

The Bugzilla Guide - 2.17.5 Development Release

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This is the documentation for Bugzilla, the mozilla.org bug-tracking system. Bugzilla is an enterprise-class piece of software that powers issue-tracking for hundreds of organizations around the world, tracking millions of bugs.

This documentation is maintained in DocBook 4.1.2 XML format. Changes are best submitted as plain text or XML diffs, attached to a bug filed in the Bugzilla Documentation (http://bugzilla.mozilla.org/enter_bug.cgi?product=Bugzilla&component=Documentation).

This is a development version of this guide. Information in it is subject to change before the 2.18 release of this guide (which will correspond with the 2.18 release of Bugzilla).

The most current version of this document can always be found on the Bugzilla Documentation Page (<http://www.bugzilla.org/documentation>).

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Chapter 1. About This Guide

1.1. Copyright Information

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If you have any questions regarding this document, its copyright, or publishing this document in non-electronic form, please contact The Bugzilla Team.

1.2. Disclaimer

No liability for the contents of this document can be accepted. Use the concepts, examples, and other content at your own risk. This document may contain errors and inaccuracies that may damage your system, cause your partner to leave you, your boss to fire you, your cats to pee on your furniture and clothing, and global thermonuclear war. Proceed with caution.

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Naming of particular products or brands should not be seen as endorsements, with the exception of the term "GNU/Linux". We wholeheartedly endorse the use of GNU/Linux in every situation where it is appropriate. It is an extremely versatile, stable, and robust operating system that offers an ideal operating environment for Bugzilla.

You are strongly recommended to make a backup of your system before installing Bugzilla and at regular intervals thereafter. If you implement any suggestion in this Guide, implement this one!

Although the Bugzilla development team has taken great care to ensure that all easily-exploitable bugs or options are documented or fixed in the code, security holes surely exist. Great care should be taken both in the installation and usage of this software. Carefully consider the implications of installing other network services with Bugzilla. The Bugzilla development team members, Netscape Communications, America Online Inc., and any affiliated developers or sponsors assume no liability for your use of this product. You have the source code to this product, and are responsible for auditing it yourself to ensure your security needs are met.

1.3. New Versions

This is the 2.17.5 version of The Bugzilla Guide. It is so named to match the current version of Bugzilla. This version of the guide, like its associated Bugzilla version is a development version. Information is subject to change between now and when 2.18 is released. If you are reading this from any source other than those below, please check one of these mirrors to make sure you are reading an up-to-date version of the Guide.

The newest version of this guide can always be found at <http://www.bugzilla.org>; including documentation for past releases and the current development version.

The documentation for the most recent stable release of Bugzilla can also be found at The Linux Documentation Project (<http://www.tldp.org>).

The latest version of this document can always be checked out via CVS. Please follow the Mozilla CVS (<http://www.mozilla.org/cvs.html>) instructions and check out the `mozilla/webtools/bugzilla/docs/` subtree.

The Bugzilla Guide is currently only available in English. If you would like to volunteer to translate it, please contact Dave Miller (<mailto:justdave@syndicomm.com>).

1.4. Credits

The people listed below have made enormous contributions to the creation of this Guide, through their writing, dedicated hacking efforts, numerous e-mail and IRC support sessions, and overall excellent contribution to the Bugzilla community:

Matthew P. Barnson <mbarnson@sisna.com>

for the Herculean task of pulling together the Bugzilla Guide and shepherding it to 2.14.

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for initially writing Bugzilla and creating the README upon which the UNIX installation documentation is largely based.

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1.5. Document Conventions

This document uses the following conventions:

Descriptions**Appearance**

Warnings

Caution

Don't run with scissors!

Hint

Tip: Would you like a breath mint?

Notes

Note: Dear John...

Information requiring special attention

Warning

Read this or the cat gets it.

File Names

filename

Directory Names

directory

Commands to be typed

command

Applications Names

application

Prompt of users command under bash shell

bash\$

Prompt of root users command under bash shell

bash#

Prompt of user command under tcsh shell

tcsh\$

Environment Variables

VARIABLE

Emphasized word

word

Term found in the glossary

Bugzilla

Code Example

```
<para> Beginning and end of paragraph
</para>
```

Chapter 2. Introduction

2.1. What is Bugzilla?

Bugzilla is a bug- or issue-tracking system. Bug-tracking systems allow individual or groups of developers effectively to keep track of outstanding problems with their product. Bugzilla was originally written by Terry Weissman in a programming language called TCL, to replace a rudimentary bug-tracking database used internally by Netscape Communications. Terry later ported Bugzilla to Perl from TCL, and in Perl it remains to this day. Most commercial defect-tracking software vendors at the time charged enormous licensing fees, and Bugzilla quickly became a favorite of the open-source crowd (with its genesis in the open-source browser project, Mozilla). It is now the de-facto standard defect-tracking system against which all others are measured.

Bugzilla boasts many advanced features. These include:

- Powerful searching
- User-configurable email notifications of bug changes
- Full change history
- Inter-bug dependency tracking and graphing
- Excellent attachment management
- Integrated, product-based, granular security schema
- Fully security-audited, and runs under Perl's taint mode
- A robust, stable RDBMS back-end
- Web, XML, email and console interfaces
- Completely customisable and/or localisable web user interface
- Extensive configurability
- Smooth upgrade pathway between versions

2.2. Why Should We Use Bugzilla?

For many years, defect-tracking software has remained principally the domain of large software development houses. Even then, most shops never bothered with bug-tracking software, and instead simply relied on shared lists and email to monitor the status of defects. This procedure is error-prone and tends to cause those bugs judged least significant by developers to be dropped or ignored.

These days, many companies are finding that integrated defect-tracking systems reduce downtime, increase productivity, and raise customer satisfaction with their systems. Along with full disclosure, an open bug-tracker allows manufacturers to keep in touch with their clients and resellers, to communicate about problems effectively throughout the data management chain. Many corporations have also discovered that defect-tracking helps reduce costs by providing IT support accountability, telephone support knowledge bases, and a common, well-understood system for accounting for unusual system or software issues.

But why should *you* use Bugzilla?

Bugzilla is very adaptable to various situations. Known uses currently include IT support queues, Systems Administration deployment management, chip design and development problem tracking (both pre-and-post fabrication), and software and hardware bug tracking for luminaries such as Redhat, NASA, Linux-Mandrake, and VA Systems. Combined with systems such as CVS (<http://www.cvshome.org>), Bonsai (<http://www.mozilla.org/bonsai.html>), or Perforce SCM (<http://www.perforce.com>), Bugzilla provides a powerful, easy-to-use solution to configuration management and replication problems.

Bugzilla can dramatically increase the productivity and accountability of individual employees by providing a documented workflow and positive feedback for good performance. How many times do you wake up in the morning, remembering that you were supposed to do *something* today, but you just can't quite remember? Put it in Bugzilla, and you have a record of it from which you can extrapolate milestones, predict product versions for integration, and follow the discussion trail that led to critical decisions.

Ultimately, Bugzilla puts the power in your hands to improve your value to your employer or business while providing a usable framework for your natural attention to detail and knowledge store to flourish.

Chapter 3. Using Bugzilla

3.1. How do I use Bugzilla?

This section contains information for end-users of Bugzilla. There is a Bugzilla test installation, called Landfill (<http://landfill.bugzilla.org/>), which you are welcome to play with (if it's up.) However, it does not necessarily have all Bugzilla features enabled, and often runs cutting-edge versions of Bugzilla for testing, so some things may work slightly differently than mentioned here.

3.1.1. Create a Bugzilla Account

If you want to use Bugzilla, first you need to create an account. Consult with the administrator responsible for your installation of Bugzilla for the URL you should use to access it. If you're test-driving Bugzilla, use this URL: <http://landfill.bugzilla.org/bugzilla-tip/>.

1. Click the "Open a new Bugzilla account" link, enter your email address and, optionally, your name in the spaces provided, then click "Create Account".
2. Within moments, you should receive an email to the address you provided above, which contains your login name (generally the same as the email address), and a password you can use to access your account. This password is randomly generated, and can be changed to something more memorable.
3. Click the "Log In" link in the yellow area at the bottom of the page in your browser, enter your email address and password into the spaces provided, and click "Login".

You are now logged in. Bugzilla uses cookies for authentication so, unless your IP address changes, you should not have to log in again.

3.1.2. Anatomy of a Bug

The core of Bugzilla is the screen which displays a particular bug. It's a good place to explain some Bugzilla concepts. Bug 1 on Landfill (http://landfill.bugzilla.org/bugzilla-tip/show_bug.cgi?id=1) is a good example. Note that the labels for most fields are hyperlinks; clicking them will take you to context-sensitive help on that particular field. Fields marked * may not be present on every installation of Bugzilla.

1. *Product and Component*: Bugs are divided up by Product and Component, with a Product having one or more Components in it. For example, bugzilla.mozilla.org's "Bugzilla" Product is composed of several Components:

Administration: Administration of a Bugzilla installation.

Bugzilla-General: Anything that doesn't fit in the other components, or spans multiple components.

Creating/Changing Bugs: Creating, changing, and viewing bugs.

Documentation: The Bugzilla documentation, including The Bugzilla Guide.

Email: Anything to do with email sent by Bugzilla.

Installation: The installation process of Bugzilla.

Query/Buglist: Anything to do with searching for bugs and viewing the buglists.

Reporting/Charting: Getting reports from Bugzilla.

User Accounts: Anything about managing a user account from the user's perspective. Saved queries, creating accounts, changing

User Interface: General issues having to do with the user interface cosmetics (not functionality) including cosmetic issues, HTML

2. *Status and Resolution:* These define exactly what state the bug is in - from not even being confirmed as a bug, through to being fixed and the fix confirmed by Quality Assurance. The different possible values for Status and Resolution on your installation should be documented in the context-sensitive help for those items.
3. *Assigned To:* The person responsible for fixing the bug.
4. **URL:* A URL associated with the bug, if any.
5. *Summary:* A one-sentence summary of the problem.
6. **Status Whiteboard:* (a.k.a. Whiteboard) A free-form text area for adding short notes and tags to a bug.
7. **Keywords:* The administrator can define keywords which you can use to tag and categorise bugs - e.g. The Mozilla Project has keywords like crash and regression.
8. *Platform and OS:* These indicate the computing environment where the bug was found.
9. *Version:* The "Version" field is usually used for versions of a product which have been released, and is set to indicate which versions of a Component have the particular problem the bug report is about.
10. *Priority:* The bug assignee uses this field to prioritise his or her bugs. It's a good idea not to change this on other people's bugs.
11. *Severity:* This indicates how severe the problem is - from blocker ("application unusable") to trivial ("minor cosmetic issue"). You can also use this field to indicate whether a bug is an enhancement request.
12. **Target:* (a.k.a. Target Milestone) A future version by which the bug is to be fixed. e.g. The Bugzilla Project's milestones for future Bugzilla versions are 2.18, 2.20, 3.0, etc. Milestones are not restricted to numbers, thought - you can use any text strings, such as dates.
13. *Reporter:* The person who filed the bug.
14. *CC list:* A list of people who get mail when the bug changes.
15. *Attachments:* You can attach files (e.g. testcases or patches) to bugs. If there are any attachments, they are listed in this section.
16. **Dependencies:* If this bug cannot be fixed unless other bugs are fixed (depends on), or this bug stops other bugs being fixed (blocks), their numbers are recorded here.
17. **Votes:* Whether this bug has any votes.
18. *Additional Comments:* You can add your two cents to the bug discussion here, if you have something worthwhile to say.

3.1.3. Searching for Bugs

The Bugzilla Search page is the interface where you can find any bug report, comment, or patch currently in the Bugzilla system. You can play with it here: <http://landfill.bugzilla.org/bugzilla-tip/query.cgi>.

The Search page has controls for selecting different possible values for all of the fields in a bug, as described above. For some fields, multiple values can be selected. In those cases, Bugzilla returns bugs where the content of the field matches one of the selected values. If none is selected, then the field can take any value.

Once you've defined a search, you can either run it, or save it as a Remembered Query, which can optionally appear in the footer of your pages.

Highly advanced querying is done using Boolean Charts.

3.1.4. Bug Lists

If you run a search, a list of matching bugs will be returned. The default search is to return all open bugs on the system - don't try running this search on a Bugzilla installation with a lot of bugs!

The format of the list is configurable. For example, it can be sorted by clicking the column headings. Other useful features can be accessed using the links at the bottom of the list:

Long Format: this gives you a large page with a non-editable summary of the fields of each bug.

Change Columns: change the bug attributes which appear in the list.

Change several bugs at once: If your account is sufficiently empowered, you can make the same change to all the bugs in the list - for

Send mail to bug owners: Sends mail to the owners of all bugs on the list.

Edit this query: If you didn't get exactly the results you were looking for, you can return to the Query page through this link and make

3.1.5. Filing Bugs

Years of bug writing experience has been distilled for your reading pleasure into the Bug Writing Guidelines (<http://landfill.bugzilla.org/bugzilla-tip/bugwritinghelp.html>). While some of the advice is Mozilla-specific, the basic principles of reporting Reproducible, Specific bugs, isolating the Product you are using, the Version of the Product, the Component which failed, the Hardware Platform, and Operating System you were using at the time of the failure go a long way toward ensuring accurate, responsible fixes for the bug that bit you.

The procedure for filing a test bug is as follows:

1. Go to Landfill (<http://landfill.bugzilla.org/bugzilla-tip/>) in your browser and click Enter a new bug report (http://landfill.bugzilla.org/bugzilla-tip/enter_bug.cgi).
2. Select a product - any one will do.
3. Fill in the fields. Bugzilla should have made reasonable guesses, based upon your browser, for the "Platform" and "OS" drop-down boxes. If they are wrong, change them.
4. Select "Commit" and send in your bug report.

3.1.6. Patch Viewer

Viewing and reviewing patches in Bugzilla is often difficult due to lack of context, improper format and the inherent readability issues that raw patches present. Patch Viewer is an enhancement to Bugzilla designed to fix that by offering increased context, linking to sections, and integrating with Bonsai, LXR and CVS.

Patch viewer allows you to:

View patches in color, with side-by-side view rather than trying to interpret the contents of the patch.

See the difference between two patches.

Get more context in a patch.

Collapse and expand sections of a patch for easy reading.

Link to a particular section of a patch for discussion or review

Go to Bonsai or LXR to see more context, blame, and cross-references for the part of the patch you are looking at
Create a rawtext unified format diff out of any patch, no matter what format it came from

3.1.6.1. Viewing Patches in Patch Viewer

The main way to view a patch in patch viewer is to click on the "Diff" link next to a patch in the Attachments list on a bug. You may also do this within the edit window by clicking the "View Attachment As Diff" button in the Edit Attachment screen.

3.1.6.2. Seeing the Difference Between Two Patches

To see the difference between two patches, you must first view the newer patch in Patch Viewer. Then select the older patch from the dropdown at the top of the page ("Differences between [dropdown] and this patch") and click the "Diff" button. This will show you what is new or changed in the newer patch.

3.1.6.3. Getting More Context in a Patch

To get more context in a patch, you put a number in the textbox at the top of Patch Viewer ("Patch / File / [textbox]") and hit enter. This will give you that many lines of context before and after each change. Alternatively, you can click on the "File" link there and it will show each change in the full context of the file. This feature only works against files that were diffed using "cvs diff".

3.1.6.4. Collapsing and Expanding Sections of a Patch

To view only a certain set of files in a patch (for example, if a patch is absolutely huge and you want to only review part of it at a time), you can click the "(+)" and "(-)" links next to each file (to expand it or collapse it). If you want to collapse all files or expand all files, you can click the "Collapse All" and "Expand All" links at the top of the page.

3.1.6.5. Linking to a Section of a Patch

To link to a section of a patch (for example, if you want to be able to give someone a URL to show them which part you are talking about) you simply click the "Link Here" link on the section header. The resulting URL can be copied and used in discussion. (Copy Link Location in Mozilla works as well.)

3.1.6.6. Going to Bonsai and LXR

To go to Bonsai to get blame for the lines you are interested in, you can click the "Lines XX-YY" link on the section header you are interested in. This works even if the patch is against an old version of the file, since Bonsai stores all versions of the file.

To go to LXR, you click on the filename on the file header (unfortunately, since LXR only does the most recent version, line numbers are likely to rot).

3.1.6.7. Creating a Unified Diff

If the patch is not in a format that you like, you can turn it into a unified diff format by clicking the "Raw Unified" link at the top of the page.

3.2. Hints and Tips

This section distills some Bugzilla tips and best practices that have been developed.

3.2.1. Autolinkification

Bugzilla comments are plain text - so posting HTML will result in literal HTML tags rather than being interpreted by a browser. However, Bugzilla will automatically make hyperlinks out of certain sorts of text in comments. For example, the text `http://www.bugzilla.org` will be turned into <http://www.bugzilla.org>. Other strings which get linkified in the obvious manner are:

bug 12345
bug 23456, comment 53
attachment 4321
mailto:george@example.com
george@example.com
ftp://ftp.mozilla.org
Most other sorts of URL

A corollary here is that if you type a bug number in a comment, you should put the word "bug" before it, so it gets autolinkified for the convenience of others.

3.2.2. Quicksearch

Quicksearch is a single-text-box query tool which uses metacharacters to indicate what is to be searched. For example, typing `"foo|bar"` into Quicksearch would search for "foo" or "bar" in the summary and status whiteboard of a bug; adding `":BazProduct"` would search only in that product.

You'll find the Quicksearch box on Bugzilla's front page, along with a Help ([../quicksearch.html](#)) link which details how to use it.

3.2.3. Comments

If you are changing the fields on a bug, only comment if either you have something pertinent to say, or Bugzilla requires it. Otherwise, you may spam people unnecessarily with bug mail. To take an example: a user can set up their account to filter out messages where someone just adds themselves to the CC field of a bug (which happens a lot.) If you come along, add yourself to the CC field, and add a comment saying "Adding self to CC", then that person gets a pointless piece of mail they would otherwise have avoided.

