

# Linguagem e Técnica de Programação Mobile

## **AULA 2 – Instalando e Configurando a Ferramenta de Desenvolvimento para Android**

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[joao.pimentel@projecao.br](mailto:joao.pimentel@projecao.br)

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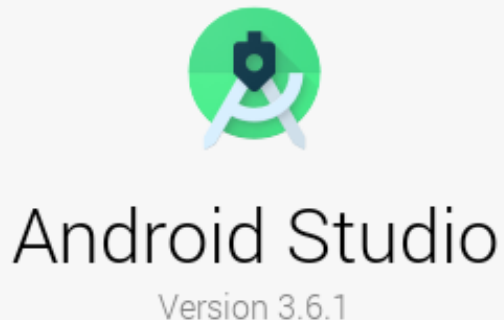
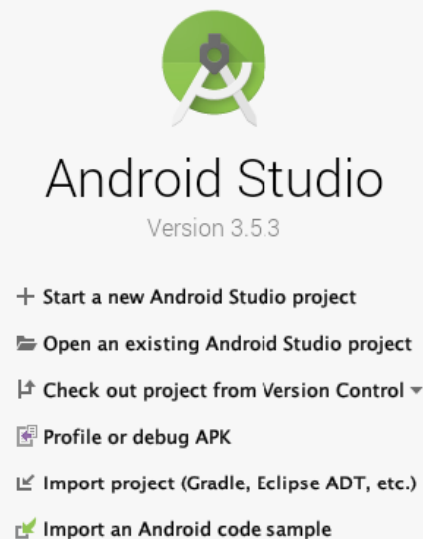
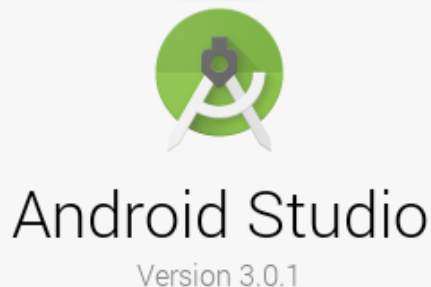
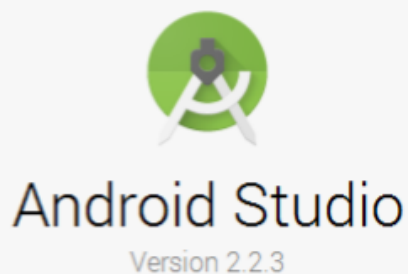
# Roteiro da Aula



- Versões do Android Studio
  - Download da Máquina Virtual Java
  - Download do Android Studio e do Android SDK
  - Instalação do Android Studio
  - Configurando o Android Studio
  - Criando um projeto de Demonstração
  - Executando o Projeto Android
  - Definindo o Projeto APP que será desenvolvido
-

# Versões do Android Studio

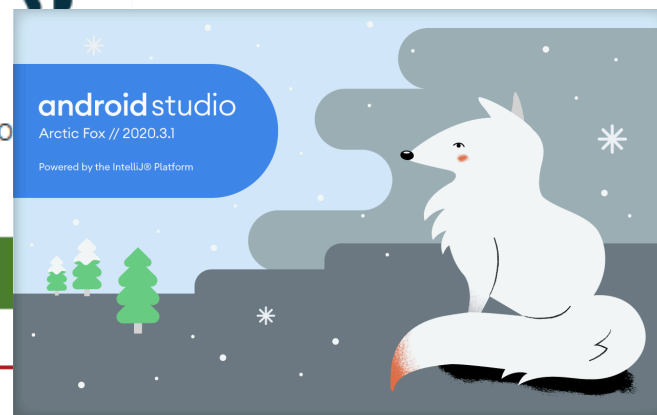
- Algumas versões do Android Studio:



es the fastest tools for building apps o

DOWNLOAD ANDROID STUDIO

4.0.1 for Windows 64-bit (871 MB)





# Download da Máquina Virtual Java



- Antes mesmo de efetuarmos o download da ferramenta de desenvolvimento, precisamos saber que a mesma depende da **Máquina Virtual Java** instalada em seu computador.
  - As versões mais atuais do Android Studio dependem especificamente do **Java 8**, ou seja, mesmo que você já tenha uma máquina virtual Java antiga presente em seu computador (como o **Java 7**), será obrigado a baixar a versão mais atual dela, se quiser desenvolver para Android nessa versão do Android Studio.
-

# Download da Máquina Virtual Java

- Para ver a versão instalada na máquina no windows é só ir no prompt e digitar java -version

```
C:\Users\JoãoPaulo>java -version
java version "1.8.0_261"
Java(TM) SE Runtime Environment (build 1.8.0_261-b12)
Java HotSpot(TM) 64-Bit Server VM (build 25.261-b12, mixed mode)
C:\Users\JoãoPaulo>
```

---

# Download da Máquina Virtual Java

- O link para a página de download encontra-se presente abaixo:

<http://www.oracle.com/technetwork/java/javase/downloads/index.html>

## Java SE 8u261

Java SE 8u261 includes important bug fixes. Oracle strongly recommends that all Java SE 8 users upgrade to this release.

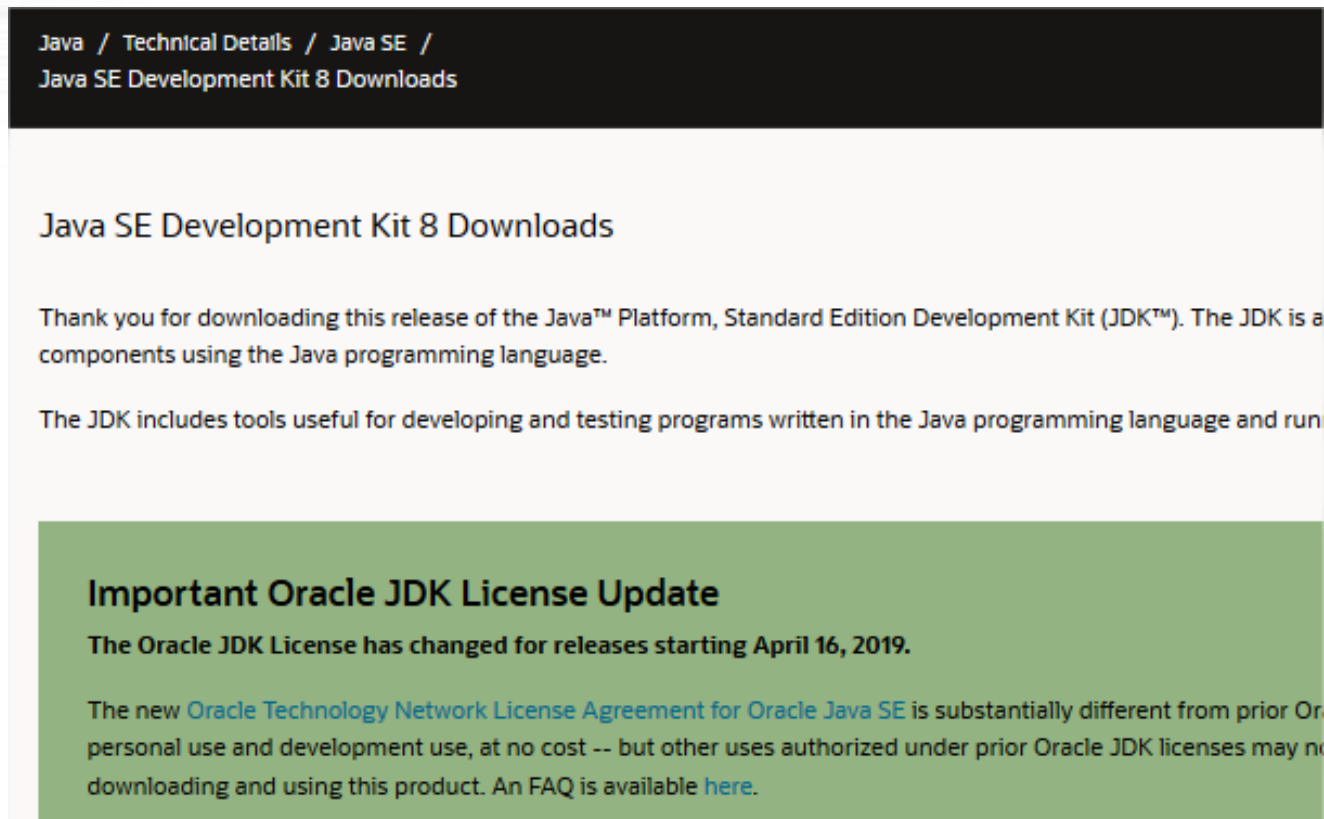
- [Documentation](#)
- [Installation Instructions](#)
- [Release Notes](#)
- [Oracle License](#)
  - [Binary License](#)
  - [Documentation License](#)
  - [BSD License](#)
- [Java SE Licensing Information User Manual](#)

## Oracle JDK

-  [JDK Download](#)
-  [Server JRE Download](#)
-  [JRE Download](#)
-  [Documentation Download](#)
-  [Demos and Samples Download](#)

# Download da Máquina Virtual Java

- Entrando no link mencionado, será aberta a seguinte página:



The screenshot shows the Oracle website page for downloading the Java SE Development Kit 8. It features a dark header with navigation links, a main title, a thank-you message, and a green box with an important license update.

Java / Technical Details / Java SE /  
Java SE Development Kit 8 Downloads

## Java SE Development Kit 8 Downloads

Thank you for downloading this release of the Java™ Platform, Standard Edition Development Kit (JDK™). The JDK is a components using the Java programming language.

The JDK includes tools useful for developing and testing programs written in the Java programming language and run

### Important Oracle JDK License Update

The Oracle JDK License has changed for releases starting April 16, 2019.

The new [Oracle Technology Network License Agreement for Oracle Java SE](#) is substantially different from prior Or personal use and development use, at no cost -- but other uses authorized under prior Oracle JDK licenses may ne downloading and using this product. An FAQ is available [here](#).










# Download da Máquina Virtual Java

- Escolha a versão do JDK 8 de acordo com a versão do seu sistema operacional (32 ou 64 bits) , como é apontado na figura em seguida, e faça o seu download.

## Java SE Development Kit 8u261

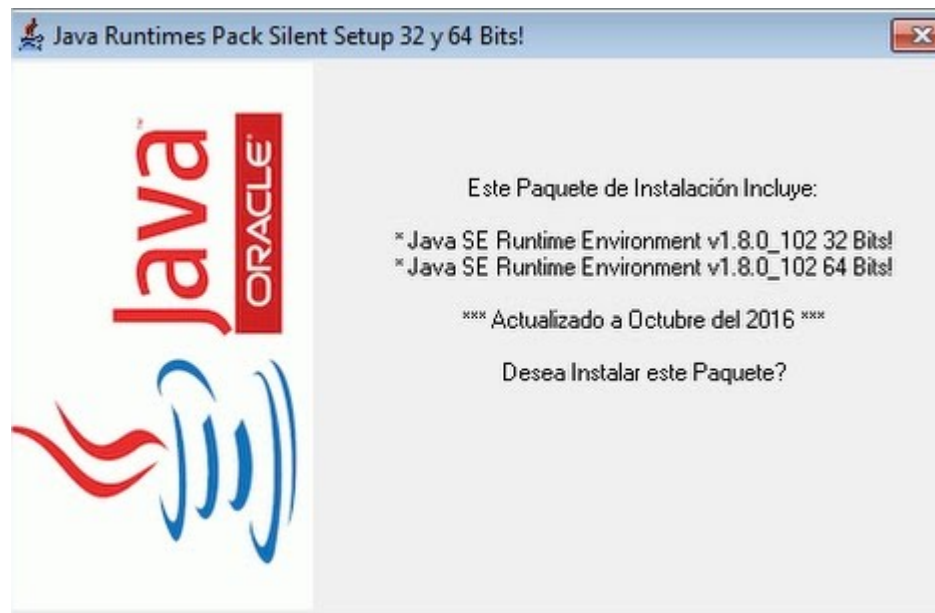
This software is licensed under the [Oracle Technology Network License Agreement for Oracle Java SE](#)

Product / File Description	File Size	Download
Linux ARM 32 Hard Float ABI	73.4 MB	 <a href="#">jdk-8u261-linux-arm32-vfp-hflt.tar.gz</a>
Linux ARM 64 Hard Float ABI	70.3 MB	 <a href="#">jdk-8u261-linux-arm64-vfp-hflt.tar.gz</a>
Linux x86 RPM Package	121.92 MB	 <a href="#">jdk-8u261-linux-i586.rpm</a>
Linux x86 Compressed Archive	136.81 MB	 <a href="#">jdk-8u261-linux-i586.tar.gz</a>
Linux x64 RPM Package	121.53 MB	 <a href="#">jdk-8u261-linux-x64.rpm</a>
Linux x64 Compressed Archive	136.48 MB	 <a href="#">jdk-8u261-linux-x64.tar.gz</a>
macOS x64	203.94 MB	 <a href="#">jdk-8u261-macosx-x64.dmg</a>



# Download da Máquina Virtual Java

- Após o seu download, faça a instalação da máquina virtual Java, seguindo passo a passo a tela de instalação (basicamente pressionando “**Next**” a cada etapa de instalação).



# Download do Android Studio

- Após o download e instalação da **máquina virtual Java**, vamos baixar e configurar o **Android Studio** para o desenvolvimento de nossas aplicações.
- Primeiramente vamos entrar no site oficial do **Android Studio**, através do seguinte link a seguir:
- <https://developer.android.com/studio/index.html>



# Download do Android Studio

- <https://developer.android.com/studio/index.html>



Android Studio provides the fastest tools for building apps on every type of Android device.

