

How To Setup and Configure a Proxy Server – Squid Proxy

by **devopscube** · August 11, 2018



A [proxy server](#) has many [use cases](#). it could range from personal internet access to restrict organization systems/servers to access the external world or to limit external internet access for a set of servers on the cloud.

The best way to configure a proxy server is by using the Squid proxy. It is a widely used proxy server.

In this article, we have covered the following.

- 1 Install proxy server

Note: This tutorial is tested on CentOS 7. For Ubuntu setup, check this tutorial – [Squid Proxy Setup On Ubuntu](#)

Install Proxy Server: Squid Proxy

Step1: Update the server

```
sudo yum update -y
```

Step 2: Configure EPEL repo.

```
sudo yum -y install epel-release  
sudo yum -y update  
sudo yum clean all
```

Step 3: Install squid

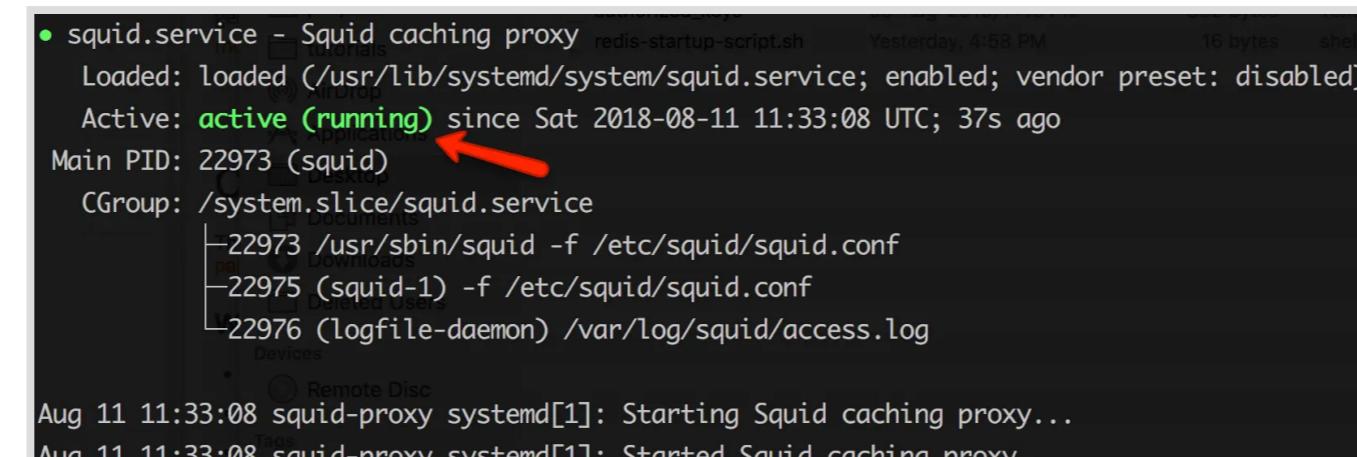
```
sudo yum -y install squid
```

Step 4: Start and enable squid server.

```
sudo systemctl start squid  
sudo systemctl enable squid
```

Step 5: Check the status of squid server.

```
sudo systemctl status squid
```



```
● squid.service - Squid caching proxy
   Loaded: loaded (/usr/lib/systemd/system/squid.service; enabled; vendor preset: disabled)
   Active: active (running) since Sat 2018-08-11 11:33:08 UTC; 37s ago
     Main PID: 22973 (squid)
        CGroup: /system.slice/squid.service
                └─22973 /usr/sbin/squid -f /etc/squid/squid.conf

Aug 11 11:33:08 squid-proxy systemd[1]: Starting Squid caching proxy...
Aug 11 11:33:08 squid-proxy systemd[1]: Started Squid caching proxy.
```



Configure Proxy Server: Squid Proxy

All the configurations for the squid server are present in

/etc/squid/squid.conf file.

