Apache mod_security

This is a module to enhance security in your apache web server, and therefore, enhancing the protection of tiki sites installed on apache against fairly common external attacks, based on some rules.

You need to invest some little time after its first installation in order to fine tune the rules to reduce the number of "false positives" detected.

- I.e., some actions from users in tiki sites which might raise an alert or trigre a defense action (blocking that page with an error code 500) by means of mod_security, because some text was written by users in some language that mod_security didn't expect.
- Example: "Měšťáček" (means something like "small town little simple man" in Czech language) use several accented characters in the same word, and mod_security might filter and block them with its default rules.

Installation

Version used in this description: modsecurity-apache_2.6.2

- Download the archive and place it in your work folder, unzip and untar it.
- Read the documentation for prerequisites and install the required bits, e.g. liblua5.1.so and libxml2.so.
- change to the folder and compile mod_security:

  ```
  mkdir -p /work
  cd /work
  wget http://www.modsecurity.org/download/modsecurity-apache_2.6.2.tar.gz
  gzip -d modsecurity-apache_2.6.2.tar.gz
  tar xvf modsecurity-apache_2.6.2.tar
  cd modsecurity-apache_2.6.2
  ./configure
  make
  make test
  make install
  ```

Get the rules required by mod_security and unzip them. You can always get the latest rules by this, just make sure the changes you maybe do to the rules files when installed don't get lost on updating.

  ```
  cd tools
  cd rules/modsecurity-crs
  unzip *.zip
  ```

Copy the needed folders to the apache config folder.

  ```
  mkdir -p /etc/apache2/mod_security
  ```
Configuration

Now tell apache to use the module and configure it accordingly by editing httpd.conf.

```html
LoadFile /usr/lib/libxml2.so
LoadFile /usr/lib/liblua5.1.so

LoadModule security2_module /usr/local/modsecurity/lib/mod_security2.so
<IfModule security2_module>
  Include /etc/apache2/mod_security/modsecurity_crs_10_config.conf
  Include /etc/apache2/mod_security/activated_rules/*.conf
</IfModule>

# Error page for forbidden pages (big change they got blocked by mod_security)
ErrorDocument 403 /forbidden/403.php
```

Create a required folder for mod_security working data.

```bash
mkdir -p /var/log/apache2/secdatadir
```

Configure mod_security and run it in test mode.

```bash
/.../
# enable test mode, logging only, NO blocking
SecRuleEngine DetectionOnly
# uncomment THIS line instead to fully enable mod_security
# SecRuleEngine On

SecAuditEngine RelevantOnly
SecAuditLogRelevantStatus "^(?:5|4(?!04))"

# Log everything we know about a transaction.
SecAuditLogParts ABIJDEFHZ

SecAuditLogType Serial
SecAuditLog /var/log/apache2/modsec_audit.log
SecDataDir /var/log/apache2/secdatadir
```
# default action:
# * sleep 3000 milliseconds (3 seconds) to slow down brute force attacks
# * deny access to page (error 403)
# * do not log to apache log
# * but log to the audit log configured above
SecDefaultAction "phase:2,pause:3000,deny,nolog,auditlog"

Create links of all rule files you want to use into activated_rules/.

Rules are to be found in:

- /etc/apache2/mod_security/base_rules
- /etc/apache2/mod_security/experimental_rules
- /etc/apache2/mod_security/lua
- /etc/apache2/mod_security/optional_rules
- /etc/apache2/mod_security/slr_rules

Example:

```bash
cd /etc/apache2/mod_security/activated_rules/
ln -s ../base_rules/modsecurity_crs_35_bad_robots.conf .
```

If there are datafile for special rules, link them, too:

```bash
ln -s ../base_rules/modsecurity_35_bad_robots.data .
```

Create a custom error page

```html
<!DOCTYPE html>
<html xmlns="http://www.w3.org/1999/xhtml" xml:lang="en" lang="en" id="page_1210">
<head><title>Tiki: Error 403</title></head>
<body style="margin: 3em 6em;">
<h1>Oops, sorry!</h1>
Your request got filtered out due to possible security issues.<br/>

1. You tried to access a page you are not allowed to.<br/>
or<br/>
2. One or more things in your request were suspicious (defective request header, invalid cookies, bad parameters, ...).<br/>

If you think you did nothing wrong<br/>
- try again with a different browser<br/>
```
- avoid any evil characters inside the request url

<pre>
<h2>Your request was:</h2>
<textarea cols='100' rows='10' name='input'>
<?php
    print(htmlspecialchars($_SERVER['SERVER_NAME']));
    print(quoted_printable_decode(htmlspecialchars_decode($_SERVER['REQUEST_URI'])));
?>
</textarea>

<h2>Your post data were:</h2>
<textarea cols='100' rows='5' name='input'>
</textarea>

<?php print date("Y-m-d H:i:s"); ?>
</pre>

All set up. Now test your config and then tell apache to reload config.

<code>phpinfo()</code> should tell you that mod_security is enabled and a new logfile should be available:
/var/log/apache2/modsec_audit.log

Example error log entry of a blocked 'bad robot':

```
--25f26844-A--
[03/Nov/2011:12:25:35 +0100] TrJ6LLwoNcsAABrw@7wAAAAh 41.82.184.111 2521 188.40.53.203 80
--25f26844-B--
GET / HTTP/1.1
Accept: text/html
Cache-Control: no-cache, no-cache
Proxy-Connection: Keep-Alive
User-Agent: Mozilla/4.0 (compatible; MSIE 5.0; Windows NT; DigExt; DTS Agent
Pragma: no-cache
Connection: close
Host: tiki.org

--25f26844-F--
HTTP/1.1 403 Forbidden
Vary: Accept-Encoding
Content-Length: 1677
Connection: close
Content-Type: text/html; charset=utf-8

--25f26844-H--
Message: Access denied with code 403 (phase 2). [file
Now let it run for some time and then check for false positives. If you found one, grab the rule id from the log (here it is: id "990012") and the filename of the rule file: file %22modsecurity_crs_35_bad_robots.conf%22. Go to the rulefile and adjust the rule to exclude the false positive or disable the rule completely by commenting it out with a leading # character.

If you think the rules are good, adjust /etc/apache2/mod_security/modsecurity_crs_10_config.conf from

```plaintext
SecRuleEngine DetectionOnly
```

to

```plaintext
SecRuleEngine On
```

and let apache reload the configuration:

```plaintext
/etc/init.d/apache2 reload
```