**DOWNLOAD ANDROID STUDIO**

4.0.1 for Windows 64-bit (871 MB)

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# Download do Android Studio

- Após aceitar os termos e condições do contrato:

## 8. Uso de APIs do Android

### 8.1 APIs Google Data

8.1.1 Ao utilizar qualquer API para consultar dados do Google, você reconhece que os dados (ou de outras pessoas ou empresas em nome delas). O uso de tal API pode estar sujeito a ter derivados com base nesses dados (na íntegra ou em parte), a menos que isso seja permitido

8.1.2 Ao utilizar qualquer API para recuperar dados de um usuário do Google, você reconhece os fins limitados aos quais o usuário tenha dado permissão. Caso utilize a API Android RecognitionService, atualizado periodicamente, você reconhece que o uso da API está sujeito



Li e aceito os Termos e Condições acima

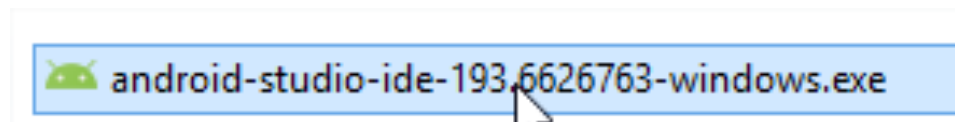
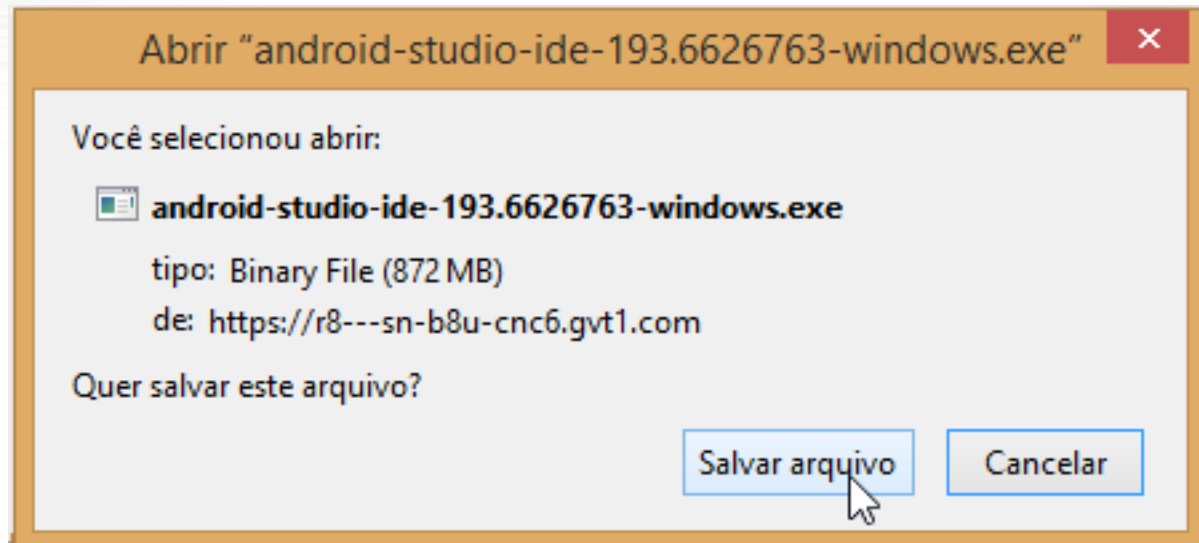
**FAZER O DOWNLOAD DE ANDROID STUDIO PARA WINDOWS**



android-studio-ide-193.6626763-windows.exe

# Download do Android Studio

- Abrir ou Salvar o arquivo executável:



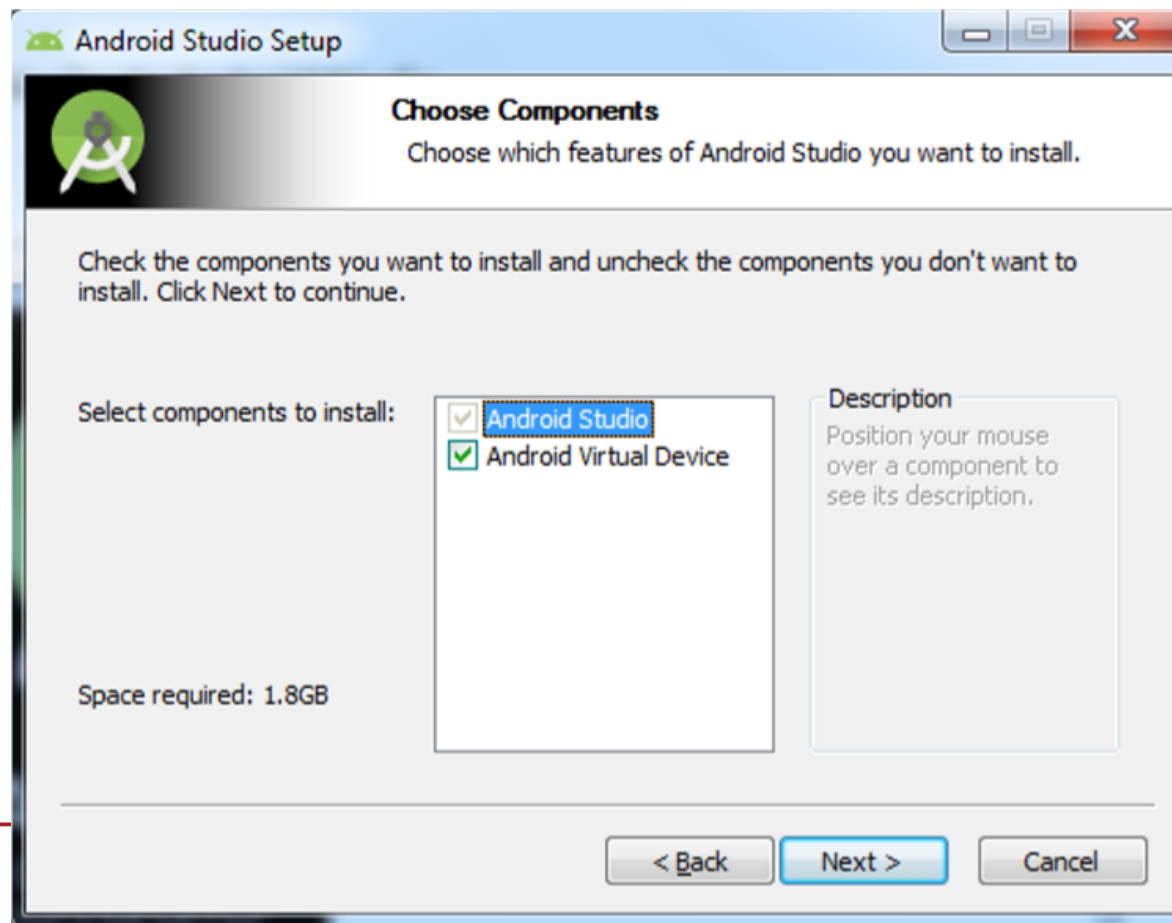
# Instalação do Android Studio

- Instalando o **Android Studio**:



# Instalação do Android Studio

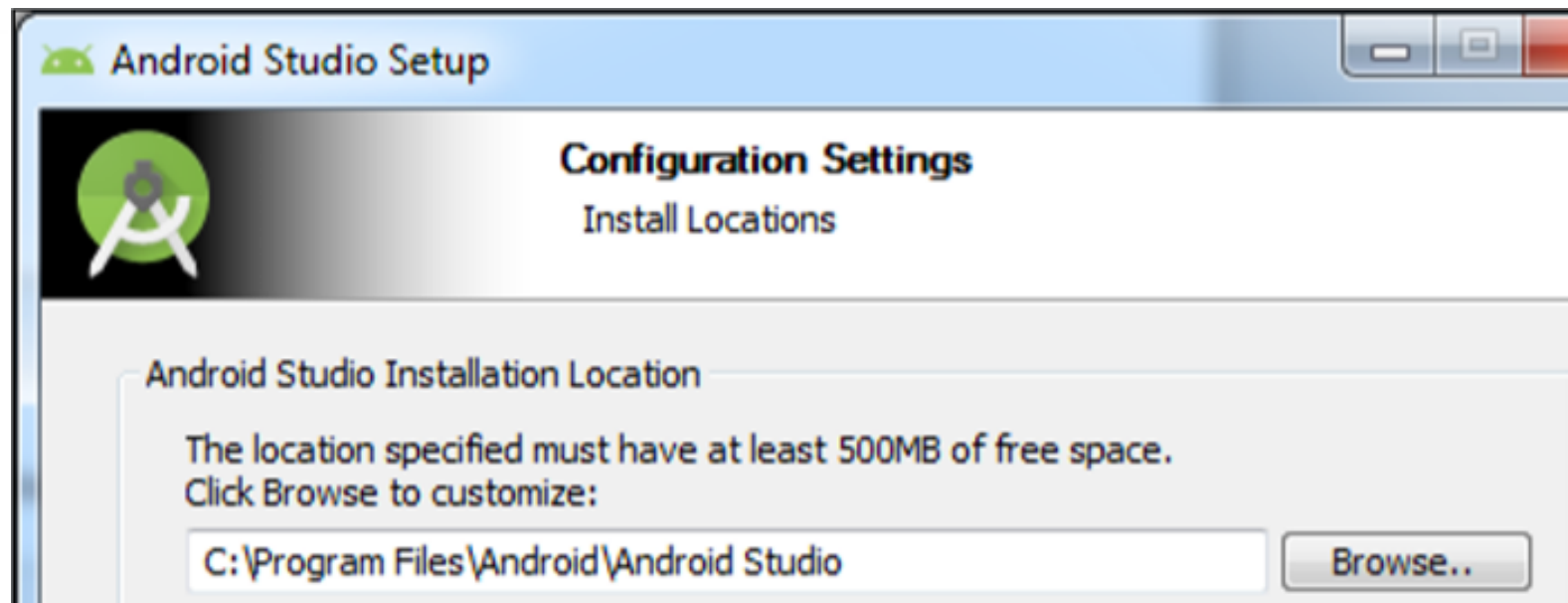
- Vamos clicar em “**Next**” para avançarmos na próxima etapa, conforme indicado na figura a seguir:





# Instalação do Android Studio

- Vamos manter as duas opções marcadas e em seguida clique em “Next”. Na próxima tela vamos deixar por padrão o local de instalação definido pelo software, conforme visto na figura a seguir:





# Instalação do Android Studio



- Na próxima tela clique simplesmente em **“Install”** para executarmos a instalação do **Android Studio** na máquina. Aguarde a instalação ser concluída.



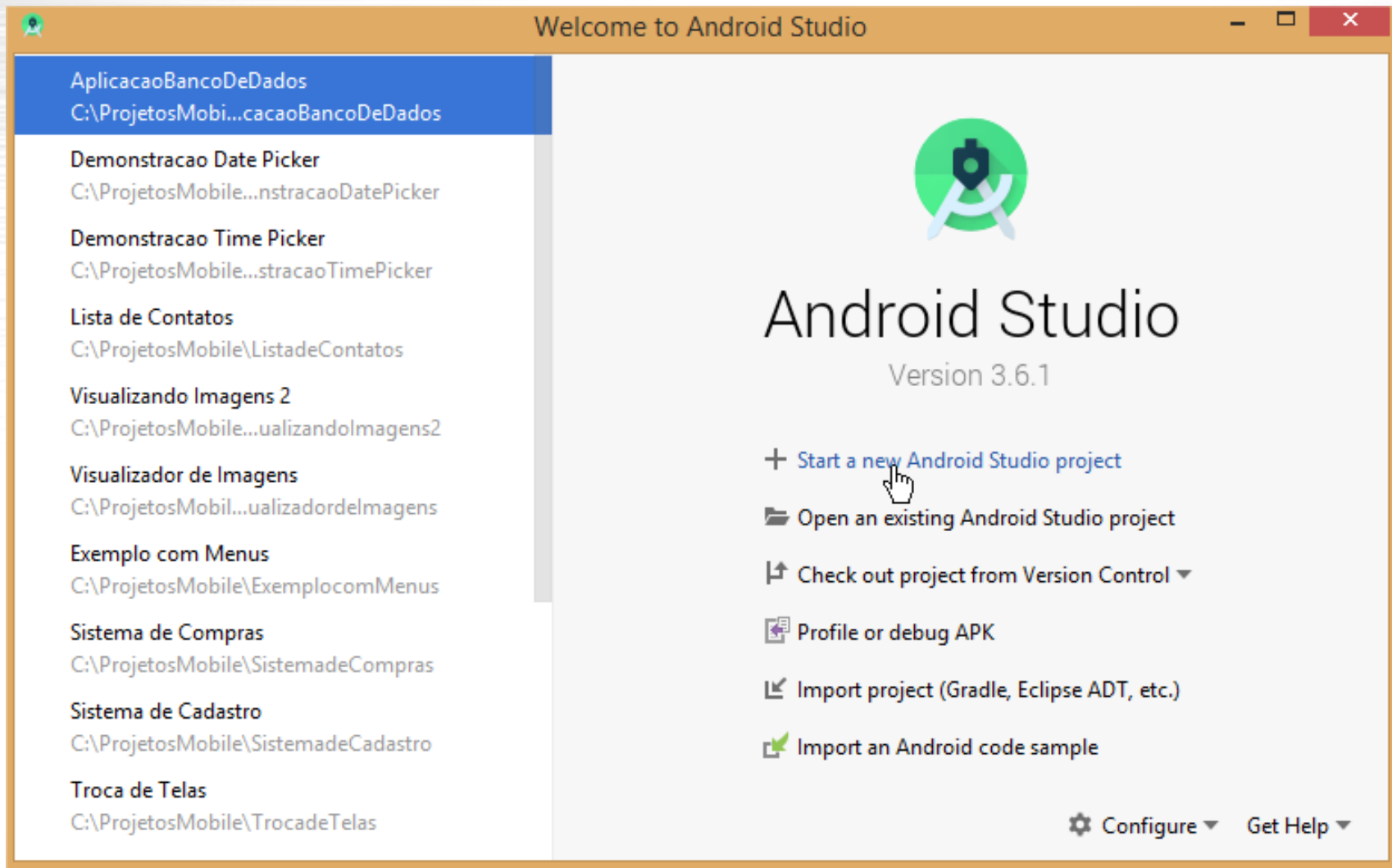
# Executando o Android Studio

- Terminada a instalação **execute o Android Studio.**

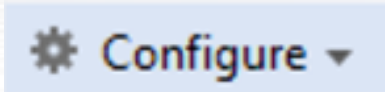


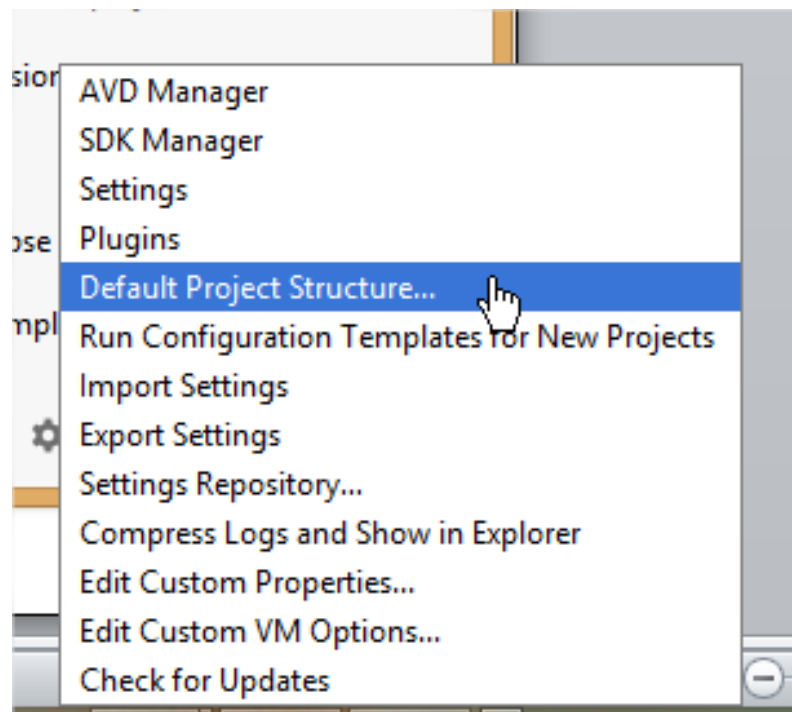
# Configurando o Android Studio

- Feito isso, será aberta a seguinte tela abaixo:



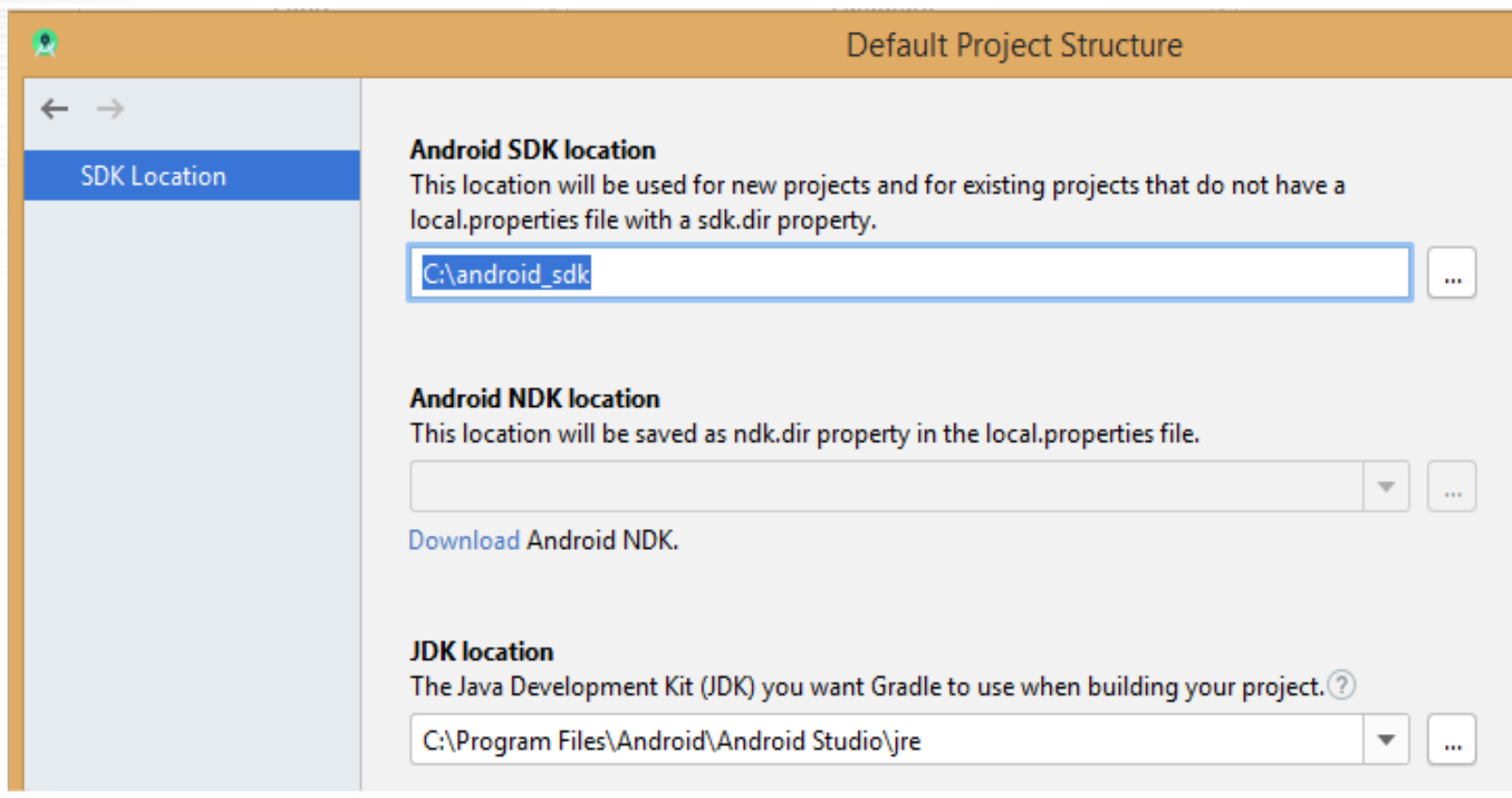
# Configurando o Android Studio

- Clique agora no item  conforme indicado na figura do slide anterior, e selecione a opção “**Default Project Structure**”, conforme podemos ver na figura a seguir:



# Configurando o Android Studio

- No campo **Android SDK location**, vejamos o local onde se encontra instalado o **Android SDK**, neste caso, diretório “**c:\android\_sdk**”.



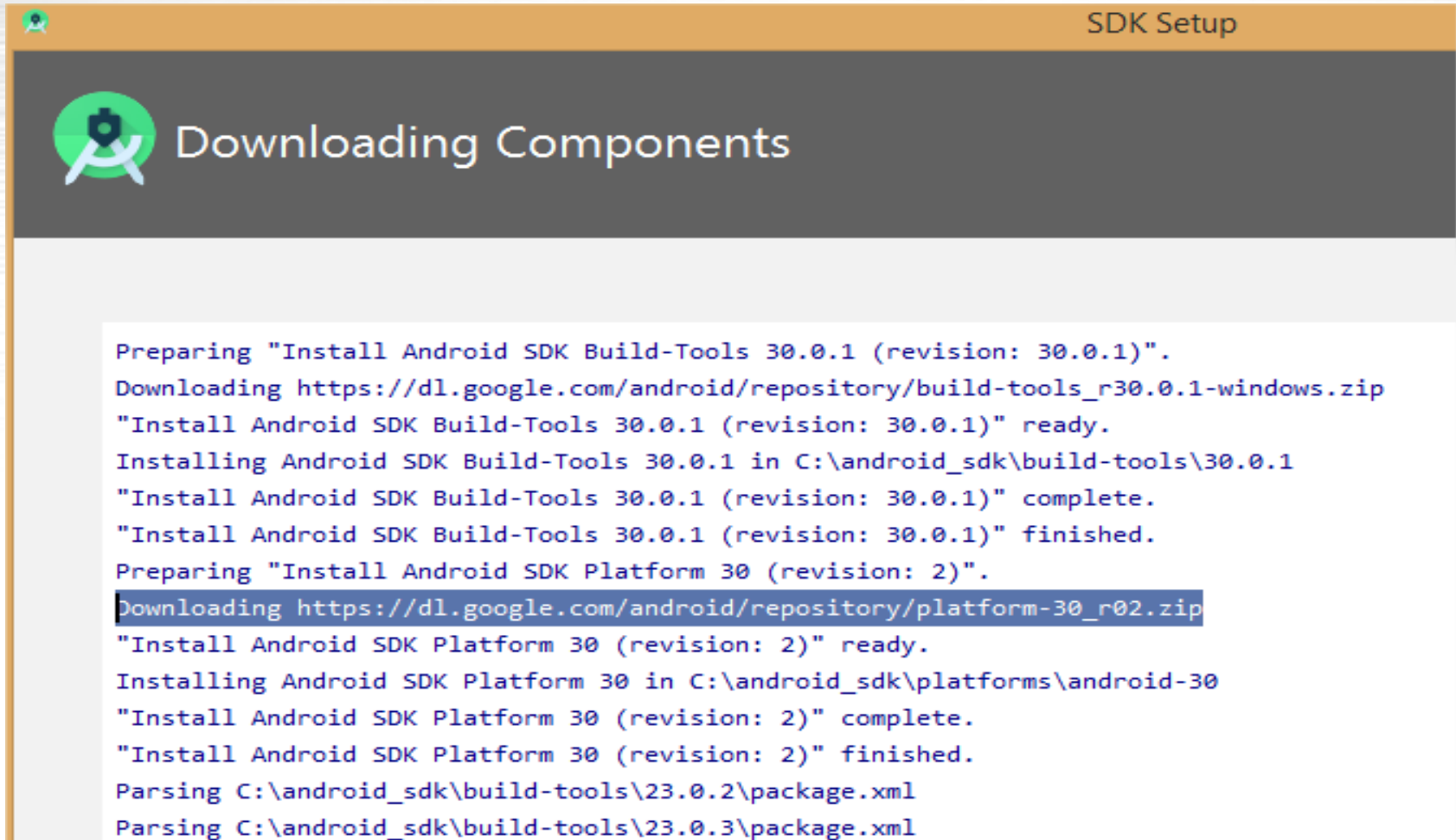
# Configurando o Android Studio

- Em **Android NDK location** é um conjunto de ferramentas que permite implementar partes do seu APP em código nativo, usando linguagens como **C e C++**.
  - Em **JDK location** vamos informar o local onde se encontra instalado a máquina virtual Java -normalmente em:
  - **C:\Program Files\Java\jdk1.8.0\_xxx\.**
-



# Configurando o Android Studio

- Se precisar baixar/atualizar componentes:

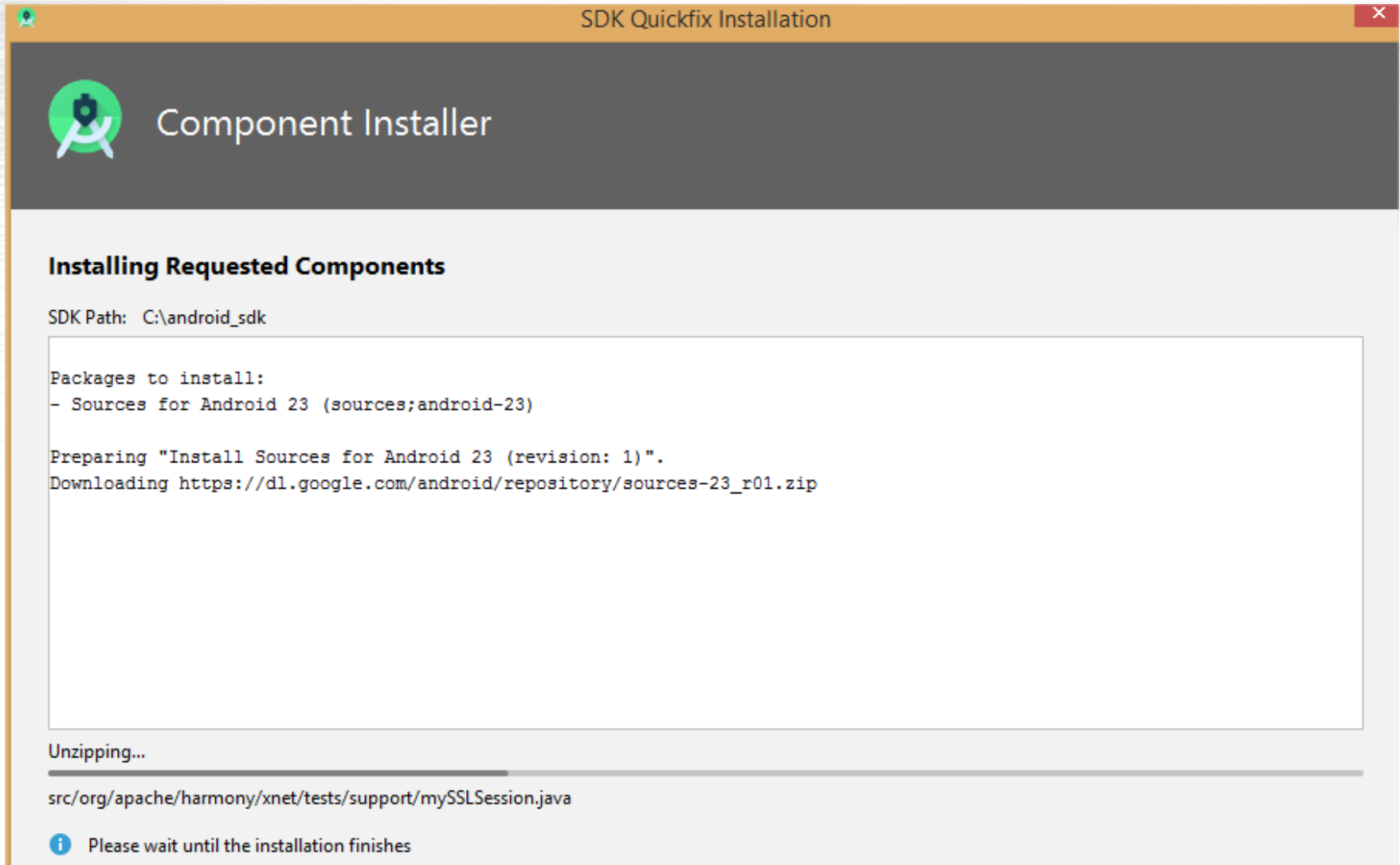


The screenshot shows the 'SDK Setup' window in Android Studio. The title bar is orange and says 'SDK Setup'. The main area has a dark grey header with the Android Studio logo and the text 'Downloading Components'. Below this, a white box contains a log of the setup process. The log shows the installation of Android SDK Build-Tools 30.0.1 and Android SDK Platform 30. The download links for these components are highlighted in blue.

```
Preparing "Install Android SDK Build-Tools 30.0.1 (revision: 30.0.1)".
Downloading https://dl.google.com/android/repository/build-tools_r30.0.1-windows.zip
"Install Android SDK Build-Tools 30.0.1 (revision: 30.0.1)" ready.
Installing Android SDK Build-Tools 30.0.1 in C:\android_sdk\build-tools\30.0.1
"Install Android SDK Build-Tools 30.0.1 (revision: 30.0.1)" complete.
"Install Android SDK Build-Tools 30.0.1 (revision: 30.0.1)" finished.
Preparing "Install Android SDK Platform 30 (revision: 2)".
Downloading https://dl.google.com/android/repository/platform-30_r02.zip
"Install Android SDK Platform 30 (revision: 2)" ready.
Installing Android SDK Platform 30 in C:\android_sdk\platforms\android-30
"Install Android SDK Platform 30 (revision: 2)" complete.
"Install Android SDK Platform 30 (revision: 2)" finished.
Parsing C:\android_sdk\build-tools\23.0.2\package.xml
Parsing C:\android_sdk\build-tools\23.0.3\package.xml
```

