# Using PHP with mod_fcgid

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*The upcoming version 4.2 of TYPO3 will depend on PHP 5.2. Here is some help on migrating your server.*

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## Intended Audience

This howto explains how to run PHP as a process which runs independently from Apache. It is written for server administrators who want to use a flexible and at the same time easy to manage PHP environment.

## What is mod_fcgid

mod_fcgid is an Apache module. It allows execution of external programs who create web documents as their output. This procedure is well-known from CGI (Common Gateway Interface) which is often used in shared hosting environments, for example to run Perl scripts.

mod_fcgid was created as a binary compatible alternative to mod_fastcgi. Both extend the traditional CGI principle with the feature that they use persistent processes, managed by a server component. This means that the web server will not launch a new process for every request as it is the case with CGI. The speed gain is enormous.

Using PHP with mod_fcgid offers a full-featured PHP environment combined with all the features that mod_fcgid provides. This solution has a lot of advantages over the traditional way of running PHP on a web server, while the only disadvantage seems to be that it is a little bit more difficult to be set up.

## Advantages of mod_fcgid

- Speed
  mod_fcgid seems to be as fast as the traditional mod_php Apache module. However, it also allows to be run on a multi threaded Apache server. For various reasons this still does not work reliable with mod_php4 / mod_php5.

- Configuration flexibility
  With mod_fcgid it is possible to run many different PHP versions on the same server, and even with multiple different users.

## Disadvantages of mod_fcgid

- Installation is more complex
  Installation of PHP using mod_fcgid is probably more difficult than setting up mod_php5, mainly because there is only a few documentation about it that can be found. However, since you found this document, you may be lucky...

# Installation

## Prerequisites

This manual is designed for Debian Etch servers. It expects a server running Apache 2.x. Basically this should work equally for other systems – they probably just use different paths and package names...

## Installation of packages

The following packages are required:

- php5-cgi
  This is the CGI binary of PHP5. It was compiled with FCGI support and works perfectly together with mod_fcgid.

- libapache2-mod-fcgid
  This is the FCGID module

- apache2-mpm-worker
  This is the multi threaded multi-processing module (MPM) for Apache2. It replaces apache2-mpm-prefork with is a single-threaded MPM and is required by mod_php4 / mod_php5. Of course these packages must also be removed.
  Keep in mind that you may want to make a backup of your current php.ini, because php5-cgi will set up a new configuration file.

  ```
  # apt-get -u install php5-cgi libapache2-mod-fcgid apache2-mpm-worker
  ```

## Configuration

1. Remove mod_php4 / mod_php5 if not already done

   ```
   # a2dismod php4
   # a2dismod php5
   ```

2. Enable mod_actions and mod_fcgid

   ```
   # a2enmod actions
   # a2enmod fcgid
   ```

3. Raise the communication timeout (= maximum execution time) for FCGI applications in /etc/apache2/mods-enabled/fcgid.conf by adding the "IPCCommTimeout" directive

   ```
   <IfModule mod_fcgid.c>
       AddHandler fcgid-script .fcgi
       SocketPath /var/lib/apache2/fcgid/sock

       # Communication timeout: Default value is 20 seconds
       IPCCommTimeout 60

       # Connection timeout: Default value is 3 seconds

       #IPCConnectTimeout 3
   </IfModule>
   ```

