

```

Microsoft Windows [Version 10.0.26100.2033]
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C:\Users\singh>cppcheck -h
Cppcheck - A tool for static C/C++ code analysis

Syntax:
  cppcheck [OPTIONS] [files or paths]

If a directory is given instead of a filename, *.cpp, *.cxx, *.cc, *.c++, *.c, *.ipp,
*.ixx, *.tpp, and *.txx files are checked recursively from the given directory.

Options:
  --addon=<addon>
                        Execute addon. i.e. --addon=misra. If options must be
                        provided a json configuration is needed.
  --addon-python=<python interpreter>
                        You can specify the python interpreter either in the
                        addon json files or through this command line option.
                        If not present, Cppcheck will try "python3" first and
                        then "python".
  --cppcheck-build-dir=<dir>
                        Cppcheck work folder. Advantages:
                        * whole program analysis
                        * faster analysis; Cppcheck will reuse the results if
                        the hash for a file is unchanged.
                        * some useful debug information, i.e. commands used to
                        execute clang/clang-tidy/addons.
  --check-config
                        Check cppcheck configuration. The normal code
                        analysis is disabled by this flag.
  --check-level=<level>
                        Configure how much checking you want:
                        * normal: Cppcheck uses some compromises in the checking so
                        the checking will finish in reasonable time.
                        * exhaustive: deeper analysis that you choose when you can
                        wait.
                        The default choice is 'normal'.
  --check-library
                        Show information messages when library files have
                        incomplete info.
  --checkers-report=<file>
                        Write a report of all the active checkers to the given file.

  -v, --verbose
                        Example: '-UDEBUG'
                        Output more detailed error information.
                        Note that this option is not mutually exclusive with --quiet.
  --version
                        Print out version number.
  --xml
                        Write results in xml format to error stream (stderr).

Example usage:
# Recursively check the current folder. Print the progress on the screen and
# write errors to a file:
cppcheck . 2> err.txt

# Recursively check ../myproject/ and don't print progress:
cppcheck --quiet ../myproject/

# Check test.cpp, enable all checks:
cppcheck --enable=all --inconclusive --library=posix test.cpp

# Check f.cpp and search include files from incl1/ and incl2/:
cppcheck -I incl1/ -I incl2/ f.cpp

For more information:
https://files.cppchecksolutions.com/manual.pdf

Many thanks to the 3rd party libraries we use:
* tinymxml2 -- loading project/library/ctu files.
* picojson -- loading compile database.
* pcre -- rules.
* qt -- used in GUI

C:\Users\singh>

```

Above screenshots, making sure that we have installed cppcheck tool using command 'cppcheck -h'.

```
C:\Users\singh\WorkShop_8>git clone https://github.com/shanpengli/FastJM.git
Cloning into 'FastJM'...
remote: Enumerating objects: 1166, done.
remote: Counting objects: 100% (333/333), done.
remote: Compressing objects: 100% (235/235), done.
remote: Total 1166 (delta 220), reused 198 (delta 95), pack-reused 833 (from 1)
Receiving objects: 100% (1166/1166), 775.01 KiB | 5.13 MiB/s, done.
Resolving deltas: 100% (773/773), done.
```

Above screenshot, cloning the FastJm by using the command 'git clone <https://github.com/shanpengli/FastJM.git>'

```
C:\Users\singh\WorkShop_8\FastJM\.git\hooks>dir
Volume in drive C is Windows
Volume Serial Number is CCCE-BF85

Directory of C:\Users\singh\WorkShop_8\FastJM\.git\hooks

10/19/2024  11:47 PM    <DIR>          .
10/19/2024  11:47 PM             478 applypatch-msg.sample
10/19/2024  11:47 PM             896 commit-msg.sample
10/19/2024  11:47 PM          4,726 fsmonitor-watchman.sample
10/19/2024  11:47 PM             189 post-update.sample
10/19/2024  11:47 PM             424 pre-applypatch.sample
10/19/2024  11:47 PM          1,643 pre-commit.sample
10/19/2024  11:47 PM           416 pre-merge-commit.sample
10/19/2024  11:47 PM          1,374 pre-push.sample
10/19/2024  11:47 PM          4,898 pre-rebase.sample
10/19/2024  11:47 PM             544 pre-receive.sample
10/19/2024  11:47 PM          1,492 prepare-commit-msg.sample
10/19/2024  11:47 PM          2,783 push-to-checkout.sample
10/19/2024  11:47 PM          2,308 sendemail-validate.sample
10/19/2024  11:47 PM          3,650 update.sample
                14 File(s)          25,821 bytes
                1 Dir(s) 168,118,611,968 bytes free
```

