

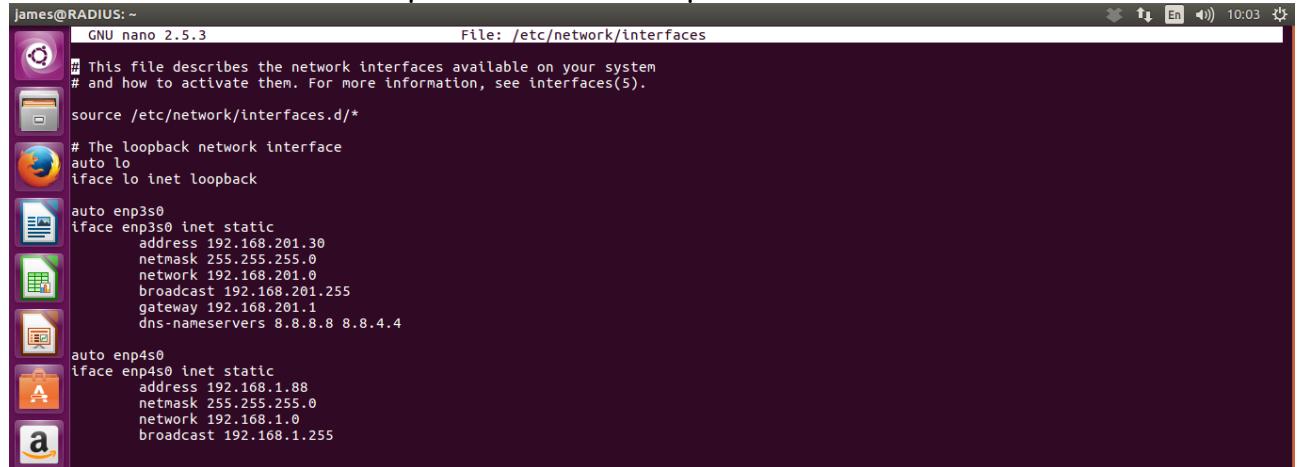
SQUID3 CACHING HTTPS & YOUTUBE ON UBUNTU

Note :

Squid 3,

Ubuntu server 16.04 x64

we have two interfaces, `enp3s0` as WAN & `enp4s0` as LAN.

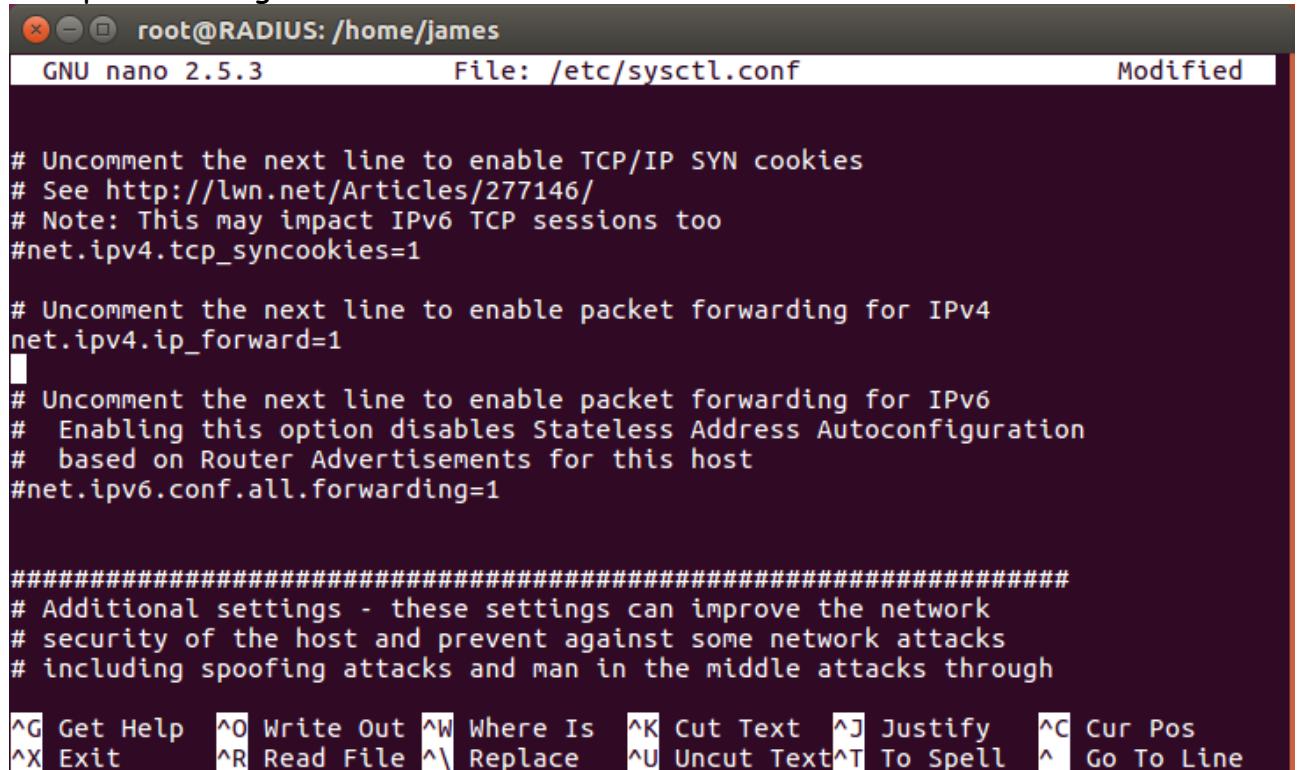


```
james@RADIUS: ~
GNU nano 2.5.3                               File: /etc/network/interfaces
#
# This file describes the network interfaces available on your system
# and how to activate them. For more information, see interfaces(5).
#
source /etc/network/interfaces.d/*
#
# The loopback network interface
auto lo
iface lo inet loopback

auto enp3s0
iface enp3s0 inet static
    address 192.168.201.30
    netmask 255.255.255.0
    network 192.168.201.0
    broadcast 192.168.201.255
    gateway 192.168.201.1
    dns-nameservers 8.8.8.8 8.8.4.4

auto enp4s0
iface enp4s0 inet static
    address 192.168.1.88
    netmask 255.255.255.0
    network 192.168.1.0
    broadcast 192.168.1.255
```

