

ROHIT GARG
2018A7PS0193G

Write TCP client to download and locally save a file.

1. The client, as a command-line argument, accepts the URL of the file. The URL can be HTTP or HTTPS-based.

Here HTTPS File is passed as argument to client and file is received successfully.

<https://blog.mozilla.org/security/files/2015/05/HTTPS-FAQ.pdf> was passed

```
rohit@rohit: ~/Documents/FinalLab7
rohit@rohit:~/Documents/FinalLab7$ ./client https://blog.mozilla.org/security/files/2015/05/HTTPS-FAQ.pdf
URL:https://blog.mozilla.org/security/files/2015/05/HTTPS-FAQ.pdf
HTTPS-FAQ.pdf
https blog.mozilla.org security/files/2015/05/HTTPS-FAQ.pdf
GET /security/files/2015/05/HTTPS-FAQ.pdf HTTP/1.0
HOST: blog.mozilla.org
```

Here HTTP File is passed as argument to client and file is received successfully.

<http://www.axmag.com/download/pdfurl-guide.pdf> was passed.

```
rohit@rohit: ~/Documents/FinalLab7
rohit@rohit:~/Documents/FinalLab7$ gcc -w -o client client.c -lssl -lcrypto
rohit@rohit:~/Documents/FinalLab7$ ./client http://www.axmag.com/download/pdfurl-guide.pdf
URL:http://www.axmag.com/download/pdfurl-guide.pdf
pdfurl-guide.pdf
http www.axmag.com download/pdfurl-guide.pdf
[+]Socket created successfully
[+]Address assigned
[+]Connection Established Successfully
[+]Request sent successfully
Begin Response ..
HTTP/1.1 200 OK
status=200
200
[+] 2xx Status, proceeding to write file.
End Response ..
Begin HEADER ..
Content-Length: 99352
End HEADER ..
```

2. If the URL does not exist or unreachable, the client prints an error and exits.

```
rohit@rohit: ~/Documents/FinalLab7
rohit@rohit:~/Documents/FinalLab7$ ./client http://gonggle.com/hello.jpg
URL:http://gonggle.com/hello.jpg
hello.jpg
http gonggle.com hello.jpg
303200[+]Socket created successfully
gethostbyname: Unknown host
rohit@rohit:~/Documents/FinalLab7$
```

If URL has bad path/file name then client program will handle it and not download the file.....

```
rohit@rohit:~/Documents/FinalLab7$ ./client https://blog.mozilla.org/fsdlnfndsljfn.jpg
URL:https://blog.mozilla.org/fsdlnfndsljfn.jpg
fsdlnfndsljfn.jpg
https blog.mozilla.org fsdlnfndsljfn.jpg
GET /fsdlnfndsljfn.jpg HTTP/1.0
HOST: blog.mozilla.org

[+]Connected with ECDHE-RSA-AES256-GCM-SHA384 encryption
Server certificates:
Subject: /CN=*.wpengine.com
Issuer: /C=US/O=DigiCert Inc/OU=www.digicert.com/CN=RapidSSL RSA CA 2018
!!!!!!!Error in getting file from URL.
rohit@rohit:~/Documents/FinalLab7$ ls
client client.c HTTPS-FAQ.pdf pdfurl-guide.pdf ReadMe.txt
rohit@rohit:~/Documents/FinalLab7$
```

3. After connecting to the server, the client sends a GET request to the server.

```
//EX: message = "GET /download/pdfurl-guide.pdf HTTP/1.1\r\nHost: www.axmag.com\r\n\r\n Connect
if (path == NULL)
{
    snprintf(request, sizeof(request), "GET / HTTP/1.0\r\nHost: %s\r\n\r\n", domain);
}
else
{
    // if path exists then..
    snprintf(request, sizeof(request), "GET %s HTTP/1.0\r\nHost: %s\r\n\r\n", path, domain);
}

//send request str to server
```