# Configurando o Android Studio

- Se precisar baixar/atualizar componentes:



# Configurando o Android Studio

- Em **AVD Manager**:



## Android Studio

Version 3.6.1

+ Start a new Android Studio project

Open an existing Android Studio project

Check out project from Version Control

Profile or debug APK

Import project (Gradle, Eclipse, Maven)


AVD Manager




SDK Manager

Settings

Plugins

Recent Projects & Sessions

 Your Virtual Devices  
Android Studio

Type	Name	Play Store	Resolution
	3.2 HVGA slider (ADP1) ...		320 × 480
	Pixel 2 API 24 NOVA		1080 × 1920


API	Target
24	Android 7.0 (Google Play)

+ Create Virtual Device...



# Configurando o Android Studio

- Nexus S com API Level 23 (Android 6.0)

 Select Hardware

### Choose a device definition

Category




TV

Phone

Wear OS


Tablet


Automotive

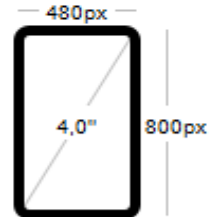
Name ▾	Play Store	Size	Resolution	Density
Pixel		5,0"	1080x1920	420dpi
Nexus S		4,0"	480x800	hdpi
Nexus One		3,7"	480x800	hdpi
Nexus 6P		5,7"	1440x2560	560dpi
Nexus 6		5,96"	1440x2560	560dpi
Nexus 5X		5,2"	1080x1920	420dpi
Nexus 5		4,95"	1080x1920	xxhdpi

New Hardware Profile

Import Hardware Profiles



 **Nexus S**



Size: normal  
Ratio: long  
Density: hdpi

# Configurando o Android Studio

- Nexus S com API Level 23 (Android 6.0)

## Select a system image

Recommended x86 Images Other Images

Release Name	API Level ▾	ABI	Target
<a href="#">API 30 Download</a>	30	x86	Android API 30 (Google APIs)
<a href="#">Q Download</a>	29	x86	Android 10.0 (Google APIs)
<a href="#">Oreo Download</a>	27	x86	Android 8.1 (Google APIs)
<a href="#">Oreo Download</a>	26	x86	Android 8.0 (Google APIs)
<a href="#">Nougat Download</a>	25	x86	Android 7.1.1 (Google APIs)
<a href="#">Nougat Download</a>	24	x86	Android 7.0 (Google APIs)
<b>Marshmallow</b>	23	x86	Android 6.0 (Google APIs)
Lollipop	22	x86	Android 5.1 (Google APIs)

## Marshmallow



API Level

**23**

Android

**6.0**

**Google Inc.**

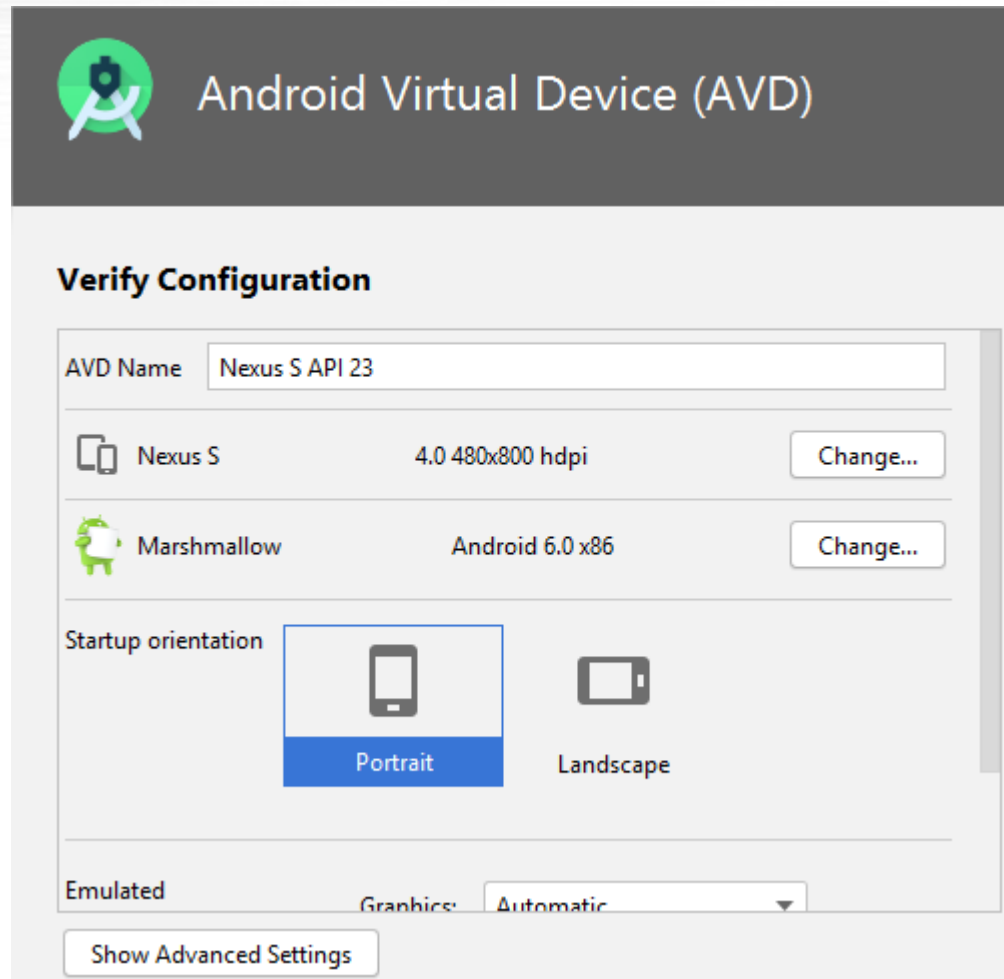
System Image

**x86**

We recommend these images because they and support Google APIs.

# Configurando o Android Studio

- Nexus S com API Level 23 (Android 6.0)



# Configurando o Android Studio

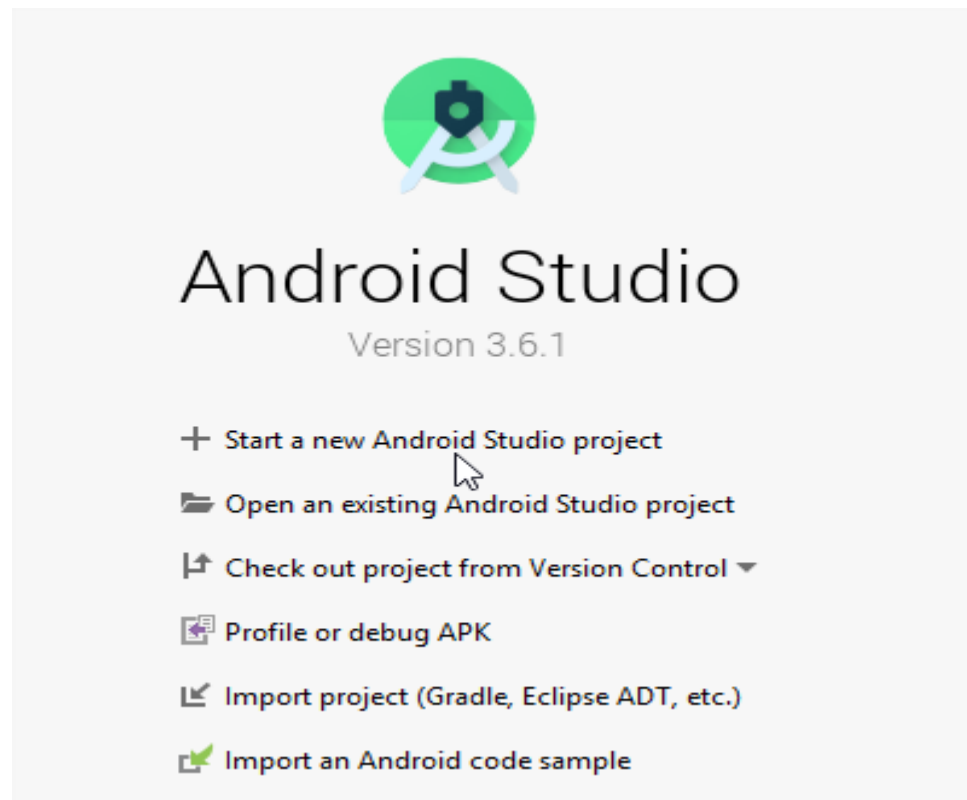
- Nexus S com API Level 23 (Android 6.0)





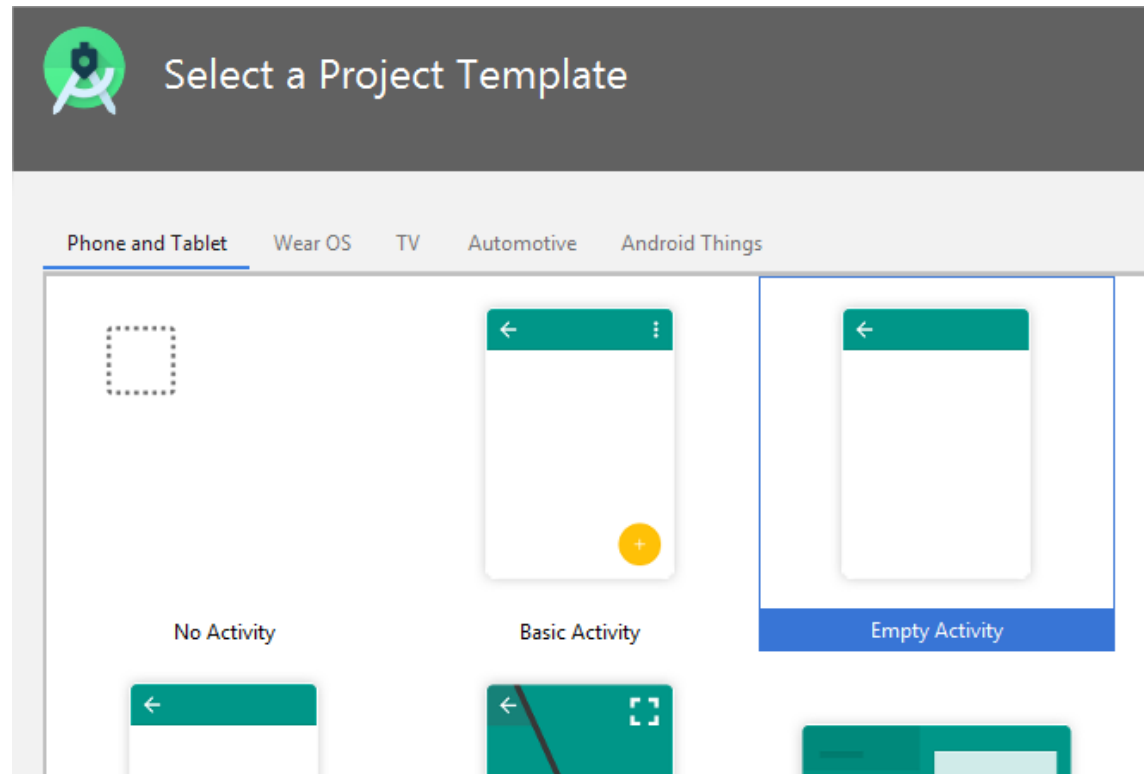
# Criando um projeto de Demonstração

- Com o Android Studio aberto (depois de configurado) clique em “**Start a new Android Studio project**”, conforme indicado na figura a seguir:



# Criando um projeto de Demonstração

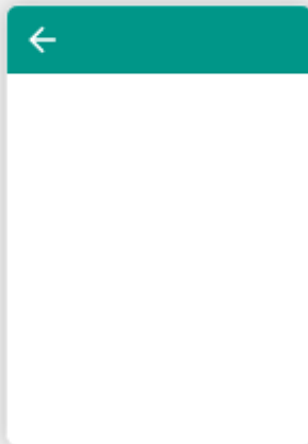
Nesta tela selecionamos o modelo de **layout da interface** da nossa aplicação, representado por uma classe do tipo **Activity**. ( “Empty Activity” ).



# Criando um projeto de Demonstração



## Configure Your Project



Empty Activity

Creates a new empty activity

Name

My Application

Package name

com.example.myapplication

Save location

C:\ProjetosMobile\MyApplication

Language

Java

Minimum SDK

API 23: Android 6.0 (Marshmallow)



Your app will run on approximately **84,9%** of devices.

