

Android Studio gradle takes too long to build

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79

My **Android Studio** project used to build faster but now it takes a long time to build. Any ideas what could be causing the delays? I have tried <https://stackoverflow.com/a/27171878/391401> but no effect. I dont have any Anti virus running which could interrupt the builds. My app is not that big in size as well (around **5MB**) and it used to build within few seconds but not sure what has changed.

```
10:03:51 Gradle build finished in 4 min 0 sec
10:04:03 Session 'app': running
10:10:11 Gradle build finished in 3 min 29 sec
10:10:12 Session 'app': running
10:20:24 Gradle build finished in 3 min 42 sec
10:28:18 Gradle build finished in 3 min 40 sec
10:28:19 Session 'app': running
10:31:14 Gradle build finished in 2 min 56 sec
10:31:14 Session 'app': running
10:38:37 Gradle build finished in 3 min 30 sec
10:42:17 Gradle build finished in 3 min 40 sec
10:45:18 Gradle build finished in 3 min 1 sec
10:48:49 Gradle build finished in 3 min 30 sec
10:53:05 Gradle build finished in 3 min 22 sec
10:57:10 Gradle build finished in 3 min 19 sec
10:57:11 Session 'app': running
```



android



android-studio

build

gradle

build.gradle

edited May 23 '17 at 12:10



Community ♦

1 1

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Harish

1,890 4 23 44

-
- 1 What do you use, your android phone or any emulator to run your application? – [Ram Mansawala](#) Apr 1 '15 at 13:02

Running on the device – [Harish](#) Apr 1 '15 at 13:03

-
- 2 don't why google switched from eclipse to android studio....Android studio sucks – [kapil](#) Aug 9 '16 at 6:04

-
- 26 When Android studio was new, many on StackOverflow dismissed complaints about this because it was 'only a beta version'. However, its now been some years since it was 'only a beta' and it's still sluggish and that's on 8 cores, 16gb of ram and an SSD disk. The old Eclipse set up on this machine is as fast as a blink. – [Andrew S](#) Sep 5 '16 at 18:32

-
- 3 Read this : pissedoff-techie.blogspot.in/2016/01/... – [Utsav Gupta](#) Sep 16 '16 at 18:31
-

20 Answers



In Android Studio go to File -> Settings -> Build, Execution, Deployment -> Build Tools -> Gradle

411



(if on mac) **Android Studio** -> preferences... -> Build, Execution, Deployment -> Build Tools -> Gradle

Check the 'Offline work' under 'Global Gradle settings'

It will reduce 90% gradle build time.

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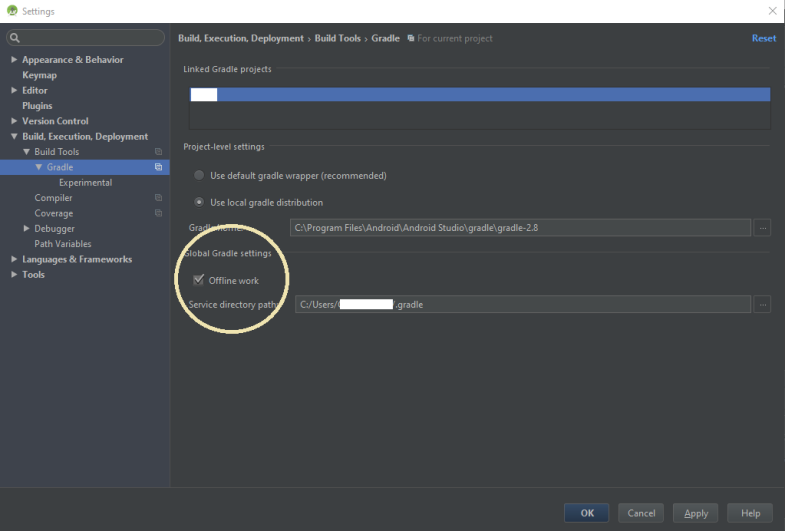
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if you just added a new dependency in your gradle you will have to uncheck the **offline work** or gradle will not be able to resolve the dependencies. After the complete resolving then you you can check the **offline work** for a faster build

