PRODUCT OVERVIEW

ADVANCED CODE ANALYSIS

ENSURES CODE QUALITY: BEYOND BUG CATCHING Whether your application is safety critical or mission critical—or you simply want to produce the highest integrity code possible—QAC quickly ensures code quality while enhancing productivity in your development process. It delivers much more than a simplistic bug catching approach—although QAC can catch bugs better than anything out there. It equips you with the tools you need to inject best practices into your development process to prevent problems—so you're not wasting resources fixing them later. Market leader QAC is fast, non-disruptive, easy-to-use, and adds value to any size development environment.

AUTOMATICALLY ENFORCES CODING STANDARDS Coding standards serve as repositories of best practices. They're the collaborative efforts of the best minds out there—filled with insight and widely recognized as an integral step toward building high-integrity, quality software. QAC provides a robust, fully automated environment to efficiently introduce and enforce your custom coding standards, those mandated by your industry, and those required by your customers. Its flexibility is unmatched as it seamlessly integrates into your development environment. Then, QAC documents and proves your compliance—a growing customer requirement especially for contract developers and offshore development firms.

DELIVERS ADVANCED TECHNOLOGY: DEEP FLOW STATIC ANALYSER QAC is powered by an advanced language parsing engine that quickly analyses your code then delivers accurate results regardless of project size. It detects problems like language implementation errors, inconsistencies, depracated features, and coding standard violations—early, quickly, and efficiently—preventing delays at later stages in your development cycle when problems are *always* more costly to fix.

COMMUNICATES MEANINGFUL INFORMATION QAC combines many industry-standard code metrics including CYCLOMATIC COMPLEXITY and ESTIMATED STATIC PATH COUNT with easy-to-understand, flexible, reporting. QAC automatically generates reports, graphs, diagrams, and customizable HTML output—information to keep your projects on the right track. QAC exports its results in an open format so you can further analyse, share, and present your information in applications like Microsoft Office®, StarOffice™, and others. And, its configurable PDF REPORTS quickly generates project details useful for code reviews and audits—so everyone's on the same page.

INCLUDES AN EXPERT KNOWLEDGE BASE QAC serves as a valuable learning tool for even the most seasoned developer. Its powerful MESSAGE BROWSER delivers a contextual drill-down environment linked to a deep knowledge base. QAC explains *why* problems it discovers need to be corrected and then provides detailed examples of *how* to fix them. Working with QAC means a virtual mentor with years of language implementation and standards expertise is simply a click away. Watch your development team become more skilled and more productive—even your best coders will quickly get better—and you get meaningful reporting to prove it.

PROVIDES IMMEDIATE & FUTURE SAVINGS QAC identifies software defects and non-compliance issues early in your development cycle and prevents them from entering your production code—thwarting potentially huge problems in your deployed products. QAC provides the ability to limit complexity so you can develop code that's truly testable and easier to maintain. Wouldn't it be nice to know you're not wasting time and money fixing preventable problems?

PRODUCT BENEFITS

- ✓ **Improves time-to-market while reducing costs**
- ✓ **Identifies coding problems early in the development cycle**
- ✓ **Accelerates the code review process—improves teamwork**
- ✓ **Ensures quality code and coding standard compliance**
- ✓ **Educates and raises programmer awareness—fosters best practices**
- ✓ **Reduces the risk of program failure**
- ✓ **Documents quality mechanisms are employed should problems occur**
- ✓ **Enhances reliability, portability, and maintainability**
- ✓ **Lowers software development costs—increases productivity**
- ✓ **Allows instant and repeatable code audits and reviews**
- ✓ **Delivers unmatched technology and strong ROI**

SNAPSHOT

QAC is the market leader—bar none. It's consistently recognised worldwide as the most powerful, most robust, and most technically advanced solution available today for analysing source code and automatically enforcing coding standards.

QAC transcends the simplistic bug catching approaches of the past—it offers a modern technique that fosters best practices which focus on prevention rather than correction.

QAC warns about issues that are simply not reported by compilers or other tools. Then, it explains *why* they're problems and shows you *how* to fix them.

