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1.1 Objective

This book gives an overview of Bugzilla and helps you understand its usage for defect tracking and management.

1.2 Audience

This book caters to the need of end-users of Bugzilla.

1.3 Contents

In this book, you will learn about:

- Overview of Bugzilla
- Features of Bugzilla
- Supported platforms and system requirements
- Bugzilla releases
- Bug life cycle
- Creating Bugzilla account
- Customize user settings

2.1 Introduction

Bugzilla is a powerful, Web-based defect-tracking tool originally developed by Mozilla. It is widely used by many organizations across the globe for reporting and managing bugs. Unlike other defect-tracking software that comes with enormous licensing fees, Bugzilla is free, open source software that you can install and use without having to pay any license fee.

Bugzilla helps users to report bugs, assign bugs, prioritize, and arrange bugs by product and component. It is used by large enterprises and organizations such as Redhat, NASA, Facebook, Nokia, The New York Times, Yahoo!, and many more.

Let's now learn about the purpose of using Bugzilla and its features.

2.2 Why Bugzilla?

In earlier days, companies relied on shared lists and e-mails to track and update the status of defects reported. This was, however, an error-prone practice and caused lapse and confusion amongst developers to resolve or ignore significant bugs.

Bugzilla offers an integrated, scalable, and user-friendly interface to many companies. With Bugzilla, the defect tracking and management has become easy resulting in reduced downtime, increased productivity, high customer satisfaction, and improved communication.

2.3 Bugzilla Features

Bugzilla boasts several comprehensive features that make it the most preferable choice of most of the organizations. Let's learn each of the features one-by-one.

1. Advanced search capabilities

Bugzilla offers a simple search feature also called as a full-text search that spans comments, summaries, and substrings of bugs. Bugzilla also provides a very advanced search feature where you can query specific information such as time-based searches.

2. E-mail notification by user preferences

Bugzilla gives flexibility to configure e-mail alerts as per their preferences. You can choose to or not to receive e-mails regarding the changes made to bugs. By default, an e-mail notification includes bug ID and summary of the bug report along with a list of the changes.

3. Multiple bug formats

Bugzilla let you search for bugs in various formats – HTML layout the basic format available. You can use the iCalendar format to search bugs based on time tracking. Other formats available are printable reports format that contains details of every bug, a CSV format that helps import spreadsheets, and various XML formats.

4. Reports and Charts

With Bugzilla, you can generate reports to view the current state of the bug database. There are two report types available: an HTML-table-based report and a graphical-based report (line graph, bar graph, or pie chart). You also have the liberty to export these reports as CSV so that they can work with them in a spreadsheet.

Bugzilla also supports a charting system, which can create graphs that track changes in the system over time.

5. Automatic Duplicate Bug Detection

With auto detection feature, you can identify if the bug you are going to file for a product in Bugzilla already exists in the database.

6. Time tracking

With time tracking feature, you can estimate the time a bug will take to fix and the time spent on that bug. You can also set a deadline for the completion of a bug.

7. Patch Viewer

To gain a nice, colorful view of any patch attached to a bug, you can use Patch Viewer. Patch Viewer is also integrated with LXR, CVS, and Bonsai to provide you more information about a patch.

8. Save and Share Searches

After you perform a search, you can save the search and also add it to the footer of every page. With right permissions, you can also share the search with any group that you belong to in Bugzilla.

Other features of Bugzilla are:

- Integrated, product-based granular security schema
- Inter-bug dependencies and dependency graphing
- Robust, stable RDBMS back-end
- Extensive configurability
- Well-understood and effective natural bug resolution protocol
- E-mail, XML, console, and HTTP APIs
- Available integration with automated software configuration management systems, including Perforce and CVS

2.4 Supported Platforms and Requirements

To install Bugzilla on your machine, you should have administrative rights. Following are the supported platforms and system requirement for the installation of Bugzilla:

- OS: Windows, Linux
- Database: MySQL, PostgreSQL, Oracle
- Web Server: Apache HTTP Server or any Web server that supports CGI
- Mail transfer Agent or SMTP
- Perl 5 and an assortment of Perl modules

2.5 Bugzilla Releases

Usually, Bugzilla versions appear in the format 2.10, 2.16.11, etc. The first number in the version is called the 'major version' of the series. This number does not change very often. Bugzilla was 1.x.x when it was first created, and went to 2.x.x when it was re-written in Perl in Sept 1998.

The second number in the version is called the 'minor number'. Change in minor release indicates a 'point release'. An even number in this position (2.14, 2.16, 2.18, 2.20, etc.) represents a stable version, while an odd number (2.17, 2.19, etc.) represents a development version.

The third number in the version represents a bugfix version. Bugfix releases are made only to address security vulnerabilities.

To view the entire list of earlier and recent Bugzilla versions, you can visit the following web site:

http://www.Bugzilla.org/releases/

To download the latest Bugzilla version, you can visit the following web site:

http://www.Bugzilla.org/download/

3.1 Overview

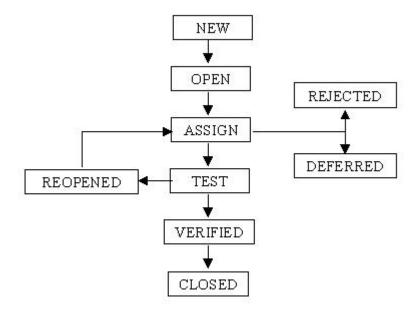
Bugs are a part and parcel of any product development life cycle. Bug resolving and management becomes very critical.

