



네트워크 프로그래밍 Network Programming

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Simple HTTP Web Browser

HTTP Request

- Hypertext Transfer Protocol – HTTP/1.1
- RFC 2616 Fielding, et al.
- 5 Request → 5.1 Request-Line → 5.1.2 Request-URI
- <https://www.w3.org/Protocols/rfc2616/rfc2616-sec5.html>

5.1.2 Request-URI

- The Request-URI is a Uniform Resource Identifier (section 3.2) and identifies the resource upon which to apply the request.
 - Request-URI = "*" | absoluteURI | abs_path | authority
- The four options for Request-URI are dependent on the nature of the request.
- The asterisk "*" means that the request does not apply to a particular resource, but to the server itself, and is only allowed when the method used does not necessarily apply to a resource.
- One example would be
 - OPTIONS * HTTP/1.1

5.1.2 Request-URI

- The absoluteURI form is REQUIRED when the request is being made to a proxy.
- The proxy is requested to forward the request or service it from a valid cache, and return the response.
- Note that the proxy MAY forward the request on to another proxy or directly to the server specified by the absoluteURI.
- In order to avoid request loops, a proxy MUST be able to recognize all of its server names, including any aliases, local variations, and the numeric IP address.
- An example Request-Line would be:
 - GET `http://www.w3.org/pub/WWW/TheProject.html` HTTP/1.1

5.1.2 Request-URI

- To allow for transition to absoluteURIs in all requests in future versions of HTTP, all HTTP/1.1 servers MUST accept the absoluteURI form in requests, even though HTTP/1.1 clients will only generate them in requests to proxies.
- The authority form is only used by the CONNECT method (section 9.9).
- The most common form of Request-URI is that used to identify a resource on an origin server or gateway.
- In this case the absolute path of the URI MUST be transmitted (see section 3.2.1, `abs_path`) as the Request-URI, and the network location of the URI (authority) MUST be transmitted in a Host header field.

5.1.2 Request-URI

- For example, a client wishing to retrieve the resource above directly from the origin server would create a TCP connection to port 80 of the host "www.w3.org" and send the lines:
 - `GET /pub/WWW/TheProject.html HTTP/1.1`
 - `Host: www.w3.org`
- followed by the remainder of the Request. Note that the absolute path cannot be empty; if none is present in the original URI, it MUST be given as "/" (the server root).
- The Request-URI is transmitted in the format specified in section 3.2.1. If the Request-URI is encoded using the "% HEX HEX" encoding [42], the origin server MUST decode the Request-URI in order to properly interpret the request.
- Servers SHOULD respond to invalid Request-URIs with an appropriate status code.

HTTP Command Test using telnet command

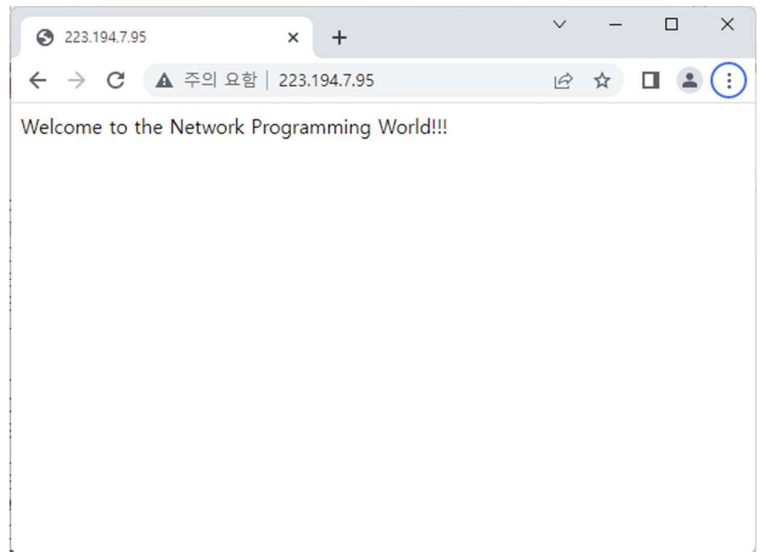
- `telnet hostname.domainname 80`
- `bongbong@ssl:~/Works/netprog3$ telnet www.w3.org 80`
- Trying 128.30.52.100...
- Connected to www.w3.org.
- Escape character is '^]'.

HTTP Command Test using telnet command

```
bongbong@ssl1:~$ telnet 223.194.7.95 80
Trying 223.194.7.95...
Connected to 223.194.7.95.
Escape character is '^]'.
GET / HTTP/1.1
Host: 223.194.7.95

HTTP/1.1 200 OK
Date: Sun, 22 May 2022 06:39:12 GMT
Server: Apache/2.4.29 (Ubuntu)
Last-Modified: Wed, 03 Jun 2020 11:48:56 GMT
ETag: "3b-5a72c9ce80523"
Accept-Ranges: bytes
Content-Length: 59
Content-Type: text/html

<html>
Welcome to the Network Programming World!!!
</html>
```



HTTP Command Test using telnet command

```
bongbong@ssl1:~$ telnet ssl.kw.ac.kr 80
Trying 223.194.7.21...
Connected to ssl.kw.ac.kr.
Escape character is '^]'.
GET / HTTP/1.1
Host: ssl.kw.ac.kr

HTTP/1.1 200 OK
Date: Sun, 22 May 2022 06:11:44 GMT
Server: Apache/2.4.41 (Ubuntu)
Last-Modified: Mon, 31 May 2021 04:46:45 GMT
ETag: "30a-5c398e99c2a10"
Accept-Ranges: bytes
Content-Length: 778
Vary: Accept-Encoding
Content-Type: text/html

<meta charset="utf-8">

<script type="text/javascript">
```

```
window.onload = function(){
    var browse = navigator.userAgent.toLowerCase();

    if( (navigator.appName == 'Netscape' &&
        browse.indexOf('trident') != -1) ||
        (browse.indexOf("msie") != -1)) {
        alert("This Smart System Lab website does not
        support Internet Explorer.\nPlease use Chrome, Edge, Safari,
        and Firefox web browsers.\n\n본 스마트시스템연구실 홈페이지
        는 인터넷 익스플로러 웹브라우저는 지원하지 않습니다.\n크롬,
        엣지, 사파리, 파이어폭스 웹브라우저를 이용해 주십시오.\n");
        window.location.href = "blog/index.php";
    }
};
</script>

<meta http-equiv="refresh" content="0;
URL=http://ssl.kw.ac.kr/blog/index.php">
```

Connection closed by foreign host.

webclient.c

- To Do.