

PATHWAY STUDIO ENTERPRISE 7

SYSTEM REQUIREMENTS

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Pathway Studio Application Server

Hardware

The hardware recommendations below are given for the application and the database server installed in the same box. The web server and the database server may be running on dedicated machines. It is also possible to distribute PSE tools across multiple servers.

The number of concurrent users is shown for typical uses. The system performance will depend on the software usage patterns. Running resource-heavy tools creates additional load on the server and will have impact on the application performance.

Concurrent users	1-10	11-30	31-60
Processor	Dual-core Intel/AMD processor	1-2 quad-core server-grade Intel/AMD processors	2 or more quad-core server-grade Intel/AMD processors
RAM	4 GB	6 GB	10 GB
OS and JVM	32-/64- bit	64 bit	64 bit
HDD type	SATA	SATA/SAS RAID	SAS RAID
HDD space usage ^{1a, 1b}	4 GB	4 GB	4 GB

The operating system must be installed and configured prior to the PSE installation.

Linux platform

Linux OS compatible with Pathway Studio Enterprise

Any 2.6 kernel-based 32-bit or 64-bit Linux distribution, including:

- OpenSUSE 10.0 or higher;
- Novell / SuSE Linux 9.3 or higher;
- Novell / SuSE Linux Professional 9.0 or higher;
- Novell / SuSE Linux Enterprise Server 9.0 or higher;
- Fedora Core 6 or higher;
- RedHat Enterprise Linux 4.0 or higher;

^{1a} HDD space required for the DBMS and for the database is not included. For the tablespace usage see the section [Tablespace Requirements](#)

^{1b} HDD space requirement is based on an expectation of a nominal amount of experiment data. Loading of additional experimental data may require additional hard disk space.

- Oracle Linux;
- CentOS Linux 4.0 or higher

User account

We recommend setting up a designated user account for the installation and the operation of the PSE Application Server and advice against using the 'root' account with PSE Server. The PSE Server software can be installed into a home directory of the PSE user or into any other directory. In the latter case, the PSE user must have read, write and execute permissions for the PSE installation directory and all subdirectories and files inside it.

Windows Platform

Windows OS compatible with Pathway Studio Enterprise

- Windows 2003 Server, 32-bit or 64-bit; 64 bit recommended.
- Windows 2008 Server, 32-bit or 64-bit; 64-bit recommended.
- Windows 2008 R2 Server.

User account

Windows user account that will be used for the installation and the operation of the PSE Application Server must be member of the group "Administrators".

Database Server JDBC Drivers

Oracle

As soon as the PSE Server software is installed the JDBC driver for Oracle 10g/11g must be copied to the directory `<PSE-install-dir>/PathwayStudio/WEB-INF/lib/`. The driver can be found in the `jdbc/lib` subdirectory of the Oracle server or client installation directory.

Oracle version	Driver filename
Oracle 10g	ojdbc14.jar
Oracle 11g	ojdbc6.jar

IBM DB2

As soon as the PSE Server software is installed, the JDBC driver for DB2 must be copied to the directory `<PSE-install-dir>/PathwayStudio/WEB-INF/lib/`. JDBC driver is contained in the file: `db2jcc4.jar`. This file can be found in the subdirectory `java` of the DB2 Client/Server installation directory.

Application Server

The application server is included into the PSE distribution. Pathway Studio Enterprise 7 comes bundled with a pre-configured instance of Tomcat 6.0 which can be used right out of the box.

Java Virtual Machine

Pathway Studio Enterprise Server software package includes a customized and pre-configured instance of Sun JRE 6 Update 16.

If necessary, Pathway Studio server can be configured to work with another instance of Java machine¹. In this case, on Linux platform the environmental variable JAVA_HOME must be set in the PSE application owner user profile and point to the JVM compatible with PSE server software.

Compatible Java machines:

Linux - Sun JRE/JDK 6 (update 7 or newer)

Windows - Sun JDK 6 (update 7 or newer)

Web Server (optional)

If necessary, Apache HTTP Server 2.0 or higher can be configured to work in front of the Pathway Studio Enterprise application server.