While working on a project, we often make the following observations:

- a bug is reported, but never followed up
- more critical bugs are left out and least priority bugs get fixed
- method to solve a recurring bug is not remembered at the development end, which is time-consuming
- the developer cannot reproduce the bug reported by an individual reviewer or tester

3.2 Various Stages of Bug Life Cycle

From being open, till the time it is resolved and then finally closed, a bug goes through various stages of life cycle. By tracking the lifecycle of a bug, the above-mentioned problems can be avoided. Find below the graphical representation of a bug life cycle.



A bug attains various stages during the product development life cycle. Let's understand each of these bug stages in brief.

- 1. New: As a tester, when you post a bug for the first time, it is in the 'New' state.
- **2. Open:** After you post a bug, the test lead confirms if the bug is genuine and then the lead changes the bug state to 'Open'.
- **3. Assign:** After the bug is changed to the 'Open' state, the test lead assigns the bug to the development team and again changes the state of the bug to 'Assign'.
- **4. Test:** Once the developer fixes the bug, he changes the bug state to 'Test' and assigns the bug to the testing team for the next round of testing.
- **5. Deferred:** If a bug is changed to a deferred state, it would mean that that bug would be fixed in next release. There could be several reasons for deferring a bug like the priority of a bug could be low or there could be lack of time for the release.
- **6. Rejected:** If the developer feels that the bug is not valid, then he rejects the bug and changes the state of the bug to 'Rejected'.
- **7. Duplicate:** If a developer finds that the bug is repeated twice or the two bugs mention the same concept, then he changes the status of one bug to the 'Duplicate' state.
- **8. Verified:** Once the development team fixes the bug, the tester tests the bug. If the tester finds that the bug is fixed and not present in the software, the tester changes the bug status from Test to 'Verified'.
- **9. Reopened:** If the bug is still found present in the software even after it is being fixed by the developer, then the tester changes the bug status to 'Reopened'. The bug traverses the life cycle once again.
- **10. Closed:** If the bug tested by the testing team is found to be fixed and no longer exists in the software, then the tester changes the bug status to 'Closed'.

Bugzilla follows the bug life cycle efficiently and is devised for bug tracking that improves communication, ensures accountability, and increases productivity.

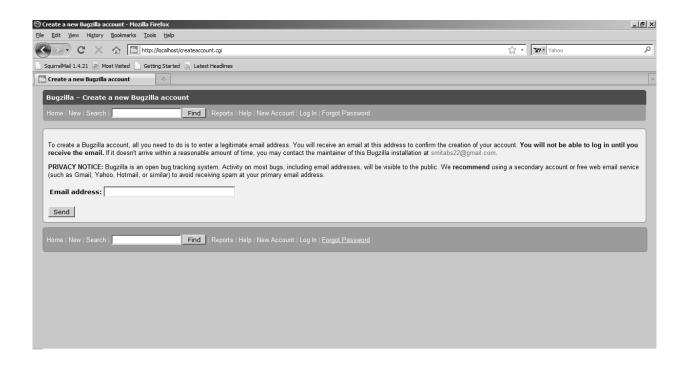
4.1 Create a Bugzilla Account

To use Bugzilla, you will first need to create an online account. Follow the steps given below to access Bugzilla:

- 1. First, open the Bugzilla main page in a web browser. To open the Bugzilla main page, visit the URL http://landfill.Bugzilla.org/Bugzilla-tip/.
- 2. Next, to create a new Bugzilla account, on the **Bugzilla Main Page**, click the **Open a New Account** link.



3. On the **Bugzilla – Create a new Bugzilla account** page, in the **Email address** box, enter your legitimate e-mail address, and then click **Send**.



Note: In a short while after clicking the Send button, you will receive an e-mail to the address you provided, which contains your login name and a password. This password is randomly generated and you can change it as per your convenience.

4. To log into Bugzilla, on the footer of your web browser page, click the **Log In** link, enter your login name and password, and then click **Login**.

Note: You are now logged into Bugzilla.

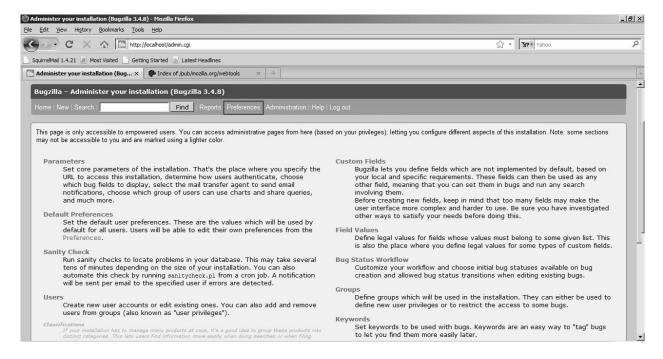
4.2 Bug Fields on a Bugzilla Web Page

After you log into Bugzilla, you will find several fields that help you log, resolve, and manage bugs. Let's learn about each of these fields in brief:

- 1. Product and Component: Bugs are categorized based on Product and Component
- 2. Status and Resolution: Indicate the status of a bug and whether the bug is confirmed, fixed, closed, etc.
- **3. Assigned To**: A person responsible for fixing the bug
- 4. URL: A link associated with the bug, if any
- 5. Summary: A one-sentence summary of the problem found
- 6. Status Whiteboard: A free-form text area for adding short notes and tags to a bug
- **7. Keywords**: Defined by the administrator, which you can use to tag and categorize bugs. For example, The Mozilla Project has keywords like crash and regression.
- **8. Platform and OS**: Indicates the computing/testing environment where the bug was found
- 9. Version: Indicates in which version of the product the bug was found
- **10. Priority**: Used by assignee to prioritize the bugs
- **11. Severity**: Indicates how severe the problem is; also used to indicate whether a bug is an enhancement request
- **12. Target**: Indicates a future version by which the bug should be fixed.
- **13. Reporter**: A person who logged the bug
- 14. CC list: A list of people who receives e-mail when the status of a bug changes
- 15. Attachments: Helps you attach files (e.g. test cases or patches) to bugs
- **16. Dependencies**: Used to record the number of those bugs that cannot be fixed unless other bugs are fixed or the bug that stop other bugs from being fixed
- 17. Votes: Indicates if a bug has any votes
- **18. Additional Comments**: This field enables you to add your comments or ideas if you have something worthwhile to say anything related to that bug

4.3 Customize User Settings

Once you are logged in, you can customize various settings as per your requirements or convenience. To access these settings, click the **Preferences** link on the web page.



