

# **WA2639 Devops with Jenkins, Terraform and Hashicorp Stack**

## **Classroom Setup Guide**

# **Web Age Solutions Inc.**

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## **Part 1 - Introduction**

This course requires to install a pre-built VMWare image and a Windows setup that you need to install in a clean Windows image [VMWare, cloud, Virtual pc] or directly on a Windows computer.

## **Part 2 - Minimum Hardware Requirements**

- 8 GB RAM minimum (12 GB recommended)
- 50 GB free on the drive where the image will run
- **Internet connectivity**

## **Part 3 - Minimum Software Requirements**

- Adobe Acrobat Reader
- Zip extraction utility that supports 7zip
- VMWare workstation 12 or compatible.

## **Part 4 - AWS keys**

This course requires AWS key for the students that will be generated before the class by Web Age Solutions. Please contact [support@webagesolutions.com](mailto:support@webagesolutions.com) to request keys generation and delivery of keys to the instructor.

## Part 5 - Software Provided

List of ZIP files required for this course and used in next steps on this document:

- **WA2639\_REL\_2\_0.ZIP**
- **VM-WA2639.zip [CentOS VMWare image]**

Send an email to **support@webagesolutions.com** in order to obtain a copy of the software for this course if you haven't receive it yet.

All other software listed under Minimum Software Requirements is either commercially licensed software that you must provide or software that is freely available off the Internet.

## Part 6 - Installing the WA2639 [CentOS] VMWare Image

In this part you will extract and start the Linux and Ubuntu VM images.

\_\_1. Extract the **VM-WA2639.zip** file directly to C:\

\_\_2. Review that the following folder was created:

- **C:\VM-WA2639**

\_\_3. Select **Start** → **VMWare** → **VMware Player** to start the VMWare player.

Note. If you don't have VMWare player installed then search for 'VMWare workstation 12 or above' on internet and install it.

\_\_4. Click **Open a Virtual Machine**.



### Create a New Virtual Machine

Create a new virtual machine, which will then be added to the top of your library.



### Open a Virtual Machine

Open an existing virtual machine, which will then be added to the top of your library.



\_\_5. Navigate to the **C:\VM-WA2639** folder, right click the file with extension as **vmx** and select **Open**.

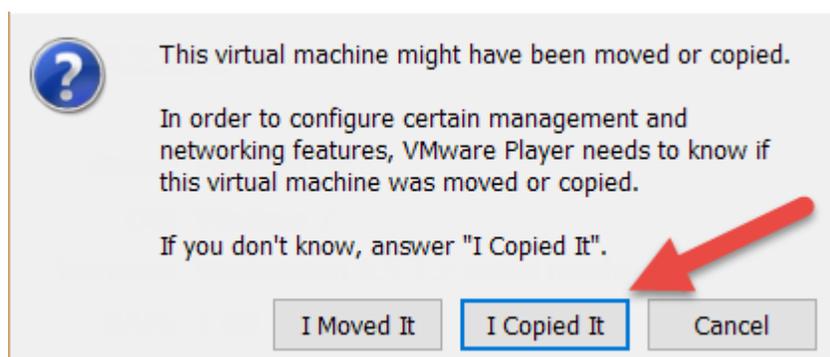
\_\_6. The name of the VMWare image will appear in the console.

\_\_7. Click "Edit virtual machine settings".

\_\_8. Verify the Memory and the Processors assigned to the VM. If your computer doesn't have enough resources modify this settings and click OK.

\_\_9. Click **Play virtual machine**.

\_\_10. Select **I copied it** and click **OK**.



The virtual machine will open.

\_\_11. Login using the user **wasadmin** user with password **wasadmin**.

\_\_12. The VM image will open.

\_\_13. If a message asking to install the VM Ware Tools open, you can simply close it, it's optional installing the most recent version of the VM Ware Tools.

\_\_14. If you get an error when launching the VM regarding the version of the VMWare player is probably because you are using an older version of VMWare Player, we recommend using VMWare player 12 workstation or above, older VMWare players may not work but you can try changing the setting as follows:

- Close the VM player.
- Use notepad to edit the file with .vmx extension that is located in the folder where you copied the VM.
- Change the lines that relate to the config version and hardware version as follows:
  - `config.version = "X"`
  - `virtualHW.version = "X"`
    - Replace "X" with "7" for VMware Players 7 or below.
    - Replace "X" with "8" for VMware Players 8 or above.
    - Replace "X" with "12" for VMware Player 12 or above.
  - Save and close the file.
  - Launch again the VM, if doesn't start then contact support.

\_\_15. You have started successfully the WA2639 VM, you can leave this VM running or you can shut it down depending on the computer resources.

\_\_16. Make a shortcut to the desktop and call it WA2639 Linux.

## Part 7 - WA2639 Windows Setup installation

The following steps are to install the Windows image, this can be done in a clean Windows VM or directly in the computer. Make sure your computer has enough resources to host the VM that you just started , and the Windows software below.

