

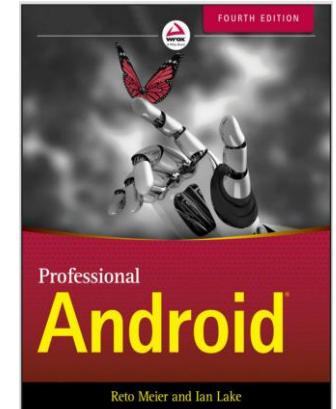
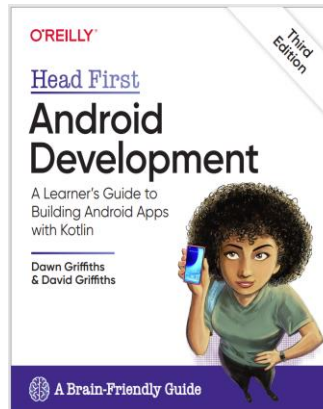
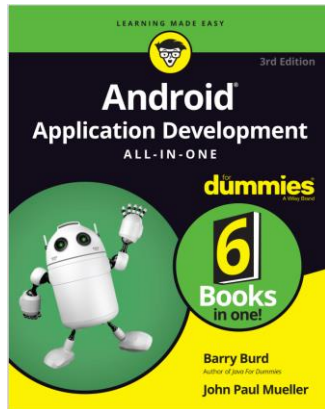
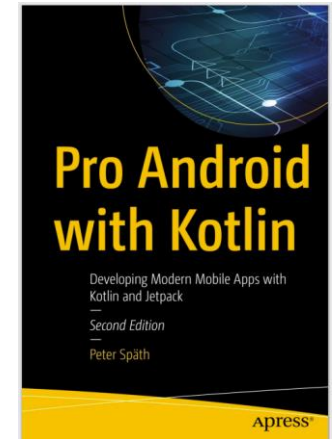
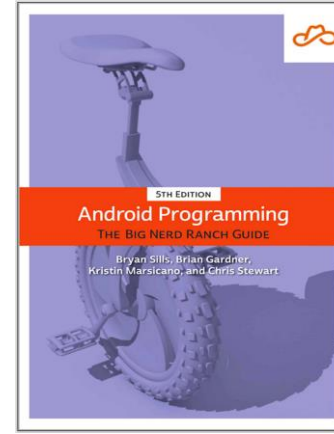
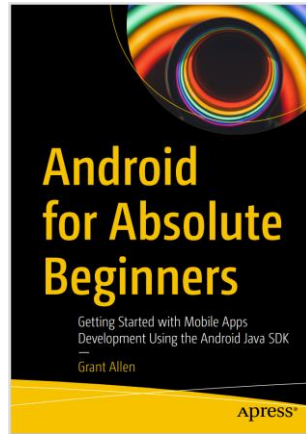
Desenvolvimento de Aplicativos

Unidade 1 – Introdução ao Android



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Doutor em Engenharia
da Computação pela EPUVSP
aparecido.freitas@online.uscs.edu.br
aparecidovfreitas@gmail.com

Bibliografia



Android – Introdução

- ⊕ O **Android** é um sistema operacional baseado em **Linux**, desenvolvido e mantido pelo **Google**;
- ⊕ É o sistema operacional móvel **mais usado no mundo**, projetado principalmente para dispositivos móveis com tela sensível ao toque, como smartphones e tablets;
- ⊕ Além disso, o **Android** também foi adaptado para smart TVs, carros (**Android** Auto), wearables (como smartwatches) e outros dispositivos eletrônicos.



Android – Introdução

Introdução e Histórico do Android

- **Origem:** Criado pela Android Inc. em 2003, adquirido pelo Google em 2005.
- **Lançamento:** Primeiro dispositivo Android, HTC Dream, em 2008.
- **Evolução:** Crescimento rápido, expansão para diversas categorias de dispositivos.

Quantidade de Dispositivos

- **Usuários Ativos:** Bilhões de dispositivos no mundo, desde smartphones a wearables e TVs.





Quantos usuários utilizam Android ?



Android

- ⊕ O **Android** é o sistema operacional mais popular do mundo, com **mais de 2,5 bilhões** de usuários ativos em mais de **190** países (*);
- ⊕ Criado por **Andy Rubin** como uma plataforma de **código aberto**, o **Android** rapidamente se tornou o sistema operacional favorito da maioria dos fabricantes de dispositivos móveis (*);
- ⊕ Com gigantes da indústria como Samsung, LG, Motorola e HTC lançando telefones que utilizam o **Android**, ele rapidamente se tornou o **sistema operacional móvel mais popular** (*).

(*) <https://www.businessofapps.com/data/android-statistics/>

Android

Operating System	Quarterly Market Share (%)
Android	69.88
iOS	29.39
Samsung	0.36
KaiOS	0.16
Windows	0.02
Others	0.19

<https://www.bankmycell.com/blog/android-vs-apple-market-share/>

- ⊕ O **Android** é o sistema operacional mais popular do mundo, com uma participação de mercado de 69,88%, seguido pelo iOS com 29,39%;
- ⊕ No **Brasil**, 85 % do mercado é Android



Quais os pré-requisitos para desenvolver aplicativos Android ?

Android – Desenvolvimento

1. Conhecimento de Linguagem de Programação. **Java** e **Kotlin** são as principais linguagens usadas para desenvolvimento **Android**.
2. Instalação do **Android Studio**, que é a **IDE** oficial para o desenvolvimento **Android**.
3. Aprofunde-se no **Android Software Development Kit (SDK)**, que inclui bibliotecas de código, ferramentas de desenvolvimento e documentação;
4. Conhecimento dos princípios de design de interface do usuário (**UI**) e experiência do usuário (**UX**) especificamente para dispositivos móveis.

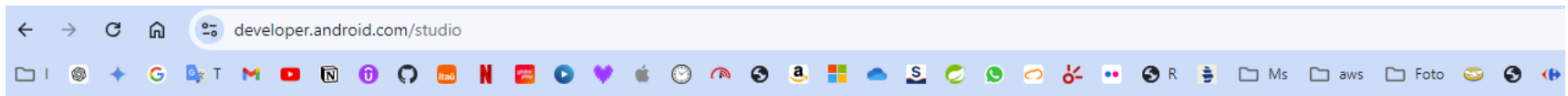
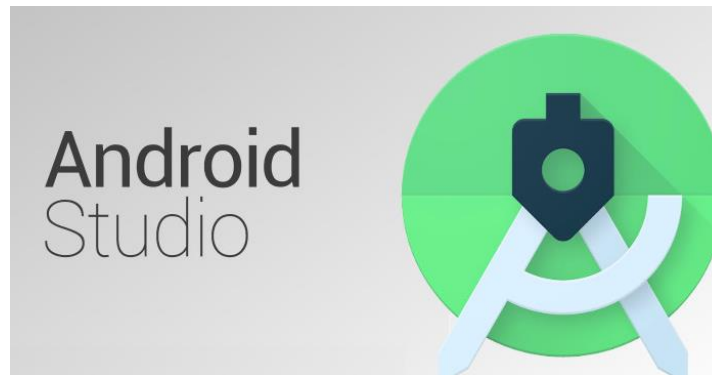


Como instalar o Android Studio ?



Android Studio

- ⊕ O **Android Studio** está disponível no site de desenvolvedores do Android em developer.android.com/studio;
- ⊕ Ele inclui tudo o que se precisa para construir e executar aplicativos **Android**, incluindo uma instalação integrada do **Java Development Kit (JDK)**;
- ⊕ Para se construir e compilar aplicativos **Android** fora do **Android Studio** (como linha de comandos), será necessária uma instalação local do **Java Development Kit**;
- ⊕ A versão mais recente do plugin **Android** Gradle, que é a ferramenta que constrói e compila aplicativos **Android**, requer **Java 11**.



 **Developers** Essentials ▼ Design & Plan ▼ Develop ▼ Google Play Community

ANDROID STUDIO

Download

Android Studio editor

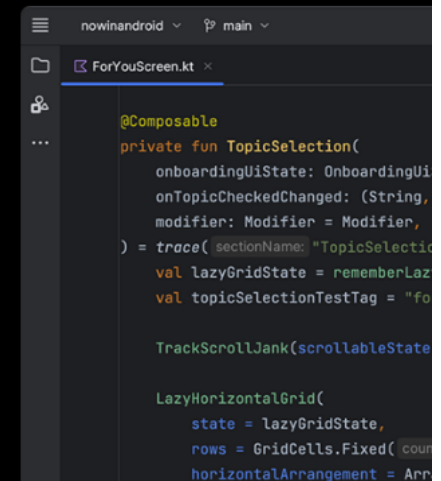
Gemini in Android Studio

Android Gradle Plugin

SDK tools

Android Studio

Get the official Integrated Development Environment (IDE) for Android app development.





Android Studio

⊕ Uma instalação do Android Studio inclui:

- ✓ **SDK do Android**

a versão mais recente do SDK do Android

- ✓ **Android SDK tools**

ferramentas para depurar e testar seus aplicativos

- ✓ **Uma imagem do sistema para o emulador do Android**

uma ferramenta para criar e testar seus aplicativos em diferentes dispositivos virtuais.

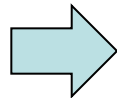


Android Studio

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Thanks for a great '23!

A huge **thank you** for all of the excellent apps, across devices you built in 2023, from all of us on Android - we can't wait to see what you build next year!

[Read more](#)[Watch the video](#)[Download Android Studio](#)[Launch Play Console](#)[View Android courses](#)

Android Studio

 **Developers**

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ANDROID STUDIO

Download


Android Studio editor

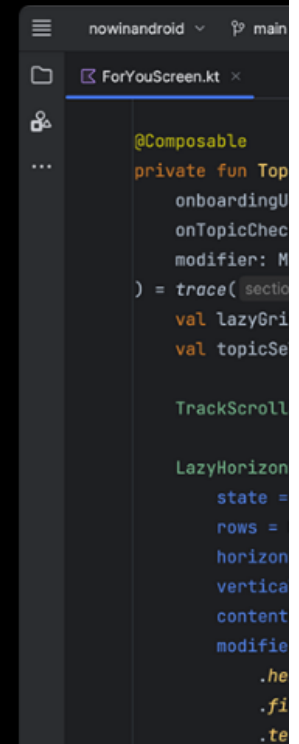
Gemini in Android Studio

Android Gradle Plugin

Android Studio

Get the official Integrated Development Environment (IDE) for Android app development.

Download Android Studio Koala Feature Drop 






Android Studio – Requisitos

Windows

★ **Note:** Windows machines with ARM-based CPUs aren't currently supported.

Here are the system requirements for Windows:

Requirement	Minimum	Recommended
OS	 64-bit Microsoft Windows 8	Latest 64-bit version of Windows
RAM	 8 GB RAM	16 GB RAM or more
CPU	x86_64 CPU architecture; 2nd generation Intel Core or newer, or AMD CPU with support for a Windows Hypervisor Framework.	Latest Intel Core processor
Disk space	 8 GB (IDE and Android SDK and Emulator)	Solid state drive with 16 GB or more
Screen resolution	1280 x 800	1920 x 1080

Android Studio – Install

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

To install Android Studio on Windows, follow these steps:

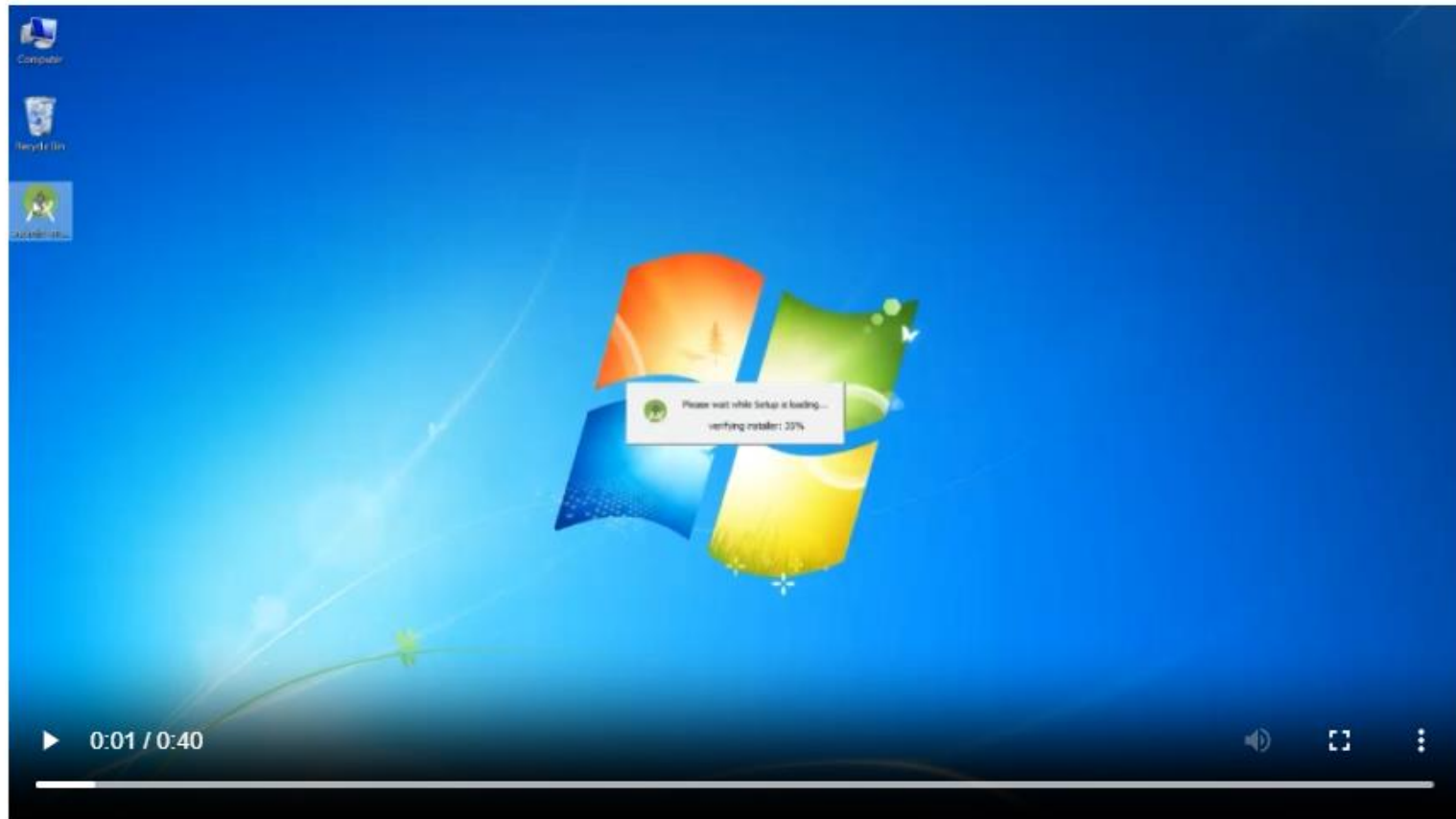
- If you downloaded an `.exe` file (recommended), double-click to launch it.
- If you downloaded a `.zip` file:
 1. Unpack the `.zip`.
 2. Copy the **android-studio** folder into your **Program Files** folder.
 3. Open the **android-studio > bin** folder.
 4. Launch `studio64.exe` (for 64-bit machines) or `studio.exe` (for 32-bit machines).
 5. Follow the **Setup Wizard** in Android Studio and install any recommended SDK packages.



Android Studio - Install

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

The following video shows each step of the setup procedure for the recommended `.exe` download:



As new tools and other APIs become available, Android Studio notifies you with a pop-up. To manually check for updates, click **Help > Check for Update**.

