

Oracle Insurance

**Insbridge Rating and
Underwriting
Hardware & Software
Recommendations**

Release 4.6.1

November 2012

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Oracle Insurance Insbridge Rating and Underwriting Hardware & Software Recommendations

Release 4.6.1

Part # E36924-01

Library # E36936-01

November 2012

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STATEMENT OF PURPOSE

This document describes the preferred operating environments and hardware setup for the Oracle Insurance Insbridge Rating and Underwriting (IBRU) system release 4.6.1. This is inclusive of Oracle Insurance Insbridge Rating and Underwriting Framework Administrator (IBFA), Oracle Insurance Insbridge Rating and Underwriting RateManager (RateManager), Oracle Insurance Insbridge Rating and Underwriting SoftRater (SoftRater), and the associated database(s).

The setups in this document are broken into three configurations:

- Minimum
- Standard
- Optimal

Minimum has the smallest footprint. This configuration keeps costs down by using the least amount of equipment and by limiting the number of environments used. A minimum configuration can be expanded at a later time.

Standard has a mid-sized footprint. This configuration is fairly common and allows for a SoftRater for Java setup to be utilized in some of the environments.

Optimal has the largest footprint. This configuration is designed for larger data requirements, larger number of users and for multi-layered environments.

HARDWARE CONSIDERATIONS

When selecting hardware for the IBRU system, the requirements should be based on transactional rating and/or batch needs as well as the physical requirements to be made on the machines. A low number of users that processes large files may benefit from a more powerful hardware environment. Likewise, a low number of users with smaller rating/batch needs may be able to use the minimum.

For hardware requirements, the minimum, standard and optimal configurations have two main considerations:

1. The server hosting the design-time tool (RateManager).
2. The server(s) hosting the run-time engine(s) (SoftRater).

Design-time Tool

On the design-time tool (RateManager) side, the configuration selected should be determined by:

- The number of concurrent RateManager users
- The number of lines of business
- The states of those lines of business

RateManager users are the internal users of the system; product managers, actuaries, and business analysts, rate loaders, etc. This does not include agents or consumers.

- The minimal configuration is suitable for 1 or 2 concurrent users and, typically, not more than 3-5 states of 1-2 lines of business.
- The standard configuration would be suitable for 2-10 concurrent RateManager users with 5-25 states in 3-5 lines of business (or 1 or 2 lines of 50 states).
- The optimal configuration would be suitable for more than 10 RateManager users with more than 5 lines of 30-50 states.

Run-time Engine

On the run-time engine (SoftRater), the configuration should be determined by simultaneous traffic, both from online transactions as well as batch rating cycles.

- The minimum configuration is suitable for development and testing environments. This configurations in not recommended for production environments.
- The standard configuration is suitable when online transactions and batch rating do not occur at the same time, for example, when batch rating occurs during off-peak hours or in the middle of the night.
- The optimal configuration would be recommended to customers who are performing large batch rating cycles that would require a lot of resources, and those batch rating cycles occur during normal business hours.

SOFTWARE CONSIDERATIONS

The IBRU system has some specific software requirements; RateManager and IBFA must run on a Windows Server machine and utilize a MS SQL Server database. SoftRater for Java is more flexible and can be loaded to a WebLogic, WebSphere, or JBoss application server and utilize an Oracle or DB2 database. This is not a requirement. It is optional. SoftRater for Windows can be used instead. SoftRater for Windows has the same requirements as RateManager and IBFA.

- **Database** – RateManager and IBFA require a SQL Server database. SoftRater can use a SQL Server or Oracle database or a combination of databases. SQL Server may be the only database system used. No other database system is required; however another database system can be used in the IBRU setup if desired, for example an Oracle database can be utilized.

If you chose an Oracle database, please follow the hardware/software requirements recommended.

- **Operating Systems** – RateManager and IBFA must run on a Windows Server machine. No other operating environment is required. SoftRater can be run on a non-Windows machine if a compatible application server platform such as WebLogic, WebSphere, or JBoss is running as well. If a non-Windows machine is used for SoftRater, a Java version of SoftRater is required.

The IBRU applications and databases can be tenants in an already existing setup. No known conflicts exist between IBRU and other applications or required server settings.

OTHER FACTORS

There are many other considerations to keep in mind when deciding an on IBRU setup. You may also want to consider:

- Usage
- Number of Environments

USAGE

If the ability to return rates quickly with minimal lag time is a consideration, the configuration should factor in usage. Usage is defined as the amount of demand placed on the hardware.

