INSTALLING ECLIPSE IDE ON WINDOWS

FOR JAVA AND C/C++ DEVELOPERS

This detailed walkthrough for Java and C/C++ developers explains how to install Eclipse IDE on Microsoft Windows. Installation of Cygwin required for C/C++ development is also described. Using Eclipse to create simple test programs is illustrated.

Revision 20190205

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Introduction

As you are aware, websites and software are frequently updated. When you follow these instructions, you may see some differences between the actual installation process and the process described in the instructions.

Unless otherwise stated, Windows, Java, Eclipse, and Cygwin components are assumed to be 64-bit. Look in Appendix 15 – Using 32-bit Software if you are interested in 32-bit versions.

Eclipse requires Java Platform, Standard Edition (Java SE) to run. The main text of this document describes how to install Java SE 11, specifically Oracle OpenJDK 11. If you need to install a different Java version or variant, look in Appendix 8 – Installing Oracle JDK for Java SE 11 (Long Term Support) and Appendix 9 – Installing Legacy Versions of Java SE.

Eclipse, Java, and Cygwin components

To use Eclipse for Java and/or C/C++ development, you shall install all or some of the following software components

- Java Development Kit (JDK) for Java Platform, Standard Edition 11 (Java SE 11), one of the following
  - Oracle OpenJDK – free, open source license
  - Oracle JDK – if commercial license is required
- Eclipse, one of the following
  - Eclipse IDE for Java Developers
  - Eclipse IDE for Java EE Developers (includes IDE for Java Developers)
  - Eclipse IDE for C/C++ Developers (includes CDT below)
- Eclipse C/C++ Development Tooling (CDT) if both Java and C/C++ programs are to be developed.
- Cygwin (Devel package) if C/C++ programs are to be developed.

Enabling Programming Languages

Enabling all programming languages

To enable everything - Java, Java (Jakarta) Enterprise, and C/C++ development - install the following combination

- Java SE Development Kit (JDK)
- Eclipse IDE for Java EE Developers (includes IDE for Java Developers)
- Eclipse C/C++ Development Tooling (CDT)
- Cygwin (Devel package)

Total disk space that is required to install all mentioned above software is approximately 11 GiB.

Enabling Java SE programming language only

To enable only Java SE - install the following combination

- Java SE Development Kit (JDK)
- Eclipse IDE for Java Developers

Total disk space that is required to install all mentioned above software is approximately 0.5 GiB.

Enabling C/C++ programming languages only

To enable C/C++ development only - install the following combination

- Java SE Development Kit (JDK)
- Eclipse IDE for C/C++ Developers (includes CDT below)
- Cygwin (Devel package)

Total disk space that is required to install all mentioned above software is approximately 11 GiB.

Specific programming languages requirements

You may save your time and disk space if you install only necessary software components.

Here is a table that describes minimum software requirements depending on programming languages that are used for development. Select the column corresponding to the languages and install all components marked with **Yes**.

	Disk Space (GiB)	**Setup Space (GiB)**	**C and C++**	**Java**	**Java and Java Enterprise[2]**	**C, C++, and Java**	**C, C++, Java, and Java Enterprise[2]**
Java Development Kit (JDK)	0.3	0.2	Yes	Yes	Yes	Yes	Yes
Eclipse IDE for Java Developers	0.2	0.2		Yes		Yes	
Eclipse IDE for Java EE Developers * includes IDE for Java Developers	0.4	0.4			Yes		Yes
C/C++ Development Toolkit (CDT)[1]	0.06	-				Yes[1]	Yes[1]
Eclipse IDE for C/C++ Developers * includes C/C++ Development Toolkit	0.3	0.2	Yes				
Cygwin (Devel package)	10	2	Yes			Yes	Yes
Installation Disk Space (GiB)			**10.7**	**0.5**	**0.7**	**10.6**	**10.8**
Temporary Setup Space (GiB)			**2.4**	**0.4**	**0.6**	**2.4**	**2.7**

The temporary setup space mentioned above includes disk space needed to store setup files (the downloaded ZIP archives, packages, and setup programs). Unless you remove the setup files after each step, you will need disk space equal to the sum of the installation and temporary space.

Note 1 - C/C++ Development Tooling (CDT) is an add-on to Eclipse. If a mixed C/C++ and Java development is required, install Eclipse IDE for Java (or Java EE) first and CDT add-on second.

Note 2 - To run Java Enterprise programs an appropriate Java Enterprise Application Server is required (that is out of this document scope).

Java Standard Edition (Java SE)

Introduction

Java Platform, Standard Edition (Java SE) is a software platform that lets you develop and deploy Java applications. Eclipse IDE is written mostly in Java, for this reason, it requires Java SE to run.

If you are developing Java programs, you will also need Java SE to be installed. In many cases, the same Java SE installation can be used to run Eclipse IDE itself and to develop and run Java programs via Eclipse IDE. It is also possible to install multiple versions and variants of Java SE and to use some of them to run Eclipse and some of them for development.

Requirements

It is recommended to install Java SE 11 64-bit Development Kit (JDK). Free (open source) JDK variant is called Oracle OpenJDK, its installation is described below. If you prefer a commercial variant, see Appendix 8 – Installing Oracle JDK for Java SE 11 (Long Term Support).

You will need approximately the following free disk space before installing Java SE 11

	Java SE 11 64-bit Folder Size after Installation	Size of Downloaded ZIP or Setup File	Temporary Total Size
Oracle OpenJDK (free)	286 MiB	179 MiB	465 MiB
Oracle JDK (commercial)	278 MiB	151 MiB	429 MiB

Abovementioned temporary disk space is required to store downloaded OpenJDK ZIP archive file or JDK setup program file. You can remove these files after completing the installation.

Using Legacy Versions of Java

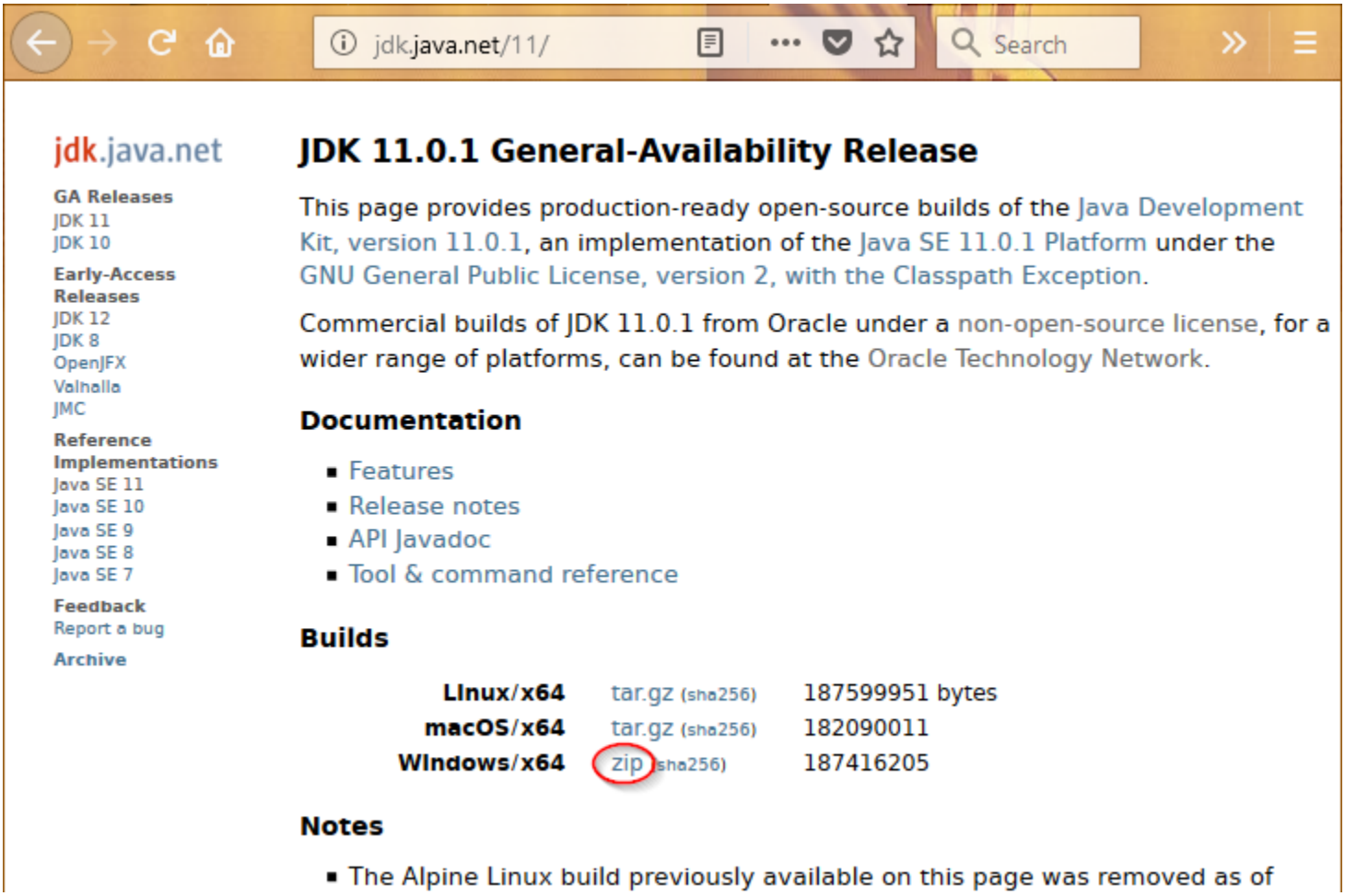
You may install Java SE 10 or Java SE 8 instead of Java SE 11 if so needed. When running legacy Java SE setup program, the setup screens are very similar to the example screenshots below, the main difference is the Java banner color.

See Java Standard Edition 10 (64-bit) and Java Standard Edition 8 (32-bit and 64-bit) in Appendix 9 – Installing Legacy Versions of Java SE for more details.

Note - Java SE 8 does not have public updates after January 2019. Java SE 9 has reached end of support. Users of Java SE 8 and 9 should switch to Java SE 11 or 10.

Downloading Oracle OpenJDK

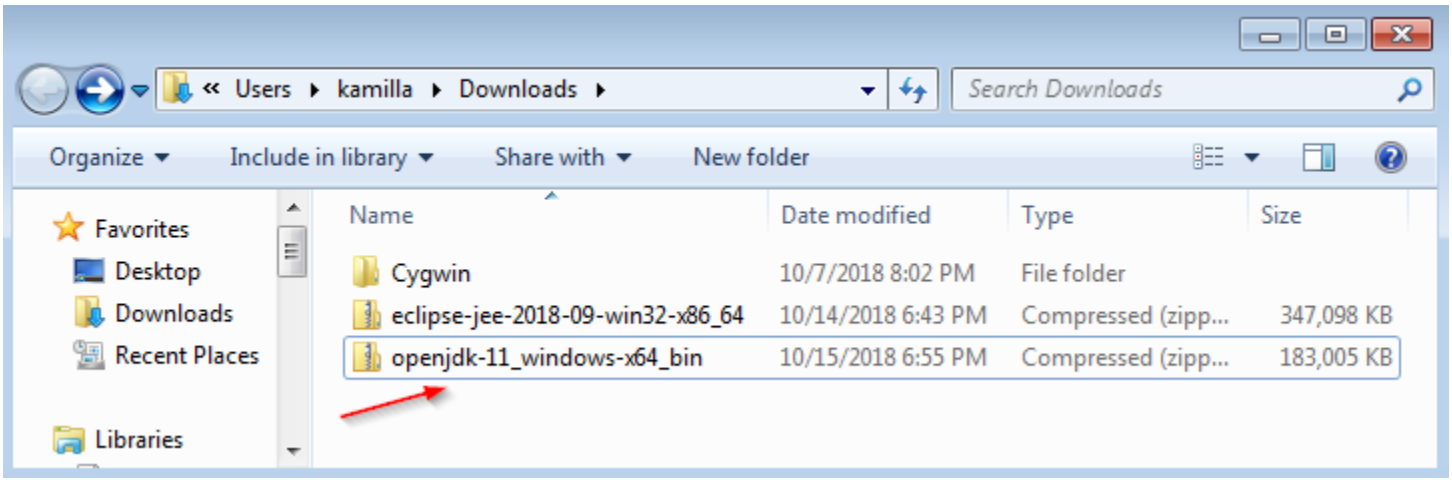
To download Oracle OpenJDK for Java Standard Edition 11, in your browser, go to JDK 11 General-Availability Release webpage.



In the **Builds** section find **Windows/x64** line and click on zip link.

Depending on your browser, you will get a download prompt. Download and save the ZIP file. See Appendix 11 – Downloading and Running files from the Internet if you need help with it.

Open the folder containing the saved file. For example



OpenJDK Parent Installation Folder

Decide where you want OpenJDK to be installed to (the installation folder). You have two choices

1. If you are going to use OpenJDK and nobody else – install it in your data directory, for example, under `C:\Users\Richard\OpenJDK`. You will not need an administrator access to install OpenJDK in this case.

2. If other users are going to use Eclipse – install it in the program directory, for example, under `C:\Program Files\OpenJDK`. You will need an administrator access to install OpenJDK in this case.

The table below describes the parent folder selection. Substitute your actual username for *username*.

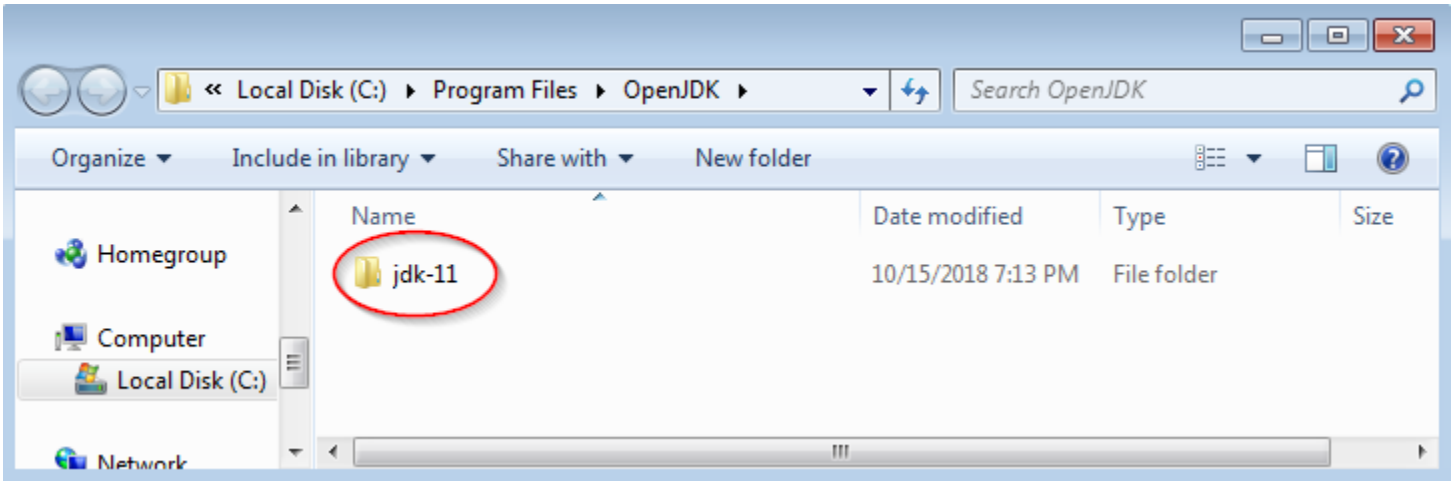
	If you are going to use OpenJDK and nobody else	**If other users are going to use it**
Windows 64-bit & OpenJDK 64-bit	`C:\Users\username\OpenJDK`	`C:\Program Files\OpenJDK`

Note - It is not recommended to install OpenJDK under `C:\Program Files\Java` folder as this folder is used by Oracle JDK (commercially supported version).

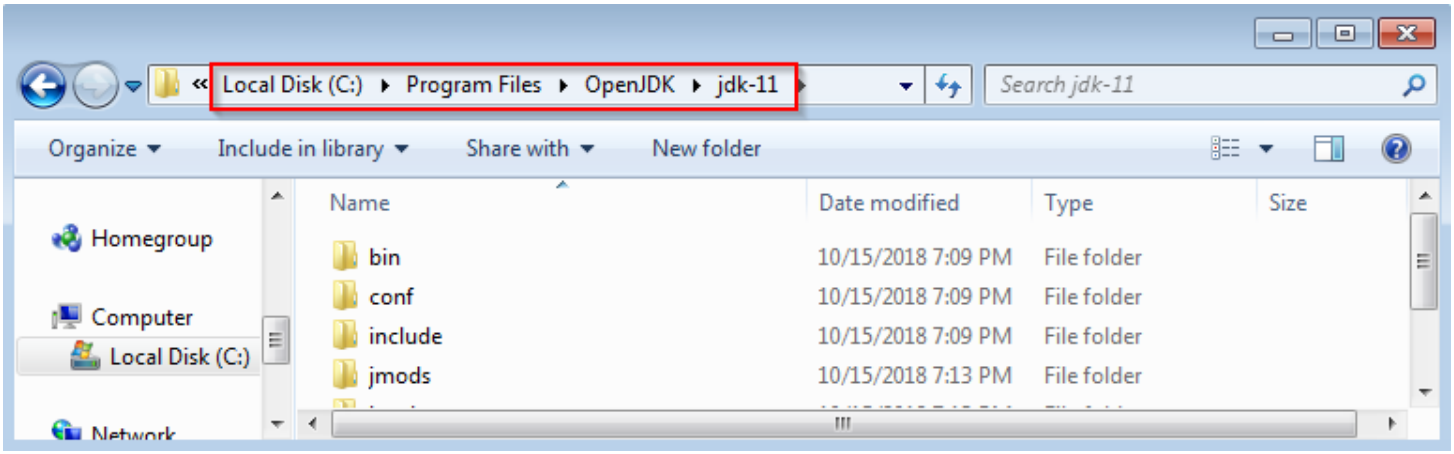
Extracting OpenJDK Files

Create the OpenJDK parent installation folder and extract files from the downloaded ZIP archive there. If you need help with the ZIP files extraction, see an example in Appendix 12 – Extracting Eclipse Files to the Destination Folder.

Open the OpenJDK parent installation folder.



When the ZIP archive is extracted, it creates subfolder matching the OpenJDK version (`jdk-11` in the screenshot). Click on the subfolder to view it content.



In this example, the complete path to OpenJDK 11 is `C:\Program Files\OpenJDK\jdk-11`.

Note – The created subfolder name contains JDK version, so you can install multiple versions of OpenJDK in the same parent installation folder. For instance, if you install OpenJDK 12, the subfolder will be `jdk-12`.

Enabling Eclipse Launching via OpenJDK

To be able to run Eclipse, Eclipse launcher has to know OpenJDK installation folder path. One way is to make OpenJDK default – to add OpenJDK **bin** subfolder to Windows **PATH** environment variable as described below.

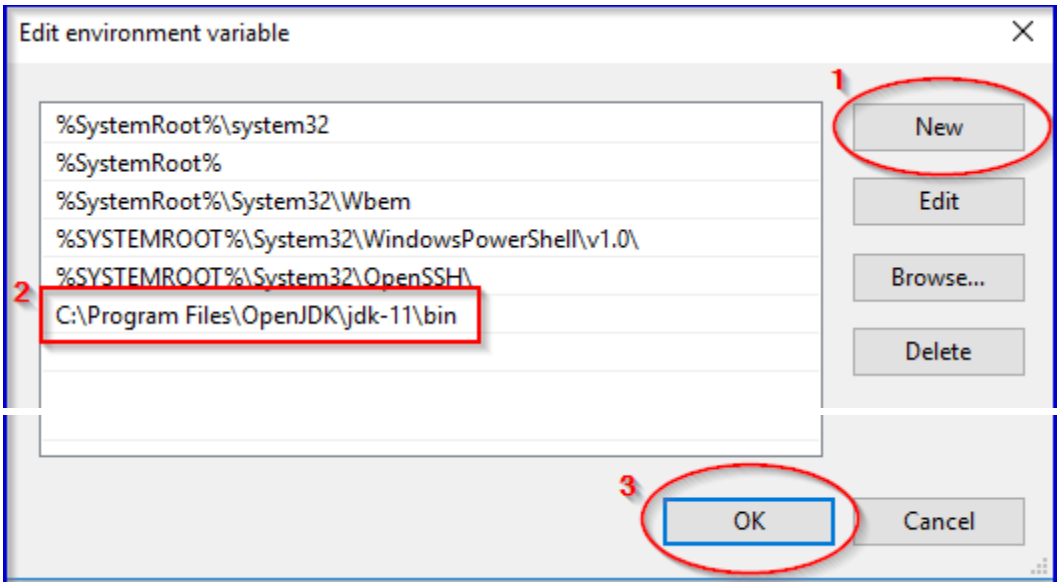
If you do not want to use OpenJDK as default Java virtual machine, you can use one of the following approaches

- After Eclipse is installed, add appropriate `-vm` option to `eclipse.ini` file (see Appendix 11 – Downloading and Running files from the Internet).
- Add appropriate `-vm` option to an Eclipse shortcut (see section Using Shortcut Command Line to Specify Java Virtual Machine in Appendix 6 – Making Eclipse Shortcut).
- Write your own batch script that adds OpenJDK bin subfolder to PATH variable and calls Eclipse (out of scope of this document).
- Write your own batch script that calls Eclipse with appropriate `-vm` option (out of scope of this document).

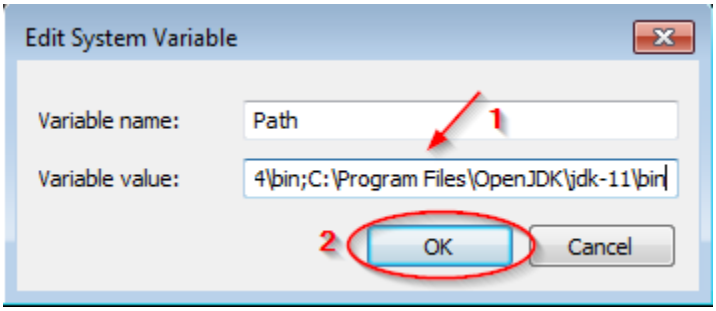
Adding OpenJDK to Windows Path

After the OpenJDK files are extracted to an installation folder, consider adding its `bin` subfolder to Windows system or user `PATH` environment variable. Add OpenJDK to the system `PATH` if you want all users to be able to use it. Add it to the user `PATH` otherwise.

For example, add `C:\Program Files\OpenJDK\jdk-11\bin` to the system `PATH` variable. In the case of Windows 10, the **Edit environment variable** window will look like this



In the case of legacy Windows, the **Edit System Variable** window will look like this



If you need a detailed walkthrough, see Appendix 1 – Modifying Windows Environment Variables.

Access **Environment Variables** window, for example, by going to **Windows Search -> "environment" -> Edit the system environment variables -> System Properties -> Advanced -> Environment Variables**.

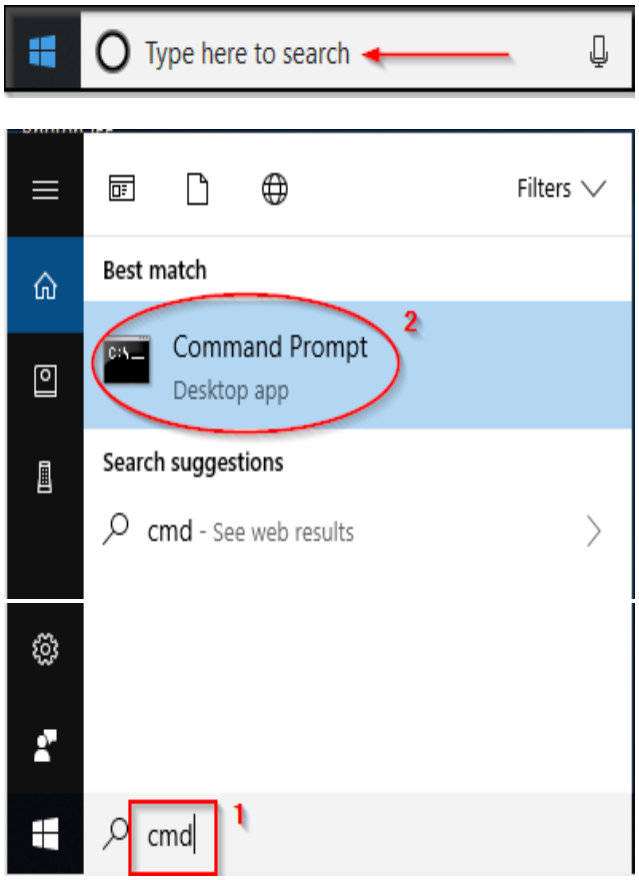
In the **Environment Variables** window, find existing system (or user) `PATH` variable or create new user `PATH` variable. Add the OpenJDK `bin` folders to the path variable.

Note - The user path is appended to the system path. In most cases, you need Cygwin to be added either to the system or to the user path variable.

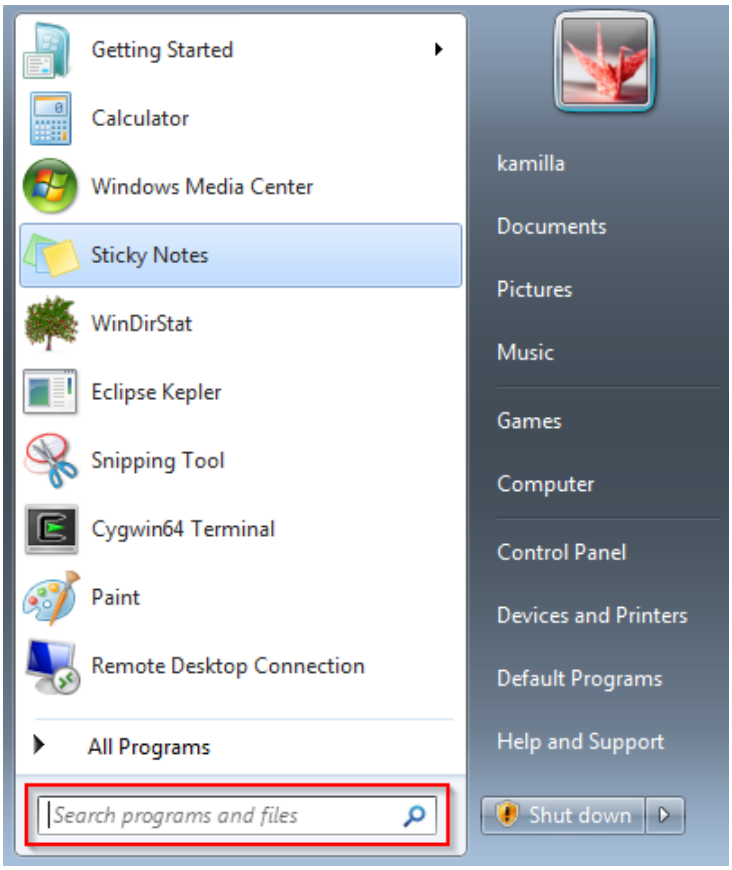
Verifying OpenJDK in Windows Path

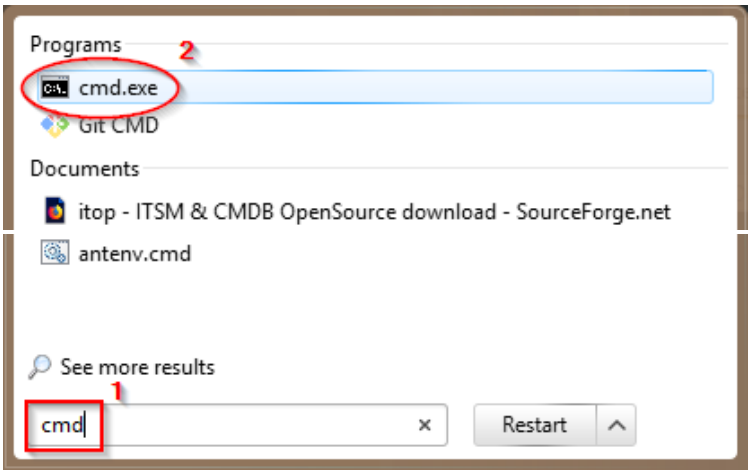
To verify Windows path, launch a command line window. For example, find or open the Windows search box and click inside it, then search for cmd program.

Windows 10



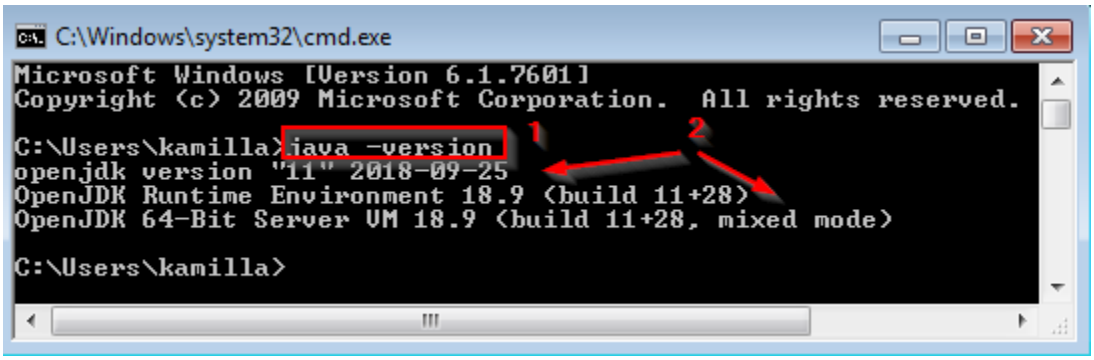
Legacy Windows





Enter word cmd ① in the search field. Click on **cmd** ② in the list of found programs.

You will see Windows shell (command line) window.



At the shell prompt, enter `java -version` command ① and press **Enter** key. You are supposed to see OpenJDK version information ②.

Note - there is a space between `java` and `-version` and one dash in the `-version`.

Installing Eclipse IDE

Eclipse IDE is an integrated development environment that can be used to develop programs in a variety of programming languages, including Java and C/C++. For a good summary, check Wikipedia's Eclipse (software) webpage.

These instructions were prepared when the current Eclipse version was called "Photon". If you download more recent Eclipse version, you may see some differences between the actual installation process and the process described in these instructions.

Selecting Eclipse Package

Depending on your needs, select what Eclipse packages to install. In this document, the following packages and components are covered

Languages / Packages	Disk Space (MiB)	ZIP Size (MiB)	C and C++	Java	Java and Java[2] Enterprise	C, C++, and Java	C, C++, Java, and Java[2] Enterprise
Eclipse IDE for Java Developers	230	190		Yes		Yes	
Eclipse IDE for Java EE Developers * includes IDE for Java Developers	418	339			Yes		Yes
C/C++ Development Toolkit (CDT)[1]	58	-				Yes[1]	Yes[1]
Eclipse IDE for C/C++ Developers * includes C/C++ Development Toolkit	331	223	Yes				
Total Disk space (MiB)			**331**	**230**	**418**	**288**	**476**

The total disk space mentioned above does not include space needed to store the downloaded Eclipse ZIP archives. Also note that you can install multiple packages at the same time as long as each package is installed in a separate folder.

You can see more information about available Eclipse packages on Compare Eclipse Packages webpage. Eclipse packages consist of dozens of smaller components that can be combined and mixed. Such components can be called Eclipse add-ons, plugin, or just software items. If you decide to install additional Eclipse components, Installing CDT Add-on section and Appendix 4 – Managing Eclipse Software provide some examples.

For instance, you can install Eclipse IDE for Java Developers first and then add C/C++ Development Tooling to it (see Installing CDT Add-on section). Or you can install Eclipse IDE for C/C++ Developers first and then add Java Development Tooling to it (out of this document scope). In both cases, you will get Eclipse IDE capable of Java and C/C++ development.

Note 1 - C/C++ Development Tooling (CDT) is an add-on to Eclipse. If a mixed C/C++ and Java development is required, install Eclipse IDE for Java (or Java EE) first and CDT add-on second.

Note 2 - To run Java Enterprise programs an appropriate Java Enterprise Application Server is required (that is out of this document scope).

Eclipse Installation Folder

Decide where you want Eclipse to be installed to (the installation folder). You have two choices

1. If you are going to use Eclipse and nobody else – install it in your data directory, for example, `C:\Users\Richard\Eclipse\java-2018-09`. You will not need an administrator access to manage Eclipse in this case.

2. If other users are going to use Eclipse – install it in the program folder or some other shared folder, for example, `C:\Program Files\Eclipse\cpp-2018-09`. In this case, some Eclipse management will have to be performed using administrator access, specifically, (a) editing `eclipse.ini` file, (b) initializing Eclipse data, (c) installing Eclipse software, and (d) updating Eclipse.

The table below describes the destination folder selection. Substitute your actual username for *username* and appropriate installation name for *java-2018-09*.

	If you are going to use Eclipse and nobody else	**If other users are going to use it**
Windows 64-bit & Eclipse 64-bit	`C:\Users\`*`username`*`\eclipse\`*`installation`	`C:\Program Files\Eclipse\`*`installation`

You can have multiple Eclipse packages and their versions installed, just use unique installation names.

For example, you can have `java-2018-09` and `java-photon`. If you want to keep Java and C/C++ Eclipse installations separate, you can have `java-2018-09` and `cpp-2018-09`. Or you can have common installation `eclipse-2018-09`.

Note – Usually the installation folder has exactly one `eclipse` subfolder that contains all Eclipse files. For example, `C:\Users\Richard\Eclipse\java-2018-09\eclipse`**.** Sometimes, in Eclipse documentation, this subfolder is called “root folder”, it may be also called “installation folder”.

It may be confusing, but from the context it shall be easy to distinguish if “installation folder” refers to `C:\Users\Richard\Eclipse\java-2018-09` or `C:\Users\Richard\Eclipse\java-2018-09\eclipse`.

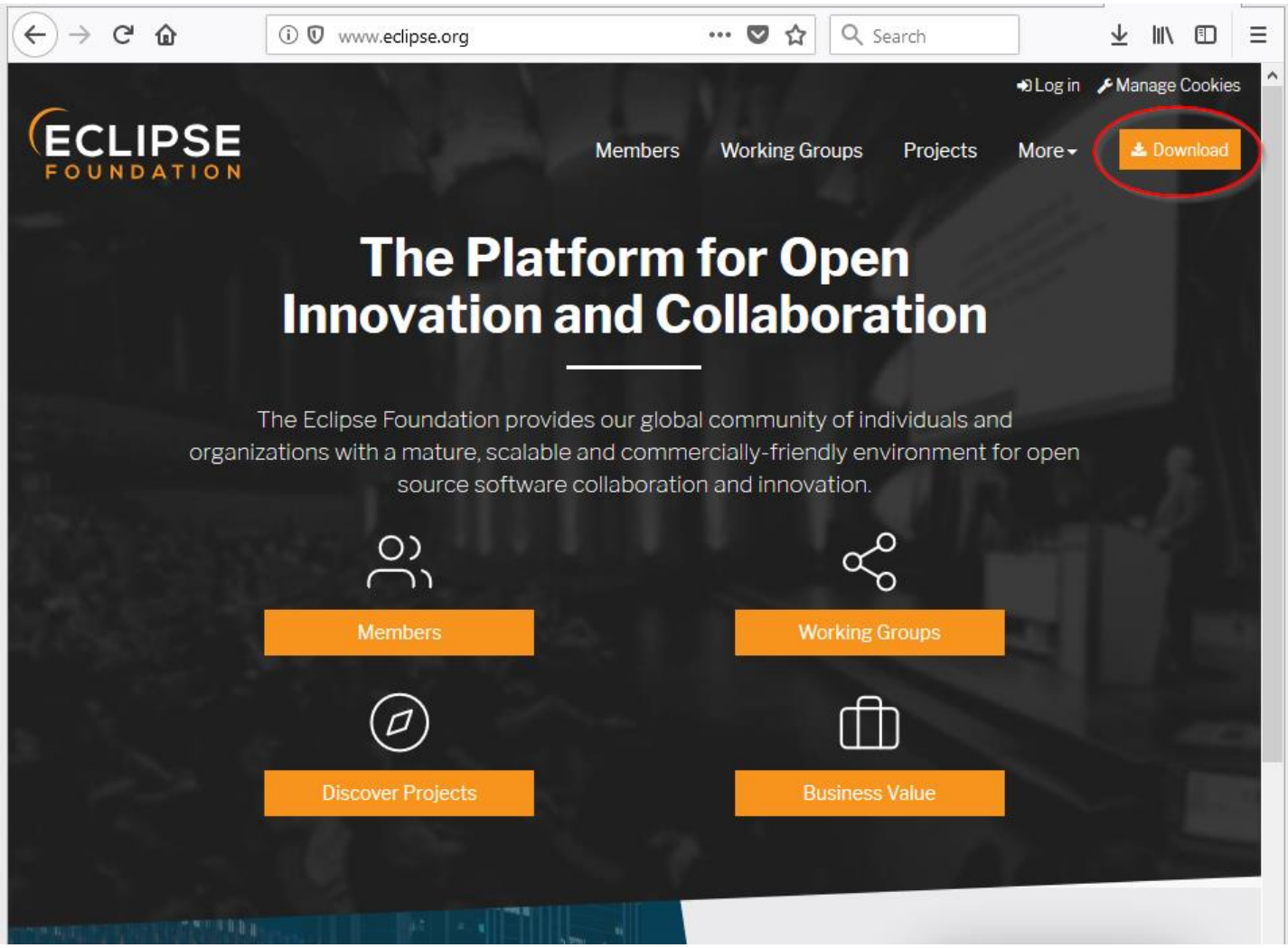
Eclipse Oomph Installer

Using Eclipse Oomph Installer is the recommended way to install Eclipse. The installer makes it easier to select Eclipse software, download it, install it, adjusts some settings, etc.

Another option is to download and unpack Eclipse ZIP archive. If you are interested in it, see Appendix 16 – Installing Eclipse via ZIP Archive.

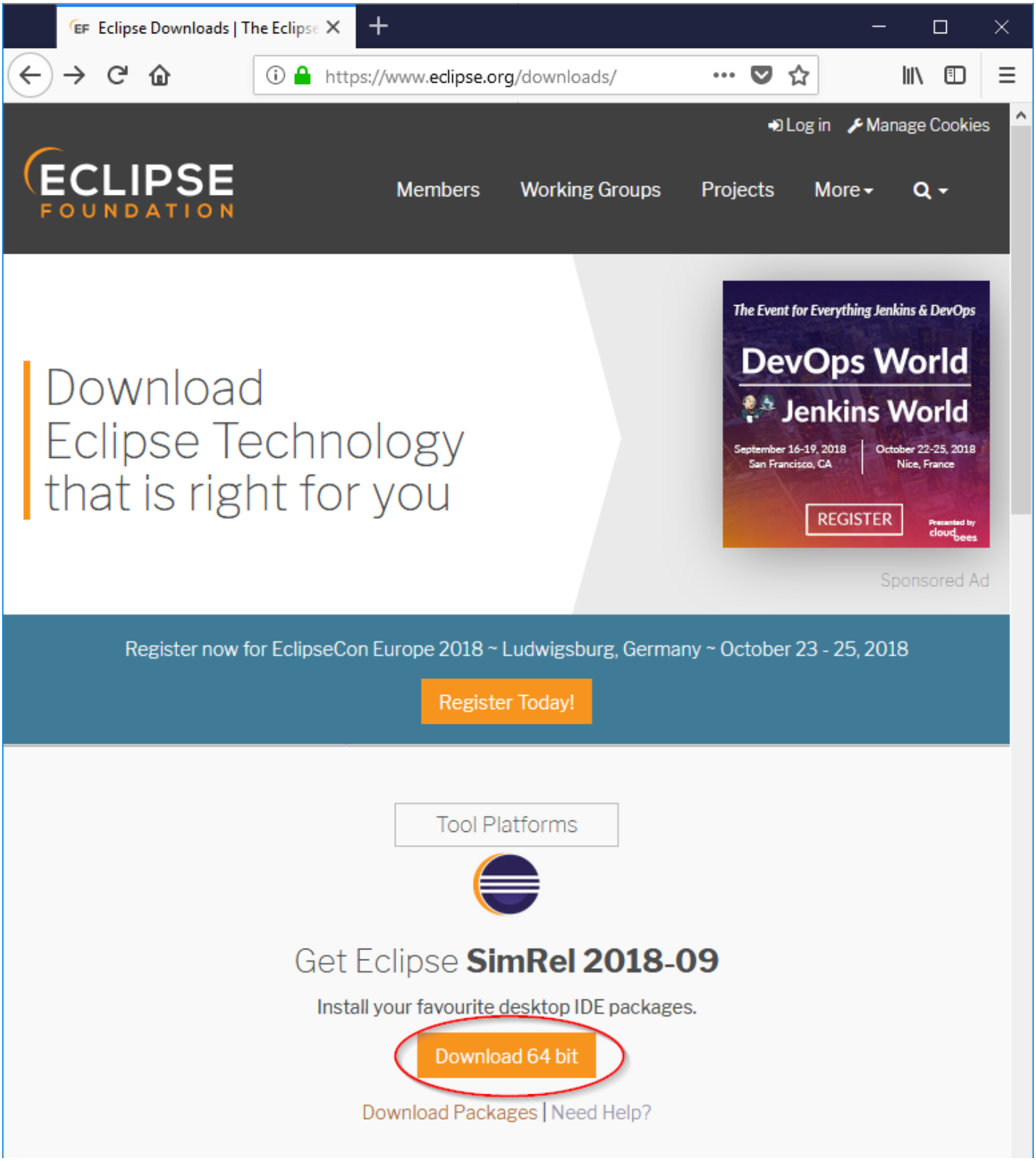
Downloading Eclipse Oomph Installer

In your browser open www.eclipse.org



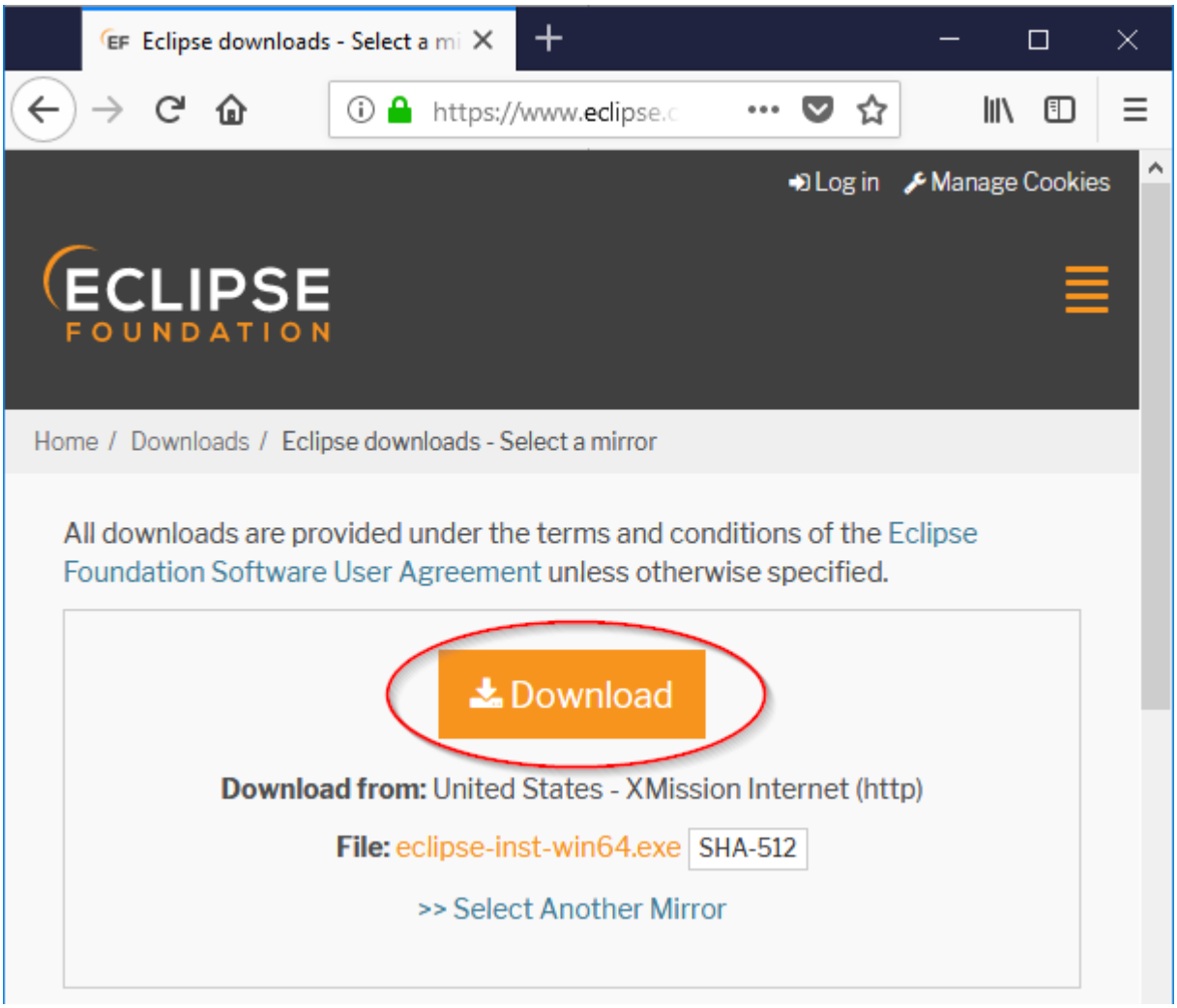
Click on orange Download download button.

You will see Download Eclipse Technology page



Click on orange Download 64 bit download button.

You will see Eclipse Installer 2018-09 Download page (or similar page)



Click on orange Download download button.

Depending on your browser, you will get a download prompt. Download and run the file. See Appendix 11 – Downloading and Running files from the Internet if you need help with the file downloading.

Simple vs Advanced Mode

When Eclipse Oomph Installer is started the first time, it runs in so called simple mode. If needed, the installer can be restarted in advanced mode.

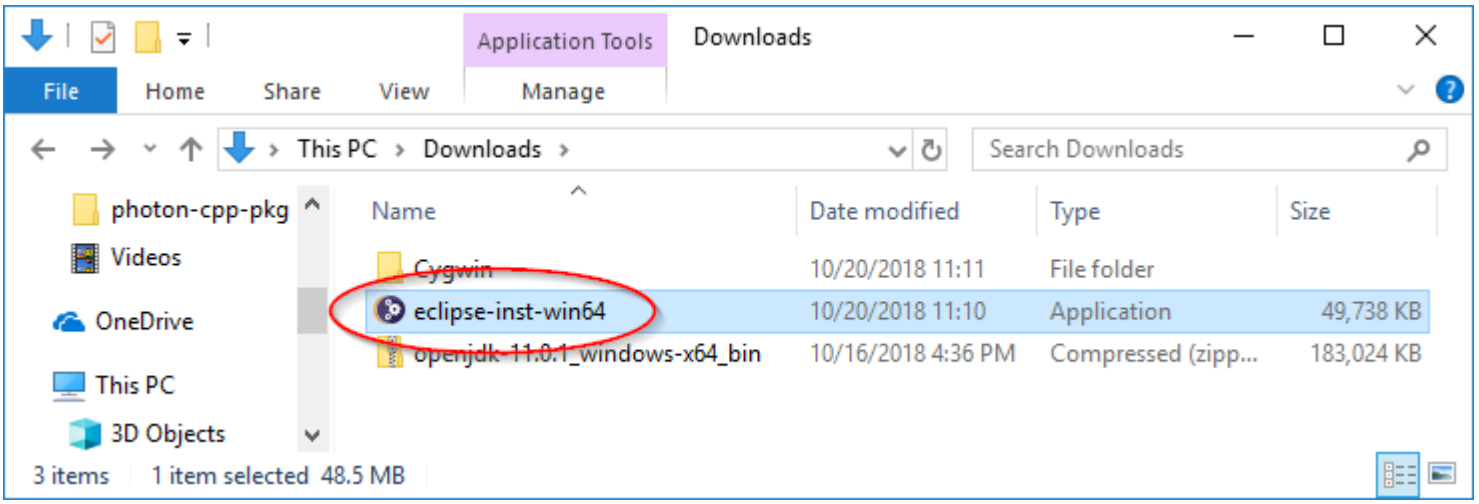
Here is a summary of differences between the simple and advanced modes.

Feature	Simple	Advanced
Eclipse shall be used only by the user that installs it	✓	
Create Eclipse desktop shortcut	⊕	
Create Eclipse menu entry	⊕	
Select Eclipse installation folder	⊕	⊕
Select Eclipse product	⊕	⊕
Eclipse installation can be shared between users		⊕
Select Eclipse product version		⊕
Select Eclipse bitness (63-bit or 32-bit)		⊕
Install Eclipse projects		⊕
Select Java virtual machine to run Eclipse		⊕
Select bundle pool (shared Eclipse files)		⊕
Configure network proxy settings		⊕
Configure SSH settings		⊕
Review and adjust proposed configuration changes		⊕
Installation messages log		⊕
In some cases, the installer has to be run as Administrator		✓

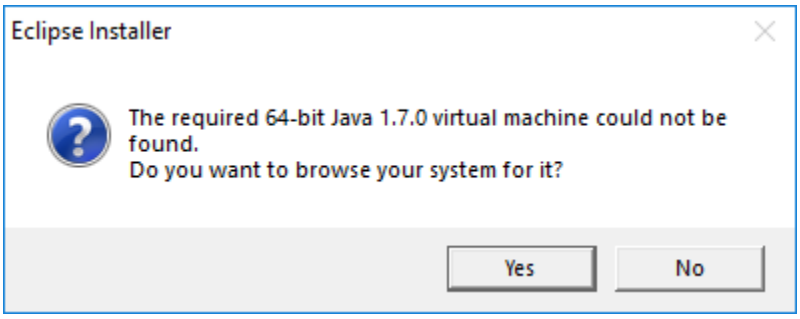
The simple mode is illustrated in Eclipse Installer in Simple Mode section, the advanced mode explained in Appendix 7 – Eclipse Installer in Advanced Mode.

Running Eclipse Installer the First Time

If you did not ask the browser to run the downloaded file, find Eclipse Oomph Installer executable (`eclipse-inst-win64.exe`) in the file explorer and run it.



If you see the following pop-up window,



it means that Java SE `bin` subfolder is not in the Windows `PATH` environment variable. You have two choices

- Press **No** button. Add Java SE `bin` subfolder to the Windows `PATH` environment variable as described in section Adding OpenJDK to Windows Path. Start Eclipse Oomph Installer again.
- Press **Yes** button. It will open a file browser window that you can use to locate appropriate Java SE virtual machine (specifically `javaw.exe` file in Java SE bin subfolder). The installer will use this virtual machine to run itself and to configure Eclipse `eclipse.ini` file, so Eclipse will use it also. See Appendix 2 – Configuring Eclipse Lunch Properties (eclipse.ini) for more information.

You will see the following splash window

If you are running the installer the first time, you will be asked to accept its license

Review the license and press **Accept Now** button if you want to continue.

Eclipse Installer in Simple Mode

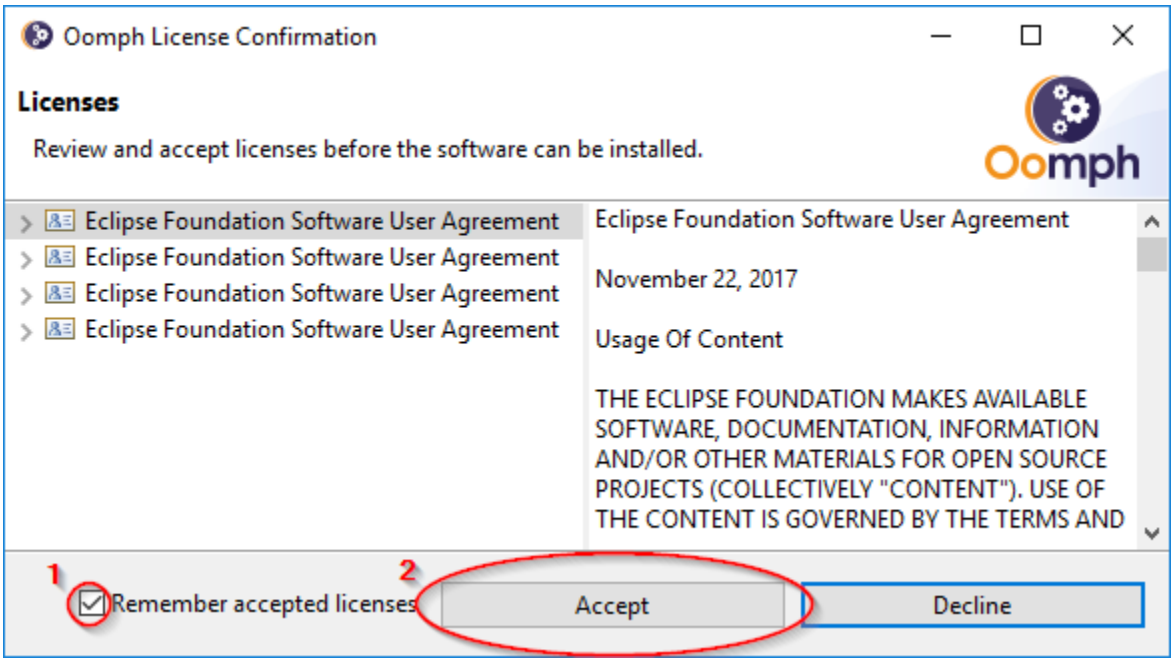
When you run Eclipse installer in the simple mode, you will see a window similar to one below

Select Eclipse package that you want to download and click on correspondent Windows 64-bit link.

1. If you want to use Eclipse for C/C++ development only, select "**Eclipse IDE for C/C++ Developers**"
2. If you want to use Eclipse for Java standalone program development and, possibly, C/C++ development, select "**Eclipse IDE for Java Developers**"
3. If you want to use Eclipse for Java Enterprise development, possibly, for Java standalone program development, and, possibly, C/C++ development, select "**Eclipse IDE for Java EE Developers**"

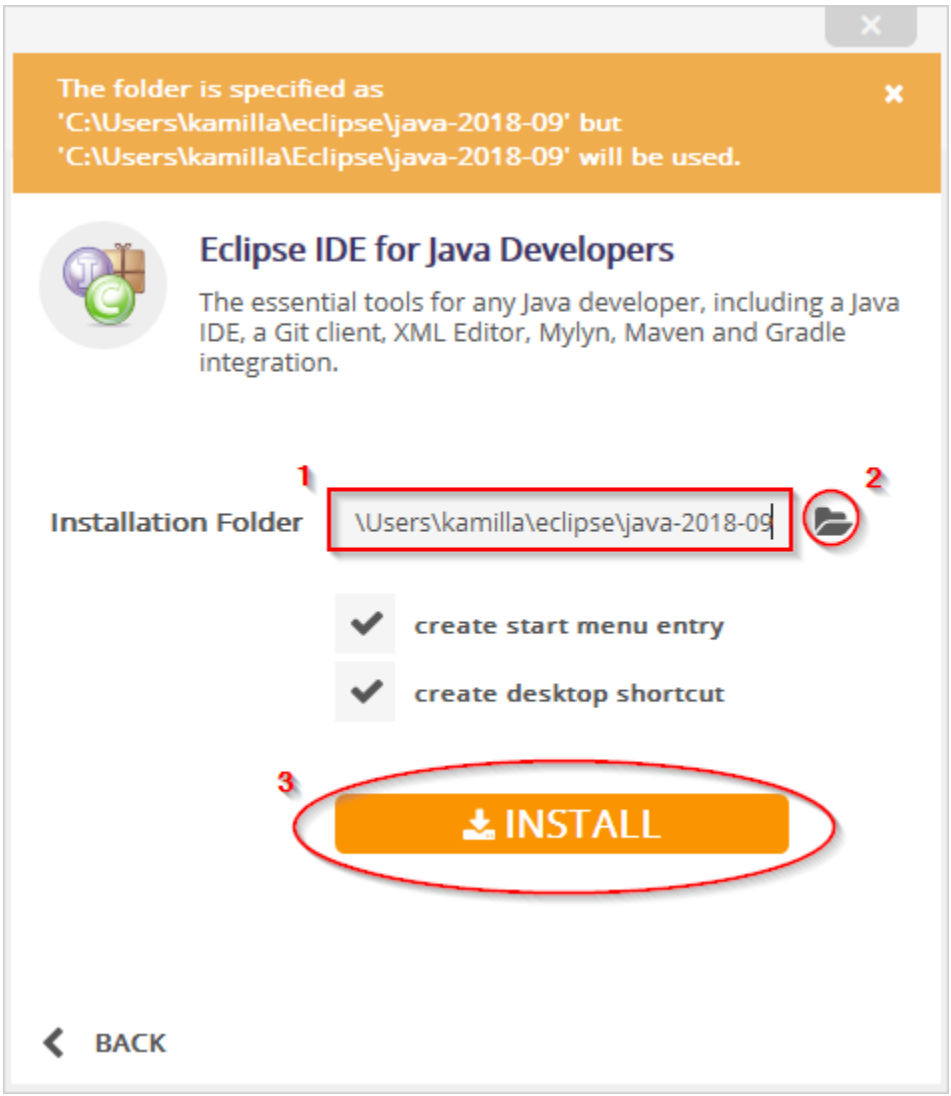
Below it is assumed that "**Eclipse IDE for Java Developers**" is selected.

You will see the following page



Review the licenses. Check **Remember accepted licenses** box ①. Click **Accept** button ② to continue.

You will see the following window

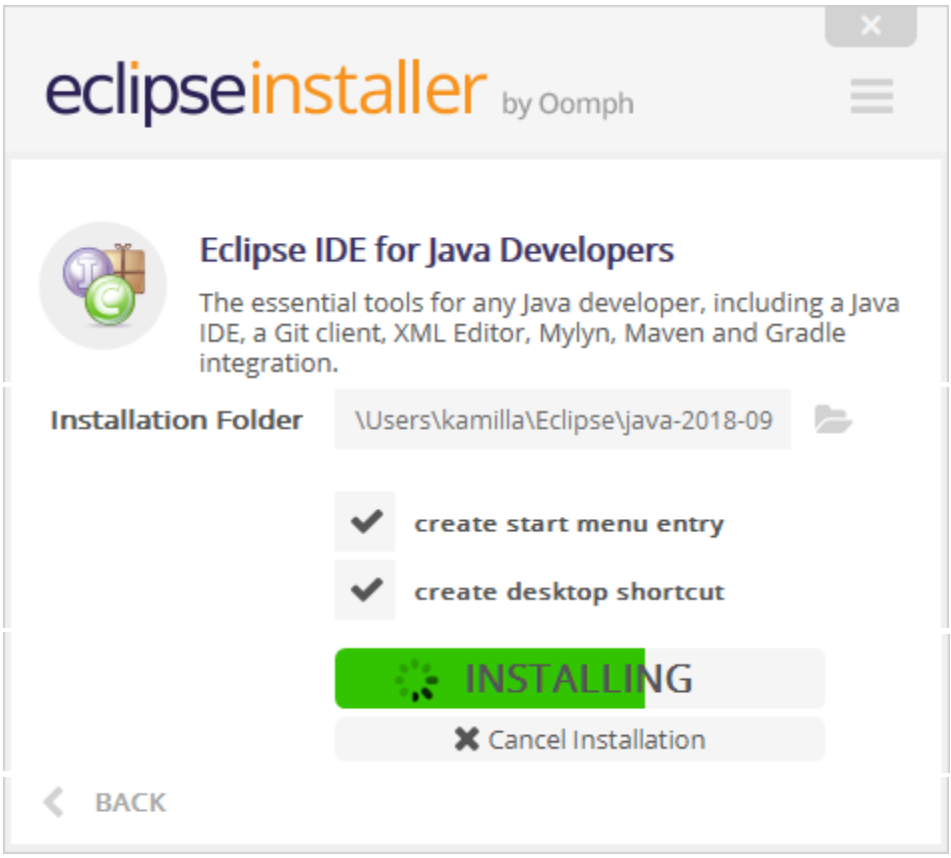


Review the installation folder ①. If needed, enter a different name of or browse to a different folder ②.

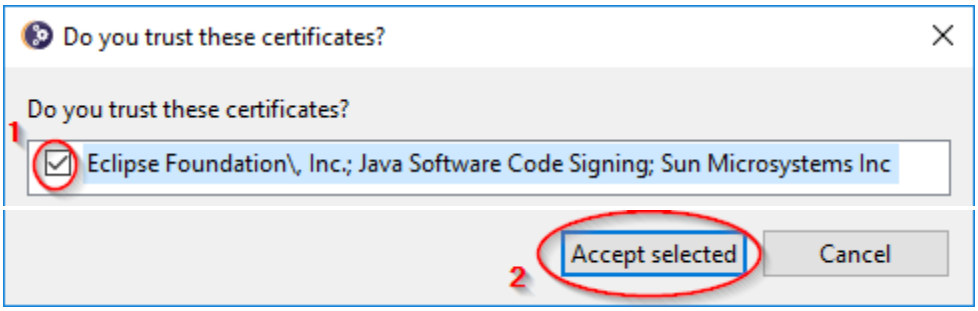
If you do not want the desktop shortcut or the menu entry created, uncheck the appropriate boxes.

Press **Install** button ③ to continue.

You will see the installation progress window



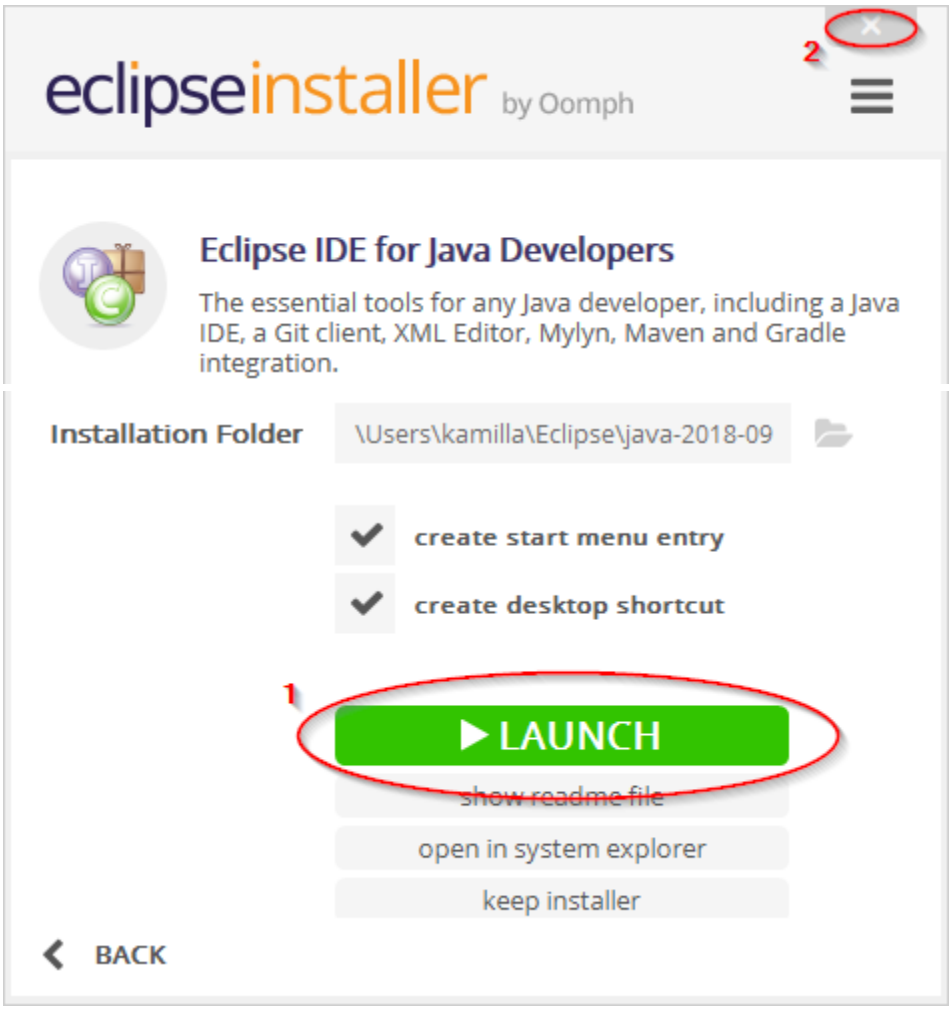
While installing Eclipse CDT, the installer may prompt for Eclipse code signing certificate confirmation. You will have to accept the certificate to continue.



Review the certificate list (select a certificate and use **Details** button to see the certificate information). If you trust the certificate(s), check appropriate box(es) ① and press **Accept selected** button ②.

See Do you trust these certificates? in Appendix 13 – Eclipse Pop-ups and Prompts for more details.

After the installation is completed, you will see the following window

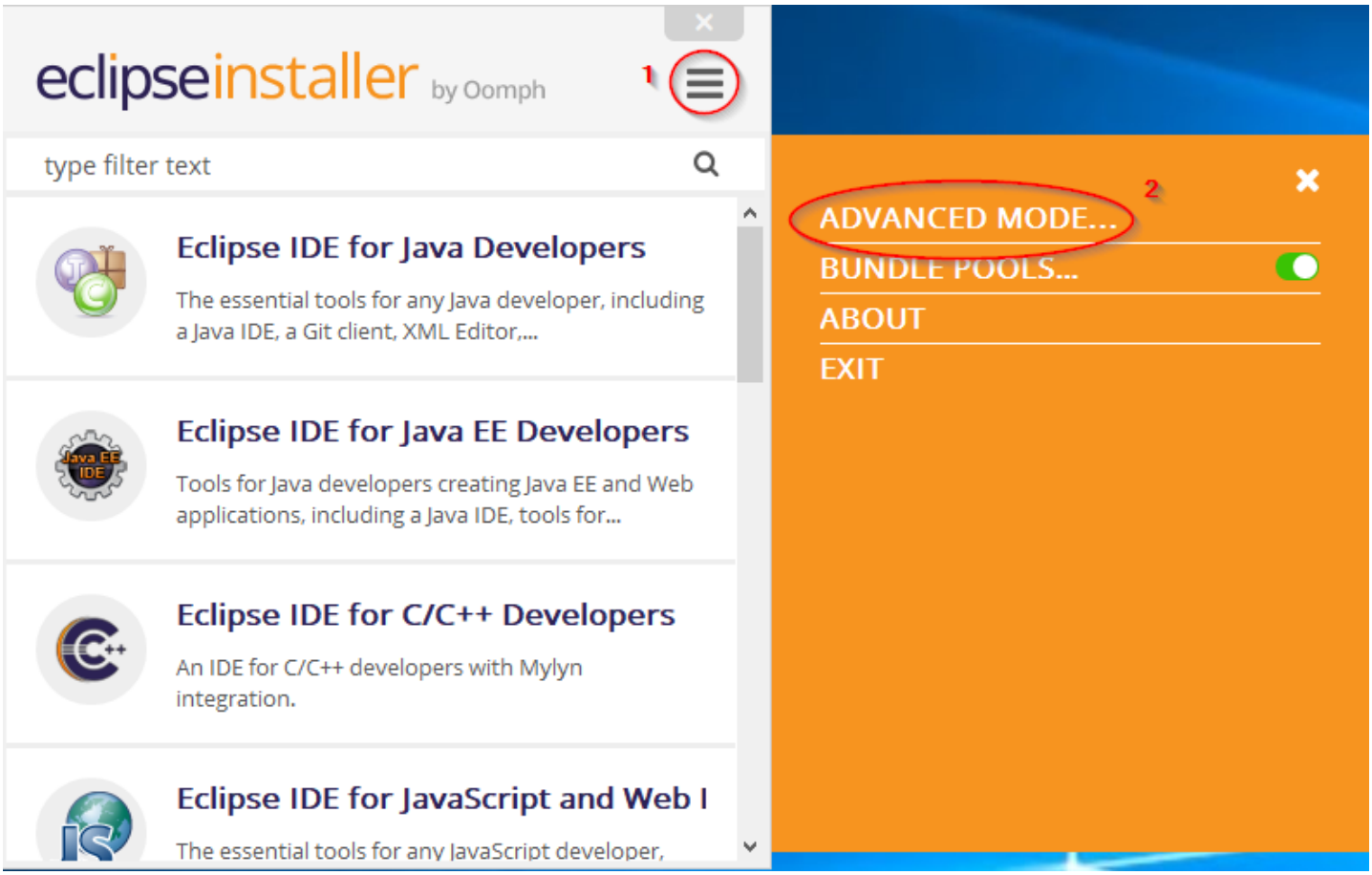


Close the window ②. How to launch Eclipse will be explained in further sections.

Note – if you are sure that Eclipse can find Java virtual machine, you may press **Launch** button ①.

Switching to Advanced Mode

To switch to advanced mode, start Eclipse installer in simple mode.



Click on “hamburger” icon ① to open the installer menu. Click on **Advanced Mode…** ②.

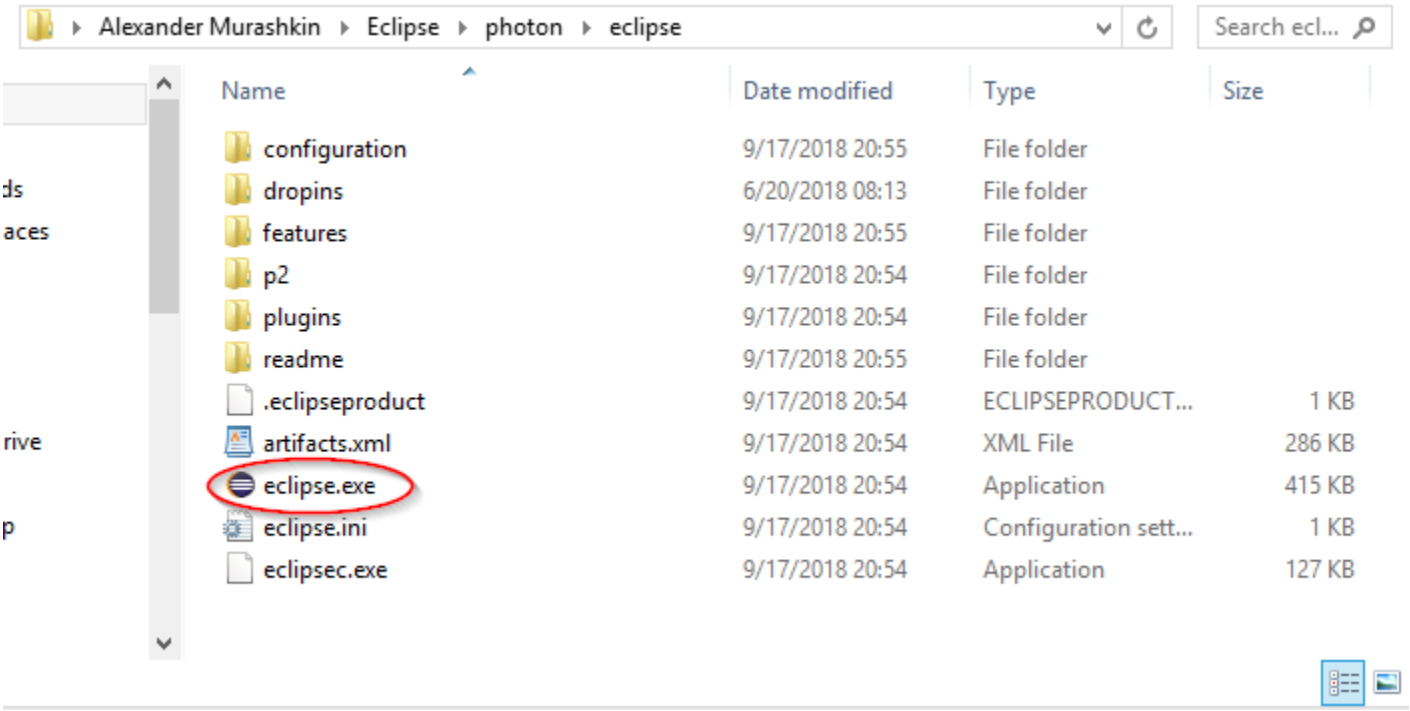
See Appendix 7 – Eclipse Installer in Advanced Mode for a detailed walkthrough.

Setting Up Eclipse Shortcut

Having an Eclipse desktop shortcut (or a menu entry) makes launching Eclipse easier. By default, Eclipse installer in simple mode creates the shortcut (and the menu entry) automatically.

If you uncheck the shortcut option in the installer, or if you run the installer in advanced mode, the installer does not create the shortcut.

In such a case, you can create the shortcut manually. To do so, open the Eclipse installation directory in Windows Explorer, and go inside `eclipse` subfolder.



Move the mouse pointer over `eclipse.exe` icon and click the right mouse button to open a context menu. Depending on you File Explorer settings, you may see `eclipse.exe` or just `eclipse` right to it.

Select **Copy** from the menu. Find some empty space on your desktop, move the mouse pointer there, and click the right mouse button to open a context menu. Select **Paste Shortcut** from the menu. You will see a new shortcut eclipse icon with “eclipse.exe – Shortcut” (or just “eclipse.exe”) underneath.

Change the shortcut name to `Eclipse Photon` (or something else). Move the mouse pointer over the new shortcut icon and click the right mouse button to open a context menu. Select **Rename** from the menu. Enter the shortcut name in the highlighted box end press **Enter** key.

If you need more help, see section Creating Eclipse Desktop Shortcut in Appendix 6 – Making Eclipse Shortcut.

➤ The created shortcut will be added to the current user desktop. If you want the shortcut to be available for all users, move it to an appropriate folder, for example, to `C:\Users\Public\Desktop`.

Running Eclipse IDE the First Time

How Eclipse Launcher Locates Java Virtual Machine

Usually, to start Eclipse people run so called Eclipse launcher (`eclipse.exe`) via a shortcut, a script, Windows explorer, or a command line. The launcher determines what Java virtual machine to use and then starts the Eclipse application itself running in the machine.

If you followed Enabling Eclipse Launching via OpenJDK section, you can skip to the next section. Otherwise read this section and enable one of the options described in the table.

The Eclipse launcher searches Java virtual machines in the following locations, in the following order, starting at step 1.

Step	Location Option	How to enable	Comment
1	`-vm` argument to `eclipse.exe` program	add `-vm` argument to the command line, for example, in Eclipse desktop shortcut	see Using Shortcut Command Line to Specify Java Virtual Machine
2	`-vm` argument in `eclipse.ini` file	edit `eclipse.ini` file	see Appendix 2 – Configuring Eclipse Lunch Properties
3	Eclipse installation's `jre` subfolder	create `jre` subfolder and copy Java SE files to it	this subfolder is not a part of usual Eclipse installation
4	Windows search path	add Java `bin` subfolder to `PATH` variable	see PATH Environment Variable

If you use one of the options and later decide to switch to another one, pay attention to the order in which locations are searched. For example, if you have a `-vm` argument in an `eclipse.ini` file, added manually or automatically (by Eclipse Oomph installer), and you want to use `PATH` variable, the `-vm` argument has to be removed from the `eclipse.ini` file. Otherwise, the `-vm` specified Java virtual machine will be used, not the machine found in the Windows path.

Note 1 – The Eclipse launcher does not use `JAVA_HOME` environment variable.
Note 2 – See Eclipse Launcher for more details.

✓ Before trying Eclipse launch, be sure to enable one of the options described in the table.

✓ Pay attention to the order in which locations are searched, especially, if more than one is enabled.

Configuring Eclipse Lunch Properties

Eclipse launcher uses properties configured in `eclipse.ini` file that resides inside Eclipse installation folder. Sometimes, it might be necessary to change the properties, for example, to specify what Java virtual machine to use or how much memory to use.

➤ If you modify `eclipse.ini` file while Eclipse is running, the Eclipse has to be restarted for the changes to take effect.

If you use Eclipse Oomph installer, it may add Java SE `bin` subfolder pathname to the `eclipse.ini` file, as in the example below.

```
--launcher.defaultAction
openFile
--launcher.appendVmargs
-vm
C:\Program Files\OpenJDK\jdk-11.0.1\bin
-vmargs
-Dosgi.requiredJavaVersion=1.8
```

If you want Eclipse to run under a different Java SE virtual machine, exit Eclipse, if running, and edit this file - change the pathname, as described in Appendix 2 – Configuring Eclipse Lunch Properties (eclipse.ini), or remove these two lines completely. Additional details are provided in How Eclipse Launcher Locates Java Virtual Machine section later in this document.

Running Eclipse as Regular User vs Administrator

Running Eclipse as Regular User

If Eclipse is installed in a folder the user can write to (such as your user data folder) or if you are using Windows XP

✓ You can run Eclipse as regular user to install, update, and maintain Eclipse software. You may skip to Launching Eclipse section in such a case.

Running Eclipse as Administrator

If you are using Windows other than Windows XP and Eclipse is installed in a folder that the user cannot write to, for example, `C:\Program Files`

✓ You shall run Eclipse the first time as Administrator (to initialize it, see below)

✓ You have to run Eclipse as Administrator in order to be able to install and update Eclipse software.

✓ You shall use dedicated administrative workspace while running Eclipse.

✓ After Eclipse software is installed/updated, exit the Eclipse and start it again regular way.

See When to Run Eclipse as Administrator in Appendix 4 – Managing Eclipse Software for a walkthrough.

Initializing Shared Eclipse Installation as Administrator

To improve Eclipse performance, if Eclipse is installed in a folder that the user cannot write to, for example `C:\Program Files\Eclipse\Photon`, it is recommended to initialize Eclipse configuration data (such as caches).

If Eclipse is installed in a folder the user can write to, such as your user data folder, there is no need to initialize the configuration data (though it is safe to do so).

To initialize the data, it is enough to start Eclipse as Administrator, as described in the next section. While running Eclipse as Administrator, do software updates (if needed), fix Java SE 11 issues (if needed), install CDT Add-on (if needed). After it, exit Eclipse and then start it again as regular user.

Note – You can also initialize the data if you run `eclipse.exe` with `-initialize` option as Administrator. If you are interested in this option, see Initializing Shared Eclipse Installation via Command Line in Appendix 4 – Managing Eclipse Software.

Launching Eclipse

If Eclipse Launcher is already Running

You have to exit the launcher if it is running as regular user but you need it to run as Administrator, and vice versa. To exit the launcher, press **Cancel** button.

If Eclipse Launcher is not yet Running

If you are going to run Eclipse as regular user,

✓ If you have an Eclipse desktop shortcut, the Eclipse launcher can be started by double clicking on the shortcut. Or use Windows Explorer to find Eclipse launcher `eclipse.exe` file and double click it. You can also open a command line window (`cmd`), change to the Eclipse installation directory, and call `eclipse.exe` from there.

If you are going to run Eclipse as Administrator,

✓ If you have an Eclipse desktop shortcut, the Eclipse launcher can be started by selecting **Run as Administrator** option from the context menu. Or use Windows Explorer to find Eclipse launcher `eclipse.exe` file and select **Run as Administrator** option from the context menu. You can also open a command line window (`cmd`) as Administrator, change to the Eclipse installation directory, and call `eclipse.exe` from there.

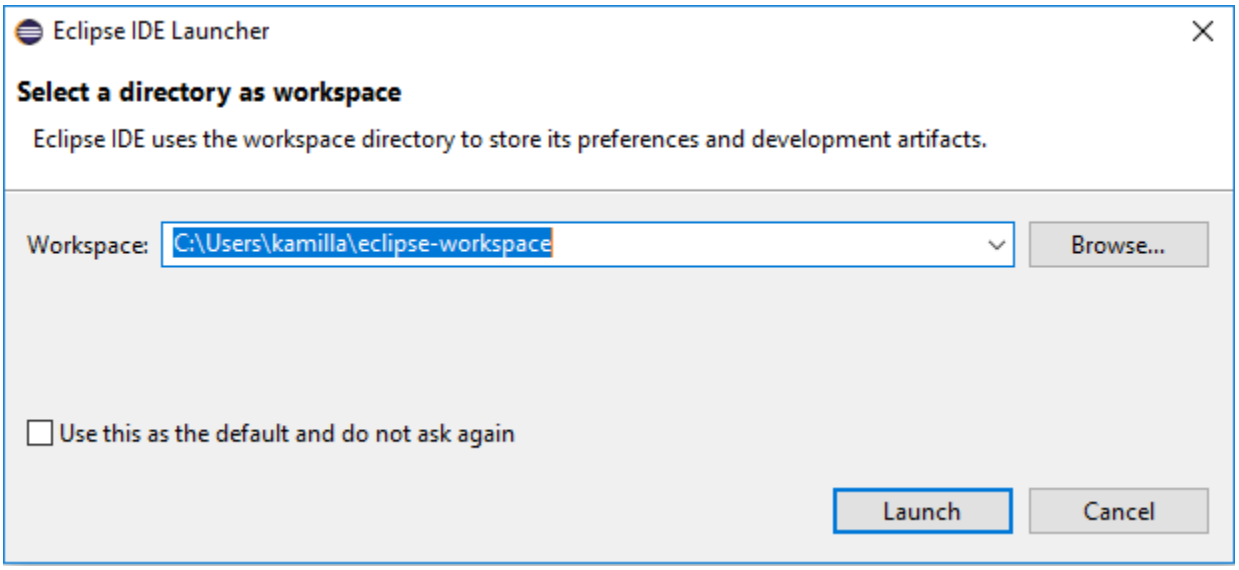
Launcher Process

The launcher will figure out what Java virtual machine to use if you added Java `bin` subfolder to Windows path or enabled one of the options explained in Enabling Eclipse Launching via OpenJDK and How Eclipse Launcher Locates Java Virtual Machine sections.

Then the launcher will start the Eclipse application using the found Java virtual machine.

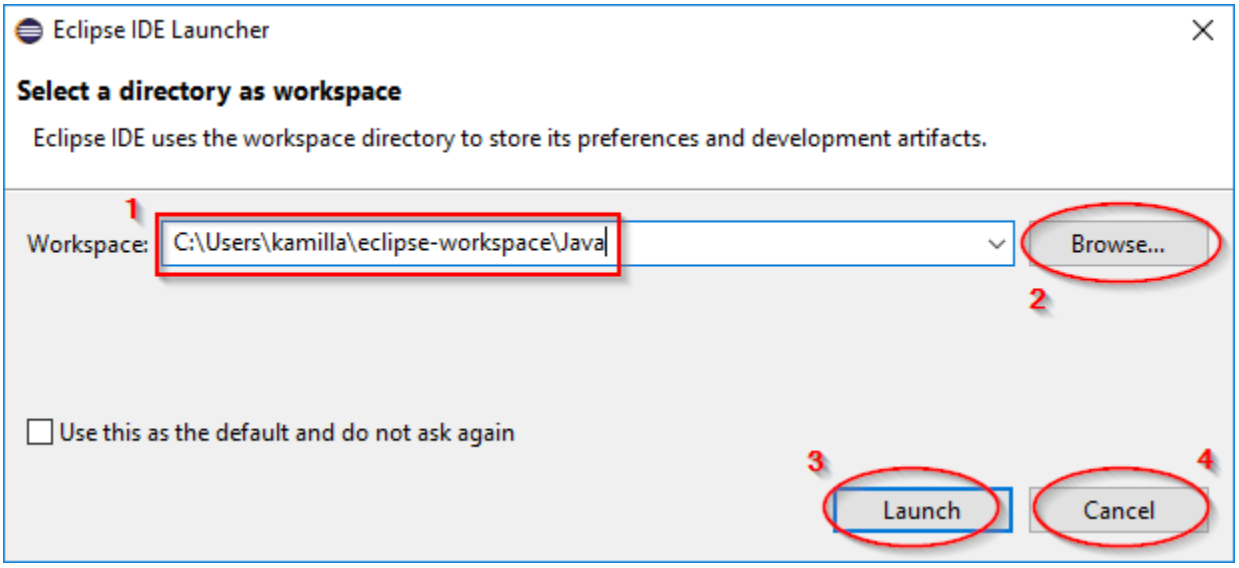
When the launcher is running, you will see a splash window.

After the splash window you will see **Eclipse IDE Launcher** window.



You can use the suggested workspace folder path. If you do not like it, enter whatever workspace folder path you prefer. The workspace folder contains all files related to your development projects (source code, data files, binary files, etc.). You can have multiple workspaces (for example, all java projects in one workspace, and C++ projects in another workspace). Each workspace has own set of preferences, so you can customize the workspaces to your needs.

Selecting Workspace when Run as Regular User

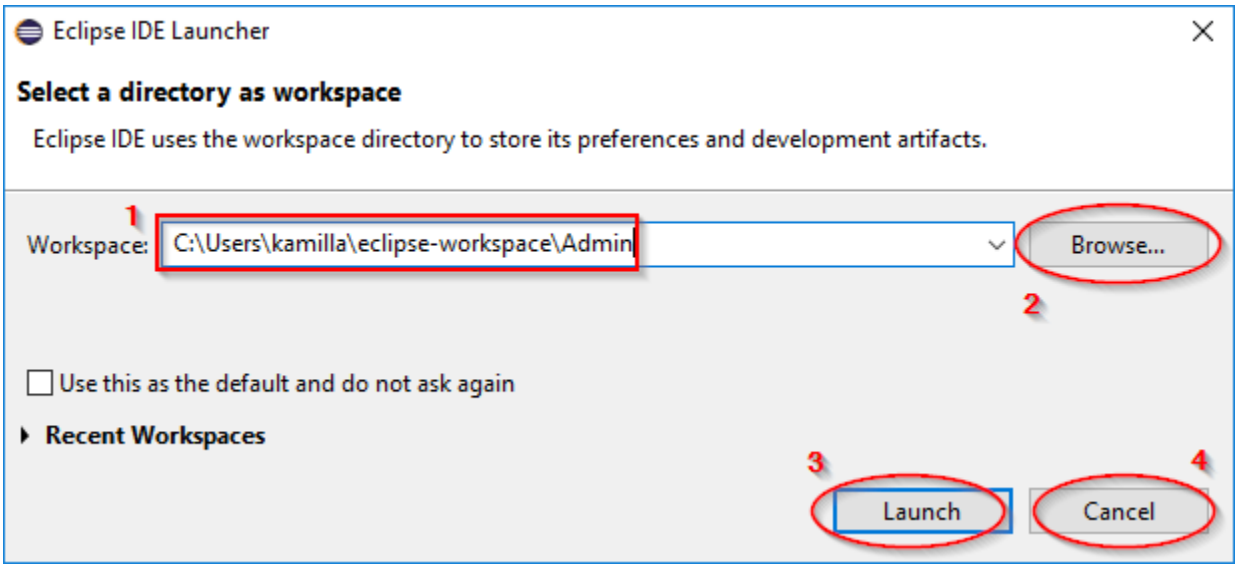


Enter the workspace folder name in **Workspace** field ①. For example, add **\Java** to the pathname. Use **Browse** button ② to select the folder, if needed.

Press **Launch** button ③ to start the Eclipse. Press **Cancel** button ④ if you want to exit the Eclipse.

Selecting Workspace when Run as Administrator

If the Eclipse is run as Administrator, we recommend creating a dedicated administrative workspace.



Enter the administrative workspace folder name in **Workspace** field ①. For example, add **\Admin** to the pathname. Use **Browse** button ② to select the folder, if needed.

Press **Launch** button ③ to start the Eclipse. Press **Cancel** button ④ if you want to exit the Eclipse.

Note – The workspace folder will be owned by Administrators. It shall be used for Eclipse software management and for testing. Some Eclipse functionality might not work if the workspace is used by a regular user. See When to Run Eclipse as Administrator section in Appendix 4 – Managing Eclipse Software.

Starting Eclipse Application

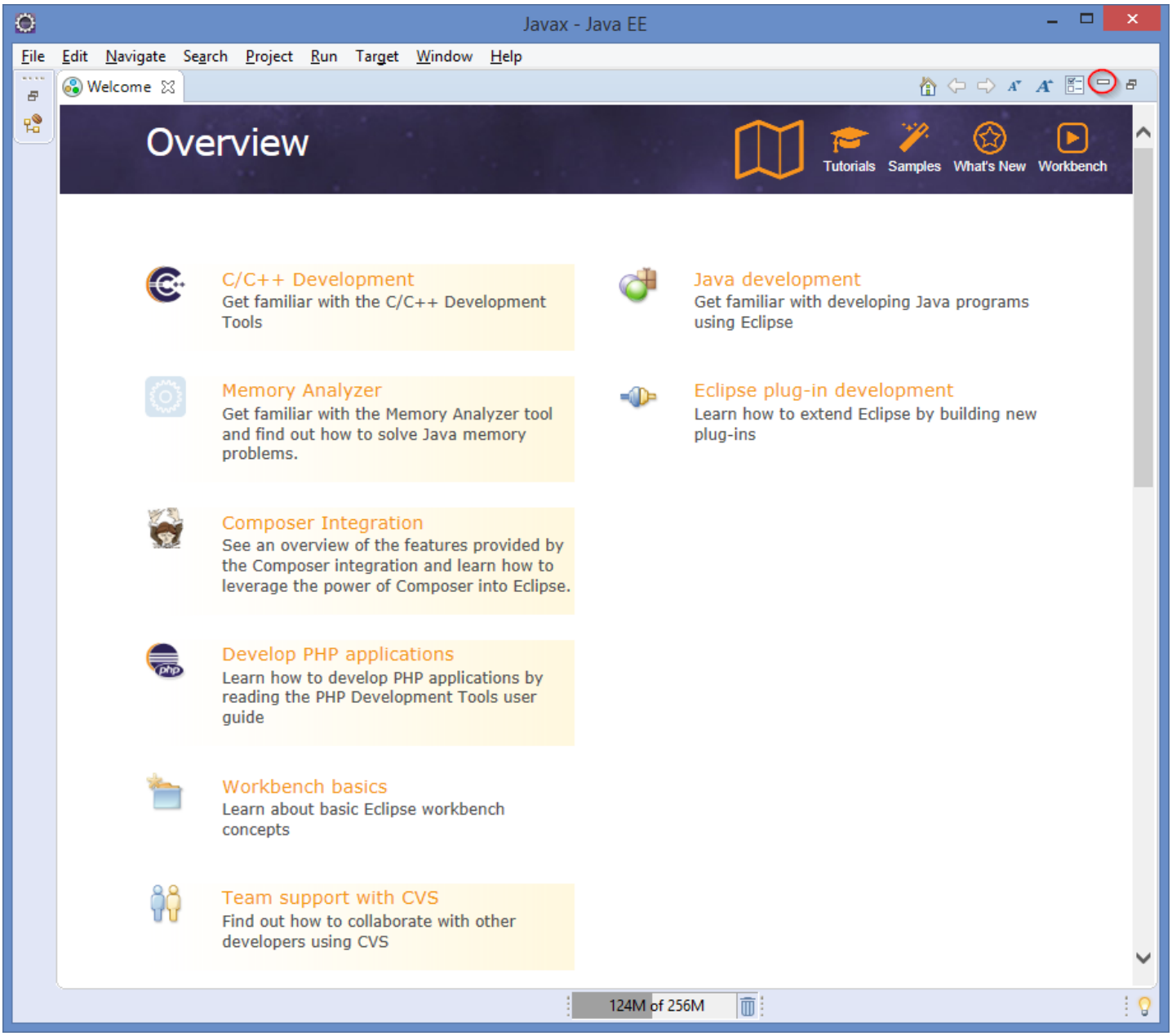
After Eclipse launcher figures out what Java virtual machine to use and what workspace to open, it starts the Eclipse application itself.

You will see Eclipse application splash window.

After few seconds you will see a welcome window. The specific window depends on the installed Eclipse variant – Eclipse IDE for Java, Java EE, or C/C++ Developers.

➤ If you already have some instance of Eclipse installed and you are installing a different instance of Eclipse, you may be prompted to reinstall previously installed plugins when you run the new instance for the first time. In such a case, see Importing and Reinstalling Previously Installed Eclipse Plugins in Appendix 4 – Managing Eclipse Software. Return here after you deal with the plugins reinstall.

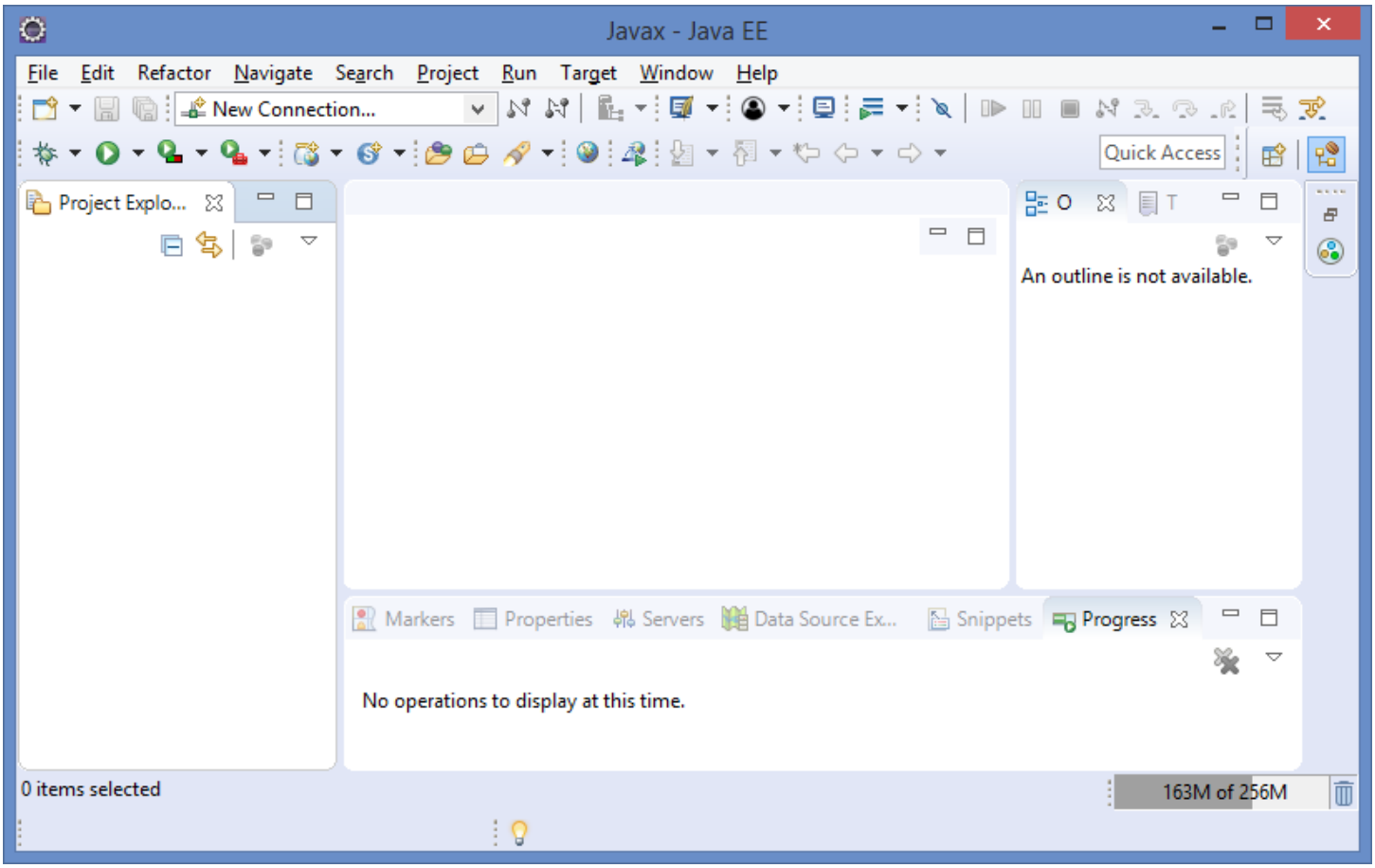
When the Eclipse is finally started, you will see a **Welcome** (also called overview) pane similar to one below



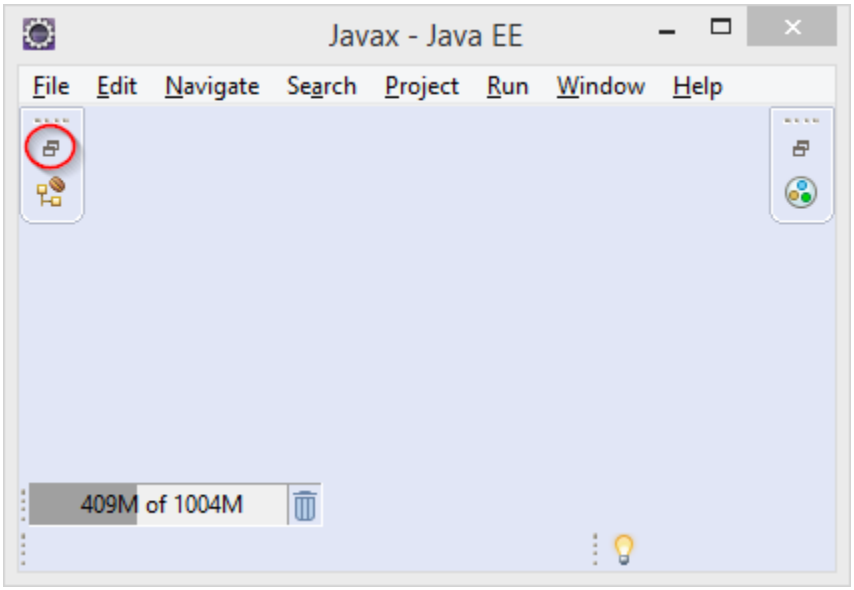
In this screenshot, the overview contains a mix of C/C++, Java, and PHP information because I installed C/C++ and PHP plugins in addition to basic Java Enterprise Eclipse variant.

What you see in the **Welcome** pane depends on the Eclipse variant and additionally installed Eclipse software.

Click on "**Minimize**" icon inside Eclipse window to minimize the **Welcome** pane. As a side effect other, previously minimized, elements of Eclipse interface will become visible.



Sometimes, after the start, everything is minimized as in the example below



In such a case, click on "**Restore**" icon inside Eclipse window to restore (unminimize) it.

First Software Update

If you used Eclipse Oomph Installer, there is no need to update the software at this point (the installer does it automatically). Skip to the next section in such a case.

If you used ZIP archive to install Eclipse, after Eclipse is installed and run the first time, it is recommended to update the Eclipse software. See Updating Eclipse Software (in Appendix 4 – Managing Eclipse Software) for the detailed walkthrough.

✓ If you are using Windows other than Windows XP and Eclipse is installed in a folder that the user cannot write to (for example, inside `C:\Program Files`), you have to run Eclipse as Administrator in order to be able to install and update Eclipse software. See When to Run Eclipse as Administrator (in Appendix 4 – Managing Eclipse Software) for more details.

✓ To be able to install and update software, Eclipse requires an Internet access. By default, Eclipse uses the same settings as Edge and Internet Explorer browsers, so, if you can browse the Internet via these browsers, you, very probably, will be able to use install and update features in Eclipse. See Appendix 3 – Configuring Eclipse for Internet Access if you are having Internet connectivity problems in Eclipse.

If needed, close Eclipse, start it again as Administrator, and select administrative workspace.

Open **Help** menu and select **Check for updates**. If the updates are found, Eclipse will display **Available Updates** window.

Be sure that all desired updates are selected and press **Next** button. Review the list of updates one more time, press **Next** button again to continue. Review the licenses, check **I accept the terms of the license agreements,** and press **Finish** button to continue.

Finally, after the software is updated, you will see a prompt asking to restart Eclipse. Press **Restart Now** button and wait until the Eclipse is restarted.

If Eclipse is running as Administrator and you do not intend to install any additional Eclipse software - press **No** button instead, exit Eclipse, and start Eclipse again in regular way, if needed.

Java SE 11 Issues

If Java SE 11 is used to run Eclipse IDE for Java Developers, you may experience issues mentioned in this section. It is also possible that the issues are resolved in the Eclipse version that you use.

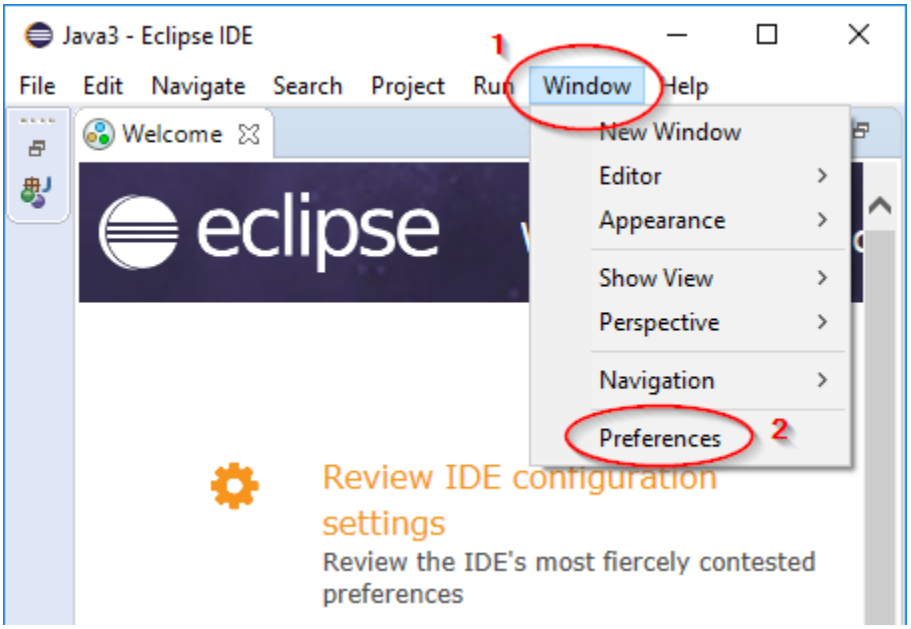
How to check and fix the issues is described below.

Note - If you used ZIP archive to install Eclipse, try first to update Eclipse software as described in the previous section.

'Features may not work as expected' Issue

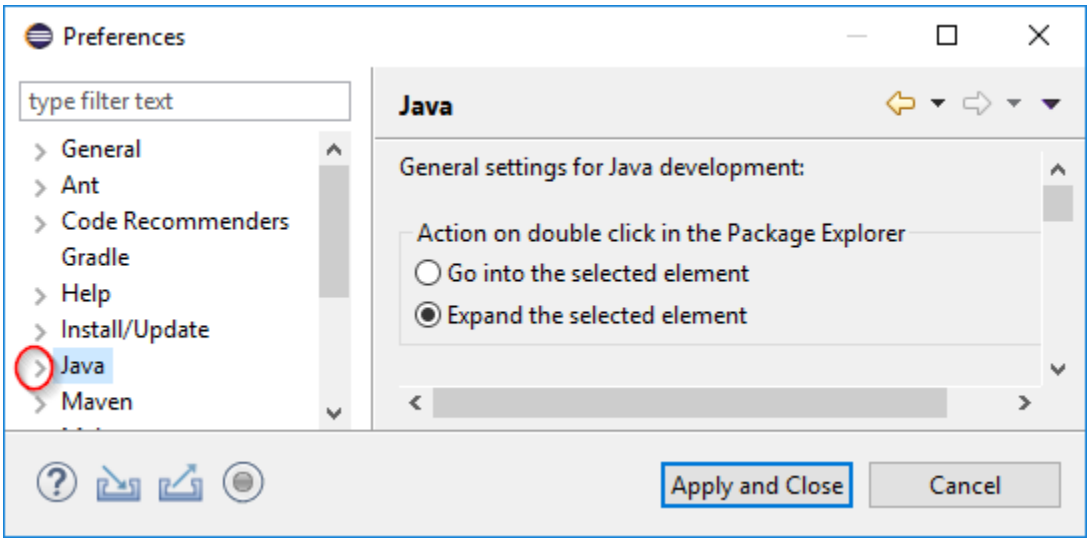
If Java SE 11 is used to run Eclipse IDE for Java Developers, you may see warning message **"You selected a JRE that this version of Eclipse JDT does not yet support fully. Some of the features may not work as expected."**

You can disregard this message if you are not going to use Java SE 11 new features in your source code. See Java 11 Support in Eclipse for more information about the features. If you want to use them, install Eclipse software items as detailed in Installing Java SE 11 Support Patch section.

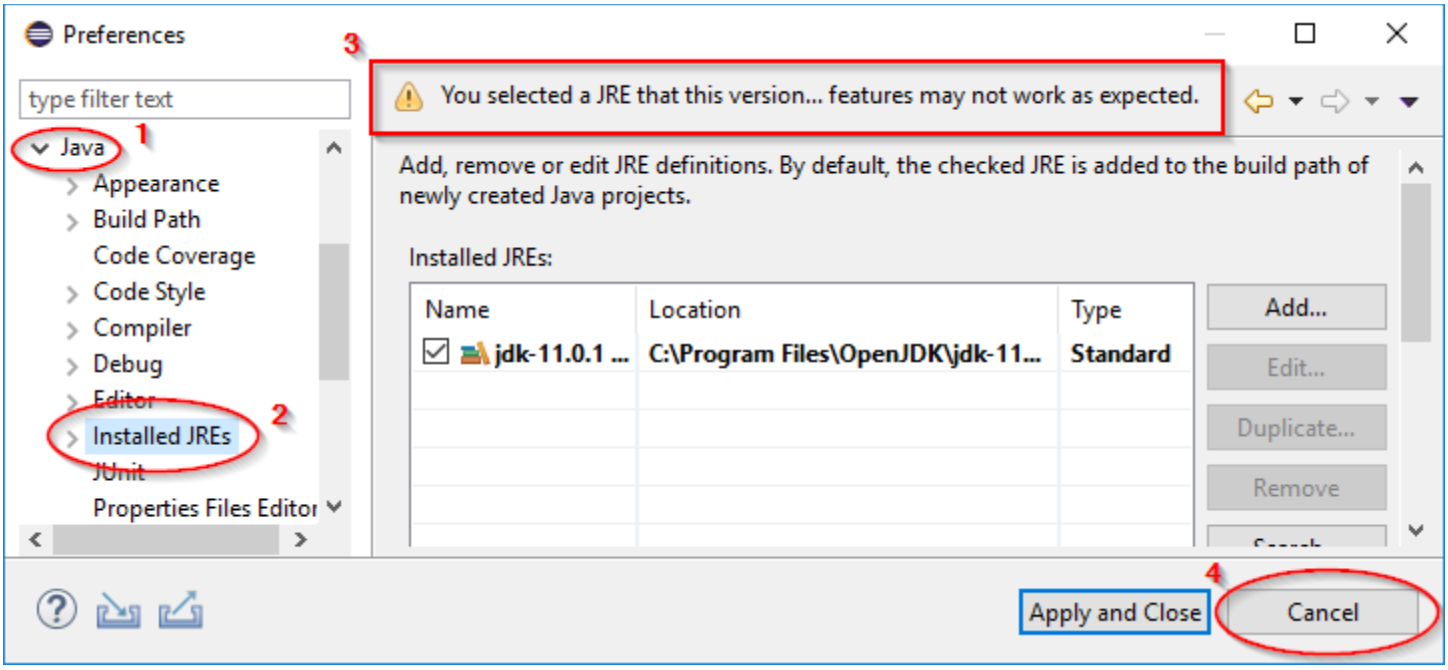


To check if you have this issue, in Eclipse, open **Window** menu and select **Preferences** option.

You will see Eclipse preferences window.



Click on a small white triangle ▷ (or angle ›) left to "**Java**" to open Java preferences. If you do not see the (tri)angles, move the mouse pointer to the left (white) panel and the (tri)angles will appear.



In the **Java** preferences ①, select **Installed JREs** ②.

You have the issue if you see the warning ③ **"You selected a JRE that this version of Eclipse JDT does not yet support fully. Some of the features may not work as expected".**

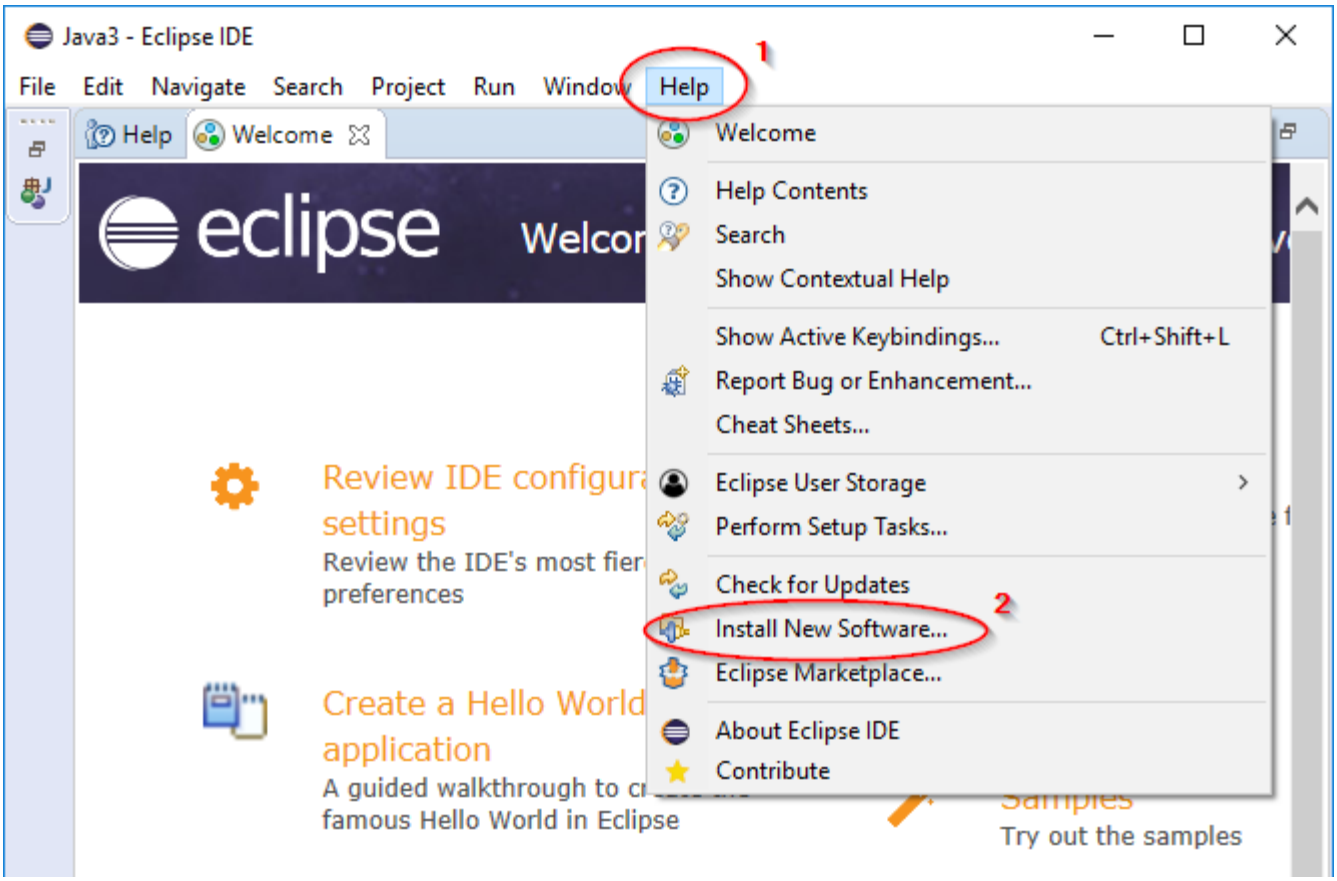
Press **Cancel** button ④ to close the preferences.

Installing Java SE 11 Support Patch

✓ If you are using Windows other than Windows XP and Eclipse is installed in a folder that the user cannot write to (for example, inside `C:\Program Files`), you have to run Eclipse as Administrator in order to be able to install and update Eclipse software. See When to Run Eclipse as Administrator (in Appendix 4 – Managing Eclipse Software) for more details.

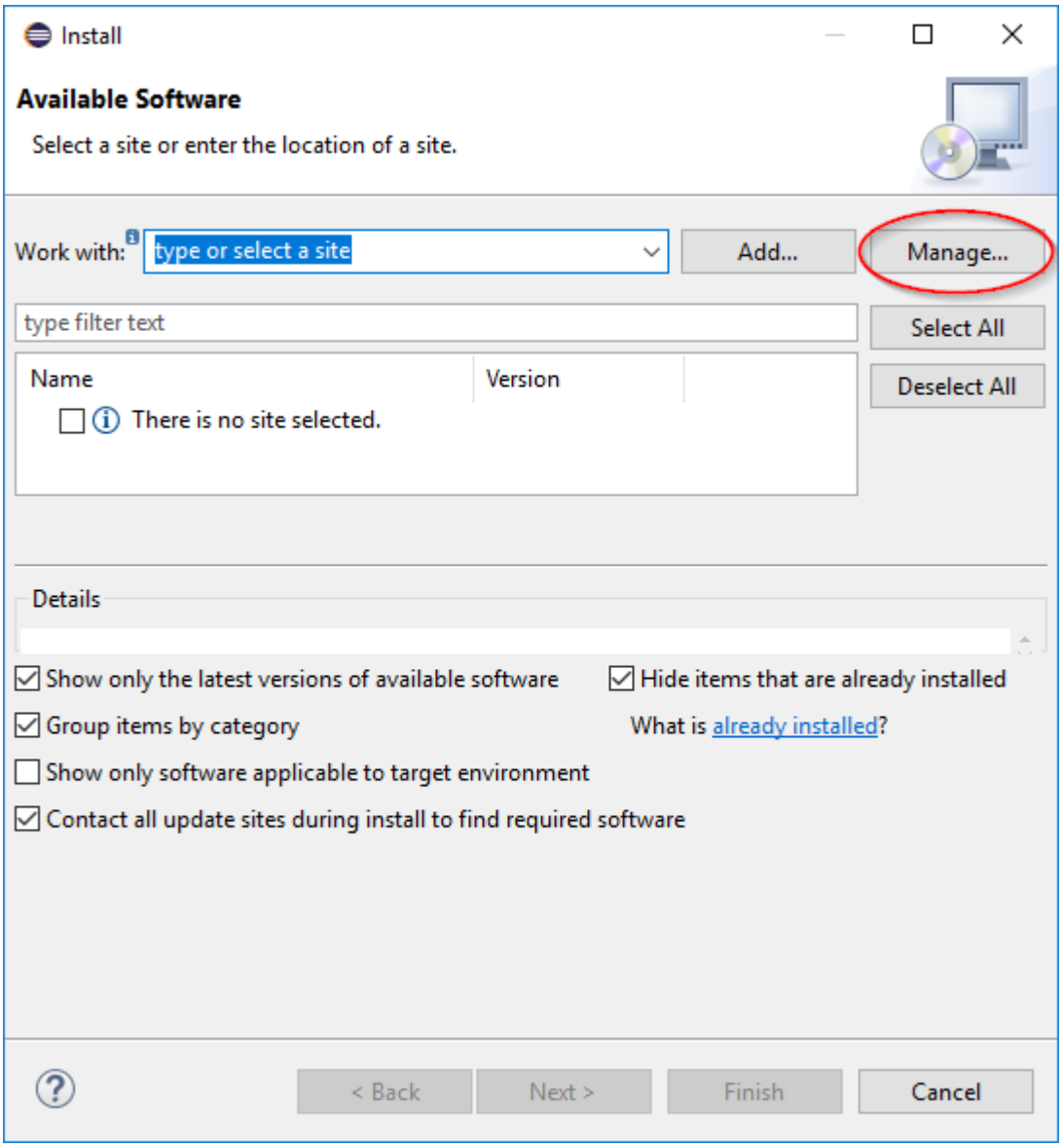
✓ To be able to install and update software, Eclipse requires an Internet access. By default, Eclipse uses the same settings as Edge and Internet Explorer browsers, so, if you can browse the Internet via these browsers, you, very probably, will be able to use install and update features in Eclipse. See Appendix 3 – Configuring Eclipse for Internet Access if you are having Internet connectivity problems in Eclipse.

If needed, close Eclipse (open **File** menu and select **Exit** option), start it again as Administrator, and select administrative workspace.



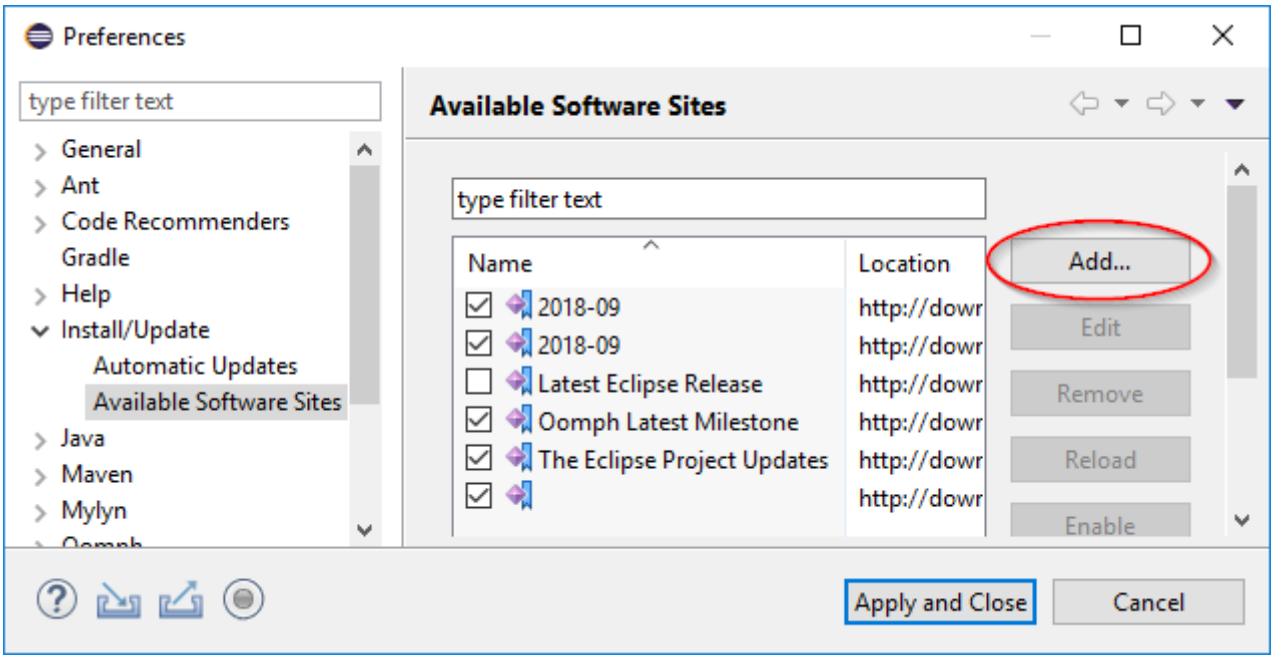
Open **Help** menu ① and select **Install Additional Software** option ②.

You will see **Available Software** window

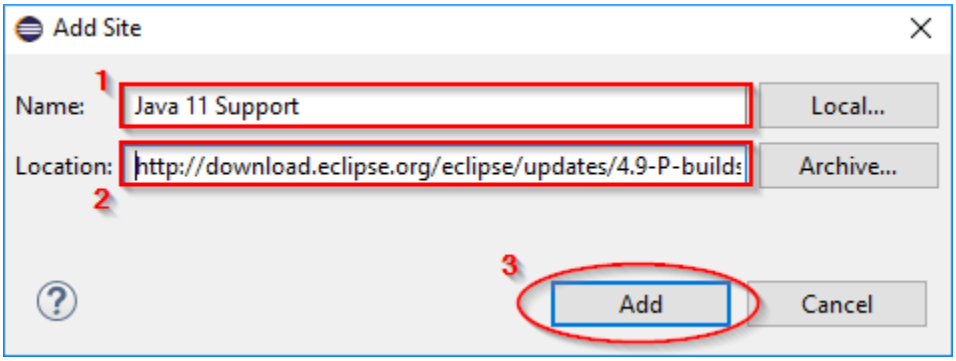


On the **Available Software** page, press **Manage** button.

You will see **Available Software Sites** preferences.



Press **Add** button to add a new software site. It will open **Edit Site** pop-up window.



In the **Name** field ① enter

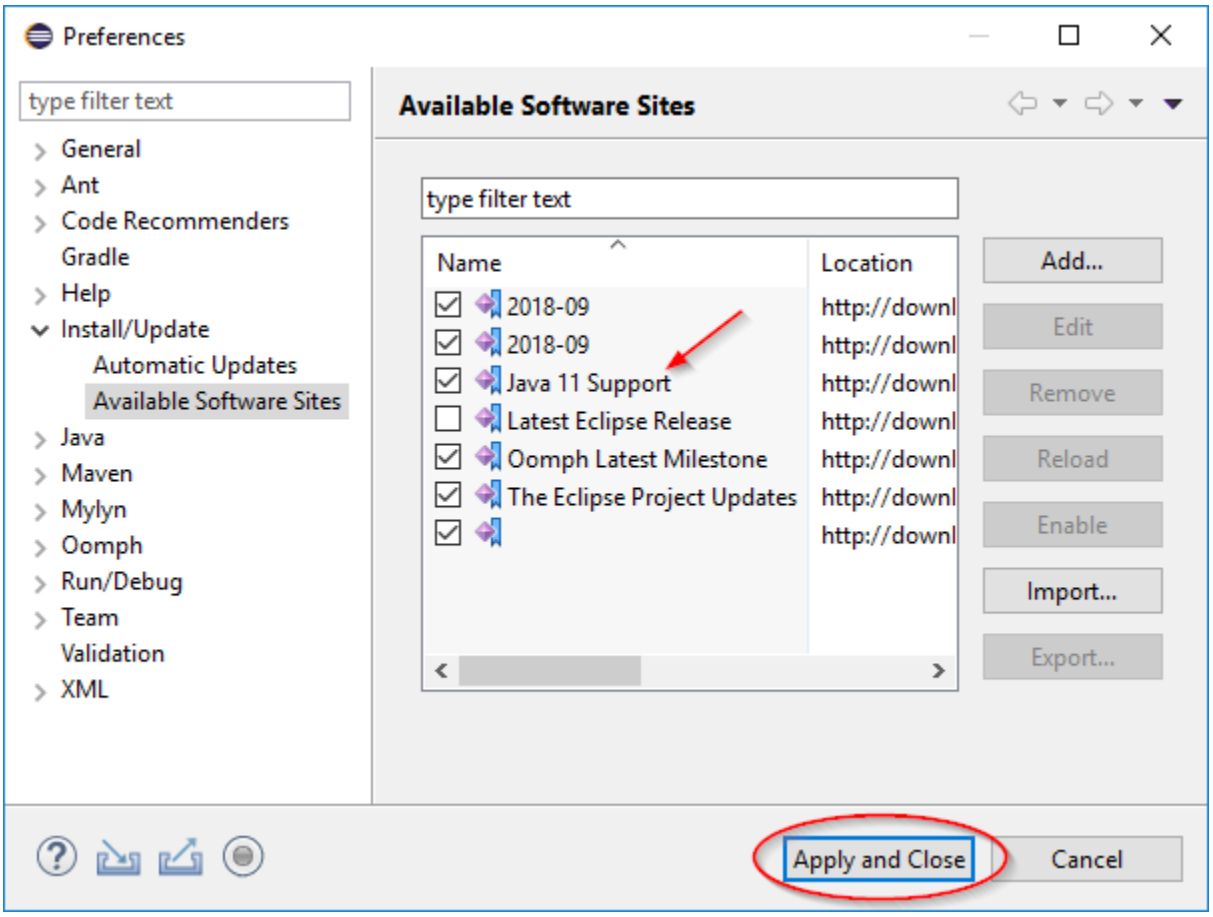
```
Java 11 Support
```

In the **Location** field ② enter

```
http://download.eclipse.org/eclipse/updates/4.9-P-builds
```

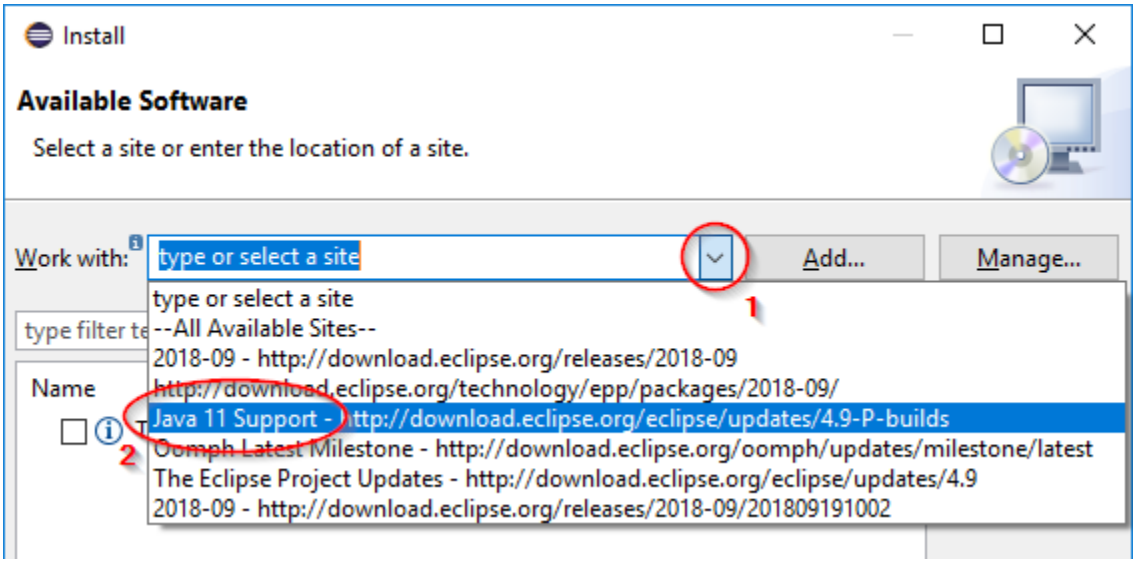
Press **Add** button ③ to add the site and to close the pop-up window.

You will see an updated list of software sites.

