

Unable to retrieve WindowMetricsCalculator Class via JNI

+1 1 Hotlists Mark as Duplicate

Comments (17) Dependencies Duplicates (0) Blocking (0) Resources (1)

Obsolete Bug P2 + Add Hotlist

STATUS UPDATE No update yet. Edit

DESCRIPTION l....@samsung.com created issue #1 Feb 4, 2022 04:17AM

Component used: androidx.window.layout
Version used: 1.0.0
Devices/Android versions reproduced on: Samsung Fold 2 - Android 11

I am attempting to use the Jetpack Window Manager library along with JNI to retrieve information about the Device Window and Folding feature and pass this information to UE4 and Unity. This was functioning successfully in Beta04 however in the 1.0.0 release version JNI is no longer able to find WindowMetricsCalculator.

The following C++ code is how I'm retrieving the Calculator:

```
jclass WindowMetricsCalculatorClass = JEnv->FindClass("androidx/window/layout/WindowMetricsCalculator");
```

In UE4 this simply causes a Java Exception stating:

```
Didn't find class "androidx.window.layout.WindowMetricsCalculator" on path: DexPathList[[directory:],nativeLibraryDirectories=[/system/lib64, /system/system_ext/lib64, /system/lib64, /system/system_ext/lib64]]
```

In Unity I get the exception:
AndroidJavaException: java.lang.ClassNotFoundException: androidx.window.layout.WindowMetricsCalculator

As I mentioned before this was working previously in Beta-04 and no work in the responsible sections of the applications has been done, the only change is the version of the Jetpack WindowManager Library, leading me to believe that this problem is with the Jetpack library, rather than anything else in the dev environment.

My current list of implements are as follows:

```
implementation fileTree(dir: 'libs', include: ['*.jar'])
implementation "org.jetbrains.kotlin:kotlin-stdlib-jdk8:1.6.0"
implementation "androidx.core:core:1.7.0"
implementation "androidx.core:core-ktx:1.7.0"
implementation "androidx.appcompat:appcompat:1.4.0"
implementation "androidx.window:window:1.0.0"
implementation "androidx.window:window-java:1.0.0"
```

I have tried changing androidx.window:window:1.0.0-beta04 however this is unsuccessful in fixing the problem.

I apologise if this isn't the place for this but I'm not sure if this is a problem simply with what I'm doing or if its an actual bug.

Reporter l....@samsung.com
Type Bug
Priority P2
Severity S2
Status Won't fix (Obsolete)
Access Default access View
Assignee di...@google.com
Verifier --
Collaborators
CC ak...@google.com, an...@google.com, ke...@google.com, l....@samsung.com
AOSP ID --
Estimate --
Found In --
Targeted To --
Verified In --
In Prod

Show 1 additional field

COMMENTS All comments Oldest first

di...@google.com <di...@google.com> #2 Feb 4, 2022 06:41AM

Status: Won't Fix (Intended Behavior)

It is an interface now. You need to use the `getOrCreate` method on `WindowMetricsCalculator` to get an instance.

l....@samsung.com <l....@samsung.com> #3 Feb 4, 2022 10:38PM

Thank you for your response, however I am aware of this, but in order to call `getOrCreate` on `WindowMetricsCalculator` via JNI I require a reference to the class.

The full C++/native side code used to call this function is as follows.

```
//This is getting a reference to the class (not an instance of the class/object)
//This is what is currently causing the previously mentioned exceptions, stating that the requested class can't be found
jclass windowMetricsCalculatorClass = JEnv->FindClass("androidx/window/layout/WindowMetricsCalculator");

//This is getting a reference to the static method getOrCreate which is part of WindowMetricsCalculator
jmethodID getOrCreateID = JEnv->GetStaticMethodID(windowMetricsCalculatorClass, "getOrCreate", "()Landroidx/window/layout/WindowMetricsCalculator;");

//This is then calling the static function getOrCreate on WindowMetricsCalculator, and returning an instance of WindowMetricsCalculator for me to use
jobject windowMetricsCalculatorObject = JEnv->CallStaticObjectMethod(windowMetricsCalculatorClass, getOrCreateID);
```

As you can see in order to use the `GetStaticMethodID` and `CallStaticObjectMethod` functions from JNI a reference to the Java

class I am trying to call (in this case WindowMetricsCalculator). However the exception is happening before I can even get to this point with the FindClass Method returning with ClassNotFoundException:Exceptions.

As I mentioned this was working previously, however it suddenly stopped after the stable release came out, (I wasn't able to test the release candidate as I was busy at the time). And when ever I try to change the version back to Beta04 which was previously working it remains broken. As I said nothing else in my build environment has changed, I have made no changes to the code or to the engine version since the working version in Beta04, (a rough example of the code is what I used earlier in this message) leading me to believe that the problem is likely something to do with the library itself.

