Technical Specification

Online CQS Bug Summary View

**Last Updated:**

**Version 1.0**

**Andrew Li**

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# Project Overview

## Background

When most people look at a large list of bugs from Bugzilla, they usually don’t make much of it. They are unlikely to remember the list with great detail and will not notice a change in the list (unless it’s extremely significant) without reviewing the two lists in depth. It is useful to create data that shows the numbers representing the general overview of the bugs and presenting the data in the form of a graph. Getting the list of bugs from Bugzilla and making a graph to compare the changes has been done manually each day. It involves running a query, saving it to a spreadsheet, sorting and filtering the spreadsheet, making spreadsheet calculations, copying the numbers to another spreadsheet, and creating a visual chart in Microsoft excel.

## Goals

Creating a graph manually does not take up too much time but it does become a repetitive process. One thing we want to do is automate the process to improve work efficiency.

We also want to allow the project team to access the bug statistics at anytime. It can become frustrating if everyone had to place the data in excel every time to get a general overview of the bugs.

## Approach

The total process has more than one activity, so we automate each activity first and put everything together to automate the whole thing.

## Project Timeline

This project is part of a summer intern program. The project timeline is June 2 to August 7 2014.

# Creating and Hosting the Graph

## Technologies

In creating the graphs, we will use CSS, html, and JavaScript and we will use the JavaScript d3.js library and SVG images to make graphs based on CSV files that are in the same directory.

To host a web page that will show the graphs, we will use IIS or Apache web servers.

## Details

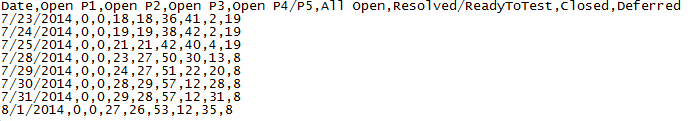
**Location of the Graph:**

* Server: CQS-SUPPORT-PERFORMANCE(172.18.92.159)
* File: C:\www\cqsstat\index.html

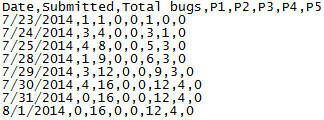
**Location of the Data Files:**

* Server: CQS-SUPPORT-PERFORMANCE(172.18.92.159)
* Files:
* Bug Statistics for All Bugs: C:\www\cqsstat\bugstats.csv
* Bug Statistics for Bug Submissions: C:\www\cqsstat\bugsubmissions.csv

**Data File Format for Bug Statistics of All Bugs:**



**Data File Format for Bug Statistics of Bug Submissions:**



**Server Info:** on [SharePoint](http://tpnet.teampraxis.com/home/cqs/support/Lists/CQS%20Support%20VM%20Enviroments/DispForm.aspx?ID=16&Source=http%3A%2F%2Ftpnet.teampraxis.com%2Fhome%2Fcqs%2Fsupport%2FLists%2FCQS%2520Support%2520VM%2520Enviroments%2FAllItems.aspx)

**WebServer:** Apache 2.4

# Daily Data CONVERSION AND BUGZILLA QUERY AUTOMATION

## Technologies

**Java programming:** Downloads the default csv file from Bugzilla and converts the default csv file into the csv file that’s used as the source of the graph.

**Selenium Server Standalone:** Makes it possible to browse Firefox (which is used to access Bugzilla) through java commands. This should be installed and placed into the environmental variable Classpath. Before placing it in the Classpath variable, include “.” as part of the Classpath variable.

## Details

**Location of the source code:**

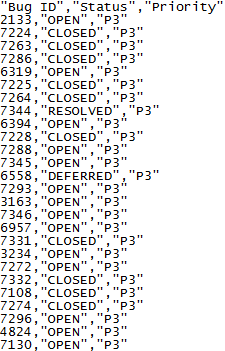
* Server: CQS-SUPPORT-PERFORMANCE(172.18.92.159)
* File: C:\www\cqsstat\update.java

**Locations of default csv files:**

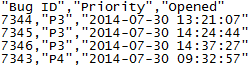
* Server: CQS-SUPPORT-PERFORMANCE(172.18.92.159)
* Folders
* All Bugs: C: \cqsstat\Bugs
* Bug Submissions: C:\cqsstat\Bug\_Submissions

**Expected format of the default csv files:**

* For Total Bugs



* For Bug Submissions



**Expected Output:** A new row for the input file from section 2.

The java file should be compiled into a java class whenever it is changed as intended.

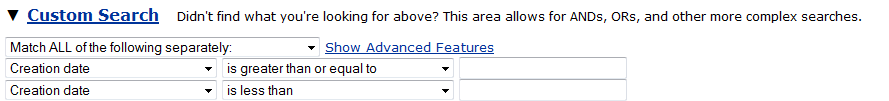
**Location of the java class file:**

* Server: CQS-SUPPORT-PERFORMANCE(172.18.92.159)
* File: C:\www\cqsstat\update.class

**Bugzilla URL:** <https://bugzilla2.teampraxis.com/>

**Saved query:**

* Username: [ali@teampraxis.com](mailto:ali@teampraxis.com)
* Password: P@$$w0rd!
* Saved Searches:
* “CQS All Bugs”
  + **Priority:** P1, P2, P3, P4, P5
  + **Keywords:** 3.13 (or whichever version the current one is),
  + **Status:** OPEN, RESOLVED, READY TO TEST, CLOSED, DEFERRED
  + **Resolution:** All of them (Default is “---“ which needs to be changed)
  + **Selected Columns:** Status, Priority
* “CQS Bug Submissions”
  + **Priority:** P1, P2, P3, P4, P5
  + **Keywords:** 3.13 (or whichever version the current one is),
  + **Status:** OPEN, RESOLVED, READY TO TEST, CLOSED, DEFERRED
  + **Resolution:** All of them (Default is “---“ which needs to be changed)
  + **Selected Columns:** Priority, Opened
  + **Custom Search:** Match ALL of the following separately:
    - First Row:
      * Field 1: Creation Date
      * Field 2: is greater than or equal to
    - Second Row:
      * Field 1: Creation Date
      * Field 2: is less than



**Selenium WebDriver:** version 2.42.2 (<http://selenium-release.storage.googleapis.com/2.42/selenium-server-standalone-2.42.2.jar>)

# Win7 Task Scheduler and Command Script

## Technologies

**Windows 7 Command Line Scripting:** Allows us to automatically run a set of command line commands simply by opening the command script.

**Windows 7 Task Scheduler:** Allows us to schedule certain tasks.

## Details

A task created from the task scheduler will periodically run a command script that automatically goes to the location of the java class file update and runs it.

**Location of the command script:**

* Server: CQS-SUPPORT-PERFORMANCE(172.18.92.159)
* File: C:\Update\update.cmd

**Scheduled Task:**

* Name: cqsbugstat
* Frequency: Mon-Fri 6:00 P.M (9:00 on the computer from inaccurate timing).
* Location: CQS-SUPPORT-PERFORMANCE(172.18.92.159)
* Action: Starts the program C:\Update\update.cmd

# User’s Manual

## Viewing the Graph

To view the graph on TeamPraxis network, use the Firefox web browser and use the following URL: <http://172.18.92.159/cqsstat>

## Changing to a New Release

To change to a new release, modify the Bugzilla saved search and change the field values accordingly.

# Dependencies and Limitations

## Bugzilla

The Bugzilla account needs to have the right saved search with a specified name, and the username and password entered by the program needs to be correct.

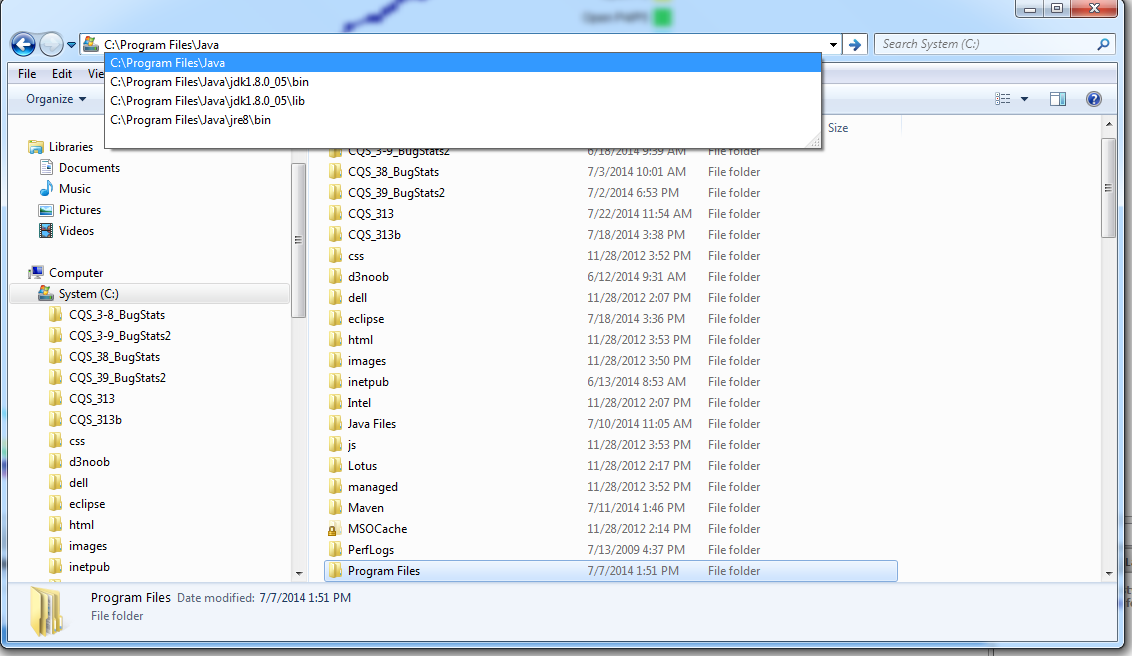
The ids and other values on the Bugzilla input boxes, links, and buttons need to remain the same, and the link in the java program needs to be updated if the bug submissions change to a new site.

