



# Development Guide

Version 1.0

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## Preface

This guide will help you setup your development environment on a Windows machine.

## Requirements

To install the software & tools, you may need to download the following:

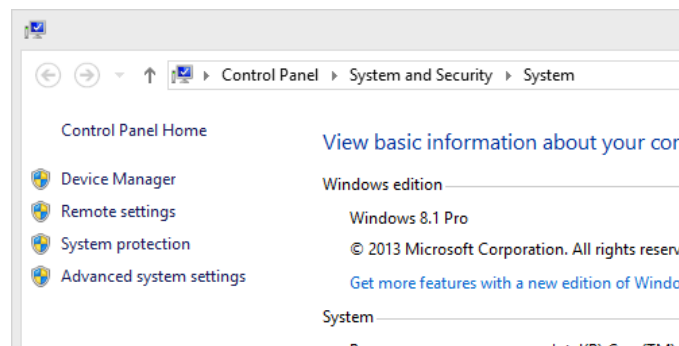
- JDK 8 (<http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html>)
- Android SDK Tools (<http://developer.android.com/sdk/index.html#Other>)
- Git (<https://desktop.github.com/>)
- GWT (<http://goo.gl/t7FQSn>)
- IntelliJ Idea Community Edition 15.0.2 (<https://www.jetbrains.com/idea/download/download-thanks.html?code=IIC>)

## Installing Software & Tools

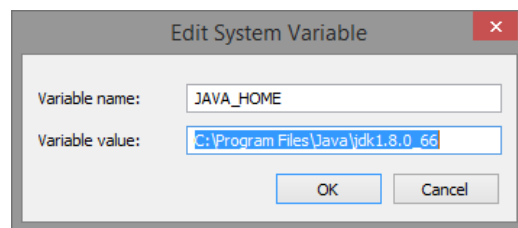
### Java Software Development Kit (JDK)

The following instructs will help you download and install the Java Software Development Kit. If you already have Java installed, go the next section.

1. Download the latest JDK (1.8.0\_66 at the time of writing of this document).
2. Run the executable and follow the wizard's instructions.
3. Add java to your environment variables:
  - a. Click Start.
  - b. Right-click "This PC" (or "My Computer")
  - c. Click on *Advanced system settings* on the panel on the left.



- d. On the bottom right corner, click *Environment Variables...*
- e. On the bottom half, under "System Variables", click the button *New...*
- f. For variable name, enter: `JAVA_HOME`  
For variable value, enter the path of your java installation. In my case, this is:  
`C:\Program Files\Java\jdk1.8.0_66`



- g. Click Ok.
- h. On the bottom half, under "System Variables", click a variable called *Path*, and then click the button *Edit...*
- i. At the very end of the variable value, add the following: `;%JAVA_HOME%\bin`
- j. Click Ok, click ok again.
- k. Click the Apply button, followed by the Ok button.

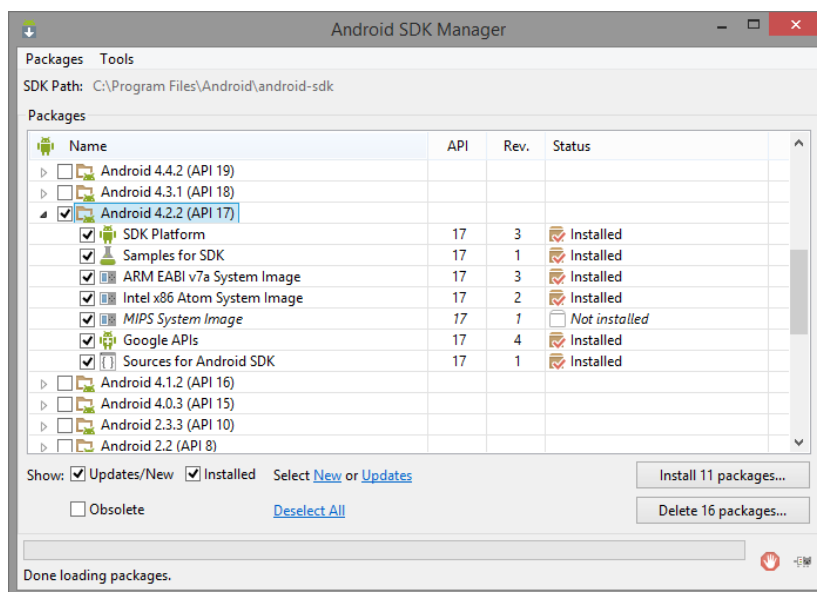
- To confirm that everything is installed correctly, open command prompt / terminal, and enter `java -version`. You should have your java version printed on the console, similar to the figure below.

```
C:\Users\Nicolas>java -version
java version "1.8.0_66"
Java(TM) SE Runtime Environment (build 1.8.0_66-b17)
Java HotSpot(TM) 64-Bit Server VM (build 25.66-b17, mixed mode)
```