Don't use sigs in comments. Signing your name ("Bill") is acceptable, particularly if you do it out of habit, but full mail/news-style four line ASCII art creations are not.

3.2.4. Attachments

Use attachments, rather than comments, for large chunks of ASCII data, such as trace, debugging output files, or log files. That way, it doesn't bloat the bug for everyone who wants to read it, and cause people to receive fat, useless mails.

Trim screenshots. There's no need to show the whole screen if you are pointing out a single-pixel problem.

Don't attach simple test cases (e.g. one HTML file, one CSS file and an image) as a ZIP file. Instead, upload them in reverse order and edit the referring file so that they point to the attached files. This way, the test case works immediately out of the bug.

3.2.5. Filing Bugs

Try to make sure that everything said in the summary is also said in the first comment. Summaries are often updated and this will ensure your original information is easily accessible.

You do not need to put "any" or similar strings in the URL field. If there is no specific URL associated with the bug, leave this field blank.

If you feel a bug you filed was incorrectly marked as a DUPLICATE of another, please question it in your bug, not the bug it was duped to. Feel free to CC the person who duped it if they are not already CCed.

3.3. User Preferences

Once you have logged in, you can customise various aspects of Bugzilla via the "Edit prefs" link in the page footer. The preferences are split into four tabs:

3.3.1. Account Settings

On this tab, you can change your basic account information, including your password, email address and real name. For security reasons, in order to change anything on this page you must type your *current* password into the "Password" field at the top of the page. If you attempt to change your email address, a confirmation email is sent to both the old and new addresses, with a link to use to confirm the change. This helps to prevent account hijacking.

3.3.2. Email Settings

On this tab you can reduce or increase the amount of email sent you from Bugzilla, opting in or out depending on your relationship to the bug and the change that was made to it. (Note that you can also do client-side filtering using the X-Bugzilla-Reason header which Bugzilla adds to all bugmail.)

By entering user email names, delineated by commas, into the "Users to watch" text entry box you can receive a copy of all the bugmail of other users (security settings permitting.) This powerful functionality enables seamless transitions as developers change projects or users go on holiday.

Note: The ability to watch other users may not be available in all Bugzilla installations. If you can't see it, ask your administrator.

3.3.3. Page Footer

On the Search page, you can store queries in Bugzilla, so if you regularly run a particular query it is just a drop-down menu away. Once you have a stored query, you can come here to request that it also be displayed in your page footer.

3.3.4. Permissions

This is a purely informative page which outlines your current permissions on this installation of Bugzilla - what product groups you are in, and whether you can edit bugs or perform various administration functions.

Chapter 4. Installation

4.1. Step-by-step Install

Bugzilla has been successfully installed under many different operating systems including almost all Unix clones and Microsoft Windows. Many operating systems have utilities that make installation easier or quirks that make it harder. We have tried to collect that information in Section 4.3, so be sure to check out that section before you start your installation.

Note: Windows is one of those operating systems that has many quirks and is not yet officially supported by the Bugzilla team. If you wish to install Bugzilla on Windows, be sure to see Section 4.3.1.

Warning

While installing Bugzilla, it is a good idea to ensure that there is some kind of firewall between you and the rest of the Internet as your machine may be insecure for periods during the install. Many installation steps require an active Internet connection to complete, but you must take care to ensure that at no point is your machine vulnerable to an attack.

This guide assumes that you already have your operating system installed, network configured, and have administrative access to the shell on the machine you are installing Bugzilla onto. It is possible to install and run Bugzilla without administrative access, but you have to either make sure all the required software is installed or get somebody with administrative access to install it for you.

The listing below is a basic step-by-step list. More information can be found in the sections below. Minimum versions will be included in parenthesis where appropriate.

1. Install MySQL (3.23.41)
2. Install Perl (5.6)
3. Install Perl Modules
4. Install a Webserver
5. Put Bugzilla in the Webspace
6. Setup the MySQL Database

4.1.1. MySQL

Visit the MySQL homepage at <http://www.mysql.com> to grab and install the latest stable release of the server.

Note: Many of the binary versions of MySQL store their data files in `/var`. On some Unix systems, this is part of a smaller root partition, and may not have room for your bug database. You can set the data directory as an option to `configure` if you build MySQL from source yourself.

If you install from something other than a packaging/installation system (such as .rpm, .deb, .exe, or .msi) you will need to configure your system so the MySQL server daemon will come back up whenever your machine reboots.

If you wish to have attachments larger than 64K, you will have to configure MySQL to accept large packets. This is done by adding the text in Figure 4-1 to your `my.conf` file. There is also a parameter in Bugzilla for setting the maximum allowable attachment size. You should set this value to be slightly larger than that parameter.

Figure 4-1. Set Max Packet Size in MySQL

```
[mysqld]
# Allow packets up to 1M
set-variable = max_allowed_packet=1M
```

If you are running Bugzilla and MySQL on the same machine, you may also wish to utilize the `skip-networking` option as mentioned in Section 5.6.2 for the added security.

4.1.2. Perl

Any machine that doesn't have Perl on it is a sad machine indeed. Perl can be got in source form from <http://www.perl.com>. There are also binary versions available for many platforms, most of which are linked to from perl.com. Although Bugzilla runs with perl 5.6, it's a good idea to be up to the very latest version if you can when running Bugzilla. As of this writing, that is Perl version 5.8.

4.1.3. Perl Modules

Perl modules can be found using *CPAN* on Unix based systems or *PPM* on Win32. The root servers have a real tendency to bog down, so please use mirrors.

Good instructions can be found for using each of these services on their respective websites. The basics can be found in Example 4-1 for CPAN and Section 4.3.1.2 for PPM.

Example 4-1. Installing perl modules with CPAN

The easy way:

```
bash# perl -MCPAN -e 'install "<modulename>"'
```

Or the hard way:

```
bash# tar xzvf <module>.tar.gz      ❶
bash# cd <module>                  ❷
bash# perl Makefile.PL
bash# make
bash# make test
bash# make install
```

- ❶ This assumes that you've already downloaded the `<module>.tar.gz` to the current working directory.
- ❷ The process of untaring the module as defined in ❶ will create the `<module>` directory.

Tip: Many people complain that Perl modules will not install for them. Most times, the error messages complain that they are missing a file in “@INC”. Virtually every time, this error is due to permissions being set too restrictively for you to compile Perl modules or not having the necessary Perl development libraries installed on your system. Consult your local UNIX systems administrator for help solving these permissions issues; if you *are* the local UNIX sysadmin, please consult the newsgroup/ mailing list for further assistance or hire someone to help you out.

Perl Modules (minimum version):

1. Bundle::Bugzilla (Will allow you to skip the rest)
2. AppConfig (1.52)
3. CGI (2.88)
4. Data::Dumper (any)
5. Date::Format (2.21)
6. DBI (1.32)
7. DBD::mysql (2.1010)
8. File::Spec (0.82)
9. File::Temp (any)
10. Template Toolkit (2.08)
11. Text::Wrap (2001.0131)

and, optionally:

1. GD (1.20) for bug charting
2. Chart::Base (0.99c) for bug charting
3. XML::Parser (any) for the XML interface
4. GD::Graph (any) for bug charting
5. GD::Text::Align (any) for bug charting
6. MIME::Parser (any) for the email interface
7. PatchReader (0.9.1) for pretty HTML view of patches

4.1.3.1. Bundle::Bugzilla

If you are running at least perl 5.6.1, you can save yourself a lot of time by using Bundle::Bugzilla. This bundle contains every module required to get Bugzilla running. It does not include GD and friends, but these are not required for a base install and can always be added later if the need arises.

Assuming your perl was installed with CPAN (most unix installations are), using `Bundle::Bugzilla` is really easy. Simply follow along with the commands below.

```
bash# perl -MCPAN -eshell ❶
cpan shell -- CPAN exploration and modules installation (v1.63)
ReadLine support enabled

cpan>
```

- ❶ At this point, unless you've used CPAN on this machine before, you'll have to go through a series of configuration steps.

4.1.3.2. AppConfig (1.52)

Dependency for Template Toolkit. We probably don't need to specifically check for it anymore.

4.1.3.3. CGI (2.88)

The CGI module parses form elements and cookies and does many other usefule things. It come as a part of recent perl distributions, but Bugzilla needs a fairly new version.

CPAN Download Page: <http://search.cpan.org/dist/CGI.pm/>
 PPM Download Link: <http://ppm.activestate.com/PPMPackages/zips/6xx-builds-only/CGI.zip>
 Documentation: <http://www.perldoc.com/perl5.8.0/lib/CGI.html>

4.1.3.4. Data::Dumper (any)

The `Data::Dumper` module provides data structure persistence for Perl (similar to Java's serialization). It comes with later sub-releases of Perl 5.004, but a re-installation just to be sure it's available won't hurt anything.

CPAN Download Page: <http://search.cpan.org/dist/Data-Dumper/>
 PPM Download Link: <http://ppm.activestate.com/PPMPackages/zips/6xx-builds-only/Data-Dumper.zip>
 Documentation: <http://www.perldoc.com/perl5.8.0/lib/Data/Dumper.html>

4.1.3.5. TimeDate modules (2.21)

Many of the more common date/time/calendar related Perl modules have been grouped into a bundle similar to the MySQL modules bundle. This bundle is stored on the CPAN under the name `TimeDate`. The component module we're most interested in is the `Date::Format` module, but installing all of them is probably a good idea anyway.

CPAN Download Page: <http://search.cpan.org/dist/TimeDate/>
 PPM Download Link: <http://ppm.activestate.com/PPMPackages/zips/6xx-builds-only/TimeDate.zip>

Documentation: <http://search.cpan.org/dist/TimeDate/lib/Date/Format.pm>

4.1.3.6. DBI (1.32)

The DBI module is a generic Perl module used the MySQL-related modules. As long as your Perl installation was done correctly the DBI module should be a breeze. It's a mixed Perl/C module, but Perl's MakeMaker system simplifies the C compilation greatly.

CPAN Download Page: <http://search.cpan.org/dist/DBI/>

PPM Download Link: <http://ppm.activestate.com/PPMPackages/zips/6xx-builds-only/DBI.zip>

Documentation: <http://dbi.perl.org/doc/>

4.1.3.7. MySQL-related modules

The Perl/MySQL interface requires a few mutually-dependent Perl modules. These modules are grouped together into the the Msql-Mysql-modules package.

The MakeMaker process will ask you a few questions about the desired compilation target and your MySQL installation. For most of the questions the provided default will be adequate, but when asked if your desired target is the MySQL or mSQL packages, you should select the MySQL related ones. Later you will be asked if you wish to provide backwards compatibility with the older MySQL packages; you should answer YES to this question. The default is NO.

A host of 'localhost' should be fine and a testing user of 'test' with a null password should find itself with sufficient access to run tests on the 'test' database which MySQL created upon installation.

CPAN Download Page: <http://search.cpan.org/dist/DBD-mysql/>

PPM Download Link: <http://ppm.activestate.com/PPMPackages/zips/6xx-builds-only/DBD-Mysql.zip>

Documentation: <http://search.cpan.org/dist/DBD-mysql/lib/DBD/mysql.pod>

4.1.3.8. File::Spec (0.82)

File::Spec is a perl module that allows file operations, such as generating full path names, to work cross platform.

CPAN Download Page: <http://search.cpan.org/dist/File-Spec/>

PPM Download Page: <http://ppm.activestate.com/PPMPackages/zips/6xx-builds-only/File-Spec.zip>

Documentation: <http://www.perldoc.com/perl5.8.0/lib/File/Spec.html>

4.1.3.9. File::Temp (any)

File::Temp is used to generate a temporary filename that is guaranteed to be unique. It comes as a standard part of perl

CPAN Download Page: <http://search.cpan.org/dist/File-Spec/>

PPM Download Link: <http://ppm.activestate.com/PPMPackages/zips/6xx-builds-only/File-Spec.zip>

Documentation: <http://www.perldoc.com/perl5.8.0/lib/File/Temp.html>

4.1.3.10. Template Toolkit (2.08)

When you install Template Toolkit, you'll get asked various questions about features to enable. The defaults are fine, except that it is recommended you use the high speed XS Stash of the Template Toolkit, in order to achieve best performance.

CPAN Download Page: <http://search.cpan.org/dist/Template-Toolkit/>

PPM Download Link: <http://openinteract.sourceforge.net/ppmpackages/5.6/Template-Toolkit.tar.gz>

Documentation: <http://www.template-toolkit.org/docs.html>

4.1.3.11. Text::Wrap (2001.0131)

Text::Wrap is designed to provide intelligent text wrapping.

CPAN Download Page: <http://search.cpan.org/dist/Text-Tabs+Wrap/>

Documentation: <http://www.perldoc.com/perl5.8.0/lib/Text/Wrap.html>

4.1.3.12. GD (1.20) [optional]

The GD library was written by Thomas Boutell a long while ago to programmatically generate images in C. Since then it's become the defacto standard for programmatic image construction. The Perl bindings to it found in the GD library are used on millions of web pages to generate graphs on the fly. That's what Bugzilla will be using it for so you must install it if you want any of the graphing to work.

Note: The Perl GD library requires some other libraries that may or may not be installed on your system, including `libpng` and `libgd`. The full requirements are listed in the Perl GD library README. If compiling GD fails, it's probably because you're missing a required library.

Tip: The version of the GD perl module you need is very closely tied to the `libgd` version installed on your system. If you have a version 1.x of `libgd` the 2.x versions of the GD perl module won't work for you.

CPAN Download Page: <http://search.cpan.org/dist/GD/>

PPM Download Link: <http://ppm.activestate.com/PPMPackages/zips/6xx-builds-only/GD.zip>

Documentation: <http://stein.cshl.org/WWW/software/GD/>

4.1.3.13. Chart::Base (0.99c) [optional]

The Chart module provides Bugzilla with on-the-fly charting abilities. It can be installed in the usual fashion after it has been fetched from CPAN. Note that earlier versions that 0.99c used GIFs, which are no longer supported by the latest versions of GD.

CPAN Download Page: <http://search.cpan.org/dist/Chart/>

PPM Download Link: <http://ppm.activestate.com/PPMPackages/zips/6xx-builds-only/Chart.zip>

4.1.3.14. XML::Parser (any) [Optional]

XML::Parser is used by the `importxml.pl` script. You only need it if you are going to be importing bugs (such as for bug moving). XML::Parser requires that the `expat` library is already installed on your machine.

CPAN Download Page: <http://search.cpan.org/dist/XML-Parser/>

Documentation: <http://www.perldoc.com/perl5.6.1/lib/XML/Parser.html>

4.1.3.15. GD::Graph (any) [Optional]

In addition to GD listed above, the reporting interface of Bugzilla needs to have the GD::Graph module installed.

CPAN Download Page: <http://search.cpan.org/dist/GDGraph/>

PPM Download Link: <http://ppm.activestate.com/PPMPackages/zips/6xx-builds-only/GDGraph.zip>

Documentation: <http://search.cpan.org/dist/GDGraph/Graph.pm>

4.1.3.16. GD::Text::Align (any) [Optional]

GD::Text::Align, as the name implies, is used to draw aligned strings of text. It is needed by the reporting interface.

CPAN Download Page: <http://search.cpan.org/dist/GDTextUtil/>

PPM Download Page: <http://ppm.activestate.com/PPMPackages/zips/6xx-builds-only/GDTextUtil.zip>

Documentation: <http://search.cpan.org/dist/GDTextUtil/Text/Align.pm>

4.1.3.17. MIME::Parser (any) [Optional]

MIME::Parser is only needed if you want to use the e-mail interface located in the `contrib` directory.

CPAN Download Page: <http://search.cpan.org/dist/MIME-tools/>

PPM Download Link: <http://ppm.activestate.com/PPMPackages/zips/6xx-builds-only/MIME-tools.zip>

Documentation: <http://search.cpan.org/dist/MIME-tools/lib/MIME/Parser.pm>

4.1.3.18. PatchReader (0.9.1) [Optional]

PatchReader is only needed if you want to use Patch Viewer, a Bugzilla feature to format patches in a pretty HTML fashion. There are a number of optional parameters you can configure Patch Viewer with as well, including `cvsroot`, `cvsroot_get`, `lxr_root`, `bonsai_url`, `lxr_url`, and `lxr_root`. Patch Viewer also optionally will use `cvs`, `diff` and `interdiff` utilities if they exist on the system (`interdiff` can be found in the `patchutils` package at <http://cyberelk.net/tim/patchutils/>). These programs' locations can be configured in `localconfig`.

CPAN Download Page: <http://search.cpan.org/author/JKEISER/PatchReader/>

Documentation: http://www.johnkeiser.com/mozilla/Patch_Viewer.html

4.1.4. HTTP Server

You have freedom of choice here, pretty much any web server that is capable of running *CGI* scripts will work. Section 4.4 has more information about configuring web servers to work with Bugzilla.

Note: We strongly recommend Apache as the web server to use. The Bugzilla Guide installation instructions, in general, assume you are using Apache. If you have got Bugzilla working using another webserver, please share your experiences with us by filing a bug in Bugzilla Documentation (http://bugzilla.mozilla.org/enter_bug.cgi?product=Bugzilla&comp).

4.1.5. Bugzilla

You should untar the Bugzilla files into a directory that you're willing to make writable by the default web server user (probably "nobody"). You may decide to put the files in the main web space for your web server or perhaps in `/usr/local` with a symbolic link in the web space that points to the Bugzilla directory.

Tip: If you symlink the bugzilla directory into your Apache's HTML hierarchy, you may receive Forbidden errors unless you add the "FollowSymLinks" directive to the `<Directory>` entry for the HTML root in `httpd.conf`.