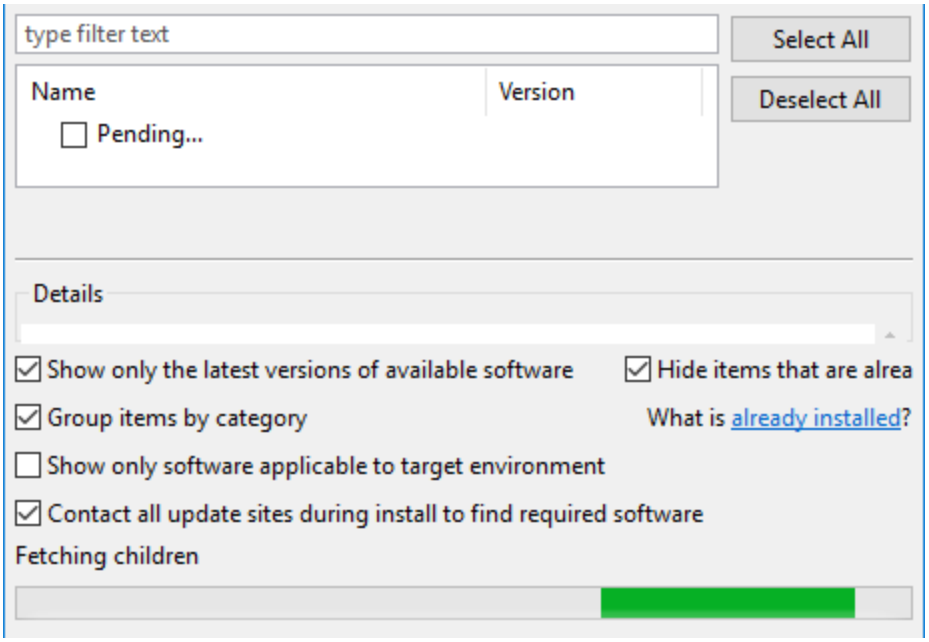


Press **Apply and Close** button to save and close the preferences.

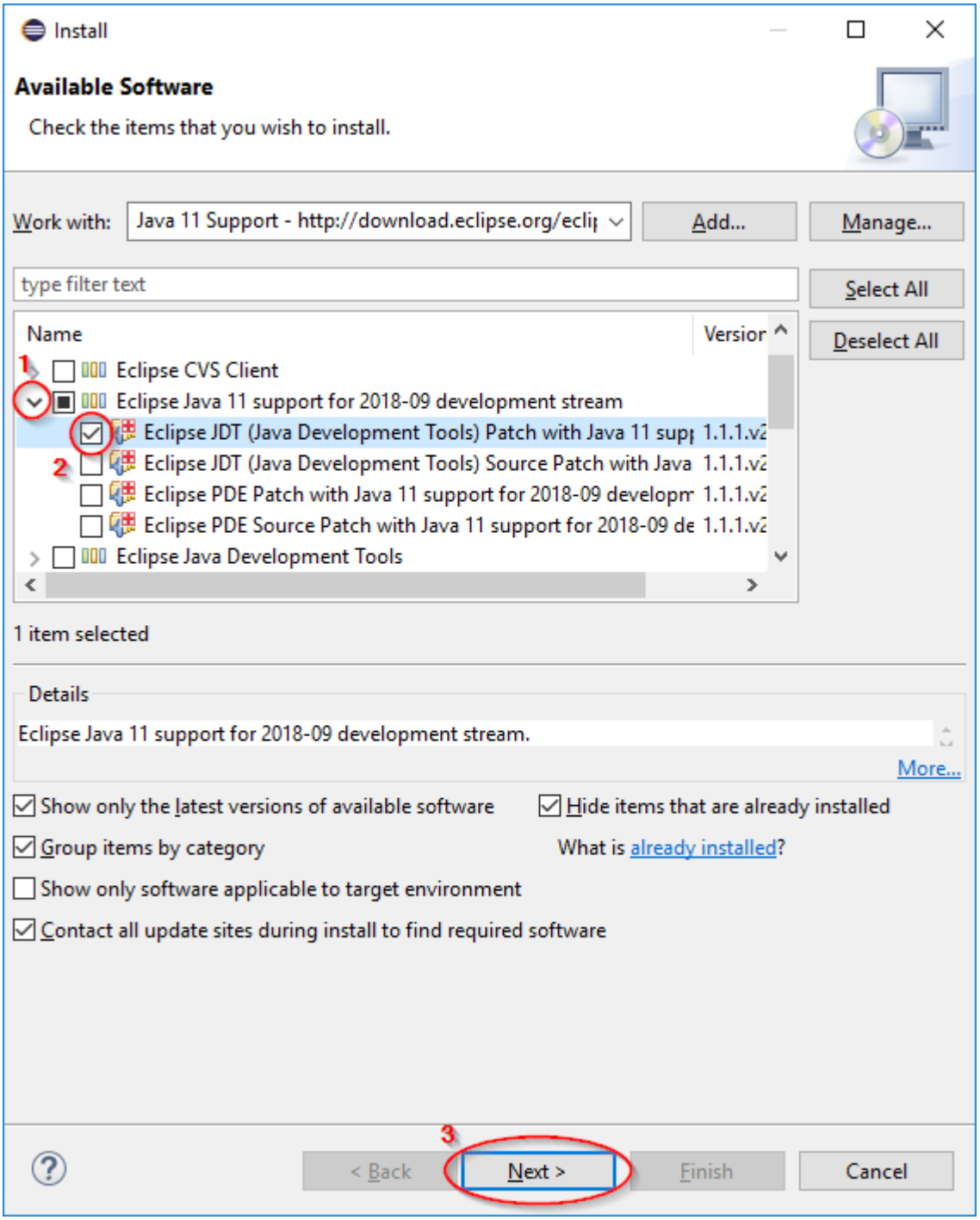
You will be returned to the **Available Software** window.



Open ① the drop-down list of software sites. Select **Java 11 Support** site ②.

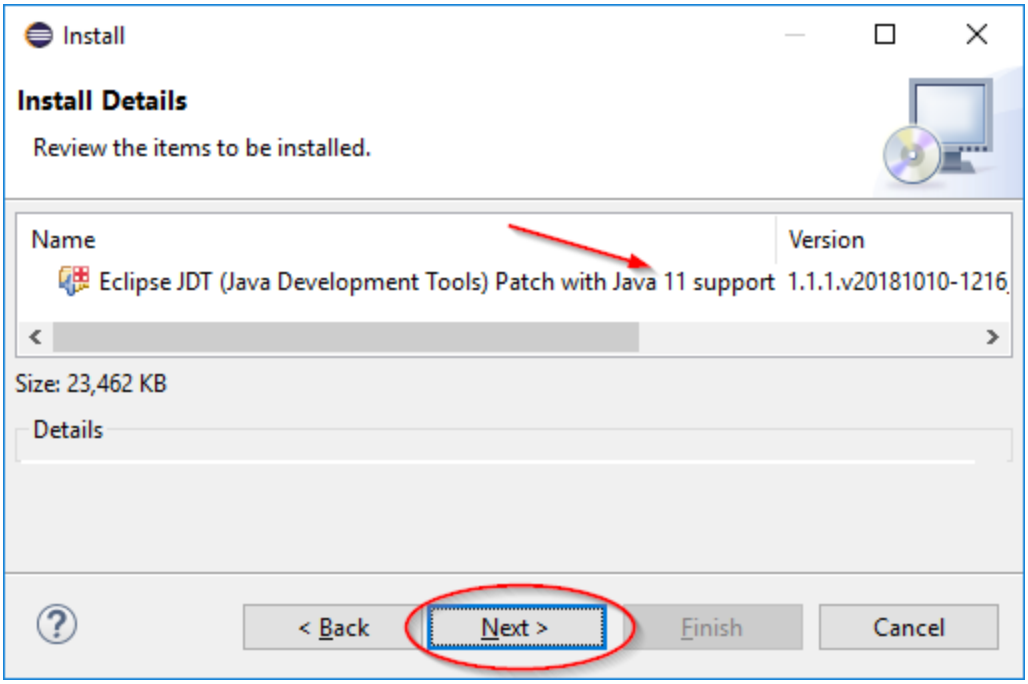


Wait until the software list is processed.

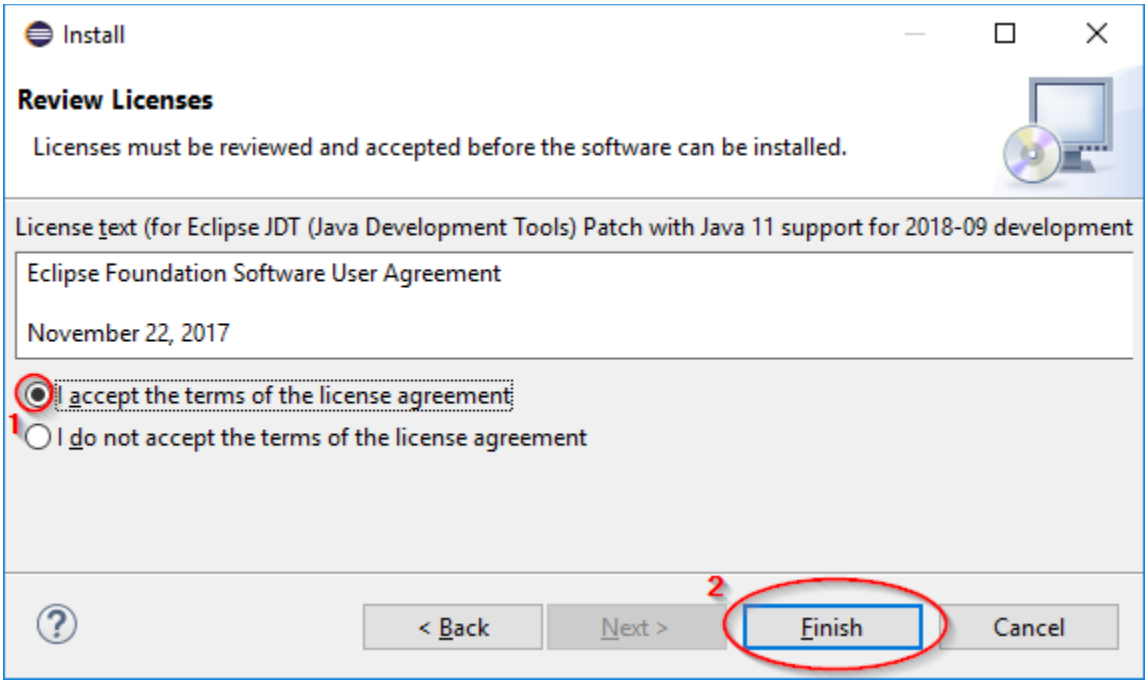


Click on white triangle ▷ (or angle ›) left to **Eclipse Java 11 support…** ① to open a list of software items in the group.

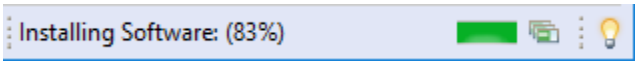
Check **Eclipse JDT (Java Development Tools) Patch with Java 11 support…** item ②. Press **Next** button ③ to continue.



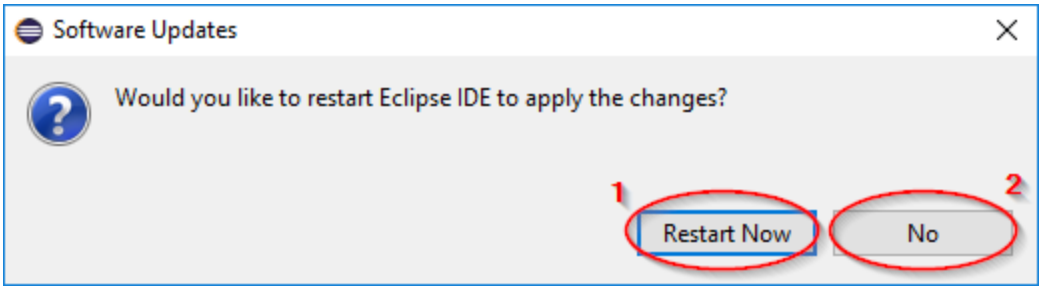
Press **Next** button (if there is no **Next** button but there is **Finish** button, press **Finish** button).



Review the license and select option **I accept…** ①. Press **Finish** button to proceed. The installation progress status will be displayed at the Eclipse main window bottom.



Wait until the software is installed.



Press **Restart Now** button ① and wait until the Eclipse is restarted if

- Eclipse is running as regular user and the current workspace is to be used for Java development
- Or Eclipse is running as administrator and you intend to do more Eclipse software management as administrator

Otherwise press **No** button ② instead, exit Eclipse, and start Eclipse again (and create Java dedicated workspace, if so desired).

Note – As long as **Java 11 Support** site is enabled in **Available Software Sites** preferences, the Java 11 patch will be shown in the list of available updates every time, does not matter that it is already installed. It is annoying but harmless. To remove the patch from the list, disable (uncheck) **Java 11 Support** site in the preferences.

Eclipse is (Almost) Done

I you installed Eclipse for Java (or Java EE), at this point, the Eclipse is (almost) ready for Java (and, possibly, Java EE) development but not for C/C++ development.

- If you want to develop C/C++ programs, C/C++ Development Tool kit (CDT) add-on has to be installed proceed to Installing Eclipse C/C++ Development Tooling (CDT) section below.
- Otherwise proceed to Eclipse IDE Basics section.

If you installed Eclipse IDE for C/C++ Developers, at this point, the Eclipse is (almost) ready for C/C++ development but not for Java development.

- You still need to install Cygwin (or another build system) to be able to compile, link, run, and debug C/C++ applications. Proceed to Installing Cygwin section.
- If you want to develop Java programs, Java Development Tool kit (JDT) add-on has to be installed. The installation of JDT add-on is out of scope of this document. It, though, is very similar to installation of CDT add-on described below in Installing Eclipse C/C++ Development Tooling (CDT) section.

Installing Eclipse C/C++ Development Tooling (CDT)

Eclipse C/C++ Development Tooling (CDT)[🌐] is an add-on to Eclipse IDE. It is a part of Eclipse IDE for C/C++ Developers, so you do not need to install CDT if Eclipse IDE for C/C++ Developers is installed.

If you have Eclipse IDE variant other than Eclipse IDE for C/C++ Developers and want to do C/C++ development, you will have to install CDT add-on.

CDT add-on consists of multiple Eclipse plugins, the recommended minimum is listed below (It will take approximately 58 MiB of disk space).

- **"C/C++ Development Tools"**
- **"C/C++ Library API Documentation Hover Help"**
- **"C/C++ Unit Testing Support"**
- "**TM Terminal**"
- "**Mylyn Context Connector: C/C++ Development**"

For a complete list of software items in CDT add-on, see Appendix 10 – List of Software Items included in Eclipse CDT. Review them and install as needed.

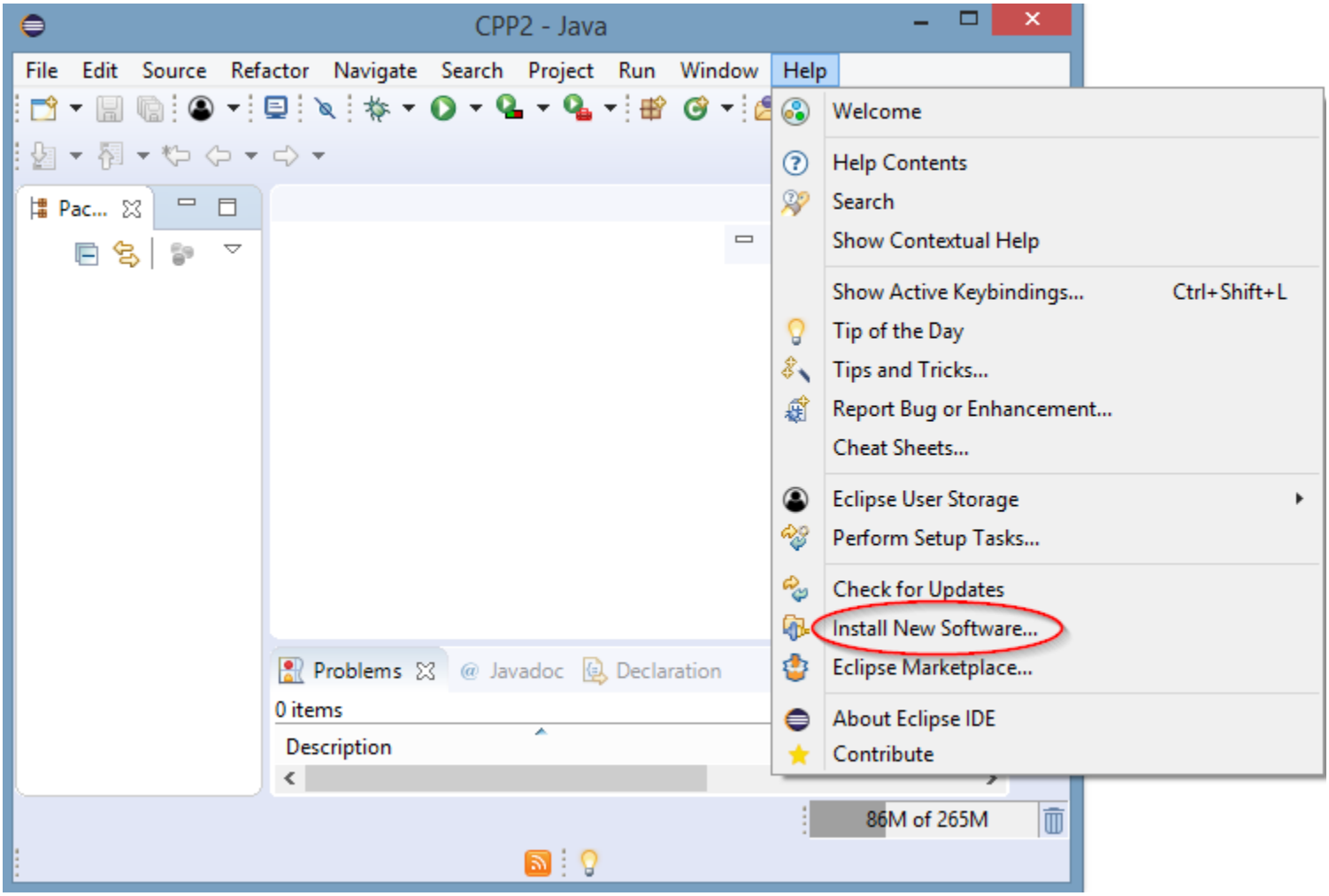
✓ If you are using Windows other than Windows XP and Eclipse is installed in a folder that the user cannot write to (for example, inside `C:\Program Files`), you have to run Eclipse as Administrator in order to be able to install and update Eclipse software. See When to Run Eclipse as Administrator (in Appendix 4 – Managing Eclipse Software) for more details.

✓ To be able to install and update software, Eclipse requires an Internet access. By default, Eclipse uses the same settings as Edge and Internet Explorer browsers, so, if you can browse the Internet via these browsers, you, very probably, will be able to use install and update features in Eclipse. See Appendix 3 – Configuring Eclipse for Internet Access if you are having Internet connectivity problems in Eclipse.

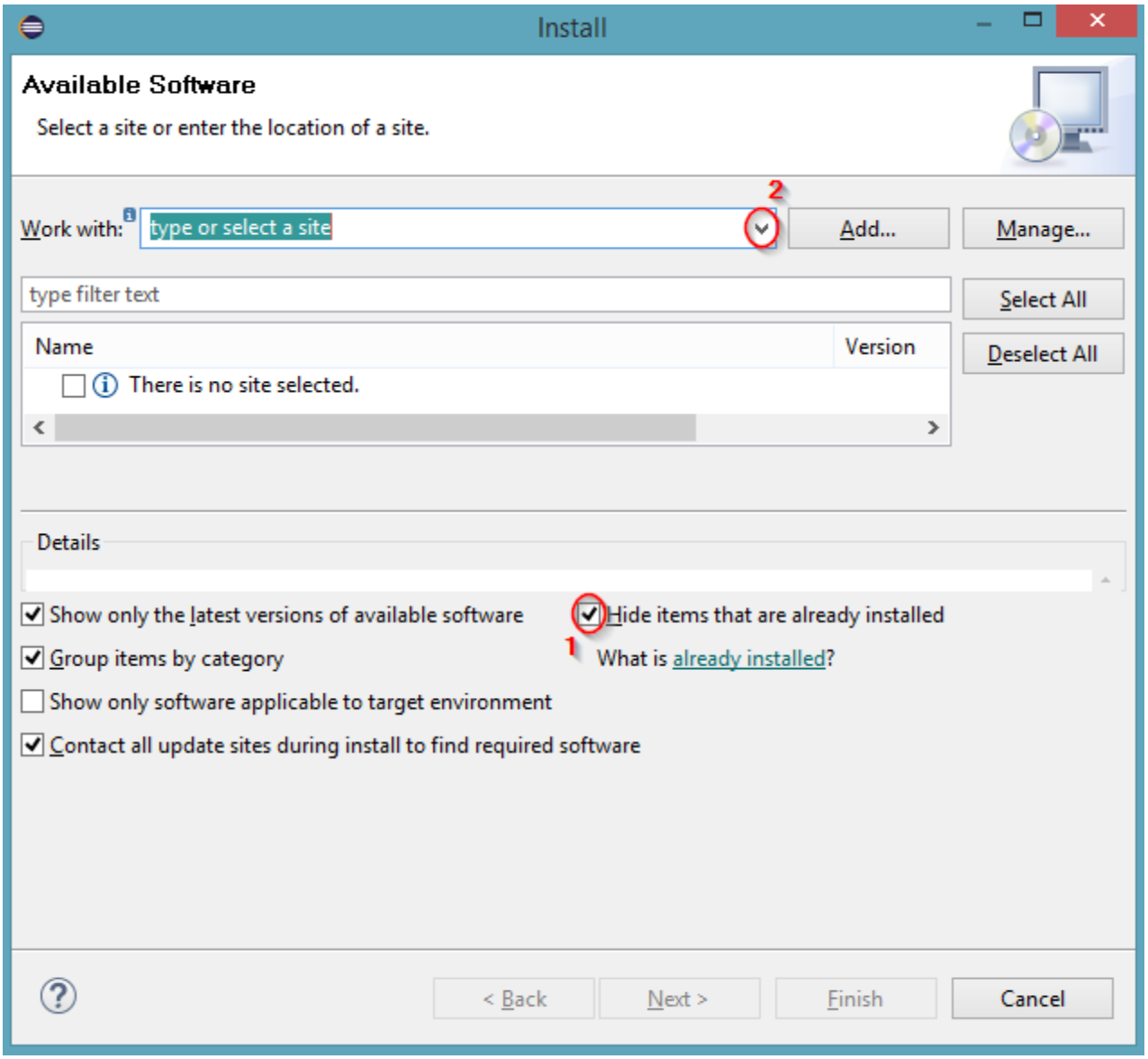
Installing CDT Add-on

If needed, close Eclipse (open **File** menu and select **Exit** option), start it again as Administrator, and select administrative workspace.

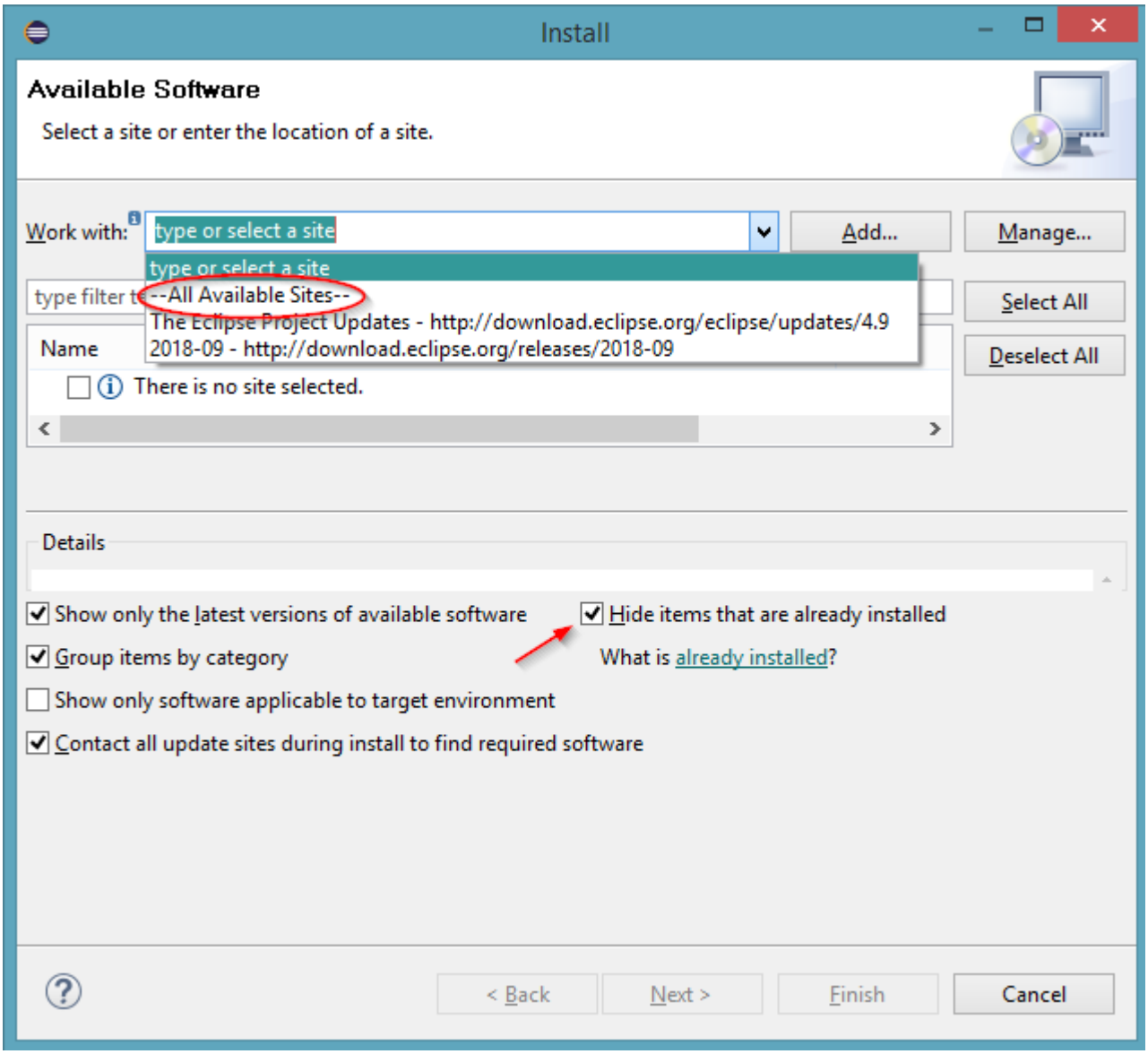
In the Eclipse window, open **Help** menu, select **Install New Software** option.



You will see **Available Software** window

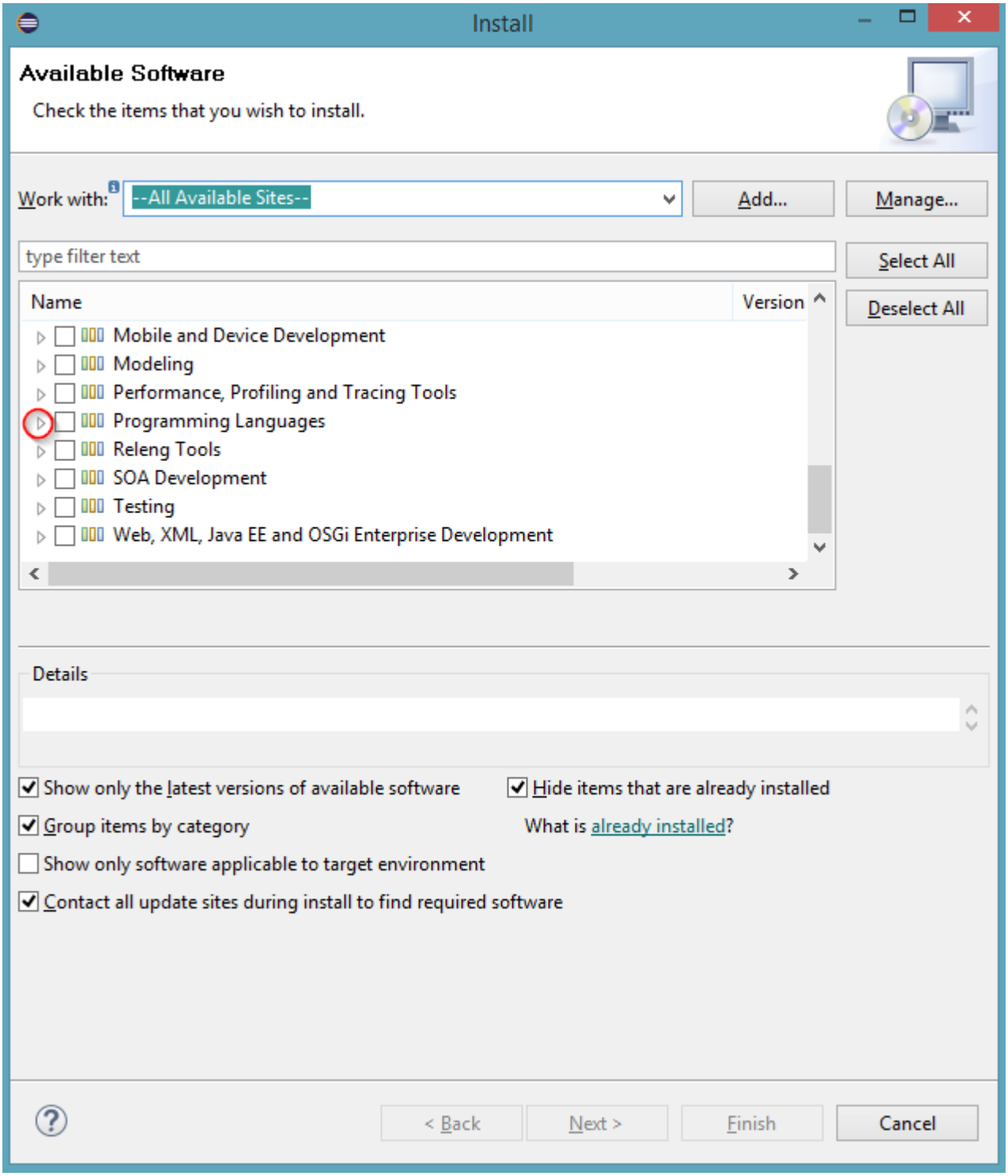


Check **Hide items that are already installed** ① if it is not checked already. Click small (tri)angle left to **Add** button ② to open a menu of software "sites".

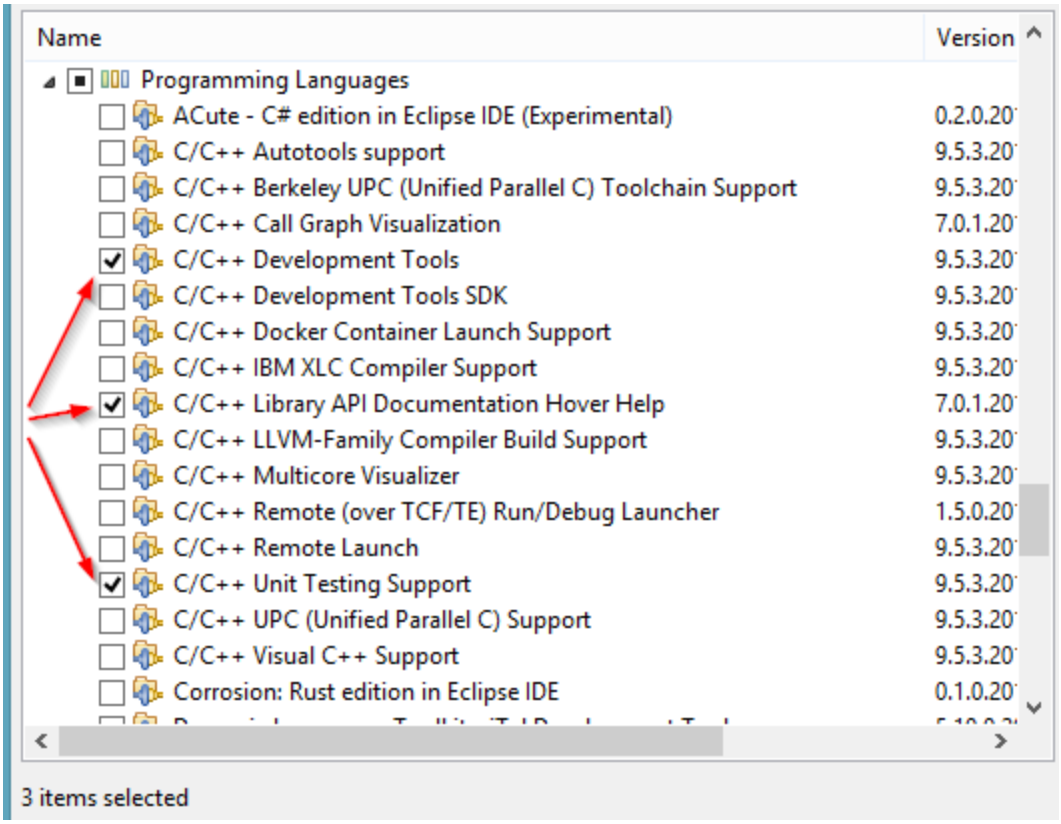


Select **All Available Sites** option and wait. It may take few minutes for Eclipse to process required data.

Selecting Software Items to Install



Scroll down until you see **Programming Languages** group. Click on white triangle ▷ (or angle ›) left to "**Programming Languages**" to open a list of software items in the group.



If you are installing Eclipse Photon (or Juno, or any later version) check items listed below

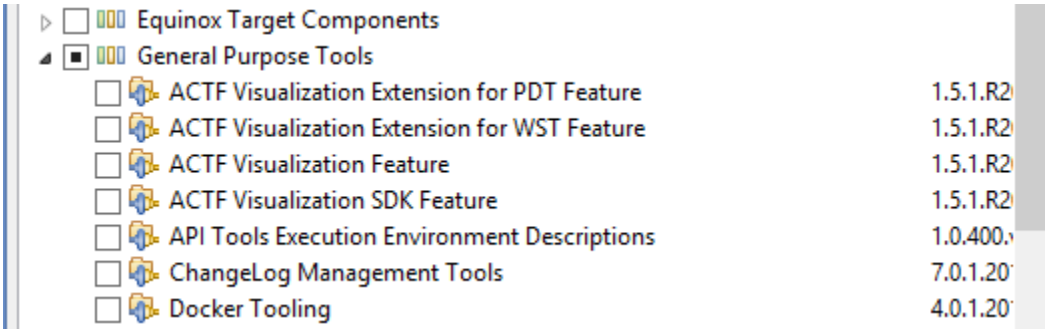
"C/C++ Development Tools"
"C/C++ Library API Documentation Hover Help"
"C/C++ Unit Testing Support"

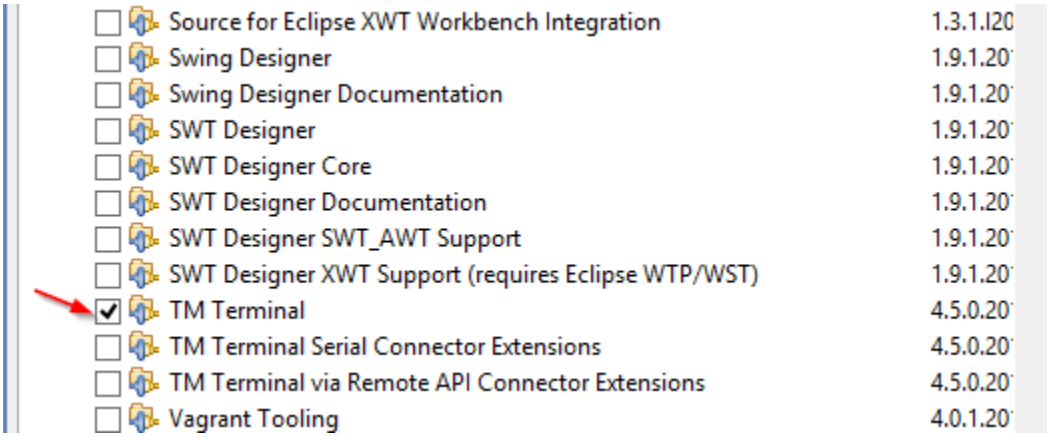
If you are installing Eclipse Indigo check items listed below

"**C/C++ Development Tools**"
"**C/C++ Library API Documentation Hover Help**"

If some item is mentioned twice, select one that has newer version.

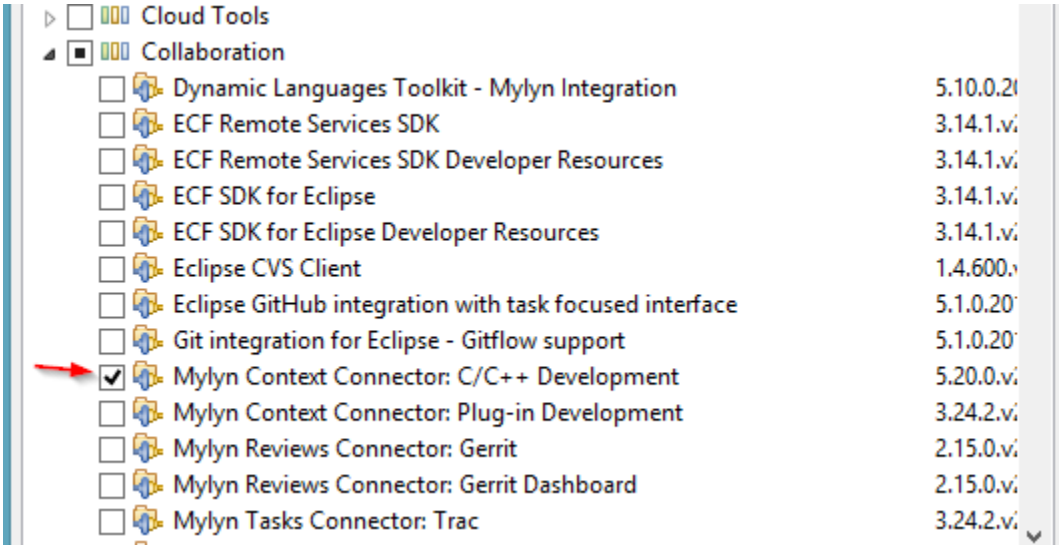
Scroll up until you see **General Purpose Tools** group. Click on white triangle ▷ (or angle ›) left to it to open a list of general software.





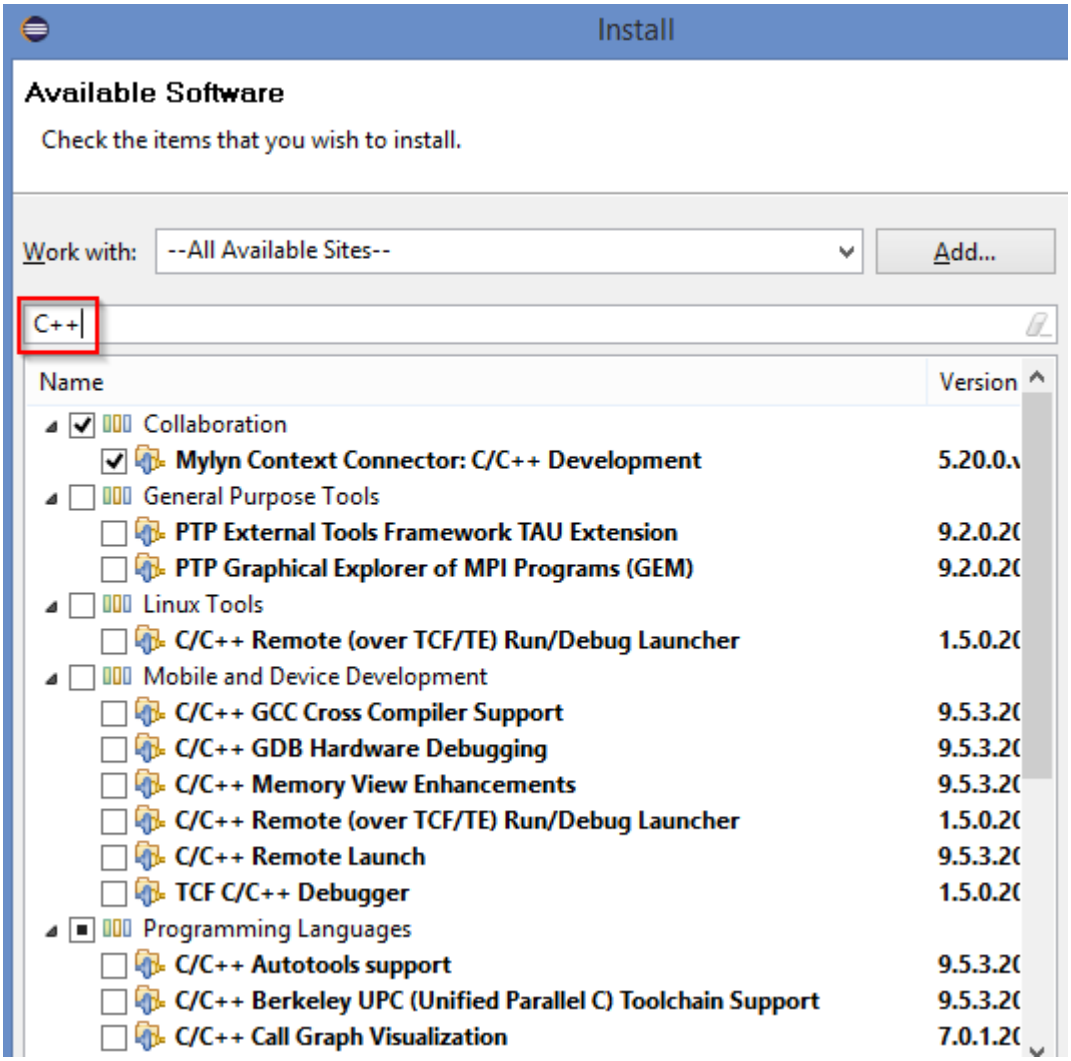
Check "**TM Terminal**" item if you see it. By default, already installed items are not shown. So, if you cannot "**TM Terminal**" item, it is already installed.

Scroll up until you see **Collaboration** group. Click on white triangle ▷ left (or angle ›) to it to open a list of collaboration software.



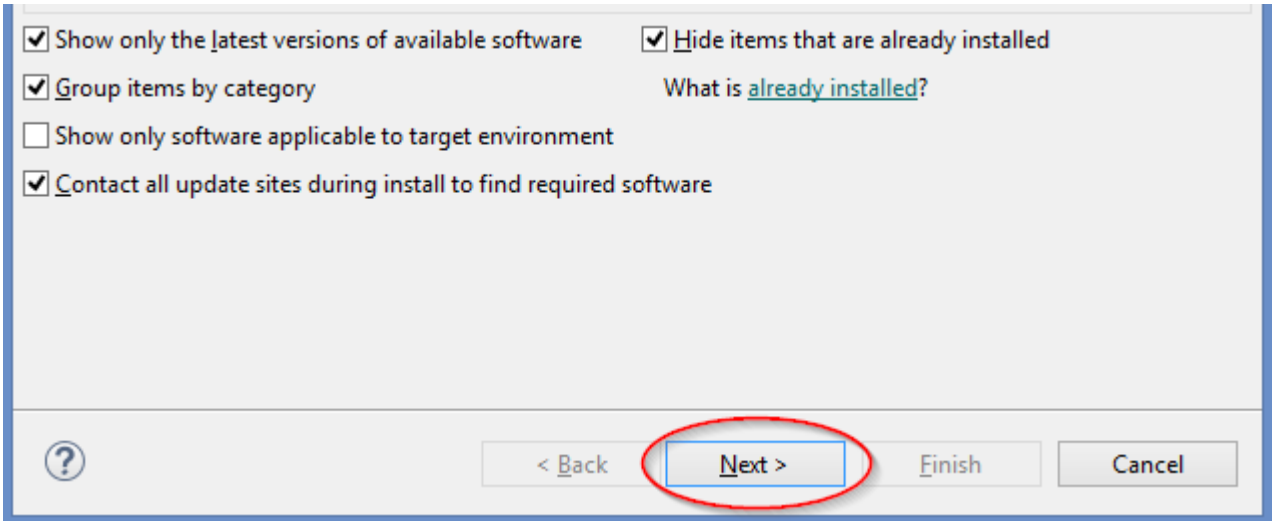
Check "**Mylyn Context Connector: C/C++ Development**" item.

You can also search for software. For example, if you enter C++ in the search field, after some delay, Eclipse will display C++ related items (can be slow).



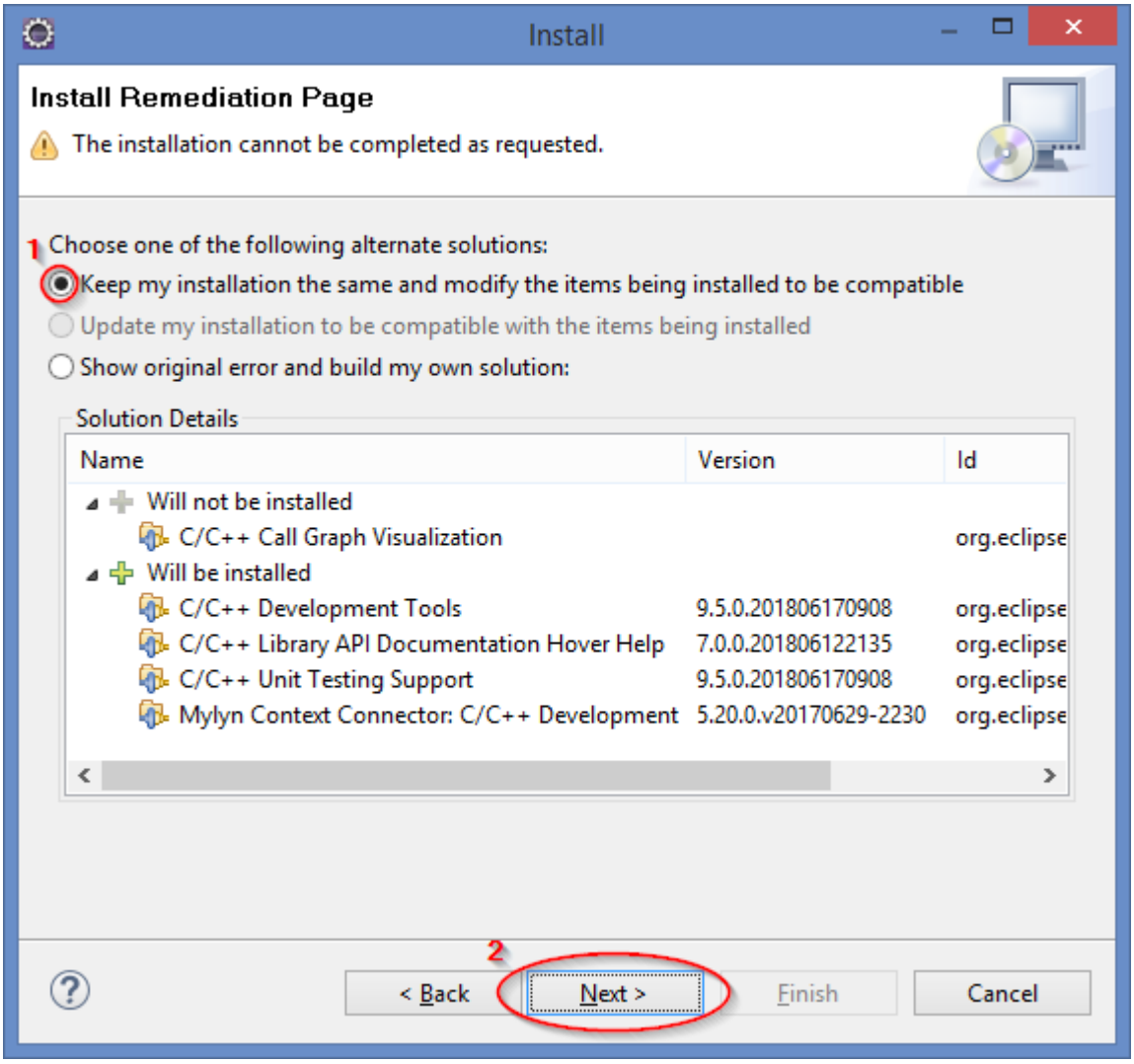
Select additional items, as desired.

Finishing CDT Installation



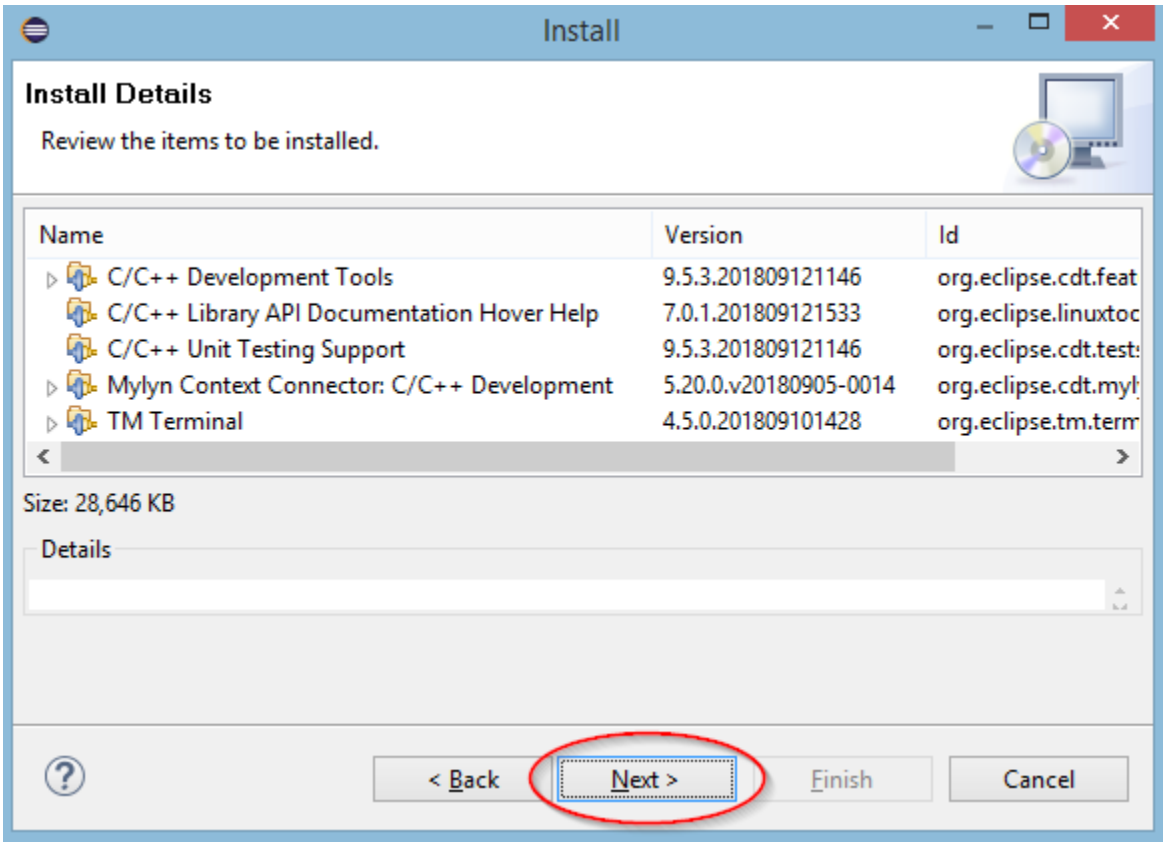
When all needed items are selected, press **Next** button to proceed with the installation.

It is possible that some of the selected software items cannot be installed (for example, C/C++ Call Graph Visualization is not available for Windows). In such a case, you will get "**Install Remediation Page**" as below (otherwise just skip to the next page).



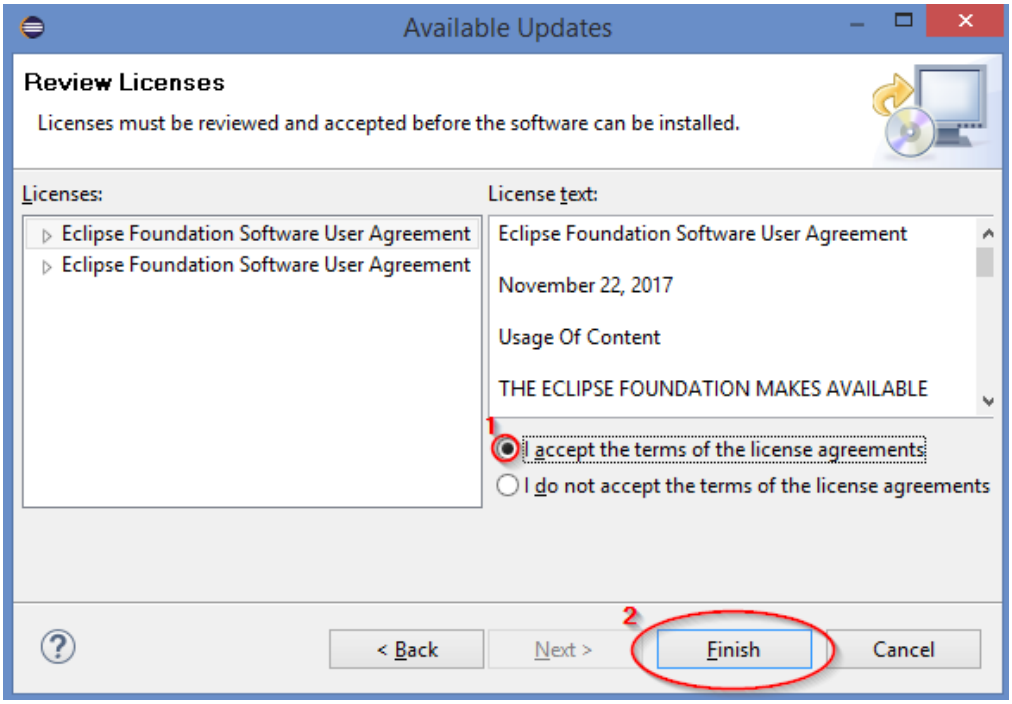
If you select option "**Keep …**" ① and press **Next** button ②, the wizard will install items that it can. You can also press **Back** button to return to the previous wizard page and change the list of items there.
Selecting other option but "**Keep…**" ① is outside of this document scope.

You will see **Install Details** window.



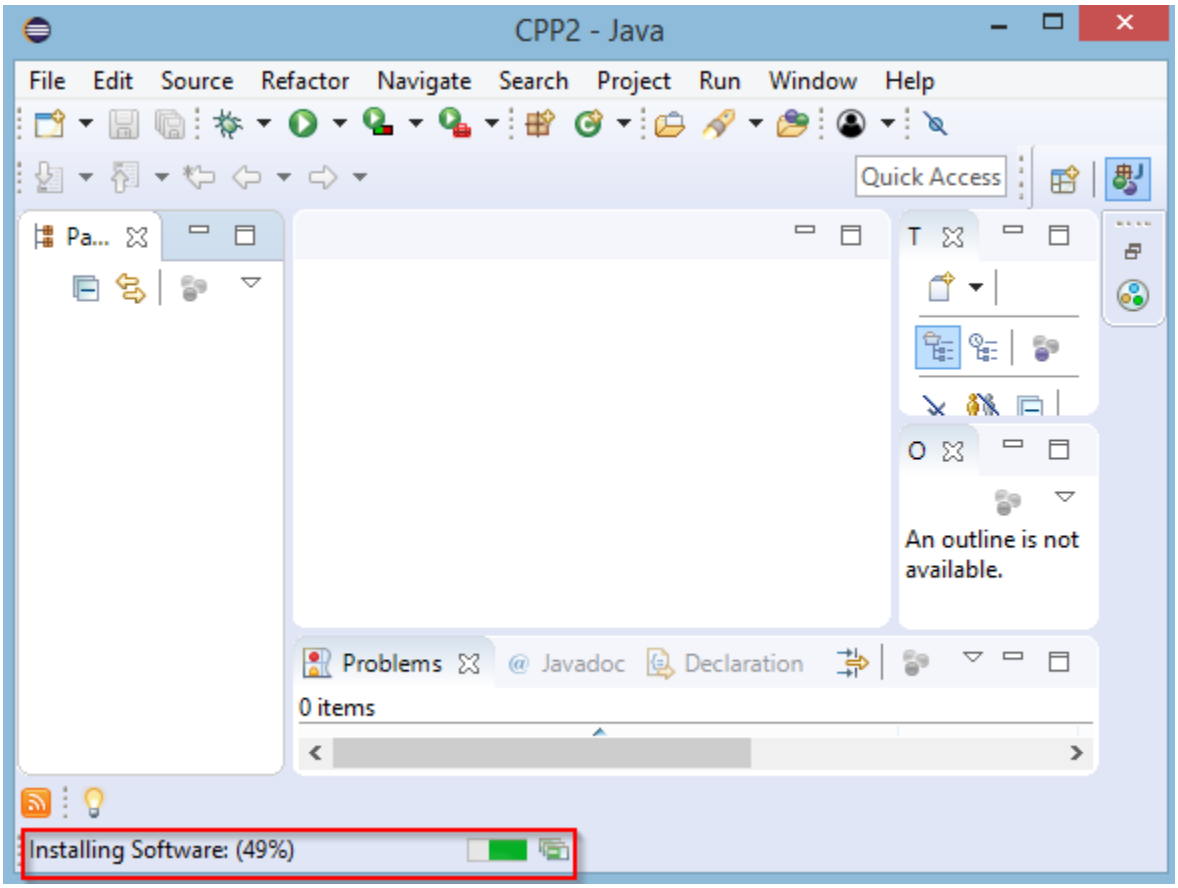
Inspect the list one more time and press **Next** button to continue (or **Cancel** button to stop the installation).

You will see **Review Licenses** window.



Review the licenses. Check **I accept the terms of the license agreements** ① and press **Finish** button ② to continue (or press **Cancel** button to stop the installation).

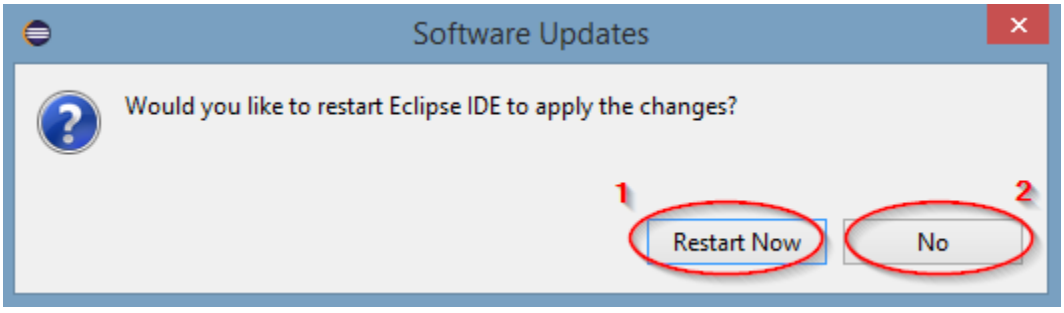
At the bottom of the main Eclipse window, you will see progress message "**Installing Software …**"



Wait until the installation is completed.

If some software is unsigned (by its developers), you may see various security prompts. See Appendix 13 – Eclipse Pop-ups and Prompts for more details.

Finally, after the plugins are installed, you will see a prompt asking to restart Eclipse.



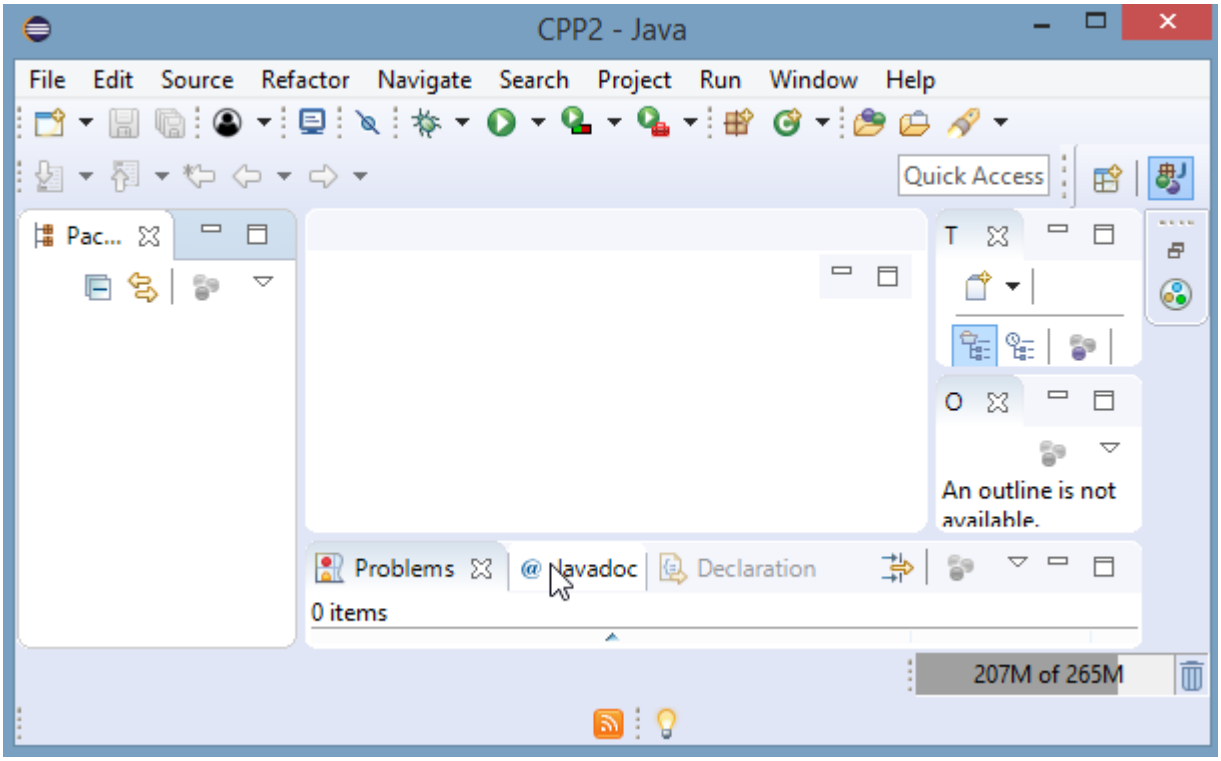
Press **Restart Now** button ① and wait until the Eclipse is restarted if

- Eclipse is running as regular user and the current workspace is to be used for Java development
- Or Eclipse is running as administrator and you intend to do more Eclipse software management as administrator

Otherwise press **No** button ② instead, exit Eclipse, and start Eclipse again (and create Java dedicated workspace, if so desired).

➤ You may be prompted to reinstall previously installed plugins when you start Eclipse. In such a case, see Importing and Reinstalling Previously Installed Eclipse Plugins in Appendix 4 – Managing Eclipse Software. Return here after you deal with the plugins reinstall.

Wait until the main Eclipse window appears. If everything is minimized, click on "**Restore**" icon inside Eclipse window to restore (unminimize) it.



Eclipse CDT is installed, but you need to configure it before using.

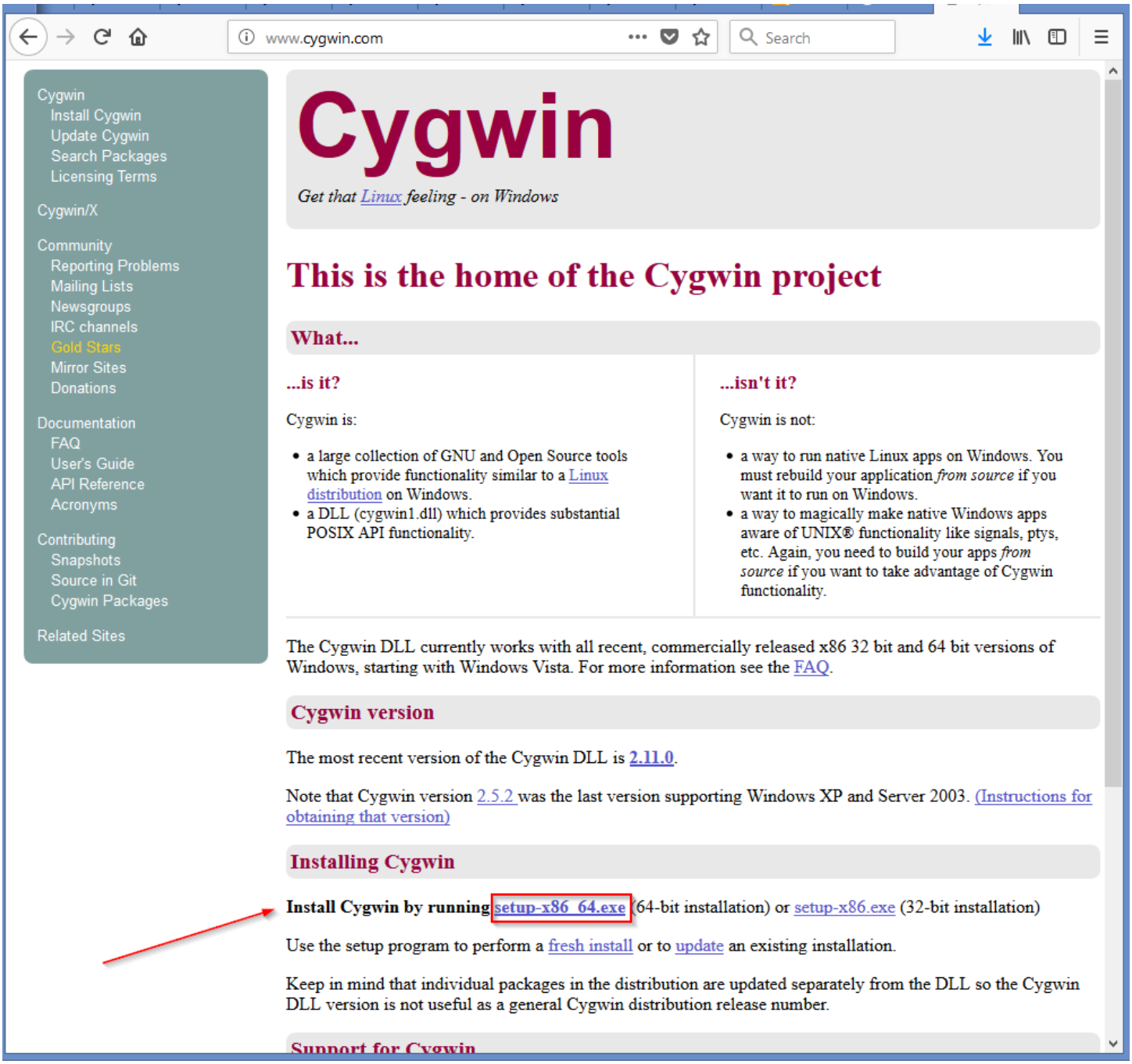
In this screenshot, you can see that the Eclipse window title is "**CPP2 – Java**". It is just an example. In the title, **CPP2** is the workspace name and **Java** is the perspective name. When you do C/C++ development, you will, probably use C/C++ perspective (as described later in section Opening C/C++ Perspective).

Installing Cygwin

Cygwin development packages are required in order to be able to compile, link, build, run, and debug C/C++ programs. You will need approximately 10 GiB of disk space to install all Cygwin development packages (you can reduce the disk space by not installing unnecessary development packages). You also will need around 1.9 GiB of temporary disk space to store downloaded Cygwin packages.

Downloading Cygwin Setup Program

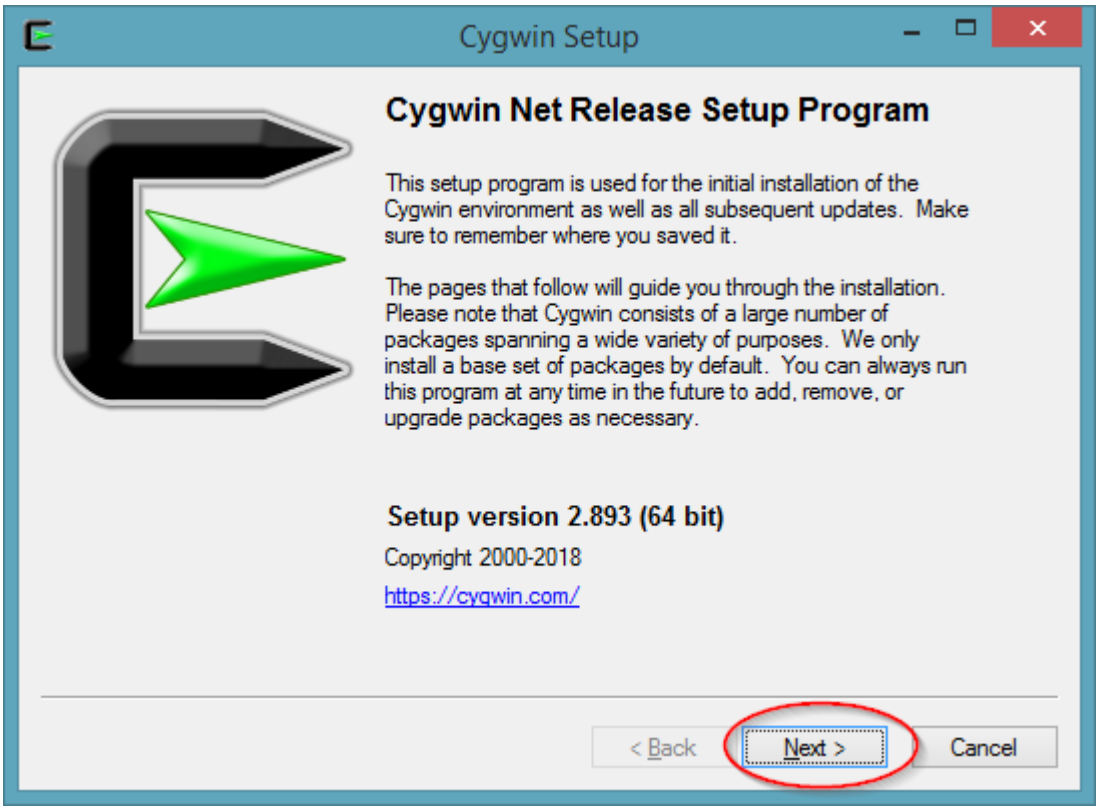
In a browser, open www.cygwin.com website.



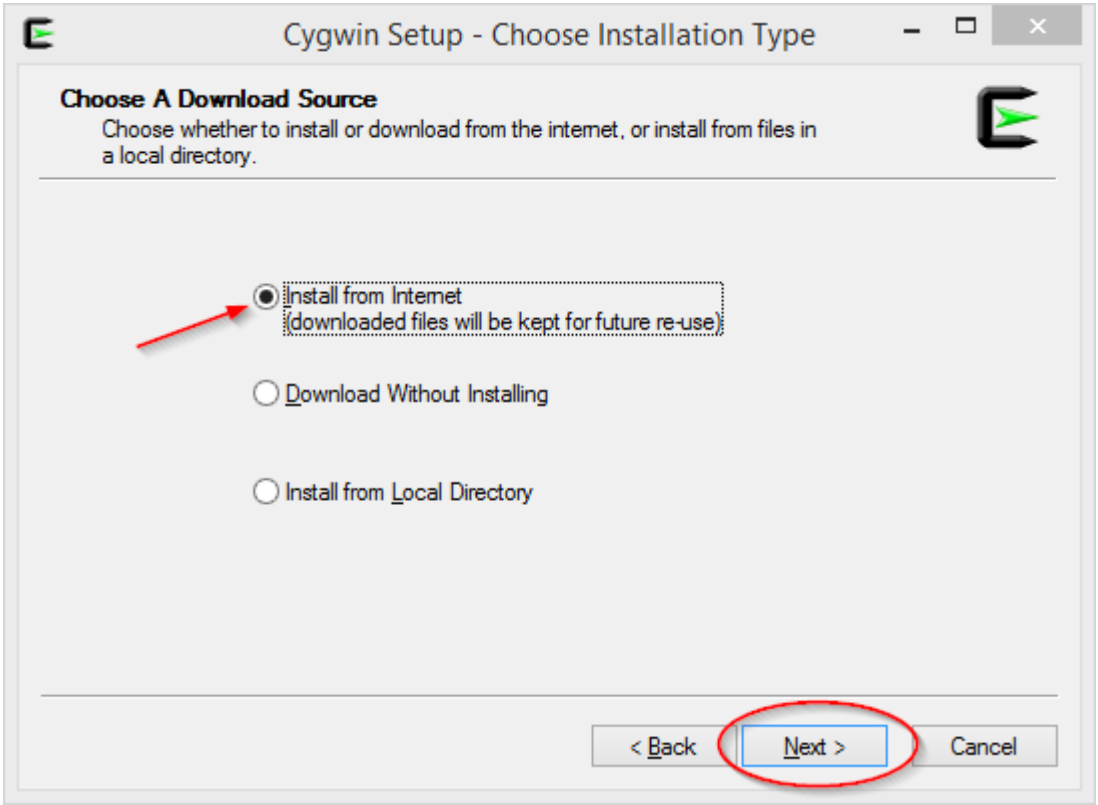
Click on setup-x86_64.exe URL (see Cygwin 32-bit if you are running 32-bit Windows). Depending on your browser, you will get a download prompt. Download and run the file. See Appendix 11 – Downloading and Running files from the Internet for more information.

Running Cygwin Setup Program

When you run the downloaded Cygwin setup program, you will see the following window.

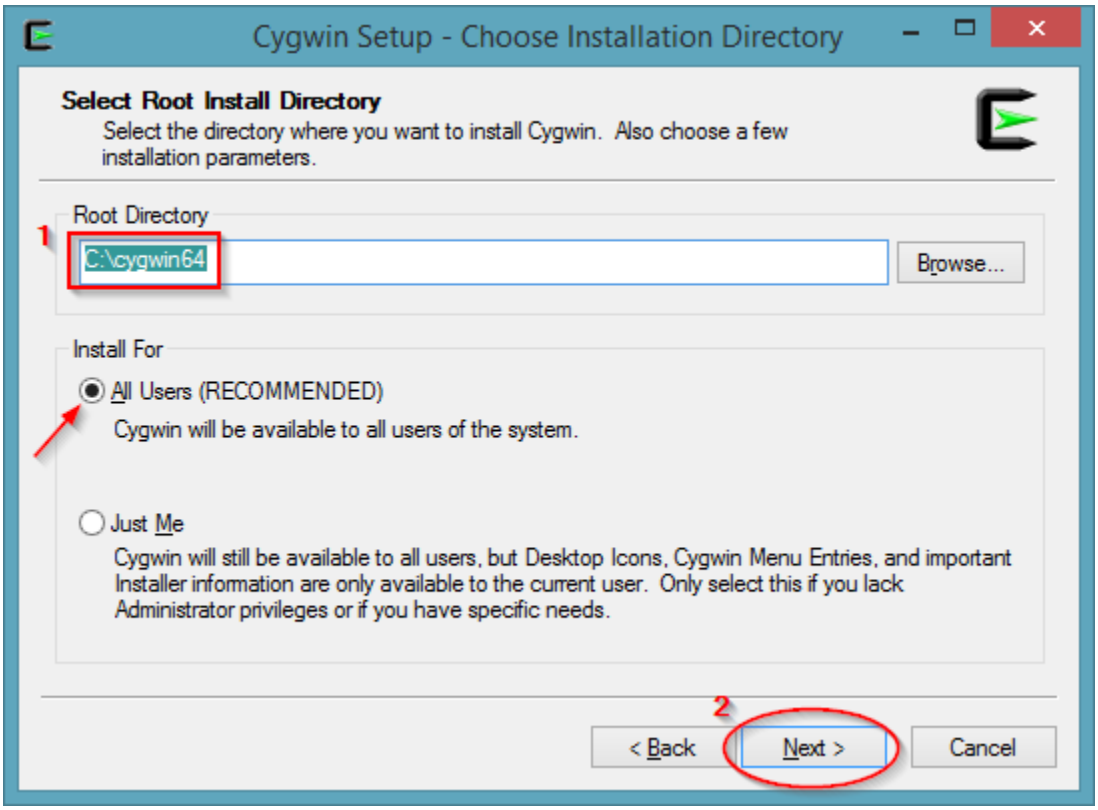


Press **Next** button to continue.

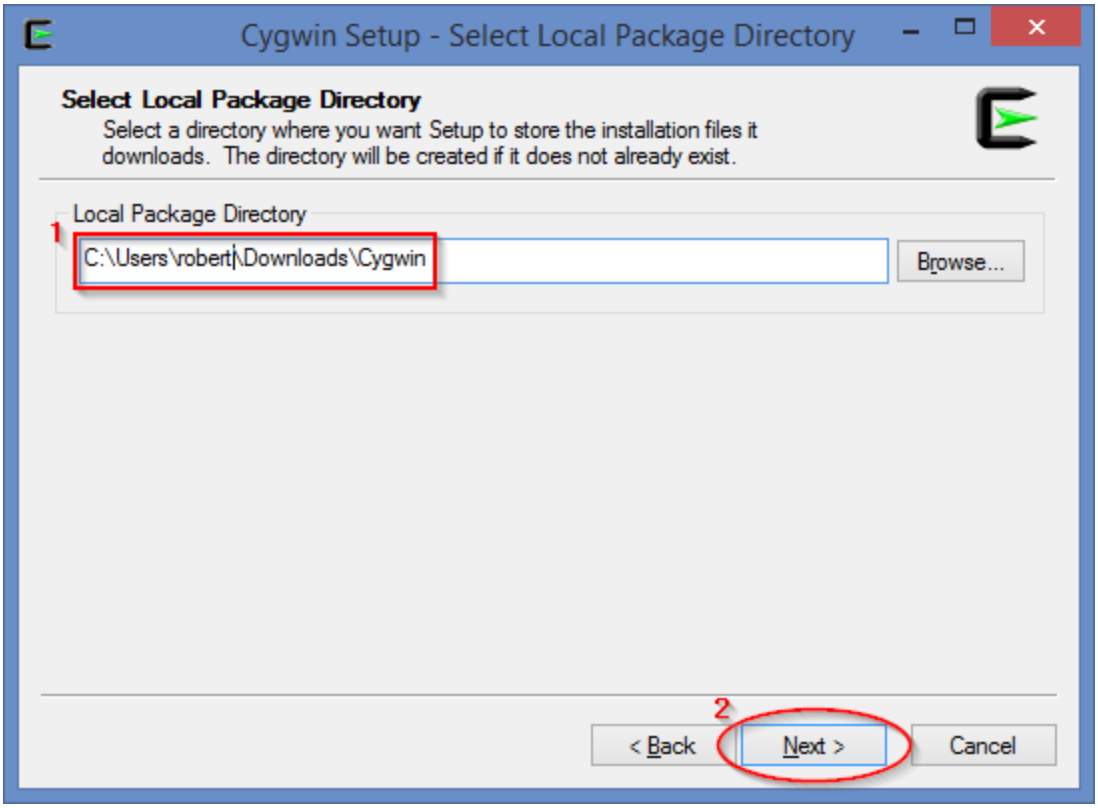


Be sure that "**Install from Internet**" option is selected. Press **Next** button.

The next screen will ask to select root install directory.



Default settings are OK. By default, Cygwin is installed in `C:\cygwin64` on 64-bit Windows. You can change this path in the **Root Directory** field ① if you prefer Cygwin files to be installed in another folder. Press **Next** button ② to continue.

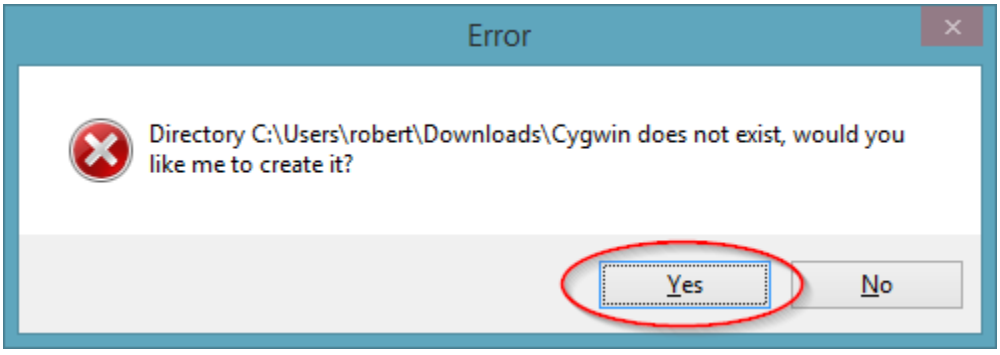


You, probably, will want to change **Local Package Directory** field ①. The folder will be used to store so called package files. These package files are used to install Cygwin features; they are not needed after the installation.

For example, click right to the highlighted folder path ① and edit it so the packages go to `C:\Users\username\Dowloads\Cygwin`. Press **Next** button ②.

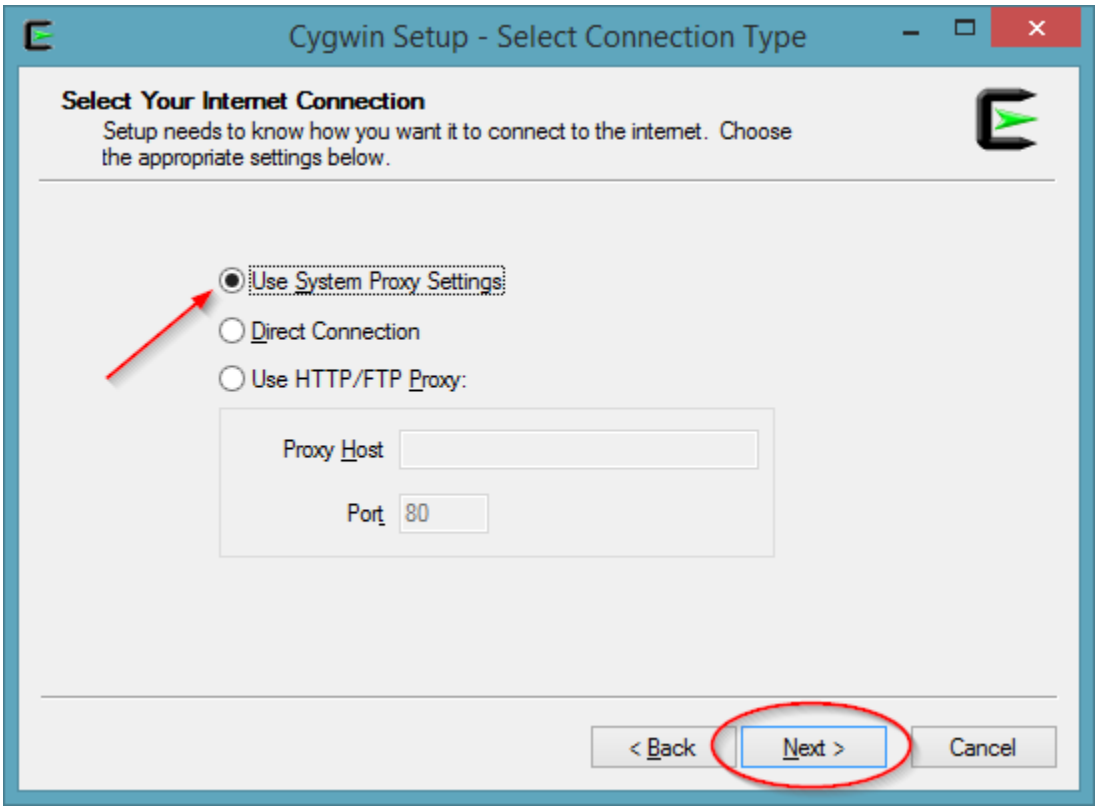
You can keep these files if you expect to reinstall Cygwin or to install Cygwin on a different computer. Or you can remove the folder after Cygwin is installed.

If the directory does not exist, you will see a pop-up window asking to confirm the directory creation.

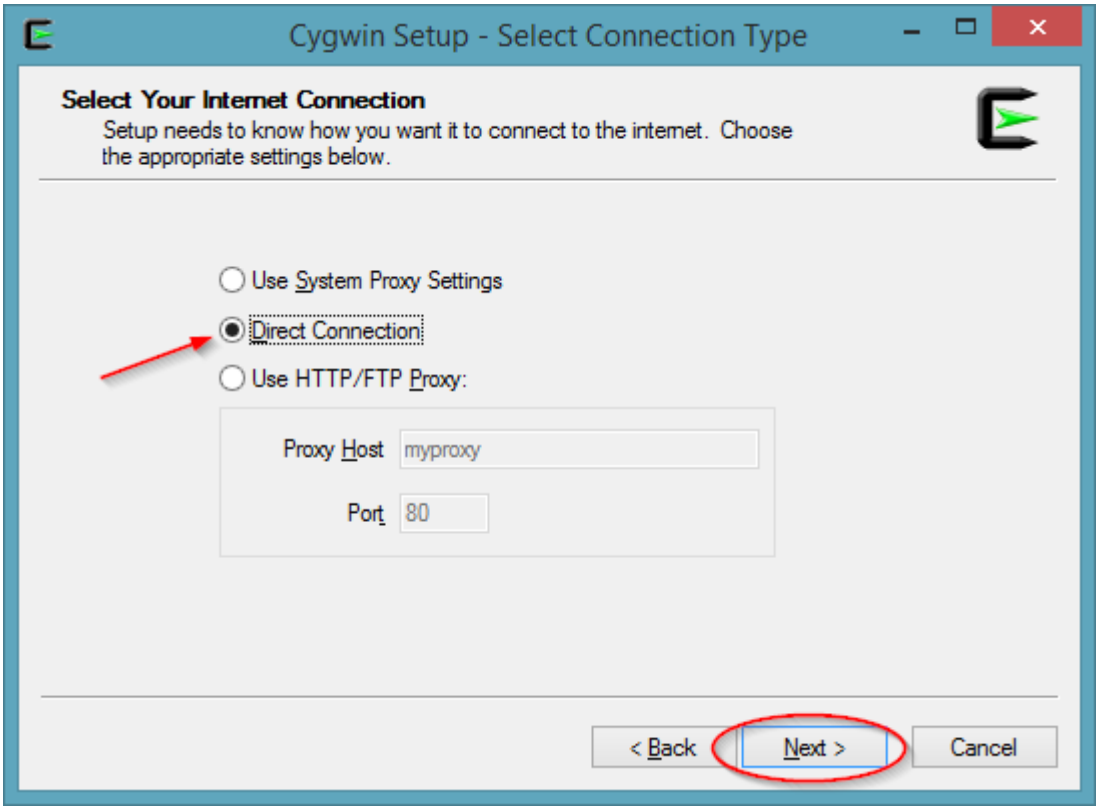


Press **Yes** button.

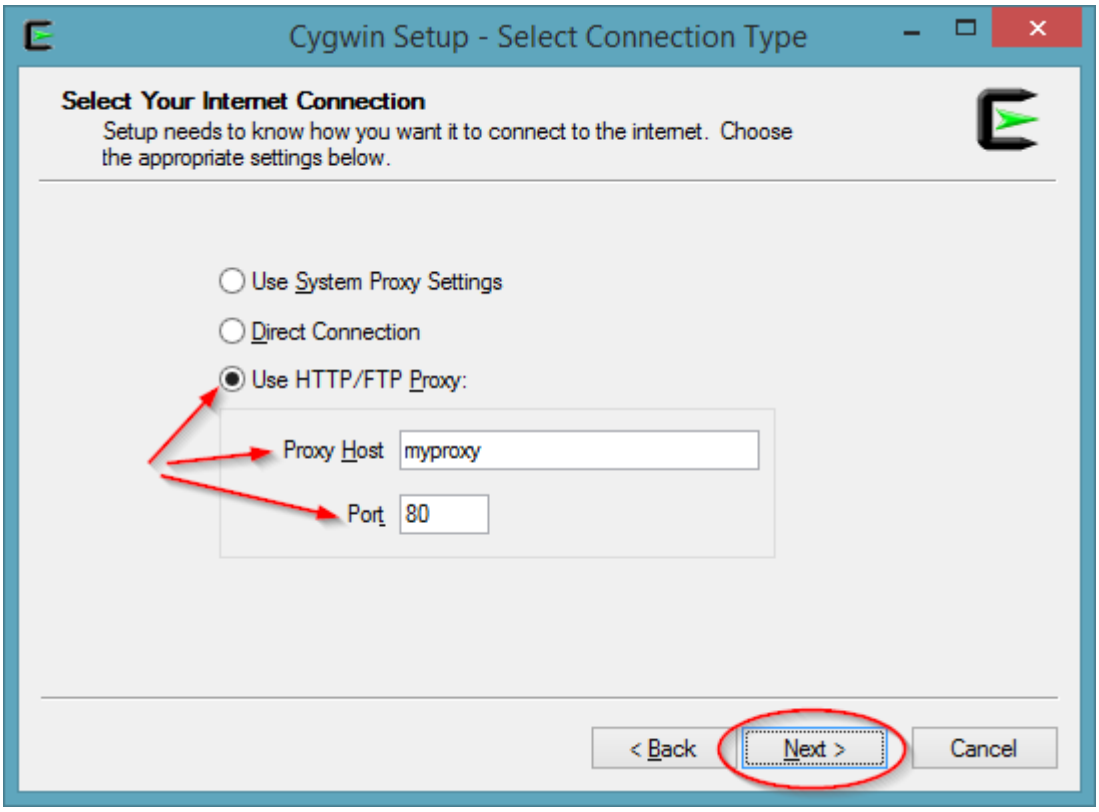
You will see the following window



If you want Cygwin setup to use the same Internet connectivity settings as Windows, select **Use System Proxy Settings** option and press **Next** button.

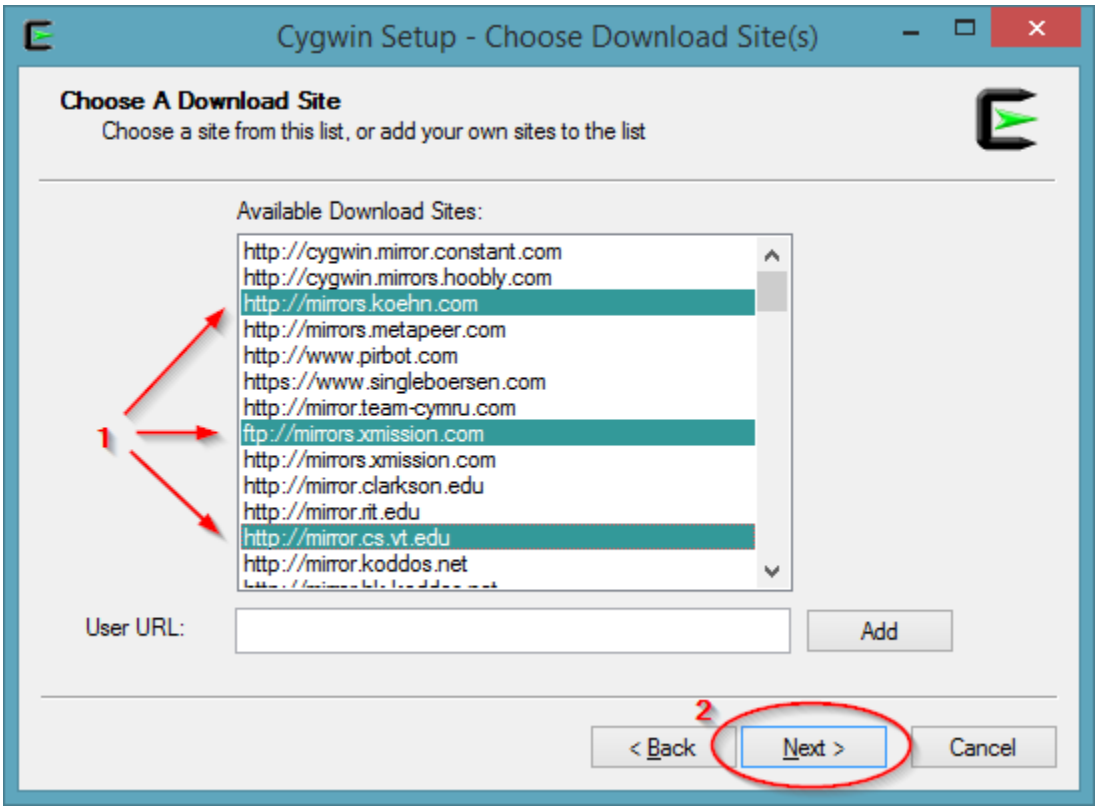


If you want Cygwin setup to access the Internet directly, select **Direct Connection** option and press **Next** button.



If you want Cygwin setup to use some specific proxy – select **Use HTTP/FTP Proxy**, enter the proxy name (or address) in **Proxy Host** field, the proxy port in **Port** field, and press **Next** button. Note that the proxy information above is just an example; you have to enter your proxy host and port.

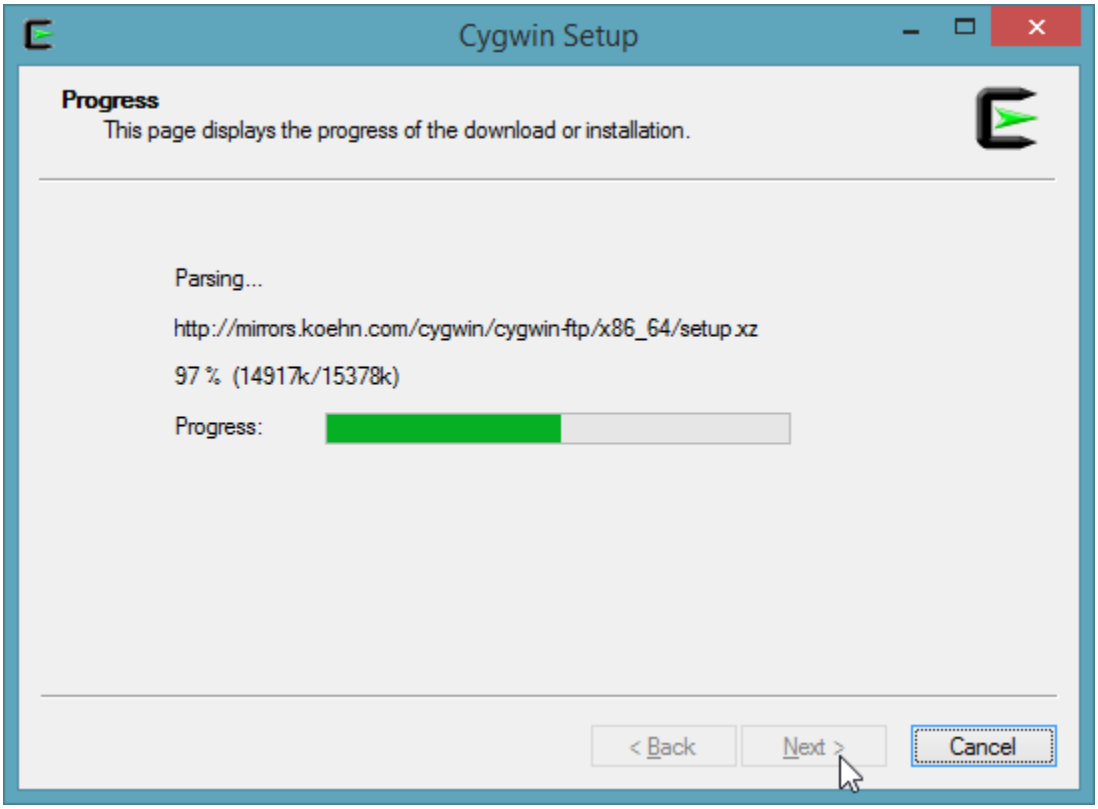
After you selected the Internet connectivity option and pressed **Next** button, you will see a window with a list of Cygwin download sites. The specific list may vary.



Select at least one of the **Available Download Sites** - click on a site name ①. If you want, you can select multiple download sites by clicking on a site name while CTRL key is pressed. The sites in the screenshot are just an example, select your own one or more sites.

Press **Next** button ② to continue.

You will see a progress window.



Wait until the next window appears. If you are installing Cygwin the first time, you may see a pop-up window asking to check Cygwin documentation – click **OK** button to dismiss the window.

Selecting what Packages to Install

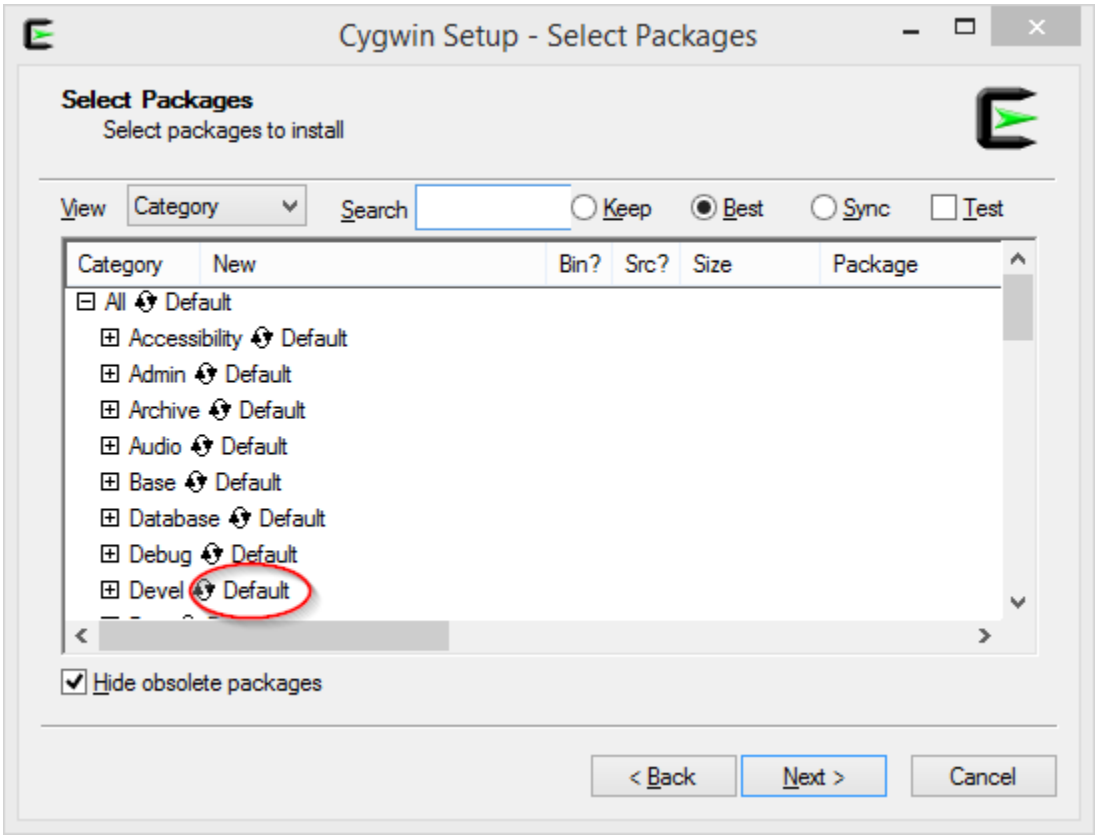
After a list of Cygwin packages is downloaded, you will see **Select Packages** window below (possibly maximized, if you want the window be a normal size, click on Restore Down icon in the top right corner of the window). In the window, select what packages to install.

By default, Cygwin setup will install only the packages in the **Base** category and their dependencies, resulting in a minimal Cygwin installation.

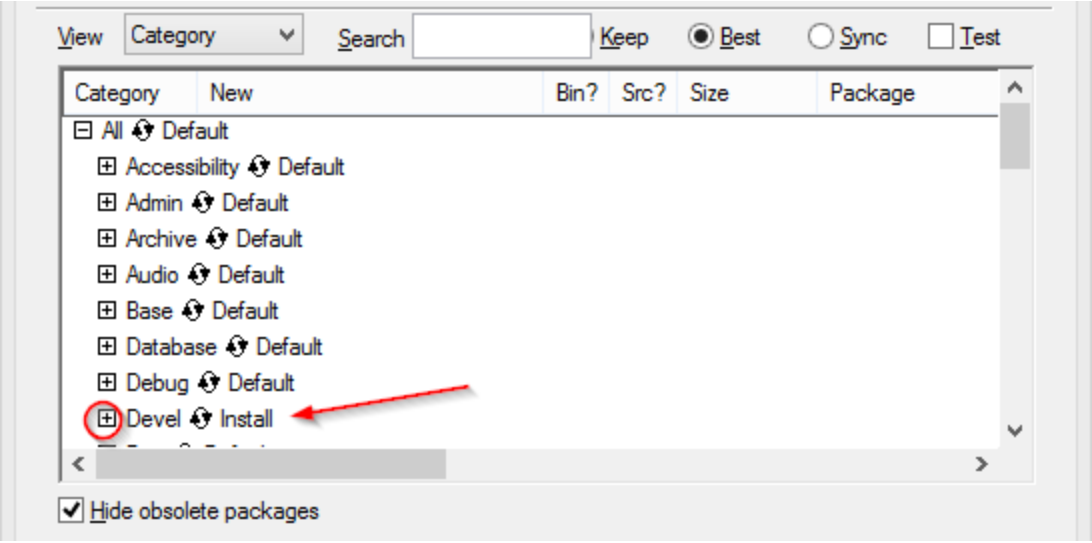
Unfortunately, Cygwin setup interface is confusing in this case. Look for word after circular arrows .

- **Default** means that Cygwin setup will decide whether to install the packages.
- **Install** means that the packages will be installed.
- **Uninstall** means that the packages will be uninstalled (if installed) or not installed at all.
- **Skip** means leave the package as-is (do not install or uninstall it).

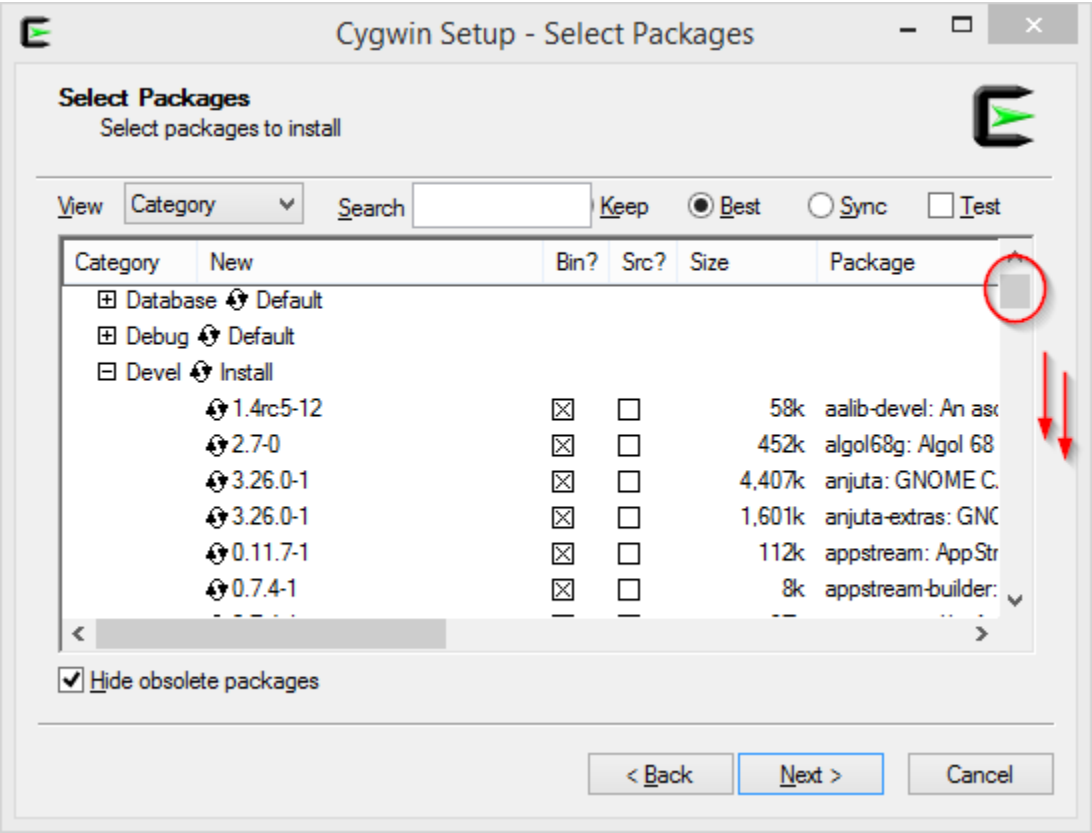
Be sure to select **Install** for development packages.



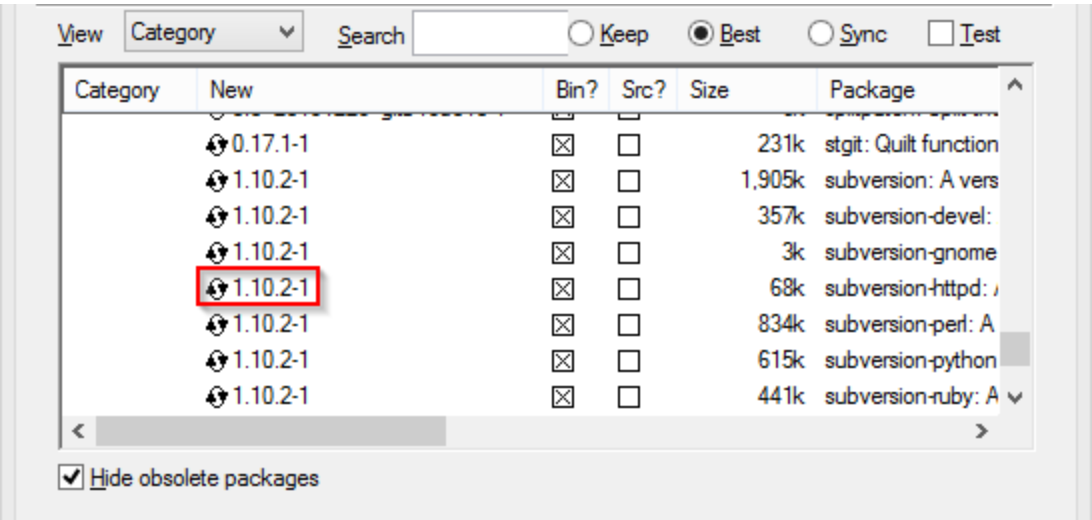
Click on circular arrows right of **Devel** category – if you click successfully, word **Default** will be changed to word **Install**. If you make a mistake you can click on the circular arrow again.



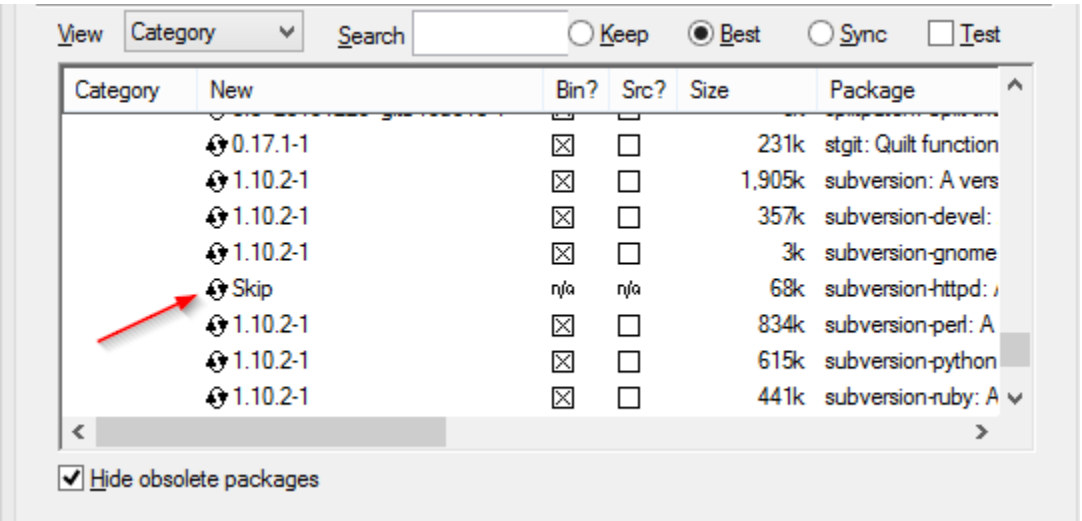
You can click plus sign ⊞ icon left of **Devel** category to see what packages are selected to be installed.

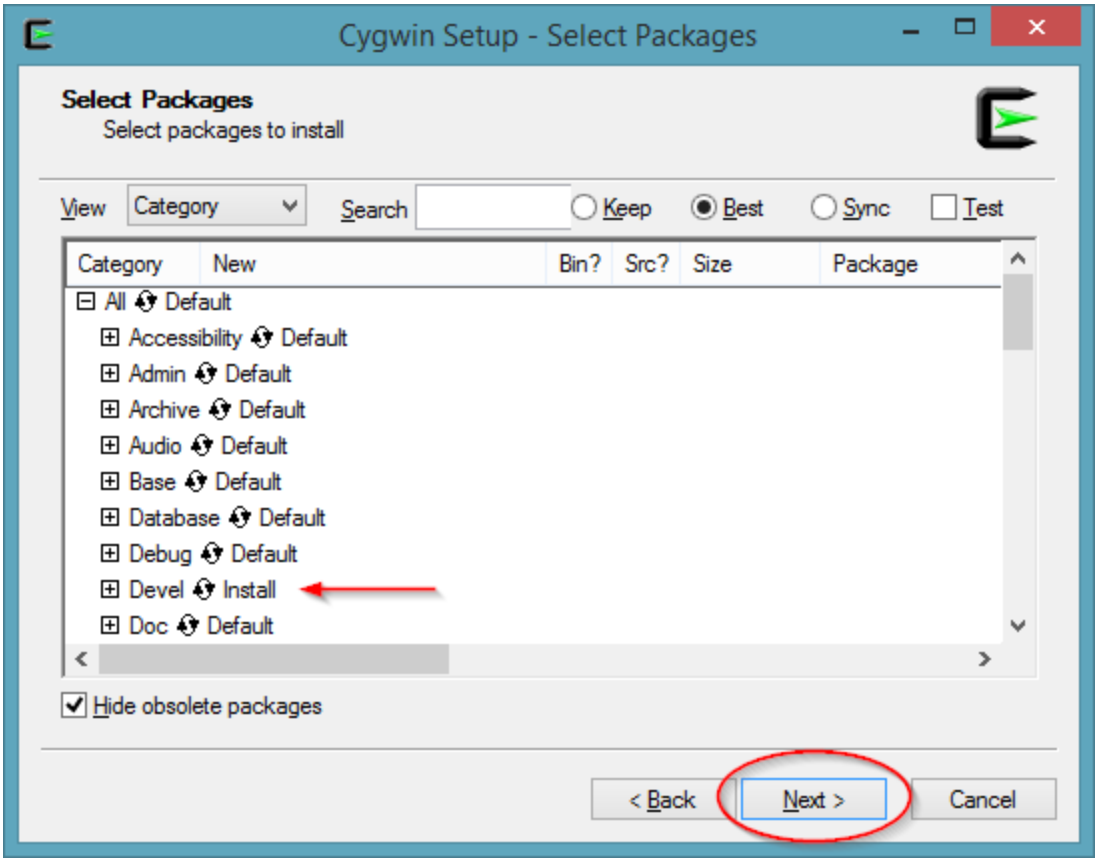


If you like you can add more packages or remove unneeded packages. It is recommended to remove **subversion-httpd** package (if it is in the list). To do so scroll down until you see the package



Click few times on circular arrows  until you see word **Skip** instead of the version number. If you make a mistake, you can click on the circular arrow again.

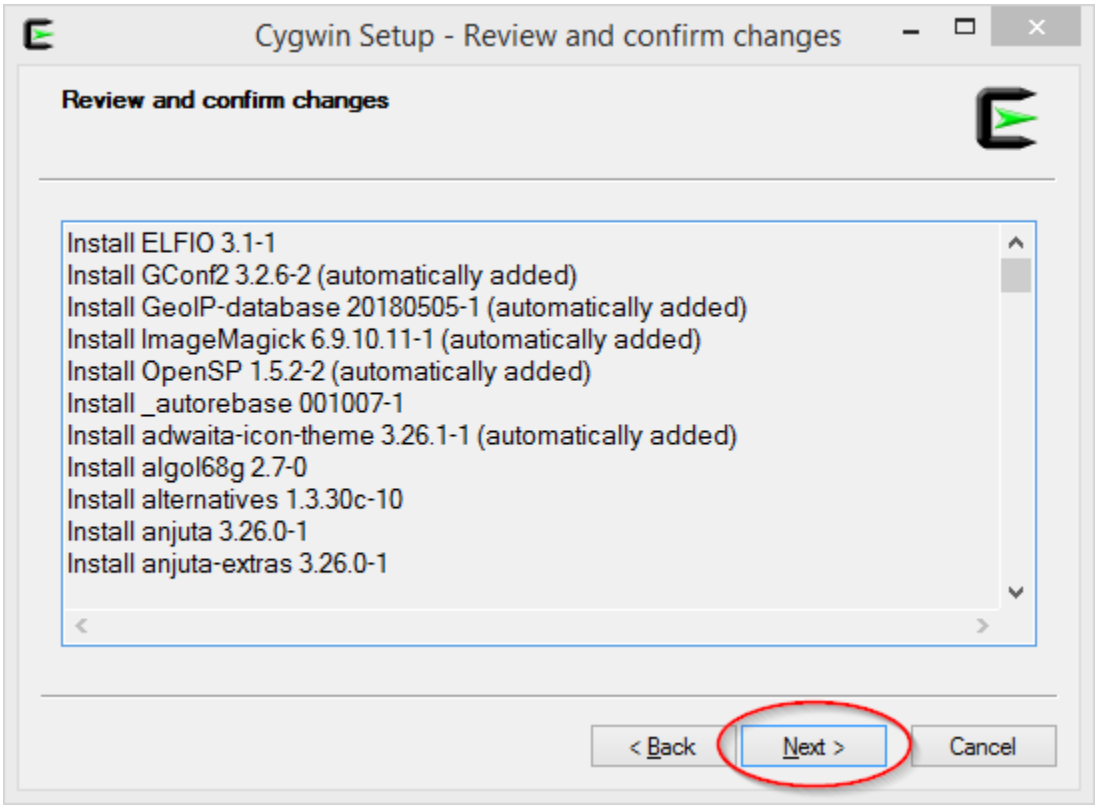




When you are satisfied with the packages selection press **Next** to continue.

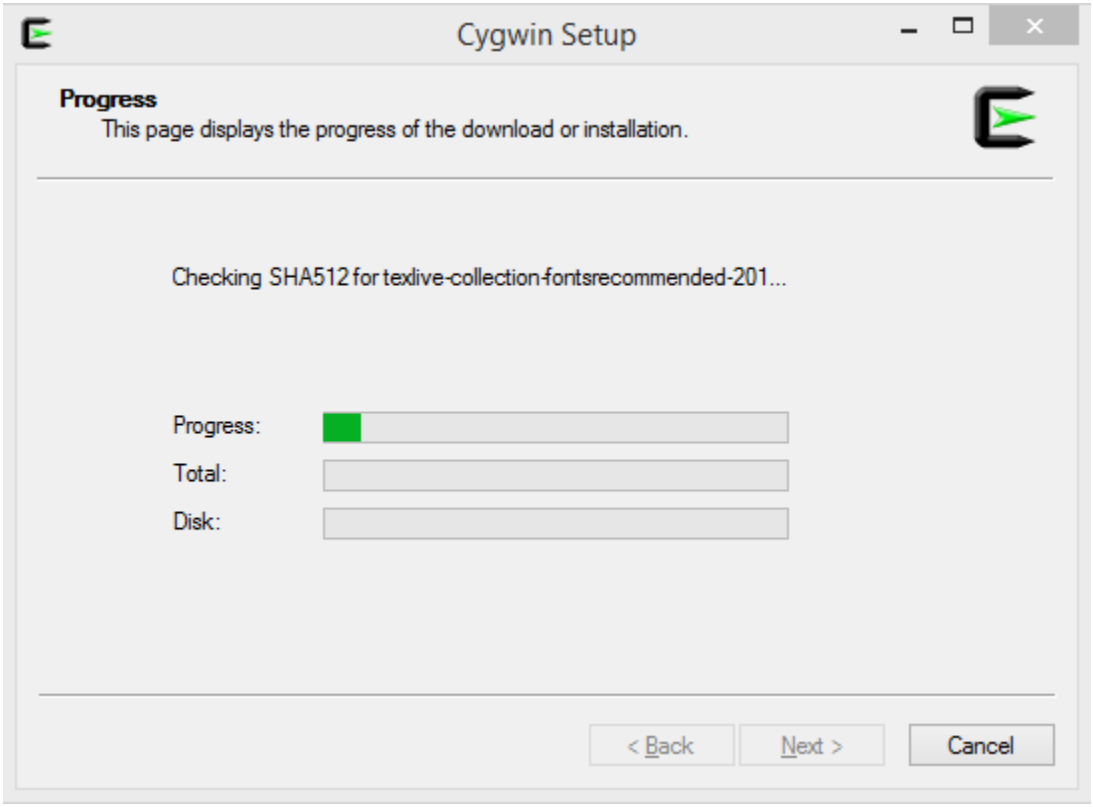
Installing Selected Packages

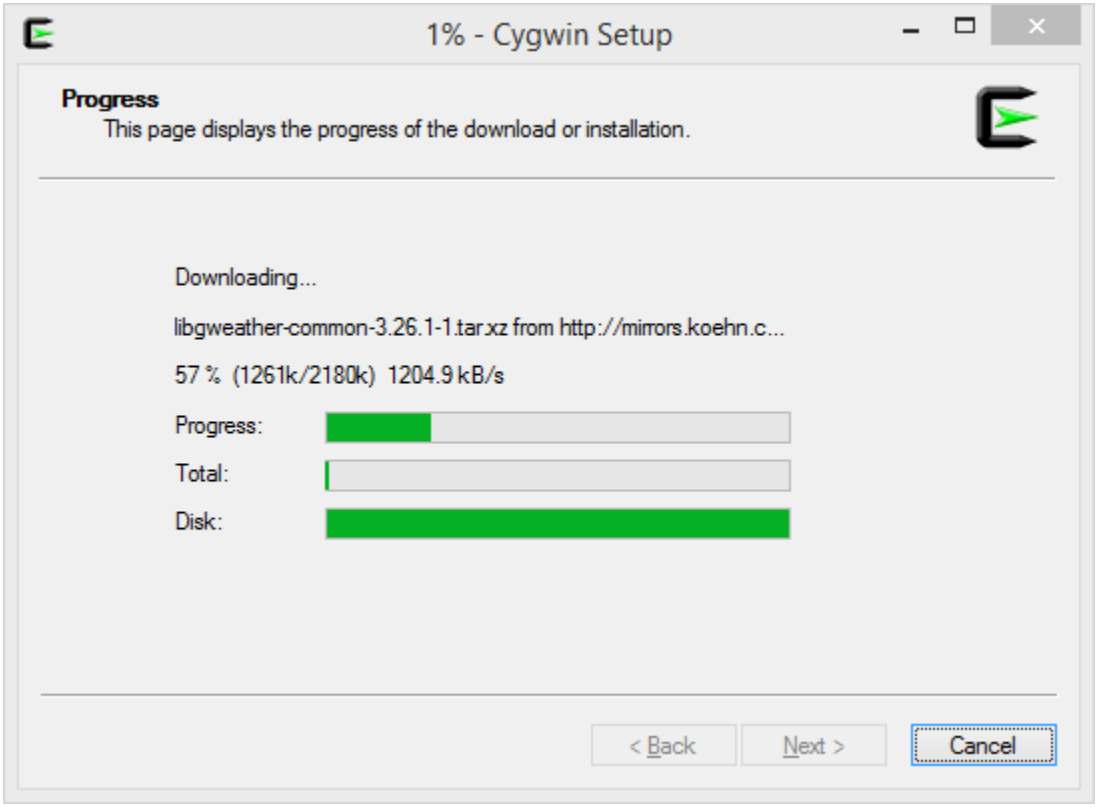
Cygwin setup will check for dependencies and will ask you to confirm that you want to install the dependencies (additional packages).



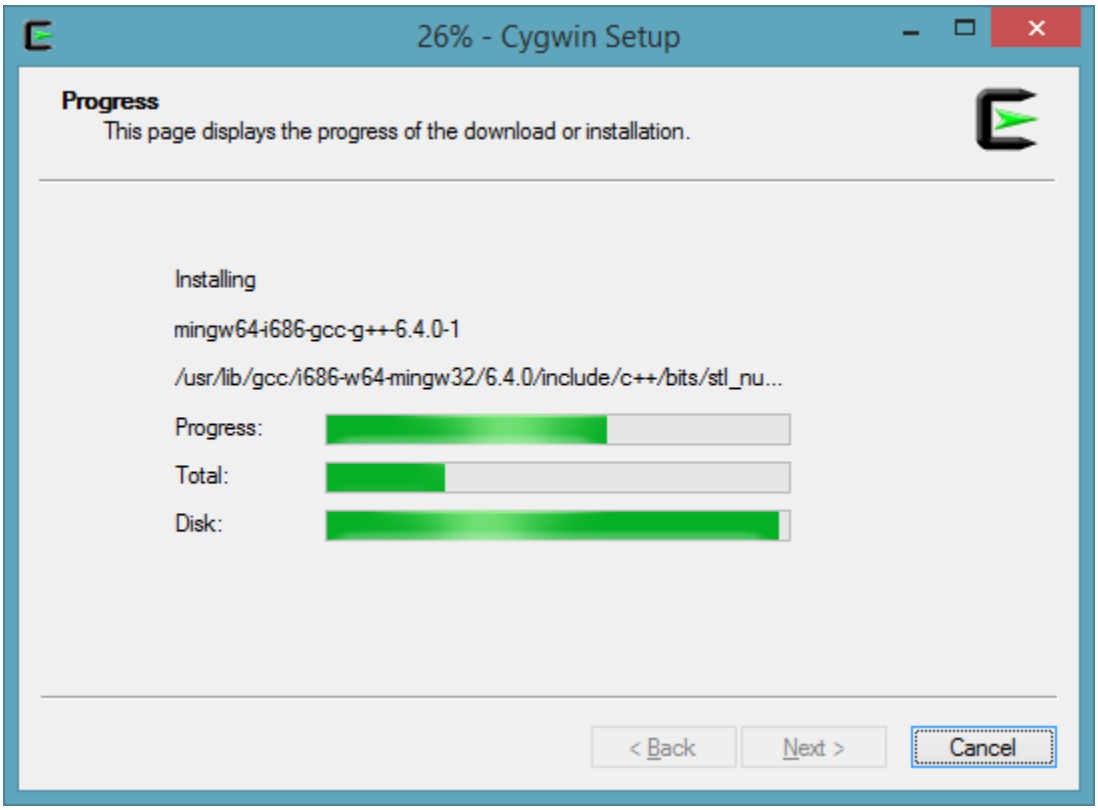
Press **Next** button to continue.

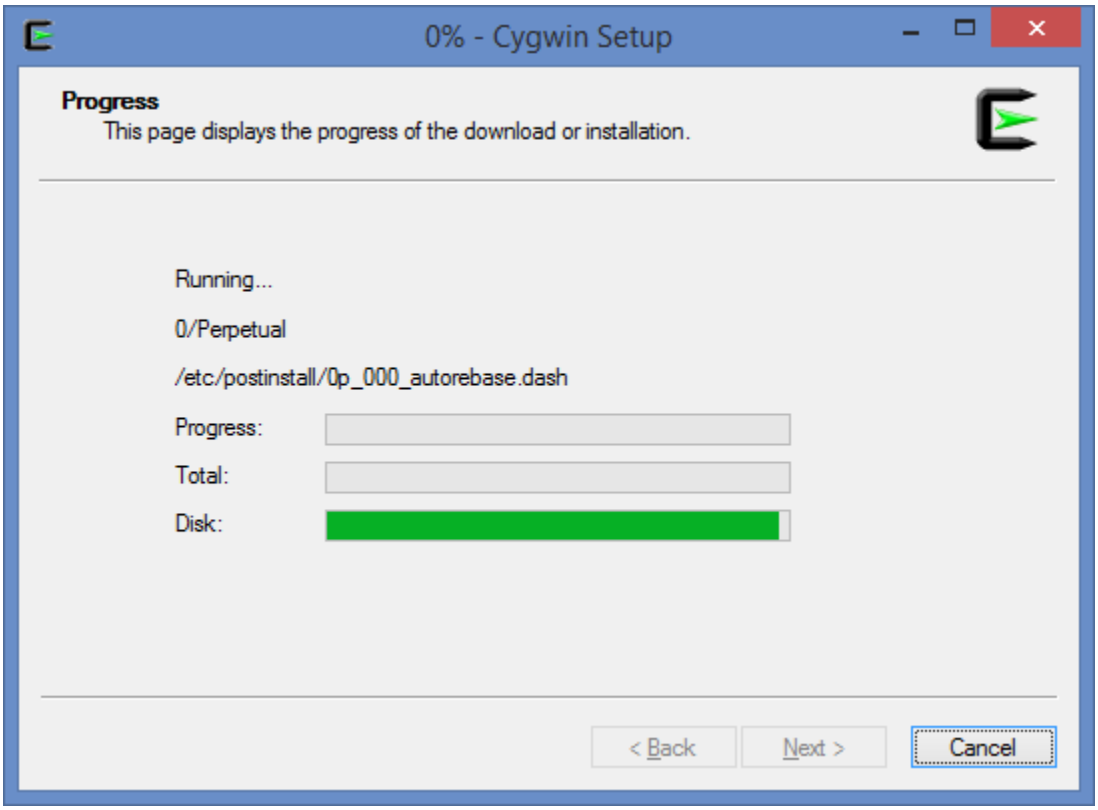
You will see a window indicating that the packages are being downloaded and verified.





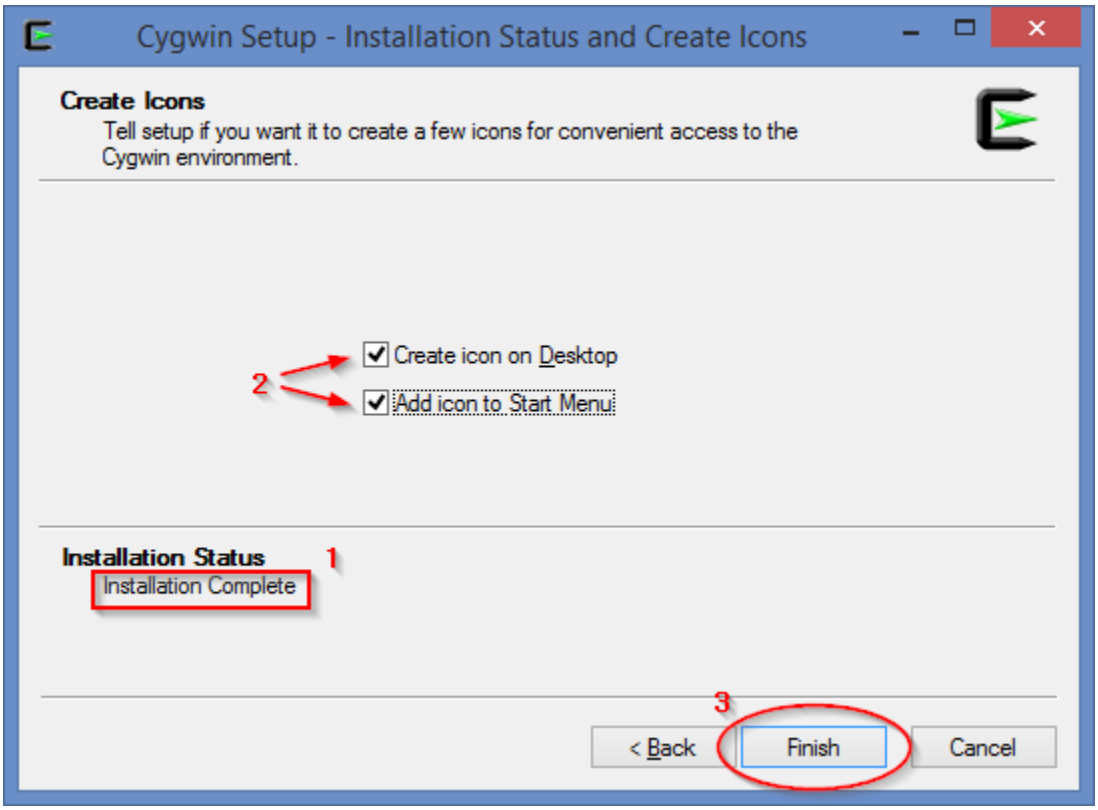
After the packages are downloaded and verified, you will see an installation progress window.





