כללי:

השרת הוא שרת HTTP בסיסי הבנוי על סמך פרוטוקול RFC 2616 ותומך בקבצי text/HTML בלבד.
בנוסף השרת תומך בפקודות GET, POST, PUT, DELETE, TRACE, OPTIONS, HEAD
ובאפשרויות הבאות:
- Timeout כלומר הקשר לשרת ייסגר אם עברו יותר מ3 דקות מאז נשלח הבית האחרון מהלקוח.
- תמיכה בפרמטר Language אשר מחזיר את האובייקט לפי השפה המומלצת הנשלחת מהלקוח
(במידה וקיימת).

ערכים קבועים:

- תיקיית ROOT של השרת:
const char * ROOT_DIR = "C:/webServer"

- PORT שהשרת מאזין לו:
const int PORT = 8080

- מספר חיבורים מקסימלי לשרת:
const int MAX_SOCKETS = 60

- זמן ניתוק לאחר חוסר פעילות:
const int TIMEOUT_IN_SEC = 180

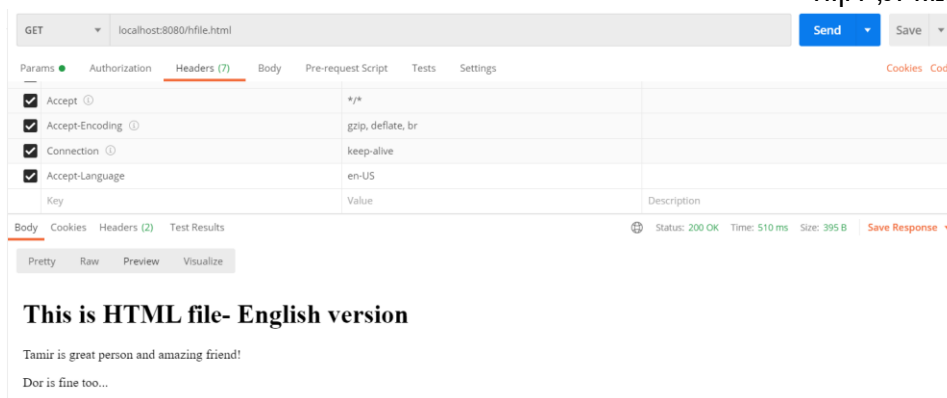## כלים לבדיקה:

- POSTMAN Desktop
- WireShark
- Chrome browser

מימוש ותצלומי מסך:

GET:

בבקשת GET נבקש אובייקט HTML מהשרת, במידה והקובץ נמצא תוחזר הודעת 200 OK, אחרת תוחזר
הודעת 404 NOT FOUND.

צילומי מסך

אנגלית, לקוח

לקוח, WIRESHARK

∨ Hypertext Transfer Protocol
  > GET /hfile.html HTTP/1.1\r\n
    Accept-Language: en-US\r\n
    User-Agent: PostmanRuntime/7.26.8\r\n
    Accept: */*\r\n
    Postman-Token: 5a8a7d60-04f4-423f-92e8-a7c159eef24b\r\n
    Host: localhost:8080\r\n
    Accept-Encoding: gzip, deflate, br\r\n
    Connection: keep-alive\r\n
    \r\n
    [Full request URI: http://localhost:8080/hfile.html]
    [HTTP request 1/1]
    [Response in frame: 22]

```
0000  02 00 00 00  45 00 01 13   2e 43 40 00 80 06 00 00    ····E···  .C@·····
0010  7f 00 00 01  7f 00 00 01   f5 26 1f 90 20 a8 1a 84    ········  ·&·· ···
0020  c0 2e 2e df  50 18 27 f9   9c 4f 00 00 47 45 54 20    ·...P·'·  ·O··GET
0030  2f 68 66 69  6c 65 2e 68   74 6d 6c 20 48 54 54 50    /hfile.h  tml HTTP
0040  2f 31 2e 31  0d 0a 41 63   63 65 70 74 2d 4c 61 6e    /1.1··Ac  cept-Lan
0050  67 75 61 67  65 3a 20 65   6e 2d 55 53 0d 0a 55 73    guage: e  n-US··Us
0060  65 72 2d 41  67 65 6e 74   3a 20 50 6f 73 74 6d 61    er-Agent  : Postma
0070  6e 52 75 6e  74 69 6d 65   2f 37 2e 32 36 2e 38 0d    nRuntime  /7.26.8·
0080  0a 41 63 63  65 70 74 3a   20 2a 2f 2a 0d 0a 50 6f    ·Accept:   */*··Po
0090  73 74 6d 61  6e 2d 54 6f   6b 65 6e 3a 20 35 61 38    stman-To  ken: 5a8
00a0  61 37 64 36  30 2d 30 34   66 34 2d 34 32 33 66 2d    a7d60-04  f4-423f-
00b0  39 32 65 38  2d 61 37 63   31 35 39 65 65 66 32 34    92e8-a7c  159eef24
00c0  62 0d 0a 48  6f 73 74 3a   20 6c 6f 63 61 6c 68 6f    b··Host:   localho
00d0  73 74 3a 38  30 38 30 0d   0a 41 63 63 65 70 74 2d    st:8080·  ·Accept-
```

אנגלית, שרת

```
HTTP Server: Client 127.0.0.1:62758 is connected.
HTTP Server: Recieved: 235 bytes of
"GET /hfile.html HTTP/1.1
Accept-Language: en-US
User-Agent: PostmanRuntime/7.26.8
Accept: */*
Postman-Token: 5a8a7d60-04f4-423f-92e8-a7c159eef24b
Host: localhost:8080
Accept-Encoding: gzip, deflate, br
Connection: keep-alive

" message.
HTTP Server: Sent: 395\395 bytes of "HTTP/1.1 200 OK
Content-type: text/html
Content-length: 330

<!DOCTYPE html>
<html>
<head>
<style>
code {
  font-family: Consolas,"courier new";
  color: crimson;
  background-color: #f1f1f1;
  padding: 2px;
  font-size: 105%;
}
</style>
</head>
<body>

<h1>This is HTML file- English version</h1>

<p>Tamir is great person and amazing friend!</p>
<p>Dor is fine too...</p>

</body>
</html>
" message.
```

