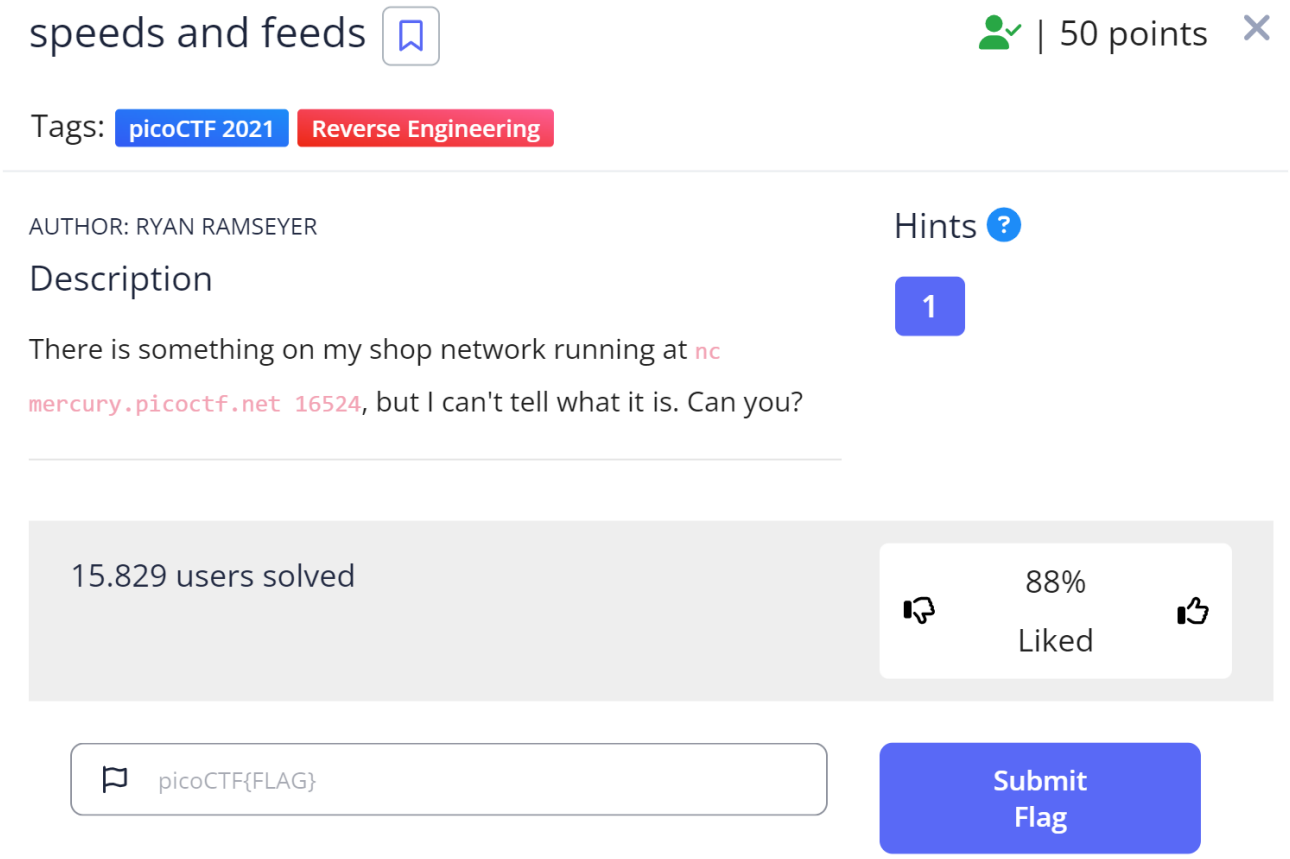
This is my very first writeup, but I'll try my best.

The challenge is called speeds and feeds and it's from the picoCTF 2021.

The challenge is worth 50 points.

This is what the challenge looks like on picoCTF



As you can see, we have to nc to mercury.picoctf.net 16524.

