and then imported in an Excel spreadsheet for your personal Data Mining.

JOBNAME	JOBID	UTILNAME	DBNAME	SPACENAME	OBJ_CREATOR	OBJ_NAME	OBJ_TYPE	SUB_TYPE	PART_COUNT	RUNDATE	ELAPSED	ROWS_PROCESSED	PAGES_PROCESSED	PGSIZE	SPACE_KB	COND_CODE	RESTART	ELAPSED_1	TOTAL_CPU	GP_CPU	ZIP_CPU	MVS_SNAME	REPORTONLY	OBJ_COUNT
SCDNGRUN	JOB85970	STATS	BMCPA12	PASTSTAD			TS	R		45 03/17/2020	2088	196302	32403	4	129612	0	0	3572	9999	483	502	BMCA	2 N	21
SCDNGRUN	**JOB85970**	**STATS**	**BMCPA12**	**PASTSTAM**			**TS**	**R**		**6 03/17/2020**	**2084**	**23525**	**3421**	**4**	**13684**	**0**	**0**	**3572**	**9999**	**483**	**502**	**BMCA**	**2 N**	**21**
SCDNGRUN	JOB85970	STATS	BMCPA12	PASTSTAT			TS			0 03/17/2020	1063	225884	27391	4	109564	0	0	3572	9999	483	502	BMCA	2 N	21
SCDNGRUN	**JOB85970**	**STATS**	**BMCPA12**	**PASTSTAW**			**TS**	**R**		**8 03/17/2020**	**2111**	**54687**	**7462**	**4**	**29768**	**0**	**0**	**3572**	**9999**	**483**	**502**	**BMCA**	**2 N**	**21**
SCDNGRUN	JOB85970	STATS	BMCPA12	PASTSTOB			TS			0 03/17/2020	2047	580866	43707	4	174828	0	0	3572	9999	483	502	BMCA	2 N	21
SCDNGRUN	**JOB85970**	**STATS**	**BMCPA12**	**PASTTEXT**			**TS**			**0 03/17/2020**	**2021**	**48415**	**691**	**4**	**2764**	**0**	**0**	**3572**	**9999**	**483**	**502**	**BMCA**	**2 N**	**21**
SCDNGRUN	JOB85970	STATS	BMCPA12	PAWKSTAD			TS	R		45 03/17/2020	2105	28802	9408	4	37632	0	0	3572	9999	483	502	BMCA	2 N	21
SCDNGRUN	**JOB85970**	**STATS**	**BMCPA12**	**PAWKSTAW**			**TS**	**R**		**8 03/17/2020**	**2100**	**5555**	**2194**	**4**	**8776**	**0**	**0**	**3572**	**9999**	**483**	**502**	**BMCA**	**2 N**	**21**
SCDNGRUN	JOB85970	STATS	BMCPA12	PAXAHISE			TS			0 03/17/2020	1988	95759	3780	4	15120	0	0	3572	984	483	502	BMCA	2 N	21
SCDNGSTC	**JOB86036**	**REORG**	**BMCSCDR0**	**NGTCAPT**			**TS**			**0 03/17/2020**	**134**	**2**	**10**	**4**	**40**	**0**	**0**	**3521**	**75**	**75**	**0**	**BMCA**	**2 N**	**3**
SCDNGUL1	JOB85947	LOAD	MKTAXLU	DSN8S90D	MKTAXLU	DEPT	TB	T		0 03/17/2020	571	14	7	4	28	0	0	1412	3333	167	0	BMCA	1 N	15
SCDNGUL1	**JOB85947**	**LOAD**	**MKTAXLU**	**DSN8S90E**	**EMP**		**TB**	**T**		**4 03/17/2020**	**717**	**32**	**13**	**4**	**52**	**0**	**0**	**1412**	**3333**	**167**	**0**	**BMCA**	**1 N**	**15**
SCDNGUL1	JOB85947	LOAD	MKTAXLU	DSN8S90P	MKTAXLU	ACT	TB	T		0 03/17/2020	533	18	23	4	92	0	0	1412	3333	167	0	BMCA	1 N	15
SCDNGUL1	**JOB85947**	**UNLOAD**	**MKTAXLU**	**DSN8S90D**	**MKTAXLU**	**DEPT**	**TB**	**T**		**0 03/17/2020**	**81**	**14**	**7**	**4**	**28**	**0**	**0**	**534**	**62**	**62**	**0**	**BMCA**	**1 N**	**3**
SCDNGUL1	JOB85947	UNLOAD	MKTAXLU	DSN8S90E	MKTAXLU	EMP	TB	T		4 03/17/2020	83	32	13	4	52	0	0	534	62	62	0	BMCA	1 N	3
SCDNGUL1	**JOB85947**	**UNLOAD**	**MKTAXLU**	**DSN8S90P**	**MKTAXLU**	**ACT**	**TB**	**T**		**0 03/17/2020**	**86**	**18**	**23**	**4**	**92**	**0**	**0**	**534**	**62**	**62**	**0**	**BMCA**	**1 N**	**3**
SCDUPCTB	JOB85077	UNLOAD	MKTAXLU	DSN8S90D	MKTAXLU	DEPT	TB	T		0 03/17/2020	8	0	0	4	0	0	0	481	24	24	0	BMCA	0 N	1
