



# Prepare Flutter development on Windows

Official documentation:

<https://docs.flutter.dev/get-started/install/windows>

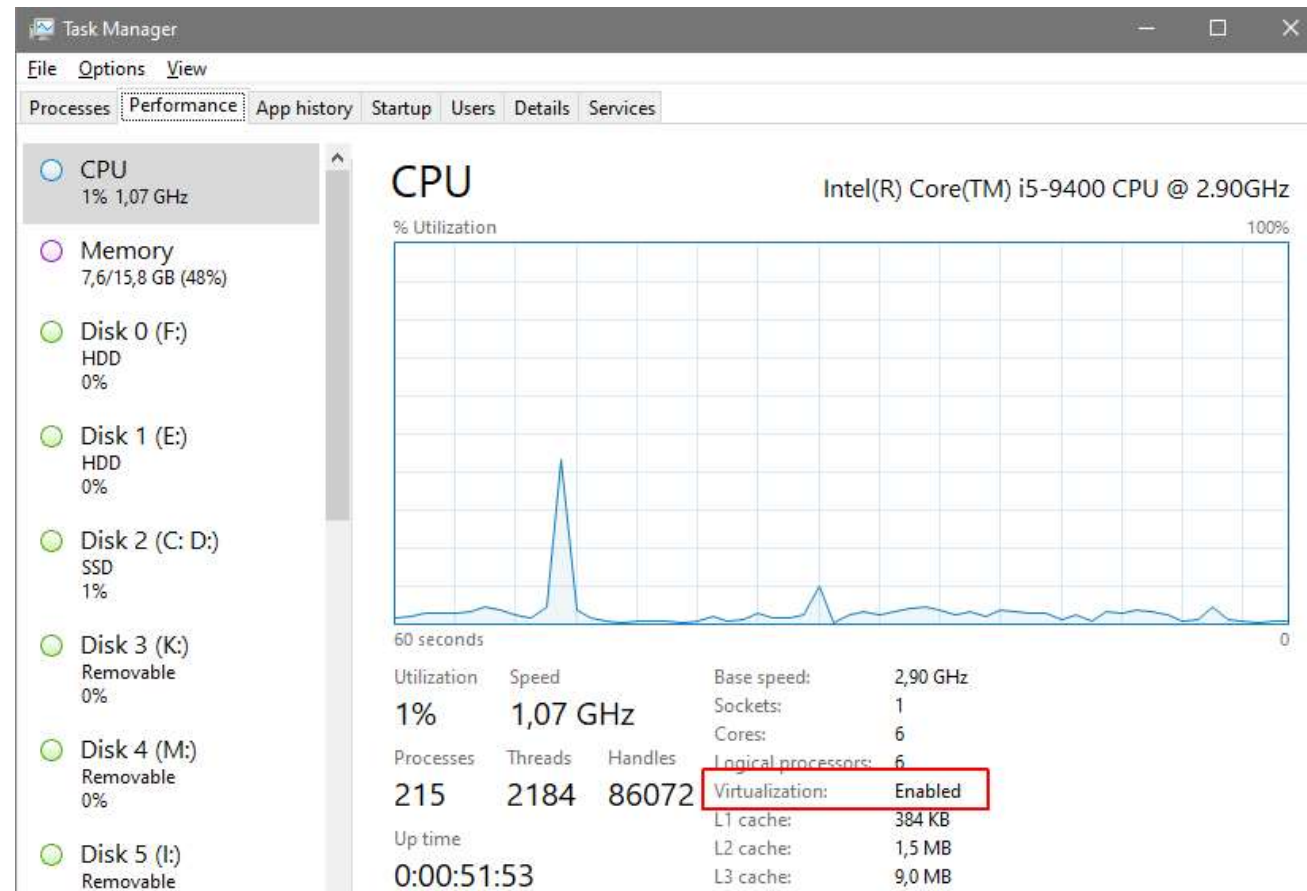
Requirements:

- Windows 10 or 11 (64 bit)
- At least 8 GB RAM, better 16 GB
- About 30 GB free space on your disc
- When you want to use Android Emulator on your PC,  
**Virtualization Technology VT-x** has to be enabled for your CPU.



# Check if VT-x is enabled for your CPU

Start Task Manager  
(e.g. by pressing  
Ctrl+Shift+Esc),  
open tab  
“Performance”  
and select “CPU”:





## What if Virtualization is disabled on your CPU ?

Virtualization Technology can be switched on in BIOS.  
But we do not recommend that you change settings in your BIOS.  
This might make your PC unusable, and we do not take any warranty !

Better accept that you cannot use Android emulator on your PC and  
instead connect a physical Android device to your PC for testing & debugging.



## Components to be installed

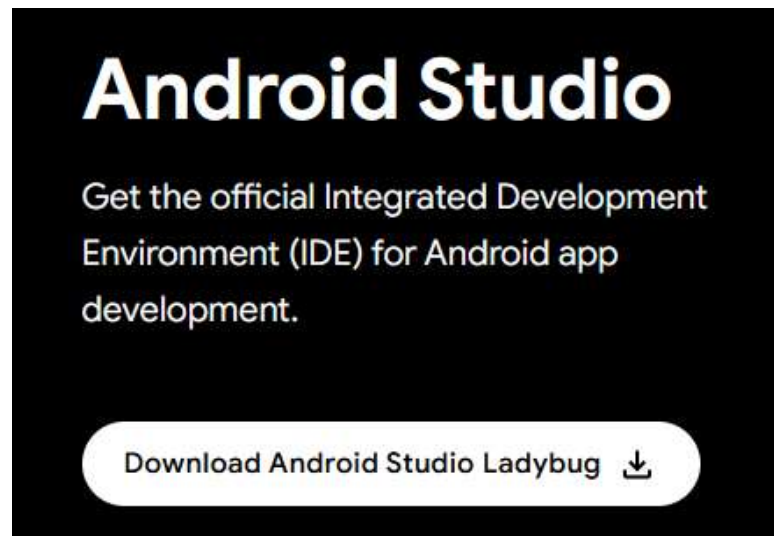
- Android Studio (it is installing the Android SDK<sup>\*)</sup> too)
- Flutter SDK<sup>\*)</sup> (tools, libraries, ...)
- Visual Studio Code used as IDE (Integrated Development Environment)

<sup>\*)</sup> SDK: Software Development Kit, Wikipedia says:  
a collection of software development tools in one installable package.



## Step 1: Download and Install Android Studio

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



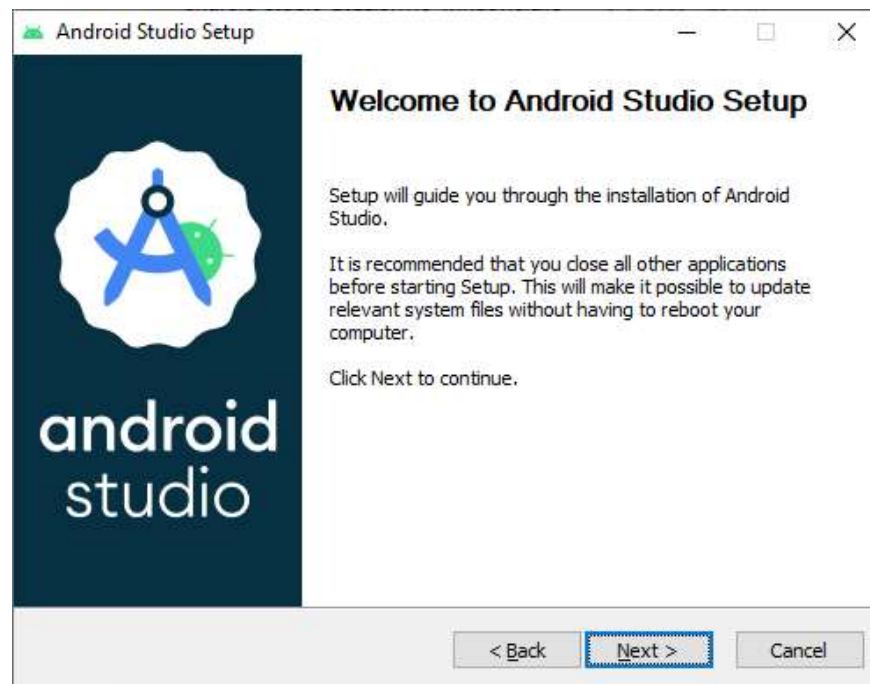
Press the Download button, on next page confirm “Terms and Conditions”, then download android-studio-202y.a.b.c-windows.exe.

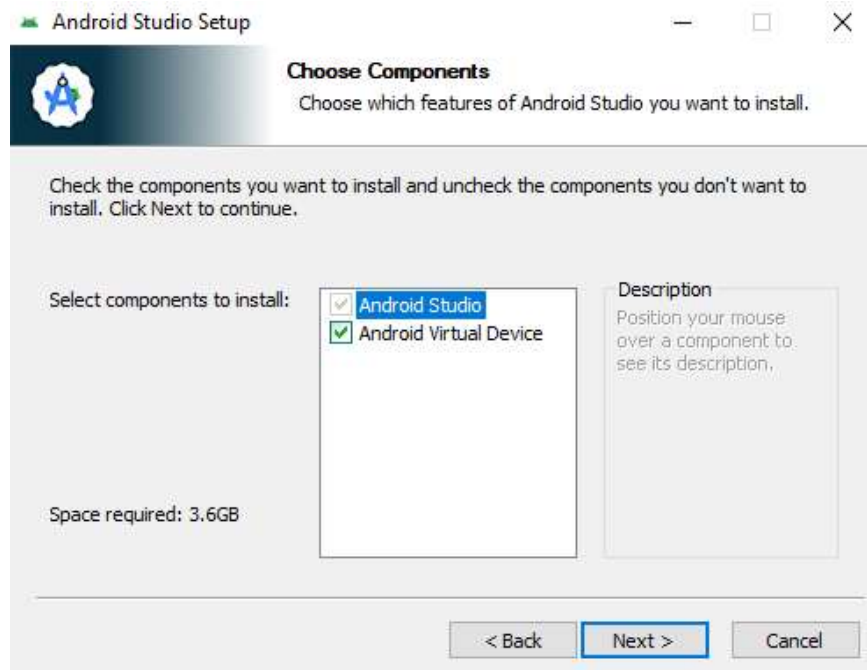
In October 2024 this was android-studio-**2024.2.1.9**-windows.exe. It has a size of 1.13 GB.



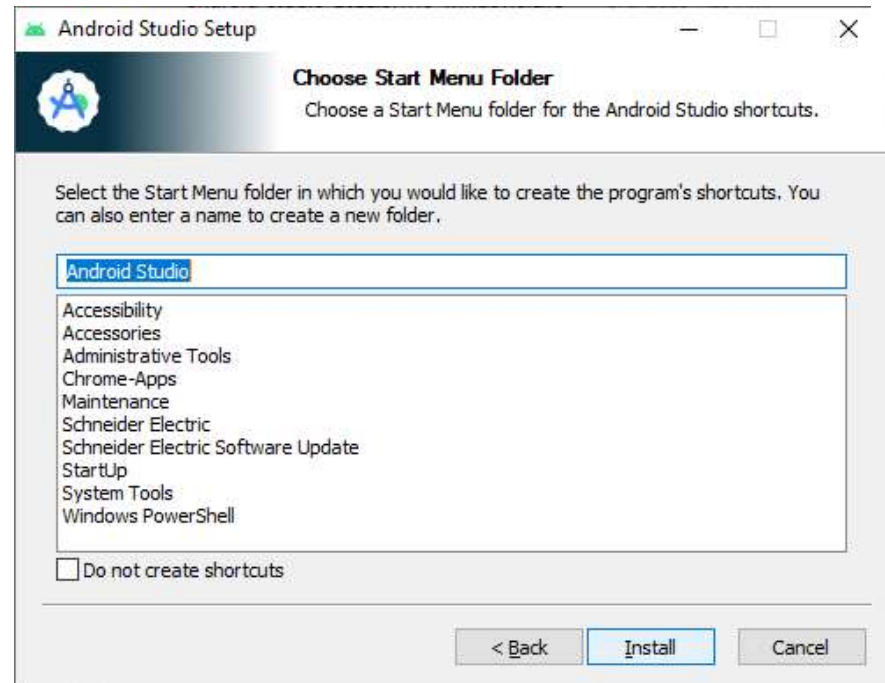
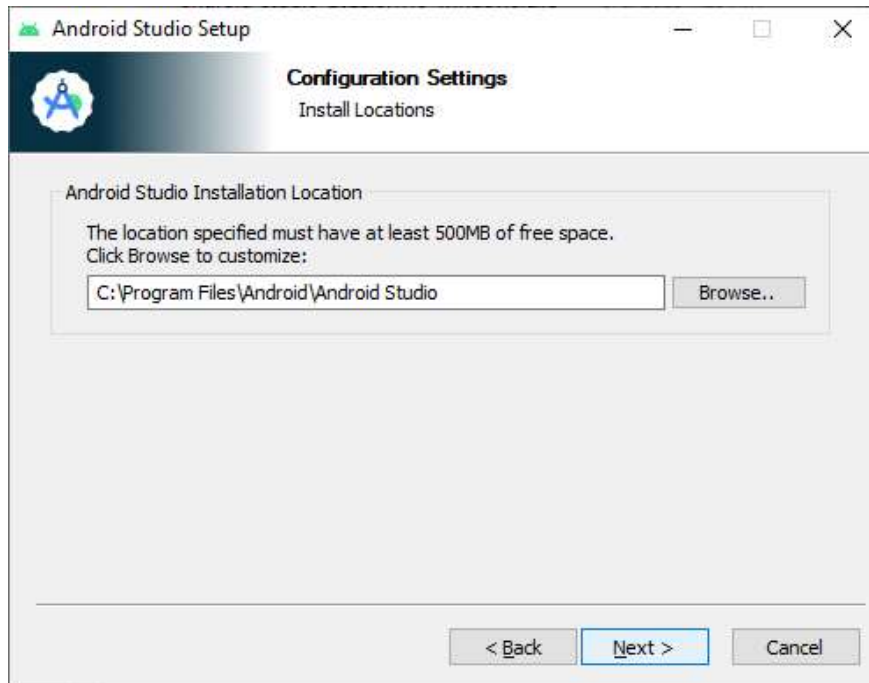
# Install Android Studio (this may take more than 20 minutes)

Start the downloaded “android-studio-2024.2.1.9-windows.exe” :