wireshark ,שרת

```
∨ Hypertext Transfer Protocol
  > HTTP/1.1 200 OK\r\n
    Content-type: text/html\r\n
  > Content-length: 330\r\n
    \r\n
    [HTTP response 1/1]
    [Time since request: 0.002180000 seconds]
    [Request in frame: 20]
    [Request URI: http://localhost:8080/hfile.html]
    File Data: 330 bytes
> Line-based text data: text/html (22 lines)
```

```
0000   02 00 00 00 45 00 01 b3   2e 45 40 00 80 06 00 00    ····E··· .E@·····
0010   7f 00 00 01 7f 00 00 01   1f 90 f5 26 c0 2e 2e df    ········ ···&·...
0020   20 a8 1b 6f 50 18 27 f9   17 af 00 00 48 54 54 50     ··oP·'· ····HTTP
0030   2f 31 2e 31 20 32 30 30   20 4f 4b 0d 0a 43 6f 6e    /1.1 200  OK··Con
0040   74 65 6e 74 2d 74 79 70   65 3a 20 74 65 78 74 2f    tent-typ e: text/
0050   68 74 6d 6c 0d 0a 43 6f   6e 74 65 6e 74 2d 6c 65    html··Co ntent-le
0060   6e 67 74 68 3a 20 33 33   30 0d 0a 0d 0a 3c 21 44    ngth: 33 0····<!D
0070   4f 43 54 59 50 45 20 68   74 6d 6c 3e 0a 3c 68 74    OCTYPE h tml>·<ht
0080   6d 6c 3e 0a 3c 68 65 61   64 3e 0a 3c 73 74 79 6c    ml>·<hea d>·<styl
0090   65 3e 0a 63 6f 64 65 20   7b 0a 20 20 66 6f 6e 74    e>·code  {·  font
00a0   2d 66 61 6d 69 6c 79 3a   20 43 6f 6e 73 6f 6c 61    -family:  Consola
00b0   73 2c 22 63 6f 75 72 69   65 72 20 6e 65 77 22 3b    s,"couri er new";
00c0   0a 20 20 63 6f 6c 6f 72   3a 20 63 72 69 6d 73 6f    ·  color : crimso
00d0   6e 3b 0a 20 20 62 61 63   6b 67 72 6f 75 6e 64 2d    n;·  bac kground-
00e0   63 6f 6c 6f 72 3a 20 23   66 31 66 31 66 31 3b 0a    color: # f1f1f1;·
00f0   20 20 70 61 64 64 69 6e   67 3a 20 32 70 78 3b 0a     paddin g: 2px;·
0100   20 20 66 6f 6e 74 2d 73   69 7a 65 3a 20 31 30 35     font-s ize: 105
0110   25 3b 0a 7d 0a 3c 2f 73   74 79 6c 65 3e 0a 3c 2f    %;·}·</s tyle>·</
0120   68 65 61 64 3e 0a 3c 62   6f 64 79 3e 0a 0a 3c 68    head>·<b ody>··<h
0130   31 3e 54 68 69 73 20 69   73 20 48 54 4d 4c 20 66    1>This i s HTML f
0140   69 6c 65 2d 20 45 6e 67   6c 69 73 68 20 76 65 72    ile- Eng lish ver
0150   73 69 6f 6e 3c 2f 68 31   3e 0a 0a 3c 70 3e 54 61    sion</h1 >··<p>Ta
0160   6d 69 72 20 69 73 20 67   72 65 61 74 20 70 65 72    mir is g reat per
0170   73 6f 6e 20 61 6e 64 20   61 6d 61 7a 69 6e 67 20    son and  amazing
```

HEAD:

בבקשת HEAD נבקש אובייקט HTML מהשרת, אך נחזיר את תוכן הHEADERS ולא את גוף ההודעה.

במידה והקובץ נמצא תוחזר הודעת 200 OK, אחרת תוחזר הודעת 404 NOT FOUND.

צילומי מסך

לקוח

	Key		Value	Description
☑	Accept ⓘ		*/*	
☑	Accept-Encoding ⓘ		gzip, deflate, br	
☑	Connection ⓘ		keep-alive	
☑	Accept-Language		he-IL	
	Key		Value	Description

Body Cookies Headers (2) Test Results

Pretty Raw Preview Visualize

Status: 200 OK   Time: 18 ms   Size: 65 B   Save Response ▼

Bootcamp   Build   Browse

Wireshark

∨ Hypertext Transfer Protocol
  > HEAD /hfile.html HTTP/1.1\r\n
    Accept-Language: he-IL\r\n
    User-Agent: PostmanRuntime/7.26.8\r\n
    Accept: */*\r\n
    Postman-Token: e8e5c063-0a95-4584-9872-931cc6451e43\r\n
    Host: localhost:8080\r\n
    Accept-Encoding: gzip, deflate, br\r\n
    Connection: keep-alive\r\n
    \r\n
    [Full request URI: http://localhost:8080/hfile.html]
    [HTTP request 2/2]
    [Prev request in frame: 20]
    [Response in frame: 1025]

```
0000   02 00 00 00 45 00 01 14   31 09 40 00 80 06 00 00    ····E··· 1·@·····
0010   7f 00 00 01 7f 00 00 01   f5 26 1f 90 20 a8 1b 6f    ········ ·&·· ··o
0020   c0 2e 30 6a 50 18 27 f8   39 09 00 00 48 45 41 44    ·.0jP·'· 9···HEAD
0030   20 2f 68 66 69 6c 65 2e   68 74 6d 6c 20 48 54 54     /hfile. html HTT
0040   50 2f 31 2e 31 0d 0a 41   63 63 65 70 74 2d 4c 61    P/1.1··A ccept-La
0050   6e 67 75 61 67 65 3a 20   68 65 2d 49 4c 0d 0a 55    nguage:  he-IL··U
0060   73 65 72 2d 41 67 65 6e   74 3a 20 50 6f 73 74 6d    ser-Agen t: Postm
0070   61 6e 52 75 6e 74 69 6d   65 2f 37 2e 32 36 2e 38    anRuntim e/7.26.8
0080   0d 0a 41 63 63 65 70 74   3a 20 2a 2f 2a 0d 0a 50    ··Accept : */*··P
0090   6f 73 74 6d 61 6e 2d 54   6f 6b 65 6e 3a 20 65 38    ostman-T oken: e8
00a0   65 35 63 30 36 33 2d 30   61 39 35 2d 34 35 38 34    e5c063-0 a95-4584
00b0   2d 39 38 37 32 2d 39 33   31 63 63 36 34 35 31 65    -9872-93 1cc6451e
00c0   34 33 0d 0a 48 6f 73 74   3a 20 6c 6f 63 61 6c 68    43··Host : localh
00d0   6f 73 74 3a 38 30 38 30   0d 0a 41 63 63 65 70 74    ost:8080 ··Accept
00e0   2d 45 6e 63 6f 64 69 6e   67 3a 20 67 7a 69 70 2c    -Encodin g: gzip,
00f0   20 64 65 66 6c 61 74 65   2c 20 62 72 0d 0a 43 6f     deflate , br··Co
0100   6e 6e 65 63 74 69 6f 6e   3a 20 6b 65 65 70 2d 61    nnection : keep-a
0110   6c 69 76 65 0d 0a 0d 0a                              live····
```

