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How To Use Squid Proxy Cache Server To Control Internet Access

by Balakrishnan Mariyappan on September 1, 2010



Squid is a proxy caching server. If you are Linux sysadmin, you can use squid to control internet access at your work environment.

This beginners guide will give a jump-start on how to setup squid on Linux to restrict internet access in an network.

Install Squid

You should install the following three squid related packages on your system.

- squid
- squid-common
- squid-langpack

On Debian and Ubuntu, use aptitude to install squid as shown below. On CentOS, use yum to install the squid package.

```
$ sudo aptitude install squid
```

Check Configuration and Startup scripts

Apart from installing the squid related packages, it also creates the `/etc/squid/squid.conf` and `/etc/init.d/squid` startup script.

By default Squid runs on 3128 port. You can verify this from the `squid.conf` file. You can also set the `visible_hostname` parameter in your `squid.conf`, which will be used in `error_log`. If you don't define, squid gets the hostname value using `gethostname()` function.

```
# vim /etc/squid/squid.conf
visible_hostname ubuntuserver
httpd_port 3128
```

Note: The http port number (3128) specified in the `squid.conf` should be entered in the proxy setting section in the client browser. If squid is built with SSL, you can use `https_port` option inside `squid.conf` to define https squid.

Start Squid and View Logs

Start the Squid proxy caching server as shown below.

```
# service squid start
squid start/running, process 11743
```

Squid maintains three log files (`access.log`, `cache.log` and `store.log`) under `/var/log/squid` directory.

From the `/var/log/squid/access.log`, you can view who accessed which website at what time. Following is the format of the squid `access.log` record.

```
time elapsed remotehost code/status bytes method URL rfc931      peerstatus/peerhost
```

To disable logging in squid, update the `squid.conf` with the following information.

```
# to disable access.log
cache_access_log /dev/null

# to disable store.log
cache_store_log none

# to disable cache.log
cache_log /dev/null
```

Squid Usage 1: Restrict Access to Specific Websites

This is how you can restrict folks from browsing certain website when they are connected to your network using your proxy server.

Create a file called `restricted_sites` and list all sites that you would want to restrict the access.

```
# vim /etc/squid/restricted_sites
www.yahoo.com
mail.yahoo.com
```

Modify the `squid.conf` to add the following.

```
# vim /etc/squid/squid.conf
acl RestrictedSites dstdomain "/etc/squid/restricted_sites"
http_access deny RestrictedSites
```

Note: You can also configure squid as a transparent proxy server, which we'll discuss in a separate article. Also, refer to our earlier article on how to block ip-address [using fail2ban](#) and iptables.

Squid Usage 2: Allow Access to Websites Only During Specific Time

Some organization might want to allow employees to surf or download from the internet only during specific timeperiods.

The `squid.conf` configuration shown below will allow internet access for employees only between 9:00AM and 18:00 during weekdays.

```
# vim /etc/squid/squid.conf
acl official_hours time M T W H F 09:00-18:00
http_access deny all
http_access allow official_hours
```

Squid Usage 3 : Restrict Access to Particular Network

Instead of restricting specific sites, you can also provide access only to certain network and block everything else. The example below, allows access only to the 192.168.1.* internal network.

```
# vim /etc/squid/squid.conf
acl branch_offices src 192.168.1.0/24
http_access deny all
http_access allow branch_offices
```

For a Linux based intrusion detection system, refer to our [tripwire](#) article.

Squid Usage 4 : Use Regular Expression to Match URLs

You can also use regular expression to allow or deny websites.

First create a `blocked_sites` files with a list of keywords.

```
# cat /etc/squid/blocked_sites
soccer
```

```
movie
www.example.com
```

Modify the squid.conf to block any sites that has any of these keywords in their url.

```
# vim /etc/squid/squid.conf
acl blocked_sites url_regex -i "/etc/squid/blocked_sites"
http_access deny blocked_sites
http_access allow all
```

In the above example, -i option is used for ignoring case for matching. So, while accessing the websites, squid will try to match the url with any of the pattern mentioned in the above blocked_sites file and denies the access when it matches.

SARG - Squid Analysis Report Generator

Download and install [SARG](#) to generate squid usage reports.

Use the sarg-reports command to generate reports as shown below.

```
# to generate the report for today
sarg-report today
```

```
# on daily basis
sarg-report daily
```

```
# on weekly basis
sarg-report weekly
```

```
# on monthly basis
sarg-report monthly
```

Note: Add the sarg-report to the crontab.

The reports generated by sarg are stored under /var/www/squid-reports. These are html reports can you can view from a browser.

```
$ ls /var/www/squid-reports
Daily index.html
```

```
$ ls /var/www/squid-reports/Daily
2010Aug28-2010Aug28 images index.html
```



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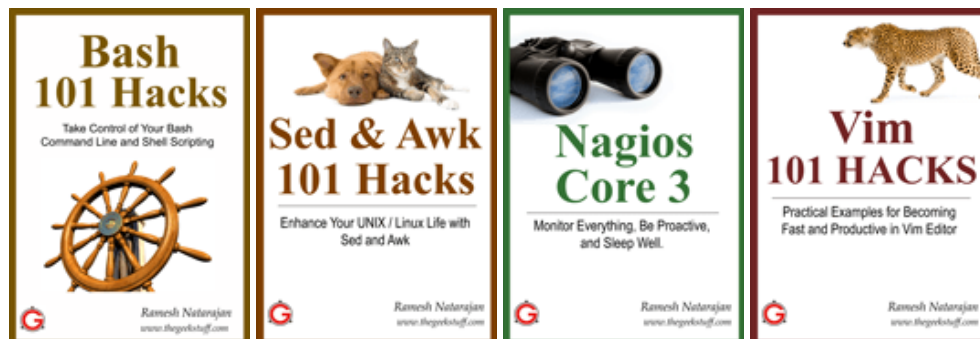
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- [Madharasan](#) September 1, 2010, 3:09 am

Good Article.

