

Übungsblatt 01 Webtech

Exercise 1 – Domain Name Service

Explain the idea of DNS record types and the difference between A, MX, NS, and TXT records.

DNS Records werden verwendet um etwas zu mappen / übersetzen. Verschiedene Typen mappen auf verschiedene Typen:

- **A-Records** (Host Adresse):
Mappen Domain Namen zur entsprechenden IPv4 Adresse
- **AAAA-Record**
Für IPv6 Adressen...
- **NS-Records** (Name Server)
Mappt auf den Namen (nicht IP) des Domain Server, der von der Domain verwendet wird.
Man kann auch mehrere NS Records zurück bekommen, die zuständig sind (bei Ausfall wird ein anderer verwendet).
Das Mapping kann auch delegiert werden. z.B: enthält die Zone ".com" je einen NS-Record für alle Namen mit ".com" am Ende.
- **MX-Records** (Mail eXchange)
Mappen auf die Mailserver, die für die Domain zuständig sind. Jeder MX-Record zeigt auf den Namen eines Email Servers, der für die Domain zuständig ist.
Falls mehrere Email Server zuständig sind, gibt es eine Präferenz-Nummer die die Order der Verwendung vorgibt. Wenn einer ausfällt, wird der nächst niedriger-priorisierte verwendet.
- **TXT-Records** (Descriptive Text)
Enthalten meist allgemeinen Beschreibungstext über Domänen, z.B. wer hostet diese, Kontaktperson, Tel.Nummer usw...

Use nslookup command line tool to find out the following information:

- A. The IP address of the server with the domain name `www.uibk.ac.at`. Additionally, find out how long your currently cached version of the corresponding record with this information is still valid and which DNS server is responsible for this zone.

```
gunmic:~ gunmic$ nslookup www.uibk.ac.at
Server:      143.205.176.16
Address:     143.205.176.16#53

Non-authoritative answer:
www.uibk.ac.at canonical name = www1.uibk.ac.at.
Name:   www1.uibk.ac.at
Address: 138.232.17.233
```

Erste IP ist die IP des verwendeten DNS Servers

IP des Servers: **138.232.17.233**

In diesem Fall wurde eine „nicht autorisierende Antwort“ zurückgegeben, da der lokale DNS-Server die Anfrage nicht selbst beantworten konnte, sondern einen bzw. mehrere weitere Nameserver kontaktieren musste.

```

> set type=soa
> www.uibk.ac.at
Server:      143.205.176.16
Address:     143.205.176.16#53

Non-authoritative answer:
www.uibk.ac.at canonical name = www1.uibk.ac.at.

Authoritative answers can be found from:
uibk.ac.at
    origin = ns1.uibk.ac.at
    mail addr = innnet-admin.uibk.ac.at
    serial = 2018100101
    refresh = 28800
    retry = 3600
    expire = 604800
    minimum = 300

```

Expire: 604800

LAUT ÜBUNG

Nslookup -type=soa....source of authority
default TTL: 5mins

B. A list of all root name servers.

```

> .
Server:      143.205.176.16
Address:     143.205.176.16#53

Non-authoritative answer:
.      nameserver = f.root-servers.net.
.      nameserver = k.root-servers.net.
.      nameserver = d.root-servers.net.
.      nameserver = h.root-servers.net.
.      nameserver = e.root-servers.net.
.      nameserver = a.root-servers.net.
.      nameserver = c.root-servers.net.
.      nameserver = i.root-servers.net.
.      nameserver = j.root-servers.net.
.      nameserver = l.root-servers.net.
.      nameserver = m.root-servers.net.
.      nameserver = g.root-servers.net.
.      nameserver = b.root-servers.net.

Authoritative answers can be found from:
m.root-servers.net      internet address = 202.12.27.33
m.root-servers.net      has AAAA address 2001:dc3::35
b.root-servers.net      internet address = 199.9.14.201
b.root-servers.net      has AAAA address 2001:500:200::b
c.root-servers.net      internet address = 192.33.4.12
c.root-servers.net      has AAAA address 2001:500:2::c
d.root-servers.net      internet address = 199.7.91.13
d.root-servers.net      has AAAA address 2001:500:2d::d
e.root-servers.net      internet address = 192.203.230.10
e.root-servers.net      has AAAA address 2001:500:a8::e
f.root-servers.net      internet address = 192.5.5.241
f.root-servers.net      has AAAA address 2001:500:2f::f
g.root-servers.net      internet address = 192.112.36.4

