CIA: Assignment Web Servers

Ali Abdulmadzhidov

5 October 2016

1. Because of growth of Google maybe. They start using their own solution. Also we got new webservers like nginx that got their part of a cake

1 Installation

1. Downloading sources

   ```
   wget http://apache-mirror.rbc.ru/pub/apache//httpd/httpd-2.4.23.tar.gz
   ```

2. Downloading signature

   ```
   wget https://www.apache.org/dist/httpd/httpd-2.4.23.tar.gz.asc
   ```

3. Checking signature.. Got error that public key not found

   ```
   gpg --verify httpd-2.4.23.tar.gz.asc
   ```

4. Getting key from remote by id

   ```
   gpg --keyserver pool.sks-keyservers.net --recv-keys 0x791485A8
   ```

5. Second successfull try to check signature

   ```
   gpg --verify httpd-2.4.23.tar.gz.asc

   gpg: Signature made Thu 30 Jun 2016 20:15:21 MSK using RSA key ID 791485A8
   gpg: Good signature from "Jim Jagielski (Release Signing Key) <jim@apache.org>"
   gpg:                 or "Jim Jagielski <jim@jimjag.com>"
   gpg:                 or "Jim Jagielski <jim@jaguNET.com>"
   gpg:                 or "Jim Jagielski <jimjag@gmail.com>"
   gpg: WARNING: This key is not certified with a trusted signature!
   gpg:          There is no indication that the signature belongs to the owner.
   Primary key fingerprint: A93D 62EC C3C8 EA12 DB22  0EC9 34EA 76E6 7914 85A8
   ```

6. Extracting archive with sources

   ```
   tar -xzvf httpd-2.4.23.tar.gz
   ```

7. After reading README and ./configuration –help trying to configure with ssl. Got error that apr and apr-util are missing

   ```
   ./configure --enable-ssl=shared
   ```

8. Downloading them, their signatures, checking them and extracting them to srclib folder

```
wget http://apache-mirror.rbc.ru/pub/apache//apr/apr-1.5.2.tar.gz
wget http://apache-mirror.rbc.ru/pub/apache//apr/apr-util-1.5.4.tar.gz
...
mv apr-1.5.2 httpd-2.4.23/srclib/apr
mv apr-util-1.5.4 httpd-2.4.23/srclib/apr-util
```

9. Second try to configure, now with –with-included-apr

```
./configure --enable-ssl=shared --with-included-apr
```

10. Make and make install
11. Making symling for apachectl to /usr/bin

```
ln -s /usr/local/apachectl /usr/bin
```

12. Writing init.d script to make apache start on boot

```
> nano /etc/init.d/apache2
#!/bin/bash
#
# apache2        Startup script for the Apache HTTP Server
#
# description: Apache is a World Wide Web server.  It is used to serve \
#              HTML files and CGI.

/usr/local/apache2/bin/apachectl $@

> chmod 755 /etc/init.d/apache2
> update-rc.d apache2 defaults
```

13. Checking our webserver

```
> service apache2 restart
> curl 127.0.0.1
It's working
```

14. Going to look and update config file

```
> nano /usr/local/a/conf/htt
Listen 8080 # Change port
DocumentRoot "/var/www"  # Where out site'll reside
ServerName st9.os3.su #Our servername
ServerAdmin ali@mail.st9.os3.su
```

15. Going to look and update config file

```
> nano /usr/local/a/conf/htt
...
Listen 8080 # Change port
DocumentRoot "/var/www"  # Where out site'll reside
ServerName st9.os3.su #Our servername
ServerAdmin ali@mail.st9.os3.su
...
```

2. Maybe cause it still used. For example Red Hat 5 and 6 use Apache 2.2.3 and 2.2.15, with necessary backported patches applied. [1]

2 Virtual hosts

1. Firstly check that we have two subdomains from our neighboors with A RR's to our address

```
> host st9.st10.os3.su
st9.st10.os3.su has address 188.130.155.42
> host st9.st8.os3.su
st9.st8.os3.su has address 188.130.155.42
```

2. Creating two folders to content subdomains files.

```
> mkdir /var/www/st10
> echo 'st10' > index.html
> mkdir /var/www/st8
> echo 'st8' > index.html
> chmod -R 755 /var/www/*
```

3. Going to webserver's config to set up our virtual domains. I chose to configure my server with 3 virtual hosts, cause it makes easy to divide them and implement https

```
<VirtualHost st9.os3.su:8080>
    DocumentRoot "/var/www"
    ServerName st9.st10.os3.su
</VirtualHost>
<VirtualHost st9.st10.os3.su:8080>
    DocumentRoot "/var/www/st10"
    ServerName st9.st10.os3.su
</VirtualHost>
<VirtualHost st9.st8.os3.su:8080>
    DocumentRoot "/var/www/st8"
    ServerName st9.st8.os3.su
</VirtualHost>
```