Wait until the download and the installation are completed, it can take a long time (for example, an hour).

At the end, you will see the following window

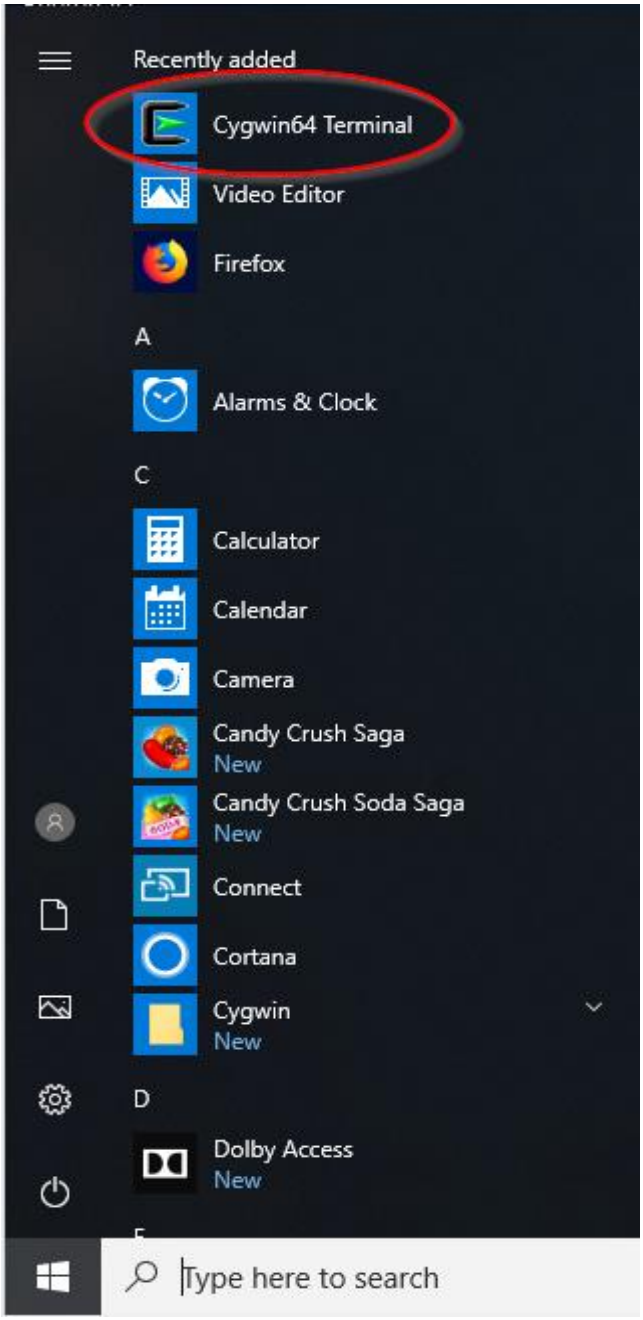


Confirm that the installation status is the **Installation Complete** ①. Check boxes to create Cygwin icon on desktop and add the icon to start menu ②. Press **Finish** button ③ to exit Cygwin setup program.

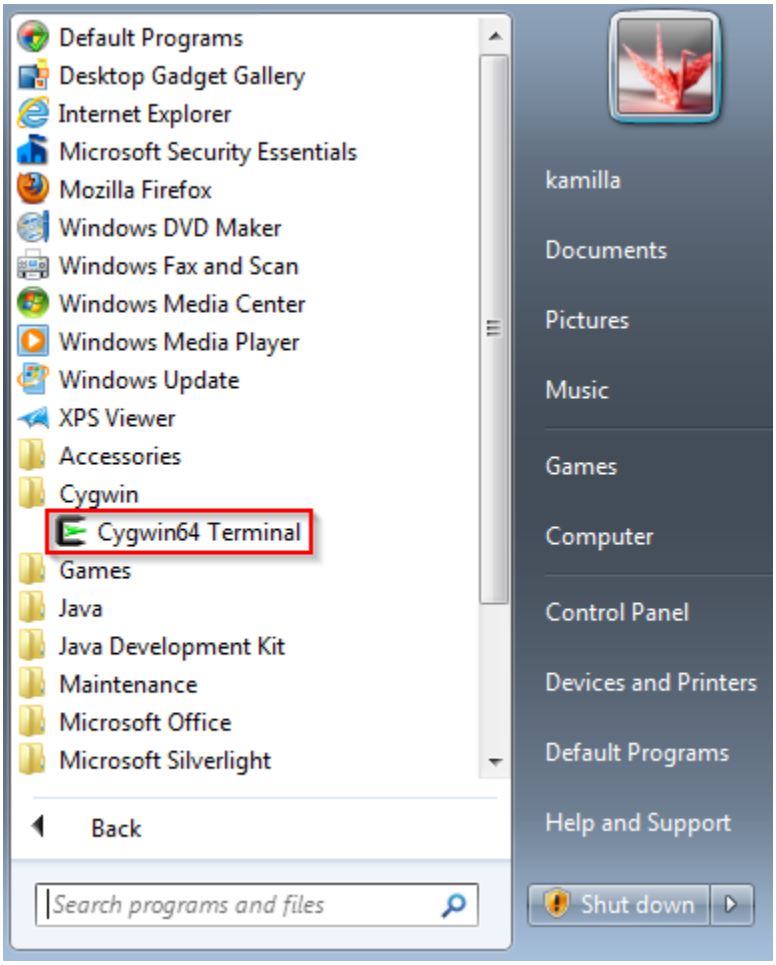
Verifying Cygwin Installation

To verify that Cygwin is installed correctly, open Windows **Start Menu** and find **Cygwin64 Terminal** program (in legacy Windows, open **All Programs** submenu and open **Cygwin** submenu).

Windows 10

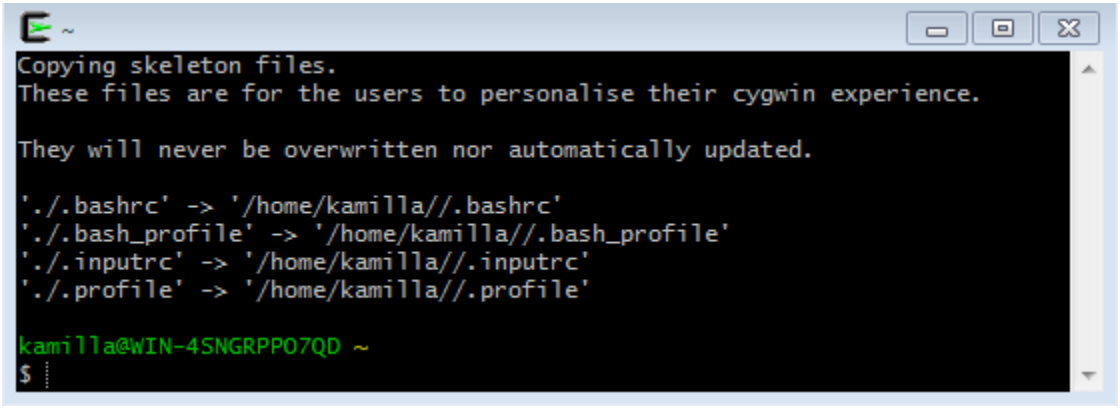


Legacy Windows

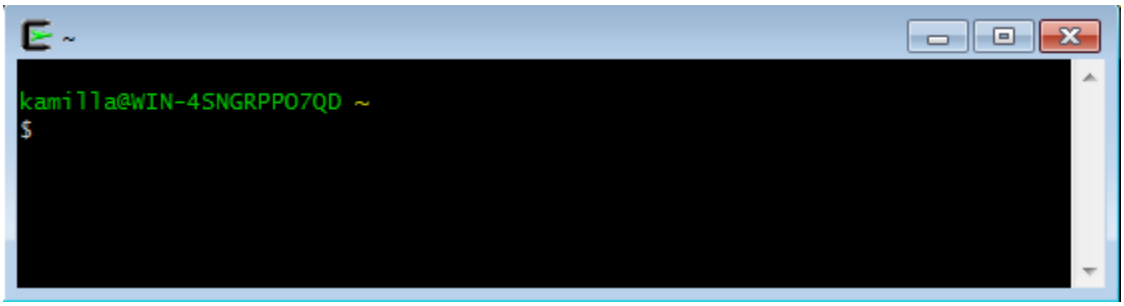


Select **Cygwin64 Terminal** (or just **Cygwin Terminal**).

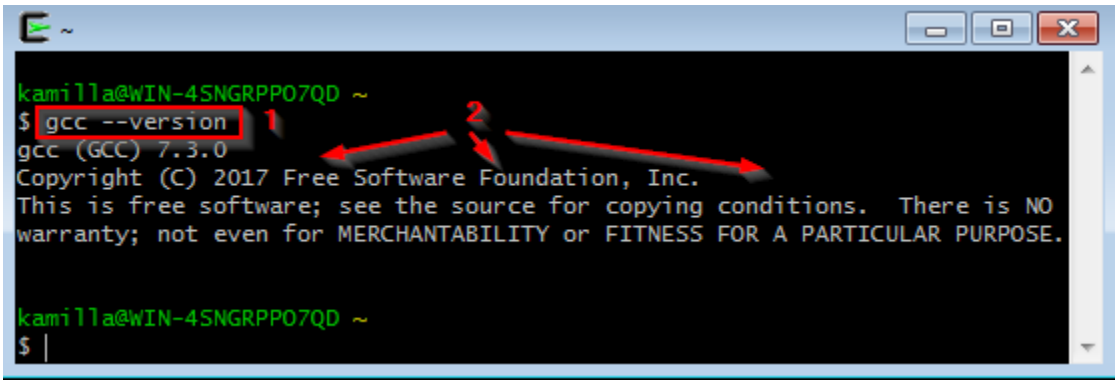
After few seconds you are supposed to see either the following window (if you have not used Cygwin shell previously)



or the window below (if you used Cygwin shell previously)



Enter `gcc --version` command at the shell prompt ① and press **Enter** key.



You are supposed to see GCC compiler version and license information ②. You can close the shell window if you do not need it.

Note 1 - There is a space between `gcc` and `--version` and two dashes in the `--version`.

Note 2 - This verifies that a Cygwin shell window can be opened and that the GCC compiler can be invoked from the Cygwin shell. It does not verify that the compiler can be invoked from other Windows programs such as Windows command line shell or Eclipse itself. See Verifying Cygwin in Windows Path below.

Enabling Cygwin Launching via Eclipse

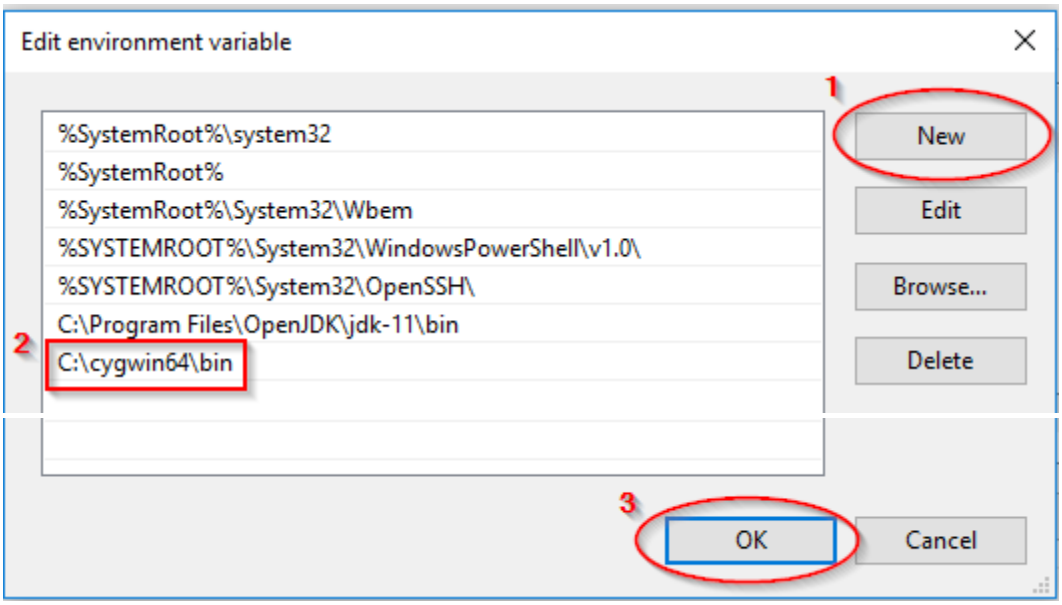
To be able to execute Cygwin programs from Eclipse, Eclipse has to know Cygwin installation folder path. Here are some possible ways to achieve it

- Add Cygwin `bin` subfolder to Windows `PATH` environment variable (described below).
- Write your own batch script that adds Cygwin `bin` subfolder to `PATH` variable and calls Eclipse (out of scope of this document).
- Configure Cygwin build toolchain in Eclipse C/C++ preferences (out of scope of this document).

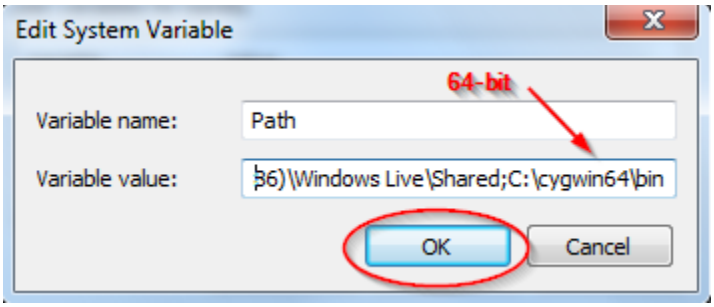
Adding Cygwin to Windows Path

After the Cygwin packages are installed, consider adding Cygwin `bin` subfolder to Windows system or user `PATH` environment variable. Add Cygwin to the system path if you want all users to be able to use it. Add it to the user path otherwise.

For example, add `C:\cygwin64\bin` to the system `PATH` variable. In the case of Windows 10, the **Edit environment variable** window will look like this



In the case of legacy Windows, the **Edit System Variable** window will look like this



If you need a detailed walkthrough, see Appendix 1 – Modifying Windows Environment Variables.

Access **Environment Variables** window, for example, by going to **Windows Search -> "environment" -> Edit the system environment variables -> System Properties -> Advanced -> Environment Variables**.

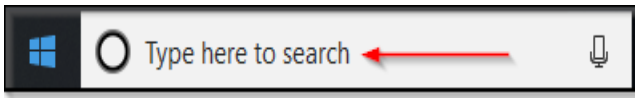
In the **Environment Variables** window, find existing system (or user) PATH variable or create new user PATH variable. Add the Cygwin `bin` subfolder to the path variable.

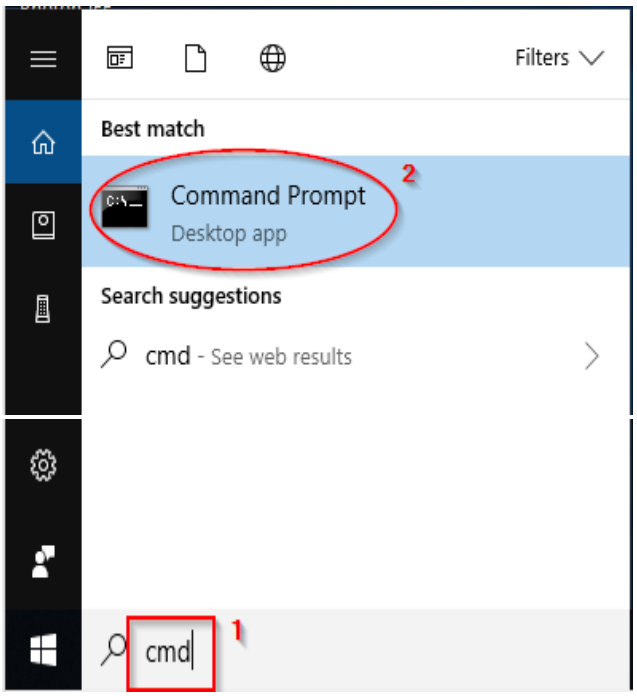
Note - The user path is appended to the system path. In most cases, you need Cygwin to be added either to the system or to the user path variable.

Verifying Cygwin in Windows Path

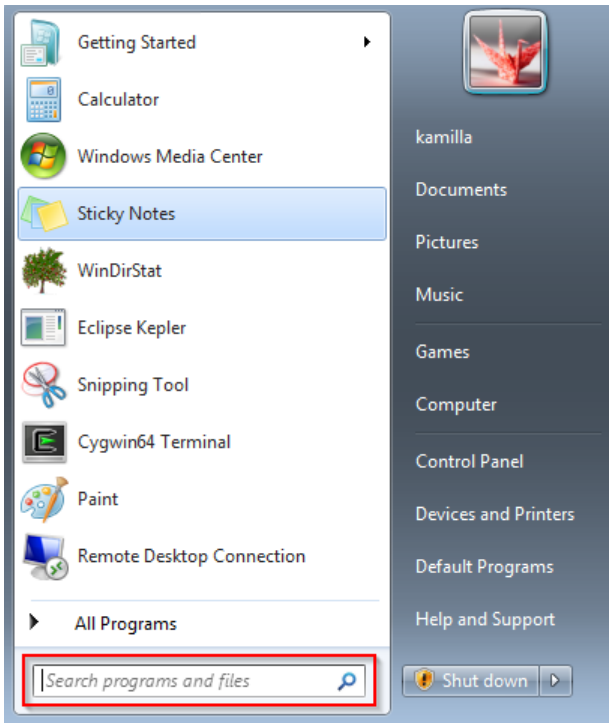
To verify Windows path, launch a command line window. For example, find or open the Windows search box and click inside it, then search for cmd program.

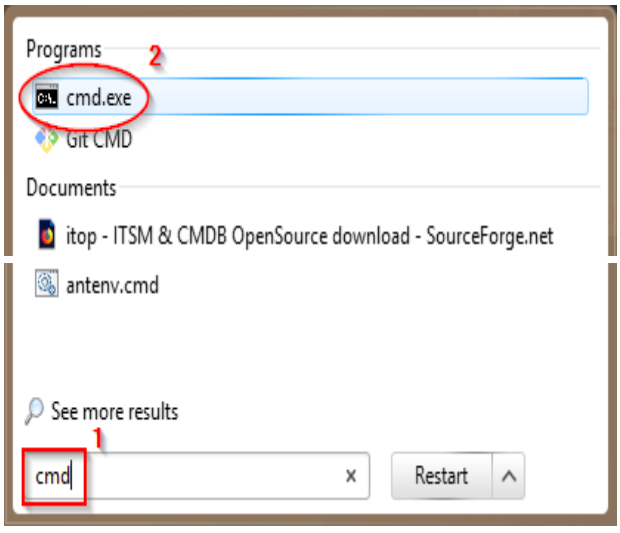
Windows 10 (Desktop)





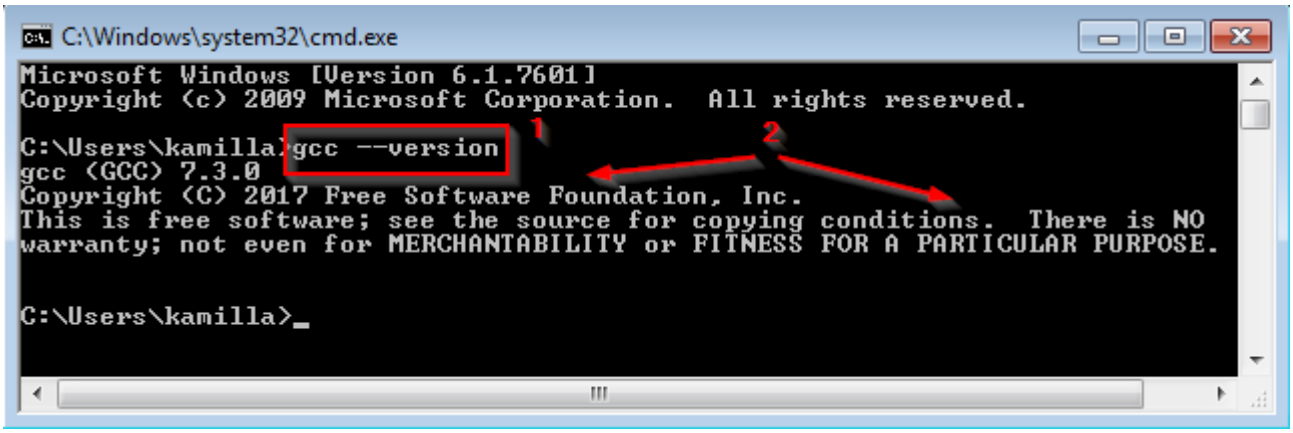
Legacy Windows (Windows Start Menu)





Enter word cmd ① in the search field. Click on **cmd** ② in the list of found programs.

You will see Windows shell (command line) window.



At the shell prompt, enter `gcc --version` command ① and press **Enter** key. You are supposed to see GCC compiler version and license information ②.

Note 1 - there is a space between `gcc` and `--version` and two dashes in the `--version`.

Note 2 - This verifies that the GCC compiler can be invoked from a Windows command line shell. If it fails, check that the GCC compiler can be invoked from a Cygwin shell as described in Verifying Cygwin Installation section previously.

Restarting Eclipse

A running Eclipse has to be restarted for the Cygwin related changes to take effect.

If you are running Eclipse, open **File** menu and select **Exit** option. Launch Eclipse again.

Eclipse IDE Basics

Eclipse Perspectives

In Eclipse, a perspective is a set of views, editors, panels, etc. tailored for a specific task, for example, for Java development.

You can use multiple perspectives with one Eclipse workspace, for example, Java and C++ perspectives. But only one of them can be visible inside any given Eclipse window.

If you want so, you can have one Eclipse workspace for Java (with Java perspective opened) and one Eclipse workspace for C/C++ (with C/C++ perspective open).

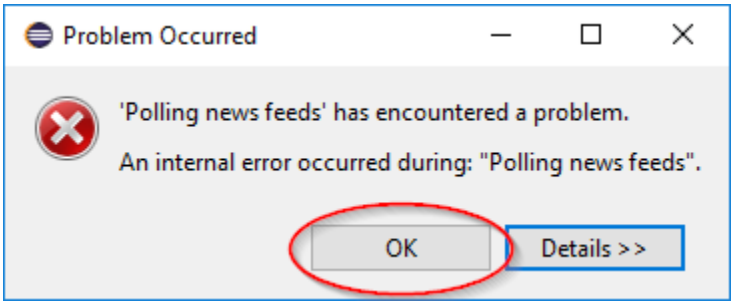
Using Eclipse for Java Development

If you are running Eclipse as Administrator or if the current workspace is not appropriate - exit Eclipse (open **File** menu and select **Exit** option), start it again as regular user, and select appropriate workspace.

'Polling news feeds' Workspace Issue

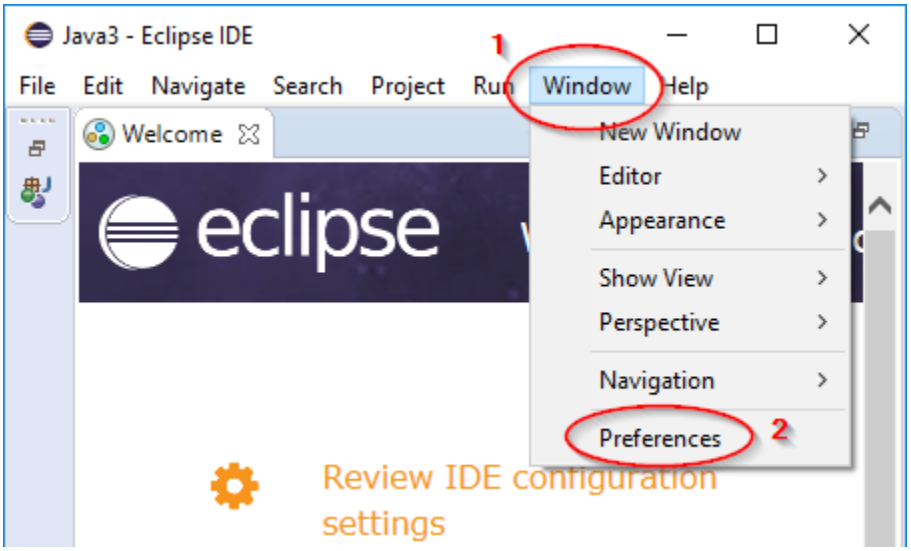
✓ If this issue exists, it has to be fixed in each workspace. If it is a shared Eclipse installation, each user shall fix this issue when the user's workspaces are created.

If Java SE 11 is used to run Eclipse IDE for Java Developers, after the Eclipse is started, you may see the following pop-up window



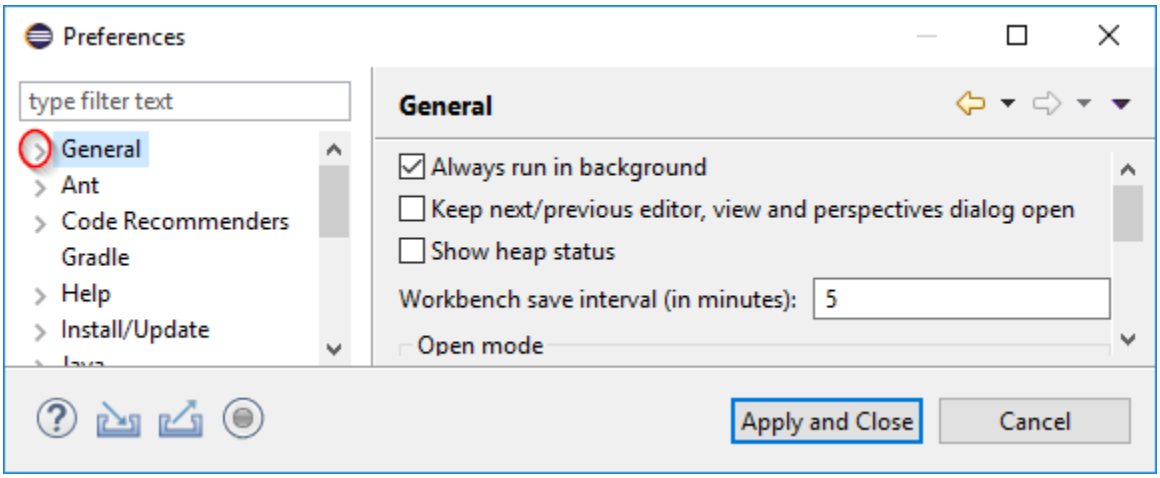
Press **OK** button to ignore the message. It is a known issue (see bug #540196), it happens because **javax.xml.bind** package is not included in Java SE 11.

The known workaround is to disable automatic news polling in Eclipse properties.

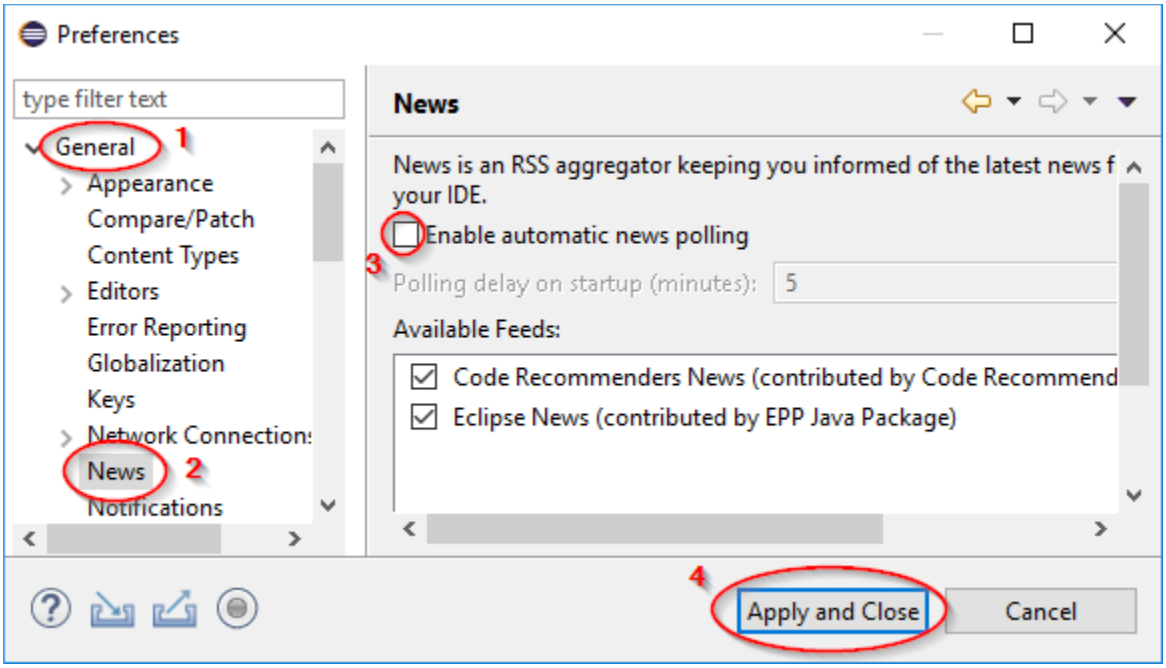


To do so, in Eclipse, open **Window** menu and select **Preferences** option.

You will see Eclipse preferences window.



Click on a small white triangle ▷ (or angle ›) left to "**General**" to open General preferences. If you do not see the (tri)angles, move the mouse pointer to the left (white) panel and the (tri)angles will appear.



In the **General** preferences ①, select **News** ②.

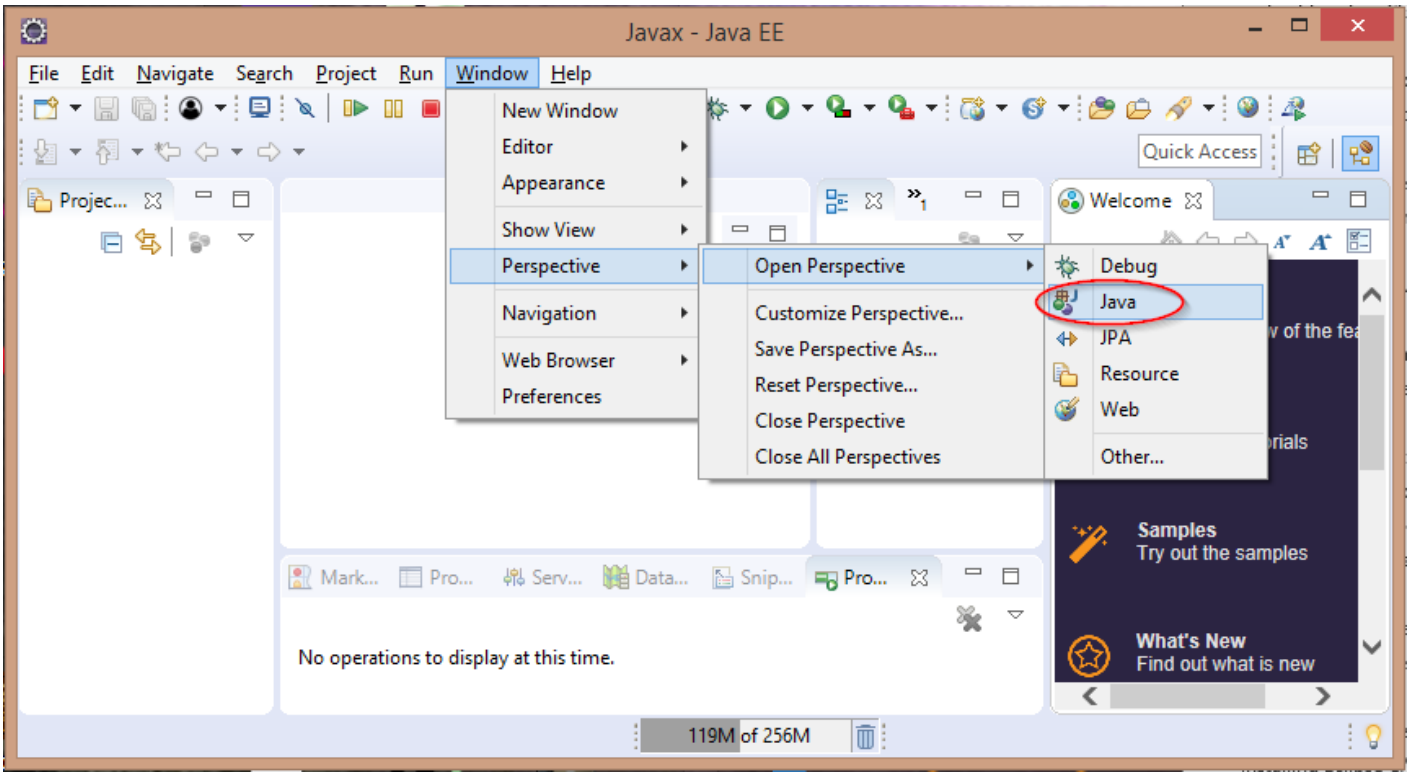
Uncheck option **Enable automatic news polling** ③. Press **Apply and Close** button ④ to save the preferences.

Opening Java Perspective

You can open Java perspective if you installed Eclipse IDE for Java or Java EE Developers.

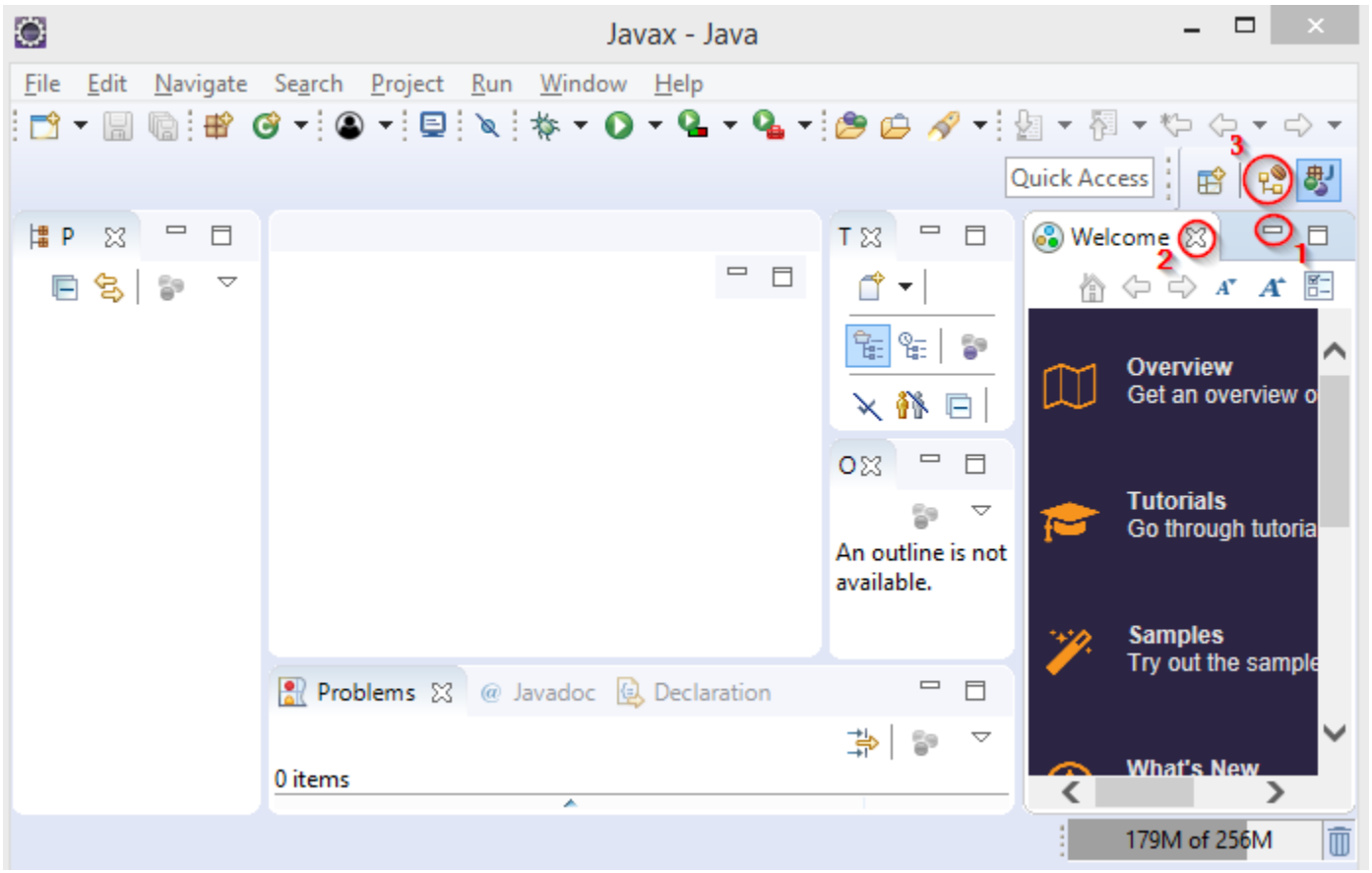
If you see only **Welcome** pane,

click on "**Restore**" icon to make the current perspective visible.

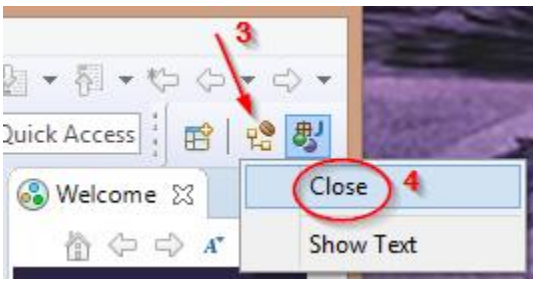


Open **Windows** menu, select **Open Perspective** submenu, and select **Java** perspective.

You are supposed to see the **Java** perspective opened at this point.

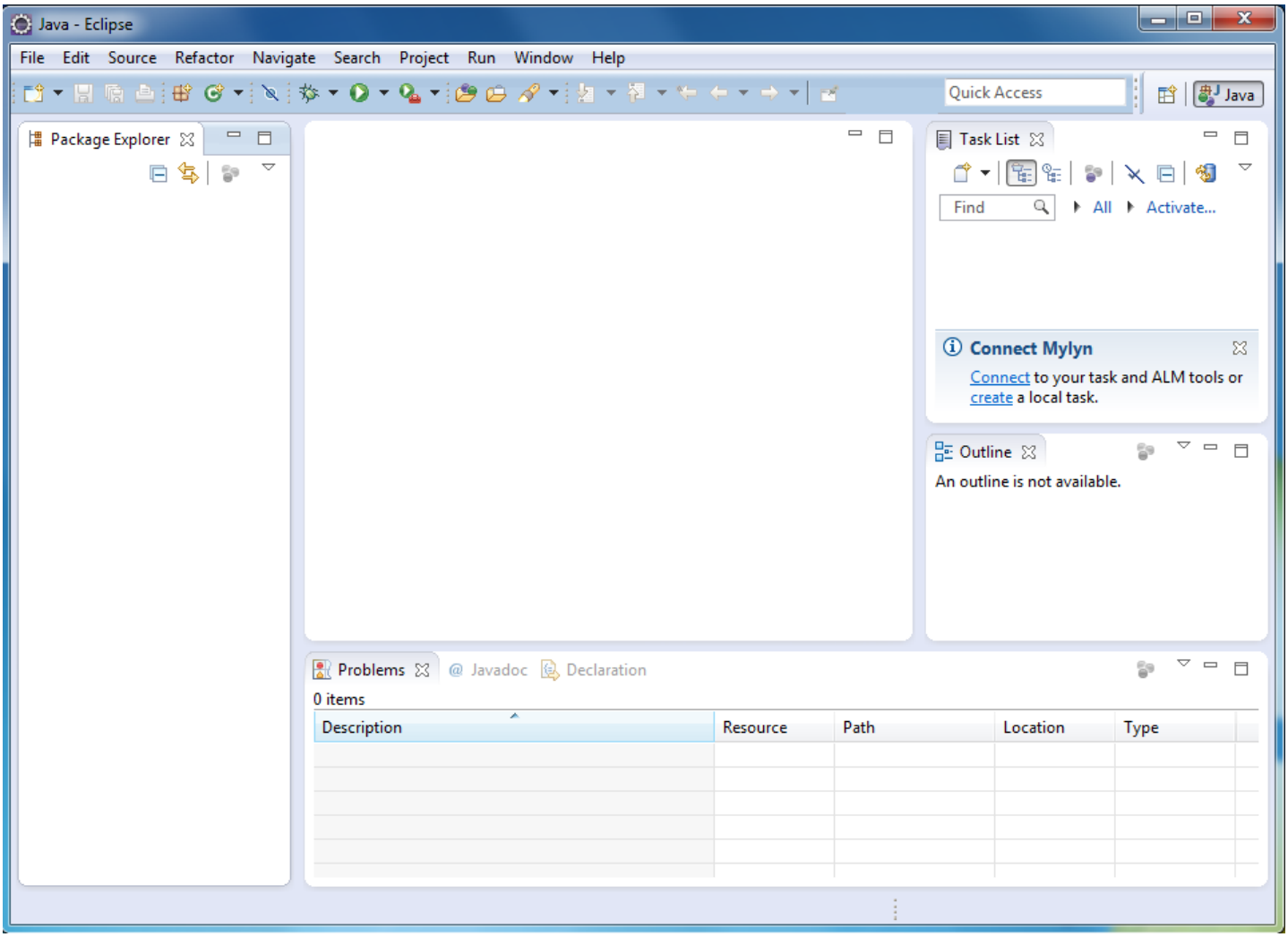


If you want so, you can minimize the **Welcome** pane by clicking on "**Minimize**" icon in the panel title ① or even close **Welcome** panel completely by clicking on "**Close**" icon in the panel title ②.



You can also remove Java EE perspective - move the mouse pointer over **Java EE** icon ③, click the right mouse button to open a context menu, and select **Close** option ④.

In the example below, there is only one **Java** perspective and the welcome panel is closed.

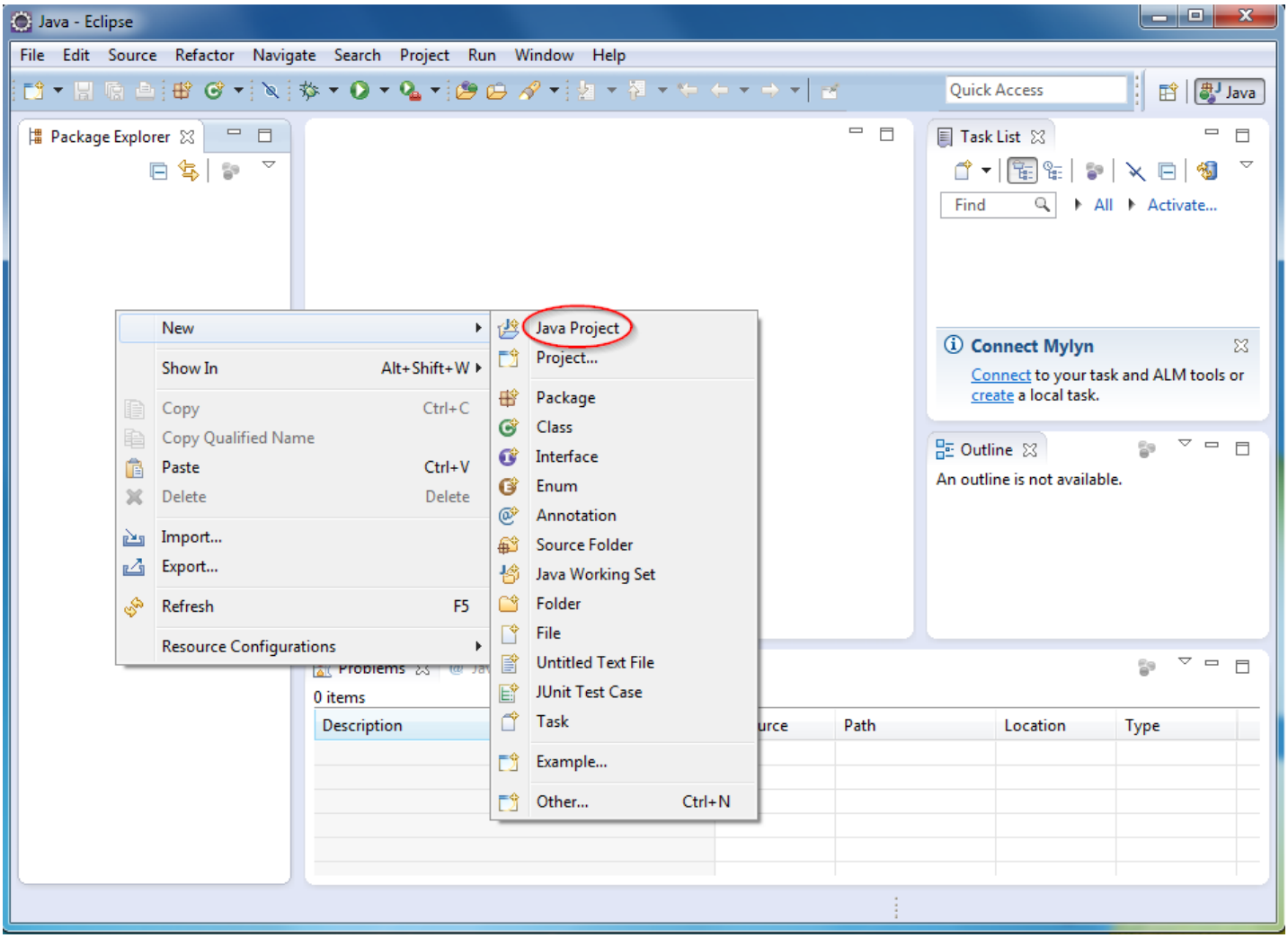


You can use Eclipse at this point to develop Java code.

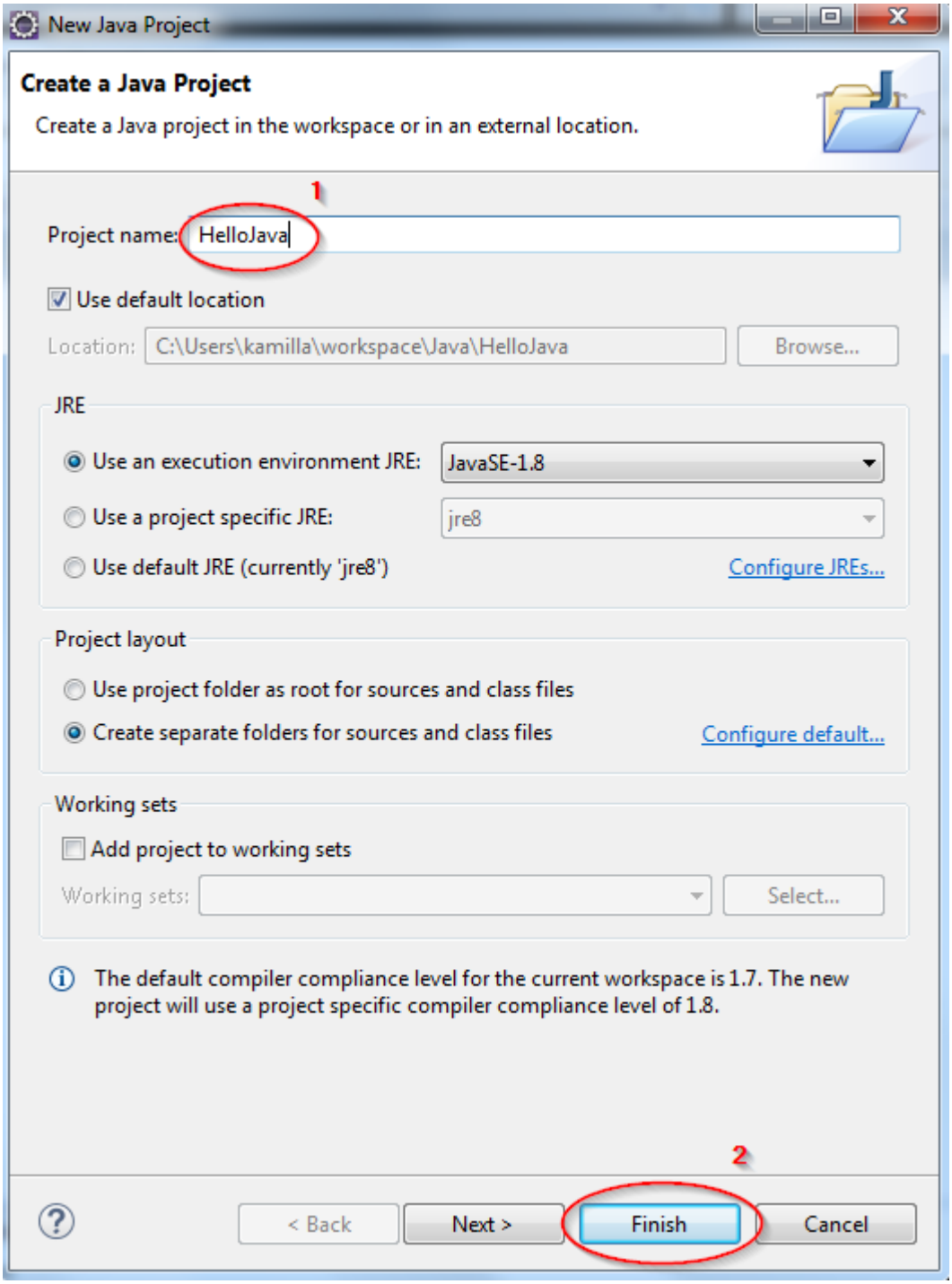
Java Test Project

Creating HelloJava Java Project

To create a Java project, right click on an empty space in **Package Explorer** view to open a context menu.

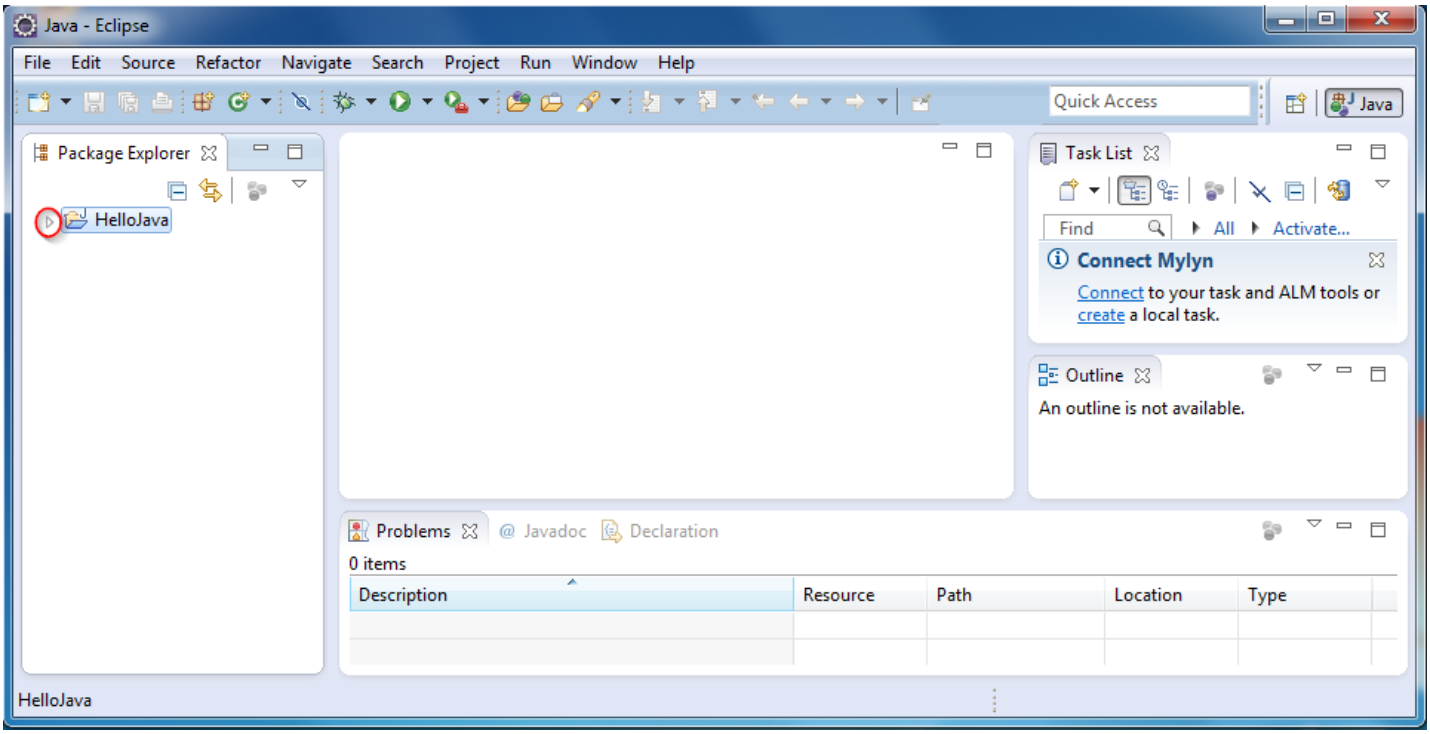


Select **New** submenu, select **Java Project** option. You will see **New Java Project** wizard window.



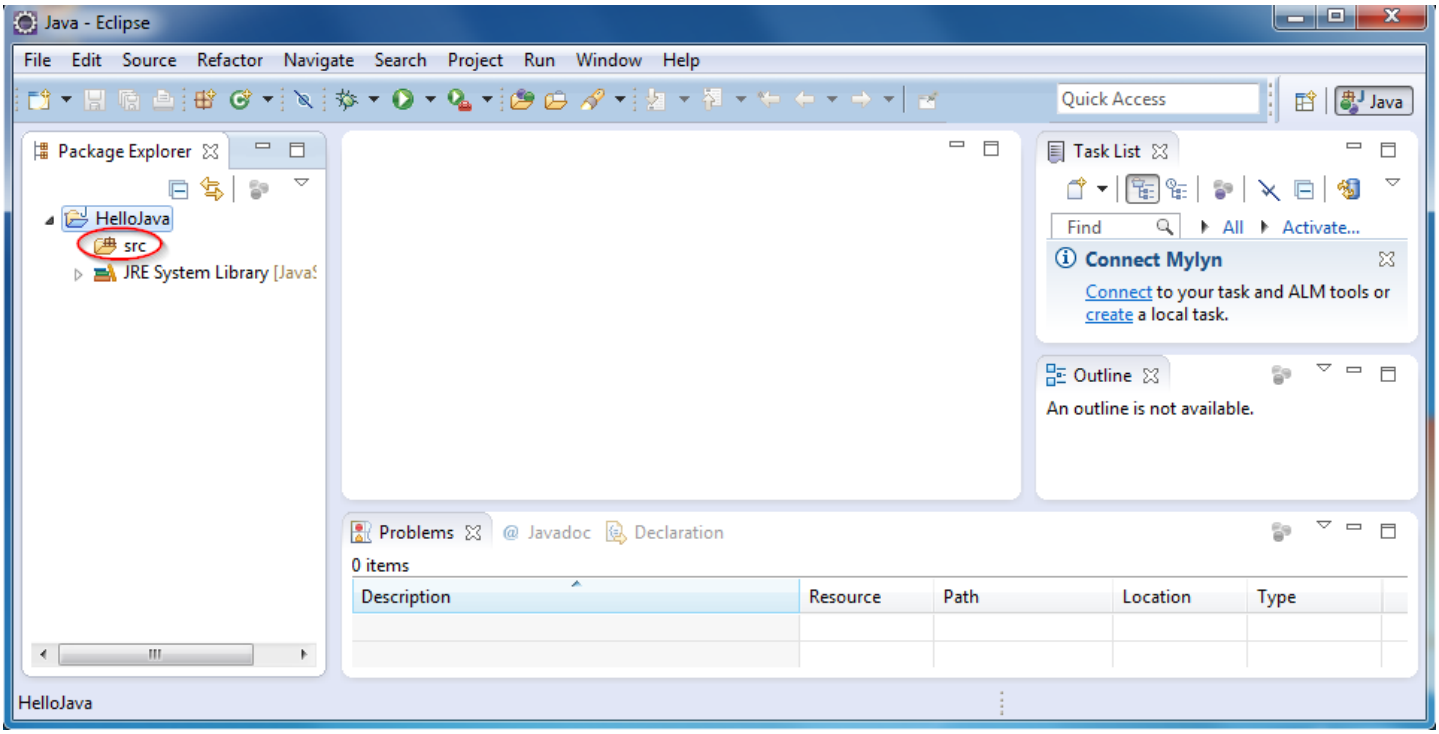
Enter `HelloJava` text in the **Project name** field ①. Press **Finish** button ② to create the project.

You will see `HelloJava` project folder in the left panel.

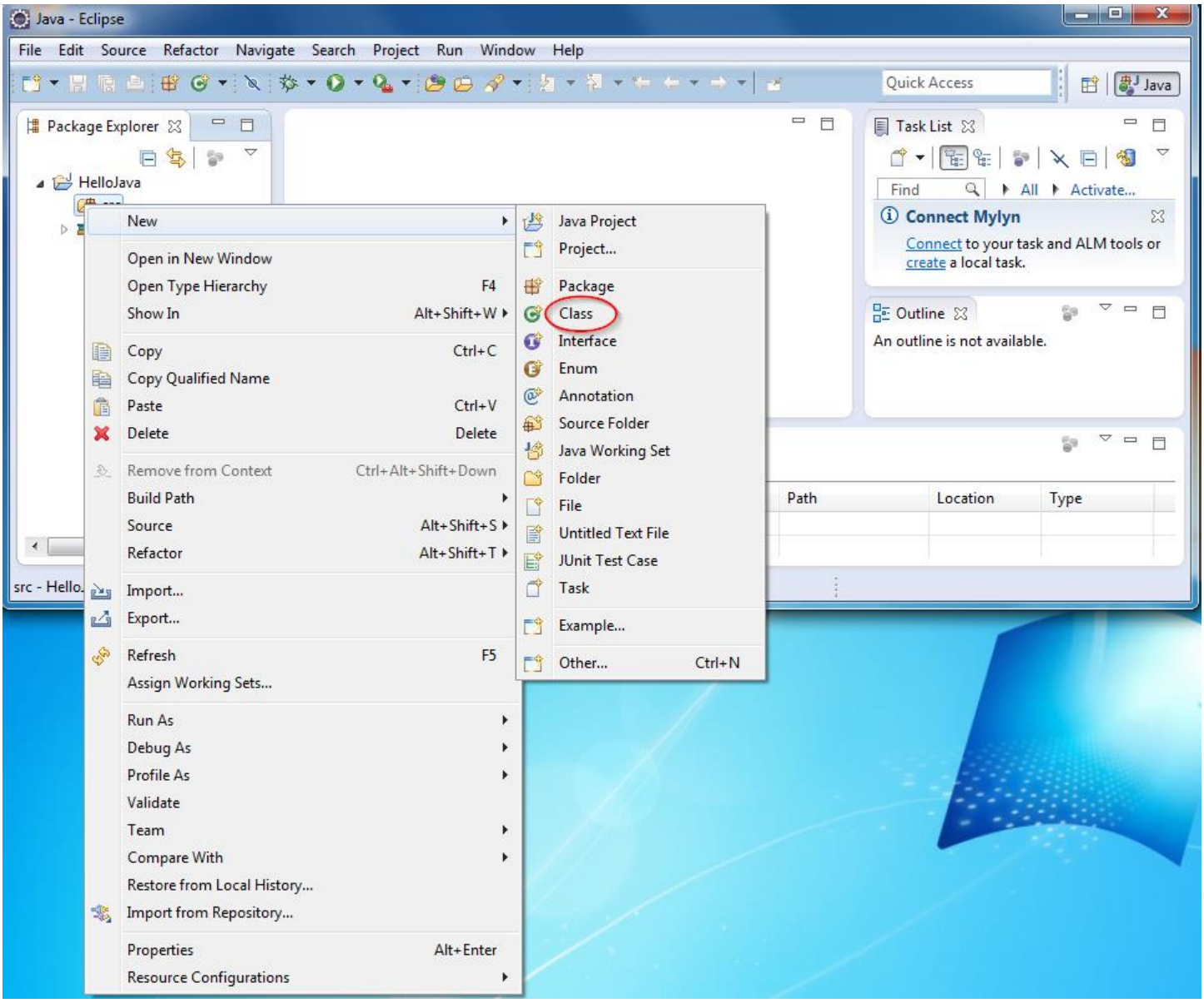


Creating Java Class

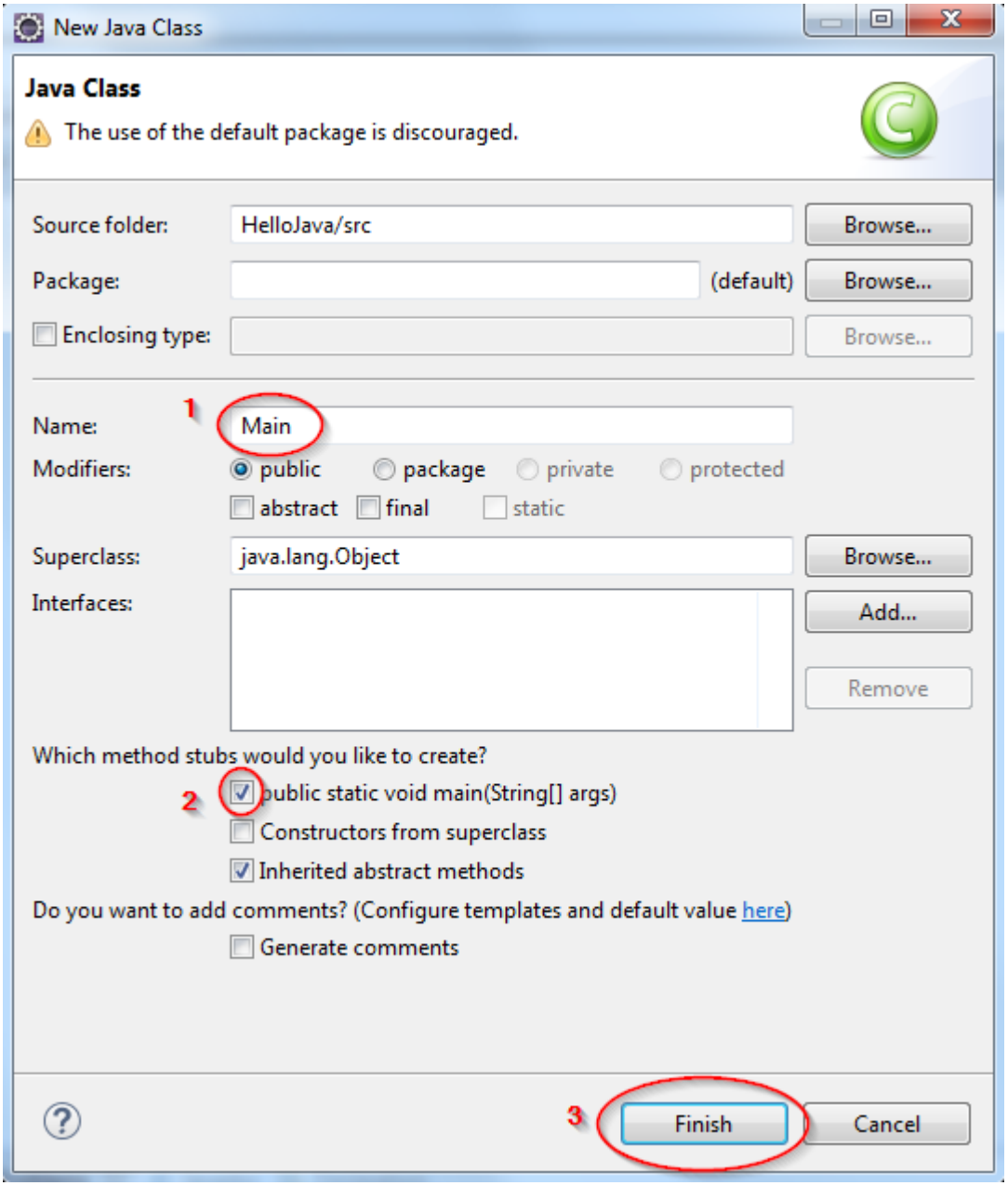
Click on the white triangle ▷ (or angle ›) icon left to `HelloJava` to open the project folder.



Right click on the `src` subfolder name to open a context menu.

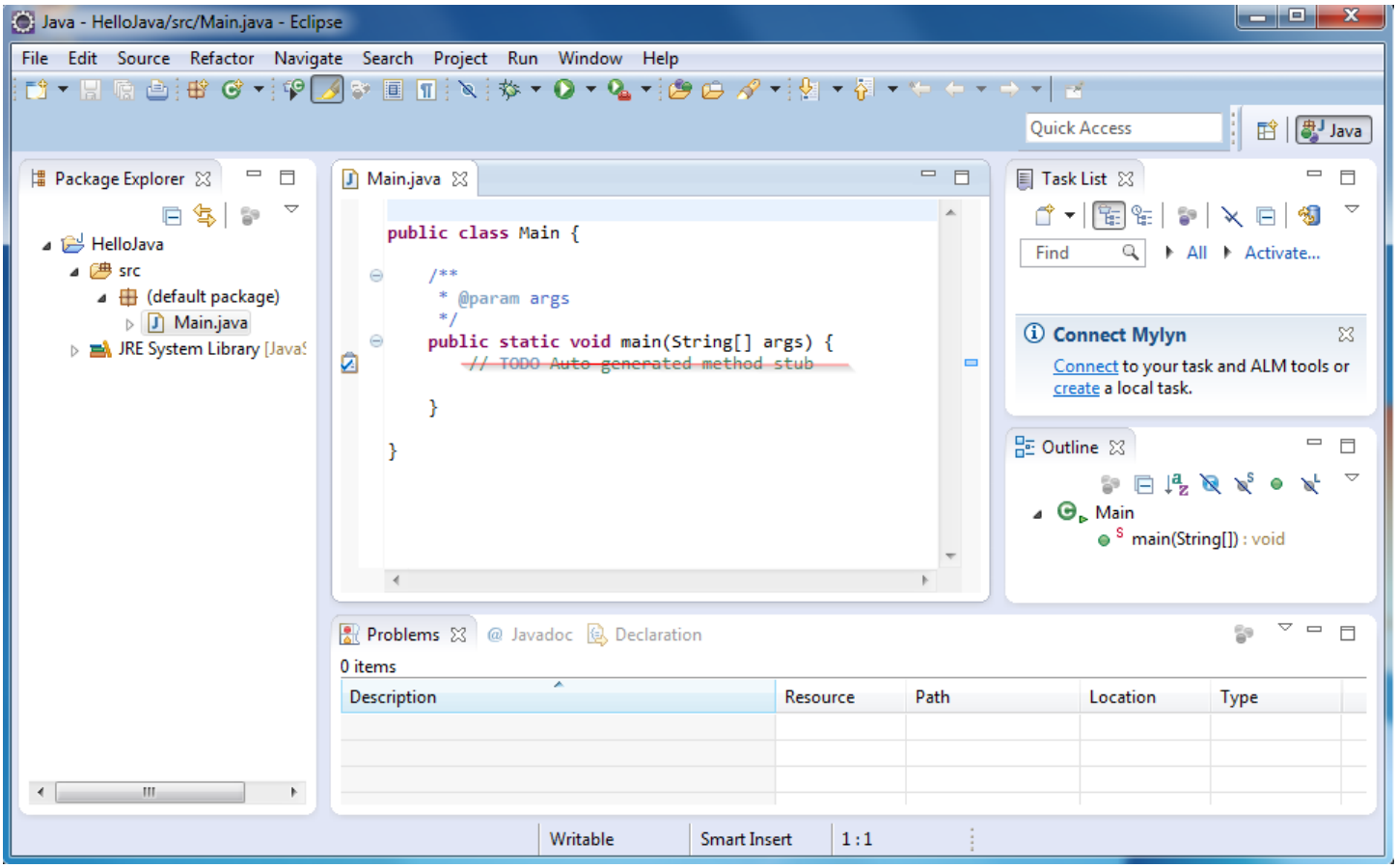


Open **New** submenu and select **Class** option.



Enter `Main` word in the **Name** field ①. Check **public static void main(String[] args)** option ②. Press **Finish** button ③ to create the project.

You will see **Main.java** source code opened in the middle editor pane.



Editing Java Code

Click inside the editor pane and start editing the source code.

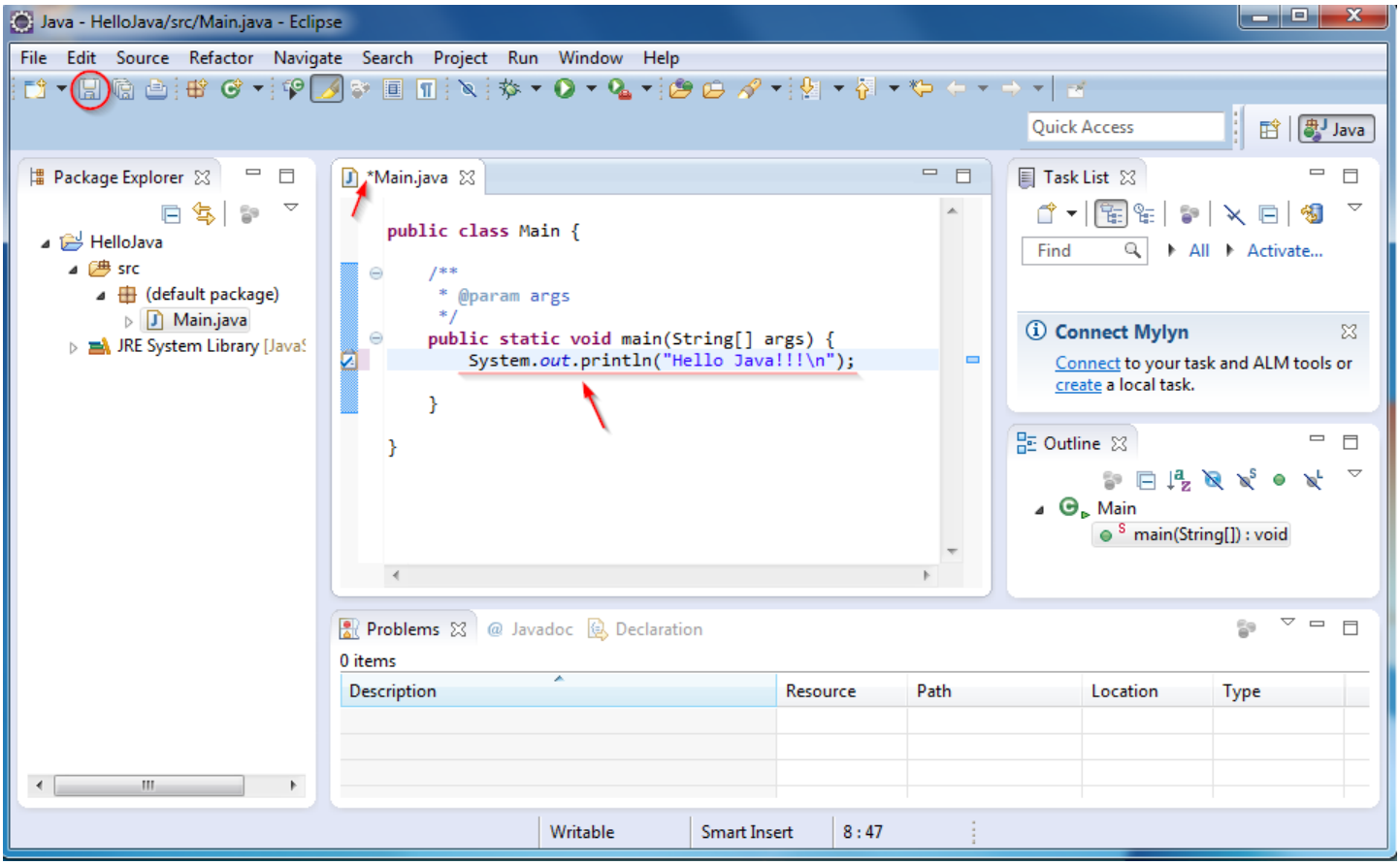
Remove the comment

```
// TODO Auto-generated method stub
```

Type the following text instead of it

```
System.out.println("Hello Java!!!\n");
```

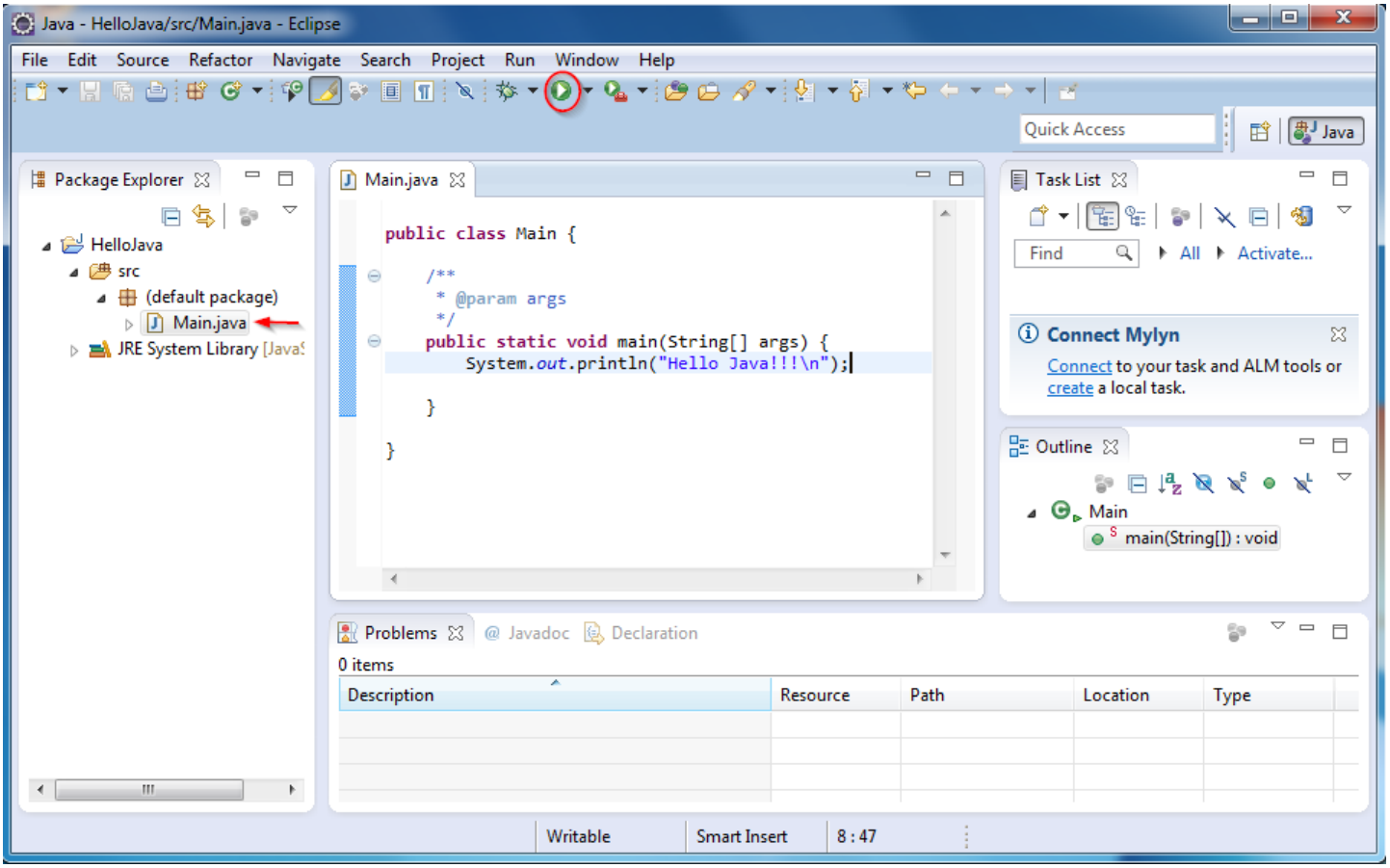

You are supposed to see the following



Note asterisk sign * left to `Main.java` file name. The asterisk means that the file has been modified.

Press floppy  icon to save the `Main.java` file.

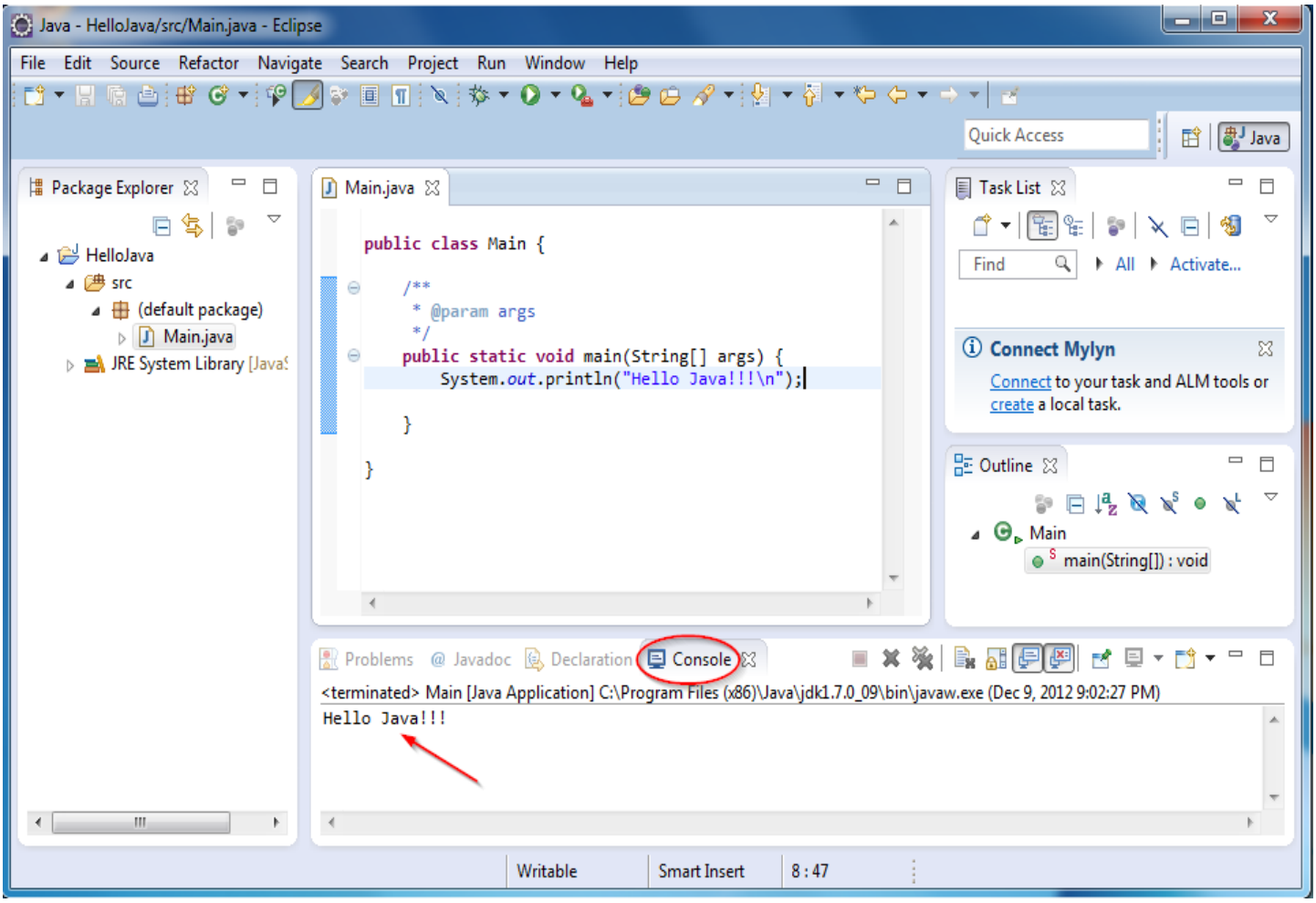
Running Java Program



Be sure that in the left pane `HelloJava` project or any file or folder inside the project is highlited (`Main.java` in the example). Otherwise you might get error messages down the road.

To run the program click on “white triangle inside green disk”  icon (if you click on the triangle right to the icon you will see a menu that also can be used to run the project).

You are supposed to see **Console** view opened in the lower panel with **Hello Java!!!** text inside it.



If **Console** view is not opened, click on **Console** tab to open it. If **Console** tab is missing, go to **Window** menu, select **Show View** submenu, and select **Console** option.

Specifying Runtime Parameters

If you want to specify program runtime parameters, for example, program arguments or environment variables, see Appendix 5 – Program Run Configuration. Note that the default run configuration is created automatically the first time the program is run.

That's it! You have Eclipse Java Development Tools working!

Using Eclipse for C++ Development

If you are running Eclipse as Administrator or if the current workspace is not intended for C/C++ development - exit Eclipse (open **File** menu and select **Exit** option), start it again as regular user, and select appropriate workspace.

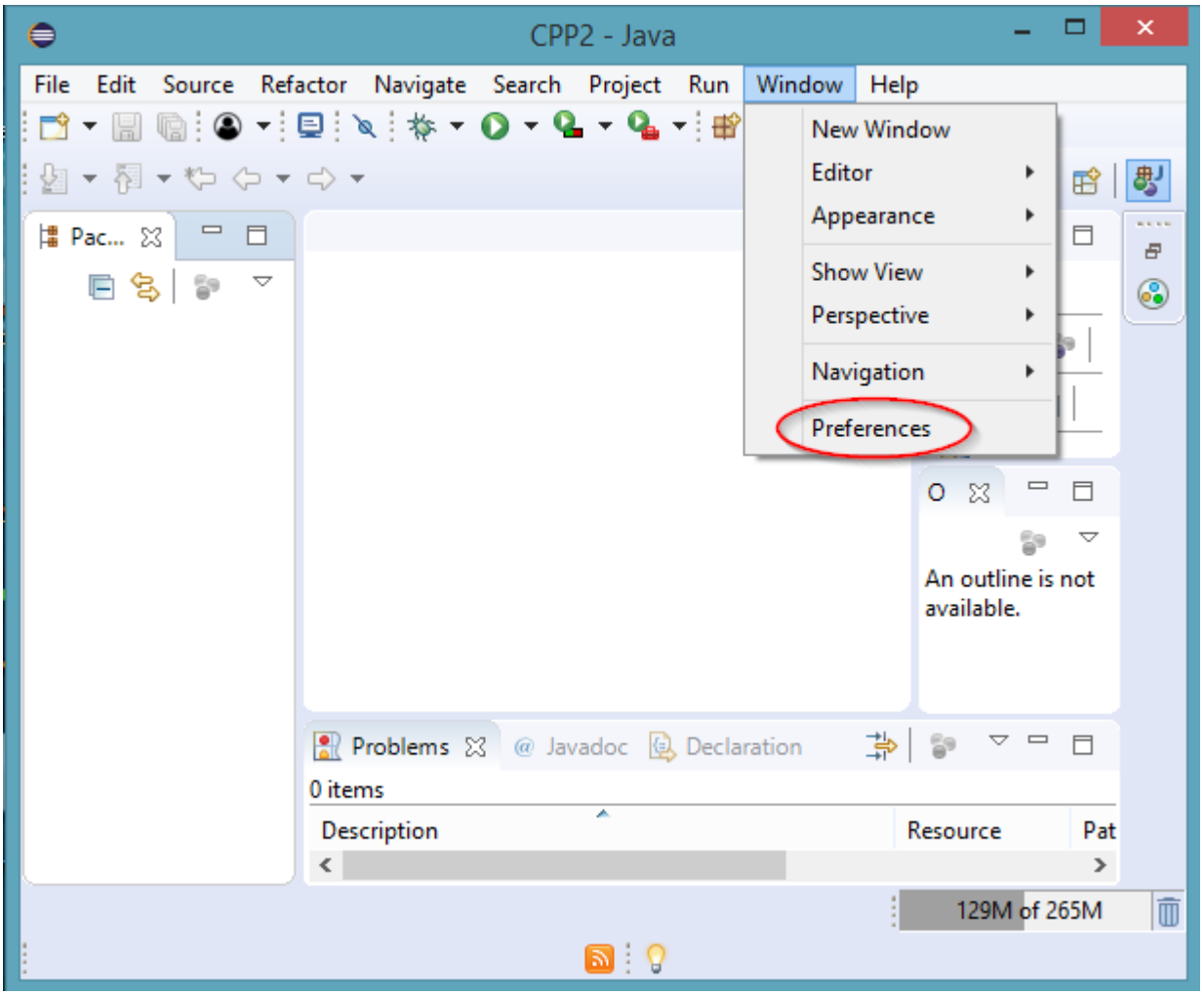
C/C++ Specific Workspace Configuration

To be able to debug C/C++ programs built using Cygwin toolset, it necessary to adjust some Eclipse preferences. Each workspace has own set of preferences. Run Eclipse as a regular user and select appropriate workspace that you use for C/C++ development.

Cygwin uses own notation for file and folder names. For example,

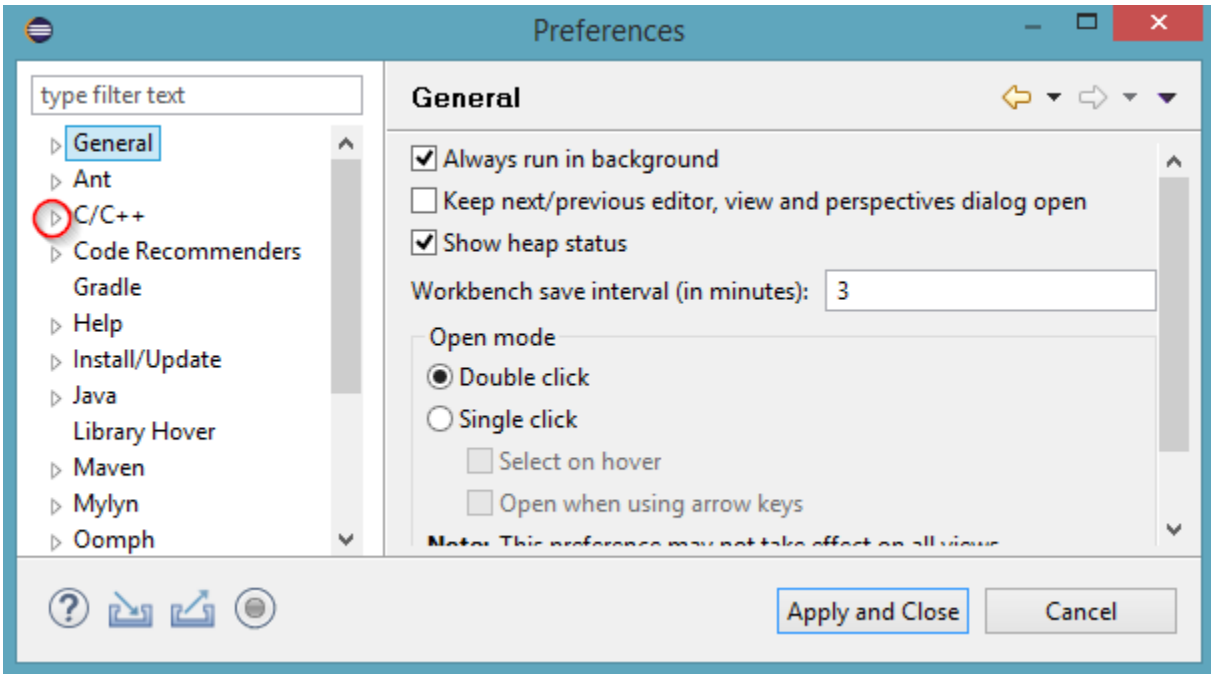
Windows folder name	Cygwin folder name
`C:\`	`/cygdrive/c`

Because of this different naming convention, Eclipse debugger cannot find source files unless source file lookup rules are configured.

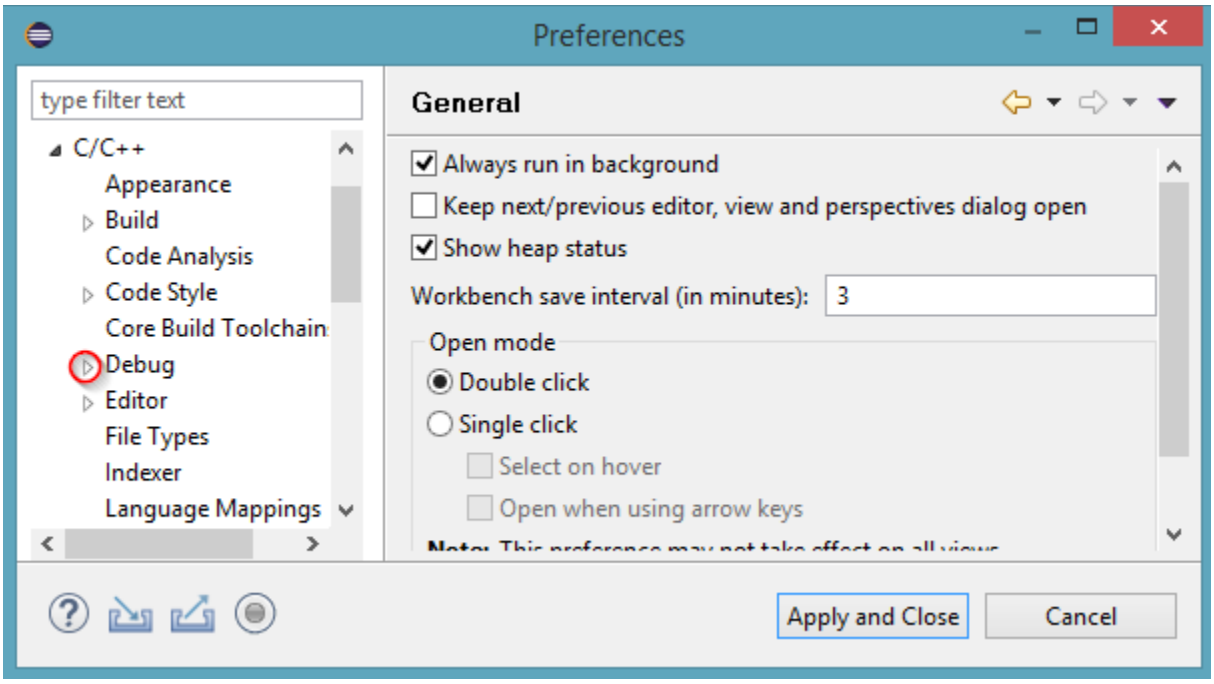


To adjust the preferences, open **Window** menu and select **Preferences** option.

You will see Eclipse preferences window.

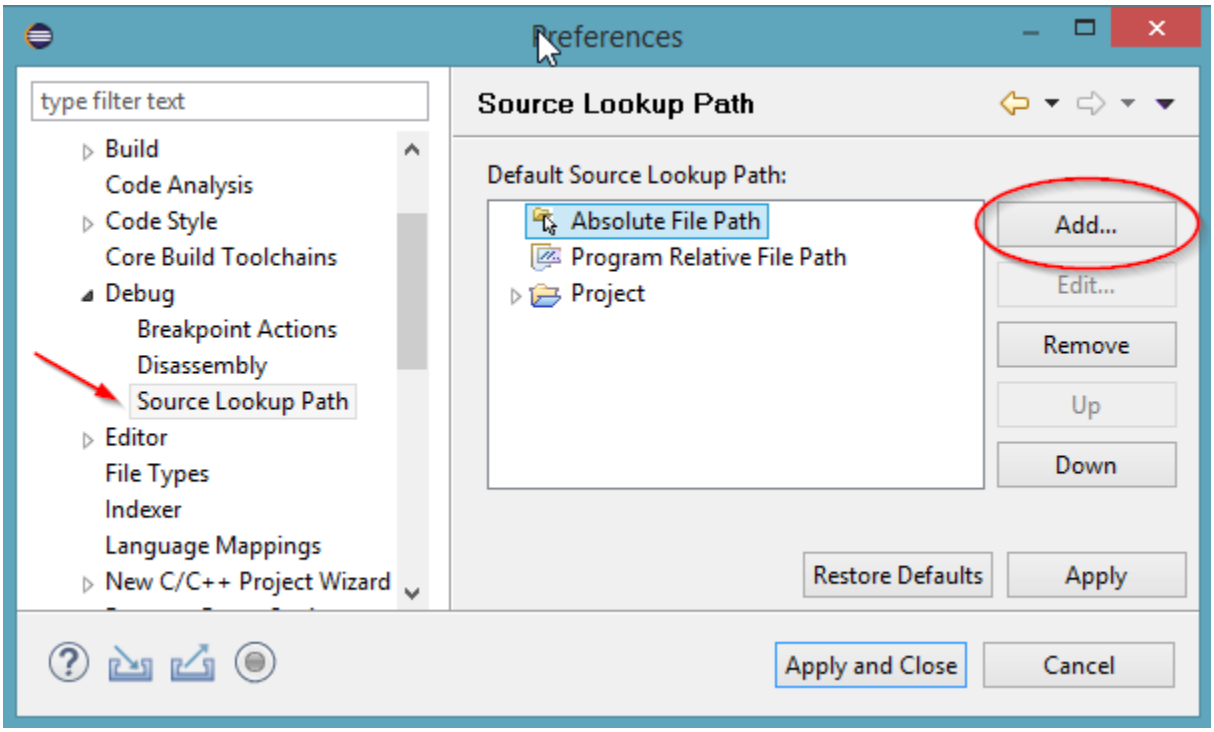


Click on a small white triangle ▷ (or angle ›) left to "**C/C++**" to open C/C++ preferences. If you do not see the (tri)angles, move mouse pointer to the left (white) panel and the (tri)angles will appear.

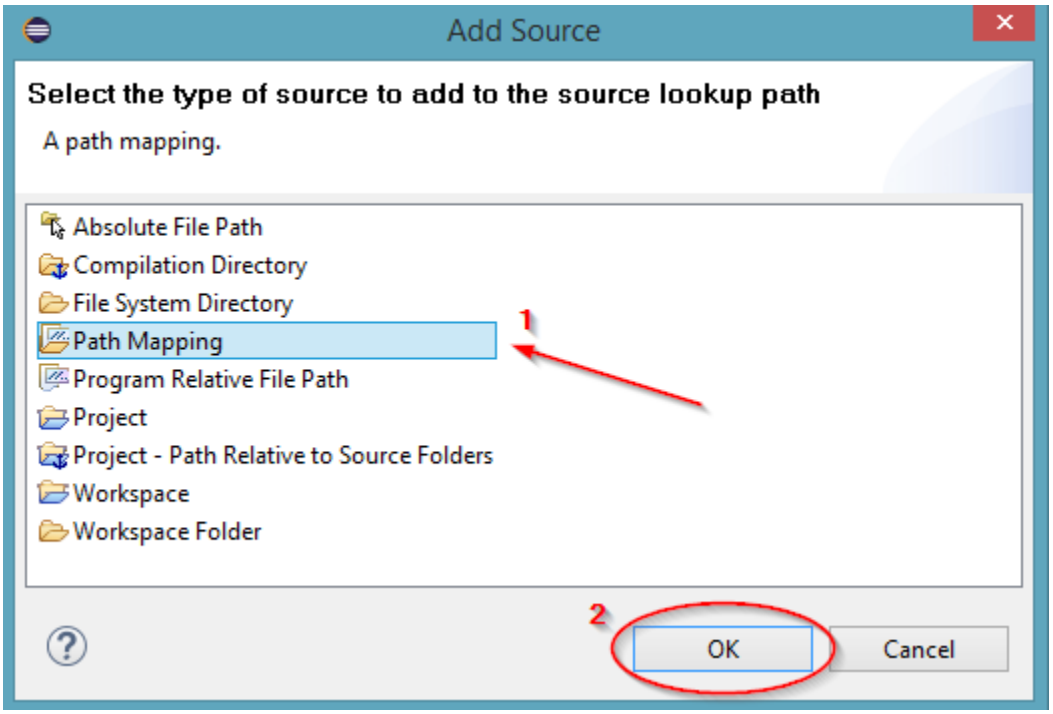


Click on a small white triangle ▷ (or angle ›) left to "**Debug**" group to open C/C++ debug preferences.

Click on "**Source Lookup Path**" to select Source Lookup Path preferences.

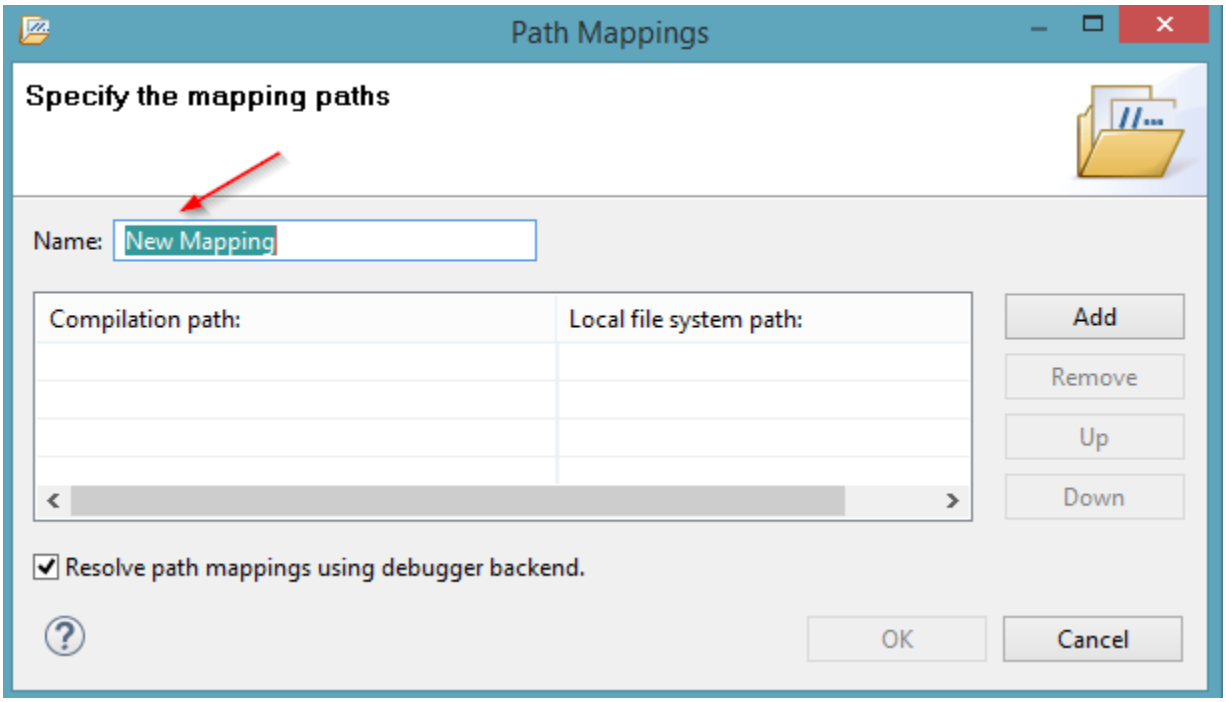


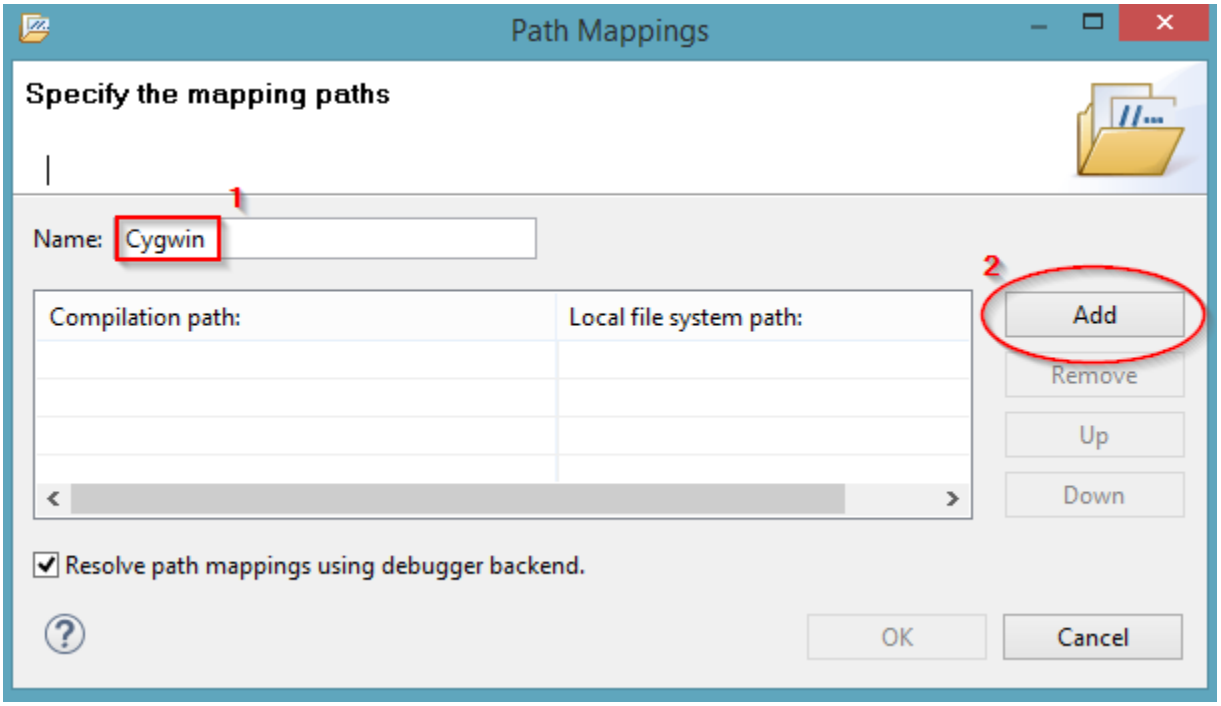
Press **Add** button. You will see "**Add Source**" pop-up window.



Click on **Path Mapping** option ① so it becomes selected. Press **OK** button ②.

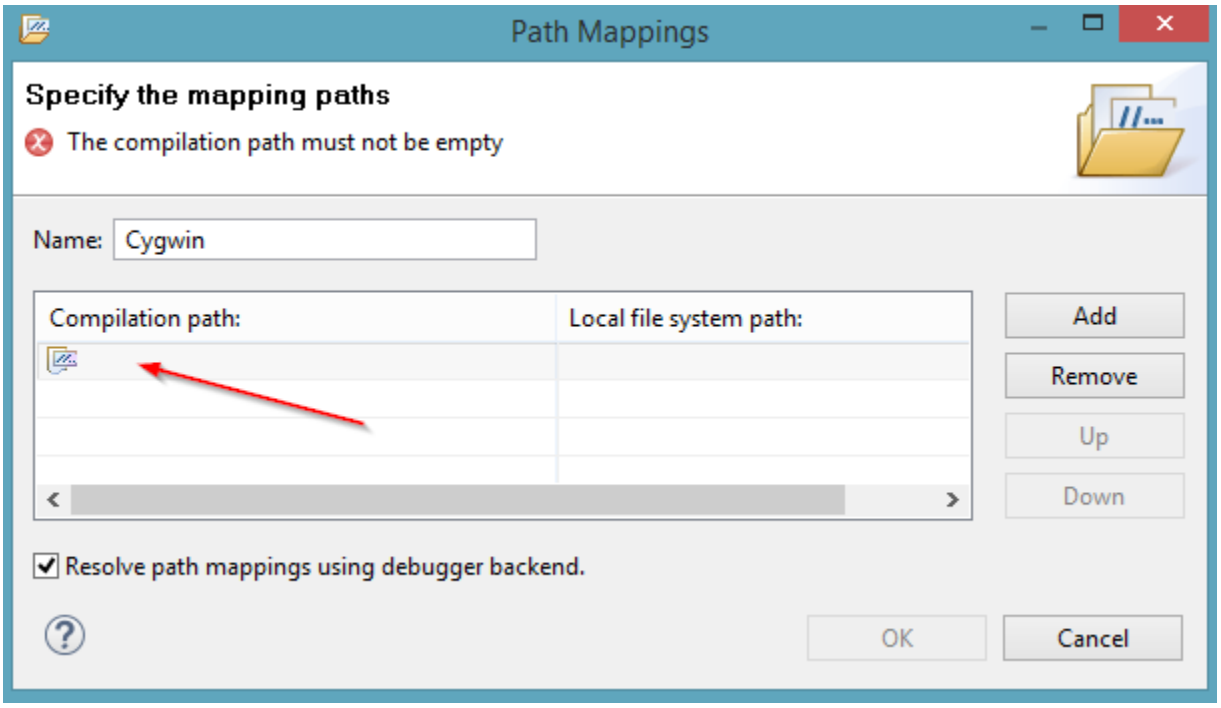
You will see **Path Mapping** window.

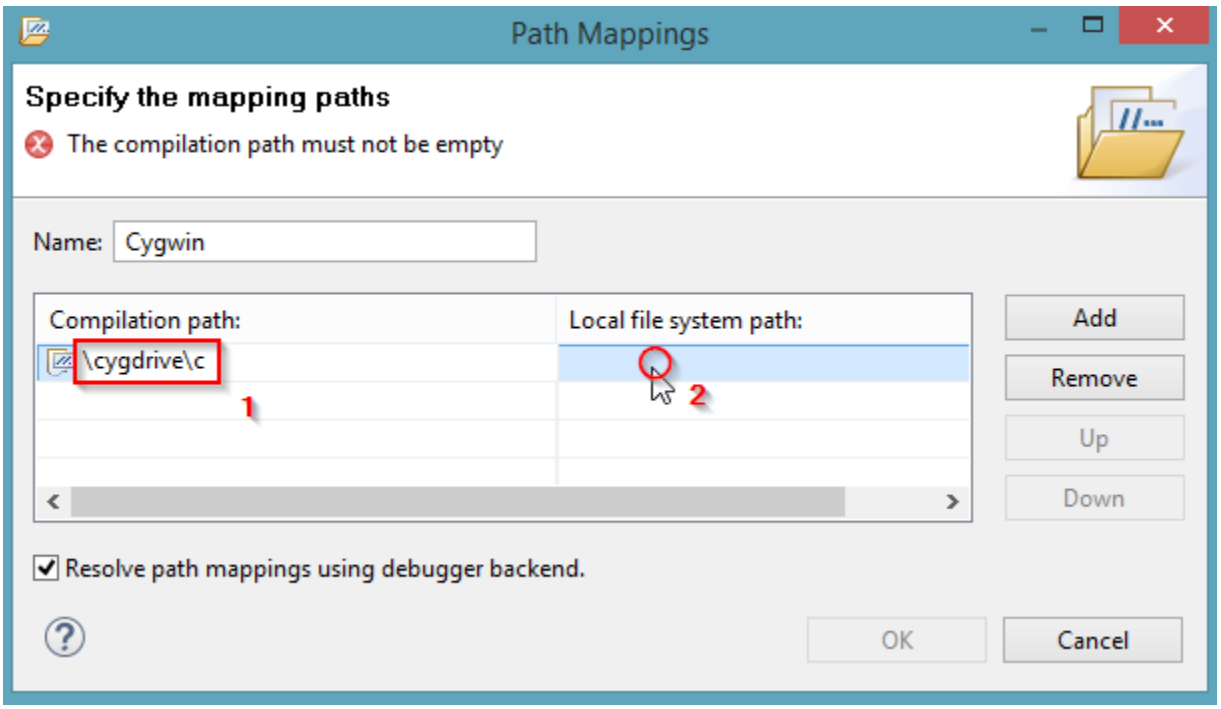




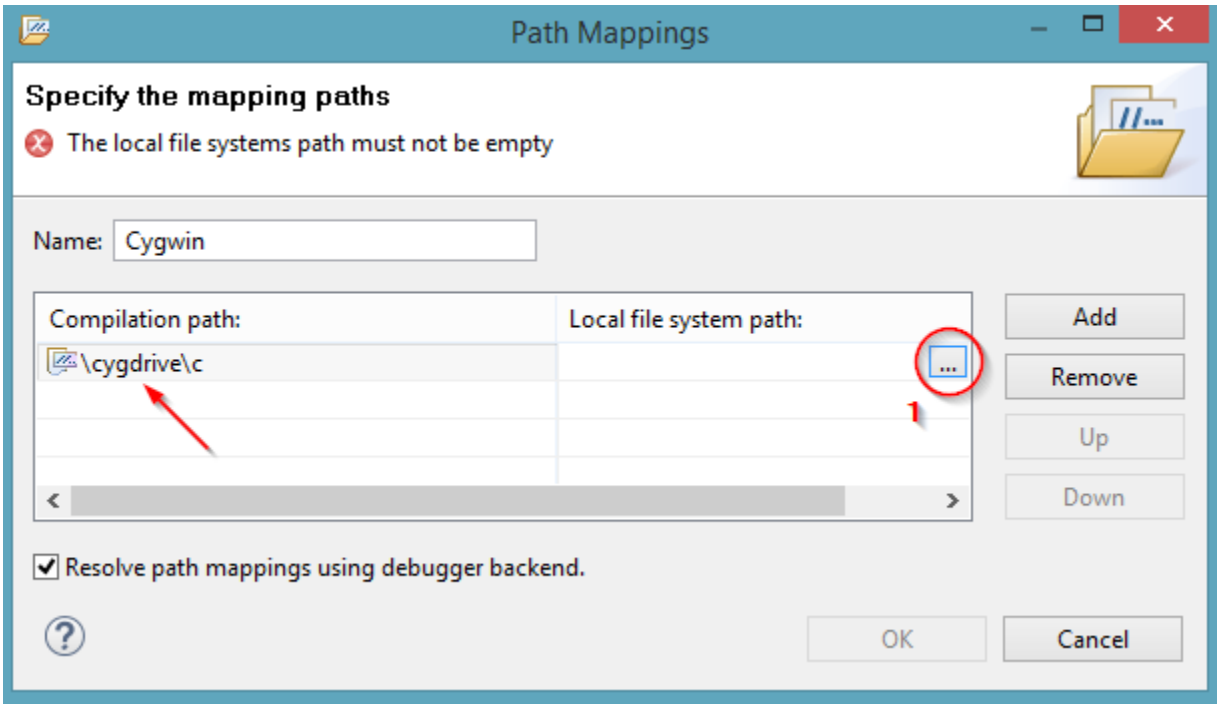
Enter `Cygwin` word in the **Name** field ①. Press **Add** button ②.

Find **Compilation path** column in the row that has icon at the left

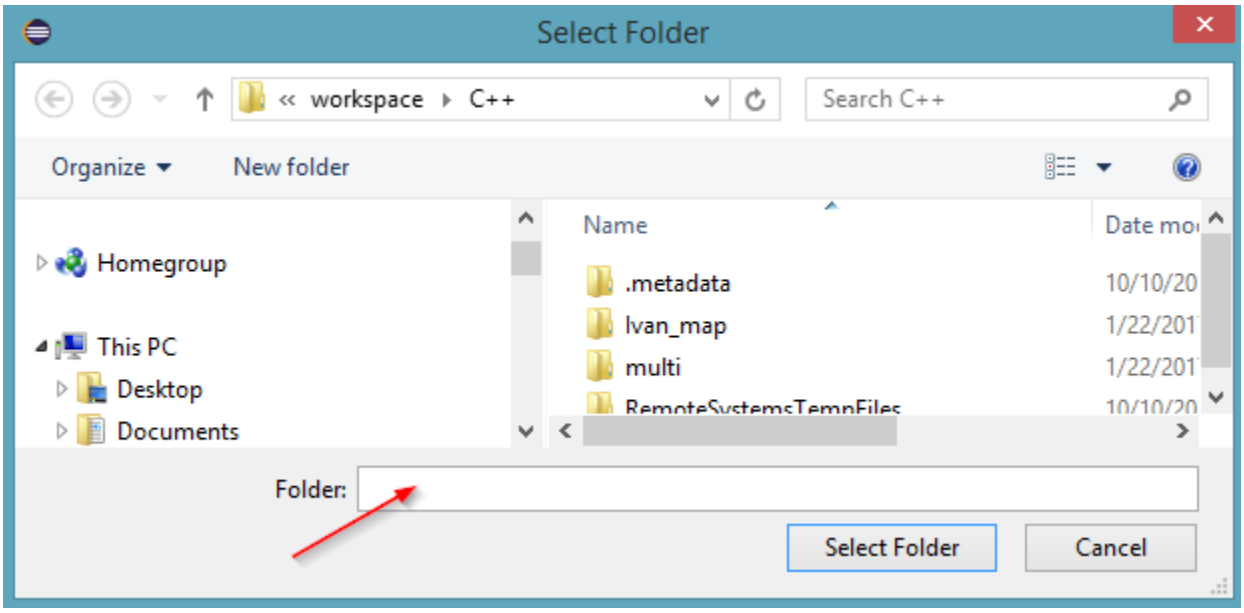




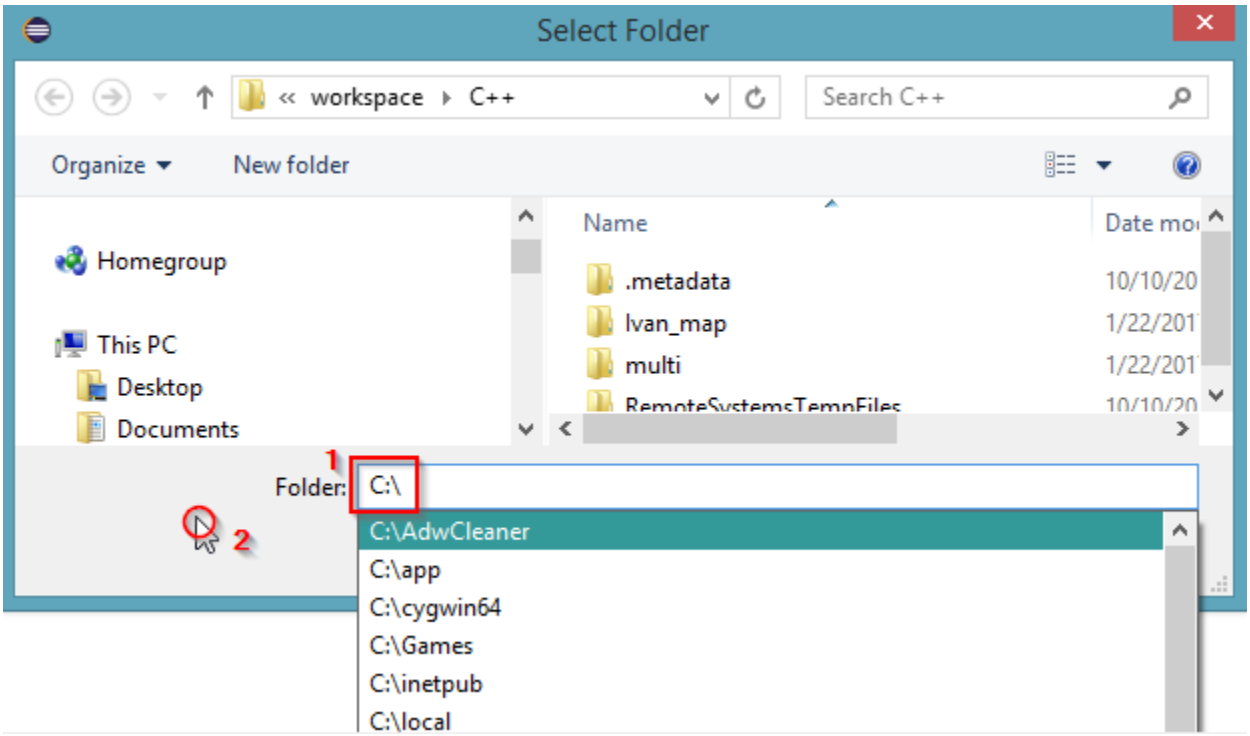
Enter `\cygdrive\c` (no spaces) text in the compilation path field ①. Click inside **Local file system path** column ②. icon will appear.



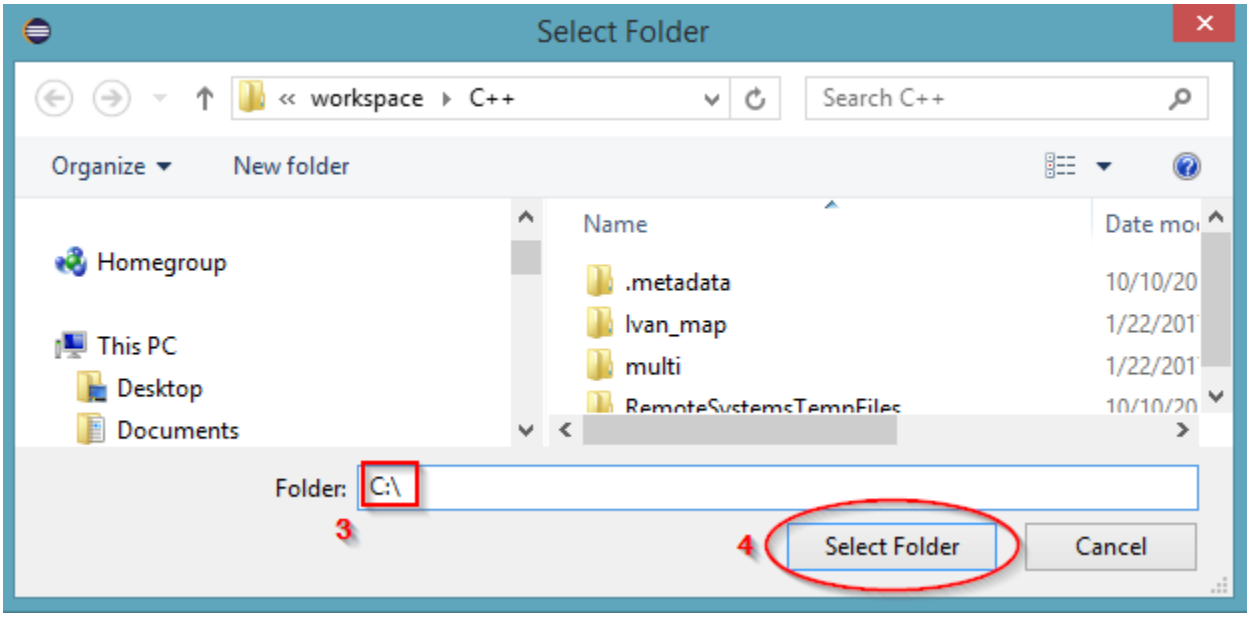
Click on "…" box  icon. "**Select Folder**" pop-up window will open.



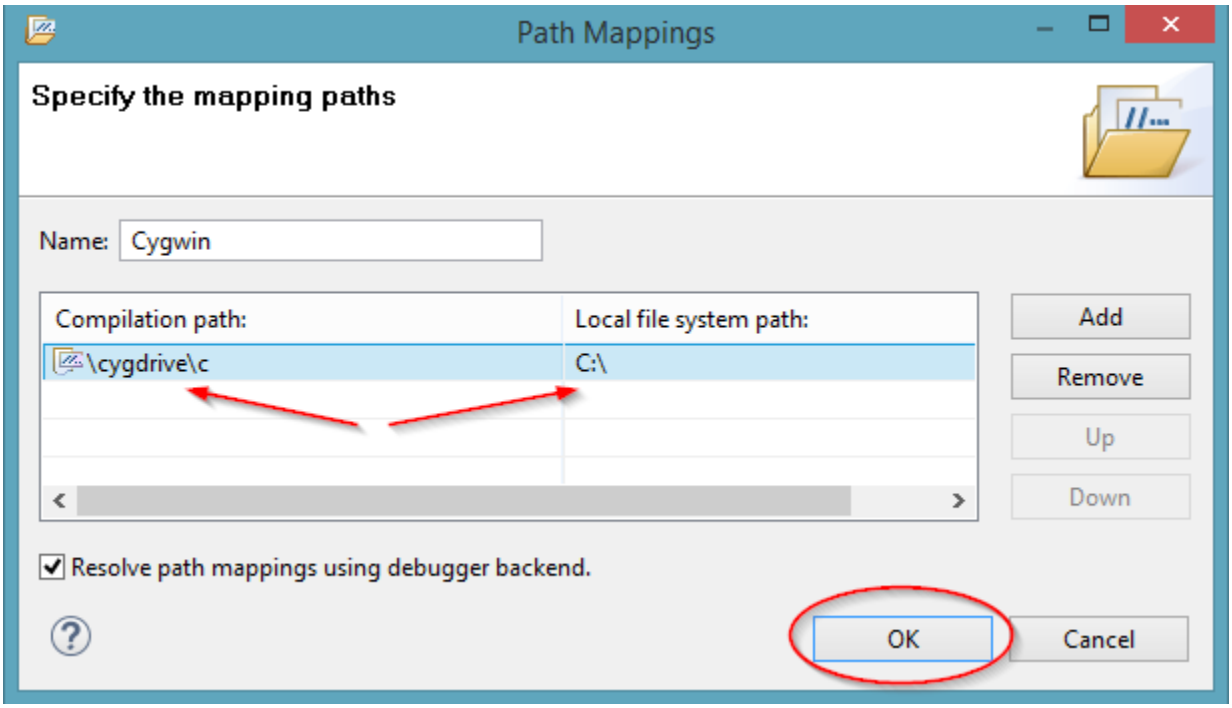
For this mapping, you need to select `C:\` folder.



Enter `C:\` (no spaces) path in the **Folder** field ①. As soon as you enter the path you might see a menu opened with a list of suggested folders. Ignore the suggestions by clicking somewhere in grey area ②.

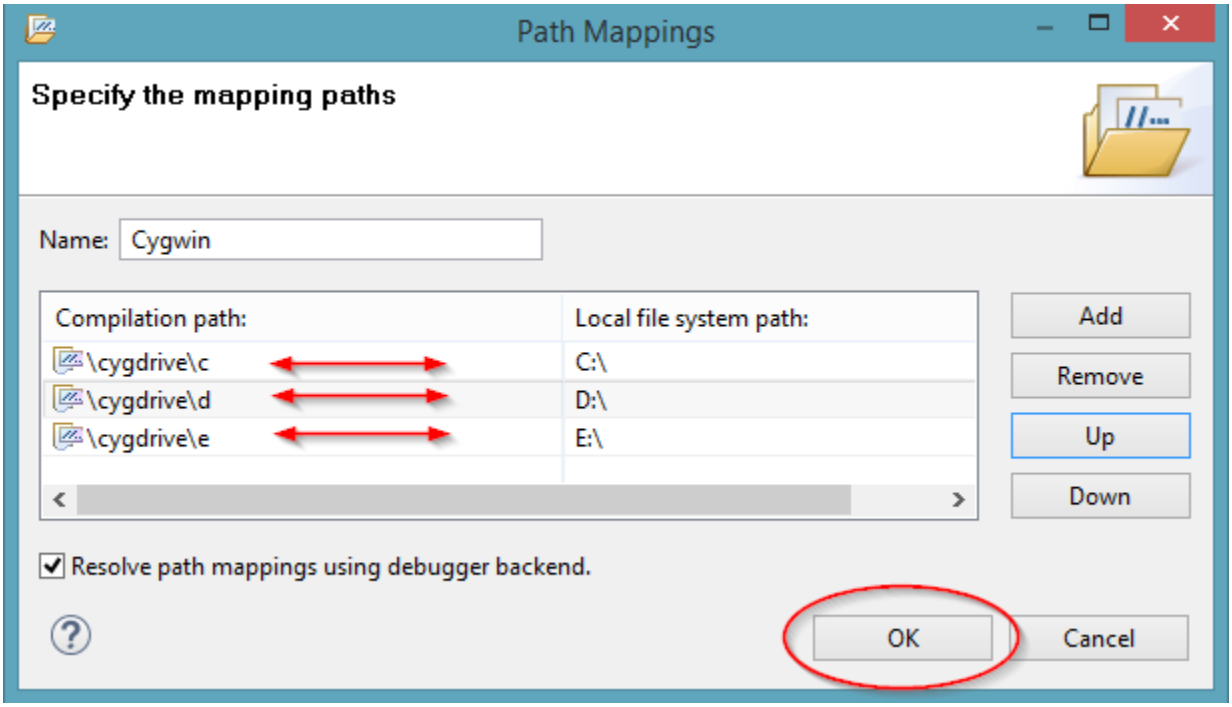


Be sure that **Folder** field shows `C:\` ③. Press **Select Folder** button to close the window. You are supposed to see the new mapping displayed.