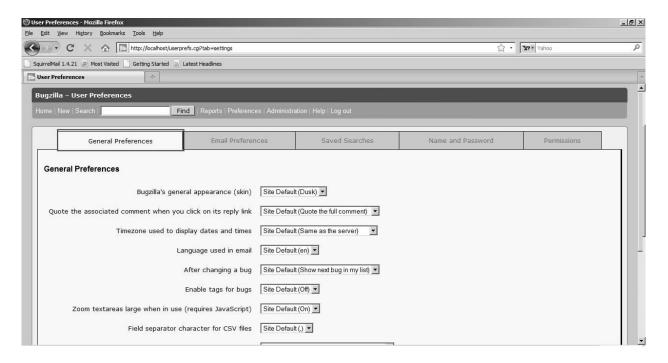
The Preferences are split into five tabs:

- 1. General Preferences
- 2. Email Preferences
- 3. Saved Searches
- 4. Name and Password
- 5. Permissions

Let's study each of these preferences in brief.

1. General Preferences

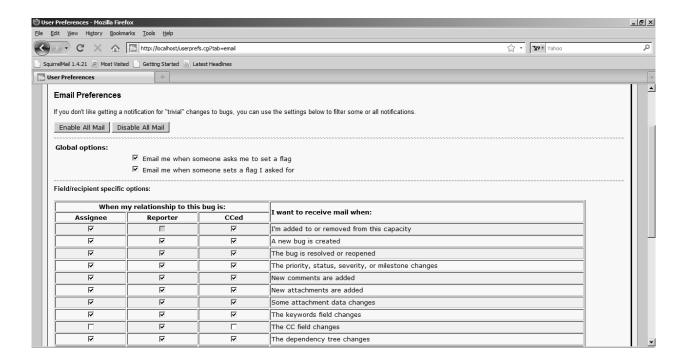
This tab allows you to make several changes to Bugzilla.



- Bugzilla's general appearance (skin): Allows to select skin of your choice; Bugzilla supports adding custom skins
- Quote the associated comment when you click on its reply link: Sets the behavior of the comment "Reply" link. The available options are quoting the full comment, just reference the comment number, or turn the link off
- Language used in email: Allows you to select the language in which email will be sent in, from the list of available languages
- After changing a bug: Controls which bugs (or no bugs) are shown in the page after you change the status of bugs
- Enable tags for bugs: Turns bug tagging on or off
- Zoom textareas large when in use (requires JavaScript): Enables or disables the automatic expanding of text areas when text is being entered into them
- Field separator character for CSV files: Controls separator character used in CSV formatted bug list

2. Email Preferences

With the options on this tab, you can choose to enable or disable e-mail notification on specific events.



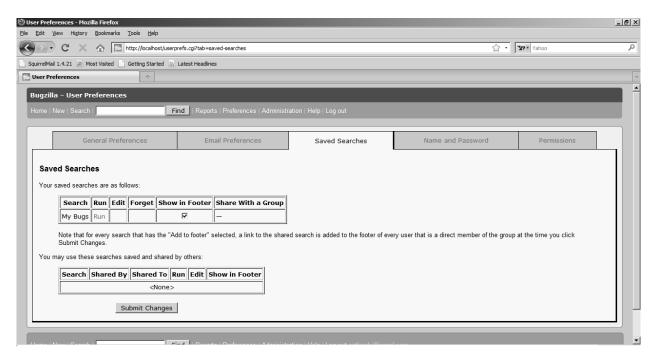
In order to receive maximum amount of e-mails possible, you can click the "Enable All Mail" button on the Email Preferences tab. If you do not wish to receive any e-mail from Bugzilla, you can click the "Disable All Mail" button.

Also, you will find two flag options on the Email Preferences tab – Email me when someone asks me to set a flag and Email me when someone sets a flag I asked for. Enable these check boxes if you want Bugzilla to send you mail under either of these conditions.

3. Saved Searches

On this tab, you can view and run:

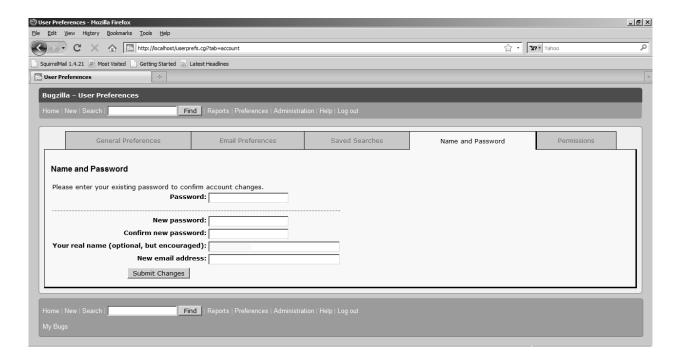
- saved searches that you've created
- saved searches that other members of the group defined in the "querysharegroup" parameter have shared



You can add saved searches to the page footer of every page.

