



Chapter 1

เริ่มต้น

Flutter

By Aj.Lattagarn Kuikaew

Outline

Cross Platform

What is Flutter?

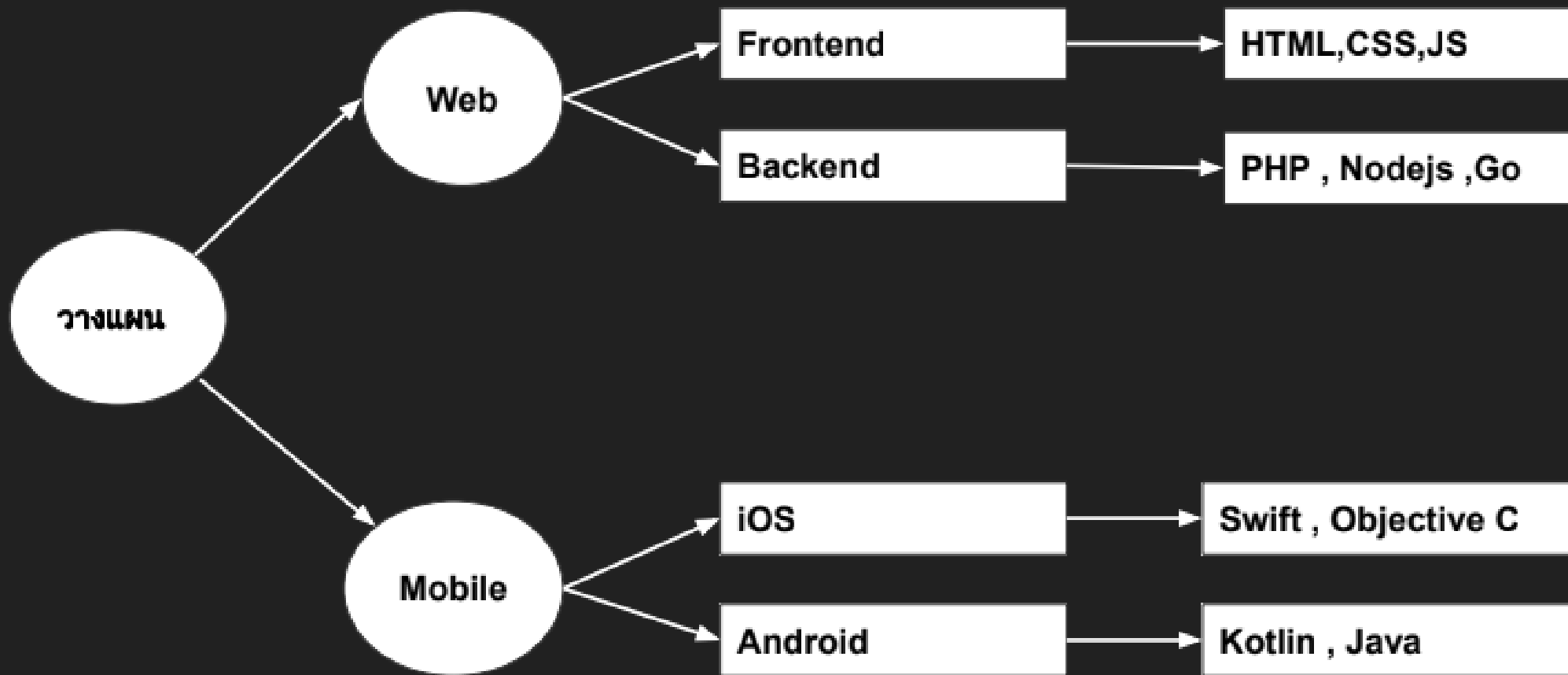
Flutter
Architecture

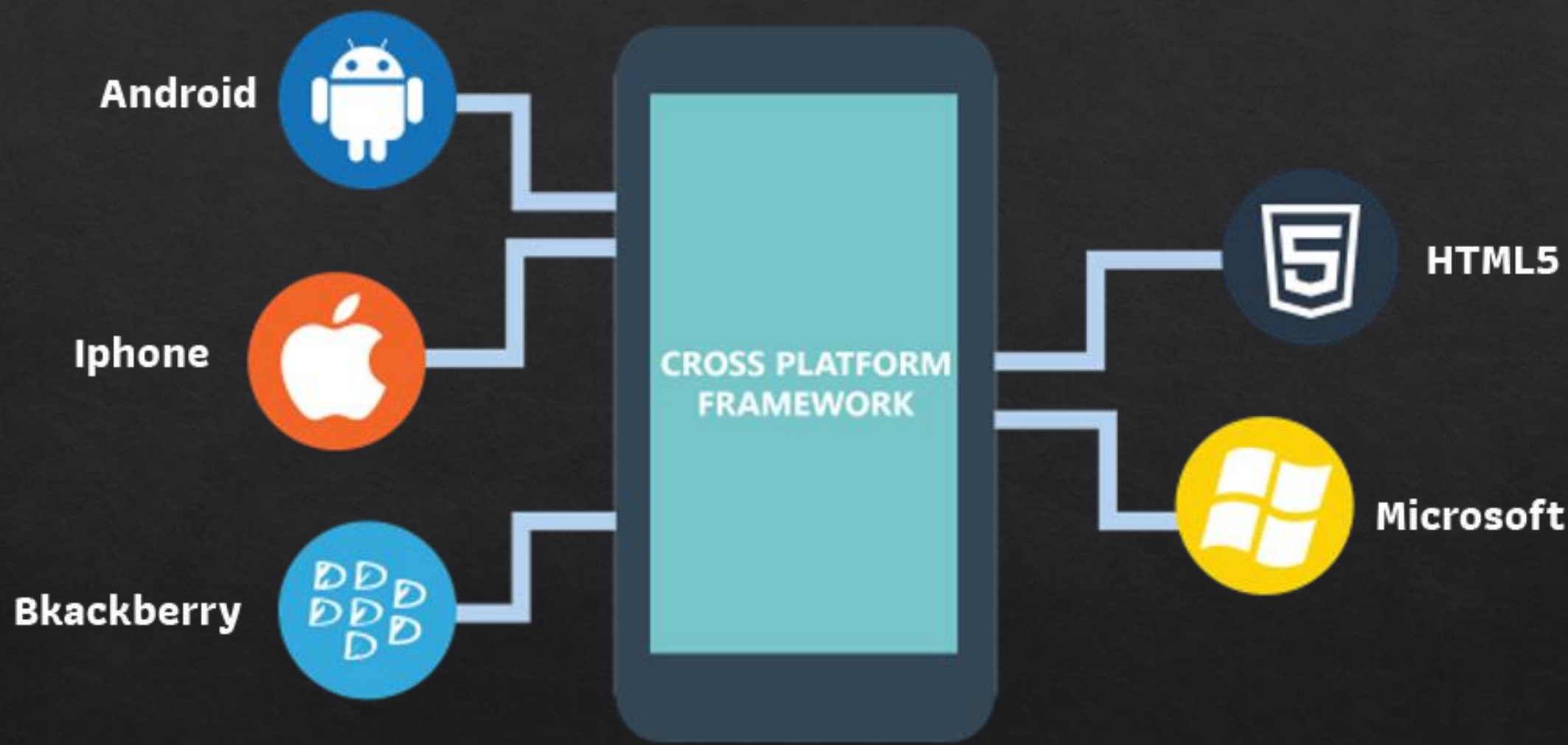
Setup
Development
Tools

Flutter Doctor CLI

Start Project

การพัฒนาาระบบต่างๆในอดีต





การพัฒนาแอปแบบ Cross Platform

การที่แอปพลิเคชันหรือซอฟต์แวร์สามารถทำงานได้หลายแพลตฟอร์มและรองรับการทำงานได้หลายระบบโดยเขียนโปรแกรมแค่ครั้งเดียว ซึ่งมีอยู่หลายรูปแบบ เช่น

- ทำงานบน PC ได้หลายระบบปฏิบัติการ [Windows , Mac , Linux]
- ทำงานบนเว็บได้ผ่าน Web Browser [Chrome , Firefox , Opera , Safari]
- ทำงานในสมาร์ทโฟนได้หลายระบบปฏิบัติการ [iOS , Android]

ทำความรู้จักกับ Flutter



Flutter คือเครื่องมือที่ถูกพัฒนาขึ้นโดย Google สำหรับนำมาพัฒนา mobile application ที่ทำงานในอุปกรณ์พกพา เช่น smart phone , tablet

โดย Flutter เป็นชุดโปรแกรมที่เน้นในส่วนของหน้าต่างของแอป หรือ User Interface (UI) ให้นักพัฒนาสามารถสร้างและปรับปรุงแก้ไขหน้าต่างของแอปได้สะดวกตามที่ต้องการ

ทำความรู้จักกับ Flutter

Flutter มีภาษาโปรแกรมก็คือภาษา **Dart** ซึ่งภาษา Dart จะถูกใช้ในการสร้าง User Interface หรือการเขียนโปรแกรมส่วนอื่นๆ เช่น การติดต่อการฐานข้อมูล การเข้าถึงและ จัดการเกี่ยวกับอุปกรณ์พกพา เช่น กล้องถ่ายรูป และ ตัวสแกน บาร์โค้ด เป็นต้น