# References

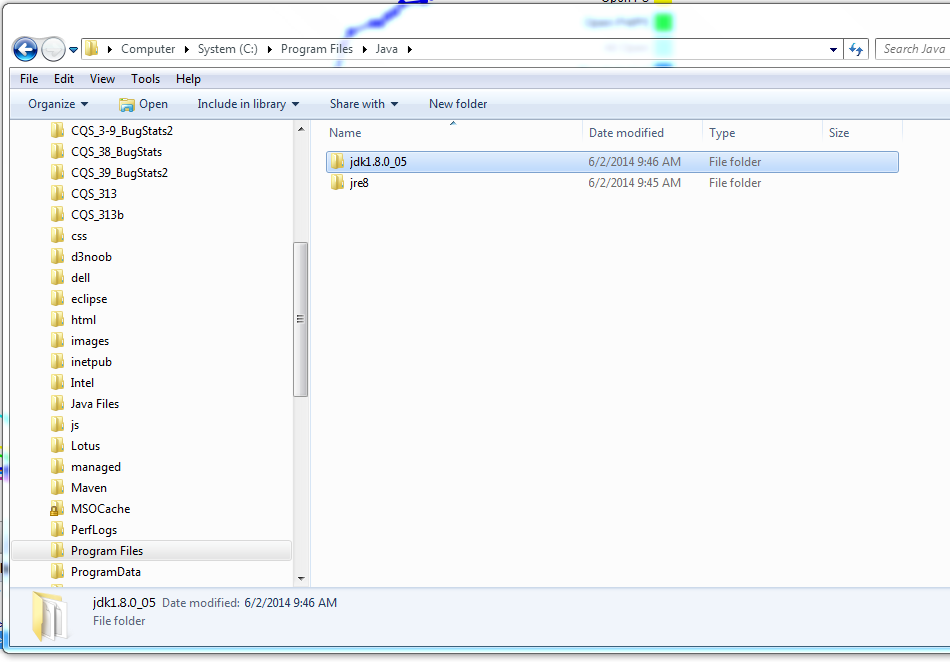
# Appendices

## Appendix I: Setting up Java

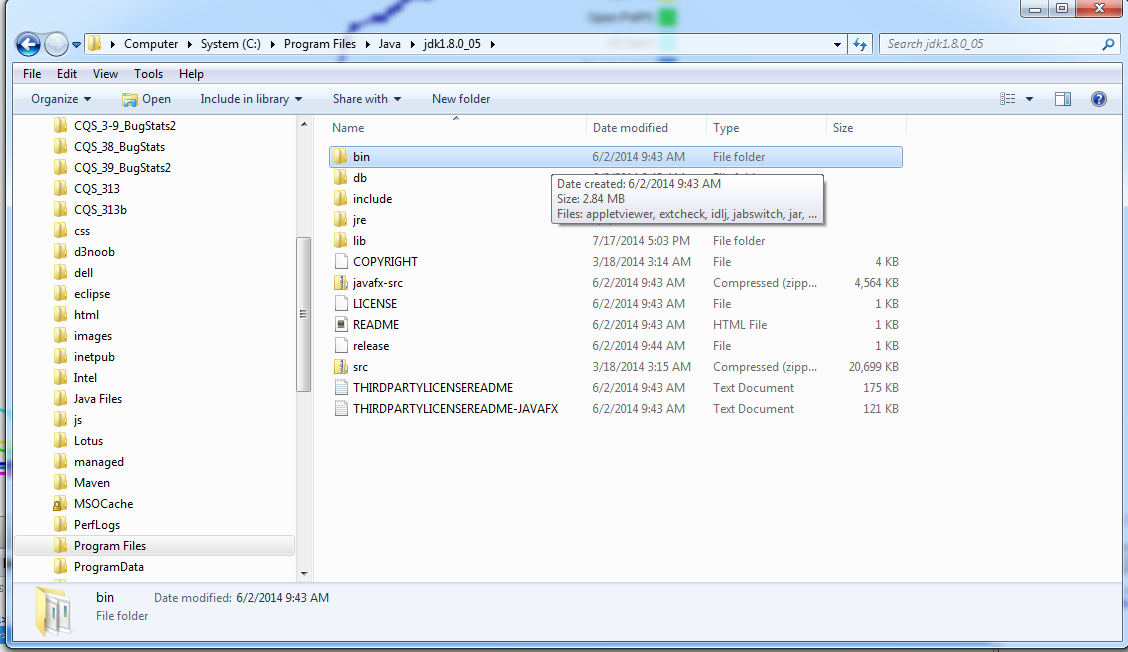
1. Download JDK at [www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html](http://www.oracle.com/technetwork/java/javase/downloads/jdk8-downloads-2133151.html).
2. After you download jdk, open the windows explorer and browse C:\Program Files\Java\

****

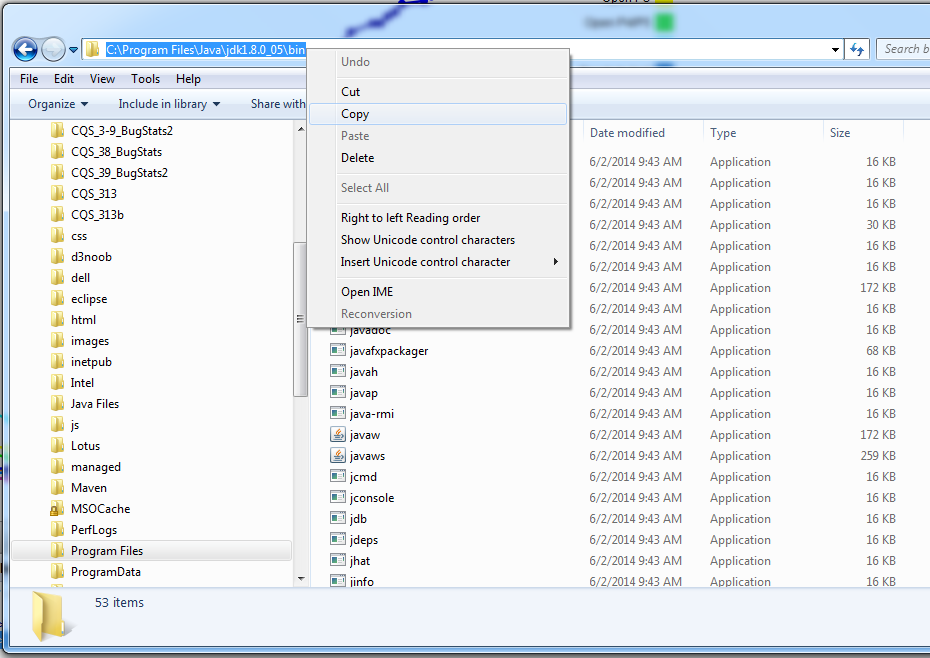
1. Go into the jdk folder (which may have a different version if you downloaded a different version of the jdk.

****

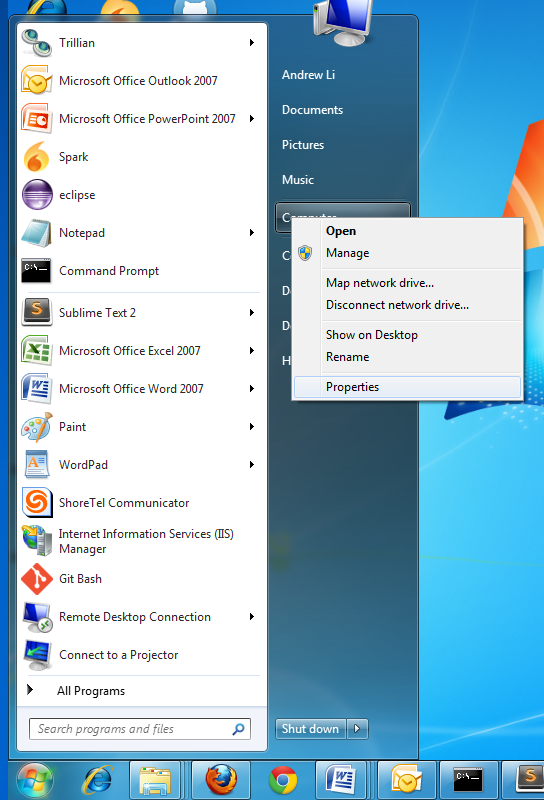
1. Go into the bin folder once you’re inside the jdk folder.

****

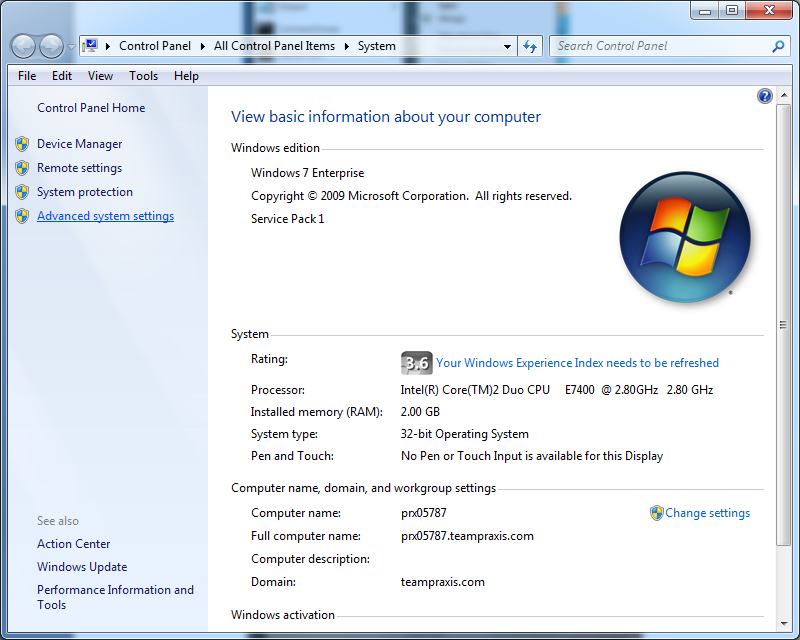
1. After you get into the bin folder, copy the exact location of the bin folder (example: C:\Program Files\Java\jdk1.8.0\_05\bin).

****

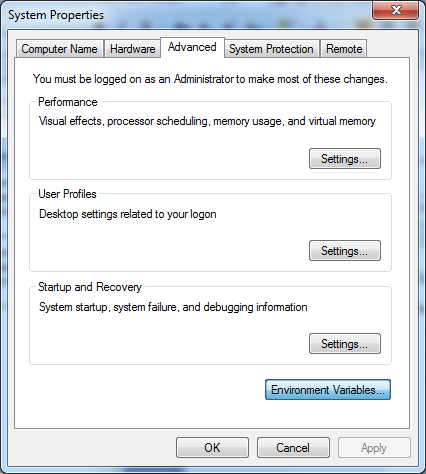
1. Click on the start menu. Right-click on Computer and click on properties.

****

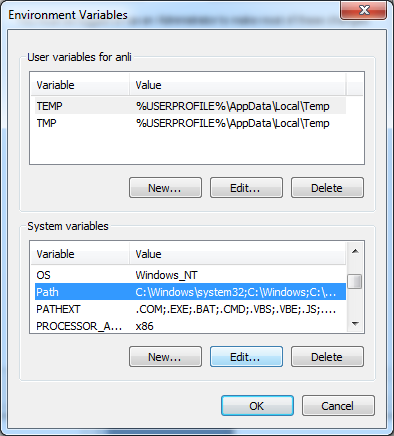
1. Click on Advanced System Settings and wait for the System Properties window to open up

. 

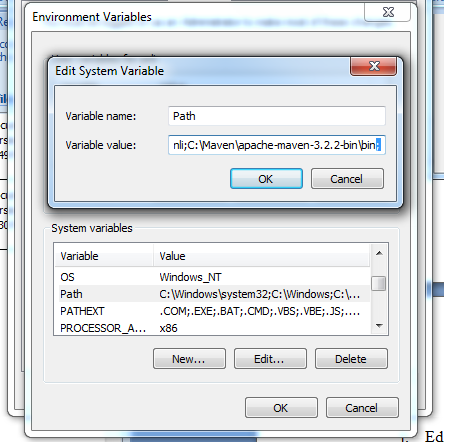
1. After the window pops up, go to the advanced tab (if you’re not already on it) and click on environment variables.

