Semantic Designs℠ Automated Tools for Software Engineering

Code Search (Find, Follow), Analysis (Metrics, Static, Dynamic, Bugs) and Change (Modernization, Migration, Generation, Optimization, Rearchitecting)

        - PHP
        - VHDL
        - Verilog
        - More...
    - By Tool ►
        - Search Engine
        - Clone Detection
        - Test Coverage
        - Formatters
        - Obfuscators
        - Metrics
        - Profilers
        - Smart Differencer
        - More...
    - By Application ►
        - Hogan (Banking) Analysis
        - More Effective Testing
        - Detecting Infringement
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    - Why Buy
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# Customer Success Stories

## Boeing: Avionics Mission Software

Semantic Designs automated conversion of Boeing's Boldstroke avionics software enables Unmanned Aerial Vehicles to manage video without swamping critical systems, by restructuring the application into a CORBA compatible form using Quality-of-service controls.

- C++ on Linux
- 5+ million lines of code
- 14 months

## Financial Services Automated Conversion

Semantic Designs automated the Cobol Migration of a financial services application to C# in less than 6 months with DMS. The legacy code to be converted included Fujitsu Net.COBOL with database access via SQL, and running of external processes. The application also used a number of Mlibrary routines, as well as COBOL extensions The scope of conversion called for 100% like-for-like functionality replication with the new application in C# running on Windows server platform.

- COBOL to C#
- Half million of lines of code
- 6 months

## Tableau Automated Application Refactoring

SD automates the Code Refactoring of API's and God Classes for 5,000+ C++ modules in less than 3 months with DMS.

- C++
- 4+ million lines of code
- 3 months

## Salion: Customized CRMs

SD's CloneDR promotes big savings at Salion by enabling the discovery and refactoring of duplicate code.

- C++ multiple applications
- millions of lines of code
- Ongoing

## Northrop Grumman: B-2 Stealth Bomber Mission Software

Automated conversion of JOVIAL to C (JOVIAL2C Translator) cost-effectively extends mission life of critical B-2 flight software.

- Jovial on proprietary hardware
- 1.2 million lines of code
- 9 months

## Automated Data Processing (ADP) HLASM Automated Conversion

Semantic Designs automated the conversion of ADP's HLASMto C on the Mainframe. SD was not only able to automated the conversion but refactor the resulting C code for maintainability. Optimizations included:

- Register/Memory (â€œlocationâ€) content tracking (â€œtype analysisâ€)
- Removal of references to registers, condition codes, machine idioms, dead globals, and dead assignments
- Replace low-level memory accesses via based registers with subscripts and field accesses
- Handling Special instructions: Decimal Arithmetic, MVC, memset idiom detection, GETMAIN/FREEMAIN conversions

into calloc/free
- Segmentation of instruction blocks into reasonable subroutines based on calling conventions
- Generation of parameters and explicit argument passing
- Extracting structured code from GOTO rats nest formed by typical assembler code
- Translating macros into function calls using registers on call as arguments

## Software Plagiarism Analysis

A large bank suspected one of its contractors had plagiarized the bank's proprietary software to build a COTS product the contractor licensed to other organizations. Utilizing SD's CloneDR, SD was able to analyze the COTS software to find any possible case of plagiarism.

- 10+ million lines of Java and C# code
- 100's of laptops and servers analyzed
- 2 Weeks with CloneDR
- CloneDr finds clones even when the software has been modified

## Australia-New Zealand Bank: Core Banking Software

Australia-New Zealand Bank is able to understand their COBOL-based Hogan core banking software more effectively using custom, precise code architecture analysis tools from SD.

- COBOL and Hogan on Mainframe Zos
- 15+ million lines of code
- Tool delivered in 10 months

## US Social Security Administration: Social Security Software

SD has supplied the SSA with tools for analyzing the enormous mainframe COBOL code base used by SSA to manage various aspects of the SSA system.

- COBOL, Assembler, SQL, JCL, Java on Mainframe

- 200+ million lines of code
- Tool delivered in 12 months

## Dow Chemical: Migration of ~1000 Factory Control Software Systems

(Initial 2016) Over the next decade, Dow Chemical is migrating ~1000 legacy process-control systems for Dow factories using tools from Semantic Designs.

These tools *automatically extract process control models* from low-level MOD5 Dowtran process control programs, enabling Dow to easily forward engineer equivalent applications on modern industrial controllers. The reverse-engineering process relies on SD's unique pattern matching technology that can find many code idioms realizing what amounts to chemical process "business rules", scattered across the application.

This approach preserves Dow's hard-won chemical process "business rules", ensuring that the modernized factories run reliably and safely while lowering the costs of migration significantly.

(Update 2020) Dow has again extended SD's contract to enhance/extend/maintain the Dow migration tools.

- DowTran on Mod5 Controler
- Over 300 systems modernized
- 5 years - Ongoing

- Request a Free Migration Consultation

Search SD

### Topics

- Re-engineering
- Documentation

- Assessment
- Improvement
- Code Generation
- Hardware Description Languages
- All Topics

Language:
Ada
Product:
Obfuscator Go!

## Semantic Designs- Our Goal

To enable our customers to produce and maintain timely, robust and economical software by providing world-class Software Engineering tools using deep language and problem knowledge with high degrees of automation.
For more information: info@semanticdesigns.com  Follow us at Twitter: @SemanticDesigns



Comments or problems: webmaster@semanticdesigns.com
Success Stories