שרת

```
HTTP Server: Recieved: 236 bytes of
"HEAD /hfile.html HTTP/1.1
Accept-Language: he-IL
User-Agent: PostmanRuntime/7.26.8
Accept: */*
Postman-Token: e8e5c063-0a95-4584-9872-931cc6451e43
Host: localhost:8080
Accept-Encoding: gzip, deflate, br
Connection: keep-alive

" message.
HTTP Server: Sent: 65\65 bytes of "HTTP/1.1 200 OK
Content-type: text/html
Content-length: 687

" message.
```

wireShark


```
∨ Hypertext Transfer Protocol
  > HTTP/1.1 200 OK\r\n
    Content-type: text/html\r\n
  > Content-length: 687\r\n
    \r\n
    [HTTP response 2/2]
    [Time since request: 0.013504000 seconds]
    [Prev request in frame: 20]
    [Prev response in frame: 22]
    [Request in frame: 1023]
    [Request URI: http://localhost:8080/hfile.html]
```

```
0000   02 00 00 00 45 00 00 69   31 0b 40 00 80 06 00 00    ····E··i 1·@·····
0010   7f 00 00 01 7f 00 00 01   1f 90 f5 26 c0 2e 30 6a    ········ ···&·.0j
0020   20 a8 1c 5b 50 18 27 f8   b5 9f 00 00 48 54 54 50     ··[P·'· ····HTTP
0030   2f 31 2e 31 20 32 30 30   20 4f 4b 0d 0a 43 6f 6e    /1.1 200  OK··Con
0040   74 65 6e 74 2d 74 79 70   65 3a 20 74 65 78 74 2f    tent-typ e: text/
0050   68 74 6d 6c 0d 0a 43 6f   6e 74 65 6e 74 2d 6c 65    html··Co ntent-le
0060   6e 67 74 68 3a 20 36 38   37 0d 0a 0d 0a             ngth: 68 7····
```
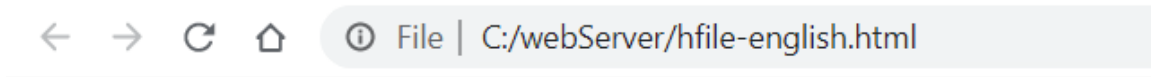
:POST

לפי פרוטוקול RFC 2616 בקשת POST מסוגלת לבצע מספר פעולות. בשרת שלנו בחרנו לבצע את
הפעולה הבאה:

```
- Extending a database through an append operation.
```

כלומר להוסיף את גוף הודעת הPOST לאובייקט שקיים בשרת.

במידה והקובץ נמצא תוחזר הודעת OK 200, במידה והקובץ לא נמצא בתיקיית השרת תוחזר שגיאה

500 SERVER ERROR ואם לא נשלח טקסט בגוף ההודעה תוחזר שגיאה 204 NO CONTENT
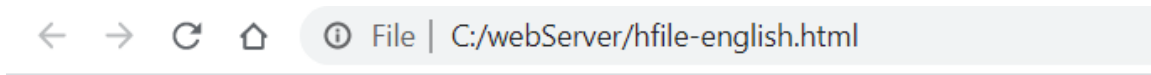
<u>צילומי מסך</u>

-לפני

-אחרי

-לקוח

<u>WIRESHARK-</u>

Hypertext Transfer Protocol

> POST /hfile.html HTTP/1.1\r\n
Accept-Language: en-US\r\n
Content-Type: text/plain\r\n
User-Agent: PostmanRuntime/7.26.8\r\n
Accept: */*\r\n
Postman-Token: ff323ae3-fb6f-4376-a23e-6402aecb9a69\r\n
Host: localhost:8080\r\n
Accept-Encoding: gzip, deflate, br\r\n
Connection: keep-alive\r\n
> Content-Length: 43\r\n

```
0000   02 00 00 00 45 00 01 6d   34 9f 40 00 80 06 00 00    ····E··m 4·@·····
0010   7f 00 00 01 7f 00 00 01   f5 26 1f 90 20 a8 1d bd    ········ ·&·· ···
0020   c0 2e 30 ea 50 18 27 f7   a9 72 00 00 50 4f 53 54    ·.0·P·'· ·r··POST
0030   20 2f 68 66 69 6c 65 2e   68 74 6d 6c 20 48 54 54    /hfile. html HTT
0040   50 2f 31 2e 31 0d 0a 41   63 63 65 70 74 2d 4c 61    P/1.1··A ccept-La
0050   6e 67 75 61 67 65 3a 20   65 6e 2d 55 53 0d 0a 43    nguage:  en-US··C
0060   6f 6e 74 65 6e 74 2d 54   79 70 65 3a 20 74 65 78    ontent-T ype: tex
0070   74 2f 70 6c 61 69 6e 0d   0a 55 73 65 72 2d 41 67    t/plain· ·User-Ag
0080   65 6e 74 3a 20 50 6f 73   74 6d 61 6e 52 75 6e 74    ent: Pos tmanRunt
0090   69 6d 65 2f 37 2e 32 36   2e 38 0d 0a 41 63 63 65    ime/7.26 .8··Acce
00a0   70 74 3a 20 2a 2f 2a 0d   0a 50 6f 73 74 6d 61 6e    pt: */*· ·Postman
00b0   2d 54 6f 6b 65 6e 3a 20   66 66 33 32 33 61 65 33    -Token:  ff323ae3
00c0   2d 66 62 36 66 2d 34 33   37 36 2d 61 32 33 65 2d    -fb6f-43 76-a23e-
00d0   36 34 30 32 61 65 63 62   39 61 36 39 0d 0a 48 6f    6402aecb 9a69··Ho
00e0   73 74 3a 20 6c 6f 63 61   6c 68 6f 73 74 3a 38 30    st: loca lhost:80
00f0   38 30 0d 0a 41 63 63 65   70 74 2d 45 6e 63 6f 64    80··Acce pt-Encod
0100   69 6e 67 3a 20 67 7a 69   70 2c 20 64 65 66 6c 61    ing: gzi p, defla
0110   74 65 2c 20 62 72 0d 0a   43 6f 6e 6e 65 63 74 69    te, br·· Connecti
0120   6f 6e 3a 20 6b 65 65 70   2d 61 6c 69 76 65 0d 0a    on: keep -alive··
```

