



Enhance SAP HANA Memory Performance by Data Aging Capabilities in SAP S/4HANA

#84228

About the Speakers

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Key Outcomes/Objectives

- Data Aging overview
- Key features supported by Data Aging
- Insights on managing your current and historical data in SAP S/4HANA with Data Aging
- Key insights on adapting your custom implementation

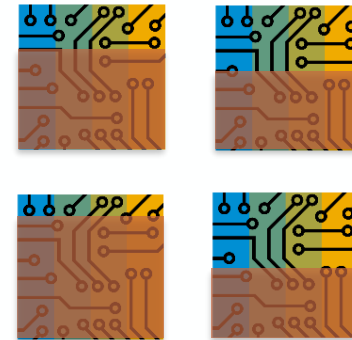
Agenda

- Why your business needs Data Aging?
- How Data Aging helps your business
- Core components of Data Aging in S/4HANA
- Available Data Aging objects
- How can customers implement Data Aging

Why your business needs Data Aging?



Exponential growth of transactional data in your business

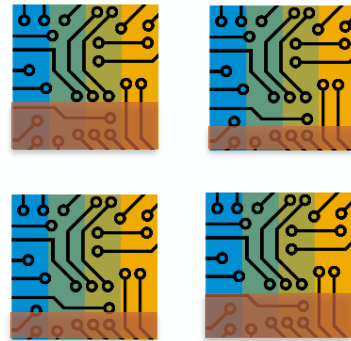


Available HANA Memory

How Data Aging helps...



