Sizing Guide
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CUSTOMER

Sizing SAP Master Data Governance 9.0

Disclaimer

Some components of this product are based on Java™. Any code change in these components may cause unpredictable and severe malfunctions and is therefore expressly prohibited, as is any decompilation of these components.

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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`.

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Document History

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1.0	2016-12-14	
1.1	2017-11-02	Refinements in chapter "MDG on HANA"

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1 Introduction

Master Data Governance (MDG) supports you in keeping your master data consistent even when your system landscape is complex and distributed across various locations. MDG enables you to adjust your master data quickly to reflect legal changes and respond flexibly to new requirements and to business transactions such as takeovers of other companies. Master Data Governance also enables you to track changes made to master data.

1.1 Functions of SAP Master Data Governance

MDG offers you master data maintenance capabilities through a role-based domain-specific Web Dynpro user interfaces or through Internet Service Request (ISR) forms. You can access the screens either through SAP Enterprise Portal or through SAP NetWeaver Business Client. In addition to central maintenance, the maintenance of data from external sources is supported too. For example, you can upload data into MDG using file or services, and then process and enrich the data in MDG. You can also use the search capabilities. These include database search, exact or fuzzy search using the SAP Enterprise Search, HANA search provider, and a fuzzy address search using SAP BusinessObjects Address Services.

The data in process within so called change requests is stored in a separated repository called staging area, and is to be transferred to the active area after its approval. The active area can be the operational SAP database or can be generated within MDG. The data model in the standard delivery is based on SAP Business Suite, including financial data, business partner data, and material data. It can be extended by the customer. There is available a single item maintenance as well as mass maintenance.

The data can be validated against certain rules during entry or maintenance. The validation is done with SAP Business Suite logic, wrapped by the Business Rules Framework (BRF+) and supported by SAP BusinessObjects Data Quality Services or by external services. Customer specific validation logic can be added. During the validation the system also checks for duplicates

Approved and activated data changes can be replicated to SAP systems and non-SAP systems. The replication is controlled by the Data Replication Framework (DRF). This provides the flexibility to replicate the selected data to specific client systems by defining filters. It supports peer-to-peer communication as well as replication by a broker like SAP PI for example. The replication can be handled by various means, for example Enterprise Services, ALE / IDOC or RFC. The DRF supports key mapping and value mapping and it monitors replication activities, failures and so on.

The replication can be started manually, it can be scheduled, or it can be triggered automatically as part of a workflow. In order to support flexibility in data ownership, some data can be maintained in the MDG hub system and other data can be added in the client systems after replication.

Change requests organize the data changes and the workflow across various users and they document all changes for auditing purposes. Typically change requests are for a single master data object. If you want to synchronize multiple changes, you can cluster them. This allows you to activate all approved change requests at the same time.

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1.1.1 SAP Master Data Governance for Financials

MDG for Financials (MDG-F) enables you to manage financial-related master data. You can request, approve, and execute changes to the data, as well as replicate those changes to decentralized systems by means of enterprise services, application link enabling (ALE), download, or BW extractor. Web applications for this purpose are available in the SAP NetWeaver Portal and SAP NetWeaver Business Client.

MDG for Financials supports the approval process for master data changes, which can include several approval and revision phases, and the collaboration of all users participating in the master data change. All changes to master data are documented in the system. This, along with versioning of master data, promotes transparency and facilitates adherence to statutory rules, especially when central and local users participate in the process.

You can replicate the master data from the system in which you have changed the data (Master Data Governance hub) to decentralized systems, for example, consolidation, planning, ERP, and non-SAP systems.

1.1.2 SAP Master Data Governance for Supplier

MDG for Supplier (MDG-S) enables you to manage the master data for suppliers and using this process, you can create, change, and delete supplier master data.

MDG for Supplier also supports the approval process for changes to supplier master data, which can include several approval and revision phases, and the collaboration of all users participating in the creation and changing of supplier master data. Data Quality Services such as address validation, duplicate check, data enrichment, as well as merging process can also be included in the above mentioned supplier processes.

