

**Industry:**  
Hospitality

**Organization:**  
Crown Management  
Systems, Ltd.

**Description:**  
Crown produces a wide variety of management systems for the hospitality industry, including front-of-house tilling systems, back office management, payroll management and stock systems and head-office data management and MIS systems.

**Business Problem:**  
Time-consuming and tedious manual testing processes — especially regression testing — were increasingly extending the time required to develop products and get them to market. Morale of testers was suffering, and product quality was impaired. Crown was also preparing to undertake a massive effort to convert its stable of back office products from DOS to Windows 32 applications. A faster and more efficient alternative to Crown's existing testing methods was essential.

**Solution:**  
Rational TeamTest V7.1,  
Rational ClearQuest V2.0

**Key Benefits:**  
Testing is significantly faster and more efficient  
Tester morale improved dramatically  
Product time to market is shortened  
Product quality improved and is more consistent  
Staff has more time to focus on other critical tasks

**Programming Environment:**  
Number of Testers: 6

**Rational**® software

## Crown Management Systems, Ltd. Slashes Regression Testing Time and Effort with Rational TeamTest

Since 1982, Crown Management Systems of Surrey, England, has been providing the hospitality industry with versatile and robust software solutions — from enterprise-wide liquor management and head-office management information systems to systems for payroll and labour management, keg monitoring, data management and automatic staff log-on. Crown also produces Windows-based touch screen bar terminals as well as an innovative smart card system.

Crown products are installed and operational in about 40 percent of the approximately 16,000 managed pubs in the United Kingdom, as well as a large number of leased houses, hotels and restaurants. Maintaining a profitable existence and a leadership role within this highly competitive industry demands that Crown supply systems that work, can provide up-to-the-minute management and financial information, and are well supported. Thorough testing and top-notch quality assurance are thus critical to all Crown development projects.

### Quality Assurance Challenges Increase as Company Grows

For every software product that comes from its development group, Crown's quality assurance group is responsible for performing a full range of tests — from functional testing and change testing through regression testing and acceptance testing. The group is also responsible for performing systems integration tasks to ensure that every product developed at Crown is operable on a number of platforms and with multiple software products.

With quality assurance consuming nearly 60 percent of product development time, getting products to market quickly and within budget

was becoming increasingly more difficult as the demand for testing increased with more and more new products being developed and with the addition of new clients increasing the number of changes that needed to be made.

"The time issue was a massive problem for us as customers frequently changed their focus for development, sometimes abandoning development of new functionality even before coding has been finished," explained James Toon, QA Projects Manager. "The more we develop our products, the more changes we need to make — and the more clients we add, the more changes must be made to our products. We have to go through testing the system all over again. That takes about 60 percent of our product development time, and about 30 percent of that time is regression work. If you change one thing, it's time consuming and demotivating." Additionally, regression testing was taking up so much time that the QA team simply was not able to spend the time it would have liked to on other missioncritical tasks.

The preparation to convert Crown's back office products from DOS to Windows 32 applications triggered the search for an alternative to its lengthy and less-than-efficient manual testing processes. Crown's goal was to significantly reduce the overall amount of time required for testing — regression testing times, in particular — while increasing the overall quality of the products produced. "We decided there was a need to speed up process...take it out of the hands of people," said Toon. "We needed a tool that would allow us to do tests, maintain them and repeat them over several days to make sure regression work was carried out. That tool was Rational TeamTest.



Rational® Software was the market leader, and its product suite supported the Visual Basic platform we were using and had a capability for 16-bit DOS-based applications.”

### **Automated Processes Eliminate Redundant Testing, Ease Development Efforts**

The implementation of Rational TeamTest put an end to the bulk of individual, manually performed software test processes. Previously, members of Crown’s quality assurance team had to manually create a sequence of documents — including test cases, test conditions and test scripts — for each application under test. All faults also had to be manually logged, assigned to the appropriate people for action, and tracked. Given the large scale of the products Crown produces, the amount of work required to thoroughly test each system was immense.

This effort was further exacerbated by the frequency and extent of changes made during product development. “Whenever we made a significant change to our system, we had to run the entire testing process over and over again — a task which was not only massively time consuming, but also a pretty soulless job that was demotivating to staff,” said Toon. “However, if we did not do it, we risked the problem that areas of the application would not function as a result of what was seemingly an unrelated change — and if such software were shipped, it would be tremendously damaging to the company in a number of ways.”