Android Studio – Versões anteriores

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

Platform	Android Studio package	Size	SHA-256 checksum
Windows (64-bit)	android-studio-2024.1.2.13-windows.exe Recommended	1.2 GB	71d018d5685073e6d59e6b91358e02407f
Windows (64-bit)	android-studio-2024.1.2.13-windows.zip No .exe installer	1.2 GB	e36b2ba026032f1011d2a6bb895bb3162f
Mac (64-bit)	android-studio-2024.1.2.13-mac.dmg	1.2 GB	8cac5564111278726c324972e7a476713eb
Mac (64-bit, ARM)	android-studio-2024.1.2.13-mac_arm.dmg	1.2 GB	6d6bb5b5a38a7212e8319d6d2c1498b3cb
Linux (64-bit)	android-studio-2024.1.2.13-linux.tar.gz	1.2 GB	688c655c230f29867a12ae382cc26ec670
ChromeOS	android-studio-2024.1.2.13-cros.deb	992.2 MB	3c9ff42460f441245a10f9cc6c73571d454f

More downloads are available in the [download archives](#). For Android Emulator downloads, see the [Emulator download archives](#).

Android Studio – Versões anteriores

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

Android Studio download archives

This page provides an archive of Android Studio releases. However, we recommend that you download the [latest s](#)
For Android Emulator downloads, see the [Emulator download archives](#).

Before downloading, you must agree to the following terms and conditions.

Terms and conditions

This is the Android Software Development Kit License Agreement

1. Introduction

1.1 The Android Software Development Kit (the "SDK") is made available to you subject to the terms of the License Agreement (the "License Agreement"). The SDK is provided "as is" without any warranty, express or implied, including but not limited to the implied warranties of merchantability and fitness for a particular purpose.

Google, under the License Agreement, shall be governed by the jurisdiction of the courts located within the county of Santa Clara. Google shall be allowed to apply for injunctive remedies (or an equivalent type of remedy) to enforce the License Agreement.

I agree to the terms

Android Studio – Versões anteriores

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

Android Studio download archives

This page provides an archive of Android Studio releases. However, we recommend that you

For Android Emulator downloads, see the [Emulator download archives](#).

▼ [Android Studio Koala Feature Drop | 2024.1.2 Patch 1 September 17, 2024](#)

▼ [Android Studio Ladybug Feature Drop | 2024.2.2 Canary 2 September 12, 2024](#)

▼ [Android Studio Ladybug | 2024.2.1 Beta 2 September 12, 2024](#)

▼ [Android Studio Ladybug Feature Drop | 2024.2.2 Canary 1 September 9, 2024](#)

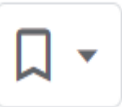
▼ [Android Studio Ladybug | 2024.2.1 Beta 1 September 5, 2024](#)

▼ [Android Studio Ladybug | 2024.2.1 Canary 9 August 30, 2024](#)

Android Studio – download

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

Android Studio download archives



This page provides an archive of Android Studio releases. However, we recommend that you download

For Android Emulator downloads, see the [Emulator download archives](#).

^ [Android Studio Koala Feature Drop | 2024.1.2 Patch 1 September 17, 2024](#)

Installers

ChromeOS: [android-studio-2024.1.2.13-cros.deb](#) (992.2 MB)

Mac (Apple Silicon): [android-studio-2024.1.2.13-mac_arm.dmg](#) (1.2 GB)

Mac (Intel): [android-studio-2024.1.2.13-mac.dmg](#) (1.2 GB)

Windows (64-bit): [android-studio-2024.1.2.13-windows.exe](#) (1.2 GB)

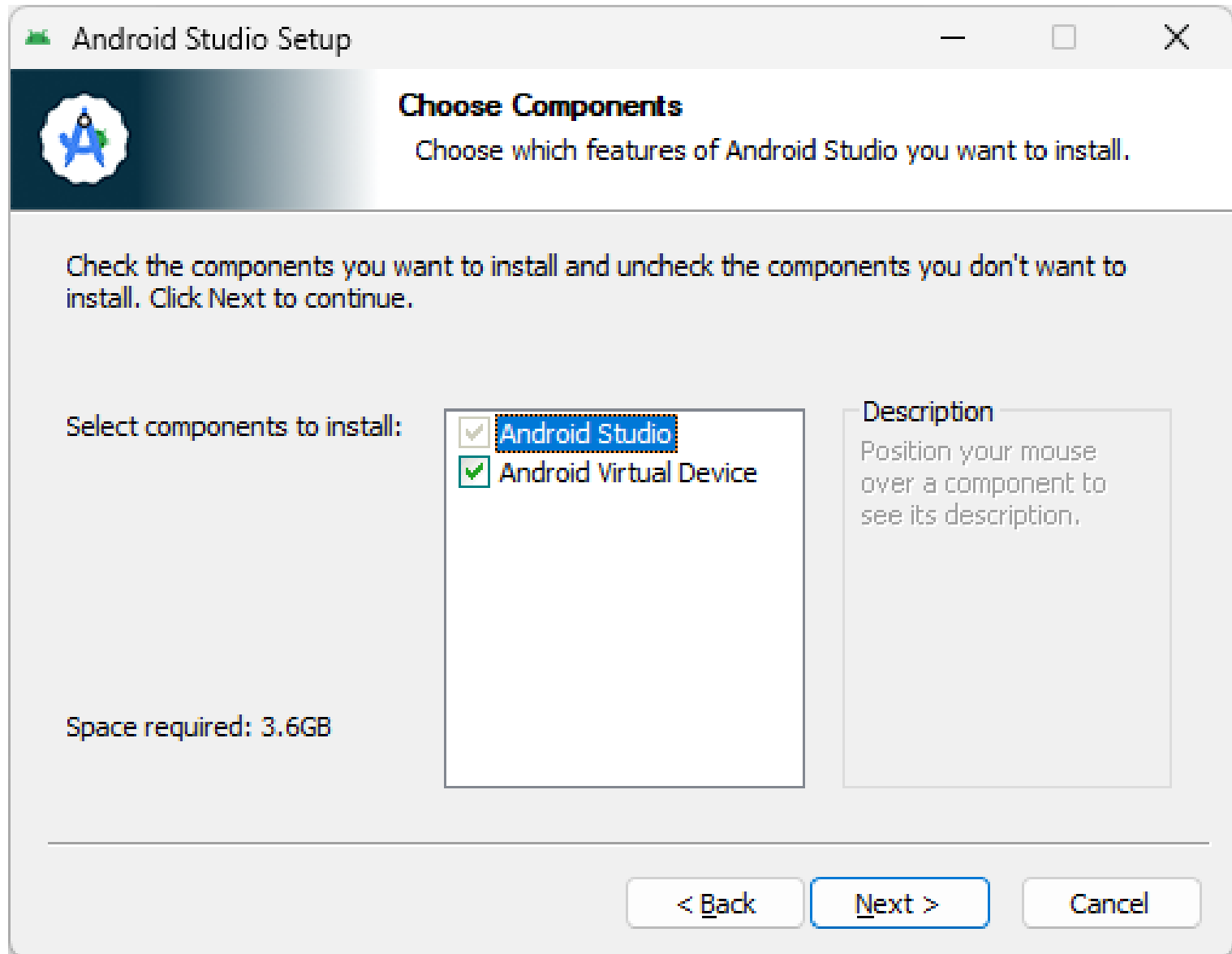
Android Studio – Instalação

INTERNATIONAL EXPORT LAWS AND REGULATIONS THAT APPLY TO THE SDK. THESE LAWS INCLUDE RESTF
License Agreement may not be assigned or transferred by either you or Google without the prior written app
responsibilities or obligations under the License Agreement without the prior written approval of the other p
Agreement, shall be governed by the laws of the State of California without regard to its conflict of laws prov
within the county of Santa Clara, California to resolve any legal matter arising from the License Agreement. N
remedies (or an equivalent type of urgent legal relief) in any jurisdiction. *July 27, 2021*

☒ I have read and agree with the above terms and conditions

Download Android Studio Koala Feature Drop | 2024.1.2 Patch 1 for Windows

Android Studio – Instalação

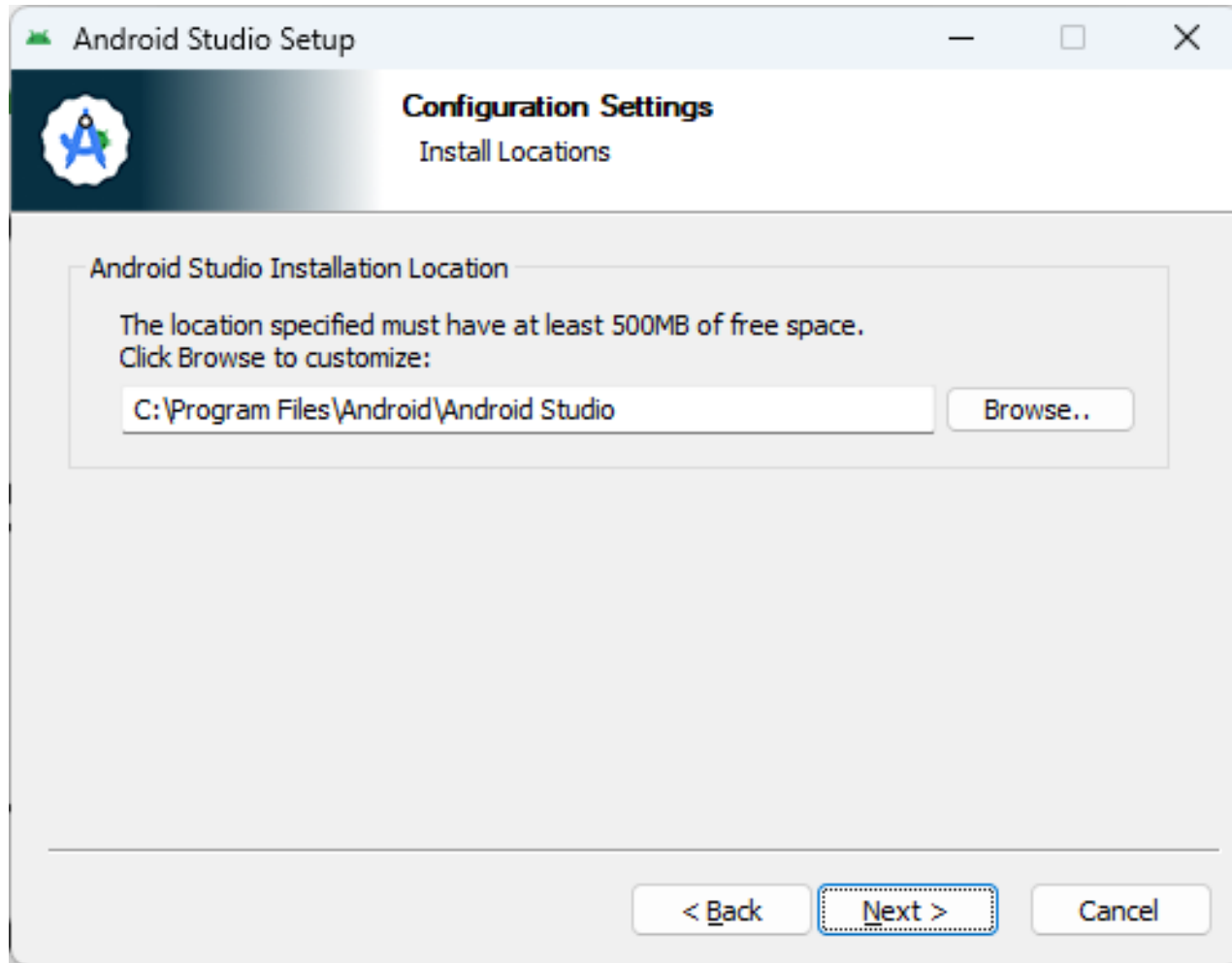


Android Virtual Device (AVD)

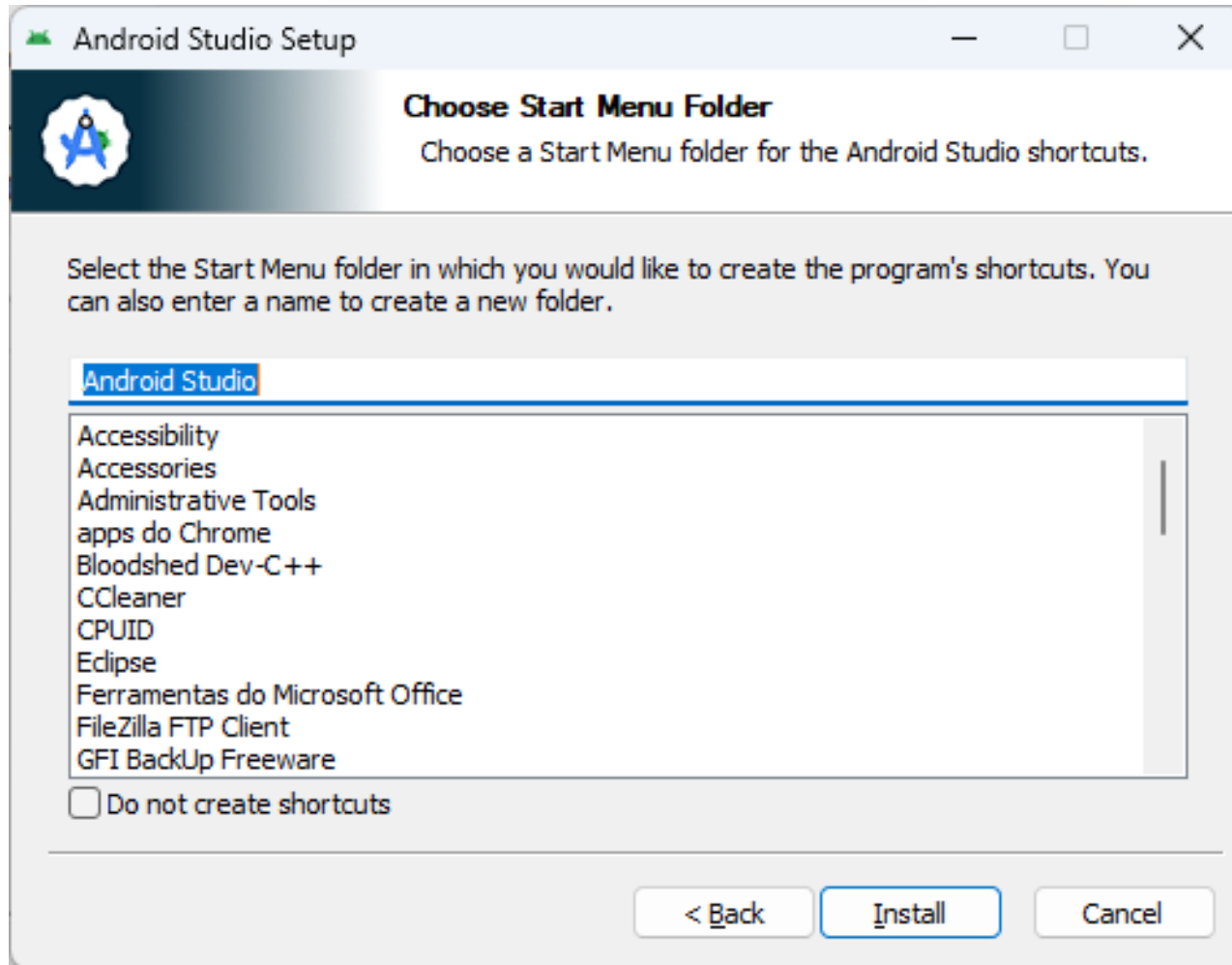
- ⊕ Na instalação do **Android Studio**, "**Android Virtual Device**" (**AVD**) refere-se a um **emulador** de dispositivo **Android**;
- ⊕ Um **AVD** é uma configuração que simula um dispositivo **Android** real, permitindo que se teste aplicativos em diferentes dispositivos e versões do **Android** **sem** a necessidade de ter um dispositivo físico;
- ⊕ Com um **AVD**, é possível simular diversas características de hardware e configurações de software, como tamanho de tela, resolução, capacidade de memória e versão do sistema operacional, facilitando assim o desenvolvimento e teste de aplicativos para uma ampla variedade de dispositivos **Android**.



