

Comments (9)

Dependencies

Duplicates (0)

Blocking (0)

Resources (4)


Fixed

Bug

P3


+ Add Hotlist

[AOSP] FutureRelease

 STATUS UPDATE


No update yet.

Edit

 DESCRIPTION

le...@leithalweapon.geek.nz created issue [#1](#)

Jun 25, 2014 02:55AM



I have encountered a very strange bug in the JNI RegisterNatives function.

I have some JNI code compiled with the NDK that uses RegisterNatives in JNI_OnLoad.

When I run my app and it goes to load my JNI library it fails because RegisterNatives returns "-1" to indicate failure. I then return -1 from JNI_OnLoad to indicate a failure.

However I got this very strange set of messages in logcat:

```
06-25 01:52:47.934: V/MainActivity(14393): onCreate
06-25 01:52:48.034: D/dalvikvm(14393): Trying to load lib /data/app-lib/com.mapbox.mapboxgl-2/libNativeMapView.so 0x4266ec68
06-25 01:52:48.064: D/dalvikvm(14393): Added shared lib /data/app-lib/com.mapbox.mapboxgl-2/libNativeMapView.so 0x4266ec68
06-25 01:52:48.064: I/dalvikvm(14393): Odd: ExceptionDescribe called, but no exception pending
06-25 01:52:48.064: W/dalvikvm(14393): Exception Ljava/lang/UnsatisfiedLinkError; thrown while initializing Lcom/mapbox/mapboxgl/MapView;
06-25 01:52:48.064: W/dalvikvm(14393): Class init failed in Constructor.constructNative (Lcom/mapbox/mapboxgl/MapView;)
06-25 01:52:48.064: D/AndroidRuntime(14393): Shutting down VM
06-25 01:52:48.064: W/dalvikvm(14393): threadid=1: thread exiting with uncaught exception (group=0x41eecba8)
06-25 01:52:48.074: E/AndroidRuntime(14393): FATAL EXCEPTION: main
06-25 01:52:48.074: E/AndroidRuntime(14393): Process: com.mapbox.mapboxgl, PID: 14393
06-25 01:52:48.074: E/AndroidRuntime(14393): java.lang.UnsatisfiedLinkError: JNI_ERR returned from JNI_OnLoad in "/data/app-lib/com.mapbox.mapboxgl-2/libNativeMapView.so"
06-25 01:52:48.074: E/AndroidRuntime(14393): at java.lang.Runtime.loadLibrary(Runtime.java:364)
06-25 01:52:48.074: E/AndroidRuntime(14393): at java.lang.System.loadLibrary(System.java:526)
06-25 01:52:48.074: E/AndroidRuntime(14393): at com.mapbox.mapboxgl.MapView.<clinit>(MapView.java:834)
```

The code looked like this:

```
std::array<JNINativeMethod, 26> methods = {{
    { "nativeCreate", "(Ljava/lang/String;)J", reinterpret_cast<void*>(&nativeCreate) },
    ...
    { "nativeToggleDebug", "(J)V", reinterpret_cast<void*>(&nativeToggleDebug) }}
};
if (env->RegisterNatives(clazz, methods.data(), methods.size()) < 0) {
    env->ExceptionDescribe();
    return -1;
}
```

As you can see from "Odd: ExceptionDescribe called, but no exception pending" I am entering the if statement because of an error code from RegisterNatives. Then ExceptionDescribe is complaining because there is no such problem.

I then changed the code to this:

```
std::array<JNINativeMethod, 26> methods = {{
    { "nativeCreate", "(Ljava/lang/String;)J", reinterpret_cast<void*>(&nativeCreate) },
    ...
    { "nativeToggleDebug", "(J)V", reinterpret_cast<void*>(&nativeToggleDebug) }}
};
jint ret = env->RegisterNatives(clazz, methods.data(), methods.size());
INFO("RegisterNatives returned %d", ret);
```

And sure enough the app loaded fine with no erros. Also it printed this in logcat:

```
06-25 01:52:48.064: I/jni/JNI.cpp:280(14393): RegisterNatives returned -1
```

This clearly shows RegisterNatives is returning "-1" when there is in fact no error.

I have attached the debug APK of the application. You can find the source at <https://github.com/ljbade/mapbox-gl-native/tree/android-bug>

To compile the source you need Linux with Java, Ant, the SDK, the ADK, and all the correct PATHs and environment variables (JAVA_HOME, ANT_HOME, ANDROID_HOME, NDK_HOME). I compile this fine on Ubuntu 14.04.


To compile the APK do this:

```
Run:
make android
```

Open Eclipse and load the project from the android/ folder.
Hit 'Run' to build the APK and start it on the device.

