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mikapote



Hi there,

I've been struggling for multiple days now trying to enable Multidex in order to build my project with Appodeal (which breaks the 64k methods limit) with Unity 2019.3 (betas 7 to 10). I've been through many issues, that I'm going to try to quickly describe here, as I'm sure it could spare some users some tears!

What I've done

- 1) I've created a custom *mainTemplate.gradle* file, in which I've added 'multiDexEnabled true' in the default config, and 'com.android.support:multidex:1.0.3' as a dependency.

When doing that, I've hit the issue described in [this post](#): **"More than one file was found with OS independent path 'androidsupportmultidexversion.txt'"**. cc @justime

- 2) By exporting the project and using the command
`gradle androidDependencies`

, I've been able to see that my compiled project contained both 'com.android.support:multidex:1.0.3' and 'androidx.multidex:multidex:2.0.0' dependencies. I honestly don't know where the androidX version comes from... anyone has a guess?

To fix this issue, I've pinned the multidex dependency as 'androidx.multidex:multidex:2.0.0', allowing the jar resolver to merge multidex deps properly, and I added `android:name="androidx.multidex.MultiDexApplication"` to the application tag in my custom *AndroidManifest.xml*.

- 3) At this point, not more weird gradle error... except that **multidex is not enabled at all**, as I encounter the following issue again: **"D8: Cannot fit requested classes in a single dex file."**. I'm back to the start... How is that possible? I can see that androidx.multidex is properly added as a dependency, I have properly set `multiDexEnabled` to true and edited my manifest file as described above.

Possible hint?

In [this post](#) @JuliusM talks about the recent changes to the build.gradle files made to get Unity working as a library. I've dig a bit into that, but I've basically no experience regarding Android development and build config. Should `multiDexEnabled true` be set **in the launcher's gradle.build file instead of the library's gradle file**? If yes, how should developers proceed without having to export their game to Android Studio?

I've honestly lost days on this, so any help would be greatly appreciated guys! Anyone from @PaveILU 's team maybe? Thanks a lot in advance.

Nov 7, 2019 Report

Like Reply

Weiky, ndlam1994, Mr-Mechanical and 4 others like this.

JuliusM

Unity Technologies

Hi,

Officially Unity does not support multidex. Instead we suggest to use Proguard's minify option.

*Should `multiDexEnabled true` be set **in the launcher's gradle.build file instead of the library's gradle file**? If yes, how should developers proceed without having to export their game to Android Studio?*

I have not tested this, but my guess would be it has to be specified in both places. The only official way to modify launcher's build.gradle file is by exporting the project and doing modifications afterwards. You could modify the template in the Unity install directory, but that is **not supported** and it will affect all of your projects built with that Unity version.

Nov 12, 2019 Report

Like Reply

mikapote

Hi Julius, thank you for your answer!

I've been using multidex in my previous Unity games without encountering any issue: it works well since Gradle is officially implemented.

I'm actually using Proguard minification, but Appodeal SDK is still above the 65k limit. They offer a version of their SDK that doesn't require Multidex, but according to their tech team, this will soon be deprecated.

So I guess it's of utmost importance for them to find a way to ensure compatibility with Unity 2019.3! The easy installation of their solution is a strong selling point, so having their users modify the Unity install or export the project might be an issue... I'll send them the link to this discussion.

Nevertheless, it seems that many users require multidex. would it be possible to imagine Unity adding a new checkbox near the "Custom gradle file" option, to automatically patch both Gradle files in order to activate Multidex?

Nov 13, 2019 Report

Like Reply

Novack, inxidious, Garrettec and 1 other person like this.

marcin-matczak

It's not only Appodeal SDK issue. This can be achieved with different SDKs too. Just using Firebase and Mopub is enough to require multidex.

I hope Unity will soon fix this and bring back full multidex compatibility (having Unity Cloud Build in mind).

Nov 20, 2019 Report

Like Reply

inxidious, Garrettec and daancode like this.

RobertTry



I have same problem. I need to use multidex. just add Facebook, Firebase, and some mediation SDK and you are out of limits. Please fix it. Local solution is not enough I can't modify files in unity install directory on UCB.