4. Name and Password

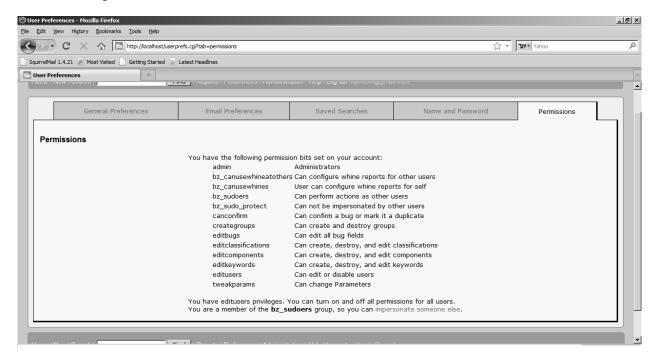
On this tab, you are allowed to change your basic account information, such as your password, e-mail address, and real name.



If you attempt to change your e-mail address, a confirmation e-mail is sent to both the old and new addresses, with a link to confirm the change. This helps to prevent account hijacking.

5. Permissions

On this tab, you will find information on your current permissions on this installation of Bugzilla.



The table given below shows a complete list of permissions.

Note: Only users with *editusers* privileges can change the permissions of other users.

Permission	Description			
Admin	Indicates user is an Administrator			
bz_canusewhineatothers	Indicates user can configure whine reports			
	for other users			
bz_canusewhines	Indicates user can configure whine reports			
	for self			
bz_sudoers	Indicates user can perform actions as other			
	users			
bz_sudo_protect	Indicates user can not be impersonated by			
	other users			
canconfirm	Indicates user can confirm a bug or mark it			
	a duplicate			
creategroups	Indicates user can create and destroy			
	groups			
editbugs	Indicates user can edit all bug fields			
editclassifications	Indicates user can create, destroy, and edit			
	classifications			
editcomponents	Indicates user can create, destroy, and edit			
	components			
editkeywords	Indicates user can create, destroy, and edit			
·	keywords			
editusers	Indicates user can edit or disable users			
tweakparams	Indicates user can change Parameters			

4.4 Organizing Bugs

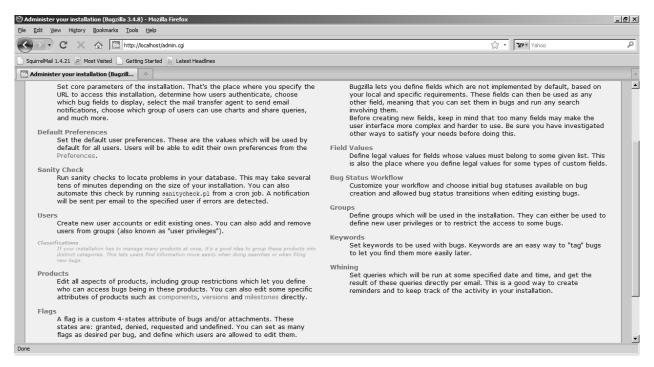
In this section, we will learn about creating a product, component, and flag.

4.4.1 Creating Product

Bugs are broadly classified based on product. Here, product represents the real-world shipping products; for example, if your company manufactures mobile phones, then you should have one product per mobile phone.

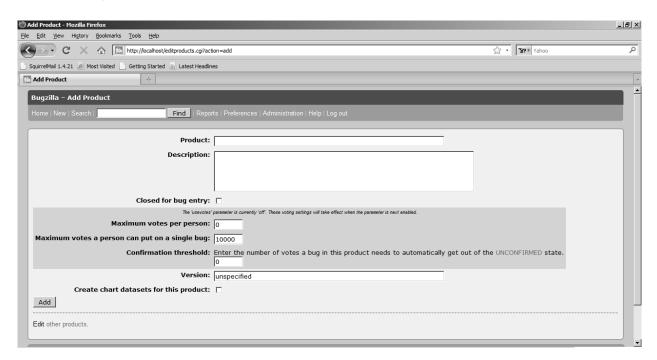
To create a product in Bugzilla, follow the steps given below:

1. Select **Products** from the page footer and then click the **Add** link at the bottom right. Go to **Administration** link on home page and then click on **Products**.



- Next, on the Bugzilla Add Product page, in the Product text box, enter the name of the product and in the Description text box, enter description of the product.
- 3. To stop entering bugs for a particular product, you can select the **Closed for bug entry** check box.
- 4. In the Maximum votes per person text box, you can enter the number of votes per person needed to confirm that it is a bug; in the Maximum votes a person can put on a single bug text box, you can enter the number of maximum votes that can be entered for a single bug; and in the Confirmation threshold text box, you can enter the number of votes a bug needs to confirm that it is a bug.
- 5. In the **Version** text box, you can enter the version of product.

6. Finally, to create the product, click the Add button.



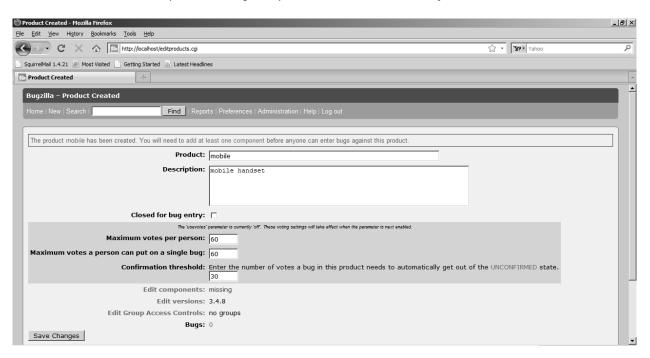
4.4.2 Creating Component

Components are considered as subsections of a Product. For example, a mobile phone your company manufactures may have 'Bluetooth' component, 'Wi-Fi' component, etc.