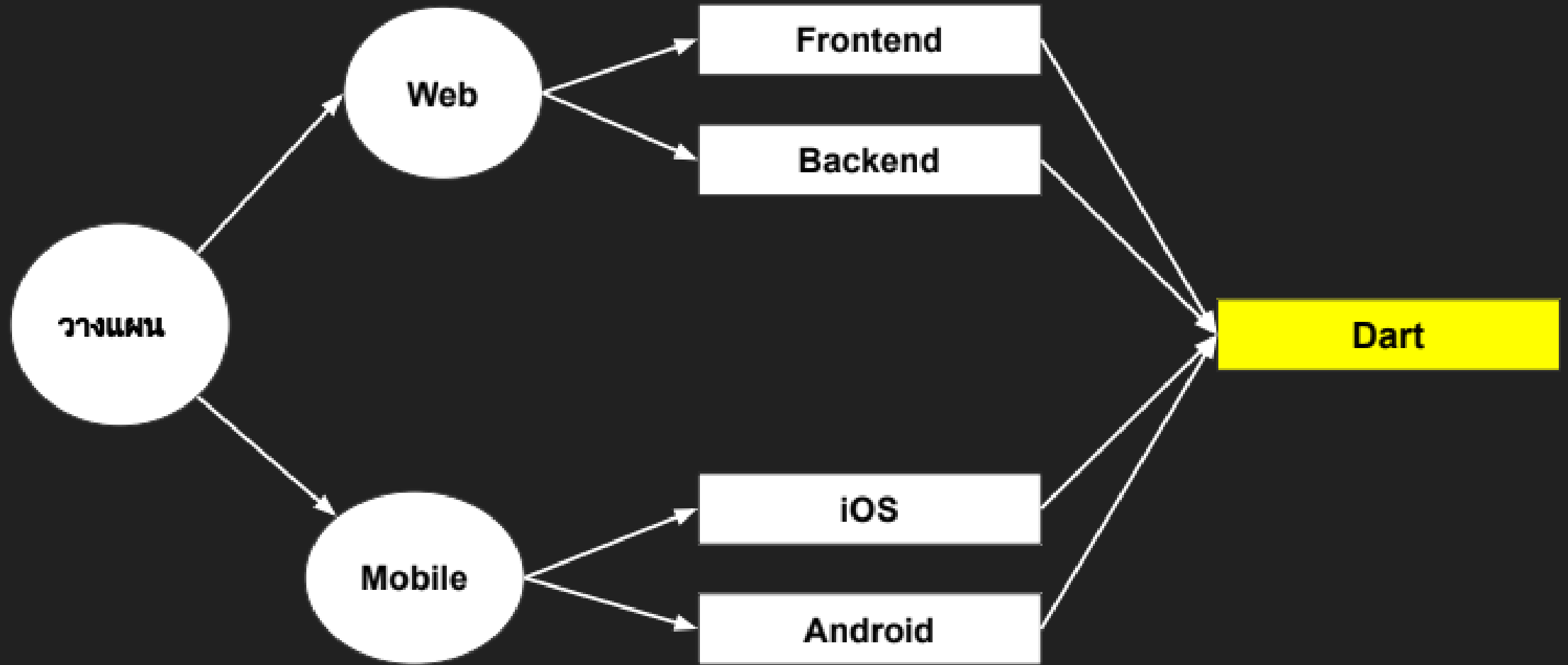


ภาษา Dart สามารถนำไปใช้ในการพัฒนา Web Application ได้ด้วยโดยการแปลงภาษา Dart เป็น JavaScript และรันใน Web Browser สามารถเข้าดูรายละเอียดเพิ่มเติมได้ที่ **<https://flutter.dev/docs/get-started/web>**

ทำความรู้จักกับ Flutter

Flutter จะทำให้เราเขียนและพัฒนาแอปได้ง่ายมากยิ่งขึ้น โดยการเขียนแอปแค่ครั้งเดียวแต่สามารถ**ใช้งานแอปนั้นได้ในระบบหลักๆถึง 2 ระบบ คือ iOS และ Android** หรือ เรียกว่า Cross Platform





สรุป Flutter

- ชุดโปรแกรมด้าน User Interface ถูกสร้างโดย Google
- จัดการส่วนต่างๆ ได้ง่ายและสะดวก
- เป็น Open Source ใช้งานได้ฟรี
- พัฒนา Mobile Application ให้สามารถใช้งานได้ทั้ง iOS และ Android

5 ขั้นตอน ก่อนพัฒนาแอปพลิเคชันบน Flutter

- ดาวนโหลด และตั้งค่าการเรียกใช้งานของ Flutter ด้วยการกำหนดพารามิเตอร์ของการใช้งาน เพื่อให้สามารถเรียกใช้งานโปรแกรม Flutter ได้จากทุกพาร์ตของโปรเจคที่พัฒนาแอปพลิเคชัน
- ติดตั้งและอัปเดตโปรแกรมเสริมของ Android Studio ซึ่งเป็นหัวใจหลักในการพัฒนาแอปพลิเคชัน
- ยืนยันสิทธิ์และกข้อมูลของนักพัฒนาใน Android License
- ติดตั้งโปรแกรม Visual Studio Code เพื่อใช้ในการพัฒนาแอปพลิเคชัน ซึ่งเป็นเครื่องมือเอดิเตอร์ที่มีขนาดเล็กและสะดวกในการพัฒนา Flutter ได้ดี
- ติดตั้งและตั้งค่าโปรแกรมจำลอง



ติดตั้ง

Flutter SDK

<https://flutter.dev>

Free access to best-selling book Flutter Apprentice, for a limited time only! [Learn more...](#)

Get started

1. Install

2. Set up an editor

3. Test drive

4. Write your first app

5. Learn more

From another platform?

Flutter for Android devs

Flutter for iOS devs

Flutter for React Native devs

Flutter for web devs

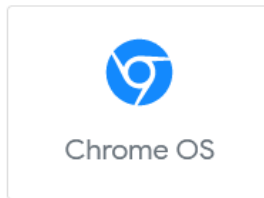
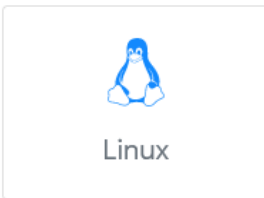
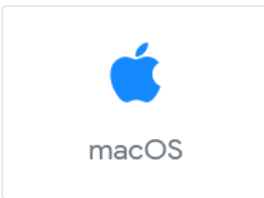
Flutter for Xamarin.Forms devs

[Set up an editor](#)

Install

[Docs](#) > [Get started](#) > Install

Select the operating system on which you are installing Flutter:



Important: If you're in China, first read [Using Flutter in China](#).

เลือกโหลดตามระบบปฏิบัติการของเครื่อง

Get started

- 1. Install
- 2. Set up an editor
- 3. Test drive
- 4. Write your first app
- 5. Learn more

From another platform?

- Flutter for Android devs
- Flutter for iOS devs
- Flutter for React Native devs
- Flutter for web devs
- Flutter for Xamarin.Forms devs
- Introduction to declarative UI
- Dart language overview

Get the Flutter SDK

1. Download the following installation bundle to get the latest stable release of the Flutter SDK:

`flutter_windows_2.5.3-stable.zip`

For other release channels, and older builds, see the [SDK releases](#) page.

2. Extract the zip file and place the contained `flutter` in the desired installation location for the Flutter SDK (for example, `C:\Users\<your-us>`)

Warning: Do not install Flutter in a directory like `C:\Program Files\` that requires elevated privileges.

If you don't want to install a fixed version of the installation bundle, you can skip steps 1 and 2. Instead, get the source code from the [Flutter repo](#) on GitHub, and change branches or tags as needed. For example:

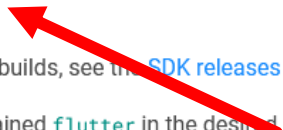
```
C:\src>git clone https://github.com/flutter/flutter.git -b stable
```

You are now ready to run Flutter commands in the Flutter Console.

