

Names :

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1- 1. Change the default index page to default.html instead of index.html (use DirectoryIndex)

```
DirectoryIndex /default.html index.html
```



2. Change the default port to be 8000 instead of 80

```
abdelrahman-abdelhady@abdelrahman-abdelhady-HP-Laptop-15-da2xxx:/etc/apache2$ cd /etc/apache2
abdelrahman-abdelhady@abdelrahman-abdelhady-HP-Laptop-15-da2xxx:/etc/apache2$ sudo nano ports.conf
abdelrahman-abdelhady@abdelrahman-abdelhady-HP-Laptop-15-da2xxx:/etc/apache2$ sudo systemctl restart apache2
abdelrahman-abdelhady@abdelrahman-abdelhady-HP-Laptop-15-da2xxx:/etc/apache2$ sudo nano ports.conf
abdelrahman-abdelhady@abdelrahman-abdelhady-HP-Laptop-15-da2xxx:/etc/apache2$ sudo systemctl restart apache2
abdelrahman-abdelhady@abdelrahman-abdelhady-HP-Laptop-15-da2xxx:/etc/apache2$
```

```
Listen 8000
```

3.What is the importance of rewrite module?

1- provides a flexible and powerful way to manipulate URLs using an unlimited number of rules. Each rule can have an unlimited number of attached rule conditions, to allow you to rewrite URL based on server variables, environment variables, HTTP headers, or time stamps.

2- operates on the full URL path, including the path-info section. A rewrite rule can be invoked in `httpd.conf` or in `.htaccess`. The path generated by a rewrite rule can include a query string, or can lead to internal sub-processing, external request redirection, or internal proxy throughput.

4. Configure apache to use Worker MPM

```
abdelrahman-abdelhady@abdelrahman-abdelhady-HP-Laptop-15-da2xxx:/etc/apache2$ apachectl -V
Server version: Apache/2.4.58 (Ubuntu)
Server built: 2024-07-04T11:15:14
Server's Module Magic Number: 20120211:129
Server loaded: APR 1.7.2, APR-UTIL 1.6.3, PCRE 10.42 2022-12-11
Compiled using: APR 1.7.2, APR-UTIL 1.6.3, PCRE 10.42 2022-12-11
Architecture: 64-bit
Server MPM: event
  threaded: yes (fixed thread count)
  forked: yes (variable process count)
Server compiled with....
-D APR_HAS_SENDFILE
-D APR_HAS_MMAP
-D APR_HAVE_IPV6 (IPv4-mapped addresses enabled)
-D APR_USE_PROC_PTHREAD_SERIALIZE
-D APR_USE_PTHREAD_SERIALIZE
-D SINGLE_LISTEN_UNSERIALIZED_ACCEPT
-D APR_HAS_OTHER_CHILD
-D AP_HAVE_RELIABLE_PIPED_LOGS
-D DYNAMIC_MODULE_LIMIT=256
-D HTTPD_ROOT="/etc/apache2"
-D SUEXEC_BIN="/usr/lib/apache2/suexec"
-D DEFAULT_PIDLOG="/var/run/apache2.pid"
-D DEFAULT_SCOREBOARD="logs/apache_runtime_status"
-D DEFAULT_ERRORLOG="logs/error_log"
-D AP_TYPES_CONFIG_FILE="mime.types"
-D SERVER_CONFIG_FILE="apache2.conf"
abdelrahman-abdelhady@abdelrahman-abdelhady-HP-Laptop-15-da2xxx:/etc/apache2$
```

```
abdelrahman-abdelhady@abdelrahman-abdelhady-HP-Laptop-15-da2xxx:/etc/apache2$ sudo nano apache2.conf
[sudo] password for abdelrahman-abdelhady:
abdelrahman-abdelhady@abdelrahman-abdelhady-HP-Laptop-15-da2xxx:/etc/apache2$ ls
apache2.conf  conf-enabled  magic          mods-enabled  sites-available
conf-available  envvars      mods-available  ports.conf    sites-enabled
abdelrahman-abdelhady@abdelrahman-abdelhady-HP-Laptop-15-da2xxx:/etc/apache2$ cd mods-enabled
abdelrahman-abdelhady@abdelrahman-abdelhady-HP-Laptop-15-da2xxx:/etc/apache2/mods-enabled$ ls
access_compat.load  authn_file.load  autoindex.load  env.load        mpm_event.load  setenvif.conf
alias.conf          authz_core.load  deflate.conf     filter.load     negotiation.conf setenvif.load
alias.load          authz_host.load  deflate.load     mime.conf       negotiation.load status.conf
auth_basic.load     autoindex.load  dir.conf        mime.load       reqtimeout.conf status.load
authn_core.load     autoindex.conf  dir.load        mpm_event.conf  reqtimeout.load
abdelrahman-abdelhady@abdelrahman-abdelhady-HP-Laptop-15-da2xxx:/etc/apache2/mods-enabled$ sudo nano mpm_event.conf
abdelrahman-abdelhady@abdelrahman-abdelhady-HP-Laptop-15-da2xxx:/etc/apache2/mods-enabled$ sudo nano mpm_event.load
```

```
abdelrahman-abdelhady@abdelrahman-abdelhady-HP-Laptop-15-da2xxx:/etc/apache2/mods-enabled$ apachectl -V
Server version: Apache/2.4.58 (Ubuntu)
Server built: 2024-07-04T11:15:14
Server's Module Magic Number: 20120211:129
Server loaded: APR 1.7.2, APR-UTIL 1.6.3, PCRE 10.42 2022-12-11
Compiled using: APR 1.7.2, APR-UTIL 1.6.3, PCRE 10.42 2022-12-11
Architecture: 64-bit
Server MPM: worker
  threaded: yes (fixed thread count)
  forked: yes (variable process count)
Server compiled with....
-D APR_HAS_SENDFILE
-D APR_HAS_MMAP
-D APR_HAVE_IPV6 (IPv4-mapped addresses enabled)
-D APR_USE_PROC_PTHREAD_SERIALIZE
-D APR_USE_PTHREAD_SERIALIZE
-D SINGLE_LISTEN_UNSERIALIZED_ACCEPT
-D APR_HAS_OTHER_CHILD
-D AP_HAVE_RELIABLE_PIPED_LOGS
-D DYNAMIC_MODULE_LIMIT=256
-D HTTPD_ROOT="/etc/apache2"
-D SUEXEC_BIN="/usr/lib/apache2/suexec"
-D DEFAULT_PIDLOG="/var/run/apache2.pid"
-D DEFAULT_SCOREBOARD="logs/apache_runtime_status"
-D DEFAULT_ERRORLOG="logs/error_log"
-D AP_TYPES_CONFIG_FILE="mime.types"
-D SERVER_CONFIG_FILE="apache2.conf"
abdelrahman-abdelhady@abdelrahman-abdelhady-HP-Laptop-15-da2xxx:/etc/apache2/mods-enabled$
```

