

**Industry:**  
Hardware/Software

**Organization:**  
ObjectSpace, Inc.

**URL:**  
www.objectspace.com

**Description:**  
Headquartered in Dallas, ObjectSpace, Inc. is a leading global provider of software solutions and professional services that help their customers create and deploy business-to-business Web services. ObjectSpace enables businesses to capitalize on the wealth of opportunity created by today's rapidly evolving e-business environment. ObjectSpace's OpenBusiness solution provides products and services that organizations need to extend the reach, broaden the scope and enhance the quality of their business-to-business collaboration. With the ability to rapidly and cost-effectively implement result-driven Web services models, ObjectSpace customers realize the full promise of the Internet revolution, raising benchmarks for operational efficiency, creating powerful and profitable synergies and tapping lucrative, new revenue streams.

**Business Problem:**  
ObjectSpace needed a scalable change management system to integrate their defect tracking and software configuration management activities, without disrupting their process.

**Rational Solution:**  
Rational ClearCase, Rational ClearQuest, UCM

- Key Benefits:**
- Established a stable, integrated change management system without affecting delivery schedules
  - Increased productivity by enabling developers to work in parallel, off-line and off-site, and in their preferred development environment
  - Enforced quality standards with a dependable, repeatable process
  - Migrated easily from their previous software configuration management system
  - Gained better control of their development process with reliable metrics and easy-to-use tools
  - Accelerated their deployment by participating in a Rational QuickStart program

## ObjectSpace Streamlines Change Management with Rational ClearCase, Rational ClearQuest and UCM

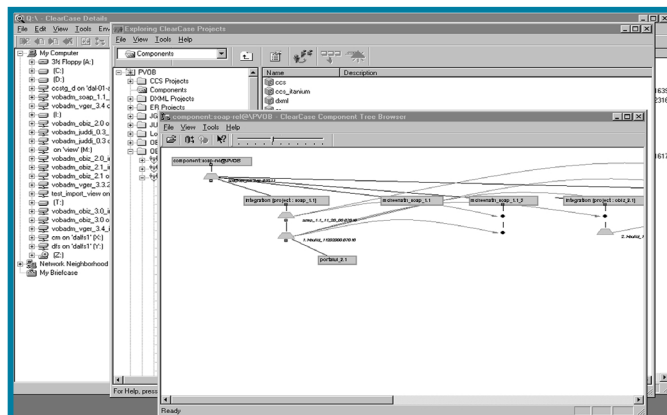
Terry Greenberg is a man with simple wants. As the Senior Configuration Management Engineer at ObjectSpace, Inc., Terry wants his developers to be happy. He wants his builds to run smoothly. He wants his releases to be on time. He wants to know what files were modified for every change request. And he wouldn't object to a bigger office.

Up until this year, Terry wasn't getting what he wanted, so he turned to Rational® Software for help. While Rational couldn't do much about the office situation, Rational's Unified Change Management (UCM) has fulfilled all of his other wishes. Unified Change Management is an activity-based change management solution that integrates the capabilities of two of Rational's industry-leading tools: Rational ClearCase® for software configuration management (SCM) and Rational ClearQuest® for defect and change tracking. As stand alone tools, Rational ClearCase and Rational ClearQuest offer excellent flexibility for configuring processes that manage change in software development. When used in combination, these powerful tools streamline change management by clearly identifying associations between any type of change request — including enhancement requests and bug fixes — with related changes in application code or Web content.

This capability alone has eliminated one of Terry's bigger annoyances. "That is one of my configuration management must-haves. I really like to know which files were changed for which change request or defect. And that is one of the main things I was looking for in a tool," Terry reports.

But Unified Change Management is much more than two tools working together. By providing a pre-defined process that organizes work around activities, UCM raises the bar for integrated software configuration management and defect and change tracking. That was another big advantage for Terry and his team, "Getting an out-of-the box process dramatically reduced our overall migration time. From beginning to end, it was really only a month of implementation time, and it was just me doing it. And in that time, I had a stable, working process that had an integrated source control and bug tracking mechanism. There's no way I would have been able to do that without UCM."

