

CHUẨN BỊ MÔI TRƯỜNG

1. Môi trường lập trình java

• JDK

JDK – download và cài đặt

- Link download jdk <https://www.oracle.com/java/technologies/downloads/>
- Run file download, nếu file zip thì giải nén

JDK 21JDK 17GraalVM for JDK 21GraalVM for JDK 17

JDK Development Kit 21.0.1 downloads

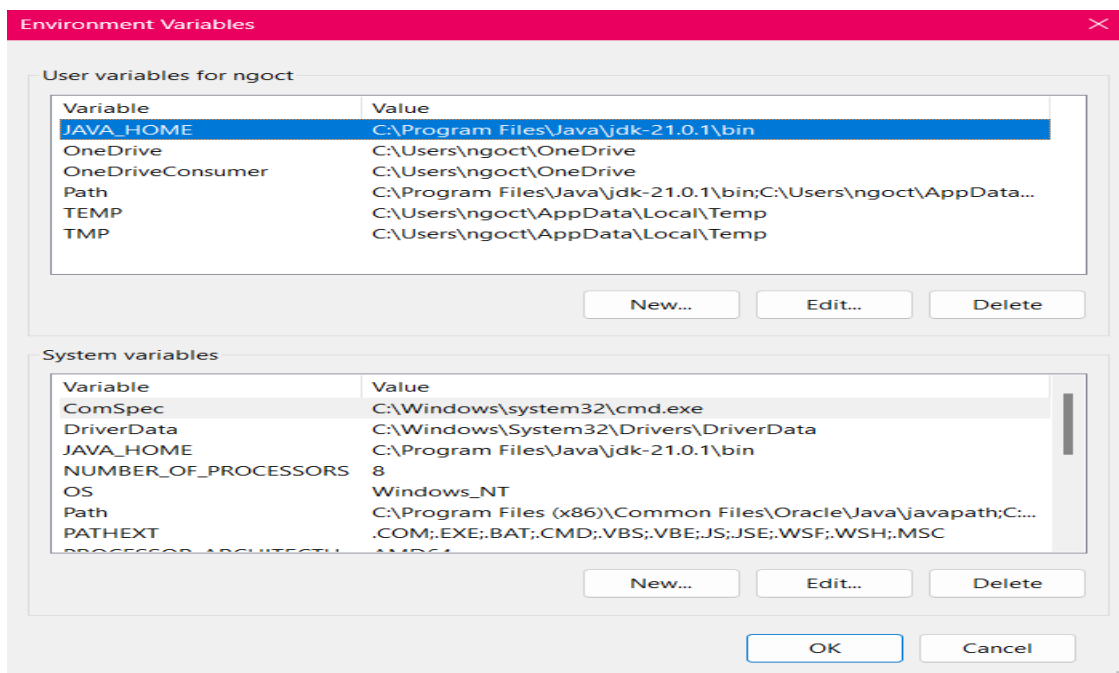
JDK 21 binaries are free to use in production and free to redistribute, at no cost, under the [Oracle No-Fee Terms and Conditions](#) (NFTC).

JDK 21 will receive updates under the NFTC, until September 2026, a year after the release of the next LTS. Subsequent JDK 21 updates will be licensed under the [Java SE OTN License](#) (OTN) and production use beyond the [limited free grants](#) of the OTN license will [require a fee](#).

LinuxmacOSWindows

| Product/file description | File size | Download |
|--------------------------|-----------|--|
| x64 Compressed Archive | 185.39 MB | https://download.oracle.com/java/21/latest/jdk-21_windows-x64_bin.zip (sha256) |
| x64 Installer | 163.82 MB | https://download.oracle.com/java/21/latest/jdk-21_windows-x64_bin.exe (sha256) |
| x64 MSI Installer | 162.60 MB | https://download.oracle.com/java/21/latest/jdk-21_windows-x64_bin.msi (sha256) |

Setup Environment và System Variable - Chuột phải My Computer => Properties
=> Advanced system settings => Advanced tab => Environment Variables



