

# Setting Up Java Development Environment

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# Steps

1. Install JRE (JAVA RUNTIME ENVIRONMENT):  
<https://www.java.com/en/download/>
2. Install JDK (JAVA SDK):  
<https://www.oracle.com/java/technologies/javase/javase-jdk8-downloads.html>
3. Set Environment Variables:  
JAVA\_HOME: jdk root  
CLASSPATH: jdk root/lib  
Path: jdk root/bin
4. Install Eclipse IDE:  
<http://www.eclipse.org/downloads/>
5. Install Git  
<https://git-scm.com/>

# Install JRE(Java Runtime Environment)

- <https://www.java.com/en/download/>
- After download, keep clicking "Next" to install.

 Download Developer Resources Help

### Help Resources

- [What is Java?](#)
- [Remove older versions](#)
- [Disable Java](#)
- [Error messages](#)
- [Troubleshoot Java](#)
- [Other help](#)

## 64-bit Java for Windows

**Version 8 Update 341 (filesize: 83.46 MB) [Why is Java 8 recommended?](#)**  
Release date: July 19, 2022


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**The Oracle Java License changed for releases starting April 16, 2019.**  
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### Help Resources

- [Mac FAQ](#)

## Download Java for macOS

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# Install JDK(Java Development Kit)


- <https://www.oracle.com/java/technologies/javase/javase-jdk8-downloads.html>
- Need to login oracle to download. After download, keep clicking "Next" to install.

<u>Linux</u>	macOS	Solaris	Windows
Product/file description		File size	Download
x86 Installer		159.66 MB	 <a href="#">jdk-8u341-windows-i586.exe</a>
x64 Installer		173.16 MB	 <a href="#">jdk-8u341-windows-x64.exe</a>

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Required

You will be redirected to the login screen in order to download the file.

Download [jdk-8u341-windows-x64.exe](#) 

# Install JDK(Java Development Kit)

Linux   macOS   Solaris   Windows

Product/file description	File size	Download
x64 DMG Installer	200.53 MB	 <a href="#">jdk-8u341-macosx-x64.dmg</a>

You must accept the [Oracle Technology Network License Agreement for Oracle Java SE](#) to download this software. ✕

☒ I reviewed and accept the Oracle Technology Network License Agreement for Oracle Java SE  
Required

*You will be redirected to the login screen in order to download the file.*

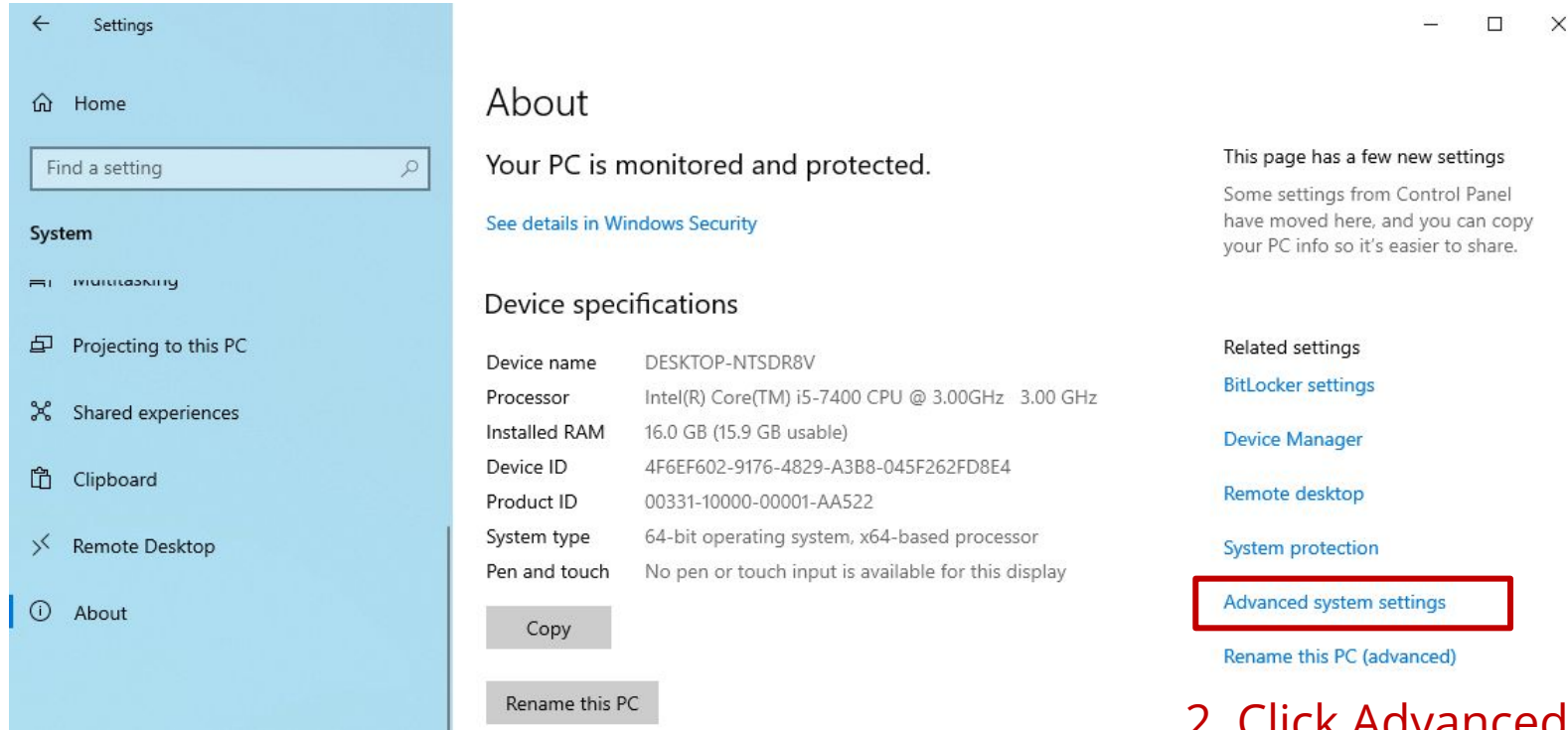
Download [jdk-8u341-macosx-x64.dmg](#) 

