Best-Practice Document

Data Volume Management User Guide

SAP SOLUTION MANAGER 7.2 SP09 OR HIGHER
DOCUMENT VERSION: 1.3 – 2020-06-19

Document History

Version	Date	Change
1.0	2016-05-26	First version created
1.1	2017-01-10	Second version created
1.2	2017-02-27	Third version created
1.3	2020-06-19	Fourth version created

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Typographic Conventions

Type Style	Description
Example	Words or characters quoted from the screen. These include field names, screen titles, pushbuttons labels, menu names, menu paths, and menu options. Textual cross-references to other documents.
Example	Emphasized words or expressions.
EXAMPLE	Technical names of system objects. These include report names, program names, transaction codes, table names, and key concepts of a programming language when they are surrounded by body text, for example, SELECT and INCLUDE.
Example	Output on the screen. This includes file and directory names and their paths, messages, names of variables and parameters, source text, and names of installation, upgrade and database tools.
Example	Exact user entry. These are words or characters that you enter in the system exactly as they appear in the documentation.
<Example>	Variable user entry. Angle brackets indicate that you replace these words and characters with appropriate entries to make entries in the system.
EXAMPLE	Keys on the keyboard, for example, F2 or ENTER.

1 Introduction

As system landscapes become ever more complex and data volumes continue to increase, it is more important than ever to keep an overview of the data in your landscape. It is essential to not only identify the source of your data, but also to determine effective strategies for managing it. Failure to do so can lead to rising IT costs, unnecessarily complex system management, and reduced system performance.

Regardless of whether your landscape consists of multiple systems or one single system, there is often far too much data to manage manually. For example, a typical SAP system contains over 100,000 database tables. Therefore, manually identifying which tables are important for your business processes and which tables you no longer need is extremely time consuming, costly, and ineffective. Potentially, a table that is critical to your business could be mistakenly identified as no longer needed, which could have disastrous consequences. In the worst-case scenario, data that you are required to keep for auditing purposes could be deleted, resulting in legal issues.

By adopting a tool-based approach to data volume management, you can ensure maximum efficiency and safeguard against human error by presenting data in a clear, comprehensive, business-relevant form.

The Data Volume Management (DVM) Launchpad Group in SAP Solution Manager helps you to maintain a holistic view of the data in your landscape. Based on SAP NetWeaver Business Warehouse (BW) and SAP's analytical and reporting infrastructure, the launchpad group provides the following key features:

- Ensure transparency of the data consumption across your system landscape
- Create or optimize your strategy for data volume management
- Integrate SAP best practices for data volume management
- Simulate different approaches to data volume management and compare the predicted results
- Monitor technical key performance indicators (KPIs) and generate reports across your system landscape
- Ensure compliance with your corporate data volume management strategy
- Incorporate SAP-delivered dashboards and queries to generate graphical and statistical representations of your data
- Identify the connection between the data in your landscape and your business processes, bridging the gap between business and IT

Note

As of Solution Manager SP07, the DVM Work Center has been migrated to the SAP Solution Manager Launchpad. Since then, the DVM Work Center has been renamed as the DVM Launchpad Group. In this document, the DVM Work Center will be referred to as the DVM Launchpad Group.

1.1 About This Document

The purpose of this guide is to provide step-by-step best practices for how to implement and use the data volume management features of SAP Solution Manager 7.2 SP09 or higher. If you use a release older than 7.2 SP09, some of the features described may not be available. However, the basic principles are still valid and can be applied wherever possible.

As the document is structured according to the best practices for DVM, we strongly recommend that you follow the process in the order described. The individual sections assume that you have a good understanding of all content up to that point.

2 Configuration

Before starting with the DVM WoC Implementation it is important to note the following:

- There is no transport concept for the DVM WoC i.e. there are no transport requests or transport Management. Meaning that ALL activities performed in the pre-production (Development/Test) systems will have to be performed in the Production system also.
  So, if you want to document what activities you have performed so as to replicate this in the production systems, you should do so at the earliest opportunity.
- In order to implement the DVM WoC in the productive Solution Manager you need to open that system for customizing changes.
- The DVM WoC is dependent on other features and infrastructure of the Solution Manager and consequently there are prerequisites that have to be met before a successful deployment of the DVM WoC can be achieved.

Before you can use the Data Volume Management launchpad group, you need to complete a number of configuration activities. For more of these activities, you simply follow a guided procedure in SAP Solution Manager Configuration (transaction `SOLMAN_SETUP`). The guided procedure provides on-screen help texts to lead you through both automatic and manual steps in the correct order. For more information about using SAP Solution Manager Configuration, see the SAP Help Portal at https://help.sap.com/viewer/product/SAP_Solution_Manager/7.2.09/en-US > Configuration Guide

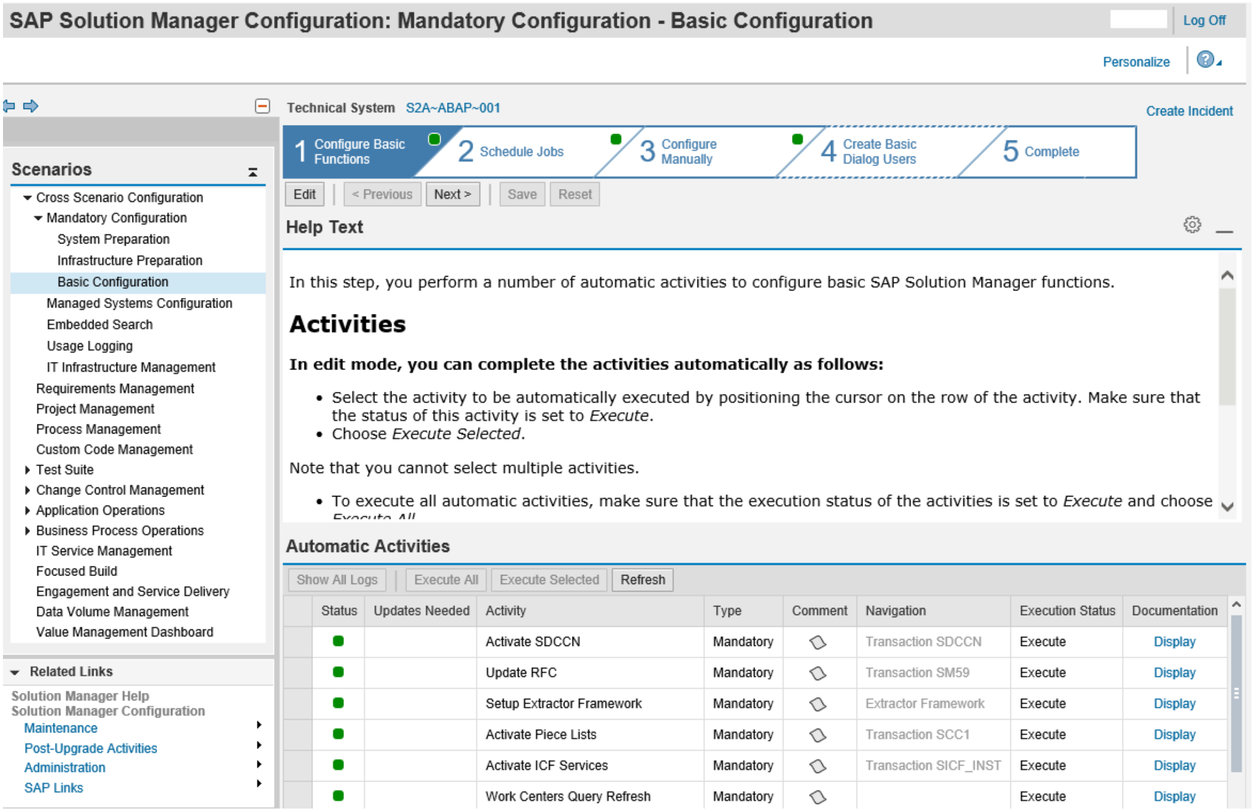


Figure 1: Guided Procedure in SAP Solution Manager Configuration

Note

If you upgrade your systems or make changes to the configuration, you might need to perform some steps of the configuration scenarios again.

2.1 Initial Configuration of Solution Manager

Before you can use SAP Solution Manager, you need to complete all mandatory steps of the System Preparation, Infrastructure Preparation and Basic Configuration scenarios in SAP Solution Manager Configuration (transaction `SOLMAN_SETUP`). As part of these scenarios, you set up your SAP Solution Manager system and the various infrastructures. For more information, see the corresponding help texts in the guided procedures.

System Preparation:

The Activities in this section:

Prepare the system for the configuration

Need to be performed fully after a new installation

After upgrades you need to:

Update dialog and system users

Assign the appropriate default roles

Implement the appropriate central correction SAP Note (important: step ‘Implement SAP Note’ needs to have a green light!)

The central correction note contains general corrections for the Solution Manager and also corrections for the DVM launchpad group.

SAP is aware that this central correction note is usually only implemented once, i.e. right after the implementation of a new support package. As this note is regularly updated and new notes that have been created in the meantime are added, it is possible that this central note may show up as necessary to implement from time to time as newer version of this note are released. If implementing the latest version of this note is considered as “not possible” (i.e. as this would require too much test effort) it is possible to run report RTCCTOOL with a focus on DVM on the Solution Manager system. The result shows at least all DVM related notes that are necessary to implement. Be aware that there may still be some notes missing e.g. framework related notes, if an old version of this central note is implemented but having at least the DVM related notes implemented is a good starting point.

Infrastructure Preparation:

The activities in this section:

Configure the System Landscape Directory (SLD) and the Landscape Management Database (LMDB) synchronization, as well as setting up BW.

It is important that the Solution Manager infrastructure is ready for the DVM configuration scenario and that the relevant managed systems that will be monitored using the DVM Launchpad Group are made available in Solution Manager.

Basic Configuration

The activities in this section:

Configure the basic scenarios in SAP Solution Manager (like SAP EarlyWatch® Alerts, maintenance optimizer, …) and need to be performed after a new installation and after an upgrade, to perform delta configuration.

The important activity in this section is that you create the Data Volume Management configuration user to configure the Data Volume Management scenario. This user will have all required authorizations to run through the Data Volume Management configuration.

2.2 Configuration of Managed Systems

To enable your SAP Solution Manager system to access the other systems in your landscape, you need to perform all mandatory steps of the Managed Systems Configuration scenario in SAP Solution Manager Configuration (transaction `SOLMAN_SETUP`). As part of this scenario, you connect the systems in your landscape to SAP Solution Manager so that you can include them in the scope of any analyses or monitoring operations.

Note

You need to perform the Managed Systems Configuration scenario individually for each system that you want to connect to SAP Solution Manager. A well-defined system will have green lights in all areas such as

RFC Status
Auto. Conf. Status
Plugin Status
System Status

For more information, see the corresponding help texts in the guided procedure.

A critical step in the configuration to enable the DVM launchpad group to operate correctly, is to ensure that all the required RFCs are available, working and have the correct level of Authorization.

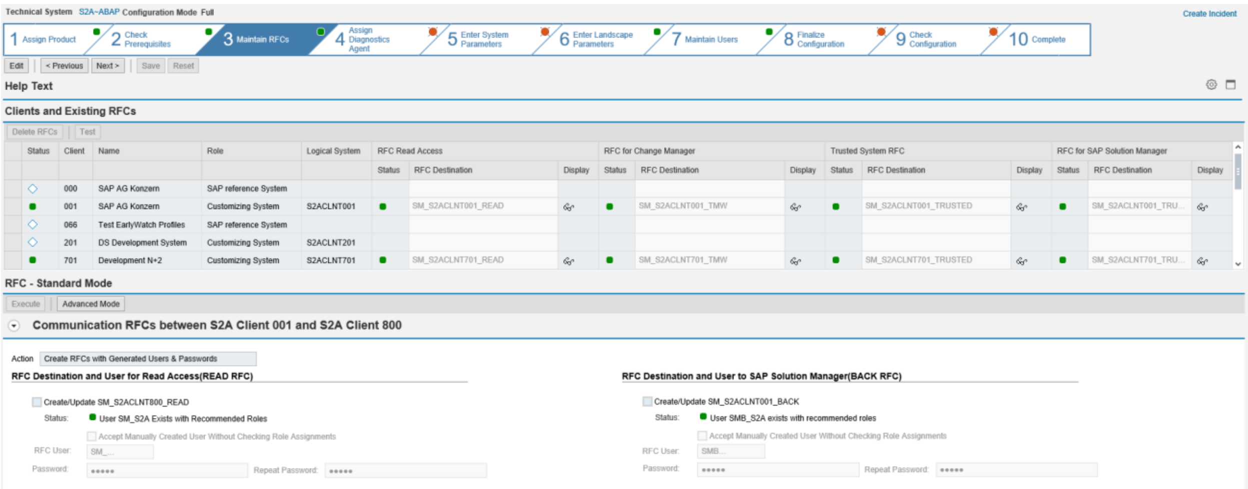


Figure 2: Maintaining RFCs in Managed System Configuration

Required RFCs: Read RFC, TMW RFC

Optional RFCs: Login RFC, Trusted RFC

1265134 - DBA Cockpit: Connection of a remote database.

Another critical step is to enable the DBACockpit connection. This allows the system to use the preferred extractor DVM Size Statistics Extractor (DBCON). This is the only supported connection for the DVM Size extractor from Solman 7.20 SP05 onwards. The DBCON is available from Solman 7.10 SP12.

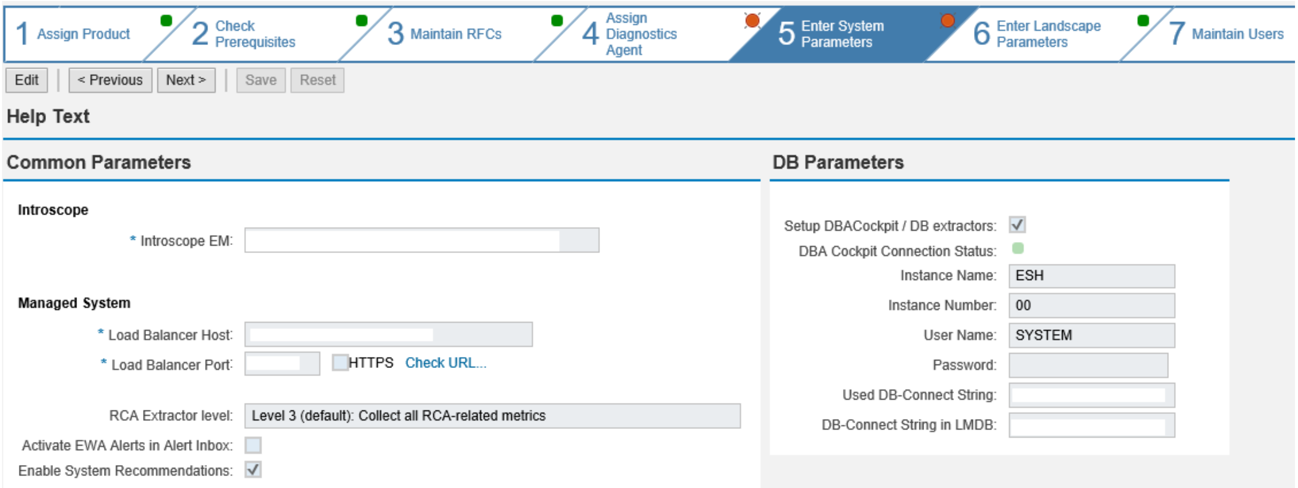
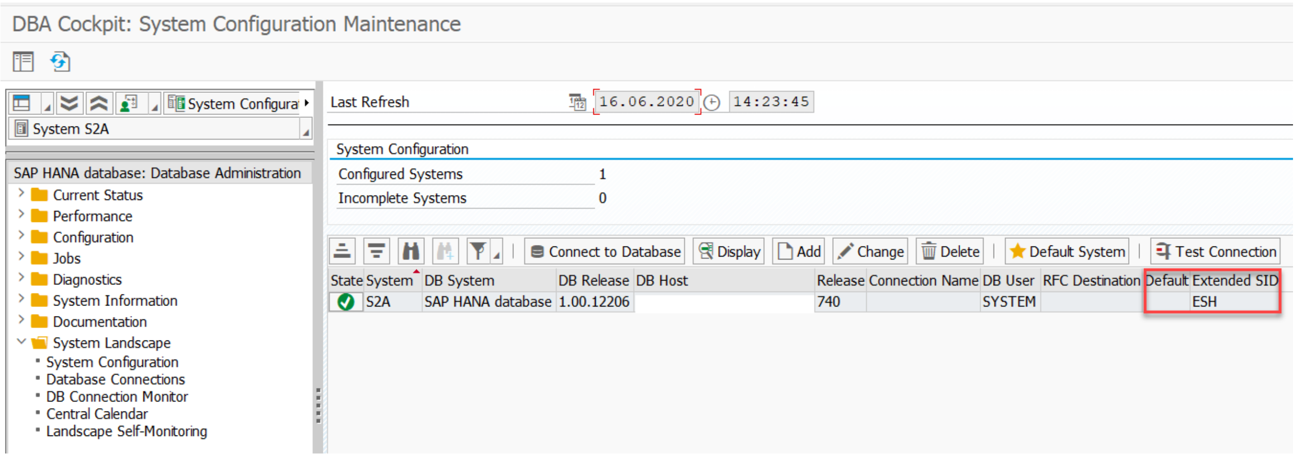


Figure 3: Establishing the DBACockpit connection in Managed System Configuration

Combined with the DBACockpit connection you need to have a correctly defined DB connection (ensure the Extended SID is maintained).



2.3 Configuration of Data Volume Management

2.3.1 New Installation

After performing the initial configuration, you can perform the Data Volume Management scenario in SAP Solution Manager Configuration (transaction `SOLMAN_SETUP`). As part of this scenario, you activate the DVM infrastructure e.g. BW Content & DVM Content including the various extractors. Step 1 - Managing System Preparation and Step 5.1 - Configure Infrastructure: Check Prerequisites - are the key steps to ensure that the systems are correctly setup from a technical perspective. Step 5.2 - Configure Infrastructure: Activate - is critical for collecting the data from the managed systems and populating the relevant DVM related infocubes.

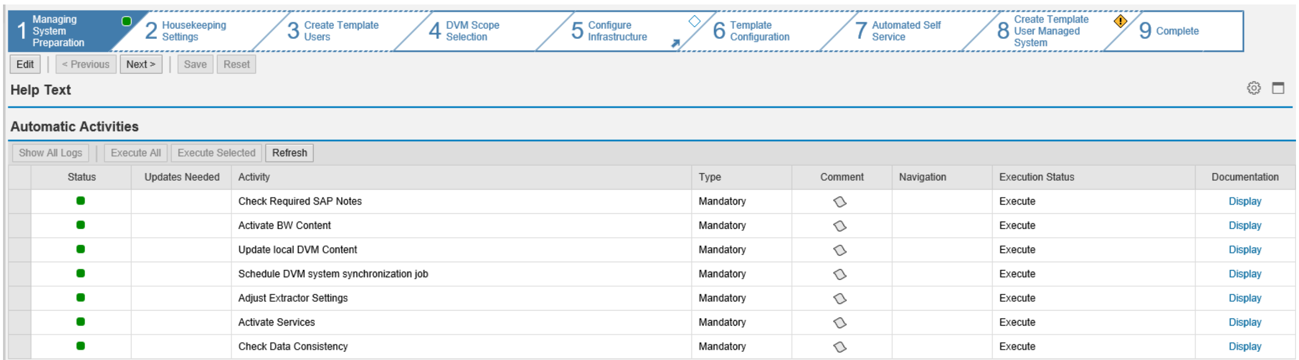


Figure 4: Configuring the DVM scenario-Guided Procedure

2.3.2 Technical Prerequisites

After completing the configuration scenarios, you need to make sure that your managed systems and SAP Solution Manager System meet various technical requirements. For example, there are some compulsory SAP Notes and plugins that you need to implement.

To help you with this process, SAP provides the report `RTCCTOOL`. The report checks your system for certain technical requirements and displays a list of recommended SAP Notes, plugins, support packages, and so on.

For more detailed information on using report `RTCCTOOL`, see SAP Note 2115736.

The RTCCTOOL report is executed via the activity Check Recommended SAP Notes in Step 1 - Managing System Preparation and Step 5.1 Check Prerequisites. Alternatively, it can be called directly in the system via SA38 or SE38 - ensure that the settings are set to "Prepare for DVM (Data Volume Mgmt) service ?". This automatic activity checks locally in your SAP Solution Manager or Managed system for scenario-specific, recommended SAP Notes.

To prepare your SAP system to use any data volume management functions, you can implement the recommended SAP notes in your SAP Solution Manager System and Managed systems, to avoid issues in the configuration procedure.

Activate BW Content

		Activate BW Content	Mandatory

This automatic activity activates the InfoCubes, aggregates, Web templates, and queries for the Data Volume Management application.

It activates all objects in the info area SAP Solution Manager (0SM_SSM) -> SAP Solution Manager -> Data Volume Management (0SM_DVM). If automatic activation fails, check the authorizations specified below.

Only SAP Solution Manager Administrators can activate the BI Content InfoCube. The following roles are required:

SAP_BW_CCMS_SETUP for the BI system

SAP_SM_BASIC_SETTINGS for the Solution Manager system

After executing the activity check the log.

Log with 1 messages for Activity Activate BW Content

View: [Standard View] | Export | Refresh | Show: All

Type	Activity	Message	Date
	Activate BW Content	BW content activated	17.06.2020

If there are any errors shown they need to be rectified. Usually there are no errors in this step as the status simply relates to the job that is used to trigger the activation job. Therefore, it is also advisable to check the job log (SM37) of the program CCMS_BI_SETUP. Ensure that the log relates to the scenario DVM.

Job log overview for job: CCMS_BI_SETUP / 10131800

Date	Time	Message text	Message class	Message no.	Message type
17.06.2020	10:13:18	Job started	00	516	S
17.06.2020	10:13:18	Step 001 started (program CCMSBI_SETUP_CONTROLLER, variant , user ID SM_BW_ACT)	00	550	S
17.06.2020	10:13:18	Job CCMS_BI_SETUP_20200617101318 successfully scheduled.	00	001	S
17.06.2020	10:14:29	RUNNING: Current Status: RUNNING	00	001	S
17.06.2020	10:14:29	INFO: Job CCMS BI SETUP successfully scheduled	00	001	S
17.06.2020	10:14:29	INFO: Scenarios to be Activated: DVM	00	001	S
17.06.2020	10:14:29	INFO: 757 0020	00	001	S
17.06.2020	10:14:29	INFO: Setup step SPECIAL_CHARS started (17.06.2020 10:13:24)	00	001	S
17.06.2020	10:14:29	INFO: 720 0009	00	001	S
17.06.2020	10:14:29	INFO: Setup step SPECIAL_CHARS complete (17.06.2020 10:13:24)	00	001	S
17.06.2020	10:14:29	INFO: Setup step CONTENT_REPAIR started (17.06.2020 10:13:24)	00	001	S
17.06.2020	10:14:29	INFO: Setup step CONTENT_REPAIR complete (17.06.2020 10:13:24)	00	001	S
17.06.2020	10:14:29	INFO: Setup step ACTIVATE_INFOOBJ started (17.06.2020 10:13:24)	00	001	S

It is advisable to check the following ST02 memory parameters to improve general performance. It is advisable to adjust the parameters per system to avoid a high number of buffer swaps. A general value recommendation is not possible.

zcsa/table_buffer_area

zcsa/db_max_buftab

rtbb/buffer_length

rtbb/max_tables

Update Local DVM Content

		Update local DVM Content	Mandatory

This automatic activity updates the local Data Volume Management (DVM) content. Before setting up analyses for Data Volume Management, the SAP content must be up-to-date in your SAP Solution Manager system and all managed systems.

The system sends an RFC call to the SAP OSS system to start downloading the latest content. The download is approx. 200 kb of data.

Schedule DVM system synchronization job

●		Schedule DVM system synchronization job	Mandatory

This activity schedules the job SM: CHECK_DVM_SYSTEMS. This job runs daily around 1 am.

This job checks all the managed systems configured in DVM and turns on DVM functionalities automatically, which are suitable for the managed system.

- If a managed system has migrated its database from any DB to HDB, the DVM aging-related extractors are activated for this system.
- If a managed system is using BW functionalities, this system is displayed in DVM BW SAP Fiori apps.

This automatic activity also deletes background jobs that are no longer required, for all DVM scenarios, starting from SAP Solution Manager 7.20 SP02.