edited Jan 30 '18 at 19:03



Jacksonkr

18.4k 35 143 240

answered Mar 8 '16 at 5:18



Biswajit Karmakar

7,217 3 27 36

8 Worked great. From 12 mins to 5 seconds – [Ramesh](#) Mar 17 '16 at 18:15

16 won't this configuration stop fetching new libraries when we add them to build.gradle ? – [Dany Y](#) Mar 29 '16 at 13:59

44 when you add a new library then you have to make it online just for one time which will be notified by gradle build to make project runnable @DanyY – [Biswajit Karmakar](#) Mar 29 '16 at 18:47

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12:08

Thanks! This gave me back an hour per working day! – [ezaspi](#)
Oct 31 '17 at 11:32



144



If you are using Google Play services, make sure you aren't using this in your Gradle build script:

```
compile 'com.google.android.gms:play-services:8.3.0'
```

Only use those Google APIs that your app is really using. If all you are using is Google Maps, you would use this:

```
com.google.android.gms:play-services-maps:8.3.0
```

When I did this, my compile time went from over 2 minutes to around 25 seconds. For a list of the Google apis that you can selectively compile against, see:

<https://developers.google.com/android/guides/setup>

answered Nov 29 '15 at 1:37



AndroidDev

10.4k 26 96 169

12 You deserve 100+ upvotes. Every other source suggests adding `org.gradle.parallel=true` and command line related...but none provide a simple and straightforward understanding of what is really going on. Using your advice, my build time went from 1 min 5 secs, to 3.427 seconds. Awesome!! – [Sauron](#) Mar 8 '16 at 23:43

Thanks a lot, this was my main problem too. Now everything working great. – [alnaji](#) Apr 17 '16 at 21:29

1 Works great. Use this link to find your play services library

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You deserved a tick... You have solved my problem. The problem is on google play services... Thanks :) –

[Karue Benson Karue](#) May 29 '16 at 21:05 

Not only did this help with the long build issues but I can now also deploy directly to the Android device without using Proguard when debugging (previously I was getting an error about 65K method limit). thanks! – [magritte](#) Nov 13 '16 at 19:27



Found an easy and best way to build gradle

43

go to your app >> open your gradle.properties and change few lines from it [remove #]



else you may copy paste my below snippet as well

```
# Project-wide Gradle settings.

# IDE (e.g. Android Studio) users:
# Gradle settings configured through the IDE *will override*
# any settings specified in this file.

# For more details on how to configure your build environment
# http://www.gradle.org/docs/current/userguide/build_environment.html

# Specifies the JVM arguments used for the daemon process.
# The setting is particularly useful for tweaking memory settings.
# Default value: -Xmx2048m -XX:MaxPermSize=512m
org.gradle.jvmargs=-Xmx4096m -XX:MaxPermSize=1024m -XX:+HeapDumpOnOutOfMemoryError
# When configured, Gradle will run in incubating parallel mode.
# This option should only be used with decoupled projects.
# http://www.gradle.org/docs/current/userguide/multi_project_builds.html#sec:parallel_execution
org.gradle.parallel=true
```

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it worked for me earlier it take almost 2-3 minutes now it is taking only 5-6 second

in above scenario my mac machine have 8GB ram so i assigned 4gb for gradle

edited Jul 14 '16 at 11:07



[Shashanth](#)

2,722 4 23 38

answered May 27 '16 at 5:41



[Android is everything for me](#)

3,801 3 21 34

This reduced my build time from 30+ minutes to 24 mins... Is there any way to reduce further...? – [Programming Pirate](#) Dec 1 '18 at 6:48



33



Found the reason!! If Android Studio has a proxy server setting and can't reach the server then it takes a long time to build, probably its trying to reach the proxy server and waiting for a timeout. When I removed the proxy server setting its working fine.