[Help me choose](#)



Use legacy android.support libraries [?](#)

Previous

Next

Cancel

Finish

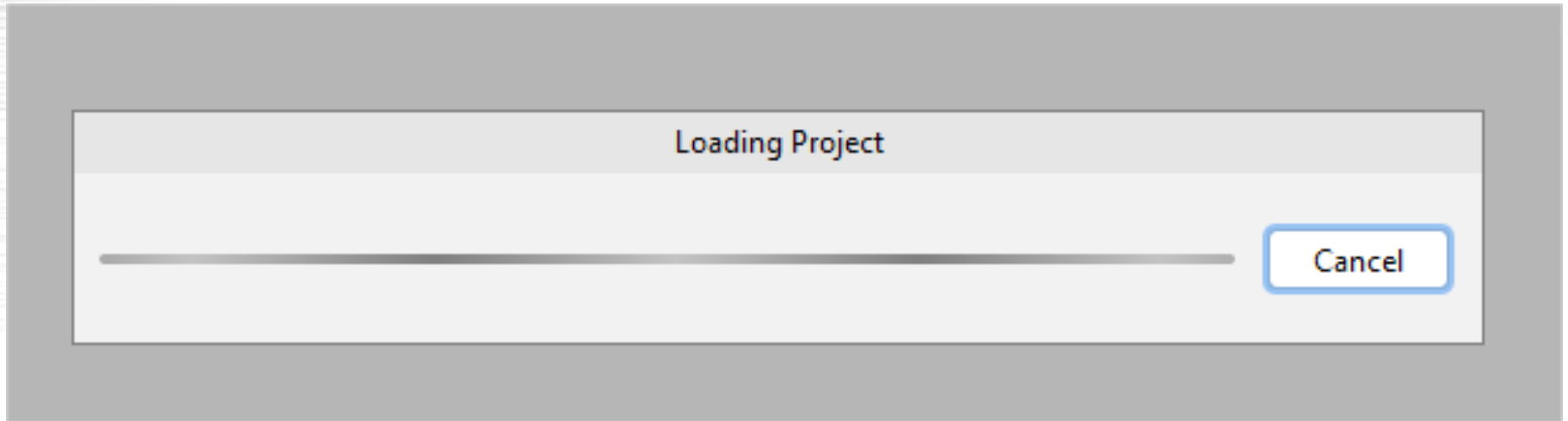
# Criando um projeto de Demonstração

Na tela anterior é onde escolhemos para qual **plataforma Android** iremos desenvolver (claro, dependendo de qual plataforma está instalada e configurada no seu computador através do **Android SDK**). Possivelmente, durante o processo da criação do projeto deverá surgir mais uma tela de instalação de componentes intermediários do próprio **Android Studio** (que ocorre sempre na primeira vez que você cria um novo projeto após a instalação. Basta seguir com a instalação para que possamos dar continuidade à criação do projeto.

---

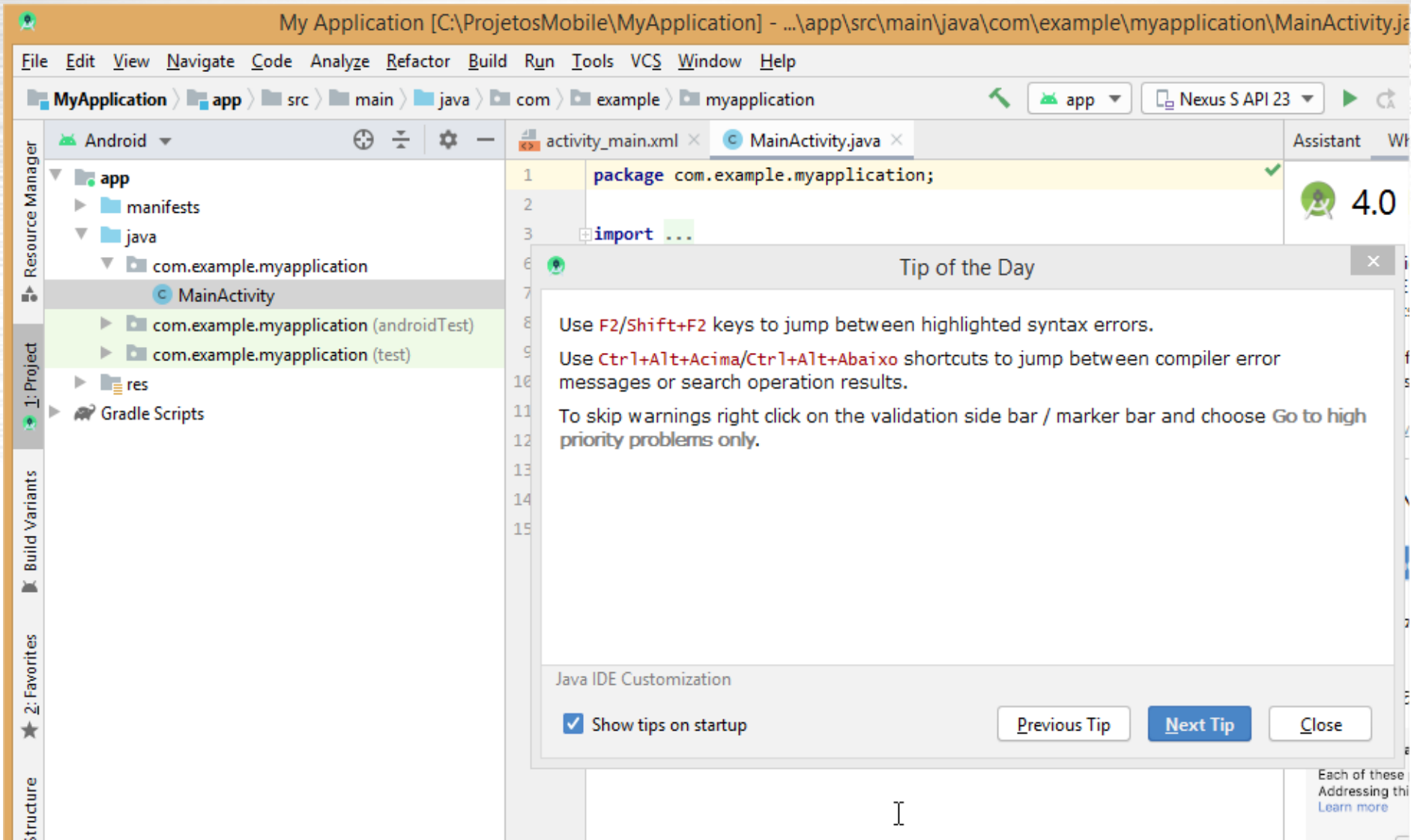
# Criando um projeto de Demonstração

Após clicar em **Finish**:

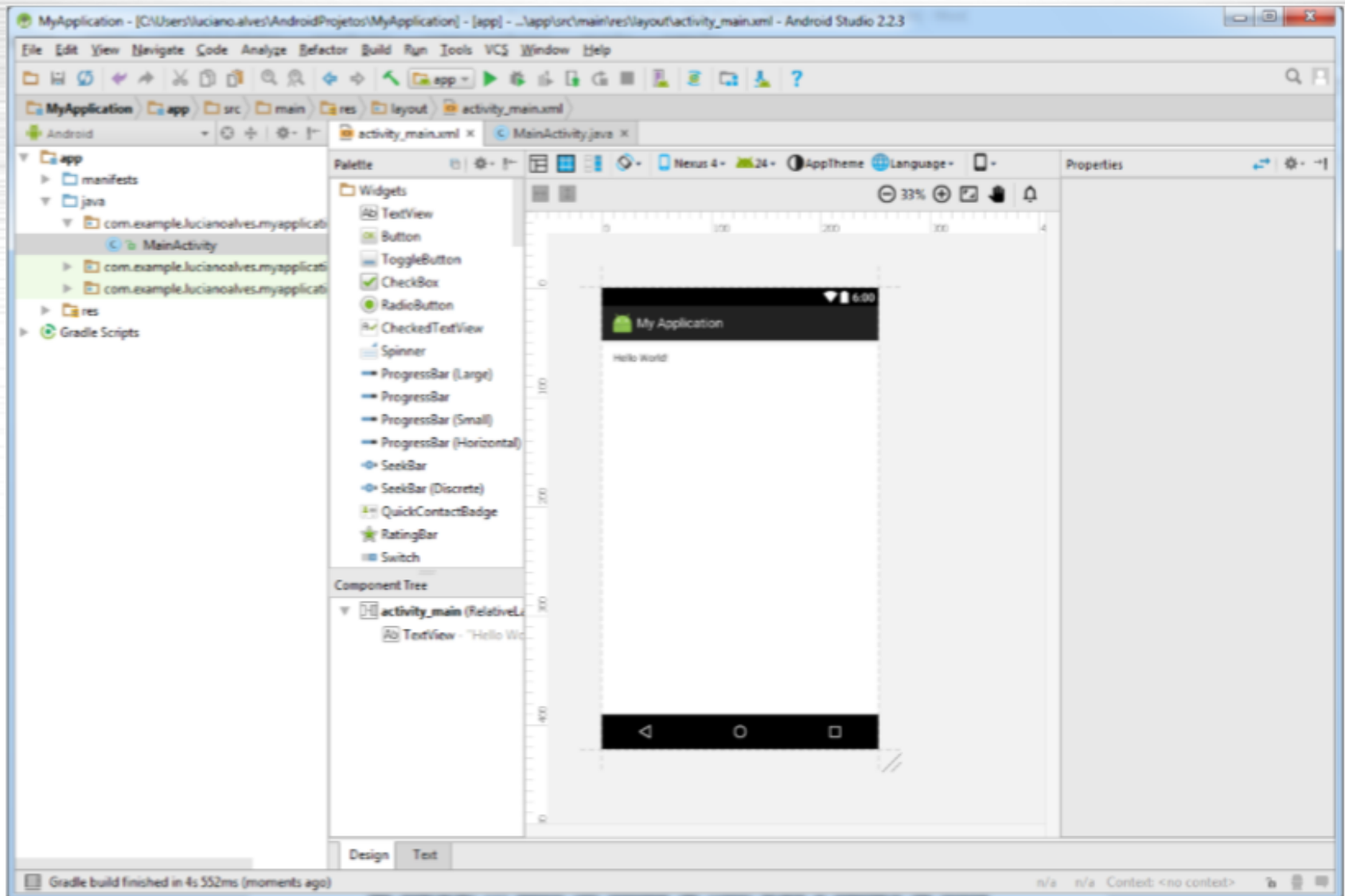


# Criando um projeto de Demonstração

O Projeto será criado:

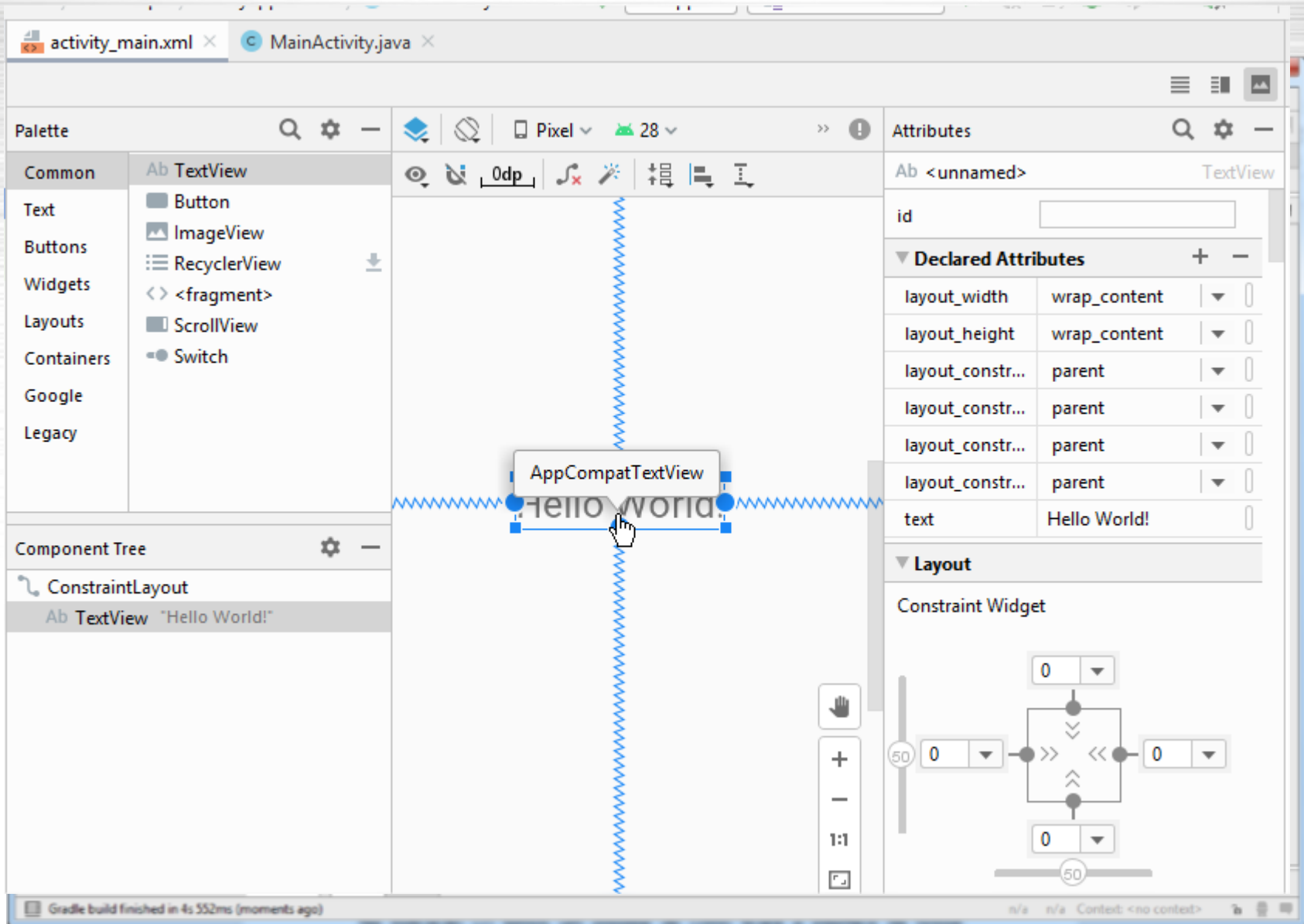


# Criando um projeto de Demonstração

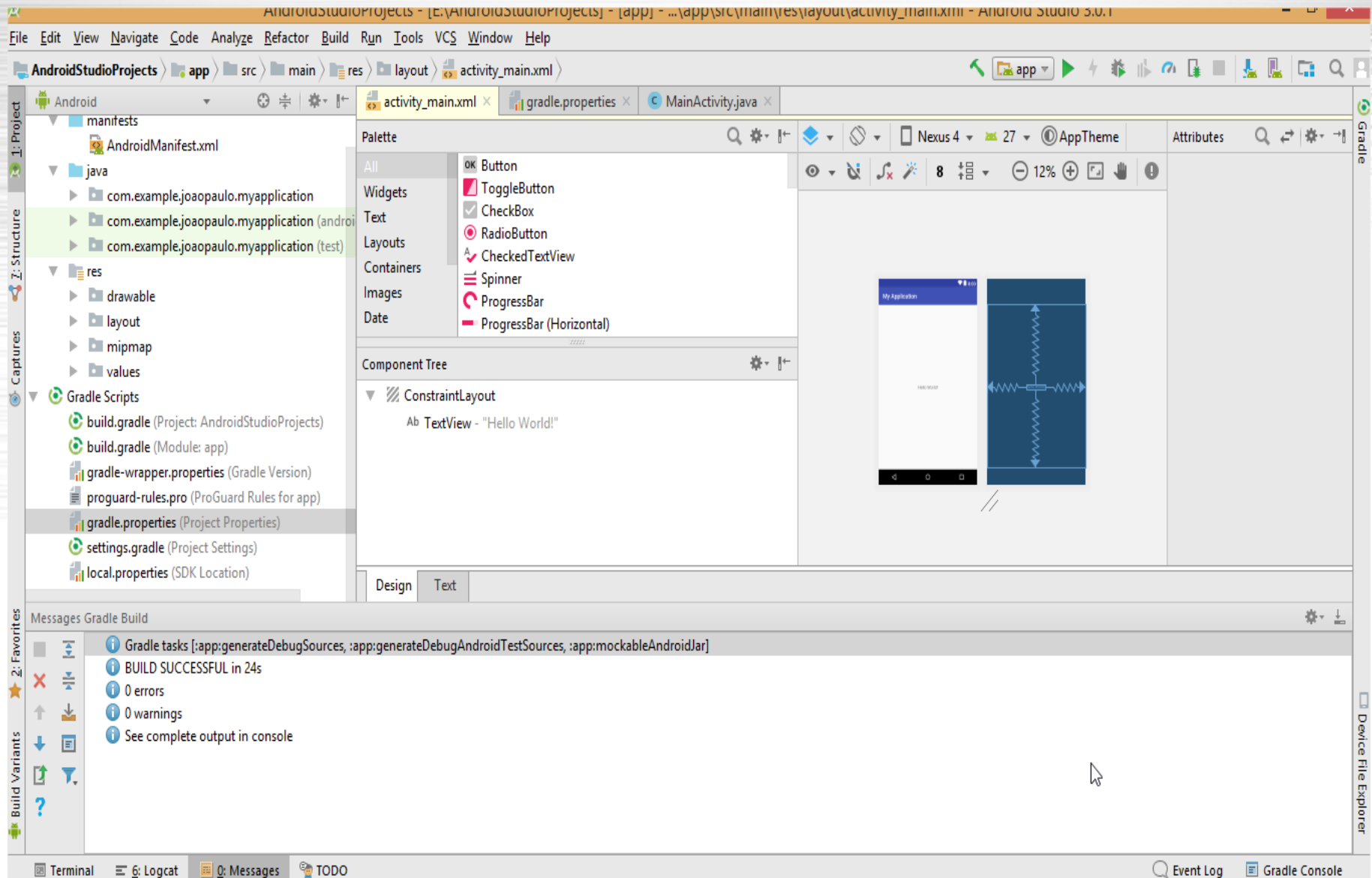




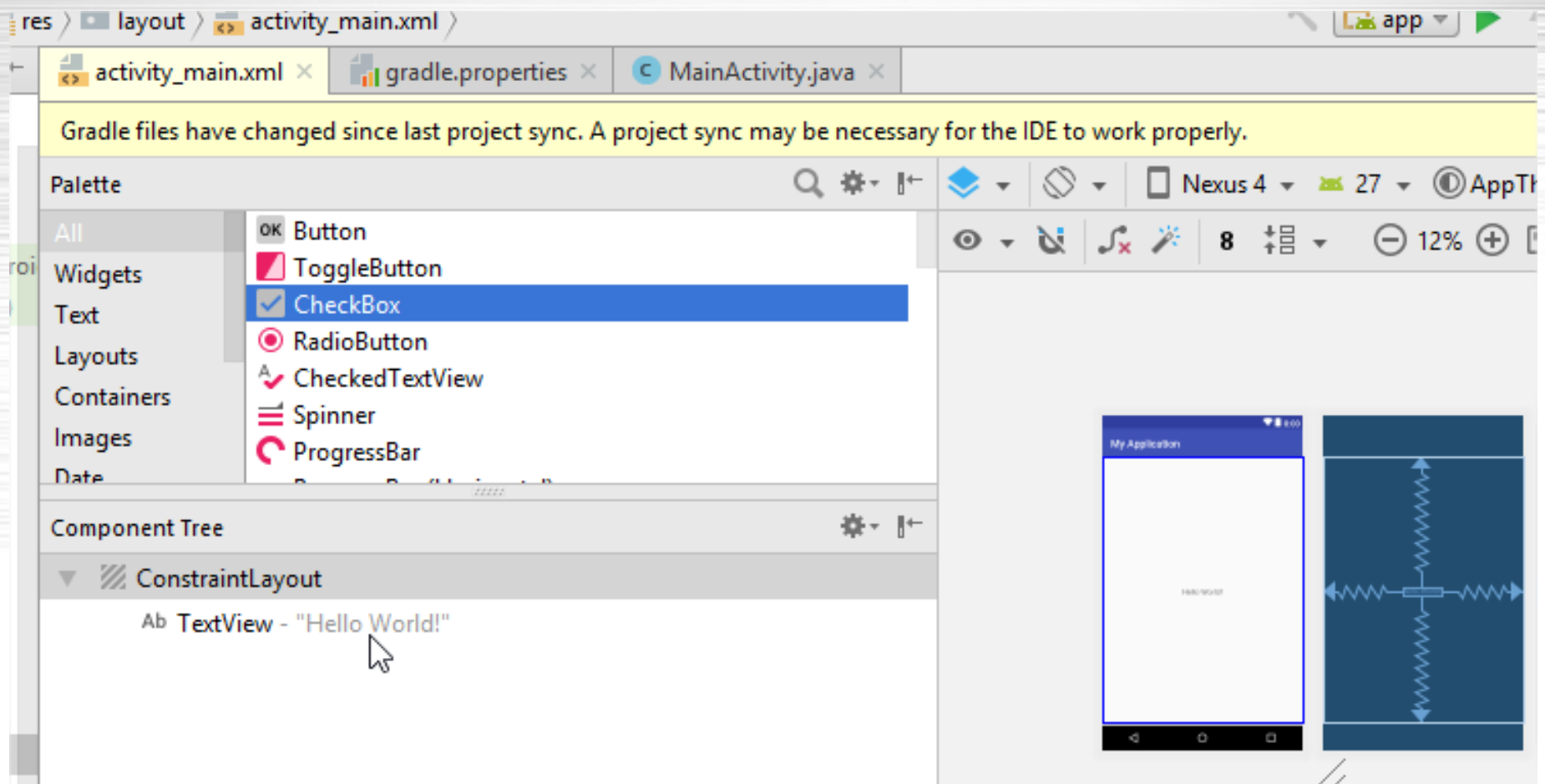
# Criando um projeto de Demonstração



# Criando um projeto de Demonstração



# Criando um projeto de Demonstração



# Arquivos do Projeto Android

File Edit View Navigate Code Analyze Refactor Build Run Tools VCS Window Help

MyApplication > app > src > main > res > layout > activity\_main.xml

Android

activity\_main.xml x MainActivity.java x

Resource Manager

- app
  - manifests
  - java
    - com.example.myapplication
      - MainActivity
    - com.example.myapplication (androidTest)
    - com.example.myapplication (test)
  - java (generated)
  - res
    - drawable
      - ic\_launcher\_background.xml
      - ic\_launcher\_foreground.xml (v24)
    - layout
      - activity\_main.xml
    - mipmap
    - values
      - colors.xml
      - strings.xml
      - styles.xml
  - Gradle Scripts

1: Project

Build Variants

2: Favorites

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <androidx.constraintlayout.widget.ConstraintLayout xmlns:andr
3     xmlns:app="http://schemas.android.com/apk/res-auto"
4     xmlns:tools="http://schemas.android.com/tools"
5     android:layout_width="match_parent"
6     android:layout_height="match_parent"
7     tools:context=".MainActivity">
8
9     <TextView
10         android:layout_width="wrap_content"
11         android:layout_height="wrap_content"
12         android:text="Hello World!"
13         app:layout_constraintBottom_toBottomOf="parent"
14         app:layout_constraintLeft_toLeftOf="parent"
15         app:layout_constraintRight_toRightOf="parent"
16         app:layout_constraintTop_toTopOf="parent" />
17
18 </androidx.constraintlayout.widget.ConstraintLayout>
```

# Arquivos do Projeto Android

MyApplication > app > src > main > java > com > example > myapplication > MainActivity

Android

Resource Manager

- app
  - manifests
  - java
    - com.example.myapplication
      - MainActivity
      - com.example.myapplication (androidTest)
      - com.example.myapplication (test)
    - java (generated)
    - res
      - drawable
        - ic\_launcher\_background.xml
        - ic\_launcher\_foreground.xml (v24)
      - layout
        - activity\_main.xml
      - mipmap
      - values
        - colors.xml
        - strings.xml
        - styles.xml
  - Gradle Scripts

1: Project

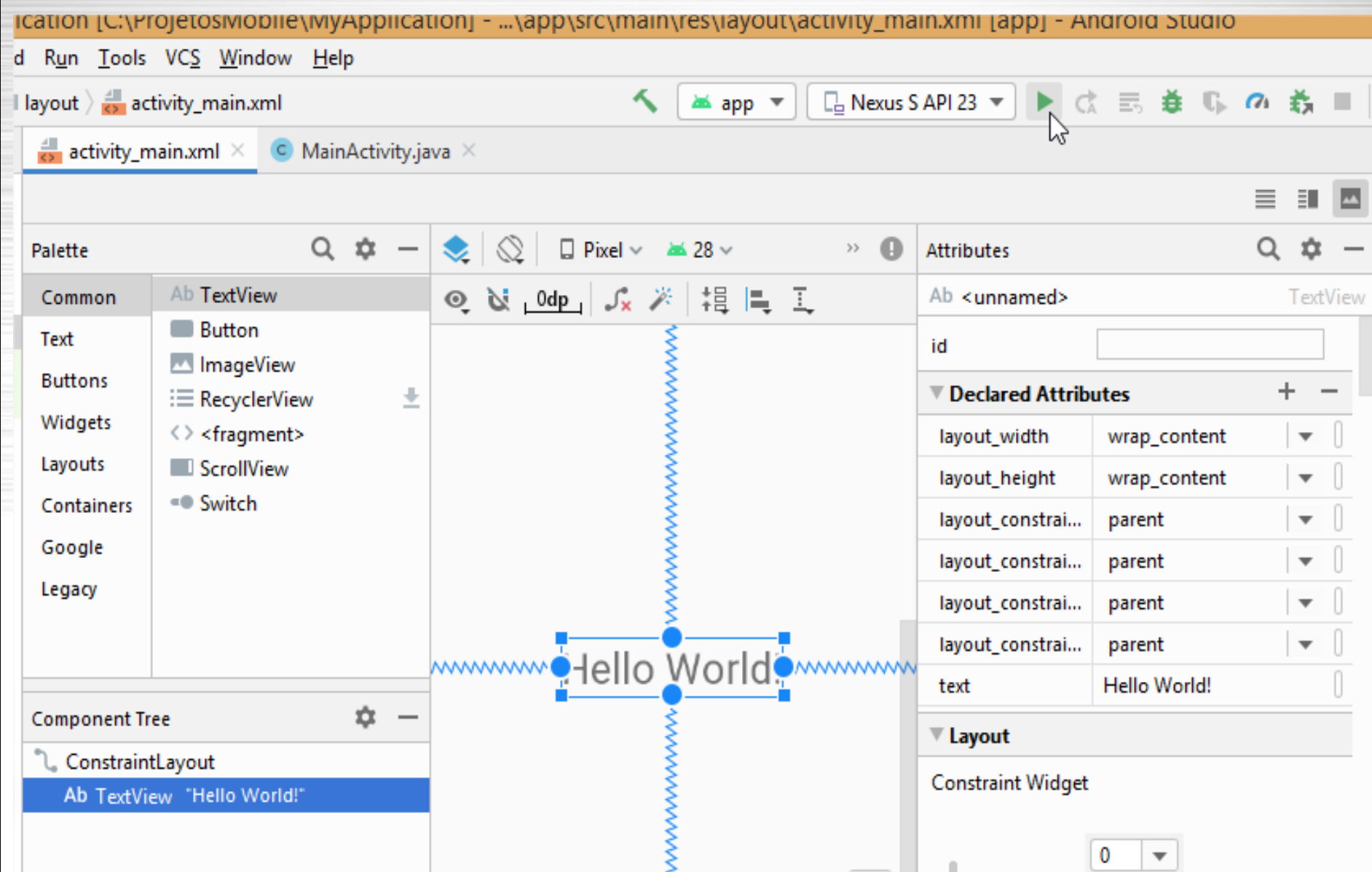
Build Variants

2: Favorites

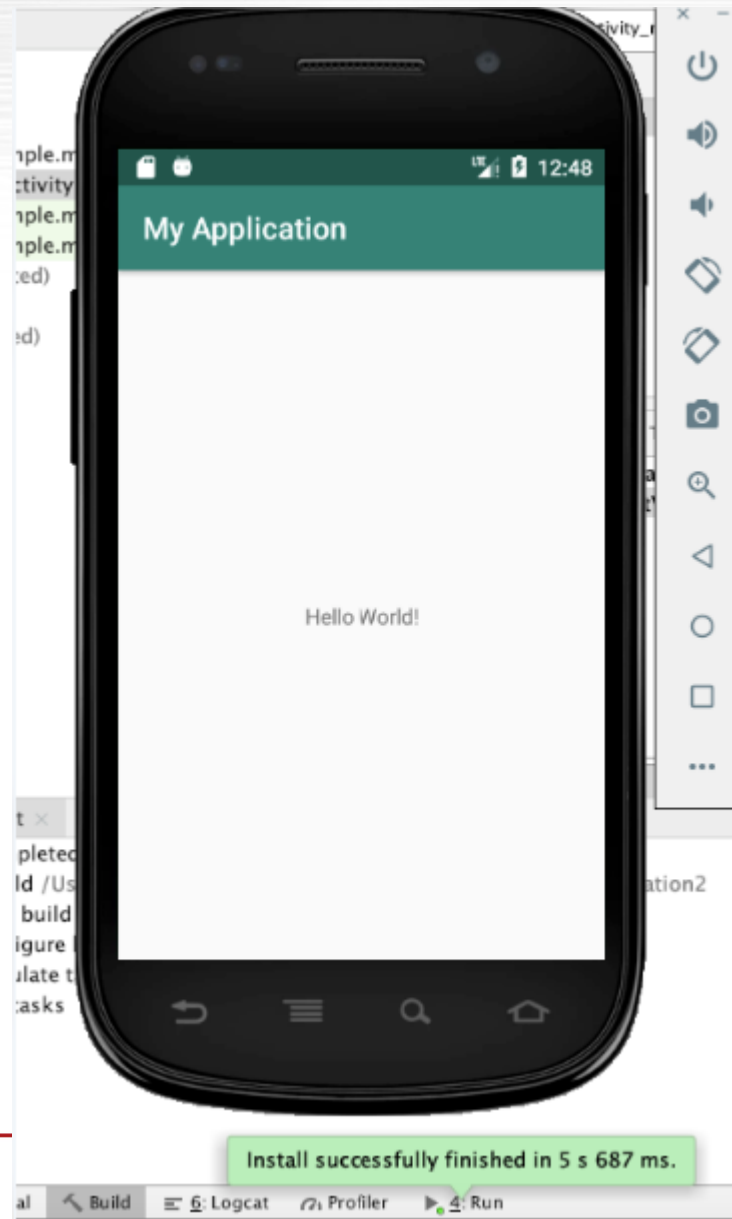
activity\_main.xml x MainActivity.java x

