

# Лабораторная работа №1

По теме: «HTTP HTTPS и их параметры»

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Вариант 6

**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: 5.255.255.80

Порт: 80

Истинное значение хоста ресурса: yandex.ru

Код ответа и его значение: 301 Moved Permanently - показывает, что запрошенный ресурс был окончательно перемещён в URL

Протокол запроса: HTTP

```

dudck@DESKTOP-OVVFQOP MINGW64 ~
$ curl --verbose -I 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*   Trying
5.255.255.80:80...
* Connected to yandex.ru (5.255.255.80) port 80 (#0)
> HEAD / HTTP/1.1
> Host: yandex.ru
> User-Agent: curl/7.85.0
> Accept: */*
>
* Mark bundle as not supporting multiuse
< HTTP/1.1 301 Moved permanently
< Cache-Control: max-age=1209600,private
< Date: Thu, 27 Oct 2022 17:55:13 GMT
< Location: https://yandex.ru/
< NEL: {"report_to": "network-errors", "max_age": 100, "success_fraction": 0.001, "failure_fraction": 0.1}
< P3P: policyref="/w3c/p3p.xml", CP="NON DSP ADM DEV PSD IVDo OUR IND STP PHY PRE NAV UNI"
< Portal: Home
< 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}] }
< X-Content-Type-Options: nosniff
< X-Yandex-Req-Id: 1666893313960826-8123807062954482258-v1a1-5781-v1a-17-balancer-8080-BAL-3573
< set-cookie: is_gdpr=0; Path=/; Domain=.yandex.ru; Expires=Sat, 26 Oct 2024 17:55:13 GMT
< set-cookie: is_gdpr_b=CO+2UBCEkgEoAg==; Path=/; Domain=.yandex.ru; Expires=Sat, 26 Oct 2024 17:55:13 GMT
< set-cookie: _yasc=ptBKta248Pl+lXhYg3afeJCTd+mtBSDCukquNtE+wPOCLoyB9Wbfb6pzuLRAoQ4=; domain=.yandex.ru; path=/; expires=Sun, 24-Oct-2032 17:55:13 GMT; secure
<
  0     0    0     0    0     0      0      0  --:--:-- --:--:-- --:--:--    0HTTP/1.1 3
01 Moved permanently
Cache-Control: max-age=1209600,private
Date: Thu, 27 Oct 2022 17:55:13 GMT
Location: https://yandex.ru/
NEL: {"report_to": "network-errors", "max_age": 100, "success_fraction": 0.001, "failure_fraction": 0.1}
P3P: policyref="/w3c/p3p.xml", CP="NON DSP ADM DEV PSD IVDo OUR IND STP PHY PRE NAV UNI"
Portal: Home
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}] }
X-Content-Type-Options: nosniff
X-Yandex-Req-Id: 1666893313960826-8123807062954482258-v1a1-5781-v1a-17-balancer-8080-BAL-3573
set-cookie: is_gdpr=0; Path=/; Domain=.yandex.ru; Expires=Sat, 26 Oct 2024 17:55:13 GMT
set-cookie: is_gdpr_b=CO+2UBCEkgEoAg==; Path=/; Domain=.yandex.ru; Expires=Sat, 26 Oct 2024 17:55:13 GMT
set-cookie: _yasc=ptBKta248Pl+lXhYg3afeJCTd+mtBSDCukquNtE+wPOCLoyB9Wbfb6pzuLRAoQ4=; domain=.yandex.ru; path=/; expires=Sun, 24-Oct-2032 17:55:13 GMT; secure

* Connection #0 to host yandex.ru left intact

```

Рис. 1 - запрос на yandex.ru

2-ый GET запрос – [www.yandex.ru](http://www.yandex.ru)

IP-адрес веб-сервера: 77.88.55.55

Порт: 80

Истинное значение хоста ресурса: [www.yandex.ru](http://www.yandex.ru)

Код ответа и его значение: 301 Moved Permanently - показывает, что запрошенный ресурс был окончательно перемещён в URL