```

“.” ist die Wurzel, daher erhält man mit Punkt die root name server

C. A list of all name servers responsible for zone ‘at’ (top-level domain for Austria) – by asking one specific root name server.

```

> at.
Server:      202.12.27.33
Address:     202.12.27.33#53

Non-authoritative answer:
*** Can't find at.: No answer

Authoritative answers can be found from:
at      nameserver = n.ns.at.
at      nameserver = j.ns.at.
at      nameserver = u.ns.at.
at      nameserver = r.ns.at.
at      nameserver = ns9.univie.ac.at.
at      nameserver = ns1.univie.ac.at.
at      nameserver = ns2.univie.ac.at.
at      nameserver = d.ns.at.
d.ns.at internet address = 81.91.161.98
j.ns.at internet address = 194.146.106.50
n.ns.at internet address = 81.91.173.130
r.ns.at internet address = 194.0.25.10
u.ns.at internet address = 185.102.12.2
ns1.univie.ac.at      internet address = 78.104.144.2
ns2.univie.ac.at      internet address = 192.92.125.2
ns9.univie.ac.at      internet address = 194.0.10.100
d.ns.at has AAAA address 2a02:568:20:1::d
j.ns.at has AAAA address 2001:67c:1010:12::53
n.ns.at has AAAA address 2a02:568:281::130
r.ns.at has AAAA address 2001:678:20::10
u.ns.at has AAAA address 2a02:850:ffff::2
ns1.univie.ac.at      has AAAA address 2001:628:2030:4301::2
ns2.univie.ac.at      has AAAA address 2001:678:1c::2

```

Befehle:

- Set type=ns
- “.”
- Server 202.12.27.33
- at.

Laut ÜBUNG:

Befehl: nslookup -type=ns at a.root-servers.net

- D. The domain names of the DNS servers that are responsible for www.aau.at and the final IP address of the web server. Use iterative DNS resolution for this task, starting from any root DNS.

```

> server 81.91.161.98
Default server: 81.91.161.98
Address: 81.91.161.98#53
> set type=a
> www.aau.at
Server:      81.91.161.98
Address:     81.91.161.98#53

Non-authoritative answer:
*** Can't find www.aau.at: No answer
> set type=ns
> www.aau.at
Server:      81.91.161.98
Address:     81.91.161.98#53

Non-authoritative answer:
*** Can't find www.aau.at: No answer

Authoritative answers can be found from:
aau.at  nameserver = ns1.aau.at.
aau.at  nameserver = ns2.aau.at.
aau.at  nameserver = ns5.univie.ac.at.
aau.at  nameserver = ns10.univie.ac.at.
ns2.aau.at  internet address = 143.205.176.17
ns1.aau.at  internet address = 143.205.176.16
> server ns10.univie.ac.at.
Default server: ns10.univie.ac.at.
Address: 192.76.243.2#53
> set type=a
> www.aau.at
Server:      ns10.univie.ac.at.
Address:     192.76.243.2#53

Name:   www.aau.at
Address: 143.205.180.80

```

LAUT ÜBUNG:

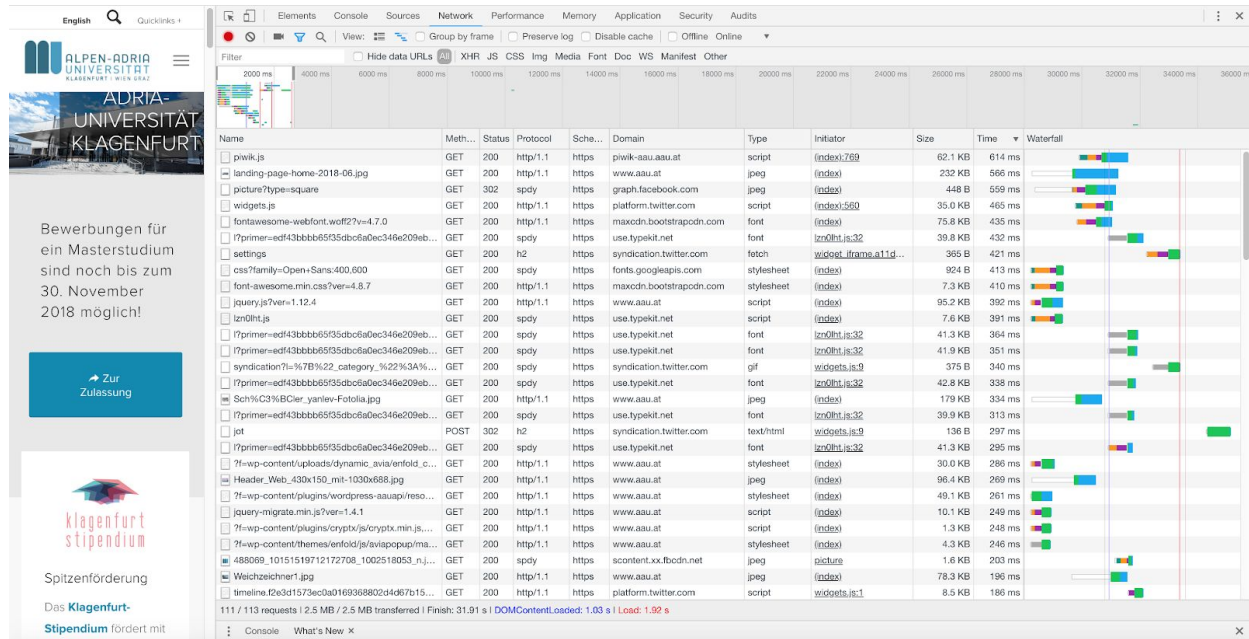
Nslookup -type=ns .

Nslookup -type=ns at a.root-servers.net

Nslookup -type=ns aau.at ns1.univie.ac.at

Exercise 2 – HTTP Requests

- A. Use the Developer Tools of your web browser (e.g., Chrome) to inspect the HTTP requests when opening the website of www.berkeley.edu and answer the following questions:



DOMContentLoaded ist die Zeit bis die Seite zumindest mal angezeigt wurde (noch nicht vollständig geladen).

- How many requests are sent, how much data is transferred, and how long does it take to load the site from the server?
58 Requests
2,9 MB
- What is the response status code of the first request?
Status 200

c. Which web server is serving this website?

General

Request URL: https://www.berkeley.edu/
 Request Method: GET
 Status Code: 200
 Remote Address: 54.149.224.140:443
 Referrer Policy: no-referrer-when-downgrade

Response Headers

cache-control: max-age=300
 content-encoding: gzip
 content-length: 10163
 content-type: text/html; charset=UTF-8
 date: Mon, 01 Oct 2018 16:25:00 GMT
 expires: Mon, 01 Oct 2018 16:30:00 GMT
 server: Apache/2.4
 status: 200
 vary: Accept-Encoding, User-Agent
 x-powered-by: PHP/5.4.16

Request Headers

authority: www.berkeley.edu
 method: GET

d. Which resources are requested?

Script, PNG, Stylesheets, GIF, XHR,....

e. Which request is the slowest?

Request, der ein GIF von us4.siteimprove.com lädt (5,59 Sekunden)

B. Repeat the procedure and answer the same questions for www.aau.at

Network

Filter: Hide data URLs | XHR | JS | CSS | Img | Media | Font | Doc | WS | Manifest | Other