Once all the files are in a web accessible directory, make that directory writable by your webserver's user. This is a temporary step until you run the post-install `checksetup.pl` script, which locks down your installation.

Caution

The default Bugzilla distribution is not designed to be placed in a `cgi-bin` directory (this includes any directory which is configured using the `ScriptAlias` directive of Apache). This will probably change as part of bug 44659 (http://bugzilla.mozilla.org/show_bug.cgi?id=44659).

4.1.6. Setting Up the MySQL Database

After you've gotten all the software installed and working you're ready to start preparing the database for its life as the back end to a high quality bug tracker.

This first thing you'll want to do is make sure you've given the "root" user a password as suggested in Section 5.6.2. For clarity, these instructions will assume that your MySQL user for Bugzilla will be "bugs_user", the database will be called "bugs_db" and the password for the "bugs_user" user is "bugs_password". You should, of course, substitute the values you intend to use for your site.

Note: Most people use "bugs" for both the user and database name.

Next, we use an SQL **GRANT** command to create a "bugs_user" user, and grant sufficient permissions for checksetup.pl, which we'll use later, to work its magic. This also restricts the "bugs_user" user to operations within a database called "bugs_db", and only allows the account to connect from "localhost". Modify it to reflect your setup if you will be connecting from another machine or as a different user.

```
mysql> GRANT SELECT,INSERT,UPDATE,DELETE,INDEX,ALTER,CREATE,
        DROP,REFERENCES ON bugs_db.* TO bugs_user@localhost
        IDENTIFIED BY 'bugs_password';
mysql> FLUSH PRIVILEGES;
```

Note: If you are using MySQL 4, the bugs user also needs to be granted the `LOCK TABLES` and `CREATE TEMPORARY TABLES` permissions.

4.1.7. checksetup.pl

Next, run the magic checksetup.pl script. (Many thanks to Holger Schurig (<mailto:holgerschurig@nikocity.de>) for writing this script!) This script is designed to make sure your perl modules are the correct version and your MySQL database and other configuration options are consistent with the Bugzilla CGI files. It will make sure Bugzilla files and directories have reasonable permissions, set up the `data` directory, and create all the MySQL tables.

```
bash# ./checksetup.pl
```

The first time you run it, it will create a file called `localconfig`.

This file contains a variety of settings you may need to tweak including how Bugzilla should connect to the MySQL database.

The connection settings include:

1. server's host: just use "localhost" if the MySQL server is local
2. database name: "bugs_db" if you're following these directions
3. MySQL username: "bugs_user" if you're following these directions

4. Password for the “bugs_user” MySQL account; (“bugs_password” above)

Once you are happy with the settings, `su` to the user your web server runs as, and re-run `checksetup.pl`. (Note: on some security-conscious systems, you may need to change the login shell for the webserver account before you can do this.) On this second run, it will create the database and an administrator account for which you will be prompted to provide information.

Note: The `checksetup.pl` script is designed so that you can run it at any time without causing harm. You should run it after any upgrade to Bugzilla.

4.1.8. Configuring Bugzilla

You should run through the parameters on the Edit Parameters page (link in the footer) and set them all to appropriate values. The key parameters are documented in Section 5.1.

4.2. Optional Additional Configuration

4.2.1. Dependency Charts

As well as the text-based dependency graphs, Bugzilla also supports dependency graphing, using a package called `'dot'`. Exactly how this works is controlled by the `'webdotbase'` parameter, which can have one of three values:

1. A complete file path to the command `'dot'` (part of GraphViz (<http://www.graphviz.org/>)) will generate the graphs locally
2. A URL prefix pointing to an installation of the webdot package will generate the graphs remotely
3. A blank value will disable dependency graphing.

So, to get this working, install GraphViz (<http://www.graphviz.org/>). If you do that, you need to enable server-side image maps (http://httpd.apache.org/docs/mod/mod_imap.html) in Apache. Alternatively, you could set up a webdot server, or use the AT&T public webdot server (the default for the `webdotbase` param). Note that AT&T's server won't work if Bugzilla is only accessible using HARTS.

4.2.2. Bug Graphs

As long as you installed the GD and Graph::Base Perl modules you might as well turn on the nifty Bugzilla bug reporting graphs.

Add a cron entry like this to run `collectstats.pl` daily at 5 after midnight:

```
bash# crontab -e
5 0 * * * cd <your-bugzilla-directory> ; ./collectstats.pl
```

After two days have passed you'll be able to view bug graphs from the Bug Reports page.

4.2.3. The Whining Cron

By now you have a fully functional Bugzilla, but what good are bugs if they're not annoying? To help make those bugs more annoying you can set up Bugzilla's automatic whining system to complain at engineers which leave their bugs in the NEW state without triaging them.

This can be done by adding the following command as a daily crontab entry (for help on that see that crontab man page):

```
cd <your-bugzilla-directory> ; ./whineatnews.pl
```

Tip: Depending on your system, crontab may have several manpages. The following command should lead you to the most useful page for this purpose:

```
man 5 crontab
```

4.2.4. LDAP Authentication

Note: LDAP authentication has been rewritten for the 2.18 release of Bugzilla. It no longer requires the Mozilla::LDAP module and now uses Net::LDAP instead. This rewrite was part of a larger landing that allowed for additional authentication schemes to be easily added (bug 180642 (http://bugzilla.mozilla.org/show_bug.cgi?id=180642)).

This patch originally landed in 21-Mar-2003 and was included in the 2.17.4 development release.

The existing authentication scheme for Bugzilla uses email addresses as the primary user ID, and a password to authenticate that user. All places within Bugzilla where you need to deal with user ID (e.g assigning a bug) use the email address. The LDAP authentication builds on top of this scheme, rather than replacing it. The initial log in is done with a username and password for the LDAP directory. This then fetches the email address from LDAP and authenticates seamlessly in the standard Bugzilla authentication scheme using this email address. If an account for this address already exists in your Bugzilla system, it will log in to that account. If no account for that email address exists, one is created at the time of login. (In this case, Bugzilla will attempt to use the "displayName" or "cn" attribute to determine the user's full name.) After authentication, all other user-related tasks are still handled by email address, not LDAP username. You still assign bugs by email address, query on users by email address, etc.

Caution

Because the Bugzilla account is not created until the first time a user logs in, a user who has not yet logged is unknown to Bugzilla. This means they cannot be used as an assignee or QA contact (default or otherwise), added to any cc list, or any other such operation. One possible workaround is the `bugzilla_ldapsync.rb` script in the `contrib` directory. Another possible solution is fixing bug 201069 (http://bugzilla.mozilla.org/show_bug.cgi?id=201069).

Parameters required to use LDAP Authentication:

loginmethod

This parameter should be set to “LDAP” *only* if you will be using an LDAP directory for authentication. If you set this param to “LDAP” but fail to set up the other parameters listed below you will not be able to log back in to Bugzilla one you log out. If this happens to you, you will need to manually edit `data/params` and set `loginmethod` to “DB”.

LDAPserver

This parameter should be set to the name (and optionally the port) of your LDAP server. If no port is specified, it assumes the default LDAP port of 389.

Ex. “ldap.company.com” or “ldap.company.com:3268”

LDAPbinddn [Optional]

Some LDAP servers will not allow an anonymous bind to search the directory. If this is the case with your configuration you should set the `LDAPbinddn` parameter to the user account Bugzilla should use instead of the anonymous bind.

Ex. “cn=default,cn=user:password”

LDAPBaseDN

The `LDAPBaseDN` parameter should be set to the location in your LDAP tree that you would like to search for e-mail addresses. Your uids should be unique under the DN specified here.

Ex. “ou=People,o=Company”

LDAPuidattribute

The `LDAPuidattribute` parameter should be set to the attribute which contains the unique UID of your users. The value retrieved from this attribute will be used when attempting to bind as the user to confirm their password.

Ex. “uid”

LDAPmailattribute

The LDAPmailattribute parameter should be the name of the attribute which contains the e-mail address your users will enter into the Bugzilla login boxes.

Ex. "mail"

4.2.5. Preventing untrusted Bugzilla content from executing malicious Javascript code

It is possible for a Bugzilla to execute malicious Javascript code. Due to internationalization concerns, we are unable to incorporate the code changes necessary to fulfill the CERT advisory requirements mentioned in http://www.cert.org/tech_tips/malicious_. Making the change below will fix the problem if your installation is for an English speaking audience.

Telling Bugzilla to output a charset as part of the HTTP header is much easier in version 2.18 and higher (including any cvs pull after 4-May-2003 and development release after 2.17.5) than it was in previous versions. Simply locate the following line in `Bugzilla/CGI.pm`:

```
# Make sure that we don't send any charset headers
$self->charset("");
```

and change it to:

```
# Send all data using the ISO-8859-1 charset
$self->charset('ISO-8859-1');
```

Note: Using `<meta>` tags to set the charset is not recommended, as there's a bug in Netscape 4.x which causes pages marked up in this way to load twice. See bug 126266 (http://bugzilla.mozilla.org/show_bug.cgi?id=126266) for more information including progress toward making bugzilla charset aware by default.

4.2.6. directoryindex for the Bugzilla default page.

You should modify the `<DirectoryIndex>` parameter for the Apache virtual host running your Bugzilla installation to allow `index.cgi` as the index page for a directory, as well as the usual `index.html`, `index.htm`, and so forth.

4.2.7. Bugzilla and mod_perl

Bugzilla is unsupported under mod_perl. Effort is underway to make it work cleanly in a mod_perl environment, but it is slow going.

4.2.8. mod_throttle and Security

It is possible for a user, by mistake or on purpose, to access the database many times in a row which can result in very slow access speeds for other users. If your Bugzilla installation is experiencing this problem, you may install the Apache module `mod_throttle` which can limit connections by ip-address. You may download this module at http://www.snert.com/Software/mod_throttle/. Follow the instructions to install into your Apache install. *This module only functions with the Apache web server!* You may use the **ThrottleClientIP** command provided by this module to accomplish this goal. See the Module Instructions (http://www.snert.com/Software/mod_throttle/) for more information.

4.3. OS Specific Installation Notes

Many aspects of the Bugzilla installation can be affected by the the operating system you choose to install it on. Sometimes it can be made easier and others more difficult. This section will attempt to help you understand both the difficulties of running on specific operating systems and the utilities available to make it easier.

If you have anything to add or notes for an operating system not covered, please file a bug in Bugzilla Documentation (http://bugzilla.mozilla.org/enter_bug.cgi?product=Bugzilla&component=Documentation).

4.3.1. Microsoft Windows

Making Bugzilla work on windows is still a very painful processes. The Bugzilla Team is working to make it easier, but that goal is not considered a top priority. If you wish to run Bugzilla, we still recommend doing so on a Unix based system such as GNU/Linux. As of this writing, all members of the Bugzilla team and all known large installations run on Unix based systems.

If after hearing all that, you have enough pain tolerance to attempt installing Bugzilla on Win32, here are some pointers. Because this is a development version of the guide, these instructions are subject to change without notice. In fact, the Bugzilla Team hopes they do as we would like to have Bugzilla resonably close to "out of the box" compatibility by the 2.18 release.

4.3.1.1. Win32 Perl

Perl for Windows can be obtained from ActiveState (<http://www.activestate.com/>). You should be able to find a compiled binary at <http://aspn.activestate.com/ASPN/Downloads/ActivePerl/>.

4.3.1.2. Perl Modules on Win32

Bugzilla on Windows requires the same perl modules found in Section 4.1.3. The main difference is that windows uses *PPM* instead of CPAN.

```
C:\perl> ppm <module name>
```

Note: The above syntax should work for all modules with the exception of Template Toolkit. The Template Toolkit website (<http://tt2.org/download.html#windows>) suggests using the instructions on OpenInteract's website (<http://openinteract.sourceforge.net/>).

Tip: A complete list of modules that can be installed using ppm can be found at <http://www.activestate.com/PPMPackages/5.6plus>.

4.3.1.3. Code changes required to run on win32

Unfortunately, Bugzilla still doesn't run "out of the box" on Windows. There is work in progress to make this easier, but until that happens code will have to be modified. This section is an attempt to list the required changes. It is an attempt to be all inclusive, but there may be other changes required. If you find something is missing, please file a bug in Bugzilla Documentation (http://bugzilla.mozilla.org/enter_bug.cgi?product=Bugzilla&component=Documentation).

4.3.1.3.1. Changes to `checksetup.pl`

In `checksetup.pl`, the line reading:

```
my $mysql_binaries = `which mysql`;
```

to

```
my $mysql_binaries = "D:\\mysql\\bin\\mysql";
```

And you'll also need to change:

```
my $webservergid = getgrnam($my_webservergroup)
```

to

```
my $webservergid = '8'
```

4.3.1.3.2. Changes to `BugMail.pm`

To make bug e-mail work on Win32 (until bug 84876 (http://bugzilla.mozilla.org/show_bug.cgi?id=84876) lands), the simplest way is to have Net::SMTP installed and change this (in `Bugzilla/BugMail.pm`):

```
open(SENDMAIL, "|/usr/lib/sendmail $sendmailparam -t -i") ||
    die "Can't open sendmail";

print SENDMAIL trim($msg) . "\n";
close SENDMAIL;
```

```

to

use Net::SMTP;
my $smtp_server = 'smtp.mycompany.com'; # change this

# Use die on error, so that the mail will be in the 'unsent mails' and
# can be sent from the sanity check page.
my $smtp = Net::SMTP->new($smtp_server) ||
    die 'Cannot connect to server \'$smtp_server\'';

$smtp->mail('bugzilla-daemon@mycompany.com'); # change this
$smtp->to($person);
$smtp->data();
$smtp->datasend($msg);
$smtp->dataend();
$smtp->quit;

```

Don't forget to change the name of your SMTP server and the domain of the sending e-mail address (after the '@') in the above lines of code.

4.3.1.4. Serving the web pages

As is the case on Unix based systems, any web server should be able to handle Bugzilla; however, the Bugzilla Team still recommends Apache whenever asked. No matter what web server you choose, be sure to pay attention to the security notes in Section 5.6.4. More information on configuring specific web servers can be found in Section 4.4.

Note: If using Apache on windows, you can set the `ScriptInterpreterSource` (<http://httpd.apache.org/docs-2.0/mod/core.html#scriptint>) directive in your Apache config, if you don't do this, you'll have to modify the first line of every script to contain your path to perl instead of `/usr/bin/perl`.

4.3.2. Mac OS X

There are a lot of common libraries and utilities out there that Apple did not include with Mac OS X, but which run perfectly well on it. The GD library, which Bugzilla needs to do bug graphs, is one of these.

The easiest way to get a lot of these is with a program called Fink, which is similar in nature to the CPAN installer, but installs common GNU utilities. Fink is available from <http://sourceforge.net/projects/fink/>.

Follow the instructions for setting up Fink. Once it's installed, you'll want to use it to install the `gd2` package.

It will prompt you for a number of dependencies, type 'y' and hit enter to install all of the dependencies and then watch it work. You will then be able to use *CPAN* to install the GD perl module.

Note: To prevent creating conflicts with the software that Apple installs by default, Fink creates its own directory tree at `/sw` where it installs most of the software that it installs. This means your libraries and headers be at

`/sw/lib` and `/sw/include` instead of `/usr/lib` and `/usr/local/include`. When the Perl module config script asks where your `libgd` is, be sure to tell it `/sw/lib`.

Also available via Fink is `expat`. Once running using `fink` to install the `expat` package you will be able to install `XML::Parser` using CPAN. There is one caveat. Unlike recent versions of the `GD` module, `XML::Parser` doesn't prompt for the location of the required libraries. When using CPAN, you will need to use the following command sequence:

```
# perl -MCPAN -e'look XML::Parser'           ❶
# perl Makefile.PL EXPATLIBPATH=/sw/lib EXPATINCPATH=/sw/include
# make; make test; make install              ❷
# exit                                       ❸
```

- ❶❸ The `look` command will download the module and spawn a new shell with the extracted files as the current working directory. The `exit` command will return you to your original shell.
- ❷ You should watch the output from these `make` commands, especially “`make test`” as errors may prevent `XML::Parser` from functioning correctly with Bugzilla.

4.3.3. Linux-Mandrake 8.0

Linux-Mandrake 8.0 includes every required and optional library for Bugzilla. The easiest way to install them is by using the `urpmi` utility. If you follow these commands, you should have everything you need for Bugzilla, and `./checksetup.pl` should not complain about any missing libraries. You may already have some of these installed.

```
bash# urpmi perl-mysql
bash# urpmi perl-chart
bash# urpmi perl-gd
bash# urpmi perl-MailTools           ❶
bash# urpmi apache-modules
```

- ❶ for Bugzilla e-mail integration

4.4. HTTP Server Configuration

The Bugzilla Team recommends Apache when using Bugzilla, however, any web server that can be configured to run *CGI* scripts should be able to handle Bugzilla. No matter what web server you choose, but especially if you choose something other than Apache, you should be sure to read Section 5.6.4.

The plan for this section is to eventually document the specifics of how to lock down permissions on individual web servers.

4.4.1. Apache httpd

As mentioned above, the Bugzilla Team recommends Apache for use with Bugzilla. You will have to make sure that Apache is properly configured to run the Bugzilla CGI scripts. You also need to make sure that the `.htaccess` files created by `./checksetup.pl` (shown in Example 4-2 for the curious) are allowed to override Apache's normal access permissions or else important password information may be exposed to the Internet.

Many Apache installations are not configured to run scripts anywhere but in the `cgi-bin` directory; however, we recommend that Bugzilla not be installed in the `cgi-bin`, otherwise the static files such as images and *JavaScript* will not work correctly. To allow scripts to run in the normal web space, the following changes should be made to your `httpd.conf` file.

