

When Software Is Critical
Deliver With Confidence
Parasoft Continuous Quality Testing Platform





Software quality is recognized
as the #1 issue IT executives
are trying to mitigate.

PARASOFT `types.Operator):`
`mirror_x mirror to the selected`
`object.mirror_mirror_x"`
`mirror X"`

Companies of all types and sizes are under increasing pressure to accelerate delivery of software applications and services to market. While most organizations have made huge strides in moving to more automated continuous delivery pipelines and toolchains, quality, security, and compliance continue to be a major concern. Most leaders ultimately lack confidence in the quality and resilience of the software they're delivering.

Development and QA teams are actively looking for solutions to save time, increase quality, improve security, and ultimately allow them to deliver with confidence. The most notable difficulties are:

- » Ensuring compliance requirements are met.
- » Identifying the right areas to test.
- » The availability of flexible and reliable test environments and test data.
- » The realization of benefits from automation.

You may be facing many of these common challenges with delivering software to meet the high expectations for quality, cost, and schedule driven by the business. To deliver with confidence, you need an effective software testing strategy to address these issues.

If you're looking to improve your software quality while achieving your business goals, Parasoft can help.

With over 30 years of making testing easier for our customers, we have the innovation you need and the experience you trust. Our extensive Continuous Quality Testing Platform spans every testing need and enables you to reach new heights.

Quality-First Approach

You can't test quality into an application at the end of the software development life cycle (SDLC). You need to ensure that your software development process and practices put a priority on quality-driven development and integrate a comprehensive testing strategy to verify that the application's functionality meets the requirements.

Shift testing left to the start of your development process to bring quality to the forefront.

- » Reduce the time and cost of testing to minimize business risks.
- » Identify, mitigate, and resolve defects earlier in the pipeline.
- » Ensure safety, security, and reliability targets are achieved.
- » Increase confidence in test coverage to accelerate the delivery of high-quality software.

The Fitch Solutions team introduced quality gates to ensure the quality of code merged into the main production branch. Their testing approach and improved quality directly resulted in significantly reduced downtime.



Develop a Test Strategy

When you're dealing with increasingly complex applications, your testing requirements become more complex. You must test many different interfaces for the application, such as mobile, web, and APIs.

As you increase your testing maturity level to scale with your organization, you need to optimize your workflow to accommodate and manage all these interfaces with an integrated tool platform.

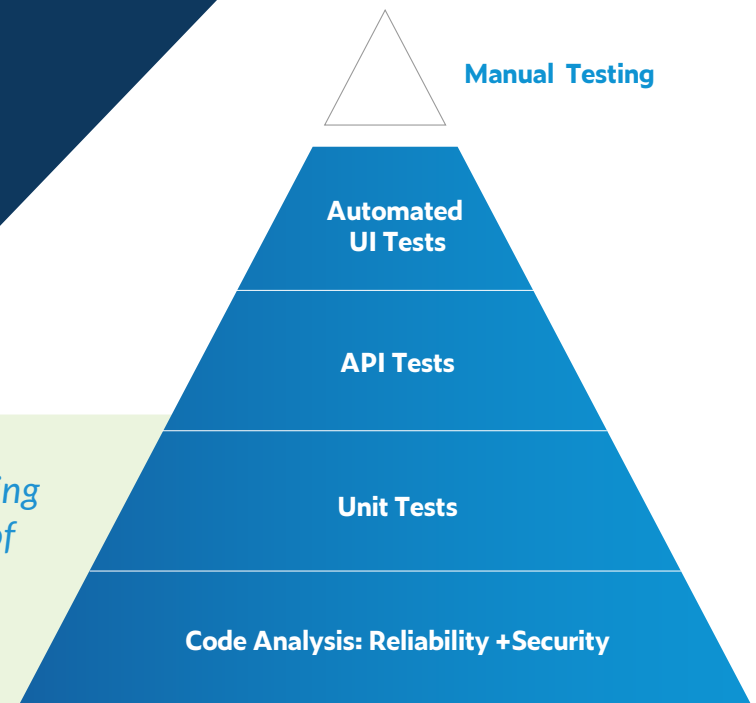
To validate your end-to-end application experience, you need an omnichannel testing solution that incorporates:

- » Compliance and security testing with SAST, DAST, and coding standards.
- » Test scenario generation for functional unit, API, and UI testing.
- » Test maintenance and self-healing to avoid unnecessary build failures.
- » Test reusability for security, load, and performance testing.
- » Test environment management for complex systems.
- » Change impact analysis to identify which tests to execute and deliver rapid feedback.
- » Integration with CI/CD pipeline for continuous testing.

When your developers and testers have confidence in the test automation strategy, they feel empowered to identify and address issues proactively.

"If you can dream it, you can build it. We essentially went from being untestable to testable to now having a thriving demand for more of these capabilities."