4. Checking with curl

```
> curl -v st9.st10.os3.su:8080
* Rebuilt URL to: st9.st10.os3.su:8080/
*   Trying 188.130.155.42...
* Connected to st9.st10.os3.su (188.130.155.42) port 8080 (#0)
> GET / HTTP/1.1   #Says that we make get request to host's root by HTTP1.1
> Host: st9.st10.os3.su:8080 # The domain name of the server and port.
We don't need write port if we request to default 80. This field is required by HTTP1.1
> User-Agent: curl/7.47.0 # Useragent shows from which app request was maded
> Accept: */* # Content types that are acceptable for the response.
>
< HTTP/1.1 200 OK # Shows response protocol and status of response. It can be 404 Not Found, 500 Inte
< Date: Thu, 06 Oct 2016 17:34:05 GMT # Time when response was created
< Server: Apache/2.4.23 (Unix) # Server and version
< Last-Modified: Thu, 06 Oct 2016 08:32:49 GMT # The last modified time for the server
< ETag: "5b99-53e2e238f697c" # Idintifier of response, needed to make caching more efficient
< Accept-Ranges: bytes # Defines what  content parts server supports
< Content-Length: 23449 # Length of response in bytes
< Content-Type: text/html # Type of response
<

Second host

> curl -v st9.st8.os3.su:8080
* Rebuilt URL to: st9.st8.os3.su:8080/
*   Trying 188.130.155.42...
* Connected to st9.st8.os3.su (188.130.155.42) port 8080 (#0)
```

```
> GET / HTTP/1.1
> Host: st9.st8.os3.su:8080
> User-Agent: curl/7.47.0
> Accept: */*
>
< HTTP/1.1 200 OK
< Date: Thu, 06 Oct 2016 17:48:39 GMT
< Server: Apache/2.4.23 (Unix)
< Last-Modified: Thu, 06 Oct 2016 08:28:35 GMT
< ETag: "1d2e-53e2e1466871c"
< Accept-Ranges: bytes
< Content-Length: 7470
< Content-Type: text/html
<
```

3 Encryption

1. Go to config

```
Listen 443 # Change 8080 to 443 cause https works on that port
...
<VirtualHost st9.os3.su:443>
    DocumentRoot "/var/www"
    ServerName st9.os3.su
    SSLEngine on #turns on SSL
    <Directory>
    SSLRequireSSL # Let's load this dir only through secure connection
    </Directory>
    SSLOptions +StrictRequire
    #Locks access when SSLRequireSSL decided that access should be denied.

    SSLProtocol All -TLSv1 -SSLv2 -SSLv3 -TLSv1.1
    # Turns off all unsecure versions of SSL/TLS. Left only TLSv1.2

    SSLCipherSuite EECDH+AESGCM:EDH+AESGCM:AES256+EECDH:ECDHE-RSA-AES128-SHA
    :DHE-RSA-AES128-GCM-SHA256:AES256+EDH:ECDHE-RSA-AES256-GCM-SHA384
    :ECDHE-RSA-AES128-GCM-SHA256:DHE-RSA-AES256-GCM-SHA384:ECDHE-RSA-AES256-SHA384
    :ECDHE-RSA-AES128-SHA256:ECDHE-RSA-AES256-SHA:DHE-RSA-AES256-SHA256
    :DHE-RSA-AES128-SHA256:DHE-RSA-AES256-SHA:DHE-RSA-AES128-SHA
    :ECDHE-RSA-DES-CBC3-SHA:EDH-RSA-DES-CBC3-SHA:AES256-GCM-SHA384:AES128-GCM-SHA256
    :AES256-SHA256:AES128-SHA256:AES256-SHA:AES128-SHA:DES-CBC3-SHA:HIGH:!aNULL
    :!eNULL:!EXPORT:!DES:!MD5:!PSK:!RC4
    # Cipher suites that i decided to left for different situations. I'll describe this belo

    SSLCompression off
    # Turn compression off, cause turning on lefts way to CRIME attack

    SSLCertificateFile /usr/local/apache2/conf/ssl.crt/server.crt
    # st crt that Azat gave to us

    SSLCertificateKeyFile /usr/local/apache2/conf/ssl.key/server.key
    # key from Azat

    SSLCertificateChainFile /usr/local/apache2/conf/ssl.crt/root.crt
    # root for security chain. Got from Azat
</VirtualHost>
...
SSLRandomSeed startup file:/dev/urandom 1024
SSLRandomSeed connect file:/dev/urandom 1024
#settings for generation random values for OpenSSL
```

```
Mutex file:/usr/local/apache2/logs/ssl_mutex #set's mutex file for ssl
SSLSessionCache shmcb:/usr/local/apache2/logs/ssl_cache_shm # SSLCache storage
SSLSessionCacheTimeout 600 #timeout in seconds
```