4. Create a new file /etc/apache2/conf.d/php-fcgid.conf:

```
<IfModule !mod_php4.c>
<IfModule !mod_php4_filter.c>
<IfModule !mod_php5.c>
<IfModule !mod_php5_filter.c>
<IfModule !mod_php5_hooks.c>
<IfModule mod_actions.c>
<IfModule mod_alias.c>
<IfModule mod_mime.c>
<IfModule mod_fcgid.c>
        # Path to php.ini – defaults to /etc/phpX/cgi
        DefaultInitEnv PHPRC=/etc/php5/cgi

        # Number of PHP childs that will be launched. Leave undefined to let PHP decide.
        #DefaultInitEnv PHP_FCGI_CHILDREN 3

        # Maximum requests before a process is stopped and a new one is launched
        #DefaultInitEnv PHP_FCGI_MAX_REQUESTS 5000

        # Define a new handler "php-fcgi" for ".php" files, plus the action that must follow
        AddHandler php-fcgi .php
        Action php-fcgi /fcgi-bin/php-fcgi-wrapper

        # Define the MIME-Type for ".php" files
        AddType application/x-httpd-php .php

        # Define alias "/fcgi-bin/". The action above is using this value, which means that
        # you could run another "php5-cgi" command by just changing this alias
        Alias /fcgi-bin/ /var/www/fcgi-bin.d/php5-default/

        # Turn on the fcgid-script handler for all files within the alias "/fcgi-bin/"
        <Location /fcgi-bin/>
                SetHandler fcgid-script
                Options +ExecCGI
        </Location>
</IfModule>
</IfModule>
</IfModule>
</IfModule>
</IfModule>
</IfModule>
</IfModule>
</IfModule>
</IfModule>
```

5. Next, create the directory which is chosen by the alias, and put in a symlink to the php5-cgi binary

```
# mkdir /var/www/fcgi-bin.d/php5-default
# ln -s /usr/bin/php5-cgi /var/www/fcgi-bin.d/php5-default/php-fcgi-wrapper
```

6. Finally, restart Apache

```
# /etc/init.d/apache2 restart
```

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# Additional configuration

It is also possible to run different versions of PHP, even with different users.

1. Enable mod_suexec

```
# a2enmod suexec
```

2. Create a new user

```
# adduser <username>
```

3. For every instance of PHP, create a new subdirectory in /var/www/fcgi-bin.d/

```
# mkdir /var/www/fcgi-bin.d/php<version>-<username>/
```

4. Instead of creating a symlink, this time you need to add a new file "php-fcgi-wrapper" inside this directory

```
#!/bin/sh
# Wrapper for PHP-fcgi
# This wrapper can be used to define settings before launching the PHP-fcgi binary.

# Define the path to php.ini. This defaults to /etc/phpX/cgi.
#export PHPRC=/var/www/fcgi-bin.d/php5-web01/phprc
#export PHPRC=/etc/php5/cgi

# Define the number of PHP childs that will be launched. Leave undefined to let PHP decide.
#export PHP_FCGI_CHILDREN=3

# Maximum requests before a process is stopped and a new one is launched
#export PHP_FCGI_MAX_REQUESTS=5000

# Launch the PHP CGI binary
# This can be any other version of PHP which is compiled with FCGI support.
exec /usr/bin/php5-cgi
```

5. Make this script executable and change the user appropriately

```
# chmod a+x /var/www/fcgi-bin.d/php<version>-<username>/php-fcgi-wrapper
# chown <user>:<group> /var/www/fcgi-bin.d/php<version>-<username>/php-fcgi-wrapper
```

6. Modify the Apache configuration, e.g. in /etc/apache2/sites-enabled/web01

```
<VirtualHost *:80>
    Servername web01.myserver.com
    DocumentRoot /var/www/websites/web01/
    SuexecUserGroup <user> <group>
    Action php-fcgi /fcgi-bin/php-fcgi-wrapper
    Alias /fcgi-bin/ /var/www/fcgi-bin.d/php<version>-<username>/
</VirtualHost>
```
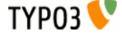
*Notice: It is important that user and group are owned by the same user and group as defined for the wrapper script above.*

7. Restart Apache

```
# /etc/init.d/apache2 restart
```

# Appendix

## Further reading
[1] Website of mod_fcgid: http://fastcgi.coremail.cn/

## FAQ

### How fast is it?
Compared to mod_php5 the speed seems to be almost equal, probably just a little bit slower.

### Can I turn off the PHP parser for a specific directory?
Of course! You can simply disable the parser for directories. This is very useful for example to use WebDAV for editing PHP files. Using mod_php5 these files would be sent as plain HTML output:

```
<Location /dav/>
      RemoveHandler .php
</Location>
```

## ChangeLog

### Changes in version 1.0
- Initial version

## About the author
Michael Stucki is the leader of the TYPO3 core team. He lives close to Basel / Switzerland. When he is not developing, he likes doing sports and travel around. Michael is working for snowflake productions, where this document was initially written as a help guide for their customers.