

 免费电子书

学习

HTTP

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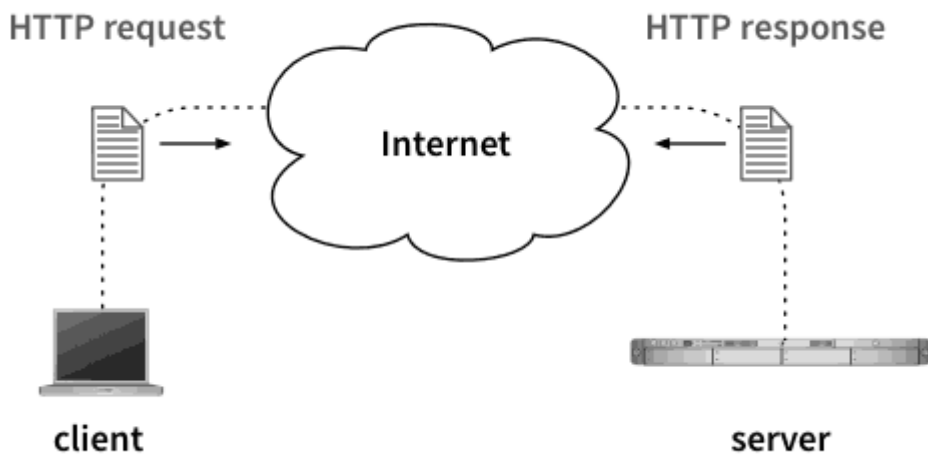
# 1: HTTP

HTTP/。 HTTP。 TCP。

HTTP / 0.9	“”	1991-01-01
HTTP / 1.0	HTTP / 1.0RFC	1992-01-01
HTTP / 1.0 <sup>r1</sup>	HTTPRFC	199651
HTTP / 1.1		1997-01-01
HTTP / 1.1 <sup>r1</sup>		1999-06-01
HTTP / 1.1 <sup>r2</sup>		2014-06-01
HTTP / 2	HTTP / 2	201551

## Examples

HTTP



HTTPHTTPWebHTTPHTTPTHHTPTHHTP。

HTTP。 HTTP。

HTTP / 1.0

RFC 1945HTTP / 1.0。

HTTP / 1.0WebHost。

## HTTP / 1.1 HTTP / 1.0

```
GET / HTTP/1.0
User-Agent: example/1

HTTP/1.0 200 OK
Content-Type: text/plain

Hello
```

## HTTP / 1.1

HTTP / 1.1 1999 RFC 2616 RFC 2617

RFC 2616

- [HTTP WG Mark Nottingham](#)

HTTP / 1.1 HTTP RFC 723x

- [RFC 7230](#)
- [RFC 7231](#)
- [RFC 7232](#)
- [RFC 7233](#)
- [RFC 7234](#)
- [RFC 7235](#)

HTTP / 1.1

- 
- TCP / IP HTTP / 1.0
- 
- 

HTTP / 1.1 HTTP -

```
GET / HTTP/1.0
User-Agent: example/1
Host: example.com

HTTP/1.0 200 OK
Content-Type: text/plain
Content-Length: 6
Connection: close

Hello
```

## HTTP / 2

HTTP / 2 [RFC 7540](#) HTTP. HTTP / 2 [HPACK](#).

TCP / IP。

HTTP / 2HTTP / 1.12。

## HTTP / 0.9

HTTP 0.9 “[HTTP As Implemented](#)” 。 0.9 “HTTP [1.0]” 。 0.91.0。

0.9。 CRLF<sub>GET</sub> URL。 HTML。 。 。 [<isindex>](#) HTML 。

HTTP / 0.9。 [tftp](#)。

HTTP <https://riptutorial.com/zh-CN/http/topic/984/http>



## 2: HTTP

	- -
100	- °
101	- °
200	- °
201	- LocationURI°
202	- °
203	- ° °
204	<b>No Content</b> - 200OK°
205	- 204°
206	- Range200OK°
300	- URIURI°
301	- URILocationURI°
302	- URI° LocationURI°
303	- 302FoundURI° GETURI°
304	- If-Modified-SinceIf-Modified-Since;°
305	- Location°
307	- 302HTTP 1.0307°
400	- °
401	- ° Authorization°
402	- °
403	- ° °
404	- URI° 403°
405	- HTTP; Allow°