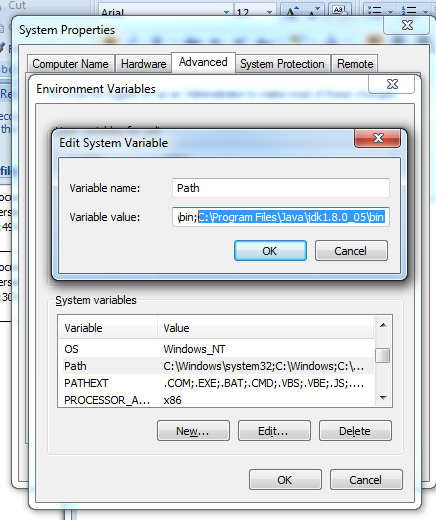
****

1. Click on the “Path” variable and choose the edit option.

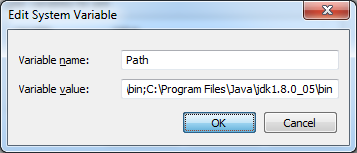
****

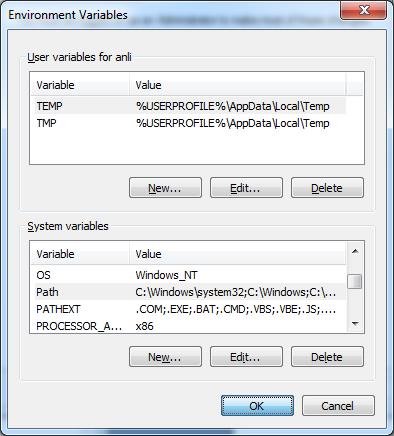
1. Edit the value of the path variable by adding a semicolon at the end and then adding the location of the bin folder that you copied after the semicolon.

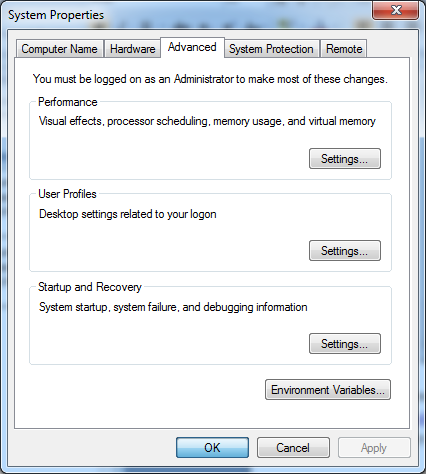
****

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1. Click the OK buttons to save.

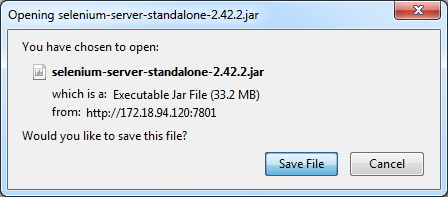
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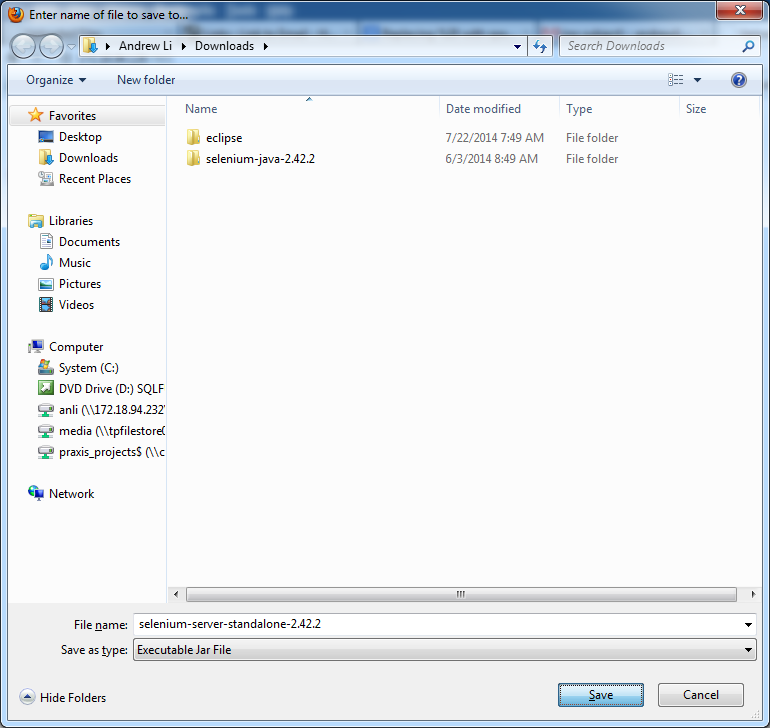
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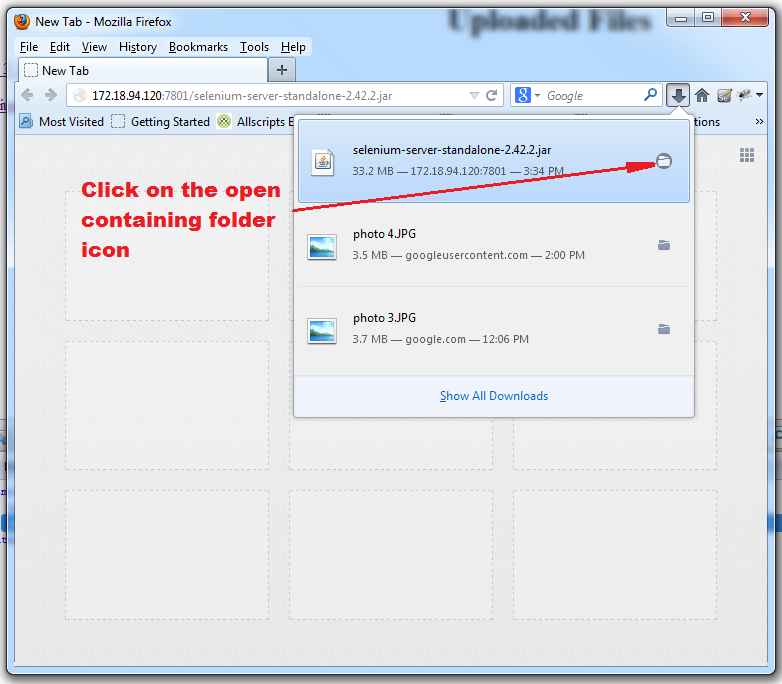
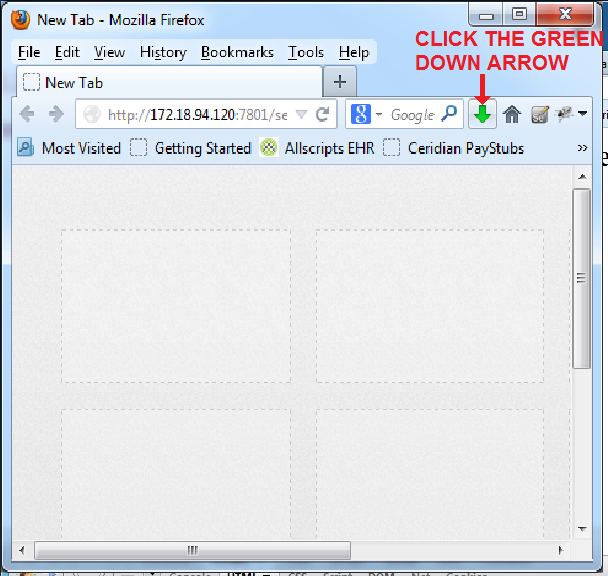
****

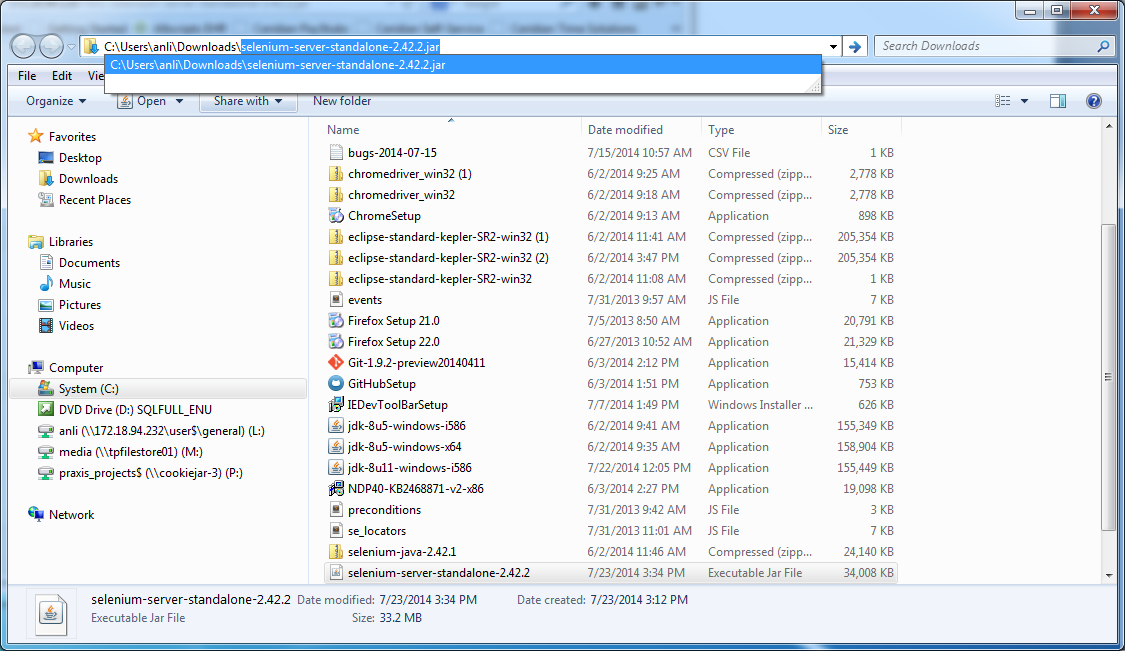
## Appendix II: Setting up Selenium WebDriver

1. Download the selenium server standalone at <http://selenium-release.storage.googleapis.com/2.42/selenium-server-standalone-2.42.2.jar>. Get the absolute path of the selenium server standalone file and copy it.