## Android SDK

The following instructions will help you download and install the Android SDK. This SDK will allow you to build the Android Client. The application was tested on Android Jelly Bean (API 17), using a Samsung Galaxy Tab 3 (8").

- Download the Android SDK Tools Only **zip** file.
- Extract the zip in a location of your choice. For this guide, we will extract its contents to `C:\Program Files\Android\android-sdk`
- Go to the extracted folder.
- Double-click on SDK Manager. **Note:** You may need to run this as an administrator.
- Check the following packages:
  - Android SDK Tools
  - Android SDK Platform-tools
  - Android SDK Build-tools Rev. 21.1.2
  - Android 4.2.2 (API 17)
  - Android 5.0.1 (API 21)
  - Extras

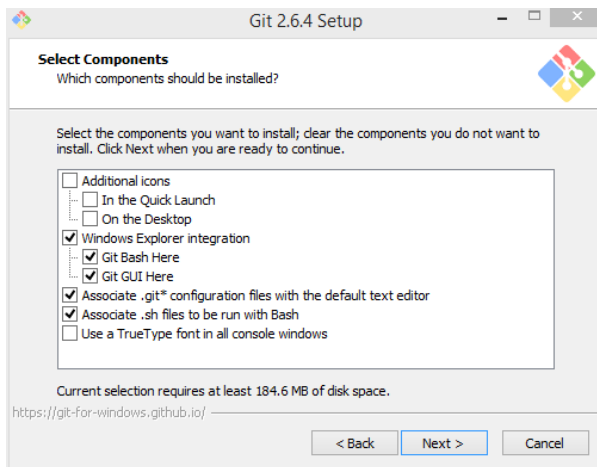


6. Click the button *Install X packages*, where X is the number of items checked.
7. Select Accept License
8. Click the *Install* button.
9. Once the installation of all the packages is done, you can close the window.

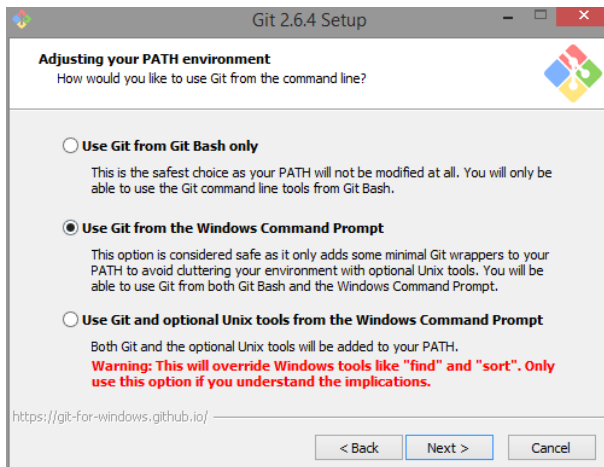
## Git

Installing Git will allow you to download the RTDC source code from GitHub.

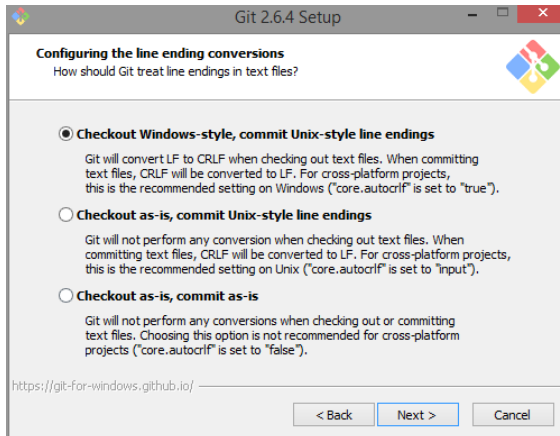
1. Download the executable for Git.
2. Run the exe by double-clicking on the file.
3. You may get a security. Simply click *Yes*.
4. Click *Next*.
5. Click *Next*.
6. Leave the default components. Click *Next*.



