

# AUTOMATED TESTING FOR OUTSYSTEMS

Combine Rapid Application Development with Rapid Quality Assurance

**THE LOW-CODE PLATFORM OUTSYSTEMS GIVES YOU THE POSSIBILITY TO IMPROVE YOUR TIME TO MARKET AS IT ALLOWS YOU TO DEVELOP NEW FUNCTIONALITIES RAPIDLY. THIS MEANS THAT YOU RUN INTO NEW CHALLENGES: CAN YOU DELIVER AND DEPLOY AT THE SAME SPEED THAT YOU CAN NOW DEVELOP FUNCTIONALITIES?**

The complexity now lies in the business rather than in the technical logic. Has that been addressed correctly in the new features? And can you keep your maintenance costs low to get a good ROI for your rapid development? Automated Testing is a tool to help you deliver quality quickly. It tests between 50 to 80% of the requirements and logic in a fraction of the regular testing time. It doesn't mean that no manual testing is needed, or that it solves all issues, but it dramatically speeds up testing cycles and gives your testers time to deal with any other deep issues at hand.

## HIGH SPEED COMES WITH NEW CHALLENGES

How can we ensure that the product we're delivering is of high quality? It is all too common in software development to accidentally break features while building new ones. We call these 'regressions.' Regressions occur when something that used to work suddenly doesn't work anymore. To solve this, we have invested in automated testing of the products that we build with OutSystems.

For the automated testing, we built a suite of tests that run periodically to verify that everything is working as specified. Our automated tests not only act as a gateway, preventing regressions and mistakes, but the tests also ensure that the requirements are clear, and the product conforms to them.

## HOW DOES AUTOMATED TESTING WORK?

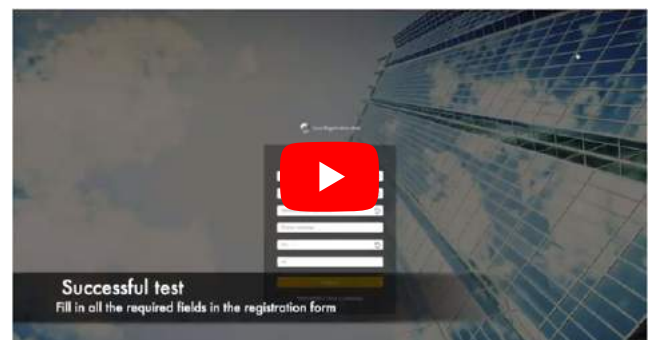
**The tests run completely automatically, and no manual intervention is required.**

A picture is worth a thousand words. Below you can find an example of automated tests that perform various checks automatically on an OutSystems demo app.

The tests run completely automatically. No manual intervention is required, and at the end, a report is generated with the result of the test. How nice is it when you test multiple scenarios with just one click of a button? Rapid Application Development meets Rapid Application Testing.

### THE BENEFITS OF AUTOMATED TESTING:

- **Greatly improve your time-to-market**
- **Consistent user experience through bug-free deployments**
- **Cost reduction by catching and solving issues very quickly**
- **Fully automated workflow loop involving all stakeholders**



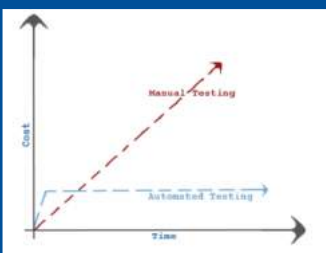
**CLICK IMAGE TO START THE VIDEO**

## SAVING TIME

**Automated Testing can cover between 50 to 80% of all scenarios, significantly reducing the time it takes to manually test new features, giving the valuable QA professionals time to focus on the complex items, and enabling you to deliver the features to the market quickly.**

When you make changes to your product, you want to be sure that nothing has been broken and everything is working as expected. The traditional approach would be to have people run through checklists and re-test the entire product before a release. Such a manual process means that we have very long feedback cycles. When a developer makes a change, it can take days for problems are detected. When the issue finally gets fixed, testers have to go back and re-test everything again.