Configure proxy Sources To Access Internet

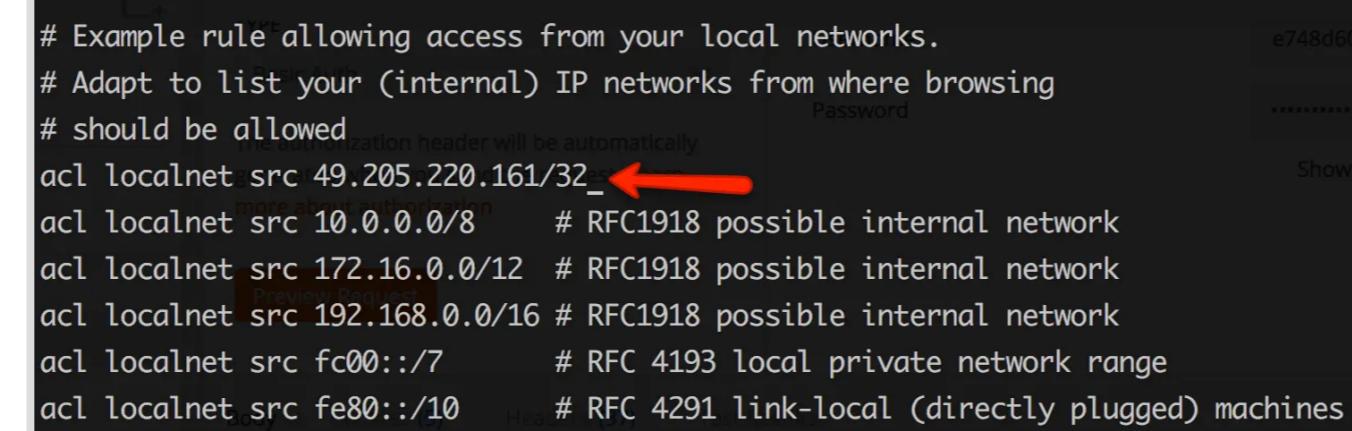
First, you need to configure the sources from which squid proxy should accept connections. For example, you might need to access this proxy server only from your home network or from specific CIDR ranges.

You can add a source IP range with an ACL using the following format.

```
acl localnet src 110.220.330.0/24
```

Open /etc/squid/squid.conf file and add the source add as shown below.

Change the IP to the desired network/IP source based on your needs. In the following example, we have added a single source IP.



```
# Example rule allowing access from your local networks.
# Adapt to list your (internal) IP networks from where browsing
# should be allowed
acl localnet src 49.205.220.161/32
acl localnet src 10.0.0.0/8    # RFC1918 possible internal network
acl localnet src 172.16.0.0/12 # RFC1918 possible internal network
acl localnet src 192.168.0.0/16 # RFC1918 possible internal network
acl localnet src fc00::/7      # RFC 4193 local private network range
acl localnet src fe80::/10     # RFC 4291 link-local (directly plugged) machines
```

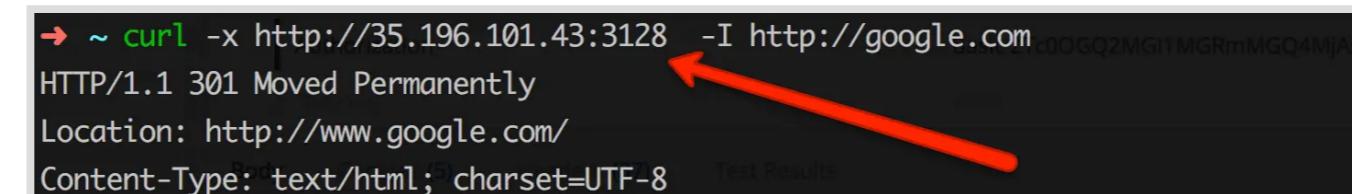
Restart the proxy server after making the ACL changes.

```
sudo systemctl restart squid
```

Test proxy Server Connectivity

Test if the proxy server is working using a simple curl request. Use the following curl format. By default squid proxy runs on 3128 port.

```
curl -x http://<squid-proxy-server-IP>:3128 -L http://google.com
```



```
→ ~ curl -x http://35.196.101.43:3128 -I http://google.com
HTTP/1.1 301 Moved Permanently
Location: http://www.google.com/
Content-Type: text/html; charset=UTF-8
```



Configure Proxy Authentication

Along with access ACL's, you can add basic authentication to your proxy server for extra security. Follow the steps given below for setting up a basic auth for the squid proxy server.

Step 1: Install httpd-tools

```
sudo yum -y install httpd-tools
```

Step 2: Create a passwd file and make squid as the file owner.

```
sudo touch /etc/squid/passwd && sudo chown squid /etc/squid/passwd
```

Step 3: Add pxuser to the password file using htpasswd utility. It will prompt for a custom password. Enter a strong password you need. This username and password will be used for all connections through this proxy.

```
sudo htpasswd /etc/squid/passwd pxuser
```

```
[devopscube@squid-proxy ~]$ sudo htpasswd /etc/squid/passwd pxuser
New password:
Re-type new password: ←
Adding password for user pxuser
[devopscube@squid-proxy ~]$
```

