PARASOFT

C/C++test CT

Automated C & C++ Testing in Your CI/CD Pipeline

Unique Features

- 100% IDE independent, command line-oriented toolchain
- For use in CI and at developer's desktop
- Excellent VS Code extension
- Container friendly
- Designed for automation at scale
- Web-based reports and dashboards

Code Coverage

- Lightweight design
- Effortless CI/CD integration
- Integrates with open source unit testing frameworks.

Benefits

- Enhances popular testing frameworks like GoogleTest with code coverage and requirements-based testing.
- Reduces the cost of quality and standards compliance processes.
- Reduces audit stress.
- Improves the predictability of deliveries.

Parasoft C/C++test CT

Continuous Testing and Compliance Toolchain

Deliver Safe, Secure, & Reliable C & C++ Software

Tailored for large teams engaged in the development of safety- and security-critical C and C++ products, Parasoft C/C++test CT is an essential solution for test automation and continuous compliance. It helps teams address standards compliance for requirements in code coverage, requirements testing, and unit testing.

Unlike conventional software testing tools confined to specific IDEs or GUIs, C/C++test CT (continuous testing) offers seamless integration into both developers' desktop environments and modern CI/CD workflows. Its versatility eliminates IDE dependencies, making it effortlessly usable with containers and a valuable extension for VS Code users.

Deploy Within a CI Toolchain

Developers and stakeholders gain visibility into the parts of the codebase exercised by automated tests. C/C++test CT also speeds up and helps maintain coverage thresholds by ensuring that code coverage metrics satisfy predefined compliance coverage criteria in statement, branch, MC/DC (modified condition/decision coverage), and other coverage types. Teams can minimize the effort in developing test cases required to achieve coverage goals by exposing missing test vectors.

C/C++test CT extends CI code coverage quality gates by doing the following:

- Exposes missing test vectors.
- Automates code coverage requirements.
- Ensures sufficient code coverage and requirements testing.

Compliance Reporting

Get insights into compliance and quality processes with dashboards, charts, and trends in Parasoft DTP, the web-based, central reporting system that's included with C/C++test CT. DTP's centralized reporting and analytics enable trends and progress monitoring for various coverage metrics. With DTP, teams can jumpstart their coverage efforts by focusing on coverage for newly added code first.

TAKE THE NEXT STEP

Request a demo to see how your team can deliver safe, secure, and reliable C and C++ software.

Requirements Traceability

C/C++test CT's requirements traceability reporting provides an important aspect of software testing that is crucial in safety- and security-critical applications. By correlating test coverage metrics with requirements, developers and testers can ensure that each requirement is fully addressed by corresponding test cases, thereby providing assurance that the software is robust and behaves as intended under different conditions.

Code coverage and requirements traceability are interconnected elements of software testing in safety-critical applications, working together to ensure thorough verification of requirements, compliance with safety standards, and mitigation of risks, ultimately reducing the likelihood of catastrophic failures in software-critical environments.

Dynamic Analysis

Parasoft C/C++test CT offers comprehensive code coverage metrics, including:

- Function
- Block
- Call
- Line
- Branch
- MC/DC
- Statement
- Decision

MC/DC coverage reports increase developer productivity and reduce the cost of developing missing tests. Reports include hints regarding the minimal number of tests required to achieve complete coverage.

Code coverage integrates with builds by way of its command-line interface, which makes this solution IDE-independent, highly automated, and designed for scalability.

CI Pipeline Integrations

C/C++test CT's code coverage aligns seamlessly with the requirements of CI-centric teams. It offers robust build integration capabilities with top-tier CI platforms like Bazel, Jenkins, GitHub, GitLab, Azure DevOps, and more. Teams experience a unified workflow that optimizes efficiency and collaboration across the development pipeline.

Structural Code Coverage

With the ability to integrate with popular opensource unit testing frameworks such as GoogleTest, Boost.Test, CppUnit, or homegrown ones, teams can use C/C++test CT code coverage to generate compliance reports required by functional safety standards.

GoogleTest

C/C++test CT code coverage integrates with GoogleTest and provides evidence of achieving code coverage goals. The integration enables organizations that have pre-existing GoogleTest cases to engage early in functional safety efforts, reducing the business risk of not achieving compliance on time.

The GoogleTest integration includes requirement traceability reporting. This feature allows correlating test results with software requirements residing in requirements management systems such as DOORS Next, Polarion, Jama, Codebeamer, and others, providing traceability reports. Together with code coverage reports, they help teams understand the completeness of testing and satisfy safety standards requirements regarding traceability reporting.

Certified Software

Parasoft C/C++test CT is certified by TÜV SÜD for functional safety according to ISO 26262, IEC 62304, IEC 61508, and EN 50128 standards, helping development teams satisfy the desired safety integrity level (SIL/ASIL).

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