The following jobs are deleted:

SM:DVM PROJECT PRECALC

SM:DVM PROJECT PRECALC IMMEDIATE

SM : AGS_DVM_TIME_CORRECTION

SM:AGS_DVM_EFWK_AUTO_ADJUST

Adjust Extractor settings

●		Adjust Extractor Settings	Mandatory

This automatic activity adjusts the extractor settings and configuration to match any changes you make to the default settings. For example, if you change the default settings while extractors are running, this activity adjusts the settings and values of the active extractors to match the new default settings.

This activity only takes a few seconds.

Activate Services

●		Activate Services	Mandatory

In this automatic activity, you activate all required services for the dashboard, including the number-range objects.

Services:

E2E_ICIDB_ODATASERVICE

ici_dashboard

ici_configapp

City Model dashboard

Number Range Objects:

E2E_ICIKPI

E2E_ICITO

E2E_ICIGR

Check Data Consistency

●		Check Data Consistency	Mandatory

This activity performs high-level data consistency checks on various InfoCubes in the data volume management. If there have been data extraction or technical issues in the past, some data may have been extracted incorrectly, and may cause confusion in reporting, or even wrong results.

This activity checks the data consistency of the data extracted into the BW. Depending on the findings, the related cleanup report is triggered in batch. The job name will be displayed in the log area.

Depending on the number of inconsistencies to be cleaned up, the job might take between several hours and even several days. The report will not harm any activity in the related functionality, so users can continue working normally in the applications for data volume management.

2.3.3 Upgrade

When you upgrade your Solution Manager i.e. the ST component, it is important to ensure that the features and functions of the DVM launchpad group still work as designed and intended. Depending on the software release you are upgrading to some features may be enhanced, moved or in some cases may become obsolete. One area that can be prone to change is the BW queries used to fill the dashboards in the DVM launchpad group.

For these reasons we advise a full execution of the configuration steps (SOLMAN_SETUP) for the DVM scenario. Specifically we recommend to

1. Check and implement new DVM notes
2. Update DVM BW content
3. Execute activity "Adjust extractor settings"
4. Update the DVM roles (for display and admin related roles)
5. Per managed system check for new SAP Notes using either RTCCTOOL on the remote system or from the guided procedure in the SOLMAN_SETUP for DVM.

In tandem with the above we suggest that you keep a careful watch on the Housekeeping settings and activities.

1. Maintain the housekeeping settings for different DVM cubes (Step 2 - Housekeeping Settings)
2. Check the spool of E2E BI HOUSEKEEPING job to check whether the housekeeping for DVM cubes are successful or not.
3. In case there are incorrect results (e.g. much larger size values reported in the DVM launchpad group functions than shown in the DB02 of the managed system) it is advisable to run the Cleanup utility: RAGS_DVM_CLEANUP_UTILITIES. This report identifies duplicate data in the infocubes and can be used to delete them too.

3 The Data Volume Management Launchpad Group

After completing the mandatory configuration and ensuring that your SAP Solution Manager system and managed systems meet all prerequisites, you can start to use the basic features of the Data Volume Management (DVM) launchpad group. The DVM launchpad group is the central point of access for all features related to managing the amount of data across your entire landscape.

This section describes the SAP best practices for data volume management starting from the first time you open the DVM launchpad group. If you cannot open the DVM launchpad group then check your authorizations to ensure that you have the required access.

Note

As of Solution Manager SP07, the DVM Work Center has been migrated to the SAP Solution Manager Launchpad. Since then, the DVM Work Center has been renamed as the DVM Launchpad Group. A tile-based view provides access to the features and functionality.

Opening the Data Volume Management Launchpad Group

To open the launchpad group, in your SAP Solution Manager system, go to transaction `SM_WORKCENTER` → Data Volume Management. You are initially presented with an overview of all the views available in the launchpad group.

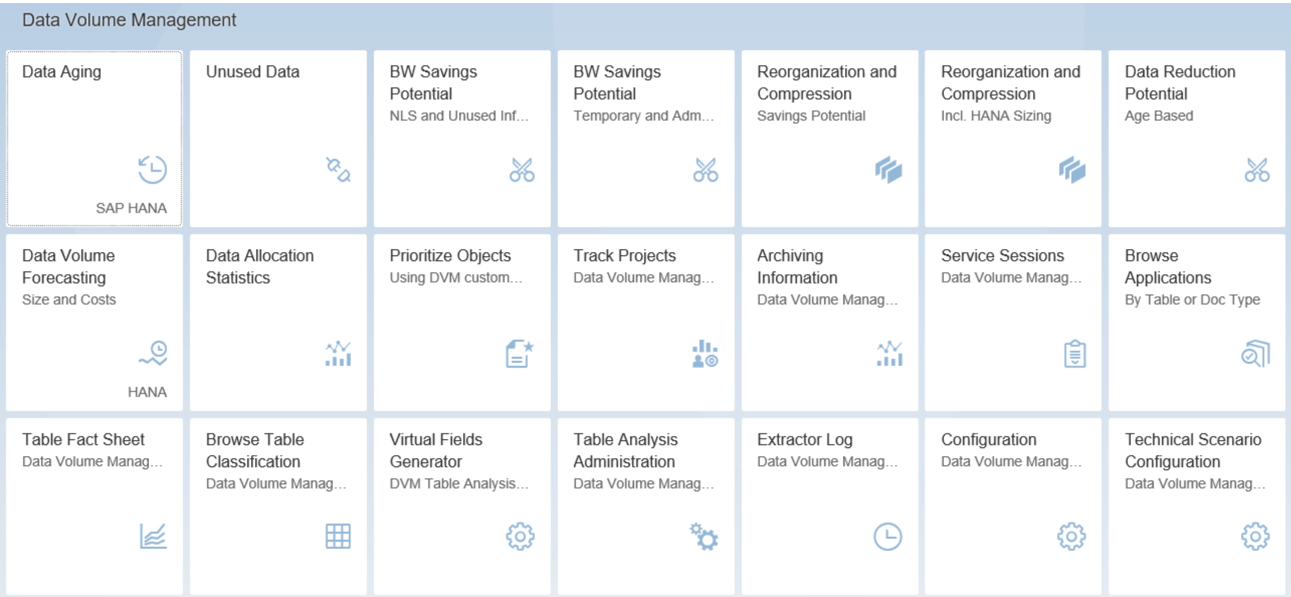


Figure 5: Overview of the Data Volume Management Launchpad Group

For more information about the Data Volume Management Launchpad Group, see the SAP Help Portal at https://help.sap.com/viewer/2280273f45054d318142b271b06a03c1/7.2.07/en-US/22b6bda642684c5189ef1ab21022b773.html

3.1 Common Mistakes

The DVM launchpad group provides a number of powerful tools that can generate anything from a high-level overview of the data across your landscape down to a detailed technical insight of specific tables and objects on individual systems.

A common mistake made by first-time users is to schedule broad-ranging analyses and then attempt to manually evaluate huge amounts of low-level information at once. Due to the amount of tables involved, even in a relatively simple landscape, this approach is both time consuming and intensive on resources. Most importantly, the results of this kind of analysis are likely to be practically unusable.

Performing analyses in this way effectively defeats the purpose of the launchpad group and related tools. SAP strongly recommends that you follow the best practices described in this guide to ensure that you gain the maximum benefit from the data volume management features of SAP Solution Manager.

When configuring the DVM scenario (using transaction SOLMAN_SETUP) SAP has delivered a suite of templates to assist in the analysis process. These templates contain the parameters required to analyze the most common tables relevant to DVM in the related application e.g. there is a template for Financial Accounting. It has 15 tables included in the template. Used correctly, this template will create the relevant Age of Record analyses for the target system and provide you with a time-based profile of the Financial Accounting data in that system. Used incorrectly, this template will create analyses in the target system, that either provides no results - because there is no data in the Financial Accounting tables (e.g. a BW system) or leads to confusion, as you wonder why there are no results produced. So, avoid the mistake of activating all templates during the configuration stage, and only activate them in the relevant circumstances.

Template ID	Table Name	Analysis Type	Execution Mode
DVM_TMPL_FI	ACCTIT	AGE	COLLECTIVE
DVM_TMPL_FI	BKPF	AGE	COLLECTIVE
DVM_TMPL_FI	BSAD	AGE	COLLECTIVE
DVM_TMPL_FI	BSAK	AGE	COLLECTIVE
DVM_TMPL_FI	BSAS	AGE	COLLECTIVE

After successfully activating the extractors some dashboards are immediately available for use. The main example is the Data Allocation Statistics suite of dashboards from the Data Allocation Statistics function.

Other dashboards require you to execute specific actions in order to be populated. For example - Time Based Data Distribution (of the Data Allocation Statistics/Data Reduction Potential function) requires that you create an Age of Record determination analysis using the Table Analysis Administration function. The Potential Savings dashboards (of the Data Reduction Potential function) require that you create a Saving Potential analysis using the Table Analysis Administration function. The archiving dashboards are only populated if you have archived data from the managed system(s).

Executing dashboards/reports. The first time you execute a dashboard it may take some time for the data to load. It may appear as if nothing is happening and you are tempted to press the execute button repeatedly.

To avoid this, it is recommended to open the dashboard in a separated window (not embedded). This does not speed up the process, it simply allows you to continue working with the DVM launchpad group while waiting for the data load to complete in the other window. When you press the execute button, a request is sent to the BW. Technically a query is executed to fetch the data, once the data is loaded it gets parsed to be displayed in the browser window as a graphic or table.

Connecting Client 000 to the DVM Launchpad Group

Customers often ask if it is it advisable or beneficial to connect the DVM launchpad group to client 000 on the productive system.

The answer is an emphatic No. Connecting to client 000 is not supported by the DVM launchpad group. To connect to any client, you need a working RFC with proper Authorizations. Client 000 is delivered as an SAP reference client where nothing should be changed.

Our DVM analysis tools will execute analysis jobs on the connected client. As there is no productive data in client 000, we do not want to execute analysis jobs on this client. Also, we do not want you to create additional users / roles in client 000.

How to proceed when connecting to the production client is not allowed?

In the case that you either don't want to (for Operational reasons) or are not allowed (for security reasons) to connect to the production client, the other options are to connect to a separate system/client that is a copy of the production system/client. The downside of this approach is that the data is only as current as the most recent copy of production and the archiving statistics data will not be from the production client/system.
The other option is to connect to the productive system, but neither to a productive client nor client 000. In this case you will get the up to date size statistics, but the archiving statistics will not be from the productive client.
The archiving statistics information is client dependent and all other statistics are client independent.

3.2 Extractor Framework

In SAP Solution Manager, the extractor framework is the central infrastructure for data collection and distribution. In simple terms, you schedule extractors which run at a particular interval and collect certain information about the system. For example, there is a weekly extractor that collects information about the size of tables.

> **Note**
>
> By default, the data collected by the extractors is stored in the BW component of your SAP Solution Manager system. However, if you use a remote installation of SAP BW, the data is stored in the BW component of the remote system.

The DVM launchpad group uses the BW data provided by these extractors. You activate the DVM extractors in the Data Volume Management scenario of SAP Solution Manager Configuration (transaction `SOLMAN_SETUP`). Some extractors run as soon as you activate them in the configuration and their data is available almost immediately. However, other extractors are scheduled to run later or rely on data extracted over a particular period of time. As a result, some types of analysis are not available initially.

The individual extractors are explained in more detail later in this document in the context of their related functions.

3.2.1 Extractor Administration

You can monitor the extractors in your systems using the Extractor Administration tool. You access the tool using transaction `E2E_EXTRACTOR_FWK` or directly in the DVM launchpad group by choosing the Extractor Log function. If you choose the Extractor Log function in the DVM launchpad group, the list is filtered so that only extractors related to DVM are displayed.

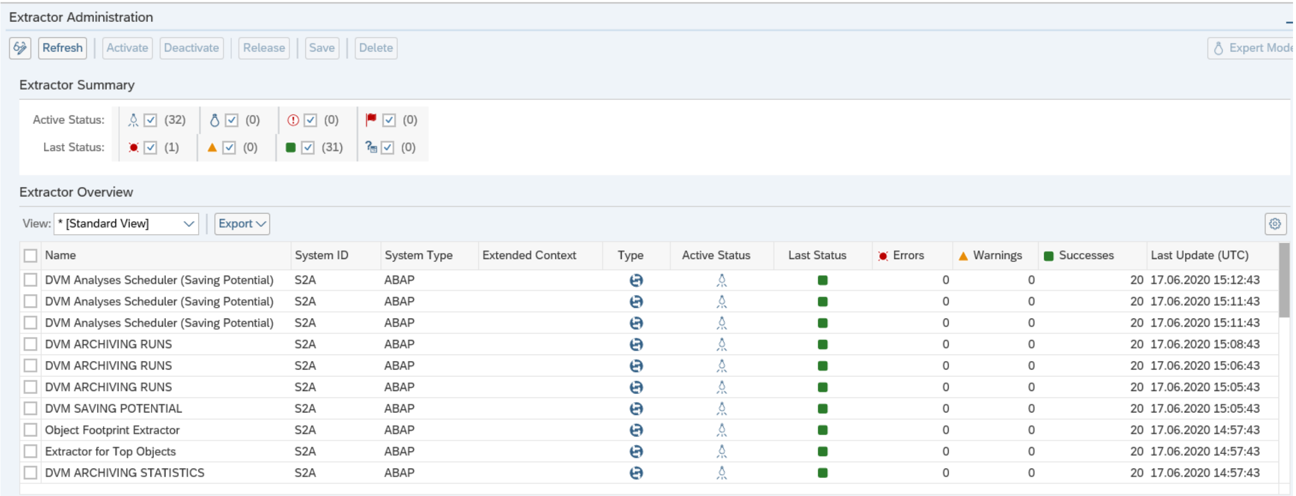


Figure 6: Extractor Administration Tool

The list shows an overview of all DVM-related extractors that are available for the system, as well as information about their status and whether they are currently active.

3.2.2 Extractor Runs

If you select an extractor, a more detailed log view opens.

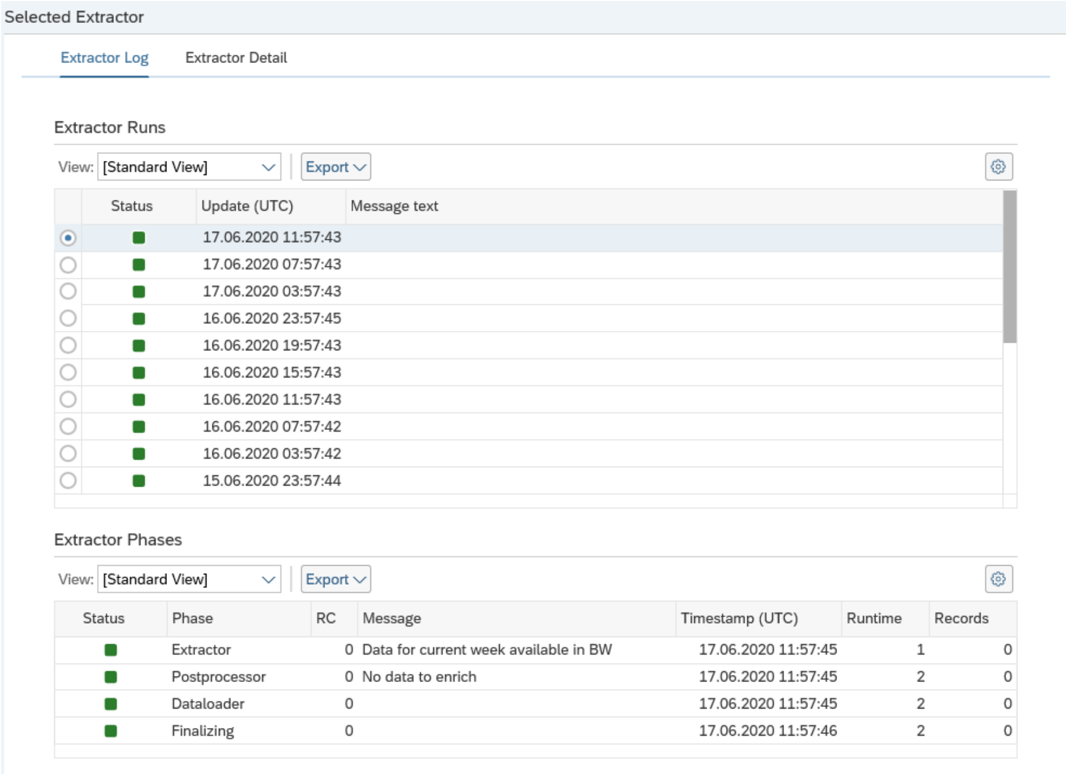


Figure 7: Extractor Log

The log displays detailed information about each time the selected extractor has run. Each run consists of the following phases:

Phase	Description
Extractor	The extractor runs on the managed system or SAP Solution Manager system according to its predefined frequency. If no new data is found, or if the previous run was successful, the extractor returns the status that the current data in the BW is up to date. If new data is identified, this new data is sent for postprocessing.
Postprocessor	The data collected by the extractor is received and enriched with information from SAP Solution Manager.
Dataloader	The data is written to the related data target, for example, an InfoCube, table, or DSO.
Postdataloader	For some extractors, an additional dataloader phase is necessary after data is written to the data target.
Finalizing	The data is made available for reporting in the DVM launchpad group

Multi-Client Systems

Multi-Client systems, that is, systems with multiple production clients, are supported by the DVM launchpad group. However, during the configuration, you activate both system-dependent and client-dependent extractors. System-dependent extractors cannot be scheduled to have different runs for each client. Therefore, even if your system has five production clients, each extractor run contains data from all five clients. This affects which extractors appear in the Extractor Administration tool. For example, you only see client-dependent extractors for the client you are currently using.

3.2.3 Extractor Frequency

As a precaution, extractors actually run more frequently than their intended granularity. That is, when you select a weekly extractor, in the log view you expect that there will be one run recorded for each week. However, the log might actually contain more entries. The reason for this is to reduce the risk that no data is collected for a given period.

For example, if the extractor only took a snapshot once per week, an unexpected system downtime at this time would mean that the extractor could not take a snapshot. As a result, you would have no accurate data in the BW for that entire week.

To avoid this situation, a weekly extractor might run every four hours so that, in the event of a short downtime, the most recent snapshot is potentially only four hours old. The extractors are intelligent enough to know if a successful snapshot was taken and thus avoid duplication.

3.3 Classification

As systems can contain a huge number of tables, working with statistics on a table level is often unmanageable and ineffective. Therefore, SAP Solution Manager uses classifications to group tables based on their relation to common components in your landscape. Using classifications, you can work with your data on a much higher level, which helps you to generate clear statistics and reports that you can use to interpret the flow of data across your landscape.

3.3.1 Technical Details for Classification

DVM Classification Data Extractor	
Technical Name	`AGS_DVM_CLASSIF_TAB_EXTRACT`
Frequency	24 Minutes
Functional Logic	Reads classification data, such as document type and application area, from the managed system and writes the data to table `AGSDVM_CLASSREPO` in the local SAP Solution Manager system. This provides much faster access to the classification data than reading the data directly from the BW.
Mandatory Dependencies	None
Optional Dependencies	None

3.3.2 Classifying Tables

SAP tables are automatically classified during the extraction process based on the application components in the ABAP Data Dictionary (DDIC). However, you need to classify custom tables manually. You can also manually override the automatic classification of SAP tables.

It is important to classify tables in the lowest level component that makes sense. The more specifically you classify your tables, the more benefit you will gain from the tools in the DVM launchpad group.

You have several options for classifying tables.

> **Note**
>
> Any changes you make to the classification are only saved locally until the next extractor run.

Using the Classification Browser

You can classify tables manually using the Table Classification Browser. To access the tool, select the Browse Table Classification function from the DVM launchpad group

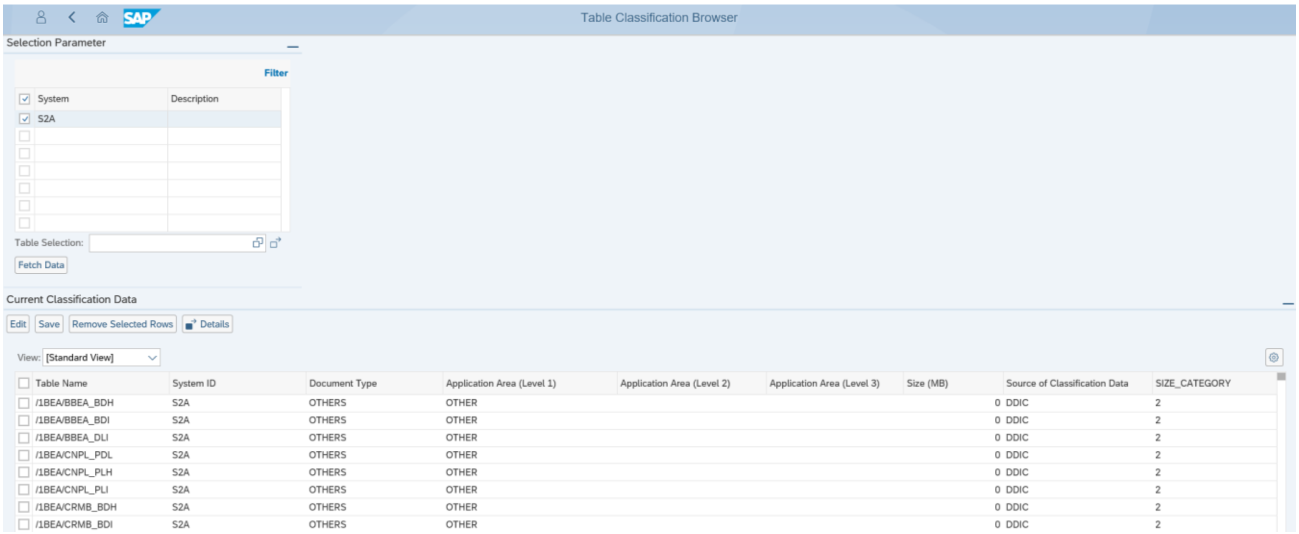


Figure 8: Classification Browser

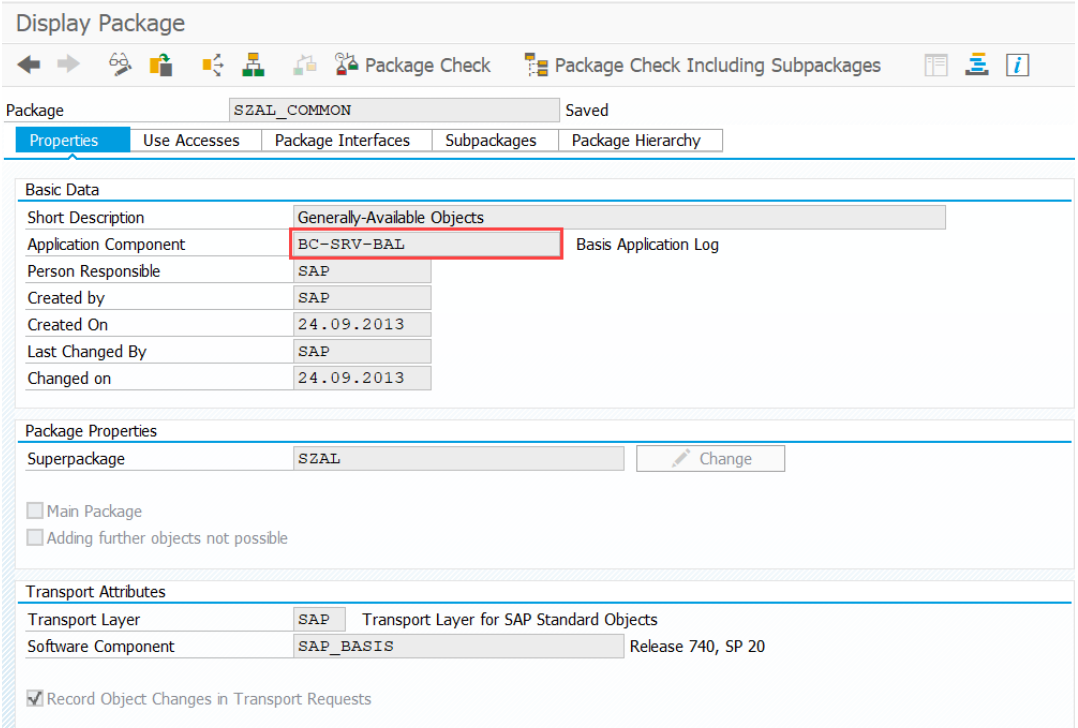
To change the classification of tables, proceed as follows:

1. In the browser, select a system and choose Fetch Data.
   A list of all tables in the system appears, along with their related classification, such as document type and application area. For custom tables, all of the columns contain the value CUSTOM until you manually add a classification.
2. Select a table and choose Edit.
3. For each editable column, enter an appropriate value to either overwrite the automatic classification or add classifications to your custom tables.
4. Choose Save to confirm your entries.
5. To revert to the standard classification, select a table and choose Delete. This just deletes the classification, not the table itself.