5. Check the status of `rewrite_mod` and enable it if it is enabled.

```
abdelrahman-abdelhady@abdelrahman-abdelhady-HP-Laptop-15-da2xxx:/var/www/html$ apache2ctl -M | grep rewrite
AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 127.0.1.1. Set the 'ServerName' d
irective globally to suppress this message
abdelrahman-abdelhady@abdelrahman-abdelhady-HP-Laptop-15-da2xxx:/var/www/html$

abdelrahman-abdelhady@abdelrahman-abdelhady-HP-Laptop-15-da2xxx:/var/www/html$ apache2ctl -M | grep rewrite
AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 127.0.1.1. Set the 'ServerName' d
irective globally to suppress this message
abdelrahman-abdelhady@abdelrahman-abdelhady-HP-Laptop-15-da2xxx:/var/www/html$ sudo a2enmod rewrite
[sudo] password for abdelrahman-abdelhady:
Enabling module rewrite.
To activate the new configuration, you need to run:
  systemctl restart apache2
abdelrahman-abdelhady@abdelrahman-abdelhady-HP-Laptop-15-da2xxx:/var/www/html$ sudo systemctl restart apache2
abdelrahman-abdelhady@abdelrahman-abdelhady-HP-Laptop-15-da2xxx:/var/www/html$ apache2ctl -M | grep rewrite
AH00558: apache2: Could not reliably determine the server's fully qualified domain name, using 127.0.1.1. Set the 'ServerName' d
irective globally to suppress this message
rewrite_module (shared)
abdelrahman-abdelhady@abdelrahman-abdelhady-HP-Laptop-15-da2xxx:/var/www/html$
```

1- Write RewriteCond and RewriteRules for:

A. Deny access to `http://localhost/page?queryString` if `queryString` contains the string `forbidden`.

```
RewriteCond %{QUERY_STRING} forbidden [NC]
RewriteRule ^ - [F]
```



B. Remove the Query String

```
RewriteCond %{QUERY_STRING} !=""
RewriteRule ^(.*)$ /$1? [R=301,L]
```



Not Found

The requested URL was not found on this server.

Apache/2.4.58 (Ubuntu) Server at localhost Port 80



Not Found

The requested URL was not found on this server.

