ICW Professional Exchange Server 3.2

Hardware and Software Requirements

Imprint

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1   Introduction

This document describes the hardware and software requirements for using Professional Exchange Server 3.2. Hardware and software requirements may vary depending on the chosen installation.

2 Minimum System Requirements

The minimum configuration consists of a two-level architecture that provides for one server as application/ web server and another for the data base. The servers used may be either physical or virtual. In case of physical server systems the system design needs to provide redundancy for the power supply, ventilators and the network interface controller. Depending on the actual requirements it may be necessary to modify some hardware components.

In a test environment this configuration has met the product performance requirements for a test scenario with one million (1,000,000) patients and six hundred thousand (600,000) documents.

2.1 Application and Web Server (co-hosted)

Minimum hardware requirements	
Processor (CPU)	Dual Core (> 2 GHz or equivalent)
System memory (RAM)	4 GB RAM
Hard disk drive (HDD)	> 50 GB (10000 RPM) RAID 1
Network	*Internet:* Connection with at least 2X1 Mbit/s upstream/downstream *Network:* Connection to intranet with at least 2X1 Gbit /s upstream/ downstream

Minimum software requirements	
Operating system	● Red Hat Enterprise Linux (RHEL) 5.4, 64 Bit for x86 ● SUSE Linux Enterprise Server (SLES) 11, 64 Bit for x86
Additional software	● Sun Java SE Development Kit 6 (64Bit), update 20 or higher ● Apache 2.2, latest update

2.2 Database Server

Minimum hardware requirements	
Processor (CPU)	Dual Core (> 2 GHz or equivalent)
System memory (RAM)	8 GB RAM

Minimum hardware requirements	
Hard disk drive (HDD)	• > 30 GB (10000 RPM) RAID 1 for SLES 10.3 / RHEL 5.4 and Oracle • > 500 GB (10000 RPM) directly connected or network / SAN memory wirh according RAID level for data preferably on several spindles (min 5 phys discs)
Network	Intranet connection with at least 2X1 Gbit /s upstream/downstream

Minimum software requirements	
Operating system	• SUSE Linux Enterprise Server (SLES) 10.3, 64 Bit for x86 • Red Hat Enterprise Linux (RHEL) 5.4, 64 Bit for x86 • Oracle Enterprise Linux (OEL) 5.4, 64 Bit for x86
Database server	Oracle 10.2.0.4, incl. Oracle Enterprise Manager or Oracle 11.1.0.6 incl. Oracle Enterprise Manager

3 Networking Solution with Higher Standards of Availability and Reliability

The system constellation described here offers enhanced availability and reliability through parallel operating application instances, an Oracle RAC, and the use of a load balancer.

Higher availability rates and better reliability can be achieved by running the system in parallel with multiple servers and added load balancer.

Some hardware components may need to be modified depending on actual requirements (number of patients, number and size of documents, etc.).

3.1 Load Balancer

Depending on the load balancer solution used, special demands may be placed on the hardware and software operating environment. These are explained in the hardware and software requirements of each manufacturer.

For a load balancer operating in a standard Linux environment two computer nodes are recommended with the following configuration:

Minimum hardware requirements (2x)	
Processor (CPU)	Dual Core (> 2 GHz or equivalent)
System memory (RAM)	4 GB RAM
Hard disk drive (HDD)	> 30 GB (10000 RPM) RAID 1
Networks	**Internet:** Connection with at least 2X 5 Mbit/s upstream/downstream **Intranet:** Connection to intranet with at least 2X 1 Gbit /s upstream/downstream

Minimum software requirements	
Operating system	Corresponding to the utilized load-balancer solution

3.2 Application and Web Server (co-hosted)

It is advised to use at least two nodes for operating the application and the web server each type co-hosted on the same node.

No less than two computer nodes for operating the application and web server (both types on each of the nodes) are recommended. As a minimum setup, a doubled minimal configuration can be used.

For bigger systems the following configuration is advisable:

Minimum hardware requirements (2x)	
Processor (CPU)	Dual Core (> 2 GHz or equivalent)
System memory (RAM)	8 GB RAM
Hard disk drive (HDD)	> 70 GB (15000 RPM) RAID 10
Network	Intranet connection with at least 2X 1 Gbit/s upstream/downstream

Minimum software requirements	
Operating system	● Red Hat Enterprise Linux (RHEL) 5.4, 64 Bit for x86 ● SUSE Linux Enterprise Server (SLES) 11, 64 Bit for x86
Additional software	Sun Java SE Development Kit 6 (64Bit), update 20 or higher

3.3 Database Server

Two computer nodes for Oracle RAC are recommended in the following configuration:

Minimum hardware requirements (2x)	
Processor (CPU)	Dual Core (> 2 GHz or equivalent)
System memory (RAM)	8 GB RAM
Hard disk drive (HDD)	● > 70 GB (15000 RPM) RAID 1 for operating system and Oracle ● 1 TB iSCSI or fibre channel SAN shared disk storage (redundant RAID levels & host bus adapters as appropriate), for data. OCR voting discs.
Network	Intranet connection with at least 1 Gbit/s upstream/downstream

Minimum software requirements	
Operating system	● SUSE Linux Enterprise Server (SLES) 10.3, 64 Bit for x86 ● Red Hat Enterprise Linux (RHEL) 5.4, 64 Bit for x86 ● Oracle Enterprise Linux (OEL) 5.4, 64 Bit für x86
Database server	Oracle 10.2.0.4, 64 Bit, incl. Oracle Enterprise Manager or Oracle 11.1.0.6, 64 Bit, incl. Oracle Enterprise Manager

4 Minimum System Requirements for Client Computers

Minimum hardware requirements	
Computer	Standard PC
System memory (RAM)	1 GB RAM
Monitor	Minimum resolution 1024x768
Network	● **Internet:** Connection with at least 1 Mbit/s up/downstream ● **Intranet:** Connection to intranet with at least 100 Mbit/s up/downstream

Minimum software requirements	
Operating system	One of the following operating systems may be used: ● Windows XP from Service Pack 2 ● Windows Vista
Additional software	● Internet Explorer version 6 SP2 or higher or ● Mozilla Firefox version 3.5 or higher ● Adobe Acrobat Reader version 6 or higher
Java	Sun Java SE Development Kit 6 (64bit)

Glossary

Term	Explanation
RAC	Real Application Cluster
RAID	Redundant Array of Independent Disks
RAM	Random Access Memory
rpm	Revolutions per minute
SLES	SUSE Linux Enterprise Server
TB	Terra Byte