Using the ABAP Data Dictionary

Another way to change the classification of tables is to make the changes directly in the ABAP Data Dictionary (DDIC). Proceed as follows:

1. Go to the ABAP Data Dictionary (transaction `SE11`) and open the table that you want to classify.
2. On the Attributes tab page, double-click the value in the Package field. The Display Package screen opens.
3. On the Properties tab page, select the Application Component field and press `F4` to open the input help. A dialog opens containing the structure of all your application components.
4. Drill down in the structure and select the appropriate component.
5. Save your entries.



Figure

9: Classification Using ABAP Data Dictionary

Using Custom Code Lifecycle Management

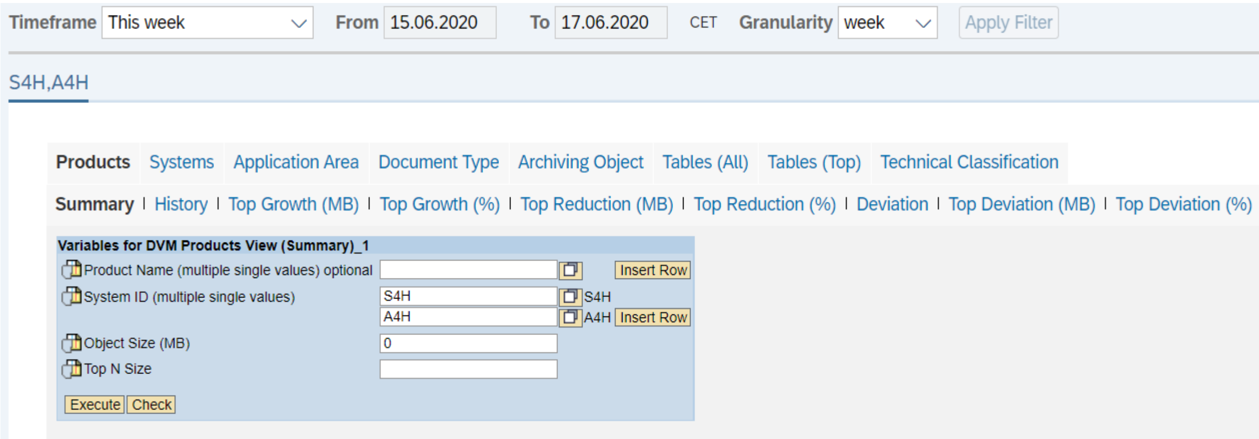
If you have completed the Custom Code Management scenario of SAP Solution Manager Configuration (transaction `SOLMAN_SETUP`), you do not need to manually classify custom tables. Instead, the classification is derived based on the results of the SAP References in Custom Code extractor. For more information, see the documentation for Custom Code Lifecycle Management.

> **Note**
>
> User-defined values take priority over all other values. Therefore, any tables that you have manually classified before running the extractor will not be affected.

3.4 Working with Analytical Dashboards

In many of the views in the DVM launchpad group, you use analytical dashboards to generate graphs, charts, and tables based on BW data. When you first open one of the dashboards, no data is displayed, so you need to load the data from the infocubes by clicking on the link Click here to load data from Business Warehouse. After clicking this link a set of relevant input parameters (variables) open up and you can enter your selections there. Due to the large amount of data that you can load in this tool, we recommend restricting the data by entering values for the variables before loading the data from the BW.

Figure 10: Example of Input Options for Analytical Dashboards



Depending on the dashboard that you selected in the launchpad group, different combinations of entry options are available. In the first row of entry options, you select the classification of entities in your system landscape. The options are listed in order from highest level to lowest level. Each classification has a second row of entry options, which are the key figures you want to display. For example, you could generate a graph showing which products in your landscape have the top growth percentage this month.

> **Note**
>
> It is important to select a logical combination of timeframe, granularity, and entry options. For example, if you want to see a summary of the current size of your systems, it does not make sense to select the last 12 months as the timeframe. Instead, you should select data from this week with a weekly granularity because this selection returns the most recent data. By default the "Summary" dashboards provide the latest set of results. However, for historical analyses, 12 months of data with a monthly granularity makes more sense.

The information is only loaded from your BW component when you explicitly confirm that you are satisfied with your selected options. To further filter the results, you can also enter different variables depending on the options you selected. The following process is widely used across the DVM analytical dashboards:

1. Select a timeframe and granularity.
2. Select entry options to determine which charts or graphs you want to generate.
3. When you are satisfied with your selection, choose the link to load the data from your SAP Business Warehouse.
4. If you think your selections are likely to return a large amount of data, you can further filter your selection by entering variables. Enter any variables and choose Check to make sure your entries are valid.
5. Choose Execute to generate the charts, graphs, or tables associated with your selections.

Note

If you selected a very broad range of statistics, it can take a long time to generate the graphs.

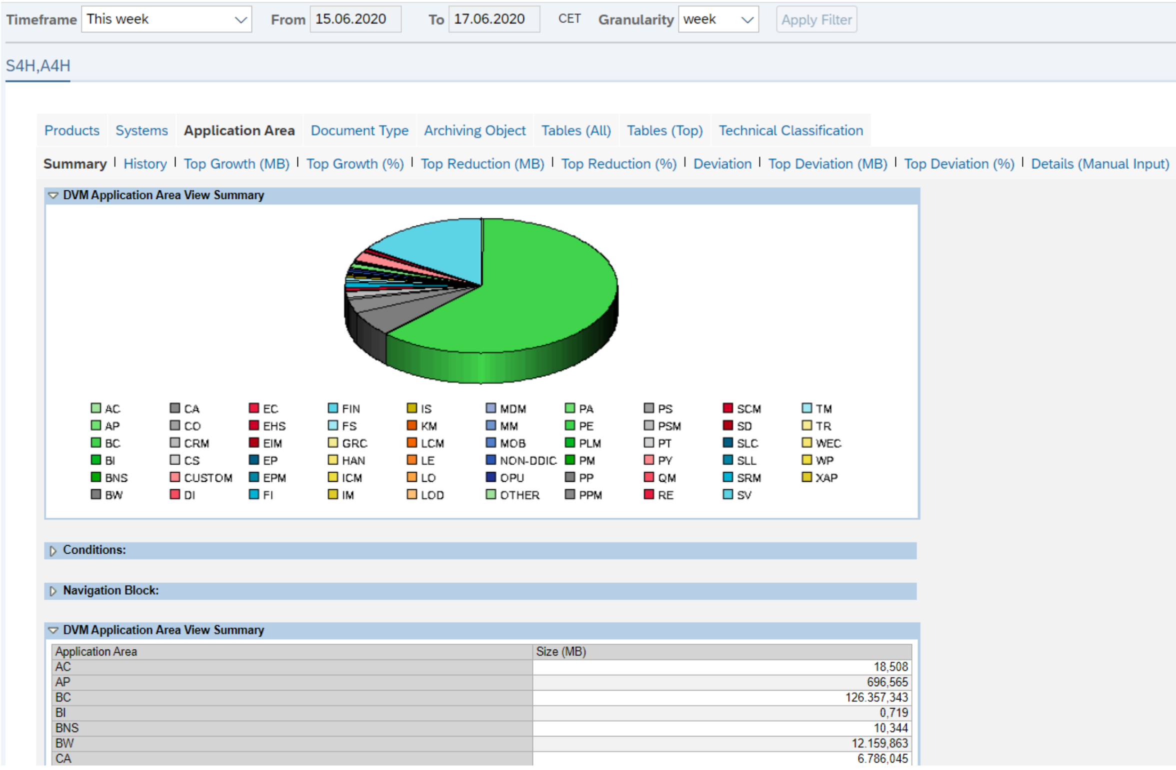


Figure 11: Example of a Chart Generated Using Analytical Dashboards

Context-Specific Features

Using the right mouse-button, you can access a context-specific menu to help you work with the generated statistics. For example, the following context-specific features are available:

Sort: Sorts a column in ascending or descending order

Drilldown: Provides more detail about the statistics by displaying lower level categories in a tree structure. For example, you can drill down to show the size of each second-level application area.

Filter and Drilldown According to: Similar to Drilldown, except the results are filtered so that only the lowest selected level is displayed.

Back to Start: Removes any filters or drilldowns you have set and returns to the initial results screen.

3.4.1 Data Allocation Statistics View

From the Data Allocation Statistics function of the DVM launchpad group, you can use analytical dashboards to display granulated statistics about the data in your landscape. The statistics are divided into the following focus areas:

- Data Allocation Statistics
- Table Utilization Statistics
- Time-Based Data Distribution
- Business Object Footprint

Initially, only data allocation and table utilization statistics are available because they are based on data collected by extractors that you scheduled during the configuration process. To populate other dashboards, you need to configure and schedule specific analyses using the Table Analysis Administration tool in the DVM launchpad group (see the chapter Determine the Age Profile of Data for more specific information).

The analytical dashboards use this data to generate graphs, charts, and tables that you can adapt to drill deeper down into interesting statistics.

To open the statistics, you select a technical system or a DVM Scenario & choose one of the focus areas, for example, Data Allocation Statistics.

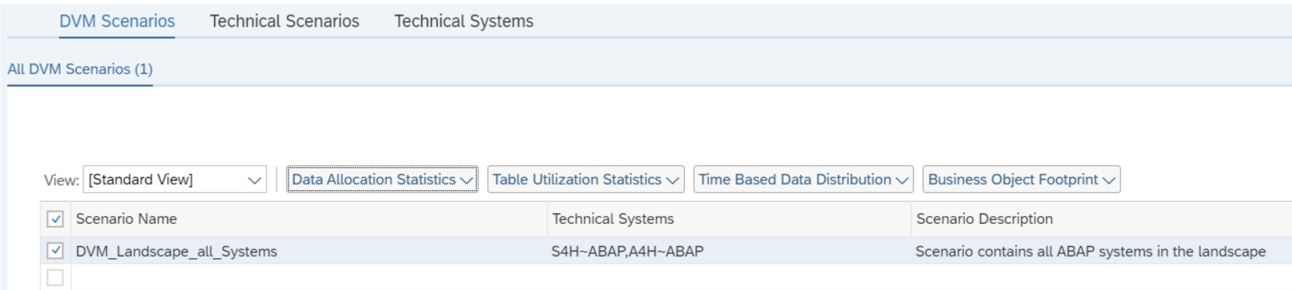


Figure 12: DVM Scenario

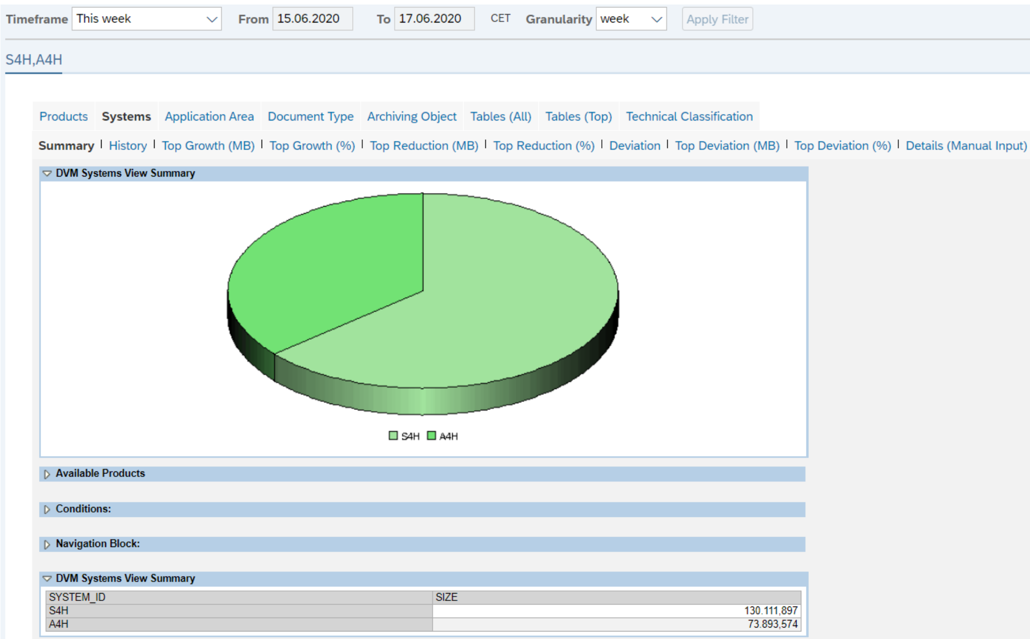


Figure 13: Statistics and Trend View by System

You can open the statistics either embedded in the launchpad or in a new window. Due to the time required to generate certain statistics, SAP recommends opening the analysis in a new window for maximum flexibility in reporting.

3.5 General Technical Prerequisites

3.5.1 Data Volume Management Technical Scenarios

Although you can perform analyses on individual systems, it is more effective to analyze data across multiple systems. To simplify this process, you can create DVM technical scenarios. A DVM scenario is essentially a group of systems on which you can perform the different analyses. For example, you could group all systems that belong to a certain business area. Then you can quickly add all of those systems to the analysis scope without having to select them individually each time you create a new analysis.

SAP recommends creating at least one DVM scenario that contains all systems for which you want to use the Data Volume Management launchpad group functions. For complex landscapes, you might need to create several DVM scenarios.

If you find that you repeatedly perform analyses on a specific set of systems, this is a good indication that you should create a DVM scenario for these systems.

3.5.2 Creating DVM Scenarios

1. On the DVM launchpad group, choose the Technical Scenario Configuration function. This will open the Technical Scenario Maintenance tool on a window.
2. To create a new technical scenario, choose Create. Alternatively, you can select an existing scenario and choose Maintain. The wizard opens in a new dialog.
3. Select the type Data Volume Management and enter a meaningful name and description to help you identify the scenario later.
4. In the next step, you select the systems to include in the scenario. To manually add specific systems to the list, choose Add Technical Systems. A list appears containing all systems that are configured for Data Volume Management. Alternatively, you can choose Add ABAP Technical Systems to filter the list. Select any systems that you want to group.

   Note

   Only ABAP systems are supported by the DVM infrastructure. Therefore, do not include Java systems in your DVM scenarios.

   For each system, the wizard also gives you the option to select roles. However, this step is irrelevant for DVM scenarios because system roles are not used by any analyses in the launchpad group. The same applies for the Define Attributes and Configure Details steps.

5. Review and confirm your entries.
   Your DVM scenario is ready to use in the DVM launchpad group.

   Note

   After creating or maintaining a DVM scenario, you might need to manually refresh the list of available scenarios within the different views of the DVM launchpad group. To do this, choose the Refresh link in the bottom-right corner.

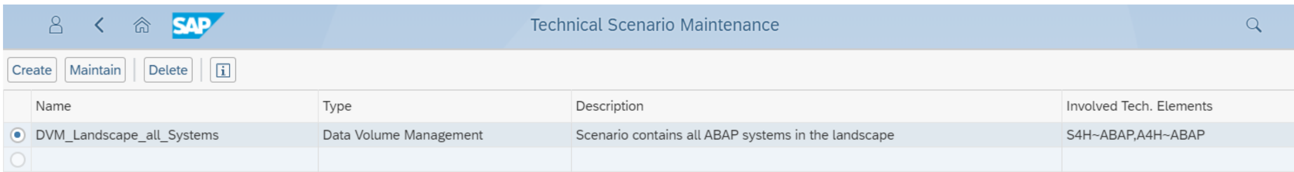


Figure 14: Example of a DVM Scenario

3.5.3 Technical Details for Data Allocation

During the configuration process, SAP Solution Manager automatically determines whether you have set up a native database connection (DBCON) and automatically decides which of the following extractors to activate. You set up the connection as part of the Enter System Parameters step during Managed System Configuration. Even if you use a DBCON, all extractors still require RFC access to the ABAP managed system in order to fetch related metadata from the DDIC.

Note

Important information about the size extractors is contained in SAP Note 2377903.

Recommendation

Each snapshot contains information about the size of all tables and indexes in the managed system. Due to this large amount of data, SAP recommends using the DBCON-based extractor wherever possible; its native access to the remote database provides much better system performance when fetching statistical data.

DVM Size Statistics Extractor (DBCON)	
Technical Name	`AGS_DVM_NEW_SIZE_EXTRACTOR`
Frequency	4 Hours
Functional Logic	Uses the DBCON to take a weekly snapshot of the size of data in the system. Checks every four hours whether a snapshot exists for current week.
Mandatory Dependencies	Classification: In the postprocessing phase of the overall extraction process, the classification data that is already stored in SAP Solution Manager is used to change classification data for all tables. If the classification extractor is not active, this data does not exist in SAP Solution Manager.
Optional Dependencies	Custom Code Management: If you have completed the configuration of Custom Code Management, custom tables are automatically classified based on the results of the SAP References in Custom Code analysis.
DVM DB Object Sizes	
Technical Name	`DVM_EXTRACTOR_SIZES`
Frequency	4 Hours
Functional Logic	Uses the ABAP RFC to take a weekly snapshot of the size of data in the system. Checks every 4 hours whether a snapshot exists for the current week.
Mandatory Dependencies	If the DBCON connection is available the AGS_DVM_NEW_SIZE_EXTRACTOR is used by default, otherwise this extractor is used.
Optional Dependencies	

Note

Please be aware that the DVM_EXTRACTOR_SIZES can only support one Solution Manager System at a time. Therefore, if you happen to have the same system connected to multiple Solution Managers, only one of those will receive the weekly update of data. The other systems will not report an error in the Extractor Framework.

3.6 Use cases of the Data Allocation Statistics View

In the following chapters we outline some of the more common use cases for the Data Allocation Statistics dashboards. This is not an exhaustive list, simply some ideas and best practices gained from our experience.

3.6.1 Initial Analysis of Your Data Allocation

When you start using the Data Volume Management launchpad group, one of the first things that you need to understand is the allocation of data in your landscape. That is, you need to identify which entities of your landscape contain significant amounts of data. This picture of the initial situation is a fundamental aspect of working with the DVM launchpad group.

A good starting point to get a high-level overview of where your data comes from is to analyze the data allocation statistics of your different application areas. You can perform this analysis directly after configuring Data Volume Management. All that is required is a successful run of the Size related extractor and loading of the data to the related infocube.

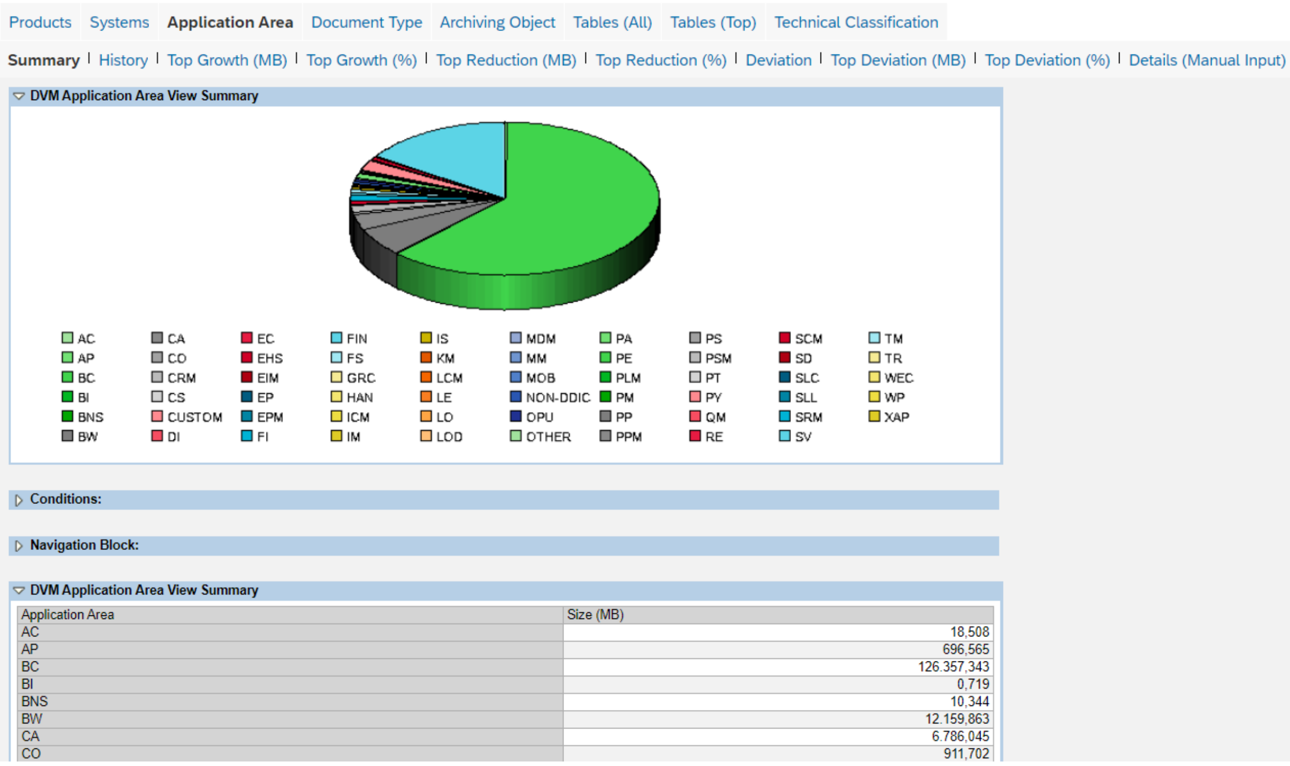


Figure 15: Example of data distributed by Application Area

Generating Initial Data Allocation Statistics

Proceed as follows:

1. Select the Data Allocation Statistics function from the DVM launchpad group and choose a DVM scenario, technical scenario or a technical system to use as the basis for your analysis.
2. Choose Data Allocation Statistics → Start in New Window.
3. Set the timeframe This Week. The granularity is irrelevant for this analysis.
4. Select the entry point Application Area → Summary and choose the link to load your data from the BW.
5. Depending on the amount of statistics you expect to generate, enter any additional variables to filter the results and choose Execute.

The system generates a pie chart showing the amount of data that currently belongs to each application area.

Analyzing the Results

After you generate the statistics about your data allocation, you can begin to analyze the results to get a feel for where your data volume comes from and what action to take next.

An application area with a large amount of data is not necessarily a bad thing if it provides business benefit. The interesting areas from a DVM perspective are those that contain large amounts of data that do not provide a benefit to the business.

The key is to identify how you can make the maximum reduction with the minimum effort. This generally involves the following process:

1. Using the sort and filter functions, identify the largest areas in your landscape.
2. Think about why these areas contain so much data and where it might come from.
3. See whether there are any large areas that you know contain data that you can reduce quickly with little or no further analysis. For example:
    - Areas containing only technical data with no impact on business functionality. Basis Content (BC) and Cross Application (CA) are usually good places to start.
    - Areas containing large amounts of clearly obsolete data that provides no real benefit to the business. For example, you might have huge amounts of extremely old log files that are no longer relevant.
    - Areas that are surprisingly big compared to expectations from a business perspective. Try to identify where this unexpected amount of data is being generated.
4. If you are not sure whether you can remove data, decide whether the effort involved in finding out is justified by the data volume you think you could save. For now, only consider areas that you know you can reduce quickly. For any areas that you are not sure about, the DVM launchpad group provides several tools to help you identify less obvious areas that it is safe to reduce. These are explained later in this guide.
5. If you are sure that the data is no longer needed, you can find the corresponding tables and archive or delete them accordingly for a quick-win data volume reduction.