Nov 20, 2019 Report

Like Reply

inxidious, daancode and marcin-maczak like this.

daancode



Hello,

can we know what is official reason why multidex isn't supported from version 2019.3? I using that feature in every project that I working on. According to official documentation <https://developer.android.com/studio/build/multidex.html> that is the solution for this situation?

Android 5.0 (API level 21) and higher uses a runtime called ART which natively supports loading multiple DEX files from APK files. ART performs pre-compilation at app install time which scans for classesN.dex files and compiles them into a single .oat file for execution by the Android device. Therefore, if your minSdkVersion is 21 or higher multidex is enabled by default, and you do not need the multidex support library.

We should set minSdkVersion to API 21 in order to have multidex enabled by default?

Nov 22, 2019 Report

Like Reply

Novack likes this.

RobertTry



I did try to build without multidex on Android 21 and it did build

Nov 22, 2019 Report

Like Reply

Novack and nicolasgramlich like this.

mikapote



Yes I managed to have it working with a minimum Android version ≥ 21 . Impossible to have it work under v21.

Nov 22, 2019 Report

Like Reply

Novack likes this.

Seanm07



stackoverflow said:

Android 5.0 (API level 21) and higher uses ART which natively supports multidexing. Therefore, if your minSdkVersion is 21 or higher, the multidex support library is not needed.

<https://stackoverflow.com/questions/26609734/how-to-enable-multidexing-with-the-new-android-multidex-support-library>

Pretty much using any plugins alongside a few of the Firebase plugins quickly hits the dex limit. Just dropping support for devices running versions of the SDK lower than 21 isn't really a good option either.

If Unity can't fix multidex support directly then a good potential workaround could be for them to let us switch between gradle building as an library and as an application, as 2019.2 and lower build as applications which allow implementation of multidex.

I'm talking about
 apply plugin: 'com.android.application'

in the gradle mainTemplate which is used in 2019.2 and lower vs
 apply plugin 'com.android.library'

which is forced to be used in 2019.3 and higher.

If alternatively anyone knows how to possibly build multidex for an android library to support android APIs lower than 21 that would also be great and solve everything too .

Dec 5, 2019 Report

Like Reply

tduriga



Hi, I managed to get it work even on lower minApi version (mine is set to 19) with Unity 2019.3.

You just need to edit the "launcherTemplate.gradle" file that is located at your Unity install location inside "Editor\Data\PlaybackEngines\AndroidPlayer\Tools\GradleTemplates". Just add the *multiDexEnabled true* and *implementation 'com.android.support:multidex:1.0.1'* here and it should work. Also you probably need to open your text editor as admin otherwise the changes won't be saved.

Jan 13, 2020 Report

Like Reply

Brathnann, VenoliS, DungDajHjep and 1 other person like this.

Seanm07



tduriga said: ↑

Hi, I managed to get it work even on lower minApi version (mine is set to 19) with Unity 2019.3.

You just need to edit the "launcherTemplate.gradle" file that is located at your Unity install location inside "Editor\Data\PlaybackEngines\AndroidPlayer\Tools\GradleTemplates". Just add the multiDexEnabled true and implementation 'com.android.support:multidex:1.0.1' here and it should work. Also you probably need to open your text editor as admin otherwise the changes won't be saved.

Sadly this doesn't seem to work either, from my testing the builds seemed to BUILD fine but launching the app on any devices running android 5.0 or lower would just log a bunch of class not found errors in logcat and plugins would fail to initialise or work correctly. (And running the app on android 5.0 or later would work fine)

Let me know if your builds do actually run on devices lower than android 5 though

Jan 13, 2020 Report

Like Reply

tduriga



I don't have any Android 4.4.x device, but I tried in in emulator (Nox with Android version 4.4.2) and the game launched without any problems. Do you use proguard? Maybe it's stripping some classes needed for the android 4.4

Jan 13, 2020 Report

Like Reply

Seanm07



tduriga said: ↑

I don't have any Android 4.4.x device, but I tried in in emulator (Nox with Android version 4.4.2) and the game launched without any problems. Do you use proguard? Maybe it's stripping some classes needed for the android 4.4

No, we had all stripping disabled.