I welcome any suggestions you might have as to how to fix this issue.

di...@google.com <di...@google.com> [#4](#)

Feb 5, 2022 05:06AM

Status: Assigned (reopened)

Can you try jclass windowMetricsCalculatorClass = JEnv->FindClass("androidx/window/layout/WindowMetricsCalculator\$COMPANION");

l....@samsung.com <l....@samsung.com> [#5](#)

Feb 7, 2022 09:27PM

Hi,

I've tried your suggestion and still get the same error.

In UE4:

```
java.lang.ClassNotFoundException: Didn't find class "androidx.window.layout.WindowMetricsCalculator$COMPANION" on path: DexPathList[[directory ".",nativeLibraryDirectories=[/system/lib64, /system/system_ext/lib64, /system/lib64, /system/system_ext/lib64]]
```

In Unity:

```
java.lang.ClassNotFoundException: Didn't find class "androidx.window.layout.WindowMetricsCalculator$COMPANION" on path: DexPathList[[zip file "/data/app/~~eWux06GdIldN4eO8id_rbg==/com.Samsung.WindowManagerTesting-zgzqvOyDxt7qnYXikEBdpQ==/base.apk"],nativeLibraryDirectories=[/data/app/~~eWux06GdIldN4eO8id_rbg==/com.Samsung.WindowManagerTesting-zgzqvOyDxt7
```

Also just thought I'd mention that I have tried "androidx.window.layout.WindowMetricsCalculator\$Companion" and "androidx.window.layout.WindowMetricsCalculator%companion" as well to no success.

di...@google.com <di...@google.com> [#6](#)

Feb 8, 2022 04:38AM

Status: Won't Fix (Infeasible)

Hi,

This seems to be a question that is more relevant for StackOverflow. We expose a factory method on a companion object to get an instance of WindowMetricsCalculator. This doesn't seem to be specific to the library as it is some issue with how JNI and Kotlin work together. Please ask this as a question on StackOverflow. Thanks.

di...@google.com <di...@google.com> [#7](#)

Feb 8, 2022 12:07PM

Status: Assigned (reopened)

Let me see if I can reproduce.

di...@google.com <di...@google.com> [#8](#)

Feb 8, 2022 03:10PM

Do you mind attaching a minimal project to reproduce? Then I can work with it. I'm not super familiar with the JNI set up.

l....@samsung.com <l....@samsung.com> [#9](#)

Feb 8, 2022 08:30PM

Hi, sorry for the delay in responding I believe we're likely in different time zones.

I've found a method to get this working. Basically I've created a getter on the java side of my application that simply does the call to getOrCreate via Java, then I use JNI to call this getter which returns the result of getOrCreate to the native side. This doesn't produce any errors and seems to be correctly returning the result of getOrCreate.

So I believe you are right that it is a problem regarding JNI and Kotlin interactions.

I'd like to quickly thank you for your time regarding this, and apologise for asking this in the wrong place.

I can still look at sending a minimal project on this when I get time if you would like?

di...@google.com <di...@google.com> [#10](#)

Feb 9, 2022 05:08AM

I'd like to quickly thank you for your time regarding this, and apologise for asking this in the wrong place.

No need to apologize. I don't have much JNI experience and I couldn't find any docs on this so I thought another forum might be faster for you.

I can still look at sending a minimal project on this when I get time if you would like?

Yes please. I'll take a look and see if I can find the issue.

Message last modified on Feb 9, 2022 05:08AM



l...@samsung.com <l...@samsung.com> [#11](#)

Feb 11, 2022 02:12AM ⋮

Hi,
Sorry for the delay in getting the sample project to you.

I am currently busy my current project for the next month or so but I'll try and get a sample to you as soon as I find the time.

Thank you for your patience



di...@google.com <di...@google.com> [#12](#)

Feb 11, 2022 04:00AM ⋮

Sounds good. Thanks.



di...@google.com <di...@google.com> [#13](#)

Mar 3, 2022 04:10PM ⋮

Hi, is this still an issue you are interested in?



di...@google.com <di...@google.com> [#14](#)

Mar 19, 2022 04:46AM ⋮

Hi l.edwards@samsung.com, friendly ping.



di...@google.com <di...@google.com> [#15](#)

Jun 2, 2022 02:43AM ⋮

Hi, is this still an issue you are interested in?



lo...@gmail.com <lo...@gmail.com> [#16](#)

Jun 6, 2022 07:06PM ⋮

Hi apologies for the delay, I don't think this is an issue anymore.

I believe it was likely originally caused by poor code design on my part rather than an innate problem with the library.

Thanks for your help with this issue none the less.



di...@google.com <di...@google.com> [#17](#)

Jul 23, 2022 03:51AM ⋮

Status: Won't Fix (Obsolete)

Ok, closing.