3.6.2 Identify Large or Fast-Growing Objects

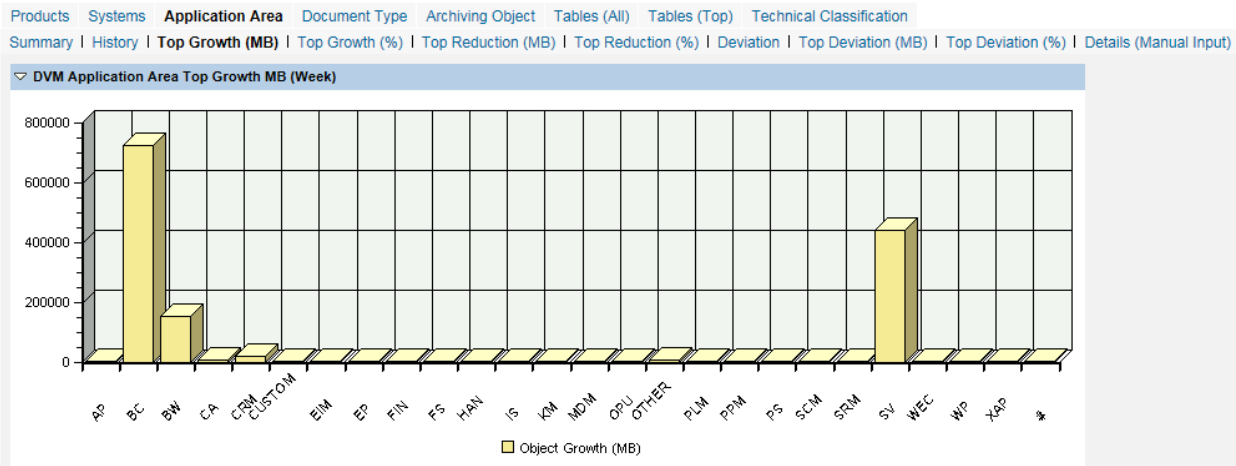


Figure 16: Example of top growing application areas in MB

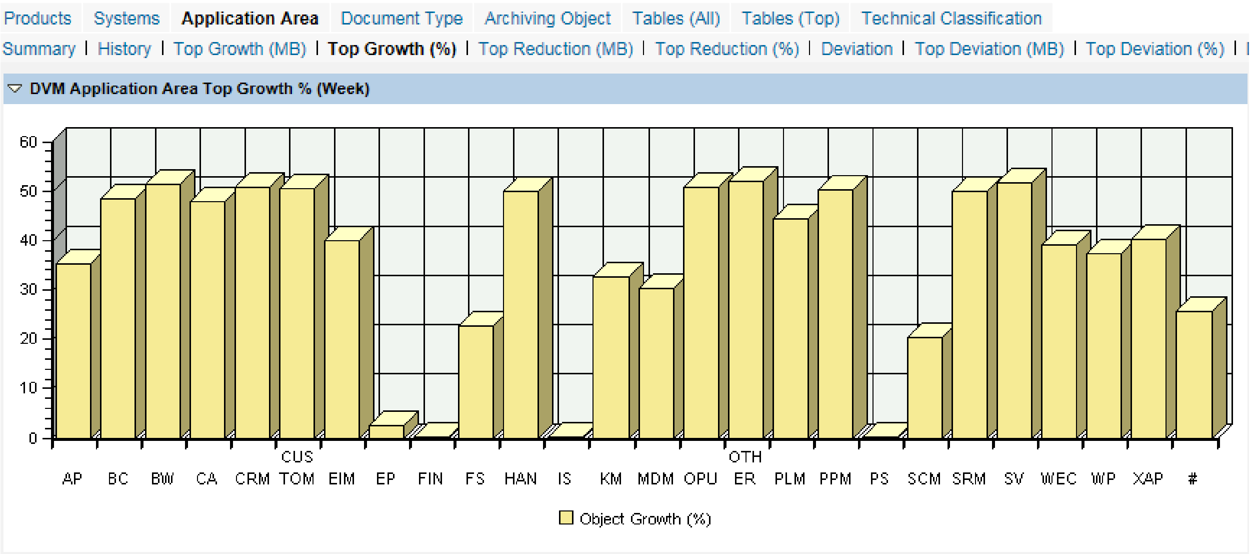


Figure 17: Example of top growing application areas in %

A range of dashboards allow you to determine the areas that show the highest growth rates in megabits or in percentage terms. Some types of analysis rely on extractors running for a certain amount of time e.g. Growth or History dashboards.

3.6.3 Determine the Age Profile of Data

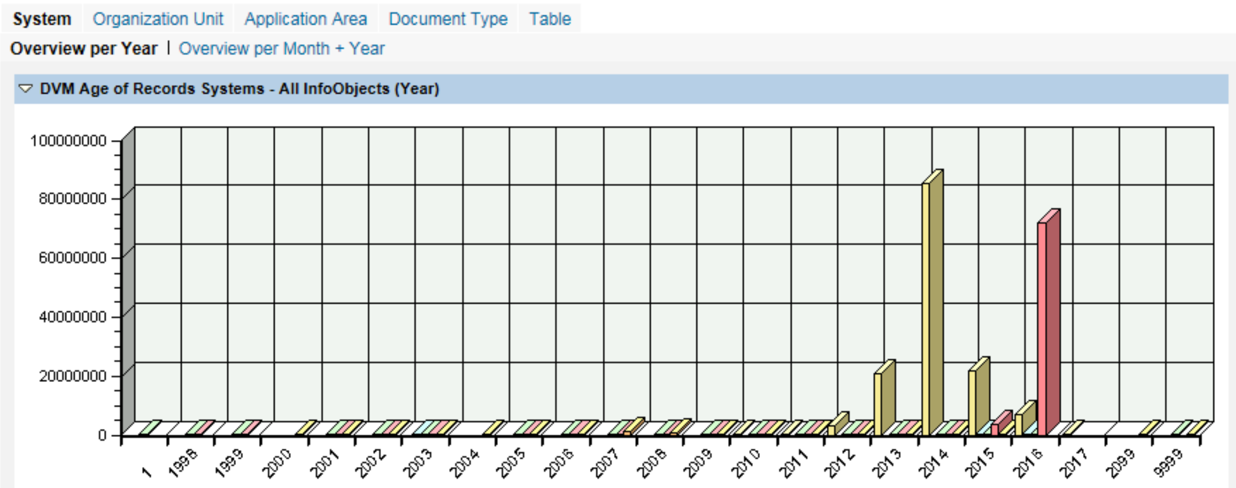


Figure 18: Example of data distribution by time

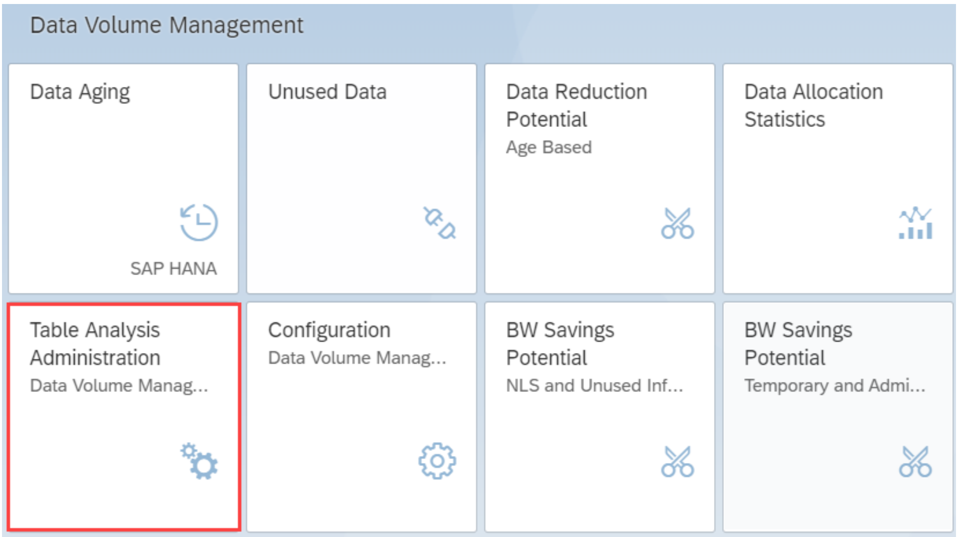
For certain tables or applications you would like to keep track of the age profile of the data so that you can see at a glance whether the data is mature enough to include in an Archiving project for example. Or you would like to check that the global DVM policy is being adopted & implemented throughout the entire business.

DVM Analyses Scheduler (Saving Potential)	
Technical Name	DVM_ANALYSES_SCHEDULER
Program/Job Name	
User	
Frequency	Every 15 Minutes
Functional Logic	Extractor to check and trigger the table analysis job (e.g. based on TAANA) in the managed system. Also does the housekeeping on existing TAANA analysis in the Managed system based on your settings in the analysis configuration (Keep One, Keep All, Delete All)
Mandatory Dependencies	
Optional Dependencies	None
Required Entries	SOURCERFCDEST (format = SM_<SID>CLNT<xxx>_TMW
Target Infocube	0SM_SIZES
Dashboard Group	Time Based Data Distribution, Potential Savings

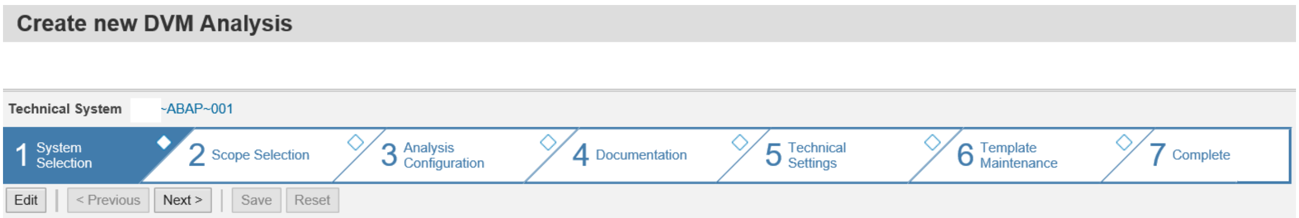
The DVM launchpad group presents you with two main opportunities for Scheduling Age of Record Analyses.
The first opportunity is in the Configuration of the DVM launchpad group (using transaction SOLMAN_SETUP).
Here we provide a suite of pre-configured templates by application area that you simply need to activate in order to schedule the

analyses in the managed system(s). These templates are based on the (header) tables of the most commonly used features within the related application, based on our experience.

The second opportunity is via the Table Analysis Administration function within the DVM launchpad group.
To create an Age of Record analysis call the Table Analysis Administration application.



When you choose `Create` a new window opens with a step-by-step guided procedure for you to follow.



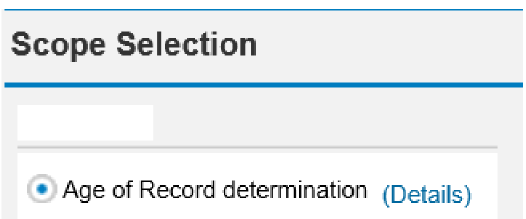
Note

The analysis creation tool is used for more than just Age of Records analysis. Therefore, after selecting the system to analyze, you need to define the scope of the analysis.

The first option is Age of Record determination.

You need to identify the tables to be analyzed. If you know the specific tables, you can input them manually or if not you can use one of the provided input selection options to allow the system propose which tables to analyze.

You can edit this list in the next step.



In this example we use the Manual Input option.

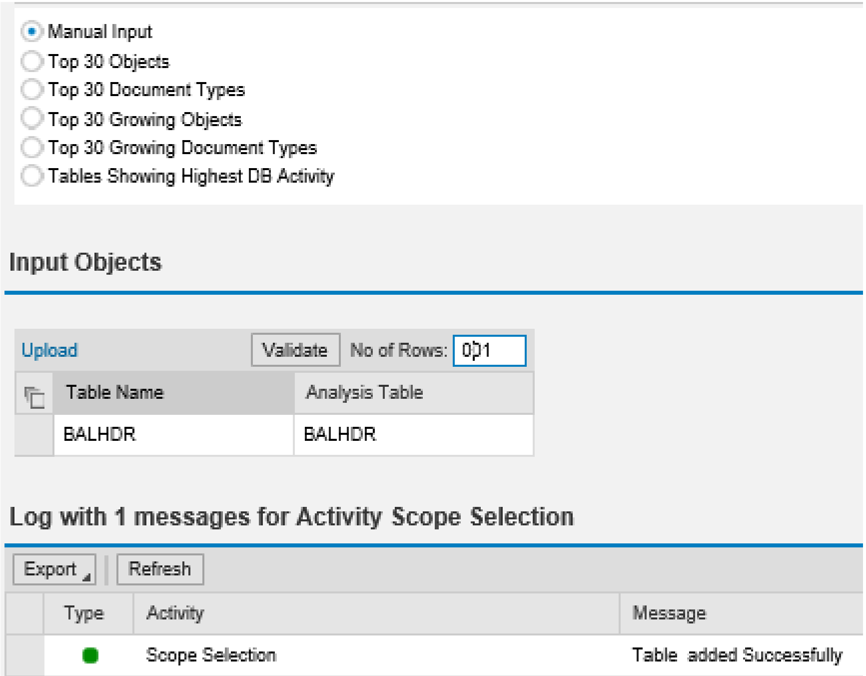


Figure 19: Example of manually adding tales to the Age of Record creation

Always check the log to ensure that the table(s) you have input have been added successfully. If they cannot be added check the log text to determine the reason and take corrective actions.

The next step is to provide the fields that will be used to calculate the age of the data i.e. YEAR and MONTH.

> Note
>
> For many of the well-known SAP delivered tables we also provide the relevant fields for Year and Month. In some cases we also deliver what are known as Virtual Fields. These are fields that don't exist on the underlying table but whose values can be calculated based on the data in another time-related field.

If the table you are interested in analyzing doesn't have the required fields or virtual fields you can use the VF Generator button in the screen shown below to call up a separate tool called the Virtual Field Generator. There you can create the required virtual fields for your analysis. Be aware that a time-based field, where the YEAR and MONTH values can be found, needs to exist before you can create the relevant virtual fields.

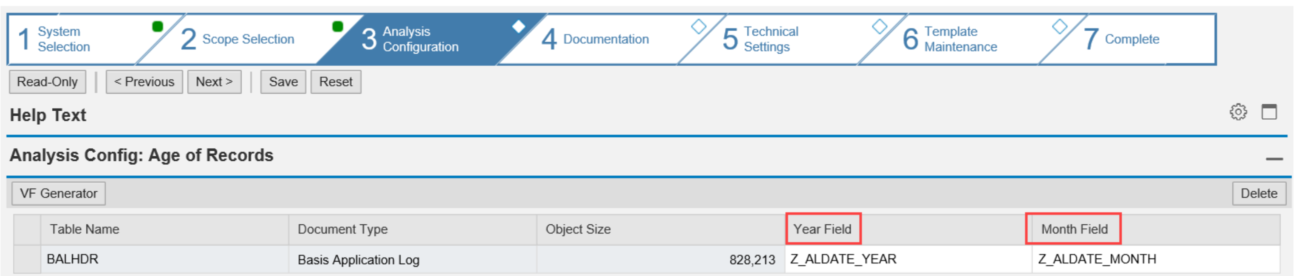
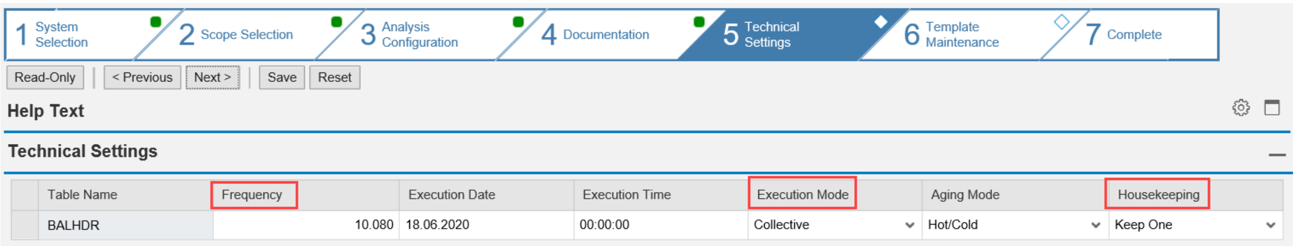


Figure 20: adding the critical fields on which the age analysis is based

The next critical step is step 5 - Technical Settings.

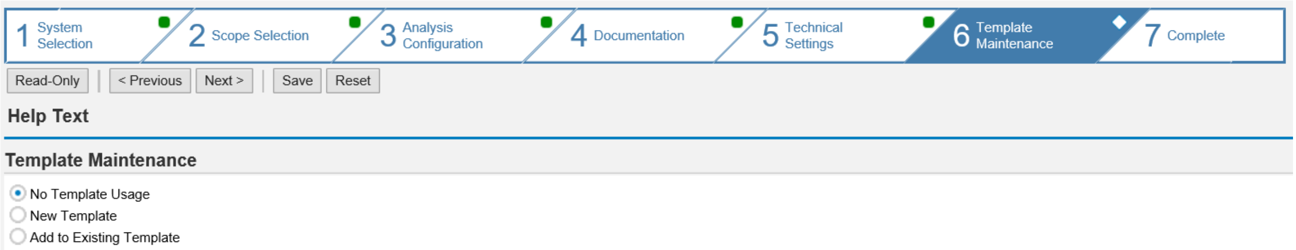
In this step you control how often this analysis is run, how it is run i.e. with a dedicated background work process of its own (Execution Mode = Single) or as part of a batch job (Execution Mode = Collective). You can also control the number of these analyses that remain on the managed system using the Housekeeping settings. (See help text for further details).

Figure 21: setting the execution parameters

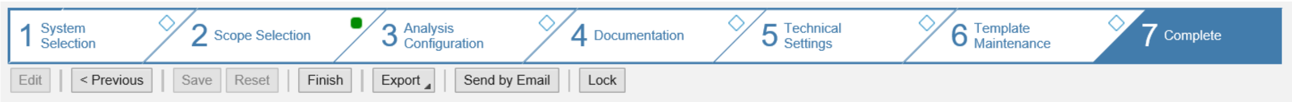


If the analysis is one that needs to be repeated in multiple systems throughout your landscape you may consider creating a New Template or include it in an existing template. Both options are supported with the step Template Maintenance.

Figure 22: Example showing the available template options



To schedule the analysis chose the Finish button on the step Complete.



Once the analysis has finished and the data are populated in the related info-cube the results can be seen in the Data Allocation Statistics dashboards under Time Based Data Distribution.

3.6.4 Identify Data Reduction Potential

3.6.4.1 Potential Savings

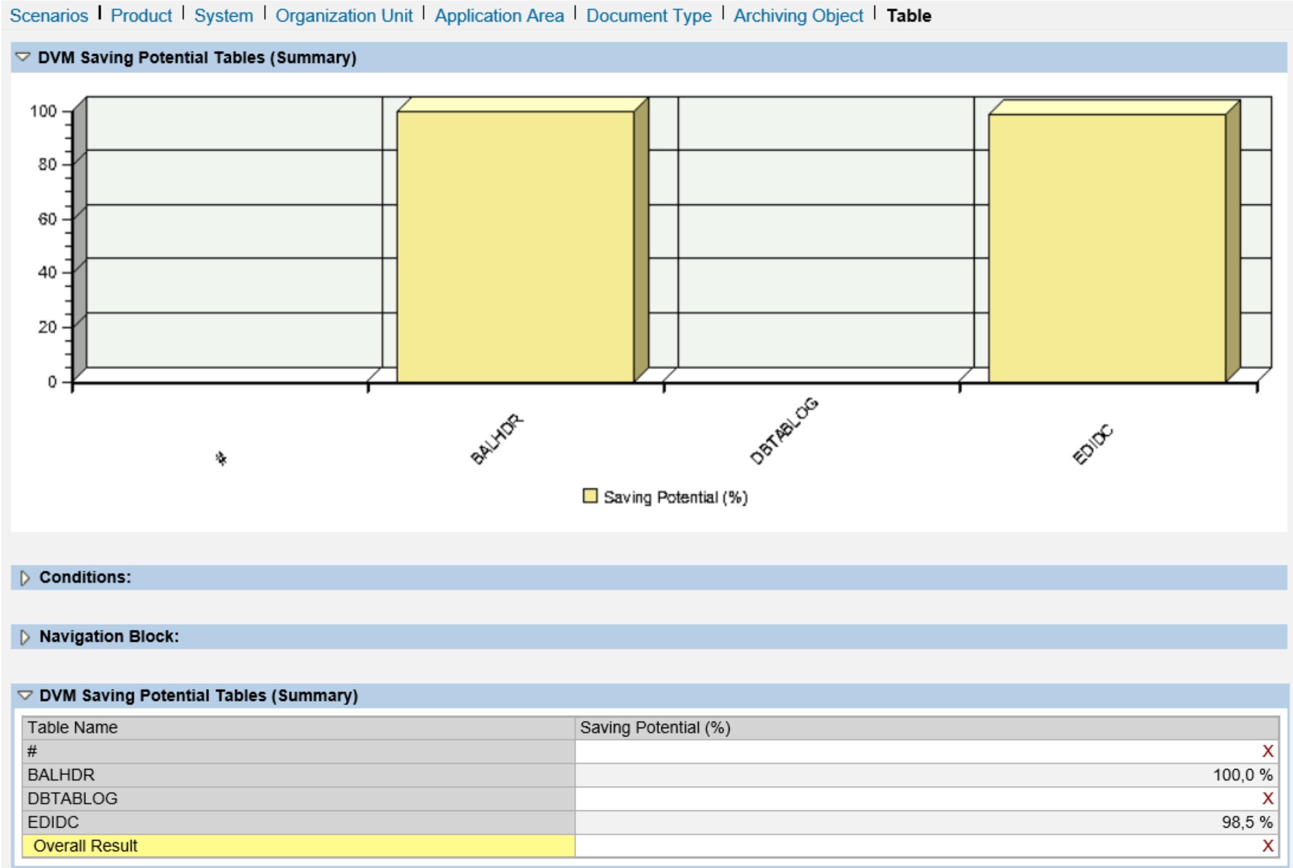


Table Name	Saving Potential (%)
#	X
BALHDR	100,0 %
DBTABLOG	X
EDIDC	98,5 %
Overall Result	X

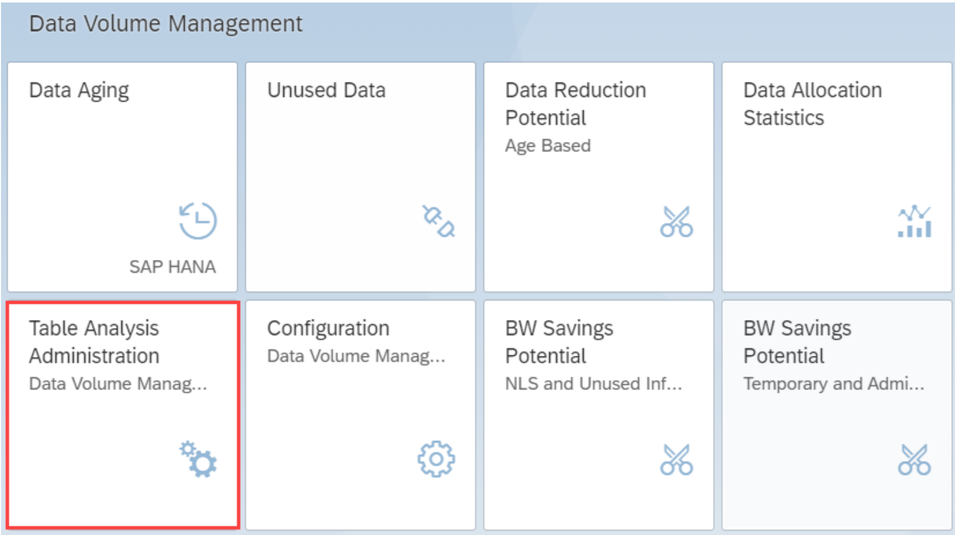
Figure 23: Example of saving potential by table in %

You want to know if there are space savings to be made and what that potential is before embarking on a DVM project. Or you want to know what the potential savings is if you change your residence time i.e. what if analysis.

The procedure is broadly the same as the Age of Record analysis except you have to specify the archiving object being used and the residence time upon which to base the calculation of potential.

DVM SAVING POTENTIAL	
Technical Name	`F76_DVM_POT_EXTRACTOR`
Program/Job Name	
Frequency	Hourly
Functional Logic	Extraction of Saving Potential Analysis results and histogram data from target system
Optional Dependencies	None
Required Entries	SOURCERFCDEST (format = SM_<SID>CLNT<xxx>_READ)
Target Infocube	0SM_DVPOT
Dashboard Group	Saving Potential

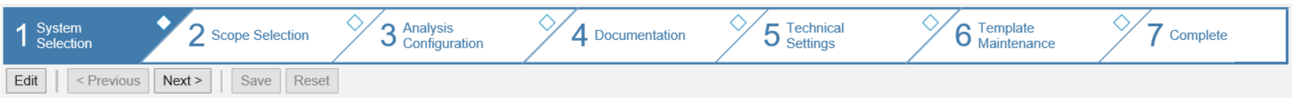
To create a Savings Potential analysis, call the Table Analysis Administration application.



