Soft4Soft
RESORT Code Analysis

RESORT Static Analysis Tool

❑ Static Analysis Tool

- RESORT for C, C++, C#, Java(JSP), R, Python, JavaScript, Flex, ABAP
- RESORT for iOS (Swift, Objective-C)
- RESORT for Android (Kotlin, Android-Java)
- RESORT for JavaFP

❑ *Plug-in*

- Eclipse, Intellij, Android Studio, Visual Studio, Xcode, etc.
- Jenkins/Hudson

❑ Static Analysis Process

Check Environment
Rule
↓
Code Verification
Defect Code
Security Hole
↓
Code Evaluation
Code Violation
Rule Compliance
↑
SW Testing & Consulting Service

❑ Functional Safety Certification

- CWE Compatibility
- ISO 26262:2011, IEC 61508-3 ed2.0, EN 50128:2011

Static Analysis and SW Testing Tools support everything from code verification to system testing

The Static Analysis Tool automatically extracts execution paths from the whole program in the correct order of cross-functions. It analyzes the code status values for each path to check and verify code defects (bugs) and security holes.

❑ Code Analysis Features

- **(no Compile Step)** Works on static analysis without the compiler build step
- **(no False Positive)** Correct order of code analysis of subprograms and functions with cross-function based on Inter-procedural path analysis
- **(no Rule Option)** All detection of reliability, safety, security, and code metrics
  - Supporting the concept "One Guide to One Rule" to prevent duplicate detection
- **(Tool Qualification)** ISO 26262, IEC 61508, EN 50128, CWE Compatibility, etc.

Reliability (Coding Guide)

•MISRA-C, MISRA-C++, JSF++, Java Code Convention, JPL Java & C
•Automotive Embedded C, C++ Coding Guide Compliance
•Coding Guide: JavaScript, Python, R, ABAP, Mobile(iOS, Android)

Safety (Run-time Error)

•CWE-658(for C), CWE-659(for C++), CWE-660(for Java), AUTOSAR C++14
• Automotive Embedded C, C++ Run-time Compliance

Security (Security Vulnerability)

•CWE, OWASP, CERT (C, C++, Java)
•Automotive Embedded C, C++, Java Security Compliance

Code Metrics (Complexity)

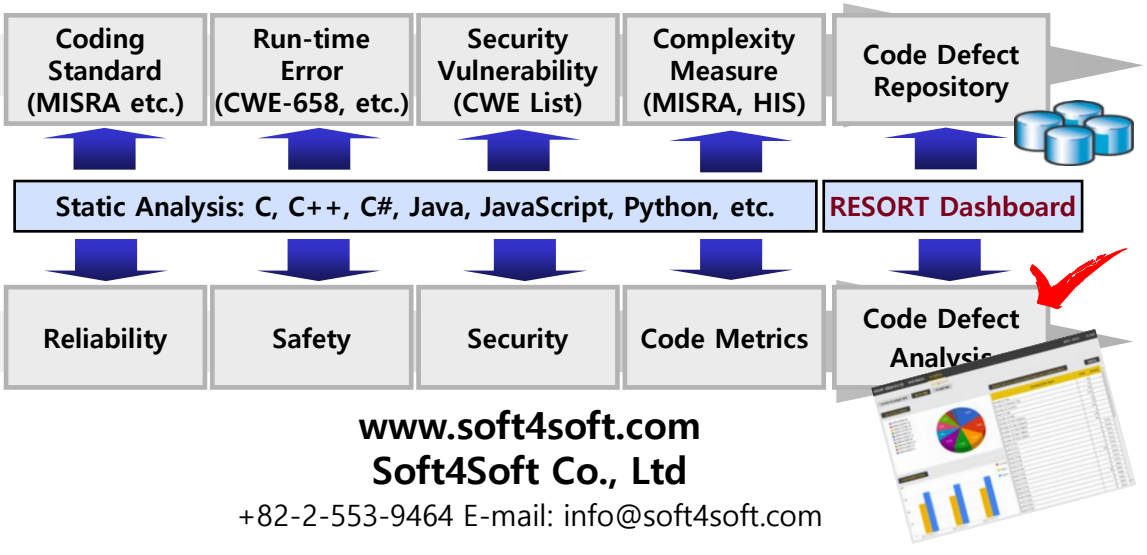
•MISRA Software Metrics, HIS Source Code Metrics
- Automotive Embedded Code Metrics Compliance

Static Analysis Dashboard

•Defect Analysis: Evaluation Summary, Top 10 Rule Violation, Violation Trend, etc.
•Defect Exception Transaction: Exception Request, Review & Approval, Automated Exclusion of Exception Codes, etc.