Contents

- System requirements
- Get the Flutter SDK
 - Update your path
 - Run flutter doctor
- Android setup
 - Install Android Studio
 - Set up your Android
- Agree to Android Licenses
- Windows setup
 - Additional Windows requirements
 - Enable desktop support
- Web setup
- Next step

Куда flutter_windows_2.5.3-stable.Zip



flutter

File Home Share View

< > > This PC > Local Disk (C:) > src > flutter

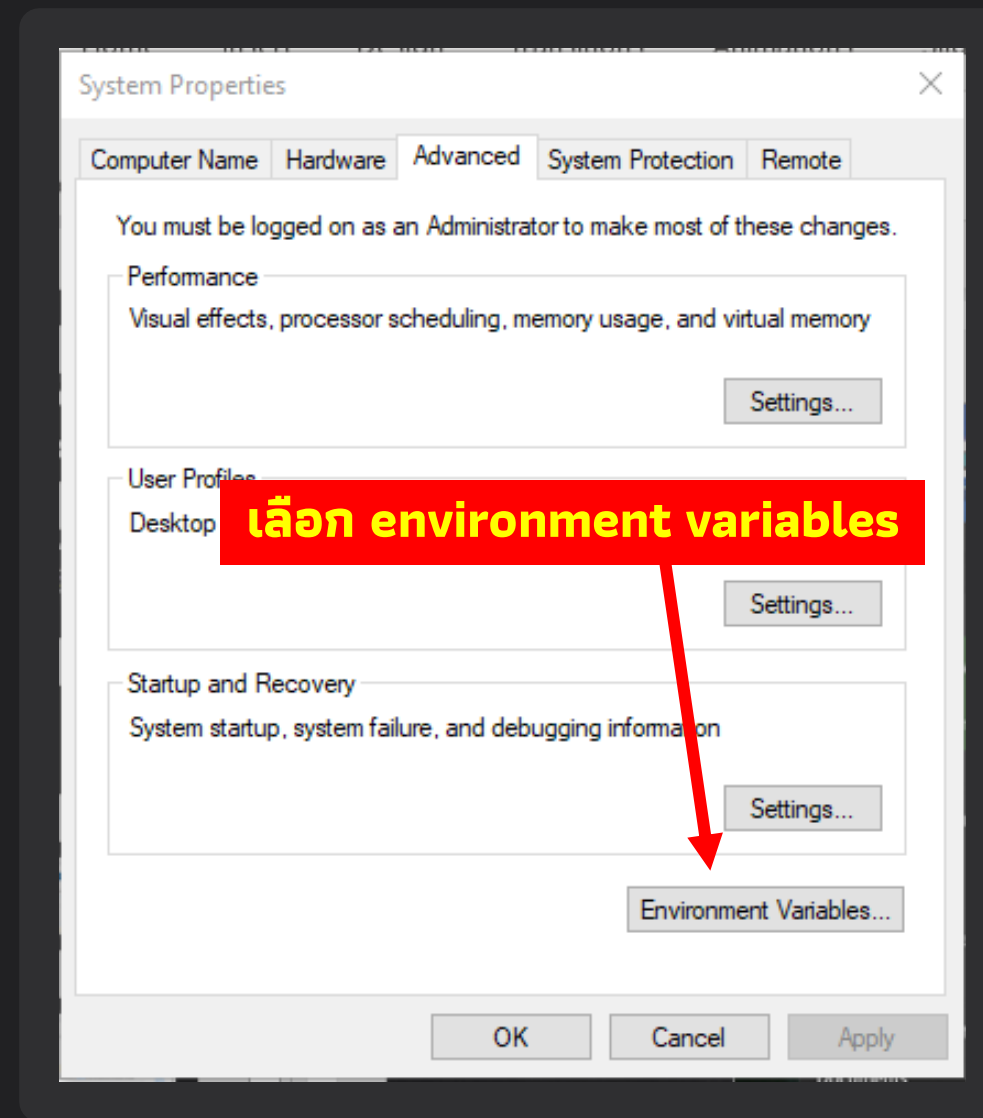
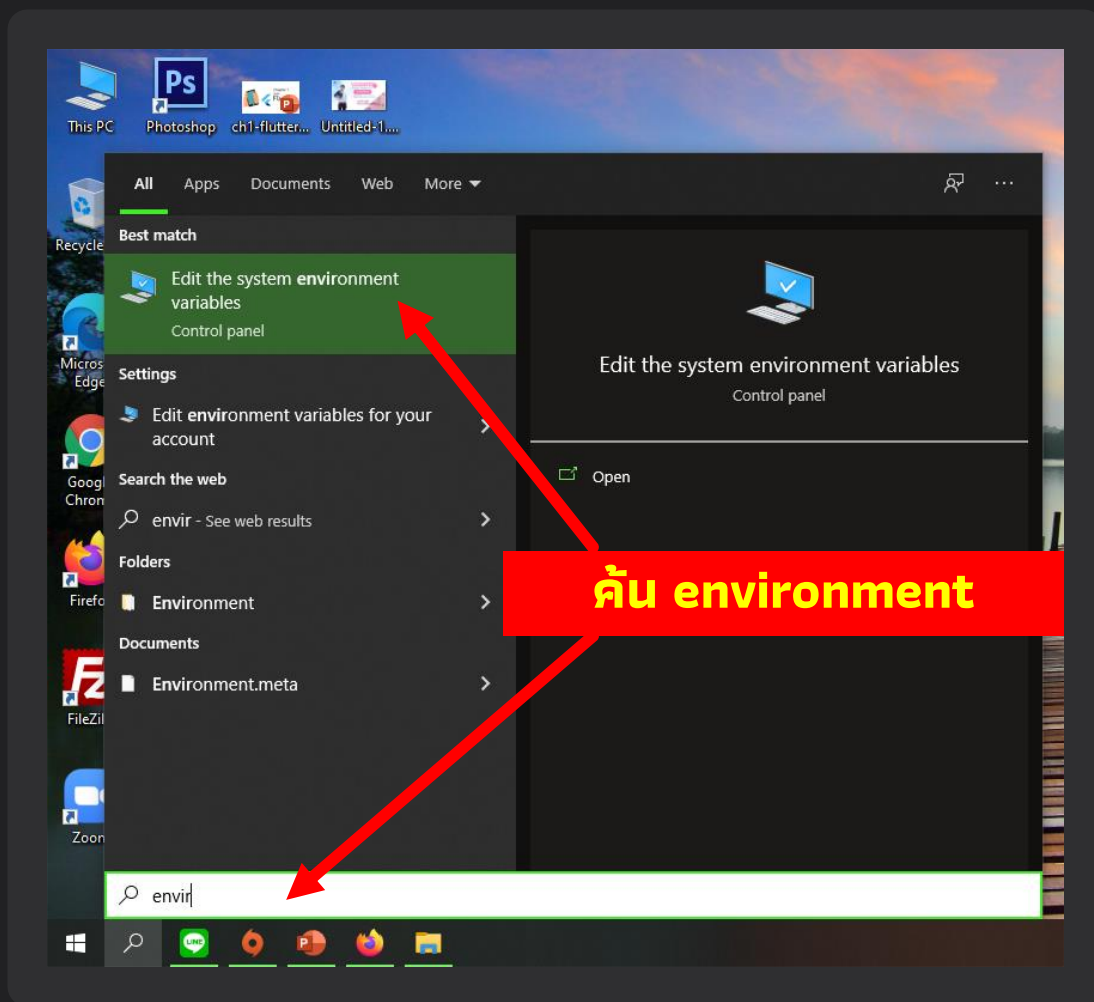
Search flutter

| Name | Date modified | Type | Size |
|-----------------------|-----------------|--------------------|-------|
| .git | 1/11/2564 15:56 | File folder | |
| .github | 16/10/2564 3:32 | File folder | |
| .idea | 16/10/2564 3:32 | File folder | |
| .pub-cache | 16/10/2564 3:32 | File folder | |
| bin | 16/10/2564 3:32 | File folder | |
| dev | 16/10/2564 3:32 | File folder | |
| examples | 16/10/2564 3:32 | File folder | |
| packages | 16/10/2564 3:32 | File folder | |
| .ci.yaml | 16/10/2564 3:32 | YAML File | 94 KB |
| .cirrus.yml | 16/10/2564 3:32 | YML File | 9 KB |
| .gitattributes | 16/10/2564 3:32 | GITATTRIBUTES File | 1 KB |
| .gitignore | 16/10/2564 3:32 | GITIGNORE File | 3 KB |
| analysis_options.yaml | 16/10/2564 3:32 | YAML File | 11 KB |
| AUTHORS | 16/10/2564 3:32 | File | 4 KB |
| CODE_OF_CONDUCT.md | 16/10/2564 3:32 | MD File | 3 KB |
| CODEOWNERS | 16/10/2564 3:32 | File | 1 KB |
| CONTRIBUTING.md | 16/10/2564 3:32 | MD File | 6 KB |
| dartdoc_options.yaml | 16/10/2564 3:32 | YAML File | 2 KB |
| flutter_console.bat | 16/10/2564 3:32 | Windows Batch File | 2 KB |
| flutter_root.iml | 16/10/2564 3:32 | IML File | 1 KB |
| LICENSE | 16/10/2564 3:32 | File | 2 KB |
| PATENT_GRANT | 16/10/2564 3:32 | File | 2 KB |
| README.md | 16/10/2564 3:32 | MD File | 5 KB |
| SECURITY.md | 16/10/2564 3:32 | MD File | 4 KB |
| TESTOWNERS | 16/10/2564 3:32 | File | 17 KB |
| version | 1/11/2564 22:52 | File | 1 KB |