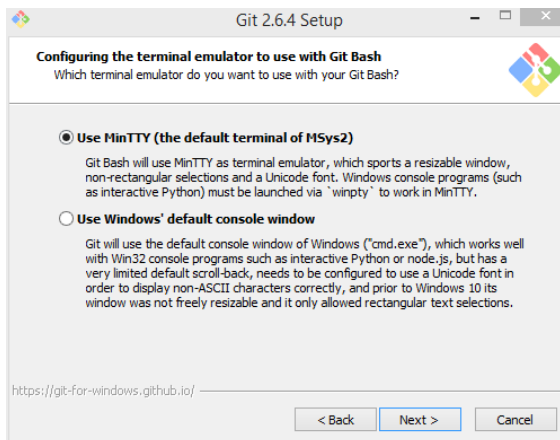
7. Select the second option “*Use Git from the Windows Command Prompt*”.



8. Leave the default setting “Checkout Windows-style, commit Unix-style line endings”. Click *Next*.



9. Leave the default setting “Use MinTTY (the default terminal of MSys2)”. Click *Next*.



10. Leave the box unchecked. Click *Next*.

11. Git will install. Click *Finish* when done.

## GWT

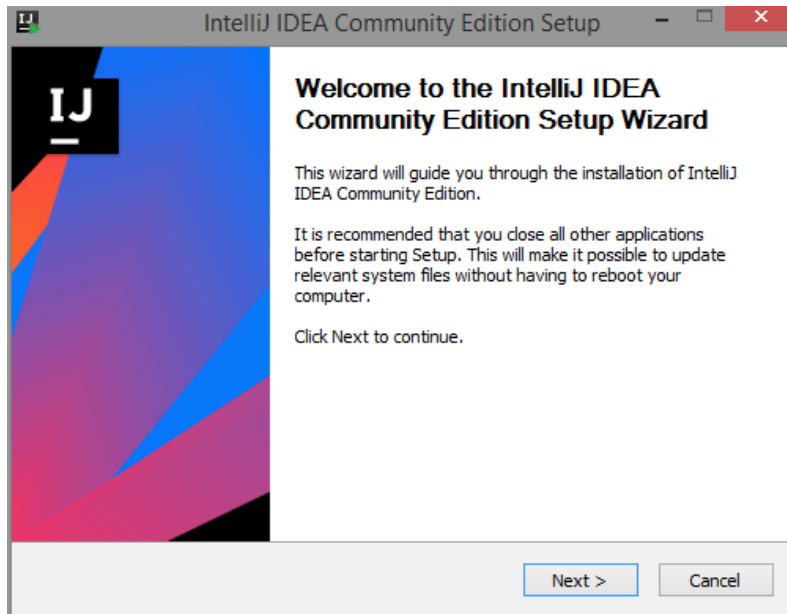
GWT, formerly known as Google Web Toolkit, adds some functionality to RTDC’s server. It can also be used to build a web client in the future. Installing it is quick and simple:

1. Download GWT 2.7.0.
2. Extract the zip file contents. In our case, we chose to extract it to  
C:\Program Files\GWT\gwt-2.7.0
3. That’s it!

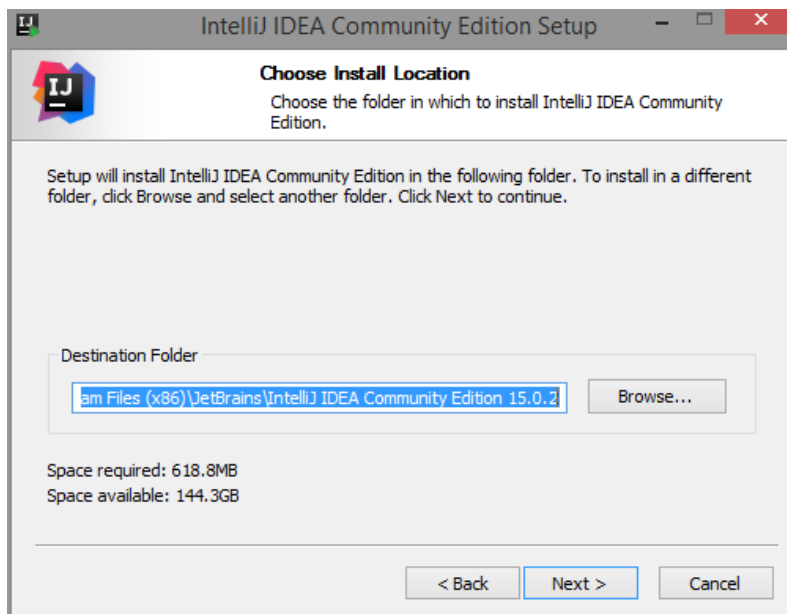
## IntelliJ IDEA

The project was developed using JetBrains's IntelliJ IDEA 15.0.2 Ultimate Edition. However, this guide will show you how to run the application using the IntelliJ IDEA 15.0.2 Community Edition.