Above screenshot, displaying what we have in .git\hooks

```
C:\Users\singh\WorkShop_8\FastJM\.git\hooks>copy pre-commit.sample pre-commit
1 file(s) copied.

C:\Users\singh\WorkShop_8\FastJM\.git\hooks>dir
Volume in drive C is Windows
Volume Serial Number is CCCE-BF85

Directory of C:\Users\singh\WorkShop_8\FastJM\.git\hooks

10/20/2024  09:11 AM    <DIR>          .
10/19/2024  11:47 PM             478 applypatch-msg.sample
10/19/2024  11:47 PM             896 commit-msg.sample
10/19/2024  11:47 PM          4,726 fsmonitor-watchman.sample
10/19/2024  11:47 PM             189 post-update.sample
10/19/2024  11:47 PM             424 pre-applypatch.sample
10/19/2024  11:47 PM          1,643 pre-commit
10/19/2024  11:47 PM          1,643 pre-commit.sample
10/19/2024  11:47 PM             416 pre-merge-commit.sample
10/19/2024  11:47 PM          1,374 pre-push.sample
10/19/2024  11:47 PM          4,898 pre-rebase.sample
10/19/2024  11:47 PM             544 pre-receive.sample
10/19/2024  11:47 PM          1,492 prepare-commit-msg.sample
10/19/2024  11:47 PM          2,783 push-to-checkout.sample
10/19/2024  11:47 PM          2,308 sendemail-validate.sample
10/19/2024  11:47 PM          3,650 update.sample
                15 File(s)          27,464 bytes
                1 Dir(s) 168,068,497,408 bytes free

C:\Users\singh\WorkShop_8\FastJM\.git\hooks>
```

Above screenshot, running the command 'copy pre-commit.sample pre-commit' so we can copy the file to a new file.

```
C:\Users\singh\WorkShop_8\FastJM>git status
On branch master
Your branch is up to date with 'origin/master'.

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   src/GetrisksetC.cpp

no changes added to commit (use "git add" and/or "git commit -a")

C:\Users\singh\WorkShop_8\FastJM>
```

Above screenshot, shows the output of the 'git status' command which indicates the current state of the Git repo. The file that was edited is modified.

```
C:\Users\singh\WorkShop_8\FastJM>git add src/GetrisksetC.cpp

C:\Users\singh\WorkShop_8\FastJM>git commit -m 'minor changes'
error: pathspec 'changes' did not match any file(s) known to git

C:\Users\singh\WorkShop_8\FastJM>git commit -m "minor changes"
=====
Hello World!
=====
src/GetrisksetC.cpp:3: trailing whitespace.
+// Adding a comment
C:\Users\singh\WorkShop_8\FastJM>
```

above screenshot, shows that we successfully created the hook file and made it connect with the git commit.

```

C:\Users\singh\WorkShop_8\FastJM>git status
On branch master
Your branch is up to date with 'origin/master'.

Changes to be committed:
  (use "git restore --staged <file>..." to unstage)
        modified:   src/GetrisksetC.cpp

Changes not staged for commit:
  (use "git add <file>..." to update what will be committed)
  (use "git restore <file>..." to discard changes in working directory)
        modified:   src/basics.cpp

C:\Users\singh\WorkShop_8\FastJM>git add src/basics.cpp

C:\Users\singh\WorkShop_8\FastJM>git commit -m "minor changes"
=====
Hello World!
=====
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                        You can specify the python interpreter either in the
                        addon json files or through this command line option.
                        If not present, Cppcheck will try "python3" first and
                        then "python".
  --cppcheck-build-dir=<dir>
                        Cppcheck work folder. Advantages:

                                \t      insert tab
                                \n      insert newline
                                \r      insert carriage return
                                Example format (gcc-like):
                                '{file}:{line}:{column}: note: {info}\n{code}'
                                Undefine preprocessor symbol. Use -U to explicitly
                                hide certain #ifdef <ID> code paths from checking.
                                Example: '-UDEBUG'
  -U<ID>
  -v, --verbose
                        Output more detailed error information.
                        Note that this option is not mutually exclusive with -
-quiet.
  --version
                        Print out version number.
  --xml
                        Write results in xml format to error stream (stderr).

Example usage:
# Recursively check the current folder. Print the progress on the screen and
# write errors to a file:
cppcheck . 2> err.txt

# Recursively check ../myproject/ and don't print progress:
cppcheck --quiet ../myproject/

# Check test.cpp, enable all checks:
cppcheck --enable=all --inconclusive --library=posix test.cpp

# Check f.cpp and search include files from inc1/ and inc2/:
cppcheck -I inc1/ -I inc2/ f.cpp

For more information:
  https://files.cppchecksolutions.com/manual.pdf

Many thanks to the 3rd party libraries we use:
* tinyclang -- loading project/library/ctu files.
* picojson -- loading compile database.
* pcre -- rules.
* qt -- used in GUI
=====
src/GetrisksetC.cpp:3: trailing whitespace.
+// Adding a comment
C:\Users\singh\WorkShop_8\FastJM>