To allow files with a `.cgi` extension to be run, make sure the following line exists and is uncommented:

```
AddHandler cgi-script .cgi
```

To allow `.htaccess` files to override permissions and `.cgi` files to run in the Bugzilla directory, make sure the following two lines are in a `Directory` directive that applies to the Bugzilla directory on your system (either the Bugzilla directory or one of its parents).

```
Options +ExecCGI
AllowOverride Limit
```

Note: For more information on Apache and its directives, see the glossary entry on *Apache*.

Example 4-2. `.htaccess` files for Apache

```
$BUGZILLA_HOME/.htaccess

# don't allow people to retrieve non-cgi executable files or our private data
<FilesMatch ^(*\.pl|.*localconfig.*|runtests.sh)$>
  deny from all
</FilesMatch>
<FilesMatch ^(localconfig.js|localconfig.rdf)$>
  allow from all
</FilesMatch>

$BUGZILLA_HOME/data/.htaccess

# nothing in this directory is retrievable unless overridden by an .htaccess
# in a subdirectory; the only exception is duplicates.rdf, which is used by
# duplicates.xul and must be loadable over the web
deny from all
<Files duplicates.rdf>
  allow from all
</Files>

$BUGZILLA_HOME/data/webdot
```

```

# Restrict access to .dot files to the public webdot server at research.att.com
# if research.att.com ever changed their IP, or if you use a different
# webdot server, you'll need to edit this
<FilesMatch ^[0-9]+\\.dot$>
  Allow from 192.20.225.10
  Deny from all
</FilesMatch>

# Allow access by a local copy of 'dot' to .png, .gif, .jpg, and
# .map files
<FilesMatch ^[0-9]+\.(png|gif|jpg|map)$>
  Allow from all
</FilesMatch>

# And no directory listings, either.
Deny from all

$BUGZILLA_HOME/Bugzilla/.htaccess

# nothing in this directory is retrievable unless overridden by an .htaccess
# in a subdirectory
deny from all

$BUGZILLA_HOME/template/.htaccess

# nothing in this directory is retrievable unless overridden by an .htaccess
# in a subdirectory
deny from all

```

4.4.2. Microsoft Internet Information Services

If you need, or for some reason even want, to use Microsoft's Internet Information Services or Personal Web Server you should be able to. You will need to configure them to know how to run CGI scripts, however. This is described in Microsoft Knowledge Base article Q245225 (<http://support.microsoft.com/support/kb/articles/Q245/2/25.asp>) for Internet Information Services and Q231998 (<http://support.microsoft.com/support/kb/articles/Q231/9/98.asp>) for Personal Web Server.

Also, and this can't be stressed enough, make sure that files such as `localconfig` and your data directory are secured as described in Section 5.6.4.

4.4.3. AOL Server

Ben FrantzDale reported success using AOL Server with Bugzilla. He reported his experience and what appears below is based on that.

AOL Server will have to be configured to run *CGI* scripts, please consult the documentation that came with your server for more information on how to do this.

Because AOL Server doesn't support `.htaccess` files, you'll have to create a *TCL* script. You should create an `aolserver/modules/tcl/filter.tcl` file (the filename shouldn't matter) with the following contents (change `/bugzilla/` to the web-based path to your Bugzilla installation):

```
ns_register_filter preauth GET /bugzilla/localconfig filter_deny
ns_register_filter preauth GET /bugzilla/localconfig~ filter_deny
ns_register_filter preauth GET /bugzilla/\#localconfig\# filter_deny
ns_register_filter preauth GET /bugzilla/*.pl filter_deny
ns_register_filter preauth GET /bugzilla/syncshadowdb filter_deny
ns_register_filter preauth GET /bugzilla/runtests.sh filter_deny
ns_register_filter preauth GET /bugzilla/data/* filter_deny
ns_register_filter preauth GET /bugzilla/template/* filter_deny

proc filter_deny { why } {
    ns_log Notice "filter_deny"
    return "filter_return"
}
```

Warning

This probably doesn't account for all possible editor backup files so you may wish to add some additional variations of `localconfig`. For more information, see [bug 186383](http://bugzilla.mozilla.org/show_bug.cgi?id=186383) (http://bugzilla.mozilla.org/show_bug.cgi?id=186383) or Bugtraq ID 6501 (<http://online.securityfocus.com/bid/6501>).

Note: If you are using `webdot` from `research.att.com` (the default configuration for the `webdotbase` parameter), you will need to allow access to `data/webdot/*.dot` for the `research.att.com` machine.

If you are using a local installation of `GraphViz` (<http://www.graphviz.org>), you will need to allow everybody to access `*.png`, `*.gif`, `*.jpg`, and `*.map` in the `data/webdot` directory.

4.5. Troubleshooting

This section gives solutions to common Bugzilla installation problems.

4.5.1. Bundle::Bugzilla makes me upgrade to Perl 5.6.1

Try executing `perl -MCPAN -e 'install CPAN'` and then continuing.

Certain older versions of the CPAN toolset were somewhat naive about how to upgrade Perl modules. When a couple of modules got rolled into the core Perl distribution for 5.6.1, CPAN thought that the best way to get those modules up to date was to haul down the Perl distribution itself and build it. Needless to say, this has caused headaches for just about everybody. Upgrading to a newer version of CPAN with the commandline above should fix things.

4.5.2. DBD::Sponge::db prepare failed

The following error message may appear due to a bug in DBD::mysql (over which the Bugzilla team have no control):

```
DBD::Sponge::db prepare failed: Cannot determine NUM_OF_FIELDS at D:/Perl/site/lib/DBD/mysql.pm line
SV = NULL(0x0) at 0x20fc444
REFCNT = 1
FLAGS = (PADBUSY,PADMY)
```

To fix this, go to <path-to-perl>/lib/DBD/sponge.pm in your Perl installation and replace

```
my $numFields;
if ($attrs->{'NUM_OF_FIELDS'}) {
    $numFields = $attrs->{'NUM_OF_FIELDS'};
} elsif ($attrs->{'NAME'}) {
    $numFields = @{$attrs->{NAME}};
```

by

```
my $numFields;
if ($attrs->{'NUM_OF_FIELDS'}) {
    $numFields = $attrs->{'NUM_OF_FIELDS'};
} elsif ($attrs->{'NAMES'}) {
    $numFields = @{$attrs->{NAMES}};
```

(note the S added to NAME.)

4.5.3. cannot chdir(/var/spool/mqueue)

If you are installing Bugzilla on SuSE Linux, or some other distributions with “paranoid” security options, it is possible that the checksetup.pl script may fail with the error:

```
cannot chdir(/var/spool/mqueue): Permission denied
```

This is because your /var/spool/mqueue directory has a mode of “drwx-----”. Type **chmod 755 /var/spool/mqueue** as root to fix this problem.

4.5.4. Your vendor has not defined Fcntl macro O_NOINHERIT

This is caused by a bug in the version of File::Temp that is distributed with perl 5.6.0. Many minor variations of this error have been reported. Examples can be found in Figure 4-2.

Figure 4-2. Other File::Temp error messages

```
Your vendor has not defined Fcntl macro O_NOINHERIT, used
at /usr/lib/perl5/site_perl/5.6.0/File/Temp.pm line 208.
```

```
Your vendor has not defined Fcntl macro O_EXLOCK, used
at /usr/lib/perl5/site_perl/5.6.0/File/Temp.pm line 210.
```


Your vendor has not defined Fcntl macro O_TEMPORARY, used at /usr/lib/perl5/site_perl/5.6.0/File/Temp.pm line 233.

Numerous people have reported that upgrading to version 5.6.1 or higher solved the problem for them. A less involved fix is to apply the patch in Figure 4-3. The patch is also available as a patch file (./xml/filetemp.patch).

Figure 4-3. Patch for File::Temp in Perl 5.6.0

```

--- File/Temp.pm.orig   Thu Feb  6 16:26:00 2003
+++ File/Temp.pm       Thu Feb  6 16:26:23 2003
@@ -205,6 +205,7 @@
     # eg CGI::Carp
     local $SIG{__DIE__} = sub {};
     local $SIG{__WARN__} = sub {};
+   local *CORE::GLOBAL::die = sub {};
     $bit = &$func();
     1;
   };
@@ -226,6 +227,7 @@
     # eg CGI::Carp
     local $SIG{__DIE__} = sub {};
     local $SIG{__WARN__} = sub {};
+   local *CORE::GLOBAL::die = sub {};
     $bit = &$func();
     1;
   };

```

Chapter 5. Administering Bugzilla

5.1. Bugzilla Configuration

Bugzilla is configured by changing various parameters, accessed from the "Edit parameters" link in the page footer. Here are some of the key parameters on that page. You should run down this list and set them appropriately after installing Bugzilla.

1. **maintainer:** The maintainer parameter is the email address of the person responsible for maintaining this Bugzilla installation. The address need not be that of a valid Bugzilla account.
2. **urlbase:** This parameter defines the fully qualified domain name and web server path to your Bugzilla installation.

For example, if your Bugzilla query page is `http://www.foo.com/bugzilla/query.cgi`, set your "urlbase" to `http://www.foo.com/bugzilla/`.

3. **makeproductgroups:** This dictates whether or not to automatically create groups when new products are created.
4. **useentrygroupdefault:** Bugzilla products can have a group associated with them, so that certain users can only see bugs in certain products. When this parameter is set to "on", this causes the initial group controls on newly created products to place all newly-created bugs in the group having the same name as the product immediately. After a product is initially created, the group controls can be further adjusted without interference by this mechanism.

5. **shadowdb:** You run into an interesting problem when Bugzilla reaches a high level of continuous activity. MySQL supports only table-level write locking. What this means is that if someone needs to make a change to a bug, they will lock the entire table until the operation is complete. Locking for write also blocks reads until the write is complete. Note that more recent versions of mysql support row level locking using different table types. These types are slower than the standard type, and Bugzilla does not yet take advantage of features such as transactions which would justify this speed decrease. The Bugzilla team are, however, happy to hear about any experiences with row level locking and Bugzilla

The "shadowdb" parameter was designed to get around this limitation. While only a single user is allowed to write to a table at a time, reads can continue unimpeded on a read-only shadow copy of the database. Although your database size will double, a shadow database can cause an enormous performance improvement when implemented on extremely high-traffic Bugzilla databases.

As a guide, mozilla.org began needing "shadowdb" when they reached around 40,000 Bugzilla users with several hundred Bugzilla bug changes and comments per day.

The value of the parameter defines the name of the shadow bug database. You will need to set the host and port settings from the params page, and set up replication in your database server so that updates reach this readonly mirror. Consult your database documentation for more detail.

6. **shutdownhtml:** If you need to shut down Bugzilla to perform administration, enter some descriptive HTML here and anyone who tries to use Bugzilla will receive a page to that effect. Obviously, `editparams.cgi` will still be accessible so you can remove the HTML and re-enable Bugzilla. :-)
7. **passwordmail:** Every time a user creates an account, the text of this parameter (with substitutions) is sent to the new user along with their password message.

Add any text you wish to the "passwordmail" parameter box. For instance, many people choose to use this box to give a quick training blurb about how to use Bugzilla at your site.

8. **movebugs**: This option is an undocumented feature to allow moving bugs between separate Bugzilla installations. You will need to understand the source code in order to use this feature. Please consult `movebugs.pl` in your Bugzilla source tree for further documentation, such as it is.
9. **useqacontact**: This allows you to define an email address for each component, in addition to that of the default owner, who will be sent carbon copies of incoming bugs.
10. **usestatuswhiteboard**: This defines whether you wish to have a free-form, overwriteable field associated with each bug. The advantage of the Status Whiteboard is that it can be deleted or modified with ease, and provides an easily-searchable field for indexing some bugs that have some trait in common.
11. **whinedays**: Set this to the number of days you want to let bugs go in the NEW or REOPENED state before notifying people they have untouched new bugs. If you do not plan to use this feature, simply do not set up the whining cron job described in the installation instructions, or set this value to "0" (never whine).
12. **commenton***: All these fields allow you to dictate what changes can pass without comment, and which must have a comment from the person who changed them. Often, administrators will allow users to add themselves to the CC list, accept bugs, or change the Status Whiteboard without adding a comment as to their reasons for the change, yet require that most other changes come with an explanation.
Set the "commenton" options according to your site policy. It is a wise idea to require comments when users resolve, reassign, or reopen bugs at the very least.

Note: It is generally far better to require a developer comment when resolving bugs than not. Few things are more annoying to bug database users than having a developer mark a bug "fixed" without any comment as to what the fix was (or even that it was truly fixed!)

13. **supportwatchers**: Turning on this option allows users to ask to receive copies of all a particular other user's bug email. This is, of course, subject to the groupset restrictions on the bug; if the "watcher" would not normally be allowed to view a bug, the watcher cannot get around the system by setting herself up to watch the bugs of someone with bugs outside her privileges. They would still only receive email updates for those bugs she could normally view.

5.2. User Administration

5.2.1. Creating the Default User

When you first run `checksetup.pl` after installing Bugzilla, it will prompt you for the administrative username (email address) and password for this "super user". If for some reason you delete the "super user" account, re-running `checksetup.pl` will again prompt you for this username and password.

Tip: If you wish to add more administrative users, add them to the "admin" group and, optionally, add edit the `tweakparams`, `editusers`, `creategroups`, `editcomponents`, and `editkeywords` groups to add the entire admin group to those groups.

5.2.2. Managing Other Users

5.2.2.1. Creating new users

Your users can create their own user accounts by clicking the "New Account" link at the bottom of each page (assuming they aren't logged in as someone else already.) However, should you desire to create user accounts ahead of time, here is how you do it.

1. After logging in, click the "Users" link at the footer of the query page, and then click "Add a new user".
2. Fill out the form presented. This page is self-explanatory. When done, click "Submit".

Note: Adding a user this way will *not* send an email informing them of their username and password. While useful for creating dummy accounts (watchers which shuttle mail to another system, for instance, or email addresses which are a mailing list), in general it is preferable to log out and use the "New Account" button to create users, as it will pre-populate all the required fields and also notify the user of her account name and password.

5.2.2.2. Modifying Users

To see a specific user, search for their login name in the box provided on the "Edit Users" page. To see all users, leave the box blank.

You can search in different ways the listbox to the right of the text entry box. You can match by case-insensitive substring (the default), regular expression, or a *reverse* regular expression match, which finds every user name which does NOT match the regular expression. (Please see the **man regexp** manual page for details on regular expression syntax.)

Once you have found your user, you can change the following fields:

- *Login Name:* This is generally the user's full email address. However, if you have are using the emailsuffix Param, this may just be the user's login name. Note that users can now change their login names themselves (to any valid email address.)
- *Real Name:* The user's real name. Note that Bugzilla does not require this to create an account.
- *Password:* You can change the user's password here. Users can automatically request a new password, so you shouldn't need to do this often. If you want to disable an account, see Disable Text below.
- *Disable Text:* If you type anything in this box, including just a space, the user is prevented from logging in, or making any changes to bugs via the web interface. The HTML you type in this box is presented to the user when they attempt to perform these actions, and should explain why the account was disabled.

Warning

Don't disable the administrator account!

Note: The user can still submit bugs via the e-mail gateway, if you set it up, even if the disabled text field is filled in. The e-mail gateway should *not* be enabled for secure installations of Bugzilla.

- *<groupname>*: If you have created some groups, e.g. "securitysensitive", then checkboxes will appear here to allow you to add users to, or remove them from, these groups.
- *canconfirm*: This field is only used if you have enabled the "unconfirmed" status. If you enable this for a user, that user can then move bugs from "Unconfirmed" to a "Confirmed" status (e.g.: "New" status).
- *creategroups*: This option will allow a user to create and destroy groups in Bugzilla.
- *editbugs*: Unless a user has this bit set, they can only edit those bugs for which they are the assignee or the reporter. Even if this option is unchecked, users can still add comments to bugs.
- *editcomponents*: This flag allows a user to create new products and components, as well as modify and destroy those that have no bugs associated with them. If a product or component has bugs associated with it, those bugs must be moved to a different product or component before Bugzilla will allow them to be destroyed.
- *editkeywords*: If you use Bugzilla's keyword functionality, enabling this feature allows a user to create and destroy keywords. As always, the keywords for existing bugs containing the keyword the user wishes to destroy must be changed before Bugzilla will allow it to die.
- *editusers*: This flag allows a user to do what you're doing right now: edit other users. This will allow those with the right to do so to remove administrator privileges from other users or grant them to themselves. Enable with care.
- *tweakparams*: This flag allows a user to change Bugzilla's Params (using `editparams.cgi`.)
- *<productname>*: This allows an administrator to specify the products in which a user can see bugs. The user must still have the "editbugs" privilege to edit bugs in these products.

5.3. Product, Component, Milestone, and Version Administration

5.3.1. Products

Products are the broadest category in Bugzilla, and tend to represent real-world shipping products. E.g. if your company makes computer games, you should have one product per game, perhaps a "Common" product for units of technology used in multiple games, and maybe a few special products (Website, Administration...)

Many of Bugzilla's settings are configurable on a per-product basis. The number of "votes" available to users is set per-product, as is the number of votes required to move a bug automatically from the UNCONFIRMED status to the NEW status.

To create a new product:

1. Select "products" from the footer
2. Select the "Add" link in the bottom right
3. Enter the name of the product and a description. The Description field may contain HTML.

Don't worry about the "Closed for bug entry", "Maximum Votes per person", "Maximum votes a person can put on a single bug", "Number of votes a bug in this Product needs to automatically get out of the UNCOMFIRMED state", and "Version" options yet. We'll cover those in a few moments.

5.3.2. Components

Components are subsections of a Product. E.g. the computer game you are designing may have a "UI" component, an "API" component, a "Sound System" component, and a "Plugins" component, each overseen by a different programmer. It often makes sense to divide Components in Bugzilla according to the natural divisions of responsibility within your Product or company.

Each component has a owner and (if you turned it on in the parameters), a QA Contact. The owner should be the primary person who fixes bugs in that component. The QA Contact should be the person who will ensure these bugs are completely fixed. The Owner, QA Contact, and Reporter will get email when new bugs are created in this Component and when these bugs change. Default Owner and Default QA Contact fields only dictate the *default assignments*; these can be changed on bug submission, or at any later point in a bug's life.

