KPLABS Course

Nginx: Beginner to Advanced

Domain 2

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Domain 2 - HTTP Protocol

Module 1: Introduction to Protocols

A communication protocol is a system of rules that allow two or more entities of a communications system to transmit information.

There are various protocols actively used :

- File Transfer Protocol (FTP)
- Domain Name System Protocol (DNS)
- Transmission Control Protocol (TCP)
- Secure File Transfer Protocol (SFTP)
- Hyper Text Transfer Protocol (HTTP)
- Internet Protocol (IP)

Some of the protocols are based on plain text protocol while others can use encryption.

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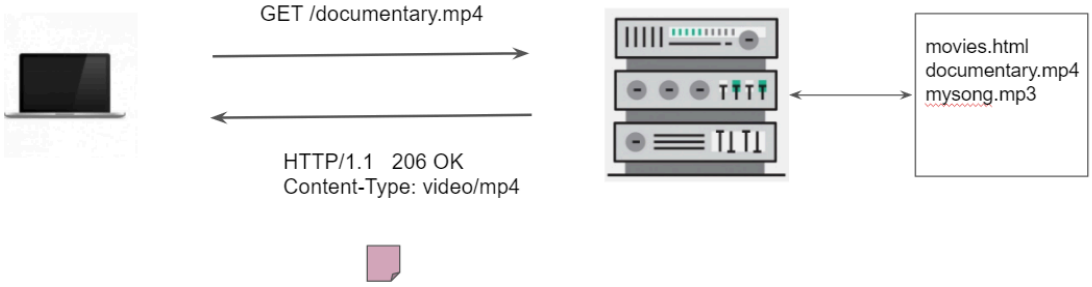
Module 2: HTTP Protocol

HTTP is a TCP/IP-based communication protocol, that is used to deliver data (HTML files, image files, query results, etc.) on the World Wide Web.

The default port used for HTTP is TCP 80, but other ports can be used as well based on the requirements.



Module 3: HTTP - GET

3.1 Simple GET Request

The GET method is used to fetch the information which is specified in the request URI.

Syntax: GET Request-URI

Example :

```
GET /admin HTTP/1.1
Host: dexter.kplabs.in
```

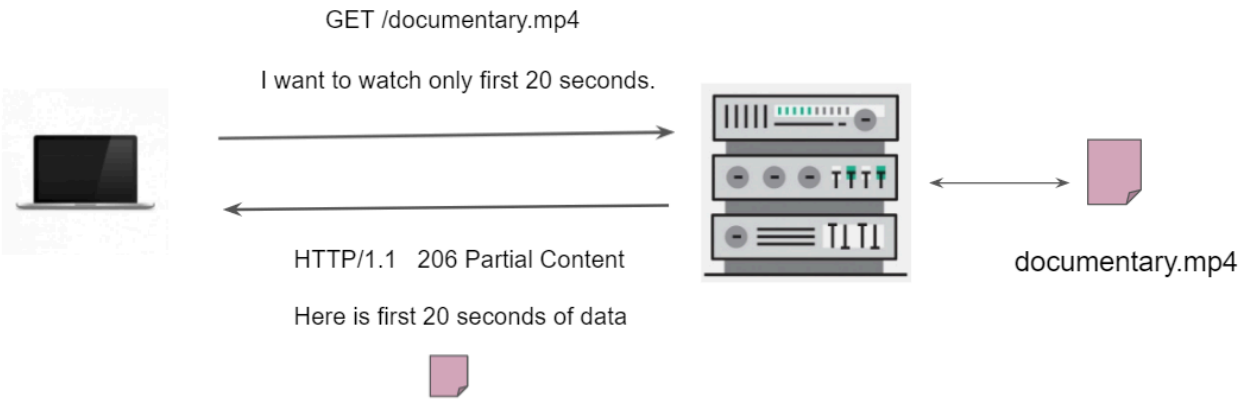
3.2 Conditional GET Request

The conditional GET method is used to fetch the information with a condition.

```
GET /sample.html HTTP/1.1
Host: dexter.kplabs.in
If-Modified-Since: Sat, 29 Oct 2017 19:43:31 GMT
```

Module 4: HTTP - Partial GET

The partial GET method is used to retrieve only specific content instead of everything



Example Request:

```
GET /movie.mp4 HTTP/1.1
Host: dexter.kplabs.in
Range: bytes=0-1024
```

Module 5: HTTP - Conditional GET

The conditional GET method is used to fetch the information with a condition.

```
GET /sample.html HTTP/1.1
Host: dexter.kplabs.in
If-Modified-Since: Sat, 18 Oct 2017 19:43:31 GMT
```

Module 6: HTTP - POST

POST method is used to send some information which will be processed by the web-server in some way.

