

LyonCTF

Procedures, Rules, and Contacts

Contents

1	Introduction	1
2	Contest Procedure	1
2.1	Registration	1
2.2	Main Contest Information	1
2.2.1	Problem Format	2
2.3	Practice Contest Information	3
2.3.1	Problem Format	3
2.4	Contest Access	3
2.5	Competitors	3
2.6	Competitor Workstation	4
2.7	Submitting	4
2.8	Scoring	4
2.9	Scoreboard & Results	5
2.9.1	Awards & Prizes	5
2.10	Clarifications	5
3	Rules	6
3.1	External Resources	6
3.2	Spam	6
3.3	External Communication	6
3.3.1	Examples	6
4	Contact	7
5	Websites	7
6	Team	8

1 Introduction

The LyonCTF contest is a cybersecurity competition known as a *capture the flag* contest in which teams of students across Ontario will battle it out with their skills in digital forensics, website and application exploitation, reverse engineering, and cryptography. It is designed to have a low barrier to entry, enabling newcomers to gain experience and knowledge in an enjoyable, cooperative way.

This contest is organized by the [Mackenzie Computer Programming Team](#), a group of dedicated individuals interested in computer science and related fields, from the [William Lyon Mackenzie Collegiate Institute](#) secondary school in Ontario, Canada.

We are also excited to announce that this competition has \$250 worth of prizes, generously sponsored by the [Educational Computing Organization of Ontario](#).

2 Contest Procedure

2.1 Registration

Registration is open to all students 13 years of age or older currently enrolled in a primary or secondary school in Ontario, Canada.

All students who wish to compete must each register for an **account**, before the end of the contest window, at ctf.mcpt.ca/signup.

Multiple students may form a **team** on the platform which will allow them to compete together.

Registration must be done by Wednesday, February 16th at 11:59 PM EST to be eligible for prizes. Registering earlier is *highly recommended* to allow for some time to solve any issues and have access to the Practice Contest described in 2.3

2.2 Main Contest Information

The LyonCTF Contest will be run online from Friday, February 18th, 2022 at 12:00 PM (noon) EST to Monday, February 21st, 2022 12:00 PM (noon)

EST.

This contest will consist of 20+ problems which will be accessible online within the seventy-two hour time span. It is possible to join the contest at any point throughout its duration, though joining earlier provides more time to view and solve the problems.

Neither alternative dates nor additional contest time will be provided under *any* circumstances.

Due to logistical issues, teacher supervision is not required during the contest period.

2.2.1 Problem Format

The following outlines the categories of problems and their estimated difficulties for the problems in the main contest:

- **Forensics:** using a variety of tools to find hidden data.
- **Cryptography:** involves decrypting data or attacking encryption methods.
- **Reverse Engineering:** figuring out the functionality of a given executable or piece of code.
- **Web Exploitation:** gaining access to a flag with any kind of web technology.
- **Binary Exploitation:** finding vulnerabilities within a native application to exploit.

At least 2 problems per category will be of a commonly seen, introductory level, with the rest ranging in difficulty.

All problems will contain a description which, in varying levels of detail and abstractness, describes what must be done to retrieve the flag. Some problems will provide files to download, others will provide a URL to visit, and others may require making a connection with a tool like netcat to reach a service.

A help/tutorial page located at ctf.mcpt.ca/help will be provided alongside the Practice Contest outlined in section 2.3 for competitors to get familiar

with the problem format.

2.3 Practice Contest Information

Students will be able to compete in a practice contest at any point between February 11th, 2022 at 6:00 PM EST and February 13th, 2021 at 6:00 PM EST.

The practice contest will consist of six (6) problems and will attempt to mirror the conditions of the main contest.

Participation in the practice contest is not a requirement to participate in the Main Contest described in section 2.2.

2.3.1 Problem Format

The practice contest will consist of only one (1) problem for each category in the main contest. These problems will be of equivalent difficulty to introductory problems in the main contest.

2.4 Contest Access

Competitors will access the contest at ctf.mcpt.ca. This site will be used for accessing contest problems and submitting flags. A public, ranked scoreboard will also be accessible through this website.

In order to familiarize themselves with the platform, the competitors are highly encouraged to participate in the practice contest.

2.5 Competitors

Competitors must compete **individually or in teams no larger than 5**, without assistance from others. Each competitor must create an account on the platform which shall be used for the competition. Those competing in teams must create a team on the platform and have all members join. All members of a team must be students at the same school.

2.6 Competitor Workstation

Because this contest will be held online, competitors are to compete from home. All devices including, but not limited to, computers, phones, monitors, keyboards, mice, and calculators are allowed during the contest.

Access to the internet is required for participation.

