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Практическая работа № 1

Тема: «HTTP»

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1. Установка обновлений. Установка утилиты 'curl'. Проверка доступности ресурсов посредством telnet.

```
lemp@u20-11:~$ sudo apt install upd
[sudo] password for lemp:
Sorry, try again.
[sudo] password for lemp:
Sorry, try again.
[sudo] password for lemp:
Reading package lists... Done
Building dependency tree
Reading state information... Done
E: Unable to locate package upd
lemp@u20-11:~$ sudo apt install curl
Reading package lists... Done
Building dependency tree
Reading state information... Done
curl is already the newest version (7.68.0-1ubuntu2.13).
0 upgraded, 0 newly installed, 0 to remove and 53 not upgraded.
lemp@u20-11:~$ sudo telnet -d localhost 22
[sudo] password for lemp:
Trying 127.0.0.1...
Connected to localhost.
Escape character is '^['.
SSH-2.0-OpenSSH_8.2p1 Ubuntu-4ubuntu0.5

Invalid SSH identification string.
Connection closed by foreign host.
lemp@u20-11:~$ sudo telnet opennet.ru 80
Trying 217.65.3.21...
Connected to opennet.ru.
Escape character is '^['.
^CConnection closed by foreign host.
lemp@u20-11:~$ sudo telnet india.colorado.edu 13
```

```
lemp@u20-11:~$ sudo telnet india.colorado.edu 13
Trying 128.138.140.44...
Connected to india.colorado.edu.
Escape character is '^['.
Connection closed by foreign host.
lemp@u20-11:~$
```

2. Проверка сайта mgpu.ru

```
Connection closed by foreign host.
lemp@u20-11:~$ sudo telnet -d mgpu.ru 80
Trying 37.230.157.233...
Connected to mgpu.ru.
Escape character is '^['.
^CConnection closed by foreign host.
lemp@u20-11:~$
```

```

lemp@u20-11:~$ sudo curl -v https://mgpu.ru/
* Trying 37.230.157.233:443...
* TCP_NODELAY set
* Connected to mgpu.ru (37.230.157.233) port 443 (#0)
* ALPN, offering h2
* ALPN, offering http/1.1
* successfully set certificate verify locations:
*   CAfile: /etc/ssl/certs/ca-certificates.crt
*   CApath: /etc/ssl/certs
* TLSv1.3 (OUT), TLS handshake, Client hello (1):
* TLSv1.3 (IN), TLS handshake, Server hello (2):
* TLSv1.3 (IN), TLS handshake, Encrypted Extensions (8):
* TLSv1.3 (IN), TLS handshake, Certificate (11):
* TLSv1.3 (IN), TLS handshake, CERT verify (15):
* TLSv1.3 (IN), TLS handshake, Finished (20):
* TLSv1.3 (OUT), TLS change cipher, Change cipher spec (1):
* TLSv1.3 (OUT), TLS handshake, Finished (20):
* SSL connection using TLSv1.3 / TLS_AES_256_GCM_SHA384
* ALPN, server did not agree to a protocol
* Server certificate:
*   subject: CN=*.mgpu.ru
*   start date: Mar 29 11:44:41 2022 GMT
*   expire date: Apr 30 11:44:40 2023 GMT
*   subjectAltName: host "mgpu.ru" matched cert's "mgpu.ru"
*   issuer: C=BE; O=GlobalSign nv-sa; CN=AlphaSSL CA - SHA256 - G2
*   SSL certificate verify ok.
> GET / HTTP/1.1
> Host: mgpu.ru
> User-Agent: curl/7.68.0
> Accept: */*
>
* TLSv1.3 (IN), TLS handshake, Newsession Ticket (4):
* TLSv1.3 (IN), TLS handshake, Newsession Ticket (4):
* old SSL session ID is stale, removing
* Mark bundle as not supporting multiuse
< HTTP/1.1 301 Moved Permanently
< Content-length: 0
< Location: https://www.mgpu.ru/