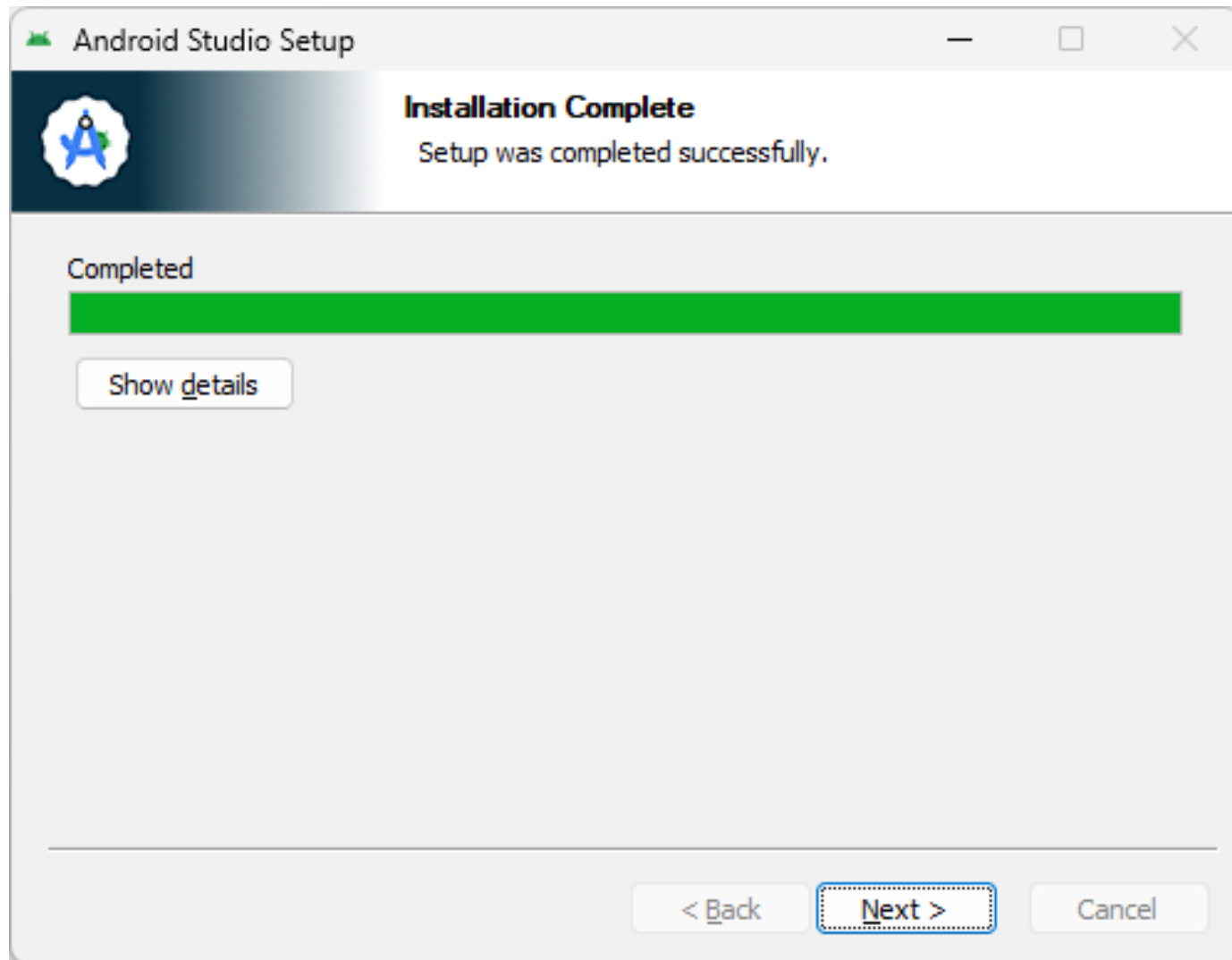
Android Studio - Instalação



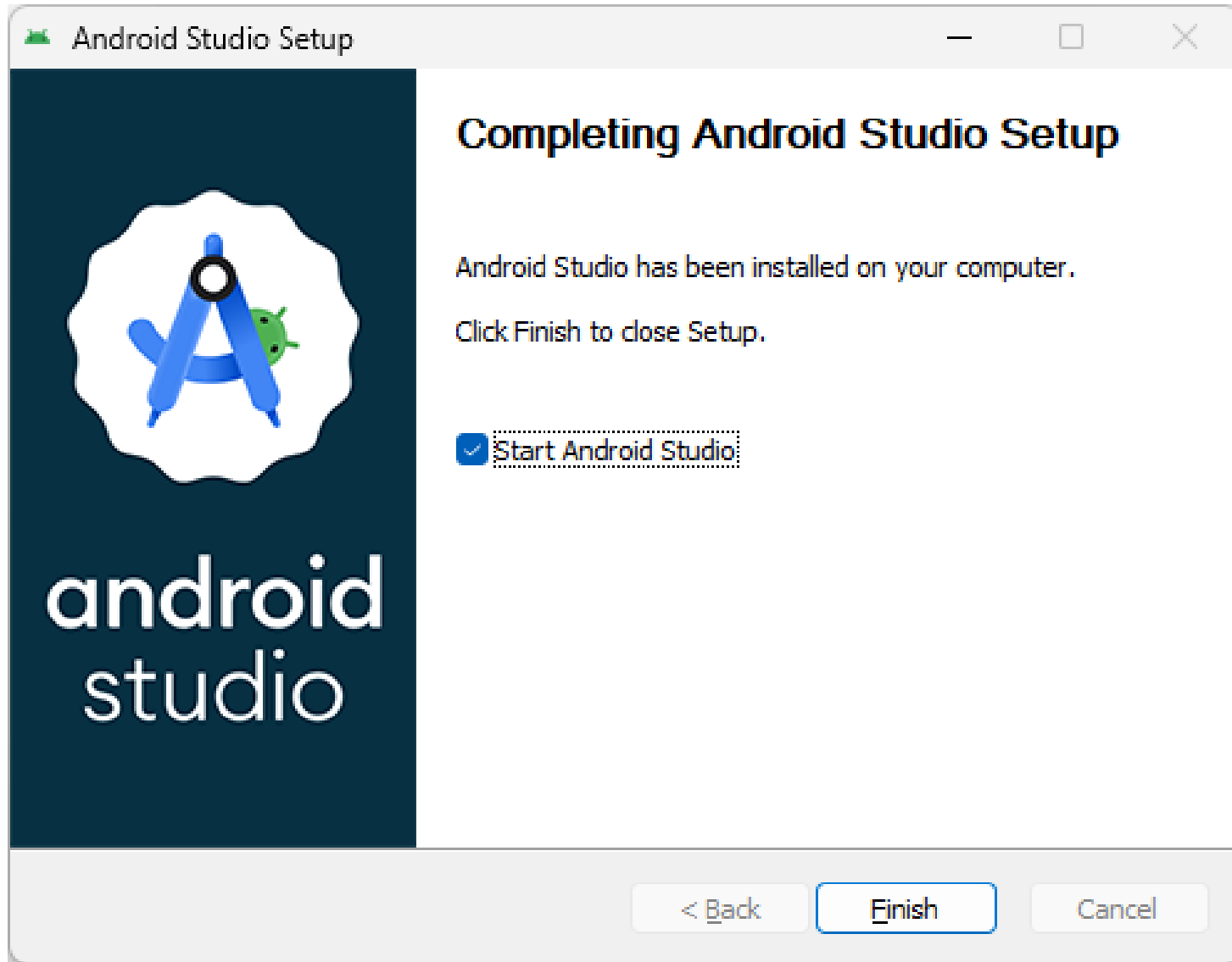
Android Studio - Instalação



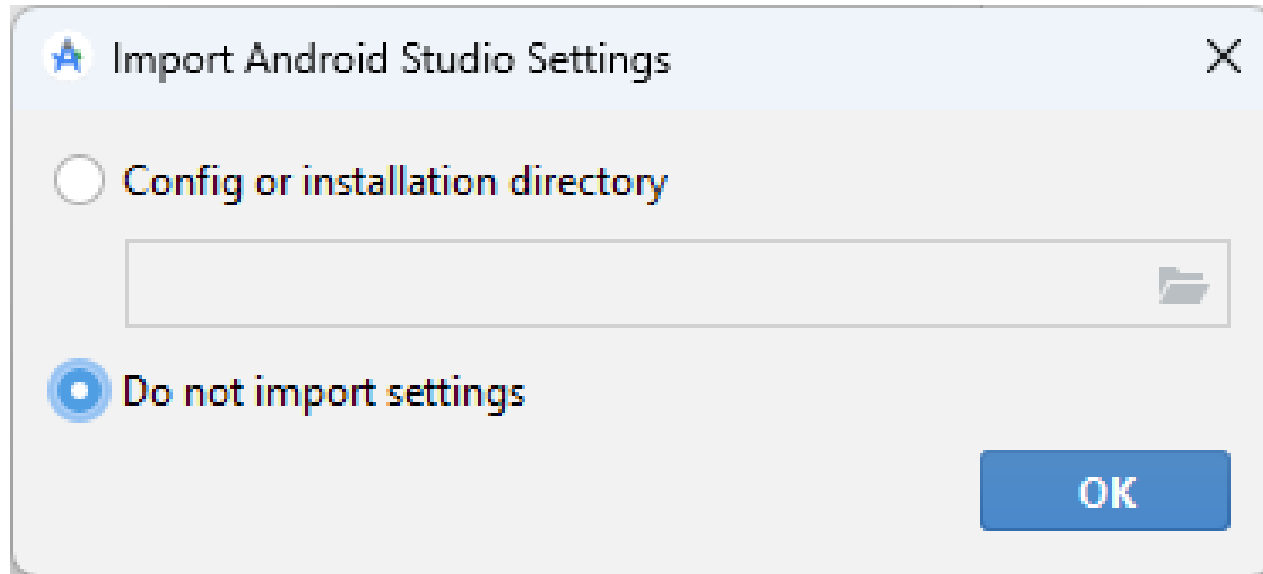
Android Studio - Instalação



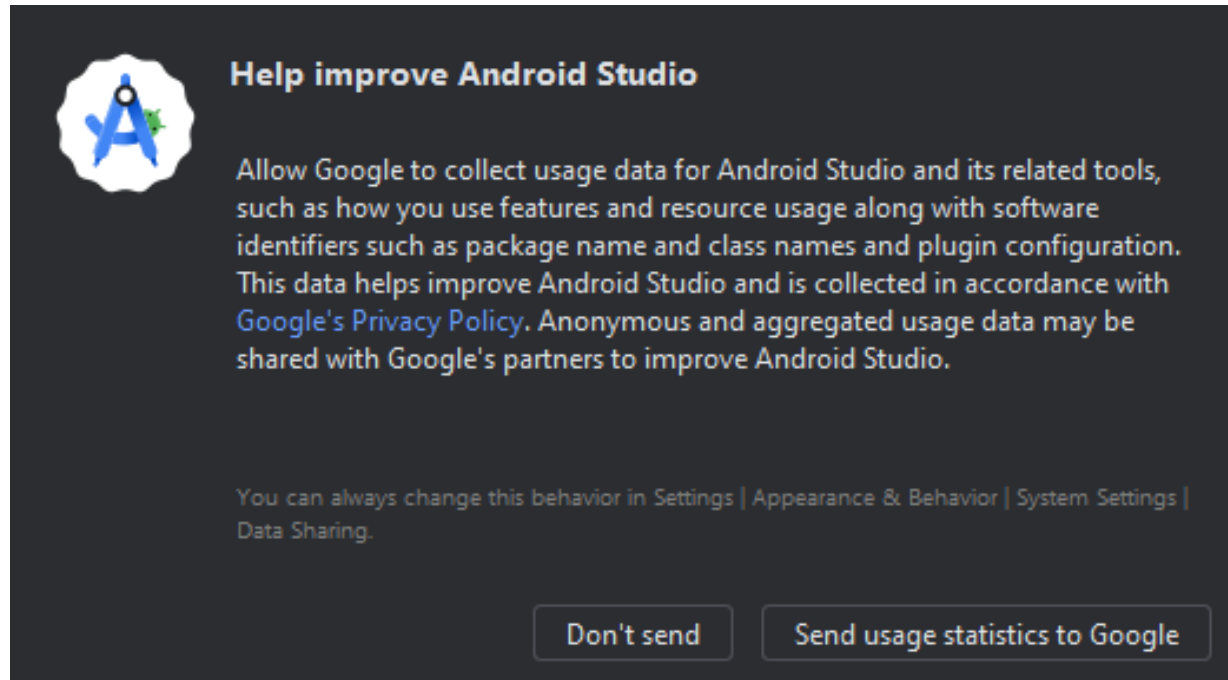
Android Studio – Instalação



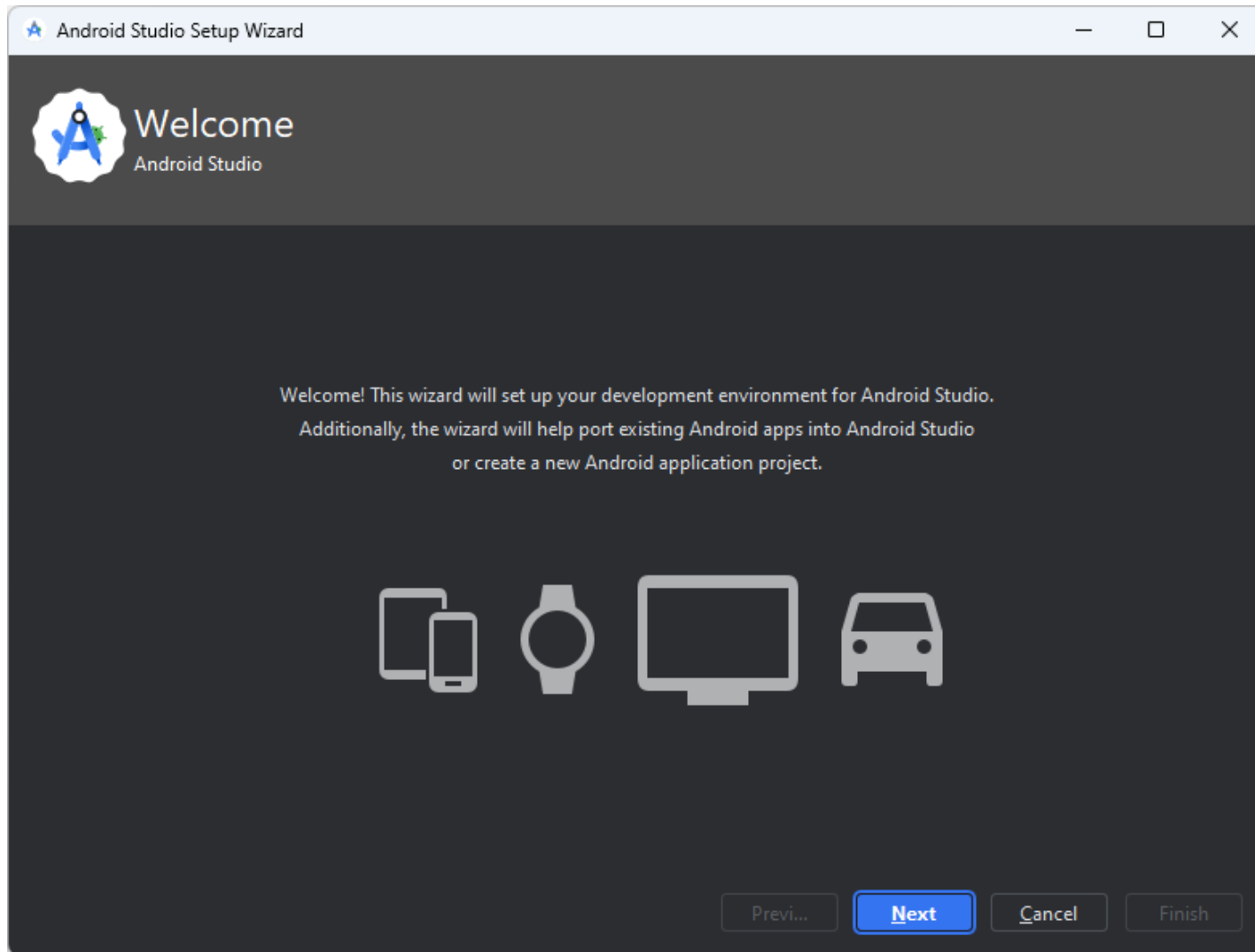
Android Studio – Instalação



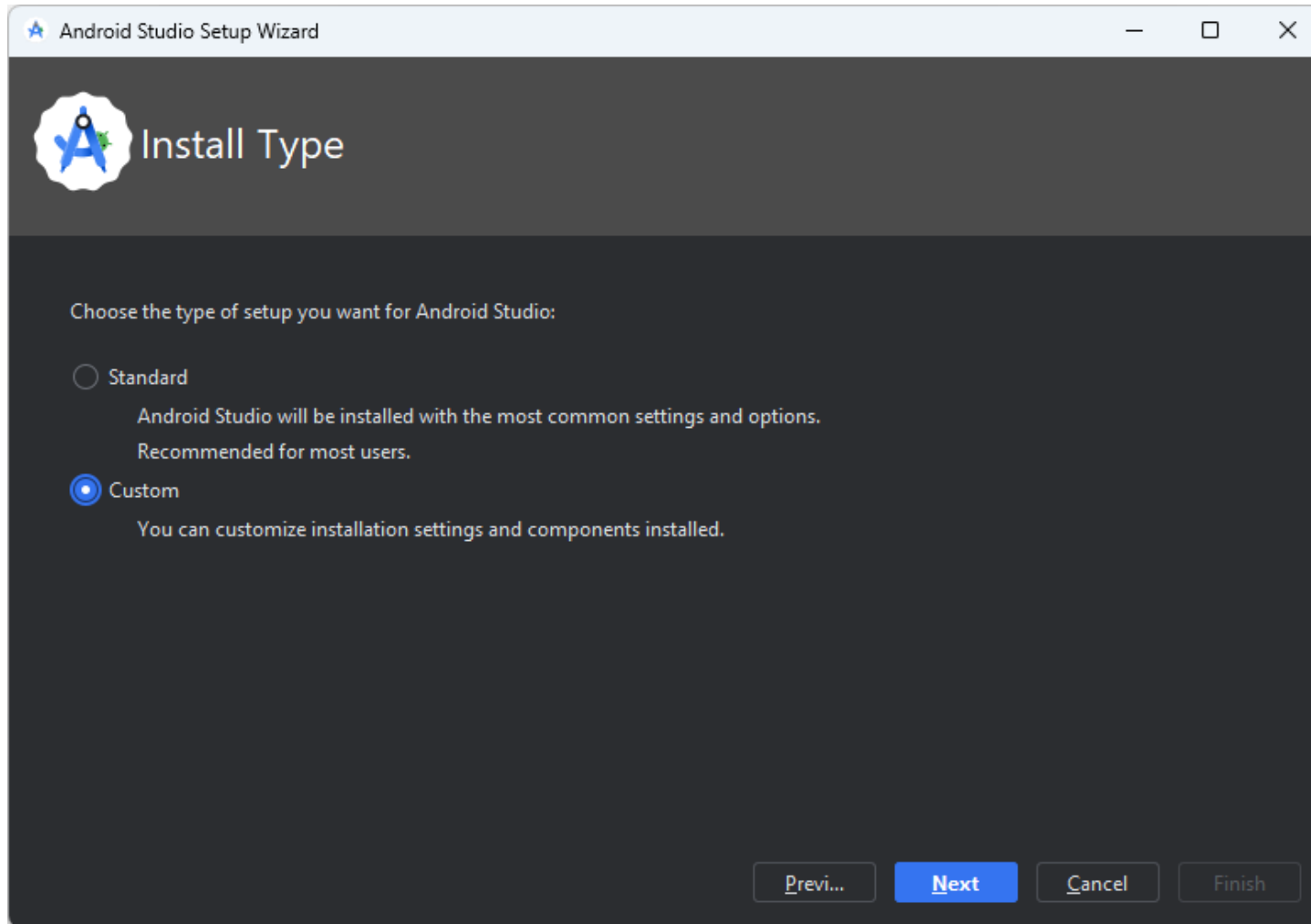
Android Studio – Instalação



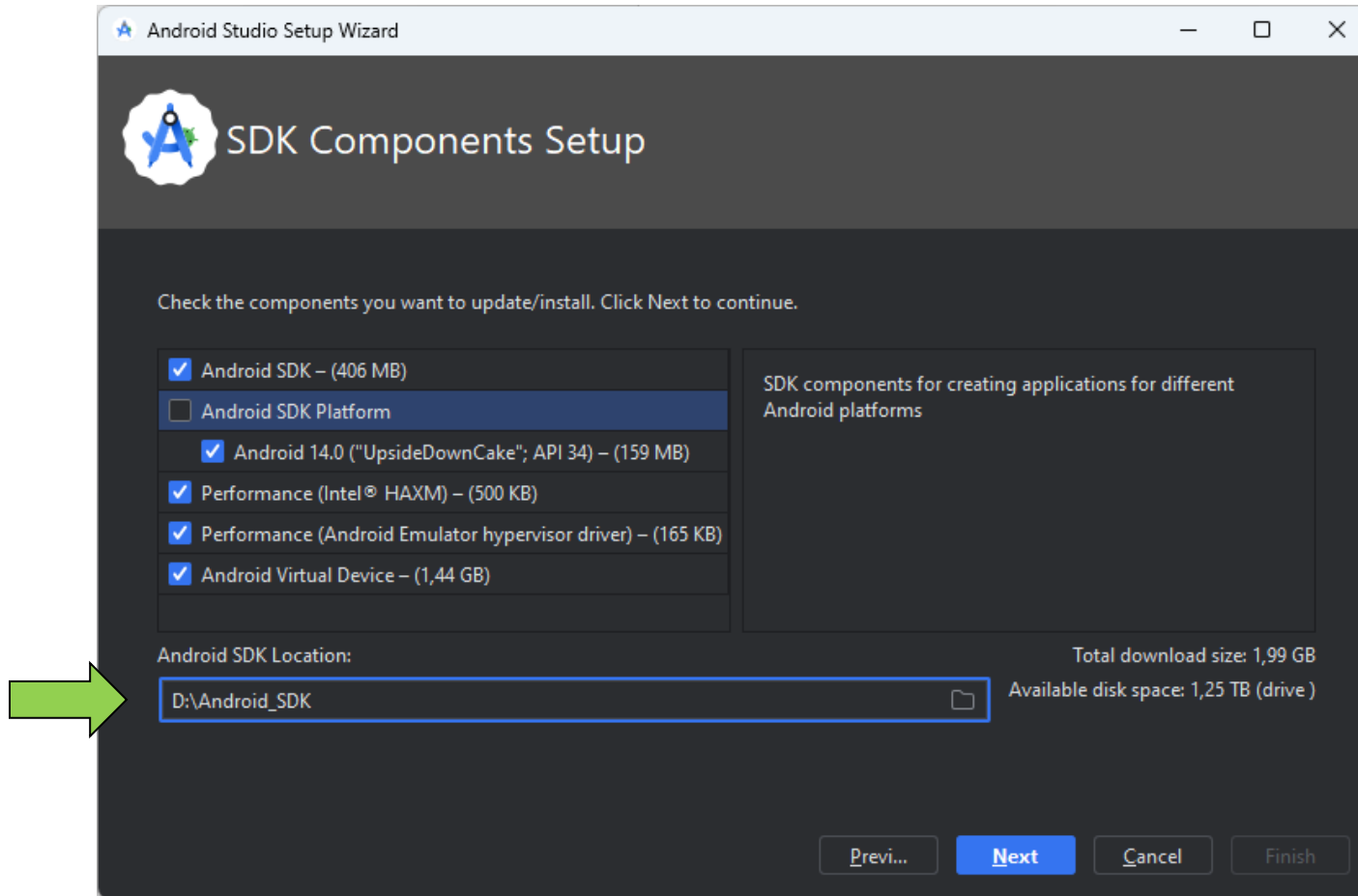
Android Studio – Instalação



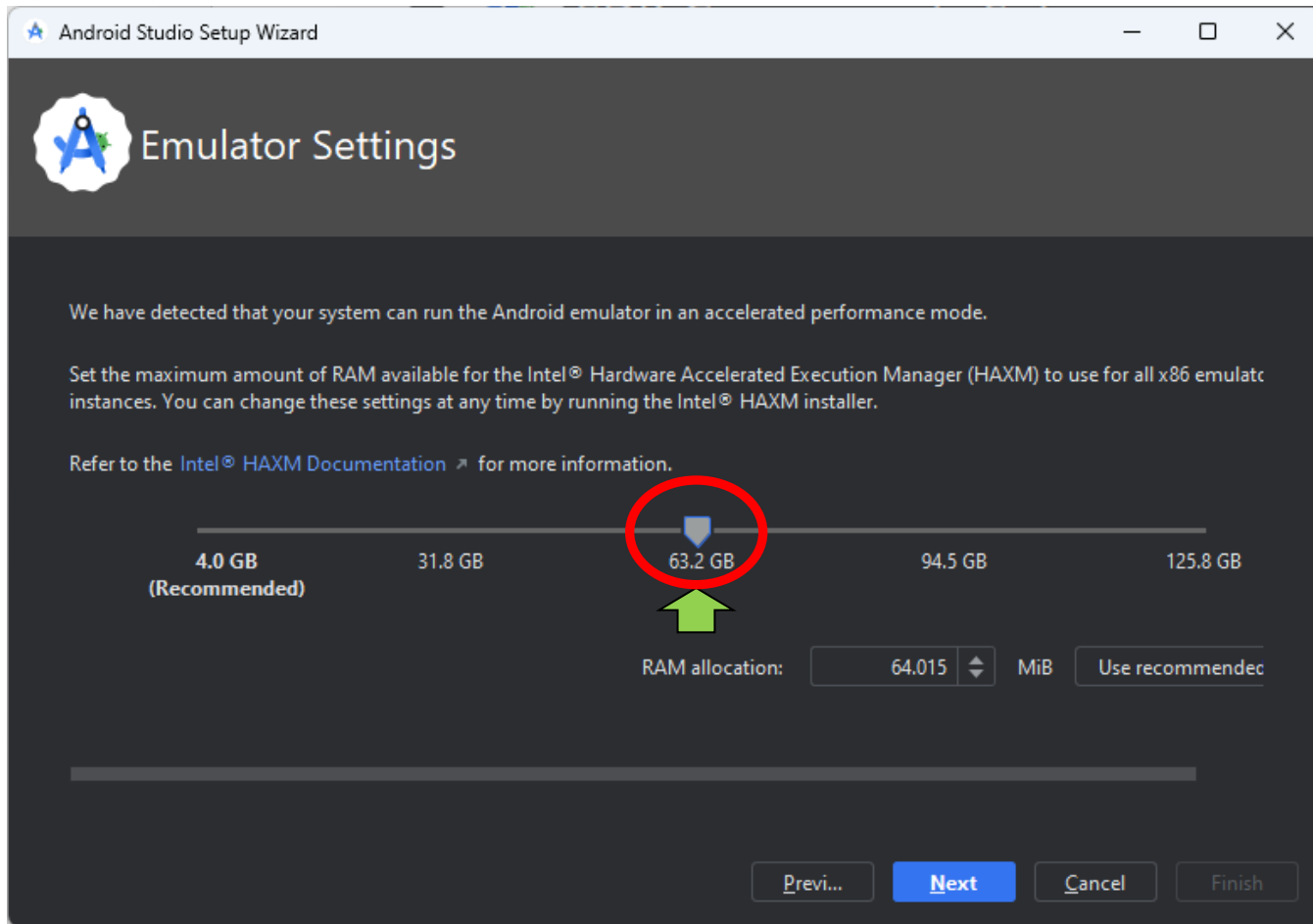
Android Studio – Instalação



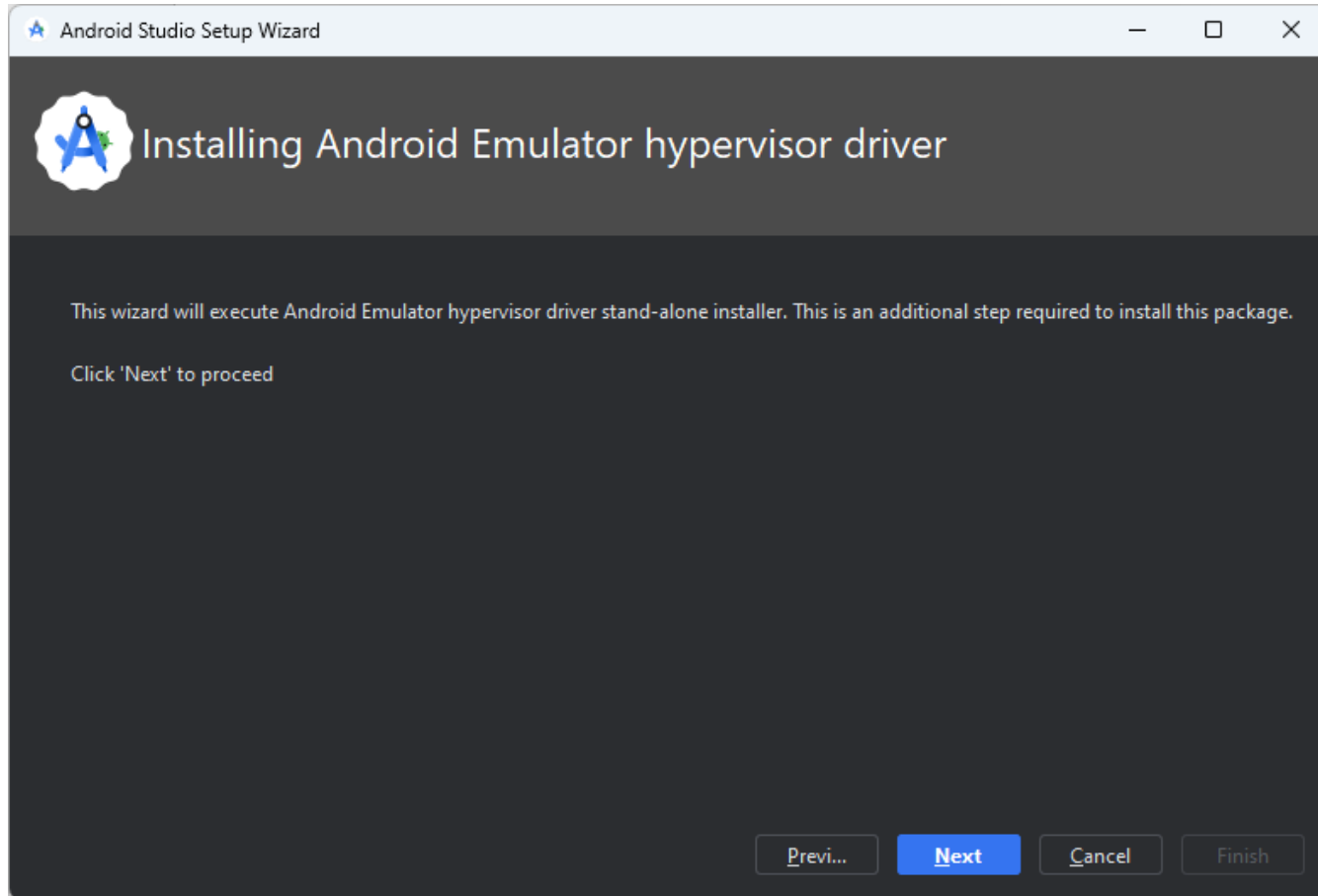
Android Studio – Instalação



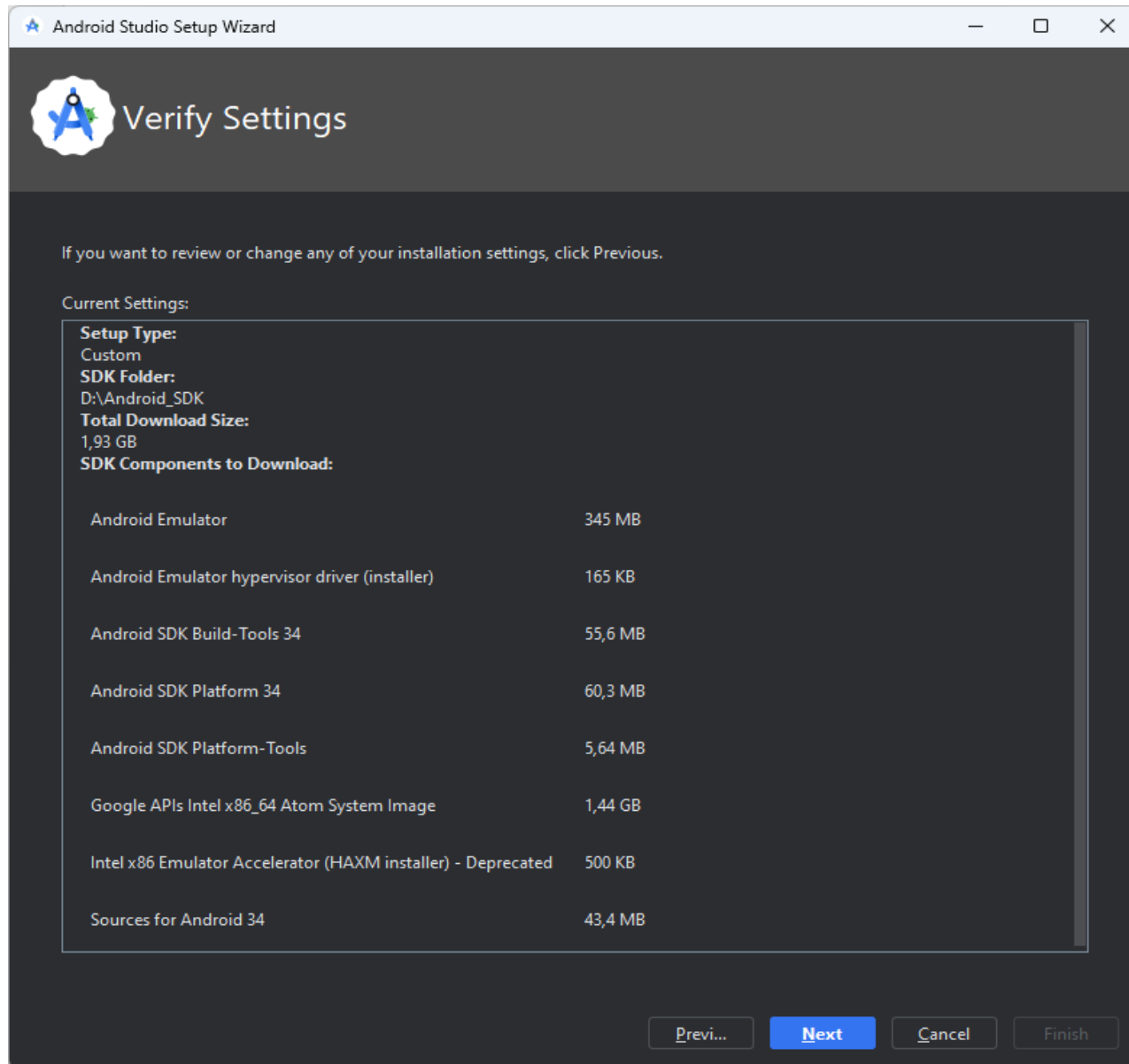
Android Studio – Instalação



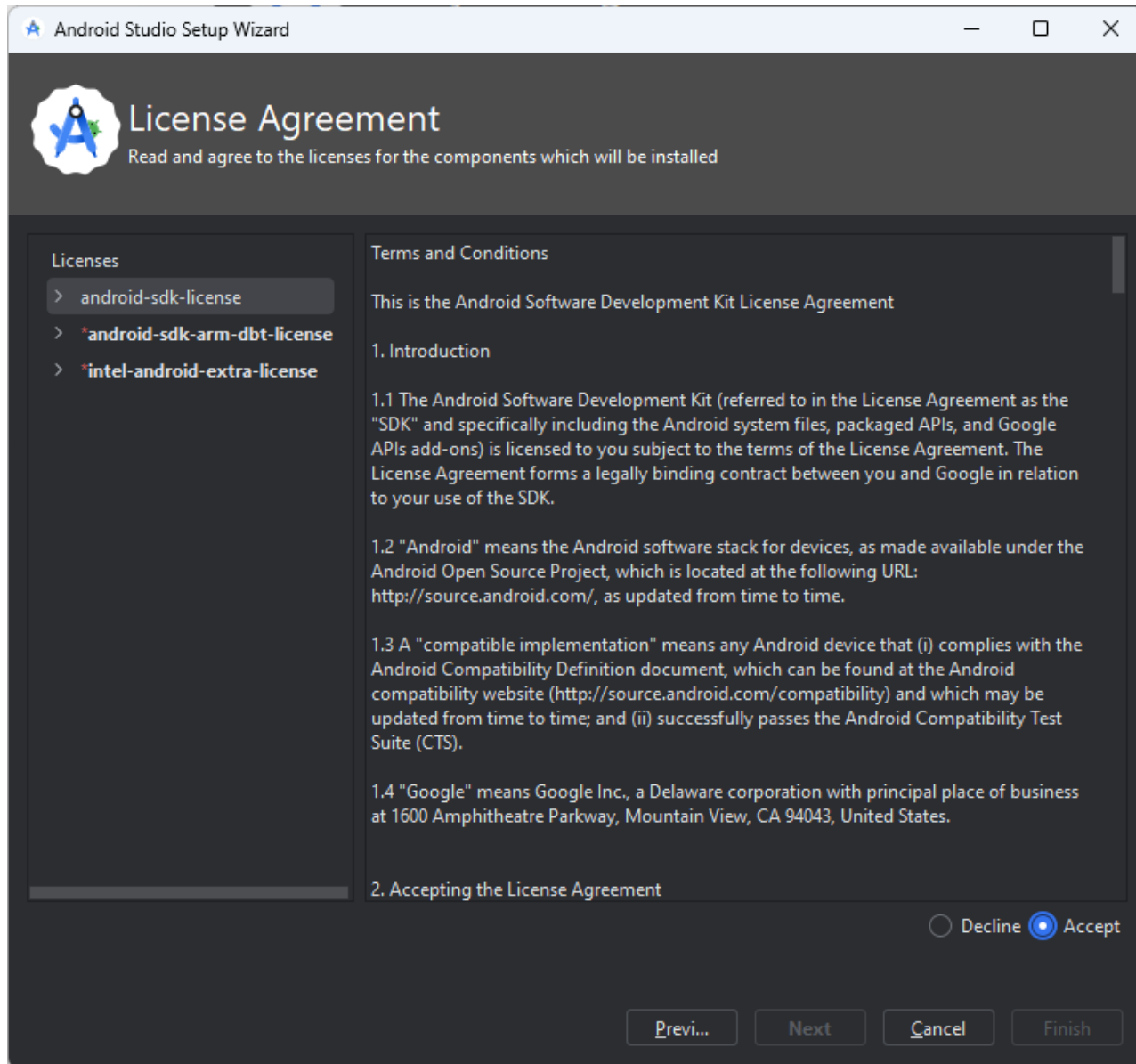
Android Studio – Instalação



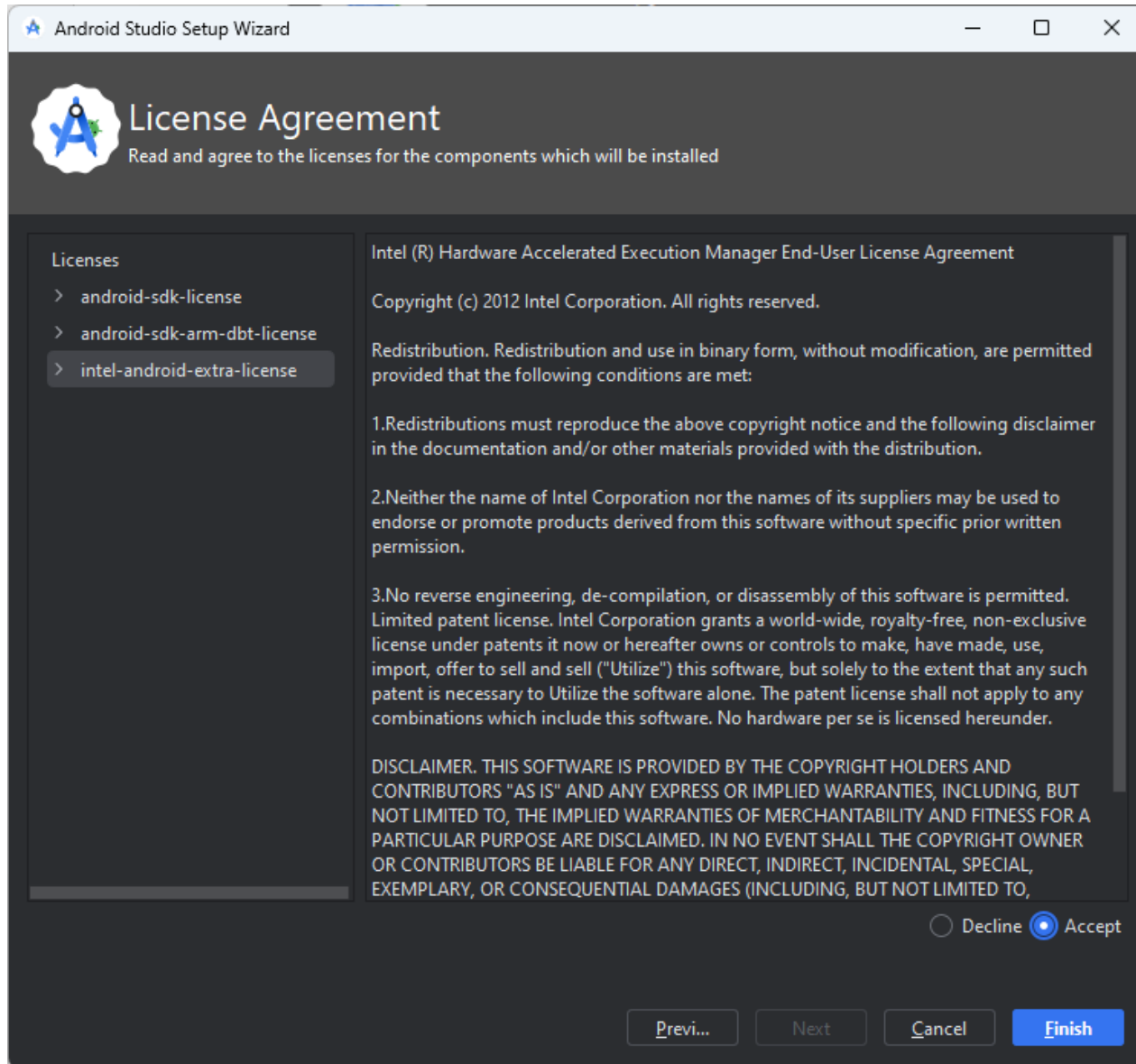
Android Studio - Instalação



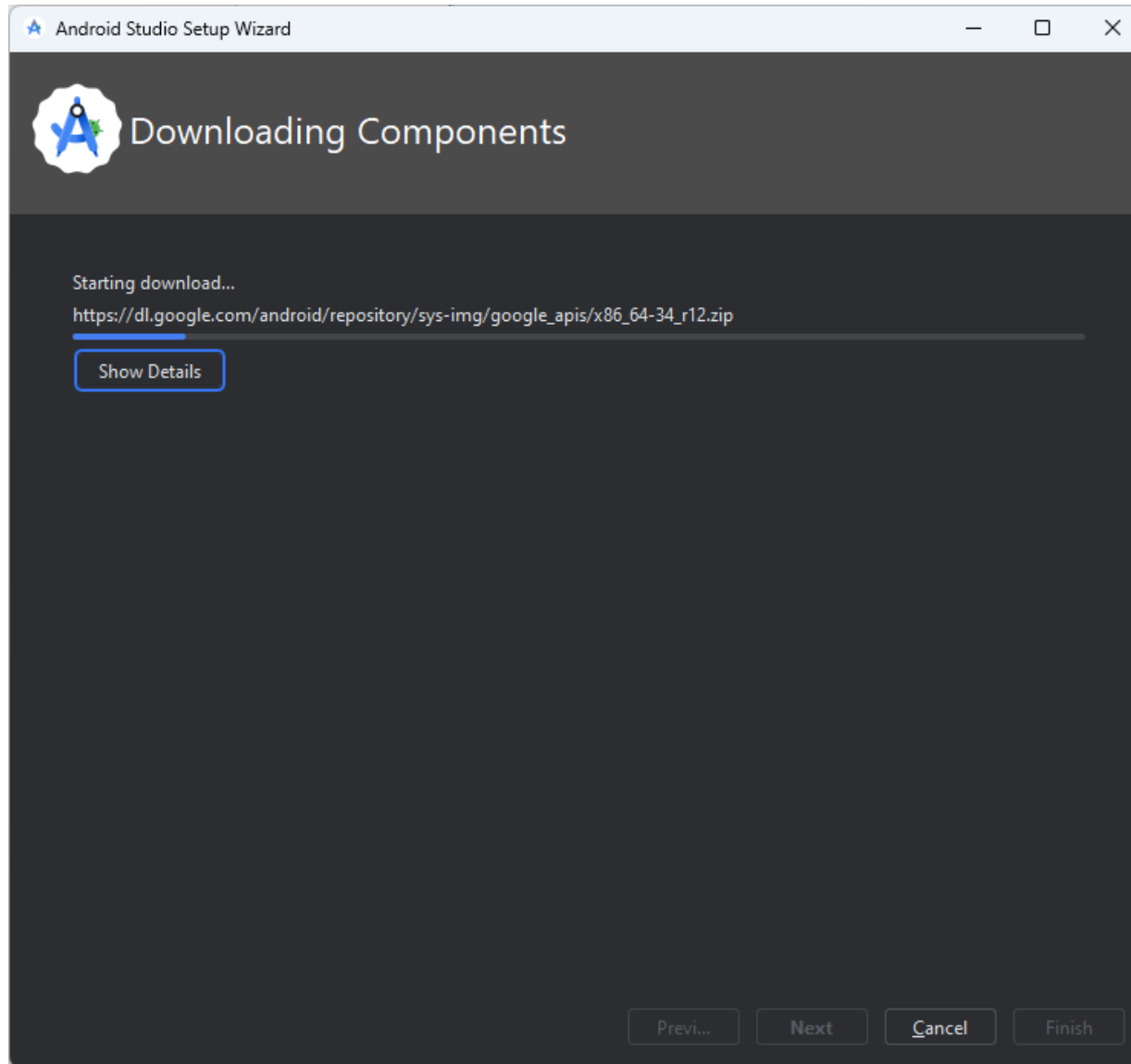
Android Studio – Instalação



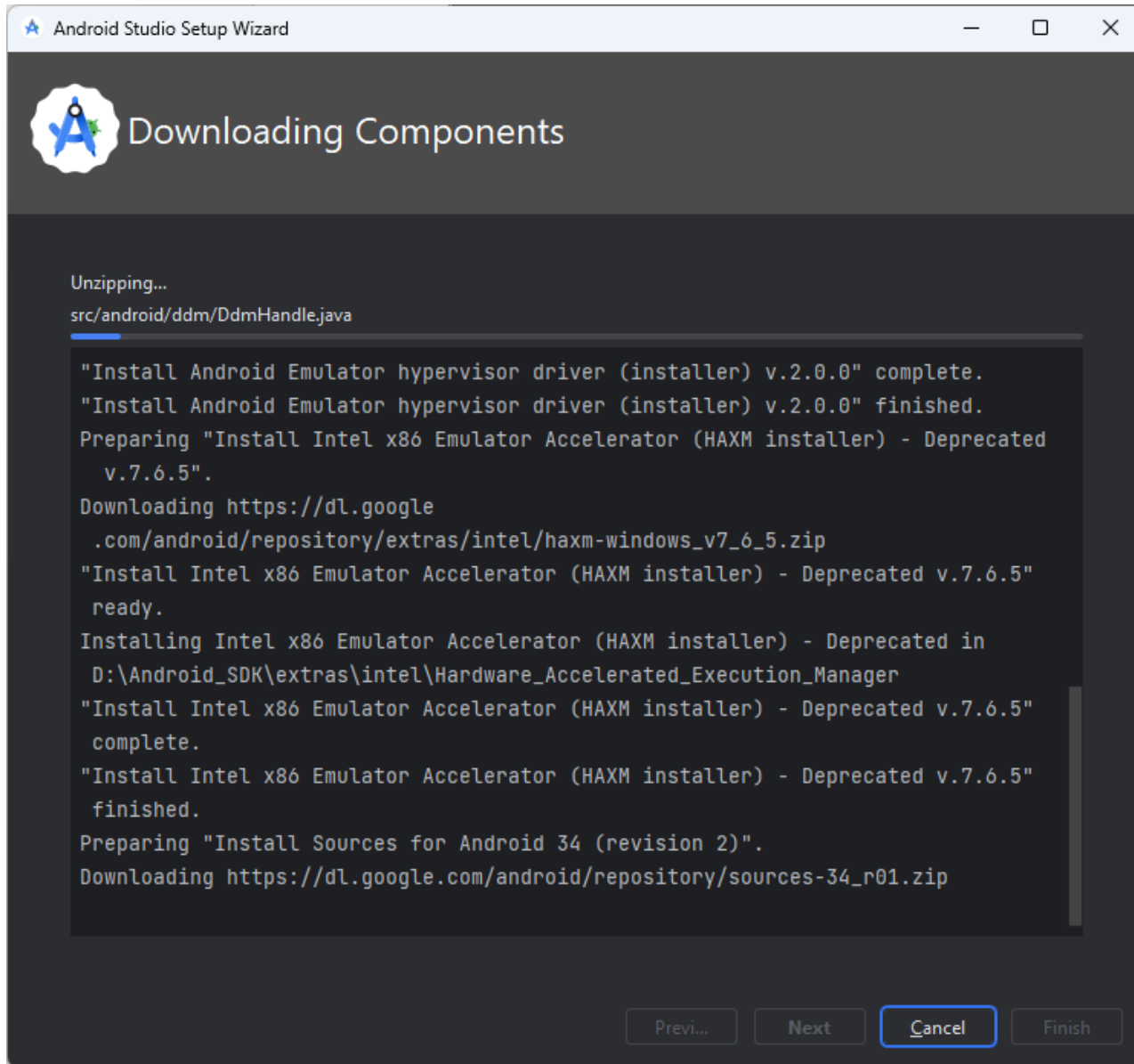
Android Studio – Instalação



Android Studio – Instalação



Android Studio – Instalação



Android Studio – Instalação

- ✦ O **Android Studio** exige a virtualização na **BIOS** da máquina porque utiliza o **Intel Hardware Accelerated Execution Manager (HAXM)** ou tecnologias semelhantes para acelerar os emuladores de dispositivos **Android**;
- ✦ Essas tecnologias de virtualização permitem que o emulador execute aplicativos **Android** de maneira mais eficiente, utilizando diretamente o hardware do computador para melhorar o desempenho;