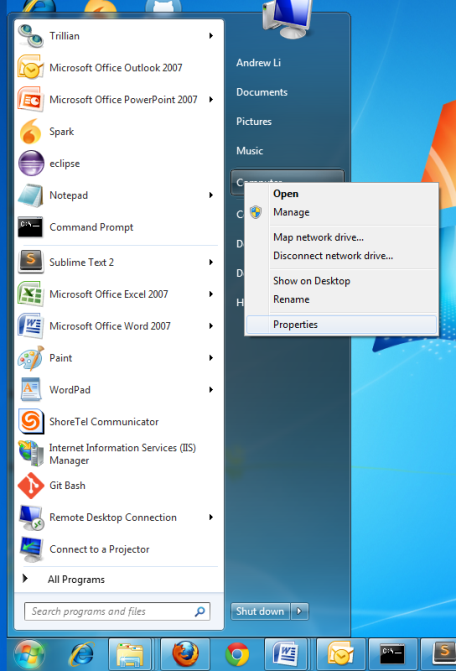
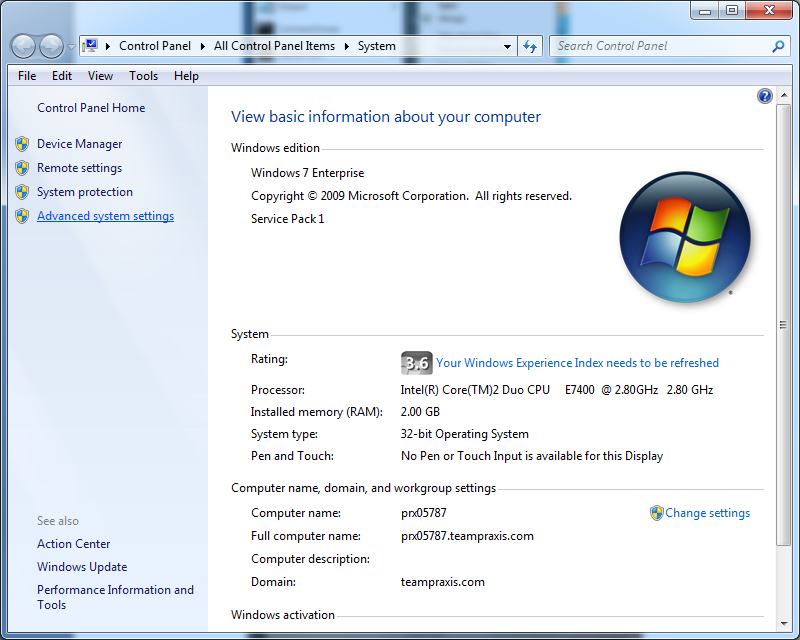
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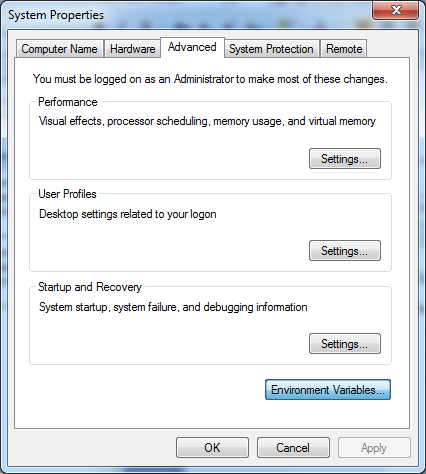
****

****

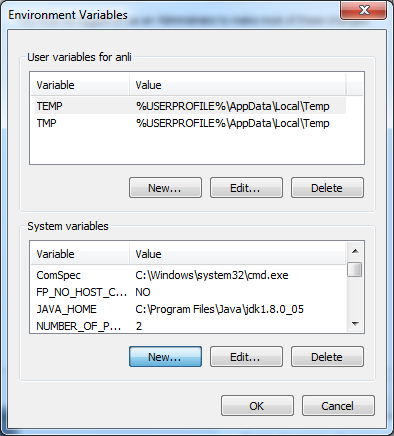
****

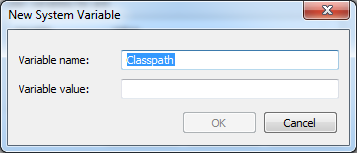
1. Get to the environment variables.

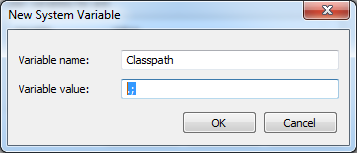
** **

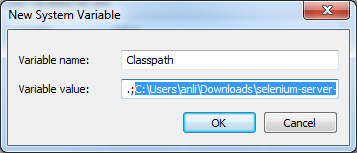
****

1. Add the “.” path and the absolute path of the selenium-server-standalone to the Classpath variable. Click the OK buttons when done.
2. In the case that a Classpath does not exist, Create a new environment variable and call is Classpath. Type in “.;” in the value and paste the path of the selenium-server-standalone at the end.

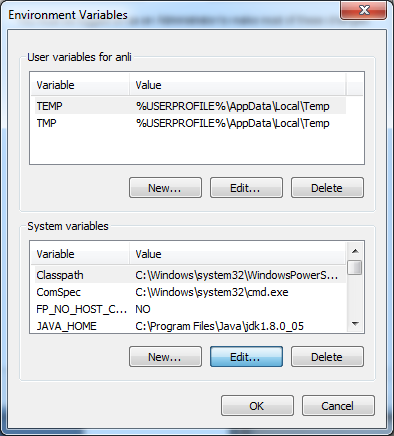


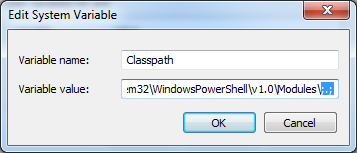


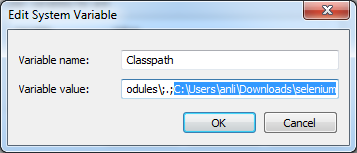




1. In the case that a Classpath does exist, click on the Classpath variable, then click on the edit button. Add “;.;” to the end of the value and add the absolute path of the selenium server standalone after that.







## Appendix III: Command Script

@echo off

REM Eventually change directory to the program directory

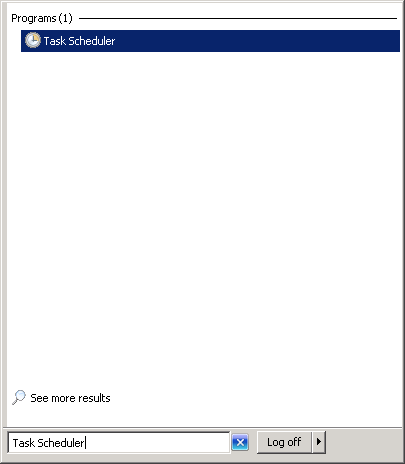
cd (Replace with the path of folder with java file for the computer)

REM run the program

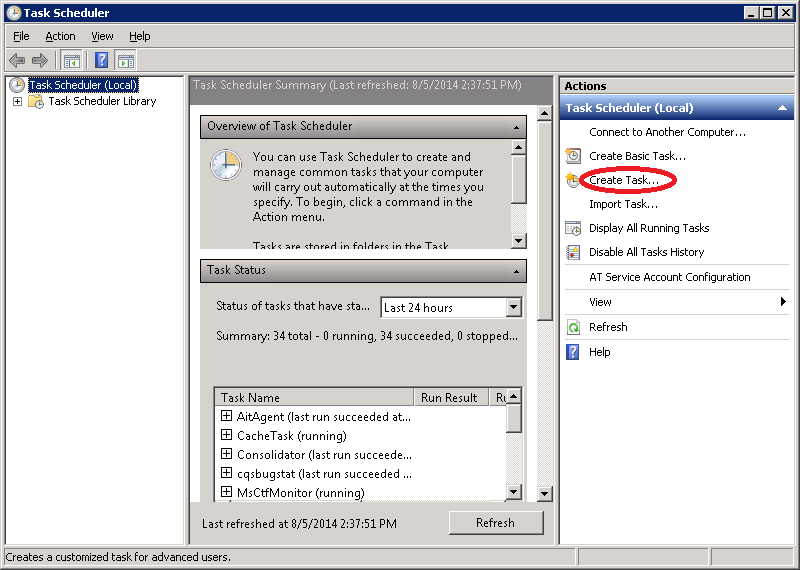
java update

## Appendix IV: Creating the Task with Task Scheduler

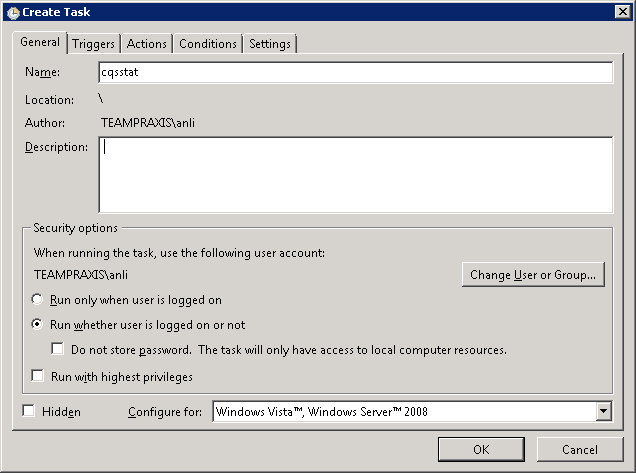
1. Open the Task Scheduler



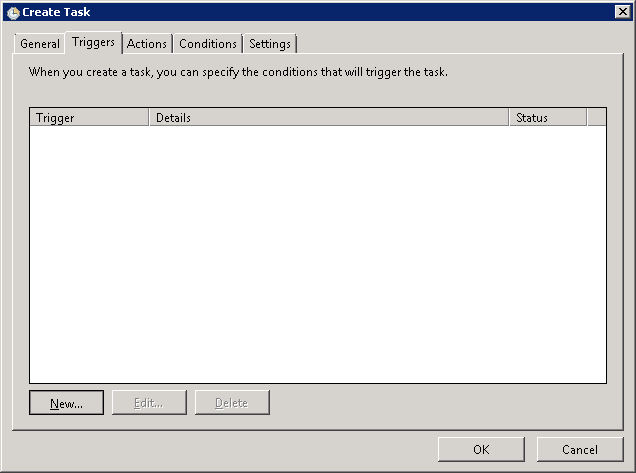
1. Create a new task.



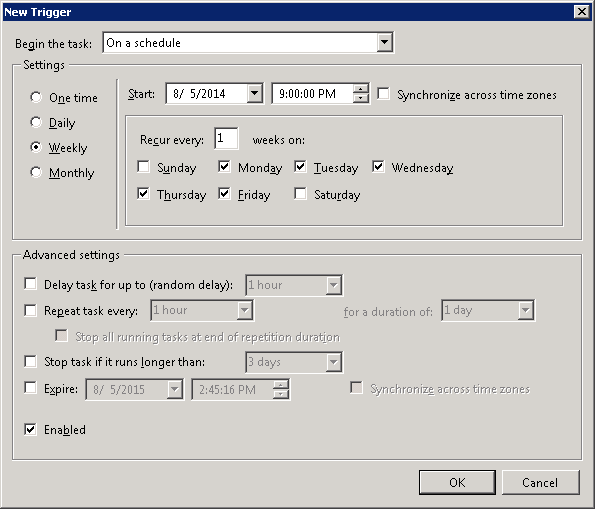
1. Fill in certain fields and selects specific options accordingly in the General tab.



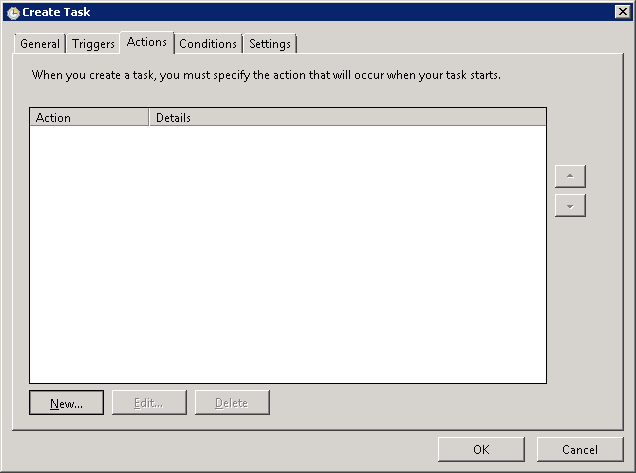
1. Create a new trigger in the Triggers tab.



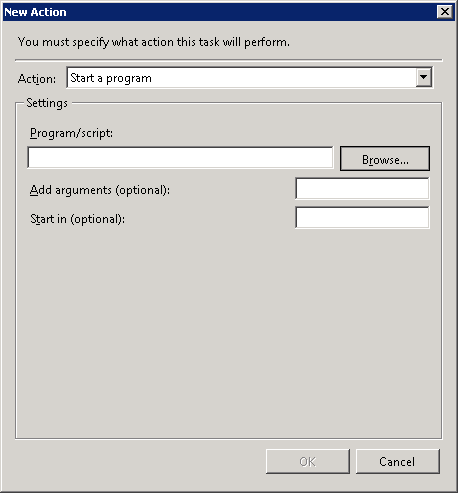
1. Fill in the fields for the new trigger accordingly, then click OK.