Unified Change Management simplifies change management across the software development life cycle by automating the management of all types of software development artifacts. These can include requirements documents, design models and testing artifacts, in addition to application code and HTML



ObjectSpace adopted Rational ClearCase and the Unified Change Management process to boost productivity and improve software quality

and XML content. In fact, one of the criteria that ObjectSpace based their selection process on was the ability to manage all the different kinds of files they use in development, including binary files (executables and libraries), text files (source code), and Word documents.

It's been a busy year for Terry. He led ObjectSpace's search for a new change management solution, and then spearheaded the migration efforts to UCM. Now he manages builds, releases, and the UCM tools and process for ObjectSpace's growing development team. Headquartered in Dallas, ObjectSpace, Inc. is a leading global provider of software solutions and professional services that help customers create and deploy business-to-business Web services. ObjectSpace enables businesses to capitalize on the wealth of opportunity created by today's rapidly evolving e-business environment. ObjectSpace's OpenBusiness™ solution provides products and services that organizations need to extend the reach, broaden the scope and enhance the quality of their business-to-business collaboration. With the ability to rapidly and cost-effectively implement results-driven Web services models, ObjectSpace customers realize the full promise of the Internet revolution, raising benchmarks for operational efficiency, creating powerful and profitable synergies and tapping lucrative, new revenue streams.

## The Selection Process

When Terry started working at ObjectSpace, the company was in the process of shifting from a consulting-based business model to an engineering or product-based company. The conversion gave them an opportunity to evaluate their internal processes. Terry remembers, "We were really starting to focus a lot more on putting the processes in place that would help us transition to a company that derives a significant portion of their revenues through their product line as opposed to their workforce."

Shortly before Terry arrived, ObjectSpace had switched from an in-house tool to Rational ClearQuest for defect tracking. But on the software configuration management side, both Terry and his team were beginning to see the need for a change. Their existing SCM solution, Microsoft® Visual SourceSafe®, was limited, and Terry did not believe that its support for parallel development would meet his team's needs. Plus, they encountered situations in which a developer said that a particular change request had been addressed in a build, when it actually was not.

Right away, Terry began work on two projects. The first was to shore up some of the processes that ObjectSpace was imple-

menting with SourceSafe and Rational ClearQuest. "Initially we put in some rules. Things like 'Make sure you write down which file you've changed in your ClearQuest record'," Terry explains. The second project that Terry began was to evaluate a more robust configuration management tool for version control, and possibly even a new tool for defect tracking.

As the first step in the evaluation process, Terry interviewed the development staff at ObjectSpace and asked them what features and functions were most important to them, so that he could ensure the new tool met their needs. "I made a really committed effort to make sure everyone in our organization was on board, up-to-date and had full access to the selection process as it was ongoing." Terry and his team identified several critical requirements that the new solution had to meet. Specifically:

- Snapshot views that would enable developers to put an entire set of source files on their own machine. As Terry explains, "Most of our developers have laptops, and they frequently work off line and even off site. So this was a very big issue for us."
- Support for both Windows NT and UNIX. Although the majority of ObjectSpace's development is in Java on Windows NT, they wanted a solution that would include UNIX, should they require it for future projects.
- The ability to control different kinds of files: binary, text, and Microsoft Word® documents
- Support for multiple levels of access control, on streams, branches and individual files
- Extensive support for parallel development, with an easy way to merge files back together
- E-mail notification capabilities for a variety of version control activities
- The ability to recreate any release that ObjectSpace had ever built
- A file storage format that uses incremental changes or deltas, to reduce disk space usage on their servers
- An easy-to-use interface

In addition, the team assembled a list of other features they wanted, but that were not absolute requirements. These included:

- A solution that would include Rational ClearQuest, if possible, since the team was already using it, although they were willing to consider other defect tracking systems

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- Strong integration between defect tracking and version control
- A system that was simple to administer and easy to modify
- Seamless integration with Microsoft Visual J++®

At that point, Terry purchased a report on major configuration management solutions from an independent research firm. The ObjectSpace team narrowed down the list of potential candidates with this third-party analysis and reduced the time they would need to demo different products. Using the report, they selected four products that they believed had a good chance of fulfilling their requirements. One of the products rated highly in the report was Rational ClearCase. Terry continues, “From there, we went about getting demos of those products. We had all of the vendors come on site or provide us with a CD that we could install and evaluate.”