This manual process consumes a lot of valuable time and slows down the delivery of new features and fixes. By introducing automated test suites, we can reduce the need for long, manual Quality Assurance (QA) cycles. Automated test suites run in a fraction of the time. They can run continuously, providing quick, actionable feedback for every change made to your product.



- \* Automated testing - a bigger investment upfront but a cost reduction after approx. 3 months
- \* Reusability of test - leverage the benefits of automated testing without extra costs
- \* QA – testers now have time to focus on the complex issues
- \* Framework – with every new automated test, the framework evolves, and each new test can be written more efficiently

Suppose it takes few minutes to verify that a specific scenario still works as expected. An automated test can complete this verification in a matter of seconds. When you have a regression QA cycle that takes a week, an automated test could do this overnight in a few hours.

On projects where we introduced a solid automated test suite, we found that we could reduce the time needed for QA by almost eight times! This means that QA personnel has more time to focus on edge cases and complex scenarios that are hard to verify.

On one of our projects, we covered more than 80% of all scenarios with automated tests. This significantly reduced the time spent on manual QA. When changes are made, we are confident that all covered areas are performing as they should be.

## CATCHING PROBLEMS

**A bug-free deployment of your new features will be valued by your users.**

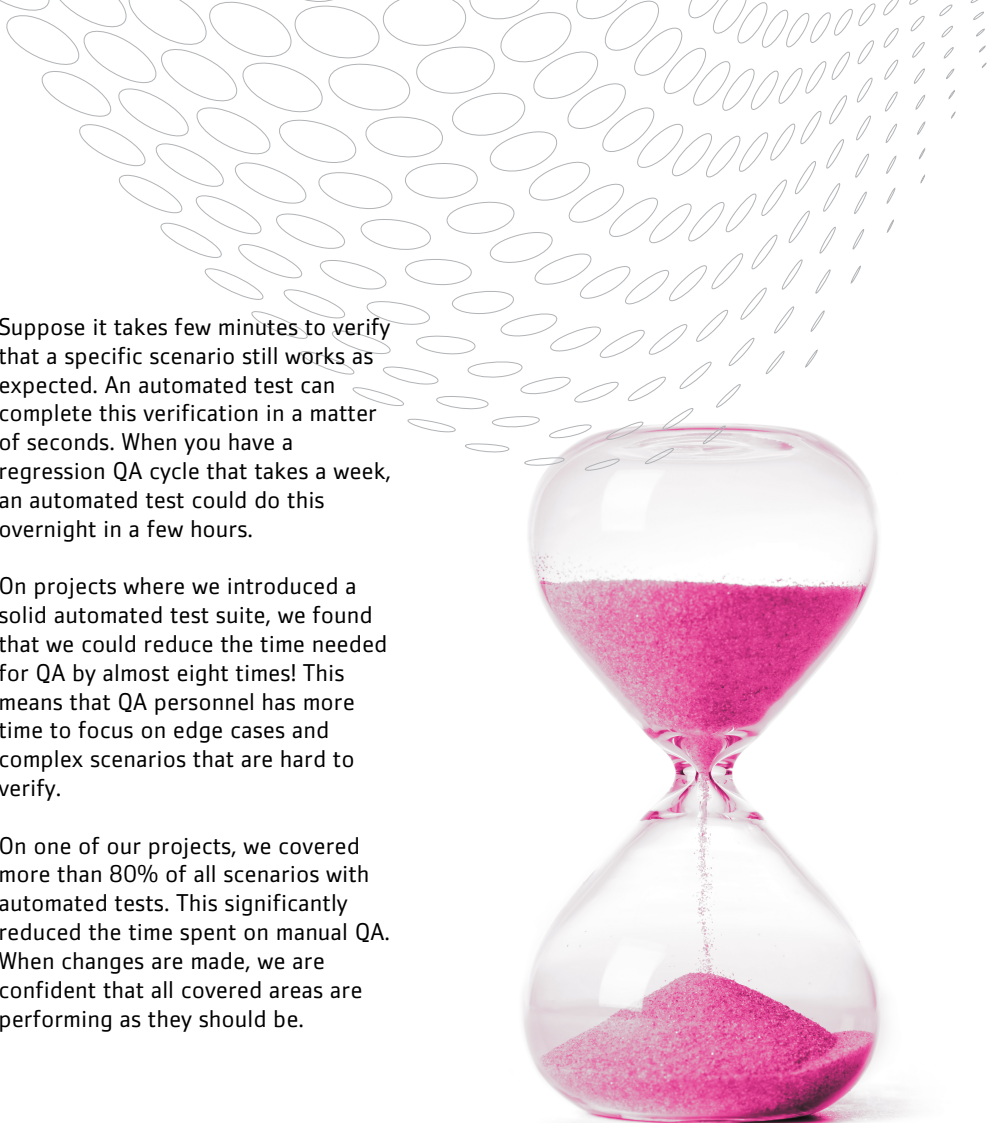
Once you have established a robust automated test suite, it can find problems you didn't even think about. One of our projects benefitted greatly from this when the automated tests failed due to mismatches in dates and times. As it turns out, the clock had moved forward during the night switching to daylight saving (DST). The test revealed a big problem in an unreleased version of the application. The bug was subsequently fixed, and no user was ever impacted. This is just one example of a bug that automated tests can find.