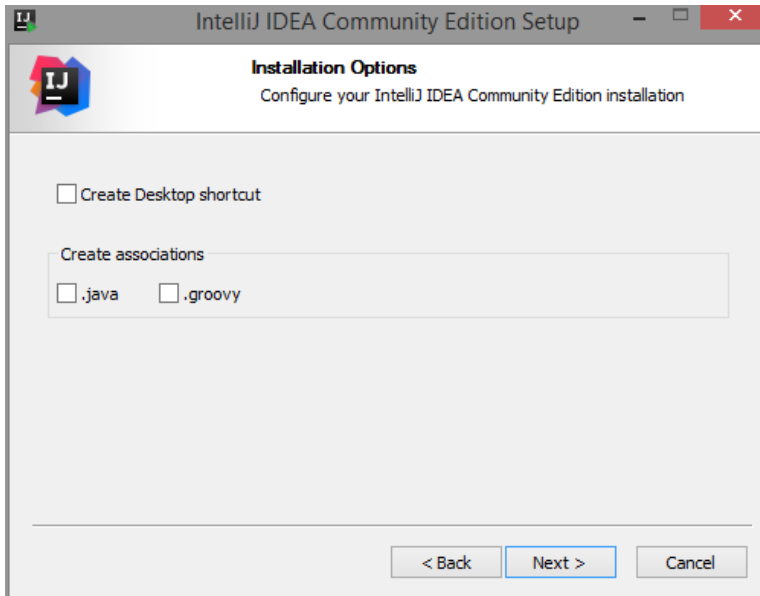
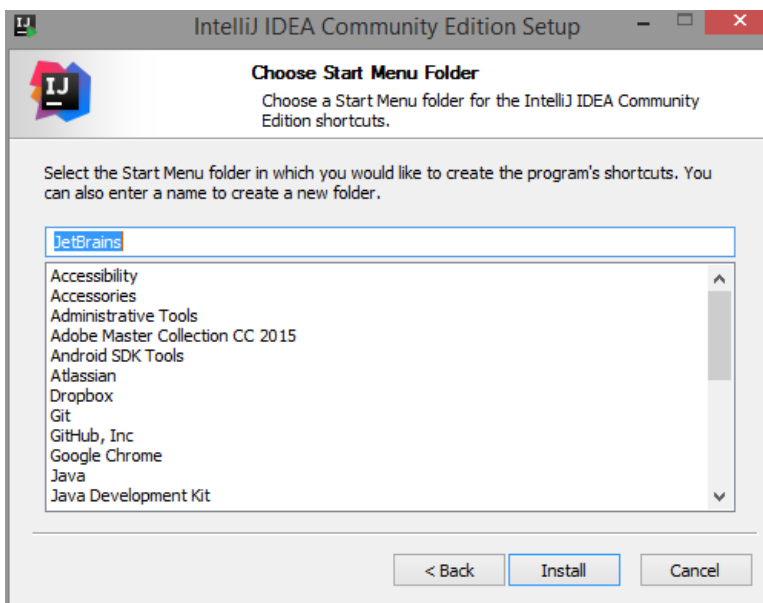
1. Download IntelliJ Idea.
2. Launch the installer.
3. Click *Next*