Exponential growth of transactional data in your business



Available HANA Memory

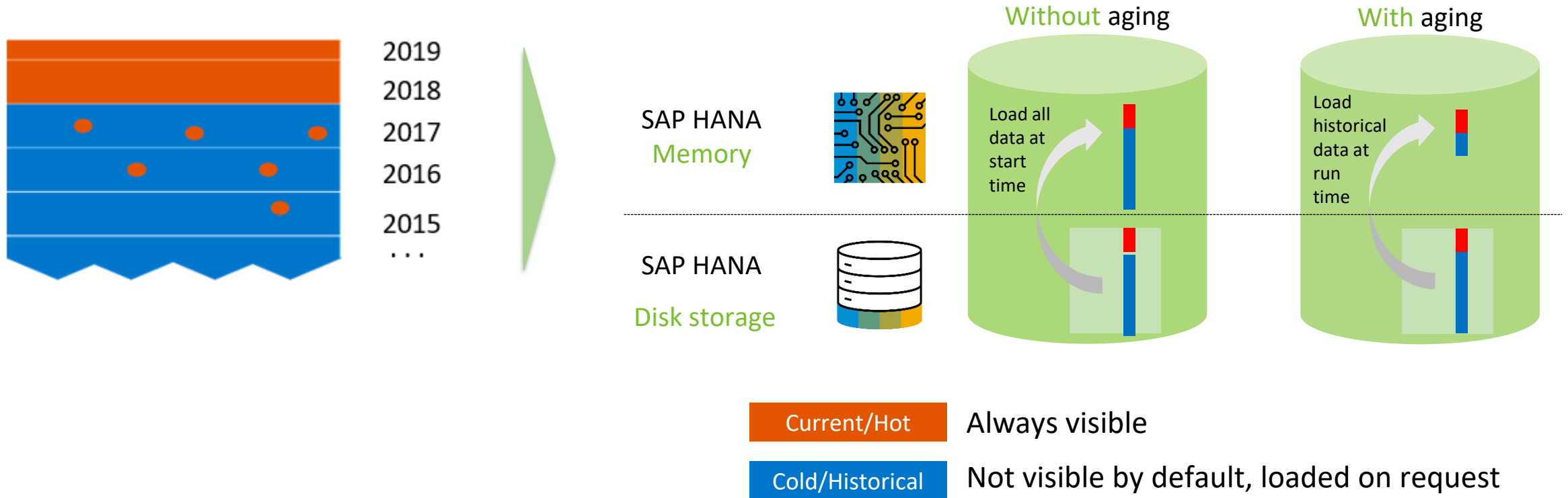


HANA Disk storage

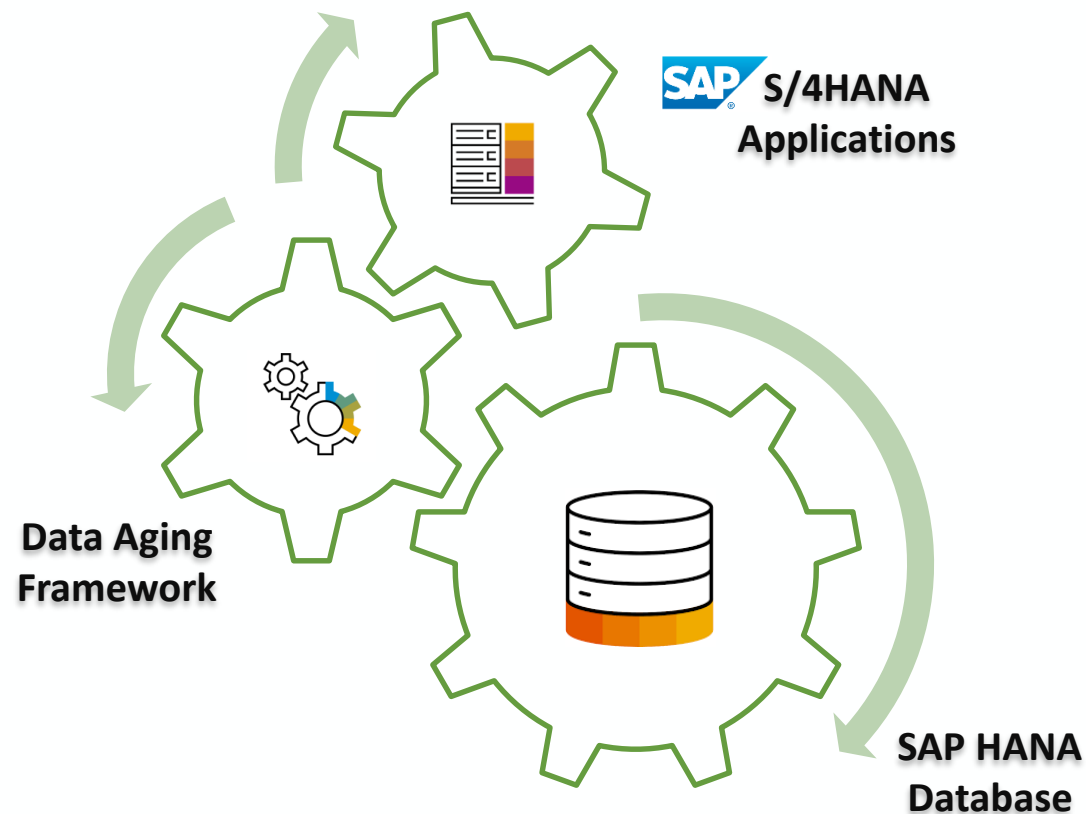
How it works...

Key Message

Data Aging helps SAP S/4HANA to reduce HANA memory footprint while allowing access to “historical” data