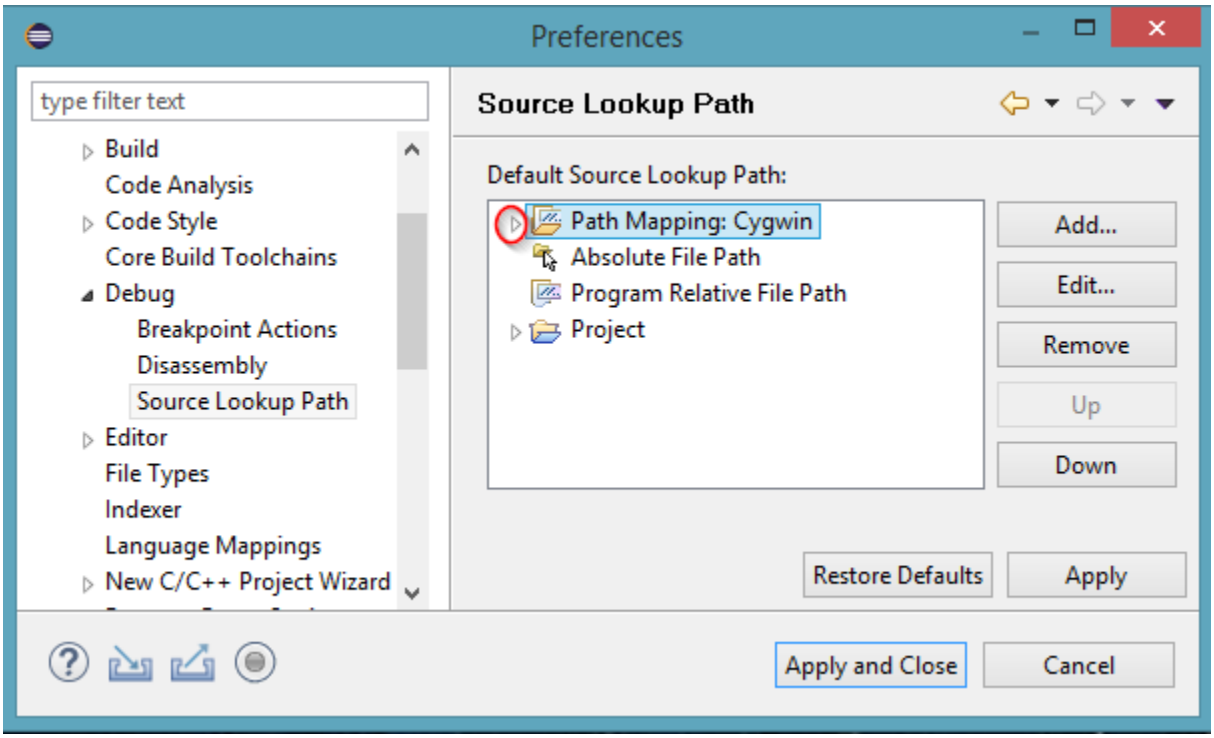


If you keep all your development related files on `C:` drive, you can press **OK** to close the window.

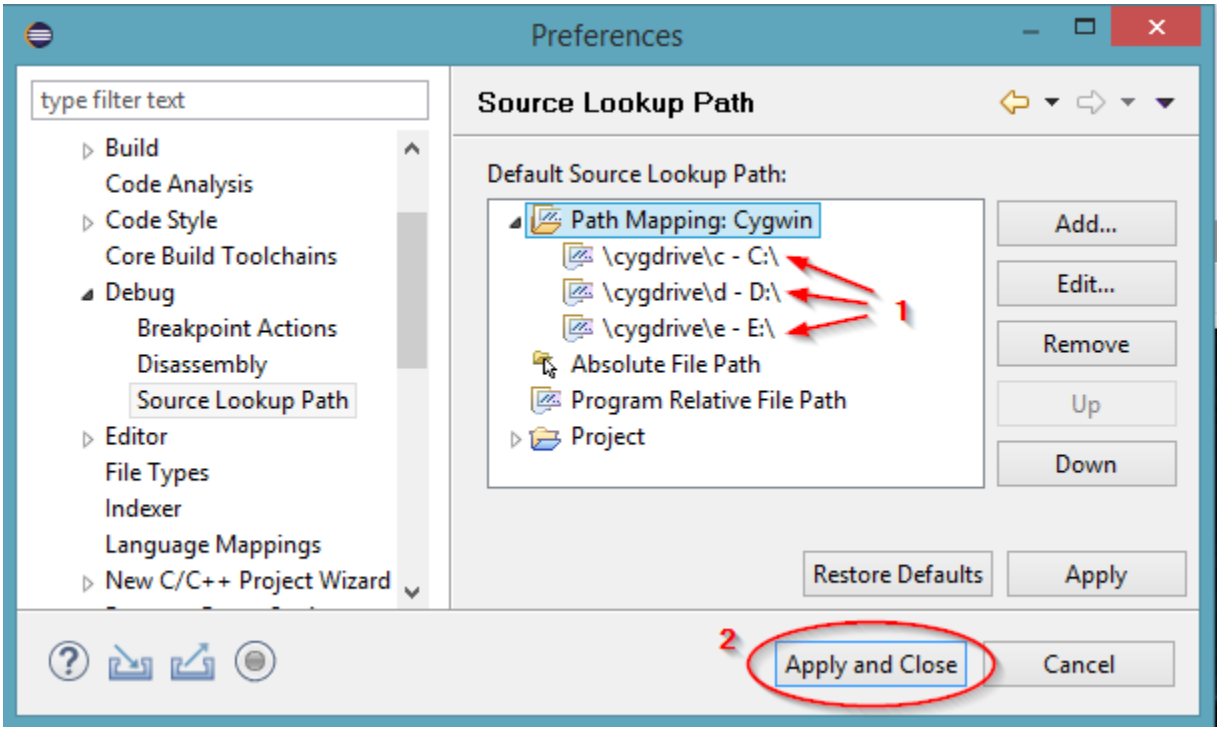
If some of your development related files are on other drives, add similar pathes for all drives in use. For example, if you use drives `D:` and `E:`, you shall add 2 more rules so the window will look like



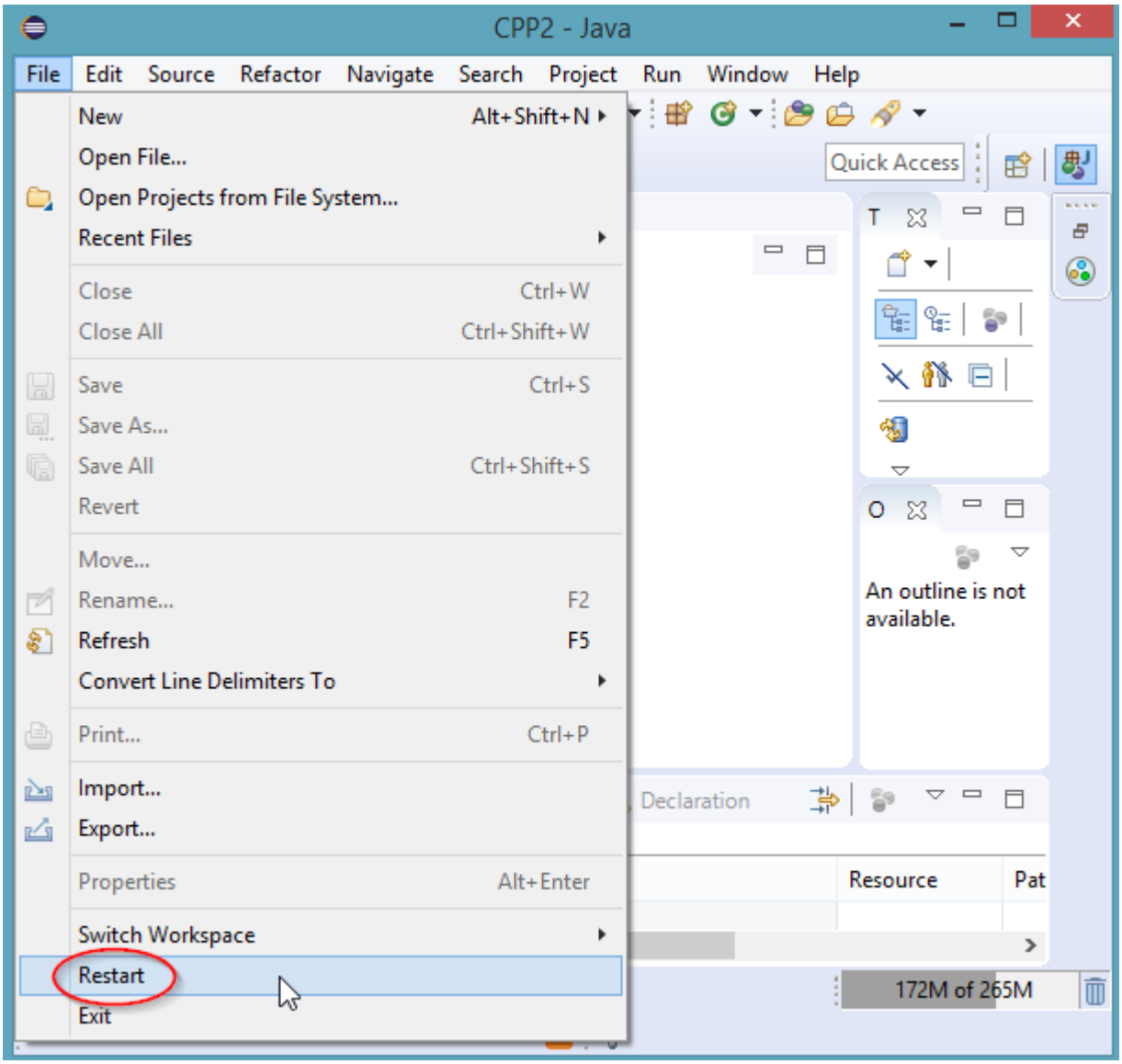
Press **OK** button when all pathes are added. You will be returned to the preferences window.



To verify that the path mapping is in place, click on white triangle ▷ icon (or angle ›) left to **Path Mappings: Cygwin**.



You are supposed to see the created path mappings ①. Click **OK** button ② to close the preferences window.



You have to restart Eclipse for the changes to take effect. Open **File** menu, select **Restart** option. Wait until Eclipse is restarted.

Opening C/C++ Perspective

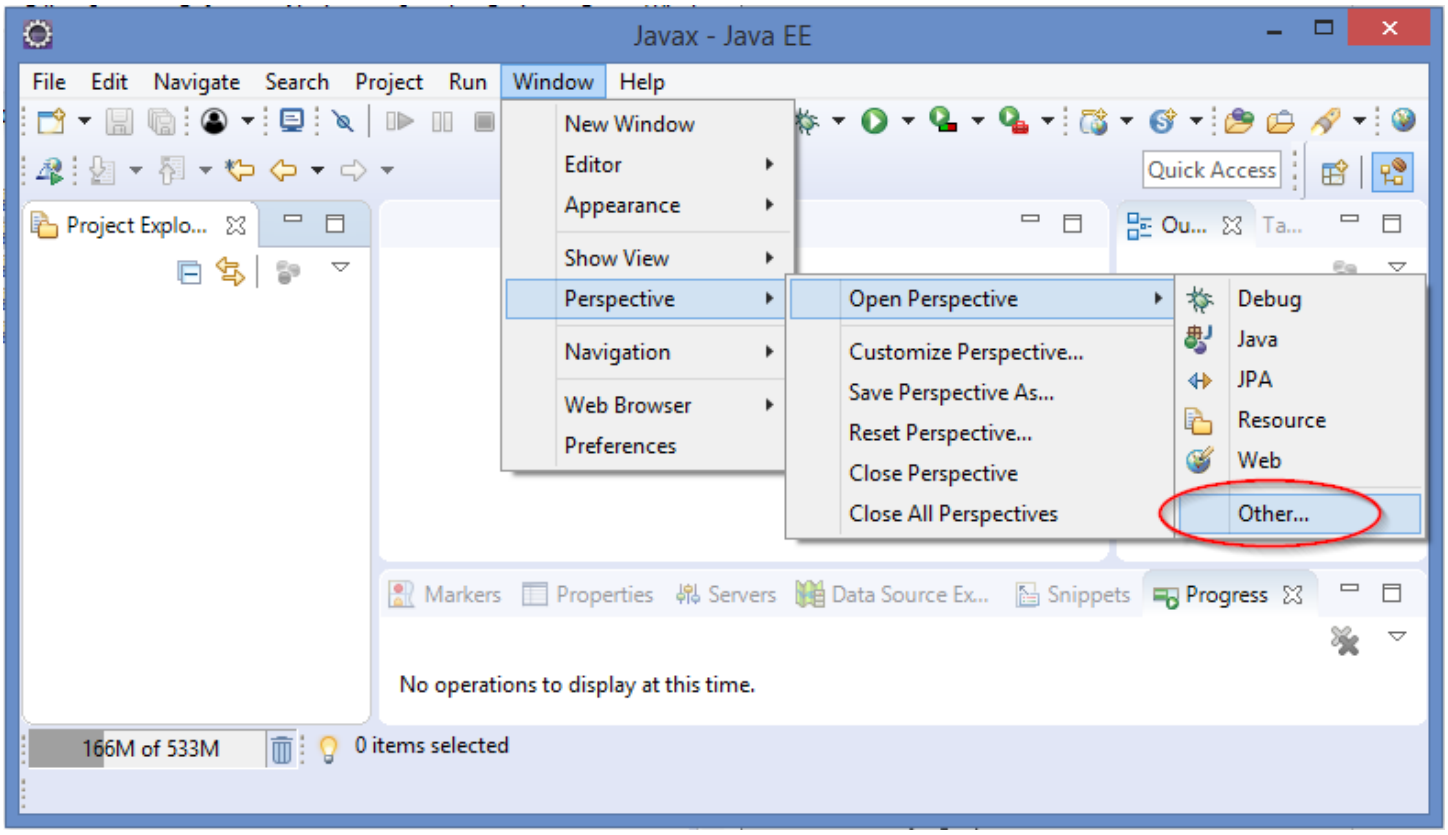
You may want to switch to a different workspace if you were using Eclipse to develop Java programs previously. To do so - exit Eclipse, run it again, and select appropriate workspace (or you can try to select appropriate workspace from **File->Switch Workspace** menu).

You shall open C/C++ perspective (you can do it if you installed CDT as a part of Eclipse IDE for C/C++ Developers or as Eclipse add-on).

You can open Java perspective if you installed Eclipse IDE for Java or Java EE Developers.

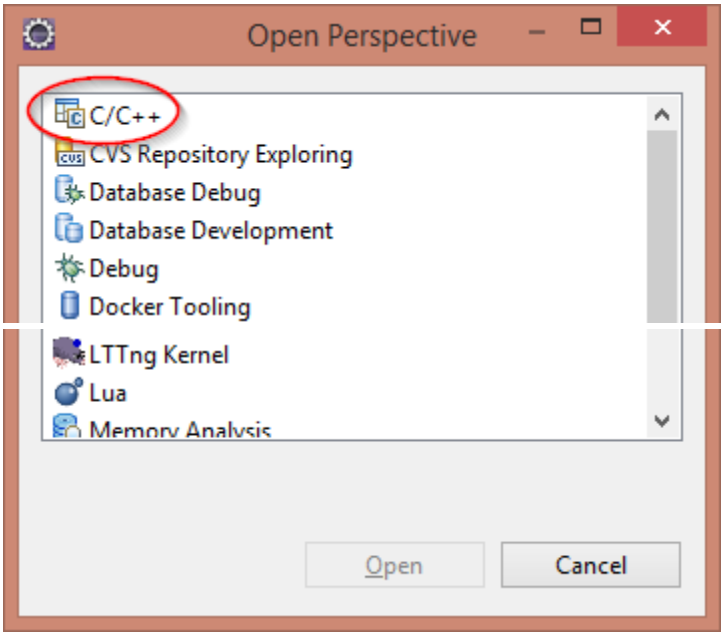
If you see only **Welcome** pane,

click on "**Restore**" icon to make the current perspective visible.

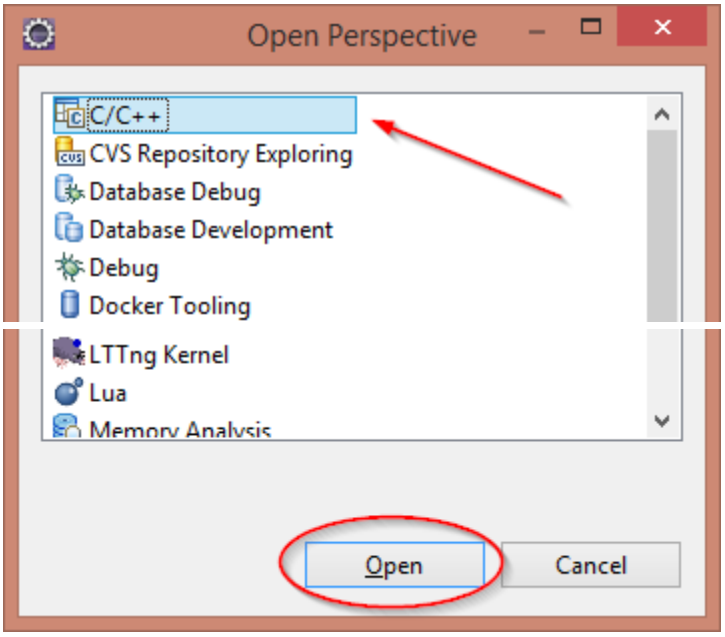


Open **Windows** menu, select **Open Perspective** submenu, and select **Other …** option.

In Open Perspective window

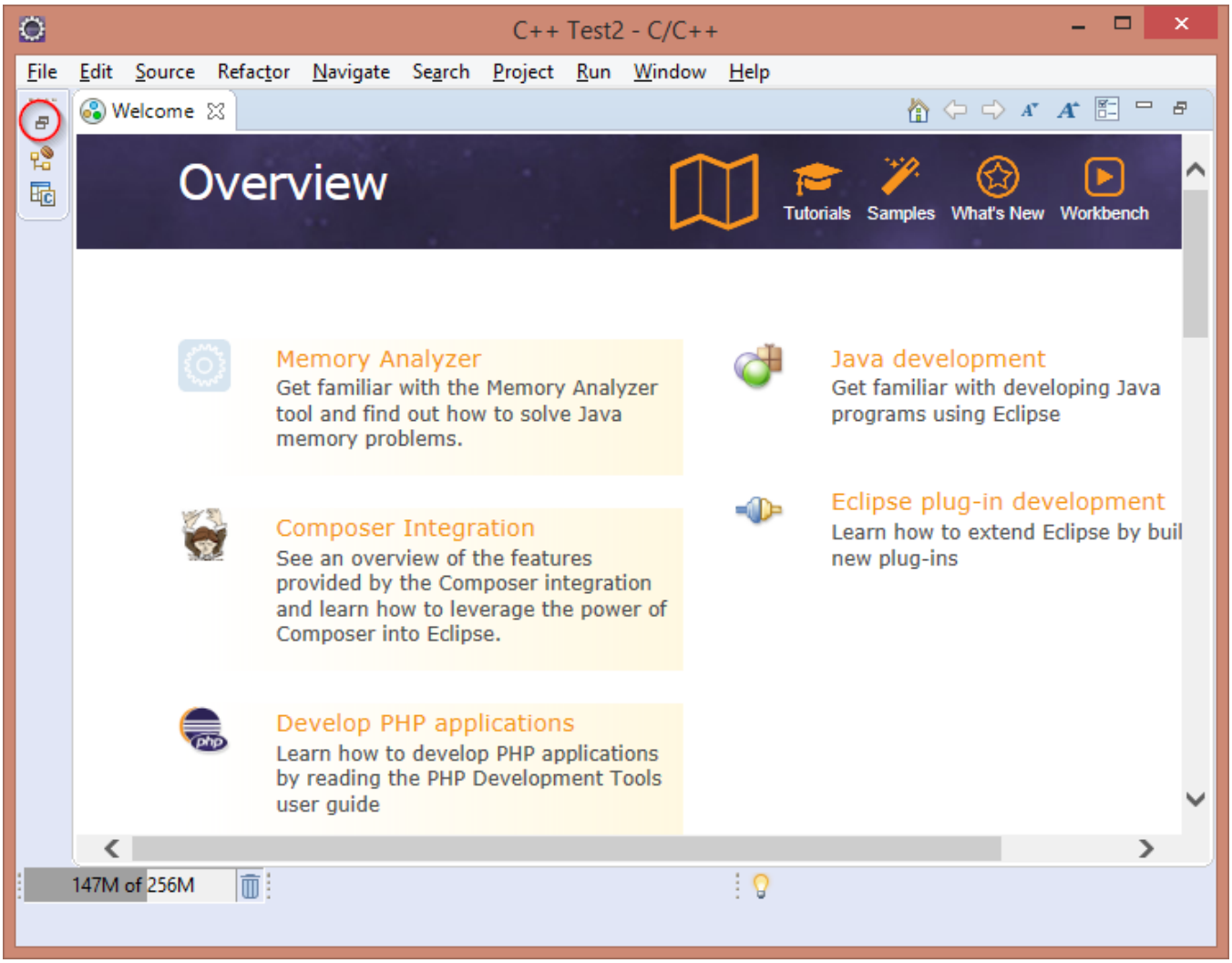


click on **C/C++** to select it.

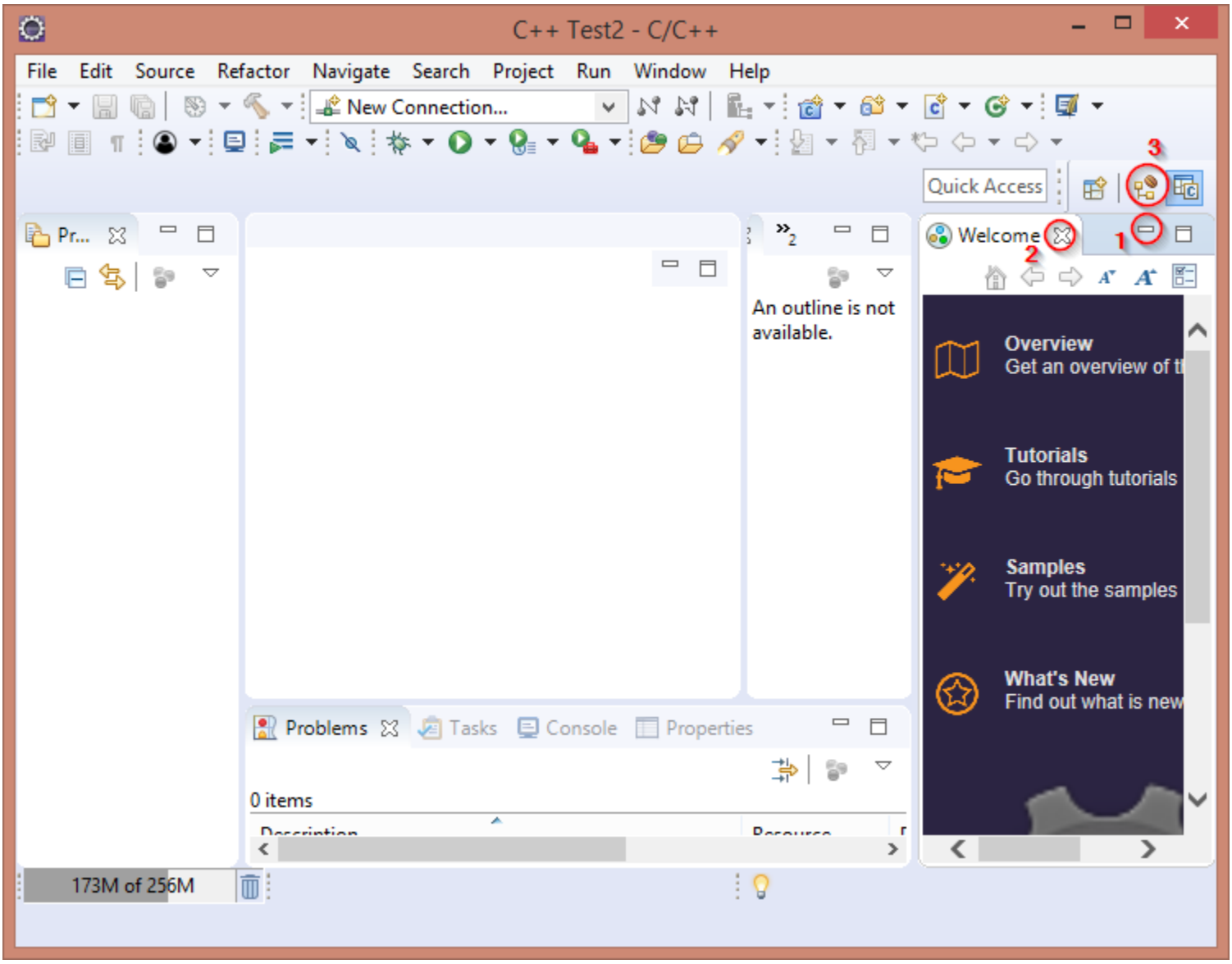


Press **OK** Button.

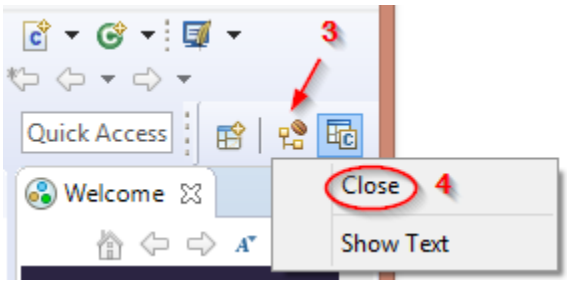
If you see **Welcome** pane and do not see any perspective opened, click on "**Restore**" icon to make the current perspective visible.



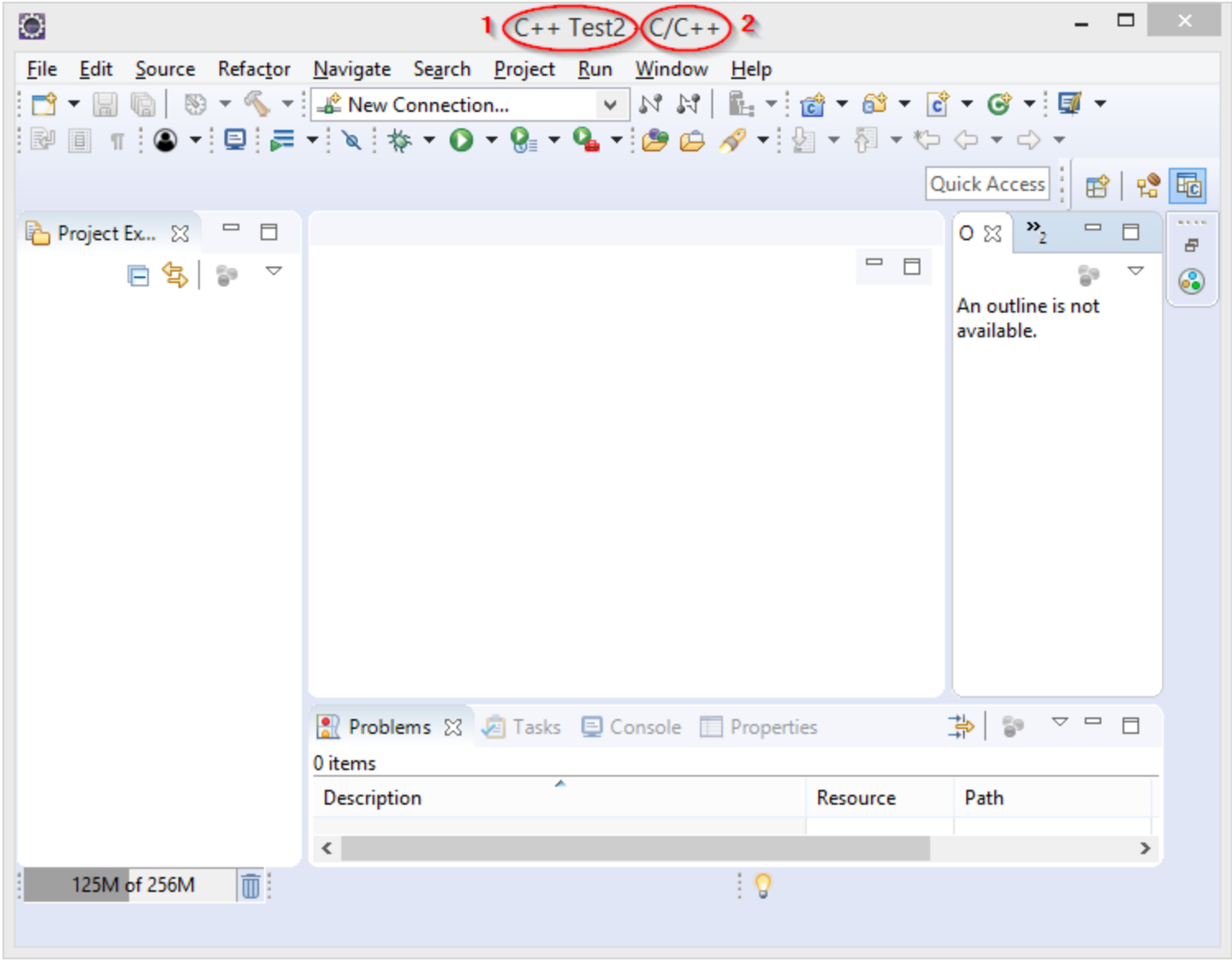
You are supposed to see so called C/C++ Perspective opened at this point.



If you want so, you can minimize the **Welcome** pane by clicking on "**Minimize**" icon in the panel title ① or even close the **Welcome** panel completely by clicking on "**Close**" icon in the panel title ②.



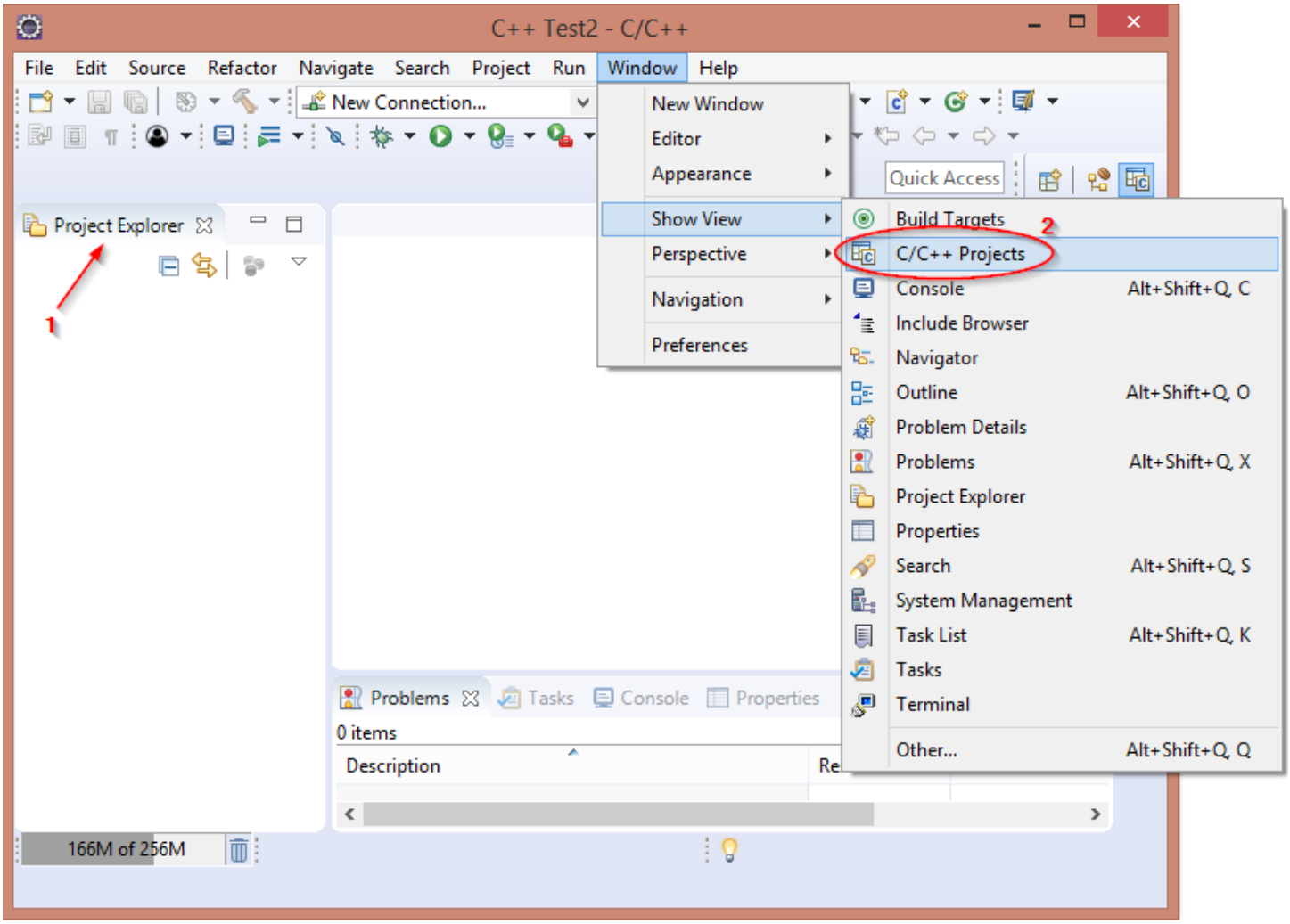
You can also remove Java EE perspective - move the mouse pointer over **"Java EE"** icon ③, click the right mouse button to open a context menu, and select **Close** option ④.



Note that in the screenshot **C++ Test2** is the workspace name and **C/C++** is the perspective name.

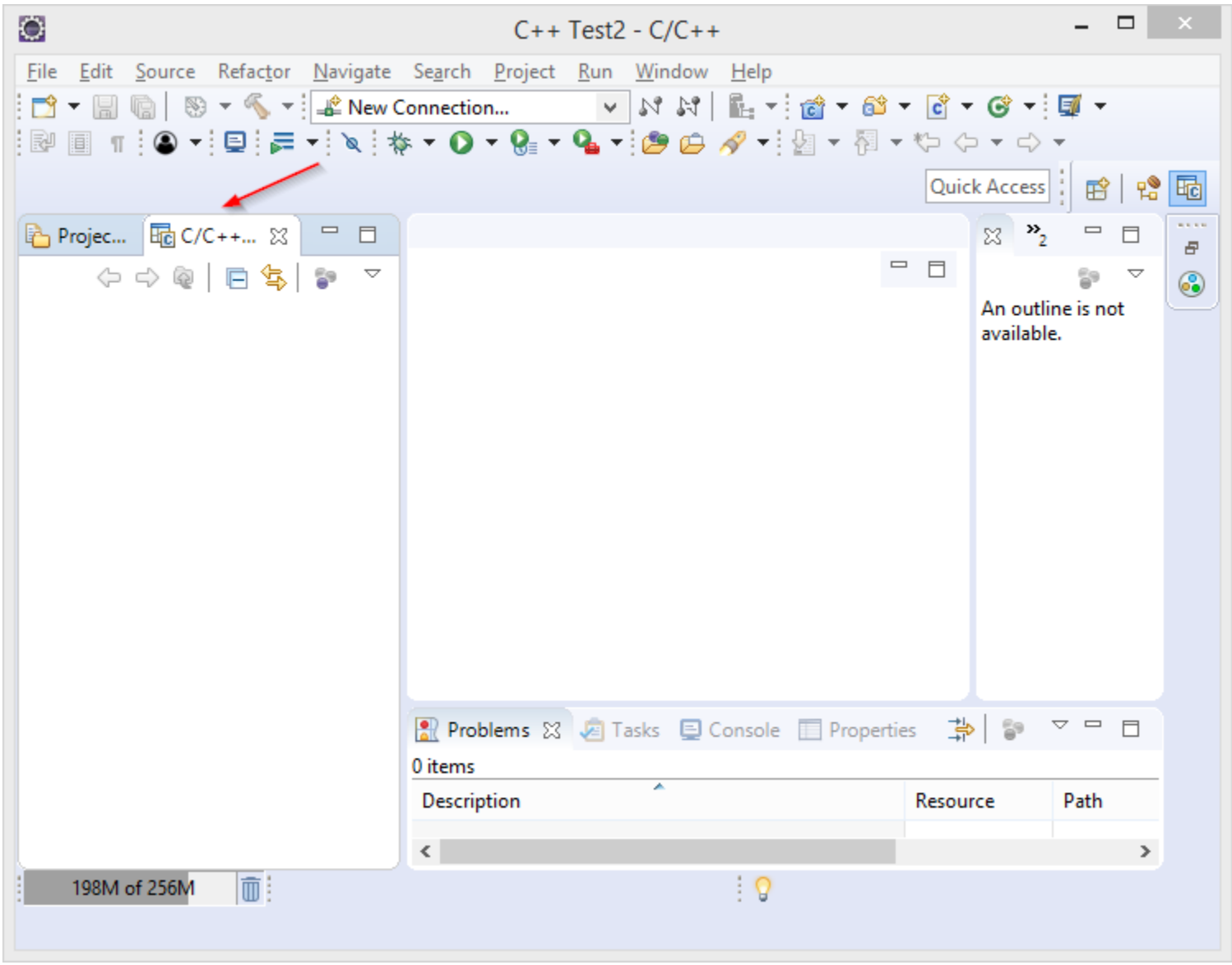
Adding C/C++ Specific Views

By default, you will see **Project Explorer** view ①. The project explorer can be used, but it is not tailored for C/C++ development.



Open **Windows** menu, select **Show View** submenu, and select **C/C++ Projects** option.

You will see that **C/C++ Projects** view is shown in the left pane.

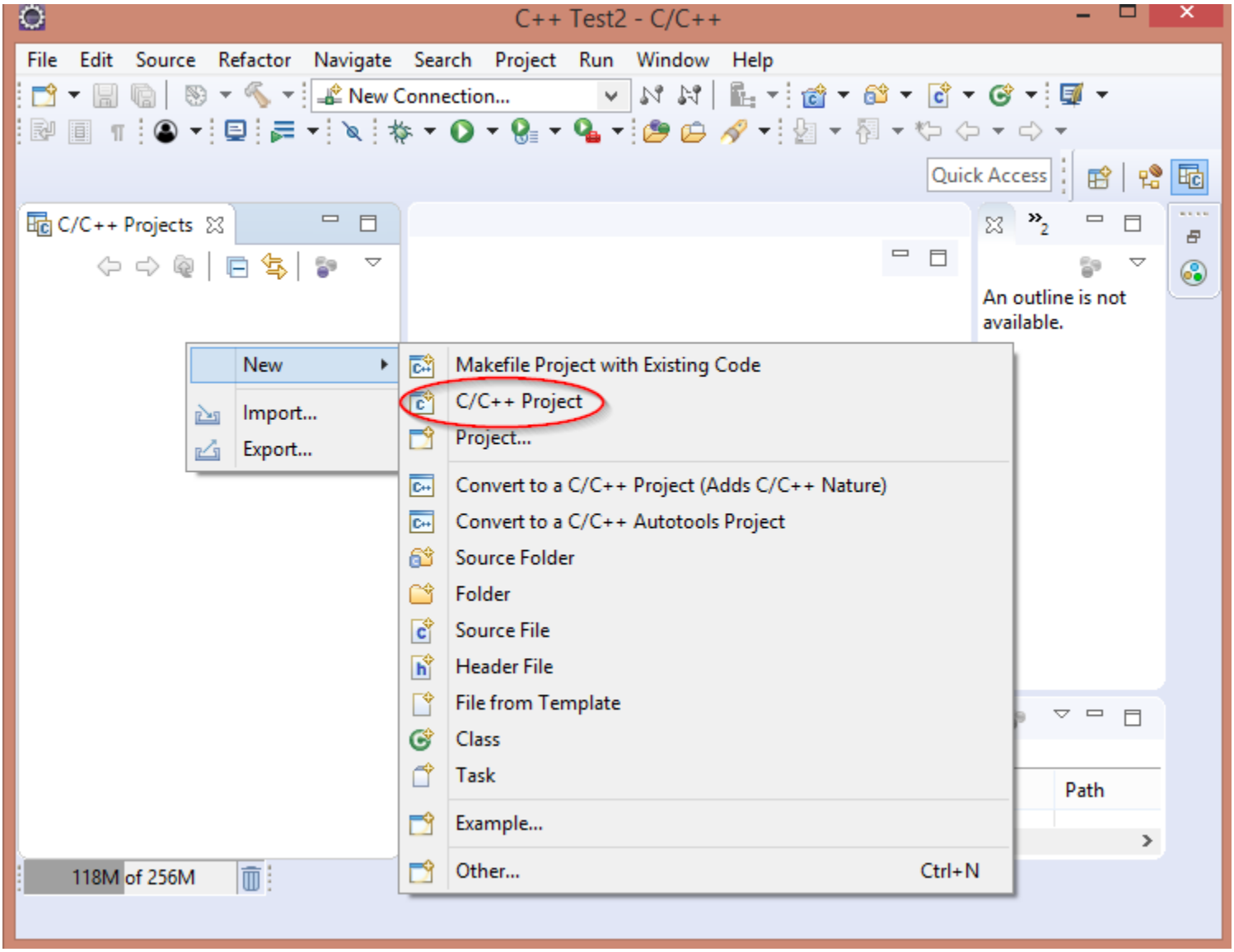


You may close the **Project Explorer** view by right clicking on the view name and selecting **Close** option. The view always can be reopened later.

C++ Test Project

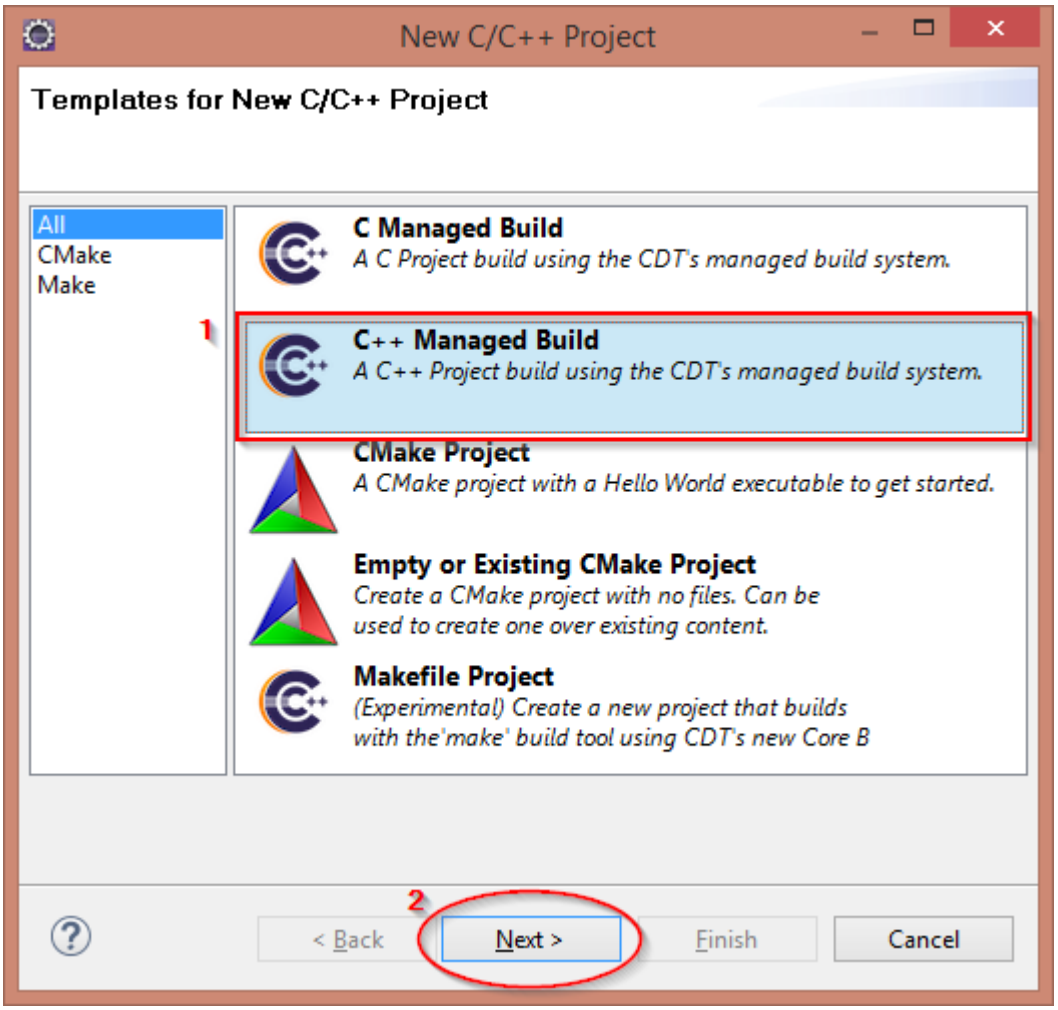
Creating HelloWord C++ Project

To create a C++ project, right click on empty space in **C/C++ Projects** view to open a context menu (you can also use main **File** menu).



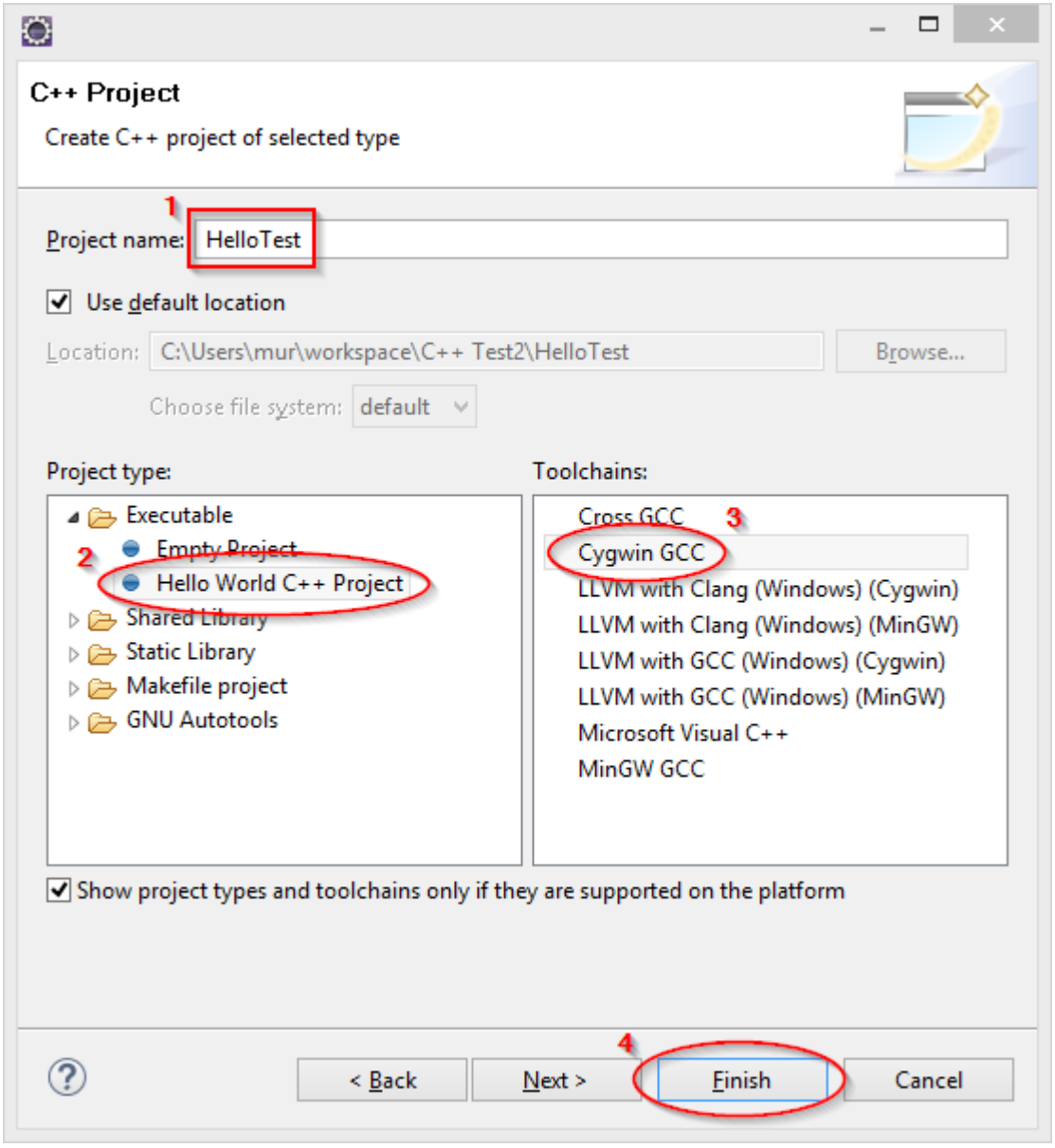
Select **New** submenu, select **C++ Project** option.

You will see **New C++ Project** wizard window.



Click on **C++ Managed Build** ① to select it. Press **Next** button ②.

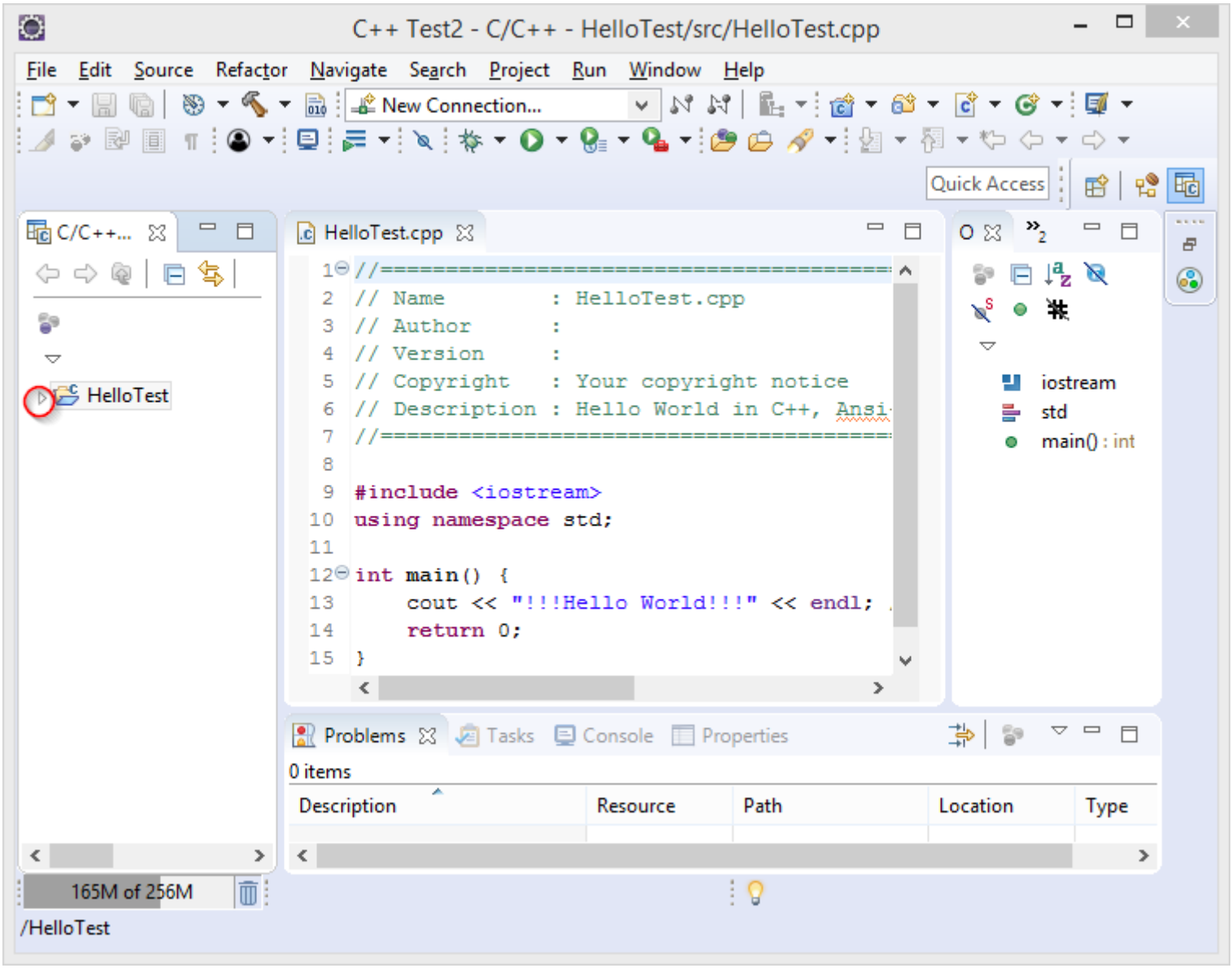
You will see **C++ Project** wizard.



Enter `HelloTest` text ① in the **Project name** field. Click to select **Hello World C++ Project** ② in the Project Type pane. Click to select **Cygwin GCC** ③ toolchain in the **Toolchains** pane. Press **Finish** button ④ to complete the project creation.

If you press **Next** button (instead of **Finish**), you will see some advanced options (that are out of this document scope).

You will see the `HelloTest.cpp` source code in the middle editor pane. If you see red error markers, wait until Eclipse completes the source code indexing.

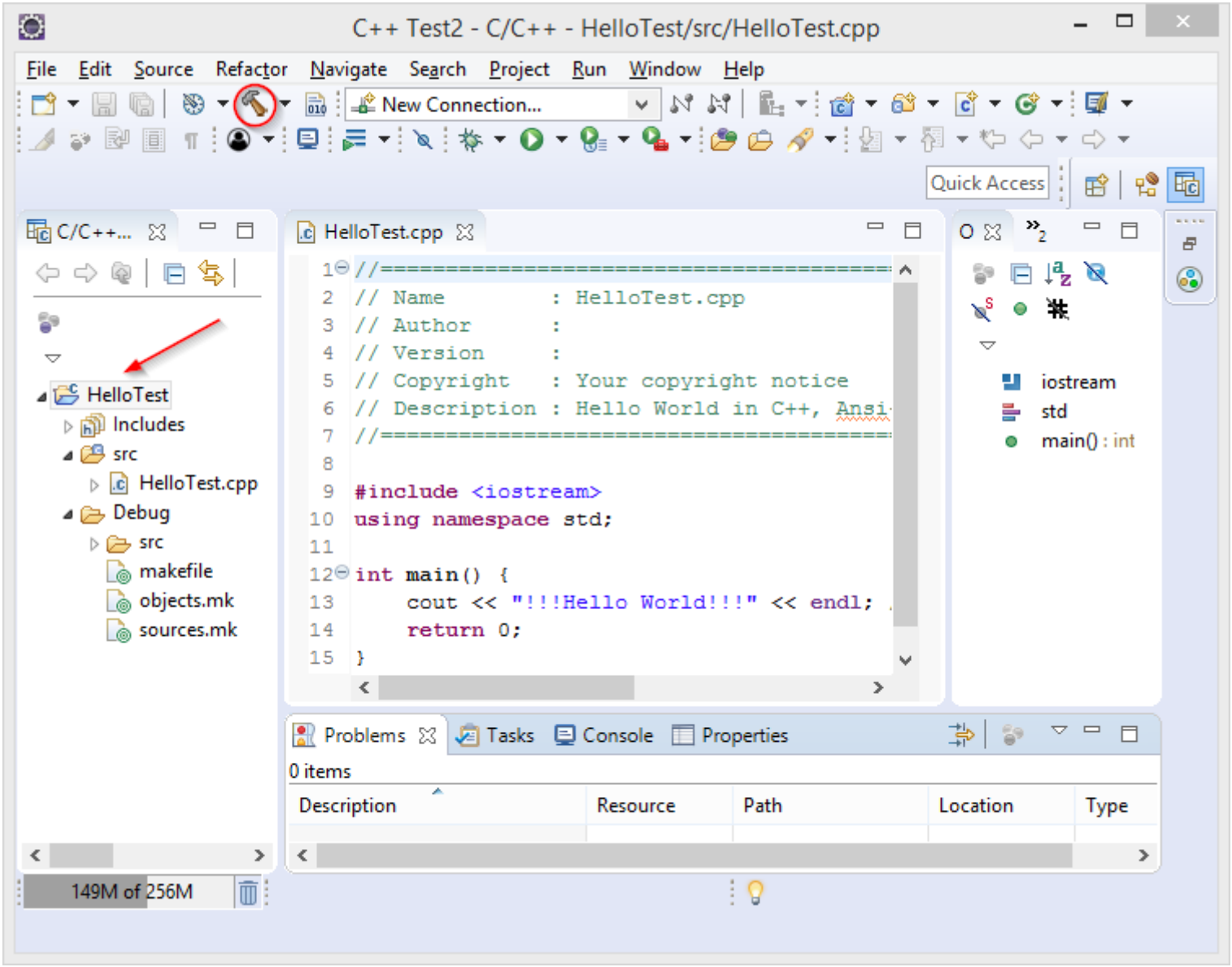


Click on a small white triangle ▷ (or angle ›) left to `HelloTest` folder to expand the folder. If you do not see the (tri)angle, move mouse pointer to the left (white) area and one will appear.

Expand `src` and `Debug` subfolders in similar way.

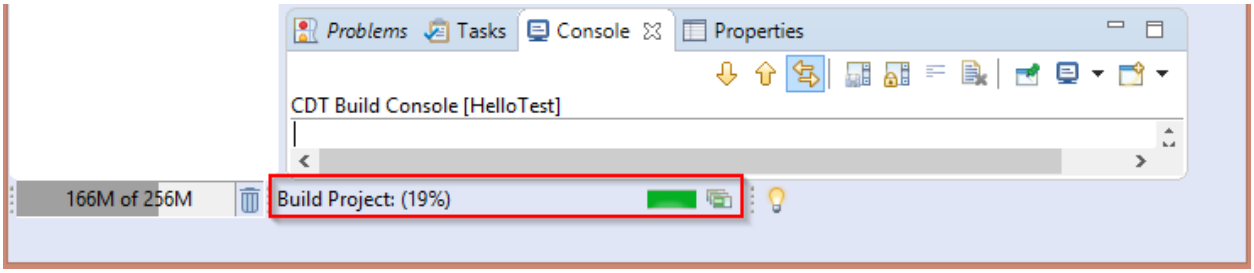
Building C++ Project

At this point, you can build the project (compile the source code, link resulting object files, etc).

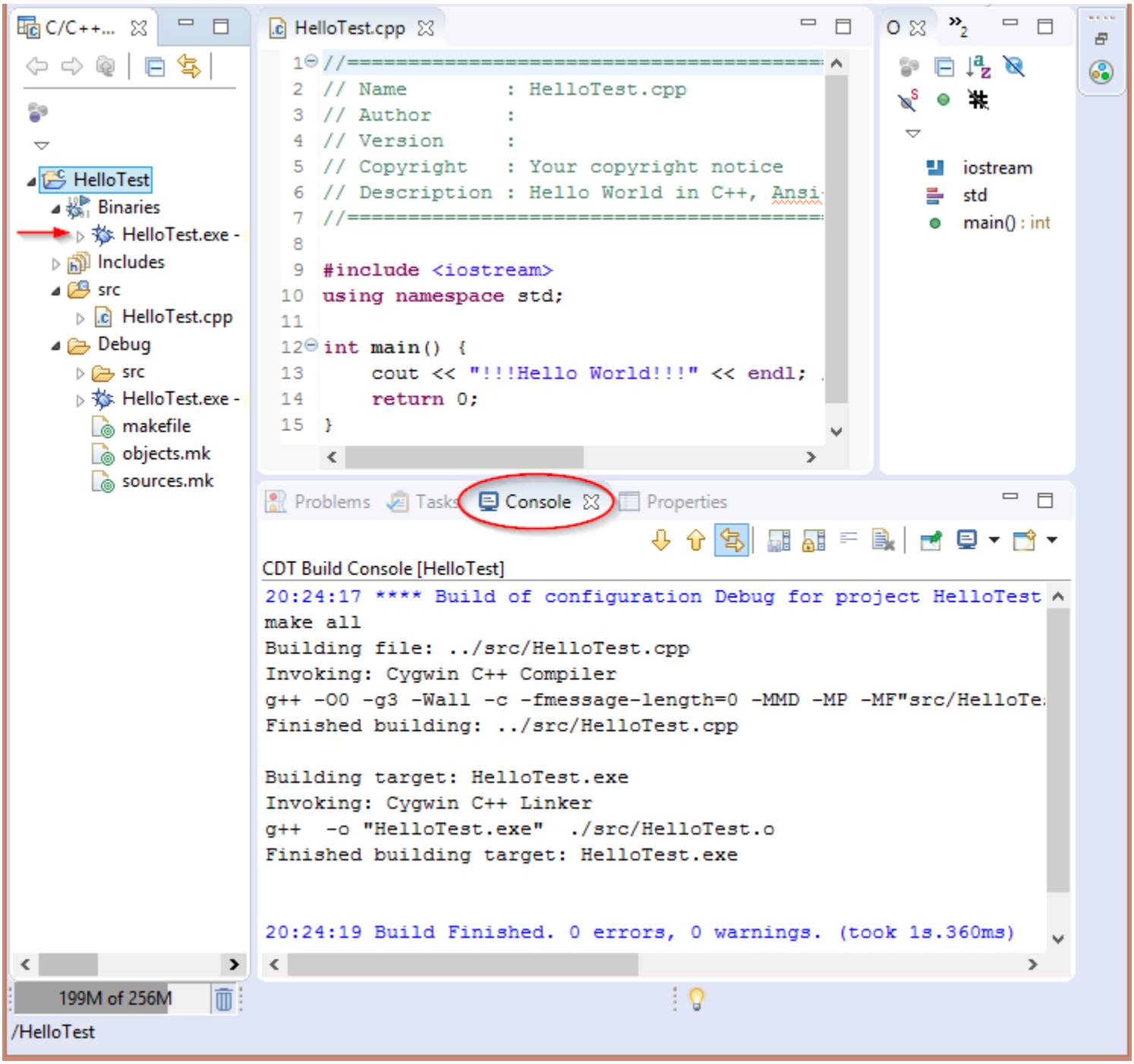


Be sure that, in the left pane, the current project folder, subfolder, or file is selected (its name in the left pane is highlited), otherwise you might get error messages down the road. To build the project click on hummer  icon (if you click on the triangle right to the hummer icon you will see a menu that also can be used to buid the project).

You will see the build progress status at the bottom of the main Eclipse window.



Wait until the build is completed.

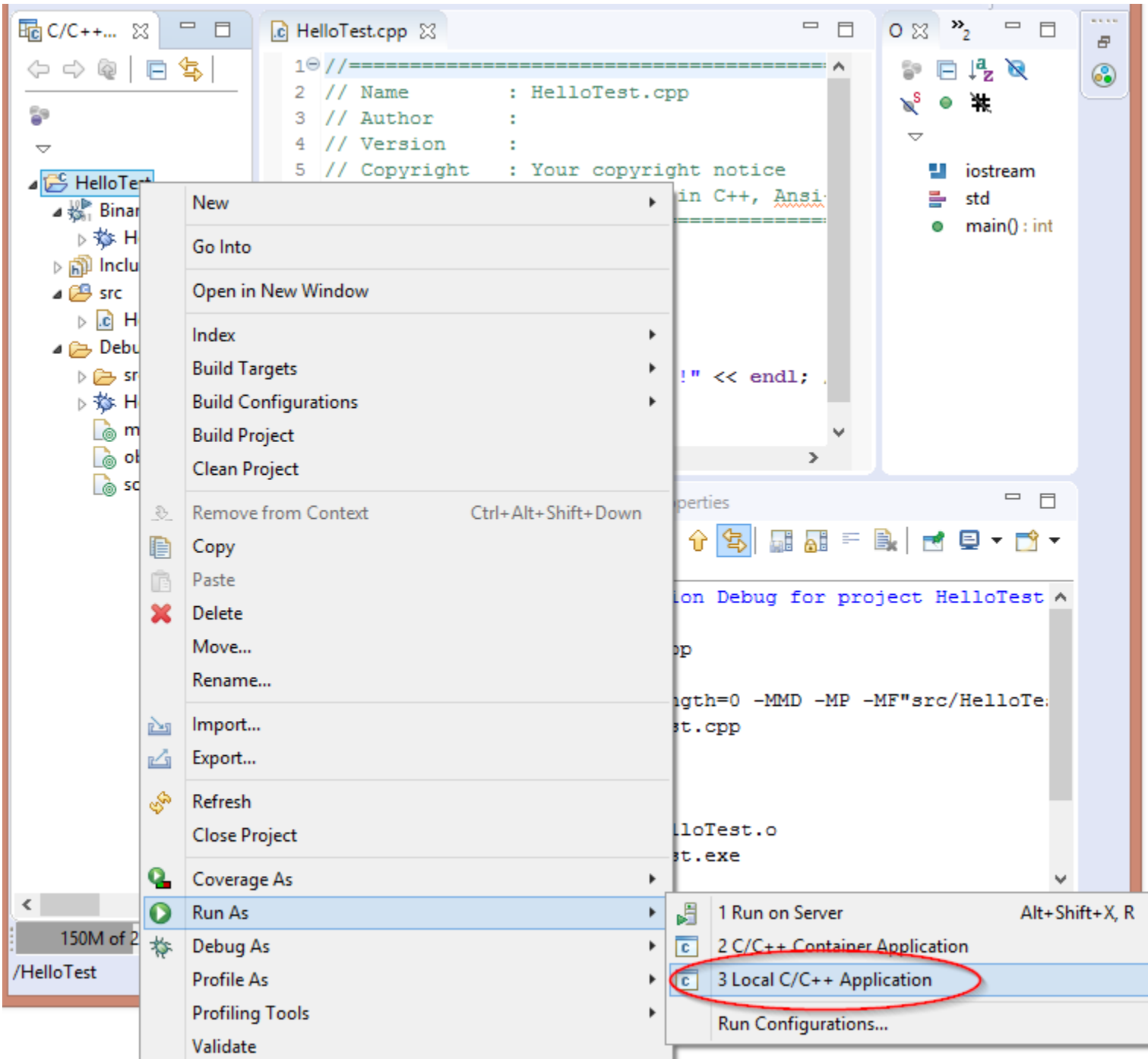


Inside `HelloTest` project, expand **Binaries** to see the just created executable file `HelloTest.exe`.

You also are supposed to see **Console** view in the lower panel, with build output inside it.

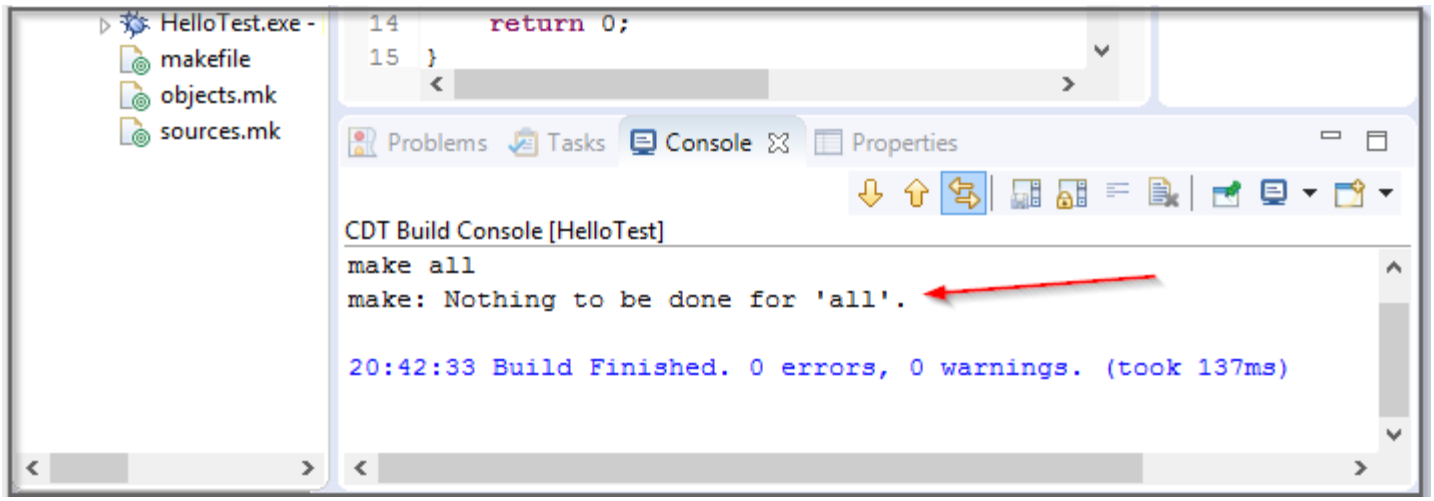
If **Console** view is not opened, click on **Console** tab to open it. If **Console** tab is missing, go to **Window** menu, select **Show View** submenu, and select **Console** option.

Running C++ Program as Local Application

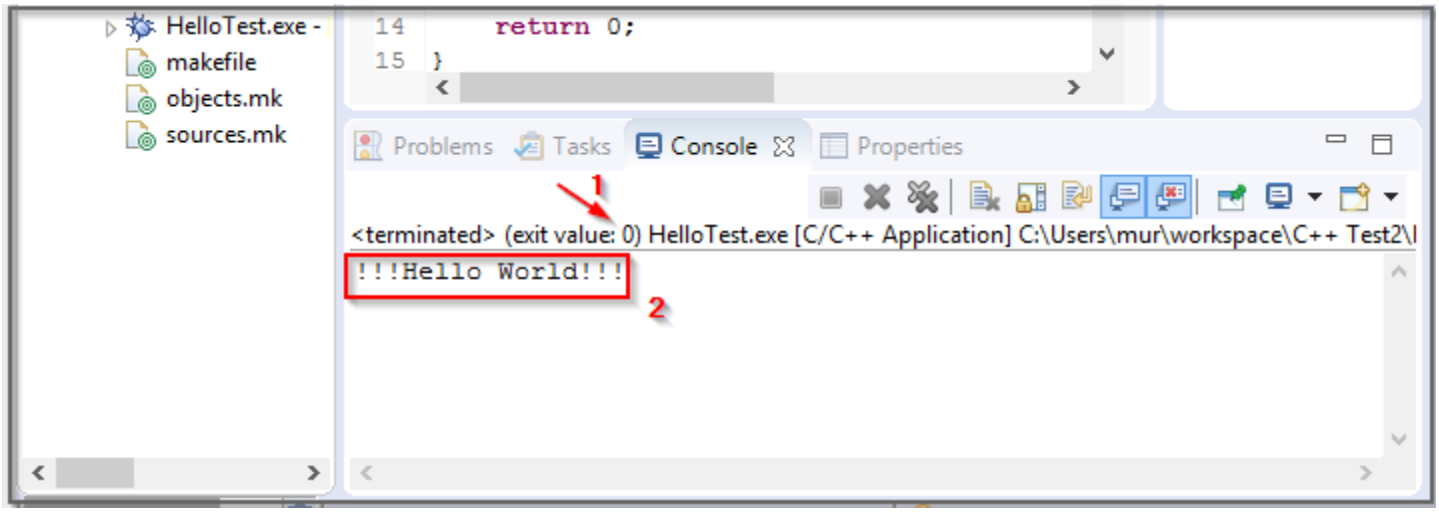


Right click on the project folder to open a context menu. Select **Run As** submenu, select **Local C/C++ Application** option.

The Eclipse will build (again) and run the program. You may see build console output stating that there is nothing to be done.

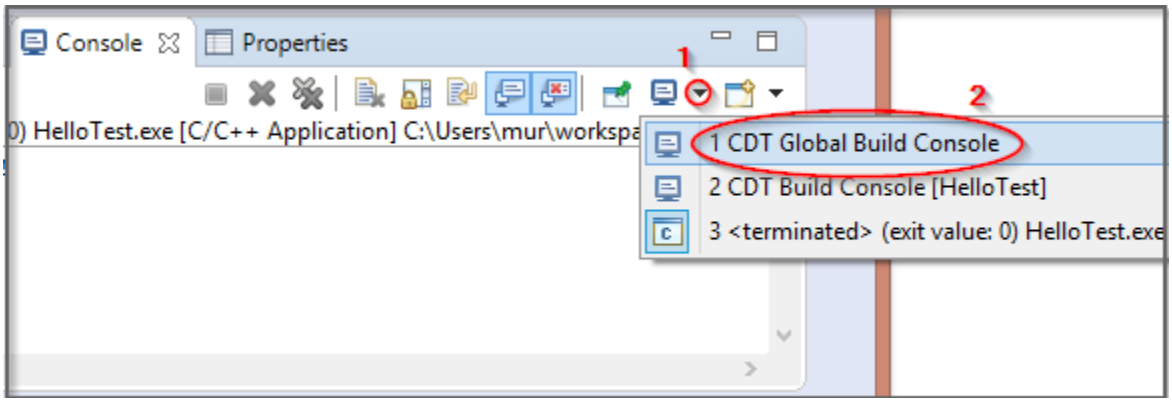


After the build is completed, the program will run.



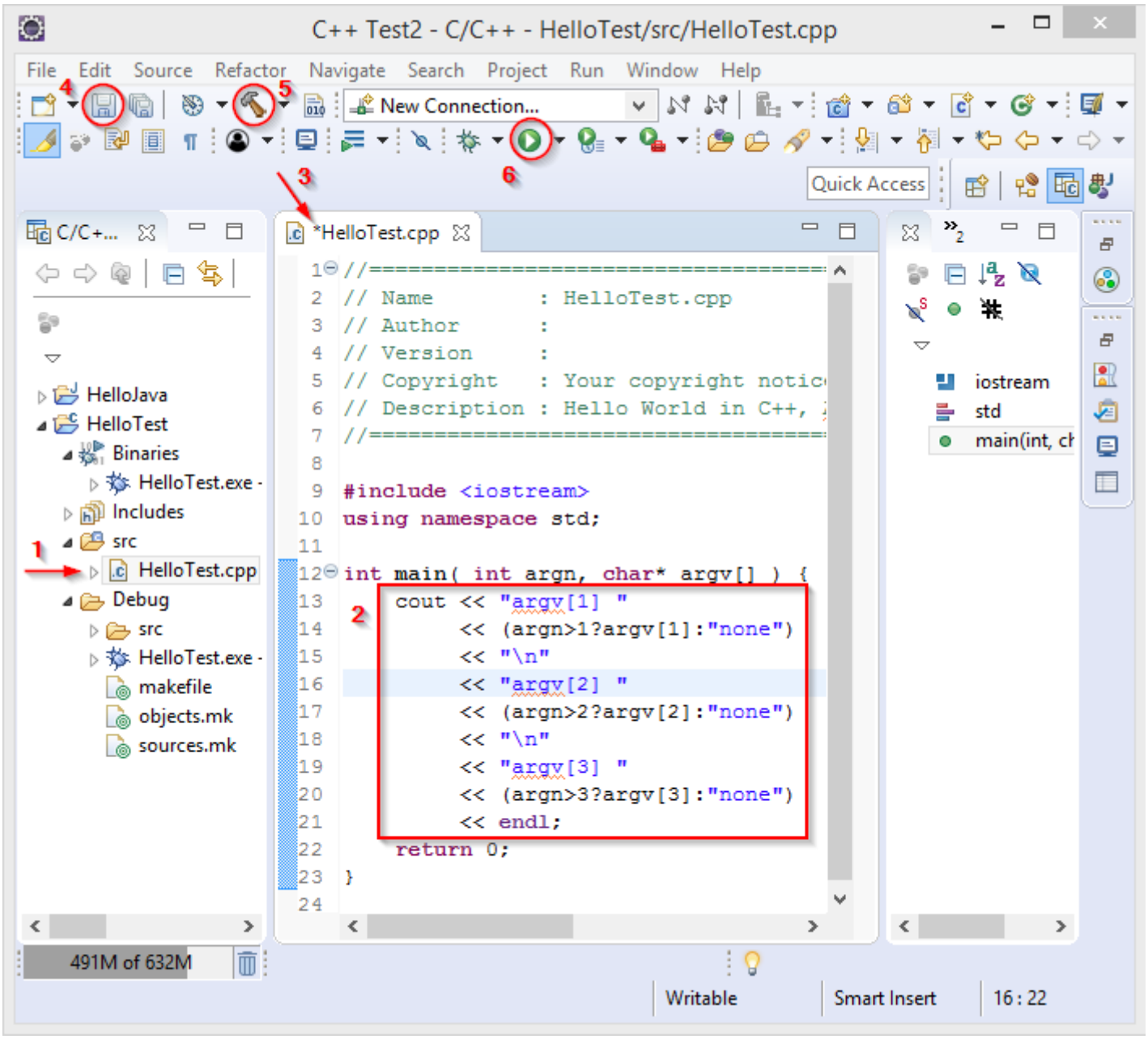
The **Console** view is supposed to switch to the program output. In the screenshot, you can see the program exit code zero ① and the program output **!!!Hello Word!!!** ②.

Switching Console View



If you want to see the build console output, click on black triangle ▾ icon ① and select **CDT Global Build Console** ② from the drop-down menu. Similarly, you can switch to the program output in the console view.

Editing Program Code



In the left pane, select **HelloTest.cpp** file ①. Click inside the editor pane in the middle and start editing ② the source code.

Note asterisk sign * ③ left to `HelloTest.cpp` file name in the editor view. The asterisk means that the file has been modified.

Click on floppy  icon ④ to save the file. Click on hummer  icon ⑤ to rebuild the project. To run the program, using the last run configuration, click on "white triangle inside green disk"  icon ⑥.

Specifying Runtime Parameters

If you want to specify program runtime parameters, for example, program arguments or environment variables, see Appendix 5 – Program Run Configuration. Note that the default run configuration is created automatically the first time the program is run.

That's it! You have Eclipse C/C++ Development Tooling and Cygwin working!

Appendix 1 – Modifying Windows Environment Variables

PATH Environment Variable

Access **Environment Variables** window, for example, by going to **Windows Search -> "environment" -> Edit the system environment variables -> System Properties -> Advanced -> Environment Variables**.

In the **Environment Variables** window, find existing system (or user) `PATH` variable or create new user `PATH` variable. Add the OpenJDK and Cygwin `bin` subfolders to the path variable, as needed.

Note - The user path is appended to the system path. In most cases, you a folder shall be added either to the system or to the user path.

Including OpenJDK in Windows PATH

After the OpenJDK files are extracted to an installation folder, consider adding its `bin` subfolder to Windows system or user `PATH` variable. Add OpenJDK to the system path if you want all users to be able to use it. Add it to the user path otherwise.

For example, add `C:\Program Files\OpenJDK\jdk-11\bin` to the system `PATH` variable.

Including Cygwin in Windows PATH

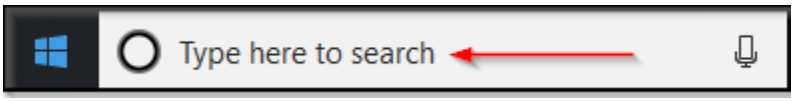
After the Cygwin packages are installed, it is necessary to add Cygwin `bin` subfolder to Windows system or user `PATH` variable. Add Cygwin to the system path if you want all users to be able to use it. Add it to the user path otherwise.

For example, add `C:\cygwin64\bin` to the system `PATH` variable.

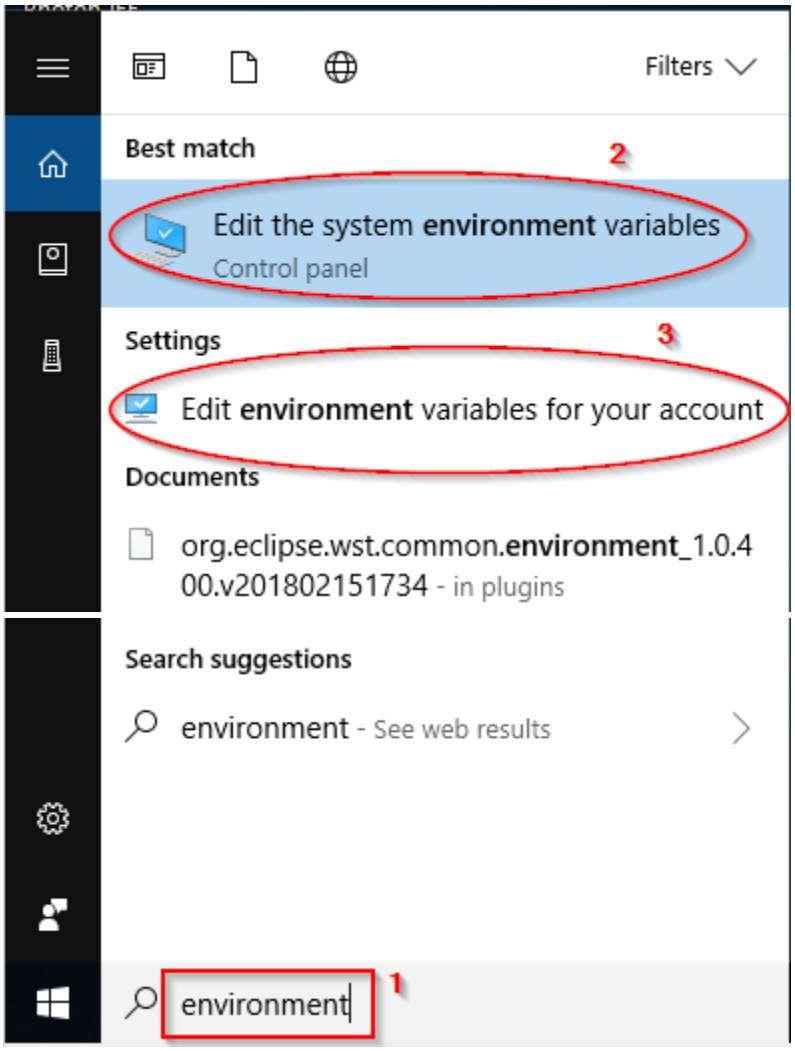
Environment Variables in Windows 10

Accessing Windows 10 System Properties

Find Windows search box. In the case of Windows 10, it is usually at the left bottom corner of the screen



Start typing word `environment` in the search box.

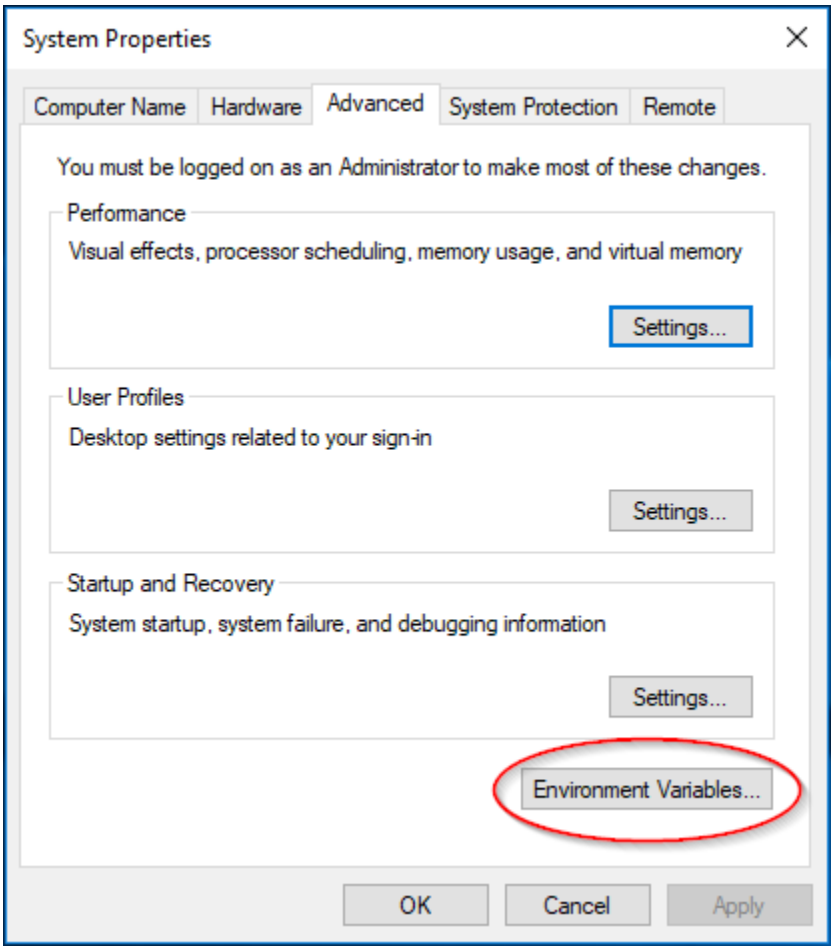


Type word `environment` in the search box ①. Click on **Edit the system environment variables** ② if you are modifying the variables for all users. Otherwise, click on **Edit environment variables for your account** ③.

If you clicked the **Edit the system environment variables**, you will see **System Properties** window.

Accessing Windows 10 Environment Variables

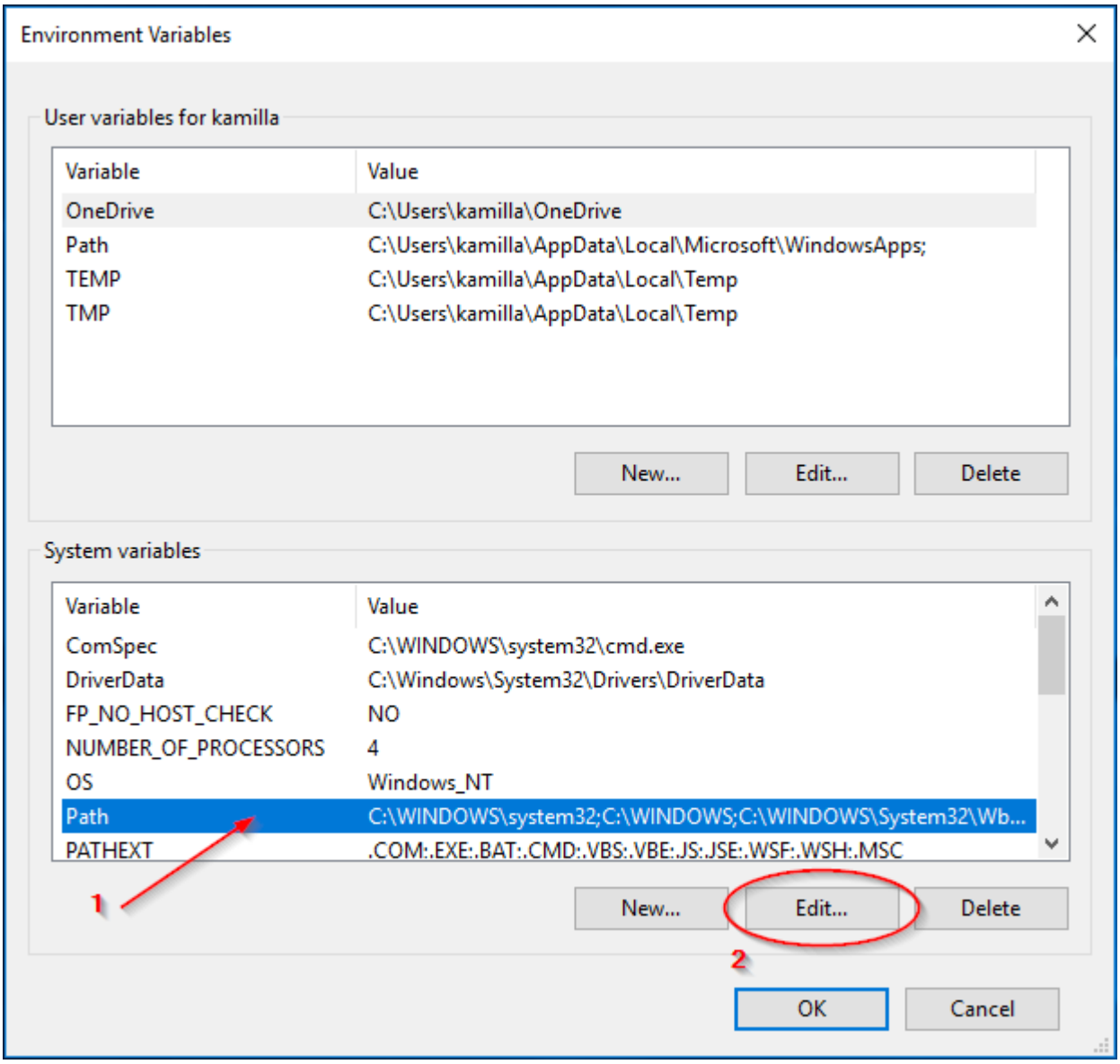
In the **System Properties** window



press **Environment Variables** button.

Editing Windows 10 Environment Variables

In this example, we modify **PATH** environment variable. In the **Environment Variables** window

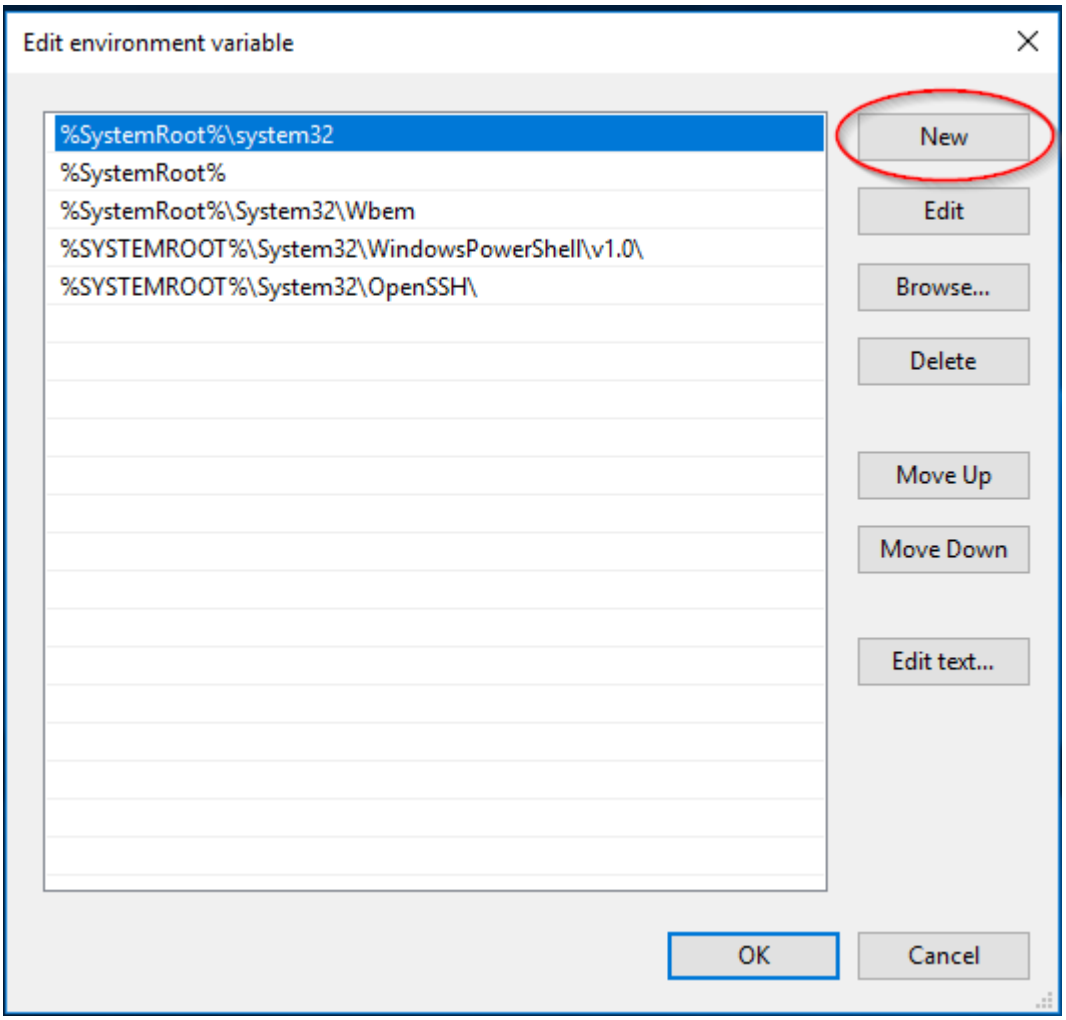


If you are adding a folder to the system PATH variable, scroll down in **System variables** section until you see **Path** line.

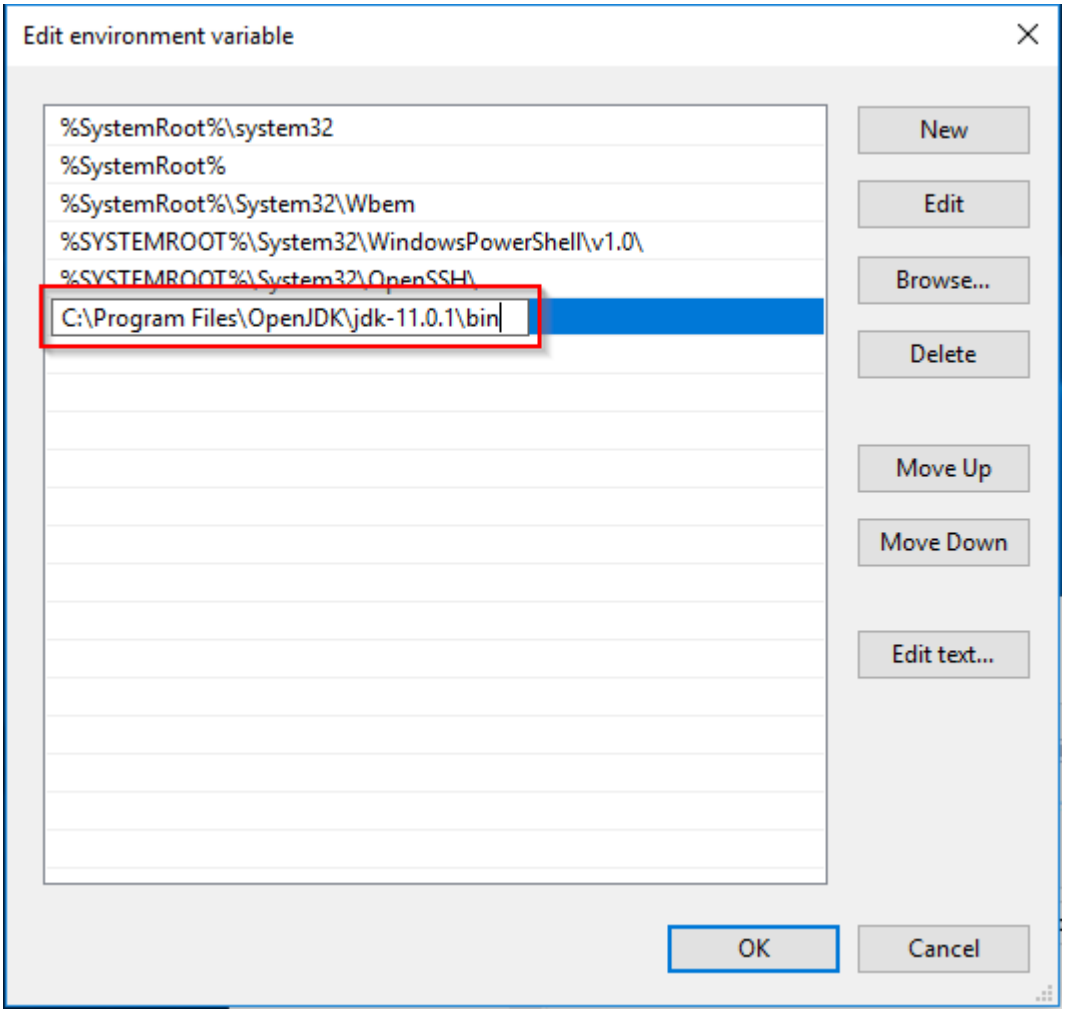
Click on **Path** line ① to select it. Press **Edit** button ② in **System variables** section.

If you are adding the folder to the user PATH variable that already exists, find it in **User variables** section, click on it to select it, and press **Edit** button in the **User variables** section.

You will see **Edit environment variable** window.



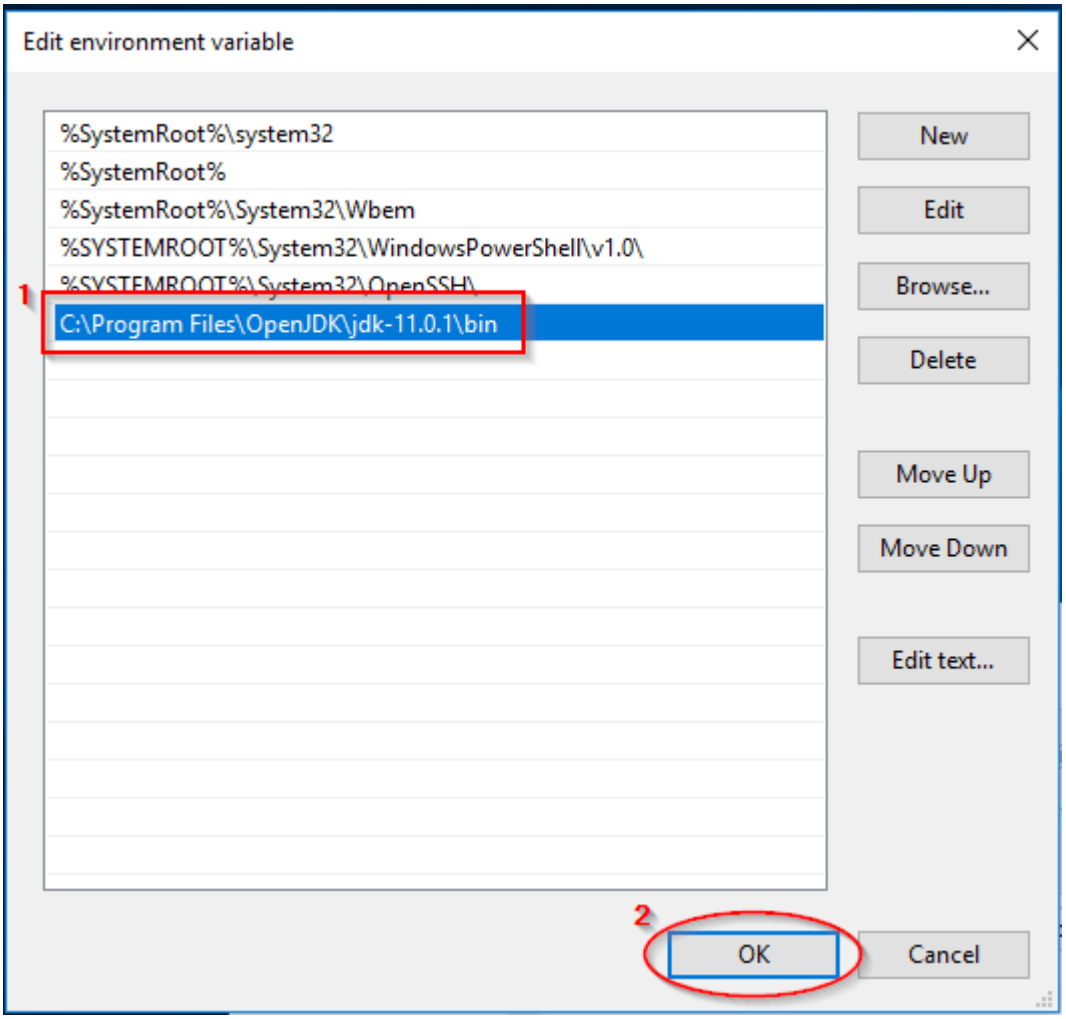
Press **New** button to add new folder to the bottom of the folder list.



Enter the folder pathname in the text box, for example

`C:\Program Files\OpenJDK\jdk-11.0.1\bin` or
`C:\cygwin64\bin`

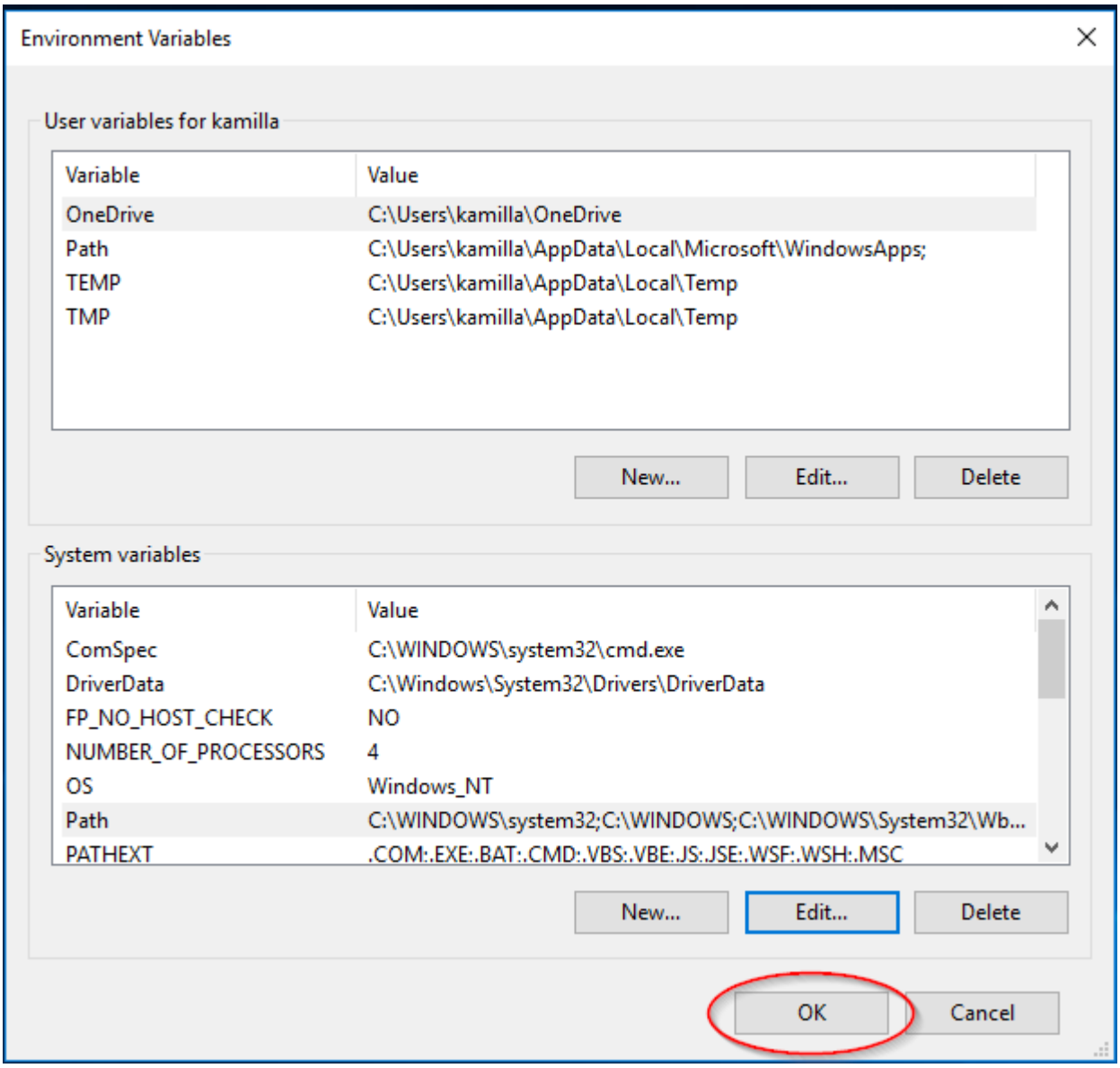
Press **Enter** key to complete the pathname.



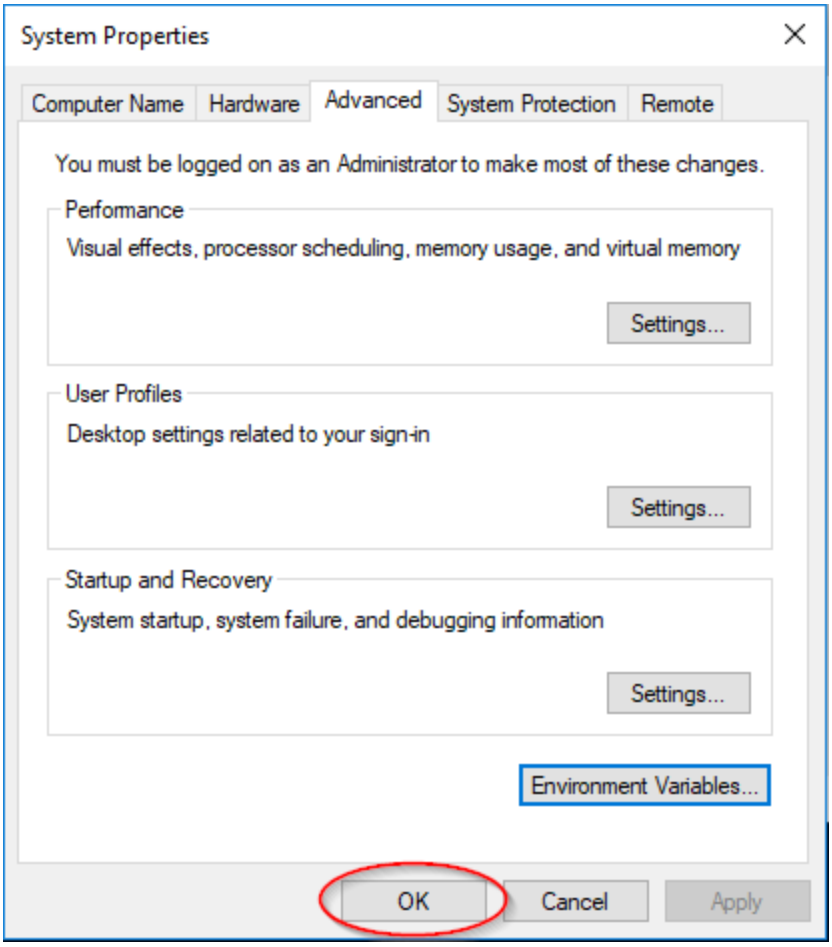
Confirm that the desired folder is in the list ①. Press **OK** button to close **Edit environment variable** window.

Saving New Value of Windows 10 Environment Variable

In the **Environment Variables** window



press **OK** button to save the new variable(s) value. If you press **Cancel** button, the new value(s) will be discarded.



If you have **System Properties** window open, you can close it by pressing **OK** button.

Environment Variables in Legacy Windows

Accessing System Properties in Legacy Windows

Getting to System Properties via Windows Search

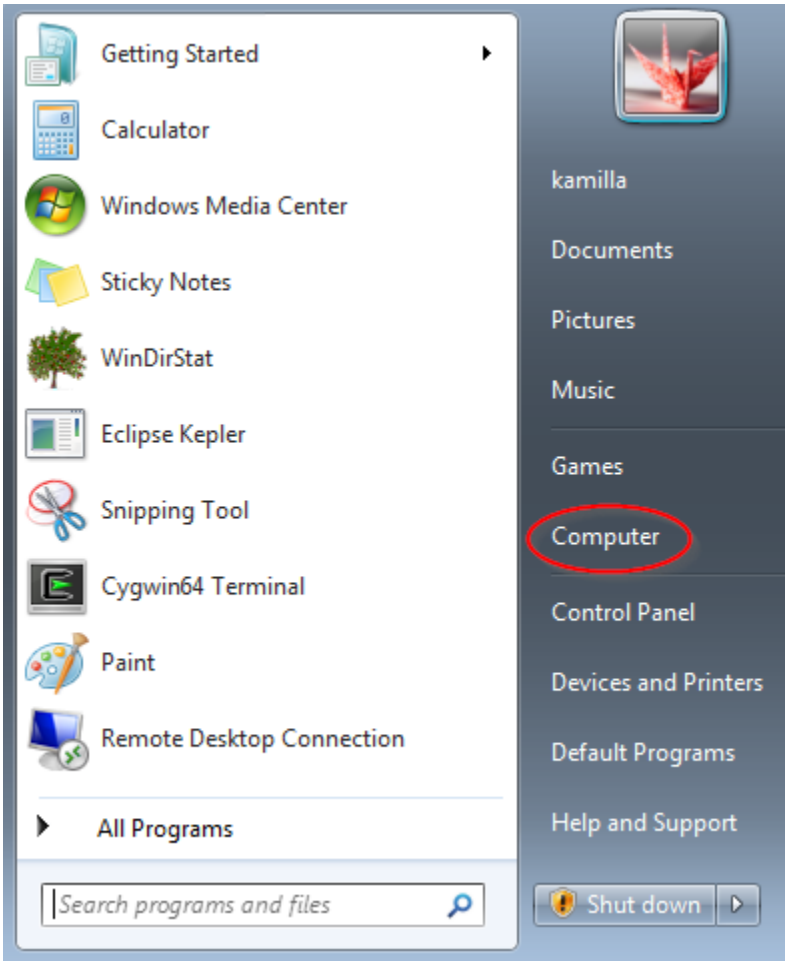
Depending on your Windows version find or open Windows search box.

Type word **environment** in the search box ①. Click on **Edit the system environment variables** ② if you are modifying the variables for all users. Otherwise, click on **Edit environment variables for your account** ③.

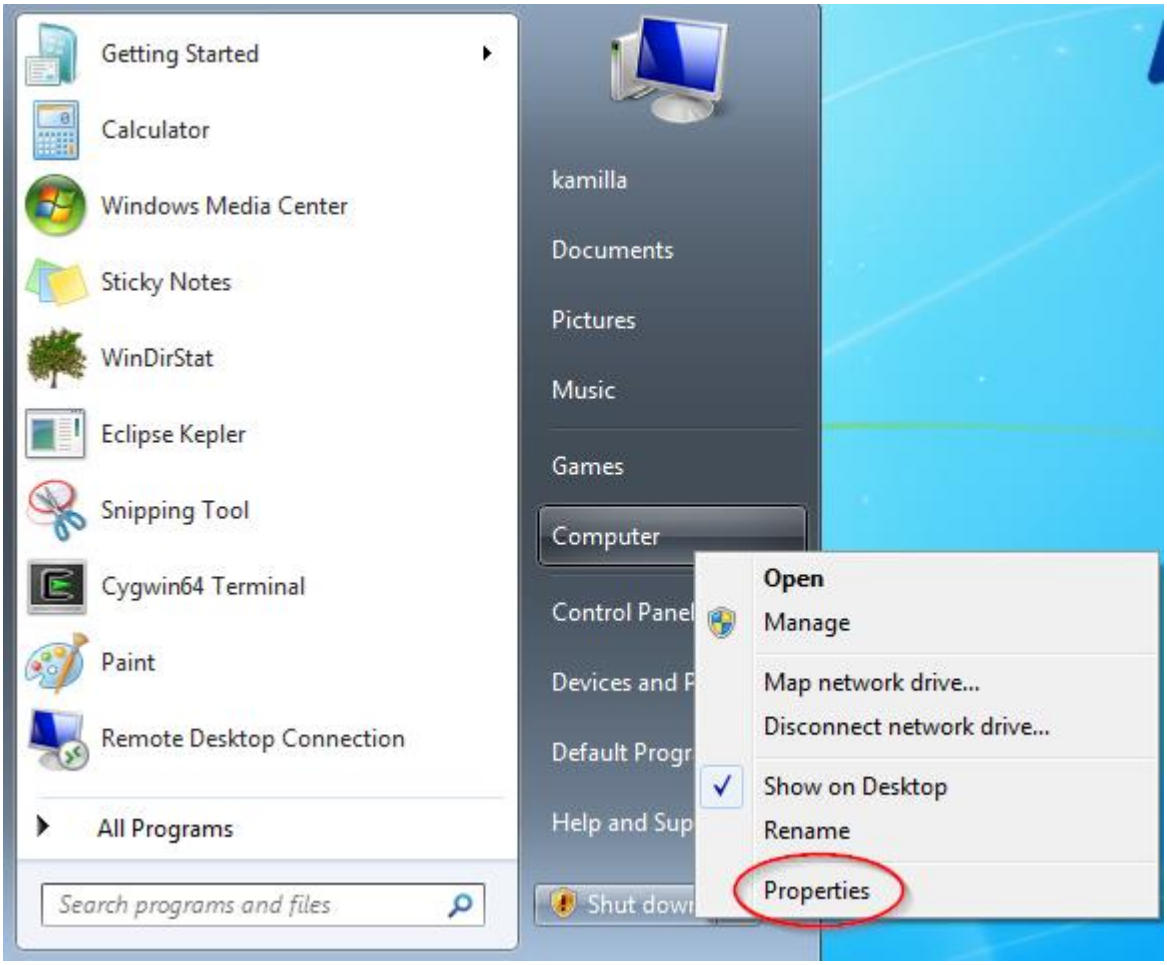
If you clicked the **Edit the system environment variables**, you will see **System Properties** window. Otherwise, you will see **Environment Variables** window.

Getting to Environment Variables via Computer Properties

Right click on your desktop **Computer** icon to open a context menu and select **Properties**. If you do not have Computer icon open Windows Start Menu

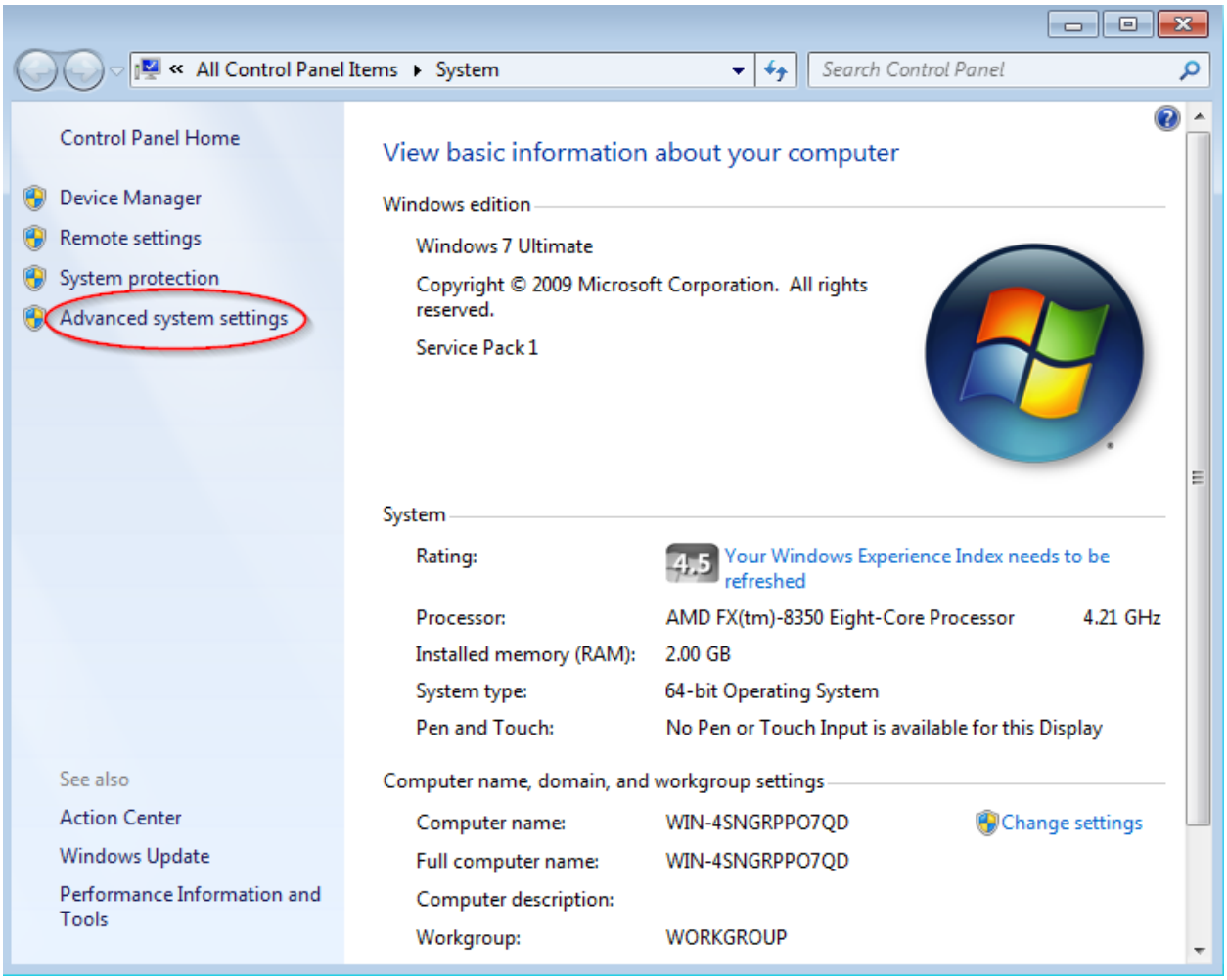


Move mouse over **Computer** item and right click it to open a context menu.



Select **Properties** option.

In the case of Windows XP, the System Properties window will open right away (see the next page). Otherwise you will see the following window

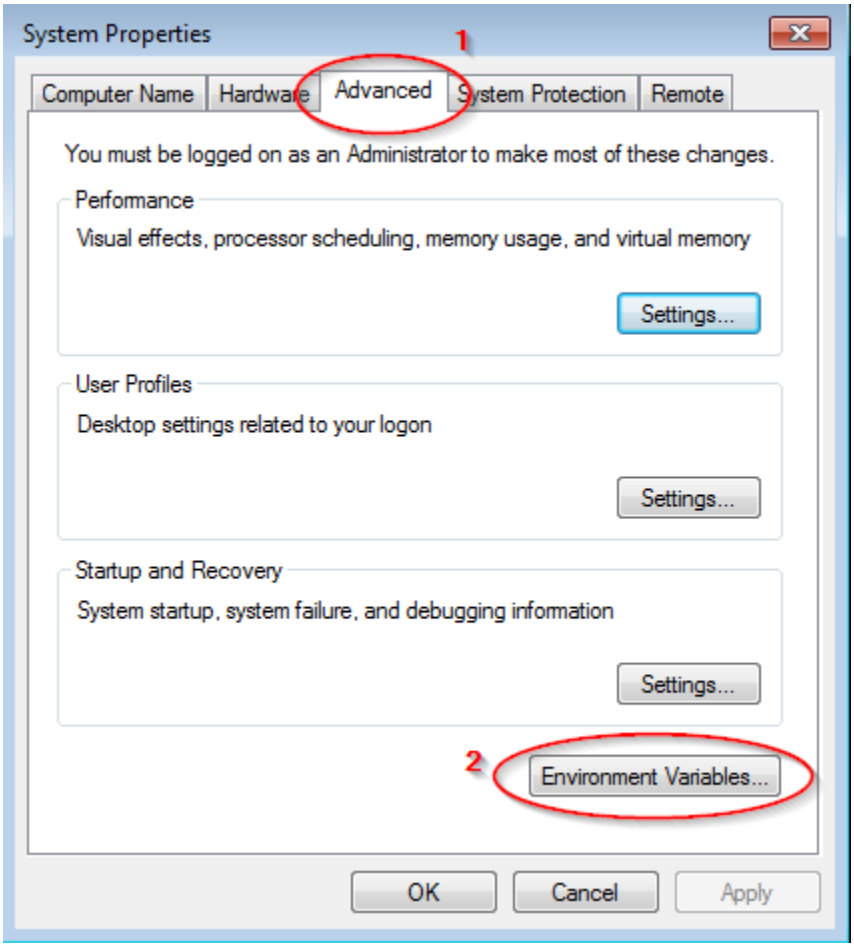


Click on **Advanced system settings**. You might see “User Account Control” popup window with a warning message “A program needs your permission to continue” and “Advanced System Settings” - press **Continue** button.

Accessing Environment Variables in Legacy Windows

Note - If you clicked the **Edit environment variables for your account**, you will not see **System Properties** window. You will see **Environment Variables** window instead. Skip to the next section in such a case.

In the **System Properties** window



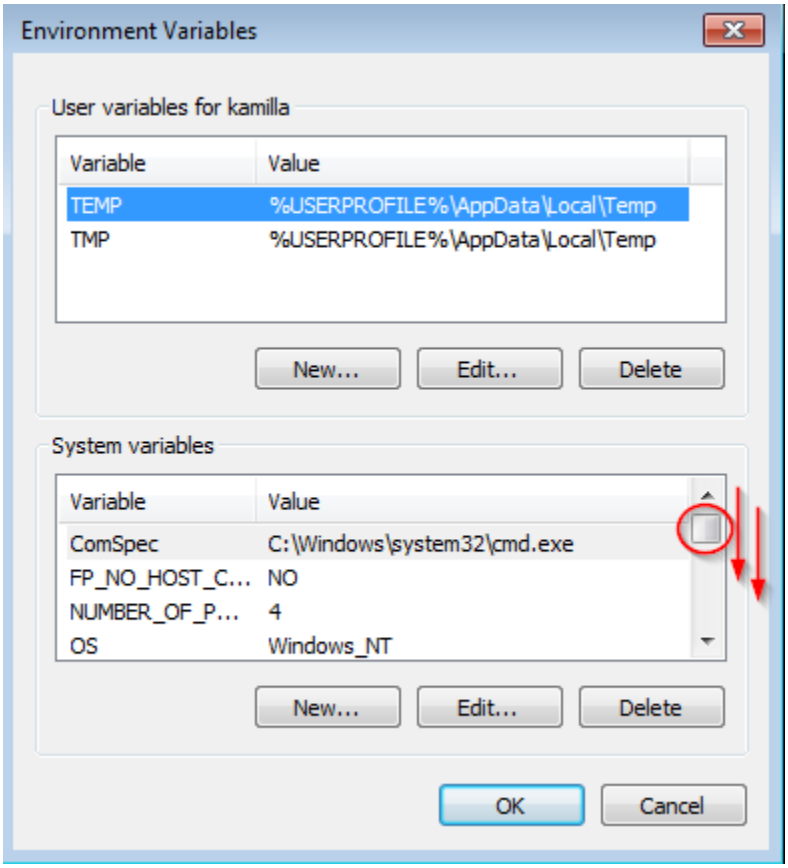
select **Advanced** tab ①, if not already selected. Press **Environment Variables** button ②.

Adding OpenJDK to Windows PATH

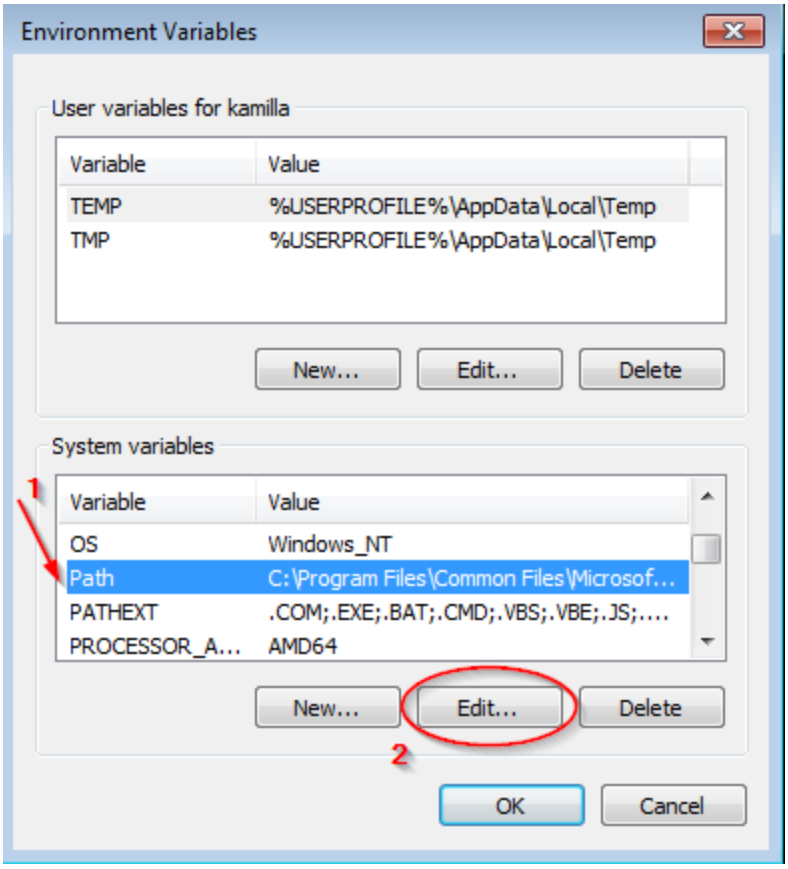
In these examples, we are adding OpenJDK folder `C:\Program Files\OpenJDK\jdk-11\bin` to the `PATH` environment variable.

Adding OpenJDK to Existing Path Variable

If you are adding OpenJDK to the system `PATH` environment variable,



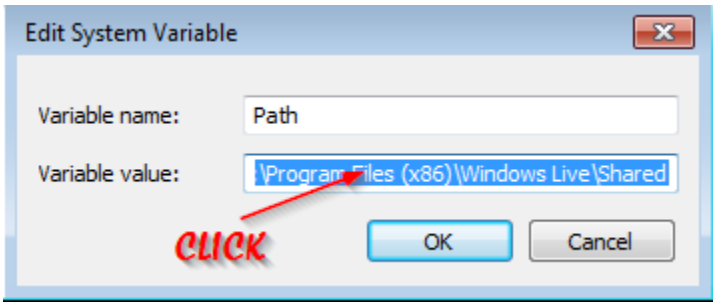
scroll down in **System variables** section until you see **Path** line.



Click on **Path** line ① to select it. Press **Edit** button ② in **System variables** section.

If you are adding OpenJDK to the user PATH variable that already exists, find it in **User variables** section, click on it, and press **Edit** button.

In the **Edit System Variable** pop-up window, note that the old path value is selected (has blue background).



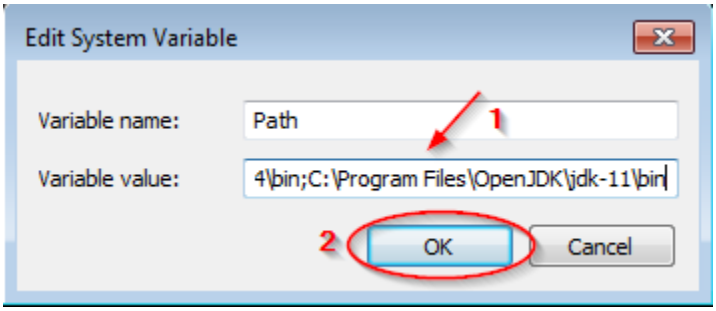
Click somewhere in the **Variable value** field to deselect the old path value, move the cursor to the right, and add OpenJDK `bin` subfolder.

✓ Be sure to deselect the old path value by clicking inside it. Otherwise, when you start typing, the old path value will be lost.

For example, add the following text

```
;C:\Program Files\OpenJDK\jdk-11\bin
```

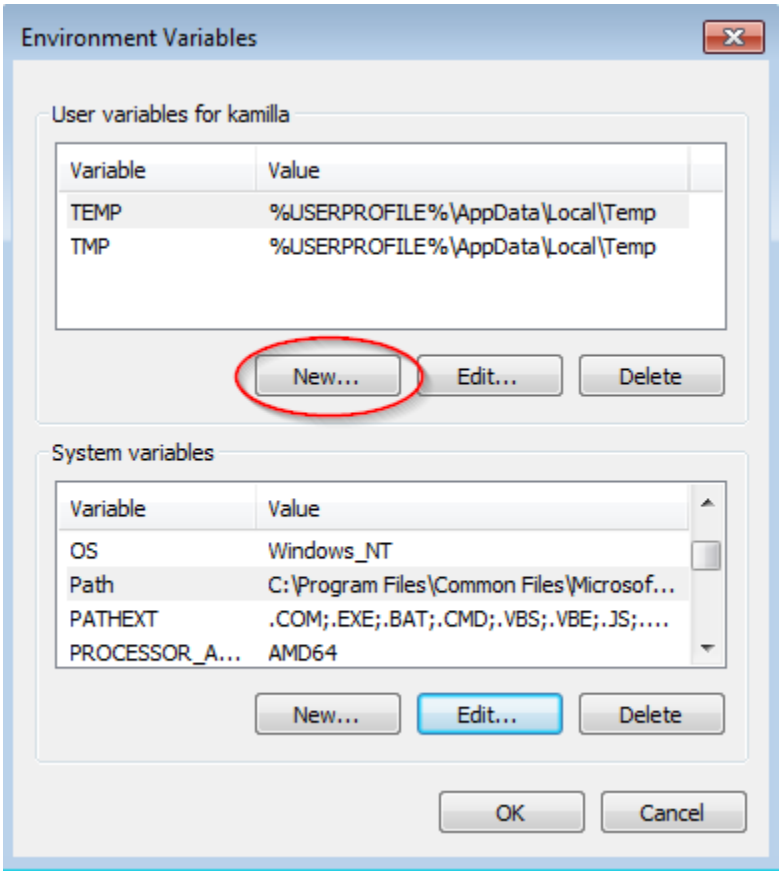
Note that you have to insert `;` (semicolon) between the old path value and the folder pathname. Also, no spaces are allowed around the semicolon.



