

SAP Data Archiving using Opentext

Harminder Singh

SAP Basis Lead/Architect
1340 Noah Rd, North Brunswick
NJ-08902, USA

Abstract—SAP Data archiving using open text provide us the mechanism with which we can archive the historic data which is no more needed in the database. In production system as the database size is grows, the resource consumption effort goes up and system performance deteriorate. So with SAP open text Data Archiving solution it helps to manage the size of database and offload the data which is not required to be in the database. In SAP terminology we called it to be cold data, basically cold data is nothing it's a terminology with which we remove the unwanted data from the database and store it in the file system at operating system level and that data can be read from SAP using SAP user interfaces. It securely stores the data at file system level for long term or based on company policies. Also, we can integrate this with SAP information lifecycle management.

INTRODUCTION

SAP Data archiving using open text is a mechanism with which we can remove the unwanted data or offload the unwanted data from the database which is not required. We have seen few years after go live of your SAP ERP application, the database size is grown to terabytes with which resource consumption also goes up. SAP data archiving provides us with the functionality to reduce database size significantly. So to achieve the data archiving of the ERP application, open text is one of the solution for data archiving. This article describes the architecture of the open text and SAP ILM. Also how to integrate open text with SAP ERP application and SAP NetWeaver stack information lifecycle management. To setup the archive solution in your landscape, it needs open text archive server and open text content server. SAP open text Architecture

A. SAP Opentext Landscape

So to start with SAP data archiving we need to first understand the architecture of it. So to perform the SAP database archiving, the key component n in its architecture for this are open text archive server, open text content server, open text Data services, Open text enterprise libraries, open text administration client tool, SAP ERP application running on database like Oracle, HANA, etc. To login into any open text archive server or content server you need to have the administration client. So architecture for SAP data archiving is little complex architecture because it has different components involved but that make it quite interesting like how different component of open text and SAP can be integrated together to achieve the archiving of database. We will study about each component and the role of each component in the landscape. Below figure explains how each component is integrated.

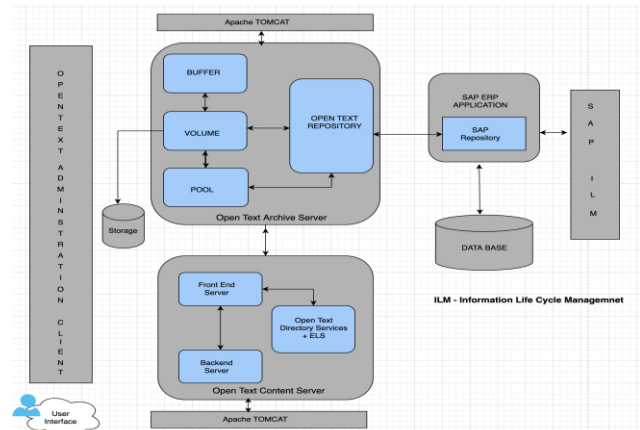


Figure1: Diagrammatic view of SAP Data Archiving using OT

Let's discuss about each component in the architecture.

Opentext Archive Server: Open Text Archive Server is a core component of the open text ECM Suite and constitutes the foundation for enterprise-wide ECM solutions. Archive Server enables storage, management and retrieval of archived data and documents. Archive Server is delivered as part of the open text Content Suite Platform. Open text offers customers several connectors to expand the functionality of Archive Server. These connectors allow you to manage business documents in different applications and to link them to the business processes. For example, with open text Suite for SAP, users can access all data and documents they need to process a business transaction in the SAP business suite. Furthermore, Archive Server provides general server interfaces for integrating new or customer specific applications. Now let's talk about the individual component in open text. Open Text archive server has main components like buffer, volumes, pool and repositories. Each repository is associated with 1 pool and each pool is associated with 1 volume and buffer. So any flat file which we are going to archive at file system will be stored into the volume associated to its repository.

