

# Change-Based Testing

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## Overview

Parasoft's change-based testing capabilities help you optimize your testing efforts by automatically identifying the test cases directly related to your most recent source code modifications. You can then rerun only the impacted test cases rather than retest the entire system after each modification.

Change-based testing is enabled through:

- testing and code analysis with C/C++test,
- data collection, correlation, and visualization with Parasoft DTP,
- and advanced process intelligence with Parasoft Enterprise Pack—specifically the Change Based Testing extension.

Parasoft DTP identifies the source code exercised during test execution and correlates it with the code coverage image. The Change Based Testing extension calculates change-based testing metrics that can be displayed in DTP. The extension analyzes the test cases associated with each file and if the file has been modified and the test cases associated with that file were not execute, then the test case "Action" is set to "Retest." Otherwise, the test case "Action" will not be modified. When analysis is completed, the results can be viewed in pie chart format for test summaries (total pass, fail, incomplete, retest statistics), the table report for test summaries per file, and the DTP test explorer. See the documentation for DTP and the Change Based Testing DTP Enterprise Pack extension for additional information.

## Requirements

The following components are also required to enable change-based testing:

- DTP 5.3.0 or later (with appropriate license).
- Parasoft Enterprise Pack with the Change Based Testing artifact deployed.

## Enabling Code and Test Correlation

To do this, you need to:

1. Enable reporting to Parasoft DTP. See [Connecting to DTP](#).
2. Associate tasks, requirements, or defects with tests. See [Indicating Code and Test Correlations](#)
3. Enable code coverage during test execution. See [Generating Coverage Information](#).

If want to use change-based testing as part of your application coverage process that includes manual and API testing, see the SOAtest and Coverage Agent Manager documentation for additional setup and configuration instructions.

## Change-based Testing in Concerto or Older Versions of DTP

If you are using a version of DTP older than 5.3.0, see the "Legacy 9.x Functionality for Concerto and Development Testing Platform" guide in the DTP documentation.