Can you please guide me, how to display a banner right after a website is blocked by squid server ?

eg: "This website is Blocked and should not be accessed from the premises of Example Inc"

[Link](#)

- Geoff Campbell September 1, 2010, 7:44 am

Thanks for the Squid article. Would be interested in how to configure to securely use a Squid proxy server from a remote location.

[Link](#)

- carlos September 1, 2010, 4:58 pm

Sarg or calamaris?

comments welcomen. thanks.

[Link](#)

- [PatrickDickey](#) September 1, 2010, 5:30 pm

For Madharasan,

You could create a page with that banner, and redirect them inside of Squid. I'm not sure how to do the redirection, but essentially that's what you'll want to do.

For the author,

Could you do a tutorial on how to configure your network to use Squid regardless of whether the browser settings have it as a proxy? I've seen this once before, but honestly I don't remember where.

Have a great day:)

Patrick.

[Link](#)

- ChandraShekher September 2, 2010, 3:56 am

Excellent Article.

Can you please provide info on how to limit/distribute bandwidth for a particular IP/user

[Link](#)

- Tapas Mallick September 4, 2010, 12:57 am

Squid Usage 3 : Restrict Access to Particular Network

```
# vim /etc/squid/squid.conf
```

```
acl branch_offices src 192.168.1.0/24
```

```
http_access deny all
http_access allow branch_offices
```

Should be (I think)

```
# vim /etc/squid/squid.conf
acl branch_offices src 192.168.1.0/24
http_access allow branch_offices
http_access deny all
```

[Link](#)

- Ritesh September 10, 2010, 3:27 am

Hi,

My requirement is if I assign user to access internet only 2 hours within a week.
Is this possible in squid ?

Thanks,
Ritesh

[Link](#)

- jargon December 30, 2010, 2:12 pm

@Tapas

Definitely. 'http_access deny all' needs to come at the end of a block, or else the next directive is ignored. squid.conf is parsed top-down. That can be quite tricky, and I've run into some headaches over this. Nevertheless, I love squid. Fantastic piece of software.

[Link](#)

- Grant January 11, 2011, 4:45 am

Thanks, the stuff here is really useful. How do i restrict a group of ip addresses from downloading during a specified period and leave another group with the access to downloading.

[Link](#)

- Thanki Kunal July 24, 2011, 11:28 pm

Hi all,

I m doing my M.E. in computer science, and i have selected my subject for thesis as network security,. in that i m willing to do some work in squid proxy server. can any one guid me on that. i m interested in finding dos attacks and preventing them

[Link](#)

- navneet August 8, 2011, 5:17 am

I want to restrict group of internet sites to some IPs and allow that sites to a particular IP using squid configuration file. Kindly help me.

[Link](#)

- blackunta January 8, 2012, 7:47 pm

How can i used squid on a windows server 2003?

[Link](#)

- deepak January 19, 2012, 11:13 pm

dear Boss,

i am recently joined one organization i'm facing some problem in squid when i want to access the internet then it's giving message u can't access (linuxserver squid /2.6 stable6) how can remove permission plz give me ansaer as soon as possible

[Link](#)

- Satish February 2, 2012, 3:04 am

Hi Deepak,

Can u please send me your error screen shot squid

[Link](#)

- Rohit August 23, 2012, 5:44 am

can anyone tell me that how to get the logged access. i mean to say that before opening a website it should open a web page which contains a message that "your usage is being logged " and on the same page there should be a link to continue to that particular website.

[Link](#)

- Anonymous October 24, 2013, 11:02 pm

Hi Deepak,

I have installed squid proxy in my network and it is working fine, i want to know how much bandwidth the users are using? is there any easy and possible way to that?? please do reply me to my email id..

[Link](#)

- Arun March 11, 2014, 7:07 am

In which file, the following lines to be added? /etc/squid/squid.conf or /usr/local/etc/sarg.conf

to generate the report for today
sarg-report today

on daily basis
sarg-report daily

on weekly basis
sarg-report weekly

on monthly basis
sarg-report monthly

[Link](#)

- Supriyo November 11, 2014, 11:17 am

How can I force users to point their browser to the Proxy Server? I mean, Is it

possible if user don't go through proxy Server, internet wont be accessible.

Regards, Supriyo

[Link](#)

- rahul yadav March 7, 2016, 10:50 am

Hi, Everyone I using here squid for block some url, I want block every website by default, so I can do it please suggest me if possible in squid .

[Link](#)

- Rahul Kumbhare March 12, 2016, 9:47 am

Hi,

I want know about to give access to particular user upto 250 mb in a day after that no access allowed by squid server in Linux, can you please advice?

[Link](#)

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Ramesh Natarajan



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