

50.012 Networks

Project: Beta

Group members:

Aditya Manikashetti

Jonathan Bei

Monica Nathalia

Ruth Wong

We created a HTTP proxy server that allows the administrator (who sets up the server) to selectively modify the response message from the internet before returning it to the original requester. A possible use case for this would be when parents want to filter out what their child can see (e.g. censoring vulgarities), or an institution that would like to restrict access to certain websites for their users.

Before running the program, you can setup your preferences for sites to blacklist and words to replace by modifying the **prefs.json** file.

```
1  {
2    "Wordlist" : {
3      "summer-cool" : "ice-cold",
4      "blistered" : "bruised",
5      "blacksmith" : "whitesmith",
6      "python" : "snake"
7    },
8
9    "Blacklisted_sites" : {
10     "http://httpbin.org/headers":""
11   }
12 }
```

Wordlist contains the words that you want to replace as the key and the values will be the word you want it replaced with.

Blacklisted_sites contains the sites you want blacklisted as the keys. The values can be left as an empty string.

For the beta, the program can be run from the command line with the following instructions:

1. Open up the terminal and navigate to the project root directory
2. Run the server using the command:

```
>>> python proxy.py
```

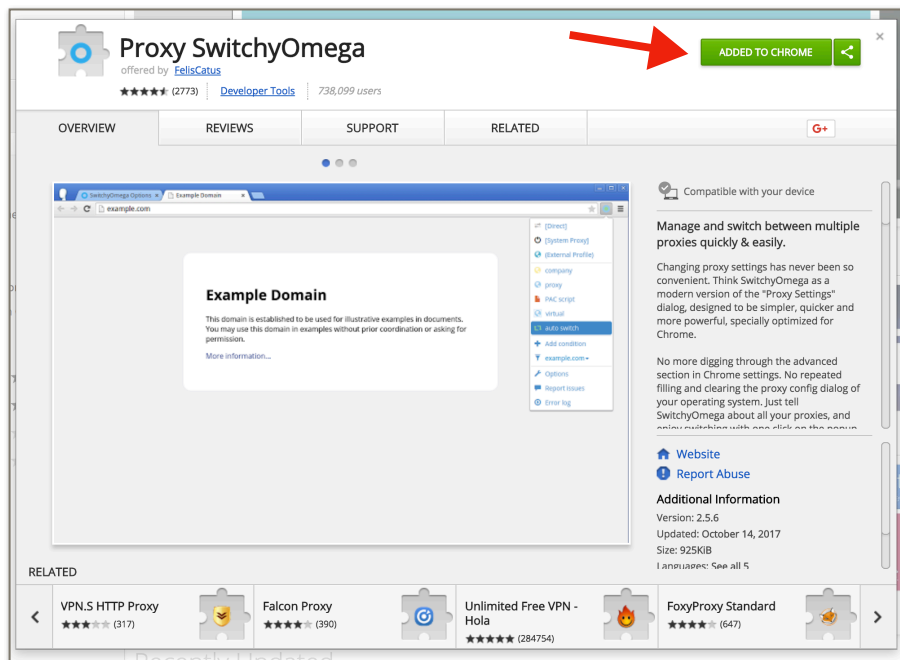
3. You will then be prompted to enter a port to use for your proxy. (Eg: 8080)

The proxy will then continue to run in a terminal, and to exit just press ctrl-c (Keyboard Interrupt).

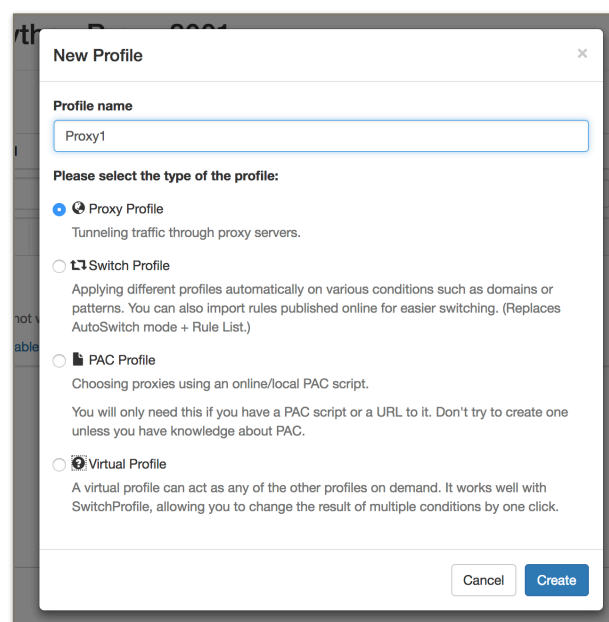
The proxy has only been designed to work with HTTP sites with basic HTML, note that it will not work with most modern websites due to HTTPS and other security features. For the purposes of this demonstration, we will be using the proxy to access a basic website such as: <http://httpbin.org/>

Next, to access route your connections through your browser (we recommend using **Chrome**). You can setup a HTTP Proxy with **localhost** as the server and the **port** that you chose earlier above while setting up the Proxy server.