- A **minimum** configuration may work best in an environment with a low number of users where RateManager and IBFA/SoftRater for Windows are on one machine and a SQL Server database is on a separate machine. No other processes or applications are running on the RateManager and IBFA/SoftRater for Windows machine.
- A **standard** configuration may be required when the number of users goes beyond 10. RateManager, SoftRater and the databases should each reside on separate machines. A Java version of SoftRater may be used and another database in addition to SQL Server may also be utilized. The RateManager or design-time tool may be a tenant in the machine along with other applications. It is recommended that SoftRater or the run-time engine be on a machine with minimal demand from other applications or processes.
- An **optimal** configuration may suit a larger company or a company that handles commercial lines. Commercial lines may require more processor time and have larger data files than non-commercial lines and may benefit from having an optimal system configuration. RateManager, SoftRater and the databases would each reside on separate machines. A Java version of SoftRater may be used and another database in addition to SQL Server may also be utilized.

RateManager or the design-time tool may be a tenant in the machine but for optimal usage, it is recommended that RateManager have a dedicated machine. SoftRater or the run-time engine should have a dedicated machine as well.

The design-time machine and the run-time machine can each have their own usage requirements. For example, if you have a small number of users who will be creating programs on a machine that will not be rating, that group may be fine with a minimum setup. Most likely, there will not be a great demand placed on the machine. If you have a production group that will be generating large quantities of rates/renewals, that group may require an optimal setup to accommodate their needs.

NUMBER OF ENVIRONMENTS

Another factor to consider when selecting a hardware/software configuration is the number of physical environments that you want. A physical environment generally refers to a physical machine where a specific activity is performed. For example, a physical environment called development could be created where users only build ratings. Another physical environment called QA could be created where users

only test ratings. There is no limit to the number of physical environments you can have. However, each environment will require hardware space and a database instance.

It is recommended that three physical environments be setup; one for development, one for testing and one for production. These environments can be together on one machine (a minimum configuration) or two machines (a standard configuration) or three machines (an optimal configuration). How you choose to configure your environments is up to you.

There are a few possible combinations of RateManager, IBFA/SoftRater for Windows, IBSS/SoftRater for Java, MS SQL Server and Oracle 11g that can be implemented. These configurations may require more equipment, more space, and/or have additional costs. For more information regarding environments, please see the Insbridge Implementation Guide.

CURRENT RESOURCES AVAILABLE

The configuration you choose may be added to the machines you currently have, provided there is available space and that the usage will allow for it.

RateManager is not a processor heavy application and the database is not transaction heavy. This means that existing hardware equipment may be used. Depending upon the condition of the machines, the current demands the machine is under and the available space on the machine.

It is recommended that the databases be on separate machines from the applications due to performance and security issues.

Additional Information

For further assistance, please contact an Oracle Insurance Insbridge Rating and Underwriting sales representative.

NOTE: *It is possible to have RateManager, IBFA/SoftRater for Windows and the SQL Server database all reside on the same machine. This configuration is not recommended due to security and performance issues.*

QUICK VIEW

The table below shows at a glance, what operating systems, application server platforms, and databases can be utilized with the IBRU system.

| IBRU System Component | Operating System | Application Server | Database |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| RateManager | Microsoft Windows Server 2008, Standard Microsoft Windows Server 2008, Enterprise | IIS 7.0 | SQL Server 2005 SP/4 Standard and Enterprise editions SQL Server 2008 R2 Standard and Enterprise editions |
| IBFA/SoftRater for Windows | Microsoft Windows Server 2008, Standard (32-bit or 64-bit) Microsoft Windows Server 2008, Enterprise (32-bit or 64-bit) | IIS 7.0 | SQL Server 2005 SP/4 Standard and Enterprise editions SQL Server 2008 R2 Standard and Enterprise editions |
| IBSS/SoftRater for Java | Please see NOTE | Oracle WebLogic 10.3.2.0 IBM WebSphere 6.1.x, 7.0 JBoss by Red Hat 7.1.1 | Oracle 10g, 11g IBM DB2 9.7 SQL Server 2005 SP/4 Standard and Enterprise editions SQL Server 2008 R2 Standard and Enterprise editions |
| SoftRater Native | Microsoft Windows Server 2008, Standard (32-bit or 64-bit) Microsoft Windows Server 2008, Enterprise (32-bit or 64-bit) | IIS 7.0 | Oracle XE |

NOTE: *JBoss, WebLogic and WebSphere operate in a variety of environments. As long as the application server is compatible with the operating system, then SoftRater for Java also will be compatible. SoftRater for Java is installed and functions within the application server. The external resources that the application server resides in will not affect SoftRater for Java.*