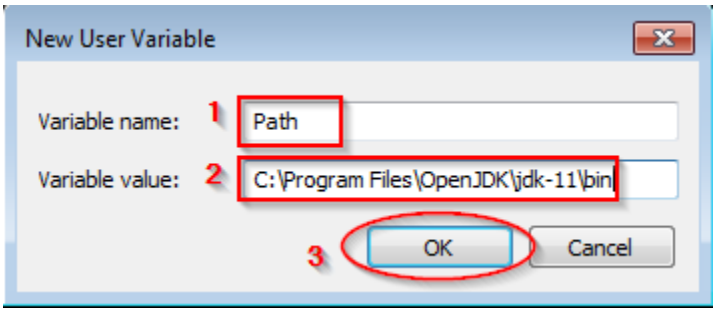
Confirm that the path is correct ①. Press **OK** button ②.

Creating User Path Variable and Adding OpenJDK to it

If you are adding OpenJDK to the user PATH variable that does not exist yet,



press **New** button in **User variables** section.



Enter Path word in **Variable name** field ①. Enter

```
C:\Program Files\OpenJDK\jdk-11\bin
```

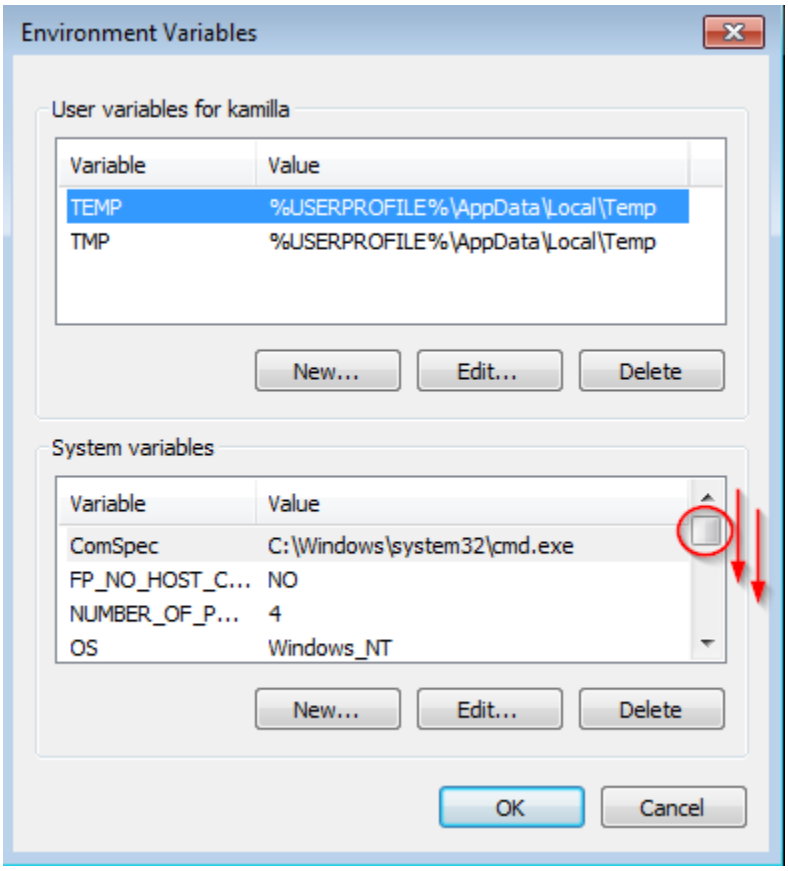
in **Variable value** field ②. Press **OK** button.

Adding Cygwin to Windows PATH

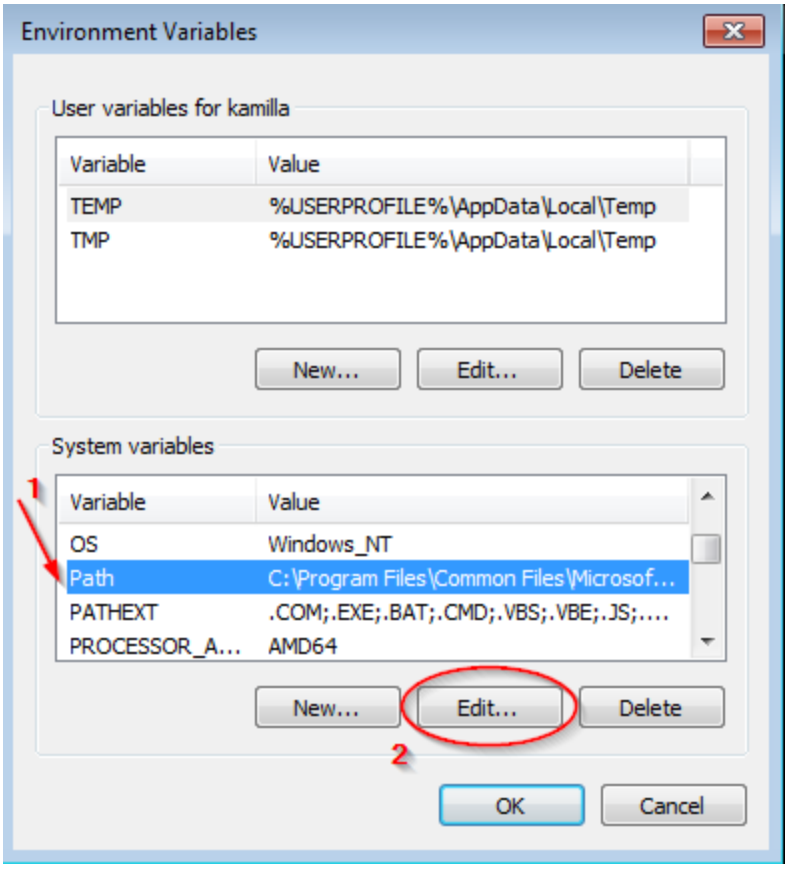
In these examples, we are adding Cygwin folder `C:\cygwin64\bin` to the `PATH` environment variable.

Adding Cygwin to Existing PATH Variable

If you are adding Cygwin to the system **PATH** variable,



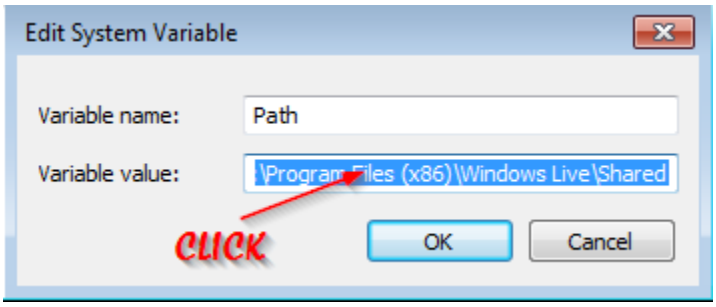
scroll down in **System variables** section until you see **Path** variable.



Click on **Path** line ① to select it. Press **Edit** button ② in **System variables** section.

If you are adding Cygwin to the user PATH variable that already exists, find **Path** line in **User variables** section, click on it, and press **Edit** button.

In the **Edit System Variable** pop-up window, note that the old path value is selected (has blue background).



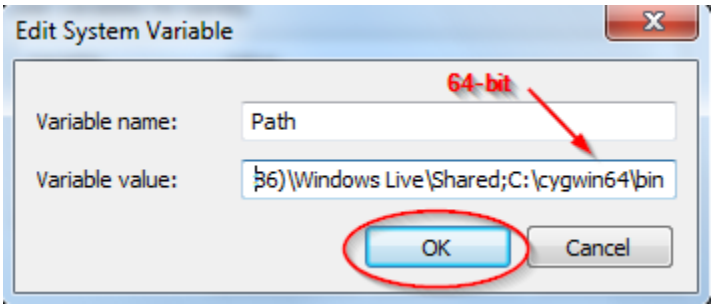
Click somewhere in the **Variable value** field to deselect the old path value, move the cursor to the right, and add Cygwin `bin` subfolder.

✓ Be sure to deselect the old path value by clicking inside it. Otherwise, when you start typing, the old path value will be lost.

For example, add the following text

```
;C:\cygwin64\bin
```

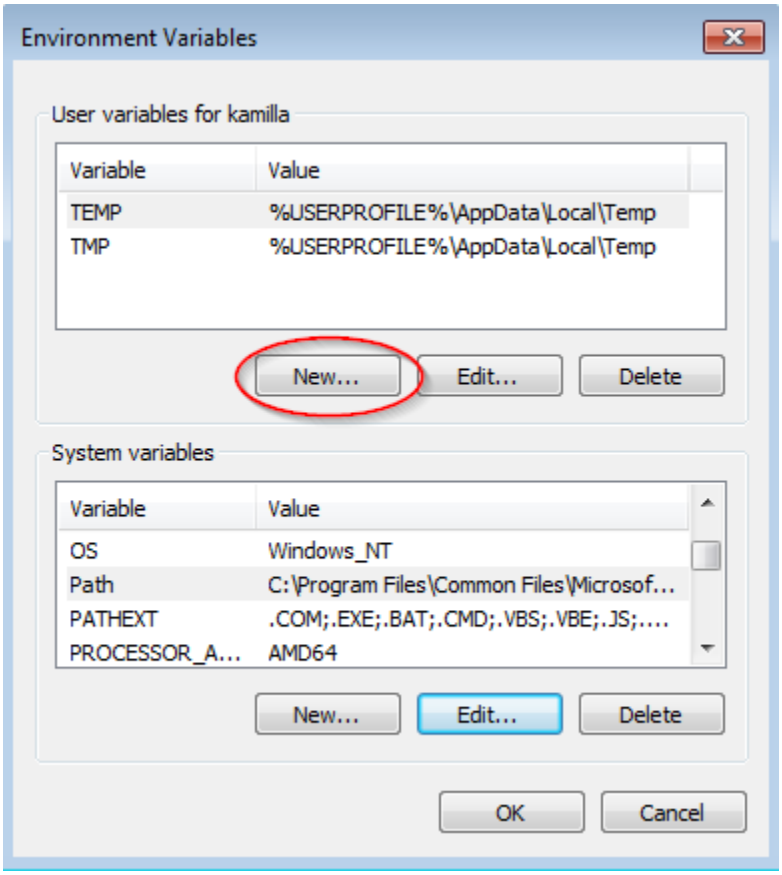
Note that you have to insert `;` (semicolon) between the old path value and the folder pathname. Also, no spaces are allowed around the semicolon.



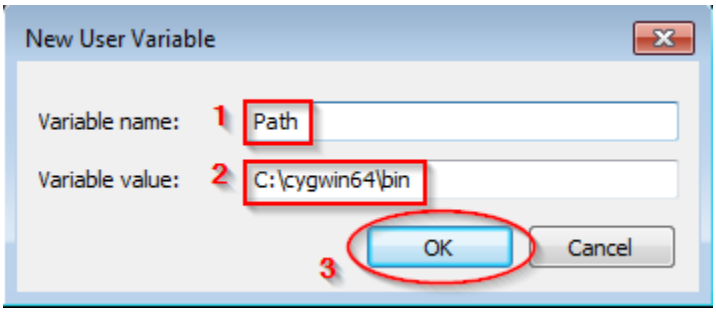
Press **OK** button.

Creating User PATH Variable and Adding Cygwin to it

If you are adding Cygwin to the user PATH variable that does not exist yet,



press **New** button in **User variables** section.



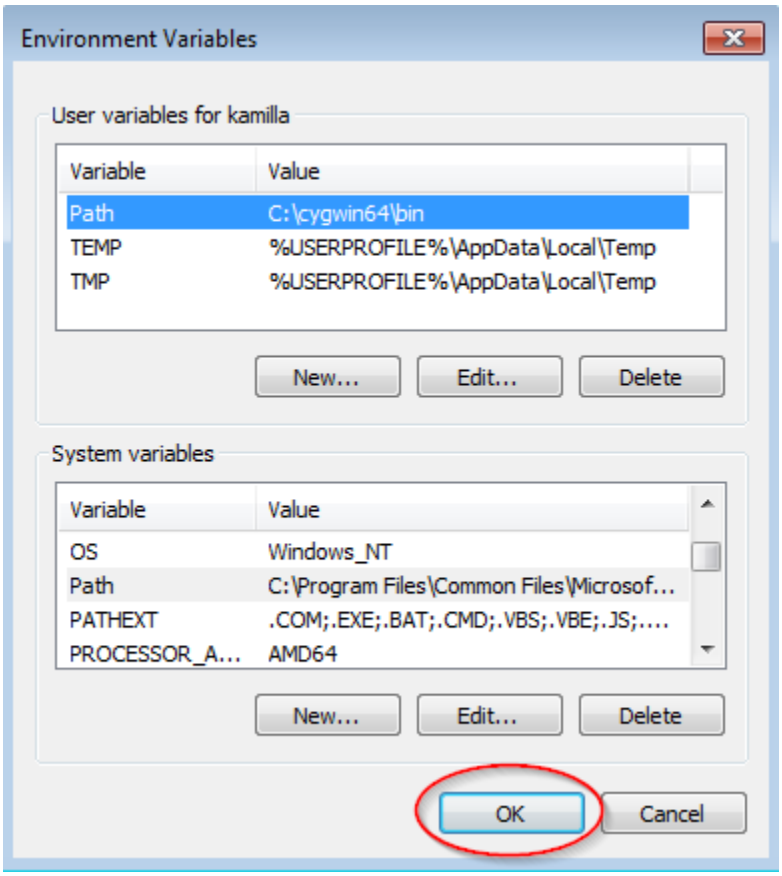
Enter **Path** word in **Variable name** field ①. Enter

```
C:\cygwin64\bin
```

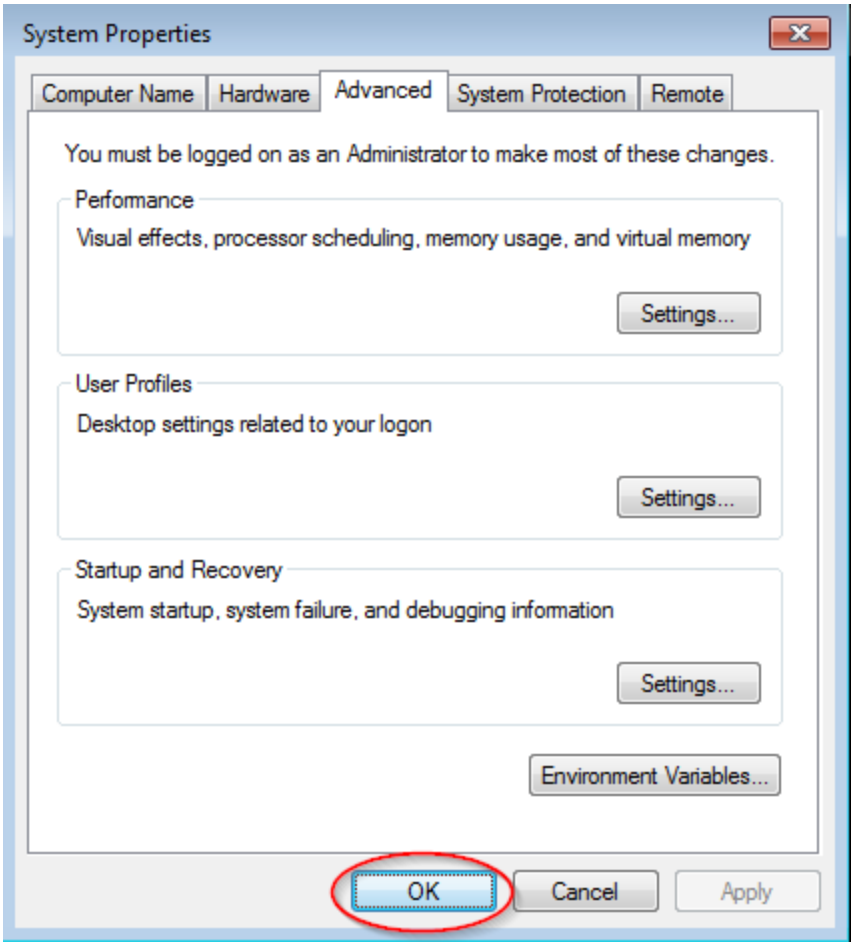
in **Variable value** field ②. Press **OK** button.

Saving New Value of Windows Environment Variable

In the Environment Variables window,



press **OK** button to save the new value of variable(s). If you press **Cancel** button, the new value(s) will be discarded.



Press **OK** button one more time to close **System Properties** window.

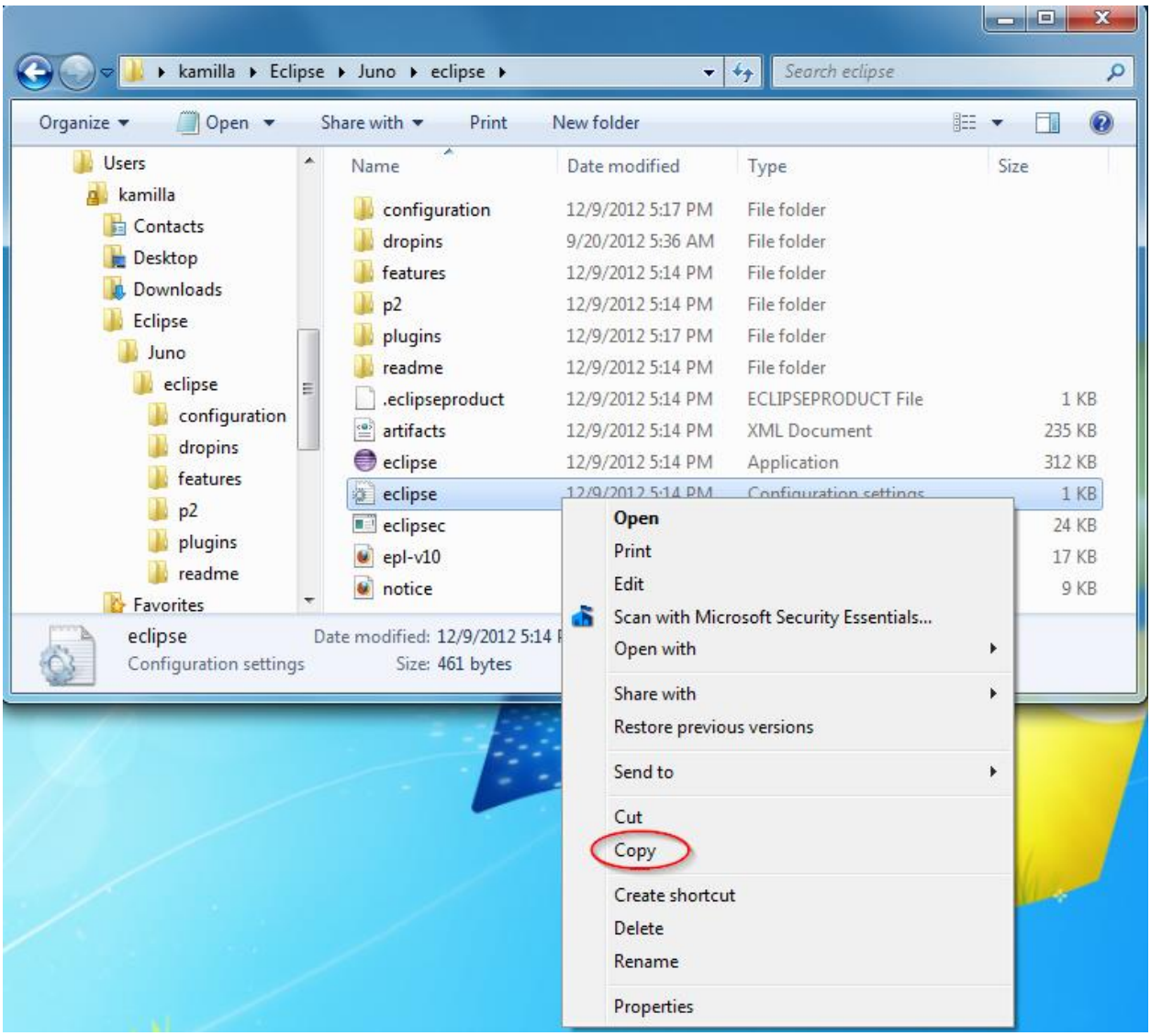
Appendix 2 – Configuring Eclipse Lunch Properties (eclipse.ini)

During Eclipse startup `eclipse.ini` file is read to figure out various Eclipse launch properties, for instance, what Java version to use, how much memory to allocate, etc. Some information about `eclipse.ini` file can be read at eclipse.ini wiki page.

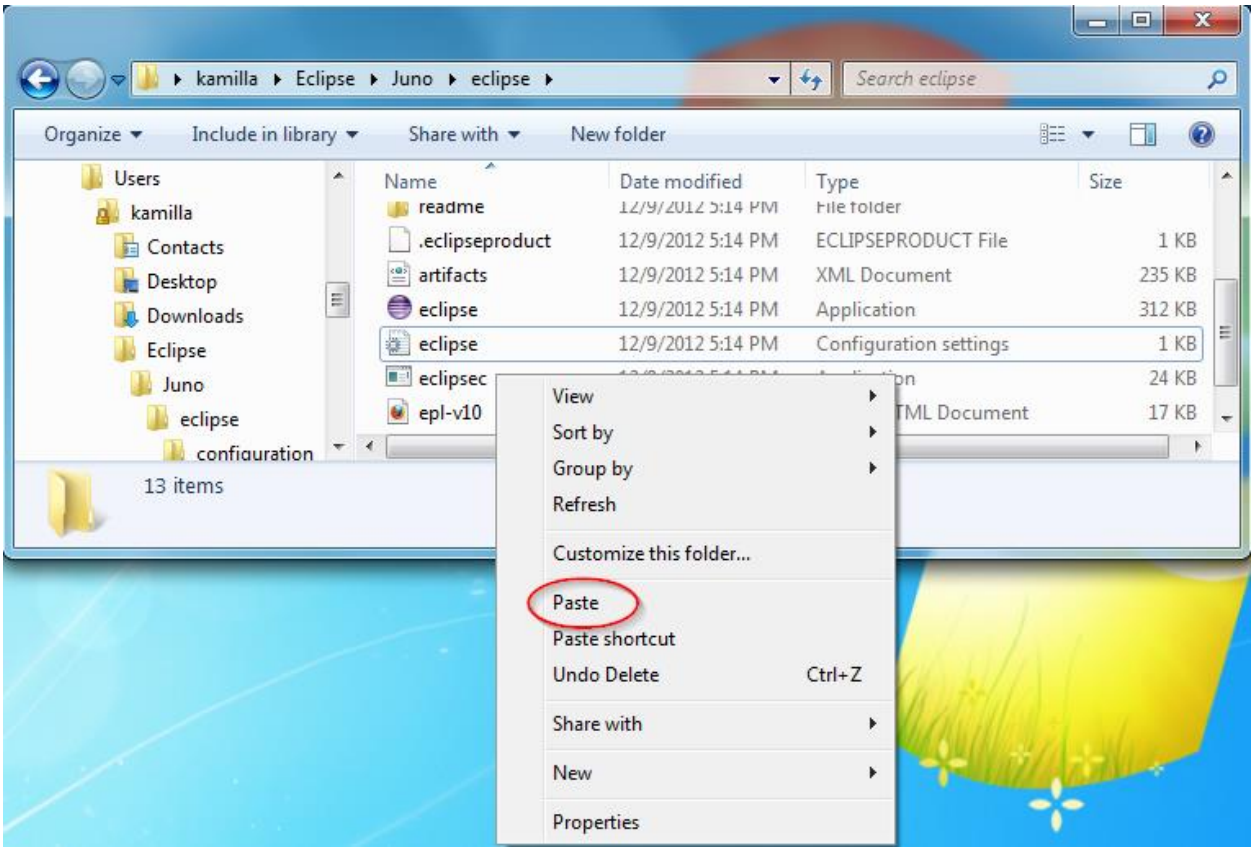
➤ If you modify `eclipse.ini` file while Eclipse is running, the Eclipse has to be restarted for the changes to take effect.

Editing eclipse.ini File

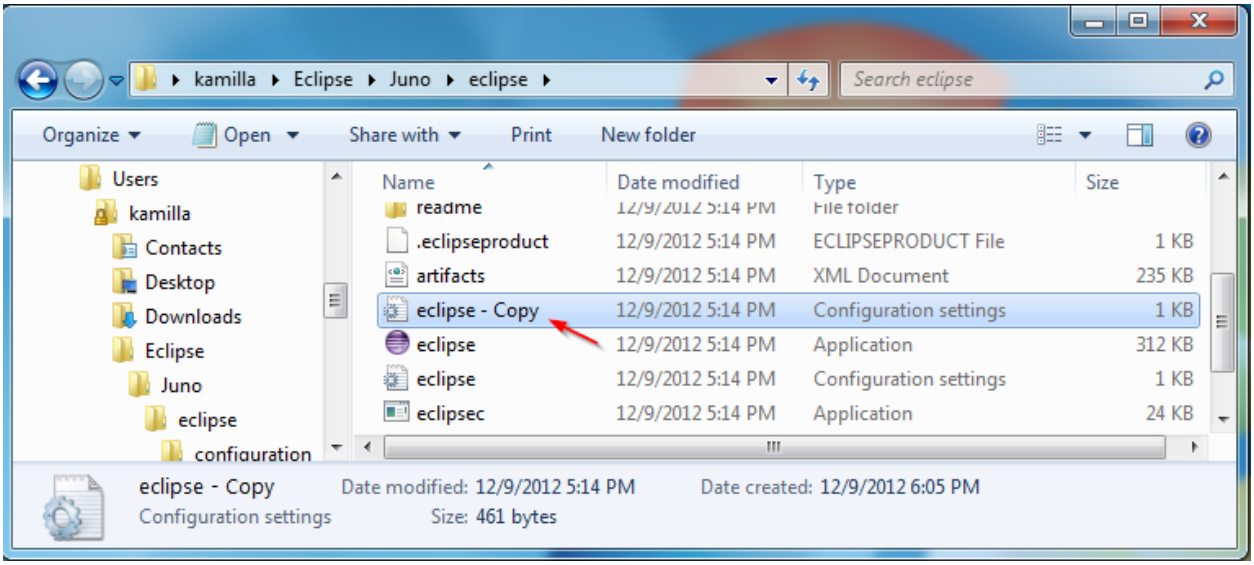
Find `eclipse.ini` file in the `eclipse` subfolder. To find `eclipse.ini` look for  icon. Depending on you File Explorer settings you may see `eclipse.ini` or just `eclipse` right to it.



Make a backup copy of the `eclipse.ini` file. Move the mouse pointer over the icon and click the right mouse button to open a context menu. Select **Copy** from the menu.



Find some empty space inside the `eclipse` folder, move the mouse pointer there, and click the right mouse button to open a context menu. Select **Paste** from the menu. You will see `eclipse - Copy.ini` backup file created.



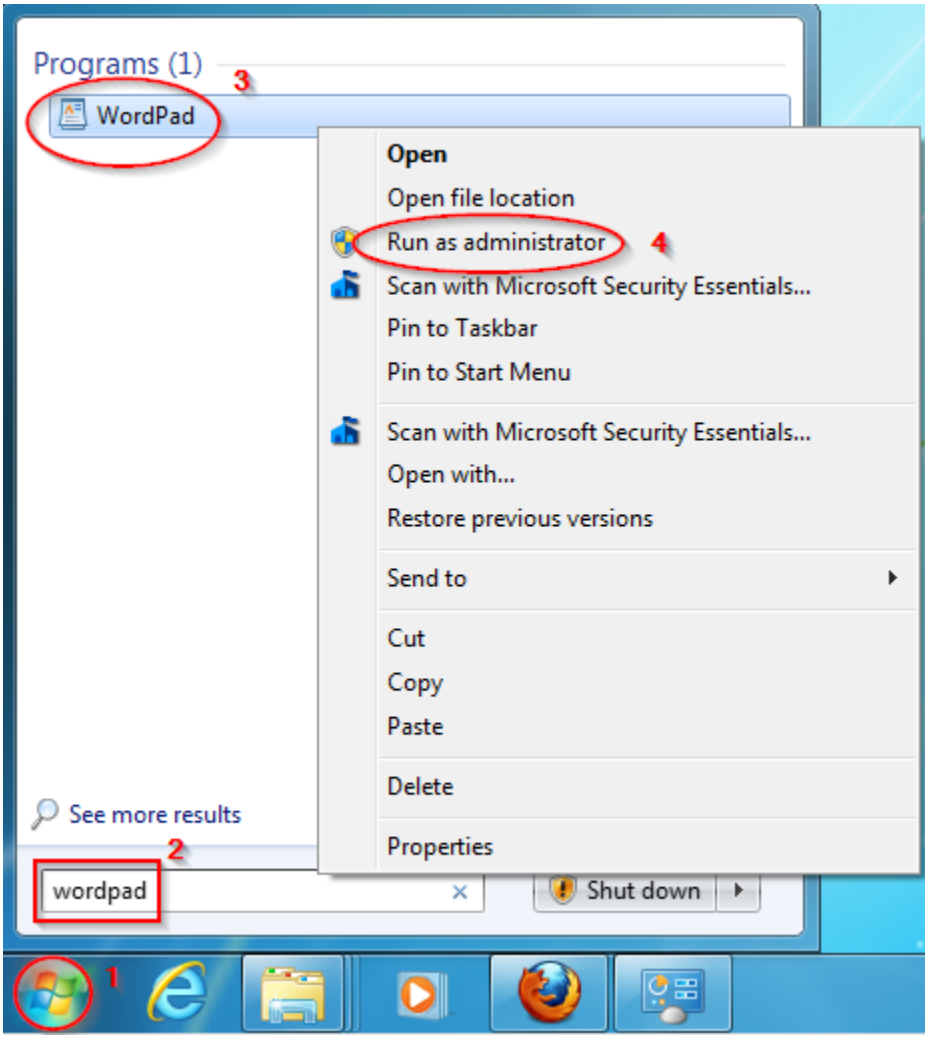
At this point, open `eclipse.ini` file in your favorite editor. Below it is assumed that WordPad is used to edit the file.

If Eclipse is installed in a folder that the user can write to, for example in your user data folder, or you are running Windows XP

✓ You can edit `eclipse.ini` file in a usual way. For example, move the mouse pointer over the `eclipse.ini` filename, click the right mouse button, select **Open with**, and select **WordPad** from the context menu.

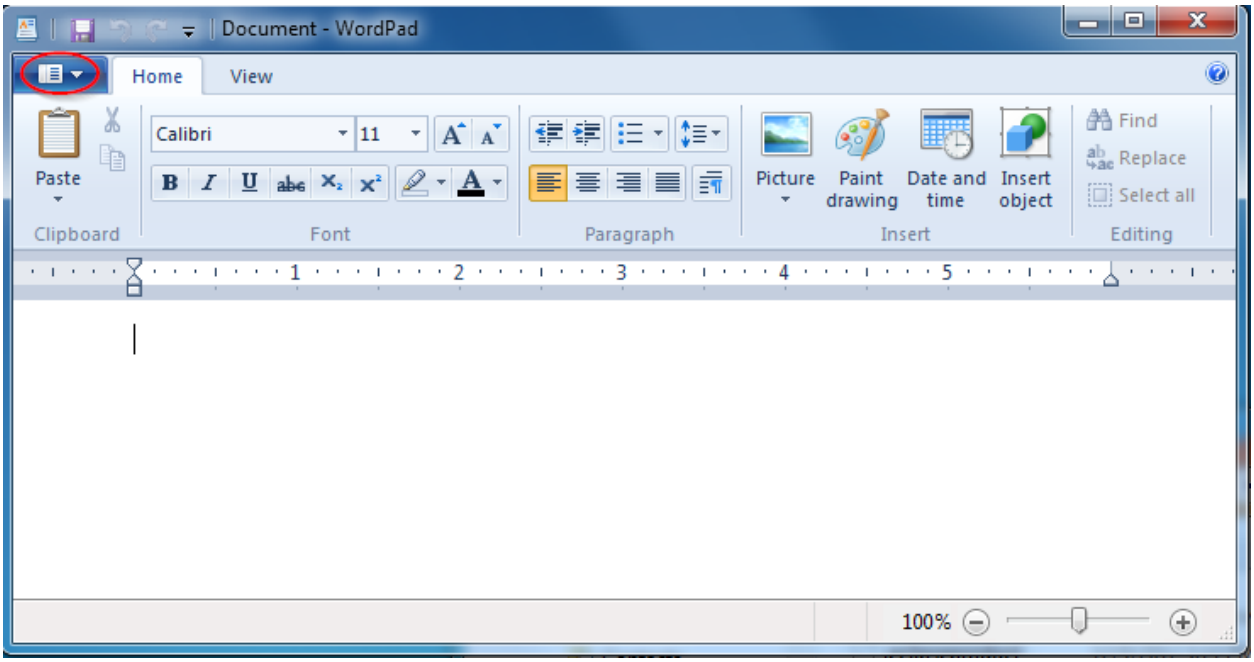
If you are running Windows other than Windows XP and Eclipse is installed in a folder that the user cannot write to, for example, inside `C:\Program Files`

✓ You have to edit `eclipse.ini` file as administrator. To open the file in WordPad as Administrator do as described below

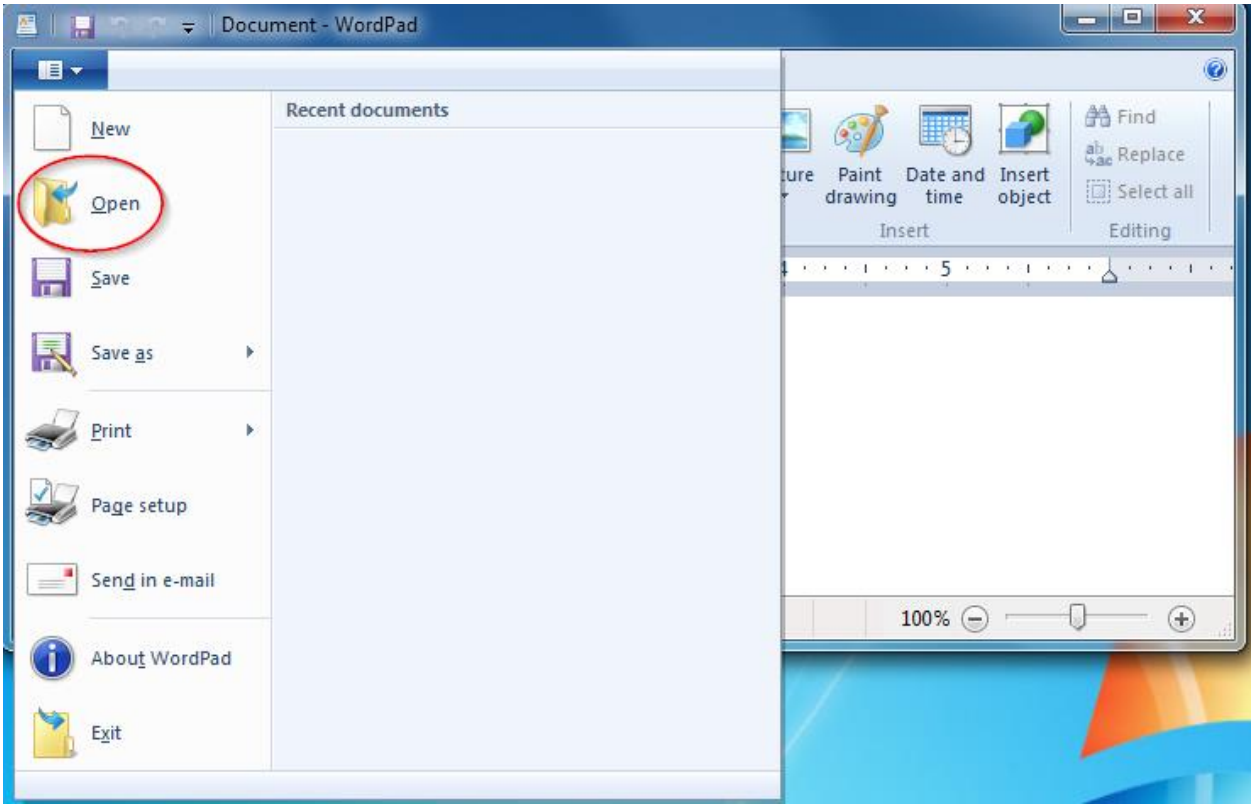


Open Windows Start menu ①, enter `wordpad` in the search field ②. You are supposed to see a list that has **WordPad** in it. Move the mouse pointer over **WordPad** name ③ and click right mouse button to open a context menu. Select **Run as Administrator** from the menu ④.

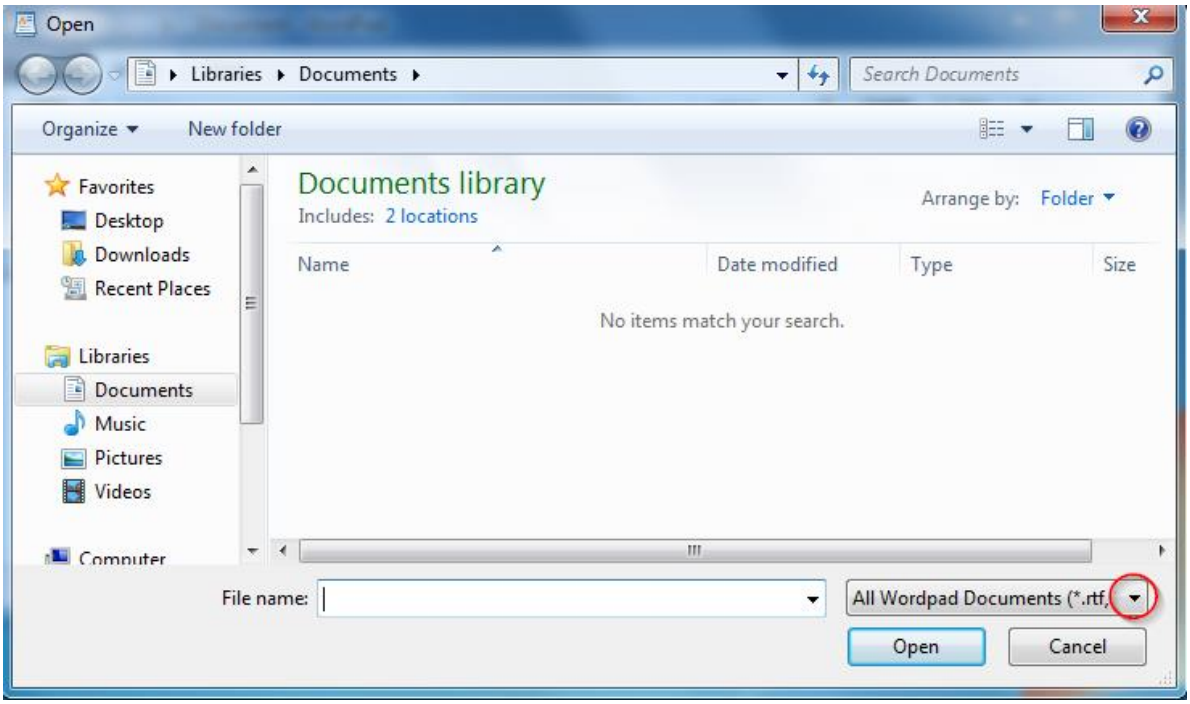
Whichever way you started WordPad (as regular user or as administrator), you will see an empty WordPad window opened.



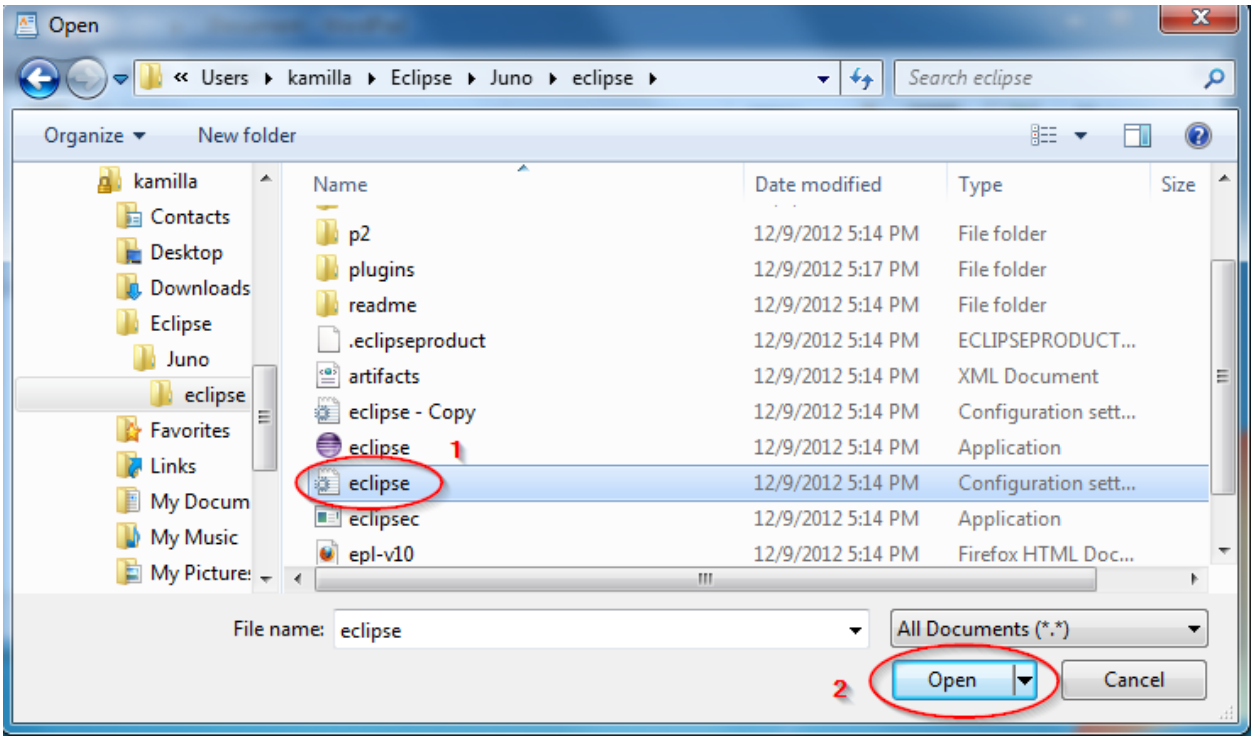
Go to **File** menu and select **Open** option (depending on the Windows version you may need to click on **File** in the menu bar or on  icon).



You will see a file selection window



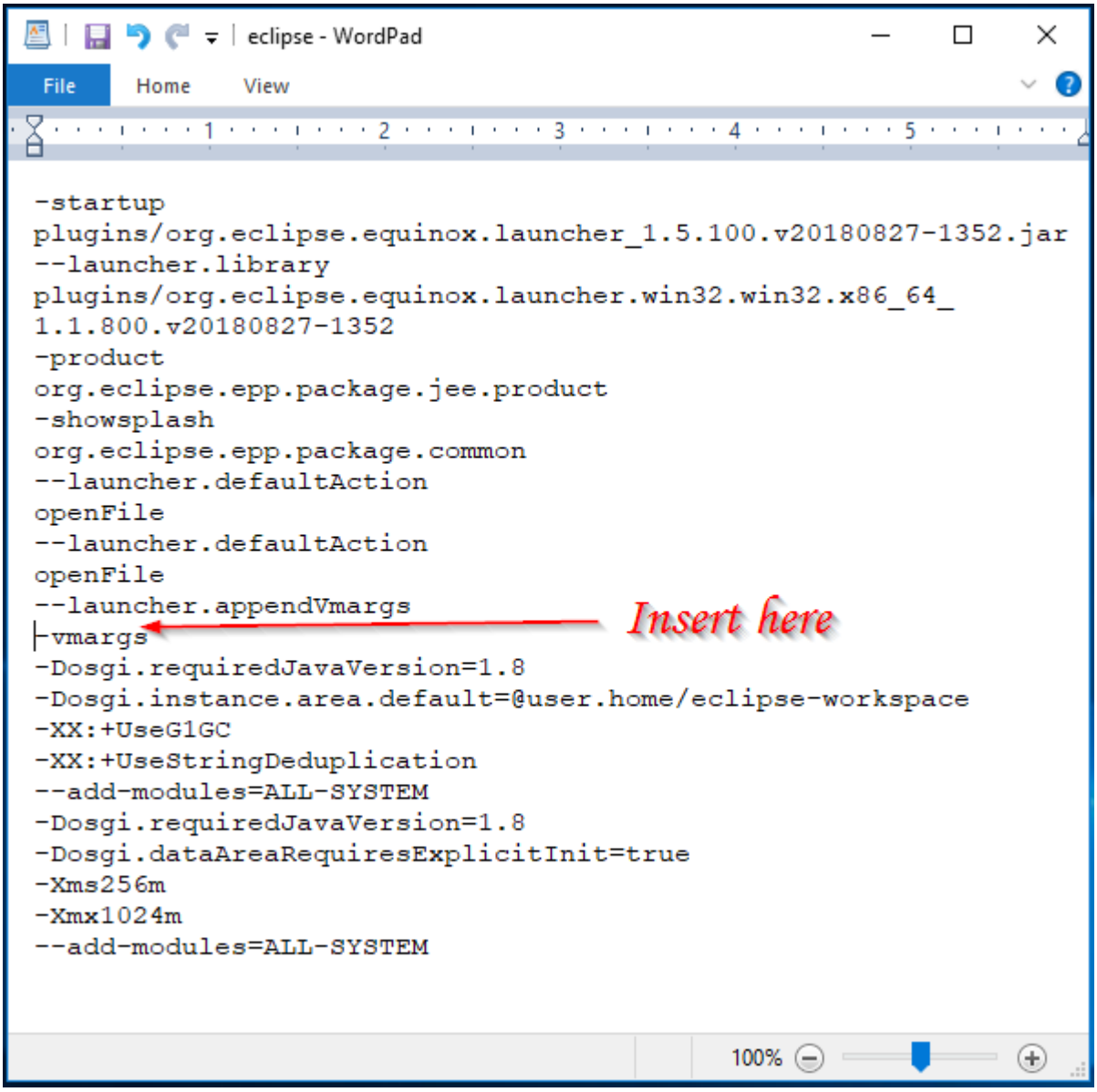
Click on small black triangle right to **All Wordpad Documents** and select **All Documents** option. Browse to the **eclipse** folder (`C:\Users\kamilla\Eclipse\Juno\eclipse` in the example screenshot).



Click on `eclipse.ini` filename or  icon to select it ①. Click **Open** button ②.

Specifying Java Virtual Machine

You will see `eclipse.ini` file displayed inside the WordPad window.

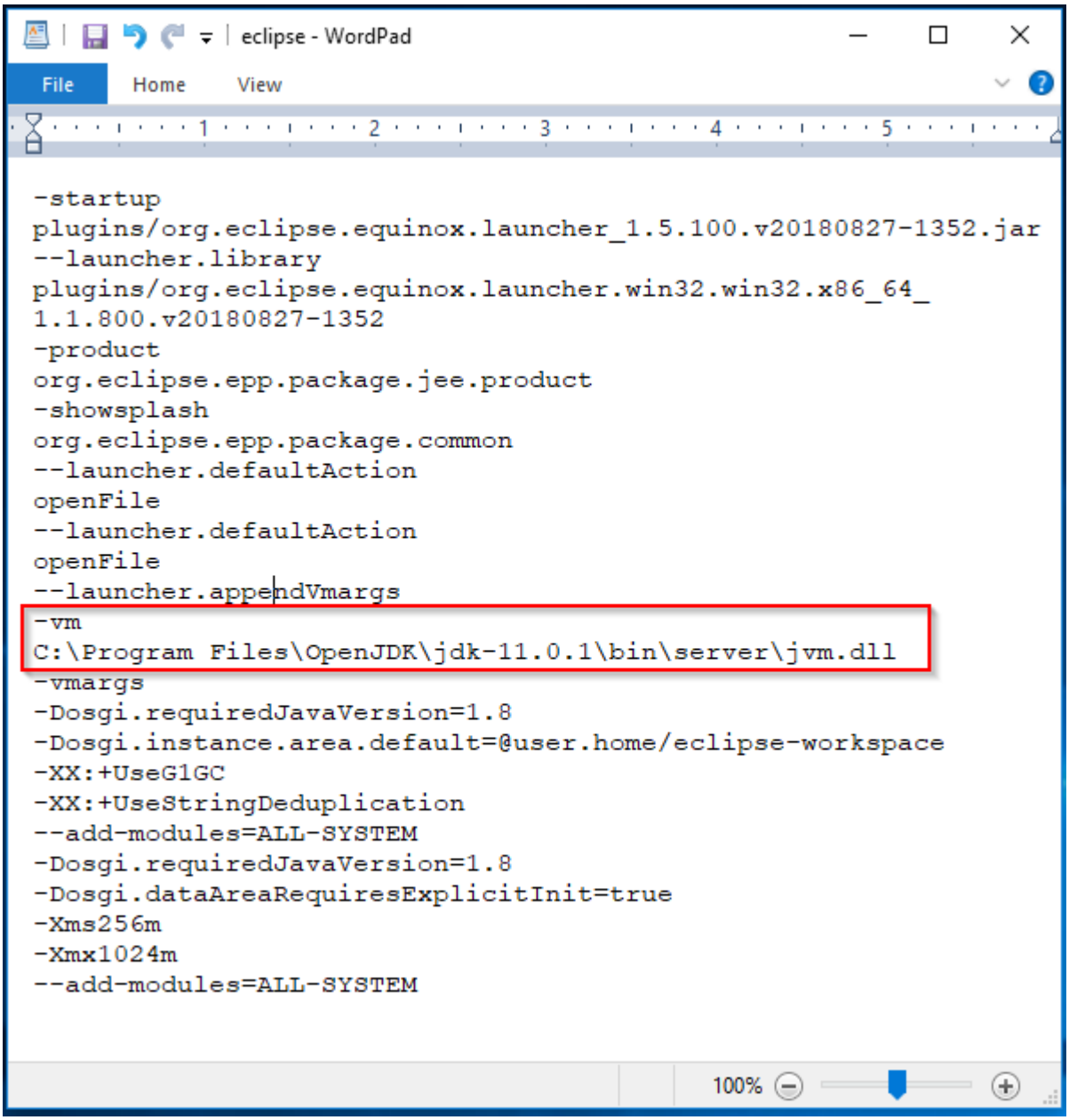


Add two lines before `-vmargs` line. The first line has to be

```
-vm
```

The second line has to contain a path to `jvm.dll` file in JDK folder, for example

```
C:\Program Files\OpenJDK\jdk-11.0.1\bin\server\jvm.dll or
C:\Program Files (x86)\Java\jdk1.7.0_09\jre\bin\client\jvm.dll
```



So, these two lines shall look like (note that empty lines are not allowed)

```
-vm
C:\Program Files\OpenJDK\jdk-11.0.1\bin\server\jvm.dll
```

Increasing Java Heap Size

There are two Java virtual machines parameters that define Java heap size and affect garbage collection frequency

`-Xms` initial heap size
`-Xmx` maximum heap size

Note that the heap does not grow as long as, after a garbage collection, there is free memory in the heap. So, the maximum heap size sets a limit for memory consumption in the worst case. When the initial heap size sets the usual limit and affects the garbage collection frequency.

```
-Dosgi.dataAreaRequiresExplicitInit=true
-Xms256m
-Xmx1024m
--add-modules=ALL-SYSTEM
```

Adjust these settings as needed. For example, to increase maximum heap size and to reduce garbage collection frequency set

```
-Xms1024m
-Xmx2048m
```

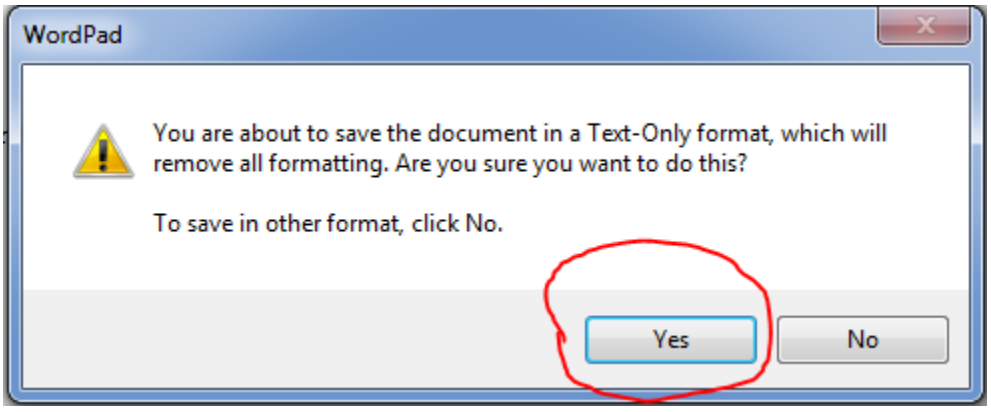
The initial heap size will be 1024 MiB. The actually used heap memory size will be between 0 and 1024 MiB, as long as it is enough. If the initial heap size is not enough, the heap may grow up to 2048 MiB.

See also FAQ How do I increase the heap size available to Eclipse?

Saving and Applying eclipse.ini File

Open **File** menu and select **Save** option (or press **Save** icon if the WordPad window has one).

If you get the pop-up window below press **Yes** to confirm that you want to save the file.



After the file is saved close the WordPad window. To apply the changes, restart Eclipse if it is running.

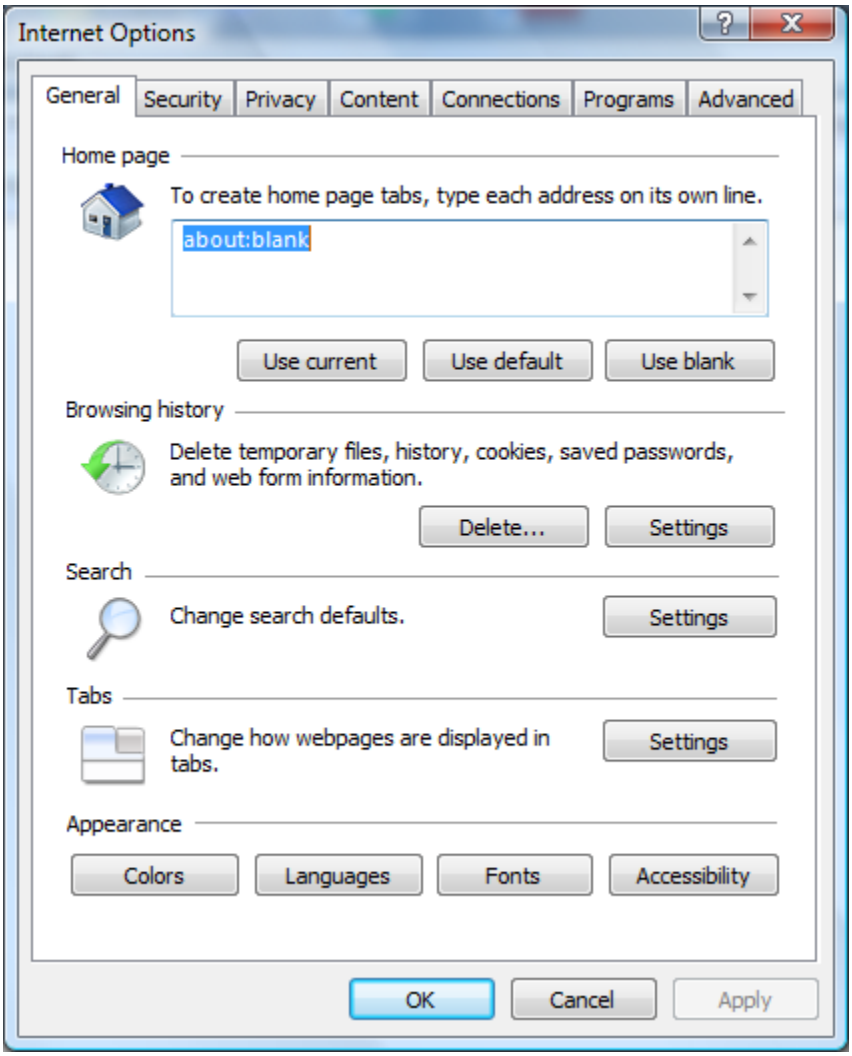
Appendix 3 – Configuring Eclipse for Internet Access

Some features of Eclipse require Internet access. If your workstation is behind a firewall/proxy you might need to enter firewall/proxy information in the Eclipse workspace preferences.

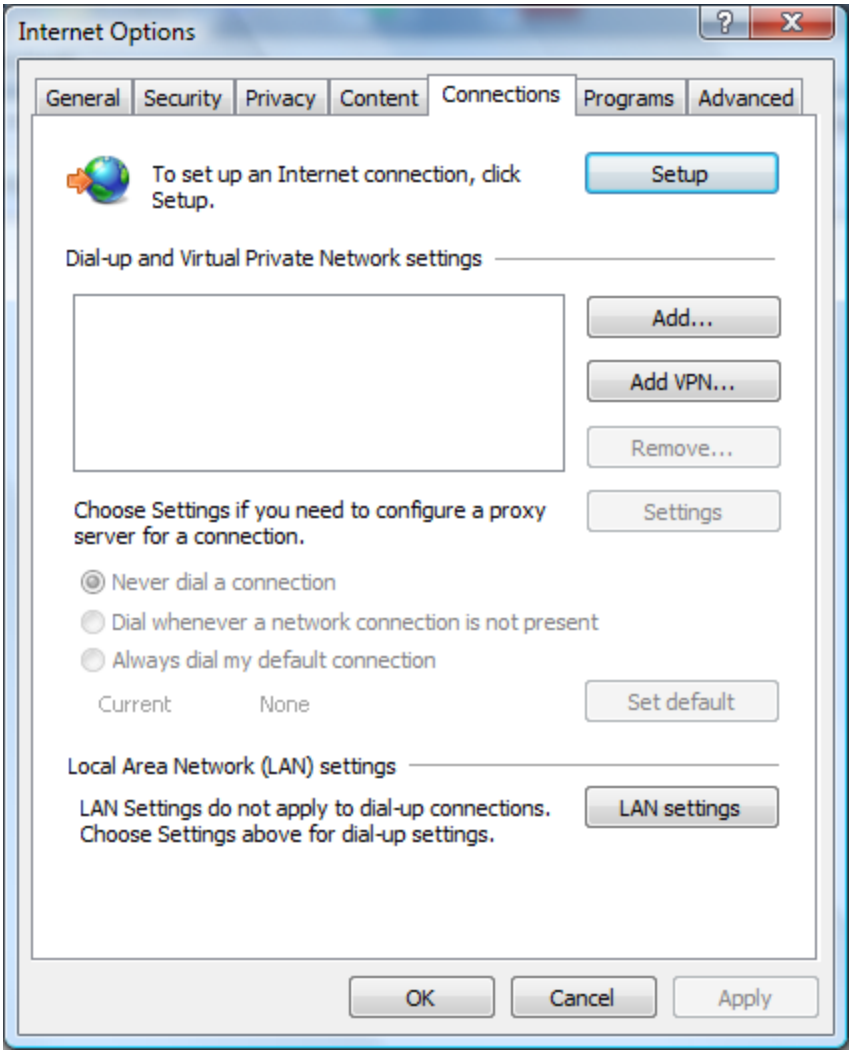
Instructions below assume that your firewall/proxy setup is simple. If you have more complex setup or Eclipse cannot access the Internet contact your network administrator.

Configuring Network Proxy in Internet Browser Settings

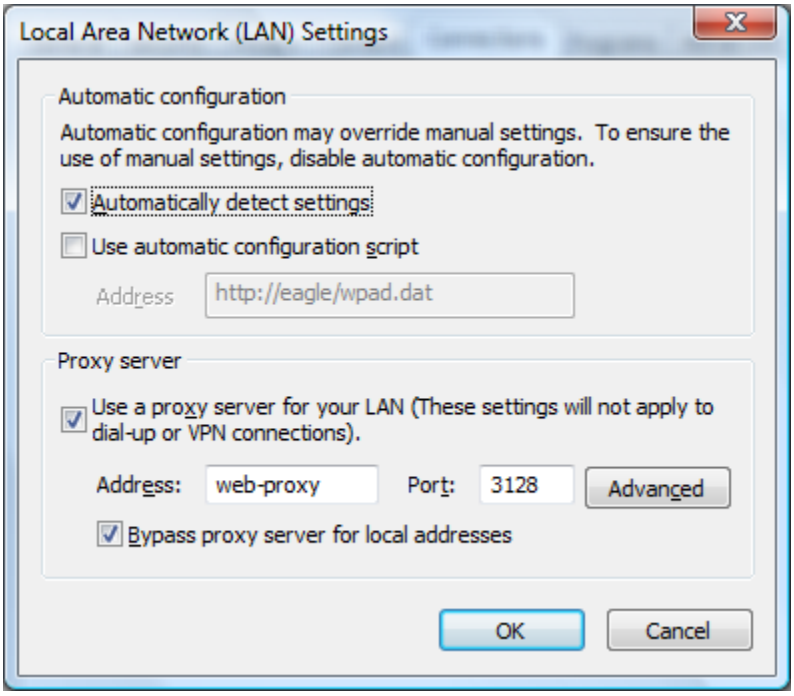
Check Internet Explorer firewall settings. Open Internet Explorer properties (for example, in Windows Vista, launch Internet Explorer, open **Tools Menu**, and select **Internet Options**).



Select **Connections** tab



Press **LAN settings** button.

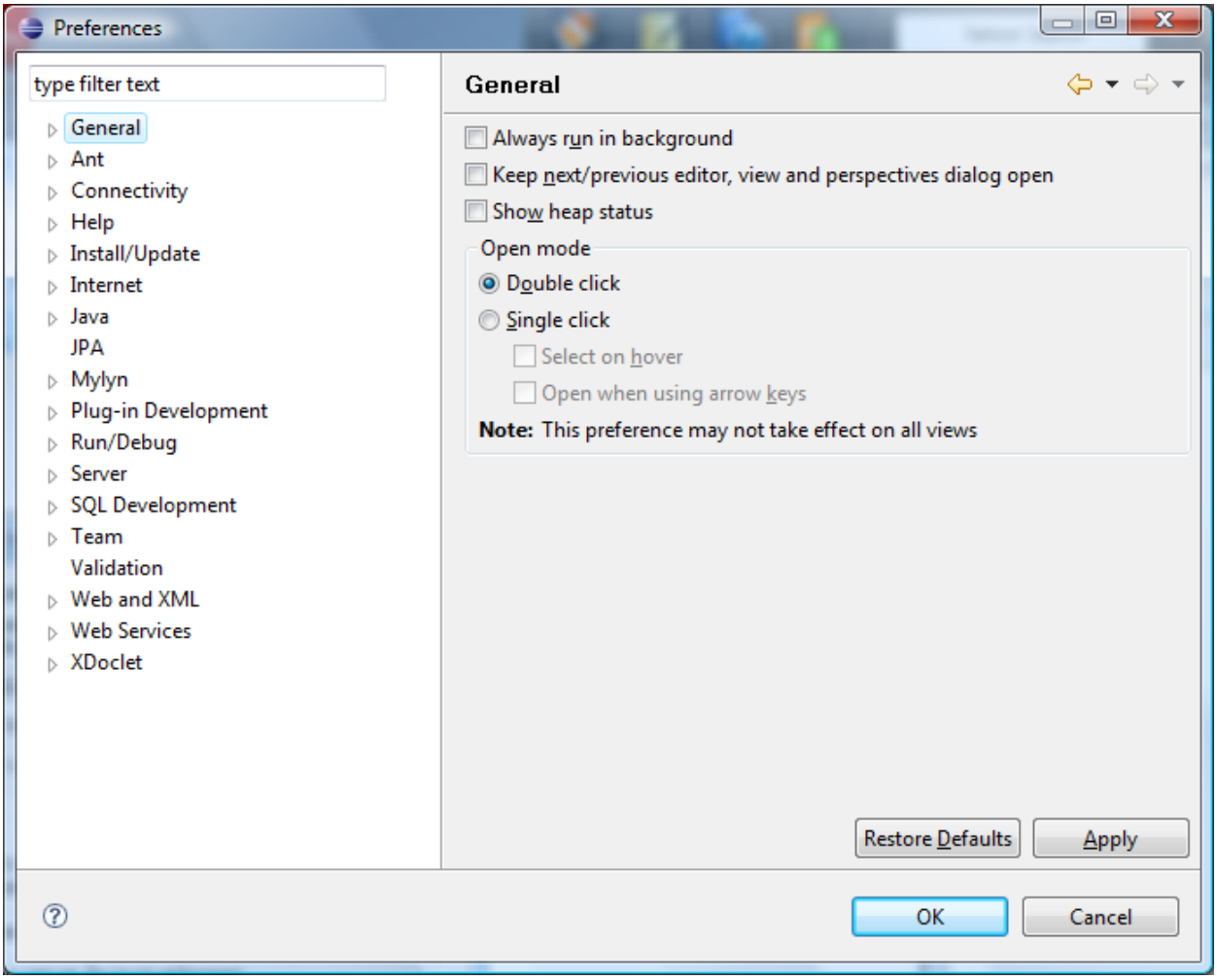


Look for **Proxy server** section. If the checkbox **Use a proxy server for your LAN** is checked, you need to write down **Address** and **Port** information. For example, address *web-proxy* and port *3128* (the address and port here are just an example, you have to look into the settings on your workstation).

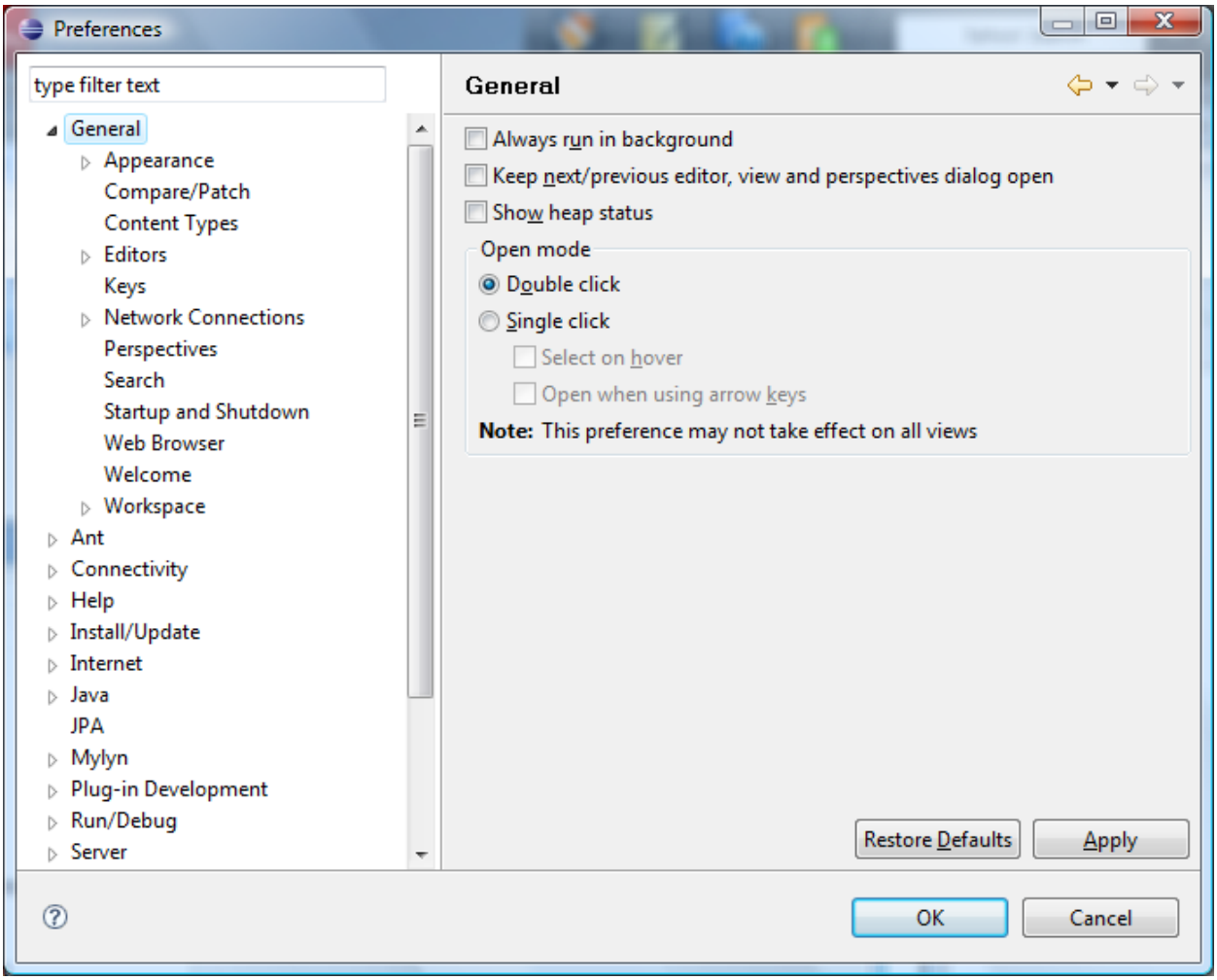
To close Internet Options press **Cancel** button and press **Cancel** button again.

Locating Eclipse Network Preferences

Now return to the Eclipse window. Open **Window** menu and select **Preferences.**



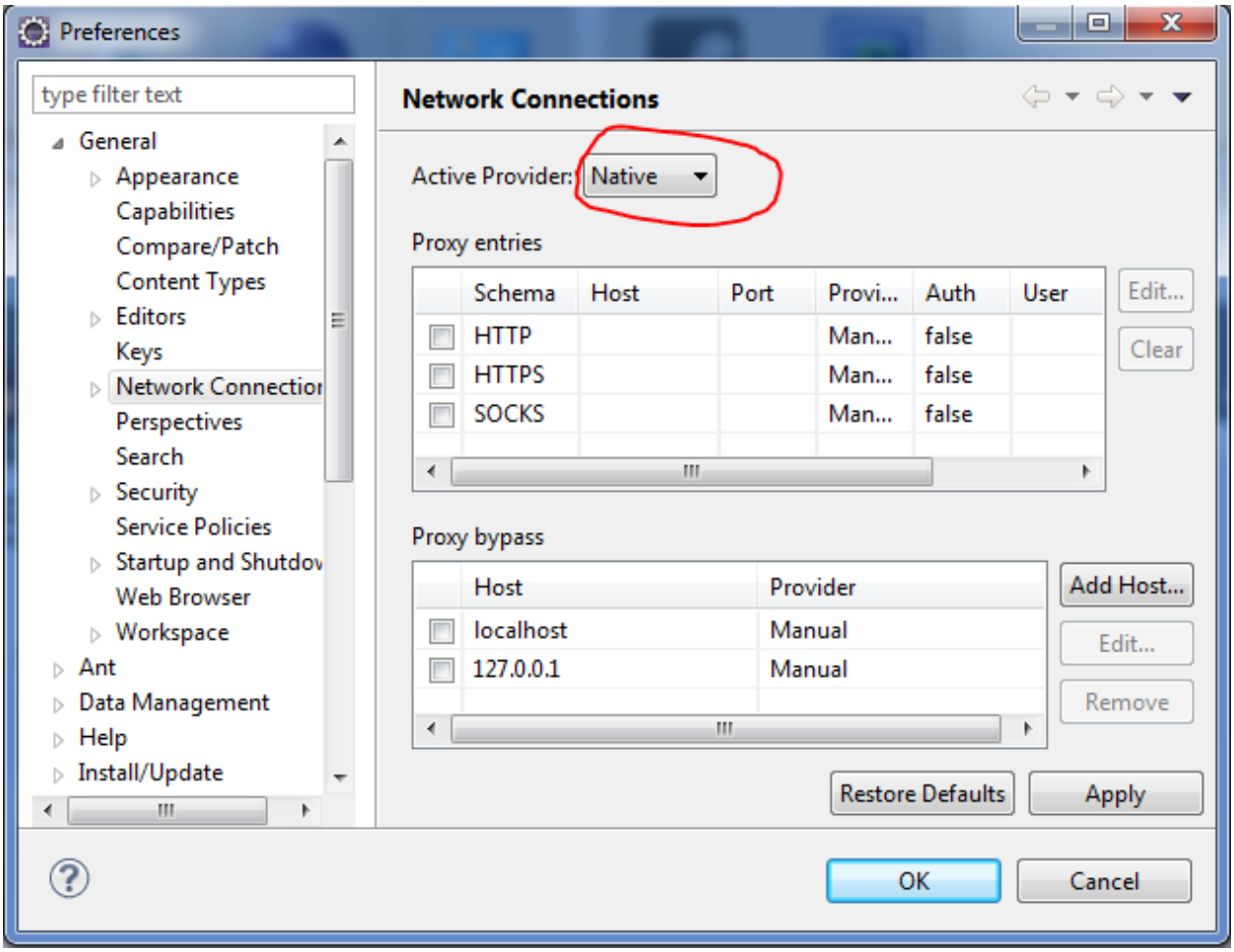
Click on a small white triangle ▷ (or angle ›) left to the "**General**" group to open general preferences. If you do not see the (tri)angles, move mouse pointer to left (white) panel and the (tri)angles will appear.



Click on **Network Connections** preferences to open them.

Configuring Network Proxy in Eclipse Preferences

In the **Network Connections** preferences,

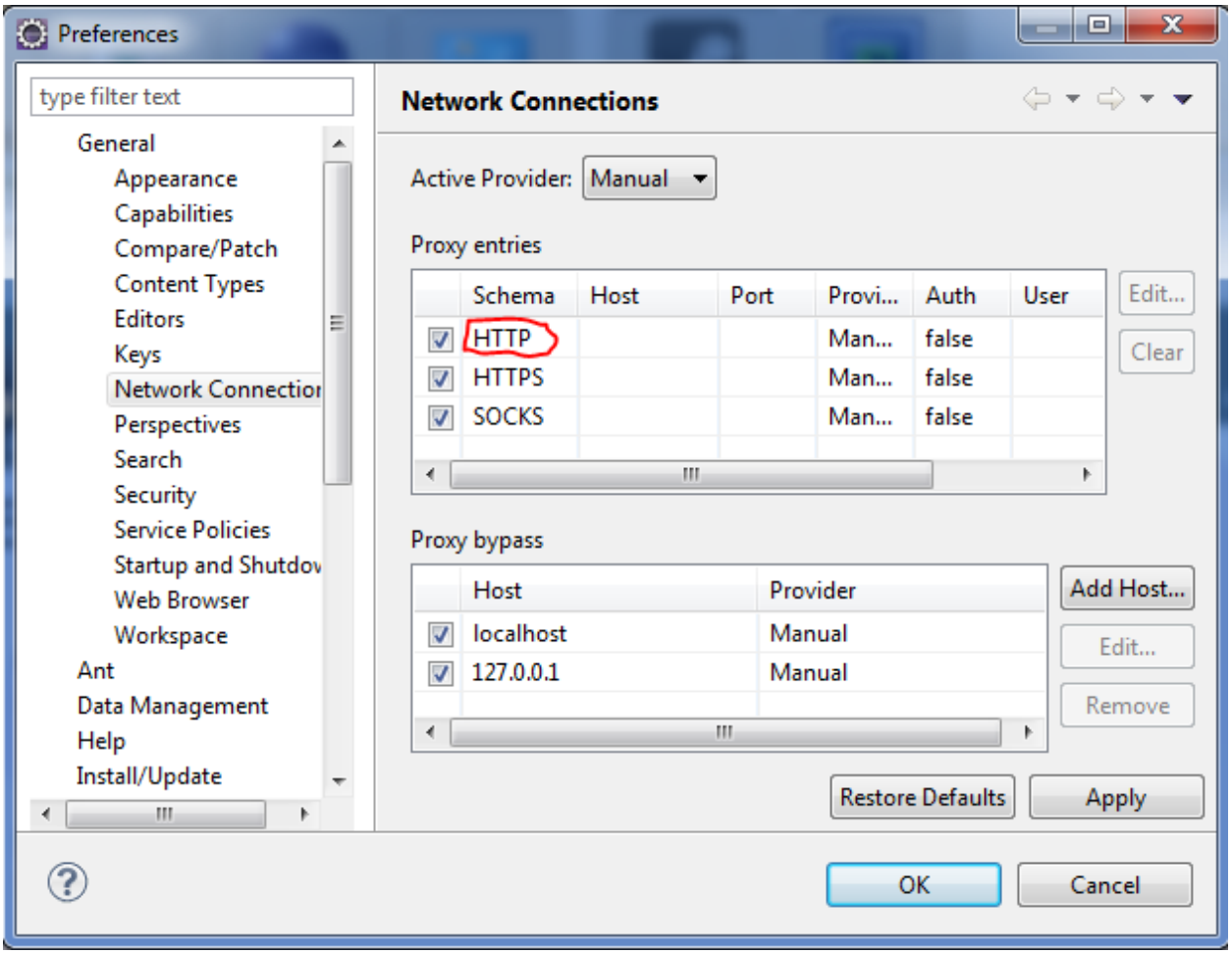


click on the small black triangle right to the Active Provider to open a menu, select

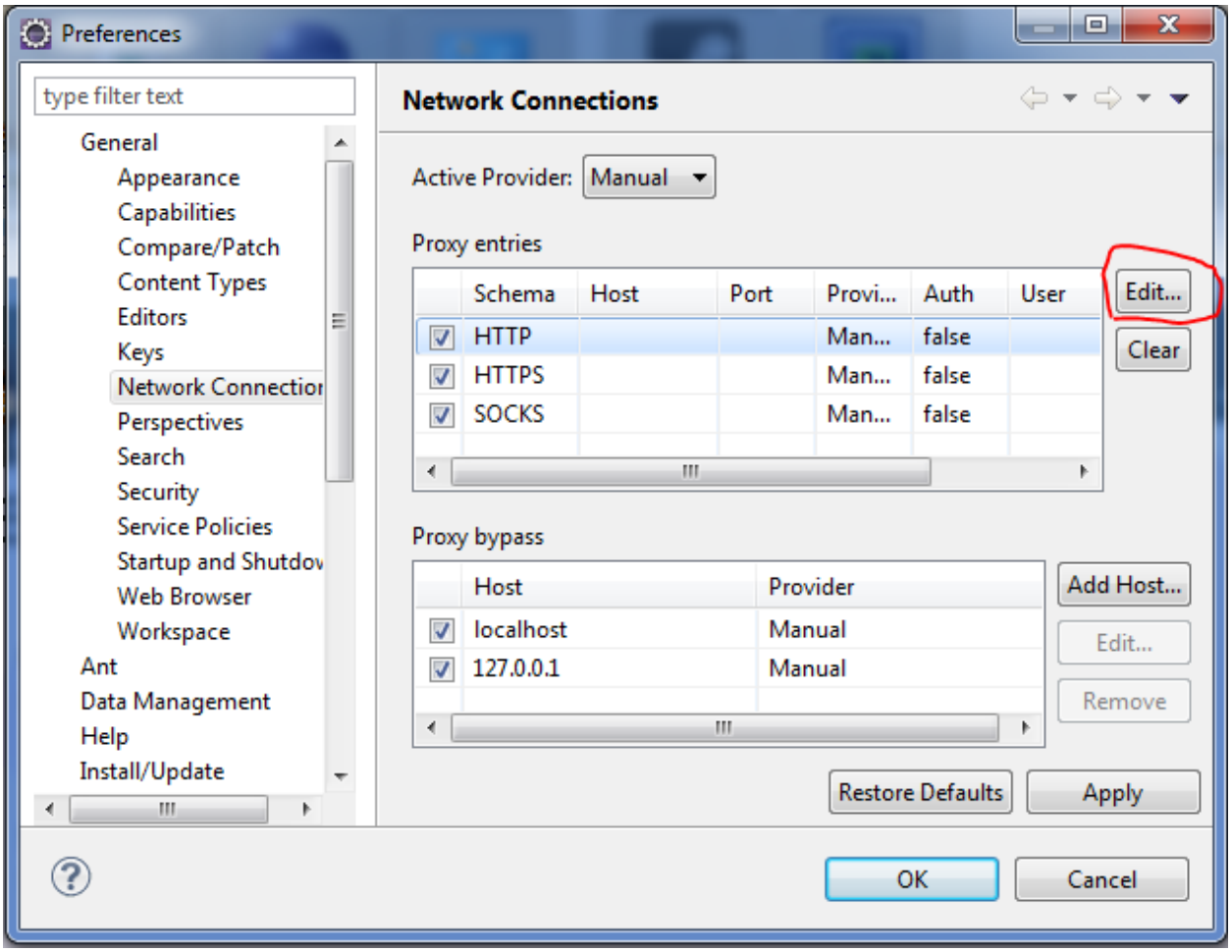
- **Direct** if Eclipse shall connect to the Internet directly
- **Manual** if Eclipse shall use a proxy and Internet Explorer does not use the proxy (does not use any proxy or uses a different proxy)
- **Native** if Eclipse shall use the same proxy as Internet Explorer

If you selected **Direct** or **Native** press **OK** button to close the preferences.

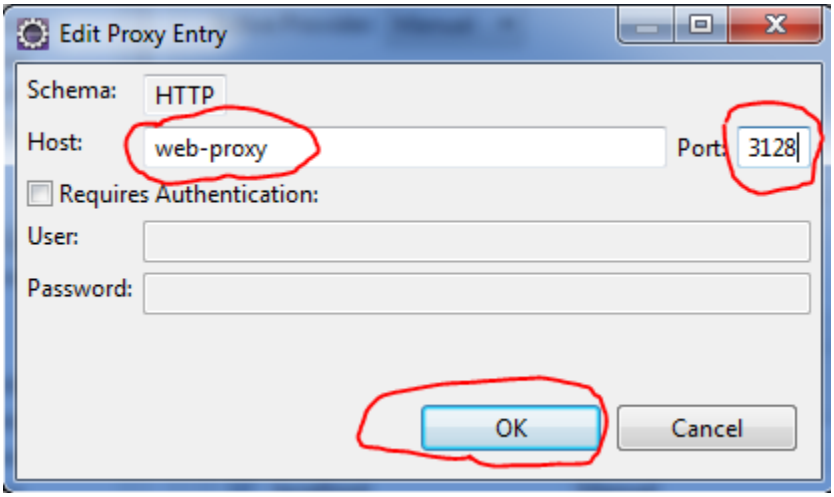
Otherwise you will see the preferences changed



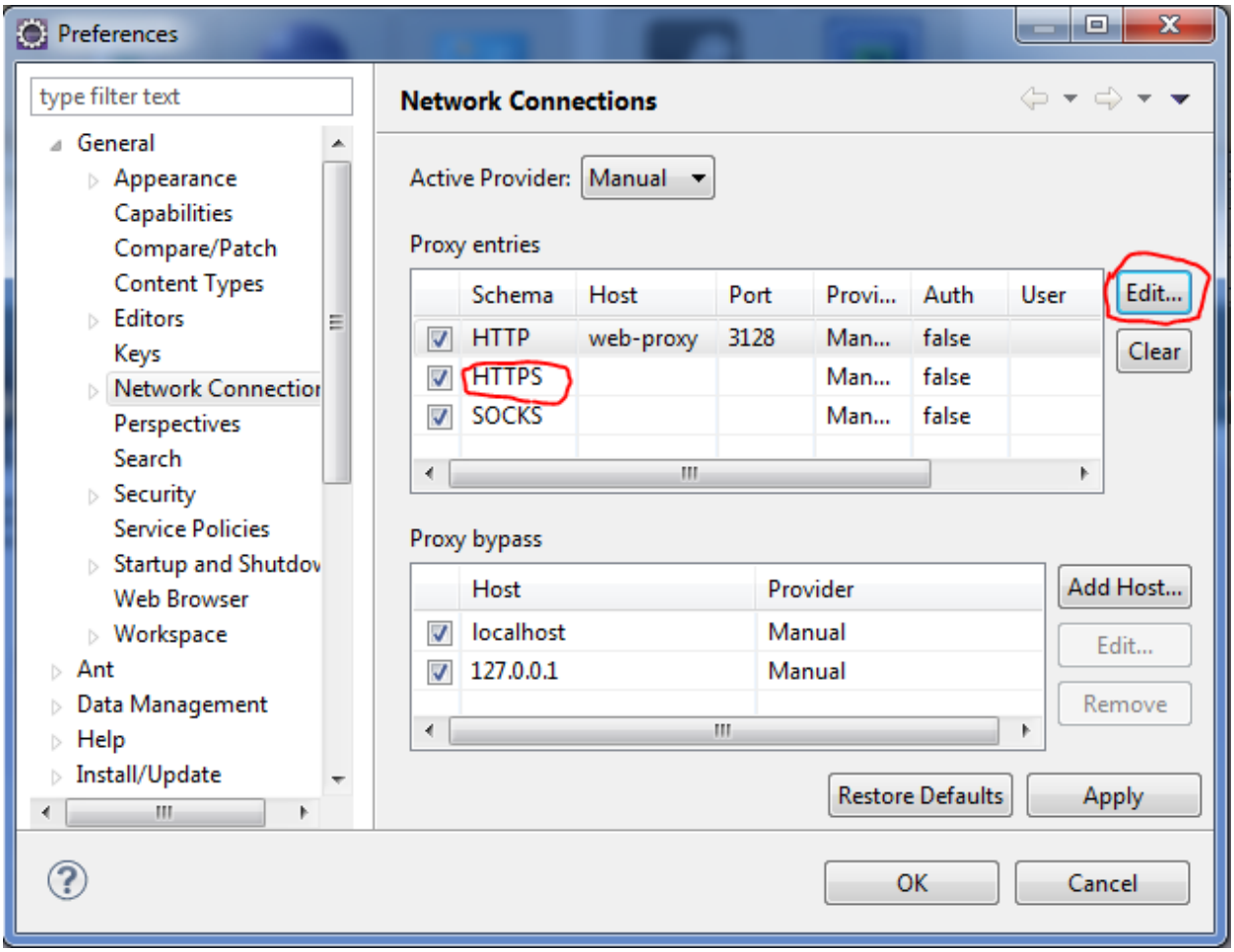
Click on **HTTP** word in **Schema** column to select HTTP line.



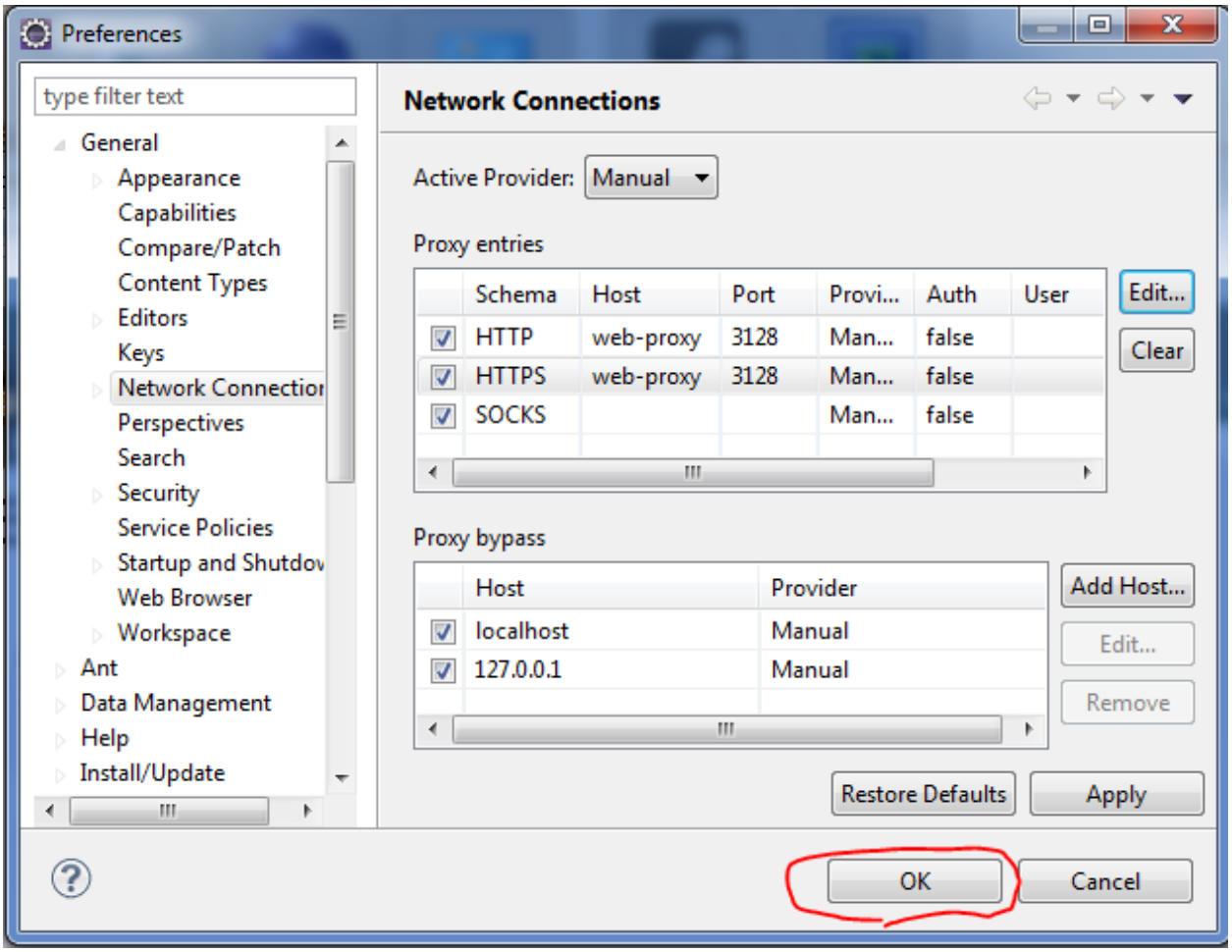
Click **Edit** button to open Edit Proxy Entry window. Enter the proxy address in "**Host**" field and the proxy port in "**Port**" field. For example,



Press **OK** button to return to main preference window.



Click on **HTTPS** word in **Schema** column to select HTTPS line. Click **Edit** button to open Edit Proxy Entry window. Enter the proxy address in **Host** field and the proxy port in **Port** field. Press **OK** button to return to main preference window.



Adjust other Network Connection preferences as needed. Press **OK** button to save and close the preferences.

Appendix 4 – Managing Eclipse Software

When to Run Eclipse as Administrator

If you are using Windows other than Windows XP and Eclipse is installed in a folder that the user cannot write to, for example, `C:\Program Files` or `C:\Program Files (x86)`

✓ You have to run Eclipse as Administrator in order to be able to install, update, and maintain Eclipse software.

✓ You shall run Eclipse the first time as Administrator

✓ You shall use dedicated administrative workspace while running Eclipse.

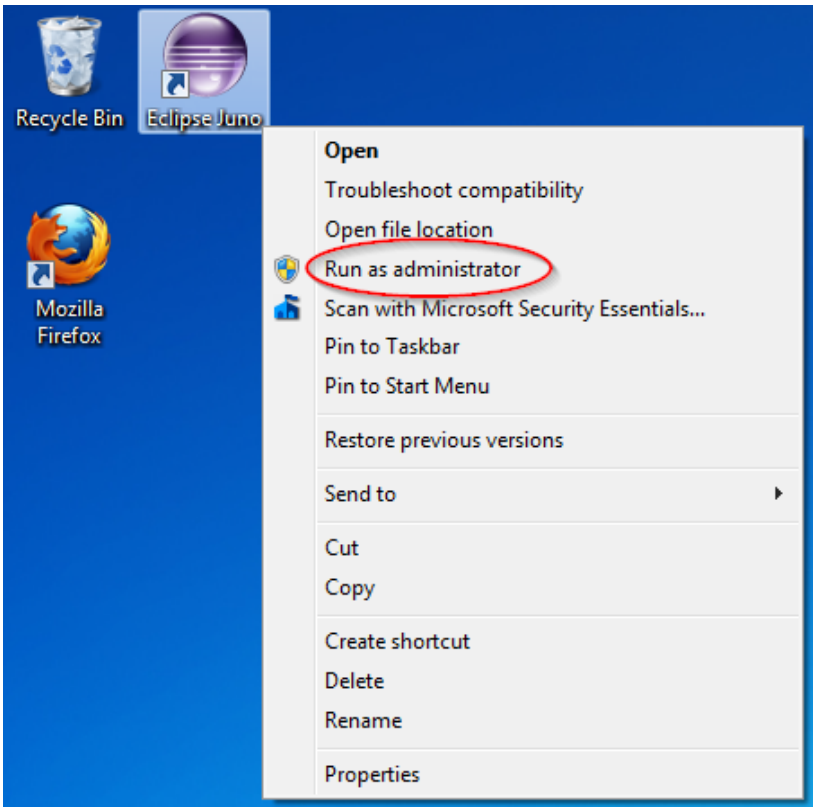
✓ After Eclipse software is installed/updated, exit the Eclipse and start it again regular way.

✓ IMPORTANT! Do not run Eclipse and do not do software development "as Administrator"

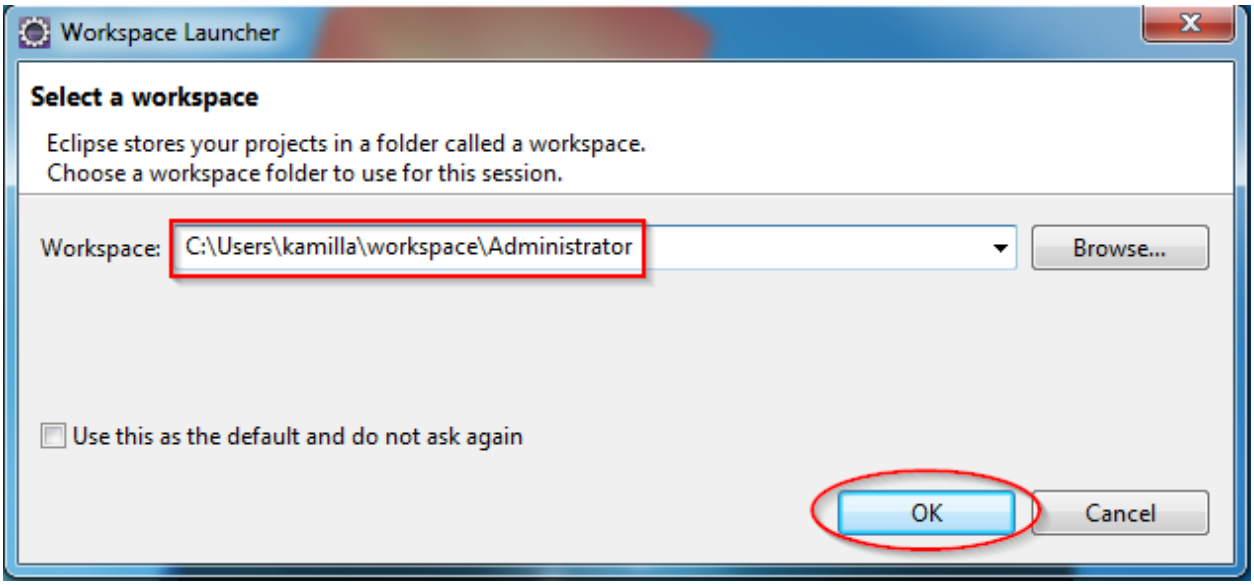
If Eclipse is installed in a folder the user can write to (such as your user data folder)

✓ You can install and update Eclipse software by launching Eclipse regular way, using any Eclipse workspace.

To run Eclipse as Administrator, close current Eclipse instance and start Eclipse again with "Run as Administrator" option.



Move the mouse pointer over the Eclipse icon. Click the right mouse button to open a context menu. Select **Run as Administrator** from the menu. You will see a pop-up window asking to select a workspace.



Select an appropriately named workspace that is not used for anything else (for example, `C:\Users\Kamilla\workspace\Administrator`). Press **OK** to continue.

After the main Eclipse window is opened proceed with the Eclipse software install/update/maintenance. See Installing Additional Eclipse Software and Updating Eclipse Software for information. After Eclipse software is installed/updated exit the Eclipse and start it again regular way.

Installing Additional Eclipse Software

See sections Installing CDT Add-on and Installing Java SE 11 Support Patch for some examples.

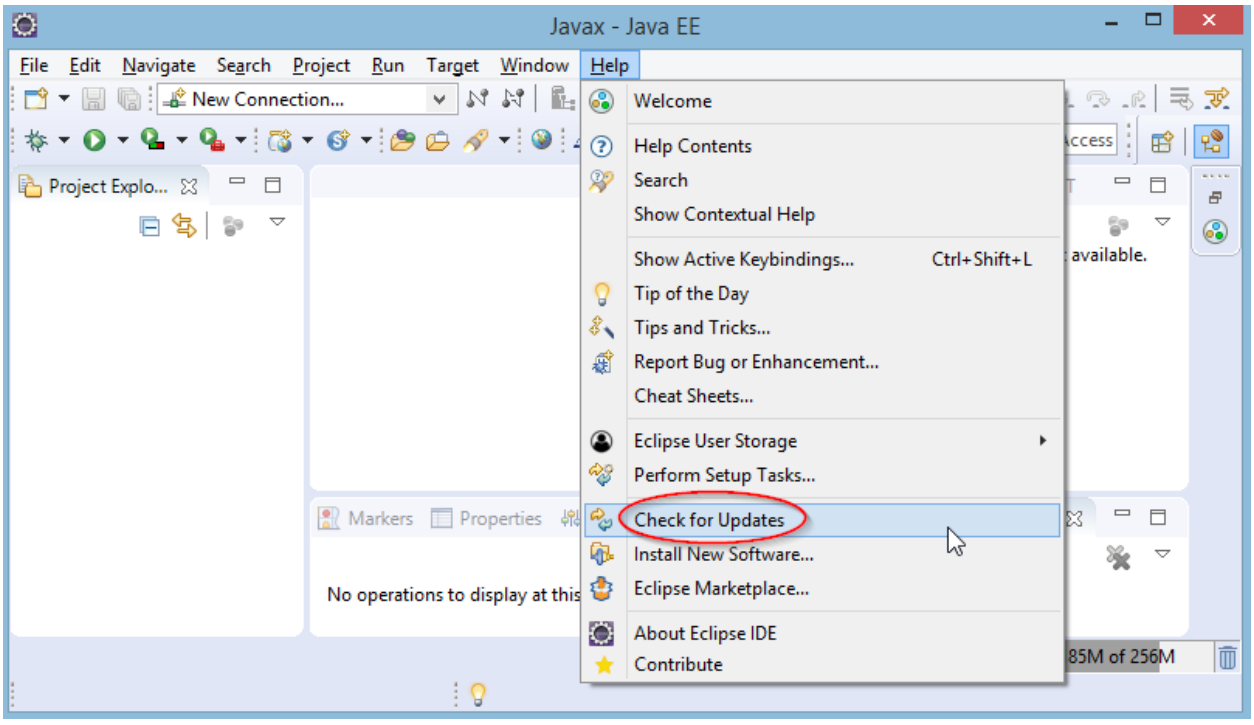
Updating Eclipse Software

It is recommended to update Eclipse components periodically to the latest version as described in this section.

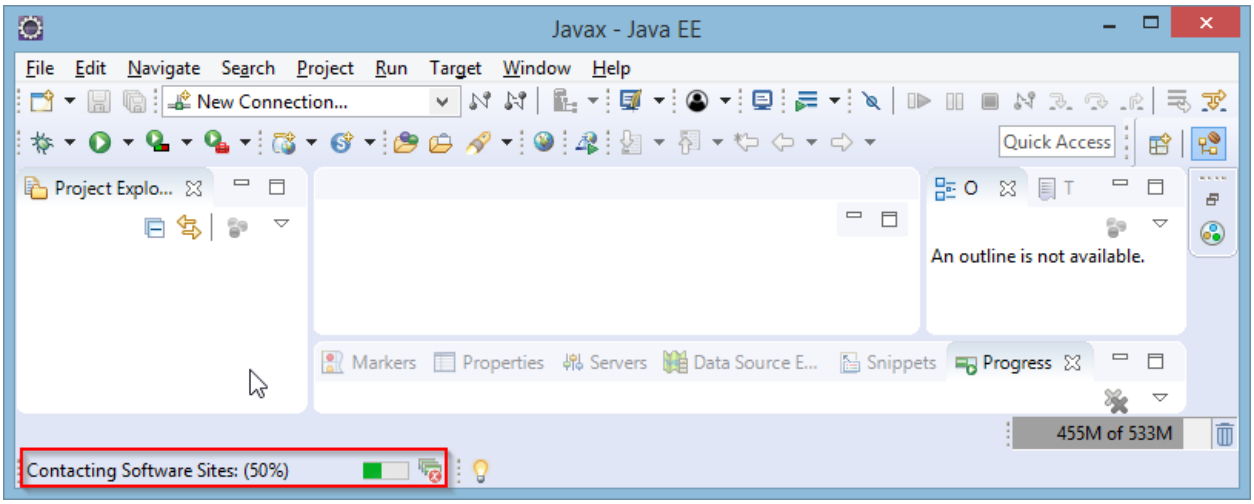
To be able to update (or to install add-ons) Eclipse requires an Internet access. By default, Eclipse uses the same settings as Edge and Internet Explorer browser, so, if you can browse the Internet via these browsers, you, very probably, will be able to use install/update features in Eclipse. See Appendix 3 – Configuring Eclipse for Internet Access if you are having Internet connectivity problems in Eclipse.

✓ If you are using Windows other than Windows XP and Eclipse is installed in a folder that the user cannot write to (for example, inside `C:\Program Files`), you have to run Eclipse as Administrator in order to be able to install and update Eclipse software. See When to Run Eclipse as Administrator for more details.

If needed, close Eclipse, start it again as Administrator, and select administrative workspace. Assuming that Eclipse is already running, do as described below.



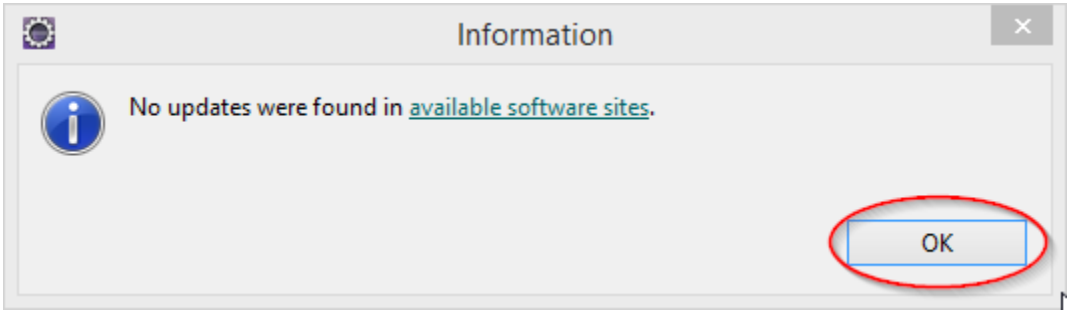
Open **Help** menu and select **Check for updates**. Eclipse will search for updates.



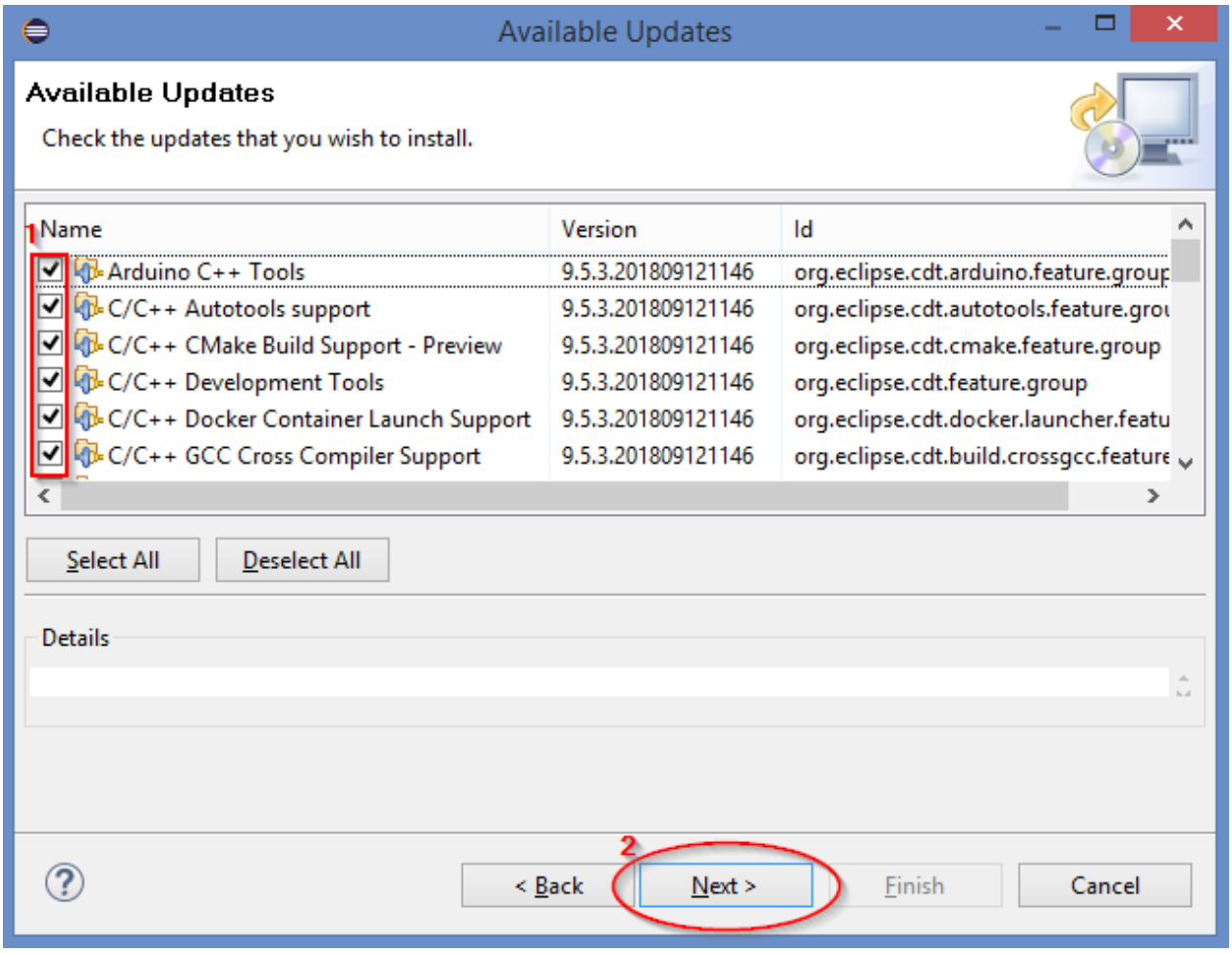
In the screenshot above, at the bottom of the main Eclipse window, you can see the progress message.

➤ If the update fails because there are problems with some plugins (for example, because the plugins are obsolete), a pop-up window will be displayed. In such a case, see section Dealing with Failed Eclipse Update. Return here after the issue is resolved.

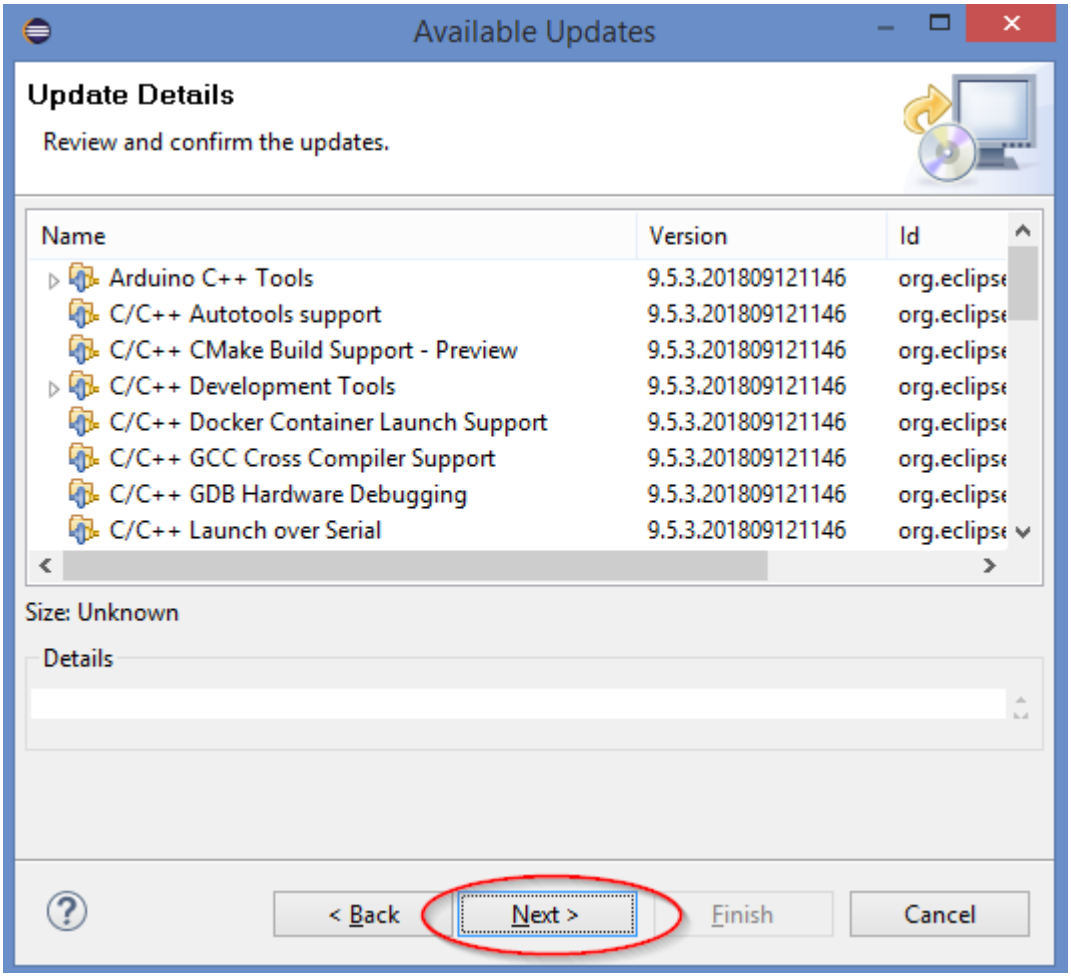
If there are no updates available, Eclipse will display a window similar to one below. Press **OK** button. If Eclipse is running as Administrator, exit Eclipse and start Eclipse again in regular way if needed.



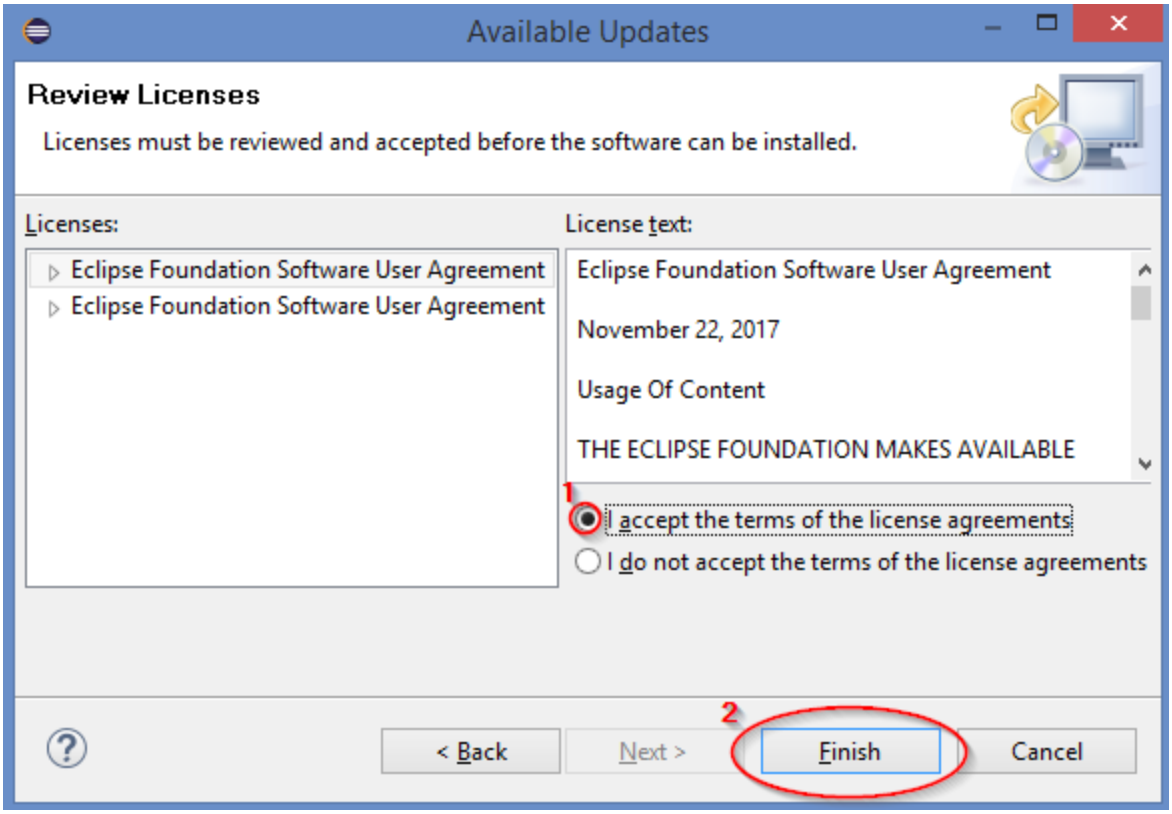
If the updates are found Eclipse will display a window similar to one below



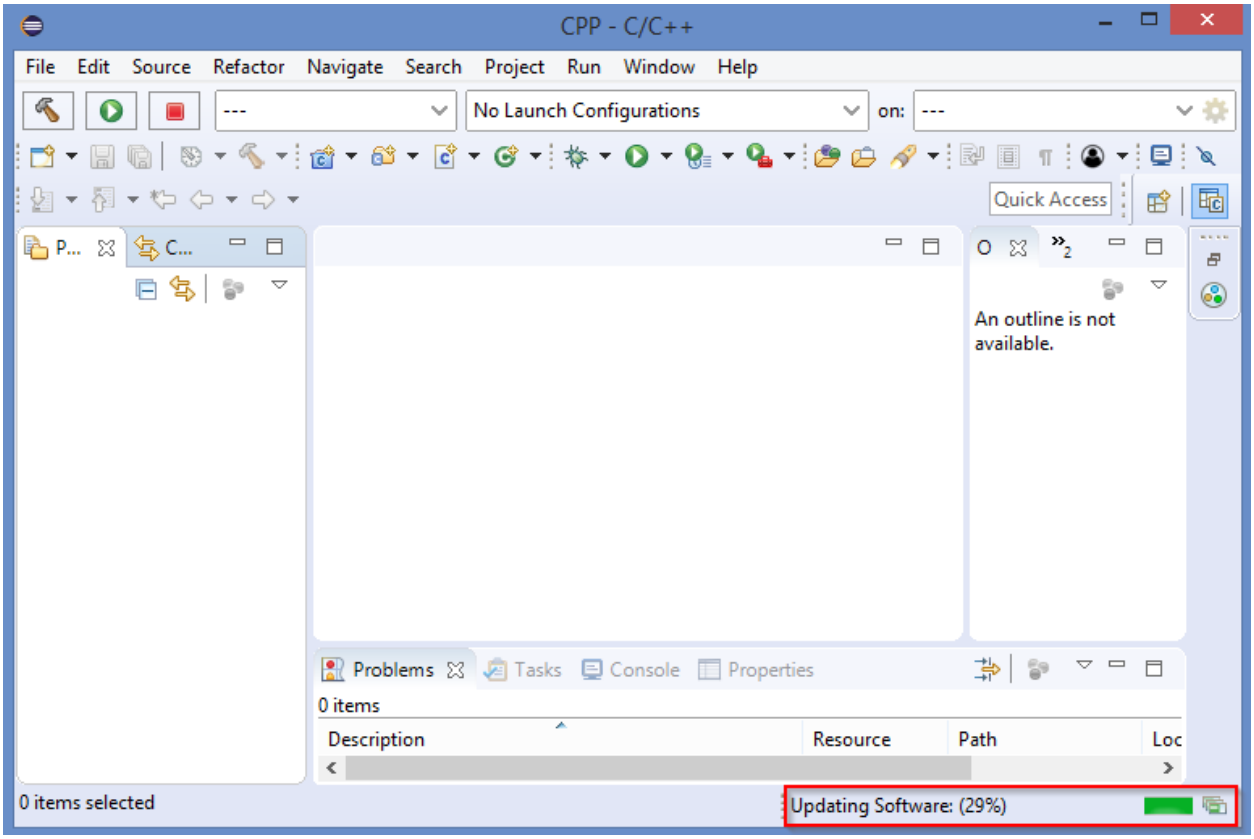
Be sure that all desired updates are selected ①. Press **Next** button ② to proceed (or **Cancel** button to stop the update).



Review the list of updates one more time, press **Next** button again to continue (or **Cancel** button to stop the update).



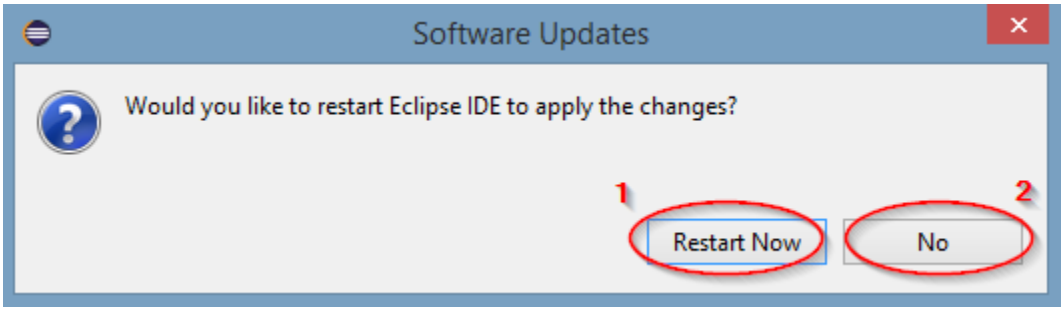
Review the licenses. Check **I accept the terms of the license agreements** ① and press **Finish** button ② to continue (or press **Cancel** button to stop the update).



The update progress will be displayed at the bottom of main Eclipse Window.

If some software is unsigned (by its developers), you may see various security prompts. See Appendix 13 – Eclipse Pop-ups and Prompts for more details.

Finally, after the software is updated, you will see a prompt asking to restart Eclipse.



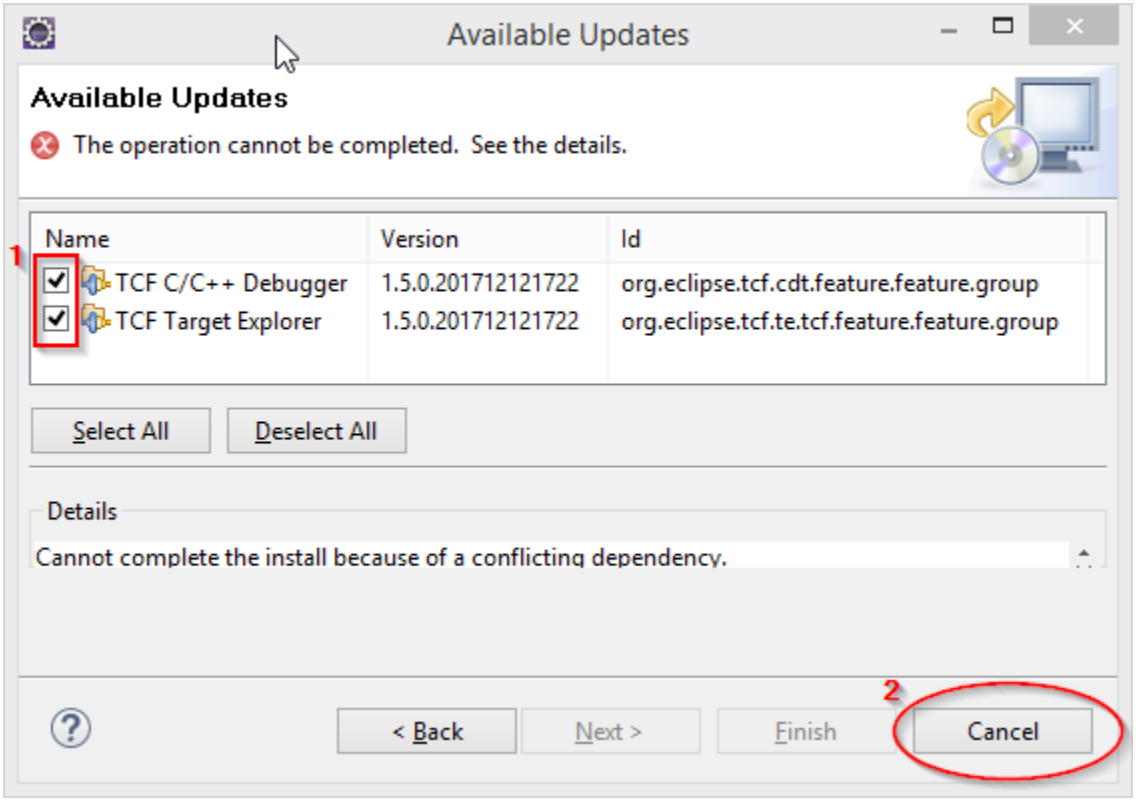
Press **Restart Now** button ① and wait until the Eclipse is restarted.

If Eclipse is running as Administrator - press **No** button ② instead and exit Eclipse. Start Eclipse again in regular way, if needed.

While updating the software or when restarting Eclipse, you may see various Eclipse prompts. See Older Workspace Version and Requirements Update sections in Appendix 13 – Eclipse Pop-ups and Prompts.

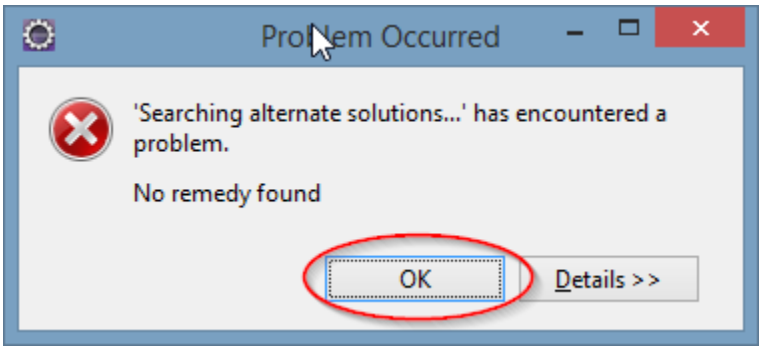
Dealing with Failed Eclipse Update

If, during an update, there are problems with some plugins (for example, because the plugins are obsolete), a prompt will be displayed



The window shows a list of plugins that are supposed to be updated and checkboxes ①. Unfortunately unchecking the plugins in the list does not help. The only way to proceed is to press **Cancel** button ②.

You may also see "**Problem Occurred**" pop-up window.



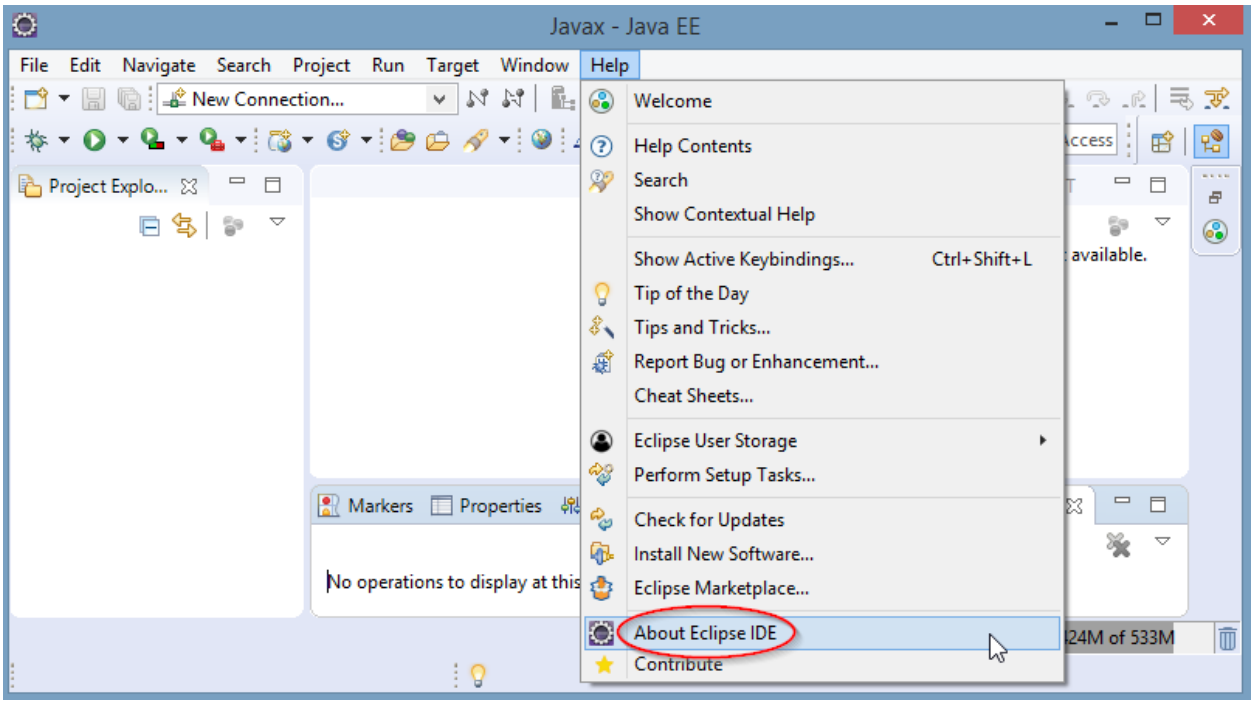
Press **OK** button to close it.

The recommended way to resolve it is to uninstall such plugins. See the next section for more help.

