

Sizing Guide

Document Version: 1.4 – 2018-01-31

PUBLIC

Sizing Component Extension 6.0 for SAP EHS Management

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.

SAP – Important Disclaimers

SAP Library document classification: PUBLIC

This document is for informational purposes only. Its content is subject to change without notice, and SAP does not warrant that it is error-free. SAP MAKES NO WARRANTIES, EXPRESS OR IMPLIED, OR OF MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE.

Coding Samples

Any software coding and/or code lines / strings ("Code") included in this documentation are only examples and are not intended to be used in a productive system environment. The Code is only intended to better explain and visualize the syntax and phrasing rules of certain coding. SAP does not warrant the correctness and completeness of the Code given herein, and SAP shall not be liable for errors or damages caused by the usage of the Code, except if such damages were caused by SAP intentionally or grossly negligent.

Internet Hyperlinks

The SAP documentation may contain hyperlinks to the Internet. These hyperlinks are intended to serve as a hint where to find supplementary documentation. SAP does not warrant the availability and correctness of such supplementary documentation or the ability to serve for a particular purpose. SAP shall not be liable for any damages caused by the use of such documentation unless such damages have been caused by SAP's gross negligence or willful misconduct.

Accessibility

The information contained in the SAP Library documentation represents SAP's current view of accessibility criteria as of the date of publication; it is in no way intended to be a binding guideline on how to ensure accessibility of software products. SAP specifically disclaims any liability with respect to this document and no contractual obligations or commitments are formed either directly or indirectly by this document

Caution

Make sure you use the current version of the Sizing Guide.

The current version of the Sizing Guide is on the SAP Help Portal at <http://help.sap.com/ehs-comp60>.

Document History

Version	Date	Change
1.0	2015-06-15	First Published Version
1.1	2015-06-22	Wrong Table in chapter 3.3 deleted
1.2	2015-11-10	Re-release for FP 01
1.3	2016-05-18	Added performance information for environment management
1.4	2018-01-31	Links to SAP Service Marketplace replaced

Table of Contents

1	Introduction.....	5
1.1	Functions of SAP EHS Management.....	5
1.1.1	Functional Overview: Incident Management	6
1.1.2	Functional Overview: Risk Assessment.....	6
1.1.3	Functional Overview: Environment Management	7
1.1.4	Functional Overview: Product Compliance.....	7
1.2	Architecture of SAP EHS Management	7
1.2.1	Architecture Overview	7
1.2.2	Integration Scenarios with SAP ERP	8
1.2.3	System Landscape.....	8
1.3	Factors that Influence Performance	9
1.3.1	Incident Management	9
1.3.2	Risk Assessment	10
1.3.3	Environment Management	10
1.3.4	Product Compliance	13
2	Sizing Fundamentals and Terminology.....	15
2.1.1	Configuration and System Landscaping	17
3	Initial Sizing for SAP EHS Management	18
3.1	Assumptions	18
3.1.1	Incident Management	18
3.1.2	Risk Assessment	18
3.1.3	Environment Management	19
3.1.4	Product Compliance	19
3.2	CPU and Disk Sizing	20
3.3	Sizing Guideline.....	21
3.3.1	Incident Management	21
3.3.2	Risk Assessment	22
3.3.3	Environment Management	22
3.3.4	Product Compliance	23
4	Miscellaneous	26

1 Introduction

Component extension 6.0 for *SAP EHS Management* is based on the *SAP ERP* application and *SAP NetWeaver*. It is a Web-based application that is realized in Web Dynpro (ABAP).

This add-on provides integration points throughout the application to other SAP systems, such as Human Resources, Plant Maintenance, and Financials. You can query, assign, and read data in integrated components. In some cases, you can also initiate processes in, create data in, and replicate data from an integrated component. *SAP EHS Management* also utilizes existing tools, like the *SAP Business Workflow* to provide the engine for its process foundation, and *SAP Interactive Forms* by Adobe to collect information in questionnaires and to create print forms in PDF format.

SAP EHS Management also optionally utilizes components to support your organization if you want to use *SAP NetWeaver Business Warehouse* and BI content, an Enterprise service, or the Enterprise Search (TREX) services.

For more information about the following topics, see the corresponding documentation:

Content	Location
Application Help for SAP EHS Management	See SAP Help at http://help.sap.com/ under <i>SAP Business Suite</i> → <i>SAP EHS Management</i> → <i>Component Extension for SAP EHS Management</i> → <i>Release 6.0</i>
All Guides for SAP EHS Management	http://help.sap.com/ehs-comp60
System Landscape for SAP EHS Management	Chapter 2.5 of the Master Guide for <i>SAP EHS Management</i> .
SAP NetWeaver (Application Help)	See SAP Help at http://help.sap.com/ under <i>SAP NetWeaver</i> → <i>SAP NetWeaver Platform</i> → <i>SAP NetWeaver 7.4</i>

1.1 Functions of SAP EHS Management

SAP EHS Management supports your company in fulfilling environment, health, and safety requirements on a regional and global scale. It makes day-to-day business safer by integrating EHS into the core business.

SAP EHS Management is comprised of the following components:

- Foundation for EHS Management
- Incident Management
- Risk Assessment
- Environment Management
- Product Compliance

1.1.1 Functional Overview: Incident Management

You can use this business process to record the following types of incidents that occur in your organization and to report these to the relevant authorities:

- Incidents
- Near misses
- Safety observations

The process also supports you with additional activities such as an incident risk assessment, investigations, and financial tracking, and allows you to initiate actions to prevent unsafe conditions and future incidents. Managing incidents not only ensures compliance with legal requirements, it also helps to increase employee health and safety and to safeguard the organization's assets by reducing the risk of further incidents in the future.