All changes to master data are documented in the system, which increases transparency and avoids the creation of duplicate information. In addition, all activities around the creation and maintenance of suppliers occur in the Supplier Governance work center. Preconfigured workflows are provided to easily set up a distributed governance process which involves several users.

You can distribute the created or changed master data from the system in which you change the data in MDG for supplier, to the connected transactional systems, for example, SAP Enterprise Resource Planning (SAP ERP), SAP SRM, or non-SAP systems.

1.1.3 SAP Master Data Governance for Customer

The main focus of MDG for Customer (MDG-C) is the governance of customer master data in a Master Data Governance (MDG) hub system and the replication of data to connected systems, such as SAP Enterprise Resource Planning (SAP ERP), SAP Customer Relationship Management (SAP CRM) systems or to non-SAP systems.

Using MDG for Customer, you can create, change or block customer master data and you can also mark it for deletion. This process also supports the approval process for changes to customer master data, which can include several approval and revision phases, as well as the collaboration of all users participating in the maintenance of the customer master data. Data quality services, such as address validation, duplicate check, and data enrichment can also be included in this process.

All changes to master data are documented in the system, which increases transparency and avoids the creation of duplicate information. In addition, all activities around the creation and maintenance of customers occur in the

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Customer Governance work center. Preconfigured workflows are provided to easily set up a distributed governance process which involves several users.

New customers can also be created or changed on client side (SAP ERP, SAP CRM or non-SAP-systems). This customer data is distributed to the MDG hub system where governance processes are triggered to ensure a high data quality. The master data from MDG for customer is distributed to the connected transactional systems.

1.1.4 SAP Master Data Governance for Material

You can use MDG for Material (MDG-M) to find, create, change, and delete material master data. The main focus of this process is the governance of material master data in a Master Data Governance (MDG) hub and the replication of master data, cleansed in the master data cleansing process, to connected operational and/or business intelligence systems.

The processes are workflow-driven and can include several approval and revision phases, as well as the collaboration of all users participating in the master data maintenance. All changes to master data are documented in the system. The result is to have an improved process with increased transparency by having the material master data ready in time and quality, and avoiding the costly creation of duplicate master data records.

All activities for the creation and maintenance of materials occur in one work center. Preconfigured workflows are provided to enable you to easily set up a governance process involving several users.

1.2 Architecture of SAP Master Data Governance

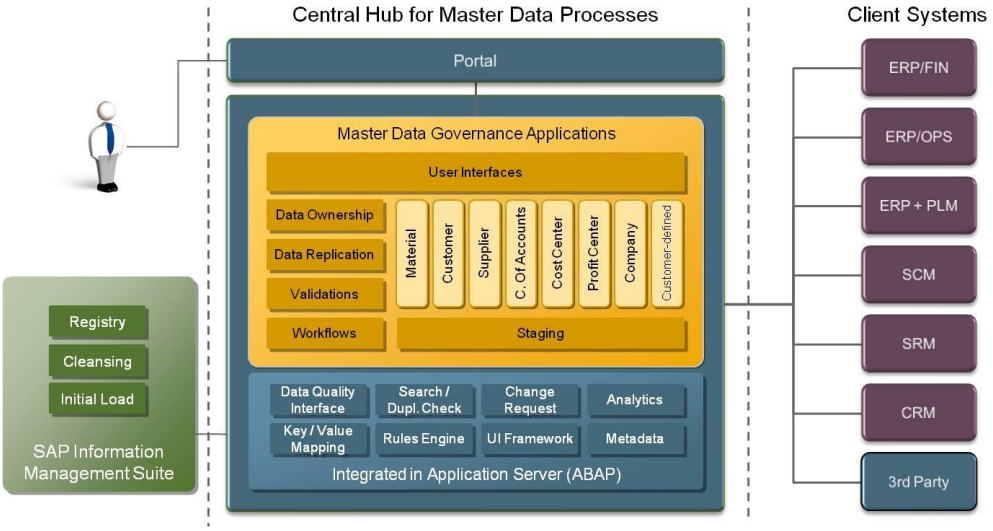

Figure 1: SAP Master Data Governance

The Master Data Governance applications offer services for data cleansing, data matching and data consolidation. They support the maintenance of data on a central system as well as data governance processes on client systems. The client systems are integrated by service-based or by IDOC communication.