Set ip forwarding



```
root@RADIUS: /home/james
GNU nano 2.5.3                               File: /etc/sysctl.conf                               Modified

# Uncomment the next line to enable TCP/IP SYN cookies
# See http://lwn.net/Articles/277146/
# Note: This may impact IPv6 TCP sessions too
#net.ipv4.tcp_syncookies=1

# Uncomment the next line to enable packet forwarding for IPv4
net.ipv4.ip_forward=1

# Uncomment the next line to enable packet forwarding for IPv6
# Enabling this option disables Stateless Address Autoconfiguration
# based on Router Advertisements for this host
#net.ipv6.conf.all.forwarding=1

#####
# Additional settings - these settings can improve the network
# security of the host and prevent against some network attacks
# including spoofing attacks and man in the middle attacks through

^G Get Help  ^O Write Out  ^W Where Is  ^K Cut Text  ^J Justify  ^C Cur Pos
^X Exit      ^R Read File  ^\ Replace   ^U Uncut Text^T To Spell  ^_ Go To Line
```

set masquerade

```
root@RADIUS: /home/james
GNU nano 2.5.3          File: /etc/rc.local           Modified

#!/bin/sh -e
#
# rc.local
#
# This script is executed at the end of each multiuser runlevel.
# Make sure that the script will "exit 0" on success or any other
# value on error.
#
# In order to enable or disable this script just change the execution
# bits.
#
# By default this script does nothing.

iptables -t nat -A POSTROUTING -s 192.168.1.0/24 -o enp3s0 -j MASQUERADE

exit 0

^G Get Help  ^O Write Out  ^W Where Is  ^K Cut Text  ^J Justify  ^C Cur Pos
^X Exit      ^R Read File  ^\ Replace   ^U Uncut Text^T To Linter  ^ Go To Line
```

reboot

```
root@RADIUS: /home/james
root@RADIUS:/home/james# reboot
```

tes ping on client

```
curry@raisa:~$ ping raisa.web.id
PING raisa.web.id (119.2.80.28) 56(84) bytes of data.
64 bytes from ip.host-119-2-80-28.andalasmedia.net.id (119.2.80.28): icmp_seq=1 ttl=54 time=19.6 ms
64 bytes from ip.host-119-2-80-28.andalasmedia.net.id (119.2.80.28): icmp_seq=2 ttl=54 time=20.3 ms
64 bytes from ip.host-119-2-80-28.andalasmedia.net.id (119.2.80.28): icmp_seq=3 ttl=54 time=19.6 ms
64 bytes from ip.host-119-2-80-28.andalasmedia.net.id (119.2.80.28): icmp_seq=4 ttl=54 time=18.6 ms
^C
--- raisa.web.id ping statistics ---
4 packets transmitted, 4 received, 0% packet loss, time 3005ms
rtt min/avg/max/mdev = 18.697/19.581/20.372/0.618 ms
curry@raisa:~$
```

install open ssl

```
james@RADIUS: ~
james@RADIUS:~$ sudo apt-get install openssl -y
```

install devscripts

```
james@RADIUS: ~
james@RADIUS:~$ sudo apt-get install devscripts -y
```

install lib ssl-dev

```
james@RADIUS: ~
james@RADIUS:~$ sudo apt-get install libssl-dev -y
```

download squid3

```
james@RADIUS: ~
james@RADIUS:~$ wget http://www.squid-cache.org/Versions/v3/3.5/squid-3.5.22.tar.gz
--2016-10-28 10:21:08--  http://www.squid-cache.org/Versions/v3/3.5/squid-3.5.22.tar.gz
Resolving www.squid-cache.org (www.squid-cache.org)... 166.78.139.188, 2001:4800:7812:51
4:be76:4eff:fe04:5ca1
Connecting to www.squid-cache.org (www.squid-cache.org)|166.78.139.188|:80... connected.
HTTP request sent, awaiting response... 200 OK
Length: 4833346 (4.6M) [application/octet-stream]
Saving to: 'squid-3.5.22.tar.gz'

squid-3.5.22.tar.gz    100%[=====]  4.61M  1.33MB/s    in 3.5s

2016-10-28 10:21:12 (1.33 MB/s) - 'squid-3.5.22.tar.gz' saved [4833346/4833346]
james@RADIUS:~$
```

extract squid

```
james@RADIUS: ~
james@RADIUS:~$ ls
squid-3.5.22  squid-3.5.22.tar.gz
james@RADIUS:~$ tar xvfz squid-3.5.22.tar.gz
```

configure & install squid, make sure to enable-ssl-crtd -with-openssl to cache https

```
james@RADIUS:~/squid-3.5.22
james@RADIUS:~$ cd squid-3.5.22/
james@RADIUS:~/squid-3.5.22$ ./configure --prefix=/usr --bindir=/usr/bin --sbin=/usr/sbin --libexecdir=/usr/lib/squid --sysconfdir=/etc/squid --localstatedir=/var --libdir=/usr/lib --with-default-user=proxy --with-logdir=/var/log/squid --with-pidfile=/var/run/squid.pid --enable-ssl-crtd --with-openssl
```

```
james@RADIUS:~/squid-3.5.22
james@RADIUS:~/squid-3.5.22$ sudo make
```

```
james@RADIUS:~/squid-3.5.22
james@RADIUS:~/squid-3.5.22$ sudo make install
```

```
james@RADIUS: ~/squid-3.5.22
james@RADIUS:~/squid-3.5.22$ squid -v
Squid Cache: Version 3.5.22
Service Name: squid
configure options: '--prefix=/usr' '--bindir=/usr/bin' '--sbin=/usr/sbin' '--libexecdir=/usr/lib/squid' '--sysconfdir=/etc/squid' '--localstatedir=/var' '--libdir=/usr/lib' '--with-default-user=proxy' '--with-logdir=/var/log/squid' '--with-pidfile=/var/run/squid.pid' '--enable-ssl-crtd' '--with-openssl' --enable-ltdl-convenience
james@RADIUS:~/squid-3.5.22$
```

