

Лабораторная работа №1 - HTTP HTTPS и их параметры

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Цель работы: познакомиться с протоколом HTTP и протоколом HTTPS, а так же особенностями установления соединения между источником и получателем.

Curl - набор библиотеки, в которых реализуются базовые возможности работы с URL-страницами.

-I - позволяет получить заголовок без тела документа.

--verbose - выдаёт доп. Информацию во время работы.

1-ый GET запрос – yandex.ru

IP-адрес веб-сервера: 77.88.55.88

Порт: 80

Истинное значение хоста ресурса: yandex.ru

Код ответа и его значение: 302 Moved Temporarily - показывает, что запрошенный документ временно доступен по другому URL

Протокол запроса: HTTP

```
Sasha@DESKTOP-SREQ5J0 MINGW64 ~
$ curl --verbose -I yandex.ru
% Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
           0         0     0         0         0         0         0         0
Trying 77.88.55.88:80...
* Connected to yandex.ru (77.88.55.88) port 80 (#0)
> HEAD / HTTP/1.1
> Host: yandex.ru
> User-Agent: curl/7.87.0
> Accept: */*
>
* Mark bundle as not supporting multiuse
< HTTP/1.1 302 Moved temporarily
< Location: http://yandex.ru/showcaptcha?cc=1&mt=65EF0B8C4B2AFAB471510B52BB1E6419B19327B99C2228CC9D5EE8D2D2A5D168B1AE&retpath=aHR0cDovL3lhbmRleC5ydS8__a0ca8f20b95878e9c3823719d9082592&t=2/1674483820/3fba02aaebcf2223916c460c71c8657f&u=bb3b1766-53146bcb-66685660-2722570b&s=1cd255f3a6c0b4ebaf4b5116ba5e4869
< NEL: {"report_to": "network-errors", "max_age": 100, "success_fraction": 0.001, "failure_fraction": 0.1}
< Report-To: {"group": "network-errors", "max_age": 100, "endpoints": [{"url": "https://dr.yandex.net/nel", "priority": 1}, {"url": "https://dr2.yandex.net/nel", "priority": 2}]}
< Set-Cookie: spravka=dD0xNjQyOTQ3ODIwO2k9OTEuMjA4LjM1LjEzNDtEPUFERke5MzhFREEyMTUyMTI2OTY5Q0YxMjkwNTAzMjdBQUY4QTRDQ0JFNDZDQ0I4Nzc3NzBCRTAyRTI3MzI0NTM3OEYyMOY3Q0EORDg7dT0xNjQyOTQ3ODIwNDA0Mzg2NDk2O2g9M2U1NjJhMDk0NDQwODAxOWE2MjI1NzVhOTkwMWQwYTQ=; domain=.yandex.ru; path=/; expires=Wed, 22-Feb-2023 14:23:40 GMT
< X-Content-Type-Options: nosniff
< X-Yandex-Captcha: captcha
< X-Yandex-EU-Request: 0
< X-Yandex-Req-Id: 1674483820403251-8667639877308948991-sas3-0865-1aa-sas-17-balancer-8080-BAL
<
0         0         0         0         0         0         0         0         0         0
TP/1.1 302 Moved temporarily
Location: http://yandex.ru/showcaptcha?cc=1&mt=65EF0B8C4B2AFAB471510B52BB1E6419B19327B99C2228CC9D5EE8D2D2A5D168B1AE&retpath=aHR0cDovL3lhbmRleC5ydS8__a0ca8f20b95878e9c3823719d9082592&t=2/1674483820/3fba02aaebcf2223916c460c71c8657f&u=bb3b1766-53146bcb-66685660-2722570b&s=1cd255f3a6c0b4ebaf4b5116ba5e4869
NEL: {"report_to": "network-errors", "max_age": 100, "success_fraction": 0.001, "failure_fraction": 0.1}
Report-To: {"group": "network-errors", "max_age": 100, "endpoints": [{"url": "https://dr.yandex.net/nel", "priority": 1}, {"url": "https://dr2.yandex.net/nel", "priority": 2}]}
Set-Cookie: spravka=dD0xNjQyOTQ3ODIwO2k9OTEuMjA4LjM1LjEzNDtEPUFERke5MzhFREEyMTUyMTI2OTY5Q0YxMjkwNTAzMjdBQUY4QTRDQ0JFNDZDQ0I4Nzc3NzBCRTAyRTI3MzI0NTM3OEYyMOY3Q0EORDg7dT0xNjQyOTQ3ODIwNDA0Mzg2NDk2O2g9M2U1NjJhMDk0NDQwODAxOWE2MjI1NzVhOTkwMWQwYTQ=; domain=.yandex.ru; path=/; expires=Wed, 22-Feb-2023 14:23:40 GMT
X-Content-Type-Options: nosniff
X-Yandex-Captcha: captcha
X-Yandex-EU-Request: 0
X-Yandex-Req-Id: 1674483820403251-8667639877308948991-sas3-0865-1aa-sas-17-balancer-8080-BAL

* Connection #0 to host yandex.ru left intact
```