Let's learn how to create a component in Bugzilla.

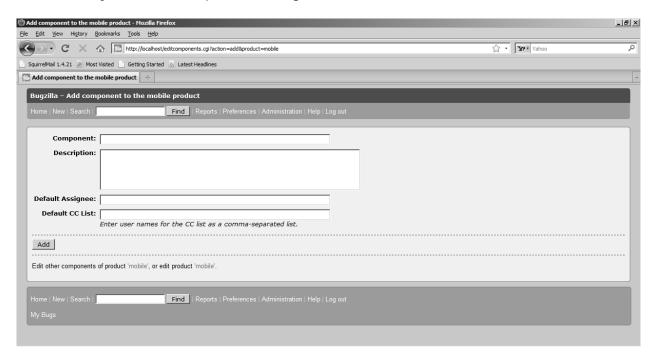
After you create a product, Bugzilla asks for the confirmation to create a component for that product.

1. To create a component for your product, click **Edit components**.



- 2. To add a component, in the **Component** text box, enter the name of the component and in the **Description** text box, you can enter description of the component.
- 3. In the **Default Assignee** text box, you can mention the e-mail Id of Development Lead to whom the bugs would get assigned automatically in case it is not assigned to anyone.
- 4. In the **Default CC List** text box, you can mention the e-mail ID of Test Lead if you wish to send a copy of bug to him.

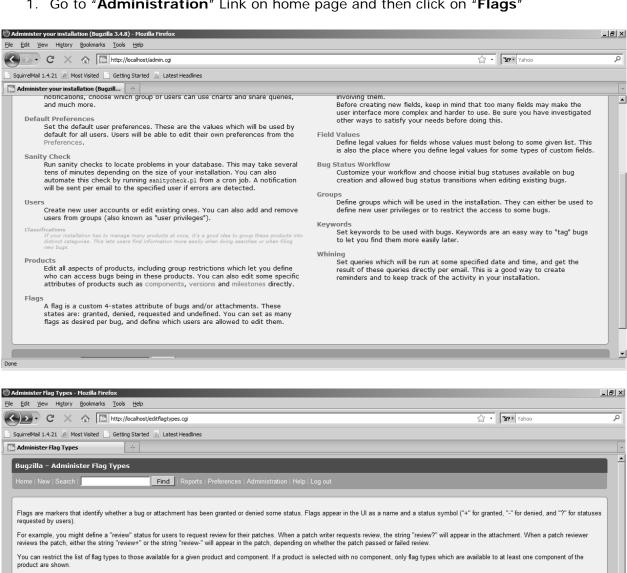
5. Finally, to add a component to Bugzilla, click Add.



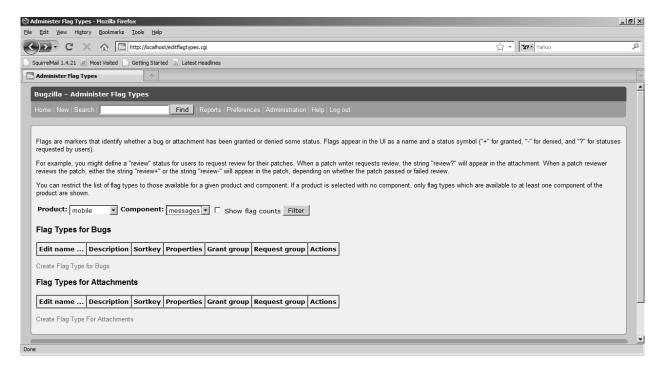
4.4.3 Creating Flag

With the flag feature in Bugzilla, users can attach a specific status to a bug or an attachment.

1. Go to "Administration" Link on home page and then click on "Flags"



- 2. Select the Product and Component, for which flag needs to be created.
- 3. Then click on "Create Flag Type for Bugs".

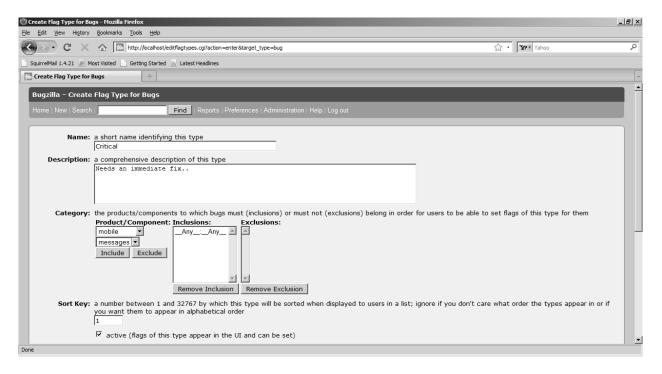


4. Fill in all the details:

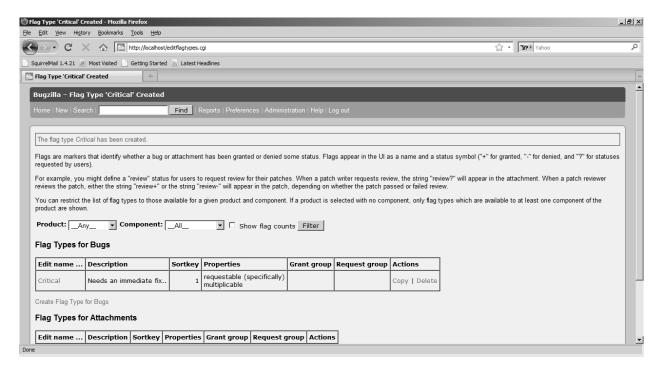
Name: a short name identifying this type e.g. Critical

Description: a brief description about the flag

Category: the products/components to which bugs must (inclusions) or must not (exclusions) belong in order for users to be able to set flags of this type for them



5. Then click on "Create" flag.



Flags can have three values:

Flag state	Description		
?	Indicates that a user is requesting that a status be set; that is, consider it as a question being asked.		
-	Indicates that the status has been set negatively; that is, the question has been answered 'no'.		
+	Indicates that the status has been set positively; that is, the question has been answered 'yes'.		