make certificate

```
james@RADIUS: /etc/squid
james@RADIUS:~/squid-3.5.22$ cd /etc/squid/
james@RADIUS:/etc/squid$ mkdir sslCert
mkdir: cannot create directory 'sslCert': Permission denied
james@RADIUS:/etc/squid$ sudo mkdir sslCert
james@RADIUS:/etc/squid$ ls
cachemgr.conf          errorpage.css.default    squid.conf           sslCert
cachemgr.conf.default  mime.conf                squid.conf.default
errorpage.css          mime.conf.default        squid.conf.documented
james@RADIUS:/etc/squid$
```

```
root@RADIUS: /etc/squid
james@RADIUS:/etc/squid$ sudo su
root@RADIUS:/etc/squid# openssl req -new -newkey rsa:2048 -days 3652 -nodes -x509 -keyout /etc/squid/sslCert/myCA.pem -out /etc/squid/sslCert/myCA.pem
Generating a 2048 bit RSA private key
.....+
.....+
writing new private key to '/etc/squid/sslCert/myCA.pem'
-----
You are about to be asked to enter information that will be incorporated
into your certificate request.
What you are about to enter is what is called a Distinguished Name or a DN.
There are quite a few fields but you can leave some blank
For some fields there will be a default value,
If you enter '.', the field will be left blank.
-----
Country Name (2 letter code) [AU]:id
State or Province Name (full name) [Some-State]:lampung
Locality Name (eg, city) []:natar
Organization Name (eg, company) [Internet Widgits Pty Ltd]:
```

```
root@RADIUS: /etc/squid
root@RADIUS:/etc/squid# openssl x509 -in /etc/squid/sslCert/myCA.pem -outform DER -out /etc/squid/sslCert/myCA.der
root@RADIUS:/etc/squid# ls sslCert/
myCA.der  myCA.pem
root@RADIUS:/etc/squid#
```

make ssl db

```
root@RADIUS:/etc/squid# /usr/lib/squid/ssl_crtd -c -s /var/lib/ssl_db
Initialization SSL db...
Done
root@RADIUS:/etc/squid# chmod 777 /var/lib/ssl_db/
No command 'chmod' found, did you mean:
  Command 'jmod' from package 'openjdk-9-jdk-headless' (universe)
  Command 'kmod' from package 'kmod' (main)
  Command 'chmod' from package 'coreutils' (main)
  Command 'qmod' from package 'gridengine-client' (universe)
  Command 'mod' from package 'monodoc-base' (universe)
chmod: command not found
root@RADIUS:/etc/squid# chmod 777 /var/lib/ssl_db/
root@RADIUS:/etc/squid#
```

set squid.conf, this scripts to enable http & https transparent

```
root@RADIUS:/etc/squid# nano 2.5.3
File: squid.conf
Modified

http_access deny all

#-----#
#LISTEN PORT TRANSPARENT
#-----#
http_port 3128 transparent
https_port 3127 transparent ssl-bump generate-host-certificates=on dynamic_cert_mem_cache_size=4MB cert=/etc/squid/sslCert/myCA.pem key=/etc/s
acl step1 at_step SslBump1
acl step2 at_step SslBump2
acl step3 at_step SslBump3
ssl_bump peek step1 all
ssl_bump bump all

#-----#
#CACHE DIR
#-----#
cache_dir aufs /var/cache/squid3/c1 10000 32 256
cache_dir aufs /var/cache/squid3/c2 10000 32 256
cache_dir aufs /var/cache/squid3/c3 10000 32 256

#-----#
#DAFTAR LOG
#-----#
access_log /var/log/squid3/access.log
cache_log /var/log/squid3/cache.log

#-----#
#Add any of your own refresh_pattern entries above these.
#-----#
refresh_pattern -i \.(img|exe|3gp|7z|ace|asx|avi|bin|cab|dat|deb|rpm|divx|dvr-ms) 129600 60% 129600 ignore-no-cache ignore-no-store ignore-
refresh_pattern -i \.(rar|jar|gz|tgz|tar|bz2|iso|miv|m2(v|p)|mo(d|v)|(x-|)flv) 129600 60% 129600 ignore-no-cache ignore-no-store ignore-privat
refresh_pattern -i \.(jpe?g|e?2|gif|pn|pg|)bm?|tiff?|ico|swf|css|js) 129600 60% 129600 ignore-no-cache ignore-no-store ignore-privat
refresh_pattern -i \.(mp(e?g|a)e1|2|3|4|m)(a|v)|ns(|u|p)) 129600 60% 129600 ignore-no-cache ignore-no-store ignore-privat
refresh_pattern -i \.(og(x|v|a|g)|rar|r|m|r(a|p)m|snd|vob|wav) 129600 60% 129600 ignore-no-cache ignore-no-store ignore-privat
refresh_pattern -i \.(pp(s|t)|wax|wm(a|v)|wmx|wpl|zlp|cb(r|z|t)) 129600 60% 129600 ignore-no-cache ignore-no-store ignore-privat

AG Get Help   ^O Write Out   ^W Where Is   ^K Cut Text   ^J Justify   ^C Cur Pos   ^Y Prev Page   M-\ First Line   M-W WhereIs Next
AX Exit      ^R Read File   ^A Replace    ^U Uncut Text  ^T To Spell   ^G Go To Line  M-V Next Page   M-/ Last Line   M-B To Bracket
```