Example Request :

```
POST /login.php HTTP/1.1
user=admin password=test123
```

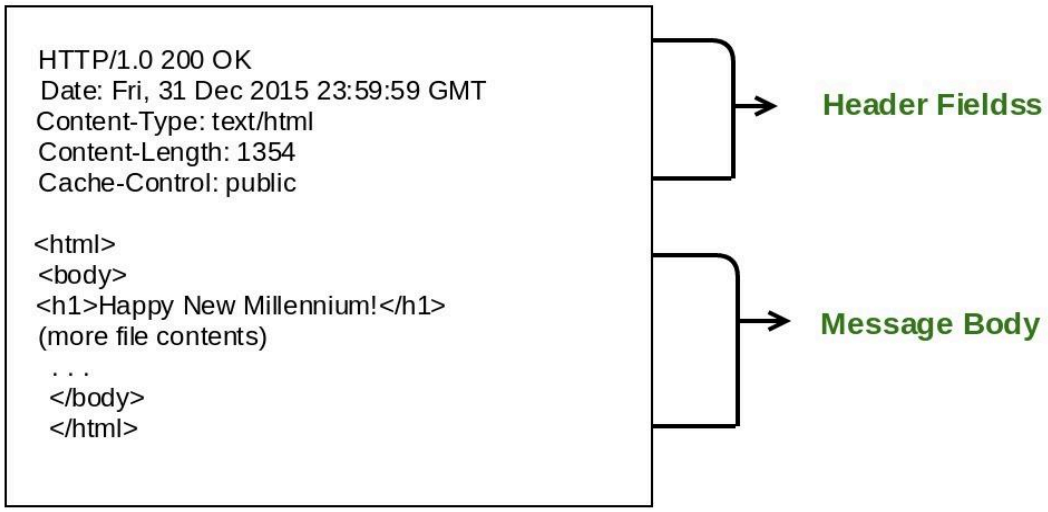
Module 7: HTTP - HEAD

HEAD method is used to fetch only the HTTP headers as part of the response.

HEAD method is identical to GET method, except that the server MUST NOT return a message-body in the response

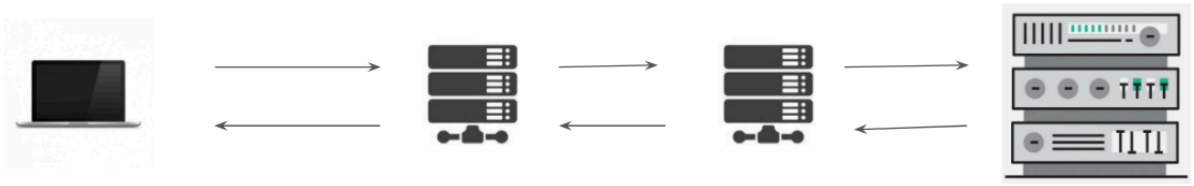
Example :

curl -I dexter.kplabs.in



Module 8: HTTP - TRACE

'TRACE' is a HTTP request method used for debugging which echo's back input back to the user



This is my data

This is our data

Module 9: HTTP - OPTIONS

OPTION method is used to describe the communication option for the target resource.

Syntax:

OPTIONS /index.html HTTP/1.1

Invocation :

curl -X OPTIONS http://example.org -i

documentary.mp4 → GET, HEAD
login.php → GET, HEAD, POST
test.txt → GET, HEAD

Module 10: HTTP Request Methods

HTTP defines a set of request methods to indicate the desired action to be performed for a given resource

There are various HTTP Request Methods

GET - To retrieve data from the server.
POST - Send input data to the server.
HEAD - Exactly like GET, but server only responds with Headers.
PUT - Write documents to the server.
DELETE - Deletes resource from the server.
OPTIONS - Asks server on which methods it supports.
TRACE - ECHOS the Receive Request from the Web Server

Module 11: HTTP Response Status Code

There are various HTTP Response Status Codes

- 100-199 - Informational Status Codes
- 200-299 - Success Status Codes
- 300-399 - Redirection Status Codes
- 400-499 - Client Error Status Codes
- 500-599 - Server Error Status Codes

11.1 - 200 status code

200 status code indicates that the action received by the client is :

Received, Understood, Accepted & Processed

Example :

- 200 OK
- 206 Partial Content

11.2 - 300 status code

300 series status code indicates that the client must take additional steps to complete the requests.

300 series status codes are generally used in URL redirection.

Example:

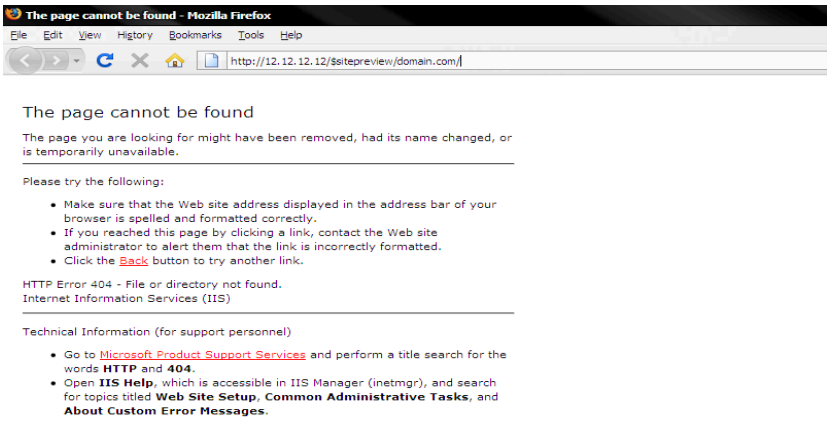
- 301 Moved Permanently
- 304 Not modified.

11.3 - 400 status code

400 series status code indicates that the client seems to have sent some request which is not ideal one or error some.

Example :

- 401 Unauthorized.
- 403 Forbidden.
- 404 Page Not Found



11.4 - 500 status code

500 series status code indicates that the issue is on the server-side and it has failed to fulfill the request.

Example :

- 500 Internal Server Error.
- 504 Gateway TimeOut
- 503 Service Unavailable

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