The diagram shows a potential structure of an MDG system landscape.

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1.3 Factors that Influence the Performance

There are several performance consuming activities within MDG that have a major influence on the overall performance of all MDG components, for example:

- Creations of change requests
- Standard search
- Complexity of the chosen UI layout (e.g. state of UI building blocks)

For further information see Performance Tweaks https://scn.sap.com/docs/DOC-48193

- Workflow inbox

  For further information see, chapter 3.2.5 Recommendations.

  Be aware that this does not include the Enterprise Search, which might have additional influence on the overall performance. For more information about the Enterprise Search, see Sizing Search and Classification (TREX).

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2 Sizing Fundamentals and Terminology

SAP provides general sizing information on the SAP Service Marketplace. For the purpose of this guide, we assume that you are familiar with sizing fundamentals. You can find more information at service.sap.com/sizing → *Sizing Guidelines* → *Presentations and Articles*.

This section explains the most important sizing terms, as these terms are used extensively in this document.

Sizing

Sizing means determining the hardware requirements of an SAP application, such as network bandwidth, physical memory, CPU processing power, and I/O capacity. The size of the hardware and database is influenced by both business aspects and technological aspects. This means that the number of users using the various application components and the data load they put on the server must be taken into account.

Benchmarking

Sizing information can be determined using SAP Standard Application Benchmarks (www.sap.com/benchmark). Released for technology partners, benchmarks provide basic sizing recommendations to customers by placing a substantial load upon a system during the testing of new hardware, system software components, and relational database management systems (RDBMS). All performance data relevant to the system, user, and business applications are monitored during a benchmark run and can be used to compare platforms.

SAPS

The SAP Application Performance Standard (SAPS) is a hardware-independent unit that describes the performance of a system configuration in the SAP environment. It is derived from the Sales and Distribution (SD) Benchmark, where 100 SAPS is defined as the computing power to handle 2,000 fully business processed order line items per hour. (For more information about SAPS, see www.sap.com/benchmark → *Measuring in SAPS*).

Initial Sizing

Initial sizing refers to the sizing approach that provides statements about platform-independent requirements of the hardware resources necessary for representative, standard delivery SAP applications. The initial sizing guidelines assume optimal system parameter settings, standard business scenarios, and so on.

Expert Sizing

This term refers to a sizing exercise where customer-specific data is being analyzed and used to put more detail on the sizing result. The main objective is to determine the resource consumption of customized content and applications (not SAP standard delivery) by comprehensive measurements. More information can be found here.

Configuration and System Landscaping

Hardware resource and optimal system configuration greatly depend on the requirements of the customer-specific project. This includes the implementation of distribution, security, and high availability solutions by different approaches using various third-party tools. In the case of high availability through redundant resources, for example, the final resource requirements must be adjusted accordingly.

There are “best practices” which may be valid for a specific combination of operating system and database. To provide guidance, SAP created NetWeaver configuration guides (service.sap.com/instguides → *SAP NetWeaver*).

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3 Initial Sizing for SAP Master Data Governance

There are many parameters that may have an influence on the sizing and performance of a MDG installation. To give a good estimation of hardware requirements we decided to provide a T-shirt sizing model considering the most important influencing factors. Additional information will help you to optimize your business processes.

3.1 Assumptions

The business scenarios and measure environment used to create the sizing guide are as follows:

1. Launch the NWBC with the corresponding MDG work center
2. Launch the single application UI for creating a new material, supplier or account
3. Enter basic data specific for the new object, check the request and submit it
4. Activate the change requests and finish the MDG process
5. Changing existing material, supplier or account was done via MDG in a comparable way

- The scenarios are measured separately. For result calculation the process with the highest resource requirement is taken. This is referred to in 3.2 as a single process per hour.
- A change request always contained only one material, supplier or account.
- The user is active in only one scenario at a given point in time.
- Unused UI building blocks are collapsed.
- Special one-time tasks are not subject of this guide. They may require higher resource consumption but normally less concurrent users.

