

## Preventing MySQL Injection Attacks With GreenSQL On Debian Etch

*By Falko Timme*

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Author: Falko Timme <ft [at] falkotimme [dot] com>

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**GreenSQL** (or *greensql-fw*) is a firewall for MySQL databases that filters SQL injection attacks. It works as a reverse proxy, i.e., it takes the SQL queries, checks them, passes them on to the MySQL database and delivers back the result from the MySQL database. It comes with a web interface (called *greensql-console*) so that you can manage GreenSQL through a web browser. This guide shows how you can install GreenSQL and its web interface on a Debian Etch server.

I do not issue any guarantee that this will work for you!

## 1 Preliminary Note

I have tested this on a Debian Etch server where MySQL and Apache are already installed. I will use the virtual host *www.example.com* with the document root */var/www/web1/web* to install the GreenSQL web interface.

## 2 Installing greensql-fw

The GreenSQL project provides binary packages for Debian Etch on [http://www.greensql.net/public/releases/Debian\\_Etch/](http://www.greensql.net/public/releases/Debian_Etch/) (you can find packages for other distributions on <http://www.greensql.net/public/releases/>). Download and install the latest .deb package like this:

```
cd /tmp

wget http://www.greensql.net/public/releases/Debian_Etch/i386/greensql-fw_0.9.2_i386.deb

dpkg -i greensql-fw_0.9.2_i386.deb
```

(This is for an *i386* system.)

You will see the following questions:

```
What is the name of the server used to store GreenSQL configuration db (MySQL server)? <-- localhost
What is the database name for the GreenSQL configuration? <-- greendb
Would you like to set up the database and tables automatically? <-- Yes
What is the username of the MySQL administrator? <-- root
Enter the MySQL administrator password <-- yourrootsqlpassword (replace this with your root MySQL password)
Confirm this password <-- yourrootsqlpassword (replace this with your root MySQL password)
What is the GreenSQL db username? <-- green
What is the GreenSQL user password? <-- greensqlpassword (replace this with a password of your choice for the green MySQL user)
```

After the installation, `greensql-fw` will run on `127.0.0.1` on the port `3305` (the default MySQL port is `3306`). You can check that by running

```
netstat -tap | grep greensql
```

```
server1:~# netstat -tap | grep greensql
tcp        0      0 localhost.localdom:3305 *:*          LISTEN      4499/greensql-fw
server1:~#
```

To test if `greensql-fw` is working ok, you can try to connect to MySQL through the GreenSQL proxy:

```
mysql -h 127.0.0.1 -P 3305 -u root -p
```

Type in your MySQL root password, and you should be logged in. `greensql-fw` is now ready to be used.

If you want your web applications to connect to MySQL through `greensql-fw`, you must change their MySQL settings. For example, if you have a PHP application with the following line in its configuration file (e.g. `config.php`)...

```
[...]  
$link = mysql_connect('localhost', 'mysql_user', 'mysql_password');  
[...]
```

... change it to

```
[...]  
$link = mysql_connect('127.0.0.1:3305', 'mysql_user', 'mysql_password');  
[...]
```

(It is important that you connect to `127.0.0.1` instead of `localhost` because `greensql-fw` supports TCP connections, but not Unix sockets!)

### 3 Installing greensql-console

The GreenSQL web interface (`greensql-console`) can be downloaded from [http://sourceforge.net/project/showfiles.php?group\\_id=199511&package\\_id=236915](http://sourceforge.net/project/showfiles.php?group_id=199511&package_id=236915). To install it in `/var/www/web1/web`, we proceed as follows:

```
cd /var/www/web1/web  
  
wget http://heanet.dl.sourceforge.net/sourceforge/greensql/greensql-console-0.4.2.tar.gz  
  
tar xvfz greensql-console-0.4.2.tar.gz
```

This creates the subdirectory `greensql-console` in `/var/www/web1/web`. Next we must adjust the `greensql-console` configuration:

```
cd greensql-console  
  
vi config.php
```