As done in screenshot, the client sends the request for the file to the server and receives a response.

```
rohit@rohit: ~/Documents/FinalLab7
rohit@rohit:~/Documents/FinalLab7$ gcc -w -o client client.c -lssl -lcrypto
rohit@rohit:~/Documents/FinalLab7$ ./client http://www.axmag.com/download/pdfurl
-guide.pdf

URL:http://www.axmag.com/download/pdfurl-guide.pdf
pdfurl-guide.pdf
http www.axmag.com download/pdfurl-guide.pdf
[+]Socket created successfully
[+]Address assigned
[+]Connection Established Successfully
[+]Request sent successfully
Begin Response ..
HTTP/1.1 200 OK
status=200
200
[+] 2xx Status, proceeding to write file.
End Response ..
Begin HEADER ..
Content-Length: 99352
End HEADER ..
```

For HTTPS also its done in similar fashion

```
snprintf(send_data, sizeof(send_data),
        "GET /%s HTTP/1.0\r\nHOST: %s\r\n\r\n",
        path, domain);
printf("%s", send_data);
printf("[+]Connected with %s successfully", SSL_get_peer_certificate->
```





4. The client downloads the whole file and saves it to the local folder with the same file name as mentioned in the URL.

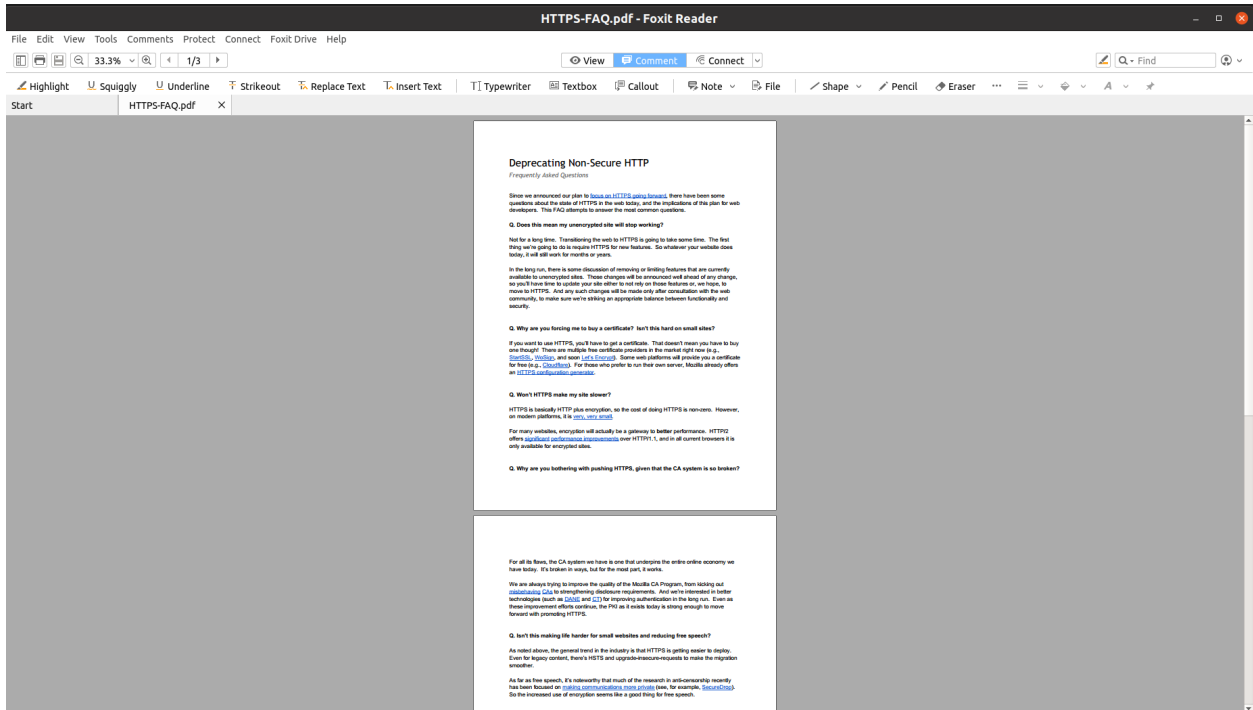
```
rohit@rohit: ~/Documents/FinalLab7
rohit@rohit:~/Documents/FinalLab7$ ./client https://blog.mozilla.org/security/files/2015/05/HTTPS-FAQ.pdf

URL:https://blog.mozilla.org/security/files/2015/05/HTTPS-FAQ.pdf
HTTPS-FAQ.pdf
https blog.mozilla.org security/files/2015/05/HTTPS-FAQ.pdf
GET /security/files/2015/05/HTTPS-FAQ.pdf HTTP/1.0
HOST: blog.mozilla.org

[+]Connected with ECDHE-RSA-AES256-GCM-SHA384 encryption
Server certificates:
Subject: /CN=*.wpengine.com
Issuer: /C=US/O=DigiCert Inc/OU=www.digicert.com/CN=RapidSSL RSA CA 2018
[+] Data recieved.
rohit@rohit:~/Documents/FinalLab7$
```