3.2 Sizing Guideline

In the below tables we have categorized enterprises who will use MDG into three categories – Small, Medium and Large. Their corresponding Memory and CPU consumption are mentioned – in dependency of each MDG domain.

Table 1 Aggregated Memory Consumption

Category for Enterprises	Material [GB]	Supplier / Customer [GB]	Financials [GB]
Small (0 –10 users)	6	6	6
Medium (10 –50 users)	10	10	14
Large (50–100 users)	15	15	24

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Table 2 CPU Consumption

Category for Enterprises	Processes per Hour	Material [SAPS]	Supplier [SAPS]	Financials [SAPS]
Small	200	3.000	3.000	2.000
Medium	750	8.000	11.000	6.000
Large	1500	16.000	21.000	11.000

Note:

The most important factor for CPU sizing in MDG is the number of processes per hour – you need to estimate how many processes your users will run concurrently and then select the right category.

If you want to use several MDG domains in one system, select the appropriate number of processes for each domain and calculate your requirements accordingly.

Example: You plan to use MDG-M and MDG-S in one MDG instance. Your estimated number of processes for MDG-M are 200 and for MDG-S 400.

> 200 MDG-M processes (3.000 SAPS) + 400 MDG-S processes (11.000 SAPS) = 14.000 SAPS for MDG.

CPU consumption increases with the complexity of the data model and with the number of active change requests (change requests in process).

Memory consumption is correlated with the number of concurrent active users.

Note:

With MDG7.0 Multiple-Records Processing is available. Even this could be a special one-time task, you may use this function besides the regular master data governance for mass data processing. Depending on the targeted usage you may need to enhance your CPU sizing by the corresponding factor.

Example: You plan to use Multi-Records Processing for master data governance. Your estimated number of processes shall be 20 per hour and the number of objects 100 per process. Adjust your CPU consumption per object by 0.5 SAPS.
20 MDG-M processes * 100 objects * 0.5 SAPS = 1.000 SAPS.

Add the additional required number of SAPS to your already estimated CPU consumption in order to meet the sizing requirements.

3.2.1 Network Load

The average network load per process is 21 kB for all domains.

3.2.2 Disk Sizing

The table below mentions the disk usage for the complete process of the creation of one single object with basic data.

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Table 3 Disk Usage

Disk Usage per Create	Material [kB]	Supplier / Customer [kB]	Financials [kB]
MDG	6.5	7.2	2.7
Standard ERP	10.1	17.1	5.2

3.2.3 Recommendations

Keep the number of active change requests per domain as low as possible, e.g. less than 50.000 (ideally < 10.000)

Keep the users workflow inbox clean, i.e. do not create too many inbox workflow items for a user at the same time

For initial load of objects into the system it is recommended to load directly into active area using packages of less than 100.000 objects (ideally < 10.000)

MDG is more CPU than memory demanding. Please assure to have the latest revision of CPUs in usage (comparison e.g. via launch date and/or lithography). The reason is that besides clock speed, CPU performance depends on the used instruction set.

3.2.4 MDG on HANA

If you want to install MDG on a HANA database please follow the sizing guidelines for the SAP Business Suite. The corresponding SAP note http://service.sap.com/sap/support/notes/1793345 provides detailed information for. If you need an initial estimate you can calculate it with the rules found in this note.

For the calculation of the disk usage of an installed MDG you can refer to Table 3 “Disk usage”. Multiply the required disk space per object with the number of objects to be created in MDG. After that, transfer the gained value into your HANA database calculation multiplied by the expected compression rate.

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4 Comments and Feedback

Both are very welcome; please submit them to SAP Master Data Governance community homepage on SCN:
https://scn.sap.com/community/mdm/master-data-governance

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