## Part 8 - Minimum Software Requirements

- Windows 7 (Professional, Enterprise, or Ultimate)
- Latest web browsers:
  - Chrome
  - Firefox
- Adobe Acrobat Reader
- Zip extraction utility
- JDK 8 Update 45 \*
- Eclipse JEE Kepler SR1\*
- Artifactory 3.3.0 OSS \*
- Apache Tomcat 6.0.37 \*
- Jenkins 2.89.3 \*
- GIT 2.8.1 \*
- Apache Maven 3.3.9 \*

\* - indicates software provided as part of the courseware.

## Part 9 - Instructions

\_\_1. Open your Windows VM or computer.

\_\_2. **Login with an administrator account. NOTE. THIS COURSE REQUIRES ADMIN PRIVILEGES TO THE STUDENT ACCOUNT.**

\_\_3. Makes sure the computer has internet access from the browser and the command line. If needed open the proxy.

\_\_4. Extract the **WA2639\_REL\_2\_0.ZIP** file directly to C:\

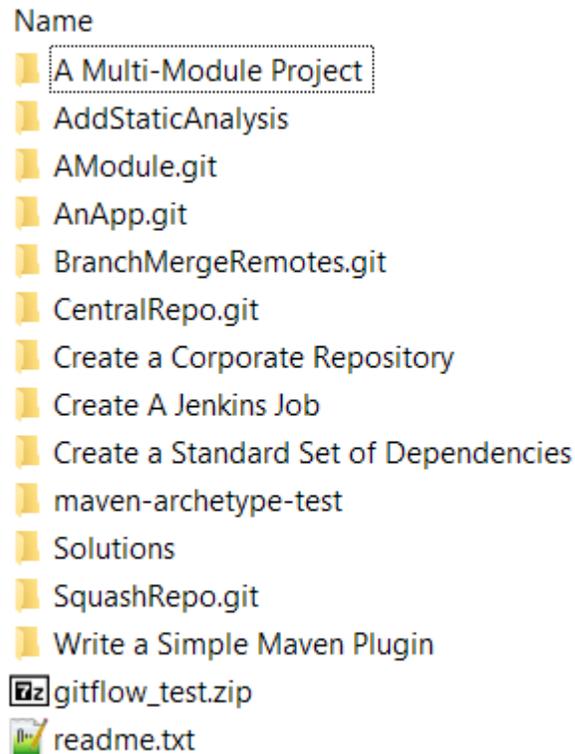
\_\_5. Review that the following folders were created:

- **C:\LabFiles**
- **C:\Software\apache-maven-3.3.9**
- **C:\Software\apache-tomcat-6.0.37**
- **C:\Software\artifactory-3.3.0**
- **C:\Software\eclipse**
- **C:\Software\jenkins-2.89.3-Windows**

\_\_6. Review that the following files were created:

- **C:\Software\Git-2.8.1-32-bit.exe**
- **C:\Software\jdk-8u45-windows-i586.exe**

\_\_7. Make sure you see the following folders and files under **C:\LabFiles**:



\_\_8. Install Mozilla and Chrome.

\_\_9. Make sure the student will have full control under **C:\LabFiles** and **C:\Software** folders.

## Part 10 - Installing JDK 8 Update 45

\_\_1. Make sure there is no previous Java version already installed on the system. You can check this by using the Windows “Add/Remove Programs” utility. For the best compatibility with the labs it is suggested that all previous versions of Java be uninstalled before proceeding with these instructions. If this is an issue, please contact the setup support person for the course.

\_\_2. From the **C:\Software** directory run the following file:

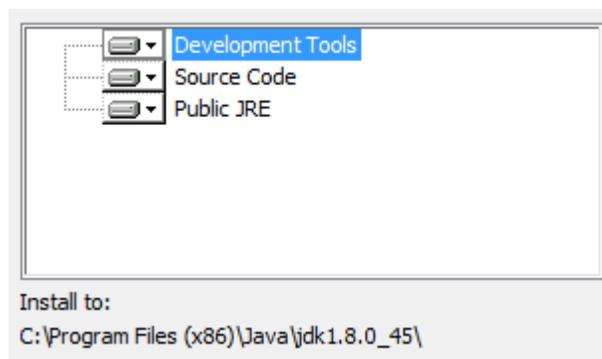
```
jdk-8u45-windows-i586
```

**Note:** If using prompted by a security prompt allow the installation to continue.

\_\_3. When the initial step of the setup appears, press the **Next** button.