Opentext Content Server: The new generation of ECM solutions is dynamic and fully integrated; no longer a one-way destination where content is relegated for long-term storage but a multilane backbone facilitating information exchange with systems and individuals across the enterprise. Open text Content Server with its capabilities to support Process Productivity, Personal Productivity, and Control is uniquely positioned to provide a foundational document management platform helping enterprises achieve success through digital transformation .Open text content server main components are front end services, back end services, data services and the enterprise libraries. So in enterprise library services we create

an application name and which we interlink or connect it with enterprise library or volumes. At the time on installation of content server we provide the information of archive server, so that archive server is aware of the content server.

Web Browser: Apache Tomcat is the open source implementation of java servlet, java server pages which is used to integrate with one of the application like open text. While doing the installation of open text all the services are registered into tomcat.

SAP Application: So any ERP application like S4, ECC, and CRM etc. can be used to archive the data. Integration of the SAP object with open text can be done with SAP tools. Basically connectivity of open text archive server and sap application is done via handshake of the certificate between both. SAP application send the certificate information to archive server and archive server sends the acknowledgement after receiving the certificate.

SAP ILM: SAP ILM is the standard tool used for the data archiving, this tool is used to archive data based on rules. The key factors for ILM are-Defining ILM rules for the purpose of mapping legal requirements and their application to live and archived data. Putting legal holds on data that is relevant for legal cases in order to prevent early destruction. Inbuilt SAP programs to destroy the documents who retention reached and all legal requirements are met.

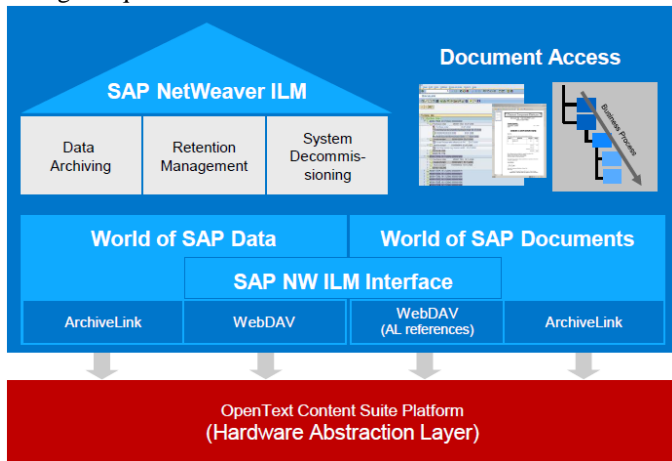


Figure2: Diagrammatic view of SAP ILM and Data archiving

B. Why, When And How To Introduce Archiving Solution

Let’s talk about key aspects in SAP landscape and those are basic or generic questions why and when to use the archiving solution in the landscape-

So why and when to use data archiving solution, after certain number of years after go live of any SAP ERP application, database growth start increasing and other resources consumption started to increase and those are CPU, memory consumption or we can say when we see the performance of the system started degrading or response times of certain program/reports are increasing. So important question arises how we can start looking into archiving solution before we get into the situation where resource consumption or system performance is getting degraded or how we can proactively start using the archiving solution. So for that we have to start with the biggest growing tables in our database. Let’s analyze the growth of the tables on monthly or weekly basis which are growing at the rapid rate or use the available SAP tools

like Data Volume management. SAP Data volume management helps with the reducing of the data footprint of business cleared data. Business cleared data is that which has no further processing and which is available in database because of the legal agreements closure. So let’s understand the lifecycle of the data and at which stage we can consider the archiving of data. Below are diagrammatic view or comparison on before or after data archiving.