4. Click *Next*





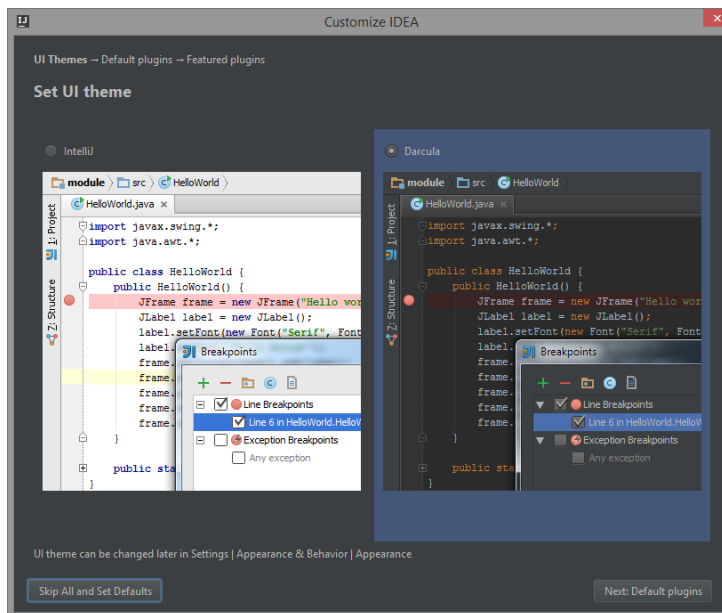
5. Click *Next*6. Click *Install*7. Click *Finish*.

## Downloading the Project

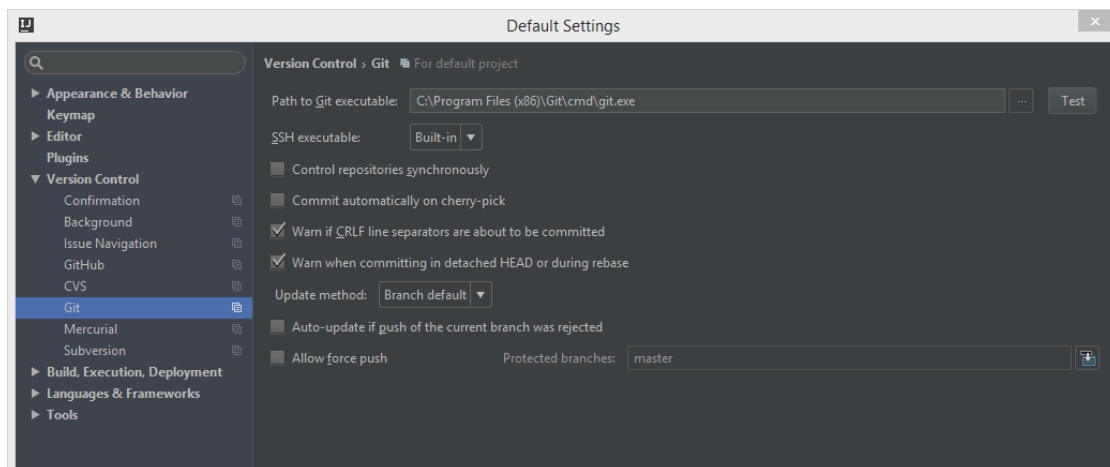
### Setting up IntelliJ IDEA

Once you have downloaded and installed all the software and tools, you can download the project from GitHub.

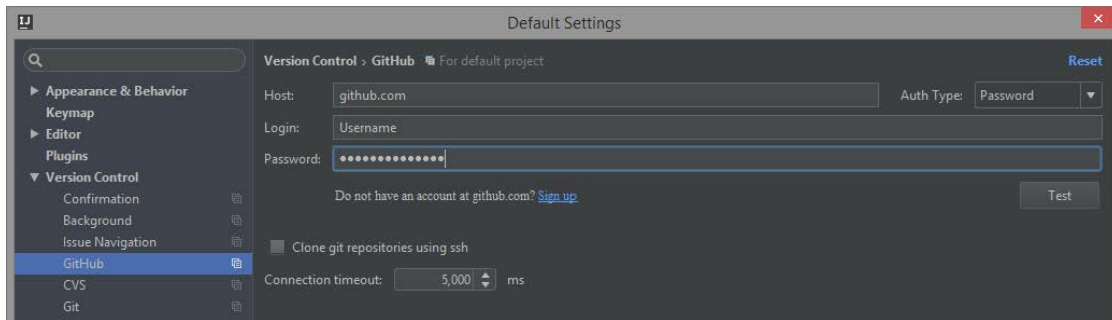
1. Open IntelliJ IDEA.
2. If prompted, select *"I do not have a previous version of IntelliJ IDEA or I do not want to import my settings."*. Click *Ok*.
3. Set your UI theme, and click *Skip All and Set Defaults* in the bottom left corner.



4. On the bottom right of the Welcome Screen, Click *Configure*, followed by *Settings*.
5. Under *Version Control > Git*, add the path to your git.exe (where it was installed). In this case: `C:\Program Files (x86)\Git\cmd\git.exe`



- Under *Version Control > GitHub*, log in to your GitHub account.