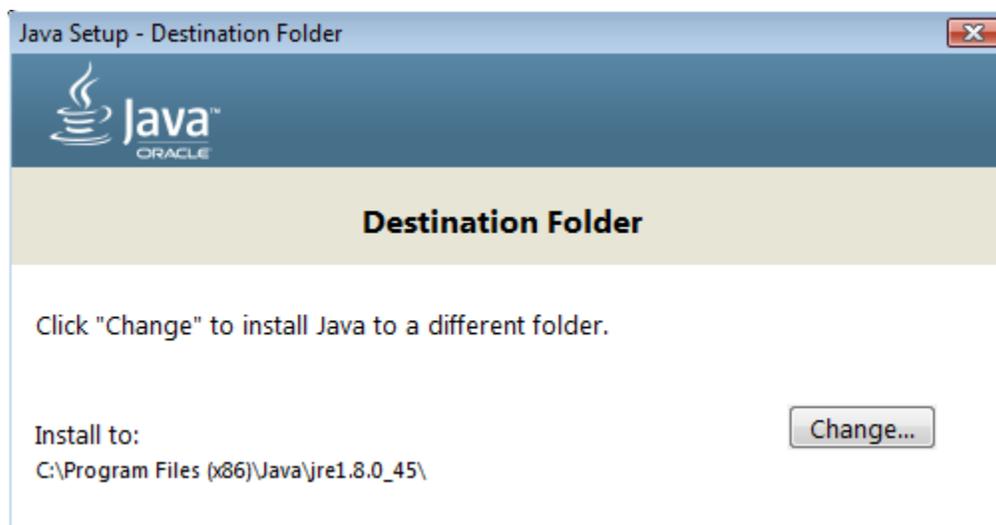
\_\_4. Leave the defaults for installation location and options, and press the **Next** button.



**Note:** The installation directory may be slightly different.

The installation will begin installing files.

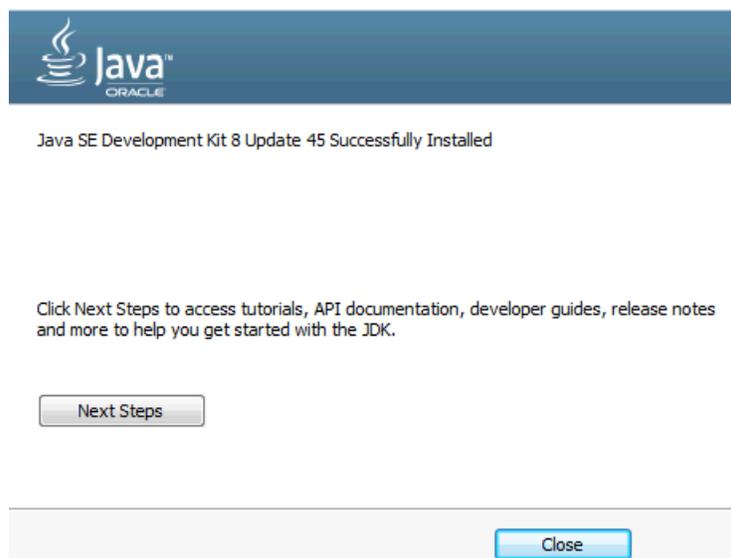
\_\_5. The Destination Folder will appear, leave the default folder and click **Next**.



**Note:** The installation directory may be slightly different.

Wait until the software is completely installed.

\_\_6. Click **Close**.



\_\_7. Close any browser that appears asking to register the JDK software.

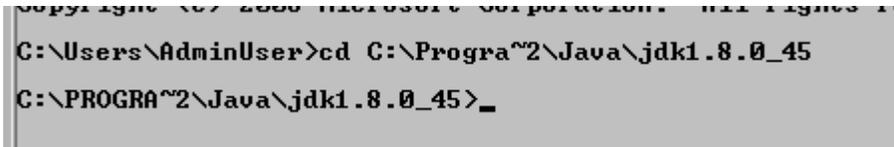
### **Set the Environment variables.**

\_\_1. Open a Command Prompt. You can do this with '**Start** → **Programs** → **Accessories** → **Command Prompt**'.

\_\_2. Use the 'cd' command to attempt to switch to the following directory. This will verify the presence

of a directory used later so make sure you do not get any errors about not being able to “find the path specified”.

```
cd C:\Progra~2\Java\jdk1.8.0_45
```



**Note:** The installation directory may be slightly different depending your operating system. You may need to use the following directory instead of the one listed above:

**C:\Progra~1\Java\jdk1.8.0\_45**

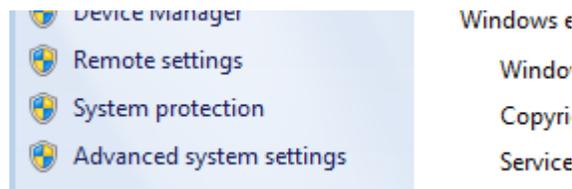
Some of the remaining steps will use the slightly different directory.

\_\_3. Make sure you can reach the java folder and remember the value entered because you will use this value in the following steps.

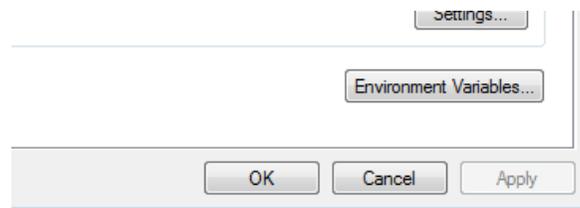
\_\_4. Close the command prompt window.

\_\_5. In the Windows Start Menu, right-click on the **Computer** link in the right-hand side of the Start panel, and then select **Properties**.

\_\_6. Click on **Advanced system settings**.



\_\_7. The system will display the **System Properties** dialog. Select the **Advanced** tab and click **Environment Variables**.



