icw PROFESSIONAL SUITE

Professional Exchange Server

Release 2.3

Hardware and Software Requirements

Hardware and Software Requirements Version 1.0 | Status Approved
Security Level Internal

Imprint

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Document Version: 1.0

Document Language: en (US)

Security Level: Internal

Product Name: Professional Exchange Server

Product Release:2.3

Last change on: 6/26/2008

Editorial Staff: Thomas Schneider, Petra Wendeln

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1 Introduction

This document describes the hardware and software requirements for using the Professional Exchange Server (PXS) product. Abbreviations are explained in the glossary.

2 System Requirements

2.1 Minimum System Requirements

Application, Communication and Web Servers

Minimum hardware requirements		
Processor (CPU)	Intel Core2 Duo with at least 2x 2.13GHz	
Active Memory (RAM)	8 GB RAM[1]	
Hard disk drives (HDD)	2 x 160 GB (7200 RPM) RAID 1	
Network	Internet	Internet connection with at least 1 Mbit/s up-stream/downstream
	Intranet	Intranet connection with at least 100 Mbit/s up-stream/downstream

Minimum software requirements	
Operating system	SUSE Linux Enterprise Server (SLES) 9 for x86 Service Pack 3[2]
Database	MySQL 5.0.60
Additional Software	• Java SDK 1.5.0_12[3] • Tomcat 5.5.17 • ActiveMQ 4.0 • OpenLDAP 2.2.26 • Apache ServiceMix 3.1 • Apache 2.2.3

[1] This declaration is valid if all servers are operated on a single hardware node. In other cases, 4 GB RAM are sufficient.

[2] Depending on the hardware that is actually used a later version of SUSE SLES might be necessary.

2.2 Recommended System Requirements

Depending on the real requirements some hardware components need to be modified.

Application- and Web Server

Minimum hardware requirements		
Processor (CPU)	Dual-Core Intel Xeon Processor CPU 2.8GHz	
Active Memory (RAM)	4 GB RAM	
Hard disk drives (HDD)	2 x 72 GB (10000 RPM) RAID 1	
Network	Internet	Internet connection with at least 1 Mbit/s up-stream/downstream
	Intranet	Intranet connection with at least 100 Mbit/s up-stream/downstream

Minimum software requirements	
Operating system	SUSE Linux Enterprise Server (SLES) 10 for x86
Additional software	Java JDK 1.5.0_12 Tomcat 5.5.17 Apache 2.2.3 ActiveMQ 4.0

[3] It is recommended that clients use Java SDK 1.6.0_02 to operate the JMX administration console of the communication server (ServiceMix). The communication server itself can also be optionally operated with Java SDK 1.6.0_02. This is not valid for the application server.

Database server

Minimum hardware requirements	
Processor (CPU)	Dual-Core Intel Xeon Processor CPU 2.8GHz
Active Memory (RAM)	4 GB RAM
Hard disk drives (HDD)	2 x 72 GB (10000 RPM) RAID 1 for SLES 10 and Oracle 2 x 72 GB (10000 RPM) RAID 1 for data
Network	Intranet connection with at least 100 Mbit/s upstream/downstream

Minimum software requirements	
Operating system	SUSE Linux Enterprise Server (SLES) 10 for x86
Database server	Oracle 10.2.0.3 incl. Oracle Enterprise Manager
Directory Services / authentication	OpenLDAP 2.2.26

Communication Server

Minimum hardware requirements	
Processor (CPU)	Dual-Core Intel Xeon Processor CPU 2.8GHz
Active Memory (RAM)	4 GB RAM
Hard disk drives (HDD)	2 x 72 GB (10000 RPM) RAID 1
Network	Intranet connection with at least 100 Mbit / s upstream/downstream

Minimum software requirements	
Operating system	SUSE Linux Enterprise Server (SLES) 10 for x86
Communication server	Apache ServiceMix 3.1
Additional software	Java SDK 1.5.0_12[4]

2.3 Recommended Requirements for Solutions with Large Volumes of Data

The system requirements described here for using PXS are based on response times < 1000 ms for queries in the Master Patient Index. This is valid for a database in the PXS of 15-20 million patients and < 50 users accessing the system simultaneously.

