



# **Top 10 Reasons Why Software Development Is Better With AccuRev**

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SCM (Software Configuration Management) tools have a profound effect on the day to day life of a developer. These types of systems have either helped or hindered development teams deliver software. SCM systems are like the "hub" of a development team. It's where teams artifact important work, integrate changes, save important ideas and add features for customers.

SCM systems aren't just a place to checkin / checkout code anymore. They are where the software development process comes to life. If an SCM system isn't up to the task of a complex development process, development teams can't innovate.

This paper focuses on a series of best practices and techniques that AccuRev can help with for development teams looking to improve their software development process...

## 1. Track and Deliver Features Quickly and Reliably

Every software team wants to reliably deliver features to customers in a timely manner. In AccuRev, features and issues are linked from your 3<sup>rd</sup> party issue tracking system (ITS) and are represented by "**change packages**". Change packages link versions of SCM changes for any given feature or issue out of your ITS system to AccuRev so that you no longer have to remember what versions of files are associated with a particular issue. Change Package Issues can be applied to multiple releases or products providing full visibility into where those issues live in your codebase. This allows developers to easily branch and merge particular changes to multiple release lines, and gives managers an accurate representation of what's been completed through the stages of the development lifecycle. This data is then propagated to both your project management tool as well as your build and deployment tool, both fully integrated with AccuRev.

Change packages can be promoted individually or in groups. As work is promoted from stream to stream you have a record of the content of each stream from a feature perspective instead of just files. Change packages allow you to ask questions like "which features are in the stream that represents all issues / features that are 'done'," without having to resort to mainline development. Additionally, the testers can see exactly what has changed, enabling them to optimize their testing.

## 2. Full Traceability

Highly functioning development teams are expected to deliver features at a rapid pace. This means that once new features are completed it's expected that builds, tests and code integrations happen as soon as the code is ready to ship.

All of this activity is great for producing working software, but the challenges occur when teams try to track or see what's happening at any point during the development process. What if you need to track what caused a broken build, or want to know more about what code currently lives in a QA environment?

AccuRev's integrated environment gives you the tools to track down problems and get a complete view of what is happening. AccuRev SCM integrates with your ITS systems so you can see what changes correlate to what iteration so you can easily see what release each story maps into. You can also integrate your build, test and deploy tools to provide tractability on all levels of the development process. When a build breaks, you can quickly see what files (and who was working on them) changed between builds. AccuRev provides an integrated platform for full traceability from user stories/requirements, through the development cycle, into build & deployment, and links to automated testing. All phases of a development lifecycle are linked via issue, so you can quickly and accurately determine the status of a requirement, build, iteration, or release.

### 3. Powerful Multi-Stage Continuous Integration

One of the hallmarks a highly functioning development team is the rapid pace in which software gets produced and released. You need tools that keep up (and even accelerate) with the pace, rather than ones that slow things down with cumbersome and time consuming interfaces and manual processes. Continuous integration is one of best practices to achieve this. The practice of automatically triggering a build and often a build and test whenever a change is made to the code base. This provides instant feedback to developers and helps to keep the code base in a "ready to release" state, free of build problems and test failures.

Setting up continuous integration is a simple process using AccuRev™. For example, you can set up a trigger such that on successful completion of a build and test cycle, all of the source file changes are automatically promoted to the next level in the development hierarchy, protecting the integrity of the next stream level. AccuRev's stream hierarchy makes it simple to set up multiple levels of continuous integration corresponding to whatever process stages you have in your stream hierarchy such as code review, team integration, product-wide integration, etc.

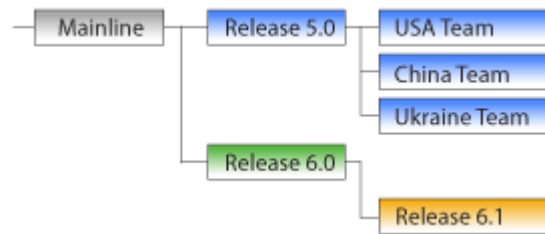
### 4. Optimized for Multiple Teams and Parallel Development

Managing multiple teams in parallel can create unique challenges like allow each team to work independently but also quickly and seamlessly integrate with other teams. AccuRev's inheritance feature makes it possible to have separate teams in parallel deliver and inherit changes from each other automatically. Changes can be promoted up and across the stream hierarchy so code can easily be shared. AccuRev streams are uniquely suited to establishing the agile best practice of isolation between in-progress code and more mature code.

AccuRev uniquely enables you to control parallel development across multiple products, projects, releases, and time zones by providing fully-auditable dynamic process management. AccuRev provides a stream-based architecture that captures and controls the relationships between the code bases in parallel development efforts. An AccuRev stream inherits code from a parent stream without using expensive file copy operations. Your team members can just drag-and-drop between streams.

AccuRev provides the following features to enable parallel development:

- Efficient codeline creation and management.  
Fast and easy code merging.
- Team members can safely store their work in the AccuRev repository, test it locally, and then share it with others.
- Advanced merge analysis and tracking support enabling easy identification and resolution of incompatible code changes across streams.



