

# IBM Rational Tester for SOA Quality and IBM Rational Performance Tester Extension for SOA Quality

## Highlights

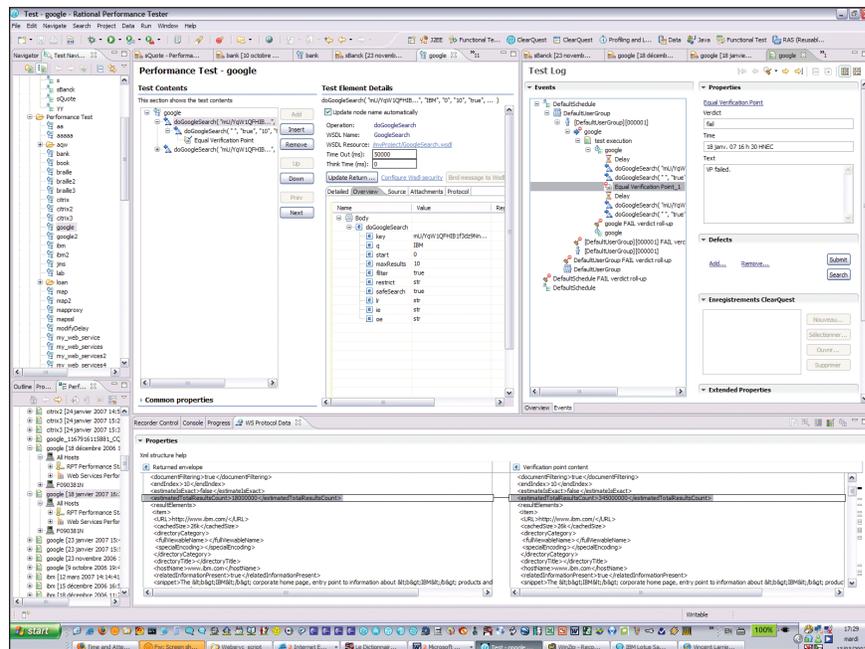
- **Increase ease of use with code-free testing of GUI-less services**
- **Validate SOA system scalability with flexible workload modeling, automated generation of Web service performance tests and real-time reporting of server response time and throughput**
- **Simplify service integration testing with automated test creation from WS-BPEL resources**
- **Help ensure interoperability and support of Web services standards (e.g., SOAP, HTTP[S], JMS, UDDI, WS-Security)**
- **Help improve SOA efficiency with broad platform monitoring support for deployed Web services to help quickly find performance bottlenecks and enable problem determination of server resource data**
- **Allow for advanced data analysis and parsing with flexible test customization through Java code insertion**

With the adoption of service-oriented architecture (SOA), organizations will see an increase in business flexibility, but they will also see an increase in component reuse. Services will change and new services will be added on a much more frequent basis than with today's vertical application stacks. With this increase in modularity and change, delivery teams will need to focus on end-to-end quality management to be successful. They will need to ensure functionality and performance at both the individual service and composite application levels, and they will need to be able to govern the distributed assets effectively, even after deployment.

IBM Rational® quality management tools for SOA testing enable delivery teams to help ensure that their SOA applications and Web services have the functionality, interoperability and performance they need, when they need it.

## IBM Rational Tester for SOA Quality software

IBM Rational Tester for SOA Quality software is for developers and quality assurance professionals who need to create, comprehend, modify and execute both functional and regression tests of GUI-less services.