On one of our projects where we use OutSystems, we've been building and running automated tests since mid-2017. In 2018, the automated tests caught eighteen bugs in the preproduction environment. That are eighteen bugs that the user never had to experience.

## WHAT ARE THE TESTING HABITS OF THE LEADING TECH COMPANIES?

**Automated testing is standard practice at leading Technology companies.**

Using automated test suites is a common practice in our industry. More and more companies are discovering the benefits of automating the QA cycle. Many well-known companies use automated tests extensively to reduce the number of bugs and shorten the QA cycle. At LinkedIn, the iOS app is covered by more than 2000 automated tests. At Netflix, roughly fifty engineers continuously develop and maintain the suite of automated tests for the TV app. To top it all off, Google continuously runs over four million automated tests.



## YONDER AUTOMATIC TESTING SOLUTION

**Yonder's in-house framework is the basis to develop automated tests. It can test applications built in various languages including OutSystems. Our framework is continuously updated for efficiency thereby reducing maintenance costs.**

For the past four years, we've been working on an in-house framework where we develop automated tests. For many of our customers, we use our framework to develop specific automated test suites for their products which consists of various types of applications including OutSystems based software solutions.

When we first started building automated test suites for the products developed in OutSystems we encountered various issues that made it costly for us to maintain the tests. Over time we came up with solutions, collected these, and included them in our framework that dramatically reduces the cost and time needed to build automated tests for OutSystems based products. Today, we run around a thousand tests daily to verify that nothing has broken and that the product has a clean bill of health.

Our clients cannot afford to find bugs in production. *Can your business afford that?*