Uninstalling Eclipse Components

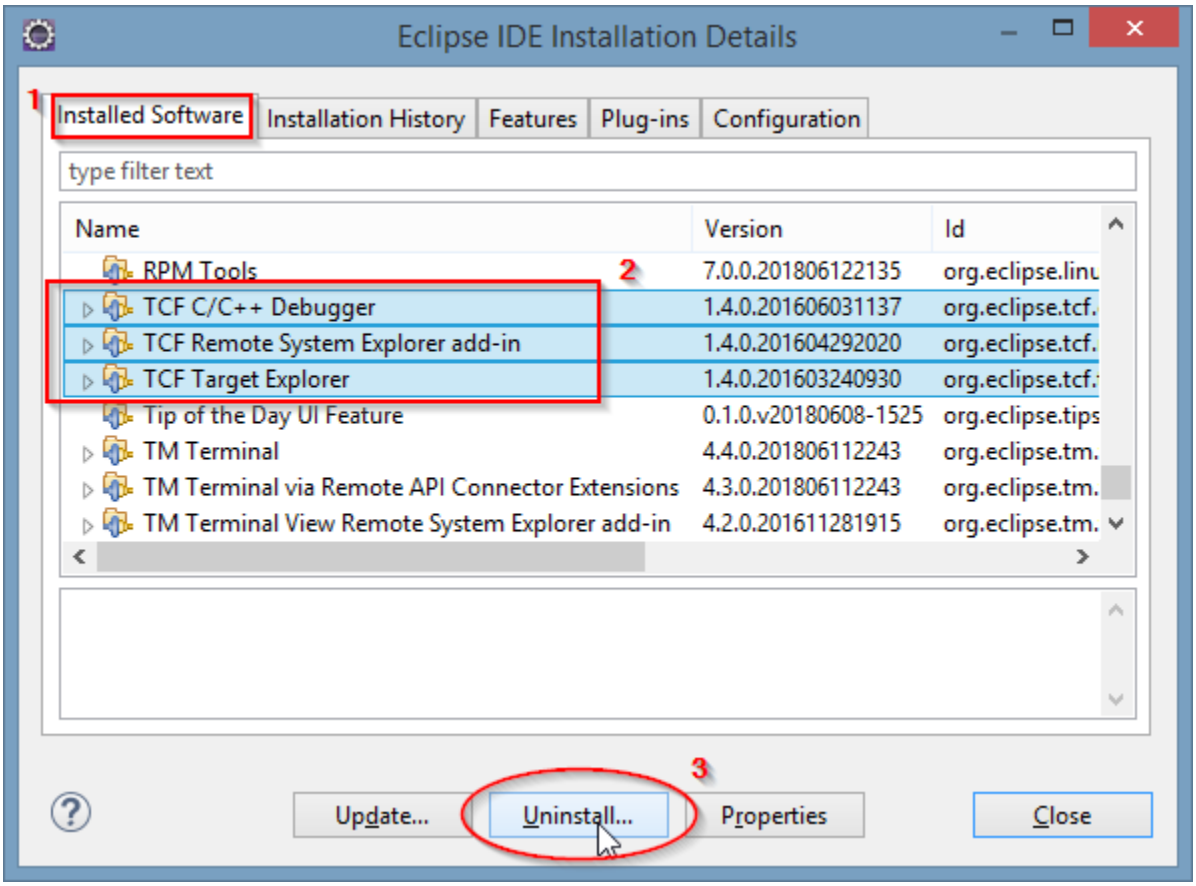
If needed, close Eclipse, start it again as Administrator, and select administrative workspace.

To uninstall Eclipse software components (plugins and addons), open **Help** menu.

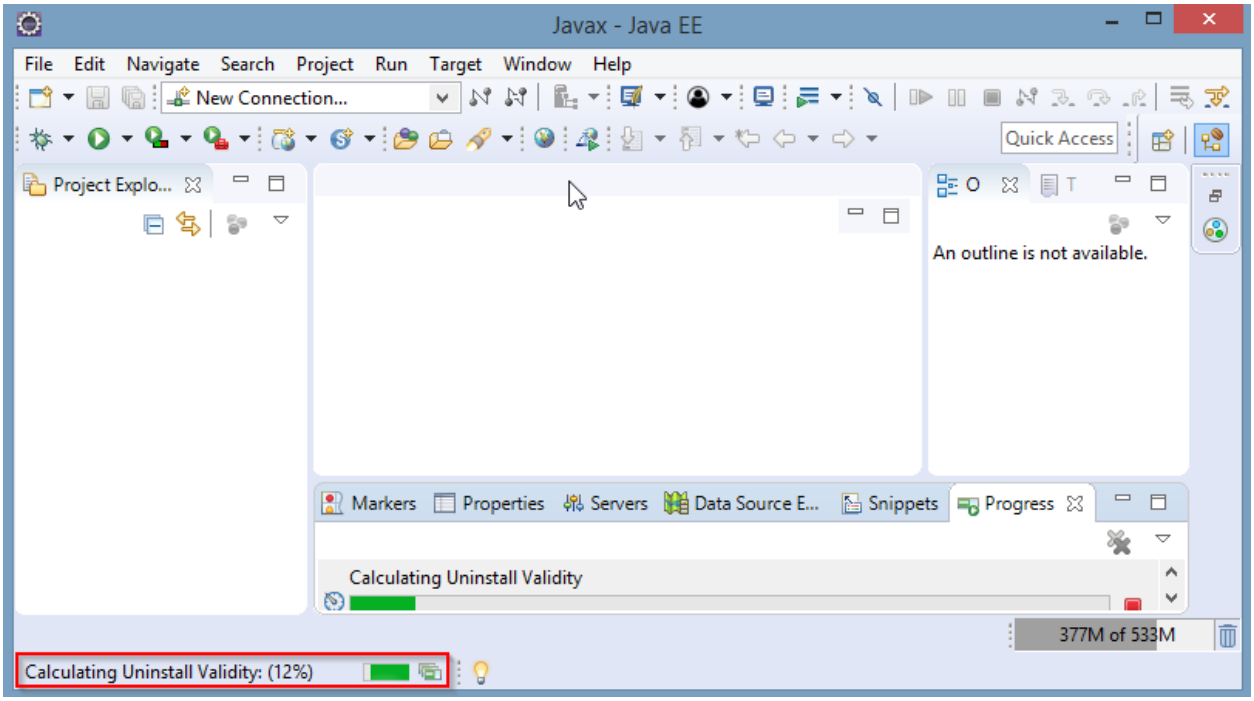


Select **About Eclipse IDE** to open a popup window below.

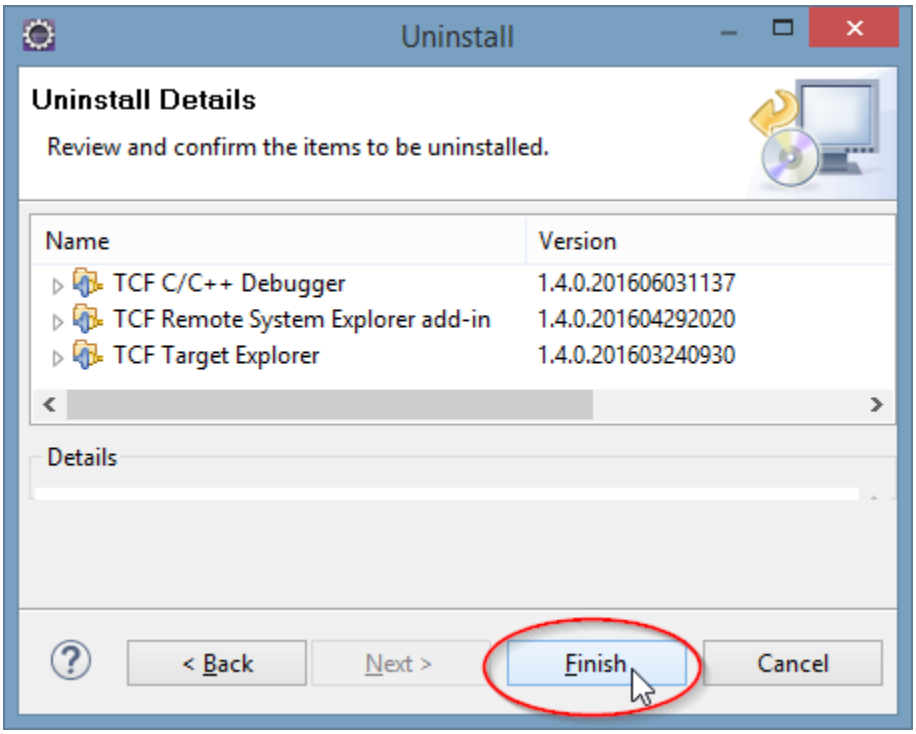
Press **Installation Details** button to open **Eclipse IDE Installation Details** window.



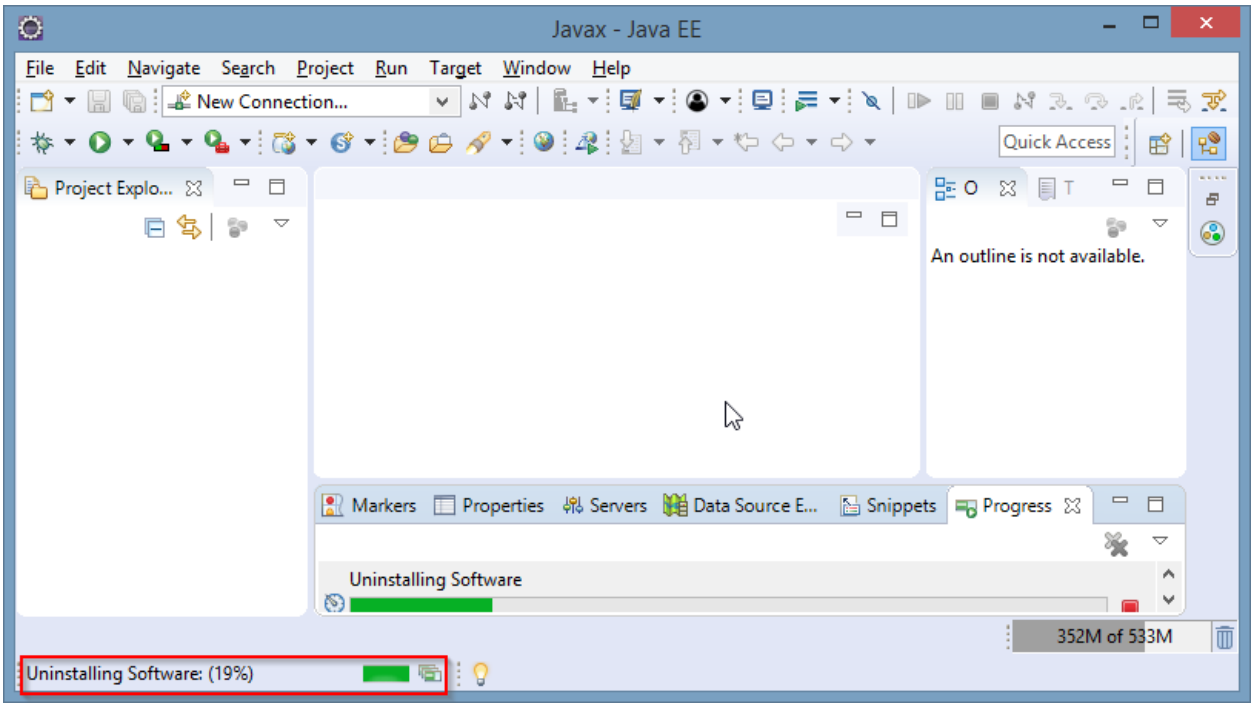
In the details window, go to **Installed Software** tab ①. Select components that you want to uninstall ②. Press **Uninstall** button ③ to start the uninstall process.



After some time, you will see **Uninstall Details** window.

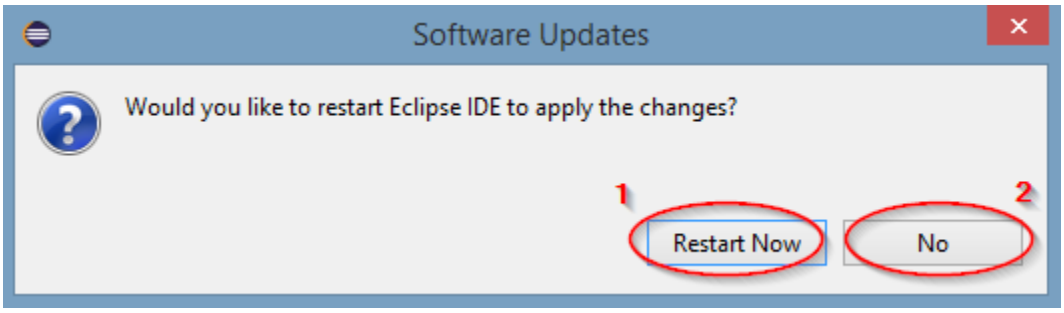


Review the list of components and press **Finish** button to proceed with uninstall.



At the bottom of main Eclipse window, you will see the progress message. Wait until it is completed.

Finally, after the components are uninstalled, you will see a prompt asking to restart Eclipse.

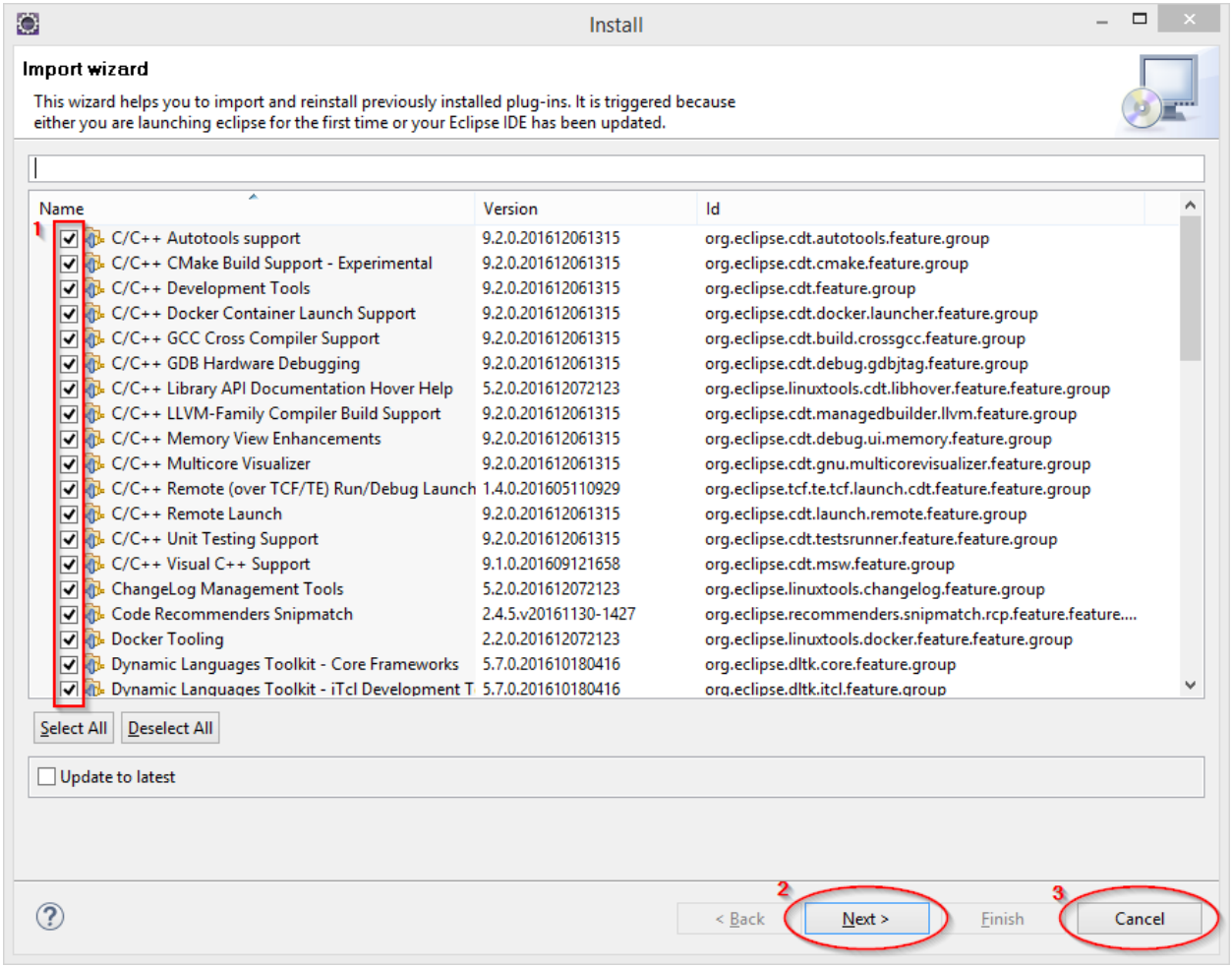


Press **Restart Now** button ① and wait until the Eclipse is restarted.

If Eclipse is running as Administrator - press **No** button ② instead, exit Eclipse, start Eclipse again in regular way, if needed.

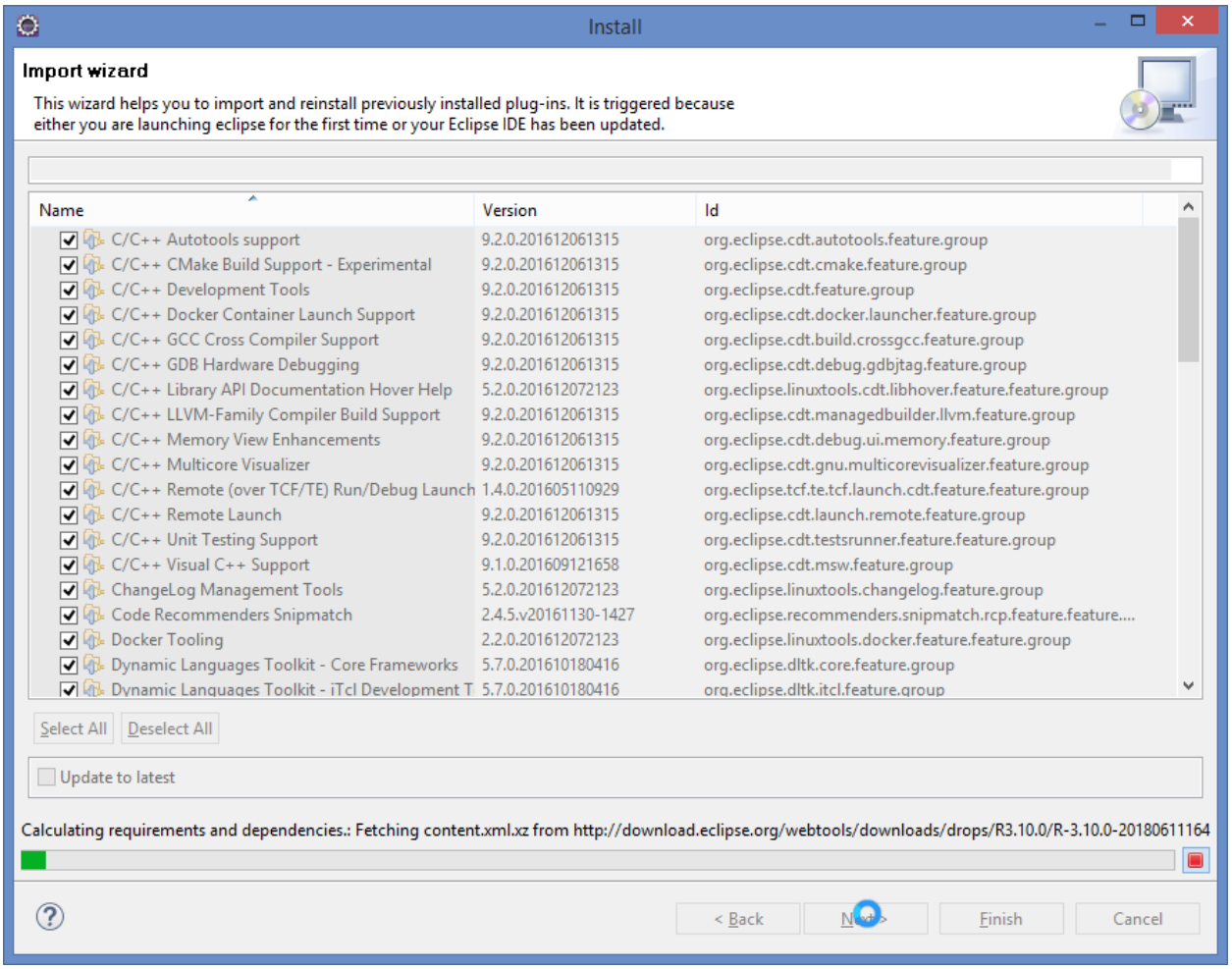
Importing and Reinstalling Previously Installed Eclipse Plugins

If you are updating an Eclipse instance or if you already have some instance of Eclipse installed and you are installing a different instance of Eclipse, you may be prompted to reinstall previously installed plugins when you run the new instance for the first time.



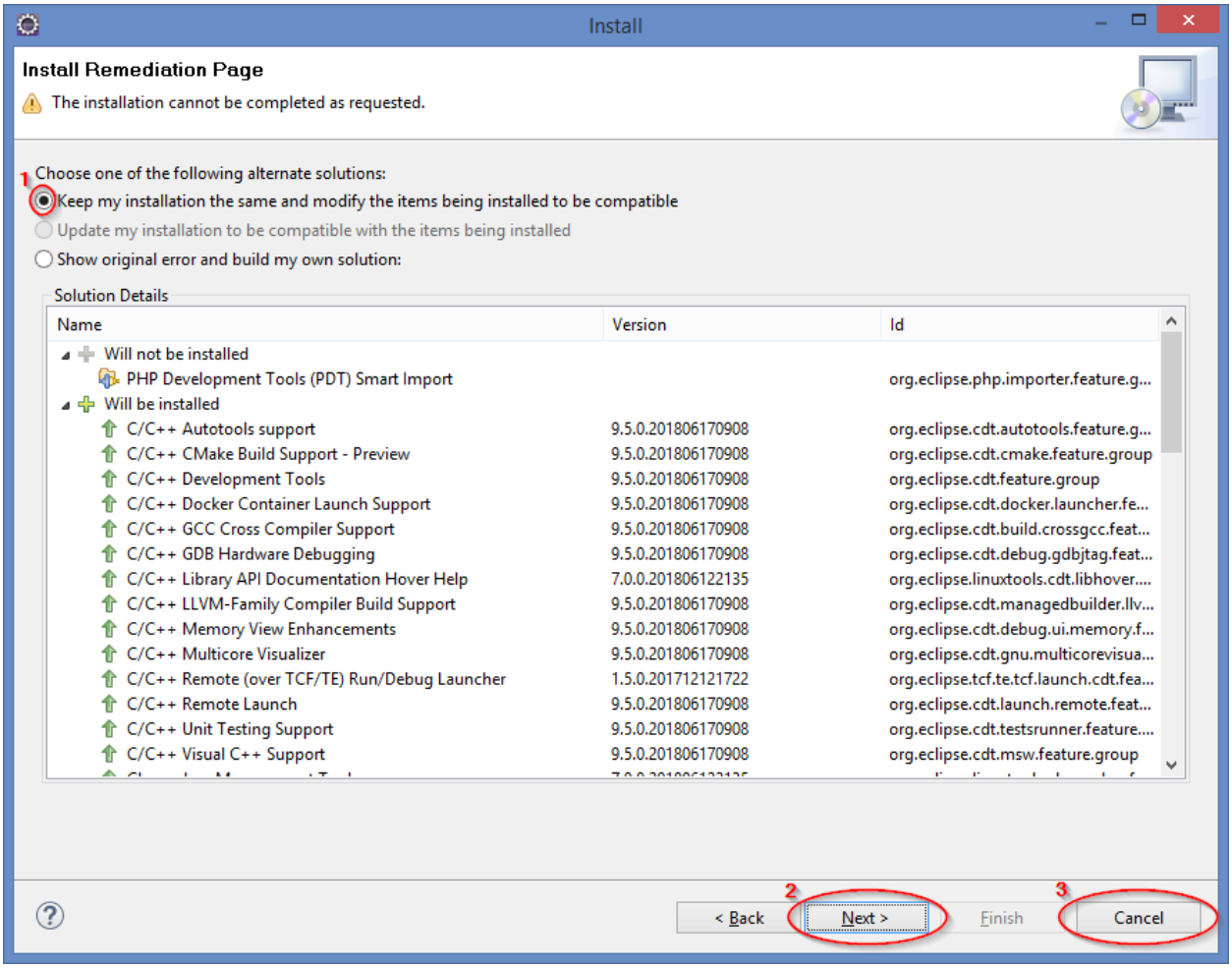
In the import wizard window, you can select what plugins you want to add to the new Eclipse instance ①. Press **Next** button ② if you want to proceed the import or **Cancel** button ③ if you do not want the plugins.

Note that plugins names can be confusing sometimes, look for such plugins on the Internet if you want your Eclipse instance to be clean.



Wait for the wizard to calculate plugins requirements and dependencies. It may take a long time.

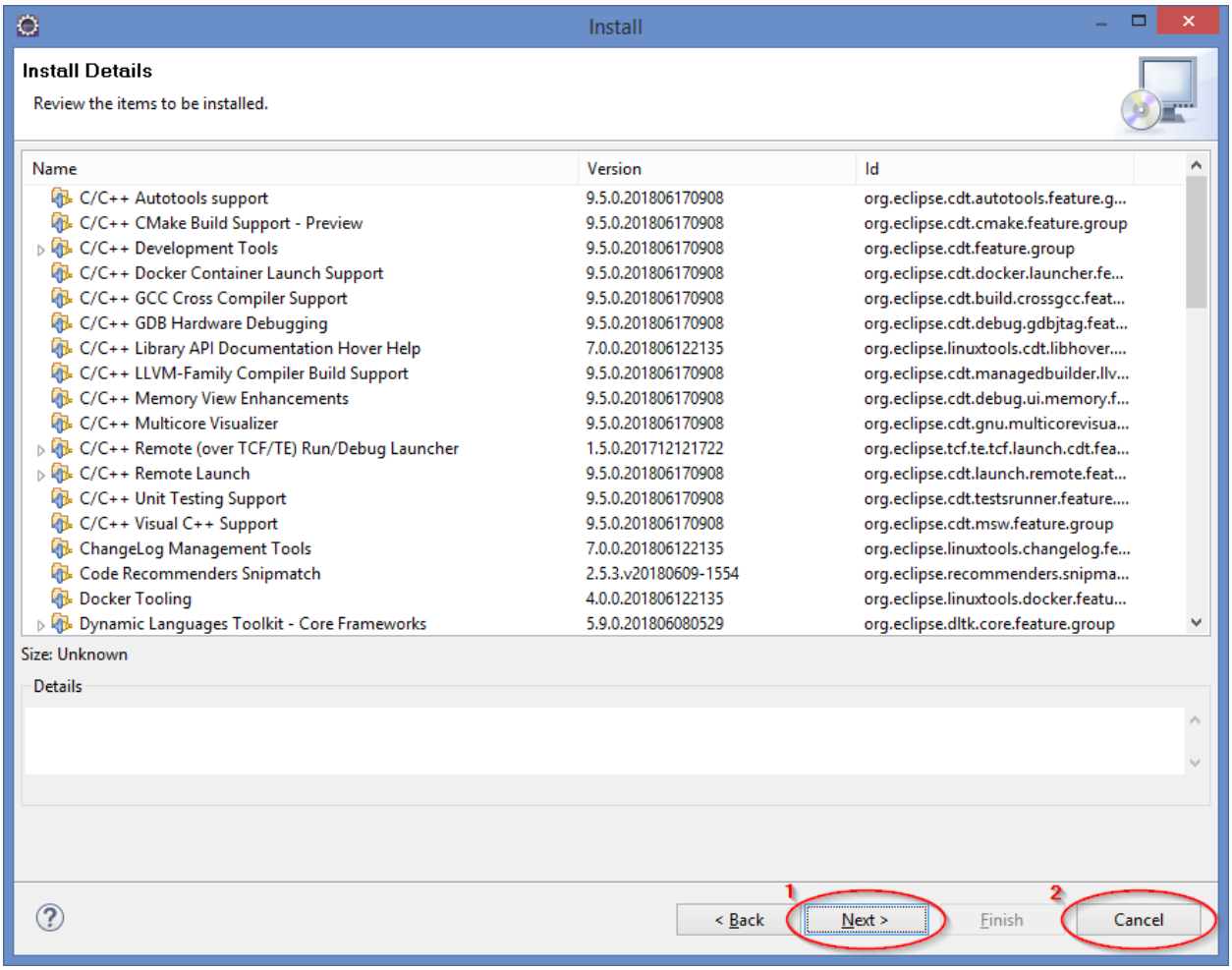
If you are installing newer version of Eclipse, it is quite possible that some plugins cannot be imported as they do not exist in the new version (were dropped or replaced). In such a case, you will get "**Install Remediation Page**" as below (otherwise just skip to the next page).



If you select option "**Keep …**" ① and press **Next** button ②, the wizard will import plugins that it can. Take a note of plugins that cannot be installed, you may be able to find their replacements and install them later.

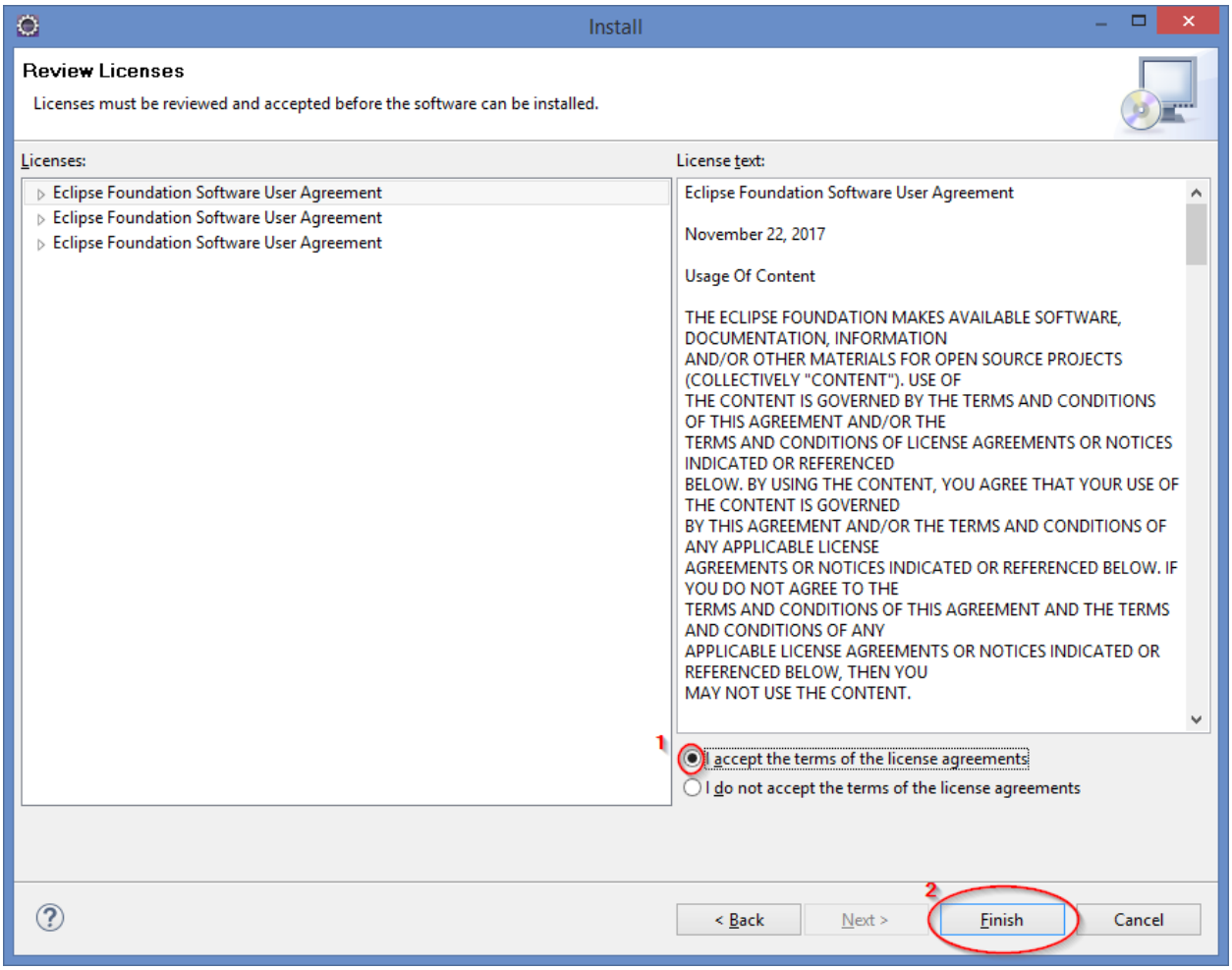
You can also press **Cancel** button ③ if you do not want to proceed with the import. Selecting other option but "**Keep…**" ① is outside of this document scope.

After the wizard determines the list of plugins to be imported, you will see "**Install Details**" window



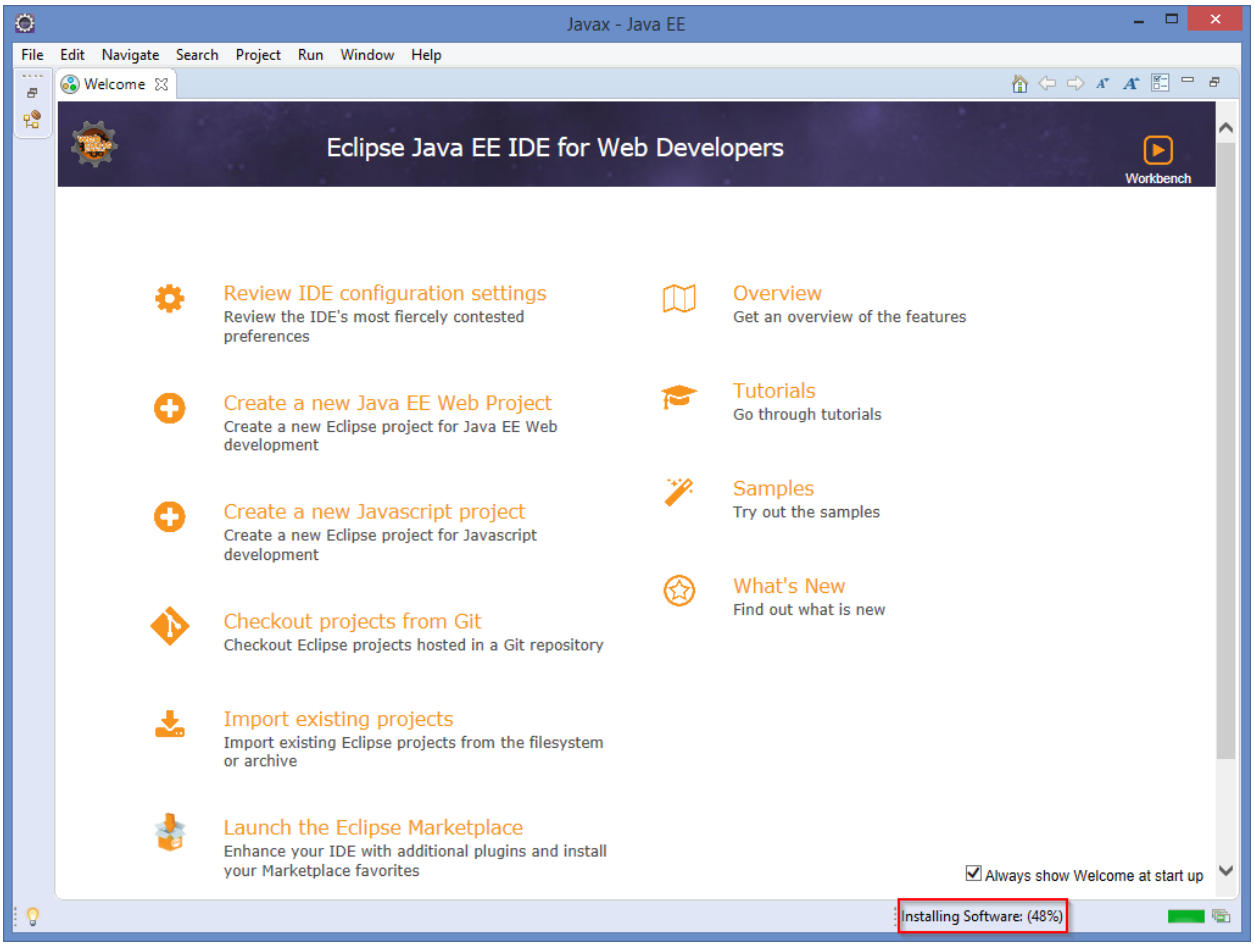
Press **Next** button ① to continue or **Cancel** button ② to stop the import.

You will see "**Review Licenses**" window

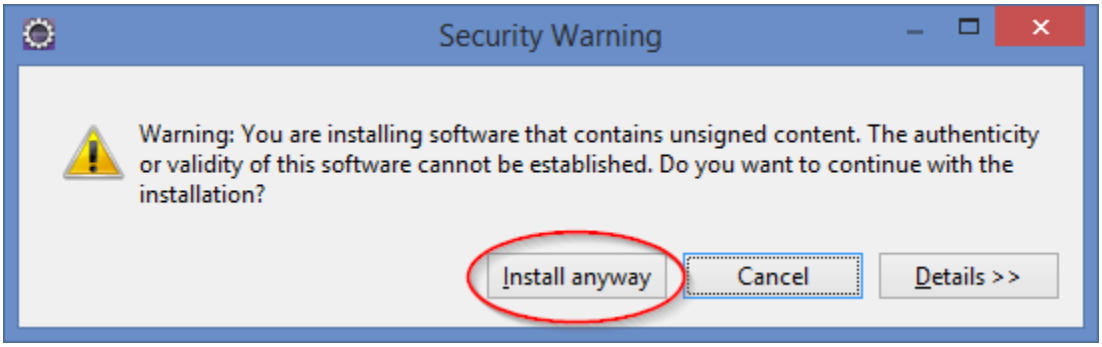


When you are satisfied with the licenses, select "**I accept …**" option ① and press **Finish** button ② to continue (or **Cancel** button otherwise).

At the bottom of the main Eclipse window, you will see progress message "**Installing Software ...**"

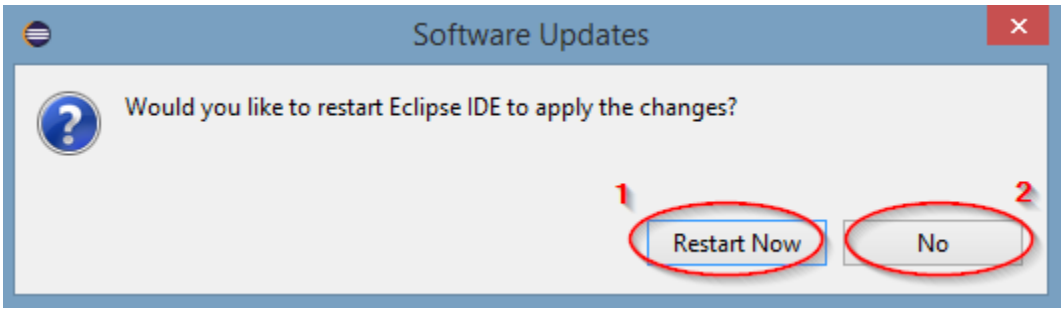


If some plugins are unsigned (by their developers), you will see a security prompt



Be sure that you want to install such plugins. Press **Details** button to see more information about the unsigned plugins. Press **Install Anyway** button to continue (or **Cancel** otherwise).

Finally, after the plugins are installed, you will see a prompt asking to restart Eclipse.



Press **Restart Now** button ① and wait until the Eclipse is restarted.

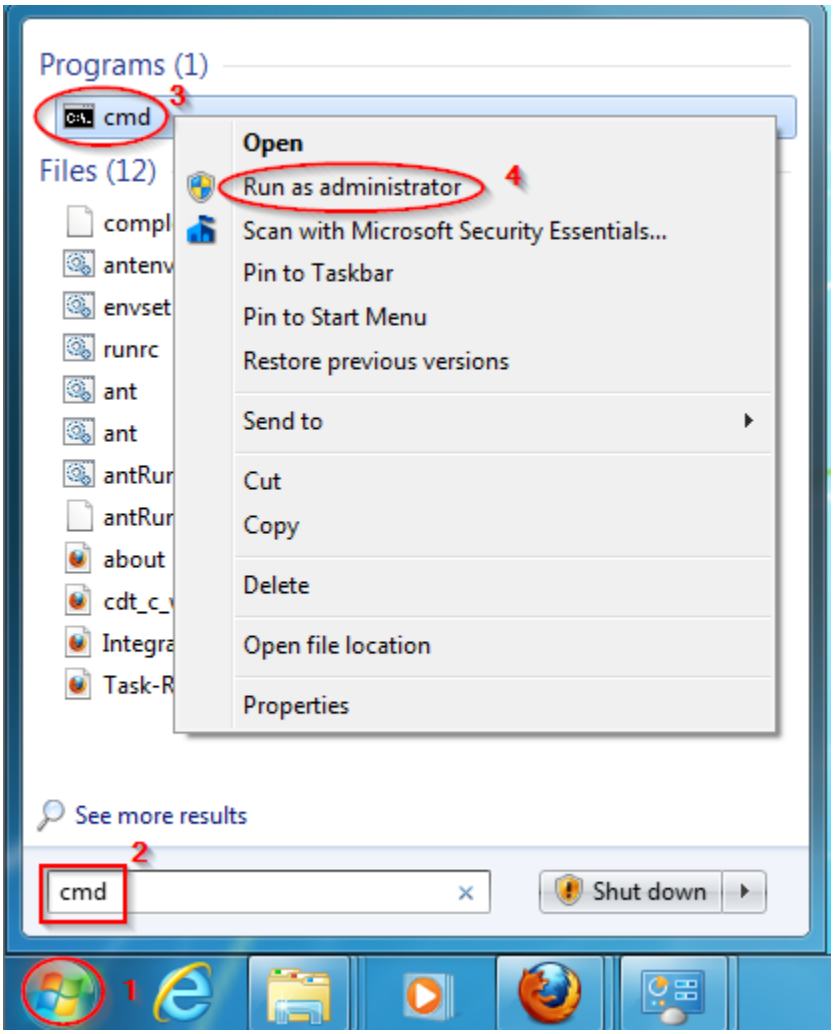
If Eclipse is running as Administrator - press **No** button ② instead and exit Eclipse. Start Eclipse again in regular way if needed.

Initializing Shared Eclipse Installation via Command Line

To improve Eclipse performance, if Eclipse is installed in a folder that the user cannot write to, for example `C:\Program Files\Eclipse\Photon`, it is recommended to initialize Eclipse data.

To initialize the data run `eclipse.exe` with `-initialize` option as administrator.

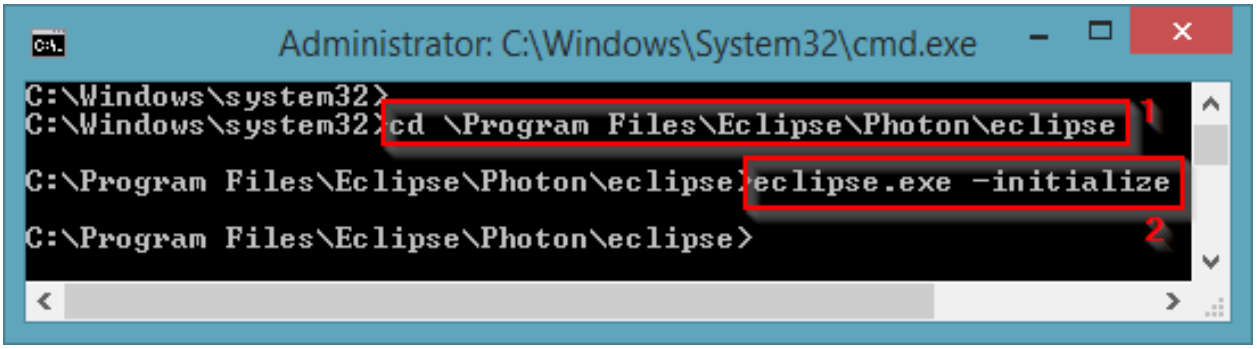
If Eclipse is installed in a folder the user can write to, such as your user data folder, there is no need to initialize the data (though it is safe to do so).



Open Windows Start menu ①, enter `cmd` in the search field ②. You are supposed to see a list that has **cmd** in it. Move the mouse pointer over **cmd** name ③ and click right mouse button to open a context menu. Select **Run as Administrator** from the menu ④.

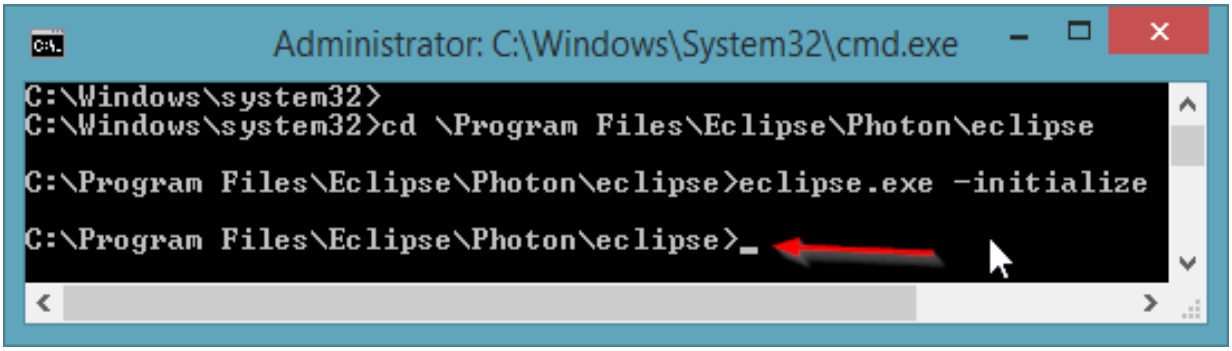
You will see a shell window opened. Enter the following commands (substitute real folder path for the example path)

```
cd \Program Files\Eclipse\Photon\eclipse
eclipse.exe -initialize
```



You will see Eclipse splash window.

Wait a minute until the window is closed (and eclipse launcher exits).



Appendix 5 – Program Run Configuration

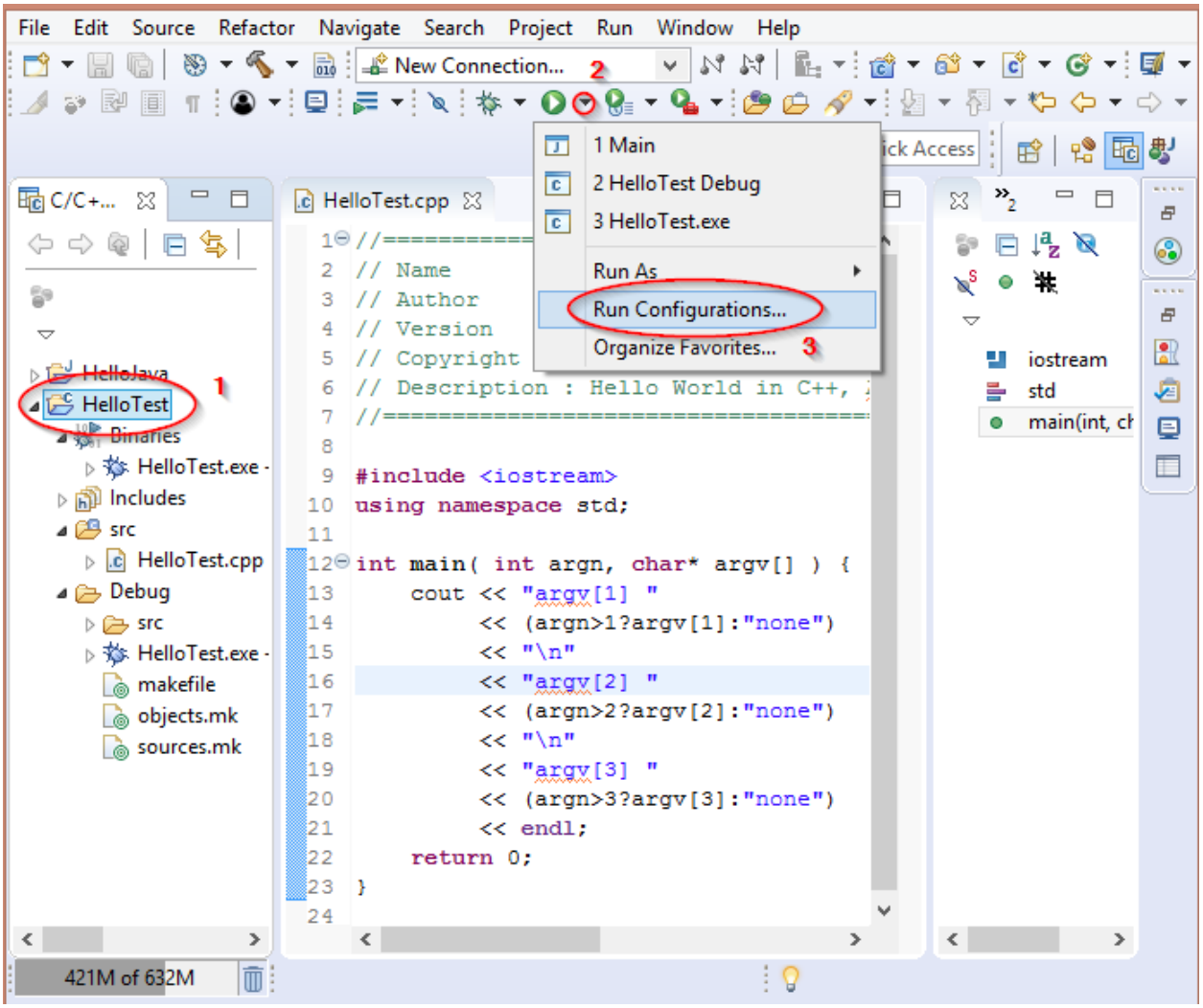
A run configuration describes how to run a program. You can select what program to run, specify arguments, set environment variables, and configure other runtime parameters.

The default run configuration of a program is created automatically the first time the program is run.

In this appendix screenshots, it is shown how to create and use HelloTest C++ program run configuration. Java run configuration has similar Main, Arguments, Environment, and Common parts.

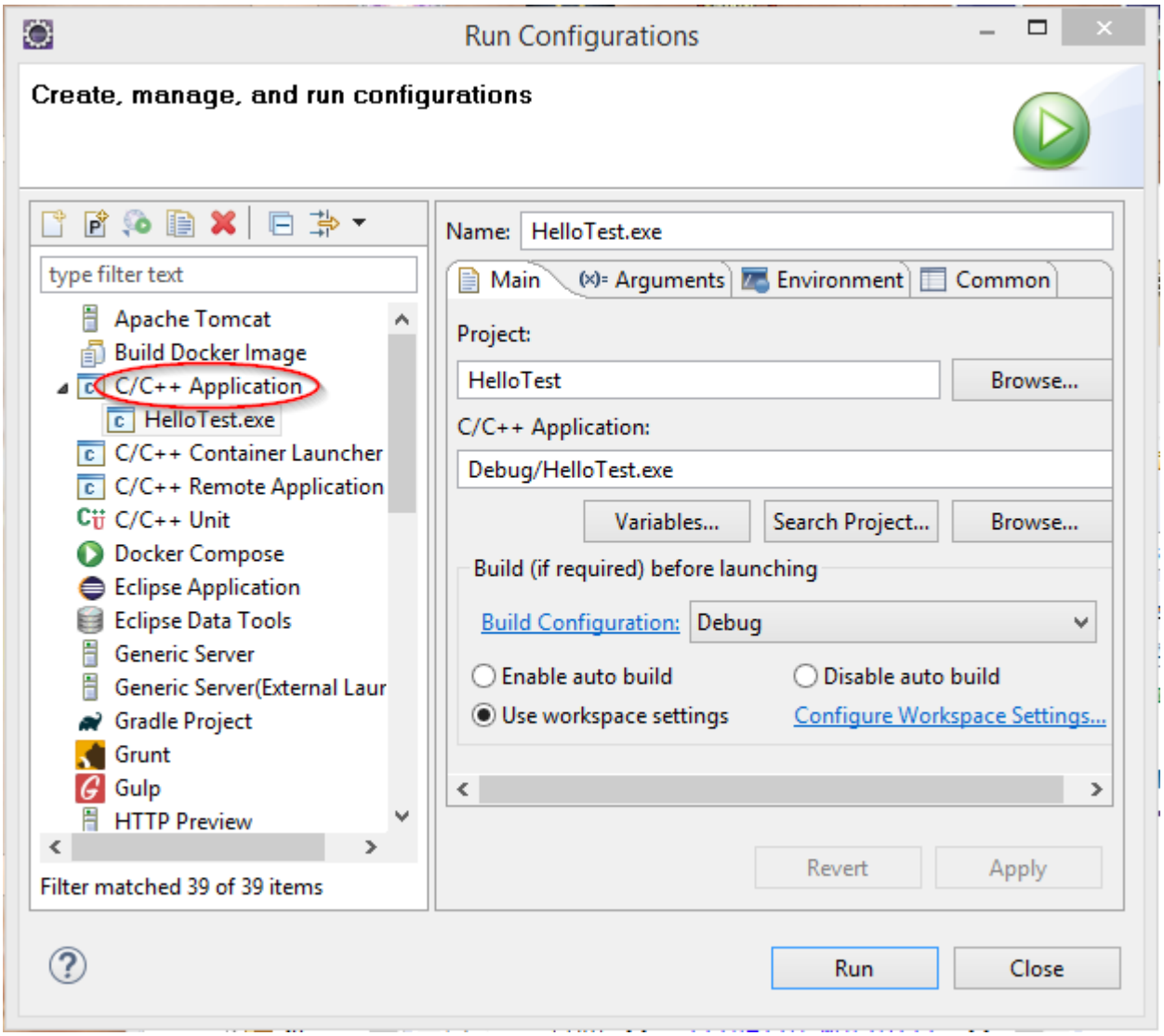
Creating Run Configuration

Be sure that, in the left pane, the current project folder, subfolder, or file is selected ①.



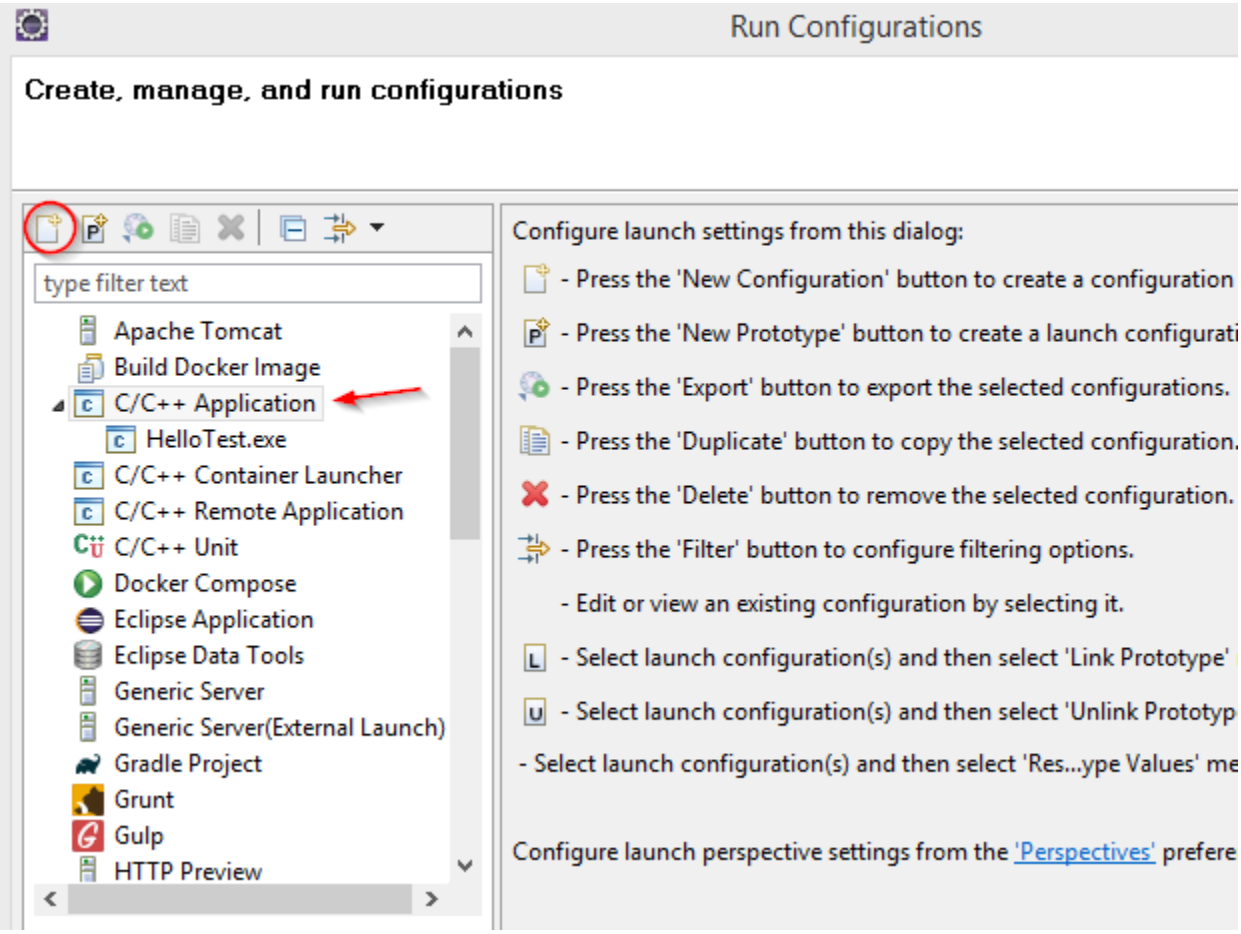
Click on the triangle icon ② right to the "white triangle inside green disk" icon. Select **Run Configurations …** ③ option from the drop-down menu.

You will see **Run Configuration** window.



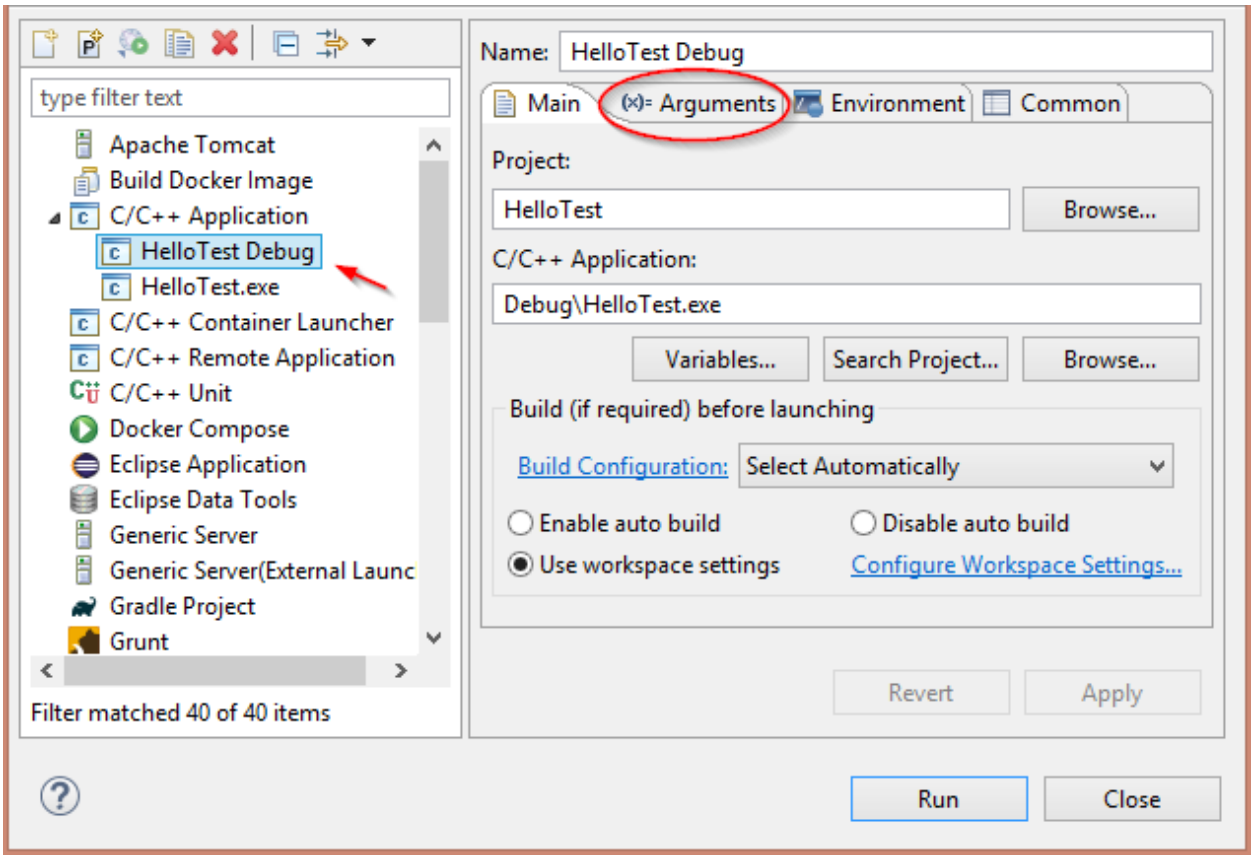
Click to select **C/C++ Application** in the left pane.

You will see some help information explaining possible actions.



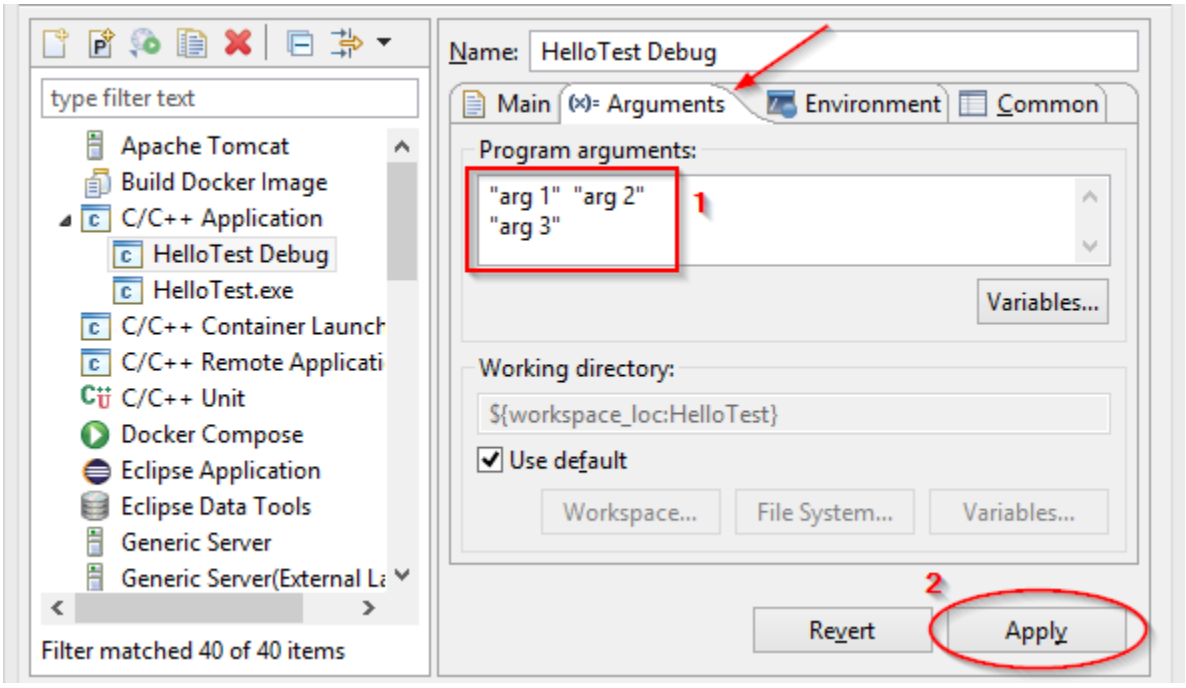
Click on the"**Add**"  icon in the top left corner.

You will see new run configuration `HelloTest Debug`.



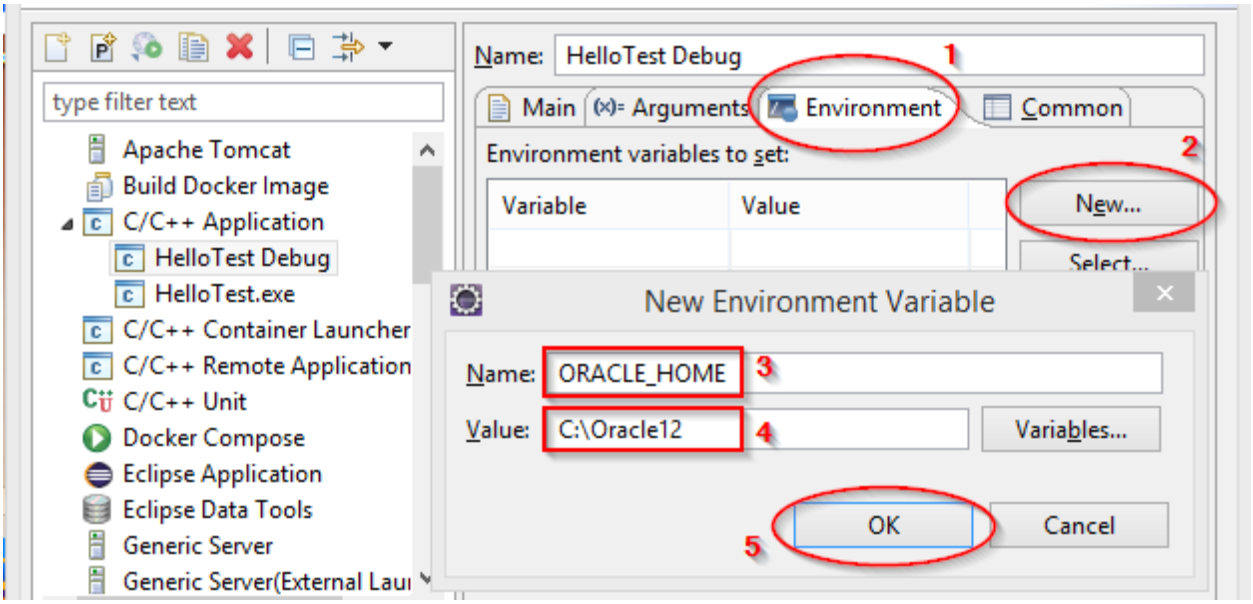
Editing Program Arguments

Click on **Arguments** tab to edit the program arguments. Enter the arguments ① and press **Apply** button ② to save the configuration. Separate arguments with whitespaces, quote arguments that have spaces.



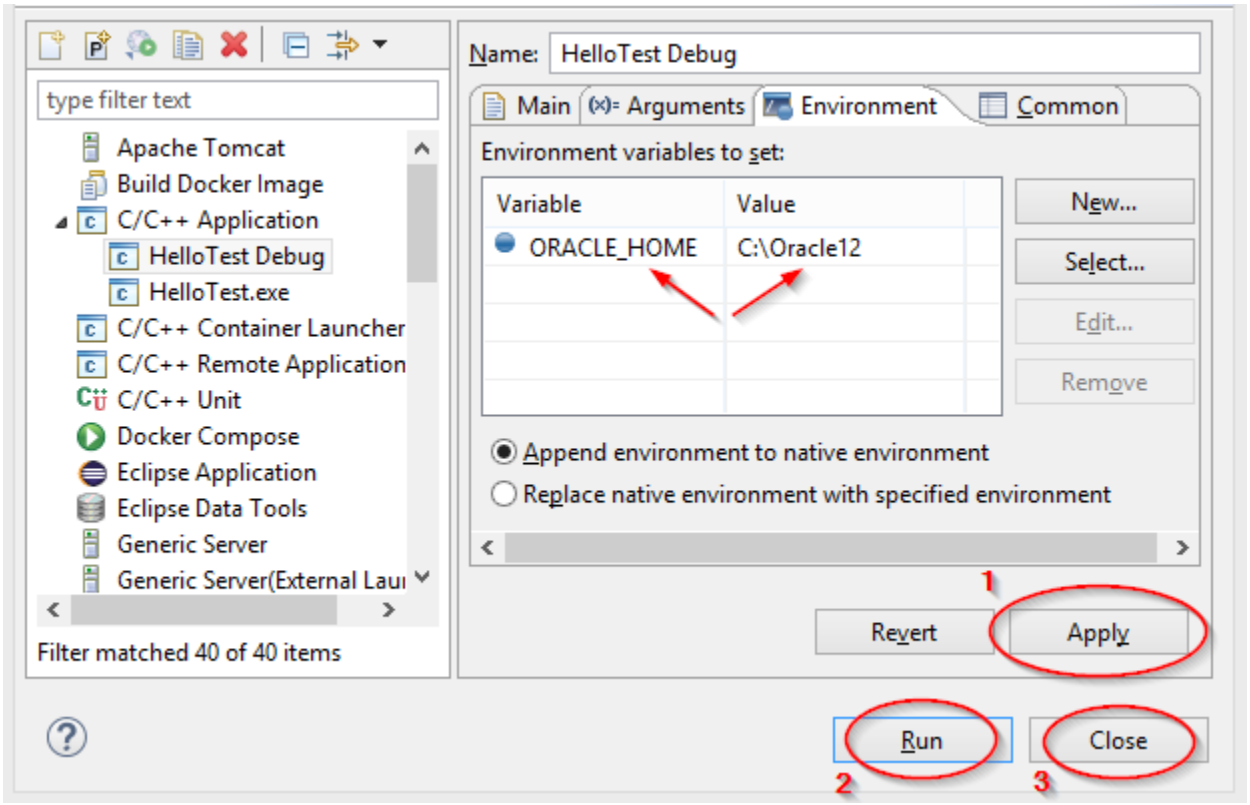
Editing Program Environment

Click on **Environment** tab ① to edit the program environment.



Press **New** button to open **New Environment Variable** pop-up window. Enter the variable name ③ and the variable value ④. Press **OK** button to close the pop-up window.

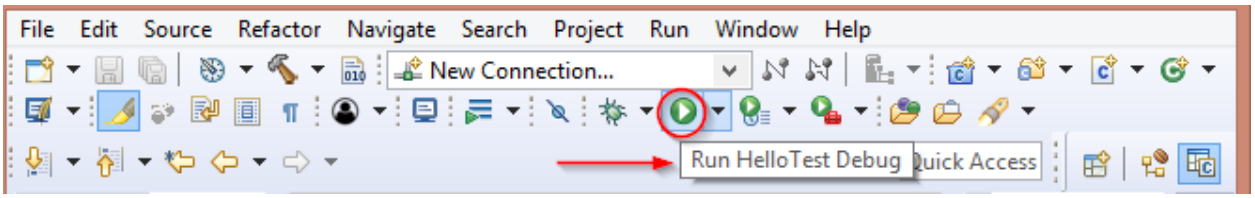
Saving Run Configuration



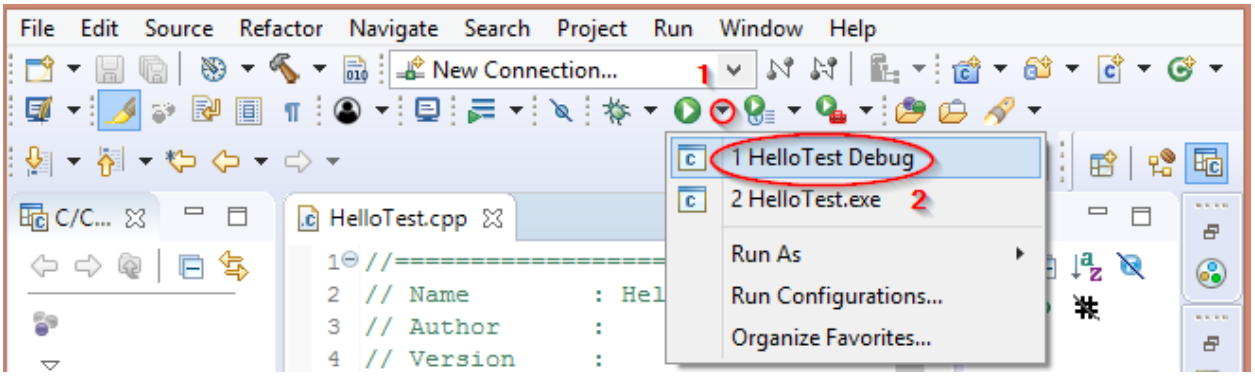
Press **Apply** button ① to save the configuration. Press **Close** Button to close the **Run Configurations** window. Press **Run** button to run the program (and close the window).

Running Run Configuration

To run the program program from the current project, using the last run configuration,



click on “white triangle inside green disk”  icon. Note that, if you hover over the icon, you will see **Run HelloTest Debug** tooltip.

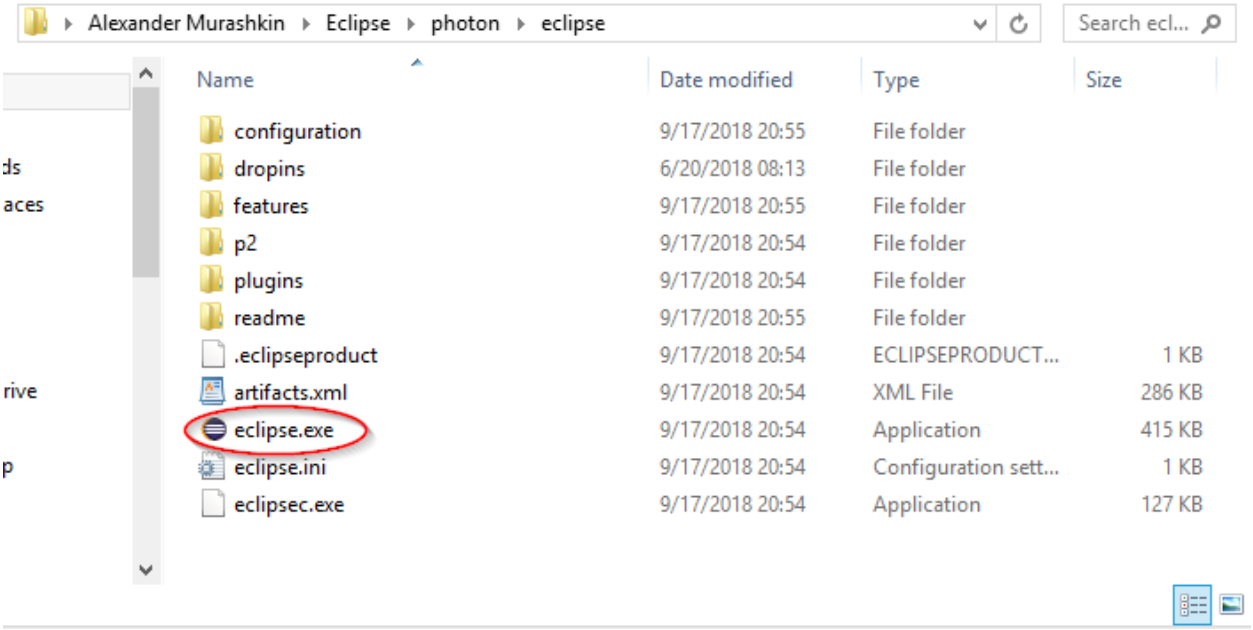


If you click on the triangle right to the icon, you will see a drop-down menu that also can be used to run the project.

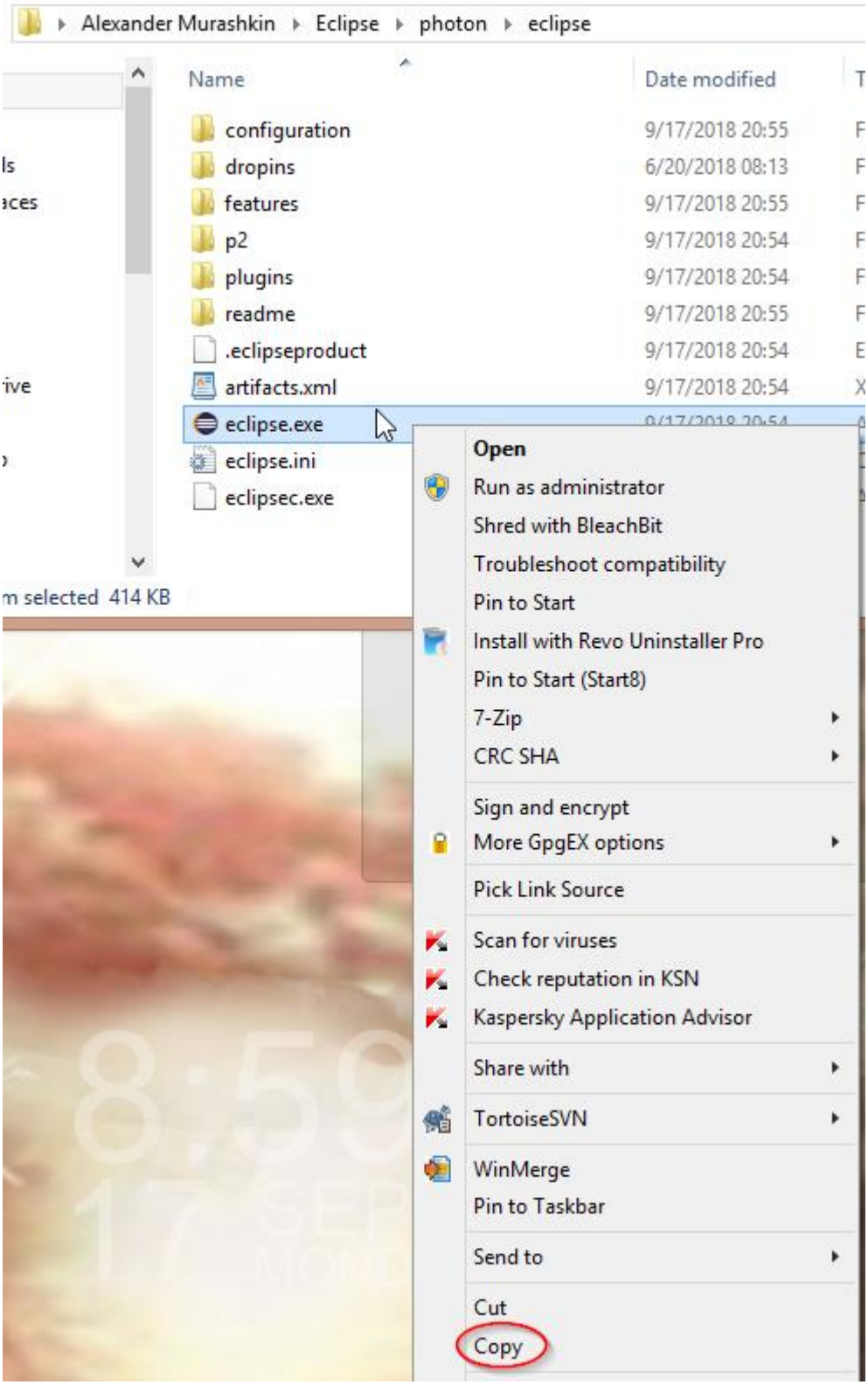
Appendix 6 – Making Eclipse Shortcut

Creating Eclipse Desktop Shortcut

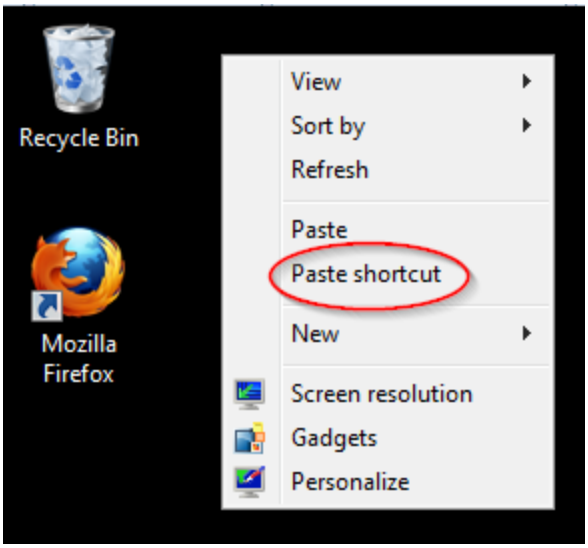
To make launching Eclipse easier, create a shortcut on the desktop. Go inside the Eclipse installation folder, then go inside `eclipse` subfolder.



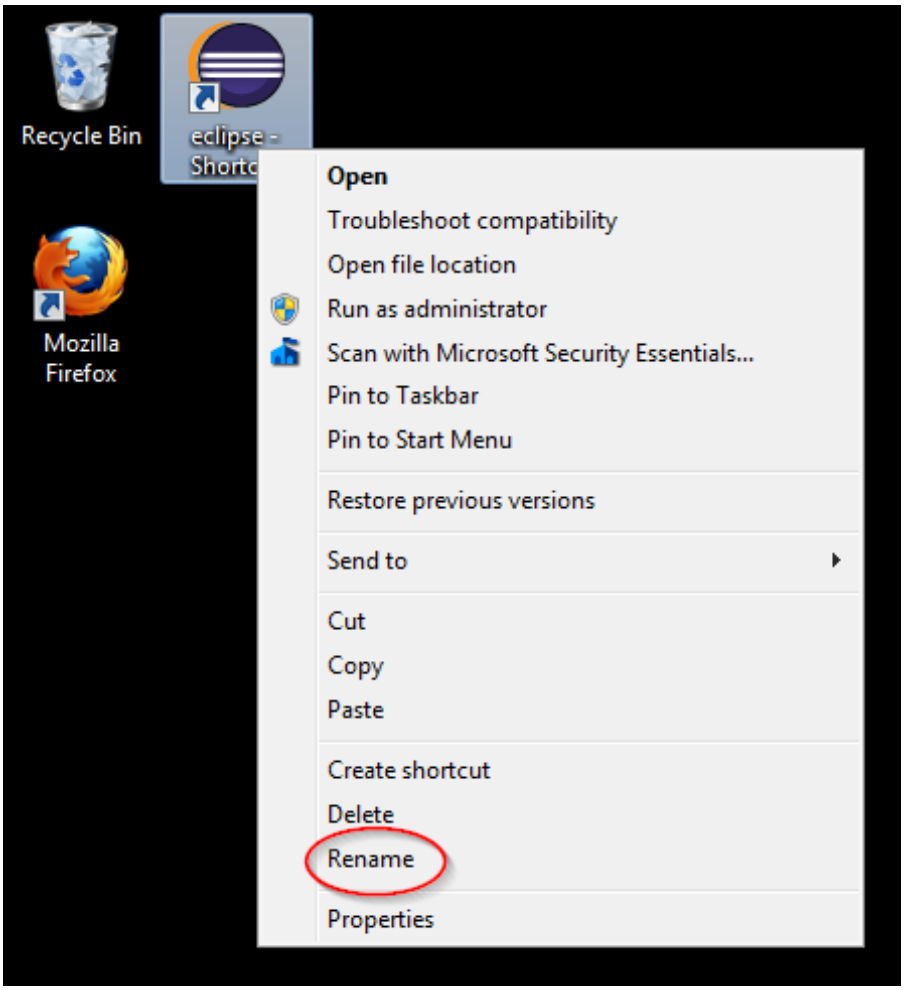
Move the mouse pointer over `eclipse.exe` icon and click the right mouse button to open a context menu. Depending on you File Explorer settings, you may see `eclipse.exe` or just `eclipse` right to it.



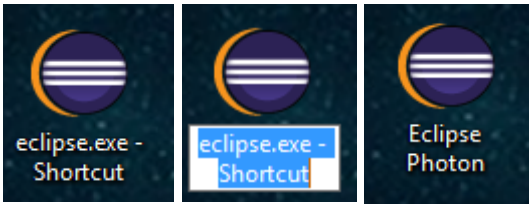
Select **Copy** from the menu. Find some empty space on your desktop, move the mouse pointer there, and click the right mouse button to open a context menu.



Select **Paste Shortcut** from the menu. You will see a new shortcut eclipse icon with “eclipse.exe – Shortcut” (or just “eclipse.exe”) underneath.



Change the shortcut name to `Eclipse Photon` (or something else). Move the mouse pointer over the new shortcut icon and click the right mouse button to open a context menu. Select **Rename** from the menu. Enter the shortcut name in the highlighted box end press **Enter** key.

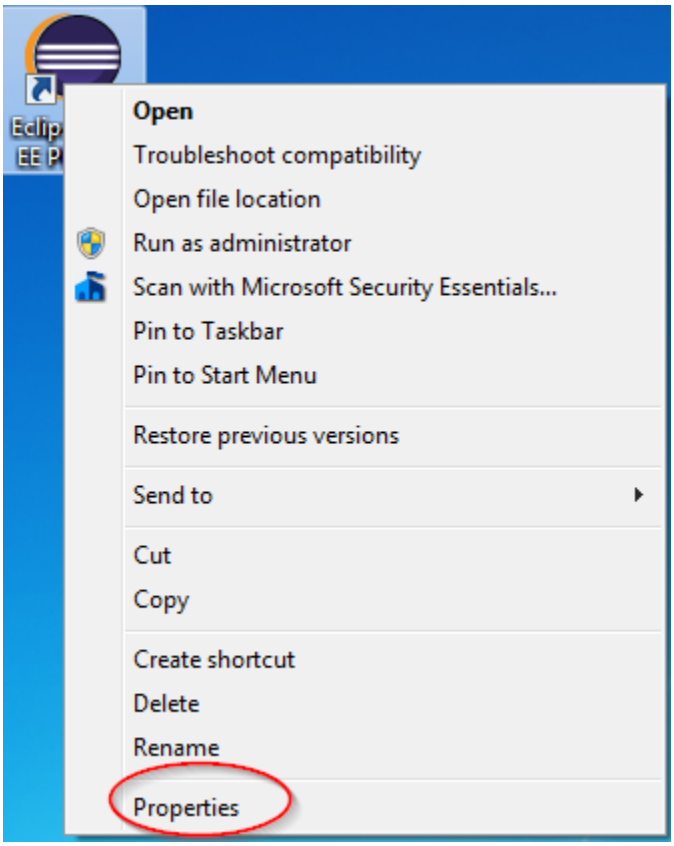


➤ The created shortcut will be added to the current user desktop. If you want the shortcut to be available for all users, move it to an appropriate folder, for example, to `C:\Users\Public\Desktop`.

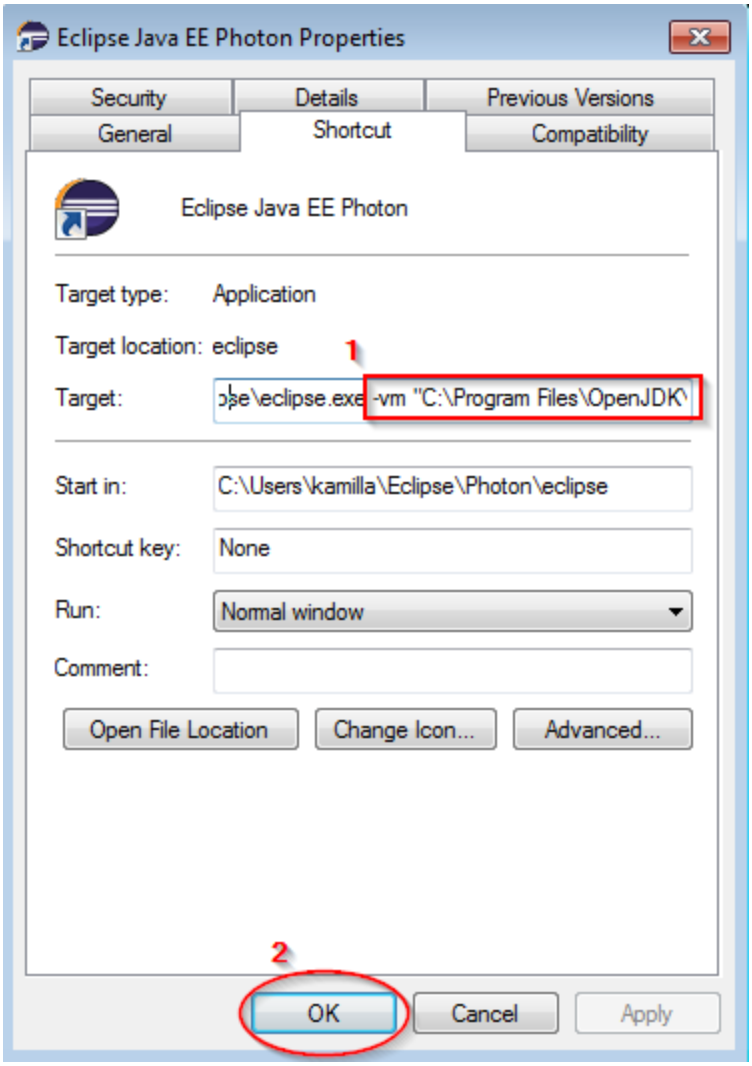
Using Shortcut Command Line to Specify Java Virtual Machine

If Java bin folder is not in Windows PATH environment variable, or if you want to use a different Java virtual machine (JVM), you can specify JVM in the shortcut command line.

Move the mouse pointer over the shortcut icon and click the right mouse button to open a context menu.



Select **Properties** from the menu.



In the **Target** text box, add the following text after `eclipse.exe` ①

```
-vm “C:\Program Files\OpenJDK\jdk-11\bin\server\jvm.dll“
```

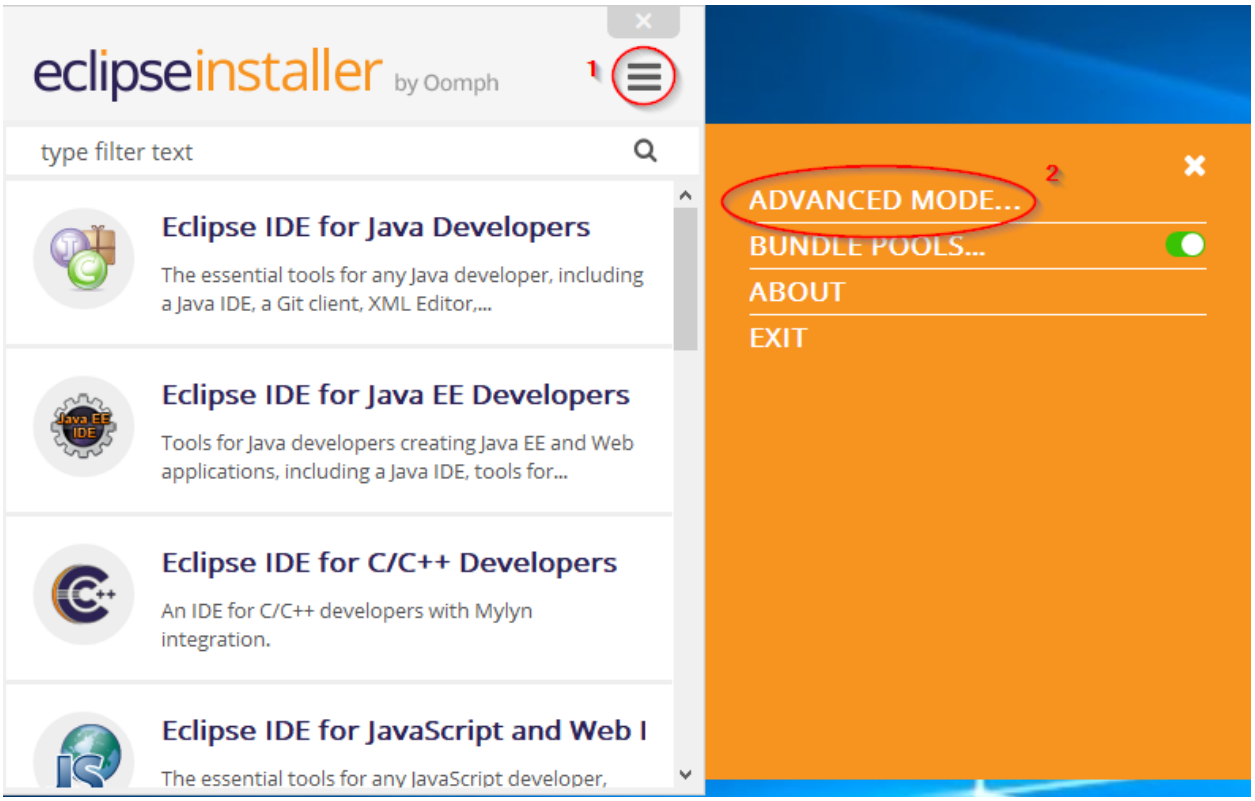
Note that `eclipse.exe` and the text must be separated by a space.

Press **OK** button ② to close the properties.

Appendix 7 – Eclipse Installer in Advanced Mode

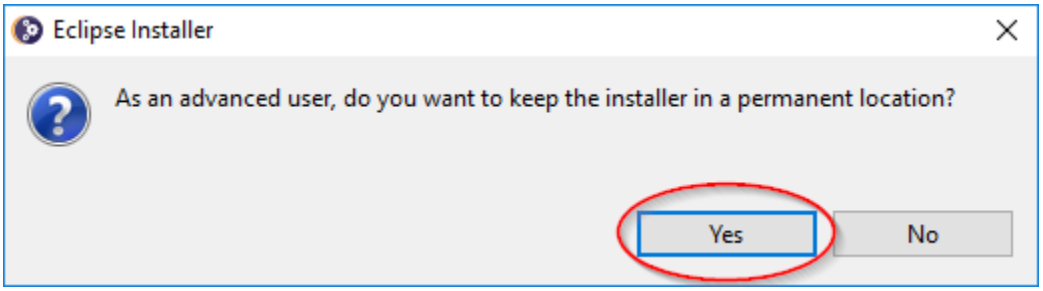
Switching to Advanced Mode

While running Eclipse installer in simple mode,



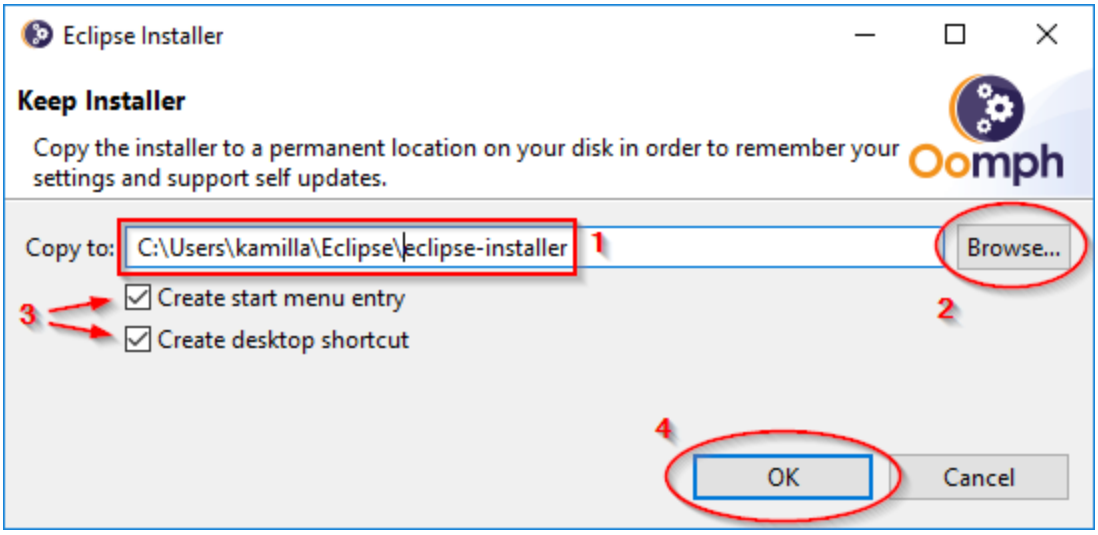
click on “hamburger” icon ① to open the installer menu. Click on **Advanced Mode…** ②.

You will get a pop-pup window asking if you want to save the installer files.



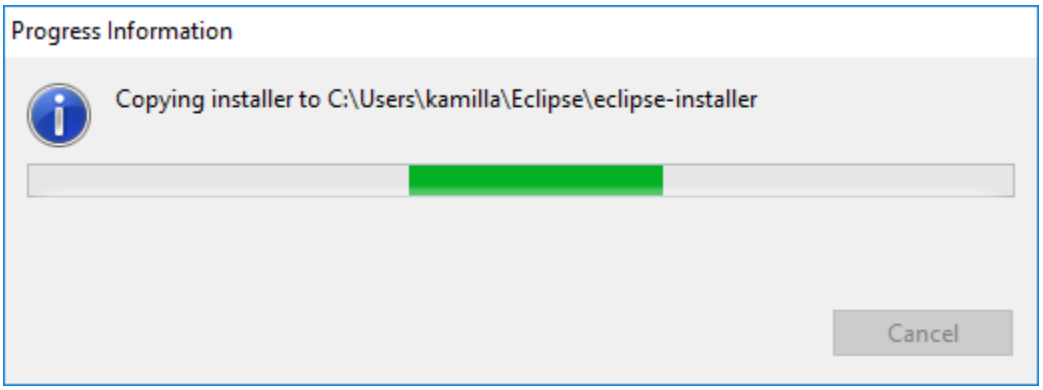
Press **Yes** button to save the installer files.

You can also press **No** button. In such a case, if you want to use the installer again, you will have to find Eclipse Oomph Installer executable (`eclipse-inst-win64.exe`) in the file explorer and run it. Skip the next page if you are not saving the installer files.



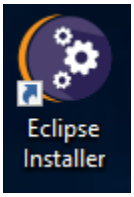
If needed, change the destination folder name ① where the installer files are to be saved. Press **Browse…** button ② if you want to browse folders.

Leave **Create start menu** and **Create desktop shortcut** checked ③. Press **OK** button ④ to proceed.



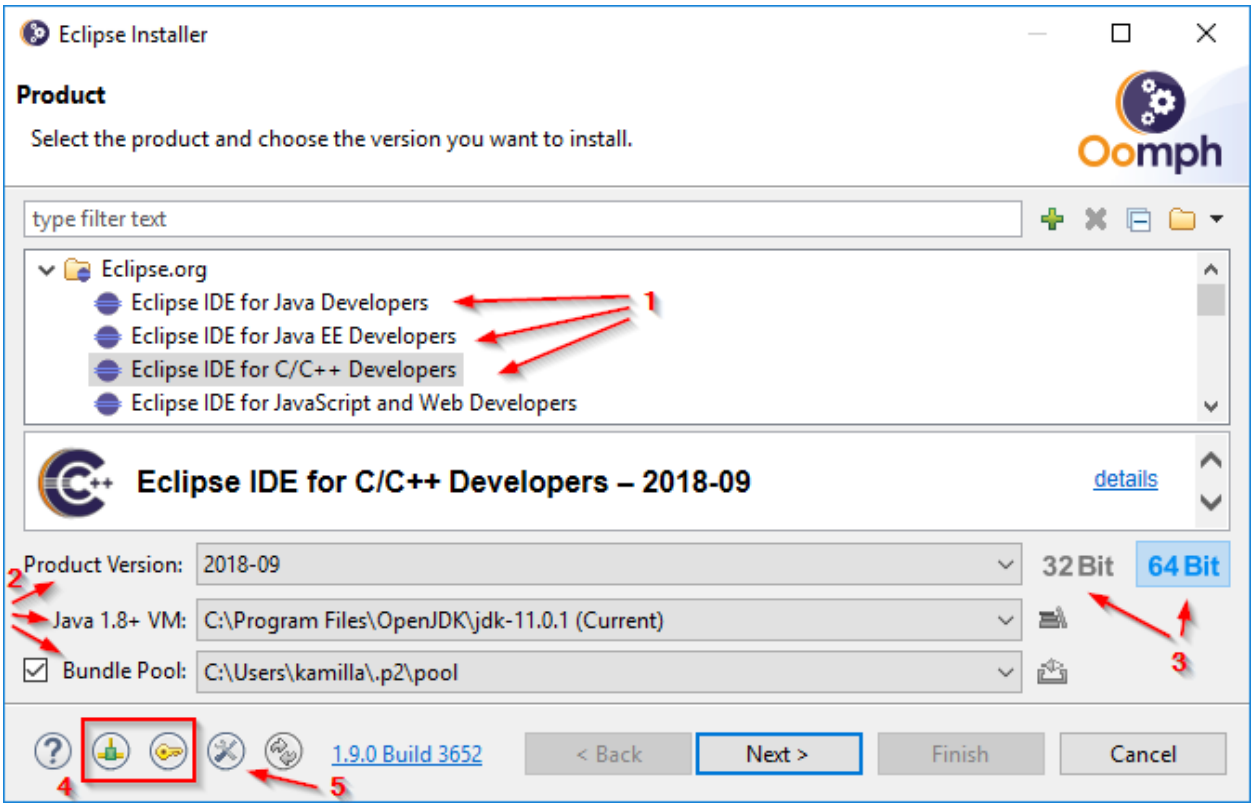
Wait while the installer files are being copied to the destination folder.

You will see the desktop shortcut created.



And the Eclipse installer will be restarted in advance mode. You will see the splash window again.

After a short time, you will see the installer window

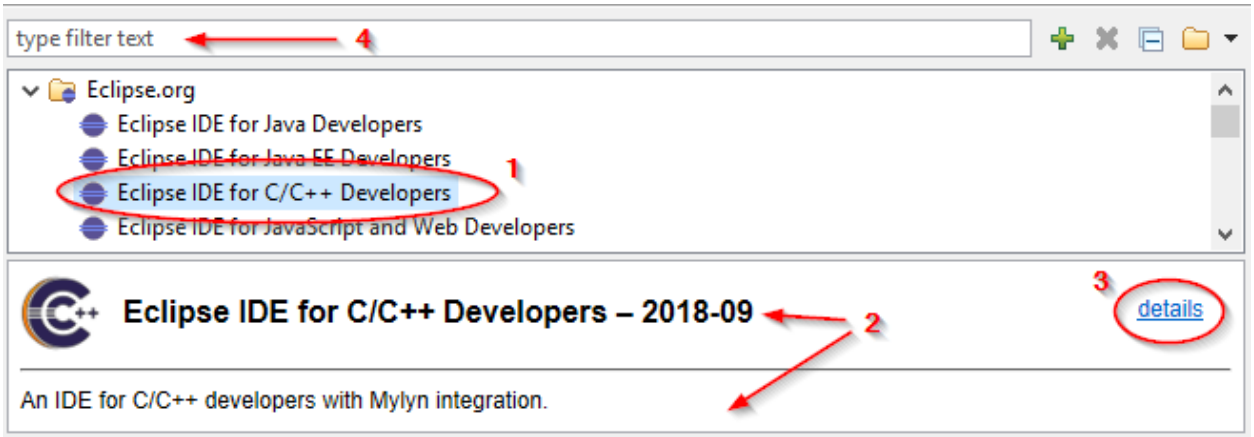


In the advanced mode, you can, for instance

1. Select Eclipse product (**Eclipse IDE for C/C++** in the screenshot).
2. Select the product version, the Java virtual machine, and the bundle pool.
3. Select 64-bit or 32-bit variant (64-bit in the screenshot).
4. Adjust proxy and SSH settings.
5. Switch back to the simple mode (see Eclipse Installer in Simple Mode section).

If you do not see the Eclipse product list ①, you may have an issue with network connectivity. See Configuring Network Proxy Settings section in such a case.

Selecting Eclipse Product



Click on the desired product name ① to select it (scroll down if necessary).

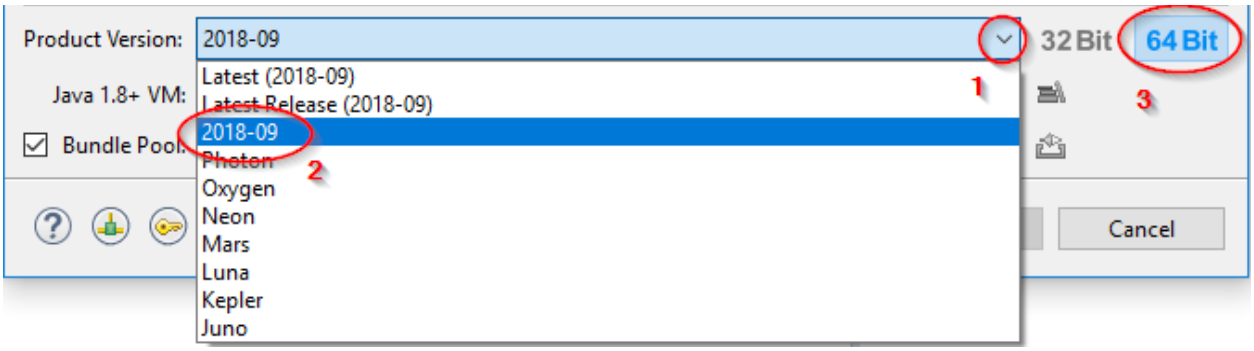
You will see the product description ②. If you need more information, click on **details** link ③ to open the product webpage.

You can also search for the product by entering some text in the search field ④.

Note – Eclipse products are also called packages in this document.

Selecting Product Version and Bitness

After the product is selected,

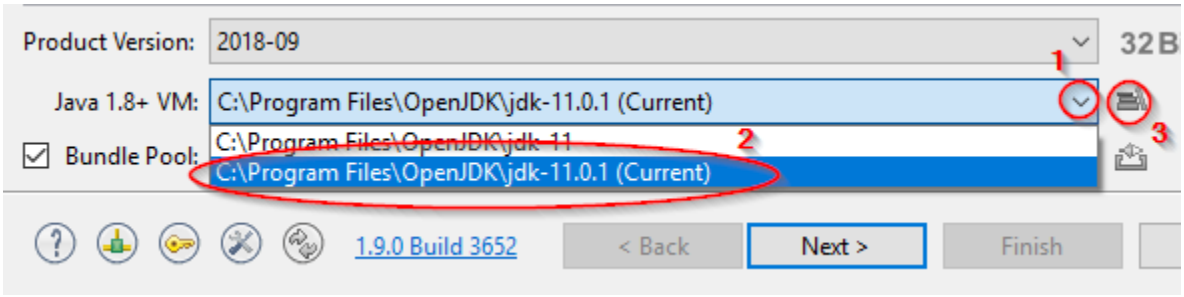


Click on down looking (tri)angle ① to open a drop-down menu of available versions. Click on desired version ② to select it.

Click either on 64 Bit or 32 Bit to highlight and select the bitness ③.

Selecting or Adding Java Virtual Machine

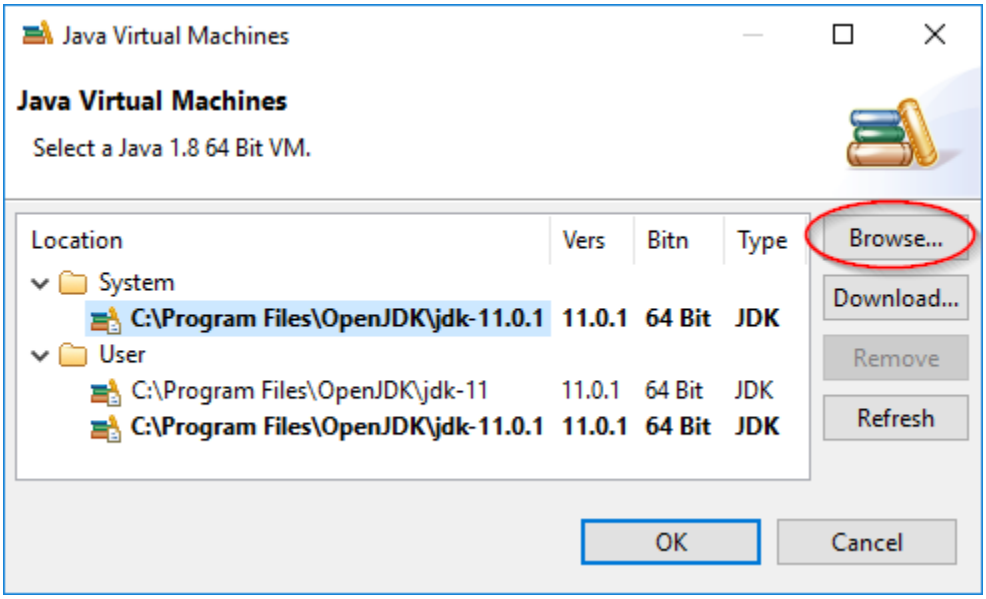
Selecting Known Java Virtual Machine



Click on down looking (tri)angle ① to open a drop-down menu of available Java folders. Click on desired Java folder ② to select it. Skip the next section.

Adding Java Virtual Machine

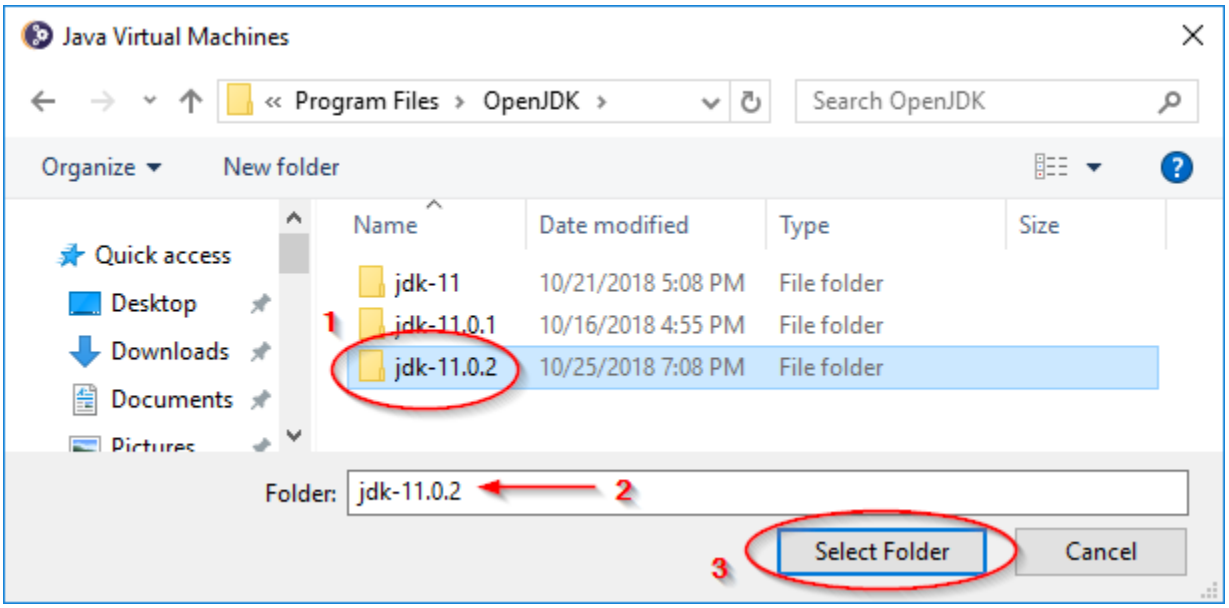
If you do not see required Java folder, press "books" icon ③ to open **Java Virtual Machines** window.



Press **Browse** button and browse to the desired Java folder.

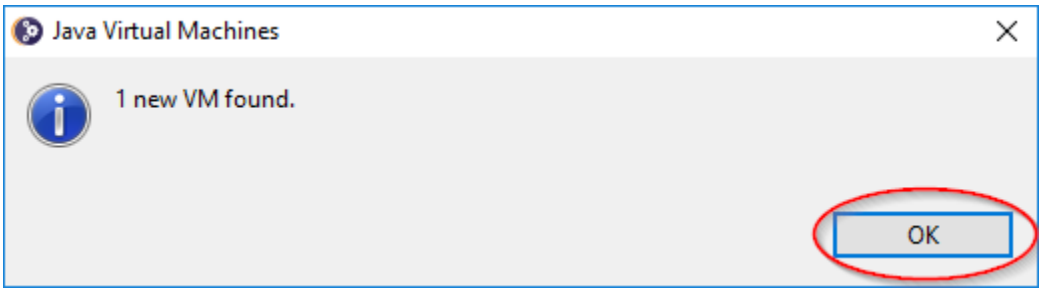
Note 1 – Pressing **Download** button leads to a webpage describing old Java versions. Instead, follow instructions in Java Standard Edition (Java SE) section if you need to download and install Java SE.

Note 2 – Pressing **Remove** button deletes the virtual machine from the list. It does not delete actual Java folder.

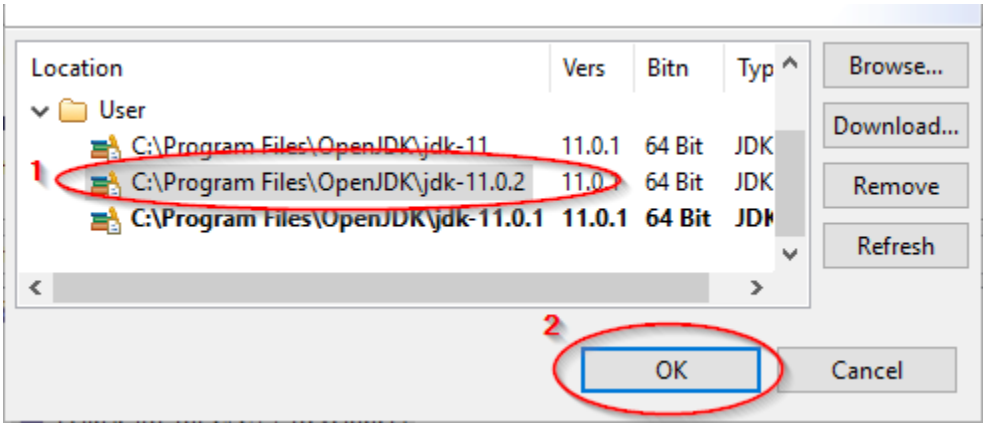


Be sure that a folder containing Java JDK or JRE is selected ② and that the **Folder** field ② contains the correct folder name. Note – you can also select a parent folder, like **OpenJDK**, a parent of a parent, etc.

Press **Select Folder** to search for Java virtual machines inside the folder.



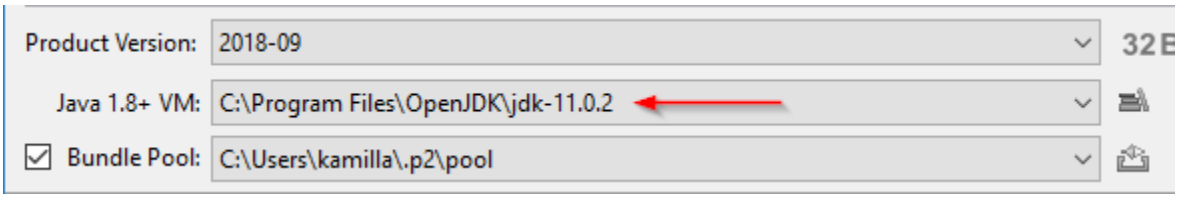
If one or more Java virtual machines are found, you will see a pop-up window confirming it. Press **OK** button to continue.



Select the appropriate Java folder ①. Press **OK** button to close the window.

Confirming Java Virtual Machine Selection

You are supposed to see the correct Java folder selected in the main installer window.



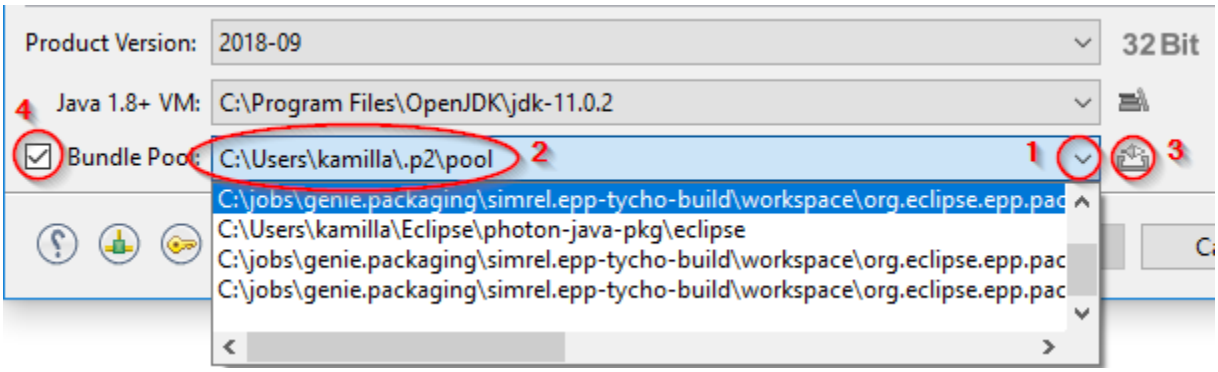
Selecting or Adding Bundle Pool

Selecting Existing Bundle Pool

A bundle pool is a folder containing Eclipse files that are shared between multiple installations of Eclipse.

In the case of single user, the bundle pool is useful as it saves disk space (by keeping only one copy of Eclipse files) and time (as Eclipse files are downloaded only once). For example, if the user has Eclipse IDE for Java and Eclipse IDE for C/C++, the common Eclipse files will be shared.

In the case of multiple users, it also allows to share Eclipse files between the users.

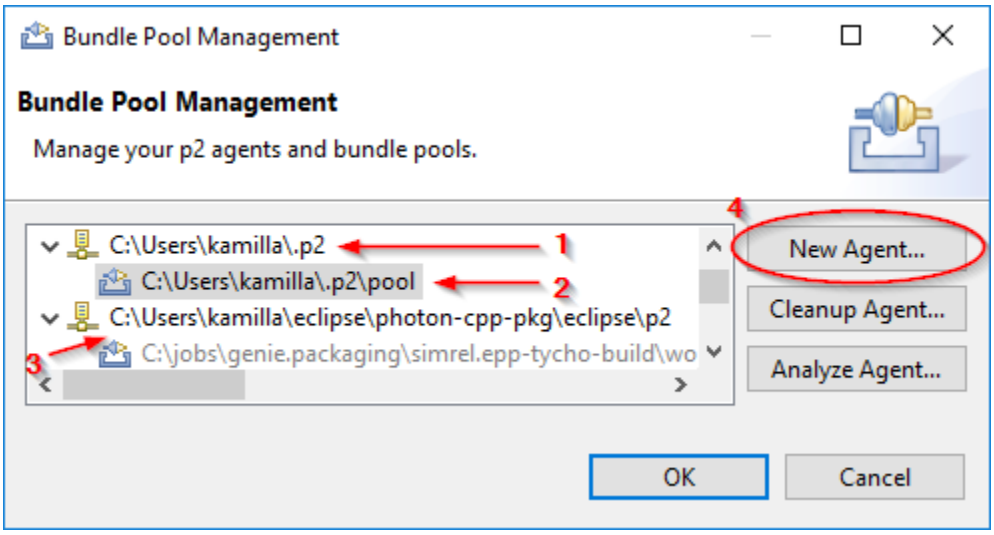


Click on down looking (tri)angle ① to open a drop-down menu of available bundle pools. Click on desired pool folder ② to select it. Skip the next section.

Note – If you uncheck **Bundle pool** ④ box, a single use bundle pool will be created in the Eclipse installation folder. The result will be similar to installing Eclipse via ZIP archive (see Appendix 16 – Installing Eclipse via ZIP Archive). If you have more than one Eclipse installation, they will take more disk space than in the case of a shared bundle pool (and the Eclipse files will be downloaded for each Eclipse installation).

Adding Bundle Pool

If you do not see required pool folder, press  icon ③ to open **Bundle Pool Management** window.



In the center of **Bundle Pool Management** window, you can see a list of so called "p2 agents" and "bundle tools". To make it easier to understand, think that a bundle pool is a folder containing Eclipse files. And an "agent" is a pool parent folder.

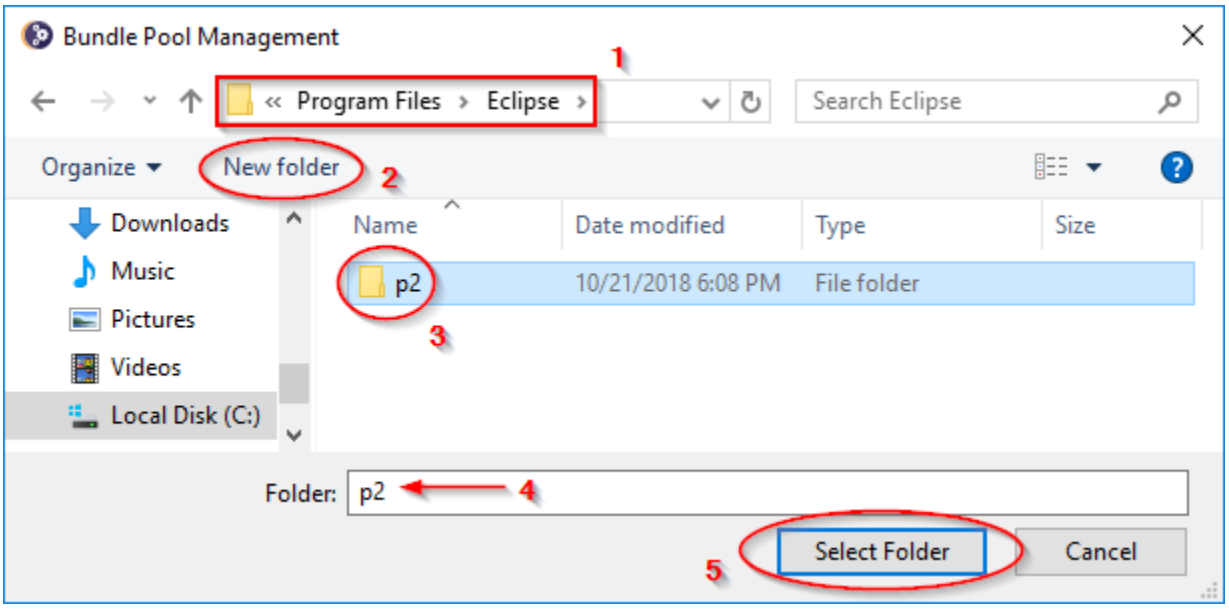
For example,

P2 Agent	Bundle Pool	Description
`C:\Users\kamilla\.p2`	`C:\Users\kamilla\.p2\pool`	Default pool that is created for each user
`C:\Users\kamilla\eclipse\photon-cpp-pkg\eclipse\p2`	`C:\jobs\...`	Pool that is created when Eclipse is installed via ZIP archive
`C:\Program Files\Eclipse\p2`	`C:\Program Files\Eclipse\p2\pool`	Pool that is shared between users

In the screenshot above, the default agent name is `C:\Users\kamilla\.p2` ① and the default pool name is `C:\Users\kamilla\.p2\pool` ②. If the Eclipse is installed via ZIP archive, it will have agent subfolder `p2` and "strange" pool name `C:\jobs\...` similar to ③.

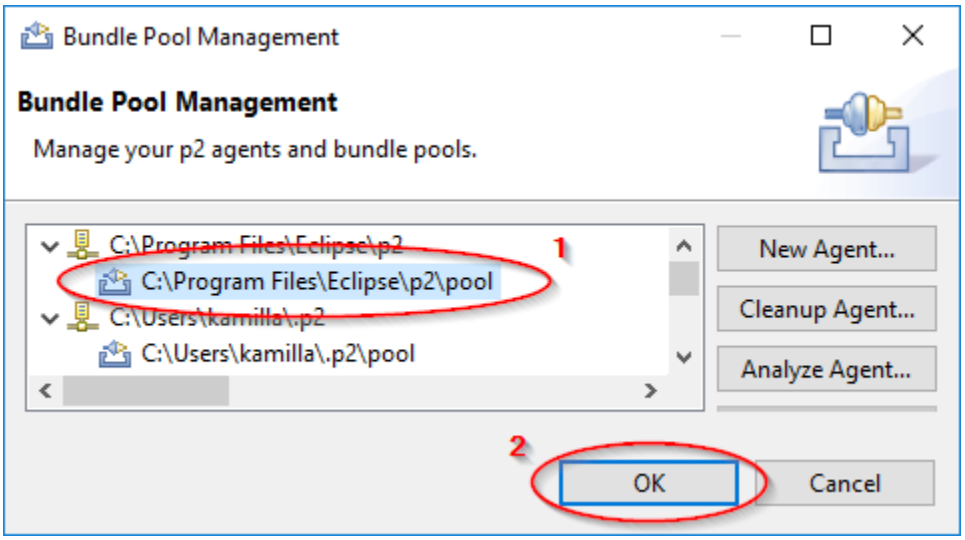
If a required pool is not in the list, press **New Agent** ④ to create a pool's agent (parent) and the pool.

It will open a folder selection window.



Browse to the folder ① under which you want to create the "agent". Use **New folder** link ② to create the agent folder ③. Be sure that the folder is selected and its name is shown in **Folder** field ④.

Press **Select Folder** button to select the "agent" folder and to close the folder browser.



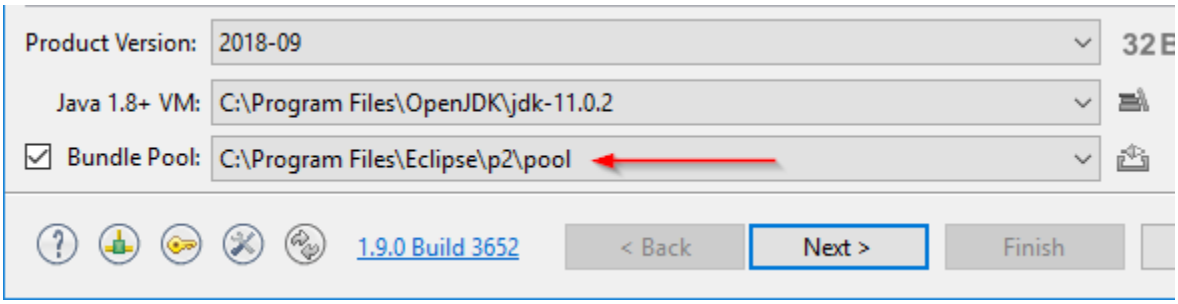
Select the new pool in the list ①. Press **OK** button ② to close the management window.

✓ If you do not see the new pool, it probably means that you do not have write access to its folder. In such a case, press **Cancel** button two times to exit the installer and start the installer again, this time, as Administrator.

✓ Every time you install Eclipse software in a folder or use an agent folder that your user does not have write access to, you have to run the installer as Administrator.