The game may launch without any problems but are your plugins working correctly, e.g admob ads showing, firebase functions working correctly etc *(depending what plugins you're using) (and are you actually using any plugins? It'll probably work fine multidexing a project without any plugins)*

Are you seeing any class not found errors in logcat?

At the time of testing we had a fresh android project setup with the latest version of the full firebase suite and latest admob github plugin. I may need to come back and revisit this if you have it working, maybe the later versions of 2019.3 changed something? - However I'm currently in the middle of a project and don't have time to mess with upgrading and fixing multidex right now.

Jan 13, 2020 Report

Like Reply

vizgl



Unity 2019.3.4f1 still can't build my game.
P.S. multidex enabled and worked on 2019.2.21f1

Mar 7, 2020 Report

Like Reply

bogdan_ag



vizgl said: ↑

*Unity 2019.3.4f1 still can't build my game.
P.S. multidex enabled and worked on 2019.2.21f1*

Having an option in Editor should be the correct fix but until then, as JuliusM said you can add multidexEnabled to the exported gradle file using an IPostGenerateGradleAndroidProject script.

OneSignal SDK also had problems with this gradle template change in 2019.3 (

<https://github.com/OneSignal/OneSignal-Android-SDK/issues/100>)

You can use their solution and add code to change the "launcher/build.gradle" and add "multiDexEnabled true" in it.

Mar 10, 2020 Report

Like Reply

Thaina likes this.

Thaina



In conclusion

MultiDex need to be enabled in launcher/build.gradle. But unity since 2019.3 has a bug that not allow us to override launcherTemplate.gradle. That bug was fixed in 2020.1.0b2 (yesterday) and not even backported into 2019.3.6 (today) yet

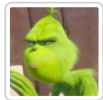
<https://unity3d.com/unity/beta/2020.1.0b2>

Mar 19, 2020 Report

Like Reply

leni8ec likes this.

Grinch_GEO



i think no one is testing new build of unity for android and iOS. Its disaster, for android i am using 2019.2.x and for iOS 2019.3.x. Cmon guys do like its was before one Engine to rule them all !

Apr 7, 2020 Report

Like Reply

N1kel



For anyone looking for solution.