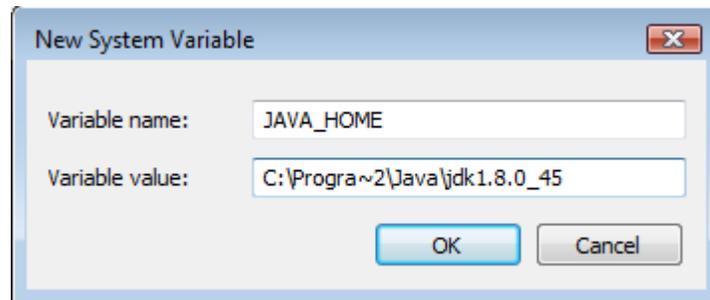
\_\_8. Under the **System Variables** list, click the **New** button.

\_\_9. Enter **JAVA\_HOME** as Variable name.

\_\_10. As Variable value enter the following. This should be the value you verified in the *Set the*

*Environment variables section - step 2.*

C:\Progra~2\Java\jdk1.8.0\_45



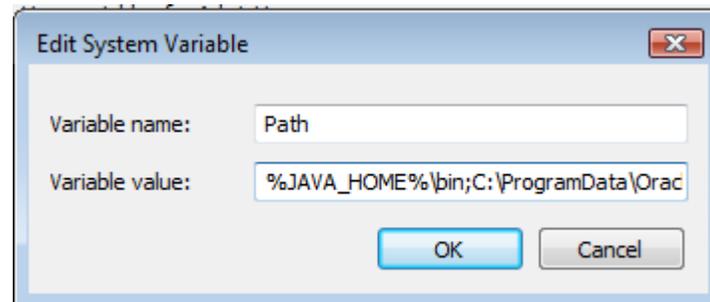
**Note:** If you are using a 32-bit OS you may have to use C:\Progra~1\Java\jdk1.8.0\_45

\_\_ 11. Click **OK** to create the variable.

\_\_ 12. From the *System Variables* list, select **Path** and click **Edit**.

\_\_ 13. At the beginning of the line enter the following. Make sure to include the semi-colon on the end:

`%JAVA_HOME%\bin;`



\_\_ 14. Click **OK**.

\_\_ 15. Click **OK** to close the *Environment Variables* window.

\_\_ 16. Click **OK** to close the *System Properties* window.

## Part 11 - Verification of JDK 8 Update 45

\_\_ 1. Open a Windows command prompt. You can do this by selecting '**Start -> Run**', entering '**cmd**', and then pressing the **OK** button. Make sure it is a new command prompt and not one open previously.

\_\_ 2. Enter the following command:

`echo %PATH%`

Make sure you see the Java 'bin' directory listed at the beginning.

Note: You may see **C:\Progra~1\Java\jdk1.8.0\_45** or **C:\Progra~2\Java\jdk1.8.0\_45**

\_\_3. Enter the following command:

```
java -version
```

Make sure you see the response shown below.

```
C:\Users\AdminUser>java -version
java version "1.8.0_45"
Java(TM) SE Runtime Environment (build 1.8.0_45-b15)
Java HotSpot(TM) Client VM (build 25.45-b02, mixed mode)

C:\Users\AdminUser>_
```

Troubleshooting: If you get an error message means that your Environment variable was incorrectly entered, go back and fix the values.

\_\_4. Enter the following command:

```
javac
```

Verify that you get the options to run the Java compiler:

```
C:\Users\AdminUser>javac
Usage: javac <options> <source files>
where possible options include:
-g                Generate all debugging info
-g:none          Generate no debugging info
-g:{lines,vars,source}  Generate only some debugging info
```

\_\_5. Enter the following command:

```
java -XshowSettings:all 2>&1 | findstr /c:"sun.arch.data.model"
```

```
C:\Users\wasadmin>java -XshowSettings:all 2>&1 | findstr /c:"sun.arch.data.model"
sun.arch.data.model = 32
```

Verify that it displays the correct value of 32. This indicates that it is 32-bit java that is installed.

Troubleshooting: If it displays 64 for the value, then you have 64 bit java installed and this will cause issues. Please uninstall the 64-bit java and reinstall the indicated 32-bit jdk.

\_\_6. Close the command prompt window and any extra windows that are open.

Java has been installed.

## Part 12 - Jenkins 2.89.3 Installation

\_\_1. Open a command prompt window and ensure that the Java JDK is installed.

```
java -version
```

```
C:\Users\wasadmin>java -version
java version "1.8.0_45"
Java(TM) SE Runtime Environment (build 1.8.0_45-b14)
Java HotSpot(TM) Client VM (build 25.45-b02, mixed mode)
```

\_\_2. In Windows Explorer, navigate to **C:\Software\jenkins-2.89.3-Windows**

\_\_3. Double-click on '**jenkins.msi**'. The installer will show the initial dialog. Click **Next**.



\_\_4. On the **Destination Folder** panel, leave the defaults and click **Next**.

