

The Quality Imperative: SAS Institute's Commitment to Quality

A corporate statement of SAS' commitment to product quality,
service quality, and customer satisfaction



Code and Build

Product development teams write code and tests based on R&D policies, standards, and processes, and coding guidelines. Product development teams also write, update, and implement automatic and manual testing based on test plans and testing guidelines, as explained in more detail in the Testing section. Working code, automated tests, and documentation are managed in a centralized source management system. Code is tested and evaluated for stability on an ongoing basis. After passing all automated tests and audit procedures, code is then integrated into the build image on the platforms that are scheduled for release. This process iterates continuously throughout the code and build phases of the software development life cycle.

Problem Reporting and Resolution

Coding includes testing, both automated and manual. If tests fail, the problem is reviewed to determine whether it is a problem with the test, the documentation, or the code. If the test has an error, the test is updated. If the documentation has an error or needs additional clarity, documentation resources are notified and make updates. If the problem is in the code, testers and developers determine the root cause, identify potential solutions, and implement fixes as needed. All problem reporting and resolution activities are tracked in a ticketing system.

High-priority problems include those that cause system failure or that produce incorrect, unreliable, or misleading results. Problems that result in the loss or corruption of data, performance degradation, and potential security vulnerabilities are also considered high priority. The same is true of problems that depart significantly from intended product function. Low-priority problems include nonfunctional cosmetic features or problems for which there are convenient workarounds. These problems might be deferred for fixes in later releases of the software. Product teams consult with Product Management and Technical Support to prioritize the urgency of a problem given their understanding of current customer use and user feedback. In all cases, problems are tracked through problem tracking systems until the problem is resolved and verified.

Change Control

Throughout the software development life cycle, strict control is maintained over all source code, which the company protects as a principal asset and trade secret. The toolset, which is routinely updated to take advantage of the latest technologies, controls development access to source code and the ability to make changes and fixes.

Through the source management system, developers can check out source code into their private work area for changes and fixes. During this time, other developers can simultaneously check out the same files. The source management system automatically evaluates changes at check-in and flags differences. Code is merged automatically unless the differences require manual intervention. Teams may also rely on capabilities such as role-based access control, linking changesets to ticketing systems, and mandatory code reviews before code can be merged. The source management system logs all source code changes.

Revision history is kept for all modules in source management, thereby maintaining earlier versions in addition to a history of who made changes and why those changes were made.

Version control methods, such as semantic versioning, assign each software build a unique identifier. For each release of the software, there is a Technical Support number and release number.

Release Information

The version of this paper is January 2022.

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