During this evaluation phase Terry developed a matrix in which the team rated each product across a range of categories. To reach a quantitative measure of qualitative values, they assigned a weight to each category based on its relative importance. Terry was pleasantly surprised by the results, “What really helped us was when we had our chief architect and our VP independently provide weightings to each of the categories. For instance, my VP was very concerned with cost, and he gave a high weighting to that. Whereas my chief architect was more concerned with ease-of-use and developer productivity. In both cases, although they came up with very different weightings, Rational ClearCase came out on top. For me, that was really telling, and helped push us over the top in favor of ClearCase.”

Always looking out for his developers, Terry kept them in the loop during evaluation as well. As it turned out, they were leaning towards Rational ClearCase too. “Rational was already very strong from the developer perspective — developers typically really like using ClearCase — it’s an easy model to understand and use,” Terry notes.

While Terry was the lead in gathering all the information on the various options, the final decision was left to his manager and their vice president. After approximately six-weeks of evaluations, analysis and careful consideration, the choice was clear: Rational ClearCase, Rational ClearQuest and UCM.

## Implementation

Once the decision was made, ObjectSpace made a commitment to UCM, and Terry got started on the implementation phase. His first step was to bring in new hardware for the sys-

tem. Terry participated in the Rational ClearCase QuickStart program, one of Rational’s many professional services. Using the QuickStart program as a guide, ObjectSpace acquired two powerful NT servers — one view server and one VOB (versioned object base) server.

Because the team at ObjectSpace was already using Rational ClearQuest, Terry decided to spend some time reorganizing his Rational ClearQuest configuration before getting started with Rational ClearCase.

“There was a change that I needed to make in ClearQuest to prepare my existing setup for UCM. So one of the first things I did was to add a ‘delivered’ state to the state flow. Our change requests then proceeded from ‘submitted’, to ‘assigned’, ‘working’, ‘fixed’, ‘delivered’, and finally ‘closed’.” At first, the new state was just a placeholder, but now that Terry has implemented UCM, ‘delivered’ has meaning.” Terry continues, “When a developer performs the UCM deliver process, the change request is automatically moved to ‘delivered’, and is ready to be built.” Terry was able to reconfigure Rational ClearQuest quickly, “The changes that I needed to make were clearly explained in the documentation. The combination of UCM’s out-of-the box process and ClearQuest’s ease-of-use made the process simple.”

After making those changes in Rational ClearQuest, Terry installed Rational ClearCase. He quickly set up a test project, and spent about two weeks in the test process, formalizing the process with the help of Rational. “The QuickStart program and the advice I received from my Rational technical representative definitely saved us time. He was very knowledgeable about Rational ClearCase, and I was able to discuss various implementation options with him.”

As he was doing this, Terry began converting ObjectSpace’s existing Microsoft Visual SourceSafe data. With the help of Rational’s automated conversion utilities, Terry completed the conversion from Visual SourceSafe to Rational ClearCase in much less time than he had expected. As Terry explains, “The conversion went really, really well. I’ve done data conversions before — for other SCM tools — and I had a million more problems than I did going from SourceSafe to ClearCase. In fact, I had built additional time in to the schedule for my conversion, because I thought it was going to be difficult. But it turned out that it couldn’t have been easier.”