The business process runs as follows:

1. Report an incident (initial recording)
2. Review and complete an incident record
3. Perform an incident investigation
4. Generate analytical reports
5. Generate BI analytical reports (optional)

1.1.2 Functional Overview: Risk Assessment

You can use this business process to identify, analyze, evaluate, and treat risks that exist in your organization. You can perform the following types of risk assessments:

- Health risk assessment
- Safety risk assessment
- Environmental risk assessment
- Job hazard analysis

The assessment steps for each risk assessment type are customizable, and you can use the standard analysis methods or incorporate your own analysis methods.

The business process supports measuring and analyzing exposure data for physical agents and chemical agents. You can compare exposure data to occupational exposure limits (OELs) set by your organization or regulatory agencies to determine whether exposure levels are acceptable for the corresponding locations or jobs. You can also group the persons with similar exposure together into similar exposure groups (SEGs) and generate exposure profiles for each person. Note that if you use the specification database of [SAP EHS Management](#) as part of [SAP ERP](#), you can transfer the data of real substances and listed substances (and their occupational exposure limits) to the [SAP EHS Management](#) add-on to use in chemical agents.

The Managing EHS Risk process not only supports compliance with regulations, but also enables you to minimize identified risks within your organization by implementing risk-related controls and tasks. This helps you to effectively improve the health and safety of your employees, as well as to prevent harmful effects on the environment. After you have assessed and treated a risk, you can communicate information about the risk at a location (and the controls to reduce it) to the Plant Maintenance (PM) system for the corresponding PM technical object. This enables you to embed risk information into the PM processes. The maintenance planner can also include risk information on the job card for the maintenance worker.

The business process runs as follows:

1. Identify Risks
2. Analyze Risks

3. Evaluate Risks
4. Treat Risks

1.1.3 Functional Overview: Environment Management

You can use this scenario to organize the data collection and to handle the processing and monitoring of environmentally-related data.

You can carry out the following tasks in order to ensure compliance with environmental regulations:

- Schedule data collection
- Schedule tasks
- Schedule sampling activities
- Record the collected or sampled values
- Set up calculations of environmental data
- Set up aggregations of environmental data
- Monitor values from data collections, samplings, calculations, and aggregations
- Monitor tasks
- Identify deviations
- Investigate and create deviations

1.1.4 Functional Overview: Product Compliance

The business scenario Product Compliance supports discrete manufacturers to comply with product-related environmental regulations, such as the EU directive for the restriction of hazardous substances (EU RoHS) and REACH substances in articles (REACH SVHCs).

For the automotive industry, the collaboration and electronic data exchange over the IMDS (International Material Data System) is supported.

1.2 Architecture of SAP EHS Management

The following information is a summary of the information contained in the Master Guide. For more information about the architecture, integration scenarios with [SAP ERP](#), and the system landscape, see the Master Guide for [SAP EHS Management](#).

1.2.1 Architecture Overview

The architecture of [SAP EHS Management](#) includes the following features:

- Component extension 6.0 for [SAP EHS Management](#) is an add-on to SAP enhancement package 7 for [SAP ERP 6.0](#) and based on [SAP NetWeaver 7.4](#).
- The processes of component extension 6.0 for [SAP EHS Management](#) can be integrated with other components to include information from those components. Plant Maintenance, Customer Services,

Quality Management, Material Management, Management of Change, Organizational Management, Human Capital Management and Business Partner are all components that can be integrated.

- Component extension 6.0 for *SAP EHS Management* can be implemented in the following ways:
 1. Installation on a productive ERP system containing all relevant data
 2. Installation using a side-by-side scenario with an earlier ERP system (earlier than enhancement package 7) where the associated modules are located on remote systems and are coupled by BAPI/RFC functions. For remote systems, releases from R/3 Enterprise 470 Extension Set 2.00 up to SAP enhancement package 7 for SAP ERP 6.0 are supported.

1.2.2 Integration Scenarios with SAP ERP

For more information about integration scenarios, see chapter 2.7 of the Master Guide for SAP EHS Management.

1.2.2.1 On-Top Scenario

In the on-top scenario, all relevant data is in the *SAP EHS Management* system.

1.2.2.2 Side-By-Side Scenario

In a side-by-side scenario, the integrated components are located on remote systems. There is one central system for master data (ERP) that provides the initial setup of Customizing and master data for *SAP EHS Management*, via the following:

- Customizing transports
- ALE replication (for example, material from Material Master)

1.2.2.3 Mixed Scenario

A mixture of both scenarios is also possible. For example, *SAP EHS Management* and Personnel Administration are installed on the same system and other integrated components are installed on remote systems.

1.2.3 System Landscape

Several system landscapes are possible for *SAP EHS Management* based on *SAP ERP* and *SAP NetWeaver*:

- Full system landscape
- Minimal system landscape
- Typical system landscape

For more information about system landscapes and the prerequisites for using their mandatory and optional components, see Master Guide Component Extension 6.0 for [SAP Environment, Health, and Safety Management](#).