Functional test on a Web service

## Automated generation of Web service test client

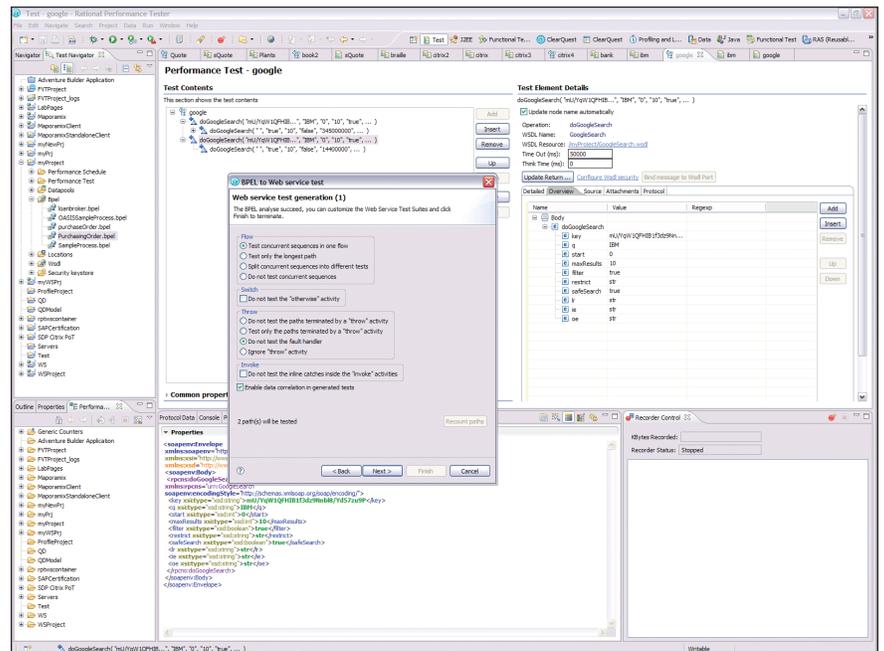
The automated generation of Web service test client feature allows you to look at the Web service and automatically generate it so that you can interact with the Web service, even though it does not have a GUI.

Rational Tester for SOA Quality uses the Web Services Explorer tool from the Eclipse project to retrieve the description of the Web Services Description Language (WSDL) and then generate a Web page, so that you can call any action of the Web service under test, review or analysis. Using the WSDL file and the Web Services Explorer, you can easily interact with the Web service or services.

## Automated data correlation and data-driven testing through a code-free test environment

Every time we're on the Internet, session IDs are used to identify us. Some Web services use the same approach, i.e., they use unique IDs to identify a transaction. Because Rational Tester for SOA Quality accommodates and plans for this, no coding or editing is required as part of the record and playback. Rational Tester for SOA Quality automatically recognizes and tracks the unique (i.e., variable) IDs as assigned during the playback session. The Rational software also provides the data correlation to understand where the appropriate unique ID is needed within and for each Web service.

As part of validation, you need to run the same tests in the same sequences with different data to help ensure that the service can withstand what real users may throw at it. This data could be in a database, Microsoft® Excel file, etc.



Test creation from WS-BPEL

In essence this is the same test with different data, such as trying different variables and types of input (e.g., very short/long names, numbers/symbols instead of letters). Rational Tester for SOA Quality automatically detects data entered during test recording and prepares the test for data-driven testing, without requiring any manual coding.

## Automated test creation from WS-BPEL resources

In addition to orchestrating the sequence of Web services, Web Services Business Process Execution Language (WS-BPEL) can model Web services and define how they will interact. Rational Tester for SOA Quality can automatically generate tests based on the WS-BPEL sequences and states identified. Instead of generating random tests for validating your Web services, Rational Tester for SOA Quality leverages the modeling work you have already done, and automatically generates test cases based on your WS-BPEL and WSDL input.

## Regression testing

Rational Tester for SOA Quality allows you to set baselines to automatically compare when running tests, and the software returns with a pass/fail grade to quickly analyze the quality status (e.g., improvement, regression). Rational Tester for SOA Quality can tell you the test log details—for instance, what field is different—which helps to identify whether there is a concern, and enables you to address and resolve the problem faster.

## IBM Rational Performance Tester Extension for SOA Quality software

IBM Rational Performance Tester Extension for SOA Quality is for performance engineers who need to perform load and performance testing of Web services. It extends IBM Rational Tester for SOA and IBM Rational Performance Tester software to perform load and performance testing against SOA applications.