Start by opening up your linux terminal, and enter the command "nc mercury.picoctf.net 16524"

```
root@LAPTOP-B22FTJC2:/mnt/c/Users/Bruger# nc mercury.picoctf.net 16524
```

Press enter and then your terminal should look something like this:

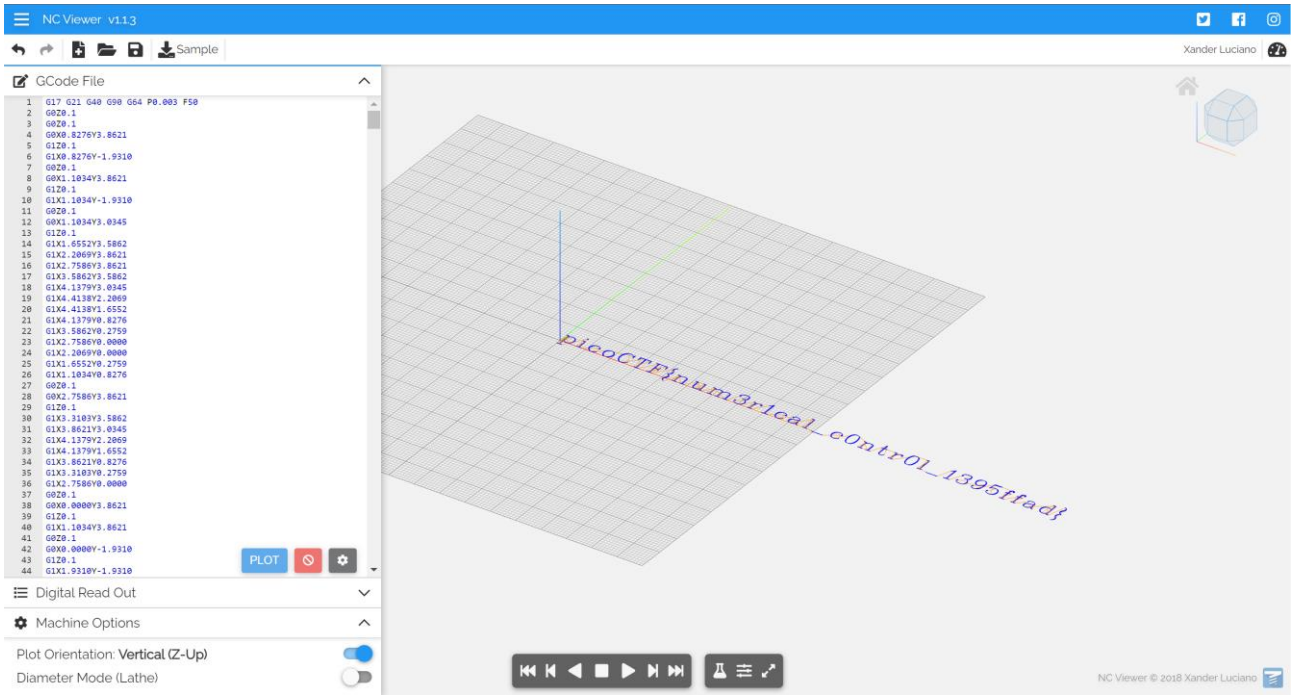
```
G1X195.4483Y6.0690
G1X195.4483Y5.5172
G1X195.1724Y4.9655
G1X194.8966Y4.6897
G1X194.6207Y4.1379
G1X194.6207Y3.5862
G1X194.8966Y3.0345
G1X196.0000Y2.4828
G1X194.8966Y1.9310
G1X194.6207Y1.3793
G1X194.6207Y0.8276
G1X194.8966Y0.2759
G1X195.1724Y0.0000
G1X195.4483Y-0.5517
G1X195.4483Y-1.1034
G1X195.1724Y-1.6552
G0Z0.1
G0X195.4483Y2.2069
G1Z0.1
G1X194.8966Y1.6552
G1X194.8966Y1.1034
G1X195.1724Y0.5517
G1X195.4483Y0.2759
G1X195.7241Y-0.2759
G1X195.7241Y-0.8276
G1X195.4483Y-1.3793
G1X195.1724Y-1.6552
G1X194.6207Y-1.9310
G0Z0.1
```

Now if you try to scroll up, you will notice that there is a lot of lines that look like this. After doing some research on google, I found that it was g-code, and it was coordinates for something like an engraving machine. Now all you had to do was copy the code and put it into a g-code view tool online. I used https://ncviewer.com/

Then just paste the output into the box that says “GCode file” like this:

And then hit “PLOT”

Now you should see this:



Here we can see the pattern that the GCode forms, and the pattern is the flag.

The flag was: picoCTF{num3r1cal_c0ntr0l_1395ffad}