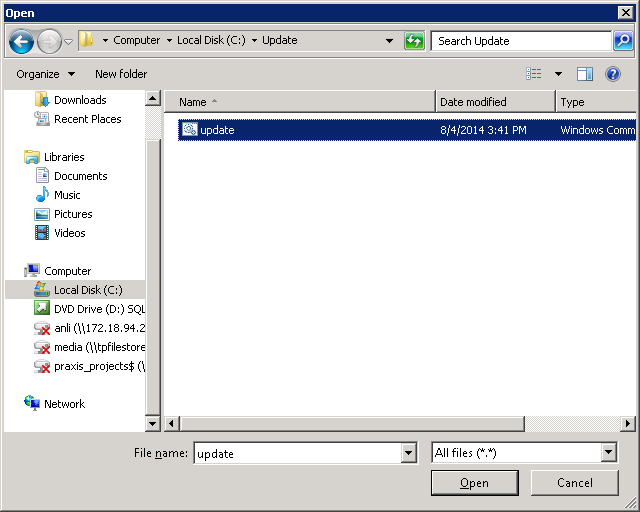


1. Create a new Action in the Actions tab

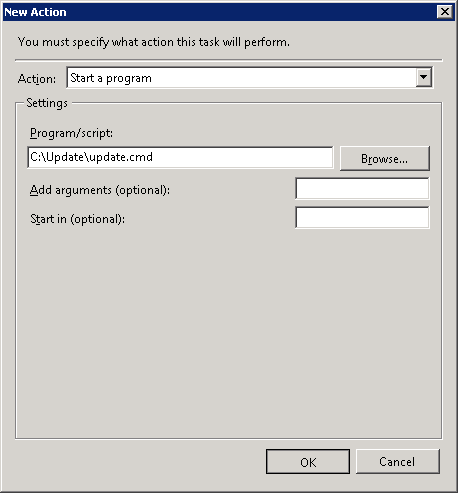


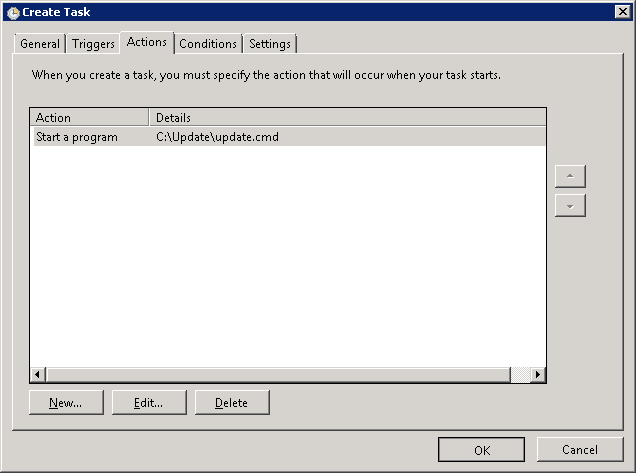
1. On the Program/script field, browse for the command script that runs the java file.





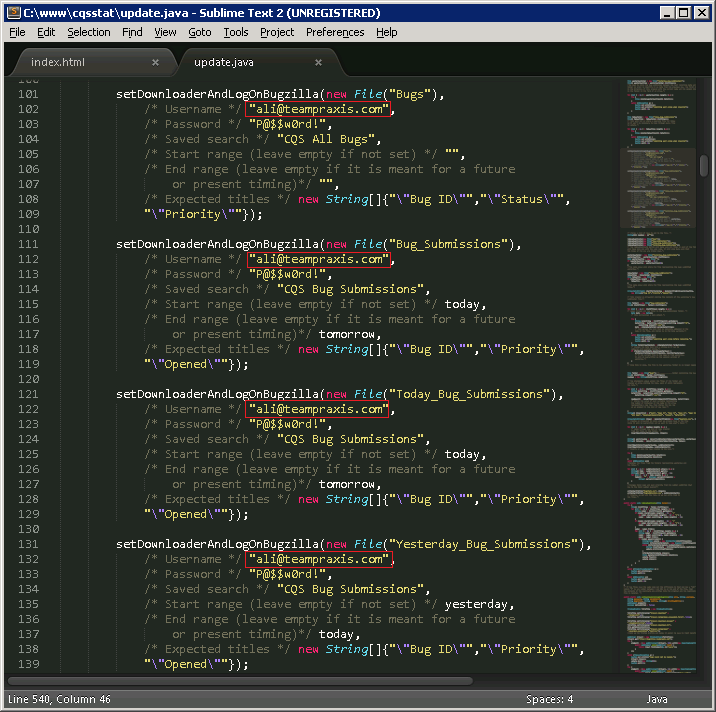
1. Click the Save Buttons



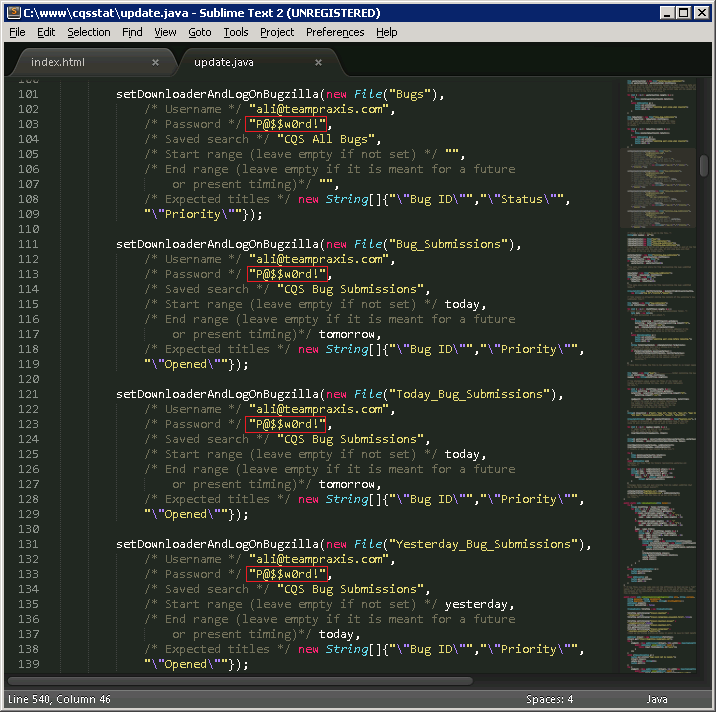


## Appendix V: Changing to a different search query

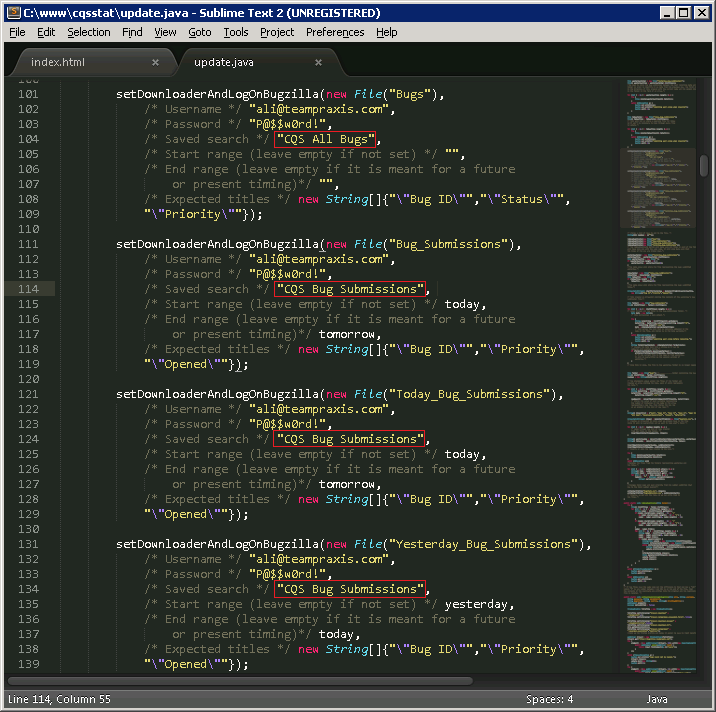
1. Changing to a different account on Bugzilla.
2. Change the value given for the username in the java file.



1. Change the value given for the password in the java file.



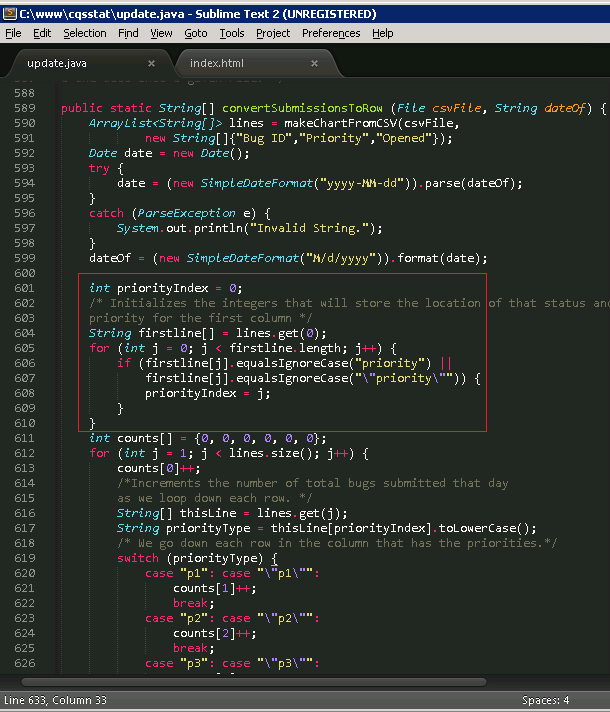
1. Changing to a different search – Change the value given for the saved search in the java file.



## Appendix VI: Changing the columns of converted graph

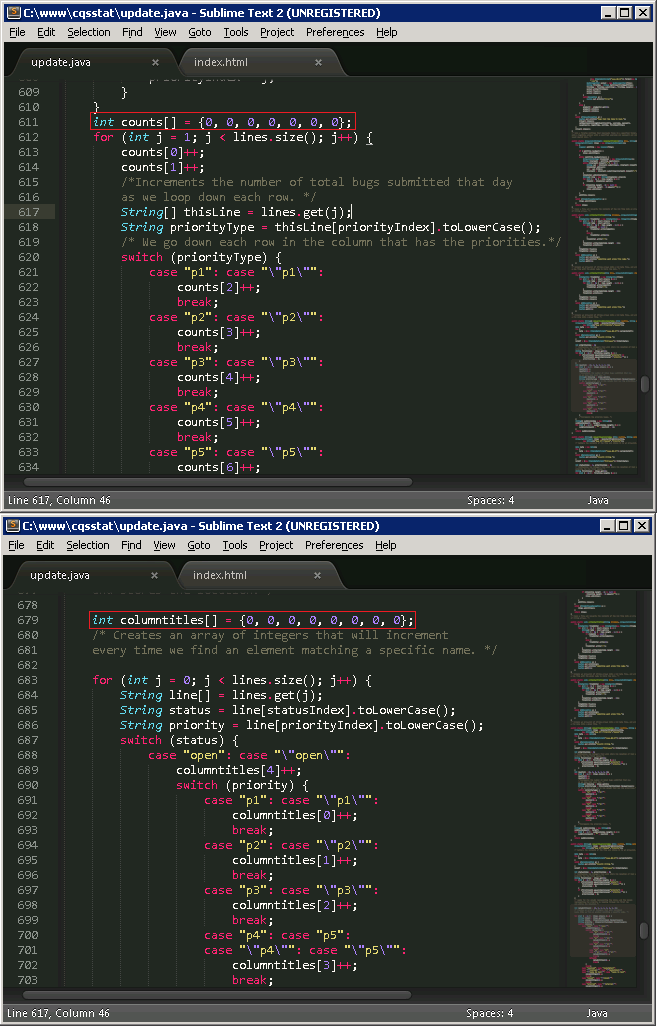
This should not be done in the middle of a release since the rows of the converted graph would be inconsistent.