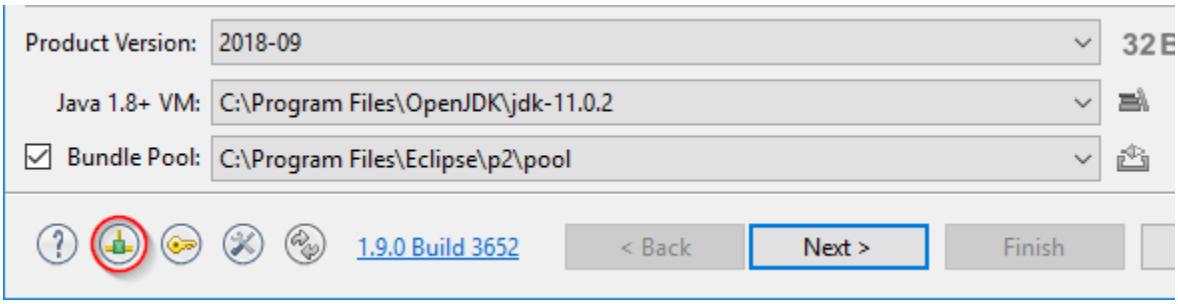
Confirming Bundle Pool Selection

You are supposed to see the selected pool in the main installer window

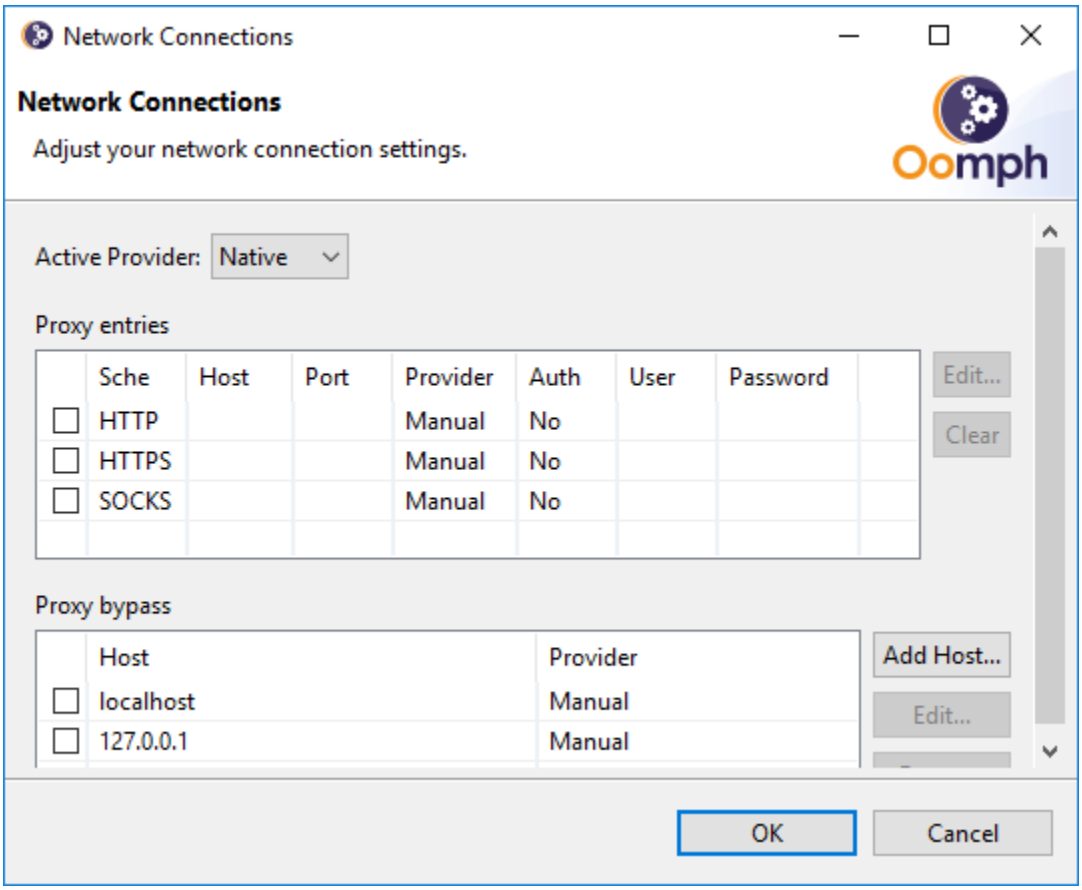


Configuring Network Proxy Settings

If you need to configure network proxy settings,



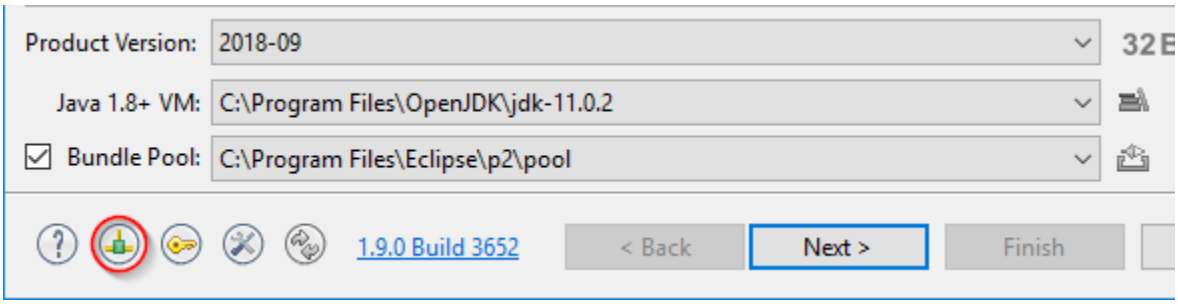
click on  icon. It will open **Network Connections** window.



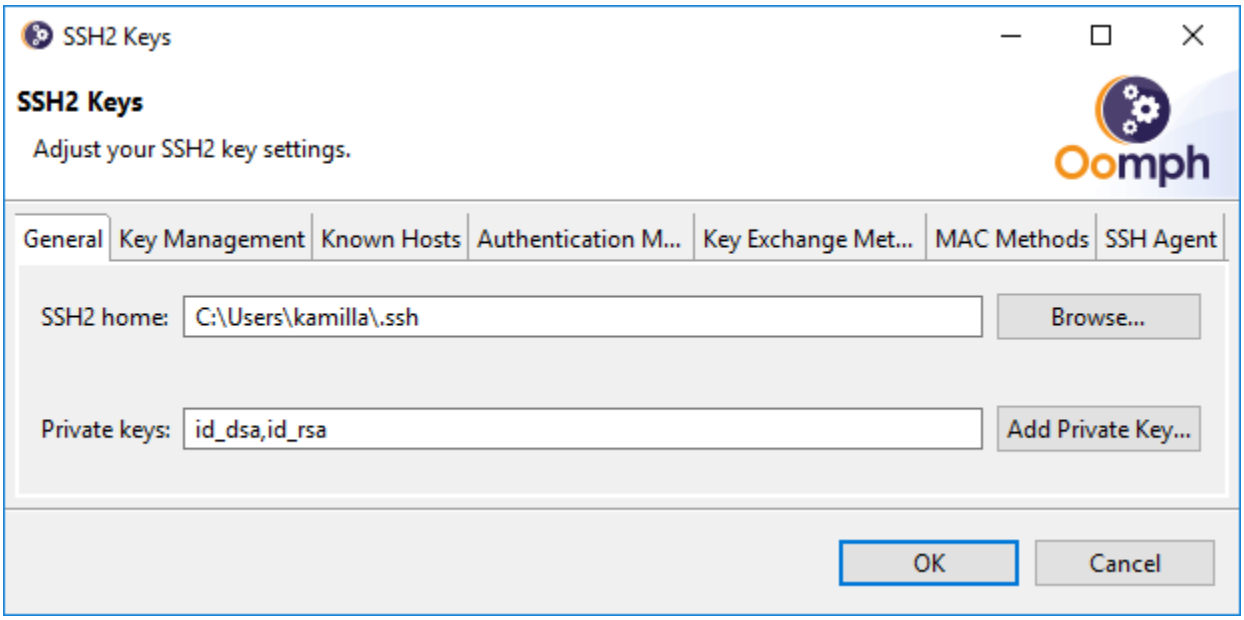
Follow instructions in Configuring Network Proxy in Eclipse Preferences section of Appendix 3 – Configuring Eclipse for Internet Access.

Configuring SSH Settings

If you need to configure network proxy settings,

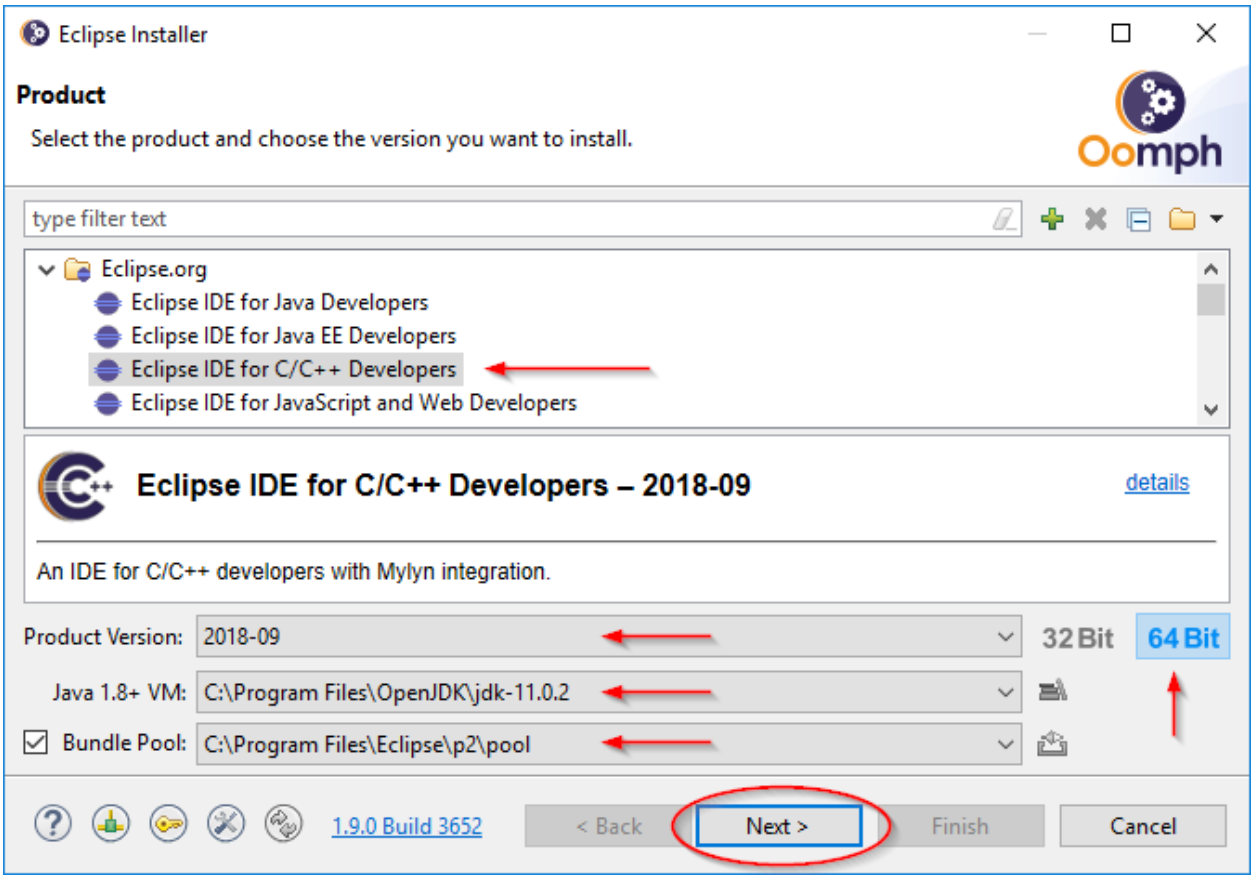


click on  icon. It will open **SSH2 Keys** window.

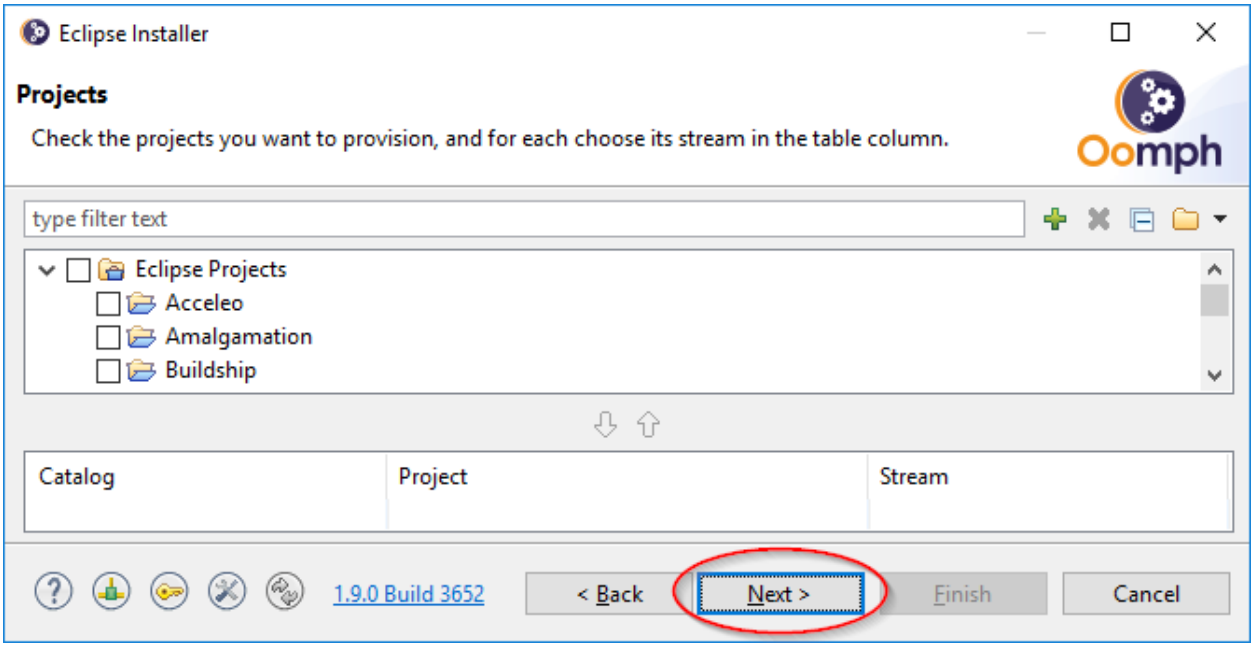


Configuring SSH settings is beyond this document scope.

Finalizing Software Selection



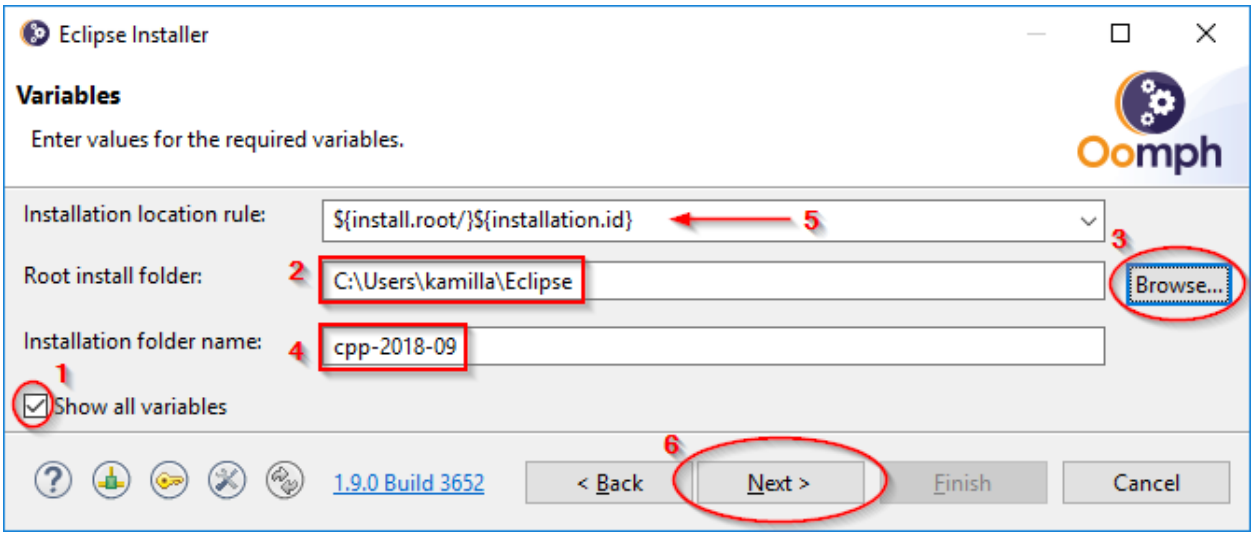
Press **Next** button to continue. You will see **Projects** page (that is out of this document scope).



Unless you know what you are doing, do not select anything here. Press **Next** button to continue.

Eclipse Installation Folder

You will see **Variables** window.



Check **Show all variables** box ① to see details as in the screenshot. Enter the root (parent) install folder in **Root install folder** field ②, browse to the folder if needed ③. Enter the installation subfolder name in **Installation folder name** field ④.

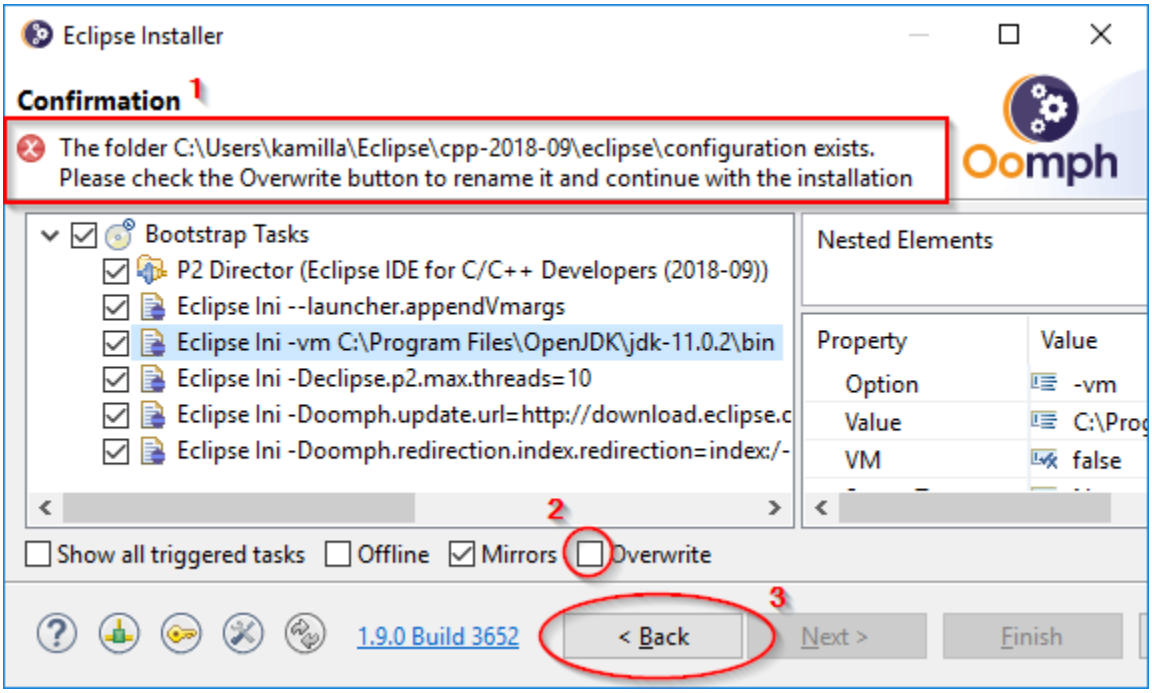
Note that the complete installation folder pathname will be as specified in **Installation location rule** field. In the screenshot, it will be

```
C:\Users\kamilla\Eclipse\cpp-2018-09
```

When you are satisfied with the variables, press **Next** button ⑥ to continue.

Reviewing Proposed Configuration Changes

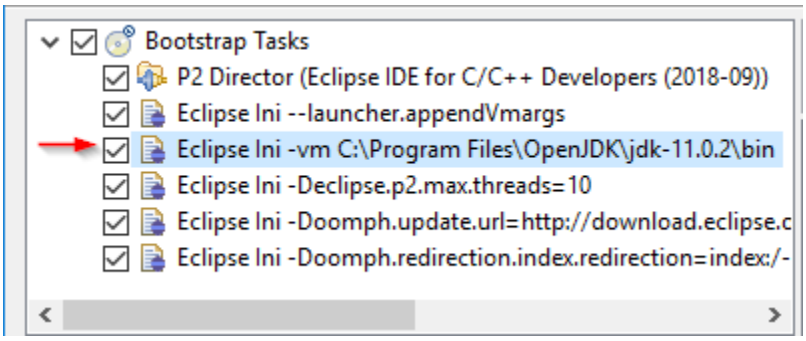
You will see **Confirmation** page.



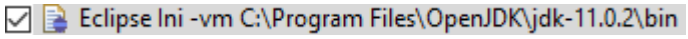
If you see an error message "**The folder … exists**" ①, it means that there is already some Eclipse installation in the folder. In such a case, you have two choices

- Either press **Back** button and select another folder
- Or check **Overwrite** box ② to install Eclipse files in the existing folder (all old files will be overwritten, except old **configuration** subfolder that will be renamed)

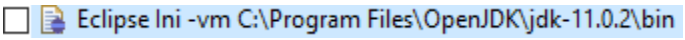
Also review the proposed changes in Eclipse configuration, specifically line containing `-vm` option.



If you want this Eclipse installation to use the specified Java virtual machine (`bin` subfolder), leave the box checked. See the note below for additional details.



Otherwise, uncheck the box. In such a case, this Eclipse installation will use default Java virtual machine (that has `bin` subfolder in Windows PATH environment variable). See Adding OpenJDK to Windows Path section.



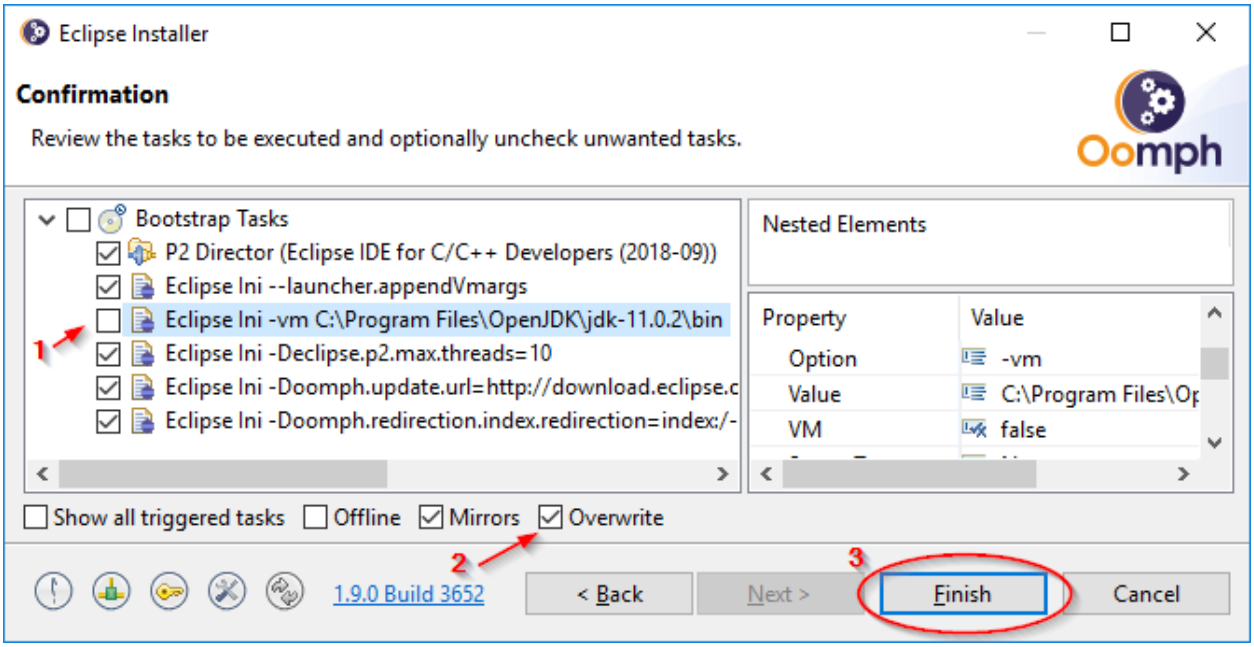
Note - if you leave the box checked, the installer will add Java SE `bin` subfolder pathname to the `eclipse.ini` file, as in the example below.

```
--launcher.defaultAction
openFile
--launcher.appendVmargs
-vm
C:\Program Files\OpenJDK\jdk-11.0.1\bin
-vmargs
-Dosgi.requiredJavaVersion=1.8
```

If you decide Eclipse to run under a different Java SE virtual machine, you will have to edit this file and change the pathname, as described in Appendix 2 – Configuring Eclipse Lunch Properties (eclipse.ini), or remove these two lines completely.

Performing Eclipse Installation

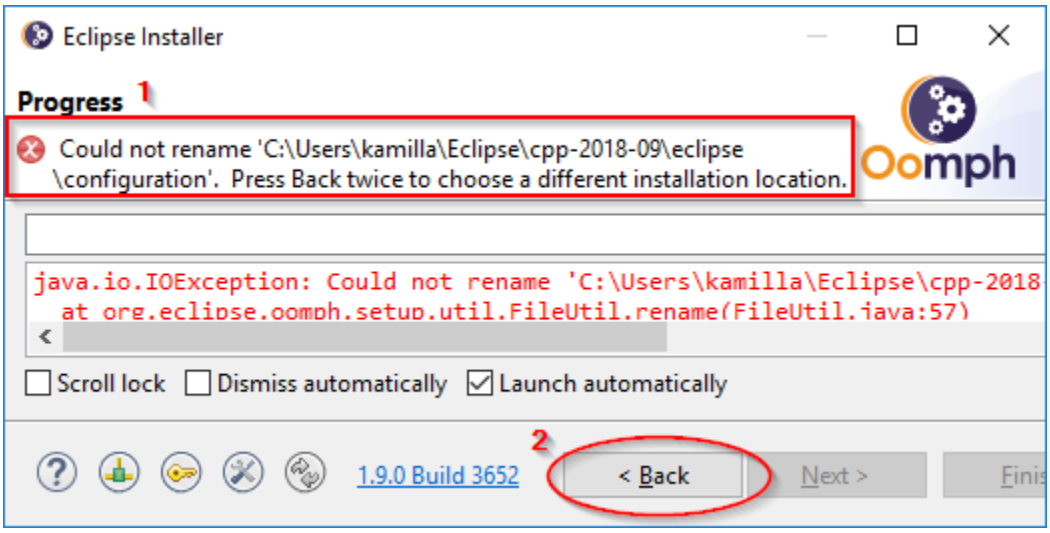
In the screenshot below, you can see unchecked `-vm` line ① and checked **Overwrite** box ②.



To proceed with the installation, press **Finish** button ③.

Troubleshooting Installation Issues

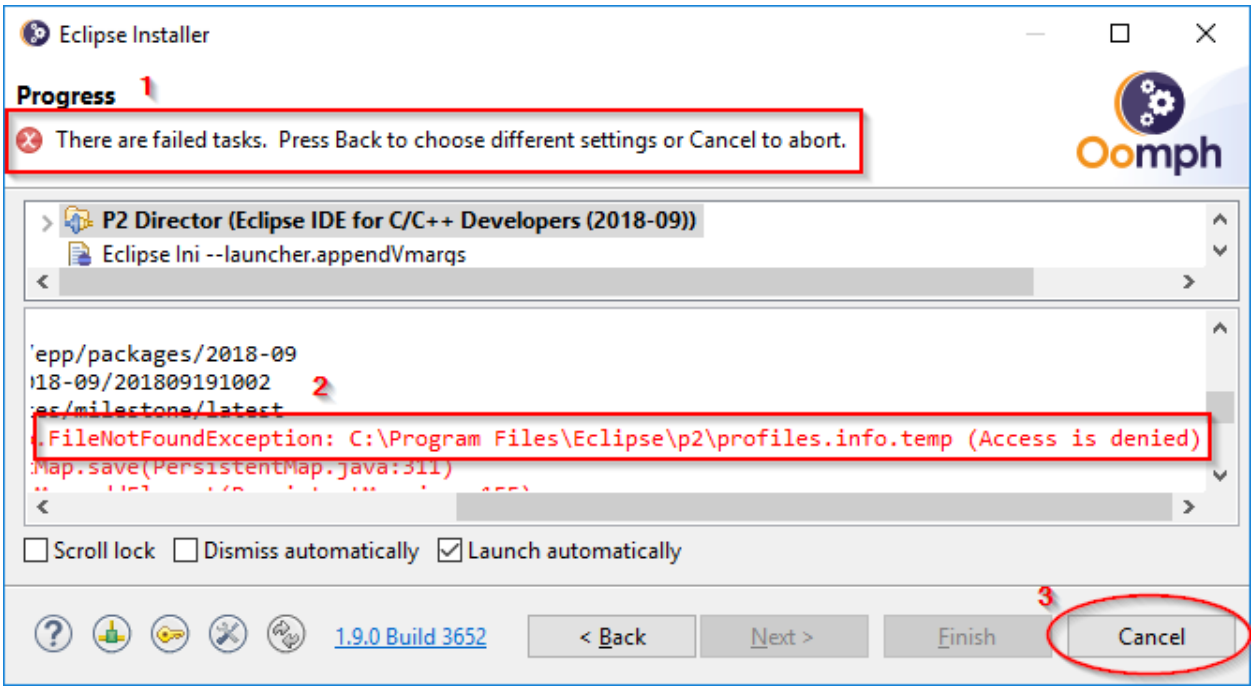
If you get an error message "**Could not rename … configuration**" ①,



It, probably, means that you are installing in an existing Eclipse folder and there is an Eclipse instance running that is using this folder. In such a case, you have two choices

- Either exit the running the Eclipse instance, press **Back** button ② to return to the previous page, review and adjust the proposed changes as needed, and press **Finish** button again
- Or press **Back** button ② two times, change the installation folder, press **Next** button, review and adjust the proposed changes as needed, and press **Finish** button again.

If you get an error message "**There are failed tasks**" ①,



Review the installation messages for clues.

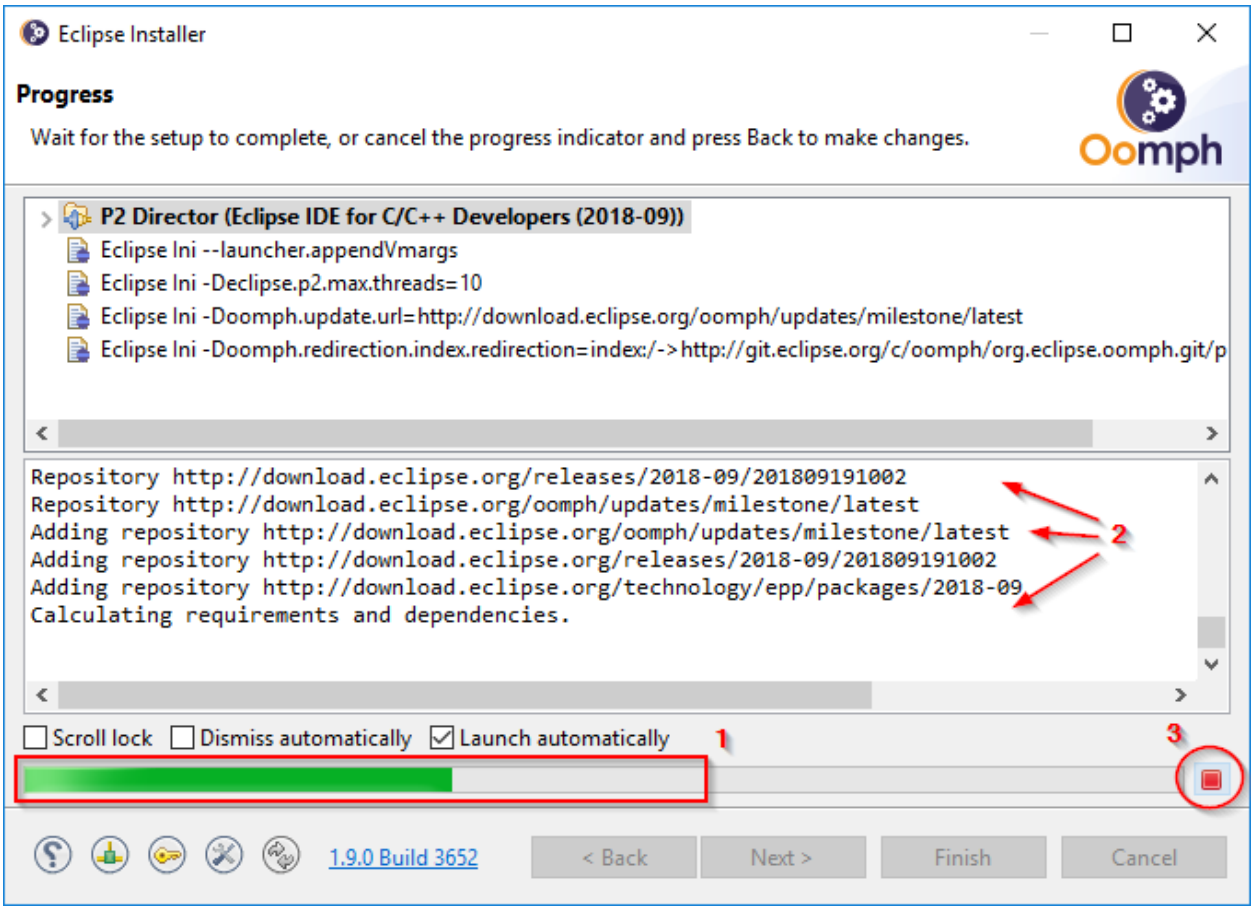
In this screenshot, there is specific error message "**... \p2\profiles.info.tmp (Access is denied)**" ②. It means that the user does not have write access to the "P2 Agent" folder.

In such a case, press **Cancel** button ③ to exit the installer and start the installer again, this time, as Administrator.

✓ Every time you install Eclipse software in a folder or use an agent folder that your user does not have write access to, you have to run the installer as Administrator.

Installation Progress

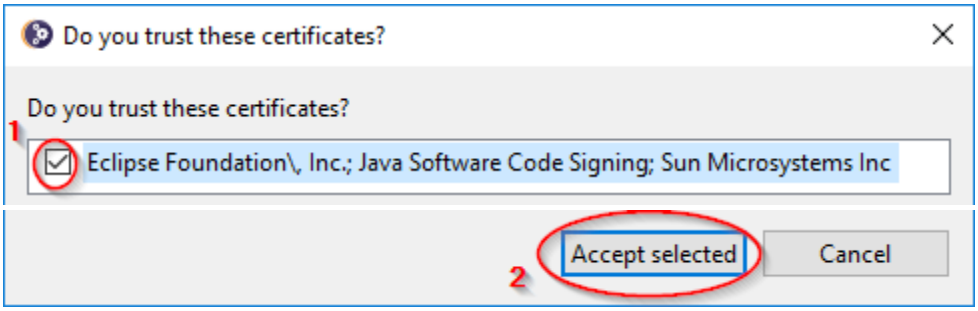
If there are no immediate errors, you will see a progress page similar to one below.



There is a progress bar ① and a message log ②. If you need to stop the installation, click on red square icon ③.

Accepting Code Signing Certificates

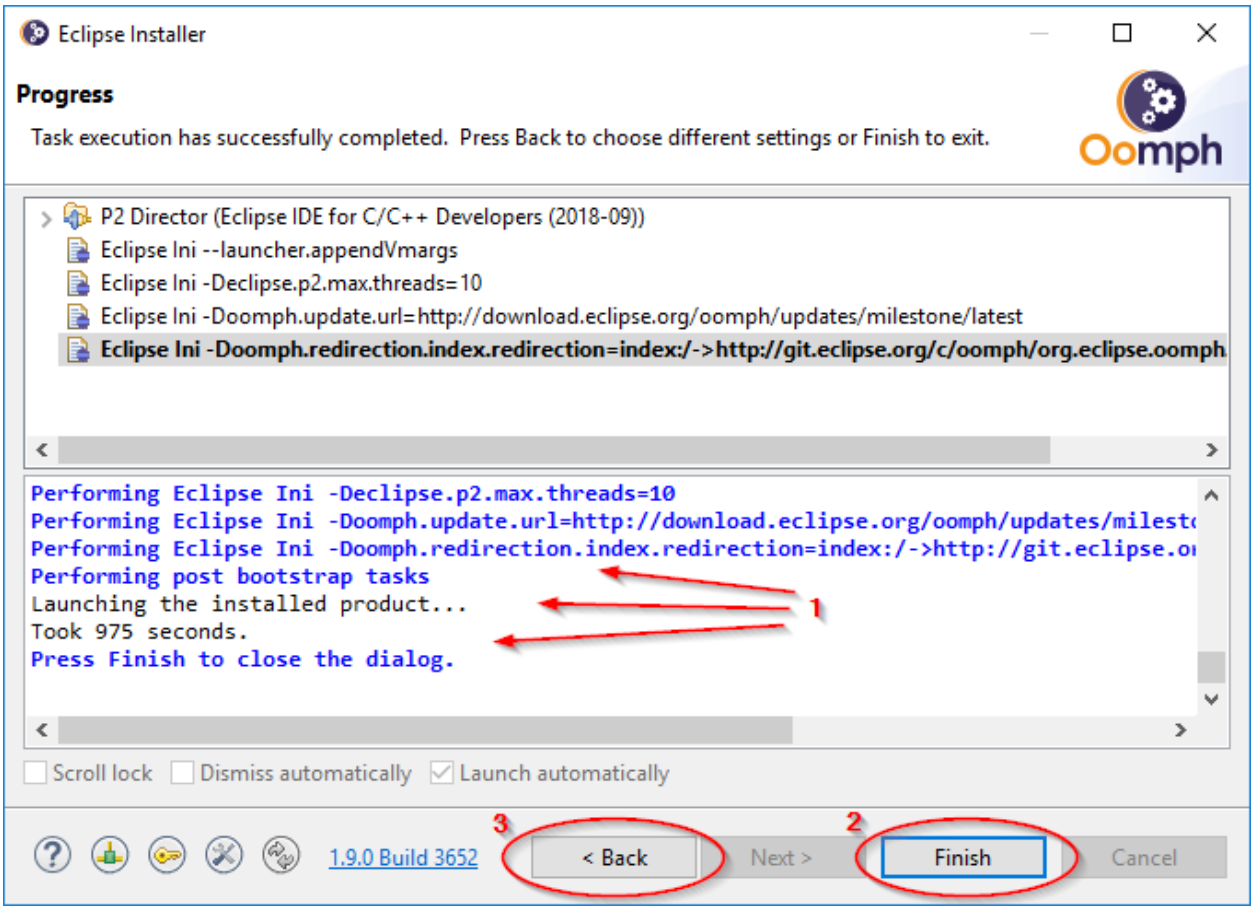
While installing Eclipse, the installer may prompt for Eclipse code signing certificate confirmation. You will have to accept the certificate to continue.



Review the certificate list (select a certificate and use **Details** button to see the certificate information). If you trust the certificate(s), check appropriate box(es) ① and press **Accept selected** button ②.

See Do you trust these certificates? in Appendix 13 – Eclipse Pop-ups and Prompts for more details.

Exiting Eclipse Installer



Review the message log ①, if needed. Press **Finish** button ② to exit the installer. Or press **Back** button ③ few times to return to the previous pages, so you can do another Eclipse installation.

Creating Eclipse Shortcut

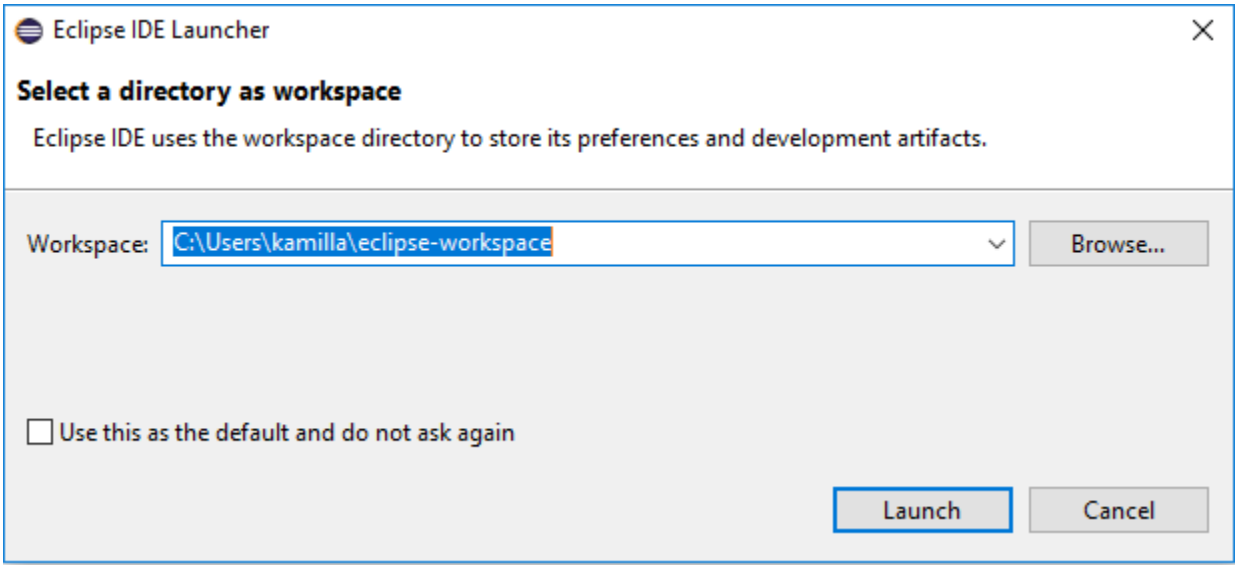
In advanced mode, the installer does not create Eclipse desktop shortcut. If you need the shortcut, see Setting Up Eclipse Shortcut section.

Automatic Eclipse Launch

After the Eclipse installation is completed, an Eclipse launcher will be started automatically.

If the installer is run as a regular user, the automatically launched Eclipse instance will also run as the same user. If the installer is run as Administrator, the Eclipse instance will also run as Administrator.

After the splash window you will see **Eclipse IDE Launcher** window.



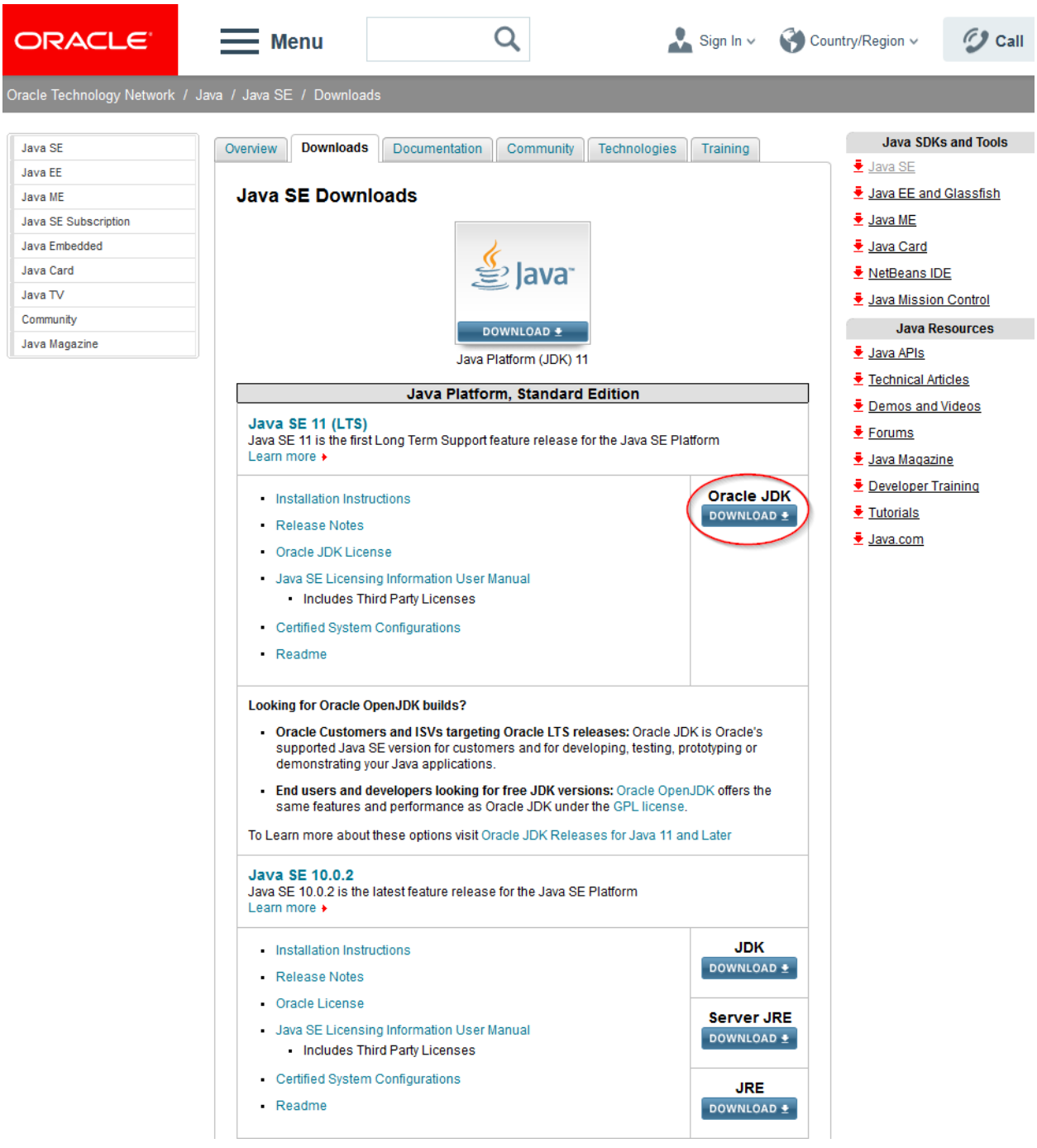
Do not press or click anything yet. Put aside, for the moment, the **Eclipse IDE Launcher** window (you can close it or keep it open).

To proceed, return to the main text of this document.

- If a desktop shortcut is needed, complete Setting Up Eclipse Shortcut section.
- Afterwards continue to Running Eclipse IDE the First Time section.

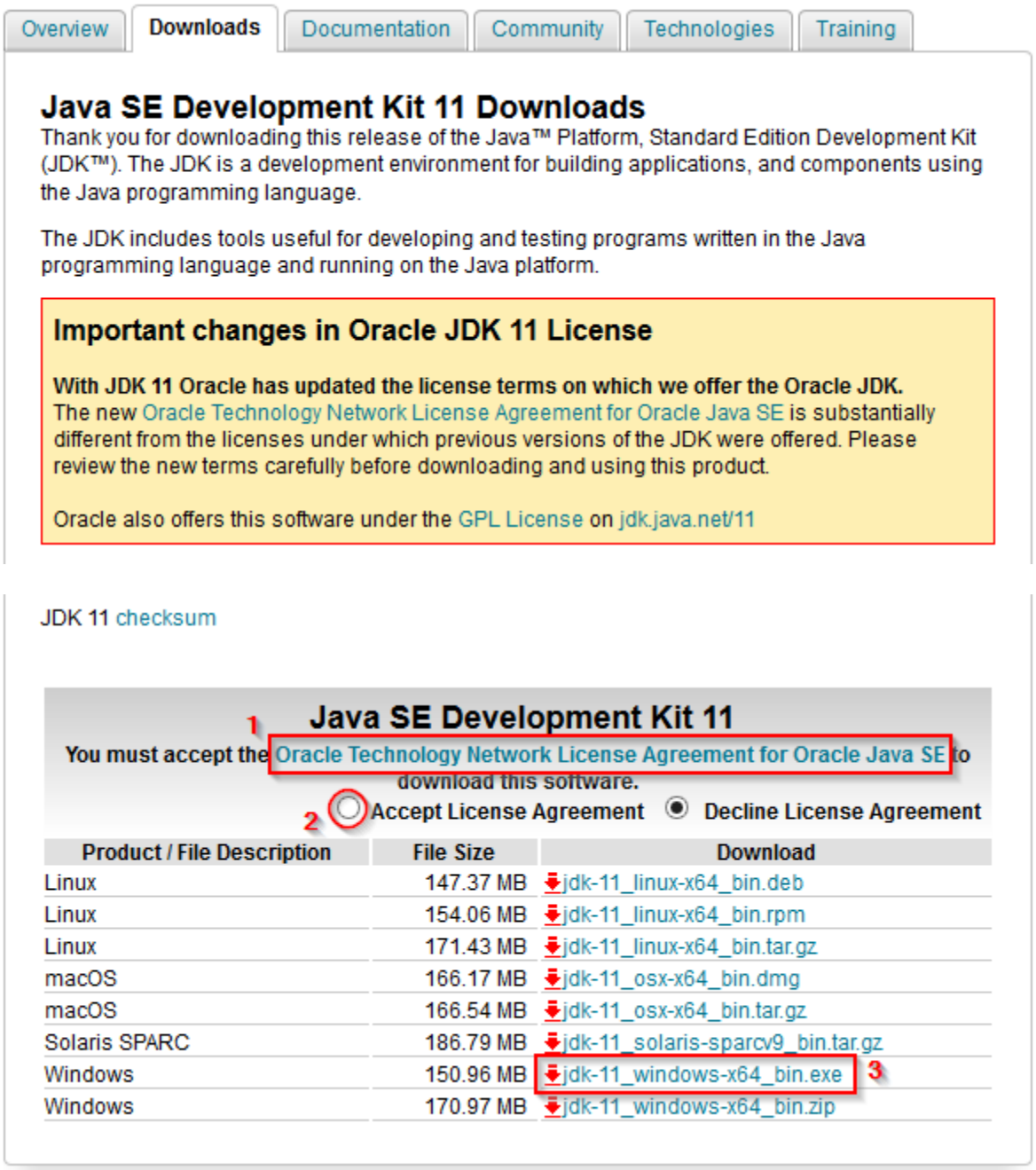
Appendix 8 – Installing Oracle JDK for Java SE 11 (Long Term Support)

To download Oracle JDK for Java Standard Edition 11 (Long Term Support), go to Oracle's Java SE Downloads website. You will need approximately 429 MB of disk space.



Find **Java SE 11 (LTS)** section ①. Click DOWNLOAD button ② that is under **Oracle JDK** label.

As the next step, you have to download and run JDK setup program



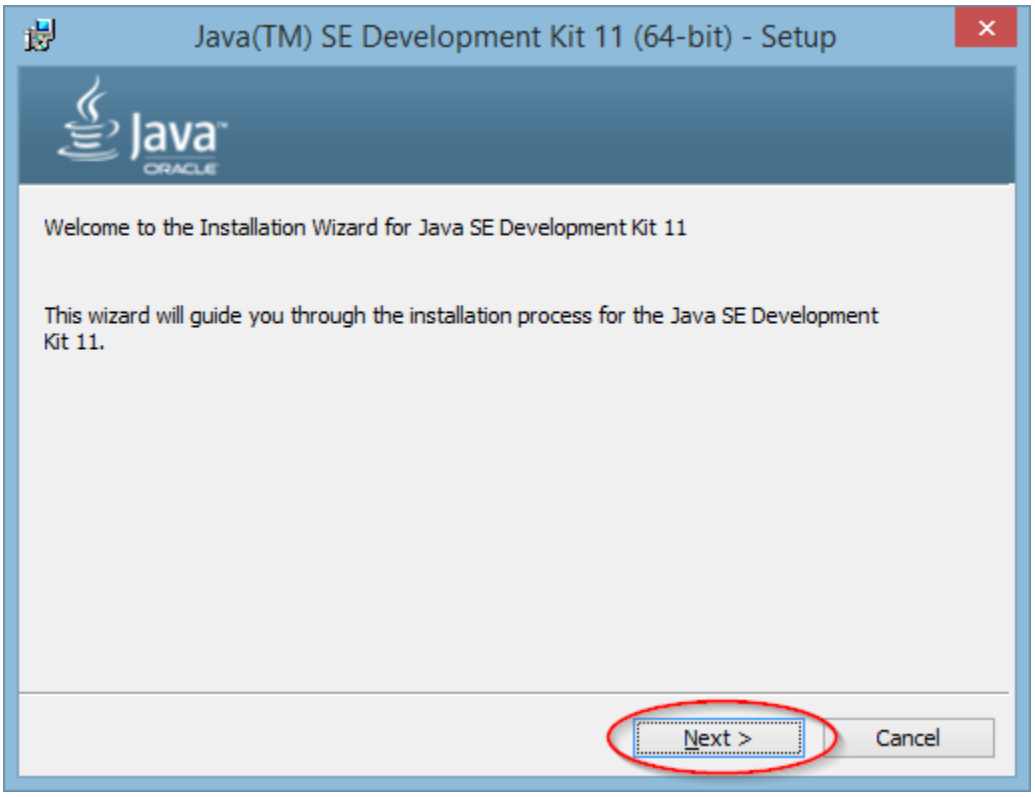
If needed, read Oracle Technology Network License Agreement for Oracle Java SE ①.

Select **Accept License Agreement** ②.

Click on the filename that is in the intersection of **Windows** row and **Download** column ③. In the example screenshot it is **jdk-11_windows-x64_bin.exe**.

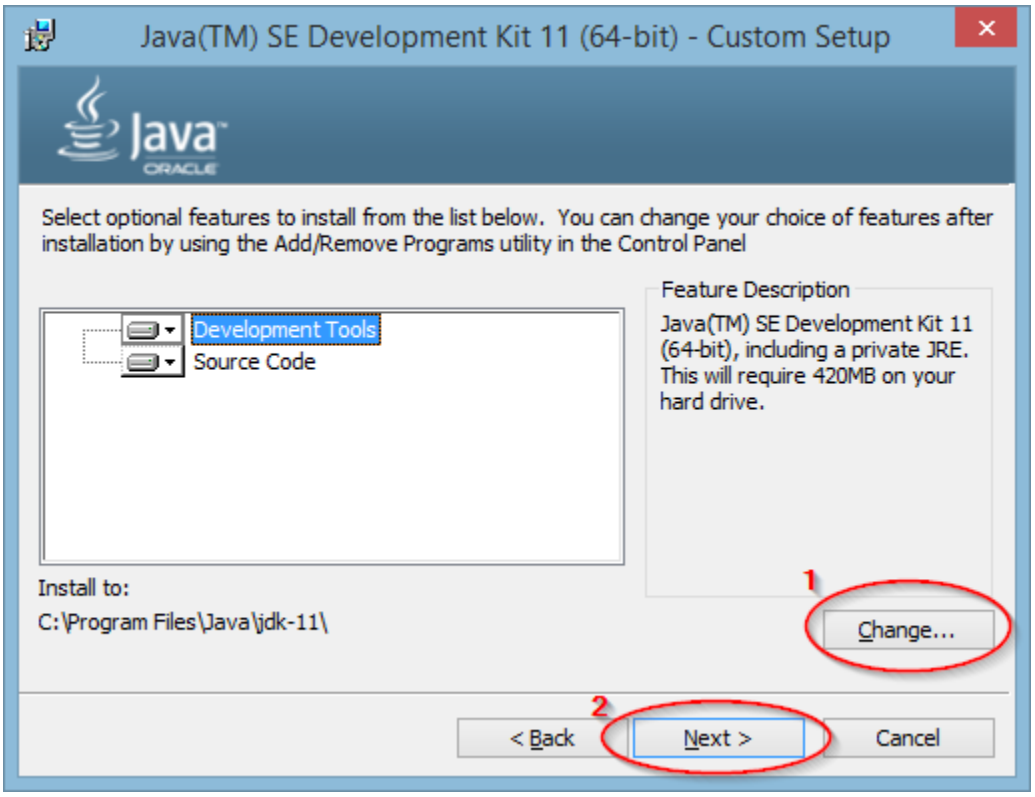
Depending on your browser, you will get a download prompt. Download and run the file. See Appendix 11 – Downloading and Running files from the Internet if you need help with the file downloading.

The next steps do not depend on the browser. If you see a security pop-up window, click through it. You will get the following window

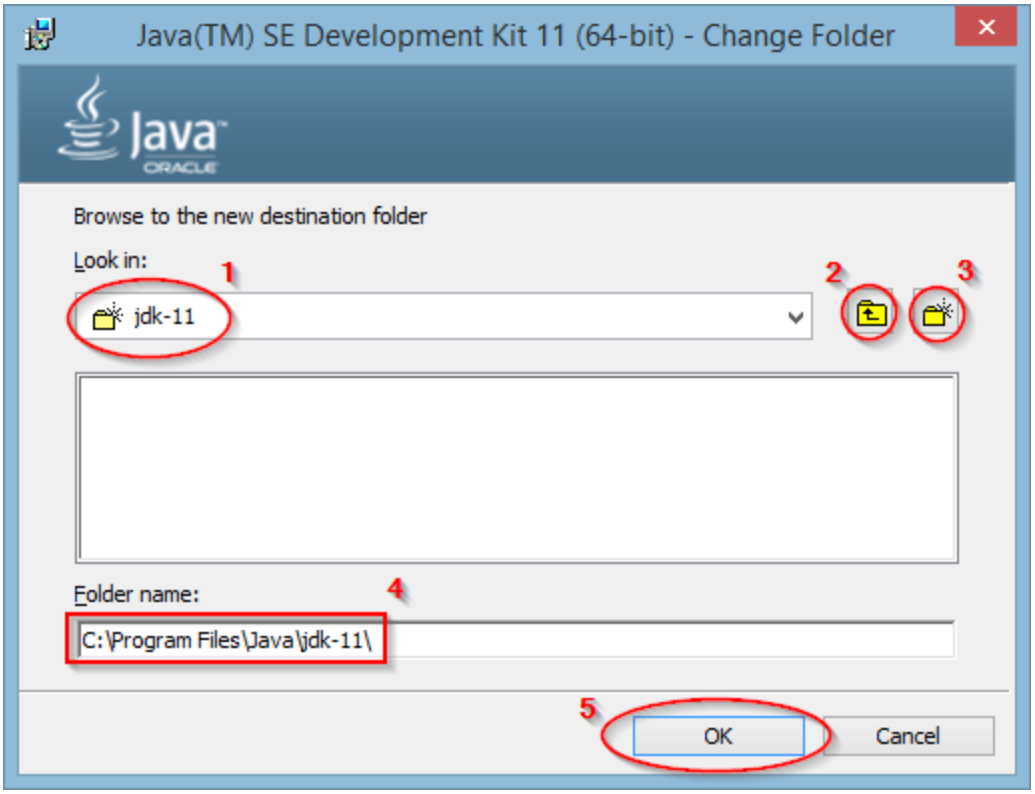


Press **Next** button.

You will get the following window.

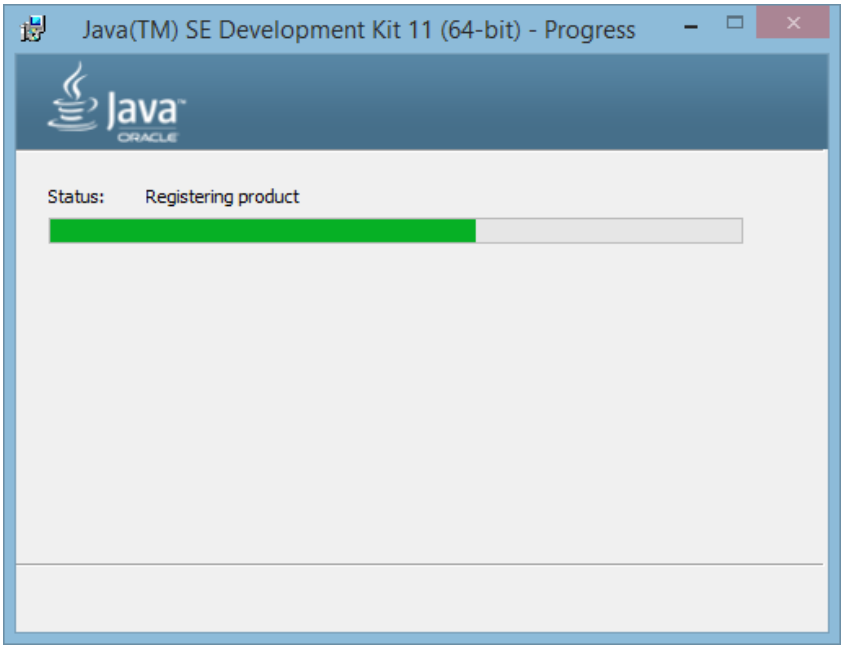


If you need to change the default JDK folder (`C:\Program Files\Java\jdk-11` in the example screenshot) press **Change** button ①.



Browse to the place where you want to install Java SE to ①②. Use **Make New Folder** button ③, if needed, to create folders. Make sure that the destination folder name is correct ④. Press **OK** ⑤ button after the destination folder is selected.

You will be back to the previous window. See the previous screenshot - press **Next** button ② to continue. You will see JDK installation progress window.



After JDK installation is completed you will see

Press **Close** button. The Java SE 11 is installed.

To be able to run Eclipse, Eclipse launcher has to know JDK installation folder path. See section Enabling Eclipse Launching via OpenJDK. Substitute appropriate Oracle JDK folder (`C:\Program Files\Java\jdk-11` in this example) for OpenJDK folder.

Appendix 9 – Installing Legacy Versions of Java SE

You may install Java SE 10 or Java SE 8 instead of Java SE 11 if so needed. When running legacy Java SE setup program, the setup screens are very similar to Java SE 11 screenshots, the main difference is the Java banner color.

See Java Standard Edition 10 (64-bit) and Java Standard Edition 8 (32-bit and 64-bit) for more details.

Note - Java SE 8 does not have public updates after January 2019. Java SE 9 has reached end of support. Users of Java SE 8 and 9 should switch to Java SE 11 or 10.

Legacy JDK and JRE

There are two options when installing legacy Java Standard Edition (Java SE)

- Install Java Runtime Environment (JRE)
- Install Java Development Kit (JDK) – includes JRE

The recommended approach is to install JDK (that also includes JRE). If you are not going to do Java (or Java EE) development, you can save some disk space by installing only JRE.

Note – Java SE 11 has only JDK option, it does not have JRE option. It is enough to install Java SE 11 JDK as it includes executables and other files similar to files in the legacy JRE.

Here is a table that describes minimum software requirements depending on programming languages that are used for development. Select the column corresponding to the languages and install all components marked with **Yes** or **Possible**.

	C and C++	**Java**	**Java and Java[1] Enterprise**	**C, C++, and Java**	**C, C++, Java, and Java[1] Enterprise**
Java Runtime Environment (JRE)	Possible				
Java Development Kit (JDK) * includes JRE	Yes	Yes	Yes	Yes	Yes

Note 1 - To run Java Enterprise programs an appropriate Java Enterprise Application Server is required (that is out of this document scope).

Java Standard Edition 10 (64-bit)

You may install a Java Runtime Environment (JRE) or a Java Development Kit (JDK) that includes JRE. JDK is needed for Java and Java EE development. In the case of C/C++, JRE or JDK can be used to run Eclipse. There is no point to install JRE separately if JDK is installed (as JRE is a part of JDK).

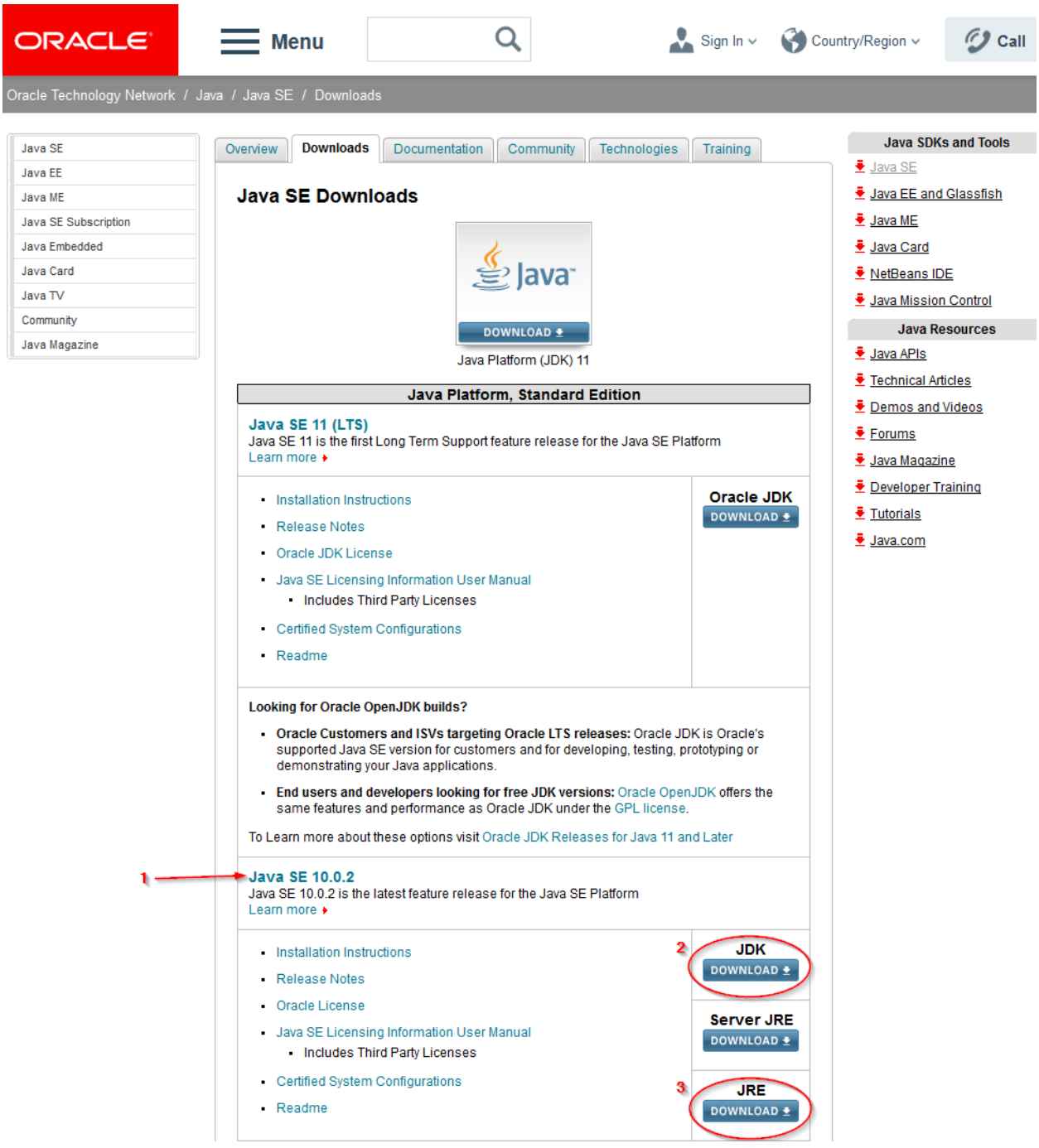
You have to have approximately the following free disk space before installing Java SE

	Java SE 10 64-bit
Java Runtime Environment (JRE)	202 MB
Java Development Kit (JDK) *includes JRE	757 MB

See Installation of the JDK and the JRE on Microsoft Windows Platforms for more details.

Downloading Java SE 10

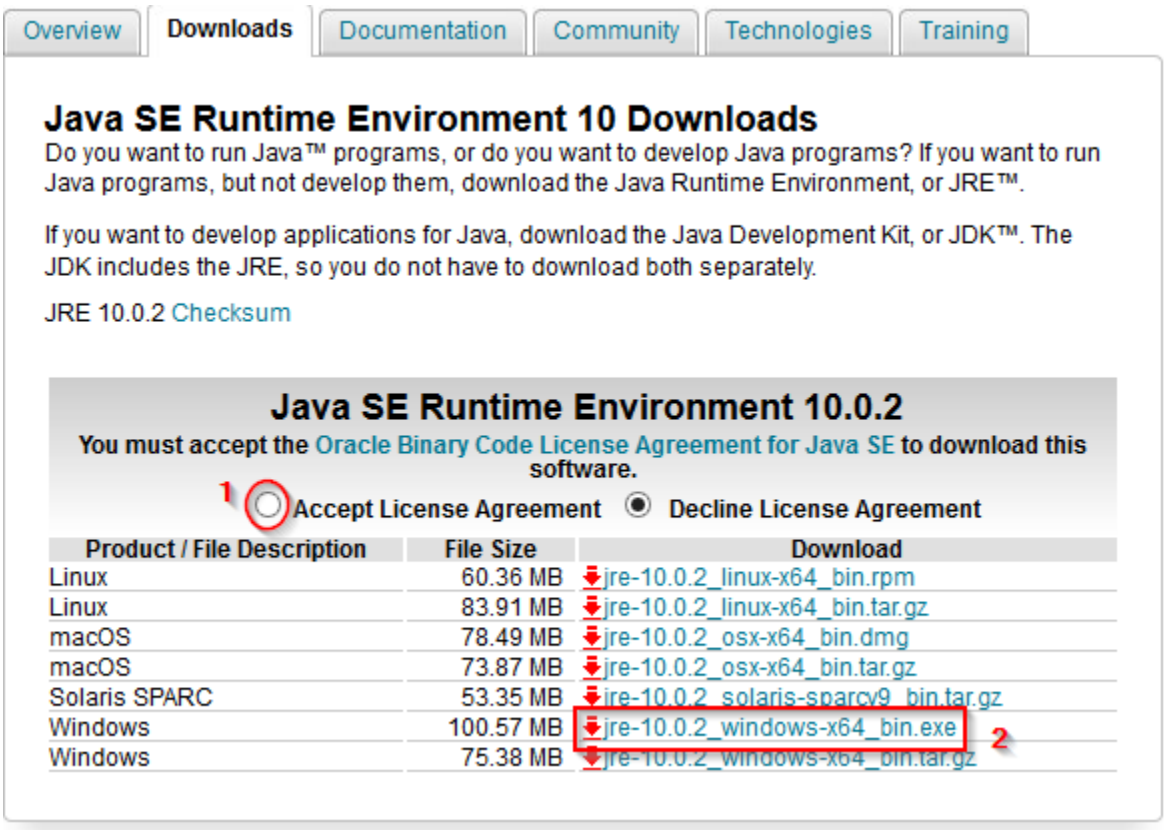
To download Java Standard Edition 10, go to Oracle's Java SE Downloads website.



Find **Java SE 10** section ①. Click DOWNLOAD button that is under **JDK** ② or **JRE** ③ label. You shall download JDK (that includes JRE) if you want to develop Java programs, otherwise it is enough to download JRE only.

Installing Java SE Runtime Environment 10 (JRE)

If you are installing JRE, you have to download and run JRE setup program



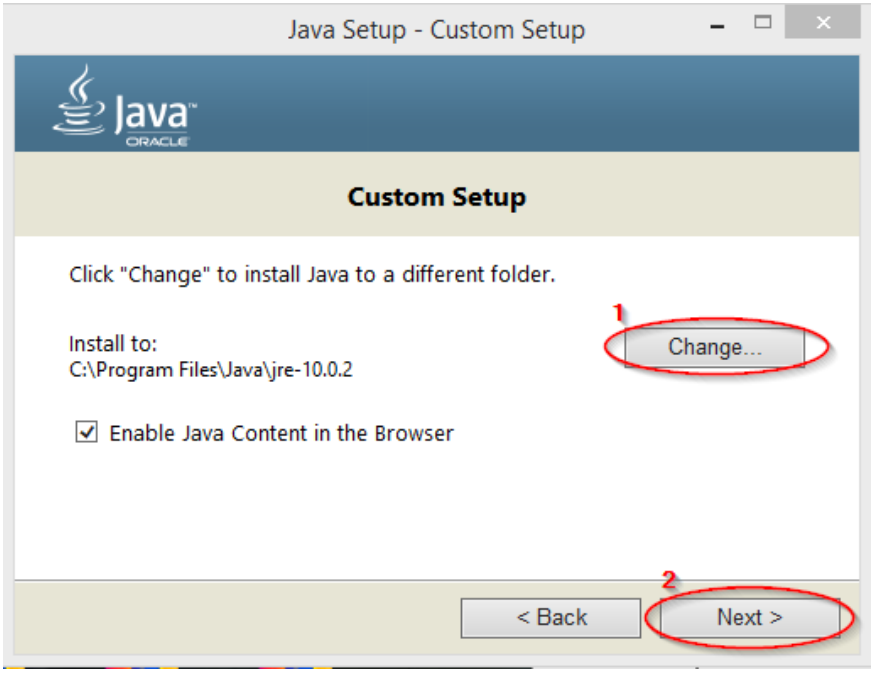
Select  **Accept License Agreement** ①. If downloading Java SE 10 find first "**Windows**" row, otherwise find "**Windows x64**" row. Click on the .exe filename that is in the intersection of the found row and **Download** column ②. In the example screenshot, it is **jre-10.0.2_windows-x64_bin.exe**.

Depending on your browser, you will get a download prompt. Download and run the file. See Appendix 11 – Downloading and Running files from the Internet for more information.

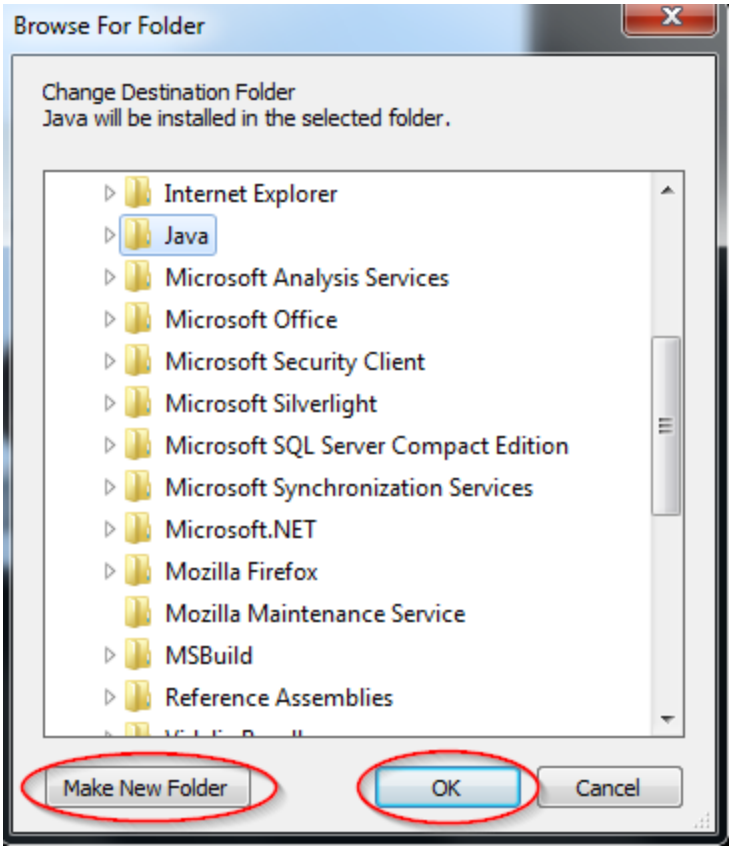
The next steps do not depend on the browser. If you see a security pop-up window, click through it. Then you will get the following window

Select **Custom Setup** ① if you want to change the folder that Java SE is installed to. Press **Install** button to continue ②.

If you select **Custom Setup**, you will see the following "**Custom Setup**" window



If you need to change the default folder (`C:\Program Files\Java\jre-10.0.2` in the example screenshot) press **Change** button ①. You will see the following window



Browse to the place where you want to install Java SE to. Use **Make New Folder** button, if needed, to create the destination folder. Press **OK** button after the destination folder is selected.

When you are satisfied with the destination folder path, press **Next** button ② from the previous screenshot to start the Java SE installation.

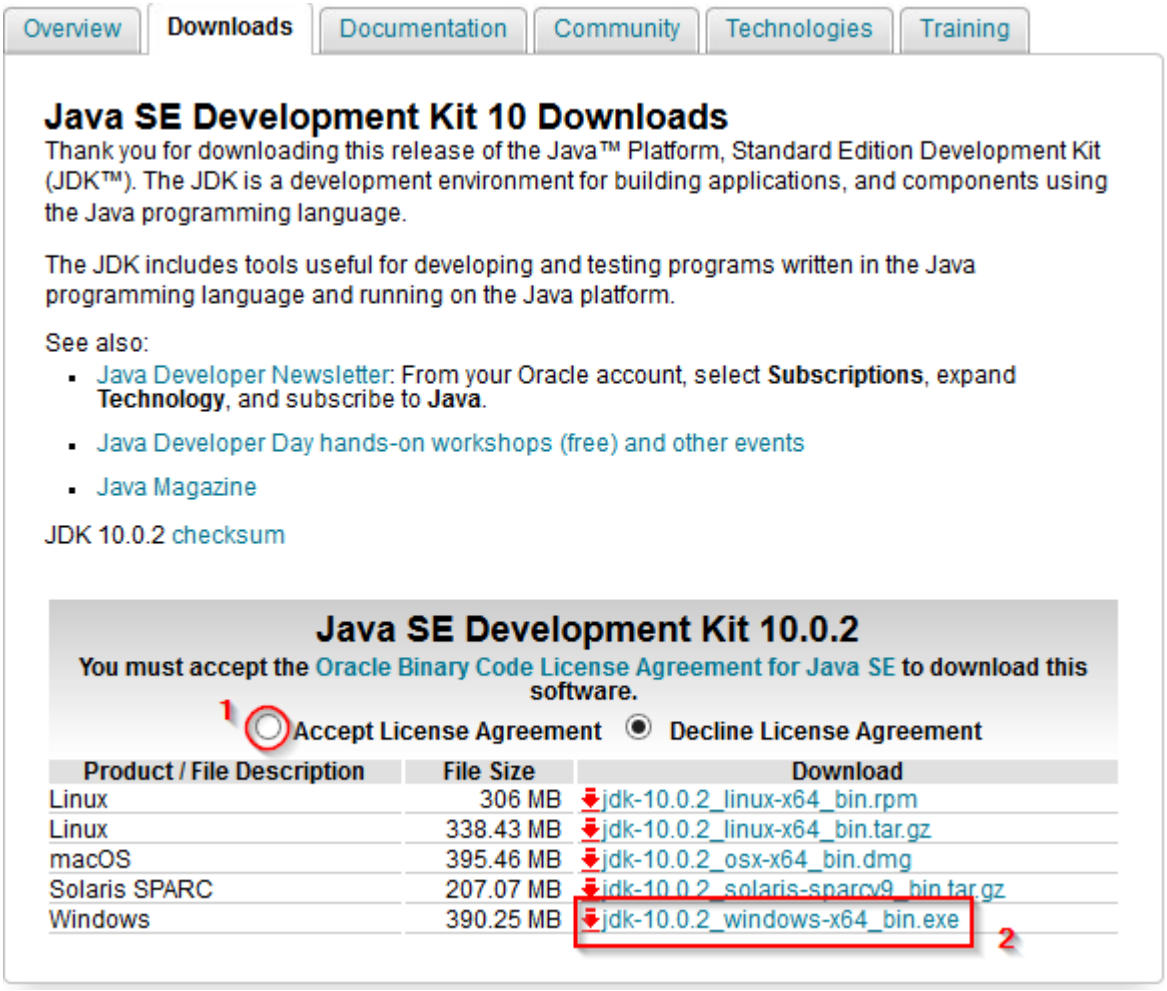
If you selected **Change destination folder** initially and pressed **Next** button in the “Destination Folder” window after it or if you left **Change destination folder** unselected and pressed **Install** button right away you will see the following window

The window is supposed to show Java installation progress. When the installation is completed you will see the following window

Press **Close** button. The Java SE runtime is installed.

Installing Java SE Development Kit 10 (JDK)

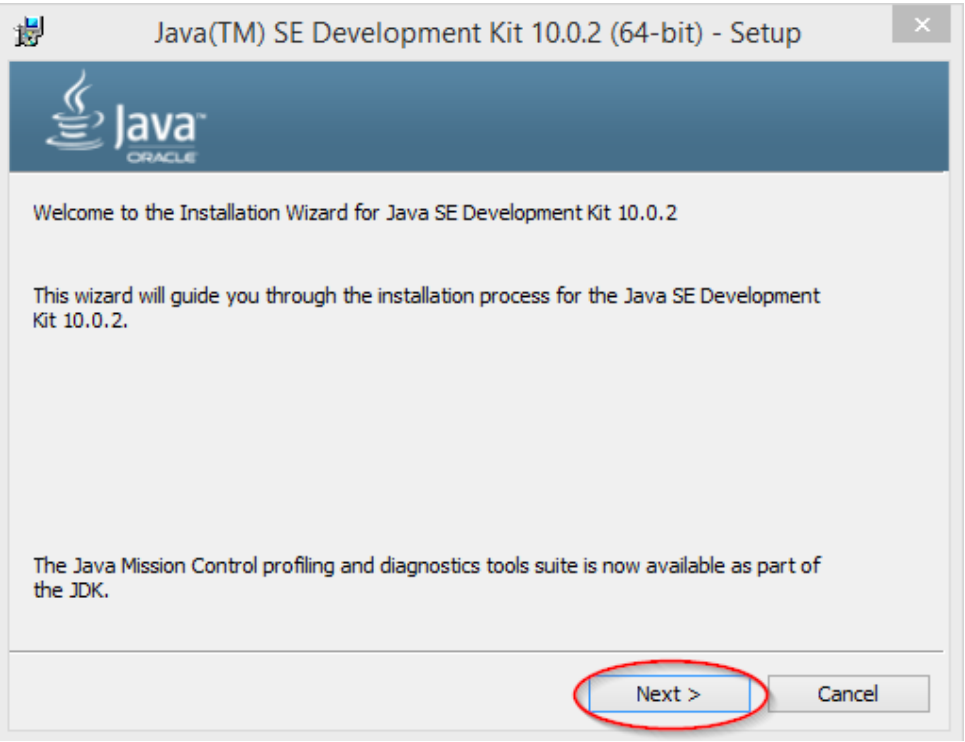
If you are installing JDK, you have to download and run JDK setup program



Select  **Accept License Agreement** ①. Click on the filename that is in the intersection of **Windows** row and **Download** column ②. In the example screenshot it is **jdk-10.0.2_windows-x64_bin.exe**.

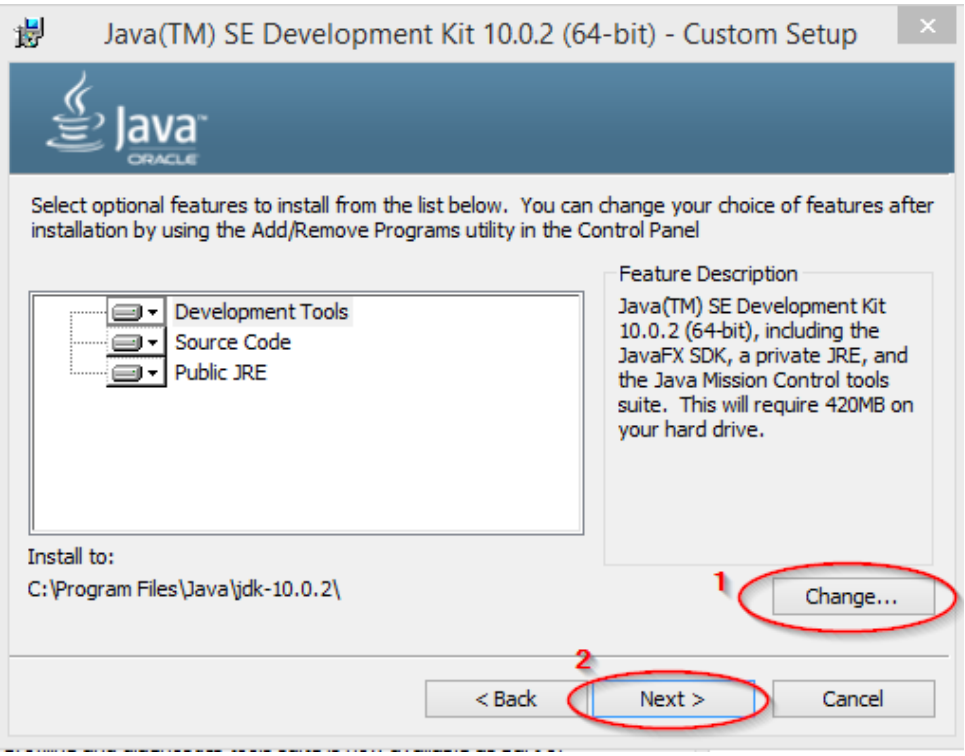
Depending on your browser, you will get a download prompt. Download and run the file. See Appendix 11 – Downloading and Running files from the Internet for more information.

The next steps do not depend on the browser. If you see a security pop-up window, click through it. You will get the following window



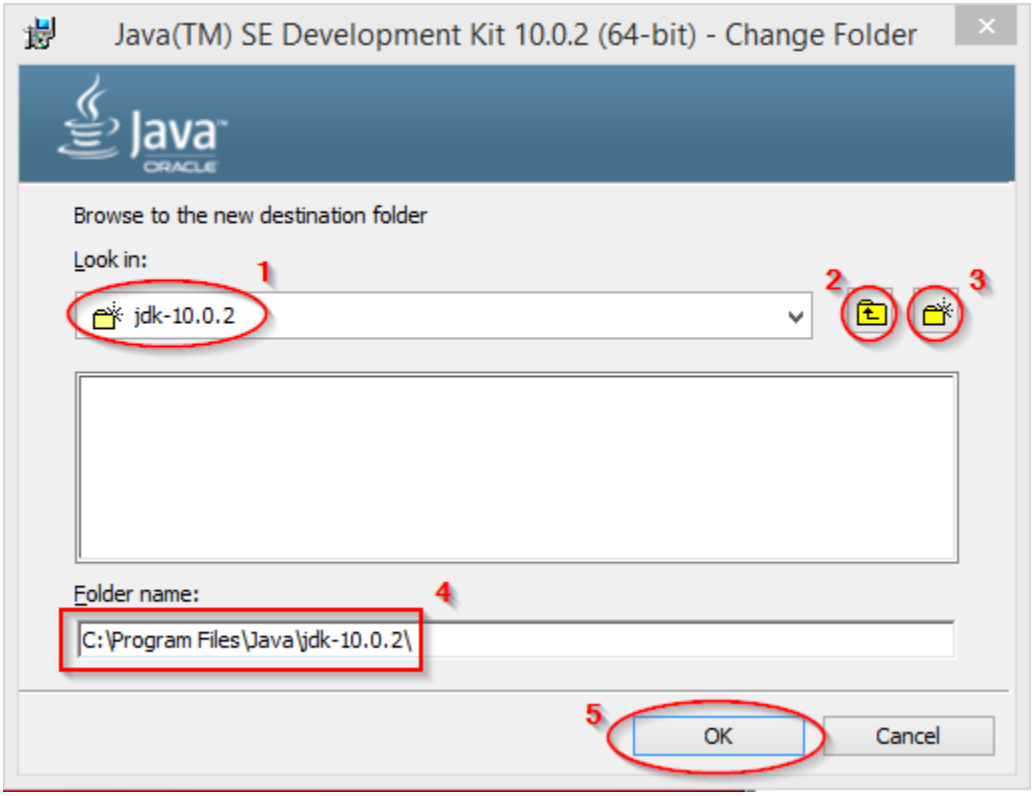
Press **Next** button.

You will get the following window.



If you need to change the default JDK folder (`C:\Program Files (x86)\Java\jdk1.8.0_11` in the example screenshot) press **Change** button ①.

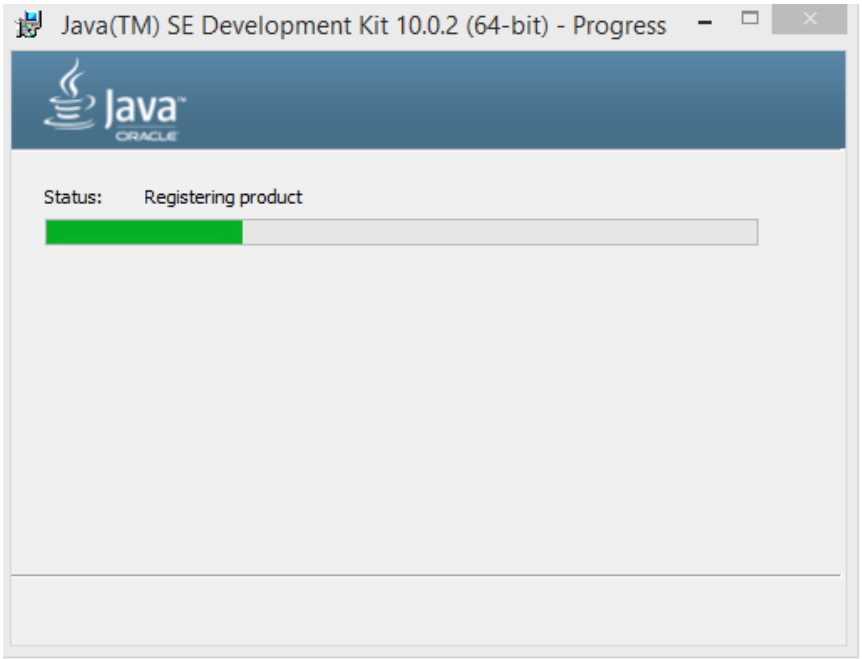
You will see the following window



Browse to the place where you want to install Java SE to ①②. Use **Make New Folder** button ③, if needed, to create folders. Make sure that the destination folder name is correct ④. Press **OK** ⑤ button after the destination folder is selected.

You will be back to the previous window. Press **Next** button ② to continue.

You will see JDK installation progress window.



If you do not have current Java Runtime (JRE) installed, you will also see a window suggesting JRE installation (if JRE is already installed skip the next two screenshots). In such a case, follow walkthrough in previous section Installing Java SE Runtime Environment (JRE).

After JDK (and, possibly, JRE) installation is completed, you will see

Press **Close** button. The Java SE JDK is installed.

Java Standard Edition 8 (32-bit and 64-bit)

If you want to use 32-bit Java, you have to install Java 8. Java 8 is the last release that has 32-bit version (Java 9 has reached end of support).

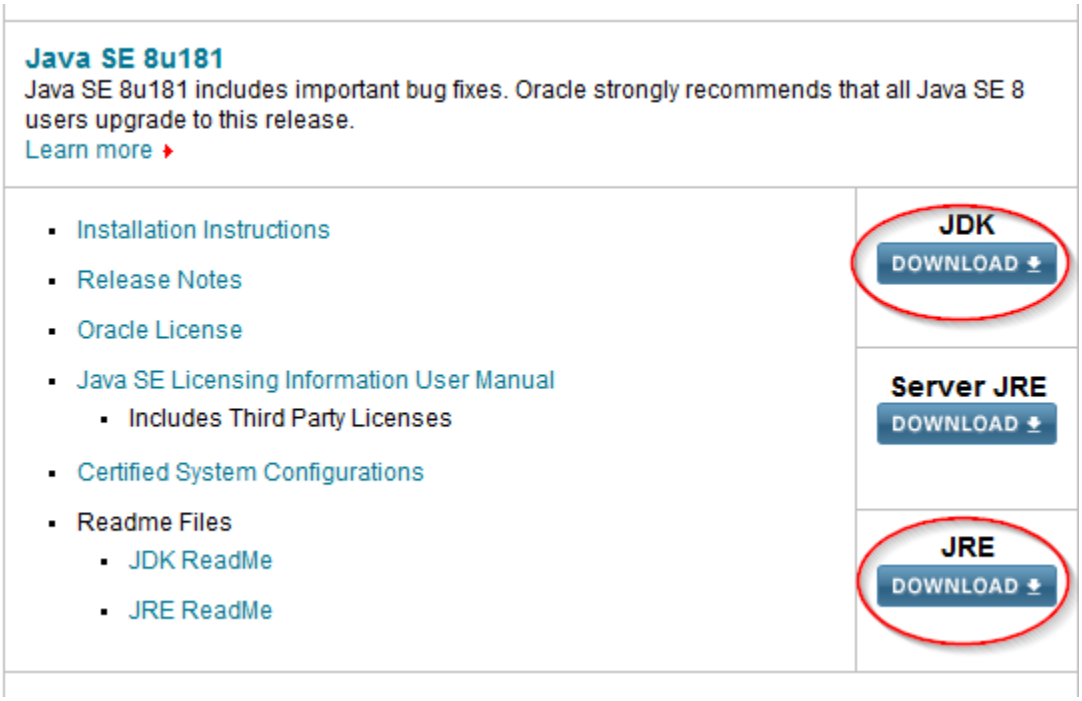
If you are running Microsoft Windows 32-bit, you have to install Java SE 32-bit. If you are running Microsoft Windows 64-bit, you may install Java SE 32-bit or Java SE 64-bit (or both).

	Java SE 8 32-bit	**Java SE 8 64-bit**
Java Runtime Environment (JRE)	126 MB	128 MB
Java Development Kit (JDK) * includes JRE	398 MB in destination folder 88 MB in temporary folder	409 MB in destination folder 93 MB in temporary folder

See Windows System Requirements for JDK and JRE for more details.

Downloading Java SE 8

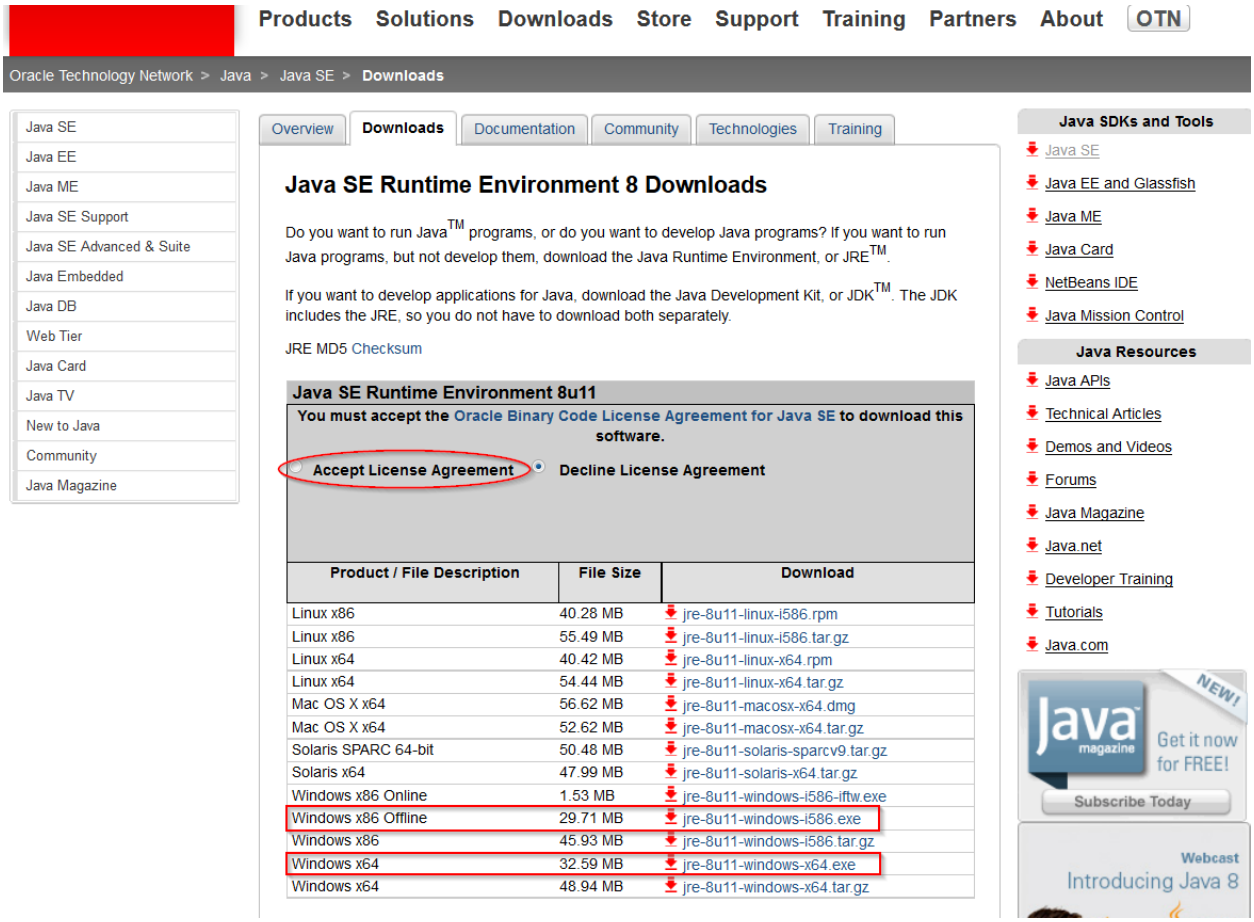
To download Java Standard Edition 8 go to Oracle's Java SE Downloads webpage (the same as Java 10 downloads).



Click DOWNLOAD button that is under **JDK** or **JRE** label. You shall download JDK (that includes JRE) if you want to develop Java programs, otherwise it is enough to download JRE only.

Installing Java SE 8 Runtime Environment (JRE)

If you are installing JRE, you have to download and run JRE setup program



Select **Accept License Agreement**. Click on the filename that is in the intersection of "**Windows x86 Offline**" row and **Download** column. In the example screenshot it is **jre-8u11-windows-i586.exe**.

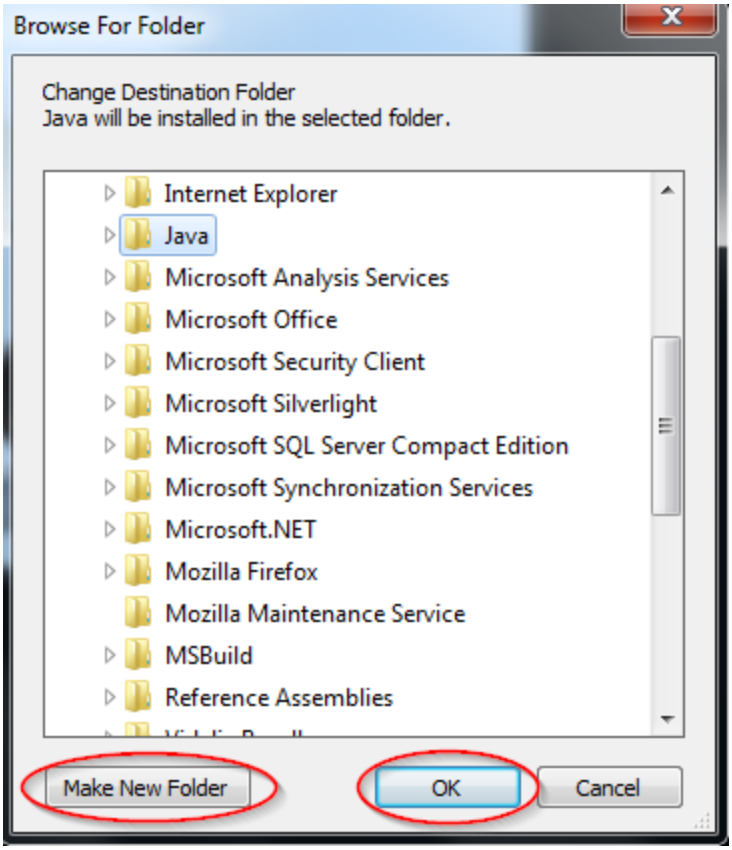
Depending on your browser, you will get a download prompt. Download and run the file. See Appendix 11 – Downloading and Running files from the Internet for more information.

The next steps do not depend on the browser. If you see a security pop-up window, click through it. Then you will get the following window

Select **Change destination folder** if you want to change the folder that Java SE is installed to. Press **Install** button in any case.

If you selected **Change destination folder** you will see the following "Destination Folder" window

If you need to change the default folder (`C:\Program Files (x86)\Java\jre8` in the example screenshot) press **Change** button. You will see the following window

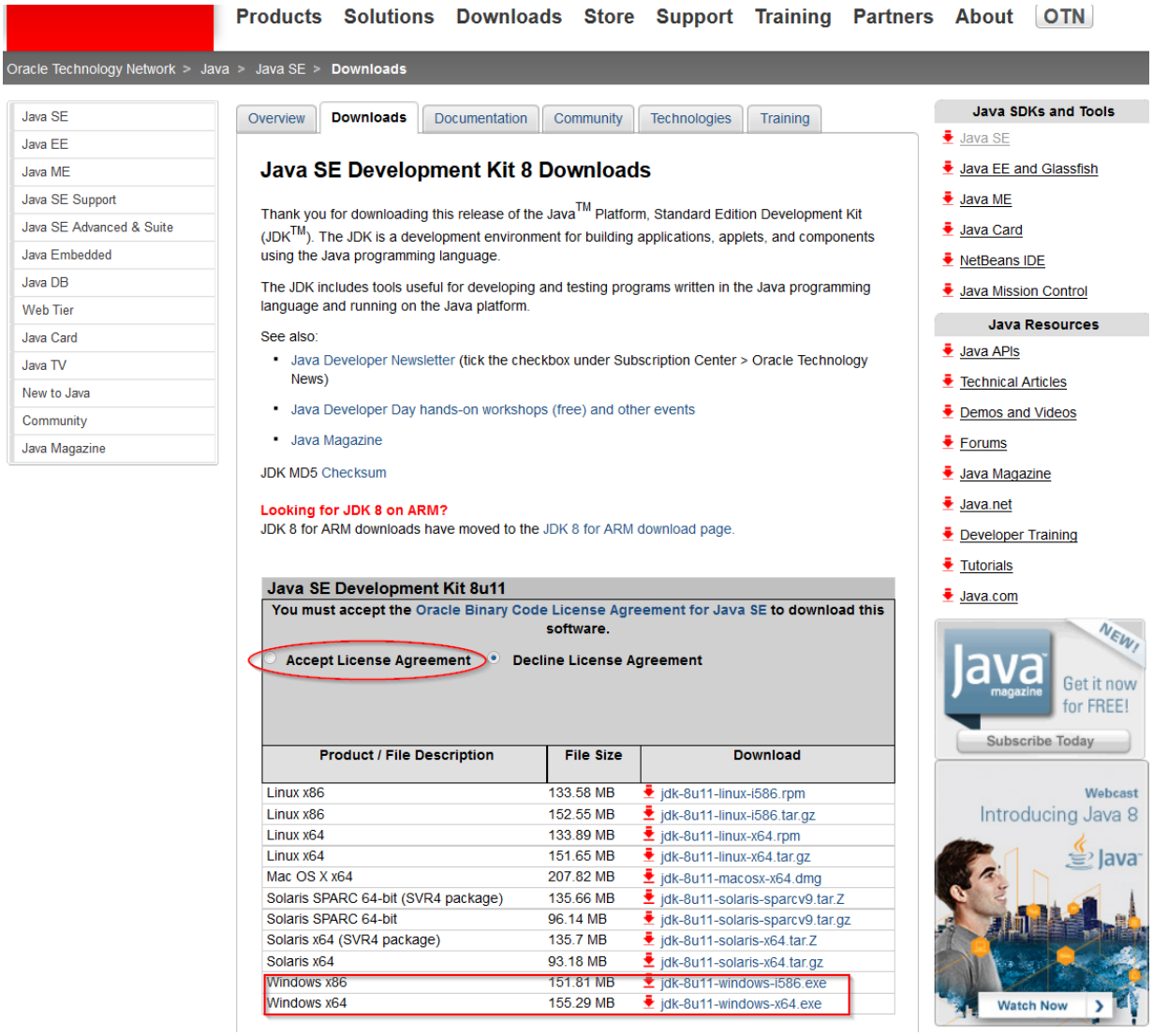


Browse to the place where you want to install Java SE to. **Use Make New Folder** button if needed to create the destination folder. Press **OK** button after the destination folder is selected, it will close the pop-window

When you are satisfied with the destination folder path press **Next** button to start the Java SE installation.

Installing Java SE 8 Development Kit (JDK)

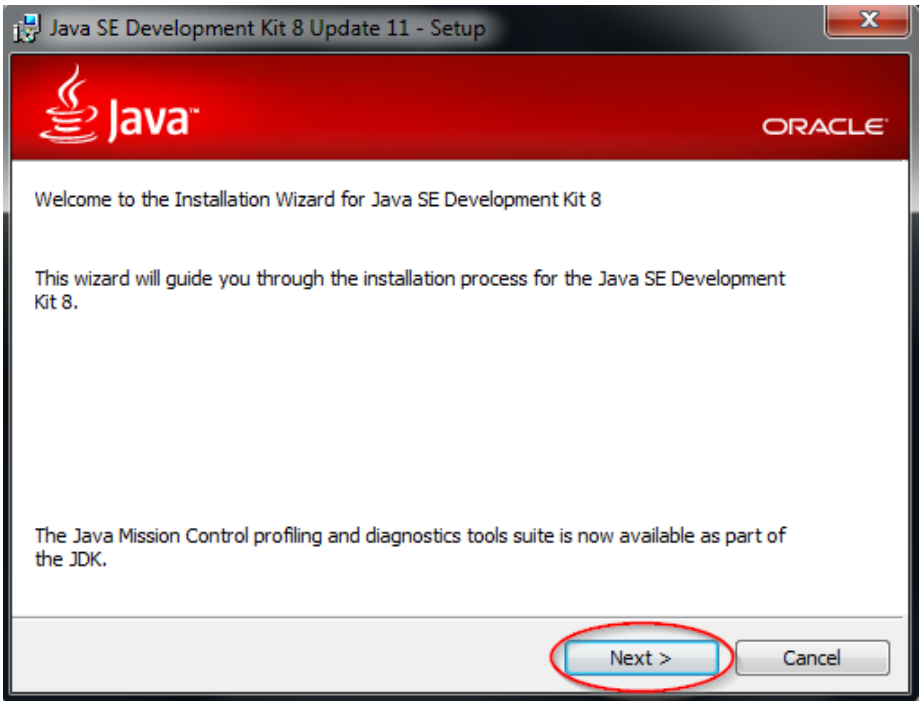
If you are installing JDK, you have to download and run JDK setup program. Note that it will also install JRE.



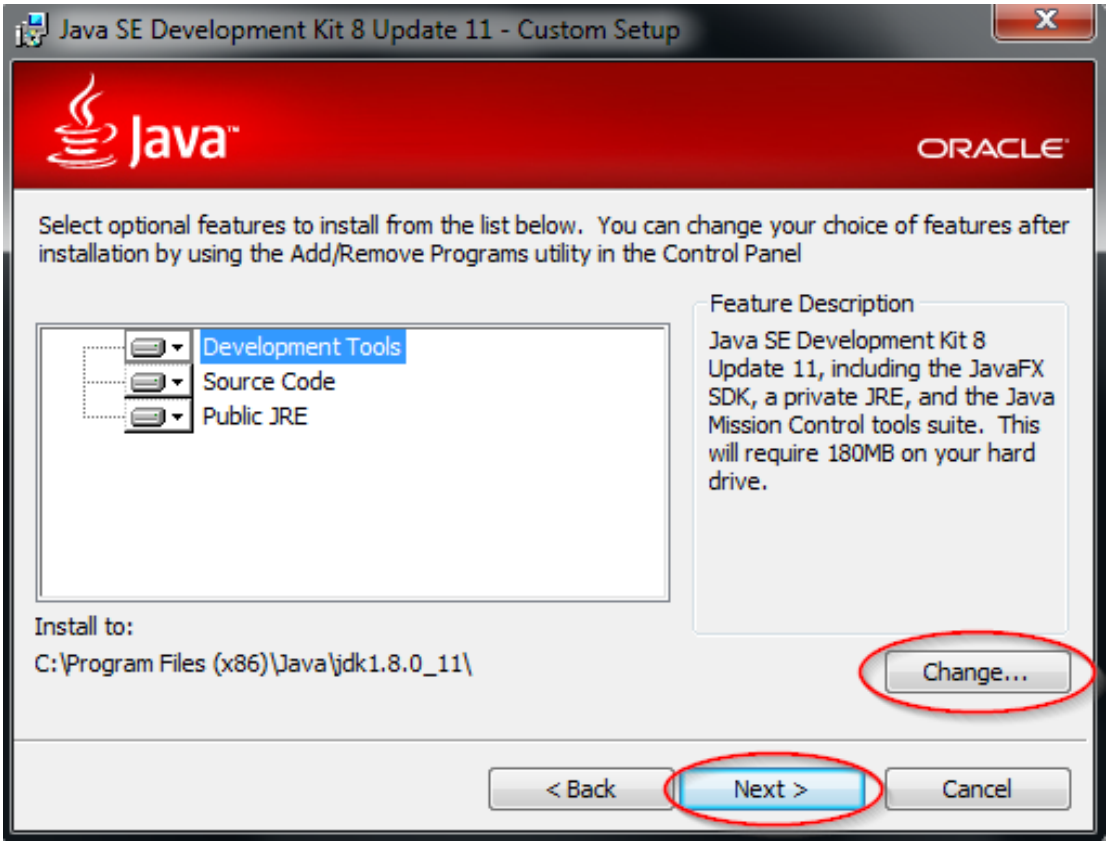
Select **Accept License Agreement**. If downloading Java SE 32-bit find "**Windows x86**" row, otherwise find "**Windows x64**" row. Click on the filename that is in the intersection of the found row and **Download** column. In the example screenshot it is either jdk-8u11-windows-i586.exe or jdk-8u11-windows-x64.exe.

Depending on your browser, you will get a download prompt. Download and run the file. See Appendix 11 – Downloading and Running files from the Internet for more information.

The next steps do not depend on the browser. If you see a security pop-up window click through it. You will get the following window

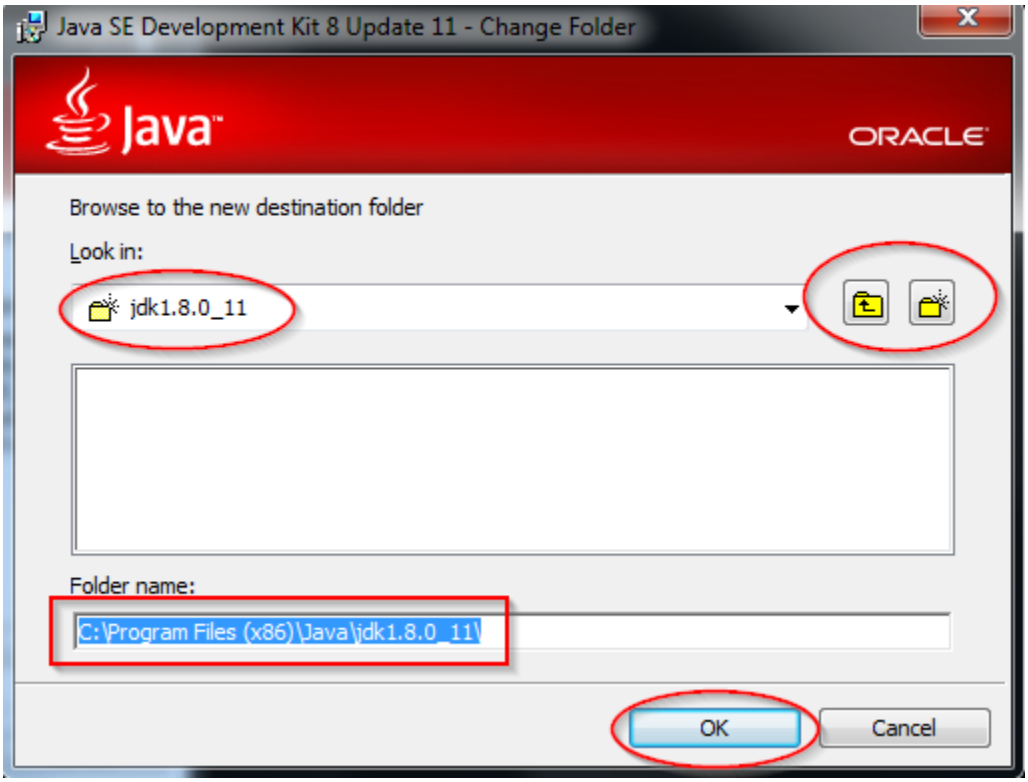


Press **Next** button. You will get the following window.



If you need to change the default JDK folder (`C:\Program Files (x86)\Java\jdk1.8.0_11` in the example screenshot) press **Change** button.

You will see the following window

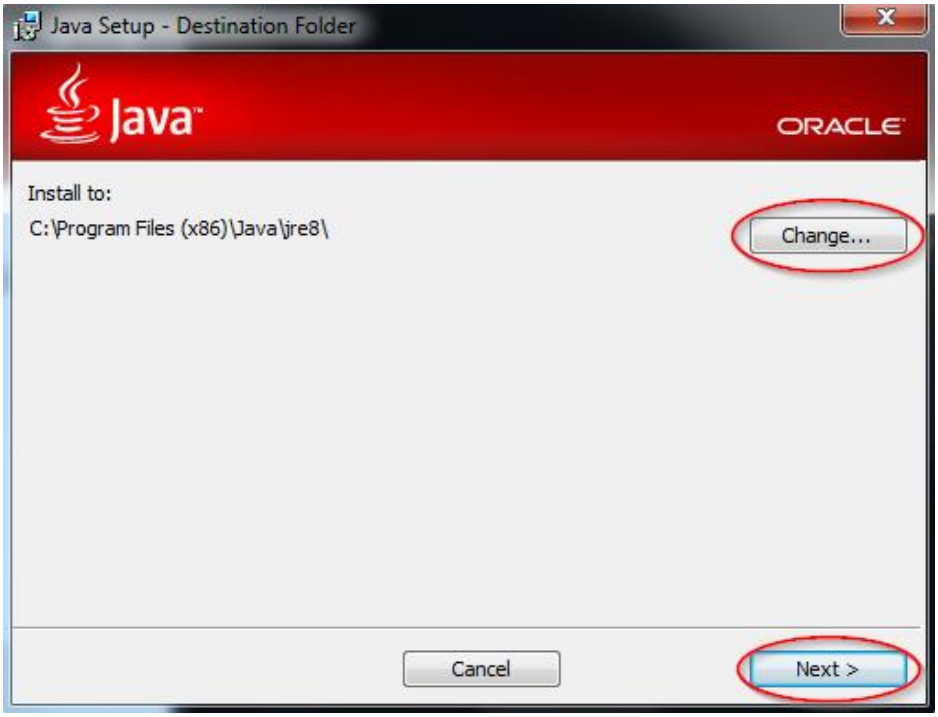


Browse to the place where you want to install Java SE JDK to. Use **Make New Folder** button (top right icon) if needed to create the destination folder. Press **OK** button after the destination folder is selected.

You will be back to the previous window. Press **Next** button to continue.

You will see JDK installation progress window.

If you do not have current Java Runtime (JRE) installed, you will see a window suggesting JRE installation (if JRE is already installed, skip the next two screenshots).



If you want to install JRE to some other folder than the default (`C:\Program Files (x86)\Java\jre8` in the example) press **Change** button and select the folder. Otherwise press **Next** to continue JRE installation.

You will see JRE installation progress window.

After JDK (and, possibly, JRE) installation is completed, you will see

Press **Continue** button. The Java SE JDK is installed.

Java SE Development Kit Registration

At the end of the Java Development Kit (JDK) installation, the default browser may be launched and JDK Registration page may be opened.

You do not have to register. Register if you want, close the page, or just leave it as is.

If you selected **Change destination folder** initially and pressed **Next** button in the "Destination Folder" window after it or if you left **Change destination folder** unselected and pressed **Install** button right away, you will see the following window

The window is supposed to show Java installation progress.

When the installation is completed, you will see the following window

Press **Close** button. The Java SE runtime is installed.

As a side effect of the installation, a new browser window may be opened. You can safely close such a window.

Installing Java Packages Removed in Java SE 11

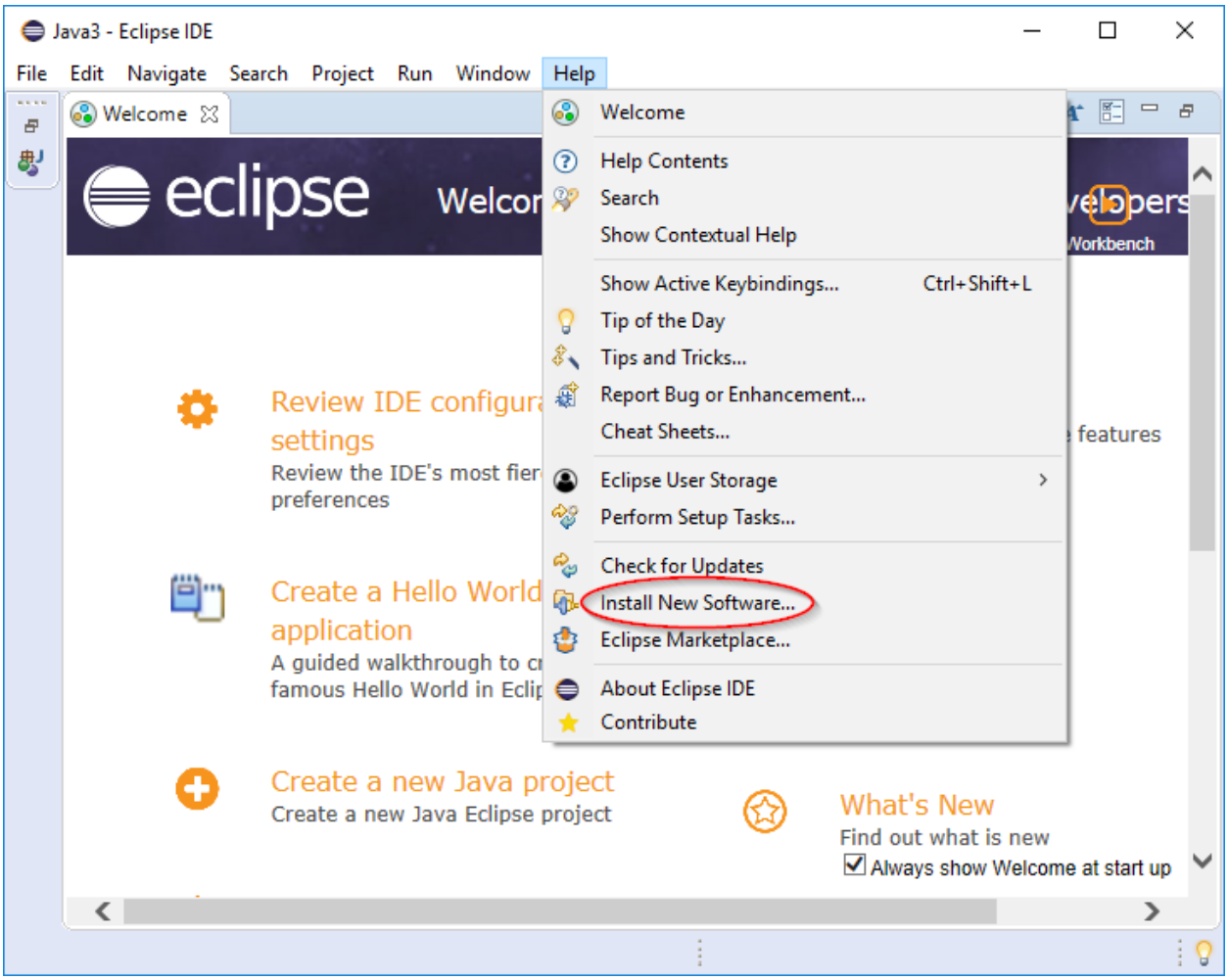
In Java SE 11, many Java packages were removed, for instance, **javax.xml.*** packages that are part of Jakarta EE.

If you need such packages, you may find many of them in Eclipse Orbit project. As an example, see below how to install **javax.xml.bind** package**.**

✓ If you are using Windows other than Windows XP and Eclipse is installed in a folder that the user cannot write to (for example, inside `C:\Program Files`), you have to run Eclipse as Administrator in order to be able to install and update Eclipse software. See When to Run Eclipse as Administrator (in Appendix 4 – Managing Eclipse Software) for more details.

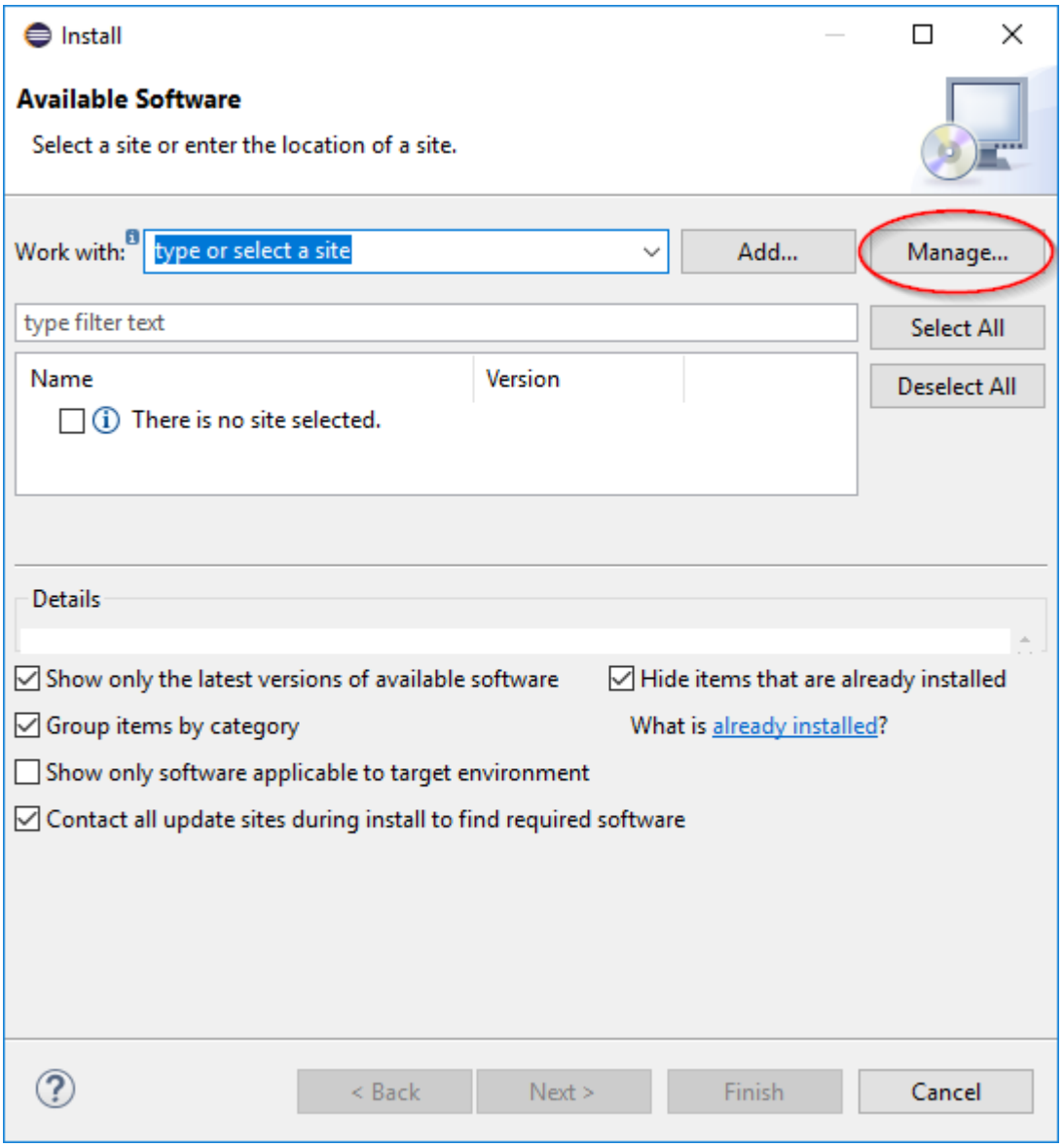
✓ To be able to install and update software, Eclipse requires an Internet access. By default, Eclipse uses the same settings as Edge and Internet Explorer browsers, so, if you can browse the Internet via these browsers, you, very probably, will be able to use install and update features in Eclipse. See Appendix 3 – Configuring Eclipse for Internet Access if you are having Internet connectivity problems in Eclipse.

If needed, close Eclipse, start it again as Administrator, and select administrative workspace.



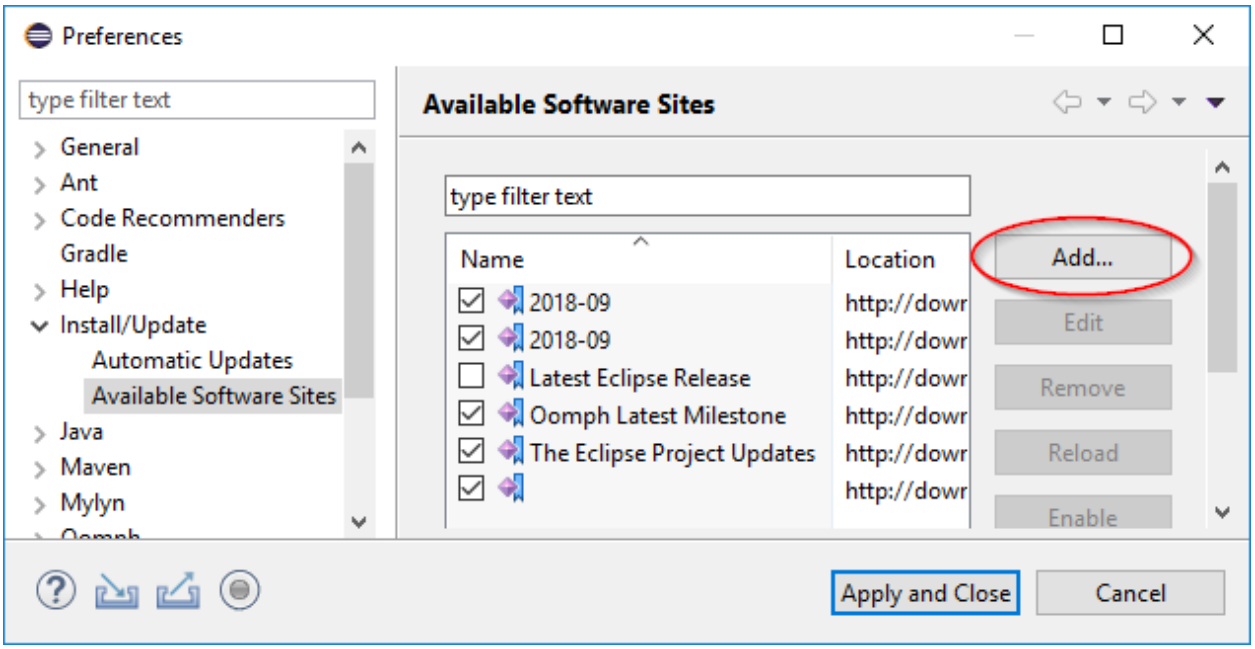
Open **Help** menu and select **Install Additional Software** option.

