

What's New in Wind River Test Management 3.3

Wind River Test Management 3.3 provides valuable new features, enhancements, and bug fixes to new customers and users of Wind River Test Management 3.2. It supersedes all previous releases, update packs, and patches. Release 3.3 is available from your local Wind River representative worldwide via DVD for new customers and under a Wind River subscription license or support agreement for existing users. It is a mandatory upgrade and should be installed with all eligible existing and new installations.

Updates

Ten times the improvement in scalability enables run-time test coverage for very large apps: Wind River Test Management's dynamic instrumentation technology allows "white box" access to the device under test. This instrumentation is used to gather run-time test coverage, test-to-code traceability information, and performance as well as enable fault injection, diagnostics, "hot patching," or other run-time execution control. Instrumentation is applied on the fly to a device under test, without stopping it or rebooting or reloading the software image.

In release 3.3, the engine that generates the dynamic instrumentation for run-time test coverage has been redesigned. Now coverage instrumentation can be generated in one-tenth the time and without using a compiler. It also now supports very large applications, allowing 10 times as many functions to be instrumented (more than 400,000). The memory footprint has also been reduced by almost 90%, allowing better use of device memory for resource-constrained devices.

New reboot persistence maintains coverage and performance data across complex tests: Wind River Test Management already supports persistence of analytics instrumentation during reboot, but release 3.3 adds persistence of analytics data. For example, sometimes device testers want to run a test sequence that requires intermediate reboots (or causes errors that result in reboot) and they would like to gather test coverage or performance data across the entire test sequence. Release 3.3 provides a new mechanism to provide instrumentation data persistence across reboots for these complex device testing scenarios.

New reports enable better management of agile projects and test coverage trends: Wind River Test Management provides key support for change-based testing within iterative or agile development projects. The product recently introduced key features to help make testers more effective in these constantly changing environments. The system

analyzes code changes in binary builds—the most accurate way to identify changes and their impact on your application—and it leverages the system's test-to-code traceability map to automatically determine what regression tests need to be re-run based on changes.

Release 3.3 now adds a new Build Change Summary report that shows exactly what code has been changed/added/deleted between builds, allowing managers to understand code churn and do change-based risk assessment in iterative or agile processes. Other new reports such as Coverage Trends and Functions Not Covered allow test managers to understand how thorough their tests are and monitor coverage progress throughout the development life cycle. These new reports add to existing and improved summary reports for Test Coverage, Test Execution Results, and lab device asset utilization. Custom reports can be added to the system using third-party design tools.

New hybrid test type enables sophisticated device test sequences and facilitates migration from manual to automated testing: Previous Wind River Test Management releases offered either manual or scripted test cases. Release 3.3 instead moves to a hybrid test case type that can consist of both manual and scripted test steps. These tests can then be executed in either an "interactive" or "automatic" mode. Test teams can utilize automated scripts within a manual test process, executing these interactively with manual steps within a managed environment.

This hybrid test feature also helps provide a migration path from manual to fully automated testing as test teams gradually replace manual steps with scripts. The fully automatic test execution mode is offered for test cases that contain only automated test scripts and can run to completion as batch operations without tester involvement (e.g., overnight regression testing). Wind River Test Management is an open system that can run tests built in any scripting or programming language.

A new component-based test model improves test modularity and maintainability: Embedded device testers often have test scripts that are used over and over in multiple test cases. Test suites can be simplified if these common tests are stored only in one location and then included by reference elsewhere. It can also be advantageous to modularize tests along with related “setup” and “cleanup” sequences. For example, a set of scripts may be required to initialize test equipment, reboot a device, or restore a device to a “clean” state for further testing. Note, however, that users typically don’t want to mix application test coverage or other run-time analytics data with analytics from setup and cleanup sequences.

Release 3.3 implements a new modular test case structure and user-defined, reusable, scripted test components that let test developers build more self-contained and modular tests. A reboot or login script that is used repeatedly need only be defined once then used in multiple test cases throughout the system. This new test model enhances maintainability as the test components need only be updated in one location. The component-based test model has been designed so that its unique run-time analytics information, such as test coverage, is only gathered from the main test functions, not from ancillary setup or cleanup sequences. Modularity also helps Wind River Test Management better optimize test execution based on changed code. Better compartmentalization allows the system to more easily “mix and match” tests from any source, knowing that each test case is self-contained.

Improved test execution and run-time analytics management is added for multi-core devices and multi-device test beds:

Wind River Test Management features a virtual lab manager to control, provision, and manage a company’s test lab assets. Release 3.3 expands existing capability to control and run tests against multiple cores or devices at the same time. The system also intelligently manages the built-in run-time analytics to intelligently gather white-box data from the live device under test. Test coverage analysis, performance measurement, fault injection, or dynamic diagnostics instrumentation can be deployed across multiple cores or processors, and information is then collected in sync with tests.

Release 3.3 allows the definition, reservation, and management of “test beds”—collections of devices and associated test equipment—allowing easy management of varied devices, simulators, and instruments embedded testers often need. The test bed feature enables design of sophisticated tests that operate on a group of devices and may, for example, communicate with each other as part of a test. Release 3.3 provides the means to send both tests and instrumentation to each of the devices in the test bed and manage the test results.

A new file attachment feature enables data-driven and GUI testing: Device test developers often prefer to segment reusable or changing test data from the actual test scripts by moving test datasets into external files. Graphical user interface (GUI) test designers often capture images of correct screens so that testers can compare current vs. expected results. Device testers may also need to send datasets, scripts, or commands directly to the device as part of a test sequence.

These scenarios are now supported with the new file attachments feature in release 3.3. Test developers can attach any type of file to a test case or to the individual test steps within an interactive test sequence, allowing development of sophisticated, data-driven tests for all types of devices. Attachments can also be useful for test teams that are migrating from manual test processes captured in Microsoft Word or Excel files to a more automated approach. These existing test descriptions can be attached to Test Management test cases, allowing users to refer to familiar documents while running their tests, thereby speeding adoption of the automated system.

System customization and usability is expanded: Often companies or projects will have their own standard test templates that include unique attributes they want to associate with test cases. Release 3.3 now allows users to create their own test case templates by adding custom fields to the base test case definition. The new release also allows users to customize test execution status descriptions, search test cases with standard or custom fields, and modify test run duration metrics. Usability is also improved in many areas, including the ability to easily view HTML device logs or third-party test tool results captured by the system.

Where to Get It

Wind River Test Management 3.3 is available from your local Wind River representatives worldwide. Install the two release 3.3 files (one for the Wind River Test Management/Wind River Test Diagnostics 3.3 server, one for the Wind River Workbench Diagnostics 3.3 developer plug-ins) from the DVD set provided. You will have to migrate your existing test data to release 3.3. Back up your current data and thoroughly read the included release notes about database migration before installing any software.

Note that VxWorks core file generation and analysis is no longer available in Wind River Test Management, Wind River Test Diagnostics, or Workbench Diagnostics. These features have been migrated into the standard VxWorks operating system and Workbench. Contact the VxWorks product marketing team for details.

Users should check the Wind River Support downloads page periodically for the latest updates, service packs, and patches. See www.windriver.com/products/test_management for more information.