Bugzilla Installation and Configuration

Bugzilla is a powerful defect tracking system, used by RFPK as an important element in the operation of the SPK service, accessible via the world-wide-web at the url *spk.rfpk.washington.edu* Bugzilla is free software, distributed under an open source license. It is written in the perl language and requires a relational database management system (RDBMS) and a web server. The recommended RDBMS is the open source MySQL, already incorporated in SPK. The recommended web server is Apache httpd, which is not currently used by SPK. This document includes instructions for the configuration of MySQL and httpd to support Bugzilla. It also covers the installation of an additional package, called bugzilla-submit, which enables the SPK compiler and runtime daemons to automatically report failures that they detect.

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Installation Overview

The software components of the defect tracking system are installed on several different servers. Just as it is possible to install all of SPK with the exception of the MDA on a single server, it is possible to install the bugzilla system on a single server. At RFPK, however, SPK is distributed across a number of servers and so, consequently, is bugzilla.

The components of the defect tracking system are distributed as follows:

1. Bugzilla and the Apache httpd web server software must be installed together. For operational reasons, it makes sense to use the same machine that hosts the tomcat web server software used by SPK. This machine is located on the orange network at 192.168.2.2 and will be referred to as *webserver* in the remainder of this document.

   Apache httpd is a already installed on *webserver*, as part of the installation of the Redhat Linux operating system. All that is required to prepare it to support bugzilla are minor changes to several files. Bugzilla is then installed in the directories dedicated to httpd.

2. MySQL is already installed on *dbserver*, also known as *whitechuck*, which is located on the green network at 192.168.1.2. It currently provides SPK with two databases, *spkdb* and *spktest*. All that is required to make MySQL support the *bugs* database required for bugzilla is to create a user and password for the purpose. A perl script that is distributed with bugzilla does the rest.
3. As an adjunct to the SPK compiler daemon, bugzilla-submit must be installed on the machine on which the daemon runs We will refer to that machine as *aspkserver*. In the RFPK configuration, it happens to be the same machine as *dbserver*, also known as *whitechuck*.

4. Bugzilla-submit is also an adjunct to the SPK runtime daemon. It must be installed on the *cspkserver*, also known as *cluster*, located on the green network at 192.168.1.6.

Configure MySQL

We assume that MySQL is already installed on *dbserver*. The document MySQL and SPK[1] describes this installation process.

On *dbserver*, enter the command **mysql -uroot -p** to start the mysql client. Then enter the following four commands:

```
use mysql;

GRANT SELECT,INSERT,UPDATE,DELETE,INDEX, ALTER,CREATE,DROP,REFERENCES,
    LOCK TABLES, CREATE TEMPORARY TABLES
    ON bugs.* TO bugs@localhost IDENTIFIED BY 'secretpassword';

GRANT SELECT,INSERT,UPDATE,DELETE,INDEX, ALTER,CREATE,DROP,REFERENCES,
    LOCK TABLES, CREATE TEMPORARY TABLES
    ON bugs.* TO bugs@'%' IDENTIFIED BY 'secretpassword';

quit;
```

This creates two users of the database *bugs*, one called *bugs@localhost* and the other called *bugs@'%'*. The first user can access the database from *dbserver*, itself. The other can access it from any other host. Both users are granted all the privileges that bugzilla requires.

Note that you should replace *secretpassword* with a password that is really secret. Note also, that the *bugs* database does not yet exist, but will be created later using a program called checksetup.pl, which is part of the bugzilla distribution.

Configure Apache

Apache httpd should have already been installed on the server that will host the web front-end. In many cases, Apache httpd will be installed during the installation of RedHat Linux. If, for some reason, it is not there, install the httpd rpm before proceeding.

The default Bugzilla installation was moved from *webserver* to *toronto*, and can be accessed via bugzilla.rfpk.washington.edu[2]

Edit `httpd.conf`

On *webserver*, edit the file `/etc/httpd/conf/httpd.conf` to make the changes described in this section.