Removing proxy: File > Settings > Appearance & Behavior > System settings > HTTP Proxy

edited Jan 11 '17 at 8:02




[T.Todua](#)

32.5k 12 138 142

answered Apr 2 '15 at 9:24

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-
- 3 How to remove the proxy server ? – [Joolah](#) Aug 28 '15 at 2:29
-
- 2 On Windows File > Settings > Appearance & Behavior > System settings > HTTP Proxy – [Harish](#) Aug 28 '15 at 7:02
-
- 104 Already disabled. Not helpful! :(– [sud007](#) Aug 31 '15 at 11:08 
-
- 23 AS is complete joke and bs. I am just tired of this nonsense. – [The_Martian](#) Apr 12 '16 at 5:18
-
- 7 I agree!!! I am suffering unholy amounts of pain to migrate a big project from Eclipse, and now that errors are cleared, building with AS never finishes!!! I hate AS @The_Martian – [Josh](#) Aug 3 '16 at 6:33
-



Enabling Java 8 features caused deadly slow build

17

gradle

```
jackOptions {  
    enabled true  
}  
  
compileOptions {  
    targetCompatibility 1.8  
    sourceCompatibility 1.8  
}
```

After deleting above lines, it builds in seconds.

There is issue [Compiling with Jack takes very long time](#)

Project Manager's Answer

We're aware that build times are an issue with Jack right now. We have improvements in the 2.4 Gradle

As of now, latest Gradle version i can find is [2.3.0-beta4](#)

edited Feb 17 '17 at 7:01

answered Feb 17 '17 at 6:54



tchelidze

5,564 1 20 34

-
- 4 Yes I agree. To enable java 8 in android studio you need to use Jack and by doing this my build times fly to the moon from 1-2 minute builds to 16 minutes... what the It is unusable right now. As always great work Google – [Karol Żygłowiec](#) Feb 21 '17 at 12:28
-

exactly -_- – [mhdjzmati](#) Mar 10 '18 at 11:56



Following the steps will make it 10 times faster and reduce build time 90%

16



First create a file named gradle.properties in the following directory:

```
/home/<username>/gradle/ (Linux)
/Users/<username>/gradle/ (Mac)
C:\Users\<username>\gradle (Windows)
```

Add this line to the file:

```
org.gradle.daemon=true
```

```
org.gradle.parallel=true
```

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user779370

1,344 1 9 8

-
- 4 You can set it directly from gradle.properties located under studio project. – [Biswajit Karmakar](#) Apr 6 '16 at 18:49
-
- 3 Yes also enable this option `org.gradle.jvmargs=-Xmx2048m -XX:MaxPermSize=512m -XX:+HeapDumpOnOutOfMemoryError -Dfile.encoding=UTF-8` – [user779370](#) Apr 6 '16 at 18:51
-
- 2 Set `MaxPermSize=1024m` – [Biswajit Karmakar](#) Apr 6 '16 at 19:03
-

Why are those properties not predefined?? Are there any downsides? – [oli](#) Nov 30 '16 at 19:07

This option should only be used with decoupled projects. More details, visit [gradle.org/docs/current/userguide/...](http://gradle.org/docs/current/userguide/) – [javadaskari](#) Dec 9 '16 at 9:54



Recommended Reading: [How I save 5h/week on Gradle builds!](#)

15



According to this excellent post you should try to optimized the following:

- Gradle Daemon
- Parallel Project Execution
- Configure projects on demand
- Modules are expensive...

answered Apr 20 '16 at 8:53



Oded Regev

1,344 1 9 8

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7



@AndroidDev solution worked for me. I had included the whole lib in gradle.

```
compile 'com.google.android.gms:play-services:8.4.0'
```