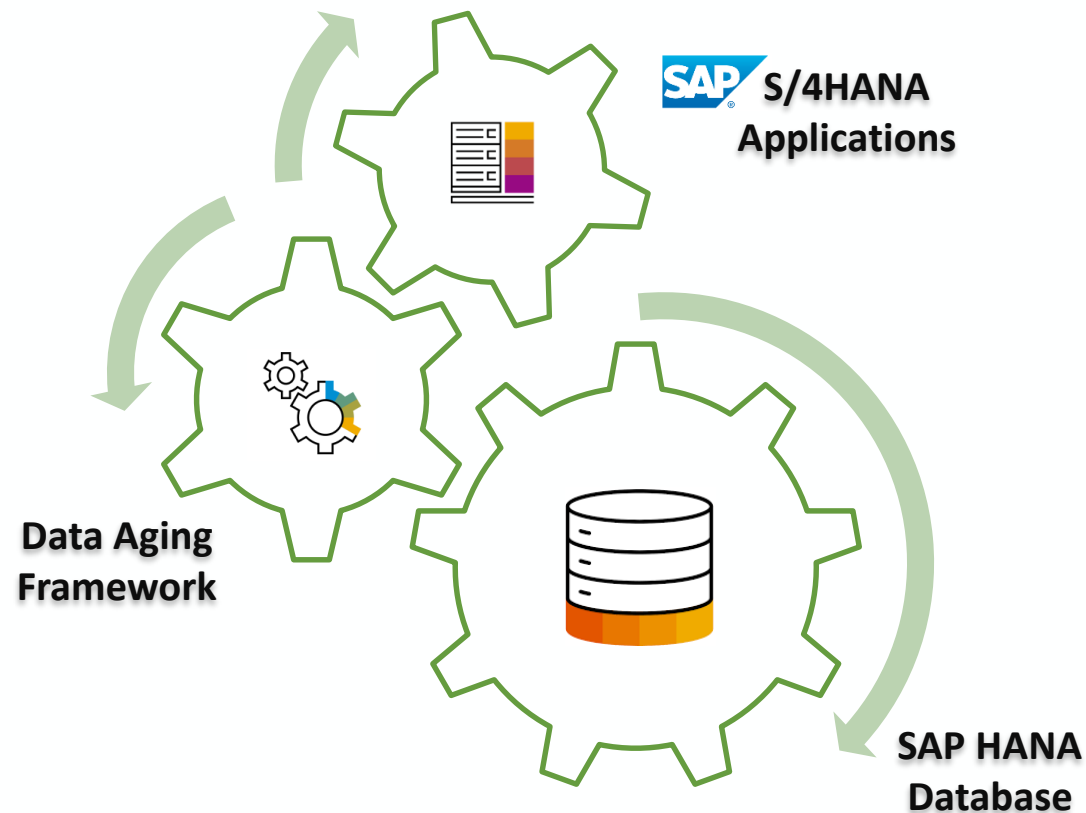


Core components of Data Aging in S/4HANA



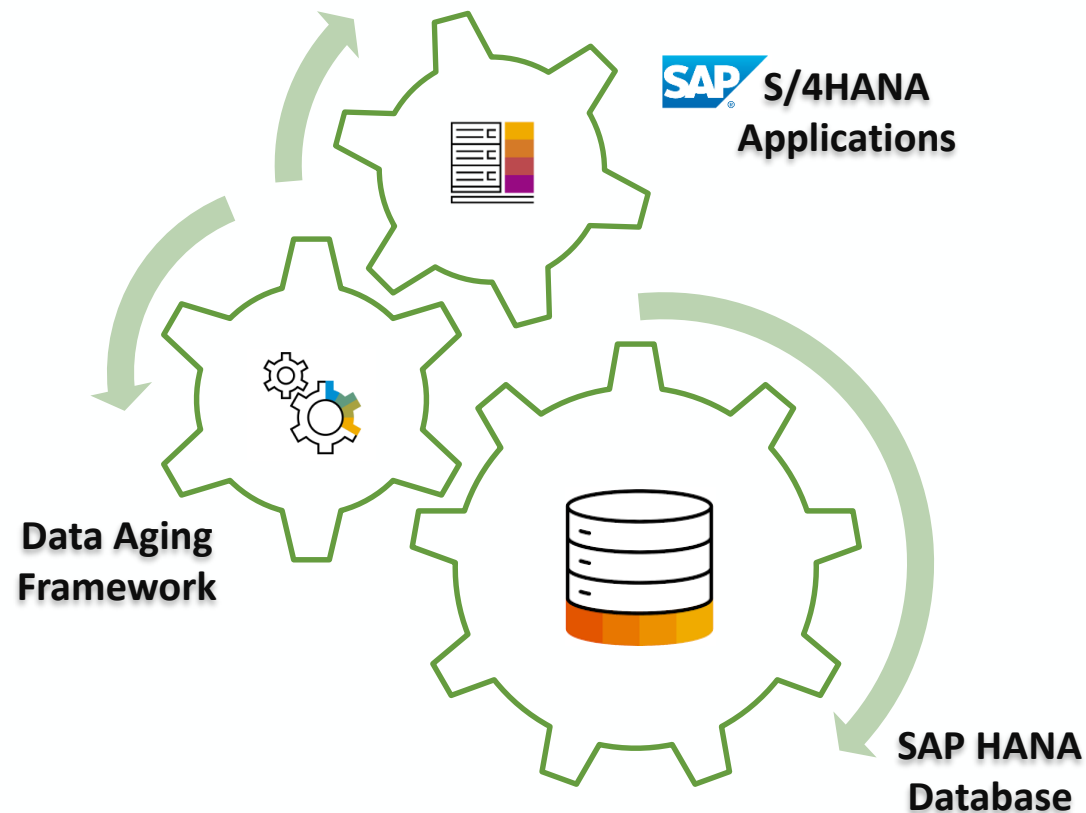
- Implement Data Aging objects
- Determine data to be aged taking into account residence time and status
- Provide access to aged data

Core components of Data Aging in S/4HANA



- Maintains aging object registry
- Supports partitioning into current/historical data
- Contributes to aging specific query optimization

Core components of Data Aging in S/4HANA



SAP HANA Database

- Provides in-memory store for current data
- Provides disk store for historical data
- Partitions the schema to separate current and historical data