### Destination Folder

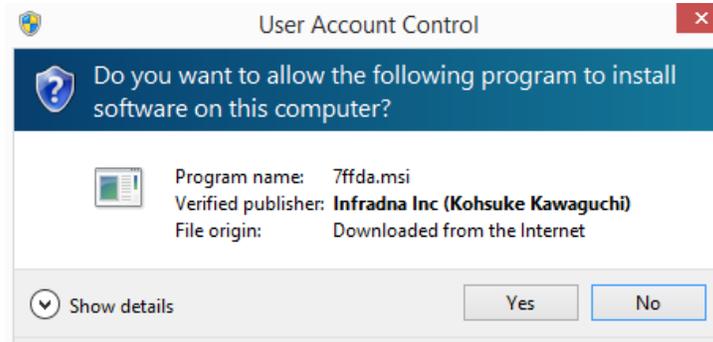
Click Next to install to the default folder or click Change to choose another.



Your destination folder may be different.

\_\_5. On the **Ready to Install...** panel, click **Install**.

\_\_6. Windows may show a security dialog. If it does, click **Yes**.



\_\_7. In the final dialog panel, click **Finish**.

## Completed the Jenkins 2.89.3 Setup Wizard

Click the Finish button to exit the Setup Wizard.

\_\_8. If you see the **Create First Admin User** screen then click Jenkins.



\_\_9. If you see the following click **Don't show this message again**.



The installer will open a browser window to the Jenkins home page. The page shows the location of a file where you can find the initial administration password, and also a text box to enter the password into.

# Unlock Jenkins

To ensure Jenkins is securely set up by the administrator, a password has been written to the log (not sure where to find it?) and this file on the server:

```
C:\Program Files\Jenkins\secrets\initialAdminPassword
```

\_\_10. Open the indicated file with an editor such as Notepad, and copy the password to the clipboard with Ctrl-C.

\_\_11. Paste the password into the **Adminstrator Password** box.

```
C:\Program Files\Jenkins\secrets\initialAdminPassword
```

Please copy the password from either location and paste it below.

Administrator password

\_\_12. Click **Continue**.

\_\_13. If you are prompted to save the password just close that window.

\_\_14. Click on **Install Suggested Plugins**.

## Customize Jenkins

Plugins extend Jenkins with additional features to support many different needs.

### Install suggested plugins

Install plugins the Jenkins community finds most useful.

### Select plugins to install

Select and install plugins most suitable for your needs.

\_\_15. Getting Started will begin. Wait until is done.

# Getting Started

✓ Folders Plugin	✓ OWASP Markup Formatter Plugin	✓ build timeout plugin	✓ Credentials Binding Plugin	** Jenkins G
✓ Timestamper	✓ Workspace Cleanup Plugin	✓ Ant Plugin	✓ Gradle Plugin	** Jenkins G
✓ Pipeline	⌚ GitHub Organization Folder Plugin	✓ Pipeline: Stage View Plugin	✓ Git plugin	** Pipeline:
⌚ Subversion Plug-in	⌚ SSH Slaves plugin	✓ Matrix Authorization	✓ PAM Authentication	Libraries

\_\_16. In the **Create First Admin User** screen. Enter the following fields:

**Username:** wasadmin

**Password:** wasadmin

**Confirm Password:** wasadmin

**Full name:** Administrator

**E-mail address:** user@example.com

\_\_17. When the input looks like below, click **Save and Finish**.

## Create First Admin User

Username:

Password:

Confirm password:

Full name:

E-mail address:

\_\_18. If you are prompted to save the password just close that window.

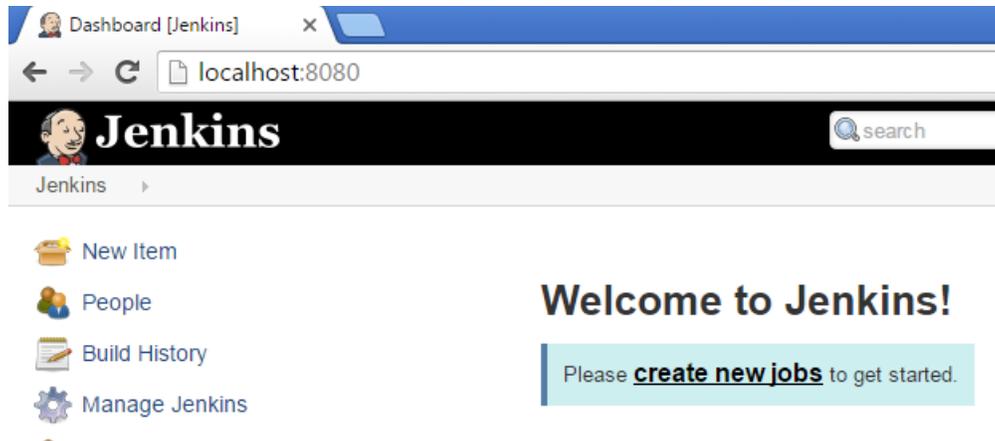
\_\_19. You will see that Jenkins is ready. Click **Start using Jenkins**.

# Jenkins is ready!

Your Jenkins setup is complete.

Start using Jenkins

\_\_20. Jenkins will open.



\_\_21. Jenkins installation is complete. Close the browser.

\_\_22. Close all open windows.