# Set Environment Variables

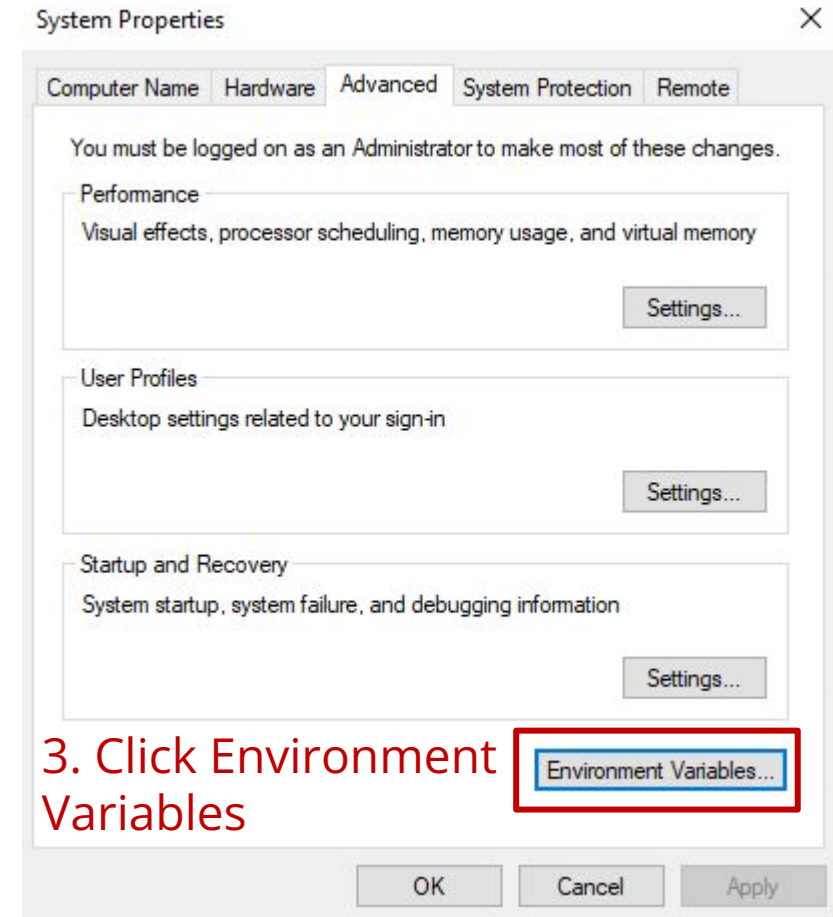
- Notice: You don't need to set environment variables on MAC OS.
- Environment Variables are the common variables in OS. Therefore, to let the OS know where we install JDK and JRE, we will set the following three environment variables:
  1. JAVA\_HOME:  
Location of the installation directory of JAVA
  2. CLASSPATH:  
Location of the library of JAVA developer tool
  3. PATH:  
Add JAVA-related commands to the system default search location