Prerequisites for Data Aging



SAP HANA 1.0 SPS10 or higher



SAP NetWeaver 7.40 SPS10 or higher



The SAP application should have Data Aging enabled



Data Aging business function(*DAAG_DATA_AGING*) is switched ON

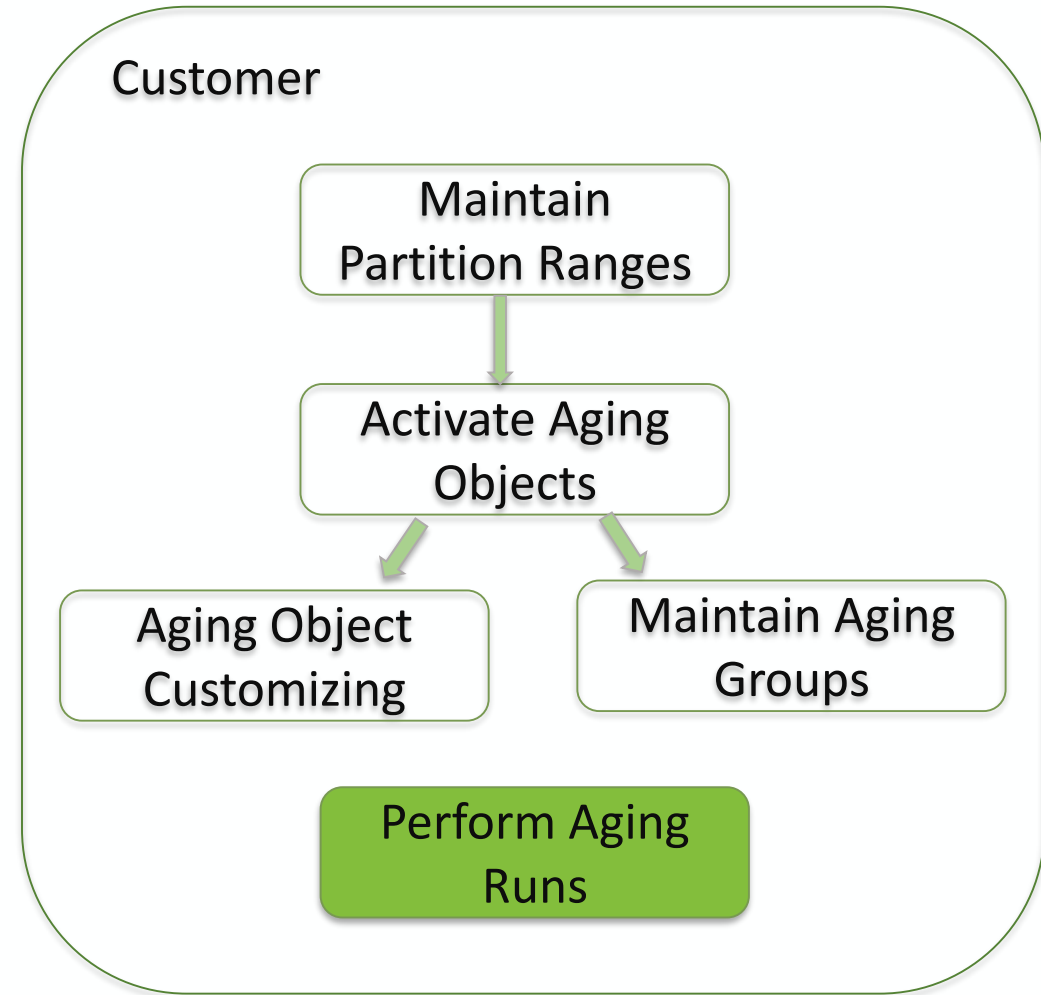
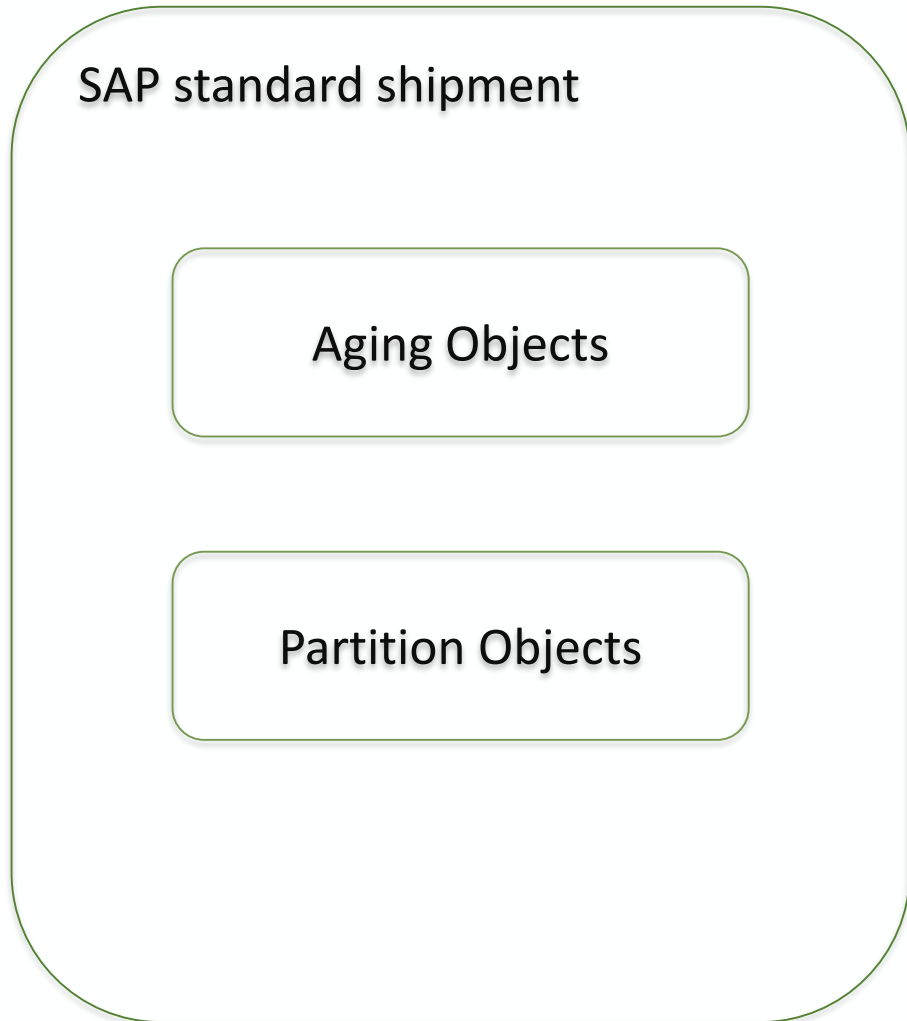


Profile parameter *abap/data_aging* in Application Server ABAP (AS ABAP) is set to ON.