—Ryan Papineau, senior software engineer at [Alaska Airlines](#)



Leverage Test Automation

How do you achieve your software quality targets? Manual testing is often used extensively for software validation. While it does have its place, it shouldn't be the primary method your team uses because it doesn't fully cover the application's internal operations, it's inherently time-consuming, and may only find issues late in the dev cycle.

By automating your unit, API, and UI testing activities, you can quickly create new test scenarios, easily maintain those tests, and reuse the functional tests for nonfunctional testing.

Functional testing validates the business workflows from the individual unit components, through the APIs, and all the way to the user interface. You need to understand how the different components in your architecture are communicating with each other and be able to test for each type of interaction, both in isolation and in conjunction with other components.

Test automation simplifies the AI-powered creation of test scenarios for each level and reduces the effort and cost to increase the overall test coverage of your applications.

"We used to need two weeks to performance test the code once we got it in our staging environments. We shrunk that to just two or three days. Our tests are now more predictable, more consistent, and more representative of what would be seen in production."

—Frank Jennings, director of TQM performance testing at Comcast



A woman with short blonde hair and glasses is looking intently at a screen. The image is overlaid with a blue diagonal band and various digital graphics, including glowing lines, a speech bubble icon, and a hexagonal icon. The background is a blurred office setting.

Manage Complex Test Environments

As you incorporate test automation into your frontend application testing, you also need to consider the backend systems. You may be accessing third-party systems that require access fees, incomplete or inaccessible applications, or services with unpredictable or unreliable behavior, over which you have no control.

To mitigate those constraints, you can create virtual services that respond in a controlled manner with appropriate behavior, data, and performance characteristics for your testing scenario. Simulating a system constraint enables you to proceed with early-stage validation, saving time and reducing costs, by building a reusable sandbox.

- » Link the frontend and backend test flows together with test data management using an environment-based approach.
- » Create a library of test artifacts, including the test data, API tests, and virtual services, to obtain a complete view of your environment.
- » Execute the tests with virtual assets and data in disposable test environments to increase test coverage.

“For [ING Mortgages Netherlands], service virtualization was the vehicle for faster test delivery. Using service virtualization, we didn’t compromise on quality... and more than anything, it put data at the heart of our test strategy.”

—Herminio Vazquez, IOVIO consultant for ING Mortgages Netherlands

Make Testing Continuous

You can implement continuous testing by integrating your test strategy into your continuous integration and delivery processes. Your team will be able to find and fix defects earlier in the development cycle, reducing the time between discovery and remediation.

With requirements aligned to the test flows, you can verify that your user stories are covered by your test cases. The change impact analysis ensures that you'll know which subset of tests must execute to validate the latest code changes.

Continuous testing is a key part of enabling true end-to-end testing for your application software. With this automated testing strategy integrated into your CI/CD workflow, your application testing is more complete, enabling shorter test cycles and high-quality deliveries.

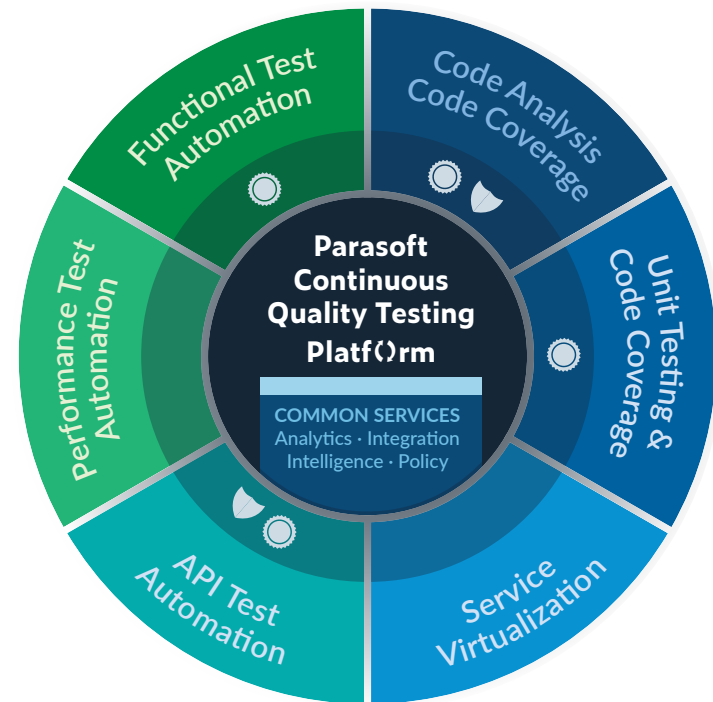
Sabre achieved their application and API testing goals with integrated automated testing tools that significantly reduced the time needed to deploy services and ensured these services meet reliability, availability, and functional requirements.