SCDUPSM1	**JOB85969**	**UNLOAD**	**BMCATS**	**BMCRSCO**	**BMCATS**	**RS_COLUMNS**	**TB**	**G**		**1 03/17/2020**	**2**	**24**	**0**	**8**	**0**	**0**	**0**	**673**	**24**	**24**	**0**	**BMCA**	**0 N**	**1**
SCDUPSM1	JOB85969	UNLOAD	BMCATS	BMCRSCO	BMCATS	RS_COLUMNS	TB	T		1 03/17/2020	32	24	3780	8	30240	0	0	615	36	32	4	BMCA	0 N	1
SCDUPSM1	**JOB85969**	**UNLOAD**	**BMCATS**	**BMCRSCO**	**BMCATS**	**RS_COLUMNS**	**TB**	**T**		**1 03/17/2020**	**80**	**24**	**3780**	**8**	**30240**	**0**	**0**	**953**	**38**	**34**	**4**	**BMCA**	**0 N**	**1**
SVACSX00	JOB85519	UNLOAD	BMCSVA00	DSN8S00A	BMCSVA00	EMPA	TB			4 03/17/2020	9	32	0	4	0	0	0	399	22	22	0	BMCA	0 N	1
SVACSX00	**JOB85519**	**UNLOAD**	**BMCSVA00**	**DSN8S00A**	**BMCSVA00**	**EMPA**	**TB**			**4 03/17/2020**	**16**	**32**	**0**	**4**	**0**	**0**	**0**	**424**	**23**	**23**	**0**	**BMCA**	**0 N**	**1**
SVACSX00	JOB85519	UNLOAD	BMCSVA00	DSN8S00A	BMCSVA00	EMPA	TB	T		4 03/17/2020	28	32	16	4	64	12	0	472	34	34	0	BMCA	0 N	1
SVACSX00	**JOB85519**	**UNLOAD**	**BMCSVA00**	**DSN8S00A**	**BMCSVA00**	**EMPA**	**TB**	**T**		**4 03/17/2020**	**33**	**32**	**16**	**4**	**64**	**0**	**0**	**407**	**35**	**35**	**0**	**BMCA**	**0 N**	**1**
SVACSX00	JOB85519	UNLOAD	BMCSVA00	DSN8S00A	BMCSVA00	EMPA	TB	T		4 03/17/2020	51	32	16	4	64	12	0	402	35	35	0	BMCA	0 N	1
SVACSX00	**JOB85519**	**UNLOAD**	**BMCSVA00**	**DSN8S00A**	**BMCSVA00**	**EMPA**	**TB**	**T**		**4 03/17/2020**	**54**	**32**	**16**	**4**	**64**	**12**	**0**	**385**	**36**	**36**	**0**	**BMCA**	**0 N**	**1**
SVACSX00	JOB85519	UNLOAD	BMCSVA00	DSN8S00A	BMCSVA00	EMPA	TB	T		4 03/17/2020	55	32	16	4	64	0	0	702	35	35	0	BMCA	0 N	1
SVACSX00	**JOB85519**	**UNLOAD**	**BMCSVA00**	**DSN8S00A**	**BMCSVA00**	**EMPA**	**TB**	**T**		**4 03/17/2020**	**60**	**32**	**16**	**4**	**64**	**0**	**0**	**616**	**35**	**35**	**0**	**BMCA**	**0 N**	**1**
SVACSX00	JOB85519	UNLOAD	BMCSVA00	DSN8S01A	BMCSVA00	EMPA	TB	T		4 03/17/2020	666666	30000000	16	4	9999	12	0	570	36	36	0	BMCA	0 N	1
SVACSX00	**JOB85519**	**UNLOAD**	**BMCSVA00**	**DSN8S00A**	**BMCSVA00**	**EMPA**	**TB**	**T**		**4 03/17/2020**	**666666**	**30000000**	**16**	**4**	**9999**	**12**	**0**	**474**	**36**	**36**	**0**	**BMCA**	**0 N**	**1**
SVACSX00	JOB85519	UNLOAD	BMCSVA00	DSN8S02A	BMCSVA00	EMPA	TB	T		4 03/17/2020	666666	30000000	16	4	9999	0	0	709	33333	36	0	BMCA	0 N	1
SVACSX00	**JOB85519**	**UNLOAD**	**BMCSVA00**	**DSN8S04A**	**BMCSVA00**	**EMPA**	**TB**	**T**		**4 03/17/2020**	**666666**	**30000000**	**16**	**4**	**9999**	**12**	**0**	**859**	**33333**	**32**	**0**	**BMCA**	**0 N**	**1**
SVACSX00	JOB85529	UNLOAD	BMCSVA00	DSN8S00A	BMCSVA00	EMPA	TB			4 03/17/2020	666666	30000000	0	4	9999	12	0	190	33333	24	0	BMCA	0 N	1
SVACSX00	**JOB85529**	**UNLOAD**	**BMCSVA00**	**DSN8S00A**	**BMCSVA00**	**EMPA**	**TB**			**4 03/17/2020**	**666666**	**30000000**	**0**	**4**	**9999**	**12**	**0**	**198**	**33333**	**23**	**0**	**BMCA**	**0 N**	**1**