Name	Method	Status	Protocol	Scheme	Domain	Type	Initiator	Size	Time	Waterfall
Sch/C3%BCler_yaniev-Fotolia.jpg	GET	200	http/1.1	https	www.aau.at	image	(index)	179 KB	1.30 s	
privk.js	GET	200	http/1.1	https	privk-aau.aau.at	script	(index).269	62.1 KB	1.27 s	
rpriemer-edf43bbb6535d5bca0ec346e209e...	GET	200	spdy	https	use.typekit.net	font	lzo0ht.js:32	39.9 KB	1.17 s	
rpriemer-edf43bbb6535d5bca0ec346e209e...	GET	200	spdy	https	use.typekit.net	font	lzo0ht.js:32	41.9 KB	1.15 s	
rpriemer-edf43bbb6535d5bca0ec346e209e...	GET	200	spdy	https	use.typekit.net	font	lzo0ht.js:32	41.3 KB	1.09 s	
rpriemer-edf43bbb6535d5bca0ec346e209e...	GET	200	spdy	https	use.typekit.net	font	lzo0ht.js:32	42.8 KB	1.06 s	
rpriemer-edf43bbb6535d5bca0ec346e209e...	GET	200	spdy	https	use.typekit.net	font	lzo0ht.js:32	39.8 KB	967 ms	
landing-page-home-2018-06.jpg	GET	200	http/1.1	https	www.aau.at	image	(index)	232 KB	896 ms	
fontawesome-webfont.woff2?v=4.7.0	GET	200	http/1.1	https	maxcdn.bootstrapcdn.com	font	(index)	75.8 KB	857 ms	
IMG_2986-710x375.jpg	GET	200	http/1.1	https	www.aau.at	image	(index)	55.7 KB	842 ms	
widgets.js	GET	200	http/1.1	https	platform.twitter.com	script	(index).560	35.0 KB	827 ms	
rpriemer-edf43bbb6535d5bca0ec346e209e...	GET	200	spdy	https	use.typekit.net	font	lzo0ht.js:32	41.3 KB	765 ms	
veranstaltungen_vortrag1_featured_image-45...	GET	200	http/1.1	https	www.aau.at	image	(index)	56.1 KB	760 ms	
settings	GET	200	h2	https	syndication.twitter.com	fetch	widget_ifram...	363 B	700 ms	
488069_10151519712172708_1002518053_n...	GET	200	spdy	https	scontent.xx.fbcdn.net	image	picture	1.6 KB	692 ms	
picture?type=square	GET	302	spdy	https	graph.facebook.com	image	(index)	447 B	597 ms	
syndication?i=7%7B%22_category%22%3A...	GET	200	spdy	https	syndication.twitter.com	gif	widgets.js:9	375 B	551 ms	
Dj3YbWAAED_s4?format=jpg&name=small	GET	200	spdy	https	pbs.twimg.com	image	widgets.js:10	69.0 KB	536 ms	
Dlqrd2GWA4AAUe7?format=jpg&name=small	GET	200	spdy	https	pbs.twimg.com	image	widgets.js:10	49.9 KB	508 ms	
DmO6PqWAAAL_Lx?format=jpg&name=small	GET	200	spdy	https	pbs.twimg.com	image	widgets.js:10	72.6 KB	477 ms	
Header_Web_430x150_mit-1030x688.jpg	GET	200	http/1.1	https	www.aau.at	image	(index)	96.4 KB	419 ms	
profile?callback=..._twtr.callbacks.f1_0_profile...	GET	200	spdy	https	cdn.syndication.twimg.com	script	widgets.js:10	14.8 KB	400 ms	
Dm4CxlXpAAps4q?format=jpg&name=small	GET	200	spdy	https	pbs.twimg.com	image	widgets.js:10	60.0 KB	384 ms	
Wieser-Martin_2018_Foto-KK-180x180.jpg	GET	200	http/1.1	https	www.aau.at	image	(index)	6.6 KB	351 ms	
shaikh-Sarmad_2018_Foto-M%K3%BCler-5...	GET	200	http/1.1	https	www.aau.at	image	(index)	7.6 KB	350 ms	
DnC13nDWA0A2q?format=jpg&name=small	GET	200	spdy	https	pbs.twimg.com	image	widgets.js:10	65.8 KB	343 ms	
DnHcyGXcAEVOK?format=jpg&name=small	GET	200	spdy	https	pbs.twimg.com	image	widgets.js:10	48.2 KB	330 ms	
timeline.b56b75d0a5ab77f56a91bb789cb5...	GET	200	http/1.1	https	platform.twitter.com	script	widgets.js:1	8.5 KB	322 ms	
Dn680a3WAA56EQ?format=jpg&name=small	GET	200	spdy	https	pbs.twimg.com	image	widgets.js:10	55.5 KB	309 ms	

112 requests | 2.8 MB transferred | Finish: 3.54 s | DOMContentLoaded: 1.19 s | Load: 2.61 s

a. How many requests are sent, how much data is transferred, and how long does it take to load the site from the server?