1.3 Factors that Influence Performance

1.3.1 Incident Management

The following factors influence performance:

- Incident reporting (initial recording)
 - Incidents can be recorded online using the Web Dynpro applications (Report Incident - Simplified, Report Incident, Report Near Miss, Report Safety Observation) and offline, using SAP Interactive Forms by Adobe. Online reporting requires launching the [SAP NetWeaver Business Client](#) and running a Web Dynpro application. For offline recording, an [SAP Interactive Form](#) by Adobe is processed and sent by e-mail.
 - Number of initial incident records
 - Number of details maintained during initial recording. Depending on the incident category, it is possible to add O...n involved persons, O...n assets (equipment, vehicles, properties) involved, and O...n attached documents.
- Tasks created by initial recording
 - Depending on the configuration for each incident manager, tasks are created.
 - When using offline initial recording, additional tasks are created for the incident manager to accept the data from the [SAP Interactive Form](#) by Adobe.
- Reviewing and completing an incident record
 - Number of additional details added to the incident, such as persons, absences, assets, damages, and so on
 - Number of questionnaires sent and received
 - Number of tasks added and number of external notifications created for the tasks
 - Number of investigations with the assigned tasks and investigation documents
 - Number of reports (such as legal reports) created and attached to an incident record
- Translations
 - In several places, it is possible to maintain comments and translate them. Each translated text and each translated attached document effects the system load and disk usage.
- Processes (and corresponding workflows) started during review and completion
 - Create HR absences using a process
 - Create PM, QM, and CS notifications using a process
 - Create recurring tasks
 - Schedule investigations
- Scheduled reports
 - Polling reports for changed absences or completed PM, QM, and CS notifications
- Create summary reports
 - Creation of reports, such as the OSHA300 and OSHA300A reports
- Analytical reporting
 - Running extractors for BI reporting and analytics

1.3.2 Risk Assessment

The following factors influence performance:

- Creation of Risk Assessment
 - Number of details maintained during creation of a risk assessment, such as uploaded documents, size of assessment team or number of tasks
- Risk Analysis, Evaluation, and Treatment
 - Request of amounts
 - Number of details maintained during creation of a risk assessment, such as uploaded documents, size of assessment team or number of tasks.
- Translations
 - In several places, it is possible to maintain comments and translate them. Each translated text and each translated document attached effects the system load and disk usage.
- Processes (and corresponding workflows) started during Risk Analysis, Evaluation & Treatment

1.3.3 Environment Management

The following factors influence performance:

- Compliance Scenario
 - Number of data collections added to the scenario
 - Number of samplings added to the scenario
 - Number of calculations added to the scenario
 - Number of assigned compliance requirements
 - Number of assigned responsible persons
 - Number of environmental limits assigned to data collections and calculations
- Data Collection Details:
 - Number of persons responsible
- Calculations
 - Complexity of the calculation expressions
 - Number of input variables used in calculation
- Automatic Calculations
 - Complexity of the expressions
 - Number of cascaded calculations
 - Number of input variables
- Data Monitor and Issues Monitor
 - Number of amounts to display
 - Number of history records per amount
- Translations
 - It is possible to enter remarks and translate them. Each translated text and each translated document attached affects system load and disk usage.

Performance Measurements

Hardware

Processor	CPU	Threads per core	CPU	L1d cache	L1i cache	L2 cache	L3 cache	RAM
64-bit	2	1	2	32K	32K	256K	24576K	32GB
			2.997 MHz					

Performance scenarios for Environmental Data Explorer

The environmental manager opens the environmental data explorer application to monitor values from compliance scenario activities,

Number of records	Response time for non-HANA database with 20.000.000 records	Response time for HANA database with 20.000.000 records
10 000 000	No values	25.24 sec
1 000 000	89.04 sec	5.72 sec
100 000	10.53 sec	3.81 sec
10 000	3.03 sec	3.18 sec

Initial Load (Open application)

The environmental manager filters result data by location in the environmental data explorer.

Number of records	Response time for non-HANA database with 20.000.000 records	Response time for HANA database with 20.000.000 records
1 000 000	47.78 sec	7 sec
100 000	7.2 sec	6 sec

Number of records	Response time for non-HANA database with 20.000.000 records	Response time for HANA database with 20.000.000 records
10 000	1.18 sec	The value is below the measurement limit
1 000	0.76 sec	The value is below the measurement limit

Filter (By Location)

Performance scenarios for Data Monitoring

The environmental manager replaces and approves values from 20 000 000 records in the database for the data collection without environmental limits.

Number of records	Response time for non-HANA database with 20.000.000 records
1 000	12.76 sec
100	2.26 sec
10	1.16 sec

Performance scenarios for Task Processes Explorer

The environmental manager reviews tasks in the task process explorer, and filters through tasks in the result table.

Number of records	Response time for non-HANA database with 12 000 definitions and 600 000 workflow instances
1 000	1.56 sec
100	1.11 sec
10	1.09 sec

Performance scenario for automatic import of data records:

The environmental manager needs to import a substantial number of data records in the environment management system. The environmental manager schedules an automatic import of 10 000 000 data records of hourly periodicity with 9 000 000 executed limit checks for the time period of 01.01.1800 0h - 17.10,2940 15h

*Currently, the automatic import of data is restricted to importing records no earlier than the year 1950. This restriction was introduced to minimize performance risks, so that the running of the import does not block other background jobs.