SVACSX00	JOB85529	UNLOAD	BMCSVA00	DSN8S00A	BMCSVA00	EMPA	TB			4 03/17/2020	666666	30000000	0	4	9999	0	0	211	33333	24	0	BMCA	0 N	1
SVACSX00	**JOB85529**	**UNLOAD**	**BMCSVA00**	**DSN8S05A**	**BMCSVA00**	**EMPA**	**TB**			**4 03/17/2020**	**666666**	**30000000**	**0**	**4**	**9999**	**0**	**0**	**198**	**33333**	**23**	**0**	**BMCA**	**0 N**	**1**
SVACSX00	JOB85529	UNLOAD	BMCSVA00	TSABC111	BMCSVA00	EMPA	TB	T		4 03/17/2020	666666	30000000	16	4	9999	0	0	296	33333	35	0	BMCA	0 N	1
SVACSX00	**JOB85529**	**UNLOAD**	**BMCSVA00**	**TSABC112**	**BMCSVA00**	**EMPA**	**TB**	**T**		**4 03/17/2020**	**666666**	**30000000**	**16**	**4**	**9999**	**0**	**0**	**439**	**33333**	**34**	**0**	**BMCA**	**0 N**	**1**
SVACSX00	JOB85529	UNLOAD	BMCSVA00	TSABC113	BMCSVA00	EMPA	TB	T		4 03/17/2020	666666	30000000	16	4	9999	0	0	311	33333	37	0	BMCA	0 N	1
SVACSX00	**JOB85529**	**UNLOAD**	**BMCSVA00**	**TSABC114**	**BMCSVA00**	**EMPA**	**TB**	**T**		**4 03/17/2020**	**666666**	**30000000**	**16**	**4**	**9999**	**0**	**0**	**345**	**33333**	**34**	**0**	**BMCA**	**0 N**	**1**
SVACSX00	JOB85591	UNLOAD	BMCSVA00	TSABC115	BMCSVA00	EMPA	TB			4 03/17/2020	666666	30000000	0	4	9999	0	0	200	3333	25	0	BMCA	0 N	1
SVACSX00	**JOB85591**	**UNLOAD**	**BMCSVA00**	**TSABC116**	**BMCSVA00**	**EMPA**	**TB**			**4 03/17/2020**	**666666**	**30000000**	**0**	**4**	**9999**	**0**	**0**	**213**	**3333**	**25**	**0**	**BMCA**	**0 N**	**1**
SVACSX00	JOB85591	UNLOAD	BMCSVA00	TSABC117	BMCSVA00	EMPA	TB	T		4 03/17/2020	666666	30000000	16	4	9999	0	0	294	3333	35	0	BMCA	0 N	1
SVACSX00	**JOB85591**	**UNLOAD**	**BMCSVA00**	**TSABC118**	**BMCSVA00**	**EMPA**	**TB**	**T**		**4 03/17/2020**	**666666**	**30000000**	**16**	**4**	**9999**	**0**	**0**	**303**	**3333**	**35**	**0**	**BMCA**	**0 N**	**1**
SVACSX00	JOB85591	UNLOAD	BMCSVA00	TSABC119	BMCSVA00	EMPA	TB	T		4 03/17/2020	666666	5555555	16	4	9999	0	0	313	3333	35	0	BMCA	0 N	1
SVACSX00	**JOB85591**	**UNLOAD**	**BMCSVA00**	**TSABC120**	**BMCSVA00**	**EMPA**	**TB**	**T**		**4 03/17/2020**	**666666**	**5555555**	**16**	**4**	**9999**	**0**	**0**	**306**	**3333**	**35**	**0**	**BMCA**	**0 N**	**1**
SVACSX00	JOB85591	UNLOAD	BMCSVA00	TSABC121	BMCSVA00	EMPA	TB	T		4 03/17/2020	666666	5555555	16	4	9999	0	0	370	36	36	0	BMCA	0 N	1
SVACSX00	**JOB85591**	**UNLOAD**	**BMCSVA00**	**TSABC122**	**BMCSVA00**	**EMPA**	**TB**	**T**		**4 03/17/2020**	**666666**	**5555555**	**16**	**4**	**9999**	**0**	**0**	**304**	**36**	**36**	**0**	**BMCA**	**0 N**	**1**
SVACSX00	JOB85591	UNLOAD	BMCSVA00	TSABC123	BMCSVA00	EMPA	TB	T		4 03/17/2020	666666	5555555	16	4	9999	0	0	308	37	37	0	BMCA	0 N	1
SVACSX00	**JOB85591**	**UNLOAD**	**BMCSVA00**	**TSABC124**	**BMCSVA00**	**EMPA**	**TB**	**T**		**4 03/17/2020**	**666666**	**5555555**	**16**	**4**	**9999**	**0**	**0**	**309**	**36**	**36**	**0**	**BMCA**	**0 N**	**1**
SVACSX00	JOB85591	UNLOAD	BMCSVA00	TSABC125	BMCSVA00	EMPA	TB	T		4 03/17/2020	666666	5555555	16	4	9999	0	0	346	35	35	0	BMCA	0 N	1