In `config.php`, make sure that you fill in the correct password for the `green` MySQL user (in the line `$db_pass`):

```
<?

# Uncomment the following line to switch to demo version
#$demo_version = 1;

# greensql version
$version = "0.4.0";

# MySQL Database IP address
$db_host = "127.0.0.1";

#MySQL Database Port Value.
$db_port = 3306;

# MySQL database name used to store greensql configuration and alerts
$db_name = "greendb";

# MySQL database user and password
$db_user = "green";
$db_pass = "greensqlpassword";

# If you run greensql-fw service on the same computer you can specify
# location of it's log file. It will be visible as part of the console.
$log_file = "/var/log/greensql.log";

# Number of lines to show when viewing log file.
$num_log_lines = 200;

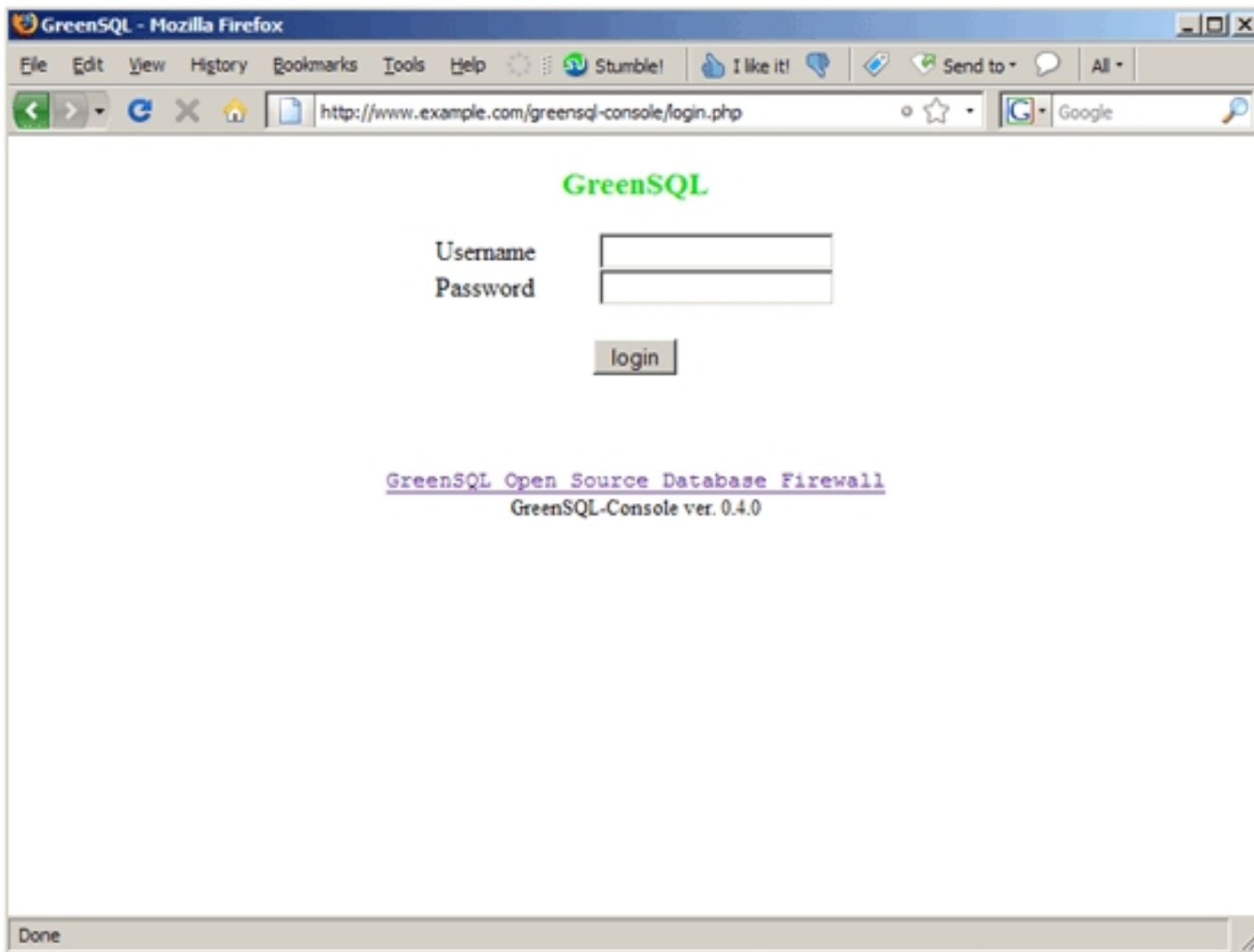
# Generated web pages cache
$cache_dir = "templates_c";
```

```
?>
```