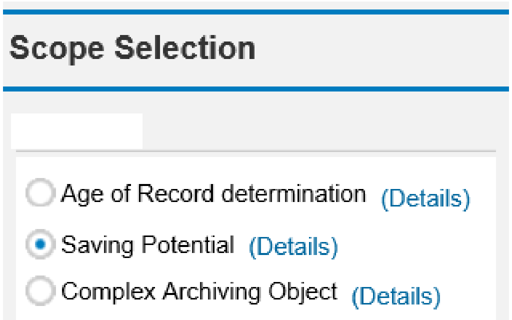
DVM Launchpad Group - Table Analysis Administration function – Create

When you choose `Create` a new window opens with a step-by-step guided procedure for you to follow.

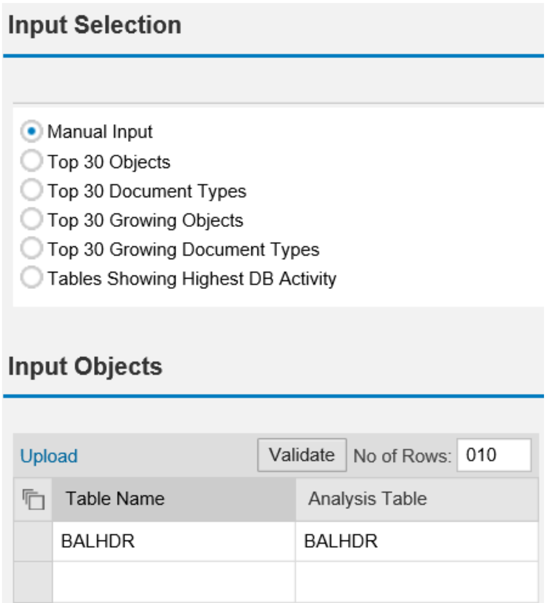
Choose the system you wish to analyze.



In the next step chose the scope option Saving Potential.

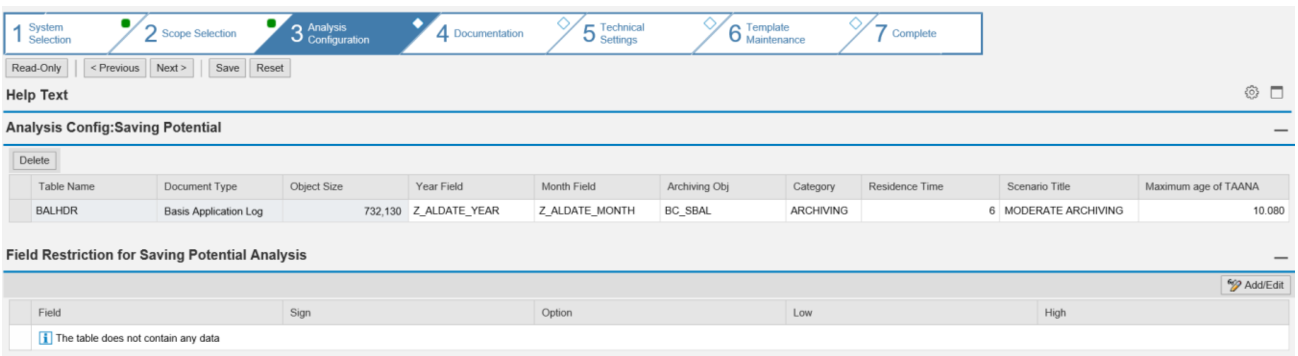


You have the option of manually specifying the table or you can let the system propose the objects to be analyzed.



In the next step you configure the analysis. Additional fields such as Archiving Object, Residence Time, Scenario Title and Maximum age of TAANA are presented. The residence time is important as it is used in calculating the saving potential. The maximum age of TAANA is used to determine if a new analysis of the selected table (BALHDR) is required from the selected system or if an existing analysis is ok to be used. If an existing analysis is older than the value you specify, a new analysis will be triggered in the target system.

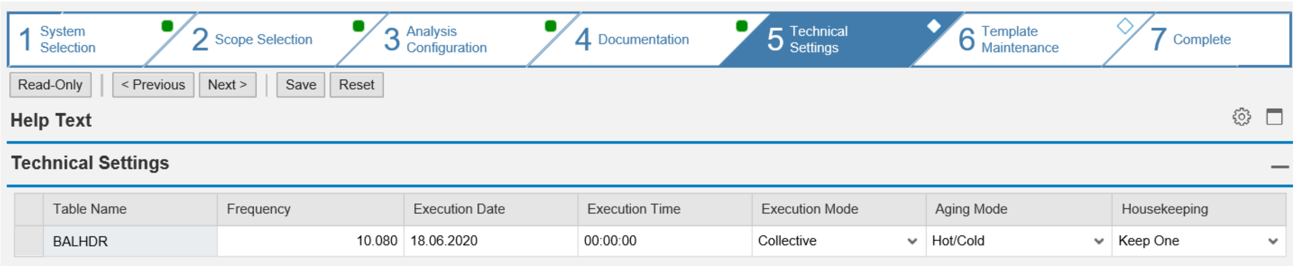
The Scenario Title field can be used to differentiate between different scenarios (e.g. Residence Times) and this can be used in "what if" analysis for comparison purposes.



You can define additional conditions for the saving potential calculation by restricting field values.
Select the line of the table where you would like to add conditions and choose the *Add/ Edit* pushbutton of the *Field Restrictions* for *Saving Potential Analysis* table.

In the dialog box you can enter additional conditions by choosing the *Add* pushbutton. You can use the input help to define the field name and field value pairs.

The remaining steps in the guided procedure are the same as for the Age of Record Analysis.



The results can be seen using the Potential Savings dashboards from the Data Reduction Potential function in the DVM launchpad group.

> **Note**
>
> In figure 23 above you can see the Saving Potential by Table. Please be aware that you can access the Saving Potential dashboards on a number of levels from Scenario to Product to Table etc. However, it makes most sense to do so on the Table level unless you have configured and executed a representative sample of analyses at the other levels. In other words, if you have only executed one table analysis, then it is not recommended to access the dashboards at system or application level and use the results as a basis for decision making.

3.6.5 Archiving Information

The Archiving Information dashboards provide access to all archiving related information. The focus is on monitoring archiving progress.

- Monitoring archiving and related deletion activities
- Global landscape-wide reporting about technical achievements in terms of archiving statistics
- Identify areas that are not following global DVM standards and guidelines
- Input for cross-checking if archiving activities match with forecasted values
- Easy prediction of 'where would we end up if no archiving had taken place'

Prerequisites

You have completed the Mandatory Configuration (System Preparation, Infrastructure Preparation and Basic Configuration scenarios in transaction SOLMAN_SETUP) of the SAP Solution Manager system. This is required to load the data required for the reporting view.

You have completed the Activate DVM Extractors step in the DVM scenario of SAP Solution Manager Configuration. The extractors must have been active for at least the period you want to analyze.

In the target system, you have performed archiving runs in the respective target client for which the extractors were scheduled.
As archiving in SAP is performed through the inbuilt ADK (Archive Development Kit) the storage medium of the archived data has no

impact on the results in the Dashboards because we read all our information from the ADK.
The Dashboards are divided into three categories:

1) Archiving Jobs

2) Archiving Statistics

3) Archive File Statistics

3.6.5.1 Archiving Jobs

With the Archiving Jobs dashboards, you can see all the Delete and Write Jobs that have been executed. You can compare the results to the data in table ADMI_FILES in the related system.

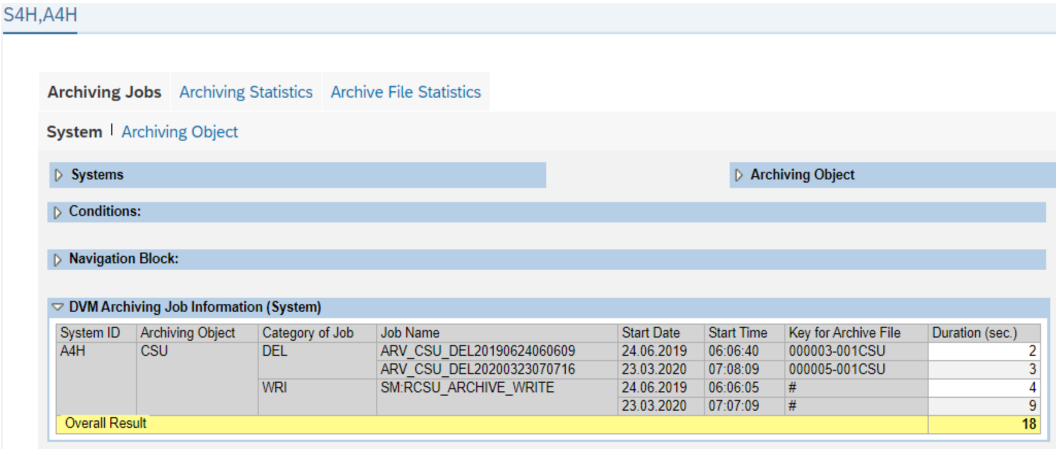


Figure 24: Example of Archiving Jobs dashboard

Details about the related DVM Extractor are provided below.

DVM ARCHIVING RUNS	
Technical Name	`DVM_EXTRACTOR_ARCH_RUNS`
Program/Job Name	The Archiving Runs extractor is a form existing in the program /SSA/CE2 (ST-PI Coding). This extractor is executed through the program.
User	READ RFC
Frequency	Hourly
Functional Logic	Extraction of Archiving Job information. One record for each executed archiving run within the last 60 min.
Mandatory Dependencies	
Optional Dependencies	None
Required Entries	SOURCERFCDEST (format = SM_<SID>CLNT<xxx>_READ
Target Infocube	0SM_ARCHJ
Dashboard Group	Archiving Information

3.6.5.2 Archiving Statistics

The Archiving Statistics dashboards allows you to interrogate the Landscape from a System and an Archiving Object perspective.

DVM ARCHIVING STATISTICS	
Technical Name	AGS_DVM_EXTRACTOR_ARCH_STATS
Program/Job Name	FM : AGS_DVM_EXTRACTOR_ARCH_STATS
Details	The LOCALX field in E2E_ACTIVE_WLI is checked
User	SM_EFWK
Frequency	Hourly
Functional Logic	Extraction of Archive File statistics (details on archived, deleted objects and related file sizes)
Mandatory Dependencies	
Optional Dependencies	None
Required Entries	SOURCERFCDEST (format = SM_<SID>CLNT<xxx>_READ
Target Infocube	0SM_ARCHH
Dashboard Group	Archiving Information

These dashboards are useful for checking that any files that have been written to the archive have also been deleted from the source system.

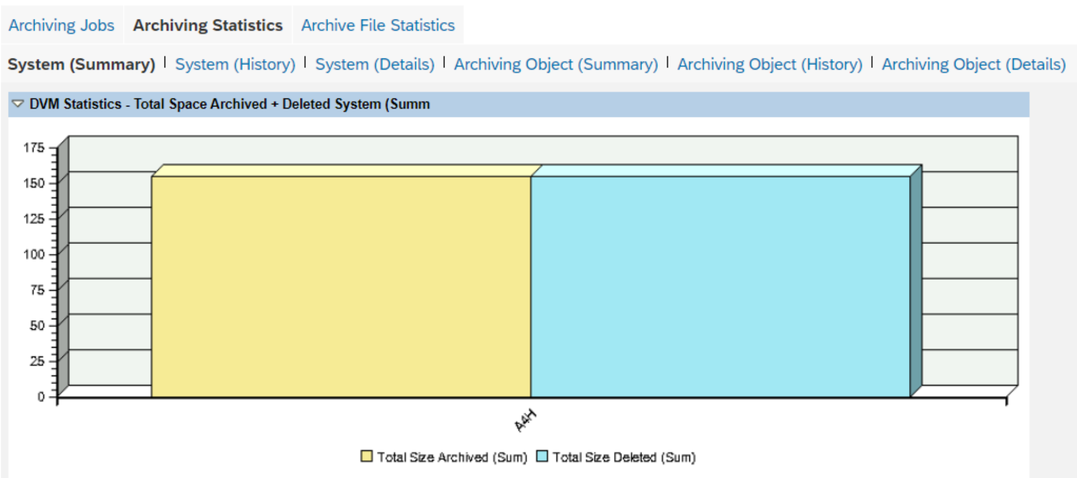


Figure 25: Example of Archiving Statistics for Archived & Deleted Data

You can also get a historical view of the Deletion and Archiving activities. Be aware that the data shown is dependent on the housekeeping settings you maintain in the SOLMAN_SETUP for DVM. If you adjust the Housekeeping settings for infocube 0SM_ARCHH then the History dashboards are impacted.

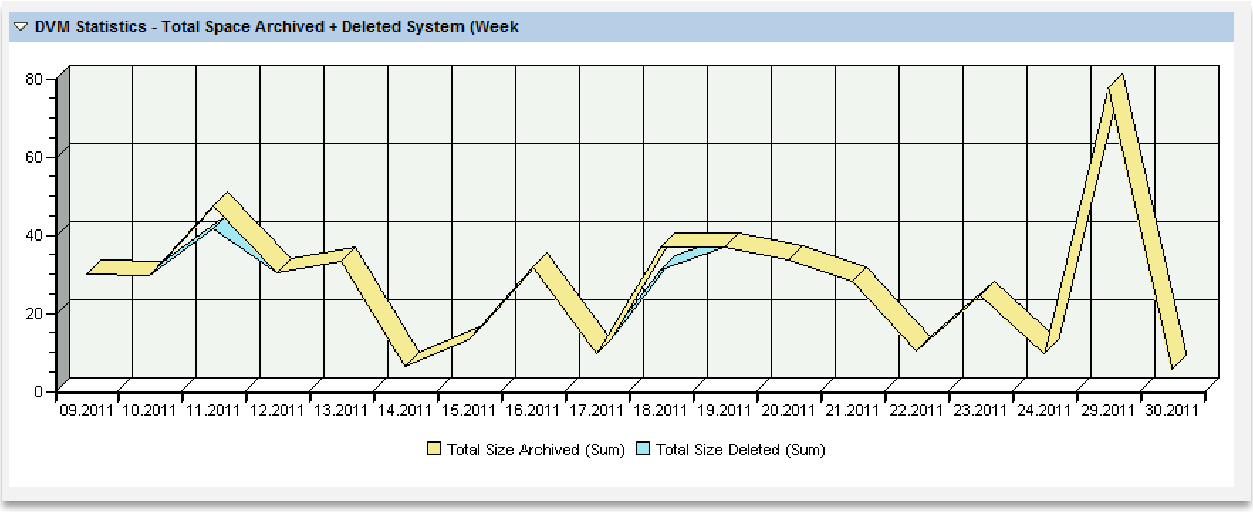
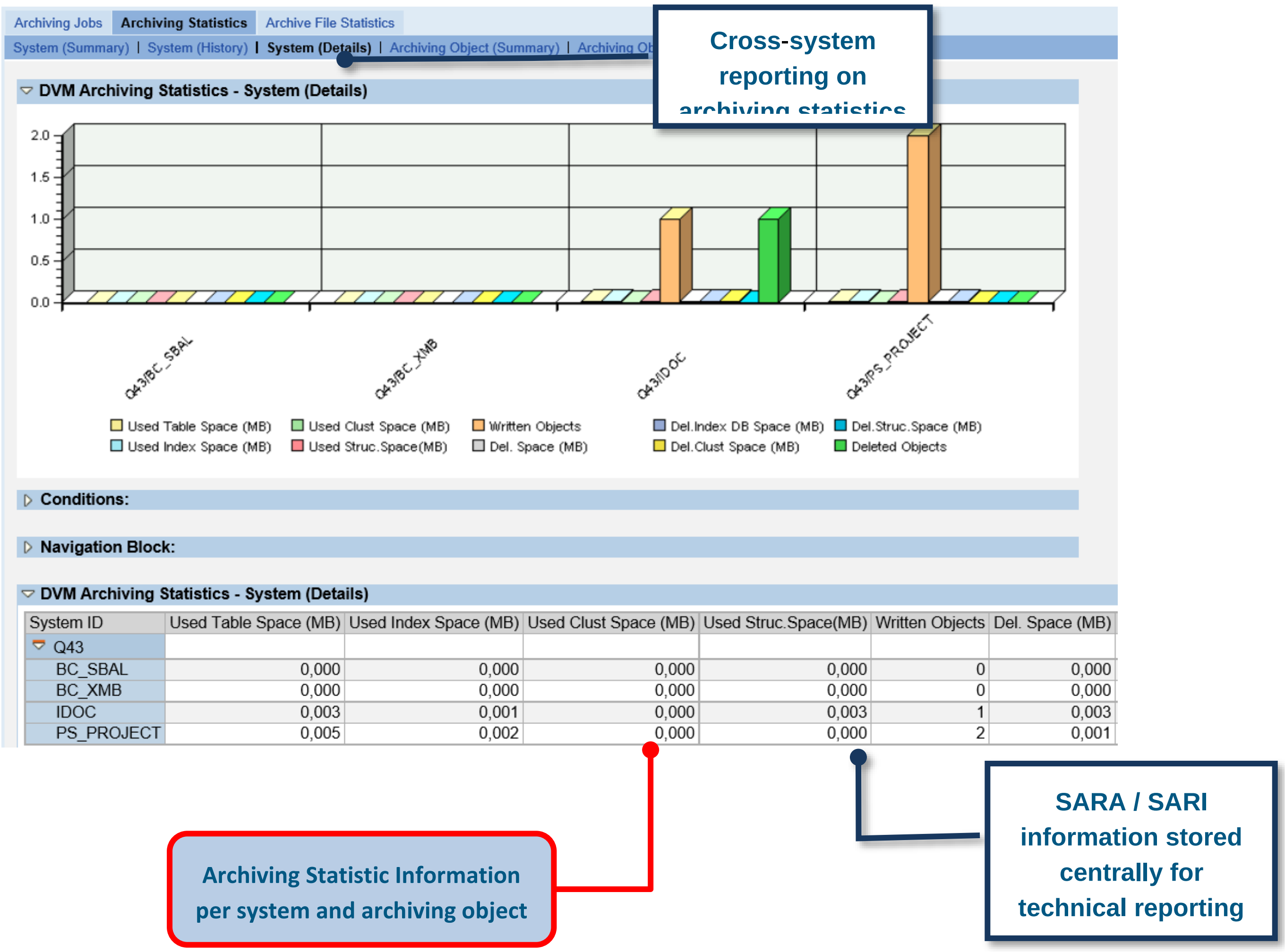


Figure 26: Example of historical view of Archived & Deleted data by week

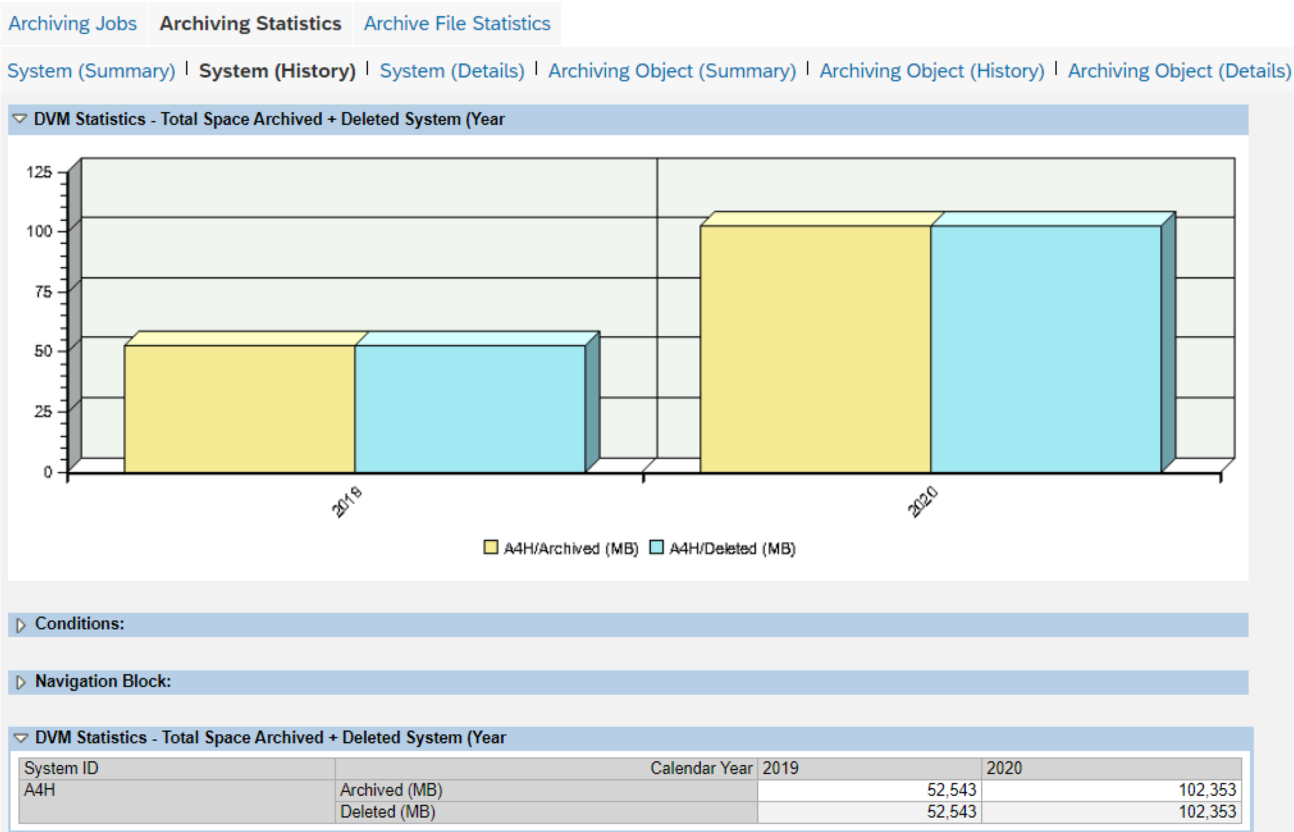
In the details dashboard you can see the data as it would appear in the SARA & SARI transactions in the managed systems.



System ID	Used Table Space (MB)	Used Index Space (MB)	Used Clust Space (MB)	Used Struc.Space(MB)	Written Objects	Del. Space (MB)
Q43						
BC_SBAL	0,000	0,000	0,000	0,000	0	0,000
BC_XMB	0,000	0,000	0,000	0,000	0	0,000
IDOC	0,003	0,001	0,000	0,003	1	0,003
PS_PROJECT	0,005	0,002	0,000	0,000	2	0,001

Figure 27: Detailed example of Archiving Statistics by System and Archiving Object

A history view is available too. This gives transparency of archiving activities over time. In this case the timeframe selection parameter is used to select the required time period.



System ID	Calendar Year	2019	2020
A4H	Archived (MB)	52,543	102,353
	Deleted (MB)	52,543	102,353

Figure 28: Example of Archiving History by System

3.6.5.3 Archive File Statistics

Archive File Statistics show the volume and number of records archived. Summary and History dashboards are available. Results can be displayed from a System and an Archiving Object perspective.