Add the following line to the file just after the paragraph describing the "Listen: directive, to change the port from which httpd will receive requests from 80 to 8081.

```
Listen 0.0.0.0:8081
```

The following are changes to lines in the file, with the original text on the left of the arrow, and the new text on the right:

```
#ServerName new.host.name:80                ==>  ServerName 192.168.1.101:8081

DocumentRoot "/var/www/html"                ==>  DocumentRoot "/var/www/bugzilla"

<Directory "/var/www/html">                 ==>  <Directory "/var/www/bugzilla">

Options Indexes FollowSymLinks              ==>  Options +Indexes +FollowSymLinks +Incl

AllowOverride None                          ==>  AllowOverride All

#ScriptAlias /cgi-bin/ "/var/www/cgi-bin/"  ==>  ScriptAlias /cgi-bin/ "var/www/bugzill

#AddHandler cgi-script .cgi                 ==>  AddHandler cgi-script .cgi
```

Empty `ssl.conf`

The default configuration files that are part of the RedHat httpd package set up a secure connection on port 443 as a default. We must remove the configuration directives which define this connection in order to avoid conflict with the SPK tomcat web server, which already uses port 443. The directives are not in `/etc/httpd/conf/httpd.conf`, but rather in `/etc/httpd/conf.d/ssl.conf`. Since we do not need anything in `ssl.conf`, we will make a backup copy, then empty the file of contents.

On *webserver*, enter the following commands:

```
cd /etc/httpd/conf.d
su
cp ssl.conf ssl.conf.bak
> ssl.conf
```

Run Httpd

We want httpd to start automatically, whenever the system boots. Enter the follow commands on *webserver* to set up httpd to run after every reboot and also to start it up now.

```
su
/sbin/chkconfig httpd on
/etc/rc.d/init.d/httpd start
```

Install Perl Modules

Bugzilla is a perl cgi application. For it to run, it requires that a number of perl modules be installed on *webserver* that are not part of the standard RedHat distribution. The quickest way to get and install these modules is to use CPAN and the bugzilla *bundle*. The following command will download the bundle and install it. You will be asked a large number of questions. The default answer will generally work with the

exception of the question concerning the *Template* module and whether or not you want to test it against the database. In this case, the answer is NO!

```
su
perl -MCPAN -e 'install "Bundle::Bugzilla"'
```

Install Bugzilla

We are now ready to install bugzilla on *webserver*.

Install the Bugzilla Release

Bugzilla can now be installed in the document root of httpd. You can download a tarball from bugzilla web site[3]. In the following example, however, it is copied from `/opt/download` on *whitechuck*.

```
cd /var/www
scp 'whitechuck:/opt/download/bugzilla-2.*.tar.gz' .
tar xvzf bugzilla-2*tar.gz
rm bugzilla-2*.tar.gz
mv bugzilla* bugzilla
chgrp apache bugzilla
```

The bugzilla code and configuration files are now in the document root of httpd.

Create a Symbolic Link to Perl

All of the perl code in bugzilla starts with the path to perl itself. This path contains an extra level of indirection, perhaps to accommodate systems which have several versions of perl installed. In any case, a symbolic link is required in order for the bugzilla perl scripts to work:

```
su
mkdir /usr/bonsaitools
mkdir /usr/bonsaitools/bin
cd /usr/bonsaitools/bin
ln -s /usr/bin/perl perl
```

Create `localconfig`

Much of the configuration of bugzilla is performed by a program called checksetup.pl, which is in `/var/www/bugzilla`. This process has multiple stages. In the first stage, we run checksetup.pl, and it examines the environment in which it is running. Tnen it creates as output a file called `localconfig`. Next we edit `localconfig` to provide additional information that checksetup.pl will need, but which it could not deduce from the environment. After saving the modified `localconfig`, we again run checksetup.pl to configure the system. This should complete the configuration, but if it is also possible that checksetup.pl will find inconsistencies in our setup and will request additional information or changes.

```
su
cd /var/www/bugzilla
```

```
./checksetup.pl
```

Edit `localconfig`

Now edit `/var/www/buzilla/localconfig` to have the following values, rather than the defaults that were assigned by checksetup.pl:

```
$index_html = 1;
$webservergroup = "apache";
$db_host = "dbserver";          # where is the database?
$db_pass = 'secretpassword';
```

Note that *secretpassword* should be replaced by the password that you assigned when you added the *bugs* user to MySQL, above.

Run checksetup.pl

Run checksetup.pl again, so that it can process the additional information that you provided in `localconfig`.

```
su
cd /var/www/bugzilla
./checksetup.pl
```

You will be asked to provide the email address of the administrator and a password. Give your own email address and a good password, so that you will be permitted to use the bugzilla administrative screens to do the final configuration.

