

# The Paisley Solution

(covering Risk Navigator<sup>®</sup>  
and AutoAudit<sup>®</sup> for the  
Java<sup>™</sup> Platform)

## Technical Specifications

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v2.1.01



PAISLEY CONSULTING

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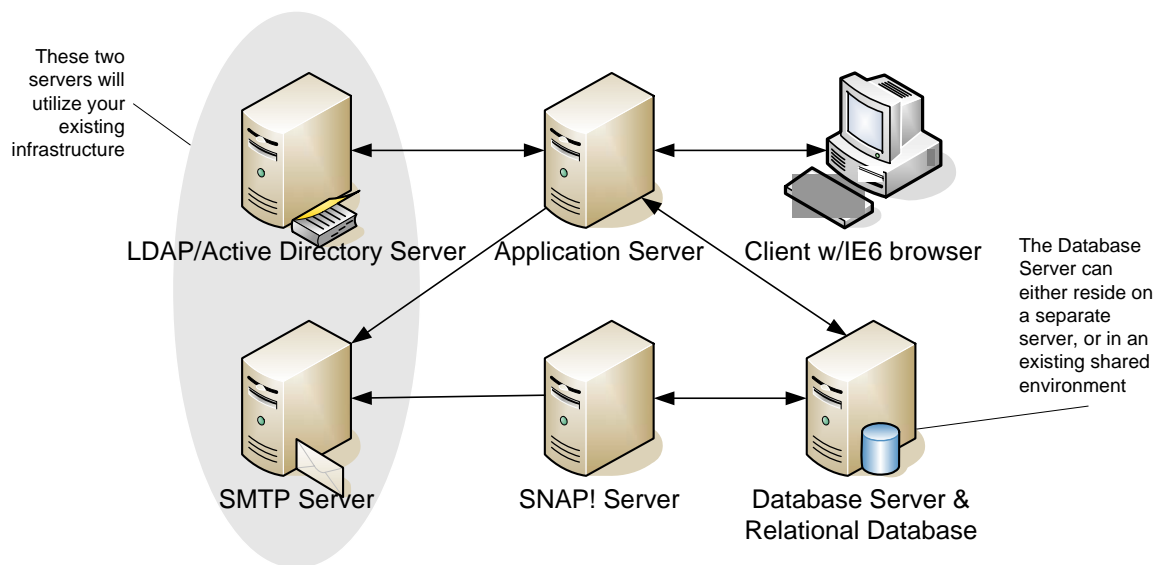
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# OVERVIEW

The Paisley Solution<sup>1</sup>, consisting of Risk Navigator® and AutoAudit® for the Java™ platform, is designed to be compliant with most Web standards, and can be integrated into most IT infrastructures. The physical architecture of The Paisley Solution is dependent on the client's installation. Some of the servers can be shared, or can be deployed on existing servers. The core application architecture shown in Figure 1, and the following server specifications define the recommended hardware and software for each server.



**Figure 1. Core Application Architecture**

<sup>1</sup> Unless specifically noted to the contrary, all recommendations in this document apply equally to all components of The Paisley Solution (Risk Navigator and AutoAudit).

# PRODUCTION SYSTEM

## SYSTEM CAPACITY

The needed capacity for The Paisley Solution depends on the number of concurrent users and documents. The number of concurrent risk management users and auditors generally determines the necessary hardware performance, and the number of business processes generally determines the data size.

<i>Small</i>	<i>Medium</i>	<i>Large</i>
up to 50 Concurrent Users <sup>2</sup>	50-375 Concurrent Users <sup>2</sup>	375+ Concurrent Users <sup>2</sup>
less than 100 Business Processes or Documents	100-1000 Business Processes or Documents	1000 or more Business Processes or Documents
less than 150 Controls	150-800 Controls	800 or more Controls

## DATABASE SERVER

The Paisley Solution supports either an Oracle or DB2 Relational Database. The database can run in a shared environment with either a clustered or non-clustered configuration. The client can define the Oracle instance, the directory in which it is installed, and the mount point. Three schemas spaces are required for The Paisley Solution: one for active data, one for archived data, and one that is reserved for future use.

### *Database Server Requirements*

Database Server	Versions and Fix Packs
Oracle 9i	Refer to the Oracle documentation or Web site for specific versions
Oracle 10g	Refer to the Oracle documentation or Web site for specific versions
DB2 8.1	Refer to the DB2 documentation or Web site for the latest fix packs
DB2 8.2	Refer to the DB2 documentation or Web site for the latest fix packs

### Oracle

The Paisley Solution does not need any unique configuration within Oracle. We currently have Oracle databases running on a Windows 2000 Server, a Windows 2003 Server, and various versions of Unix and Linux.