## Part 13 - Installing GIT

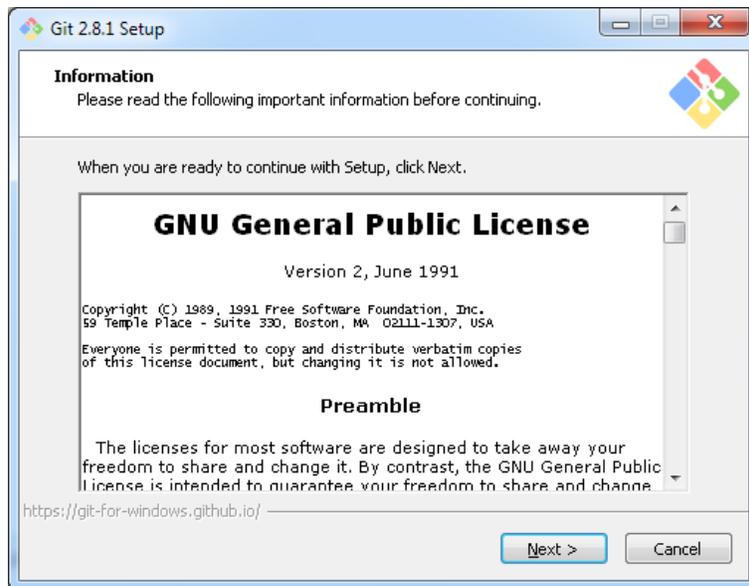
**IMPORTANT: Setup is easy but you need to make sure you do the change in Step 7.**

\_\_1. From the **C:\Software\** directory run the following file:

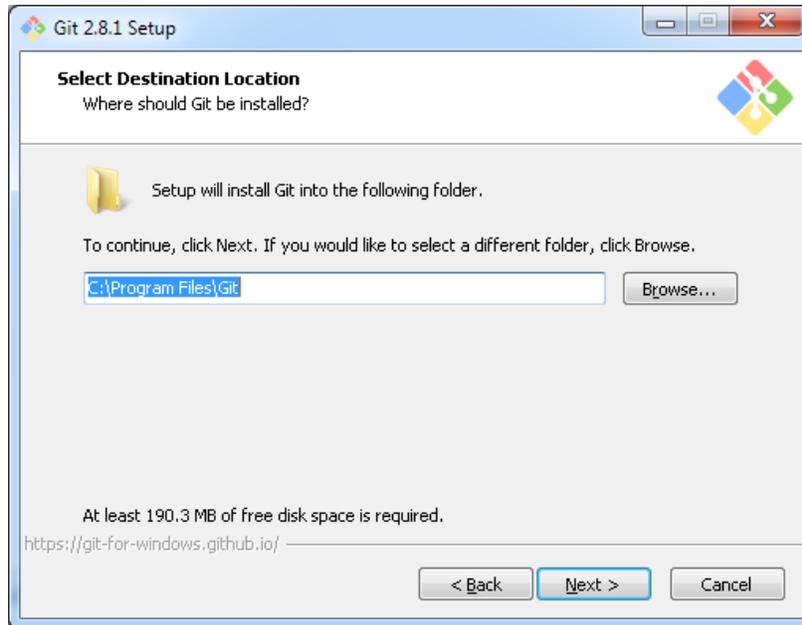
**Git-2.8.1-32-bit.exe**

\_\_2. You may need to allow the program to run.

\_\_3. Click **Next**.

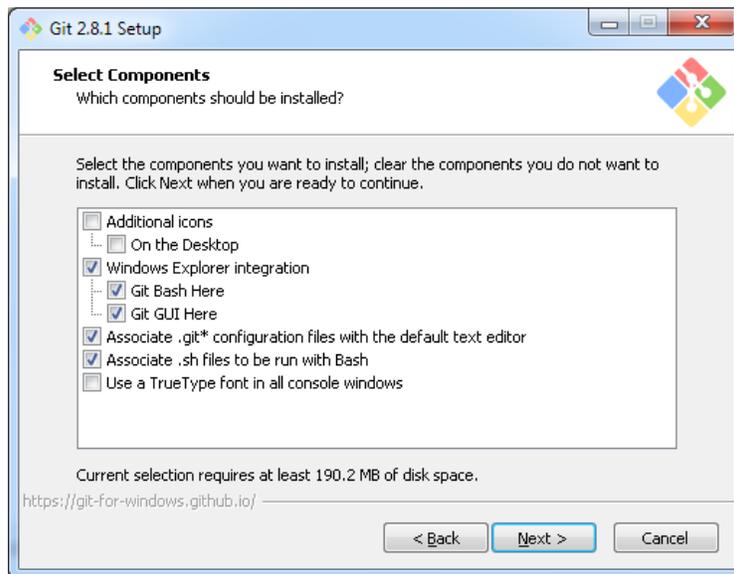


\_\_4. Click **Next**.

