

HTTP - RESPONSES

After receiving and interpreting a request message, a server responds with an HTTP response message:

- A Status-line
- Zero or more header (General|Response|Entity) fields followed by CRLF
- An empty line (i.e., a line with nothing preceding the CRLF) indicating the end of the header fields
- Optionally a message-body

The following sections explain each of the entities used in an HTTP response message.

Message Status-Line

A Status-Line consists of the protocol version followed by a numeric status code and its associated textual phrase. The elements are separated by space SP characters.

```
Status-Line = HTTP-Version SP Status-Code SP Reason-Phrase CRLF
```

HTTP Version

A server supporting HTTP version 1.1 will return the following version information:

```
HTTP-Version = HTTP/1.1
```

Status Code

The Status-Code element is a 3-digit integer where first digit of the Status-Code defines the class of response and the last two digits do not have any categorization role. There are 5 values for the first digit:

S.N. Code and Description

1 **1xx: Informational**

It means the request was received and the process is continuing.

2 **2xx: Success**

It means the action was successfully received, understood, and accepted.

3 **3xx: Redirection**

It means further action must be taken in order to complete the request.

4 **4xx: Client Error**

It means the request contains incorrect syntax or cannot be fulfilled.

5 **5xx: Server Error**

It means the server failed to fulfill an apparently valid request.

HTTP status codes are extensible and HTTP applications are not required to understand the meaning of all registered status codes. A list of all the status codes has been given in a separate chapter for your reference.

Response Header Fields

We will study General-header and Entity-header in a separate chapter when we will learn HTTP header fields. For now, let's check what Response header fields are.

The response-header fields allow the server to pass additional information about the response which cannot be placed in the Status- Line. These header fields give information about the server and about further access to the resource identified by the Request-URI.

- Accept-Ranges
- Age
- ETag
- Location
- Proxy-Authenticate
- Retry-After
- Server
- Vary
- WWW-Authenticate

You can introduce your custom fields in case you are going to write your own custom Web Client and Server.

Examples of Response Message

Now let's put it all together to form an HTTP response for a request to fetch the **hello.htm** page from the web server running on tutorialspoint.com

```
HTTP/1.1 200 OK
Date: Mon, 27 Jul 2009 12:28:53 GMT
Server: Apache/2.2.14 (Win32)
Last-Modified: Wed, 22 Jul 2009 19:15:56 GMT
Content-Length: 88
Content-Type: text/html
Connection: Closed

<html>
<body>
<h1>Hello, World!</h1>
</body>
</html>
```

The following example shows an HTTP response message displaying error condition when the web server could not find the requested page:

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

```
Date: Sun, 18 Oct 2012 10:36:20 GMT
Server: Apache/2.2.14 (Win32)
Content-Length: 230
Connection: Closed
Content-Type: text/html; charset=iso-8859-1
```

```
<!DOCTYPE HTML PUBLIC "-//IETF//DTD HTML 2.0//EN">
<html>
<head>
  <title>404 Not Found</title>
</head>
<body>
  <h1>Not Found</h1>
  <p>The requested URL /t.html was not found on this server.</p>
</body>
</html>
```

Following is an example of HTTP response message showing error condition when the web server encountered a wrong HTTP version in the given HTTP request:

```
HTTP/1.1 400 Bad Request
Date: Sun, 18 Oct 2012 10:36:20 GMT
Server: Apache/2.2.14 (Win32)
Content-Length: 230
Content-Type: text/html; charset=iso-8859-1
Connection: Closed
```

```
<!DOCTYPE HTML PUBLIC "-//IETF//DTD HTML 2.0//EN">
<html>
<head>
  <title>400 Bad Request</title>
</head>
<body>
  <h1>Bad Request</h1>
  <p>Your browser sent a request that this server could not understand.</p>
  <p>The request line contained invalid characters following the protocol string.</p>
</body>
</html>
```