DVM ARCHIVING STATISTICS	
Technical Name	`AGS_DVM_EXTRACTOR_ARCH_STATS`
Frequency	Hourly
Functional Logic	Extraction of Archive File statistics (details on archived, deleted objects and related file sizes)
Optional Dependencies	None
Required Entries	SOURCERFCDEST (format = SM_<SID>CLNT<xxx>_READ
Target Infocube	0SM_ARCHH
Dashboard Group	Archiving Information

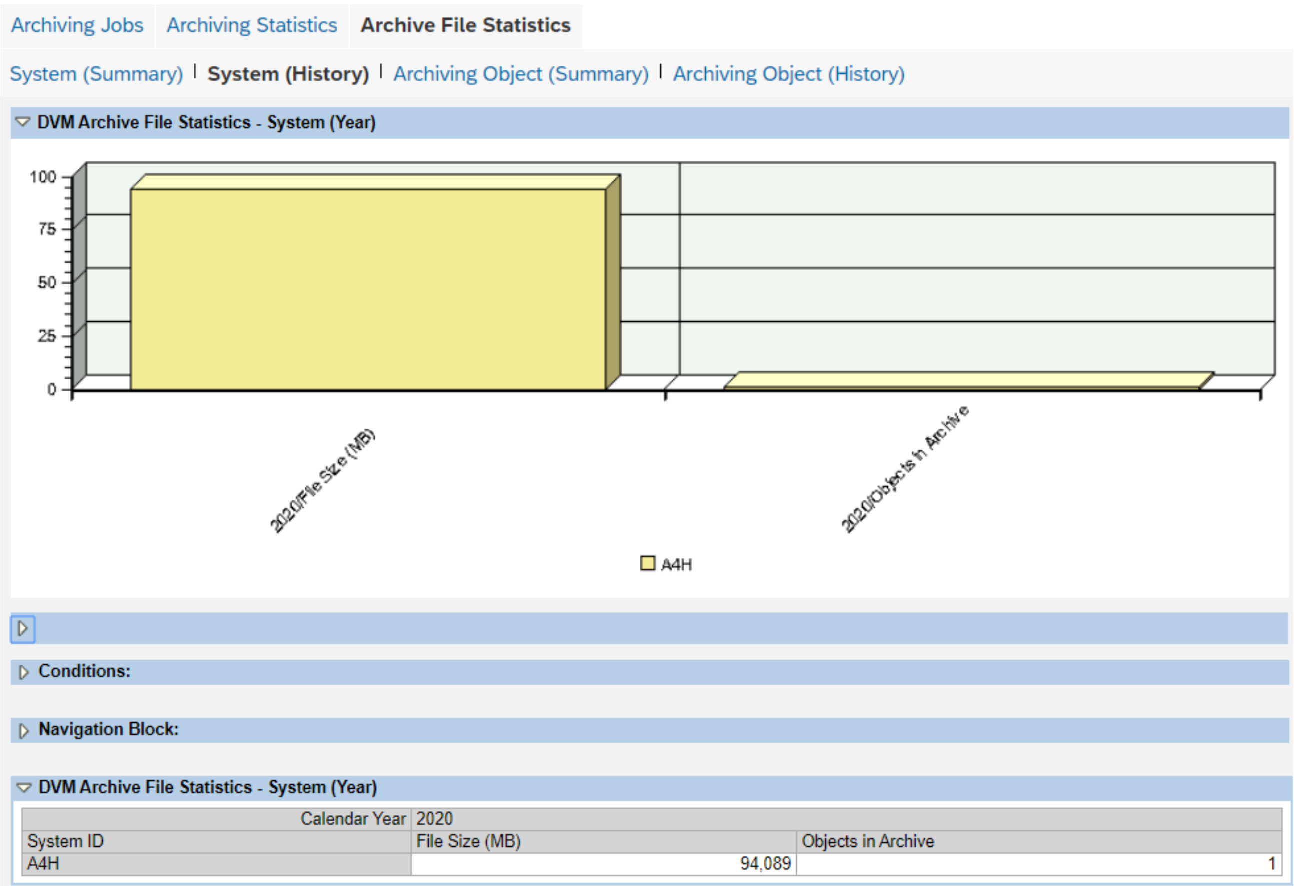


Figure 29: Example of Archive File Statistics by System

3.6.5.4 Table Utilization Statistics

The Table Utilization Statistics tool provides you with an overview of the tables in your landscape that have been called (used) and the frequency of those calls. The dashboards include all DB operations (Read, Change, Update & Delete). This way you can determine the tables that are most heavily used and therefore most relevant to the daily business activities. These tables need to be considered in terms of a global DVM strategy. There is also an option to determine those tables that have never been accessed. This is useful information when it comes to detecting wasted space. Over time, if you determine that certain tables are never accessed, you can define a strategy for moving the related data to an archive for example.

To gain an overview of the table usage or call frequency in your system landscape, proceed as follows:

Under Data Allocation Statistics, select a scenario or system in the table and choose Table Utilization Statistics.

Specify the period you want to analyze and whether you want to analyze the information per week or per month.

Specify for which entities in your system landscape you want to carry out the analysis. You can use the following tab pages:

Products

System

Application Area

Document Type

Table

Select the information you want to display:

For the Product tab page, you can display table statistics with respect to the following information:

Summary

History

For the other tab pages, you can also select the Top Accessed and Not Accessed information.

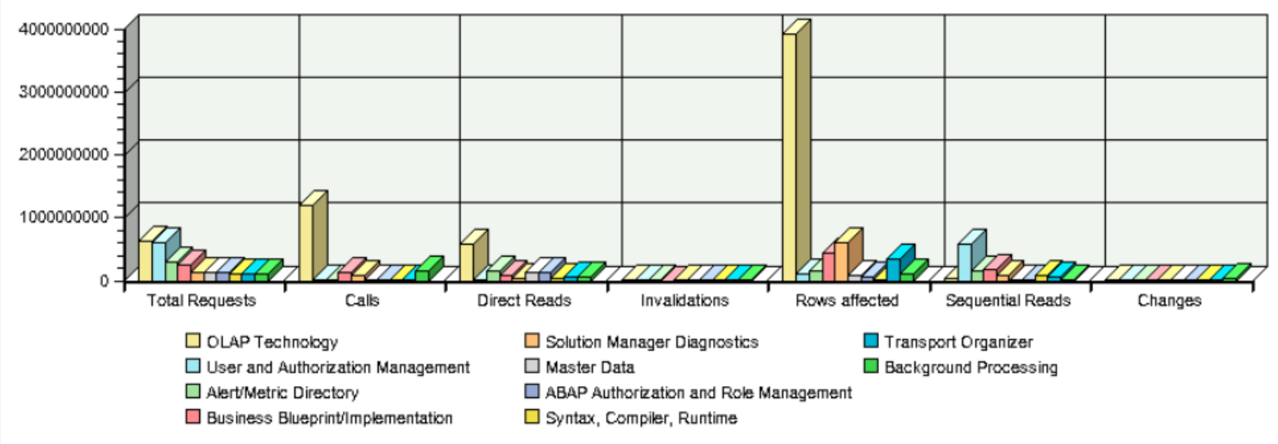
Input parameters allow you to refine your data selection.

The system loads the data from the Business Warehouse and creates the table statistics according to your input parameters.

Products | System | Application Area | **Document Type** | Table

Summary | History | **Top Accessed** | Not Accessed

▽ **DVM Top N Total Requests Document Type**



▷ **Key Figures**

▷ **Conditions:**

▷ **Navigation Block:**

▽ **DVM Top N Total Requests Document Type**

Document Type	Total Requests	Calls	Direct Reads	Invalidations	Rows affected	Sequential Reads	Changes
OLAP Technology	617.037.417	1.190.477.021	577.081.761	502.520	3.924.738.802	30.065.015	9.890.641
User and Authorization Management	592.771.115	1.668.288	14.467.856	28.249	95.566.997	578.303.040	219
Alert/Metric Directory	297.394.585	7.742.521	155.153.138	32.955	147.059.627	142.231.169	10.278
Business Blueprint/Implementation	260.112.299	132.866.821	82.185.834	0	429.745.648	177.817.083	109.382
Solution Manager Diagnostics	140.607.864	90.635.112	30.942.688	2.867	596.900.444	92.481.230	17.183.946
Master Data	137.911.324	741.786	137.665.658	31.224	85.713.161	142.268	103.398

Figure 30: Example of Table Utilizations Statistics for Top Accessed Document Types

What do the column headings mean?

Total Requests - Sum of Direct Reads, Sequential Reads and Change operations.
Calls - Number of calls received by the DB, Each SQL cursor preparation, Open & Fetch operation is one call.
Direct Reads - Number of reads by primary key
Invalidations -Each SQL change operation causes one invalidation. A change can affect multiple records of a table.
Rows Affected - Sum of the rows updated plus rows inserted plus rows transported to Application server from DB.
Sequential Reads - Reads other than Direct reads
Changes - Number of changes e.g. Update, Insert or Delete operations.

Products | System | Application Area | **Document Type** | Table

Summary | History | Top Accessed | **Not Accessed**

▷ **Conditions:**

▷ **Navigation Block:**

▽ **DVM No Requests Document Types**

Document Type	Size (Current Week)
ABAP Object Services (Persistent Objects)	0,153
Contract Accounts Receivable and Payable: Cross-Country	0,131
Contract Accounts Receivable and Payable: Poland	0,033
Financials Belgium	3,277
Financials Czech Republic	1,162
Financials France	1,445
Financials Hungary	0,410
Financials Mexico	0,101
Financials Spain	0,425
Generic eSOA Tools	0,405
Information Framework	7,303
ABAP Authorization and Role Management	187,005
ABAP Channels	3,176
ABAP Connectivity and Integration Tools	0,583
ABAP Dictionary	62,570
ABAP Editor	5,750
ABAP List Processing	0,156
ABAP List-Based PI Sheet	0,804
ABAP Report Launchpad based Navigation	15,862
ABAP Runtime Environment	65,271
ABAP Runtime Environment - ABAP Language Issues Only	196,180
ABAP Search Engine for ERP Solution Database	5,693
ABAP Source Code editors in ABAP in Eclipse	0,040
ABAP Syntax, Compiler, Runtime	31,105
ABAP Test Frameworks	14,967
ABAP Test Frameworks (ATC, CheckMan, Code Inspector)	17,764

Figure 31: Example of Table Utilizations Statistics for Document Types that were Not Accessed

3.7 Expert Tools

3.7.1 Prioritize Objects

The Prioritze Objects tool (previously called the Decision Maker tool) provides you with a ranked list of objects to include in your archiving project. The focus is to provide transparency by identifying those objects that best fit to your strategy for achieving your goal.
You can select the KPIs to be used for the analysis and you can decide how these KPIs should be weighted.
SAP provides templates based on our best practice guidelines. You can use these templates, copy and change them or create your own.
Once the results (ranked list) are generated you will be able to answer questions such as:

- Which tables should I tackle first in my landscape?
- Which objects fit best to my defined strategy?
- Which objects show high saving potential?
- Which objects are not part of my archiving strategy yet?

Prerequisites

You have completed the Managed System Preparation step in the Data Volume Management scenario of SAP Solution Manager Configuration for all the systems that you want to include in the analysis. The size extractor has extracted data for at least 2 months i.e. Current Month and Previous Month. Otherwise in step 1 - the Readiness Check will categorize the relevant system as being not ready.

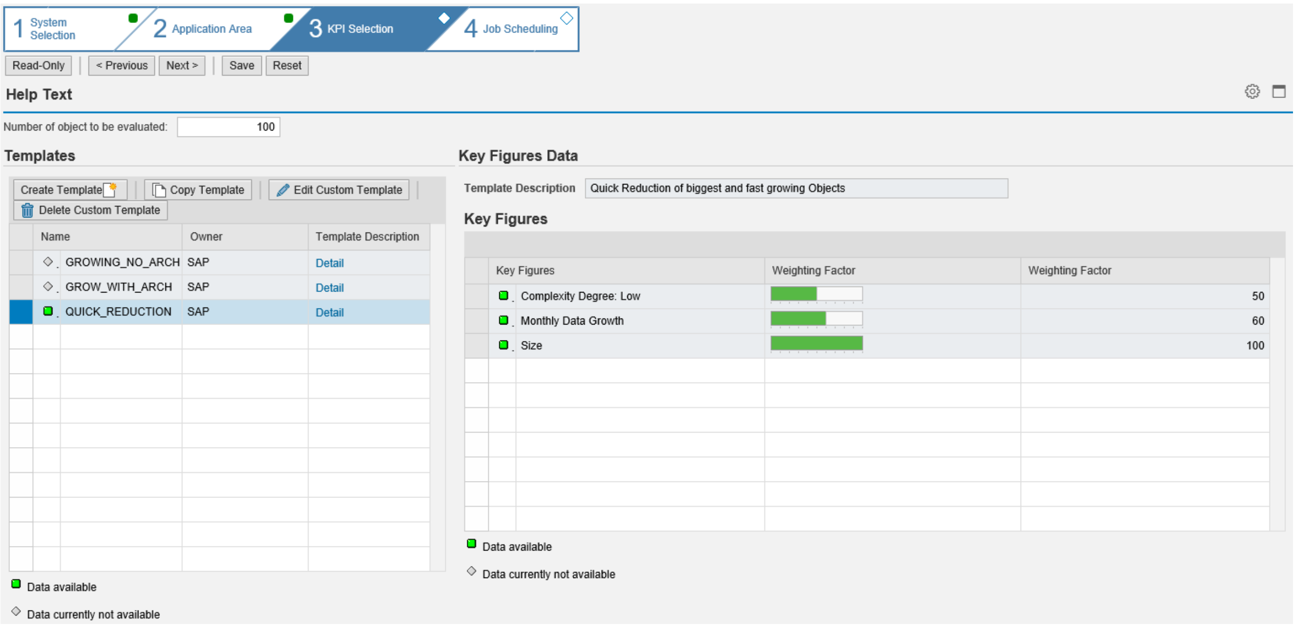


Figure 32: Example of Prioritize Objects tool & weighting of Key Figures - these weightings can be adjusted

The results are ranked in order of the weighted results from highest to lowest. Meaning that you should take action on the highest ranked objects first in order to have the most impact, based on the KPI's you entered.

Analysis Results

Table Name	Final Score	Application Area	Current Size (MB)
BALDAT	141	BC	18.444
TBTCO	83	BC	6.074
TBTCP	72	BC	4.403
TST01	58	BC	1.576
BALHDR	54	BC	771
OCSCMPLOBJ	53	BC	783
ALALERTDB	53	BC	819
E071K	52	BC	155
CDPOS	51	BC	131

Figure 33: Example of ranked list of tables from the Prioritize Objects application

Clicking on any Table Name will open up the related Fact Sheet for that table. There you can see the History of the Size development over time - you can change the time selection. You get all the information about the table such as Rank, Size, Growth and its associated Document Type. You see the size of the Document Type (this table and all related tables) and you are also given details about the relevant Archiving Objects that can be used to reduce the data in this table. If any Self Service documents were generated for this table, they are also reported here.

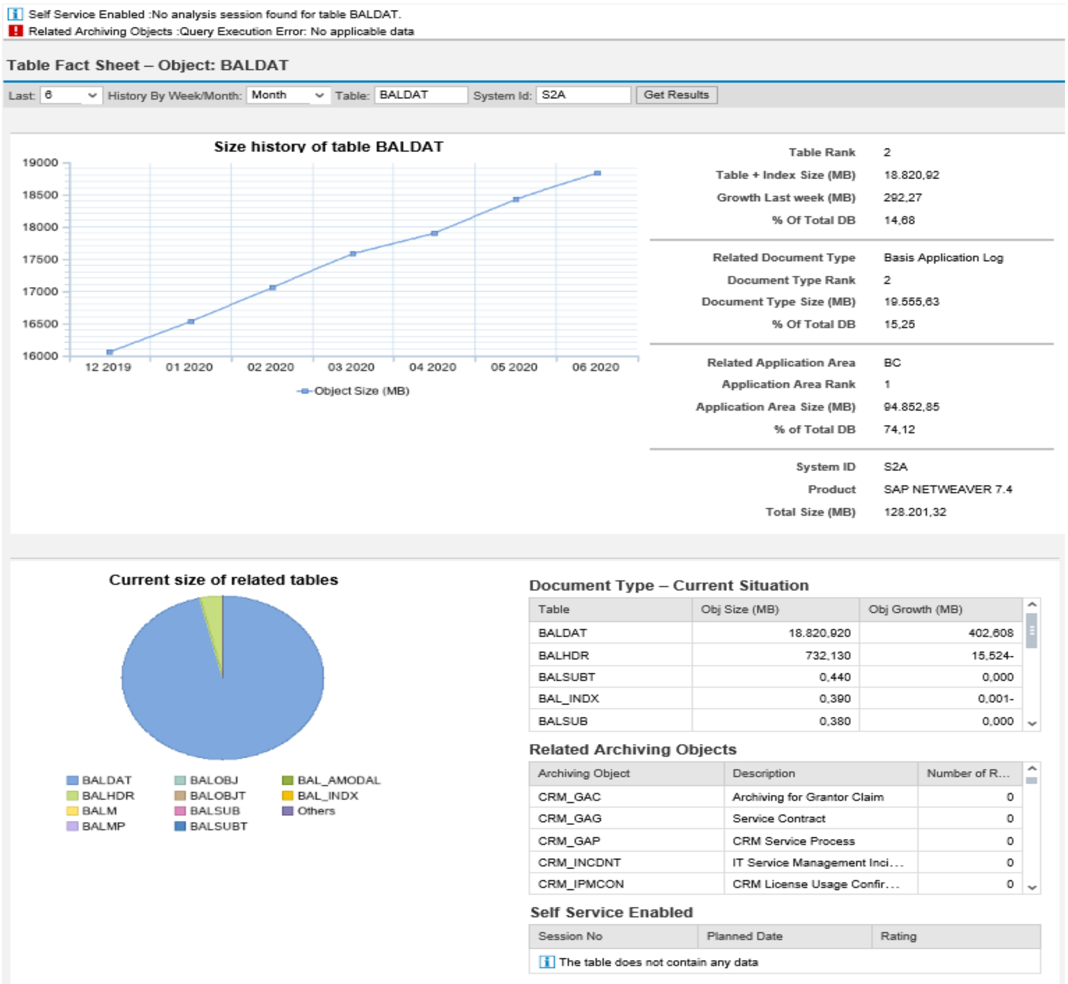


Figure 34: Example of a Fact Sheet for a table

3.7.2 Reorganization and Compression

The Reorganization & Compression Analysis tool helps you to determine whether it is necessary, or worth the effort, to reorganize or compress tables and indices after you have performed archiving. The output is a list of objects (tables & Indices) showing the current size, the reduction potential in percentage (%) and in Megabytes (MB). The analysis itself is possible for DB6 or Oracle databases.

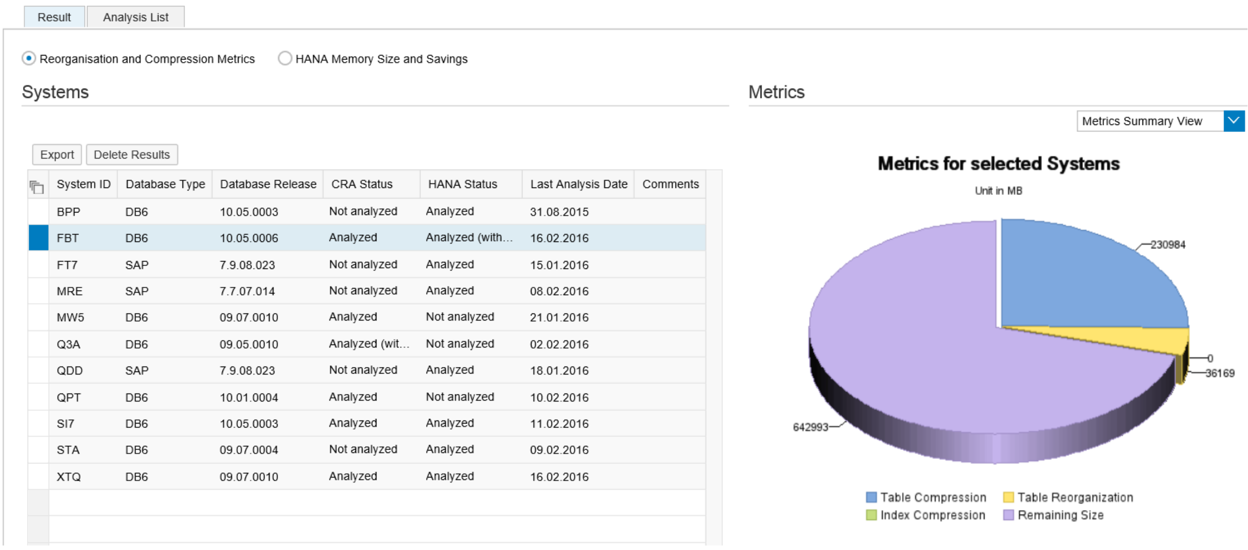


Figure 35: Example of Reorganization & Compression analysis - results shown graphically

Reorganization and Compression - Savings Potential

With this application, you can simulate the savings potential of compression and reorganization. Based on this information you can decide if you want to take further action such as compression or reorganization of tables and indices to save space on the database.

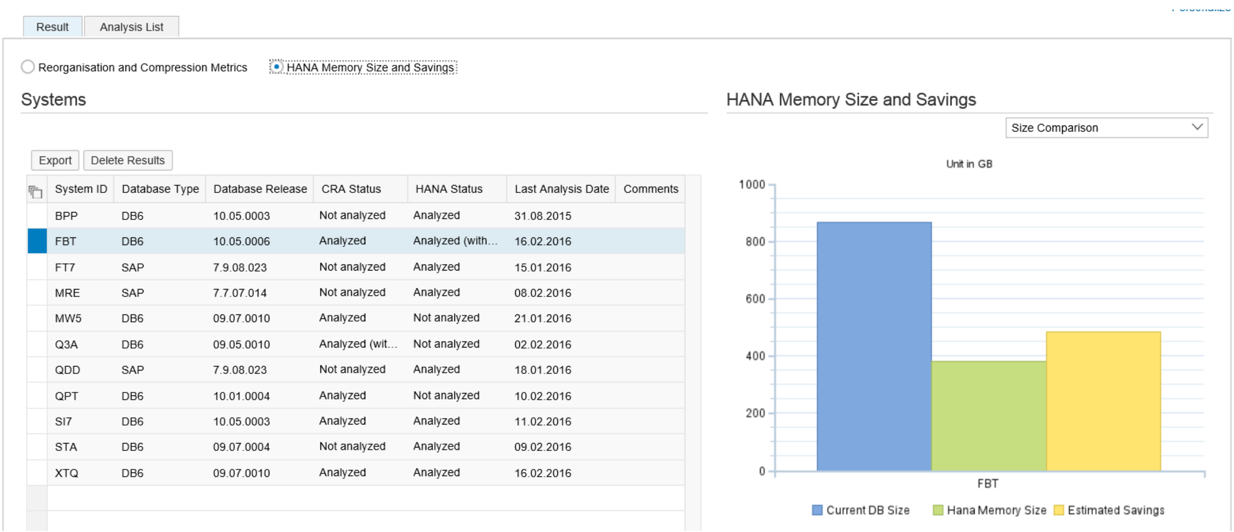
Reorganization and Compression – Incl. HANA Sizing

You use this application to calculate the technical data volume reduction potential that can be achieved by processes, such as the reorganization and compression of database tables and indexes.

Prerequisites

- You have set up DBA Cockpit connection in the Managed System Configuration scenario of SAP Solution Manager Configuration. Otherwise, no systems are available for selection.
- Optional: Trigger the DVM analysis jobs from the Data Volume Management scenario in SAP Solution Manager Configuration, **Configure Infrastructure** **Activate** step. You can also trigger the DVM analysis jobs from the application itself.

As of Solution Manager 7.10 SP12, you can also determine the future size of your database if you migrate to a HANA database.



System ID	Database Type	Database Release	CRA Status	HANA Status	Last Analysis Date	Comments
BPP	DB6	10.05.0003	Not analyzed	Analyzed	31.08.2015	
FBT	DB6	10.05.0006	Analyzed	Analyzed (with...	16.02.2016	
FT7	SAP	7.9.08.023	Not analyzed	Analyzed	15.01.2016	
MRE	SAP	7.7.07.014	Not analyzed	Analyzed	08.02.2016	
MW5	DB6	09.07.0010	Analyzed	Not analyzed	21.01.2016	
Q3A	DB6	09.05.0010	Analyzed (wit...	Not analyzed	02.02.2016	
QDD	SAP	7.9.08.023	Not analyzed	Analyzed	18.01.2016	
QPT	DB6	10.01.0004	Analyzed	Not analyzed	10.02.2016	
SI7	DB6	10.05.0003	Analyzed	Analyzed	11.02.2016	
STA	DB6	09.07.0004	Not analyzed	Analyzed	09.02.2016	
XTQ	DB6	09.07.0010	Analyzed	Analyzed	16.02.2016	

Figure 36: Example of Reorganization & Compression showing the size comparison by migrating to HANA

Use the object selection parameters to refine the results displayed in the Object List.

