PARASOFT

dotTEST™

Parasoft® dotTEST™ – Comprehensive Code Quality Tools for .NET Development

Parasoft® dotTEST™ is an integrated solution for automating a broad range of best practices proven to improve software development team productivity and software quality. dotTEST facilitates:

- Static analysis: Static code analysis, data flow static analysis, and metrics analysis
- Peer code review process automation: Preparation, notification, and tracking
- Unit testing: Unit test creation, execution, optimization, and maintenance
- Application testing: Sets up the actual application execution environment and launches tests from it

This provides teams a practical way to prevent, expose, and correct errors in order to ensure that their .NET code works as expected.
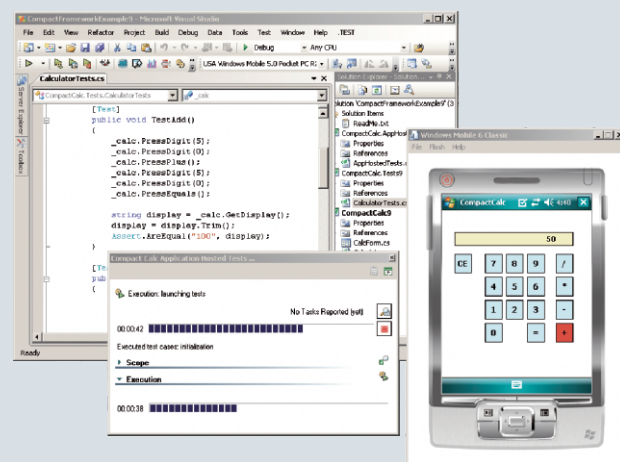
Tests can be run directly from Visual Studio or as part of an automated process. To promote rapid remediation, each problem detected is prioritized based on configurable severity assignments, automatically assigned to the developer who wrote the related code, and distributed to his or her IDE with direct links to the problematic code and a description of how to fix it.

Parasoft dotTEST works with programming languages that target the Microsoft .NET Framework and .NET Compact Framework, including C#, VB.NET, ASP.NET and Managed C++. It can test any file or assembly that has been built to take advantage of the .NET or .NET CF CLR.

Automate Code Analysis for Compliance

A properly-implemented coding policy can eliminate entire classes of programming errors by establishing preventive coding conventions. dotTEST statically analyzes code to check compliance with such a policy. To configure dotTEST to enforce a coding standards policy specific to their group or organization, teams can define their own rule sets with built-in and custom rules. dotTEST includes 400+ rules that cover Microsoft's .NET Framework Design Guidelines, CLS Compliance, Object Oriented Metrics, Security, and more.

In addition to rules that examine the IL code, dotTEST also provides rules that examine the C# source code; this enables dotTEST to check for many code issues that cannot be identified by IL-level analysis (for example, formatting issues, empty blocks, misuse of operators, etc.). Custom IL-level and C# rules, which are created with a graphical RuleWizard editor, can also enforce specific project and organizational requirements and prevent the recurrence of application-specific defects after a single instance has been found.

dotTEST's static analysis exposes critical defects early, without requiring code execution

Benefits

Parasoft's customers, including 58% of the Fortune 500, rely on dotTEST for:

- Preventing defects that impact application security, reliability, and performance
- Complying with internal or regulatory quality initiatives Ensuring consistency across large and distributed teams
- Increasing productivity by automating tedious yet critical defect-prevention practices
- Successfully implementing popular development methods like TDD, Agile, and XP

Features

- Static analysis of code for compliance with user-selected coding standards
- Graphical RuleWizard editor for creating custom coding rules
- Static code path simulation for identifying potential runtime errors
- Streamlined code review process with a graphical interface and progress tracking
- Automated generation and execution of unit tests
- Generates functional unit test cases that capture actual code behavior as the application is exercised
- Launches tests from the actual execution environment
- Flexible stub framework for use in unit tests
- Full support for regression testing
- Code coverage analysis for unit testing and beyond (including application-level tests)
- Test directly on target devices or emulators
- Full team deployment infrastructure for desktop and command line usage
- Seamless integration with Microsoft Visual Studio

Platforms

- .NET Framework 2.0, 3.0, 3.5, 4
- .NET Compact Framework 2.0, 3.5
- Windows Mobile 5, Windows Mobile 6, Windows CE

System Requirements

- Windows 7, Windows Vista, Windows XP, Windows 2003 Server, Windows 2008 Server
- Visual Studio 2012, Visual Studio 2010, 2008 or Visual Studio 2005

Identify Runtime Bugs without Executing Software

BugDetective uses data flow analysis to detect runtime errors without requiring the software to actually be executed. This enables early and effortless detection of critical runtime errors that might otherwise take weeks to find. Defects detected include NullReferenceExceptions, ArgumentNullExceptions, resource leaks, division by zero, dereferencing before checking for null, SQL injections, XSS, and other security vulnerabilities.

Enable Effective and Comprehensive Team Code Review

The innovative Code Review module, which automates preparation, notification, and tracking of peer code reviews, addresses the known shortcomings of this very powerful development practice. dotTEST automatically identifies updated code, matches the code with designated reviewers, and tracks the progress of each review item until closure. With the Code Review module, teams can establish a bulletproof review process—where all new code gets reviewed and all identified issues are resolved.

Automate Unit and Component Testing for Instant Verification and Regression Testing

dotTEST's automated testing capabilities significantly reduce the work required to develop and maintain an effective test suite. dotTEST's automated testing capabilities are especially helpful for supporting continuous integration and agile/iterative development.

dotTEST provides numerous ground-breaking technologies to facilitate unit testing, including:

- **Unit Test Genie:** Allows you to generate specific object factory methods and test scenarios by interacting with dotTEST wizards. You can control precisely what objects and test scenarios are generated.

- **Non-Interactive Test Case Generation:** Allows you to create a large number of tests with minimal time and effort. This is especially useful for achieving high code coverage and establishing a regression baseline.
- **Application hosted testing:** Allows you to launch unit tests from virtually any point within your application—without changing your application or writing additional code. This lets you create complex objects in their natural environment and facilitates test development/maintenance.
- **Extensive coverage analysis:** Tracks coverage information for all tests—from dotTEST-based unit testing to manual application testing—and can combine the coverage information from multiple test runs. This helps you accurately gauge test suite efficacy and completeness, as well as demonstrate compliance with test and validation requirements.
- **Flexible stub support:** Allows classes to be tested in isolation. This addresses one of the greatest challenges in writing unit tests: getting complex objects in different states.

.NET Compact Framework Support

dotTEST's .NET Compact Framework support allows you to run unit tests directly on a device. This enables you to:

- Write very realistic unit tests because code runs against the .NET CF, which accurately represents realistic application behavior.
- Automatically check your code against any device or emulator that supports Windows Mobile Device Center (Active Sync) communication.
- Access an API, such as native API, which is available for a particular device only.

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