- ✦ Sem a virtualização habilitada, o **emulador pode ser extremamente lento** ou até mesmo incapaz de funcionar corretamente, impactando significativamente a eficiência do desenvolvimento e teste de aplicativos.



Android Studio – Instalação

- ⊕ O Intel HAXM (**H**ardware **A**ccelerated **E**xecution **M**anager) foi substituído pelo **AEHD** (**A**ndroid **E**mulator **H**ypervisor **D**river) em processadores Intel a partir do emulador 33.x.x.x;
- ⊕ Embora o **HAXM** ainda seja compatível com versões anteriores do emulador Android, para usuários de **Windows 11** é recomendado usar o **AEHD** ou tecnologias alternativas como o **Hyper-V**;
- ⊕ Portanto, para **Windows 11**, deve-se usar **AEHD** ou o **Hyper-V**, dependendo da configuração do seu sistema e da versão do emulador **Android** que se está usando.



Android Studio – Instalação

- ✦ A opção "**Android Emulator Hypervisor Driver**" no **SDK Manager** do Android Studio equivale ao **AEHD** (Android Emulator Hypervisor Driver);
- ✦ O termo "**AEHD**" é uma forma abreviada de referir-se a este componente. O **Android Emulator Hypervisor Driver** é utilizado para acelerar o **emulador** do **Android**, proporcionando melhor desempenho em sistemas que suportam virtualização de hardware.
- ✦ Se essa opção já está selecionada (setada) no **SDK Manager**, significa que o componente está instalado ou pronto para ser instalado. Essa é a ferramenta que se precisa para a **aceleração do emulador Android** em sistemas com processadores Intel e AMD, substituindo o antigo **Intel HAXM** em versões recentes do **Android Studio**.

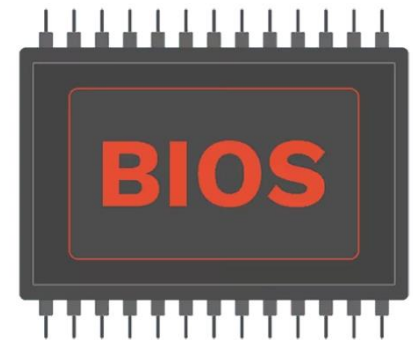