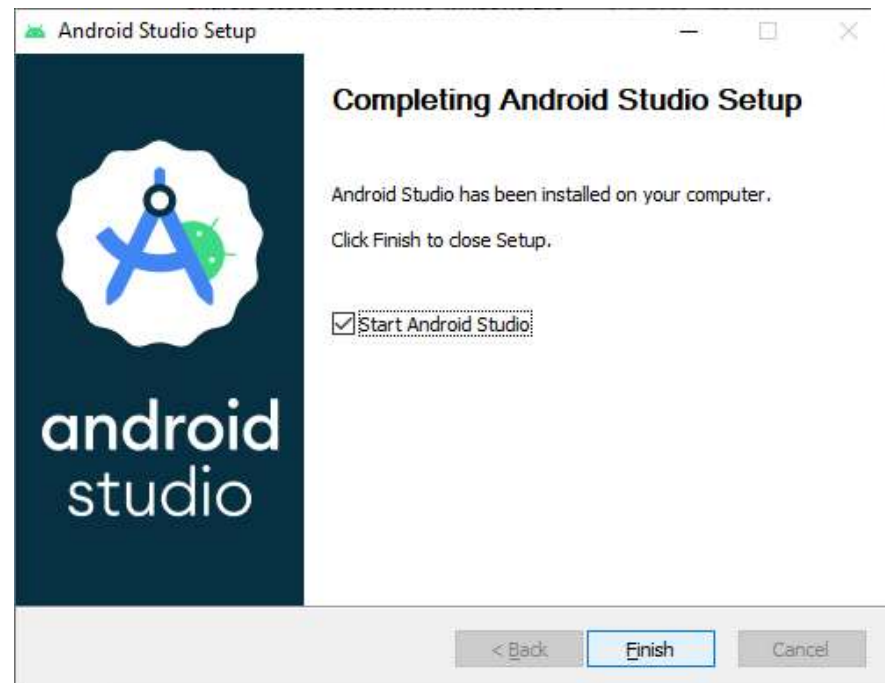
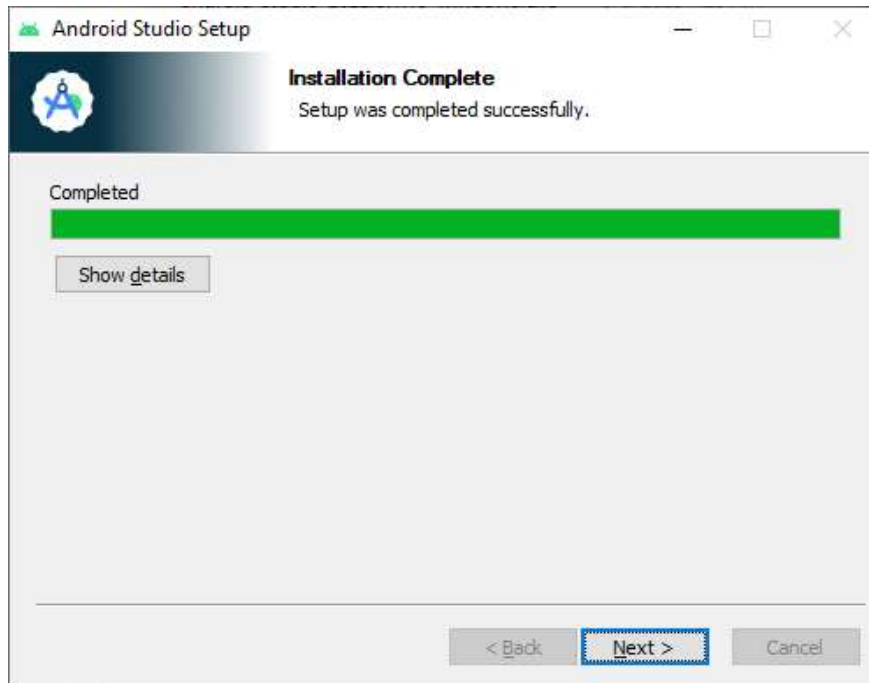


In case VT-x is disabled on your CPU, you can unselect “Android Virtual Device” because it will not run on your machine.

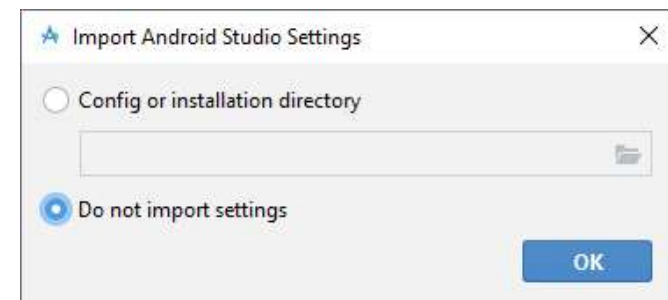


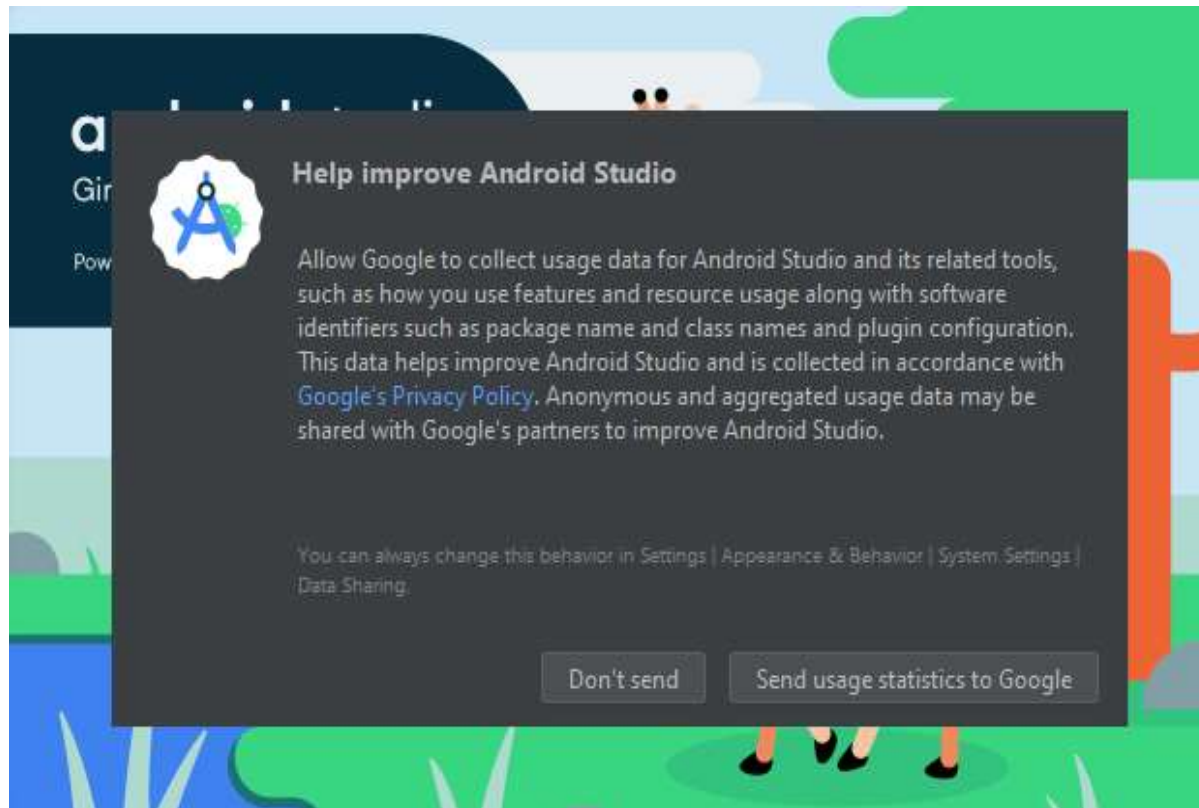
No changes needed in these 2 screens.  
Finally press “Install”. After about 2 minutes:



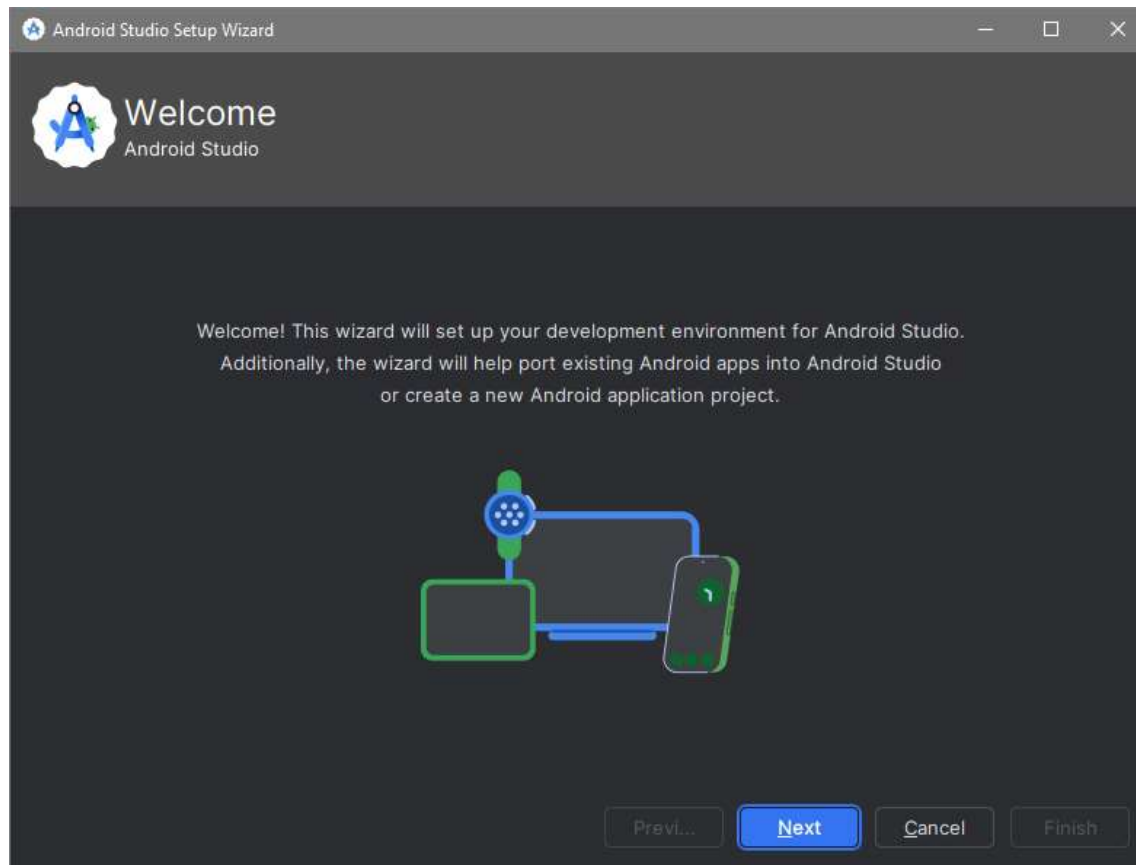


Press “Next” in left screen,  
then “Finish” in right screen.  
Wait until Android Studio starts.  
Do not import settings:

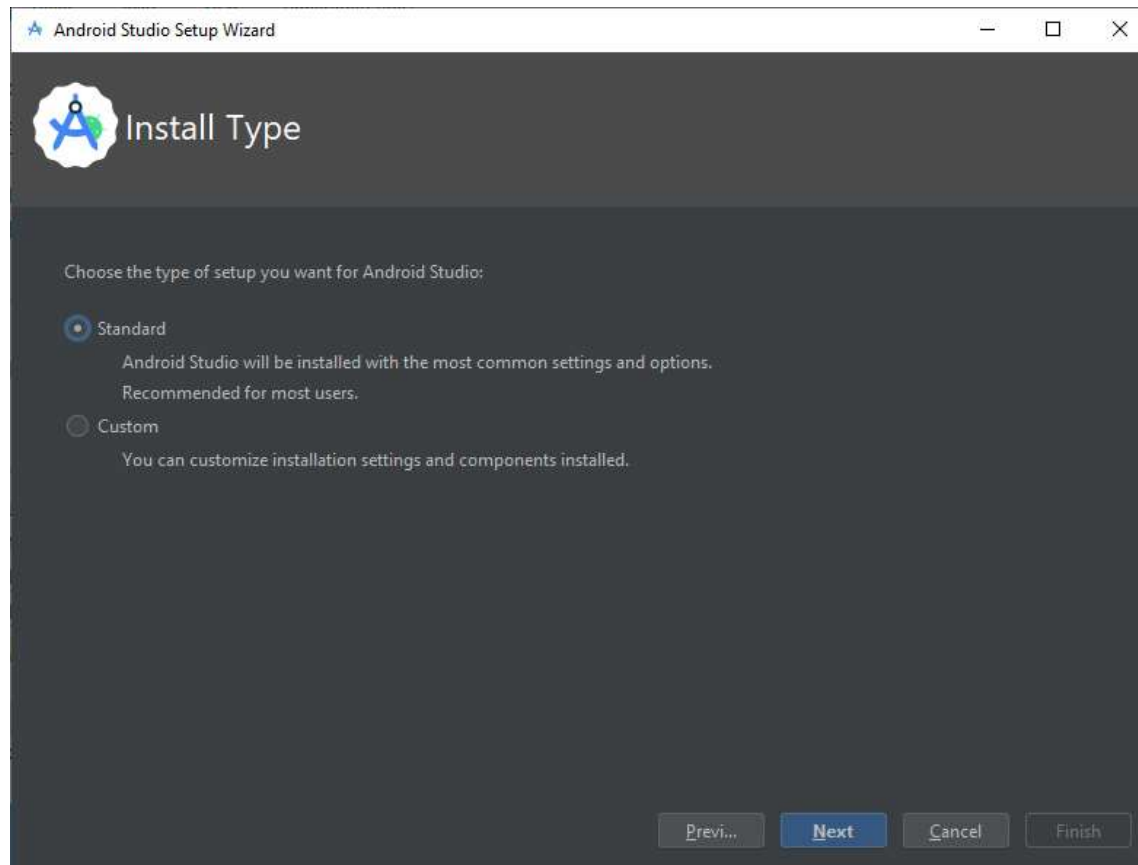




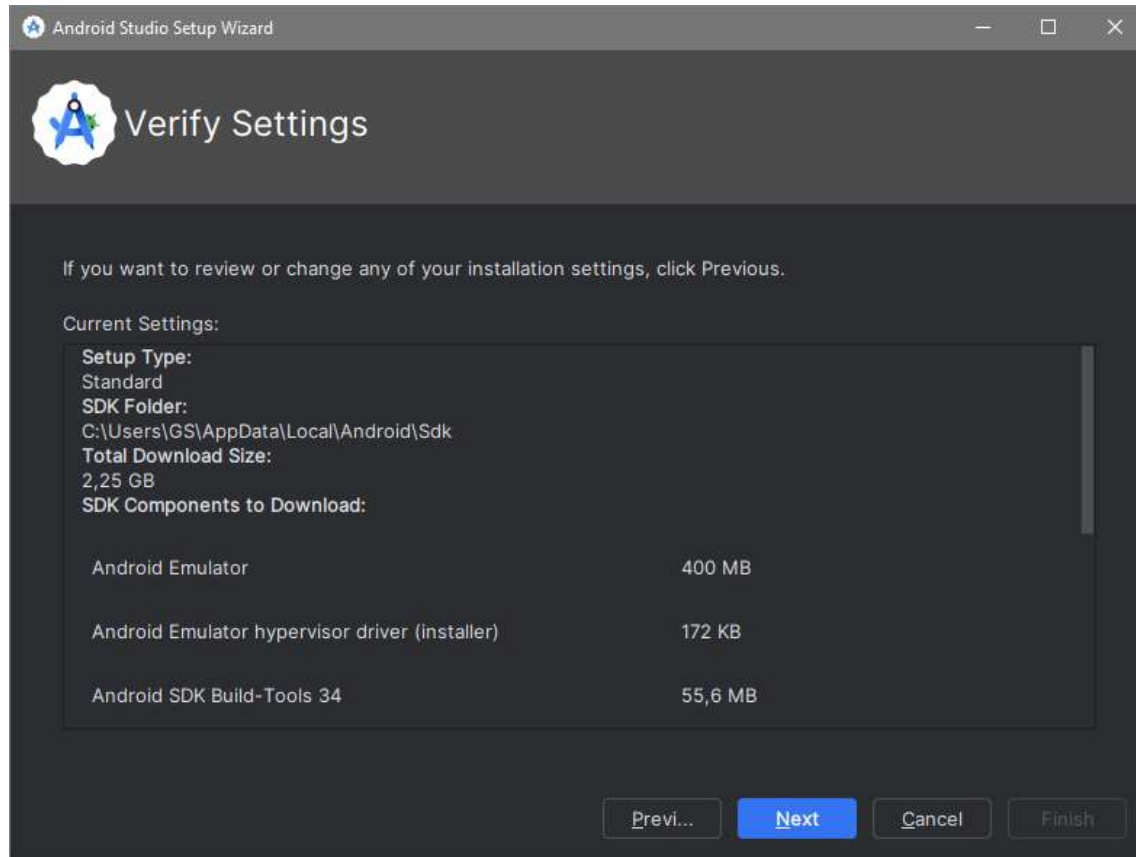
Decide yourself what to select here, I pressed “Don’t send”.



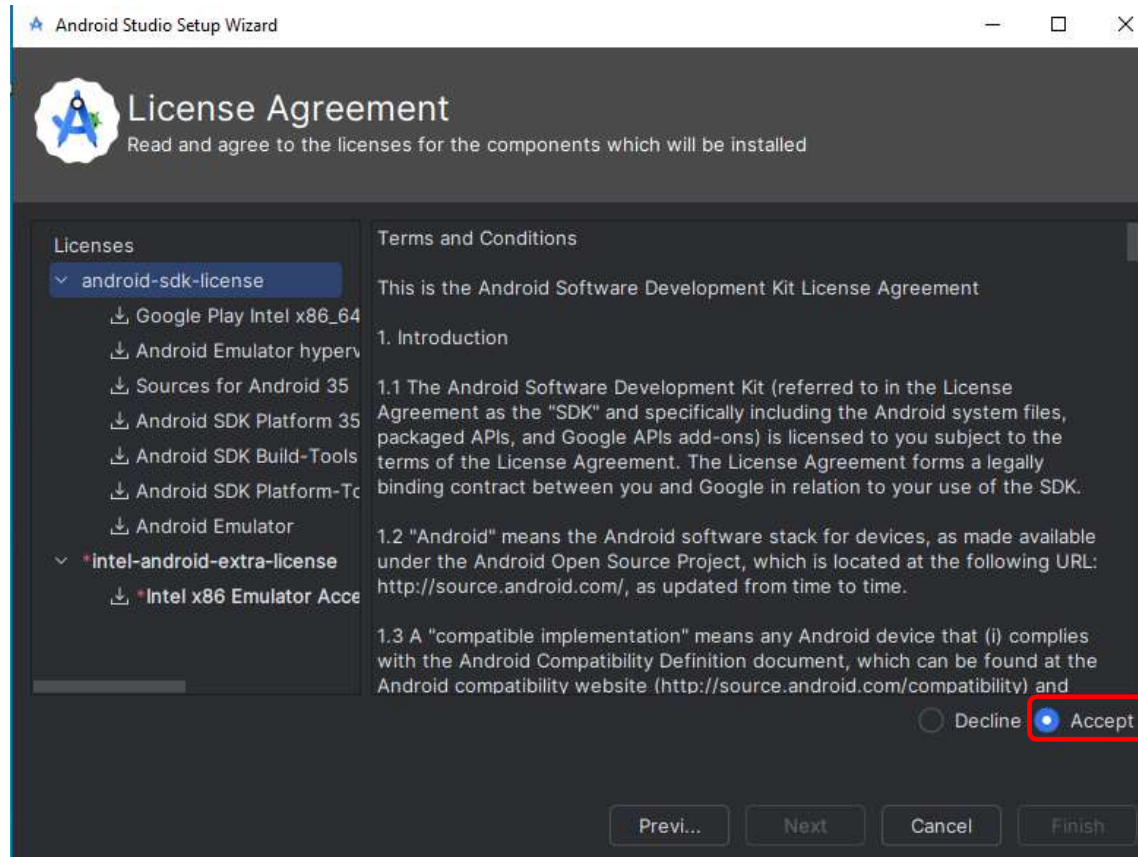
Press “Next”.



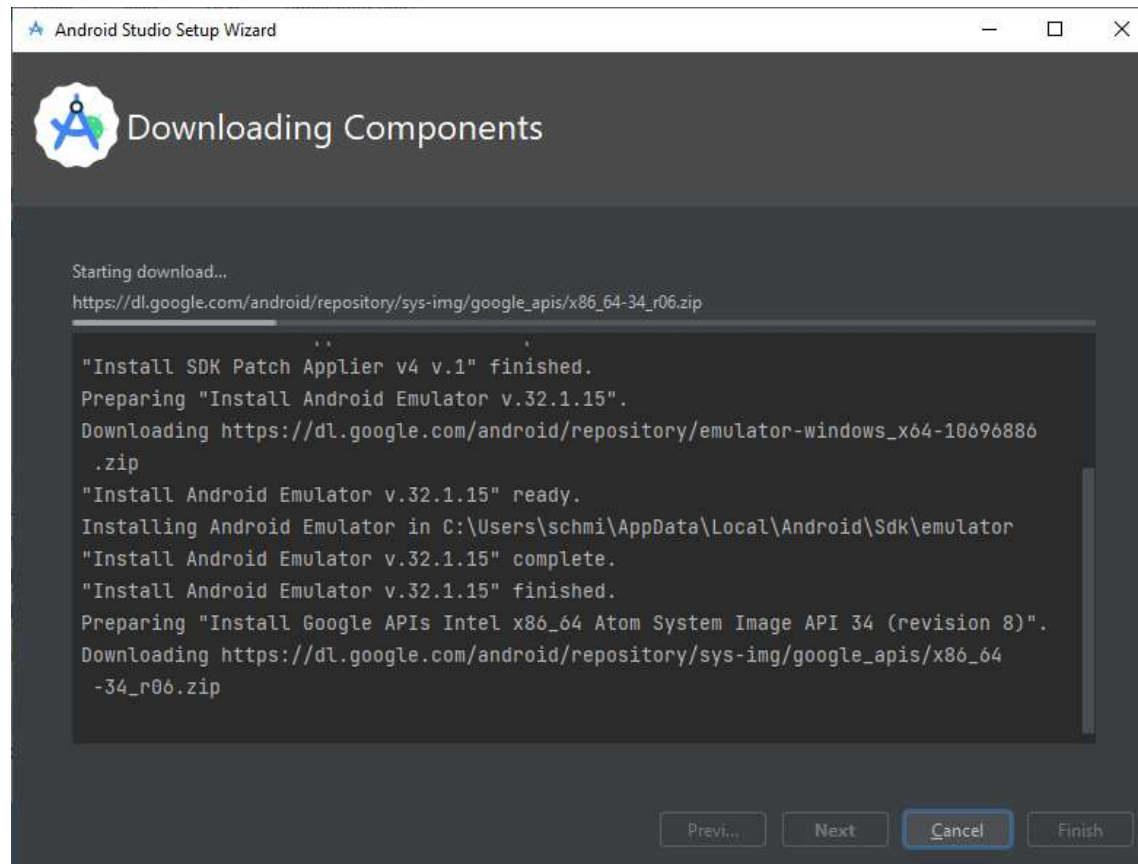
Press “Next”.



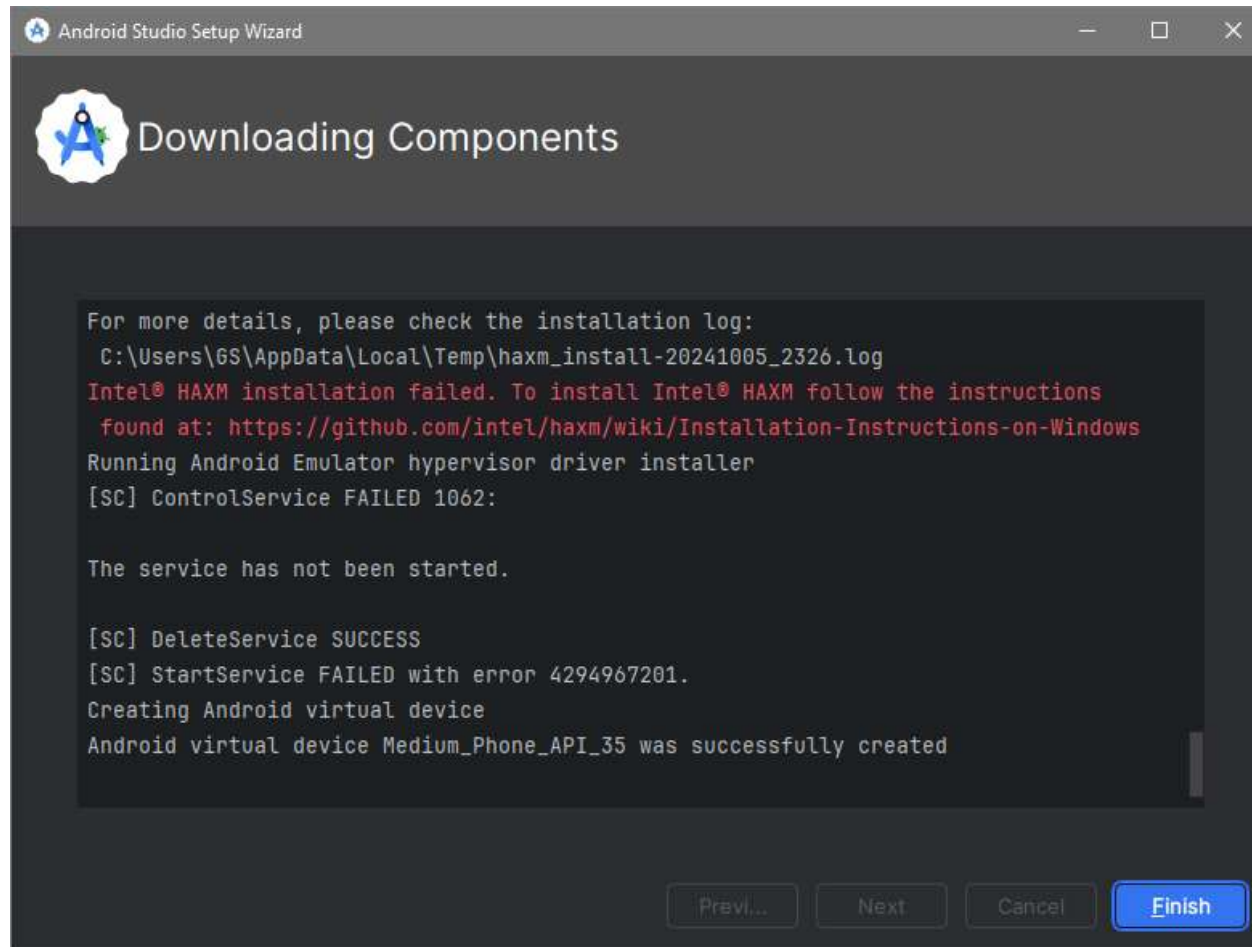
Press “Next”.



Click on “Accept” near bottom-right. Then select the second title line “intel-android-extra-license” on the left and click again on “Accept”. Then press on Finish.



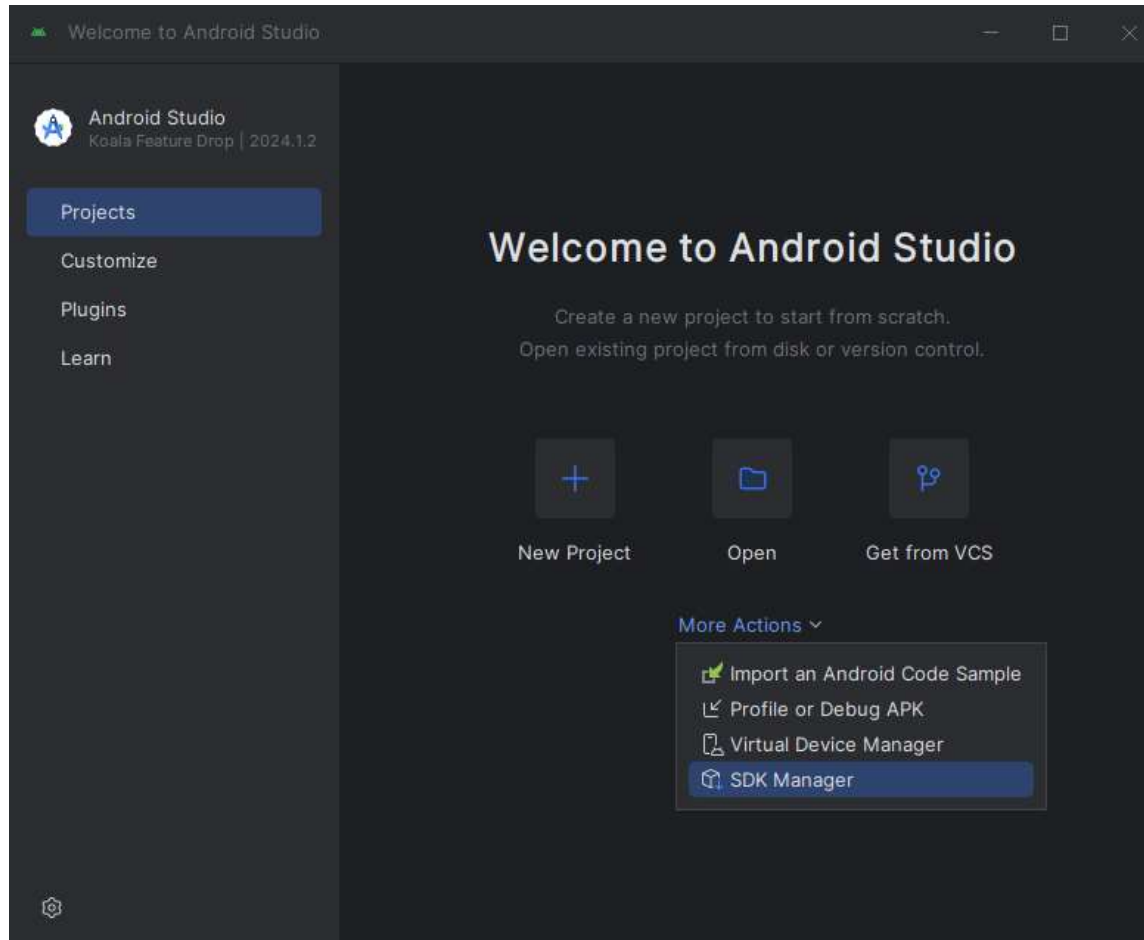
Be patient, this may take more than 5 minutes.