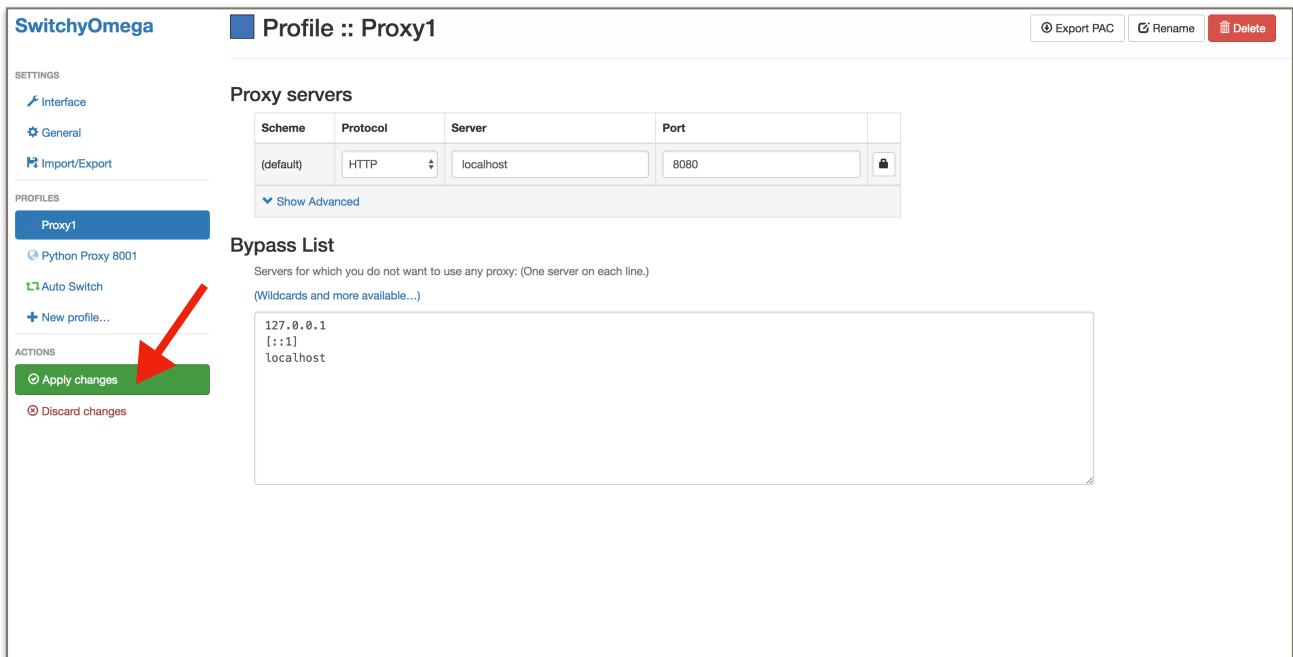
Proxy SwitchyOmega works well decently for this and provides a nice interface for managing proxies, so you can use that. Download it from the Chrome Webstore like so:



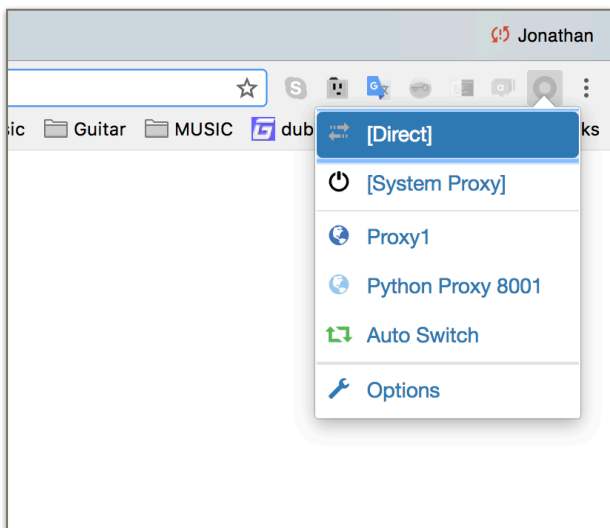
After which you can open the SwitchyOmega plugin and add a new proxy profile:



Set the protocol to HTTP, server as localhost and port as whatever you configured earlier in the proxy setup. Then click “Apply changes”.