```

```

lemp@u20-11:~$ sudo curl -v https://www.mgpu.ru/
* Trying 37.230.157.233:443...
* TCP_NODELAY set
* Connected to www.mgpu.ru (37.230.157.233) port 443 (#0)
* ALPN, offering h2
* ALPN, offering http/1.1
* successfully set certificate verify locations:
*   CAfile: /etc/ssl/certs/ca-certificates.crt
*   CApath: /etc/ssl/certs
* TLSv1.3 (OUT), TLS handshake, Client hello (1):
* TLSv1.3 (IN), TLS handshake, Server hello (2):
* TLSv1.3 (IN), TLS handshake, Encrypted Extensions (8):
* TLSv1.3 (IN), TLS handshake, Certificate (11):
* TLSv1.3 (IN), TLS handshake, CERT verify (15):
* TLSv1.3 (IN), TLS handshake, Finished (20):
* TLSv1.3 (OUT), TLS change cipher, Change cipher spec (1):
* TLSv1.3 (OUT), TLS handshake, Finished (20):
* SSL connection using TLSv1.3 / TLS_AES_256_GCM_SHA384
* ALPN, server did not agree to a protocol
* Server certificate:
*   subject: CN=*.mgpu.ru
*   start date: Mar 29 11:44:41 2022 GMT
*   expire date: Apr 30 11:44:40 2023 GMT
*   subjectAltName: host "www.mgpu.ru" matched cert's "*.mgpu.ru"
*   issuer: C=BE; O=GlobalSign nv-sa; CN=AlphaSSL CA - SHA256 - G2
*   SSL certificate verify ok.
> GET / HTTP/1.1
> Host: www.mgpu.ru
> User-Agent: curl/7.68.0
> Accept: */*
>
* TLSv1.3 (IN), TLS handshake, Newsession Ticket (4):
* TLSv1.3 (IN), TLS handshake, Newsession Ticket (4):
* old SSL session ID is stale, removing
* Mark bundle as not supporting multiuse
< HTTP/1.1 200 OK
< Server: nginx/1.18.0 (Ubuntu)
< Date: Tue, 13 Sep 2022 08:09:41 GMT

```

3. Проверка сайта высшей школы экономики

```
lemp@u20-11:~$ sudo curl -v http://www.hse.ru
* Trying 178.248.234.104:80...
* TCP_NODELAY set
* Connected to www.hse.ru (178.248.234.104) port 80 (#0)
> GET / HTTP/1.1
> Host: www.hse.ru
> User-Agent: curl/7.68.0
> Accept: */*
>
* Mark bundle as not supporting multiuse
< HTTP/1.1 301 Moved Permanently
< Server: QRATOR
< Date: Tue, 13 Sep 2022 08:14:19 GMT
< Content-Type: text/html
< Content-Length: 162
< Connection: keep-alive
< Keep-Alive: timeout=15
< Location: https://www.hse.ru/
< Strict-Transport-Security: max-age=15552000
< X-XSS-Protection: 1; mode=block; report=https://www.hse.ru/n/api/xss/report
<
<html>
<head><title>301 Moved Permanently</title></head>
<body>
<center><h1>301 Moved Permanently</h1></center>
<hr><center>nginx</center>
</body>
</html>
* Connection #0 to host www.hse.ru left intact
lemp@u20-11:~$
```

```
lemp@u20-11:~$ sudo curl -v https://www.hse.ru/
[sudo] password for lemp:
* Trying 178.248.234.104:443...
* TCP_NODELAY set
* Connected to www.hse.ru (178.248.234.104) port 443 (#0)
* ALPN, offering h2
* ALPN, offering http/1.1
* successfully set certificate verify locations:
* CAfile: /etc/ssl/certs/ca-certificates.crt
  CApath: /etc/ssl/certs
* TLSv1.3 (OUT), TLS handshake, Client hello (1):
* TLSv1.3 (IN), TLS handshake, Server hello (2):
* TLSv1.3 (IN), TLS handshake, Encrypted Extensions (8):
* TLSv1.3 (IN), TLS handshake, Certificate (11):
* TLSv1.3 (IN), TLS handshake, CERT verify (15):
* TLSv1.3 (IN), TLS handshake, Finished (20):
* TLSv1.3 (OUT), TLS change cipher, Change cipher spec (1):
* TLSv1.3 (OUT), TLS handshake, Finished (20):
* SSL connection using TLSv1.3 / TLS_AES_128_GCM_SHA256
* ALPN, server accepted to use h2
* Server certificate:
* subject: CN=*.hse.ru
* start date: Jan 21 00:00:00 2022 GMT
* expire date: Feb 21 23:59:59 2023 GMT
* subjectAltName: host "www.hse.ru" matched cert's "*.hse.ru"
* issuer: C=GB; ST=Greater Manchester; L=Salford; O=Sectigo Limited; CN=Sectigo RSA Domain Validation Secure Server CA
* SSL certificate verify ok.
* Using HTTP2, server supports multi-use
* Connection state changed (HTTP/2 confirmed)
* Copying HTTP/2 data in stream buffer to connection buffer after upgrade: len=0
* Using Stream ID: 1 (easy handle 0x56530d15f2f0)
> GET / HTTP/2
> Host: www.hse.ru
> user-agent: curl/7.68.0
> accept: */*
```

```

* SSL certificate verify ok.
* Using HTTP2, server supports multi-use
* Connection state changed (HTTP/2 confirmed)
* Copying HTTP/2 data in stream buffer to connection buffer after upgrade: len=0
* Using Stream ID: 1 (easy handle 0x56530d15f2f0)
> GET / HTTP/2
> Host: www.hse.ru
> user-agent: curl/7.68.0
> accept: */*
>
* TLSv1.3 (IN), TLS handshake, Newsession Ticket (4):
* TLSv1.3 (IN), TLS handshake, Newsession Ticket (4):
* old SSL session ID is stale, removing
* Connection state changed (MAX_CONCURRENT_STREAMS == 16)!
< HTTP/2 302
< server: QRATOR
< date: Tue, 13 Sep 2022 08:16:04 GMT
< content-type: text/html
< content-length: 138
< location: https://www.hse.ru/en/
< expires: Tue, 13 Sep 2022 08:16:04 GMT
< cache-control: max-age=0
< strict-transport-security: max-age=15552000
< x-xss-protection: 1; mode=block; report=https://www.hse.ru/n/api/xss/report
< set-cookie: tracking=ZEsUBGMgPERL38EyCWFPag==; expires=Thu, 31-Dec-37 23:55:55 GMT; domain=.hse.ru; path=/
<
<html>
<head><title>302 Found</title></head>
<body>
<center><h1>302 Found</h1></center>
<hr><center>nginx</center>
</body>
</html>
* Connection #0 to host www.hse.ru left intact
lenp@u20-11:~$

