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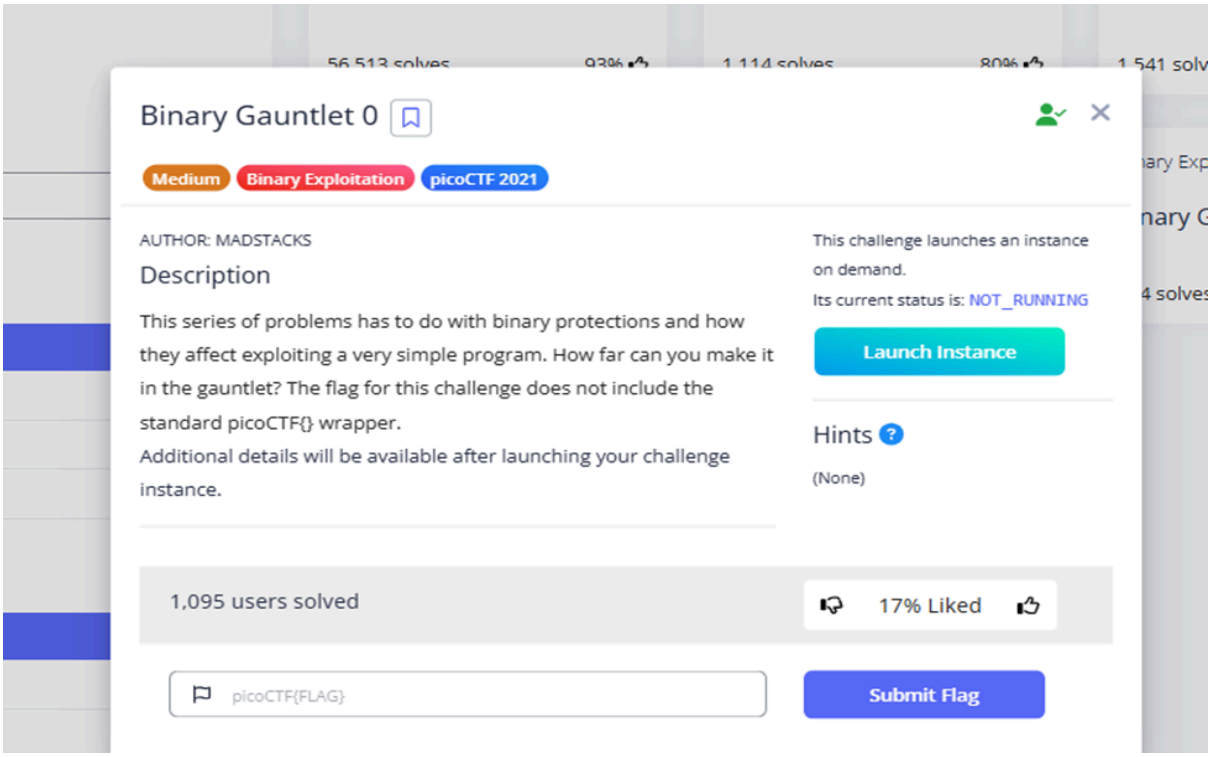
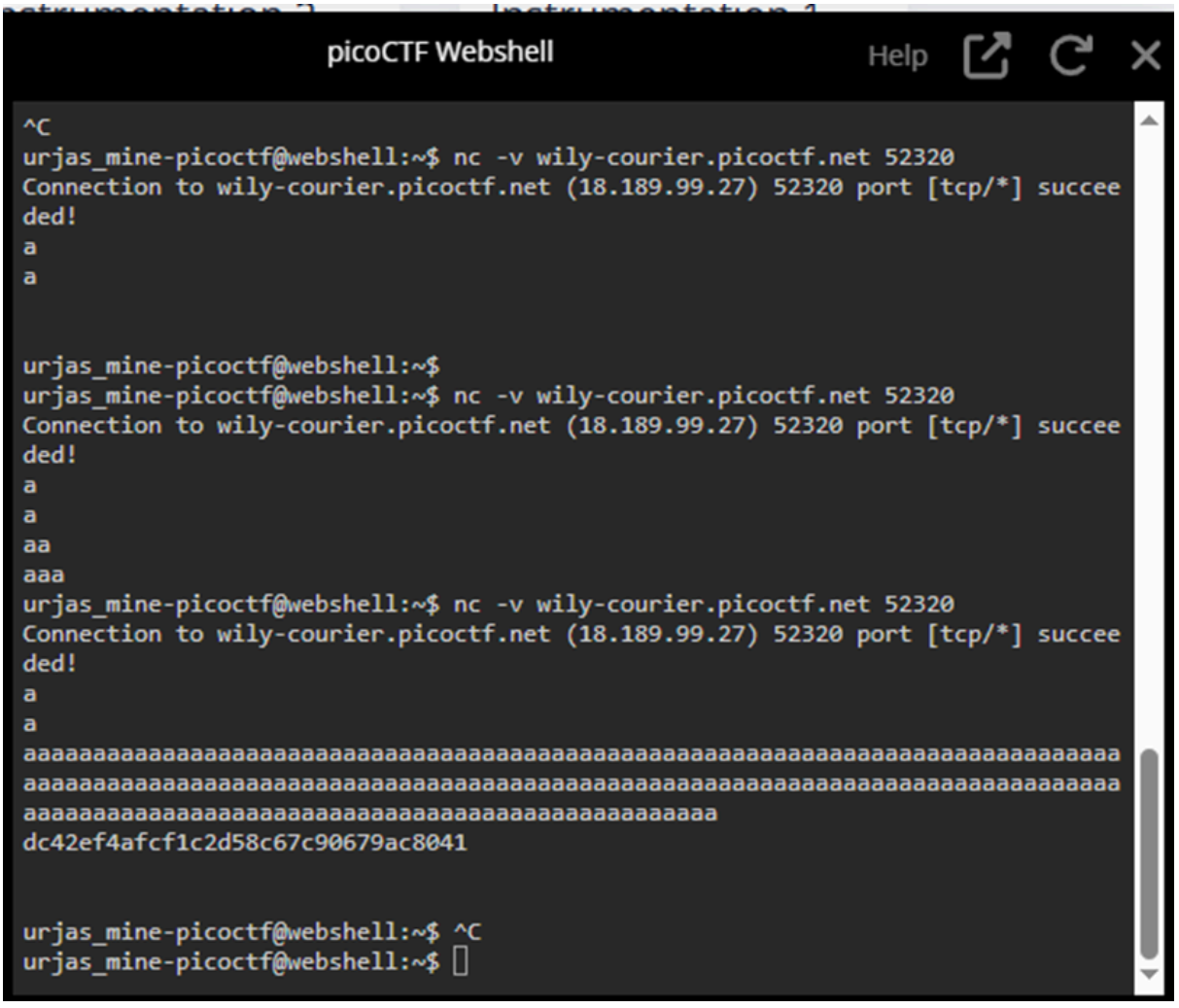
[picoCTF - picoGym Challenges]





