Cppcheck C/C++ static analyser

CONCEPTS

> By default only errors are shown. Add --enable=style (or all) to see warnings, style and performance findings.

Sources files or project
↓ preprocess
Configurations #ifdef variants
↓ analyse
Checks --enable ids
↓ report
Findings text / XML

> Cppcheck tries each #ifdef configuration itself, so missing -I paths and -D flags give fewer findings, not errors. Use --check-config to see what it could not resolve.

RUNNING

cppcheck *<file>*
Check one file

cppcheck *<dir>*
Check all sources in a folder, recursively

cppcheck -j *<n>* *<dir>*
Check with n threads

cppcheck -q *<dir>*
Quiet: print only findings

cppcheck -i *<path>* *<dir>*
Skip a file or folder

cppcheck *<dir>* **--file-filter=***<pattern>*
Check only matching files

CHECKS AND LEVELS

cppcheck --enable=warning *<dir>*
Add warnings

cppcheck --enable=style *<dir>*
Add style findings

cppcheck --enable=performance,portability *<dir>*
Add several groups (comma list)

cppcheck --enable=all *<dir>*
Enable every group

cppcheck --enable=unusedFunction *<dir>*
Find unused functions

CHECKS AND LEVELS (cont.)

cppcheck --enable=missingInclude *<dir>*
Report unresolved includes

cppcheck --check-level=exhaustive *<dir>*
Deeper, slower analysis

cppcheck --inconclusive *<dir>*
Also report uncertain findings

cppcheck --check-config *<dir>*
Show missing includes and config problems

CONFIGURATION

cppcheck -I *<dir>* *<path>*
Add an include directory

cppcheck -D*<name>* *<path>*
Define a macro, check only that config

cppcheck -U*<name>* *<path>*
Treat a macro as undefined

cppcheck --max-configs=*<n>* *<path>*
Limit #ifdef configurations tried

cppcheck --force *<path>*
Check every configuration (can be slow)

cppcheck --std=c++20 *<path>*
Set the C++ standard

cppcheck --std=c11 *<file>*
Set the C standard

cppcheck --platform=*<name>* *<path>*
Set target types and sizes

cppcheck --library=*<name>* *<path>*
Load a library config (posix, qt, ...)

PROJECTS AND INCREMENTAL RUNS

cppcheck --project=compile_commands.json
Use a compilation database

cppcheck --project=*<file>***.sln**
Import a Visual Studio solution

cppcheck --project=*<file>***.cppcheck**
Use a GUI project file

PROJECTS AND INCREMENTAL RUNS (cont.)

cppcheck --project=compile_commands.json -i*<dir>*
Exclude a folder from a project

cppcheck --cppcheck-build-dir=*<dir>* *<path>*
Cache results, enable whole-program checks

OUTPUT

cppcheck --template=gcc *<path>*
GCC-style lines for editors

cppcheck --template='{file}: {line}: {message}' *<path>*
Custom line format

cppcheck --xml *<path>* **2>** *<out.xml>*
XML report (written to stderr)

cppcheck-htmlreport --file=*<out.xml>* **--report-dir=***<dir>* **--source-dir=.**
Turn XML into an HTML report

cppcheck --error-exitcode=*<n>*
Exit with n when findings exist

SUPPRESSIONS

cppcheck --suppress=*<id>* *<path>*
Suppress an id everywhere

cppcheck --suppress=*<id>***:***<file>* *<path>*
Suppress an id in one file

cppcheck --suppressions-list=*<file>* *<path>*
Read suppressions from a text file

cppcheck --inline-suppr *<path>*
Honour cppcheck-suppress comments

// cppcheck-suppress *<id>*
Suppress on the next or same line

// cppcheck-suppress-begin *<id>* **...** **-end** *<id>*
Suppress a block

// cppcheck-suppress-file *<id>*
Suppress for the whole file