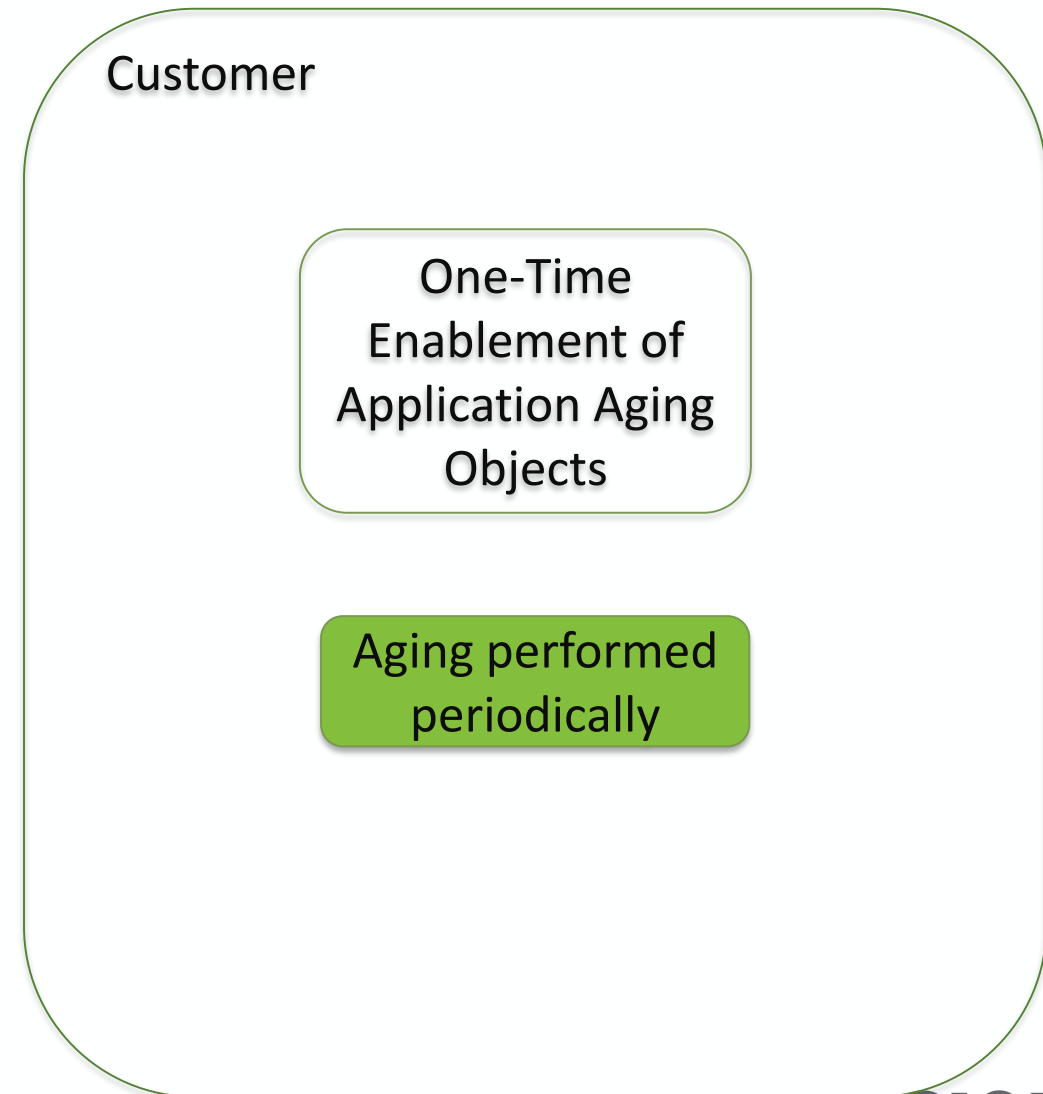
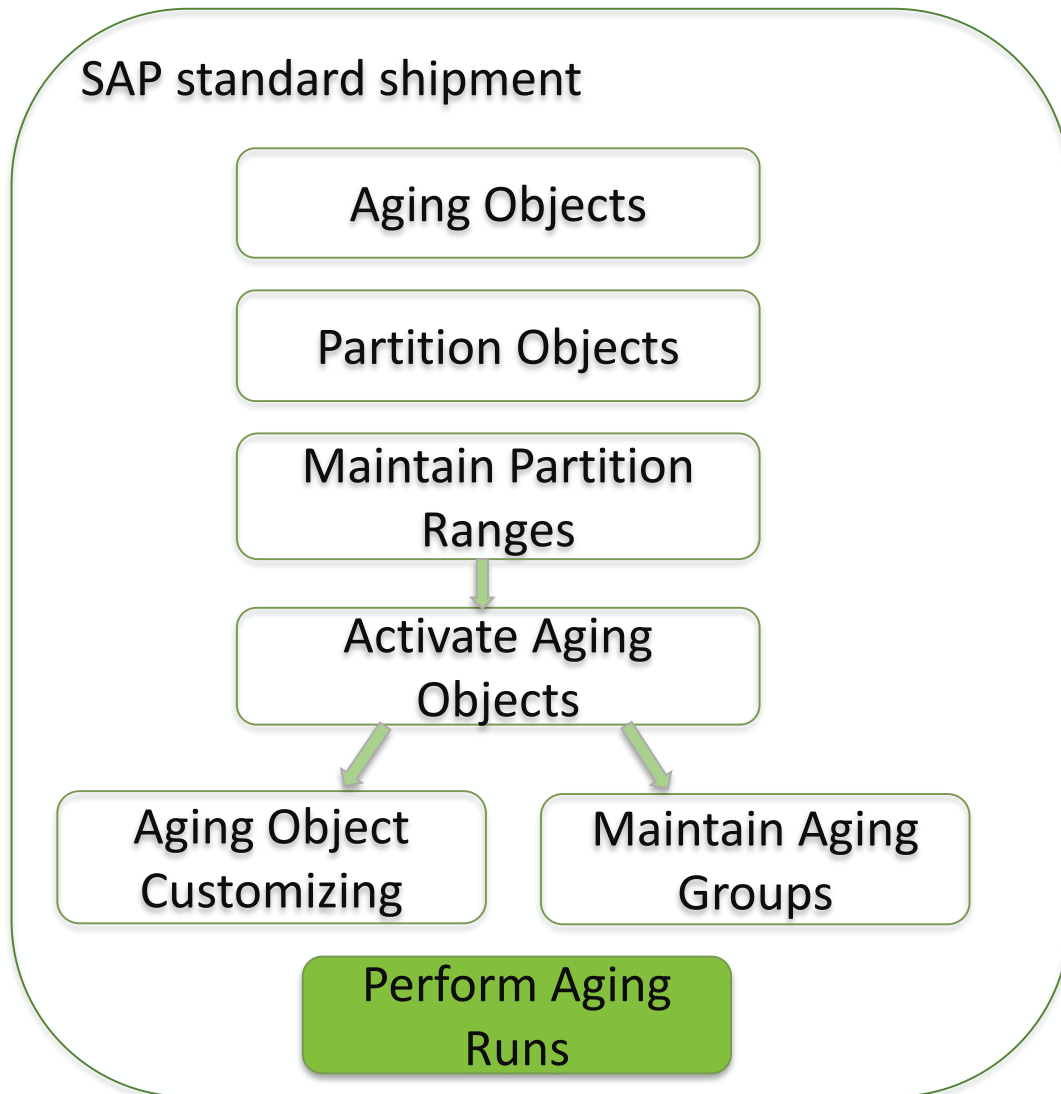