	- -
406	- °
407	- 401°
408	- °
409	- °
410	- 404° °
411	<b>Length Required</b> - Content-Length°
412	- °
413	- °
414	<b>Request-URI</b> - Request-URI°
415	- MIME°
416	- °
417	- Expect°
500	- °
501	- ° °
502	- °
503	- °
504	- °
505	<b>HTTP</b> - HTTP°

## Examples

HTTPHTTP ° HTTP 1.1

```
HTTP/1.1 200 OK \r\n
```

```
HTTP/1.1 404 Not Found \r\n
```

```
HTTP/1.1 503 Service Unavailable \r\n
```

## HTTP 1.1

```
HTTP-Version Status-Code Reason-Phrase CRLF
```

HTTP-Version HTTP; HTTP 1.1 HTTP/1.1

Status-Code 5<sup>[1]</sup>

- 1xx -
- 2xx -
- 3xx -
- 4xx -
- 5xx -

Reason-Phrase 200 OK ; 404 Not Found HTTP

\r\n

HTTP HTTP

### 6.2

- Server Server User-Agent ;
- Location 2013xxURI;
- ETag

```
Name: Value CRLF
```

Name ETag Location Value CRLF

```
HTTP/1.1 201 Created \r\n
Server: WEBrick/1.3.1 \r\n
Location: http://example.com/files/129742 \r\n
```

HTTP GET 200 OK 204 No Content

CRLF Content-Length GET

```
HTTP/1.1 200 OK\r\n
Server: WEBrick/1.3.1\r\n
Content-Length: 39\r\n
ETag: 4f7e2ed02b836f60716a7a3227e2b5bda7ee12c53be282a5459d7851c2b4fdfd\r\n
\r\n
Nobody expects the Spanish Inquisition.
```

HTTP <https://riptutorial.com/zh-CN/http/topic/3077/http>

# 3: HTTP

HTTP。 RFC 7231sec. 6 “status-code。”

000999。 100599。

HTTP / 1.1HTTP - HTTP - 。

- 1xx
- 2xx
- 3xx -
- 4xx -
- 5xx -

。

## Examples

### 500

HTTP 500。 Web500 - 。

```
HTTP/1.1 500 Internal Server Error
```

### 404

HTTP 404 Not FoundURI。

```
HTTP/1.1 404 Not Found
```

HTTP 403 Forbidden。

MicrosoftIIS404.00。 404.5-404.19。 [Microsoft](#)。

403 Forbidden。 /admin403。

```
GET /admin HTTP/1.1  
Host: example.com
```

```
HTTP/1.1 403 Forbidden
```

200HTTP。 HTTP

```
HTTP/1.1 200 OK
```

OK ◦ ◦ 201 ◦

## 304 Not Modified If-Modified-Since If-None-Match ◦

If-Modified-Since: Fri, 22 Jul 2016 14:34:40 GMT HTTP/1.1 304 Not Modified HTTP/1.1 304 Not Modified ◦

## HTTP

---

### 2xx

- 200 OK - HTTP ◦
- 201 Created - ◦
- 204 No Content - ◦

---

### 3xx

- 304 Not Modified - If-Modified-Since If-None-Match ◦

---

### 4xx

- 400 Bad Request - ◦
- 401 Unauthorized - *403 Forbidden* ◦ WWW-Authenticate ◦
- 403 Forbidden - ◦ ◦
- 404 Not Found - ◦ ◦
- 409 Conflict - ◦

---

### 5xx

- 500 - ◦

HTTP <https://riptutorial.com/zh-CN/http/topic/2577/http>

# 4: HTTP

HTTP	
OPTIONS	URI。
GET	URIURI。
HEAD	GET。
POST	URI。 。
PUT	URI。
DELETE	URI。
TRACE	echoHTTP200OK。

CONNECTSSL。

## Examples

### TelnetHTTP

HTTPInternetHTTPHTTP。

TelnetHTTP。

1. 80Webwww.example.orgTelnet

```
telnet www.example.org 80
```

Telnet

```
Connected to www.example.org.  
Escape character is '^['.
```

2. GETURL/ HTTP 1.1

```
GET / HTTP/1.1
```

3. HTTPURLHTTP 1.1

```
Host: www.example.org
```

- 4.