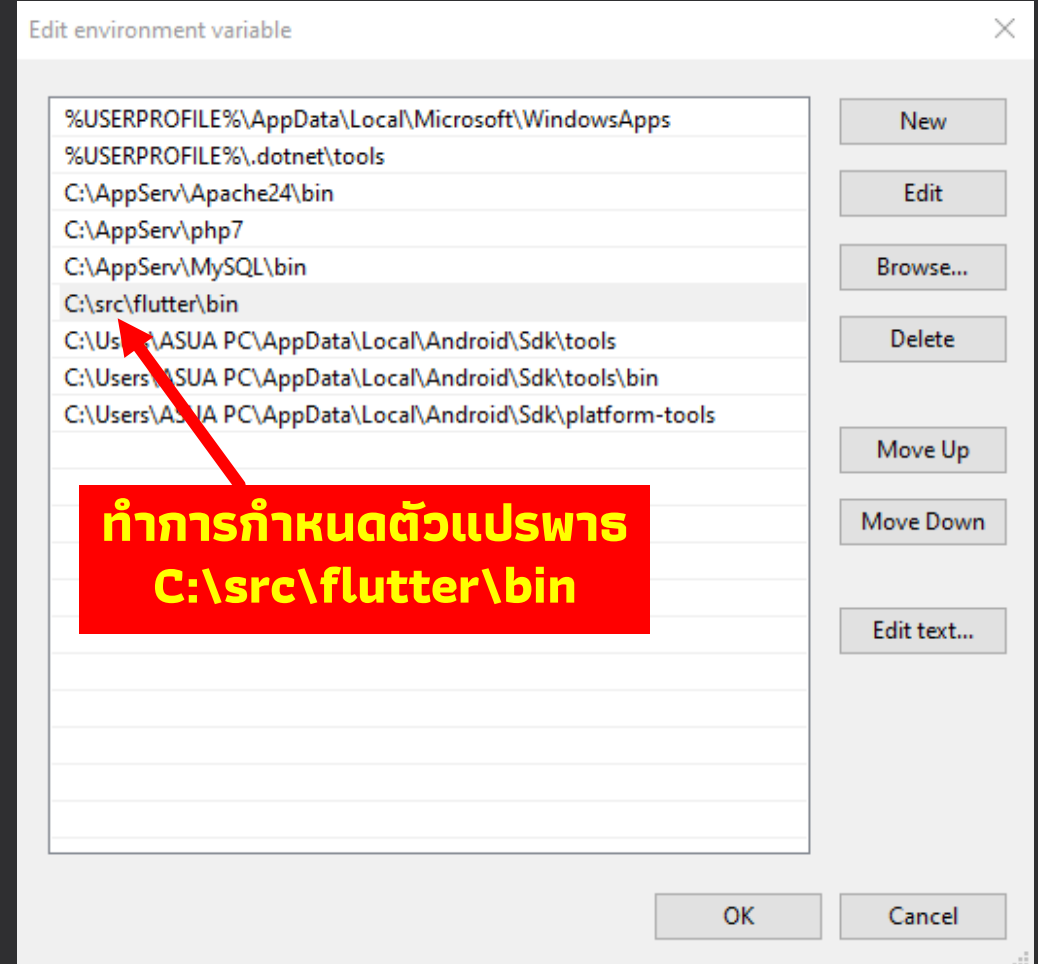
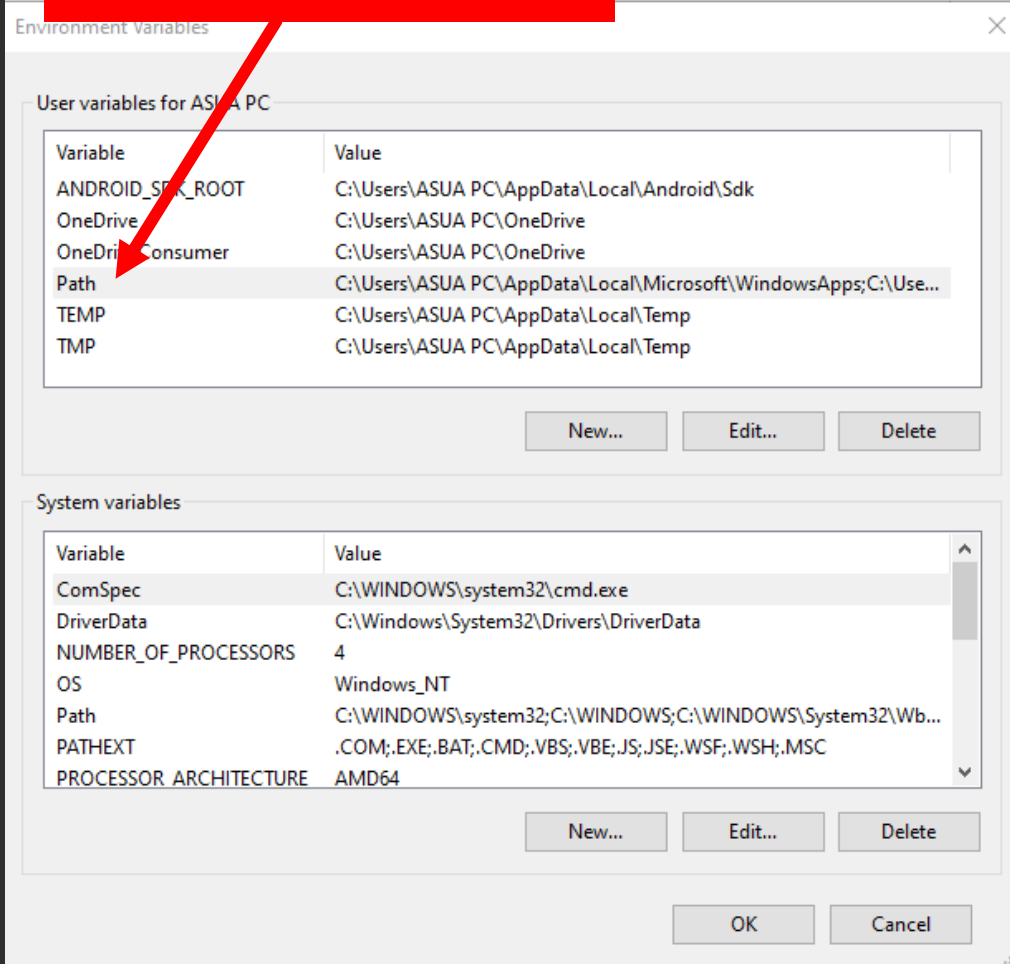
26 items

ทำการแตกไฟล์ที่โหลดมาไว้ที่ C:/src

กำหนดพารสำหรับเรียกใช้งานโปรแกรม Flutter



ทำการกำหนดตัวแปรพาธ



ทำการกำหนดตัวแปรพาธ C:\src\flutter\bin

ทดสอบการใช้งานของโปรแกรม Flutter

พิมพ์คำสั่ง flutter doctor เพื่อทดสอบ

ค้น cmd

```
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.

C:\Users\Reza>flutter doctor
Doctor summary (to see all details, run flutter doctor -v):
[✓] Flutter (Channel stable, v1.12.13+hotfix.8, on Microsoft Windows)
[!] Android toolchain - develop for Android devices (Android SDK v
    ✗ Android license status unknown.
      Try re-installing or updating your Android SDK Manager.
      See https://developer.android.com/studio/#downloads or visit
      instructions.
[✓] Android Studio (version 3.6)
[✓] VS Code (version 1.43.0)
[!] Connected device
    ! No devices available

! Doctor found issues in 2 categories.

C:\Users\Reza>
```




ติดตั้ง

Android Studio

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

Download Android Studio and ...

https://developer.android.com/studio

developers  Platform **Android Studio** Google Play Jetpack Kotlin **เพิ่มเติม** Search English **ลงชื่อเข้าใช้**