# Set Environment Variables

## 1. Settings -> System -> About

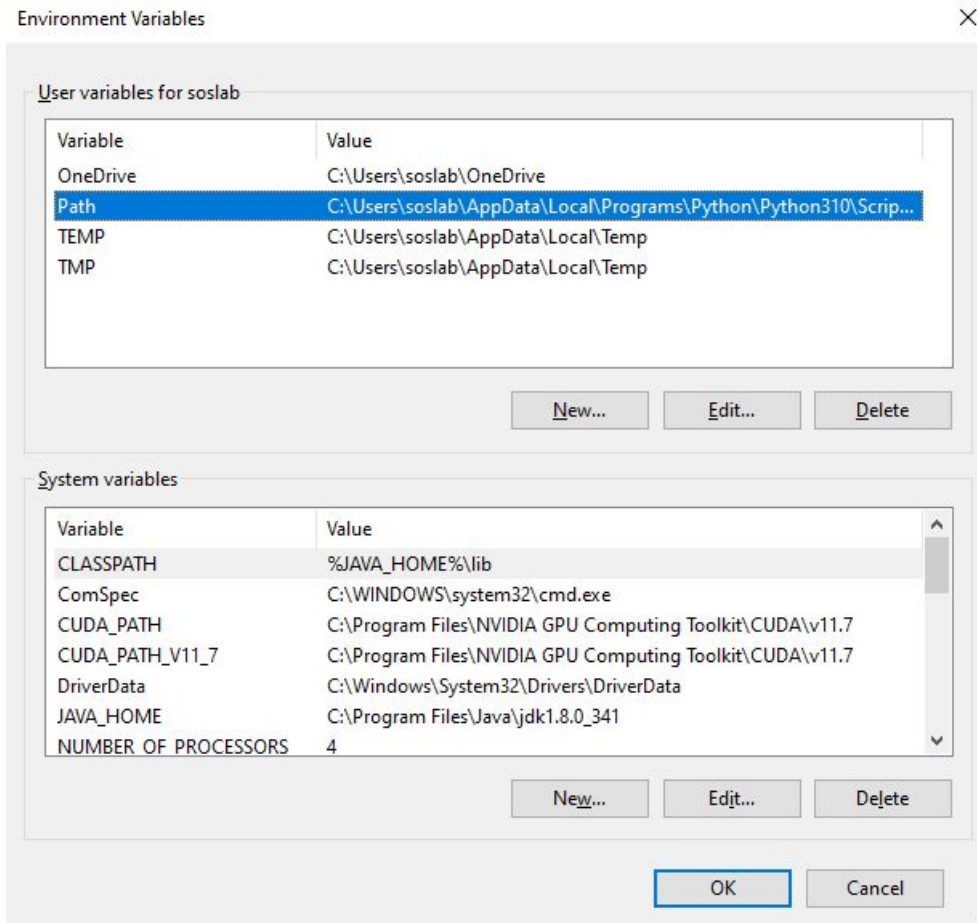


## 2. Click Advanced system settings



## 3. Click Environment Variables

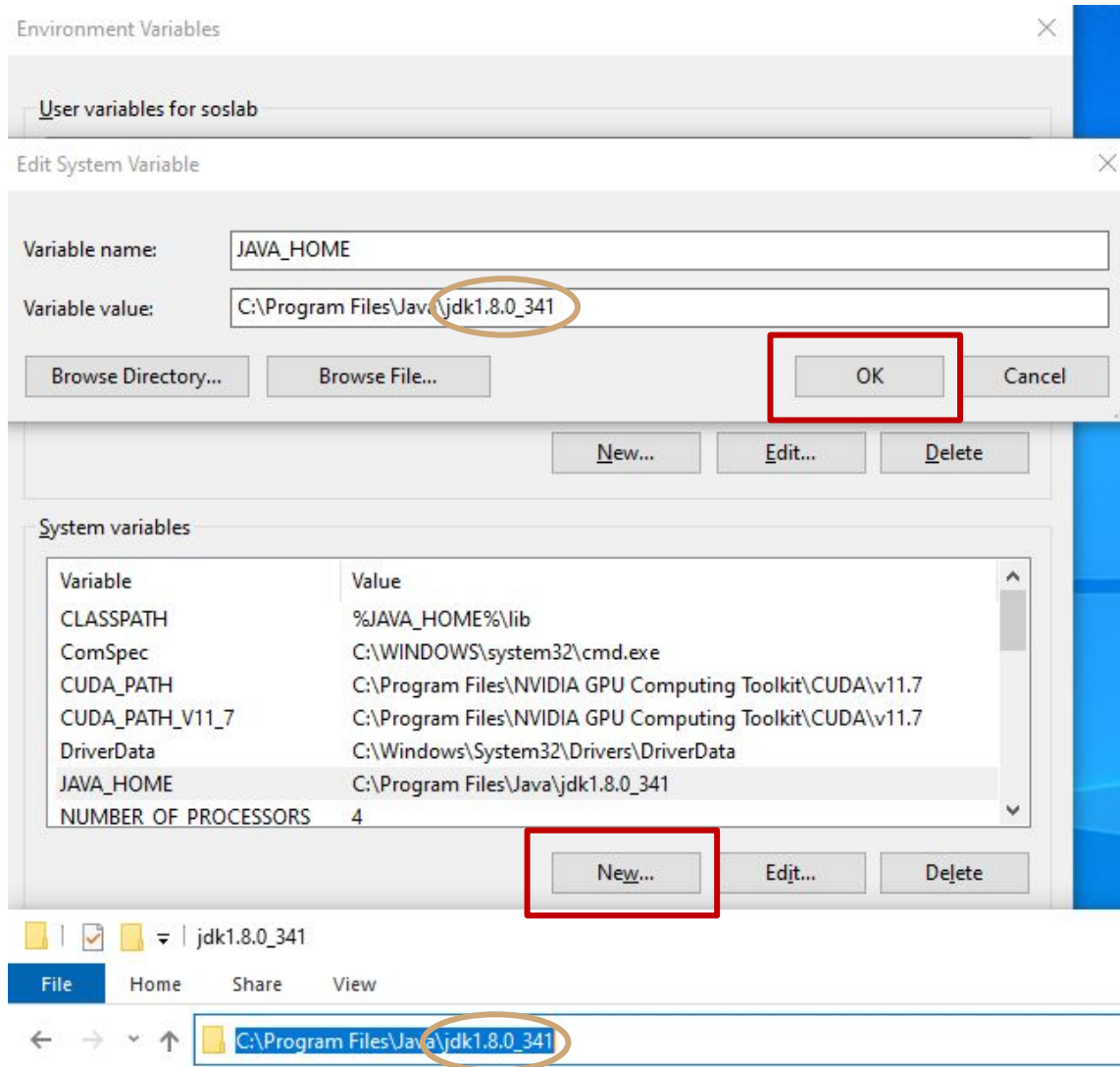
# Set Environment Variables



- If we set environment variables in the upper section (User variables for XXX), it means our setting only works when XXX login Windows.
- If we set environment variables on bottom section (System variables), it works when any user login.
- Recommend that you use the bottom (System variables) to set environment variables.



# Set Environment Variables JAVA\_HOME



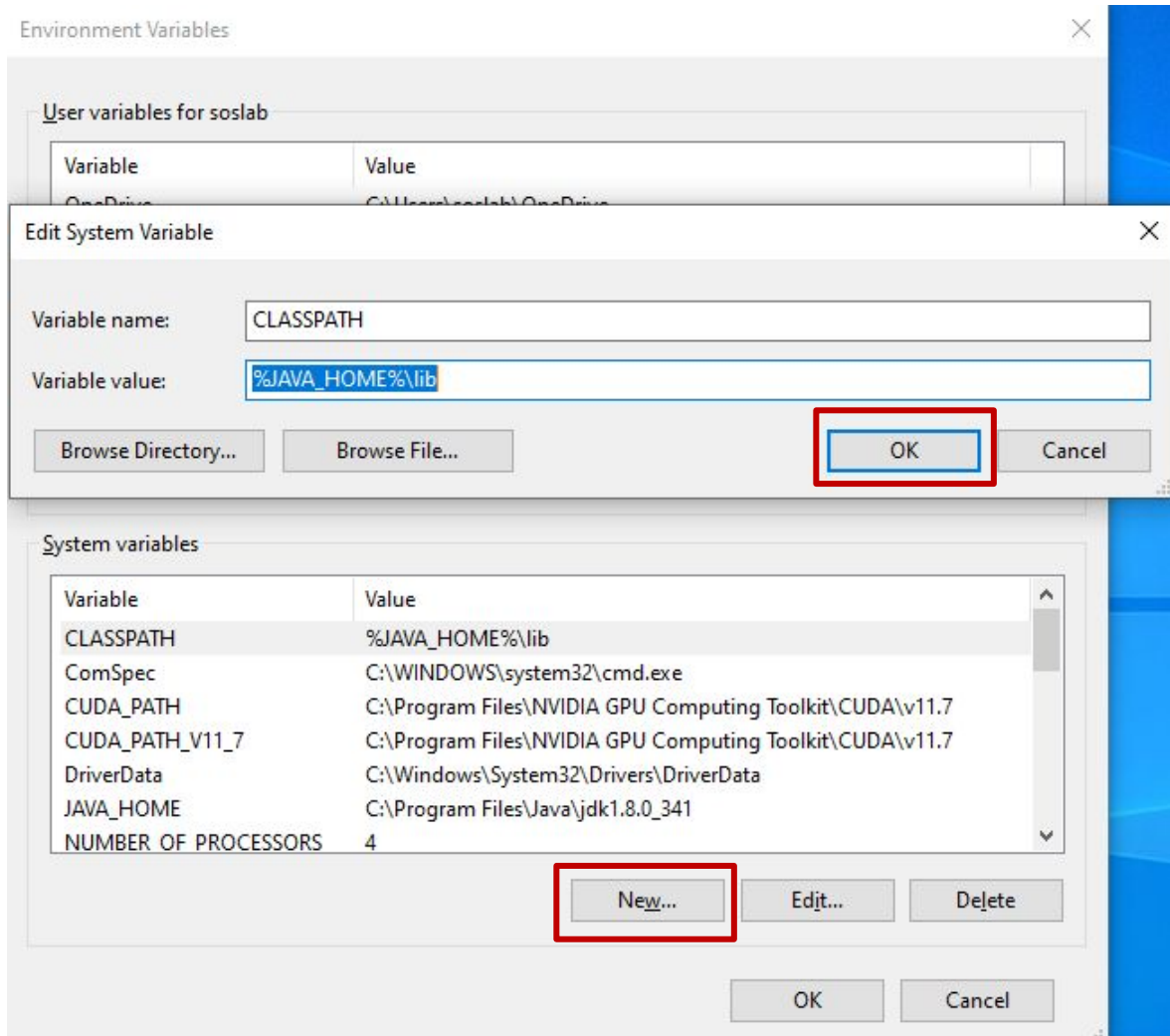
1. Click "New"
  - Variable name: JAVA\_HOME
  - Variable value: installation directory of JDK

X64 windows usually is:  
C:\ProgramFiles\Java\jdkXXXXXXXX

X86 windows usually is:  
C:\Program Files(x86)\Java\jdkXXXXXXXX

  - The red part depends on the version; please check whether the directory exists and set the environment variables.
2. Click "OK" to save.