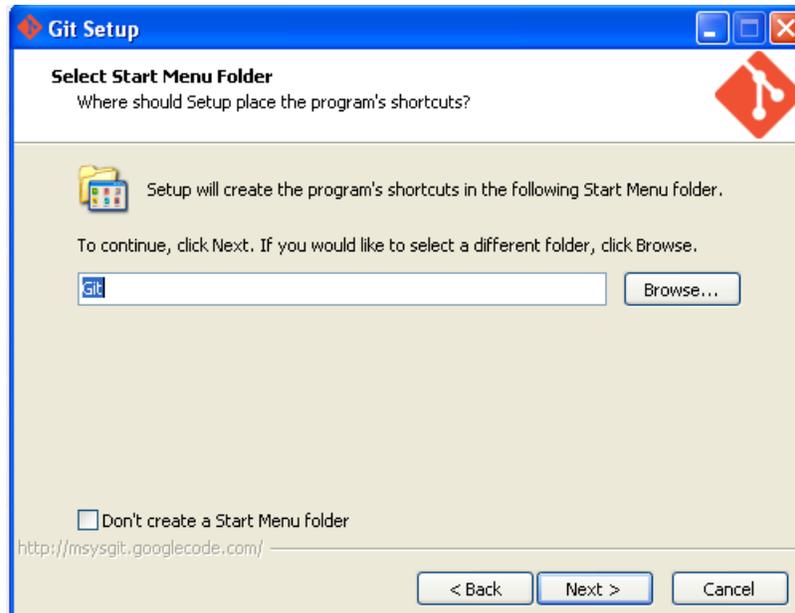


Note. You folder may be different.

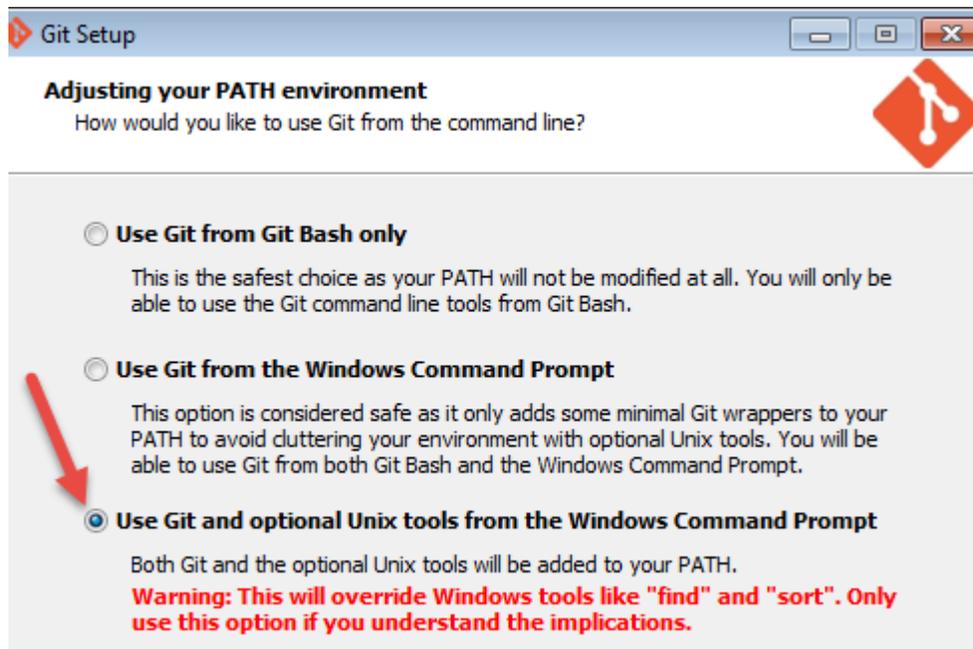
5. Click **Next**.



6. Click **Next**.

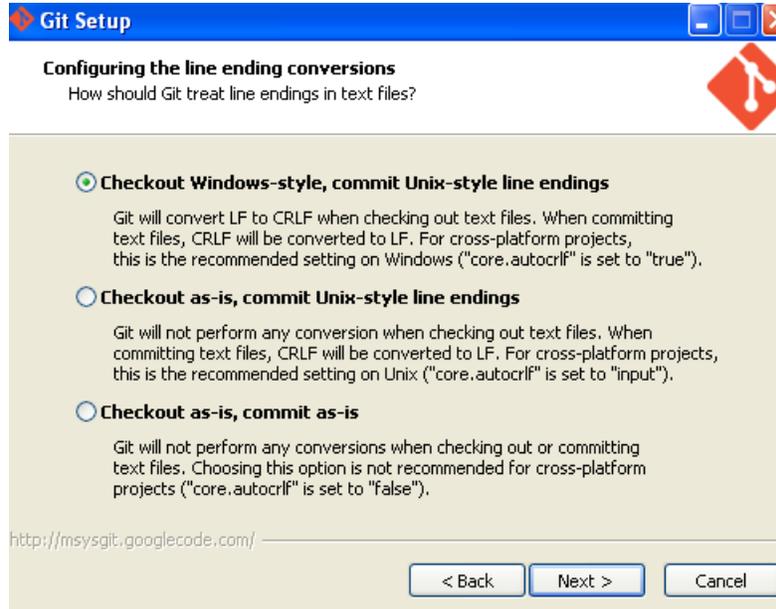


\_\_7. Select Use Git and Optional Unix tools from the Windows Command Prompt.

