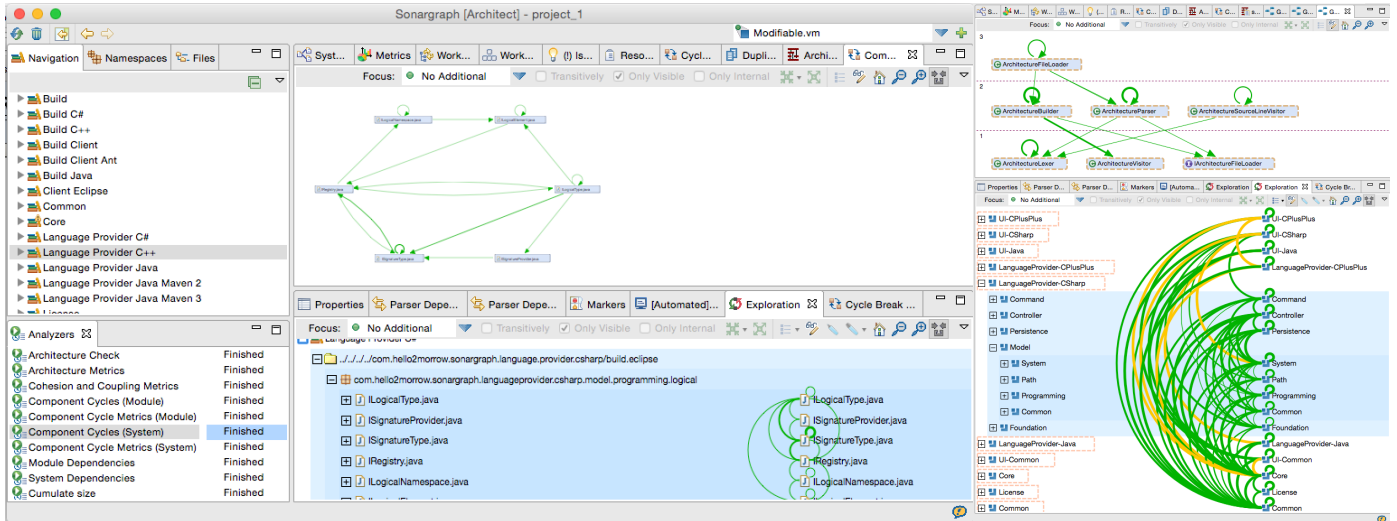


# SONARGRAPH



Sonargraph is a comprehensive static-analysis platform designed to measure and manage the architecture and technical quality of software systems written in Java, C# or C/C++. It runs on Windows, Mac OS and Linux and is used by more than 300 companies on 4 continents.

## EXPLORE

### Visualize and Understand

Sonargraph allows you to visualize and analyze the structure of any software system written in Java, C# and C/C++ within minutes. It helps you to uncover unwanted and cyclic dependencies on all levels of your architecture. Our unique cycle visualization and breakup tool automatically computes the necessary changes to improve the structure of your system with minimal effort.

## DESIGN

### Define and Enforce Architecture

With Sonargraph, you can formally define the intended logical architecture of your system and map it to your code using our unique and innovative domain specific language for software architecture. With our plugins for leading IDE's developers can verify rule conformance while coding. Sonargraph also integrates into your build system so that architecture rules can be enforced during build time.

## IMPROVE

### Use Virtual Refactorings

Sonargraph allows you to simulate complex refactorings on your code without actually touching your code. Once you are satisfied with the results you can delegate the execution of most refactorings to your IDE. Sonargraph supports a simple team workflow concept. You can delegate the execution of refactorings and other code improvement tasks to other team members and track their progress.

## GET RESULTS

### Avoid architectural debt, reduce cost, improve agility and team productivity, mitigate risks and increase transparency

Without automated enforcement of architectural and code quality rules your development team will accumulate a significant amount of technical debt. This will slow down your team and make changes increasingly difficult. Moreover the presence of technical debt invites the creation of additional technical debt to circumvent problems caused by it. The most toxic form of technical debt is architectural debt, the loss of architectural cohesion. Once architectural debt grows over a certain limit it becomes very hard to fix. By integrating Sonargraph into your daily development process, the accumulation of architectural debt and other forms of technical debt can be reduced significantly or even completely avoided. This leads to cost savings, that can easily surpass 25% of the lifetime cost of a project. Teams gain productivity and agility, risks become more manageable and metrics provide transparency about the technical quality of a software system.

