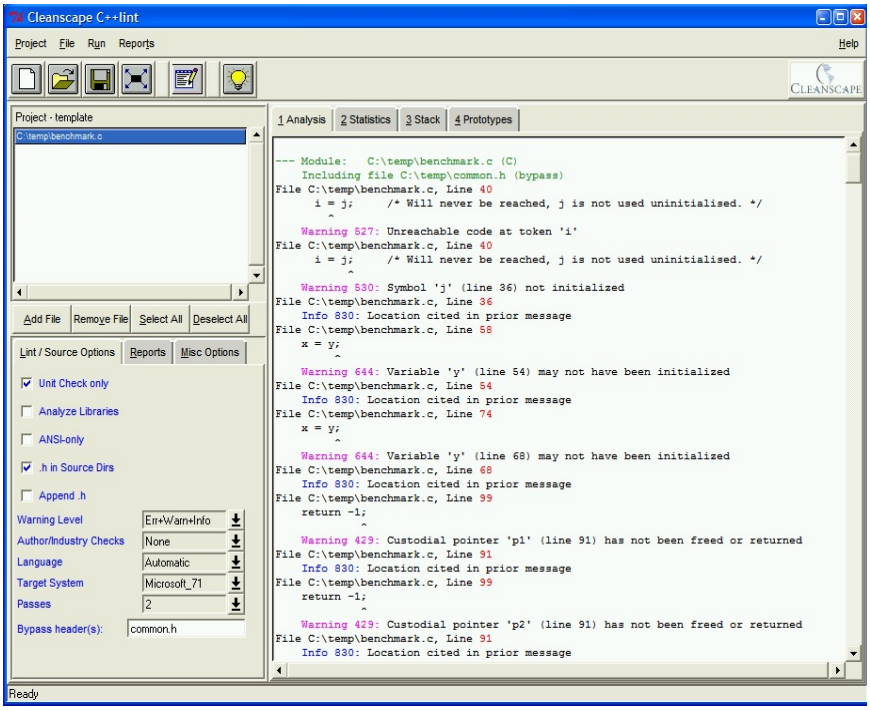
CLEANSCAPE *Software development powerfully simplified*

