Product Sheet
System Requirements
Quiz Manager platform

Table of content

System Requirements Quiz Manager platform

The purpose of this document is to state a list of requirements to be fulfilled by the customer's installation environment in order to run the learning platform Quiz Manager under optimal conditions.

In regard to the supported system environments (operating system, middleware, hardware), XPERTEAM prioritizes the products with the biggest relevance on the market and only tests versions for which sufficiently long lasting manufacturer support is guaranteed. Thus, the systems mentioned in this document have turned out to be suited for operating Quiz Manager. Other specifications than the ones mentioned are not supported by XPERTEAM. Besides product recommendations this paper also contains sizing recommendations which are the result of numerous quality and performance tests.

This document is addressed to decision makers and IT experts in charge of planning the installation of Quiz Manager.

Overview of the system components supported

Component	Products
Browser	MS Internet Explorer 8, 9, 10, 11 Mozilla Firefox 27+ Chrome 33+ Safari 4+ The component Quiz Manager Player requires: Flash 8+
Web server	MS Internet Information Server 7, 7.5+
Database server	MS SQL-Server 2008 (SP1 and higher), R2
Operating system	Microsoft 2008, R2
Framework .NET	Version 2.0

Due to periodical fixes, updates and new releases of these third party products, XPERTEAM cannot test all combinations. The compatibility between each other has to be double-checked in the provider specific documentation.

The versions mentioned in the table above specify the system components supported by XPERTEAM. Normally, higher versions of those components are compatible with Quiz Manager, too. But as those versions have not been explicitly tested with Quiz Manager, it is within the discretion of the customer to decide whether or not to use these versions.

Hardware sizing for Windows server

CPU

Server	Recommendations for minimum CPU sizing
Application server	Operation for up to 500 concurrent users, Dual Core, 2 * 2.3 GHz
Database server	Operation for up to 500 concurrent users, Dual Core, 2 * 2.3 GHz

RAM

Server	Recommendations for minimum RAM sizing
Application server	4 GB for the operating system and, in addition, for every 150 concurrent users: • 75 MB RAM for the processes
Database server	1 GB for the operating system and, in addition, for a database size of about 500 MB, and depending on the number of concurrent users: • 1 GB (up to 250 concurrent users) • 1,5 GB (up to 750 concurrent users) • 2 GB (up to 1500 concurrent users) On larger databases the memory size should be raised in such a way that the cache hit rate is > 90 %

The required processor performance depends on the number of "concurrent" users, i.e. the number of users who are working with Quiz Manager at the same time. The number of users registered in the Quiz Manager database, however, has no significant impact on the system performance.

Please note that the above recommendations apply to a typical user behavior of Quiz Manager learners. Some administrative tasks, however, may require a much higher amount of CPU and memory resources. So these tasks should be performed in times where the system is not so much loaded.

More generally, the typical user behavior may differ from customer to customer. This customer-specific scenario must be taken into account, qualifying the above recommendations.
The maximum setting value allowed depends on the machine's architecture (32-Bit vs. 64-Bit). In order to allow larger memory sizes a 64-bit system architecture is highly recommended.

Finally, the CPU power required by the system also depends on the software components used (web server, database server) and on their respective versions. That's why the above recommendations are just something to go by.

Network requirements

-7-

Server

End point	Bandwith
Between application server and database server	Minimum: 100 MBit/s Recommended: 1 GBit/s
Between application server and clients	Minimum: 64 MBit/s per 250 concurrent users Recommended: 100 MBit/s (up to 1000 concurrent users)

Client

End point	Bandwith
Client connected with Quiz Manager application server	Minimum: 256 kbit/s for each client PC Recommended: 1024 kbit/s and higher

Please note that the effective network performance is influenced by network components such as authentication, proxy, encryption, anti-virus or other filtering services.

Hard disk space

Server	Required hard disk space
Application server	Minimum: 1 GB
Content server	directly workload dependent Minimum: 10 GB
Database server	directly workload dependent Minimum database size: 1 GB

All recommendations do not include any disk space required for the operating systems, database management system or any other 3rd party systems.

The disk space required on the content server depends on the number and the size of the managed content: Quiz Manager and other media. Experience shows that the disk space required continuously increases in time.

The database will grow in time, too. For a Quiz Manager installation with 10,000 users registered in the database, operating with a typical workload of 100 concurrent users, expect a growth of at least 500 MB per year.

In case of a data migration or Quiz Manager version upgrade individual hard disk space recommendations will apply according to the needed disk space for historical data for content and database servers.