## WebHTTPTelnet

### HTTP 200OK HTML

```
$ telnet www.example.org 80
Trying 2606:2800:220:1:248:1893:25c8:1946...
Connected to www.example.org.
Escape character is '^]'.
GET / HTTP/1.1
Host: www.example.org

HTTP/1.1 200 OK
Accept-Ranges: bytes
Cache-Control: max-age=604800
Content-Type: text/html
Date: Thu, 21 Jul 2016 15:56:05 GMT
Etag: "359670651"
Expires: Thu, 28 Jul 2016 15:56:05 GMT
Last-Modified: Fri, 09 Aug 2013 23:54:35 GMT
Server: ECS (lga/1318)
Vary: Accept-Encoding
X-Cache: HIT
x-ec-custom-error: 1
Content-Length: 1270

<!doctype html>
<html>
<head>
  <title>Example Domain</title>
  <meta charset="utf-8" />
  <meta http-equiv="Content-type" content="text/html; charset=utf-8" />
  <meta name="viewport" content="width=device-width, initial-scale=1" />
</head>
<body>
<div>
  <h1>Example Domain</h1>
  <p>This domain is established to be used for illustrative examples in documents. You may
use this
  domain in examples without prior coordination or asking for permission.</p>
  <p><a href="http://www.iana.org/domains/example">More information...</a></p>
</div>
</body>
</html>
```

## HTMLstyle

## HTTP 1.1HTTPHost

```
GET /search HTTP/1.1 \r\n
Host: google.com \r\n
\r\n
```

```
Method Request-URI HTTP-Version CRLF
```

Method

## HTTP; [1] [2]

- OPTIONS
- GET
- HEAD
- POST
- PUT
- DELETE
- PATCH
- TRACE
- CONNECT

Request-URI **URI**.

- **URI** scheme host;
- Host Host

HTTP-Version **HTTP**. **HTTP 1.1** HTTP/1.1.

\r\n.

“”HTTP.

Host User-Agent Referer

```
GET /search HTTP/1.1 \r\n
Host: google.com \r\n
User-Agent: Chrome/54.0.2803.1 \r\n
Referer: http://google.com/ \r\n
\r\n
```

## HTTP 1.1.

- Host - URL HTTP / 1.1
- User-Agent - ;
- Referer - URI;
- If-Modified-Since - .

Name: Value CRLF. Name User-Agent. Value CRLF. !#\$%&'\*+-.^\_`|~ \_ `!#\$%&'\*+-.^\_`|~ RFC7230  
[3.2.6](#).

Referer 'referrer' [RFC1945](#).

HTTP. POST PATCH PUT.

Content-Length.

CRLF. PUT

```
PUT /files/129742 HTTP/1.1\r\n
Host: example.com\r\n
```



```
User-Agent: Chrome/54.0.2803.1\r\n
```

```
Content-Length: 202\r\n
```

```
\r\n
```

```
This is a message body. All content in this message body should be stored under the  
/files/129742 path, as specified by the PUT specification. The message body does  
not have to be terminated with CRLF.
```

HEADTRACE◦

**HTTP** <https://riptutorial.com/zh-CN/http/topic/2909/http>

# 5:

AJAX。 HTTP。

## Examples

### CORS

Origin。 。 http://example.comhttp://example.org

```
GET /cors HTTP/1.1
Host: example.org
Origin: example.com
```

。

### CORS

CORSAccess-Control-Allow-OriginCORS。

- 。 。
- \* 。 。
- null。 **CORS**。

http://example.comCORSexample.com

```
HTTP/1.1 200 OK
Access-Control-Allow-Origin: example.com
```

```
HTTP/1.1 200 OK
Access-Control-Allow-Origin: *
```

### CORRCORS。 - CORS。

Access-Control-Allow-CredentialsOPTIONS。 **CORS**DELETE

```
OPTIONS /cors HTTP/1.1
Host: example.com
Origin: example.org
Access-Control-Request-Method: DELETE
```

```
HTTP/1.1 200 OK
Access-Control-Allow-Origin: example.org
Access-Control-Allow-Methods: DELETE
Access-Control-Allow-Credentials: true
```

Access-Control-Allow-Credentials: trueDELETE **CORS**。

## CORS

- 
- POST

### ◦ POST CORS◦

OPTIONS◦ DNTPUT

```
OPTIONS /cors HTTP/1.1
Host: example.com
Origin: example.org
Access-Control-Request-Method: PUT
Access-Control-Request-Headers: DNT
```