Cleanscape C++lint

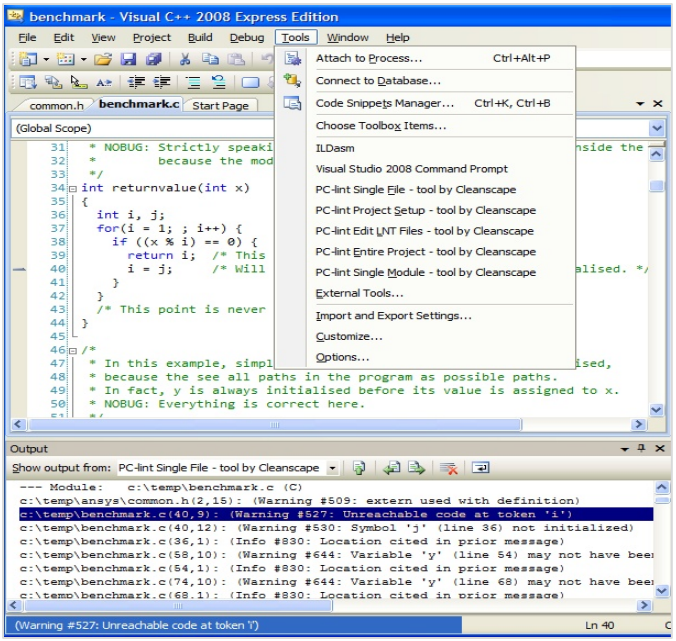
Static Source Analyzer for C and C++

Key Features & Benefits

- *Avoid the rush to code!* High performance & ease of use let you check early and often
- Quickly find hundreds of problems your compiler can't; isolate problems in minutes that can take days using a runtime debugger
- Search and destroy security holes
- Package includes full license to world-class PC-Lint™/ Flexelint™ static source analyzer
  - Over 1000 C/C++ code checks
  - Dataflow analysis for deeper checking
  - Supports Microsoft, gnu, and 103 other compilers, including embedded targets
  - Explicit MISRA C/C++ and Scott Myers modes
- Three interface options fit the way *you* code
  - Easy to operate Cleanscape GUI provides point-and-click control and reports hyper-linked to sources via your favorite editor
  - Integration with IDEs (e.g., Microsoft Visual Studio and Eclipse) accesses existing project file info and presents reports with hyperlinks directly in the IDE's output window
  - Command line mode with return codes for script and/or build operations
- Quick start: export analysis settings and project info from GUI to VS or command line
- *Cleanscape exclusive* reports: inheritance tree, include tree, stack usage, statistics
- **Get – and keep – your project on track**



The Cleanscape GUI interface mode of C++lint delivers powerful and comprehensive analysis from a couple mouse clicks, cutting hundreds of hours from your design, debug, and test time for C/C++ software projects.



The Visual Studio integration mode of Cleanscape C++lint makes running static analysis simple and convenient. With three distinct user interface modes, one will be right for you!

Cleanscape C++lint is a static source code analyzer for C and C++ that automatically identifies problems at their source, prior to compiling or executing. From its first use, this tool can save you hours and hours of tedious debugging, and greatly reduce the resources required for testing – both development and integration phases.

Cleanscape C++lint rigorously examines source files both individually and as a project, almost instantly generating comprehensive and meaningful reports on 1000+ problems overlooked by C/C++ compilers.

It is ideal for companies with tight deadlines for producing high-quality code – from embedded environments where efficiency is paramount, to large-scale object-oriented applications where maintaining quality control and adhering to standards are daily challenges. And all C/C++ projects will benefit from our secure programming enforcement.

Three distinct user interfaces provide *you* flexibility:

- GUI – easy point-and-click control of powerful analysis
- IDE integration – simple & convenient operation
- Command line with return codes – for scripts or builds

This advanced source analysis tool is particularly beneficial for programmers and developers. For more information or to order, call us or visit our website today!

© 2010 Cleanscape Software International · 13170-B Central Ave. SE, STE 353 · Albuquerque, NM 87123 · 800-94-4LINT · www.cleanscape.net

Cleanscape C++lint · Static Source Analyzer for C and C++

Key Features (red = Cleanscape Exclusive)