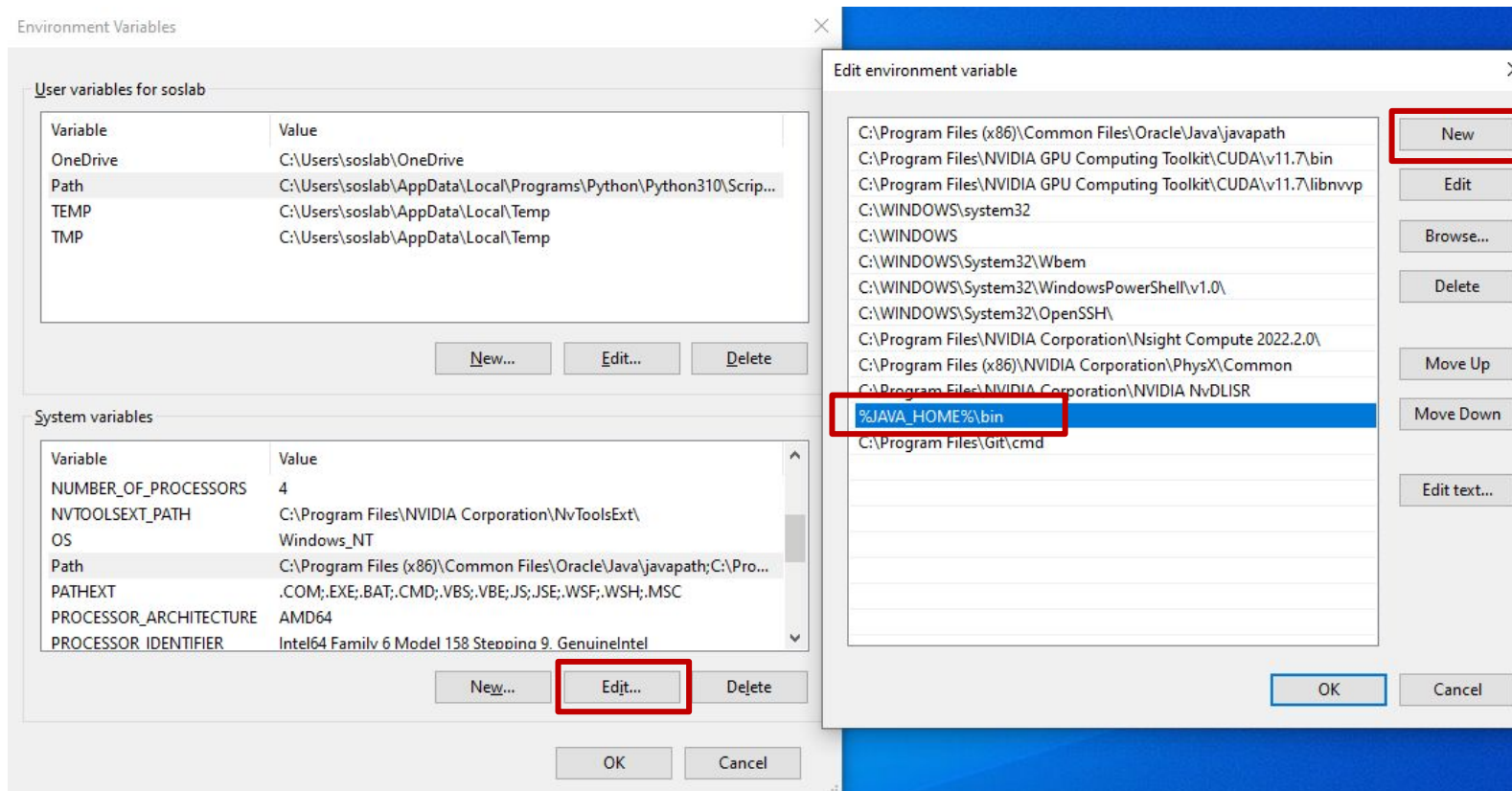
# Set Environment Variables CLASSPATH



1. Click "New"
  - Variable name: CLASSPATH
  - Variable value: **%JAVA\_HOME%\lib**  
installation directory of JDK
  - **%JAVA\_HOME%** is the path of JAVA\_HOME
  - If you alter the Java JDK version in the future, only need to change the environment variables of JAVA\_HOME, and don't need to change others.
2. Click "OK" to save.

# Set Environment Variables PATH


- PATH variable usually has other values, so instead of adding this, we need to find the “PATH” variable in the list and **click “Edit”**.
- PATH contains lots of paths; **click “New”** and then input **%JAVA\_HOME%\bin**
- **%JAVA\_HOME%** is the path of JAVA\_HOME



# Install Eclipse IDE

- <https://www.eclipse.org/downloads/>

The Eclipse Installer 2022-06 R now includes a JRE for macOS, Windows and Linux.




## Get Eclipse IDE 2022-06

Install your favorite desktop IDE packages.

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All downloads are provided under the terms and conditions of the [Eclipse Foundation Software User Agreement](#) unless otherwise specified.


[Download](#)

Download from: Korea, Republic Of - Kakao Corp. (https)

File: [eclipse-inst-jre-win64.exe](#) SHA-512

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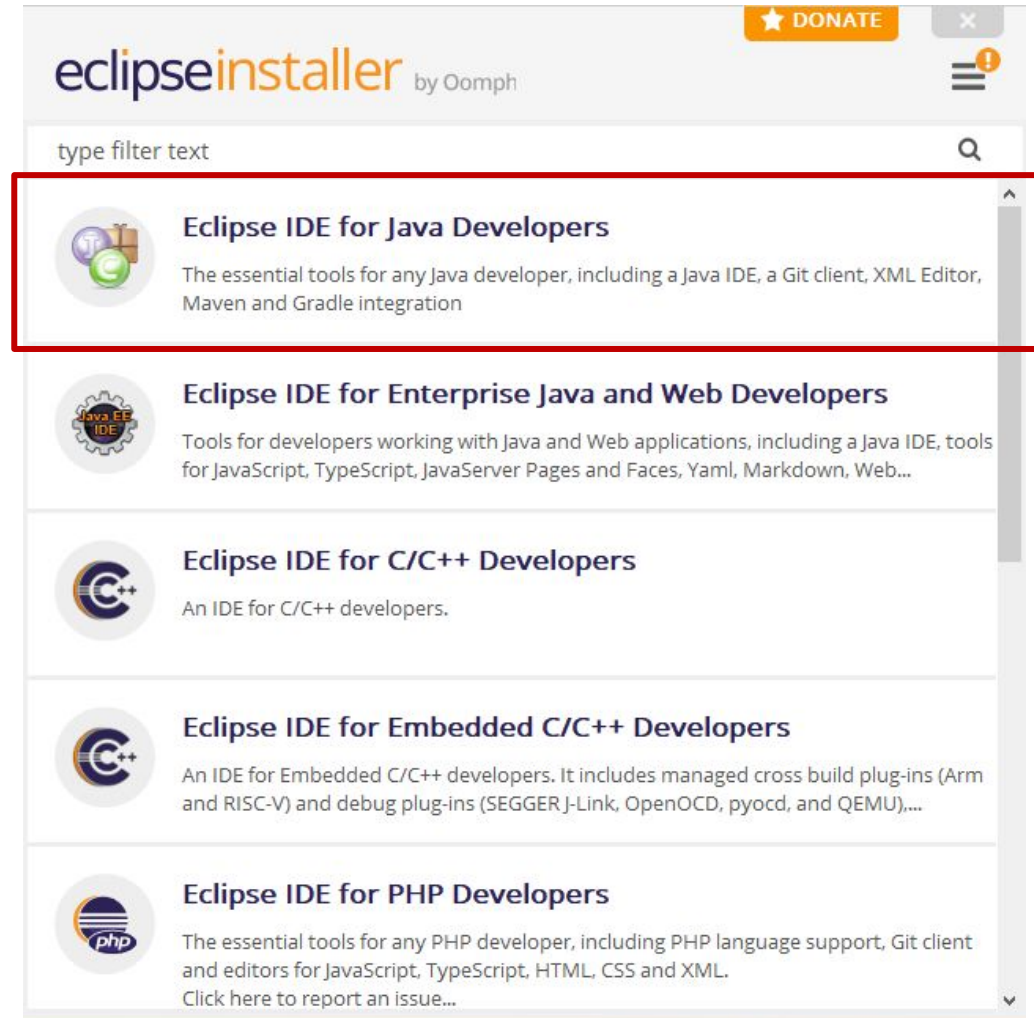
Sponsored Ad