Changing to solved the problem. From 4 min to 1 min.

```
compile 'com.google.android.gms:play-services-ads:8.4.0'
compile 'com.google.android.gms:play-services-analytics:8.4.0'
```

Thnx

answered Feb 3 '16 at 20:13



KlevisGjN

178 3 12



3



Check your Internet connection. If internet speed is very slow gradle build will also take long time to build. I check by change my wifi internet connection with another one good speed connection. Now build time is normal. Please try this before you go to other solutions. somebody will take wrong decision to reinstall or change settings. I hope it will help. Thanks and regards.

answered Jan 23 '17 at 7:01



Karthikeyan

Dhesnamoorthy

59 4

Be sure to allow Android Studio on Firewall. Was waiting for almost 15 minutes for the gradle on a fresh install when suddenly Firewall window popped asking me to allow it.

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2

1) My build time severely increased after i added some new library dependencies to my gradle file, what turned out that i need to use multidex after that. And when i set up multidex correctly then my build times went up to 2-3 minutes. So if you want faster build times, avoid using multidex, and as far as possible, reduce the number of library dependencies.

2) Also you can try enabling "offline work" in android studio, like suggested here, that makes sense. This will not refetch libraries every time you make a build. Perhaps slow connection or proxy/vpn usage with "offline work" disabled may lead to slow build times.

3) google services - as mentioned here, dont use the whole bundle, use only the needed parts of it.

answered Oct 17 '16 at 11:27



lxknvlk

1,542 14 23

1

In the beta version of Android studio 2.0, they've rolled out a feature called [Instant Run](#). It reduces the build time by a big factor. The core concept is, Android Studio only pushes the small changes made into an already running app.

It classifies the changes we make in our code to three parts: hot swap, warm swap and cold swap, based on how much load would the change would put on the build. After that, it simply swaps the code in the already running app and we get could see the changes running a few seconds. See their [doc](#) for more information.

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PS: There are a few issues with this feature. They've listed it out at the docs. Check it out before installation.

answered Mar 9 '16 at 19:41



[Akeshwar Jha](#)

2,858 2 30 69



1. Go to File->Setting-->Gradle-->Set it to offline mode and check

1



answered Oct 31 '17 at 10:22



[vikas khot](#)

31 2



I was facing the same problem for a long time but I solved it by adjusting the settings in gradle.

1



Step 1: In Module app add dependency in BuildScript

```
buildscript {  
    dependencies {  
        classpath 'com.android.tools.build:gradle:2.0.0-alpha1'  
    }  
}
```

Step 2: Add dexOptions and give the following heapSize

```
dexOptions {  
    incremental = true;  
    preDexLibraries = false  
    javaMaxHeapSize "4g"  
}
```

Step 3: Add productFlavors

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```
productFlavors {
    dev {
        minSdkVersion 23
        applicationId = "com.Reading.home"
    }
    prod {
        minSdkVersion 15
        applicationId = "com.Reading.home" // you don't ne
    }
}
```

This should reduce your build time.

edited Nov 15 '17 at 7:50

answered Feb 12 '16 at 6:50



Binesh Kumar

2,054 10 18

▲ If you're using Windows 8...

0

▼ DroidArc and AndroidDev solutions where useful, but not enough. My problem was related with my Windows 8 OS and its 100% disk usage.

Especially the Windows Search service, was the most consuming. Disable it with: cmd(Admin) >net.exe stop "Windows search"

I followed the directions in this link and it solved the problem for real [4 Tips to Fix 100% Disk Usage & Improve Windows Performance](#)

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answered Feb 28 '17 at 22:53



karenms

1,368 13 17



I had the same issue in kotlin. Updating the outdated kotlin runtime solved it for me

0



answered Dec 27 '17 at 8:58



Rami Amr

41 7



I had issues like this especially when debugging actively through my phone; at times it took 27 minutes. I did the following things and take note of the explanation under each - one may work for you:

0



1. Changed my gradle.properties file (under Gradle scripts if you have the project file view under Android option OR inside your project folder). I added this because my computer has some memory to spare - you can assign different values at the end depending on your computer specifications and android studio minimum requirements (Xmx8000m - XX:MaxPermSize=5000m) :