Java Function Point

•Java Function Point Counting based on IFPUG
-Automatic/semi-automatic/manual Function Point based on reverse engineering



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Soft4Soft
RESORT Code Analysis

RESORT White-box & Firmware Test Tool

❑ Test Tool

- RESORT for C, C++, C#, Java
  - Automated White-box Path Test
  - Path-based Fault Injection Test
  - GUI SW Test
  - Firmware Test

❑ Supported Compilers

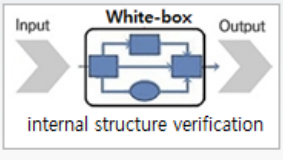
- C/C++/C# test supports all compiler families based on big-bang technique

❑ Automated White-box Path Testing Process

Test Environment
Target Compiler
↓
Auto Test Design
Path Test Case
Path Instrument
↓
Test Evaluation
Code Coverage
Pass/Fail
↑
SW Testing & Consulting Service

❑ Functional Safety Certification

- CWE Compatibility
- ISO 26262:2011, IEC 62279:2015



We are looking for business partners in America, EU, and Japan

The Automated White-box Path Testing Tool generates test data of the path and provides integrated support from unit to system testing on the host or target.

❑ Automated White-box Path Testing Features

- **(no Compile Step)** Works on automated SW testing without the compiler build step
- **(Path Test)** Program path-based automated white box path test
  - Automated generation of test cases and automated extraction of test data
  - Integrated support for path-based fault injection test
- **(GUI SW Test)** Desktop/web/mobile GUI software test based on code
  - Verification/validation of code coverage on each client and server system with record & play on desktop, web, and mobile GUI software
- **(Embedded Firmware Test)** Verification of firmware based on target environment
  - Verification: SW & HW Functional Safety, SW Responsibility
  - Integration with IAR Embedded Workbench: Uninterrupted Workflow
- **(White-box vs. Black-box)** "How" of the program vs. "What" of the functionality
  - **Test Design/Execution/Coverage Process**
    . (White-box) White/White/White: Program Bug by MBD Method
    . (Black-box) Black/Black/White: no Program Bug

Unit & Integration Test

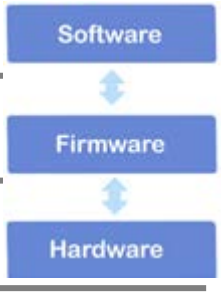
- Automated White-box Path Test (Automated Path Test Case Generation)
- Path-based Fault Injection Test

GUI System Test

- GUI SW Test (Client and/or Server Application)

Firmware Test

- Firmware Test (Target Device Testing (SW + HW + UART))



Code Coverage Analysis

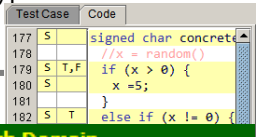
- Unit/ Integration: Statement, Branch, MC/DC, Path, Function, Call
- Requirement: Traceability/Consistency

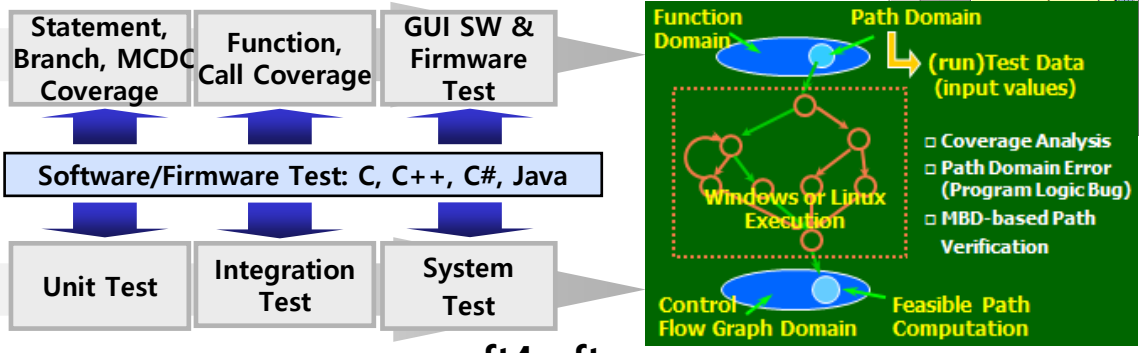
MBD-based Path Verification

- (input path-to-executed path) Verification for "program logic" by comparing before and after the feasible path's test execution of the tested Statement, Branch, MC/DC
- (test-to-code) On code, visual representation of tested coverage types and codes

SW Test Requirements Compliance

- ISO 26262(Automotive), IEC 62279(railway), etc.





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