An Open-Source Strategy

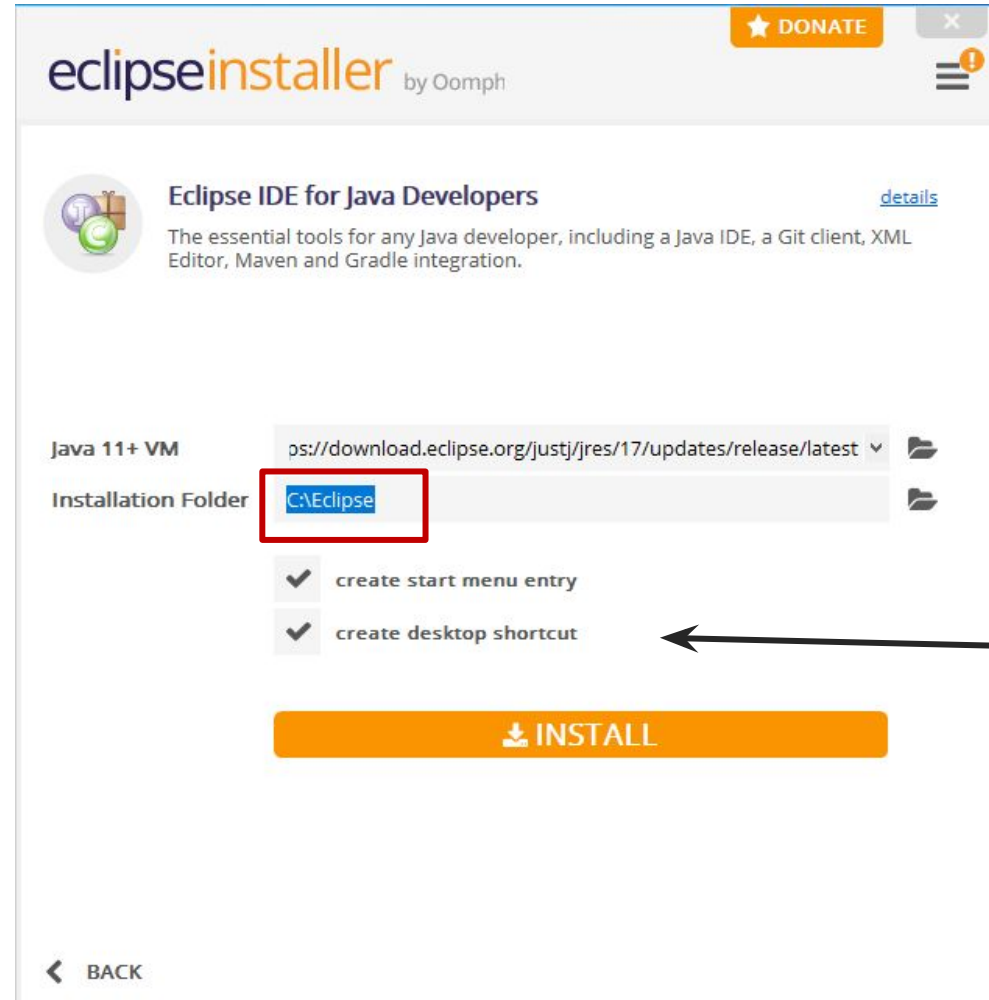
# Install Eclipse IDE

- You can download the basic Java SE (first one) for usual, and use Java EE(Enterprise) for the final.
- Eclipse is the tool for coding in the future, so please put the unzipped folder in a suitable place (ex C:\), don't put it in the folder like "Download" to avoid losing it in the future.



# Install Eclipse IDE

- Recommend adding a new folder (ex: Eclipse) in driver C, and select the folder you just created here.

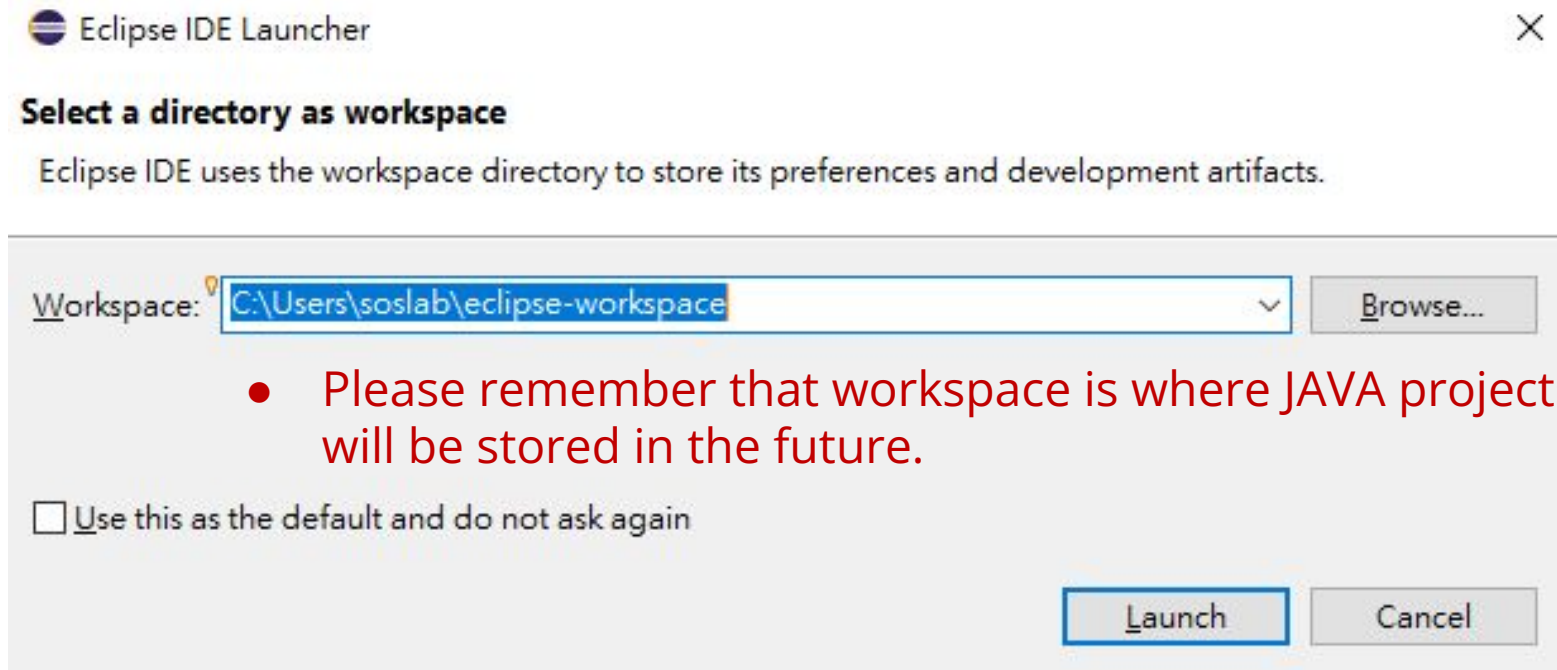


The screenshot shows the Eclipse Installer by Oomph window. At the top, there is a 'DONATE' button and a close button. Below the header, the title 'Eclipse IDE for Java Developers' is displayed with a 'details' link. A description states: 'The essential tools for any Java developer, including a Java IDE, a Git client, XML Editor, Maven and Gradle integration.' The 'Java 11+ VM' section shows a dropdown menu with the URL 'ps://download.eclipse.org/justj/jres/17/updates/release/latest'. The 'Installation Folder' section has a text input field containing 'C:\Eclipse', which is highlighted with a red rectangle. Below this, there are two checked options: 'create start menu entry' and 'create desktop shortcut'. An arrow points from the 'create desktop shortcut' option to a bullet point on the right. At the bottom, there is a large orange 'INSTALL' button and a 'BACK' button.