◦

◦ Max-Age◦

-

```
OPTIONS /cors HTTP/1.1
Host: example.com
Origin: example.org
Access-Control-Request-Method: PUT
Access-Control-Request-Headers: DNT
```

```
HTTP/1.1 200 OK
Access-Control-Allow-Origin: example.org
Access-Control-Allow-Methods: PUT
Access-Control-Allow-Headers: DNT
```

<https://riptutorial.com/zh-CN/http/topic/3424/>

# 6:

## Examples

### HTTP

HTTP / 1.1 Content-Encoding Transfer-Encoding

Accept-Encoding

- gzip - deflate LZ77 "gzip" RFC1952 CRC32
- deflate - "zlib" RFC1950 deflate LZ77 Huffman Adler32

HTTP . . deflate gzip

```
Content-Encoding: deflate, gzip
```

Content-Encoding

```
Content-Encoding: deflate
Content-Encoding: gzip
```

### gzip

Accept-Encoding gzip

```
GET / HTTP/1.1\r\n
Host: www.google.com\r\n
Accept-Encoding: gzip, deflate\r\n
\r\n
```

Content-Encoding gzip::

```
HTTP/1.1 200 OK\r\n
Content-Encoding: gzip\r\n
Content-Length: XX\r\n
\r\n
... compressed content ...
```

<https://riptutorial.com/zh-CN/http/topic/5046/>

# 7: APIHTTP

HTTP APIHTTPJSONXML。

## Examples

◦ API<sub>POSTPUT</sub>◦

201 Created201 Created ◦ ◦

API/

```
POST /employees HTTP/1.1
Host: example.com
Content-Type: application/json

{
  "name": "Charlie Smith",
  "age": 38,
  "job_title": "Software Developer",
  "salary": 54895.00
}
```

```
HTTP/1.1 201 Created
Location: /employees/1/charlie-smith
Content-Type: application/json

{
  "employee": {
    "name": "Charlie Smith",
    "age": 38,
    "job_title": "Software Developer",
    "salary": 54895.00
    "links": [
      {
        "uri": "/employees/1/charlie-smith",
        "rel": "self",
        "method": "GET"
      },
      {
        "uri": "/employees/1/charlie-smith",
        "rel": "delete",
        "method": "DELETE"
      },
      {
        "uri": "/employees/1/charlie-smith",
        "rel": "edit",
        "method": "PATCH"
      }
    ]
  },
  "links": [
    {
      "uri": "/employees",
      "rel": "create",

```

```
    "method": "POST"
  }
]
}
```

links [JSONURI](#).

API ◦ POST PUTPATCH ◦ POST PUTPATCH ◦

200 OK202 Accepted ◦ ◦

---

PUT ◦ ◦ [RFC7231](#)

- 
- PUT
- 415 Unsupported Media Type ◦

JSON [HAL...](#)

```
{
  "name": "Charlie Smith",
  "age": 39,
  "job_title": "Software Developer",
  "_links": {
    "self": { "href": "/users/1234" },
    "employee": { "href": "http://www.acmee.com" },
    "curies": [{ "name": "ea", "href": "http://www.acmee.com/docs/rels/{rel}", templated":
true}],
    "ea:admin": [
      "href": "/admin/2",
      "title": "Admin"
    ]
  }
}
```

...

```
PUT /users/1234 HTTP/1.1
Host: http://www.acmee.com
Content-Type: "application/json; charset=utf-8"
Content-Length: 85
User-Agent: Mozilla/4.0 (compatible; MSIE5.01; Windows NT)
```

```
{
  "name": "Charlie Gold-Smith",
  "age": 40,
  "job_title": "Senior Software Developer"
}
```

application/hal+jsonapplication/jsonJSONJSON HAL415 Unsupported Media Type ◦

◦ GET

```
GET /users/1234 HTTP/1.1
Host: http://www.acmee.com
Accept-Encoding: gzip, deflate
Accept-Language: en-us
User-Agent: Mozilla/4.0 (compatible; MSIE5.01; Windows NT)
ETag: "e0023aa4e"
```

```
{
  "name": "Charlie Gold-Smith",
  "age": 40,
  "job_title": "Senior Software Developer"
}
```

```
GET /users/1234 HTTP/1.1
Host: http://www.acmee.com
Accept-Encoding: gzip, deflate
Accept-Language: en-us
User-Agent: Mozilla/4.0 (compatible; MSIE5.01; Windows NT)
ETag: e0023aa4e
```

```
{
  "name": "Charlie Gold-Smith",
  "age": 40,
  "job_title": "Senior Software Developer",
  "_links": {
    "self": { "href": "/users/1234" },
    "employee": { "href": "http://www.acmee.com" },
    "curies": [{ "name": "ea", "href": "http://www.acmee.com/docs/rels/{rel}", templated":
true}],
    "ea:admin": [
      "href": "/admin/2",
      "title": "Admin"
    ]
  }
}
```