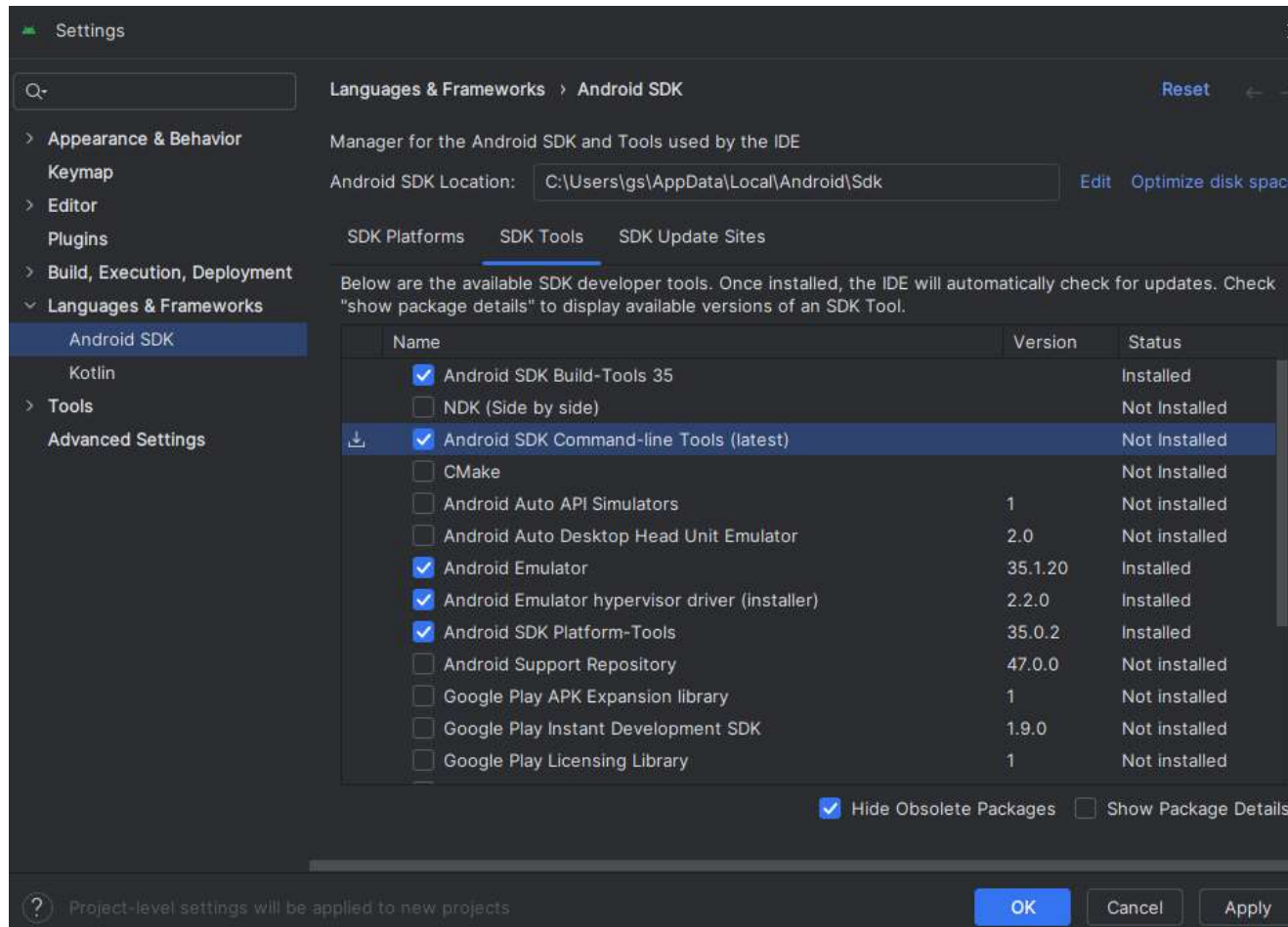
I ignored the red lines on my PC and pressed “Finish”.

Wait for Android Studio to start.

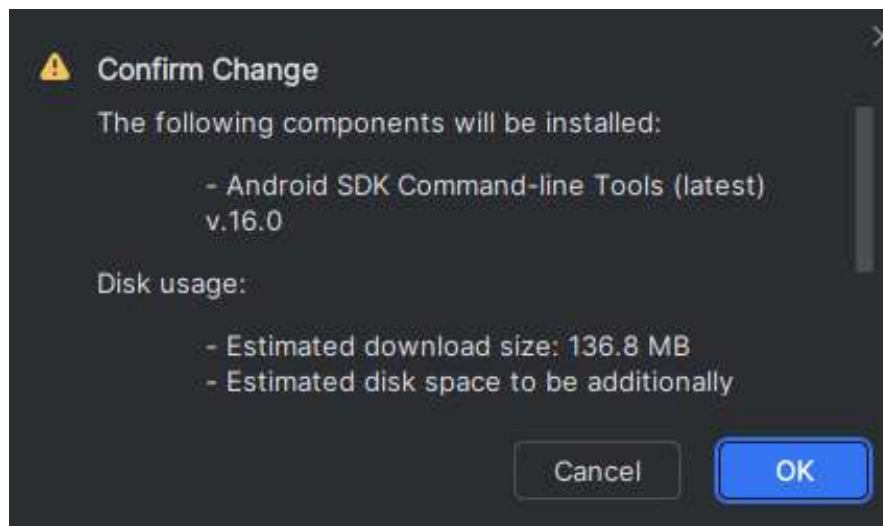




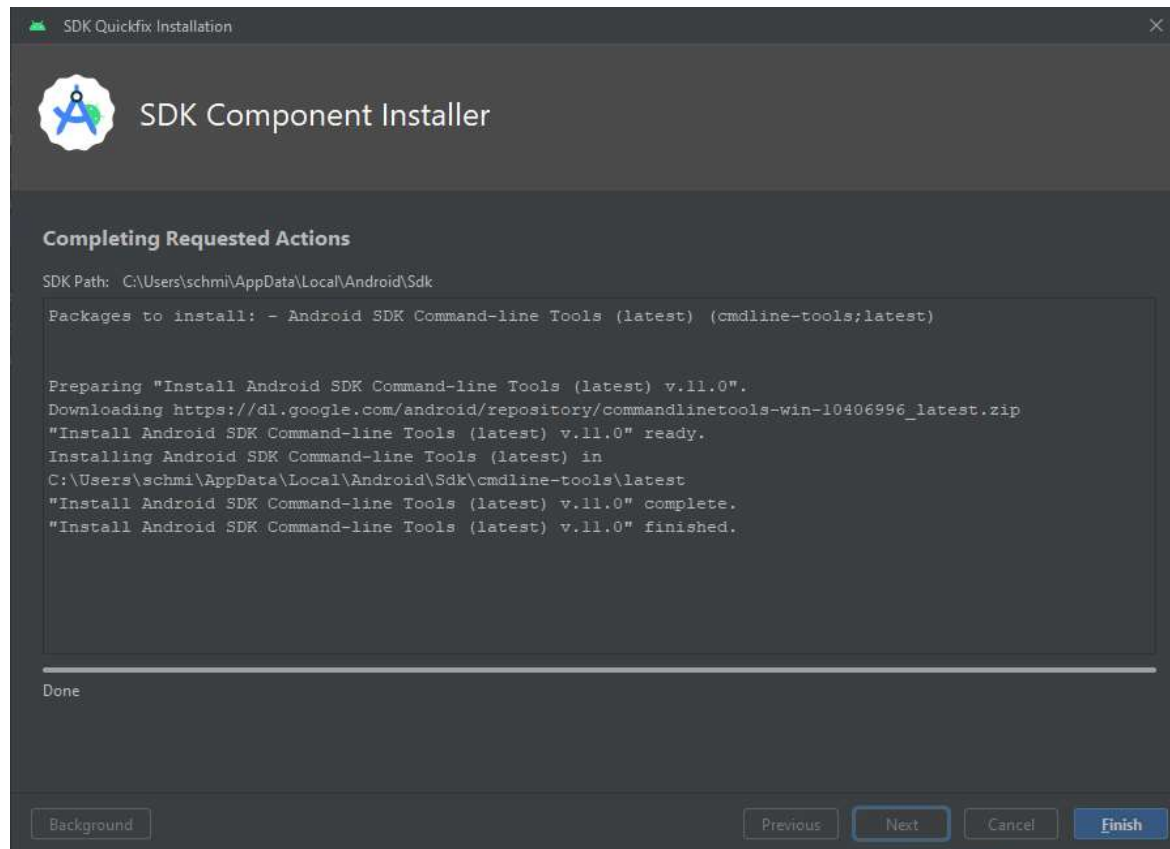
When Android Studio has started, open “More Actions” and select “SDK Manager”



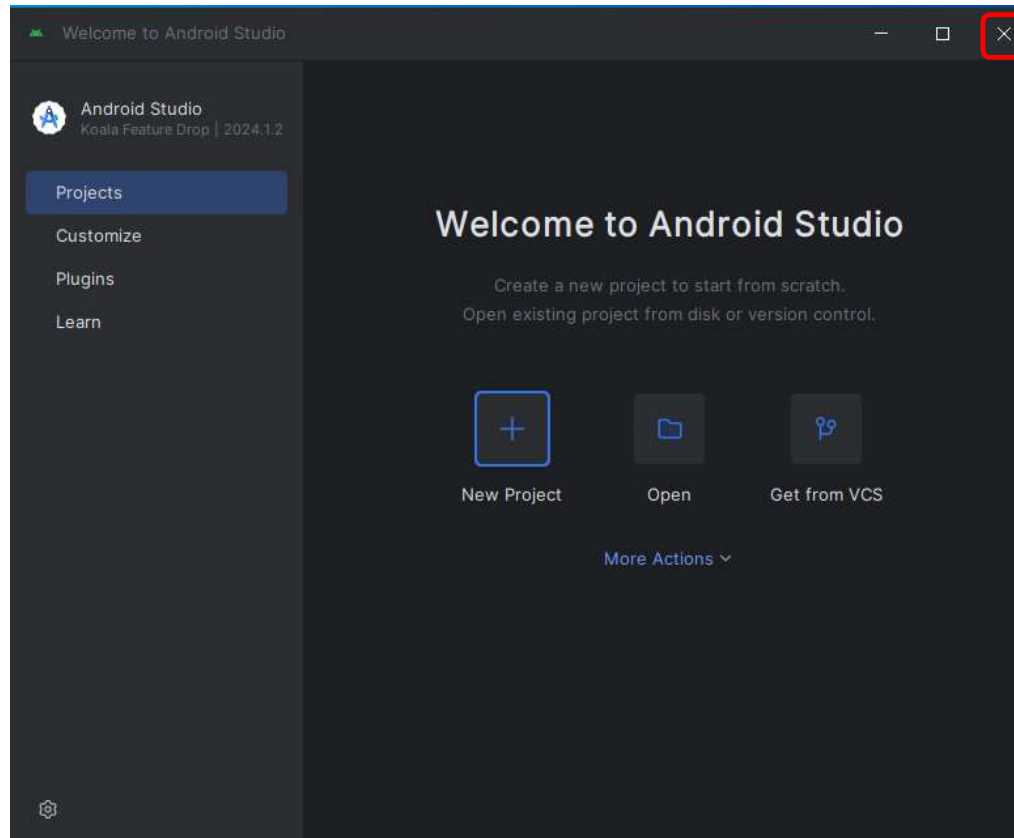
Open Tab “SDK Tools”, set check mark on the third line “Android SDK Command-Line Tools (latest)” and press “OK”.



Press “OK”.



Wait until SDK Component Installer is done, then press “Finish”.



Quit Android Studio with the  
“x” Button top-right.

We will use Visual Studio Code as Flutter development environment.  
We executed Android Studio Installer e.g. to get the Android SDK.  
We might use Android Studio later to reset the virtual devices started in emulator.



## Step 2: Download and Unzip the Flutter SDK

Open the Flutter SDK Archive under <https://docs.flutter.dev/release/archive>  
Scroll down a bit and press on most recent stable version (currently 3.24.3):

Windows macOS Linux

### Stable channel (Windows)

Select from the following scrollable list:

Flutter version	Architecture	Ref	Release Date	Dart version
3.24.3	x64	2663184	9/12/2024	3.5.3
3.24.2	x64	4cf269e	9/4/2024	3.5.2

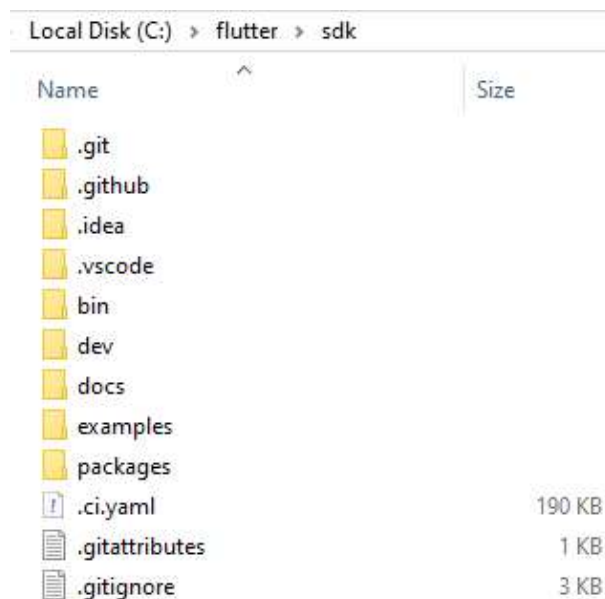
This will download the latest stable Flutter SDK as a zip-file.  
The file has around 980 MB.