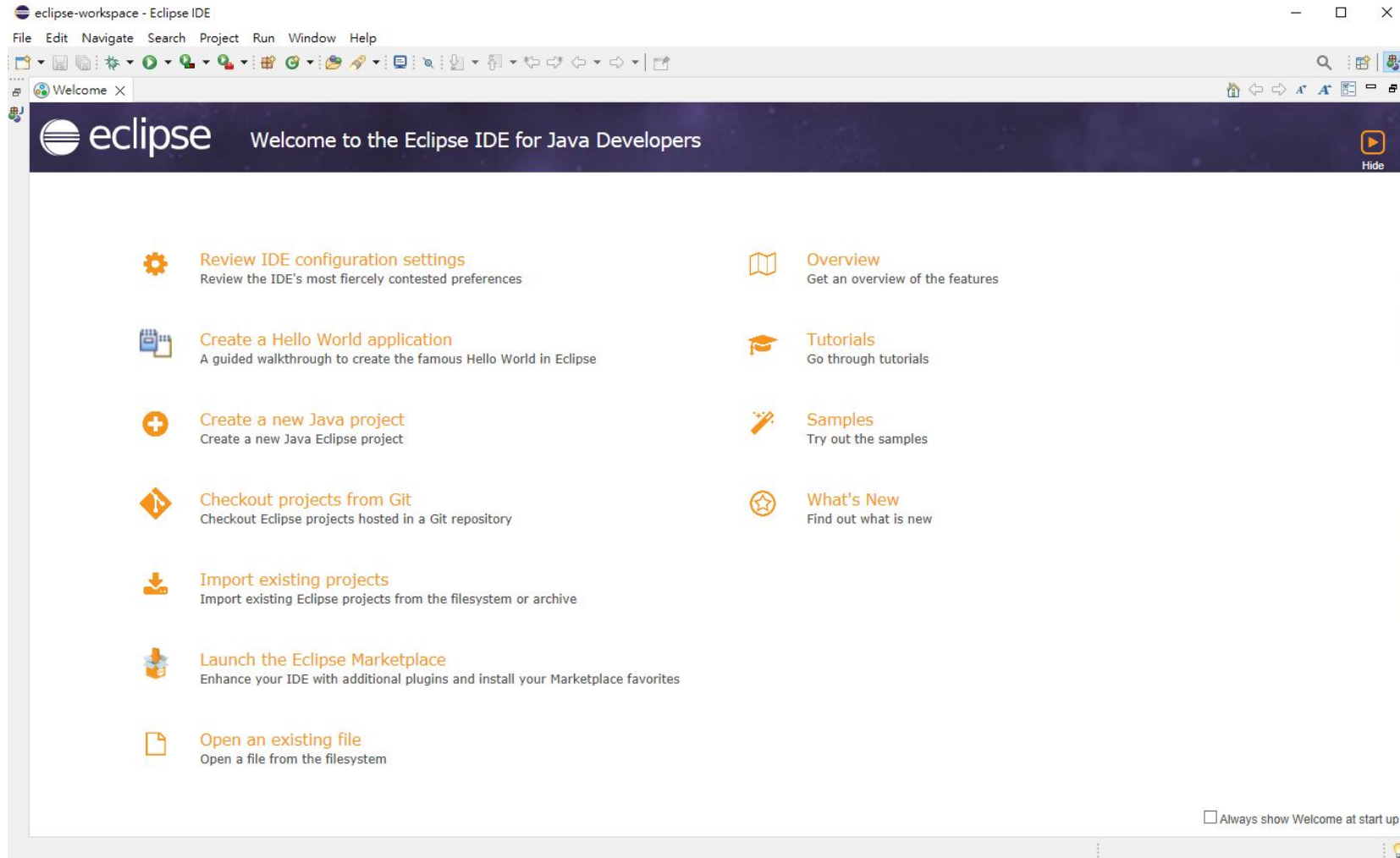
- Recommend everyone put a shortcut of Eclipse on the desktop, it will be easier to find in the future!



# Open Eclipse IDE



# Finish!



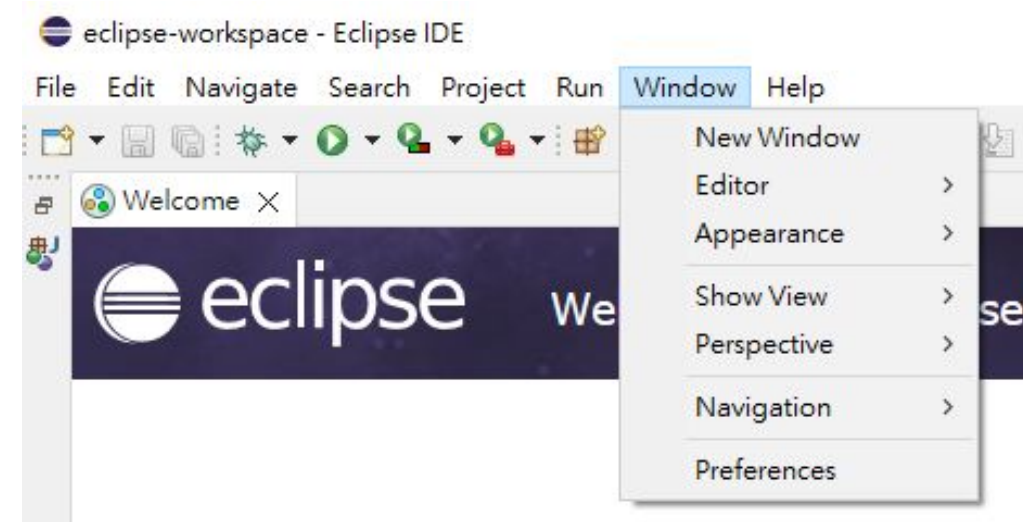


- Students who have used commercial development environments, such as Visual Studio, will feel difficult to adapt when they are new to Eclipse. However, Eclipse is a high-end free development environment; the function of Visual Studio can also be used on Eclipse with a little setting.
- Following will teach everyone set the code auto completion function via “Preference...”

# How to open Preferences...

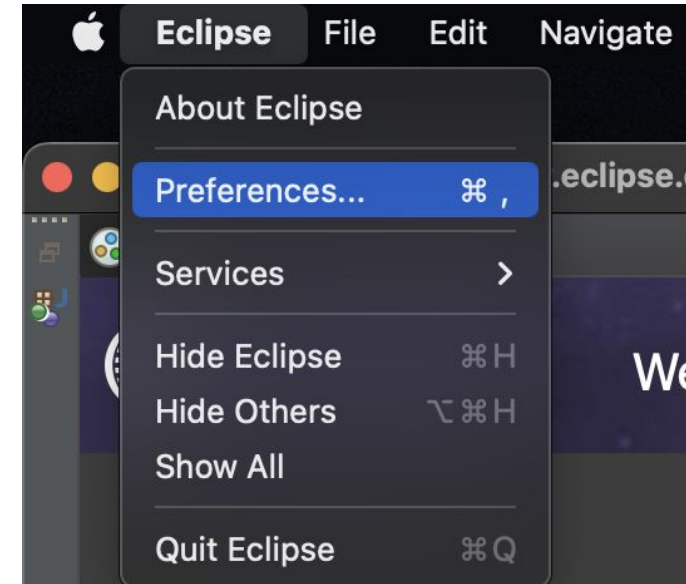
- Windows

The top menu of Eclipse “Window” → “Preferences...”