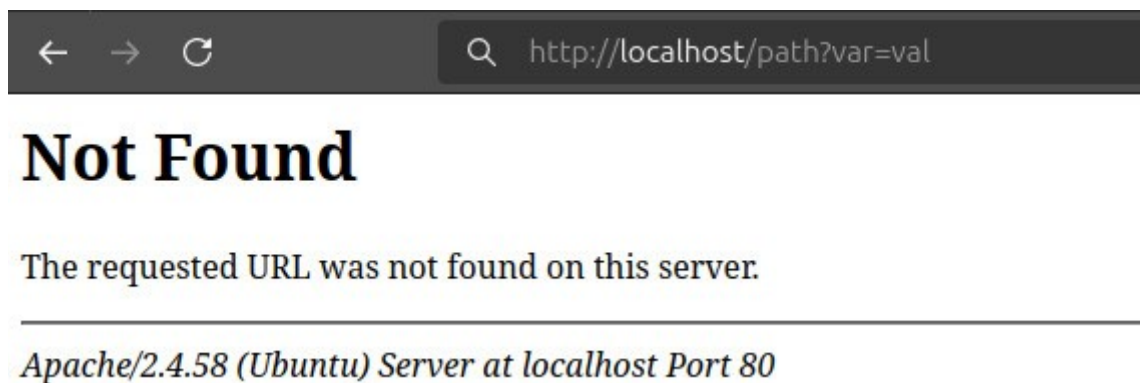
Apache/2.4.58 (Ubuntu) Server at 127.0.0.1 Port 80

c. Rewrite URLs like `http://localhost/page1?var=val` to `http://localhost/page2?var=val` but do not rewrite if `val` isn't present.

```
RewriteCond %{QUERY_STRING} ^([^=]+)=([^&]+)&?(.*)$  
RewriteRule ^(.*)$ /$1/%1/%2?%3 [L,R=301]  
alHost>
```

d. Take a URL of the form `http://localhost/path?var=val` and transform it into <http://localhost/path/var/val>.

```
RewriteCond %{QUERY_STRING} ^(.*)&?var=val(&.*)?$ [NC]  
RewriteRule ^page1$ /page2 [R=301,L]
```



E, Map `http://localhost/example/one/two` to `http://localhost/something.cgi?arg=one&other=two`

```
RewriteRule ^example/(.+)/(.+)$ /something.cgi?arg=$1&other=$2
```

2- Create virtualhost for os.iti.gov.eg website.

```
abdelrahman-abdelhady@abdelrahman-abdelhady-HP-Laptop-15-da2xxx:/etc/apache2/sites-available$ sudo cp /etc/apache2/sites-available/000-default.conf /etc/apache2/sites-available/os.iti.gov.eg.conf
abdelrahman-abdelhady@abdelrahman-abdelhady-HP-Laptop-15-da2xxx:/etc/apache2/sites-available$ sudo nano /etc/apache2/sites-available/os.iti.gov.eg.conf
abdelrahman-abdelhady@abdelrahman-abdelhady-HP-Laptop-15-da2xxx:/etc/apache2/sites-available$ sudo systemctl restart apache2
```

```
GNU nano 7.2 /etc/apache2/sites-available/os.iti.gov.eg.conf
<VirtualHost *:80>
    ServerAdmin admin@os.iti.gov.eg
    ServerName os.iti.gov.eg
    ServerAlias www.os.iti.gov.eg
    DocumentRoot /var/www/os.iti.gov.eg/public_html
    ErrorLog ${APACHE_LOG_DIR}/error.log
    CustomLog ${APACHE_LOG_DIR}/access.log combined
</VirtualHost>
```

```
abdelrahman-abdelhady@abdelrahman-abdelhady-HP-Laptop-15-da2xxx:/etc/apache2/sites-available$ sudo a2ensite os.iti.gov.eg.conf
Site os.iti.gov.eg already enabled
```

```
GNU nano 7.2 /etc/hosts
127.0.0.1 localhost
127.0.1.1 abdelrahman-abdelhady-HP-Laptop-15-da2xxx
203.0.113.10 os.iti.gov.eg
# The following lines are desirable for IPv6 capable hosts
::1 ip6-localhost ip6-loopback
fe00::0 ip6-localnet
ff00::0 ip6-mcastprefix
ff02::1 ip6-allnodes
ff02::2 ip6-allrouters
```

```
abdelrahman-abdelhady@abdelrahman-abdelhady-HP-Laptop-15-da2xxx:/etc/apache2/sites-available$ sudo systemctl restart apache2
abdelrahman-abdelhady@abdelrahman-abdelhady-HP-Laptop-15-da2xxx:/etc/apache2/sites-available$ systemctl reload apache2
abdelrahman-abdelhady@abdelrahman-abdelhady-HP-Laptop-15-da2xxx:/etc/apache2/sites-available$ sudo systemctl restart apache2
abdelrahman-abdelhady@abdelrahman-abdelhady-HP-Laptop-15-da2xxx:/etc/apache2/sites-available$ sudo nano /etc/hosts
```