## Validate system scalability

Rational Performance Tester Extension for SOA Quality provides flexible workload modeling, enabling automated generation of Web service test client

and Web service performance tests. This modeling helps ensure that the performance test accurately mirrors the user base, including different groups of service consumers, as well as the activities and usage patterns of each of the groups. Through the modeling exercises, the software can then provide more effective real-world scenarios and help to ensure system uptime.

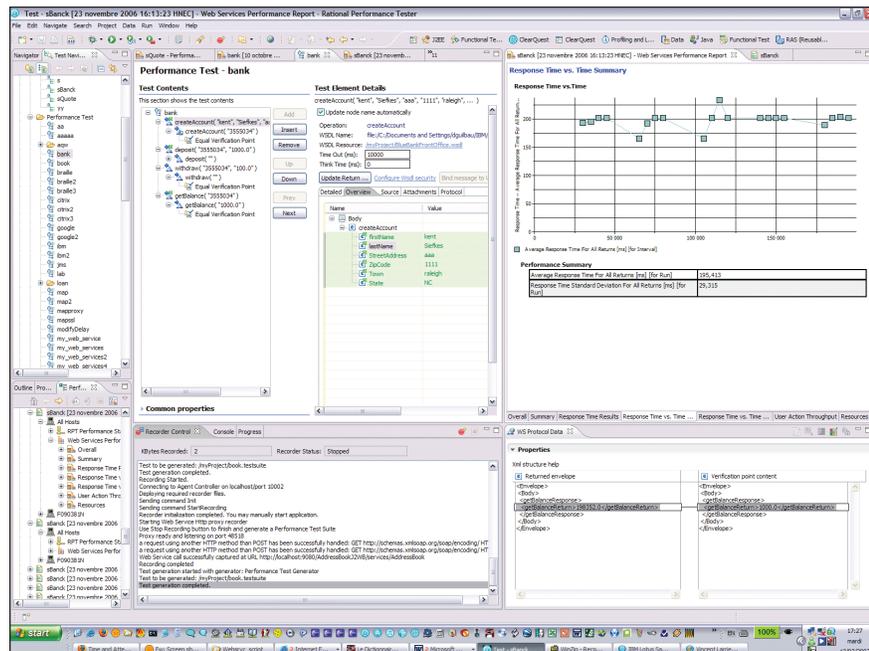
### Finding bottlenecks—root-cause analysis and problem determination

If you're working with an SOA, your composite applications are even more complex, and the response time is even more important and must be understood, along with the interactions among services. To track and understand the response times, Rational Performance Tester Extension for SOA Quality generates Application Response Measurement (ARM) trace data, and imports IBM Tivoli® Monitoring resource times response time breakdown data to help understand the bottlenecks earlier and at the Web service level.

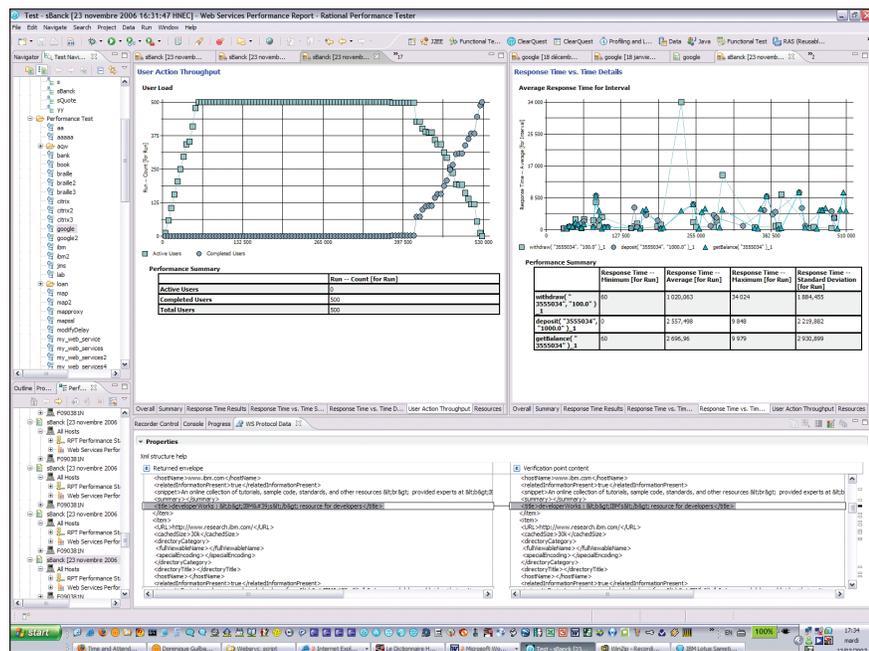
ARM instrumentation at the Web service level saves time and enables you to test and trace Web service responses before rolling the services into production. This is essential when testing complex composite applications.