Clearly HTTPS-FAQ file was downloaded successfully....

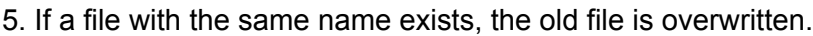
Name	Size	Modified	Star
 client	27.7 kB	18:26	☆
 client.c	14.8 kB	18:21	☆
 HTTPS-FAQ.pdf	129.3 kB	18:24	☆
 ReadMe.txt	582 bytes	18:19	☆



Same is for HTTP file

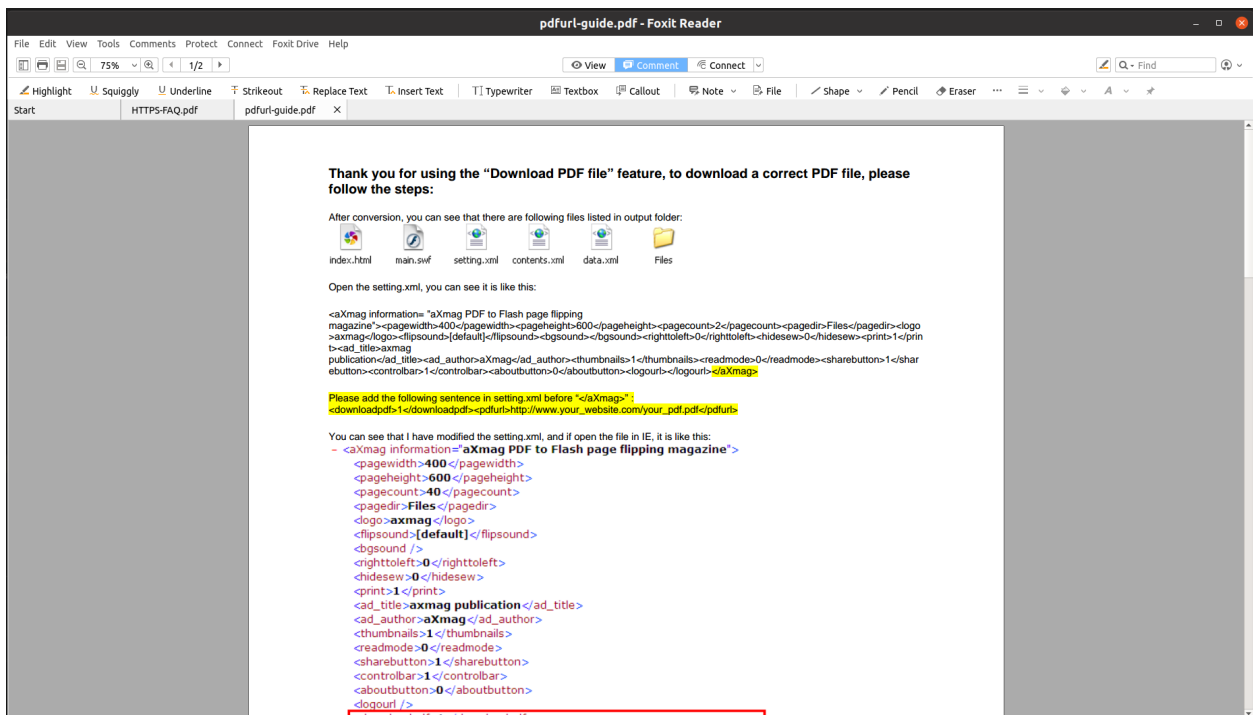
```
rohit@rohit: ~/Documents/FinalLab7
rohit@rohit:~/Documents/FinalLab7$ gcc -w -o client client.c -lssl -lcrypto
rohit@rohit:~/Documents/FinalLab7$ ./client http://www.axmag.com/download/pdfurl-guide.pdf

URL:http://www.axmag.com/download/pdfurl-guide.pdf
pdfurl-guide.pdf
http www.axmag.com download/pdfurl-guide.pdf
[+]Socket created successfully
[+]Address assigned
[+]Connection Established Successfully
[+]Request sent successfully
Begin Response ..
HTTP/1.1 200 OK
status=200
200
[+] 2xx Status, proceeding to write file.
End Response ..
Begin HEADER ..
Content-Length: 99352
End HEADER ..
```



```
rohit@rohit: ~/Documents/FinalLab7
client client.c HTTPS-FAQ.pdf pdfurl-guide.pdf ReadMe.txt
rohit@rohit:~/Documents/FinalLab7$ gcc -w -o client client.c -lssl -lcrypto
rohit@rohit:~/Documents/FinalLab7$ ./client http://www.axmag.com/download/pdfurl-guide.pdf

URL:http://www.axmag.com/download/pdfurl-guide.pdf
pdfurl-guide.pdf
http www.axmag.com download/pdfurl-guide.pdf
[+]Socket created successfully
[+]Address assigned
[+]Connection Established Successfully
[+]Request sent successfully
Begin Response ..
HTTP/1.1 200 OK
status=200
200
[+] 2xx Status, proceeding to write file.
End Response ..
Begin HEADER ..
Content-Length: 99352
End HEADER ..
rohit@rohit:~/Documents/FinalLab7$ ls
client client.c HTTPS-FAQ.pdf pdfurl-guide.pdf ReadMe.txt
rohit@rohit:~/Documents/FinalLab7$
```