You have to move your

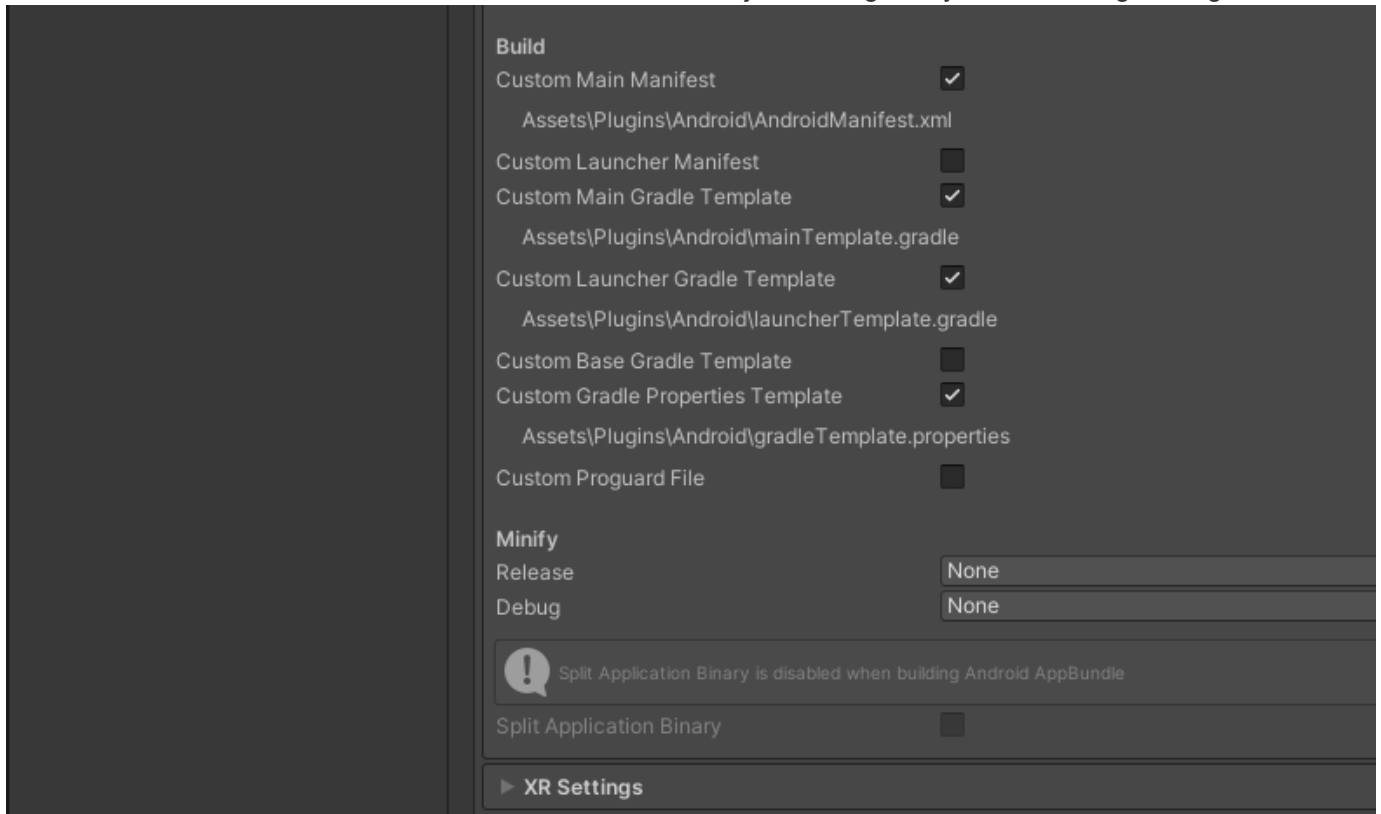
implementation 'androidx.multidex:multidex:2.0.1'

and

multiDexEnabled true

from mainTemplate.gradle to launcherTemplate.gradle and it should work.

You should activate these files first here in the Project Setting->Player->Publishing Settings



Apr 10, 2020 Report

Like Reply

Weiky, iskender_unity, Riovox and 30 others like this.

jinsoollee



Great!

I worked out it! Thank you.

Apr 13, 2020 Report

Like Reply

DungDajHjep likes this.

bekici



Hi @N1kel could you please share an example *launcherGradle.template*?

Apr 16, 2020 Report

Like Reply

N1kel



bekici said: ↑

Hi @N1kel could you please share an example *launcherGradle.template*?

@bekici, sure, this is just the default one with multidex thing added to it:

Code (CSharp):

```

1.  // GENERATED BY UNITY. REMOVE THIS COMMENT TO PREVENT OVERWRITING WHEN EXPORTING AGAIN
2.
3.      apply plugin: 'com.android.application'
4.
5.          dependencies {
6.              implementation 'androidx.multidex:multidex:2.0.1'
7.              implementation project(':unityLibrary')
8.          }
9.
10.         android {
11.             compileSdkVersion **APIVERSION**
12.             buildToolsVersion '**BUILDTOOLS**'
13.
14.             compileOptions {
15.                 sourceCompatibility JavaVersion.VERSION_1_8
16.                 targetCompatibility JavaVersion.VERSION_1_8
17.             }
18.
19.             defaultConfig {
20.                 minSdkVersion **MINSDKVERSION**
21.                 targetSdkVersion **TARGETSDKVERSION**
22.                 multiDexEnabled true
23.                 applicationId '**APPLICATIONID**'
24.                 ndk {
25.                     abiFilters **ABIFILTERS**
26.                 }
27.                 versionCode **VERSIONCODE**
28.                 versionName '**VERSIONNAME**'
29.             }
30.
31.             aaptOptions {

```

If it's your first time adding a multidex then don't forget to change the name parameter in AndroidManifest.xml to:

```
<application android:theme="@android:style/Theme.NoTitleBar.Fullscreen" android:icon="@draw
```