### Flexible test customization through Java code insertion

If you want to perform very complex tests, you can, using Rational Performance Tester Extension for SOA Quality. The software enables you to add Java™ code instead of using the graphical editor to define and execute very complex and unique tests. With the Java code insertion ability, you have the flexible test customization needed to perform advanced data analysis and request parsing.



Test script and response time for a simple banking application



Performance test of Web service on simple banking applications

**Integrates with IBM WebSphere Services Registry and Repository software**  
Through the Eclipse platform, IBM provides a plug-in to IBM WebSphere® Services Registry and Repository software, which enables Rational quality management solutions for SOA testing to connect to the WebSphere software to find services to be tested. The service descriptions can then be retrieved from the WSDL file to generate a test.

### For more information

To find information about IBM Rational Tester for SOA Quality system requirements, visit:

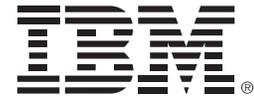
[ibm.com/software/awdtools/tester/soa](http://ibm.com/software/awdtools/tester/soa)

To find information about IBM Rational Performance Tester Extension for SOA Quality system requirements, visit:

[ibm.com/software/awdtools/tester/performance/ext/soa](http://ibm.com/software/awdtools/tester/performance/ext/soa)

## Features and benefits of IBM Rational quality management solutions for SOA testing

| Feature  | Benefit  |
|--|--|
| A visual test editor delivering both high-level and detailed test views                    | No programming knowledge is necessary to create, comprehend, modify and execute a functional test. A test is a sequence of invocations of Web services operations; no code editing is necessary to create a single or multiuser test. However, deeper detail is available—advanced users have access to all aspects of the Web services messages, including HTTP headers, cookies and Simple Object Access Protocol (SOAP) envelope. |
| Support for services testing   | Create, execute and analyze tests to validate the reliability of atomic or composite non-GUI headless services and the business composition of those services.<br><br>Support for Web services standards, SOAP over HTTP, SOAP over Java Message Service (JMS), Universal Description, Discovery and Integration (UDDI) and WS-Security.   |
| Automated data correlation and data-driven testing to eliminate the need for manual coding | Produce highly personalized tests without manual coding. Automatically detect data entered during test recording, and prepare the test for data-driven testing. Using a spreadsheet-like data editor, create customized data sets to be inserted into the script during playback.  |
| Test creation from WS-BPEL business processes  | Automatically generate tests from business processes defined using the WS-BPEL standard from a range of generation possibilities, allowing you to get started quickly with testing a complex business process, and enabling you to make sure all relevant paths are thoroughly tested.   |
| Flexible modeling and emulation of diverse service consumers                               | Help ensure that performance testing accurately mirrors the user base through a flexible test scheduler that specifies the different groups of service consumers, as well as the activities and usage patterns of each of the groups.  |
| Collection and visualization of server resource data                                       | Detect performance and reliability problems that can be traced to hardware issues rather than to software by collecting and displaying multiple server resource statistics, thereby exposing bottlenecks responsible for poor performance.   |
| Java code insertion for flexible test customization  | Insert custom Java code into your performance tests to perform activities such as advanced data analysis and request parsing (for advanced users)  |



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