Applications server

Three application servers are recommended with the following configuration:

Minimum hardware requirements	
Hardware	HP ProLiant DL380
Processor (CPU)	2 x Dual-Core Intel Xeon 2,8 GHz (64 Bit)
Active memory (RAM)	8 GB RAM
Hard disk drives (HDD)	4 x 72 GB (15000 RPM) RAID 10
Network	Intranet connection with at least 100 Mbit/s upstream/downstream

[4] It is recommended that clients use Java SDK 1.6.0_02 to operate the JMX administration console of the communication server (ServiceMix). The communication server can also be optionally operated with Java SDK 1.6.0_02. This is not valid for the application server.

Minimum software requirements	
Operating system	SUSE Linux Enterprise Server (SLES) 10, 64 Bit for x86
Additional software	• Java JDK 1.5.0_12 • Tomcat 5.5.17 • ActiveMQ 4.0

Database server

A database server with the following configuration is recommended:

Minimum hardware requirements	
Hardware	HP ProLiant DL585
Processor (CPU)	4 x Dual AMD Opteron 2,6 GHz 64 Bit
Active memory (RAM)	16 GB RAM
Hard disk drives (HDD)	2 x 72 GB (15000 RPM) RAID 1 for SLES 10 and Oracle HP StorageWorks EVA6000: 2 x Fibre Channel, 16 Disks (15000 RPM), > 1 TB for data
Network	Intranet connection with at least 100 Mbit/s upstream/downstream

Minimum software requirements	
Operating system	SUSE Linux Enterprise Server (SLES) 10, 64 Bit for x86
Database server	Oracle 10.2.0.3, 64 Bit incl. Oracle Enterprise Manager
Directory Services / authentication	OpenLDAP 2.2.26

Web server

A web server with the following configuration is recommended:

Minimum hardware requirements		
Hardware	HP ProLiant DL380	
Processor (CPU)	2 x Dual-Core Intel Xeon 2,8 GHz	
Active memory (RAM)	2 GB RAM	
Hard disk drives (HDD)	2 x 72 GB (15000 RPM) RAID 1	
Network	Internet	Intranet connection with at least 5 Mbit / up-stream/downstream
	Intranet	Intranet connection with at least 100 Mbit /s up-stream/downstream

Minimum software requirements	
Operating system	SUSE Linux Enterprise Server (SLES) 10, 64 Bit for x86
Additional Software	Java JDK 1.5.0_12 Apache 2.2.3

Communication Server

A communication server with the following configuration is recommended[5]:

Minimum hardware requirements	
Processor (CPU)	Dual-Core Intel Xeon Processor CPU 2.8GHz
Active memory (RAM)	8 GB RAM
Hard disk drives (HDD)	2 x 72 GB (10000 RPM) RAID 1
Network	Intranet connection with at least 100 Mbit/s upstream/downstream

Minimum software requirements	
Operating system	SUSE Linux Enterprise Server (SLES) 10 for x86
Communication server	Apache ServiceMix 3.1
Java	Java JDK 1.5.0_12[6]

[5] If necessary, the communication server can be extended or scaled by additional instances (parallel or cluster operation). For each further instance of the communication server, another unit of the specified hardware is required.

[6] It is recommended that clients use Java SDK 1.6.0_02 to operate the JMX administration console of the communication server (ServiceMix). The communication server can also be optionally operated with Java SDK 1.6.0_02.

2.4 Minimum System Requirements for Client Computers

Minimum hardware requirements		
Processor (CPU)	Intel Pentium II or faster processor with 450 MHz (or equivalent)	
Active memory (RAM)	128 MB RAM	
Network	Internet	Internet connection with at least 1 Mbit / s s up-stream/downstream
	Intranet	Internet connection with at least 100 Mbit / s s up-stream/downstream

Minimum software requiremen	
Operating system	Windows 2000 Professional
Additional Software	Internet Explorer Version 6 SP1 Adobe Flash Player 9.0.45.0 Adobe Acrobat Reader from Version 6
Java	Java JDK 1.5.0_12

Glossary

Term	Explanation
AMD	Advanced Micro Devices, Inc.
CPU	Central Processing Unit
GB	GigaByte
GHz	GigaHertz
HDD	Hard Disk Drive
HP	Hewlett Packard
ICW	InterComponentWare AG
JDK	Java Development Kit
JMX	Java Management Extensions
LDAP	Lightweight Directory Access Protocol
PXS	Professional Exchange Server
RAID	Redundant Array of Independent Disks
RAM	Random Access Memory
RPM	Revolutions Per Minute
SDK	Software Development Kit
SLES	SUSE Linux Enterprise Server
TB	Terabyte