- Click *Apply*.
- If prompted, you can enter a master password. Click *Ok*.
- Click *Ok*. You should be brought back to the Welcome Screen.

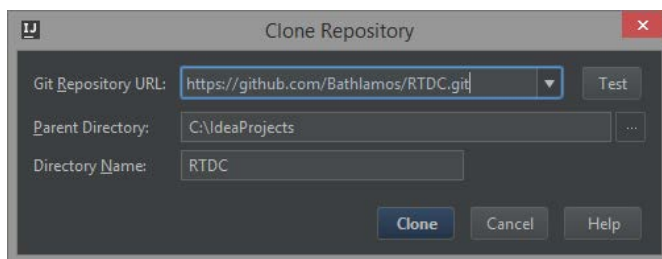
### Checking Out the Git Repository

After configuring IntelliJ to use Git & GitHub, follow these instructions to checkout the source code for RTDC from IntelliJ IDEA.

- On the Welcome Screen, select *Check out from Version Control > GitHub*.

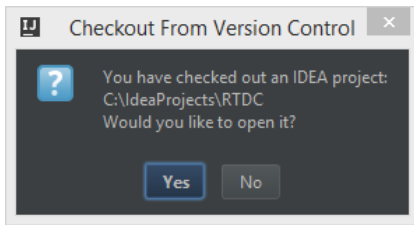


- Paste RTDC's GitHub URL in the first box: `https://github.com/Bathlamos/RTDC.git`

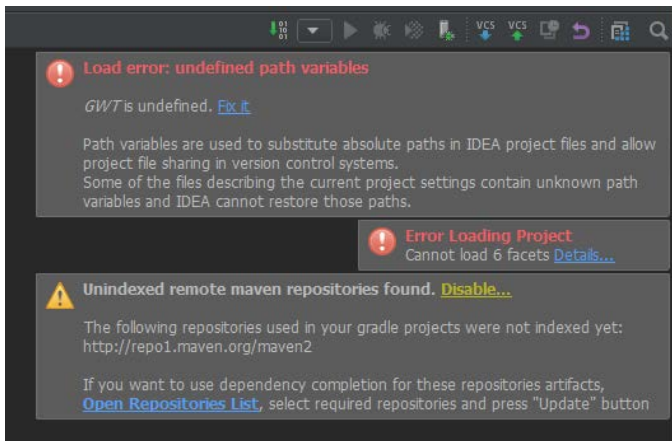


- Click *Clone*.

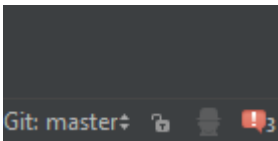
4. IntelliJ will checkout your project and prompt you to open it when it's done. Click Yes.



5. IntelliJ will open the project.
6. Multiple error messages may appear on the top right. As seen below.

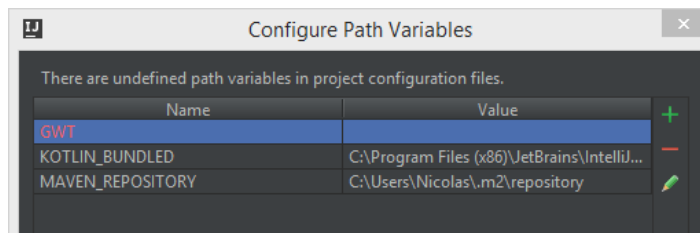


If the messages disappear, simply click the (red) *Event Log* icon on the bottom right



For Load error: undefined path variables.

- a. Click *Fix it*.
- b. Click the first row, where the name GWT is in red. Click the pencil on the right.



- c. Enter the location of your GWT installation. In this case, C:\Program Files\GWT\gwt-2.7.0
- d. Click *Ok*. Click *Ok* again.

For Error Loading Project.

- a. Click *Details...*
- b. Click *Ignore All*.

For Unindexed remote maven repositories found.

- a. Click Open Repositories List.
- b. Select the row in the table that has **Never** under the *Updated* column.
- c. Click the *Update* button on the right.
- d. This may take some time. However, the task can run in the background. Just click *Ok*.

Congratulations! You're now ready to start developing the RTDC tool.

**Note:** If you have problems with dependencies, you may need to install Apache Maven. Simply follow the instructions here (<https://maven.apache.org/install.html>) if that is the case.