שרת-

```
HTTP Server: Recieved: 325 bytes of
"POST /hfile.html HTTP/1.1
Accept-Language: en-US
Content-Type: text/plain
User-Agent: PostmanRuntime/7.26.8
Accept: */*
Postman-Token: ff323ae3-fb6f-4376-a23e-6402aecb9a69
Host: localhost:8080
Accept-Encoding: gzip, deflate, br
Connection: keep-alive
Content-Length: 43

hey, could you please add this?
thank you!" message.
HTTP Server: Sent: 63\63 bytes of "HTTP/1.1 200 OK
Content-type: text/html
Content-length: 0

" message.
```

wireShark-

```
∨ Hypertext Transfer Protocol
  > HTTP/1.1 200 OK\r\n
    Content-type: text/html\r\n
  > Content-length: 0\r\n
    \r\n
    [HTTP response 4/4]
    [Time since request: 0.008939000 seconds]
    [Prev request in frame: 1629]
    [Prev response in frame: 1631]
    [Request in frame: 2177]
    [Request URI: http://localhost:8080/hfile.html]
```

```
0000   02 00 00 00 45 00 00 67   34 a1 40 00 80 06 00 00    ····E··g 4·@·····
0010   7f 00 00 01 7f 00 00 01   1f 90 f5 26 c0 2e 30 ea    ········ ···&·.0·
0020   20 a8 1f 02 50 18 27 f6   ef b4 00 00 48 54 54 50     ···P·'· ····HTTP
0030   2f 31 2e 31 20 32 30 30   20 4f 4b 0d 0a 43 6f 6e    /1.1 200  OK··Con
0040   74 65 6e 74 2d 74 79 70   65 3a 20 74 65 78 74 2f    tent-typ e: text/
0050   68 74 6d 6c 0d 0a 43 6f   6e 74 65 6e 74 2d 6c 65    html··Co ntent-le
0060   6e 67 74 68 3a 20 30 0d   0a 0d 0a                   ngth: 0· ···
```
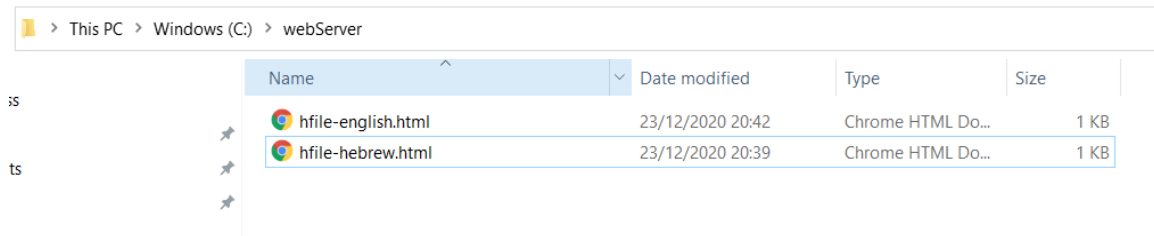
PUT:
העלאת דף לשרת.
במידה והקובץ קיים תוחזר הודעה 200 OK

אם הקובץ לא קיים בתיקיית השרת, גוף ההודעה ייכתב לקובץ חדש ותוחזר הודעה 201 CREATED

אם הקובץ קיים ולא נפתח תוחזר הודעה 500 SERVER ERROR

במידה ותוכן גוף ההודעה ריק נחזיר הודעה 204 NO CONTENT ולא נעדכן את הקובץ הנדרש, בהתאם
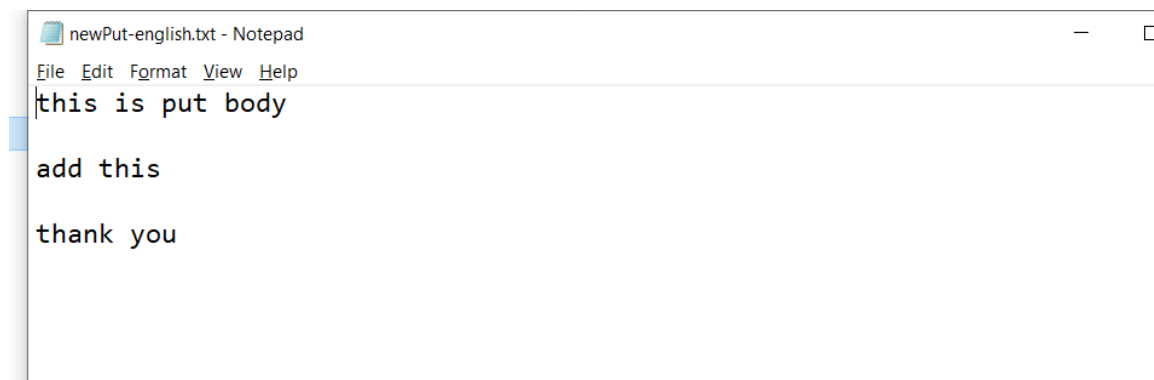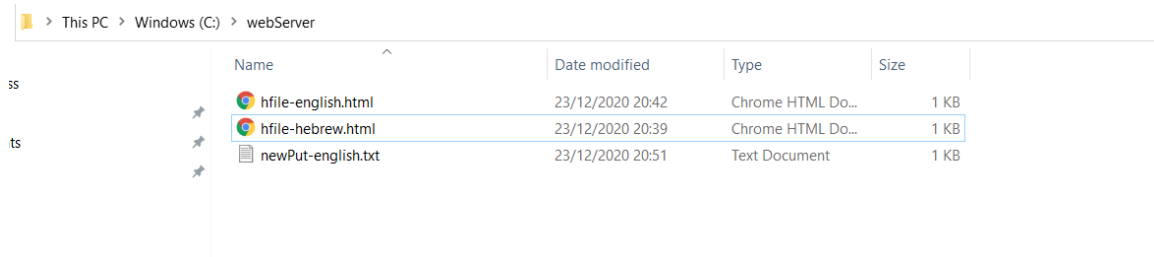
לדרישות RFC 2616