The program used is EHENV_TEST_BAPI_ADC

Technical Operation	Completion Time
Average elapsed time for the complete BAPI execution	5 min.,41 seconds
Average elapsed time for preparation of input test data	30.3 seconds
Average elapsed time for the extraction of all distinct TAG_IDs	0.3 seconds
Average elapsed time for the extraction of all amounts for each TAG_ID	1.7 seconds
Average elapsed time for selecting amounts in a 1.000.000 amount range	4.5 seconds
Average elapsed time for preparing "before" and "after" structures for data	The value is below the measurement limit
Average elapsed time for preparing the update structure	The value is below the measurement limit
Average elapsed time for preparing of the insertion structure	131.1 seconds
Average elapsed time for inserting 1.000.000 amounts in the database	86.5 seconds
Average elapsed time for inserting 1.000.000 amounts with environmental limit results in the database	81 seconds
Average elapsed time for selecting, preparing, and importing of data records with the TAG ID "HOURLY_1900"	4 min, 91 seconds

1.3.4 Product Compliance

The following factors influence performance:

- Creation of compliance data and substances
 - Size and variants of bill of materials transferred into product structures for compliance
 - Number of purchased components and suppliers processed for compliance
 - Number of basic materials
- Declarations and declaration documents
 - Number of supplier declarations and declaration documents
 - Number of test reports
 - Number of product declarations and declaration documents
 - Number of compliance requirement revisions
- Regulatory lists and compliance requirements
 - Number of regulatory lists and revisions
 - Number of compliance requirement revisions

-
- IMDS usage
 - Set up of IMDS with basic materials, substances, own MDS and supplier MDS
 - Number of supplier MDS changes
 - Number of own MDS changes
 - Processes (and corresponding workflows) started during product assessment, component assessment and supply chain collaboration

2 Sizing Fundamentals and Terminology

SAP provides general sizing information on the [SAP Support Portal](http://www.sap.com/about/benchmark/sizing.html). For the purpose of this guide, we assume that you are familiar with sizing fundamentals. You can find more information at <http://www.sap.com/about/benchmark/sizing.html>.

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 the 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.

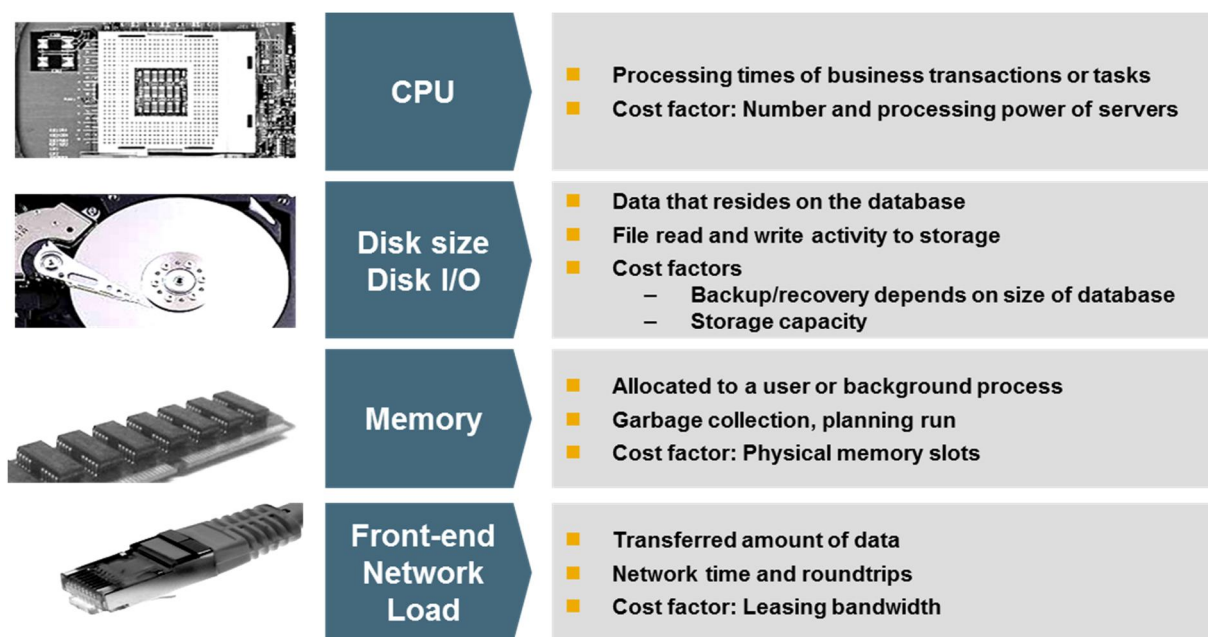


Figure 1: Sizing

Benchmarking

Sizing information can be determined using [SAP Standard Application Benchmarks](http://www.sap.com/benchmark) and scalability tests (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*).

