COMPSCI-561-CTF

Ye Kai

April 2023

1 Introduction

1.1 Concept

As a contemporary software developer, the usage of *console.log* to display program output and data during iterations is commonplace. While effective for debugging purposes, it necessitates a tedious and effortful inspection of every line of the output message. This issue gave rise to the central idea of my Capture The Flag (CTF) challenge, which involves concealing the flag within the conventional debug information and prompting users to approach the challenge by reversing their typical debugging strategy. To facilitate this cognitive shift, I guide users towards a paradoxical situation by posing questions on *Node.js* debugging, leading them to consider incorrect solutions, such as port switching, which would not yield the desired outcome for the given flag.

1.2 How to Achieve

The machine will deploy a JavaScript file through *Node.js* and host on port 3000, which users can access. In order to unlock the flag, users must answer two debugging-related questions regarding Node.js debug port. Upon providing correct answers to both questions, the flag will be outputted to the browser console through *console.log*, and can subsequently be found by inspecting the HTML page.

2 How to Solve My CTF

Debugging-related questions with answers:

- If this web page application is running by Node.js what is the Debug port for Node.js?: 9229

- What type of port is the Debug port for Node.js?: TCP

Users are able to get the answers of those question via google. If the user got the question wrong the program will alert user as Figure a.

(a) Alert Incorrect

When user got the question correct, the question will change it text to correct as Figure b.

Correct!
What type of port is the Debug port for Node.js? [   ] submit!
Flag!

(b) Correct display

When user click the *Flag!* button without getting both of the questions correct, the program will alret user as Figure c.
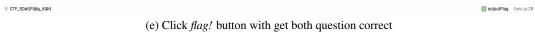
Correctly answer above questions first!

(c) Click *flag!* button without get both question correct

When user click the *Flag!* button with etting both of the questions correct, the program will alret user as Figure d. Which is a **HINT** for where user should find their flag at.

As a modern programmer where do you see the debug output??

(d) Click *flag!* button with get both question correct

After user click the *Flag!* button with etting both of the questions correct, user able to find their flag in their browser console as Figure e.

CTF_SDat{Fl@g_K@i}   outputFlag — func.js:29

(e) Click *flag!* button with get both question correct