Required data aging authorizations are added to your role. (*SAP_DAAG_ADMIN* AND *SAP_DAAG_EXPERT*)

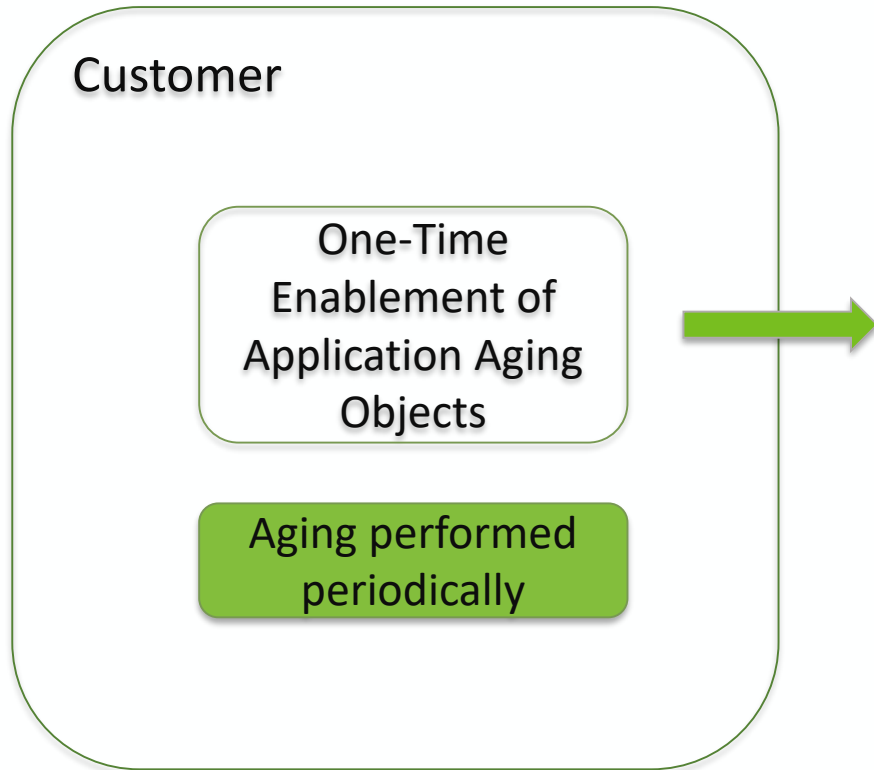
How can On-Prem customers implement Data Aging?



How can cloud customers implement Data Aging?



Data Aging in S/4HANA Cloud



Enable Data Aging

Data Aging Objects

Hide Filter Bar Restore Filters Go

Search: Data Aging Object:

Application Area: Aging Status: All

Items (36) View Aging Run Status

Object

- Billing document
- ID: SD_VBRK
- Application Area: Sales and Distribution
- Aging Status: Not Enabled

Billing document

Enable Aging View Aging Run Status

Aging Status: ID: SD_VBRK

Not Enabled Application Area: Sales and Distribution

Current Filling Level

Tables (11)

Name	Number of Records (Current)	Filling Level (Current)	Max. Filling Level: 2 Billion
PRCD_ELEMENTS	582.023	0.03%	
VBFA	179.399	0.01%	
VBPA	119.052	0.01%	

Fiori App: Enable Data Aging

Data Aging in S/4HANA Cloud

Customer

One-Time
Enablement of
Application Aging
Objects

Aging performed
periodically

The screenshot displays the 'View Data Aging Runs' Fiori app interface. On the left, a list of 'Data Aging Groups' is shown, including 'Aging of Material Documents', 'Data Aging Group for /ECRS/RP', 'Data Aging group for Consent', 'Data Aging of Tax Service Trace', and 'Aging of sales documents'. The 'Data Aging group for Consent' group is selected and highlighted. On the right, a detailed view for this group is shown, including its last run status ('Successful'), ID ('CNSNT_GRP'), and a table of the last three data aging runs. Below this, a 'Scheduled Job' section shows the job name 'SAP_CM_AGING' and its recurrence. At the bottom, 'Related Data Aging Objects' are listed, including 'CONSENT_OBJ' with an 'Enabled - Aging Started' status.

Start Date and Time	Duration	Job Name	Aging Runs Status	No. of Records
03/01/2019 07:30:48	00:01 Minutes	SAP_CM_AGING	Successful	0
02/01/2019 07:30:18	00:40 Minutes	SAP_CM_AGING	Successful	14
11/01/2018 07:30:04	00:21 Minutes	SAP_CM_AGING	Not Initiated	0

Job Name	Scheduled Start	Recurrence of Assigned Job
SAP_CM_AGING	04/01/2019 07:30:00	03 Month(s)

Description	ID	Aging Status
CONSENT_OBJ	CONSENT_OBJ	Enabled - Aging Started

Fiori App: View Data Aging Runs

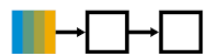
Some pre-delivered Data Aging objects...