Mining the AMI historical data is possible to discover important aspects that can affect the maintenance aspects. Some examples might be:

Same Tablespaces reorganized every week

May be because for certain tablespaces triggered by the Real Time Statistics abends every week, so the reorg will always be repeated for all the following weeks until the abend will be resolved. DBAs don't have to wait any longer the list of job abended by the schedulers or digging into SDSF outputs, they now can easily look at the Condition Code column, then solve the problem that before was difficult to discover.

Or maybe because the tablespace degrades too fast along the week, so DBA can decide to execute reorg more often before the weekend or lift Real Time Statistics trigger values.

Auditing Unloads

Is very common in several shops to run thousands of data unloads every day in Production for different purposes. Data migration, generation of dataset to share among the different applications, applications that need to process data into sequential dataset, application backups outside Db2 etc… It is important to discover if there are some users that run UNLOAD not entitled to do it, or that different applications downloads the same table more than one time a day. Despite a such complex scenario like this it is however easy extract general information inquiring AMI historical table records producing the audit information you need.

Tuning Backups

Differently from SYSIBM.SYSCOPY where the MODIFY utility eliminates the historical records, in the BMC AMI Utilities for Db2 history tables the backup records remains, therefore it is possible to analyze the distribution of image copies over a long period of time taking the right decision to adjust the backup strategy if needed.

With BMC AMI utilities for Db2, DBAs can now finally have all the information about completed executions of the BMC utilities for DB2 , analyze trends, aggregate consumptions, make decisions to change how jobs are scheduled, understand how much data are moved, if there are unauthorized utilities etc… and have create their own Db2 utilities BIG PICTURE.