Integrate Test Automation Throughout the SDLC

The Parasoft Continuous Quality Testing Platform reduces the complexity and technical burden associated with testing. Our platform integrates test automation support for:

- » Static code analysis and compliance
- » Unit testing and code coverage
- » Service virtualization
- » API and UI testing
- » Integration testing
- » Security testing
- » Load and performance testing
- » Functional testing
- » Reporting with intelligent analytics

Start with any testing capability and integrate others into your workflow as testing needs scale and your DevOps team matures.



"Parasoft's continuous testing shines in API testing, service virtualization and integration testing, and the combined automation context."

—The Forrester Wave™: Continuous Functional Test Automation Suites 2020

Capabilities

Code Analysis

With a comprehensive set of static code analysis techniques — pattern-based analysis, dataflow analysis, abstract interpretation, metrics, and more — you can verify code quality with a substantial number of checkers. Parasoft's TÜV SÜD certified solution supports over 2500 different rules covering functional coding and process standards. Generate actionable workflows through machine learning to help your team reduce noise, prioritize findings, and fix defects in the code.

Unit Testing & Code Coverage

Achieve high code coverage and accelerate the delivery of secure and reliable software. Integrating into your existing toolchain, Parasoft provides the most complete continuous testing solution with unit test creation capabilities for C, C++, and Java. Parasoft provides everything an organization needs to accelerate the delivery of high quality and secure mission-critical software.

API Test Automation

Simplify functional API testing and improve software quality using test automation enhanced with AI and ML to create and maintain API tests within your CI/CD pipeline. Parasoft identifies what tests to execute for validating code changes and adjusts tests as APIs change. The Parasoft smart API test generator monitors interactions with your application's UI and creates codeless API test scenarios that can be reused for both functional and nonfunctional security, load, and performance testing.

Service Virtualization

When access to data and services is limited, test anything anytime with realistic virtual services available on demand. Parasoft eliminates testing bottlenecks by helping developers and testers deploy virtual test environments with services and data sets that behave like production systems, at a fraction of the cost of actual infrastructure. Manage test environments and dependencies by orchestrating test execution, virtual services, and test data within the CI/CD pipeline to streamline application testing.

Functional Test Automation

Easily create and maintain more robust web UI tests to deliver a positive user experience. With AI-enhanced self-healing and recommendations, Parasoft's web UI testing solution ensures early, accurate detection of potential failures and page loading issues so that your web-based interactions meet high expectations.

Performance Test Automation

Application performance is crucial to the user experience and needs the same attention as functional requirements. If your application can't handle the load, customers will switch to another vendor. Go beyond the basic smoke test with stress, endurance, and spike testing, among others. Create rich multi-profile performance test scenarios to scale your performance testing solution across multiple machines. Accelerate load and performance testing by reusing API tests for nonfunctional scenarios.

Supporting Services

Analytics

Make informed decisions for future sprints. Use a centralized dashboard of application quality, security, and compliance with detailed reports and advanced analytics to build a strategy across testing practices.

Integration

Enhance your CI/CD workflow by integrating the Parasoft automated testing solution with your existing toolset, including build systems, test frameworks, IDEs, requirements management, and more.

Intelligence

Parasoft incorporates artificial intelligence and machine learning into the testing capabilities so you can develop and test code more efficiently and effectively for delivering high-quality software at speed.

Policy

Parasoft checks code for compliance with a variety of functional safety, security, and coding standards. It also automatically generates the documentation needed to demonstrate compliance.



Achieve Your Goals

Take the next step toward reaching your business and technical goals. Organizations that deliver secure, reliable, and scalable software ahead of their competitors will be well poised to gain the biggest share of the market.

Our solution supports several critical process improvement needs across the SDLC, helping organizations succeed in their development efforts to deliver software with confidence. This includes:

- » Complete test automation support for static analysis, unit testing, API testing, UI testing, security testing, and load/performance testing.
- » Reporting and intelligent analytics for immediate insights on coverage, compliance, and quality.
- » Test data and environment management and simulation to streamline application testing.
- » Integration of continuous testing into the CI/CD and DevOps workflows.

“...clients looking for a genuine partner in testing, with strong and long-living roots in the testing space and complex technical systems to test, should take a serious look at Parasoft.”

—The Forrester Wave™: Continuous Functional Test Automation Suites 2020

Partner With Parasoft

Learn how our automated Continuous Quality Testing Platform's capabilities can increase your application quality while meeting tight deadlines and budgets.

[Contact Us Now.](#)

About Parasoft

Parasoft helps organizations continuously deliver quality software with its market-proven, integrated suite of automated software testing tools. Supporting the enterprise, embedded, and IoT markets, Parasoft's technologies reduce the time, effort, and cost of delivering secure, reliable, and compliant software by integrating everything from deep code analysis and unit testing to web UI and API testing, plus service virtualization and complete code coverage, into the delivery pipeline. Bringing all this together, Parasoft's award winning reporting and analytics dashboard delivers a centralized view of quality enabling organizations to deliver with confidence and succeed in today's most strategic ecosystems and development initiatives — security, safety-critical, Agile, DevOps, and continuous testing.