this script to cache youtube elements (jpg, gif, web, js, css)

```
root@RADIUS:/etc/squid# GNU nano 2.5.3 File: squid.conf

#DAFTAR LOG
#
access_log /var/log/squid3/access.log
cache_log /var/log/squid3/cache.log

#Add any of your own refresh_pattern entries above these.
#
refresh_pattern -i \.(img|exe|3gp|7z|ace|asx|avi|bin|cab|dat|deb|rpm|dix|dvr-ms) 129600 60% 129600 ignore-no-cache ignore-no-store ignor$ refresh_pattern -i \.(rar|jar|gz|tgz|tar|bz2|iso|miv|m2(v|p)|mo(d|v)|(x-|)flv) 129600 60% 129600 ignore-no-cache ignore-no-store ignor$ refresh_pattern -i \.(jpe?g|e?|2|gif|pn|pg|bm?|tiff|tco|swf|css|js) 129600 60% 129600 ignore-no-cache ignore-no-store ignor$ refresh_pattern -i \.(mp(e|g|a)e|1|2|3|4|m|k(a|v)|ns|u|p) 129600 60% 129600 ignore-no-cache ignore-no-store ignor$ refresh_pattern -i \.(og(x|v|a|g)|rar|r|mr|a|p|m|snd|wob|wav) 129600 60% 129600 ignore-no-cache ignore-no-store ignor$ refresh_pattern -i \.(pp(s|t)|wax|wm(a|v)|wmx|wpl|zip|cb(r|z|t)) 129600 60% 129600 ignore-no-cache ignore-no-store ignor$ refresh_pattern ^gopher: 1440 0% 1440
refresh_pattern ^ftp: 10080 95% 43200 override-lastmod reload-into-ims
refresh_pattern -i \.(doc(x)|xls(x)|pptx|pdf)$ 100800 70% 43200 override-expire ignore-no-cache ignore-no-sto$ refresh_pattern -i \.(html|htm|php|asp|xml)$ 1440 60% 40320 ignore-no-cache ignore-no-store ignor$ refresh_pattern (Release|Packages(.gz)*)$ 0 20% 2880
refresh_pattern . 180 95% 43200 override-lastmod reload-into-ims

acl youtube url_regex -i ^https://\//.*\.googlevideo\.com/videoplayback?
acl youtube url_regex -i ^https://\//.*\.ytmpg\.com.*\.(webp|jpg|gif)
store_id_program /etc/squid/store-id.pl
store_id_extras "%{Referer}~h"
store_id_children 10 startup=5 idle=2 concurrency=100
store_id_access allow youtube
store_id_access deny all

^G Get Help ^O Write Out ^W Where Is ^K Cut Text ^J Justify ^C Cur Pos ^Y Prev Page ^H First Line ^L WhereIs Next
^X Exit ^R Read File ^A Replace ^U Uncut Text ^T To Spell ^P Go To Line ^N Next Page ^F Last Line ^B To Bracket
```

note : according wiki squid, the best solution for cache youtube today is cache js,css,image.

ConfigExamples/DynamicContent/YouTube - Squid Web Proxy Wiki - Mozilla Firefox

http://15--sn-35153lux-a5a5.googlevideo.com/videoplayback?ip=178.88.163.102&ver=3&sparams=clen%2Cdur%2Cqsl%2Cid%2Cinitcwndbps%2Cip%2Cipbits%2Citag%2Clnmt%2Cmime%2Cmm%2Cmms%2Cmrv%2Cnmt%2Cpl%2Csource%2Csignature%23AB8C6EE125EC9470D741CE57804BDD90425BA91CE882EB213F4D6ED8F6932711831E63CF39D2F&cflen=1839270&gir=yes&expire=1439695516&keepalive=yes&p=24&lm=1390059363089578&cpc=uCyDVRGixDVRAQ9&alr=yes&ratebypass=yes&c=WEB&cver=html5&range=0-65535

This is the same 5 sec video piece, got during day.

Note: All video ID's is unique. But this is the same clip.

Question: Does anybody seen permanent "ID" in "IDP"?

Answer: No. Google CDN generates unique ID for streaming servers (googlevideo) on JSON starting clip page. This ID is unchanged during watch, but changes in next runs. Also, audio and video now delivers separately, with independent streams. This ID decodes by HTML5 JS-based player, which is delivered to client browser at session starts. Player changes, like crypto algo, every week or two. So, most of all YT caching solution on market are fake. They can't REALLY caching YI.

In theory, there is possible to write special store ID rewrite helper for YT. All we need - associate external video ID in youtube/watch/v=**abcdefg** with temporary session streams ID for following googlevideo gets and save it in cache with replaced real ID. Just extract generated ID from JSON starting page structure and replace backend servers ID before storing files.

In practice, best solution for today I found is NOT caching googlevideo.com domain, NOT caching youtube.com/watch/v= pages (try and see ☺ why). The only solution is caching images/css/js from YT with store ID. If Google return static video ID, we can cache YT video again. But now it is impossible by any way.

-- [YuriVoinov](#) 2015-08-16 01:17:00

Knowing what to cache

My example is my favorite band;

<http://www.youtube.com/watch?v=pNL7nHWhMh0&feature=PlayList&p=E5F2BD7B040088AA&index=0>

The video file and header below.