## PUT [RFC7231](#)

PUT。 “”URIURIURI。 “”URIPUT。

。

## [RFC7231](#)

[RFC5789](#)PATCH。

- PUT
- PATCH

。

```
GET /users/1234 HTTP/1.1
Host: http://www.acmee.com
Accept: application/hal+json; charset=utf-8
```

```
Accept-Encoding: gzip, deflate
Accept-Language: en-us
User-Agent: Mozilla/4.0 (compatible; MSIE5.01; Windows NT)
ETag: "e0023aa4e"
```

```
{
  "name": "Charlie Gold-Smith",
  "age": 40,
  "job_title": "Senior Software Developer",
  "_links": {
    "self": { "href": "/users/1234" },
    "employee": { "href": "http://www.acmee.com" },
    "curies": [{ "name": "ea", "href": "http://www.acmee.com/docs/rels/{rel}", templated":
true}],
    "ea:admin": [
      "href": "/admin/2",
      "title": "Admin"
    ]
  },
  "_embedded": {
    "ea:address": {
      "street": "Terrace Drive, Central Park",
      "zip": "NY 10024",
      "city": "New York",
      "country": "United States of America",
      "_links": {
        "self": { "href": "/address/abc" },
        "google_maps": { "href": "http://maps.google.com/?ll=40.7739166,-73.970176" }
      }
    }
  }
}
```

```
PUT /address/abc HTTP/1.1
Host: http://www.acmee.com
Content-Type: "application/json; charset=utf-8"
Content-Length: 109
User-Agent: Mozilla/4.0 (compatible; MSIE5.01; Windows NT)
```

```
{
  "street": "Standford Ave",
  "zip": "CA 94306",
  "city": "Pablo Alto",
  "country": "United States of America"
}
```

GET◦ ◦

```
GET /users/1234 HTTP/1.1
Host: http://www.acmee.com
Accept: application/hal+json; charset=utf-8
Accept-Encoding: gzip, deflate
Accept-Language: en-us
User-Agent: Mozilla/4.0 (compatible; MSIE5.01; Windows NT)
ETag: "e0023aa4e"
```

```
{
  "name": "Charlie Gold-Smith",
  "age": 40,
```



```

    "job_title": "Senior Software Developer",
    "_links": {
      "self": { "href": "/users/1234" },
      "employee": { "href": "http://www.acmee.com" },
      "curies": [{ "name": "ea", "href": "http://www.acmee.com/docs/rels/{rel}", templated":
true}],
      "ea:admin": [
        "href": "/admin/2",
        "title": "Admin"
      ]
    },
    "_embedded": {
      "ea:address": {
        "street": "Standford Ave",
        "zip": "CA 94306",
        "city": "Pablo Alto",
        "country": "United States of America"
      },
      "_links": {
        "self": { "href": "/address/abc" },
        "google_maps": { "href": "http://maps.google.com/?ll=37.4241311,-122.1524475"
      }
    }
  }
}

```

PATCH [RFC5789](#) HTTP。 PATCH。

PATCH Request-URI。 ""。

AB。

JSON [JSON Patch](#)。

PATCH JSON Patch

```

PATCH /users/1234 HTTP/1.1
Host: http://www.acmee.com
Content-Type: application/json-patch+json; charset=utf-8
Content-Length: 188
Accept: application/json
If-Match: "e0023aa4e"

[
  { "op": "replace", "path": "/age", "value": 40 },
  { "op": "replace", "path": "/job_title", "value": "Senior Software Developer" },
  { "op": "add", "path": "/salary", "value": 63985.00 }
]

```

PATCH API。

```

HTTP/1.1 200 OK
Location: /users/1234
Content-Type: application/json
ETag: "df00eb258"

