Proxy

Sometimes you will be on a machine without access to the internet and you need to get a file downloaded. You could first download the file somewhere else and then transfer it to the machine on the private network. This get tedious... hence the reason for this article.

Some notes before we begin:

1. Anywhere CS infrastructure is specified it may be possible to substitute any similar UNIX host.
2. I assume you use the 'bash' shell.

Initial setup

If you have not done so already you will need to setup passwordless authentication to the server you wish to connect to.

SOCKS

Read up on SOCKS proxies here: https://en.wikipedia.org/wiki/SOCKS

Where the port number is set to '20000', you can set this to any number between 1025-65535

Now we can create a SOCKS proxy without a password:

```
user@computer:~$ ssh -f -C -q -N -D20000 user@linux.cs.uchicago.edu
```

Notice how the ssh session is now running in the background:

```
user@computer:~$ ps aux | grep linux1
user 11995  0.0  0.0  58240  1016 ?        Ss   11:04   0:00 ssh -f -C -q -N
-D20000 user@linux
user 11997  0.0  0.0  11740   916 pts/2    S+   11:04   0:00 grep linux
```

Set the ALL_PROXY environment variable:

```
user@computer:~$ export ALL_PROXY='socks5://127.0.0.1:20000'
```

Any tool that respects this environment variable will tunnel its traffic through the proxy we just setup.

```
user@computer:~$ git clone https://github.com/foo/bar.git
Cloning into 'bar'...
remote: Counting objects: 120662, done.
remote: Compressing objects: 100% (48/48), done.
remote: Total 120662 (delta 23), reused 0 (delta 0), pack-reused 120608
Receiving objects: 100% (120662/120662), 36.26 MiB | 5.24 MiB/s, done.
```

```
Resolving deltas: 100% (74544/74544), done.
Checking connectivity... done.
Checking out files: 100% (1456/1456), done.
```

Automatically setup a SOCKS proxy

Now to make it automatic on login. Add the following to ~/.profile or ~/.bash_profile Remove the 'echo' commands if you wish.

```
if [[ $(nc -z 127.0.0.1 20000; echo $?) -eq 0 ]]; then
  echo 'proxy already running'
else
  echo 'setting up proxy'
  ssh -f -C -q -N -D20000 user@linux.cs.uchicago.edu
  export ALL_PROXY='socks5://127.0.0.1:20000'
fi
```

Git

First you will need to setup passwordless authentication.

Add the following to your `~/.ssh/config` file:

- Replace `CNETID` with your actual CnetID.
- Replace 'id_rsa' with the private key you use to ssh to 'linux.cs.uchicago.edu' without a password.

```
Host github.com
  User CNETID
  ProxyCommand ssh -i ~/.ssh/id_rsa CNETID@linux.cs.uchicago.edu nc %h %p
  IdentityFile ~/.ssh/id_rsa
```

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