Make store-id.pl

```
root@RADIUS:/etc/squid# GNU nano 2.5.3          File: store-id.pl
#!/usr/bin/perl
$|=1;
while (<>) {
    chomp;

    my $dst = "";
    if ($/_(\d+)/o) { $dst = $1; }

    @X = split;
    if (@x[0] =~ m/^(exit|quit|x|q)/) {
        print STDERR "quiting helper quietly\n";
        exit 0;
    }
    $url = $X[0];
    $referer = $X[1];

    # youtube.com
    if ($url =~ m/^https?:\/\/.*\.googlevideo\.com\/videoplayback\?.*/) {
        @id = m/[\&?|\%?|\s?]id=(\^&\%s+)/;
        @range = m/[\&?|\%?|\s?]range=(\^&\%s+)/;
        @itag = m/[\&?|\%?|\s?]itag=(\^&\%s+)/;
        @mime = m/[\&?|\%?|\s?]mime=(\^&\%s+)/;
        @clen = m/[\&?|\%?|\s?]clen=(\^&\%s+)/;
        if ($referer =~ m/^https?:\/\/www\.youtube\.com\/(watch\?v=|embed\?v\=)(.*)/) {
            $v = $2;
        } else { $v = $id[0] }
        $out = "http://youtube.com/" . $v . "@range@itag@mime@clen";
    }

    # ytmp4.com
} elsif ($url =~ m/^https?:\/\/.*\.ytmp4\.com\.(.*\.(webp|jpg|gif))/) {
    $out = "http://ytmp4.com/$1";

} else {
    $out = "ERR";
}
if ($out =~ m/^http://\//) {
    print $dst, "OK store-id=$out\n";
}
^G Get Help  ^O Write Out  ^W Where Is  ^K Cut Text  ^J Justify  ^C Cur Pos  [ Read 42 lines ]
^X Exit  ^R Read File  ^A Replace  ^U Uncut Text  ^T To Spell  ^G Go To Line  ^Y Prev Page  ^N Next Page  ^F First Line  ^B Last Line  ^B WhereIs Next
^B To Bracket
```

```
root@RADIUS:/etc/squid# chmod 777 store-id.pl
root@RADIUS:/etc/squid# ls -al
total 360
drwxr-xr-x  3 root root   4096 Oct 28 11:10 .
drwxr-xr-x 92 root root   4096 Oct 28 10:50 ..
-rw-r--r--  1 root root    692 Oct 28 10:50 cachemgr.conf
-rw-r--r--  1 root root    692 Oct 28 10:50 cachemgr.conf.default
-rw-r--r--  1 root root   1817 Oct 28 10:50 errorpage.css
-rw-r--r--  1 root root   1817 Oct 28 10:50 errorpage.css.default
-rw-r--r--  1 root root  12077 Oct 28 10:50 mime.conf
-rw-r--r--  1 root root  12077 Oct 28 10:50 mime.conf.default
-rw-r--r--  1 root root   6478 Oct 28 11:03 squid.conf
-rw-r--r--  1 root root   2315 Oct 28 11:00 squid.conf.bk
-rw-r--r--  1 root root   2315 Oct 28 10:50 squid.conf.default
-rw-r--r--  1 root root 292679 Oct 28 10:50 squid.conf.documented
drwxr-xr-x  2 root root   4096 Oct 28 10:57 sslCert
-rwxrwxrwx  1 root root    960 Oct 28 11:09 store-id.pl
root@RADIUS:/etc/squid#
```

make squid dir for log & cache

```
root@RADIUS:/home/james#
root@RADIUS:/home/james# mkdir /var/cache/squid3
root@RADIUS:/home/james# chmod 777 /var/cache/squid3/
root@RADIUS:/home/james# mkdir /var/log/squid3
root@RADIUS:/home/james# chmod 777 /var/log/squid3
root@RADIUS:/home/james# squid -z
```

set rc.local

```
root@RADIUS: /home/james
GNU nano 2.5.3                               File: /etc/rc.local                         Modified

#!/bin/sh -e
#
# rc.local
#
# This script is executed at the end of each multiuser runlevel.
# Make sure that the script will "exit 0" on success or any other
# value on error.
#
# In order to enable or disable this script just change the execution
# bits.
#
# By default this script does nothing.

iptables -t nat -A POSTROUTING -s 192.168.1.0/24 -o enp3s0 -j MASQUERADE
iptables -t nat -A PREROUTING -s 192.168.1.0/24 -p tcp --dport 80 -j REDIRECT --to-ports 3128
iptables -t nat -A PREROUTING -s 192.168.1.0/24 -p tcp --dport 443 -j REDIRECT --to-ports 3127

exit 0

^G Get Help      ^O Write Out      ^W Where Is      ^K Cut Text      ^J Justify      ^C Cur Pos
^X Exit          ^R Read File       ^\ Replace       ^U Uncut Text    ^T To Linter    ^_ Go To Line
```

make self squid file on init.d to running squid on booting

```
root@RADIUS: /home/james
GNU nano 2.5.3                               File: /etc/init.d/squid                         13:37

#!/bin/sh
#
# squid32012      Startup script for the SQUID HTTP proxy-cache.
# Version:        @(#)squid3.rc 1.0  07-Jul-2006 luigi@debian.org
#
### BEGIN INIT INFO
# Provides:          Squid 3.X
# File-Location:     /etc/init.d/squid3
# Required-Start:    $network $remote_fs $syslog
# Required-Stop:     $network $remote_fs $syslog
# Should-Start:      $named
# Should-Stop:       $named
# Default-Start:     2 3 4 5
# Default-Stop:      0 1 6
# Short-Description: Squid HTTP Proxy version 3.2.0.12
### END INIT INFO
NAME="squid"
DESC="HTTP/HTTPS Proxy"
DAEMON=/usr/sbin/squid
PIDFILE=/var/run/$NAME.pid
CONFIG=/etc/squid/squid.conf
SQUID_ARGS=-YC -f $CONFIG
# RAMFS=/scripts/ramcache

[ ! -f /etc/default/squid ] || . /etc/default/squid
. /lib/lsb/init-functions
PATH:/bin:/usr/bin:/sbin:/usr/sbin
[ -x $DAEMON ] || exit 0
ulimit -n 65535
find_cache_dir () {
    w=" " # space tab
    [ Read 162 lines ]
^G Get Help      ^O Write Out      ^W Where Is      ^K Cut Text      ^J Justify      ^C Cur Pos
^X Exit          ^R Read File       ^\ Replace       ^U Uncut Text    ^T To Linter    ^_ Go To Line
```