Kiểm tra version

```
Command Prompt
Microsoft Windows [Version 10.0.22621.2715]
(c) Microsoft Corporation. All rights reserved.

C:\Users\ngoct>javac -version
javac 21.0.1

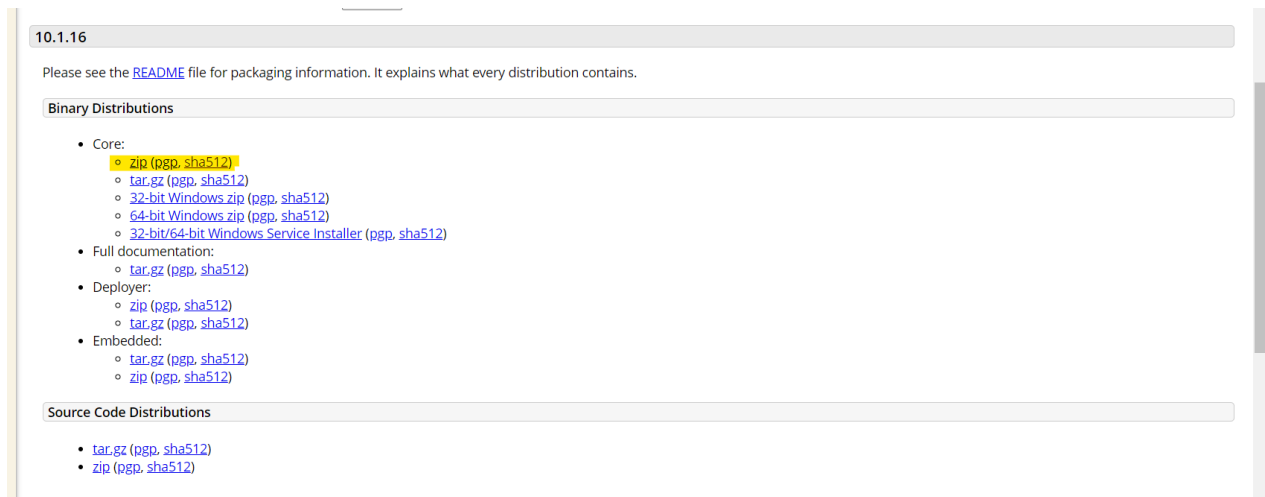
C:\Users\ngoct>java -version
java version "1.8.0_391"
Java(TM) SE Runtime Environment (build 1.8.0_391-b13)
Java HotSpot(TM) 64-Bit Server VM (build 25.391-b13, mixed mode)

C:\Users\ngoct>
```

• Tomcat

Tomcat – download và cài đặt

Link download <http://tomcat.apache.org/>, download file zip



- Extract file zip vừa download - Cấu hình JAVA_HOME cho Tomcat: => bin/startup.bat => edit with notepa