Como habilitar a BIOS ?

Habilitando a BIOS

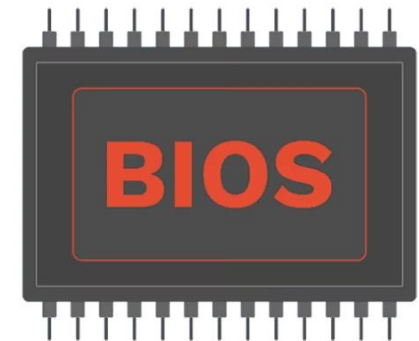
1. **Reinicie o Computador:** Reinicie seu computador e, durante a inicialização, pressione a tecla específica para entrar na configuração da BIOS. Esta tecla varia conforme o fabricante, mas geralmente é F1, F2, F10, DEL ou ESC.
2. **Acesse as Configurações de Virtualização:** Na BIOS, procure pelas opções relacionadas à virtualização. Isso pode estar sob abas como "Advanced", "CPU Configuration" ou algo similar.
3. **Habilite a Virtualização:** Procure por uma opção chamada "Virtualization Technology", "Intel Virtualization Technology (VT-x)", "AMD-V" ou algo similar, e mude-a para "Enabled".



Habilitando a BIOS

4. **Salve e Saia:** Após habilitar a virtualização, salve as alterações e saia da BIOS. Isso geralmente é feito pressionando a tecla F10 e confirmando que você deseja salvar as alterações.
5. **Reinicie o Computador:** Após salvar as configurações, o computador será reiniciado com a virtualização habilitada.

É importante notar que alterar configurações na BIOS deve ser feito com cuidado, pois mudanças incorretas podem afetar a funcionalidade do sistema. Se você não estiver confortável em fazer isso, pode ser útil consultar o manual do seu computador ou buscar assistência profissional.



Android Studio – Instalação

Settings

Q

Appearance & Behavior

Keymap

Editor

Build, Execution, Deployment

Languages & Frameworks

Android SDK

Kotlin

Tools

Advanced Settings

Layout Inspector

Languages & Frameworks > Android SDK