1. First, the methods convertSubmissionsToRow and convertBugStatsToRow in the java file has to be changed so each column of the row increments based on the number of rows in the default csv file with certain qualities.
2. Choose the title(s) of the column(s) that you want to want to scan through. Create a variable for each column you want to scan, and make that variable equal to the index of the row which has the matching title.

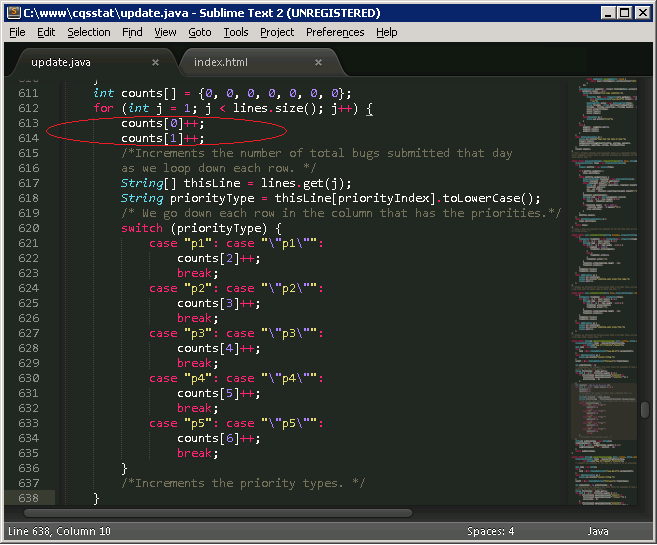




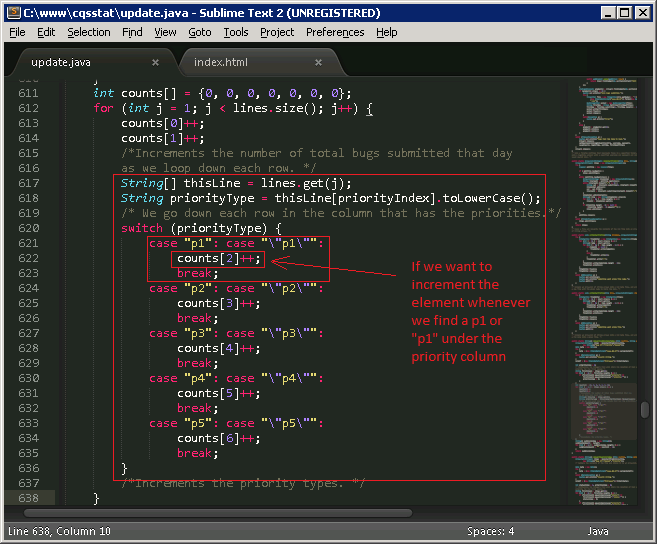
1. Determine the number of columns (not including the date column) that the converted graph should have. Initialize the int array to an array with that size with all elements starting off as 0.



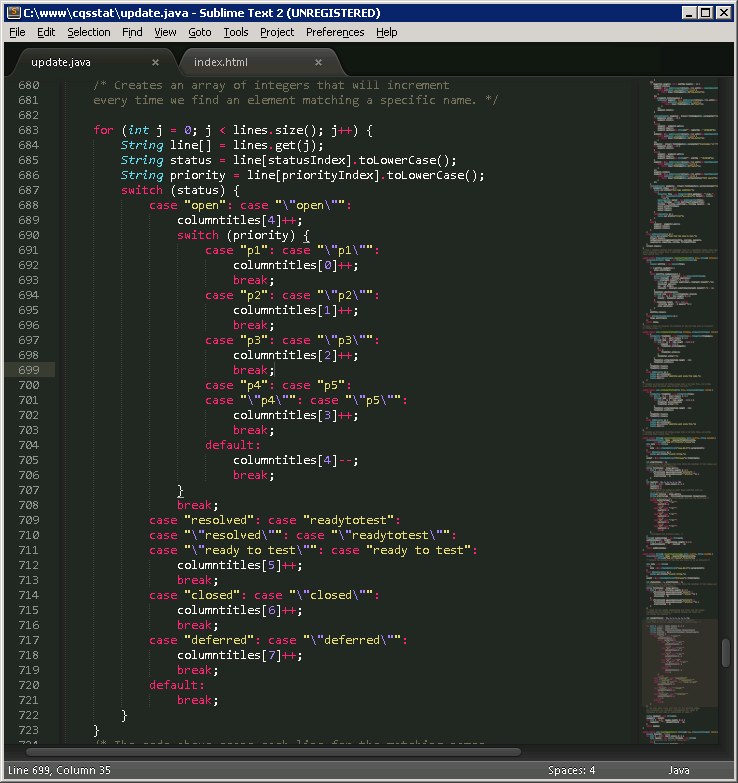
1. Make each element in the array increment based on specific text.
2. If the element is to increment regardless of the qualities of the row, place the incremental statement outside all switch statements.



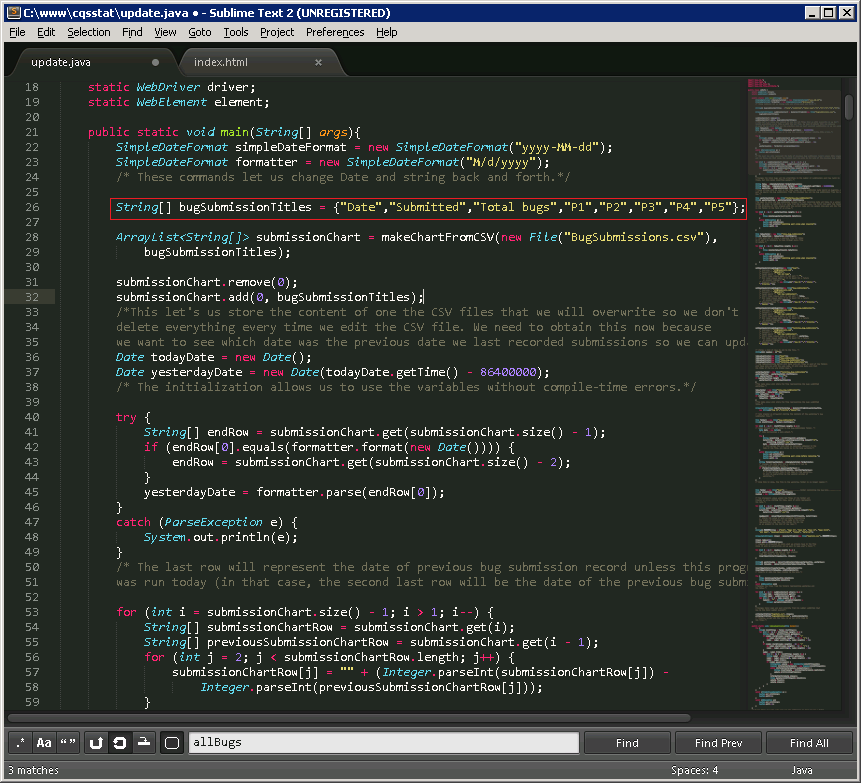
1. If the element is to increment when we find a matching phrase in the column (which we determined earlier), then get the value under the column, create a switch statement to compare the current element in the column with the phrases we are looking for, and put the incremental statement under the case with the matching statements.

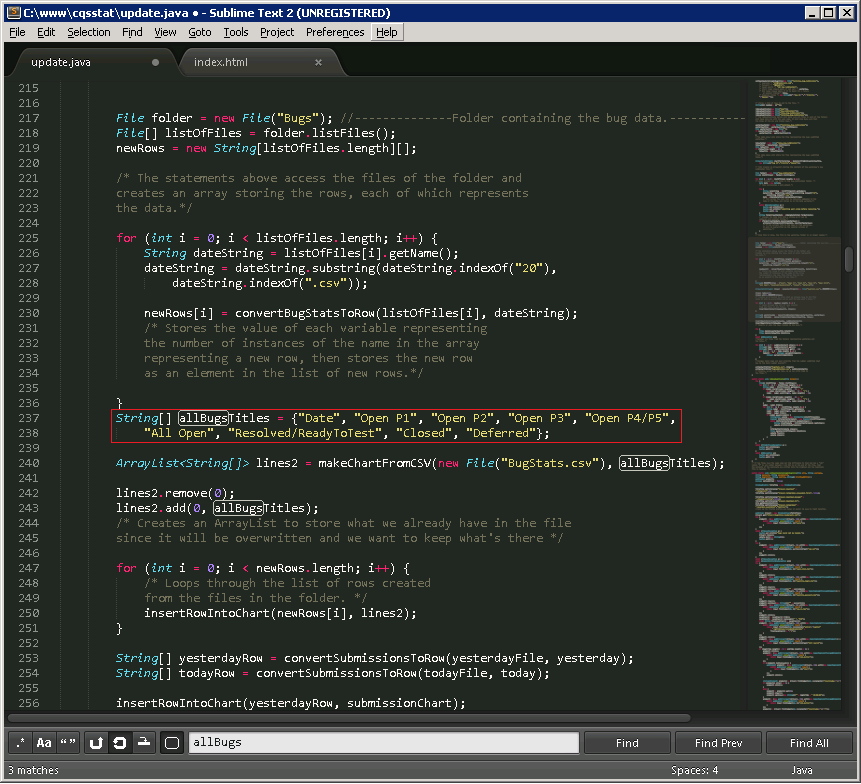


1. If the element is to increment when we find a combination of a phrase in a column matching a matching phrases, create a switch statement the tests one of the values, create a case that tests executes a set of commands if the value matches the phrase you’re looking for, then create another Switch statement under the case that tests the other value, create a case that executes a set of commands if the second value matches the separate phrase, and put the incremental statement under the inner case.