## 5. Simplified Process Visualization

The proven stream-based architecture of AccuRev is built specifically for today's software development environments. The AccuRev StreamBrowser® provides a visual representation of the stream hierarchy, including drag and drop operations to adjust the hierarchy; right click context menus for adding stages to the hierarchy; and full support for determining differences between streams and stream history. Process stages and team activities such as feature integration, quality assurance, and code reviews are well-defined, enforced, visible, and easy to manage in AccuRev. At a glance you can see the status of a particular piece of code, issue or even an entire backlog.

## 6. Private Developer Commits

Committing early and often is a SCM best practice. Over the years developers have been told that if it's not in source control it never happened. Typically many teams require people to check in everyday so there is no work that's lost.

In a scenario that you're about 100 lines of code into a particular project, but you've become stuck on a particular function. Sometimes it's good to switch gears and move on to some other work. AccuRev gives you the ability to privately checkin that work to the AccuRev repository. This means that the work is saved but it is not publicly shared with the rest of the development team. Once you're ready to share your code with the rest of the team simply promote those files to your teams stream.

AccuRev private checkin command allows you to re-create a new developer checkout from your previously saved "kept" checkins. All of your developer saved private checkins are securely saved on the server and can be recreated after the failure.

Yet one more advantage to AccuRevs private checkin function is that developers can see each others work without actually having to pull it into their codebase. Since private checkins are stored on the server, developers can have access to new code checked into a developers private sandbox meaning they can collaborate more easily with each other without ruining any changes they are currently working on.

## 7. Visibility for all stakeholders

Responding to change and adapting your process requires visibility to all stakeholders in an organization. Without the proper amount of visibility and transparency into your development processes it's going to be very difficult to institute change. What was once a yearly review of your development process could now be a weekly or bi-weekly activity providing regular visibility into the success of your process and how well your process is driving product development.

Information about the development progress will need to reach many different stakeholders including QA engineers, developers, Product Managers, Team Leads and high level management to do their jobs. Adding on the often typical scenario of multiple teams running different projects at different intervals in different locations makes good visibility crucial. Having a centralized location for all this information is key.

What is required is the ability to capture and flow information through the development process, from product ownership, to development, QA and production. This flow encompasses requirements (user stories), to project management (backlog), code development (actual code changes), build and deployment (binaries), and release (production). This visibility across all teams throughout all stages of the development is exactly what AccuRev™ does for you and your teams.

## 8. Support for Multiple Software Methodologies Simultaneously

Development teams often find themselves working in a hybrid scenario with several different software methodologies. Sometimes even picking and choosing best practices from different methodologies. AccuRev enables support any process that you choose. AccuRev enables and integrates multiple development process models (Agile, Waterfall, RUP, etc.) together with your software assets. Agile and waterfall projects can work side by side and your developers can get visibility into dependencies between the projects as well as move code from project to project. Whatever your environment, you can use AccuRev™ to manage, track, and measure all of your software development projects.

Even within modern projects, there is often no one-size fits all approach. Want to use parts of Scrum and XP? No problem; we can handle it. Moving to Kanban? We can handle it. Need to move when the code review happens along the way; you can just drag and drop it. No need for complicated scripts or guesswork.

We don't subscribe to, require, or enforce any specific methodology; we enable your process.

## 9. Tight Integration with Your Existing Tools

We recognize that there is no cookie-cutter approach to development and that our software must be able to integrate with other software. AccuRev integrations provide out-of-the-box integrations with IDEs, issue tracking tools, and security/provisioning, and other third party tools.

Only AgileCycle™ provides out-of-the-box integrations with all of the leading Issue Tracking and Agile Project Management systems on the market today including Atlassian Jira, Rational ClearQuest, VersionOne, MKS Integrity Manager, Bugzilla, Serena TeamTrack, and HP

QualityCenter. AccuRev Integration Services provide robust data mapping that allows data synchronization between a third-party issue tracking system and AccuRev. Critical data is preserved in your integrated environment between AccuRev change packages, AccuWork, and the third-party issue tracking system.

We also integrate with leading build and release software like Hudson, Electric Commander, and Bamboo. If we don't integrate with your system, we can work with you to provide it or you can use our integration SDK to do it yourself.

### 1. Works with Remote Teams

Best practices require intimate team communication, rapid feedback, collaboration and code integration. Adding remote teams makes it difficult for teams to implement these best practices. In order to scale agile methods across multiple remote teams, having the necessary tools at your disposal is key. This is why AccuRev provides tools that are globally accessible to all teams, and can seamlessly merge work from remote scrum teams regardless of their location.

AccuRev's client side interface can communicate over a WAN or VPN connections globally. If your needs are more complex, AccuRev offers AccuReplica for Replication and Continuous Integration when scaling the organization. The collaboration is efficient and unified across all replicas, which gives greater visibility into the development process. Beyond simply providing access for all users, AccuReplica enables sophisticated scaling of agile methods, and offers a driver to scale that process across your distributed organization.

*At AccuRev, our core expertise is process improvement. We've got the expertise, coaches, trainers, consultants, and of course, the tools to help you successfully optimize a development process and best practices throughout the enterprise. In addition to product support, we offer a host of services designed to optimize your process and implement process improvements like multi-stage continuous integration. Contact us to see how we can find the right 10 reasons matching your business needs.*



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