To create a new Component:

1. Select the "Edit components" link from the "Edit product" page
2. Select the "Add" link in the bottom right.
3. Fill out the "Component" field, a short "Description", the "Initial Owner" and "Initial QA Contact" (if enabled.)
The Component and Description fields may contain HTML; the "Initial Owner" field must be a login name already existing in the database.

5.3.3. Versions

Versions are the revisions of the product, such as "Flinders 3.1", "Flinders 95", and "Flinders 2000". Version is not a multi-select field; the usual practice is to select the most recent version with the bug.

To create and edit Versions:

1. From the "Edit product" screen, select "Edit Versions"
2. You will notice that the product already has the default version "undefined". Click the "Add" link in the bottom right.
3. Enter the name of the Version. This field takes text only. Then click the "Add" button.

5.3.4. Milestones

Milestones are "targets" that you plan to get a bug fixed by. For example, you have a bug that you plan to fix for your 3.0 release, it would be assigned the milestone of 3.0.

Note: Milestone options will only appear for a Product if you turned on the "usetargetmilestone" Param in the "Edit Parameters" screen.

To create new Milestones, set Default Milestones, and set Milestone URL:

1. Select "Edit milestones" from the "Edit product" page.
2. Select "Add" in the bottom right corner. text
3. Enter the name of the Milestone in the "Milestone" field. You can optionally set the "sortkey", which is a positive or negative number (-255 to 255) that defines where in the list this particular milestone appears. This is because milestones often do not occur in alphanumeric order For example, "Future" might be after "Release 1.2". Select "Add".
4. From the Edit product screen, you can enter the URL of a page which gives information about your milestones and what they mean.

Tip: If you want your milestone document to be restricted so that it can only be viewed by people in a particular Bugzilla group, the best way is to attach the document to a bug in that group, and make the URL the URL of that attachment.

5.4. Voting

Voting allows users to be given a pot of votes which they can allocate to bugs, to indicate that they'd like them fixed. This allows developers to gauge user need for a particular enhancement or bugfix. By allowing bugs with a certain number of votes to automatically move from "UNCONFIRMED" to "NEW", users of the bug system can help high-priority bugs garner attention so they don't sit for a long time awaiting triage.

To modify Voting settings:

1. Navigate to the "Edit product" screen for the Product you wish to modify
2. *Maximum Votes per person:* Setting this field to "0" disables voting.
3. *Maximum Votes a person can put on a single bug:* It should probably be some number lower than the "Maximum votes per person". Don't set this field to "0" if "Maximum votes per person" is non-zero; that doesn't make any sense.
4. *Number of votes a bug in this product needs to automatically get out of the UNCONFIRMED state:* Setting this field to "0" disables the automatic move of bugs from UNCONFIRMED to NEW.

5. Once you have adjusted the values to your preference, click "Update".

5.5. Groups and Group Security

Groups allow the administrator to isolate bugs or products that should only be seen by certain people. The association between products and groups is controlled from the product edit page under "Edit Group Controls."

If the `makeproductgroups` param is on, a new group will be automatically created for every new product.

On the product edit page, there is a page to edit the "Group Controls" for a product and determine which groups are applicable, default, and mandatory for each product as well as controlling entry for each product and being able to set bugs in a product to be totally read-only unless some group restrictions are met.

For each group, it is possible to specify if membership in that group is...

1. required for bug entry,
2. Not applicable to this product(NA), a possible restriction for a member of the group to place on a bug in this product(Shown), a default restriction for a member of the group to place on a bug in this product(Default), or a mandatory restriction to be placed on bugs in this product(Mandatory).
3. Not applicable by non-members to this product(NA), a possible restriction for a non-member of the group to place on a bug in this product(Shown), a default restriction for a non-member of the group to place on a bug in this product(Default), or a mandatory restriction to be placed on bugs in this product when entered by a non-member(Mandatory).
4. required in order to make *any* change to bugs in this product *including comments*.

To create Groups:

1. Select the "groups" link in the footer.
2. Take a moment to understand the instructions on the "Edit Groups" screen, then select the "Add Group" link.
3. Fill out the "Group", "Description", and "User RegExp" fields. "User RegExp" allows you to automatically place all users who fulfill the Regular Expression into the new group. When you have finished, click "Add".

Warning

The User Regexp is a perl regexp and, if not anchored, will match any part of an address. So, if you do not want to grant access into 'mycompany.com' to 'badperson@mycompany.com.hacker.net', use '@mycompany\.com\$' as the regexp.

4. After you add your new group, edit the new group. On the edit page, you can specify other groups that should be included in this group and which groups should be permitted to add and delete users from this group.

Note that group permissions are such that you need to be a member of *all* the groups a bug is in, for whatever reason, to see that bug. Similarly, you must be a member of *all* of the entry groups for a product to add bugs to a product and you must be a member of *all* of the canedit groups for a product in order to make *any* change to bugs in that product.

5.6. Bugzilla Security

Warning

Poorly-configured MySQL and Bugzilla installations have given attackers full access to systems in the past. Please take these guidelines seriously, even for Bugzilla machines hidden away behind your firewall. 80% of all computer trespassers are insiders, not anonymous crackers.

Note: These instructions must, of necessity, be somewhat vague since Bugzilla runs on so many different platforms. If you have refinements of these directions, please submit a bug to Bugzilla Documentation (http://bugzilla.mozilla.org/enter_bug.cgi?product=Documentation).

Warning

This is not meant to be a comprehensive list of every possible security issue regarding the tools mentioned in this section. There is no substitute for reading the information written by the authors of any software running on your system.

5.6.1. TCP/IP Ports

TCP/IP defines 65,000 some ports for traffic. Of those, Bugzilla only needs 1... 2 if you need to use features that require e-mail such as bug moving or the e-mail interface from contrib. You should audit your server and make sure that you aren't listening on any ports you don't need to be. You may also wish to use some kind of firewall software to be sure that traffic can only be recieved on ports you specify.

5.6.2. MySQL

MySQL ships by default with many settings that should be changed. By defaults it allows anybody to connect from localhost without a password and have full administrative capabilities. It also defaults to not have a root password (this is *not* the same as the system root). Also, many installations default to running mysqld as the system root.

1. Consult the documentation that came with your system for information on making mysqld run as an unprivileged user.
2. You should also be sure to disable the anonymous user account and set a password for the root user. This is accomplished using the following commands:

```
bash$ mysql mysql
mysql> DELETE FROM user WHERE user = " ";
mysql> UPDATE user SET password = password('new_password') WHERE user = 'root';
mysql> FLUSH PRIVILEGES;
```

From this point forward you will need to use **mysql -u root -p** and enter *new_password* when prompted when using the mysql client.

3. If you run MySQL on the same machine as your httpd server, you should consider disabling networking from within MySQL by adding the following to your `/etc/my.conf`:

```
[mysqld]
# Prevent network access to MySQL.
skip-networking
```

4. You may also consider running MySQL, or even all of Bugzilla in a chroot jail; however, instructions for doing that are beyond the scope of this document.

5.6.3. Daemon Accounts

Many daemons, such as Apache's httpd and MySQL's mysqld default to running as either "root" or "nobody". Running as "root" introduces obvious security problems, but the problems introduced by running everything as "nobody" may not be so obvious. Basically, if you're running every daemon as "nobody" and one of them gets compromised, they all get compromised. For this reason it is recommended that you create a user account for each daemon.

Note: You will need to set the `webservergroup` to the group you created for your webserver to run as in `localconfig`. This will allow `.checksetup.pl` to better adjust the file permissions on your Bugzilla install so as to not require making anything world-writable.

5.6.4. Web Server Access Controls

There are many files that are placed in the Bugzilla directory area that should not be accessible from the web. Because of the way Bugzilla is currently layed out, the list of what should and should not be accessible is rather complicated. A new installation method is currently in the works which should solve this by allowing files that shouldn't be accessible from the web to be placed in directory outside the webroot. See bug 44659 (http://bugzilla.mozilla.org/show_bug.cgi?id=44659) for more information.

- In the main Bugzilla directory, you should:
 - Block: `*.pl`, `*localconfig*`, `runtests.sh`
 - But allow: `localconfig.js`, `localconfig.rdf`
- In `data`:
 - Block everything
 - But allow: `duplicates.rdf`
- In `data/webdot`:
 - If you use a remote webdot server:
 - Block everything
 - But allow `*.dot` only for the remote webdot server

- Otherwise, if you use a local GraphViz:
 - Block everything
 - But allow: *.png, *.gif, *.jpg, *.map
- And if you don't use any dot:
 - Block everything
- In `bugzilla`:
 - Block everything
- In `template`:
 - Block everything

Tip: Bugzilla ships with the ability to generate `.htaccess` files instructing *Apache* which files should and should not be accessible. For more information, see Section 4.4.1.

You should test to make sure that the files mentioned above are not accessible from the Internet, especially your `localconfig` file which contains your database password. To test, simply point your web browser at the file; for example, to test mozilla.org's installation, we'd try to access `http://bugzilla.mozilla.org/localconfig`. You should get a 403 Forbidden error.

Caution

Not following the instructions in this section, including testing, may result in sensitive information being globally accessible.

Tip: You should check Section 4.4 to see if instructions have been included for your web server. You should also compare those instructions with this list to make sure everything is properly accounted for.

5.7. Template Customization

One of the large changes for 2.16 was the templating of the entire user-facing UI, using the Template Toolkit (<http://www.template-toolkit.org>). Administrators can now configure the look and feel of Bugzilla without having to edit Perl files or face the nightmare of massive merge conflicts when they upgrade to a newer version in the future.

Templating also makes localized versions of Bugzilla possible, for the first time. As of version 2.17.4 which will soon become 2.18, it's possible to have Bugzilla's language determined by the user's browser. More information is available in Section 5.7.5.

5.7.1. What to Edit

There are two different ways of editing of Bugzilla's templates, and which you use depends mainly on how you upgrade Bugzilla. The template directory structure is that there's a top level directory, `template`, which contains a directory for each installed localization. The default English templates are therefore in `en`. Underneath that, there is the `default` directory and optionally the `custom` directory. The `default` directory contains all the templates shipped with Bugzilla, whereas the `custom` directory does not exist at first and must be created if you want to use it.

The first method of making customizations is to directly edit the templates in `template/en/default`. This is probably the best method for small changes if you are going to use the CVS method of upgrading, because if you then execute a **cvs update** , any template fixes will get automatically merged into your modified versions.

If you use this method, your installation will break if CVS conflicts occur.

The other method is to copy the templates into a mirrored directory structure under `template/en/custom`. The templates in this directory automatically override those in `default`. This is the technique you need to use if you use the overwriting method of upgrade, because otherwise your changes will be lost. This method is also better if you are using the CVS method of upgrading and are going to make major changes, because it is guaranteed that the contents of this directory will not be touched during an upgrade, and you can then decide whether to continue using your own templates, or make the effort to merge your changes into the new versions by hand.

If you use this method, your installation may break if incompatible changes are made to the template interface. If such changes are made they will be documented in the release notes, provided you are using a stable release of Bugzilla. If you use using unstable code, you will need to deal with this one yourself, although if possible the changes will be mentioned before they occur in the deprecations section of the previous stable release's release notes.

Note: Don't directly edit the compiled templates in `data/template/*` - your changes will be lost when Template Toolkit recompiles them.

Note: It is recommended that you run `./checksetup.pl` after any template edits, especially if you've created a new file in the `custom` directory.

5.7.2. How To Edit Templates

The syntax of the Template Toolkit language is beyond the scope of this guide. It's reasonably easy to pick up by looking at the current templates; or, you can read the manual, available on the Template Toolkit home page (<http://www.template-toolkit.org>). However, you should particularly remember (for security reasons) to always HTML filter things which come from the database or user input, to prevent cross-site scripting attacks.

However, one thing you should take particular care about is the need to properly HTML filter data that has been passed into the template. This means that if the data can possibly contain special HTML characters such as `<`, and the data was not intended to be HTML, they need to be converted to entity form, ie `<`. You use the `'html'` filter in the Template Toolkit to do this. If you fail to do this, you may open up your installation to cross-site scripting attacks.

Also note that Bugzilla adds a few filters of its own, that are not in standard Template Toolkit. In particular, the `'url_quote'` filter can convert characters that are illegal or have special meaning in URLs, such as `&`, to the encoded form, ie `%26`. This actually encodes most characters (but not the common ones such as letters and numbers and so on), including the HTML-special characters, so there's never a need to HTML filter afterwards.

Editing templates is a good way of doing a "poor man's custom fields". For example, if you don't use the Status Whiteboard, but want to have a free-form text entry box for "Build Identifier", then you can just edit the templates to change the field labels. It's still be called `status_whiteboard` internally, but your users don't need to know that.

Note: If you are making template changes that you intend on submitting back for inclusion in standard Bugzilla, you should read the relevant sections of the Developers' Guide (<http://www.bugzilla.org/developerguide.html>).

5.7.3. Template Formats

Some CGIs have the ability to use more than one template. For example, `buglist.cgi` can output bug lists as RDF or two different forms of HTML (complex and simple). (Try this out by appending `&format=simple` to a `buglist.cgi` URL on your Bugzilla installation.) This mechanism, called template 'formats', is extensible.

To see if a CGI supports multiple output formats, grep the CGI for "ValidateOutputFormat". If it's not present, adding multiple format support isn't too hard - see how it's done in other CGIs.

To make a new format template for a CGI which supports this, open a current template for that CGI and take note of the INTERFACE comment (if present.) This comment defines what variables are passed into this template. If there isn't one, I'm afraid you'll have to read the template and the code to find out what information you get.

Write your template in whatever markup or text style is appropriate.

You now need to decide what content type you want your template served as. Open up the `localconfig` file and find the `$contenttypes` variable. If your content type is not there, add it. Remember the three- or four-letter tag assigned to you content type. This tag will be part of the template filename.

Save the template as `<stubname>-<formatname>.<contenttypetag>.tmpl`. Try out the template by calling the CGI as `<cginame>.cgi?format=<formatname>`.

5.7.4. Particular Templates

There are a few templates you may be particularly interested in customizing for your installation.

index.html.tmpl: This is the Bugzilla front page.

global/header.html.tmpl: This defines the header that goes on all Bugzilla pages. The header includes the banner, which is what appears to users and is probably what you want to edit instead. However the header also includes the HTML HEAD section, so you could for example add a stylesheet or META tag by editing the header.

global/banner.html.tmpl: This contains the "banner", the part of the header that appears at the top of all Bugzilla pages. The default banner is reasonably barren, so you'll probably want to customize this to give your installation a distinctive look and feel. It is recommended you preserve the Bugzilla version number in some form so the version you are running can be determined, and users know what docs to read.

global/footer.html.tmpl: This defines the footer that goes on all Bugzilla pages. Editing this is another way to quickly get a distinctive look and feel for your Bugzilla installation.

bug/create/user-message.html.tmpl: This is a message that appears near the top of the bug reporting page. By modifying this, you can tell your users how they should report bugs.

bug/process/midair.html.tmpl: This is the page used if two people submit simultaneous changes to the same bug. The second person to submit their changes will get this page to tell them what the first person did, and ask if they wish to overwrite those changes or go back and revisit the bug. The default title and header on this page read "Mid-air collision detected!" If you work in the aviation industry, or other environment where this might be found offensive (yes, we have true stories of this happening) you'll want to change this to something more appropriate for your environment.

bug/create/create.html.tmpl and **bug/create/comment.txt.tmpl:** You may wish to get bug submitters to give certain bits of structured information, each in a separate input widget, for which there is not a field in the database. The bug entry system has been designed in an extensible fashion to enable you to define arbitrary fields and widgets, and have their values appear formatted in the initial Description, rather than in database fields. An example of this is the mozilla.org guided bug submission form (http://bugzilla.mozilla.org/enter_bug.cgi?format=guided).

To make this work, create a custom template for `enter_bug.cgi` (the default template, on which you could base it, is `create.html.tmpl`), and either call it `create.html.tmpl` or use a format and call it `create-<formatname>.html.tmpl`. Put it in the `custom/bug/create` directory. In it, add widgets for each piece of information you'd like collected - such as a build number, or set of steps to reproduce.

Then, create a template like `custom/bug/create/comment.txt.tmpl`, also named after your format if you are using one, which references the form fields you have created. When a bug report is submitted, the initial comment attached to the bug report will be formatted according to the layout of this template.

For example, if your `enter_bug` template had a field

```
<input type="text" name="buildid" size="30">
```

and then your `comment.txt.tmpl` had

```
BuildID: [% form.buildid %]
```

then

```
BuildID: 20020303
```

would appear in the initial checkin comment.

5.7.5. Configuring Bugzilla to Detect the User's Language

Beginning in version 2.18 (first introduced in version 2.17.4), it's now possible to have the users web browser tell Bugzilla which language templates to use for each visitor (using the `HTTP_ACCEPT` header). For this to work, Bugzilla needs to have the correct language templates installed for the version of Bugzilla you are using. Many language templates can be obtained from <http://www.bugzilla.org/download.html#localizations>. Instructions for submitting new languages are also available from that location.

After untarring the localizations (or creating your own) in the `[Bugzilla_Root]/template` directory, you must update the `languages` parameter to contain any localizations you'd like to permit. You may also wish to set the `defaultlanguage` parameter to something other than "en" if you don't want English to be the default language.

5.8. Change Permission Customization

Warning

This feature should be considered experimental; the Bugzilla code you will be changing is not stable, and could change or move between versions. Be aware that if you make modifications to it, you may have to re-make them or port them if Bugzilla changes internally between versions.