At the top right of your chrome page, you can select the proxy that you had created earlier.



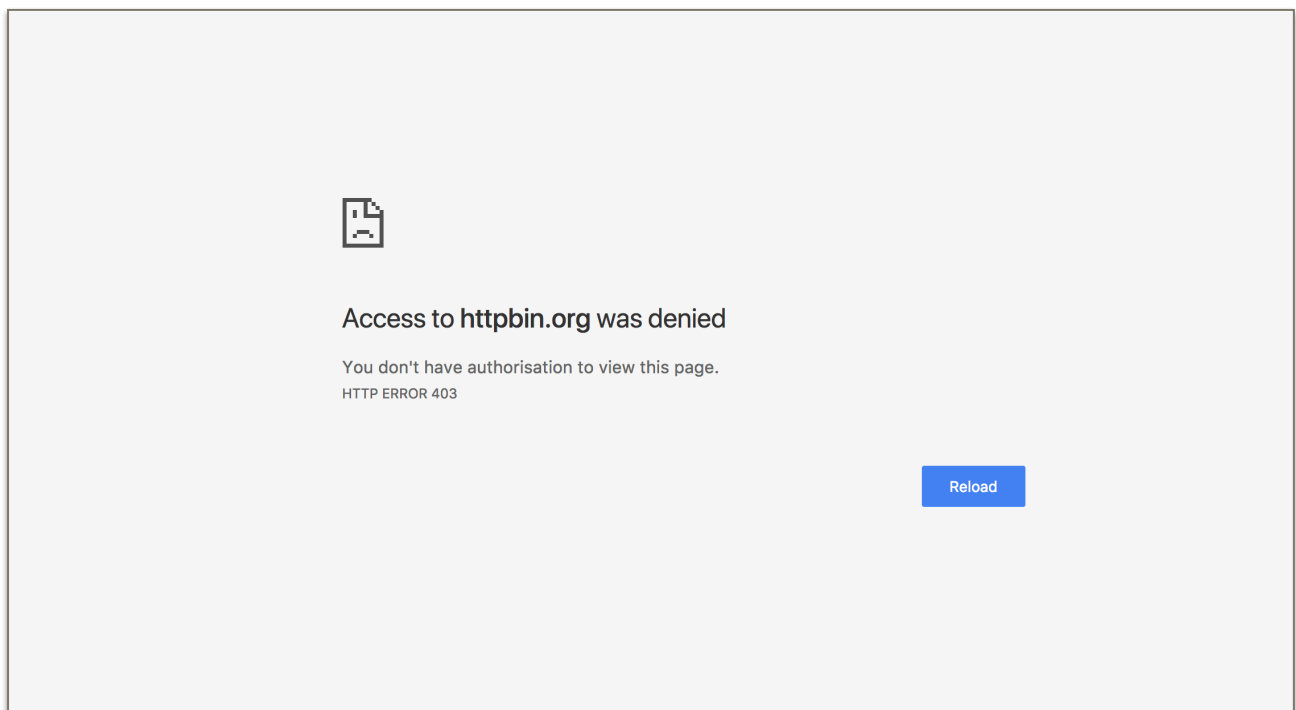
Proxy Features

Word Replacement/Filtering

Now navigate to <http://httpbin.org/html> in your browser, and see the modified words. You can also browse to the site in a non-proxy browser to see the original words for comparison. The default **prefs.json** file already has some default words that will be replaced but you can modify it to your own preferences.

Blacklisted Sites

If you navigate to any blacklisted site, you should be greeted with a page such as:



All blacklisted sites will result in a HTTP 403 error being returned to the browser, blocking off user access to the website.

Extra Notes:

Do note that the proxy is very basic and is only guaranteed to work with httpbin.org. More complicated sites with more resources will not work as expected.

HTTPS is also not supported in the proxy.

The proxy also only executes queries that contain a 'GET' in the HTTP header, so any other request types (e.g. CONNECT, OPTION, PUT) will be ignored.

Features still under development:

We are currently working on a GUI for simply usage of the Proxy Server. A sample mock-up has been provided for your reference.