2. Cipher choose ECDHE+AESGCM first, cause this are TLSv2 and no attacks are nown on them AES 128 is preffered on 256 cause it's faster and gains needed secruity level 3DES is added for back compbility RC4 is too weak and removed aNULL contains way to make MITM attacks EXPORT are weak ciphers DES, MD5 and SSLv2 contains deprecated ciphers

3. We got certificate from Azat, but we can create one

```
openssl req -new -x509 -days 30 -keyout /usr/local/apache2/conf/ssl.key/server.key -out /usr/
```

   But this cert wouldn't be verified by browser. For that we should go to specialized services and get signed certificate. For example https://letsencrypt.org/

4. We got certificate from Azat, but we can create one

```
openssl req -new -x509 -days 30 -keyout /usr/local/apache2/conf/ssl.key/server.key -out /usr/
```

   But this cert wouldn't be verified by browser. For that we should go to specialized services and get signed certificate. For example https://letsencrypt.org/

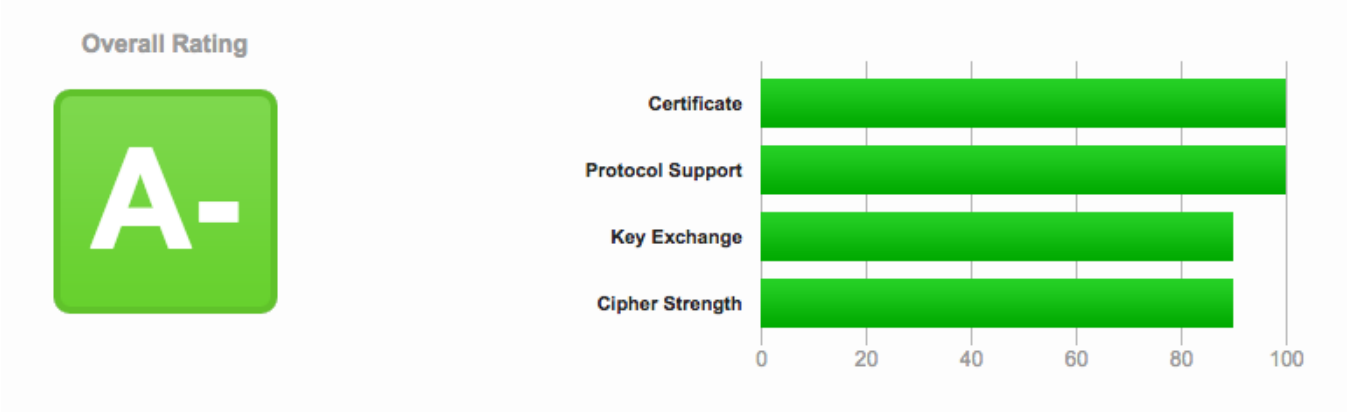
5. Checking ssl with openssl and curl

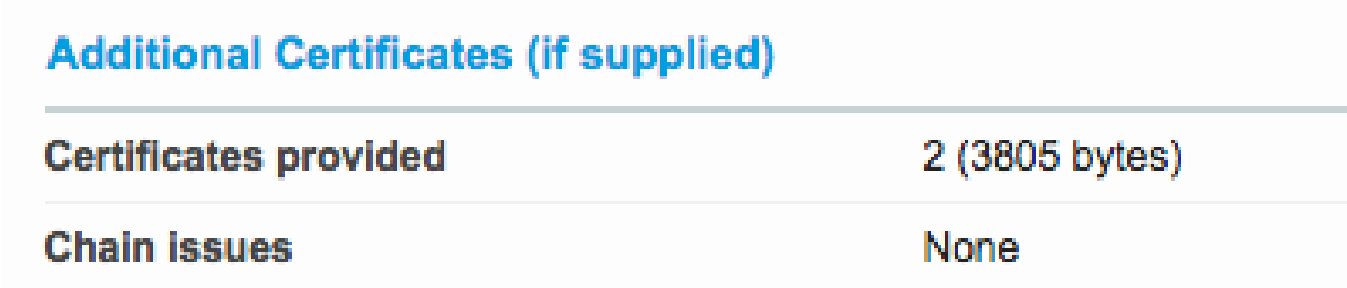
```
openssl s_client -connect st9.os3.su:443
CONNECTED(00000003)
depth=2 C = IL, O = StartCom Ltd., OU = Secure Digital Certificate Signing, CN = StartCom Cer
verify return:1
depth=1 C = IL, O = StartCom Ltd., OU = StartCom Certification Authority, CN = StartCom Class
verify return:1
depth=0 jurisdictionC = RU, jurisdictionST = Tatarstan, jurisdictionL = Innopolis, businessCa
verify return:1