LINT ANALYSIS OPTIONS	
Warning Level	Control the depth of analysis to be performed, including fatal/severe, warnings, informational and/or elective messages.
Author/Industry Checks	Enable explicit Scott Meyers, MISRA C/C++, or Dan Saks checks.
Target System	Select from over 100 compilers, including Microsoft, gnu, Borland, or numerous embedded compilers. External tools extract information about other compilers, then add the new compiler to the dropdown.
ANSI Compliance	Detect non-ANSI keywords (portability analysis).
Bypass Headers	Scan specified header files only once, saving analysis time.
REPORT OPTIONS	
Inheritance	Generate class hierarchy report.
Include Tree	Generate include tree, with options to suppress system headers or identify identical header filenames in different directories.
Stack Usage	Show storage and stack requirements on a function-by-function basis.
External Editor	Select the external code editor to be invoked when clicking a hyperlink. External program 'seteditor' can add your own editor to the dropdown list.
Statistics	File counts, symbol types/counts, and message counts/summary.
MISCELLANEOUS OPTIONS	
Include Directories	Add include file directories.
System (Library) Directives	Specify which include files/directories are system (rather than local).
Define/Undefine Symbols	Define or undefine a preprocessor symbol.
Enable/Disable Lint Messages	Enable or disable specific Gimpel PC-lint analyses based on the message number.
Enable/Disable Verbosity/Flag Options	Enable or disable specific Gimpel PC-lint verbosity and flag options.
Enable/Disable Semantics/Threading	Enter controls for function mimicry, user-defined semantics, and multithreading with mutexes, lock/unlock, and thread safety.
Help Menu	Each control option is described in the Contents and Index section; also supplies equivalent command line parameters. A GUI quick start guide and the full PC-lint user manual are also available from the Help menu.
INNOVATIVE CODE ANALYSIS	
Security and anti-hacking analyses	Analyses to detect coding practices that leave code vulnerable, such as buffer overrun.
Powerful yet intuitive graphical interface	Fast and interactive environment overlays powerful Gimpel PC-lint command line engine and also controls four other innovative analyses, with hyperlinks using specified external programming editor.
Multithread Analysis	Abnormalities in locking and unlocking are identified. Reports are made of unprotected access to static variables shared by multiple threads. Functions compatible with only a subset of threads can be identified.
Strong Type Checking	"Magic comments" implement type-checking that Pascal has and that C and C++ lack A type hierarchy scheme provides flexibility. 12 modes of checking with numerous submodes are available (e.g., check assignments, extractions, joins, indexing into arrays, type hierarchies).
Value Tracking	Type of dataflow analysis where information is retained about automatic variables, data members of the `this` class, and static variables to detect out-of-bounds subscripts, division by 0, inappropriate use of NULL pointers, creation of illegal pointers, and redundant Boolean tests.
Checks on Weak Definials	Macro definitions, TYPEDEFs, declarations, STRUCT/UNION/ENUM definitions and members, and templates are checked for redundancy and/or whether they are unused. Information is provided as to whether they may be safely removed or tagged STATIC.
Possibly Uninitialized	Type of dataflow analysis to determine whether variables are initialized for all branches of conditional constructs and forward GOTOs. Data members of C++ classes are also inspected.
Function Mimicry	Type of dataflow analysis to allow user-created functions to match the argument lists of certain standard functions (e.g., fopen or printf).
User-defined Function Semantics Checking	Type of dataflow analysis using "magic comments" to create user-defined semantics for thorough checking of user-created functions.

Specifications

Classification

- Static Source Code Analyzer for C/C++

Available Analyses and Reports

- Over 1000 C/C++ static checks on individual files or entire projects. List at www.cleanscape.net/products/cpp/checks.html
- Dataflow analysis – possibly unitialized variables, value tracking, function mimicry, user-defined function semantics checking
- All reports depict hyperlinks in red; clicking a hyperlink opens the source file at the line number associated with the analysis message in the user's specified code editor
- Class hierarchy and include reports as well as stack usage and summary/statistics

User Interface Options (3)

- Cleanscape Graphical User Interface
- Integration with IDEs (Microsoft Visual Studio 6, through 2010; Eclipse CDT; SlickEdit ver. 10, and CodeWarrior)
- Command-line interface with return codes suitable for *make* or other scripts

Help System

- Online help
- Balloon help for each control option
- User Documentation (PDF format)

Development Platforms

- Linux, AIX, HP-UX, Irix, Solaris
- Microsoft Windows 98 – 7
- Multiple programming editors and IDEs www.cleanscape.net/products/cpp/IDE_Ed.html
- Product requires activation key (30-day key included with purchase, instructions for permanent key included)

Supported Environments

- Native Microsoft C/C++
- Native Gnu C/C++
- Native Borland C/C++
- 103 compilers/versions supported – list at www.cleanscape.net/products/cpp/compilers.html

Pricing, Warranty, and Support

- Starts at US$499 for a single Windows license; multi-seat discounts are available
- Includes PC-Lint license with serial number
- Product comes with a 30-day warranty
- Annual maintenance is 20% of the product price per year and includes:
  - Telephone/email technical support
  - Priority bug fixes
  - Free product updates
  - One free transfer to new machine per year

CLEANSCAPE
software international

800-94-4LINT
-or- 505-246-0267
sales@cleanscape.net
www.cleanscape.net

© 2010 Cleanscape Software International. PC-lint and Flexelint are trademarks of Gimpel Software. Other trademarks may apply.