QAC identifies problems in C source code caused by language usage that's dangerous, overly complex, non-portable, difficult to maintain, or simply diverges from coding standards—you get comprehensive coverage.

QAC triages your high-priority issues with pinpoint accuracy. It incorporates advanced message suppression tools and techniques so you can choose to focus on what's most relevant to your situation—you're in control.

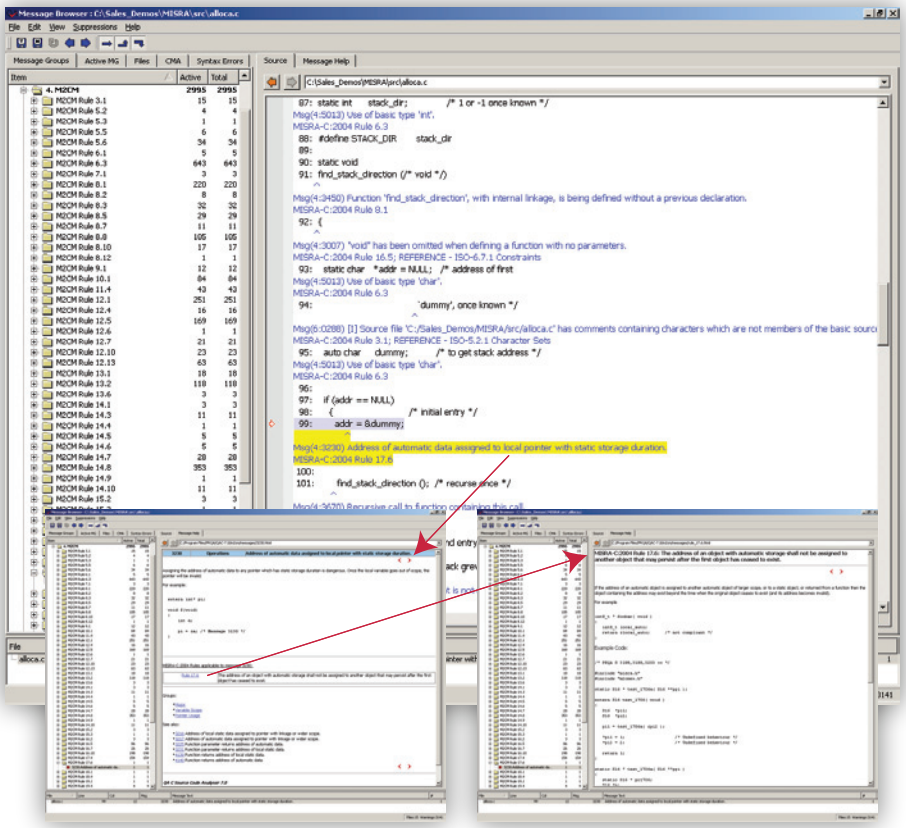
QAC is a commercially-hardened solution from a respected thought leader who has focused—*for more than twenty years*—on delivering software quality improvement solutions to savvy developers worldwide.

PRQA Programming Research

Because Life Depends On Software©

Annotated Source Code

QAC identifies what the problem is, explains why it's a problem, and shows how to fix it.



Message Browser

Hyperlinked Extended Message Help

CODE ANALYSIS FEATURES

1,300+ SELECTABLE MESSAGES
C LANGUAGE-SPECIFIC PARSING ENGINE
PARSES CODE OF ANY SIZE & COMPLEXITY
HANDLES COMMON LANGUAGE EXTENSIONS
CROSS MODULE ANALYSIS (LINK TIME CHECKING)
SEMANTIC ERROR DETECTION
DATAFLOW ERROR DETECTION
CLOSE NAME ANALYSIS

CODING STANDARD ENFORCEMENT

USER CONFIGURABLE CODING STANDARDS
MISRA-C:1998 (ADD-ON MODULE AVAILABLE)
MISRA-C:2004 (ADD-ON MODULE AVAILABLE)
HIGH·INTEGRITY C (ADD-ON MODULE AVAILABLE)
ISO C STANDARD SUPPORT
RULE SUBSETS FOR LEGACY CODE (CRITICAL.PS)
BEST PRACTICE ISSUES
NAMING CONVENTION CHECKER
LAYOUT CHECKER
DEFENSIVE PROGRAMMING—DEFECT AVOIDANCE
EXTENSIBLE RULE BASE
CUSTOMIZABLE MESSAGE TEXT
DEVIATION SUPPORT