Application Log



IDoc



Workflow



Change Document



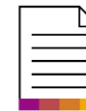
Material Document



Unified Journal Entry



Delivery Document



Purchasing Document

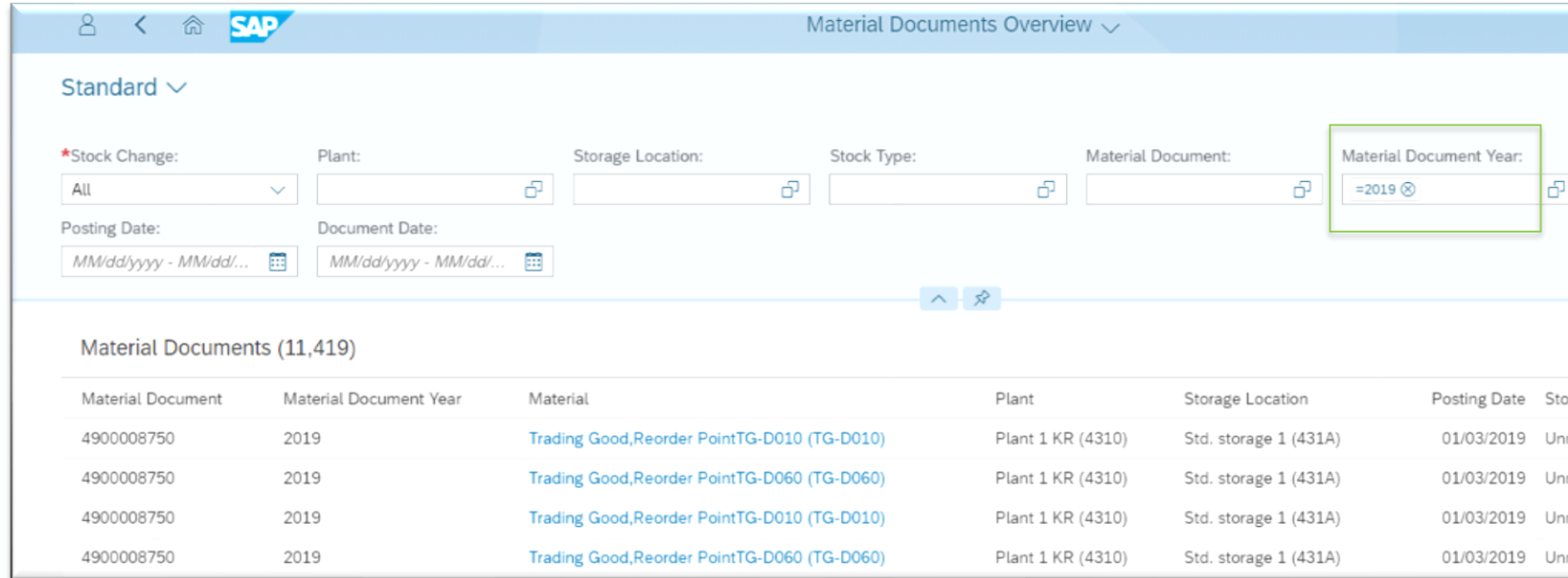


Billing Document



Sales Document

Data Aging in Material Documents



The screenshot shows the SAP Fiori app interface for 'Material Documents Overview'. The top navigation bar includes the SAP logo and the title 'Material Documents Overview'. Below the navigation bar, there are several filter fields: 'Stock Change' (set to 'All'), 'Plant', 'Storage Location', 'Stock Type', 'Material Document', and 'Material Document Year' (set to '=2019'). There are also date pickers for 'Posting Date' and 'Document Date'. Below the filters, a table displays a list of material documents. The table has columns for 'Material Document', 'Material Document Year', 'Material', 'Plant', 'Storage Location', 'Posting Date', and 'Stock'. The table shows four rows of data, all for the year 2019.

Material Document	Material Document Year	Material	Plant	Storage Location	Posting Date	Stock
4900008750	2019	Trading Good,Reorder PointTG-D010 (TG-D010)	Plant 1 KR (4310)	Std. storage 1 (431A)	01/03/2019	Unre
4900008750	2019	Trading Good,Reorder PointTG-D060 (TG-D060)	Plant 1 KR (4310)	Std. storage 1 (431A)	01/03/2019	Unre
4900008750	2019	Trading Good,Reorder PointTG-D010 (TG-D010)	Plant 1 KR (4310)	Std. storage 1 (431A)	01/03/2019	Unre
4900008750	2019	Trading Good,Reorder PointTG-D060 (TG-D060)	Plant 1 KR (4310)	Std. storage 1 (431A)	01/03/2019	Unre

Fiori App: Material Documents Overview

With Data Aging enabled for Material Documents, SQL queries fetch results only from the hot store by default. This provides you with more working memory for other processes. In this Fiori app, the parameter, material document year, is defaulted to the current year which fits 90% of your business needs.

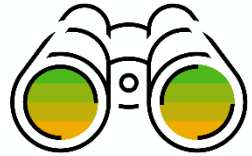
Aging your custom tables(On-Prem customers)

- Customer, partner and industry-specific-solution tables, that extend SAP standard tables, can be aged with enhancement aging objects.
- Only possible if pre-delivered aging objects support enhancements.