Manager for the Android SDK and Tools used by the IDE

Android SDK Location:

D:\Android_SDK

Edit

Optimize disk space

SDK Platforms

SDK Tools

SDK Update Sites

Below are the available SDK developer tools. Once installed, the IDE will automatically check for updates. Check "show package details" to display available versions of an SDK Tool.

Name	Version	Status
<input checked="" type="checkbox"/> Android SDK Build-Tools 34		Installed
<input type="checkbox"/> NDK (Side by side)		Not Installed
<input type="checkbox"/> Android SDK Command-line Tools (latest)		Not Installed
<input type="checkbox"/> CMake		Not Installed
<input type="checkbox"/> Android Auto API Simulators	1	Not installed
<input type="checkbox"/> Android Auto Desktop Head Unit Emulator	2.0	Not installed
<input checked="" type="checkbox"/> Android Emulator	33.1.24	Installed
<input checked="" type="checkbox"/> Android Emulator hypervisor driver (installer)	2.0.0	Installed
<input checked="" type="checkbox"/> Android SDK Platform-Tools	34.0.5	Installed
<input type="checkbox"/> Google Play APK Expansion library	1	Not installed
<input type="checkbox"/> Google Play Instant Development SDK	1.9.0	Not installed
<input type="checkbox"/> Google Play Licensing Library	1	Not installed
<input type="checkbox"/> Google Play services	49	Not installed
<input type="checkbox"/> Google USB Driver	13	Not installed
<input type="checkbox"/> Google Web Driver	2	Not installed

☒ Hide Obsolete Packages
 ☐ Show Package Details

?

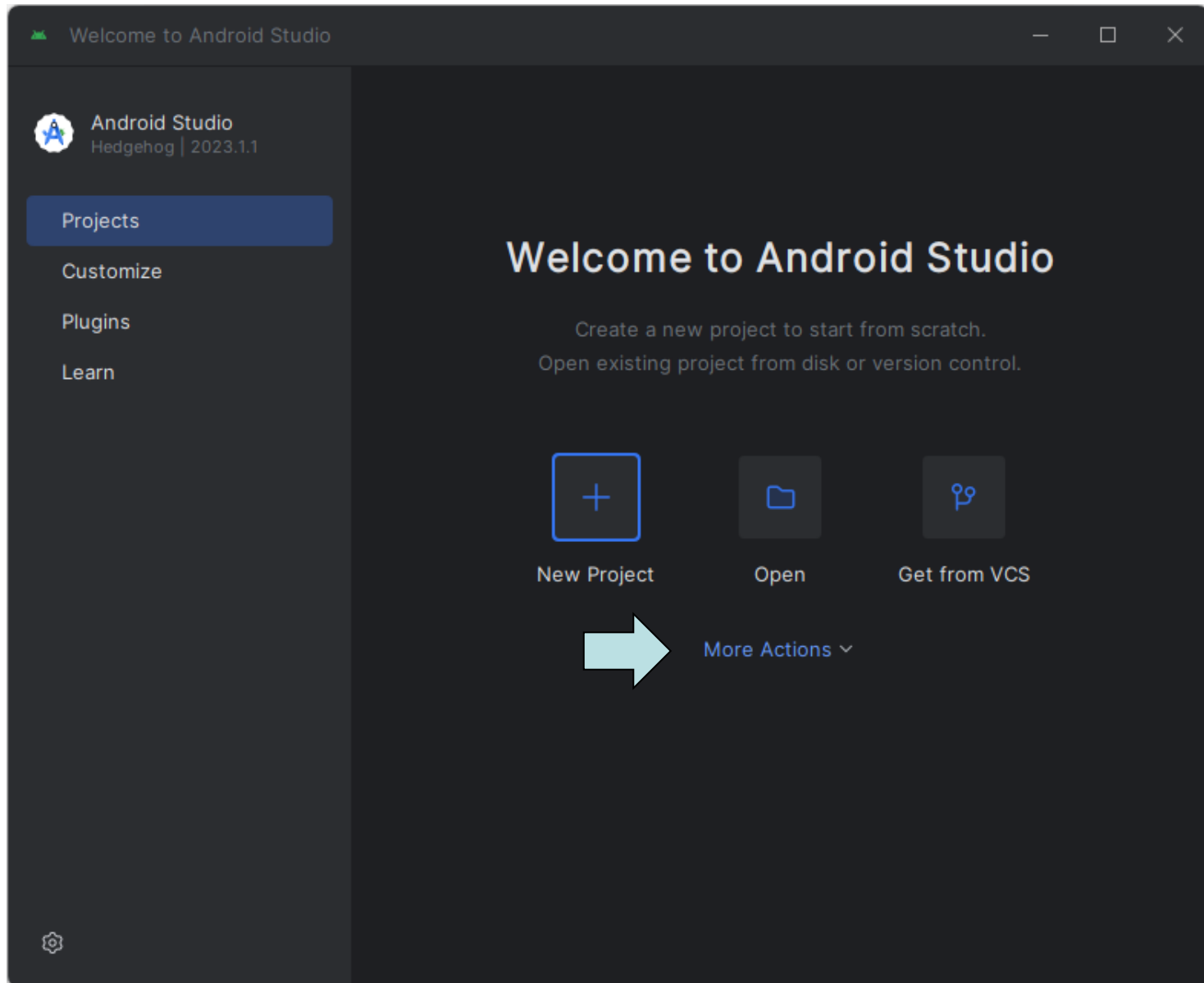
Project-level settings will be applied to new projects