---
Certificate chain
 0 s:/jurisdictionC=RU/jurisdictionST=Tatarstan/jurisdictionL=Innopolis/businessCategory=Non-
   i:/C=IL/O=StartCom Ltd./OU=StartCom Certification Authority/CN=StartCom Class 4 EV Server
 1 s:/C=IL/O=StartCom Ltd./OU=StartCom Certification Authority/CN=StartCom Class 4 EV Server
   i:/C=IL/O=StartCom Ltd./OU=Secure Digital Certificate Signing/CN=StartCom Certification Au
---
Server certificate
-----BEGIN CERTIFICATE-----
MIII8DCCB9igAwIBAgIQSoTS6IdBhvQ++UOPpZaJVTANBgkqhkiG9w0BAQsFADB4
MQswCQYDVQQGEwJJTDEWMBQGA1UEChMNU3RhcnRDb20gTHRkLjEpMCcGA1UECxMg
U3RhcnRDb20gQ2VydGlmaWNhdGlvbiBBdXRob3JpdHkxJjAkBgNVBAMTHVN0YXJ0
Q29tIENsYXNzIDQgRVYgU2VydmVyIENBMB4XDTE2MDkzMDA5NTQzM1oXDTE4MDkz
MDA5NTQzM1owggEgMRMwEQYLKwYBBAGCNzwCAQMTAlJVMRowGAYLKwYBBAGCNzwC
AQIMCVRhdGFyc3RhbjEaMBgGCysGAQQBgjc8AgEBDAlJbm5vcG9saXMxHjAcBgNV
BA8MFU5vbi1Db21tZXJjaWFsIEVudGl0eTEWMBQGA1UEBRMNMTEyMTYwMDAwNjE0
MjELMAkGA1UEBhMCUlUxEjAQBgNVBAgMCVRhdGFyc3RhbjESMBAGA1UEBwwJSW5u
b3BvbGlzMQ8wDQYDVQQRDAY0MjA1MDAxIDAeBgNVBAkMF1VuaXZlcnNpdGV0c2th
eWEgU3RyLCAxMRowGwYDVQQKDBRJbm5vcG9saXMgVW5pdmVyc2l0eTESMBAGA1UE
AwwJc3Qub3MzLnN1MIIBIjANBgkqhkiG9w0BAQEFAAOCAQ8AMIIBCgKCAQEAxKkL
QYi43fSyMHkDuO1L4qlebWIGZBZTQLOGThSjKyeX71qfAsj9ezeYTMF8C1uLYhlx
tuJRYnZV+bED6LIX6bWuHmd3GqY6Otv/ATAF/kyowB9esybCLEtzg5Hwl5cfjjvd
oOWzAldZtjdeUebiC/2nSH/HZdaSzIoevPEf2/wRybhPfQoHUnChM2KiSyCD9HOw
MkWKoiIhsf5hayJzXIDv4qzk0wP8Hkwk4gldROnrhf3sQA65zxxmtceAMw2Zrw4t
DmK6Ls5/nRNLOc/GwkzSUQV88Hf45ZDpv+i4vJv6jdKIHCG8IKfrQkSya3XtvuXa
```