```

```

lenp@u20-11:~$ sudo curl -v https://www.hse.ru/en/
* Trying 178.248.234.104:443...
* TCP_NODELAY set
* Connected to www.hse.ru (178.248.234.104) port 443 (#0)
* ALPN, offering h2
* ALPN, offering http/1.1
* successfully set certificate verify locations:
* CAfile: /etc/ssl/certs/ca-certificates.crt
* CApath: /etc/ssl/certs
* TLSv1.3 (OUT), TLS handshake, Client hello (1):
* TLSv1.3 (IN), TLS handshake, Server hello (2):
* TLSv1.3 (IN), TLS handshake, Encrypted Extensions (8):
* TLSv1.3 (IN), TLS handshake, Certificate (11):
* TLSv1.3 (IN), TLS handshake, CERT verify (15):
* TLSv1.3 (IN), TLS handshake, Finished (20):
* TLSv1.3 (OUT), TLS change cipher, Change cipher spec (1):
* TLSv1.3 (OUT), TLS handshake, Finished (20):
* SSL connection using TLSv1.3 / TLS_AES_128_GCM_SHA256
* ALPN, server accepted to use h2
* Server certificate:
* subject: CN=*.hse.ru
* start date: Jan 21 00:00:00 2022 GMT
* expire date: Feb 21 23:59:59 2023 GMT
* subjectAltName: host "www.hse.ru" matched cert's "*.hse.ru"
* issuer: C=GB; ST=Greater Manchester; L=Salford; O=Sectigo Limited; CN=Sectigo RSA Domain Validation Secure Server CA
* SSL certificate verify ok.
* Using HTTP2, server supports multi-use
* Connection state changed (HTTP/2 confirmed)
* Copying HTTP/2 data in stream buffer to connection buffer after upgrade: len=0
* Using Stream ID: 1 (easy handle 0x559d114302f0)
> GET /en/ HTTP/2
> Host: www.hse.ru
> user-agent: curl/7.68.0
> accept: */*
>