install id language pack for indonesian region

```
root@RADIUS: /home/james
root@RADIUS:/home/james# apt-get install language-pack-id
```

```
root@RADIUS: /home/james
root@RADIUS:/home/james# chmod 755 /etc/init.d/squid
root@RADIUS:/home/james# update-rc.d squid defaults
root@RADIUS:/home/james#
```

start service squid

```
root@RADIUS:/home/james# /etc/init.d/squid start
[ ok ] Starting squid (via systemctl): squid.service.
root@RADIUS:/home/james# squid -k reconfigure
root@RADIUS:/home/james# /etc/init.d/squid status
● squid.service - LSB: Squid HTTP Proxy version 3.2.0.12
  Loaded: loaded (/etc/init.d/squid; bad; vendor preset: enabled)
  Active: active (running) since Jun 2016-10-28 13:41:28 WIB; 19s ago
    Docs: man:systemd-sysv-generator(8)
  Process: 1773 ExecStart=/etc/init.d/squid start (code=exited, status=0/SUCCESS)
  Tasks: 12
    Memory: 25.4M
      CPU: 457ms
     CGroup: /system.slice/squid.service
             ├─1783 /usr/sbin/squid -YC -f /etc/squid/squid.conf
             ├─1785 (squid-1) -YC -f /etc/squid/squid.conf
             ├─1814 (ssl_crtd) -s /var/lib/ssl_db -M 4MB
             ├─1815 (ssl_crtd) -s /var/lib/ssl_db -M 4MB
             ├─1816 (ssl_crtd) -s /var/lib/ssl_db -M 4MB
             ├─1817 (ssl_crtd) -s /var/lib/ssl_db -M 4MB
             ├─1818 (ssl_crtd) -s /var/lib/ssl_db -M 4MB
             ├─1819 /usr/bin/perl /etc/squid/store-id.pl
             ├─1820 /usr/bin/perl /etc/squid/store-id.pl
             ├─1821 /usr/bin/perl /etc/squid/store-id.pl
             └─1822 /usr/bin/perl /etc/squid/store-id.pl
               └─1823 /usr/bin/perl /etc/squid/store-id.pl

Oct 28 13:41:28 RADIUS systemd[1]: Starting LSB: Squid HTTP Proxy version 3.....
Oct 28 13:41:28 RADIUS squid[1773]: * Starting HTTP/HTTPS Proxy squid
Oct 28 13:41:28 RADIUS squid[1783]: Squid Parent: will start 1 kids
Oct 28 13:41:28 RADIUS squid[1773]: ...done.
Oct 28 13:41:28 RADIUS squid[1783]: Squid Parent: (squid-1) process 1785 started
Oct 28 13:41:28 RADIUS systemd[1]: Started LSB: Squid HTTP Proxy version 3.....
Hint: Some lines were ellipsized, use -l to show in full.
root@RADIUS:/home/james#
```

install ccze

```
root@RADIUS: /home/james
root@RADIUS:/home/james# apt-get install ccze
```

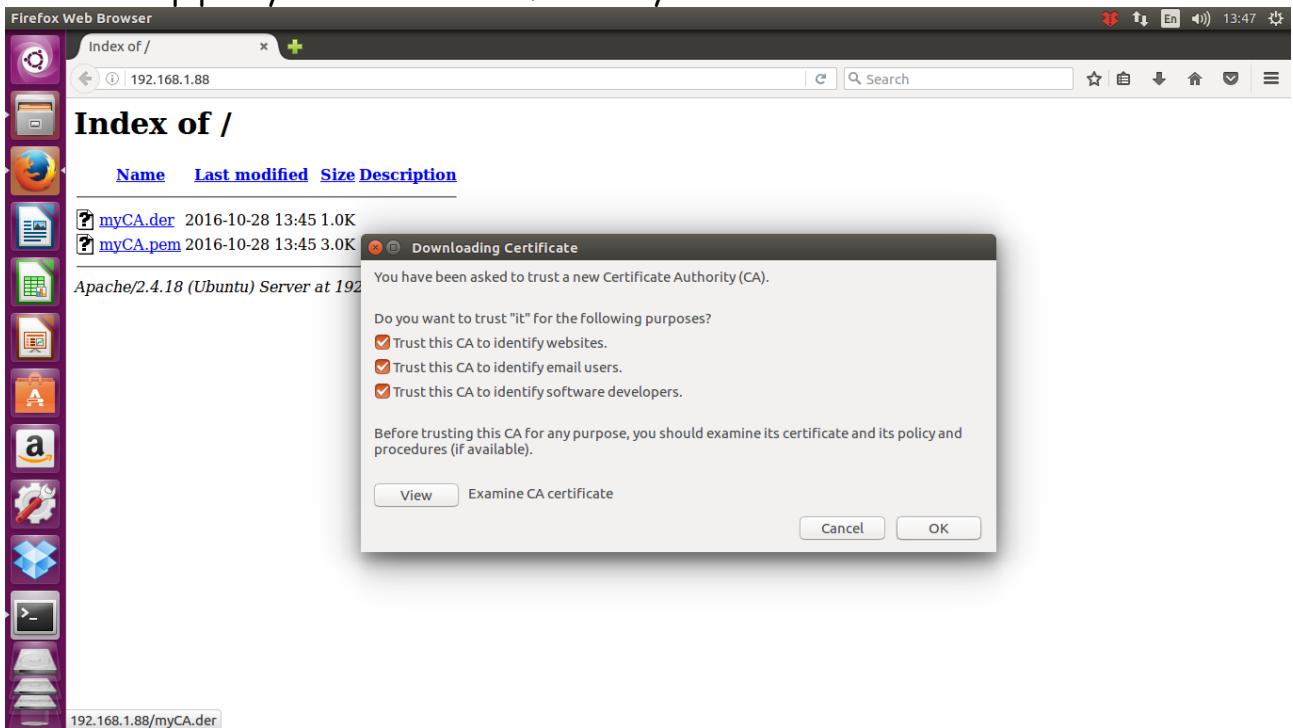
install apache2 web server

```
root@RADIUS: /home/james
root@RADIUS:/home/james# apt-get install apache2
```

