



Software Quality Assurance

Blue-Ribbon Testing for Any Budget

Software quality assurance (SQA) is an integral part of the Quality Management Plan (QMP). The return on investment for developing and implementing the right-sized plan can be an on-time delivery, budget savings from minimizing unnecessary rework, and a happy client.

RTI's SQA group can tailor a QMP and test process to best fit your needs, budget, and schedule. We can help you determine where to invest for the best results.

As a project director or task leader at RTI International, you may be an experienced software developer, a veteran of projects with a significant software component, or a first-time project manager of a deliverable that features a software product. Changes to requirements, budget constraints, and tight timelines can stand between you and a successful software delivery—no matter how much experience you have. Establishing, and carrying out, a good SQA process can lower your risk of unanticipated problems and increase the odds you will deliver a great product and satisfy your customer.

RTI's SQA group offers full-cycle testing and quality assurance services for desktop, web, and mobile applications. Our expert test engineers become an integral part of your project to ensure that RTI-produced software and products meet the most stringent quality standards.

The SQA group also offers data security services for RTI's federal government projects. Our security professionals are experienced in developing documentation as well as security guidelines and artifacts to achieve an Authority to Operate (ATO), which puts software systems in compliance with the Federal Information Security Management Act (FISMA).

Whether you are familiar with the process or are experiencing it for the first time, we can help you navigate the requirements—and decipher unfamiliar terms and acronyms—to devise a bug-free software product or system that works the way the client intended.



Software Testing

We offer six main types of software testing services, with supporting documentation: accessibility, functional, regression, performance, compatibility, and automated testing.

Accessibility Testing Services

In software development, “accessibility” means that people with disabilities have equal access to information and communication technology. Accessibility is an essential part of our government clients’ information technology requirements; therefore, the software development life cycle (SDLC) should directly address accessibility. Our pool of accessibility testers has more than a decade of experience with applicable standards, including Section 508 Guidelines and the World Wide Web Consortium (W3C) Web Content Accessibility Guidelines (WCAG) 2.0.

We can work with your project to test early in the SDLC to make sure your application is accessible and complies with the appropriate regulations. Ensuring accessibility early can help you avoid unexpected delays and expensive rework later.

Functional Testing Services

Functional testing guarantees that every aspect of your software meets your client’s expectations. We provide functional testing services to verify and validate software, including mobile applications. We test the application against defined specifications and ensure that the application meets end-user expectations for functionality. SQA team members engage with the developers, stakeholders, and end users throughout the SDLC to make sure the testing objectives align with the overall business goals.

The SQA team introduces testing early in the SDLC to prevent and detect defects quickly. Early testing not only helps reduce overall testing and redevelopment costs but also improves quality. We develop structured test plans and leverage industry best practice techniques, tools, and methodologies.

Regression Testing Services

Regression testing uncovers software bugs that might have been inadvertently introduced into your project’s existing system(s) after enhancements, bug fixes, patches, or configuration changes. Our regression testing suite guarantees that new features or enhancements do not affect the existing quality of applications.

Performance Testing Services

Clients want their software to be fast and effective, regardless of the number of concurrent users. The SQA team ensures that your clients get what they want with end-to-end performance testing, including load testing. Our expertise in performance testing spans a wide range of applications, from small mobile applications to complex web data collection applications and their supporting databases. We also test the capacity of high-volume transaction systems.

Quality Management Components



To manage quality on our projects, Social, Statistical, & Environmental Sciences (SSES) has adopted a proven approach that quality professionals around the world practice. Our team can help with SQA, a critical component of overall quality for any project that relies on information technology for its success.

Compatibility Testing Services

Compatibility testing ensures your software can run successfully on any hardware, operating system, browser, version, network environment, and mobile device your client requires. We perform comprehensive compatibility testing services across several types and versions of operating systems, browsers, databases, servers, and hardware.

Automated Testing Services

The SQA group has invested significant resources and built a dedicated test automation framework to execute automated test scripts that allow cross-platform application testing for web and mobile applications, especially for sites that are built for long-term use. Our framework helps with seamless, continuous integration into the SDLC; the framework also increases the speed of your releases without sacrificing quality and reduces the overall testing effort, which can help you realize a significant return on investment.

Data Security

Security Documentation Services

Our security professionals are thoroughly experienced with the documentation and processes required to achieve an ATO for software applications built by RTI. Immediately after a contract award, we reach out to the client's security team to initiate the Certification and Accreditation (C&A) process that FISMA requires. The client often provides a checklist of documents required for an Authorization Package; after receiving this information, we are able to begin building the deliverable right away. The documents may include the following:

- System Categorization (low, moderate, high)
- System Security Plan categorizing the data and describing the system and National Institute of Standards and Technology controls in place
- System Risk Assessment
- Account Management Plan
- Interconnection Security Agreement
- System Contingency Plan
- Incident Response Plan
- E-Authentication Questionnaire.

To help maintain your system's security status, we will work with the project team to develop and provide a continuous monitoring program. We will set up the necessary operating system, database, web application, and network vulnerability scans; afterwards, we'll provide the results and flaw remediation status to the client as required. We will also develop, maintain, and submit updated plans of action and milestones, and submit any updated documentation required by the annual assessment or other activities as requested by the system owner or the client's security team.

Security Testing Services

As our clients have increased their focus on data security, RTI has made security testing an essential part of our development strategy. Our projects cannot afford to suffer data breaches, data alteration, or any other security-related intrusions or losses; therefore, we must collect the data we manage for our clients in the most secure manner possible and store those data in a secure infrastructure.

The SQA group has expertise in testing the security of applications created by RTI projects that address diverse business needs. For example, our web application penetration testing uncovers vulnerabilities and ensures application risks are minimized. In addition, our code analyzers can review your software code to make sure it incorporates security best practices and is benchmarked for increased quality assurance.

"As the project director of a series of peer-reviewed surveys for the National Institutes of Health, I was responsible for delivering clean, accurate data to help guide critical policy decisions. I called on the SQA team during the initial survey, when programming errors led to serious problems with the data. After a few months of painful cleanup, we developed a workflow process for programming future surveys that allowed us to test every scenario, review the data, and make sure everything had been done right. Working with the team has been painless; the results have been great; and we enjoyed a long, successful relationship with the client."

—Kristina Peterson

Social & Health Organizational Research & Evaluation



In addition to providing services on awarded projects, the SQA security team can answer questions and provide text and estimates for the security sections of proposals.



More Information

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SQA at Work: SAMHSA's Performance Accountability and Reporting System (SPARS) (Substance Abuse and Mental Health Services Administration [SAMHSA], 2016–present). SAMHSA provides funding to substance abuse and mental health grantees to offer services to clients within their communities. Congress requires SAMHSA to report on the performance of those grantees and the value the funding provides. RTI designed, developed, and maintains SPARS—the mechanism by which SAMHSA aggregates and reports on performance data from grantees. We faced the pressure of implementing a complex system—and of completing a challenging documentation process to make SPARS the first SAMHSA system to receive an ATO in the cloud. The SAMHSA team uses Agile techniques—developing software in 2- to 3-week “sprints”—to build testing and documentation into the software development process so that quality is incorporated into every step. As a result, SPARS was able to receive the ATO on time and has met all the specified requirements and deadlines for subsequent releases.

RTI International is an independent, nonprofit research institute dedicated to improving the human condition. Clients rely on us to answer questions that demand an objective and multidisciplinary approach—one that integrates expertise across the social and laboratory sciences, engineering, and international development. We believe in the promise of science, and we are inspired every day to deliver on that promise for the good of people, communities, and businesses around the world. For more information, visit www.rti.org.

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