Write-Up: BINARY GAUNTLET 0

When I first opened the challenge, I saw that it was a binary exploitation problem with a simple program and a connection string to a remote server. My instinct was to peek inside the binary with Ghidra, and sure enough, the `main` function revealed two interesting things: it read the flag into memory, and it set up a custom segmentation fault handler that would print the flag if the program crashed. That was the key I didn't need to build a complicated exploit chain, I just needed to make the program crash.

Looking closer, I noticed two user inputs. The first one was printed with `printf(local_10)`, which hinted at a format string vulnerability, but the second input was even more promising. It was copied into a buffer of size 108 using `strcpy`, which doesn't check bounds. That meant if I sent more than 108 characters, the buffer would overflow, the program would crash, and the signal handler would dutifully print the flag.

With that plan in mind, I connected to the challenge server using netcat:

```
nc -v wily-courier.picoctf.net 52320
```

The connection succeeded, and the program waited for input. For the first prompt, I just typed a single `a` and hit Enter. Then came the second prompt — this was the moment to trigger the crash. I pasted in a long string of `a`s, well over 108 characters, and pressed Enter. The program immediately crashed, and just as expected, the signal handler printed out a hexadecimal string. That string was the flag.

In my run, the flag was:

dc42ef4afcf1d2d58c67c99679ac8041

I copied it and submitted it, and the challenge was solved.

Reflection

What made this challenge fun was how straightforward the vulnerability was once you spotted the signal handler. Instead of trying to hijack execution or build a ROP chain, the exploit was simply to crash the program. It’s a reminder that in CTFs, sometimes the simplest path is the intended one.