# Unzip the Flutter SDK

Create a folder “flutter” on your drive “C:\” and therein a folder “sdk”.<sup>\*)</sup>

Open the downloaded zip file in your Windows Explorer, go to folder “flutter” therein, select all directories and files and copy them to “C:\flutter\sdk” :

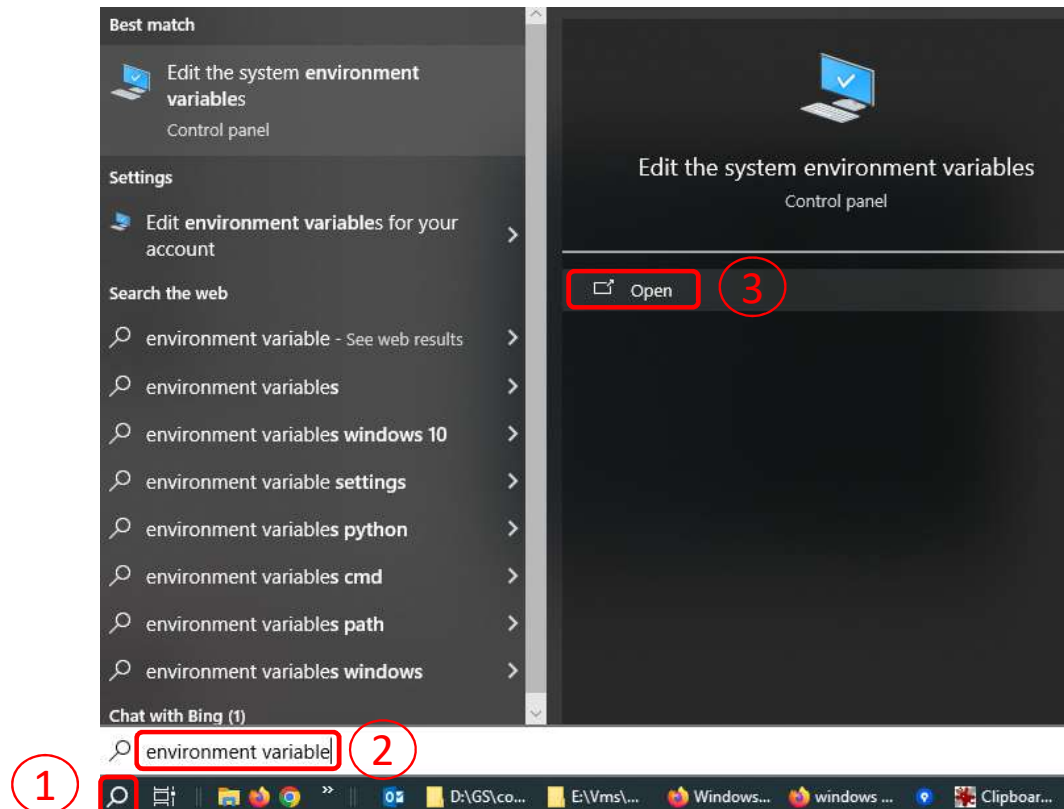


<sup>\*)</sup> You can name the directories as you want, but do not use blanks in their names.



# Add Flutter's bin directory to PATH

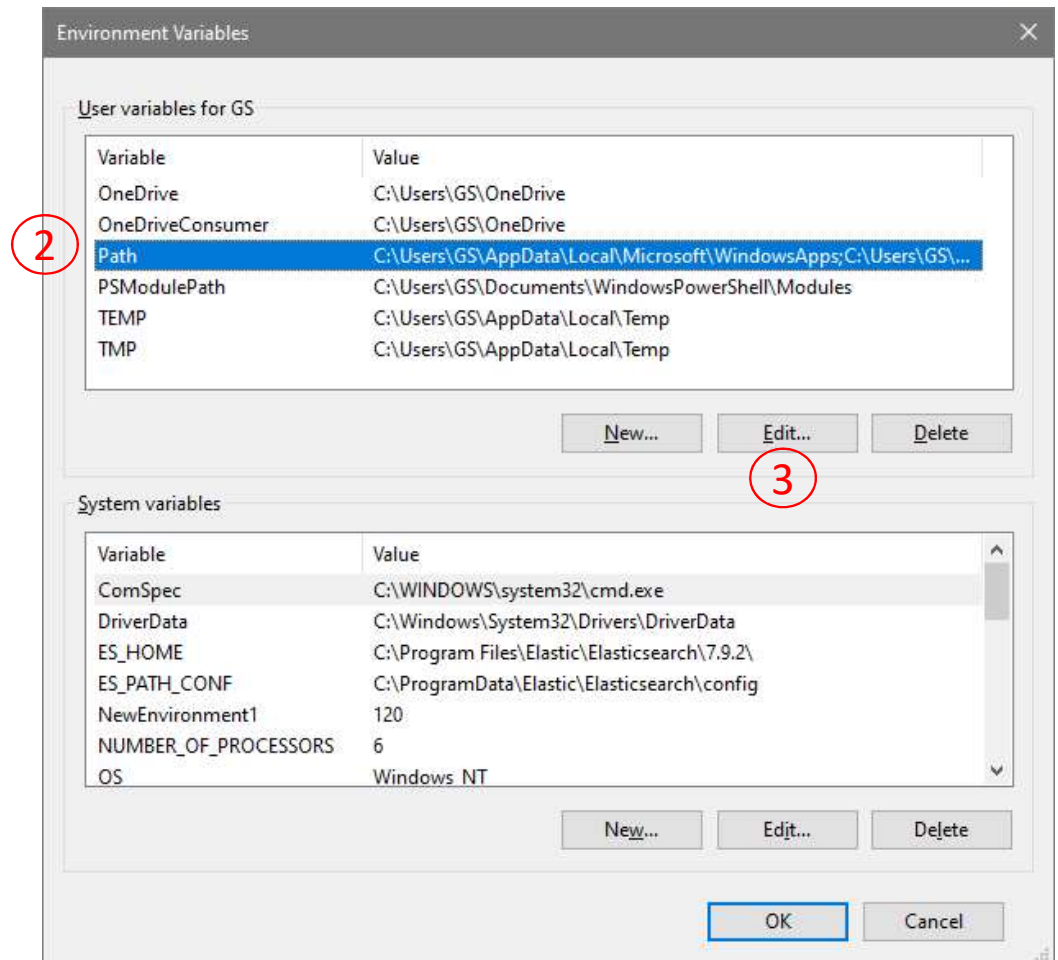
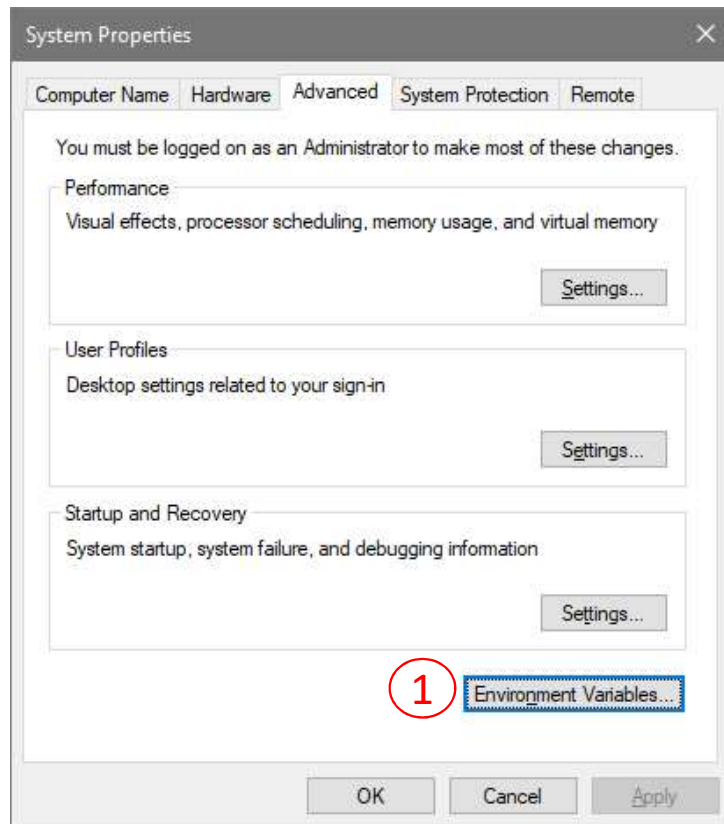
In the Search area of the task bar, enter “environment variable”<sup>\*)</sup>:



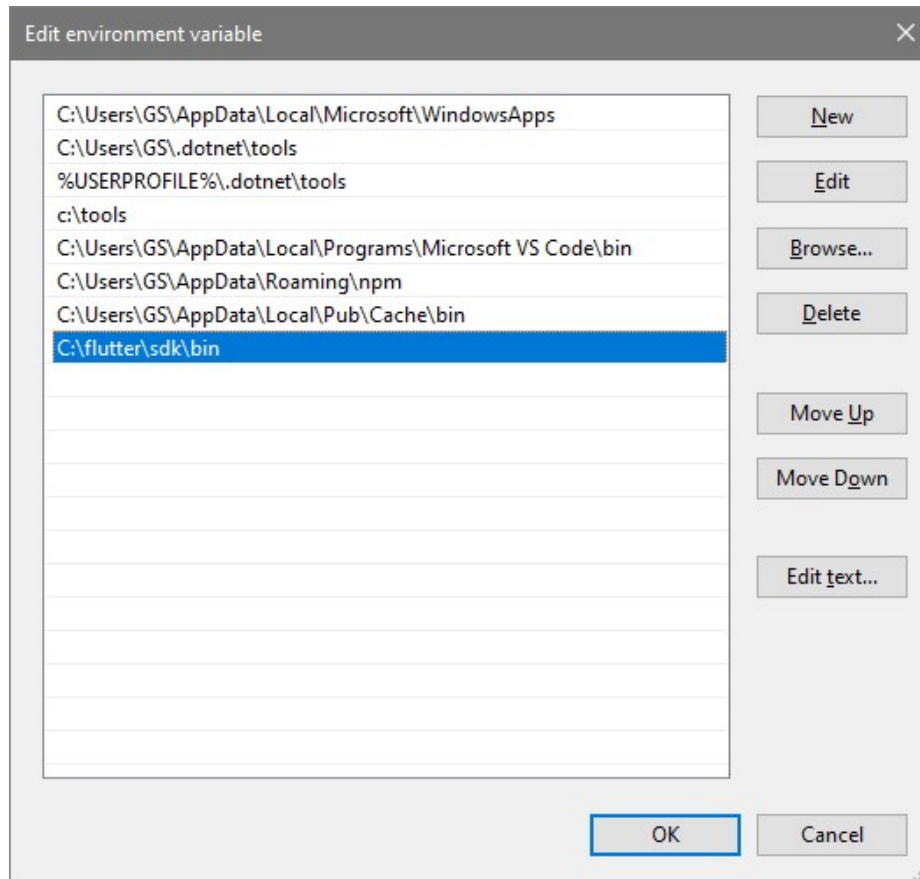
Press “Open” on the right.

<sup>\*)</sup> In a German Windows, enter “Umgebungsvariable”





Press on “Environment Variables” and in the upcoming window select the line starting with “Path”, then press “Edit...”



You may see other content than shown above. Press “New”, in the high-lighted line enter “C:\flutter\sdk\bin”, then press “OK”. This ensures that you can start the “flutter” command in each command prompt.



In the search area of the task bar, enter “cmd” and open a command prompt.

Therein enter the command “flutter doctor”.

Be patient, this command may take several minutes.

At the end you should see the following output :

```
C:\Users\gs>flutter doctor
Doctor summary (to see all details, run flutter doctor -v):
[✓] Flutter (Channel stable, 3.13.4, on Microsoft Windows [Version 10.0.19045.3324], locale en-US)
[✓] Windows Version (Installed version of Windows is version 10 or higher)
[!] Android toolchain - develop for Android devices (Android SDK version 34.0.0)
    ! Some Android licenses not accepted. To resolve this, run: flutter doctor --android-licenses
[✓] Chrome - develop for the web
[X] Visual Studio - develop Windows apps
    X Visual Studio not installed; this is necessary to develop Windows apps.
      Download at https://visualstudio.microsoft.com/downloads/.
      Please install the "Desktop development with C++" workload, including all of its default components
[✓] Android Studio (version 2022.3)
[✓] Connected device (2 available)
[✓] Network resources

! Doctor found issues in 2 categories.
```

The ‘red’ issue is ok for us, we do not want to develop apps for Windows. Over-next page shows how to fix the ‘orange’ issue.



Remark: Directly after starting “flutter doctor” the first time, you see

```
C:\Users\gs>flutter doctor

Welcome to Flutter! - https://flutter.dev

The Flutter tool uses Google Analytics to anonymously report feature usage
statistics and basic crash reports. This data is used to help improve
Flutter tools over time.

Flutter tool analytics are not sent on the very first run. To disable
reporting, type 'flutter config --no-analytics'. To display the current
setting, type 'flutter config'. If you opt out of analytics, an opt-out
event will be sent, and then no further information will be sent by the
Flutter tool.

By downloading the Flutter SDK, you agree to the Google Terms of Service.
The Google Privacy Policy describes how data is handled in this service.

Moreover, Flutter includes the Dart SDK, which may send usage metrics and
crash reports to Google.

Read about data we send with crash reports:
https://flutter.dev/to/crash-reporting

See Google's privacy policy:
https://policies.google.com/privacy

To disable animations in this tool, use
'flutter config --no-cli-animations'.
```

Please decide yourself if you want to forbid flutter uploading usage information. To do so enter “flutter config --no-analytics” in a command prompt as said above.