Flags can be used in two ways:

- 1. On an attachment
- 2. On a bug

You can use attachment flags when you want to ask a question about a specific attachment on a bug. You can use bug flags to set a status on the bug itself. However, you need to have sufficient privileges to set flags on bugs.

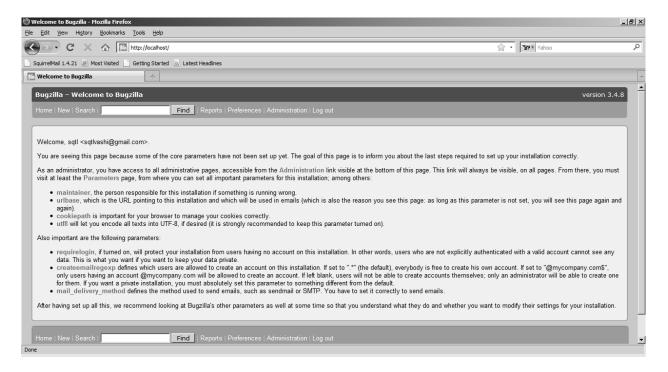
4.5 Managing Bugs

In this section, you will learn how to create, accept, resolve, and close a bug.

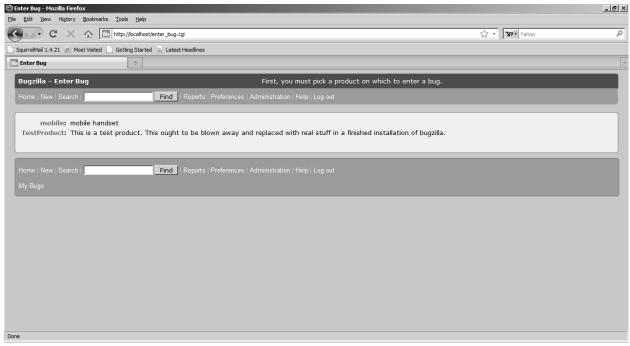
4.5.1 Create a new bug

To file a new bug, follow the steps given below:

1. On the Bugzilla main page, click New.



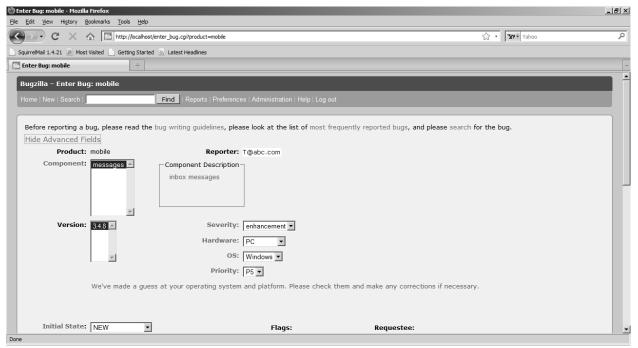
2. In the **Product** list, select the product that you have found a bug in. For example, you can select a product "mobile".



After you enter the product, an Enter Bug page is displayed.

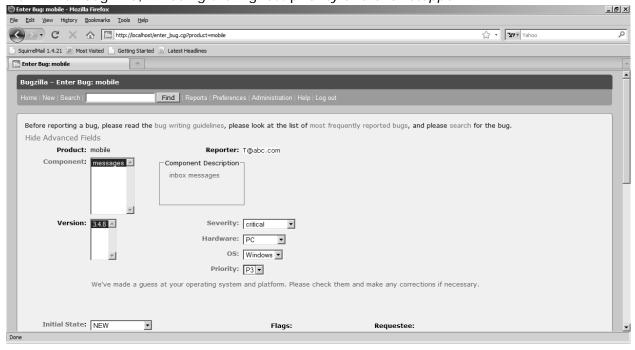


3. On this page, the **Reporter** field is populated by default. Next, click the **Show Advanced Fields** link.

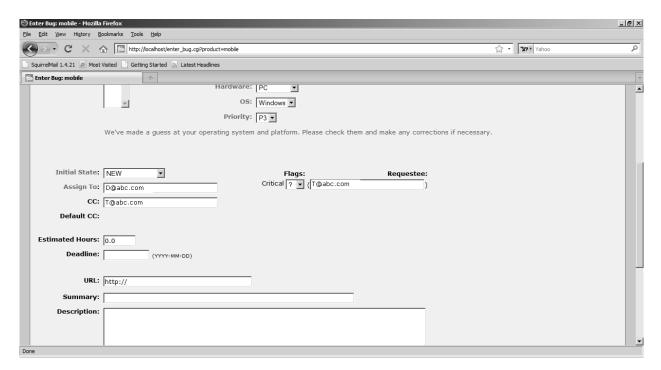


- 4. Next, in the **Component** list, you select the required component, and in the **Version** box, you mention the version number of the product in which you have found the bug.
- 5. In the **Severity** list, select the severity of the bug as either blocker, critical, major, normal, minor, trivial, or enhancement depending on the seriousness of the bug.
- 6. In the **Hardware** and **OS** lists, select the required hardware and system options on which you have encountered the bug.