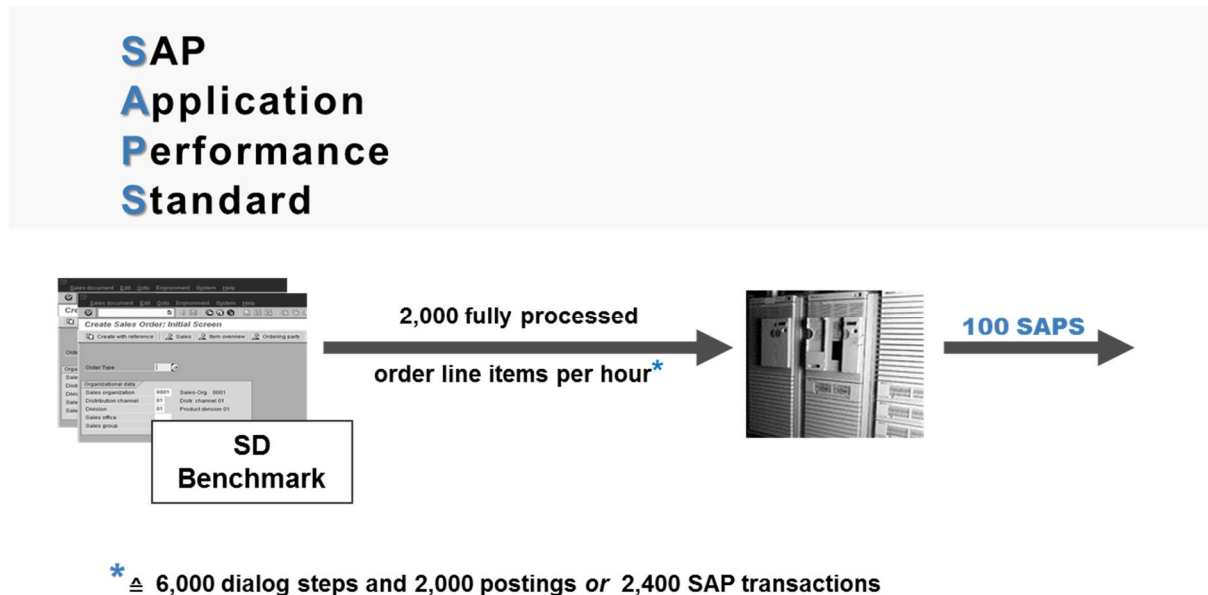


Figure 2: SAP Application Performance Standard

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. For more information, see <http://www.sap.com/about/benchmark/sizing.html> → *Sizing Decision Tree* → *Expert Sizing*.

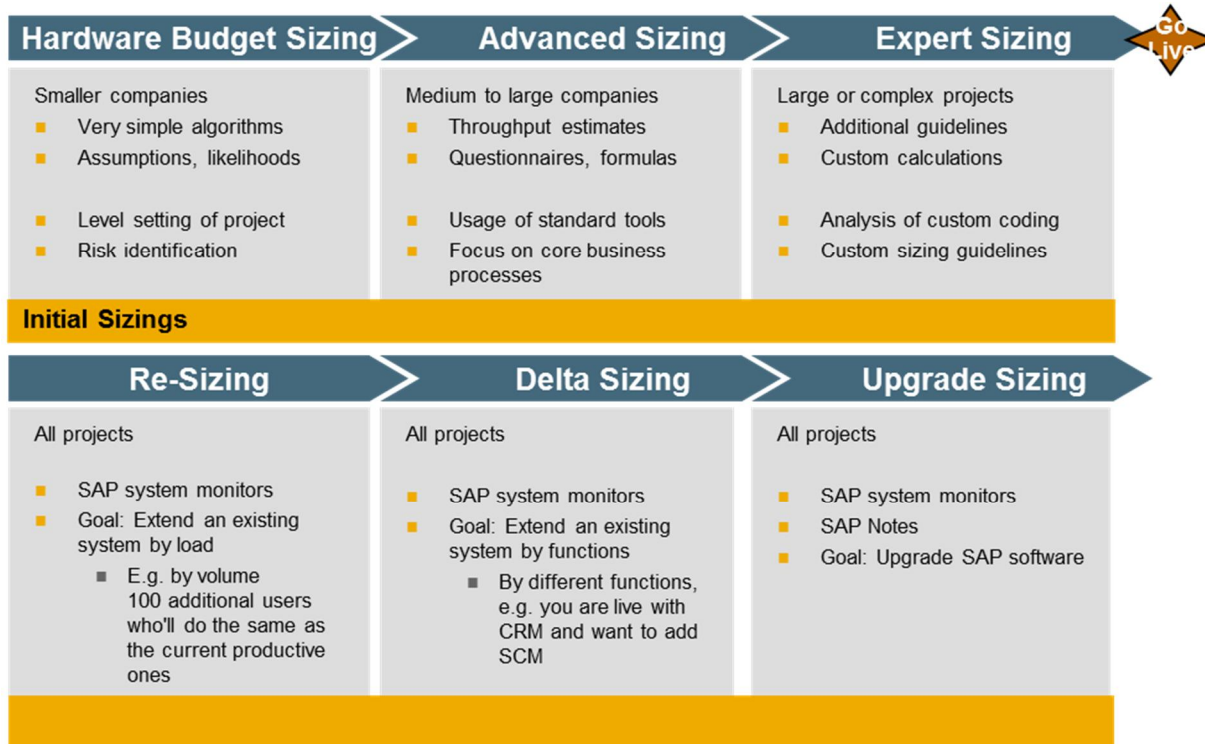


Figure 3: Expert Sizing

2.1.1 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 some “best practices” which may be valid for a specific combination of operating system and database. To provide guidance, SAP created the NetWeaver configuration guides. You can find the configuration guides using the SAP NetWeaver Guide Finder at <http://help.sap.com/viewer/nwguidefinder>.

3 Initial Sizing for SAP EHS Management

The following examples in this section are assumptions of typical usage.

3.1 Assumptions

3.1.1 Incident Management

The most important and most performed business process is the recording of incidents.

Initial recording is performed online from within the *SAP NetWeaver Business Client* by selecting the Report Incident service. The service opens a Web Dynpro application, based on a guided activity floorplan.