To fix the yellow marked issue

```
[!] Android toolchain - develop for Android devices (Android SDK version 34.0.0)
! Some Android licenses not accepted. To resolve this, run: flutter doctor --android-licenses
```

we follow the proposal in second line and run the command “flutter doctor --android-licenses”. You should see:

```
C:\Users\gs>flutter doctor --android-licenses
[=====] 100% Computing updates...
5 of 7 SDK package licenses not accepted.
Review licenses that have not been accepted (y/N)?
```

Enter “y” and repeat this 6 times until you see

```
10.8 Open Source Software. In the event Open Source software is included with Evaluation Software, such Open Source s
oftware is licensed pursuant to the applicable Open Source software license agreement identified in the Open Source s
oftware comments in the applicable source code file(s) and/or file header as indicated in the Evaluation Software. Ad
ditional detail may be available (where applicable) in the accompanying on-line documentation. With respect to the Op
en Source software, nothing in this Agreement limits any rights under, or grants rights that supersede, the terms of
any applicable Open Source software license agreement.
-----
Accept? (y/N): y
All SDK package licenses accepted
```





Now “flutter doctor” should only show the ‘Windows issue’:

```
C:\Users\gs>flutter doctor
Doctor summary (to see all details, run flutter doctor -v):
[✓] Flutter (Channel stable, 3.13.4, on Microsoft Windows [Version 10.0.19045.3324], locale en-US)
[✓] Windows Version (Installed version of Windows is version 10 or higher)
[✓] Android toolchain - develop for Android devices (Android SDK version 34.0.0)
[✓] Chrome - develop for the web
[X] Visual Studio - develop Windows apps
    X Visual Studio not installed; this is necessary to develop Windows apps.
      Download at https://visualstudio.microsoft.com/downloads/.
      Please install the "Desktop development with C++" workload, including all of its default components
[✓] Android Studio (version 2022.3)
[✓] Connected device (2 available)
[✓] Network resources

! Doctor found issues in 1 category.
```

Thus your system is prepared to develop flutter apps for Android or for the web.

Next step will be to install Visual Studio as IDE (Integrated Development Environment).



If you want, you can create and run Flutter apps even without an IDE.

The command “flutter create .” (don’t forget ‘.’ at the end) creates a new Flutter project in the directory, where this command was started:

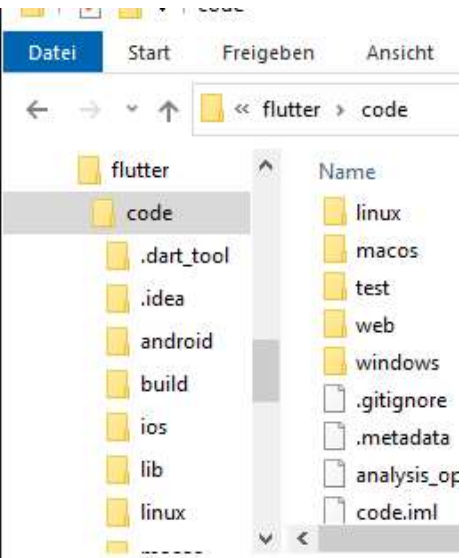
```
C:\flutter\code>flutter create .
Creating project ....
Resolving dependencies... (1.8s)
Got dependencies.
Wrote 129 files.

All done!
You can find general documentation for Flutter at: https://docs.flutter.dev/
Detailed API documentation is available at: https://api.flutter.dev/
If you prefer video documentation, consider: https://www.youtube.com/c/flutterdev

In order to run your application, type:

$ cd .
$ flutter run

Your application code is in .\lib\main.dart.
```

A screenshot of a Windows file explorer window showing the directory structure of a Flutter project. The address bar shows the path 'C:\flutter\code'. The left pane shows a tree view with folders: flutter, code, .dart\_tool, .idea, android, build, ios, lib, linux, and a partially visible '-----'. The 'code' folder is selected. The right pane shows the contents of the 'code' folder, including folders: linux, macos, test, web, windows; and files: .gitignore, .metadata, analysis\_of, and code.iml.

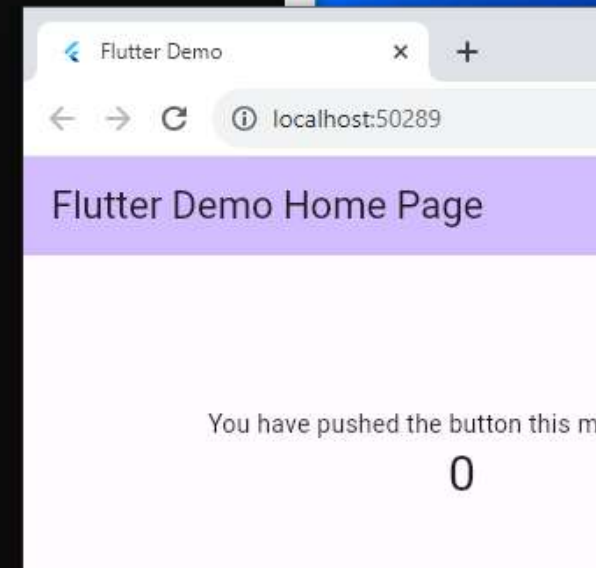


And “flutter run” starts this project e.g. on Chrome:

```
C:\flutter\code>flutter run
Connected devices:
Windows (desktop) • windows • windows-x64 • Microsoft Windows [Version 10.0.19045.3324]
Chrome (web) • chrome • web-javascript • Google Chrome 117.0.5938.63
[1]: Windows (windows)
[2]: Chrome (chrome)
Please choose one (or "q" to quit): 2
Launching lib\main.dart on Chrome in debug mode...
Waiting for connection from debug service on Chrome... 47.1s
This app is linked to the debug service: ws://127.0.0.1:50321/m0n58fK5dRE=/ws
Debug service listening on ws://127.0.0.1:50321/m0n58fK5dRE=/ws

To hot restart changes while running, press "r" or "R".
For a more detailed help message, press "h". To quit, press "q".

A Dart VM Service on Chrome is available at: http://127.0.0.1:50321/m0n58fK5dRE=
The Flutter DevTools debugger and profiler on Chrome is available at:
http://127.0.0.1:9100?uri=http://127.0.0.1:50321/m0n58fK5dRE=
```







## Step 3: Download and Install Visual Studio Code

Open <https://code.visualstudio.com/download> and press the button marked below in red:

### Download Visual Studio Code

Free and built on open source. Integrated Git, debugging and extensions.

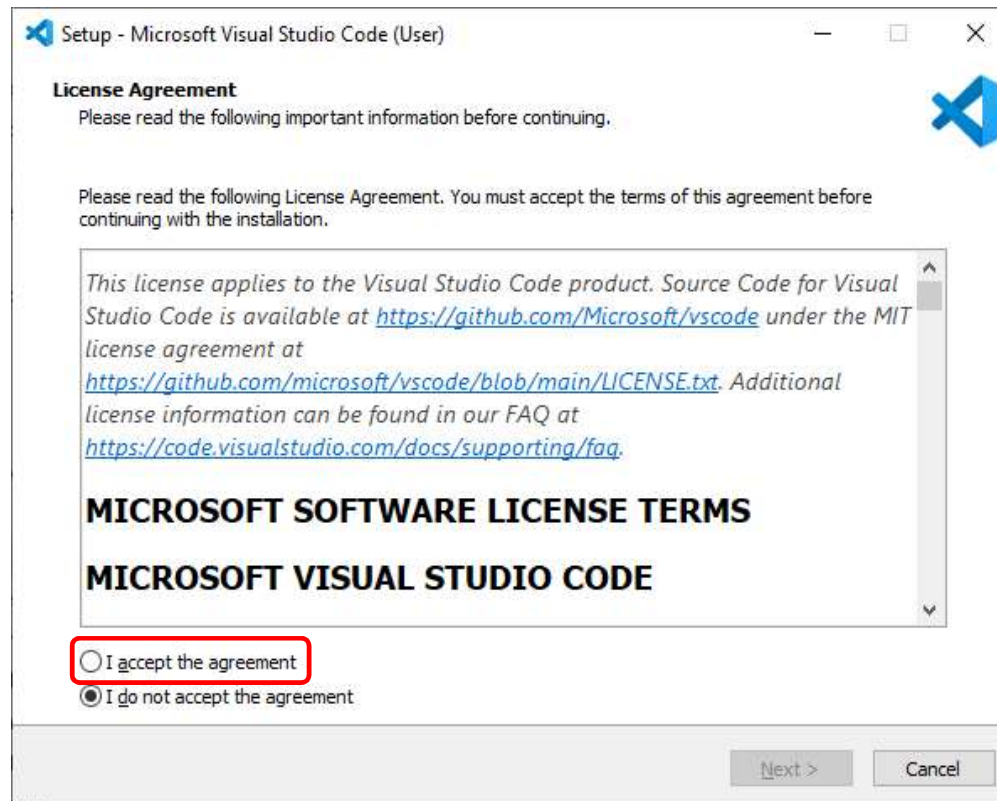
The screenshot shows the Visual Studio Code download page with three main sections: Windows, Linux, and Mac. Each section has a download button and a list of available installers or packages for different architectures.

- Windows:** Windows 10, 11. A red arrow points to the 'x64' button under the 'User Installer' row. Other options include 'x86', 'Arm64', 'System Installer', '.zip', and 'CLI'.
- Linux:** Divided into '.deb' (Debian, Ubuntu) and '.rpm' (Red Hat, Fedora, SUSE). Both sections offer 'x64', 'Arm32', and 'Arm64' architectures. There are also options for '.tar.gz', 'Snap', and 'CLI'.
- Mac:** macOS 10.11+. Offers 'Intel chip', 'Apple silicon', and 'Universal' architectures. There are also options for '.zip' and 'CLI'.

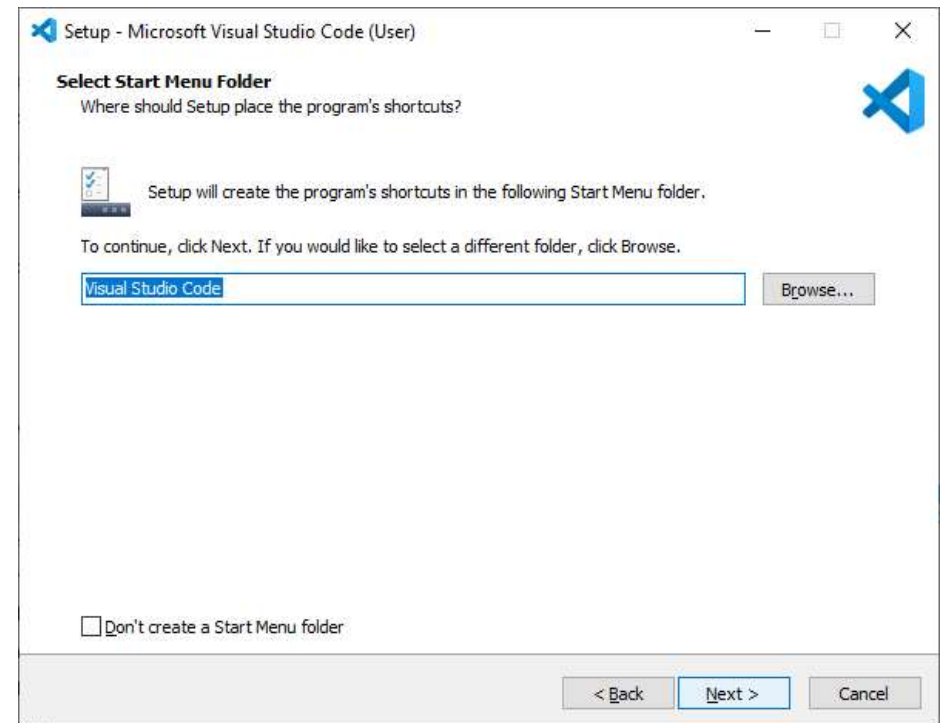
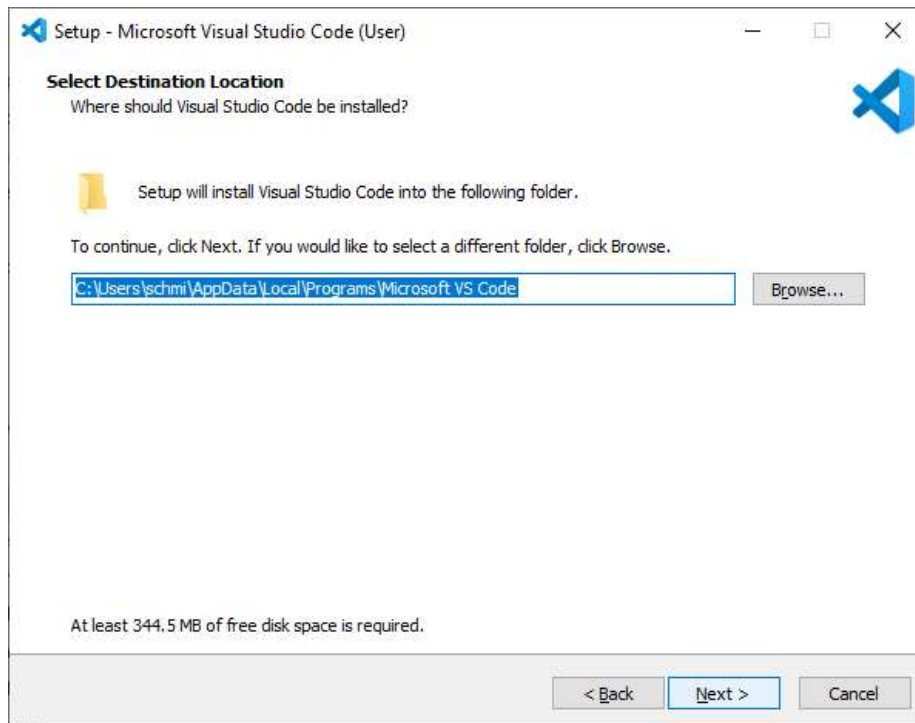


