

Apache in One week

(Page in Michel Apache DOC)

What is Apache (httpd, MSInformation Server, Netscape, AOL Server etc.)

History of Apache name. 1

Browsers (MSIE, Mozilla, Opera, Netscape, Konqueror, Galeon, lynx, w3m) 3

HTTP Protocol format, URI, URL (Browser Request content) 4

Install Apache in SuSE (apache, apache-doc, comanche(from dozent)) 2

Preparation to Exercises:

- Login as root and create the directory /www
- Create the empty file /etc/httpd/user.conf
- Allow the main local user to become root without password
visudoUsername hostname=NOPASSWD:/bin/su
- Optional:
Transfer and install Opera and Mozilla from dozent , w3m and lynx from CD
- Create Multiple terminals for:

```
⇒ sudo su - -c "mcedit /etc/httpd/user.conf" Title: user.conf
    OR create desktop icon for: nedit /etc/httpd/user.conf (icon: run as root)
⇒ sudo su - then rcapache reload Title: reload
⇒ tail -f /var/log/httpd/error_log Title: error_log
⇒ sudo su - -c "mcedit /etc/httpd/httpd.conf" Title: httpd.conf
    OR create desktop icon for: nedit /etc/httpd/httpd.conf (icon: run as root)
⇒ watch -n1 "ps -fc httpd" Title: watch_httpd
⇒ sudo su - -c "mc / /usr/local/httpd/htdocs" Title: MC-ROOT
```

Start/Stop of Apache (rcapache, /etc/init.d/apache, START_HTTPD)2

First Exercise with HTTP Protocol: telnet localhost 80 (GET /)

Where is what (basic only) 6

- Main server /usr/sbin/httpd
- Main Configuration file /etc/httpd/httpd.conf
- Modules /usr/lib/apache/xxxx.so
- Log files /var/log/httpd/xxxx_log

Configuration files conditions 11

- httpd.conf, access.conf, srm.conf, NO unrecognized directives

System access rights for wwwrun

Modules : Roles and their Directives (server-info) 8.1

- Change in /etc/sysconfig/apache:
HTTP_SEC_ACCESS_SERVERINFO=yes
- rcapache restart
- In browser: http://localhost/server-info

Apache Server status: http://localhost/server-status 10

Documentation: /doc/ /manual/ (SuSE8.0 package: apache-doc) 6.5

For SuSE 8.1: -The DocumentRoot is /srv/www/htdocs

Where are the docs: SuSE 8.0 : /usr/local/httpd/htdocs/manual
SuSE 8.1 : /srv/www/htdocs/manual

Important core directives:

ServerType standalone

```

ServerName www.myserver.de
ServerRoot /usr/local/httpd
DocumentRoot /usr/local/httpd/htdocs
DirectoryIndex index.html
User wwwrun
Group nogroup
MaxClients 150
Port 80

```

-----**Practice Exercises**-----

Students put their names in the `index.html.de` and `index.html.en`

Install Comanche from dozent laptop from `/x/SuSE_80_Updates/n2`

Add Include `/etc/httpd/user.conf` at the end of
`/etc/httpd/suse_include.conf`

Sequence of Indexes delivery:

	DirectoryIndex ?	yes: send the <i>file.html</i>
no then	Multiviews ?	yes: send the <i>file.de.html</i> etc.
no then	Options Indexes ?	yes: produce and send index of the directory
		no: produce an send a Forbidden message

-----**Options Multiviews** -----p.444 MITP-----p.18 Michel-----

- in `user.conf`
 Options +MultiViews
- In browser: Change the LanguagePriority between DE and EN
- Check with browser: `http://localhost`
- in `user.conf`:
 <Location />
 Options -Multiviews [-Indexes]
 </Location>
- Check with browser: `http://localhost/`

----- **ALIAS** -----p.214 MITP-----p.16 Michel-----

Example together:

```

in user.conf:    alias /webicons/    /usr/local/httpd/icons/
in browser:     http://localhost/webicons/

```

Exercise to do:

```

in user.conf:   alias /software/    /usr/share/doc/packages/
                alias /web/          /www/
in browser:     http://localhost/software/
                http://localhost/web/

```

-----**Options FollowSymlinks** --p.118 MITP-----p.16 Michel-----

Note: Make sure that **Comanche** is already installed

Example together:

In Bash:

```
ln -s /home/[login]/Documents/ /usr/local/httpd/htdocs/userdocs/
```

in browser: http://localhost/userdocs/ **Forbidden!**

```
in user.conf: <Directory /usr/local/httpd/htdocs/>
               Options +FollowSymlinks
             </Directory>
```

in browser: http://localhost/userdocs/ **Allowed!**

Exercise 1 to do:

```
In Bash: ln -s /usr/share/doc/packages/comanche/docs/user/ \
          /usr/local/httpd/htdocs/comanche/
```

```
in user.conf: <Directory /usr/local/httpd/htdocs/comanche>
               DirectoryIndex userguide.html
             </Directory>
```

in browser: http://localhost/comanche/

Exercise 2 to do (if needed):

```
ln -s /usr/share/doc/packages/w3m/doc/ \
      /usr/local/httpd/htdocs/w3m/
ln -s /usr/share/doc/packages/lynx/lynx_help/ \
      /usr/local/httpd/htdocs/lynx/
```

```
in user.conf: <Directory /usr/local/httpd/htdocs/w3m>
               DirectoryIndex MANUAL.html
             </Directory>
             <Directory /usr/local/httpd/htdocs/lynx>
               DirectoryIndex Lynx_users_guide.html
             </Directory>
```

----- **Containers** -----p.107 MITP-----p.13 Michel-----

<Directory> Absolute system path of web documents.

<Location> Relative path to DocumentRoot of server (read last after Dir. and Files)

<Files> Can be nested inside <Directory> or alone (Declares defaults for server)
Note: <Files> cannot be nested in <Location>. Use another <Location> for files.

<Limit> Can be anywhere. Used to limit the use of certain HTTP methods

----- **Allow - Deny**----p.121 MITP----p.19 Michel-----

Example1 together (deny access to a single file):

```
In bash as root:  mkdir /www/gifs
                  cp /usr/local/httpd/htdocs/gif/* /www/gifs
```

```
In browser:      http://localhost/web/gifs
```

Click on apache_logo.giflogo is seen

```
in user.conf:    <Location /web/gifs/penguin.gif>
                  order allow,deny
                  allow from all
                  deny from [dozent_host]
                </Location>
```

Only Dozent is not allowed: http://[studenthost]/web/gifs/penguin.gif

Example 2 together:

Allow access to a full directory: /sambahelp/ to 4 consecutive addresses

```
in user.conf:  alias /sambabuch/
               /usr/share/doc/packages/samba/htmldocs/using_samba/
               <Location /sambabuch>
                 order deny,allow
                 deny from all
                 allow from 192.168.71.12/30
               </Location>
```

Only Clients Hosts having the address 192.168.71.12 to 192.168.71.15 are allowed .
to the address: http://[studenthost]/sambabuch/

Exercise 1 to do: Allow access to /sambahelp only to this class and have a specific page come up (DirectoryIndex): smb.conf.5.html

```
In user.conf:  alias /sambahelp/ /usr/share/samba/swat/help/
               <Location /sambahelp>
                 order deny,allow
                 deny from all
                 allow from 192.168.71.0/27 localhost
                 DirectoryIndex smb.conf.5.html
               </Location>
```

Only Clients Hosts having the address 192.168.71.0 to 192.168.71.31 are allowed .
to the address: http://[studenthost]/sambahelp/

----- **Authentication** ---.126 MITP-----p.53 Michel-----

Example together: Authenticate /www/icons directory.

Use the directives given in example 2 of Allow-Deny.

```
<Location /sambabuch>
  order deny,allow
  deny from all
  allow from 192.168.71.12/28
  AuthType Basic
  AuthName "Private ICONS"
  AuthUserFile /etc/httpd/.okusers
  # AuthGroupFile /etc/httpd/.okgroups
  Require valid-user
  # Require user jennie otto
  # Require group buero admin
  Satisfy any
  # Satisfy all
</Location>
```

```
in bash:      htpasswd -c /etc/httpd/.okusers jennie
              htpasswd /etc/httpd/.okusers paul
              htpasswd /etc/httpd/.okusers marie
              htpasswd /etc/httpd/.okusers hans
              htpasswd /etc/httpd/.okusers otto
              echo"admin:  hans otto"          >> /etc/httpd/.okgroups
              echo"buero:  jennie marie"       >> /etc/httpd/.okgroups
              echo"dienst: paul hans"         >> /etc/httpd/.okgroups
```

----- **Public_html**---P.261 MITP-----p.41 Michel(suEXEC page-----

till SuSE 7.3 : /etc/rc.config.d/apache: HTTPD_SEC_PUBLIC_HTML=yes
from SuSE 8.0 /etc/sysconfig/apache: HTTPD_SEC_PUBLIC_HTML=yes

Directive: UserDir public_html

Example together:

```
In bash: cp -R /usr/share/cups/doc/* /home/[userlogin]/Documents
In user.conf: Userdir Documents
in browser: http://localhost/~[userlogin]
```

Note to change the target directory to eg. ~/www for users web pages:

- 1- Create a /home/[login]/www for all existing users and make them owned by their respective users
- 2 - Create the directory /etc/skel/www
- 3 - Change the directive in : /etc/httpd/suse_public_html.conf
to: UserDir www

-----**INDEXES** ----p.175 MITP-----p.23 Michel-----

Note: - Index Directives don't work inside <Location> container. Use <Directory>
 - Alias path can also be controlled by <Directory> using the real system Path.