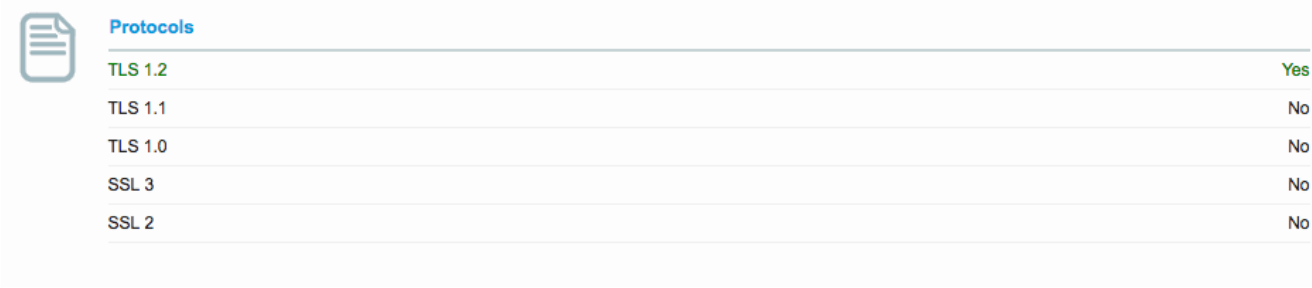
```
wyQiYRqWmXRybo28RQIDAQABo4IEyjCCBMYwDgYDVR0PAQH/BAQDAgWgMB0GA1Ud
JQQWMBQGCCsGAQUFBwMCBggrBgEFBQcDATAJBgNVHRMEAjAAMB0GA1UdDgQWBBRH
GyeovHEx/OKAjzCrgR+jQFK7yjAfBgNVHSMEGDAWgBQO2A3SZh2rcraJZUtkPX4Y
J9SM3jBvBggrBgEFBQcBAQRjMGEwJAYIKwYBBQUHMAGGGGh0dHA6Ly9vY3NwLnN0
YXJ0c3NsLmNvbTA5BggrBgEFBQcwAoYtaHR0cDovL2FpYS5zdGFydHNzbC5jb20v
Y2VydHMvc2NhLnNlcnZlcjQuY3J0MDgGA1UdHwQxMC8wLaAroCmGJ2h0dHA6Ly9j
cmwuc3RhcnRzc2wuY29tL3NjYS1zZXJ2ZXI0LmNybDCB0AYDVR0RBIHIMIHFgglz
dC5vczMuc3WCCnN0MS5vczMuc3WCCnN0Mi5vczMuc3WCCnN0My5vczMuc3WCCnN0
NC5vczMuc3WCCnN0NS5vczMuc3WCCnN0Ni5vczMuc3WCCnN0Ny5vczMuc3WCCnN0
OC5vczMuc3WCCnN0OS5vczMuc3WCC3N0MTAub3MzLnN1ggtzdDExLm9zMy5zdYIL
c3QxMi5vczMuc3WCC3N0MTMub3MzLnN1ggtzdDE0Lm9zMy5zdYILc3QxNS5vczMu
c3UwIwYDVR0SBBwwGoYYaHR0cDovL3d3dy5zdGFydHNzbC5jb20vMGwGA1UdIARl
MGMwCwYJKwYBBAGBtTcCMA0GCysGAQQBgbU3AQEBMAcGBWeBDAEBMDwGCysGAQQB
gbU3AQIFMC0wKwYIKwYBBQUHAgEWH2h0dHBzOi8vd3d3LnN0YXJ0c3NsLmNvbS9w
b2xpY3kwggI3BgorBgEEAdZ5AgQCBIICJwSCAiMCIQEvAKw7mu1/qWdHVxWebX1X
VnL52YEAlB6b3v/soTE7dXgtAAABV3qv0UsAAAQBAQBv2jOxAlnrFvOvSKz5haOr
TBYNxbxowabHMWY8w9Ji+skP9+lWPydiUFeIFQeF5lPNzlD9InF7zJwnw1lF7b3t
9u+nahcdOteElPGCA429UDl3k//XGo7bzBA1gXUOurDwBmWTlFIjmKpwPPZ9B3Tk
OFAzAPIsDxqCRVMnSYoeljZN3J5tYKLx2oA4Uey85d82EBZwCPYk6tvKjqOQoTXO
dKVCgoeYPXUj/YYhA4Hlo9WAicHbM3TemnluPzDHylQPs9RvM2PRspXEOo4HQzuO
lXl0Tp/tN7ui2Y75rxLFAmCdYcHPLbZjwZGEsB9srPry48690tM3LUgmoJxa6o3R
AHUApLkJkLQYWBSHuxOizGdwCjw1mAT5G9+443fNDsgN3BAAAAFXeq/WFAAABAMA
RjBEAiBEn/cDK5mh0p1bLjmkm+1LZ6LKa4PkS5rleAP8uPX2HgIgFUsUNoxZ71zJ
rO9/4pUfgiSPEQYg66TEXcfFnIPJe+wAdwBo9pj4H2SCvjqM7rkoHUz8cVFdZ5PU
RNEKZ6y7T0/7xAAAAVd6r9XgAAAEAwBIMEYCIQCPV+XdYV7k8mmIiw+sE2yRZ/B/
0JiLAZcWUcifA68q5gIhAJyDF+tQbmwaWYVcv7qQyr01Xqzw7iB5uEE9C0V++hjF
MA0GCSqGSIb3DQEBCwUAA4IBAQA6QqwHL/GARmiulI0e0L6mM4ST8EagU/rT3rSQ
v/6nXXzoFFXcbP/pEb3LGpyW7tWj1qcC64ak4pR9OeFUigKKIWCyVb4o/b/85YvC
vcPQDp0m5d2s4PrVY6YeH1AKrQobPYXTgBW9u5kcF8X1U6fyZRiQI6K1qyqQTGF9
Iro0EgnYQPu0mvAv4PUXtjAUEEh8x0C997jFAajt0ftXYGCbsPLq21VDmLOV5c8/
i/oiLruIV7hVi67MVqbLEglEM3g8iLhwtKRQ1fSsbeZQjb2CvMxrqU3hiHTYzkjM
ld0tic4QnBLfEZWU9JkRB63CGmwAWemOaA0aCwpQuYRt/ngf
-----END CERTIFICATE-----
subject=/jurisdictionC=RU/jurisdictionST=Tatarstan/jurisdictionL=Innopolis/businessCategory=
issuer=/C=IL/O=StartCom Ltd./OU=StartCom Certification Authority/CN=StartCom Class 4 EV Serve
---
No client certificate CA names sent
Peer signing digest: SHA512
Server Temp Key: ECDH, P-256, 256 bits
---
SSL handshake has read 4499 bytes and written 431 bytes
---