ANDROID STUDIO

[Download](#) What's new User guide Preview

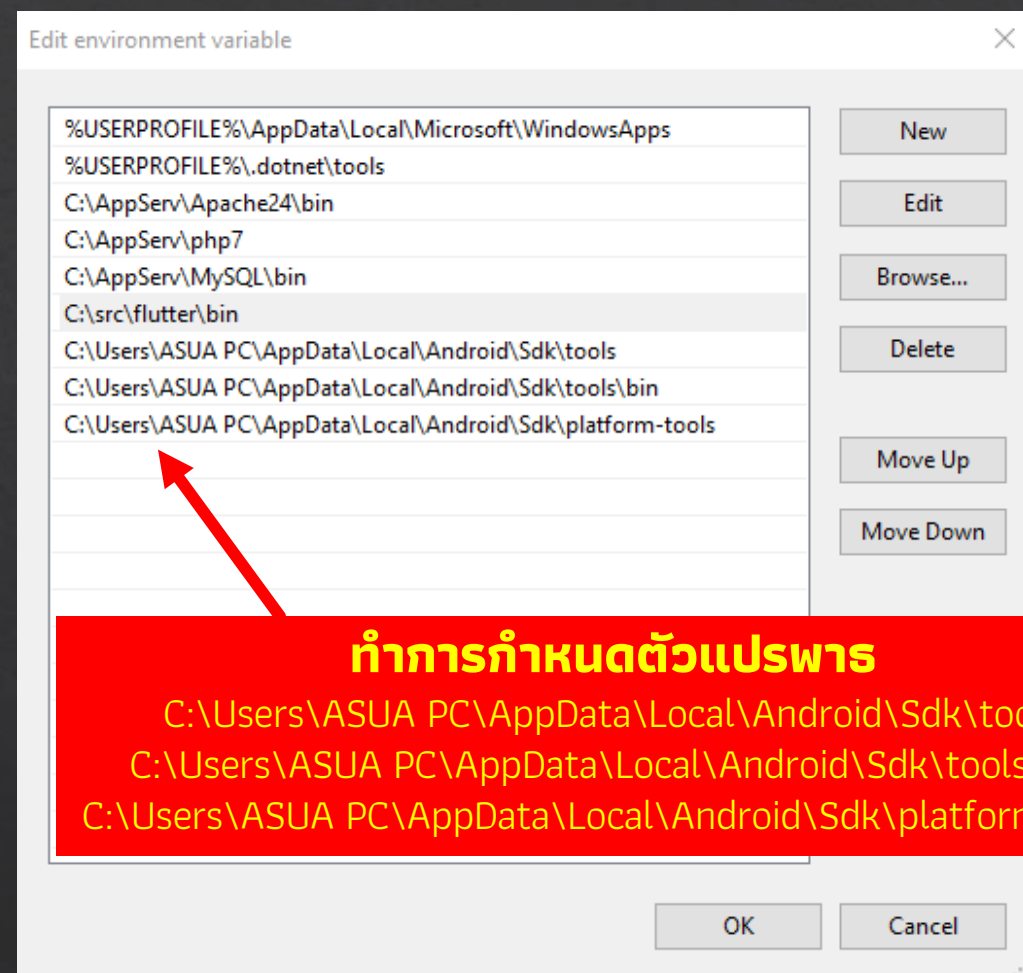
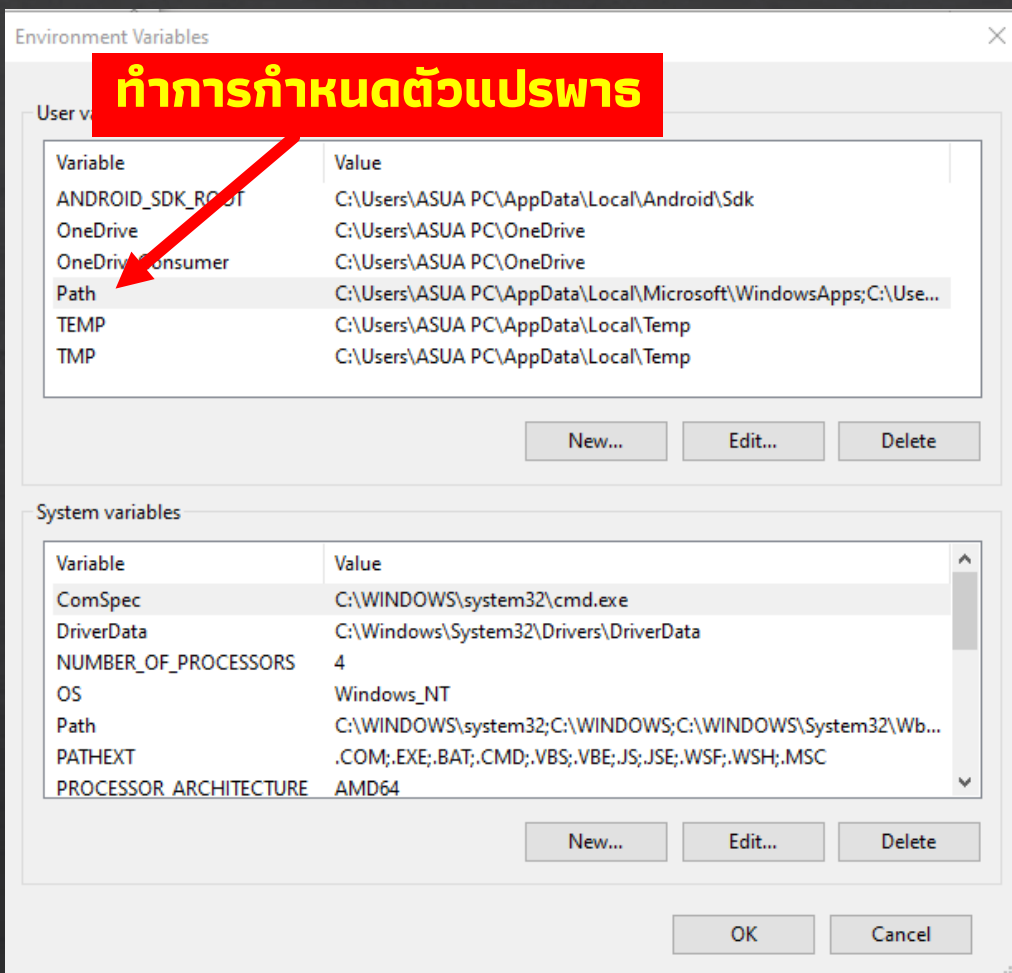
android studio

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

[Download Android Studio](#)
2020.3.1 for Windows 64-bit (914 MiB)

[Download options](#) [Release notes](#)

กำหนดพารสำหรับเรียกใช้งานโปรแกรม Android Studio



Projects

Customize

Plugins

Learn Android Studio

Welcome to Android Studio

Create a new project to start from scratch.
Open existing project from disk or version control.



New Project



Open



Get from VCS

เลือก SDK Manager

More Actions ▾

- Profile or Debug APK
- Import Project (Gradle, Eclipse ADT, etc.)
- Import an Android Code Sample
- SDK Manager**
- AVD Manager

- Appearance & Behavior
 - Appearance
 - Menus and Toolbars
- System Settings
 - HTTP Proxy
 - Data Sharing
 - Date Formats
 - Updates
 - Process Elevation
 - Passwords
 - Android SDK**
 - Notifications
 - Quick Lists
 - Path Variables
- Keymap
- Editor
- Build, Execution, Deployment
- Kotlin
- Tools

Appearance & Behavior > System Settings > Android SDK

Manager for the Android SDK and Tools used by the IDE

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

⚠ Android SDK location should not contain whitespace, as this can cause problems with the NDK tools.

SDK Platforms SDK Tools SDK Update Sites

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

| Name | Version | Status |
|--|---------|---------------|
| <input checked="" type="checkbox"/> Android SDK Command-line Tools (latest) | | Installed |
| <input type="checkbox"/> CMake | | Not Installed |
| <input type="checkbox"/> Android Auto API Simulators | | Not installed |
| <input type="checkbox"/> Android Auto Desktop Head Unit Emulator | 1.1 | Not installed |
| <input checked="" type="checkbox"/> Android Emulator | 30.9.3 | Installed |
| <input type="checkbox"/> Android Emulator Hypervisor Driver for AMD Processors (installer) | 1.0.0 | Not installed |
| <input checked="" type="checkbox"/> Android SDK Platform-Tools | 11.0.3 | Installed |
| <input checked="" type="checkbox"/> Android SDK Tools (Obsolete) | 26.1.1 | Installed |
| <input type="checkbox"/> Google AdMob Ads SDK (Obsolete) | 11 | Not installed |
| <input type="checkbox"/> Google Analytics App Tracking SDK (Obsolete) | 3 | Not installed |
| <input type="checkbox"/> Google Cloud Messaging for Android Library (Obsolete) | 3 | Not 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 Play services for Firebase (Obsolete) | 12 | Not installed |
| <input checked="" type="checkbox"/> Google USB Driver | 13 | Installed |
| <input type="checkbox"/> Google Web Driver | 2 | Not installed |
| <input checked="" type="checkbox"/> Intel x86 Emulator Accelerator (HAXM installer) | 7.6.5 | Installed |

เลือก

**กด OK รองนกว่าจะ
โหลดเสร็จ**

Hide Obsolete Packages Show Package Details

OK Cancel Apply

ขั้นตอน
การยืนยันสิทธิ์

flutter doctor --android-licenses



ติดตั้ง

Visual Studio Code

<https://code.visualstudio.com/download>

Version 1.62 is now available! Read about the new features and fixes from October.

Download Visual Studio Code

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



↓ Windows
Windows 7, 8, 10, 11

- User Installer [64 bit](#) [32 bit](#) [ARM](#)
- System Installer [64 bit](#) [32 bit](#) [ARM](#)
- .zip [64 bit](#) [32 bit](#) [ARM](#)



↓ .deb Debian, Ubuntu

↓ .rpm Red Hat, Fedora, SUSE

- .deb [64 bit](#) [ARM](#) [ARM 64](#)
- .rpm [64 bit](#) [ARM](#) [ARM 64](#)
- .tar.gz [64 bit](#) [ARM](#) [ARM 64](#)

[Snap Store](#)



↓ Mac
macOS 10.11+

- .zip [Universal](#) [Intel Chip](#) [Apple Silicon](#)

ค้น flutter แล้วกด install

EXTENSIONS: MARKETPLACE

flutter

- Flutter** v3.28.0
Flutter support and debugger for Visual Studio Code
Dart Code | 3,447,890 | ★★★★★ (50)
Uninstalled **Install**
- Awesome Flutter Snippets** 682K ★ 5
Awesome Flutter Snippets is a collection of Flutter code snippets.
Neevash Ramdial **Install**
- Flutter Widget Snippets** 399K ★ 5
A set of helpful widget snippets for day-to-day development.
Alexis Villegas Torres **Install**
- [FF] Flutter Files** 185K ★ 5
Quickly scaffold flutter bloc file templates.
Igor Kravchenko **Install**
- Flutter Tree** 122K ★ 5
Extension for Flutter to build basic widgets.
Marcelo Velasquez **Install**
- Flutter Intl** 99K ★ 5
Flutter localization binding from .arb files.
Localizely **Install**
- Flutter Helpers** 78K ★ 5
Helper utilities for flutter projects.
Akshar Patel **Install**
- flutter-stylizer** 79K ★ 5
Flutter Stylizer organizes your Flutter class files.
gmlewis-vscode **Install**
- Flutter Color** 81K ★ 4.5
This plugin help you to easily visualize the color solution.
circle code solution **Install**
- flutter_mobx** 30K ★ 5
A extension for using MobX in Flutter.