<u>צילומי מסך</u>-

לפני

אחרי

לקוח-

| PUT ▼ | localhost:8080/newPut.txt | | Send ▼ | Save ▼ |

Params ●   Authorization   Headers (9)   Body ●   Pre-request Script   Tests   Settings   Cookies   Code

○ none   ○ form-data   ○ x-www-form-urlencoded   ● raw   ○ binary   ○ GraphQL   Text ▼

```
1   this is put body
2   add this
3   thank you
```

Body   Cookies   Headers (2)   Test Results   ⊕ Status: 201 Created   Time: 520 ms   Size: 68 B   Save Response ▼

Pretty   Raw   Preview   Visualize

wireShark

```
∨ Hypertext Transfer Protocol
   > PUT /newPut.txt HTTP/1.1\r\n
     Accept-Language: en-US\r\n
     Content-Type: text/plain\r\n
     User-Agent: PostmanRuntime/7.26.8\r\n
     Accept: */*\r\n
     Postman-Token: 8ff759ed-142a-4398-91bf-3877bc5a7d30\r\n
     Host: localhost:8080\r\n
     Accept-Encoding: gzip, deflate, br\r\n
     Connection: keep-alive\r\n
   > Content-Length: 37\r\n
     \r\n
     [Full request URI: http://localhost:8080/newPut.txt]
     [HTTP request 2/2]
     [Prev request in frame: 3124]
```

```
0000   02 00 00 00 45 00 01 66  37 dc 40 00 80 06 00 00   ····E··f 7·@·····
0010   7f 00 00 01 7f 00 00 01  f5 81 1f 90 b6 1f c2 42   ········ ·······B
0020   e5 a6 2c ab 50 18 27 f9  f3 0f 00 00 50 55 54 20   ··,·P·'· ····PUT
0030   2f 6e 65 77 50 75 74 2e  74 78 74 20 48 54 54 50   /newPut. txt HTTP
0040   2f 31 2e 31 0d 0a 41 63  63 65 70 74 2d 4c 61 6e   /1.1··Ac cept-Lan
0050   67 75 61 67 65 3a 20 65  6e 2d 55 53 0d 0a 43 6f   guage: e n-US··Co
0060   6e 74 65 6e 74 2d 54 79  70 65 3a 20 74 65 78 74   ntent-Ty pe: text
0070   2f 70 6c 61 69 6e 0d 0a  55 73 65 72 2d 41 67 65   /plain·· User-Age
0080   6e 74 3a 20 50 6f 73 74  6d 61 6e 52 75 6e 74 69   nt: Post manRunti
0090   6d 65 2f 37 2e 32 36 2e  38 0d 0a 41 63 63 65 70   me/7.26. 8··Accep
00a0   74 3a 20 2a 2f 2a 0d 0a  50 6f 73 74 6d 61 6e 2d   t: */*·· Postman-
00b0   54 6f 6b 65 6e 3a 20 38  66 66 37 35 39 65 64 2d   Token: 8 ff759ed-
00c0   31 34 32 61 2d 34 33 39  38 2d 39 31 62 66 2d 33   142a-439 8-91bf-3
00d0   38 37 37 62 63 35 61 37  64 33 30 0d 0a 48 6f 73   877bc5a7 d30··Hos
00e0   74 3a 20 6c 6f 63 61 6c  68 6f 73 74 3a 38 30 38   t: local host:808
00f0   30 0d 0a 41 63 63 65 70  74 2d 45 6e 63 6f 64 69   0··Accep t-Encodi
0100   6e 67 3a 20 67 7a 69 70  2c 20 64 65 66 6c 61 74   ng: gzip , deflat
0110   65 2c 20 62 72 0d 0a 43  6f 6e 6e 65 63 74 69 6f   e, br··C onnectio
0120   6e 3a 20 6b 65 65 70 2d  61 6c 69 76 65 0d 0a 43   n: keep- alive··C
0130   6f 6e 74 65 6e 74 2d 4c  65 6e 67 74 68 3a 20 33   ontent-L ength: 3
0140   37 0d 0a 0d 0a 74 68 69  73 20 69 73 20 70 75 74   7····thi s is put
0150   20 62 6f 64 79 0d 0a 61  64 64 20 74 68 69 73 0d    body··a dd this·
0160   0a 74 68 61 6e 6b 20 79  6f 75                     ·thank y ou
```

שרת-

```
HTTP Server: Recieved: 318 bytes of
"PUT /newPut.txt HTTP/1.1
Accept-Language: en-US
Content-Type: text/plain
User-Agent: PostmanRuntime/7.26.8
Accept: */*
Postman-Token: 8ff759ed-142a-4398-91bf-3877bc5a7d30
Host: localhost:8080
Accept-Encoding: gzip, deflate, br
Connection: keep-alive
Content-Length: 37

this is put body
add this
thank you" message.
HTTP Server: Sent: 68\68 bytes of "HTTP/1.1 201 Created
Content-type: text/html
Content-length: 0

" message.
```

WireShark

```
∨ Hypertext Transfer Protocol
   > HTTP/1.1 201 Created\r\n
     Content-type: text/html\r\n
   > Content-length: 0\r\n
     \r\n
     [HTTP response 2/2]
     [Time since request: 0.003122000 seconds]
     [Prev request in frame: 3124]
     [Prev response in frame: 3126]
     [Request in frame: 3236]
     [Request URI: http://localhost:8080/newPut.txt]
```

```
0000   02 00 00 00 45 00 00 6c   37 de 40 00 80 06 00 00   ····E··l 7·@·····
0010   7f 00 00 01 7f 00 00 01   1f 90 f5 81 e5 a6 2c ab   ········ ······,·
0020   b6 1f c3 80 50 18 27 f8   96 ff 00 00 48 54 54 50   ····P·'· ····HTTP
0030   2f 31 2e 31 20 32 30 31   20 43 72 65 61 74 65 64   /1.1 201  Created
0040   0d 0a 43 6f 6e 74 65 6e   74 2d 74 79 70 65 3a 20   ··Conten t-type:
0050   74 65 78 74 2f 68 74 6d   6c 0d 0a 43 6f 6e 74 65   text/htm l··Conte
0060   6e 74 2d 6c 65 6e 67 74   68 3a 20 30 0d 0a 0d 0a   nt-lengt h: 0····
```

מחיקת אובייקט מהשרת.