| Name | Date modified | Type | Size |
|----------------------|---------------------|---------------------|--------|
| Last week | | | |
| startup.bat | 16/11/2023 12:29 SA | Windows Batch File | 3 KB |
| version.sh | 15/11/2023 11:44 CH | SH Source File | 2 KB |
| migrate.bat | 15/11/2023 11:44 CH | Windows Batch File | 3 KB |
| migrate.sh | 15/11/2023 11:44 CH | SH Source File | 2 KB |
| setclasspath.bat | 15/11/2023 11:44 CH | Windows Batch File | 4 KB |
| setclasspath.sh | 15/11/2023 11:44 CH | SH Source File | 4 KB |
| shutdown.bat | 15/11/2023 11:44 CH | Windows Batch File | 2 KB |
| shutdown.sh | 15/11/2023 11:44 CH | SH Source File | 2 KB |
| startup.sh | 15/11/2023 11:44 CH | SH Source File | 2 KB |
| tomcat-jul.jar | 15/11/2023 11:44 CH | Executable Jar File | 48 KB |
| tomcat-native.tar.gz | 15/11/2023 11:44 CH | Compressed Archi... | 527 KB |
| tool-wrapper.bat | 15/11/2023 11:44 CH | Windows Batch File | 4 KB |
| tool-wrapper.sh | 15/11/2023 11:44 CH | SH Source File | 5 KB |
| version.bat | 15/11/2023 11:44 CH | Windows Batch File | 2 KB |
| catalina.bat | 15/11/2023 11:44 CH | Windows Batch File | 15 KB |
| catalina.sh | 15/11/2023 11:44 CH | SH Source File | 23 KB |
| ciphers.bat | 15/11/2023 11:44 CH | Windows Batch File | 3 KB |
| ciphers.sh | 15/11/2023 11:44 CH | SH Source File | 2 KB |

```

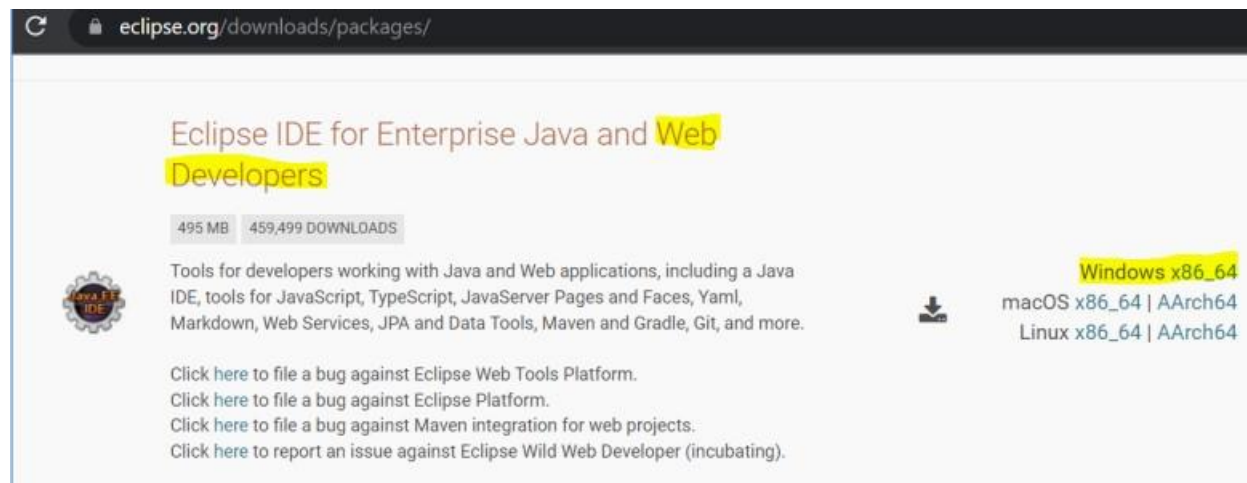
C:\Users\ngoct\Downloads\apache-tomcat-10.1.16\apache-tomcat-10.1.16\bin\startup.bat - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
change.log x startup.bat x startup.bat x eclipse.ini x new 1 x
13 rem WITHOUT WARRANTIES OR CONDITIONS OF ANY KIND, either express or impl
14 rem See the License for the specific language governing permissions and
15 rem limitations under the License.
16
17 rem -----
18 rem Start script for the CATALINA Server
19 rem -----
20
21 setlocal
22 set "C:\Program Files\Java\jdk-21.0.1"
23 rem Guess CATALINA_HOME if not defined
24 set "CURRENT_DIR=%cd%"
25 if not "%CATALINA_HOME%" == "" goto gotHome
26 set "CATALINA_HOME=%CURRENT_DIR%"
27 if exist "%CATALINA_HOME%\bin\catalina.bat" goto okHome
28 cd ..
29 set "CATALINA_HOME=%cd%"
30 cd "%CURRENT_DIR%"
31 :gotHome

```

Batch file length : 2,060 lines : 59 Ln : 22 Col : 1 Sel : 38 | 1 Windows (CR LF) UTF-8 INS