2.7 Submitting

Each problem contains a sequence of characters starting with `CTF{` and ending with `}` called a **flag**. It is up to the competitors to discover how to uncover this flag. A few problems may, due to their design, have a flag which does not start with `CTF{` and end with `}`; such problems will have a notice in the description stating the format sought after instead.

Once the flag for a problem is discovered, it can be submitted on the problem's page.

There is no limit to the number of flags which may be submitted for each problem.

2.8 Scoring

Each problem will be assigned a score between 0 and 1000 points. Submitting a correct flag for said problem grants the competing individual or team this number of points. Neither submitting incorrect flags nor submitting correct flags more than once affect an individual's or team's score.

Final scores will be calculated by taking the sum of the points from correctly solved problems.

Ties will be broken based on the time of the last flag submission which changes the score of the competing individual or team. This condition means that submitting incorrect flags, or submitting correct flags more than once, will not affect a competitor's standing. The team with the earlier time will rank higher than the other.

2.9 Scoreboard & Results

The contest scoreboard will be publicly available and continuously updated on the platform. It will display the competitor's user or team names along with their total score. This scoreboard will include all competitors in the province.

Once results have been verified and all issues have been investigated, each school board will be ranked **separately**, with the corresponding results being released publicly. This gives participating school boards the option of providing prizes and other awards to students that rank highly in their community.

2.9.1 Awards & Prizes

Up to three hundred (300) Canadian dollars worth of prizes will be allocated as follows, split equally amongst the team members:

First Place : \$25 Amazon gift card per competitor

Second Place : \$20 Amazon gift card per competitor

Third Place : \$15 Amazon gift card per competitor

Digital participation certificates will also be provided to every competitor after the end of the competition.

2.10 Clarifications

If a competitor believes that there is an issue with a problem, they are to contact us as outlined in section 4.

If a clarification results in a change to problem data or description, a notice will be posted on the problem page.

This clarification system is **not** to be used for asking for help on the problem solution.

3 Rules

Competitors agree to, and must follow, the rules throughout the competition period. Failure to abide by these rules will result in immediate disqualification. If one has suspicions and/or evidence of cheating, please contact an organizer.

3.1 External Resources

Competitors may use any online or offline resources during the contest. This includes directly using programming templates, algorithms, and other source code directly in one's submission.

3.2 Spam

Excessive flag submissions to the platform or attempts made to overwhelm the contest platform or infrastructure will result in immediate disqualification from the contest.

Intensive brute-forcing directed at the contest infrastructure is not required for solving any of the problems.

3.3 External Communication

External communication with others, regardless of if they are participating in the contest or not, about the contest, is strictly prohibited and will result in immediate disqualification from the contest.

The publishing or discussing of contest problems and/or solutions with others through any form of communication is also strictly prohibited *during* the competition hours.

3.3.1 Examples

The following are **not allowed** in competition:

- Messaging friends on Discord, asking for help solving a problem.
- Posting a contest problem on stackoverflow.com.
- Answering another competitor's request for help on a problem.

Note that this is not an exhaustive list.

4 Contact

For any questions about the LyonCTF Contest please email lyonctf@mcpt.ca.

Examples of possible email topics (not an exhaustive list):

- Questions about or issues with registration.
- Requests for accommodations (efforts for accommodation will be made, given sufficient notice).
- Technical issues regarding the contest, contest platform, or contest problems.

A community Discord has also been organized which can be joined with this invite link: ctf.mcpt.ca/discord

5 Websites

The following is a list of websites (and descriptions) that are significant for the 2021 ECOO programming competition:

- ctf.mcpt.ca Contest platform. Where general information and updated will be published, and where problem statements can be accessed and submissions made.
- ctf.mcpt.ca/signup Registration form for the contest.
- ctf.mcpt.ca/help Help/tutorial page introducing the various types of CTF challenges.
- ctf.mcpt.ca/discord Invite link to community Discord server.
- ecoo.org The main website of this contest's prize sponsor, the Educational Computing Organization of Ontario.
- ctf101.org A good introduction to the various types of CTF challenges.

6 Team

Valentina Krasteva Staff Supervisor

Steven Guikal Problem Setter, Supervisor

Ivy Fan-Chiang Problem Setter, Platform Maintainer

Paul Lee Problem Setter, Platform Maintainer

Ken Shibata Problem Setter, Platform Maintainer

Celeste Luo Problem Setter, Platform Developer

Justin Lu Problem Setter, Marketing Manager

Matthew Li Problem Setter

Joshua Liu Problem Setter

Nathan Lu Problem Setter

Larry Yuan Problem Setter

Kenneth Ruan Problem Tester

Alisa Wu Graphics Designer

Chelsea Wong Graphics Designer

Andrew Forgrave Treasurer of ECOO