Scheer IMC



System requirements

imc Learning Suite

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Content

1	**Introduction**	**4**
2	**Supported System Components**	**5**
3	**Dimension in hardware for Linux**	**6**
3.1	Application server	6
3.2	Database server	7
3.3	Content storage	7
3.4	Network requirements	8
3.5	Tips	9

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1 Introduction

This document specifies the requirements that need to be in place for the client's installation environment, to enable them to run the platform under optimum conditions.

With regard to the supported system environments (operating system, middle-ware, hardware), imc AG prioritizes products with greatest market relevance and only tests versions for which an adequate period of support is guaranteed by the manufacturer. As a result, the systems specified in this document have been identified as being suitable for running the platform. Specifications other than those detailed are not supported by imc AG. As well as making product recommendations, this paper also includes dimensioning recommendations, resulting from a number of quality and load tests.

This document is aimed at decision-makers and IT professionals who are commissioned to install the system.

2 Supported System Components

COMPONENTS	PRODUCT ALTERNATIVES
Application server	• K8S Cluster Version 1.34
Database server	• Oracle 19c (19.3) JDBC driver ojdbc8.jar (version 19.3.0.0 or 19.6.0.0) • Microsoft SQL Server 2022, 2025 or Azure SQL JDBC driver mssql-jdbc-13.2.0.jre8.jar • PosgreSQL 16.1, 17.1 or 18.1 JDBC driver postgresql-42.7.12.jar
Operating systems of application server	• K8S is supposed to run on Linux

Because there are frequent updates, fixes and new releases pertaining to the above-mentioned third-party products, it is not possible to test all combinations of these product versions. Their compatibility with each other therefore needs to be checked, if necessary, in the manufacturer's specific documentation.

The version details specified in the above table identify the system components supported by imc AG, for which support is also guaranteed. As a rule, later versions of these components can also be used to run the platform. However, because these versions have not been tested with the system, their use is the responsibility of and at the discretion of the client.

3 Dimension in hardware for Linux

This section gives recommendations for dimensioning hardware for using the system. The given values are to be considered additionally to the requirements of the operation system and application server.

The use of a separate application and database server is generally recommended.

3.1 Application server

To operate, the imc Learning Suite requires a Kubernetes (K8S) cluster with the following dimensions. Based on the expected number of concurrent users (CCU).

	SMALL (<100 CCU)			**MEDIUM** (100 – 400 CCU)			**LARGE** (>400 CCU)		
	RAM (GB)	**CPU** (Cores)	**HD** (GB)	**RAM** (GB)	**CPU** (Cores)	**HD** (GB)	**RAM** (GB)	**CPU** (Cores)	**HD** (GB)
Core Services	**32**	**4**	**50*)**	**64**	**8**	**50*)**	**96**	**12**	**50*)**
Module)**	**+1,5** / Module	-	-	**+2,5** / Module	-	-	**+3** / Module	-	-

*) The logfiles can be stored in either an additonal mount or can streamed to a Elastic Search

**) This value is added for each additional module. As modules the following services are considered which are not part of the ILS core (Channels, TLM, Learning Analytics, Teams Integration)

3.2 Database server

PARAMETER	RECOMMENDED VALUE
RAM	16 GB free RAM for database server. For systems with more than 1000 parallel users 512 MB are needed per 100 additional users. For larger databases, memory space should be increased sufficiently to ensure a good DB cache hit rate (>90%) can be achieved.
Hard drive storage	Minimum 50 GB for the database
Processor	64-bit system, minimum 4 cores like Intel E5 Series 2600

3.3 Content storage

PARAMETER	RECOMMENDED VALUE
Storage space	Minimum 100GB*) Depends on planned media usage.

*) Content storage should be on a remote share (e.g. NFS, EFS, DFS)

3.4 Network requirements

CONNECTION	REQUIRED BANDWIDTH
Between application server and database server	Recommended: dedicated network connection, min 100 Mbit/s
Between application server and client PC	Minimum: 512 kbit/s per user (in parallel operation) Recommended: 100 Mbit/s (up to 1000 parallel users)

Please note that the actual network performance is affected by network components, such as authentication, proxy, encryption, anti-virus services or other filter services.

3.5 Tips

Processor performance required is geared to the number of "parallel" users, i.e. those users who can be logged on to the learning platform simultaneously and who can thus actively be working with the system. However, the total number of registered users in the database is of less importance for server dimensioning.

The guidelines specified should thus only be taken as indications.

Please note that the guidelines for CPU and RAM are derived from typical behavior of platform users. Nevertheless, many administrative tasks in the system can be very hungry on CPU and storage resources and therefore should not be conducted when the system is already experiencing heavy demand.

The database will grow over time. In a system with 10,000 registered users and typical operation of the learning platform with 100 parallel users, you can expect the database to increase each year by at least 3 GB.

The disk requirement for media on the content storage is geared to the number and size of media content managed: WBT and other media. Experience shows the disk requirement for media increases steadily over time.

A general observation is that typical user behavior on the learning platform varies from one client to another. It may be necessary to bear this fact in mind and ensure the availability of the above-mentioned standard values is relative to behavior.