Flutter

Dart Code | 3,447,890 | ★★★★★ (50)

Flutter support and debugger for Visual Studio Code.

Install ⚙️

Details Feature Contributions Changelog Dependencies Feature Contributions Changelog

Introduction

This VS Code extension adds support for effectively editing, refactoring, running, and reloading Flutter mobile apps, as well as support for the Dart programming language.

```
main.dart x
```

```
29  
30 void _incrementCounter() {  
31   setState(() {  
32     _counter++;  
33   });  
34 }  
35  
36 @override  
37 Widget build(BuildContext context) {  
38   return new Scaffold(  
39     appBar: new AppBar(  
40       title: new Text(widget.title),  
41     ), // AppBar  
42     body: new Center(  
43       child: new Text(  
44         'Button clicked $_counter times',  
45         style: Theme.of(context).textTheme.display1,  
46       ), // Text  
47     ), // Center  
48     floatingActionButton: new FloatingActionButton(  
49       onPressed: _incrementCounter,  
50     ), // FloatingActionButton
```

Flutter Demo Home Page

Button clicked 4 times

Released on 7/3/2018, 06:34:24
Last updated 9/15/2021, 07:11:03
Identifier nash.awesome-flutter-snippets

ค้น dart แล้วกด install

The screenshot shows the Visual Studio Code interface with the Extensions Marketplace open. The search bar contains 'Dart'. The 'Dart' extension by Dart Code is highlighted, showing it has 3.6M downloads, 5 stars, and a 55ms load time. The 'Install' button is visible. The extension details panel on the right shows the Dart logo, version v3.28.0, and a description: 'Dart language support and debugger for Visual Studio Code.' Below the description are tabs for 'Details', 'Feature Contributions', 'Changelog', and 'Runtime Status'. The 'Introduction' section states: 'Dart Code extends VS Code with support for the Dart programming language, and provides tools for effectively editing, refactoring, running, and reloading Flutter mobile apps, and AngularDart web apps.' The 'Installation' section says: 'Dart Code can be installed from the Visual Studio Code Marketplace or by searching within VS Code.' The 'Features' section lists several capabilities, including editing and debugging Flutter and Dart apps, automatic hot reloads, refactoring, and device switching. The bottom status bar shows 'Dart DevTools' and 'Chrome (web-javascript)'.

File Edit Selection View Go Run Terminal Help Extension: Dart - MyApp - Visual Studio Code

EXTENSIONS Search Extensions in Marketplace

INSTALLED 13

- Auto Close Tag** 3ms
Automatically add HTML/XML close tag...
Jun Han
- Auto Rename Tag** 18ms
Auto rename paired HTML/XML tag
Jun Han
- Bracket Pair Colorizer** 38ms
A customizable extension for colorizing...
CoenraadS
- Color Highlight** 6ms
Highlight web colors in your editor
Sergii Naumov
- Dart** 3.6M ★ 5 55ms
Dart language support and debugger f...
Dart Code **Reload Required** **Install**
- Flutter** 3.4M ★ 5 10ms
Flutter support and debugger for Visual...
Dart Code **Reload Required** **Install**
- Format HTML in PHP**
Provides formatting for the HTML code

RECOMMENDED 1

- Debugger for Firefox** 1.5M ★ 4.5
Debug your web application or browse...
Firefox DevTools **Install**

Dart v3.28.0
Dart Code | 3,697,329 | ★★★★★ (50)
Dart language support and debugger for Visual Studio Code.
Reload Required **Install**

Details Feature Contributions Changelog Runtime Status

chat discord chat gitter twitter dartcode help contribute

Introduction
Dart Code extends VS Code with support for the Dart programming language, and provides tools for effectively editing, refactoring, running, and reloading Flutter mobile apps, and AngularDart web apps.

Installation
Dart Code can be installed from the Visual Studio Code Marketplace or by searching within VS Code.

Features

- Edit and Debug Flutter mobile apps (launch using F5 or the Debug menu)
- Edit and Debug Dart command line apps (launch using F5 or the Debug menu)
- Automatic hot reloads for Flutter
- Refactorings and Code fixes (lightbulb)
- Quickly switch between devices for Flutter
- Flutter Doctor command
- Flutter Get Packages command

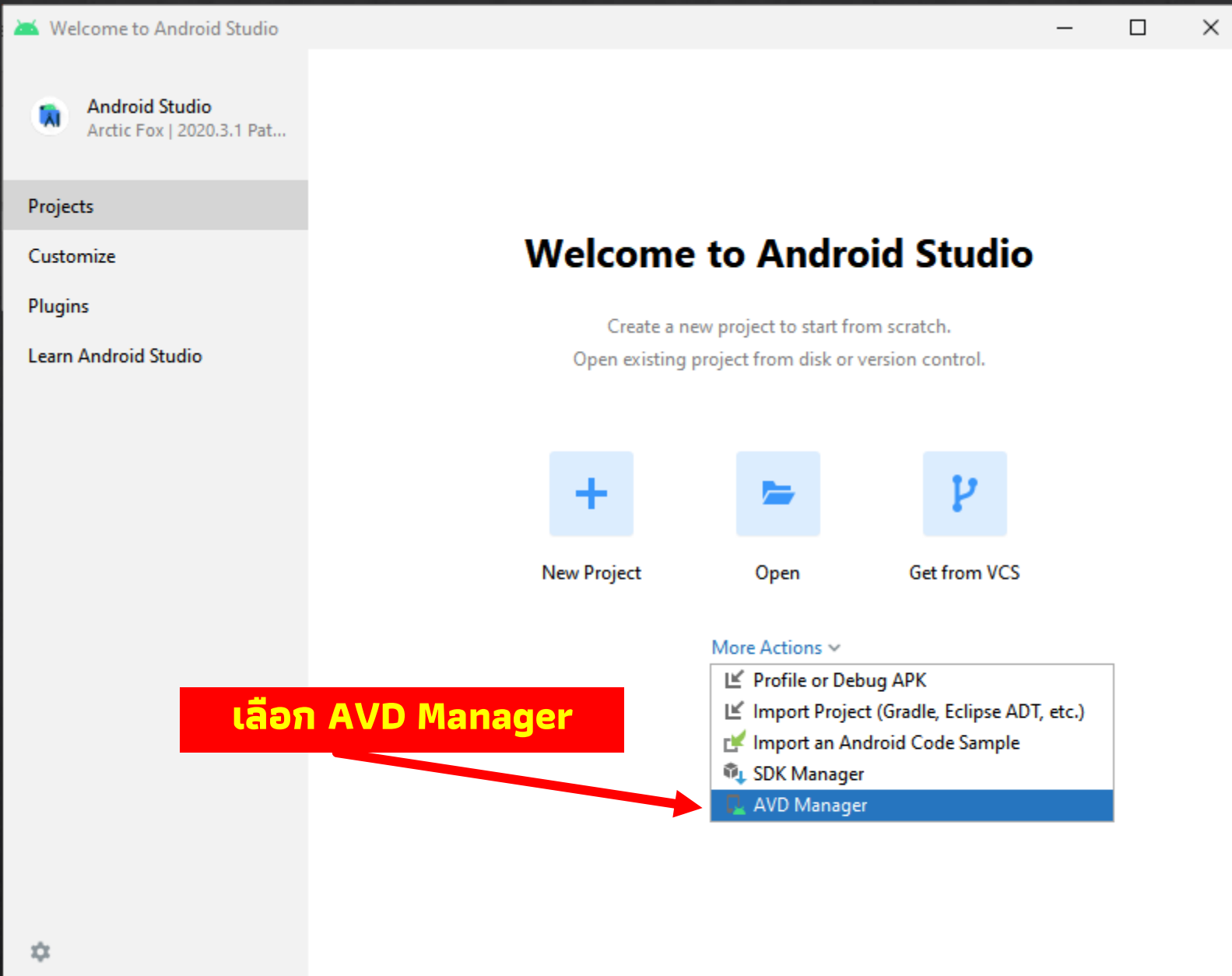
Categories
Programming Languages Snippets
Linters Formatters Debuggers