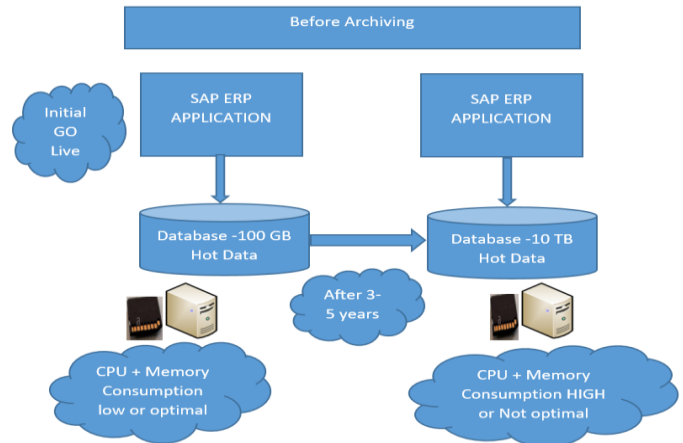


Figure3: Before archiving and resource consumption poor

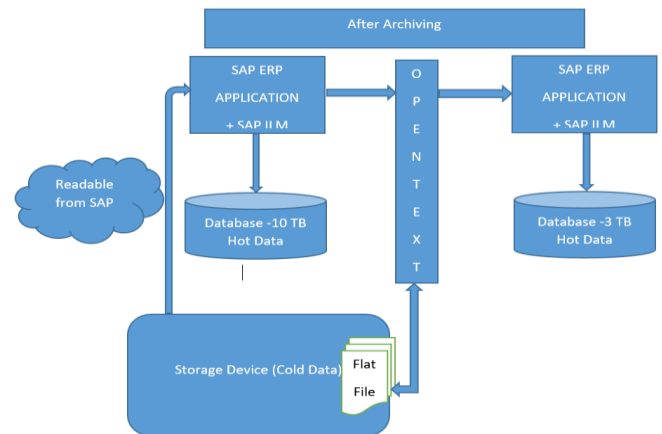


Figure4: After archiving and resource consumption optimal

Now lets understand the lifecycle of the data and the stages or under which condition we can think of data archiving.

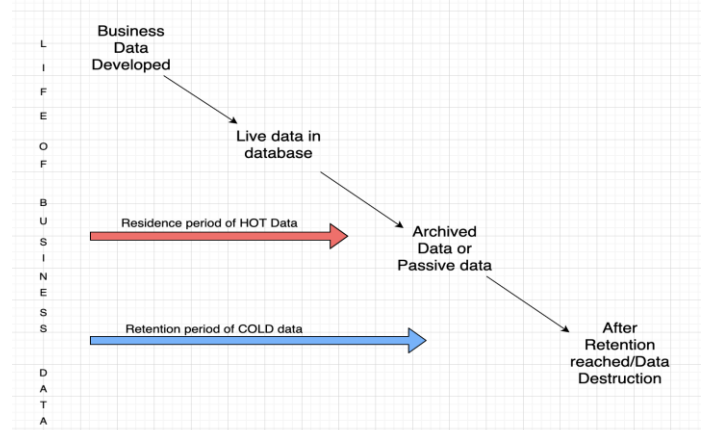


Figure5: Journey of Data before and after Archiving

C. Benefits Of Data Archiving

So let's talk about the Key benefits about the Data archiving, why there is an importance of Data Archiving in the SAP landscape where database growth rapidly.

Reduce Overall Hardware and Admin Cost

Data archiving reduce the overall hardware and admin cost. Once the data is archived to the disk, it will significantly remove the data from database and after that we perform the reorg and compression on the table, since the data is been removed from the database, just in case of Oracle database, it is very important to perform this step as after archiving free space is not released, so need to remove the fragmentation. On an average after compression, estimated space available is a ratio of 10:1.

Significant Improvement in Response Time

After all optimization on code level, still response times are not optimal in SAP application after few years, this is due to the amount of data been grown with in years, so archiving the hot data to disk, significantly gain in system performance can be seen. Amount of data to be processed or any database query will run over small chunk of data hence results into improved response times.

Reduced the timings of administrative tasks

This will reduce the overall time for the backup and restores, system refreshes time will be significantly reduced and turn around and stringent deadlines can be met easily. Reducing the online data will help backup/restore, database reorganization, system upgrades, etc.

Easily Access archive Data

Access of the archived data from file system will be provided by open text. Data retrieval or access using open text enhances standard SAP transactions to provide transparent access to archived and online data. This eliminates the need for any knowledge about where information resides. The open text data access transactions are exact copies of the corresponding SAP transactions. Open text content repository are software solutions, completely implemented with SAP standard tools. To support access to archived data, a small index for each archive file is built in the file system. No additional hardware is required.