Object Selection Criteria

Restrict object count to top: 5
Select top Objects by: Current Size (MB)

Object Size (MB): To

Savings (MB): To

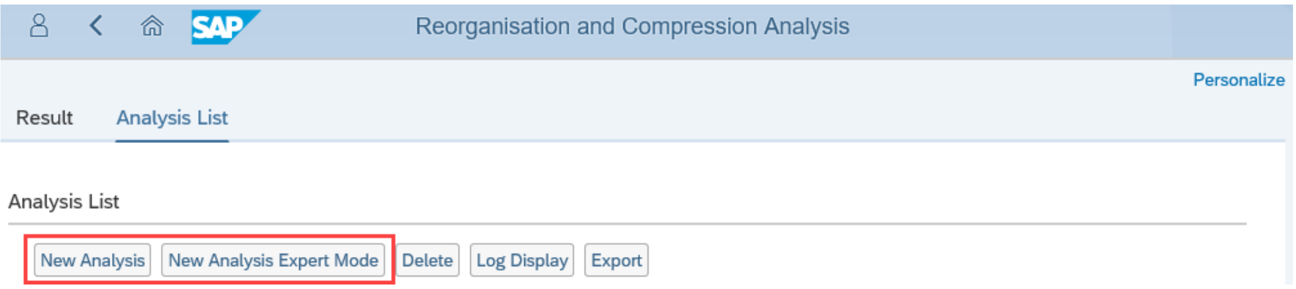
Get Object list

Object list

System ID	Table object	Current Size (MB)	HANA Memory...	Savings Ratio %	Saving (MB)
FBT	AGS_TBOM_B...	102.006,00	10.633,97	90,00	91.372,03
FBT	AGS_SUPHUB...	83.911,00	3,65	100,00	83.907,35
FBT	BDLDATCOL	22.833,00	19.850,46	13,00	2.982,54
FBT	ENHLOG	21.710,00	31,47	100,00	21.678,53
FBT	/BI0/F0SM_STAT	20.691,00	1.418,66	93,00	19.272,34

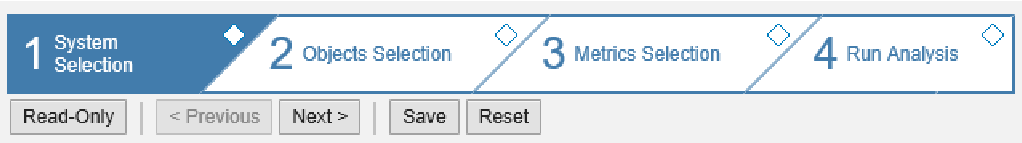
Figure 37: Example of Reorganization & Compression with a restricted result set of top 5 objects by Current Size

To create a new analysis, you have the following options:

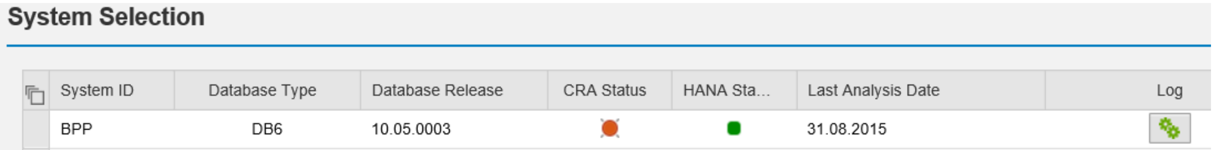


- To perform a basic compression and reorganization analysis (CRA) or HANA migration analysis of selected systems, choose **New Analysis** and follow the guided procedure. In this basic analysis, you can only perform an analysis of the entire system; you cannot select specific tables to analyze.

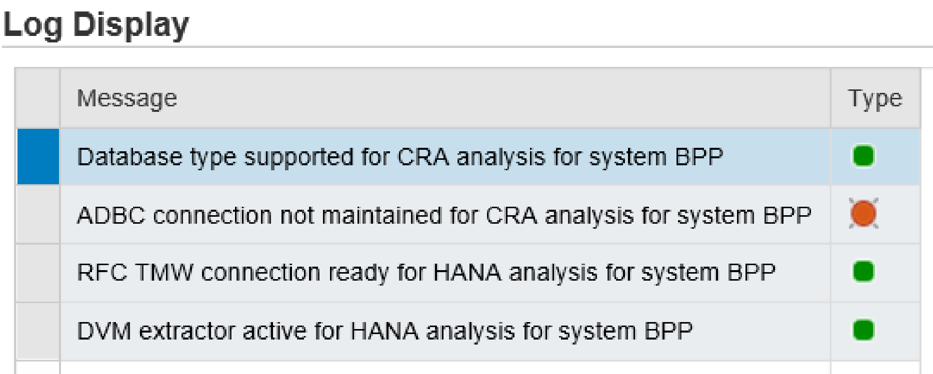
- To perform an analysis for specific tables in each system, choose **New Analysis Expert Mode** and follow the guided procedure. It provides help texts relevant for each step of the process.



Colored LED status indicators show whether the specific analysis type is possible.



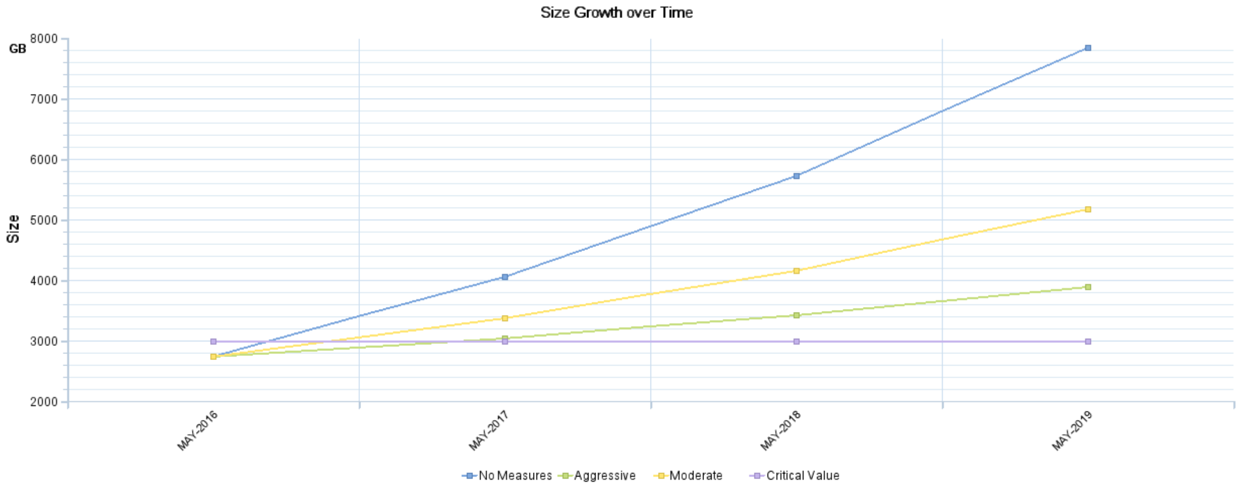
If a log exists for a system you can use it to determine why a specific analysis type is not available



For more information, refer to Reorganization and Compression – Incl. HANA Sizing.

3.7.3 Data Volume Forecasting

Using the Forecast & Simulation application, you can experiment with different parameters to simulate the impact of various data reduction measures on the database size of a system and the expected cost savings over a defined period.. A forecasting timeline from 12 Months to 10 years provides you with the necessary visibility to take timely decisions about landscape sizing and hardware requirements.



Measure	MAY-2016	MAY-2017	MAY-2018	MAY-2019
No Measures	2.740	4.055	5.722	7.836
Aggressive	2.740	3.039	3.418	3.898
Moderate	2.740	3.369	4.164	5.172
Critical Value	3.000	3.000	3.000	3.000

Figure 38: Example of Data Volume Forecasting output based on size in GB. You can switch the forecast type to "Cost" impact to display the monetary impact.

Prerequisites

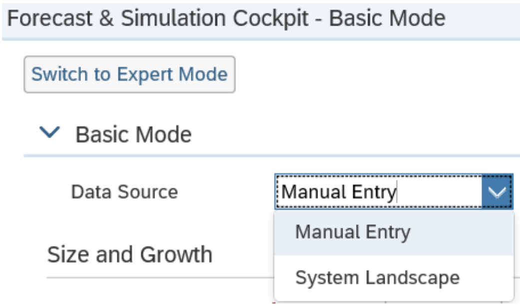
- You have completed the Managed System Preparation step in the Data Volume Management scenario of SAP Solution Manager Configuration for all systems you want to include in the analysis.
- You have completed the Activate DVM Extractors step in the DVM scenario of SAP Solution Manager Configuration to activate the extractors for the Business Warehouse (BW).
- You have the correct authorizations for the connected Business Warehouse (BW) system. You need this authorization to load data from the BW.

There are two versions available currently - Basic Mode & Advanced Mode.

You can use the basic mode to generate a general overview of the trend. Alternatively, you can use the expert mode to enter more detailed information and configure the forecast to more accurately simulate specific data reduction measures across multiple systems.

Basic Mode

- Under Data Source, select whether you want to enter the data used as the basis for the forecast manually or whether you want to use current system data from a selected system.



  If you select manual data entry, under Size and Growth, enter the corresponding values. The mandatory parameters are marked with an asterisk (*).

  To use current system data, select a system from the table. Under Size and Growth, choose Get Size and Growth to automatically input data from the selected system.

- Under Additional Data, enter the corresponding values that reflect your cost/GB and critical size.
- In the Data Reduction % (Archiving) area, enter percentage values for both a moderate and aggressive reduction approach. The default values are 25% and 50%.
- In the Forecast area, select whether you want to forecast the Growth Trend or the potential Cost Savings.

  Select a forecast period.

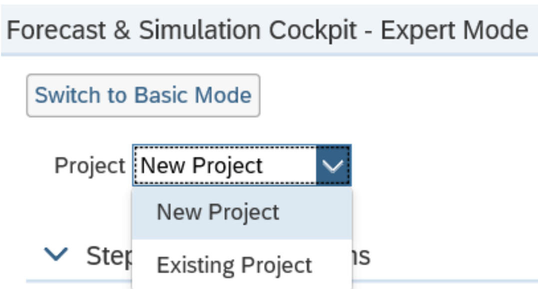
  Choose Simulate Forecast.

  For a growth trend forecast, the system generates a graph comparing when your data volume will reach the critical size depending on a moderate approach, aggressive approach, or take no action at all.

  For a cost savings forecast, the graph compares how much money you can save over the specified period depending on whether you take a moderate or aggressive approach.

Expert Mode

- Choose Switch to Expert Mode.You can either create a new project or select an existing one.



- In Step 1: Choose Systems, select the systems that you want to compare in the forecast simulation. Choose Apply.
- In Step 2. Enter Details, under Generic Data Applicable for All Systems, enter the corresponding values that reflect your cost/GB and critical size.

Select a system and then choose Get Data to automatically input data from the selected system. Alternatively, you can enter the values for Size, Growth, and Anticipated Growth Factor manually. Repeat this step for each system you want to analyze.

Under Technical Savings you can enter percentage values for various technical saving measures.

Specify a realization date for each measure; that is, the date by which you want to achieve this savings percentage.

In the Data Reduction % (Archiving) area, enter percentage values for both a moderate and aggressive reduction approach. The default values are 25% and 50%. In addition, specify a realization date for each approach.

In the Expected Data Growth table, you can specify the expected growth of application areas, document types, and tables in the system due to planned projects. Select Application Area, Document Type, or Tables and choose Get Details. Enter the expected additional growth and the realization date for each object. Alternatively, choose Add Row and enter the data manually.

- Under Step 3: Forecast, select whether you want to forecast the Growth Trend, the potential Cost Savings. Alternatively, to compare the impact of measures on the selected systems, select System Related.

  Select a forecast period.

  You have the following options:

  - To simulate the impact of all measures, select Impact of Combined Measures and one or more reduction approaches.
  - To simulate the impact of each measure individually, select All Measures Individually for the Selected Items. Select whether to simulate a reorganization and other measures, as well as whether to simulate either a database compression or HANA migration.

  Choose Simulate Forecast.

  A graph and table display the forecast according to the criteria you specified.

3.7.4 Track Projects

Focus: Improvement Measurement, Visualization

Define groups and relevant KPI's for your DVM projects

Visualize the current status of a DVM project

Track the progress of DVM projects on a technical level

Visualize progress with KPI's in your own ICI dashboard

You create Data Volume Management projects, which you can then monitor and analyze using the Interactive Continuous Improvement dashboard (ICI dashboard). With the track projects tool you are able to highlight the reduction of system size measured via key performance indicators (KPIs) and make trends visible over time.

Prerequisites

- You have completed the Managed System Preparation step in the Data Volume Management scenario of SAP Solution Manager Configuration (transaction SOLMAN_SETUP).
- The DVM administration user can create, maintain and track projects. The DVM display user can display existing projects only.
- You create the template DVM administration user and the DVM display user in the Data Volume Management scenario of SAP Solution Manager Configuration (transaction SOLMAN_SETUP) in the Create Template Users step.
- To use track projects, you have a user in the Solution Manager system and in the connected BI client.

For more information about the prerequisites for ICI dashboards, see Interactive Continuous Improvement Dashboard.

Features

You can create new improvement project choosing New Project. A guided procedure helps you through the creation process.

- For a project, you choose the systems for which you want to monitor the development. You can add multiple system to an improvement project.
- You can only choose systems marked green and yellow. For these systems, DVM extractors are running and KPI data collection is possible. For systems marked red, DVM extractors are not running and data is not available in the Solution Manager system.
- You choose one or more KPI groups belonging to the improvement project.
- The predefined KPI groups represent the different layers of a system and therefore provide different insights into the size of a system.
- You define the appropriate KPIs choosing Add and then select one of the systems and one of the KPI groups you have defined in the previous steps. The KPI type you can choose depends on the KPI group selected.
- The mandatory fields are marked with a red star.
- Under Current Value you choose Get Current Value to retrieve the current value for the defined KPIs.
- Choose Save to add the KPI to the KPI Definition table.
- In the Project Summary step, you can check the data for your improvement project and save your settings.
- The new project is displayed in the Improvement Projects table when you choose Refresh.
- You can display the improvement projects you have created in the ICI dashboard.
- Choose the improvement project from the table and then Launch Dashboard. You can also select more than one improvement project. Each improvement project is represented by a scorecard in the ICI dashboard.
- You can configure your scorecards in ICI Maintenance to adopt them to your needs. For more information, see Configuring the ICI Dashboard.

3.7.5 Data Aging

Focus
Get an impression of what amounts of data can be handled by data aging objects in the landscape for the analysed system.

Data aging opportunities
What amount of data can be handled by data aging objects in my system landscape?

Current status of data aging activities
How much data has been moved to historical partitions?

With the Data Aging tool, you can monitor the data-aging-related data footprints of the managed systems and trigger the collection of data from these systems. Based on this information, you can decide whether you want to move older data from the in-memory part of the SAP HANA database to the disk part. This optimizes the memory usage of SAP HANA, which in turn improves performance.

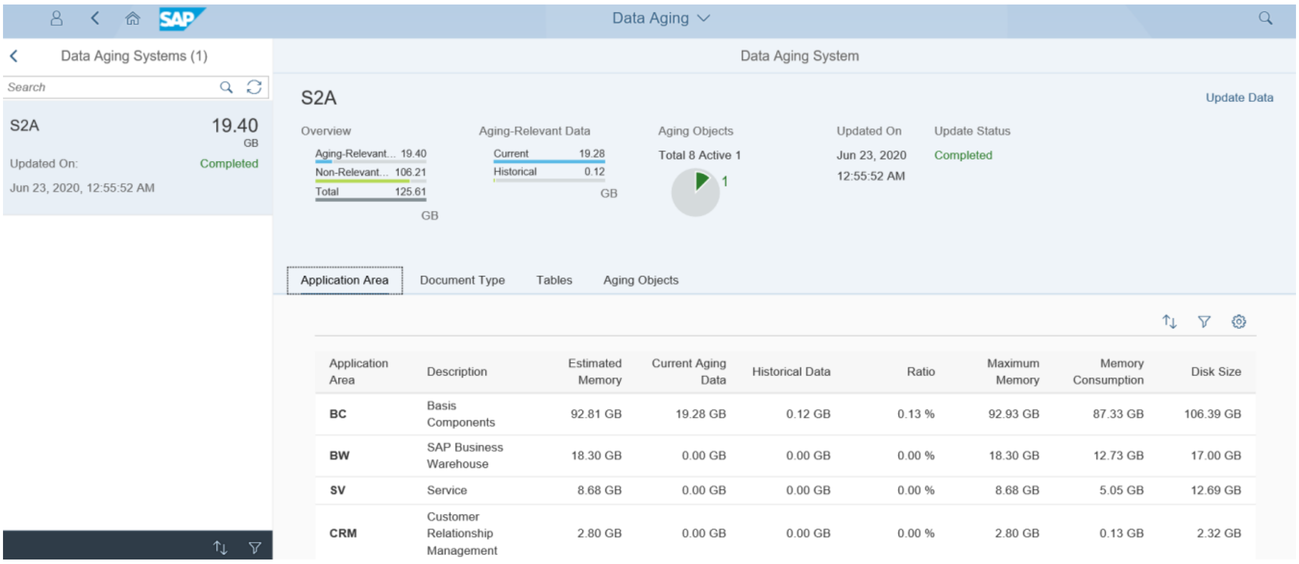


Figure 38: Example Overview of the Data Aging Functionality

This tool aggregates data by Application Area, Document Type, Tables and Aging Objects.

- The 'Application Area' and 'Document Type' tabs displays information similarly (according to Estimated Memory, Current Aging Data, Historical Data, Ratio, Maximum Memory, Memory Consumption and Disk Size).
- The 'Tables' tab includes a new column called 'Partitions'. This provides information on the no. of partitions and the volume of entries within the partitions which can be useful to avoid overflows in partitions.
- The 'Aging Objects' also displays data similarly and this allows you to view the status of the aging objects.

3.7.6 Unused Data

Focus

Brings transparency on unused data objects over the last months

Differentiates between the tables which are not accessed at all and the tables which are accessed “Read Only”

With the Unused Data tool, you can check the managed systems for data that has not been used or changed during the analysis period. You can display data that has not been accessed or data that has been read but not changed, by application area, document type, or data table.

The main objective of the Unused Data tool is to provide insights to data that is residing in the database and that isn’t being used or maybe nobody is not aware that it actually exists there. The tool provides awareness that there may be activities that can performed to reduce the footprint of such data. It could either mean moving the data into an archive file or into a historical partition.

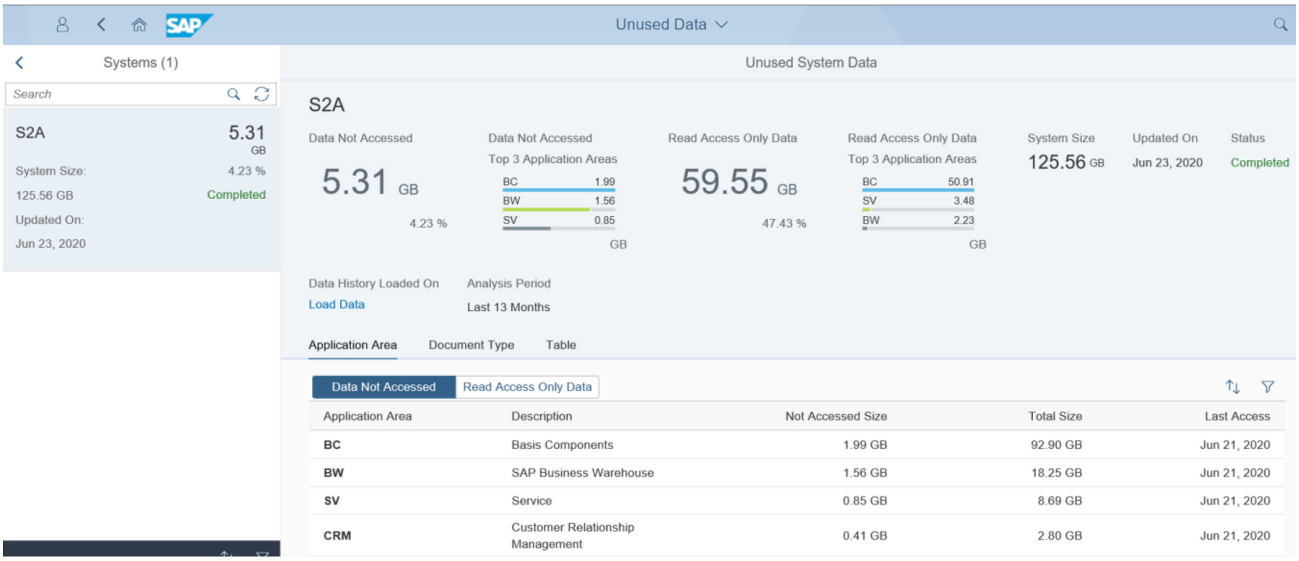


Figure 39: Example Overview of the Unused Data Functionality

There are 2 views available:

1. Data Not Accessed (data that has not been accessed at all in the past)
2. Read Access Only Data (data that can be read but not changed)

Data collected are displayed in terms of Application Area, Document Type and Table. The Table option brings it down to the table level. This can be useful to see if a certain table is really needed to be kept or if it can be moved or even removed.

3.7.7 BW Savings Potential

3.7.7.1 BW Savings Potential – Temporary and Administration Data

With this application, you can check SAP Business Information Warehouse systems for temporary and administrative data that you can delete to free up space in the database. It essentially reveals opportunities to improve housekeeping activities on temporary data based on SAP Best Practices.

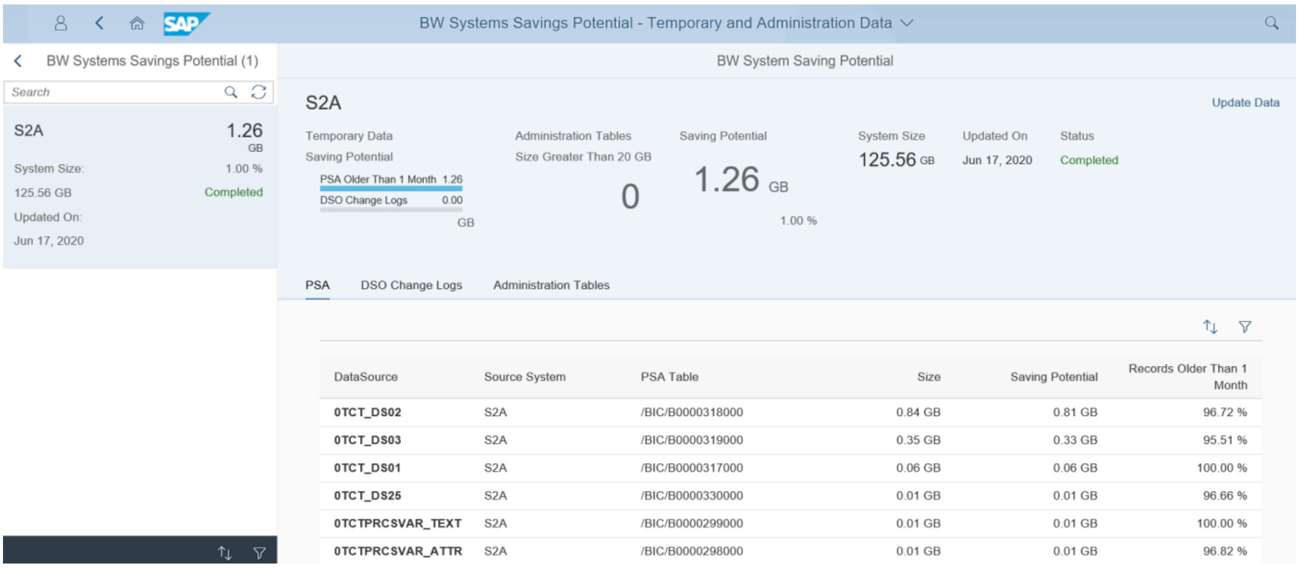


Figure 39: Example Overview of the BW Systems Savings Potential – Temporary and Administration Data Functionality

There are 3 views available:

1. PSA - To see, for example, if there is data there that is loaded over a month ago that are no longer required and that could possibly be moved off.
2. DSO Change Logs – This view can be used to find large tables using the estimated max memory size that shows potential of being moved off.
3. Administration Tables – This can be used to find tables that are large in estimated max memory size and that shows potential of being reduced in size.

3.7.7.2 BW Savings Potential – NLS and Unused InfoProviders

Focus

Brings transparency on options for successful Near-Line storage (NLS) usage

Highlight unuses InfoProviders which may be candidates for deletion

With this application, you can check SAP Business Information Warehouse systems for potentially unused InfoProviders and data in write-optimized DataStore objects that can be archived to a near-line storage system.

Near-line Storage (NLS) is used to archive BW data. If you are behind BI Optimization, it is a great way to save BW database space by moving less frequently used data to NLS. The Near line data is stored in a compressed form and the storage is inexpensive compared to BW database.