Module	Element Name [20 elements, 1 violation]	Value
	<b>Core</b>	<b>82.02</b>
	Standalone	33.01
	Language Provider C++	23.73
	Language Provider C#	19.11
	Language Provider Java	14.1
	Standalone Java	6.77
	License	4.76
	Standalone C#	4.64
	Common	4.21
	Standalone C++	3.33
	Build Client	3.17
	Build	2.75
	Language Provider Java Maven 3	2.38
	Build Client Ant	2.0
	Language Provider Java Maven 2	2.0
	Client Eclipse	1.5
	Build C++	1.0
	Standalone Documentation	1.0
	Build Java	1.0
	Build C#	1.0
ACD	John Lakos Core	0.0 60.0
CCD	John Lakos Core	
NCCD	John Lakos Core	
RACD	John Lakos Core	
Code Comment Lines	Size Core	
Comment Lines	Size Core	
Lines of Code	Size Core	
Number of Components	Size Core	
Number of Packages	Size Java	
Number of Statements	Size Core	

## ASSESS QUALITY

### Use Metrics and Scripting

With Sonargraph-Architect you can do an in-depth quality assessment and due-diligence checks of a software system in less than a day. No other tool known to us currently delivers such a comprehensive and detailed set of quality data. The setup on a new project only takes minutes. Sonargraph calculates hundreds of software metrics that you can use to pinpoint problematic code sections. Extensive drill-down capabilities will trace every finding down to its origin in the code. Examples for metrics calculated are: ACD (average component dependency to measure coupling), Structural Debt Index (an overall measure of entropy) and the Robert C. Martin metrics (Distance, Abstractness etc.).

Moreover Sonargraph-Architect comes with dozens of predefined scripts (based on Groovy) that will allow you to uncover bad smells, design patterns, or anti-patterns. Using those scripts you can answer questions like “which classes have references to their subclasses” or “where are class attributes accessed directly by another class”.

### Customizable Quality Models

By using or customizing one of Sonargraph's predefined quality models you can define your own coding standards, architecture rules and target ranges for important software metrics. With a glance at the integrated dashboard it is easy to detect potential problems early in the process.

### WHAT USERS ARE SAYING ABOUT OUR PRODUCTS:

I was amazed to see how quick and easy we were able to adopt Sonargraph for managing the architecture and technical quality of the Spring Framework family. For the Spring Web Flow project Sonargraph helped us to almost cut in half the internal coupling of the code base with very little additional effort. Now we are using Sonargraph on a regular base and it helps us to keep the architecture and quality of Spring on the high level expected by our global user base.

*Jürgen Höller - Spring Framework Project Lead*

We integrated Sonargraph into our development process about a year ago. Since then, we have improved the productivity of our developers, lowered maintenance cost and improved the structure and the technical quality of our large Java code base. I can confirm that Sonargraph paid for itself in less than a year, and my only regret is that I did not find this invaluable tool much earlier.

*Andi Zink - CTO - Black Duck Software - USA*

Our process model requires quality assurance activities in various phases, including code reviews during implementation and maintenance. In combination with other products, Sonargraph provides us with all the data and metrics necessary for timely escalation decisions. Using Sonargraph for architecture management prevented uncontrolled growth and clutter in new projects, further deterioration of existing projects and enabled the assessment of third party code. A definite recommendation!

*Thomas Baldauf - Senior Software Architect - Environment Agency Austria*

## INTEGRATIONS

### Fitting into your environment

By using our plugins for Jenkins, SonarQube, Maven or Gradle, Sonargraph integrates seamlessly into your current environment. If you are already using SonarQube or Jenkins, you can significantly improve their effectiveness by adding Sonargraph and add the dimension of architecture checks, a wide range of software metrics and script based metrics and coding rules. Additionally this will also allow you to track metric values over time and therefore find out whether or not things are moving into the right direction.

## AND THERE IS MORE...

### Find code duplicates, reporting etc.

Sonargraph features a sophisticated duplicated code block detector so that you can find the places where copy and paste was used to implement new features. Moreover Sonargraph creates a variety of reports and can export most data to Excel.