### DB2

The Paisley Solution does not need any unique configuration within DB2. We currently have DB2 databases running on a Windows 2000 Server, a Windows 2003 Server, and various versions of Unix and Linux.

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<sup>2</sup> Concurrent users are users who are logged into and using The Paisley Solution at any given time. This number is typically 25-50% of the total number of users authorized to use Risk Navigator or AutoAudit.

*Database Hardware and Storage Recommendations*

	<b><i>Small System</i></b>	<b><i>Medium System</i></b>	<b><i>Large System</i></b>
	less than 100 Business Processes or Documents	100-1000 Business Processes or Documents	over 1000 Business Processes or Documents
	less than 2000 attachments	2000-10,000 attachments	over 10,000 attachments
	less than 150 Controls	150-800 Controls	800 or more Controls
<b>Wintel Server Option</b>	<ul style="list-style-type: none"> <li>• Pentium 4 Xeon</li> <li>• 4 GB Memory</li> <li>• 10/100 MB Ethernet</li> </ul>	<ul style="list-style-type: none"> <li>• Quad Pentium 4 Xeon</li> <li>• 8 GB Memory</li> <li>• 1000 MB Ethernet</li> </ul>	[If your needs qualify as a “large” system, you should consider running on one of the *nix options below.]
<b>*nix<sup>3</sup> Option</b>	<ul style="list-style-type: none"> <li>• Dual processor</li> <li>• 4 GB Memory</li> <li>• 100/1000 MB Ethernet</li> </ul>	<ul style="list-style-type: none"> <li>• Quad processor</li> <li>• 8 GB Memory</li> <li>• 100/1000 MB Ethernet</li> </ul>	<ul style="list-style-type: none"> <li>• 6-8 processors</li> <li>• 16 GB Memory or more</li> <li>• 1000 MB Ethernet</li> </ul>
	With up to 100 Business Processes and up to 2000 attachments, the database will start at an estimated 10 GB of disk space and will increase in size by an estimated 6-8 GB per year with archiving and document version control. <sup>4</sup>	With 100-1000 Business Processes and 2000-10,000 attachments, the database will start at an estimated 25 GB of disk space and will increase in size by an estimated 10-25 GB per year with archiving and document version control. <sup>4</sup>	With over 1000 Business Processes and over 10,000 attachments, the database will start at an estimated 50 GB of disk space and will increase in size by an estimated 25-50 GB per year with archiving and document version control. <sup>4</sup>

<sup>3</sup> Linux or Unix (Solaris)<sup>4</sup> It is recommended that storage components be configured with hardware-driven RAID.

## APPLICATION SERVER

The Paisley Solution offers clients a choice of using either the IBM WebSphere or BEA Weblogic Server. It is possible to run The Paisley Solution within a shared or distributed environment; however, a dedicated application server is strongly recommended since it is necessary to make unique configuration settings.

The EAR file footprint is currently around 40 MB. The runtime footprint will use up to 1 GB of memory per 100 users. From a disk perspective, full audit logs of all authentications and authorization requests could take up as much as 10 MB of disk space daily.

Both WebSphere and WebLogic include embedded Web/HTTP servers, and can also be configured to accept requests on port 80. Alternatively, a separate Web server such as Apache, IBM HTTP Server, or IIS can be configured to work in conjunction with WebSphere or WebLogic.

### *Application Server Requirements*

Application Server	Fix Packs and Service Packs
IBM WebSphere 5.0	Refer to the IBM WebSphere documentation or Web site for the latest fix packs
IBM WebSphere <sup>5</sup> 5.1	Refer to the IBM WebSphere documentation or Web site for the latest fix packs
BEA WebLogic 8.1	Refer to the BEA WebLogic documentation or Web site for the latest service packs

### *Operating Systems Recommendations*

Windows and various versions of Unix are supported by both IBM's WebSphere and BEA's WebLogic. IBM's or BEA's release notes should be consulted for proper selection of the Operating System.

#### **WebSphere:**

<http://www-306.ibm.com/software/webservers/appserv/doc/latest/prereq.html>

#### **WebLogic:**

[http://e-docs.bea.com/platform/suppconfigs/configs81/81\\_over/overview.html](http://e-docs.bea.com/platform/suppconfigs/configs81/81_over/overview.html)

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<sup>5</sup> WebSphere Express does not support the EJBs The Paisley Solution requires.