```

Above screenshot, ran the cppcheck in the file.

```
C:\Users\singh\WorkShop_8\FastJM>git commit -m "minor changes"
=====
Started static analysis tool!
=====
Checking C:\Users\singh\WorkShop_8\FastJM\src\GetrisksetC.cpp ...
1/26 files checked 2% done
Checking C:\Users\singh\WorkShop_8\FastJM\src\GetrisksetCSF.cpp ...
2/26 files checked 3% done
Checking C:\Users\singh\WorkShop_8\FastJM\src\RcppExports.cpp ...
C:\Users\singh\WorkShop_8\FastJM\src\RcppExports.cpp:24:1: error: There is an unknown macro here somewhere. Configuration is required. If END_RCPP is a macro then
please configure it. [unknownMacro]
END_RCPP
^
Checking C:\Users\singh\WorkShop_8\FastJM\src\RcppExports.cpp: RCPP_USE_GLOBAL_ROSTREAM...
3/26 files checked 35% done
Checking C:\Users\singh\WorkShop_8\FastJM\src\basics.cpp ...
4/26 files checked 38% done
Checking C:\Users\singh\WorkShop_8\FastJM\src\getBayes.cpp ...
5/26 files checked 39% done
Checking C:\Users\singh\WorkShop_8\FastJM\src\getCov.cpp ...
6/26 files checked 51% done
Checking C:\Users\singh\WorkShop_8\FastJM\src\getCovSF.cpp ...
7/26 files checked 59% done
Checking C:\Users\singh\WorkShop_8\FastJM\src\getECIF.cpp ...
8/26 files checked 68% done
Checking C:\Users\singh\WorkShop_8\FastJM\src\getECpseudo.cpp ...
9/26 files checked 63% done
Checking C:\Users\singh\WorkShop_8\FastJM\src\getECpseudoSF.cpp ...
10/26 files checked 66% done
Checking C:\Users\singh\WorkShop_8\FastJM\src\getECstandard.cpp ...
11/26 files checked 69% done
Checking C:\Users\singh\WorkShop_8\FastJM\src\getECstandardSF.cpp ...
12/26 files checked 71% done
Checking C:\Users\singh\WorkShop_8\FastJM\src\getES.cpp ...
13/26 files checked 72% done
Checking C:\Users\singh\WorkShop_8\FastJM\src\getHazard.cpp ...
14/26 files checked 74% done
Checking C:\Users\singh\WorkShop_8\FastJM\src\getHazardSF.cpp ...
15/26 files checked 75% done
Checking C:\Users\singh\WorkShop_8\FastJM\src\getMC.cpp ...
16/26 files checked 83% done

Checking C:\Users\singh\WorkShop_8\FastJM\src\getECstandard.cpp ...
11/26 files checked 69% done
Checking C:\Users\singh\WorkShop_8\FastJM\src\getECstandardSF.cpp ...
12/26 files checked 71% done
Checking C:\Users\singh\WorkShop_8\FastJM\src\getES.cpp ...
13/26 files checked 72% done
Checking C:\Users\singh\WorkShop_8\FastJM\src\getHazard.cpp ...
14/26 files checked 74% done
Checking C:\Users\singh\WorkShop_8\FastJM\src\getHazardSF.cpp ...
15/26 files checked 75% done
Checking C:\Users\singh\WorkShop_8\FastJM\src\getMC.cpp ...
16/26 files checked 83% done
Checking C:\Users\singh\WorkShop_8\FastJM\src\getWCSF.cpp ...
17/26 files checked 88% done
Checking C:\Users\singh\WorkShop_8\FastJM\src\getPus.cpp ...
18/26 files checked 89% done
Checking C:\Users\singh\WorkShop_8\FastJM\src\getPusCR.cpp ...
19/26 files checked 91% done
Checking C:\Users\singh\WorkShop_8\FastJM\src\getfitted.cpp ...
20/26 files checked 92% done
Checking C:\Users\singh\WorkShop_8\FastJM\src\getfittedSurv.cpp ...
21/26 files checked 93% done