Audit Policies and legal requirements gains

In many organizations, historic data is considered as a potential liability risk as soon as the retention period defined by records management is expired, so with open text it's an easy access to clean or purge that data. Using SAP ILM every document who retention is defined using SAP ILM standard functionality it is easy to destroy the sensitive business data rather than opt for costly discovery processes, records should be destroyed as soon as possible after their retention time. Data Archiving also builds the first step for data destruction, since no other SAP approved mechanism is available to remove business records from the active database. Final data destruction is accomplished by deleting the SAP archive files from the storage system and by removing the corresponding SAP meta-data.

List of Predefined standard Archiving

SAP has provided set of predefined archiving objects which are further divided as archiving objects with functional tables and with technical tables.

List of technical tables are as below, so company to company have its own policies and certain companies want to archive their data, and certain companies purge that data using the SAP standard housekeeping functionalities.

Table name	Description	Archiving object
DBTABLOG	Log records of table changes	BC_DBLOGS
CDCLS	Change document items	CHANGEDOCU
CDHDR	Change document header	CHANGEDOCU
CDPOS_STR	Additional Change Document - Table for STRINGS	CHANGEDOCU
CDPOS_UID	Additional Table for Inclusion of TABKEY>70 Character	CHANGEDOCU
EDI40	IDoc interface data records	IDOC
EDIDC	IDoc interface control records	IDOC
EDIDS	IDoc interface status records	IDOC
BALDAT	Application Log: Log data	BC_SBAL
BALHDR	Application log: log header	BC_SBAL
SWW*	tables store work item data	WORKITEM

Figure6: Technical Archiving object

Below is just an example of functional and technical object from the SAP landscapes where archiving need to be performed.

Archiving Objects	CO_ITEM	EC_PCA_ITM	MM_ACCITT	BC_SBAL	MM_MATREL	CHANGEDOCU															
BC_DBLOGS	CO_ITEM	EC_PCA_ITM	MM_ACCITT	BC_SBAL	MM_MATREL	CHANGEDOCU															
BC_PCA_ITM	FI_DOCUMENT	MM_EBAN	BC_DBLOGS	CHANGEDOCU	IDOC																
BC_DBLOGS	EC_PCA_ITM	IDOC	FI_DOCUMENT	MM_ACCITT	CO_ITEM																
WORKITEM	FI_DOCUMENT	BC_SBAL																			
IDOC	BC_DBLOGS	WORKITEM	CHANGEDOCU	BC_SBAL																	
BC_DBLOGS	FI_DOCUMENT	CO_ITEM	RV_LIHP	SD_VBAK	EC_PCA_ITM	MM_MATREL	COPA_LODS														
CO_ITEM	FI_DOCUMENT	BC_DBLOGS	IDOCs	COPAL_LIHP	MM_ACCITT	RV_LIHP	MM_MATREL	SD_VBAK	CHANGEDOCU	SD_VBRK	BC_SBAL										
BC_DBLOGS	FI_DOCUMENT	CO_ITEM	MM_ACCITT	COPAL_2860	COPAL_3160	RV_LIHP	SD_VBAK	SD_VBRK	RL_TA	COPAL_22M4											
BC_SBAL	IDOC	BC_DBLOGS	FI_DOCUMENT	WORKITEM	CHANGEDOCU	SD_VBAK	COPAL_LIHP	MM_ACCITT													
BC_SBAL	IDOC	SD_VBAK	SD_VBRK	FI_DOCUMENT	MM_MATREL																
EC_PCA_ITM	RV_LIHP	BC_DBLOGS	CO_ITEM	CHANGEDOCU	SD_VBAK	MM_ACCITT	MM_MATREL	SD_VBRK	FI_DOCUMENT												
IDOC	MM_ACCITT	MM_MATREL	PCA_OBJECT	BC_DBLOGS	FI_DOCUMENT	CHANGEDOCU	MM_EBAN	CO_ITEM													
S_AUT_LIHT	RV_LIHP	SD_VBAK	BC_PCA_ITM	SD_VBRK	MM_MATREL	COPAL_1002	CO_ITEM	FI_DOCUMENT	CHANGEDOCU	SD_VBAK											
BC_DBLOGS	RV_LIHP	CHANGEDOCU	MM_MATREL	SD_VBRK	FI_DOCUMENT	SD_VBAK															
BC_DBLOGS	SD_VBAK	IDOC	BC_DBLOGS	RV_LIHP	CHANGEDOCU	MM_MATREL	SD_VBRK	FI_DOCUMENT													
FI_DOCUMENT	MM_MATREL	CHANGEDOCU	BC_DBLOGS	RV_LIHP	SD_VBAK	MM_ACCITT	CO_ITEM														
IDOC	CO_ITEM	FI_DOCUMENT	MM_ACCITT	MM_MATREL	RV_LIHP	SD_VBAK	WORKITEM														
BC_DBLOGS	EC_PCA_ITM	RV_LIHP	SD_VBAK	CHANGEDOCU	CO_ITEM	MM_ACCITT	MM_MATREL	SD_VBRK	S_AUT_LIHT	IDOC	SD_VBAK										
BC_SBAL	WORKITEM	BC_DBLOGS	CO_ITEM	PCA_OBJECT	MM_ACCITT	IDOC															
BC_DBLOGS	FI_DOCUMENT	CHANGEDOCU	IDOC	WORKITEM																	
PA_CALC	WORKITEM	BC_DBLOGS	IDOC	PA_FI04																	
FI_DOCUMENT	BC_SBAL	IDOC	BC_DBLOGS																		
IDOC	FI_DOCUMENT	CO_ITEM	WORKITEM	MM_EBAN	CHANGEDOCU	BC_DBLOGS	MM_ACCITT	MM_MATREL													
EC_PCA_ITM	BC_SBAL	FI_DOCUMENT	CO_ITEM	COPAL_LIHP	RV_LIHP	SD_VBRK	CHANGEDOCU	MM_MATREL													
EC_PCA_ITM	FI_DOCUMENT	CO_ITEM	COPAL_BAU	BC_DBLOGS	MM_EBAN	CHANGEDOCU	MM_MATREL	RV_LIHP	SD_VBAK	SD_VBRK											
IDOC	MM_EBAN	CHANGEDOCU	SD_VBAK	CO_ITEM	MM_ACCITT	FI_DOCUMENT	RV_LIHP	MM_MATREL	BC_DBLOGS												
IDOC	FI_DOCUMENT	CHANGEDOCU	SD_VBRK	SD_VBAK	MM_ACCITT	COPAL_LIHP															