Протокол апроса: HTTP

```
audck@DESKTOP-0YFVQ0P MINGW64 ~
$ curl --verbose -I www.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 77.88.55.55:80...
* Connected to www.yandex.ru (77.88.55.55) port 80 (#0)
> HEAD / HTTP/1.1
> Host: www.yandex.ru
> User-Agent: curl/7.85.0
> Accept: */*
>
* Mark bundle as not supporting multiuse
< HTTP/1.1 301 Moved permanently
< Cache-Control: max-age=1209600,private
< Date: Thu, 27 Oct 2022 18:13:38 GMT
< Location: https://yandex.ru/
< NEL: {"report_to": "network-errors", "max_age": 100, "success_fraction": 0.001, "failure_fraction": 0.1}
< P3P: policyref="/w3c/p3p.xml", CP="NON DSP ADM DEV PSD IVDO OUR IND STP PHY PRE NAV UNI"
< Portal: Home
< 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}]}
< X-Content-Type-Options: nosniff
< X-Yandex-Req-Id: 1666894418403767-14179778341427640103-sas2-0988-3b9-sas-17-balancer-8080-BAL-7808
< set-cookie: is_gdpr=0; Path=/; Domain=.yandex.ru; Expires=Sat, 26 Oct 2024 18:13:38 GMT
< set-cookie: is_gdpr_b=C0+2UBCFkgEoAg==; Path=/; Domain=.yandex.ru; Expires=Sat, 26 Oct 2024 18:13:38 GMT
< set-cookie: _yasc=NlQaT8Zdt8YniVDDJAU/eNAKgJTV1I0T8vM+DptZLcq9NfMgwEYalWJ88M=; domain=.yandex.ru; path=/; expires=Sun, 24-Oct-2032 18:13:38 GMT; secure
<
  0     0    0     0     0     0      0      0      0  0 --:--:-- --:--:-- --:--:--    0HTTP/1.1 301 Moved permanently
Cache-Control: max-age=1209600,private
Date: Thu, 27 Oct 2022 18:13:38 GMT
Location: https://yandex.ru/
NEL: {"report_to": "network-errors", "max_age": 100, "success_fraction": 0.001, "failure_fraction": 0.1}
P3P: policyref="/w3c/p3p.xml", CP="NON DSP ADM DEV PSD IVDO OUR IND STP PHY PRE NAV UNI"
Portal: Home
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}]}
X-Content-Type-Options: nosniff
X-Yandex-Req-Id: 1666894418403767-14179778341427640103-sas2-0988-3b9-sas-17-balancer-8080-BAL-7808
set-cookie: is_gdpr=0; Path=/; Domain=.yandex.ru; Expires=Sat, 26 Oct 2024 18:13:38 GMT
set-cookie: is_gdpr_b=C0+2UBCFkgEoAg==; Path=/; Domain=.yandex.ru; Expires=Sat, 26 Oct 2024 18:13:38 GMT
set-cookie: _yasc=NlQaT8Zdt8YniVDDJAU/eNAKgJTV1I0T8vM+DptZLcq9NfMgwEYalWJ88M=; domain=.yandex.ru; path=/; expires=Sun, 24-Oct-2032 18:13:38 GMT; secure
```

Рис. 2 - запрос на [www.yandex.ru](http://www.yandex.ru)

3-ий GET запрос – [http://yandex.ru](http://http://yandex.ru)

IP-адрес веб-сервера: 5.255.255.88

Порт: 80

Истинное значение хоста ресурса: [www.yandex.ru](http://www.yandex.ru)

Код ответа и его значение: 301 Moved Permanently - показывает, что запрошенный ресурс был окончательно перемещён в URL