SERVER SYSTEM REQUIREMENTS

The primary focus of the following hardware recommendations is usage. The hardware requirements are divided by the components that are most affected by usage; processor, memory and hard drive. Each component has the minimum requirement recommended.

| | | |
|-------------------|------------------|------------------------|
| Processor: | Minimum: | Dual processor 1.8 GHz |
| | Standard: | 2x Quad Core 2.0 GHz |
| | Optimal: | 4x Quad Core 2.93 GHz |

| | | |
|----------------|------------------|---------------|
| Memory: | Minimum: | 4 GB ECC RAM |
| | Standard: | 8 GB ECC RAM |
| | Optimal: | 16 GB EEC RAM |

| | | |
|--------------------|------------------|-----------------------------------------|
| Hard Drive: | Minimum: | 25 GB |
| | Standard: | 50 GB SCSI Hardware RAID |
| | Optimal: | 100 GB SAS 15,000 RMP Hardware RAID 0+1 |

All hardware for the IBRU system has a standard minimum requirement for graphics and network.

| | |
|------------------|-------------|
| Graphics: | 1280 x 1024 |
| Network: | 100b T NIC |

Server Software

RateManager and IBFA/SoftRater for Windows must be installed in a Windows environment. The software requirements are standard for any IBRU configuration, regardless of whether you are running a minimum configuration or an optimal configuration.

| | |
|---------------------------------------------------------------------------|----------------------------------------------------------------------------|
| OS: | Microsoft Windows Server 2008, Standard, and Enterprise (32-bit or 64-bit) |
| This software must be installed and running in every Windows environment. | Microsoft IIS 7.0 in Windows 2008 Server |
| | Microsoft .NET Framework 3.5 |
| | MSMQ |

DATABASE SYSTEM SUPPORTED

The Insbridge Rating and Underwriting System supports the following databases:

- Microsoft SQL Server 2005 SP/4, Standard and Enterprise editions
- Microsoft SQL Server 2008 R2, (X64) Standard and Enterprise editions
- Oracle 10g (10.2.0.5.0)
- Oracle 11g (11.2.0.3.0)
- Oracle Database 10g Express Edition (Oracle XE)
- IBM DB2 9.7

RateManager and IBFA require a SQL Server database. SoftRater supports multiple databases platforms and can utilize a SQL Server or an Oracle database or a combination of databases. IBFA acts as a SoftRater in a Windows environment. When used in a Windows environment, SQL Server is the only database that can be used. If another database type is needed, a Java version of SoftRater is required.

Depending on the load expected on the web server, the database can be placed on a separate server that can either be independent or shared. It is recommended that the database be separate for performance and security reasons.

MS SQL Server should not be installed on the same machine where the Insbridge web applications reside. If the MS SQL Server resides on a separate host from the IBRU web front end, a properly configured network connection from the web server front end to MS SQL Server must exist.

Hardware

All settings are relevant on a MS SQL Server 2005 SP/4 and a 2008 R2 instance. These settings may be used as a guideline when setting up other database systems.

| | |
|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| Processor: | 1.8 GHz or greater |
| Memory: | 4 GB RAM |
| Hard Drive: | 500 GB SCSI Hardware RAID or greater (This may be smaller or larger, depending upon the total volume expected to be used) |
| Graphics: | 1280 x 1024 |
| Network: | 1000b T NIC |
| | |
| These settings are required for SQL Server. | Mixed Mode Authentication |
| | Default SQL Server collation and sort order plus case sensitivity using Latin1_General_BIN as the server collation. |
| | NT Fibers must not be enabled |
| | SQL Server Client |

If you chose an Oracle or DB2 database, please follow the hardware/software requirements recommended by the distributor.

SOFTRATER ENGINE INSTANCE SIZING REFERENCE

If you are planning capacity for the Soft Rater engine, the sizing chart may give you an idea of how to plan. The numbers in the chart are based on a lab environment. Please be sure to plan additional space for growth.

Approximate 80-90% CPU Utilization

| Concurrent Users (Approximate) | | | |
|--------------------------------|-------------------------------------------|-------------------------------------------|-------------------------------------------|
| | 2,400 | 11,000 | 92,000 |
| Server | 2 Core @ 2.53GHz or higher with 16 GB Ram | 4 Core @ 2.53GHz or higher with 32 GB Ram | 8 Core @ 2.53GHz or higher with 64 GB Ram |

Figure 1 SoftRater Engine Sizing Chart

SOFTRATER JAVA CONFIGURATIONS

A non-Windows machine requires a Java version of SoftRater. SoftRater for Java will work within a JBoss, WebLogic or WebSphere application server.