OK

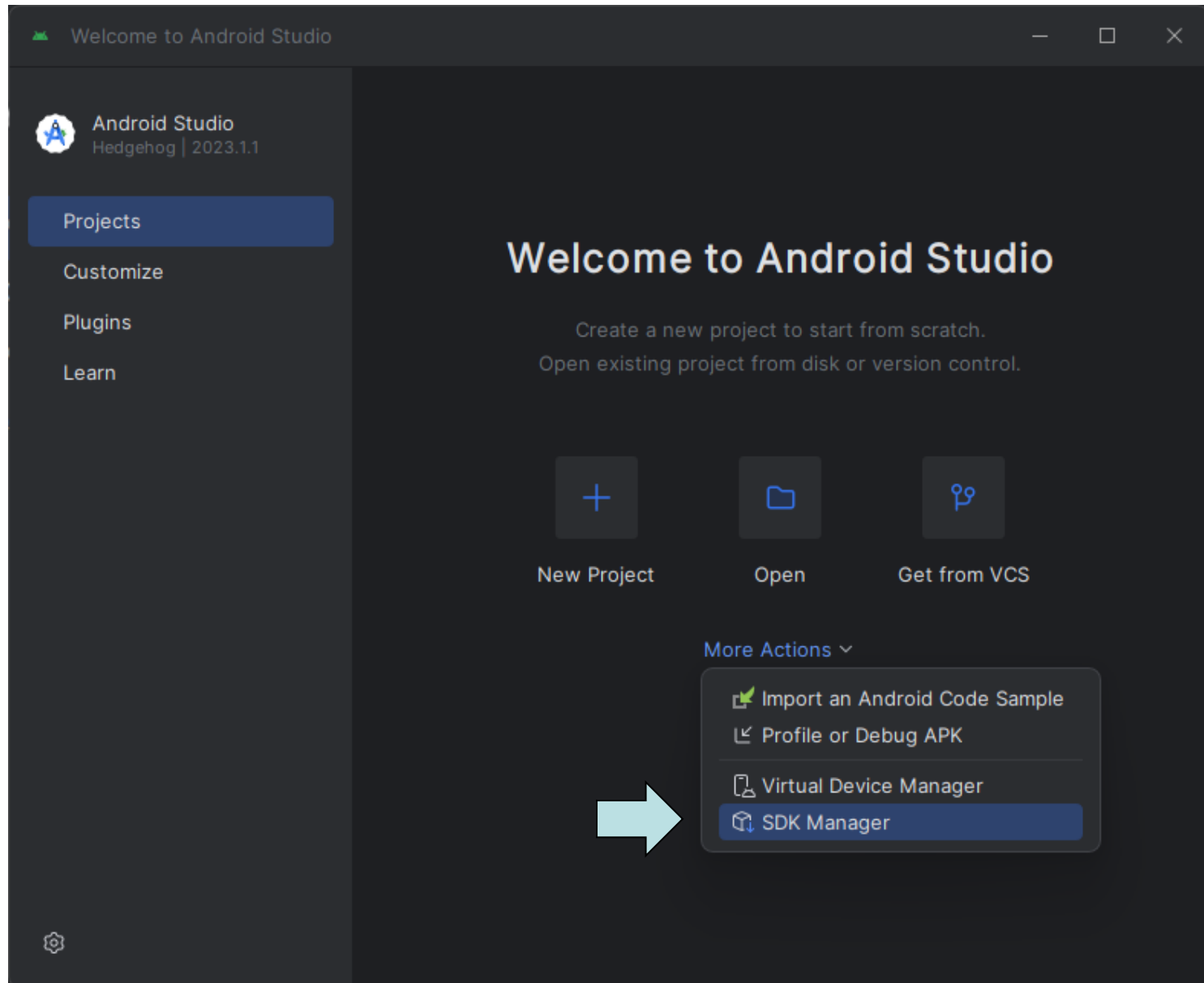
Cancel

Apply

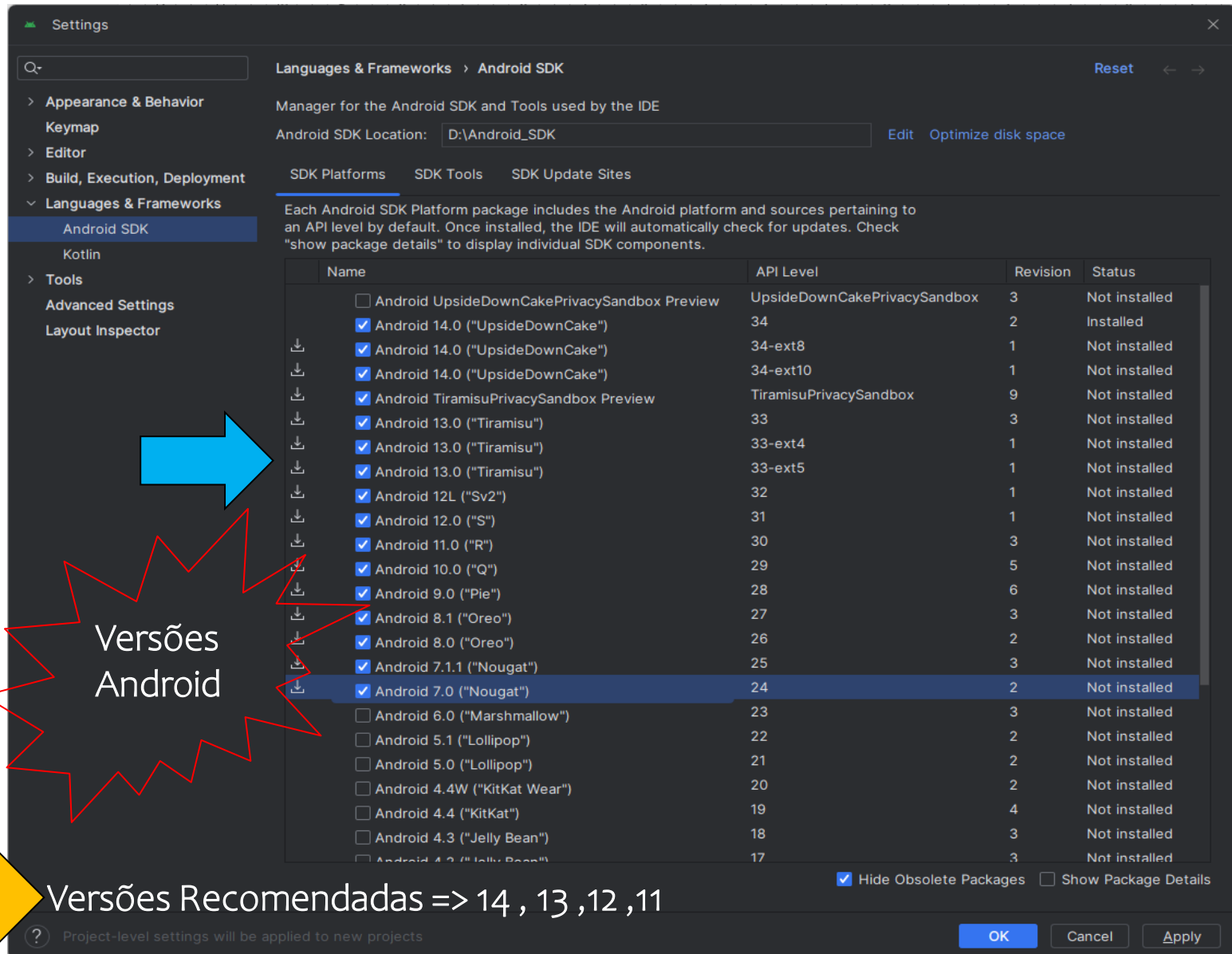
Android Studio instalado!



Acessando SDK Manager



Acessando SDK Manager



Settings

Languages & Frameworks > Android SDK

Manager for the Android SDK and Tools used by the IDE

Android SDK Location: D:\Android_SDK

SDK Platforms SDK Tools SDK Update Sites

Each Android SDK Platform package includes the Android platform and sources pertaining to an API level by default. Once installed, the IDE will automatically check for updates. Check "show package details" to display individual SDK components.

Name	API Level	Revision	Status
<input type="checkbox"/> Android UpsideDownCakePrivacySandbox Preview	UpsideDownCakePrivacySandbox	3	Not installed
<input checked="" type="checkbox"/> Android 14.0 ("UpsideDownCake")	34	2	Installed
<input checked="" type="checkbox"/> Android 14.0 ("UpsideDownCake")	34-ext8	1	Not installed
<input checked="" type="checkbox"/> Android 14.0 ("UpsideDownCake")	34-ext10	1	Not installed
<input checked="" type="checkbox"/> Android TiramisuPrivacySandbox Preview	TiramisuPrivacySandbox	9	Not installed
<input checked="" type="checkbox"/> Android 13.0 ("Tiramisu")	33	3	Not installed
<input checked="" type="checkbox"/> Android 13.0 ("Tiramisu")	33-ext4	1	Not installed
<input checked="" type="checkbox"/> Android 13.0 ("Tiramisu")	33-ext5	1	Not installed
<input checked="" type="checkbox"/> Android 12L ("Sv2")	32	1	Not installed
<input checked="" type="checkbox"/> Android 12.0 ("S")	31	1	Not installed
<input checked="" type="checkbox"/> Android 11.0 ("R")	30	3	Not installed
<input checked="" type="checkbox"/> Android 10.0 ("Q")	29	5	Not installed
<input checked="" type="checkbox"/> Android 9.0 ("Pie")	28	6	Not installed
<input checked="" type="checkbox"/> Android 8.1 ("Oreo")	27	3	Not installed
<input checked="" type="checkbox"/> Android 8.0 ("Oreo")	26	2	Not installed
<input checked="" type="checkbox"/> Android 7.1.1 ("Nougat")	25	3	Not installed
<input checked="" type="checkbox"/> Android 7.0 ("Nougat")	24	2	Not installed
<input type="checkbox"/> Android 6.0 ("Marshmallow")	23	3	Not installed
<input type="checkbox"/> Android 5.1 ("Lollipop")	22	2	Not installed
<input type="checkbox"/> Android 5.0 ("Lollipop")	21	2	Not installed
<input type="checkbox"/> Android 4.4W ("KitKat Wear")	20	2	Not installed
<input type="checkbox"/> Android 4.4 ("KitKat")	19	4	Not installed
<input type="checkbox"/> Android 4.3 ("Jelly Bean")	18	3	Not installed
<input type="checkbox"/> Android 4.2 ("Jelly Bean")	17	3	Not installed

Hide Obsolete Packages Show Package Details

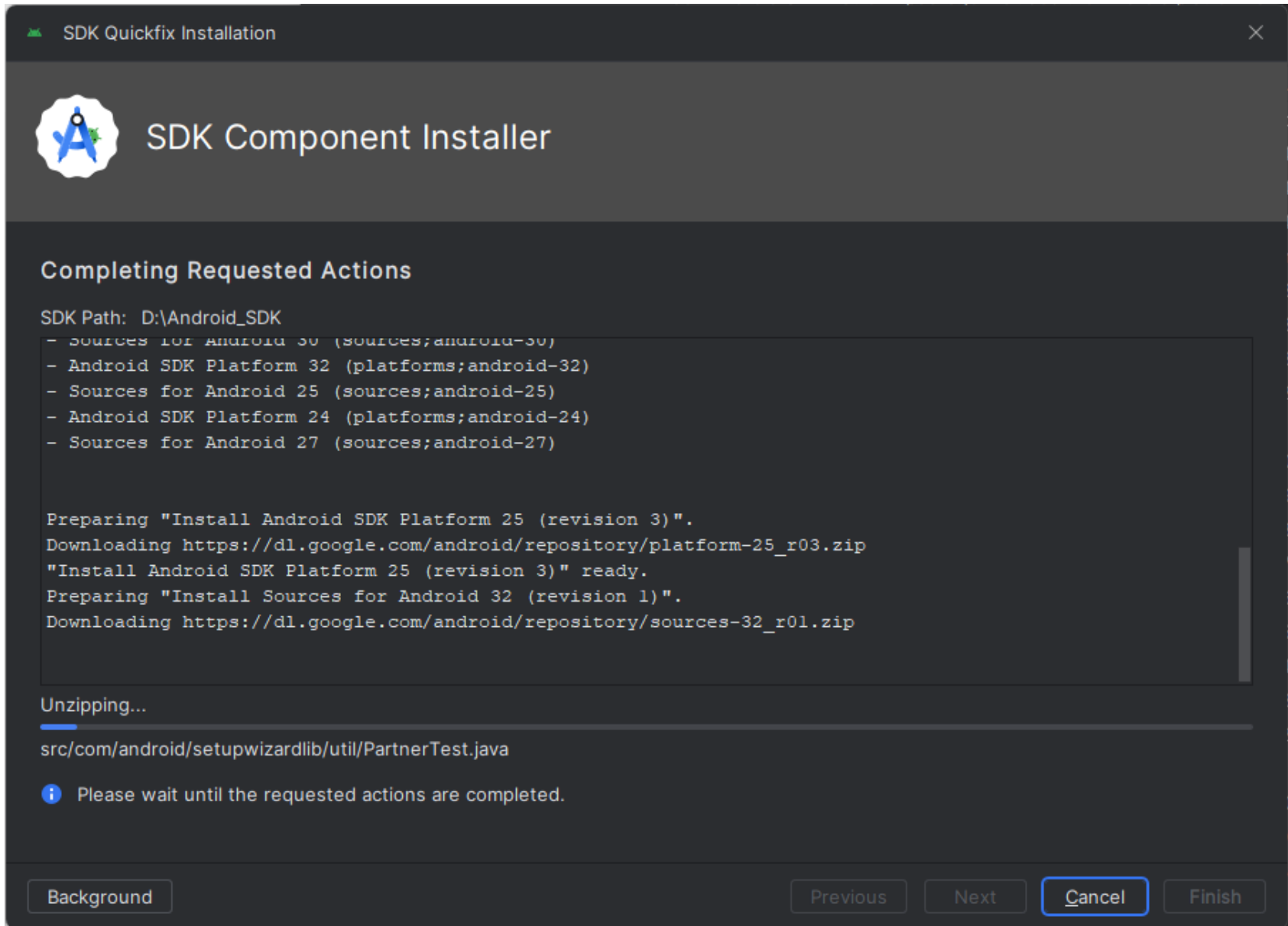
Project-level settings will be applied to new projects