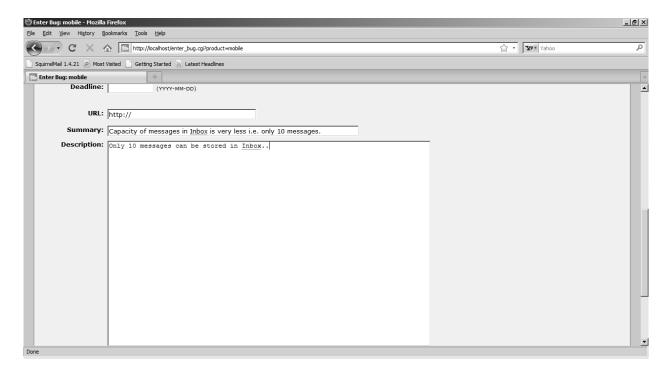
7. In the **Priority** list, set the priority of the bug found. The priority of a bug can be rated from P1 through P5, P1 being the highest priority or a *showstopper*.



- 8. To avoid sending copy of bug to lot many people in the team, in the **Assigned To** text box, enter the e-mail address of the assignee.
- 9. In the **CC** text box, you can enter the e-mail address of the required team members to send the copies of bugs to more than one teammate.

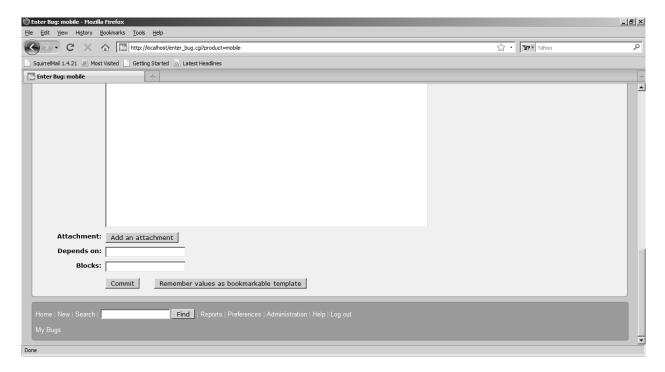


- 10. In the **URL** text box, you can include the URL of the page where the error occurred.
- 11. In the **Summary** text box, you can enter a short description of the bug and in the **Description** field, you can enter the details of the bug found.



12. In **the Depend On** text box, enter the bug ID of the bug whose dependency is on another bug(s).

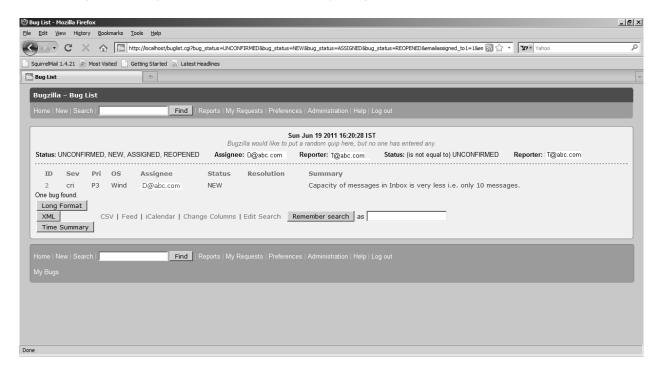
13. You can add attachments, if any, related to this bug. Finally, click the **Commit** button to send the bug report to the required team members.



4.5.2 Accepting and resolving a bug

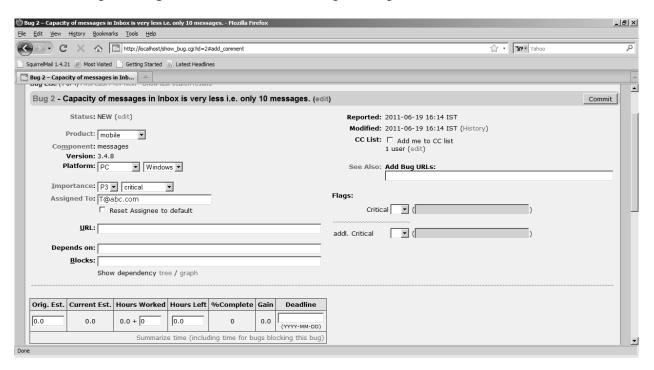
If you are an assigned user, you will receive an e-mail notification after the bug is submitted. You can then act in one of the many ways to solve the bug:

- · Leave the bug as 'New'
- · Accept bug if valid and change the resolution to 'Assigned'
 - 1. Login as assigned user and click on "My Bugs".

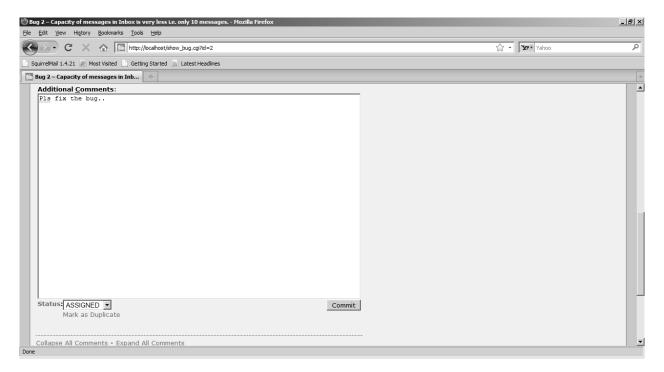


2. Click on the bug ID.

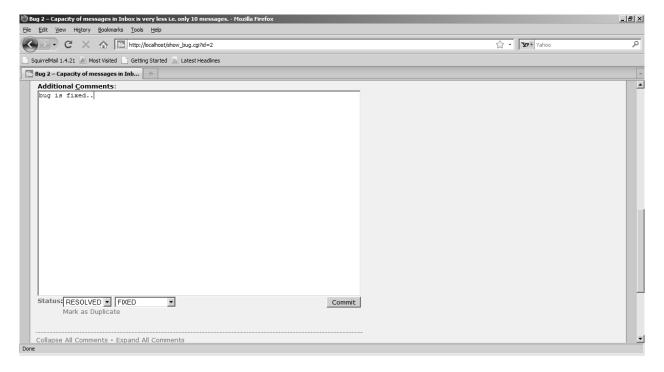
3. Change "Assigned To" to whom the bug is assigned for resolution.