New, TLSv1/SSLv3, Cipher is ECDHE-RSA-AES256-GCM-SHA384
Server public key is 2048 bit
Secure Renegotiation IS supported
Compression: NONE
Expansion: NONE
No ALPN negotiated
SSL-Session:
    Protocol  : TLSv1.2
    Cipher    : ECDHE-RSA-AES256-GCM-SHA384
    Session-ID: 7EC3D85CF5E251E079600C7ABD06BD4457DF6193B2E4AE51A3C6A8D57D897D9E
    Session-ID-ctx:
    Master-Key: E1547C6F6757614E4EACFC39F728EF8FB0AE1
    D399C98B565BD35F5AE6B542A77FD7DFFCE3919A98380BC680005BC5EFB
    Key-Arg   : None
    PSK identity: None
    PSK identity hint: None
    SRP username: None
    TLS session ticket lifetime hint: 600 (seconds)
```

```
    TLS session ticket:
    0000 - fc d2 56 d0 1f a9 eb bf-7f d3 08 21 66 ce 49 42   ..V........!f.IB
    0010 - 58 bb 60 2f 41 18 09 e2-3d ee 30 6f 4f ed 38 fa   X.‘/A...=.0oO.8.
    0020 - a0 26 d6 a6 0f d0 56 7b-d6 32 90 86 a2 04 20 47   .&....V{.2.... G
    0030 - 15 07 59 8f 07 52 f7 49-46 7a 93 52 bf 83 76 49   ..Y..R.IFz.R..vI
    0040 - 98 95 ec bd c1 27 1a fc-c0 c0 86 92 51 90 c9 29   .....’......Q..)
    0050 - 3e 86 99 2f 57 96 ce 26-db ae ff 9b 25 9c c6 50   >../W..&....%..P
    0060 - 78 b1 63 b1 b9 2a 80 80-d6 4b 84 8b fa 1f 1e e5   x.c..*...K......
    0070 - 15 51 34 d2 7d 2c 3d d5-a8 1f 68 6c 0b a5 69 66   .Q4.},=...hl..if
    0080 - 9e 11 56 cc 48 15 6b eb-d8 34 da 67 5e 38 ed d3   ..V.H.k..4.g^8..
    0090 - 68 30 9b de d9 ee 33 d4-cc 7b 46 76 08 48 d0 ef   h0....3..{Fv.H..
    00a0 - e7 91 b5 de 98 3d 1f 88-47 08 7b 3e 67 cf 98 88   .....=..G.{>g...
    00b0 - 34 34 ba 93 03 4a bd 7d-2c 5a 50 56 38 e7 da cb   44...J.},ZPV8...

    Start Time: 1475779551
    Timeout   : 300 (sec)
    Verify return code: 0 (ok)
---


> curl https://st9.os3.su   -v
* Rebuilt URL to: https://st9.os3.su/
*   Trying 188.130.155.42...
* Connected to st9.os3.su (188.130.155.42) port 443 (#0)
* found 173 certificates in /etc/ssl/certs/ca-certificates.crt
* found 701 certificates in /etc/ssl/certs
* ALPN, offering http/1.1
* SSL connection using TLS1.2 / ECDHE_RSA_AES_128_GCM_SHA256
*    server certificate verification OK
*    server certificate status verification SKIPPED
*    common name: st.os3.su (matched)
*    server certificate expiration date OK
*    server certificate activation date OK
*    certificate public key: RSA
*    certificate version: #3
*    subject:
*    start date: Fri, 30 Sep 2016 09:54:33 GMT
*    expire date: Sun, 30 Sep 2018 09:54:33 GMT
*    issuer: C=IL,O=StartCom Ltd.,OU=StartCom Certification Authority,CN=StartCom Class 4 EV
*    compression: NULL
```