Рис. 1 - запрос на yandex.ru

2-ый GET запрос – www.yandex.ru

IP-адрес веб-сервера: 5.255.255.88

Port: 80

Истинное значение хоста ресурса: www.yandex.ru

Код ответа и его значение: 302 Moved Temporarily - показывает, что запрошенный

Протокол запроса: HTTP

[illegible]

Рис. 2 - запрос на www.yandex.ru

3-ий GET запрос – <http://yandex.ru>

IP-адрес веб-сервера: 5.255.255.88

Port: 80

Истинное значение хоста ресурса: yandex.ru

Код ответа и его значение: 302 Moved Temporarily - показывает, что запрошенный

документ временно доступен по другому URL

Протокол апроса: HTTP

```

Sasha@DESKTOP-SREQSJU MINGW64 ~
$ curl --verbose -I http://yandex.ru
% Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
           Dload  Upload   Total   Spent    Left     Speed

  0     0    0     0     0     0     0     0     0     0  --:--:-- --:--:-- --:--:--    0*   Trying 5.255.255.88:80...
* Connected to yandex.ru (5.255.255.88) port 80 (#0)
> HEAD / HTTP/1.1
> Host: yandex.ru
> User-Agent: curl/7.87.0
> Accept: */*
>
* Mark bundle as not supporting multiuse
< HTTP/1.1 302 Moved temporarily
< Location: http://yandex.ru/showcaptcha?cc=1&mt=5AD671B57B36631930AC63DE6B1D1F1CC8DD28249EFBE24075AD96AC81971AB5C8
=6ce810a642e44022e92a2308f3b75fe2
< NEL: {"report_to": "network-errors", "max_age": 100, "success_fraction": 0.001, "failure_fraction": 0.1}
< Report-To: { "group": "network-errors", "max_age": 100, "endpoints": [{"url": "https://dr.yandex.net/nel", "prio
< Set-Cookie: spravka=dD0xNjQyOTUwNTkwO2k9OTEuMjA4LjM1LjEzNDtEPTEyOTRFRTAwNUYzMjA2NOFDRkYxNjQxRkMzOTEyRkM3MTNEMzUx
expires=Wed, 22-Feb-2023 15:09:50 GMT
< X-Content-Type-Options: nosniff
< X-Yandex-Captcha: captcha
< X-Yandex-EU-Request: 0
< X-Yandex-Req-Id: 1674486590519638-1452330396961012351-v1a1-0246-v1a-17-balancer-8080-BAL
<
  0     0    0     0     0     0     0     0     0     0  --:--:-- --:--:-- --:--:--    0HTTP/1.1 302 Moved temporarily
Location: http://yandex.ru/showcaptcha?cc=1&mt=5AD671B57B36631930AC63DE6B1D1F1CC8DD28249EFBE24075AD96AC81971AB5C88
ce810a642e44022e92a2308f3b75fe2
NEL: {"report_to": "network-errors", "max_age": 100, "success_fraction": 0.001, "failure_fraction": 0.1}
Report-To: { "group": "network-errors", "max_age": 100, "endpoints": [{"url": "https://dr.yandex.net/nel", "priori
Set-Cookie: spravka=dD0xNjQyOTUwNTkwO2k9OTEuMjA4LjM1LjEzNDtEPTEyOTRFRTAwNUYzMjA2NOFDRkYxNjQxRkMzOTEyRkM3MTNEMzUxRU
pires=Wed, 22-Feb-2023 15:09:50 GMT
X-Content-Type-Options: nosniff
X-Yandex-Captcha: captcha
X-Yandex-EU-Request: 0
X-Yandex-Req-Id: 1674486590519638-1452330396961012351-v1a1-0246-v1a-17-balancer-8080-BAL

* Connection #0 to host yandex.ru left intact

