

The background of the slide is a light blue gradient. It is decorated with numerous yellow triangles, each containing a small white triangle inside, arranged in a pattern that suggests a sunburst or a stylized 'K' shape, particularly visible in the top-left and bottom-right corners.

# CppCheck in KDE CI

How to initially groom your projects

# About Sune

*Slide Subtitle*

- Attended first Akademy in 2008 and missed a few
- Paid by g10code to make a PDF viewer and other things
- Might be first Akademy talk
- Debian developer, Qt contributor and others
- Scout, dad, house owner, local politics



# CppCheck

*Slide Subtitle*

Cppcheck is a static analysis tool for C/C++ code

Unique code analysis that detect various kinds of bugs in your code.



# *What it finds*

*Slide Subtitle*

Possible null pointer  
deference

Returning temporaries

Possibility for tighter  
scoping

Uninitialized members

Encourages const

Missing explicit, copy,  
move, ...

Virtuals called from  
ctor

C-style casts



# Pros & Cons

*Slide Subtitle*

- Uses defines for flow control
  - Finds bugs
  - Is strict by default
  - Can be configured in many ways
- Uses defines for flow control
  - Has opinions
  - Is strict by default



# KDE CI

*Slide Subtitle*

In our `.gitlab-ci.yml`, put in the right place:

- `/gitlab-templates/cppcheck.yml`



# *Thanks*

*Slide Subtitle*

There. Done.



# *Some configuration needed*



Code Quality scans found **414** new findings.



- ◆ Critical - There is an unknown macro here somewhere. Configuration is required. If KLEOPATRA\_VERSION\_STRING is a macro then please configure it.

[in src/uiserver/assuanserverconnection.cpp:861](#)

- ▼ Major - The class 'ChangePinCommand' defines member function with name 'd\_func' also defined in its parent class 'CardCommand'. (CWE-398)

[in src/commands/changepincommand.cpp:57](#)

- Minor - Condition 'pgpKeys.size()=1' is always true (CWE-571)

[in src/commands/refreshcertificatescommand.cpp:416](#)

- Minor - Consider using std::copy\_if algorithm instead of a raw loop. (CWE-398)

[in src/commands/refreshcertificatescommand.cpp:227](#)



# *Some configuration needed*

*Slide Subtitle*

Defines are expected for flow control – not  
codegen

```
#if ..  
#else  
#endif
```

Defines and codegen – add XML file



# *Defines for codegen I*

*Slide Subtitle*

## MOC-targets and static initializers

```
<define  
name="KWIN_EFFECT_FACTORY_SUPPORTED(className  
, jsonFile, supported)" value=""/>
```



# *Defines for codegen II*

*Slide Subtitle*

```
<define name="KWIN_SINGLETON(ClassName)"  
value="public: static ClassName  
*create(QObject *parent = nullptr); static  
ClassName *self() { return s_self; }  
protected: explicit ClassName(QObject *parent  
= nullptr); private static ClassName *s_self;  
"/>
```



# Options in KDE CI

*Slide Subtitle*

In `.kde-ci.yml`

```
cppcheck-arguments: '--  
enable=warning,style,performance --  
library=kwin-cppcheck.xml --suppress-  
xml=cppcheck-suppressions.xml'  
  cppcheck-ignore-files:  
    - autotests  
  
require-cppcheck-clean: True
```



# *Suppressions*

*Slide Subtitle*

Per project (XML file)  
per line (Code comments)



# *Suppression XML I*

*Slide Subtitle*

```
<suppress>  
<id>useStlAlgorithm</id>  
</suppress>
```



# Suppression XML II

*Slide Subtitle*

```
<suppress>  
<id>duplInheritedMember</id>  
<symbolName>d_func</symbolName>  
</suppress>  
<suppress>  
<id>unusedPrivateFunction</id>  
<symbolName>*::d_func</symbolName>  
</suppress>
```



# *False positives*

*Slide Subtitle*

QPointer  
Disagreement in opinions  
Some ifdef branches



# *Line based suppressions*

*Slide Subtitle*

```
if (dlg->exec() && dlg) { /* cppcheck-  
suppress nullPointerRedundantCheck ; QPointer  
things here is not understood*/
```



# Examples

Slide Subtitle

```
@@ -2367,7 +2367,8 @@ QList<Window *> Window::mainWindows() const
QList<Window *> Window::allMainWindows() const
{
    auto result = mainWindows();
    for (const auto *window : result) {
        const auto copy = result; // we need a copy to ensure we don't assign i
        for (const auto *window : copy) {
            result += window->allMainWindows();
        }
    }
    return result;
}
```



# Examples

## Slide Subtitle

```
    }  
-   delete kpsewhich_;  
+   kpsewhich_.reset();  
}  
  
void fontPool::setCMperDVIunit(double _CMperDVI)  
@@ -448,10 +448,11 @@ void fontPool::release_fonts()  
  
void fontPool::mf_output_receiver()  
{  
+   if (kpsewhich_) {  
       const QString output_data = QString::fromLocal8Bit(kpsewhic  
-  
       kpsewhichOutput.append(output_data);  
       MetafontOutput.append(output_data);  
+   }
```



# *Run it locally*

*Slide Subtitle*

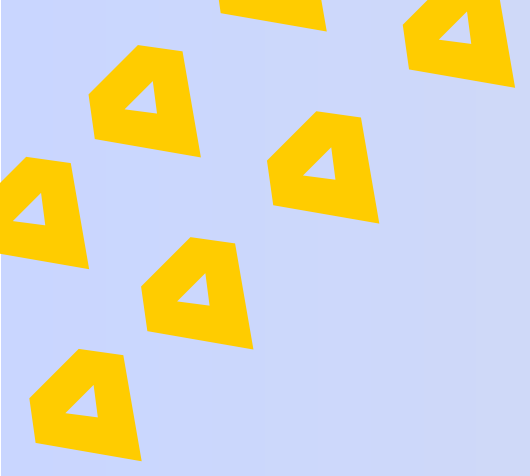
`ci-utilities/run-cppcheck.py`



# Other nice things in CI

- Json-validator
- Yaml-validator
- Xml-validator
- QML linter

And many others



**THANK YOU**