OK Cancel Apply

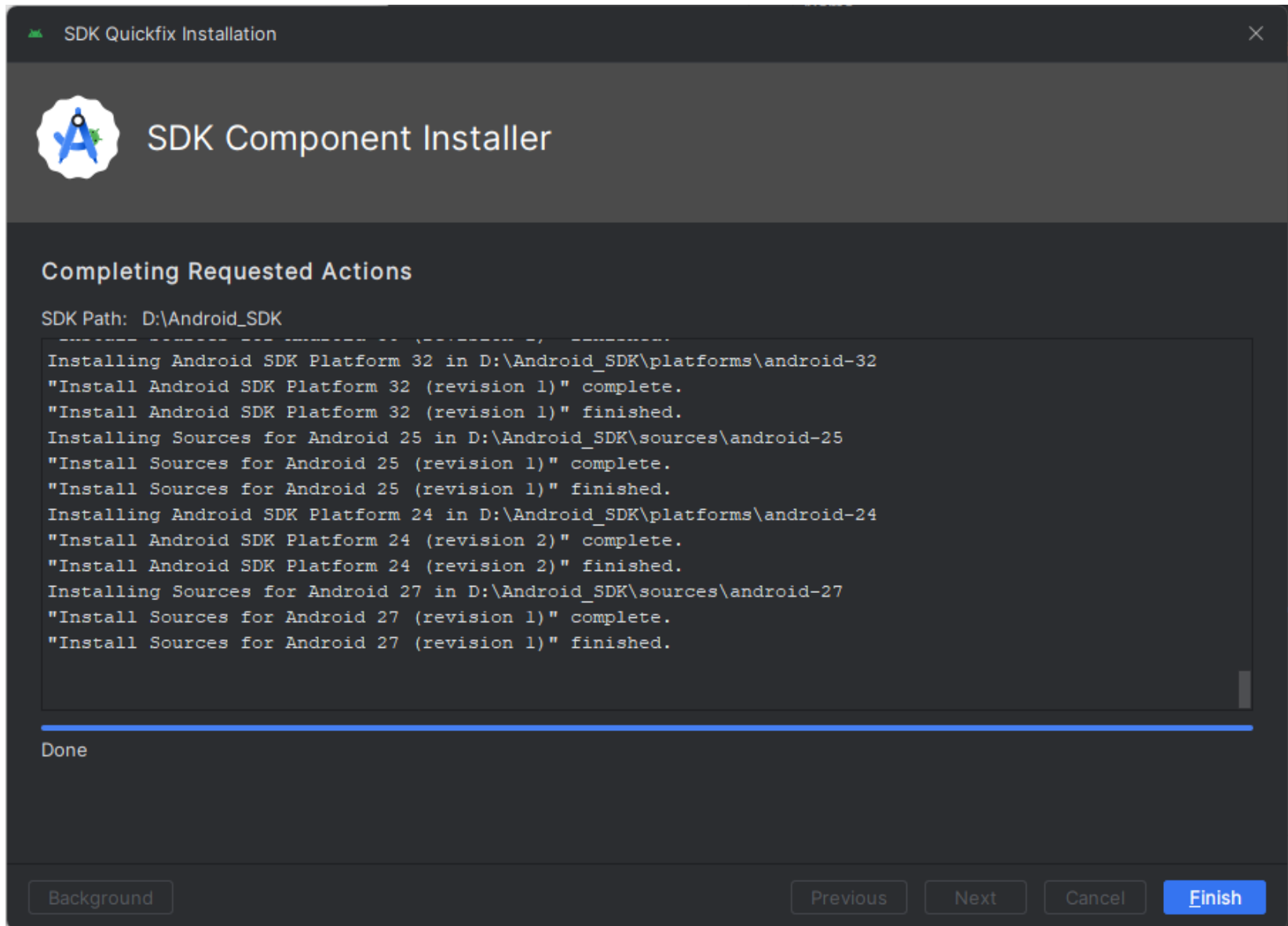
Versões Android

Versões Recomendadas => 14, 13, 12, 11

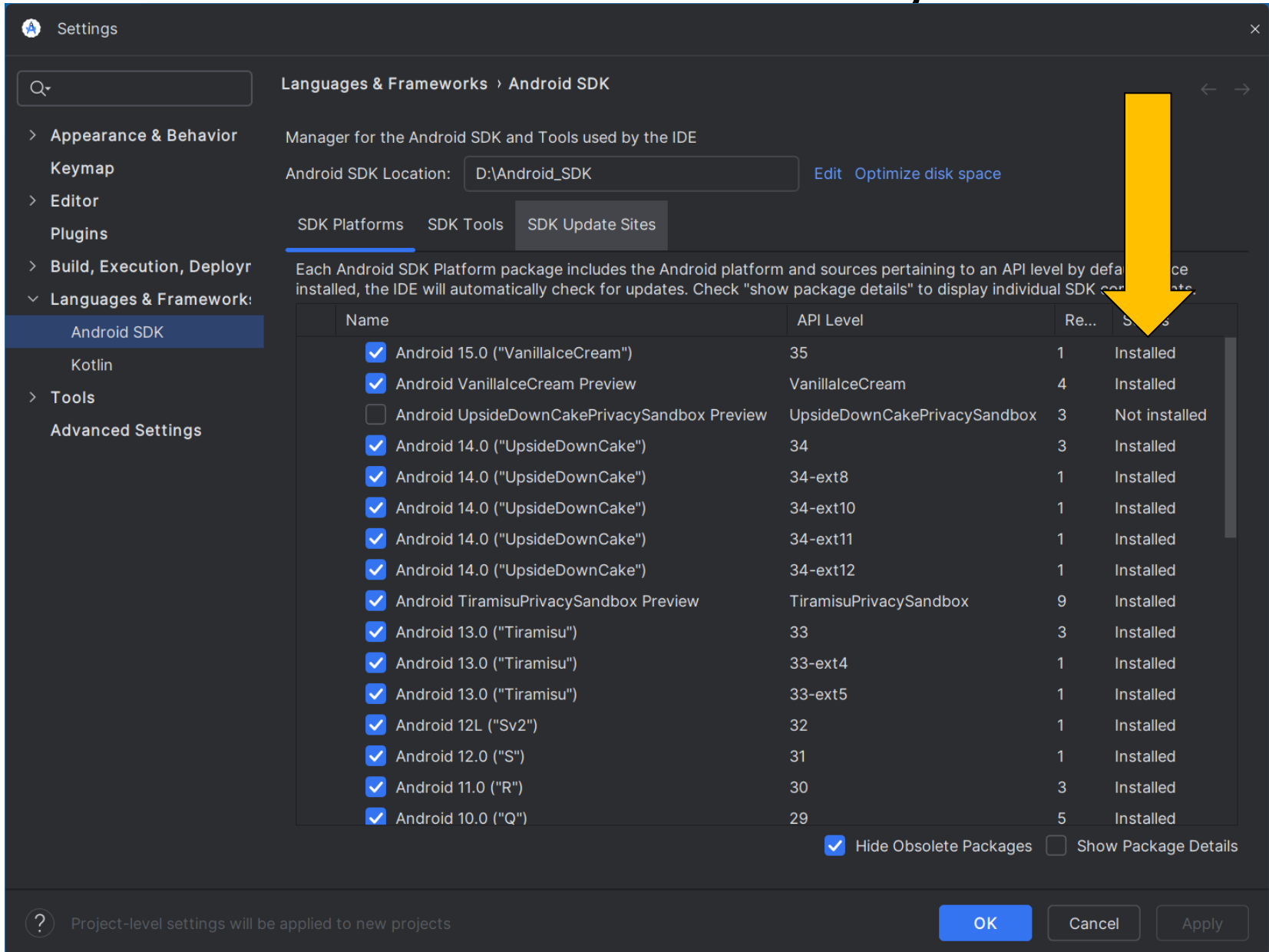
Instalando componentes – SDK Manager



Instalando componentes – SDK Manager



Acessando SDK Manager



Settings

Languages & Frameworks > Android SDK

Manager for the Android SDK and Tools used by the IDE

Android SDK Location: [Edit](#) [Optimize disk space](#)

SDK Platforms **SDK Tools** **SDK Update Sites**

Each Android SDK Platform package includes the Android platform and sources pertaining to an API level by default. Once installed, the IDE will automatically check for updates. Check "show package details" to display individual SDK components.

Name	API Level	Re...	Status
<input checked="" type="checkbox"/> Android 15.0 ("VanillaIceCream")	35	1	Installed
<input checked="" type="checkbox"/> Android VanillaIceCream Preview	VanillaIceCream	4	Installed
<input type="checkbox"/> Android UpsideDownCakePrivacySandbox Preview	UpsideDownCakePrivacySandbox	3	Not installed
<input checked="" type="checkbox"/> Android 14.0 ("UpsideDownCake")	34	3	Installed
<input checked="" type="checkbox"/> Android 14.0 ("UpsideDownCake")	34-ext8	1	Installed
<input checked="" type="checkbox"/> Android 14.0 ("UpsideDownCake")	34-ext10	1	Installed
<input checked="" type="checkbox"/> Android 14.0 ("UpsideDownCake")	34-ext11	1	Installed
<input checked="" type="checkbox"/> Android 14.0 ("UpsideDownCake")	34-ext12	1	Installed
<input checked="" type="checkbox"/> Android TiramisuPrivacySandbox Preview	TiramisuPrivacySandbox	9	Installed
<input checked="" type="checkbox"/> Android 13.0 ("Tiramisu")	33	3	Installed
<input checked="" type="checkbox"/> Android 13.0 ("Tiramisu")	33-ext4	1	Installed
<input checked="" type="checkbox"/> Android 13.0 ("Tiramisu")	33-ext5	1	Installed
<input checked="" type="checkbox"/> Android 12L ("Sv2")	32	1	Installed
<input checked="" type="checkbox"/> Android 12.0 ("S")	31	1	Installed
<input checked="" type="checkbox"/> Android 11.0 ("R")	30	3	Installed
<input checked="" type="checkbox"/> Android 10.0 ("Q")	29	5	Installed

☒ Hide Obsolete Packages ☐ Show Package Details

OK **Cancel** **Apply**

Acessando SDK Manager

Settings

Search

Appearance & Behavior

Keymap

Editor

Plugins

Build, Execution, Deploy

Languages & Frameworks

Android SDK

Kotlin

Tools

Advanced Settings

Languages & Frameworks > Android SDK

Manager for the Android SDK and Tools used by the IDE

Android SDK Location: [Edit](#) [Optimize disk space](#)

SDK Platforms **SDK Tools** SDK Update Sites

Below are the available SDK developer tools. Once installed, the IDE will automatically check for updates. Check "show package details" to display available versions of an SDK Tool.

	Name	Version	Status
	<input checked="" type="checkbox"/> Android SDK Build-Tools 35		Update Available: 35.0.0
⬇	<input checked="" type="checkbox"/> NDK (Side by side)		Not Installed
⬇	<input checked="" type="checkbox"/> Android SDK Command-line Tools (latest)		Not Installed
⬇	<input checked="" type="checkbox"/> CMake		Not Installed
⬇	<input checked="" type="checkbox"/> Android Auto API Simulators	1	Not installed
⬇	<input checked="" type="checkbox"/> Android Auto Desktop Head Unit Emulator	2.0	Not installed
	<input checked="" type="checkbox"/> Android Emulator	35.1.21	Installed
	<input checked="" type="checkbox"/> Android Emulator hypervisor driver (installer)	2.2.0	Installed
	<input checked="" type="checkbox"/> Android SDK Platform-Tools	35.0.2	Installed
⬇	<input checked="" type="checkbox"/> Android Support Repository	47.0.0	Not installed
	<input checked="" type="checkbox"/> Google Play APK Expansion library	1	Installed
	<input checked="" type="checkbox"/> Google Play Instant Development SDK	1.9.0	Installed
	<input checked="" type="checkbox"/> Google Play Licensing Library	1	Installed
	<input checked="" type="checkbox"/> Google Play services	49	Installed
⬇	<input checked="" type="checkbox"/> Google Repository	58	Not installed
	<input checked="" type="checkbox"/> Google USB Driver	13	Installed

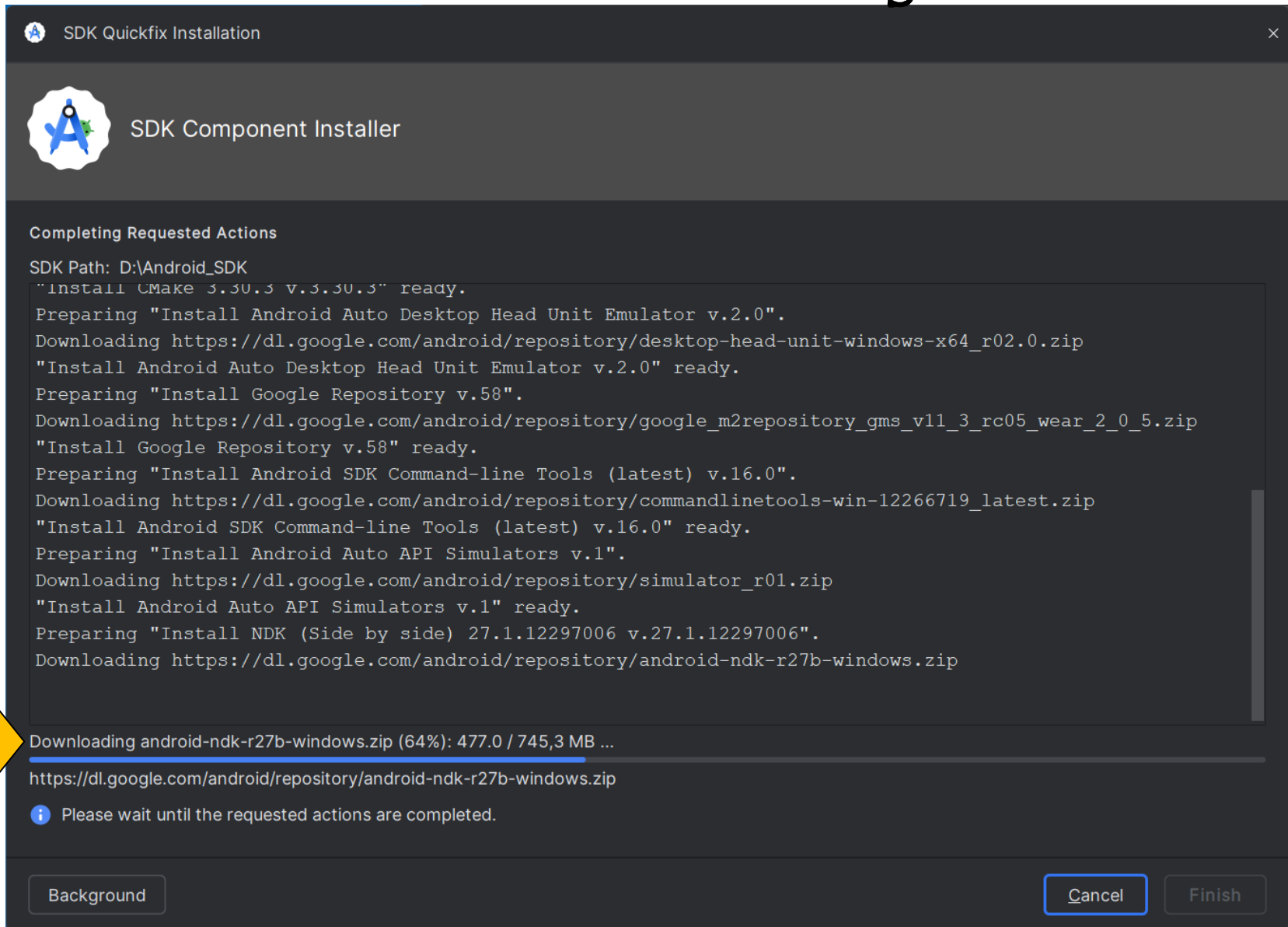
☒ Hide Obsolete Packages ☐ Show Package Details

Versões Recomendadas => 14, 13, 12, 11

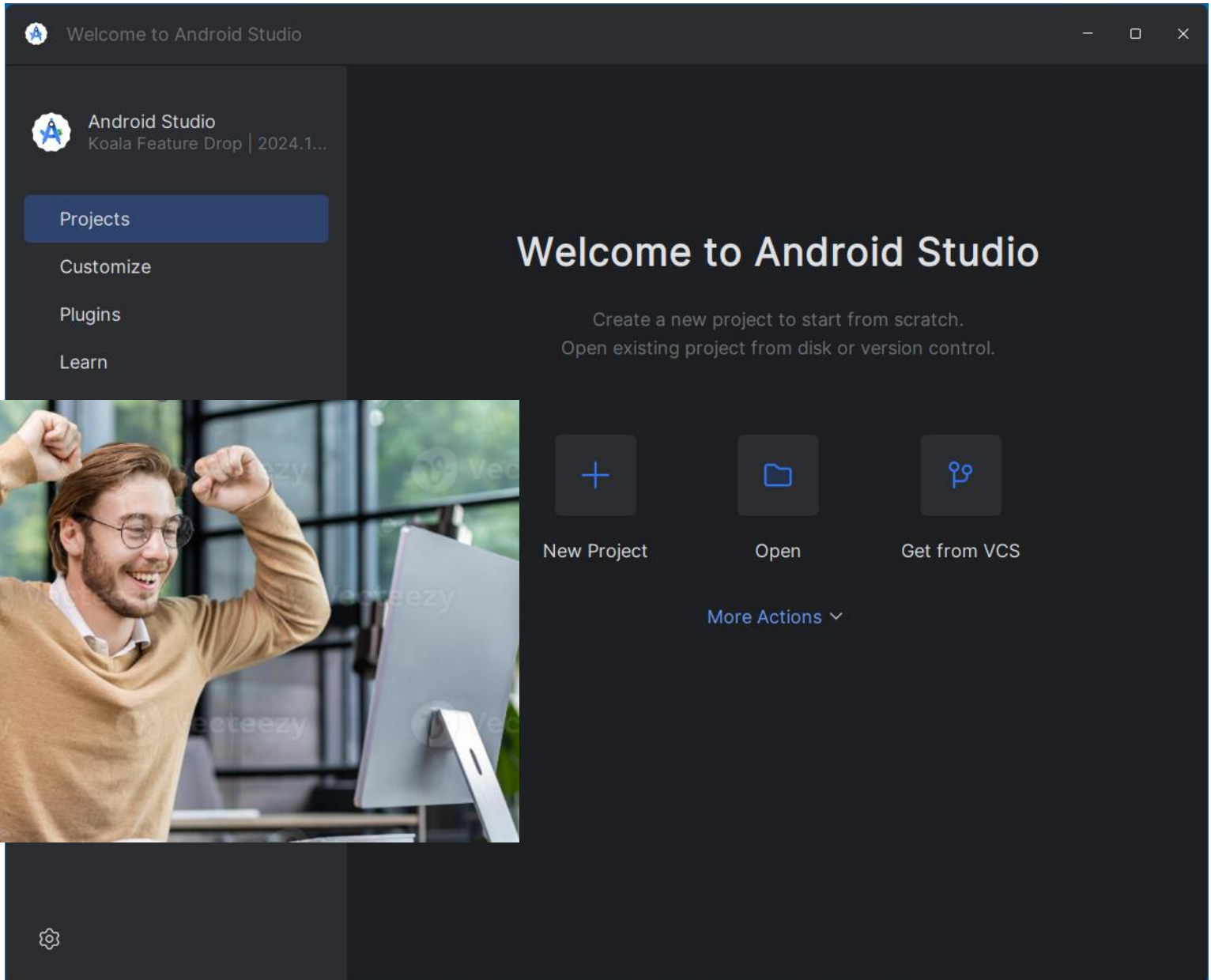
Project-level settings will be applied to new projects

OK Cancel Apply

Acessando SDK Manager



Instalação concluída !



Emulador x Dispositivo físico

- ✦ O **emulador** é útil para testar aplicativos;
- ✦ No entanto, **não** substitui um dispositivo **Android** real em termos de desempenho;
- ✦ Se você tiver um **dispositivo físico**, recomendamos usá-lo durante este curso.

