

Wind River Test Management 4.0

As today's intelligent devices become more complex and their software content increases, development and testing teams are under more and more pressure in terms of time and costs. Software quality assurance has never been more important; yet poor visibility and control of the device-software test process is leading to more shipped defects and costly product failures.

To realize time-to-market goals while controlling costs and mitigating risks, device manufacturers are turning to new automation tools that help them monitor, manage, and optimize the testing process. This is especially true for teams using more agile, iterative development cycles that link testing and development tighter than ever before.

Wind River Test Management is an automated, full- featured test management solution that identifies high-risk segments in production code, enabling focused, change-based, optimized testing, by leveraging using real-time instrumentation of devices under test. This unique system enables test teams to work smarter, not harder, and facilitates more efficient collaboration between testers and developers. Wind River Test Management provides bottom-line payback by enabling product companies to generate significant business value through more predictable development and reliable delivery of higher-quality products, at lower cost and with less risk.

Save Time with Change-Driven Test Automation

Test teams often have trouble keeping up when working in iterative or agile development processes because they can't easily focus their efforts on what's new. Changes happen rapidly, and often close to important development milestones, leaving little or no time for comprehensive testing. Wind River Test Management automatically identifies changes between binary software builds (changed, new, and deleted code). It also leverages run-time test coverage information to generate a traceability map that shows the linkage between test cases and code. The system then uses this information to automatically determine just what test cases are required to run when code has changed. This helps ensure that untested code does not slip through, while saving significant testing time and eliminating the guesswork for each new build.

Reduce Risk Associated with Untested Code

Wind River Test Management reduces the risk of critical bugs slipping through in untested code and showing up in the field. Such defects can damage your brand and create costly product recalls.

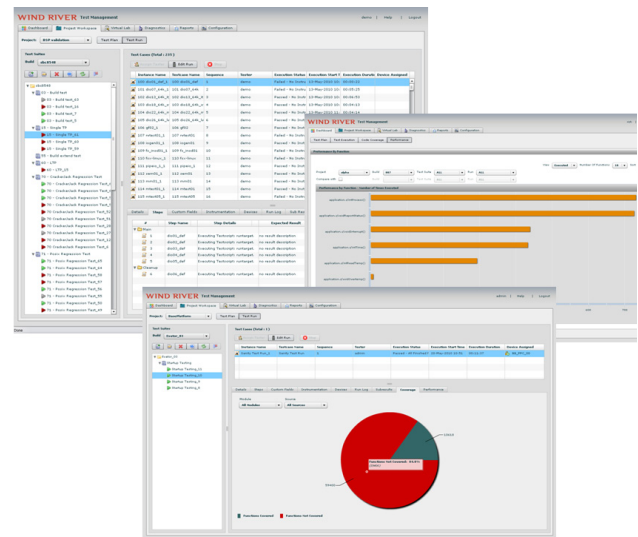


Figure 1: Wind River Test Management reduces the risk of untested changes to code

It is often difficult for test managers to measure the quality of their test plans or optimize test execution. Traditional code coverage tools provide a fine-grained view of unit test comprehensiveness but are typically too heavy for use in the quality assurance (QA) lab on functional and system tests. Wind River Test Management technology detects and records exactly which software functions and the code blocks within them are being executed by the tests that are run. This run-time test coverage capability operates on standard production code, with no debug information required, and is an on-demand feature that can be enabled and disabled for specific binary modules and test runs.

Run-time test coverage uses Wind River's sensorpoint dynamic instrumentation technology to enable on-demand metrics with minimal hassle for testers and minimal impact on performance or footprint.

Focus Testing Efforts

Wind River Test Management is a test automation system for monitoring and optimizing the testing of embedded device software. The system lets teams optimally execute complex device tests while gathering critical run-time information from the production software under test.

This new approach lets teams adopt new “white-box” testing techniques that help testers easily determine how thoroughly they are testing, understand software changes and their effects on testing, quickly identify defects and bottlenecks, and focus their efforts on sections of software that are most in need of testing. The system provides the operational feedback that test teams and their management need to achieve the highest possible quality in the least amount of time.

Optimize Device Testing

Wind River Test Management lets you optimize test execution while providing run-time visibility into device operation under test. It provides the information you need to do the following:

- Identify the portions of device software that are not tested.
- Reduce test cycles with the automatic test suite generator by creating an optimized test suite according to your defined rules and constraints.
- Identify performance regressions between builds or releases.
- Automate testing of critical exception conditions.

Analyze Device Response at Run-Time

Most testing today is limited to a “black-box” view of the device under test. Testers work from the “outside” and observe results through whatever pass/fail information, static logs, or error codes are available. Unfortunately this approach leaves test teams and their management guessing about how thoroughly they are really testing and can prevent validation of hard-to-test features. Instead, Wind River Test Management enables a white-box view into actual device operations when under test. Critical information can be gathered from running equipment, providing a clearer picture of test effectiveness, performance, defects, and more.

The device software and data can also be manipulated on the fly, allowing automated testing of edge conditions and fault handlers. Wind River Test Management provides the visibility management needs to make confident delivery decisions, while their teams test complex devices more thoroughly.

Execute Any Test

To enable powerful run-time analytics, Wind River Test Management includes an open, scalable test execution engine that can import and run tests from any source or synchronize the gathering of run-time analytics with external test harnesses:

- Import and run any test in any testing language.
- Develop modular, hybrid test cases with both manual and scripted steps.
- Incorporate custom fields and file attachments.
- Assemble and manage reusable test suite libraries.
- Leverage parallel sequencing and distributed operation.
- Execute interactive, batch, and regression test suites automatically.

In addition to providing an open framework for custom integration to any third-party test management, defect tracking, and requirement management application, Test Management provides specific integration add-ons for HP Quality Center, IBM Rational Quality Manager, IBM DOORS, and IBM ClearQuest. Wind River Test Management has achieved “Ready for IBM Rational Software” technical validation from IBM.

Manage Remote Test Targets

Wind River Test Management includes a virtual lab manager that provides tight integration of test target management with test execution and analytics. It can also integrate with any third-party lab management system. This simplifies lab setup and management and provides a full test life cycle audit trail:

- Organize and reserve networked devices.
- Remotely load new software builds.
- Manage multi-core devices and test beds.

Mine and Manage Test Results

Wind River Test Management is built around standard relational databases that allow storage and management of all tests and results with analytics for mining and analysis:

- Capture test results, analytics, and logs in a unified test data archive.
- Visualize results through interactive dashboards and standard reports.
- Incorporate custom test log parsing and subresults display.
- Create your own custom reports in standard formats.

Complement Your Existing Test Environment

The Wind River Test Management open architecture fits within your existing test environment with multiple deployment options. Connect its run-time analytics with your existing test systems; let Wind River Test Management control your legacy test beds; or migrate and manage your test life cycle into the system. Select the appropriate strategy for your projects based on life cycle stage, business needs, and state of existing test assets:

- Open command-line interface, enabling automation and integration
- Scalable web-based user interface and server platform
- Migration and import tools

Leverage Broad Operating System, Processor Support

Wind River Test Management was designed for embedded device testing, and Wind River aims to support the widest range of device processor, operating system, host, and server platforms. The list of platforms supported is continuously expanding to cover Wind River Linux, VxWorks, and non-Wind River platforms on popular processors. Contact your Wind River representative for details.

WIND RIVER

Wind River is a leader in embedded and mobile software. We enable companies to develop, run, and manage device software faster, better, at lower cost, and more reliably. www.windriver.com

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