200 OK תוחזר הודעה

<u>צילומי מסךֵ</u>

לקוח-

wireShark

∨ Hypertext Transfer Protocol
  > DELETE /newPut.txt HTTP/1.1\r\n
    Accept-Language: en-US\r\n
    Content-Type: text/plain\r\n
    User-Agent: PostmanRuntime/7.26.8\r\n
    Accept: */*\r\n
    Postman-Token: 64d59e0a-e3fa-4eae-9ed2-6060a342ee2f\r\n
    Host: localhost:8080\r\n
    Accept-Encoding: gzip, deflate, br\r\n
    Connection: keep-alive\r\n
  > Content-Length: 37\r\n

```
0000   02 00 00 00 45 00 01 69   38 fa 40 00 80 06 00 00    ····E··i 8·@·····
0010   7f 00 00 01 7f 00 00 01   f5 81 1f 90 b6 1f c3 80    ········ ········
0020   e5 a6 2c ef 50 18 27 f9   7b 9f 00 00 44 45 4c 45    ··,·P·'· {···DELE
0030   54 45 20 2f 6e 65 77 50   75 74 2e 74 78 74 20 48    TE /newP ut.txt H
0040   54 54 50 2f 31 2e 31 0d   0a 41 63 63 65 70 74 2d    TTP/1.1· ·Accept-
0050   4c 61 6e 67 75 61 67 65   3a 20 65 6e 2d 55 53 0d    Language : en-US·
0060   0a 43 6f 6e 74 65 6e 74   2d 54 79 70 65 3a 20 74    ·Content -Type: t
0070   65 78 74 2f 70 6c 61 69   6e 0d 0a 55 73 65 72 2d    ext/plai n··User-
0080   41 67 65 6e 74 3a 20 50   6f 73 74 6d 61 6e 52 75    Agent: P ostmanRu
0090   6e 74 69 6d 65 2f 37 2e   32 36 2e 38 0d 0a 41 63    ntime/7. 26.8··Ac
00a0   63 65 70 74 3a 20 2a 2f   2a 0d 0a 50 6f 73 74 6d    cept: */ *··Postm
00b0   61 6e 2d 54 6f 6b 65 6e   3a 20 36 34 64 35 39 65    an-Token : 64d59e
00c0   30 61 2d 65 33 66 61 2d   34 65 61 65 2d 39 65 64    0a-e3fa- 4eae-9ed
00d0   32 2d 36 30 36 30 61 33   34 32 65 65 32 66 0d 0a    2-6060a3 42ee2f··
00e0   48 6f 73 74 3a 20 6c 6f   63 61 6c 68 6f 73 74 3a    Host: lo calhost:
00f0   38 30 38 30 0d 0a 41 63   63 65 70 74 2d 45 6e 63    8080··Ac cept-Enc
0100   6f 64 69 6e 67 3a 20 67   7a 69 70 2c 20 64 65 66    oding: g zip, def
0110   6c 61 74 65 2c 20 62 72   0d 0a 43 6f 6e 6e 65 63    late, br ··Connec
0120   74 69 6f 6e 3a 20 6b 65   65 70 2d 61 6c 69 76 65    tion: ke ep-alive
```

שרת-

```
HTTP Server: Recieved: 321 bytes of
"DELETE /newPut.txt HTTP/1.1
Accept-Language: en-US
Content-Type: text/plain
User-Agent: PostmanRuntime/7.26.8
Accept: */*
Postman-Token: 64d59e0a-e3fa-4eae-9ed2-6060a342ee2f
Host: localhost:8080
Accept-Encoding: gzip, deflate, br
Connection: keep-alive
Content-Length: 37

this is put body
add this
thank you" message.
HTTP Server: Sent: 66\66 bytes of "HTTP/1.1 200 OK
Content-type: message/http
Content-length: 0

" message.
```

Wireshark

```
∨ Hypertext Transfer Protocol
  > HTTP/1.1 200 OK\r\n
    Content-type: message/http\r\n
  > Content-length: 0\r\n
    \r\n
    [HTTP response 3/3]
    [Time since request: 0.004275000 seconds]
    [Prev request in frame: 3236]
    [Prev response in frame: 3238]
    [Request in frame: 3537]
    [Request URI: http://localhost:8080/newPut.txt]
```

```
0000   02 00 00 00 45 00 00 6a   38 fc 40 00 80 06 00 00   ····E··j 8·@·····
0010   7f 00 00 01 7f 00 00 01   1f 90 f5 81 e5 a6 2c ef   ········ ······,·
0020   b6 1f c4 c1 50 18 27 f7   5a ad 00 00 48 54 54 50   ····P·'· Z···HTTP
0030   2f 31 2e 31 20 32 30 30   20 4f 4b 0d 0a 43 6f 6e   /1.1 200  OK··Con
0040   74 65 6e 74 2d 74 79 70   65 3a 20 6d 65 73 73 61   tent-typ e: messa
0050   67 65 2f 68 74 74 70 0d   0a 43 6f 6e 74 65 6e 74   ge/http· ·Content
0060   2d 6c 65 6e 67 74 68 3a   20 30 0d 0a 0d 0a         -length:  0····
```
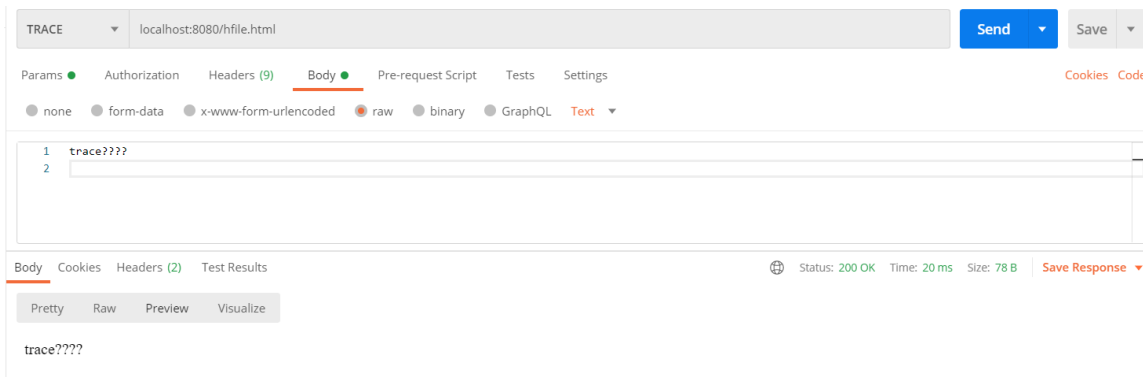
:TRACE