With this run of checksetup.pl, the *bugs* database will be created on *dbserver*, an `index.html` file will be created in the apache httpd root directory, and various file system permissions will be set so that apache httpd can access them properly.

Use Bugzilla to Configure Bugzilla

You should now be able to access your bugzilla installation via your web browser. You will log in as the administrator, using a password that must remain secret. Bugzilla does not use secure connections, however, hence you should *only administer bugzilla from a workstation located behind the firewall.* The url to use, therefore, is http://192.168.1.101:8081.

When you click the above link, your browser should arrive at the "Bugzilla Main Page" for your installation. At the lower left-hand corner of the page is a link to *Log In*. After logging in, your browser should take you to the query page. At the bottom of the page is a set of links which, because you are the administrator, will include those which allow you to edit parameters, users, and products.

Be sure to configure the following:

- Users: at a minimum, add the developer responsible for ASPK and the developer responsible for CSPK, because these will be required for the configuration of *Components*, below. The user *rfpkbugs@u.washington.edu* must also be entered. Assign good passwords to each of these users, and remember their values.
- Products: add SPK

- Components: for SPK, add ASPK and CSPK, at a minimum, because they will be needed by bugzilla-submit. For each component, designate one of the developers that you entered as users as the owner.
- Parameters: among the parameters that can be set, are a number of templates for email that bugzilla sends to users for various purposes. In each of these which has something like *Bugzilla Daemon* as the *From:* address, replace it with *rfpkbugs@u.washington.edu*.

  You should also enter *your email address* as *maintainer* and *http://spk.rfpk.washington.edu:8081* as *urlbase*.

Install bugzilla-submit on aspkserver and cspkserver

Normally, defects are reported to bugzilla via the web interface. An add-on program, called bugzilla-submit, enables defects to be reported from the command line. Installing bugzilla-submit makes it possible for the compiler daemon and the runtime daemon to automatically submit defects to bugzilla if an instance of the compiler or of the runtime dies.

At RFPK, the compiler daemon runs on *aspkserver* and the runtime runs on *cspkserver*, which are different machines. Bugzilla-submit must be installed on both machines. It is possible to install the whole of SPK on a single server. In that case, it would only be necessary to install bugzilla-submit once. It is also possible that a runtime daemon would run on each of a number of computational machines. In that case, bugzilla-submit would need to be installed on each of them.

The following sections describe the installation on one machine. Simply repeat the instructions for each machine where bugzilla-submit is needed.

The software can be downloaded from the bugzilla web site[5]. In the following instructions, however, it is copied from *whitechuck*.

Install Python

Bugzilla-submit is a python application, which requires python version 2.3 or later. If either the machine does not have python or has a version older than 2.3, it will first be necessary to install python.

```
cd /tmp
scp 'whitechuck:/opt/download/Python-2.3*bz2' .
tar xvjf Python*bz2
cd Python*
./configure
make
su
make install
```

Install bugzilla-submit

```
cd /tmp
scp 'whitechuck:/opt/download/bugzilla-submit*gz' .
tar xvzf bugzilla-submit*gz
cd bugzilla-submit
su
```

```
cp bugzilla-submit /usr/local/bin/bugzilla-submit
```

Configure `.netrc`

```
su
cd
emacs .netrc
```

Using your favorite editor (you could use vi, for example, rather than emacs in the command, above), insert the following

```
machine         "http://192.168.1.101:8081/"
login           rfpkbugs@u.washington.edu
password        secretpassword
```

Provide as a password the password that you gave to the bugzilla user *rfpkbugs@u.washington.edu* when you added that user as described above.

The `.netrc` file provides information required by bugzilla-submit in order for its connection request to be accepted by bugzilla. The *machine*> field must agree with the a value defined in the spkcmpd.pl and spkrund.pl, the compiler daemon and runtime daemon, respectively. If the machine that hosts bugzilla is changed, the new IP address must be changed in both daemons and all .netrc files.

The `.netrc` file will not be read if the mode bits allow access to anyone but the owner. If **ls -l .netrc** does not show -rw-------, set mode properly as follows:

```
su
cd
chmod 0600 .netrc
```

Notes

1. ../mysql/mysql.html
2. http://bugzilla.rfpk.washington.edu
3. http://www.bugzilla.org
4. http://192.168.1.101:8081
5. http://www.bugzilla.org