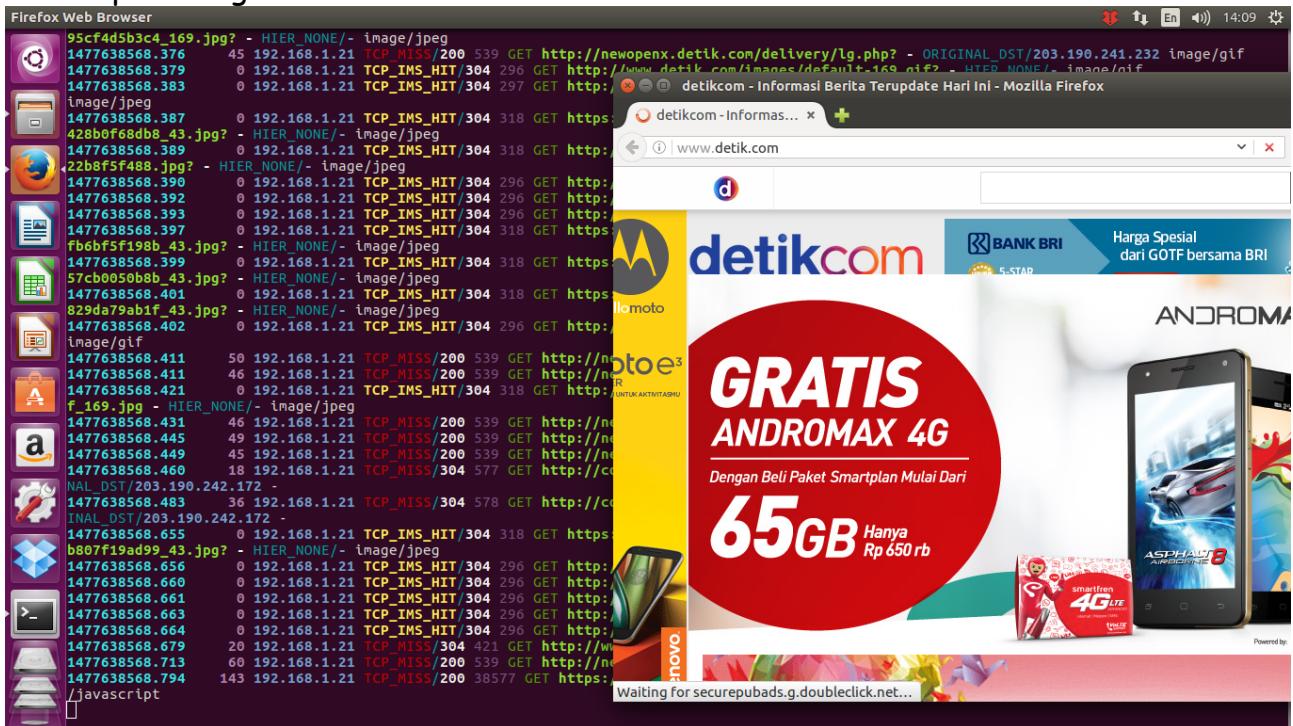
put certificate to /var/www/html

```
root@RADIUS: /var/www/html
root@RADIUS:/home/james# cd /var/www/html/
root@RADIUS:/var/www/html# rm index.html
root@RADIUS:/var/www/html# cp /etc/squid/sslCert/myCA.pem /var/www/html/
root@RADIUS:/var/www/html# cp /etc/squid/sslCert/myCA.der /var/www/html/
root@RADIUS:/var/www/html# ls
myCA.der  myCA.pem
root@RADIUS:/var/www/html#
```

on clients (laptop, pc, smart phone, tablet, etc) browsers (firefox, IE, chrome, etc) browse to ip proxy and install certificate myCA.der



