

# Analysis Types

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## Pattern-based Analysis

Pattern-based analysis detects constructs in the source code that are known to result in software defects based on programming standards, such as CWE and MISRA. Pattern-based static analysis helps ensure that developers are following coding best practices, unit testing best practices, as well as the organization's development policy.

This and all the following analysis types are performed with a built-in or user-defined test configuration; see [Working with Test Configurations](#).



See the "Built-in Test Configurations" section of [Automation User Guide](#) for information about built-in configurations.

## Flow-based Analysis

Flow-based analysis simulates execution paths to detect potential defects that only emerge during runtime. By analyzing complex paths that span large parts of application code, it can identify issues that may not be detected by pattern-based analysis.

Run one of the Flow Analysis built-in test configurations during analysis to execute flow-based analysis rules:

- Flow Analysis Fast
- Flow Analysis Standard
- Flow Analysis Aggressive

## Code Duplication Analysis

Avoiding code duplication can help you improve application design and decrease maintenance costs. This analysis type uses a set of rules that specify what should be considered to be duplicate code.

Run the following built-in test configurations to execute code duplication detection rules:

- Find Duplicated Code

## Metrics Analysis

Metrics analysis measures code characteristics, such as cyclomatic complexity, fan out, and lack of cohesion, to identify potential weaknesses in code construction. You can set an acceptable range for metrics so that you are alerted when code is out of compliance with your policy.

Run the following built-in test configurations to execute metrics analysis:

- Metrics



See [Automation User Guide](#) for information on how to configure Flow Analysis, Code Duplication Detection and Metrics.