Companies often have rules about which employees, or classes of employees, are allowed to change certain things in the bug system. For example, only the bug's designated QA Contact may be allowed to VERIFY the bug. Bugzilla has been designed to make it easy for you to write your own custom rules to define who is allowed to make what sorts of value transition.

For maximum flexibility, customizing this means editing Bugzilla's Perl code. This gives the administrator complete control over exactly who is allowed to do what. The relevant function is called `CheckCanChangeField()`, and is found in `process_bug.cgi` in your Bugzilla directory. If you open that file and `grep` for "sub CheckCanChangeField", you'll find it.

This function has been carefully commented to allow you to see exactly how it works, and give you an idea of how to make changes to it. Certain marked sections should not be changed - these are the "plumbing" which makes the rest of the function work. In between those sections, you'll find snippets of code like:

```
# Allow the owner to change anything.
if ($ownerid eq $whoid) {
    return 1;
}
```

It's fairly obvious what this piece of code does.

So, how does one go about changing this function? Well, simple changes can be made just by removing pieces - for example, if you wanted to prevent any user adding a comment to a bug, just remove the lines marked "Allow anyone to change comments." And if you want the reporter to have no special rights on bugs they have filed, just remove the entire section which refers to him.

More complex customizations are not much harder. Basically, you add a check in the right place in the function, i.e. after all the variables you are using have been set up. So, don't look at `$ownerid` before `$ownerid` has been obtained from the database. You can either add a positive check, which returns 1 (allow) if certain conditions are true, or a negative check, which returns 0 (deny.) E.g.:

```
if ($field eq "qacontact") {
    if (Bugzilla->user->groups("quality_assurance")) {
        return 1;
    }
    else {
        return 0;
    }
}
```

This says that only users in the group "quality_assurance" can change the QA Contact field of a bug. Getting more weird:

```
if (($field eq "priority") &&
```

```
(Bugzilla->user->email =~ /\.*\@example\.com$/)
{
  if ($oldvalue eq "P1") {
    return 1;
  }
  else {
    return 0;
  }
}
```

This says that if the user is trying to change the priority field, and their email address is @example.com, they can only do so if the old value of the field was "P1". Not very useful, but illustrative.

For a list of possible field names, look in `data/versioncache` for the list called `@::log_columns`. If you need help writing custom rules for your organization, ask in the newsgroup.

5.9. Upgrading to New Releases

Warning

Upgrading is a one-way process. You should backup your database and current Bugzilla directory before attempting the upgrade. If you wish to revert to the old Bugzilla version for any reason, you will have to restore from these backups.

Upgrading Bugzilla is something we all want to do from time to time, be it to get new features or pick up the latest security fix. How easy it is to update depends on a few factors.

- If the new version is a revision or a new point release
- How many, if any, local changes have been made

There are also three different methods to upgrade your installation.

1. Using CVS (Example 5-1)
2. Downloading a new tarball (Example 5-2)
3. Applying the relevant patches (Example 5-3)

Which options are available to you may depend on how large a jump you are making and/or your network configuration.

Revisions are normally released to fix security vulnerabilities and are distinguished by an increase in the third number. For example, when 2.16.2 was released, it was a revision to 2.16.1.

Point releases are normally released when the Bugzilla team feels that there has been a significant amount of progress made between the last point release and the current time. These are often preceded by a stabilization period and release candidates, however the use of development versions or release candidates is beyond the scope of this document. Point releases can be distinguished by an increase in the second number, or minor version. For example, 2.16.2 is a newer point release than 2.14.5.

The examples in this section are written as if you were updating to version 2.16.2. The procedures are the same regardless if you are updating to a new point release or a new revision. However, the chance of running into trouble increases when upgrading to a new point release, especially if you've made local changes.

These examples also assume that your Bugzilla installation is at `/var/www/html/bugzilla`. If that is not the case, simply substitute the proper paths where appropriate.

Example 5-1. Upgrading using CVS

Every release of Bugzilla, whether it is a revision or a point release, is tagged in CVS. Also, every tarball we have distributed since version 2.12 has been primed for using CVS. This does, however, require that you are able to access `cvs-mirror.mozilla.org` on port 2401.

Tip: If you can do this, updating using CVS is probably the most painless method, especially if you have a lot of local changes.

```
bash$ cd /var/www/html/bugzilla
bash$ cvs login
Logging in to :pserver:anonymous@cvs-mirror.mozilla.org:2401/cvsroot
CVS password: anonymous
bash$ cvs -q update -r BUGZILLA-2_16_2 -dP
P checksetup.pl
P collectstats.pl
P globals.pl
P docs/rel_notes.txt
P template/en/default/list/quips.html.tmpl
```

Caution

If a line in the output from `cvs update` begins with a `c` that represents a file with local changes that CVS was unable to properly merge. You need to resolve these conflicts manually before Bugzilla (or at least the portion using that file) will be usable.

Note: You also need to run `./checksetup.pl` before your Bugzilla upgrade will be complete.

Example 5-2. Upgrading using the tarball

If you are unable or unwilling to use CVS, another option that's always available is to download the latest tarball. This is the most difficult option to use, especially if you have local changes.

```
bash$ cd /var/www/html
bash$ wget ftp://ftp.mozilla.org/pub/webtools/bugzilla-2.16.2.tar.gz
```

```

Output omitted
bash$ tar xzvf bugzilla-2.16.2.tar.gz
bugzilla-2.16.2/
bugzilla-2.16.2/.cvsignore
bugzilla-2.16.2/1x1.gif
Output truncated
bash$ cd bugzilla-2.16.2
bash$ cp ../bugzilla/localconfig* .
bash$ cp -r ../bugzilla/data .
bash$ cd ..
bash$ mv bugzilla bugzilla.old
bash$ mv bugzilla-2.16.2 bugzilla
bash$ cd bugzilla
bash$ ./checksetup.pl
Output omitted

```

Warning

The `cp` commands both end with periods which is a very important detail, it tells the shell that the destination directory is the current working directory. Also, the period at the beginning of the `./checksetup.pl` is important and can not be omitted.

Note: You will now have to reapply any changes you have made to your local installation manually.

Example 5-3. Upgrading using patches

The Bugzilla team will normally make a patch file available for revisions to go from the most recent revision to the new one. You could also read the release notes and grab the patches attached to the mentioned bug, but it is safer to use the released patch file as sometimes patches get changed before they get checked in (for minor spelling fixes and the like). It is also theoretically possible to scour the fixed bug list and pick and choose which patches to apply from a point release, but this is not recommended either as what you'll end up with is a hodge podge Bugzilla that isn't really any version. This would also make it more difficult to upgrade in the future.

```

bash$ cd /var/www/html/bugzilla
bash$ wget ftp://ftp.mozilla.org/pub/webtools/bugzilla-2.16.1-to-2.16.2.diff.gz
Output omitted
bash$ gunzip bugzilla-2.16.1-to-2.16.2.diff.gz
bash$ patch -p1 < bugzilla-2.16.1-to-2.16.2.diff
patching file checksetup.pl
patching file collectstats.pl
patching file globals.pl

```

Caution

If you do this, beware that this doesn't change the entire in your cvs directory so it may make updates using CVS (Example 5-1) more difficult in the future.

5.10. Integrating Bugzilla with Third-Party Tools

5.10.1. Bonsai

Bonsai is a web-based tool for managing CVS, the Concurrent Versioning System . Using Bonsai, administrators can control open/closed status of trees, query a fast relational database back-end for change, branch, and comment information, and view changes made since the last time the tree was closed. Bonsai also integrates with Tinderbox, the Mozilla automated build management system.

5.10.2. CVS

CVS integration is best accomplished, at this point, using the Bugzilla Email Gateway.

Follow the instructions in this Guide for enabling Bugzilla e-mail integration. Ensure that your check-in script sends an email to your Bugzilla e-mail gateway with the subject of “[Bug XXXX]”, and you can have CVS check-in comments append to your Bugzilla bug. If you want to have the bug be closed automatically, you'll have to modify the `contrib/bugzilla_email_append.pl` script.

There is also a CVSZilla project, based upon somewhat dated Bugzilla code, to integrate CVS and Bugzilla through CVS' ability to email. Check it out at: <http://homepages.kcbbs.gen.nz/~tonyg/>.

5.10.3. Perforce SCM

You can find the project page for Bugzilla and Teamtrack Perforce integration (p4dti) at: <http://www.ravenbrook.com/project/p4dti/> . “p4dti” is now an officially supported product from Perforce, and you can find the "Perforce Public Depot" p4dti page at <http://public.perforce.com/public/perforce/p4dti/index.html> .

Integration of Perforce with Bugzilla, once patches are applied, is seamless. Perforce replication information will appear below the comments of each bug. Be certain you have a matching set of patches for the Bugzilla version you are installing. p4dti is designed to support multiple defect trackers, and maintains its own documentation for it. Please consult the pages linked above for further information.

5.10.4. Tinderbox/Tinderbox2

We need Tinderbox integration information.

Appendix A. The Bugzilla FAQ

This FAQ includes questions not covered elsewhere in the Guide.

1. General Questions

1.1. Where can I find information about Bugzilla?

You can stay up-to-date with the latest Bugzilla information at <http://www.bugzilla.org/>.

1.2. What license is Bugzilla distributed under?

Bugzilla is covered by the Mozilla Public License. See details at <http://www.mozilla.org/MPL/>.

1.3. How do I get commercial support for Bugzilla?

<http://bugzilla.org/consulting.html> is a list of people and companies who have asked us to list them as consultants for Bugzilla.

<http://www.collab.net/> offers Bugzilla as part of their standard offering to large projects. They do have some minimum fees that are pretty hefty, and generally aren't interested in small projects.

There are several experienced Bugzilla hackers on the mailing list/newsgroup who are willing to make themselves available for generous compensation. Try sending a message to the mailing list asking for a volunteer.

1.4. What major companies or projects are currently using Bugzilla for bug-tracking?

There are *dozens* of major companies with public Bugzilla sites to track bugs in their products. We have a fairly complete list available on our website at http://bugzilla.org/installation_list.html. If you have an installation of Bugzilla and would like to be added to the list, whether it's a public install or not, simply e-mail Gerv <gerv@mozilla.org>. Keep in mind that it's kinda difficult to get onto the "high-profile" list ;).

1.5. Who maintains Bugzilla?

A core team (http://www.bugzilla.org/who_we_are.html), led by Dave Miller (justdave@bugzilla.org).

1.6. How does Bugzilla stack up against other bug-tracking databases?

We can't find any head-to-head comparisons of Bugzilla against other defect-tracking software. If you know of one, please get in touch. However, from the author's personal experience with other bug-trackers, Bugzilla offers superior performance on commodity hardware, better price (free!), more developer-friendly features (such as stored queries, email integration, and platform independence), improved scalability, open source code, greater flexibility, and superior ease-of-use.

If you happen to be a commercial bug-tracker vendor, please step forward with a list of advantages your product has over Bugzilla. We'd be happy to include it in the "Competitors" section.

1.7. Why doesn't Bugzilla offer this or that feature or compatibility with this other tracking software?

It may be that the support has not been built yet, or that you have not yet found it. Bugzilla is making tremendous strides in usability, customizability, scalability, and user interface. It is widely considered the most complete and popular open-source bug-tracking software in existence.

That doesn't mean it can't use improvement! You can help the project along by either hacking a patch yourself that supports the functionality you require, or else submitting a "Request for Enhancement" (RFE) using the bug submission interface at bugzilla.mozilla.org (http://bugzilla.mozilla.org/enter_bug.cgi?product=Bugzilla).

1.8. Why MySQL? I'm interested in seeing Bugzilla run on Oracle/Sybase/Msql/PostgreSQL/MSSQL.

MySQL was originally chosen because it is free, easy to install, and was available for the hardware Netscape intended to run it on.

There is currently work in progress to make Bugzilla work on PostgreSQL and Sybase in the default distribution. You can track the progress of these initiatives in bug 98304 (http://bugzilla.mozilla.org/show_bug.cgi?id=98304) and bug 173130 (http://bugzilla.mozilla.org/show_bug.cgi?id=173130) respectively.

Once both of these are done, adding support for additional database servers should be trivial.

1.9. What is `/usr/bonsaitools/bin/perl`?

Bugzilla used to have the path to perl on the shebang line set to `/usr/bonsaitools/bin/perl` because when Terry first started writing the code for mozilla.org he needed a version of Perl and other tools that were completely under his control. This location was abandoned for the 2.18 release in favor of the more sensible `/usr/bin/perl`. If you installed an older version of Bugzilla and created the symlink we suggested, you can remove it now (provided that you don't have anything else, such as Bonsai, using it and you don't intend to reinstall an older version of Bugzilla).

1.10. My perl is not located at `/usr/bin/perl`, is there an easy way to change it everywhere it needs to be changed?

Yes, the following bit of perl magic will change all the shebang lines. Be sure to change `/usr/local/bin/perl` to your path to the perl binary.

```
perl -pi -e 's@#\!/usr/bin/perl@#\!/usr/local/bin/perl@' *cgi *pl
```

1.11. Is there an easy way to change the Bugzilla cookie name?

At present, no.

2. Managerial Questions

Note: Questions likely to be asked by managers. :-)

2.1. Is Bugzilla web-based, or do you have to have specific software or a specific operating system on your machine?

It is web and e-mail based. You can edit bugs by sending specially formatted email to a properly configured Bugzilla, or control via the web.

2.2. Can Bugzilla integrate with Perforce (SCM software)?

Yes! You can find more information elsewhere in "The Bugzilla Guide" in the "Integration with Third-Party Products" section.

2.3. Does Bugzilla allow the user to track multiple projects?

Absolutely! You can track any number of Products that can each be composed of any number of Components.

2.4. If I am on many projects, and search for all bugs assigned to me, will Bugzilla list them for me and allow me to sort by project, severity etc?

Yes.

2.5. Does Bugzilla allow attachments (text, screenshots, URLs etc)? If yes, are there any that are NOT allowed?

Yes - any sort of attachment is allowed, although administrators can configure a maximum size. Bugzilla gives the user the option of either using the MIME-type supplied by the browser, choosing from a pre-defined list or manually typing any arbitrary MIME-type.

2.6. Does Bugzilla allow us to define our own priorities and levels? Do we have complete freedom to change the labels of fields and format of them, and the choice of acceptable values?

Yes. However, modifying some fields, notably those related to bug progression states, also require adjusting the program logic to compensate for the change.

There is no GUI for adding fields to Bugzilla at this time. You can follow development of this feature in bug 91037 (http://bugzilla.mozilla.org/show_bug.cgi?id=91037)

2.7. Does Bugzilla provide any reporting features, metrics, graphs, etc? You know, the type of stuff that management likes to see. :)

Yes. Look at <http://bugzilla.mozilla.org/report.cgi> for samples of what Bugzilla can do in reporting and graphing.

If you can not get the reports you want from the included reporting scripts, it is possible to hook up a professional reporting package such as Crystal Reports using ODBC. If you choose to do this, beware that giving direct access to the database does contain some security implications. Even if you give read-only access to the bugs database it will bypass the secure bugs features of Bugzilla.

2.8. Is there email notification and if so, what do you see when you get an email?

Email notification is user-configurable. By default, the bug id and Summary of the bug report accompany each email notification, along with a list of the changes made.

2.9. Can email notification be set up to send to multiple people, some on the To List, CC List, BCC List etc?

Yes.

2.10. Do users have to have any particular type of email application?

Bugzilla email is sent in plain text, the most compatible mail format on the planet.

Note: If you decide to use the `bugzilla_email` integration features to allow Bugzilla to record responses to mail with the associated bug, you may need to caution your users to set their mailer to "respond to messages in the format in which they were sent". For security reasons Bugzilla ignores HTML tags in comments, and if a user sends HTML-based email into Bugzilla the resulting comment looks downright awful.

2.11. Does Bugzilla allow data to be imported and exported? If I had outsiders write up a bug report using a MS Word bug template, could that template be imported into "matching" fields? If I wanted to take the results of a query and export that data to MS Excel, could I do that?

Bugzilla can output buglists as HTML (the default), CSV or RDF. The link for CSV can be found at the bottom of the buglist in HTML format. This CSV format can easily be imported into MS Excel or other spread-sheet applications.

To use the RDF format of the buglist it is necessary to append a `&ctype=rdf` to the URL. RDF is meant to be machine readable and thus it is assumed that the URL would be generated progmatically so there is no user visible link to this format.

Currently the only script included with Bugzilla that can import data is `importxml.pl` which is intended to be used for importing the data generated by the XML ctype of `show_bug.cgi` in association with bug moving. Any other use is left as an exercise for the user.

There are also scripts included in the `contrib/` directory for using e-mail to import information into Bugzilla, but these scripts are not currently supported and included for educational purposes.

2.12. Has anyone converted Bugzilla to another language to be used in other countries? Is it localizable?

Yes. For more information including available translated templates, see <http://www.bugzilla.org/download.html#localizations>. The admin interfaces are still not included in these translated templates and is therefore still English only. Also, there may be issues with the charset not being declared. See bug 126226 (http://bugzilla.mozilla.org/show_bug.cgi?id=126266) for more information.

2.13. Can a user create and save reports? Can they do this in Word format? Excel format?

Yes. No. Yes (using the CSV format).

2.14. Does Bugzilla have the ability to search by word, phrase, compound search?

You have no idea. Bugzilla's query interface, particularly with the advanced Boolean operators, is incredibly versatile.

2.15. Does Bugzilla provide record locking when there is simultaneous access to the same bug? Does the second person get a notice that the bug is in use or how are they notified?

Bugzilla does not lock records. It provides mid-air collision detection, and offers the offending user a choice of options to deal with the conflict.

2.16. Are there any backup features provided?

MySQL, the database back-end for Bugzilla, allows hot-backup of data. You can find strategies for dealing with backup considerations at <http://www.mysql.com/doc/B/a/Backup.html>.

2.17. Can users be on the system while a backup is in progress?

Yes. However, commits to the database must wait until the tables are unlocked. Bugzilla databases are typically very small, and backups routinely take less than a minute.