4. And change the status to "ASSIGNED".



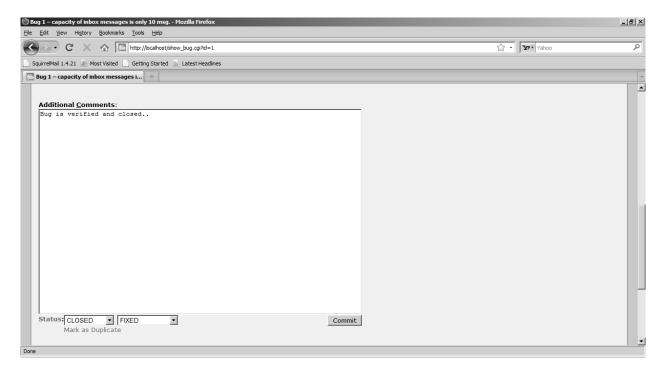
- 5. Then click "Commit".
- Resolve bug and change the resolution to Fixed or Invalid



- Resolve bug and mark it as duplicate
- · Reassign bug to a selected user
- Reassign bug to owner or QA contact of selected component

4.5.3 Verifying and closing a bug

Once the bug is fixed, as a tester, you will verify if the problem has been fixed in the system/software. In case the client also needs to check a bug, then you can mark that bug as '**Verified**'. If the bug is fixed and no longer exists in the system/software, you can change the status of the bug to '**Closed**'.



4.5.4 View bug activity

Since the bug status changes frequently, it often becomes necessary to view the activity of the bug. Bugzilla helps you capture the state of every bug and provides the who, what, when, added, and removed information.

To view the bug activity log, open the bug you want to view, and then click the **View Bug Activity** link located below the **Commit** button. To return to the bug details, click the **Back to bug#** link.

4.6 Searching Bugs

Bugzilla's extensive search feature helps users track and manage bugs efficiently. You can search the bugs by product, component, keywords, summary, whiteboard, or comment.

There are three ways in which you can search the status of a bug.

- 1. Basic search
- 2. Advanced search
- 3. Single bug search

4.6.1 Basic search

Using the basic search feature, you can look for bugs based on status, product, and keywords.

- Status Search bugs in the Open, Closed, or All state
- Product Search bugs of all of the products in the database
- Keywords Search bugs on text strings or words of a bug

4.6.2 Advanced search

Using the advanced search feature, you can look for bugs by every field in the database. Advanced search provides flexibility to search on multiple fields at one time, such as selecting multiple statuses or severities.

1. Click on "Search" link on home page.

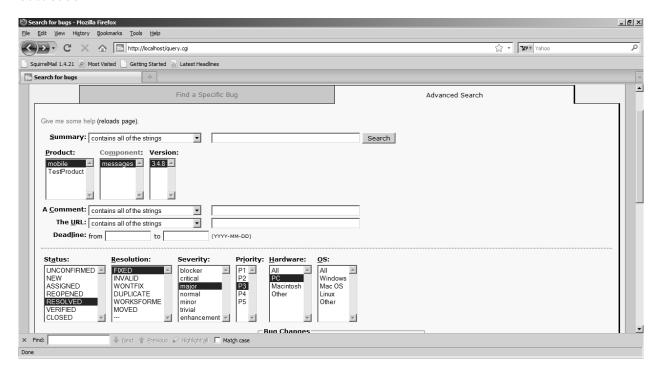


2. Click on "Advanced Search" tab.

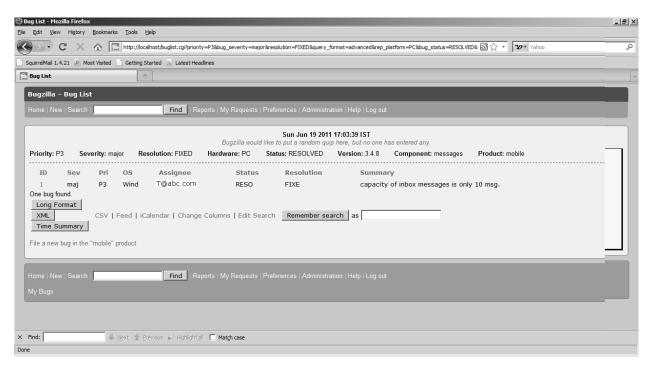
For example, if the bug is as below:

ID	Sev	Pri	OS	Assignee	Status	Resolution	Summary
							Capacity of inbox
1	maj	Р3	Wind	T@abc.com	RESO	FIXE	messages is only 10 msg.

With Advanced Search option, we can search for a particular bug with all the fields in database.



3. Then click the "Search" button.



4.6.3 Single bug search

Using the single bug search, you can find a particular bug from the entire database. Enter the bug ID of the bug in the field labeled **Bug#** and click the **Find** button. Bugzilla will then display the bug details of that particular bug.

Summary

Bugzilla is a general purpose, defect-tracking tool adapted by several organizations. It offers superior performance, greater flexibility, user-friendly UI, and advanced features such as stable RDBMS back-end, e-mail integration, platform independence, improved scalability, and many more.

In this book, you have learned about:

- Overview of Bugzilla
- Features of Bugzilla
- Supported platforms and system requirements
- Bugzilla releases
- Bug life cycle
- Creating Bugzilla account
- Customize user settings
- Organizing bugs
- Managing bugs
- Searching bugs