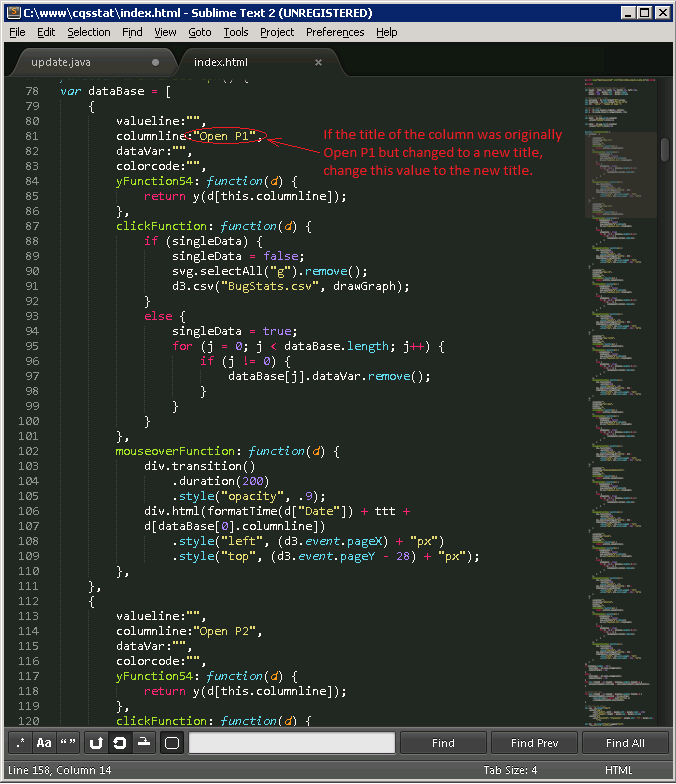


1. Finally, change the value of the String arrays bugSubmissionTitles and/or allBugsTitles based on the ones we modified.

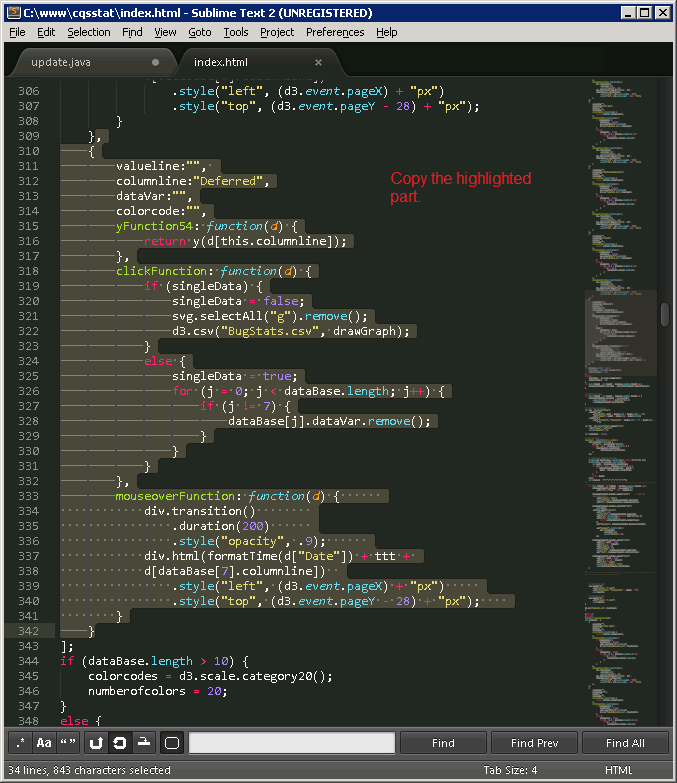


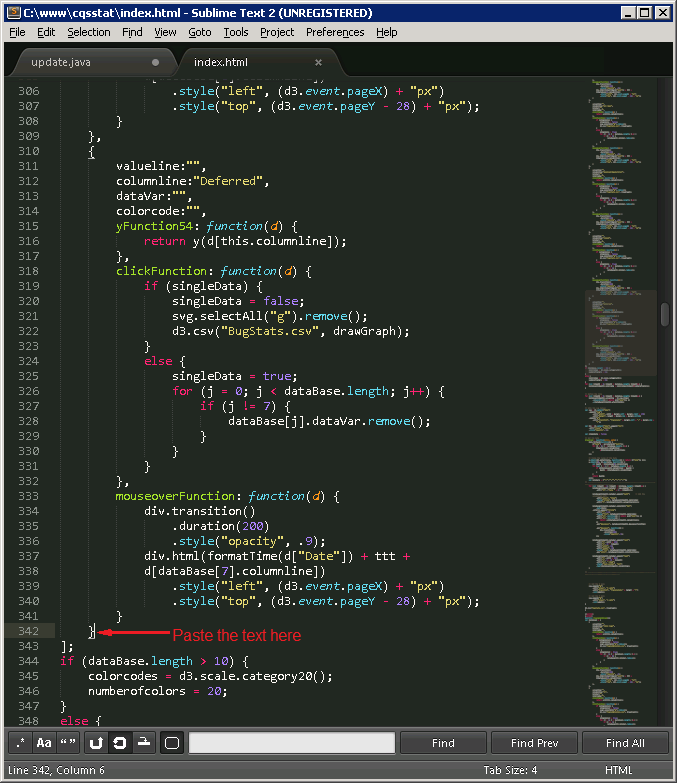


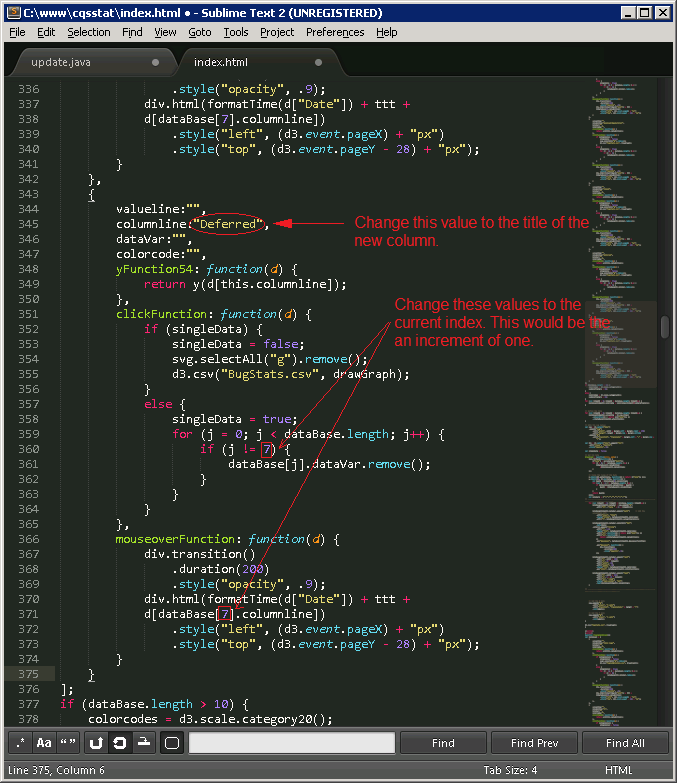
1. Now, change the array of objects representing the data for the graph in the index file. There are two arrays of objects, so choose based on the type that has changed. If the titles for the bug submissions have changed, the change the object in the dataBase array in the function drawSecondGraph. If the column titles for the all-bugs graph have changed, change the object in the dataBase array in the function drawFirstGraph.
2. Whenever the title of a column has changed, change the properties of the object that is supposed to represent the column of the converted csv file.



1. If there is a column added to the data, add another object to the array that is similar to the previous one but with minor changes.