The following example process reflects an assumed usage of this component:

- The initial incident record contains the following data:
 - Basic information
 - Two involved persons (an injured person and a witness)
 - One piece of equipment is assigned
 - Two attached documents (document size is 1 MB per document)
- The review and completion of the initial record is performed from within the *SAP NetWeaver Business Client* using the corresponding link in the incident manager's worklist. This opens a Web Dynpro application that is based on the object instance floorplan.
- During review and completion, the incident is changed and the following additional data is entered:
 - One additional involved person (supervisor)
 - One absence is assigned to the injured person
 - Two injury/illness entries are assigned
 - Three tasks are added
 - Four inquiries (document size is 0.1 MB per document)
 - Accident report (such as the German BG accident report) is created

3.1.2 Risk Assessment

The risk assessment can be performed online from within the *SAP NetWeaver Business Client* by selecting the Create Health Risk Assessment service. The service opens a Web Dynpro application that is based on an Object Instance Floorplan.

The following example process reflects an assumed usage of this component:

- The initial creation of the risk assessment contains the following data:
- Basic information (title & remarks)
 - Five persons in the assessment team (one assessment lead, four participants)

- Three regulations
- Three assessment reasons (one link, two references to existing incidents)
- Adding risks and analysis, evaluation and treatment
 - Twenty risks (ten locations, two hazards per location, one agent per hazard, two impacts per hazard, and one existing control per hazard) are added
 - Performing the assessment steps
 - Review/basic Information – one impact plus information
 - Review amounts
 - Determine inherent risk – set level with help of risk matrix, and provide information
 - Review/edit existing controls –one new existing control, control goals, one link to PDF for control effectiveness
 - Determine initial risk – set level with help of risk matrix, and provide information
 - Define new controls – two new controls including information
 - Determine residual risk – set level with help of risk matrix, and provide information
 - Review summary – display entries
- Documents:
 - One link and four files are added (1.5MB three times, 0.5M once)
- Tasks:
 - One new maintenance notification (basic information, one approver, two documents 0.5MB)

3.1.3 Environment Management

The following example process reflects an assumed usage of this component:

- Assign responsible persons to location structure
- Create compliance requirement
- Assign environmental limits
- Create compliance scenario
- Assign compliance requirement
- Schedule collection of data or sampling activity
- Schedule tasks
- Monitor tasks
- Enter values
- Create and execute calculation of environmental data
- Create and execute aggregation of environmental data
- Monitor data
- Investigate and create data deviations

3.1.4 Product Compliance

The following example process reflects an assumed usage of this component:

- Execute a BOMBOS transfer

-
- Execute a compliance check
 - Release a compliance requirement revision

Needed CPU and disk size for this example process are basically influenced by the number of

- Transferred BOMs
- Materials relevant for compliance
- Assigned compliance requirements
- Assigned compliance documents

For the calculation of the CPU and disk size the following assumptions are relevant:

- 50% of the material masters in a company are active and relevant for compliance
- 10% of the material masters are sourced components with on average 2 suppliers
- Each material or the combination of component and supplier is created as a compliance object and substance
- A compliance object has an average of 4 compliance requirements assigned with an average of 1 document per compliance requirement at 50% of the compliance objects
- 50% of the engineering and production BOMs in a company are relevant for compliance
- 20% BOM turn over per year
- A BOM structure has 1 level with an average of 19 items
- A BOM change will re-execute the compliance checks and creates new revisions in only 10% because of merged revisions and compliance objects which are not release relevant

3.2 CPU and Disk Sizing

3.2.1.1 CPU Sizing

The following assumptions are made for CPU sizing:

- The SAPS calculation uses the maximum values of each size
- Assumes 250 work days per year, 8 working hours a day, no peak times
- Background or overnight processes are not considered
- Distributed system landscape is not considered

3.2.1.2 Disk Sizing

The following assumptions are made for disk sizing:

- Compression of documents is not used
- DB sizes are estimated
- Compression of DB tables is not considered
- Only application data is considered; no Customizing, queue, or similar table

3.3 Sizing Guideline

The set of substances and substance groups for regulations requires a database space of about 0,6GB at installation time.

3.3.1 Incident Management

Incident Recording	S < 1,000 / year (< 0.5 Incidents/hour)	M < 10,000 / year (< 5 Incidents/hour)	L < 50,000 / year (< 25 Incidents/hour)	XL > 50,000 / year (> 25 Incidents/hour)
Total SAPS	242	2,415	12,076	Contact SAP

DB space	S < 1,000 / year (< 0.5 Incidents/hour)	M < 10,000 / year (< 5 Incidents/hour)	L < 50,000 / year (< 25 Incidents/hour)	XL > 50,000 / year (> 25 Incidents/hour)
Total DB Space GB / year (incl. 2 attached docs and 4 inquiries)	< 2.538	< 25.375	< 126.875	Contact SAP
Total DB Space GB / year (incl. 4 inquiries)	< 0.564	< 5.637	< 28.186	Contact SAP
Total DB Space GB / year (without docs attached)	< 0.172	< 1.718	< 8.590	Contact SAP

- The Incidents per hour are calculated assuming 250 work days a year, 8 working hours per workday, no peak times.
- For more than 50,000 Incidents/year, assumptions should be specified by the customer more precisely to obtain a more reliable result.
- The assumption of 2 attached documents (each with 1 MB size) is responsible for about 79% of the total DB Space.
- The assumption of 4 inquiries (each with 100 KB size) is responsible for about 14% of the total DB Space.
- With the assumptions for an average incident, about 15 workflows are triggered in the background and about 5 PDF documents are created by the Adobe Document Server. This is not considered for the T-Shirt sizing values.

CPU detail

- Ratio Database : Application = 1 : 7.8

Memory

- Allocate 120 MB memory per active user.