Example 1 together:

Copy the whole directory LinuxBu.ch to /home/user1/Documents for students.
 eg.

```
mkdir /www/LinuxBu.ch
scp user1@dozent.linux.local:Documents/LinuxBu.ch/* /www/LinuxBu.ch/
```

In user.conf:

```
alias /linuxbuch/ /www/LinuxBu.ch/
<Directory /www/LinuxBu.ch>
    Options +Indexes
    DirectoryIndex dummy
    AddDescription "Text Datei" .text
    AddDescription "<Font color=red>GIF Bilder</Font>" .gif
    (dir) AddDescription "Konfigurationsbeispiele" konfiguration
    AddDescription "<Font color=green>=START=</Font>" index.html
```

----- **Extended Index Features** -----

```
FancyIndexing off
IndexOptions      +FancyIndexing          \
                  +FoldersFirst          \
                  +IconsAreLinks         \
                  +SuppressSize           \
                  +SuppressLastModified   \
                  +NameWidth=*            \
                  +DescriptionWidth=*     \
                  +ScanHTMLTitles
HeaderName header.html
ReadmeName footer.html
IndexIgnore header.html footer.html *.txt *.log
</Directory>
```

Note: The '\ ' at the end of each line above simulate a long line. They should never have anything else than <Enter> after it. No space or tabs or anything.

header.html

```
<HTML>
  <BODY bgcolor="lightgreen">
    <!-- KOMENTARE SIND HIER -->
    <H1><FONT color=red><CENTER> L I N U X - B U C H <BR>
    Inhalt</CENTER></FONT></H1>
    <IMG src=penguin.gif>
    <H3><FONT color=blue>Letzte Liste von LinuxBu.ch Dateien
    </FONT></H3>
    <BR>
    <HR><HR><HR>
  </BODY>
</HTML>
```

footer.html

```
<B><I>Bitte schreiben sie ihre Komentare per email:
<a href="mailto:michel@mmbisson.com">michel@mmbisson.com
</a></I></B>
```

Exercise 1 to do: (Add descriptions for all other files of the /www/LinuxBu.ch)
 for: .conf .zone .hint .ps .pdf .htm .html
 With different properties like: color Italic Bold H3 <Blink>

Example 2 together: (Fill-up Descriptions automatically from HTML files titels)

in user.conf:

```
alias /howto-de/ /usr/share/doc/howto/de/html/
<Directory /usr/share/doc/howto/de/html>
  Options +Indexes
  DirectoryIndex dummy
  FancyIndexing off
  IndexOptions +FancyIndexing \
               +FolderFirst \
               +IconsAreLinks \
               +SuppressSize \
               +SuppressLastModified \
               +NameWidth=* \
               +DescriptionWidth=* \
               +ScanHTMLTitles
</Directory>
```

in Browser: http://localhost/howto-de/

----- **AllowOverride**---P.93 & 114 MITP-----p.27 Michel-----

Directives: AccessFileName .htaccess

Example 1 together: (Note: valid only in <Directory> and NOT in <Location>)

I Do: cp /public/public4/bashshell/bashref.html /public/public7

Students do:

```
mkdir /www/override
cp /www/LinuxBu.ch/header.html /www/override
```

In browser: http://localhost/web/override/ List of file only in dir

in user.conf:

```
<Directory /www/override>
  AllowOverride +Indexes
</Directory>
```

In bash: touch /www/override/.htaccess
 mcedit /www/override/.htaccess

In .htaccess: DirectoryIndex header.html

In browser: http://localhost/web/override/ Bash page comes up.

----- **Virtual Hosts** -----

```
mkdir -m 755 -p /www/virtuall.de/log
```

Fill in the Virtual host Document root::

```
cp -rv /usr/share/doc/packages/apache/manual/. /www/virtuall.de
```

```
NameVirtualHost 192.168.10.27
<VirtualHost 192.168.10.27>
    ServerName www.virtual1.de
    ServerAlias virtual1.de virtual1 v1
    DocumentRoot /www/virtual1.de
    TransferLog /www/virtual1.de/log/access_log
    ErrorLog /www/virtual1.de/log/error_log
</VirtualHost>
```

Enter `www.virtual1.de virtual1.de virtual1 v1` in `/etc/hosts`
Make sure the `NoProxy` for `www.virtual1.de virtual1.de virtual1 v1`
Add `DirectoryIndex invoking.html`

----- **Produce 3 to 5 VirtualHosts** -----

Mount on `Dozent`: `/public8` and get all virtual Hosts Directories into `/www`
Remember to create log directories and log files for all
Name the virtual hosts as follows: `www.bashshell.26.de`

