Server setup

When setting up the server for the codewars CTF or for any other use, we are going to use a certain structure. The VPS should be Ubuntu 16.04, as all of these commands have been tested on it.

The first thing that needs to be done as root is install netcat. This will allow us to transfer scripts from the local machine to the VPS, so that it will be easier to automate certain things.

To install netcat:

Apt-get install netcat -y

The next thing that needs to be done is transfer any script that is needed to setup certain things. For example, one thing that needs to be done is create all the users for the students. Create\_users.py is the file that we will need to do just that. To transfer a file we can use netcat.

On the server we want to type:

nc -l -p 1234 > create\_users.py

while on the local machine:

nc -w 3 [destination] 1234 < create\_users.py

Now we can run the create\_users.py script (using python3) which will create a custom amount of users depending on how many are needed.

Create\_users.py will automatically change the permissions of all the users so that they are not able to access or view each other’s files. It also sets a uniqe password of 8 characters as well as a unique group.

Codewars CTF setup

The codewars CTF uses environment variables in order to get the correct password for the challenges. The passwords will be stored in /etc/bash.bashrc which 100 as permission. (This will only make the file executable but not viewable. This is done because otherwise the users will see the passwords for all the challenges)

A directory called ‘codewars’ needs to be made for every single user. In this directory all the challenges will be stored.

The first file that the user needs to run is codewars\_user.py. This will add the username of the user in order to check the answers from. This file will create a hidden file called .username stored in the users’s home directory containing its username.

This hidden file is used to check whether the user has actually completed the challenge using the codewars API.

<https://kazk.github.io/codewars.com/api/#operation/getCompletedCodeChallenges>

The file that checks whether the user has completed the challenge will see if the hash of the challenge is in the user’s completed challenges API call.

The API call used will list all the completed challenges by the user in /home/user/.username.

This is a simple structure, however better ones probably exist, however, would be harder to implement.