# Install Visual Studio Code

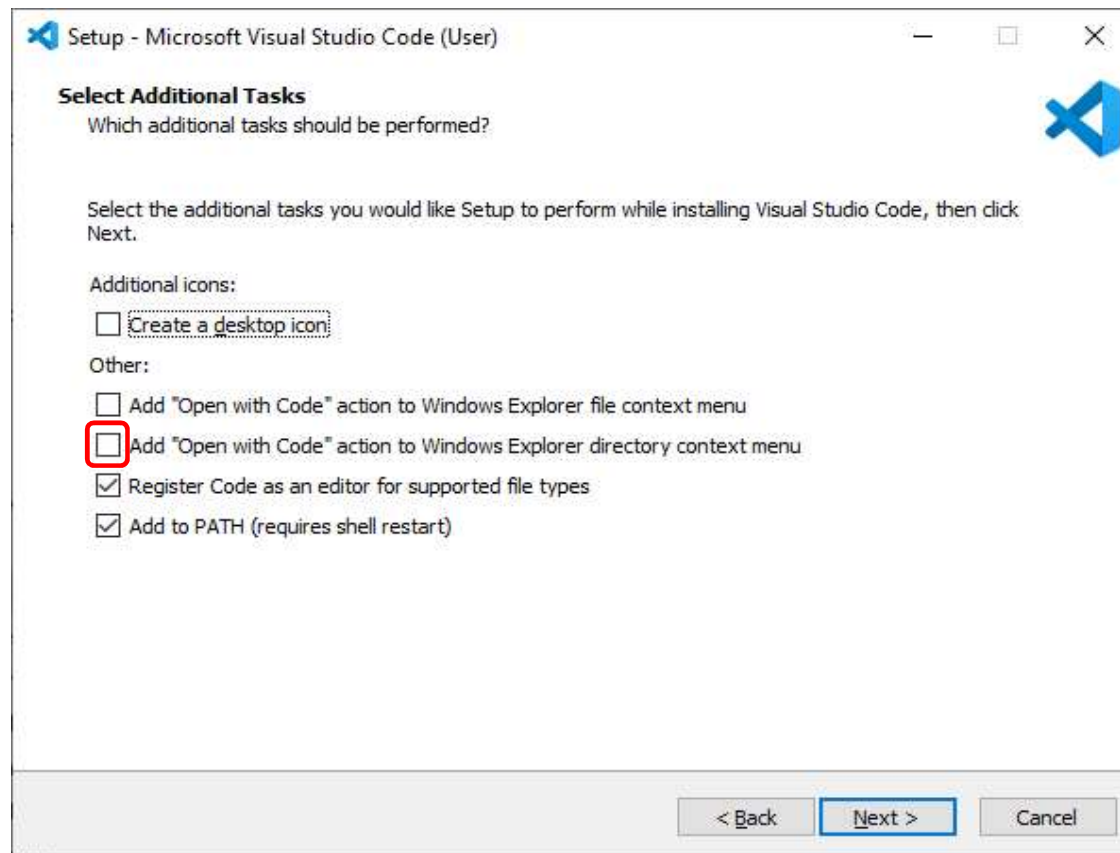
Start the downloaded VSCodeUserSetup-x64-... file. It will show:



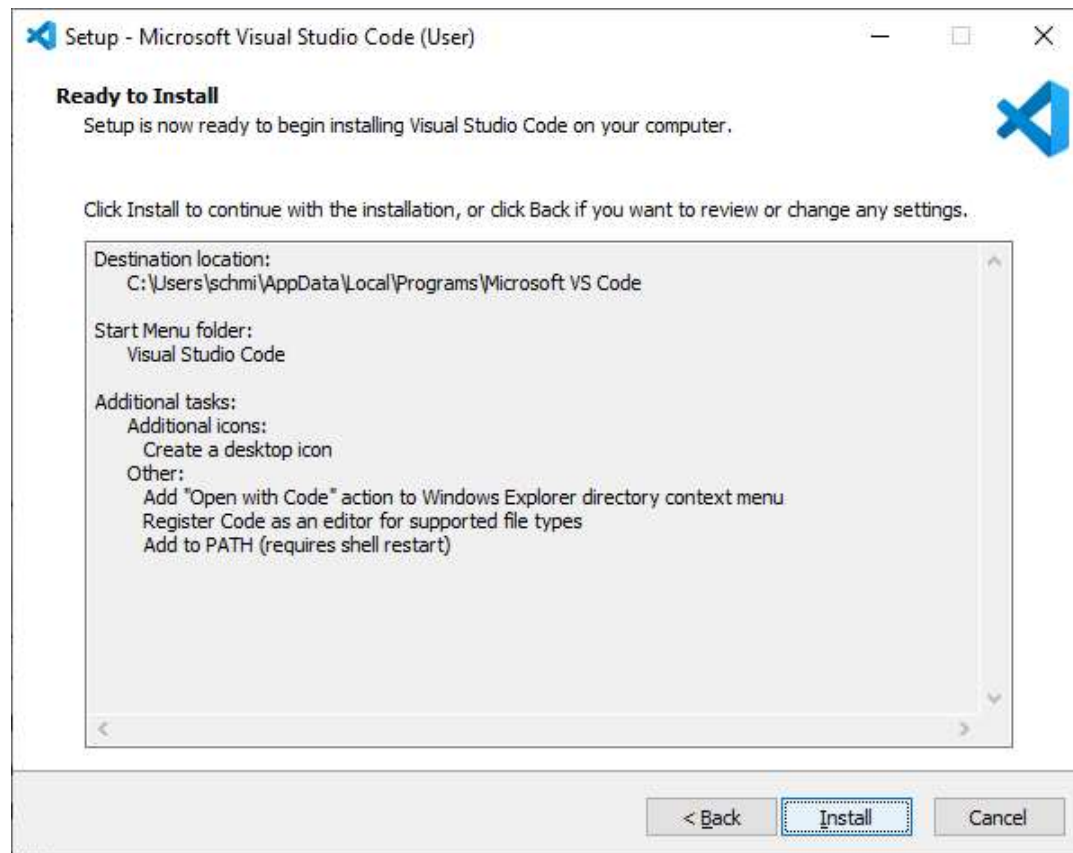
Accept the agreement  
and press “Next”.



No changes needed in these 2 screens. Press “Next” in both of them.



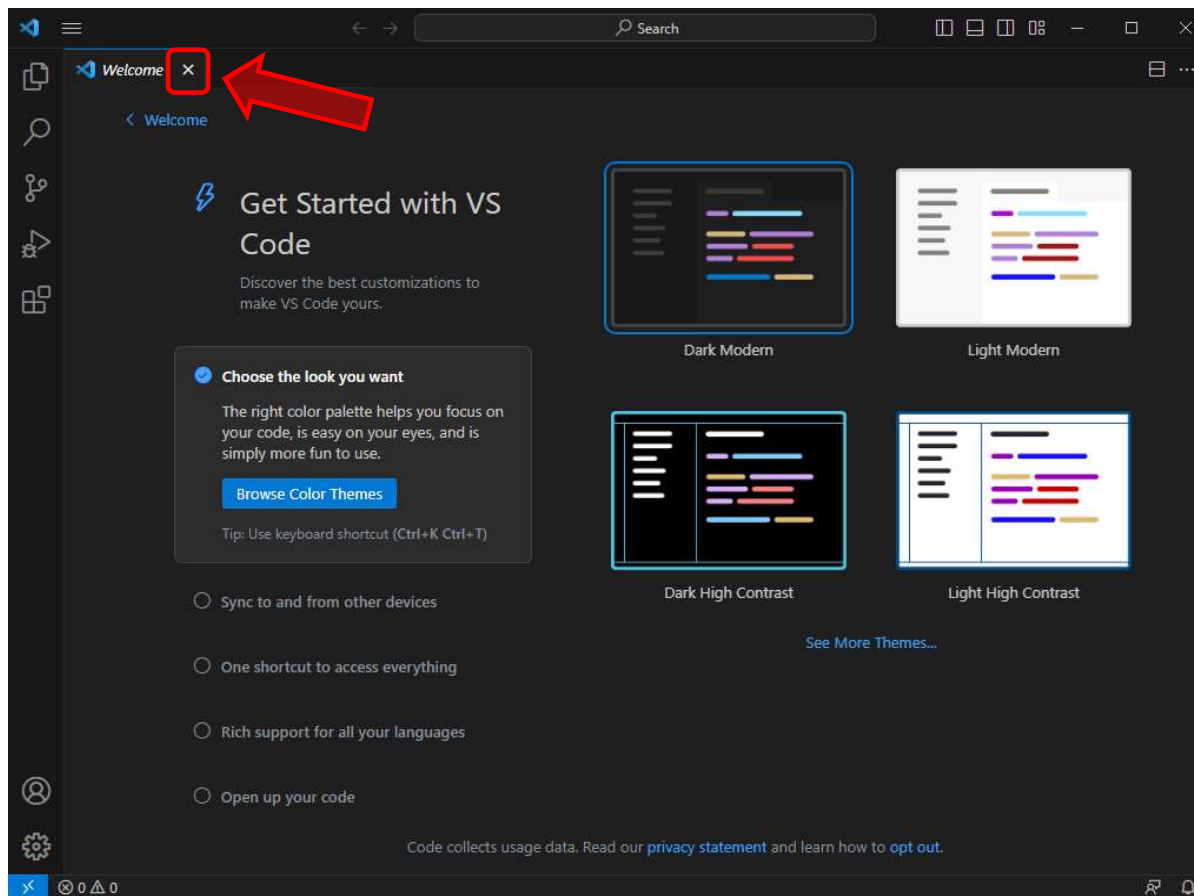
Select the red marked check-box before pressing “Next”.  
If you want you can also check “Create a desktop icon”.



Press “Install”.



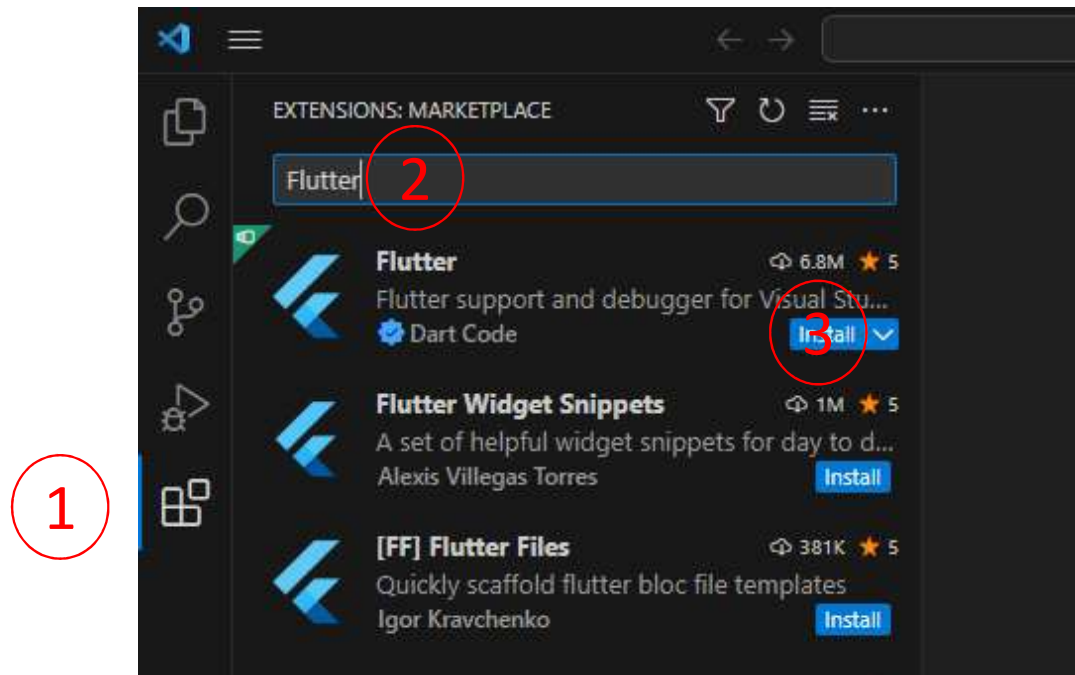
After about one minute, you will see the screen above. Press “Finish” and wait until VS Code has started.



You can, but you do not need to change anything here.  
Afterwards close this Welcome screen by pressing on the red marked “x”.

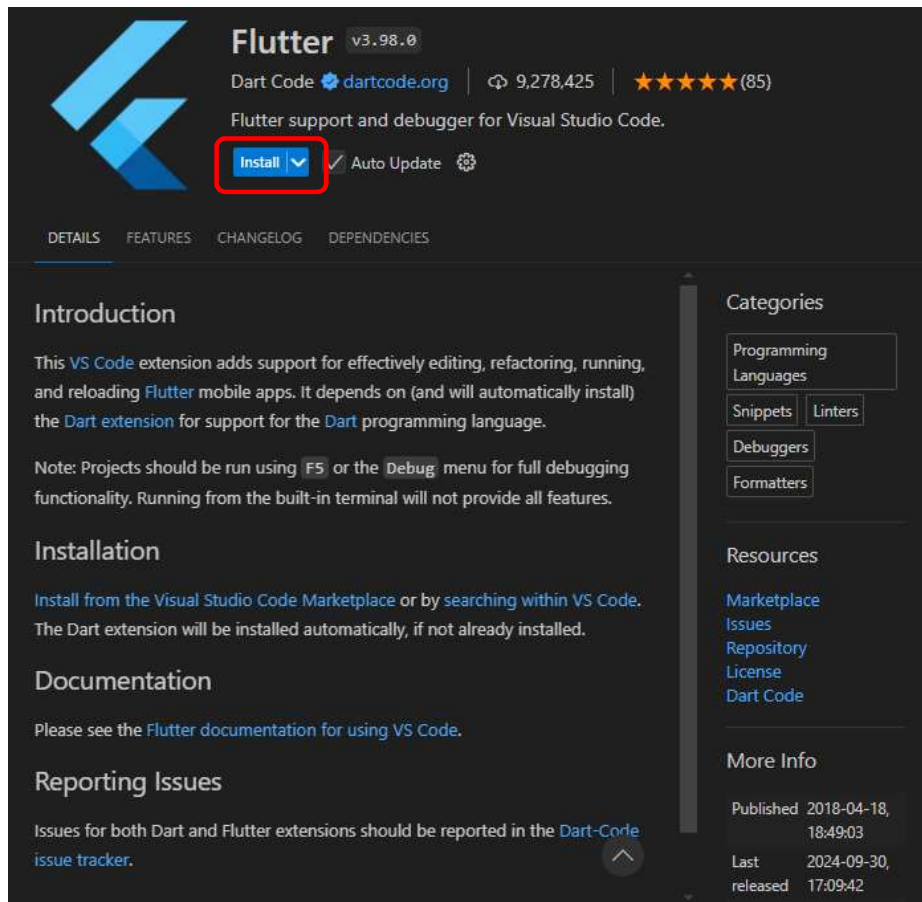


# Install the flutter extension in VS Code



On the left toolbar in VS Code, press the icon with 4 squares, in the upcoming search field enter “Flutter” and press “Install” on the extension called “Flutter”.





The image shows the Flutter extension page in the Visual Studio Code Marketplace. At the top, the Flutter logo is displayed next to the extension name "Flutter" and version "v3.98.0". Below this, it says "Dart Code" with a link to "dartcode.org", a download count of "9,278,425", and a star rating of "★★★★★ (85)". A description states "Flutter support and debugger for Visual Studio Code." Below the description, there is an "Install" button with a dropdown arrow, which is highlighted with a red rectangle. To the right of the "Install" button is a checked "Auto Update" checkbox and a settings gear icon. Below the header, there are tabs for "DETAILS", "FEATURES", "CHANGELOG", and "DEPENDENCIES". The "DETAILS" tab is selected, showing an "Introduction" section with text about the extension's capabilities and a note about debugging. Below this is an "Installation" section with instructions on how to install the extension. Further down is a "Documentation" section with a link to the Flutter documentation. At the bottom is a "Reporting Issues" section with a link to the Dart-Code issue tracker. On the right side of the page, there are sections for "Categories" (Programming Languages, Snippets, Linters, Debuggers, Formatters), "Resources" (Marketplace, Issues, Repository, License, Dart Code), and "More Info" (Published date and time, Last released date and time).