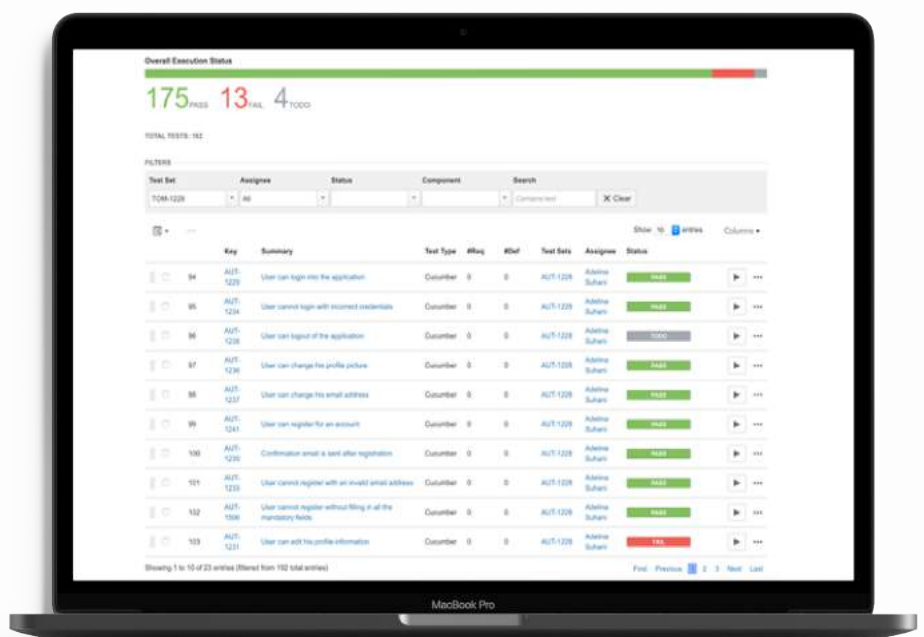
### A REPORT SHOWS YOU WHERE YOU NEED TO ACT

**Results are automatically published in reports on a choice of platforms to all stakeholders. This means that any actions can be picked up easily.**

A solid automated test suite is worthless if you don't act upon the results. To make sure that all the stakeholders are aware of potential problems, we automatically send reports after the tests have run.

Every night the full suite of automated tests runs and delivers a report by email to the right people. The tester will read it and confirm that the failure reported by the automated tests is valid. After the bug or the problem is confirmed, the tester will create an actionable task that a developer will pick up. The developer will fix the underlying problem and the automated tests are run once again to confirm that the problem has been fixed.

We also integrate with Jira but also with other platforms such as Slack, Skype, and more! Whenever the tests have run, a report appears in Jira where the test failures are linked to actionable tasks. These can then easily be picked up and resolved.



*A report shows you where you need to act*

## THE SIMPLICITY OF NATURAL LANGUAGE

### Tests defined in natural language reduce the chance of miscommunications.

As we said earlier, automated tests are not just for detecting regressions or mistakes. They can also help clarify requirements. We practice "behavior-driven testing." This type of testing helps to narrow the communication gaps between the development team and product owners.

The tests are not defined in code; they are defined in a natural language. By following a few simple rules, you can write the definition of a test. Let's look at the example below:

Example of a Scenario: user registration

**Given** the user opens the User Registration page  
**When** the user fills in all the required fields  
**Then** the success message is displayed

The first sentence starts with "Given" followed by the pre-condition which specifies the state the system should be in before the actual test starts. After the pre-condition, we have the actions, signaled by the sentence starting with "When". The "When" tells the system what to do. The final sentence, which starts with "Then" tells the system what the expected result is.

OutSystems offers a rapid application development solution that reduces the time needed to get to the market. And as it is a low code platform the developed solutions have fewer bugs. In our experience, the bugs that we do encounter come from miscommunications and misinterpretations of the business logic and requirements. Developing a suite of automated tests, where tests are defined in almost plain English reduces these miscommunications. It provides a clear set of requirements that can be understood by all parties.



OutSystems is a rapid application development platform.

With the low-code platform you can visually develop your application.  
[www.outsystems.com](http://www.outsystems.com)

## CONCLUSION: INVESTING IN TESTING PAYS OFF

### Combine Rapid Application Development with Rapid Quality Assurance for the quickest results.

As we've seen, adding automated testing to a product reduces the number of regressions and streamlines clarification of requirements, reducing the need for going back and forth over details.

The OutSystems platform gives you technology for rapid development. To ensure rapid and bug-free deployment in the market you also want rapid quality assurance cycles. Automated testing helps you achieve that. Your customers get what they need quickly and at the right quality.

**DO YOU HAVE A PROJECT THAT COULD BENEFIT FROM AUTOMATED TESTS? DO YOU WANT TO FIND OUT WHAT IT WOULD COSTS AND WHAT THE ROI COULD BE? CONTACT US, AND WE'LL BE HAPPY TO ARRANGE A DEMO.**

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### ABOUT YONDER

Yonder is the technical and development partner of choice for VMS and software product companies.

Yonder relies on superior technical skills and in-depth understanding of business principles to help you realize your ambitions.

Yonder has clients and projects in Europe and the USA in horizontals such as ERP and BPM, and in many different verticals: healthcare, local government, finance and insurance, waste management, legal, security and surveillance, lease management, food services, and education.

Yonder is headquartered in the Netherlands and has delivery centers in Cluj and Iasi in Romania with over 300 employees.

We are part of Total Specific Solutions (TSS), a vertical market software operating group of Constellation Software Inc. (CSI).