Figure7: Combination of Technical and Functional Archiving objects

Below are the standard functional archiving objects.

Archiving Object	Description
FI_DOCUMNT	Financial Accounting Documents
FI_SL_DATA	FI Special Ledger: Totals and Line Items
EC_PCA_ITM	Profit Center Acctg: Actual and Plan Line Items
EC_PCA_SUM	Profit Center Accounting: Totals Records
CO_ITEM	CO Line Items
CO_TOTAL	CO Totals Records
SCMG	Case Management: Case Archiving
MM_ACCTIT	MM- Accounting interface posting data
MM_MATBEL	Materials management: Material documents
MM_EBAN	Purchase Requisitions
MM_EKKO	Purchasing Documents
MM_INVBEL	Materials management: Inventory documents
SD_VBAK	Sales Documents
SD_VBRK	Billing Documents
RV_LIKP	Deliveries

Figure8: Functional Archiving Objects

CONCLUSION

After going through this document, we will know about the standard sap tool and open text to perform the data archiving in production system. How to optimize the response times and system performance in big databases. With this article you will be able to understand the concept of SAP open text archive server and content server and what is the role of each component in the landscape and how they can be used. There is no other tool available like open text and SAP ILM, which allows to archive data and easy retrieval of the data from the flat files sitting on file system. So, what all archiving objects are available for archiving and how SAP data volume management is so important before data archive using open text can be used.

REFERENCES

- [1] <https://launchpad.support.sap.com/#/notes/133707>
- [2] <https://knowledge.opentext.com/knowledge/cs.dll/kcs/kbarticle/view/KB476537>
- [3] <https://knowledge.opentext.com/knowledge/cs.dll/kcs/kbarticle/view/KB542254>
- [4] <https://knowledge.opentext.com/knowledge/cs.dll/kcs/kbarticle/view/KB17123338>
- [5] https://help.sap.com/saphelp_snc70/helpdata/en/13/97e909939b4e4b9abd7e771035917e/frameset.htm