6. The client exits after downloading the file.

Client downloads the required pdf file from the http website and then exits successfully.

```
rohit@rohit: ~/Documents/FinalLab7
rohit@rohit:~/Documents/FinalLab7$ ls
client client.c HTTPS-FAQ.pdf pdfurl-guide.pdf ReadMe.txt
rohit@rohit:~/Documents/FinalLab7$ gcc -w -o client client.c -lssl -lcrypto
rohit@rohit:~/Documents/FinalLab7$ ./client http://www.axmag.com/download/pdfurl-guide.pdf

URL:http://www.axmag.com/download/pdfurl-guide.pdf
pdfurl-guide.pdf
http www.axmag.com download/pdfurl-guide.pdf
[+]Socket created successfully
[+]Address assigned
[+]Connection Established Successfully
[+]Request sent successfully
Begin Response ..
HTTP/1.1 200 OK
status=200
200
[+] 2xx Status, proceeding to write file.
End Response ..
Begin HEADER ..
Content-Length: 99352
End HEADER ..
rohit@rohit:~/Documents/FinalLab7$ ls
client client.c HTTPS-FAQ.pdf pdfurl-guide.pdf ReadMe.txt
rohit@rohit:~/Documents/FinalLab7$
```

Same is for HTTPS file case....

```
rohit@rohit: ~/Documents/FinalLab7
rohit@rohit:~/Documents/FinalLab7$ ./client https://blog.mozilla.org/security/files/2015/05/HTTPS-FAQ.pdf

URL:https://blog.mozilla.org/security/files/2015/05/HTTPS-FAQ.pdf
HTTPS-FAQ.pdf
https blog.mozilla.org security/files/2015/05/HTTPS-FAQ.pdf
GET /security/files/2015/05/HTTPS-FAQ.pdf HTTP/1.0
HOST: blog.mozilla.org

[+]Connected with ECDHE-RSA-AES256-GCM-SHA384 encryption
Server certificates:
Subject: /CN=*.wpengine.com
Issuer: /C=US/O=DigiCert Inc/OU=www.digicert.com/CN=RapidSSL RSA CA 2018
[+] Data recieved.
rohit@rohit:~/Documents/FinalLab7$
```