6. We need to get more certificates, and add ssl configuration to those virtualhost blocks in config like for st9.os3.su one







[2]

4 Web Server Security

1. Folder access rules. We can define different rules for every dir.

```
<Directory /var/www>
...
Order deny,allow # show order for commands. In this, Deny than allow. All are allowed by default
Allow from all # will allow to enter for all
Deny from all # will deny for all
Allow/Deny from 188.130.155.41 # Allows from that address
...
</Directory>
```

2. Folder access rules. We can define different rules for every dir.

```
<Directory /var/www>
...
Order deny,allow # show order for commands. In this, Deny than allow. All are allowed by default
Allow from all # will allow to enter for all
Deny from all # will deny for all
Allow/Deny from 188.130.155.41 # Allows from that address
...
</Directory>
```

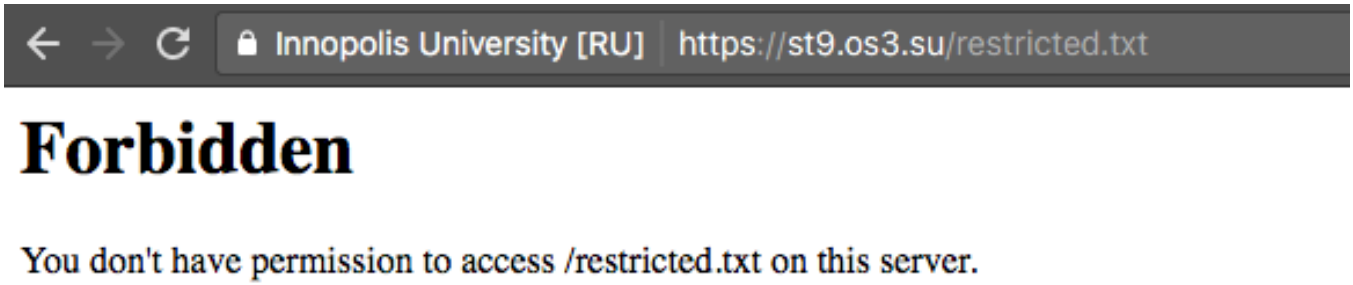
3. IP acl. We can define them in Directory like we done above or in htaccess file, like'll do below

4. .htaccess - file rewrites access rights for directory, for easier management. Wee need add AllowOverride to Directory in webserver config.

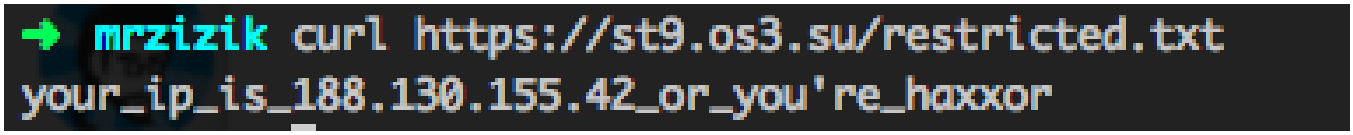
```
redirect /st8 https://st9.st8.os3.su #redirects from st9.os3.su/st8 to subdomain
redirect /st10 https://st9.st10.os3.su
ErrorDocument 404 /404.html #changes 404 error page. We also can change page for other errors
Allow from all #Changes ACL for directory where .htaccess resides

<Files restricted.txt> # Changes config for that files only
order deny,allow # change order
deny from all #make deny from all
allow from 188.130.155.42 #let go only from our address
```

```
</Files>

<Files passworded.html> #Adding basic auth for that page
AuthName "Secured zone" #Message
AuthType Basic # Type
AuthUserFile /var/www/.htpasswd
# passwod file. Can be generated with htpasswd -c /var/www/.htpasswd user

Require valid-user #Says that require valid-user for access to that file
</Files>
```

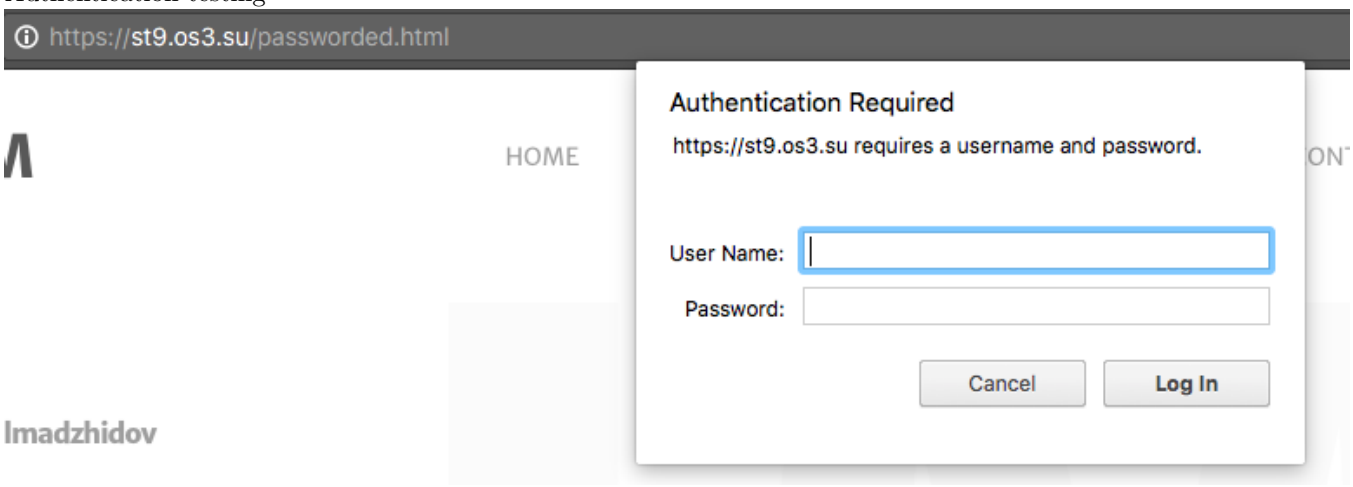
Trying to connect to restricted file from wrong ip