Step 4: Open squid config file.

```
sudo vi /etc/squid/squid.conf
```

Add the following to the config file and save it.

```
auth_param basic program /usr/lib64/squid/basic_ncsa_auth /etc/squid/passwd
auth_param basic children 5
auth_param basic realm Squid Basic Authentication
auth_param basic credentialsttl 2 hours
acl auth_users proxy_auth REQUIRED
http_access allow auth_users
```



```
# Example rule allowing access from your local networks.
# Adapt to list your (internal) IP networks from where browsing
# should be allowed
auth_param basic program /usr/lib64/squid/basic_ncsa_auth /etc/squid/passwd
auth_param basic children 5
auth_param basic realm Squid Basic Authentication
auth_param basic credentialsttl 2 hours
acl auth_users proxy_auth REQUIRED
http_access allow auth_users
acl localnet src 0.0.0.0/0
acl localnet src 10.0.0.0/8 # RFC1918 possible internal network our work-frien
```

Step 5: Now, restart squid server for the configuration changes to take place.

```
sudo systemctl restart squid
```

Step 6: Now if you test the proxy connection using curl, you will get the "authentication required message" as shown below.

```
→ ~ curl -x http://35.196.101.43:3128 -I http://google.com
HTTP/1.1 407 Proxy Authentication Required ←
Server: squid/3.5.20
Mime-Version: 1.0
Date: Sat, 11 Aug 2018 12:55:31 GMT
Content-Type: text/html; charset=utf-8
```

Now, test the connectivity with proxy user and password we configured in step 3. An example syntax is shown below.

```
curl -x http://35.196.101.43:3128 --proxy-user pxuser:12345 -I
http://google.com
```

With username and password, your proxy request should go through.

Blocking Websites

Another great use of the proxy server is restricting the website access. Follow the steps below for creating a block list.

Step 1: Open a blocked list file.

```
sudo vi /etc/squid/blocked_sites
```

Add the websites to be blocked in the file. For example,

```
facebook.com
```



Step 2: Open the squid config file.

```
sudo vi /etc/squid/squid.conf
```

Add the following to the ACL list.

```
acl blocked_sites dstdomain "/etc/squid/blocked_sites"  
http_access deny blocked_sites
```

Step 3: Restart the squid server.

```
sudo systemctl restart squid
```

Now if you try to access the blocked site through the proxy, you will get a forbidden message as shown below.

```
→ ~ curl -x http://35.196.101.43:3128 --proxy-user pxuser:12345 -I http://facebook.com  
HTTP/1.1 403 Forbidden ←  
Server: squid/3.5.20  
Mime-Version: 1.0
```

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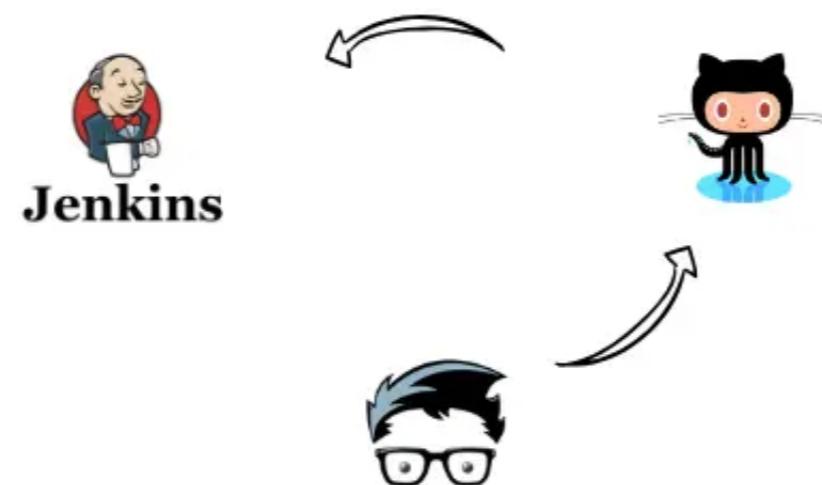