```

Рис. 3 - запрос на <http://yandex.ru>

 MINGW64:/c/Users/Sasha

```
Sasha@DESKTOP-SREQSJ0 MINGW64 ~
$ curl --verbose -I https://www.python.org
% Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
           Dload  Upload   Total   Spent    Left   Speed
0    0    0    0    0    0    0    0    0  --:--:--  --:--:--  --:--:--    0*   Trying 146.75.120.223:443...
0    0    0    0    0    0    0    0    0  --:--:--  --:--:--  --:--:--    0* Connected to www.python.org (146.75.120.223) port 443
* ALPN: offers h2
* ALPN: offers http/1.1
* CAfile: C:/Program Files/Git/mingw64/ssl/certs/ca-bundle.crt
* CAPath: none
* [5 bytes data]
* [CONN-0-0][CF-SSL] TLSv1.3 (OUT), TLS handshake, Client hello (1):
* [512 bytes data]
* [CONN-0-0][CF-SSL] TLSv1.3 (IN), TLS handshake, Server hello (2):
* [122 bytes data]
* [CONN-0-0][CF-SSL] TLSv1.3 (IN), TLS handshake, Encrypted Extensions (8):
* [19 bytes data]
* [CONN-0-0][CF-SSL] TLSv1.3 (IN), TLS handshake, Certificate (11):
* [2894 bytes data]
* [CONN-0-0][CF-SSL] TLSv1.3 (IN), TLS handshake, CERT verify (15):
* [264 bytes data]
* [CONN-0-0][CF-SSL] TLSv1.3 (IN), TLS handshake, Finished (20):
* [52 bytes data]
* [CONN-0-0][CF-SSL] TLSv1.3 (OUT), TLS change cipher, Change cipher spec (1):
* [1 bytes data]
* [CONN-0-0][CF-SSL] TLSv1.3 (OUT), TLS handshake, Finished (20):
* [52 bytes data]
* SSL connection using TLSv1.3 / TLS_AES_256_GCM_SHA384
* ALPN: server accepted h2
* Server certificate:
* subject: CN=www.python.org
* start date: Jul 26 18:45:10 2022 GMT
* expire date: Aug 27 18:45:09 2023 GMT
* subjectAltName: host "www.python.org" matched cert's "www.python.org"
* issuer: C=BE; O=GlobalSign nv-sa; CN=GlobalSign Atlas R3 DV TLS CA 2022 Q3
* SSL certificate verify ok.
* Using HTTP2, server supports multiplexing
* Copying HTTP/2 data in stream buffer to connection buffer after upgrade: len=0
* [5 bytes data]
* h2h3 [:method: HEAD]
* h2h3 [:path: /]
* h2h3 [:scheme: https]
* h2h3 [:authority: www.python.org]
* h2h3 [user-agent: curl/7.87.0]
* h2h3 [accept: */*]
* Using Stream ID: 1 (easy handle 0x1ec1ff410d0)
* [5 bytes data]
> HEAD / HTTP/2
> Host: www.python.org
> user-agent: curl/7.87.0
> accept: */*
>
* [5 bytes data]
* [CONN-0-0][CF-SSL] TLSv1.3 (IN), TLS handshake, NewSession Ticket (4):
* [177 bytes data]
< HTTP/2 200
< server: nginx
```

Рис. 4 - запрос на <http://www.python.org>

```
< content-type: text/html; charset=utf-8
< x-frame-options: DENY
< via: 1.1 vegur, 1.1 varnish, 1.1 varnish
< accept-ranges: bytes
< date: Mon, 23 Jan 2023 15:24:45 GMT
< age: 2747
< x-served-by: cache-iad-kiad7000025-IAD, cache-hhn-etou8220040-HHN
< x-cache: HIT, HIT
< x-cache-hits: 252, 21
< x-timer: S1674487485.271823,VS0,VE0
< vary: Cookie
< strict-transport-security: max-age=63072000; includeSubDomains
< content-length: 50060
<
  0 50060 0 0 0 0 0 0 ---:--:-- ---:--:-- ---:--:-- 0HTTP/2 200
server: nginx
content-type: text/html; charset=utf-8
x-frame-options: DENY
via: 1.1 vegur, 1.1 varnish, 1.1 varnish
accept-ranges: bytes
date: Mon, 23 Jan 2023 15:24:45 GMT
age: 2747
x-served-by: cache-iad-kiad7000025-IAD, cache-hhn-etou8220040-HHN
x-cache: HIT, HIT
x-cache-hits: 252, 21
x-timer: S1674487485.271823,VS0,VE0
vary: Cookie
strict-transport-security: max-age=63072000; includeSubDomains
content-length: 50060
```

Рис. 4 - запрос на <https://www.python.org>