Relevant details:
Build host:

Reporter

 le...@leithalweapon

Type

Bug

Priority

P3

Severity

S3

Status


Fixed

Access

Default access

View


Assignee

 sh...@google.com


Verifier

--

Collaborators

 _____

CC

 _____
bd...@google.com
en...@google.com
le...@leithalweapon.gee
sh...@google.com

AOSP ID

72293

ReportedBy

Developer

Found In

--


Targeted To

--

Verified In

--

In Prod



Ubuntu 14.04 x86-64
ADT Bundle (latest from website, with all updates installed for SDK and Eclipse) Build: v22.6.2-1085508
Eclipse plugins:
Android Developer Tools 22.6.2.v201403212031-1085508 com.android.ide.eclipse.adt.package.product null
C/C++ Development Tools 8.3.0.201402142303 org.eclipse.cdt.feature.group Eclipse CDT
Eclipse Git Team Provider 3.2.0.201312181205-r org.eclipse.egit.feature.group Eclipse EGit
Eclipse GitHub integration with task focused interface 3.2.0.201312181205-r org.eclipse.mylyn.github.feature.feature.group Eclipse EGit
JDK: OpenJDK 7 (from Ubuntu repo)
Ant 1.9.4
Android SDK:
Tools 22.6.4
Platform tools 19.0.2
Build tools 19.1
SDK platform: Android 4.4.2 (API 19): revision 3
ARM EABI v7a System image API 19: revision 2
Android support library 19.1
Google play services 17
APK expansion library 3
Billing library 5
Licencing library 2

Test device:
Nexus 7 (2012)
FCC ID MSQMME370T
IC 3568A-ME470T
Model ME370T
Model number Nexus 7
Android version 4.4.3
Kernel version 3.1.10-g1e42d16
Build number KTU84L

 **deleted**

0 B 

 Restricted

- ✓ Links (4)
- Hide all
- "...e attached the debug APK of the application. You can find the source at <https://github.com/ljbade/mapbox-gl-native/tree/android-bug>"


le...@ #1
- "...oking at https://android.googlesource.com/platform/art/+/master/runtime/jni_internal.cc -- have you checked that clazz is not NU..."


sa...@ #3
- "<https://android.googlesource.com/platform/dalvik/+/android-4.4...>"


le...@ #5
- "Fixed in <https://android-review.googlesource.com/100280>"


sh...@ #9

COMMENTS

All comments 


 Oldest first


 **le...@leithalweapon.geek.nz** <le...@leithalweapon.geek.nz> [#2](#)

Jun 25, 2014 03:07AM 


I have created a workaround for this bug. Instead of checking error code I use ExceptionCheck:


```
if (env->ExceptionCheck()) {  
    env->ExceptionDescribe();  
    return -1;  
}
```

 **sa...@gmail.com** <sa...@gmail.com> [#3](#)

Jun 25, 2014 11:16PM 

Looking at https://android.googlesource.com/platform/art/+/master/runtime/jni_internal.cc -- have you checked that clazz is not NULL?

 **le...@leithalweapon.geek.nz** <le...@leithalweapon.geek.nz> [#4](#)

Jun 26, 2014 12:18AM 


I added this:


```
DEBUG("RegisterNatives using clazz 0x%016" PRIxPTR, reinterpret_cast<uintptr_t>(native_map_view_class));
```


And I get this in logcat:

```
06-26 00:16:21.590: D/jni/JNI.cpp:709(2285): RegisterNatives using clazz 0x0000000088800021
```



So no clazz in not NULL.


 **le...@leithalweapon.geek.nz** <le...@leithalweapon.geek.nz> [#5](#)

Jun 26, 2014 12:27AM 

Also I am using Dalvik (the default on 4.4.3) not ART as the VM.

So the correct source for the JNI is:
https://android.googlesource.com/platform/dalvik/+/android-4.4.3_r1/vm/Jni.cpp

 **le...@leithalweapon.geek.nz** <le...@leithalweapon.geek.nz> [#6](#)

Jun 26, 2014 12:34AM 

After having another look at this it seems there was a typo in my code.

I was making the `std::array` one element too big.

So `nMethods` was 1 too big.

However this is still a defect in the JNI library as it should be throwing an exception whenever it returns `JNI_ERR`.



le...@leithalweapon.geek.nz <le...@leithalweapon.geek.nz> [#7](#)

Jun 26, 2014 01:03AM ⋮

[Comment deleted]



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

Jun 26, 2014 09:50AM ⋮

Assigned to sh...@google.com.

dalvik is dead, but it does seem like art should throw when given a NULL method name.



sh...@google.com <sh...@google.com> [#9](#)

Jul 5, 2014 02:06AM ⋮

Marked as fixed.

Fixed in <https://android-review.googlesource.com/100280>