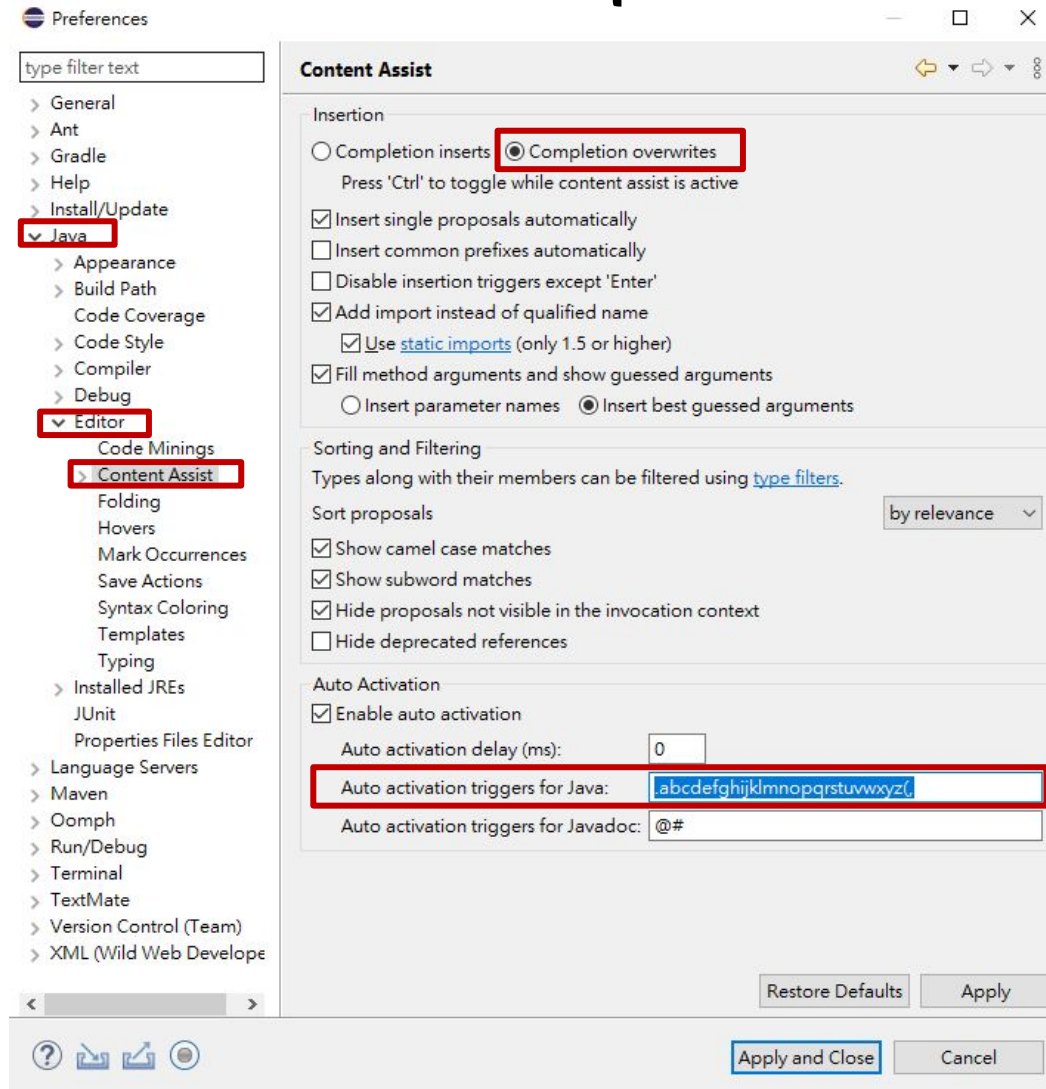


- MAC

The top menu of Eclipse “Eclipse” → “Preferences...”



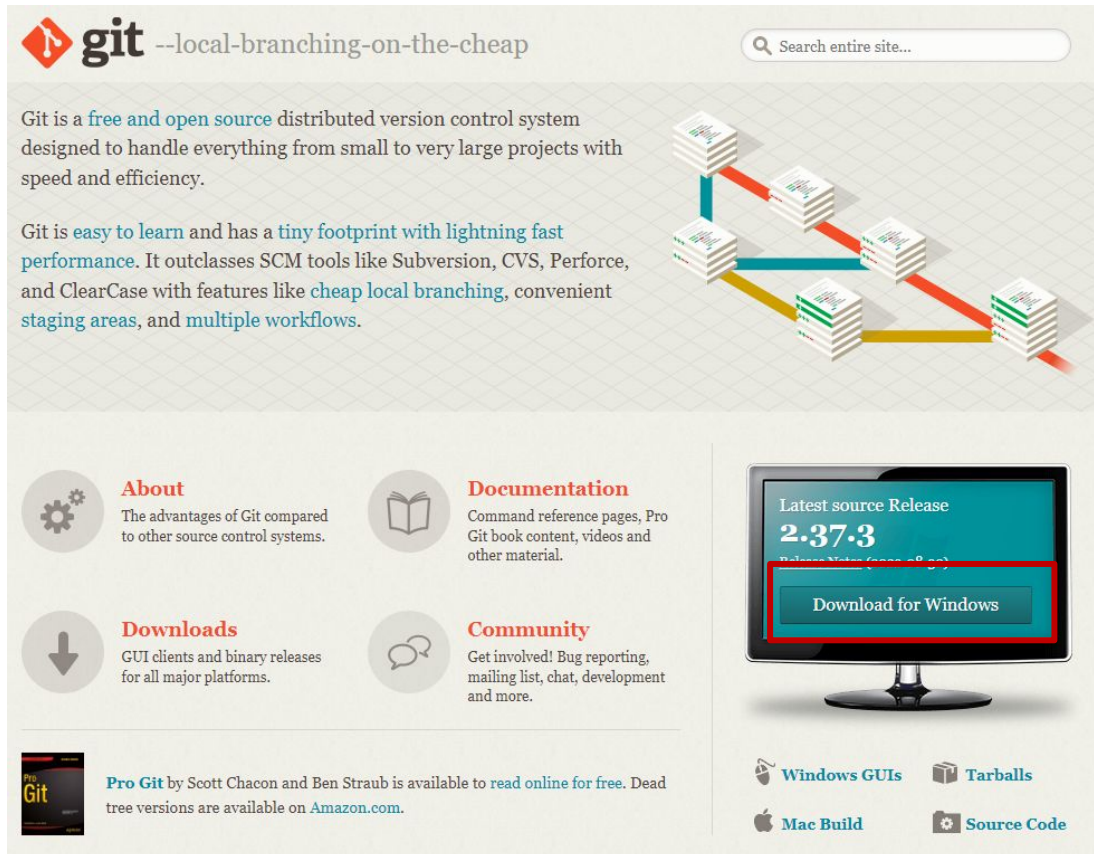
# Code auto completion



1. Open "Preferences..."
2. Preferences select "Java" → "Editor" → "Content Assist" on the left side.
3. Choose "Completion overwrites" on the right side.
4. Change "Auto activation triggers for java" value to **.abcdefghijklmnopqrstuvwxyz,**

# Install git

- <https://git-scm.com/>



The image shows the Git website homepage. At the top, there's a navigation bar with the Git logo and the tagline "--local-branching-on-the-cheap". Below this, a search bar is visible. The main content area features a large illustration of a branching model with multiple stacks of code blocks connected by lines. To the left of this illustration, there's a paragraph describing Git as a free and open source distributed version control system. Below this, another paragraph highlights Git's ease of learning and performance. On the right side of the main content area, there's a section titled "Download for Windows" with a red box around the "Download for Windows" button. At the bottom of the page, there are four circular icons representing different sections: "About", "Documentation", "Downloads", and "Community". Each icon has a corresponding title and a brief description. The "About" icon shows a gear, "Documentation" shows an open book, "Downloads" shows a download arrow, and "Community" shows a speech bubble. At the very bottom, there's a section for "Pro Git" by Scott Chacon and Ben Straub, available for free online or on Amazon.

**git** --local-branching-on-the-cheap

Git is a [free and open source](#) distributed version control system designed to handle everything from small to very large projects with speed and efficiency.

Git is [easy to learn](#) and has a [tiny footprint with lightning fast performance](#). It outclasses SCM tools like Subversion, CVS, Perforce, and ClearCase with features like [cheap local branching](#), convenient [staging areas](#), and [multiple workflows](#).