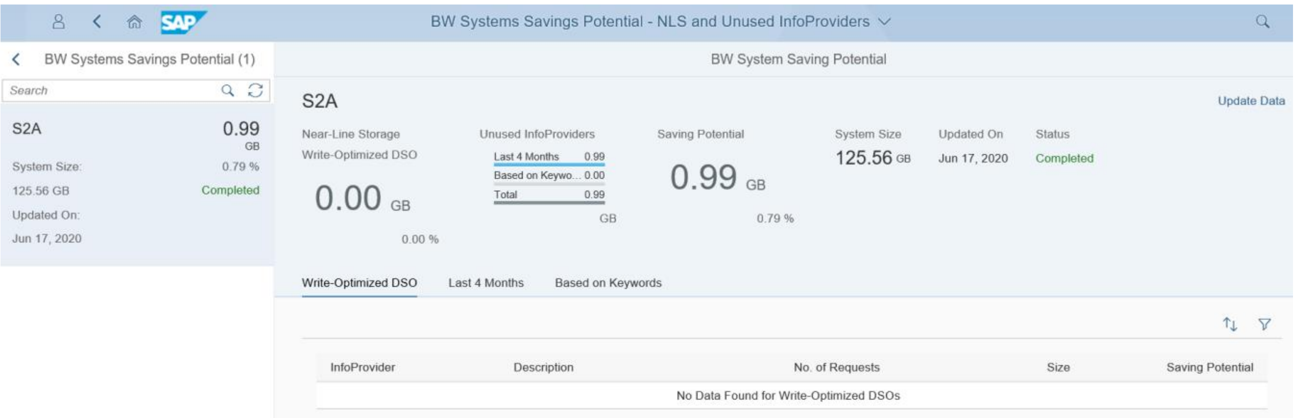


Figure 39: Example Overview of the BW Systems Savings Potential – NLS and Unused InfoProviders

With this tool, we can find out which data can be reduced and taken offline and data that you should take to a Near Line Storage system for example.

There are 3 views available:

1. Write-Optimized DSO – provides tabular information that contains the no. of requests for a certain InfoProvider
2. Last 4 months – Provides data that hasn't been used for the past 4 months to see if data is still required.
3. Based on keywords – Provides views on the data based on keywords. The keywords may indicate that the data is no longer used or no longer required in your BW system.

3.7.8 Service Sessions

Having identified those systems within your landscape where you would like to or need to take control of data volumes, it may not be immediately obvious what reduction measures are applicable to that specific system. This is where you could use the Guided Self Service (GSS Report) tool. Another option is to consult the Data Management Guide found at the following location. https://wiki.scn.sap.com/wiki/display/TechOps/Data+Volume+Management and click on **Data Management Guide**.

Note

Caution: Using the GSS Report on systems with very large volumes of data is not recommended, due to the potentially very long run times and the consequent usage of resources such as memory and a background work processes. In these cases, we advocate a different approach. Typically, the GSS report will analyze header tables. In certain cases, it will also analyze line items tables. Line item analysis will take longer in very large systems. So, if you have a very large system it is better to have a strategy in place and then decide which tools (within the DVM launchpad group) support that strategy. Determine what decision you are trying to support, then choose the tool that fits best.

DVM Service Documents	
Use Case	`Generate a business blueprint for data reduction for selected objects using SAP's Best Practices`
Frequency	Can be Ad-hoc or regular intervals
Functional Logic	Data read from the managed system is brought back to the Solution Manager where it is enriched with SAP Best Practice information such as residence times for archiving objects, or enhanced with digestible content such as Document Type, Application Area, Saving Potential calculations, Texts outlining the business purpose of the application, available reduction methodologies, dependencies and related impacts.
Mandatory Dependencies	Working READ, TMW and BACK RFC connections. User with authorization to execute ST14 in managed system Technically robust Solution Manager and managed System (All Notes from RTCCTOOL applied)
Optional Dependencies	None
What happens in the Managed System	An ST14 analysis is performed that collects information on the objects set in the scope step. Three Jobs are observable in SM37. BO Application Analysis DANA Analysis TAANA Analysis This information is packaged and sent back to the Solution Manager system for processing.
What happens in the Solution Manager system?	The Service Document is initiated in the Solution Manager system and this triggers an ST14 analysis in the Managed system. The collected data is brought back into the Solution Manager. This data is processed in the Service Session workbench where the context sensitive reduction measures are applied and a saving potential is calculated. Then a Service report i.e. Blueprint Document is generated that can be shared with relevant stakeholders

Proceed as follows:

1. Open the Service Documents tool in the DVM launchpad group.
2. Follow the guided procedure to execute an analysis of the data on the target system and to generate a business blueprint i.e. Best Practice document, with context sensitive recommendations on the reduction possibilities.
   Context sensitive means that you will only see the reduction options that apply to the object being analyzed. These options vary from object to object: For example, some objects can be deleted or archived, others can only be archived.

   Note

   There are multiple scope options that you can select such as

   SAP Proposed Objects
   This means the top relevant tables will be selected automatically.

   Manually Specify Objects - you decide on the objects to be analyzed
3. The system allows you to further refine your selection with the following options:

   - Manual Specification of Tables
   - Manual Specification of Document Types
   - Top 30 Objects
   - Top 30 Growing Objects
   - Top 30 Document Types
   - Top 30 Growing Document Types
   - Tables Showing Highest Database Activity
   - Archiving Activity
   - (HANA) Quick Win Objects only
   - Application Area

3.8 Further Information

3.8.1 Troubleshooting

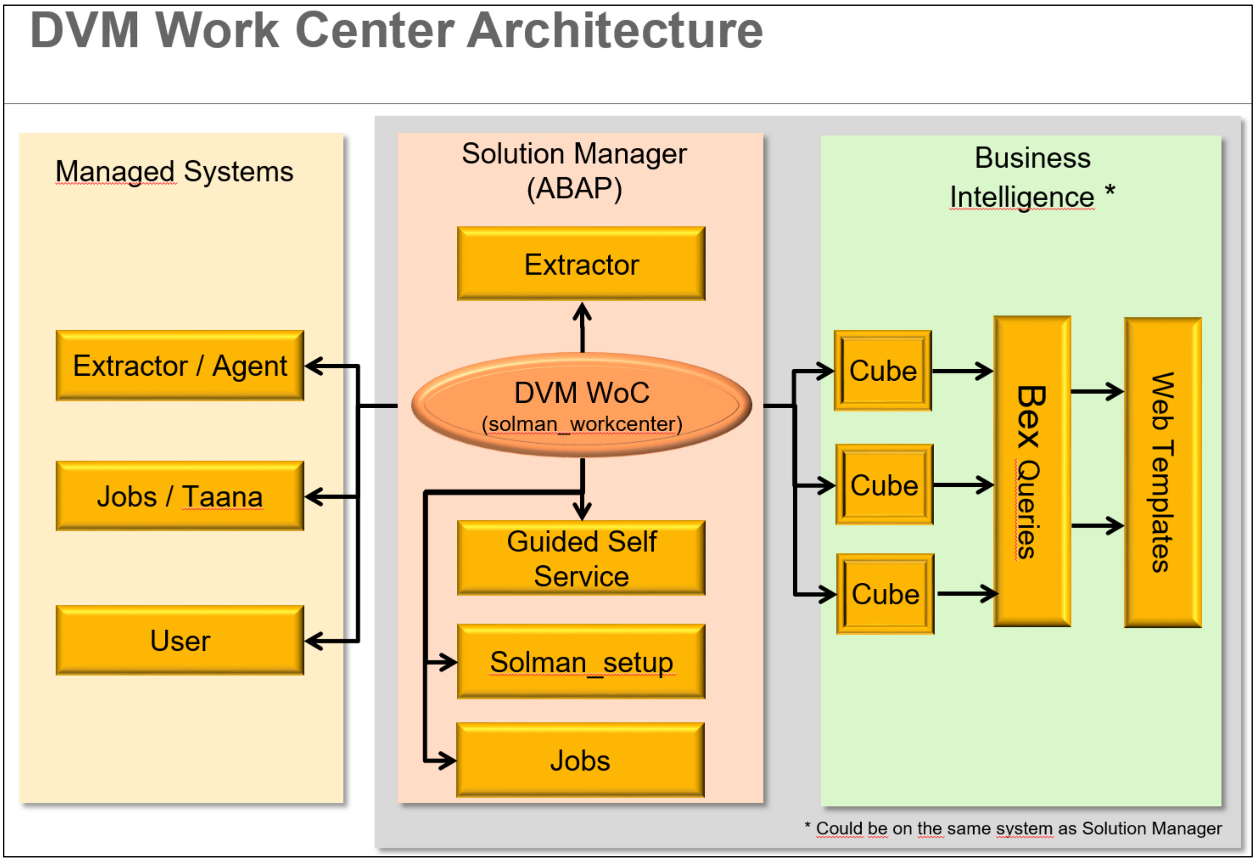
Issue Description	Solution
Can't activate DVM BW content CCMS_BI_SETUP job not appearing	In transaction SCC4, allow the change of BW objects
Duplicated size data in 0SM_SIZES cube	1. Activate DVM BW content 2. Cleanup duplicated data in 0SM_SIZES cube with report RAGS_DVM_CLEANUP_UTILITY
DVM Size Statistics Extractor (DBCON) log contains the error message "Illegal Input"	The "Illegal Input" message is normally caused by special characters (e.g. Ä, Ö, Ü ...) contained in the data, and BW does not accept special characters if they are not added in transaction code: RSKC. You can find out the exact error message in transaction code: SLG1. Object: BW_PROCESS and restrict by time window. In the error message it contains which special characters cause the error. Add these in RSKC.
Bad performance in extractor data loader	Check ST02, increase BW performance related memory parameter
Both DBCON and ST-A/PI based size extractor are active.	In SOLMAN_SETUP for DVM, in Step 1 - Managing System Preparation, execute the activity - Adjust Extractor Settings.
DBCON based size extractor does not support managed system with 46C basis.	Switch to ST-A/PI based size extractor
Size of objects in the Compression and Reorganization Analysis (CRA) tool differs from size in Data Allocation Statistics.	Data Allocation statistics shows the size from the last extraction. The CRA tool shows the table size from the last analysis. As data is collected at different times a small difference is expected.
Housekeeping job (E2E BI HOUSEKEEPING) for DVM infocubes fails. Fast growth in 0SM_SIZES cube is caused by duplicated data collected in every extractor run	Check the spool file of the E2E BI HOUSEKEEPING job, to find the error message for deleting data from 0SM_SIZES cube. The 0SM_SIZES cube, contains the table size info from managed system, normally we write 1 request per managed system per week into the cube. (e.g. for 1 managed system, we expect 54 requests in the cube after 1 year). Likely cause: The Managed System is missing DVM related SAP notes (you can check missing notes in report RTCCTOOL), or the DVM BW content was not re-activated after support package upgrade, which can cause an explosion of requests in the size cube. The E2E BI HOUSEKEEPING job can't handle this huge amount of data after 1 year. Solution: for the DVM size cube, the default setting is to keep data for only 1 year in the cube. You can check or change the current setting in solman_setup => DVM => step2 for 0SM_SIZES cube. If you do not want to keep the current data in the 0SM_SIZES cube, then you can use transaction RSA1 with the option "delete data" to delete ALL data from that cube or delete the cube and reactivate the cube. This is

Issue Description	Solution
	the fastest way as it takes only 1 or 2 minutes. But all data in that cube will be lost. If you want to keep the data from the last 360 days. Then you have three options: 1 - Use selective deletion and execute report RAGS_DEL_EMPTY_BI_REQUESTS to delete the empty requests regularly after selective deletion. It will improve the performance of the next selective deletion. 2 - Compress the cube first, and then use selective deletion. 3 - In RSA1, select the old requests manually and delete the requests. (This option is a manual step, can't be automated)
Function module "AGS_DVM_NEW_SIZE_EXTRACTOR" not found. The setting of DBCON based extractor is corrupted.	1. Execute "Adjust extractor setting" in SOLMAN_SETUP for DVM (Step 1) 2. Check extractors in EFWK Admin UI 3. Clear duplicates with report RAGS_DVM_CLEANUP_UTILITIES
No data for most Systems in 0SM_TOPTI-Cube. Data Allocation Statistics - Tables (Top) - History. Note: This Extractor runs locally in the Solution Manager system, therefore there is no need for an RFC definition in the field SOURCERFCDEST in table E2E_ACTIVE_WLI	Reason: Wrong data in 0SM_TOPTI cube Solution: 1. Activate DVM BW content - SOLMAN_SETUP/DVM/Step 1 2. Cleanup duplicated data in 0SM_SIZES cube with report RAGS_DVM_CLEANUP_UTILITIES 3. Refill data to 0SM_TOPTI cube Use RAGS_DVM_CLEANUP_UTILITIES, to cleanup data from DVM Top Object History. Afterwards, the top object extractor will run, and fill the top objects into 0SM_TOPTI cube. Check PDF attachment from note 2064464.
DVM query returns with "No Applicable Data Found"	Cause: Missing DVM notes after SP upgrade Solution: Implement missing DVM notes as per RTCCTOOL
Size reported in Data Allocation Statistic varies greatly with the size shown in DB02 on the managed system.	The extractors of the DVM launchpad group use the method CL_ORA_SOLMAN_DATA_PROVIDER_GET_TABLE_STATISTICS. This provides the used space of a table incl. indexes. The DVM launchpad group adds up the used size of those tables that have a representation in the ABAP dictionary to calculate the used space of a system i.e. DVM covers only DDIC tables. As a consequence Non-ABAP tables are missing in the space calculation, e.g. Oracle tables used for database operation and administration. This is the main reason why the total used space per system in DVM launchpad group is smaller compared to what DBACockpit shows.

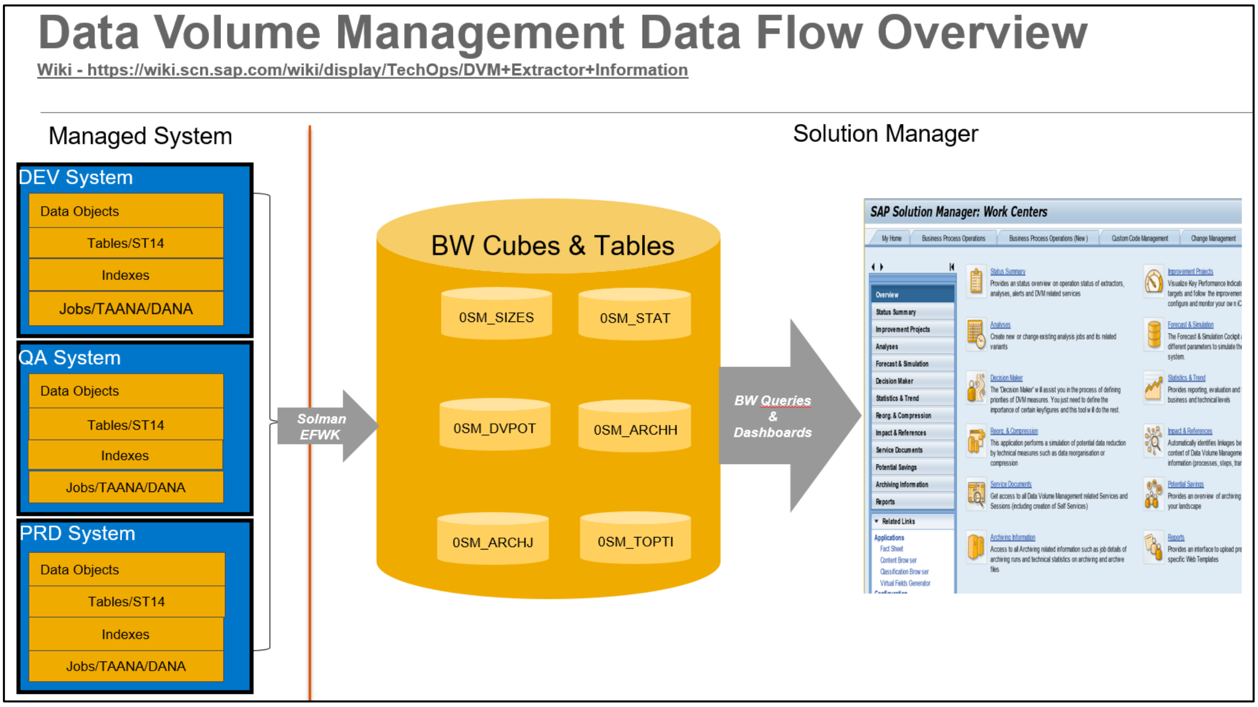
Issue Description	Solution
For systems running on HANA databases the values reported in the DVM launchpad group vary from those in the DBACOCKPIT (DB02).	DVM launchpad group shows the memory consumption for - Row store table - Index from row store table - Column store table The memory consumption under the system component is not considered in DVM. If you can't access the component view as above, you can execute the following SQL on HDB SELECT component, round(sum (USED_MEMORY_SIZE) / 1024 / 1024 / 1024 , 2) AS SIZE FROM M_SERVICE_COMPONENT_MEMORY group by component ORDER BY SIZE DESC
Old ST-A/PI based size statistics extractor is running. The extractor framework shows a green status. The logs indicate that the data exists in the infocube but no data has been extracted	The ST-A/PI based size extractor DVM DB OBJECT SIZES, is only capable of providing size information to one Solution Manager system. If it is connected to more than one, then only one system will get the required information from the extraction. The solution is to switch to the DBACOCKPIT based extractor. This extractor has no such restriction as the old extractor.
In Table Utilization Statistics, the statistics of table usage is different between ST10 and DVM Report	There is a one-day mismatch between the value in ST10 and the value in the DVM Dashboards. The date in ST10, is the actual date that the table is used. The date in the DVM dashboards is the date that the statistics are fetched to solution manager. There is a one-day delay compared to ST10.
Table Classification data is incorrect in some dashboards. The wrong table or application area descriptions are assigned.	Execute the cleanup report RAGS_DVM_ASSIGNMENT_CORRECTION
Saving Potential analysis shows results > 100%	This symptom can usually be resolved by implementing missing SAP notes in the managed system. Run the RTCCTOOL report for the affected system. Note: Once all notes are implemented the results in the related infocube are only updated after the next execution of the Saving Potential analysis for the specific table(s) and the next run of the Saving Potential extractor to fetch the data.
While configuring the DVM launchpad group in Solution Manager 7.2, you execute the Technical Preparation steps for the Managed System(s). One of the activities is to Update the Local DVM Content. The log of this activity indicates that the update failed. You see an entry such as "local DVM content not Updated", "<SID>~<Client> not configured".	The Solution is to update the ST-A/PI plugin. It needs to be at least ST-A/PI 01S* SP01 If your system fulfills the ST-A/PI requirements but you still face the above issue you can try the following. Check SAPOSS connection from managed system to SAP OSS system, check via tcode: OSS1 Or tcode: ST13 => DVM Setup => Perform Online update of DVM Content

3.8.2 Data Flows within Solution Manager for DVM

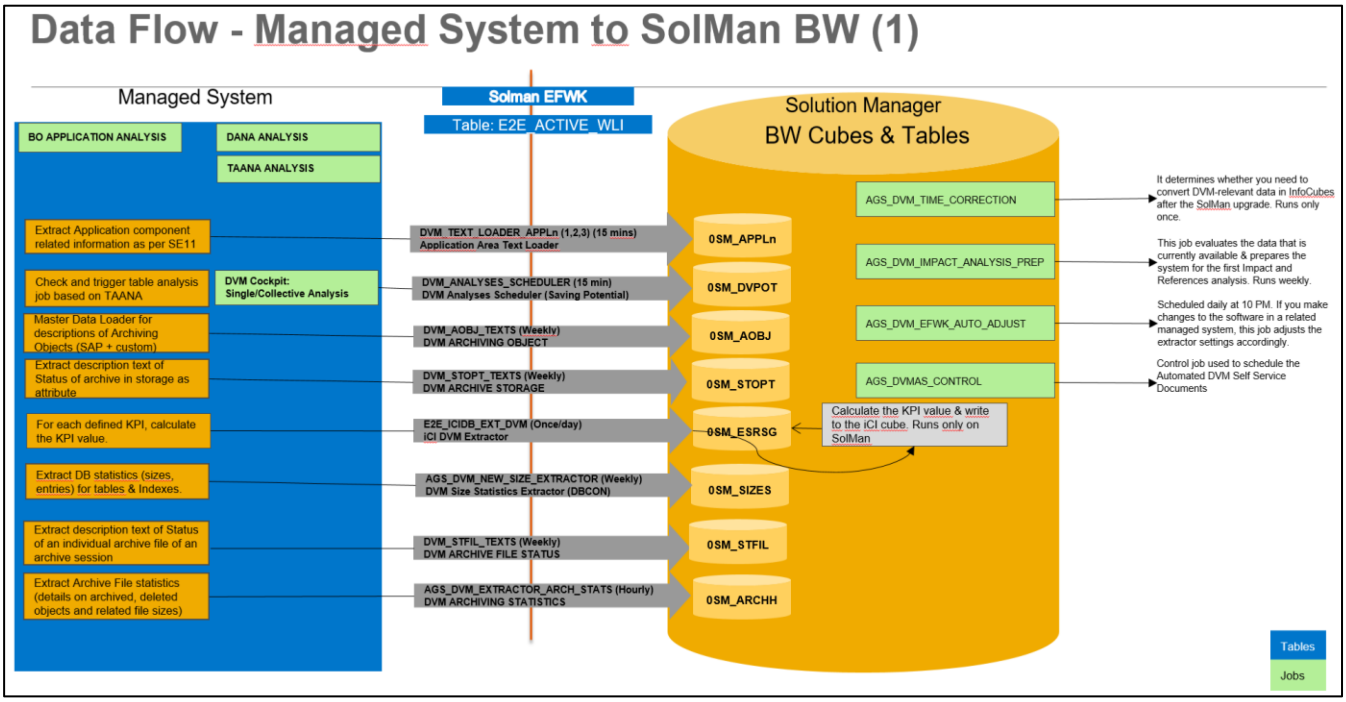
Overview of the architecture underpinning the DVM Launchpad Group in SAP Solution Manager.

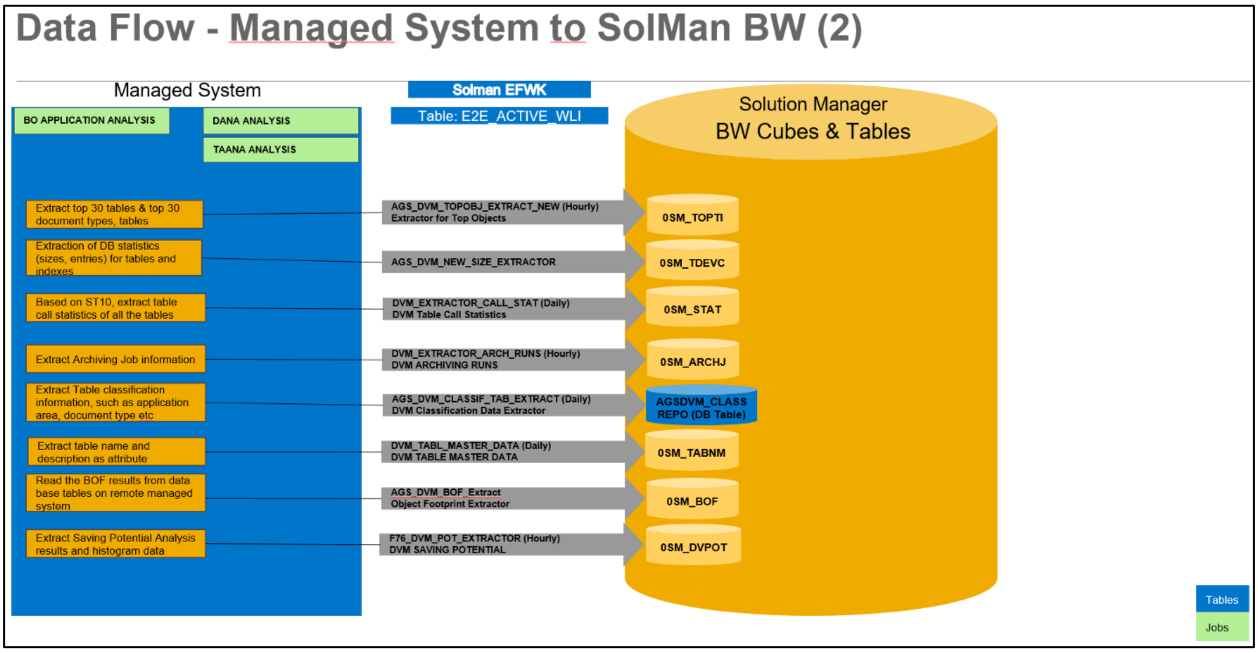


Data flow from Managed systems to BW infocubes in the Solution Manager (or other BW system)



Jobs used to trigger data flows





Infocubes used by Dashboards