112 Requests, 2,8MB data

b. What is the response status code of the first request?

Status 200

c. Which web server is serving this website?

General

Request URL: <https://www.asu.at/>

Request Method: GET

Status Code: 200 OK

Remote Address: 143.285.188.88:443

Referrer Policy: no-referrer-when-downgrade

Response Headers

Accept-Ranges: bytes

Age: 714

Cache-Control: no-store, no-cache, must-revalidate

Connection: keep-alive

Content-Length: 158775

Content-Type: text/html; charset=UTF-8

Date: Mon, 01 Oct 2018 16:33:25 GMT

Pragma: no-cache

Server: nginx/1.12.2

X-Cache: cached

X-Cacheable: YES

X-TEC-API-ORIGIN: <https://www.asu.at>

X-TEC-API-ROOT: <https://www.asu.at/wp-json/tribe/events/v1/>

X-TEC-API-VERSION: v1

Request Headers

Accept: text/html,application/xhtml+xml,application/xml;q=0.9,image/webp,image/apng,*/*;q=0.8

d. Which resources are requested?

Font, Script, JPG, Fetch, GIF,....

e. Which request is the slowest?

Laden eines JPG, 1,3 Sekunden

- C. Open up www.google.at, clear the content of the network inspection window and enter the word “Klagenfurt” into the search field. During entering the word look at the network requests and explain what happens?

Network

Filter: Hide data URLs

Waterfall

Name	Method	Status	Protocol	Scheme	Domain	Type	Initiator	Size	Time	Waterfall
search?q=klagenfurt&oeq=klagenfurt&ags=chr...	GET	200	h2	https	www.google.at	document	Other	150 KB	1.08 s	
AKIFKk2KQpAduzbb_8KPrpqKqrEwKvSTN...	GET	302	h2	https	id.google.com	text/html	AKIFKk2KQpAduzbb_8KPrpqKqrEwKvSTN...	835 B	658 ms	
re=AAZy7TmKqGtuxdG71u5dnpJpDyDybw	GET	200	spdy	https	www.gstatic.com	script	search?aq=kl...	48.9 KB	317 ms	
KFOmCnqGj92F1Mu4mXKKTU1Kg_w0r2	GET	200	spdy	https	fonts.gstatic.com	font	widget?sour...	10.8 KB	296 ms	
m=aa.abd.async.dv1foot.jp6.illu.mumpck.m...	GET	200	h2	https	www.google.at	script	re=AAZy7Tm...	74.6 KB	269 ms	
AKIFKk0_OKZxUAzqQ_UX38uFfKMNlglSun...	GET	302	h2	https	id.google.at	text/html	search?aq=kl...	836 B	267 ms	
count	POST	200	spdy	https	ogs.google.com	xhr	re=AAZy7Tm...	862 B	261 ms	
m=CyOlwe_EFG78c_F3ZyPc_G4es5d_GaRk...	GET	200	h2	https	notifications.google.com	script	/_js/social...	75.3 KB	251 ms	
re=AAZy7TmKqGtuxdG71u5dnpJpDyDybw	GET	200	h2	https	www.google.at	script	search?aq=kl...	151 KB	248 ms	
client_20478atyp-k8bw-3148bh-1488dp-2...	GET	204	h2	https	www.google.at	text/html	search?aq=kl...	127 B	242 ms	
widget?sourceid=1811ids&orig=https://w...	GET	200	h2	https	notifications.google.com	document	notifications...	64.4 KB	191 ms	
images?q=tblr:ANd9GcS-10TfKqDOODNaUQ...	GET	200	spdy	https	encrypted-tbn0.gstatic.com	jpeg	m=aa.abd.a...	3.2 KB	180 ms	
images?q=tblr:ANd9GcS-10TfKqDOODNaUQ...	GET	200	spdy	https	encrypted-tbn0.gstatic.com	jpeg	m=aa.abd.a...	4.0 KB	178 ms	
images?q=tblr:ANd9GcS-10TfKqDOODNaUQ...	GET	200	spdy	https	encrypted-tbn0.gstatic.com	jpeg	m=aa.abd.a...	4.3 KB	175 ms	
ServiceLogin?service=donor&passive=true&	GET	302	h2	https	accounts.google.com	text/html	ui	734 B	167 ms	
images?q=tblr:ANd9GcS-10TfKqDOODNaUQ...	GET	200	spdy	https	encrypted-tbn0.gstatic.com	jpeg	m=aa.abd.a...	4.8 KB	165 ms	
images?q=tblr:ANd9GcS-10TfKqDOODNaUQ...	GET	200	spdy	https	encrypted-tbn0.gstatic.com	jpeg	m=aa.abd.a...	7.4 KB	161 ms	
data=DTVAggA2vS8vqMoyqgntSVMR...	GET	200	h2	https	www.google.at	png	search?aq=kl...	29.1 KB	160 ms	
measurement?id=AJHxexLYp8Xh7N8fIaw...	GET	200	spdy	https	www.googleadservices.com	gif	1	549 B	132 ms	
a?og=1&pl=1&url=https://www.google.at	GET	200	h2	https	googleads.g.doubleclick.net	gif	ServiceLogin	598 B	128 ms	
ServiceLogin?passive=120960&osid=1&cont...	GET	302	h2	https	accounts.google.com	text/html	ui	1.0 KB	123 ms	
eboc/rei-DU2YW9_QOMskAGX17-wDQ&v...	GET	200	h2	https	www.google.at	text/html	re=AAZy7Tm...	2.5 KB	116 ms	
ui	GET	204	h2	https	adservice.google.at	text/html	m=aa.abd.a...	333 B	115 ms	
m=klchZc_WVLMOe_Uuuep7xjs=s2	GET	200	h2	https	www.google.at	script	re=AAZy7Tm...	14.2 KB	105 ms	
lis.png	GET	200	spdy	https	www.google.com	png	re=AAZy7Tm...	399 B	105 ms	
nav_logo242.png	GET	200	h2	https	www.google.at	png	search?aq=kl...	16.5 KB	102 ms	
cbw-gapi.loaded_0	GET	200	h2	https	apis.google.com	script	api.js	25.3 KB	101 ms	
cbw-gapi.loaded_0	GET	200	spdy	https	apis.google.com	script	re=AAZy7Tm...	62.5 KB	95 ms	
SetOSID?authuser=0&continue=https%3A%...	GET	302	h2	https	notifications.google.com	binary	ServiceLogin	904 B	91 ms	