The Insbridge Rating and Underwriting SoftRater for Java has been tested on:

- JBoss 7.1.1
- Oracle WebLogic 10.3.2
- IBM WebSphere 7.0
- IBM WebSphere 6.1

JBoss, WebLogic and WebSphere operate in a variety of environments. SoftRater for Java is installed and functions within the application server. The operating system of the machine where the application server resides will not affect SoftRater for Java. For example, it does not matter if WebLogic 10.3.2 is installed on a Linux machine, an HP-UNIX machine or a Windows machine. If WebLogic works in that operating system, then SoftRater for Java should work within WebLogic.

OPERATING ENVIRONMENT – JBOSS by RED HAT

SoftRater for JBoss Application Server by Red Hat Version 7.1.

Version: 7.1.1
Version Name: FINAL
Built on: 2012-03-09

For minimum operating system and hardware requirements for Red Hat JBoss Version 7.1, please visit: <https://access.redhat.com/downloads/>. You may be required to create a log in ID.

NOTE: *To connect to SQL Server 2008 R2, JRE 1.6 is required.*

OPERATING ENVIRONMENT – ORACLE WEBLOGIC 11gR1 (10.3.2)

For minimum operating system and hardware requirements for Oracle WebLogic Server release 11gR1 (10.3.2), please see:

http://www.oracle.com/technology/software/products/ias/files/oracle_wls_certification_10gr3_matrix.xls

OPERATING ENVIRONMENT – IBM WEBSHERE

Version: 7.0.0.7

Version: Integrated Solutions Console

Build #: cf70942.55

Built on: 10/24/09

Version: 6.1.0.0

Version: Integrated Solutions Console

Build #: b0620.14

Built on: 05/16/06

For minimum operating system and hardware requirements for IBM WebSphere, please see: <http://www-01.ibm.com/software/webservers/appserv/was/requirements/>

CLIENT

Clients are the internal users of the system; product managers, actuaries, and business analysts, rate loaders, etc. This does not include agents or consumers. RateManager client hardware and software requirements are general guidelines with the assumption that the client machine is under normal working conditions and not performing multiple high use tasks. Client machines with greater demands will require increased computing power.

Hardware

Minimum hardware configuration for average client usage.

| | |
|--------------------|---------------------------------------|
| Processor: | Pentium 1.8 GHz or greater |
| Memory: | 1 GB RAM or greater |
| Hard Drive: | 10 GB open hard drive space or more |
| Graphics: | 1024x768 minimum resolution or higher |
| Network: | 100b T or 1000b T NIC or greater |

Software

Require software for clients.

| | |
|-------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Microsoft: | Internet Explorer 8.0 (32-bit) Internet Explorer 9.0 (32-bit) <i>As of release 4.6.1, Internet Explorer 8.0 64-bit and Internet Explorer 9.0 64-bit are not supported.</i> |
| Adobe: | Adobe Acrobat Reader v9.0 or greater |

NOTE: IBRU requires Microsoft Internet Explorer. Other browsers are not compatible at this time.

SOFTRATER NATIVE CLIENT/ORACLE XE

Oracle Insurance Insbridge Rating and Underwriting SoftRater Native provides the ability to execute rules and rating logic in environments where access via the SoftRater web-services is not desired or possible. For example, an agent's laptop that is not connected to the web, a network, or a legacy non-web enabled system.

Hardware

Minimum hardware configuration for average SoftRater Native client usage.

| | |
|--------------------|---------------------------------------|
| Processor: | Pentium 1.8 GHz or greater |
| Memory: | 1 GB RAM or greater |
| Hard Drive: | 10 GB open hard drive space or more |
| Graphics: | 1024x768 minimum resolution or higher |
| Network: | 100b T or 1000b T NIC or greater |

Software

Required software for SoftRater Native clients.

| | |
|-------------------|--------------------------------------------------|
| Microsoft: | Operating System – Windows XP, Windows 7 |
| Oracle: | Oracle Database 10g Express Edition (Oracle XE) |
| Oracle: | Java Runtime 1.6 |

SOFTRATER NATIVE SERVER SIDE

When implementing SoftRater Native, an Oracle XE environment must be setup on the machine where IBFA is loaded. The same hardware and software requirements for IBFA will apply to an Oracle XE environment.

NOTE: *Requirements may change without notice. The requirements listed in this document are current as of the publication date found in this document.*