**About**  
The advantages of Git compared to other source control systems.

**Documentation**  
Command reference pages, Pro Git book content, videos and other material.

**Downloads**  
GUI clients and binary releases for all major platforms.

**Community**  
Get involved! Bug reporting, mailing list, chat, development and more.

**Latest source Release**  
**2.37.3**  
Windows (64-bit) (2022-08-30)  
**Download for Windows**

**Pro Git** by Scott Chacon and Ben Straub is available to [read online for free](#). Dead tree versions are available on [Amazon.com](#).

**Windows GUIs** **Tarballs**  
**Mac Build** **Source Code**

## Download for Windows

[Click here to download](#) the latest (**2.37.3**) **64-bit** version of **Git for Windows**. This is the most recent [maintained build](#). It was released **5 days ago**, on 2022-08-30.

### Other Git for Windows downloads

#### Standalone Installer

[32-bit Git for Windows Setup.](#)

[64-bit Git for Windows Setup.](#)

#### Portable ("thumbdrive edition")

[32-bit Git for Windows Portable.](#)

[64-bit Git for Windows Portable.](#)

#### Using winget tool

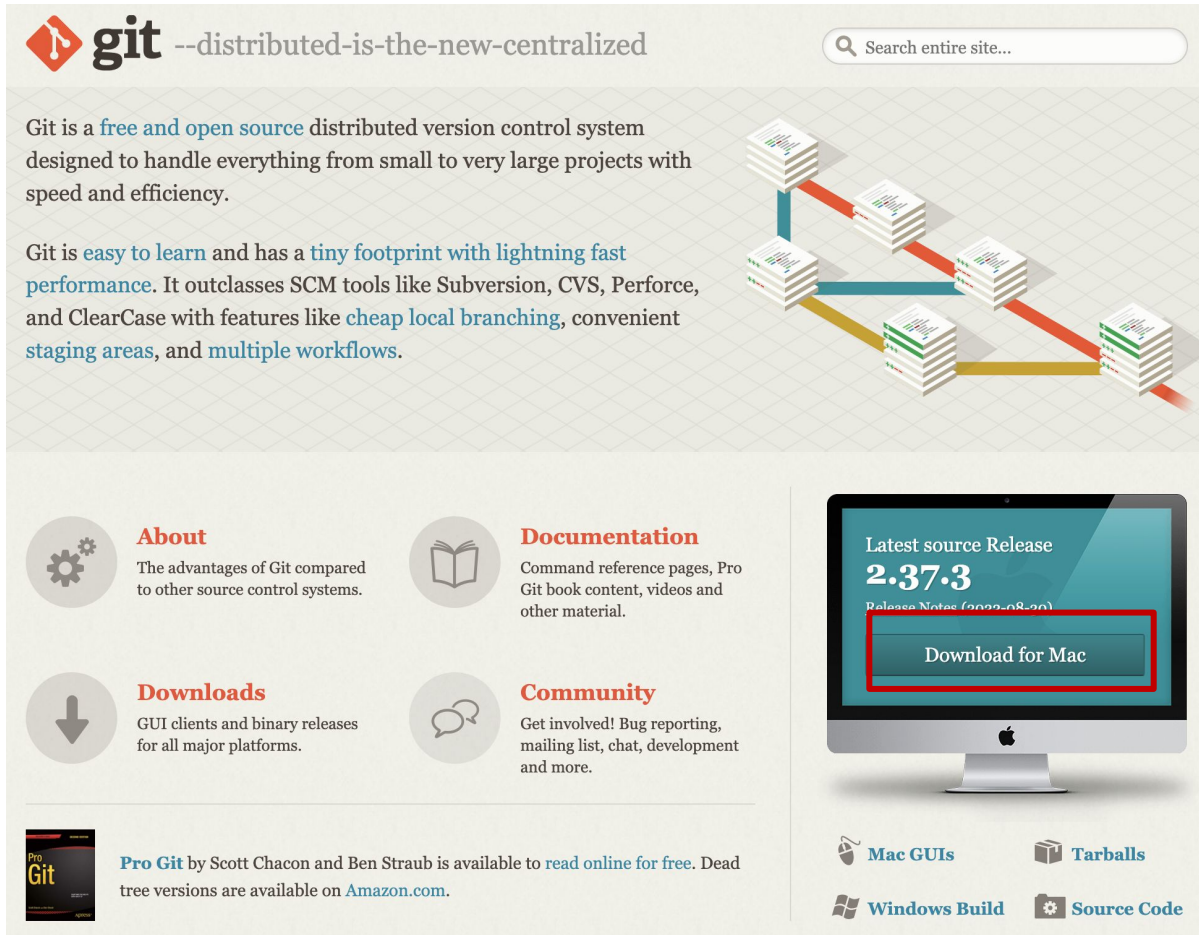
Install [winget tool](#) if you don't already have it, then type this command in command prompt or Powershell.

```
winget install --id Git.Git -e --source winget
```

The current source code release is version **2.37.3**. If you want the newer version, you can build it from [the source code](#).



# Install git



The image shows the Git website header and navigation menu. The header features the Git logo, the tagline "--distributed-is-the-new-centralized", and a search bar. Below the header, there is a paragraph describing Git as a free and open source distributed version control system. To the right of the text is a diagram showing a network of stacks of books connected by lines, representing a distributed version control system. Below the text, there are four navigation links: About, Documentation, Downloads, and Community, each with an icon and a brief description. At the bottom left, there is a link to the Pro Git book. At the bottom right, there is a link to the latest source release and a button to download for Mac.

**git** --distributed-is-the-new-centralized

Search entire site...

Git is a [free and open source](#) distributed version control system designed to handle everything from small to very large projects with speed and efficiency.

Git is [easy to learn](#) and has a [tiny footprint with lightning fast performance](#). It outclasses SCM tools like Subversion, CVS, Perforce, and ClearCase with features like [cheap local branching](#), convenient [staging areas](#), and [multiple workflows](#).

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Latest source Release  
**2.37.3**  
Release Notes (2022-08-30)

Download for Mac

Mac GUIs  
Windows Build  
Tarballs  
Source Code

## Download for macOS

There are several options for installing Git on macOS. Note that any non-source distributions are provided by third parties, and may not be up to date with the latest source release.

### Homebrew

Install [homebrew](#) if you don't already have it, then:

```
$ brew install git
```

### MacPorts

Install [MacPorts](#) if you don't already have it, then:

```
$ sudo port install git
```

### Xcode

Apple ships a binary package of Git with [Xcode](#).

### Binary installer

Tim Harper provides an [installer](#) for Git. The latest version is [2.33.0](#), which was released about 1 year ago, on 2021-08-30.

### Building from Source

If you prefer to build from source, you can find tarballs [on kernel.org](#). The latest version is [2.37.3](#).

### Installing git-gui

If you would like to install [git-gui](#) and [gitk](#), git's commit GUI and interactive history browser, you can do so using [homebrew](#)

```
$ brew install git-gui
```

# Check git installation

- Check whether the git installation is successful.
- Type `git --version` in Terminal and enter.

```
Command Prompt
Microsoft Windows [Version 10.0.19044.1889]
(c) Microsoft Corporation. All rights reserved.

C:\Users\soslab>git --version
git version 2.37.3.windows.1
```

```
(base) [redacted]@MacBook ~ % git --version
git version 2.33.0
```

- It will show the version you installed, that means your installation is successful.

Done!