Shared Memory

- Manual and automated tests showed that the size of shared memory should be about 250 MB. The usage of shared memory can be monitored in transaction "SHMM".

Network Traffic

- There is network traffic of about 16 MB per incident. This figure includes the upload/download of attached documents, sending the inquiry forms and generating the accident report.

Disk Size

- The measurement of the disk size shows that the needed disk size depends mostly on the attached documents. If the number of attached documents varies from the assumptions, you can take the database space without attached documents as a basis, and add the cumulated size of documents you expect for the incidents in a year. There is an overhead of 1.5 KB per document for entries in database tables that link the documents to the incidents.

3.3.2 Risk Assessment

	S < 1,000 / year (< 0.5 RA/hour)	M < 10,000 / year (< 5 RA/hour)	L < 50,000 / year (< 25 RA/hour)	XL > 50,000 / year (> 25 RA/hour)
CPU				
Total SAPS	292	2,922	14,612	Contact SAP

	S < 1,000 / year (< 0.5 RA/hour)	M < 10,000 / year (< 5 RA/hour)	L < 50,000 / year (< 25 RA/hour)	XL > 50,000 / year (> 25 RA/hour)
DB space				
Total DB Space GB / year (incl. attached docs, 6MB)	< 6.1	< 60.9	< 304.3	Contact SAP
Total DB Space GB / year (without docs attached)	< 0.226	< 2.26	< 11.29	Contact SAP

- The risk assessments per hour are calculated assuming 250 work days a year, 8 working hours per workday, and no peak times.
- SAP sizing is always based on 65% CPU utilization (safety buffer).
- 1 GB = 1024 MB; 1 MB = 1024 KB
- For more than 50,000 risk assessments per year, the assumptions should be specified more precisely by the customer to obtain a more reliable result.

CPU detail

- Ratio Database : Application = 1 : 9.81

Memory

- Allocate 120 MB memory per active user.

Shared Memory

- Manual and automated tests showed that the size of shared memory should be about 200 MB. The usage of shared memory can be monitored in transaction SHMM.

Network Traffic

- The network traffic caused by the creation of a risk assessment is mainly determined by the size of the attached files.
- For creation of a risk assessment without any attached files, 240 KB will be transferred between client and server.

Disk Size

- The measurement of the disk size shows that the needed disk space depends mostly on the attached documents. If the number of attached documents varies from the assumptions, you can take the database space without attached documents (~237 KB) as a basis and add the cumulated size of documents you expect for the total risk assessments in a year. There is an overhead of 1.5 KB per document for entries in database tables that link the documents to the risk assessments.

3.3.3 Environment Management

The XL sizing is only covered for the scenario of automatic importing of data.

Scenario: Open the Environmental Data Explorer:

CPU	S	M	L
Number of records	100.000	1.000.000	10.000.000
Total SAPS	1.6	40	643
Number of users operating	3	5	10
Number of times the application has been opened per hour per user	1	3	5

The environmental manager opens the Environmental Data Explorer which displays a set number of records from the 20.000.000 in the database.

Scenario: Filter Results in the Environmental Data Explorer:

CPU	S	M	L
Number of records	100.000	1.000.000	10.000.000
Total SAPS	1.5	32.5	642
Number of users operating	3	5	10
Number of times the filter is used per hour per user	2	5	10

The environmental manager opens the Environmental Data Explorer which displays a set number of records from the 20.000.000 in the database, and filters through the results.

Scenario: Approve and Replace Data:

CPU	S	M	L
Number of records	10	100	1000
Total SAPS	0.3	1	8
Number of users operating	1	1	1
Number of times the replace & approve is used per hour per user	1	1	1

The environmental manager opens the Environmental Data Explorer, replaces and approves a set number of records from the 20.000.000 in the database.

Scenario: Automatically Import Data

Automatically imported data per day:

- S < 1.350 (500.000 imported data records annually)
- M < 8.100 (3.000.000 imported data records annually)
- L < 25.000 (10.000.000 imported data records annually)
- XL < 125.000 (50.000.000 imported data records annually)*

Measurements are based on the importing of 1.000.000 data records at once.

CPU	S	M	L
Number of records imported	10 000	100 000	1 000 000

An environmental manager imports a large amount of environmental data in an automatic data collection. See the response time data for the automatic data import in the performance scenario table in chapter 1.1.3

3.3.4 Product Compliance

Annual growth:

- S < 10,000 new material masters / year => 5 new material masters / hour
< 2,000 BOM changes (including new BOMs) / year => 1 BOM change / hour
- M < 100,000 new material masters / year => 50 new material masters / hour
< 20,000 BOM changes (including new BOMs) / year => 10 BOM change / hour
- L < 1,000,000 new material masters / year => 500 new material masters / hour
< 200,000 BOM changes (including new BOMs) / year => 100 BOM change / hour
- XL > 2,000,000 new material masters / year => 1,000 new material masters / hour
> 400,000 BOM changes (including new BOMs) / year => 200 BOM change / hour

	S	M	L	XL
CPU				
Total SAPS	< 198	< 1,980	< 19,795	Contact SAP

	S	M	L	XL
DB space				
Total DB Space GB / year	< 0.68	< 6,98	< 69.83	Contact SAP

- The transfers per hour are calculated assuming 250 work days a year, 8 working hours per work day, and no peak times.
- SAP sizing is always based on 65% CPU utilization (safety buffer).
- 1 GB = 1024 MB; 1 MB = 1024 KB
- For more than 2,000,000 new material masters per year or more than 400,000 BOM changes per year, the assumptions should be specified more precisely by the customer to obtain a more reliable result.