2.18. What type of human resources are needed to be on staff to install and maintain Bugzilla? Specifically, what type of skills does the person need to have? I need to find out if we were to go with Bugzilla, what types of individuals would we need to hire and how much would that cost vs buying an "Out-of-the-Box" solution.

If Bugzilla is set up correctly from the start, continuing maintenance needs are minimal and can be done easily using the web interface.

Commercial Bug-tracking software typically costs somewhere upwards of \$20,000 or more for 5-10 floating licenses. Bugzilla consultation is available from skilled members of the newsgroup. Simple questions are answered there and then.

2.19. What time frame are we looking at if we decide to hire people to install and maintain the Bugzilla? Is this something that takes hours or weeks to install and a couple of hours per week to maintain and customize or is this a multi-week install process, plus a full time job for 1 person, 2 people, etc?

It all depends on your level of commitment. Someone with much Bugzilla experience can get you up and running in less than a day, and your Bugzilla install can run untended for years. If your Bugzilla strategy is critical to your business workflow, hire somebody with reasonable UNIX or Perl skills to handle your process management and bug-tracking maintenance & customization.

2.20. Is there any licensing fee or other fees for using Bugzilla? Any out-of-pocket cost other than the bodies needed as identified above?

No. MySQL asks, if you find their product valuable, that you purchase a support contract from them that suits your needs.

3. Bugzilla Security

3.1. How do I completely disable MySQL security if it's giving me problems (I've followed the instructions in the installation section of this guide)?

Run MySQL like this: "mysqld --skip-grant-tables". Please remember *this makes MySQL as secure as taping a \$100 to the floor of a football stadium bathroom for safekeeping.*

3.2. Are there any security problems with Bugzilla?

The Bugzilla code has undergone a reasonably complete security audit, and user-facing CGIs run under Perl's taint mode. However, it is recommended that you closely examine permissions on your Bugzilla installation, and follow the recommended security guidelines found in The Bugzilla Guide.

3.3. I've implemented the security fixes mentioned in Chris Yeh's security advisory of 5/10/2000 advising not to run MySQL as root, and am running into problems with MySQL no longer working correctly.

This is a common problem, related to running out of file descriptors. Simply add "ulimit -n unlimited" to the script which starts mysqld.

4. Bugzilla Email

4.1. I have a user who doesn't want to receive any more email from Bugzilla. How do I stop it entirely for this user?

The user should be able to set this in user email preferences (uncheck all boxes) or you can add their email address to the `data/nomail` file.

4.2. I'm evaluating/testing Bugzilla, and don't want it to send email to anyone but me. How do I do it?

Edit the "newchangedmail" Param. Replace "To:" with "X-Real-To:", replace "Cc:" with "X-Real-CC:", and add a "To: <youremailaddress>".

4.3. I want whineatnews.pl to whine at something more, or other than, only new bugs. How do I do it?

Try Klaas Freitag's excellent patch for "whineatassigned" functionality. You can find it in bug 6679 (http://bugzilla.mozilla.org/show_bug.cgi?id=6679). This patch is against an older version of Bugzilla, so you must apply the diffs manually.

4.4. I don't like/want to use Procmail to hand mail off to bug_email.pl. What alternatives do I have?

You can call bug_email.pl directly from your aliases file, with an entry like this:

```
bugzilla-daemon: "|/usr/local/bin/bugzilla/contrib/bug_email.pl"
```

However, this is fairly nasty and subject to problems; you also need to set up your smrsh (sendmail restricted shell) to allow it. In a pinch, though, it can work.

4.5. How do I set up the email interface to submit/change bugs via email?

You can find an updated README.mailif file in the contrib/ directory of your Bugzilla distribution that walks you through the setup.

4.6. Email takes FOREVER to reach me from Bugzilla -- it's extremely slow. What gives?

If you are using an alternate *MTA*, make sure the options given in `Bugzilla/BugMail.pm` and any other place where sendmail is called from are correct for your MTA. You should also ensure that the `sendmailnow` param is set to `on`.

If you are using sendmail, try enabling `sendmailnow` in `editparams.cgi`.

4.7. How come email from Bugzilla changes never reaches me?

Double-check that you have not turned off email in your user preferences. Confirm that Bugzilla is able to send email by visiting the "Log In" link of your Bugzilla installation and clicking the "Email me a password" button after entering your email address.

If you never receive mail from Bugzilla, chances you do not have sendmail in `/usr/lib/sendmail`. Ensure sendmail lives in, or is symlinked to, `/usr/lib/sendmail`.

5. Bugzilla Database

5.1. I've heard Bugzilla can be used with Oracle?

Red Hat's old version of Bugzilla (based on 2.8) worked on Oracle. Red Hat's newer version (based on 2.17.1 and soon to be merged into the main distribution) runs on PostgreSQL. At this time we know of no recent ports of Bugzilla to Oracle but do intend to support it in the future (possibly the 2.20 time-frame).

5.2. I think my database might be corrupted, or contain invalid entries. What do I do?

Run the "sanity check" utility (`./sanitycheck.cgi` in the `Bugzilla_home` directory) from your web browser to see! If it finishes without errors, you're *probably* OK. If it doesn't come back OK (i.e. any red letters), there are certain things Bugzilla can recover from and certain things it can't. If it can't auto-recover, I hope you're familiar with `mysqladmin` commands or have installed another way to manage your database. Sanity Check, although it is a good basic check on your database integrity, by no means is a substitute for competent database administration and avoiding deletion of data. It is not exhaustive, and was created to do a basic check for the most common problems in Bugzilla databases.

5.3. I want to manually edit some entries in my database. How?

There is no facility in Bugzilla itself to do this. It's also generally not a smart thing to do if you don't know exactly what you're doing. However, if you understand SQL you can use the **mysql** command line utility to manually insert, delete and modify table information. There are also more intuitive GUI clients available. Personal favorites of the Bugzilla team are `phpMyAdmin` (<http://www.phpmyadmin.net/>) and `MySQL Control Center` (<http://www.mysql.com/downloads/gui-mycc.html>).

5.4. I think I've set up MySQL permissions correctly, but Bugzilla still can't connect.

Try running MySQL from its binary: `"mysqld --skip-grant-tables"`. This will allow you to completely rule out grant tables as the cause of your frustration. If this Bugzilla is able to connect at this point then you need to check that you have granted proper permission to the user password combo defined in `localconfig`.

Warning

Running MySQL with this command line option is very insecure and should only be done when not connected to the external network as a troubleshooting step.

5.5. How do I synchronize bug information among multiple different Bugzilla databases?

Well, you can synchronize or you can move bugs. Synchronization will only work one way -- you can create a read-only copy of the database at one site, and have it regularly updated at intervals from the main database.

MySQL has some synchronization features builtin to the latest releases. It would be great if someone looked into the possibilities there and provided a report to the newsgroup on how to effectively synchronize two Bugzilla installations.

If you simply need to transfer bugs from one Bugzilla to another, checkout the "move.pl" script in the Bugzilla distribution.

6. Bugzilla and Win32

6.1. What is the easiest way to run Bugzilla on Win32 (Win98+/NT/2K)?

Remove Windows. Install Linux. Install Bugzilla. The boss will never know the difference.

6.2. Is there a "Bundle::Bugzilla" equivalent for Win32?

Not currently. Bundle::Bugzilla enormously simplifies Bugzilla installation on UNIX systems. If someone can volunteer to create a suitable PPM bundle for Win32, it would be appreciated.

6.3. CGI's are failing with a "something.cgi is not a valid Windows NT application" error. Why?

Depending on what Web server you are using, you will have to configure the Web server to treat *.cgi files as CGI scripts. In IIS, you do this by adding *.cgi to the App Mappings with the <path>\perl.exe %s %s as the executable.

Microsoft has some advice on this matter, as well:

"Set application mappings. In the ISM, map the extension for the script file(s) to the executable for the script interpreter. For example, you might map the extension .py to Python.exe, the executable for the Python script interpreter. Note For the ActiveState Perl script interpreter, the extension .pl is associated with PerlIS.dll by default. If you want to change the association of .pl to perl.exe, you need to change the application mapping. In the mapping, you must add two percent (%) characters to the end of the pathname for perl.exe, as shown in this example: c:\perl\bin\perl.exe %s %s"

6.4. I'm having trouble with the perl modules for NT not being able to talk to the database.

Your modules may be outdated or inaccurate. Try:

1. Hitting <http://www.activestate.com/ActivePerl>
2. Download ActivePerl
3. Go to your prompt
4. Type 'ppm'
5. PPM> **install DBI DBD-mysql GD**

I reckon TimeDate and Data::Dumper come with the activeperl. You can check the ActiveState site for packages for installation through PPM. <http://www.activestate.com/Packages/>.

7. Bugzilla Usage

7.1. How do I change my user name (email address) in Bugzilla?

New in 2.16 - go to the Account section of the Preferences. You will be emailed at both addresses for confirmation.

7.2. The query page is very confusing. Isn't there a simpler way to query?

The interface was simplified by a UI designer for 2.16. Further suggestions for improvement are welcome, but we won't sacrifice power for simplicity.

7.3. I'm confused by the behavior of the "accept" button in the Show Bug form. Why doesn't it assign the bug to me when I accept it?

The current behavior is acceptable to bugzilla.mozilla.org and most users. You have your choice of patches to change this behavior, however.

Add a "and accept bug" radio button (http://bugzilla.mozilla.org/showattachment.cgi?attach_id=8029)

"Accept" button automatically assigns to you (http://bugzilla.mozilla.org/showattachment.cgi?attach_id=8153)

Note that these patches are somewhat dated. You will need to apply them manually.

7.4. I can't upload anything into the database via the "Create Attachment" link. What am I doing wrong?

The most likely cause is a very old browser or a browser that is incompatible with file upload via POST. Download the latest Netscape, Microsoft, or Mozilla browser to handle uploads correctly.

7.5. How do I change a keyword in Bugzilla, once some bugs are using it?

In the Bugzilla administrator UI, edit the keyword and it will let you replace the old keyword name with a new one. This will cause a problem with the keyword cache. Run `sanitycheck.cgi` to fix it.

7.6. Why can't I close bugs from the "Change Several Bugs at Once" page?

The logic flow currently used is RESOLVED, then VERIFIED, then CLOSED. You *can* mass-CLOSE bugs from the change several bugs at once page. *but*, every bug listed on the page has to be in VERIFIED state before the control to do it will show up on the form. You can also mass-VERIFY, but every bug listed has to be RESOLVED in order for the control to show up on the form. The logic behind this is that if you pick one of the bugs that's not VERIFIED and try to CLOSE it, the bug change will fail miserably (thus killing any changes in the list after it while doing the bulk change) so it doesn't even give you the choice.

8. Bugzilla Hacking

8.1. What kind of style should I use for templating?

Gerv and Myk suggest a 2-space indent, with embedded code sections on their own line, in line with outer tags. Like this:

```
<fred>
[% IF foo %]
  <bar>
    [% FOREACH x = barney %]
      <tr>
        <td>
          [% x %]
        </td>
      <tr>
    [% END %]
  [% END %]
</fred>
```

Myk also recommends you turn on `PRE_CHOMP` in the template initialization to prevent bloating of HTML with unnecessary whitespace.

Please note that many have differing opinions on this subject, and the existing templates in Bugzilla espouse both this and a 4-space style. Either is acceptable; the above is preferred.

8.2. What bugs are in Bugzilla right now?

Try this link (http://bugzilla.mozilla.org/buglist.cgi?bug_status=NEW&bug_status=ASSIGNED&bug_status=REOPENED&product=Bugzilla) to view current bugs or requests for enhancement for Bugzilla.

You can view bugs marked for 2.18 release here (http://bugzilla.mozilla.org/buglist.cgi?product=Bugzilla&target_milestone=Bugzilla2.18). This list includes bugs for the 2.18 release that have already been fixed and checked into CVS. Please consult the Bugzilla Project Page (<http://www.bugzilla.org/>) for details on how to check current sources out of CVS so you can have these bug fixes early!

8.3. How can I change the default priority to a null value? For instance, have the default priority be "---" instead of "P2"?

This is well-documented in bug 49862 (http://bugzilla.mozilla.org/show_bug.cgi?id=49862). Ultimately, it's as easy as adding the "---" priority field to your localconfig file in the appropriate area, re-running checksetup.pl, and then changing the default priority in your browser using "editparams.cgi".

8.4. What's the best way to submit patches? What guidelines should I follow?

1. Enter a bug into bugzilla.mozilla.org for the "Bugzilla (http://bugzilla.mozilla.org/enter_bug.cgi?product=Bugzilla)" product.
2. Upload your patch as a unified diff (having used "diff -u" against the *current sources* checked out of CVS), or new source file by clicking "Create a new attachment" link on the bug page you've just created, and include any descriptions of database changes you may make, into the bug ID you submitted in step #1. Be sure and click the "Patch" checkbox to indicate the text you are sending is a patch!
3. Announce your patch and the associated URL (http://bugzilla.mozilla.org/show_bug.cgi?id=XXXXXX) for discussion in the newsgroup (netscape.public.mozilla.webtools). You'll get a really good, fairly immediate reaction to the implications of your patch, which will also give us an idea how well-received the change would be.
4. If it passes muster with minimal modification, the person to whom the bug is assigned in Bugzilla is responsible for seeing the patch is checked into CVS.
5. Bask in the glory of the fact that you helped write the most successful open-source bug-tracking software on the planet :)

Appendix B. The Bugzilla Database

Note: This document really needs to be updated with more fleshed out information about primary keys, interrelationships, and maybe some nifty tables to document dependencies. Any takers?

B.1. Modifying Your Running System

Bugzilla optimizes database lookups by storing all relatively static information in the `versioncache` file, located in the `data/` subdirectory under your installation directory.

If you make a change to the structural data in your database (the `versions` table for example), or to the “constants” encoded in `defparams.pl`, you will need to remove the cached content from the data directory (by doing a “`rm data/versioncache`”), or your changes won’t show up.

`versioncache` gets automatically regenerated whenever it’s more than an hour old, so Bugzilla will eventually notice your changes by itself, but generally you want it to notice right away, so that you can test things.

B.2. MySQL Bugzilla Database Introduction

This information comes straight from my life. I was forced to learn how Bugzilla organizes database because of nitpicky requests from users for tiny changes in wording, rather than having people re-educate themselves or figure out how to work our procedures around the tool. It sucks, but it can and will happen to you, so learn how the schema works and deal with it when it comes.

So, here you are with your brand-new installation of Bugzilla. You’ve got MySQL set up, Apache working right, Perl DBI and DBD talking to the database flawlessly. Maybe you’ve even entered a few test bugs to make sure email’s working; people seem to be notified of new bugs and changes, and you can enter and edit bugs to your heart’s content. Perhaps you’ve gone through the trouble of setting up a gateway for people to submit bugs to your database via email, have had a few people test it, and received rave reviews from your beta testers.

What’s the next thing you do? Outline a training strategy for your development team, of course, and bring them up to speed on the new tool you’ve labored over for hours.

Your first training session starts off very well! You have a captive audience which seems enraptured by the efficiency embodied in this thing called “Bugzilla”. You are caught up describing the nifty features, how people can save favorite queries in the database, set them up as headers and footers on their pages, customize their layouts, generate reports, track status with greater efficiency than ever before, leap tall buildings with a single bound and rescue Jane from the clutches of Certain Death!

But Certain Death speaks up -- a tiny voice, from the dark corners of the conference room. “I have a concern,” the voice hisses from the darkness, “about the use of the word ‘verified’.”

The room, previously filled with happy chatter, lapses into reverential silence as Certain Death (better known as the Vice President of Software Engineering) continues. “You see, for two years we’ve used the word ‘verified’ to indicate that a developer or quality assurance engineer has confirmed that, in fact, a bug is valid. I don’t want to lose two years of training to a new software product. You need to change the bug status of ‘verified’ to ‘approved’ as soon as possible. To avoid confusion, of course.”

Oh no! Terror strikes your heart, as you find yourself mumbling "yes, yes, I don't think that would be a problem," You review the changes with Certain Death, and continue to jabber on, "no, it's not too big a change. I mean, we have the source code, right? You know, 'Use the Source, Luke' and all that... no problem," All the while you quiver inside like a beached jellyfish bubbling, burbling, and boiling on a hot Jamaican sand dune...

Thus begins your adventure into the heart of Bugzilla. You've been forced to learn about non-portable enum() fields, varchar columns, and tinyint definitions. The Adventure Awaits You!

B.2.1. Bugzilla Database Basics

If you were like me, at this point you're totally clueless about the internals of MySQL, and if it weren't for this executive order from the Vice President you couldn't care less about the difference between a "bigint" and a "tinyint" entry in MySQL. I recommend you refer to the MySQL documentation (<http://www.mysql.com/documentation/>). Below are the basics you need to know about the Bugzilla database. Check the chart above for more details.

1. To connect to your database:

```
bash# mysql -u root
```

If this works without asking you for a password, *shame on you* ! You should have locked your security down like the installation instructions told you to. You can find details on locking down your database in the Bugzilla FAQ in this directory (under "Security"), or more robust security generalities in the MySQL searchable documentation (http://www.mysql.com/php/manual.php3?section=Privilege_system).

2. You should now be at a prompt that looks like this:

```
mysql>
```

At the prompt, if "bugs" is the name you chose in the `localconfig` file for your Bugzilla database, type:

```
mysql use bugs;
```

B.2.1.1. Bugzilla Database Tables

Imagine your MySQL database as a series of spreadsheets, and you won't be too far off. If you use this command:

```
mysql> show tables from bugs;
```

you'll be able to see the names of all the "spreadsheets" (tables) in your database.