**Flutter** v3.98.0  
Dart Code [dartcode.org](https://dartcode.org) | 9,278,425 | ★★★★★ (85)  
Flutter support and debugger for Visual Studio Code.

**Install** [dropdown] [checked] Auto Update [gear icon]

DETAILS | FEATURES | CHANGELOG | DEPENDENCIES

### Introduction

This **VS Code** extension adds support for effectively editing, refactoring, running, and reloading **Flutter** mobile apps. It depends on (and will automatically install) the **Dart extension** for support for the **Dart** programming language.

Note: Projects should be run using **F5** or the **Debug** menu for full debugging functionality. Running from the built-in terminal will not provide all features.

### Installation

Install from the [Visual Studio Code Marketplace](#) or by [searching within VS Code](#). The Dart extension will be installed automatically, if not already installed.

### Documentation

Please see the [Flutter documentation](#) for using VS Code.

### Reporting Issues

Issues for both Dart and Flutter extensions should be reported in the [Dart-Code issue tracker](#).

### Categories

- Programming Languages
- Snippets
- Linters
- Debuggers
- Formatters

### Resources

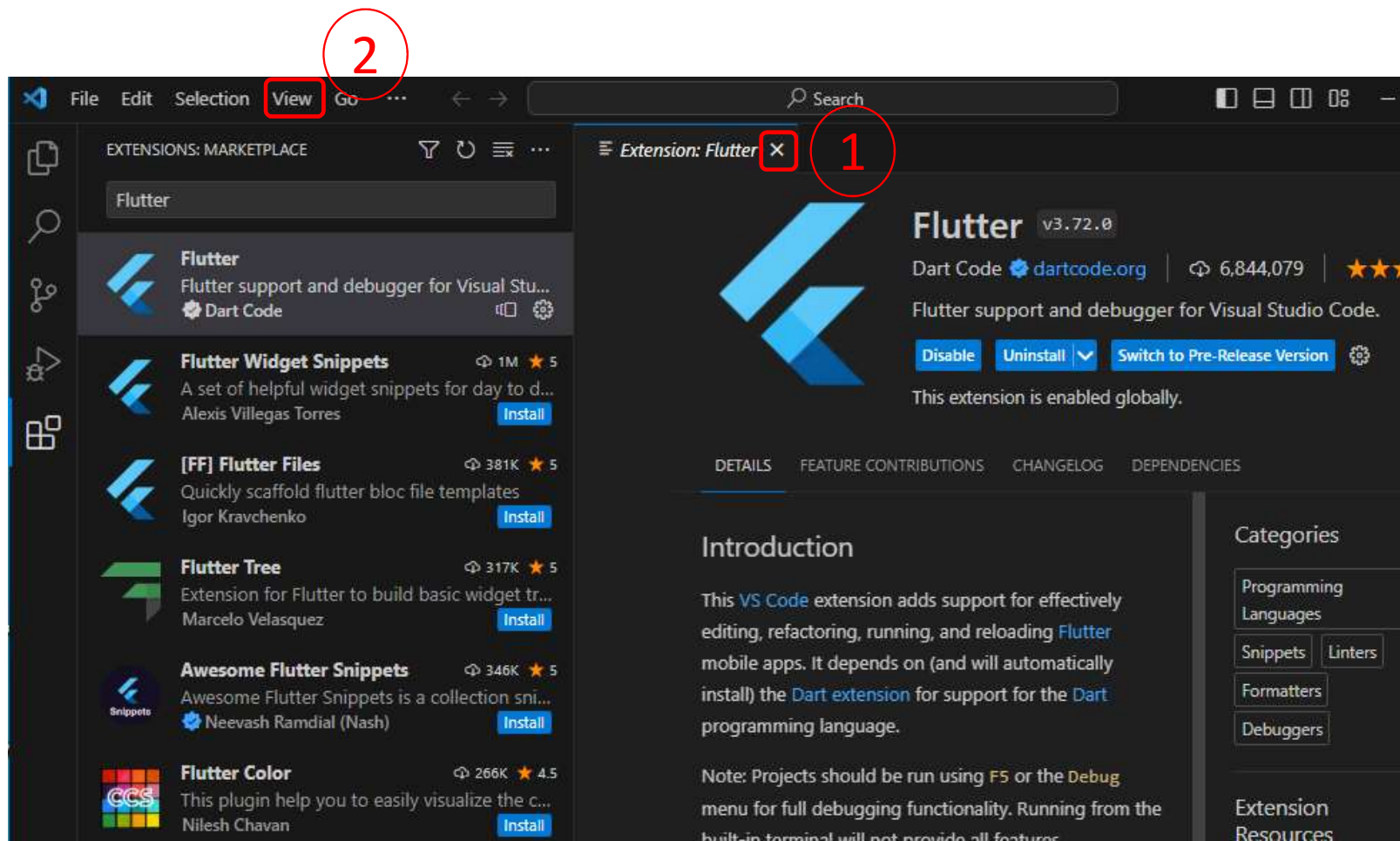
- [Marketplace](#)
- [Issues](#)
- [Repository](#)
- [License](#)
- [Dart Code](#)

### More Info

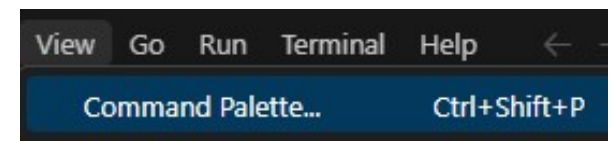
Published 2018-04-18, 18:49:03  
Last released 2024-09-30, 17:09:42



Press again “Install”.

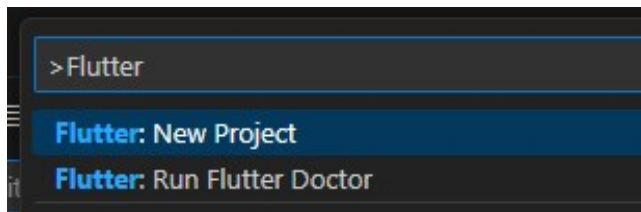


Install will take only some seconds. Close the window “Extension: Flutter”.  
Open menu “View” and select “Command Palette”:

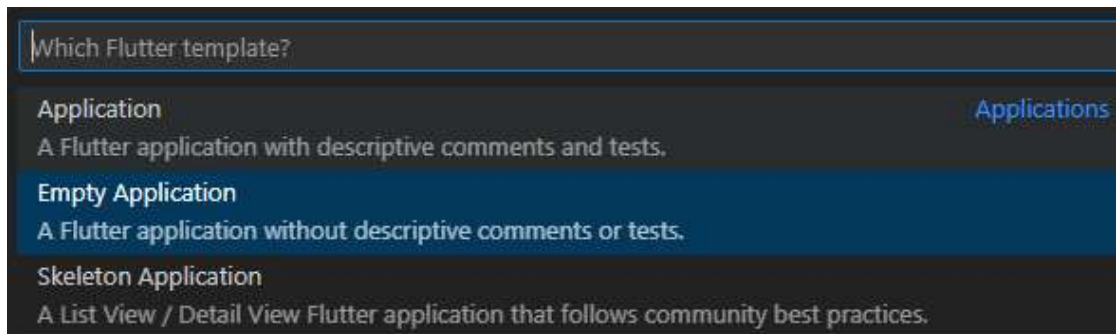




In the opened entry field on top of VS Code, enter “Flutter” and in the upcoming drop-down, press on “Flutter: New Project”:

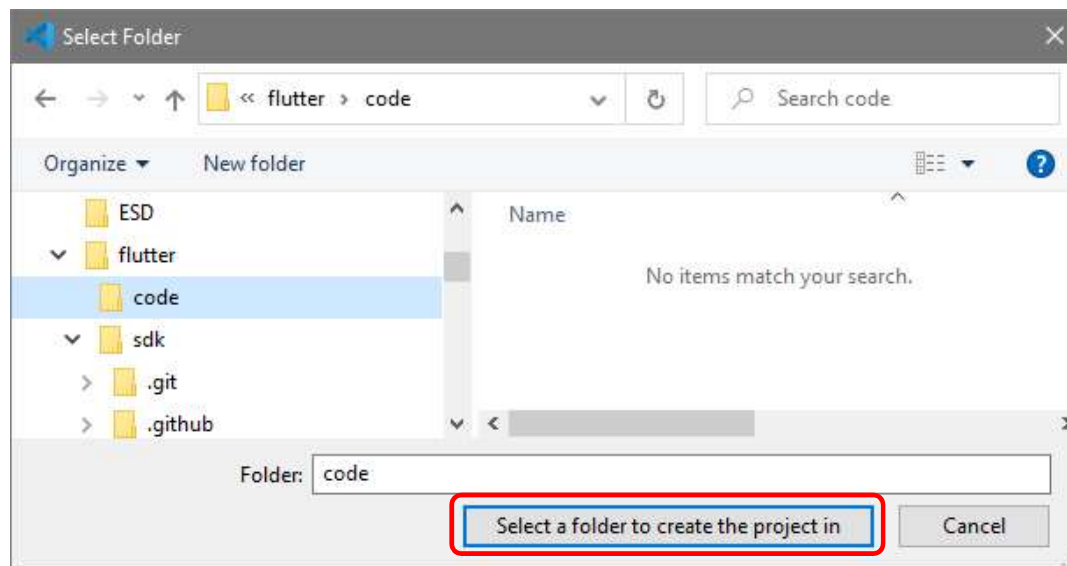


In the next drop-down, press on “Empty Application”:





Select a folder, where the new project should be created, in the screen below it was “C:\flutter\code”



Then press the red marked button.



Enter the name of the project (capital letters and spaces are not allowed !):

A dark-themed dialog box titled "Project Name". It contains a text input field with the text "hello\_world" and a blue border. Below the input field, it says "Enter a name for your new project (Press 'Enter' to confirm or 'Escape' to cancel)".

Project Name

hello\_world

Enter a name for your new project (Press 'Enter' to confirm or 'Escape' to cancel)

Press 'Enter' on your keyboard and confirm, that you trust the Flutter team:

A dark-themed dialog box with a shield icon containing a key. The title is "Do you trust the authors of the files in this folder?". The text explains that Code provides features that may automatically execute files in this folder. It recommends continuing in restricted mode if the files are not trusted. The path "C:\flutter\code\HelloWorld\hello\_world" is shown. There are two buttons: "Yes, I trust the authors" (highlighted in blue) and "No, I don't trust the authors". Below the buttons are the actions: "Trust folder and enable all features" and "Browse folder in restricted mode".

Do you trust the authors of the files in this folder?

Code provides features that may automatically execute files in this folder.

If you don't trust the authors of these files, we recommend to continue in restricted mode as the files may be malicious. See [our docs](#) to learn more.

C:\flutter\code\HelloWorld\hello\_world

☐ Trust the authors of all files in the parent folder 'HelloWorld'

**Yes, I trust the authors** No, I don't trust the authors

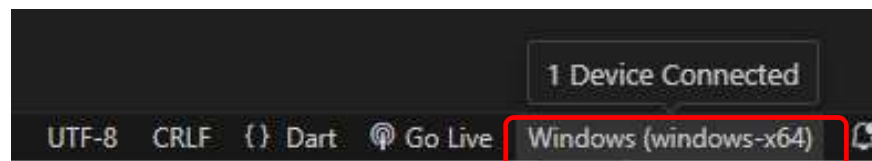
*Trust folder and enable all features* *Browse folder in restricted mode*



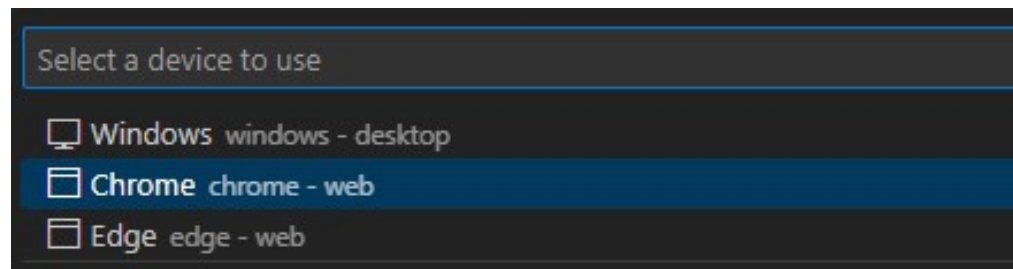
Your project will be created now.

You need a working internet connection in this phase!

Then press in the bottom line of the VS Code window on

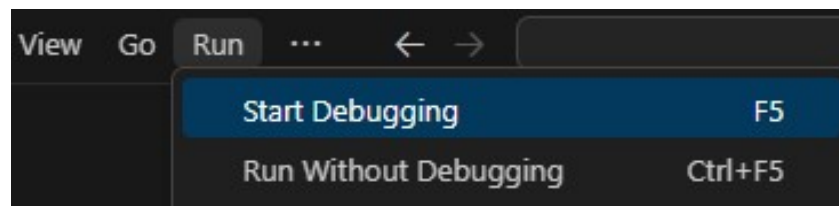


and in the drop-down opened on top of VS Code select “Chrome” or “Edge”:

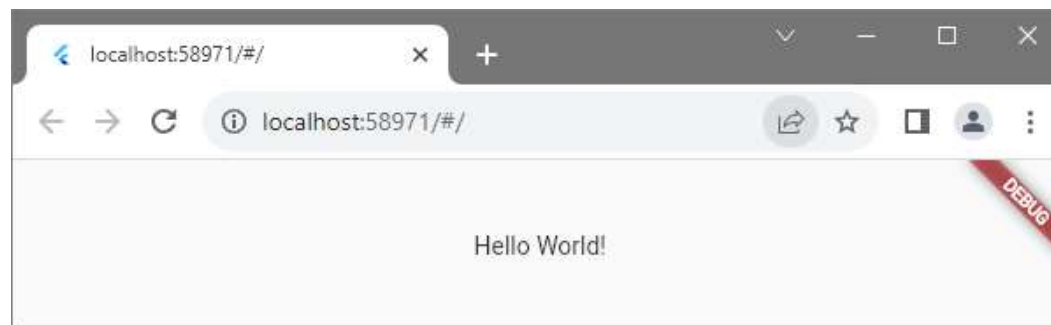




Finally press “F5” or select in menu “Run” the entry “Start Debugging”:



Now you must be a bit patient. The first Build takes some time because other packages may be downloaded in the background. Finally Chrome or Edge should come up showing your HelloWorld app:





I hope you successfully reached this final step.

Enjoy now developing your own apps with Flutter !