For his first real project, Terry wanted to start with something simple, “I picked one of our smaller projects — it was internal only,

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## About Rational Software Corporation:

Rational Software Corporation (NASDAQ: RATL), the e-development company, helps organizations develop and deploy software for e-business, e-infrastructure, and e-devices through a combination of tools, services, and software engineering best practices. Rational's e-development solution helps organizations overcome the e-software paradox by accelerating time to market while improving quality. Rational's integrated solution simplifies the process of acquiring, deploying, and supporting a comprehensive e-software development platform, reducing total cost of ownership. Founded in 1981, Rational, one of the world's largest Internet software companies, had revenues of \$572 million for its fiscal year that ended in March 2000, and employs more than 2,600 people around the world.

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and had only two developers. They were going to be our guinea pigs, and we converted them from Microsoft Visual SourceSafe. Making things work the way they wanted required a few changes and some education. There are some parts of our process that we dropped, and other parts were added. Some aspects that were not automated in the past are now. Overall, I think it all evened out, but now I have all this data and I know everything is correct. Whereas in the past, I didn't have any of that assurance. That's one of things that makes me a lot happier."

With the test run complete, it was time to take the plunge and roll out UCM to the rest of the organization. Terry made arrangements with Rational to teach two classes on site — not just for developers, but also for members of the testing team, documentation team and management that would be using Rational ClearCase. "I think the classes really helped. We were able to train our developers so we were ready to go to ClearCase even before our delivery schedule allowed us to," Terry remembers. Immediately after that, Terry converted one of ObjectSpace's two biggest projects — a project involving some 4500 files — to UCM. Once again, Terry was happy with the results. "We added a few more tweaks before converting our main product, OpenBusiness, a couple of months later. Before we did that we held a third class, which I taught myself. On both projects, we were able to make the switch without impacting our delivery schedule, which was very important to us. At first, I intended to convert everything at one time, but in retrospect it may have worked out better the way we did it: first a very small project, then half the organization, then the other half. That way, I got a better feel for how things would work at each stage without impacting the entire organization. I think everything worked out very well."

## The Bottom Line

Today, ObjectSpace is managing almost a dozen different projects, and various releases for those projects, with Rational ClearCase, Rational ClearQuest and UCM. For example, ObjectSpace has released a stable version 2.0 of one of its biggest applications. They have one team working on improvements for version 2.1, while another is concurrently working on the next generation, version 3.0. Both teams are

getting all the updates they need, but are working independently of each other. Given the success of this project, it is easy to understand why other groups at ObjectSpace have started to look at other Rational products to boost productivity in their departments — including Rational RequisitePro<sup>®</sup> for requirements management and Rational Robot for automated functional and regression testing.

Unified Change Management has provided ObjectSpace with significant gains in terms of both speed and quality. In about a month, Terry was able to establish a stable, fully operational process with integrated software configuration management and defect tracking. Without UCM, Terry believes things would have been very different, "I would have been writing wrapper scripts to do the tracking features I really wanted, and they probably would have been buggy. With UCM, policy enforcement was immediately available along with the metrics that we really use — like which change requests are ready for a build, and which ones were just in a build." Besides the remarkably rapid migration, there have been tangible improvements in the quality of their process. "When we can trust the state of our change management system relative to our code base we can do a lot more things. It now makes much more sense when we show charts that say 'This many defects have been submitted, this many are working, this many delivered...' We had that before, but it wasn't really accurate. Now we have much more confidence."

Often, people in Terry's position are strained by conflicting demands, and it's not easy to find a way out. In Rational's Unified Change Management, Terry has found a solution that has been applauded by everyone at ObjectSpace, including developers, management, and Terry himself. As Terry explains, "On one hand, I want to control the process, make sure everything is repeatable and make sure everything is done the right way to enforce quality standards. On the other hand, I want to make sure my developers are happy, and I spend a lot of time thinking of ways to make them happy. So I like to keep things as streamlined and easy-to-use as possible. I have seen both extremes: processes that are way too open, and ones that are way too closed — and with Unified Change Management I've found a perfect balance."

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