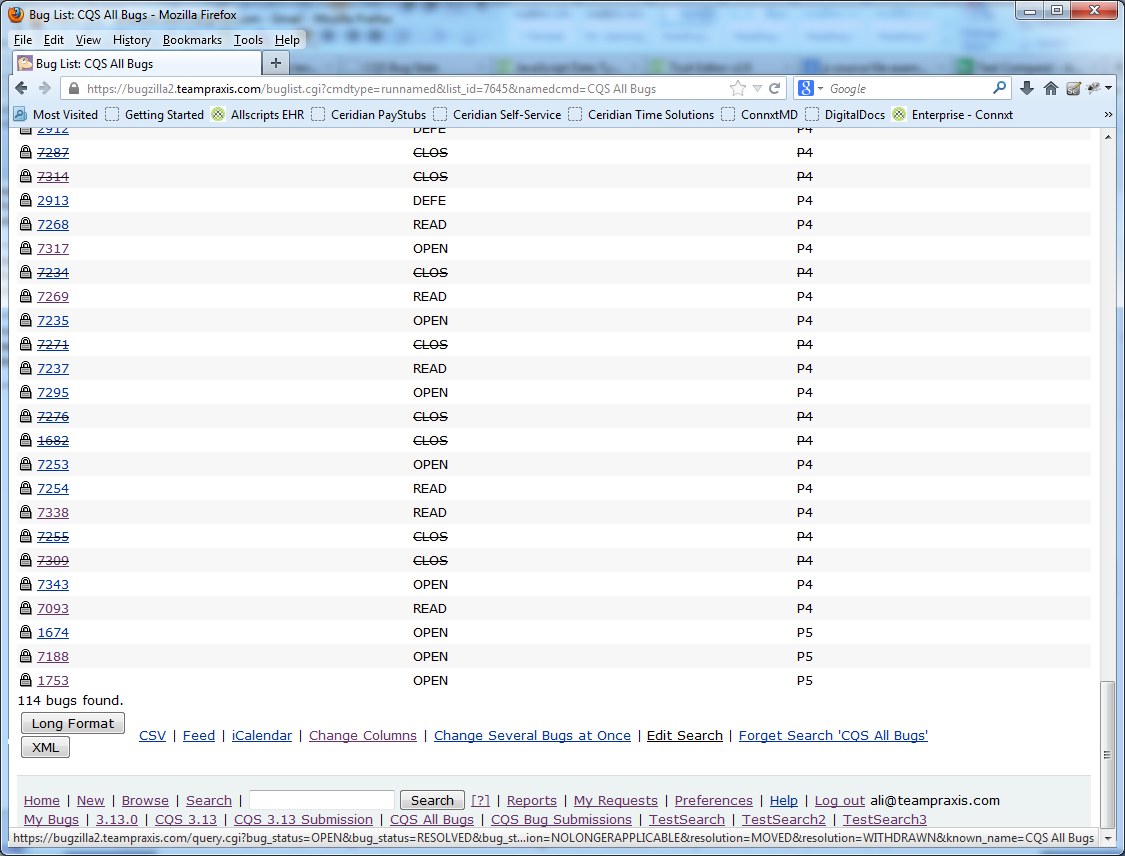




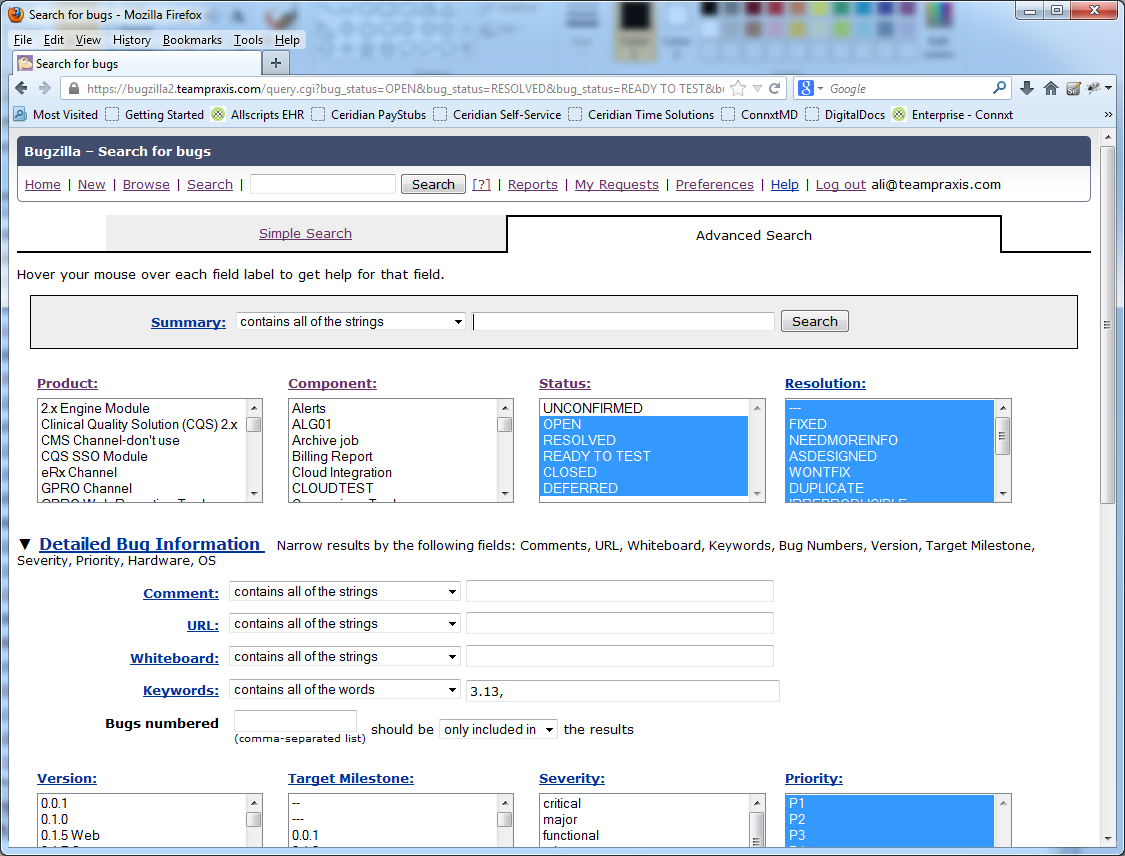


## Appendix VII: Upgrading to a new version

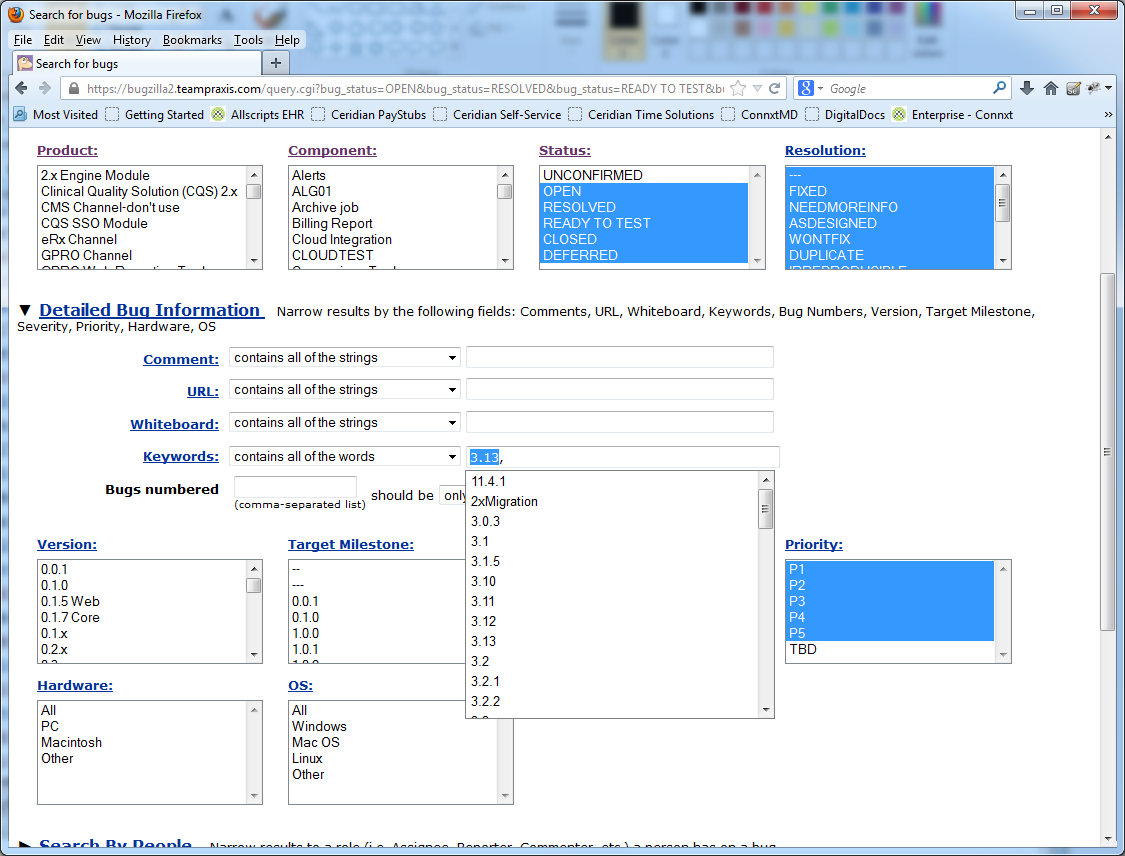
1. Log onto Bugzilla and go to the saved search. You should find an link that says “Edit Search”



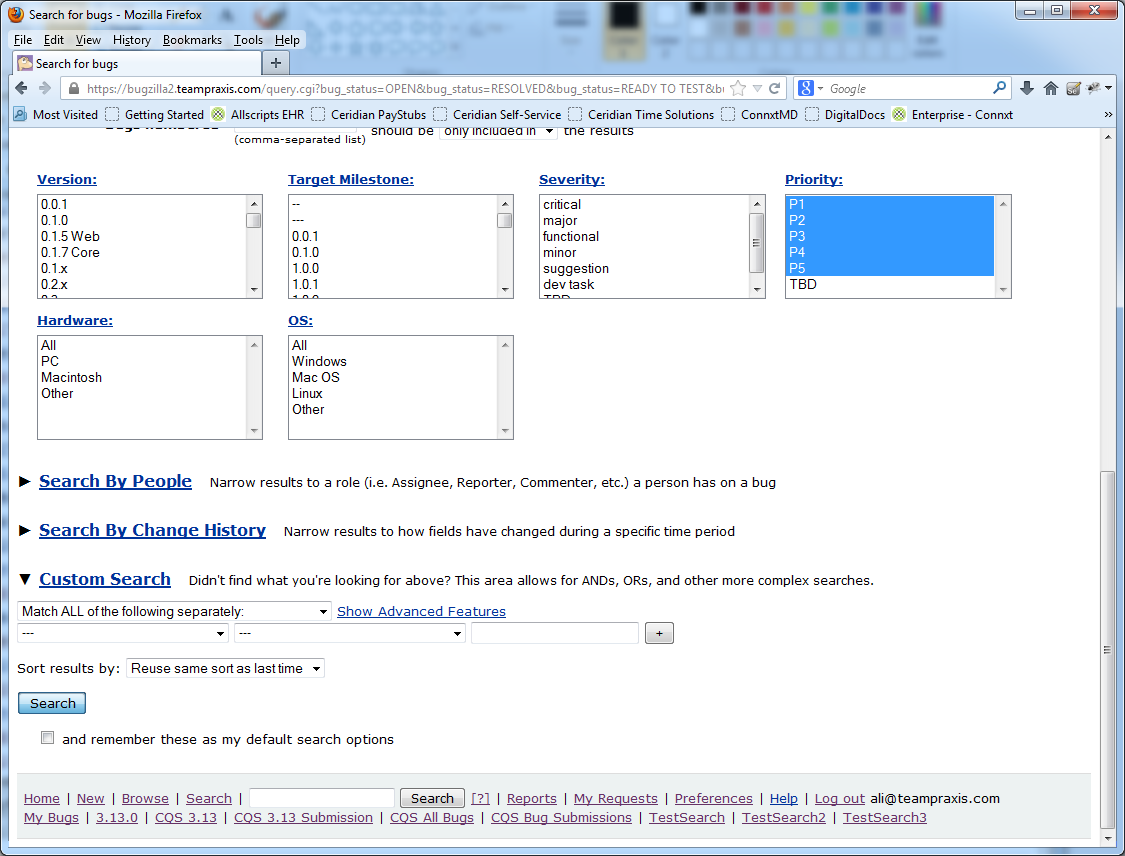
1. Click on the Edit Search link and wait for the new page to load.



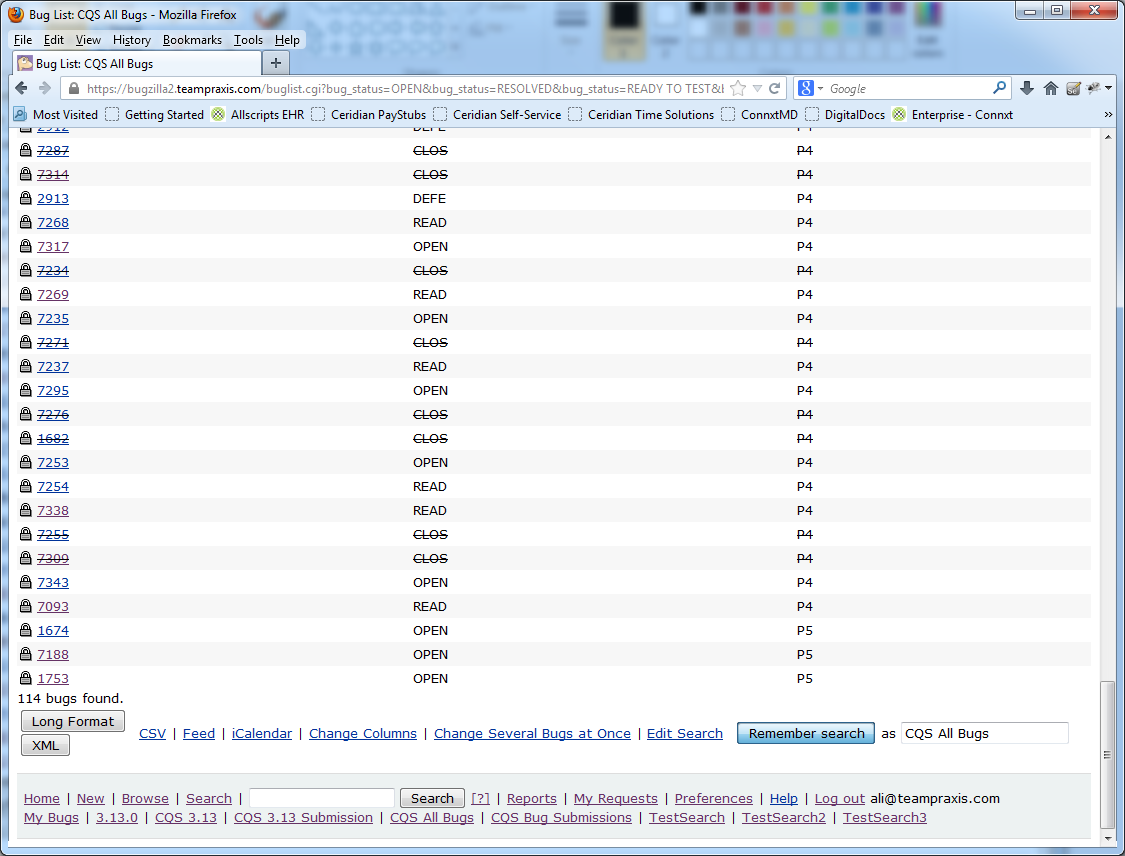
1. Edit the keywords on the search. Change it to the keyword that is used for the new version.



1. Click on the Search button.



1. Once the search page is loaded, click on the Remember Search button.



1. Repeat the process for the other saved search (representing the submissions).