You will see **Available Software** window

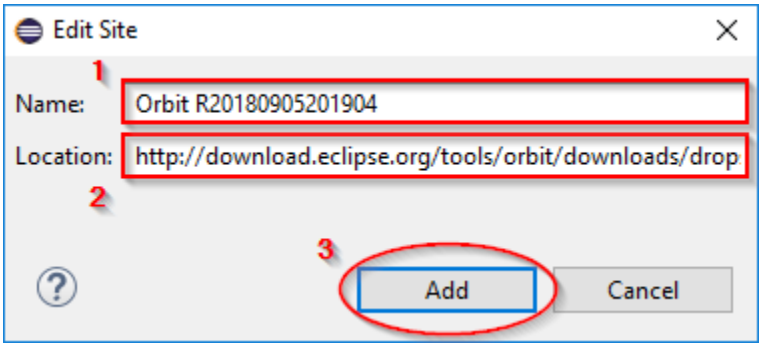


On the **Available Software** page, press **Manage** button.

You will see **Available Software Sites** preferences.



Press **Add** button to add a new software site. It will open **Edit Site** pop-up window.



In the **Name** field ① enter

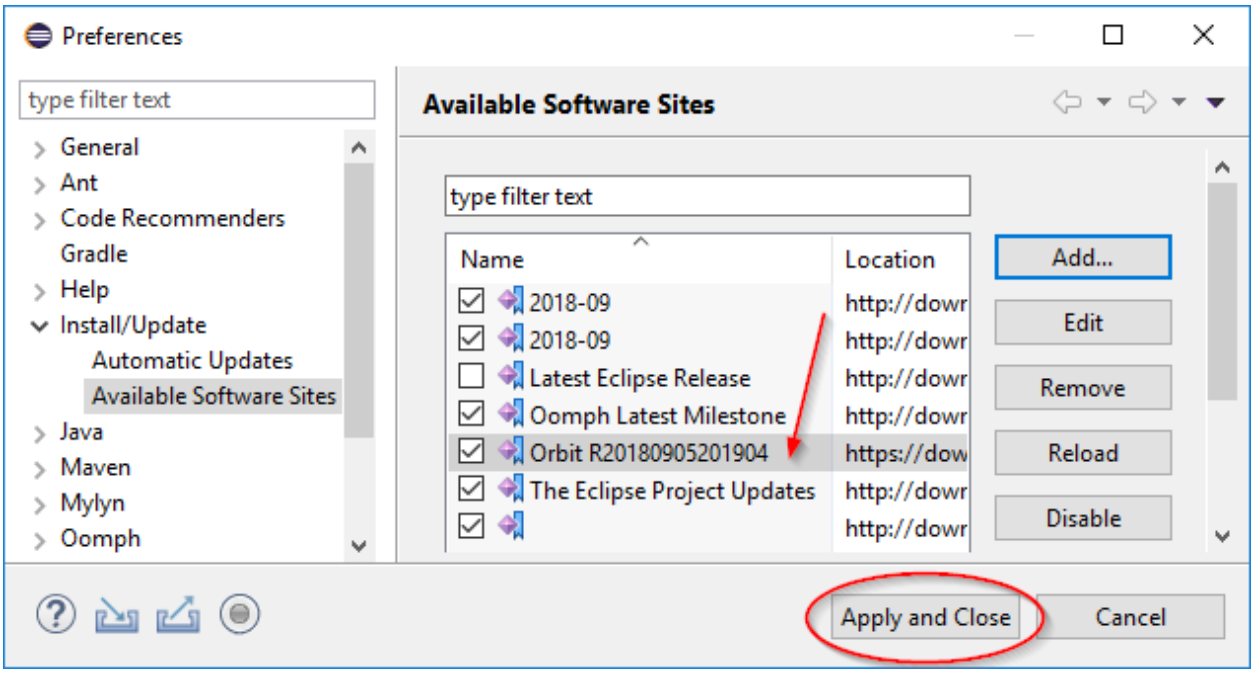
```
Orbit R20180905201904
```

In the **Location** field ② enter

```
http://download.eclipse.org/tools/orbit/downloads/drops/R20180905201904/repository
```

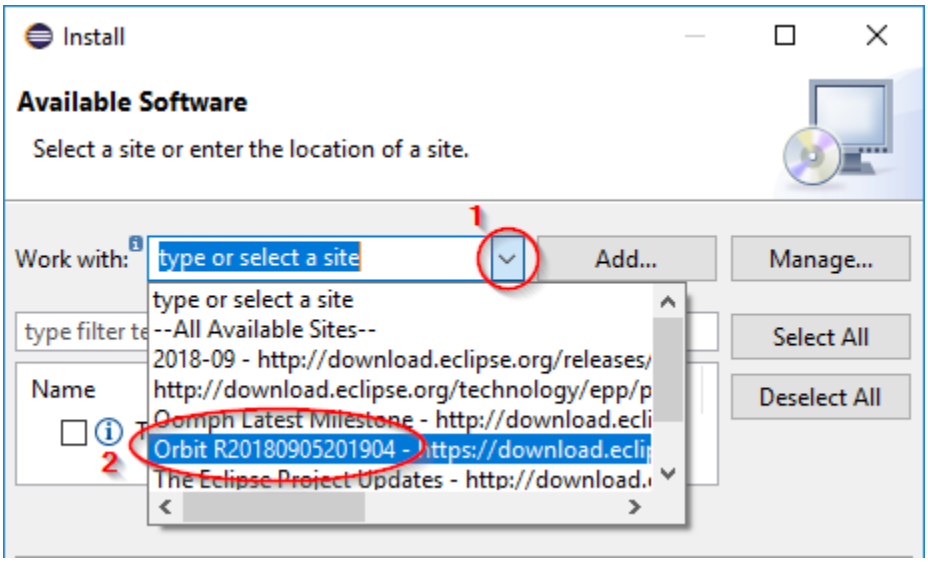
Press **Add** button ③ to add the site and to close the pop-up window.

You will see an updated list of software sites.

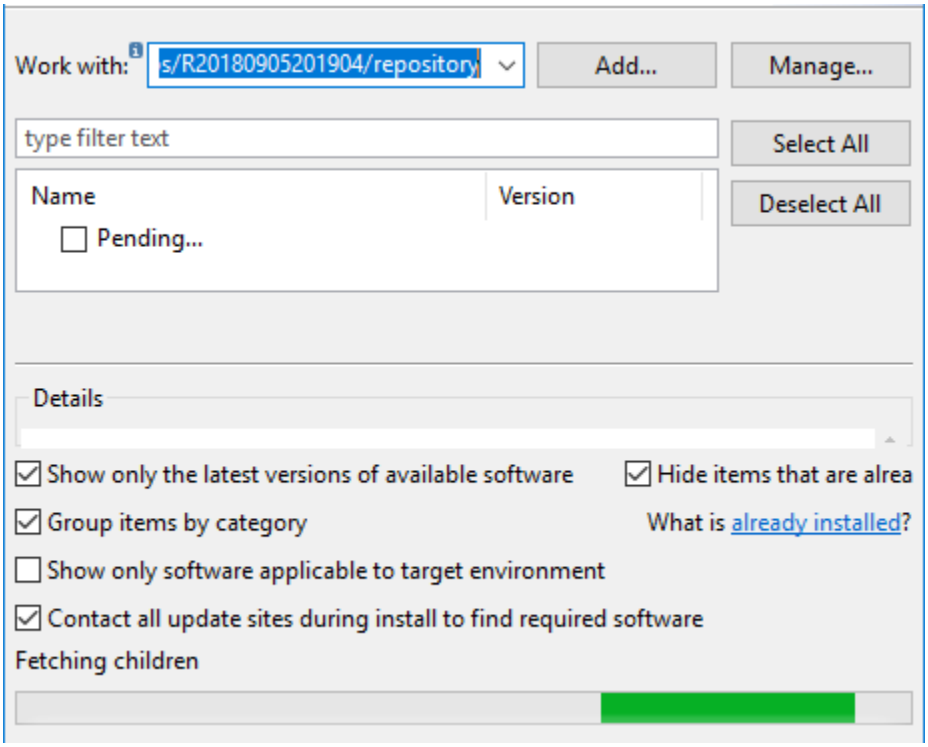


Press **Apply and Close** button to close the preferences.

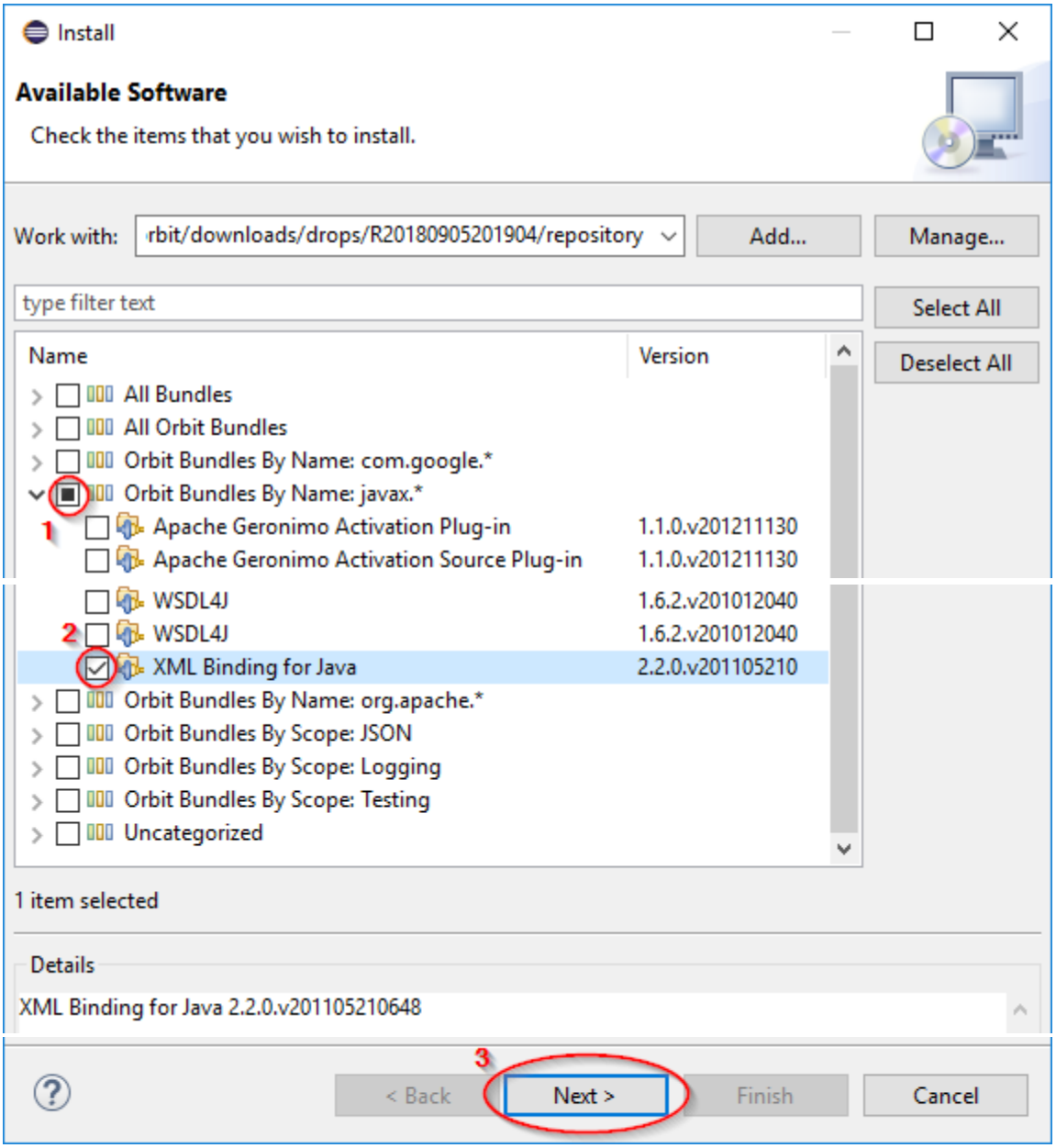
You will be returned to the **Available Software** window.



Open ① the drop-down list of software sites. Select **Orbit R20180905201904** site ②.

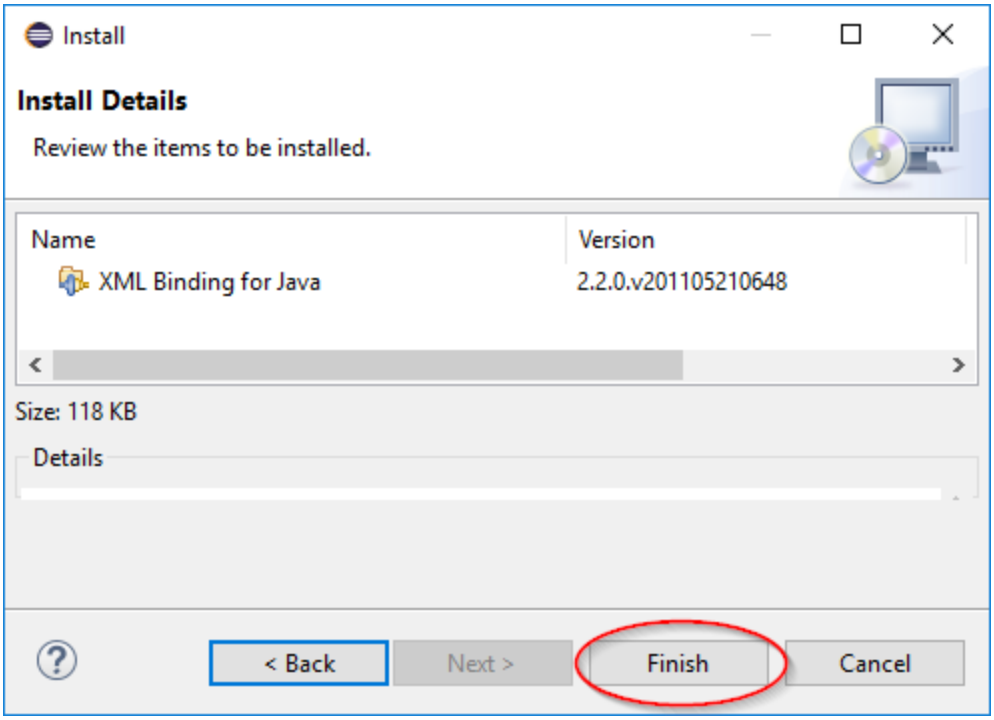


Wait until the software list is processed.

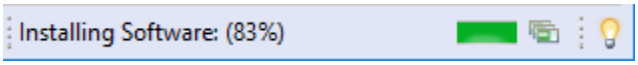


Click on white triangle ▷ (or angle ›) left to **Orbit Bundles By Name: javax.*** ① to open a list of software items in the group.

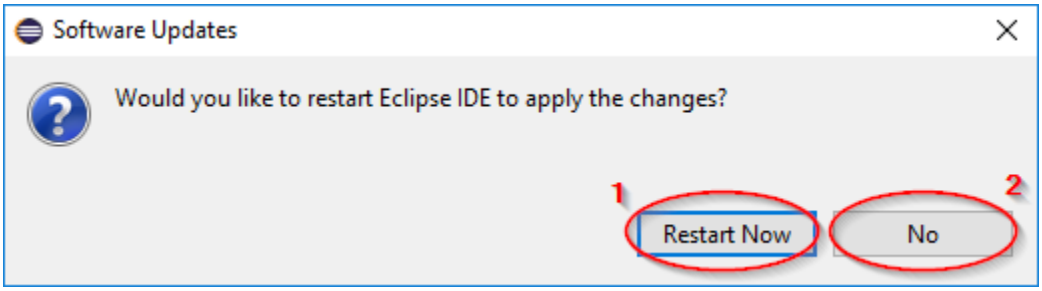
Check **XML Binding for Java** item ②. Press **Next** button ③ to continue.



Press **Finish** button to proceed. The installation progress status will be displayed at the Eclipse main window bottom.



Wait until the software is installed.

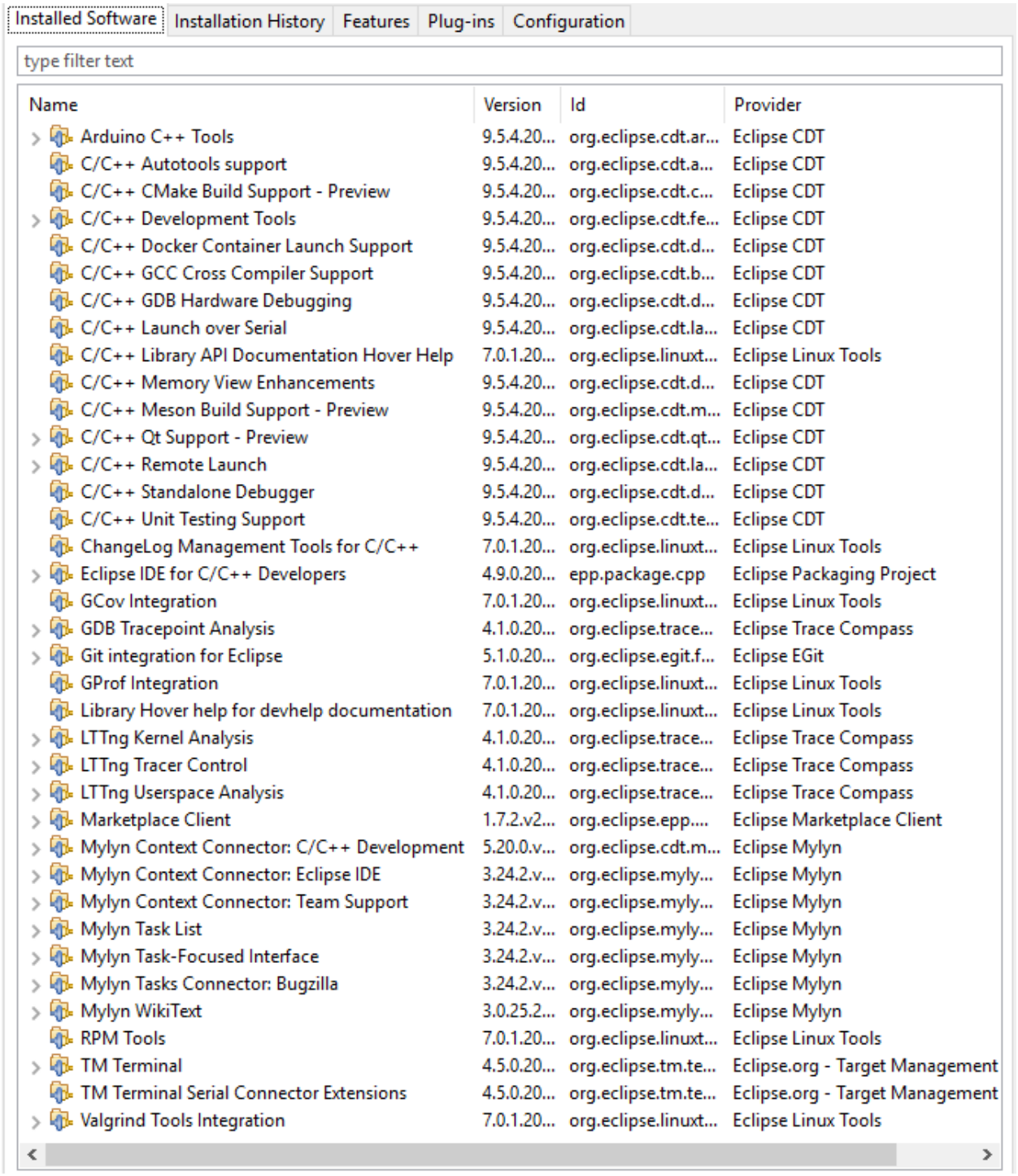


Finally, after the software is installed, you will see a prompt asking to restart Eclipse. Press **Restart Now** button ① and wait until the Eclipse is restarted.

If Eclipse is running as Administrator - press **No** button ② instead, exit Eclipse, and start Eclipse again in regular way, if needed.

Appendix 10 – List of Software Items included in Eclipse CDT

Here is a list of all items included in CDT add-on.



Installed Software | Installation History | Features | Plug-ins | Configuration

type filter text

Name	Version	Id	Provider
Arduino C++ Tools	9.5.4.20...	org.eclipse.cdt.ar...	Eclipse CDT
C/C++ Autotools support	9.5.4.20...	org.eclipse.cdt.a...	Eclipse CDT
C/C++ CMake Build Support - Preview	9.5.4.20...	org.eclipse.cdt.c...	Eclipse CDT
C/C++ Development Tools	9.5.4.20...	org.eclipse.cdt.fe...	Eclipse CDT
C/C++ Docker Container Launch Support	9.5.4.20...	org.eclipse.cdt.d...	Eclipse CDT
C/C++ GCC Cross Compiler Support	9.5.4.20...	org.eclipse.cdt.b...	Eclipse CDT
C/C++ GDB Hardware Debugging	9.5.4.20...	org.eclipse.cdt.d...	Eclipse CDT
C/C++ Launch over Serial	9.5.4.20...	org.eclipse.cdt.la...	Eclipse CDT
C/C++ Library API Documentation Hover Help	7.0.1.20...	org.eclipse.linuxt...	Eclipse Linux Tools
C/C++ Memory View Enhancements	9.5.4.20...	org.eclipse.cdt.d...	Eclipse CDT
C/C++ Meson Build Support - Preview	9.5.4.20...	org.eclipse.cdt.m...	Eclipse CDT
C/C++ Qt Support - Preview	9.5.4.20...	org.eclipse.cdt.qt...	Eclipse CDT
C/C++ Remote Launch	9.5.4.20...	org.eclipse.cdt.la...	Eclipse CDT
C/C++ Standalone Debugger	9.5.4.20...	org.eclipse.cdt.d...	Eclipse CDT
C/C++ Unit Testing Support	9.5.4.20...	org.eclipse.cdt.te...	Eclipse CDT
ChangeLog Management Tools for C/C++	7.0.1.20...	org.eclipse.linuxt...	Eclipse Linux Tools
Eclipse IDE for C/C++ Developers	4.9.0.20...	epp.package.cpp	Eclipse Packaging Project
GCov Integration	7.0.1.20...	org.eclipse.linuxt...	Eclipse Linux Tools
GDB Tracepoint Analysis	4.1.0.20...	org.eclipse.trace...	Eclipse Trace Compass
Git integration for Eclipse	5.1.0.20...	org.eclipse.egit.f...	Eclipse EGit
GProf Integration	7.0.1.20...	org.eclipse.linuxt...	Eclipse Linux Tools
Library Hover help for devhelp documentation	7.0.1.20...	org.eclipse.linuxt...	Eclipse Linux Tools
LTTng Kernel Analysis	4.1.0.20...	org.eclipse.trace...	Eclipse Trace Compass
LTTng Tracer Control	4.1.0.20...	org.eclipse.trace...	Eclipse Trace Compass
LTTng Userspace Analysis	4.1.0.20...	org.eclipse.trace...	Eclipse Trace Compass
Marketplace Client	1.7.2.v2...	org.eclipse.epp....	Eclipse Marketplace Client
Mylyn Context Connector: C/C++ Development	5.20.0.v...	org.eclipse.cdt.m...	Eclipse Mylyn
Mylyn Context Connector: Eclipse IDE	3.24.2.v...	org.eclipse.myly...	Eclipse Mylyn
Mylyn Context Connector: Team Support	3.24.2.v...	org.eclipse.myly...	Eclipse Mylyn
Mylyn Task List	3.24.2.v...	org.eclipse.myly...	Eclipse Mylyn
Mylyn Task-Focused Interface	3.24.2.v...	org.eclipse.myly...	Eclipse Mylyn
Mylyn Tasks Connector: Bugzilla	3.24.2.v...	org.eclipse.myly...	Eclipse Mylyn
Mylyn WikiText	3.0.25.2...	org.eclipse.myly...	Eclipse Mylyn
RPM Tools	7.0.1.20...	org.eclipse.linuxt...	Eclipse Linux Tools
TM Terminal	4.5.0.20...	org.eclipse.tm.te...	Eclipse.org - Target Management
TM Terminal Serial Connector Extensions	4.5.0.20...	org.eclipse.tm.te...	Eclipse.org - Target Management
Valgrind Tools Integration	7.0.1.20...	org.eclipse.linuxt...	Eclipse Linux Tools

Unfortunately, there is no easy way to select these items when installing via **Install New Software** wizard. Look in the following software groups to find and select them one by one.

- Collaboration
- General Purpose Tools
- Linux Tools
- Mobile and Device Development
- Performance, Profiling, and Tracing Tools
- Programming Languages

Appendix 11 – Downloading and Running Files from the Internet

During the installation process you will need to download files from the Internet using a browser. In some cases, it will be necessary to run the downloaded files.

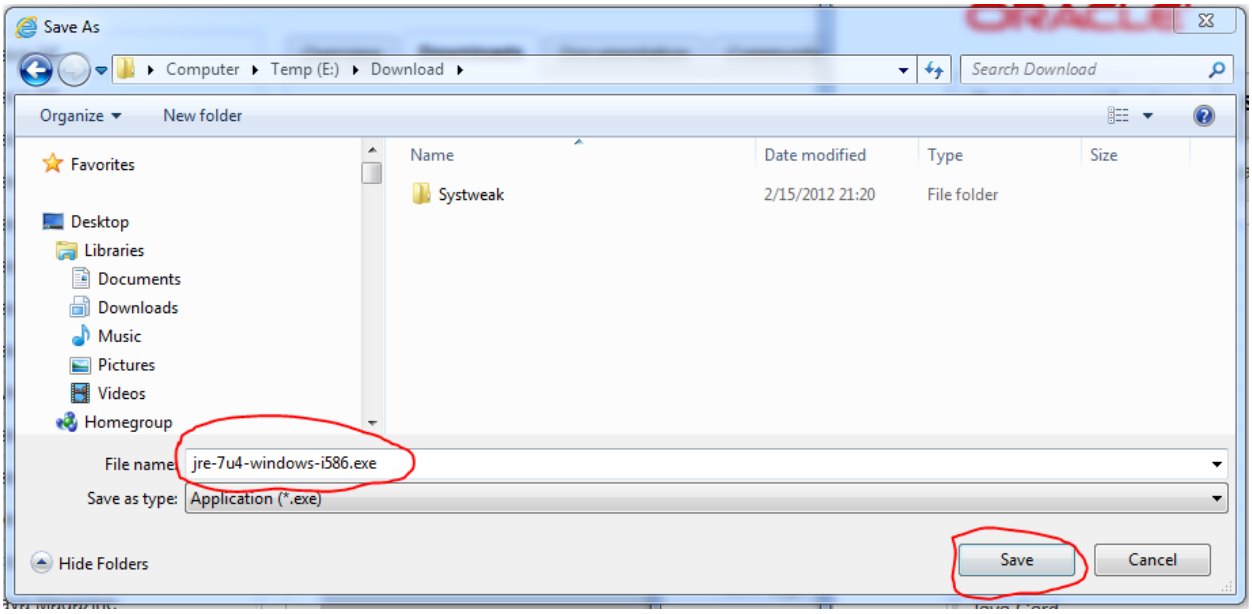
After clicking on a filename in the browser you will get "File Download" window that depends on the browser.

Downloading and Running Files in Internet Explorer 9

After clicking on a filename URL you will get "File Download" prompt at the bottom of the browser window.

If the file is supposed to be run press **Run** button (the file will be downloaded to a temporary folder and will be run immediately after it).

Save the file if you do not need to run it or if you expect to run it multiple times. To save the file click on small black triangle right to **Save** button to open a submenu and select **Save As** option. You will see the following window.



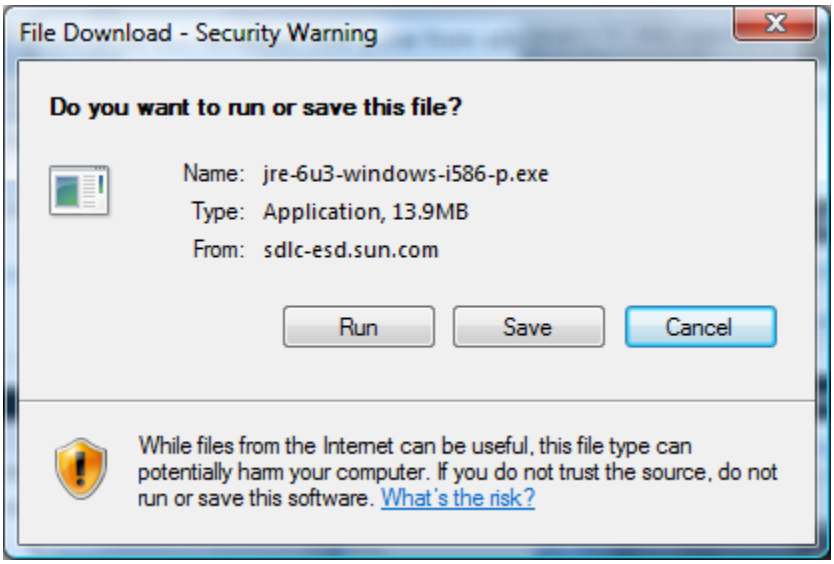
Browse to a desired folder and press **Save** button to start the downloading. If you see **Open** button but not the **Save** button, click on file name (`jre-7u4-windows-i586.exe` in the example screenshot).

After the download is completed you will see the following prompt.

Press **Run** button to run the downloaded file. Otherwise press **Open Folder** button to see the folder containing the downloaded file.

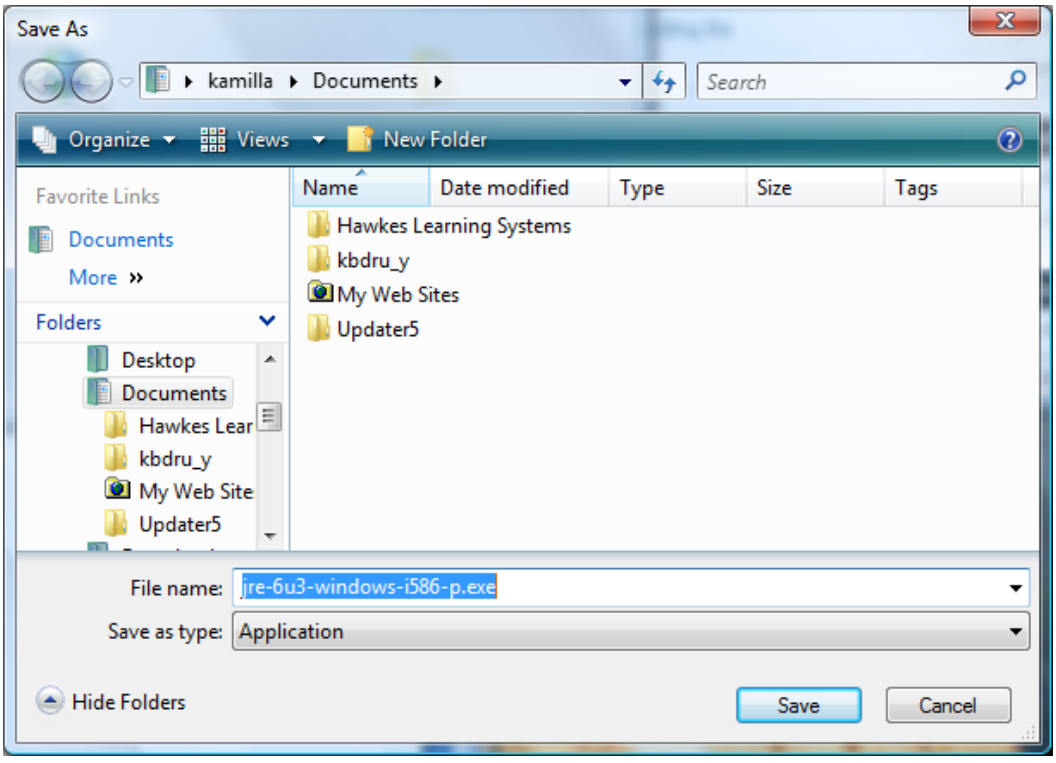
Downloading and Running Files in Legacy Internet Explorer

After clicking on a filename in the browser you will get "File Download" pop-up window.

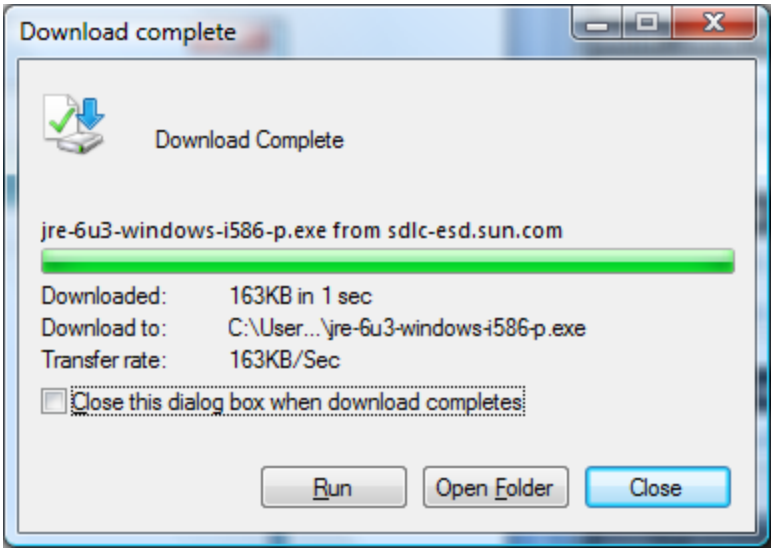


If the file is supposed to be run press **Run** button (the file will be downloaded to a temporary folder and will be run immediately after it). Press **Save** button otherwise or if you expect to run the file multiple times.

In the case of **Save** button you will see the following window.



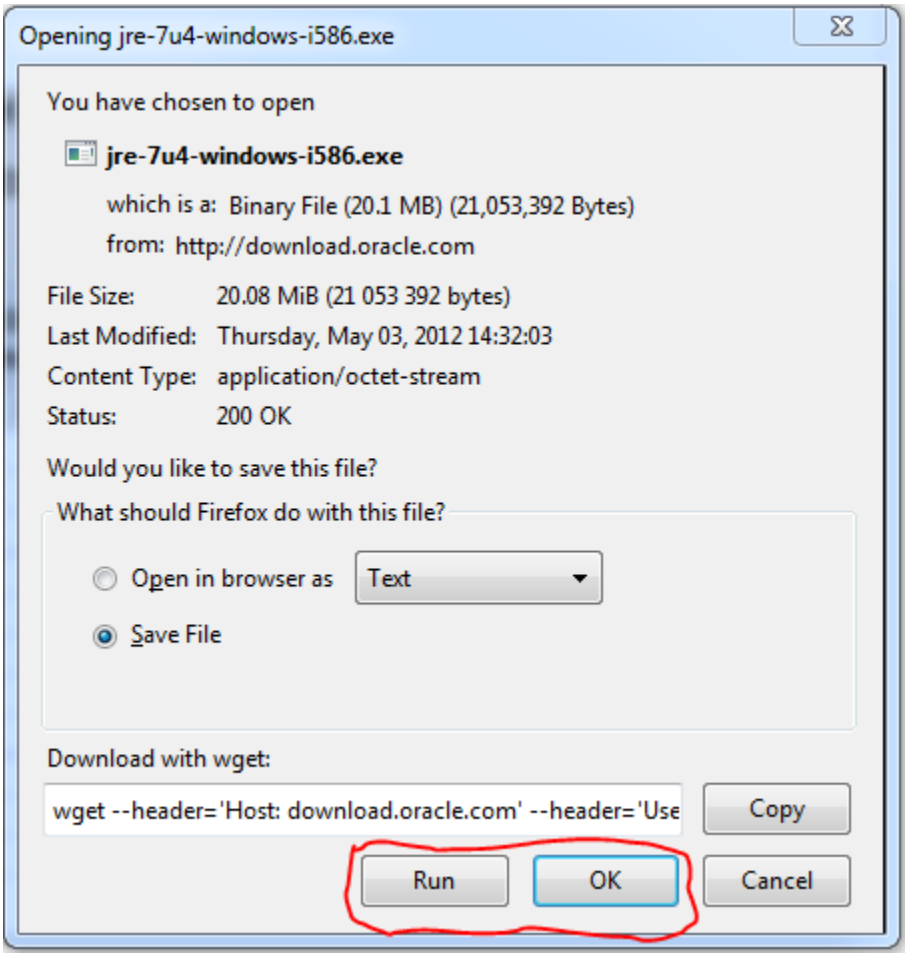
Browse to a desired folder and press Save button to start the downloading. After the download is completed, you will see the following window.



Press **Run** button to run the downloaded file. Otherwise press **Open Folder** button to see the folder containing the downloaded file.

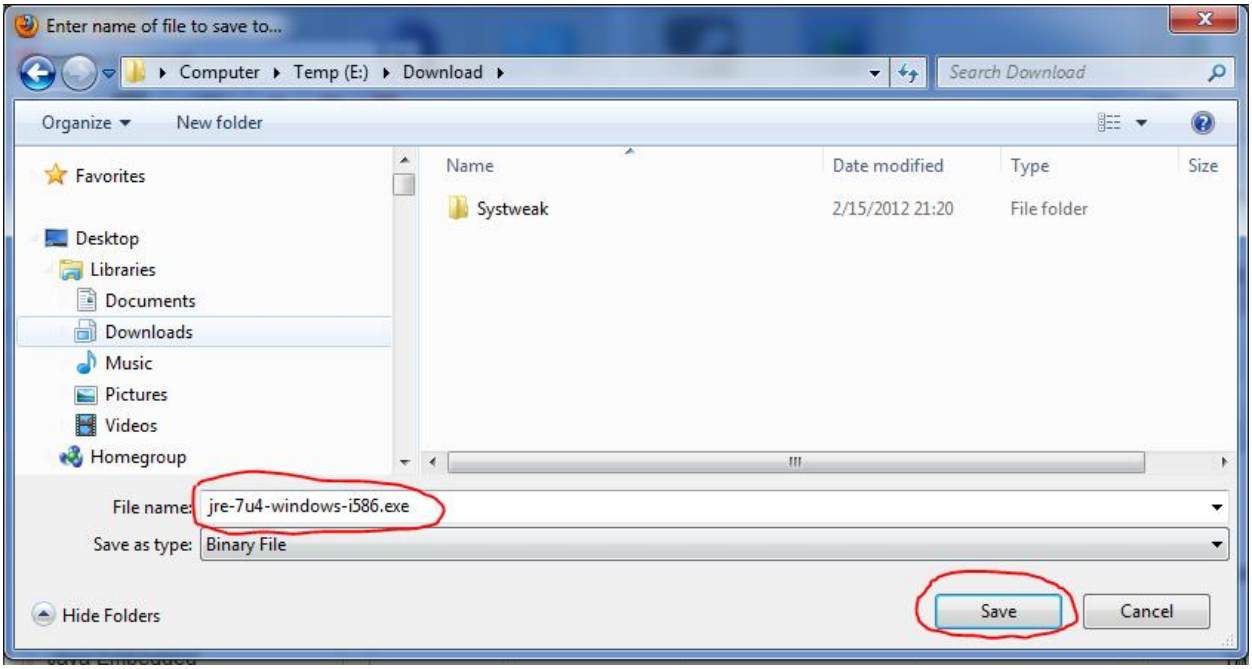
Downloading and Running Files in Firefox

After clicking on a filename in the browser you will get "File Download" pop-up window. The specific window depends on Firefox version and installed browser add-ons. For example



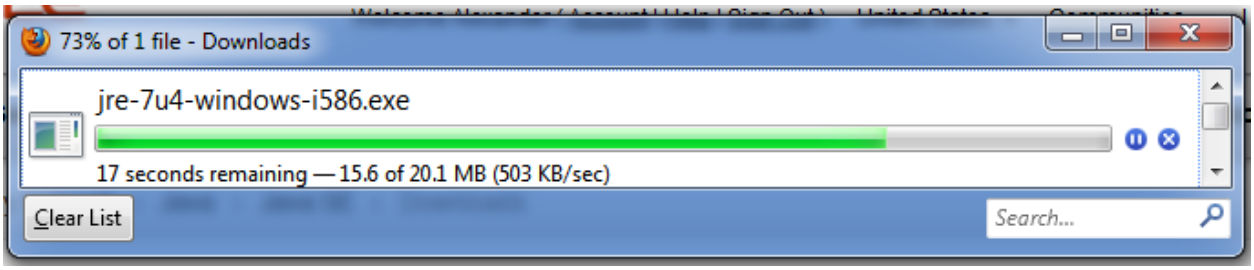
If the file is supposed to be run press **Run** button (the file will be downloaded to a temporary folder and will be run immediately after it).

Save the file if you do not need to run it or if you expect to run it multiple times. To save the file press **Save** button or, if **Save** button is missing, select **Save File** and press **OK** button. You will see "**Enter name of file to save to…**" window. The specific window depends on Microsoft Windows version. For example, in the case of Windows 7

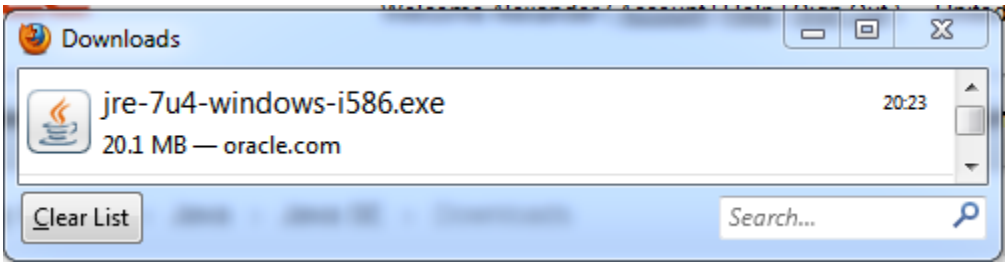


Browse to a desired folder and press **Save** button to start the downloading. If you see **Open** button but not the **Save** button, click on file name (jre-7u4-windows-i586.exe in the example screenshot).

You will see "Downloads" window showing the download progress.



After the download is completed the "Downloads" window will change

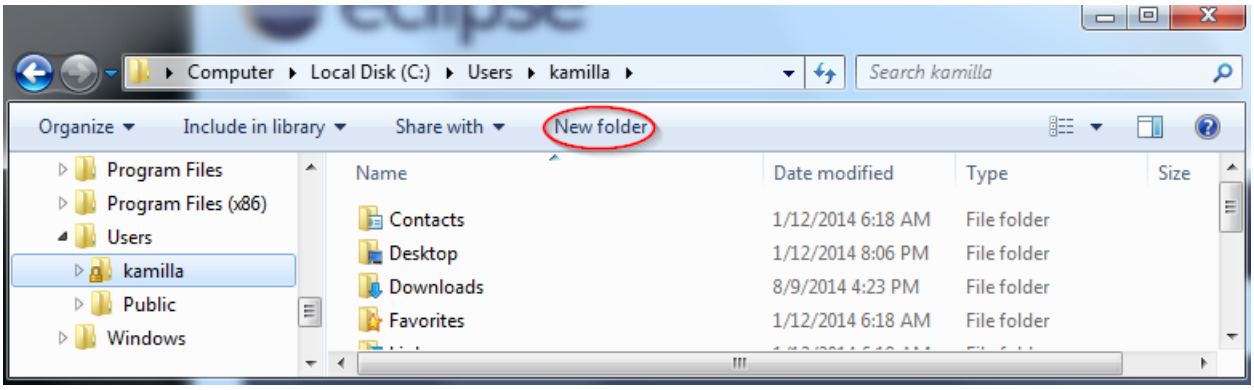


To run the downloaded file, double click on the filename (`jre-7u4-windows-i586.exe` in the example screenshot). To see the folder containing the downloaded file right click on the filename to open a context menu and select "**Open Containing Folder"** option.

Appendix 12 – Extracting Eclipse Files to the Destination Folder

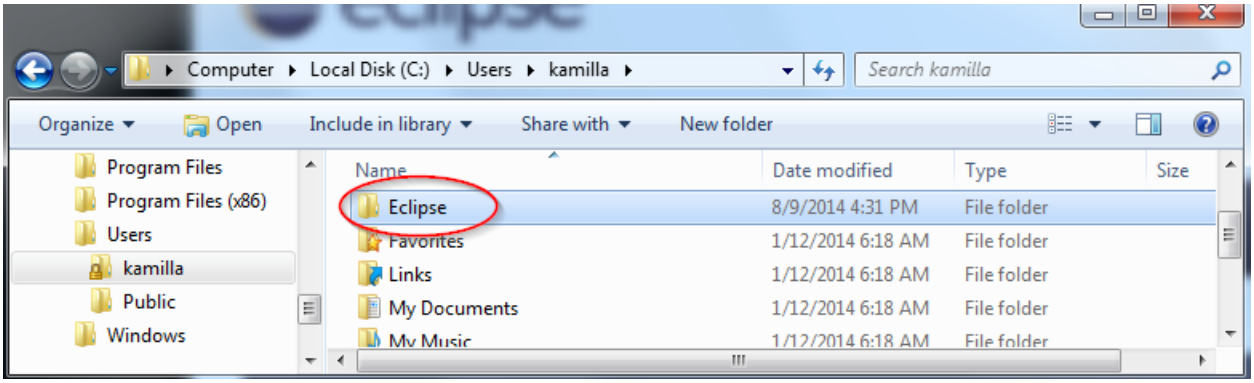
In the screenshot examples, substitute **Photon** for **Luna**, and **kamilla** for your username.

Open new File Explorer window (for example, double click on Computer icon on your desktop). Open the C: drive (or whatever drive supposed to contain the destination folder). Browse to Eclipse parent folder (where the Eclipse folder is supposed to be) and create the Eclipse folder.

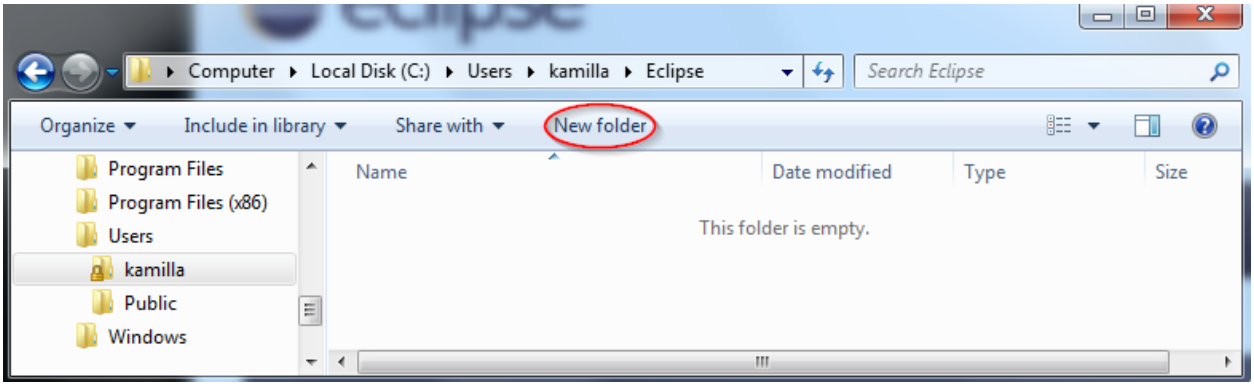


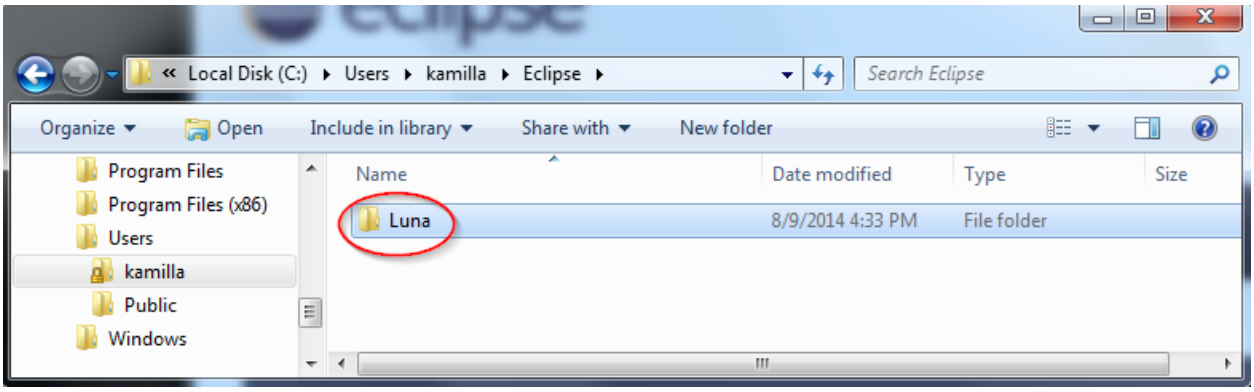
Depending on Windows version you create new folder by clicking on **New Folder** button or icon or via a context menu option (right click the mouse and select **New->Folder**)

You might see “Destination Folder Access Denied” popup window. Press **Continue** button in such a case. If you see “User Account Control” popup window with a warning message “A program needs your permission to continue” press **Continue** button again.



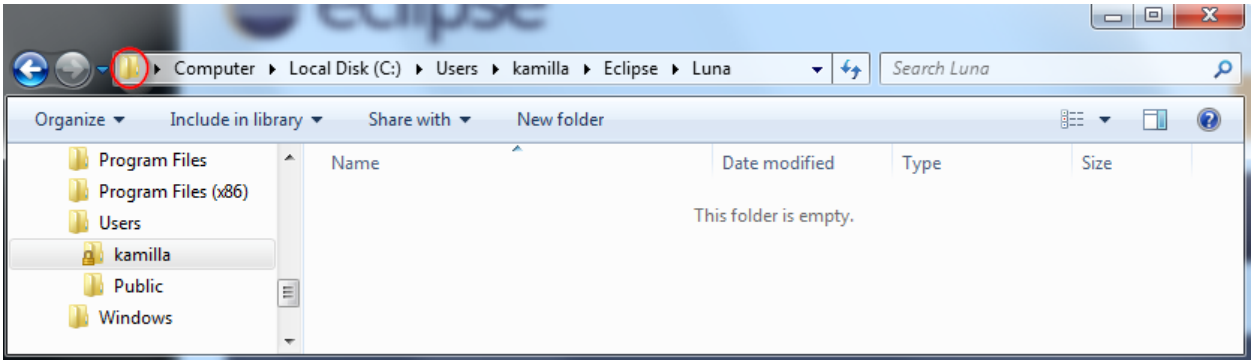
Go inside the newly created Eclipse folder and create Luna (or whatever destination you selected) subfolder. If asked, click through security pop-up windows.



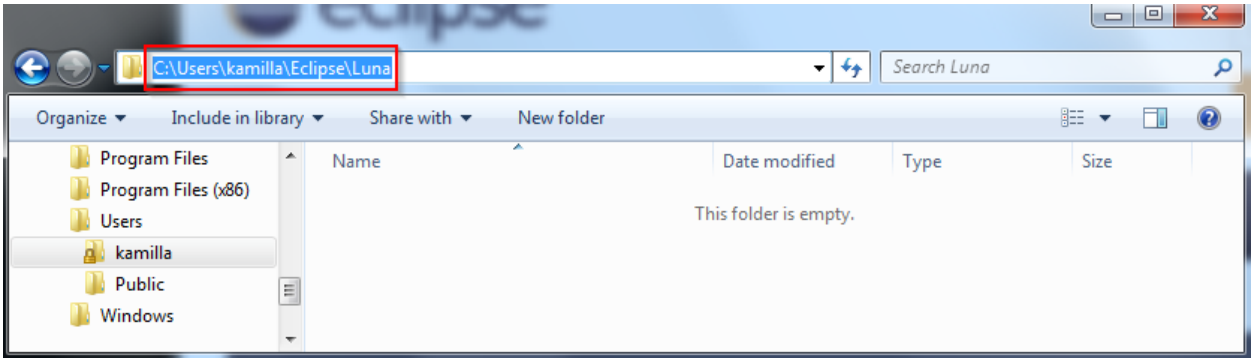


Go inside the newly created Luna folder. Note the folder path that has many small ► triangles

(► Computer ► Local Disk (C:) ► Users ► Kamilla ► Eclipse ► Luna in the example screenshot)

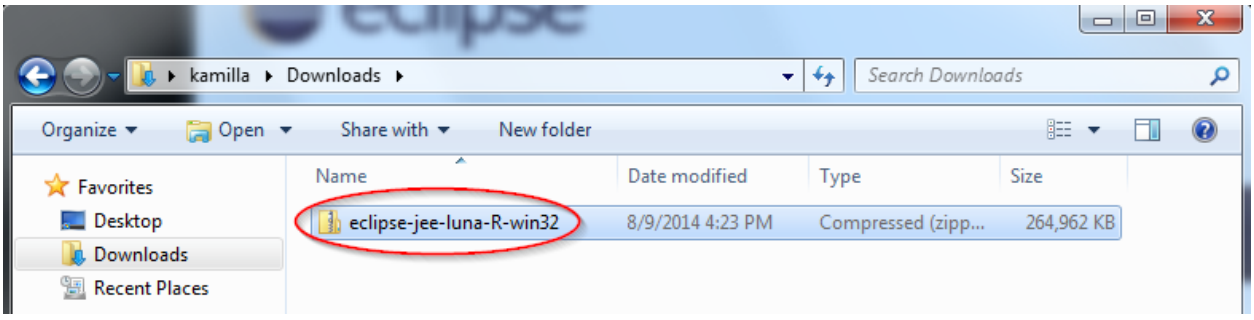


Click on the folder  icon left to the folder path (top left corner of the window).



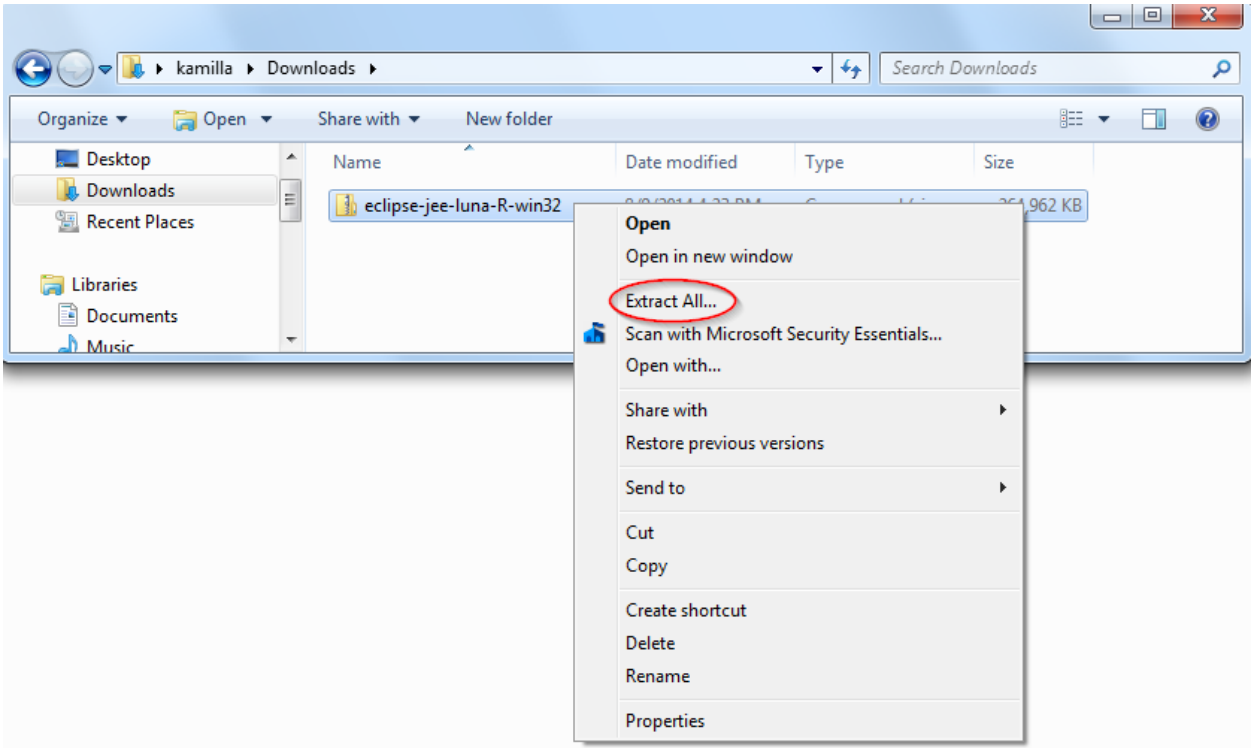
You are supposed to see the destination folder path displayed as highlighted text (`C:\Users\kamilla\Eclipse\Luna` in the example above). Press Ctrl-C to copy the destination folder path.

Now return to the Window Explorer window that has the downloaded Eclipse ZIP file.

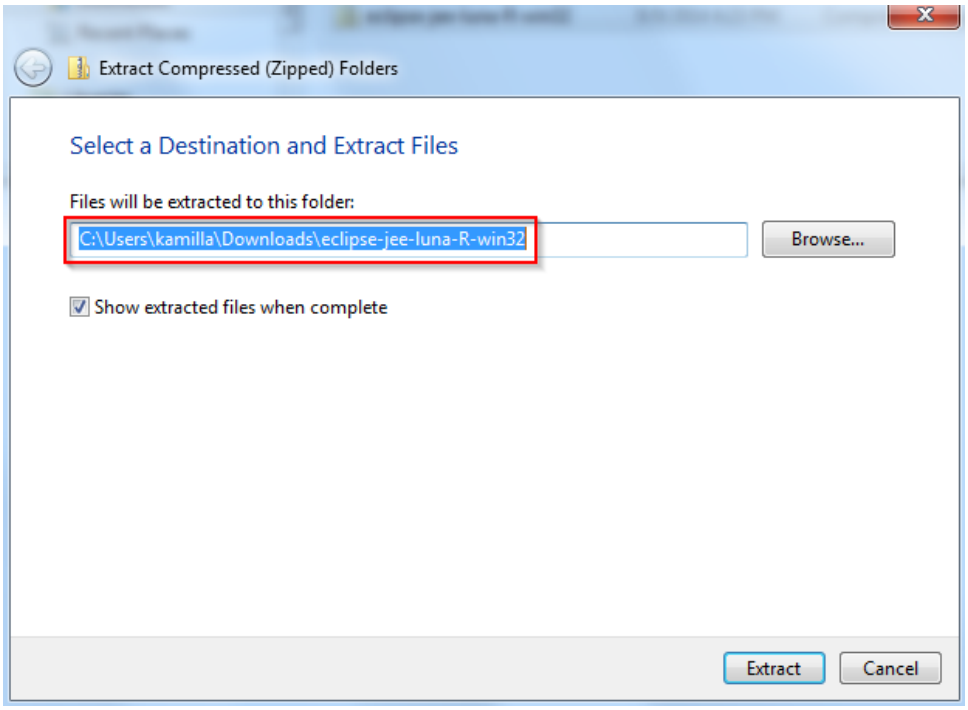


You have to extract the Eclipse ZIP file content to the destination folder. Depending on Windows version it can be done using native Windows decompression utility or via a third-party program (for example, 7-zip). Below is an example for the native Windows 7 decompression utility.

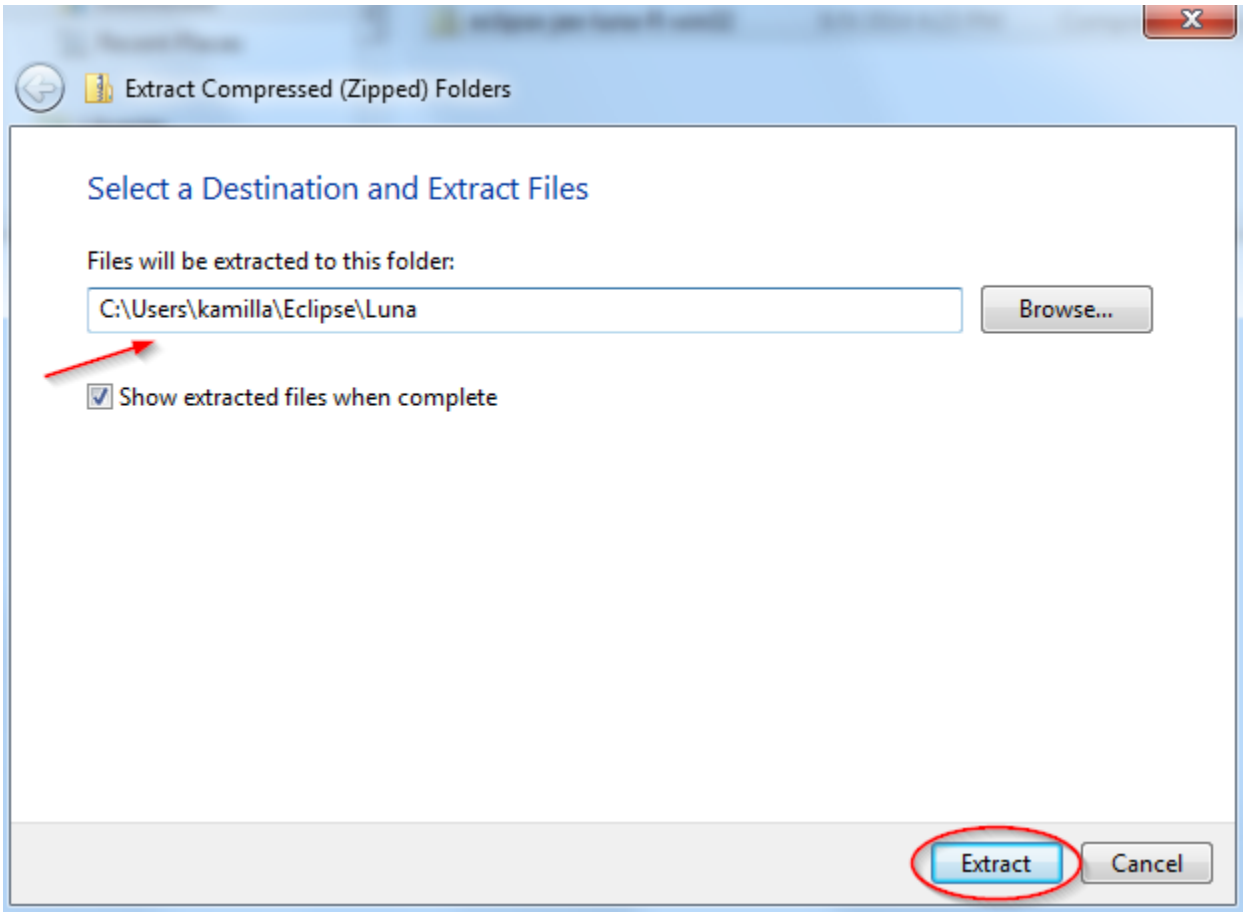
Right click on the Eclipse ZIP file name to open a context menu.



Select "**Extract All ...**" option. You will see the following window

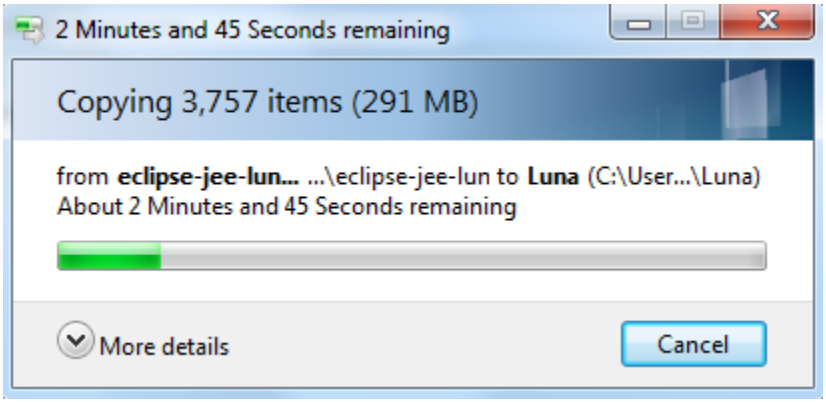


Select the text inside the field below "**Files will be extracted to this folder**" and press **Ctrl-V**. The destination folder path will be pasted into the field. You can also type the path manually or click **Browse** button and browse to the destination folder.

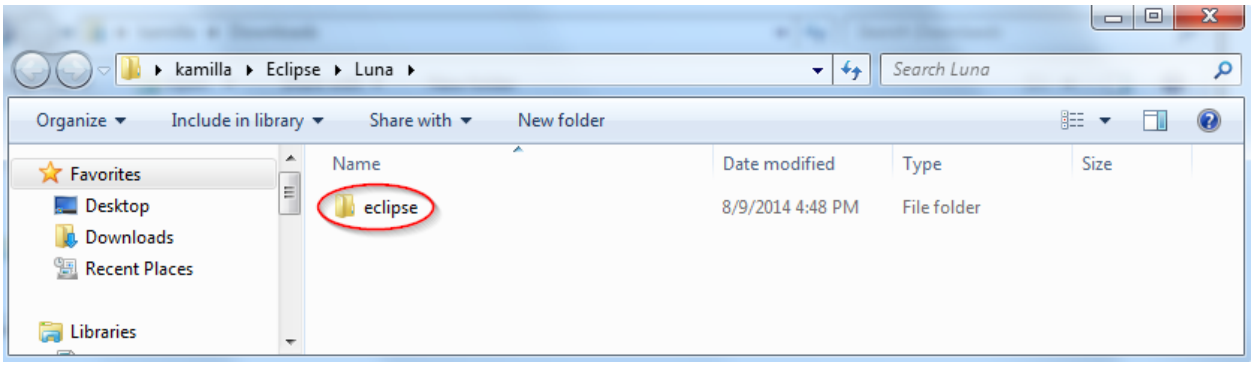


Confirm that the destination folder path is correct and press **Extract** button. You might see "Destination Folder Access Denied" popup window. Press **Continue** button in such a case.

While the files are being extracted you will see a progress window similar to the one below



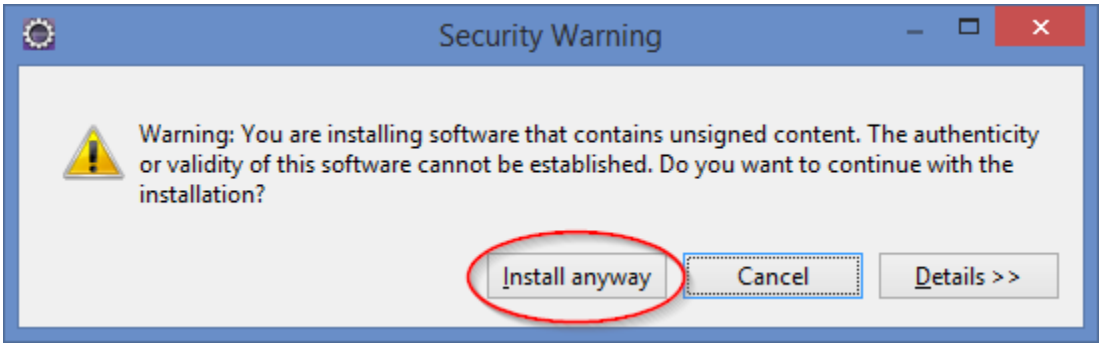
After all files are extracted, you will see a new File Explorer window opened



Appendix 13 – Eclipse Pop-ups and Prompts

You are installing software that contains unsigned content

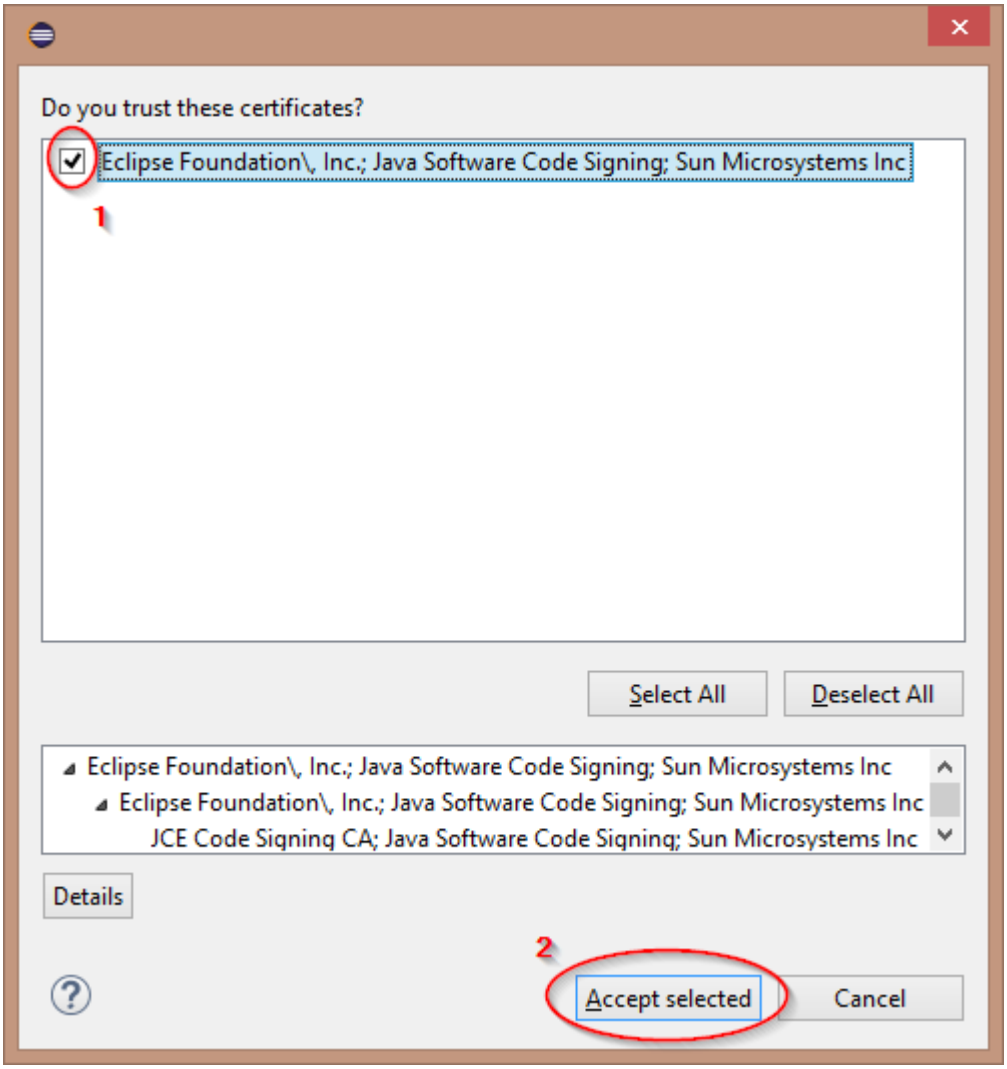
During Eclipse software installation (or update), if the software is unsigned (by its developers), you will see a security prompt



Be sure that you want to install (update) such software. Press **Details** button to see more information about the unsigned software. Press **Install Anyway** button to continue (or **Cancel** otherwise).

Do you trust these certificates?

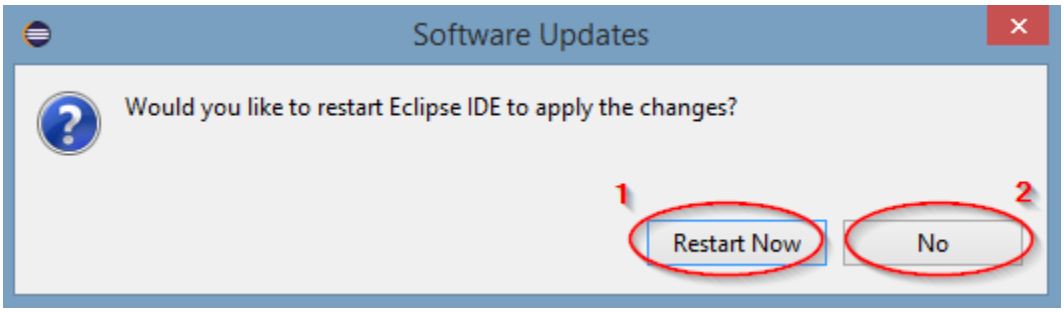
During Eclipse software installation (or update), if Eclipse does not know about the certificates that are used to sign the software, you will see a security prompt similar to one below



Review the certificate list (select a certificate and use Details button to see the certificate information). If you trust them, check appropriate box(es) ① and press **Accept selected** button ②.

Would you like to restart Eclipse IDE to apply the changes?

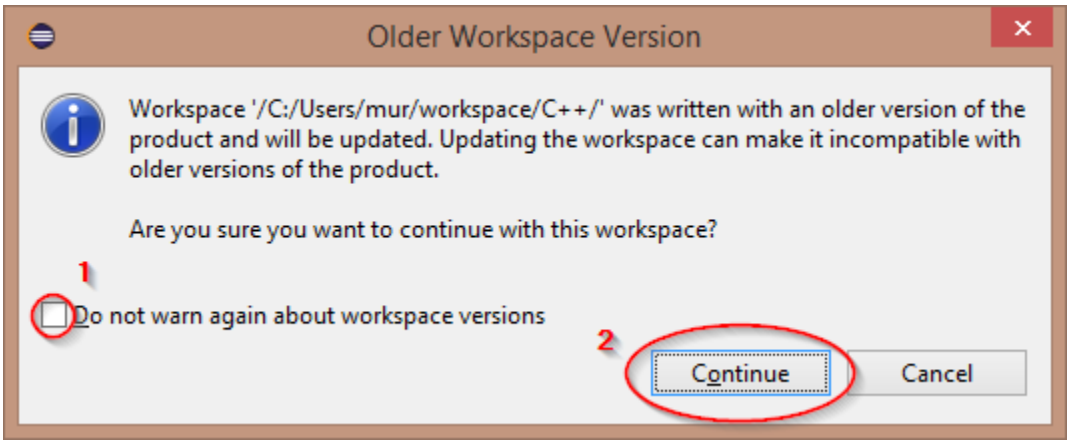
After Eclipse software is installed (or updated), you will see a prompt asking to restart Eclipse.



If Eclipse is running as regular user and the current workspace is to be used, press **Restart Now** button and wait until the Eclipse is restarted. Otherwise press **No** button instead, exit Eclipse, and start Eclipse again (and select or create an appropriate workspace, if so desired).

Older Workspace Version

If Eclipse software has been upgraded to a new release, you may see the following prompt when starting Eclipse



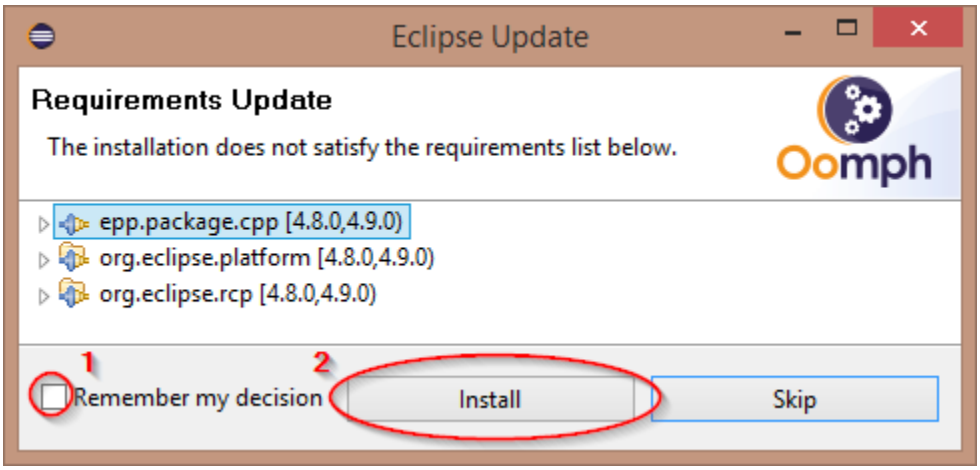
If you do not want to see such prompts in the future, check box **"Do not warn me again about workspace versions"** ①.

Press **Continue** button ② to proceed with the workspace update.

Note – If you are not sure about it, make a backup of your workspace before pressing **Continue** button.

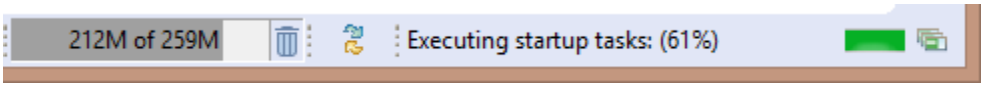
Requirements Update

After Eclipse software is updated, you may see a prompt similar to one below



Check "**Remember my decision**" box ① if, in the future, you want Eclipse to update such requirements automatically. Press **Install** button ② to start the requirements update.

At the bottom of Eclipse main window, you will see the update progress indicator.



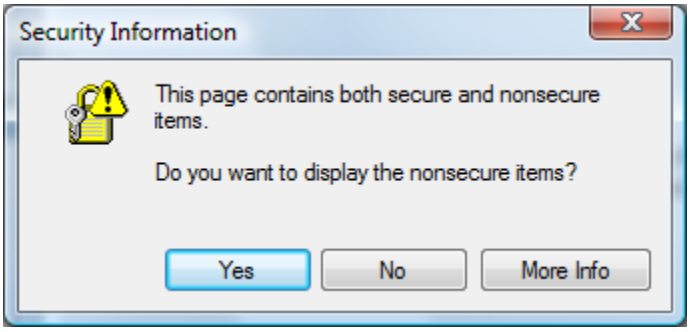
Wait until the update is completed.

Appendix 14 – Windows Security Pop-ups and Prompts

During the installation processes, you may see a lot of pop-up windows or prompts that contain security warnings. Review the warning text and, if everything is all right, press an appropriate button to continue.

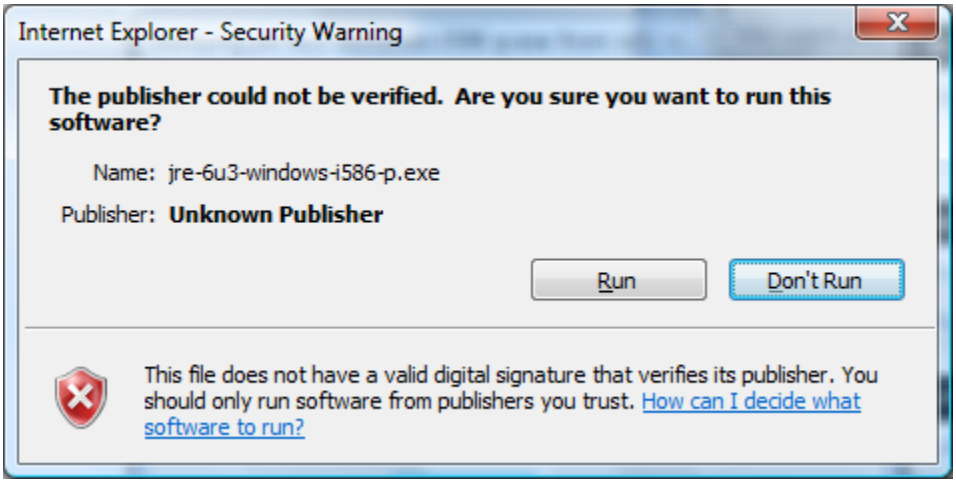
Some of the security prompts that can happen are described below. Newer Microsoft Windows versions may have different and additional security prompts.

This page contains both secure and nonsecure items



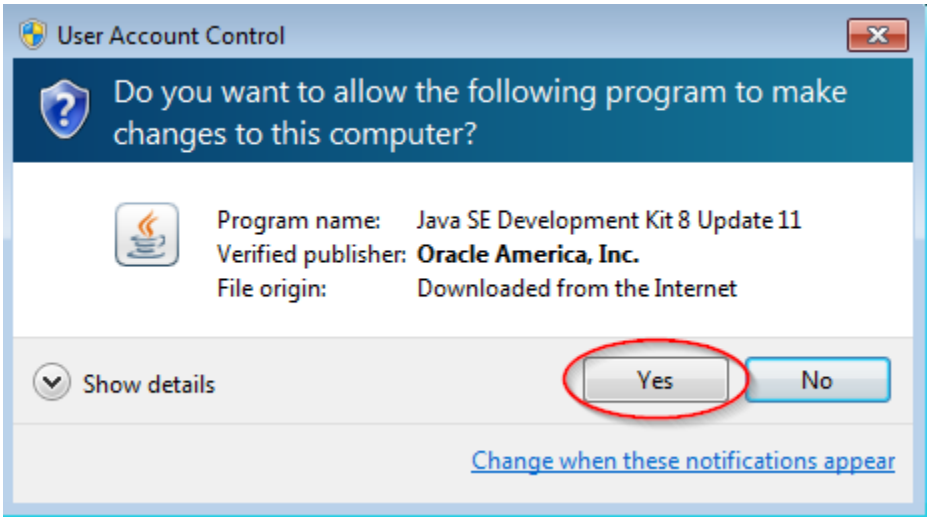
If you see such a pop-up window press **Yes** button

The publisher could not be verified



If you see such a pop-up window check the program name (in the example it is jre-6u3-windows-i596-p.exe). If it is the program that you have just started, press **Run** button.

Do you want to allow the following program to make changes to this computer?



You may see "User Account Control" pop-up window with a warning message "Do you want to allow the following program to make changes to this computer?". If you have just started the program press **Allow** button.

An unidentified program wants access to your computer

You may see "User Account Control" pop-up window with a warning message "An unidentified program wants access to your computer". If you have just started the program press **Allow** button.

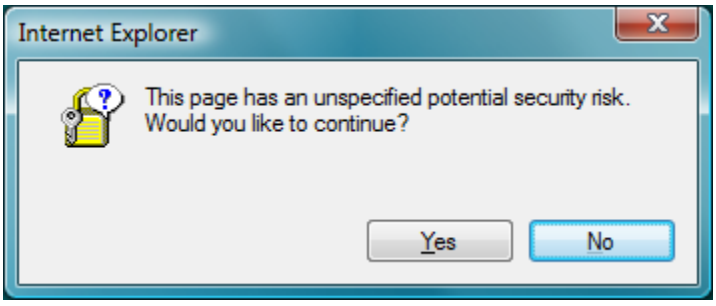
A program needs your permission to continue

You may see "User Account Control" pop-up window with a warning message "A program needs your permission to continue" and "Java (TM) SE Runtime…". Press **Continue** button.

Windows needs your permission to continue

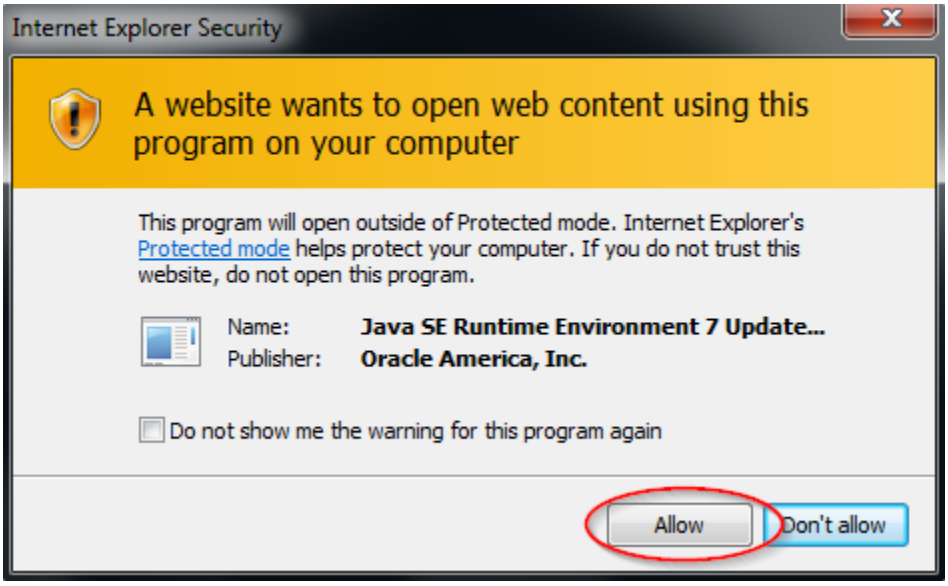
You may see "User Account Control" pop-up window with a warning message "Windows needs your permission to continue". If you are creating a directory or copying files, press **Continue** button.

This page has an unspecified potential security risk



Sometimes you see such a pop-up window after you press right mouse button to open a context menu for a file that you have downloaded. In this case, press **Yes** button.

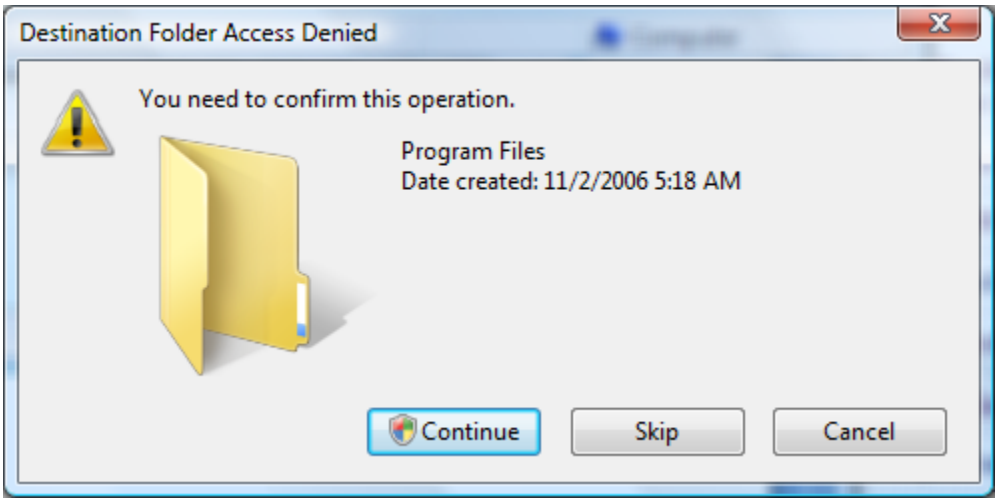
A website wants to open web content using this program on your computer



Press **Allow** button to proceed.

Destination Folder Access Denied

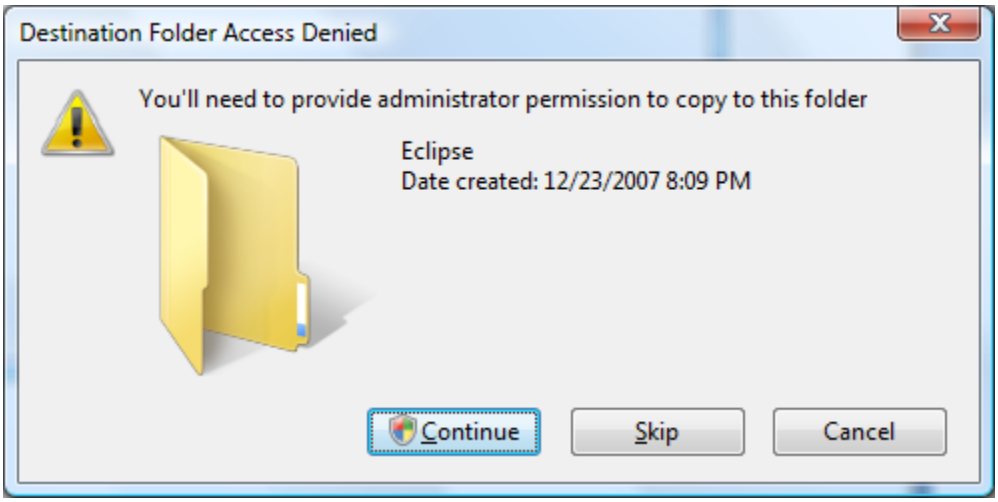
If you are creating a new folder you might see “Destination Folder Access Denied” pop-up window



Press **Continue** button. If you see “User Account Control” pop-up window with a warning message “A program needs your permission to continue”, press **Continue** button.

You'll need to provide administrator permission to copy to this folder

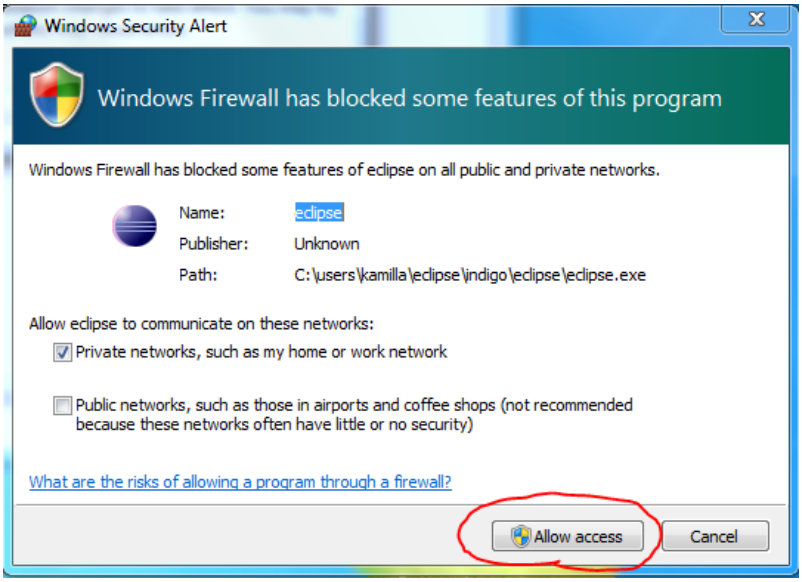
If you are extracting or copying files to some folder you might see "Destination Folder Access Denied" pop-up window



Press **Continue** button.

Windows Firewall has blocked some features of this program

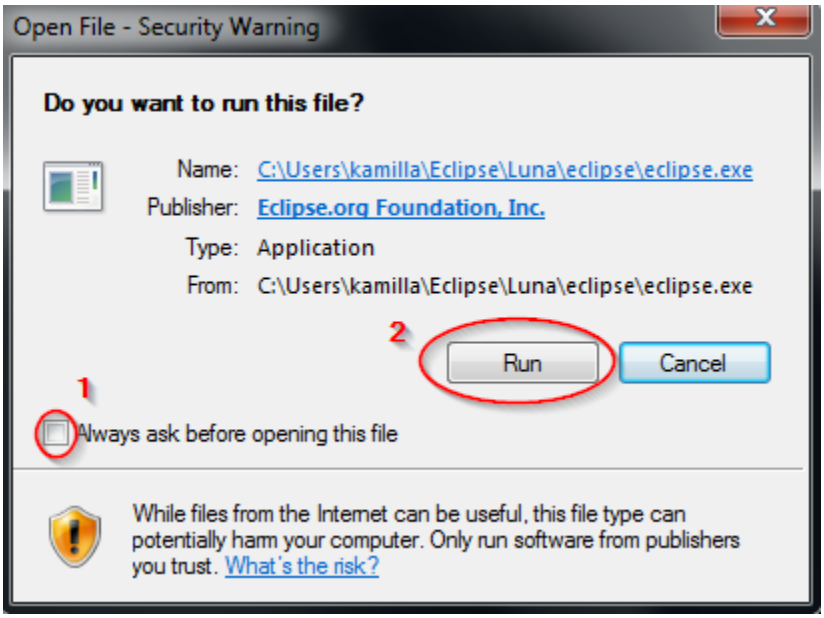
During an Eclipse update, you might see a security pop-up window asking to confirm that you want to allow Eclipse an access to the Internet.



Click **Allow access** button.

Open File – Security Warning

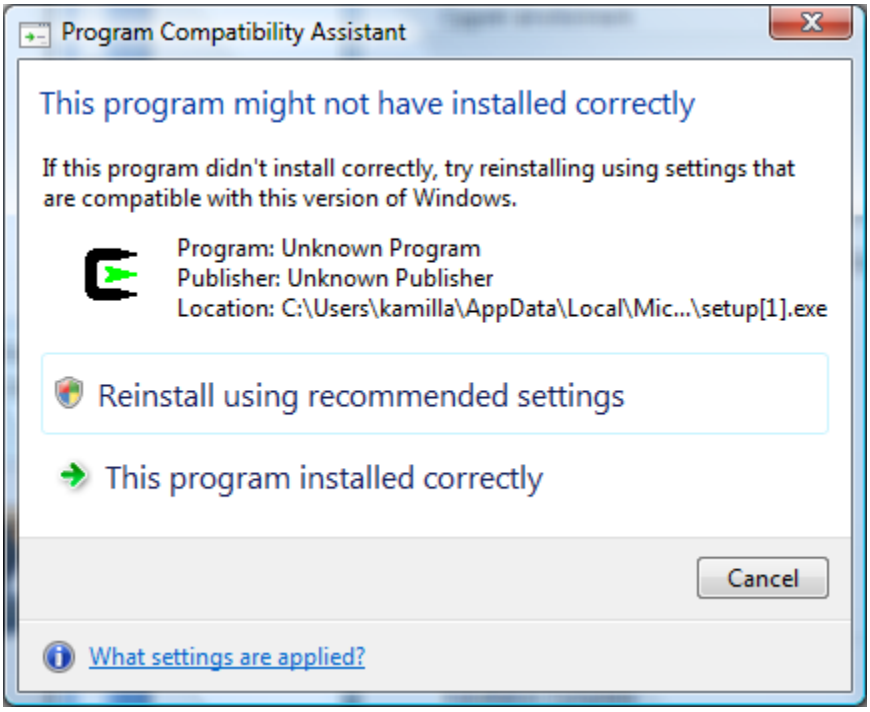
If, while Eclipse is starting, you see “Open File – Security Warning” popup window



Uncheck **Always ask before opening this file** ①. Press **Run** button ②.

This program might not have installed correctly

While running Cygwin setup, in the case of Windows Vista, you might see “Program Compatibility Assistant” pop-up window.



Click on “**This program installed correctly”** option.

Appendix 15 – Using 32-bit Software

Microsoft Window 32-bit

If you are running Microsoft Windows 32-bit, you have to install 32-bit Eclipse, 32-bit Java SE 8, and 32-bit Cygwin (in the case of C/C++).

Microsoft Window 64-bit

If you are running Microsoft Windows 64-bit, you can install 64-bit or 32-bit Eclipse.

64-bit Eclipse requires 64-bit Java (10 or 8) to run. 32-bit Eclipse requires 32-bit Java SE 8 to run. You can install both Eclipse and Java variants, the proper Java variant is selected automatically, depending on Eclipse variant.

If you develop Java programs, Eclipse allows to use multiple Java variants. So, while running 64-bit Eclipse, you can develop using 32-bit Java.

In the case of C/C++, either 64-bit or 32-bit Cygwin can be used to develop C/C++ programs.

Java Standard Edition 8 32-bit

If you want to use 32-bit Java, you have to install Java 8. Java 8 is the last release that has 32-bit version (Java 9 has reached end of support).

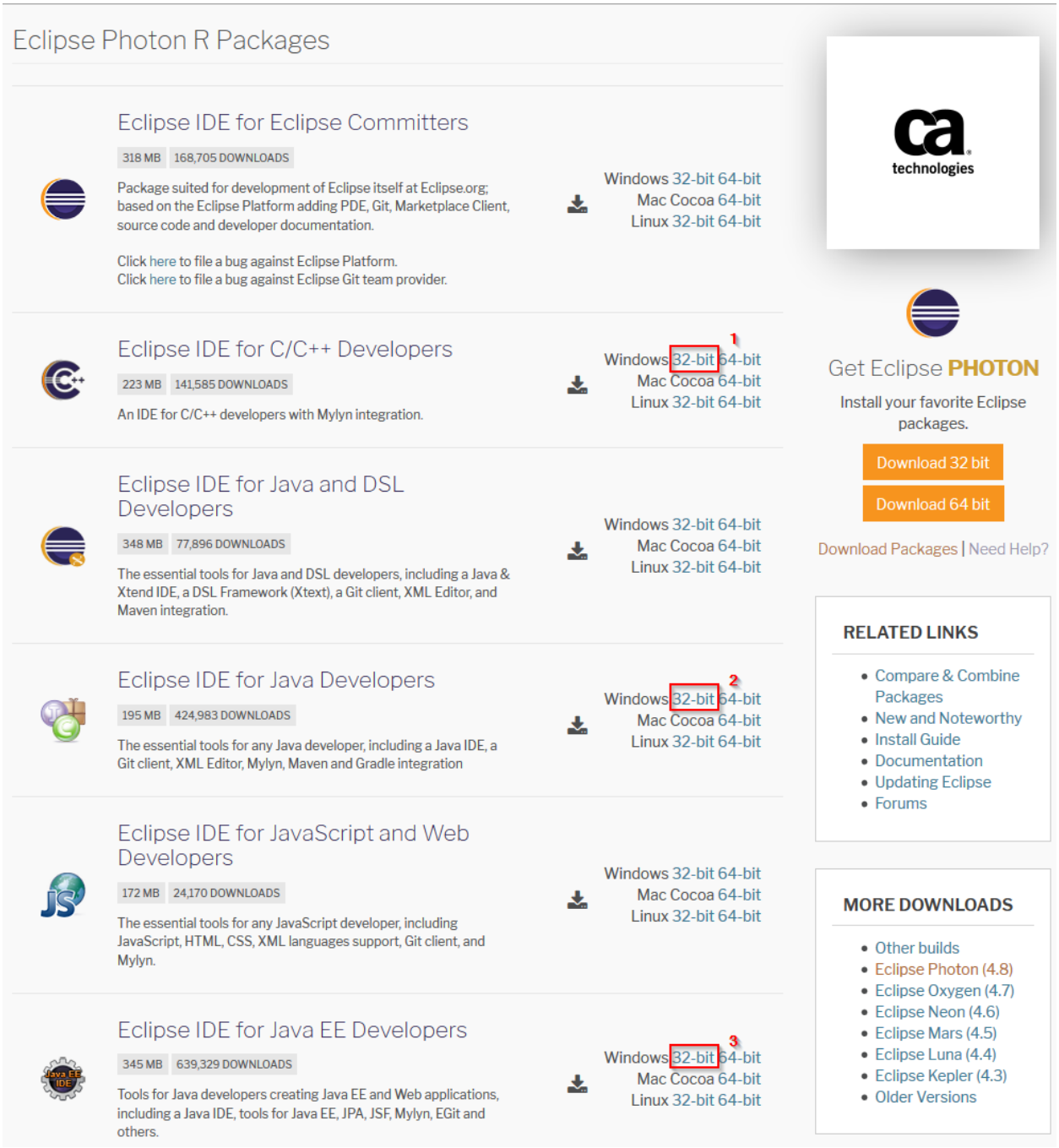
If you are running Microsoft Windows 32-bit, you have to install Java SE 32-bit. If you are running Microsoft Windows 64-bit, you may install Java SE 32-bit or Java SE 64-bit (or both).

See section Java Standard Edition 8 (32-bit and 64-bit) in Appendix 9 – Installing Legacy Versions of Java SE for more details.

Eclipse 32-bit

Downloading Eclipse 32-bit ZIP File

On the http://www.eclipse.org/downloads/packages webpage



Select Eclipse variant that you want to download ①②③.

Eclipse 32-bit Installation Folder

Decide where you want Eclipse to be installed to (the installation folder). You have two choices

1. If you are going to use Eclipse and nobody else – install it in your data directory, for example, `C:\Users\Richard\Eclipse\Luna` on Windows 8, 7 (and Vista). You will not need administrator access to manage Eclipse in this case.

2. If other users are going to use Eclipse – install it in the program directory, for example, `C:\Program Files (x86)\Eclipse\Luna` on Windows 8, 7 32-bit (and Vista). In this case some Eclipse management will have to be performed using administrator access, specifically, (a) editing Eclipse .ini file, (b) initializing Eclipse data, (c) installing Eclipse add-ons, and (d) updating Eclipse.

The table below describes the destination folder selection. Substitute your actual username for *username*. If you downloaded different Eclipse version substitute its name for Luna.

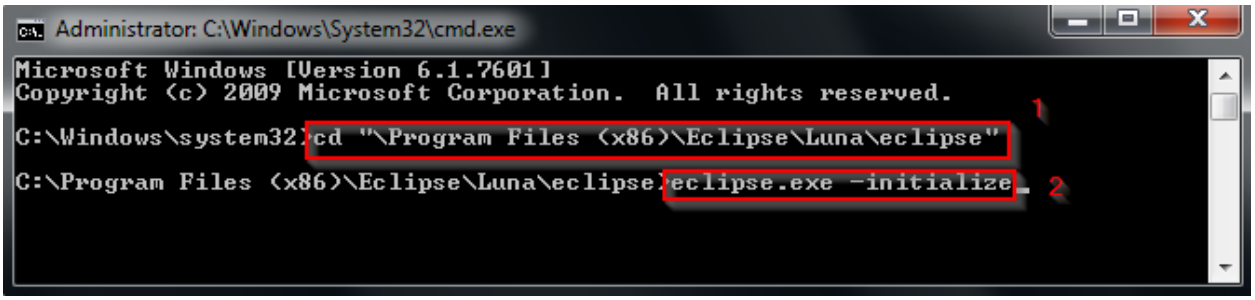
	If you are going to use Eclipse and nobody else	**If other users are going to use it**
Windows XP	`C:\`**`Documents and Settings`**`\`*`username`*`\Eclipse\Luna`	`C:\Program Files\Eclipse\Luna`
Windows 8, 7, and Vista 32-bit	`C:\Users\`*`username`*`\Eclipse\Luna`	`C:\Program Files\Eclipse\Luna`
Windows 64-bit & Eclipse 32-bit	`C:\Users\`*`username`*`\Eclipse\Luna`	`C:\Program Files (x86)\Eclipse\Luna`

Initializing Shared Eclipse 32-bit Installation via Command Line

Using command line to initialize shared Eclipse installation is rarely needed. It is usually enough to run Eclipse as Administrator. Nevertheless, if you need it do the following.

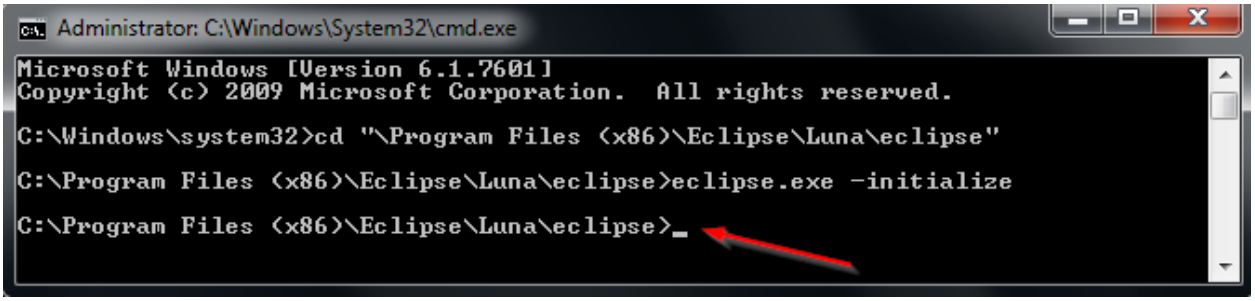
Open shell window as administrator and enter the following commands (substitute real folder path for the example path)

```
cd \Program Files (x86)\Eclipse\Luna\eclipse
eclipse.exe -initialize
```



You will see Eclipse splash window.

Wait a minute until the window is closed (and Eclipse launcher exits).

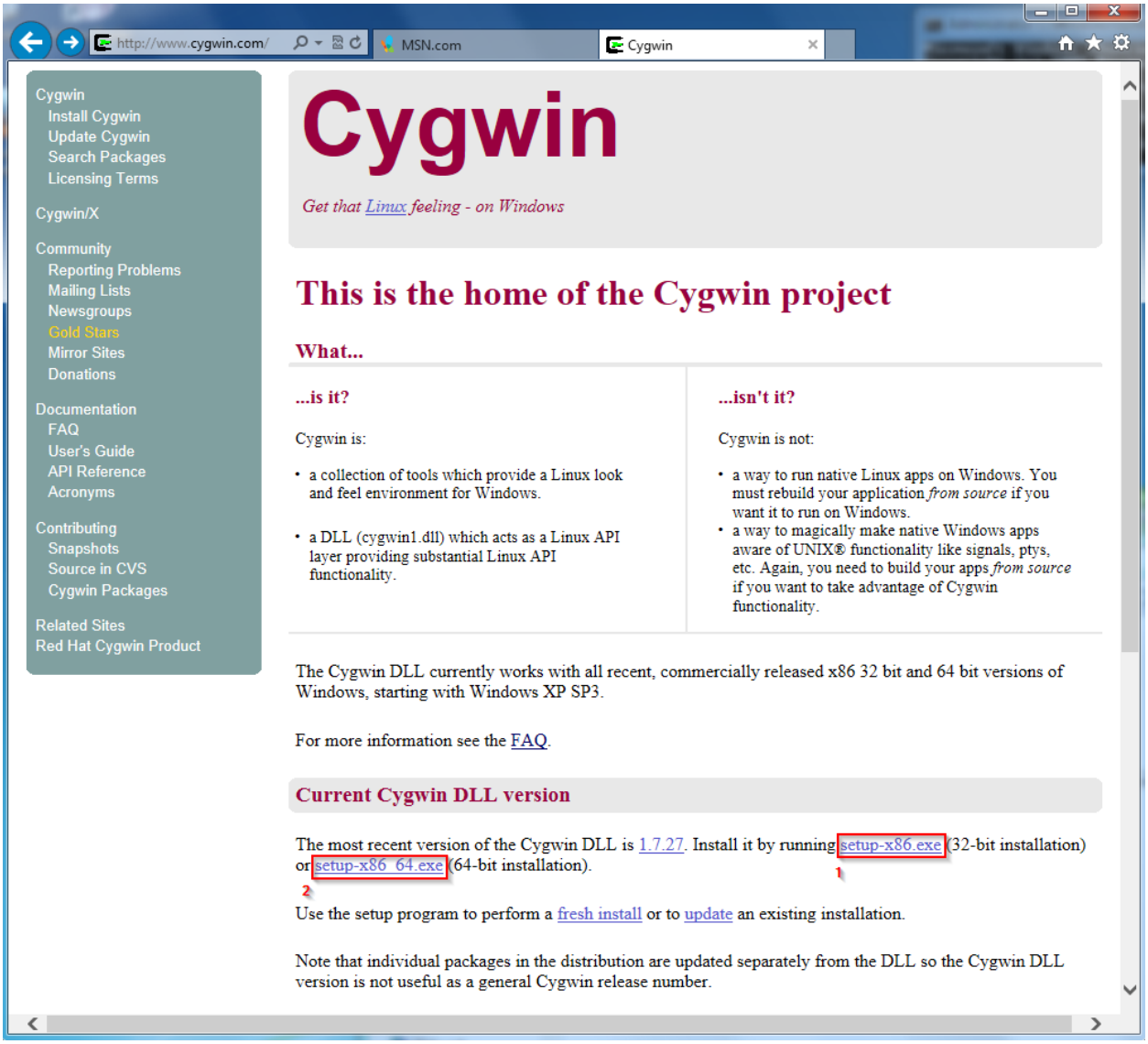


Cygwin 32-bit

Cygwin development packages are required in order to be able to compile, link, build, run, and debug C/C++ programs. You will need approximately 3.3 GB of disk space to install all Cygwin 32-bit development packages (you can reduce the disk space by not installing unnecessary development packages).

Downloading Cygwin 32-bit Setup Program

In a browser open www.cygwin.com website.

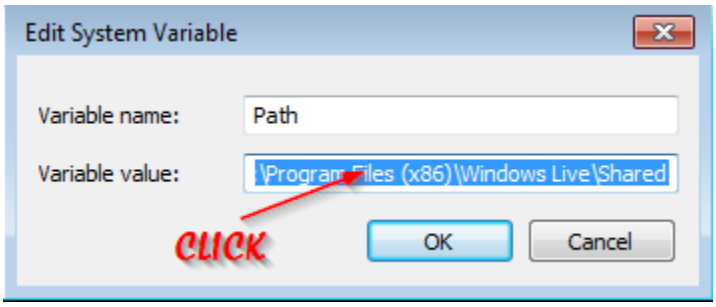


Click on setup-x86.exe URL ① if you are running 32-bit Windows or setup-x86_64.exe URL ② if you are running 64-bit Windows. Download and run the setup executable (Cygwin setup process is described in section Installing Cygwin).

By default, Cygwin is installed in `C:\cygwin` on 32-bit Windows.

Adding Cygwin 32-bit to Windows Path

While editing **Path** environment variable, note that the old path value is selected (has blue background).



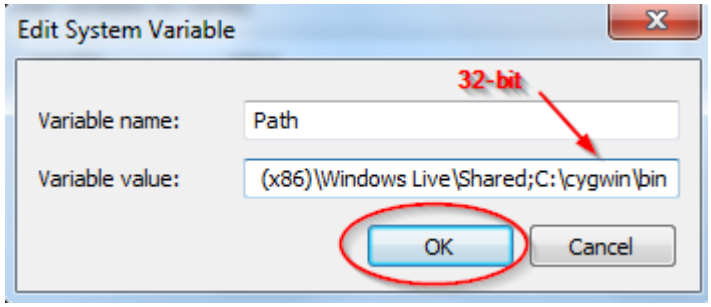
Click somewhere in the **Variable value** field to deselect the old path value, move the cursor to the right, and add Cygwin `bin` subfolder.

✓ Be sure to deselect the old path value by clicking inside it. Otherwise, when you start typing, the old path value will be lost.

For example, add the following text

```
;C:\cygwin\bin
```

Note that you have to insert `;` (semicolon) between the old path value and the folder pathname. Also, no spaces are allowed around the semicolon.

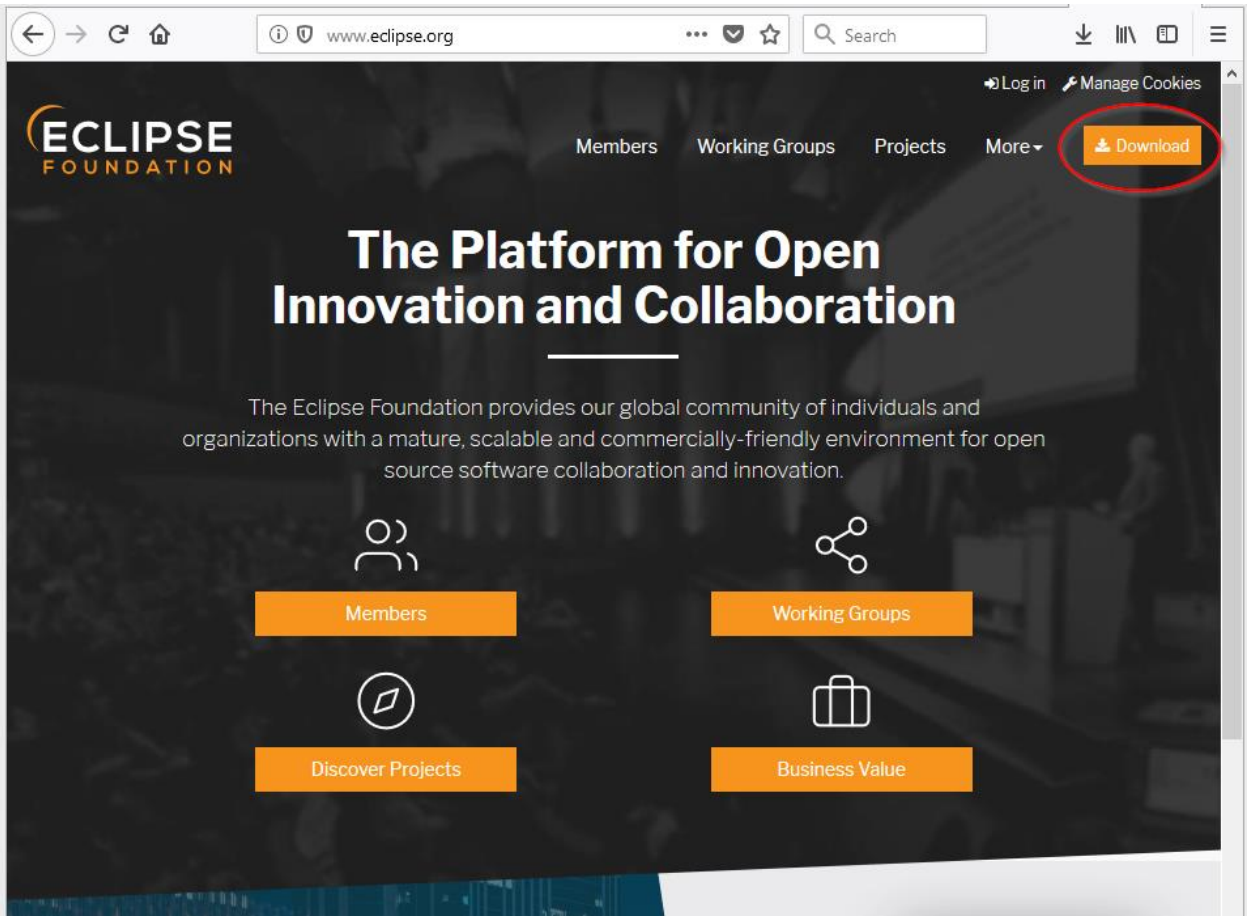


Press **OK** button.

Appendix 16 – Installing Eclipse via ZIP Archive

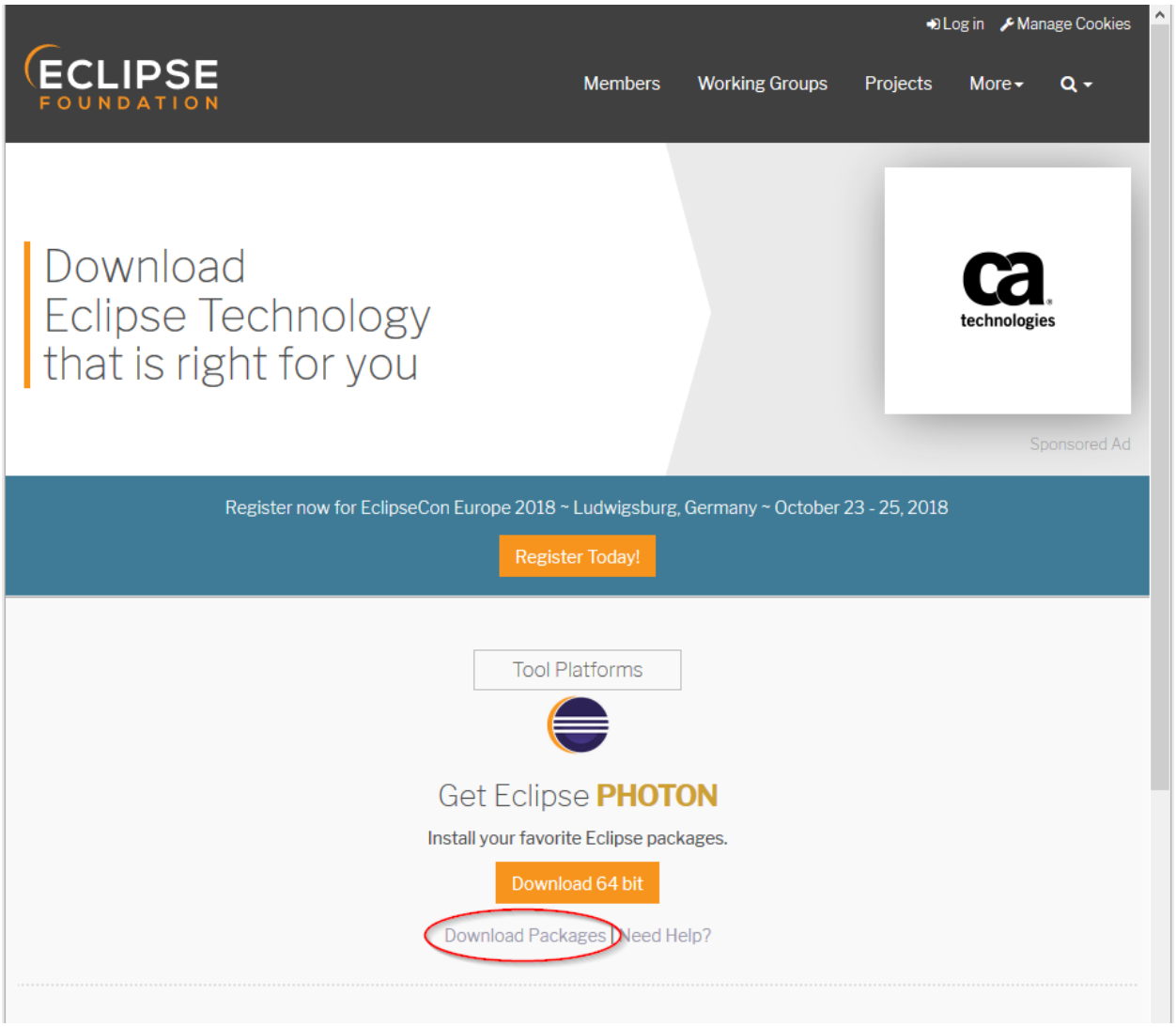
Downloading Eclipse ZIP File

In your browser open www.eclipse.org

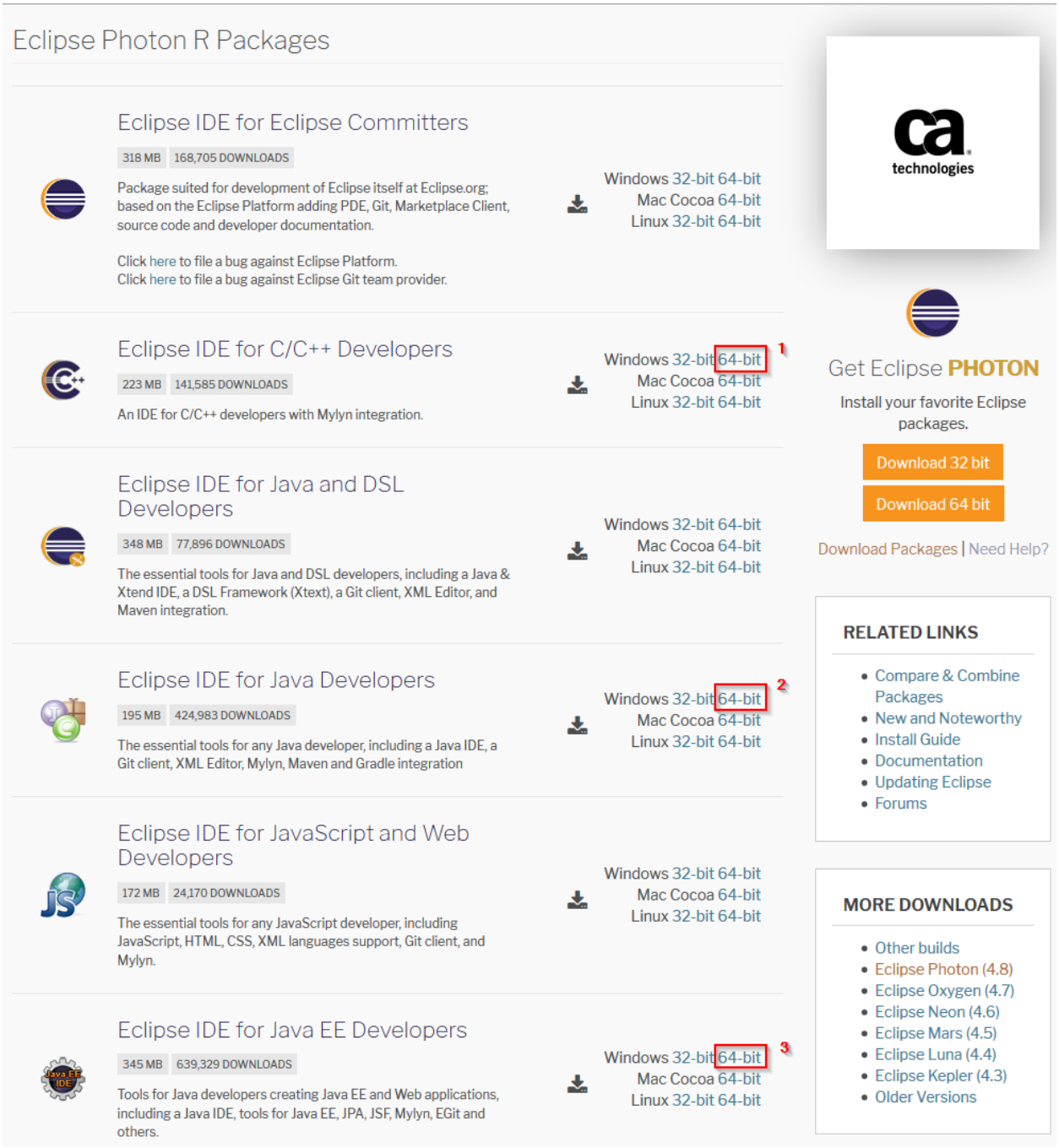


Click on orange  download button.

You will see the following page



Click on Download Packages link.

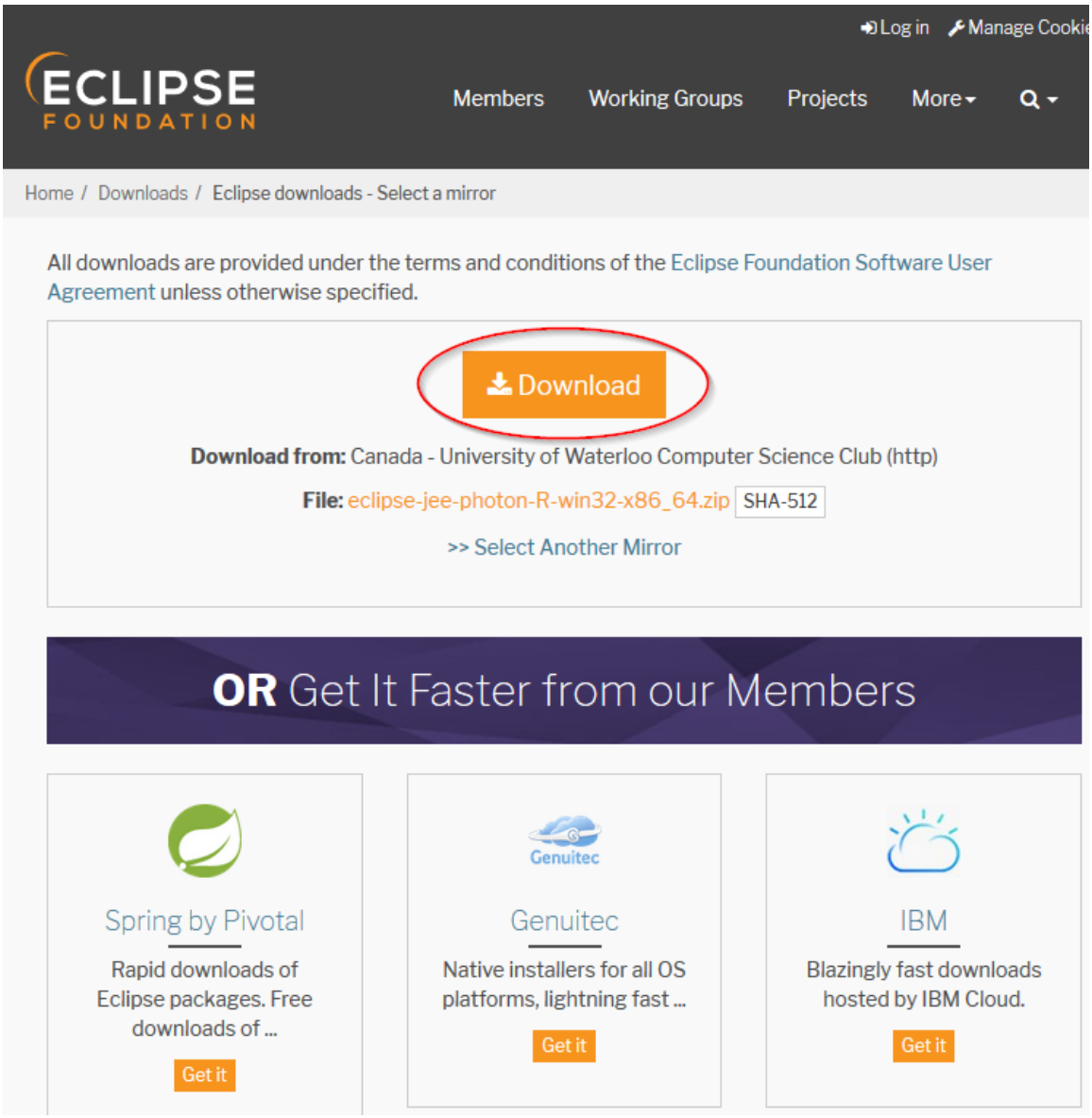


Select Eclipse variant that you want to download and click on correspondent Windows 64-bit link.

① If you want to use Eclipse for C/C++ development only, select "**Eclipse IDE for C/C++ Developers**"
② If you want to use Eclipse for Java standalone program development and, possibly, C/C++ development, select "**Eclipse IDE for Java Developers**"
③ If you want to use Eclipse for Java Enterprise development, possibly, for Java standalone program development, and, possibly, C/C++ development, select "**Eclipse IDE for Java EE Developers**"

Below it is assumed that "**Eclipse IDE for Java EE Developers**" 64-bit is selected. Find "**Eclipse IDE for Java EE Developers**" row and click on **Windows 64 Bit** hyperlink.

You will see the following page

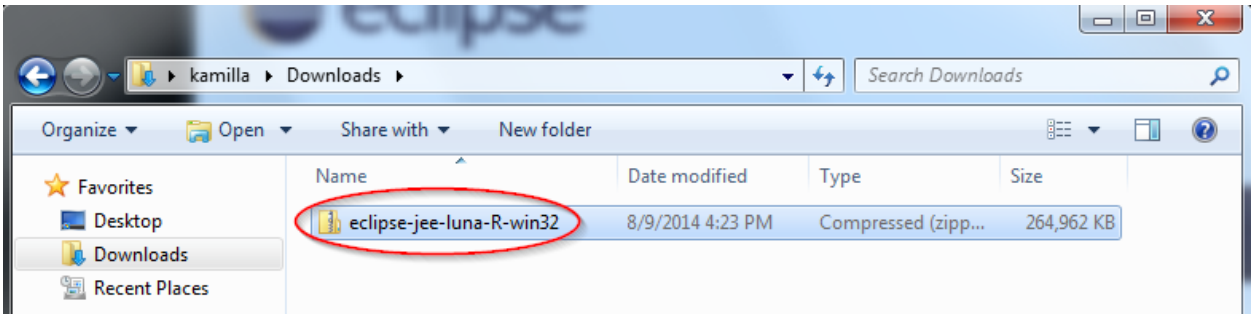


Click on orange  download button to download the ZIP file.

WARNING - Do not click on **Get It** buttons unless you really want to install the third-party software.

Depending on your browser, you will get a download prompt. Download and save the ZIP file. See Appendix 11 – Downloading and Running files from the Internet for more information.

Open the folder containing the saved ZIP file. For example



Extracting Eclipse Files

Decide where you want Eclipse to be installed to (the installation folder). See Eclipse Installation Folder section for some hints.

Create the Eclipse installation folder and extract files from the downloaded ZIP archive there. If you need help with the ZIP files extraction, see Appendix 12 – Extracting Eclipse Files to the Destination Folder.

Return to the main text and continue from Setting Up Eclipse Shortcut section.