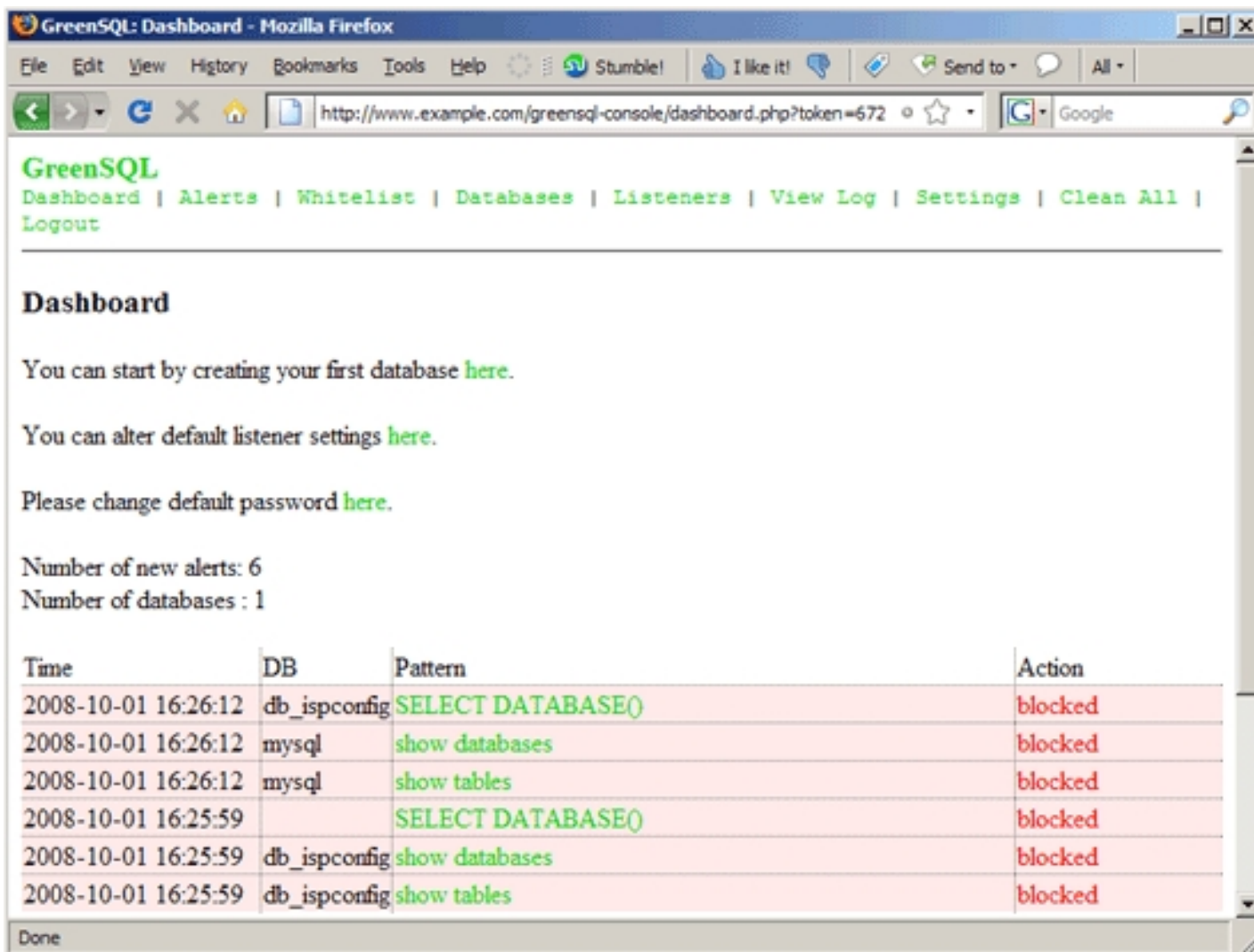
Then make the *templates\_c/* directory world-writable:

```
chmod 777 templates_c/
```

Open a browser and go to <http://www.example.com/greensql-console>. Log in with the username *admin* and the password *pwd*:



In the GreenSQL web interface, you can now see which MySQL queries got blocked and with what score, you can whitelist MySQL queries, tell `greensql-fw` what to block and what to allow for each individual database, watch the log or change the `admin` password for the GreenSQL web interface:



**GreenSQL**  
Dashboard | Alerts | Whitelist | Databases | Listeners | View Log | Settings | Clean All | Logout

**Dashboard**

You can start by creating your first database [here](#).

You can alter default listener settings [here](#).

Please change default password [here](#).

Number of new alerts: 6  
Number of databases : 1

Time	DB	Pattern	Action
2008-10-01 16:26:12	db_ispconfig	SELECT DATABASE()	blocked
2008-10-01 16:26:12	mysql	show databases	blocked
2008-10-01 16:26:12	mysql	show tables	blocked
2008-10-01 16:25:59		SELECT DATABASE()	blocked
2008-10-01 16:25:59	db_ispconfig	show databases	blocked
2008-10-01 16:25:59	db_ispconfig	show tables	blocked

Done

If you want to change the points that greensql-fw assigns for certain tests, you can do that by modifying the *greensql-fw* configuration file */etc/greensql/greensql.conf*. After you have changed the file, you must restart *greensql-fw*:

```
/etc/init.d/greensql-fw stop  
  
/etc/init.d/greensql-fw start
```

(The *restart* command did not work on my system, it seemed to hang...)

You can find the GreenSQL log in */var/log/greensql.log*.

## 4 Links

- GreenSQL: <http://www.greensql.net/>
- MySQL: <http://www.mysql.com/>
- Debian: <http://www.debian.org/>