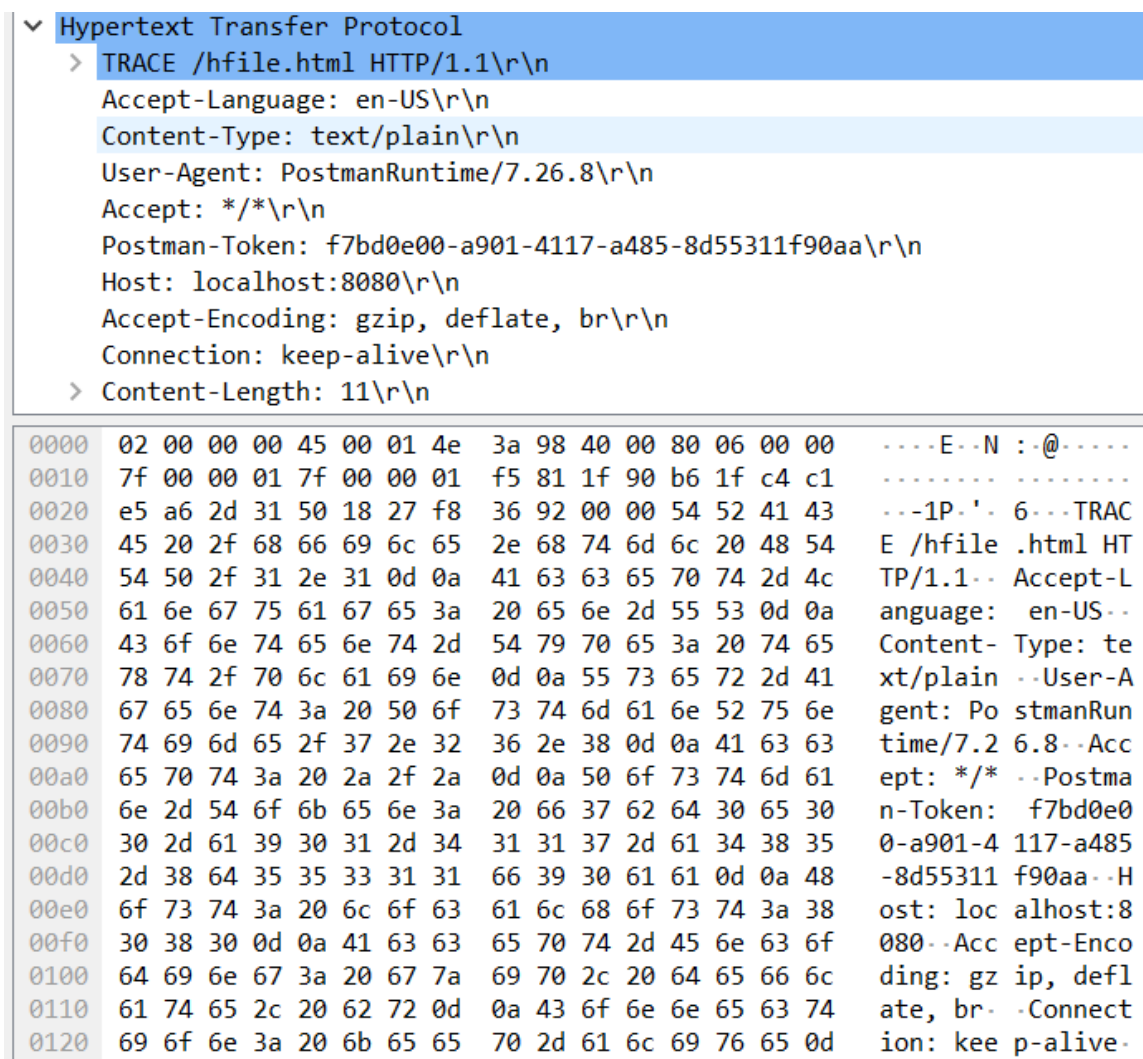הודעת LOOPBACK מהשרת חזרה אל הלקוח.

תוחזר הודעת 200 OK כאשר גוף ההודעה זהה להודעה שנשלחה

<u>צילומי מסך-</u>

לקוח

wireshark

שרת-

```
HTTP Server: Recieved: 294 bytes of
"TRACE /hfile.html HTTP/1.1
Accept-Language: en-US
Content-Type: text/plain
User-Agent: PostmanRuntime/7.26.8
Accept: */*
Postman-Token: f7bd0e00-a901-4117-a485-8d55311f90aa
Host: localhost:8080
Accept-Encoding: gzip, deflate, br
Connection: keep-alive
Content-Length: 11

trace????
" message.
HTTP Server: Sent: 78\78 bytes of "HTTP/1.1 200 OK
Content-type: message/http
Content-length: 11

trace????
" message.
```

Wireshark-

```
∨ Hypertext Transfer Protocol
  > HTTP/1.1 200 OK\r\n
    Content-type: message/http\r\n
  > Content-length: 11\r\n
    \r\n
    [HTTP response 4/4]
    [Time since request: 0.015729000 seconds]
    [Prev request in frame: 3537]
    [Prev response in frame: 3539]
    [Request in frame: 4045]
    [Request URI: http://localhost:8080/hfile.html]
```

```
0000  02 00 00 00 45 00 00 76  3a 9a 40 00 80 06 00 00   ····E··v :·@·····
0010  7f 00 00 01 7f 00 00 01  1f 90 f5 81 e5 a6 2d 31   ········ ······-1
0020  b6 1f c5 e7 50 18 27 f5  cc 70 00 00 48 54 54 50   ····P·'· ·p··HTTP
0030  2f 31 2e 31 20 32 30 30  20 4f 4b 0d 0a 43 6f 6e   /1.1 200  OK··Con
0040  74 65 6e 74 2d 74 79 70  65 3a 20 6d 65 73 73 61   tent-typ e: messa
0050  67 65 2f 68 74 74 70 0d  0a 43 6f 6e 74 65 6e 74   ge/http· ·Content
0060  2d 6c 65 6e 67 74 68 3a  20 31 31 0d 0a 0d 0a 74   -length:  11····t
0070  72 61 63 65 3f 3f 3f 3f  0d 0a                     race???? ··
```