```



```

>
* TLSv1.3 (IN), TLS handshake, Newsession Ticket (4):
* TLSv1.3 (IN), TLS handshake, Newsession Ticket (4):
* old SSL session ID is stale, removing
* Connection state changed (MAX_CONCURRENT_STREAMS == 16)!\
< HTTP/2 200
< server: QRATOR
< date: Tue, 13 Sep 2022 08:20:10 GMT
< content-type: text/html; charset=utf-8
< content-length: 100547
< etag: W/"188c3-TTRGgiSJ8Xq6BiuGAC4y1eeBTdc"
< x-ireland-cache-status: HIT
< strict-transport-security: max-age=15552000
< x-xss-protection: 1; mode=block; report=https://www.hse.ru/n/api/xss/report
< set-cookie: tracking=ZEsUBGMgPTpMB8EzFSCXAg==; expires=Thu, 31-Dec-37 23:55:55 GMT; domain=.hse.ru; path=/
<
<!DOCTYPE html><html><head><title>HSE University</title><meta charset="utf-8"><meta name="viewport" content="width=device-width, initial-scale=1"><meta http-equiv="X-UA-Compatible" content="IE=Edge"><meta name="yandex-verification" content="25e3420f8bfc397e"><meta name="theme-color" content="#1658DA"><meta name="sputnik-verification" content="SB2V6wrEtXyZNqgs"><meta name="twitter:card" content="summary"><meta property="og:title" content="HSE University"><meta name="mrc__share_title" content="HSE University"><meta itemprop="name" content="HSE University"><meta name="twitter:title" content="HSE University"><meta name="description" content="HSE is one of the top universities in Russia and the leader in Eastern Europe and Eurasia in economics and social sciences"><meta property="og:description" content="HSE is one of the top universities in Russia and the leader in Eastern Europe and Eurasia in economics and social sciences"><meta name="mrc__share_description" content="HSE is one of the top universities in Russia and the leader in Eastern Europe and Eurasia in economics and social sciences"><meta itemprop="description" content="HSE

```

4. Установка nginx.

```

lemp@u20-11:~$ sudo apt update && sudo apt install -y nginx
[sudo] password for lemp:
Hit:1 http://ru.archive.ubuntu.com/ubuntu focal InRelease
Get:2 http://ru.archive.ubuntu.com/ubuntu focal-updates InRelease [114 kB]
Get:3 http://ru.archive.ubuntu.com/ubuntu focal-backports InRelease [108 kB]
Hit:4 http://deb.anydesk.com all InRelease
Hit:5 https://dl.google.com/linux/chrome/deb stable InRelease
Hit:6 http://ppa.launchpad.net/serge-rider/dbeaver-ce/ubuntu focal InRelease
Get:7 http://security.ubuntu.com/ubuntu focal-security InRelease [114 kB]
Hit:8 https://download.docker.com/linux/ubuntu focal InRelease
Get:9 http://ru.archive.ubuntu.com/ubuntu focal-updates/main i386 Packages [717 kB]
Get:10 http://ru.archive.ubuntu.com/ubuntu focal-updates/main amd64 Packages [2 080 kB]
Get:11 http://ru.archive.ubuntu.com/ubuntu focal-updates/main amd64 DEP-11 Metadata [277 kB]
Get:12 http://ru.archive.ubuntu.com/ubuntu focal-updates/universe amd64 Packages [950 kB]
Get:13 http://ru.archive.ubuntu.com/ubuntu focal-updates/universe amd64 DEP-11 Metadata [392 kB]
Get:14 http://ru.archive.ubuntu.com/ubuntu focal-updates/multiverse amd64 DEP-11 Metadata [944 B]
Get:15 http://ru.archive.ubuntu.com/ubuntu focal-backports/main amd64 DEP-11 Metadata [7 980 B]
Get:16 http://ru.archive.ubuntu.com/ubuntu focal-backports/universe amd64 DEP-11 Metadata [30,5 kB]
Get:17 http://security.ubuntu.com/ubuntu focal-security/main amd64 DEP-11 Metadata [40,7 kB]
Get:18 http://security.ubuntu.com/ubuntu focal-security/universe amd64 DEP-11 Metadata [77,4 kB]
Get:19 http://security.ubuntu.com/ubuntu focal-security/multiverse amd64 DEP-11 Metadata [2 464 B]
Fetched 4 912 kB in 1s (3 793 kB/s)
Reading package lists... Done
Building dependency tree
Reading state information... Done
53 packages can be upgraded. Run 'apt list --upgradable' to see them.
Reading package lists... Done
Building dependency tree
Reading state information... Done
The following additional packages will be installed:
  libnginx-mod-http-image-filter libnginx-mod-http-xslt-filter libnginx-mod-mail libnginx-mod-stream