Checking C:\Users\singh\WorkShop_8\FastJM\src\getfittedSurvSF.cpp ...
22/26 files checked 93% done
Checking C:\Users\singh\WorkShop_8\FastJM\src\getloglikeCpseudo.cpp ...
C:\Users\singh\WorkShop_8\FastJM\src\getloglikeCpseudo.cpp:181:18: warning: Invalid log() argument nr 1. The value is 0 but the valid values are '4.94066e-324:'. [
invalidFunctionArg]
    loglike=log(dem);
    ^
C:\Users\singh\WorkShop_8\FastJM\src\getloglikeCpseudo.cpp:51:9: note: Assignment 'dem=0', assigned value is 0
    dem=0;
    ^
C:\Users\singh\WorkShop_8\FastJM\src\getloglikeCpseudo.cpp:71:17: note: Assuming condition is false
    for (db=0;db<point;db++) {
    ^
C:\Users\singh\WorkShop_8\FastJM\src\getloglikeCpseudo.cpp:101:18: note: Invalid argument
    loglike=log(dem);
    ^
23/26 files checked 95% done
Checking C:\Users\singh\WorkShop_8\FastJM\src\getloglikeCpseudoSF.cpp ...
C:\Users\singh\WorkShop_8\FastJM\src\getloglikeCpseudoSF.cpp:94:18: warning: Invalid log() argument nr 1. The value is 0 but the valid values are '4.94066e-324:'.
C:\Users\singh\WorkShop_8\FastJM\src\getloglikeCpseudoSF.cpp:94:18: note: Invalid argument
    loglike=log(dem);
    ^
24/26 files checked 97% done
Checking C:\Users\singh\WorkShop_8\FastJM\src\getloglikeCstandard.cpp ...
C:\Users\singh\WorkShop_8\FastJM\src\getloglikeCstandard.cpp:80:18: warning: Invalid log() argument nr 1. The value is 0 but the valid values are '4.94066e-324:'.
[invalidFunctionArg]
    loglike=log(dem);
    ^
C:\Users\singh\WorkShop_8\FastJM\src\getloglikeCstandard.cpp:45:9: note: Assignment 'dem=0', assigned value is 0
    dem=0;
    ^
C:\Users\singh\WorkShop_8\FastJM\src\getloglikeCstandard.cpp:56:17: note: Assuming condition is false
    for (db=0;db<point;db++) {
    ^
C:\Users\singh\WorkShop_8\FastJM\src\getloglikeCstandard.cpp:80:18: note: Invalid argument
    loglike=log(dem);
    ^
25/26 files checked 98% done
Checking C:\Users\singh\WorkShop_8\FastJM\src\getloglikeCstandardSF.cpp ...
C:\Users\singh\WorkShop_8\FastJM\src\getloglikeCstandardSF.cpp:73:18: warning: Invalid log() argument nr 1. The value is 0 but the valid values are '4.94066e-324:'.
. [invalidFunctionArg]
    loglike=log(dem);
    ^
C:\Users\singh\WorkShop_8\FastJM\src\getloglikeCstandardSF.cpp:43:9: note: Assignment 'dem=0', assigned value is 0
    dem=0;
    ^
C:\Users\singh\WorkShop_8\FastJM\src\getloglikeCstandardSF.cpp:50:17: note: Assuming condition is false
    for (db=0;db<point;db++) {
    ^
C:\Users\singh\WorkShop_8\FastJM\src\getloglikeCstandardSF.cpp:73:18: note: Invalid argument
    loglike=log(dem);
    ^
26/26 files checked 100% done
Active checkers: There was critical errors
=====
Finished the code scanning with static analysis tool
=====
src/GetrisksetC.cpp:3: trailing whitespace.
+// Adding a comment
src/RcppExports.cpp:3: trailing whitespace.
```

above screenshots, analyzing the files using the tool. Used the hook to analyze the files.

Ankush Singh

Screenshots for WorkShop\_8