Database Server

The Oracle or DB2 instance that will host PSE database(s) must be pre-configured and up and running at the time of the PSE installation meetings.

Oracle

Versions and editions compatible with Pathway Studio Enterprise

- Oracle 10g/11g, Standard or Enterprise edition;

Required components and packages

None

Memory allocation

No specific requirements to the SGA or to the memory distribution between different memory pools. If both application and the database server are installed in the same box then the standard recommendation is to reserve about 40% of the RAM for the Oracle database.

¹ Not applicable to 64-bit Windows platform

Character set

If the PSE users will need the data displayed in languages other than English then the Oracle character set must be Unicode UTF-8. Otherwise, any Western ASCII encoding is preferred.

Database schema

A database schema owner account can be created in the Oracle database in advance or as part of the PSE installation. If PSE Server hosts more than one database then additional schema owner accounts must be created in the Oracle database, one per PSE database.

PSE database schema can be given any name. It is convenient when the schema name contains references to both PSE version and the dataset, e.g. *pse7_resnet*, *pse7_resnet7*, *pse7_plants*, *pse7_plants2*, etc.

Database schema creation options**Option 1**

PSE schema owner is created prior to the PSE installation meeting. This option is recommended for the clients who do not have DBA access to their Oracle server and/or in the case when an Oracle DBA cannot attend the PSE installation meetings.

Create user script template

```
create user pse7_resnet identified by "pathway";
grant connect to PSE7_RESNET;
grant resource to PSE7_RESNET;
grant create view to PSE7_RESNET;
```

Option 2

Create both schema owner and the schema objects during the PSE Server Installation Meeting. This option will require the presence of an Oracle DBA at the time of the PSE installation.

IBM DB2***Versions and editions compatible with Pathway Studio Enterprise***

IBM DB2 version 9.7 or higher, Enterprise or Express edition

Database

The PSE database(s) must be created by a DBA prior to the PSE installation Meeting. All PSE databases must be created with the following parameters:

Bufferpool and tablespace block size

8K (or greater)

Code set

UTF-8

Database archive log files

The default archive log files parameters must be changed as follows:

Number of primary log files (*logprimary*): 20
Number of secondary log files (*logsecond*): 30
Size in blocks of each log file (*logfilsiz*): 2048

Tablespace Requirements

The starting size of the Mammalian ResNet database is 12 GB and that of the Plants ResNet is about 2 GB. New data can be added to the PSE databases via the PSE user interface or through the PSE command-line tools. The database growth rate is hard to predict and depends on several factors, such as the number of PSE end users, the application usage patterns, etc. The rapid increase in the schema size is expected in the case of extensive usage of command-line data import tools and command-line text-mining tools.

PC Client

Operating System

- Windows XP Professional with Service Pack 2 or later;
- Windows Vista (Home Basic, Home Premium, Ultimate, Business or Enterprise edition);
- Windows 7 (Home Basic, Home Premium, Professional, Ultimate, or Enterprise edition.)
- 32-bit or 64-bit editions supported; 64-bit recommended.

RAM

2 GB minimum
3 GB recommended for Windows XP Professional
4 GB recommended for Windows Vista or Windows 7

HDD

NTFS file system

HDD space usage

Pathway Studio Client with MedScan Reader module	1 GB
Local MS Jet database (optional)	up to 2 GB per database

Other Requirements

Internet connection;
Microsoft Internet Explorer 7 or later
Microsoft .NET 3.5 SP1 (or .NET 3.5.1) required and is provided with Pathway Studio Installation Media or downloaded from Microsoft during installation.

Web Client

Web Browser

- Microsoft Internet Explorer 7 or newer;
- Mozilla FireFox 2 or newer;
- Safari 3.1 or newer;

Note: Graphical pathway viewer in PSE Web client is based on an ActiveX Control and therefore is available only in Internet Explorer. Other than that, the Web client functionality is the same for all web browsers.