86 requests | 831 KB transferred | Finish: 7.78 s | DOMContentLoaded: 1.13 s | Load: 2.00 s

Exercise 3 – HTTP Client

Implement a simple HTTP client with Java sockets, which performs the following steps:

- It opens a TCP socket for a specified URL at port 80.
- It sends an HTTP GET request via that stream (see slide 18 and 24 in the lecture). It is sufficient to simply request the root resource (i.e. GET / HTTP/1.1) and to specify the Host field. Please note that a double-CRLF (carriage-return line-feed) is needed at the end of the request!
- It received the HTTP Response and writes everything to standard out.

Test your implementation with the following URLs:

- www.abc.net.au
- www.aau.at
- de.wikipedia.org

Siehe Source Code.

Tutorial: <https://docs.oracle.com/javase/tutorial/networking/sockets/readingWriting.html>

z.B. www.aau.at:

```
gunmic:src gunmic$ java Assignment01.ClientSocket www.aau.at 80
HTTP/1.1 301 Moved Permanently
Server: nginx/1.12.2
Date: Tue, 02 Oct 2018 20:43:13 GMT
Content-Type: text/html
Content-Length: 185
Connection: keep-alive
Location: https://www.aau.at/

<html>
<head><title>301 Moved Permanently</title></head>
<body bgcolor="white">
<center><h1>301 Moved Permanently</h1></center>
<hr><center>nginx/1.12.2</center>
</body>
</html>
HTTP/1.1 400 Bad Request
Server: nginx/1.12.2
Date: Tue, 02 Oct 2018 20:43:13 GMT
Content-Type: text/html
Content-Length: 173
Connection: close

<html>
<head><title>400 Bad Request</title></head>
<body bgcolor="white">
<center><h1>400 Bad Request</h1></center>
<hr><center>nginx/1.12.2</center>
</body>
</html>
```

Explain why for the 2nd URL there is so few HTML code, and why for the 3rd URL there is none at all?

