UI freezes due to long JniReferencesSearch computation in background

+1 3 Hotlists (4) Mark as Duplicate

Comments (18) Dependencies Duplicates (1) Blocking (0) Resources (7)

Fixed Bug P1 + Add Hotlist

STATUS UPDATE No update yet. Edit

DESCRIPTION io...@gmail.com created issue #1

Android Studio performance is very slow.
The caret freezes almost every time anything is written and debug mode is simply not usable (sometimes it takes minutes just to evaluate simple expressions).

All actions taken in AS are slow and take many seconds to respond.

Build: AI-203.7717.56.2031.7621141, 202108071636,

AI-203.7717.56.2031.7621141, JRE 11.0.10+0-b96-7281165x64 JetBrains s.r.o., OS Mac OS X(x86_64) v11.5.2, screens 3584.0x2240.0, 1920.0x1080.0; Retina

AS: Arctic Fox | 2020.3.1 Patch 1; Kotlin plugin: 203-1.5.21-release-328-AS7717.8; Android Gradle Plugin: 7.0.1; Gradle: 7.0.2; Gradle JDK: version 11.0.10; NDK: from local.properties: (not specifie
CMake: from local.properties: (not specified), latest from SDK: 3.10.2, from PATH: 3.19.3Source: user_sentiment_feedback

IMPORTANT: Please read https://developer.android.com/studio/report-bugs.html carefully and supply all required information.

✓ Mentioned issues (1) ✓ Links (5)

Mentioned issues (1)

-- -- “In b/142007975 the problem was mitigated by preventing the computation from running on the EDT. But here, even on a background thread, the computation appears to be too expens

Links (5)

“IMPORTANT: Please read https://developer.android.com/studio/report-bugs.html carefully and supply all required information.”
“For more information on what’s needed and how to obtain this information please read the guide at https://developer.android.com/studio/report-bugs#studio-bugs”
“Can you please grab a full CPU snapshot instead? Follow the instructions at https://developer.android.com/studio/report-bugs.html#cpu-profiles , and attach it on the bug when done.”
“https://stackoverflow.com/questions/28415695/how-do-you-set-a-value-in-the-intellij-registry#:~:text=Press%20Ctrl%20%2D%20Alt%20%2D%20Shift%20… ”
“The option to disable JNI reference search is now available from latest stable studio release at https://developer.android.com/studio . You can find the option from IDE registry by the following steps

COMMENTS

ph...@google.com <ph...@google.com> #2

Thanks for the feedback. To help us troubleshoot this issue further, we will need more information. Please share detailed reproduction steps and as much as possible of the following inform

1. Android Studio version and OS type and version
2. Screenshots or videos of the issue
3. idea.log file (select Help > Show Log in Finder / Explorer)
4. Thread dumps if the issue is a freezing or non-responding UI.

For more information on what’s needed and how to obtain this information please read the guide at https://developer.android.com/studio/report-bugs#studio-bugs

io...@gmail.com <io...@gmail.com> #3

Added thread dump.

dump.txt
118 KB View Download

io...@gmail.com <io...@gmail.com> #4

Android Studio Arctic Fox | 2020.3.1 Patch 1
Build #AI-203.7717.56.2031.7621141, built on August 7, 2021
Runtime version: 11.0.10+0-b96-7281165 x86_64
VM: OpenJDK 64-Bit Server VM by JetBrains s.r.o.
macOS 11.5.2
GC: G1 Young Generation, G1 Old Generation
Memory: 12288M
Cores: 12
Registry: external.system.auto.import.disabled=true
Non-Bundled Plugins: org.jetbrains.kotlin, com.developerphil.adbidea

ra...@google.com <ra...@google.com> #5

It's still hard to pinpoint the problem from a single thread dump.

Can you please grab a full CPU snapshot instead? Follow the instructions at https://developer.android.com/studio/report-bugs.html#cpu-profiles, and attach it on the bug when done.

Thanks!

io...@gmail.com <io...@gmail.com> #6

Attached CPU snapshot.

AI-203.7717.56.2031.7621141_ionutnegru_24.08.2021_17.46.50.zip
44 MB Download

ra...@google.com <ra...@google.com> #7

Assigned to gh...@google.com.

Thank you so much for the CPU snapshot!

gh...@google.com <gh...@google.com> #8

Reassigned to tg...@google.com.

The CPU profile points to `com.android.tools.ndk.jni.reference.JniReferencesSearch` et al.

tgeng@, to me this looks similar to http://b/142007975#comment12. Notice how `UnusedSymbolUtil.processUsages` leads to the expensive `JniMethodReferencesSearch` calls, presumab

In b/142007975 the problem was mitigated by preventing the computation from running on the EDT. But here, even on a background thread, the computation appears to be too expensive. (Pr

I think we will need to fix this somehow. Let me know if you want to chat more or collaborate.

For reference, the topmost method is `JniUtilsKt.findAllJniCalls` which uses 25 minutes CPU time in this particular CPU profile.

Message last modified on Sep 11, 2021 01:38AM

gh...@google.com <gh...@google.com> #9

As an initial mitigation, it might help to place some `ProgressManager.checkCanceled` calls in order to allow the UI thread to preempt the heavy background computations.

Message last modified on Sep 11, 2021 01:50AM

ar...@google.com <ar...@google.com> #10

Tianyu is no longer working on JNI, so this shouldn't be assigned to him. Josh, any thought who should collaborate with Matthew to work on the fix?

tg...@google.com <tg...@google.com> #11

Thanks Arif! I'm happy to take a look at this issue since I probably have the most context in this.

tg...@google.com <tg...@google.com> #12

Hi, just curious, how many native source files (including all C/C++ headers) does the project contain? Also, does the project contain a lot of JNI code? Does the project contain some large (>

Message last modified on Sep 15, 2021 03:50AM

tg...@google.com <tg...@google.com> #13

Discussed with Matthew and it looks like the freeze is mostly caused by JniMethodReferencesSearch invoking CIDR to search for references of JNI functions like `GetMethodID`. However, CID
investigate further to figure out a way to fix the root cause.

For now I will add an IDE registry to allow user to disable JNI reference search.

Message last modified on Sep 16, 2021 09:38AM

io...@gmail.com <io...@gmail.com> #14

The project currently has **6671** C++ files & **18059** Header files. The lines count is not that big, somewhere of a few thousands per file.

tg...@google.com <tg...@google.com> #15

The option to disable JNI reference search is now available from latest stable studio release at https://developer.android.com/studio. You can find the option from IDE registry by the followir

1. Find Actions (Ctrl+Shift+A)
2. Type "Registry"
3. In the dialog, search "jni"
4. Uncheck "com.android.tools.ndk.jni.enableJniReferenceSearch" (see attached screenshot)
5. Close the dialog and the setting should be in effect.

Can you check if this resolves the IDE freeze? Thanks!

Mon Oct 11 2021 17:14:29 GMT-0700 (Pacific Daylight Time).png
26 KB View Download

io...@gmail.com <io...@gmail.com> #16

I confirm that this makes the IDE a lot faster, but what is the downside for disabling this?

tg...@google.com <tg...@google.com> #17

Thanks! With JNI reference search disabled, finding usages and other IDE features (for example, unused symbol check, renaming etc) will no longer consider references to Java/Kotlin symbo

```
// In Java
package foo.bar

public class Foo {
...
}

// In C++
env->FindClass("foo/bar/Foo");
```

With JNI reference enabled, finding usage of Java class `Foo` would return the `FindClass` call in C++.

tg...@google.com <tg...@google.com>

Marked as fixed.

li...@gmail.com <li...@gmail.com> #18

Los de la ruta Culiacán