*Application Server Hardware Recommendations*

	<b><i>Small System</i></b>	<b><i>Medium System</i></b>	<b><i>Large System</i></b>
	Up to 50 Concurrent Users	50-375 Concurrent Users	375+ Concurrent Users
<b>Wintel Server Option</b>	<ul style="list-style-type: none"> <li>• Dual Pentium 4 Xeon</li> <li>• 4 GB Memory</li> <li>• 2x36 GB HDD, w/Raid 0+1</li> <li>• 100/1000 MB Ethernet</li> </ul>	<ul style="list-style-type: none"> <li>• Dual or Quad Pentium 4 Xeon</li> <li>• 8 GB Memory</li> <li>• 2x36 GB HDD, w/Raid 0+1</li> <li>• 100/1000 MB Ethernet</li> </ul>	[If your needs qualify as a "large" system, you should consider running on one of the *nix options below.]
<b>*nix<sup>6</sup> Option</b>	<ul style="list-style-type: none"> <li>• Dual UltraSparc III processor</li> <li>• 4 GB Memory</li> <li>• 2x36 GB HDD, w/Raid 0+1</li> <li>• 100/1000 MB Ethernet</li> </ul>	<ul style="list-style-type: none"> <li>• Dual or Quad UltraSparc III processor</li> <li>• 8 GB Memory</li> <li>• 2x36 GB HDD, w/Raid 0+1</li> <li>• 100/1000 MB Ethernet</li> </ul>	<ul style="list-style-type: none"> <li>• 6-8 UltraSparc III processors</li> <li>• 16 GB Memory or more</li> <li>• 2x36 GB HDD, w/Raid 0+1</li> <li>• 1000 MB Ethernet</li> </ul>

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<sup>6</sup> Linux or Unix (Solaris)

## SNAP! SERVER

The SNAP! Reporter Server Edition application runs on a standard Microsoft® Windows® server.

### *Operating System Requirements*

All with the latest service packs:

- Windows 2000 Professional
- Windows 2000 Server
- Windows XP Professional
- Windows 2003 Server family

**Note:** *Microsoft Windows XP and 2000 are fully supported.*

### *Other Software Requirements*

- Oracle and/or DB2 database client software, with the supported OLE DB Providers.\*
- Internet Explorer 6 with latest service packs.
- .NET Framework 1.1\*\*
- MDAC 2.7\*\*
- Microsoft Office 97 or higher (required if requesting reports in Microsoft Word® format)\*\*\*

\* OLE DB providers supported:

- Oracle
  - Only 9i client databases - Oracle Provider for OLE DB 9.2.0.4.0
  - Mix of Oracle 9i & 10g client databases – Oracle Provider for OLE DB 10.1.0.2.0 or 10.1.0.4.0
- IBM OLE DB Provider for DB2, IMBDADB2.1 ibmdadb2.dll version (8.1.7.664 (fix pack 7a) or higher).

\*\* SNAP! Reporter Server Edition installs Microsoft .NET Framework 1.1 and MDAC 2.7 during installation, so it is not necessary to install them prior to the SNAP Reporter installation. If these components (or more current versions of these components) are already installed, the SNAP! Server installation will not overwrite them.

\*\*\* SNAP! Reporter Server Edition can generate reports in several formats. To create reports in Word formats, Microsoft Word must be installed on the computer running SNAP! Reporter Server Edition.



## *Hardware Requirements*

- Dual Pentium 2.4 GHz Processors or higher
- 2 GB RAM:
  - Recommended RAM: 512 MB per configured Report Engine
  - Minimum RAM: 256 MB per configured Report Engine
- 50 GB of Free Hard Disk Space
- Network Card (NIC)
  - Recommended: 10/100/1000 MB Ethernet
  - Minimum: 10/100 MB Ethernet
- Roundtripping time under 7ms from SNAP! Server to all Client database servers

## **LDAP OR ACTIVE DIRECTORY**

The Paisley Solution can be integrated with the client's existing LDAP Server. The server must be LDAP v3.0 compliant. Additionally, the server must support the following attributes:

- Display Name
- Group Membership
- E-mail Attribute
- Full DN

Paisley Consulting will need to discuss with the client how user groups are defined and configured to integrate correctly.

We have successfully integrated with the following LDAP v3.0 compliant LDAP vendors:

- Microsoft Active Directory
- SunOne LDAP
- Novell eDirectory

## **MAIL SERVER**

The Paisley Solution uses a standard SMTP gateway to interface with the client's existing Mail Server.

## **CLIENT PC WORKSTATION**

### *Standard Desktop Requirements*

We recommend the following for most client PC setups,

- Windows 2000 Professional or XP
- 1.5 GHz processor, or better
- 512 MB RAM, or higher
- 500 MB free hard drive space
- JRE 1.4.1.x or 1.4.2.x (see *Plug-ins* below)
- 10/100 ethernet card
- 1024 x 768 minimum default display resolution

## Web Browser

The Paisley Solution is Web-based and requires a Web Browser Internet Explorer 6.0 or higher.

## Plug-ins

The Paisley Solution uses plug-ins. The following plug-ins are automatically installed by The Paisley Solution if they do not already reside on the client PC.