ISO C STANDARD SUPPORT

FULL CHECKING OF ISO C CONSTRAINTS
- ✓ **UNDEFINED BEHAVIOUR**
- ✓ **UNSPECIFIED BEHAVIOUR**
- ✓ **IMPLEMENTATION DEFINED BEHAVIOUR**

INTEGRATED C LANGUAGE KNOWLEDGE BASE

GENERAL FEATURES

SOURCE CODE COMPREHENSION TOOLS
- ✓ **RELATIONSHIPS BROWSER**
- ✓ **FUNCTION STRUCTURE DIAGRAMS**
- ✓ **DEMOGRAPHICS**
- ✓ **METRICS BROWSER**

COMMAND LINE INTERFACE (CLI)
INTERACTIVE MESSAGE BROWSER
ONLINE HELP & KNOWLEDGE BASE
- ✓ **USAGE & IMPLEMENTATION**
- ✓ **CONTEXTUAL MESSAGE**
- ✓ **C LANGUAGE**
- ✓ **CODING STANDARD SPECIFIC**

SUMMARY & DETAILED REPORTS
STANDALONE Qt®-BASED GUI
IDE INTEGRATIONS

MESSAGE OUTPUT CONTROL

COMMENT BASED SUPPRESSION
CONFIGURATION BASED SUPPRESSION
SUPPRESSION TRACKING
BASELINING

METRICS

PROJECT BASED: **4**
FILE BASED: **32**
FUNCTION BASED: **33**
USER DEFINABLE METRICS
GRAPHICAL METRIC ANALYSIS
KIVIAT DIAGRAMS
WARNINGS ON METRICS THRESHOLDS
METRIC VALUES EXPORTABLE (CSV FORMAT)

RESULTS OUTPUT

CONFIGURABLE PDF REPORTS
- ✓ **QUALITY · COMPLIANCE**
- ✓ **CODE REVIEW · SUPPRESSION**

ANNOTATED SOURCE (TEXT & HTML)
CONFIGURABLE OUTPUT

OPERATING ENVIRONMENTS

MICROSOFT WINDOWS™ (32-bit & 64-bit)
SOLARIS™
HP-UX™
LINUX™

COMPILERS

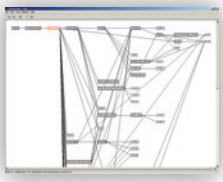
EXTENSIVE COMPILER SUPPORT
CUSTOMIZABLE CONFIGURATIONS
AUTO COMPILER CONFIGURATION

INTEGRATIONS

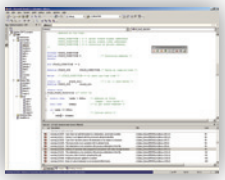
MICROSOFT VISUAL STUDIO™
ECLIPSE™ CDT
WINDRIVER TORNADO™ & WORKBENCH™
VectorCAST™
MAKEFILE INTEGRATION
CUSTOM INTEGRATIONS (INCLUDING TO VCS)

LICENSING OPTIONS

NO LIMITS ON PROJECT SIZE OR SLOC
FLEXlm™ LICENSE MANAGEMENT
FLEXid™ DONGLES
CUSTOM LICENSING OPTIONS

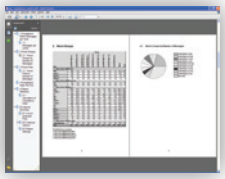


Relationship Call Graph

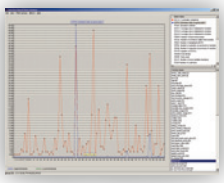


Visual Studio Integration

Function Structure



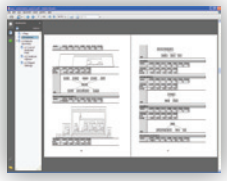
Compliance Report



Metrics Browser

Quality Report

Kiviat Diagram



Code Review Report