tes http caching



tes https caching

Firefox | File Edit View History Bookmarks Tools Help

```

1477638650.109 1 192.168.1.21 TCP_IMS_HIT/304 350 GET https://static.xx.fbcdn.net/rsrc.php/v3ab14/yv/l/t_d_ID/yLhPx56ufEl.js - HIER_NONE-
application/x-javascript
1477638650.110 1 192.168.1.21 TCP_IMS_HIT/304 350 GET https://static.xx.fbcdn.net/rsrc.php/v3/b/c_k6pl-f4K_is - HIER_NONE-
application/x-javascript
1477638650.110 1 192.168.1.21 TCP_IMS_HIT/304 350 GET https://static.xx.fbcdn.net/rsrc.php/v3/b/c_k6pl-f4K_is - HIER_NONE-
application/x-javascript
1477638650.111 0 192.168.1.21 TCP_IMS_HIT/304 350 GET https://static.xx.fbcdn.net/rsrc.php/v3ab14/yv/l/t_d_ID/yLhPx56ufEl.js - HIER_NONE-
application/x-javascript
1477638650.112 1 192.168.1.21 TCP_IMS_HIT/304 350 GET https://static.xx.fbcdn.net/rsrc.php/v3ab14/yv/l/t_d_ID/yLhPx56ufEl.js - HIER_NONE-
application/x-javascript
1477638650.112 1 192.168.1.21 TCP_IMS_HIT/304 350 GET https://static.xx.fbcdn.net/rsrc.php/v3ab14/yv/l/t_d_ID/yLhPx56ufEl.js - HIER_NONE-
application/x-javascript
1477638650.113 0 192.168.1.21 TCP_IMS_HIT/304 350 GET https://static.xx.fbcdn.net/rsrc.php/v3ab14/yv/l/t_d_ID/yLhPx56ufEl.js - HIER_NONE-
application/x-javascript
1477638650.114 0 192.168.1.21 TCP_IMS_HIT/304 350 GET https://static.xx.fbcdn.net/rsrc.php/v3ab14/yv/l/t_d_ID/yLhPx56ufEl.js - HIER_NONE-
application/x-javascript
1477638650.114 0 192.168.1.21 TCP_IMS_HIT/304 348 GET https://static.xx.fbcdn.net/rsrc.php/v3ab14/yv/l/t_d_ID/yLhPx56ufEl.js - HIER_NONE-
application/x-javascript
1477638650.116 0 192.168.1.21 TCP_IMS_HIT/304 320 GET https://static.xx.fbcdn.net/rsrc.php/v3ab14/yv/l/t_d_ID/yLhPx56ufEl.js - HIER_NONE-
application/x-javascript
1477638650.122 19 192.168.1.21 TCP_MISS/304 1374 GET https://157.240.7.22/application/x-javascript
1477638650.127 20 192.168.1.21 TCP_MISS/304 1270 GET https://6,application/x-javascript
1477638650.128 20 192.168.1.21 TCP_MISS/304 1666 GET https://6,application/x-javascript
1477638650.135 20 192.168.1.21 TCP_MISS/304 1351 GET https://6,application/x-javascript
1477638650.135 20 192.168.1.21 TCP_MISS/304 622 GET https://6,image/png
1477638650.205 20 192.168.1.21 TCP_MISS/200 3158 GET https://26,image/png
1477638650.491 236 192.168.1.21 TCP_MISS/200 1770 POST https://location/x-javascript
1477638650.575 59 192.168.1.21 TAG_NONE/200 0 CONNECT 31.13.7.1477638650.871 62 192.168.1.21 TAG_NONE/200 0 CONNECT 31.13.7.1477638650.893 240 192.168.1.21 TCP_MISS/200 1769 POST https://1.13.78.35/application/x-javascript
1477638650.893 225 192.168.1.21 TCP_MISS/200 1765 POST https://x-javascript

```

Facebook - Mozilla Firefox

tes youtube caching

Firefox Web Browser

```

Met=1&timestamp=1477638766.858 24 192.168.1.21 TCP_MISS/200 624 GET https://pagead2.googlesyndication.com/activeview? - ORIGINAL_DST/74.125.200.148 image/gif
if
1477638767.057 0 192.168.1.21 TCP_IMS_HIT/304 314 GET https://
vascript
1477638767.058 0 192.168.1.21 TCP_IMS_HIT/304 309 GET https://
1477638767.059 0 192.168.1.21 TCP_IMS_HIT/304 309 GET https://
1477638767.060 0 192.168.1.21 TCP_IMS_HIT/304 309 GET https://
1477638767.062 1 192.168.1.21 TCP_IMS_HIT/304 309 GET https://
1477638767.126 65 192.168.1.21 TAG_NONE/200 0 CONNECT 74.125.200.157
1477638767.150 192.168.1.21 TCP_IMS_HIT/304 309 GET https://
1477638768.114 1399 192.168.1.21 TCP_MISS/200 55899 GET https://
1477638768.154 0 192.168.1.21 TCP_IMS_HIT/304 314 GET https://
1477638768.164 0 192.168.1.21 TCP_IMS_HIT/304 310 GET https://
1477638768.249 0 192.168.1.21 TCP_IMS_HIT/304 260 GET https://
1477638768.253 1 192.168.1.21 TCP_IMS_HIT/304 260 GET https://
1477638768.269 74 192.168.1.21 TCP_MISS/200 9036 GET https://
1477638768.270 19 192.168.1.21 TCP_MISS/304 260 GET https://
1477638768.273 22 192.168.1.21 TCP_MISS/304 398 GET https://
peg
1477638768.274 21 192.168.1.21 TCP_MISS/304 264 GET https://
1477638768.274 22 192.168.1.21 TCP_MISS/304 398 GET https://
peg
1477638768.276 22 192.168.1.21 TCP_MISS/304 266 GET https://
1477638768.277 21 192.168.1.21 TCP_MISS/304 266 GET https://
-c0xfffffff/photo.jpg - ORIGINAL_DST/74.125.130.132 -
1477638768.277 21 192.168.1.21 TCP_MISS/304 266 GET https://
1477638768.279 2 192.168.1.21 TCP_IMS_HIT/304 260 GET https://
1477638768.290 19 192.168.1.21 TCP_MISS/304 260 GET https://
0 192.168.1.21 TCP_IMS_HIT/304 260 GET https://
1477638768.291 20 192.168.1.21 TCP_MISS/304 260 GET https://
1477638768.297 22 192.168.1.21 TCP_MISS/304 250 GET https://
1477638768.297 22 192.168.1.21 TCP_MISS/304 264 GET https://
1477638768.299 21 192.168.1.21 TCP_MISS/304 257 GET https://
MLSDoWkqqNW7VH02w=s88-nd-c-c0xffffffff-rj-k-no - ORIGINAL_DST/74.125.200.157
1477638768.299 21 192.168.1.21 TCP_MISS/304 260 GET https://
1477638768.301 19 192.168.1.21 TCP_MISS/304 264 GET https://
1477638768.311 19 192.168.1.21 TCP_MISS/304 258 GET https://
-tqjZ2ok2W59_v_=s88-nd-c-c0xffffffff-rj-k-no - ORIGINAL_DST/74.125.200.157
1477638768.498 42 192.168.1.21 TCP_MISS/200 7337 GET https://

```

YouTube - Mozilla Firefox