Vermutlich wegen dem Inhalt.

- <http://www.abc.net.au/> enthält sehr viel HTML Inhalt
- <https://www.aau.at/>
301 Moved Permanently Die angeforderte Ressource steht ab sofort unter der im

„Location“-Header-Feld angegebenen Adresse bereit (auch Redirect genannt). Die alte Adresse ist nicht länger gültig.

- De.wikipedia.org
301 TLS Redirect

Exercise 4

Setup a recent version of XAMPP on your computer and test the installation (start Apache and open the root website). Describe the purpose of httpd.conf and explain the meaning of the following terms:

Installation siehe: <http://httpd.apache.org/docs/2.4/install.html>

Benötigt wird auch <http://apr.apache.org/> und <http://macappstore.org/pcr-2/> (Perl RegEx Interpreter)

Server starten: *PREFIX/bin/apachectl start*

Server stoppen: *PREFIX/bin/apachectl stop*

Testen: <http://localhost/>

Das **httpd.conf** File ist die Haupt-Konfigurationsfile des Apache HTTP Servers.

Man kann mit "Listen" festlegen, auf welchen Port man hören möchte.

In cgi-bin liegen Perl-Skripte welche ausgeführt werden können.

z.B. localhost/cgi-bin/printenv.pl → Server druckt die Konfiguration

A. ServerRoot

Der Anfang der Verzeichnisstruktur, unter der die Konfigurations-, Fehler- und Protokolldateien des Servers aufbewahrt werden.

ServerRoot "/usr/local/apache2"

B. DocumentRoot

Das Verzeichnis, aus dem man Dokumente bereitstellen kann. Standardmäßig werden alle Anfragen aus diesem Verzeichnis übernommen, aber symbolische Links und Aliase können verwendet werden, um auf andere Orte zu verweisen.

Hier dürfen NUR Dinge liegen, die auch öffentlich sein sollen!!! Seiten die in diesem Ordner liegen, können noch aufeinander verlinkt sein und fertig ist die Website :-)

DocumentRoot "/usr/local/apache2/htdocs"

C. VirtualHost

Man kann virtuelle Hosts erzeugen um mehrere Webservices auf einem physischen Server bereitzustellen (z.b. www.website1.at und www.website2.at).

Virtuelle Hosts können "IP-basiert" sein, was bedeutet, dass jedes Webangebot eine andere IP besitzt, oder "Namens-basiert", was bedeutet, dass unter jeder IP-Adresse mehrere Namen laufen.

Die virtuellen Hosts können die selben Einstellungen wie aus der httpd.conf enthalten. Für den virtuellen Host gilt dann aber diese spezifische Setting.

Siehe /serverroot/conf/extra/httpd-vhost.conf

→ Hier können virtuelle Hosts erzeugt werden.

Exercise 5

```
<!DOCTYPE html>
<html lang="de">
  <head>
    <title>V0 Web Technologien</title>
  </head>
  <body>
    <h1>This is a top-level header</h1>
    <p>This simple paragraph starts with an image that is loaded directly from the AAU website:</p>
    
    <p>Next, it contains an unordered list of colors:</p>
    <ul>
      <li>red</li>
      <li>green</li>
      <li>blue</li>
    </ul>
    <p>It further shows a link to the website of Alpen-Adria-Universität Klagenfurt, which opens in a new window:<br>
    <a href="http://www.aau.at" title="Alpen-Adria-Universität Klagenfurt" target="_blank">Click here</a> Finally, it contains a horizontal line.
    <p>
    <hr>
  </body>
</html>
```

Musste noch folgende Einstellung im httpd.conf File vornehmen:

ServerName localhost

← → ↻ ⓘ 127.0.0.1/mypage.htm

This is a top-level header

This simple paragraph starts with an image that is loaded directly from the AAU website:



Next, it contains an unordered list of colors:

- red
- green
- blue

It further shows a link to the website of Alpen-Adria-Universität Klagenfurt, which opens in a new window:
[Click here](http://www.aau.at) Finally, it contains a horizontal line.