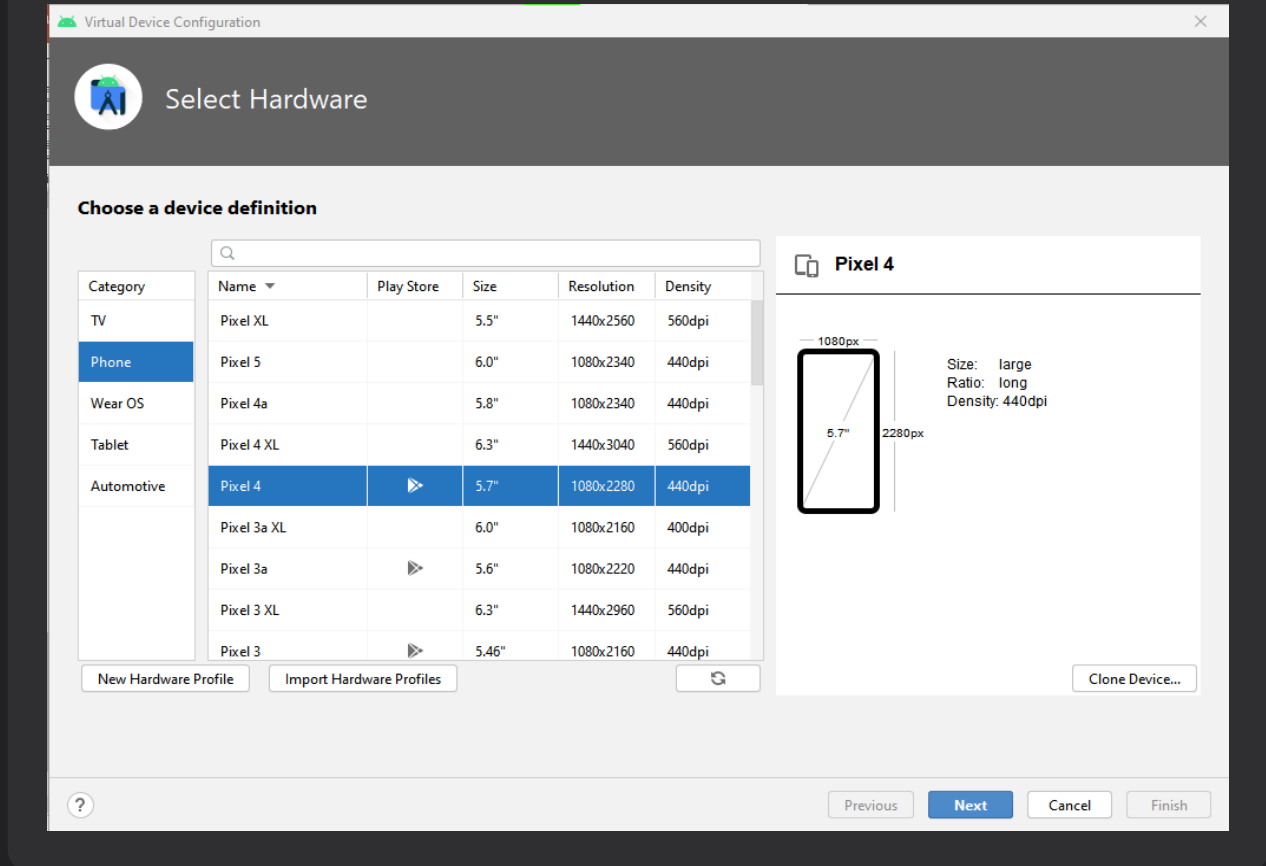
Resources
Marketplace
Repository
License

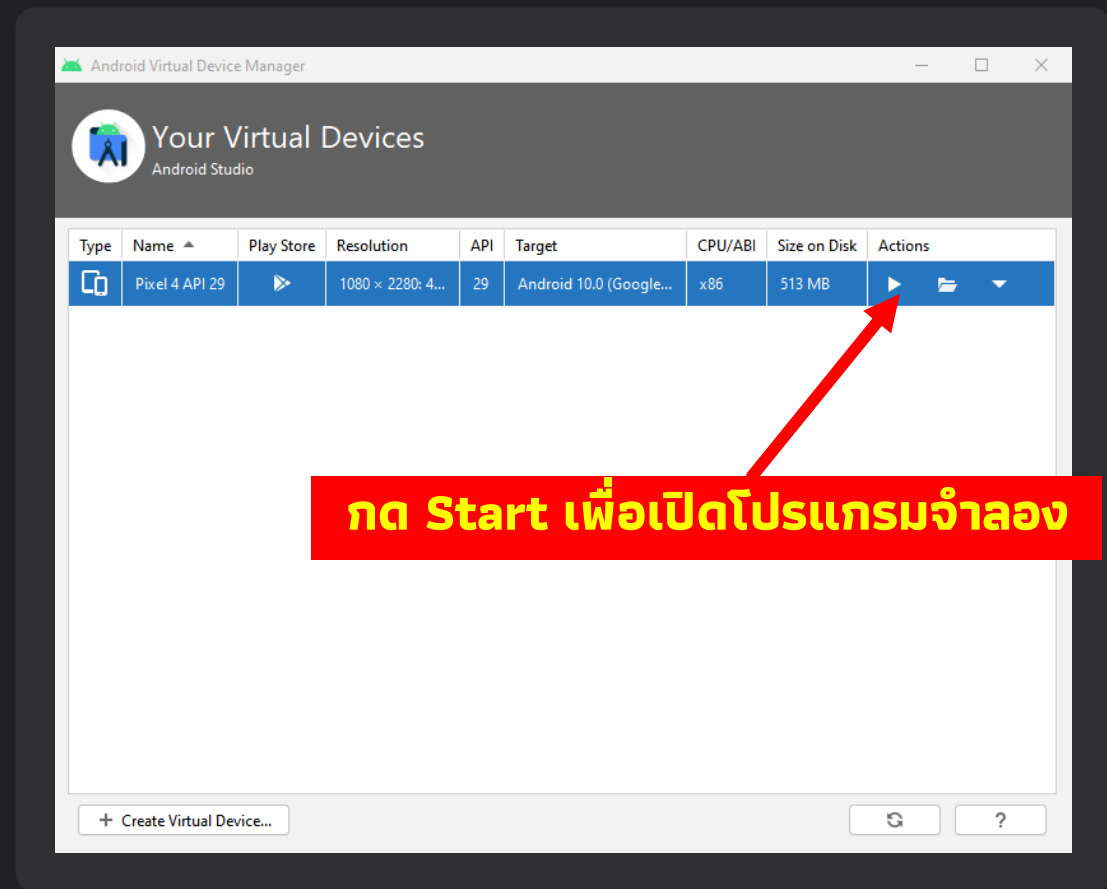
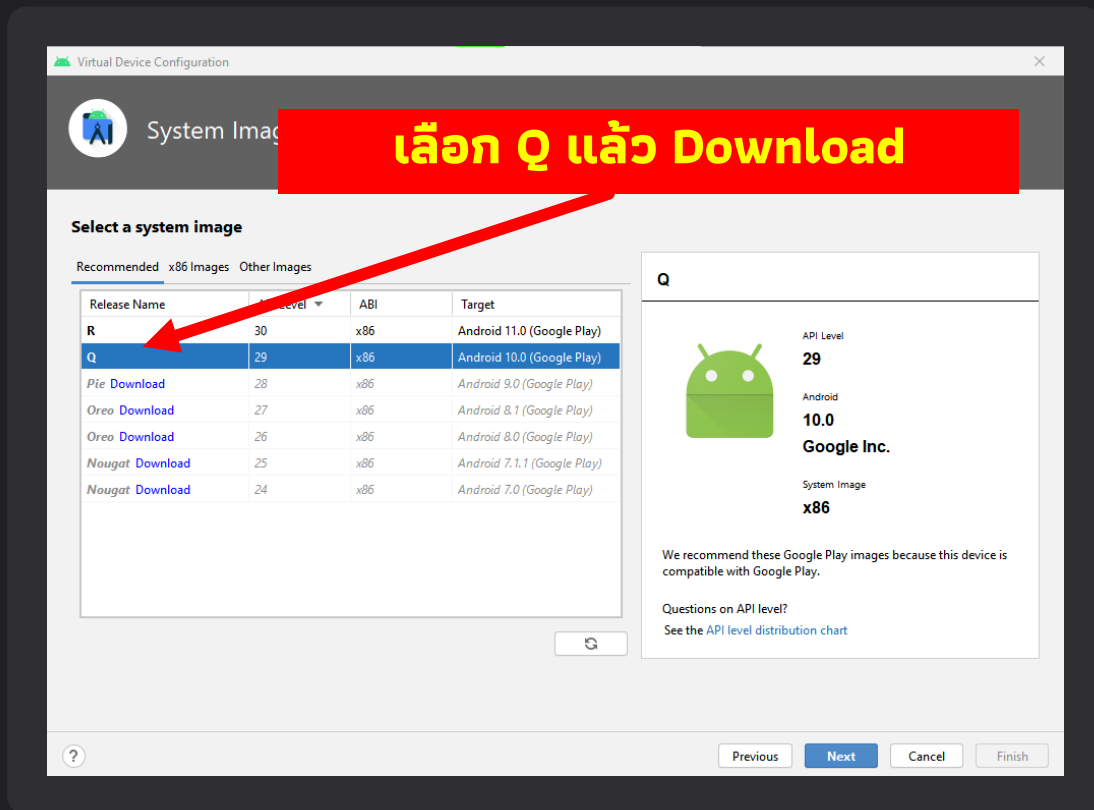
More Info
Released on 8/5/2016, 21:51:42
Last updated 11/1/2021, 23:30:05
Identifier dart-code, dart-code