CPU detail

- Ratio Database : Application = 1 : 9.74

Memory

- Allocate 120 MB memory per active user.

Shared Memory

- Manual and automated tests showed that the size of shared memory should be about 200 MB. The usage of shared memory can be monitored in transaction SHMM.

Network Traffic

- There is network traffic of about 40 MB per BOM transfer.

Disk Size

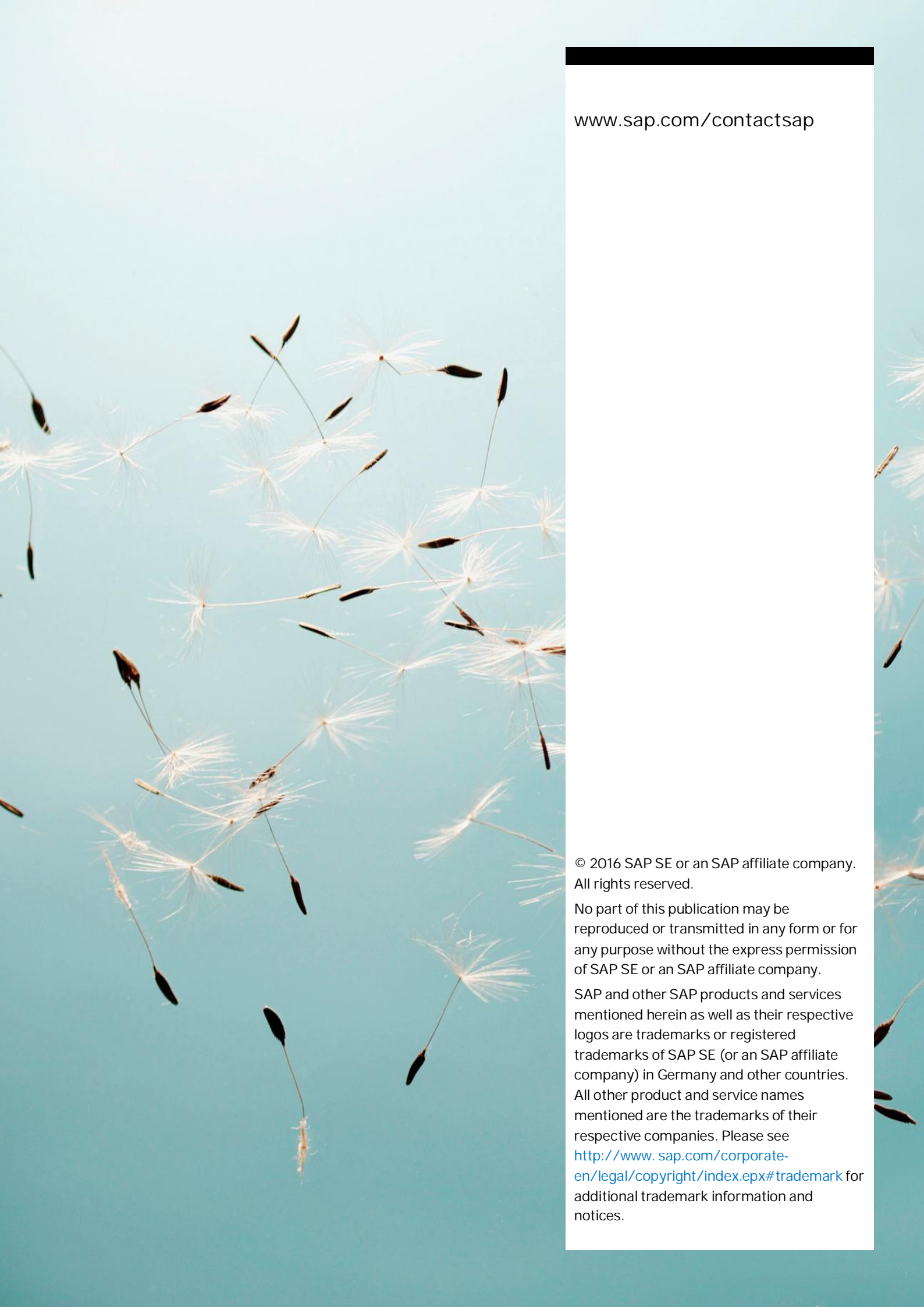
- The disk size per compliance object is about 116 KB.

4 Miscellaneous

All standard sizing guidelines are published on the SAP Support Portal at <http://www.sap.com/about/benchmark/sizing.html>.

The online sizing tool Quick Sizer is also available at <http://www.sap.com/about/benchmark/sizing.quick-sizer.html>.

For more information about sizing of external systems or services like Business Warehouse, Adobe Document Server, or the Enterprise Search (with an underlying TREX), see the links above and SAP Note [1266024](#).

A background image of dandelion seeds floating in the air against a light blue sky. The seeds are in various stages of dispersal, with some showing the dark seed head and others just the white, feathery pappus.

www.sap.com/contactsap

© 2016 SAP SE or an SAP affiliate company.
All rights reserved.

No part of this publication may be reproduced or transmitted in any form or for any purpose without the express permission of SAP SE or an SAP affiliate company.

SAP and other SAP products and services mentioned herein as well as their respective logos are trademarks or registered trademarks of SAP SE (or an SAP affiliate company) in Germany and other countries. All other product and service names mentioned are the trademarks of their respective companies. Please see <http://www.sap.com/corporate-en/legal/copyright/index.epx#trademark> for additional trademark information and notices.