To DO:

- Bashshell: Needs a `DirectoryIndex` and logs
- Linuxkurs: Needs to block access to icons Directory
- Manual: Descriptive Index for `images` directory with header and footer.
Hide the header and footer
- Do not allow `windows.html` to be seen by `dozent`
- Selfhtml: Needs `Directoryindex` in a `.htaccess` file
- samba : Needs Another IP Nr. , a `DirectoryIndex` and logs
- Alias for manual and samba for all hosts


```
----- CGI -----
mkdir /www/cgittest
<VirtualHost 192.168.10.50>
    DocumentRoot /www/cgittest
    ServerName www.cgittest.net
    <Directory /www/cgittest>
        Options +execCGI
        AddHandler cgi-script .cgi
        DirectoryIndex cgittest.cgi
    </Directory>
    ErrorLog /var/log/httpd/cgittest.access.log
    TransferLog /var/log/httpd/cgittest.error.log
</VirtualHost>
```

```
-----cgittest.cgi-----

#!/bin/sh
echo Content-type: text/html
echo

# This above header and empty echo after it is VERY important.
# Otherwise Apache shows an error : Content Header missing
# The HTML code enclosed in quotes is also very important.....
echo "<HTML><HEAD><TITLE>CGI TEST Seite</TITLE></HEAD>"
echo "<BODY bgcolor=lightcyan>"

echo "<H1><CENTER>SYSTEM INFO</CENTER></H1><P>"
echo "<H3>Ihre IP Addr. ist :</H3><H2>${REMOTE_ADDR}</H2><BR>"

#---Display content of /etc/fstab
echo "<HR><H3>System /etc/fstab</H3><BR>"
cat /etc/fstab | sed -e 's/.*$/&\<BR\>/'
echo "<BR><HR>"

#---Display free space of all mounted disks in Linux -----
echo "<Center><H1>Disk Space</H1></Center><BR>"
df -h | sed -e 's/.*$/&\<BR\>/'
echo "<HR>"

#---Display all the system Processes ---
echo "<H3>Kernel INFO</H3><BR>"
procinfo -a | sed -e 's/.*$/&\<BR\>/'

#---Display Apache's user name and group
echo "<BR><HR>"
user=$(id -nu)
group=$(id -ng)
echo "<H3>Apache ist $user Mitglied von Gruppe $group</H3>"
echo "<BR><HR>"

echo "</BODY></HTML>"
```

----- Webalizer -----

```
#----- LOG INFO of homelinux.net -----
<VirtualHost 192.168.10.50>
  DocumentRoot /var/log/httpd/homelinux.net/webalized
  ServerName log1.homelinux.net
  <Directory /var/log/httpd/homelinux.net/webalized>
    DirectoryIndex webalize.html
    AuthName LogFiles
    AuthType Basic
    AuthUserFile /etc/httpd/.okusers
    require user michel elop devesh pierre
  </Directory>
  ErrorLog /var/log/httpd/homelinux.net/Log_error.log
  TransferLog /var/log/httpd/homelinux.net/Log_access.log
</VirtualHost>
```

```
-----
----/var/log/httpd/homelinux.net/webalize/webalize.html
```

```
<html>
<head>
  <Title> Web Access Statistics</Title>
</head>
<body>

<center>&nbsp;
<a href="http://log1.homelinux.net/webalize.cgi">Webalize
NOW !!!</a></center>

</body>
</html>
```

```
-----
----/var/log/httpd/homelinux.net/webalize/webalize.cgi
```

```
#!/bin/sh
#--- Starts the webalizer for the present log file-----
echo "Content-Type: text/html"
echo ""
sudo /usr/bin/webalizer -Q -n homelinux.net -o . \ ../access.log
&>/dev/null
cat index.html
```

```
-----
---- /etc/sudoers -----
# Host alias specification
Cmnd_Alias WEBALIZER = /usr/bin/webalizer
root ALL = (ALL) ALL
wwwrun dozlinux = NOPASSWD:WEBALIZER
```

Httpd command Options

7

Syntax: /usr/sbin/httpd -options

Options:

- D *name* Defines a name for use in <IfDefine *name*> directives
<IfDefine *name*> is used to define different server global settings
and chose which one will be read at start-up of Apache.
- d *ServerRootDir* Specifies an alternate initial ServerRoot directory.
- f *ConfigFile* Specifies an alternate configuration file.(ServerConfigFile)

-C <i>Directive</i>	Processes this directive <u>before</u> reading config files
-c <i>Directive</i>	Processes this directive <u>after</u> reading config files
-v	Display Apache's version number
-h	List valid command line options
-l (small L)	List compiled-in modules
-L	List core configuration directives
-S	Show virtual hosts settings
-t	Run syntax test for configuration files only.