0 0 Dart DevTools Chrome (web-javascript)

ติดตั้ง
โปรแกรมจำลอง

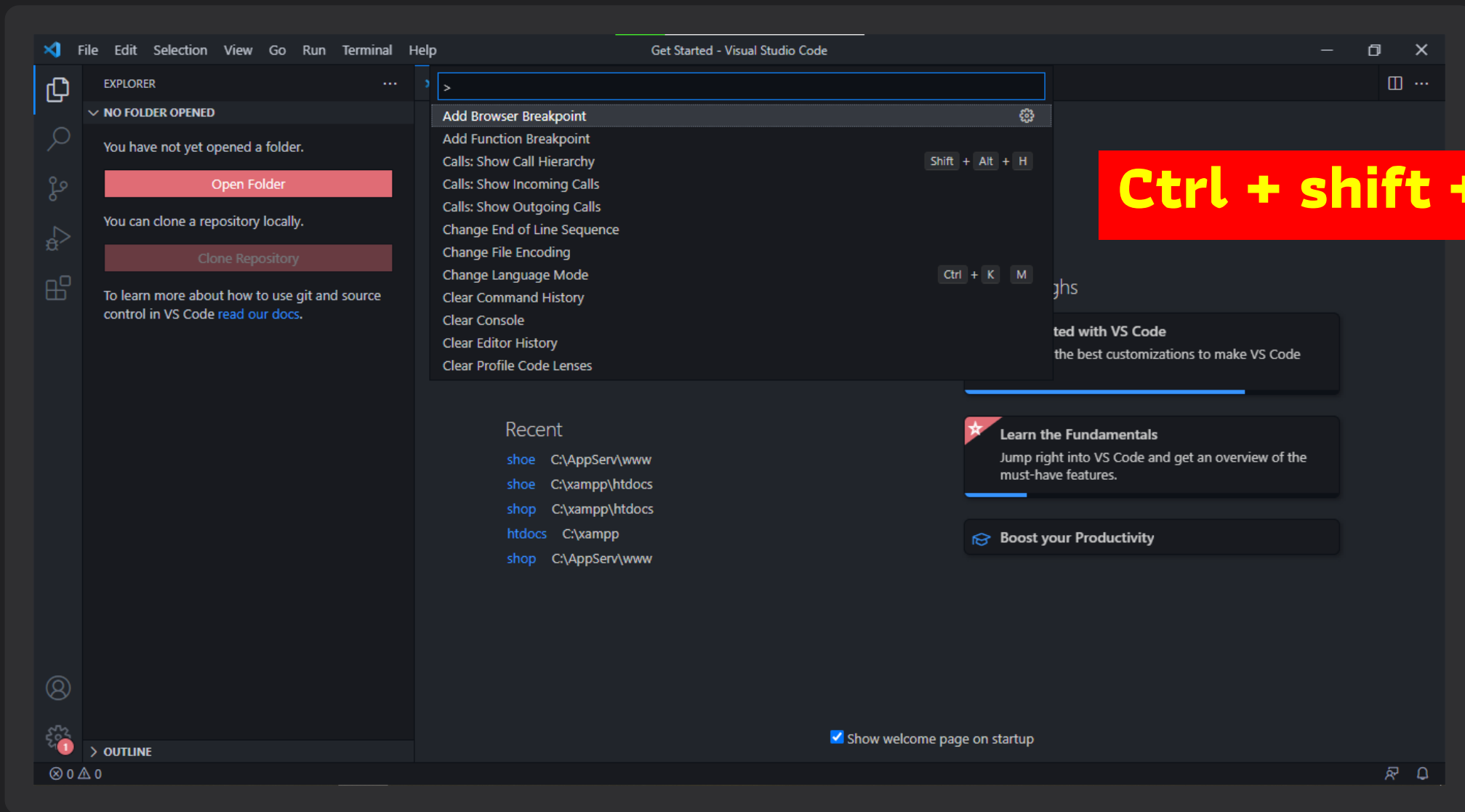








ลอง
สร้างโปรเจค



Ctrl + shift + P

File Edit Selection View Go Run Terminal Help

myflutter - Visual Studio Code

>

- Flutter: Launch Emulator recently used
- Flutter: New Project** ⚙️
- Change Language Mode Ctrl + K M
- Add Browser Breakpoint other commands
- Add Function Breakpoint
- Calls: Show Call Hierarchy Shift + Alt + H
- Calls: Show Incoming Calls
- Calls: Show Outgoing Calls
- Change End of Line Sequence
- Change File Encoding
- Clear Command History
- Clear Console

เลือก Flutter: New Project

PROBLEMS OUTPUT TERMINAL **DEBUG CONSOLE**

```
Launching lib\main.dart on Chrome in debug mode...  
This app is linked to the debug service: ws://127.0.0.1:62112/CAG0lZna0IM%3D/ws  
Debug service listening on ws://127.0.0.1:62112/CAG0lZna0IM=/ws  
Running with sound null safety  
Connecting to VM Service at ws://127.0.0.1:62112/CAG0lZna0IM=/ws
```

Filter (e.g. text, !exclude)

lib\main.dart:1

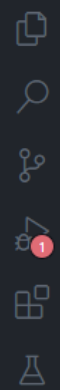
0 0 myflutter (myflutter) Debug my code

Dart DevTools Chrome (web-javascript)

- Which Flutter template?
- Application**
Generate a Flutter application.
 - Module
Generate a project to add a Flutter module to an existing Android or iOS application.
 - Package
Generate a shareable Flutter project containing modular Dart code.
 - Plugin
Generate a shareable Flutter project containing an API in Dart code with a platform-specific implem...
 - Skeleton
Generate a List View / Detail View Flutter application that follows

เลือก Application

```
Launching lib\main.dart on Chrome in debug mode...  
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Debug service listening on ws://127.0.0.1:62112/CAG0lZna0IM=/ws  
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```



Which Flutter template?

- Application**
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Generate a project to add a Flutter module to an existing Android or iOS application.
- Package
Generate a shareable Flutter project containing modular Dart code.
- Plugin
Generate a shareable Flutter project containing an API in Dart code with a platform-specific implem...
- Skeleton
Generate a List View / Detail View Flutter application that follows community best practices.

```
Launching lib\main.dart on Chrome in debug mode...  
This app is linked to the debug service: ws://127.0.0.1:62112/CAG0lZna0IM%3D/ws  
Debug service listening on ws://127.0.0.1:62112/CAG0lZna0IM=/ws  
Running with sound null safety  
Connecting to VM Service at ws://127.0.0.1:62112/CAG0lZna0IM=/ws
```

lib\main.dart:1

File Edit Selection View Go Run Terminal Help

myflutter - Visual Studio Code

Project Name

myfirstapp

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

**ตั้งชื่อ Project ห้ามมีเว้นวรรค
ให้ใช้ตัวอักษรพิมพ์เล็กทั้งหมด**

PROBLEMS OUTPUT TERMINAL DEBUG CONSOLE

Filter (e.g. text, !exclude)

lib\main.dart:1

```
Launching lib\main.dart on Chrome in debug mode...  
This app is linked to the debug service: ws://127.0.0.1:62112/CAG0lZna0IM%3D/ws  
Debug service listening on ws://127.0.0.1:62112/CAG0lZna0IM=/ws  
Running with sound null safety  
Connecting to VM Service at ws://127.0.0.1:62112/CAG0lZna0IM=/ws
```

0 0 myflutter (myflutter) Debug my code

Dart DevTools Chrome (web-javascript)

ดูผลลัพธ์ กดปุ่ม F5

```
1 import 'package:flutter/material.dart';
2
3 void main() {
4   runApp(const MyApp());
5 }
6
7 class MyApp extends StatelessWidget {
8   const MyApp({Key? key}) : super(key: key);
9
10  // This widget is the root of your application.
11  @override
12  Widget build(BuildContext context) {
13    return MaterialApp(
14      title: 'Flutter Demo',
15      theme: ThemeData(
16        // This is the theme of your application.
17        //
18        // Try running your application with "flutter run". You'll see the
19        // application has a blue toolbar. Then, without quitting the app, try
20        // changing the primarySwatch below to Colors.green and then invoke
21        // "hot reload" (press "r" in the console where you ran "flutter run",
22        // or simply save your changes to "hot reload" in your IDE).
23        // Notice that the counter didn't reset back to zero; the application
```

0 0 Analyzing... Ln 1, Col 1 Spaces: 2 UTF-8 CRLF Dart Dart DevTools Flutter: 2.5.3 Chrome (web-javascript) Prettier

Your Flutter project is ready! Connect a device and press F5 to start running.

You have pushed the button this many times:

2





Reference

- ◇ KongRuksiam Official. <https://www.youtube.com/c/KongRuksiamOfficial>
- ◇ เกรรินทร์ วกัญญเลิศสกุล. [2563]. พัฒนา Mobile App ด้วย Flutter & Dart. โปรวีชั่น, บจก.
- ◇ จีราวุธ วารินทร์. [2564]. ต่อยอดพัฒนาโมบายล์แอปด้วย Flutter + Firebase. ชิมพลีฟาย, สนพ.