```

5. Проверка содержимого папок 'sites-enable' и 'sites-available'. Удаление конфигурации default. Создание статики, которой можно раздать html файл и картинку.

```

lemp@u20-11:~$ ls -l /etc/nginx/sites-enabled/
total 0
lrwxrwxrwx 1 root root 34 сен 13 11:27 default -> /etc/nginx/sites-available/default
lemp@u20-11:~$ ls -l /etc/nginx/sites-available/
total 4
-rw-r--r-- 1 root root 2416 Map 26 2020 default
lemp@u20-11:~$ sudo rm /etc/nginx/sites-enabled/default
lemp@u20-11:~$ sudo mkdir -p /var/www/simple_static
lemp@u20-11:~$ sudo chown lemp /var/www/simple_static
lemp@u20-11:~$ cd /var/www/simple_static
lemp@u20-11:/var/www/simple_static$ curl https://www.google.com/images/branding/googlelogo/2x/googlelogo_color_272x92dp.png > google.png
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left   Speed
100 13504  100 13504    0     0  196k      0  0:00:00  0:00:00  0:00:00  196k
lemp@u20-11:/var/www/simple_static$ printf "<body>This is our first html file</body>\n" > index.html
lemp@u20-11:/var/www/simple_static$ ls
google.png  index.html
lemp@u20-11:/var/www/simple_static$ sudo service nginx stop
lemp@u20-11:/var/www/simple_static$ cd
lemp@u20-11:~$

```

6. Создание файла `/etc/nginx/sites-available/simple_static.conf`, запись конфигурации в него, помещение ссылки на файл в 'sites-enable', перезагрузка nginx, запрос к сайту

```

lemp@u20-11:/var/www/simple_static$ printf "<body>This is our first html file</body>\n" > index.html
lemp@u20-11:/var/www/simple_static$ ls
google.png  index.html
lemp@u20-11:/var/www/simple_static$ sudo service nginx stop
lemp@u20-11:/var/www/simple_static$ cd
lemp@u20-11:~$ sudo nano /etc/nginx/sites-available/simple_static.conf
lemp@u20-11:~$ cd /etc/nginx/
lemp@u20-11:/etc/nginx$ sudo ln sites-available/simple_static.conf sites-enabled/simple_static.conf
bash: enabled/simple_static.conf: No such file or directory
lemp@u20-11:/etc/nginx$ sudo ln sites-available/simple_static.conf sites-enabled/simple_static.conf
lemp@u20-11:/etc/nginx$ sudo nginx -t
nginx: the configuration file /etc/nginx/nginx.conf syntax is ok
nginx: configuration file /etc/nginx/nginx.conf test is successful
lemp@u20-11:/etc/nginx$ sudo service nginx start
lemp@u20-11:/etc/nginx$ curl -v http://localhost:80
* Trying 127.0.0.1:80...
* TCP_NODELAY set
* Connected to localhost (127.0.0.1) port 80 (#0)
> GET / HTTP/1.1
> Host: localhost
> User-Agent: curl/7.68.0
> Accept: */*
>
* Mark bundle as not supporting multiuse
< HTTP/1.1 200 OK
< Server: nginx/1.18.0 (Ubuntu)
< Date: Tue, 13 Sep 2022 08:57:02 GMT
< Content-Type: text/html
< Content-Length: 41
< Last-Modified: Tue, 13 Sep 2022 08:47:09 GMT
< Connection: keep-alive
< ETag: "6320438d-29"
< Accept-Ranges: bytes
<
<body>This is our first html file</body>
* Connection #0 to host localhost left intact
lemp@u20-11:/etc/nginx$

```