When i try to curl from right machine

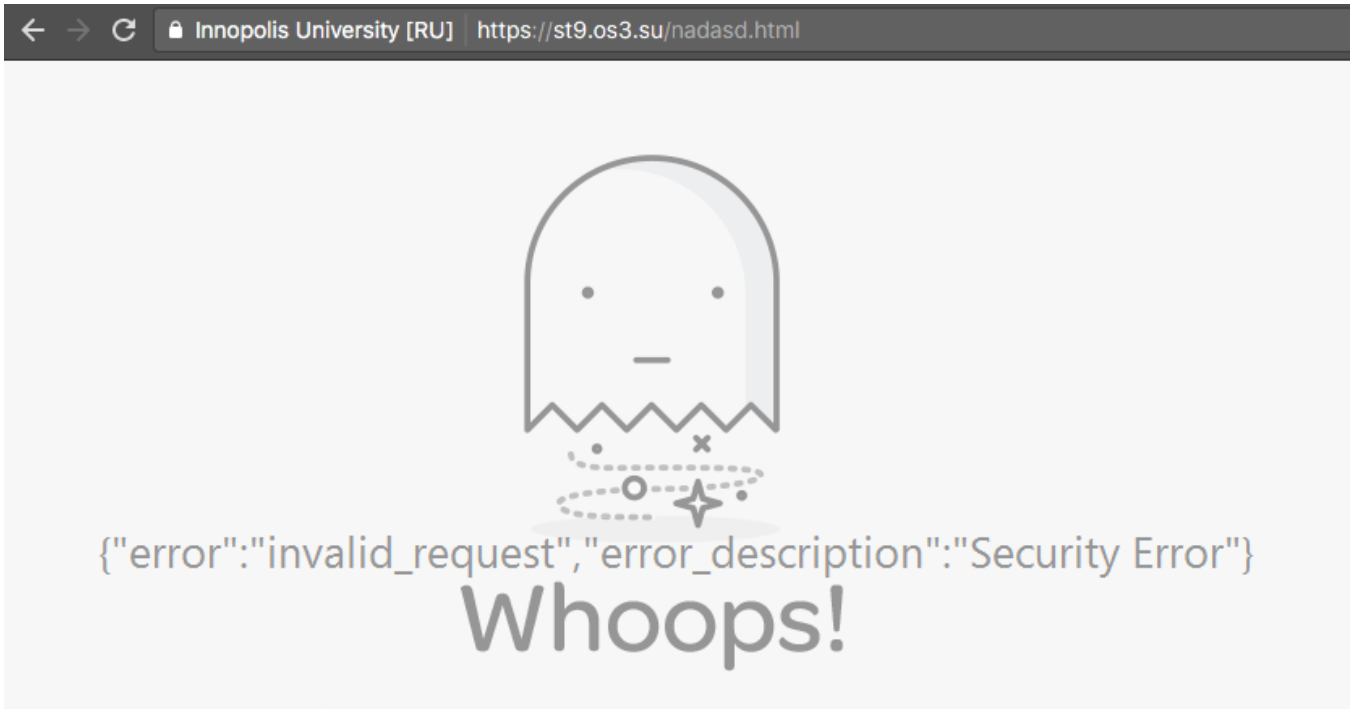


Authentication testing



Secret information *Russia is aiussaR reversed*

Custom 404 error page



5 SSI and CGI scripts

1. We need to turn on modincludes and modcgi in config and add new optionsFollowSymLinks ExecCGI

```
LoadModule include_module modules/mod_include.so
LoadModule cgid_module modules/mod_cgid.so
...
Options ... Includes ExecCGI
```

2. Then we need to configure .htaccess for our scripts

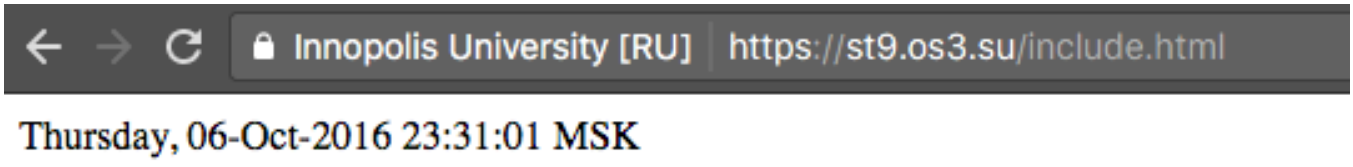
```
...
XBitHack on #This will exec only SSI with execute bit on (chmod +x)
AddHandler cgi-script .py # handler for python scripts
...
```

3. Then we create our scripts test.py

```
#!/usr/bin/env python3

print("Content-Type: text/html") #Need headers or apache wouldn't execute
```

```
print()
print ("""
    <TITLE>CGI script ! Python</TITLE>
    <H1>This is my first CGI script</H1>
    Hello, world!
""")
)

<!--#echo var="DATE_LOCAL" -->
```

SSI script



Python script

References

[1] https://news.netcraft.com/archives/2014/02/07/are-there-really-lots-of-vulnerable-apache-web-servers.html

[2] https://www.ssllabs.com/ssltest/analyze.html