### ***Heat Maps***

Heat Maps are reporting tools that require a Surge® plug-in. The Surge® plug-in is automatically installed the first time a Heat Map is generated with Risk Navigator/AutoAudit.

### ***Content Management***

The Paisley Solution's Content Management component uses a Bluefish applet on the client PC that requires the JRE 1.4.1.x or 1.4.2.x. The applet is used to push/pull supporting documents between the client PC and the Application Server. The applet will be automatically installed the first time a user accesses an attached document.

## SNAP! Reporter

Paisley Consulting supplies the SNAP! Reporter Client, which is a standalone Windows program. Only clients that design reports will need SNAP! Reporter.

## *AutoAudit Offline Client Desktop Requirements*

Auditors have the ability to use an off-line version of AutoAudit in conjunction with the server-based Paisley Solution. In addition to, or replacing, the standard desktop requirements, auditors using the AutoAudit Offline client need the following on their PCs,

- An operating system that can support a 1.3.1 Java Virtual Machine (JVM) (required for Apache Tomcat, see *AutoAudit Offline Client Footprint* below)
- 1 GB RAM, or higher
- 5 GB or more free hard drive space (this depends on the number of audits and supporting documents stored on the local database)

## AutoAudit Offline Client Footprint

The installed AutoAudit Offline Client requires about 210 MB hard drive space, and includes the following:

- All application code for the AutoAudit Offline Client
- Apache Tomcat, which serves as a local Web server
- Apache Derby, which serves as a local embedded/encrypted database

## **BANDWIDTH**

10/100 MB Ethernet or faster is recommended.

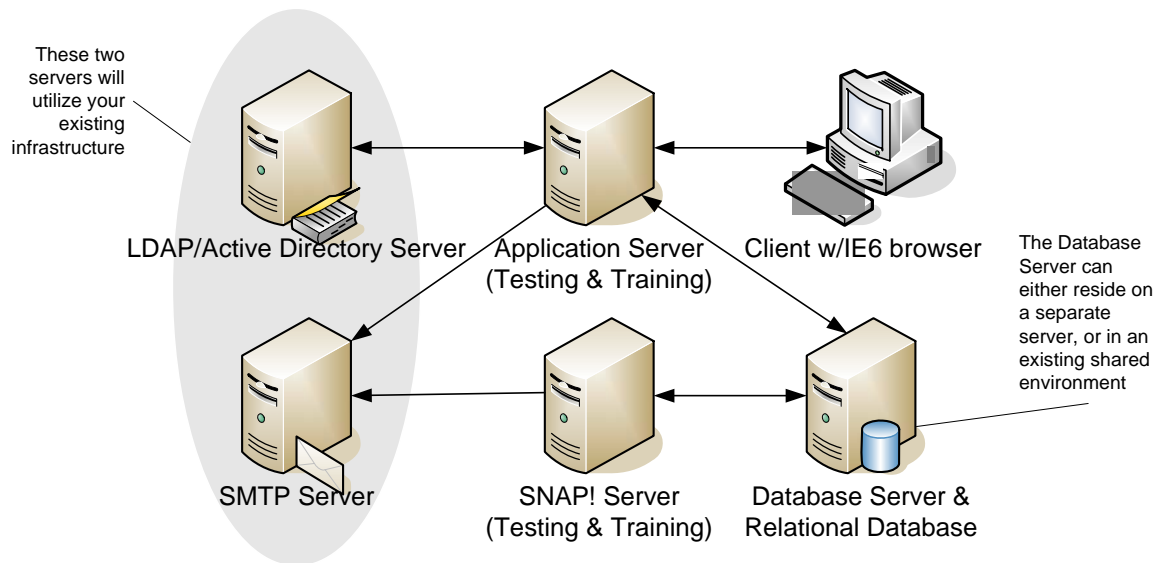
## **SHARED ENVIRONMENT AND DISTRIBUTIVE ARCHITECTURE**

This document has described a standalone system for The Paisley Solution, but it is sometimes possible to leverage various existing infrastructure when deploying The Paisley Solution. Speak with your contact at Paisley Consulting to determine the appropriate configuration for your environment.

## DEVELOPMENT AND TRAINING SYSTEMS

It is desirable to have separate environments of The Paisley Solution for testing and training. The development environment is used for testing a newly issued release before it is placed on the production system. The training system is used to train personnel who will be using The Paisley Solution on the production system.

If a separate system is used, some pieces of the system can be cohabitated on single servers. A single server can function as the Application Server for both the testing and the training environments. Similarly, the Database Server can host multiple databases and the SNAP! Server can process reports for multiple instances.



**Figure 2. Development/Training System**

## BACKUPS

It is recommended that a Backup system be used for The Paisley Solution. The Database Server contains data that needs to be backed up and offers data recovery.