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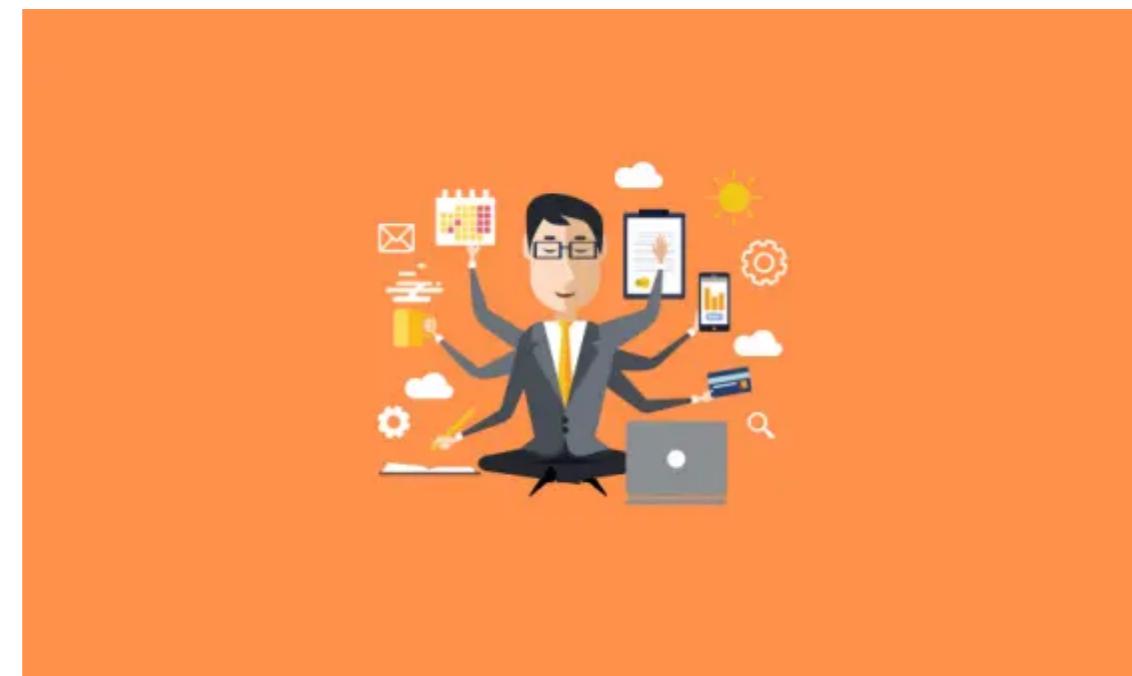


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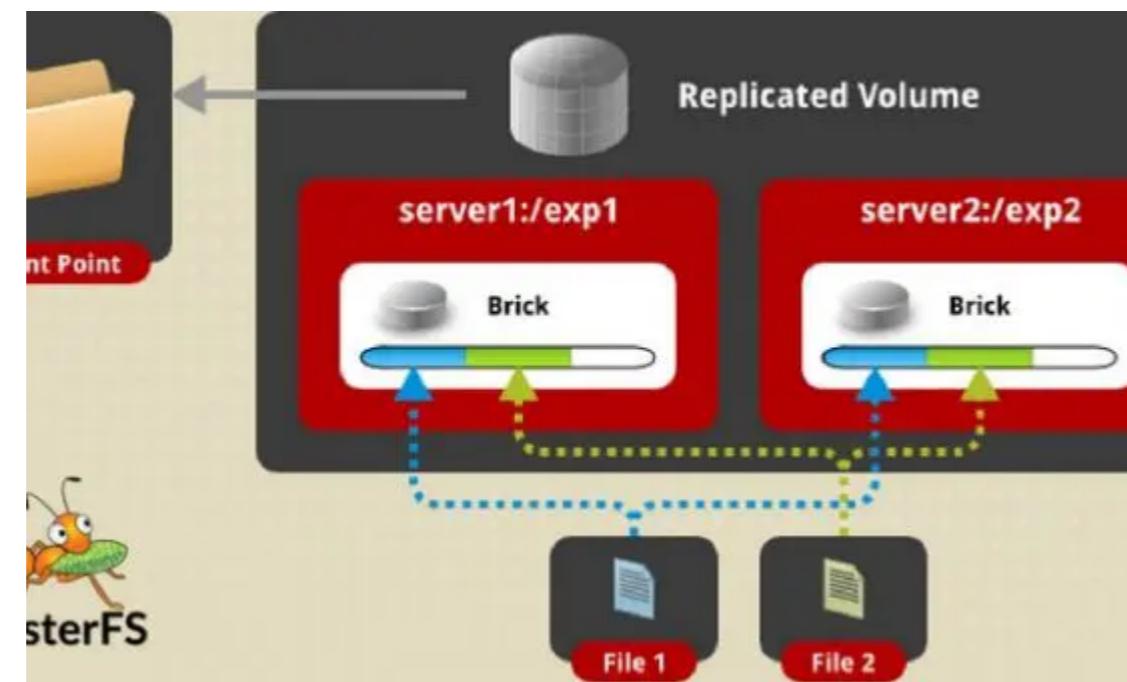


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