OPTIONS:

תוחזר הודעה כאשר גוף ההודעה ריק ובנוסף Header בשם Allow שיכיל את כל המתודות שהשרת

תומך בהם כעת בנוסף יוחזר סטטוס 200 OK

-לקוח

-Wireshark

∨ Hypertext Transfer Protocol
   > OPTIONS /hfile.html HTTP/1.1\r\n
     Accept-Language: en-US\r\n
     User-Agent: PostmanRuntime/7.26.8\r\n
     Accept: */*\r\n
     Postman-Token: 08cc2cd7-0f53-4481-860e-4d77a725267b\r\n
     Host: localhost:8080\r\n
     Accept-Encoding: gzip, deflate, br\r\n
     Connection: keep-alive\r\n
     \r\n
     [Full request URI: http://localhost:8080/hfile.html]

```
0000   02 00 00 00 45 00 01 17   3c 32 40 00 80 06 00 00    ····E···  <2@·····
0010   7f 00 00 01 7f 00 00 01   f5 81 1f 90 b6 1f c5 e7    ········  ········
0020   e5 a6 2d 7f 50 18 27 f8   42 37 00 00 4f 50 54 49    ·-·-·P·'· B7··OPTI
0030   4f 4e 53 20 2f 68 66 69   6c 65 2e 68 74 6d 6c 20    ONS /hfi  le.html
0040   48 54 54 50 2f 31 2e 31   0d 0a 41 63 63 65 70 74    HTTP/1.1  ··Accept
0050   2d 4c 61 6e 67 75 61 67   65 3a 20 65 6e 2d 55 53    -Languag  e: en-US
0060   0d 0a 55 73 65 72 2d 41   67 65 6e 74 3a 20 50 6f    ··User-A  gent: Po
0070   73 74 6d 61 6e 52 75 6e   74 69 6d 65 2f 37 2e 32    stmanRun  time/7.2
0080   36 2e 38 0d 0a 41 63 63   65 70 74 3a 20 2a 2f 2a    6.8··Acc  ept: */*
0090   0d 0a 50 6f 73 74 6d 61   6e 2d 54 6f 6b 65 6e 3a    ··Postma  n-Token:
00a0   20 30 38 63 63 32 63 64   37 2d 30 66 35 33 2d 34     08cc2cd  7-0f53-4
00b0   34 38 31 2d 38 36 30 65   2d 34 64 37 37 61 37 32    481-860e  -4d77a72
00c0   35 32 36 37 62 0d 0a 48   6f 73 74 3a 20 6c 6f 63    5267b··H  ost: loc
00d0   61 6c 68 6f 73 74 3a 38   30 38 30 0d 0a 41 63 63    alhost:8  080··Acc
00e0   65 70 74 2d 45 6e 63 6f   64 69 6e 67 3a 20 67 7a    ept-Enco  ding: gz
00f0   69 70 2c 20 64 65 66 6c   61 74 65 2c 20 62 72 0d    ip, defl  ate, br·
0100   0a 43 6f 6e 6e 65 63 74   69 6f 6e 3a 20 6b 65 65    ·Connect  ion: kee
0110   70 2d 61 6c 69 76 65 0d   0a 0d 0a                   p-alive·  ···
```

שרת-

```
HTTP Server: Recieved: 239 bytes of
"OPTIONS /hfile.html HTTP/1.1
Accept-Language: en-US
User-Agent: PostmanRuntime/7.26.8
Accept: */*
Postman-Token: 08cc2cd7-0f53-4481-860e-4d77a725267b
Host: localhost:8080
Accept-Encoding: gzip, deflate, br
Connection: keep-alive


" message.
HTTP Server: Sent: 113\113 bytes of "HTTP/1.1 200 OK
Allow: OPTIONS,GET,HEAD,PUT,POST,DELETE,TRACE
Content-type: message/http
Content-length: 0


" message.
```

-Wireshark

```
∨ Hypertext Transfer Protocol
  > HTTP/1.1 200 OK\r\n
    Allow: OPTIONS,GET,HEAD,PUT,POST,DELETE,TRACE\r\n
    Content-type: message/http\r\n
  > Content-length: 0\r\n
    \r\n
    [HTTP response 5/5]
    [Time since request: 0.028274000 seconds]
    [Prev request in frame: 4045]
    [Prev response in frame: 4047]
    [Request in frame: 4591]
```

```
0000  02 00 00 00 45 00 00 99  3c 34 40 00 80 06 00 00   ····E··· <4@·····
0010  7f 00 00 01 7f 00 00 01  1f 90 f5 81 e5 a6 2d 7f   ········ ······-·
0020  b6 1f c6 d6 50 18 27 f5  09 26 00 00 48 54 54 50   ····P·'· ·&··HTTP
0030  2f 31 2e 31 20 32 30 30  20 4f 4b 0d 0a 41 6c 6c   /1.1 200  OK··All
0040  6f 77 3a 20 4f 50 54 49  4f 4e 53 2c 47 45 54 2c   ow: OPTI ONS,GET,
0050  48 45 41 44 2c 50 55 54  2c 50 4f 53 54 2c 44 45   HEAD,PUT ,POST,DE
0060  4c 45 54 45 2c 54 52 41  43 45 0d 0a 43 6f 6e 74   LETE,TRA CE··Cont
0070  65 6e 74 2d 74 79 70 65  3a 20 6d 65 73 73 61 67   ent-type : messag
0080  65 2f 68 74 74 70 0d 0a  43 6f 6e 74 65 6e 74 2d   e/http·· Content-
0090  6c 65 6e 67 74 68 3a 20  30 0d 0a 0d 0a            length:  0····
```