```
1 package com.example.myapplication;
2
3 import androidx.appcompat.app.AppCompatActivity;
4
5 import android.os.Bundle;
6
7 public class MainActivity extends AppCompatActivity {
8
9     @Override
10    protected void onCreate(Bundle savedInstanceState) {
11        super.onCreate(savedInstanceState);
12        setContentView(R.layout.activity_main);
13    }
14 }
15
```

# Executando o Projeto Android



# Executando o Projeto Android







# Leituras complementares

## Conheça o Android Studio

<https://developer.android.com/studio/intro>

- **Visão Geral**
  - **Instalar o Android Studio**
-



# Conheça o Android Studio

- O Android Studio é o ambiente de desenvolvimento integrado (IDE, na sigla em inglês) oficial para o desenvolvimento de apps para Android e é baseado no [IntelliJ IDEA](#) (link em inglês).
  - Além do editor de código e das ferramentas de desenvolvedor avançadas do IntelliJ, o Android Studio oferece ainda mais recursos para aumentar sua produtividade na compilação de apps Android, como:
-

# Conheça o Android Studio

- Um sistema de compilação flexível baseado em **Gradle** (Gradle);
  - Um emulador rápido com inúmeros recursos;
  - Um ambiente unificado que possibilita o desenvolvimento para todos os dispositivos Android;
  - A aplicação de alterações para enviar alterações de código e recursos ao aplicativo em execução sem reiniciar o aplicativo;
  - Modelos de código e integração com GitHub para ajudar a criar recursos comuns de apps e importar exemplos de código;
-

# Conheça o Android Studio

- Frameworks e ferramentas de teste cheios de possibilidades;
  - Ferramentas para detectar problemas de desempenho, usabilidade, compatibilidade com versões, entre outros;
  - Compatibilidade com C++ e NDK;
  - Compatibilidade integrada com o Google Cloud Platform, facilitando a integração do Google Cloud Messaging e do App Engine.
  - Continuem a leitura no site do Android Studio.
  - <https://developer.android.com/studio/intro>
-

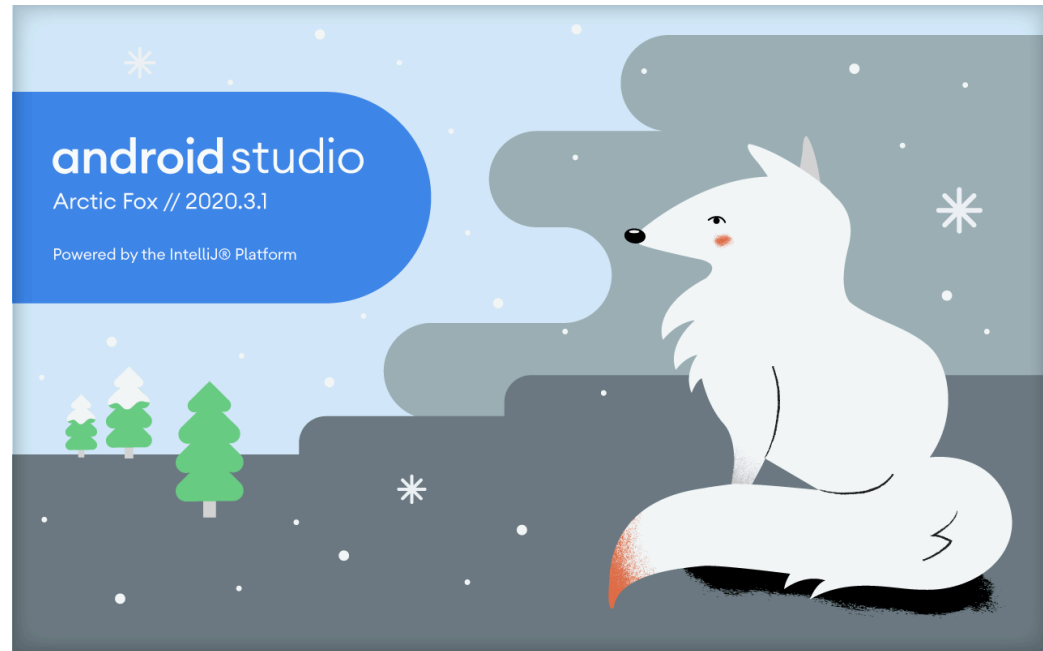
# Sobre o Projeto Final Mobile

- Enviar por e-mail ([joao.pimentel@projecao.br](mailto:joao.pimentel@projecao.br)) a ideia do seu APP.
  - Assunto: Projeto LTP Mobile - Matutino/Noturno
  - Além de enviar os nomes das pessoas do grupo (máximo 2) ou poderá ser individual, é para enviar também uma breve descrição sobre o referido APP a ser desenvolvido durante o semestre.
-

# Sobre o Arctic Fox (2020.3.1)

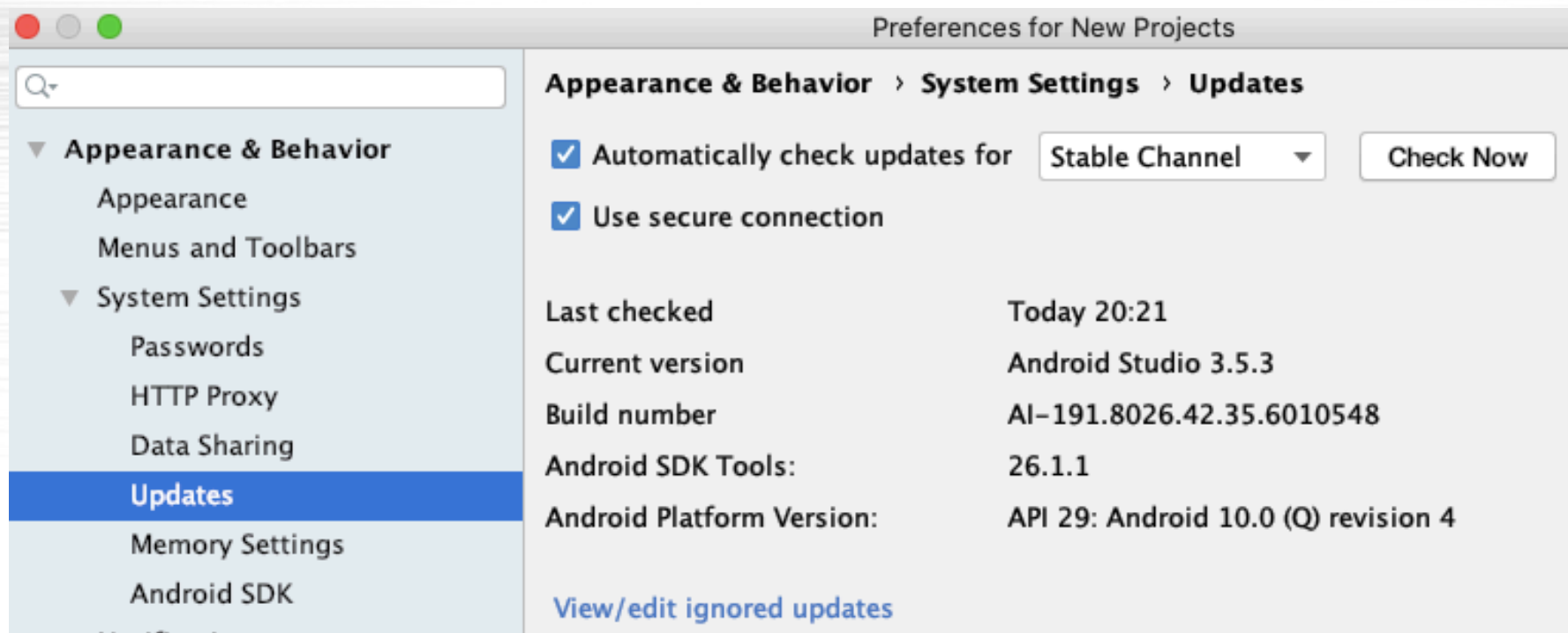
- Sobre o Android Studio Arctic Fox (2020.3.1) - Versão que está Estável.

<https://android-developers.googleblog.com/2021/07/android-studio-arctic-fox-202031-stable.html>



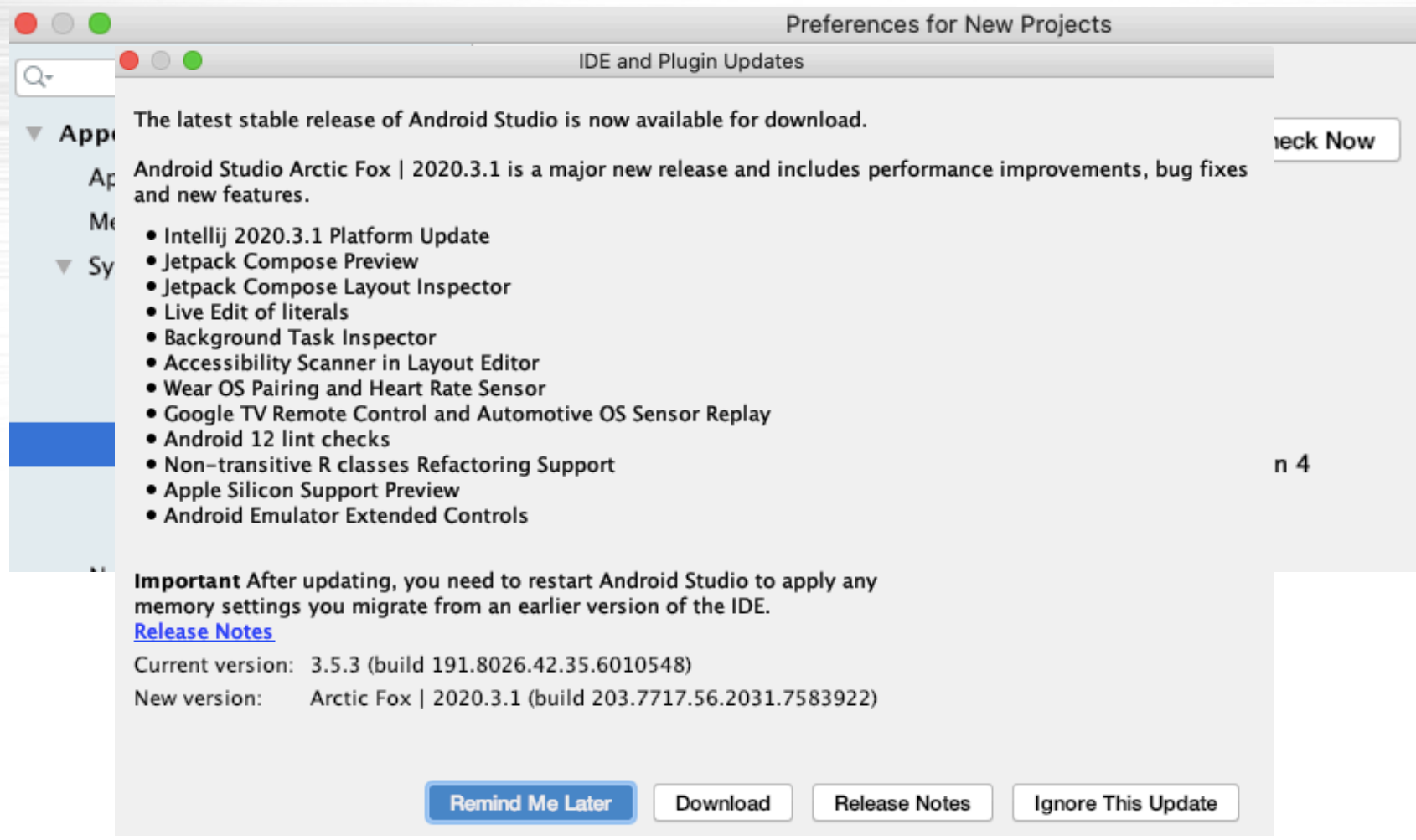
# Sobre o update para uma versão estável (2020.3.1)

- Tools / SDK Manager / Updates / Check Now:



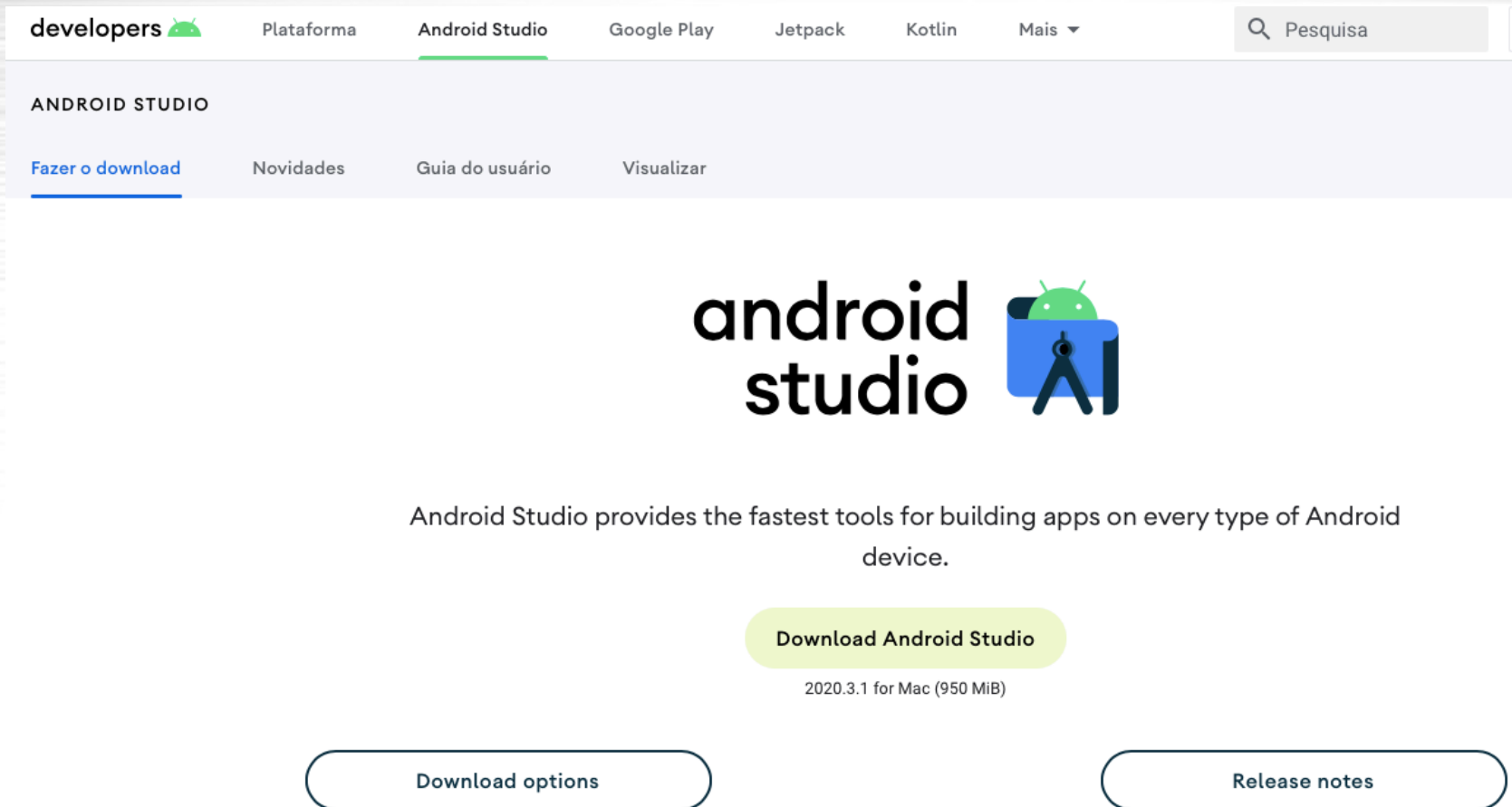
# Sobre o update para uma versão estável (2020.3.1)

- Após clicar em Check Now → Download:




# Sobre o update para uma versão estável (2020.3.1)

- Após clicar em Check Now —> Download:




The screenshot shows the official Android Studio download page. At the top, there's a navigation bar with links for 'developers', 'Plataforma', 'Android Studio' (which is underlined), 'Google Play', 'Jetpack', 'Kotlin', and 'Mais'. A search bar labeled 'Pesquisa' is on the right. Below the navigation bar, there's a section titled 'ANDROID STUDIO' with links for 'Fazer o download' (underlined), 'Novidades', 'Guia do usuário', and 'Visualizar'. The main content area features the 'android studio' logo and the Android robot icon. Below the logo, it states 'Android Studio provides the fastest tools for building apps on every type of Android device.' A prominent green button labeled 'Download Android Studio' is centered, with the text '2020.3.1 for Mac (950 MiB)' underneath it. At the bottom, there are two buttons: 'Download options' and 'Release notes'.

developers  Plataforma Android Studio Google Play Jetpack Kotlin Mais ▾

ANDROID STUDIO

Fazer o download Novidades Guia do usuário Visualizar

android studio 

Android Studio provides the fastest tools for building apps on every type of Android device.

**Download Android Studio**

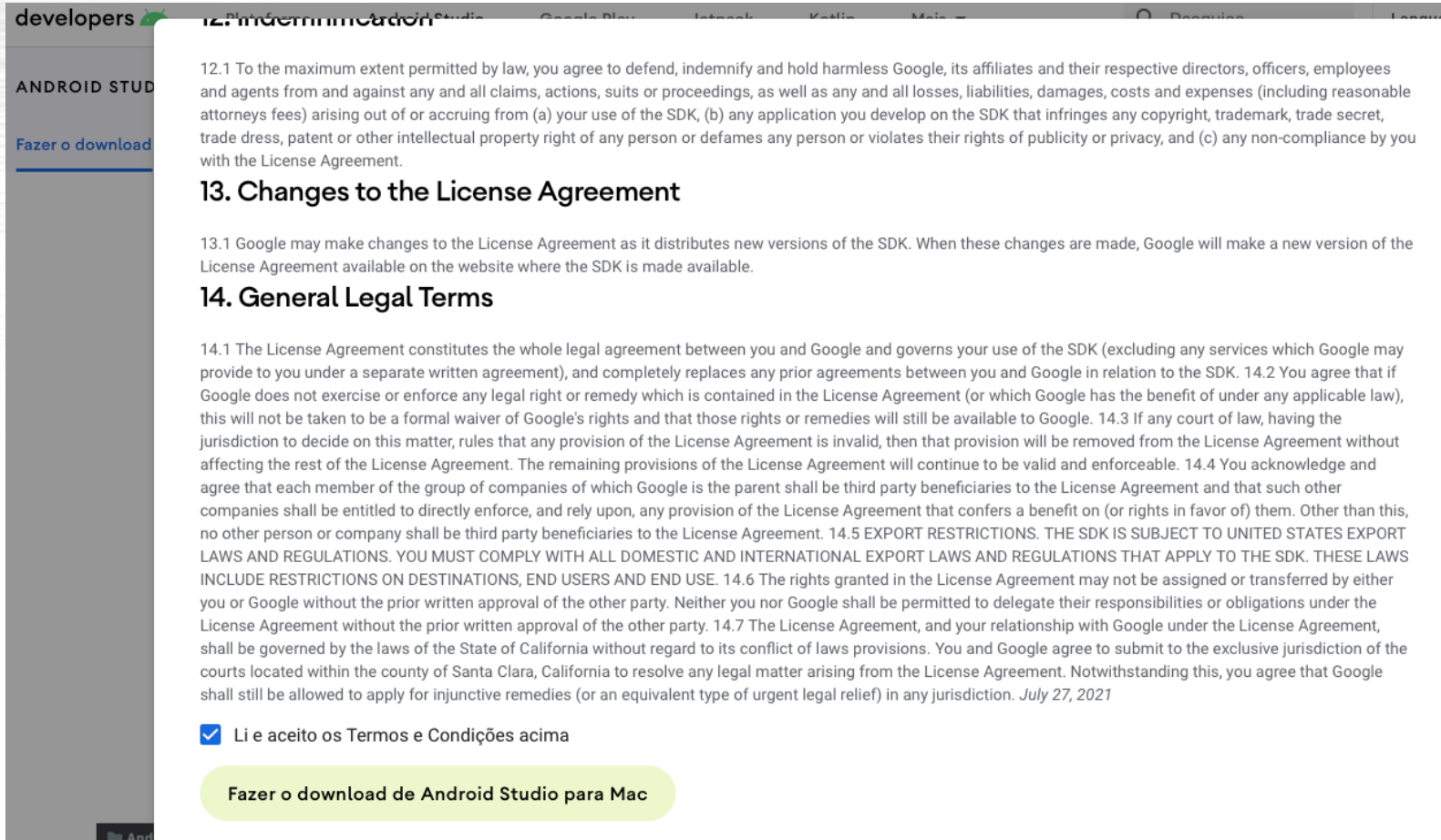
2020.3.1 for Mac (950 MiB)

Download options Release notes



# Sobre o update para uma versão estável (2020.3.1)

- Após clicar em Download, aceite os termos e condições:



The screenshot shows the 'License Agreement' page in the Android Studio installer. The page is titled '12. Indemnification' and contains the following text:

12.1 To the maximum extent permitted by law, you agree to defend, indemnify and hold harmless Google, its affiliates and their respective directors, officers, employees and agents from and against any and all claims, actions, suits or proceedings, as well as any and all losses, liabilities, damages, costs and expenses (including reasonable attorneys fees) arising out of or accruing from (a) your use of the SDK, (b) any application you develop on the SDK that infringes any copyright, trademark, trade secret, trade dress, patent or other intellectual property right of any person or defames any person or violates their rights of publicity or privacy, and (c) any non-compliance by you with the License Agreement.

### 13. Changes to the License Agreement

13.1 Google may make changes to the License Agreement as it distributes new versions of the SDK. When these changes are made, Google will make a new version of the License Agreement available on the website where the SDK is made available.

### 14. General Legal Terms

14.1 The License Agreement constitutes the whole legal agreement between you and Google and governs your use of the SDK (excluding any services which Google may provide to you under a separate written agreement), and completely replaces any prior agreements between you and Google in relation to the SDK. 14.2 You agree that if Google does not exercise or enforce any legal right or remedy which is contained in the License Agreement (or which Google has the benefit of under any applicable law), this will not be taken to be a formal waiver of Google's rights and that those rights or remedies will still be available to Google. 14.3 If any court of law, having the jurisdiction to decide on this matter, rules that any provision of the License Agreement is invalid, then that provision will be removed from the License Agreement without affecting the rest of the License Agreement. The remaining provisions of the License Agreement will continue to be valid and enforceable. 14.4 You acknowledge and agree that each member of the group of companies of which Google is the parent shall be third party beneficiaries to the License Agreement and that such other companies shall be entitled to directly enforce, and rely upon, any provision of the License Agreement that confers a benefit on (or rights in favor of) them. Other than this, no other person or company shall be third party beneficiaries to the License Agreement. 14.5 EXPORT RESTRICTIONS. THE SDK IS SUBJECT TO UNITED STATES EXPORT LAWS AND REGULATIONS. YOU MUST COMPLY WITH ALL DOMESTIC AND INTERNATIONAL EXPORT LAWS AND REGULATIONS THAT APPLY TO THE SDK. THESE LAWS INCLUDE RESTRICTIONS ON DESTINATIONS, END USERS AND END USE. 14.6 The rights granted in the License Agreement may not be assigned or transferred by either you or Google without the prior written approval of the other party. Neither you nor Google shall be permitted to delegate their responsibilities or obligations under the License Agreement without the prior written approval of the other party. 14.7 The License Agreement, and your relationship with Google under the License Agreement, shall be governed by the laws of the State of California without regard to its conflict of laws provisions. You and Google agree to submit to the exclusive jurisdiction of the courts located within the county of Santa Clara, California to resolve any legal matter arising from the License Agreement. Notwithstanding this, you agree that Google shall still be allowed to apply for injunctive remedies (or an equivalent type of urgent legal relief) in any jurisdiction. *July 27, 2021*

☒ Li e aceito os Termos e Condições acima

Fazer o download de Android Studio para Mac

# Sobre o update para uma versão estável (2020.3.1)

- Em Download options:

## Android Studio downloads

Platform	Android Studio package	Size	SHA-256 checksum
Windows (64-bit)	<a href="#">android-studio-2020.3.1.22-windows.exe</a> Recommended	913 MiB	9a95e747121830b7a62f276438dd4df4390a4ccf785e09f226a9fb2ac0b576cf
	<a href="#">android-studio-2020.3.1.22-windows.zip</a> No .exe installer	922 MiB	41c5f8a17294e1fe81b45c66273878ea067cfb5c2fd9be7fac2f8f82ec5b1dc3
Mac (64-bit)	<a href="#">android-studio-2020.3.1.22-mac.dmg</a>	950 MiB	42722b671fcd03e6e02b712828b5484e4af7563c5172b583252c9070c173d4b
Mac (64-bit, ARM)	<a href="#">android-studio-2020.3.1.22-mac_arm.zip</a>	907 MiB	dc383ea7d7a6585451bcd011f7db178068b9744319a9093cb05ac855b2c81ff
Linux (64-bit)	<a href="#">android-studio-2020.3.1.22-linux.tar.gz</a>	935 MiB	4adb7b9876ed7a59ae12de5cbfe7a402e1c07be915a4a516a32fef1d30b47276
Chrome OS	<a href="#">android-studio-2020.3.1.22-cros.deb</a>	812 MiB	71004dea7ca1d686284c6acc57a6c75c4e137c1e493ee005d0a2700e9134b6ab



**Por hoje é só!!!**

**Até a próxima aula...**

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