Last edited: Apr 20, 2020

Apr 20, 2020 Report

Like Reply

Weiky, iskender_unity, unity_3VjV7Az5OQrFzA and 14 others like this.

mhmad2212



N1kel said: ↑

*For anyone looking for solution.
You have to move your
implementation 'androidx.multidex:multidex:2.0.1'
and
multiDexEnabled true
from mainTemplate.gradle to launcherTemplate.gradle and it should work.
You should activate these files first here in the Project Setting->Player->Publishing Settings
View attachment 594712*

very very very thank you!
after 2 days (searching and try, searching and try.....)...your answer worked for me.

Jul 7, 2020 Report

Like Reply

Riovox likes this.

phong-genix



N1kel said: ↑

*For anyone looking for solution.
You have to move your
implementation 'androidx.multidex:multidex:2.0.1'
and
multiDexEnabled true
from mainTemplate.gradle to launcherTemplate.gradle and it should work.*

*You should activate these files first here in the Project Setting->Player->Publishing Settings
[View attachment 594712](#)*

This works perfectly for me. Thanks a lot!

Aug 30, 2020 Report

Like Reply

Riovox and kevinatgame like this.

Nucci



N1kel said: ↑

*For anyone looking for solution.
You have to move your
implementation 'androidx.multidex:multidex:2.0.1'
and
multiDexEnabled true
from mainTemplate.gradle to launcherTemplate.gradle and it should work.*

*You should activate these files first here in the Project Setting->Player->Publishing Settings
[View attachment 594712](#)*

THANK U ALOT

Sep 12, 2020 Report

Like Reply

kevinatgame likes this.

rainandgames



N1kel said: ↑

*For anyone looking for solution.
You have to move your
implementation 'androidx.multidex:multidex:2.0.1'
and
multiDexEnabled true
from mainTemplate.gradle to launcherTemplate.gradle and it should work.*

You should activate these files first here in the Project Setting->Player->Publishing Settings
[View attachment 594712](#)

Thank you so much

Oct 12, 2020 Report

Like Reply

The_MrX_



N1kel said: ↑

For anyone looking for solution.
You have to move your
implementation 'androidx.multidex:multidex:2.0.1'
and
multiDexEnabled true
from mainTemplate.gradle to launcherTemplate.gradle and it should work.

You should activate these files first here in the Project Setting->Player->Publishing Settings
[View attachment 594712](#)

Using 2020.1.13f1 I also needed to add
android.useAndroidX=true in gradleTemplate.properties file.
But it worked at that point and didn't crash!

Thank you.

Also not sure what you mean needs to be changed in the android manifest. But it seems to work without adjusting it.

Edit. this google implementation(in mainTemplate) was causing crashing for me during startup, in case this information is useful to anyone in future.

Code (CSharp):

```
1. implementation 'com.google.android.gms:play-services-ads:19.4.0'
```

for context I am working on appodeal integration.

Last edited: Nov 18, 2020

Nov 18, 2020 Report

Like Reply

Wraiter

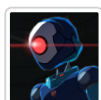


Your solution helped with compilation. But now the game crashes right away.
Trying to get Appodeal to work

Nov 19, 2020 Report

Like Reply

SrNull



2021. 4. 2.

Can't build with multidex enabled - Unity Forum

N1kel said: ↑

For anyone looking for solution.

You have to move your

implementation 'androidx.multidex:multidex:2.0.1'

and

multiDexEnabled true

from mainTemplate.gradle to launcherTemplate.gradle and it should work.

You should activate these files first here in the Project Setting->Player->Publishing Settings

View attachment 594712


Bro, I Love you, thank you so much !!!

this helped me when I tried to add Applovin and Chartboost Plugins in the same project, geez what a nightmare,

Nov 24, 2020 Report

Like Reply

seidgaparov



N1kel said: ↑


For anyone looking for solution...

I spent all day searching for this solution , thank you very much

Dec 18, 2020 Report

Like Reply

mrAntoha



N1kel said: ↑

For anyone looking for solution.

You have to move your

implementation 'androidx.multidex:multidex:2.0.1'

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