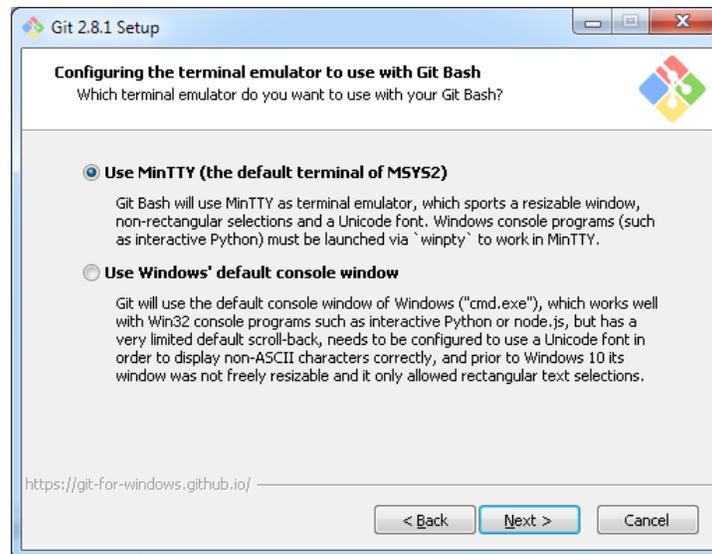


\_\_8. Make sure you select the 3<sup>rd</sup> option as shown above and then click **Next**.

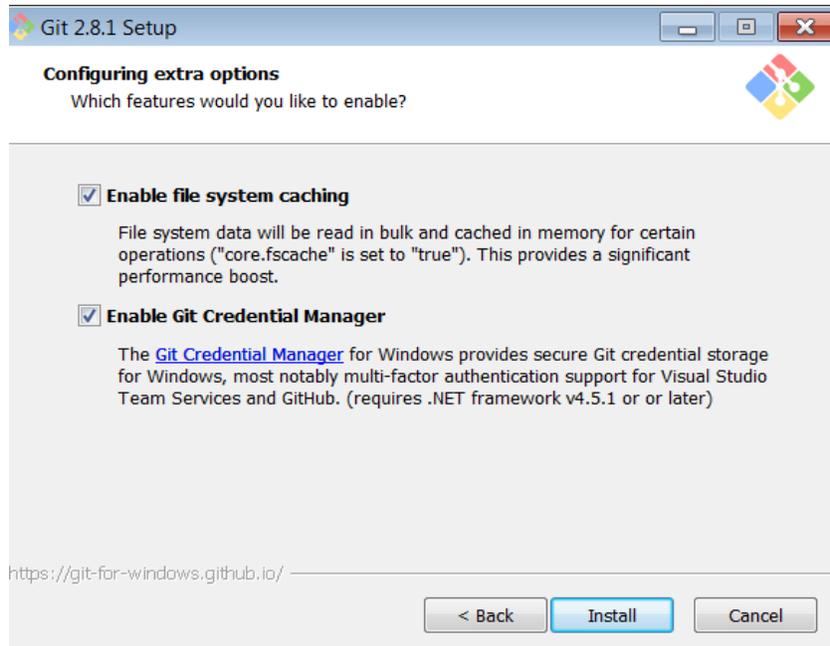
\_\_9. Click **Next**.



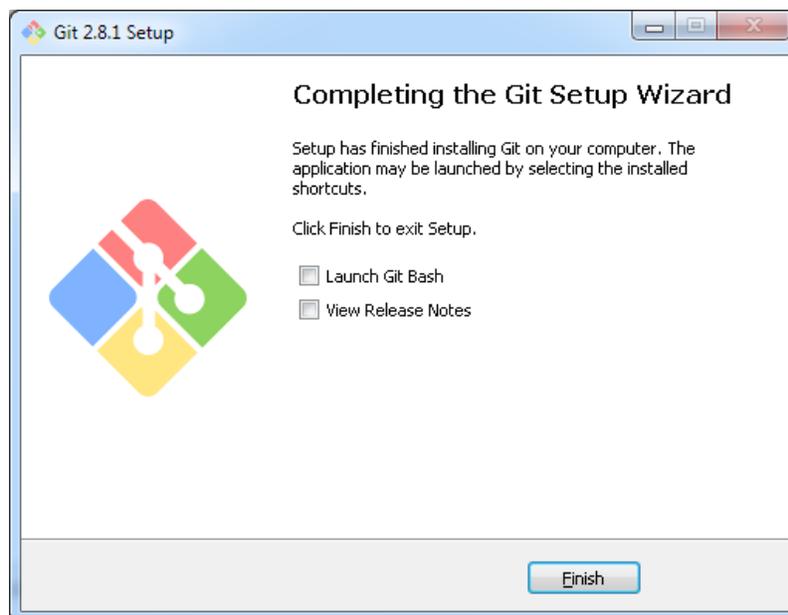
10. Click **Next**.



11. Leave defaults and click **Install**.



\_\_12. De-select **View Release Notes**, and then click **Finish**.



\_\_13. Close all open files.

## **Part 14 - Summary**

**You have successfully installed the software for this course!**

If you have any question please contact us by email at [support@webagesolutions.com](mailto:support@webagesolutions.com)

From US and Canada call: 1-877-812-8887 ext. 26

International call: 416-406-3994 ext. 26