```

```
{
  "name": "Charlie Smith",
  "age": 40,
  "job_title": "Senior Software Developer",
  "salary": 63985.00
}
```

200 OK

ETag If-MatchIf-Unmodified-Since

PATCH

	400 Bad Request
	415 Unsupported Media Type
	422 Unprocessable Entity
	404 Not Found
	409 Conflict
If-MatchIf-Unmodified-Since	412 Precondition Failed409 Conflict
PATCH	409 Conflict

HTTP API. DELETE

200 OK;

## Charlie Smith

```
DELETE /employees/1/charlie-smith HTTP/1.1
Host: example.com
```

```
HTTP/1.1 200 OK
Content-Type: application/json
```

```
{
  'links': [
    {
      'uri': '/employees',
      'rel': 'create',
      'method': 'POST'
    }
  ]
}
```

HTTP API. GET

200 OK

```
GET /employees HTTP/1.1
Host: example.com
```

```
HTTP/1.1 200 OK
Content-Type: application/json
```

```
{
  'employees': [
    {
      'name': 'Charlie Smith',
      'age': 39,
      'job_title': 'Software Developer',
      'salary': 63985.00
      'links': [
        {
          'uri': '/employees/1/charlie-smith',
          'rel': 'self',
          'method': 'GET'
        },
        {
          'uri': '/employees/1/charlie-smith',
          'rel': 'delete',
          'method': 'DELETE'
        },
        {
          'uri': '/employees/1/charlie-smith',
          'rel': 'edit',
          'method': 'PATCH'
        }
      ]
    },
    {
      'name': 'Donna Prima',
      'age': 30,
      'job_title': 'QA Tester',
      'salary': 77095.00
      'links': [
        {
          'uri': '/employees/2/donna-prima',
          'rel': 'self',
          'method': 'GET'
        },
        {
          'uri': '/employees/2/donna-prima',
          'rel': 'delete',
          'method': 'DELETE'
        },
        {
          'uri': '/employees/2/donna-prima',
          'rel': 'edit',
          'method': 'PATCH'
        }
      ]
    }
  ],
  'links': [
    {
      'uri': '/employees/new',
      'rel': 'create',
      'method': 'PUT'
    }
  ]
}
```

```
} ]
```

**APIHTTP** <https://riptutorial.com/zh-CN/http/topic/3423/apihttp>

# 8: HTTP

URLHTTP。

HTTPRFC 7234。

- **fresh** - 。
- - 。
- - HTTPURLVary。
- - If-Modified-SinceIf-None-Match304。
- - Web 。
- - 。

## Examples

1

```
Cache-Control: public, max-age=31536000
```

public max-agemax-age 31536000 = 60 \* 60 \* 24 \* 365。

。

1

```
Cache-Control: private, max-age=60
```

private **cookie**。

```
Cache-Control: no-cache
```

。

no-cache。

。 no-cache。

```
Cache-control: no-store
```

。

HTTPS。

API no-cachevalidation“”。

- Expires - Cache-control: max-ageExpires
- post-checkpre-checkInternet Explorer stale-while-revalidate
- Pragma: no-cache - 1999 Cache-control

## URL URL

```
http://example.com/image.png?version=1
http://example.com/image.png?version=2
```

URL...?version=1...?version=2

URL Cache-control: no-cacheCache-control: no-store no-storeURL

HTTP <https://riptutorial.com/zh-CN/http/topic/3296/http>

# 9:

401407
WWW-AuthenticateProxy-AuthenticateProxy-Authenticate
AuthorizationProxy-Authorization
BasicDigestSPNEGO ◦ HTTP ◦
;
Basic base64-encoded; username:password base64-encodeddXNlcm5hbWU6cGFzc3dvcmQ=

RFC2617 ◦ 407 (Proxy Authentication Required)401 Unauthorized407 (Proxy Authentication Required) ◦ ◦ ◦

## Examples

### HTTP

HTTP ◦ ◦ ◦

```
GET /secret
```

401 Unauthorized

```
401 Unauthorized
WWW-Authenticate: Basic realm="Secret Page"
```

Authorization ◦ username:password **base64**

```
GET /secret
Authorization: Basic dXNlcm5hbWU6cGFzc3dvcmQ=
```

```
HTTP/1.1 200 OK
```

<https://riptutorial.com/zh-CN/http/topic/3286/>

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