```
org.gradle.daemon=true
```

```
org.gradle.configureondemand=true
```

```
org.gradle.parallel=true
```

```
android.enableBuildCache=true
```

```
..
```

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```
org.gradle.jvmargs=-Xmx8000m -  
XX:MaxPermSize=5000m -  
XX:+HeapDumpOnOutOfMemoryError -  
Dfile.encoding=UTF-8
```

2. This did not completely solve my issue in my case.
Therefore I also did as others had suggested before -
to make my builds process offline:

File -> Settings/Preferences -> Build, Execution,
Deployment -> Gradle

Global Gradle Settings (at the bottom)

Mark the checkbox named: Offline Work.

3. This reduced time substantially but it was erratic; at
times took longer. Therefore I made some changes on
Instant Run:

File -> Settings/Preferences -> Build, Execution,
Deployment -> Instant Run

Checked : Enable Instant Run to hot swap code...

Checked: restart activity on code changes ...

4. The move above was erratic also and therefore I
sought to find out if the problem may be the
processes/memory that ran directly on either my
phone and computer. Here I freed up a little memory
space in my phone and storage (which was at 98%
utilized - down to 70%) and also on task manager
(Windows), increased the priority of both Android
Studio and Java.exe to High. Take this step
cautiously; depends on your computer's memory.

times spiked. I decided to do a hack which **surprised me** by taking it down to seconds best yet on the same project that gave me 22 - 27 minutes was 12 seconds!:

Connect phone for debugging then click RUN

After it starts, unplug the phone - the build should continue faster and raise an error at the end indicating this : Session 'app': Error Installing APKs

Reconnect back the phone and click on RUN again...

ALTERNATIVELY

If the script/function/method I'm debugging is purely JAVA, not JAVA-android e.g. testing an API with JSONArrays/JSONObjects, I test my java functions/methods on Netbeans which can compile a single file and show the output faster then make necessary changes on my Android Studio files. This also saves me a lot of time.

EDIT

I tried creating a new android project in local storage and copied all my files from the previous project into the new one - java, res, manifest, gradle app and gradle project (with latest gradle classpath dependency). And now I can build on my phone in less than 15 seconds.

[edited Nov 7 '18 at 11:53](#)

answered Oct 31 '18 at 13:11



[Firsake](#)

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In your build.gradle, if you have minifyEnabled for debug, remove it. I had it in my project and it took ~2-3 minutes to build. After looking at build progress, I found this as culprit, so deleting the commented line below, my issue was fixed.

```
buildTypes {
    release {
        minifyEnabled true
        proguardFiles getDefaultProguardFile('proguard
rules.pro')
    } // debug {
        // minifyEnabled true
        // proguardFiles getDefaultProguardFile('proguard
rules.pro')
    }
```

answered Dec 11 '18 at 17:58



Mukesh

41 7

0

You could try the tips in this post [Why your Android Studio takes forever to build - Part 2](#) One of the tips recommends "Enable offline mode" among other things.

answered Feb 27 at 23:19



Daniel Carpio Contreras

336 2 9

-3

I had a similar issue on my computer. Windows Defender was blocking some part of Gradle Building. I've disabled it, worked fine after that.

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70 5



-40



Try restarting your computer and running Android Studio again. Worked for me when trying to build a Cordova / Phonegap project with an Android target codebase.

answered Jun 3 '15 at 15:14



racl101

1,330 3 23 28

protected by [Community](#) ♦ Apr 27 '18 at 11:19

Thank you for your interest in this question. Because it has attracted low-quality or spam answers that had to be removed, posting an answer now requires 10 [reputation](#) on this site (the [association bonus](#) does not count).

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