Протокол апроса: HTTP



```
hudduck@DESKTOP-0VFNQOP MINGW64 ~  
$ curl --verbose -I http://yandex.ru  


| % Total | % Received | % Xferd | Average Dload | Average Upload | Speed | Time Total | Time Spent | Time Left | Current Speed |
|---------|------------|---------|---------------|----------------|-------|------------|------------|-----------|---------------|
| 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/7.85.0  
> Accept: */*  
  
<  
* Mark bundle as not supporting multiuse  
< HTTP/1.1 301 Moved permanently  
< Cache-Control: max-age=1209600,private  
< Date: Thu, 27 Oct 2022 18:15:33 GMT  
< Location: https://yandex.ru/  
< NEL: {"report_to": "network-errors", "max_age": 100, "success_fraction": 0.001, "failure_fraction": 0.1}  
< P3P: policyref="/w3c/p3p.xml", CP="NON DSP ADM DEV PSD IVD O OUR IND STP PHY PRE NAV UNI"  
< Portal: Home  
< 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}]}  
< X-Content-Type-Options: nosniff  
< X-Yandex-Req-Id: 1666894533092552-16115115870375254461-vla1-4215-vla-l7-balancer-8080-BAL-936  
< set-cookie: is_gdpr=0; Path=/; Domain=.yandex.ru; Expires=Sat, 26 Oct 2024 18:15:33 GMT  
< set-cookie: is_gdpr_b=C0+2UBCFkgEoAg==; Path=/; Domain=.yandex.ru; Expires=Sat, 26 Oct 2024 18:15:33 GMT  
< set-cookie: _yasc=zdqSb50Dp/VE89glylKljfeKTS78VJzK/lLWG7axukhKVQY2CGMfMWj74YzI7do=; domain=.yandex.ru; path=/; expires=Sun, 24-Oct-2032 18:15:33 GMT; secure  
  
Cache-Control: max-age=1209600,private  
Date: Thu, 27 Oct 2022 18:15:33 GMT  
Location: https://yandex.ru/  
NEL: {"report_to": "network-errors", "max_age": 100, "success_fraction": 0.001, "failure_fraction": 0.1}  
P3P: policyref="/w3c/p3p.xml", CP="NON DSP ADM DEV PSD IVD O OUR IND STP PHY PRE NAV UNI"  
Portal: Home  
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}]}  
X-Content-Type-Options: nosniff  
X-Yandex-Req-Id: 1666894533092552-16115115870375254461-vla1-4215-vla-l7-balancer-8080-BAL-936  
set-cookie: is_gdpr=0; Path=/; Domain=.yandex.ru; Expires=Sat, 26 Oct 2024 18:15:33 GMT  
set-cookie: is_gdpr_b=C0+2UBCFkgEoAg==; Path=/; Domain=.yandex.ru; Expires=Sat, 26 Oct 2024 18:15:33 GMT  
set-cookie: _yasc=zdqSb50Dp/VE89glylKljfeKTS78VJzK/lLWG7axukhKVQY2CGMfMWj74YzI7do=; domain=.yandex.ru; path=/; expires=Sun, 24-Oct-2032 18:15:33 GMT; secure
```

Рис. 3 - запрос на <http://yandex.ru>

4-ый GET-запрос - <https://www.python.org>

```

dudck@DESKTOP-OVFVQOP MINGW64 ~
$ curl --verbose -I https://www.python.org
% Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
           %    0         0             0             0             0             0             0
0      0    0     0         0             0             0             0             0*   Trying 151.101.36.223:443...
* Connected to www.python.org (151.101.36.223) port 443 (#0)
* ALPN: offers h2
* ALPN: offers http/1.1
* CAfile: E:/0-69/GIT/Git/mingw64/ssl/certs/ca-bundle.crt
* CApath: none
} [5 bytes data]
* TLSv1.3 (OUT), TLS handshake, Client hello (1):
} [512 bytes data]
* TLSv1.3 (IN), TLS handshake, Server hello (2):
{ [122 bytes data]
* TLSv1.3 (IN), TLS handshake, Encrypted Extensions (8):
{ [19 bytes data]
* TLSv1.3 (IN), TLS handshake, Certificate (11):
{ [2894 bytes data]
* TLSv1.3 (IN), TLS handshake, CERT verify (15):
{ [264 bytes data]
* TLSv1.3 (IN), TLS handshake, Finished (20):
{ [52 bytes data]
* TLSv1.3 (OUT), TLS change cipher, Change cipher spec (1):
} [1 bytes data]
* 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/7.85.0]
* h2h3 [accept: */*]
* Using Stream ID: 1 (easy handle 0x22bd4070e30)
} [5 bytes data]
> HEAD / HTTP/2
> Host: www.python.org
> user-agent: curl/7.85.0
> accept: */*
>
{ [5 bytes data]
* TLSv1.3 (IN), TLS handshake, Newsession Ticket (4):
{ [177 bytes data]
< HTTP/2 200
< server: nginx
< content-type: text/html; charset=utf-8
< x-frame-options: DENY

```

Рис. 3 - 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: Thu, 27 Oct 2022 18:18:22 GMT
< age: 2331
< x-served-by: cache-iad-kiad7000025-IAD, cache-ams21071-AMS
< x-cache: HIT, HIT
< x-cache-hits: 296, 10
< x-timer: S1666894703.951800,VS0,VE0
< vary: Cookie
< strict-transport-security: max-age=63072000; includeSubDomains
< content-length: 51106
<
  0 51106  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: Thu, 27 Oct 2022 18:18:22 GMT
age: 2331
x-served-by: cache-iad-kiad7000025-IAD, cache-ams21071-AMS
x-cache: HIT, HIT
x-cache-hits: 296, 10
x-timer: S1666894703.951800,VS0,VE0
vary: Cookie
strict-transport-security: max-age=63072000; includeSubDomains
content-length: 51106

```

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