



Enhancing Embedded Software Development

Klocwork provides enterprise-class source code analysis tools for mission-critical embedded software development.

The proven leader in source code analysis, Klocwork offers the most comprehensive solution for improving software security and quality. Only Klocwork combines the productivity benefits of desktop source code analysis with the power and accuracy of system-wide analysis.

Offering superior automated static analysis technology, Klocwork provides tools for visualization, refactoring, metrics and trend analyses. With these tools, developers, development team managers, architects and security specialists track and eliminate code defects and security vulnerabilities quickly and efficiently earlier in the development process.

“The addition of Klocwork’s best-of-breed source code analysis solution for identifying defects early in the development process will allow us to further enhance our reputation for market leadership and innovation while reducing our development costs and improving the development process.”

– Orly Nicklass, PH.D., head of research and development of Carrier Switches, IP Transport BU, Nokia Siemens Networks.

**Nokia Siemens
Networks**



// MANAGING SOFTWARE QUALITY IN COMPLEX SYSTEMS

Embedded software is both mission-critical and increasingly ubiquitous. From avionics systems to consumer handheld devices and on-board automotive software, the size and complexity of the software that drives these systems has increased tremendously in recent years. Yet, embedded software developers are expected to develop these complex systems with ever-increasing functionality while reducing costs and improving overall software quality and security.

Klocwork provides embedded software managers with source code analysis tools that:

- » Offer control over software security and quality early in the development process.

- » Scale to accommodate large systems and complex environments.
- » Deployment to developers within their preferred environment, including Eclipse, Windriver Workbench, QNX Momentics, Visual Studio (.NET, VS6), and IBM Rational Application Developer for Websphere
- » Developers can also run Klocwork Insight from a command line environment, text editor or other IDEs such as: Gvim, Emacs, Visual SlickEdit, Platform Builder, KDevelop, Freescale CodeWarrior.

Klocwork: Proven Success in Embedded Software

Klocwork has more than 100 embedded software customers, many of which are Fortune 100 companies. Our leading embedded software development customers include:

- » Alcatel-Lucent
- » AMD
- » Berthold Technologies
- » Diebold
- » Ericsson
- » Freescale
- » GE Healthcare
- » Motorola
- » Nokia Siemens Networks
- » Nortel
- » Panasonic Mobile
- » Siemens VDO
- » Texas Instruments
- » Varian Medical Systems

// REMOVE MEMORY FAULTS & OPTIMIZE STACK USAGE

Klocwork Insight can detect a wide range of critical bugs and security vulnerabilities for C, C++ and Java.

C & C++ Examples:

- » NULL pointer dereferences
- » Memory leaks
- » Usage of released memory
- » Buffer overflows and code injection vulnerabilities
- » Deadlocks
- » Resource leaks
- » DNS spoofing
- » Tainted data propagation and usage
- » Estimate stack overflow

Java Examples:

- » NULL reference exceptions
- » Code injection vulnerabilities
- » SQL injection vulnerabilities
- » Deadlocks and race conditions
- » Cross site scripting flaws
- » LDAP spoofing
- » Resource leaks
- » Denial of service vulnerabilities

Klocwork supports the following compilers and languages:

- » GNU GCC/G++
- » ARM
- » Microsoft Visual C++
- » Green Hills
- » Wind River Diab
- » Sun Forte
- » Freescale
- » Metaware
- » Hitachi h38
- » TI tms470
- » Symbian C++
- » Sun Java compiler



// ARCHITECTURE ANALYSIS & REFACTORING

Klocwork solutions help organizations understand and improve their software code and architecture. Using Klocwork, embedded software developers can:

- » Analyze the relationships between secure components and high-risk software paths.
- » Conduct impact analysis to understand how repairing a defect or vulnerability will affect other parts of a system.
- » Refactor software to reduce complexity, improve maintainability and reusability.
- » Optimize header file structures to reduce compile times and improve the maintainability of large C and C++ systems.
- » Enforce architecture rules across a team, right at each developer's desktop.

// CLEANER, BETTER CODE

Klocwork Insight is a ground-breaking approach to source code analysis that has been proven in some of the most demanding software development environments in the world. With Klocwork Insight, organizations can address both software quality and security by:

- » Moving critical bug detection to the earliest point in your development process
- » Delivering a consistent critical bug removal capability to all developers
- » Empowering developers to fix bugs and vulnerabilities before they check-in their code
- » Enabling security specialists to push security and architectural policies out to each developer's desktop

By eliminating code defects early in the development process, Klocwork Insight helps organizations to accelerate development, reduce costs, create a better implementation process and deliver cleaner, better code.