With Rational TeamTest, test documentation now needs to be created only once for each product. Rational Robot, TeamTest’s test recording tool, records every keystroke of the original documentation processes. This allows quality assurance to run the same tests over and over again, if necessary, using the same [original] set of documentation. “With Rational Robot, you record what you’ve done as you do it — and you only do it once,” Toon

explained. “When you make changes, you can go to your Rational Robot test scripts, make an image, compare the current product with previous versions, and then run the entire applications test with TeamTest. Rational Robot also enables us to write test scripts in Visual Basic, which allows for a more detailed testing, and provides a reporting tool as well.”

### **Error Handling Capabilities Further**

**Reduce Development Time** Rational TeamTest has also simplified and improved Crown’s process for trapping and locating errors. Previously, if errors were found, the tester had to recreate the errors and demonstrate them to the developers, who then had to investigate what the problems were, track them down in the master code, and then fix them. “In the manual system, we had to rely on the tester to both understand and also physically log the errors and then assign them to the relevant persons for resolution. This approach was often not adhered to — and important errors were lost,” recalled Toon.

With Rational TeamTest, testers are able to trap errors easily and then go directly to the area in the code where the problem is. TeamTest traps errors automatically and logs them into the company-wide defect management system, e-mailing serious errors directly to the responsible individuals. “This allows us to significantly reduce the time it takes to arrive at error resolution, and thus significantly reduces development time,” Toon added.

The SQA Basic (Visual Basic) area of Rational TeamTest further benefits testers by allowing them to carry out a range of automated data related tests on specific fields in an application. Done manually, a range of boundary conditions can be tested only within specified minimum and maximum values. With Rational TeamTest’s automated approach, conditions can be tested within specified boundaries in addition to any number of other variations — instantly improving the coverage of testing.

“Using Rational TeamTest, we’ve reduced regression testing times on projects from 220 hours to 80 hours. That’s a significant reduction... We’ve also reduced overall testing time from 920 hours to 780 hours per project. This makes a significant difference in development time.”

### **Testing Time Drops Dramatically with Rational TeamTest**

According to Toon, “Our goal was to reduce the total number of hours for regression testing. On any given project, we spent 1500 hours on total development time, of which 920 hours was testing time. The regression portion alone was 220 hours of that time.

“Using Rational TeamTest, we’ve reduced regression testing times on projects from 220 hours to 80 hours. That’s a significant reduction — especially since every time we make a change in the product, we must include that 220-hour regression test time. We’ve also reduced overall testing time from 920 hours to 780 hours per project. This makes a significant difference in development time and getting the product to market.”

### **While Staff Morale Improves and Productivity and Utilization Increases**

Using Rational TeamTest’s automated approach has also taken the strain out of carrying out the ‘boring’ testing of applications, while increasing the accuracy of the process. “With Rational TeamTest, you can ensure that you’re carrying out the same test over time, again and again,” Toon said. “When you test manually, you suffer from human error — and people get bored. Furthermore, we are now able to concentrate our manual testing on the business side of the applications and on more difficult-to-test areas such as performance, stress testing and others. Quality is ultimately higher...and staff morale is higher.”

### **Crown Realizes Additional Unexpected Benefits from Rational TeamTest**

The benefits of using Rational TeamTest at Crown have extended beyond the original benefits expected. Quality assurance staff now has more time available to commit to critical detail testing of difficult technical areas — an “important gain,” according to Toon. “Removing the bulk of the regression-testing element has allowed us to concentrate on testing more complex areas of the applications that were otherwise being released without much attention,” he noted. Additionally, when installing and starting to use Rational TeamTest, the organization was forced to determine what it was doing right and wrong in the testing process and what the correct process should be. “We optimized our approach and, as a result, were able to gain more, professionally. We’re doing things more properly. Now we’re using an industry standard approach to testing, which we weren’t doing before,” Toon said.

### **Rational ClearQuest to Extend Rational TeamTest Benefits**

Crown has acquired Rational ClearQuest® with the intent of using it to replace an inefficient, internally built defect management and error logging system. ClearQuest will link thoroughly into Rational TeamTest to allowing testers to post errors directly into the management system to make sure they’re followed up. “We have great plans for the use of Rational ClearQuest in revolutionising our change control and defect management.

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## About Rational

Rational provides a software development platform that improves the speed, quality, and predictability of software projects. This integrated, full life-cycle solution combines software engineering best practices, market-leading tools, and professional services. Ninety-six of the Fortune 100 rely on Rational tools and services to build better software, faster. This open platform is extended by partners who provide more than 500 complementary products and services.

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