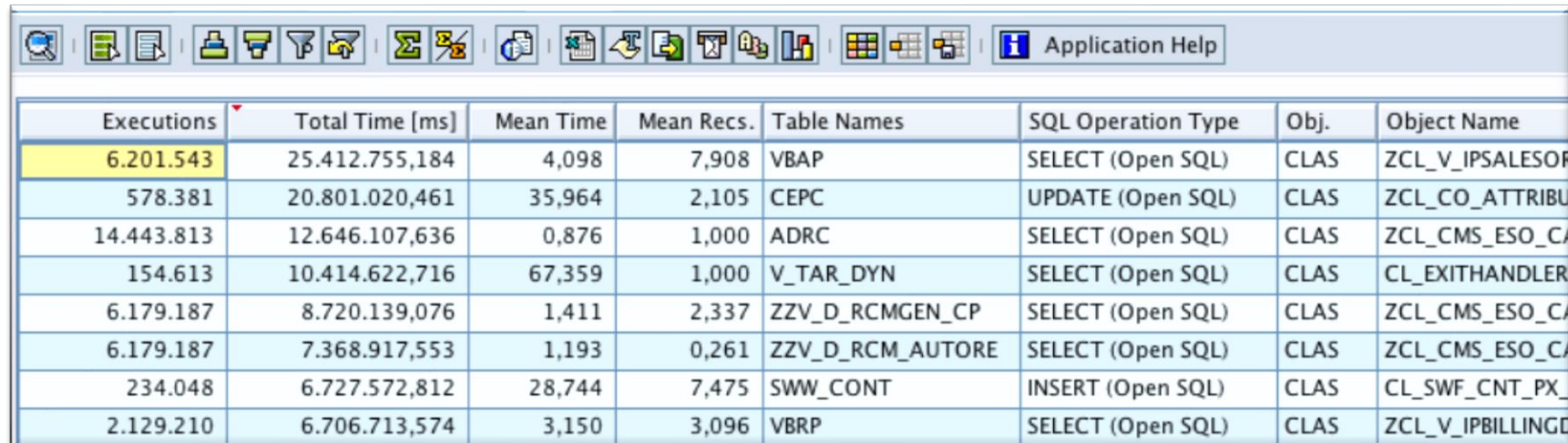
For example, Retail and Fashion Management(RFM) in S/4HANA, extends the tables of Purchasing Documents. Enhancement object RFM_MM_EKKO allows aging of those industry-specific tables (RFM tables in this case) to be aged whenever purchasing documents are aged.

Identifying adjustments to your custom code(On-Prem customers)



ABAP Test Cockpit provides a static list of custom code that access tables subject to Data Aging

Customers can prioritize their static list with the help of dynamic execution information in the SQL Monitor

A screenshot of the SQL Monitor application window. The window has a toolbar at the top with various icons for search, print, filter, and help. Below the toolbar is a table with columns: Executions, Total Time [ms], Mean Time, Mean Recs., Table Names, SQL Operation Type, Obj., and Object Name. The first row is highlighted in yellow.

Executions	Total Time [ms]	Mean Time	Mean Recs.	Table Names	SQL Operation Type	Obj.	Object Name
6.201.543	25.412.755,184	4,098	7,908	VBAP	SELECT (Open SQL)	CLAS	ZCL_V_IPSALESOP
578.381	20.801.020,461	35,964	2,105	CEPC	UPDATE (Open SQL)	CLAS	ZCL_CO_ATTRIBU
14.443.813	12.646.107,636	0,876	1,000	ADRC	SELECT (Open SQL)	CLAS	ZCL_CMS_ESO_CA
154.613	10.414.622,716	67,359	1,000	V_TAR_DYN	SELECT (Open SQL)	CLAS	CL_EXITHANDLER
6.179.187	8.720.139,076	1,411	2,337	ZZV_D_RCMGEN_CP	SELECT (Open SQL)	CLAS	ZCL_CMS_ESO_CA
6.179.187	7.368.917,553	1,193	0,261	ZZV_D_RCM_AUTORE	SELECT (Open SQL)	CLAS	ZCL_CMS_ESO_CA
234.048	6.727.572,812	28,744	7,475	SWW_CONT	INSERT (Open SQL)	CLAS	CL_SWF_CNT_PX
2.129.210	6.706.713,574	3,150	3,096	VBWP	SELECT (Open SQL)	CLAS	ZCL_V_IPBILLINGD

SQL Monitor

Data Aging APIs for On-Prem customers

CL_ABAP_SESSION_TEMPERATURE

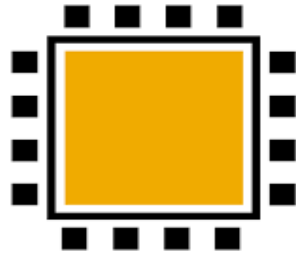
Enables the data temperature to be set for the entire internal ABAP session. The temperature is then inherited by further calls in the in the call stack

CL_ABAP_STACK_TEMPERATURE

Enables the ABAP session temperature (including the default Hot that is set implicitly) to be overwritten within procedures (FORM, FUNCTION or METHOD)

Undo Data Aging Run

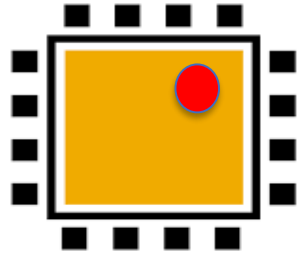
Undo Data Aging is useful when business relevant data is accidentally moved to the historical partition



Undo Aging implemented by application?

Time condition met ?

Undo Data Aging Run



Undo Aging implemented by application? ✓

Time condition met ✓

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Presentation Materials

Access the slides from 2019 ASUG Annual Conference here:

<http://info.asug.com/2019-ac-slides>

Q&A

For questions after this session, contact us at suharsh.cherukunnon.arippa@sap.com and prakhar.vashisht@sap.com

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