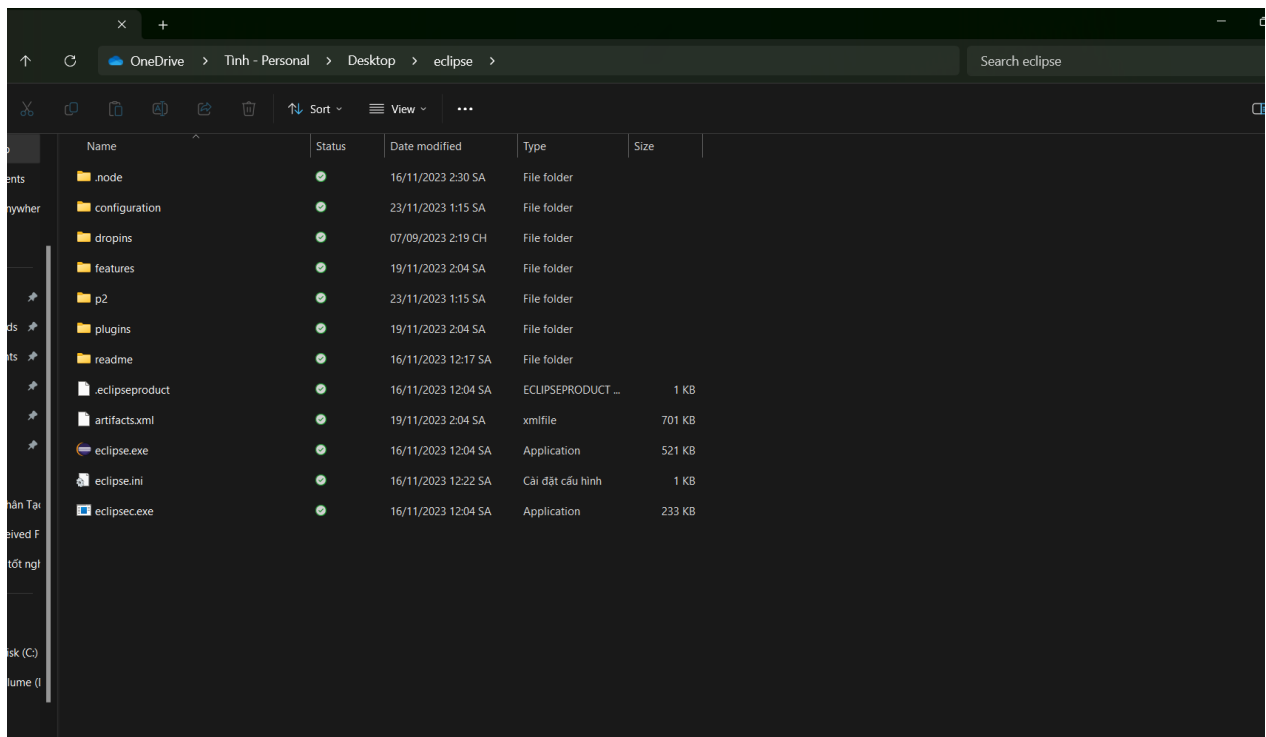
• Elipse

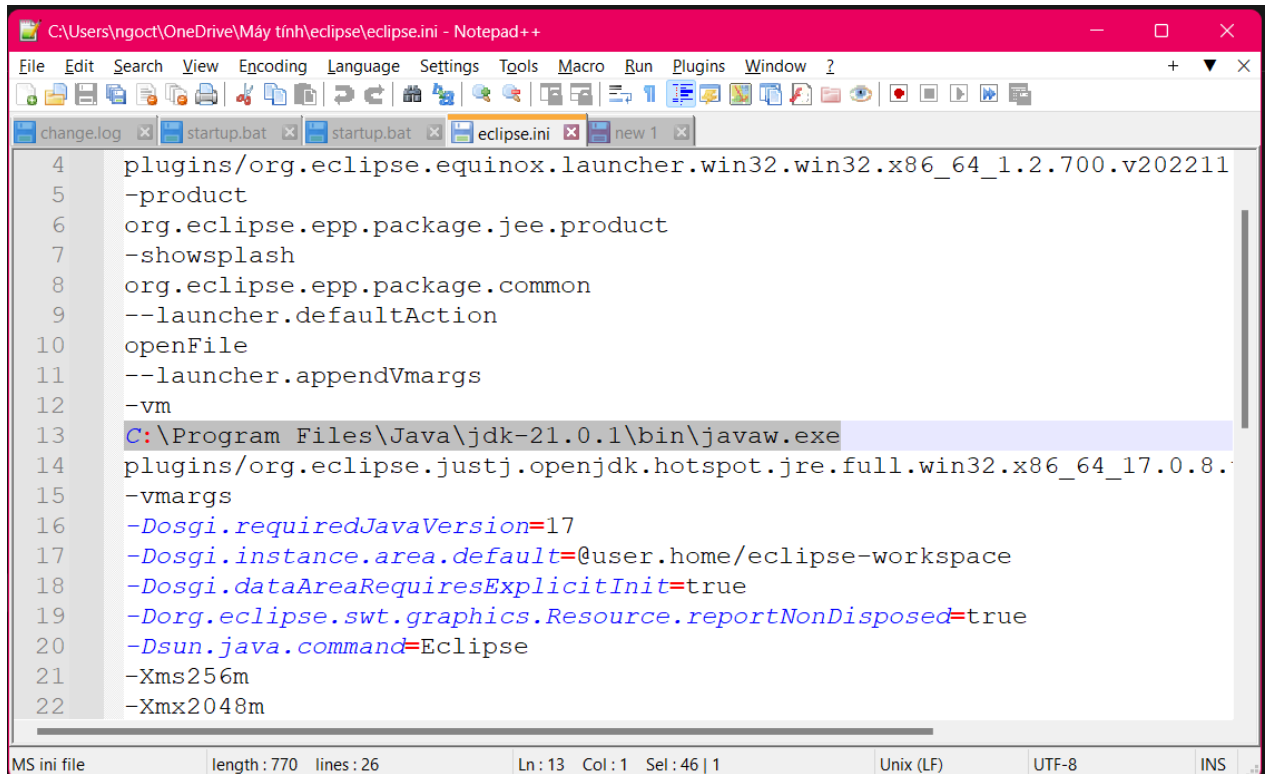
Eclipse – download và cài đặt



Copy file zip vừa download về, giải nén

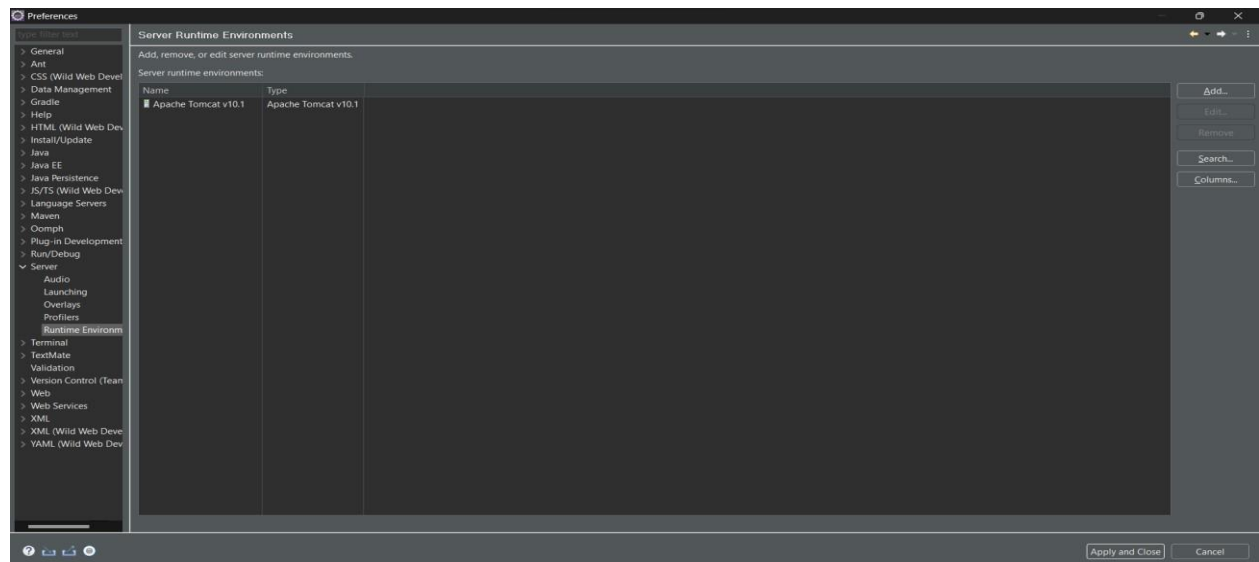
- Cấu hình JAVA_HOME cho Eclipse





```
C:\Users\ngoct\OneDrive\Máy tính\eclipse\eclipse.ini - Notepad++
File Edit Search View Encoding Language Settings Tools Macro Run Plugins Window ?
change.log x startup.bat x startup.bat x eclipse.ini x new 1 x
4 plugins/org.eclipse.equinox.launcher.win32.win32.x86_64_1.2.700.v202211
5 -product
6 org.eclipse.epp.package.jee.product
7 -showsplash
8 org.eclipse.epp.package.common
9 --launcher.defaultAction
10 openFile
11 --launcher.appendVmargs
12 -vm
13 C:\Program Files\Java\jdk-21.0.1\bin\javaw.exe
14 plugins/org.eclipse.justj.openjdk.hotspot.jre.full.win32.x86_64_17.0.8.
15 -vmargs
16 -Dosgi.requiredJavaVersion=17
17 -Dosgi.instance.area.default=@user.home/eclipse-workspace
18 -Dosgi.dataAreaRequiresExplicitInit=true
19 -Dorg.eclipse.swt.graphics.Resource.reportNonDisposed=true
20 -Dsun.java.command=Eclipse
21 -Xms256m
22 -Xmx2048m
MS ini file length: 770 lines: 26 Ln: 13 Col: 1 Sel: 46 | 1 Unix (LF) UTF-8 INS
```

Tích hợp JDK và Tomcat vào Eclipse Windows => Preferences => Java =>
Installed JREs Windows => Preferences => Server => Server Runtime Environment



2. Thư viện hỗ trợ lập trình web

- JSP/ SERVLET
- SPRING
- HIBERNATE