From the command issued above, you should have some output that looks like this:

```
+-----+
| Tables in bugs |
+-----+
| attachments |
| bugs        |
| bugs_activity |
| cc          |
| components  |
```

```

| dependencies      |
| fielddefs        |
| groups           |
| keyworddefs      |
| keywords         |
| logincookies     |
| longdescs       |
| milestones       |
| namedqueries     |
| products         |
| profiles         |
| profiles_activity|
| tokens          |
| versions         |
| votes           |
| watch           |
+-----+

```

Here's an overview of what each table does. Most columns in each table have descriptive names that make it fairly trivial to figure out their jobs.

attachments: This table stores all attachments to bugs. It tends to be your largest table, yet also generally has the fewest entries because file attachments are so (relatively) large.

bugs: This is the core of your system. The bugs table stores most of the current information about a bug, with the exception of the info stored in the other tables.

bugs_activity: This stores information regarding what changes are made to bugs when -- a history file.

cc: This tiny table simply stores all the CC information for any bug which has any entries in the CC field of the bug. Note that, like most other tables in Bugzilla, it does not refer to users by their user names, but by their unique `userid`, stored as a primary key in the profiles table.

components: This stores the programs and components (or products and components, in newer Bugzilla parlance) for Bugzilla. Curiously, the "program" (product) field is the full name of the product, rather than some other unique identifier, like `bug_id` and `user_id` are elsewhere in the database.

dependencies: Stores data about those cool dependency trees.

fielddefs: A nifty table that defines other tables. For instance, when you submit a form that changes the value of "AssignedTo" this table allows translation to the actual field name "assigned_to" for entry into MySQL.

groups: defines bitmasks for groups. A bitmask is a number that can uniquely identify group memberships. For instance, say the group that is allowed to tweak parameters is assigned a value of "1", the group that is allowed to edit users is assigned a "2", and the group that is allowed to create new groups is assigned the bitmask of "4". By uniquely combining the group bitmasks (much like the chmod command in UNIX,) you can identify a user is allowed to tweak parameters and create groups, but not edit users, by giving him a bitmask of "5", or a user allowed to edit users and create groups, but not tweak parameters, by giving him a bitmask of "6" Simple, huh?

If this makes no sense to you, try this at the mysql prompt:

```
mysql> select * from groups;
```

You'll see the list, it makes much more sense that way.

keyworddefs: Definitions of keywords to be used

keywords: Unlike what you'd think, this table holds which keywords are associated with which bug id's.

logincookies: This stores every login cookie ever assigned to you for every machine you've ever logged into Bugzilla from. Curiously, it never does any housecleaning -- I see cookies in this file I've not used for months. However, since Bugzilla never expires your cookie (for convenience' sake), it makes sense.

longdescs: The meat of bugzilla -- here is where all user comments are stored! You've only got 2²⁴ bytes per comment (it's a mediumtext field), so speak sparingly -- that's only the amount of space the Old Testament from the Bible would take (uncompressed, 16 megabytes). Each comment is keyed to the bug_id to which it's attached, so the order is necessarily chronological, for comments are played back in the order in which they are received.

milestones: Interesting that milestones are associated with a specific product in this table, but Bugzilla does not yet support differing milestones by product through the standard configuration interfaces.

namedqueries: This is where everybody stores their "custom queries". Very cool feature; it beats the tar out of having to bookmark each cool query you construct.

products: What products you have, whether new bug entries are allowed for the product, what milestone you're working toward on that product, votes, etc. It will be nice when the components table supports these same features, so you could close a particular component for bug entry without having to close an entire product...

profiles: Ahh, so you were wondering where your precious user information was stored? Here it is! With the passwords in plain text for all to see! (but sshh... don't tell your users!)

profiles_activity: Need to know who did what when to who's profile? This'll tell you, it's a pretty complete history.

versions: Version information for every product

votes: Who voted for what when

watch: Who (according to userid) is watching who's bugs (according to their userid).

====
THE DETAILS
====

Ahh, so you're wondering just what to do with the information above? At the mysql prompt, you can view any information about the columns in a table with this command (where "table" is the name of the table you wish to view):

```
mysql> show columns from table;
```

You can also view all the data in a table with this command:

```
mysql> select * from table;
```

-- note: this is a very bad idea to do on, for instance, the "bugs" table if you have 50,000 bugs. You'll be sitting there a while until you ctrl-c or 50,000 bugs play across your screen.

You can limit the display from above a little with the command, where "column" is the name of the column for which you wish to restrict information:

```
mysql> select * from table where (column = "some info");
```

-- or the reverse of this

```
mysql> select * from table where (column != "some info");
```

Let's take our example from the introduction, and assume you need to change the word "verified" to "approved" in the resolution field. We know from the above information that the resolution is likely to be stored in the "bugs" table. Note we'll need to change a little perl code as well as this database change, but I won't plunge into that in this document. Let's verify the information is stored in the "bugs" table:

```
mysql> show columns from bugs
```

(exceedingly long output truncated here)

```
| bug_status| enum('UNCONFIRMED','NEW','ASSIGNED','REOPENED','RESOLVED','VERIFIED','CLOSED')||MUL| UNCONFIRMED
```

Sorry about that long line. We see from this that the "bug status" column is an "enum field", which is a MySQL peculiarity where a string type field can only have certain types of entries. While I think this is very cool, it's not standard SQL. Anyway, we need to add the possible enum field entry 'APPROVED' by altering the "bugs" table.

```
mysql> ALTER table bugs CHANGE bug_status bug_status
-> enum("UNCONFIRMED", "NEW", "ASSIGNED", "REOPENED", "RESOLVED",
-> "VERIFIED", "APPROVED", "CLOSED") not null;
```

(note we can take three lines or more -- whatever you put in before the semicolon is evaluated as a single expression)

Now if you do this:

```
mysql> show columns from bugs;
```

you'll see that the bug_status field has an extra "APPROVED" enum that's available! Cool thing, too, is that this is reflected on your query page as well -- you can query by the new status. But how's it fit into the existing scheme of things?

Looks like you need to go back and look for instances of the word "verified" in the perl code for Bugzilla -- wherever you find "verified", change it to "approved" and you're in business (make sure that's a case-insensitive search). Although you can query by the enum field, you can't give something a status of "APPROVED" until you make the perl changes. Note that this change I mentioned can also be done by editing checksetup.pl, which automates a lot of this. But you need to know this stuff anyway, right?

Appendix C. Useful Patches and Utilities for Bugzilla

Are you looking for a way to put your Bugzilla into overdrive? Catch some of the niftiest tricks here in this section.

C.1. Apache `mod_rewrite` magic

Apache's `mod_rewrite` module lets you do some truly amazing things with URL rewriting. Here are a couple of examples of what you can do.

1. Make it so if someone types `http://www.foo.com/12345`, Bugzilla spits back `http://www.foo.com/show_bug.cgi?id=12345`. Try setting up your `VirtualHost` section for Bugzilla with a rule like this:

```
<VirtualHost 12.34.56.78>
RewriteEngine On
RewriteRule ^/([0-9]+)$ http://foo.bar.com/show_bug.cgi?id=$1 [L,R]
</VirtualHost>
```

2. There are many, many more things you can do with `mod_rewrite`. Please refer to the `mod_rewrite` documentation at <http://www.apache.org>.

C.2. Command-line Bugzilla Queries

There are a suite of Unix utilities for querying Bugzilla from the command line. They live in the `contrib/cmdline` directory. However, they have not yet been updated to work with 2.16 (post-templatisation.). There are three files - `query.conf`, `buglist` and `bugs`.

`query.conf` contains the mapping from options to field names and comparison types. Quoted option names are "grepped" for, so it should be easy to edit this file. Comments (`#`) have no effect; you must make sure these lines do not contain any quoted "option".

`buglist` is a shell script which submits a Bugzilla query and writes the resulting HTML page to stdout. It supports both short options, (such as `-Afoo` or `-Rbar`) and long options (such as `--assignedto=foo` or `--reporter=bar`). If the first character of an option is not "-", it is treated as if it were prefixed with `--default=`.

The column list is taken from the `COLUMNLIST` environment variable. This is equivalent to the "Change Columns" option when you list bugs in `buglist.cgi`. If you have already used Bugzilla, `grep` for `COLUMNLIST` in your cookies file to see your current `COLUMNLIST` setting.

`bugs` is a simple shell script which calls `buglist` and extracts the bug numbers from the output. Adding the prefix `"http://bugzilla.mozilla.org/buglist.cgi?bug_id="` turns the bug list into a working link if any bugs are found. Counting bugs is easy. Pipe the results through `sed -e 's/,/ /g' | wc | awk '{printf $2 "\n"}'`

Akkana Peck says she has good results piping `buglist` output through `w3m -T text/html -dump`

Appendix D. Bugzilla Variants and Competitors

I created this section to answer questions about Bugzilla competitors and variants, then found a wonderful site which covers an awful lot of what I wanted to discuss. Rather than quote it in its entirety, I'll simply refer you here: <http://linas.org/linux/pm.html>.

D.1. Red Hat Bugzilla

Red Hat's old fork of Bugzilla which was based on version 2.8 is now obsolete. The newest version in use is based on version 2.17.1 and is in the process of being integrated into the main Bugzilla source tree. The back-end is modified to work with PostgreSQL instead of MySQL and they have custom templates to get their desired look and feel, but other than that it is Bugzilla 2.17.1. Dave Lawrence of Red Hat put forth a great deal of effort to make sure that the changes he made could be integrated back into the main tree. Bug 98304 (http://bugzilla.mozilla.org/show_bug.cgi?id=98304) exists to track this integration.

URL: <http://bugzilla.redhat.com/bugzilla/>

This section last updated 24 Dec 2002

D.2. Loki Bugzilla (Fenris)

Fenris was a fork from Bugzilla made by Loki Games; when Loki went into receivership, it died. While Loki's other code lives on, its custodians recommend Bugzilla for future bug-tracker deployments.

This section last updated 27 Jul 2002

D.3. Issuezilla

Issuezilla was another fork from Bugzilla, made by collab.net and hosted at tigris.org. It is also dead; the primary focus of bug-tracking at tigris.org is their Java-based bug-tracker, Section D.4.

This section last updated 27 Jul 2002

D.4. Scarab

Scarab is a new open source bug-tracking system built using Java Servlet technology. It is currently at version 1.0 beta 13.

URL: <http://scarab.tigris.org/>

This section last updated 18 Jan 2003

D.5. Perforce SCM

Although Perforce isn't really a bug tracker, it can be used as such through the "jobs" functionality.

URL: <http://www.perforce.com/perforce/technotes/note052.html>

This section last updated 27 Jul 2002

D.6. SourceForge

SourceForge is a way of coordinating geographically distributed free software and open source projects over the Internet. It has a built-in bug tracker, but it's not highly thought of.

URL: <http://www.sourceforge.net>

This section last updated 27 Jul 2002

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Version 1.1, March 2000

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Glossary

0-9, high ascii

.htaccess

Apache web server, and other NCSA-compliant web servers, observe the convention of using files in directories called `.htaccess` to restrict access to certain files. In Bugzilla, they are used to keep secret files which would otherwise compromise your installation - e.g. the `localconfig` file contains the password to your database. curious.

A

Apache

In this context, Apache is the web server most commonly used for serving up Bugzilla pages. Contrary to popular belief, the apache web server has nothing to do with the ancient and noble Native American tribe, but instead derived its name from the fact that it was “a patchy” version of the original NCSA world-wide-web server.

Useful Directives when configuring Bugzilla

`AddHandler` (<http://httpd.apache.org/docs-2.0/mod/core.html#addhandler>)

Tell Apache that it's OK to run CGI scripts.

`AllowOverride` (<http://httpd.apache.org/docs-2.0/mod/core.html#allowoverride>)

`Options` (<http://httpd.apache.org/docs-2.0/mod/core.html#options>)

These directives are used to tell Apache many things about the directory they apply to. For Bugzilla's purposes, we need them to allow script execution and `.htaccess` overrides.

`DirectoryIndex` (http://httpd.apache.org/docs-2.0/mod/mod_dir.html#directoryindex)

Used to tell Apache what files are indexes. If you can not add `index.cgi` to the list of valid files, you'll need to set `$index_html` to `1` in `localconfig` so **`./checksetup.pl`** will create an `index.html` that redirects to `index.cgi`.

`ScriptInterpreterSource` (<http://httpd.apache.org/docs-2.0/mod/core.html#scriptinterpretersource>)

Used when running Apache on windows so the shebang line doesn't have to be changed in every Bugzilla script.

For more information about how to configure Apache for Bugzilla, see Section 4.4.1.

B

Bug

A “bug” in Bugzilla refers to an issue entered into the database which has an associated number, assignments, comments, etc. Some also refer to a “tickets” or “issues”; in the context of Bugzilla, they are synonymous.

Bug Number

Each Bugzilla bug is assigned a number that uniquely identifies that bug. The bug associated with a bug number can be pulled up via a query, or easily from the very front page by typing the number in the "Find" box.

Bugzilla

Bugzilla is the world-leading free software bug tracking system.

C

Common Gateway Interface

CGI is an acronym for Common Gateway Interface. This is a standard for interfacing an external application with a web server. Bugzilla is an example of a CGI application.

Component

A Component is a subsection of a Product. It should be a narrow category, tailored to your organization. All Products must contain at least one Component (and, as a matter of fact, creating a Product with no Components will create an error in Bugzilla).

Comprehensive Perl Archive Network

CPAN stands for the “Comprehensive Perl Archive Network”. CPAN maintains a large number of extremely useful *Perl* modules - encapsulated chunks of code for performing a particular task.

`contrib`

The `contrib` directory is a location to put scripts that have been contributed to Bugzilla but are not a part of the official distribution. These scripts are written by third parties and may be in languages other than perl. For those that are in perl, there may be additional modules or other requirements than those of the official distribution.

Note: Scripts in the `contrib` directory are not officially supported by the Bugzilla team and may break in between versions.

D

daemon

A daemon is a computer program which runs in the background. In general, most daemons are started at boot time via System V init scripts, or through RC scripts on BSD-based systems. *mysqld*, the MySQL server, and *apache*, a web server, are generally run as daemons.

G

Groups

The word “Groups” has a very special meaning to Bugzilla. Bugzilla’s main security mechanism comes by placing users in groups, and assigning those groups certain privileges to view bugs in particular *Products* in the *Bugzilla* database.

J

JavaScript

JavaScript is cool, we should talk about it.

M

Message Transport Agent

A Message Transport Agent is used to control the flow of email on a system. Many unix based systems use sendmail (<http://www.sendmail.org>) which is what Bugzilla expects to find by default at `/usr/sbin/sendmail`. Many other MTA’s will work, but they all require that the `sendmailnow` param be set to on.

MySQL

MySQL is currently the required *RDBMS* for Bugzilla. MySQL can be downloaded from <http://www.mysql.com>. While you should familiarize yourself with all of the documentation, some high points are:

Backup (<http://www.mysql.com/doc/en/Backup.html>)

Methods for backing up your Bugzilla database.

Option Files (http://www.mysql.com/doc/en/Option_files.html)

Information about how to configure MySQL using `my.cnf`.

Privilege System (http://www.mysql.com/doc/en/Privilege_system.html)

Much more detailed information about the suggestions in Section 5.6.2.

P

Perl Package Manager

<http://aspn.activestate.com/ASPN/Downloads/ActivePerl/PPM/>

Product

A Product is a broad category of types of bugs, normally representing a single piece of software or entity. In general, there are several Components to a Product. A Product may define a group (used for security) for all bugs entered into its Components.

Perl

First written by Larry Wall, Perl is a remarkable program language. It has the benefits of the flexibility of an interpreted scripting language (such as shell script), combined with the speed and power of a compiled language, such as C. *Bugzilla* is maintained in Perl.

Q

QA

“QA”, “Q/A”, and “Q.A.” are short for “Quality Assurance”. In most large software development organizations, there is a team devoted to ensuring the product meets minimum standards before shipping. This team will also generally want to track the progress of bugs over their life cycle, thus the need for the “QA Contact” field in a bug.

R

Relational DataBase Management System

A relational database management system is a database system that stores information in tables that are related to each other.

Regular Expression

A regular expression is an expression used for pattern matching. Documentation (<http://perldoc.com/perl5.6/pod/perlre.html#Regular-Expressions>)

S

SGML

SGML stands for “Standard Generalized Markup Language”. Created in the 1980’s to provide an extensible means to maintain documentation based upon content instead of presentation, SGML has withstood the test of time as a robust, powerful language. *XML* is the “baby brother” of SGML; any valid XML document is, by definition, a valid SGML document. The document you are reading is written and maintained in SGML, and is also valid XML if you modify the Document Type Definition.

T

Target Milestone

Target Milestones are Product goals. They are configurable on a per-Product basis. Most software development houses have a concept of “milestones” where the people funding a project expect certain functionality on certain dates. Bugzilla facilitates meeting these milestones by giving you the ability to declare by which milestone a bug will be fixed, or an enhancement will be implemented.

Tool Command Language

TCL is an open source scripting language available for Windows, Macintosh, and Unix based systems. Bugzilla 1.0 was written in TCL but never released. The first release of Bugzilla was 2.0, which was when it was ported to perl.

Z

Zarro Boogs Found

This is just a goofy way of saying that there were no bugs found matching your query. When asked to explain this message, Terry had the following to say:

I've been asked to explain this ... way back when, when Netscape released version 4.0 of its browser, we had a release party. Naturally, there had been a big push to try and fix every known bug before the release. Naturally, that hadn't actually happened. (This is not unique to Netscape or to 4.0; the same thing has happened with every software project I've ever seen.) Anyway, at the release party, T-shirts were handed out that said something like "Netscape 4.0: Zarro Boogs". Just like the software, the T-shirt had no known bugs. Uh-huh.

So, when you query for a list of bugs, and it gets no results, you can think of this as a friendly reminder. Of **course** there are bugs matching your query, they just aren't in the bugsystem yet...

—Terry Weissman